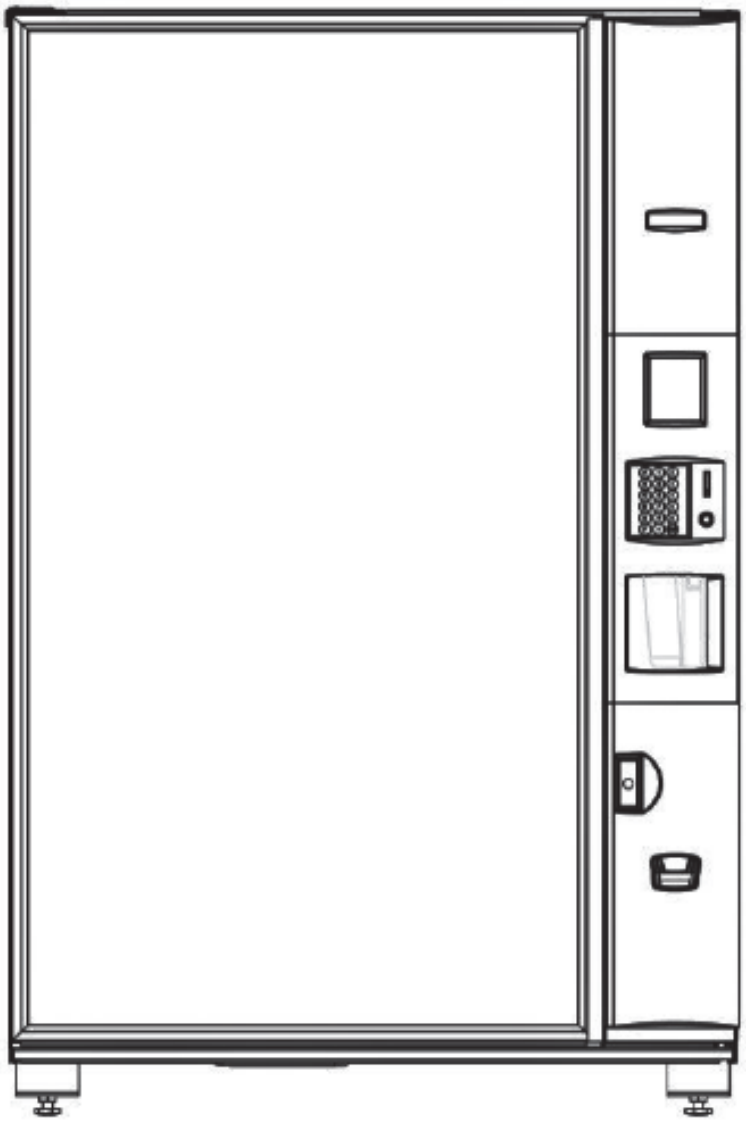
CRANE MERCHANDISING SYSTEMS

BevMAX Refresh
Operations Guide

Models 5800-4 / 3800-4
Models 5800-4HC / 3800-4HC



Pepsi / Generic
Operations/Service
Troubleshooting
Guide

402692 REV 01

CRANE

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Cautions & Warnings

A Generic Warning.

High Voltage Warning / Electrical Warning Danger electricity, electric shock.

Hazard Warning: Beware of moving machinery – Entanglement hazard. Keep hands, loose clothing, and long hair away from moving parts.

If the vender is equipped with a refrigeration unit containing R290 refrigerant, the following warnings and procedures will apply:

DANGER: Propane gas (R290) is flammable, odorless gas. While working on a machine, no smoking and no open flames should be permitted.

The charge amount in this machine is 114 grams of R290 refrigerant. The lower flammability limit (LFL) of R290 is 38 grams. At three times the LFL (3 x 38g = 114g), this machine meets all applicable UL and ASHRAE placement conditions

Use caution when handling, moving, and use of the vender to avoid either damaging the refrigerant tubing, or increasing the risk of a leak. Do Not Puncture Refrigerant Tubing or use any tools in the vicinity of the exposed tubing.

CAUTION: Propane gas (R290) is heavier than air and odorless. It may displace oxygen and cause rapid suffocation. In the event of an accidental release, evacuate, then ventilate the area. Do not permit any ignition sources to approach until the area has been safely ventilated.

Servicing shall be done by factory authorized service personnel who have been properly trained so as to minimize the risk of possible ignition due to incorrect parts or improper service, including the use of proper parts.

GENERAL INFORMATION

VENDER SAFETY PRECAUTIONS

Please read this manual in its entirety. This service information is intended for use by a qualified service technician who is familiar with proper and safe procedures to be followed when repairing, replacing or adjusting any Crane Merchandising Systems vendor components. All repairs should be performed by a qualified service technician who is equipped with the proper tools and replacement components, using genuine Crane Merchandising Systems factory parts. This Vendor should only be used by those individuals that have a clear understanding of how to operate a vending machine in a safe manner.

REPAIRS AND/OR SERVICING ATTEMPTED BY UNQUALIFIED PERSONS CAN RESULT IN HAZARDS DEVELOPING DUE TO IMPROPER ASSEMBLY OR ADJUSTMENTS WHILE PERFORMING SUCH REPAIRS. PERSONS NOT HAVING A PROPER BACKGROUND MAY SUBJECT THEMSELVES TO THE RISK OF INJURY OR ELECTRICAL SHOCK WHICH CAN BE SERIOUS OR EVEN FATAL.

PRODUCT IDENTIFICATION

First production of BevMax Refresh 4 5800-4/3800-4 Domestic and BevMax Refresh 4 5800-E4/3800-E4 Export Venders with new electronics platform was May 2020. The production date of Crane Merchandising Systems products is now determined by the date code incorporated in the serial number.
The Machine serial number incorporates the build date, in the format:

11yymmddxxxx

11 indicates the BevMax model, yymmdd is the year, month, & date of production, and xxxx is a sequential build number.

CE Mark & IIA DECLARATION

An updated CE Mark or IIA Declaration document can be provided upon request: If needed please contact Technical Support Manager in Williston, SC by email service@cranems.com.

PHYSICAL CHARACTERISTICS

BEVMAX REFRESH	5800-4 5800-E4 5800-4HC	3800-4 3800-E4 3800-4HC
HEIGHT	72” (182.88 cm)	72” (182.88 cm)
WIDTH	47” (119.38 cm)	39” (99.06 cm)
DEPTH CABINET	32” (81.28 cm)	32” (81.28 cm)
DEPTH WITH SERVICE DOOR	33.5” (85.09 cm)	33.5” (85.09 cm)
BASE	3.5” (8.89 cm)	3.5” (8.89 cm)
SHIPPING WEIGHT	720 lbs. (326.59 kg)	TBD lbs. (TBD kg)
Noise Level	Operates at 65db.	
Glass door width is 37.5” (95.25 cm) 5800’s, 28.1” (71.37 cm) 3800’s, height is 68” (172.72 cm) both.		

INSTALLATION & SETUP

RECEIVING INSPECTION

DO NOT STORE THE VENDER OUTSIDE.

Upon receipt, inspect the Vender for any shipping damage. If there is any damage, have the delivery driver note the damage on the bill of lading and notify Crane Merchandising Systems Customer Service. Although the terms of sale are FOB shipping point, which requires the consignee to originate shipping damage claims, Crane Merchandising Systems will gladly help if you must file a claim.

UNPACKING THE VENDER

Remove the stretch wrap, fiberboard edge protectors and corrugated front protector from the outside of Vender.

Do not store the Vender with stretch wrap on. Stretch wrap could bond to the Vender’s surface, which could damage the finish.

Remove the shipping boards from the bottom of the Vender. The shipping boards are attached by the leveling legs. To avoid unnecessary damage to the leveling legs or base, remove the shipping boards by using a 1-1/2 inch or 38 mm socket type wrench to unscrew the leveling legs. Be sure to replace the legs after removing the shipping boards. Once the skid boards are removed there is 3” (7.62 cm) from base flange to the floor with the leveling legs screwed all the way in.

Once the Vender is unpacked, check the “B” Tray area for any additional parts, labels, or other information concerning factory-equipped accessories such as Coin Mechanism, Bill Acceptor and Cashless Devices.

It is recommended the Vender be vend tested before shipping to the location. See INITIAL PROGRAMMING section of this guide, “Test Mode”, # 9 “Test Vend”.

WARNING: TO AVOID THE POSSIBILITY OF A FIRE HAZARD, DO NOT STORE ANYTHING OR ALLOW DEBRIS OF ANY KIND TO ACCUMULATE IN THE BOTTOM OF THE SERVICE AREA, IN AND AROUND THE REFRIGERATION COMPARTMENT OF THE CABINET, OR IN FRONT OF THE EVAPORATOR AND CONDENSER COILS.

WARNING: ENSURE THAT POWER IS DISCONNECTED FROM THE VENDER BEFORE INSPECTING OR REPLACING LAMPS, OTHER ELECTRICAL COMPONENTS, OR WORKING WITH OR ADJUSTING THE VENDING MECHANISM. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY SUBJECT THE USER TO THE RISK OF ELECTRICAL SHOCK OR MECHANICAL INJURY, WHICH CAN BE SERIOUS OR FATAL.

ELECTRICAL REQUIREMENTS

Refer to the Machine serial number plate to determine the correct voltage and frequency. In the US and Canada this is 120Vac, 60Hz, 1P. In Europe, Australia, and other export countries, this is 220/230/240Vac, 50Hz, 1P depending upon your country voltage. The serial plate also specifies the ampere rating of the Machine. This Machine must be plugged into a properly rated receptacle with its own circuit protection (fuse or circuit breaker).

Equipment Nominal Power Requirements -
120V / 10.2 A = *1224W (1.224kw)
220V / 5.8 A = *1276W (1.276kw)
240V / 5.8 A = *1392W (1.392kw)
*Note: Watts = V x A

POWER SUPPLY CORD and GROUNDING REQUIREMENTS

In accordance with the National Electrical Code and Underwriters Laboratories Inc., Domestic Vending Machines are equipped with a three-wire Power Supply Cord and Ground Fault Circuit Interrupter (GFCI). The GFCI device is provided as part of the Power Supply Cord and is either incorporated directly into the plug or mounted on the cord adjacent to the plug.

WARNING

- The **GFCI** protects against current leakage caused by ground faults. The GFCI is not designed to protect against over current or short circuits.

- **DO NOT** use the TEST and RESET buttons on the GFCI as an ON/OFF switch.
- The Vending Machine supply cord **MUST** be plugged directly into a properly grounded, 3 wire receptacle that is properly protected by a fuse or circuit breaker. If the receptacle will not accept the power cord plug, it must be replaced with a properly grounded, 3 wire receptacle in accordance with the National Electrical Code and Local Codes and Ordinances. The work should be done by a qualified electrician.
- **DO NOT USE A 3 WIRE TO 2 WIRE ADAPTOR.**

DO NOT REMOVE THE GROUND PIN ON THE PLUG OR IN ANY WAY BYPASS, MODIFY, DEFEAT, OR DESTROY THE GROUNDING SYSTEM OF THE VENDING MACHINE.

DO NOT USE WITH AN EXTENSION CORD!

DO NOT REMOVE THE WARNING TAG ATTACHED TO THE POWER SUPPLY CORD.

The GFCI must be tested frequently and before each use in accordance with the instructions provided on the GFCI device. **IF THE GFCI DOES NOT PASS THE TEST, DO NOT USE THE MACHINE**. Unplug the supply cord from the receptacle and call the Crane Merchandising Systems Technical Support Group for assistance at 1-803-266-5001. It is recommended that the Machine be located so that the GFCI device will be accessible after the Machine is installed. After installation, visually inspect the GFCI and power supply cord to be sure it is not crushed, pinched, or stretched. Protect the power supply cord during transportation and use. Periodically inspect the power supply cord for damage. If the cord or plug is worn or damaged, it must be replaced with a power supply cord of the same type, size and specification as originally provided with the Machine.

DO NOT USE THE VENDING MACHINE UNTIL THE WORN OR DAMAGED CORD IS REPLACED.

FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY SUBJECT THE USER TO THE RISK OF INJURY OR ELECTRICAL SHOCK WHICH CAN BE SERIOUS OR FATAL. PERIODICALLY INSPECT THE POWER SUPPLY CORD FOR DAMAGE. IF THE CORD BECOMES DAMAGED IT MUST BE REPLACED WITH THE SAME SIZE AND TYPE CORD. CONTACT CRANE MERCHANDISING SYSTEMS FOR ASSISTANCE.

PRIOR TO INITIAL POWER UP

Open the Service Door on the right side using the Key provided in the coin return cup, or if shipped with a locking clip, remove the clip and install the lock. Ensure there is no power to the AC Distribution Box. On Venders with a main power switch on the AC Distribution Box the switch needs to be in the OFF position. On Venders with a main power quick disconnect plug on the AC Distribution Box the quick disconnect plug needs to be unplugged. Check that all connectors are firmly seated on the Vending Machine Control Board (VMC) and at the various Cabinet Peripheral Control Boards:

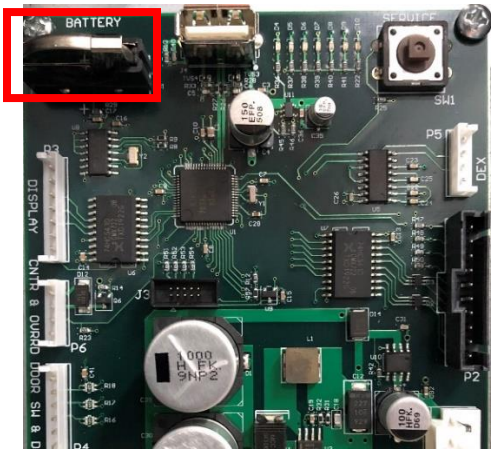
- Environmental Board
  - Refrigeration control
  - Lighting control
- Port Board
  - Port Motor
  - Port Product Sensor
- Cup Motor Board
  - Cup Motor
  - Cup Product Sensor
- X Motor Board
  - X Motor
- Y Motor Board
  - Y Motor

Retrieve the main power plug from the hole in the rear of the Vender and plug the cord in a properly grounded 120VAC, 15 Amp receptacle (U.S. and Canada). Open the Service Door and apply power to the AC Distribution Box (if equipped with a Bill Acceptor, the Acceptor should cycle twice). The Display on the door will briefly show the software version in use as "Software ###.## (i.e. 006r00) followed by the model number followed by the default idle message "ENJOY A REFRESHING DRINK", the LED Light Assemblies should be lit and the cooling unit should start. If the Display shows "OUT OF SERVICE", or the cooling unit fails to start, refer to the TROUBLESHOOTING SECTION of this guide.

SERVICE NOTE

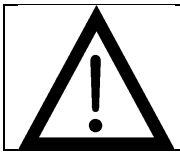
Battery Backup

The battery backup located on the VMC is used to maintain the date and time in case of power interruptions or any time the main power is off.



PLACING THE VENDER ON LOCATION

!! CAUTION !!



DO NOT TRANSPORT THE VENDER TO OR FROM THE LOCATION LOADED WITH PRODUCT OR DAMAGE TO THE VENDER MAY RESULT.

The Vender is intended for **INDOOR USE ONLY.** It should be kept out of direct sunlight and away from any heat source. This Machine is not suitable for installation in an area where a water jet or hose and nozzle may be used.

The Vender must be on a solid, flat and level surface. Ensure the flooring can bear the weight load of a fully loaded Vender (approximately 1109 lbs. or 503 kg). The Vender must be positioned close enough to an electrical outlet so that an extension cord is not required. If the Machine will be subject to user misuse or vandalism, it is recommended that the Vender be secured to the floor or wall as described in Crane Merchandising Systems Technical Bulletin 344. Due to the large size and weight of the Vender, never attempt to move the Vender with a Hand Truck or Stair Climber. Use a pallet jack or Vender/Cooler Dollies at all times when moving the Vender. The Vender should never be slid or pushed in place. Never side load the leveling legs; doing so will cause damage to the legs. Do not transport the Vender to or from customer locations loaded with product, as damage may result due to excessive weight. Be sure to test Vender for proper operation before putting in to service on location. Call the Crane Merchandising Systems Technical Service Department or your Crane Merchandising Systems Representative for assistance.

ACCEPTABLE AMBIENT OPERATING TEMPERATURE RANGE

BevMax Refresh 4 Models 5800-4/3800-4 equipment manufactured by Crane Merchandising Systems is designed to work properly in a temperature range of 75°F to 90°F (23°C to 32°C) 65% R.H. non-condensing.

LEVEL THE VENDER

Adjust the front leveling legs, ensuring that an even gap exists between the glass door and the top security angle and receiver box, and then level the Machine front to rear. A carpenter's level will help verify that the Vender is level. Leveling legs are adjusted using a wrench or socket 1 ½" or 38 mm in size. If the Vender is to be used in a bank of equipment, check the top and sides for proper alignment. If you are unable to properly level the Vender, select an alternate location. NEVER PLACE OBJECTS UNDER THE LEVELING LEGS OF THE VENDER.

DANGER

THE VENDER MUST BE PROPERLY LOCATED AND LEVELED. IF THE MACHINE WILL BE SUBJECT TO USER MISUSE OR VANDALISM IT IS RECOMMENDED THAT THE VENDER BE SECURED TO THE FLOOR OR WALL AS DESCRIBED IN CRANE MERCHANDISING SYSTEMS TECHNICAL BULLETIN 344 TO MINIMIZE THE RISK OF INJURY OR DEATH FROM TIPPING. CALL THE CRANE MERCHANDISING SYSTEMS TECHNICAL SERVICE DEPARTMENT OR YOUR CRANE MERCHANDISING SYSTEMS REPRESENTATIVE FOR ASSISTANCE.

LOCATE THE VENDER

Do not block the rear of the Vender. Maintain a minimum of 4 inches (10 cm) from the wall to ensure adequate airflow through the condenser and compressor. At the rear of the Vender, make sure nothing obstructs the air exhaust at the back of the Machine.

WARNING

TO AVOID THE POSSIBILITY OF A FIRE HAZARD, DO NOT STORE ANYTHING OR ALLOW DEBRIS OF ANY KIND TO ACCUMULATE IN THE BOTTOM OF THE MACHINE, IN THE BOTTOM OF THE SERVICE AREA, IN AND AROUND THE REFRIGERATION COMPARTMENT OF THE CABINET, OR IN FRONT OF THE EVAPORATOR AND CONDENSER COILS.

INSTALLING PRICE LABELS

Pricing labels when ordered will be included with additional parts, labels, and information placed in Tray "B" during shipment. Remove the pricing label sheets from the Tray and gently remove the label corresponding to the vend price of each selection by tearing at the perforation. The label is installed at the top of the front knuckle. Once installed, push the label firmly against the front of the knuckle. This will insure the label is locked in place.

INSTALLING PRODUCT ID CARDS

To assist with consistent loading, product ID cards can be installed in the product pusher to designate to the route driver which product the column is set for. To install the flavor card, simply detach it from the sheet at the perforation and slide it into the slots in the product pusher. Contact your graphics supplier to purchase as needed.

