



MARS PARTS AND SERVICE MANUAL

P/N: 1120425





MARS TABLE OF CONTENTS

SAFETY SECTION	Pages MS-1 - MS-14
A COMMITMENT TO SAFETY	Page MS-2
VENDOR INSTALLATION	Pages MS-3 - MS-6
ELECTRICAL HAZARDS.....	Pages MS-7 - MS-8
MECHANICAL HAZARDS	Page MS-9
REFRIGERATION HAZARDS	Page MS-10
SUBSTITUTION AND MODIFICATIONS	Pages MS-11 - MS-12
CONSUMER SAFETY WARNING.....	Page MS-13
GENERAL INFORMATION:	Pages MG-1 - MG-21
GENERAL INFORMATION.....	Pages MG-2 - MG-4
INITIAL SET-UP	Pages MG-5 - MG-6
LABEL INSTALLATION	Page MG-7
ALIGNMENT CHECK	Page MG-8
VENDOR TEMPERATURE CONTROL SETTING	Page MG-9
ELECTRO-MECHANICAL FUNCTIONAL DESCRIPTION.....	Pages MG-10 - MG-11
REFRIGERATION SYSTEM - FUNCTIONAL DESCRIPTION.....	Pages MG-12 - MG-13
VENDOR ELECTRONIC CONTROL.....	Pages MG-14
LOADING PRODUCT	Pages 30 - 31
SETTING PRICES.....	Page 32
LOCATION OF PRODUCTS IN THE MACHINE	Pages 33 - 34
MARS PROGRAMMING	Pages 35 - 48
MAINTENANCE	Pages 49 - 51
REFRIGERATION OPERATION	Pages 52 - 54
REFRIGERATION PARTS DESCRIPTION.....	Pages 55 - 57
WIRING DIAGRAMS	Pages 58 - 60
MARS PARTS SECTION	Pages MP-1 – MP-
READING A PARTS LIST.....	Page 63
HARDWARE LIST	Pages 64 - 65
MAIN DOOR	Pages 66 - 69
SELECTION PANEL.....	Pages 70 - 71
LOCK ASSEMBLY.....	Pages 72 - 73
INNER DOOR.....	Pages 74 - 75
CABINET ASSEMBLY.....	Pages 76 - 77
BAR MODULE	Pages 78 - 79
LEFT HAND BAR MODULE FIFTH.....	Pages 80 - 81
BAG MODULE	Pages 82 - 83
UNIVERSAL MODULE - HELIX.....	Pages 84 - 85
REFRIGERATION ASSEMBLY	Pages 86 - 87
ELECTRONIC COMPONENTS	Pages 88 - 89
ELECTRONIC HARNESSSES.....	Pages 90 - 91
OPTIC ASSEMBLY.....	Pages 92 - 93
LABELS AND DECALS	Pages 94
SUGGESTED SPARE PARTS	Pages 95 - 96
TROUBLE SHOOTING	Page 97
VENDO WARRANTY.....	Pages 99 - 100
TROUBLE SHOOTING GUIDE	Pages 101 - 104



PARTS, SALES, & SERVICE CENTERS OF VENDO/SANDEN COMPANYPages 105 - 106



SAFETY SECTION



A COMMITMENT TO SAFETY

The Vendo Company is committed to safety in every aspect of our product design. Vendo is committed to alerting every user to the possible dangers involved in improper handling or maintenance of our equipment. The servicing of any electrical or mechanical device involves **potential hazards**, both to those servicing the equipment and to users of the equipment. These hazards can arise because of improper maintenance techniques. The purpose of this manual is to alert everyone servicing Vendo equipment of potentially hazardous areas, and to provide **basic safety guidelines** for proper maintenance.

This manual contains various **warnings** that should be carefully read to minimize the risk of personal injury to service personnel. This manual also contains service information to insure that proper methods are followed to avoid damaging the vendor or making it unsafe. It is also important to understand these **warnings** are not exhaustive. Vendo could not possibly know, evaluate, or advise of all of the conceivable ways in which service might be done. Nor can Vendo predict all of the possible hazardous results. The safety precautions outlined in this manual provide the basis for an effective safety program. Use these precautions, along with the service manual, when installing or servicing the vendor.

We strongly recommend a similar commitment to safety by every servicing organization. Only **personnel properly trained** in vendor servicing **should have access to the interior of the machine**. This will minimize the potential hazards that are inherent in electrical and mechanical devices. Vendo has no control over the machine once it leaves the premises. It is the owner or lessor's responsibility to maintain the vendor in a safe condition. See Section I of this manual for proper installation procedures and refer to the appropriate service manual for recommended maintenance procedures. If you have any questions, please contact the Technical Services Department of the Vendo office nearest you. Refer to the listing at the back of this manual.

SAFETY RULES

- Read the Safety Manual before installation or service.
- Test for proper grounding before installing to reduce the risk of electrical shock and fire.
- Disconnect power cord from wall outlet before servicing or clearing product jams. The vending mechanism can trap and pinch hands.
- Use only fully-trained service technicians for "Power On" servicing.
- Remove any product prior to moving a vendor.
- Use adequate equipment when moving a vendor.
- Always wear eye protection, and protect your hands, face, and body when working near the refrigeration system.
- Use only authorized replacement parts.
- Be aware of inherent dangers in rocking or tipping a vending machine.



SECTION I: VENDOR INSTALLATION

- A. Vendors are large, bulky machines of significant size and weight. Improper handling can result in injury. When moving a vendor, carefully plan the route to be taken and the people and equipment required to accomplish the task safely.
- B. Remove all tape, shipping sealant, and Styrofoam from the vendor. Loosen any shipping devices used to secure interior parts during shipping. Remove the wooden shipping base, attached to the vendor base by the vendor leveling screws. Make certain the leveling screws are in place and functional.
- C. Position the vendor three to four inches (7.6 cm to 10.2 cm) from a well-constructed wall of a building or otherwise on a flat, smooth surface.

IMPORTANT: *The vendor requires three inches (7.6 cm) of air space from the wall to ensure proper air circulation to cool the refrigeration unit.*

- D. Adjust the leveling screws to compensate for any irregularities on the floor surface. Ideally, no adjustment will be necessary and the leveling legs will be flush with the bottom of the vendor. A spirit level is a useful aid to level the vendor. When the vendor is properly leveled, the outer door, when opened, will remain stationary. Vendors must be level to insure proper operation and to maintain stability characteristics. Do not add legs to the vendor.
- E. Check the manufacturer's nameplate on the left side of the vendor outer door to verify the main power supply requirements of the vendor. Be sure the main power supply matches the requirements of the vendor. To ensure safe operation, plug the vendor only into a properly grounded outlet.

DO NOT USE EXTENSION CORDS.

- F. Recommended voltage specs = volts required + amps of circuit.

NOTE: Any power supply variance more than $\pm 10\%$ may cause the vendor to malfunction.

* Power outlets must be properly **grounded**.

* Power outlets must be properly **polarized**, where applicable.

Test the outlets using the following information. (Refer to Figure 1 on page MS-4.)

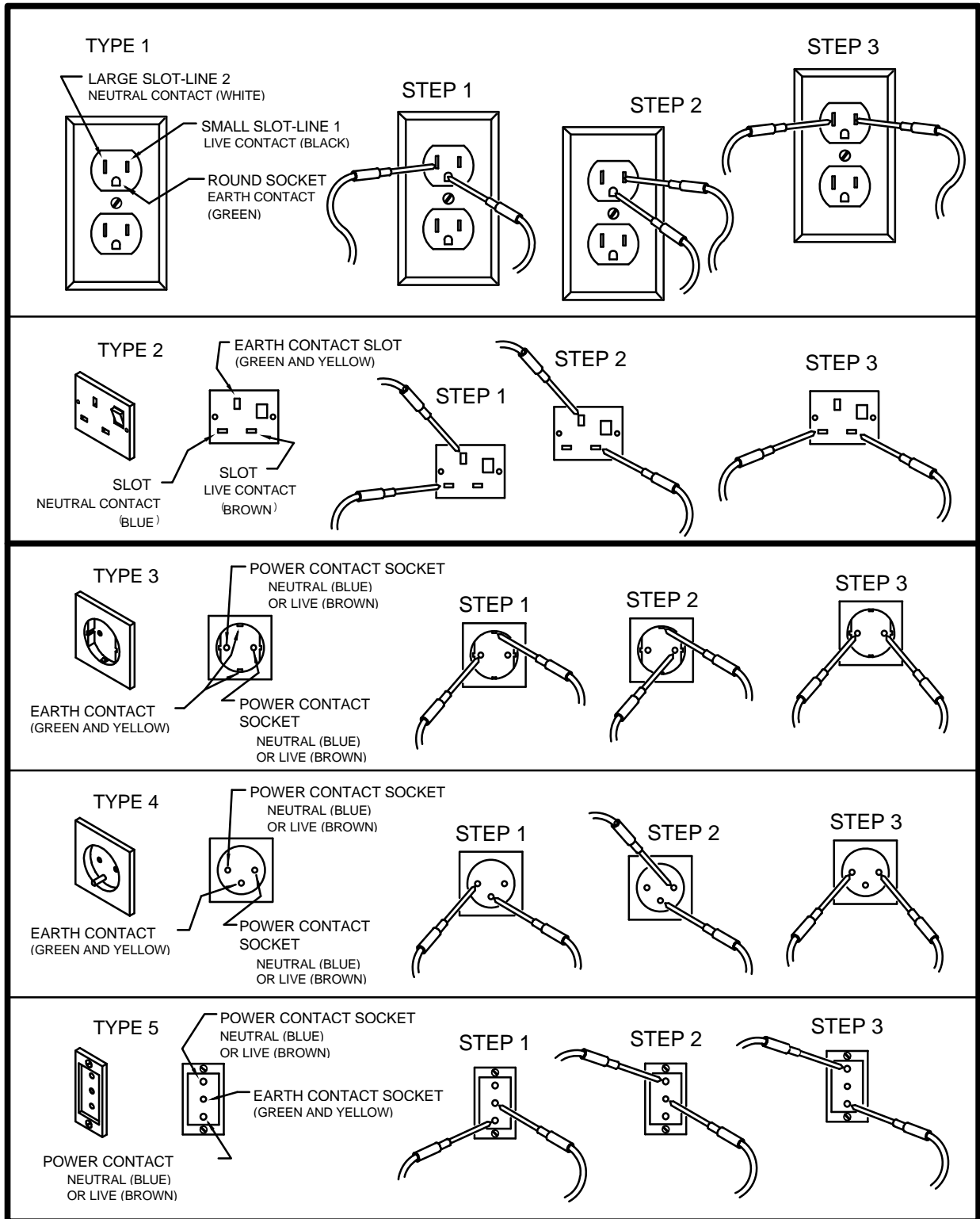


FIGURE 1

CHECKING FOR PROPER POLARIZATION



SECTION I: VENDOR INSTALLATION (CONTINUED)

For Type 1 and Type 2 outlets, test for Grounding and Polarization as follows:

1. With a test device (volt meter or test light), connect one probe to the receptacle's Neutral contact and the other to the Live contact. The test device should show a reaction.
2. Connect one probe to the receptacle's Earth contact and the other to the Live contact. The test device should show a reaction.

For Type 3 through Type 5 outlets, test for Grounding as follows:

1. With a test device (volt meter or test light), determine which of the receptacle's power contacts is the Live contact.
 - A. Connect one probe to the receptacle's Earth contact.
 - B. Connect the second probe to the left (or upper), power contact. If a reaction occurs, this is the Live power contact. If a reaction does not occur, move the second probe to the right (or lower), contact. A reaction should occur, indicating that this is the Live power contact.
2. Connect one probe to the receptacle's Live power contact (as determined in step 1). Connect the second probe to the other power contact (neutral). The test device should show a reaction.

IF THE ABOVE CONDITIONS ARE NOT MET FOR THE GIVEN OUTLET TYPE, CONTACT A LICENSED ELECTRICIAN AND HAVE THE NECESSARY CORRECTIONS MADE.

Ambient temperature operating range for this vendor is +5°F to +113°F (-15°C to +45°C). The climatic rating of this vendor is "N" (Normal).



SECTION I: VENDOR INSTALLATION (CONTINUED)

G. Door Support (Fig. 2)

The door support is to insure that the outer door closes squarely to the cabinet. Raising or lowering the door support can also insure proper alignment of the door latch.

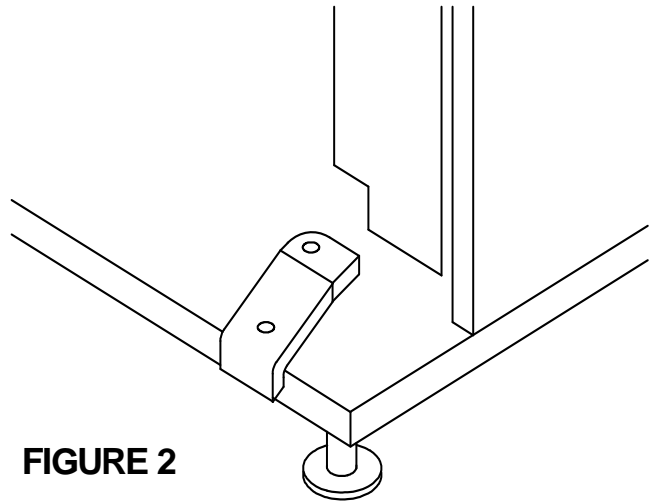


FIGURE 2

H. Door Latch Alignment (Fig. 3)

After any door adjustment, the floating Quicker Lock assembly should align itself automatically. The latch assembly is adjustable. To adjust, loosen the latch bracket mounting screws, and raise or lower the latch assembly into position, then tighten the mounting screws.

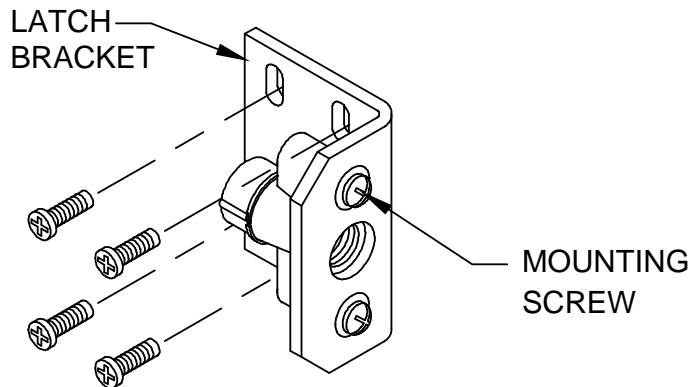


FIGURE 3



WARNING:
KEEP FINGER AND OTHER OBJECTS OUT OF LOCK CAVITY.

NOTE: Refer to the appropriate Parts and Service Manual for detailed instructions, operating principles, and recommended maintenance intervals and procedures.



SECTION II: ELECTRICAL HAZARDS

GENERAL

Vendo vending machines are provided with the appropriate power supply setting for your area. All models are equipped with transformers, enabling the vending machine to operate on different main voltages. Refer to page MS-4 for information to determine the main power requirements. Refer to the appropriate Service Manual for details of transformer operations.

The power sources are standard for both household and commercial lighting and appliances. However, careless or improper handling of electrical circuits can result in injury or death. Anyone installing, repairing, loading, opening, or otherwise servicing a vending machine should be alerted to this point. Apply all of the normal precautions observed in handling electrical circuits, such as:

- Refrigeration servicing to be performed by qualified personnel only.
- Unplug the vendor or move power switch to off position before servicing or clearing product jams.
- Replace electrical cords if there is any evidence of fraying or other damage.
- Keep all protective covers and ground wires in place.
- Plug equipment into outlets that are properly polarized, where applicable, and protected with fuses or circuit breakers.
- All electrical connections must be dry and free of moisture before applying power.

A. Grounding Systems

Vendo vending machines are provided with the appropriate service cord for the power supply in your area. The service cord will connect to the matching electrical outlet. Always ensure that the outlet to be used is properly grounded, and polarized where applicable, before plugging in the vendor. (See pages MS-3 - MS-5).

WARNING:
**ALWAYS TEST TO VERIFY PROPER GROUNDING PRIOR TO
INSTALLATION IN ORDER TO REDUCE THE RISK OF ELECTRICAL
SHOCK AND FIRE.**

The electrical grounding system also includes the bonding of all metal components within the vendor. This involves a system of bonding wires identified by green or green and yellow marking. The system uses serrated head screws, lock washers, and star washers to insure the electrical connection between parts. Maintenance of vending equipment may involve disassembly. Include the above items when reassembling, even if the vending machine may appear to function normally without them. Omitting any of these items can compromise a link in the grounding system.



See the appropriate Service Manual or kit instructions for components and assembly instructions.

SECTION II: ELECTRICAL HAZARDS (CONTINUED)

B. Servicing with “Power Off”

For maximum safety, unplug the service cord from the wall outlet before opening the vendor door. This will remove power from the equipment and avoid electrical and mechanical hazards. Service personnel should remain aware of possible hazards from hot components even though electrical power is off. See the appropriate sections of this manual for further information.

C. Servicing with “Power On”

Some service situations may require access with power on. Power-on servicing should be performed **only** by fully qualified service technicians. Particular caution is required in servicing assemblies that combine electrical power and mechanical movement. Sudden movement, to escape mechanical action, can result in contact with live circuits and vice versa. It is therefore doubly important to maintain maximum clearances from both moving parts and live circuits when servicing.

WARNING:
“POWER-ON” SERVICING SHOULD BE ACCOMPLISHED ONLY BY FULLY TRAINED PERSONNEL. SUCH SERVICE BY UNQUALIFIED INDIVIDUALS CAN BE DANGEROUS.

Power to lighting system is shut off automatically by the electronic controller when the outer door is opened.



SECTION III: MECHANICAL HAZARDS

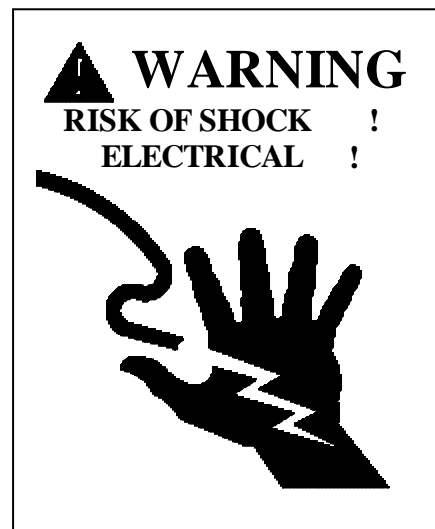
A. Servicing of Moving Parts and Assemblies

When servicing assemblies involving moving parts, **use extreme caution!!** Keep fingers, hands, loose clothing, hair, tools, or any foreign material clear of entrapment.

As noted before under the Electrical Hazards section, “Power On” servicing should **only** be performed by qualified personnel. Refer to and heed the warnings noted in Electrical Hazards section. These warnings refer to the potential hazards associated with electrical power and moving parts. Always maintain maximum clearances from electrical and moving parts.

Always reinstall protective covers and guards when reassembling equipment.

WARNING:
THIS VENDING MACHINE INCLUDES MECHANICAL EQUIPMENT WHICH CAN BE HAZARDOUS IF IMPROPERLY HANDLED OR SERVICED. USE CAUTION AND CONSULT THE VENDO SAFETY MANUAL AND THE VENDO SERVICE MANUAL FOR ADDITIONAL SAFETY INFORMATION.





SECTION IV: REFRIGERATION HAZARDS

GENERAL

Refrigeration systems involve both electrical power and mechanical action. These systems may present any of the potential dangers shown in the sections on Electrical and Mechanical Hazards contained in this manual.

A. **Compressed Refrigerant**

Refrigeration systems involve the compression and evaporation of gases. The pressures contained represent a potential hazard if suddenly released in confined areas. Caution is required when performing maintenance tests or repairs. All testing of sealed refrigeration systems should be done by trained personnel who are familiar with the systems and pressures involved.

B. **Physical Protection**

The accidental release of refrigerant gases can result in physical injuries. Always wear protective glasses and protect your hands, face, and body when working near the refrigeration system.

WARNING:
ALWAYS WEAR EYE PROTECTION AND PROTECT YOUR HANDS, FACE, AND BODY WHEN WORKING NEAR THE REFRIGERATION SYSTEM.

SECTION V: TEMPERATURE HAZARDS

GENERAL

Maintenance personnel should be alert to the potential hazards from hot metal surfaces. High temperatures may be present throughout the refrigeration system although electrical power has been removed.



SECTION VI: SUBSTITUTIONS AND MODIFICATIONS

GENERAL

Unauthorized changes, or the substitution of unauthorized parts, can compromise the equipment designs. This can result in unsafe conditions for either the service personnel or the equipment users. Always refer to the appropriate Parts and Service Manual for replacement parts and maintenance instructions. If questions arise, contact the Technical Services Department of the Vendo office in your area. (See pages 105 and 106.)

When servicing the vending machine, always reassemble all components to their original location and position. Maintain the correct routing for tubing, electrical wiring, etc. Replace all clamps, brackets, and guides to their original locations. Replace all tubing, sleeving, insulating material, and protective covers to their original condition.

WARNING:

VENDO EQUIPMENT HAS BEEN PROVIDED WITH APPROPRIATE PROTECTIVE DEVICES TO PROTECT AGAINST THE POSSIBILITY OF OVERHEATING AND FIRE, AS A RESULT OF EQUIPMENT OR COMPONENT FAILURES. SUBSTITUTION, MODIFICATION, OR BYPASSING OF SUCH PROTECTIVE DEVICES CAN CREATE DANGEROUS CONDITIONS. PROTECTIVE CIRCUITS SHOULD NEVER BE BYPASSED, AND FAILED PROTECTIVE DEVICES MUST BE REPLACED ONLY WITH FACTORY-AUTHORIZED PARTS.

A. Service Cord Replacement

Vendo vending machines are furnished with unique power supply cords. If replacement becomes necessary, consult the Parts Section and order the correct replacement cord for the model of vending machine in question. Do not use substitute replacement cords. Only authorized service personnel with appropriate training should replace the vending machine service cord. If a question should arise concerning which service cord to order, contact the Technical Services Department of the Vendo office in your area for assistance.



SECTION VI: SUBSTITUTIONS AND MODIFICATIONS (CONT'D)

WARNING:
THIS APPLIANCE MUST BE EARTHED
IMPORTANT

The wires in the mains leads are colored in accordance with the following code:

110/120	220/240	
Green	Green and Yellow	Earth
White	Blue	Neutral
Black	Brown	Live



SECTION VII: CONSUMER SAFETY WARNING

WARNING:
VENDOR CAN BE OVERTURNED IF SUFFICIENT FORCE IS APPLIED, AND MAY RESULT IN SERIOUS INJURY OR DEATH.

GENERAL


There have been incidents, including fatalities, when vending machines have been vandalized by being pulled over in an attempt to obtain free product or money.

To warn of the danger involved in tipping, shaking, or rocking the vending machine, a decal has been designed to be affixed to vending machines. (One such decal is supplied with the vending machine.) Vendo will supply sufficient decals to be placed on all machines, on request. Should you require additional information, contact a service representative. See parts, sales and service centers listed on page 105 and 106.



THE FOLLOWING DECAL SHOULD BE PLACED IN A POSITION ON THE VENDOR CONTROL PANEL AT EYE LEVEL.

	WARNING
	
<p>Never rock or tilt. Machine can fall over and cause serious injury or death.</p> <p>Vending machine will not dispense free product.</p>	
389611A	

ENGLISH

	MISE EN GARDE
	
<p>Ne jamais secouer ou incliner. Le distributeur peut se renverser et causer des blessures graves ou la mort.</p> <p>Cette machine ne distribue pas de produits gratuitement.</p>	
389611-1A	

FRENCH

	AVISO
	
<p>Nunca voltie o incline esta maquina. Puede caer sobre usted y causarle heridas graves o matarle.</p> <p>Esta Vendomatica no provee producto gratis.</p>	
389611-2A	

SPANISH



GENERAL INFORMATION



GENERAL INFORMATION

This manual contains programming, operation, and complete parts and electrical wiring diagrams.

The Mars controller has a microprocessor which will permit pricing per selection from 0.00 to 99.99. This machine also has space-to-sales programming.

Specifications:

MODEL	MARS		
SELECTIONS	10		
DIMENSIONS (HEIGHT X WIDTH X DEPTH)			
CURVED DOOR	72" x 39" x 30"		
VENDING PRODUCT CAPACITY:			
BAR MODULE: 46 BARS PER COL. 4 COL. PER MODULE TOTAL: 184 BARS PER MODULE	BAG MODULE: 39 BAGS PER COL. 3 COL. PER MODULE TOTAL: 117 BAGS PER MODULE	UNIVERSAL MODULE: 21 PRODUCTS PER COL. 3 COL. PER MODULE TOTAL: 63 PRODUCTS PER MODULE	
SHIPPING WEIGHT	685 POUNDS		
OPERATION VOLTAGE	115v 60 Hz. (U.S.)	220v 50 Hz (Int'l)	240v 50Hz (UK, Australia)
AMP. RATING	10		
REFRIGERATION VOLTAGE	115v 60Hz. (U.S.)	220v 50 Hz (Int'l)	240v 50Hz (UK, Australia)

*Dimensions and shipping weight will vary slightly due to manufacturing tolerances, shipping boards, and whether or not coinage is installed.



INITIAL SET-UP

A. UNPACKING

Remove all plastic film, cardboard, and tape from the outside of the vendor. Loosen any shipping devices used to secure interior parts during shipment.

To remove shipping boards from base, raise vendor on a well-stabilized lifting device. Remove the leveling bolts that hold the boards in place and remove the boards. Replace bolts to equal heights in the threaded holes.

Another method to remove shipping boards is to split the boards apart. Using a pinch bar, or a heavy screwdriver and hammer, insert tool into the slots and force the board apart.

B. POSITIONING AND LEVELING

IMPORTANT: PLACE THE VENDOR (IN DESIRED LOCATION) AT LEAST 3 TO 4 INCHES AWAY FROM ANY REAR OBSTRUCTION. This is for proper air flow through the refrigeration compartment. The system requires front to rear air circulation for proper operation. Level vendor with leveling bolts. Be sure all four leveling bolts are supporting the machine.

C. POWER SUPPLY CONNECTION

CAUTION: DO NOT USE AN EXTENSION CORD!

