

**AUTOMATIC PRODUCTS international, Ltd.**

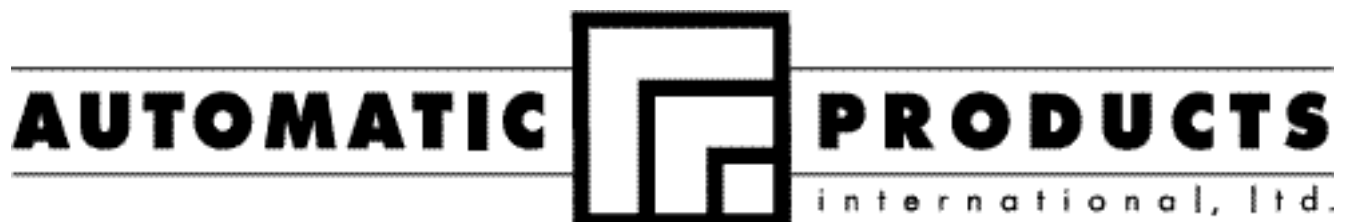
**OPERATING SYSTEM &**

**SERVICE MANUAL**

**MODEL 310 CONTROL MODULE**

**MODEL 320 MERCHANDISER**

PLEASE DO NOT  
REMOVE MANUAL  
FROM MACHINE



75 WEST PLATO BOULEVARD • ST. PAUL, MINNESOTA 55107-2095

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To achieve the most trouble-free operation from your APi 320 series Merchandiser, it is recommended that this service manual be thoroughly read and the instructions followed pertaining to installation, servicing and maintaining of the unit.

Should you have questions pertaining to this manual or the vendor, please contact your APi distributor or write directly to:

Technical Service Dept.  
Automatic Products int. Ltd.  
75 West Plato Blvd.  
St. Paul, MN. 55107 USA  
651-224-4391  
651-602-3558 (fax)

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## WARRANTY

Automatic Products international ltd. (APi) expressly warrants these automatic merchandisers (the "Unit"), manufactured by it, to be free under normal use and service from defects in material or workmanship for a period of two (2) years from the date of delivery of this Unit to the original purchaser. This warranty extends only to the original purchaser of the Unit. The exclusive remedy for this warranty is limited to the repair or replacement, at APi's sole option, of any part or parts of the Unit that are returned to APi or to the authorized dealer or distributor of APi from whom the unit was purchased with all transportation charges prepaid, and which, on APi's examination, shall, conclusively appear to have been defective. This warranty does not:

- a. extend to any Unit, or part thereof, that was subjected to misuse, neglect, or accident by other than APi after its delivery to the original purchaser;
- b. extend to any Unit, or part thereof, that was modified, altered, incorrectly wired or improperly installed by anyone other than APi or used in violation of the instructions provided by APi;
- c. extend to a Unit which has been repaired or altered by anyone other than APi or authorized dealer/distributor;
- d. extend to a Unit which has had the serial number removed, defaced or otherwise altered;
- e. extend to plastic or glass windows, lamps, fluorescent tubes and water contact parts;
- f. extend to any unit used outdoors
- g. extend to accessories used with the Unit that were manufactured by some person or entity other than APi.

**APi DISCLAIMS ALL OTHER WARRANTIES OF ANY KIND AS TO THE UNIT AND ALL WARRANTIES OF ANY KIND AS TO ANY ACCESSORIES. THIS DISCLAIMER OF WARRANTIES INCLUDES ANY EXPRESS WARRANTIES OTHER THAN THE LIMITED WARRANTY PROVIDED ABOVE AS TO THE UNIT AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AS TO THE UNIT AND ANY ACCESSORIES. UNDER NO CIRCUMSTANCES SHALL APi BE RESPONSIBLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, LOSSES OR EXPENSES ARISING FROM OR IN CONNECTION WITH THE USE OF, OR THE INABILITY TO USE, THE GOODS FOR ANY PURPOSE WHATSOEVER.** No representative of APi or any other person is authorized to assume for APi, or agree to on the behalf of APi, any other liability or warranty in connection with the sale of this Unit.

APi reserves the right to make any changes or improvements in its products without notice and without obligation, and without being required to make corresponding changes or improvements in Unit theretofore manufactured or sold.



75 West Plato Boulevard  
St. Paul, MN 55107



# features of the APi 320 food/frozen merchandiser

## STANDARD FEATURES

- Up to 80 selections.
- Multi drop buss capabilities.
- Extensive diagnostics capabilities.
- Friendly text based interface.
- Configuration upload and download capabilities.
- User programmable function keys.
- Flexible spiral spacing for large products.
- Eight point star drive motor.
- Four security levels.
- Six languages.
- Machine reset capability.
- Real time clock.
- Personal computer interface.
- Printer interface.
- Chime.

## PRICING

- Global pricing by machine or by shelf.
- Extensive discounting capabilities.
- Shutdown capabilities.
- Combo vends.
- Product codes.
- Programmable spiral count.
- Upload and download capabilities for pricing and set up.
- Programmable maximum payout.
- Extensive accountability, including all discounts and free vends.

## SCROLLING DISPLAY

- User friendly scrolling display to help with the selection process and provide customer feedback.
- User programmable point of sale and
- Operational messages.
- 20 character display.

## OPTIONS

- Point of sale window.
- Delivery bin cushion.
- Base kit.
- Lexan window.
- MasterMenu™ online software.
- Transportable memory unit.

## NOISE LEVEL:

Operates at less than 70 dB(A)

## ACCEPTABLE AMBIENT OPERATING TEMPERATURE RANGE

All equipment manufactured by Automatic Products intl. Ltd. is designed to work properly in a temperature range of 10°C to 38°C (50°F to 100°F) in still air (75% R.H. non-condensing). The machine is being stored in a temperature range of -18°C to 68°C (0°F to 155°F).

SPECIFICATIONS	310 DOMESTIC	310 EXPORT	320 DOMESTIC	320 EXPORT
Height	72" / 183 cm	72" / 183 cm	72" / 183 cm	72" / 183 cm
Width	10.25" / 26cm	10.25" / 26cm	10.25" / 26cm	10.25" / 26cm
Depth	33.33" / 84 cm	33.33" / 84 cm	33.33" / 84 cm	33.33" / 84 cm
Voltage (AC)	120V	230V	120V	230V
Hertz	60Hz	50Hz	60Hz	50Hz
Standby Amperes	0.7A	.35A	1.7A	.8A
Running Amperes	1A	.5A	16A	8A
Watts	120W	1440W	1920W	1840W
Refrigerant Type	N/A	N/A	404A	404A
Refrigerant Charge	N/A	N/A	27 oz / 76 Kg	27 oz / 76 Kg
High Side Test Pressure	N/A	N/A	440 psi	440 psi
Low Side Test Pressure	N/A	N/A	162 psi	162 psi
Shipping Weight	190 lbs / 86 kg	190 lbs / 86 kg	800 lbs / 363 kg	800 lbs / 363 kg

The APi 320 Series is assembled and packed so that a minimum amount of time is necessary for preparation to install it on location. The following steps are recommended to insure correct unpacking.

1. **Shipping Damage:** Thoroughly inspect the exterior of the carton for damage which may have occurred during shipment. Report any damage to delivering carrier and follow their instructions.
  2. Remove staples from lower edge and those at top of carton, and slit carton vertically at the taped corner. Open and remove carton. Remove the remainder of the packing material. On machines shipped with lock in place, the keys are taped inside the coin return.
  3. **Remove Vendor With A Fork Lift Truck:** Remove the carton from the vendor. From the front of the vendor tip the vendor backward and run forks under the cabinet.
  4. **Removing Vendor Without A Fork Lift Truck:** Remove the carton from the vendor. Break off the thin piece of board behind the rear legs. From the front of the machine tip the vendor back enough to clear the lower legs from the holes in the front board. Push the machine back off the base. Remove the pallet.
- NOTE: Because the weight concentration is toward the back of the cabinet, trucking and lifting should be done from the back. CAUTION should be taken when trucking from side.**
5. On machines with lock in place, unlock, and turn handle to open door. When no lock is furnished, remove tape and turn handle. Swing door to its full open position.
  6. Remove all packing tape and paper from various areas of machine and the shipping strap.
  7. **Warranty:** The warranty card is attached to the cover of this manual. It must be filled out in full and mailed at once to insure coverage.

◆ **IMPORTANT:** A set of anchoring brackets are sent with each machine. The kit is located in the bottom of the machine complete with instructions. It is recommended that this kit be installed to prevent shifting of the machine.

8. **Air Deflector:** Remove the air deflector from the delivery bin. Loosen to four screws holding the screen on the back of the machine, place the slotted holes in the air deflector over the screws and push down, re-tighten the screws.

## CLEANING & MAINTENANCE

The 320 Series Merchandiser will do the best merchandising job for you if it is kept clean. The amount of cleaning your machine will require will vary from location to location depending on the environment. We suggest that a thorough cleaning be performed at least twice a year in a clean environment, in addition to this, light cleaning that should be performed each service. The display windows can be cleaned with any good glass cleaner. The exterior and interior surfaces should be cleaned with warm water and mild detergent (food grade). Rinse thoroughly and dry all surfaces. Always use a clean lintless disposable towel for cleaning. There is an option in the software to perform a manual defrost (see the operating system section of this manual for instructions).

The main product shelves can be best cleaned with the spirals and product spacers removed. Refer to page 1.03 for removal of spirals and removal of the product spacers.

Clean the acceptor on the changer frequently as accumulated dirt in this area can cause coins to hang or not be accepted. Follow recommended cleaning procedures as described by the manufacturer.

◆ It is extremely important that the air intake screen for the refrigeration unit is cleaned weekly and that no product is stored in this machine blocking this screen or the condenser unit. This screen is located toward the front and center of the machine floor.

# installation

**Leveling the Machine** on location is important for the machine to function properly. The four leveling screws in the legs are the means of leveling the machine. After positioning the machine, level machine in front to rear and right to left directions. After leveling, turn front right (lock side) leveling screw in about one-half turn to drop this corner slightly to make the door easier to close and lock.

**Voltage and Polarity Check.** It is important that this machine is hooked up to the proper voltage and polarity. Using a voltmeter, perform the following checks from the illustration below.

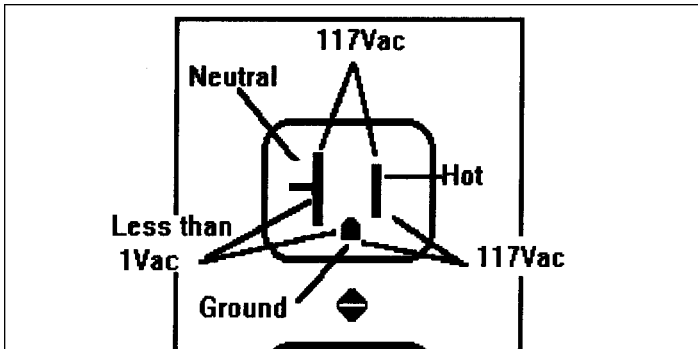
◆ **NOTE:** It is imperative that the machine is on it's own 20 AMPERE SERVICE. Only the Control module may be plugged into the same service.



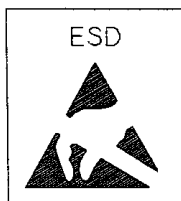
**CAUTION: THIS MACHINE IS DESIGNED FOR INDOOR USAGE ONLY. ANY OTHER USAGE MAY VOID THE MANUFACTURERS WARRANTY.**



**CAUTION: THE FOLLOWING PROCEDURE REQUIRES THAT THE MACHINE HAVE POWER APPLIED AND A POTENTIAL ELECTRICAL SHOCK HAZARD EXISTS.**



**NOTE:** Should the readings be different from above, have a certified electrician correct the problem.



For Health reasons it should be noted that cold (refrigerated) or frozen vending machines are designed for short term storage of already refrigerated or frozen product. The definitions for cold and frozen machines are as follows:

1. Cold is defined as 41°F (5°C) or lower for cold food. All food in a Refrigerated machine must have a product expiration date on the package. See your product supplier for specifics on date codes and expiration dates.
2. Slack is defined as a frozen machine set below 15°F (-9°C) or lower for slacking precooked frozen food.
3. Frozen is defined as 0°F (-18°C) or lower for frozen food. Items used in a frozen machine should have frozen designated packaging.

When installing a machine, the machine should be allowed to pull down to operating temperature before loading product into the machine, approximately 1 hour for a cold machine and 2 hours for a frozen machine. See blue page 3.01 for instructions on setting temperature.

For more information on pull down times and health control see page 2.03 of the components section of this manual.

**Loading Shelves.** Open door to full open position, push down on the two plastic lock levers on right and left side panel by shelf to unlock shelf, holding lever down. Grasp the shelf, under both front corners, lift front shelf slightly and pull forward until shelf reaches its stop. The shelves tilt down (do not drop) to make loading easier. Only one product shelf should be in the loading position at a time. When returning a shelf, be sure the shelf is in its full home or vend position. Begin loading with the top shelf. Move it to the loading position. The height spacing for items is greatest in this shelf and the tallest items should be placed there. Soft items, should be placed in the lowest shelf, making the drop distance as short as possible.



**IMPORTANT:** Product must not be forced into the spiral spaces but should fit freely. If the product is too tight, use a larger pitch spiral. The bottom of the product should be placed on top of the spiral wire that rests on the shelf surface.

### **Vending Large Products**

The 320 Series can be configured to use two spirals to vend one product. The motor to be paired will be called the left motor, and must be an even numbered motor. Any even numbered motor may be paired. This motor must always be paired to the odd numbered motor next in sequence (i.e. motor "110" will always be paired with motor "111" and "114" always with "115"). Only motors in the same row of the machine can be paired. For more information on Motor pairs see the operating system section of this manual.

### **Adjusting the Stopping Position of the Spiral.**

One primary difference that distinguishes the new motors from previous motors is the presence of an eight sided star at the drive hub of the motor. This permits the stopping position of the spiral to be customized by the operator to ensure the best possible delivery of product. To change the stopping position of the spiral, remove the spiral lock from the motor by pinching the shaft of the spiral lock from the back side of the motor and pulling forward on the front side of the spiral lock. The spiral lock can be reinstalled in any of eight different positions by turning the spiral lock to the position desired and pushing the shaft of the spiral lock through the eight sided star at the drive hub of the motor.

**Removal of Spiral.** Grasp the front of the spiral and turn it clockwise for an even numbered selection and counterclockwise for an odd numbered selection. Lift the spiral up and off of the spiral lock. When replacing a spiral attach it around the tab on the spiral lock and turn the spiral to lock it in place. Be sure the front end of the spiral is positioned properly. (see Figure 3). The spiral lock is attached between the spiral retainer tabs. Give a light forward pull on front of the spiral to check it is locked in place.

### **Product Spacers**

A product spacer is used to reduce the width of the product area and can be used on any shelf. Spacers should fit within 1/8" of the product but should not fit tight against the product. There are four positions in each column where these spacers can be placed. To install the spacer, lift upward on the front of the spacer, align the lock ear on the rear of the spacer with the slot on the rear of the cabinet, push the spacer downward aligning the three tabs on the lower edge of the spacer with the three sets of slots on the shelf bottom. Pull the spacer forward to lock in place.

**Lock Product Shelves.** After all the product has been loaded be sure all shelves are returned to their vend position behind the front roller guides.

**Install Proper Price Tabs** into price tab holder for each selection in the main product area.

**Quick Set up Guide.** See page 3.01

# installation



## Control module Installation Instructions.

- A. Remove the 3 hole plugs from the top, inside right corner of the 320 cabinet. Once removed, remove the foam insulation (pre cut) behind the holes.
- B. Locate the front and rear lower support brackets on the bottom right hand side of the 320 cabinet. (These brackets have already been installed at the factory.) There should be a 1/8" space opening between the cabinet side and the mounting bracket, these mounting brackets can be adjusted by loosening the 2 outside bolts from each of the weld's on the lock side of the cabinet.
- C. Move the base of the Control module close to the 320 cabinet so the bottom left edge of the Control module rests on the support bracket. Tip the Control module to an upright position.
- D. Install the upper mounting plate using the 1/4-20 kept nuts provided. Install three in the refrigerated cabinet and Three in the control module.
- E. Put the insulation and plugs back into the 3 holes in the refrigerated cabinet.
- F. Locate the interconnect harness (communications cable) coming out of the back of the 320 and route it into the back of the Control module to the LogiCenter board and plug into the P8 connector (MDB). When using a MDB coin mech and/or bill validator these peripherals must be plugged into the pig tail coming off of the communications cable. The machine attached to the Control module is considered Cabinet 1.
- G. Level the Control module to the machine by adjusting the leg levelers.



## Using a Second Machine with a Control module.

If a second machine is to be operated off of the Control module, it should be placed to the right of the Control module. The second machine is free standing and does not physically attach to the Control module. Find the interconnect harness coming out of the back of the second machine and route it into the back side of the Control module to the LogiCenter board and plug the harness into the jumper coming out of the cabinet 1 interconnect harness. This machine is considered Cabinet 2.

◆ **NOTE:**The second machine being run off of a Control module **MUST** have it's own 20 Ampere service, It **CAN NOT** be plugged in on the same circuit as Cabinet 1.

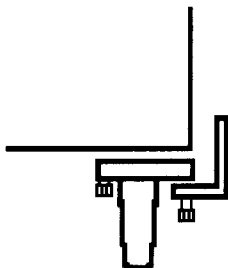


## Connecting a 320 to a 120 Series Snack.

A 320 machine can also be driven of a 120 Series snack in lieu of a Control module. To do this, locate the interconnect harness coming out of the back side of the food cabinet and route it into the back side of the snack (remove the triangular plate just above the line cord) to the LogiCenter board and plug into the **J8** connector.

This machine considered Cabinet 2. Only one 320 can be operated off of a snack machine. **NOTE:**The 120 and 320 **CAN** be plugged into the same 20 Ampere service if necessary.

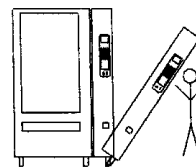
◆ **NOTE:** Because the Control Module is top heavy and unstable, always use two people when attaching the it to the 320.



**NOTICE**  
COMMUNICATION CABLE INLET  
COMMUNICATION CABLE FROM THE  
320 FOOD MACHINE TO A 120 SERIES  
SNACK MACHINE OR  
310 CONTROL MODULE.  
DISCONNECT CABLE (CONNECTIONS)  
BEFORE MOVING MACHINES.



## WARNING



TOP HEAVY EQUIPMENT  
CAN CAUSE  
PERSONAL INJURY.  
USE 2 PEOPLE WHEN  
ATTACHING 310 CONTROL  
MODULE TO 320 MACHINE.  
ONLY INSTALL THE  
310 MODULE TO A  
320 FOOD MACHINE.

## MasterMenu Online Software

MasterMenu Online software gives you the capability of completely setting up any 120 Series Snack merchandiser, 310 Control Module, 320 food merchandiser, or 223 Hot beverage merchandiser on your personal computer (PC). MasterMenu Online also has the ability to load complete new logic board software revisions to a machine. To load complete new software into a machine the PC must be connected directly to the machine logic board via a cable P/N 56800022 and the DEX/UCS harness P/N 680509. Software updates can be sent to you via e-mail or as a file on a floppy disk.

## MasterMenu Online Installation

### Personal Computer Requirements

To install MasterMenu Online, you need:

- Personal or Multimedia computer with a 486 or higher processor.
- Microsoft Windows 95 operating system or later.
- 16 MB of Ram.
- 5 MB of hard disk required.
- VGA or higher resolution video adapter.
- Microsoft Mouse or Compatible pointing device.
- 3.5 inch floppy drive

### CHIP

Two pieces are required to use **CHIP**, the touch memory button (**CHIP**) and an Upload/download Harness that allows **Chip** to communicate with the machine.

### Touch Memory Button (Pn 17500003)

The Touch Memory Button (**CHIP**) can be used to download to or upload from any 310 Control Module or APi 20 Series machine. **CHIP** is capable of storing all settable data from a machine, with the exception of the time and date. Once **CHIP** is programed you can take it to as many machines as you wish to upload the information stored in **CHIP**. **CHIP** can be overwritten and reused as many times as desired. **CHIP** is mounted on a key chain holder. **CHIP** can be programed from a machine that is already set up and then used to set up other machines that are to be programed identically.

**CHIP** can also be programed from MasterMenu Online, MasterMenu Online is a software program that allows you to set up any 310 Control Module or 20 Series machine on your personal computer (PC). This information can then be stored by filename in you PC and is always accessible for any changes you may want to make the machine in the future, including pricing. To load CHIP from your PC requires harness (Pn 17500004), included in this package.

### Touch Memory Button (**CHIP**) and Upload/download Harness (Pn 16800013)

The **CHIP** upload/download harness is attached to the Logic Board (LCB) on J1 (upper right hand corner) and the other end is mounted on the swing panel in a

depression just above the display, six of these harnesses included in this package.

### Chip Upload and Download Instructions.

1. Open Machine/Tower door, the display should indicate "Enter for MasterMenu".
2. Press Enter
3. Press the > until the display indicates "Configuration".
4. Press Enter
5. Press the > until the display indicates "Configuration Load".
6. Press Enter, the display should read "MasterMenu Online".
7. Press the + until the display indicates "Tmu Upload" ( from Tmu to Lcb) or "Tmu Download" (From board to Tmu).
8. Press Enter
9. The display will indicate "Awaiting Download" or "Awaiting Upload".
10. Press the memory button CHIP against the socket and the display will indicate "Transfer in Progress". When the transfer is complete the display will prompt "Transfer Complete". If for any reason the transfer was unsuccessful the display will prompt "Transfer Error".

**Note: To Use MasterMenu Online or Chip the Software on the Logic Board must Be at the Following Revision or Higher: 3.5 Flash Memory and 3.0 Microprocessor**

### Echo Package

The Echo package contains the components necessary to hook a voice synthesizer to any APi 20 series machine. The voice synthesizer will Echo the display while in service mode.

### Base Kits

Base kits are available to make the vendor compatible with other manufacturers.

### Delivery Bin Cushion

A delivery bin cushion is available for use when vending heavy items. This cushion is standard in the 320.

### Lexan Window

A Lexan window is available as a direct replacement for the outside tempered glass.

### MasterMenu Online Software

MasterMenu Online software provides the means of remotely configuring the AP 120/320 Series machines.

### Conveyer Shelf

The is also a conveyer shelf available for the 320 Series machine. This shelf is a direct replacement for a standard shelf. It has a total of 4 columns and can be configured to hold from 4 to 8 selections per column.

### Control module Power Supply

# components

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The 115 VAC power cord from the wall outlet comes into the machine and plugs into the back of the main junction box located on the top center of the cabinet. The voltage output to the board is 24 volts and 8 volts and is plugged into Logic Center Board.

## Lighting System

There are two fluorescent lamps in the APi 320 Series machines. The lamps are located vertically on the inside of the door along the edge of the outer glass which light up the main product area. The starter is located on the underside of the bottom lamp socket of each lamp. Each lamp is covered by a plastic shield.

## Main Product Shelves:

There are a maximum of five main product shelves per machine. Each selection has its own motor mounted to the back of the shelf. Every shelf has its own harness and plug for connecting to the remainder of the circuit through the cabinet receptacle, located in the rear right of the cabinet. You also have the capability to adjust each shelf ½ inch either up or down on any shelf. To do this the shelf should be removed and the cabinet back harness receptacle lowered or raised with the right & left shelf tracks.

**Note:** When exchanging the shelves, you will not need any parts but you will have to reprogram the machines for prices and selections.

## Removal of Product Shelf:

- A. Lift up and push the lock levers toward the back of cabinet.
- B. Pull the shelf to its loading position.
- C. Grasp shelf in front and rear center. Lift front of shelf up above horizontal and pull shelf forward while lifting.
- D. To install shelf, reverse above procedure.

## Delivery Bin:

This is located below the display window on the door and is mechanically operated. The linkage on the outside end of the delivery bin may require occasional lubrication. Should the door become difficult to operate, place a small amount of grease on the arm tracks.



## Removal of Delivery Bin:

- A. Remove the screws from the sides of the delivery bin. These screws fasten into the lower door brace and remove the two screws and brackets at the top of the delivery bin.
- B. Grasp delivery bin on both sides and lift up and pull back. Should the bin be tight, rock it by lifting on one end, then the other.



## Replacement of Delivery Bin:

- A. Locate lip on front edge of delivery bin over lower edge of opening in door and behind trim. Press down along lip to make sure it is fully engaged between door and trim.
- B. Install the four screws and two brackets, to secure bin to door.

## Heated Glass

The glass on the inner door is a double pane, heated, thermal pane. There is a connector on the bottom right hand side of the glass. The glass receives power for the heater strip through this connector from the junction box.

## DEX/UCS

The APi 310 supports DEX/UCS Communications Protocol - NAMA Vending Industry Data Retrieval Standard. The machine will automatically recognize the DEX/UCS device when it is plugged into the control board and will recognize when the device initiates the communication protocol. The transmission/reception of data to the device will then take place automatically.

## Baffle Door

The baffle door is located above the delivery bin and extends out from the bottom of the main product area. The purpose of the baffle door is to seal the area between the refrigerated cabinet and the delivery bin. Each time a selection is made the baffle door is opened before the product is delivered and is closed after the product has been delivered. The baffle door is opened and closed by a motor mounted toward the back left hand side of the machine just above the compressor. The baffle door can be re-opened one time after a vend by pressing the coin return.

## The Chime

The chime will sound when the following events occur:

- Three times when an invalid key sequence is entered from either the front panel or the MasterMenu™ Keypad.
- Three times when the customer enters an invalid key sequence from the front panel.
- Five times when the customer has won a free vend due to WINNER MODE.
- Five times when the customer attempts to purchase a sold-out item as determined by spiral selection.
- A single time to indicate the acceptance of an action by the control system.

## Power Interlock Switch

The interlock switch is located on the bottom right corner of the machine. When the door on the machine is open the interlock breaks the power (hot and neutral) going into the refrigerated cabinet control box. Power for the FDB comes from the LCB via the interconnect harness and this power is not interrupted by the interlock switch.

**DEX/UCS**

The APi 120 supports DEX/UCS Communications Protocol - NAMA Vending Industry Data Retrieval Standard. The machine will automatically recognize the DEX/UCS device when it is plugged into the control board and will recognize when the device initiates the communication protocol. The transmission/reception of data to the device will then take place automatically.

**Printer Support**

The machine is able to print to a 40 character wide printer connected to the serial port. The communication is as specified by the user in the Printer Setup Menu. The machine uses only standard printer control codes to maximize the number of possible supported printers. The machine is able to print any of the following types of information set by a menu item in the MIS Menu heading:

- MIS Data
- Machine Setup/Configuration Parameters
- Diagnostic Information

When an attempt is made to output data to the printer without a printer connected, an error message will be displayed indicating that the printer is not connected.

**The 20 Series Machines Support the 24V Micromech, executive, and MDB protocols for Coin Mechs, Validators and Card Readers.**

**NOTE: DO NOT ATTEMPT TO OPERATE TWO DIFFERENT PERIPHERALS SIMULTANEOUSLY. FOR EXAPMLE: MDB WITH PULSE OR MICROMECH. Peripherals in Column 1 and 2 can work together and columns 4 and 5 can work together.**

	Micro Mech 24V 15 pin	Pulse Validator 24V	Executive	MDB Coin Mechanism	MDB Bill Validator
Mars	TRC-6010XV VN4010XV	VN2502-U5E VN2512-U5E VFM1-L2-U4C VFM3-L2-U4C	540 560	TRC-6510 TRC-6512 VN-4510	VN2502-U5M VN2512-U5M
CoinCo	9302 LF USD-L701 USQ-L701	BA32SA BA32R		9302-GX USQ-G701 USO-G703 USQ-L701	BA32SA** BA32R
Conlux	USLX-001-01F			USLZ-004-01F CCM 5 G	USLZ-004-01F

The APi 20 Series will automatically determine at power up which peripherals are connected and configure itself accordingly.

## Temperature Monitoring

To display the temperature of all food and/or frozen cabinets in an installation depress and hold the “C” (for temperatures to be displayed in Celsius) or “0” (for temperatures to be displayed in Fahrenheit) button on the front panel keypad. After three seconds, the temperatures (in all refrigerated and frozen cabinets present in the installation) will display for three (3) seconds and continue to do so until the button is released.

## The Refrigeration System

The refrigeration system is comprised of a 3/4 horse compressor and is a hermetically sealed system (no service ports). The refrigerant used in the refrigeration system is 404a and the charge is 28 ounces. The Compressor is turned on and off by a relay contained in the refrigerated cabinet junction box. This relay is energized by the Food Driver Board (FDB). The temperature sensor is plugged into the P2 connection of the FDB. The entire refrigeration assembly comes out in one piece by removing the two screws (to the right of the condenser) fastening the refrigeration assembly to the cabinet bottom.

◆ CAUTION: Because of the weight of the refrigeration assembly it should be removed by two people.

## Refrigeration Control

The refrigeration system in the APi 320 cabinets is controlled by the Electronic control system (ECS) according to the temperature range selected by the operator in the MasterMenu system. The temperature readings from the temperature sensor is accurate to 1/8 F. The temperature sensor data is monitored and the readings averaged over time. The cabinet temperature is checked once every 5 seconds. Using the Set Temperatures menu item, the cabinets may be designated as Ambient, Food, or Frozen. When a cabinet is designated as Ambient, the Control System will not control the temperature in that cabinet and the refrigeration system in that cabinet will be disabled if it exists. Temperature readings will still be available for cabinets designated as Ambient. When a cabinet is designated as Food or Frozen, the Control System will attempt to maintain the temperature in the cabinet to within 3° F of target temperatures specified in the Set Temperatures menu item during normal operation (this is fixed at 36°F (2°C) for Food and is settable from -15°F to +10°F (-26°C to -12°C) for Frozen). To accomplish this, the refrigeration unit will be turned on when the temperature exceeds the appropriate target temperature by more than 3°F for 3 seconds during normal operation. The refrigeration unit will then remain on until the temperature falls 3° below the target temperature for 3 seconds.

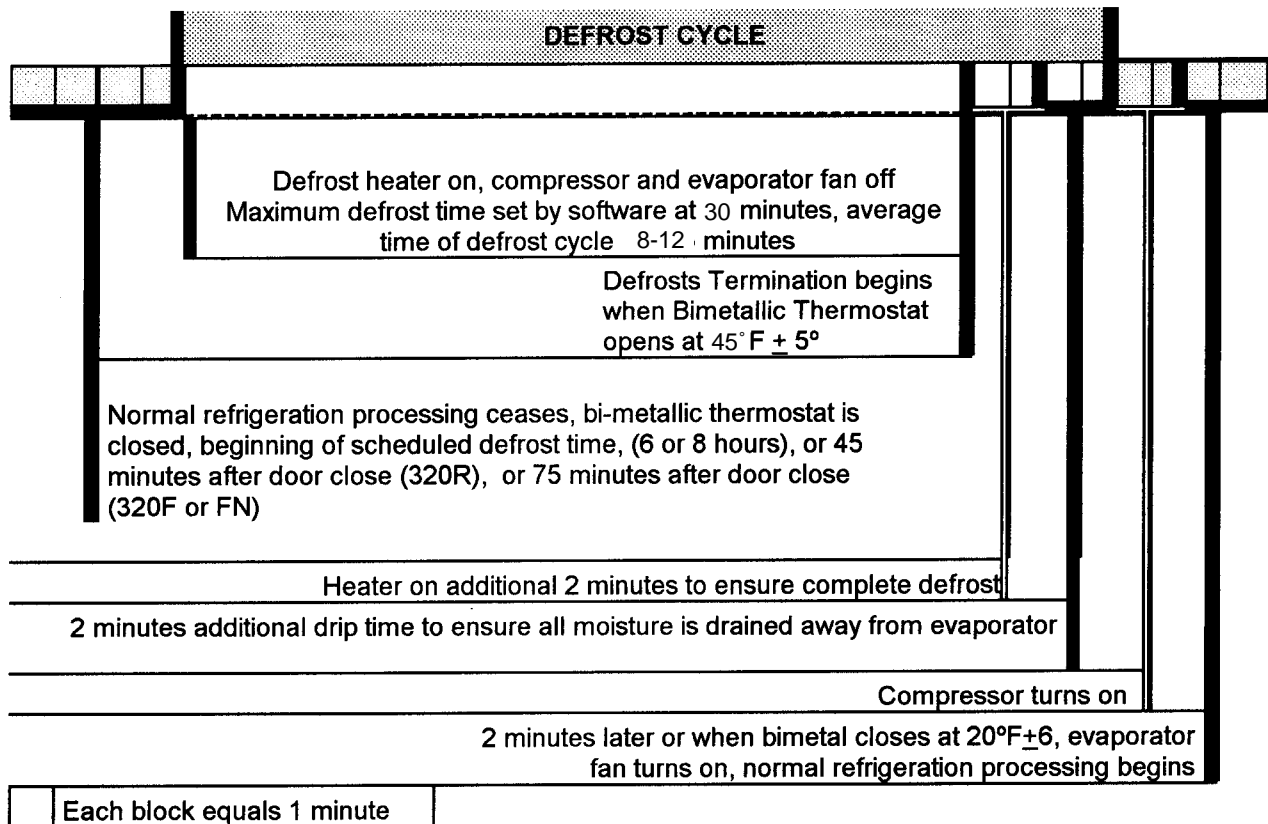
## Health Monitoring

The APi 120 and/or Control module allow for accurate monitoring of all refrigerated and/or frozen cabinets in the installation. This also allows for shutdown of each cabinet individually by the machine without impact to the others. When the machine shuts down a cabinet due to an out of tolerance temperature, the light in that cabinet is turned off, all selections in that cabinet disabled, and the display updated to indicate “CABINET X OUT OF SERVICE” (where “X” is “1” if the temperature sensor in Cabinet 1 detected the out of tolerance condition, or “2” if the temperature sensor in Cabinet 2 detected the out of tolerance condition). A temperature sensor is present in each refrigerated and/or frozen cabinet. The Pull down period describes the time elapsed between a cabinet Power Up (Door Closed) and the point in time when the cabinet temperature first reaches the target temperature. Health processing is suspended during the Pull down period. If the Pull down time period exceeds 75 minutes in a Frozen cabinet or 30 minutes in a Food cabinet however, vending will also be disabled in that cabinet for health reasons. Vending will be allowed again after the door to that cabinet has been opened and closed. The Pull down period does not apply to the Ambient cabinets. If at any time during normal operation after an initial Pull down period, the temperature in a Frozen cabinet rises above the set target temperature by 10° F for more than 15 continuous minutes of temperature readings, vending will be prohibited in that cabinet. If at any time during normal operation after the initial Power Up Pull down period, the temperature in a Food cabinet rises above +45° F for more than 5 continuous minutes of temperature readings, vending will be prohibited in that cabinet. The cabinet temperature control processing will remain unaffected by this vending state. An error message will be recorded indicating the Health Time-out occurred. Vending will be allowed again after the door to that cabinet has been opened and closed.