COIN CHANGERS & OTHER ACCESSORIES

The Vender can have an MDB Coin Changer installed and can have an MDB Bill Acceptor installed as well. Note: BevMax Refresh 4 Models 5800-4/3800-4 will work with an MDB Bill Acceptor only. If the MDB Coin Changer and other MDB accessories are not factory installed, refer to the instructions received from the manufacturer of the MDB Coin Changer and other MDB accessories for proper set-up and installation.

The Vender will support the following Domestic MDB Coin Changers:

All available CPI/MEI MDB
All available Conlux MDB
All available NRI MDB
All available Coinco MDB

The Vender will support the following Domestic MDB Bill Acceptors:

All available CPI/MEI/Mars MDB
All available Conlux MDB
All available Cashcode MDB
All available Coinco MDB

The Vender will support MDB Card Readers.

The Vender supports Swipe/Tap for Cashless Vending.

"Select then Pay" workflow for purchasing product is also implemented for both Cash and Cashless operations.

SETTING THE TEMPERATURE CONTROL

This Vender is equipped with an electronic Encapsulated Temperature Sensor. Defrost is controlled both electronically based on run time of the compressor and with a manual Defrost Thermostat. The Temp Sensor is factory pre-set to maintain a cabinet temperature of 37º Fahrenheit (2.7ºC). It is also a good practice to ensure the proper operating temperature prior to installing the Vender on location. To set the temperature, apply power to the Vender and allow it to run for several hours with the glass door closed or until the minimum cabinet temperature is achieved. Then, using the method below, verify the temperature inside the Machine.

With an electronic Encapsulated Temperature Sensor, use the Keypad on the Service Door to show cabinet temperature in Fahrenheit by pressing the F Key followed by the asterisk (✻) Key or in Centigrade by pressing the C Key followed by the asterisk (✻) Key. The temperature will be shown on the digital Display located on the front of the Service Door.

The manual Defrost Thermostat is located in the bottom left of the service area. The Defrost Thermostat is preset and is not adjustable.

LOADING THE VENDER

CAN/BOTTLE DRINK TRAYS

The BevMax 4 5800-4/3800-4 Vender does not require spacers or shims to vend most packages. Load product in each column one package at a time insuring that the package being loaded is in front of the product pusher. Insure that the package is stable within the column (doesn't move excessively from side to side). After loading the Vender, test vend each column to insure proper operation. Please contact a Service Representative or refer to the proper Technical Publication for any special settings you may need.

LOADING COIN CHANGER TUBES

The Coin Changer tubes can be loaded using one of the following methods:

1. Load the Coin Changer with coins to the desired level by inserting coins in the loading slots on the coin tube front.
   Minimum coin tube levels are:
   6-8 nickels
   7-8 dimes
   5-6 quarters
   Note: A low coin level in the coin tubes will interfere with operation of the Bill Acceptor.
2. For exact cash accountability and to insure maximum dollar bill acceptance, load the Coin Changer utilizing the coin insert slot on the front of the Vender while in the coin TUBE FILL/DISPENSE mode in the Test Mode. Refer to the INITIAL PROGRAMMING section of this guide for more information.

For additional information about Coin Mechanism, refer to the manufacturer's instructions.

R290 SERVICE NOTES

• The serial tag on an R290 machine will identify it as containing R290 refrigerant.
• Multiple warning labels describing **Cautions** and **Warnings** have been placed on various locations on and within the machine.
• The process tubes on the refrigeration deck are **red** indicating it contains R290.
• The drain pan on R290 refrigeration decks are **green** identifying it as using a Green refrigerant.
• All motors within the refrigerated space are brushless motors and are **not** interchangeable with motors from BevMax machines using alternate refrigerants.

TECHNICIAN WORK PROCESS IN THE EVENT OF A REFRIGERANT LEAK IN AN R290 UNIT

If a complaint is received that a refrigerated unit containing R290 (Propane) is not chilling (drinks aren't cold, drinks don't get cold within x hours, etc.), any service work requires the proper precautionary steps in advance of approaching or servicing the machine.
Servicing shall be done by factory authorized service personnel who have been properly trained so as to minimize the risk of possible ignition due to incorrect parts or improper service, including the use of proper parts

These steps should be followed in the order in which they are provided here. No steps should be skipped.

1) Advise the location owner/operator that you will be on site performing service on the machine.
2) Scan the area for any potential sources of ignition and disable or eliminate them.
3) A plainly visible placard advising "No Smoking or Open Flame" should be positioned to be readily seen and obeyed by any local foot or vehicle traffic, including forklifts.
4) A properly rated fire extinguisher should be present, and available.
5) Turn on an appropriate leak detection unit for use w/ flammable gases. The detection device should remain functional for entire duration of the service event. If the service event requires removal of the refrigeration unit, the leak detector should remain operational until the refrigeration unit has been removed from the building.
6) As you approach the machine, sweep the lowest level of the floor, as propane is heavier than air, and will sink. Be aware of depressed pockets or spaces that might have collected residual gas after it has escaped.
7) If no gas is detected, the leak detector must remain operational, while the machine and/or unit is subjected to the troubleshooting process.
8) If minimal refrigerant gas is detected, a properly rated, ignition proof fan to circulate the air should be placed to provide ventilation or exchange of the air in the area around the machine, or bank of machines.
9) Using extreme caution, open the doors on the machine, one at a time, while continuing to hold the leak detector close to the floor. If a leak has occurred in the evaporator portion of the refrigeration units, any gas that has escaped, would be circulating in the chilled compartment. Exercise caution when opening the glass door as any gas will rapidly drop to the level of the floor.

THE REFRIGERATION UNIT IN THIS MACHINE DOES NOT CONTAIN ANY USER SERVICEABLE PARTS.

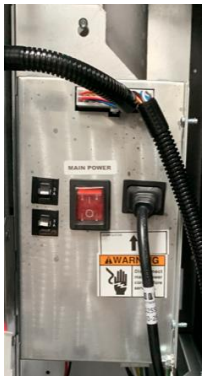
In the event of any failure the entire unit must be returned complete to Crane Merchandising Systems. Due to the presence of flammable refrigerant, ground shipment must be used for transportation only. Onsite repair of the sealed system, including evacuation of the unit, recharging, brazing, soldering or any other heat producing method, is **strictly prohibited**. These tasks must only occur in a facility specifically equipped to handle flammable refrigerants.

COMPONENTS

OMRON POWER SUPPLY 24V 150W

The New 24V 150W Omron Power Supply is located inside the service area, mounted to the back wall below the AC Distribution Box. It has 3 outputs with each one being capable of 150W. Two of the outputs are wired into the AC Distribution Box. Each of the outputs are fused at 75W by the circuit breakers in the AC Distribution Box Assembly. It contains a Board with Yellow Status Light that illuminates when power is present. This 24V 150W Omron Power Supply is common across all New Electronics Platform BevMax Refresh Domestic, Export, Classic (BevMax 4), and Media (BevMax 6) models. The Power Supply receives AC voltage via the AC Distribution Box. The Power Supply converts the AC voltage to the main operating DC voltages of the Vender (24VDC).

POWER AC DISTRIBUTION BOX



The AC Distribution Box is located inside the service area, mounted to the back wall above the Power Supply. It is where the 120VAC or 230VAC input voltage is sent to the Refrigeration Unit & Condenser Fan, Evaporator Fan, and Power Supply which converts the AC voltage to the main operating voltages of the Vender (24VDC). Those voltages are sent to the VMC via the P1 (4 pin) connector. It contains an independent Environmental Control Board for improved troubleshooting and to distribute AC power to the Compressor, Evaporator/Condenser Fans, and DC power to the LED Lighting and Encapsulated Temperature Sensor. The Compressor, two vertical side LED Light Strips, and the Encapsulated Temperature Sensor are not powered up when the Machine turns on. The Compressor turns on 2 minutes after the Machine is powered on. The two side LED Light Strips, Evaporator Fan, and Encapsulated Temperature Sensor turn on when the Environmental Control Board begins to communicate to the VMC (Vending Machine Controller). Two 3 Amp circuit breakers protect the 24VDC supply. One is for the Cabinet electronics and the other is for the Door electronics. This AC Distribution Box is common across all New Electronics Platform BevMax Refresh Domestic, Export, Classic (BevMax 4), and Media (BevMax 6) models.

VENDING MACHINE CONTROLLER & 5 CABINET PERIPHERAL CONTROLLERS

VMC (Vending Machine Controller) is the heart of the Vender and is located on the Service Door just above the Port Assembly behind the Keypad. It is USB flash programmable and updates all Cabinet Peripheral Control Boards which control all aspects of the Vender (includes AC Distribution Box Environmental Board, X Motor Board, Y Motor Board, Port Board, & Cup Motor Board). The VMC includes 7 Diagnostics lights providing information on operational status and where to focus problem solving efforts. All voltage in the VMC and Cabinet Peripheral Control Boards is 24VDC or 5VDC.

Environmental Board – controls the Refrigeration Unit & Condenser Fan, Evaporator Fan, LED Lighting, Encapsulated Temp Sensor, and 24VDC & 5VDC power distribution.

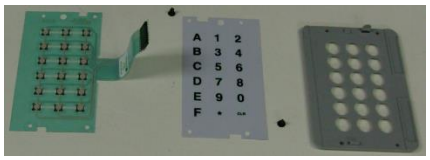
X Motor Board– controls X Motor movement and senses the X Home Switch signal.
Y Motor Board– controls Y Motor movement and senses the Y Home Switch signal.
Note: The X & Y Motor Boards are the same Board but with their own specific software.

Port Board – controls the Port Vend Sensor, Port Open & Close Sensors, & the Port Motor.

Cup Motor Board – controls the Delivery Cup Sensor, Picker/Plunger Home & Out Switches, and the Cup Motor. The Y Home Switch plugs into the Cup Motor Board and sends the switch signal on to the Y Motor Board.

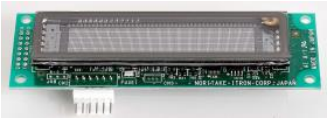
For the X Motor Board, Y Motor Board, Port Board, & Cup Motor Board the Green Status Light has various lighting patters that are used to indicate the status of the individual control boards. They include:
Power on / Reset – a slow brightening and then slow diming of the Green Status Light that takes 3 to 5 seconds to complete. This happens once each time the Board is powered on and/or reset. If the Green Status Light slowly brightens and dims continuously indicates the software was not loaded properly.
Heartbeat – a heartbeat of the Green Status Light starts right after the "power on / reset" indication and continues until the peripheral first receives a message from the VMC. Once a message is received from the VMC the heartbeat will not be shown again. Note: on a BevMax 4 Classic Machine, the heartbeat is almost never actually seen because the VMC starts talking to the Cabinet Peripheral Control Boards within a few seconds of powering on.
Fast blinking – a fast blinking Green status light (on and off 7 times per second) indicates that the Cabinet Peripheral Control Board is receiving communication from the VMC and sending a response. Note: Just because a response is being sent to the VMC doesn't necessarily mean the VMC is receiving it. There could be some defect that prevents the Cabinet Peripheral Control Board response from reaching the VMC.

KEYPAD



The Keypad is located on the front of the Service Door and plugs directly in to the VMC. It consists of a 6" X 3" (15.2 cm X 7.6 cm) matrix, tactile feel membrane switch pad and an overlay assembly. The Keypad utilizes the letters A thru F on the left side and numbers 1 thru 0 along with the "✵" symbol and "CLR" to the right. The Keypad is where the Vender programming is accomplished and where the consumers make their selections. This Keypad is different from the Keypad used in BevMax 4 Classic Venders prior to the BevMax Refresh 4 models.

DIGITAL DISPLAY

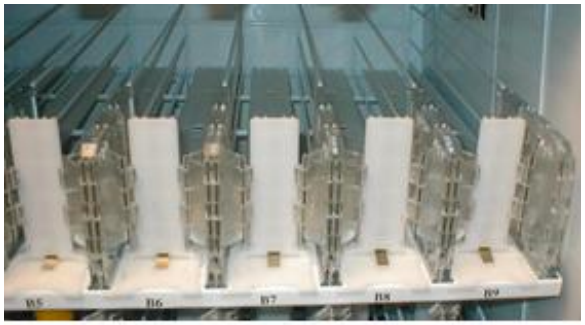


The Digital Display is located directly above the Keypad on the front of the Service Door. It is used to convey information to the consumer as well as to the person programming or servicing the Vender.

DELIVERY PORT ASSEMBLY

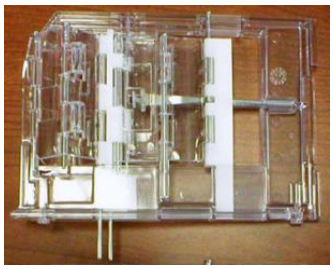
The Delivery Port assembly is located on the Service Door. Its purpose is to position the product in the assembly for the consumer to retrieve and to cancel vend. The Port Open and Closed Hall Effect Sensors located on the top of the Delivery Port have been implemented to eliminate moving parts that exist on mechanical switches to improve performance. The Brushed Port Motor, Hall Effect Open/Close Sensors, and Product Detection Sensor are driven by the independent Port Board.

SHELF / TRAY ASSEMBLY



Typically, there are 5 Shelf assemblies in every Vender; however, this may vary depending upon the configuration specified at the time of ordering. Each Can/Bottle Shelf consists of 9 or 7 columns as configured as of this publication. Each Shelf is capable of holding a variety of packages. The Shelf assembly consists of the Tray, where all of the following parts are mounted: Double Gate assembly and the Slide/Pusher assembly. These items are discussed in detail below.

DOUBLE GATE ASSEMBLY (Can/Bottle Trays)



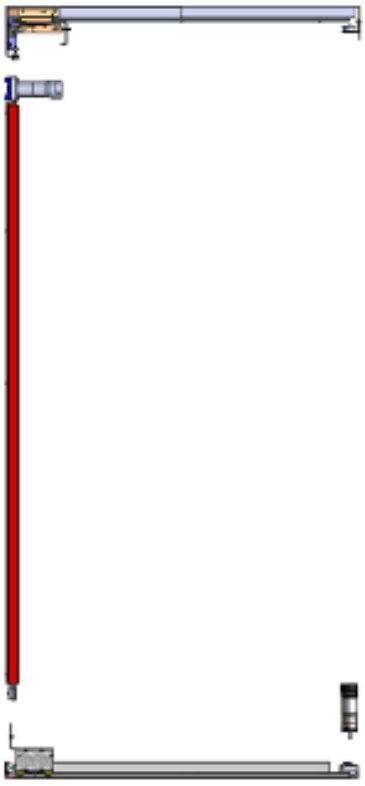
The Double Gate assembly is mounted on the front portion of the Tray assembly and contains the Vending Mechanism. Incorporated in the Gate Assembly are the front and rear knuckle assemblies as well as the product kicker. In standby operation, the front knuckle is in the blocking position, which holds the front displayed product in position to be vended. The rear knuckle assembly is in a flat position, which allows product to enter the Gate area, and the kicker is flush to the rear knuckle assembly. A stainless steel pin is inserted through the rear most portion of the front knuckle assembly and connects to a gear box below the Tray. When a selection is made, the plunger pushes the lever toward the back of the Tray. At the same time the front knuckle is opened into a flat position, the rear knuckle is closed to a blocking position, holding the remaining product out of the Gate area, and the kicker is extended to firmly push the front displayed product off of the Tray. The plunger is energized for approximately 1-½ seconds to allow ample time for the displayed product to be ejected from the Shelf. The plunger is then released and the front knuckle returns to the blocking position, the rear knuckle and kicker return to their standby position and the next product slides into the vend display position.

SLIDE/PUSHER ASSEMBLY *(Can/Bottle Trays)*

The Slide/Pusher assembly is located on the bottom of each product column. Its purpose is to provide a slick, friction resistant surface for the product to rest on. A tall Product Pusher is mounted on the top of the Slide and incorporates a coil spring in the body that attaches to the bottom of the Slide through a slit. This spring adds needed tension to insure that all products in the column remain tight against each other and are allowed to progress into the Gate area. Periodic cleaning and lubrication of the slides is recommended. **DO NOT USE SOLVENTS OR ABRASIVE MATERIALS TO CLEAN ANY PORTION OF THE TRAY.**

DELIVERY (PICKER) CUP ASSEMBLY

The Delivery (Picker) Cup assembly is located on the XY Vend Mechanism. Its purpose is to pick the product from the column and deliver the product to the Delivery Port Assembly. The Delivery (Picker) Cup Assembly is mounted on the Y Axis Assembly of the XY Assembly and bolts in position. The New Y Home Magnetic Switch located in the bottom of the Delivery Cup has been implemented to eliminate moving parts that existed on the previous mechanical switch to improve performance by eliminating Home Switch Errors caused by syrup and/or dirt build up in/on the mechanical Switch and Switch arm. The Delivery Cup Brushless Motor, Picker/Plunger Home & Out Switches, and product detection Sensor are driven by the independent Cup Motor Board.



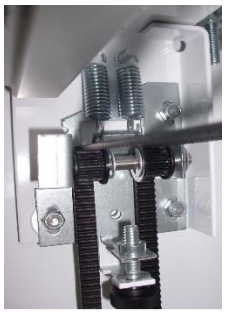
X AXIS

The X Axis runs horizontally or left to right. The X Axis assembly is Cabinet mounted to prevent any Cabinet torque and has one belt to synchronize the top and bottom when the XY Assembly moves left or right. A top channel is used to contain and hide the e-chain and wiring. The X Brushless 3 Phase DC Motor has an encoder for positioning and is driven by an independent X Motor Board.

Y AXIS

The Y Axis runs vertically or up and down and has the Delivery (Picker) Cup assembly attached. A Y Belt Cover is used to contain and hide the e-chain and wiring. The Y Brushless 3 Phase DC Motor has an encoder for positioning and is driven by independent Y Motor Board.

BELT TENSION ADJUSTMENT COMPONENTS



The Belt Tensioning Adjustment components have been revised to ease adjusting belts when needed. The X Belt Idler Tensioning Assembly in the upper left hand corner of cabinet now includes a thumb screw. Adjustments should only be needed if a belt is replaced. The Bottom X Drive Tensioner Assembly in the lower right hand corner of cabinet has a plastic spring loaded tensioning wheel to keep the belt against the pulley when moving and does not require any adjustments.

REFRIGERATION SYSTEM

The Refrigeration System is a single piece unit and is hermetically sealed. The Model BevMax 4 5800-4/3800-4 Refrigeration Units consist of a Super 1/3 horsepower Compressor, with a single fin and tube style condensing unit with one Condenser Fan, Condensation overflow Pan with Soakers, Evaporator, and Evaporator Fan. **The Models BevMax Refresh 4 5800-4HC/3800-4HC are charged with R290 refrigerant**. Both units will be clearly labeled to assist in identifying the refrigerant used. The Refrigeration Unit is located behind the Refrigeration Unit cover panels, mounted in the bottom of the Machine. This unit is designed for easy removal and replacement from the front of the Vender as a complete assembly. An electronic Encapsulated Temperature Sensor regulates the Machine temperature. The probe of the Temperature Sensor is attached to the Evaporator Coils and reads the temperature of air being pulled in to the Evaporator Coil.