The vendor's power requirements will vary depending upon the country it was purchased for. To verify the power requirements of the vendor, check the serial plate located on the hinge side of the door (see Figure 4 on page MG-6). The power requirements are listed on the serial plate.

To insure safe operation of the vendor, the vendor's power supply must be a properly grounded and polarized outlet. Before plugging the vendor into the outlet, test the outlet to confirm it will meet the vendor's power requirements. If the power supply of the outlet is different from the power requirements of the vendor, different settings on the transformer may be necessary.

If the power requirements are not properly met, contact a licensed electrician and have the necessary corrections made.

Should you require additional information, contact a service representative. See the Parts, Sales and Service Centers listed on pages MP-34 and MP-35.



INTRODUCTION AND MODEL IDENTIFICATION

Example:

APPROVED FOR OUTDOOR USE	
MODEL	[]
SERIAL NO.	Lot Code: YYMMDD []
CHARGE	[] OZ. R-134a
MIN. TEST PRESSURE APPLIED - PSI LOW SIDE 140 HIGH SIDE 235	
UL	
239L	
VENDING MACHINE REFRIGERATED	
BASIC UNIT	[]
LR 13085	[]
AMPS	[]
115v	VOLT
50/60	CYCLE
1	PHASE
THE VENDO COMPANY FRESNO, CA.	

POWER REQUIREMENTS

FIGURE 4

NOTE: The **Model** number of the vending machine is located on the top, left hand corner of the serial plate. **Do Not use the "BASIC UNIT" number.** The BASIC number is the cabinet size, which is used on a number of different machines. A typical model number could read "786502004". 786 is the model number, and 004 tells what options are included.

LABEL INSTALLATION



FLAVOR LABELS: Flavor labels are installed from inside the outer door. Open the vendor door and swing the inner door away to gain access to the reverse side of the control panel. Open the coinage door. The flavor labels slide into carrier clips on the back of each flavor window (Figure 5).

NOTE: Make sure the correct flavor label has been installed for each selection. This vendor can be programmed to link selection buttons to vend modules in a variety of different configurations. Refer to the section on electronic control programming for details on the vendor selection set-up.

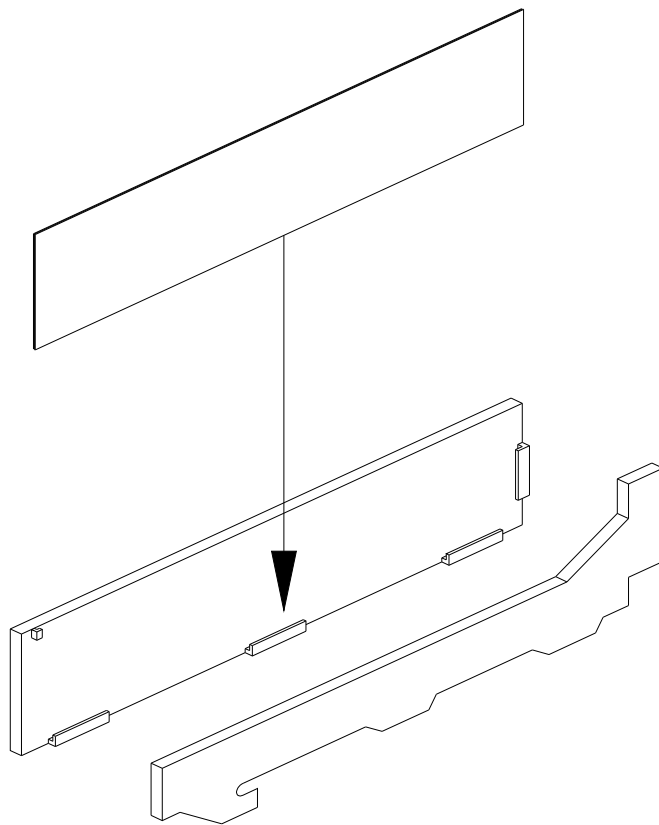


Figure 5

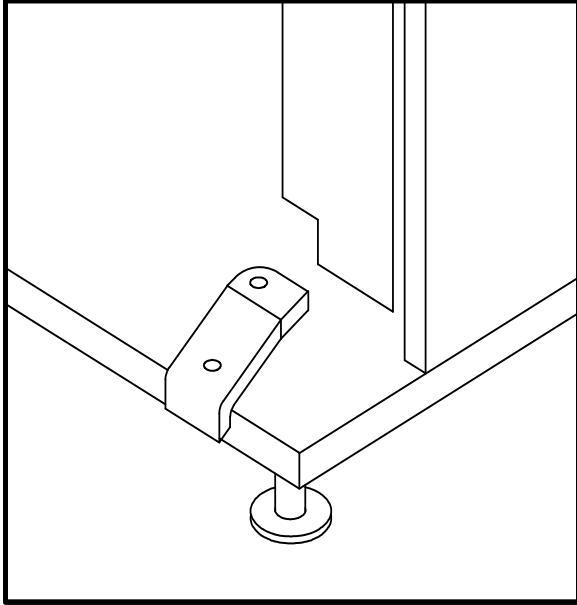


Figure 6

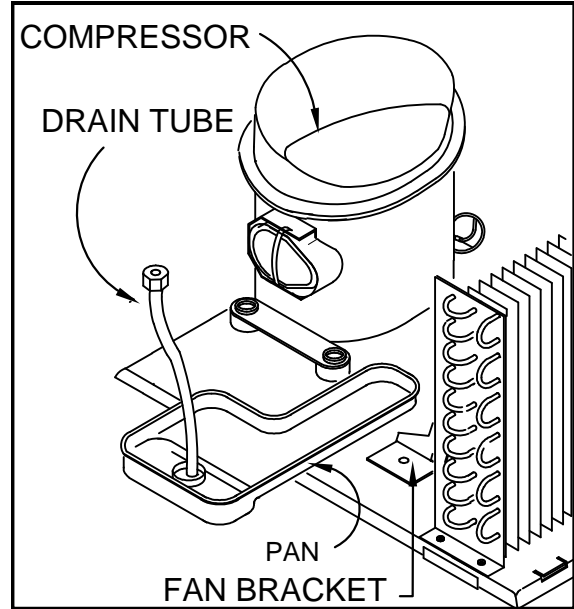


Figure 7

ALIGNMENT CHECKS

DOOR RAMP CHECK:

The door support is to ensure that the outer door closes squarely to the cabinet. Raising or lowering the door will help ensure the proper alignment of the door lock stud and the cabinet latch (see Figure 6).

REFRIGERATION AREA CHECK:

Check the position of the condensation pan (see Figure 7). The correct position of the condensation pan is between the compressor and the condenser fan bracket. Be sure the drain tube is clipped to the pan and free of kinks. The trap prevents warm air from reaching the evaporator area.

VENDOR TEMPERATURE CONTROL SETTING

The cabinet temperature is regulated by the temperature control, located on the left side of the evaporator. Before adjusting the control, be sure the refrigeration system



is working properly. Check that the condenser and evaporator fans run freely and do not make excessive noise, which might indicate an obstruction to the fan blade. The evaporator and condenser grills should be free from debris. In addition, check the condition of the door gasket, to ensure a proper seal on the cabinet.

When the air temperature at the feeler bulb reaches 65°F (18°C), the refrigeration system should cycle on. To lower the cabinet temperature, turn the temperature control adjustment screw **CLOCKWISE**. To raise the cabinet temperature, turn the adjustment screw **COUNTER-CLOCKWISE**. The cabinet temperature will change 6 degrees for every 1/4 turn of the adjustment screw (Figure 8).

To ensure correct temperature control operation, it is essential that the control feeler bulb be positioned in the air flow from the evaporator, and not resting against any metal surfaces (other than the retaining clip), which will give a misleading reading to the control. This feeler bulb should not require adjustment unless the refrigeration system has been removed for servicing (Figure 9).

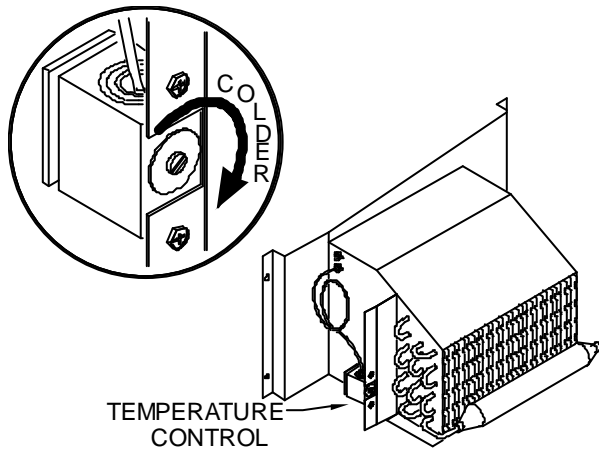


Figure 8

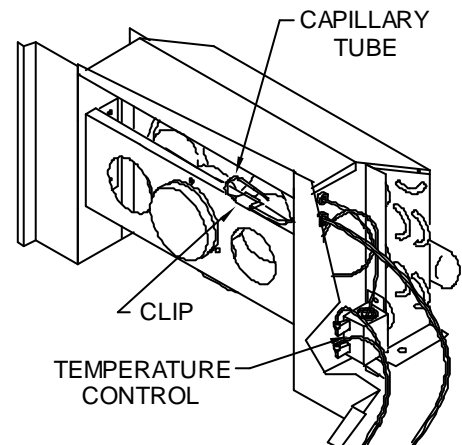


Figure 9

ELECTRO-MECHANICAL FUNCTION DESCRIPTION

VEND MODULE CONFIGURATION AND OPERATION:

The Mars Vendo Confectionery vendor is specially designed to dispense chilled bar-type and bag-type products, as specified by Mars. The vendor cabinet is divided



into two compartments; the lower portion is open to the ambient environment, and houses the majority of the refrigeration system components. The remainder of the cabinet is refrigerated to preserve the vended product.

The vended product, in bar, bag, or combo form, is dispensed from vend modules mounted in the refrigerated cabinet. There are spaces for up to five vend modules in the cabinet. The use of five modules however, requires a full 180° swing of the outer door. The modules will always be one of four varieties:

- A) Right-Hand Bar Module
- B) Left-Hand Bar Module
- C) Bag Module
- D) Universal Module

There are two types of bar modules because of the way these modules are loaded. Bar product is loaded into only one side of the module as it is pulled out for loading. Therefore, a right-hand bar module is always installed in the first position at the right side of the cabinet, so that full access to the module chambers is available. The left-hand bar modules can be situated in any of the remaining positions in the cabinet.

The bag modules, on the other hand, are loaded from both sides when pulled out for loading. Therefore, there is only one version of the bag module. Due to the requirement for access to both sides of the module during loading, these modules can only be installed in the three center positions.

The universal module is a right-hand module and therefore can only reside in the first position at the right side of the cabinet.

Each vend module consists of a steel housing with compartments, or columns, segregated by steel partitions. On bar modules, there will always be four chambers, or columns, per module. On bag modules (including universal modules), however, due to the larger size of bag product, there are only three chambers, or columns, per module. Each module chamber, or column, has a full-height access door. Bar modules have one door per column; bag modules have two doors per column--one on either side of the module for each column. The universal module has one steel door over all three columns. In each case, these doors keep the product in place within each column of the module. Each module is hung from a support channel

ELECTRO-MECHANICAL FUNCTION DESCRIPTION (CONTINUED)

mounted to the cabinet ceiling, and suspended between a pair of sliding rails, which allows the module to be pulled forward for loading.

The product is stored and dispensed by a motor-driven plastic product helix, except in the case of the universal module, where the helix is a powder-coated wire helix. The bar product helix, bag product helix, and universal product helix are different part



numbers, as both the diameter and pitch are different. The helix, in the case of the bar and bag, is driven by the same part number vend motor. The universal helix is driven by its own motor that is different from the bag and bar motors. The vend motors are mounted to a steel support channel at the top of each module, and are connected by a module harness to the cabinet harness. The vend motors are connected to the electronic controller in such a way that any combination of vend motors can be assigned to an individual selection button. This feature allows space-to-sales programming of the vendor's column to the selection buttons to maximize the use of space for prime product versus slower-moving products.

PRODUCT LOADING:

As described, there are three types of vend modules: Bar modules, Bag modules, and Universal modules. Each has a unique loading process.

For BAR MODULES, products can only be loaded from one side of the module. The desired module is pulled to the limit of its slides, allowing access to all columns in the module. The door on the desired column is swung open. Product to be loaded is slid onto the flights of the product helix, **END FIRST**, on either side of the helix stem. Also, place the bar into the helix **UPSIDE DOWN**. For first-in-first-out sales, it is important that the new product be put into the top of the helix, until no flights are left open. Once full, the door on that column can be closed. The door is held closed by a magnetic strip on the door edge. The remaining bar columns in that module can be loaded in a similar fashion. Once finished, the module is pushed back into the cabinet, until the slides stop further motion.

For BAG MODULES, the process is identical to that for bar modules, except that vended product is loaded **SIDEWAYS** on either side of the helix, with both doors open on that column. Also, place the bag into the helix **UPSIDE DOWN**. The same first-in-first-out rules apply to bag modules. Product should lie as flat as possible in the helix. Avoid wadding up bags as they are set into the helix, as they could cause vend problems.

THE VEND CYCLE:

In order to initiate a vend, the customer must first set up a credit. A credit is registered by inserting coins into the coin slot (and into the coin mechanism), by inserting a bill into the bill validator, (if available), or by inserting a debit card into the debit-card reader, (if available). Once a credit is established equal to or in

ELECTRO-MECHANICAL FUNCTION DESCRIPTION (CONTINUED)

excess of the lowest product price, the customer is allowed to make a selection. By pressing the selection button of their choice, a signal is sent to the electronic controller, which, in turn, feeds power to the vendor column(s) assigned to that selection.

Product is vended when a vend motor assigned to that selection is energized by a circuit from the electronic controller. The motor rotates its product helix, and drops



the bottom product out of the bottom of the helix. The product falls freely onto the product chute.

As the product passes down the product chute, it passes through the vend detection system, where optical sensors detect the passage of the product on its way to the product hopper. The passage of product through the vend detection sensors signals the electronic controller, which then performs a variety of functions. The vended product ends up in the product hopper and is removed by the customer as they push open the vend door. (See pages MG-17 - MM3 for further electronic controller details.)



REFRIGERATION SYSTEM - FUNCTION DESCRIPTION

BASIC REFRIGERATION PRINCIPLES:

A refrigeration system is principally involved in the process of transferring heat. Heat is removed from the vending product area of the cabinet and transferred to the condenser, where it is dissipated. With vending equipment, large quantities of heat must be transferred economically and efficiently in a continuous fashion, without loss of refrigeration gas, over a long period of time. The most common type of refrigeration system in vending is the vapor compression, or simple compression, cycle system. This system consists primarily of three elements: A compressor, an evaporator, and a condenser, joined together as a "sealed system".

In the vapor compression system, there are two pressures present: Low, evaporating pressure and high, condensing pressure. The refrigerant gas acts as the transport medium in which heat is transferred from the evaporator to the condenser, where heat is dissipated into ambient air. A change of state occurs as the refrigerant changes from liquid to vapor and back to liquid again, allowing the refrigerant to absorb and discharge large quantities of heat in an efficient manner.

The basic vapor compression cycle occurs as follows: In the evaporator, the refrigerant boils (evaporates to vapor), at a temperature sufficiently low enough to absorb heat from the cabinet space being cooled. The boiling temperature is controlled by the pressure maintained in the evaporator. The higher the pressure, the higher the boiling point. The compressor removes the vapor via suction lines from the evaporator at a rate sufficiently rapid to help maintain the desired pressure. The compressor takes the low pressure vapor and compresses it, increasing both the pressure and temperature of the vapor. This hot, high-pressure gas is forced out of the compressor discharge valve and into the condenser. Upon reaching the condenser, the refrigerant dissipates its heat and condenses into liquid. This liquid, in turn, flows from the condenser back to the evaporator to repeat the cycle.

VENDO REFRIGERATION SYSTEM OPERATION:

The general cycle described above occurs within the refrigeration system fitted in Vendo equipment. A more detailed explanation of the function of the various components in the system follows.

As the temperature within the cabinet increases, the liquid contained in the temperature control feeler bulb also rises in temperature and, in doing so, expands. This expansion increases the pressure against the temperature control bellows, and actuates the temperature control switch. This switch directs power to the compressor and condenser fan motor. The compressor pulls low pressure refrigerant vapor from the evaporator and compresses it, increasing both its temperature and pressure. This high-temperature / pressure vapor is expelled to the condenser, where the vapor sheds its excess heat, as drawn off by the air flow created by the condenser fan through the condenser fins. More specifically, the

REFRIGERATION SYSTEM - FUNCTIONAL DESCRIPTION (CONTINUED)



condenser fan pulls air through the condenser, removing heat from the refrigerant vapor in the condenser coils.

The cooled gas in the condenser turns to liquid, which is pumped via pressure from the compressor through the drier, which removes any water and particles from the liquid refrigerant. This liquid is then forced through the small diameter capillary tube, which acts like a throttle for the system, controlling the flow rate of the liquid refrigerant into the evaporator. Air flow is circulated throughout the cabinet by the evaporator fan, which pulls air flow through the coils and fins of the evaporator. Any excess heat present in the air flow is drawn off by the liquid refrigerant, which evaporates, and is, in turn, pulled via the compressor. The falling temperature in the cabinet eventually cools the liquid in the temperature control feeler bulb, condensing the liquid inside and reducing its pressure, which releases the pressure against the temperature control bellows. This reduction deactuates the switch inside, cutting off power to the compressor and condenser fan motor.

HEATING SYSTEM - FUNCTION DESCRIPTION

VENDO HEATING SYSTEM OPERATION:

The MVC-600 is also equipped with a heating element for cold weather environments. This system consists of a simple 150W, 230V or 115V heating element located just behind the evaporator fan air ducting. This unit is controlled by its own thermostat and is activated when temperatures are in danger of freezing the product.

CAUTION: The heating element can cause minor burns to your hands and fingers if touched when the element has been energized for any length of time.



VENDOR ELECTRONIC CONTROLLER

DESCRIPTION:

The Mars Vendo Confectionery machine comes equipped with an integral electronic control system which manages the vendor's mechanical functions, monitors the vend system for failures, controls the vendor's coin mechanism, drives the vendor's scrolling display, and keeps track of sales data, among other functions. The control system consists of the following major components:

- Electronic Control PC Board
- Harnessing
- Scrolling Display
- Transformer
- Reset Switch
- Vend Detection System
- Coin Mechanism

These components work together to jointly control the vendor's functions. The control system is programmed with the following capabilities:

- Space-to-Sales Programming
- Sales Data Storage
- Data Retrieval via DEX/UCS Plug or Optical Datalink
- Self-Diagnostics for the Vend Mechanism
- Multi-Pricing
- Multi-Vend
- Multi-Lingual and Personal-Message Display Programming

In order to begin programming the electronic controller, it is necessary to understand the purpose and location of each of the major components listed above.

Electronic Control PC Board: Located on the outer door, inside a protective housing, the electronic controller is the heart of the vendor control system. This board contains all the microprocessors, memory microchips, and other electronic devices needed to control the functions of the vendor. Also located on the PC board is a small push button switch, the mode switch, whose purpose is explained in the electronic controller programming section that follows. This switch is accessible through a grommited hole in the electronic controller housing cover.

Harnessing: Connected to the electronic control PC board is a series of harnesses that supply power to the control board, and distribute power to the various systems within the vendor. The harnesses are all keyed in such a way that they cannot be installed on the wrong set of pins, or misconnected on their correct PC-board pins, (refer to the Electrical Servicing section for harness connection detail).



VENDOR ELECTRONIC CONTROLLER (CONTINUED)

Scrolling Display: Located on the control panel, above the selection button and coin insert plate on the front of the vendor, is a scrolling 10-character display. This display provides consumer messages, such as credit level established and selections out-of-order during a candy sale, and allows for interactive feedback during programming and fault-finding when servicing. The display can be programmed to display messages in eight different languages. In addition, the display can be programmed to display a custom scrolling message.

Transformer: Each vendor is equipped with a step-down transformer to drop the input voltage available at the location to 24 volts, for use by the electronic control board, vend motor, and display. The transformer is located at the rear of the cabinet base, beneath a protective cover (refer to the Electrical Servicing section for details on transformer connections).

Reset Switch: Located on the vend chute support plate, beneath the vend chute in the cabinet, there are two switches mounted in the support plate. The push button switch with the unshielded plunger is the reset switch. When activated, this switch signals to the electronic controller that the vendor outer door has been closed, indicating the end of service duties, and resets the controller. (The other switch in this pair, with a shielded switch plunger, is the door power switch--its purpose is to isolate the door circuits when the outer door is opened for service.)

Vend Detector System: Located on either side of the discharge portion of the vend chute in the vendor cabinet is the vend detector system. It consists of two PC boards, an emitter board and a detector board. These two boards scan across the vend chute to detect vended product. This information is used by the electronic controller to determine whether a product has been delivered. If it has been delivered, the controller can instruct the coin mechanism to cancel the customer's credit, pay out any change due to the customer, and update the sales data memory fields. If no product is detected as delivered, the electronic controller will run the selected product's vend motor again, to dispense another product.

Coin Mechanism: The coin mechanism is connected to the electronic controller in a master/slave relationship, with the controller serving as master. The coin mechanism validates incoming coins, pays out change as required, and transfers sales data to the electronic controller. The Mars Vendo Confectionery machine electronic controller is programmed to accept a variety of different Mars coin mechanisms, and Vendo provides the appropriate harnessing to interface with these units (refer to pages MP-29 and MP-30 for harness details).

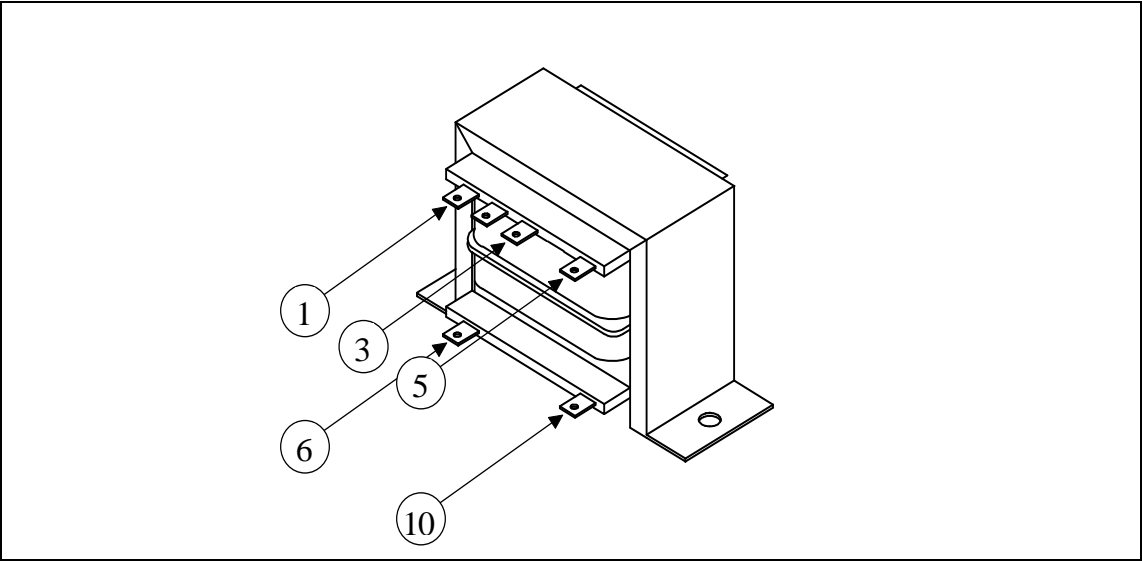
TRANSFORMER CONNECTIONS

110 Volt AC Input - Use pins 3 and 5 for input connections

220 / 240 Volt AC Input - Use pins 1 and 5 for input connections



24 Volt ac Output - Use pins 6 and 10 for output connections





LOADING PRODUCT

Check the machine configuration for bar and bag products before loading. All product modules should have labels indicating exactly which products must be loaded. If any are missing, please contact Mars Vending at **1-888-627-7863** and press **1** for **Customer Service**.

Pull each product module out so products can be loaded into the machine. **Only one product module may be loaded at a time.** Refer to Figure 1.

- 1) Bar products, Figure 2, are loaded from one side of the product module only.
- 2) Bag products, Figure 3, are loaded from each side of the product module, as the module has 2 doors for full access during loading.

No gaps should be left between products. It is essential that **ALL** spaces are filled.

Ensure that the product module door is closed after loading.

NOTE: Bag product loading

- 1) Ensure that seam is facing upwards when loaded.
- 2) Ensure that the product is evenly distributed in the bag.

NOTE: Bar product loading

- 1) Ensure that seam is facing upwards when loaded.
 - 2) Ensure that the product is evenly distributed in the bar.
- 3) Ensure that the modules are returned to their home position after loading. This can be accomplished by either depressing the door switch, located at the bottom of the inner cabinet or closing the door, at which time the display will scroll
"*****".

