

WHERE  QUALITY IS BUILT IN.

**548**

**Showcase Merchandiser**

**SET-UP**

**Field Service Manual**

**and**

**Parts Catalog**

PART NO. 900-54808 B  
SECOND EDITION



We would appreciate any suggestions for additions and/or corrections to this SET-UP Manual. They will be incorporated into the full Field Service Manual which will accompany production run machines early next year. Please send them to:

**Rowe International, Inc.**

**75 Troy Hills Road**

**Whippany, N.J. 07981**

**Attn:**

**Technical Publications Dept.**

# 548 Showcase Merchandiser SET-UP

## Field Service Manual and Parts Catalog

This SET-UP Manual contains all of the necessary information needed to install, operate and perform basic service on the new 548 Showcase Merchandiser. The front section contains vendor specifications and a table of contents. The Description Section reviews the new major components of the vendor along with a more detailed discussion on the new slide in slide out refrigeration system. The Service Mode Operations Section contains an itemized description of each menu. The Troubleshooting Section contains a preliminary checklist, a Power Supply Light Indicator table and two troubleshooting charts. The Troubleshooting Charts are categorized by Problems/Solutions and Error Messages recorded by the new Universal Control Board. The Parts Section has five figures that call out the assemblies and some assorted parts specific to the 548 Showcase Merchandiser.

**NOTE:**

*For information concerning operations adjustments and parts common to the 448 E-2 vendor please refer to the latest 448 E-2 Field Service Manual and Parts Catalog (900-44830 E).*

# SPECIFICATIONS:

## 548 Showcase<sup>®</sup> Merchandiser

### GENERAL

Depth . . . . . 35<sup>5</sup>/<sub>8</sub> in  
 Width . . . . . 41 in.  
 Height . . . . . 72 in.  
 Net Weight . . . . . 790 lb.  
 Shipping Weight . . . . . 840 lb.  
 Power Requirements . . . . . 120 VAC, 16 AMPS MAX. 60 CYCLE  
 Maximum Location Ambient Temperature . . . . 110° F

### VEND CAPACITY

Total Items . . . . . 154 MAX.  
 Delivery Doors . . . . . 11  
 Delivery Door Dimensions (Nominal)  
     9 Doors                      4 in Height  
     2 Doors                      5 in Height  
     11 Doors                     6 or 9 in Width  
 Compartment Depth (Nominal) . . . . . 9 1/4 in Depth  
 Shelf Configurations Available:  
     Over/Under . . . . . 14 Products Per Shelf  
     Plain . . . . . 7 Products Per Shelf  
     Vertical Split . . . . . 14 Products Per Shelf  
 Food Compartment  
     Operating Temperatures . . . . . 38° ± 4° F

### COIN MECHANISMS

120V Models-12 or 15 Pin  
     MARS                      TRC - 6000  
     COINCO                    9300L  
 24 V Models-15 Pin Only  
     MARS                      TRC - 6010 - XV  
     COINCO                    9302 L F

**CAUTION !**

***Do not use 24 volt Coin Mech with 12 pin plugs!  
 This will result in permanent damage to the Coin  
 Mech and/or vending machine.***

### REFRIGERATION SYSTEM

Type . . . . . 3/4 HP Air Cooled  
 Charge . . . . . R - 502(27 oz.)  
 Operating Pressures @ 75° F . . . . . High Side - 265-275 psig  
     Low Side - 33-37 psig  
 Test Pressures . . . . . High Side - 300 psig  
     Low Side - 150 psig

**CAUTION !**

***This system is charged  
 with 27oz. of R-502***

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# NEW FEATURES

## 548 Showcase

1. Self Contained Refrigeration System
2. Storage Area
3. Removable Carousel
4. Electronic Health Control
5. Universal Control Board
  - User Friendly - EasyKey™ Menu System
  - Self Diagnostic
  - Sold Out Feature
6. Message Center
  - Self Contained Module for Easy Service
  - 20 Character Vacuum Fluorescent Display
  - 10 Service Keys
  - 14 Selection Keys
  - Bi-directional Turret Rotation
  - Turret Lockout
  - Automatic Price Scheduling
  - 154 Prices
  - Real Time Clock
  - Total Cash Accountability
7. Display Price
  - 5 Digit Vacuum Fluorescent Display
  - Floating Decimal Point



# DESCRIPTION

## INTRODUCTION

Rowe's all NEW 548 Showcase Merchandiser is the first in a new line of "World Class" computerized vending machines. It is no accident that the name chosen for the styling that introduces this unit is Genesis™. Although outwardly it looks much like its predecessor the 448-E2, which still sets the standard for the industry, it would take much more documentation than offered here to familiarize you with all the latest features and design changes.

The 548 still has a maximum capacity of 154 items, but now all are capable of being individually priced. It is further capable of three level pricing controlled by its own Real Time Clock. Sections of the turret can be locked out of availability until a preset time.

The NEW Universal Control Board (UCB) still permits individual programming to vend in either the FIFO (First In/First Out) mode or the shopper mode. For setting prices please refer to page 2 - 1. The NEW Message Center uses point of sale messages to help your customers make their purchases, while the UCB collects and accumulates MIS (Management Information Systems). The microcontroller also stores error messages in the event of a system malfunction which help to quickly isolate the problem and return the vendor to service. See pages 1 - 3 and 3 - 5 for Point of Sales and Error messages respectively.

## MAJOR COMPONENTS

### Universal Control Board

This UCB controls and monitors the vendor's performance. Further, it regulates its temperature, stores times and prices, records error messages, accumulates cash totals and interfaces with the Message Center.

### Message Center

Partially seen from the outside of the unit it houses the fluorescent display, <Turret Rotation> keys, <Selection> keys, and the <Set>, <Next>, <↑>, and <↓> keys used in programming this unit. These programming keys are used to access the Easy-Key™ Menu System described in the Service Mode Operation Section on page 2 - 1.

### Coin Mechanisms

The 548 vendor uses a 15 Pin Domestic Coin Mechanism Socket. This allows the use of 120 Volt 'Dumb Mechs' with both 12 and 15 Pin plugs. Only a 24 Volt 'Dumb Mech' with the 15 Pin plug may be used. It is important that illegitimate 24 Volt Mechs with the 12 Pin, 120 Volt Plug, should never be plugged into the dual supply 15 Pin Socket.

### Main Power Switch Assembly

This assembly is located in the bottom left corner of the cabinet. It houses the Main Power ON/OFF switch, along with a switch which opens the refrigeration circuit to prevent frost build up. It also contains two circuit breakers to protect the vendor from a power overload. The vend interlock switch that opens the vend circuit when the door is ajar is located on the inside of the main door near the cash box.

### Service Switch

This switch is located in the middle area on the hinge side of the Main Door. It is a locking rocker switch and can be used to single step or continuously rotate the Turret when cleaning and replenishing product.

### Shelf Assemblies

In place of the evaporator assembly that was housed along the right wall of the cabinet there is now a 4-shelf storage rack which will store pre-cooled products to be used at the next servicing. Although the same types and sizes of shelf compartment assemblies are used the food is now cooled in a more uniform manner because the cool air is forced up through the center column of the turret assembly.

### Turret

It can be rotated in both directions and programmed to lock out sections until a preset time. See page 2 - 4 of the Service Mode Operation Section. When initially installing the vendor, the turret should be rotated one full revolution to assure proper relationship to microcontroller's logic.

## TURRET REMOVAL

### CAUTION !

*To prevent injury or damage to the vendor two people are required to perform the following procedure .*

1. Empty Turret of all product to prevent spillage on floor.
2. Rotate Turret until "zero" position magnet is facing straight forward and shut off Main Line Switch.
3. Empty and remove the four Storage Racks.
4. Remove single screw at base of the Dividing Wall, slide it forward and remove.
5. Remove two screws from Upper Pivot Bearing. Bearing and Pivot Shaft will lay down on top of Turret.

#### NOTE:

*A long handled 1/4" Spintite (12" or more) with a magnetized head, is recommended for step 5.*

6. Lift Turret Assembly straight up high enough for Turret Base to clear Center Bearing and Drive Helicopter and remove Turret.
7. Reverse procedure to reinstall Turret.

### Electronic Digital Thermometer

To read the interior cabinet temperature, press the <Blank> key, on the selection keyboard, followed by the <F> key. The display will show the temperature in degrees fahrenheit.

### Health Control Sensor System

A count down circuit in the controller allows 30 minutes for the cabinet interior temperature to pulldown to 45° F after the Main Door is shut. If the cabinet temperature does not reach 45° F (7.2° C) in that time period, or if at any other time the temperature rises above 45° F (7.2° C), the UCB will shut down the vending and display lamp circuits. To read the elapsed time, press the <Blank> key followed by the <H> key.

## REFRIGERATION

### Electrical

The self contained refrigeration system is designed to slide in and out as one complete assembly. A normal 3 pin AC power cord supplies 120 VAC/60 cycle 16 amps power to the Compressor, Evaporator Blower, and the Condenser Fan. The Evaporator Blower runs continuously while AC power is applied, regardless of the temperature inside the machine. The condenser fan runs only when the compressor is running. Both the compressor and condenser fan are controlled by a relay (938-08000) located on the power supply chassis. This is a 12 amp inductive circuit. Although a switch between the black and the yl/bk wires may be used to run the compressor and condenser fan, this must be a substantial switch rated at 115 VAC 15 amps minimum.

When the refrigerator door is opened, the compressor and condenser fan will shut down. When the Main door is closed, there is a one minute delay before power is applied to the compressor and condenser fan. This delay is used to attain maximum life from the compressor by avoiding rapid ON/OFF cycling.

### Defrost

A defrost routine will occur during the first pull down cycle, after the refrigerator door has been closed. This minimizes frost build up on the evaporator when the outside humidity is high. The defrost cycle is accomplished by cycling the compressor OFF for 2 minutes after every 20 minutes of run time, until the initial pull down is completed. After the initial pull down, the compressor is cycled by cabinet temperature.

### Health Control Sensor

There is only one temperature probe for both the refrigeration control and the health control. The temperature probe is located on the door at the bottom of the left hand fluorescent lamp reflector. The temperature sensor is a solid state temperature measuring device (548-01818). This temperature sensor converts temperature into a proportional voltage; for example, 42° F = 0.42 VDC. The Universal Controller Board tracks and displays the temperature of the air and controls the refrigeration and health status. If the temperature probe is disconnected, the temperature reading will go up to 92° F regardless of the true air temperature.



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## POINT OF SALE MESSAGES

### Messages Prior to Credit

"SORRY OUT OF SERVICE" - This message will appear whenever there is an error condition logged by the software. The display lamps will be out and one or more of the error conditions will exist.

"INSERT MONEY" - This message appears when a Bill Validator is configured and there is sufficient change in the Coin Mechanism.

"EXACT CHANGE PLEASE" - This message appears whenever there is insufficient change in the Coin Mech. Users can buy with an over credit and the machine will try to make the correct change.

"COINS ONLY PLEASE" - This message appears only when a Bill Validator is not configured and there is sufficient change.

"MAKE FREE SELECTION" - Machine is in Free Vend. No money is required.

### Credit Messages

"CREDIT-\$ 123.45" - Purchaser's current credit, validated by the Coin Mech and/or Bill Validator.

### Selection Messages

"ITEM IS NOT AT DOOR" - Turret is positioned for 1/2 compartment vend.

"INSUFFICIENT CREDIT" - Selection requires more than the current credit.

"MUST MAKE SELECTION" - <Coin Return> depressed when vendor is in forced buy mode. Forced buy means Escrow Disabled.

"PRESS SELECTOR KEY" - Vend attempted at FIFO Door. User must press the <Selector> Key that corresponds to the desired shelf.

"SHELF @ NOW READY" - FIFO Shelf has been positioned to vend.

"DOOR @ IS OPEN" - Delivery Door @ is open.