REFRIGERATION DECK CLAMP ASSEMBLY

The Refrigeration Deck Clamp assembly is located on the left side of the Cabinet base plate. Its purpose is to secure the Refrigeration assembly tight against the vertical base plate for refrigerated air flow in to the Cabinet. A 7/16" wrench or socket is needed to adjust the bolt. The Refrigeration Unit also has a locating pin on the bottom of the Refrigeration Unit base plate to ensure alignment for Refrigeration gasket seal to the vertical base plate.

WIRING notes:

The Vender wire harnessing has been reduced and is less complex. This improves wire routing on the Service Door and the Service and Refrigerated Compartments of the Machine.

Simplified Harnessing to all 5 Cabinet Peripheral Control Boards with easily identified color coding.

- RS 485 Communication Harness A common signal line – white wire
- RS 485 Communication Harness B common signal line – blue wire
- 24VDC Harness – red/green wire
- 24VDC Harness – Red, Red/Blue, & Red/Black wires

- 24VDC Switched to Vertical Lights = Red/White wire
- 5VDC Harness – yellow wire
- 3.3VDC Encapsulated Temp. Sensor = Violet wire
- Ground Harness – black wire
- X Home Switch = Orange wire

- Dongle Harness will be used to set programming methods.
-

PROGRAMMING

GENERAL INFORMATION

In order to fully utilize the many features of your Vender it is important that you first understand the options available and procedures for programming the VMC (Vending Machine Controller).
All programming, testing, and service functions are accomplished by using the Keypad in an easy to follow, Display prompted format. In standalone operation there are four modes of operation for Servicing, Testing, and Setting up your Vender. The modes of operation are accessed by, opening the Service Door, and pressing the Service Button on the VMC.
The Service Button will cycle through each of the four modes in turn: Service Mode, Test Mode, Setup Mode 1 and Setup Mode 2. In each of these modes, the "A" Key is used to scroll through the available options/settings within that mode/selection. (Note: In each of the mode selections, pressing the character Key next to the listed option will take you directly to that feature - see menu items chart on page 21.) The "❋" Key is used as an Enter Key to select the currently Displayed item/feature, and the "CLR" Key is used as a Done or Exit Key. Closing the Service Door or activating the Service Door Switch (on the right side of Door Switch Bracket Assembly) will exit the function you are currently in and place the Vender back in service.
This guide explains the initial programming of the vender. For detailed information of the complete service menus available refer to the BevMax Refresh 4 Programming Guide.

EXTERNAL DISPLAY ITEMS (HOT KEYS)

Allows the service technician to view several items via the Display without opening the Vender. There are four options that can be viewed externally:

1. **Display Temperature in degrees "C" (Celsius)**. To view, press the "C" Key then press the "❋" Key. The Display will then show the Vender's inside temperature in degrees "C" (Celsius).
2. **Display Date/Time**. To view, press the "D" Key, then press the "❋" Key. The Display will then show the current date and time.
3. **Display Temperature in degrees "F" (Fahrenheit)**. To view, press the "F" Key, then press the "❋" Key. The Display will show the Vender's inside temperature in degrees "F" (Fahrenheit).
4. **Display Current Software Revision**. To view, press the "B" Key, then press the "❋" Key. The Display will then show the current software revision in the VMC.

NORMAL OPERATION MESSAGES

At initial power-up, the program will start and the Display will briefly show the VMC software version in use as Software ###r## CRC OK (i.e. 006r00), followed by Model 5800-4 (or the model that is set) followed by the default idle message, "ENJOY A REFRESHING DRINK". Note: With Service Door open if the VMC has any errors, the Display will show OPEN – Check errors will follow the Model number. If the following messages appear on the Display on power up with the door open an error or problem has been recognized in the Machine. "--.-C" or "--.-F" is a temperature sensor error check the Encapsulated Temperature Sensor. "Unavailable" is a Comms error issue with one or more of the following Cabinet Peripheral Control Boards; X Motor Board, Y Motor Board, Cup Motor Board, and/or Port Board.

INITIAL PROGRAMMING

DATE/TIME

To set Date/Time enter "SETUP MODE 1" by opening the Service Door and pressing the Service Button three (3) times. Press the number "5" Key and "DATE/TIME" will show on Display. Press the "❋" Key and Display will show the current year, month, date, and time setting currently in the system in following format: **2018** Apr 28 15:45 with the **Year** highlighted. Press the Keypad numbers to enter the current year. **Month** will then be highlighted. To change the month press the "A" Key to scroll forward through the months or the "B" Key to scroll backward through the months. With the correct month showing, press the "❋" Key to save. **Date** will then be highlighted. Press the Keypad numbers to enter the current date. **Hour** will then be highlighted. Note: Hours are shown in 24 hour format. Press the numbers to enter the current hour. **Minutes** will then be highlighted. Press the numbers to enter the current minutes. The Display will then change to show "OK? ❋=Y (Yes) CLR = N (No)". You must press "❋" Key to save the new Date and Time entered. Pressing "CLR" Key will revert to the previous date and time setting. Press the "CLR" Key to return to "SETUP MODE".

SET PRICES

To set the prices enter the "SERVICE MODE" by opening the Service Door and pressing the Service Button once. This mode allows the setting of Regular Prices and Secondary Prices for an individual item, a complete tray, or the entire machine. Factory setting is $99.95. Press the number "7" Key and the Display will show "SET PRICE". Press the "❋" Key and the Display will show "1 = Regular Pricing, 2 = Secondary Pricing". To set Regular Prices press number "1" Key and Display will show "Regular $##.##". To set price:

1. **All selections.** Press the Keypad numbers of the price you wish to use. As numbers are entered the numbers will shift in from the right as they are entered. Note: The CLR Key will remove the last # of the price. Once the desired price is showing on the Display press the "❋" Key and the Display will show "PR$##.## All Set", press "❋" Key to set more prices or "CLR" Key to return to SET PRICES. Press "CLR" Key again to return to SERVICE MODE.
2. **One tray.** Press the Keypad numbers of the price you wish to use. As numbers are entered the numbers will shift in from the right as they are entered. Note: The "CLR" Key will remove the last # of the price. Once the desired price is showing on the Display press the Tray letter desired for setting price. Press "❋" Key and Display will show "PR $##.## B (tray letter) Row Set", press "❋" to set more prices or "CLR" Key to return to SET PRICES. Press "CLR" Key again to return to SERVICE MODE.
3. **Single selection.** Press the Keypad numbers of the price you wish to use. As numbers are entered the numbers will shift in from the right as they are entered. Note: The "CLR" Key will remove the last # of the price. Once the desired price is showing on the Display press the selection desired for setting price. Press "❋" Key and Display will show "PR $##.## B1 Selection Set", press "❋" Key to set more prices or "CLR" Key to return to SET PRICES. Press "CLR" Key again to return to SERVICE MODE.

The last price entered for a selection is the price that will be used. For example, If one price on the A tray was set to $1.50 using option 3 above and you wish to change the remaining selections on that tray using option 2, the pricing for the entire tray would take precedence. Conversely, if the price was set using option 2 first followed by the single selection using option 3, the pricing for the remainder of the shelf would remain and the new price for the single selection would change to the new value. Press the "CLR" Key to return to "SERVICE MODE".

SET NOT AVAILABLE TIMES

This is a Password protected menu item. Before entering or changing this setting you must enter the password if one has been assigned. This mode allows up to 4 different time periods that use of the Machine may be restricted. To Set Not Available Times enter "SETUP MODE 1" by opening the Service Door and pressing the Service Button 3 times. Press the number "3" Key; the Display will show "SET NOT AVAIL TIME". Press the "❋" Key and the Display will show "Select Block (1 – 4): Press number "1" Key to set Select Block 1 available settings, Key "2" for Select Block 2, etc… Once you select the Select Block # you wish to set the Display will show "Start MTWTFSS Stop 1 00:00 NNNNNNN 00:00" with the Start time **hour** highlighted. Press the numbers to enter the hour you wish to

start Select Block (Note: hour setting is in 24 hour format.) and then the **minutes** will be highlighted. Press the number Keys to enter the minutes and then the first **day** of the week current setting will be highlighted. To change the setting to No press the "2" Key, or for Yes press the "1" Key. This will change each setting left to right one day at a time until all are set then Stop time **hour** will be highlighted. Press the numbers to enter the hour you wish to stop Select Blocking and the minutes will be highlighted. Press the numbers to set the minutes and the Display will show "Save? ❋ = Yes CLR = No" press the "❋" Key to save these settings or "CLR" Key not to save settings and Display will change to show which selections are assigned to this block. Press "❋" Key and Display will show "Enter Selection". Press the Keys of each selection you wish to disable followed by "❋" Key and Display will show "Disabled Continue? ❋ = Yes CLR = No". Note: If you press a tray letter (i.e. A) followed by the "❋" Key that entire tray will be set to be disabled. Once you have selected all settings and the Display shows "Disabled Continue? Or Enabled Continued? **Note: Display must show Display Enabled for the selection to shut down.** "❋ = Yes, CLR = No", press the "CLR" to return to "SET NOT AVAIL TIME". Press "CLR" again to return to "SETUP MODE 1". Once completed go to Test Mode, Not Available Mode (Key 3) and turn on Not Available Mode.

TUBE FILL/DISPENSE - Press Key "1"

Allows the service technician to inventory currency in the Coin Mechanism escrow tubes and "Teach" the VMC how many coins of each denomination are in that inventory. This allows for the maximum number of dollar bills to be accepted prior to enabling the "USE EXACT CHANGE" function. This also provides for exact cash accountability in the audit functions. This function can also be used as a diagnostic tool to insure the Coin Mechanism is responding properly. Press the number "1" Key and the Display will read 'TUBEFILL/DISPENSE". Press the "❋" Key and the Display will show the lowest denomination accepted and the number of these coins inventoried. Press the letter "A" Key to scroll through the denominations available. With a given denomination Displayed, an inserted coin of this denomination via the coin chute will increase the inventory shown. Note: When you insert any denomination the Display will change to show the denomination inserted. To dispense: while in the tube fill/dispense mode go to the Coin Mechanism and press the Coin Mech. dispense button(s) for the tube you wish to dispense or press the "❋" Key and the denomination Displayed will be dispensed to the Coin Return Cup and the inventory will be decreased. Press the "❋" Key again to stop the coins from being dispensed. Press the "CLR" Key to return to "TUBE FILL/DISPENSE". Press the "CLR" Key to return to "TEST MODE" or press the "A" Key to advance to the next menu item below.

TEST VEND - Press Key "9"

Allows the service technician to test vend any item. The Service Door must be closed or opened all the way so the Discharge Door does not hit the Delivery Port during the test vend process. You will need to catch the product if you test with the Service Door open. Press the number "9" Key and the Display will read "TEST VEND". IMPORTANT: The left Door Switch (in the Door Switch Bracket Assembly) must be activated for this test to work. Press the "❋" Key and the Display will read "ENTER SELECTION", you must close and lock the Service Door at this point if you wish to test with the Door closed. Select the item/column to be tested by pressing the corresponding Keys to test vend (i.e. A6), then press the "❋" Key to start the test vend, and the corresponding vend cycle will occur. Press the "CLR" Key to return to "TEST VEND". Press the "CLR" Key to return to "TEST MODE" or press the "A" Key to advance to the next menu item.

BevMax Refresh 4 5800-4/3800-4 & 5800-E4/3800-E4 Board Programming Quick Reference

	Service Mode		Test Mode		Setup Mode 1		Setup Mode 2	
A	Step through below	A	Step through below	A	Step through below	A	Step through below	
B	Cash Box	B	List Errors	B	Enter Message	B	STS Enabled/Disabled	
C	Sales	C	Light Timer	C	Clear Message	C	Custom STS	
D	Display Temperature	D	Unavailable	D	Enable/Disable $	D	Default STS	
E	Set Refrig. Temp.	E	Keypad Test	E	Set Happy Hour Time	E	Display STS	
F	Clear Totals	F	***Factory Diagnostics**	F	Master Reset	F	Set No Vend Limit	
1	Number Sold	1	**Tube Fill/Dispense**	1	Machine Number	1	Multivend	
2	Enable Item (Disable)	2	Daylight Savings	2	Set Happy Hour	2	Select Language	
3	Sales by Column	3	Set Not Available	3	Set Not Available Time	3	Port Sensor Enable	
4	Escrow	4	Set Credit Timer	4	Consumer Overpay	4	Price Display	
5	Force Vend	5	Door Open	5	**Date/Time**	5	Storage Temp Enable	
6	Set Temp Units (F or C)	6	Power out	6	Total Sales	6	Interval Sales Reset	
7	**Set Prices** (Regular & Secondary)	7	Test Health Guard	7	Health Control	7	Set Lights Off	
8	***Set Shelf Location (D2, E3, E4, E5, E6, D8)	8	Display Health Guard	8	Update Software	8	Double Talk	
9	Relay Toggle Test	9	****Test Vend**	9	Set Lights Off Time	9	Set Storage Time	
0	Clear relays	0	Show Checksum	0	Enter New Password	0	Set Storage Temp	

***Factory Diagnostics –** sub-menus

A	**Revision Numbers ####** = lists VMC, Cup, Environmental, Port, X Motor, & Y Motor Board software versions.
B	**Model # =** Set Model Number 5800-4, 3800-4, 5800-E4, 3800-E4
D	**Product Recovery** = Delivery Cup Dance movement.
F	Delivery (Picker) **Cup Sensor** Option = BevMax 4 5800-4 with cup sensor set ON, BevMax 4 5800-4 without cup sensor set OFF.
1	**Position Test** = F – goes home; 0 – cycles plunger; ❋ - stops all motors; Shelf letter – moves cup to shelf selected; Column # - moves cup to column selected.
2	**Port Test** = A – opens port; B – closes port; C – sensor test ON; D – sensor test OFF; ❋ - All Stop.
3	**Delivery** (Picker) **Cup Test** = "On (status of cup sensor):#"; "In (detects product in cup):#"; "Out (picker out switch status):#"; "Hm (picker home switch status):#".
4	**Repeat Vend**
5	**Mixed Credit** = On / Off.
6	**Product Sensors** = All BevMax 4 5800-4 set ON
7	**Vend Mech** – On / Off
8	**Shelf Offset** = BevMax 4 5800-4 Shelf Location "D2" = 700
9	**Auto Calibrate Hook Offset** – On / Off
0	**Hook Swipe X** = sets far right travel distance to Delivery door (BevMax 4 5800-4 factory default = 93871). Note: Auto Cal Hook Offset has to be Off to be able to manually set Hook Swipe Offset.

****Test Vend** = Test Mode press "9" and "❋" (enter) to get to "**Enter Selection**". Close the Service Door and choose desired selection to test vend.

To set Timers for schools = Set Date/Time / Set Not Available blocks / Set Not Available Times / Set Daylight Savings Time

Cash and Sales Numbers = Sales / Number Sold / Sales by Column / Total Sales / Cash Box

*****Set Shelf Location** = Service Mode press "8" - BevMax 4 5800-4 = D2 – Domestic, E3 - 5 Shelf, (default Shelf Offset is 700), see programming for more options.

Set Hook Swipe X = Test Mode press "F" and "❋" (enter) to get to "**Factory Diagnostics".** Press "9" turn Auto Cal Off. Go back to **Factory Diagnostics,** Press "0" and "❋" (enter) to get to Hook Swipe ##### (default is 93871).

Major Component Description

AC DISTRIBUTION BOX

BevMax Refresh 4 5800-4/3800-4 & 5800-4HC/3800-4HC
120 VAC and 230VAC Machines

Main Power Switch or Power Supply Cord (A)

- Interrupts hot and neutral side of incoming AC Power to all components in Machine from the electrical outlet.

8 Pin JST Connector (B)

- Provides AC power in to the Omron Power Supply, Evaporator Fan, and Refrigeration Unit (includes Condenser Fan and Defrost Control) from the AC Distribution Box.

4 Pin Molex Connector (C)

- Provides 24VDC in to AC Distribution Box Environmental Board from the Omron Power Supply.

24 Pin Molex Connector (D)

- Provides 24VDC out to the VMC, it distributes 24VDC to the Port Board, 24VDC and 5VDC to the Cup Motor Board, X Motor Board, Y Motor Board, and 3.3VDC to the Encapsulated Temp Sensor.

3 Amp 24VDC Circuit Breakers (2) (E)

- Protect the 24VDC from the Power Supply. The Top Breaker is for Cabinet Power (Port/Cup/Motor Control Boards) and the Bottom Breaker is for the Door Power (VMC/MDB/Coin Mech/Top Cabinet Light).

Omron Power Supply 24V 150W

BevMax Refresh 4 5800-4/3800-4 & 5800-4HC/3800-4HC
120 VAC and 230VAC Machines

5 Pin JST Connector (F)

- Provides AC power in to the Power Supply from the AC Distribution Box.

6 Pin JST Connector (G)

- Provides 24VDC out to AC Distribution Box Cabinet Environmental Board from the Power Supply.

Door Switch Bracket Assembly Switches

BevMax Refresh 4 5800-4/3800-4 & 5800-4HC/3800-4HC
120 VAC and 230VAC Machines

Left Door Switch (Motor Power Interrupt Switch)
3 Amp/24VDC – in XY Motor Circuits, Port Door Motor Circuit, and Picker Motor Circuit.
Right Door Switch (Door Service Switch)
3 Amp/24VDC – in the VMC Service Switch input Circuit.

General Maintenance

The most important facets of proper care and maintenance of your Machine are the electrical power supplied, leveling, and cleanliness of the Machine.

POWER

Domestically the Machine must be connected to a dedicated 120 VAC, 15 Amp circuit (U.S. and Canada). Refer to the cabinet serial number plate to determine the correct voltage and frequency for the Machine.

CAUTION:
REMOVE POWER TO THE AC DISTRIBUTION BOX BEFORE CLEANING OR WHEN ANY ELECTRICAL COMPONENTS ARE CONNECTED / DISCONNECTED FOR TESTING OR REPLACEMENT.

Periodically inspect the Power Supply Cord for damage. If the Cord or Cord Plug is worn or damaged, it must be replaced with a Power Supply Cord of the same type, size and specification as originally provided with the Machine. DO NOT USE THE VENDING MACHINE UNTIL THE WORN OR DAMAGED POWER SUPPLY CORD IS REPLACED.

The Ground Fault Circuit Interrupter (GFCI) for Domestic Venders must be tested frequently and before each use in accordance with the instructions provided on the GFCI device. **IF THE GFCI DOES NOT PASS THE TEST, DO NOT USE THE MACHINE.** Unplug the Power Supply Cord from the receptacle and call the Crane Merchandising Systems Technical Support Group for assistance at 1-803-266-5001.