Figure 1 : Do not remove more than one module →

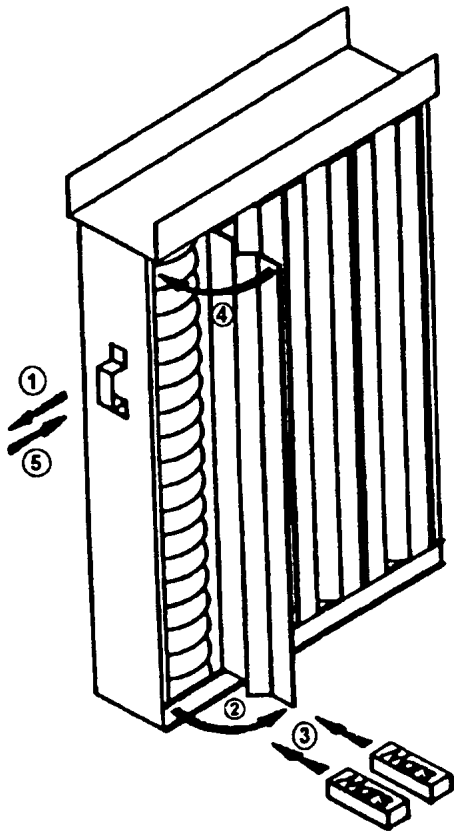
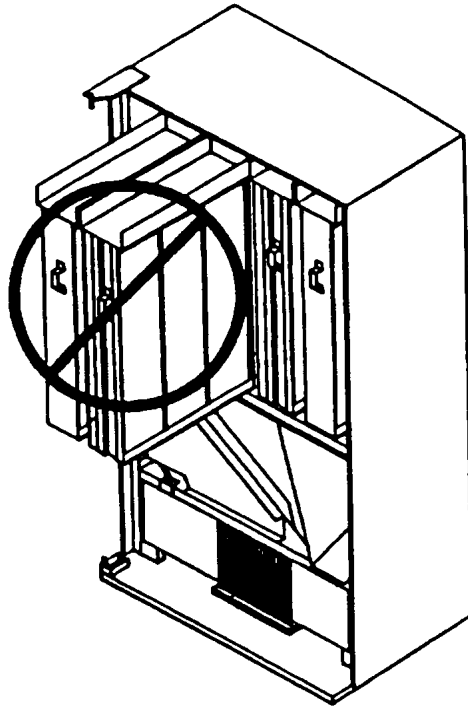


Figure 2: Bar Module

- 1) Pull module out from machine
- 2) Open door
- 3) Insert bar products as shown
- 4) Close door
- 5) Push module back into machine

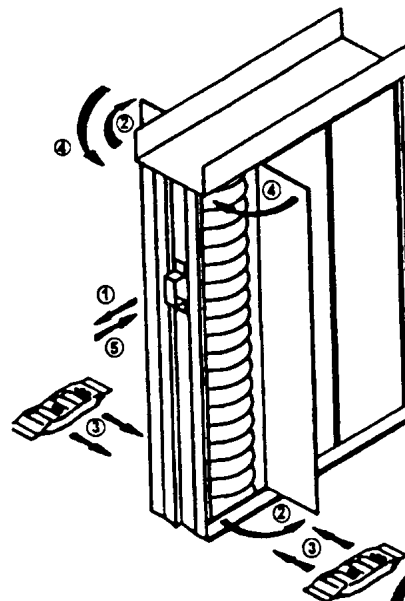
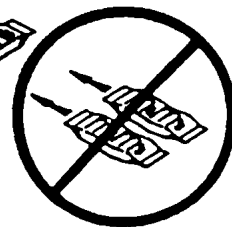


Figure 3 : Bag Module →

- 1) Pull module out from machine
- 2) Open door
- 3) Insert bag products as shown
- 4) Close door
- 5) Push module back into machine





SETTING THE PRICES

ENTERING SET PRICE MODE

The Set Price Mode is entered when the door is opened and the mode switch is pressed twice. The Set Price Mode is also entered by pressing the mode switch once from Service Mode.

Upon entry, the words “**SET PRICE**” will appear on the display.

SELECTION SWITCHES

Pressing a selection switch once displays the current price of the selected product. Pressing the same selection switch a second time increases the price. Pressing the same selection switch a third time decreases the price.

Continued depression of the same selection switch alternates between increasing and decreasing the price.

A zero price enables that selection to be free vended.

Whenever a product price is displayed in the Set Price Mode, the letters “**SP**” will appear in the two leftmost character positions of the display.

EXITING SET PRICE MODE

To exit the Set Price Mode

- Close the door.
- No operation for 5 minutes.
- Depress the mode switch, advance to mode #3.
- Initiate a transaction.



LOCATION OF PRODUCTS IN THE MARS CONFECTIONARY MACHINE

Prior to loading your product or reconfiguring the machine's Space to Sales, we recommend that you document the location of products in your machine(s). This will ensure that you (or another associate loading the machine) know where the product is to be loaded. This matrix is also valuable when reconfiguring the machine to your location. Before reconfiguring the machine, write down what product(s) you would like to have dispensed out of the respective column(s).

The following pages will document the correct procedure for setting the **SPACE TO SALES** for the machine, starting with the **ENTRY CODE MODE** below.

ENTERING ENTRY CODE MODE

The **Entry Code Mode** is entered when the door is opened and the mode switch is pressed six (6) times. The Entry Code Mode is also entered by pressing the mode switch once from the MIS Display Mode if the entry code has not previously been entered since the last door closure or service time-out.

Upon entry, the words "**ENTRY CODE**" will appear on the display.

In order to enter the Space to Sales Programming Mode, an entry code must be keyed in.

NOTE: *If the correct entry code is not keyed in, pressing the mode switch will cause the MVC to enter the Operate Mode.*

The entry code is entered by depressing selection switches #3, #1, #4, and #2 in sequence, followed by pressing the mode switch to proceed to the Space to Sales Programming Mode.

Once the correct entry code has been keyed in, it will not need to be keyed in again unless the door has been closed or a five-minute service time-out has occurred.

ENTERING SPACE TO SALES PROGRAMMING MODE

The Space to Sales Programming Mode is entered by pressing the mode switch **once** from the Entry Code Mode if the entry code procedure was completed successfully.

Upon entering the Space to Sales Programming Mode, the words "**STS PROG**" will appear on the display.

SELECTION SWITCHES

The programming is started by pressing selection switch #1 once. The display will show "**COLUMN A1**".



To assign column A1 to a selection switch, press that selection switch. More than one selection switch can be assigned to the same motor by continuing to press the desired selection switches. Approximately 5 seconds after the final selection switch is pressed, the display will change to “**COLUMN A2**”.

Continuing in this way, all product dispensers and their corresponding selection switches may be programmed. If no selection switch is pressed for a particular column, that column will be unassigned.

NOTE: *If a machine enters the Space to Sales Programming Mode and transitions through all of the columns without any selection switches being pressed, the machine will have all of its columns unassigned and will be out of order.*

Use the following matrix below to document the location(s) in your machine.

MARS BRANDED CONFECTIONARY MACHINE LAYOUT		
ASSET NUMBER	Existing 5-column machine manufactured today	
SELECTION NUMBER	PRODUCT DESCRIPTION	COLUMN(S) ASSIGNED
1	M&M Peanut	B1, B2
2	M&M Plain	C1, C2
3	Snickers	A1, A2, A3
4	Three Musketeers	D4
5	Twix	D1, D2, D3
6	Starburst	E3, E4
7	Skittles	B3
8	Milky Way	E1, E2
9	Mars Almond	A4
10	Skittles Tropical	C3
*** COLUMN(S) ASSIGNED CAN ALSO BE FOUND BY PRESSING THE MODE SWITCH FOUR TIMES TO SPACE TO SALES INQUIRY MODE AND THEN PRESSING THE SELECTION SWITCH. REFER TO OPERATION MANUAL FOR A DETAILED DESCRIPTION OF OTHER FUNCTIONS.		





PROGRAMMING SECTION



NOTES



MARS PROGRAMMING

OPERATE MODE 1:

Upon entering the operate mode, the vendor will automatically check all of the motors assigned to selection buttons to assure they are in the home position. The controller will attempt to home any motors found to be out of position. If the controller detects a motor out of the home position, after a predetermined time, that motor will be recorded as "bad," and no further attempts will be made to run that motor during operation.

During operate mode, the vendor display will scroll through the programmed user's messages. The vendor display will not scroll through these messages if the vendor is totally sold out, all of the vend motors are out of service, or if the vend detector is activated for more than five seconds.

When a selection is made, the controller will run the assigned vend motor. The product auger attached to that motor will rotate, allowing a product to fall free from the vend mechanism, onto the product chute. The product slides down the product chute, and, in doing so, passes through the vend detection system, as it makes its way to the vend hopper. The vend detection system signals the controller board that a vend has occurred. The controller, in turn, deducts the product price from the customer's credit, pays out any change that may be owing, and updates the sales data in memory. The display will flash the message "PLEASE REMOVE YOUR PRODUCT."

The controller is designed to operate with a number of different coin mechanisms and has the ability to recognize which type of coin mechanism is installed.

ENTERING OPERATION MODE

This mode is the normal operating mode of the machine for receiving credit, paying change, and dispensing product to the customer.

The Operate Mode is entered whenever one of the following occurs.

- The mode switch is depressed once from the Entry Code Mode if the correct entry code has not been keyed in, or the mode switch is depressed once from the Display Programming Mode.

- The door is closed, (causing the open/close signal door switch to close).

- No operation for five minutes.

- A transaction is initiated.

Whenever the Operate Mode is entered, all of the assigned motors will be checked to see if they are in their home position. The controller system will try to re-home any motors that are not in their home positions.



In Operate Mode, the programmable user message is displayed during idle time unless all product is sold out in the machine, all the columns are either bad or unassigned, or if the IR vend detect beam is broken for longer than 5 seconds.

In the case of all columns sold out, the display will indicate **“SOLD OUT”**.

In the case of all columns bad or not assigned, or the infrared (IR) beam broken, the display will indicate **“OUT OF ORDER”**.

When credit is established by whatever means, the display will show the amount of credit. When a selection is made and a vend cannot take place, three audible beeps will sound and the display will show one of the following messages three times using the scrolling format. The message are listed in order of priority from highest to lowest.

“MAKE ANOTHER SELECTION” - Product assigned to that selection is sold-out and/or there are inoperable product motors, or the selection has no columns assigned to it.

“CHECK SELECTION PRICE” - Not enough credit has been established to vend the selected product. Additional credit can be established, or escrow return can be requested to return credit, (if allowed by force vend option).

“USE CORRECT CHANGE” - The system is unable to make changes for the selection requested. Escrow return can be requested and will return credit on a coin-for-coin basis, (if allowed by the force vend option).

A vend will occur when product has been detected by the vend sensing circuit. At that time, product price will be deducted from the credit, change, (if any), will be returned depending on the multi-vend option.

When a vend occurs, the display will scroll the message **“PLEASE REMOVE YOUR PRODUCT”**.



MODE #2 SERVICE MODE

ENTERING SERVICE MODE

The Service Mode is entered when the door is opened and the mode switch is depressed once. If there are no bad motors upon entering the Service Mode, the word "**SERVICE**" will appear on the display.

If there are any bad motors upon entering Service Mode, the display will continuously display all of the bad motors by column number for approximately two seconds before proceeding to the next.

For Example: *If A1 is bad, then the display will scroll "**BAD COL A1**".*

BUTTON #1 (CASH HANDLING MODE)

Pressing selection button 1 of the vendor will determine the four different modes of cash handling. Pressing selection button 1 again will toggle the different types of cash handling.

Note: *The types of cash handling does not apply to executive interface.*

FORCE VEND - No escrow return unless product selected is sold out.

FORCE BILL/COIN - If a bill or high value coin is inserted and accepted, then a selection must be made.

CHANGE MACHINE - Escrow return will return coins with no vend transaction.

NEUTRAL - The first bill is held in escrow.

BUTTON #2 (CHANGE HANDLING MODE)

Pressing selection button 2 will determine whether the multi-vend feature is enabled or disabled. Pressing selection button 2 again will toggle between the different types of change handling.

Note: *Change handling is used with executive and micromech interface only.*

REGULAR VEND - Change is paid out after the delivery of the product.

MULTI-VEND - Change due is held and displayed, allowing for additional purchase.

Note: *Change is returned when escrow return is requested or 20 seconds have elapsed.*



BUTTON 3, 4, 5, 6 (COIN PAY-OUT MODE)

Pressing buttons 3, 4, 5 or 6 will enter the coin pay-out mode. The controller system recognizes selection buttons 3 thru 6. By pressing any of the above buttons, the controller will pay-out accordingly, (.5, .10, .25 etc).

Note: *Button 6 will only work for four tube coin changers.*

The denomination will vary by the country for which the coin mechanism is interfaced.

BUTTON 7 (ASSIGNED COLUMNS MODE)

By pressing selection button 7, the controller will cause the display to scroll through all the unassigned columns. *For Example: "COLUMN A1"*

When all the columns have been displayed, the display will show "**SERVICE**".

Note: *If there are no unassigned columns, then the display will show "NO UNASSGN" for approximately two seconds, followed by two audible beeps, and then the display will show "SERVICE".*

BUTTON 8 (DISPLAYS TYPE OF COIN CHANGER)

By pressing selection button 8 will allow the controller to view different types of coin changers to support the current machine. Each time selection button 8 is pressed, the LED display will scroll and the display will indicate the type and country.

The selections are in the order shown below.

Note: *If Micro-mech interface is used, then the selection will be limited to the first four.*

If Executive interface is used, then the selection will be limited to the last two.

If no coin mech is used, all selections will be supported.

USA/CANADA - **TRC 6010XV**
GREAT BRITAIN - **MS1400 GBR**
HUNGARY - **MS1400 HUN**
UNDEFINED - **MS1400 XXX**
EUROPE - **EXECUTIVE**
EUROPE - **EXECUTIVE PH PD**

BUTTON 9 (CASH COUNTER DISPLAY MODE)

By pressing selection button 9 will display cash total on the coin mech tube inventory. In that mode, the operator is allowed to deposit any coin into the coin changer acceptor when the coin's tube are not full. The tube inventory level will be displayed after each coin is accepted.

Note: *This status is available with micro-mech interface only. Executive interface provides this information within the mechanism itself and cannot be accessed.*



BUTTON 10 (PASSWORD STATUS MODE)

By pressing selection button 10, the display will show **DDCMP** password status. When the password is entered, it will toggle between "**PASSOFF**" or "**PASS CLEAR**".

To enter the Password Status Mode, press the mode button six times until the display shows "**ENTRY CODE**" and then the controller may enter the code as follows 3, 1, 4, 2 by using the selection buttons.

PASS OFF - Means no password required to retrieve data via the MEQ.

PASS CLEAR - Means a password is required to retrieved data via the MEQ.

*Note: When **PASS OFF** is selected, the password is reset.*

MODE 3 SET PRICE MODE

BUTTON 1 (ENTERING SET PRICE MODE)

By pressing the mode button twice will enter the Set Price Mode. You may also enter the Set Price Mode by pressing the mode button once from the Service Mode. Upon entry, the display will scroll "**SET PRICE**".

Pressing selection button one thru ten at the Set Price prompt, the display will toggle the price. Pressing the same button again will increase or decrease the price.

Note: A zero price enables that selection to be free vended. If an executive mech in Non Price Holding/Price Display Mode is used, the user must put in a coin.

Whenever a product price is displayed in the Set Price Mode, the display will show "**SP**" in the two left most character positions of the display. The only exception to this is if the MVC is in Price Holding/Price Display Mode. In that mode, the display will show "**PL**" at the indicated price line.

MODE 4 TEST VEND MODE

By pressing the mode button three times will enter the Test Vend Mode. Upon entry, the display will scroll "**TEST VEND**". Selection buttons one and two are used to select the column. By pressing selection button one will toggle through the possible modules by letter. By pressing selection button two will toggle through the possible rows by number. By pressing selection button three thru ten will actuate the vend motor.

Note: A motor must be assigned to selection switches in order to be selected for a test vend. Any selection switch other than one and two can be used to begin a single vend of the selection column.

During the Test Vend Mode, the sold out and bad motor status is ignored and will not inhibit the vending of a column. The status will not be updated by the test vending of a column.



MODE 5 SPACE TO SALES INQUIRY MODE

To enter this mode, press the mode button four times and the display will show “**STS INQRY**”. After pressing any selection button, the display will show the columns that are assigned to that certain selection.

If multiple columns are assigned to the selection button, each column assigned will be displayed in sequence followed by “**STS INQRY**”.

***For Example:** By pressing selection button one, the display will scroll “**COLUMN A1**” followed by “**STS INQRY**”.*

MODE 6 MIS DISPLAY MODE

By pressing the mode button five times, the controller will enter the MIS Display Mode. Upon entry, the words “**MIS DISPLY**” will appear on the display. By pressing either selection buttons one or two will allow the controller to scroll up or down through the MIS fields. By pressing selection buttons three or four will allow the controller to scroll up or down through the MIS historical data.

*Note: The MIS data displayed is that of historical data which **cannot** be erased.*

MIS DISPLAY - VIDTS FORMAT

The MIS Display Mode will display MIS data under the guidelines of the Vending Industry Data Transfer Standard. This standard is currently being adopted in both the US and Europe under various sanctioning organizations.

The following interval (resettable) information is displayed in order shown when the selection button one (up), or selection button two (down), is pressed.

CODE	DESCRIPTION	MICROMECH	EXEC - MECH
ID101	MACHINE SERIAL NUMBER	YES	YES
ID102	MACHINE MODEL NUMBER	YES	YES
ID103	CODE REVISION	YES	YES
EA701	NUMBER OF POWER OUTAGES	YES	YES
VA103	VALUE OF ALL PAID SALES	YES	NO
VA104	NUMBER OF ALL PAID VENDS	YES	YES
VA204	NUMBER OF TEST VENDS	YES	YES
CA301	VALUE OF CASH IN	YES	NO
CA302	VALUE OF CASH TO CASH BOX	YES	NO
CA304	VALUE OF BILLS TO STACKER	YES	NO
CA401	VALUE OF CASH DISPENSED	YES	NO
CA402	VALUE OF MANUAL CASH DISPENSED	YES	NO
CA701	VALUE OF CASH DISCOUNT	NO	NO
CA801	VALUE OF CASH OVERPAY	NO	NO
CA901	VALUE OF PAY VENDS EXACT CHANGE	NO	NO
CA1501	VALUE TUBE CONTENTS	YES	NO
DA203	VALUE OF CARD SALES	YES	NO
DA204	NUMBER OF CARD SALES	YES	NO
PA203-1	NUMBER OF PRODUCTS VENDED (BUTTON 1)	YES	YES
PA204-1	VALUE OF PRODUCTS VENDED (BUTTON 1)	YES	YES
PA203-2	NUMBER OF PRODUCTS VENDED (BUTTON 2)	YES	YES
PA204-2	VALUE OF PRODUCTS VENDED (BUTTON 2)	YES	YES



MIS DISPLAY - VISTS FORMAT (CONTINUED)

CODE	DESCRIPTION	MICROMECH	EXEC - MECH
PA203-3	NUMBER OF PRODUCTS VENED (BUTTON 3)	YES	YES
PA204-3	VALUE OF PRODUCT VENDED (BUTTON 3)	YES	YES
PA203-4	NUMBER OF PRODUCTS VENDED (BUTTON 4)	YES	YES
PA204-4	VALUE OF PRODUCT VENDED (BUTTON 4)	YES	YES
PA203-5	NUMBER OF PRODUCT VENDED (BUTTON 5)	YES	YES
PA204-5	VALUE OF PRODUCT VENDED (BUTTON 5)	YES	YES
PA203-6	NUMBER OF PRODUCT VENDED (BUTTON 6)	YES	YES
PA204-6	VALUE OF PRODUCT VENDED (BUTTON 6)	YES	YES
PA203-7	NUMBER OF PRODUCT VENDED (BUTTON 7)	YES	YES
PA204-7	VALUE OF PRODUCT VENDED (BUTTON 7)	YES	YES
PA203-8	NUMBER OF PRODUCT VENDED (BUTTON 8)	YES	YES
PA204-8	VALUE OF PRODUCT VENDED (BUTTON 8)	YES	YES
PA203-9	NUMBER OF PRODUCT VENDED (BUTTON 9)	YES	YES
PA204-9	VALUE OF PRODUCT VENDED (BUTTON 9)	YES	YES
PA203-10	NUMBER OF PRODUCT VENDED (BUTTON 10)	YES	YES
PA204-10	VALUE OF PRODUCT VENDED (BUTTON 10)	YES	YES
PA102-1	PRICE OF PRODUCT (BUTTON 1)	YES	YES
PA102-2	PRICE OF PRODUCT (BUTTON 2)	YES	YES
PA102-3	PRICE OF PRODUCT (BUTTON 3)	YES	YES
PA102-4	PRICE OF PRODUCT (BUTTON 4)	YES	YES
PA102-5	PRICE OF PRODUCT (BUTTON 5)	YES	YES
PA102-6	PRICE OF PRODUCT (BUTTON 6)	YES	YES
PA102-7	PRICE OF PRODUCT (BUTTON 7)	YES	YES
PA102-8	PRICE OF PRODUCT (BUTTON 8)	YES	YES
PA102-9	PRICE OF PRODUCT (BUTTON 9)	YES	YES
PA102-10	PRICE OF PRODUCT (BUTTON 10)	YES	YES



MIS DISPLAY - VIDTS FORMAT (CONTINUED)

The following historical (non-resettable) information is displayed in order shown when the selection button three (up), or selection button four (down), is pressed.

CODE	DESCRIPTION	MICROMECH	EXEC - MECH
ID101	MACHINE SERIAL NUMBER	YES	YES
ID102	MACHINE MODEL NUMBER	YES	YES
ID103	CODE REVISION	YES	YES
EA301	NUMBER OF READS	YES	YES
EA702	NUMBER OF POWER OUTAGES	YES	YES
VA101	VALUE OF ALL PAID SALES	YES	YES
VA102	NUMBER OF ALL PAID VENDS	YES	YES
VA202	NUMBER OF TEST VENDS	YES	NO
CA305	VALUE OF CASH IN	YES	NO
CA306	VALUE OF CASH TO CASH BOX	YES	NO
CA307	VALUE OF CASH TO TUBES	YES	NO
CA308	VALUE OF BILLS TO STACKER	YES	NO
CA403	VALUE OF CASH DISPENSED	YES	YES
CA404	VALUE OF MANUAL CASH DISPENSED	YES	YES
CA702	VALUE OF CASH DISCOUNT	NO	YES
CA802	VALUE OF CASH OVERPAY	NO	YES
CA902	VALUE OF PAY VENDS EXACT CHANGE	NO	YES
DA201	VALUE OF CARD SALES	YES	YES
DA202	NUMBER OF CARD SALES	YES	YES
PA201-1	NUMBER OF PRODUCTS VENDED (BUTTON 1)	YES	YES
PA202-1	VALUE OF PRODUCTS VENDED (BUTTON 1)	YES	YES
PA201-2	NUMBER OF PRODUCTS VENDED (BUTTON 2)	YES	YES
PA202-2	VALUE OF PRODUCTS VENDED (BUTTON 2)	YES	YES



MIS DISPLAY - VISTS FORMAT (CONTINUED)

CODE	DESCRIPTION	MICROMECH	EXEC - MECH
PA201-3	NUMBER OF PRODUCTS VENED (BUTTON 3)	YES	YES
PA202-3	VALUE OF PRODUCT VENDED (BUTTON 3)	YES	YES
PA201-4	NUMBER OF PRODUCTS VENDED (BUTTON 4)	YES	YES
PA202-4	VALUE OF PRODUCT VENDED (BUTTON 4)	YES	YES
PA201-5	NUMBER OF PRODUCT VENDED (BUTTON 5)	YES	YES
PA202-5	VALUE OF PRODUCT VENDED (BUTTON 5)	YES	YES
PA201-6	NUMBER OF PRODUCT VENDED (BUTTON 6)	YES	YES
PA202-6	VALUE OF PRODUCT VENDED (BUTTON 6)	YES	YES
PA201-7	NUMBER OF PRODUCT VENDED (BUTTON 7)	YES	YES
PA202-7	VALUE OF PRODUCT VENDED (BUTTON 7)	YES	YES
PA201-8	NUMBER OF PRODUCT VENDED (BUTTON 8)	YES	YES
PA202-8	VALUE OF PRODUCT VENDED (BUTTON 8)	YES	YES
PA201-9	NUMBER OF PRODUCT VENDED (BUTTON 9)	YES	YES
PA202-9	VALUE OF PRODUCT VENDED (BUTTON 9)	YES	YES
PA201-10	NUMBER OF PRODUCT VENDED (BUTTON 10)	YES	YES
PA202-10	VALUE OF PRODUCT VENDED (BUTTON 10)	YES	YES
PA102-1	PRICE OF PRODUCT (BUTTON 1)	YES	YES
PA102-2	PRICE OF PRODUCT (BUTTON 2)	YES	YES
PA102-3	PRICE OF PRODUCT (BUTTON 3)	YES	YES
PA102-4	PRICE OF PRODUCT (BUTTON 4)	YES	YES
PA102-5	PRICE OF PRODUCT (BUTTON 5)	YES	YES
PA102-6	PRICE OF PRODUCT (BUTTON 6)	YES	YES
PA102-7	PRICE OF PRODUCT (BUTTON 7)	YES	YES
PA102-8	PRICE OF PRODUCT (BUTTON 8)	YES	YES
PA102-9	PRICE OF PRODUCT (BUTTON 9)	YES	YES
PA102-10	PRICE OF PRODUCT (BUTTON 10)	YES	YES



MODE 7 ENTRY CODE MODE

By pressing the mode button six times will enter the Entry Code Mode. Upon entry, the words “**ENTRY CODE**” will scroll on the display. The entry code is entered by pressing selection buttons 3, 1, 4, and 2 in sequence. Once the correct entry code has been keyed in, the controller will not need to key in the code again unless the door has been closed, or a five minute service timeout has occurred.

Note: *In order to enter the Space to Sales Programming Mode, Display Programming Mode, or Motor Test Mode, the correct entry code must be keyed in. If the correct entry code is not keyed in, the depression of the mode button will cause the Control System to enter the Operate Mode.*

MODE 8 SPACE TO SALES PROGRAMMING

By pressing the mode button seven times will enter the Space to Sales Programming Mode. Upon entering the Space to Sales Programming Mode, the display will scroll “**STS PROG**”. The programming is started by pressing selection button one once, the display will scroll “**COLUMN A1**”. To assign column A1 to a selection button, the user can press any selection button. More than one selection button can be assigned to the same motor by continuing to press the desired selection button. Approximately five seconds after the final selection button is pressed, the display will change. (e.g. “**COLUMN A2**”).

NOTE: *If a machine enters the Space to Sales Programming Mode and transitions through all of the column without any selection buttons being pressed, the machine will have all of its columns unassigned and will be out of order.*

MODULE CONFIGURATION AND DESIGNATIONS

ROW	MODULE				
	E (optional)	D	C	B	A
4	Column E4	COLUMN D4	Column C4 (optional)	Column B4 (optional)	COLUMN A4
3	Column E3	COLUMN D3	COLUMN C3	COLUMN B3	COLUMN A3
2	Column E2	COLUMN D2	COLUMN C2	COLUMN B2	COLUMN A2
1	Column E1	COLUMN D1	COLUMN C1	COLUMN B1	COLUMN A1



MODE 9 DISPLAY PROGRAMMING MODE

This mode is used to change the predefined languages, or to program/view the following three types of programming messages. By pressing the mode button eight times, the controller will enter the Display Programming Mode. Upon entering the Display Programming Mode, the word “**DISP PROG**” will scroll on the display.