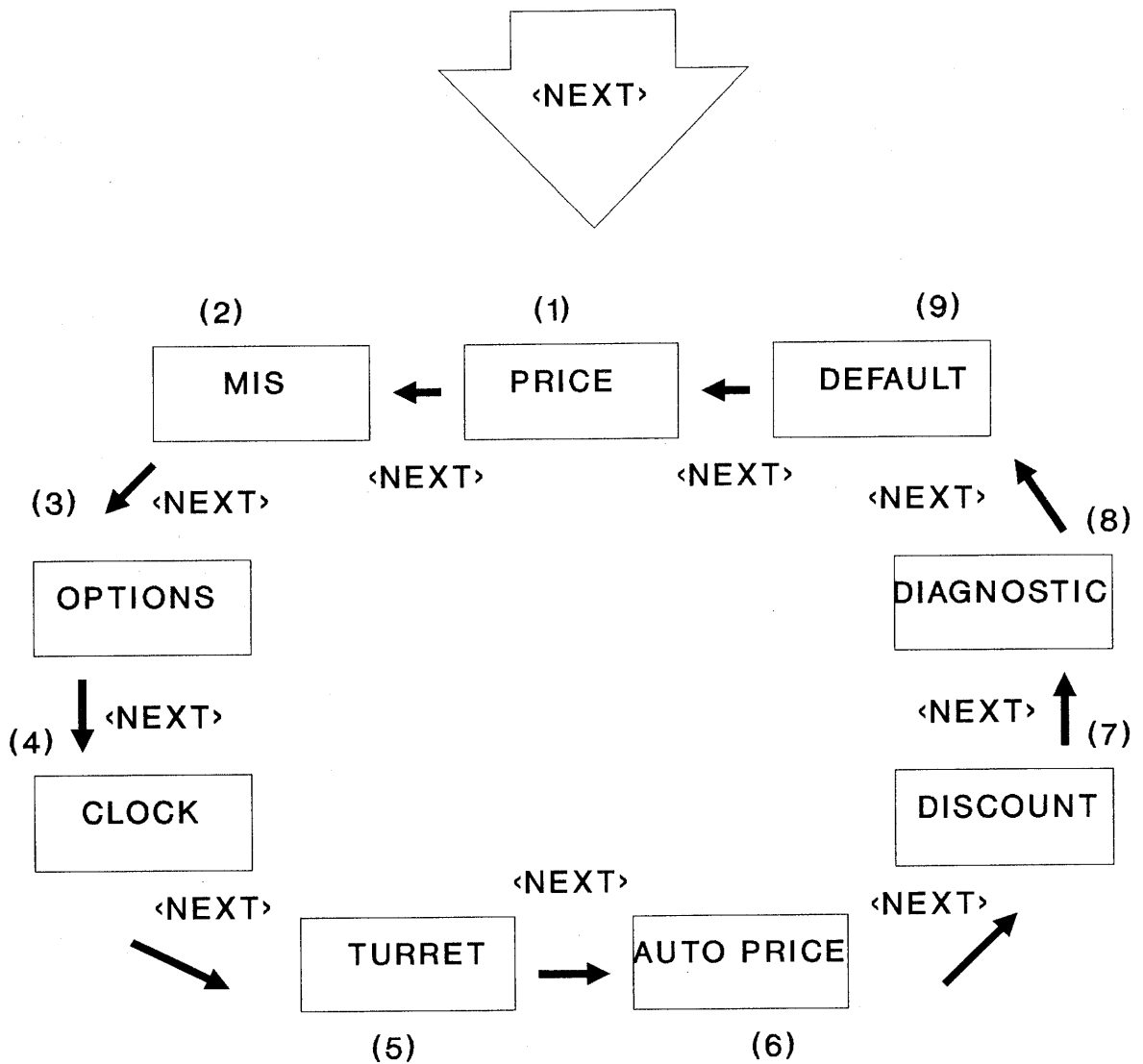
### Vend Completed

"THANK YOU" - Transaction has been completed successfully.

### NOTE:

*See Error Messages in Troubleshooting Section pages 3 - 5.*

# SERVICE MENU



**For items within each menu see page 2 - 8.**

<Next> Key moves through the menus.

<Set> Key moves through items in a menu.

<↓> & <↑> changes the value of an item.



# SERVICE MODE OPERATION

## INTRODUCTION

The Universal Control Board uses a menu driven interface to configure the food vendor, choose from available options, access the MIS information, and troubleshoot this vendor. Opening the Coin Mech compartment door will automatically bring you into the "SERVICE MENU". There are seven menu items which are available for setting up and/or servicing our all NEW 548 Showcase Merchandiser.

The Message Center has ten service keys, four of which are used to access the Easy-Key™ Menu System. All messages that will appear on the display will be shown in all upper case letters enclosed with ditto marks. The keys depressed to initiate and terminate an action are enclosed with less than and greater than marks, <>.

To move from one menu to the next, simply press the <Next> key. To set an item in that menu, press the <Set> key. The first item in that menu will be displayed. The value or setting of that item may be changed by using the <↑> or <↓> keys. Pressing the <Set> key will move to the next item in the menu. Pressing the <Next> key will move to the next menu.

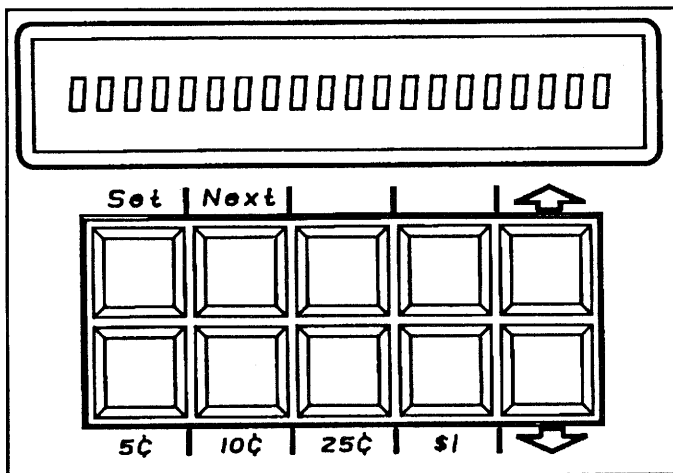


FIGURE 1

<Set>, <Next>, <↑>, and <↓> keys are all you need to use the Easy-Key™ Menu System.

The <5c>, <10c>, and <25c> keys are used to dispense coins from the coin mech. The <\$1> key will be used for the dollar coin when it becomes available.

## Error Messages

When the coin mech door is opened, the display will show "\*\*\* SERVICE MENU \*\*\*". If there were any error conditions since the last time the door was opened, the display will show "ERROR MESSAGES".

Press the <Set> key and the display will show what error(s) have been logged in. Continue pressing the <Set> key to see all the errors. After all error messages have been shown, the display will show "CLEAR ERRORS - YES". Use the <↑> or <↓> key to select YES or NO.

If you select "NO", the errors will still be logged the next time the coin mech door is opened.

If you select "YES", all the error messages will be cleared. This does not correct any problems. It only clears the messages.

## Sold Out Feature

When the coin mech door is opened, the display will show "\*\*\* SERVICE MENU \*\*\*". When the sold out feature is enabled, if no error conditions exist, the display will show "CHECK SOLD OUT DOORS".

The price display at each door will show "SOLD" if that compartment should be empty. Open the compartment door and the display will show "NONE". If there is product in a compartment that says "SOLD", discard it. Rotate the turret and check the compartments that say "SOLD". Once all the compartments have been cleared, the machine will automatically go into the Service Mode and the display will show "\*\*\* SERVICE MENU \*\*\*".

The following numbered items are a detailed description of the flow chart on the previous page.

## 1. Price Menu

The Price Menu is where the prices, shelf size, fifo/shopper, and multi-price are set up. There are three price schedules that can be selected. Shelf size can be either half or full size. Any shelf can be set to operate in either the FIFO or SHOPPER mode. Each shelf can be set to a single price or individually priced by compartment using multi-price.

## Price Schedule

To choose a price schedule, press the <Set> key at the "PRICE MENU" prompt. The display will show "SCHED 1". Use the <↑> or <↓> key to select schedule 1, 2, 3, or auto. The schedule you choose will determine what prices the machine will use in the vend mode. Autoprice is discussed in item 6, Autoprice Menu .

## Setting Prices

To set prices, press the <Set> key after selecting a schedule. The display will show "SET PRICE - \$ .50". Use the <↑> or <↓> key to select the proper price, then toggle the door of the compartment to which you want the price to be set. You can set as many shelves as you want to that price. Simply change the price with the <↑> or <↓> keys and toggle any other door to set the new price. If multiprice is ON, you can rotate the turret and price each compartment the same as you price a shelf.

## Shelf Size

To set shelf size ,press the <Set> key again and the display will show "SHELF SIZE - HALF". Use the <↑> or <↓> key to change the setting to either half or full. Toggle the door of the shelf to which you want the price to be set. Notice the price display will reflect the status of that shelf. (i.e. - "HALF" or "FULL")

## Fifo/Shopper

To set FIFO or shopper mode, press the <Set> key again and the display will show "SET FIFO MODE - SHOP". Use the <↑> or <↓> key to change the setting to either FIFO or SHOP. Toggle the door of the shelf to which you want the price to be set. Notice the price display will reflect the status of that shelf. (i.e -"FIFO" or "SHOP")

## Multiprice

To set multiprice mode ON, press the <Set> key again and the display will show "MULTI PRICE - OFF". Use the <↑> or <↓> key to change the setting to either ON or OFF. Toggle the door of the shelf to which you want the price to be set. Notice the price display will reflect the status of that shelf. (i.e. - "ON" or "OFF"). Multiprice allows you to price each compartment on the same shelf to a different price. Total number of individual prices is 154.

## NOTE:

*Pressing the <Next> key at any time will move you to the following menu. All changes that you have set will be automatically saved.*

## 2. MIS Menu

The MIS MENU allows access to the stored Management Information System (MIS).

### Total Vends

Press the <Set> key at the "MIS MENU" prompt. The display will show "TOTAL VENDS - X".

### Schedule Vends

Press the <Set> key and the display will show "SCHED 1 VENDS - X".

Press the <Set> key and the display will show "SCHED 2 VENDS - X".

Press the <Set> key and the display will show "SCHED 3 VENDS - X".

### Sales Totals

Press the <Set> key and the display will show "SALES (R) -\$ .XX".

Press the <Set> key and the display will show "SALES (N) -\$ .XX".

### Coin Dump

Press the <Set> key and the display will show "COIN DUMP - NONE".

Use the <↑> or <↓> key to select either NONE, FULL OR EXTRA. If you select EXTRA or FULL and press the <Set> key, the controller will activate this feature.

### Coin Totals

Press the <Set> key and the display will show "QUARTERS-X \$.XX".

Press the <Set> key and the display will show "DIMES-X \$.XX".

Press the <Set> key and the display will show "NICKELS-X\$.XX".

### Cash Box

Press the <Set> key and the display will show "CASH BOX-\$ .XX".

Press the <Set> key and the display will show "ONES-X\$ .XX".

Press the <Set> key and the display will show "TWOS-X\$ .XX".

Press the <Set> key and the display will show "FIVES-X \$ .XX".

### Bill Totals

Press the <Set> key and the display will show "BILL TOTAL-\$ .XX".

### Total Cash

Press the <Set> key and the display will show "TOTAL CASH-\$ .XX".

Press the <Set> key and the display will show "CASH BOX EMPTY - NO". Use the <↑> or <↓> key to select either YES or NO. If you select YES, when you press the <Set> key, the cash box total will be cleared.

Press the <Set> key and the display will show "BILL ACCPT EMPTY -NO". Use the <↑> or <↓> key to select either YES or NO. If you select YES, when you press the <Set> key, the bill total will be cleared.

### Free Vends

Press the <Set> key and the display will show "FREE VENDS - X".

Press the <Set> key and the display will show "FREE VENDS-\$ .XX".

### Clear Data

Press the <Set> key and the display will show "CLEAR MIS DATA - NO". Use the <↑> or <↓> key to select either YES or NO. If you select YES, when you press the <Set> key, the MIS data will be cleared.