**Defrost Processing**

The refrigeration units in the 320 cabinets are defrosted by the refrigeration control system at regularly scheduled intervals based on the Defrost Interval, starting from the Defrost Time selected in MasterMenu™. A defrost cycle will begin with the compressor and condenser fan turned off and the defrost heater on. The heater will remain on until the Defrost Thermal switch indicates that the temperature of the air around the refrigeration coils has reached the desired temperature. The compressor will then be turned on two minutes later. Normal refrigeration processing then resumes. A Defrost cycle will also occur

75 minutes after the door is closed in a Frozen cabinet or 45 minutes after the door is closed in a Food cabinet. If the cabinet is a Food cabinet and the compressor has not yet reached Pull down, the Defrost cycle will be delayed until it reaches Pull down. Another Defrost Cycle will occur either 6 or 8 hours later where 6 or 8 is the number of hours specified in the Defrost Interval field of the Setup Defrost Menu Item in MasterMenu™. If a scheduled defrost is to occur before 4 hours after the Power Up defrost is complete, it will be delayed until 4 hours after the Power Up defrost is complete. All subsequent scheduled defrosts will occur at their normal times.



**Manual Forced Defrost**

Enter Master Menu, Configuration Menu, Setup Defrost menu item for specific cabinet, Press F2, compressor will turn off and a defrost cycle will begin following the sequence above.

**Normal Temperature Operation:**

With temperature set at -15°F, the following three conditions indicate a correctly operating refrigeration unit:

- 1) Unit should reach that temperature within 1 hour.
- 2) After reaching that temperature, Compressor On cycle should not exceed 35 minutes.
- 3) During a defrost cycle, cabinet temperature should not rise above 0°F.

<b>Current Readings:</b>	<b>120V Operation</b>	<b>230V Operation</b>
Stand-by	1.5A ± .5A	.75A ± .5A
Compressor On	12A ± 1A	7A ± .5A
Defrost Cycle	7A ± .5A	2.5A ± .5A
Defrost Heater		
Resistance	23 ohms ± 3	85 ohms ± 6

## Vend Motors

The vend motors used in the APi 320 machines have been specifically developed to operate with the APi MasterVend™ Control System and are different physically from previous motors. The motors are color coded, but one primary difference that distinguishes the new motors from previous motors is the presence of an eight sided star at the drive hub of the motor. This permits the stopping position of the spiral to be customized by the operator to ensure the best possible delivery of product. The combinations of different colors on the motors and their hubs will help identify its function (see figure 2.1).

**Fig 2.1**

Function & Part #	Used in Model	Fast Track Motor	Case Color	Cover Color	Hub Style/ Color	Rotation	Rotation/ Vend
Even # Food Motor P/N 360276	320 (ALC)	Yes	Blue	Black	Star	CCW	1
Odd # Food Motor P/N 360275	320 (ALC)	Yes	Blue	White	Star	C W	1
Conveyor Motor P/N 360237	320 (ALC)	No	Brown	Brown		CW	1
Baffle Door Motor P/N 360223	320 (ALC)	No	Metal	Metal	Shaft	CW	1

Some of the motors used in the 120 & 320 will be of the fast trac style, with all electronics required to correctly operate the motor contained inside the gear case or the motor housing and no external control board. Each of the motors used with the MasterVend™ Control System will have two terminals. The two terminals continue to be used to identify the shelf and column (selection) to be vended. In a cabinet that contains a Food Driver Board, their are left hand and right hand motors, this permits odd and even motors to be paired and operate in counter rotating (similar to the current dual spiral motor) and creates a very flexible means to vend items of many shapes and sizes. This is accomplished by removing any motors between the two motors required to vend the properly and pairing the odd and even in the motor pairs menu items.

## Cabinet and Shelf Harnesses

The shelf and cabinet harnesses connectors are different than the snack motors, they have been changed to insure a better connection. This change in addition to using a lower temperature grease in the motors, was made to insure the motors would operate in colder temperatures.



SHELF WIRING DIAGRAM



0	1	2	3	4	5	6	7	8	9
12	12	12	12	12	12	12	12	12	12

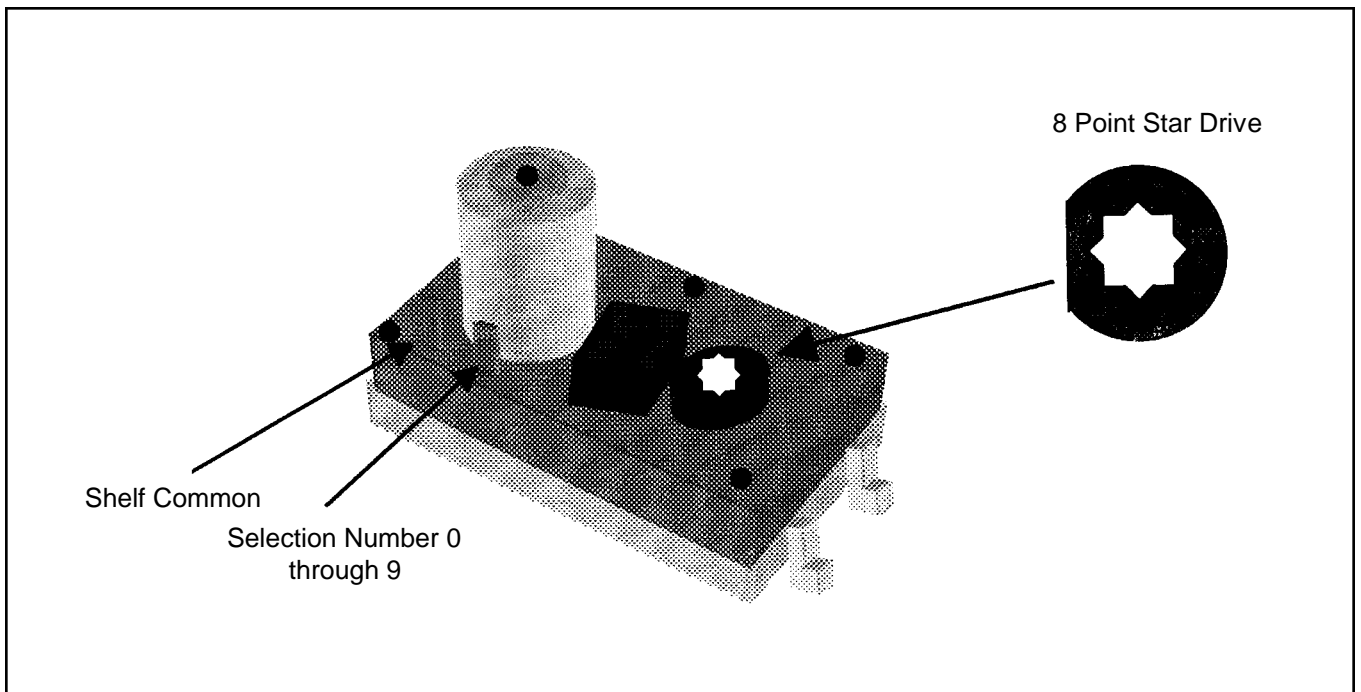
Selection Wire Number

Shelf Common Number

Each motor requires two wires to operate correctly. These wires are: shelf common, and selection.

Each selection on a shelf has the same common shelf wire - all shelf harness use the wire #12 as a shelf common. This corresponds to the selected shelf wire in the cabinet harness. The terminal for the shelf common in the harness is the smallest of the two terminals.

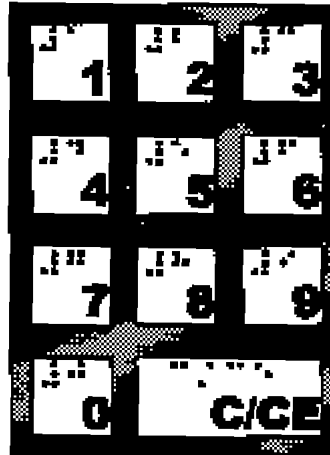
Selection numbers are assigned from left to right, starting with selection 0. Each selection number corresponds to the number of the wire for that selection.




## Selection System

The selection system used with the MasterVend™ Control System is different from all previous alpha-numeric systems we have manufactured. The eleven digit selection panel (see figure 2.2) is located on the front control bezel and consists of the numbers 0 through 9 and the letter C, which is defined as a clear button. The selection system used with the MasterVend™ Control System is all numeric and uses three digits to identify all the selections. The first digit is used to determine which cabinet is selected, the second digit determines the shelf selected, and the third digit, the selection on that shelf. The left or first selection on each shelf is designated as selection 0, and on a ten select shelf the selection numbers would be increase by one, so that the right hand selection will be selection 9. The numeric keys on the selector panel can be used to enter numeric data any time it is required during setup or maintenance of the equipment.

Figure 2.2






**MasterMenu™ Keypad**








The MasterMenu™ keypad (pictured below) is located on the front of swing out panel directly below the selection keypad. The MasterMenu™ keypad is only active when the door is open, so even in the event of vandalism to the control bezel, no access to the control functions is permitted. The MasterMenu™ keypad consists of seven function buttons, a  key, four coin payout buttons and the eight keys used to operate the MasterMenu™ functions. The entire keypad becomes active once the machine door is opened.



**Function Buttons**


The seven function keys (F1-F7) are assigned to specific pre-determined menu headings, primarily for route service personnel. See page 4.02 for specific menu heading for each of the function keys.



Pressing the  key before one of the function keys  through  are assigned to the second level of menu headings.


**Coin Payout Buttons**



The four coin payout buttons are used to pay coins out of an L+ or a standard US (dummy mech). The four coin payout buttons are , ,  and . The four coin payout buttons may also be used to enter pricing information while assigning prices. For example, to enter a price of \$.65, pressing the  key twice, the  key once and the  key once, would result in .65 appearing on the display. See the price setting section for additional information.


The  key is used for exiting the current menu without making any changes prior to commitment. Note: Closing the main cabinet door will have the same effect as if the user pressed the  key and causes the machine to exit the MasterMenu™ System and return to Operational Mode.


The  key provides a dual purpose operation. It provides the a mechanism for entering a menu. It also provides a means to commit insertions/modifications/deletions made in a menu item.

The  and  keys are used for incrementing and decrementing the available choices in a menu.

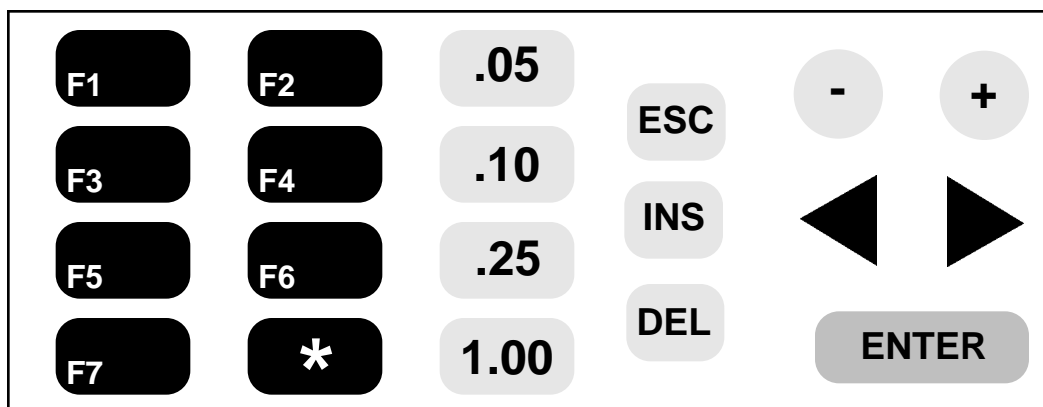
**Note: Anywhere in this manual that the  or  keys are defined to sequence through numeric data, the front panel may be used as an alternate input source.**

The  and  keys have a dual purpose operation. They provide a means to select the menu heading immediately to the left or right of the current menu heading. When inserting data within a menu, these keys also provide a means to move the cursor from its current position to the position directly to its left or right.

The  key is used to delete the character on the current cursor position, shifting all subsequent characters to the right of that position left by one.

The  key provides a mechanism to insert a character to the left of the current cursor position, shifting all characters to the right of that position (including the current character) right by one.

**Note: Depressing a function key will not cause you to enter the MasterMenu™ System.**



# components

---

## Control System and Boards

The MasterVend™ Control System consists of up to three different boards, depending on the configuration. All Model 120 and all Control modules consist of the LogicCenter board (LCB) and the display board. All 320 machines also contain a Food Driver Board (FDB).

### LogiCenter Board (LCB)

The LCB interfaces with the FDB (when used), display board, selector panel, MasterMenu keypad, coin mechs, bill validators and all other peripherals. The LCB also stores all the programming and Mis information. In addition the LCB supplies power to the FDB. (ESD sensitive)

---

### Food Driver Board (FDB)

This board contains all the temperature monitoring functions for cabinet that it is contained in, and communicates with the LCB via a 6 wire computer level interconnect harness. The FDB has three LEDs on it and the status of the FDB can be determined by observing these LEDs. The three LEDs will give you the status of the communications between the FDB and LCB, if the board is currently telling the refrigeration unit to run, and if the board is currently telling the machine to go through a defrost cycle. (ESD sensitive)

The Food Driver Board is located on the front face of the Relay Box for the compressor assembly. This board controls the function of all the refrigeration components along with providing the circuits for the vend motors and the baffle delivery door. There are also two jumpers for default settings of this board. These jumpers are a set of three pins which will have only two pins connected at any one time. The connection between the two pins is made by a small black cap, which slides over the pins in use. The black caps are identical, and should not be removed from the board for any reason. The two jumpers are the Cabinet selection jumper and the temperature control jumper.

#### Cabinet Selection Jumper

The position of this jumper identifies which cabinet is named CAB1 (Cabinet 1), or CAB2 (Cabinet 2). These are abbreviated on the FDB board cover decal (pictured below) as **C1** and **C2**. Cabinet 1 will contain the selections 110 through 157, and Cabinet 2 will contain the selections 210 through 257. All machines are shipped with this jumper installed on CAB1. This jumper should be changed only if you are connecting a second cabinet to a 310 Control Module or a 120 Snack.

#### Temperature Control Jumper

The second jumper on the board controls the default setting for the temperature in the event the FDB loses communication with the LCB. This will hold the cabinet temperature at the setting indicated by the jumper. A jumper set at **"R"** will hold the temperature at 36°F (2°C), and a jumper set at **"F"** will hold the temperature at -15°F (-26°C). If you change the temperature in the **SET TEMPS** menu item, you must also change the position of the jumper to the corresponding position. The position of this jumper can be verified through the hole in the board cover.

## The Front Panel Display

The display is capable of displaying 20 alpha-numeric characters. The supported character set includes:

- Upper case alphabetic characters "A" through "Z"
- Numeric characters "0" through "9"
- Special characters: (, ), [, ], ., ', -, =, \$, /, \, \*, ^, +, , , ", ?, \_.

Open Control module door  
Open swing panel

---

## SET MOTOR PAIRS

Depress and hold down the \* key while pressing F 1 on the MasterMenu keypad.

The display will indicate Motor Pairs, press **ENTER**.

Use the **<** and **>** keys to move between selection and pair state.

Use the **+** and **-** key to change the paired state of the motor.

Use the selection buttons to enter the desired selections for the paired state currently displayed.

Press **ENTER** to pair displayed motor.

Press **ESC** to exit.

**Note: Using the **+** and **-** keys to change the selection # will show the current paired state of the motor.**

---

## SET TEMPS

Depress and hold down the \* key while pressing F2 on the MasterMenu keypad.

The display will indicate Set Temps, press **ENTER**.

Use the **<** and **>** keys to move through cabinet, temperature range, target temperature and temperature scale fields.

Use the **+** and **-** keys to increase or decrease the currently selected field. Pressing the **ENTER** key when the desired cabinet, temperature range, target temperature, and temperature scale are displayed will cause the cabinet to be set to the displayed settings.

Press **ESC** exit.

**Note: If you are NOT using a second cabinet, you do not need to set Cabinet 2.**

---

## SET PRICES

Press the F4 on the MasterMenu keypad

Press **ENTER** to access **SET PRICE** menu. **<**

Press **>** 1 time to price.

Using the selection buttons, enter desired price, Calculator style.

Press **<** 1 time to selection.

Using the selection buttons, enter desired selections at the price shown.

Repeat the above process for all additional prices to be set.

**ESC** to exit.

**NOTE: See page 1.02 for health regulations setting temps.**

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# quick set up reference - electronics

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## Food Driver Board

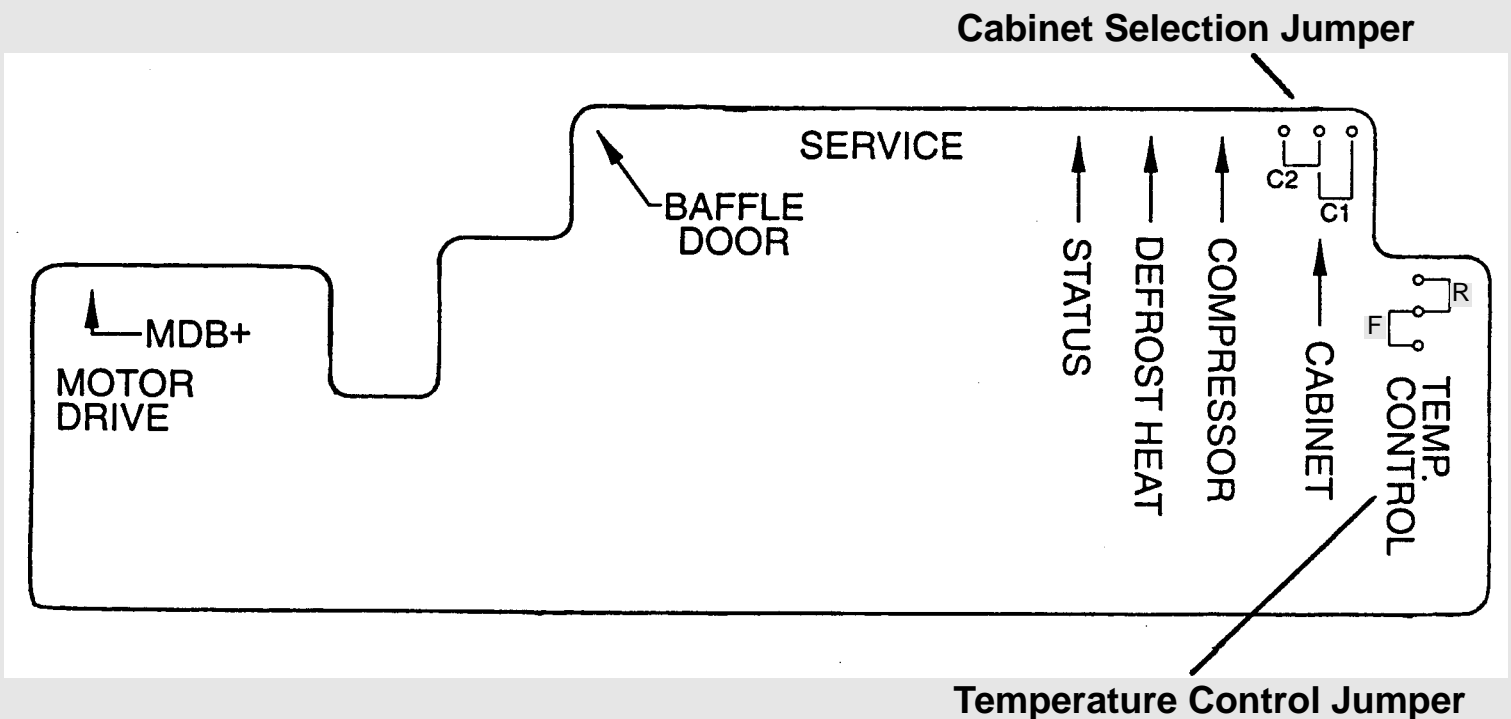
The Food Driver Board is located on the front face of the Relay Box for the compressor assembly. This board controls the function of all the refrigeration components along with providing the circuits for the vend motors and the baffle delivery door. There are also two jumpers for default settings of this board. These jumpers are a set of three pins which will have only two pins connected at any one time. The connection between the two pins is made by a small black cap, which slides over the pins in use. The black caps are identical, and should not be removed from the board for any reason.

---

## Cabinet Selection Jumper

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---



## Temperature Control Jumper

The second jumper on the board controls the default setting for the temperature in the event the FDB loses communication with the LCB. This will hold the cabinet temperature at the setting indicated by the jumper. A jumper set at "R" will hold the temperature at 36°F (2°C), and a jumper set at "F" will hold the temperature at -15°F (-26°C). If you change the temperature in the **SET TEMPS** menu item, you must also change the position of the jumper to the corresponding position. The position of this jumper can be verified through the hole in the board cover.

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**Introduction**

The APi MasterMenu™ system is user friendly and provides a common look and feel across all menu items. The system allows the user to move freely through the menus and provides ease of insertion, modification, and deletion of operational parameters and data. In addition, the system provides the user with status and diagnostic messages to aid in the use and service of the machine.

**Operational Mode**

The Operational mode provides the machine with the ability to vend products. The machine is in Operational Mode whenever the main cabinet door of the machine is closed. Upon opening of the main cabinet door, the machine will remain in Operational Mode until the **ENTER** key is depressed at which time it will enter the Service Mode. This allows for vends to occur while the main cabinet door of the machine is open and the user has not yet entered Service Mode by depressing the **ENTER** key. This is referred to as Enhanced Operational Mode. Enhanced Operational Mode differs from Operational Mode in that the Function keys and Payout keys are active. If any key in either of these sets of keys is depressed, it will perform its function and return the machine to Enhanced Operational Mode when complete.

The Service Menu provides access to all configurable items in the machine as well as retrieval of MIS information. The Service Menus shall only be available when the machine is in Service mode.

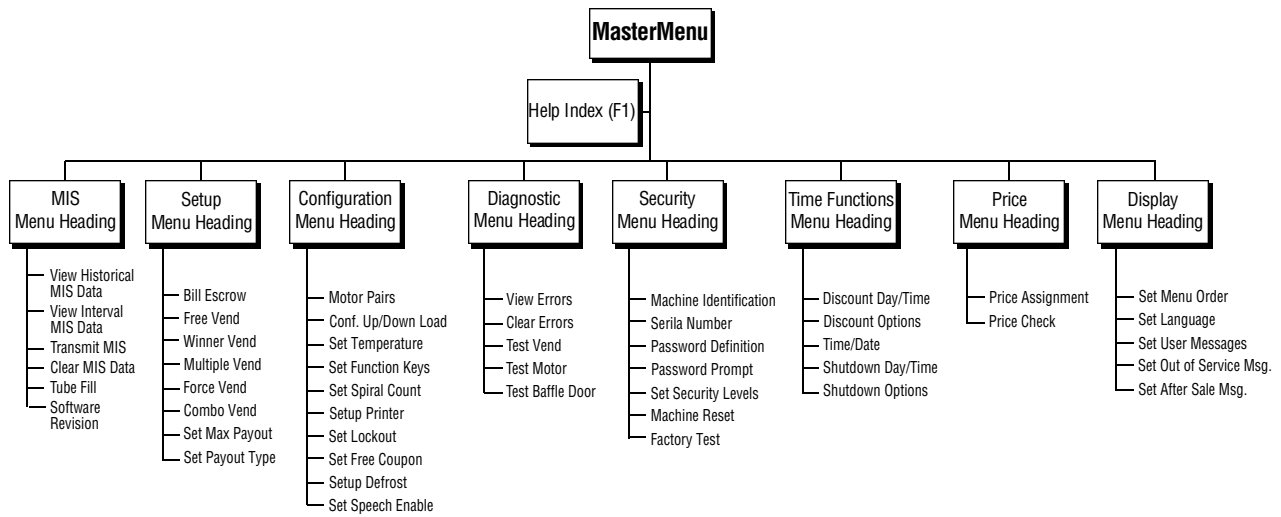
**Service Mode**

Service Mode provides the ability to configure the machine. When the Control Module door is opened, the display indicates "ENTER FOR MASTERMENU" if no errors have been logged, or "ERRORS-NN" in the case where errors exist (where "NN" is the number of errors). The machine returns to Operational Mode whenever the main cabinet door is closed.













# mastermenu™ system

The MasterMenu™ System provides a set of text based Service Menus which allows interface to all functions of the machine. Menus appearing at the upper most level of the menu system are referred to as Menu Headings. Menus appearing under the Menu Headings are referred to as Menu Items.

Figure 1.1: illustrates a diagram of the MasterMenu™ System.



The following is a quick reference for the keys on the MasterMenu™ keypad, for a detailed list see page 2.05 of the components section.

-  Used to enter the character “\*”.
-  The four coin payout buttons may also be used to enter pricing information while assigning prices.
-  Used for exiting the current menu without making any changes.
-  Used to choose a menu heading and to commit to insertions/modifications/deletions made in a menu item.
-  and  Used to move the cursor from its current position to the position directly to its left or right also to select the menu heading immediately to the left of the current menu heading.
-  and  Used for incrementing and decrementing the available choices in a menu .  
**Note: Anywhere in this manual that the  or  keys are defined to sequence through numeric data, the front panel may be used as an alternate input source.**
-  Used to delete the character on the current cursor position.
-  Used to insert a character to the left of the current cursor position.

**Note: Depressing a function key will not cause you to enter the MasterMenu™ System.**

## Operating System Quick Reference Index

On the bottom of each page is a quick reference index (figure 1.2). The white box indicates where you are in the MasterMenu™ System, the shaded areas can be used as a reference to move through the sections of the manual. Figure 1.2 below indicates that you would be in the diagnostics menu.

Figure 1.2

M I S MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITYMENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
------------	------------	--------------------	-----------------	--------------	---------------	------------	--------------

# mis menu heading

The MIS Menu heading contains all the MIS (accounting) information collected by the machine.

Pressing ENTER when the display indicates MIS will cause the display to be updated with View Historical MIS.

Use the < or > arrow keys to scroll through the following menu items:

**View Historical MIS    View Interval MIS    Transmit MIS Data    Clear MIS Data    Tube Fill    Software Revision**

Pressing ENTER when any of the above items are on the display will give you access to that Menu Item.

Below is a detailed list of each of the above Menu Items:

## Display

VIEW HISTORICAL MIS                      Press ENTER  
 hTOT SALES 00.00                      Use the < or > keys to scroll through the MIS Data.

VIEW INTERVAL MIS                      Press ENTER  
 iTOT SALES 00.00                      Use the < or > keys to scroll through the MIS Data.

Table 4.1 below is a list of all the viewable MIS Data

NAME	Display Format of Historical MIS	Display Format of Interval MIS
<b>Total Value of Sales</b>	hTOT SALES 000000.00	iTOT SALES 000000.00
<b>Number of Vends</b>	h# VENDS 0000000	i#VENDS 0000000
<b># of Test Vends</b>	h# TEST VNDS 0000000	i# TEST VNDS 0000000
<b># of MIS Resets</b>	h# MIS RESETS 0000000	i# MIS RESETS 0000000
<b># of Machine Resets</b>	h# MACH RESET 0000000	i# MACH RESET 0000000
<b>Number of Bills Stacked</b>	h\$ BILLS 000000.00	i\$ BILLS 000000.00
<b>Value of Coins To Tubes</b>	h\$ to TUBE 000000.00	i\$ TUBES 000000.00
<b>Value of Coins In Tubes</b>	h\$ in TUBE 000000.00	i\$ TUBES 000000.00
<b>Value of Cash Dispensed</b>	h\$ DISPENSED 000000.00	i\$ DISPENSED 000000.00
<b>Value of Cash Dispensed Manually</b>	h\$ MAN DSP 000000.00	i\$ MAN DSP
<b>Value of Cash In</b>	h\$ CASH IN 000000.00	i\$ CASH IN 000000.00
<b># of Free Vends</b>	h# FREE VENDS 0000000	i# FREE VENDS 0000000
<b>Value of Free Vends</b>	h\$ FREE VENDS 000000.00	i\$ FREE VENDS 000000.00
<b># of Token Vends</b>	h# TOKEN VENDS 0000000	i# TOKEN VENDS 0000000
<b>Value of Token Vends</b>	h\$ TOKEN VENDS 000000.00	i\$ TOKEN VENDS 000000.00
<b>Value of Coins To Cash Box</b>	h\$ BOX 000000.00	i\$ BOX 000000.00
<b>Value of Discount, Discounted Vends</b>	h\$ OF DISC 000000.00	i\$ OF DISC 000000.00
<b># of Discounted Vends</b>	h# DISC 0000000	i# DISC 0000000
<b>Value Discount, for Combo Vends</b>	h\$ COMBOS 000000.00	i\$ COMBOS 000000.00
<b># of Combo Vends</b>	h# COMBOS 0000000	i# COMBOS 0000000
<b># of Winner (Free) Vends</b>	h# WINNERS 0000000	i# WINNERS 0000000
<b>Value Winner (Free) Vends</b>	h\$ WINNERS 000000.00	i\$ WINNERS 000000.00
<b># of Card Vends</b>	h# CARD VENDS 0000000	i\$ CARD VENDS 0000000
<b>Value of Card Vends</b>	h\$ CARDS 000000.00	i\$ CARDS 000000.00
<b>Value/Number of Vends by Cabinet</b>	h\$/# BY CABINET C01- 00000.00 000000 C02- 00000.00 000000	i\$/# BY CABINET C01- 00000.00 000000 C02- 00000.00 000000
<b>Value/Number of Vends By Sel #</b>	h\$/# BY SELECTION NUMBER	i\$/# BY SELECTION NUMBER
<b>Time of Last Vend By Selection #</b>	TIME BY SELECTION 110- HH:MM DD/MM/YY DEF1- HH:MM DD/MM/YY	TIME BY SELECTION 110- HH:MM DD/MM/YY DEF1- HH:MM DD/MM/YY
<b>Last Defrost Cab-1</b>	DEF1- HH:MM DD/MM/YY	DEF1- HH:MM DD/MM/YY
<b>Last Defrost Cab-2</b>	DEF1- HH:MM DD/MM/YY	DEF1- HH:MM DD/MM/YY
<b>Door History For Tower</b>	DOOR OPEN TOWER	DOOR OPEN TOWER
<b>(Repeated For Last 5 Openings)</b>	1-MM HH:MM DD/MM/YY	1-MM HH:MM DD/MM/YY
<b>Door History Cab-1</b>	DOOR OPEN CAB-1	DOOR OPEN CAB-1
<b>(Repeated For Last 5 Openings)</b>	1-MM HH:MM DD/MM/YY	1-MM HH:MM DD/MM/YY
<b>Door History Cab-2</b>	DOOR OPEN CAB-2	DOOR OPEN CAB-2
	1-MM HH:MM DD/MM/YY	1-MM HH:MM DD/MM/YY
<b>Mach Id #</b>	MACH ID 1234567890	MACH ID 1234567890
<b>Mach Asset #</b>	API1234	API1234
<b>Mach Serial #</b>	SER NUM 123456789012	SER NUM 123456789012
<b>Software Version #</b>	PXX LXX.XX C1XXC2XX	PXX LXX.XX C1XXC2XX

MIS MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITYMENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
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**Display**

TRANSMIT MIS DATA  
TRANSMIT TO DEX

Press ENTER

Use the > to PRINTER or Press ENTER to TRANSMIT TO DEX (Dex transfer is automatic on connection of dex device on software version 3.50 or higher) See table 4.2 for a list of MIS Data transferred and Dex definitions.