SCROLLING MESSAGES:

OUT OF ORDER	USE CORRECT CHANGE
MAKE ANOTHER SELECTION	PLEASE REMOVE YOUR PRODUCT
CHECK SELECTION PRICE	MACHINE HAS BEEN TILTED
USE LOWER DENOMINATION	

FIXED MESSAGES:

CREDIT	PRICE	SERVICE	FORCE VEND
BAD COL_	SET PRICE	SP	FORCE BILL
TEST VEND	TST COL_	STS PROG	CHANGE
STS INQRY	COLUMN	NO ASSIGN	NEUTRAL
ENTRY CODE	MIS DISPLAY	DISP PROG	NORM VEND
NO UNASSN	SOLD OUT	MULTI VEND	

SELECTION BUTTONS

BUTTONS 1, 2, AND 3

By pressing selection button one, the display will show the current language selected. If the user presses selection button one again, the controller will rotate through the available languages. By pressing selection button two, (Up), or pressing selection button three, (Down), will toggle through the available programmable messages.

BUTTONS 4 AND 5

By pressing selection button four will scroll the message to the right, or pressing selection button five will scroll the message to the left. The display will indicate the scrolled position by alternating the actual character with the cursor character.

BUTTONS 6 AND 7

By pressing selection button six will allow the user to scroll through different characters upward, or pressing selection button seven scrolls through different characters downward.

BUTTON 8

By pressing selection button eight will insert a SPACE character at the location of the CURSOR. The character that was alternating with the CURSOR, and all characters to its right, will be shifted one character space to the right. By pressing selection button eight multiple times will allow the user to insert additional spaces.

Note: That an insertion that shifts the end, (right most), character past the maximum length will cause that end character to be eliminated.



BUTTON 9

By pressing selection button 9 will delete the character that is alternating with the CURSOR. All characters that were to the right of the CURSOR will be shifted one character space to the left.

BUTTON 10

Although the 60 character User Message is typically customized for the machine location, and, therefore, programming by the operator, common User Messages in the eight country languages have been predefined. By pressing selection button ten will load the selected countries predefined User Message into the User Message programmable buffer area.

***Note:** Any message currently in the buffer area will be overwritten.*

MODE 10 MOTOR TEST MODE

This mode is used to operate all assigned motors in sequence. By pressing the mode button nine times will enter the Motor Test Mode. Upon entry, the display will scroll "**MOTOR TEST**". By pressing selection button one will start the Motor Test, or restart the Motor Test, from a currently running column, or from a detected error. By pressing selection button two will continue the Motor Test from a detected error. If a motor fails, the audio indicator will beep three times, and will display the column number.





MAINTENANCE SECTION



MAINTENANCE

The following section is a basic guide for general maintenance and servicing of the vendor. This section is divided into three parts: (I) Preventative Maintenance, (II) Lubrication Guide, and (III) Care and Cleaning.

I. PREVENTATIVE MAINTENANCE SUGGESTIONS:

Whenever a vendor is visited on its site, the following services should be performed. Preventative maintenance will help prevent future problems with the vendor.

- A. Observe the vendor and its surrounding area for any unusual indications of problems (rear of cabinet, obstructions of the air flow, dark spots on the sign face, etc.).
- B. Open the door and visually check the inside of the vendor (water accumulation, rust marks, moisture around the edges of the inner door, etc.).
- C. Check the fluorescent lamps, replace as necessary. Replace single pin (slim line) lamps within 24 to 48 hours of burnout. This will prevent damage to the ballast.
- D. Check the product temperature for proper cooling.
- E. Check evaporator drain for obstruction; water in the evaporator area must drain to the condensate pan.
- F. Empty condensate pan.
- G. Clean the condenser, free vanes of dirt, lint, etc.
- H. Check that evaporator fan runs normally.
- I. Check that the compressor and condenser fan run normally.
- J. Investigate any unusual sounds (fan blades hitting something, refrigeration lines rattling, etc.).
- K. Clean coin acceptor.
- L. Deposit all coinage accepted by the vendor to check for proper operation of the coinage mechanism.
- M. Test the vendor and make a report on the problems.

II. LUBRICATION GUIDE:

Lubricate indicated areas as directed on the chart below.

INTERVALS	PARTS	LUBRICANT
Every six months	Top hinge of door, hinge pin at the base of cabinet, T-handle shaft & latch.	Grade two, high - low temperature grease



III. CARE AND CLEANING



WARNING



DO NOT USE WATER JET FOR CLEANING



WARNING



**AVOID USING WATER OR ANY OTHER LIQUIDS NEAR
ELECTRONIC COMPONENTS**

- A. GENERAL PROCEDURE (painted metal areas)
Wash vendor with soap and water. The exterior may be waxed with any good automobile wax.
- B. FRESH PAINT SPLASHES, GREASE, GLAZING COMPOUND REMOVAL
Before drying, these elements may be removed by rubbing lightly with grade "A" Naptha (or equivalent grade solvent). After removal, use general cleaning procedure (listed above as A).
- C. LABELS AND STICKER REMOVAL
Use Kerosene, VM&P grade Naptha, or petroleum spirits for removal. When the label material does not allow penetration of solvent (such as vinyl), the application of heat (hair blow dryer), will soften the adhesive and promote removal. **CAUTION:** Excessive heat can cause surface damage. After the label is removed, use the general cleaning procedure (listed above as A).
- D. SCRATCH REMOVAL
Remove or minimize hairline scratches and minor abrasions by using any good quality automobile polish. Test product before using.
- E. LEXAN SIGNS
To clean Lexan sign faces, the following procedure is recommended.
1. Wash sign with mild soap, or detergent, and lukewarm water.
 2. Using soft cloth or sponge, gently wash the sign. **DO NOT SCRUB!**
 3. Rinse well with clean, lukewarm water.
 4. Dry thoroughly with a chamois or cellulose sponge (to prevent water spotting). **DO NOT USE SQUEEGEE!**
- NOTE:** Most organic solvents, petroleum spirits, or alcohol, are **NOT** compatible cleaning materials for Lexan signs. Usage of those materials could permanently damage the sign.
- F. REFRIGERATION AREA



The condenser and evaporator must be kept clean for efficient operation. Be sure all vanes and tubing are clean and clear of obstruction; this allows free passage of air. Clean with a brush, a vacuum cleaner, or compressed air. Keep cabinet drain open; clean as necessary.



REFRIGERATION OPERATION

The refrigeration operation section is divided into three areas: Basic Refrigeration Principle, Detailed Vending Machine Refrigeration Cycle, and Parts Description.

BASIC REFRIGERATION PRINCIPLE

What a refrigeration system really accomplishes is the transfer of heat. A refrigeration system removes the excess heat from a refrigerated area and then transfers it to a condenser, where it is dissipated. As heat is removed, the refrigerated area cools.

In vending machines, large quantities of the heat must be transferred rapidly, economically, and efficiently. This process must be able to withstand continuous repetition, without loss of refrigerant, over an extended period. The most common system used in the vending industry is the vapor compression, or simple compression, cycle system. It consists of four basic elements: An evaporator, a compressor, a condenser, and a pressure-reducing device (all part of a sealed system).

The compression system operates at two pressure levels: The low evaporating pressure, and the high condensing pressure. The refrigerant acts as the transport medium, in which heat is moved from the evaporator to the condenser; at the condenser, the heat is dissipated into the surrounding air.

The liquid refrigerant changes from a liquid to a vapor, and back to a liquid again. This change of state allows the refrigerant to absorb, and rapidly discharge, large quantities of heat efficiently.

BASIC VAPOR COMPRESSION SYSTEM CYCLE DESCRIBED

In the evaporator the liquid refrigerant vaporizes. This change occurs at a temperature low enough to absorb heat from the refrigerated space. The temperature of vaporization is controlled by the pressure maintained in the evaporator (the higher the pressure, the higher the vaporization point).

The compressor pumps the vapor from the evaporator through the suction line and to the condenser. The compressor takes the low pressure vapor and compresses it, increasing both the pressure and the temperature. The compressor pumps the vapor at a rate rapid enough to maintain the ideal pressure. The hot, high pressure vapor is forced out of the compressor, into the discharge line, and then into the condenser.

Air is blown through the condenser, allowing heat to transfer from the condenser and into the passing air. As the heat is removed, the stored refrigerant is condensed into a liquid. The liquid refrigerant is stored in the lower tube of the condenser. It is there, available to flow through the restrictor tube back into the evaporator, where the refrigeration cycle is repeated.



DETAILED REFRIGERATION CYCLE

The following is a detailed refrigeration cycle as it applies to the refrigeration system installed in Vendo equipment. (Refer to the flow chart in Figure 17.)

The evaporator fan pulls air from the front of the refrigerated space of the cabinet. It pulls the air through the evaporator, and blows it up the back of the modules. (The evaporator fan runs continuously.) As the air passes through the evaporator, heat is drawn from the air and transferred to the liquid refrigerant. As the cooled air circulates through the modules, heat is drawn from the product and transferred to the circulating air. The heated air is again drawn through the evaporator where the heat is removed.

In the evaporator, the liquid refrigerant draws heat from the circulating air. As refrigerant receives heat, it vaporizes.

The compressor pumps the vapor from the evaporator and compresses it (increasing both pressure and temperature). The compressor forces the compressed vapor out, through the discharge line and into the condenser.

The condenser fan pulls air through the condenser. As the hot refrigerant vapor passes through the condenser tubes, heat is drawn from the vapor. This heat is dissipated into the passing air. The air then exits out the back of the vendor. As the refrigerant vapor in the condenser lines is cooled, it returns to a liquid state.

From the condenser the liquid flows to the drier. The drier removes any water and solid particles from the liquid refrigerant.

The cooled liquid refrigerant continues from the drier, through the capillary tube to the evaporator. The capillary tube steadies the flow rate of the refrigerant. Its small inside diameter allows the pressure in the evaporator to remain low while the pressure in the condenser is high.

The cool refrigerant in the evaporator draws heat from the circulating air in the cabinet. As the temperature in the cabinet drops, the temperature sensor reports the air temperature.

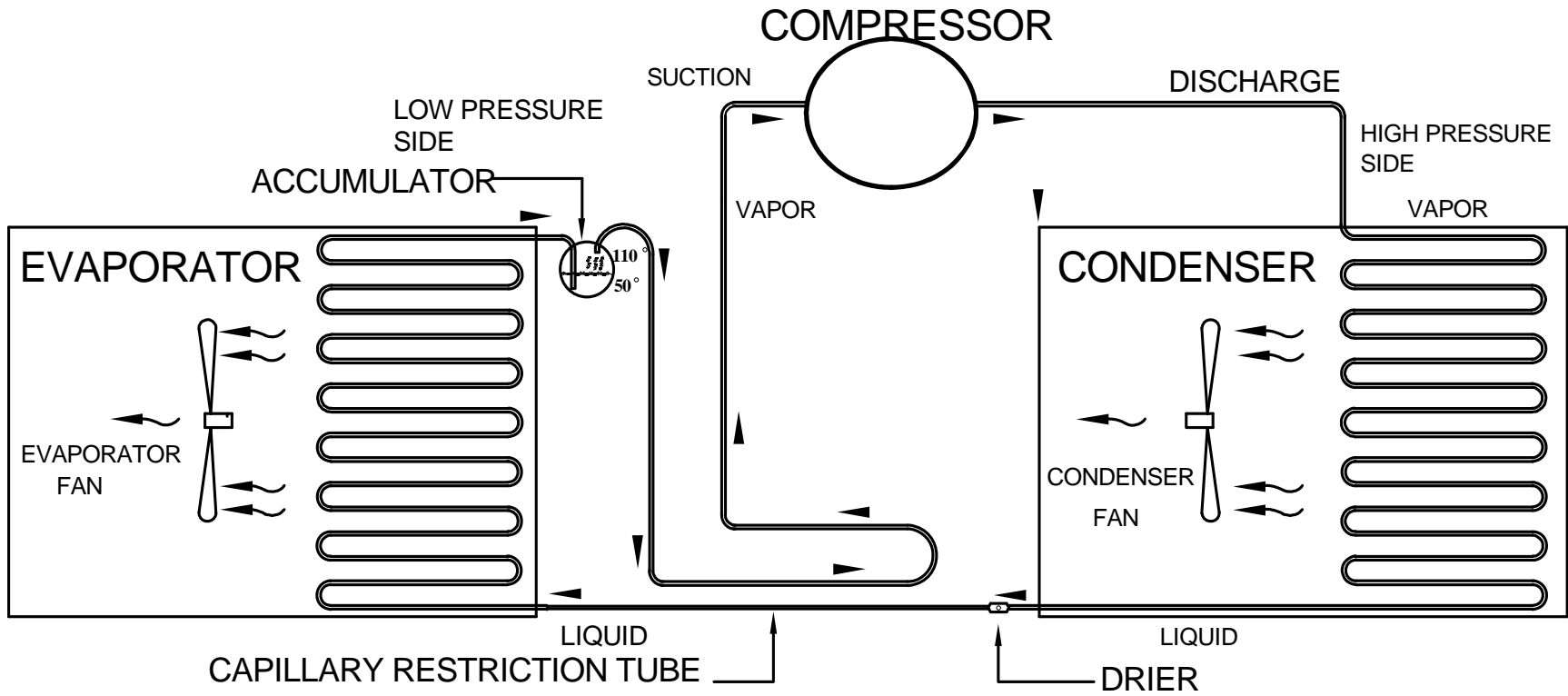


FIGURE 17



REFRIGERATION PARTS DESCRIPTION

The compressor, condenser, drier, capillary tube, evaporator, and accumulator are part of a sealed system (refer to Figure 18). These items are not available separately. For the part number of the sealed refrigeration system, refer to the common parts section of the manual.

COMPRESSOR

The compressor takes in low pressure vapor and compresses it, increasing both the pressure and the temperature. The hot, high pressure gas is forced out to the condenser. The compressor, and the motor that drives the compressor, are sealed inside a housing. The compressor, as a unit, is mounted on the refrigeration base. The base is mounted in the bottom of the vendor, outside the sealed refrigeration space.

CONDENSER

The condenser takes heat out of the high pressure vapor that it receives from the compressor. As the vapor passes through the condenser, it cools and returns to a liquid state. The condenser is mounted to the refrigeration base near the front of the vendor. It is easily accessible for cleaning.

DRIER (Not Shown)

The drier is a molecular sieve strainer/drier. It removes water and solid particles from refrigerant liquid. One side of the drier is connected to the outlet line of the condenser; the other side is connected to the capillary tube going to the evaporator.

CAPILLARY TUBE

The capillary tube controls, at a steady rate, the flow of refrigerant liquid to the evaporator. It has a very small inside diameter to keep pressure in the evaporator low while the pressure in the condenser is high. It is the connecting link between the condenser and evaporator.

EVAPORATOR

The evaporator is a heat transference device. It removes the heat from the air in a refrigerated space and transfers it to the refrigerant liquid. This liquid evaporates into a vapor and is sucked out by the compressor. The evaporator is mounted inside the refrigerated space of the cabinet, directly below the delivery chute.

ACCUMULATOR

The accumulator traps any refrigerant liquid which did not boil off into a vapor before reaching the compressor. The accumulator allows the refrigerant liquid to boil off as a vapor, preventing damage to the compressor. It also prevents suction line sweating. The accumulator is mounted in the suction line on the outline side of the evaporator.

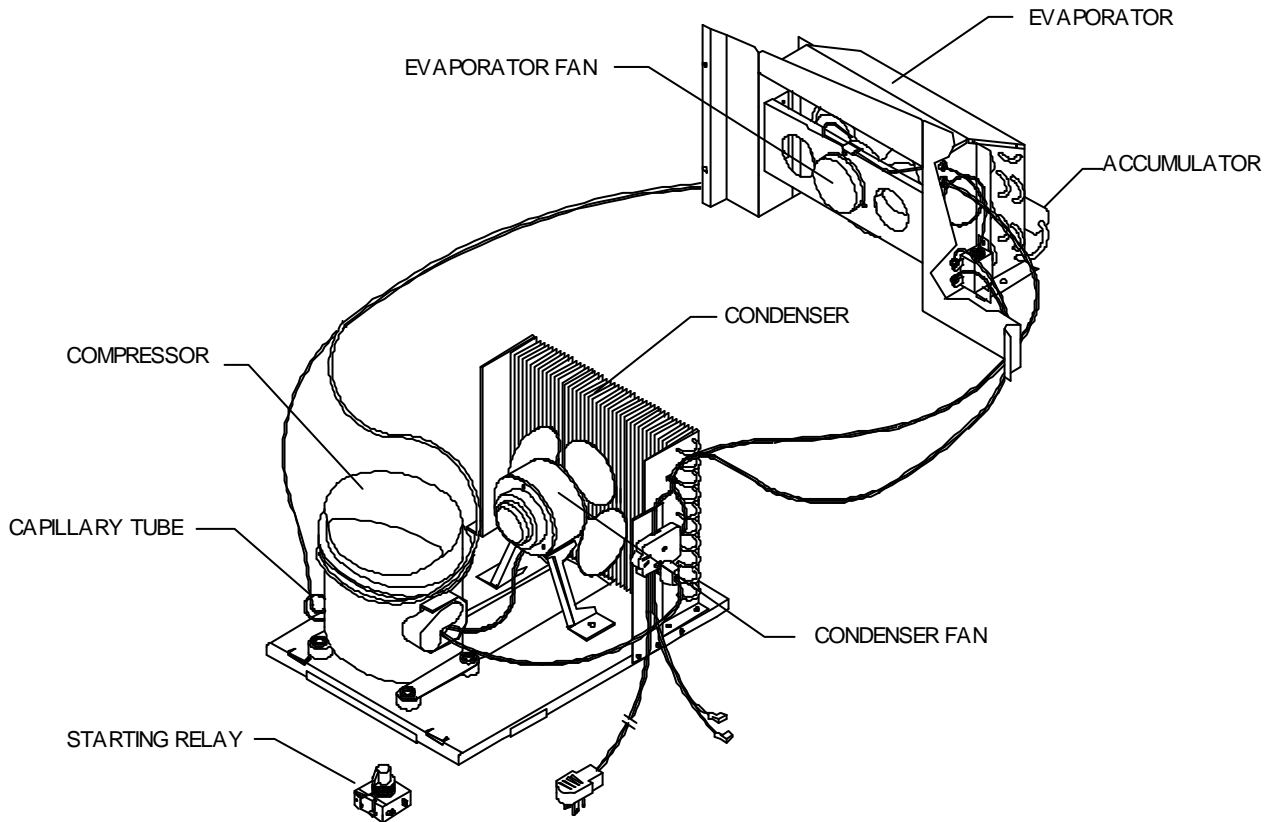


FIGURE 18

The parts listed below are not part of the sealed refrigeration system and are available separately. For part numbers, see the refrigeration assembly in the common parts section of the manual.

CONDENSER FAN ASSEMBLY

The condenser fan pulls cool air from outside the vendor through the condenser, over the compressor, and blows it out the back of the vendor. This cool air removes excess heat from refrigerant in the condenser. The condenser fan runs when the compressor is engaged. The fan assembly is mounted on the refrigeration base between the condenser and compressor.

EVAPORATOR FAN ASSEMBLY

The evaporator fan pulls air from the front of the refrigerated space through the evaporator, up the rear of the refrigerated space and into the modules. The fan blows air through the evaporator (which removes the heat from the air). It circulates the cool air over the product, removing excess heat from the product. The evaporator fan assembly is mounted to a fan bracket, mounted to the extensions of the evaporator. These parts are located in the refrigerated area of the cabinet.



STARTING RELAY - P/N: 333894-50 115 volts, 1016644-1 230 volts

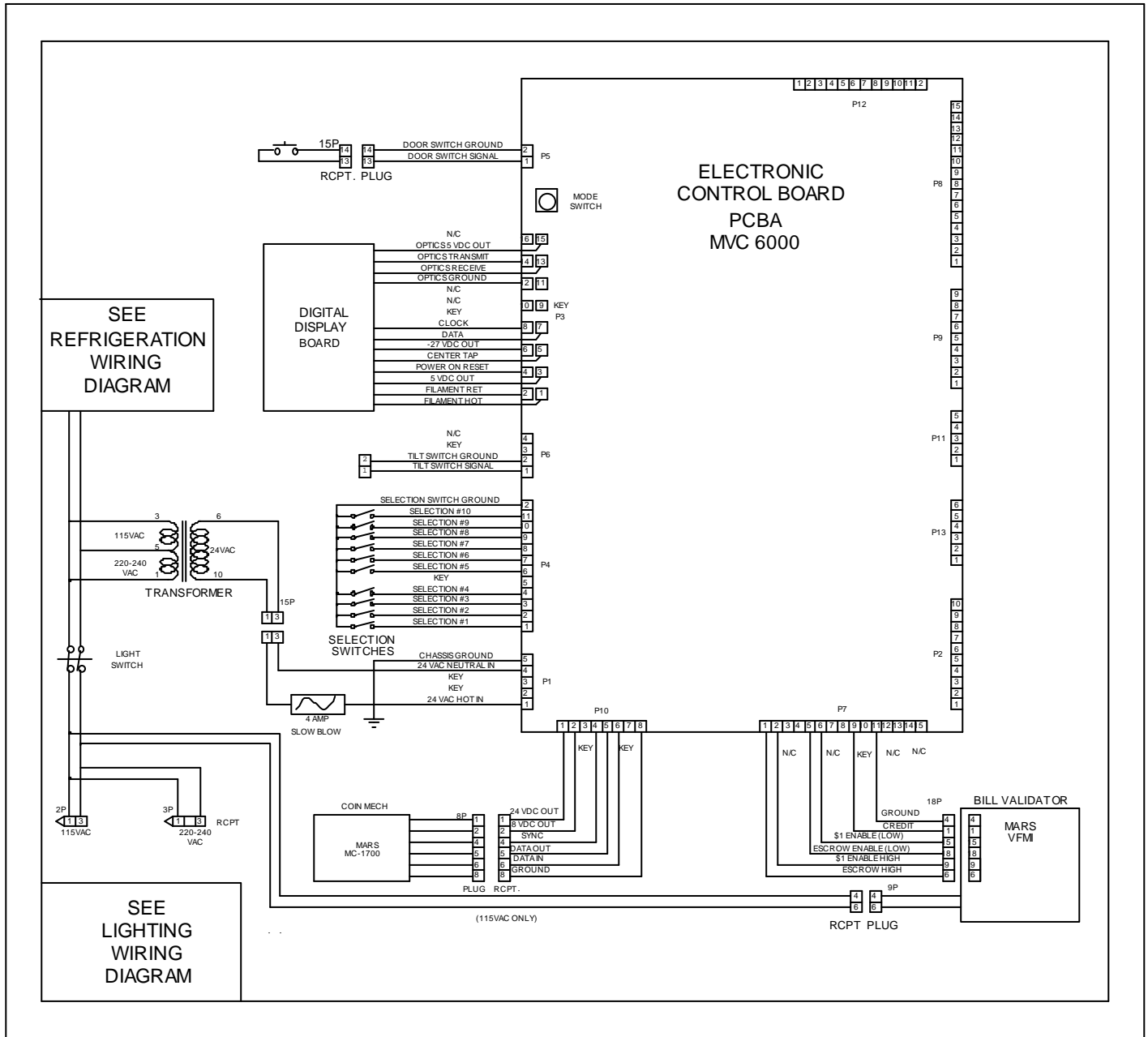
The starting relay is mounted in the terminal box on the side of the compressor housing. When the compressor first starts up, the starting relay closes and completes a starting circuit. When the compressor motor reaches operating speed, the starting relay opens and breaks the starting circuit.

THERMAL OVERLOAD SWITCH

The thermal overload switch is mounted in the terminal box on the side of the compressor housing. If the compressor motor gets hot, or draws too much current, the thermal overload opens and breaks the starting and running circuit of the motor. As the motor cools, the thermal overload closes, allowing the compressor to run.