### Machine I.D.

Press the <Set> key and the display will show "MACHINE ID - X". Use the <↑> or <↓> key to set the appropriate ID number.

### NOTE:

*Pressing the <Next> key at any time will move you to the following menu. All changes that you have set will be automatically saved.*

## 3. Options Menu

The OPTIONS MENU is where the machine features are selected.

### Escrow

Press the <Set> key and the display will show "ESCROW -OFF". Use the <↑> or <↓> key to select either ON or OFF.

### Bill Acceptor

Press the <Set> key and the display will show "BILL ACCEPTOR -OFF". Use the <↑> or <↓> key to select either ON or OFF.

When the BILL ACCEPTOR is ON, and you press the <Set> key, the display will show "\$1 BILLS - REJECT". Use the <↑> or <↓> key to select either ACCEPT or REJECT.

Press the <Set> key, and the display will show "\$2 BILLS -REJECT". Use the <↑> or <↓> key to select either ACCEPT or REJECT.

Press the <Set> key, and the display will show "\$5 BILLS -REJECT". Use the <↑> or <↓> key to select either ACCEPT or REJECT.

### Chime

Press the <Set> key and the display will show "CHIME - OFF". Use the <↑> or <↓> key to select either ON or OFF.

**Sold Out Feature Enable**

Press the <Set> key and the display will show "SOLD OUT MODE - OFF". Use the <↑> or <↓> key to select either ON or OFF.

**Free Vend**

Press the <Set> key and the display will show "FREE VEND -OFF". Use the <↑> or <↓> key to select either ON or OFF.

**Display Time**

Press the <Set> key and the display will show "DISPLAY TIME - OFF". Use the <↑> or <↓> key to select either ON or OFF.

**NOTE:**

*Pressing the <Next> key at any time will move you to the following menu. All changes that you have set will be automatically saved.*

**4. Clock Menu**

The CLOCK MENU is where the real time clock and calendar is set.

**Date**

To set the date, press the <Set> key at the "CLOCK MENU" prompt. The display will show "DATE -MM/DD/YY".

Press the <Set> key again and the display will show "SET DATE -NO". Use the <↑> or <↓> key to select YES or NO. If you select YES, and you press the <Set> key, the display will show "SET DAY OF MONTH - DD". Use the <↑> or <↓> key to select the proper day.

Press the <Set> key and the display will show "SET MONTH - MM". Use the <↑> or <↓> key to select the proper month.

Press the <Set> key and the display will show "SET YEAR -YY". Use the <↑> or <↓> key to select the proper year.

**Time**

Press the <Set> key and the display will show "TIME - HH.MM XM", where XM is AM or PM.

Press the <Set> key again and the display will show "SET TIME -NO". Use the <↑> or <↓> key to select YES or NO.

If you select YES, and you press the <Set> key, the display will show "SET HOURS - HH XM". Use the <↑> or <↓> key to select the proper hour.

Press the <Set> key and the display will show "SET MINS - MM". Use the <↑> or <↓> key to select the proper minutes.

**NOTE:**

*Pressing the <Next> key at any time will move you to the following menu. All changes that you have set will be automatically saved.*

**5. Turret Menu**

The TURRET MENU is where sections of the turret (carousel) can be locked out for a period of time.

**Delay**

To delay certain sections from being vended, press the <Set> key at the " TURRETMENU -" prompt. The display will show "TURRET DELAY - OFF" Use the <↑> or <↓> key to turn ON or OFF the delay.

If you select ON, and you press the <Set> key, the display will show "DELAY SECTIONS X - 7". Use the <↑> or <↓> key to select the sections to delay.

**Time**

Press the <Set> key and the display will show "STOP TIME - HH.MM XM" where XM is AM or PM.

Press the <Set> key again and the display will show "SET STOP TIME - NO ". Use the <↑> or <↓> key to select either YES or NO. If you select YES, and you press the <Set> key, the display will show "SET HOURS - HH XM". Use the <↑> or <↓> key to select the proper hour.

Press the <Set> key, and the display will show "SET MINS - MM". Use the <↑> or <↓> key to select the proper minutes.

**6. Autoprice Menu**

The AUTOPRICE MENU is used to set the start and stop time for each PRICE SCHEDULE.

Press the <Set> key at the "AUTOPRICE MENU" and the display will show "ENABLE SCHED 2 - NO". Use the <↑> or <↓> key to select either YES or NO.

**Start Time**

If you select YES, and you press the <Set> key, the display will show "START TIME- HH.MM XM".

Press the <Set> key again and the display will show "SET START TIME - NO". Use the <↑> or <↓> key to select either YES or NO.

If you select YES, and you press the <Set> key, the display will show "SET HOURS - HH XM". Use the <↑> or <↓> key to select the proper hour.

Press the <Set> key and the display will show "SET MINS - MM". Use the <↑> or <↓> key to select the proper minutes.

Press the <Set> key again and the display will show "SET STOP TIME - HH.MM XM". Press the <Set> key again and the display will show "STOP TIME - NO". Use the <↑> or <↓> key to select either YES or NO.

If you select YES, and you press the <Set> key, the display will show "SET HOURS - HH XM". Use the <↑> or <↓> key to select the proper hour.

Press the <Set> key and the display will show "SET MINS - MM". Use the <↑> or <↓> key to select the proper Press the <Set> key and the display will show "ENABLE SCHED 3 - NO". Use the <↑> or <↓> key to select either YES or NO.

If you select YES, and you press the <Set> key, the display will show "START TIME- HH.MM XM".

Press the <Set> key again and the display will show "SET START TIME - NO". Use the <↑> or <↓> key to select either YES or NO.

If you select YES, and you press the <Set> key, the display will show "SET HOURS - HH XM". Use the <↑> or <↓> key to select the proper hour.

Press the <Set> key and the display will show "SET MINS - MM". Use the <↑> or <↓> key to select the proper minutes.

**Stop Time**

Press the <Set> key again and the display will show "STOP TIME - HH.MM XM".

Press the <Set> key again and the display will show "SET STOP TIME - NO". Use the <↑> or <↓> key to select either YES or NO.

If you select YES, and you press the <Set> key, the display will show "SET HOURS - HH XM". Use the <↑> or <↓> key to select the proper hour.

Press the <Set> key and the display will show "SET MINS - MM". Use the <↑> or <↓> key to select the proper

**7. Discount Menu**

The DISCOUNT menu contains the menu items that set the time periods during which the discounts will become active. A time period is described by start and end times between and including the start and end days. For example if a discount is desired from 9:00AM to 5:00PM on Monday through Friday, set the START TIME to 9:00AM, the STOP TIME to 5:00PM, the START DAY to MONDAY and the END DAY to FRIDAY.

To describe a complete 24 hour time period, set the START TIME to some time, 9:00AM for example. Then set the END TIME to 1 minute less than that time, 8:59AM in this case.

To describe a complete week time period, set the START DAY to some day, Monday for example. Then set the END DAY to the previous day, Sunday in this case.

**Set Discount 1**

The purpose of SET DISCOUNT 1 is to set the time period that DISCOUNT 1 will be active.

To enable DISCOUNT 1, depress the <SET> key until "SET DISCOUNT 1- NO" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "YES" and depress the <SET> key.

**Discount**

This menu item sets the amount that will be deducted from all prices in the active schedule when the discount is active. If the discount is greater than or equal to the price of an item, the price will become \$ .00.

To set the DISCOUNT, depress the <SET> key until "DISCOUNT - \$ .XX" is displayed on the message center. (XX = .05 to 99.95.) Use the <UP> or <DOWN> arrow key to select the desired discount and depress the <SET> key.

**Start Time**

"START TIME - HH.MM XM" will appear on the message center. This shows the time of day that Discount 1 will become active. To continue, depress the <SET> key.

**Set Start Time**

"SET START TIME - NO" appears on the message center. To set the start time, use the <UP> or <DOWN> arrow keys to display "YES" on the message center and depress the <SET> key.

**Set Hours**

"SETHOURS - HH XM" will appear on the message center. To change the hour, use the <UP> or <DOWN> arrow keys to display the correct hour and depress the <SET> key.

**Set Mins**

"SET MINS - MM" will appear on the message center. To change the minutes, use the <UP> or <DOWN> arrow keys to display the correct minutes and depress the <SET> key.

**Stop Time**

"STOP TIME - HH.MM XM" will appear on the message center. This shows the time of day that Discount 1 will become inactive. To continue, depress the <SET> key.

**Set Stop Time**

"SET STOP TIME - NO" appears on the message center. To set the stop time, use the <UP> or <DOWN> arrow keys to display "YES" on the message center and depress the <SET> key.

**Set Hours**

"SETHOURS - HH XM" will appear on the message center. To change the hour, use the <UP> or <DOWN> arrow keys to display the correct hour and depress the <SET> key.

**Set Mins**

"SET MINS - MM" will appear on the message center. To change the minutes, use the <UP> or <DOWN> arrow keys to display the correct minutes and depress the <SET> key.

**Start Day**

"START DAY-WWWDAY" will appear on the message center. This shows the day of the week that Discount 1 will become active. To continue, depress the <SET> key.

**Set Start Day**

"SET START DAY-NO" appears on the message center. To set the start day, use the <UP> or <DOWN> arrow keys to display "YES" on the message center and depress the <SET> key.

**Set Day**

"SET DAY - WWWDAY" will appear on the message center. To change the day use the <UP> or <DOWN> arrow keys to display the day and depress the <SET> key.

**End Day**

"END DAY-WWWDAY" will appear on the message center. This shows the day of the week that Discount 1 will become inactive. To continue, depress the <SET> key.

**Set End Day**

"SET END DAY-NO" appears on the message center. To set the end day, use the <UP> or <DOWN> arrow keys to display "YES" on the message center and depress the <SET> key.

**Set Day**

"SET DAY - WWWDAY" will appear on the message center. To change the day use the <UP> or <DOWN> arrow keys to display the day and depress the <SET> key.

(Where HH is hours, MM is minutes, XM is AM or PM, and WWW is the day of the week, ie. SUN, MON, TUES, etc.)



## 8. Diagnostics Menu

The DIAGNOSTICS menu contains the menu items that perform system diagnostics.

### Health Test

The purpose of the HEALTH TEST is to test the health control system.

To perform a HEALTH TEST, open the service door and the large main door. On the inside bottom portion of the large main door near the fluorescent light is the temperature probe. Place a hand on the probe to raise the temperature above 45 F. Check the temperature by depressing on the key pad the black <BLANK> key and then the <F> key. The message center will temporarily display the "TEMPERATURE = XX F", where XX is the temperature being read by the probe. When the temperature rises above 45 F, close the main door. Use the <UP> or <DOWN> arrow keys to display "YES" and depress the <SET> key. Close the Service door. Depress on the key pad the black <BLANK> key and then the <H> key to display the health control status on the message center. The display should temporarily read "HEALTH CONTROL ON". Wait approximately 20 seconds for the machine to go out of service.

### Card Credit

The purpose of the CARD CREDIT menu item is to test the Debit Card System (if installed).

The CARD CREDIT menu item shows the amount of Debit Card credit currently established when a Debit Card is inserted into the Debit Card reader. The machine will accept as much credit as the debit card system is programmed to transfer. Depress the escrow return button on the Debit Card System to return the credit to the card. The CARD CREDIT display should then return to "CARD CREDIT - \$ .00".

### Set Zero Pos

The purpose of the SET ZERO POSITION menu item is to locate the zero position on the turret.

To locate zero position use the <UP> or <DOWN> arrow keys to display "YES" and depress the <SET> key. The message center will then display "TURN UNTIL ZERO POS" unless the turret is already located on the zero position switch. If the turret is not on the zero position switch, turn the turret by depressing the <ROTATE LEFT TURRET> or <ROTATE RIGHT TURRET> key until the "TURN UNTIL ZERO POS" message disappears from the message center.

## 9. Default Menu

The DEFAULT MENU is used to set the prices, options, and other features to an initial condition.