TRANSMIT TO PRINTER

Press ENTER then use the + or – key to toggle between SHORT LIST and FULL LIST. Press ENTER to start the print. See table 4.3 for a list of MIS data transferred to the printer.

**Table 4.2**

DEX/UCS	Definition
ID1*0987654321*LCB120*3993* API**1234567890	* Serial # * Model # * Software Version * Machine Location** Machine ID #
VA1*300*9*300*9	*Total Cash (H) * Total Vends (H) * Total Cash (I) * Total Vends (I)
VA2**2**2	** # Test Vends (H) ** # Test Vends (I)
VA3*50*1*50*1	*Value of Winner (free) Vends (H) * Number of Winner (free) Vends (H) * Value of Winner (free) Vends (I) * Number of Winner (free) Vends (I)
TA2***0*0*0*0	*** Value of Token Vends (I) * Number of Token Vends (I) * Value of Token Vends (H) * Number of Token Vends (H)
PA1*CAB1	* Cabinet 1
PA2*7*250*7*250	* # of Vends for PA1 above (H) * Value of Vends (H) * # of Vends (I) * Value of Vends (I)
PA1*CAB2	* Cabinet 2
PA2*3*150*3*150	* # of Vends for PA1 above (H) * Value of Vends (H) * # of Vends (I) * Value of Vends (I)
CA3*600*0*300*300*600*0*300	*Value of Cash in ( I ) * Value of Cash to box ( I ) * Value of cash to tubes (I) * Value of bills to box (I) * Value of Cash in (H) * Value of cash to box (H) * Value of Cash to Tubes (H) * Value of Bills to box (H)
CA4*200*540*200*540	Value of Cash Dispensed (I) * Value of Cash Manually Dispensed (I) * Value of Cash Dispensed (H) * Value of Cash Manually Dispensed (H)
CA7*50*50	* Value of Discounts ( I ) * Value of Discounts (H)
CA15*0	Value of Coin Tubes
DA2*0**0*	* Value of Card Sales (H) * Number of Card Sales (H) * Value of Card Sales (I) * Number of Card Sales (I)
EA2*MIS RES**0	*MIS Resets ** # of MIS Resets Since Installation
EA2*MACH RES**0	* Machines Resets * # of Machine Resets Since Installation
MA5*DISC*1*1	* Discounts * # of Discounts (H) * # of Discounts ( I )
MA5*COMBO*50*1*50*1	* Combo * Value of Combo Vends (H) * # of Discount Vends (H) * Value of Combo Vends ( I ) * # of Discount Vends ( I )
MA5* Winner *50*1*50*1	* Winner * Value of Winner Vends (H) * # of Winner (H) * Value of Winner Vends (I) * # of Winner Vends (I)
LS*0001	* Loop Header (Start of information by selection or product code)
PA1*110*20*001*0 (duplicated for all selections in the machine)	* Selection # * Selection Price * Product code * Spiral Count
PA2*7*250*7*250 (duplicated for all selections in the machine)	* # of Vends for PA1 above (H) * Value of Vends (H) * # of Vends ( I ) * Value of Vends ( I )
PA5*TIME*020421*1655 (duplicated for all selections in the machine)	* Time of last Vend for PA1 above * YYMMDD * HHMM Note: If date = 000000 Selection is not in use.
EA1*M DOOR 1*020421*1655*60 (repeated 5 times for last 5 door openings)	* Last Time of Door Opening for Tower or Snack * YYMMDD * HHMM * MM, # of Minutes Door was Open
EA1*C1 DOOR 1*000000*0000*00 (repeated 5 times for last 5 door openings)	* Last Time of Door Opening for Cabinet 1 * YYMMDD * HHMM * MM, # of Minutes Door was Open
EA1*C2 DOOR 1*000000*0000*00 (repeated 5 times for last 5 door openings)	* Last Time of Door Opening for Cabinet 2 * YYMMDD * HHMM * MM, # of Minutes Door was Open
EA1*DEF 1*000000*0000	* Last Time of Defrost for Cabinet 1 * YYMMDD * HHMM
EA1*DEF 2*000000*0000	* Last Time of Defrost for Cabinet 2 * YYMMDD * HHMM

I = Interval vends since last reset

H = Historical vends

MIS MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITYMENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
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# mis menu heading

Table 4.3

Below are the definitions for the MIS information downloaded to a printer.

S - indicates short list

F - indicates full list and includes everything in the shortlist

Field	Size	Definition	Field	Size	Definition
ID101	S	LCB Serial Number	EA101	S	Door Opening, Tower/Snack Header
ID102	S	LCB Model Number	EA102	S	YYMMDD Open for Tower/Snack
ID103	S	LCB Software Revision	EA103	S	HHMM of Open for Tower/Snack
ID106	S	LCB Machine (Asset) Number	EA104	S	Minutes of Opening Tower/Snack
VA101	S	Value of all Paid Sales (H)			
VA102	S	Number of all Paid Sales (h)	EA101	S	Door Opening for Cabinet 1 Header
VA103	S	Value of all Paid Sales (I)	EA102	S	YYMMDD of Opening for Cab 1
VA104	S	Number of all Paid Sales (I)	EA103	S	HHMM of Opening for Cab 1
VA202	S	Number of Test Vends (H)	EA104	S	Minutes of Opening Cabinet 1
VA204	S	Number of Test Vends (I)			
VA301	S	Value of Winner (Free) Vends (H)	EA101	S	Door Opening for Cabinet 2 Header
VA302	S	# of Winner (Free) Vends (H)	EA102	S	YYMMDD of Opening for Cab 2
VA303	S	Value of Winner (Free) Vends (I)	EA103	S	HHMM of Opening for Cabinet 2
VA304	S	Number of Winner (Free) Vends (I)	EA104	S	Minutes of Opening Cabinet 2
CA302	S	Value of Cash to Cashbox (I)			
CA304	S	Number of Bills to Stacker (I)	PA101	S	Cabinet 1 Header
CA306	S	Value of Cash to Cashbox (H)	PA201	S	Number of Vends for Cabinet 1 (H)
CA308	S	Number of Bills to Stacker (H)	PA202	S	Value of Vends for Cabinet 1 (H)
CA701	S	Value of Cash Discounts (I)	PA203	S	Number of Vends for Cabinet 1 (I)
CA702	S	Value of Cash Discounts (H)	PA204	S	Value of Vends for Cabinet 1 (I)
DA201	S	Value of Card Vends (H)			
DA203	S	Value of Card Vends (I)	PA101	S	Cabinet 2 Header
EA201	S	Number of MIS Resets Header	PA201	S	Number of Vends for Cabinet 2 (H)
EA203	S	Number of MIS Resets (H)	PA202	S	Value of Vends for Cabinet 2 (H)
EA201	S	Number of Machine Resets Header	PA203	S	Number of Vends for Cabinet 2 (I)
EA203	S	Number of Machine Resets (H)	PA204	S	Value of Vends for Cabinet 2 (I)
MA501	S	Value of Coins in Tubes Header			
MA502	S	Value of Coins in Tubes	PA101	F	Selection Number 110 Header
MA501	S	# of Discounted Vends Header	PA102	F	Product Price Delection # 110
MA502	S	Number of Discounted Vends (H)	PA103	F	Product Code for Selection # 110
MA503	S	Number of Discounted Vends (I)	PA104	F	Spiral Count for Selection # 110
MA501	S	\$ of Disc for Combo Vends Header	PA201	F	# of Vends Selection # 110 (H)
MA502	S	\$ of Discount for Combo Vends (H)	PA202	F	Value Vends Selection # 110 (H)
MA503	S	Number of Combo Vends (H)	PA203	F	# of Vends for Selection # 110 (I)
MA504	S	Value of Dicounted Vend/s (I)	PA204	F	Value Vends for Selection # 110 (I)
MA505	S	Number of Combo Vends (I)	EA101	F	Time of Last Vend Selection # 110
EA101	S	Last Defrost Date for Cab 1 Header	EA102	F	YYMMDD Last Vend Sel # 110
EA102	S	YYMMDD of Last Defrost, Cab 1	EA103	F	HHMM Last Vend Selection # 110
EA 103	S	HHMM of Last Defrost for Cab 1			
EA 101	S	Last Defrost Date for Cab 2 Header			
EA102	S	YYMMDD of Last Defrost Cab 2			
EA103	S	HHMM of Last Defrost for Cab 2			

Note: PA101-EA103 is repeated for each selection.

M I S MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITYMENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
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**Display**

CLEAR MIS DATA - N Pressing the + key to toggle the N (no) to Y (yes) then press ENTER will reset the interval MIS data. It will also increase the MIS reset field by 1 reset each time a reset is done.

TUBE FILL Allows you to fill the coin mech and the logic board will count the money as it goes in and continually track the coin mech inventory. This is the count the board uses when you choose tube leveling as a Payout type in the Setup menu heading.

**NOTE: It is not necessary to fill the coin mech in this mode unless you have changed to tube leveling.** To proceed press ENTER

T0 = 00.00 ( XX.XX T0 is the tube # of the last coin inserted (1-4, O for a non tube coin)  
 00.00 is the value of the coins in the tube shown.  
 XX.XX is the value of coins in all tubes.

SOFTWARE REVISION Press ENTER  
 P030 L04.00 C117 C217 P030 is the software version of the Microprocessor on the logic board. ( large chip).  
 L04.00 is the software version of the Flash Memory chip on the logic board. (small chip).  
 C117 is the software version of the Flash Memory chip on the Food Driver Board (small chip) in cabinet 1.  
 C217 is the software version of the Flash Memory chip on the Food Driver Board (small chip) in cabinet 2.

SETUP VIEW MIS Press ENTER and the display will prompt you with the first viewable MIS item:  
 HTOT SALES - Y Use the < or > key to scroll through the list of viewable MIS items. Press the + key to toggle the Y (yes) to (no) to N (no) if you do not want the item shown to be viewed in the View MIS Menu.  
 When you have finished making changes press ENTER for the changes to take effect.

The MIS data is incremented as follows:

Field	Vend Type						
	Normal	Discount Winner	Token or Winner	Discount & Winner or Token	Combo	Testvend	Freevend
#VENDS	•	•	•	•	•		•
\$VENDS (Sale Price)	•	•	0	0	•		0
#/PROD	•	•	•	•	•		•
\$/PROD (Sale Price)	•	•	0	0	•		0
#/TESTVEND						•	
#/DISCOUNT		•		•			•
\$/DISCOUNT (Amount)		•		•			• (List)
#/WINNER			•	•			
\$/WINNER (Sale Price)			•	•			
#/COMBO					•		
\$/COMBO (Discount)					•		

• Indicates which field is updated for a given vend type.

(List Price - Discount Amount if any = Sale Price)

Note: \$Winner accumulates sale prices of Winners. If the Winner is also Discounted, the vend is counted in #Discount and the discount is accumulated in \$Discount.

## setup menu heading

---

The Setup Menu heading contains all the Setup Menu Items in the machine.

Pressing ENTER when the display indicates Setup will cause the display to be updated with Bill Escrow.

Use the < or > arrow keys to scroll through the following menu items:

**Bill Escrow Free Vend Winner Vend Multiple Vend Force Vend Combo Vend Max Payout Set Payout Type**

---

Pressing ENTER when any of the above items are on the display will give you access to that Menu Item.

Below is a detailed list of each of the above Menu Items:

### Display

**BILL ESCROW - N** Use the + or – key to change between N, FIRST or LAST. Press ENTER to commit to any changes.  
**N** - Disables bill escrow and all bills will be stacked. Pressing the coin return the customer will receive all change.  
**First** - Holds the first bill in escrow and pressing the coin return will return the bill.  
(All other money added will need to be coin).  
**Last** - The machine will accept bills to the highest vend price, pressing the coin return will return the last bill and all other bills inserted will be returned in change.  
**Note: Force vend overrides bill escrow.**

---

**FREE VEND - N** Use the + or – key to change between N (no) and Y (yes). Press ENTER to commit to any changes.  
When Free vend is set to yes the display will prompt "ALL ITEMS ARE FREE" unless overridden by a custom point of sale message.

---

**WINNER VEND - OFF** To turn on Winner vend, enter a number between 1 and 500 using the selection key pad or the + and – keys. Off is between 1 and 500. Press ENTER to commit to changes.  
When a customer wins an item, credit will be returned to the customer and the display will indicate \*\*\*WINNER\*\*\*. Note: When a machine is set to free vend, test vend or the second vend of a combo vend are not counted for the purposes of determining a winner.

---

**MULTIPLE VEND - N** Use the + or – key to change between N (no) and Y (yes). Press ENTER to commit to any changes. If you choose Y the display will prompt:

**TIMEOUT - 20** This is the amount of time the customer has to make another selection before their change is returned. During this time period the customer can make a selection, add more money to make another selection or press the coin return to receive their change. If the change due back is less than the lowest priced item in the machine, change will be returned immediately. This time period is settable from Five to Ninety seconds. To change the time use the selection key pad or the + and – keys. Press ENTER to commit to the time period.

---

**FORCE VEND - N** Use the + or – key to change between N (no) and Y (yes). Press ENTER to commit to any changes.  
When Force vend is turned on, once there is enough credit established to purchase the lowest priced item in the machine, the customer must make a purchase.  
**Note: Force vend overrides bill escrow and does not apply when debit cards are used.**

---

**COMBO VEND - N** Use the + or – key to change between N (no) and Y (yes). Press ENTER to enter the combo vend menu item.  
**TIMEOUT - 20** This is the amount of time the customer has to add more money and/or make the second selection of a combo vend.

This time period is settable from Five to Ninety seconds. To change the time use the selection key pad or the + and – keys. Press ENTER to commit to the time period.

**01 XXX-YYY FREE N** Use the < or > to move the flashing cursor between the fields.

**01** is the combo #. Use the + or – key to scroll through the combo #, a maximum of ten is supported  
**XXX-YYY** - XXX is the item selected by the customer, YYY is the item to be vended in combination with the customer-selected item.

**Free** is the discounted price of YYY when selected after XXX is selected. Any price can be set for the second item including free. To set the price use the selection key pad or the + and – keys. Free is located below 00.05 cents.

**N** - Use the + or – key to toggle between N (not active) and Y (active). This allows you to program in combo vends and turn them on and off as desired.

M I S MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITYMENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
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MAX PAYOUT - N Use the + or – key to change between N (no) and Y (yes). Press ENTER to commit to any changes.

MAX PAYOUT - 01.00 When to choose Y the display will show the maximum amount of money to be paid back after a vend. To change the Maximum payback amount use the selection key pad or the + and – keys. Press ENTER to commit to the Maximum payback amount.

---

PAYOUT - LEVELING There are 3 payback options are fewest, MDB level 3 and leveling. Use the + or – key to change between the 3 different options. Press ENTER to commit to a payback option. Here is a discription of the three payback options:

**Fewest** - This option is the factory default and will always payback the least number of coins available based on the sensors in the coin mech.

**Leveling** - The board makes all the payback decisions based on how much money it thinks is in each tube. When using this option it is important that you teach the board how much money is in the coin mech (use "Tube fill" menu item) when you set up the machine.

**MDB Level 3** - The changer makes all the pay back decisions based up how much money it thinks is in the tubes. This option will only work with MDB coin mechs. All payback options will work with MDB also, you are not limited to this option with MBB coin mechs.

# configuration menu heading

---

The Configuration Menu heading contains all the Configuration Menu Items in the machine.

Pressing ENTER when the display indicates Configuration will cause the display to be updated with Motor Pairs.

Use the < or > arrow keys to scroll through the following menu items:

<b>Motor Pairs</b>	<b>Configure Load</b>	<b>Set Temperature</b>	<b>Set Function Keys</b>	<b>Spiral Count</b>	<b>Setup Printer</b>
<b>Set Lockout</b>	<b>Set Free Coupon</b>	<b>Set Defrost</b>	<b>Speech Enable</b>		

Pressing ENTER when any of the above items are on the display will give you access to that Menu Item.

Below is a detailed list of each of the above Menu Items:

## Display

**MOTOR PAIRS (320 only)** Allows you to pair any even numbered motor may be paired with the odd numbered motor next in sequence.

**PAIR MOTOR NO N** To pair motors Press the > one time this will cause the N (no) to start flashing. Press the + key, this will change the N to Y (yes). Press the < one time this will cause the last digit in the selection number to start flashing. Key in on the selection pad the selections to be paired. After each selection number that is keyed in you will here a beep. The beep indicates that the selection number has been accepted. Pressing C\CE at any time will clear the display as if it were a backspace key. To remove motor pairs follow the same procedure but key in the selections with the state of the motor set to N (no).

---

**CONFIGURATION LOAD** Allows the uploading or downloading of information to or from the logic board. Press ENTER and the display will prompt MasterMenu online. Use the + or – key to scroll through the following options:

**MasterMenu Online** - is software that allows you to program a machine with a Personal Computer. See the options section of this manual for more information.

**TMU Upload** - allows you to upload programing information to a machine for a touch memory button (chip) that has already been programed.

**TMU Download** - allows you to download programing information to a touch memory button (Chip), for more information on chip see the options section of this manual.

Press ENTER to start the upload or download process. Upon completion the display will prompt that the download is complete. If the information can't be transferred the display will prompt transfer error or transfer disconnect.

---

**SET TEMPERATURE** Press ENTER, the display will prompt:

**CAB1 AMBIENT --- F Cab1 (Cabinet 1)** - Use the + or – to change between cab1 and cab 2 (cabinet 2).

Use the > to move the flashing digit to Ambient.

Use the + or – to change between:

**Ambient** (outside air temperature)

**Food** - the target temperature (---) will automatically change to of +36 degrees Fahrenheit. The temperature is not adjustable when set to food.

**Frozen** - the target temperature (---) will automatically change to of + 10 Fahrenheit. Use the + or – to change between + 10 and –15 Fahrenheit.

**Chilled - (Appears only when cabinet 1 is a snack or 128/129 Cabinet)** the target temperature (---) will automatically change to of + 70 Farenheit. Use the + or - to change between + 70 and +40 Farenheit.

**F = Fahrenheit, use the + or – to change between F and C (Celsius)**

Press ENTER to commit to a temperature setting.

M I S MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITYMENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
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**SET FUNCTION KEYS** Allows you to change the function keys F1-F7 or F1-\*F7 to any of 30 pre defined function keys. Press ENTER and the display will prompt:

**F1 - MIS** Use the < or > to move the between the function key and the Menu Item.  
Use the + or – to change the function key or menu item assigned to that key.  
Press ENTER to commit to any changes.

**Note: Function keys can be reset to the factory defaults in the machine reset menu item.**

The pre-defined functions available for assignment are:

Function	Initial Function Key
VIEW HISTORICAL MIS	F1
VIEW ERRORS	F2
CLEAR ERRORS	F3
SET PRICE	F4
CHECK PRICE	F5
TEST VEND	F6
TUBE FILL	F7
MOTOR PAIRS	*F1
SET TEMPERATURE	*F2
SET TIME & DATE	*F3
BILL ESCROW	*F4
BAFFLE DOOR TEST	*F5
TRASMIT MIS	*F6
SETUP DEFROST	*F7
WINNER VEND	OPEN
MULTI VEND	OPEN
COMBO VEND	OPEN
SET MAX PAYOUT	OPEN
SET PAYOUT TYPE	OPEN
SET LOCKOUT	OPEN
CONFIGURE LOAD	OPEN
MOTOR TEST	OPEN
DISCOUNT DAY / TIME	OPEN
DISCOUNT OPTIONS	OPEN
SHUTDOWN DAY / TIME	OPEN
SHUTDOWN OPTIONS	OPEN
SET USER MESSAGES	OPEN
OUT OF SERVICE MESSAGE	OPEN
AFTER SALE MESSAGE	OPEN
SET SCROLLING	OPEN
SET MENU ORDER	OPEN
SERIAL NUMBER	OPEN

## configuration menu heading

---

SET SPIRAL COUNT - N This menu allows you program the number of spaces in each spiral. When a selection has vended all the product out of and individual spiral the machine will prompt make another selection and will beep 6 times. When the Set Spiral count is enabled and the door is opened to service the machine the display will prompt "Stock Machine N?", to reset the spiral count toggle the N to Y and press ENTER. Note: you must fill all selections each time you service the machine, change the spiral count or turn off spiral count for each selection not being completely filled to work properly.

This menu was implemented for locations with visually impaired customers. Some operators have also used this menu when vending high priced items.

Use the + or – key to change between N (no) and Y (yes). Press ENTER to commit to any changes. When Spiral Count is set to yes the display will prompt:

SPIRAL 110 00 N Press the > two times to N (no)  
Press the + or – key one time to Y (yes)  
Press < one time to 00 (spiral count)  
Use the selection buttons to key in the desired count.  
Press < one time to 110 (selection number)  
Using the selection buttons, enter the selections to be set for the spiral count shown.  
Repeat the above process for all additional spiral counts to be set.

---

SETUP PRINTER  
BAUD - 9600 N81 Press ENTER to change the baud rate, parity, data, and stop bits.  
Use the < or > key to scroll through baud rate, parity, data, and stop bits. Press the + or – key to change the flashing digit.  
The available parameters are:

<b>Baud rate</b>	300	1200	2400	6900	19200
<b>Parity</b>	None (N)	Even (E)		Odd (O)	
<b>Data Bits</b>	Eight (8)		Seven (7)		
<b>Stop Bits</b>	One (1)	Two (2)			

---

SET LOCKOUT -N Allows you to lock out specific selections when an external key switch is activated.  
To enter lockout menu:  
Press the > one time to N (no)  
Press the + or - key one time to Y (yes)  
Press ENTER and the display will prompt:

LOCKOUT SEL 110 N Press the > one time to N (no)  
Press the + or - key one time to Y (yes)  
Press < one time to 110 (selection number)  
Use the selection buttons to key in the selections to be locked out when the external key switch is activated. **Note: Wild Cards can be used when entering selections.**

---

SET FREE COUPON - N  
SEL 100 N Use the + or – key to change between N (no) and Y (yes) and press ENTER the display will prompt:  
Press the > one time to N (no)  
Press the + or - key one time to Y (yes)  
Press < one time to 100 (selection number)  
Use the selection buttons to key in the selections to be free when a coupon is used.  
**Note: Wild Cards can be used when entering selections.**

SET DEFROST

Allows you to customize target defrost time for cabinets 1 and 2. It is not necessary to set this menu it is a target defrost time only. Press ENTER and the display will prompt:

CAB 1 00:00 AT 6HRS

Press the + or – key to change the flashing digit. Use the < or > key to scroll through the following:

**Cab1** - Use the + or – key to Toggle between Cab1 (cabinet 1) and Cab2 (cabinet 2).

00:00 (midnight) - Is the target time for the defrost cycle. Use the + or – key or the selection key pad to change the target time for the defrost cycle.

**6hrs** - This is the amount of time between defrosts. Use the + or - key to toggle between 6 hours and 8 hours.

**Note: Pressing F2 on the keypad will initiate a manual defrost for the cabinet currently being displayed.**

---

SPEECH SYNTHESIS - N

Use the + or – key to change between N (no) and Y (yes). When Y is chosen a Voice Synthesizer can be connected to the DEX/UCS port. The Voice Synthesizer will echo the display while in the service mode.

**Note: When Speech Synthesis is enabled, the DEX/UCS port can no longer be used for any other communications.**

# diagnostic menu heading

---

The Diagnostic Menu heading contains all the self-diagnostic capabilities of the machine.

Pressing ENTER when the display indicates Diagnostics will cause the display to be updated with View Errors.

Use the < or > arrow keys to scroll through the following menu items:

**View Errors   Clear Errors   Test Vend   Test Motors   Test Baffle Door**

Pressing ENTER when any of the above items are on the display will give you access to that Menu Item.

Below is a detailed list of each of the above Menu Items:

## Display

### VIEW ERRORS

Pressing ENTER to will cause the first of any pending errors to be displayed. Use the < or > to sequence through the error list. Pressing F2 when viewing any error will cause the time and the date the error occurred to be shown on the display.

The following lists the possible error codes;

- MOTOR XYZ STALLED
- MOTOR XYZ STUCK HOME
- MOTOR XYZ DIDNT HOME
- MOTOR XYZ OFF HOME
- MOTOR XYZ MISSING
- CAB X DEFROST ERROR
- BAFFLE X CURRENT
- BAFFLE X TIMEOUT
- HEALTH SHUTDN CAB X

---

### CLEAR ERRORS - N

Use the + or – key to change between N (no) and Y (yes). Pressing ENTER, when set to Y will cause all errors to be cleared.

---

### TEST VEND - N

Use the + or – key to change between N (no) and Y (yes). Pressing ENTER, when set to Y will cause the display to prompt:

### TEST VEND ACTIVE

The Selection buttons will become active allowing test vends. Closing the door will automatically turn Test Vend off.

---

### TEST MOTORS

### TEST MOTOR - 110

Press ENTER will prompt:

Key in any selection number to be tested. To test the entire cabinet key in 1\*\* for cabinet 1, or 2\*\* for cabinet 2. The test will show Motor XXX Passed /Failed for 3 seconds for every selection tested. This is a motor detection test and does not vend the motor.

---

### TEST BAFFLE DOORS

### OPEN DOOR - CAB1

Pressing ENTER will cause the display to prompt:

Use the < or > arrow to move between Open Door and Cab1.

**Open Door** - Use the + or – to toggle between open door and close door.

**Cab1** - Use the + or – to toggle between Cab1 (cabinet 1) and Cab2 (cabinet 2).

Pressing ENTER will cause the baffle door to perform the test shown on the display.

# security menu heading

Pressing ENTER when the display indicates Security will cause the display to be updated with Machine ID.  
Use the < or > arrow keys to scroll through the following menu items:

**Machine ID    Serial Number    Password Definition    Password Prompt    Set Security Levels**  
**Set Product Codes    Machine Reset**

Pressing ENTER when any of the above items are on the display will give you access to that Menu Item.  
Below is a detailed list of each of the above Menu Items:

**Display**

MACHINE ID 1234567890	Press ENTER to assign a machine ID number. Use the selection keypad to enter a Machine ID number up to 10 digits long. Press ENTER to commit to any changes.
SERIAL NUMBER 0987654321	Press ENTER to assign a machine Serial number. Use the selection key pad to enter a Serial number up to 10 digits long. Press ENTER to commit to any changes.
PASSWORD DEFINITION	<b>The four levels of security they are:</b> SuperUser - highest security level <b>Level 1</b> - SuperUser and level 1 have access <b>Level 2</b> - SuperUser , level 1 and level 2 have access <b>Level 3</b> - this is the lowest level of security and no password can be assigned. Press ENTER to change the factory passwords to custom passwords. The display will Prompt: PASSWORD 2 2222 Use the < or > arrow to move between the security level and the password. The + or – key will toggle the flashing digit or use the selection keypad to change the numeric digits. Press ENTER to commit to the password for the security level shown on the display.
PASSWORD PROMPT - N	Use the + or – key to change between N (no) and Y (yes). Pressing ENTER, when set to Y will cause the password prompt to be displayed as soon as the user attempts to press ENTER. If the password prompt is set to N (no) and menu items have been assigned security levels, the user must know to press ENTER, then escape to get the password prompt to appear on the display.
SET SECURITY LEVEL - N	This menu allows you to set a Security Level for each Menu Heading and Menu Item. <b>Note: Setting a Menu Heading to a Security Level will also hide all Menu Items under the Menu Heading.</b> <b>The four levels of security they are:</b> <b>SuperUser (S)</b> - highest security level. <b>Level 1</b> - SuperUser and level 1 have access. <b>Level 2</b> - SuperUser, level 1 and level 2 have access. <b>Level 3</b> - this is the lowest level of security and no password can be assigned. Use the + or – key to change between N (no) and Y (yes). Pressing ENTER, when set to Y will cause the display to prompt:
MIS    3	<b>MIS</b> - Is the first Menu heading. Use the < or > to scroll through the Menu Headings and Menu Items. <b>3</b> - is the current security level for the Menu Heading or Menu Item shown on the display. Use the + or – keys to change the security level. Press ENTER to commit to security level changes.
FACTORY TEST - N	Use the + or – key to change N (no) to Y (yes) & press ENTER to test all spirals in the machine. The machine will begin to vend all spirals in sequence. If a motor is not present or bad the machine will beep three times and display the bad motor. To continue with the test press ENTER.
PRODUCT CODES - MANUAL	This menu allows you to choose the format the DEX/UCS information is transferred. Use the + or – key to change between MANUAL & AUTO, press ENTER to Set. MANUAL - The DEX/UCS information is transferred by Product Code. Product Codes can be assigned to a selection or number of selections. See Price setting instructions for details on manually setting product codes. AUTO - The DEX/UCS information is transferred by selection (How many times each selection was vended).
MACHINE RESET - N	This menu allows you to reset the machine. The Four Reset options are as follows: <b>Messages</b> - Resets all messages back to factory defaults. <b>Options</b> - Resets all set up options to factory defaults. <b>MIS Data</b> - Resets all MIS (accountability) data, interval and historical to zero. <b>F Keys</b> - Resets all the function keys F1-F7 and *F1-*F7 to factory defaults. <b>All</b> - Resets the entire board to the factory defaults of software in the board. Use the + or – key to change between N (no) and Y (yes). Pressing ENTER, when set to Y will cause the display to prompt:
RESET - MIS	Use the + or – key to change between the five reset options. Press ENTER to commit to the reset option. The display will prompt:
ARE YOU SURE - N	Use the + or – key to change N (no) to Y (yes) & press ENTER to commit to a reset.

MIS MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITYMENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
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# time functions menu heading

The Time Functions Menu Heading contains all the programmable time functions in the machine.

Pressing ENTER when the display indicates Time function will cause the display to be updated with Set Discount Times.

Use the < or > arrow keys to scroll through the following menu items:

**Set Discount Times    Set Discount Options    Set Time / Date            Set Shutdown Times    Set Shutdown Options**

Pressing ENTER when any of the above items are on the display will give you access to that Menu Item.

Below is a detailed list of each of the above Menu Items:

## Display

SET DISCOUNT TIMES            Press ENTER, the display will prompt:  
Disc 01 00:00-00:00            **Disc 01** is the Discount period. You can set up to 10 different Discount periods. The < or > arrow keys will change which digit is flashing and the + or – key will toggle the flashing digit.  
**00.00-00.00** is the time settings for the Discount. The number on the left is the time the Discount will start. The second number is the time the machine resumes normal pricing. 00.00 is midnight and all times must to be set in Military time. The times set can not be set to cross over midnight, if you are setting a machine to be Discount all night long you will need to set two Discount periods. Example: If a machine is to be Discounted from 7PM to 7AM the two Discount periods would be set as follows: Disc 01 19:00-23:59            Disc 02 00:00-07:00

"SMTWTFS"  
Pressing ENTER when viewing a Discount will change the display to:  
Uppercase letters indicate that the Discount will be active that day.  
The < or > arrow keys will change which digit is flashing and the + or – key will toggle the flashing digit between uppercase and lowercase. Pressing ENTER will apply the days of the week as they are currently set on the display.  
Example: sMTWTFS = Monday through Friday the machine will Discount, Saturday and Sunday the machine will not Discount.

When all discount times are set:  
a. Press ESC to Exit back to the Menu item Set Discount Times.  
b. Press the > key one time to:

---

SET DISCOUNT OPTIONS            Press ENTER. The Display will prompt:  
DISCOUNT ITEMS 01 0.00 N            **01** is referring to Discount period 1 programmed above.  
**0.00** is the amount of discount for all items selected for discount period 01 (example 0.05 will reduce a 0.50 cent item to 0.45 cents.  
the N (no) or Y (yes) indicated the current status of Discount period 1. Use the + or - keys to toggle between N and Y. Press "ENTER" the display will prompt:  
01 Discount - 110 N  
Press the > one time to N (no)  
Press < one time to 110 (selection number)  
Use the selection buttons to key in the selections to be dicounted when the discount period above is activated. **Note: Wild Cards can be used when entering selections.**

M I S MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITY MENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
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SET TIME/DATE  
13:10 18, JAN, 00

Press Enter to set the time and date. The Display will prompt.  
**13:10** (1:10 PM) is the current time, all times are in military time.  
**18, Jan, 00** is the 18th day of January 2000.  
The < or > arrow keys will change which digit is flashing and the + or – key will toggle the flashing digit or use the selection keypad to change the numeric digits. Press ENTER to commit to the time shown on the display.