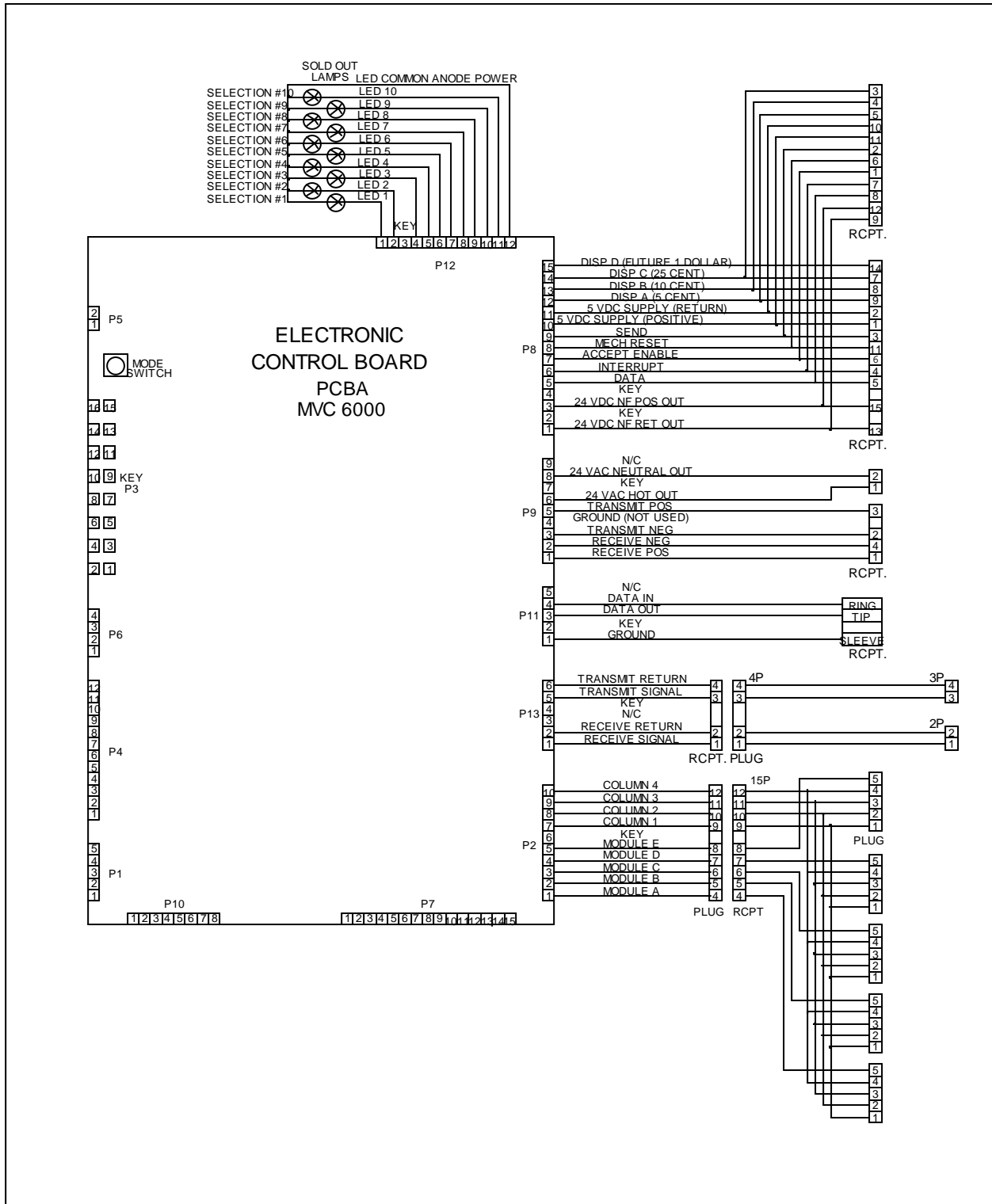


WIRING DIAGRAM





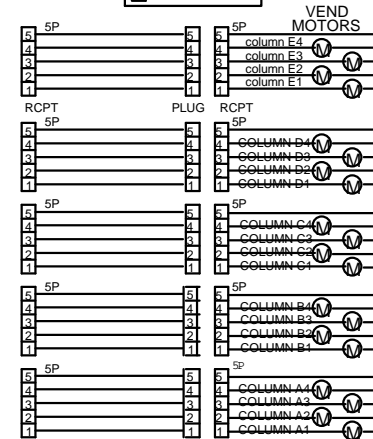
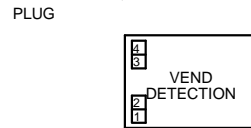
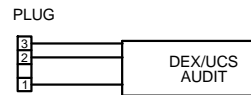
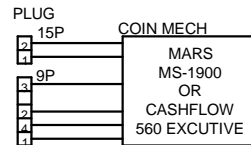
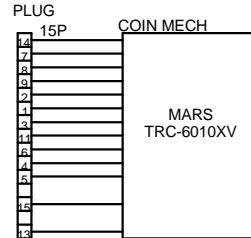
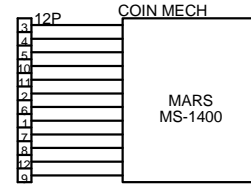
WIRING DIAGRAM - CONTINUED





WIRING DIAGRAM - CONTINUED

MARS PROGRAMMING		
MODE	SEL. SWS.	DESCRIPTION
	---	DEFECTIVE COLUMN
-1-	#1	CASH HANDLING 0: FORCE VEND 1: FORCE ON BILL or HIGH VALUE COIN 2: CHANGE MACHINE 3: NEUTRAL
	#2	CHANGE HANDLING 0: REGULAR VEND 1: MULTIVEND
	#3	\$.05 DISPENSE SW.
	#4	\$.10 DISPENSE SW.
	#5	\$.25 DISPENSE SW.
	#6	\$1.00 DISPENSE SW.
	#7	UNASSIGNED COLUMN
-2-		SET PRICE
-3-		TEST VEND
-4-		SPACE TO SALES INQUIRY
-5-		MIS DISPLAY
-6-		ENTRY CODE
-7-		SPACE TO SALES PROGRAMMING
-8-		DISPLAY PROGRAMMING



"column" - OPTIONAL COFIGURATION



NOTES



PARTS SECTION



READING A PARTS LIST

- I. **ITEM NUMBER** is found in two locations:
 - A. It is on the drawing plate, and identifies the part and its location.
 - B. The same number is in the parts list and ties the two together.
- II. **PART NUMBER** is the part number that is assigned to a specific part by Vendo for easier identification.
- III. **QUANTITY REQUIRED** relates to the amount required of a part, or will be indicated by "A/R" as required to attach it on another part.
- IV. **PART NAME AND DESCRIPTION** is the general description for the part, for easier identification when ordering a like part.

The example below will show how the parts are listed in the parts list:

1. **THE LEFT -HAND BAR MODULE:** This is the main assembly named, and any replaceable parts will be indented below the assembly.
2. **VEND MOTOR:** This is a sub-assembly, and will be indented.
3. **VEND HELIX:** This is a component part, and will be indented. These indented parts can be ordered separately, so you do not need to order the entire assembly.
4. Whenever an assembly is ordered, all the parts that are indented will be in the assembly. Any hardware will be listed next to their corresponding parts.
5. Any parts that may be ordered separately will not have any indented parts listed below them.




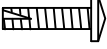



















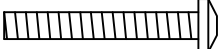







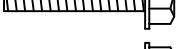

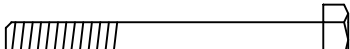





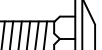





MARS VENDO CONFECTIONERY VENDOR

NUMBER	PART NUMBER	DESCRIPTION	# REQ.	HARDWARE
1	1010387	Hanger Module	A/R	V801490
2	1121238	Slide Assembly (**)	2	V800634
***** LEFT-HAND BAR MODULE *****				
3	1011103-4	Left-hand Bar Module Assy (*)	A/R	-----
4	1010867	Door Assembly	4	-----
5	1012738	Bushing - Door Pivot	4	-----
6	1075716	Vend Motor	4	V802180
7	1010379	Module Top - Left	1	V800634
8	1049651	Vend Helix	4	-----
9	1010301	Helix Bearing	4	-----














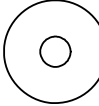

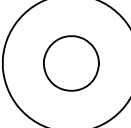
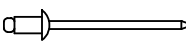
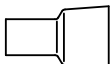

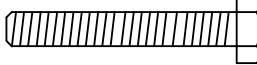





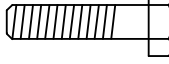

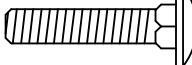









If an asterisk is listed below the parts list, it is an indication that special information is noted. There may be more than one (*) (**) (***) asterisk denoting special notes.



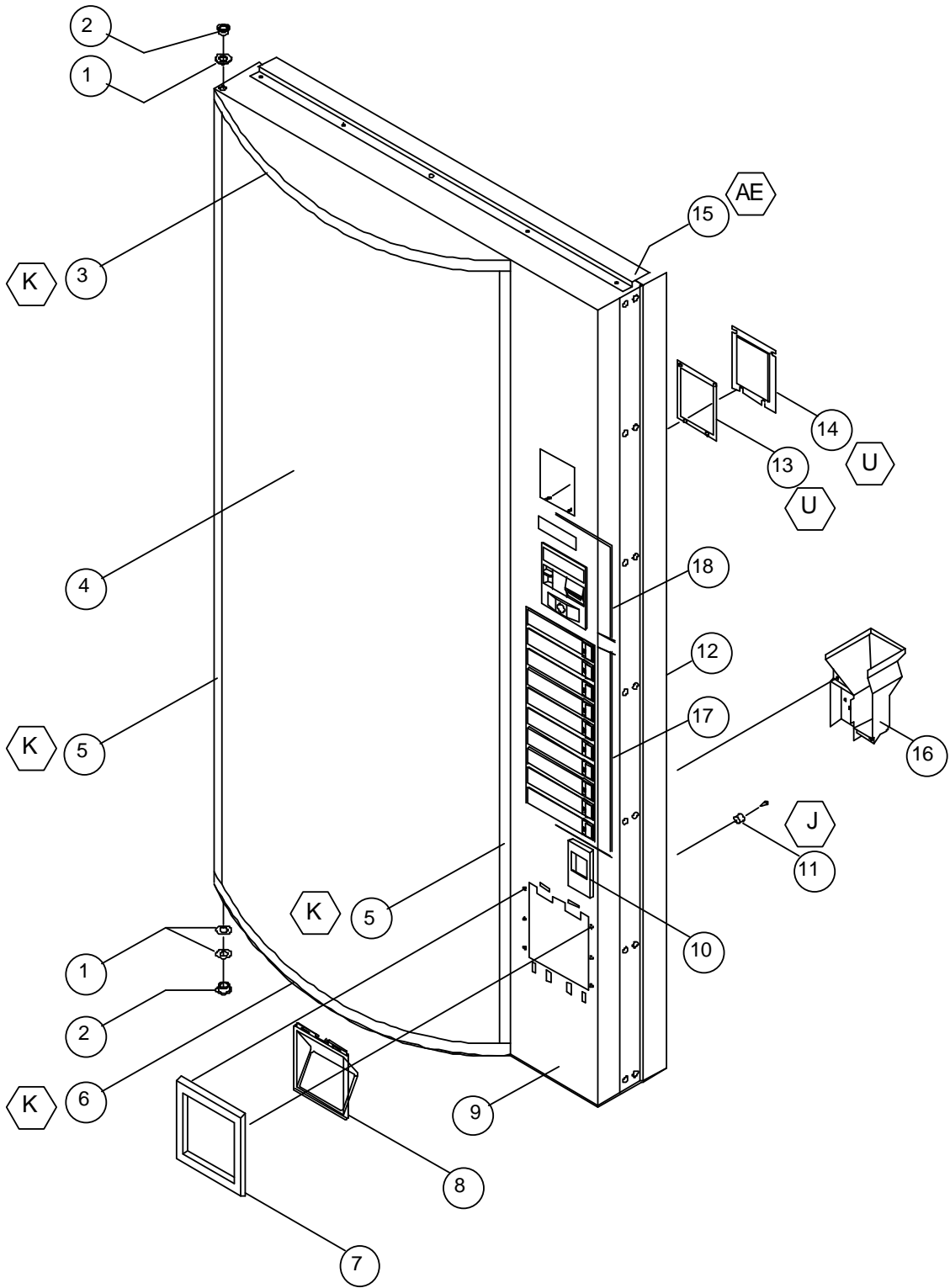
Hardware List

	PART NO.	DESCRIPTION		PICTORIAL
A	V800762	#8 X 5/16" TAPPING SCREW		
B	V802139	#8 X 5/8" TAPPING SCREW		
C	V800586	#8 X 3/8" TAPPING SCREW W / LOCK WASHER		
D	V801493	#8 X 1/2" TAPPING SCREW (FOR PLASTIC)		
E	V801475	#8 X 1/2" TAPPING SCREW		
F	V801421	#10 X 5/16" TAPPING SCREW		
G	V800570	#10 X 3/8" TAPPING SCREW		
H	V802047	#10 X 3/8" SCREW		
I	V802141	#10 X 1/2" TAPPING SCREW		
J	V801422	#10 X 1/2" TAPPING SCREW		
K	V801489	#10 X 1/2" SELF DRILLING SCREW		
L	V800512	#10 X 1-3/8" TAPPING SCREW		
M	V802115	#10 X 1" BOLT		
N	V801360	1/4" X 1/2" TAPPING SCREW W / LOCK WASHER		
O	V801343	1/4" X 1" TAPPING SCREW		
P	V801490	1/4" X 1" SELF DRILLING SCREW		
Q	V802053	1/4" X 2-1/4" BOLT		
R	V802069	1/4" X 5/8" CARRIAGE BOLT		
S	V801434	1/4" X 3/4" CARRIAGE BOLT		
T	V800267	1/4" X 3/8" BOLT		
U	V800956	#8 NUT W / LOCK WASHER		
V	V800952	#10 NUT W / LOCK WASHER		



W	V802111	#10 HEX NUT		
X	V802113	#10 LOCK NUT W / NYLON INSERT		
Y	V800959	1/4" NUT W / LOCK WASHER		
Z	387925	1/4" LOCK NUT W / NYLON INSERT		
AA	V802062	3/8" LOCK NUT W / NYLON INSERT		
AB	V801013	#10 FLAT WASHER		
AC	389026	#10 FLAT WASHER, LARGER O.D.		
AD	V801491	3/8" FLAT WASHER		
AE	V801412	1/8" POP RIVET		
AF	43842	CLOSED END CONNECTOR		
AG	V802166	1/2" 13 X 1-1/2" BOLT		
AH	V802165	1/2" LOCK WASHER.....		
AI	V801023	1/2" FLAT WASHER.....		
AJ	V801435	1/4" 20 X 1" CARRIAGE BOLT		
AK	V329258	1/4" X 20 CARRIAGE BOLT.....		
AL	V800140	#10 X 3/8" TAPPING SCREW		
AM	V802173	1/4" X 1/2" TAPPING SCREW		
AN	V802162	1/4" X 1-3/4" SCREW		
AO	V802169	1/4" X 1-3/8" BOLT		



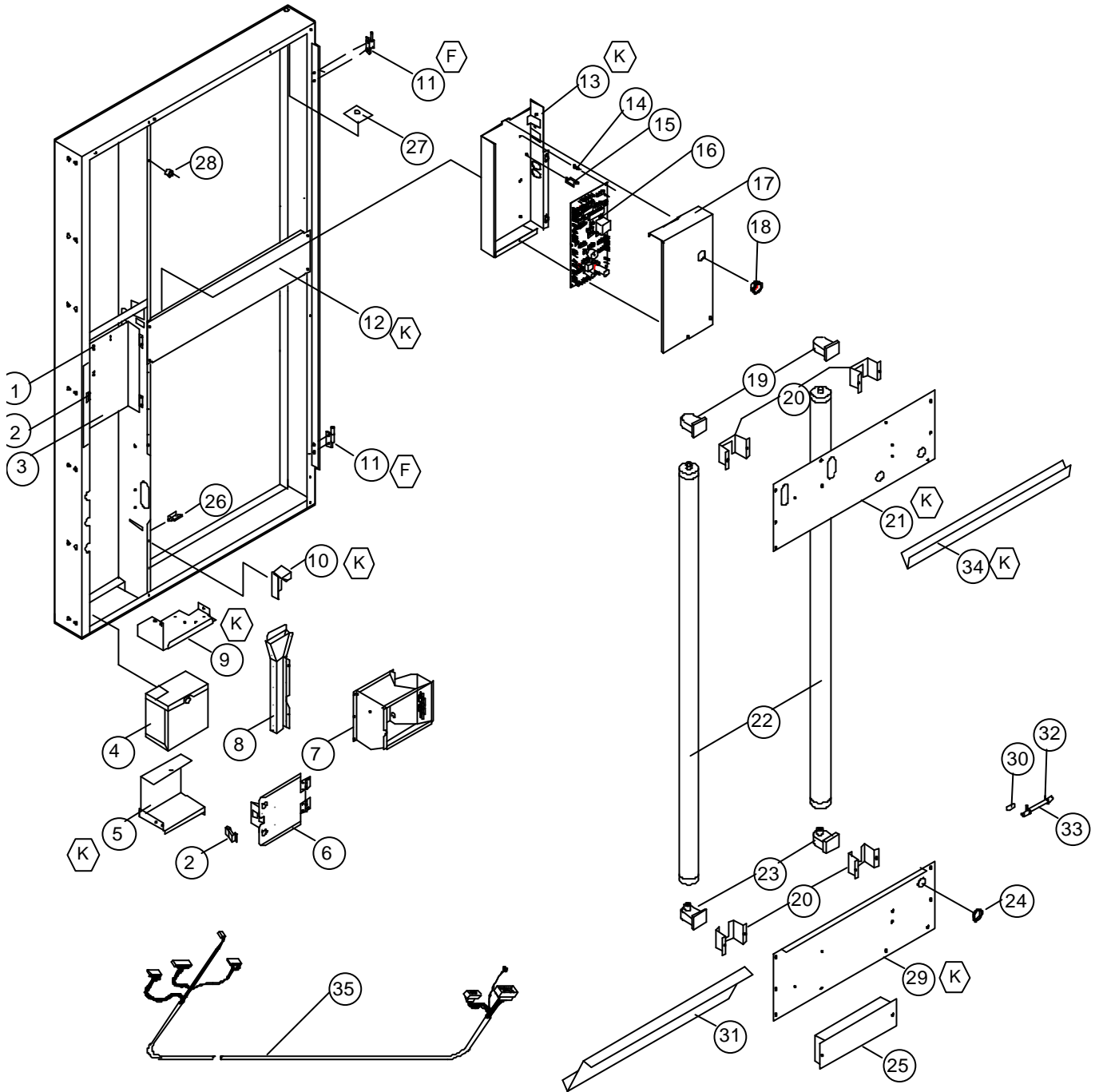




OUTER DOOR COMPONENTS - MARS VENDO CONFECTIONERY				
ITEM NO.	PART NO.	QTY	DESCRIPTION	HARDWARE
1	V801491	3	FLAT WASHER	--
2	388094	2	BUSHING - HINGE	--
3	1014986	1	SIGN CAP - TOP	V801489
4	~	1	SIGN FACE (SEE PAGE 94) **	--
5	388125-2B	2	SIGN FRAME - SIDE	V801489
6	1068988	1	SIGN CAP - BOTTOM	V801489
7	1010247	1	EYELET TRIM	--
8	1010263	1	VEND DOOR	--
9	2008783-05	1	DOOR FRAME WELD - MARS/SNICKERS UK/INT'L	--
--	2008783-03	1	DOOR FRAME WELD - M&M USA	--
--	2008783-02	1	DOOR FRAME WELD - M&M INT'L	--
10	1110384	1	COIN RETURN CUP	V800129
11	337241-1	1	CUP WASHER	--
12	2010162-00	1	DOOR GUARD - MARS BLACK	V801434
--	2010162-02	1	DOOR GUARD - M&M YELLOW	V801434
--	2010162-01	1	DOOR GUARD - SNICKERS BROWN	V801434
--	2010162-03	1	DOOR GUARD - MARS	V801434
13	1086759	1	GASKET - DBV FILLER PLATE	--
14	2004589-01	1	DBV FILLER PLATE - M&M YELLOW	V800956
--	2004589-03	1	DBV FILLER PLATE - MARS BLACK	V800956
15	2000848	1	DOOR RAIN GUARD	V801412
16	388111	1	COIN RETURN CUP	V800129
17	~	1	SELECTION BUTTON ASSY' (SEE PAGE 70)	--
18	~	1	COIN INSERT (SEE PAGE 72)	--

*NOTE: WHEN ORDERING OUTER DOOR ASSEMBLY, PLEASE PROVIDE **9 CODE** OR **11 CODE** AND **MANUFACTURER'S DATE CODE**.

NOTE: WHEN ORDERING SIGN FACE, PLEASE PROVIDE **FRANCHISE AND **STYLE**.

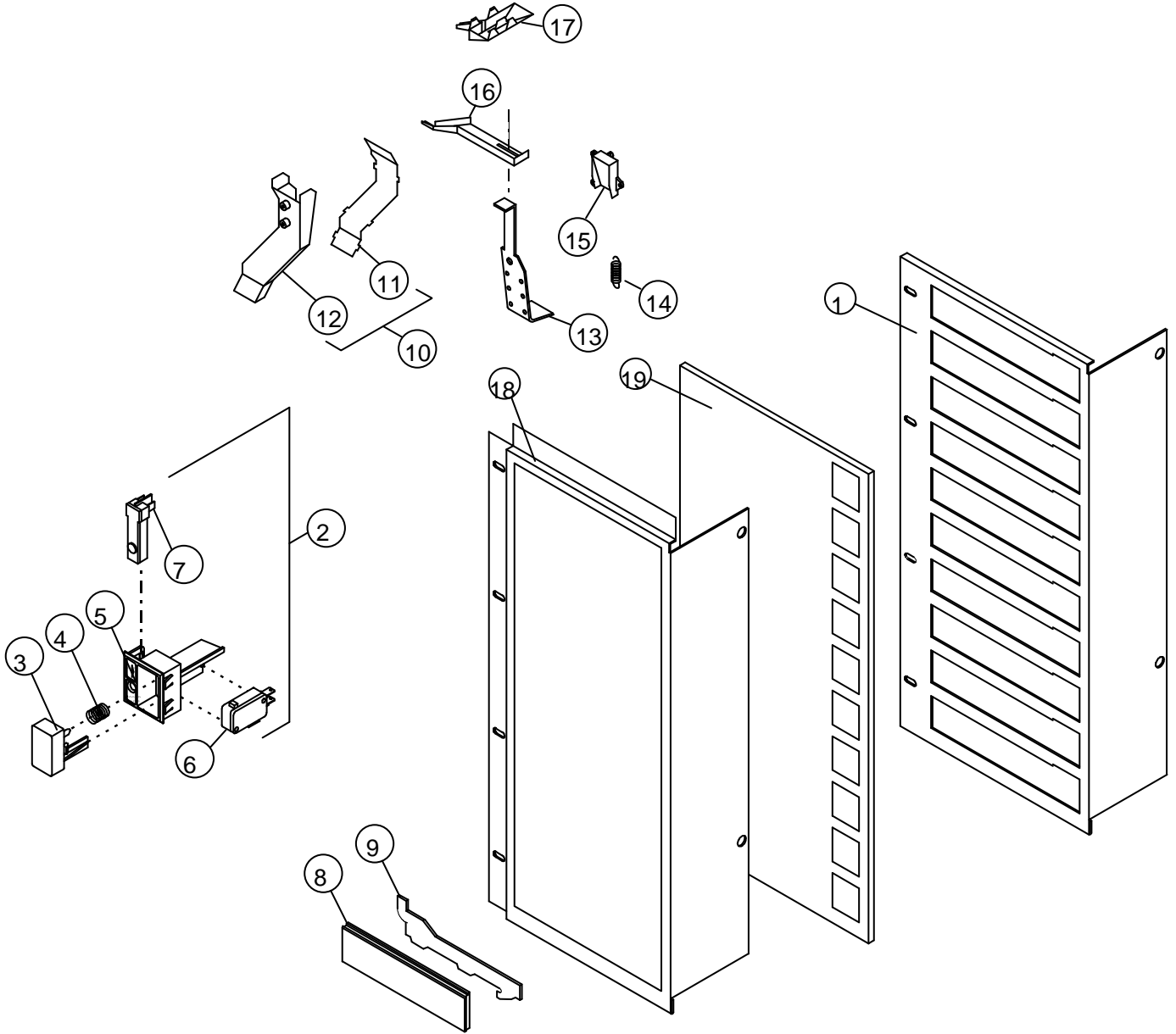




OUTER DOOR COMPONENTS - MARS VENDO CONFECTIONERY				
ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	V801489	3	SCREW - COINAGE MOUNTING	--
2	1085546	2	COINAGE DOOR LATCH + CASE BOX - DOOR	--
3	133435	1	COINAGE DOOR ASSEMBLY	--
4	1110279	1	COIN BOX	--
5	1012886	1	SUPPORT - COIN BOX	V801489
6	1017136	1	COIN BOX DOOR ASSEMBLY	--
7	133574-4	1	VEND HOPPER ASSEMBLY	--
8	1014978	1	COIN CHUTE WELD ASSEMBLY	--
9	1012452	1	BULKHEAD	V801489
10	1016962	1	INNER DOOR RAMP	V801489
11	388149	2	INNER DOOR HINGE	V801421
12	389834-1	1	MIDDLE SHEAR PANEL	V801489
13	1061805	1	MOUNTING BRACKET - ELECTRONIC CONTROL	V801489
14	389973	6	STAND-OFF	--
15	384692-2	1	WIRE CLAMP	--
16	1113554-16	1	PCB - ELECTRONIC CONTROL	--
17	1012827	1	COVER - ELECTRONIC CONTROL	--
18	1016288	1	BUSHING	--
19	388260	2	LAMPHOLDER - PLUNGER	--
20	1016121	4	BRACKET - LAMPHOLDER	--
21	388117	1	SHEAR PANEL - TOP	--
22	388320-1	2	FLUORESCENT LAMP - 64"	--
23	388261	2	LAMPHOLDER - FIXED	--
24	327021	1	GROMMET	--
25	388259	1	BALLAST - 115 VOLTS	V801421
~	1121313	1	BALLAST - 220 VOLTS 50 Hz	V801421
26	384692-3	AR	HARNESS ROUTING CLAMP	--
27	388443	1	BACKING PLATE - TOP HINGE	--
28	1036912	1	DOOR BUMPER	--
29	1051473	1	SHEAR PANEL - BOTTOM INT'L	V801489
~	388117	1	SHEAR PANEL - BOTTOM DOMESTIC	V801489
30	1058198	AR	CAP - RAIN SLEEVE	--
31	1085511	1	RAIN CURTAIN	--
32	378513-1	2	CABLE TIE	--
33	390311	1	PLASTIC RAIN SLEEVE - CABLE	--
34	388581-1	1	RAIN GUTTER - DOMESTIC	--
~	1063503	1	RAIN GUTTER - INT'L	--
35	1050074	1	HARNESS - DOOR	--

(*) NOTE: DOES NOT INCLUDE ELECTRONIC COMPONENTS. REFER TO PG. 88 THRU 93 FOR DETAILS ON THESE COMPONENTS.