CAUTION:
REMOVE POWER TO THE AC DISTRIBUTION BOX BEFORE CLEANING OR WHEN ANY ELECTRICAL COMPONENTS ARE CONNECTED / DISCONNECTED FOR TESTING OR REPLACEMENT.

CLEANING

DO NOT USE A WATER JET OR NOZZLE TO CLEAN THE VENDER.

GLASS DOOR

The Display glass should be cleaned inside and out with paper towels and glass or non-abrasive all-purpose cleaner. The gasket around the product door should be wiped down using warm water, any mild general purpose, non-abrasive cleaner and a soft towel. Never lubricate the gasket and always check for cracking or deformities which may cause leaks. Replace if necessary.

SHELF / TRAY / TRAY INSERTS

All Shelf / Tray and Tray inserts should be cleaned periodically using warm water and a mild general purpose, non-abrasive cleaner. Care should be taken to ensure debris does not enter the gear box assemblies. **DO NOT USE SOLVENTS OR ABRASIVE MATERIALS TO CLEAN ANY PORTION OF THE TRAY.**

DOOR LIGHTING

The Machine is designed with an energy efficient LED Lighting System. To ensure continued reliable operation, replace only with factory OEM replacement LED Light Assemblies.

SLIDE/PUSHER ASSEMBLY

All Slide/Pusher assemblies should be cleaned periodically using warm water and any mild general-purpose non-abrasive cleaner. After drying, the Slide Assembly needs to have a coat of approved Food Grade Silicone based Release Agent from ECO-Lab/Kay Chemicals applied. Care should be taken to ensure debris does not enter the gear box assemblies. **DO NOT USE SOLVENTS OR ABRASIVE MATERIALS TO CLEAN ANY PORTION OF THE TRAY.**

CABINET

Wash the Cabinet with a good detergent or soap mixed in warm water. Wax the Vender often with a good grade of automobile wax. Any corrosion inside the Vender should be removed with fine steel wool and the area should be painted with white paint. Repair any scratches on painted surfaces to prevent corrosion.

MOLDED EVAPORATOR BOX, DRAIN TUBE, CONDENSATE PAN AND CONDENSATE PAN SOAKERS

To prevent mold and mildew growth, and to avoid personal injury or property damage, the Condensate Pan and Drain Tube must be properly aligned and clear of debris. Ensure nothing obstructs the Drain Tube to prevent the flow of condensate to the Condensate Pan and Condensate Pan Soakers. Periodically inspect the Molded Evaporator Box, Condensate Pan, Drain Tube, and Condensate Pan Soakers for alignment and the presence of dirt, debris, mold, and mildew. Clean as needed. Replace Condensate Pan Soakers as needed.

WARNING

THE COMPRESSOR ELECTRICAL CIRCUIT IS ALWAYS LIVE WHEN THE PLUG IS CONNECTED TO AN ELECTRICAL OUTLET.

REFRIGERATION CONDENSER

Clean the Condenser periodically of dirt or lint build-up. Remove the Condenser clean-out cover by turning Counter-clockwise, this provides access to the Condenser surface. Remove build up with a brush or vacuum, or blow the dirt out of the Condenser with compressed air and approved safety nozzle. Replace the Condenser cover by turning clockwise until it stops. Confirm the sealing gasket on the cover is properly seated to prevent air infiltration. Ensure nothing obstructs air intake at the bottom of the Machine and nothing obstructs air exhaust at the rear of the Cabinet.

COIN ACCEPTOR, BILL ACCEPTOR AND CASHLESS DEVICES

Follow the Coin Acceptor, Bill Acceptor and Cashless Device Manufacturer's instructions.

LUBRICATING THE VENDER

The Vender Refrigeration System does not require any field lubrication. The hermetic Refrigeration System and Fan Motors are manufactured with lifetime lubrication.

NEW VMC INSTALLATION

Disconnect power to the Vender when replacing the VMC. Once all connectors are positioned on the new VMC apply power to the Vender. To Set Model Number. On power up the Display will show "Reset Model? Continue? ❋ = Yes CLR = No". Press the "❋" Key and Display will show "No Model Set Save? A = ^ (scroll up) ❋ = Yes CLR = No". Press Key A to scroll through available model numbers 5800-4, 3800-4, 5800-E4 (export), 3800-E4 (export). With Vender model displayed that you are installing the VMC Board press the "❋" Key to save. **Important**: The VMC is sensitive to Electrostatic Discharge (ESD). Failure to handle the VMC carefully could cause damage, which may result in a Vender being put Out of Service.

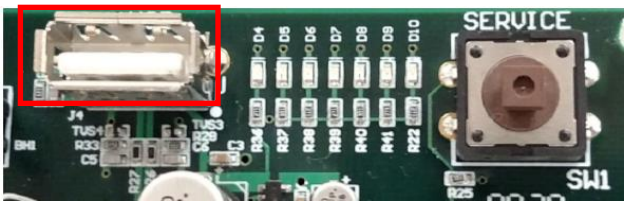
ALWAYS GROUND YOURSELF ON THE VENDER CABINET BEFORE INSTALLING OR REMOVING THE VMC FROM THE MACHINE. ALWAYS TURN POWER OFF BEFORE REMOVING, TOUCHING OR INSTALLING A VMC.

VMC SOFTWARE UPDATE PROCEDURE

The VMC is flash programmable. Note: Updating the VMC is done with a USB Flash Drive. There is no menu to update the VMC Board software. The following information describes how to update the VMC software. All new software revisions to the 5 Cabinet Peripheral Control Boards (AC Distribution Box Environmental Board, X Motor Board, Y Motor Board, Port Board, & Cup Motor Board) will automatically update via the VMC. **Important**: USB's containing software are sensitive to Electrostatic Discharge (ESD). Failure to handle the USB carefully could cause damage, which may result in a Vender being put Out of Service.

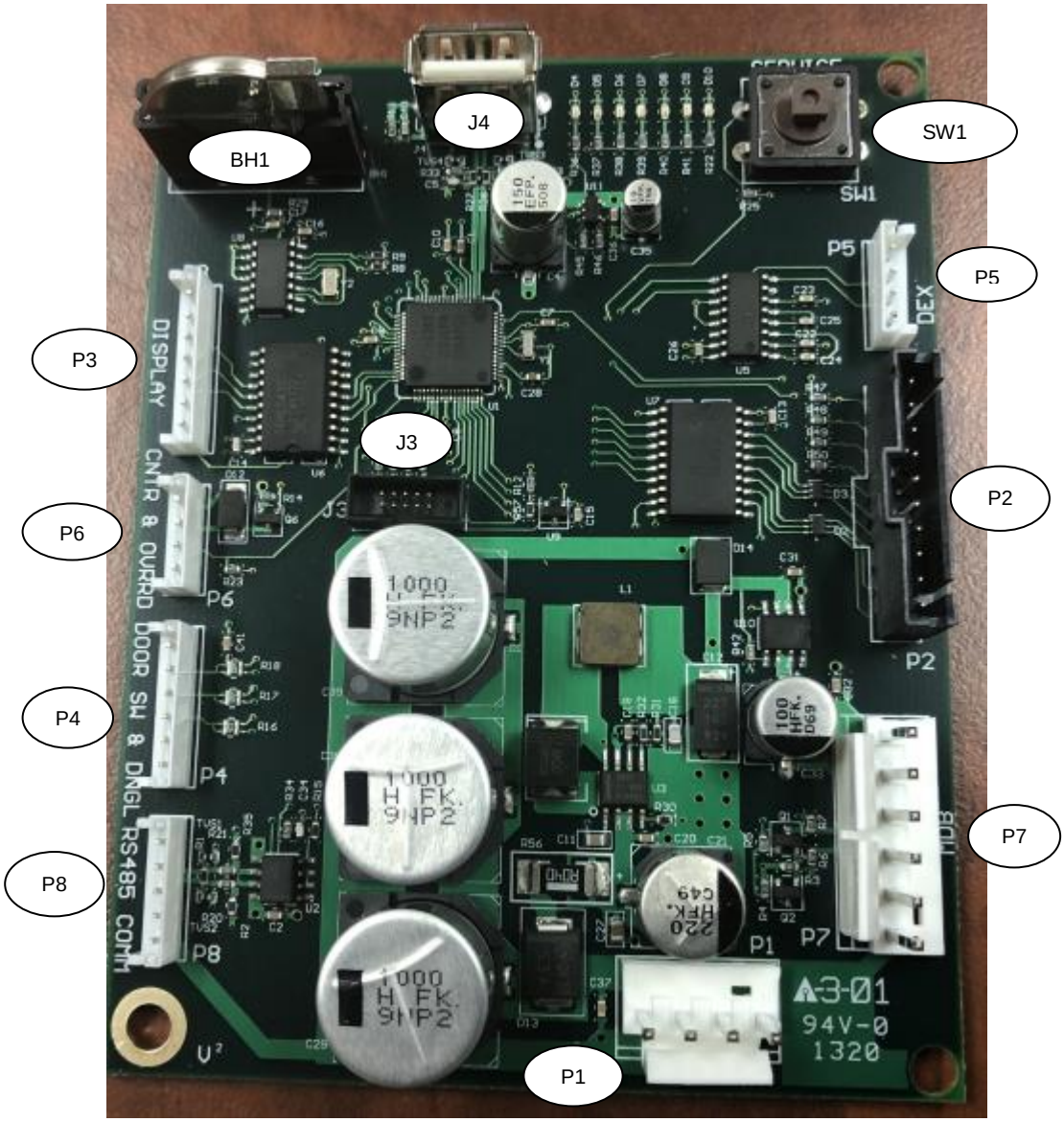
ALWAYS GROUND YOURSELF ON THE VENDER CABINET BEFORE INSTALLING OR REMOVING THE USB FROM THE VMC. A USB CAN BE USED TO PROGRAM MANY VENDERS. ALWAYS TURN POWER OFF BEFORE INSTALLING USB IN THE VMC. Important Notes: If needed, use the Programming Guide to program the Vender.

The VMC includes 7 Diagnostics Lights providing information on operational status and where to focus problem solving efforts.



1. USB Software Installation:
    a. Power down the Vender. Ground yourself on the Vender Cabinet.
    b. Install the USB in the VMC USB Port.
    c. Press and hold the VMC Service Switch (SW1). While holding the Service Switch turn the power on to Vender.
    d. Once the Machine powers on, release the VMC Service Switch (SW1).
    e. During software updating the VMC 7 Diagnostic lights (D4 to D10) will flash on and off for approximately 15 seconds.
    f. Once install is complete all 7 VMC Diagnostic lights will be flashing on and off.
    g. Remove the USB Flash Drive from the VMC. Note: power does not need to be off to remove the USB.
    h. If only D4 and D10 Diagnostic lights are on at this time, the install was not completed. Repeat steps "a" through "h".

2020 BevMax Refresh 4 VMC
BevMax Refresh 4 Classic 5800-4/3800-4 - 5800-4HC/3800-4HC
BevMax Refresh 4 Classic 5800-E4/3800-E4 – 5800-E4HC/3800-E4HC
Part # 400069



2020 BevMax Refresh 4 Classic VMC (400069) Connections

CONNECTION BevMax 4	# of Pins	DESCRIPTION	CONNECTION BevMax 4	# of Pins	DESCRIPTION
J4	-	USB Port	SW1	-	Service Switch
BH1	-	Battery	P5	4	DEX
P3	7	Display	P2	10	Keypad
P6	4	Electronic Counter & Over-ride Switch	P7	6	MDB
P4	6	Door Switch & Dongle Harness	P1	4	Power from AC Distribution Box
P8	5	RS 485 Comm	J3	10	Supplier Programming Connector

BEVMAX REFRESH 4 TROUBLESHOOTING

TROUBLESHOOTING DIAGNOSTIC LIGHTS

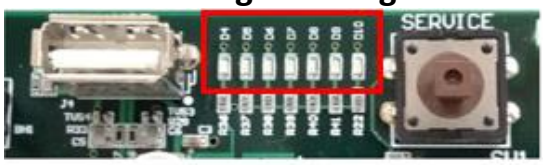
With the New Electronics Platform BevMax Refresh 4, troubleshooting is simpler, but it is important to know how to follow the clues the Vending Machine is presenting. Utilizing error codes while focusing on the Cabinet Peripheral Control Boards controlling each motor or main component will lead you to a conclusion quickly.

The inner workings of the New Electronics Platform BevMax Refresh 4 is greatly simplified. The AC Distribution Box sends AC Voltage through an Environmental Board contained within the AC Distribution Box to the Refrigeration Unit, Evaporator Fan Motor, and the Omron Power Supply.
In turn, the Power Supply returns 24VDC to the Environmental Board within the AC Distribution Box, which sends both 24VDC and 5VDC to the Vending Machine Controller (VMC). The VMC then sends 5VDC to the X, Y, Cup, and Port Boards and 24VDC to the MDB components. The Cabinet Peripheral Control Boards run on 5VDC while allowing 24VDC to pass through to power the Motor Boards or main component each controls.

RS 485 Communication Harness A – White wire RS 485 Communication Harness B – Blue wire 24VDC Motor Power Harness – Red/Green wire 5VDC Harness – Yellow & Red/Yellow wires Ground Harness – Black wire	24VDC Harness – Red, Red/Blue, & Red/Black wires 24VDC Switched to Vertical Lights = Red/White wire X Home Switch = Orange wire 3.3VDC Encapsulated Temp. Sensor = Violet wire

There are 7 Diagnostic Lights across the top of the VMC. These inform the technician of the state of components when in Normal Mode, Port Test Mode, Cup Test Mode, and Position Test Mode. Use the key to decipher the meaning of the lights to point you in the right direction quickly.

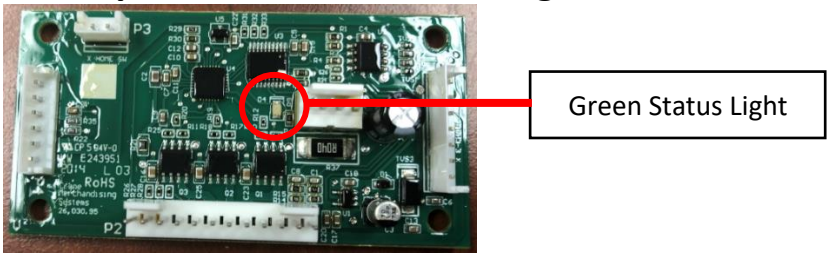
VMC Diagnostic Lights



Mode	VMC Diagnostic Indicator Lights						
	D4	D5	D6	D7	D8	D9	D10
Normal Door Open	USB Power	**Heartbeat**	MDB	*Keypad	**Picker Home**	X Home	Y Home
Position Test	USB Power	**Picker Home**	X Home	Y Home			
Cup Test	USB Power	**Picker Home**	Cup Sensor	Picker Out			
Port Test	USB Power	**Port Sensor**	Port Open	Port Closed			

* Green light is off until a key on the Keypad is pressed.

Cabinet Peripheral Control Boards Green Status Light
Example - Cup Motor Board Status Light



Each of the X Motor Board, Y Motor Board, Port Board, & Cup Motor Board have a Green Status Light. A fast blinking Green Status Light indicates the Cabinet Peripheral Control Board has power and is communicating with the VMC, acknowledging the Cabinet Peripheral Control Board is good. A Green Status Light On solid indicates the Cabinet Peripheral Control Board has power but is not receiving communication from the VMC, indicating there is a Cabinet Peripheral Control Board, VMC, or harness connection problem. No Green Status Light indicates the Cabinet Peripheral Control Board is not receiving 5VDC or Communication. Refer to troubleshooting for steps to determine possible cause.

Cabinet Peripheral Control Boards Green Status Light provide additional various lighting patterns used to indicate the status of the individual Cabinet Peripheral Control Boards. They include:
Power on / Reset – a slow brightening and then slow diming of the Green Status Light that takes 3 to 5 seconds to complete. This happens once each time the Board is powered on and/or reset. If the Green Status Light slowly brightens and dims continuously indicates the software was not loaded properly. Reload Software.
Heartbeat – a heartbeat of the Green Status Light starts right after the "Power on / Reset" indication and continues until the Peripheral Control Board first receives a message from the VMC. Once a message is received from the VMC the heartbeat will not be shown again. Note: on a BevMax Refresh 4 Classic Machine, the heartbeat is almost never actually seen because the VMC starts talking to the Cabinet Peripheral Control Boards within a few seconds of powering on.
Fast blinking – a fast blinking Green Status Light (on and off approximately 7 times per second) indicates that the Cabinet Peripheral Control Board is receiving communication from the VMC and sending a response. Note: Just because a response is being sent to the VMC doesn't necessarily mean the VMC is receiving it. There could be some defect that prevents the Cabinet Peripheral Control Board response from reaching the VMC.
The following are some failure modes you may experience with the new electronics platform BevMax Refresh 4 Classic Machine and the troubleshooting steps to identify and resolve the issue using the 7 VMC Diagnostic Lights.

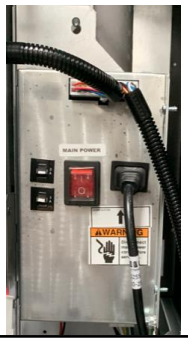
No Power to the Vender

1. If the Vending Machine does not have power, check the following:
   a. The Vender Power Supply Cord is plugged into the electrical outlet.
   b. The electrical outlet is providing the appropriate AC Voltage.
   c. The Power Supply Cord GFCI is not tripped (Domestic Venders).
   d. The Power Supply Cord is plugged into the AC Distribution Box.
   e. The AC Distribution Box Lighted On/Off Switch is in the On position.
   f. The AC Distribution Box Lighted On/Off switch is illuminated red.

2. Upon completing A through F, if the AC Distribution Box Lighted On/Off Switch is not illuminated red, check the outlet voltage for required AC voltage.
   a. If outlet voltage is good, change the AC Distribution Box.

Electrical Outlet.

GFCI.
(Domestic Machines)



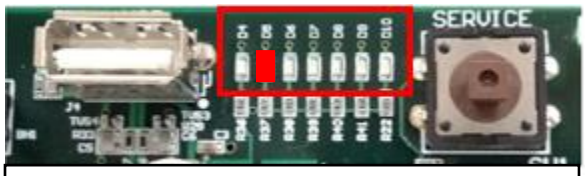
AC Distribution Box.

No Vertical (Y) and No Horizontal (X) Movement

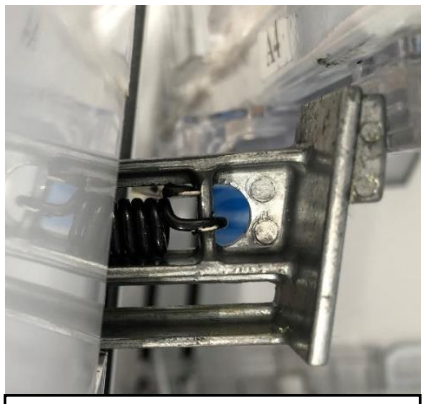
There are only a few reasons the Cabinet Peripheral Control Boards will not send power to both the X and Y Motors deliberately.