SET SHUTDOWN TIMES  
SHUT 01 00:00-00:00"

Press ENTER, The display will prompt:  
**Shut 01** is the Shutdown period. You can set up to 10 different Shutdown periods. The < or > arrow keys will change which digit is flashing and the + or - key will toggle the flashing digit.  
**00.00-00.00** is the time settings for the Shutdown. The number on the left is the time the Shutdown will start and the machine will be disabled. The second number is the time the machine will turn back on. 00.00 is midnight and all times must to be set in Military time. The times set can not be set to cross over midnight, if you are setting a machine to be Shutdown all night long you will need to set two Shutdown periods.  
Example: If a machine is to be Shutdown from 7PM to 7AM the two Discount periods would be set as Follows: "SHUT 01 19:00-23:59 SHUT 02 00:00-07:00

sMTWTFs

Pressing ENTER when viewing a Shutdown will change the display to:  
Upper case letters indicate that the Shutdown will be active that day.  
The < or > arrow keys will change which digit is flashing and the + or – key will toggle the flashing digit between uppercase and lowercase. Pressing ENTER will apply the days of the week as they are currently set on the display.  
Example: sMTWTFs = Monday through Friday the machine will Shutdown, Saturday and Sunday the machine will not Shutdown.

When all Shutdown times are set:  
a. Press ESC to Exit back to the Menu item Set Shutdown Times.  
b. Press the > key one time to:

SET SHUTDOWNOPTIONS  
SHUTDOWN ITEMS 01 N

Press ENTER. The Display will prompt.  
**ITEMS 01** is referring to Shutdown period 1 programmed above.  
The N (no) or Y (yes) indicates the current status of Shutdown period 1. Use the + or – keys to toggle between N and Y. Press ENTER, the display will prompt:  
**Note: If you are in a school and want to turn off the Shutdown feature for the summer and leave the times programmed, you can do this by changing the current status to N.**

01 SHUTDOWN -110

Press the > one time to N (no)  
Press the + or - key one time to Y (yes)  
Press < one time to 110 (selection number)  
Use the selection buttons to key in all selections to be shutdown for the shutdown period above.  
**Wild Cards can be used when entering selections.**

**NOTE: The Selections to be Shutdown must be selected for each Shutdown period.**  
If all selections are to be Shutdown, the display will prompt machine not available until the time the machine is programmed to turn back on. If only specific selections are to be Shutdown the display will prompt Selections ..... (Selection numbers) ..... not available until whatever time it is programmed to turn back on.

## price menu heading

---

The Price Menu Heading contains all the pricing functions in the machine.

Pressing ENTER when the display indicates Price will cause the display to be updated with Price Assignment.

Use the < or > arrow keys to scroll through the following menu items:

**Price Assignment**

**Check Prices**

Pressing ENTER when any of the above items are on the display will give you access to that Menu Item.

Below is a detailed list of each of the above Menu Items:

### Display

PRICE ASSIGNMENT  
110 00.50 001

Press ENTER to set prices, the display will prompt:

**110** - is the selection number, **00.50** - is the price, **001**- is the product code.

Press the > one time to price, use the selection buttons key in the price to be set.

**Note: if you are using product codes press the > one more time to price, use the selection buttons key in the product code to be set.**

Press the < back to the selection number, use the selection buttons key in selections to set at the price and product code shown.

Repeat the above process for all prices to be set.

---

CHECK PRICES  
110 00.50 001

Press ENTER to check prices currently set the display will prompt:

Use the selection buttons to key in a selection number, the current price and product code will appear on the display.

M I S MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITYMENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
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The Display Menu Heading provides access to all the Display Menu Items in the machine.

Pressing ENTER when the display indicates Display will cause the display to be updated with Set Menu Order.

Use the < or > arrow keys to scroll through the following menu items:

**Set Menu Order    Alt Language    Set User Messages    Set Out of Service Message    Set After Sale Message**

Pressing ENTER when any of the above items are on the display will give you access to that Menu Item.

Below is a detailed list of each of the above Menu Items:

## Display

SET MENU ORDER

This menu allows you to change the order that the Menu Headings appear on the display. Press ENTER the display will prompt:

MENU ] - #15

Use the < or > keys to move between the Menu number and the Menu Heading. Use the + or - key to scroll through the available menus or to change the menu number. Press ENTER to commit to changes in the menu order.

---

ALT LANGUAGE - N

This menu allows you to use an alternate language for all messages. Use the + or - key to toggle between Y and N.

**N** - indicates all messages will be shown in English.

**Y** - Indicates all messages will be shown in the alternate language programmed by MasterMenu Online.

Press ENTER to commit to any changes.

---

SET USER MESSAGE

Use this menu to program up to three different user messages. Press ENTER and the display will prompt:

POS-E EDIT

Use the < or > keys to move between the fields.

Use the + or - key to toggle between:

**POS-F, POS-A, POS-B and POS-C.**

**POS-F** stands for the factory message; this message is not changeable.

**POS-A/B/C** are the three messages that can be programmed.

Pressing the ENTER key when the display prompts POS-A Edit allows you to program message A. The display will prompt:

USER MESSAGE # 1

**Note: this is a two step process, first you need to Edit (program) a message (s) then you need to set the message to be active.**

To Edit the current message:

Use the + or - keys to scroll through the Upper and Lower case letters, the numbers 0-9 and a number of special characters including a blank space. Use the <or> to move the flashing cursor to the left or right. Start your message by overwriting the current message (User Message #1).

Pressing the INS (insert) key will allow you to insert a character to the left of the flashing digit.

Pressing the Del (delete) key will delete the flashing character. When the message is complete

press ENTER. There is no start or end character required. **Note: this message will be stored and must be set for the message to become active.**

### To Set a Message:

POS-R SET

Use the + or - key to toggle the display to the message to be set (F, A, B or C).

Press the > one time and the T in the word edit will start flashing.

Press the + or - key one time and the word set will appear.

Press ENTER and the POS message shown will be set.

**Note: if the message contains more characters than can be shown on the display the display will scroll. If the message is shorter than the display and you still want it to scroll you need to add blank spaces to the end of the message until the message starts to run off the display.**

M I S MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITYMENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
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## display menu heading

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**SET OUT OF SERVICE** This menu allows you to set an out of service message. The out of service message is added on to the end of the machines out of service message.  
Press ENTER and the display will go blank with a flashing cursor.  
Use the + or – keys to scroll through the Upper and Lower case letters, the numbers 0-9 and a number of special characters including a blank space. Use the <or> to move the flashing cursor to the left or right  
Press ENTER and the Out of Service message shown will be set.

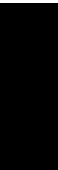
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**SET AFTERSALE MESSAGE** This menu allows you to set an After Sale Message. Start your message by overwriting the current message  
(Thank You Very Much).

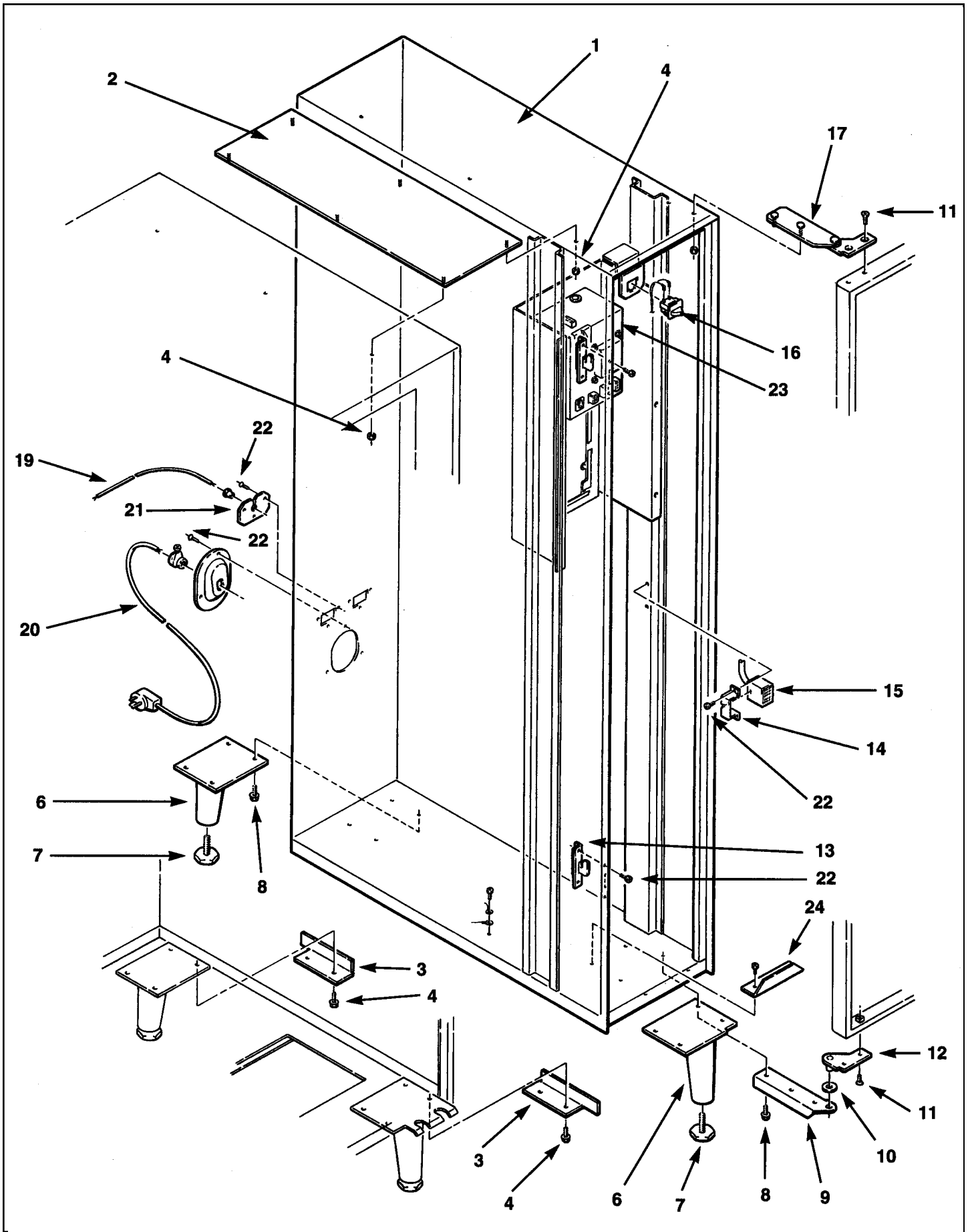
**THANKYOUVERY MUCH** Press ENTER and the display will prompt:  
Use the + or – keys to scroll through the upper and lower case letters, the numbers 0-9 and a number of special characters including a blank space. Use the <or> to move the flashing cursor to the left or right.  
Press ENTER and the After Sale Message shown will be set.

M I S MENU	SETUP MENU	CONFIGURATION MENU	DIAGNOSTIC MENU	SECURITYMENU	TIMEFUNCTIONS	PRICE MENU	DISPLAY MENU
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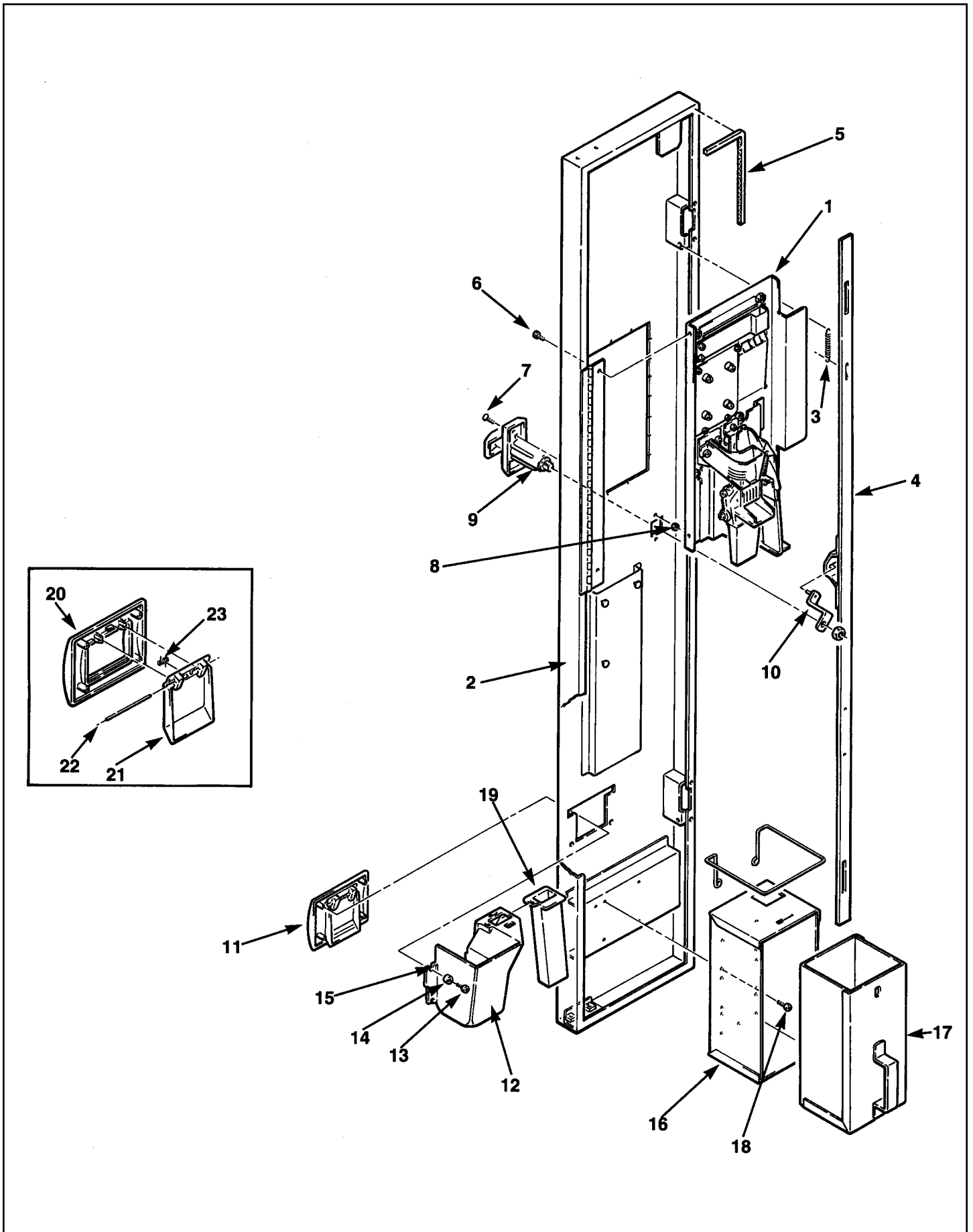
# 310 / control module cabinet



Item No.	Part No.	Description
1	600785	Control Module Cabinet, Weldment, Specify Color.
2	750203	Control Module Mounting Kit, Complete.
	600744	Control Module Mounting Plate, Top.
3	202550	Control Module Mounting Bracket, Bottom.
4	660608	Tower Mounting Hardware, Kit.
6	600195	Control Module Leg, Front & Rear.
7	300103	Leg Leveler.
8	420187	5/16 - 18 X 3/4 Screw, Hex Head.
9	12000033	Lower Hinge Plate.
10	420010-19	1 1/16 X .510 X .03 Washer.
11	420003-1	1/4 - 20 X 1/2, Flat Head Screw.
12	600742	Lower Pivot Plate Assembly.
13	600743	Door Lock Catch.
14	202024	Changer Socket Mounting Bracket.
15	680547	Harness, Changer Micromech.
16	660666	Door Switch and Harness.
17	600740	Upper Hinge Assembly.
18	438-41	1/4-20 Kep Nut.
19	660649	Communications Cable Assembly.
20	660506-2	Line Cord, 117 V, Domestic.
	<b>660505-6</b>	<b>Line Cord, 230 V, Europe.</b>
	<b>660505-7</b>	<b>Line Cord, 230 V, Australia.</b>
	<b>660505-8</b>	<b>Line Cord, 230 V, Israel.</b>
	<b>660505-9</b>	<b>Line Cord, 230 V, UK.</b>
21	201422-1	Blocking Plate.
22	276-8R6	8-32 X 3/8, Pan Head, Self Tap.
23		Junction Box (See Page 8)
24	202553	Cash Box Stop.
	660146-14	Base Kit (310) Not Shown.

Item No.	Part No.	Description

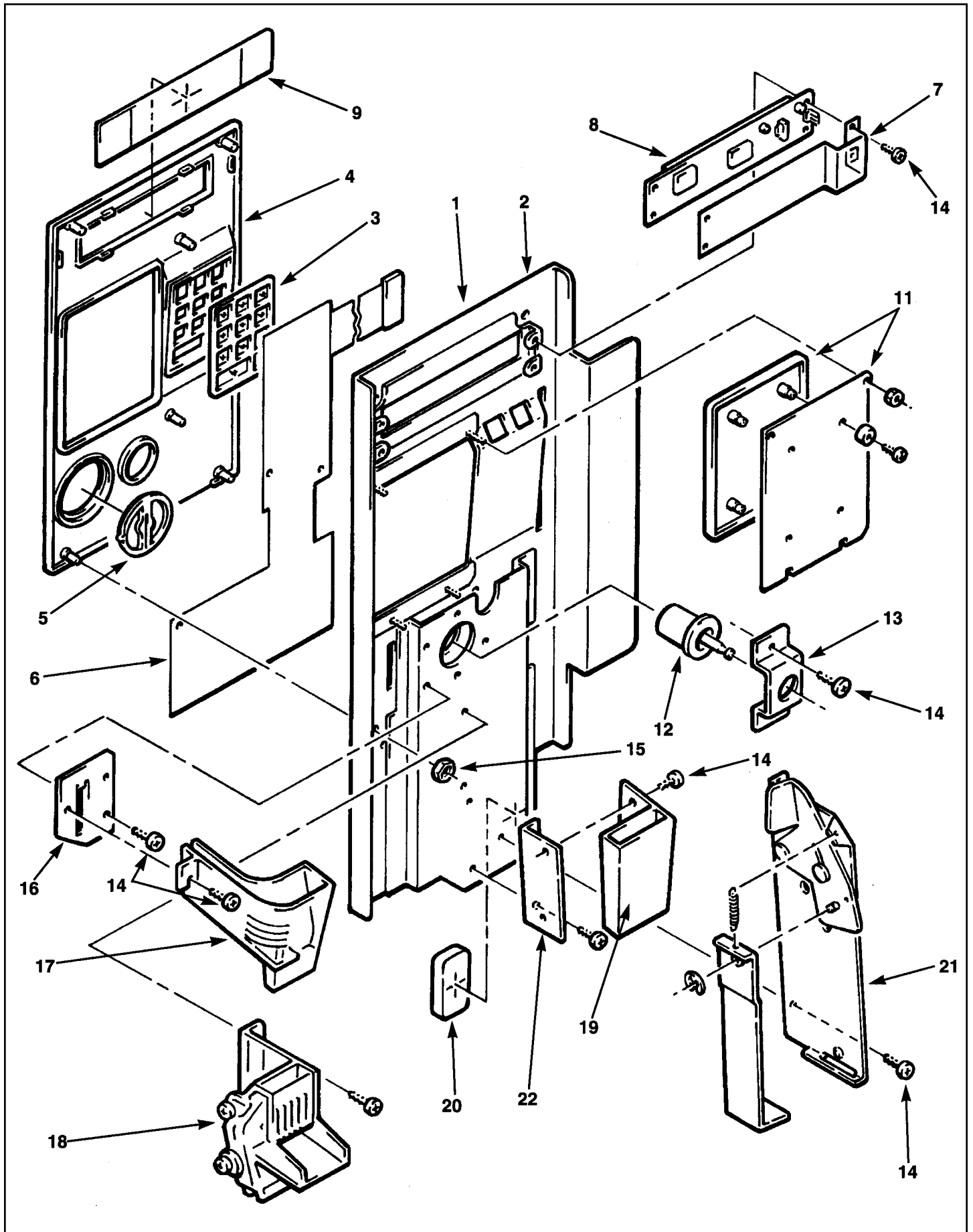
# 310 / control module door





Item No.	Part No.	Description
1	660657	Swing Panel Complete, For.Detailed Parts See Page 5.6.
2	600718	Door Weld Only, Square, With Trim, Specify Color.
	600718-1	Hole in door for 3 payment system.
	600800	Door Weld Only, No Trim (Euro), Specify Color.
	600800-1	Hole in door for 3 payment system, (Euro)
	16000092	Odyssey Door
	16000092-01	Odyssey Door with 3 Payment System
	16000092-02	Odyssey Door with Pos
3	400112	Spring, Latch Bar.
4	600741	Lock Bar.
5	460041	Door Edge Foam Tape.
6	276-8R6	8-32 X 3/8 Screw, Pan Head, Self Tap.
7	118-10-12	Carriage Bolt #10-32.
8	404-8	8-32 Hex Nut.
9	420146	T Handle Lock 1/4 Turn With Nut.
	420146-1	T Handle Lock 1/4 Turn With Nut, Odyssey
	420071	Ace Lock Wt2 Keys, Specify Key Number
10	600739	Lock Arm Assembly.
11	660581	Coin Cup Assembly, Front, Black.
	660581-1	Coin Cup Assembly, Front, Gray.
	660581-2	Coin Cup Assembly, Odyssey
12	440413	Coin Cup.
13	305-7R8	Plastic Screw.
14	420144	Cup Washer.
15	420010-17	Washer.
16	600714	Cash Box Housing.
17	600179 1	Cash Box.
18	210-8R6	Cash Box Mounting Screw.
19	440414	Cash Box Chute.
20	440411	Bezel, Coin Cup, Black.
	440411-1	Bezel, Coin Cup, Grey.
	440411-2	Coin Cup Bezel Odyssey
21	440412	Coin Return Door.
22	300212	Pin, Pivot.
23	400108	Spring, Coin Cup.

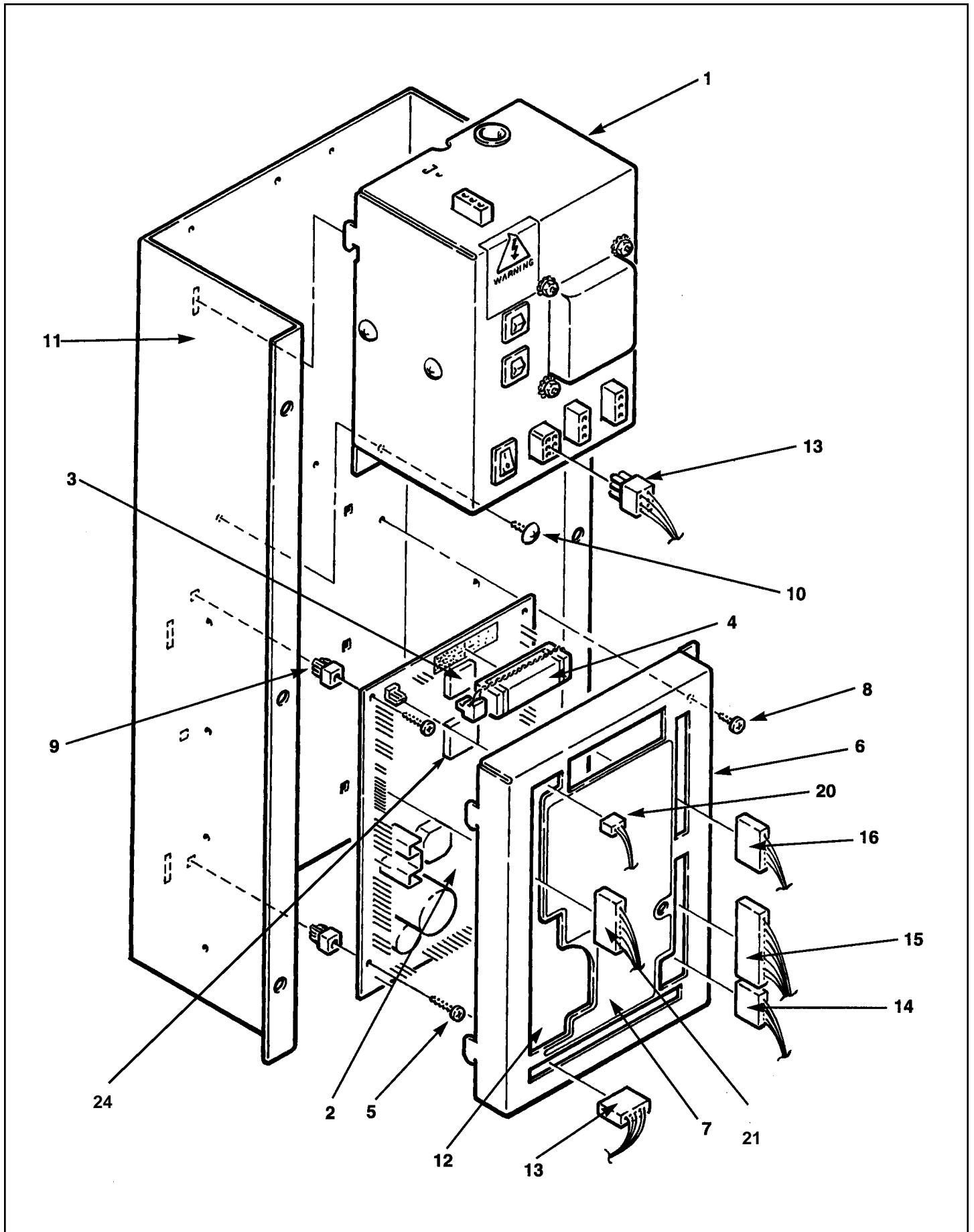
Item No.	Part No.	Description



Item No.	Part No.	Description
1	660657	Swing Panel Assembly Complete - Black.
	660657-1	Swing Panel Assembly Complete - Lt Gray.
	660657-2	Swing Panel Assembly Complete - Dark Gray.
2	600791	Swing Panel Weldment.
3	14400015	Selection Buttons Braille - Dark Gray.
	14400015-01	Selection Buttons Braille - Lt Gray.
4	440442	Selector Bezel - Black.
	440442-1	Selector Bezel - Lt Gray.
	440442-2	Selector Bezel - Dark Gray.
5	440445	Coin Insert - Dark Gray, ( USA, El Salvador, Ethiopia, Tahiti).
	440445 1	Coin Insert - Dark Gray, (Chile, Brazil, France, Germany, Taiwan).
	440445-2	Coin Insert - Dark Gray, (Belgium, Spain, Argentina, Canada).
	440445-3	Coin Insert - Dark Gray. ( UK, Turkey, Panama, Columbia, China, Peru, Sweden, South Africa, Saudi Arabia).
	440445-4	Coin Insert - Dark Gray. ( Australia, New Zealand, Italy, Lebanon, Mexico, Holland, Israel, Malaysia, Tunisia, Singapore, Oman, Uruguay, Denmark, Philippines, United Arab Emirate).
	440445-5	Coin Insert - Lt Gray, ( USA, El Salvador, Ethiopia, Tahiti).Odyssey
	440445-6	Coin Insert - Lt Gray, (Chile, Brazil, France, Germany, Taiwan).
	440445-7	Coin Insert - Lt Gray, (Belgium, Spain, Argentina, Canada).
	440445-8	Coin Insert - Lt Gray, ( UK, Turkey, Panama, Columbia, China, Peru, Sweden, South Africa, Saudi Arabia).
	440445-9	Coin Insert - Lt Gray, ( Australia, New Zealand, Italy, Lebanon, Mexico, Holland Israel, Malaysia, Tunisia, Singapore, Oman, Uruguay, Denmark, Philippines, United Arab Emirate).
6	360253	Selector Switch (MasterMenu Keypad).
	17400008	Braille Decal, selector switch
7	360256	Display Board Insulator.
8	360244	Display Board.
9	440310	Display Lens.
	680629	Harness, Display to LENS, Not Shown.
10	200-6R6	#6 X 3/8 Pan Head Screw.
11	660580	Validator Blocking Plate. Black.
	660580-1	Validator Blocking Plate, Lt Grey.
	660580-2	Validator Blocking Plate. Dark Grey.

Item No.	Part No.	Description
12	440289	Coin Return Buttons - Dark Gray.
	440289-2	Coin Return Buttons - Milled, Card Only
	440289-3	Coin Return Buttons - Black.
13	201660	Coin Return Bracket.
14	286-8R6	8-32 X 3/8 Pn/Nibs Head Screw.
15	18443	Pal Nut, 1/4 Self Threading.
16	201712	Coin Chute Bracket.
17	440311	Coin Chute.
18	660488	Coin Chute Assembly, Water Diverter.
19A	660380	Coin Chute Extension Assembly Includes Item 22
19B	440452	Coin Chute Extension Only
20	420400	Swing Panel Magnet.
21	660582	Coin Return Assembly.
22A	660380	Coin Chute Extension Assembly Includes Item 19
22B	202790	Coin Chute Extension Bracket Only
23	460732	Decal, API Logo, Not Shown.