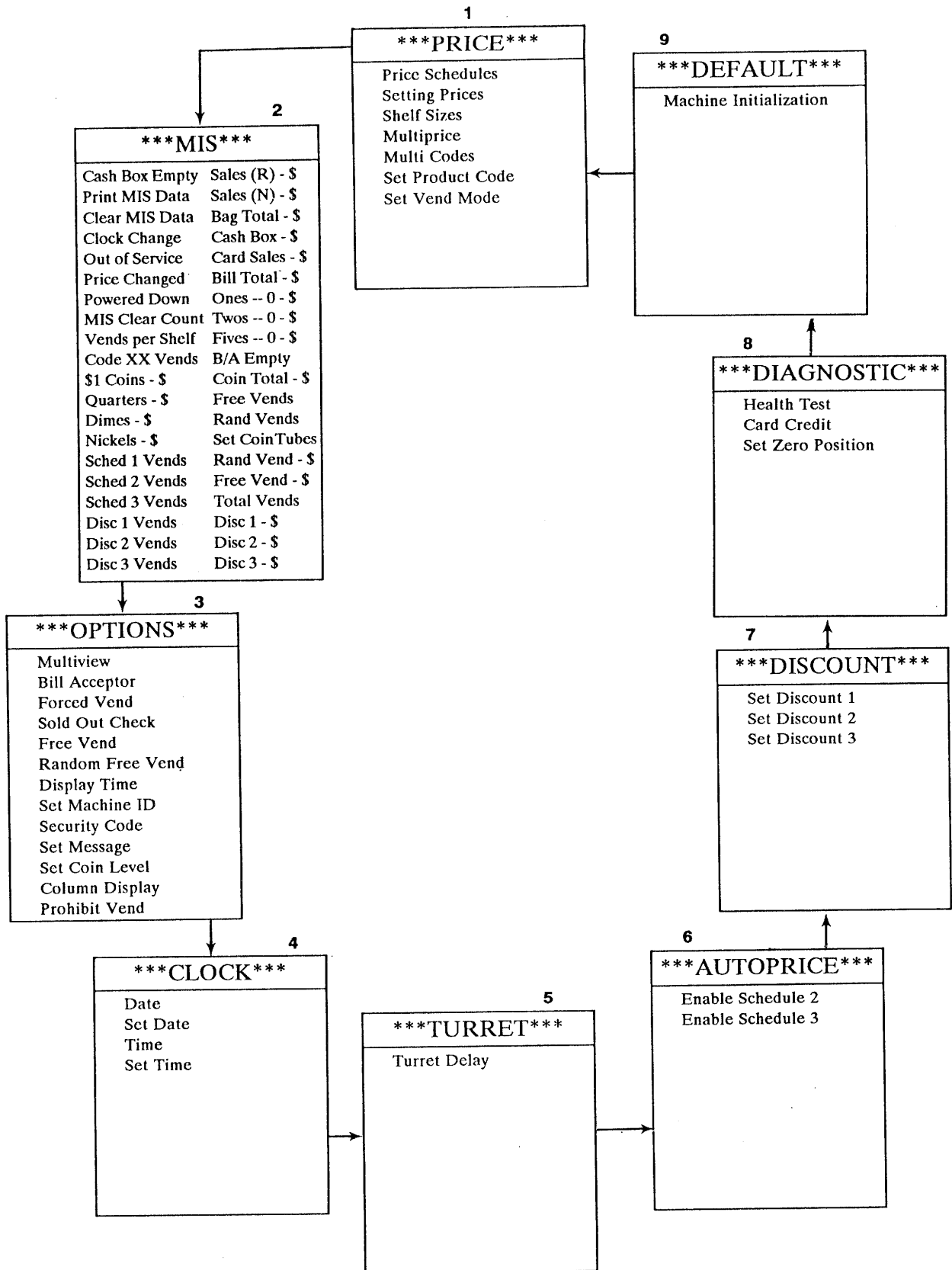
Press the <Set> key at the "DEFAULT MENU" prompt. The display will show "MACHINE INIT -NO ". Use the <↑> or <↓> key to select YES or NO.

If you select YES, and press the <Set> key, the display will show "TURN UNTIL ZERO POS." Rotate the turret until the display shows "\*\*\*\*SERVICE MENU \*\*\*\*".

### NOTE:

*Pressing the <Next> key at any time will move you to the following menu. All changes that you have set will be automatically saved.*

# ITEMS WITHIN EACH MENU



**<Set> Key steps through the items within each menu**



# TROUBLESHOOTING

## INTRODUCTION

This section contains a preliminary check list, a Power Supply Indicator Light Identification Table and three troubleshooting charts. The first lists possible problems and suggested solutions. The second lists Error Messages which will be shown on the Message Display Center when in the Service Mode. And the third lists possible malfunctions with the Refrigeration unit. When a problem occurs, always look for the obvious solution first. Check the following before attempting to make any adjustment or replacement of parts:

### Check List

Check that the merchandiser is connected to a live power source, 120V with a good ground.

Check that the main power switch is ON.

Check the condition of both circuit breakers on the Main Power Switch Assembly and on the power supply unit behind the center panel of cabinet.

Check to insure both interlock switches are actuated when cabinet door is closed and latched.

Check that all plugs are seated in their receptacles. Check that connector pins are not bent, broken or pushed through the back of the connector when mated.

Check that wires are not broken at connector pins.

### Indicator Lights

A representation of the Power Supply Cover showing the approximate location of these lights is depicted on page 3 - 4. Below it is a table describing what the indicator lights are monitoring. This, used in conjunction with your power of observation and common sense, can help you quickly isolate most voltage source problems.

### Troubleshooting Charts

Each time the Universal Control Board is powered up it performs a series of tests to determine if a majority of the components are functioning properly. As the machine goes through its various cycles during vending there are a number of routines which monitor the machine's performance and record any malfunctions. If a one is encountered an Error Message indicating the type of problem is stored in the battery backed up RAM. The machine will continue to attempt to operate normally.

It should be noted however, that certain errors will make it necessary to disable some functions. For example: If the lock bar solenoid fails to lock the doors it would be necessary not to allow the turret to rotate. This would prevent someone from taking out items through the unlocked door which haven't been paid for. However, if a person does attempt to transport, the locking procedure will be attempted each time. If the lock does finally work then the turret will be rotated, but the Error Messages will still be stored to indicate to the service person that a problem had existed and should be checked out.

### Error Messages

For a listing of the Error Messages see the Troubleshooting Chart - Error Messages, page 3 - 5. To view and clear Error Messages see Service Mode Operation, page 1 - 1.

### Refrigeration System

If the refrigeration system compressor is inoperative, perform the following checks before replacing the unit. Be sure to hold the Refrigeration Interlock Switch closed when making the operational checks.

1. Measure the line voltage. If line voltage is below 105 volts, the compressor may fail to start, or run hot.
2. If line voltage is correct, check automatic control thermostat operation by connecting a jumper wire across the terminal with power disconnected.
3. The Start Capacitor, Run Capacitor, and Start Relay are best tested by substituting them with known good components. This way there can be no doubt of test results. See Figure 2 on page 3 - 3.
4. Check Thermal Overload for continuity.
5. With motor leads disconnected from circuits, check compressor motor windings with Volt/Ohm meter set on R x 1 scale. (Readings +/- 10%)
 

Common to Start . . . . .	5 Ohms
Common to Run . . . . .	1 Ohm
Start to Run . . . . .	6 Ohms
6. Check for grounded winding with Volt/Ohm meter from Start Capacitor to metal casing and Run Capacitor to metal casing. There should be no continuity, if there is, replace compressor.

## Compressor Circuit Description

The Compressor Motor is a Two Value Capacitor Motor. This is very similar to a Permanent Split Capacitor Motor except for the addition of a Running Capacitor.

During start-up, both the Running and Starting Capacitors are in the circuit. This makes the total Capacitance during start between 98  $\mu$ FD and 113  $\mu$ FD. Once the Motor is running the capacitance is reduced to 25  $\mu$ FD. Running Capacitors must always have a continuous AC rating and they tend to be much larger in size per Microfarad than Starting Capacitors.

The overall effects of a Running Capacitor are:

- Increases break down torque 30%
- Reduces full-load current
- Reduces full-load noise
- Increases locked rotor torque 20%
- Increases overall efficiency

The Start Relay contact is normally closed. The Start Relay has a voltage sensitive coil that remains de-energized until the voltage across its coil, caused by the voltage across the Start Winding, exceeds 162-175 VAC. At this time the compressor has broken away from the load and is near its nominal running speed. As the Compressor shaft speed increases, the voltage on the Start Winding also increases. When the Start Winding voltage reaches the proper level the Start Relay coil will energize. This opens the contacts to the Start Capacitor, disconnecting it from the circuit. With the Start Capacitor disconnected, the current through the Start Winding will drop 70%. The Bleeder Resistor provides a safe discharge path for any stored charge in the Start Capacitor. Failure to return the Start Relay and the Control Box to their correct mounting position will cause the motor starting voltages to be altered. This could result

in start-up problems at low line voltages. Always secure the Control Box before returning the unit to service.

When power is applied to the black wire, the Evaporator Blower should run immediately. Connecting the black wire to the yl/bk wire closes the refrigeration circuit.

### **CAUTION !**

*This is a HIGH Energy Circuit. DO NOT use less than 16 gauge wire or switches rated less than 15 amps. DO NOT connect the jumper wire or switch while power is ON.*

When the yl/bk wire is made hot, the condenser fan and compressor will start to run. Until the compressor rotor shaft reaches a minimum running speed, the start relay contact (Terminal 1 & 2) will remain closed. This allows the start capacitor to draw high current through the start winding. This creates a high torque at the rotor shaft in order to accelerate the Compressor under load. As the rotor comes up to speed, the voltage on the start relay coil (Terminals 2 & 5) will rise. When the minimum running speed is attained, the Start Relay coil will energize and open the circuit to the Start Capacitor.

There is a third Capacitor located on the Refrigeration Chassis. This is a Power Factor Compensation Capacitor, intended to lower the high current demands of the Compressor. It has no effect on the starting or running of the Compressor other than lowering the required line current.

When repairing the refrigeration unit only use EXACT replacement parts for the Start Relay, Run and Start Capacitors. Failure to do so will void the warranty. Please note the placement of the Start Relay and the Control Box. Both must be returned to the proper orientation. Altering the mounting position for either of these parts will change the starting voltage.