NOTE: FOR LABELS AND DECALS, REFER TO PG. 94



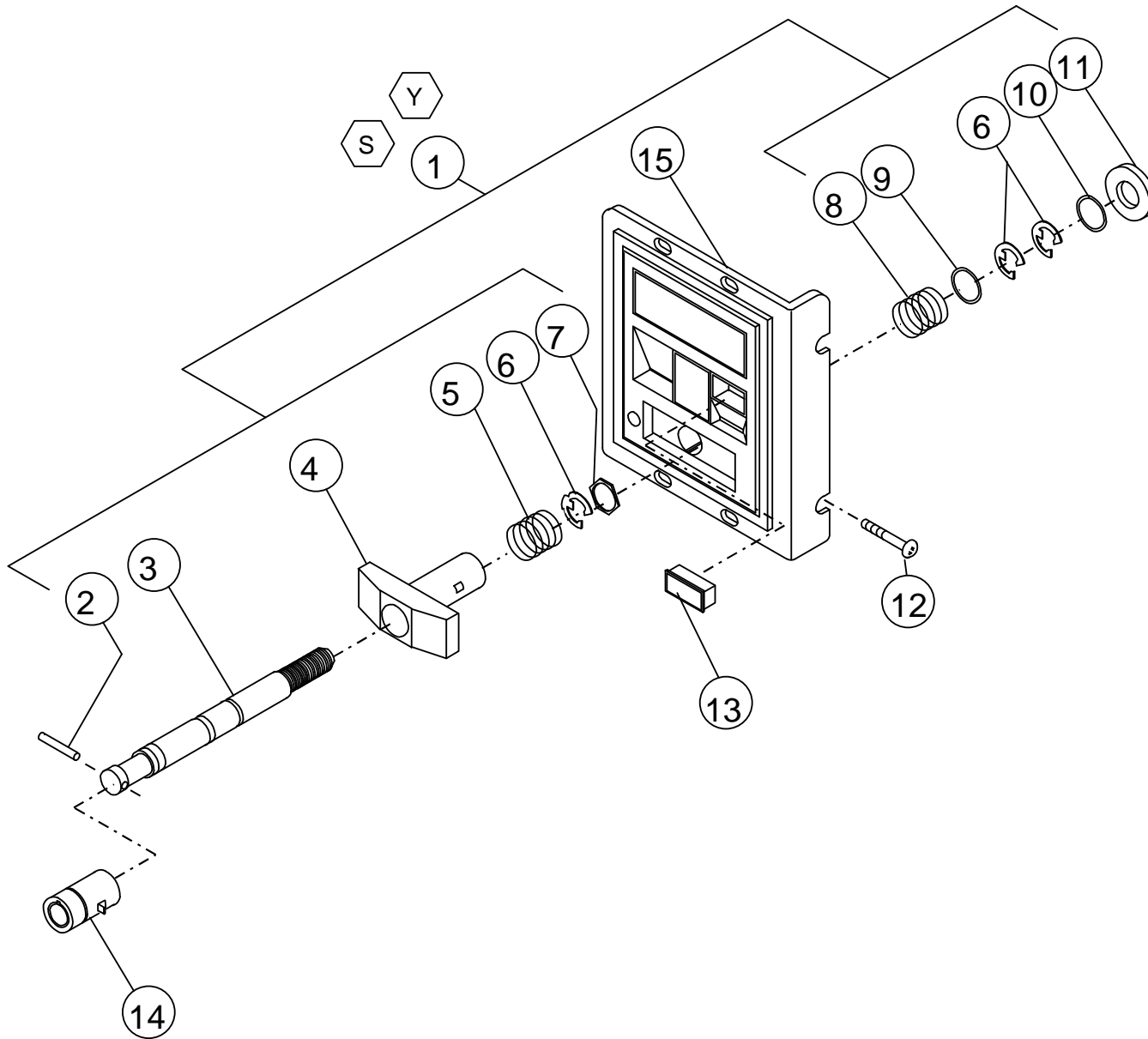
2.99

**SELECTION PANEL COMPONENTS -
MARS VENDO CONFECTIONERY**



ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	2008791-03	1	SELECTION PANEL (MARS BLACK)	V800956
--	2008791-02	1	SELECTION PANEL (M&M YELLOW)	V800956
--	2008791-01	1	SELECTION PANEL (SNICKERS BROWN)	V800956
2	1005251-87	10	SELECTION BUTTON	V800956
3	1116775-1	1	SELECTION PUSH BUTTON	--
4	388858	1	SPRING - SELECTION BUTTON	--
5	1006932	1	HOUSING - SELECTION BUTTON	--
6	368299	1	SWITCH - SELECTION	--
7	389936	1	SOLD-OUT LIGHT	--
8	1010859	10	SELECTION WINDOW	--
9	1111309	10	RETAINER - FLAVOR LABEL	--
10	133428	1	COIN INSERT CHUTE	--
11	~	1	COVER - COIN INSERT CHUTE	--
12	~	1	COIN INSERT CHUTE	--
13	390274	1	SCAVENGER LEVER	--
14	387849	1	SPRING HEAVY	--
15	388220	1	RETAINER SCAVENGER LEVER	--
16	388944	1	RAIN CHUTE - SCAVENGER LEVER	--
17	389240	1	RAIN CHUTE - T-HANDLE	--
18	2008821-00	1	PANEL HOUSING - MARS BLACK	V329258
~	2008821-01	1	PANEL HOUSING - MARS BROWN	V329258
~	2008821-02	1	PANEL HOUSING - M & M YELLOW	V329258
19	1068589	1	COVER PANEL	--

NOTE: FOR LABELS AND DECALS, REFER TO PAGE 97.

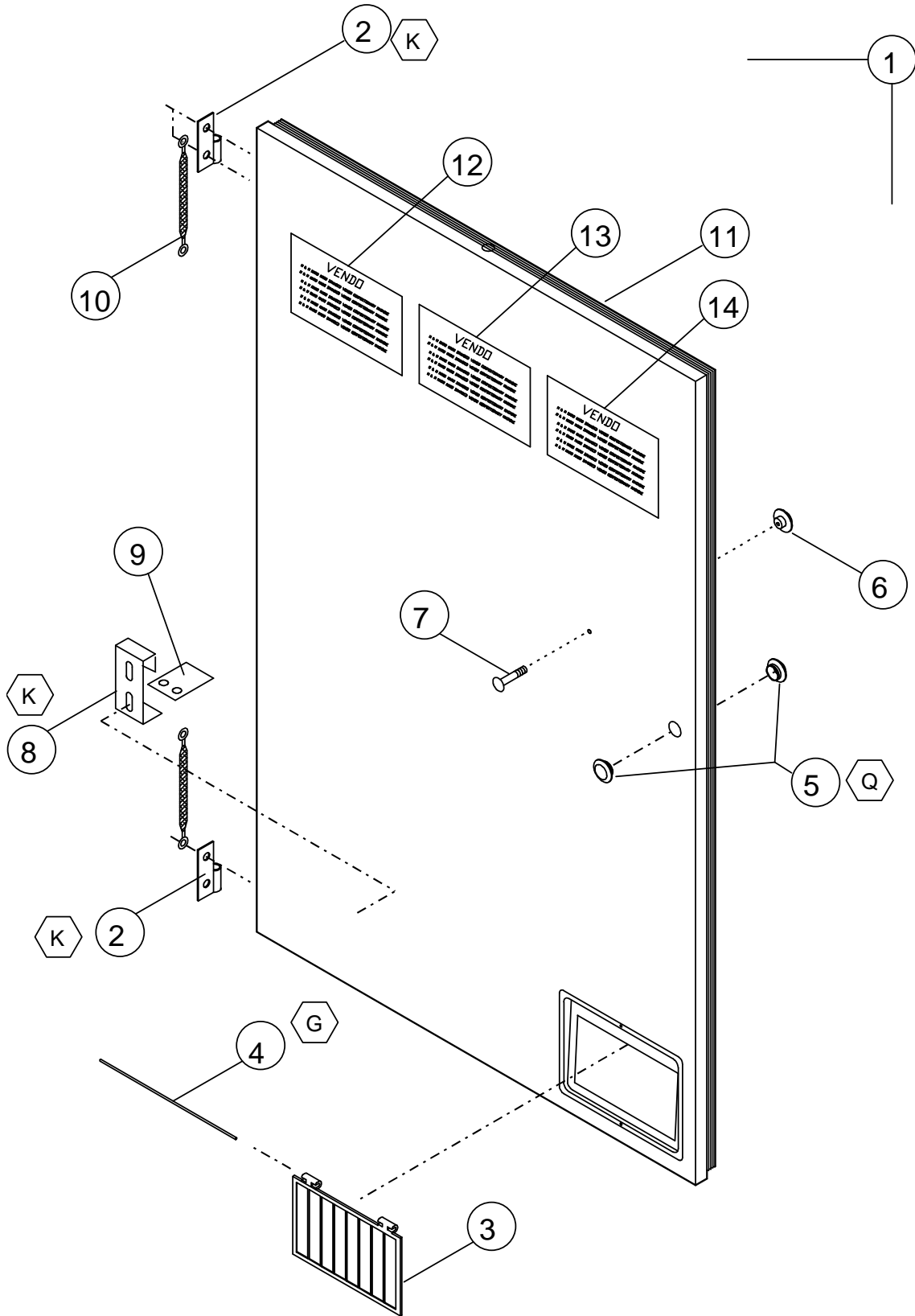


2.99



LOCK ASSEMBLY - MARS VENDO CONFECTIONERY				
ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	1018469	1	T-HANDLE LOCK ASSEMBLY	--
2	387601	1	PIN - LOCK STUD	--
3	1049716	1	LOCK STUD	--
4	387603	1	T-HANDLE	--
5	389691	1	SPRING	--
6	388589	3	E-RING RETAINER	--
7	387600	1	HEX FLAT WASHER	--
8	389690	1	SPRING - HEAVY	--
9	387718	1	FLAT WASHER	--
10	V801023	2	FLAT WASHER - ½" I.D.	--
11	388132	1	VAPOR SEAL	--
12	V801434	2	CARRIAGE BOLT	V800957
13	1020501-5	1	CHANGE LIGHT ASS'Y	--
14	3686880007	1	LOCK	--
~	346118-0007	1	KEY - NOT SHOWN	--
15	1006126-1	1	COIN INSERT CASTING	--

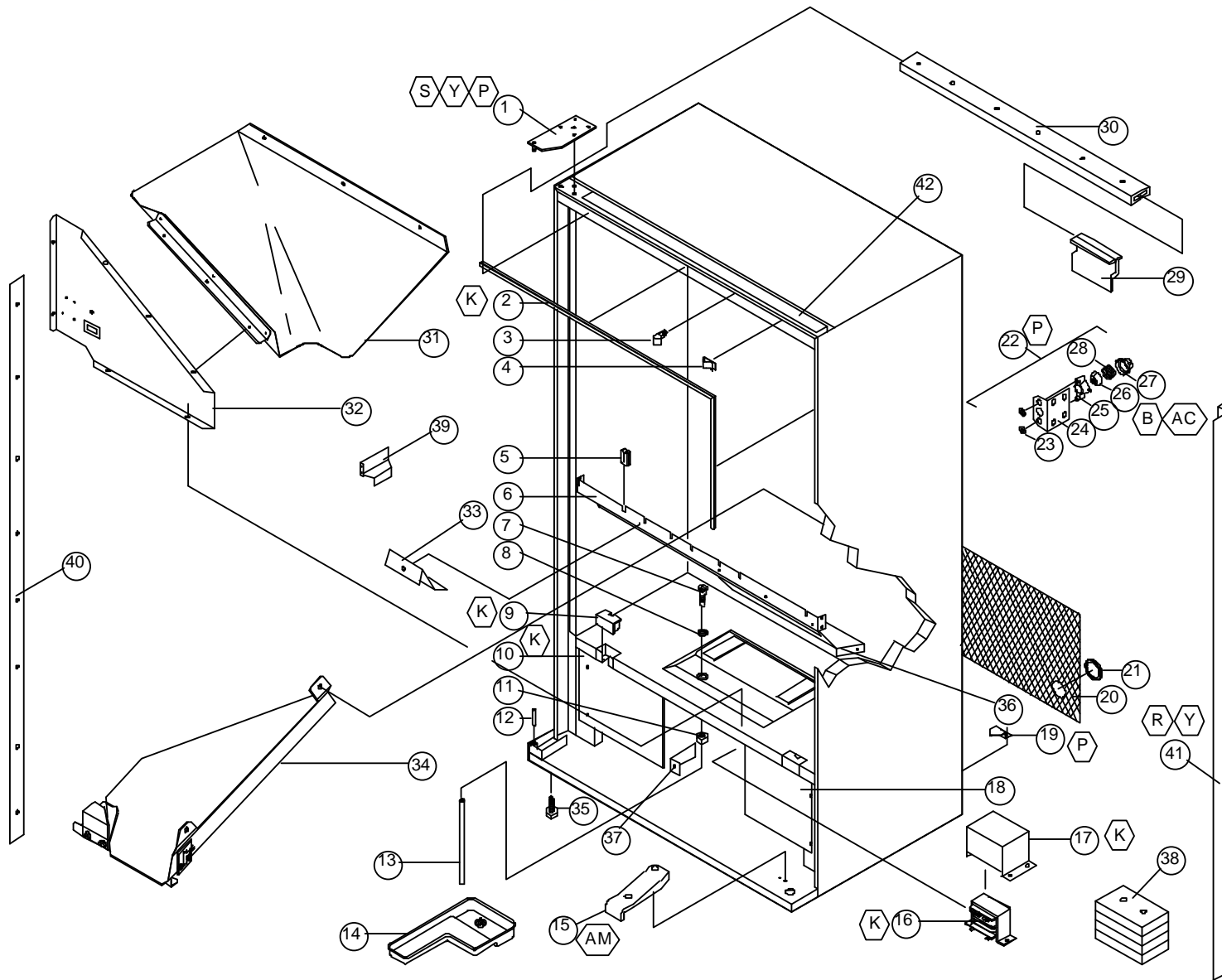
NOTE: OPTION T-HANDLE LOCK COVER 1087902





INNER DOOR ASSEMBLY - MARS VENDO CONFECTIONERY				
ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	134302-15	1	INNER DOOR PANEL ASSEMBLY - INTERNATIONAL	--
~	134302-16	1	INNER DOOR PANEL ASSEMBLY - DOMESTIC	--
2	388148	2	HINGE LEAF - INNER DOOR	V801489
3	1010239	1	VEND DOOR - INNER DOOR	--
4	389985-1	1	HINGE ROD - INNER DOOR	V800570
5	388090	1	GROMMET	--
6	388305	1	KNOB	--
7	V329258	1	CARRIAGE BOLT	--
8	1120697	1	PLUNGER BRACKET	V801489
9	1018159	1	PLUNGER	V801471
10	1011367	2	GROUND STRAP	--
11	1111406	1	GASKET KIT	--
12	1016032	1	LABEL - SCHEMATIC / WIRING DIAGRAM	--
13	1120243	1	LABEL - LOADING INSTRUCTION	--
14	1072732	1	LABEL - M&M STANDARD CONFIGURATION (U.S.)	--

NOTE: FOR LABELS AND DECALS, REFER TO PAGE 94.



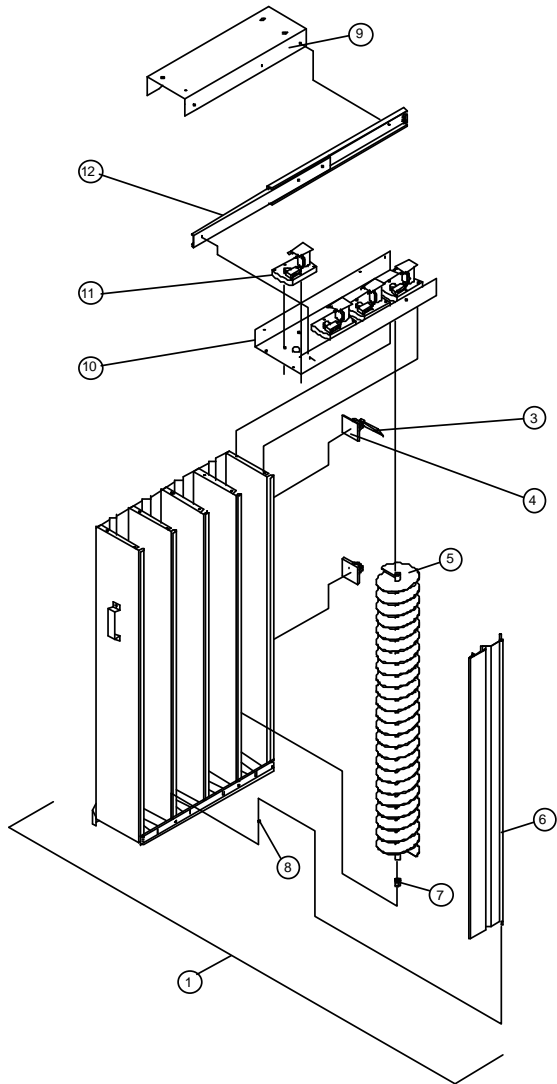


**CABINET ASSEMBLY -
MARS VENDO CONFECTIONERY**

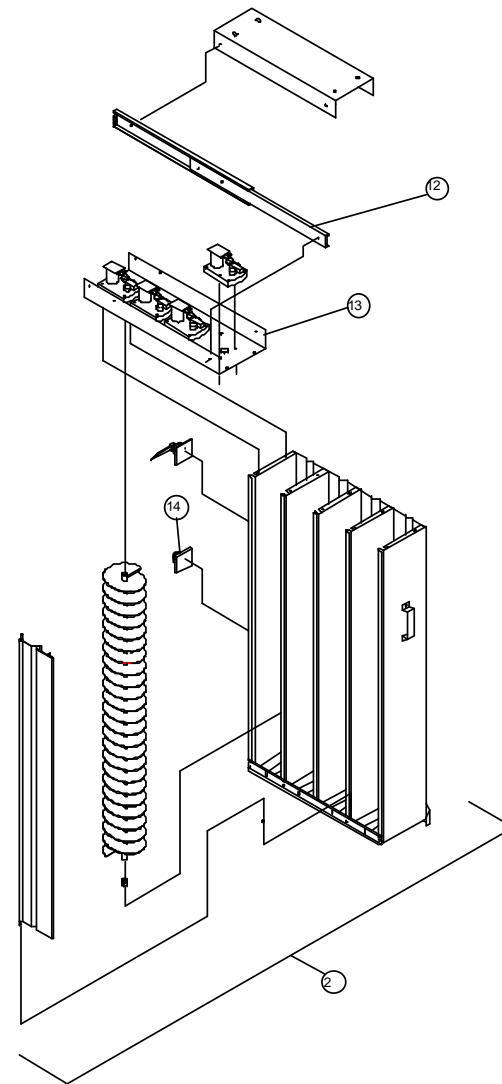
ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	2000805	1	TOP HINGE WELD ASSEMBLY	V801434
2	389463	1	RAIN GASKET - CABINET	--
3	324099-4	AR	HARNESS CLAMP	V801489
4	1030639	AR	HARNESS CLIP ADHESIVE	--
5	1016237	4	BEARING - MODULE GUIDE	--
6	1027611	1	FRONT STRAP	V802133
7	1068678	1	DRAIN TUBE - CABINET	--
8	387837	1	GASKET - DRAIN TUBE	--
9	388143	2	CLOSURE CAP	V801489
10	1081015-1	1	AIR DAM - LEFT	V801489
11	387925	1	NUT -DRAIN TUBE	--
12	389071	1	LOWER HINGE PIN	--
13	1088449	1	DRAIN HOSE	--
14	1112023	1	CONDENSATE PAN	--
15	1120629	1	RAMP - DOOR ROLLER	V802173
16	1017861	1	TRANSFORMER	V801489
17	1066961	1	TRANSFORMER COVER	V801489
18	1089236	1	AIR DAM - RIGHT	V801489
19	388387	2	BRACKET - REFRIGERATION SYSTEM	V801490
20	1009729-6	1	SAFETY SCREEN	V801489
21	1007319	1	GROMMET	--
22	134560	1	QUICK-LOCK	V801490
23	389026	2	FLAT WASHER	V802139
24	2000902	1	BRACKET - QUICK LOCK	--
25	389022	1	RETAINER - NUT SEGMENT	--
26	1033085	3	NUT SEGMENT (3 REQUIRED)	--
27	1111988	1	CAP	--
28	389690	1	SPRING	--
29	1076317	4	MODULE STOP	--
30	1076007	1	MODULE GUIDE	--
31	1017888-1	1	PRODUCT CHUTE ASSEMBLY	V801489
32	~	1	CHUTE SUPPORT - SEE PAGE 88 - 89	V801489
33	1027603	1	DEFLECTOR BRACKET	--
34	~	1	OPTIC ASSEMBLY SEE PAGE 92 - 93	V801489
35	1059902	4	LEVELING LEG	--
36	1112999	1	DEFLECTOR CHUTE	--
37	1073627	1	BRACKET - AIR DAM	--
38	1035924	1	COUNTER WEIGHT - INT'L	--
39	1051023	2	DEFLECTOR - BAG	V801489
40	1066317	1	PINCH GAURD - YELLOW	V802069
~	1066317-1	1	PINCH GUARD - BLACK	V802069
~	1066317-2	1	PINCH GUARD - BROWN	V802069
41	2010163-00	1	OVERLAP GUARD - SIDE BLACK	V802069
~	2010163-01	1	OVERLAP GUARD - SIDE BROWN	V802069
~	2010163-02	1	OVERLAP GUARD - SIDE YELLOW	V802069
42	2010165-00	1	OVERLAP GUARD - TOP BLACK	V802069
~	2010165-01	1	OVERLAP GUARD - TOP BROWN	V802069
~	2010165-02	1	OVERLAP GUARD - TOP YELLOW	V802069



LEFT HAND BAR MODULE



RIGHT HAND BAR MODULE



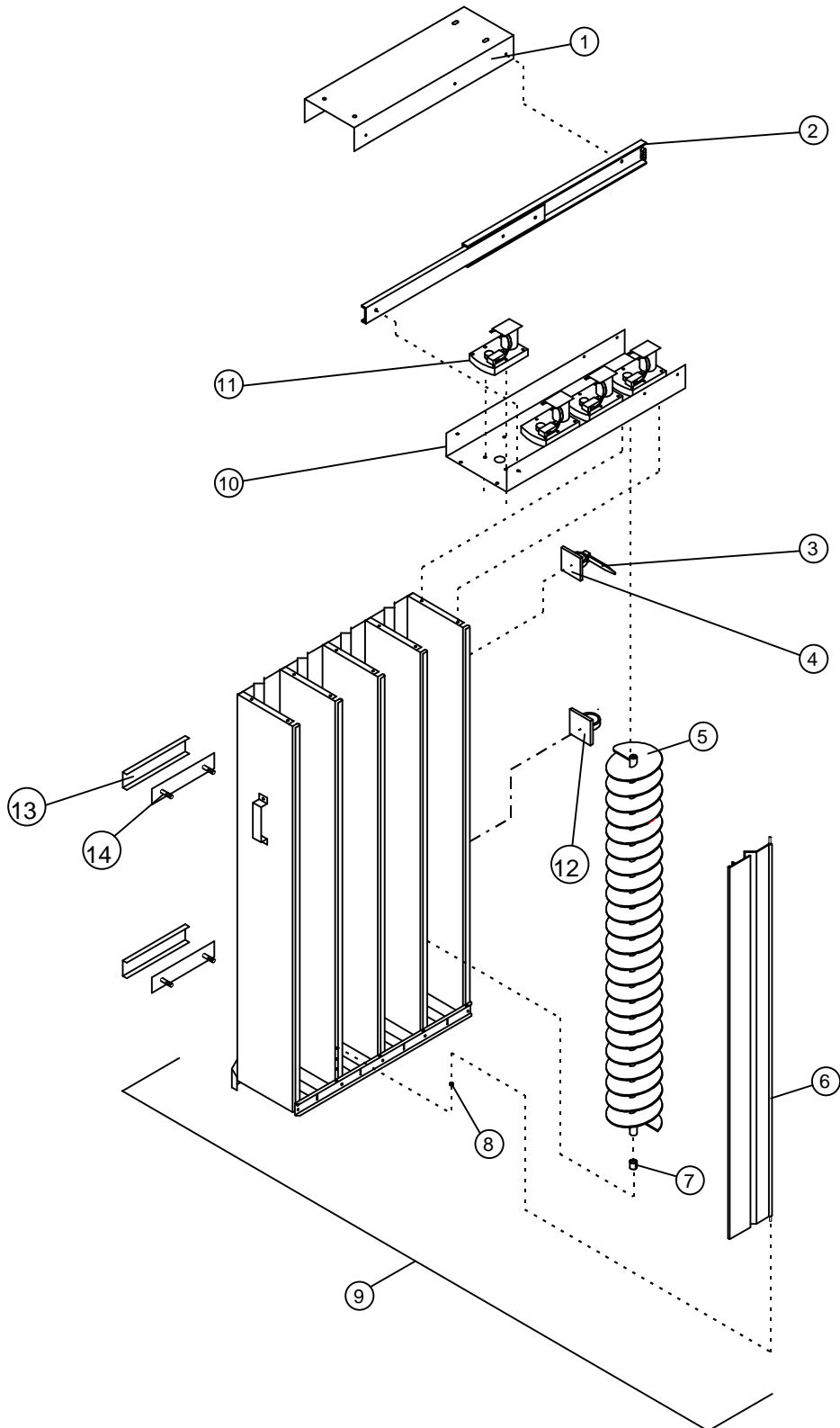


BAR MODULE COMPONENTS - MARS VENDO CONFECTIONERY				
ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	1011103-4	-	LEFT HAND BAR MODULE ASSEMBLY	--
2	1011103-5	1	RIGHT HAND MODULE ASSEMBLY	--
***** LEFT HAND BAR MODULE *****				
3	378513-1	1	CABLE TIE	--
4	1045474	1	ANCHOR TIE	--
5	1049651	4	VEND HELIX - 4" DIA.	--
6	1010867	4	DOOR COVER	--
7	1010301	4	HELIX BEARING	--
8	1012738	4	BUSHING - DOOR PIVOT	--
9	1010387	AR	HANGER - MODULE	V801490
10	1010379	1	MODULE TOP - LEFT	--
11	1075716	4	VEND MOTOR	V802180
12	1121238	1	SLIDE ASSEMBLY	V800634
***** RIGHT HAND BAR MODULE *****				
NOTE: THE FOLLOWING COMPONENTS ARE UNIQUE TO RIGHT HAND BAR MODULE. ALL OTHER MODULE COMPONENTS ARE COMMON TO BOTH LEFT AND RIGHT HAND BAR MODULES				
13	1017144	1	MODULE TOP - RIGHT	V800634
14	1030639	1	HARNESS CLIP - ADHESIVE	--
12	1121238	1	SLIDE ASSEMBLY	V800634

(*) NOTE: INCLUDES MODULE HARNESS 1052422.
NOTE: FOR LABELS AND DECALS REFER TO PAGE 94.