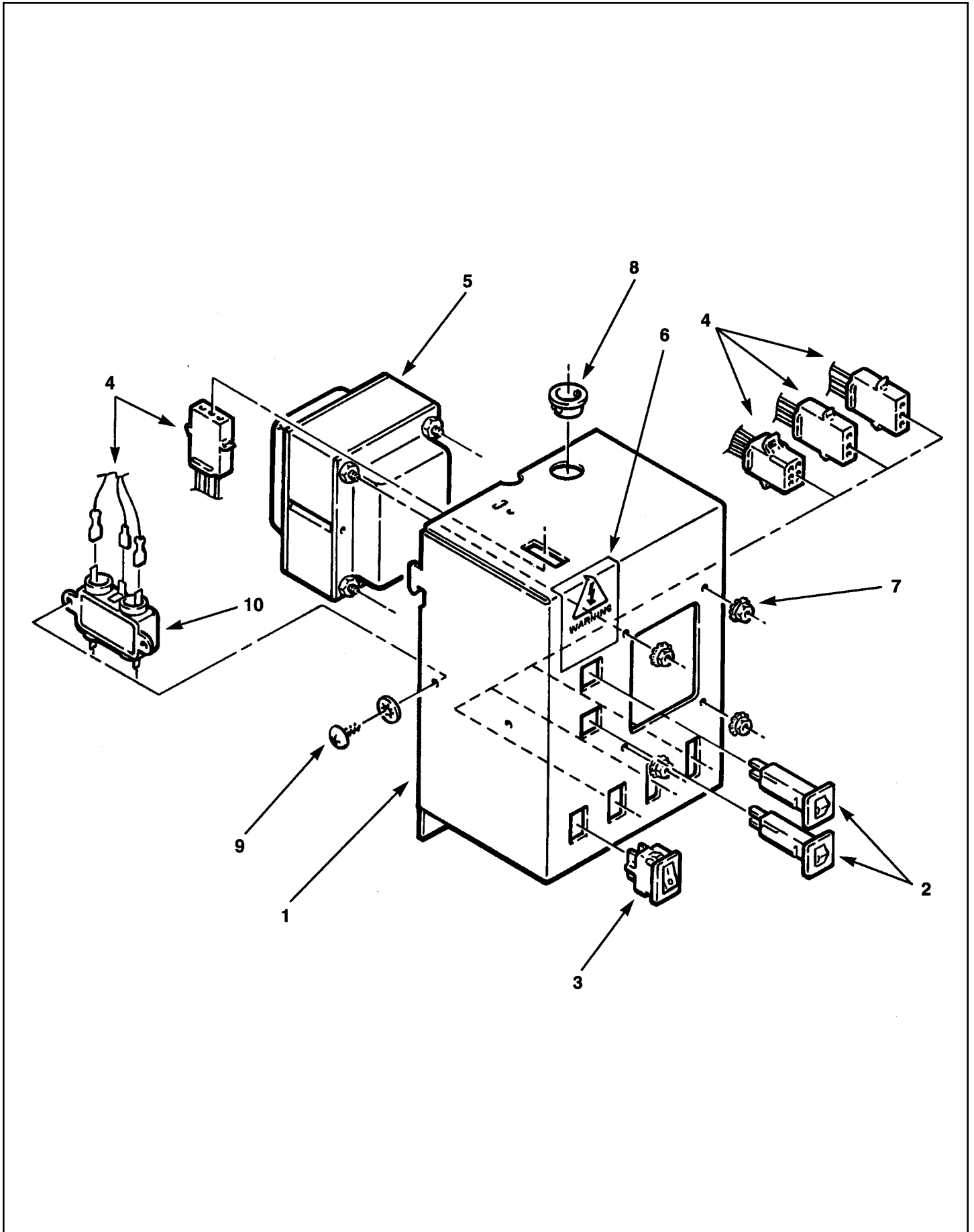
# 310 / board and power box assembly



Item No.	Part No.	Description
1	660658	Power Box Complete, 117 V, See Page 9 For Detailed Parts Breakdown.
	<b>660668</b>	<b>Power Box Complete, 230 V, See Page 5.10 For Detailed Parts Breakdown.</b>
2	360274	Logic Board 310/120.
	<b>360274</b>	<b>Logic Board Export</b>
3	360266	Flash Memory Chip.
4	360308	Battery, 3.6 V Lithium, W/Harness.
5	218-8R12	Logic Board Mounting Screw.
6	202774	Logic Board Cover.
7	460734	Decal, Logic Board Cover.
8	276-6R6	Screw, Logic Board Cover.
9	420394	Stand Off, Logic Board.
10	276-676	Screw, Power Box Mounting.
11	202764	Mounting Bracket, Power Box and Logic Board.
24	360272	Microprocessor
		<b><u>310 HARNESSES</u></b>
12	680637	Harness, Pulse Bill Validator.
13	680630	Harness, Power Box to Board.
14	660649	Harness, MDB/Communication.(Used when a 120 Snack is mounted on the right side of a 320)
	16800017	120" MDB Extension Harness
15	680547	Harness, Micromech Coin Changer.
16	680632	Harness, Operate/Service Interlock Switch.
17	16800017	Printer/Dex Harness, Panel Mount
19	<b>680319</b>	<b>Executive Coin Mech Harness, Not Shown.</b>
20	680629	Display Harness
21	680633	Ribbon Cable, Master Menu Extension Harness, Not Shown
22	680641	Mars MDB Validator Harness, 2000 Series. (Not Shown)
23	680642	MDB Extension Harness (Not Shown)
	16800042	Echo "Voice Synthesizer" Harness
	17500004	PC to Chip Harness
	16800013	Board to Chip Harness
	56800022	PC to Logic Board Harness
	17500003	Memory Button with Holder "Chip"

Item No.	Part No.	Description

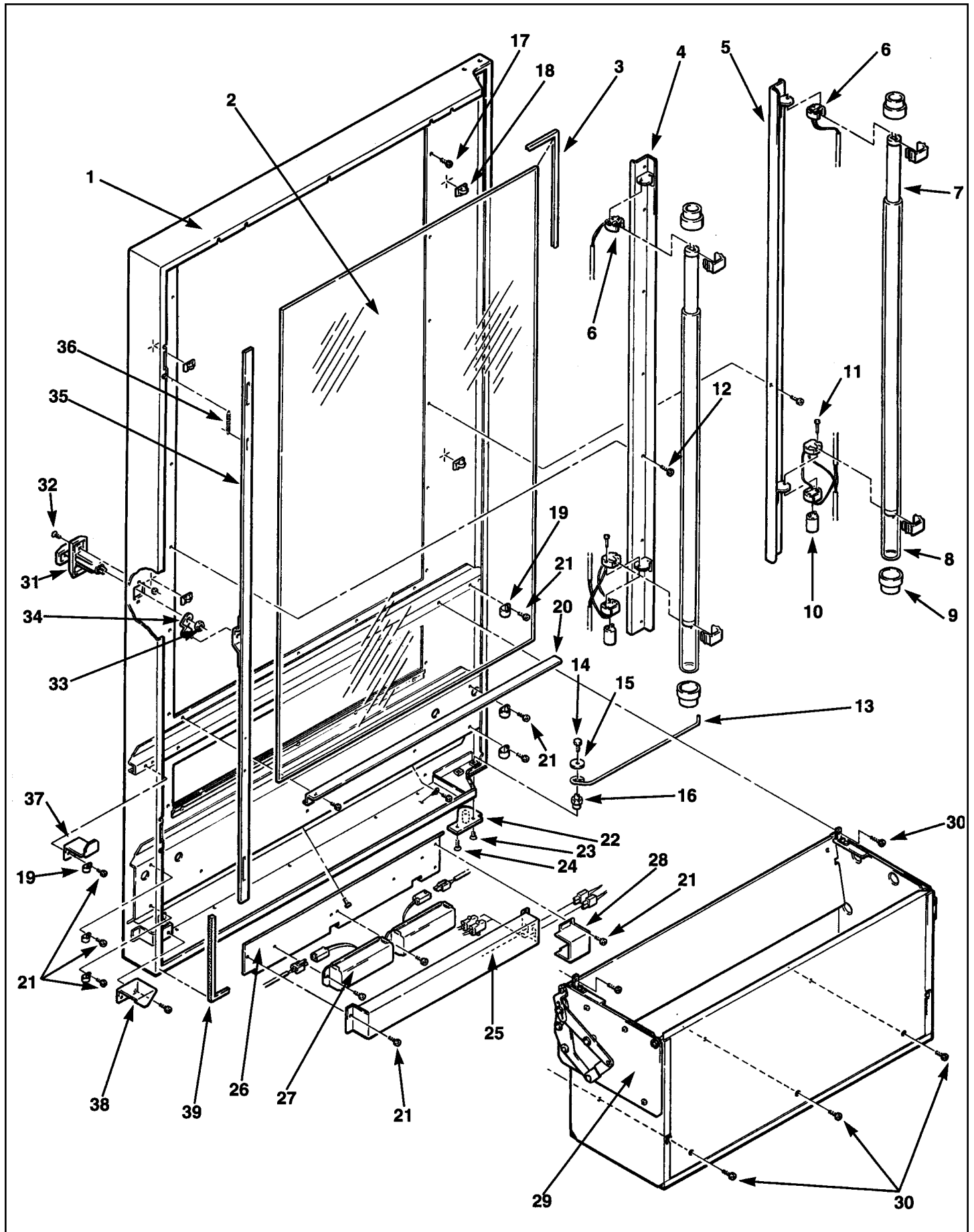
# 310 / power supply box



Item No.	Part No.	Description
1	660658	Junction Box Complete 117V
	<b>660668</b>	<b>Junction Box Complete 230V</b>
	202766	Junction Box, Weld Assembly
2	380241	Circuit Breaker, 3 Amp
3	380243	Switch, Rocker Miniature
4	680627	Junction Box Harness 117V
	<b>680635</b>	<b>Junction Box Harness 230V</b>
5	360252	Transformer 117V
	<b>360257</b>	<b>Transformer 230V</b>
6	460642	Decal, Voltage Disconnect
7	438-8	8-32 Kep Nut
8	420040-2	Snap Bushing
9	216-41R8	1/4 X 1/2 Pan Head Screw
10	380303	RFI Filter 117 / 230 V
	380285	Terminal Block 230V (Not Shown)

Item No.	Part No.	Description

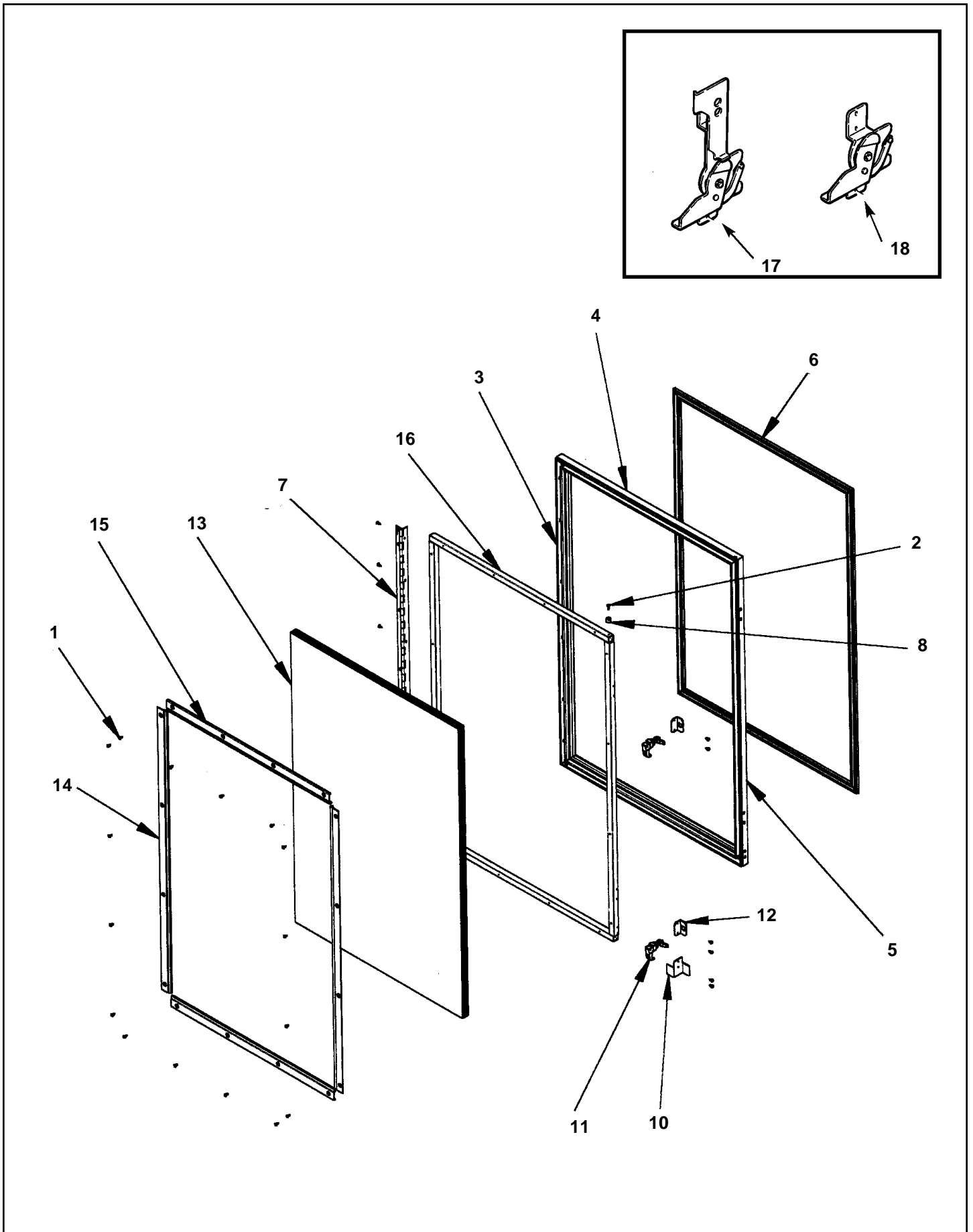
# 320 / inside door





Item No.	Part No.	Description
1	600715	Door Weldment Only, Square.
	600715- 1	Door Weldment Only, Euro.
	16000087	Door Weldment Only, Odyssey
2	750141	Front Window, (44-5/8 X 26-7/8 X 1/8) <b>NOTE: Replacement Glass Must Be Hard Tempered or Lexan Only.</b>
3	460436	Window Edging (Order Per Inches) 143 total.
4	660612-1	Window Clamp And Light Assembly Complete, Lock Side.
	16600121-01	Odyssey Window Clamp and Light Assem. Lock Side
	600750-1	Window Clamp Only, Lock Side.
5	660612	Window Clamp And Light Assembly Complete, Hinge Side.
	16600121	Odyssey Window Clamp and Light Assem., Hinge Side
	600750	Window Clamp Only, Hinge Side.
6	680607	Florescent Lamp Harness
7	380022-6	Florescent Lamp (F30T8/CW)
8	420398	Light Bulb Guard.
9	440423	End Cap, Light Bulb Guard.
10	380023-2	Starter (FS 4)
11	420062- 1	4-36 X 3/4 Screw, Round Head.
12	201-6R11	6-18 X 11/16 Screw, Round Head.
13	400193	Door Stop Rod.
14	114-41-8	1/4-20 X 1/2 Bolt, Hex Head.
15	420010-10	Washer
16	300151	Door Stop Anchor
17	200-6R6	#6 X 3/8 Screw, Round Head.
18	420051	Wire Clamp, Adhesive Back.
19	420035	Cable Clamp, Nylon.
20	202604	Lower Window Clamp.
21	276-8R6	8-32 X 3/8 Nibs Head.
22	640157	Lower Door Hinge Plate Assembly .
23	420003	Flat Head Socket Screw - 3/4 Ig.
24	420003-1	Flat Head Socket Screw - 1/2 Ig.
25	200576	Cover, Ballast Assembly.
26	202578	Mounting Bracket, Ballast.
27	660615	Ballast Assembly Complete, 117 V. Includes items 25, 26 & 27
	<b>660616</b>	<b>Ballast Assembly Complete, 230 V.</b>
	380315	Ballast Only, 117 V.
	<b>380314</b>	<b>Ballast Only, 230 V.</b>
28	200577	Cover, Ballast Plugs.
29	660592	Delivery Bin, See Page 5.16 For Detailed Parts List.
30	276-8R6	Delivery Bin Mounting Screw.
31	420369	T Handle, 1/4 Turn.
32	118-10-8	10-24 X 1/2 Carriage Bolt.
33	404-10	#10-24 Hex Nut.
34	640216	T Handle Lock Arm. <b>Locks See Page 3.</b>
35	600760	Locking Bar.
36	400112	Spring, Lock Bar.

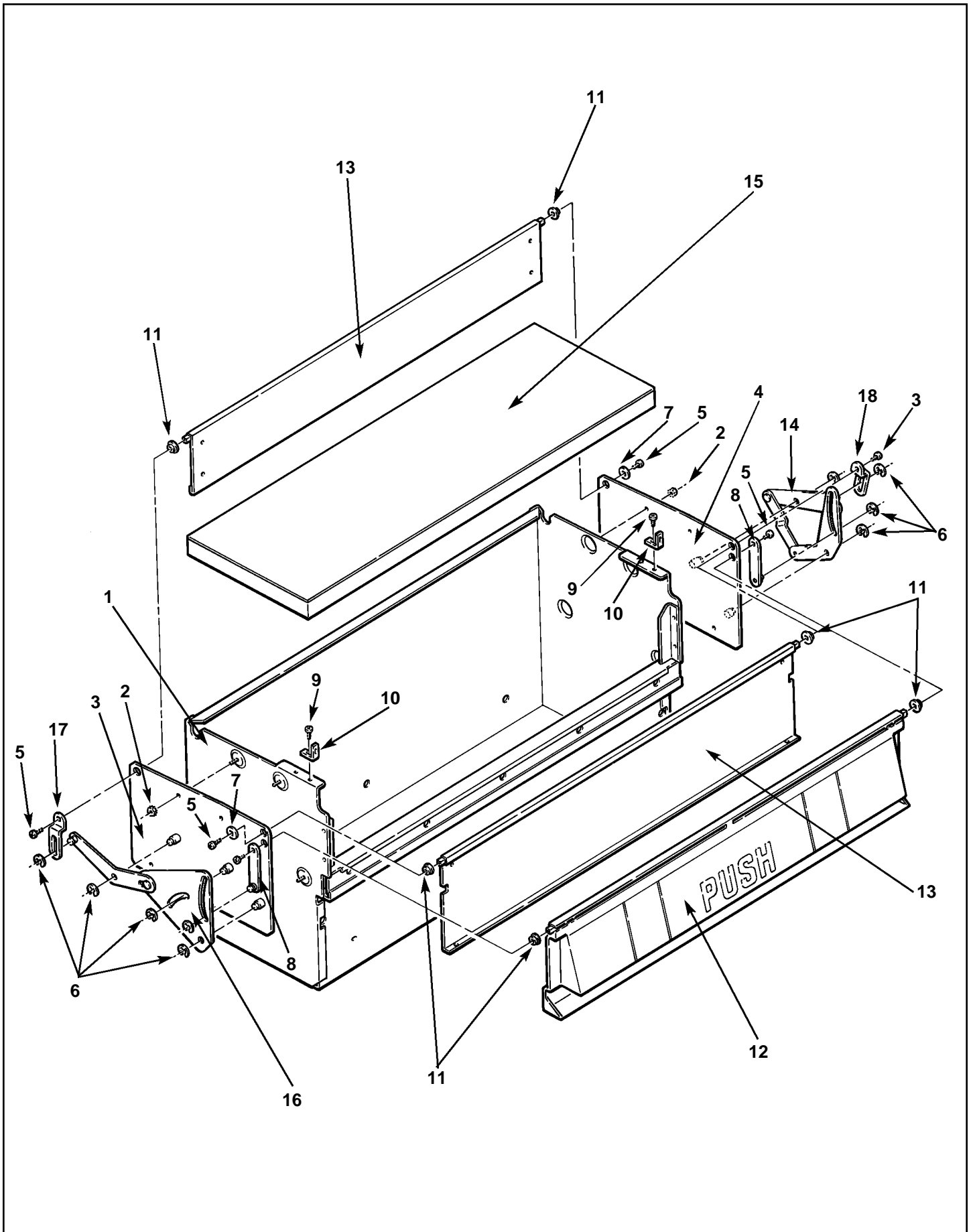
Item No.	Part No.	Description
37	202618	Striker Plate, Logic Level Door Switch.
38	660618	Striker, Power Interlock Switch.
39	460041	1/4 X 1/4 Gasket, Foam.
40	460752	Cling on, Frozen.
41	460751	Cling on, Cool.
42	14400013	Duct for Light Harness (Not Shown)
43	14400014	Duct Cover (Not Shown)
44	17400085	Decal, Select Here with Arrow (Not Shown)



Item No.	Part No.	Description
	17500006	Thermal Window Assy. Complete 117V.
	<b>1750000-01</b>	<b>Thermal Window Assy. Complete 230V.</b>
1	210-8R8	#8 x 1/2 PH TR/Nibs HD ZN & Wax (A)
2	2178R10	8 x 5/8 PH Pan HD Type B ZN & WA
3	440429	Extrusion - Window Retainer
4	440429-1	Extrusion - Window Retainer
5	440429-2	Extrusion - Window Retainer
6	460686	Gasket, Door
7	460703	Hinge - Thermal Window
8	13100004	Rubber Bumper
9	420239-1	Silicone Sealant
10	12000116	Thermal Door Switch Plate
11	13100003	Thermal Window Latch Assy
12	12000145	Thermal Window Latch Bracket
13	440432	Thermal Window With Heater 115V <b>Thermal Window With Heater 230V</b>
14	660617	Window Clamp and Gasket Assy.
15	660617-1	Window Clamp and Gasket Assy.
16	600757	Window Frame Support Weld
17	640219	Window Latch, Top. Old. Use on Machines Below Serial #32099088001
18	640218	Window Latch, Bottom. Old. Use on Machines Below Serial #32099088001

Item No.	Part No.	Description

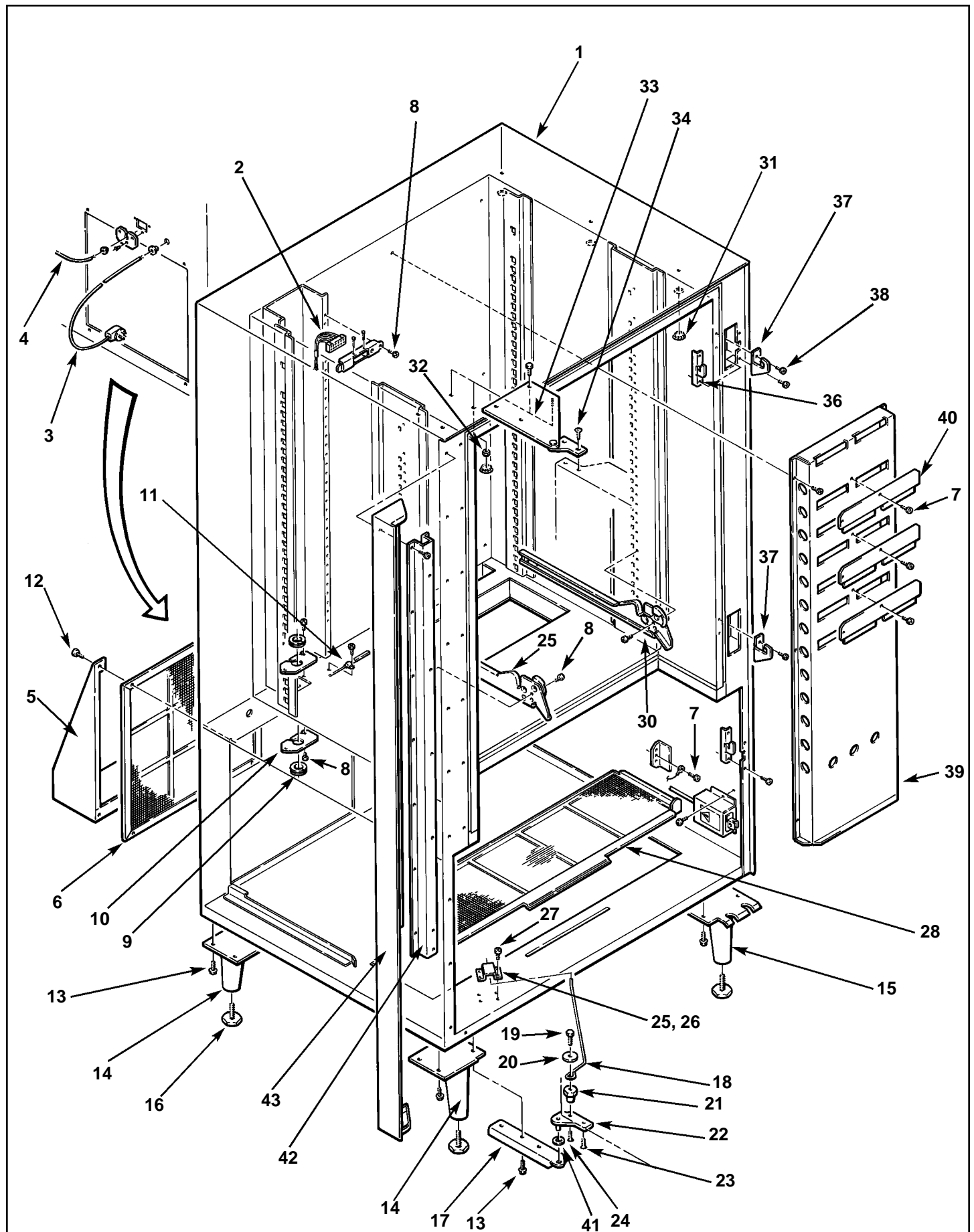
# 320 / delivery bin assembly



Item No.	Part No.	Description
1	660592	Delivery Bin Complete
	660592-2	Odyssey Delivery Bin Complete
	600726	Delivery Bin Weldment.
2	438-8	8-32 Kep Nut
3	17500023	Bin End Plate Assembly, Complete, Hinge Side.
	640206	Bin End Plate, Hinge Side
4	17500023-01	Bin End Plate Assembly, Complete, Lock Side.
	640206-1	Bin End Plate, Lock Side
5	276-8R6	8-32 X 3/8 Nibs Head Screw
6	751 -37	Retaining Ring 3/8
7	420282	Bin Washer
8	640209	Front Door Drive Arm Assembly
9	217-8R10	Screw,
10	200906	Delivery Bin Mounting Bracket
11	440129	Door Bearing
12	440373	Delivery Bin Door, Black.
	440373-2	Delivery Bin Door, Grey.
	440373-12	Delivery Bin Door Odyssey
13	202765	Inner Bin Door
14	640210	Bin Door Drive Cam Assembly, Lock Side
15	420348	Delivery Bin Pad
16	640208	Rear Bin Door Drive Assembly, Hinge Side.
17	202497	Rear Bin Door Drive Arm
18	202501	Inner Door Drive Arm

Item No.	Part No.	Description

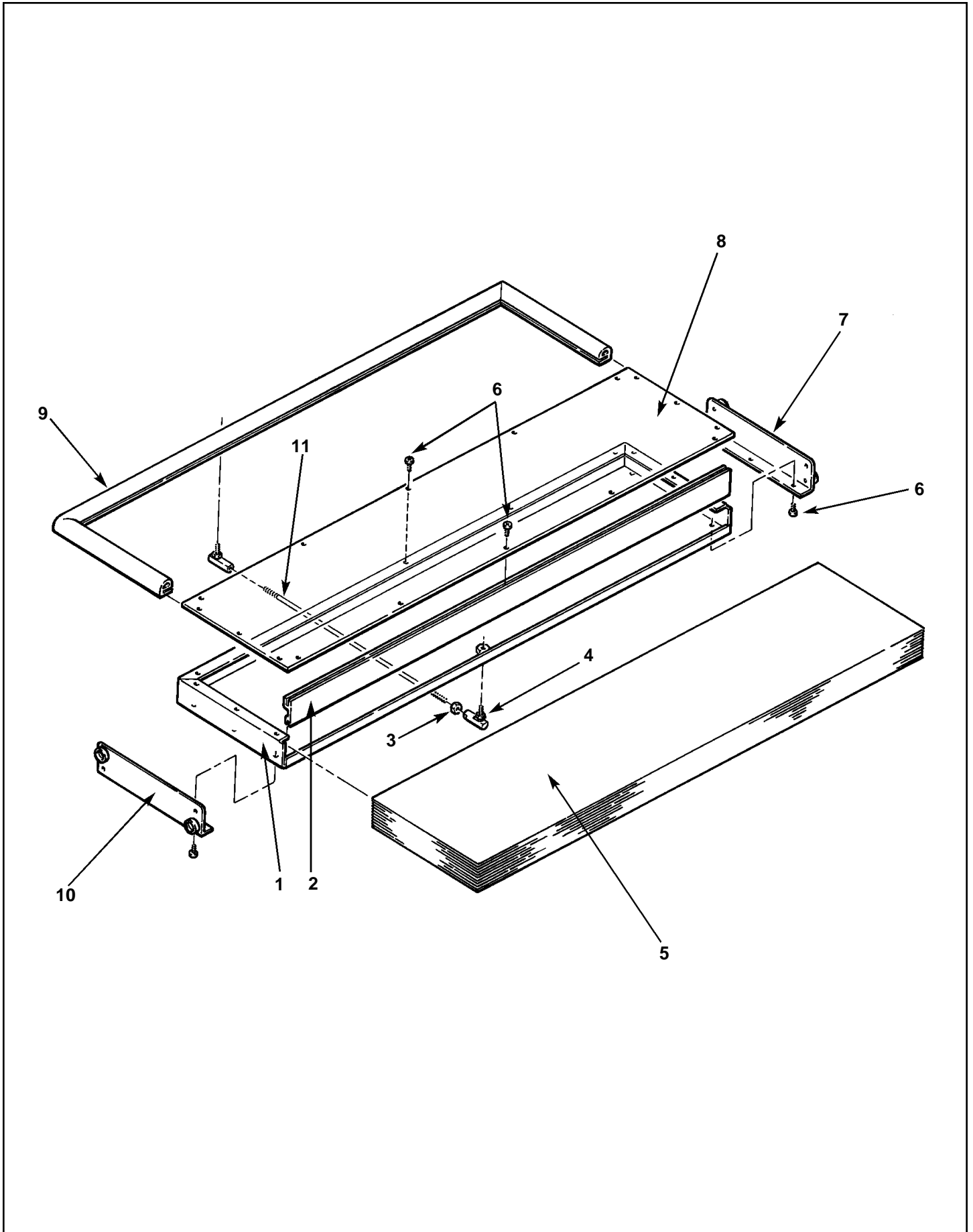
# 320 / inside cabinet



Item No.	Part No.	Description
1	660620	Foamed Cabinet Assembly, Specify Color
2	660654	Cabinet Back Harness.
	202748	Bracket Only.
3	360230	Line Cord, 120V, Domestic.
	680501	Line Cord, 230V, Europe.
	380275	Line Cord, 230V, Australia.
	680544	Line Cord, 230V, Israel.
	680571	Line Cord, 230V, UK.
4	660649	Communications Cable
5	202593	Air Deflector
6	660613	Back Vent Screen Assembly.
7	210-8R8	#8 X 1/2 Screw, Nibs Head.
8	276-8R6	8-32 x 3/8 Screw, Nibs Head.
9	420135-6	3/4 ID X 1 3/8 OD Grommet.
10	202519	Plate, Shelf Harness
11	680604	Temperature Sensing Harness.
12	276-8R8	8-32 x 1/2 Screw, Pan Head.
13	420187	5/16-18 X 3/4, Hex Head Screw.
14	600195	Leg, Specify Color.
15	600197	Leg, Front, Lock Side, Specify Color.
16	300103	Leg Leveler.
17	202606	Lower Hinge Plate.
18	400193	Door Stop Rod.
19	114-41-8	1/4-20 X 1/2 Bolt, Hex Head.
20	420010-10	Washer
21	300151	Door Stop Anchor
22	640157	Lower Door Hinge Plate Assembly .
23	420003	Flat Head Socket Screw - 3/4 Ig.
24	420003-1	Flat Head Socket Screw - 1/2 Ig
25	440204	Door Stop Friction Pad.
26	201042	Door Stop Plate.
27	277-IOR16	#10-32 X 1. Screw, Pan Head.
28	600748	Vent Screen.
	460704	Clips, Vent Screen
29	640177-2	Shelf Track Assembly, Left.
30	640177-3	Shelf Track Assembly, Right.
31	420349	Insulation Plug, 1 " .
32	438-41	1/4 -20 Keps Nut.
33	640217	Top Hinge Assembly.
34	114-51-10	5/16 - 18 X 5/8 Screw, Hex Head.
35	420003-1	1/4 - 20 X 1/2 Screw, Flat Head.
36	600433	Door Lock Catch.
37A	202627	Inner Door Lock Catch Old Style Latch
37B	201424-1	Inner Door Lock Catch New Style Latch
38	100-41R8	1/4 - 20 X 1/2 Screw, Round Head.
39	202514	Cold Air Duct, Cabinet.
40	202515	Cover, Cold Air Duct.
41	420010-18	Washer (11/4)
42	202607	Window Hinge Bracket
43	600759	Cabinet Door Filler
44	660146-15	Kick Plate (Not Shown)

Item No.	Part No.	Description

# 320 / baffle door assembly



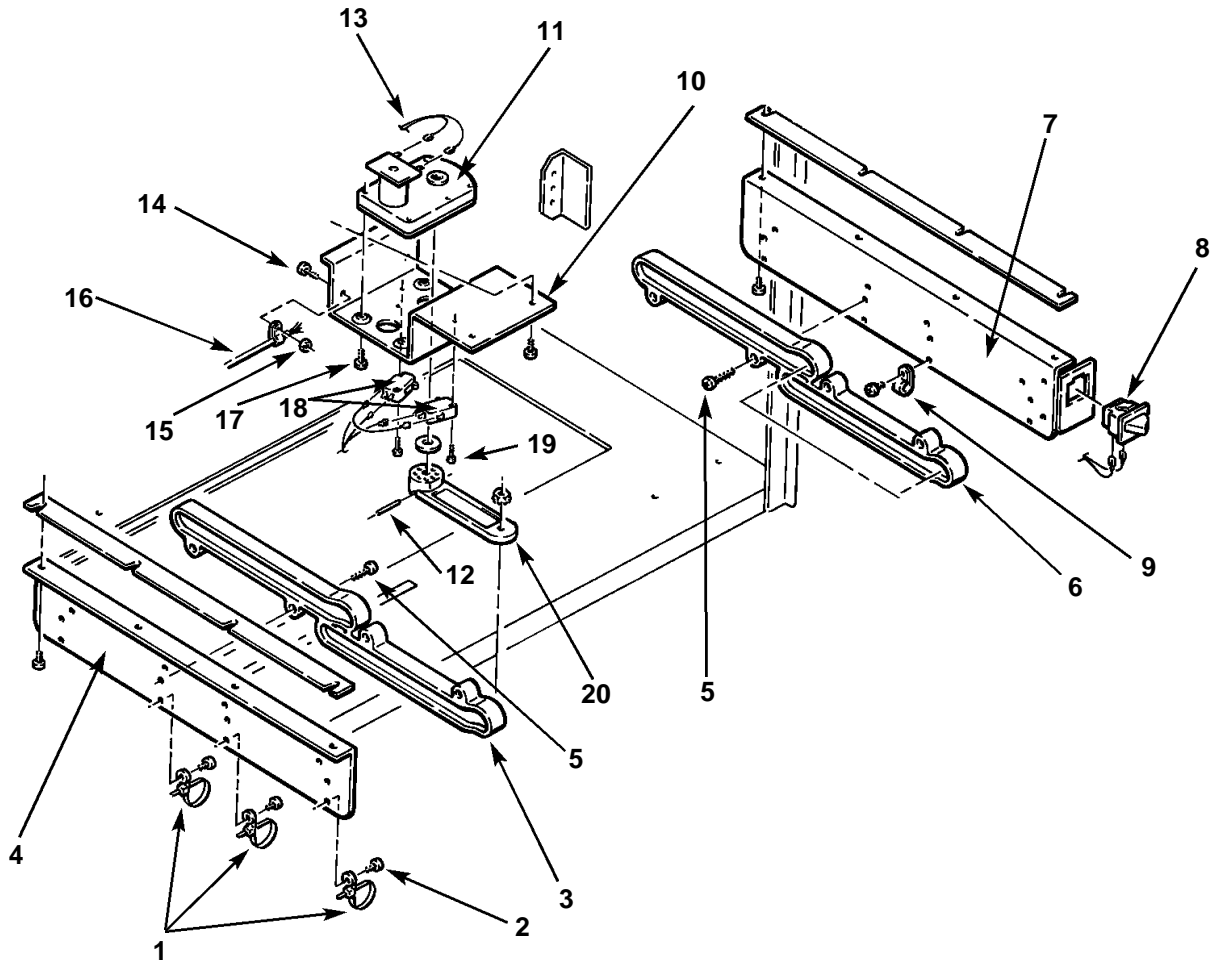


## 320 / baffle door assembly

Item No.	Part No.	Description
1	660597	Baffle Door Assembly Complete.
	600732	Baffle Door Weldment.
2	440427	Baffle Door Front.
3		Nut, Order Item 11.
4		Link Arm, Order Item 11.
5	420350	Sliding Door Insulation.
6	210-8R6	#8 X 3/8 Screw, Truss Head.
7	640214-1	Roller Mounting Bracket Assembly, Lock Side.
8	440426	Plastic Top, Baffle Door.
9	460759	Gasket, Baffle Door.
10	640214	Roller Mounting Bracket Assembly, Hinge Side.
11	420352	Adjustable Threaded Rod, Includes Items 3 and 4.