REFRIGERATION SYSTEM WIRING DIAGRAM

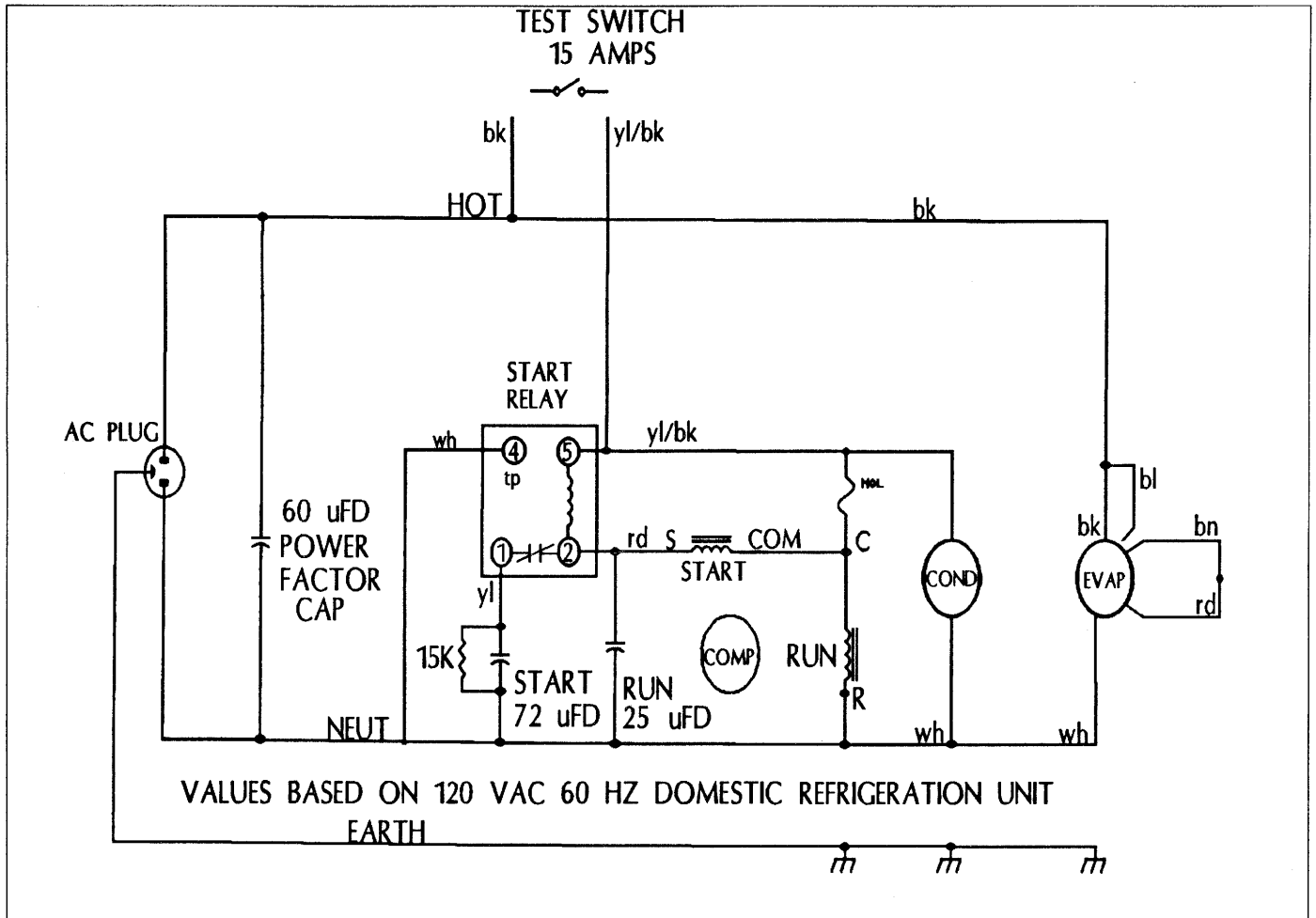


FIGURE 2

**NOTE:**

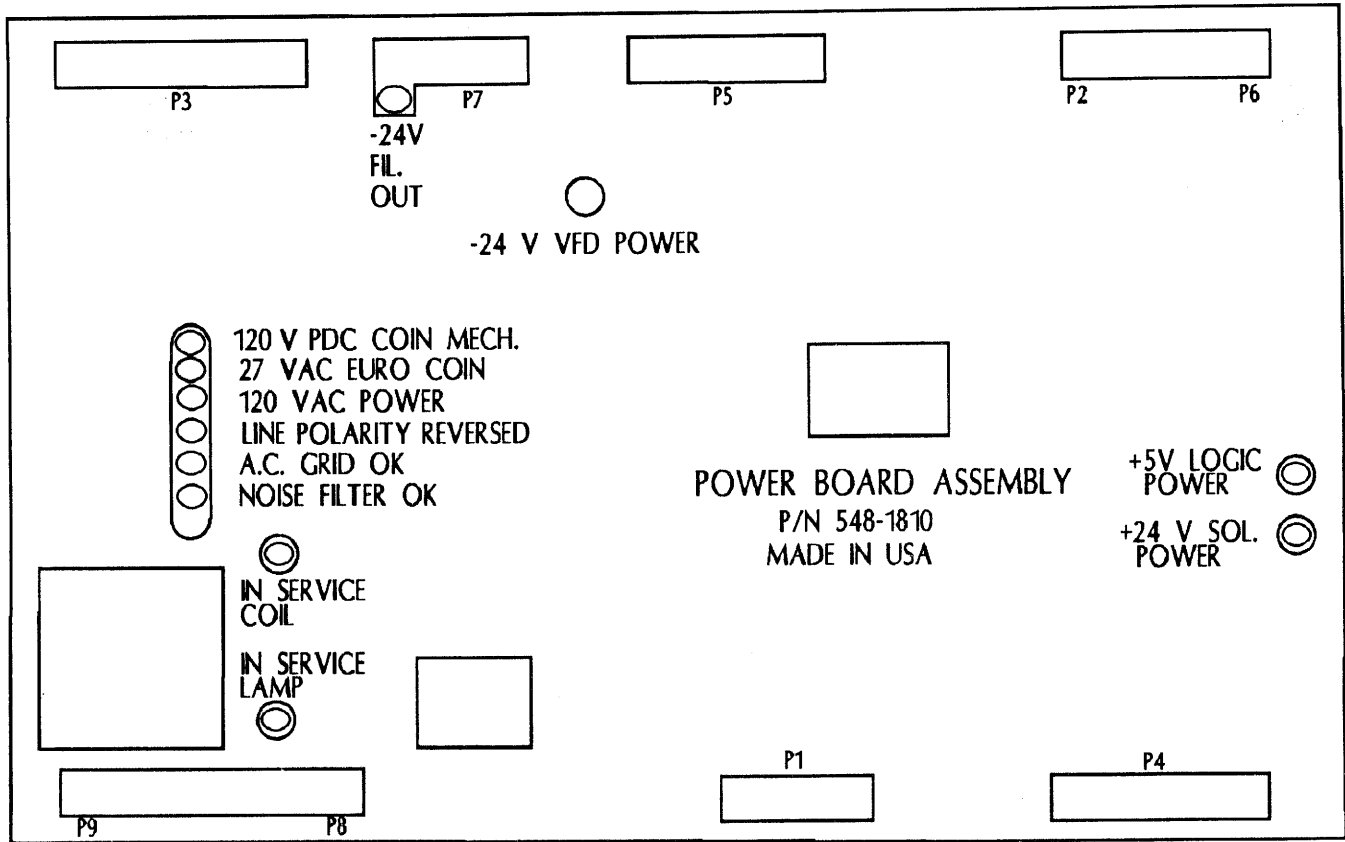
The entire Refrigeration Unit may be removed from the vendor and run on the bench to troubleshoot. Install a jumper wire capable of handling 10A (16 gauge) in the Refrigeration Relay harness connector and plug the power cord into 120V grounded receptacle. Do not allow unit to run for extended periods of time without the Cold Control. It could cause the Evaporator to freeze.

**CAUTION !**

Protective eye wear must be worn when testing refrigeration systems. This system is charged with 27oz. of R-502 refrigerant. Repair should only be performed by technicians trained and experienced in refrigeration troubleshooting and safety procedures. Operating pressures with a R-502 system are higher than that of R-12 systems. (high side 265-275 psig - low side 33-37 psig @ 75° ambient air temp.)

Never introduce R-12 refrigerant into this system. Operating temperature/pressure will be affected and the unit will not function properly and could be destroyed.

**POWER SUPPLY INDICATOR LIGHTS**



Name	Color	Description
+120 V PDC Coin Mech 27 VAC Euro Coin	Neon Yellow LED	120 volt Pulse DC for Coin Mechanism 27 VAC for European Executive Coin Mechanisms and Card Systems.
120 VAC Power Line Polarity Reversed	Neon Neon	ON Indicates Difference in Voltage. ON Indicates Reverse Polarity between AC Hot and Neutral.
AC Ground OK Noise Filter OK	Neon Neon	ON Indicates voltage between HOT and Earth. ON Indicates that the Filter Module is not shorted or open.
In Service Coil	Red LED	ON Indicates that the Fluorescent Lamp Relay Coil is energized.
In Service Lamps	Neon	ON Indicates that power is being applied to the Fluorescent Lamp Ballasts.
-24V Fil. Out	Red LED	ON Indicates that the Column Display Filament Voltage is present.
-24V VFD Power	Red LED	ON Indicates that the -24V Cathode Supply is present. This is used to power the Column Display and Message Center.
+5V Logic Power +24V Solenoid Power	Red LED Red LED	ON Indicates the presence of the +5 VDC Logic Supply. ON Indicates the presence of the +24V solenoid supply.

**TROUBLESHOOTING CHART  
(Error Messages)**

<b>Error Messages</b>	<b>Probable Cause</b>	<b>Solution</b>
<b>"MOTOR MALFUNCTION"</b>	Turret Motor jammed	Clear jam, clear motor error return to zero position.
	Turret overloaded	Same
	Shorted motor leads	Remove short, clear error, turn to zero position
	Bad driver circuit on Power Supply	Replace Power Supply
	Bad detection circuit on Power Supply	Replace Power Supply
<b>"HEALTH TIME EXPIRED"</b>	Refrigeration Unit not plugged in	Check and replug
	Refrigeration Relay disconnected or defective	Check and/or Replace
	Delivery Door not closed	Repair
	High ambient	Vendor not designed to operate outside
	Temperature reads 94° F continuously	Temperature Sensor not plugged in, or defective
<b>"COIN MECH ERROR"</b>	Improper Coin Mech Set Up	Correct set up
	Coin Mech not plugged in	Check and replug it in
	Coin Mech defective	Replace Coin Mech.
	No power to Coin Mech socket	Check for +5 VDC Check for +120 V PDC Check for +24 V PDC
	Jammed coin trips overload in Power Supply	Check for coins jammed in changer

**TROUBLESHOOTING CHART  
(Error Messages) Cont'd**

<b>Error Messages</b>	<b>Probable Cause</b>	<b>Solution</b>
"MAIN DOOR OPEN"	Switch not activated	Check Main Door and switch
	Switch broken	Same
	Switch disconnected	Check wiring
"MOTOR SWITCH ERROR"	Half Cycle Switch disconnected or defective	Check wiring at Half Cycle Switch. Check Half Cycle Switch
	Logic circuit on Power Supply defective	Check for RS-232 level changes at Half Cycle output on Power Supply.
	Half Cycle input to Controller disconnected or defective	Check I/O Cable Power Supply to Controller Board.



**TROUBLESHOOTING CHART  
(Problem/Solution)**

Problems	Probable Cause	Solution
Message Center does not light	No power to the Message Center	<p>Check for +5 VDC            Check for -24 VDC            Check for VRTN            Are all required for the Message Center to light. There is only one cable to the Message Center. This comes from the Controller Board. If the Controller dies but power is still on the Message Center, the Message Center will default to the built in message "ROWE INT'L VER1.8"</p>
Price Column Display does not light	No power to Column Display	<p>Check +5 VDC @ pins 6 and 7            Check -24 VDC @ pins 1, 2 and 10            Check -22.2 VDC @ pins 11 and 12            Check VRTN @ pins 8 and 9 for continuity            All must be present at the Top Board of the Column Display. These voltages come directly from the Power Supply.</p>
Does Not Accept Coins	Coin Mech not reset or not receiving coin acceptance signal	<p>Check that Accept Enable is low              Check +5 VDC @ pin 1 at Coin Mech            Check +120 VDC @ pin 12 at Coin Mech            Check +24 VDC @ pin 15 at Coin Mech</p>
Does Not Accept Bills	Bill Acceptor not receiving bill acceptance signal	<p>Check power to Bill Validator            120 VAC @ pin 1 and 2 of 3 pin plug              Incorrect set up in software              Insufficient change in mech              Check for Enable Line held low</p>

## TROUBLESHOOTING CHART (Problem/Solution) Cont'd

Problems	Probable Cause	Solution
Does not register credit	Credit messages not received from Coin Mech	No continuity between J8 pin 9 of controller and pin 5 of Coin Mech plug
	Coin Mech defective	Replace Coin Mech
	Service Door switch not closed	Check for defective actuator
Does not give change	No change in Coin Mech	Reload Coin Mech
	Dispense lines to Coin Mech disconnected	Check continuity between: Controller J8      Coin Mech pin 3                  pin 9 pin 4                  pin 8 pin 5                  pin 7 pin 7                  pin 14
	Defective controller board	Replace controller board
Turret does not rotate	Software control power supply output	Replace power supply
	RS232 ON/OFF Control line open	Check line
	ON/OFF controller output defective	Replace controller
	No signal from Message Center	Check line
	Defective power supply driver circuit	Replace power supply
	DC Motor or wiring defective	Check and/or replace
	Half Cycle Switch defective	Replace Half Cycle Switch
	Turret overloaded or jammed	Remove obstruction
Turret only turns one direction	All of the above	
	Message Center rocker key defective	Replace Message Center
	RS-232 DIR Output and/or wiring from controller board	Check line