LEFT HAND BAR MODULE - 5th



2.99

LEFT HAND BAR MODULE 5th COMPONENTS -

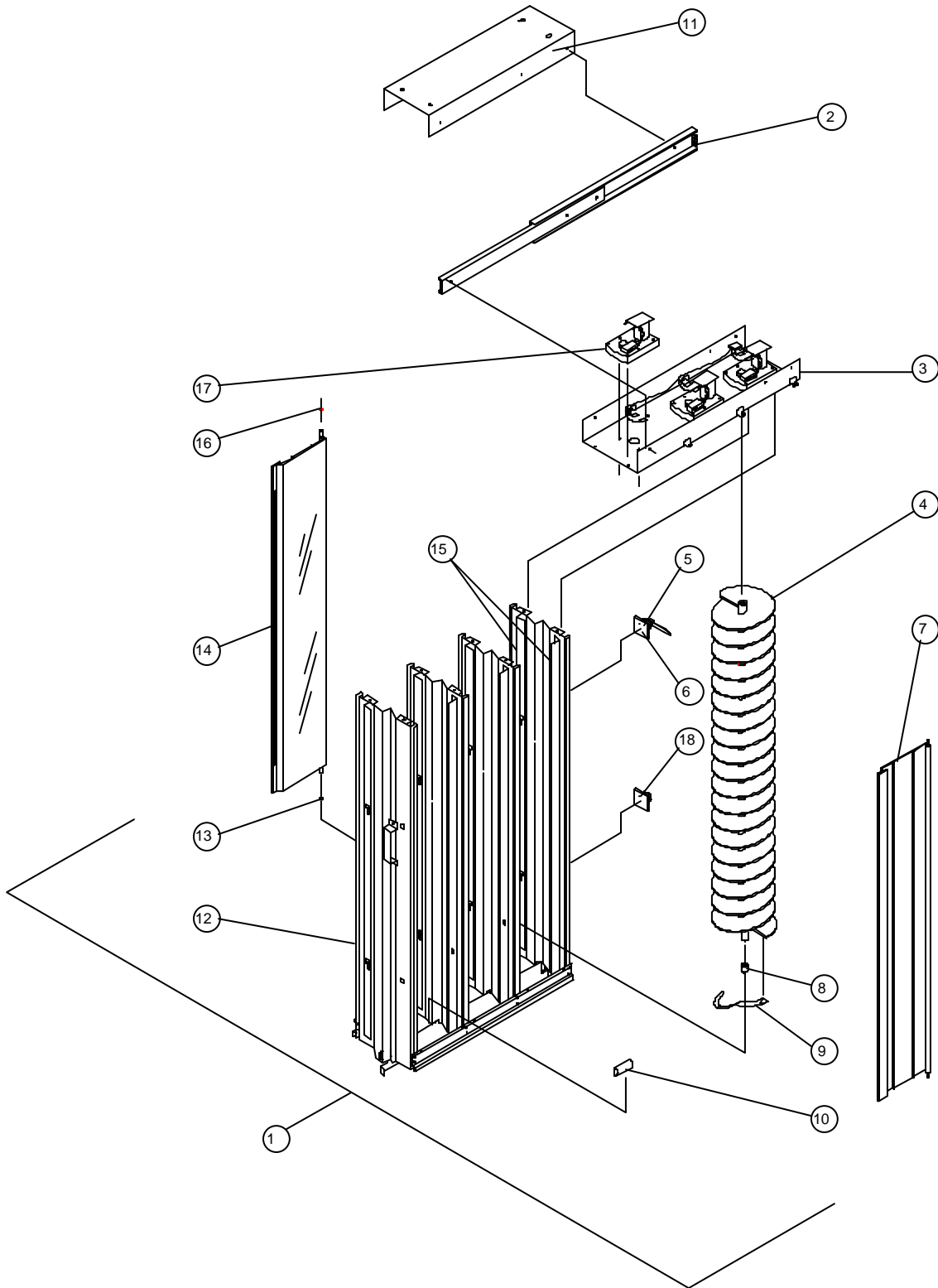


MARS VENDO CONFECTIONERY				
ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	1010387	AR	HANGER - MODULE	V801490
2	1121238	2	SLIDE ASSEMBLY	V800634
3	378513-1	1	CABLE TIE	--
4	1045474	1	ANCHOR TIE	--
5	1049651	4	VEND HELIX - 4" DIA.	--
6	1010867	4	DOOR COVER	--
7	1010301	4	HELIX BEARING	--
8	1012738	4	BUSHING - DOOR PIVOT	--
9	1027395-1	-	LEFT HAND BAR MODULE ASSEMBLY	--
10	1010379	1	MODULE TOP	--
11	1075716	4	VEND MOTOR	V802180
12	1030639	1	HARNESS CLIP - ADHESIVE	--
13	1027166	2	WEAR STRIP	--
14	1027174	2	WEAR STRIP MOUNT	V800956

NOTE: FOR LABELS AND DECALS REFER TO PAGE 94.



BAG MODULE



2.99

BAG MODULE COMPONENTS -



MARS VENDO CONFECTIONERY				
ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	1011111-4	AR	BAG MODULE ASSEMBLY - UK, EURO (*)	--
~	1011111-6	AR	BAG MODULE ASSEMBLY - USA	--
2	1121238	2	SLIDE ASSEMBLY	V800634
3	1010921	1	MODULE	V800634
4	1049643	3	VEND HELIX - 5" DIA.	--
5	378513-1	1	CABLE TIE	--
6	1045474	1	ANCHOR TIE	--
7	1010875	6	DOOR COVER	--
8	1010301	3	BEARING HELIX	--
9	1012797	3	DEFLECTOR SPRING - HELIX	--
10	388304-2	6	EDGE TRIM	--
11	1010387	AR	HANGER - MODULE	V801490
12	1018248	1	BAG MODULE HOUSING(**)	--
13	1012738	6	BUSHING - DOOR PIVOT	--
14	1010867	3	DOOR COVER	--
15	1017179	8	SPACER (***)	--
16	1012738	6	BUSHING - DOOR PIVOT	--
17	1075716	3	VEND MOTOR	V802180
18	1030639	3	HARNESS CLIP ADHESIVE	V802180

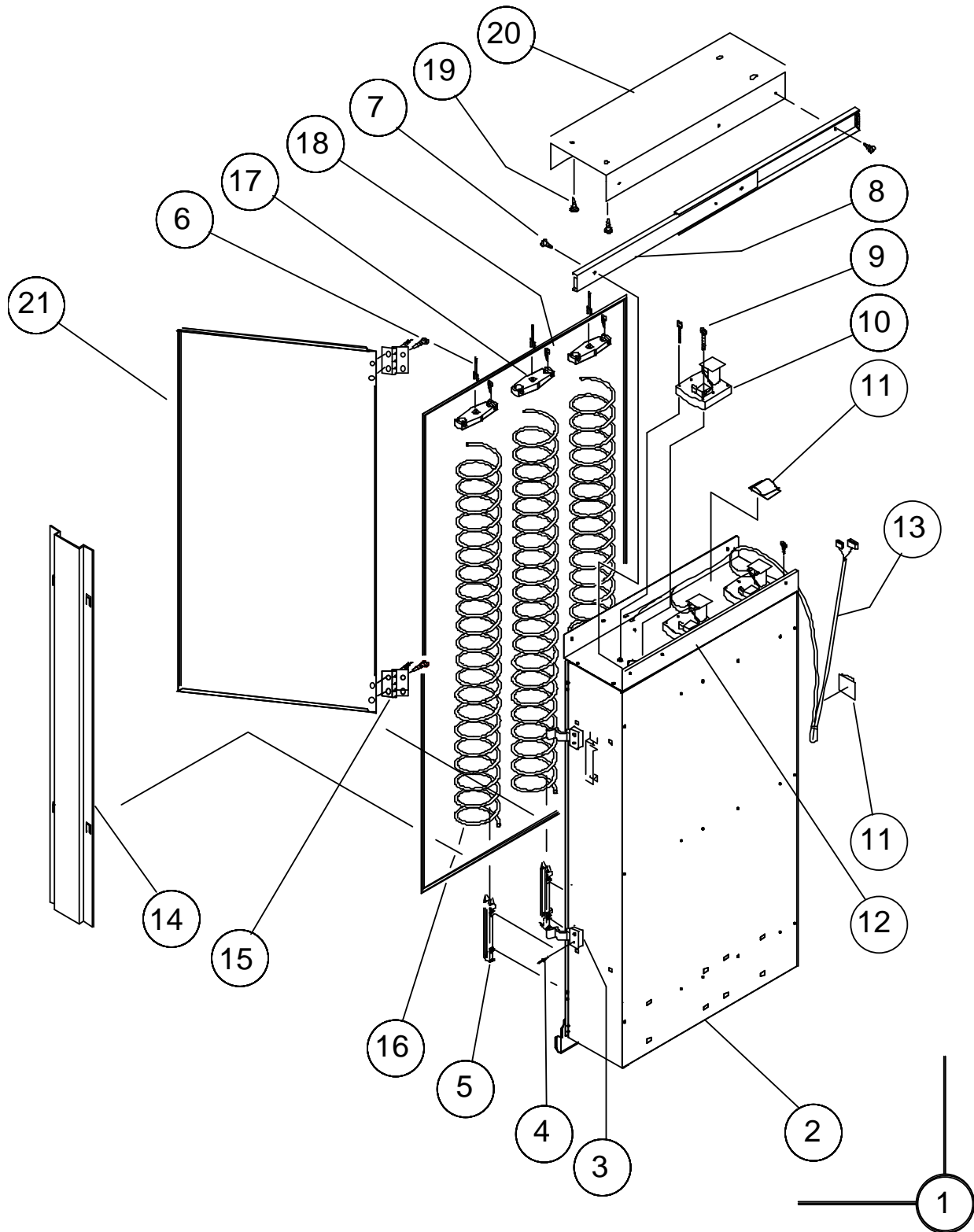
(*) NOTE: INCLUDE MODULE HARNESS 1054457.

(**) NOTE: INCLUDES MODULE TOP 1010921.

(***) NOTE: PRODUCT SPACER INCLUDED IN UK AND EUROPEAN UNITS ONLY.

NOTE: FOR LABELS AND DECALS REFER TO PAGE 94.

UNIVERSAL MODULE

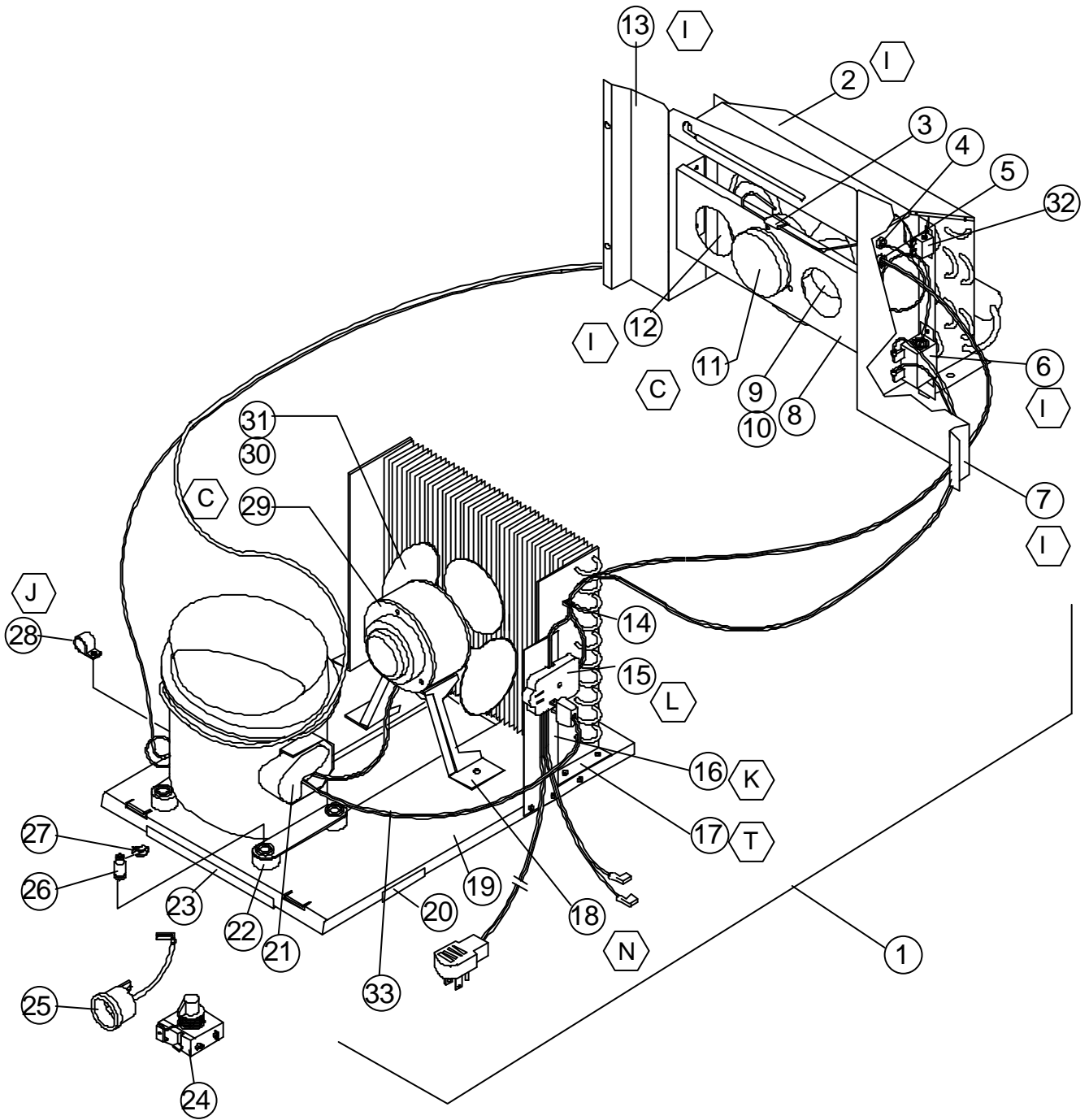




**UNIVERSAL MODULE COMPONENTS -
MARS VENDO CONFECTIONERY**

ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	1112228	~	MODULE ASSEMBLY - COMPLETE	--
2	1040499	1	MODULE ASSEMBLY	V800634
3	1047728	2	DOOR LATCH	--
4	V801412	AR	RIVET 1/8 DIA.	--
5	1045253	3	WIRE COIL RETAINER	--
6	1045598	3	MOTOR COIL CLIP	--
7	V800634	2	PH TAP SCREW 8-18X1/4	--
8	1121238	2	SLIDE ASSEMBLY	--
9	V802180	6	PH TAP SCREW 8 X 7/8	--
10	1052376	3	GEAR MOTOR	--
11	1030639	2	WIRE CLIP - ADHESIVE	--
12	1045172	1	TOP SUPPORT	--
13	1054457	1	MODULE HARNESS	--
14	1045245	AR	PARTITION SPACER - 1/2 "	--
	1045245-1	AR	PARTITION SPACER - 1.0 "	--
15	1047574	2	HINGE MODULE DOOR	--
16	1046276	3	WIRE HELIX (GREEN)	--
17	1045156	3	WIRE COIL MOUNT	--
18	V800570	AR	TH TAP SCREW 10-16x3/8	--
19	V801490	AR	WH TAP SCREW 1/4-14x1	--
20	1010387	AR	HANGER	--
21	1045237	1	DOOR COVER	--

NOTE: FOR LABELS AND DECALS, REFER TO PAGE 94.



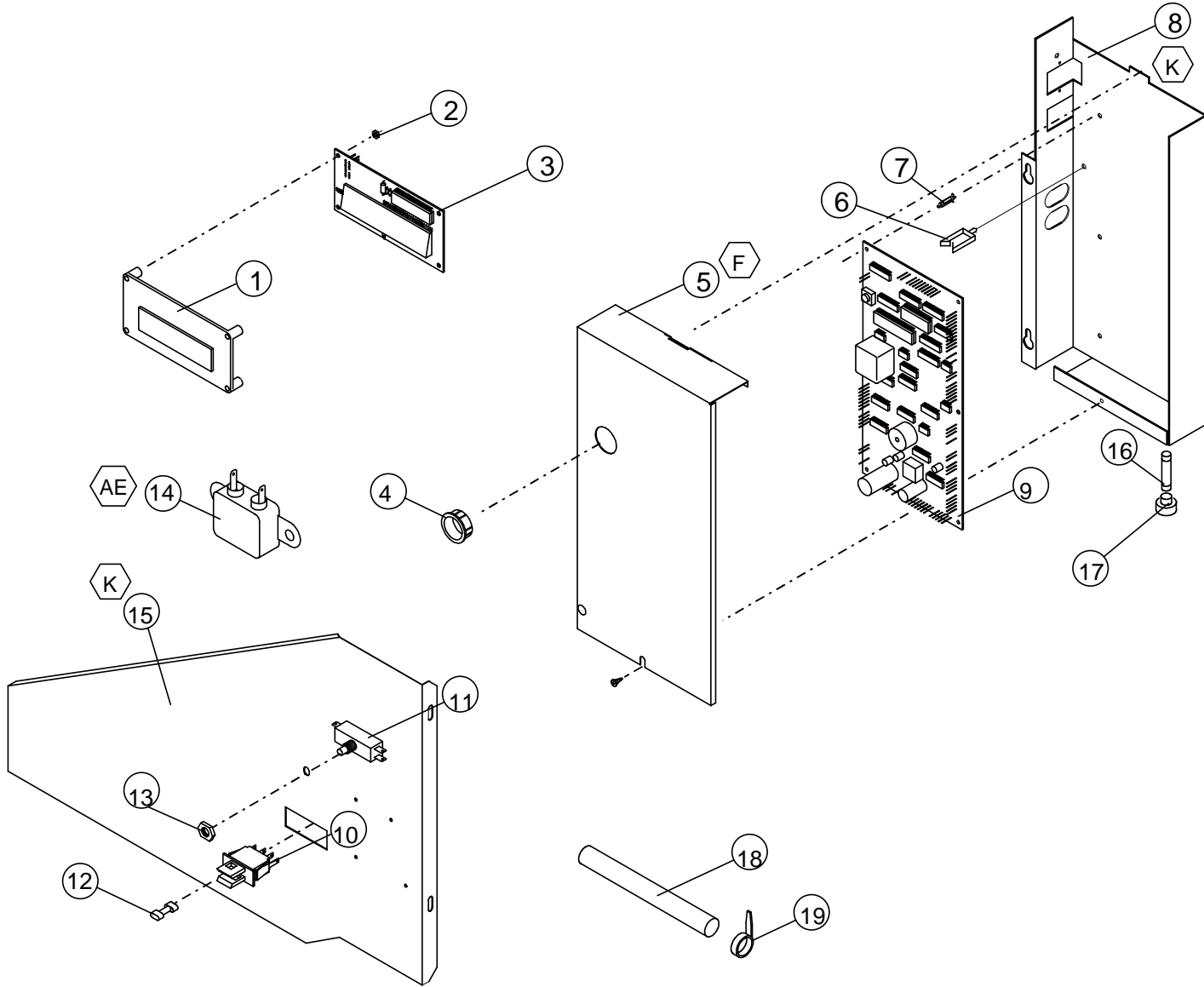


REFRIGERATION ASSEMBLY - MARS VENDO CONFECTIONERY				
ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	1047019	1	D89TA REPLACEMENT REF. SYSTEM - 115 VOLT (U.S.)	--
~	1033077-7	1	REFRIGERATION UNQ - 220 VOLT (INT'L)	--
2	1064635	1	TOP COVER - EVAPORATOR	V802141
3	1030612	1	CLIP - TEMPERATURE CONTROL PROBE	--
4	389747	1	BUSHING - TEMPERATURE CONTROL PROBE	--
5	327699-2	1	BUSHING - EVAPORATOR FAN WIRE	--
6	368794-2	1	TEMPERATURE CONTROL - REFRIGERATION	V802141
7	1014854	1	RIGHT EXTENSION - EVAPORATOR	V802141
8	320266-1	1	BRACKET - EVAPORATOR FAN MOTOR	--
9	44190	1	FAN BLADE - EVAPORATOR FAN	--
10	V42323	1	RETAINER CLIP - FAN BLADE	--
11	42321-44	1	FAN MOTOR - EVAPORATOR - 115 VOLT (U.S.)	V800586
~	42321-43	1	FAN MOTOR - EVAPORATOR - 230 VOLT (INT'L)	V800586
12	385434	1	ORIFICE PLATE - EVAPORATOR FAN	--
13	1028278	1	LEFT EXTENSION - EVAPORATOR	V802141
14	384692-3	1	CLAMP - ROUTING	--
15	1120279-3	1	SERVICE CORD - U.S.	V800512
~	1120279	1	SERVICE CORD - INT'L	V800512
~	1120279-1	1	SERVICE CORD -U.K.	V800512
16	390366	1	BRACKET - SERVICE CORD	V801489
17	916923	2	TINNERMAN - CONDENSER MOUNT	--
18	389797	1	BRACKET- CONDENSER FAN	V801360
19	1006703	1	BASE - REFRIGERATION	--
20	388304-1	3	EDGE TRIM BASE (SHORT)	--
21	1078406	1	COVER - INT'L	--
~	1078392	1	COVER - U.S.	--
22	323090-1	4	GROMMET - COMPRESSOR MOUNT	--
23	388304-3	1	EDGE TRIM - BASE (LONG)	--
24	333894-50	1	START RELAY - 115 VOLT (U.S.)	--
~	1016644-1	1	START RELAY - 230 VOLT (INT'L)	--
25	45052-52	1	OVERLOAD PROTECTOR - 115 VOLT (U.S.)	V802008
~	1016652-2	1	OVERLOAD PROTECTOR - 230 VOLT (INT'L)	V802008
26	390102	4	STUD - COMPRESSOR MOUNT	--
27	343874	4	CLIP - COMPRESSOR MOUNT	--
28	324099-3	1	CLAMP - DRIER	--
29	42321-35	1	FAN MOTOR - COMPRESSOR - 115 VOLT (U.S.)	V800586
~	42321-28	1	FAN MOTOR - CONDENSER - 220 VOLT (INT'L)	V800586
30	V42323	1	RETAINER CLIP - FAN BLADE	--
31	389602	1	FAN BLADE - CONDENSER	--
32	368794-2	1	TEMPERATURE CONTROL - HEATER	--
33	1118686	1	COMPRESSOR CORD	--

NOTE: FOR LABELS AND DECALS, REFER TO PAGE 94.



2.99

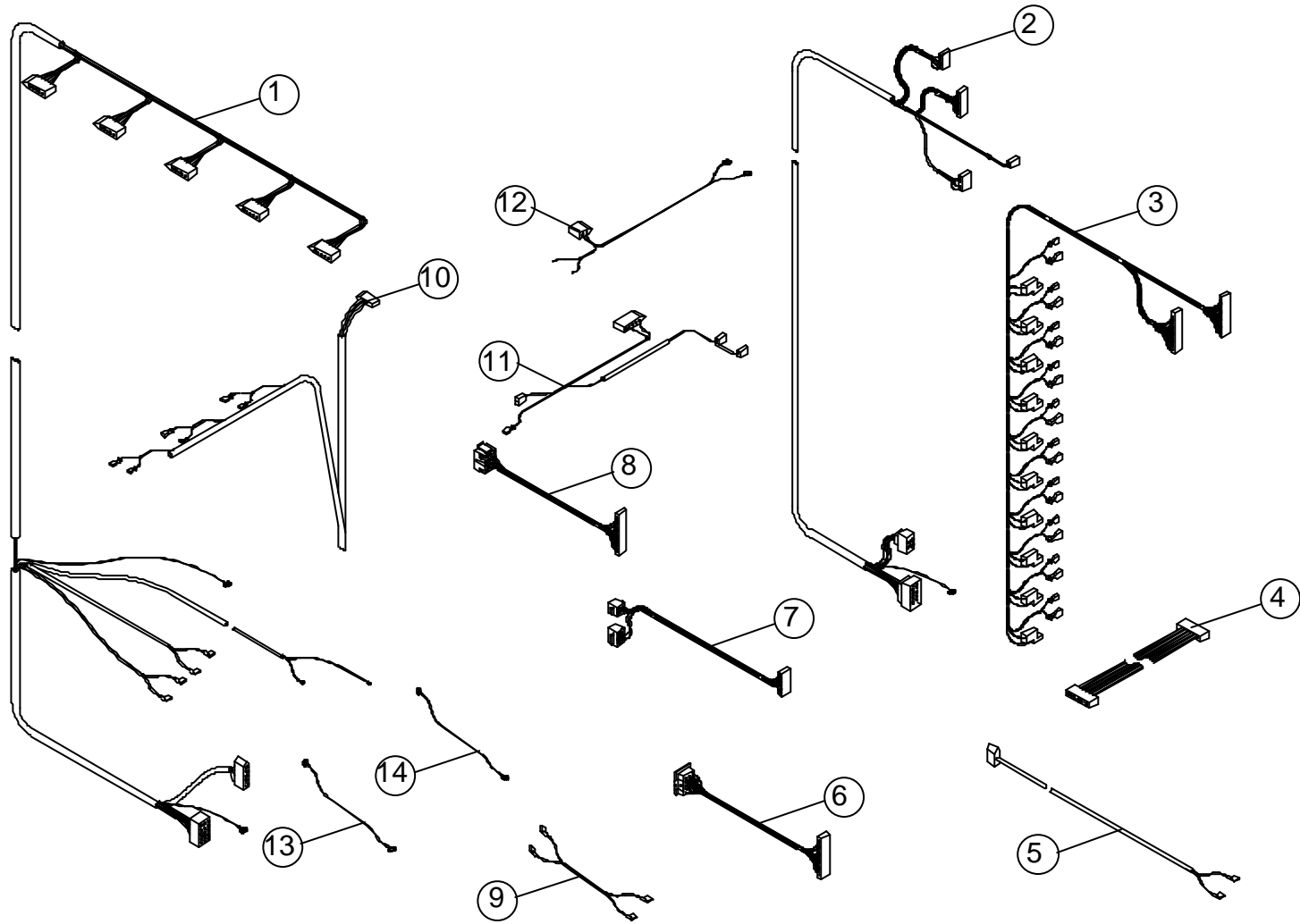




ELECTRONIC COMPONENTS - MARS VENDO CONFECTIONERY				
ITEM NO.	PART NO.	QTY.	DESCRIPTION	HARDWARE
1	1019341	1	LENS-DISPLAY	--
2	V800891	4	NUTS - DISPLAY LENS	--
3	1015907	1	DISPLAY - LED	--
4	1016288	1	BUSHING	--
5	1012827	1	COVER - ELECTRONIC CONTROL	V801421
6	384692-2	1	WIRE CLAMP	--
7	389973	6	STAND-OFF - PC BOARD	--
8	1061805	1	MOUNTING BRACKET - ELECTRONIC CONTROL	V801489
9	1113554-16	1	ELECTRONIC CONTROL PCB	--
10*	1120089	1	POWER SWITCH	--
11	323007	1	RESET SWITCH	--
12	1015885	1	KEY - POWER SWITCH	--
13*	V801449	1	NUT - RESET SWITCH	--
14*	1071732	1	LINE FILTER - INT'L	V801412
15	1070104	1	PRODUCT CHUTE SUPPORT	V801489
16	1050058	1	FUSE 4 AMP	--
17	1008722	1	FUSE HOLDER	--
18	390311-1	1	PLASTIC RAIN SLEEVE	--
19	378513-1	1	CABLE TIE	--

NOTE: FOR LABELS AND DECALS, REFER TO PAGE 94.
FOR HARNESS REFER TO PAGE 90-91.