Item No.	Part No.	Description

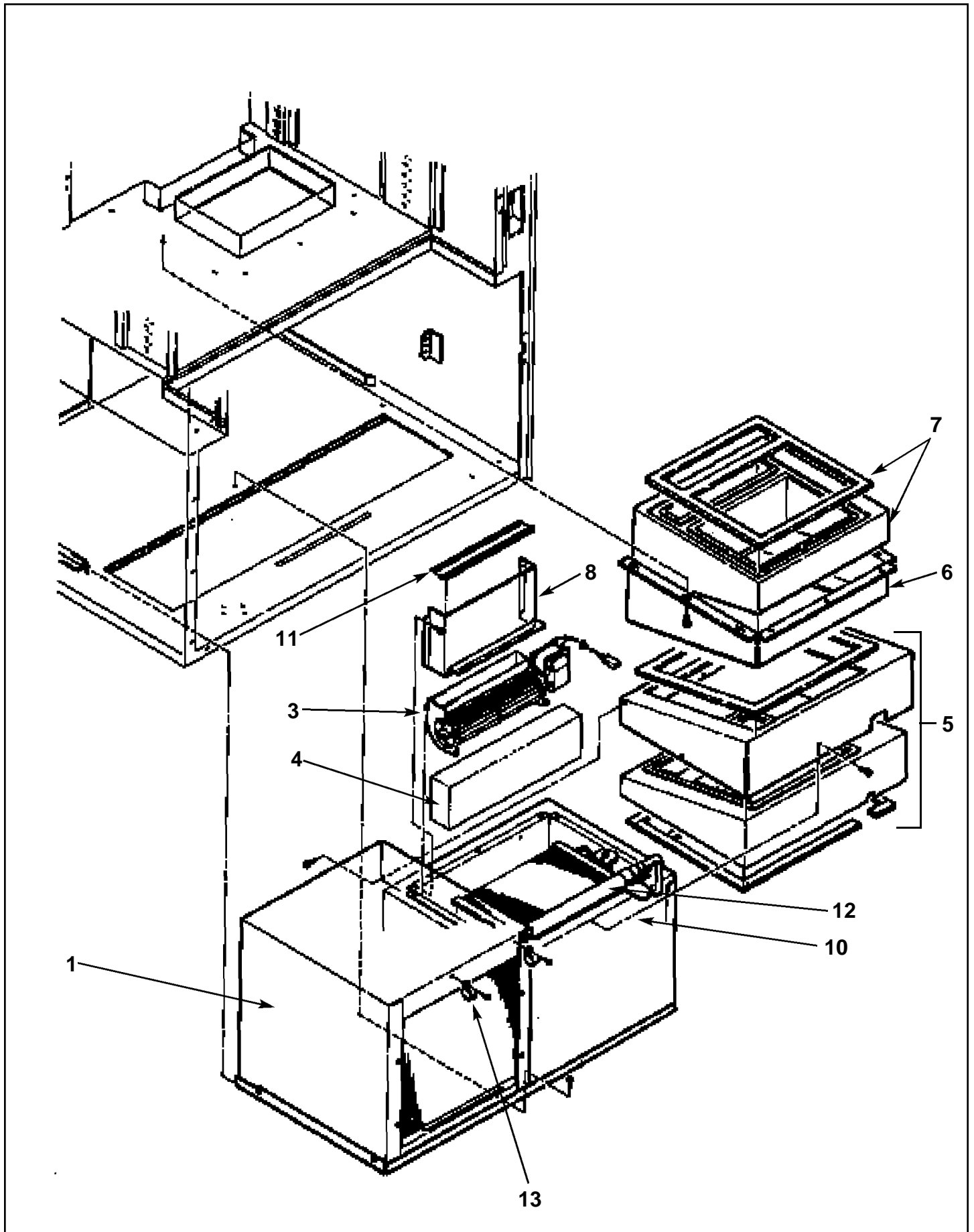
# 320 / baffle motor assembly



## 320 / baffle motor assembly

Item No.	Part No.	Description
1	380078	Cable Tie
2	276-8R6	8-32 X 3/8 Screw, Pan Head.
3	660596	Track Support Assembly Complete, Hinge Side. Includes Item 4.
	440424	Track Only, Hinge Side, Baffle Door.
4	202520	Track Mounting Bracket, Hinge Side.
5	276-8R12	8-23 X 3/4 Screw, Pan Head.
6	660595	Track Support Assembly Complete, Lock Side. Includes Item 7.
	440424	Track Only, Lock Side, Baffle Door.
7	600731	Track Mounting Bracket, Lock Side .
8	660728	Interlock Switch/Harness, Logic Level.
	380258	Switch Only
	680657	Harness Only
9	420035-6	Nylon Cable Tie
10	660655	Motor Assembly Complete.
	202745	Motor Support Bracket.
11	360223	Motor, Baffle Door.
12	13100002	Roll Pin, .094 X 1".
13	680624	Harness, Baffle Door Motor.
	420035-6	Nylon Cable Clamp.
14	276-8R8	8-32 X 1/2 Pan Head Screw.
15	404-8	8-32 Hex Nut.
17	276-8R8	8-32 X 1/2 Screw, Pan Head.
18	380306	Switch, Baffle Door Motor.
19	100-4-8	4-40 X 1/2 Round Head Screw.
20	440428	Cam Arm, Baffle Door.

Item No.	Part No.	Description

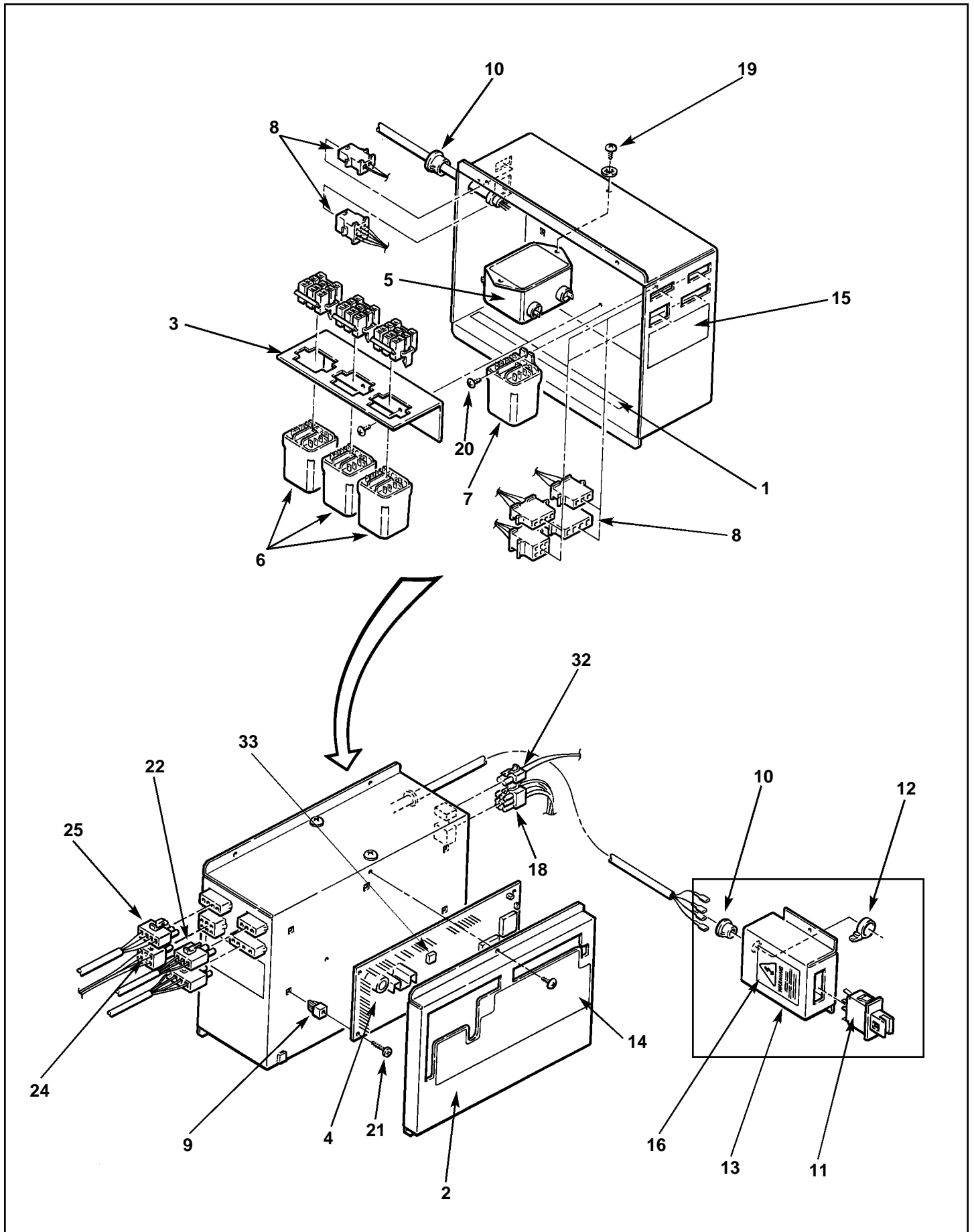


## 320 / refrigeration assembly and components

Item No.	Part No.	Description
1	16600089 16700008	Cooler Assembly Complete, 117 V Compressor Only Complete with Start Components
	16700008-01	Compressor Only
	<b>16600089-01</b> <b>16700011</b>	<b>Cooler Assembly Complete, 230 V</b> <b>Compressor Only, Complete 230 V with Start Components</b>
	16700011-01	Compressor Only 230V
3	16400031	Evaporator Fan Assembly Complete, 117V.
	<b>16400031-01</b>	<b>Evaporator Fan Assembly Complete, 230V.</b>
4	460694	Evaporator Air Block.
5	660610	Evaporator Housing, Insulation and Gasket Assembly.
6	202595	Return Air Duct.
7	660611	Upper Insulation and Gasket Assembly.
8	16600238	Air Duct Assembly Complete, Includes Item 11
8A	202729	Air Duct - Evaporator Housing
8B	13100018	Nylon Clamp 1/8" Diameter
8C	13100023	Stainless Steel Rod 1/8 x 9.25
9	360229	Defrost Heater, 117 V, Not Shown.
	<b>360229-1</b>	<b>Defrost Heater, 220 V, Not Shown.</b>
10	680654	Defrost Switch / Evaporator Fan Harness, Includes Bi-metal.
11	202728	Air Duct Damper. INSULATION, ALL NOT SHOWN.
12	420392	1 1/8 Insulation, Order by the Inch.
	420155	3/8 Insulation, Order by the Inch.
	420356	1/2 Insulation, Order by the Inch.
13	420436	J Clamp
14	16700009	Condenser Fan Motor 120V (Not Shown)
	16700009-01	Condenser Fan Motor 230V (Not Shown)
15	16800053	Condenser/Compressor Harness (Power)
16	16600176	Drain Trap (Not Shown)
		<b><u>ELECTRICAL COMPONENTS</u></b>
	16700008-07	Overload. Compressor 117V, Not Shown.
	16700008-11	Start Capacitor, 117V, Not Shown
	16700011-03	<b>Start Capacitor, 230V, Not Shown</b>
	16700008-09	Start Relay. Compressor 117V, Not Shown
	16700011-02	<b>Start Relay. Compressor 230V, Not Shown</b>
	16700008-22	Compressor Harness 320 Domestic, Not Shown
	16700011-05	Compressor Harness Export, Not Shown

Item No.	Part No.	Description

# 320 / junction box - mounted on refrigeration unit

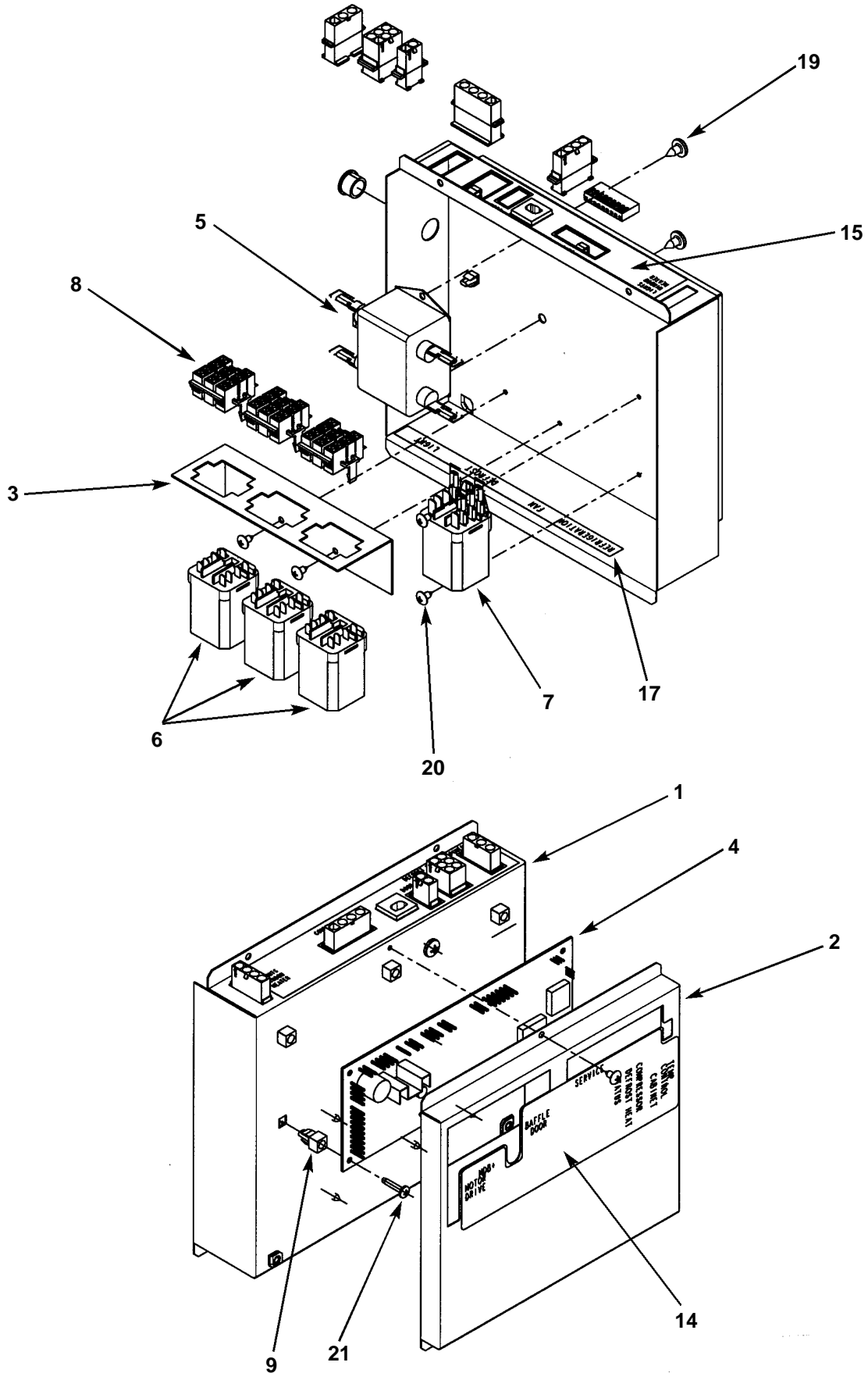


## 320 / junction box - mounted on refrigeration unit

Item No.	Part No.	Description	Item No.	Part No.	Description
1	660671 750206 202777	Junction Box Complete with Food Driver Board. Junction Box Complete without Food Driver Board. Junction Box Weldment.  See Page 5.28 for Sidewall Mounted Junction Box.	33	360273	FDB, Flash Memory (Indicate Version Number)
2	202779	Cover - Food Driver Board, No Decal.	34	380263	Tool, Interlock Switch (Dogbone) (Not Shown).
3	202778	Bracket, Relays.	35	380321	Clip for Dogbone (Not Shown).
4	360250	Food Driver Board.	36	460772	Plastic Cover Relay Box (Not Shown).
5	380304	RFI Line Filter, 20 Amp.			
6	16700012	Relay, 24VDC, 10A (Fan, Defrost, Light).			
7	380322	Relay, 24VDC, 25A (Compressor).			
8	680636	Junction Box Harness.			
9	420394	Board Standoff.			
10	420318-4	Bushing 5/8".			
11	380262	Door Switch.			
12	380078	Cable Tie.			
13	202843	Switch Box.			
14	460729	Board Cover Decal.			
15	460744	Decal, Plug Orientation, Junction Box.			
16	460642	Decal, Voltage Disconnect Power.			
17	460746	Decal, Relay Orientation, Junction Box.			
18	680602	Power Harness, Food Dnver Board to Relay Box.			
19	21641R8	Nibs Head Screw 1/4 X 20.			
20	210-8R6	#8 X 3/8 Pan Head Screw.			
21	218-8R12	#8 X 3/4 Hi-Lo Pan Head Screw.			
		<b><u>HARNESSES</u></b>			
22	360230 <b>680501</b> <b>380275</b> <b>680544</b> <b>680571</b>	Line Cord, 120V, Domestic. <b>Line Cord, 230V, Europe.</b> <b>Line Cord, 230V, Australia.</b> <b>line Cord, 230V, Israel</b> <b>Line Cord, 230V, UK</b>			
24	680654	Defrost /Evaperator Fan Harness.			
25	680606	Light/Window Heater Harness, Relay Box.			
26	660654	Cabinet Back Harness, Not Shown.			
27	660649	Communications/Power Cable, Not Shown.			
28	680604	Temperature Sensor, Not Shown.			
29	680655	Baffle Door Harness, Not Shown.			
32	660728	Interlock Switch and Harness, Logic Level.			

\* IF YOUR JUNCTION BOX HAS THE MOLEX PLUGS ACROSS THE TOP AND IS ATTACHED TO THE SIDEWALL SEE PAGE 5.28

# 320 / junction box - side wall mount





## 320 / junction box - side wall mount

Item No.	Part No.	Description
1	660722	Junction Box Complete with Food Driver Board.
	660723	Junction Box Complete without Food Driver Board.
	<b>660724</b>	<b>230 Vac Junction Box Complete w/Food Driver Board Export</b>
	<b>660725</b>	<b>230 Vac Junction Box without Driver Board</b>
	202895	Junction Box Weldment. See Page 5.26 for Junction Box Mounted on Refrigeration Unit.
2	202896	Cover - Food Driver Board, No Decal.
3	202898	Bracket, Relays.
4	360250	Food Driver Board.
5	380304	RFI Line Filter, 20 Amp.
6	16700012	Relay, 24VDC, 10A (Fan, Defrost, Light).
7	380322	Relay, 24VDC, 25A (Compressor).
8	680652	Junction Box Harness.
	<b>680653</b>	<b>230V J Box Harness.</b>
9	420394	Board Standoff
14	460729	Board Cover Decal.
15	460642	Decal, Plug Orientation, Junction Box.
17	460746	Decal, Relay Orientation, Junction Box.
19	21641R8	Nibs Head Screw 1/4 X 20.
20	210-8R6	#8 X 3/8 Pan Head Screw.
21	218-8R12	#8 X 3/4 Hi-Lo Pan Head Screw.
		<b><u>HARNESSES</u></b>
22	360230	Line Cord, 120V, Domestic, Not Shown.
	<b>680501</b>	<b>Line Cord, 230V, Europe.</b>
	<b>380275</b>	<b>Line Cord, 230V, Australia</b>
	<b>680544</b>	<b>Lhe Cord, 230V, Israel.</b>
	<b>680571</b>	<b>Line Cord, 230V, UK.</b>
24	680654	Defrost /Evaporator Fan Harness, Not Shown
25	680606	Light/Window Heater Harness, Relay Box, Not Shown.
26	660654	Cabinet Back Harness, Not Shown.
27	660649	Communications/Power Cable, Not Shown.
28	680604	Temperature Sensor, Not Shown.
29	680655	Baffle Door Harness, Not Shown.
32	660728	Interlock Switch and Harness, Logic Level, Not Shown.
33	16800053	Condenser/Compressor Harness (Not Shown)

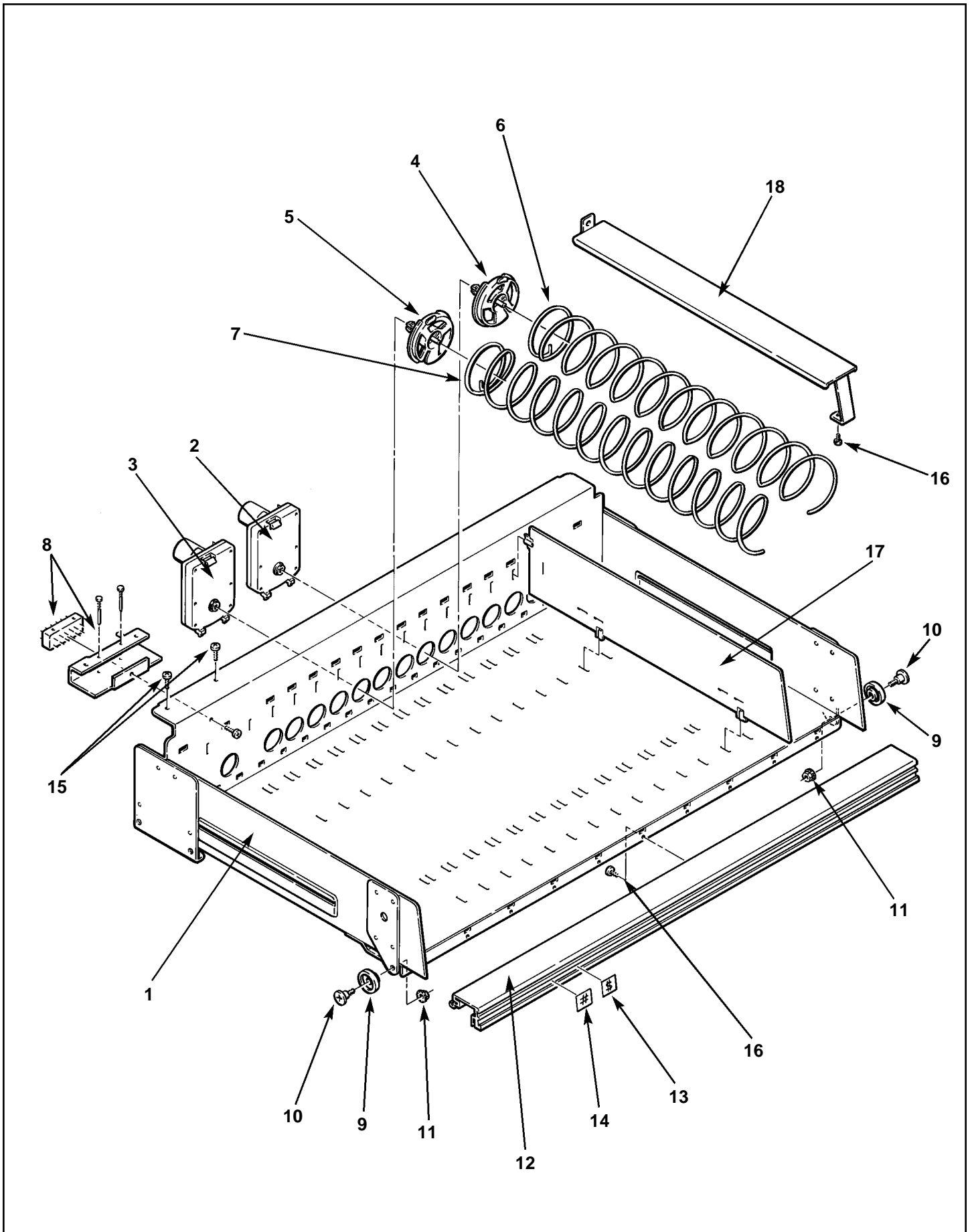
Item No.	Part No.	Description

\* IF YOUR JUNCTION BOX HAS THE MOLEX PLUGS ON THE SIDES OF THE BOX AND IS ATTACHED TO THE REFRIGERATION UNIT, SEE PAGE 5.26.

\*\* NA INDICATES THAT THE PART NUMBERS WERE NOT AVAILABLE AT THE TIME THIS MANUAL WAS PRINTED, CALL API TECHNICAL SERVICES FOR ASSISTANCE.

\* FIRST MACHINE WITH SIDE MOUNT RELAY BOX SEL. # 320002491

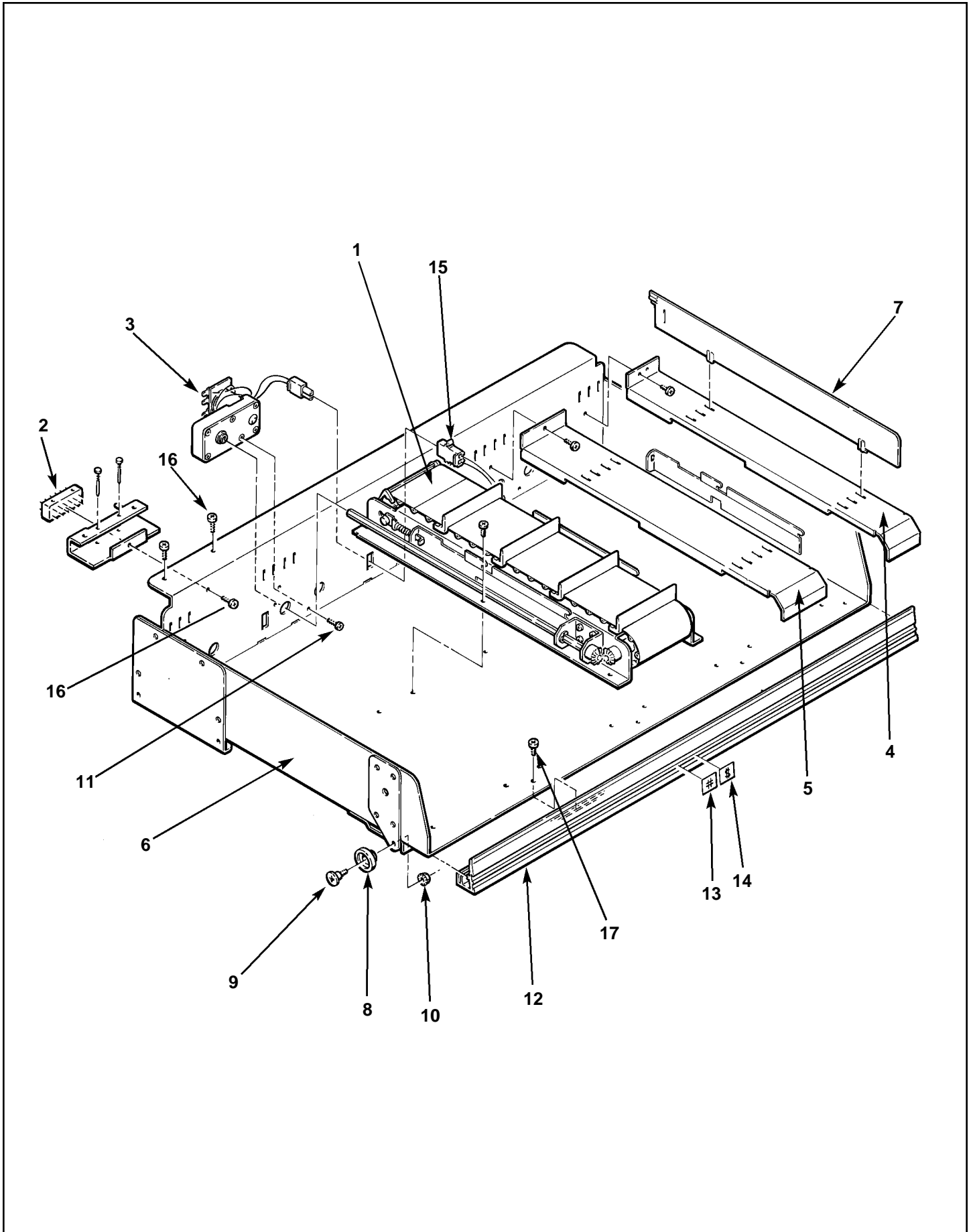
# 320 / 8 select spiral shelf



Item No.	Part No.	Description
1	660669	Shelf Assembly Complete, Less Spirals
	660669-1	8 Select, 8 Motors
	660669-2	6 Select, 8 Motors
	660669-3	5 Select, 7 Motors
	660669-4	4 Select, 6 Motors
2	660669-5	3 Select, 6 Motors
	660669-5	2 Select, 4 Motors
	600786	Shelf Weldment.
2	360275	CW Motor, Right Hand.
3	360276	CCW Motor, Left Hand.
4	440405	Spiral Retainer White, Right Hand.
5	440406	Spiral Retainer Gray, Left Hand.
6	400185-1	3 Count Spiral, Right Hand, Chrome. 3 1/2" (88.9 mm)
	400183-1	4 Count Spiral, Right Hand, Chrome. 3" (76.2 mm)
	400173-1	6 Count Spiral, Right Hand, Chrome. 2 1/6"(54.86 mm)
	400116-1	8 Count Spiral, Right Hand, Chrome. 1 9/16"(39.6 mm)
	400117 1	10 Count Spiral, Right Hand, Chrome. 1 1/4"(31.75 mm)
7	400186-1	3 Count Spiral, Left Hand, Chrome.
	400184-1	4 Count Spiral, Left Hand, Chrome.
	400174- 1	6 Count Spiral, Left Hand, Chrome.
	400175-1	8 Count Spiral, Left Hand, Chrome.
	400176-1	10 Count Spiral, Left Hand, Chrome.
8	660653	Shelf Harness Assembly.
	680625	Shelf Harness, Less Bracket.
	600790	Bracket Only.
9	440362	Shelf Roller.
10	300203	ShelfRoller Screw.
11	437-41	1/4 - 28 Kep Nut.
12	340067	Trim, Shelf Front.
13	460684	Price Tabs, assorted.
	14600028	Price Tabs, Italy. Assorted
14	460683	Selection Tabs.
15	276-8R6	8-18X3/8 Pan Head Screw.
16	216-8R6	8-32X3/8 Nibs Head Screw..
17	202759	Shelf Divider.
18	660686	Product Rail.
19	202506	Riser, 1.04" Wide, (Not Shown).
	202506-1	Riser, 2.39" Wide, (Not Shown).
	202506-2	Riser, 3.7" Wide, (Not Shown).
	202506-3	Riser, 5.069" Wide, (Not Shown).
20	440215	Product Pusher, Left Hand, (Not Shown).
21	440141-1	Product Pusher, Right Hand, (Not Shown).
22	660685	Storage Shelf (Not Shown).
	750204	Storage Shelf Add On Kit, (Not Shown).
23	440460	Motor Cover, (Not Shown).