1. A Left Motor Power Interrupt Door Switch issue.
   a. Check wiring from the Left Door Switch to the 5 Cabinet Peripheral Control Boards. Replace wiring as necessary.
   b. If wiring is connected and not damaged Ohm the Left Door Switch. Replace as necessary.
   c. If the Left Door Switch tests good check for 24VDC to the Left Door Switch from P1 pin 5 plug of the Environmental Board.
   d. Replace Environmental Board if necessary.

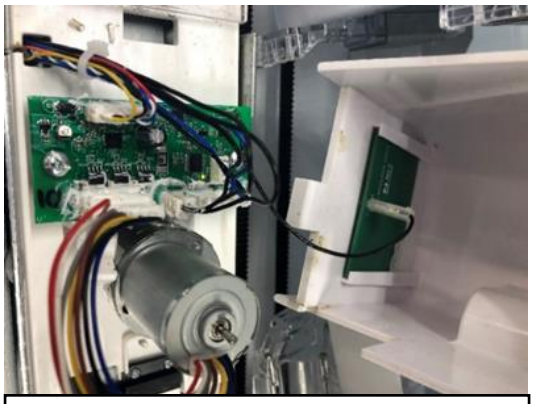
2. A Picker Error.
   a. Before replacing any Cabinet Peripheral Control Boards:
      1)Check that P2 pin 1 of the Cup Motor Board is getting 5VDC from P1 pin 1 of the Y Motor Board.
      2)Ohm the Communication blue & white wires from the Cup Motor Board P2 pins 3 & 4 to the VMC P8 pins 2 & 3.
      3)Check for Cabinet Control Errors “C Comms” Error in programming Test Mode, List Errors.
      4)Replace the Cup Motor Board.
   b. Remove the Cup cover and ensure the Cup Motor Board Green Status Light is flashing rapidly. If not, check the 400505 wire harness from the Cup Motor Board P2 to the Y E-Chain. If there is no problem then check the harness from the Y E-Chain where it plugs into the Y Motor Board P4. If there is no problem replace the Cup Motor Board.
   c. Ensure Cup Picker is not stuck in the out position.
   d. If the Cup Picker is stuck in the out position, go to Position Test and press “0” to cycle it back to the home position. Once back at the home position ensure the VMC D5 Picker Home Switch Diagnostic Red Light is On.



VMC Diagnostic Lights.



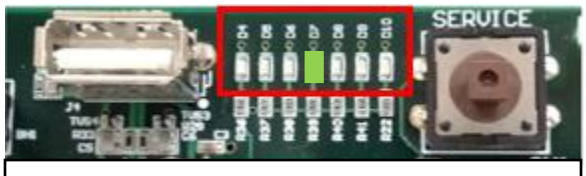
Cup Picker/Plunger.



Cup Motor Board, Brushless Cup Motor, Cup Sensor.

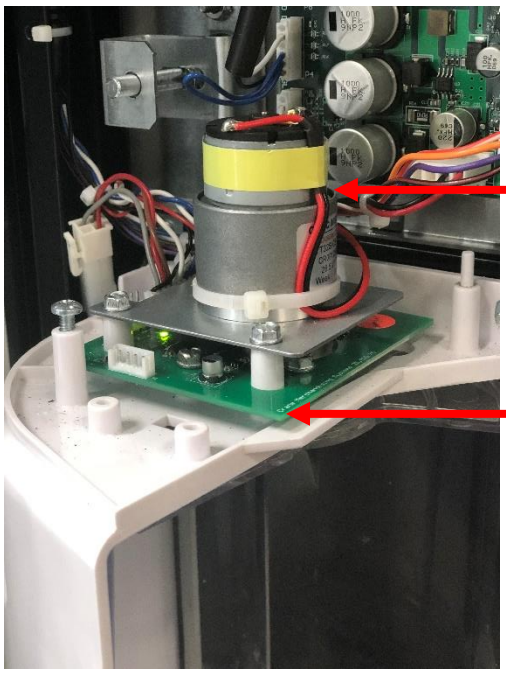
e. If the Picker is not (or is no longer) stuck in the out position and the VMC D5 Picker Home Switch Diagnostic Red Light is not On while in Position Test, the Picker Home Switch is not working. Replace as necessary.
f. Replace the Cup Assembly.

3. A Port Error.
   a. Before replacing any Cabinet Control Boards:
      1)Check that P1 pin 4 of the Port Board is getting 5VDC from P7 pin 1 of the VMC.
      2)Ohm the Communication blue & white wires from P1 pins 2 & 3 of the Port Board to the P8 pins 2 & 3 of the VMC.
      3)Check for Cabinet Control Errors “P Comms” Error in programming Test Mode, List Errors.
      4)Replace the Port Board.
   b. Remove the top Port Motor cover and ensure the Port Board Green Status Light is flashing rapidly. If not, replace the Port Board.
   c. Go to Port Test and ensure the VMC D7 Port Closed Switch Diagnostic Green Light is On.
   d. If the VMC D7 Port Closed Switch Diagnostic Green Light is not On, ensure the clear Port Door is fully closed.
   e. If the Port Door is fully closed and the VMC D7 Port Closed Switch Diagnostic Green Light is not On, change the Port Board.



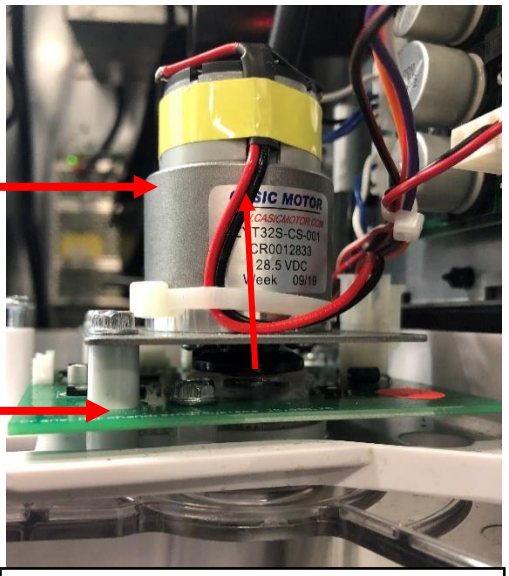
VMC Diagnostic Lights.

f. If the Port Door is not fully closing, check for an obstruction.
g. If no obstruction, go to Port Test and try to open and close the Port Door. In Port Test, the Port Door should open and close quickly with no bounce back.
h. If there is bounce back, slow response, or just the sound of the Port Motor turning, check the Port Cam on the Port Motor shaft for breakage. Replace as necessary.



Short Brushed Port Motor

Port Board.

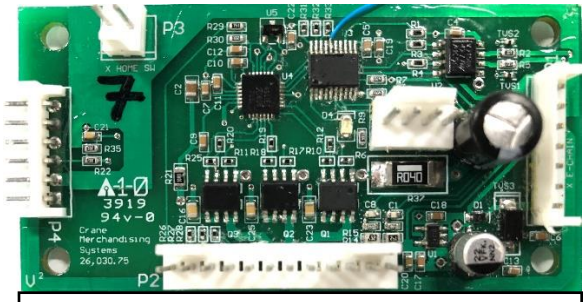


Port Cam with magnet, may be either black or clear.

No Vertical (Y) Movement

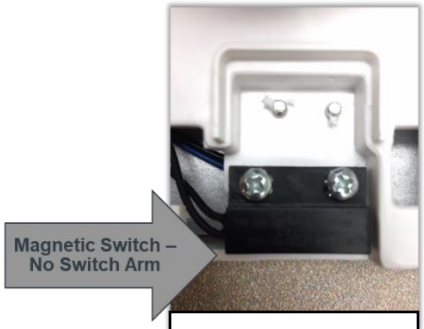
1. A Left Motor Power Interrupt Door Switch issue.
   a. Check wiring from the Left Door Switch to the Environmental Board. Replace wiring as necessary.
   b. If wiring is connected and not damaged Ohm the Left Door Switch. Replace as necessary.
   c. If the Left Door Switch tests good check for 24VDC to the Left Door Switch from P1 pin 5 of the Environmental Board.
   d. Replace Environmental Board if necessary.
2. Try to raise the Delivery Cup with your hands to the top then back down to the bottom. If you feel an obstruction, remove the Y Belt Cover and check for a blockage or damaged rollers.
3. Before replacing any Cabinet Peripheral Control Boards:
   a. Check that P1 pin 1 of the Y Motor Board is getting 5VDC from the P1 pin 2 of the Environmental Board.
   b. Ohm the Communication blue & white wires from P1 pins 2 & 3 of the Y Motor Board to the P8 pins 2 & 3 of the VMC.
   c. Check for Cabinet Control Errors “Y Comms” Error in programming Test Mode, List Errors.
   d. Replace the Y Motor Board.
4. Remove the Y Motor Board Cover and see if the Y Motor Board Green Status Light is rapidly flashing.
   a. If Green Status Light is rapidly flashing, the Y Motor Board is good.

b. If the Green Status Light is On solid, check the other Cabinet Peripheral Control Boards, if their Green Status Light is also On check the harnesses. If the other Cabinet Peripheral Control Board Green Status Lights are rapidly flashing, check the harness to the Y Motor Board. If the harness is OK and the Cup Motor Board Green Status Light is flashing rapidly replace the Y Motor Board.
c. If there is no Green Status Light, check another Cabinet Peripheral Control Board, if it's Green Status Light is rapidly flashing, check the harness to the Y Motor Board. If the harness is OK change the Y Motor Board.



Y Motor Board.

5. Still no Y movement? In Normal Mode, is the VMC D7 Y Home Magnetic Switch Diagnostic Green Light on?
   a. If yes, the Y Home Magnetic Switch on the bottom of the Cup Assembly is activated and communicating.
   b. If no, ensure the Cup Assembly is at Home position on the Machine base (check for blockage preventing it from reaching Home position). To test Magnetic Switch hold a magnet against the bottom of the Cup Assembly, if the Y Home Magnetic Switch activates and the VMC D7 Diagnostic Green Light turns On the switch is good.
      1) If the VMC D7 Diagnostic Green Light does not turn on, ensure the magnet is in position on the X Bottom Carriage, if magnet is in position replace the Y Home Magnetic Switch in the Cup Assembly.
6. Still no Y movement? Check the Y Home Switch P6 connector is plugged in to the Cup Motor Board. Check if the Y Motor is plugged in to P1 of Cup Motor Board correctly.
   a. Replace the Y Motor as needed.
      1)Note thathe Y Motor is a 3 Phase Brushless DC Motor and you will not be able to read voltage to the Motor.

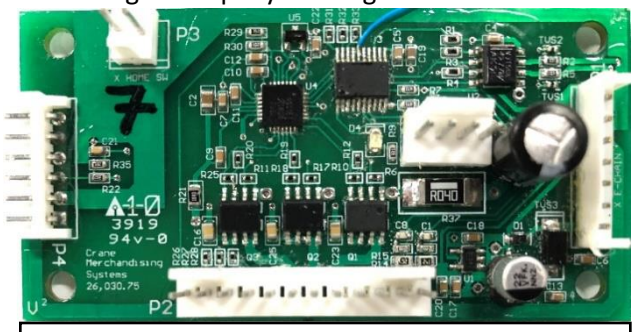


Y Home Switch.


Y or X Brushless DC Motor.

No Horizontal (X) Movement

1. A Left Motor Power Interrupt Door Switch issue.
    a. Check wiring from the Left Door Switch to the Environmental Board. Replace wiring or Left Door Switch as necessary.
    b. If wiring is connected and not damaged Ohm the Left Door Switch. Replace as necessary.
    c. If the Left Door Switch tests good check for 24VDC to the Left Door Switch from P1 pin 5 plug of the Environmental Board.
    d. Replace Environmental Board if necessary.
2. Try to move the Vend Mechanism with your hands to the right wall then back to the left wall. If you feel an obstruction, remove the bottom plate and check for a blockage (i.e. syrup, screw, debris, etc.) or damaged rollers.
3. Before replacing any Cabinet Peripheral Control Boards:
    a. Check that P1 pin 1 of the X Motor Board is getting 5VDC from the P1 pin 19 of the Environmental Board.
    b. Ohm the Communication blue & white wires from P1 pins 2 & 3 of the X Motor Board to P8 pins 2 & 3 of the VMC.
    c. Check for Cabinet Control Errors "X Comms" Error in programming Test Mode, List Errors.
    d. Check the harness to the X Motor Board.
4. Remove the X Motor Board Cover and see if the Green Status Light is rapidly flashing.
    a. If Green Status Light is rapidly flashing, the X Motor Board is good.
    b. If the Green Status Light is On solid, check the other Cabinet Peripheral Control Boards, if their Green Status Light is also On replace the VMC. If the other Cabinet Peripheral Control Board Green Status Lights are rapidly flashing, replace the X Motor Board.
    c. If there is no Green Status Light, check another Cabinet Peripheral Control Board, if it's Green Status Light is rapidly flashing, change the X Motor Board.



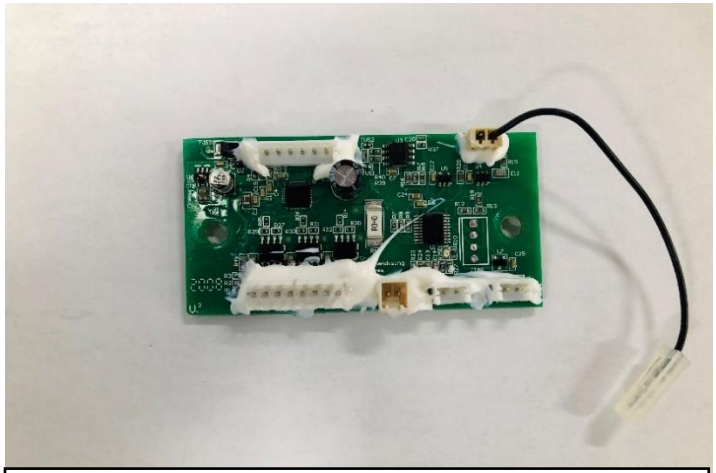
X Motor Board.

5. Still no X movement? In Normal Mode, is the VMC D9 X Home Switch Diagnostic Yellow Light on?
    a. If yes, the X Home Switch at the top left of XY Assembly behind the Y Motor is activated against the left wall and communicating.
    b. If no, ensure the Vend Mechanism is all the way left (check for blockage preventing it from reaching home position). Press the X Home Switch with your finger to test if the Switch activates and the VMC D9 Diagnostic Yellow Light turns On.
        1) If the VMC D6 Diagnostic Yellow Light does not turn On replace the X Home Switch.
6. Still no X movement? Replace the X Motor.


X or Y Brushless DC Motor.

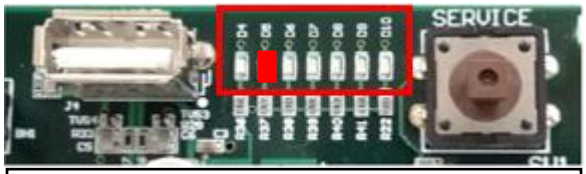
The Cup Picker/Plunger will not Cycle to Eject an Item from the Gate

1. A Left Motor Power Interrupt Door Switch issue.
   a. Check wiring from the Left Door Switch to the Environmental Board. Replace wiring as necessary.
   b. If wiring is connected and not damaged Ohm the Left Door Switch. Replace as necessary.
   c. If the Left Door Switch tests good check for 24VDC to the Left Door Switch from P1 pin 5 plug of the Environmental Board.
   d. Replace Environmental Board if necessary.
2. Before replacing any Cabinet Peripheral Control Boards:
   a. Check that P1 pin 1 of the Cup Motor Board is getting 5VDC from the Environmental Board to P1 pin 1 of the Y Motor Board.
   b. Ohm the Communication blue & white wires from P2 pins 3 & 4 of Cup Motor Board through the Y E-Chain.
   c. Check for Cabinet Control Errors "C Comms" Error in programming Test Mode, List Errors.
   d. Check the harness connection between the Y E-Chain and the Cup Motor Board. Also check the harness connection between the Y E-Chain and the Y Motor Board. Replace the Cup Motor Board.
3. Remove Cup Base Cover and ensure the Cup Motor Board Green Status Light is flashing rapidly.
   a. If Green Status Light is rapidly flashing, the Cup Motor Board is good.
   b. If the Green Status Light is On solid, check the other Cabinet Peripheral Control Boards, if their Green Status Light is also On check the X E-Chain harness, look for pinched or damaged wire. Check the 5VDC (Yellow) wire at P2 pin 1 on the Cup Motor Board and verify it has 5VDC in respect to Ground. If the other Cabinet Peripheral Control Board Green Status Lights are rapidly flashing, replace the Cup Motor Board.
   c. If there is no Green Status Light, check another Cabinet Peripheral Control Board, if their Green Status Light is rapidly flashing, change the Cup Motor Board.



Cup Motor Board.

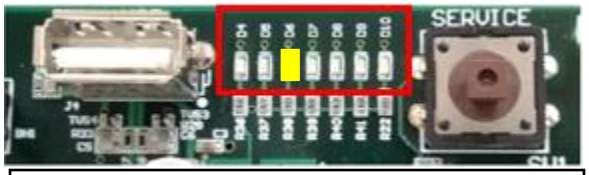
4. Picker still will not cycle, with the Left Motor Power Interrupt Door Switch activated and the Picker at home position inside the Cup, go to Cup Test and ensure the VMC D5 Picker Home Switch Diagnostic Red Light is On, and that the VMC D7 Picker Out Switch Diagnostic Green Light is Off.



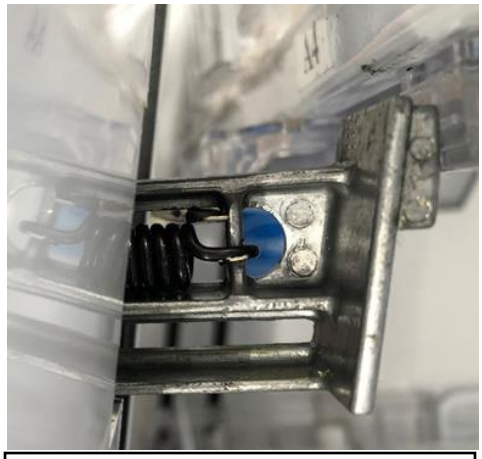
VMC Diagnostic Lights.