**TROUBLESHOOTING CHART  
(Problem/Solution) Cont'd**

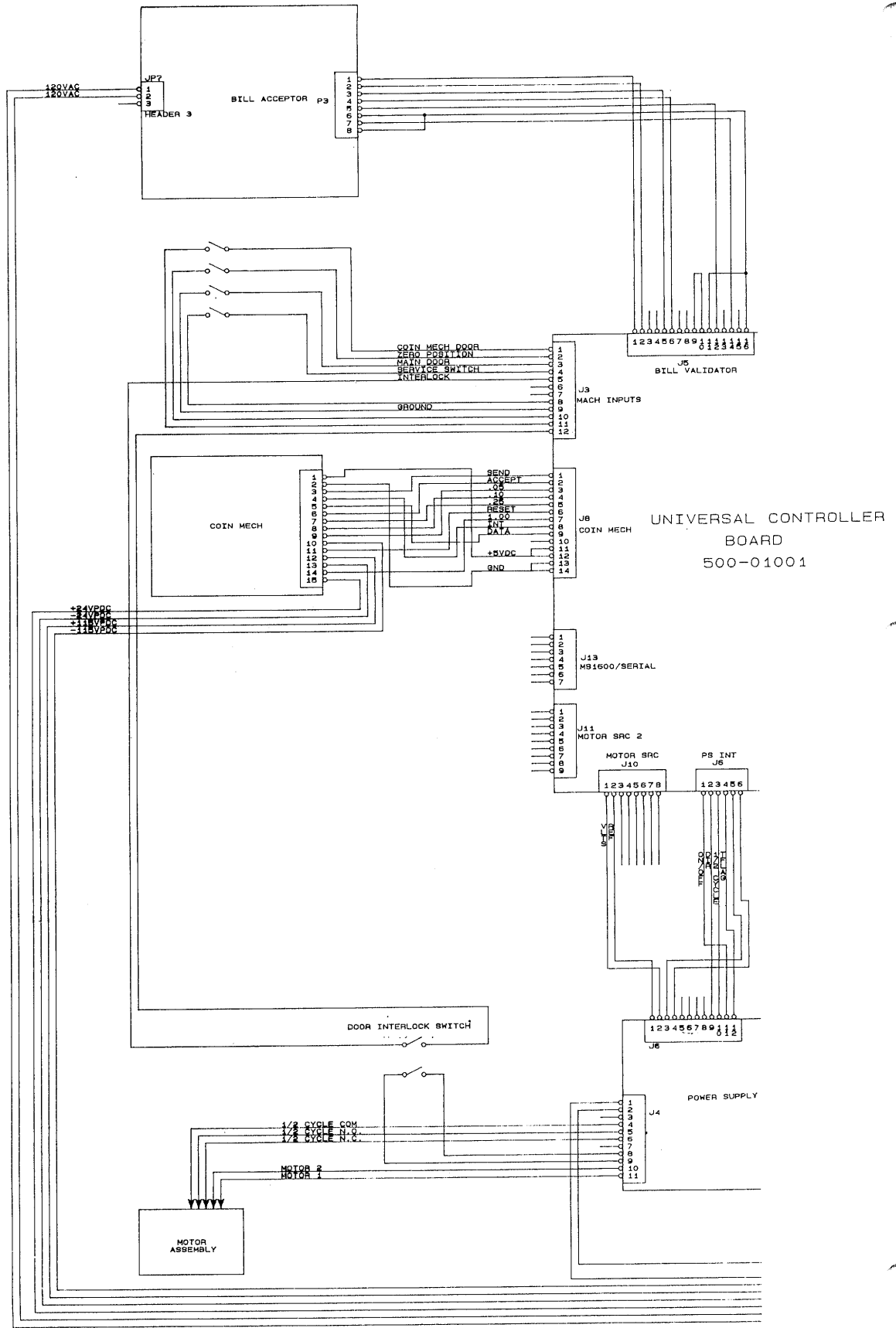
<b>Problems</b>	<b>Probable Cause</b>	<b>Solution</b>
Turret Rotates constantly	Key stuck on Message Center	Check controller board J8 pin 1
	ON/OFF Control Line defective	Check line
Delivery Door does not open	Turret not correctly positioned for full compartment	Check and reprogram
	Item has been sold	Verify and reprogram
	Invalid section lockout	Check and reprogram
	Defective solenoid	Replace solenoid
	Defective wiring	Test and repair
	No VSOL from power supply	Replace power supply
	No low pulse from controller board	Check line
	Software control power supply voltage	Replace power supply
Health Control shutdown	Temperature sensor unplugged temperature reads 94° F	Check and repair
	Temperature too high	Maximum location ambient temperature 110° F
	Temperature input software output to VLTS to relay	Check and repair
Refrigeration inoperative	Refrigeration unplugged or no power	Check and replug
	Refrigeration relay unplugged	Connect refrigeration relay
	Refrigeration overload	Clean screen and coils
	Solid State Relay defective	Replace solid state relay
	Software control refrigeration relay output	

**NOTE:**  
See Troubleshooting Chart on next page.

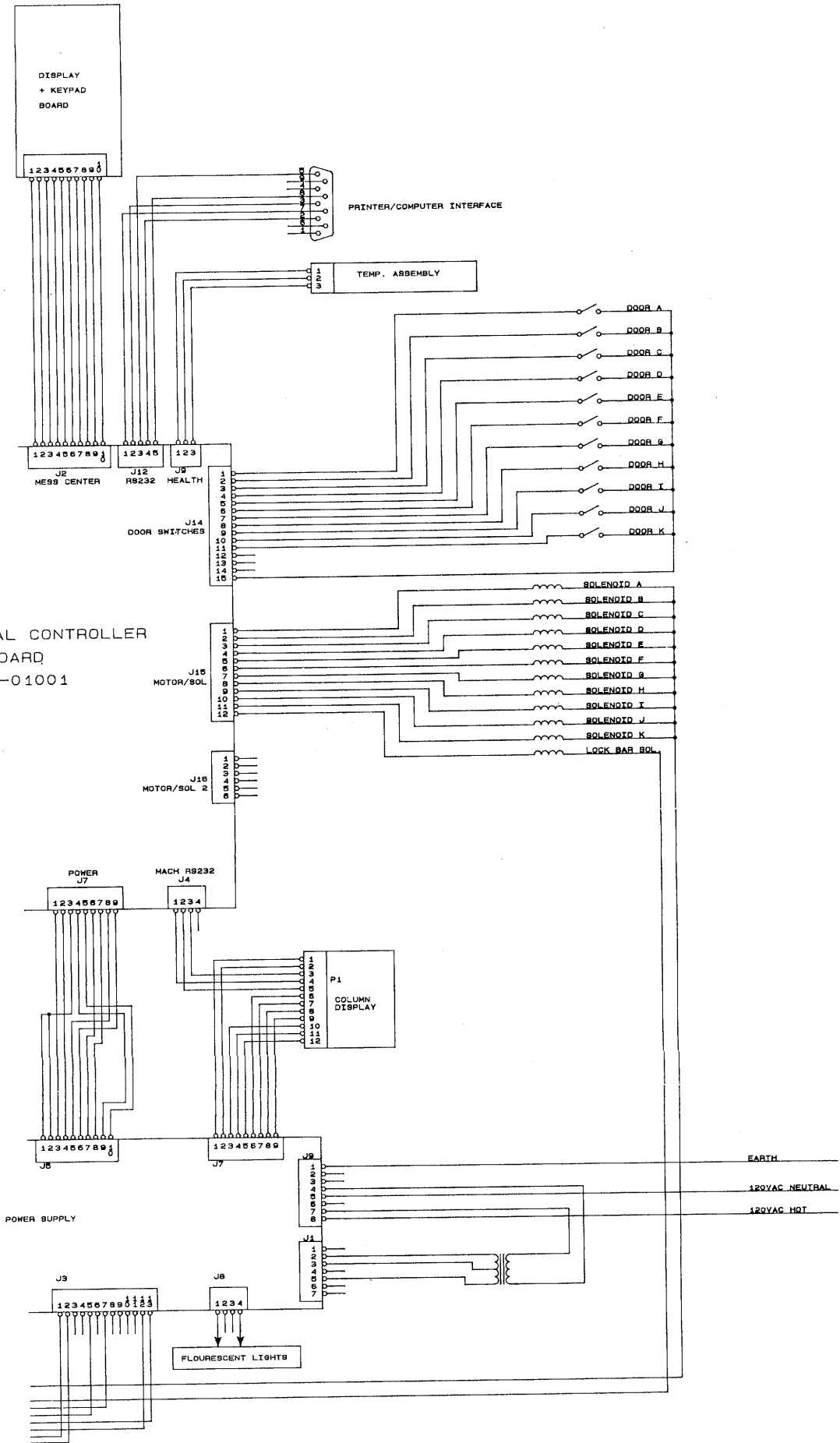
## TROUBLESHOOTING CHART (Refrigeration)

Problems	Probable Cause	Solution
Compressor does not start	No voltage on bk wire Evaporator/Blower not running	Defective Refrigeration Unit line cord
	No voltage on yl/bk wire	Check and/or replace SS Relay
	Low line voltage	Check voltage. It should be 105V minimum with Compressor running.
	Start Relay contacts defective	Replace Relay
	Start Relay not energizing	yl, wh, or rd wires disconnected
	Motor overload defective	Check and replace
	Start Capacitor defective	Check and replace
	Compressor Head load too high	Allow 3 minutes off time for pressure equalization before restarting and performing manual test.
	Compressor Start winding defective	Do not replace Compressor without replacing the Start Relay, Start Capacitor, and Run Capacitor
	<b>NOTE:</b> <i>Motor will start with Run Capacitor removed or open.</i>	
Compressor runs hot, trips overload	Air intake screen clogged or obstructed	Clean as necessary
	Condenser coils blocked	Clean as necessary
	Condenser fan not running	Remove obstruction or replace
	Start Relay not opening, defective	Check and replace
	Run Capacitor not in circuit	Check rd and wh wire to same
	Run Capacitor defective	Check and replace
	Low line voltage	Check voltage. It should be 105V minimum with Compressor running.
	Low refrigerant charge	Allow 3 minutes off time for pressure equalization before performing test.