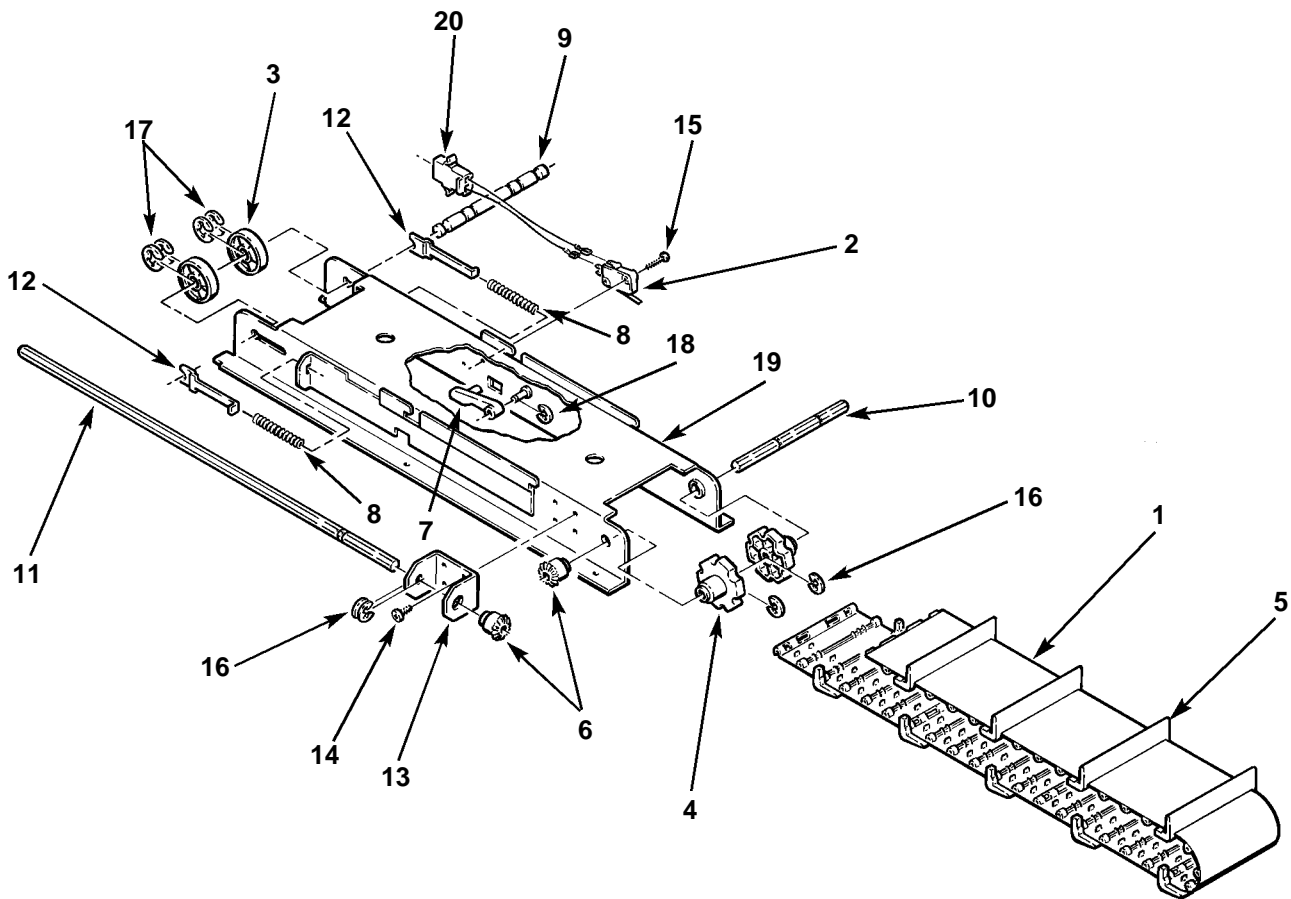
Item No.	Part No.	Description
	750199	Spiral Kits
		320R Kit Includes
		2 - 1.064"Product Riser
		1 - 2.399" Product Riser
		10 - Shelf Dividers
		2 - 8 Space Left Hand Spirals
		2 - 8 Space Right Hand Spirals
		2 - 6 Space Left Hand Spirals
		2 - 6 Space Right Hand Spirals
		4 - 4 Space Left Hand Spirals
	750200	4 - 4 Space Right Hand Spirals
		2 - 3 Space Left Hand Spirals
		2 - 3 Space Right Hand Spirals
		2 - Spiral Retainer Left
		2 - Spiral Retainer Right
		2 - Product Rail
		320F Kit Includes
		1 - 1.064"Product Riser
		1 - 2.399"Product Riser
		1 - 3.734" Product Riser
	750201	1 - 5.069"Product Riser
		10 - Shelf Divider
		2 - 8 Space Left Hand Spirals
		2 - 8 Space Right Hand Spirals
		2 - 6 Space Left Hand Spirals
		2 - 6 Space Right Hand Spirals
		2 - Product Rail
		2 - Spiral Retainer Left
		2 - Spiral Retainer Right
		320FN Kit Includes
	4 - 1.064"Product Riser	
	2 - 6 Space Left Hand Spiral	
	2 - 6 Space Right Hnad Spiral	

# 320 / conveyor shelf



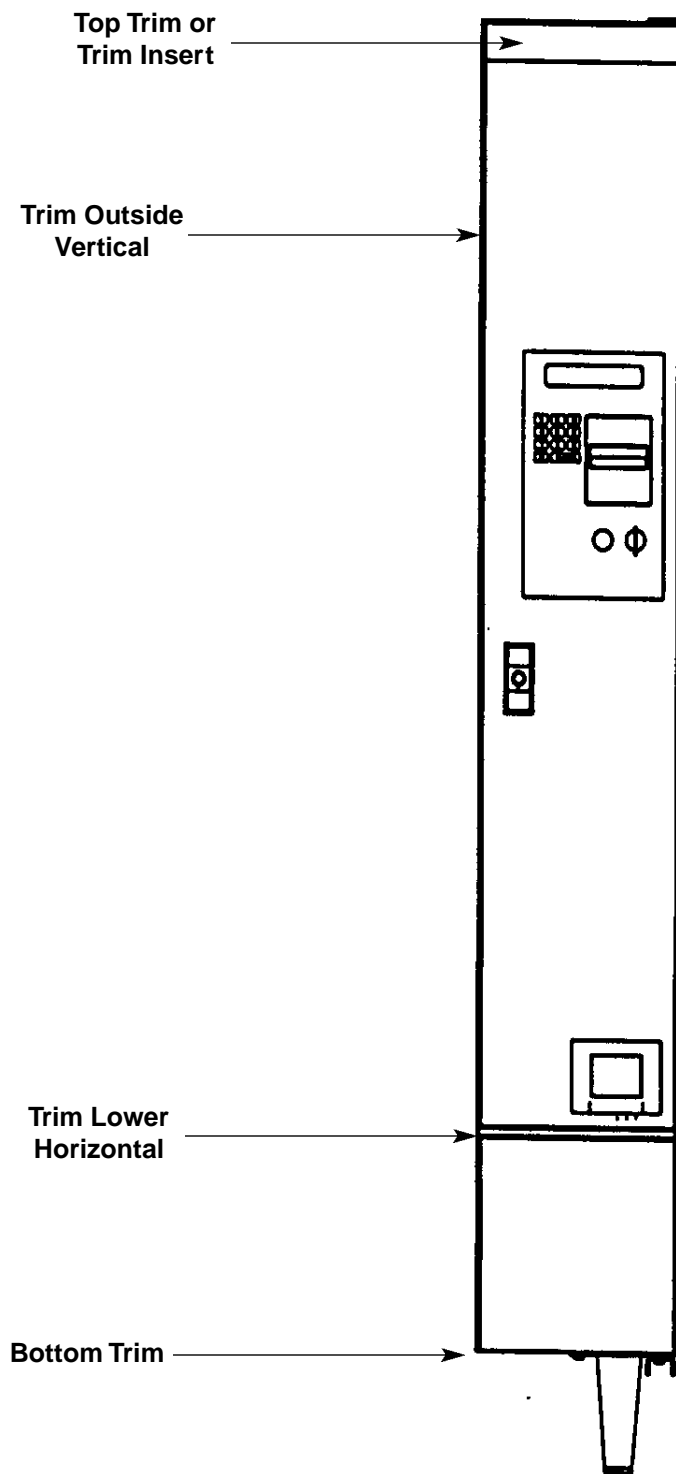
Item No.	Part No.	Description
1	660659	Conveyor Module Complete, See Detail Drawing, Page 32.
2	660653	Conveyor ShelfHarness Complete.
	680625	Conveyor Shelf Harness, Less Bracket.
	600790	Bracket Only.
3	360237	Conveyor Motor.
4	202479	Filler Narrow.
5	202480	Filler Wide.
6	660660	Conveyor Shelf Assembly, Complete.
	600787	Conveyor Shelf, Weldment.
7	202481	Shelf Divider.
8	440362	Shelf Roller.
9	300203	Screw, Shelf Roller.
10	437-41	1/4 X 28 Nut, Keps.
11	305-8R6	8 X 318 Plastite Screw, Pan Head.
12	340068	Shelf Front, Conveyor.
13	460683	Selection Tabs.
14	460684	Price Tabs, Assorted.
15	680594	Harness, Motor Switch.
16	276-8R6	8-32 X 3/8 Screw, Pan Head.
17	216-8R6	8-18 X 3/8 Screw, Pan Head.

Item No.	Part No.	Description



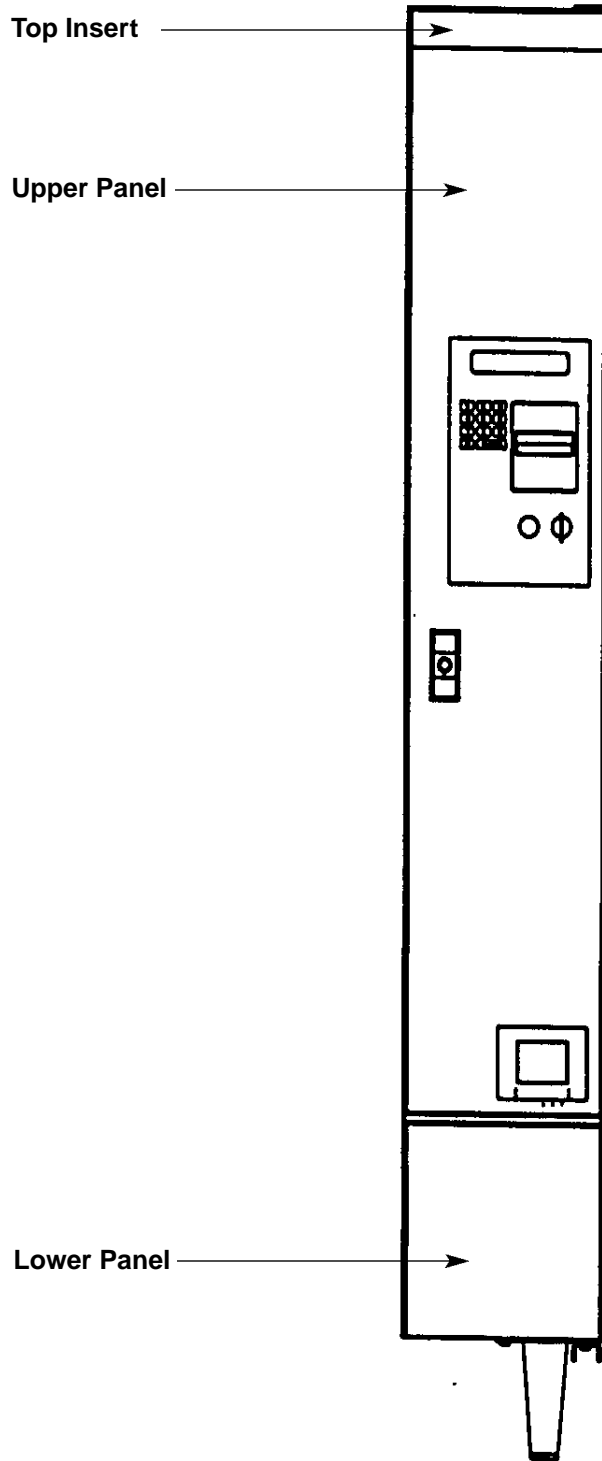
Item No.	Part No.	Description
	660659	Conveyor Module Complete.
1	440421	Belt Link.
2	380311	Switch, Motor.
3	440419	Roller, Back.
4	440420	Drive Sprocket.
5	440418	Belt Divider.
6	440417	Miter Gear.
7	440416	Switch Actuator.
8	400195	Spring, Back Rollers.
9	300215	Roller Shaft, Back.
10	300216	Drive Shaft, Sprocket.
11	300217	Drive Shaft.
12	202473	Roller Spring Bracket.
13	202730	Bracket, Drive Shaft.
14	276-8R6	8-32 X 5/8 Screw, Pan Head.
15	217-4R10	4 X 5/8 Screw, Pan Head.
16	751-25	Retaining Ring, TypeE, 1/4.
17	751 -37	Retaining Ring, Type E, 3/8.
18	751-18	Retaining Ring Type E, 3/16.
19	600796	Support Bracket, Belt Assembly.
20	680594	Harness, Motor Switch.

Item No.	Part No.	Description

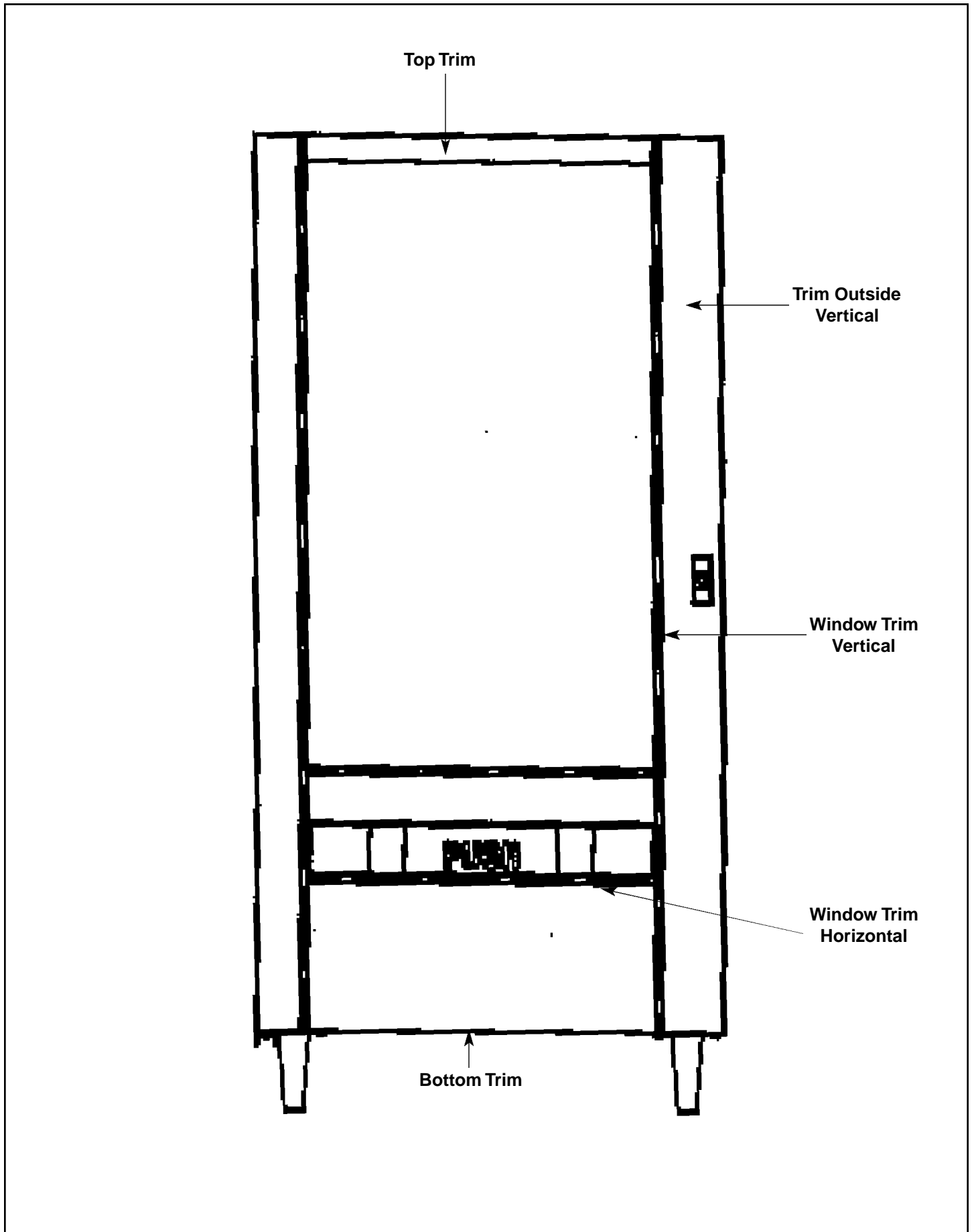




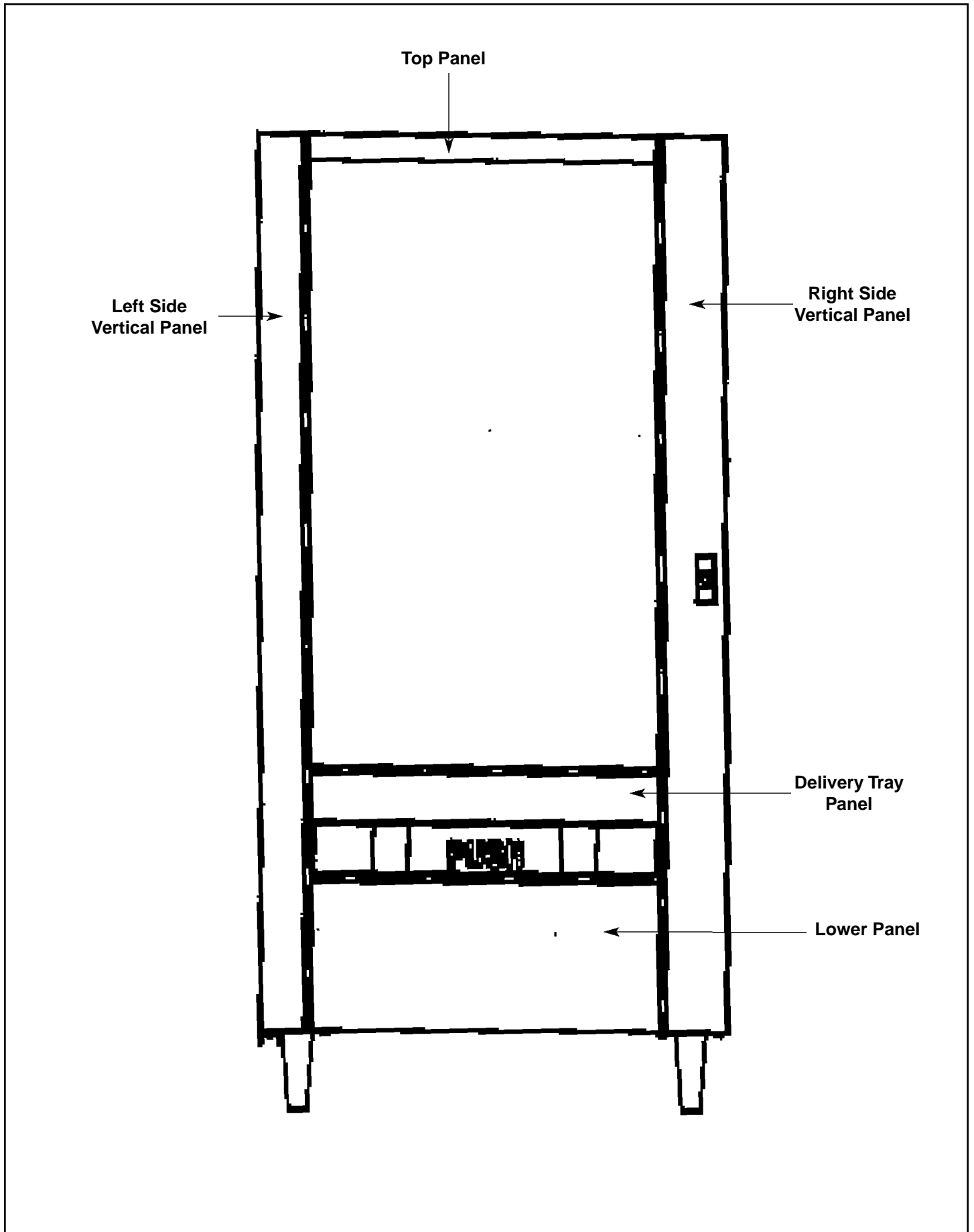
310 Trim		VIP	Vantage	Aramark	CP3	Sterling, Mission	Tron	Genisis	Apollo	Euro - Grey	Euro - Black	Odyssey	
		Part #											Length
<b>Top Trim</b>	<b>Part #</b>												<b>Length</b>
Silver, use with insert	340042-17	1						1					2 3/4 x 8.769
Black, use with insert	340044-24			1									2 3/4 x 8.769
Black, use with insert	340042-19					1							1.798 x 8.769
Br Silver, use with insert	660231-16				2		2						
Silver, use with insert	202470		1										
<b>Trim Outside Vertical</b>													
<b>Trim Outside Vertical</b>	<b>Part #</b>												<b>Length</b>
Silver	340057	2			2			2					65 39/64
Black	340057-2		2			2	2						65 39/64
Silver Taped	660231-20			2									65 39/64
<b>Lower Horizontal</b>													
<b>Lower Horizontal</b>	<b>Part #</b>												<b>Length</b>
Silver	340055-35			1									8.769
Silver Taped	660231-26	1			1								8.769
Black, Square	340055-37					1	1	1					8.769
<b>Bottom Trim</b>													
<b>Bottom Trim</b>	<b>Part #</b>												<b>Length</b>
Silver Taped	660231-26	1			1								8.769
Black, Square	340055-37						1						8.769
Vinyl Edge Trim	202470-1		1	1		1		1					7 3/8



310 PANELS		VIP, Pres Wal	VIP, Black Hide	Vantage, Paint	Vantage, Sterling Royce	CP3, Pres Wal	CP3, Black Hide Plain	CP3, Black Pika	CP3, Black Pika, Sterling	CP3, Slate	CP3, Dove Grey	CP3, Port Au Prince, Pres Wal	Sterling/Mis Ban Blk, Mor Gry	Sterling/Mis, All Black Bison	Sterling/Mis, Slate Pewter	Tron, Dove Grey	Tron, Black Pika	Tron, Slate	Tron, Black Hide Plain	Tron, Sterling Royce	Genesis, Slate	Genesis, Black Hide, Stripe	Genesis, Black Hide, No Stripe	Aramark, Dove Grey	Aramark, Pika	Aramark, Slate	Aramark, All Bison Black	Apollo	Euro Black	Euro Grey	
<b>Lower Panel</b>	<b>Part #</b>																														<b>Dimensions</b>
Presidential Walnut	202530				x						x																			9.109 x 10.468	
Presidential Walnut	202530-1	x																												9.109 x 10.906	
Black Hide	202530-3	x				x														x										9.109 x 10.906	
Black Pika	202530-8							x																						9.109 x 10.468	
Black Pika	202530-9						x									x								x						9.109 x 10.906	
Slate	202530-7								x					x			x				x									9.109 x 10.906	
Dove Grey	202530-4									x					x															9.109 x 10.468	
Bison Black	200530-6											x																		9.109 x 10.906	
Sterling Royce	202530-11																				x									9.109 x 10.468	
Black Hide W Stripe	202530-2																					x								9.109 x 10.906	
Black Hide No Stripe	202530-3																						x			x				9.109 x 10.906	
Bison Black	202530-6												x														x			9.109 x 10.906	
Dove Grey	202530-5																							x						9.109 x 10.906	
<b>Top Panel</b>	<b>Part #</b>																													<b>Dimensions</b>	
Presidential Walnut	200526-44	x																												2 5/8 x 8.757	
Presidential Walnut	202532				x						x																			2.343 x 9.125	
Black Hide	200526-40	x												x								x	x							2 5/8 x 8.757	
Black Hide	202532-4					x														x										2.343 x 9.125	
Black Pika	202532-2						x										x													2.343 x 9.125	
Black Pika	202532-3							x																						2.343 x 9.125	
Slate	202532-6								x										x											2.343 x 9.125	
Slate	200526-50																					x								2 5/8 x 8.757	
Dove Grey	202532-1									x																				2.343 x 9.125	
Cold Food	440258-11																							x	x	x	x			1 21/32 x 8.769	
Bison Black	200526-42												x	x																2 5/8 x 8.757	
Dove Grey	440312-4															x					x									2.359 x 9.093	
<b>Upper Panel</b>	<b>Part #</b>																													<b>Dimensions</b>	
Presidential Walnut	202771-4					x																								9.109 x 51 1/4	
Presidential Walnut	202771-3		x																											9.109 x 53 7/8	
Black Hide	202771-2			x		x														x			x	x						9.109 x 53 7/8	
Black Pika	202771-11						x										x								x					9.109 x 53 7/8	
Slate	202771-9								x										x			x					x			9.109 x 53 7/8	
Dove Grey	202771-7									x						x														9.109 x 51 1/4	
Morocco Grey	201777-13												x																	9.109 x 53 7/8	
Dove Grey	202771-10																								x					9.109 x 53 7/8	
Bison Black	202771-18													x														x		9.109 x 53 7/8	
Pewter Sterling	202771-8														x															9.109 x 53 7/8	
Paint	202771-1		x																											9.11 x 65 19/32	
Sterling Royce	202771			x																										9.11 x 65 19/32	
Sterling Royce	202771-6								x																					9.109 x 51 1/4	
Port Au Prince	202771-5												x																	9.109 x 51 1/4	



320 Trim		VIP	Vantage	Aramark	CP3	Sterling, Mission	Tron	Genisis	Apollo	Euro - Grey	Euro - Black	Odyssey	
<b>Top Trim</b>	<b>Part #</b>												<b>Dimensions</b>
Silver, use with insert	340042-16	1						1					2 3/4 x 35.937
Black, use with insert	340042-18					1							2 3/4 x 35.937
Black, use with insert	340044-9		1										1 7/8 x 26.721
Br Silver, use with insert	340044-23			1									1 7/8 x 35.937
Silver, use with insert	340044-11								1	1			1 7/8 x 26.997
Trim for use with insert	201044-12										1		1 7/8 x 26.997
Silver w Black tape	660231-25				2		1						.531 x 36.375
Black, Square	340055-36						1						.531 x 35.937
Trim Retainer, Odyssey	16400011											1	
Odyssey Grey	13400001											1	
Vinyl Edge Trim, Lock	202469-1		1										.25 x 3 27/32
<b>Trim Outside Vertical</b>	<b>Part #</b>												<b>Length</b>
Silver	340057	2			2			2					65 39/64
Black	340057-2		2			2	2						65 39/64
Silver Taped	660231-20			2									65 39/64
Odyssey, Right Vertical	14400002											1	
Odyssey, Left Vertical	38647											1	
<b>Window Trim Horizontal</b>	<b>Part #</b>												<b>Length</b>
Silver	340058	1		1	1		1						26.721
Black	340058-5		1			1		1					26.721
Black	340062-3								1		1		48.468
Silver	340062-2									1			52.468
Odyssey, Under Bin	14400001											1	
<b>Window Trim Vertical</b>	<b>Part #</b>												<b>Length</b>
Silver	340058-7	2											51.531
Black	340058-46		2										65.406
Silver	340058-2			2									52.468
Silver	340058-4				2								50.937
Black	340058-6					2		2					51.531
Black	340058-8						2						50.937
Silver	340062								2	2			65.406
Black	340062-1										2		65.406
<b>Delivery Door Trim</b>	<b>Part #</b>												<b>Length</b>
Black	340058-5		1										26.721
Silver	340055-34			1									15.652
Silver w Black tape	660231-25	1			1		1						35.937
Black, Square	340055-36					1		1					35.937
Black	340062-3								1		1		26.997
Clear	340062-2									1			26.997
Odyssey, Trim Retainer	16400010											1	
Odyssey	13400002											1	
<b>Bottom Trim</b>	<b>Part #</b>												<b>Length</b>
Silver w Black tape	660231-25	1			1								35.937
Black, Square	340055-36						1						35.937
Door Vinyl Edge Trim	202469		1	1		1		1	1				34 7/64
Door Vinyl Edge Trim	201678-5									1	1		



320 PANELS		VIP, Pres Wal	VIP, Black Hide	Vantage, Paint	Vantage, Sterling Royce	CP3, Pres Wal	CP3, Black Hide Plain	CP3, Black Pika	CP3, Black Pika, Sterling	CP3, Slate	CP3, Dove Grey	CP3, Port Au Prince, Pres Wal	Sterling/Mis Bsn Blk, Mor Gry	Sterling/Mis, All Black Bison	Sterling/Mis, Slate Pewter	Tron, Dove Grey	Tron, Black Pika	Tron, Slate	Tron, Black Hide Plain	Tron, Sterling Royce	Genesis, Slate	Genesis, Black Hide, Stripe	Genesis, Black Hide, No Stripe	Aramark, Dove Grey	Aramark, Pika	Aramark, Slate	Aramark, All Black Bison	Apollo	Euro Black	Euro Grey		
Lower Panel	Part #																															Dimensions
Presidential Walnut	200296-60	x			x						x																			10.437 x 36.203		
Black Hide	200296-67		x																											10.437 x 36.203		
Black Hide	200296-58					x													x											10.437 x 37.187		
Black Pika	200296-62						x	x								x														10.437 x 36.203		
Slate	200296-66								x								x													10.437 x 36.203		
Dove Grey	200296-61									x																				10.437 x 36.203		
Bison Black	201692-61											x	x													x				10.906 x 36.203		
Sterling Royce	200296-63																			x										10.906 x 36.203		
Slate	201692-63													x							x					x				10.906 x 36.203		
Dove Grey	200296-61															x														10.906 x 36.203		
Black Hide W Stripe	201692-65																					x								10.906 x 36.203		
Black Hide No Stripe	201692-59																						x							10.906 x 36.203		
Black Pika	201692-60																								x					10.906 x 36.203		
Dove Grey	201692-62																							x						10.906 x 36.203		
Black Hide	201692-1		x	x																								x		10.906 x 26.842		
Paint	201692-44																												x	x	10.906 x 37.843	
<b>Top Panel</b>																																
Top Panel	Part #																														Dimensions	
Cover up Plate	202531-3														x					x										3.000 x 36.172		
Presidential Walnut	200526-43	x																												2 5/8 x 35.937		
Presidential Walnut	202531				x						x																			3.000 x 36.172		
Black Hide	200526-39		x											x								x	x							2 5/8 x 35.937		
Black Hide	202531-4					x													x											3.000 x 36.172		
Black Pika	202531-2						x	x									x													3.000 x 36.172		
Slate	202531-6								x										x											3.000 x 36.172		
Slate	200526-49																					x								2 5/8 x 35.937		
Dove Grey	202531-1									x																				3.000 x 36.172		
Bison Black	200526-41											x	x																	2 5/8 x 35.937		
Dove Grey	440312-3															x					x									2.359 x 36.203		
Paint	440258-10		x	x																										1 21/32 x 35.937		
Black Hide	201690-7																											x	x	1 43/64 x 26.878		
Paint	201690-9																												x	1 43/64 x 27.878		
Cold Food	201555-8																							x	x	x	x			1 21/32 x 35.937		
<b>Delivery Tray Panel</b>																																
Delivery Tray Panel	Part #																													Dimensions		
Presidential Walnut	202535	x			x						x																			3.687 x 26.843		
Black Hide	202535-1		x			x														x								x	x	3.687 x 26.843		
Black Pika	202535-4						x	x									x													3.687 x 26.843		
Slate	202535-8								x										x			x					x			3.687 x 26.843		
Dove Grey	202535-3									x															x					3.687 x 26.843		
Morocco Gray	202535-6											x																		3.687 x 26.843		
Pewter Sterling	202535-5														x															3.687 x 26.843		
Sterling Royce	202535-7																x				x		x	x			x			3.687 x 26.843		
Bison Black	202535-11												x															x		3.687 x 26.843		
Dark Gray	202535-2																												x	3.687 x 26.843		

# 320 panels

320 PANELS		VIP, Pres Wal	VIP, Black Hide	Vantage, Paint	Vantage, Sterling Royce	CP3, Pres Wal	CP3, Black Hide Plain	CP3, Black Pika	CP3, Black Pika, Sterling	CP3, Slate	CP3, Dove Grey	CP3, Port Au Prince, Pres Wal	Sterling/Mis Bsn Blk, Mor Gry	Sterling/Mis, All Black Bison	Sterling/Mis, Slate Pewter	Tron, Dove Grey	Tron, Black Pika	Tron, Slate	Tron, Black Hide Plain	Tron, Sterling Royce	Genesis, Slate	Genesis, Black Hide, Stripe	Genesis, Black Hide, No Stripe	Aramark, Dove Grey	Aramark, Pika	Aramark, Slate	Aramark, All Black Bison	Apollo	Euro Black	Euro Grey	
		Left Side Vertical Panel	Part #																												
Presidential Walnut	202533-5	x																												4.547 x 53.875	
Presidential Walnut	202533-10				x																									4.547 x 51.218	
Black Hide	202533-4	x				x													x			x	x							4.547 x 53.875	
Sterling Royce	202533				x																									4.547 x 65 41/64	
Sterling Royce	202533-13							x												x										4.547 x 51.218	
Paint	202533-1		x																											4.547 x 51 41/64	
Black Pika	202533-7						x									x									x					4.547 x 53.875	
Slate	202533-8								x								x				x					x				4.547 x 53.875	
Dove Grey	202533-12									x					x															4.547 x 51.218	
Port Au Prince	202533-11										x																			4.547 x 51.218	
Morocco Gray	202533-3											x																		4.547 x 53.875	
Pewter Sterling	202533-2													x																4.547 x 53.875	
Bison Black	202533-15												x														x			4.547 x 53.875	
Dove Grey	202533-6																							x						4.547 x 53.875	
Right Side Vertical Panel	Part #																														Dimensions
Presidential Walnut	202534-5	x																												4.072 x 53 7/8	
Presidential Walnut	202534-10				x																									4.072 x 51 7/32	
Black Hide	202534-4	x				x													x			x	x							4.072 x 53 7/8	
Sterling Royce	202534				x																									4.072 x 65 41/64	
Sterling Royce	202534-13							x												x										4.072 x 51 7/32	
Paint	202534-1		x																											4.072 x 66 41/64	
Black Pika	202534-7						x									x									x					4.072 x 53 7/8	
Slate	202534-8								x								x				x					x				4.072 x 53 7/8	
Dove Grey	202534-12									x					x															4.072 x 51 7/32	
Port Au Prince	202534-11										x																			4.072 x 51 7/32	
Morocco Gray	202534-3											x																		4.072 x 53 7/8	
Pewter Sterling	202534-2													x																4.072 x 53 7/8	
Bison Black	202534-17												x														x			4.072 x 53 7/8	
Dove Grey	202534-6																							x						4.072 x 53 7/8	



## trouble shooting chart

<b>Problem</b>	<b>Symptom</b>	<b>Remedy</b>
No Power	No LED on Logic Board	Check for 120Vac Where Line Cord Plugs into Power Box. Check for 8Vac and 24 Vac at J5 Connector Coming onto Logic Board.
Doesn't Accept Coin	Changer Unplugged	Plug in Changer
	Defective Changer	Replace Changer
	Defective Logic Board	Replace Logic Board
	No Power to Machine	Check for 120Vac Where Line Cord Plugs into Power Box. Check for 8Vac and 24 Vac at J5 Connector Coming onto Logic Board.
Won't Payout Change, Incorrect Change Returned	Changer Unplugged	Plug in Changer
	Defective Changer	Replace Changer
	No Power to Coin Payouts	Replace Logic Board.
	Coins Jammed in Tubes	Remove Coins
Won't Take Bills	No Coins in Coin Tubes	Fill Coin Tubes
	Belts or Stacker Don't Run on Power Up.	Check for 24 Vac at Validator.
	Belt Run, Bill Goes in Half Way but Won't Accept	Replace Validator.
	Incorrect Inventory	Check Inventory of Coin Tubes by Pressing F7.
Display Says Make Another Selection.	Motor Half Cycled	Open and Close 320 Cabinet Door to Home Motor. Add Cover to Motor, Frozen Switch.
	Motor Not Turned on in Configuration	Turn on Motor in Configure Motors Menu Item Then Open and Close 320 Cabinet Door and Machine Will Scan and Turn on That Selection.
	Motor Won't Turn	Press F6 to See If Motor Works in Test Vend, If it Does Check Motor Configuration, If Not Change Motor.
	Motor Is Paired incorrectly with Selection That Can't Be Found.	Unpair Selection and Test.
Display Says Invalid Choice	Motor Not in Configuration	Turn on Motor in Configure Motors Menu Item.
	Motors next to Each Other.	Unpair Motors.
Multiple Motors Running Together.	Motors Not next to Each Other.	Replace Food Driver Board or Shorted Cabinet Back Harness.