(*) INTERNATIONAL ONLY



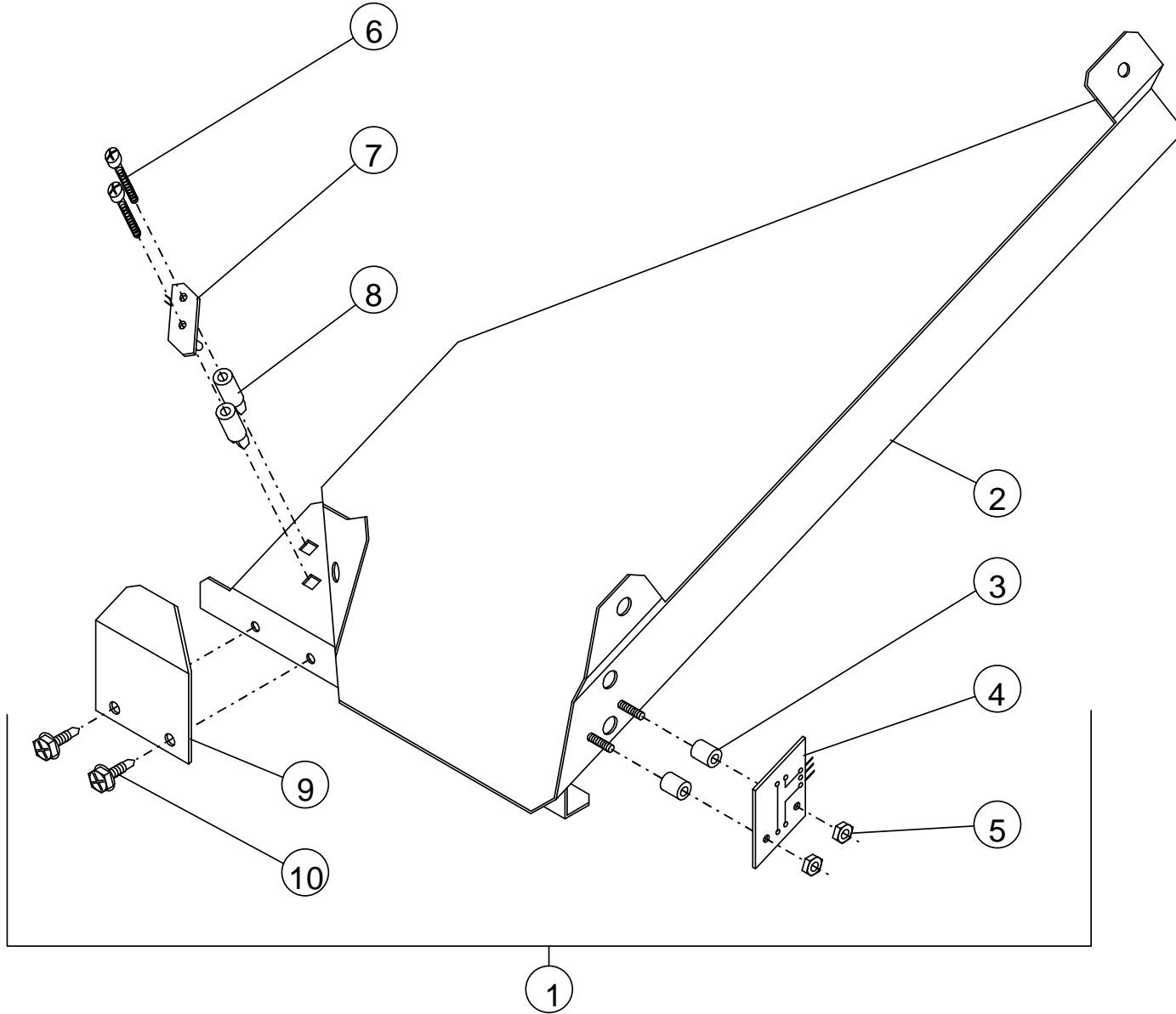
2.99



HARNESSES - MARS VENDO CONFECTIONERY			
ITEM NO.	PART NO.	QTY.	DESCRIPTION
1	1011375	1	HARNESS - CABINET MOTORS
2	1050074	1	HARNESS - DOOR
3	1012894	1	HARNESS - SELECTION
4	1014706	1	HARNESS - DISPLAY
--	1015737	1	HARNESS - DISPLAY (WITH SHIELD) (**)
5	1035894	1	HARNESS - LIGHTING POWER - 220 VOLT (INT'L)
~	1014633	1	HARNESS - LIGHTING POWER - 115 VOLT (U.S.)
6	1014579	1	HARNESS - COINAGE - TRC 6010 XV (U.S)
7	1014595	1	HARNESS - COINAGE - MS 1900 EXEC (INT'L)
8	1035908	1	HARNESS - LINE FILTER (*)
9	1054457	A/R	HARNESS - MODULE (3)MOTOR
10	1052422	A/R	HARNESS - MODULE (4) MOTOR
11	1067813	1	HARNESS - DBV
12	1089376- 1	1	HARNESS - REFRIGERATION EVAPORATOR FAN 54"
13	1016482- 1	3	GROUND WIRE 20"
14	1016482	1	GROUND WIRE 12"

(*) NOTE: REQUIRED ON INTERNATIONAL UNITS ONLY.

(**) NOTE: SHIELD DISPLAY HARNESS REQUIRED FOR UK & EUROPEAN UNITS.





**OPTIC ASSEMBLY -
MARS VENDO CONFECTIONERY**

ITEM NO.	PART NO.	QTY.	DESCRIPTION
1	1018078	1	OPTIC ASSEMBLY
2	1017241	1	SNOOT WELD ASSEMBLY
3	387238	2	SPACER
4	1012711	1	DETECTOR BOARD
5	1017942	2	NYLON NUT
6	V802067	2	SCREW (#8-16 x 1.00" LG. FILLISTER HEAD)
7	1012703	1	EMITTER BOARD
8	1016393	2	STAND-OFF
9	1017934	1	OPTIC COVER
10	V801489	2	SCREW (#10 SELF-DRILL, HEX HEAD)

LABELS AND DECALS

Outer-Door Labels



1031171	Label - Coinage
1018124	Label - Point-Of-Sale (POS) - Mars UK
1012789	Label - Consumer Instruction (U.S.)
1012789-1	Label - Consumer Instruction (M&Ms)
1076676	Label - Wiring Diagram - Lighting - 220V
1110805	Label - Wiring Diagram - Lighting - 115V
1001434	Label - Price
1016466	Label - Secondary Ground
1016458	Label - Primary Ground
1049414	Label - Fuse Replacement
389611	Label - Safety
1007084	Label - Lamp Schedule G.S.
1063562	Label - Chilled for Freshness (U.S.)

Inner-Door Labels

1016032	Label - Schematic / Wiring Diagram
1120243	Label - Loading Instruction
1072732	Label - M&M Standard Configuration (U.S.)

Cabinet Labels and Decals

1035878	Label - High Voltage
389220	Label - Warning - Quick Lock
1092139-1	Cabinet Side Decal - Snickers/M&M
1093627-DT3	Cabinet Side Decal - M&M
1015923	Cabinet Side Decal - Snickers
1057503	Label - CE Decal
1120245	Label - 1/5 HP Refrigeration 220V Wiring
1120303	Label - 1/5 HP Refrigeration 115V Wiring
1072821	Label - Position Module Type
1072805	Label - M&M Bar Module (U.S.)
1072805-1	Label - M&M Bag Module (U.S.)
1072805-2	Label - M&M Combo Module (U.S.)

Flavor Strips

1063589-1	Label - M&M Peanut (U.S. Only)
1063589-2	Label - M&M Plain (U.S. Only)
1063589-3	Label - Snickers (U.S. Only)
1063589-4	Label - 3 Musketeers (U.S. Only)
1063589-5	Label - Twix-Carmel (U.S. Only)
1063589-6	Label - Starburst (U.S. Only)
1063589-7	Label - Skittles (U.S. Only)
1063589-8	Label - Milky Way (U.S. Only)
1063589-11	Label - M&M Almond (U.S. Only)
1063589-12	Label - Tropical Skittles (U.S. Only)

SIGN FACES

1091228-1	Sign - Face Panel - Montage
1011057	Sign - Face Panel - Mars
1055058	Sign - Face Panel - M&M
1093619-MR2	Sign - Face Panel - Snickers, Twix
1092112-1	Sign - Face Panel - Snickers Soccer

SUGGESTED SPARE PARTS

Outer Door / Inner Door / Cabinet

389463	Rain Gasket - Cabinet
1111406	Inner door Gasket Kit
134560	Quick Lock Assembly



	1110384	Coin Return Cup - Metal
	1116341	Coin Return Cup - Plastic (Modified)
	1017128	Selection Button Assembly
	368299	Selection Switch
	1010859	Selection Window
	1111309	Retainer - Flavor Label
	(See Pg. 71)	Selection Panel - Painted
	1006126-1	Coin Insert Casting
	133428	Coin Insert Chute Ass'y
	387849	Spring - Scavenger Lever
	389936	Sold-Out Light
	388261	Lampholder - Fixed
	388260	Lampholder - Plunger
	388320-1	Fluorescent Lamp
	388259	Ballast - Lighting - 115 Volt (U.S.)
or:	1121313	Ballast - Lighting - 220 Volt (INT'L)
	1010263	Vend Door - Outer Door
	1019341	Lens - Display
	133574-4	Vend Hopper Assembly
	1010239	Vend Door - Inner Door
	1010247	Vend Eyelet Trim
Electronics		
	1113554-16	Electronic Control Board
	1015907	Display PCB
	1012711	Detector PCB
	1012703	Emitter PCB
	1120089	Power Switch
	323007	Reset Switch
	1015885	Key - Power Switch Override
	1017861	Transformer
	1050058	Fuse - 4 Amp
	1019341	Lens - Display
	1071732	Line Filter
Refrigeration		
	333894-50	Start Relay - 115 Volt (U.S.)
or:	1016644-1	Start Relay - 220 Volt (INT'L)
	45052-52	Overload Protector - 115 Volt (U.S.)
or:	1016652-2	Overload Protector - 220 Volt (INT'L)
	42321-35	Condenser Fan Motor - 115 Volt (U.S.)
or:	42321-28	Condenser Fan Motor - 220 Volt (INT'L)
	42321-44	Evaporator Fan Motor - 115 Volt (U.S.)
or:	42321-43	Evaporator Fan Motor - 220 Volt (INT'L)
	368794-2	Temperature Control - Refrigeration
	1028197	Heater Kit - 115 Volts (U.S.)
	1028197-1	Heater Kit - 220 Volts (INT'L)
	1028146	Temperature Control - Heater (INT'L)

SUGGESTED SPARE PARTS (CONTINUED)

Vend Mechanism

	1075716	Gear Motor - Bag/Bar
	1052376	Gear Motor - Combos
	1010875	Door Assembly - Bag Module
	1010867	Door Assembly - Bar Module



1012738
1049643
1049651
1121238
1010301
1012797
388304-2

Bushing - Door Pivot
Product Helix - Bag Module - 5" Dia.
Product Helix - Bar Module - 4" Dia.
Slide Assembly
Bearing - Helix
Deflector Spring - Helix (Bag)
Edge Trim

NOTES





TROUBLESHOOTING



**NEW EQUIPMENT WARRANTY
THE VENDO COMPANY
MVC 600**

- I. This is a limited warranty.
- II. The Vendo Company warrants to the original purchaser each part of each new vending machine excluding any Mars-supplied components for a period of two (2) years from the date first placed on location, but not to exceed twenty-seven (27) months from the date of shipment, to be free from defects in material and workmanship. This Warranty DOES NOT include light bulbs, fluorescent tubes, fuses, finish, or operating supplies.
- III. To qualify for warranty replacement, all claims must be made in writing within the warranty period, accompanied by a record of the cabinet model and serial number. If a return is found to be inoperative due to defects in material and/or workmanship we will, at our option, make necessary repairs, or furnish a reconditioned or new replacement part or refrigeration system at no charge.
- IV. The Vendo Company will pay normal transportation charges on parts replaced under this Warranty. If special handling or premium transportation is requested, these charges are assumed by the purchaser.
- V. Any parts replaced during the warranty period are warranted for the remaining time on the original warranty.
- VI. This Warranty DOES NOT apply to reconditioned equipment, to equipment sold "as is", or to components designed to work on electric currents other than 110/120 60 cycle or 208/220 50 cycle, as specified on the serial tag.
- VII. Title and risk of loss pass to the purchaser on delivery of the vending machine, replacement part and/or refrigeration system to the common carrier. All loss and damage claims are the responsibility of the purchaser and must be filed with the delivering carrier.
- VIII. This Warranty DOES NOT include any labor guarantee, either explicit or implied, nor will it extend to cover incidental or consequential damage, or damage resulting from negligence, operation not in accordance with the Service and Operations Manual, accidents, vandalism or any act of God.
- IX. The Vendo Company reserves the right to make design changes, additions to, and improvements upon any of our products without incurring any obligation to incorporate same on any products previously manufactured.
- X. This Warranty is in lieu of all other express warranties or other obligations or liabilities on our part, and we neither assume nor authorize any person to assume for us, any other obligation for liability in connection with the sale of said machines or parts thereof. EXCEPT AS SPECIFICALLY PROVIDED HEREIN, THERE ARE NO WARRANTIES GIVEN, EITHER EXPRESS OR IMPLIED, AND ALL OTHER WARRANTIES, INCLUDING SPECIFICALLY, BUT WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXPRESSLY DISCLAIMED.

THE VENDO COMPANY

2/1999



PARTS RETURN PROCEDURES

All parts items returned must be accompanied by material return tags (P/N L1496) clearly stating the reason for the return. (Tags are available from our parts department upon request.) To replace an inoperative part, please use the following instructions.

- I. If a spare part was taken from your available parts stock and used to replace an inoperative part:
 - A. Complete the return tag making sure to fill in ALL requested information.
 - B. Keep top (white) copy for your records.
 - C. Attach tag to inoperative part and send it by the lowest cost method of transportation (usually UPS Ground), to: THE VENDO COMPANY, 4015 EAST RAINES ROAD, MEMPHIS, TENNESSEE 38118.
 - D. A like part will be shipped:
 1. At no charge, if our inspection shows that the inoperative part became defective in warranty.
 2. And invoiced, if the inoperative part does not meet the terms of the warranty.

NOTE: The returned part will be evaluated and processed to eliminate further handling charges.

- II. If the spare part is not available:
 - A. Order the part using standard parts ordering procedure. The part will be shipped and invoiced to you.
 - B. After the part is received, follow the procedure outlined above in Step 1.
 1. Be sure to check () the box marked "credit" and to fill in the invoice number covering the part sent to you.
 - C. If our inspection shows that the inoperative part was defective in warranty, a credit will be issued to cancel the invoice on which the replacement part was shipped. This credit will include any prepaid transportation charges.
 1. To receive credit, the inoperative part must be returned within 30 days from the date the replacement was shipped.
 2. Vendo does not issue cash credit for the return of any part or accessory.

REFRIGERATION RETURN PROCEDURE

All refrigeration units returned must be accompanied by a material return tag (P/N L1496) for each defective unit clearly stating the reason for the return. (Tags are available from our parts department upon request.) The procedure is the same as mentioned above for a parts return.

Important Refrigeration Return Procedure:

All Refrigeration units must be returned complete to: THE VENDO COMPANY, 4015 EAST RAINES ROAD, MEMPHIS, TENNESSEE 38118 by the lowest cost method of transportation (usually UPS Ground).



TROUBLESHOOTING GUIDE

This guide is a general list of probable problems, causes, and solutions. For problems not listed, or additional questions, contact the Technical Services Department at Vendo, 7209 N. Ingram Ave., Fresno, CA 93650 or call 1-800-344-7216. Please have the manufacturer's date code and model number of the vendor when you call.

The trouble-shooting guide is divided into three columns: Problem, Possible Cause, Corrective Action.

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Vendor rejects all coins - without scrolling display	Power plug from outlet unplugged or loose	Check wire connections at both ends of wire harness for good connections, or plug in.
	Transformer assembly unplugged at cabinet	Check wire connection (P1-1 and P1-4) for 24VAC from transformer. Check for continuity on the same wires.
	Fuse or circuit breaker tripped at power supply (building) outlet	Reset or replace breaker or fuse.
	Damaged or defective power cord	Repair or replace power cord.
Vendor rejects all coins - with scrolling display	Coin mechanism plug unplugged, too loose	Plug coin mechanism into plug.
	Vend price set for 0.00	Check for unassigned column or defective motors by entering MODE 2 (Service Mode). Check vend prices using MODE 3 (Set Price Mode). Check vend motors using MODE 4 (Test Vend Mode).
	Controller configured for wrong coin mechanism	Check coin mechanism configuration using MODE 2 (Service Mode), selection button #8.
	Defective harness	Repair or replace harness.
	Defective coin mechanism	Replace with same model coin mechanism.
	Defective controller board	Replace controller board.



TROUBLESHOOTING (CONTINUED)

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Vendor accepts coin but does not vend on one or more selections	Broken or loose wire from controller to selection switch or vend motor	Check wire connections at both ends of harness for good connections. Check both selection switch by using MODE 5 (Space to Sales Inquiry Mode) and/or vend motor(s) using MODE 4 (Test Vend Mode).
	Vend prices set incorrectly	Set vend prices using MODE 3 (Set Price Mode).
	Vend switch defective	Replace vend switch.
	Vend motor defective	Replace vend motor.
	Defective controller board	Replace controller board.
	Defective coin mechanism	Replace coin mechanism.
Vendor accepts coins but does not vend on any selection	Plug on controller loose or unplugged; broken or loose wire from controller to selection switch or vend motor	Check wire connections at both ends of wire harness for good connections. Check both selection switch by using MODE 5 (Space to Sale Inquiry Mode) and/or vend motor(s) using MODE 4 (Test Vend Mode).
	Display incorrect amount deposited	Check coin mechanism configuration using MODE 2 (Service Mode), selection button #8.
	Vend prices set incorrectly	Set vend prices, using MODE 3 (Set Price Mode).
	Defective controller board	Replace controller board.
Vendor vends properly, but pays out wrong or no change	Vend prices set at 0.00	Enter into MODE 3 (Set Price Mode).
	Manually dispense coins	By way of MODE 2 (Service Mode) operate selection buttons #3, #4 and #5.
	Changer out of change, display scrolls "USE CORRECT CHANGE"	Fill inventory tubes using MODE 2 (Service Mode) selection button #9; deposit coins.
	Changer configuration incorrect	Check coin mechanism configuration using MODE 2 selection button #8.



TROUBLESHOOTING (CONTINUED)

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Vendor vends properly, but pays out wrong or no change (Continued)	Broken or loose wire from controller to coin mechanism	Check wire connections at both ends of wire harness for good connections. Repair or replace.
	Defective coin mechanism	Replace coin mechanism.
	Defective controller board	Replace controller board.
Product does not match selection	Product loaded incorrectly	Load product properly.
	Product dispensed incorrectly	Enter into MODE 5, load product properly.
	Selection switch wires crossed or vend mechanism plugs crossed	Enter into MODE 4 and/or MODE 5, plug in vend mechanism correctly if crossed.
	Defective controller board	Replace controller board.
Vendor free vends	Vend prices set at 0.00	Enter into MODE 3.
	Vend switch defective or out of adjustment	Readjust or replace switch.
	Defective optics circuitry	Check wire connections at both ends for good connections. Repair or replace optics circuitry.
	Check coin mechanism interface	Enter into MODE 2. Press switch #8.
	Defective controller board	Replace controller board
Cannot enter into service mode	Door switch defective, broken or loose wire to controller board	Check wire and switch for continuity at both ends of wires for good connections.
	Defective controller board	Replace controller board.
Bill validator does not accept bills, displays "USE CORRECT CHANGE"	Coin mechanism out of change	Fill inventory tubes using MODE 2, press switch #9, deposit coins.
	Check coin mechanism interface	Enter into MODE 2 depress switch #8.
	Check bill validator, coin mechanism harnesses	Repair or replace.
Bill validator does not accept bills displays "USE CORRECT CHANGE" (Continued)	Defective bill validator	Replace bill validator.
	Defective coin mechanism	Replace coin mechanism.



TROUBLESHOOTING (CONTINUED)

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Bill validator does not accept bills	Coin mechanism out of change	Fill inventory tubes using MODE 2, press switch #9, deposit coins.
	Check coin mechanism interface	Enter into MODE 2, press switch #8.
	Check validator, coin mechanism harness	Repair or replace.
	Defective bill validator	Replace bill validator.
	Defective coin mechanism	Replace coin mechanism.
	Defective controller board	Replace controller board.
Bill validator does not power up. Note: With door switch closed	Defective bill validator harness	Check pins 4 and 6 (red and white wires) for 110VAC at the connector plug in or replace harness.
	Defective bill validator	Replace bill validator
No scrolling display but vendor operates properly	Broken or loose ribbon connector from controller to display board	Check connections at both ends for good connection or replace.
	Defective display board	Replace display board.
	Defective controller board	Replace controller board.
Does not enter into Operate Mode	Door switch defective, broken or loose wire to controller board	Check wire and switch for continuity at both ends of wires for good connections.
	Striker plate does not contact door switch	Realign striker plate with door switch.
	Defective controller board	Replace controller board.
Display incorrect amount deposited	Check coin mechanism configuration	By way of MODE 2, press selection button #8.
	Vend prices set incorrectly	Set vend prices using MODE 3.
	Defective controller board	Replace controller board.
Display "OUT OF ORDER" on display	Product blocking optic circuitry	Open outer door and remove product. Close door.
	Defective optics harness	Check for continuity from optics board to controller in machine.
	Defective optics board(s)	Replace optics board(s).
	Defective controller board	Replace controller board.



PARTS, SALES, & SERVICE CENTERS OF VENDO/SANDEN COMPANY

AREA	ADDRESS	PHONE NUMBERS
United States, Canada	The Vendo Company 7209 N. Ingram Fresno, CA 93650 U.S.A.	Tel: (559) 439-1770 Fax: (559) 439-2083
Japan	Sanden International Corporation 31-7 Taito 1-Chome Taito-ku Tokyo 110, Japan	Tel: (81) 3-3835-1321 Fax: (81) 3-3833-7096
Europe, Mid- East, Africa, U.S.S.R.	Vendo GMBH Spangerstr. 22 40599 Dusseldorf Germany	Tel: (49) 0211-74-039-0 Fax: (49) 0211-748-8541
Australia, New Zealand	Sanden International Pty. Ltd. 54 Allingham St., Condell Park N.S.W. 2200 Australia	Tel: 61-2-9791-0999 Fax: 61-2-9791-9029
Singapore, Hong Kong, Indonesia, Philippines, India	Sanden International (Singapore) Pte., Ltd. Sanden House, 25, Ang Mo Kio St. 65 Singapore 569062 The Republic of Singapore	Tel: 65-482-5500 Fax: 65-482-1697
Taiwan	Sanden International Taiwan Corp. No. 21-6, Sec 1 Tun Hwa S. Rd., Taipei, Taiwan Taiwan, ROC	Tel: 886-2-570-6106 Fax: 886-2-577-1959
Belgium	Vendo Benelux, S.A. Industrial Research Park N.O.H. 13 Font St. Landry 1120 Brussels Belgium	Tel: 0032-2-268-2595 Fax: 0032-2-268-2862
Vendo France S.A.	20, Rue Camille Mouquet 94220 Charenton-le-pont, France	Tel/Fax: 0033-1-43534095
Italy	Vendo Italy S.p.A. Casella Postale 9 15033 Casale Monferrato (AL) Italy	Tel: 0039-142-335111 Fax: 0039-142-562348
Spain	Vendo Iberia, S.A. C/ Sant Ferran No. 92 Poligono Industrial la Almeda 08940 Cornellà, (Barcelona), Spain	Tel: 0034-3-474-1555 Fax: 0034-3-474-1842



**PARTS, SALES, & SERVICE CENTERS OF VENDO/SANDEN COMPANY
FOR LATIN AMERICA**

AREA	ADDRESS	PHONE NUMBERS
Mexico	Vendo de Mexico Camino Real de Toluca No. 154 Col. Bellavista 01140 Mexico D.F. Mexico	Tel: (525) 515-9745 Fax: (525) 277-0111
Central America	The Vendo Company 7209 N. Ingram Fresno, CA 93650 U.S.A.	Tel: (559) 439-1770 Fax: (559) 439-2083
Chile	Pelp Internacional, S.A. 4560 El Rosal Huechuraba, Santiago, Chile	Tel: (562) 243-9710 Fax: (562) 740-0504
Brazil	Cimaq Industria e Comercio de Maq, Ltda. Estrada Uniao e Industria, 9.120 Itaipava 25730-730 Petropolis Rio de Janeiro, Brazil	Tel: (55242) 22-2666 Fax: (55242) 22-3244
South America	The Vendo Company 7209 N. Ingram Ave. Fresno, CA 93650 U.S.A.	Tel: (559) 439-1770 Fax: (559) 439-2083