**548**  
**Wiring Diagram**



UNIVERSAL CONTROLLER BOARD  
500-01001



Wiring Diagram

**15 PIN COIN MECH SOCKET**

**Coin Mechanisms**

**120V Models-12 or 15 Pin**

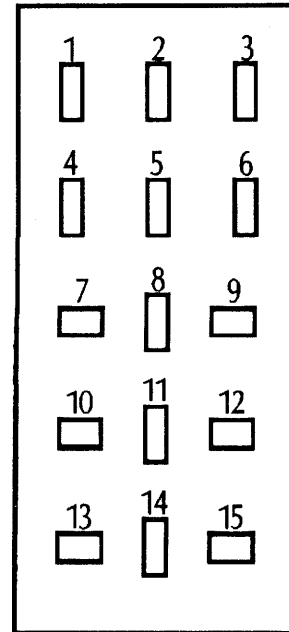
MARS	TRC - 6000
COINCO	9300L

**24 V Models-15 Pin Only**

MARS	TRC - 6010 - XV
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**CAUTION !**

*Do not use a 24 volt Coin Mech with 12 pin plug. This will result in permanent damage to the Coin Mech and/or the vendor.*



1. +5 VDC
2. 5V RTN
3. Send
4. Int
5. Data
6. Accept Enable
7. Dis 25 ¢
8. Dis 10 ¢
9. Dis 5 ¢
10. -120 V PDC
11. Reset
12. +120 V PDC
13. -24 V PDC
14. Dis \$1
15. +24 V PDC





# Parts Section

Door Final Assembly - Front . . . . .	4-2
Door Final Assembly - Rear . . . . .	4-4
Coin Mech Compartment Door . . . . .	4-6
Lower Cabinet Components . . . . .	4-7
Refrigeration Unit Assembly . . . . .	4-8

# Door Final Assembly - Front

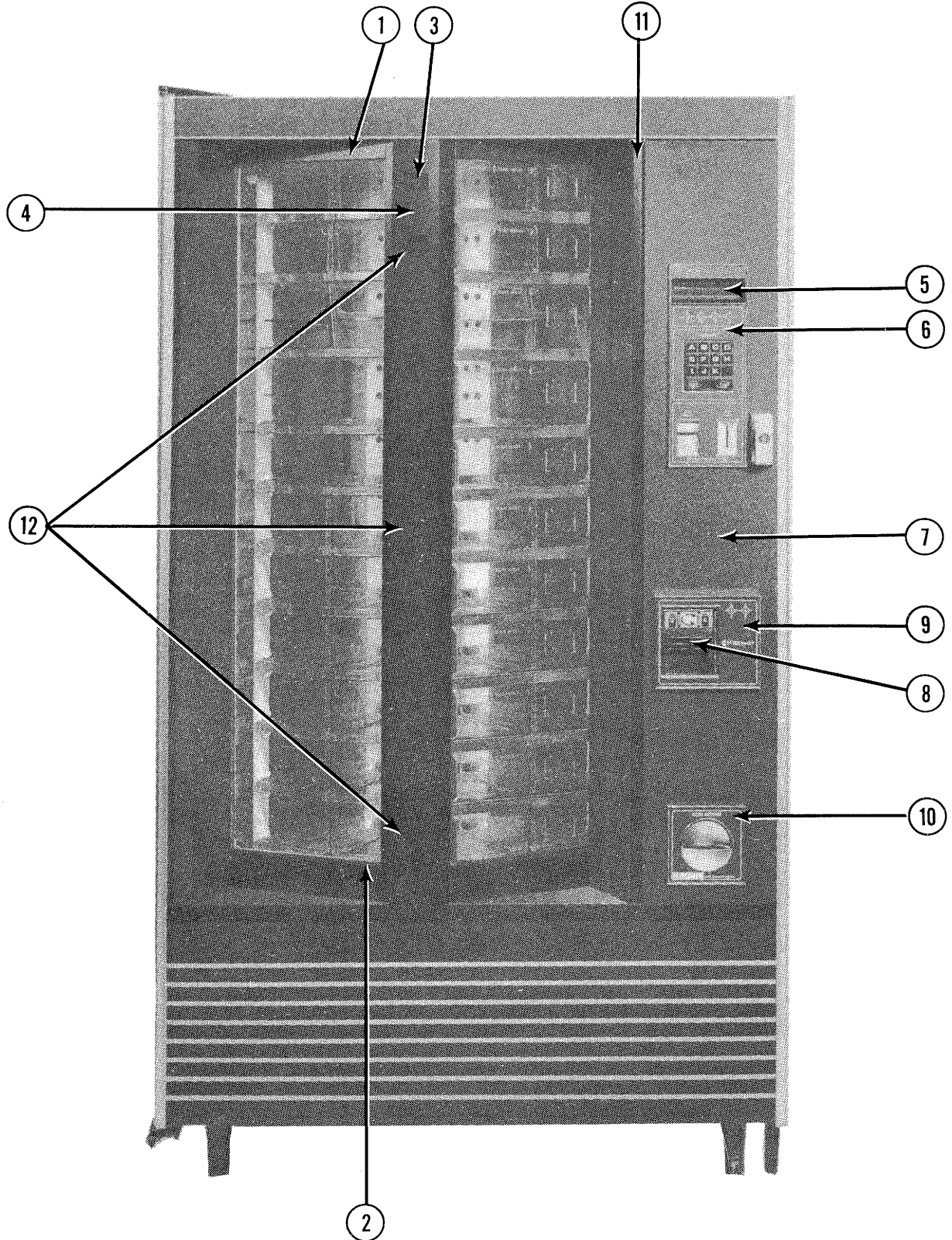
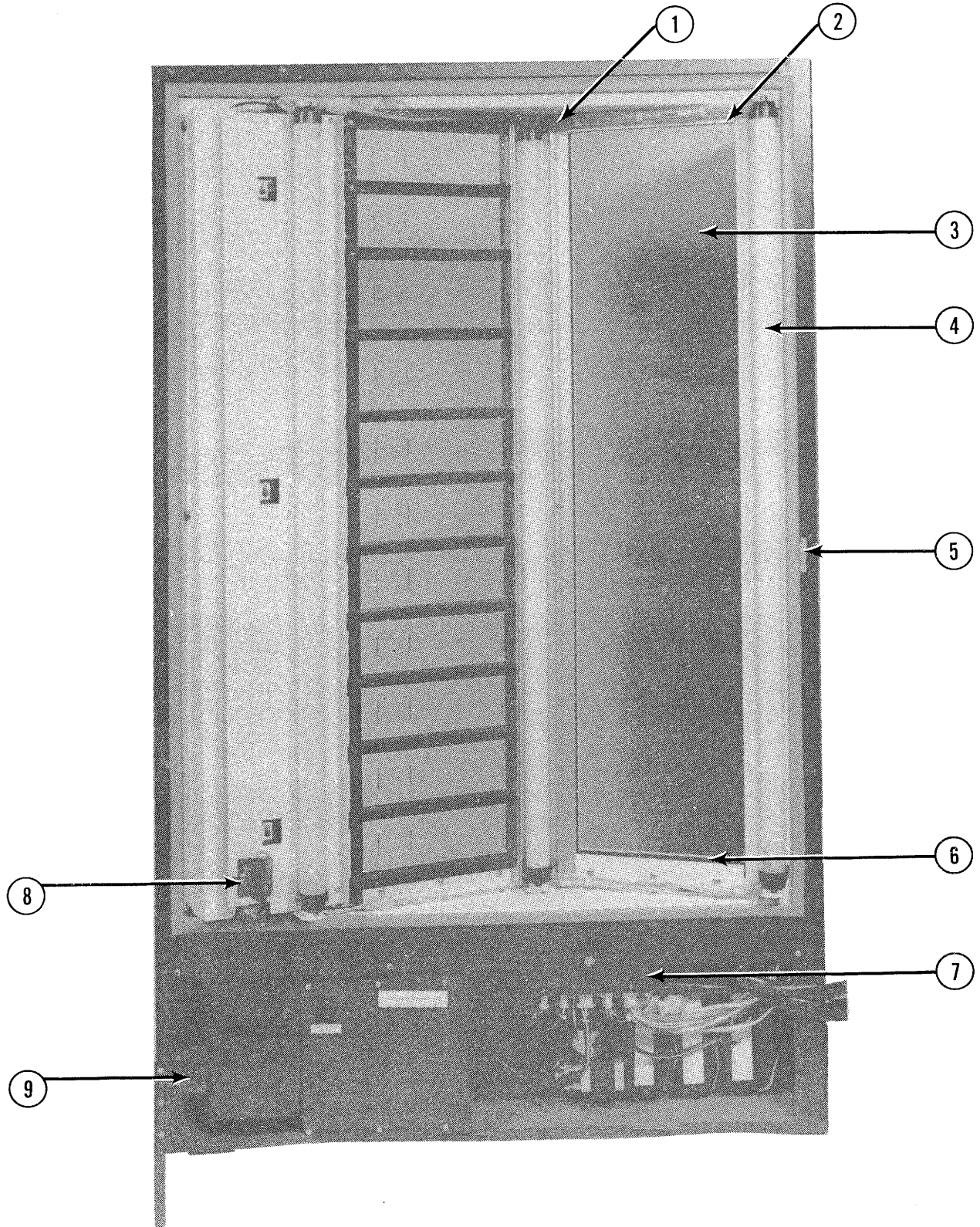


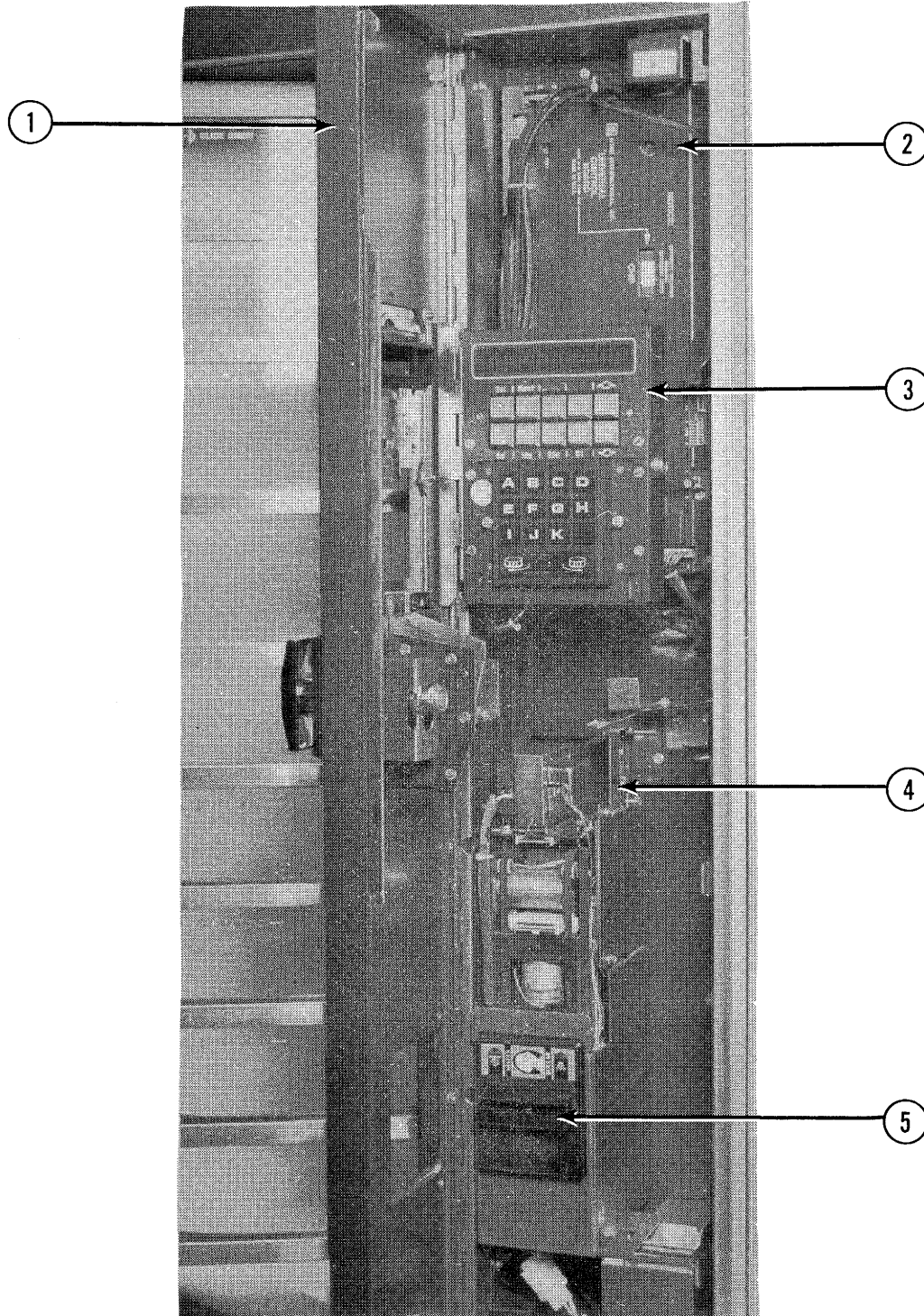
Fig. & Index Number	ROWE Part Number	Description	Qty. Per Asm.
	548-1400	Main Door Final Assembly	1
1	548-411	Extrusion Glass - Top	1
2	548-412	Retainer Glass - Bottom	1
3	548-416	Lens Display	1
4	548-414	Extrusion Price Display	1
5	500-1010	Message Control Center	1
6	548-421	Overlay - Message Control Center - Black	1
7	548-1402	Coin Mech Compartment Door Assembly	1
8	448-66015	Universal Bill Acceptor	1
9	548-451	Overlay - Universal Bill Acceptor - Black	1
10	408-506	Overlay - Coin Return - Black	1
11	548-468	Panel - Air Duct	1
12	548-1804	Board, Price Display - Top	1
	548-1805	Board, Price Display - Middle	1
	548-1806	Board, Price Display - Bottom	1