# trouble shooting chart

<b>Problem</b>	<b>Symptom</b>	<b>Remedy</b>
Health Control Shutdown	Evaporator Frozen.	See Evaporator Frozen below.
	Refrigeration Problem	See below.
Compressor Not Running, Refrigeration LED off.	Logic Board Set to Ambient.	Set Logic Board to Food or Frozen
	Check Temp and Reading Shows Cabinet Is Cold but Cabinet Is Warm.	Replace Temp Sensor.
	Status Light Not Flashing on And/or Refrigeration Light Not on FDB	Communications Cable Not Connected Between FDB and LCB. Communications cable must be connected to board before MDB peripherals.
	Status Light Flashing, Refrigeration Light Not On.	Logic Board Set to Ambient. Cabinet Jumper Not Set Correctly on FDB.
Compressor Not Running, Refrigeration LED on.	Status Light Flashing, Refrigeration Light On.	No 117vac to Cabinet, Check Wall Outlet and Line Cord.
	FDB Not Sending 24 Vdc to Compressor Relay.	Check for 24Vdc on FDB at P4 pins 1 and 2, if none replace FDB.
	Power to Compressor but Compressor Doesn't Start.	Check Overload and for Tight Connections, Check Start Components, Check Windings on Compressor.
	Refrigeration LED on, on FDB but Compressor And/or Fans Not Running.	Check for 120 Volts Coming out of Relay Box to Compressor Harness. If No Voltage Check Relay in Relay Box and Harness from FDB to Relay Box.  No 120Vac at Relay Contacts of Refrigeration Relay or Coming into Machine.
Compressor Runs Hot, Trips Overload.	Condenser Plugged	Clean Condenser
	Intake Screen Plugged	Clean Air Intake Screen
	Screws Not Tight on Overload.	Tighten Screws on Overload.
	Machine Pushed up Against the Wall.	Ensure Air Deflector Installed.
	Low Line Voltage.	Machine Requires a Minimum of 105Vac to Run Properly

Problem	Symptom	Remedy
Evaporator Frozen.	Air Leak	Baffle Door Sticking Open, Banding Adjust Baffle Door.
	Defrost Heater Not Working	Check Power Supply to Heater at 6 Pin Connector Coming out of the Relay Box, Pins 3 to 5 Should Be 120vac When Machine is in Manual Defrost. Check Resistance on Heater, Should Be 23 Ohms $\pm$ 3
	Bi-metal Not Working	Bi-metal Should Have Continuity When Not in Defrost Between Pins 1 and 2 at the 6 Pin Connector Coming out of the Relay Box.
	Evaporator Fan Not Running	Replace Evaporator Fan, Check for 117vac at 6 Pin Connector Coming out of the Relay Box between pins 3 and 4
Machine Cools but Will Not Pull down to Desired Temp, or Compressor Doesn't Turn off.	Condenser Plugged	Clean Condenser
	Intake Screen Plugged	Clean Air Intake Screen
	Machine Pushed up Against the Wall	Machine must Have 6" Behind for Proper Air Circulation. An Air Deflector is Sent with Every Machine, this Air Deflector Will Not Allow the Machine to Be Pushed up Against the Wall
	Low Charge	Replace Refrigeration Unit.
No Lights	Health Code Shutdown	See previous page.
	Bad or Broken Interlock Switch	Fix or Replace.
	No Power to Lights	Bad Relay or Wire off Light Relay
One Light Not Working	Bulb Burnt out	Replace Bulb
	Defective Ballast	Replace Ballast Loose Harness
	Defective Starter	Replace Starter
Baffle Door Does Not Open	Defective or loose baffle Door Motor Harness	Replace or fix harness
	Broken Roll Pin	Replace Roll Pin (094 X 1")
	Defective Motor	Replace Motor
	Defective Food Driver Board	Replace Food Driver Board

### MasterMenu Keypad pinouts

PINS	4	8	11	5	2	12	1	13
6	<b>1</b>	<b>2</b>	<b>3</b>	<b>F1</b>	<b>F5</b>	<b>F6</b>	<b>ESC</b>	<b>+</b>
7	<b>4</b>	<b>5</b>	<b>6</b>	<b>F3</b>	<b>F7</b>	<b>*</b>	<b>--</b>	<b>&lt;</b>
10	<b>7</b>	<b>8</b>	<b>9</b>	<b>F2</b>	<b>.25</b>	<b>1.00</b>	<b>INS</b>	<b>&gt;</b>
9	<b>0</b>	<b>C/CE</b>		<b>F4</b>	<b>.05</b>	<b>.10</b>	<b>DEL</b>	<b>ENT</b>

### MasterMenu Plug Orientation

1	2		4	5	6	7	8	9	10	11	12	13
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## Control Board Installation Instructions

(For Lcb part's 360251 & 360274)



### **CAUTION**

**THE FOLLOWING PROCEDURE REQUIRES THAT PROPER ANTI STATIC PRECAUTIONS ARE TAKEN OR DAMAGE TO THE BOARD MAY RESULT.**

When installing this board into any machine it is necessary that the board be reset to factory defaults.

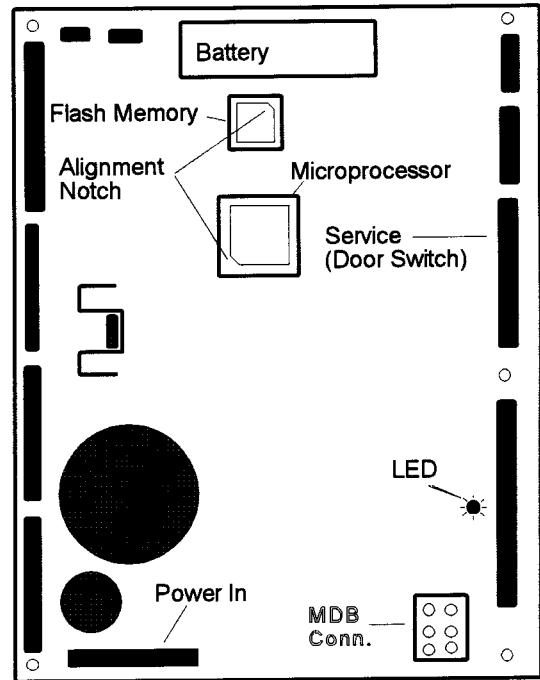
Instructions to reset the board are as follows:

Install the board into the machine and reconnect all the harnesses and power up the machine.

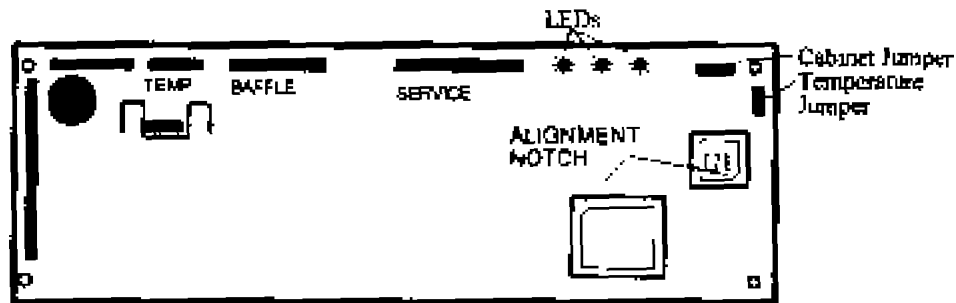
1. Open Machine/Tower door.  
The display should say Enter for MasterMenu.
2. Press Enter.
3. Press the > until the display indicates Security.
4. Press Enter
5. The display will indicate Machine ID, press the < one time and the display will indicate Machine Reset - N.
6. Press the + key the display will indicate Machine Reset machine - Y.
7. Press the Enter key, The display will indicate Reset - Messages.
8. Press the + key until the display indicates Reset - All.
9. Press Enter, the key and the display will indicate Are you Sure - N.
10. Press the + key and the display will indicate Are you Sure - Y.
11. Press the Enter key and board will beep and the display will default to Machine Reset - N.  
The Board has now been set to factory default.
12. See quick set up reference page in the Service Manual for Instructions on programing the Control Board.

## DIRECTIONS FOR INSTALLING SOFTWARE UPGRADE IN APi120

- 1) Turn off power to the Control Module and the Food Cabinet. Wait 5 minutes for the large capacitor to discharge before working on the board. Identify and separate the three chips before beginning any work. The two chips for the Control Module are identified as LCB VX.XX and the Food Cabinet are identified as FDB VX.XX.
- 2) Remove all connectors and covers from both control board.
- 3) Observing proper anti-static procedures (grounded wrist strap) remove the only socketed chip (U1) on the Food Driver Board (FDB) and carefully install the new chip. Refer to the drawing below for correct orientation of the chip. **ALL CHIPS REPLACED MUST BE INSTALLED CORRECTLY OR THEY WILL BE DAMAGED.** Each chip being replaced has one corner notched to identify its correct orientation, and the socket had a corresponding notch and an arrow.
- 4) Remove the battery from the LogiCenter Board (LCB), and observing proper anti-static procedures (grounded wrist strap) remove the two socketed chips, and replace. Refer to the drawing at right for the correct orientation of each chip.
- 5) Replace both board covers, and reinstall all harnesses. Before restoring power to machines, make sure that the Service Connector and Power Connector are plugged to the board correctly. Close food cabinet door.



LogiCenter Board (LCB)



FOOD DRIVER BOARD (FDB)

# electrical connections



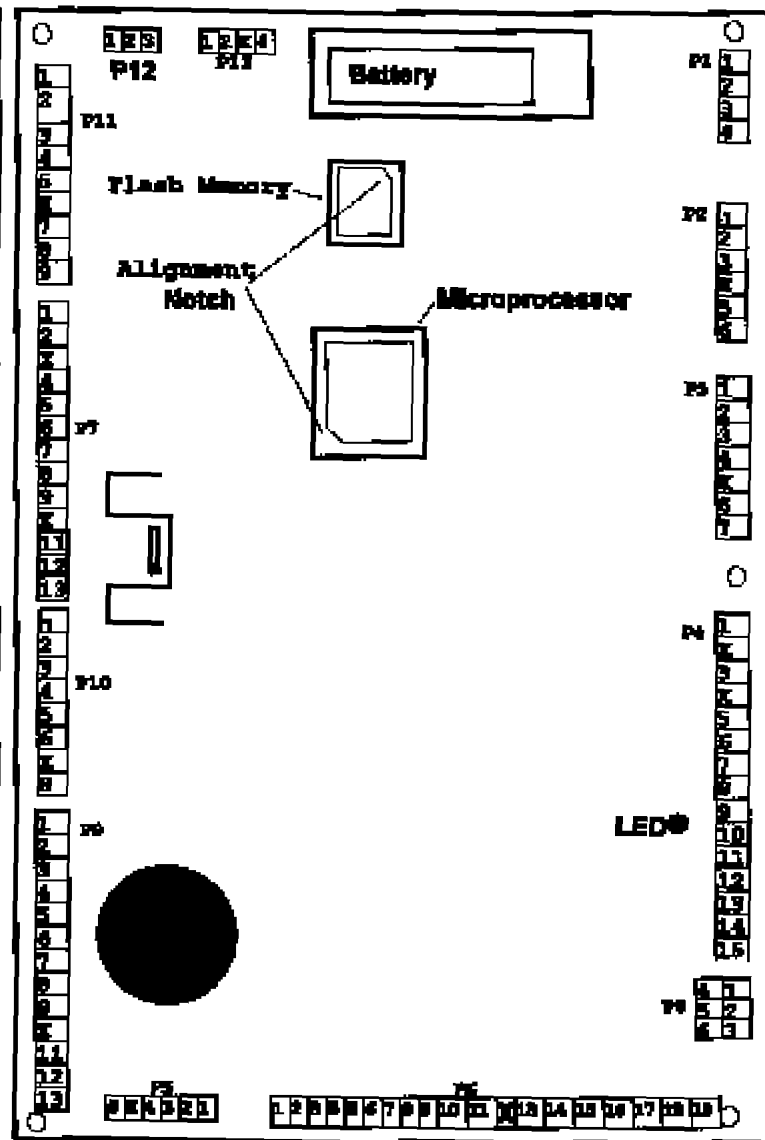
<b>P12 DISPLAY</b>	<b>P13 BATTERY</b>
1 5 VDC	1 VEAT
2 RxDT0	2 GND
3 GND	3 KEY
	4 GROUND

<b>P11 COFFEE KEY PAD</b>
1 DATA OUT
2 DATA IN
3 CLOCK
4 LOAD/STROBE
5 GROUND
6 KEY
7 5 VDC
8 34 VDC
9 GROUND

<b>P7 KEYPAD SWITCH LINES</b>
1 1
2 2
3 KEY
4 See table
5 Selector Switch
6 Drawing
7 On Previous Page.
8 8
9 9
10 10
11 11
12 12
13 13

<b>P10 RECEIVING</b>
1 RCV +
2 RCV -
3 XMT -
4 GND
5 XMT +
6 24Vdc
7 KEY
8 24Vdc

<b>P9 VALIDATOR</b>
1 ESCROW ENABLE HIGH
2 \$1 ENABLE HIGH
3 \$2 ENABLE HIGH
4 \$5 ENABLE HIGH
5 ESCROW ENABLE LOW
6 \$1 ENABLE LOW
7 \$2 ENABLE LOW
8 \$5 ENABLE LOW
9 CREDIT
10 KEY
11 GND
12 24Vdc HOT
13 24Vdc NEUTRAL



<b>P1 MEMORY UNIT</b>
1 DATA
2 NO CONNECTION
3 KEY
4 GND

<b>P2 RS232 SERIAL INTERFACE</b>
1 RECEIVE DATA
2 GND
3 TRANSMIT DATA
4 KEY
5 -10 VOLTS
6 +5 VOLTS

<b>P3 SERVICE</b>
1 34 VDC
2 WINNER RELAY
3 LOCKOUT
4 GND
5 KEY
6 DOOR SW
7 GND

<b>P4 MICRO 16</b>
1 -24 VNFDC RET
2 KEY
3 +24 VNFDC HOT
4 KEY
5 DATA
6 INTERRUPT
7 ACCEPT ENABLE
8 RESET
9 BEND
10 5VDC
11 GND
12 J5
13 .10
14 .25
15 \$1.00

<b>P5 MICRO +</b>
1 34 VDC
2 PWR GND
3 5 VDC
4 MASTER RXD
5 MASTER TXD
6 COMMUNICATION COMMON

<b>P6 POWER</b>
1 24Vdc
2 24Vdc
3 5Vdc
4 5Vdc
5 KEY
6 EARTH GROUND

<b>P8 DC MOTOR DRIVE</b>
1 ROW 1 +
2 ROW 2 +
3 ROW 3 +
4 ROW 4 +
5 ROW 5 +
6 ROW 6 +
7 ROW 7 +
8 ROW 8 +
9 COL 0 -
10 COL 1 -
11 COL 2 -
12 KEY
13 COL 3 -
14 COL 4 -
15 COL 5 -
16 COL 6 -
17 COL 7 -
18 COL 8 -
19 COL 9 -

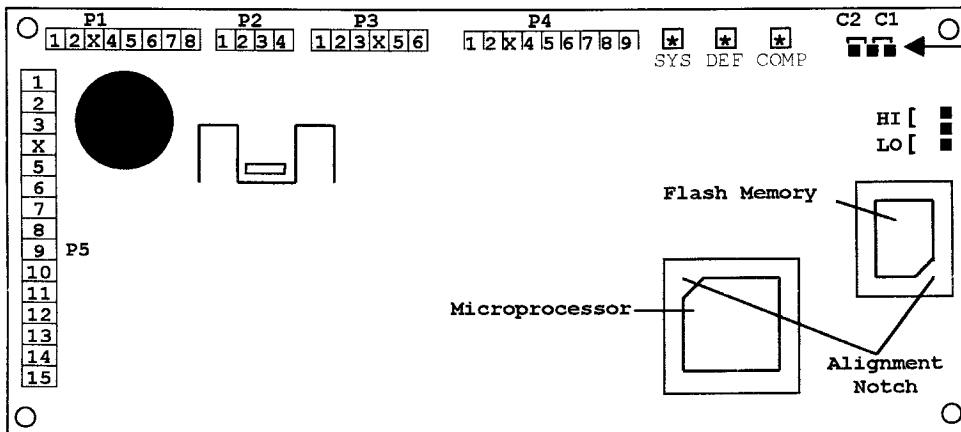
# FDB Board Connections

P1 MDB +	
1	+ 34 VDC
2	PWR GND
3	KEY
4	+ 8 VDC
5	MASTER RXD
6	MASTER TXD
7	COMMUNICATION COMMON
8	SHIELD WIRE

P2 TEMPERATURE SENSOR	
1	+5 VDC
2	KEY
3	INPUT
4	GND

P3 BAFFLE DOOR	
1	RED - OPEN
2	GREEN - GND
3	BLACK - CLOSED
4	KEY
5	WHITE - MOTOR 1
6	BROWN - MOTOR 2

P4 SERVICE	
1	+24 VDC
2	COMPRESSOR RELAY
3	KEY
4	DEFROST RELAY
5	LIGHT RELAY
6	DOOR SWITCH
7	GND
8	FAN RELAY
9	CUT OUT SWITCH



P6 Cabinet Jumper	
C1	= Cabinet 1
C2	= Cabinet 2

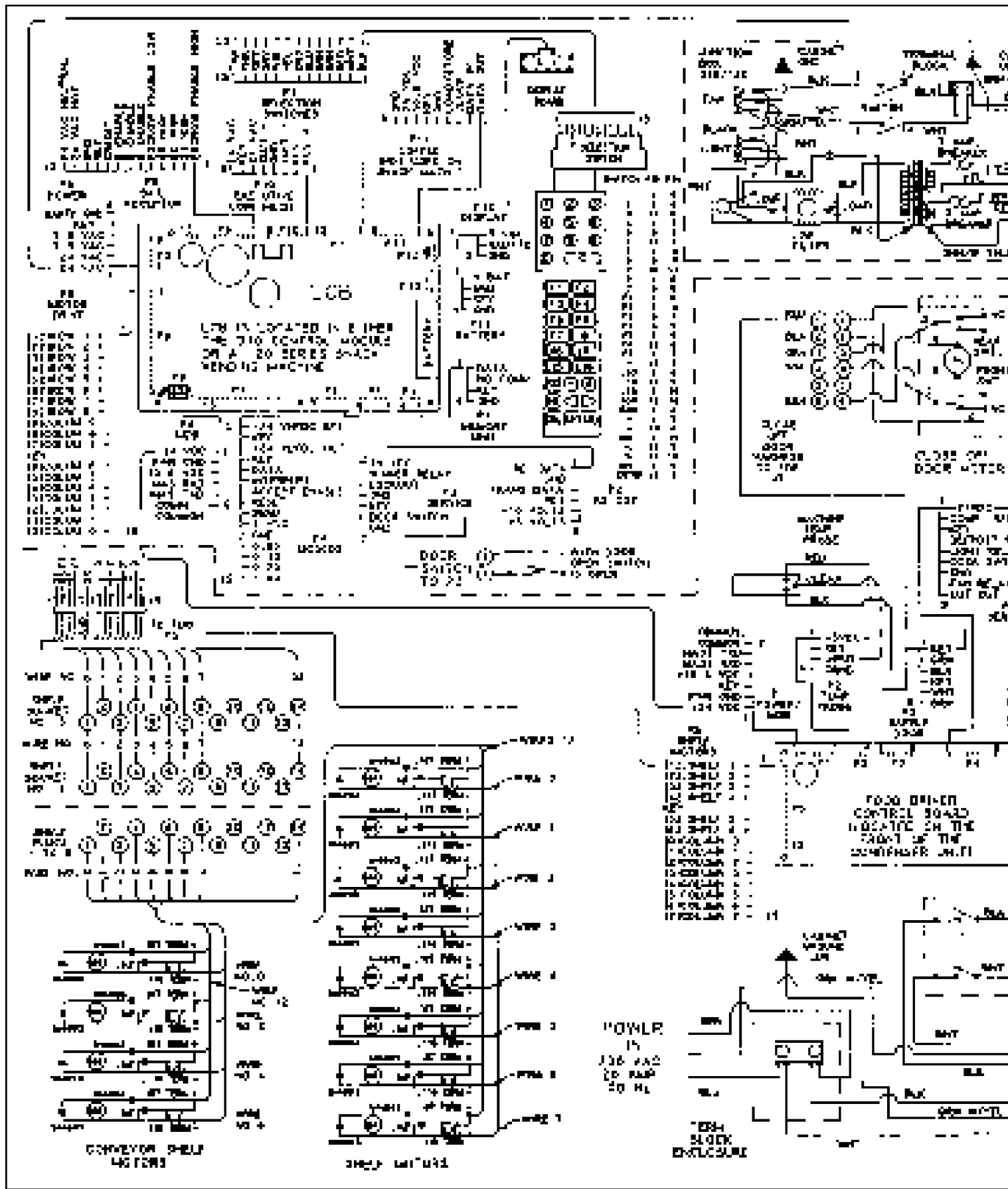
P7 Default Refrigeration Jumper	
HI	= Refrigerated
LO	= Frozen

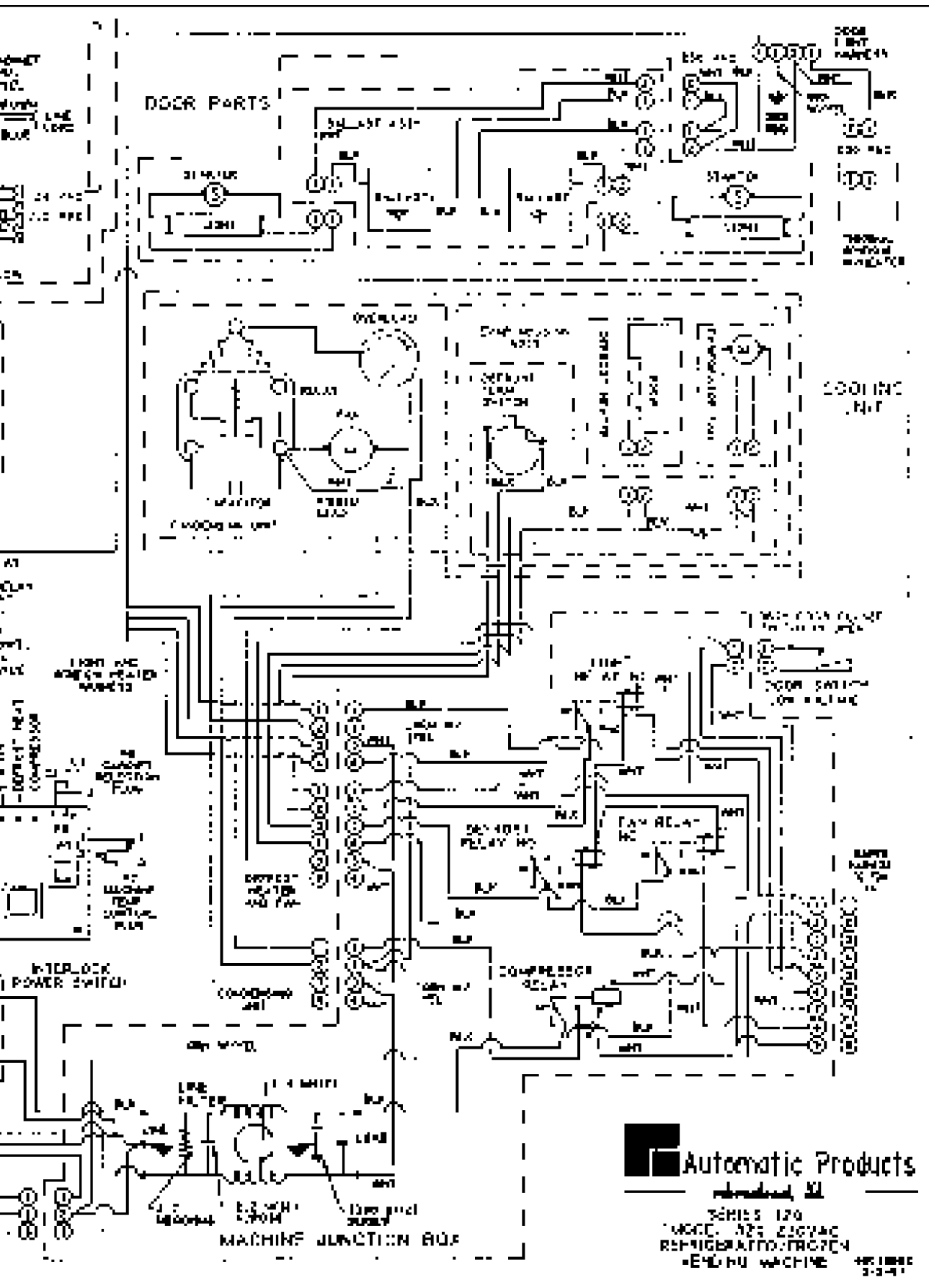
P5 MOTOR DRIVE	
1	ROW 1 +
2	ROW 2 +
3	ROW 3 +
4	ROW 4 +
5	KEY
6	ROW 5 +
7	ROW 6 +
8	COLUMN 0 -
9	COLUMN 1 -
10	COLUMN 2 -
11	COLUMN 3 -
12	COLUMN 4 -
13	COLUMN 5 -
14	COLUMN 6 -
15	COLUMN 7 -

notes

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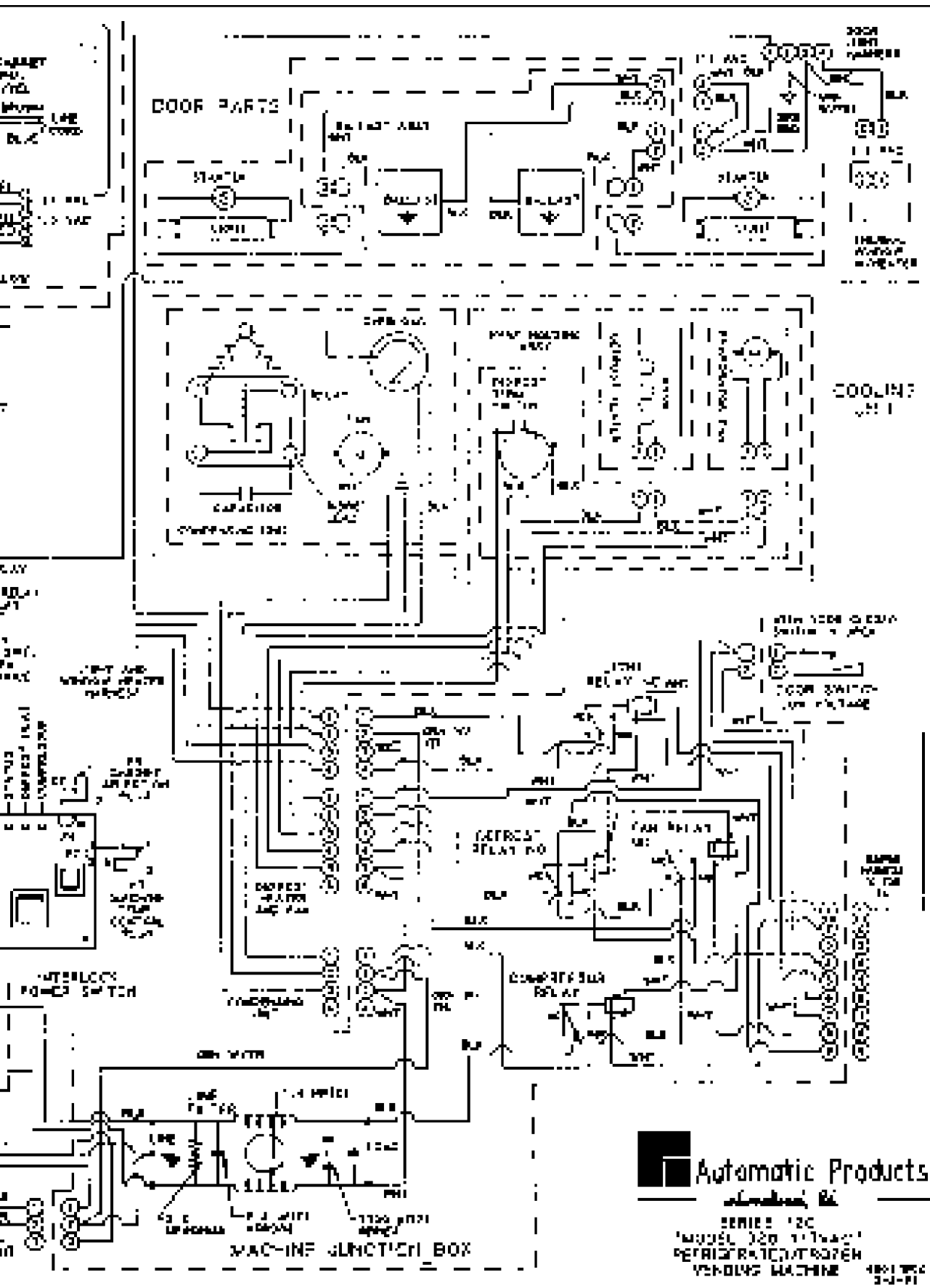






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