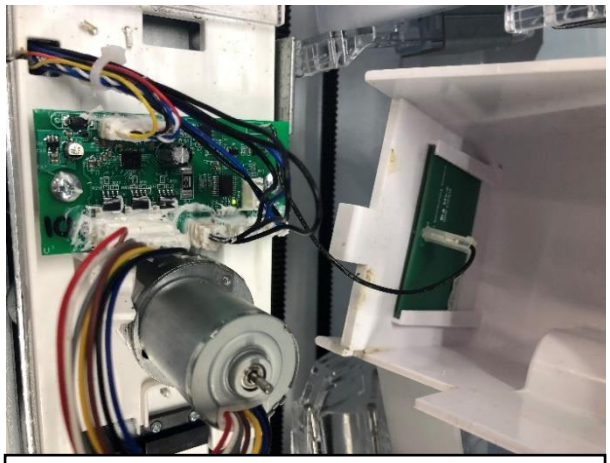
5. With the Left Motor Power Interrupt Door Switch activated the Picker at home position inside the Cup, if the VMC D5 Picker Home Switch Diagnostic Red Light is Off, and/or the VMC D7 Picker Out Switch Diagnostic Green Light is On, check the Switch wiring inside the Cup. Make sure the Switches are plugged in the Cup Motor Board in the correct positions and that they are not reversed. Ohm the Switches to verify operation. If the Switches are OK and plugged in correctly replace the Cup Assembly.

6. If the VMC Diagnostic Lights are correct, with the Left Motor Power Interrupt Door Switch activated stay in Position Test and see if the Picker will cycle and return to the Home position when pressing “0” Key on Keypad.
   a) If the Picker will not cycle in Position Test, check to see if the Motor is plugged in correctly. Check for Motor power to P2 pin 6 of the Cup Motor Board, the Red/Green wire should have 24VDC. If OK, replace the Cup Assembly.
   b) If the Picker does cycle in Position Test, go to Cup Test.
      1) Test the Cup Sensor to see if it can detect an item by illuminating VMC D6 Cup Sensor Diagnostic Yellow Light. If the Cup Sensor cannot detect an item in this test, turn the Cup Sensor Off in Cup Sensor On/Off menu.
      2) If the Picker now cycles at the gate through a Test Vend or normal purchase, verify the electrode wire is plugged in at P3 of Cup Motor Board. If OK replace the Cup Motor Board and turn the Cup Sensor back On in Cup Sensor On/Off menu.
      3) If the Picker still will not cycle, replace the Cup Assembly.



VMC Diagnostic Lights.

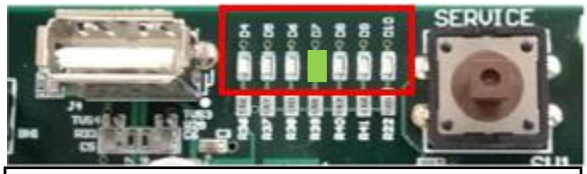

Cup Picker/Plunger shown in the Out position.


Cup Motor Board, Brushless Cup Motor, & Cup Sensor.

The Port Door will not Open/Close

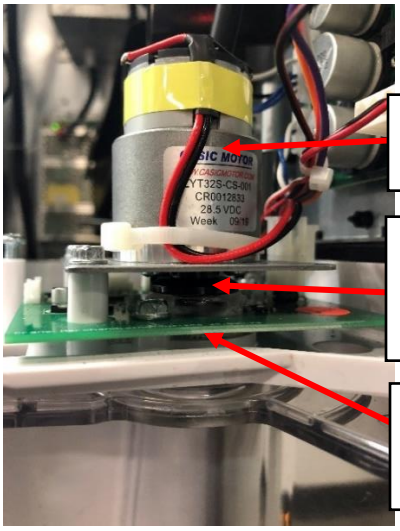
1. A Left Motor Power Interrupt Door Switch issue.
   a. Check wiring from the Left Door Switch to the Environmental Board. Replace wiring as necessary.
   b. If wiring is connected and not damaged Ohm the Left Door Switch. Replace as necessary.
   c. If the Left Door Switch tests good check for 24VDC to the Left Door Switch from P1 pin 5 of the Environmental Board.
      1)Check the 6 pin connector from the Power Supply to P4 of the Environmental Board. Verify the two 3 AMP Circuit Breakers are reset (not tripped).
      2)Check Motor power wiring from P1 pin 6 of Environmental Board to P1 pin 1 of the Port Board.
      3)Verify Port Motor is plugged in to P3 of Port Board.
      4)Replace Port Board.

2. Before replacing any Cabinet Peripheral Control Boards:
    a. Check that P1 pin 4 of the Port Board is getting 5VDC from P7 pin 1 of the VMC.
    b. Ohm the Communication blue & white wires from P1 pins 2 & 3 of the Port Board to P8 pins 2 & 3 of the VMC.
    c. Check for Cabinet Control Errors “P Comms” Error in programming Test Mode, List Errors.
3. Remove Port Motor Cover and ensure the Port Board Green Status Light is flashing rapidly.
    a. If Green Status Light is rapidly flashing, the Port Board is good.
    b. If the Green Status Light is On solid, check the other Cabinet Peripheral Control Boards, if their Green Status Light is also On solid replace the Door Harness 400540 as Communication (Blue/White) wires are damaged. If the other Cabinet Peripheral Control Board Green status Lights are rapidly flashing, replace the Port Board.
    c. If there is no Green Status Light, check another Cabinet Peripheral Control Board, if it’s Green Status Light is rapidly flashing, change the Port Board.
4. Port Door still will not Open/Close, go to Port Test and ensure the VMC D7 Port Closed Diagnostic Green Light is On.
    a. If the VMC D7 Port Closed Switch Diagnostic Green Light is Off, ensure the clear Port Door if fully closed.
    b. Before replacing the Port Board check that the Port Cam is installed, not damaged, and the magnet is in position in end of the Port Cam.
    c. If the Port Door is fully closed and the VMC D7 Port Closed Switch Diagnostic Green Light is Off, change the Port Board.



VMC Diagnostic Lights.

Port Board.



Brushed Short Port Motor.

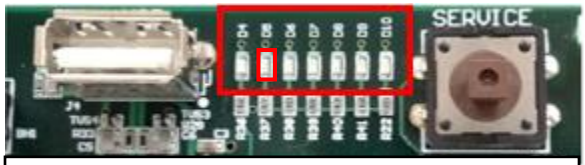
Port Cam, may be either Black or Clear.

Port Board.

5. If the Port Door is not fully closing, check for an obstruction.
    a. If no obstruction, go to Port Test and try to open and close the Port Door. In Port Test, the Port Door should open and close with no bounce back.
    b. If there is bounce back, slow response, or just the sound of the Port Motor turning, check the Port Cam on the Port Motor shaft for damage, missing or cam magnet is missing.
6. If there is still no Port Door movement, change the Port Assembly.

The Port Door Stays Open, Display says “Please Remove Product”

1. Before replacing any Cabinet Peripheral Control Boards:
   a. Check that that P1 pin 4 of the Port Board is getting 5VDC from P7 pin 1 of the VMC.
   b. Ohm the Communication blue & white wires from P1 pins 2 & 3 of the Port Board to P8 pins 2 & 3 of the VMC.
   c. Check for Cabinet Control Errors “P Comms” Error in programming Test Mode, List Errors.
   d. Replace the Port Board.
2. Remove Port Motor Cover and ensure the Port Board Green Status Light is flashing rapidly.
   a. If Green Status Light is rapidly flashing, the Port Board is good.
   b. If the Green Status Light is On solid, check the other Cabinet Control Boards, if their Green Status Light is also On solid replace the VMC. If the other Cabinet Peripheral Control Board Green Status Lights are rapidly flashing, replace the Port Board.
   c. If there is no Green Status Light, check another Cabinet Peripheral Control Board, if their Green Status Light are rapidly flashing, change the Port Board.
3. If Port Door is still open and Display still reads “Please Remove Product”, ensure the Port Product Detection Sensor Wire (black wire connected at bottom of Port Assembly) is connected and tight to the FR4 Port Sensor Assembly 401887.
4. Go to Port Test and test the Port Sensor. Note: Port Sensor must be turned On in Test Mode first to perform Port Test.
   a. In Port Test, the last number on the Display should be “0” with <u>nothing</u> in the Port. If the last number is “1” with nothing in the Port, change the FR4 Port Sensor.
   b. In Port Test, the last number on the Display should be “1” when an <u>item is placed</u> in the Port. If the last number is “0” with an item in the Port, change the FR4 Port Sensor.
5. Additionally, when in Port Test, the VMC D5 Port Sensor Diagnostic Red Light should illuminate with something in the Port.
   a. If the VMC D5 Port Sensor Diagnostic Red Light is On with nothing in the Port, or is Off with something in the Port, replace the FR4 Port Sensor.



VMC Diagnostic Lights.

Port Board.

FR4 Port Sensor.

TROUBLESHOOTING TABLES

COIN ACCEPTANCE ISSUES

PROBLEM	CAUSE	FIX
Coins Returned to Customer With No Credit Issued	• Coin Jam in Mech. • Flight Deck dirty. • No Power to Mech. • Coin Return Lever activated. • Vender in Test Mode. • Not Available Time Set. • Defective Coin Mech.	• Clear Jam and Test. • Clean Flight Deck. • Check VMC D6 Yellow Diagnostic Light is On when Service Door is opened. Check Harness from Mech to VMC. • Adjust Coin Return Lever. • Close Service Door. • Disable Not Available Time. • Replace Mech.
Will Not Payback Coins	• No Power to Mech. • No Coins in Tubes. • Tubes Programmed incorrectly. • Defective Coin Mech.	• Check VMC D6 Yellow Diagnostic Light is On when Service Door is opened. Check Harness from Mech to VMC. • Fill Coin Tubes with Coins. • Reprogram per Manufacturer recommendation. • Replace Coin Mech.

BILL ACCEPTANCE ISSUES

PROBLEM	CAUSE	FIX
Bill Acceptor will not run.	• Prices / tube cash conditions. • No Power to Bill Acceptor. • Vender in Test Mode. • Not Available Time Set. • Defective Bill Acceptor.	• Check Mech Tubes. • Check VMC D6 Yellow Diagnostic Light is On when Service Door is opened. Check Harness from Acceptor to MDB Harness to VMC. • Close Service Door and test bill acceptance. • Disable Not Available Time. • Replace Bill Acceptor.
Takes Bill in then rejects it.	• Acceptor Stacker full. • Defective Acceptor.	• Remove bills from Stacker. • Check Bill Acceptor. Replace Bill Acceptor.
Stacks Bill while in Escrow Mode.	• Max Price Not Yet Reached. • Bill Acceptor not capable of escrowing bills.	• Working as designed. • Replace Bill Acceptor with one that allows escrow of bills.
Bill Error listed in Test Mode.	• Communication Error with Bill Acceptor. • Bill Acceptor Reported Error.	• Check VMC D6 Yellow Diagnostic Light is On when Service Door is opened. Check Harness from Bill Acceptor to MDB Harness to VMC. Replace Bill Acceptor. • Test Bill Acceptor in test mode. Replace if it fails test.
Takes Bill, gives No Credit.	• Harness. • Acceptor. • VMC.	• Check VMC D6 Yellow Diagnostic Light is On when Service Door is opened. Check Harness from Bill Acceptor to MDB Harness to VMC, replace as needed. • Test Bill Acceptor in test mode. Replace if it fails test. • Replace VMC.

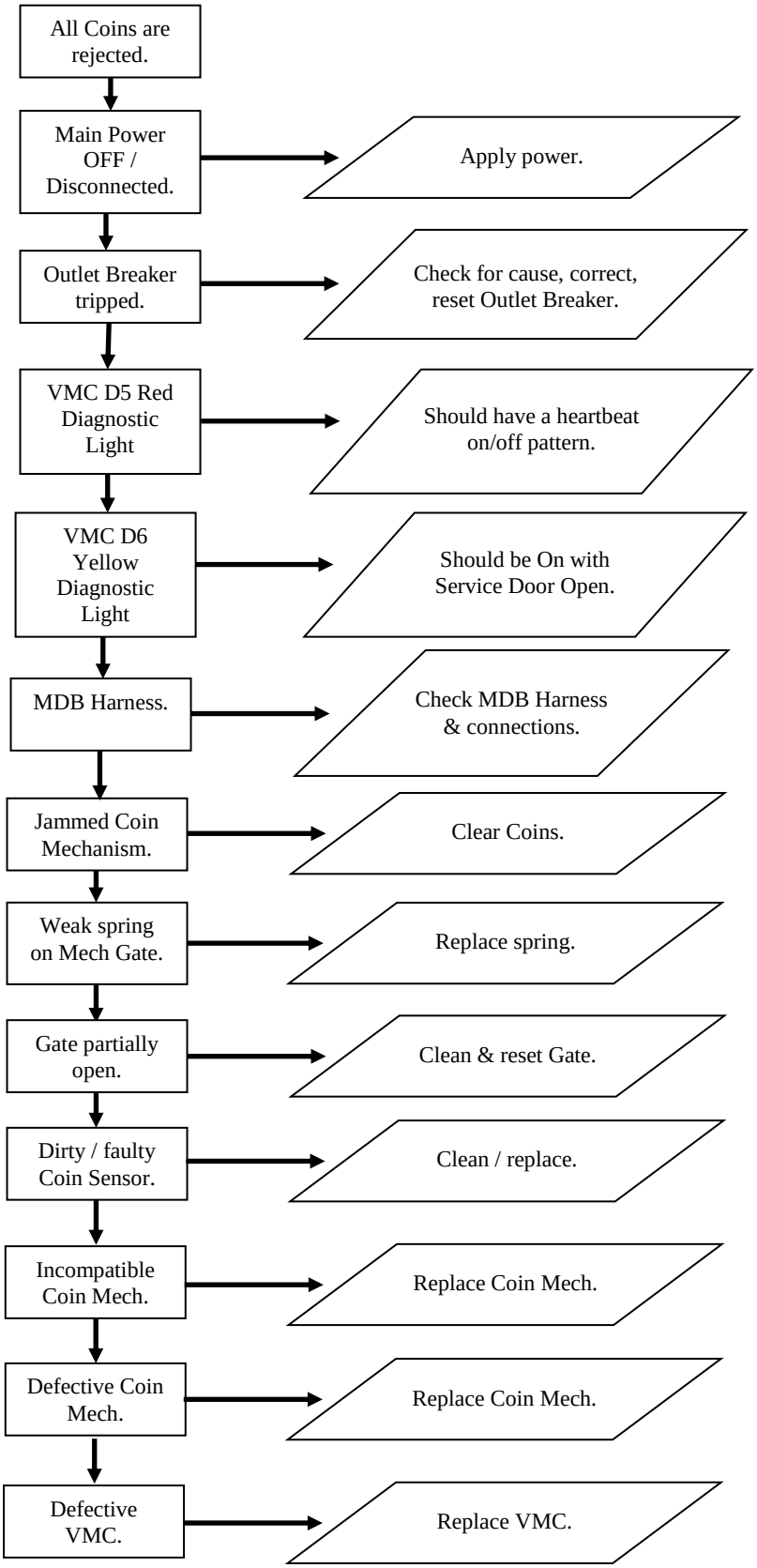
VMC ISSUES

PROBLEM	CAUSE	FIX
No Power to VMC.	• Wall electrical outlet. • Power Supply Cord. • AC Distribution Lighted On/Off Rocker Switch is Off. • AC Distribution Box. • Power Supply	• Check AC Voltage at the wall outlet. • If Power Supply Cord has a GFCI, check it is not tripped. Check AC Voltage going in to the AC Distribution Box. Replace Power Supply Cord as necessary. • Turn Lighted Rocker Switch On. • Check all of the above steps, replace the AC Distribution Box. • Check Power Supply Green status light is On solid. Check AC Voltage going from AC Distribution Box 8 Pin connector to the Power Supply 5 pin connector. Check 24VDC from Power Supply 6 pin connector to the AC Distribution Box 4 pin connector. Check AC Distribution Box Environmental Board Green Status Light is rapidly flashing. If Off replace the Environmental Board.
Out of Order or other Error Codes showing on Display.	• RAM Error.	• Refer to Programming Section, Test Mode, List Errors for specific Error Codes and troubleshoot issues listed.
Temporarily Out of Service.	• No Vendable Selections.	• Add product, clear Errors, test for proper operation. • Check Set Not Available time is Off/Disabled.

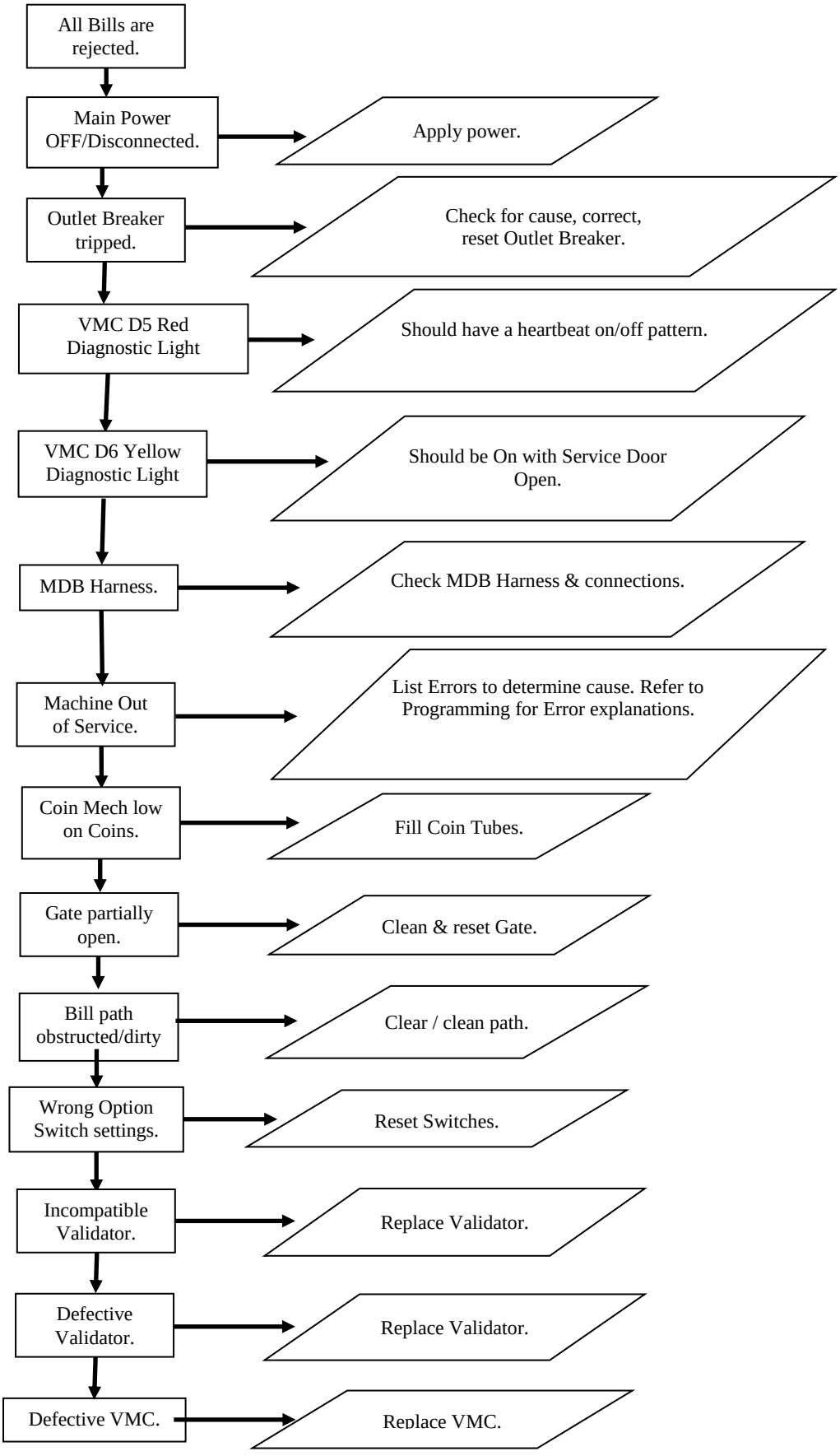
TROUBLESHOOTING FLOW CHARTS

These charts are intended as a guide to help isolate and correct problems you may encounter. Should your Machine show 'OUT OF SERVICE", go to Programming TEST MODE and press "B" to List Errors.