# Door Final Assembly - Rear



<b>Fig. &amp; Index Number</b>	<b>ROWE Part Number</b>	<b>Description</b>	<b>Qty. Per Asm.</b>
1	548-452	Zero Position Switch	1
2	548-413	Retainer, Glass - Top	1
3	548-1800	Heated Glass and Gasket Assembly	1
4	917-113	Fluorescent Tube	1
5	548-1847	Service Switch	1
6	548-412	Retainer, Glass - Lower	1
7	548-817	Socket Panel	1
	548-1845	Filter Assembly (Not Shown)	1
8	548-1818	Temperature Probe	1
9	526-21286	Door Interlock Switch	1

# Coin Mech Component Door



<b>Fig. &amp; Index Number</b>	<b>ROWE Part Number</b>	<b>Description</b>	<b>Qty. Per Asm.</b>
1	548-1402	Coin Mech Door Assembly - w or w/o B/A - no styling parts	1
2	500-1000-001	Universal Control Board	1
3	500-1010	Message Center Assembly	1
4	448-12468	Universal Bill Acceptor Nest assembly	1
5	448-66015	Universal Bill Acceptor	1

# Lower Cabinet Components

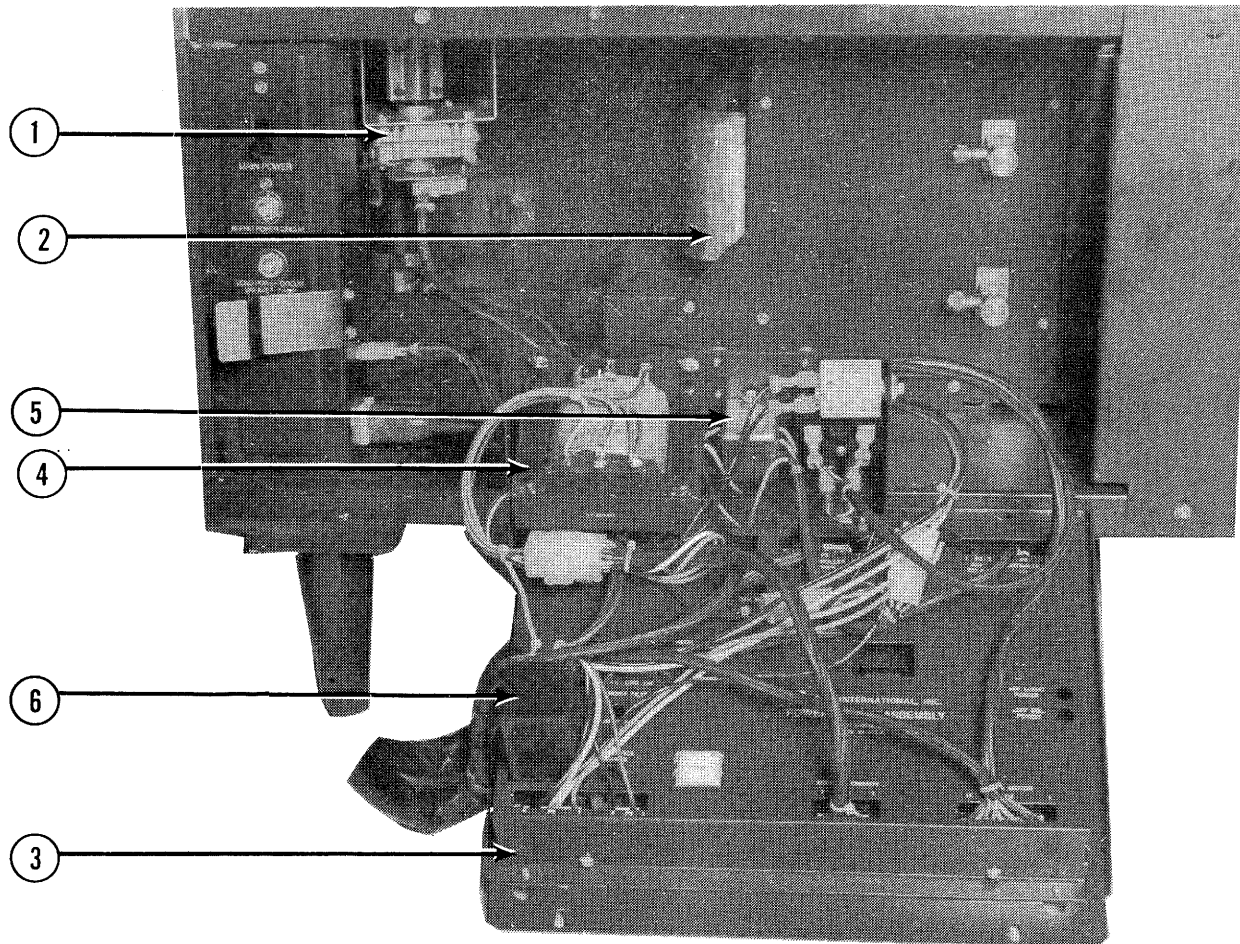


Fig. & Index Number	ROWE Part Number	Description	Qty. Per Asm.
1	548-1814	Transport Motor	1
2	448-12205	Refrigeration Unit (Figure 5)	1
3	548-1810	Power Supply Final Assembly	1
	548-1853	Power Supply	1
4	938-2003	Transformer (Part of 548-1837 Transformer Harness Assembly)	1
5	548-1845	Line Filter	1
6	938-8000	Relay	1



# Refrigeration Unit Assembly

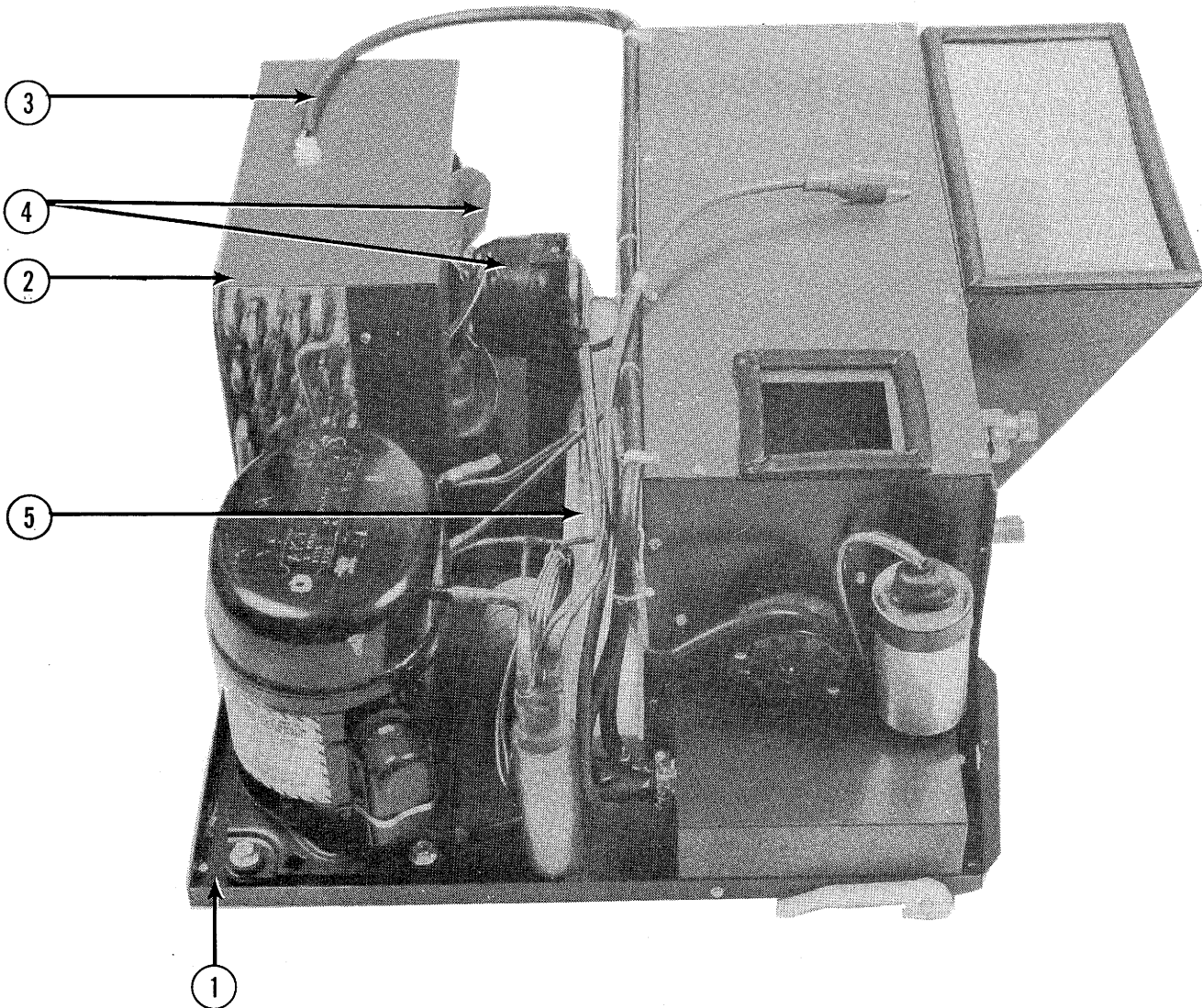


Fig. & Index Number	ROWE Part Number	Description	Qty. Per Asm.
	448-12205	Refrigeration Unit Asm. - Complete	REF
1	448-12209	Refrigeration Unit Base & Stud Asm.	1
2	448-2225	Shroud, Condenser Unit Asm.	1
3	448-12867	Harness, Compressor to Cold Control	1
4	448-12221	Condenser Fan Asm. - Complete - Consists of:	1
	448-2226	Blade, Condenser Fan	1
	448-1228	Motor, Condenser Fan	1
	448-2215	Bracket, Condenser Fan Mounting	1
5	448-2246	Drip Tray	1

# Harness list

## INTERNAL HARNESS ASSEMBLIES

548-1835 . . . . . Door Power Panel  
548-1837 . . . . . Transformer Assembly

## POINT TO POINT HARNESSES

	From	To
548-1819	Universal Control Board P-2 . . . . .	Message Display Center
548-1820	Universal Control Board P-3 . . . . .	Door Switches
548-1822	Universal Control Board P-5 . . . . .	UBA, P-3
548-1825	Universal Control Board P-8 . . . . .	Coin Mech Socket
548-1826	Universal Control Board P-9 . . . . .	Health Probe Socket
548-1827	Universal Control Board P-14 . . . . .	Door Switch
548-1828	Universal Control Board P-15 . . . . .	Door Solenoid
548-1829	Power Supply . . . . .	Refrigeration Relay
548-1832	Power Panel . . . . .	Bulb Socket
548-1833	Door Power . . . . .	UBA Power
548-1834	Door Panel . . . . .	Blower and Heater
548-1838	Half Cycle Switch . . . . .	Connector
548-1839	Ballast . . . . .	Door Power Panel
548-1848	Transformer . . . . .	Plug
548-1850	Solid State Relay . . . . .	Refrigeration Unit
548-1851	Control Door . . . . .	Cabinet
548-1852	Door Power . . . . .	Cabinet