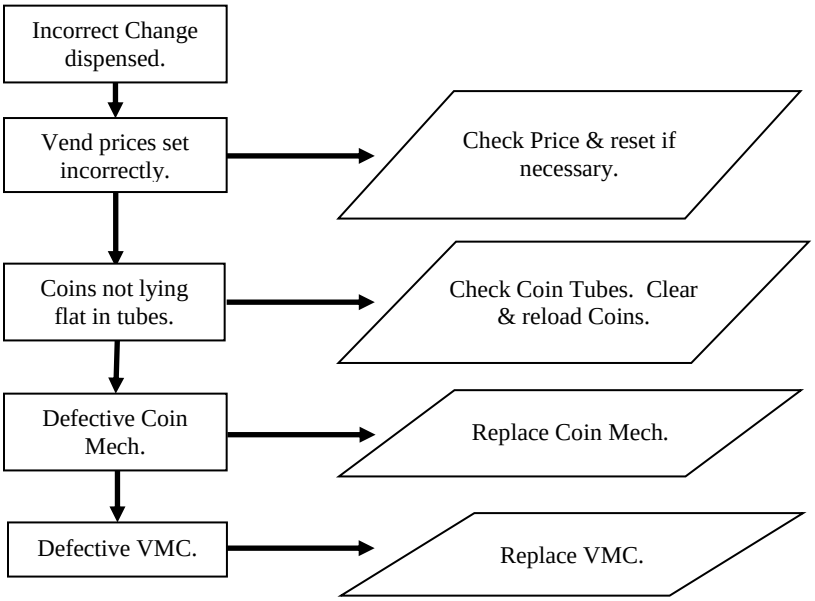
ALL COINS ARE REJECTED



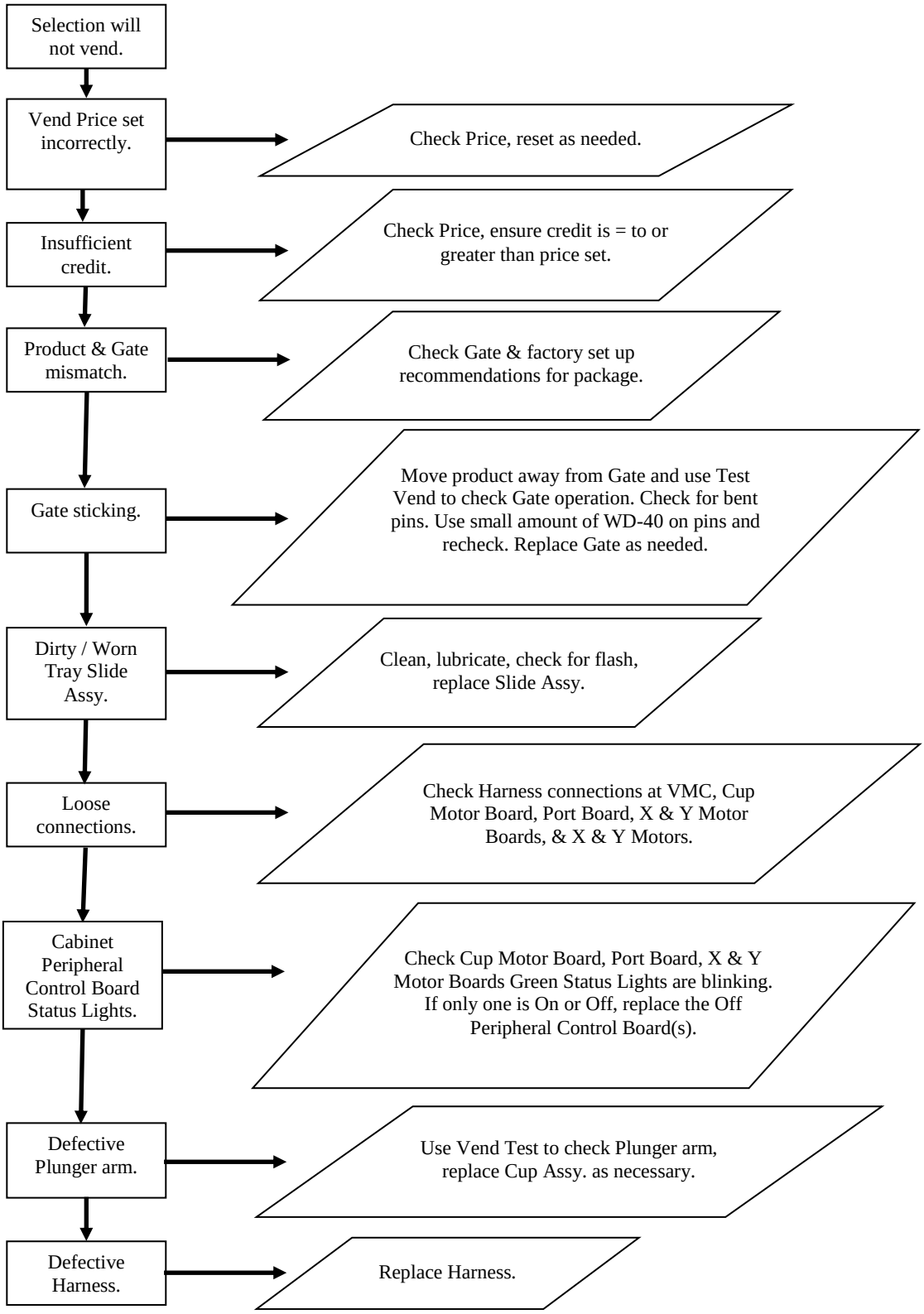
ALL BILLS ARE REJECTED



INCORRECT CHANGE DISPENSED

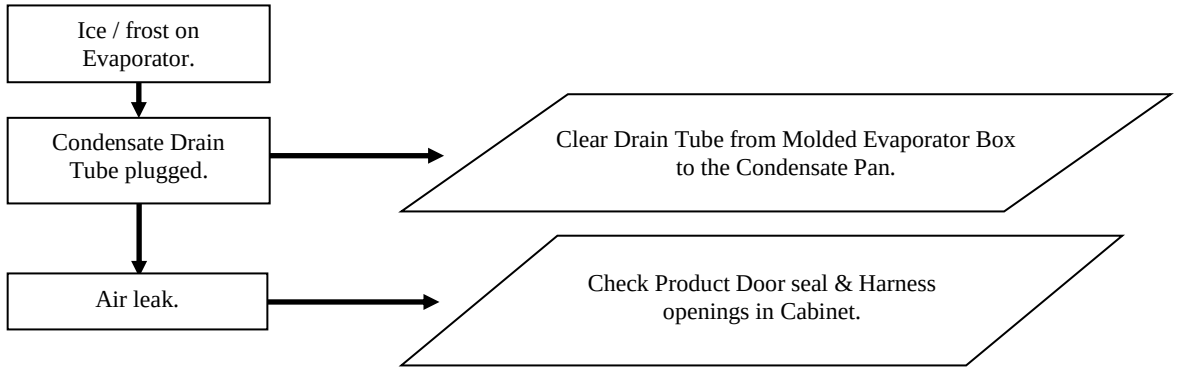


SELECTION WILL NOT VEND

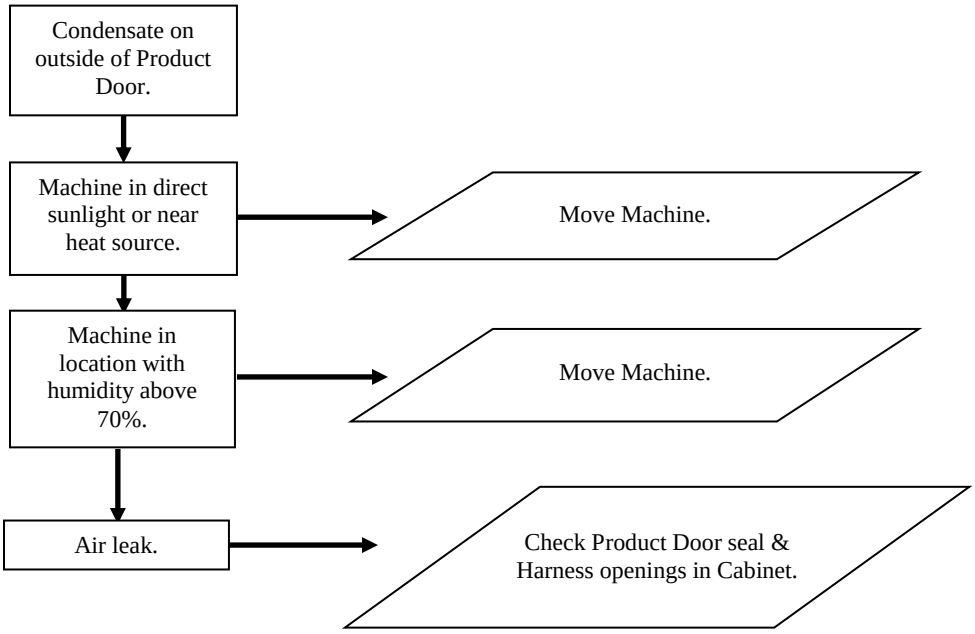


REFRIGERATION SYSTEM TROUBLESHOOTING FLOW CHARTS

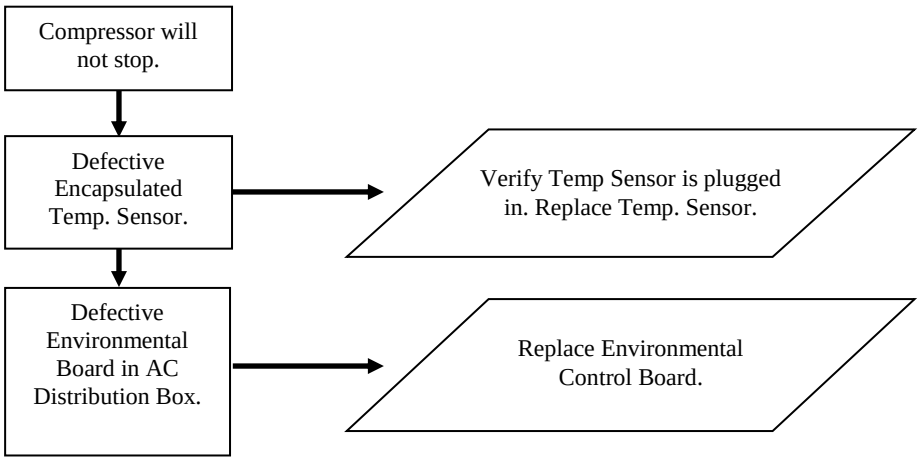
ICE / FROST ON EVAPORATOR



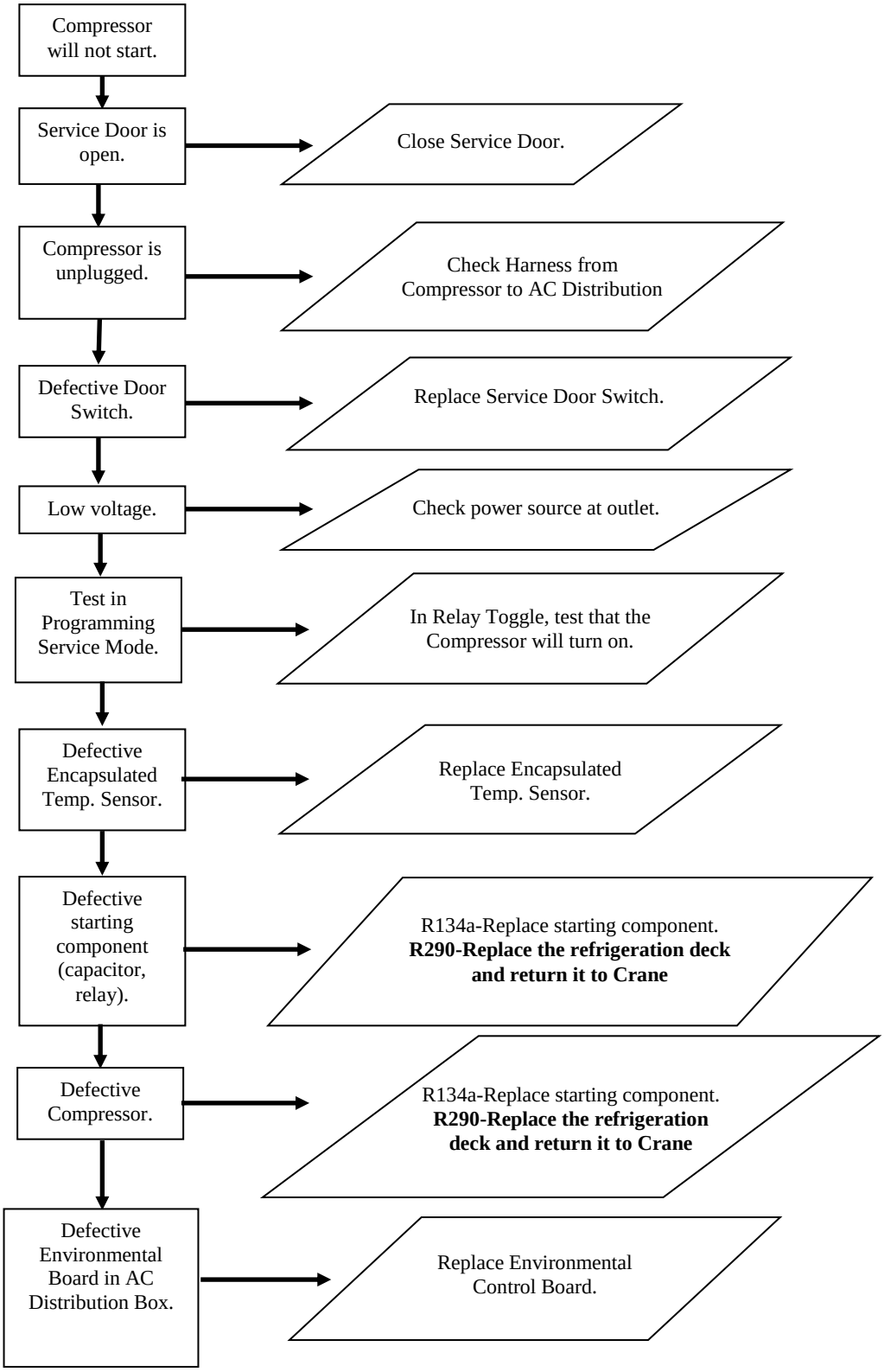
CONDENSATE ON OUTSIDE OF PRODUCT DOOR



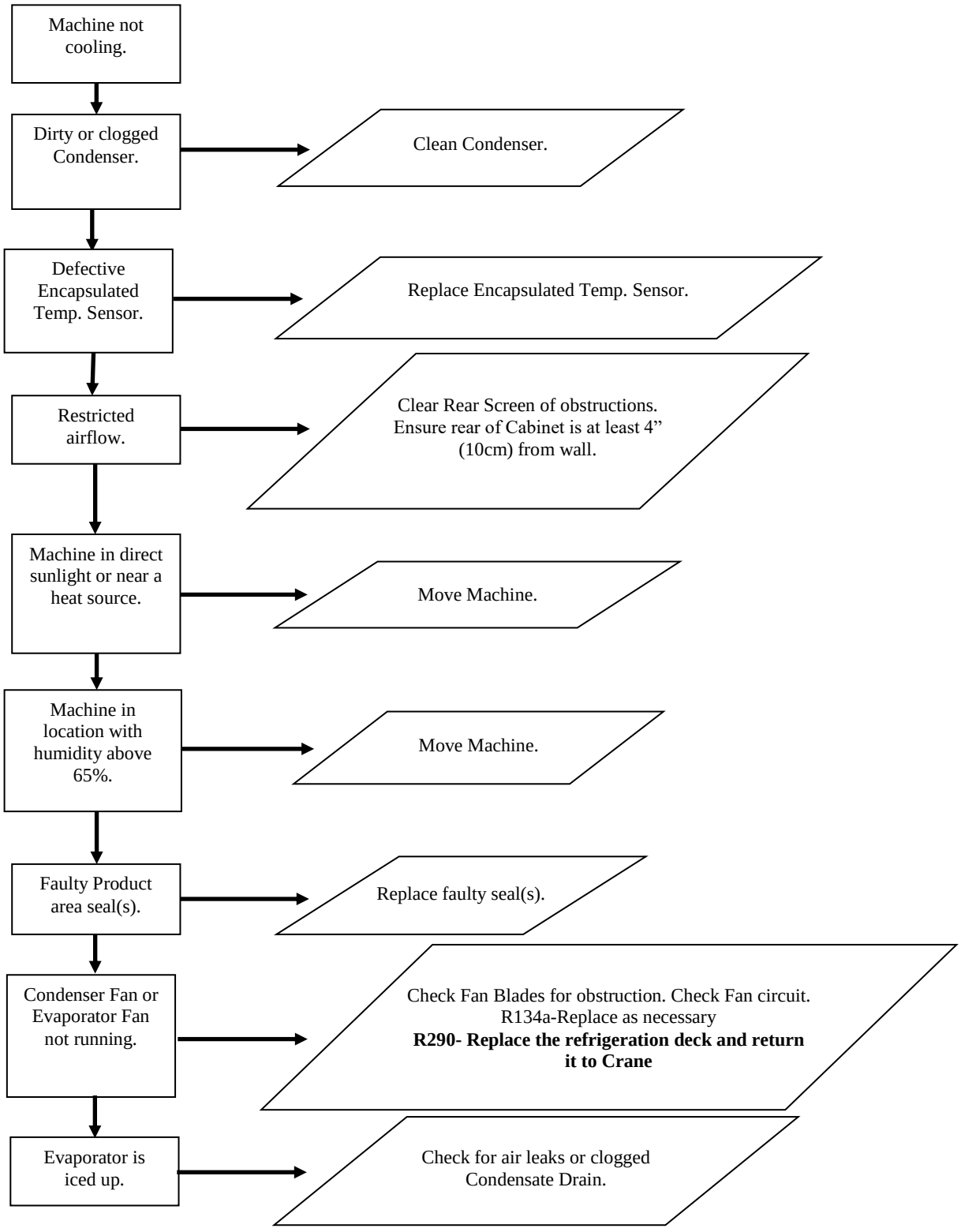
COMPRESSOR WILL NOT STOP



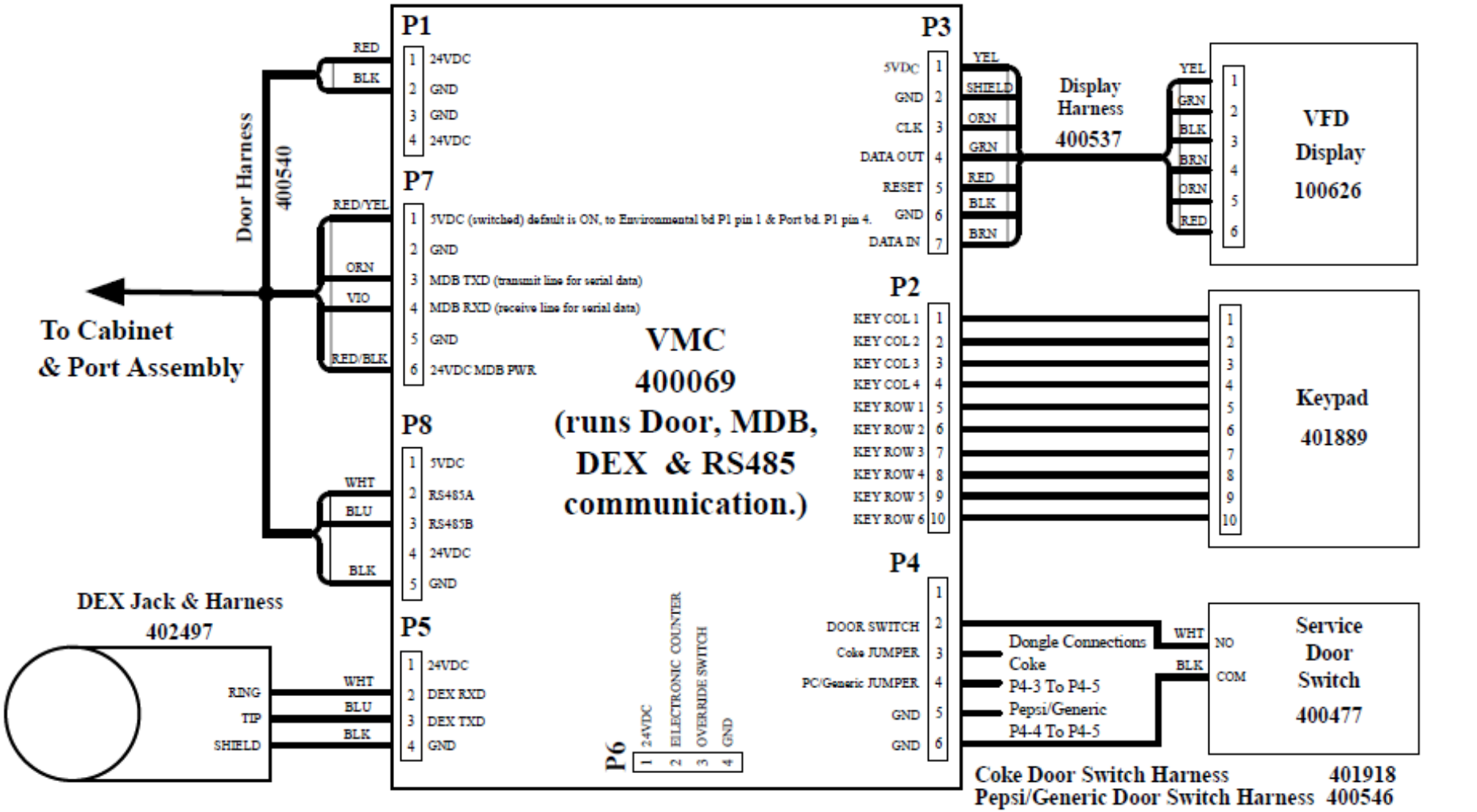
COMPRESSOR WILL NOT START



MACHINE NOT COOLING



BevMax Refresh 4 Classic Door Electronics Diagram (Domestic & Export)



BevMax Refresh 4 Classic
Door Electronics Diagram
Pg. 1 of 4
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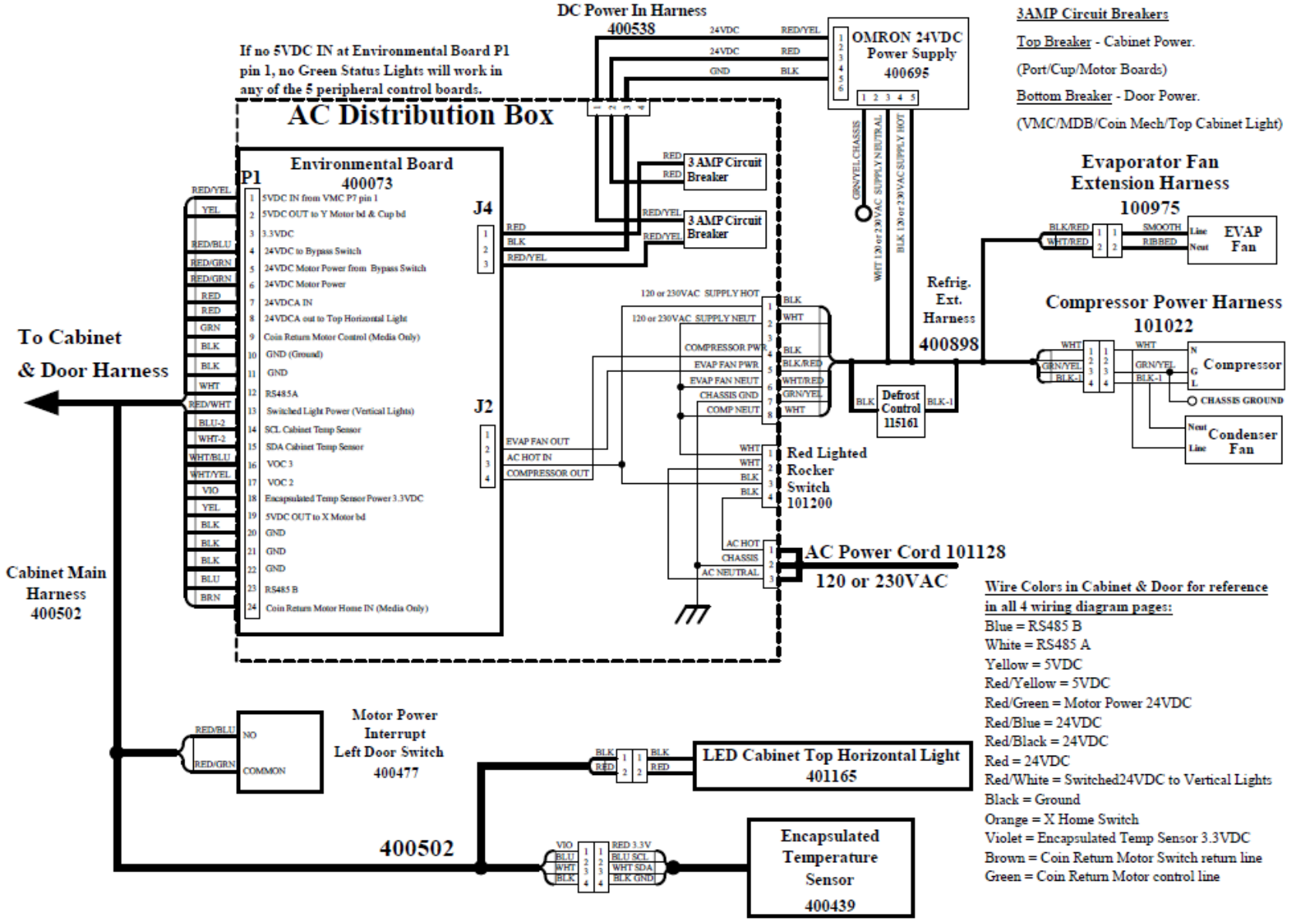
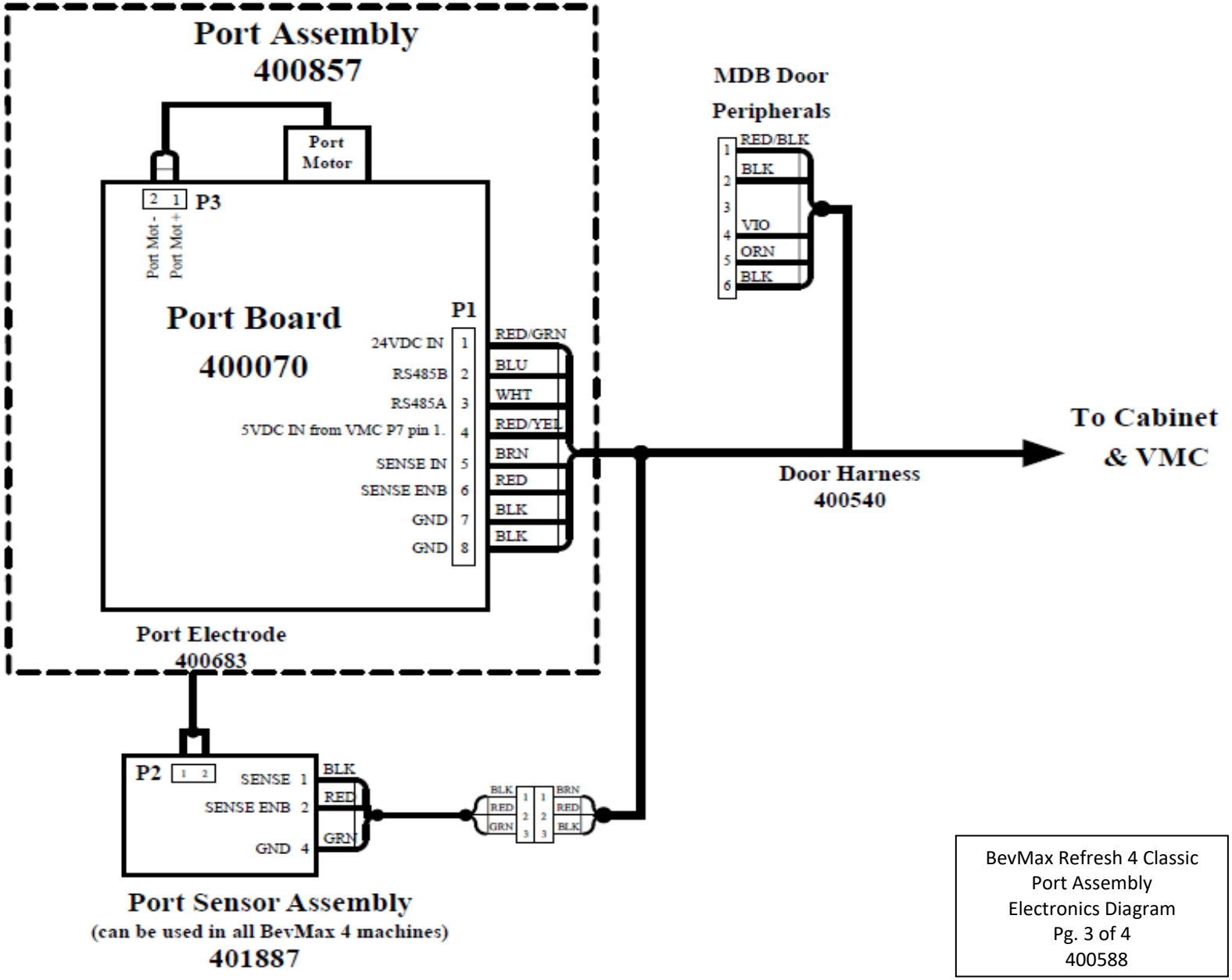
BevMax Refresh 4 Classic AC Distribution Box Electronics Diagram (Domestic & Export)



BevMax Refresh 4 Classic AC Distribution Box
Electronics Diagram
Pg. 2 of 4
400588

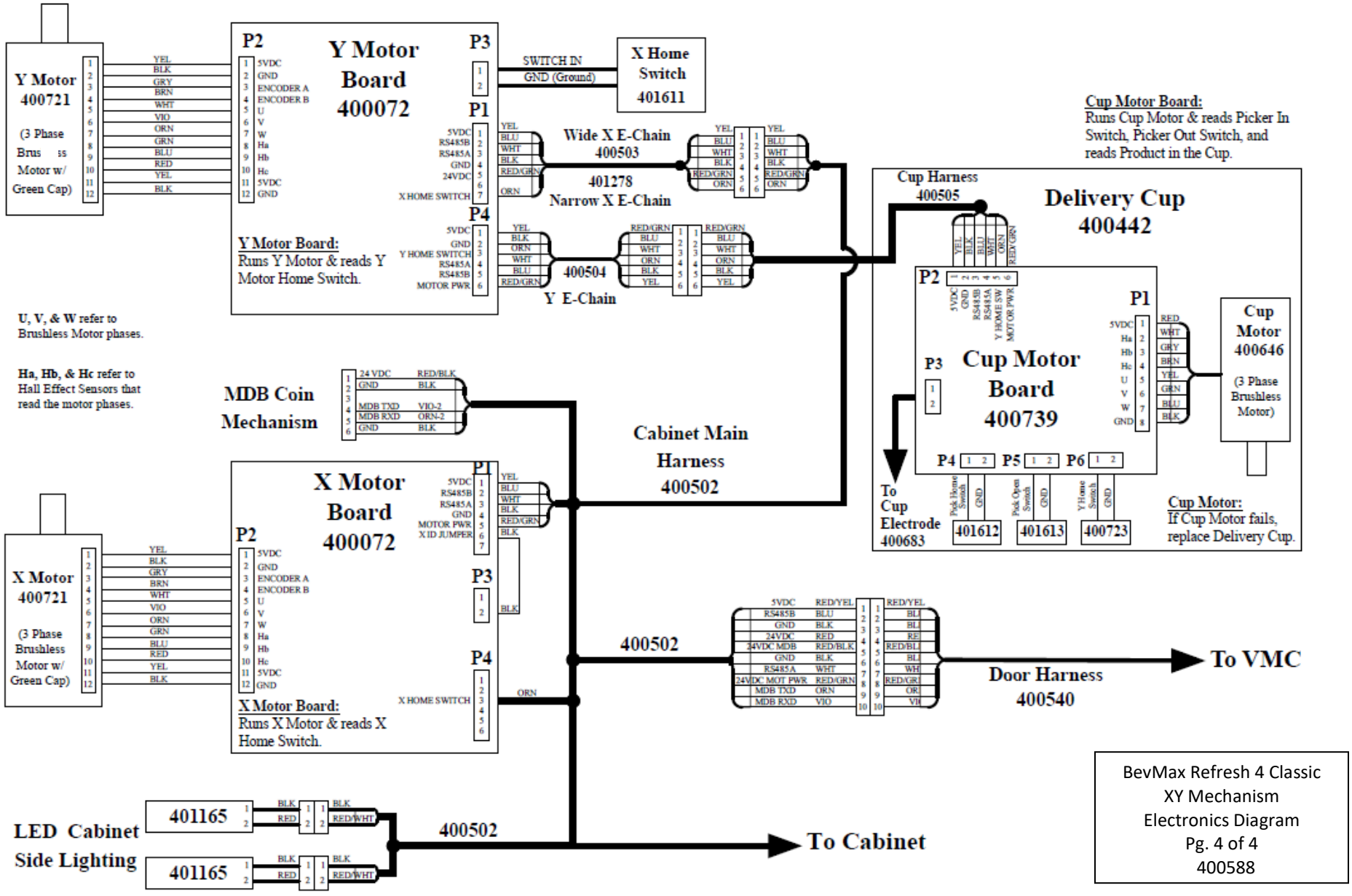
BevMax Refresh 4 Classic Port Assembly Electronics Diagram (Domestic & Export)

Port Board:
Controls the Port Motor, Port Vend Sensor & Port Open/Close Sensors.



BevMax Refresh 4 Classic
Port Assembly
Electronics Diagram
Pg. 3 of 4
400588

BevMax Refresh 4 Classic XY Mechanism Electronics Diagram (Domestic & Export)



BevMax Refresh 4 Classic XY Mechanism Electronics Diagram Pg. 4 of 4 400588

BEVMAX REFRESH 4 SEQUENCE OF OPERATION

- Machine is sitting powered up and in an idle state (waiting on a consumer).
- A credit is established by the consumer via coins, bill, or cashless device.
- As the VMC recognizes the currency, it will instruct the display to show that amount and wait for activity on the keypad.
- When a selection is made by the consumer, the VMC will check the amount of credit available against the selection requested to decide if it can vend that product.
- If the VMC determines the credit is adequate for that selection, it will then instruct the display to show the word VEND.
- The VMC will then communicate with the Y and X Motor Boards via RS485 communication to get its status, i.e., is its home switch closed, and it will communicate with the Cup Control Board to ensure the picker home switch is closed. ***If the Picker is extended it will not turn on the X or Y motors.***
- It will also communicate to the Port Board to determine if the Port Door is opened or closed.
- Once the VMC is certain that the all home switches are closed, the VMC will instruct the X and Y Motor Controllers to run the Motors to the position that corresponds with the selection requested.
- Once the Cup arrives at the selection, the Cup stops and both X and Y Motor Controllers report to the VMC that they have arrived at the location, and their home switches are open. X and Y Motor Controllers will wait for the next command.
- The VMC communicates with the Cup Motor Controller and instructs it to activate (turn on) its Cup Sensor.
- The VMC will instruct the Cup Motor Controller to run its Motor.
- Once the Cup Motor runs, the Cup Motor Controller will communicate to the VMC that it ran it's Motor and that it does or does not have product in the Cup.
- If there is product in the Cup at this time,
- The VMC will then instruct the X and Y Motor Boards to run their Motors to take the Cup to the Hook Swipe position near the Port opening.
- If the Cup Motor Board reports back that product is present, the VMC instructs the X and Y Motor Boards to complete the hook swipe sequence.
- After the swipe motion, the X Motor will back off 1" and hold in place.
- After all 3, Cup, X & Y Motor, Boards report to the VMC that they have completed their tasks, the VMC will instruct the X and Y Motor Boards to return the Cup to the home position.
- Once the Cup arrives home, the X and Y Motor Boards will report back to the VMC that the Cup is home.
- The VMC will tell the Port Board to open the Port Door and ask if it has product present.
- The Port Board will open the Port Door.
- The consumer removes the product, the VMC instructs the Port Board to close the Port Door.
- The VMC will instruct the display to show THANK YOU.
- The Vender will go back to idle and wait for the next vend.

Notes: