ROWE

548
Showcase Merchandiser

Field Service Manual
and
Parts Catalog

Technical Services

ROWE®

QUALITY LEADERSHIP INTO THE 21ST CENTURY

548 Showcase Merchandiser

Field Service Manual

This 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 figures that call out the assemblies and some assorted parts specific to the 548 Showcase Merchandiser.

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SPECIFICATIONS:
548 Showcase® Merchandiser

GENERAL

Depth	35⅝ 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

> **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*

HOW TO USE THIS MANUAL

This manual contains six sections . The front section contains a table of contents and Table/Charts to aid in the identification of models by number and specifications for each. Described below is a brief outline of the numbered sections and the information discussed there.

SECTION 1 - DESCRIPTION - A general introduction of what and how the machine operates. Illustrations detailing the major components and selection identifications. Before attempting to unpack or install this vendor, read and familiarize yourself with this section and Section 2 - Installation.

SECTION 2 - INSTALLATION - Unpacking, set-up instructions, procedure for setting prices and Bill Acceptor Switch settings. Use this section to install and check out vendor.

SECTION 3 - PROGRAM OPERATION - Detailed programming information and instructions to perform all of the Service Mode operation. A Detailed explanation of MIS features and operation,.

SECTION 4 - TROUBLESHOOTING - It's own table of contents, troubleshooting procedures, and Error Message, Problem/Solutions Chart. Troubleshooting charts and schematics for the Main Controller, Turret Motor, and Coin Mech Socket. Use this in conjunction with the information in Section 5 - Maintenance to isolate and repair vendor malfunctions.

SECTION 5 - MAINTENANCE - Instruction for cleaning and removal and replacement steps. Adjustment and repair and replacement procedures should be performed only as required. Isolate equipment trouble using the information and diagrams in Section 4 before attempting to make adjustments or replace parts. Picture and illustrations detailing sold out switch actuator adjustment.

SECTION 6 - PARTS CATALOG - It's own table of contents by figure number and a list of optional kits. A view of each assembly with part and section called out. Part numbers under a four digit assembly number are indented to the right if they are shipped as a group when ordering the assembly number. If they are not indented they must be ordered individually.

OPTIONAL KITS

448-66015   Universal Bill Acceptor   Allows currency acceptance

COIN MECH. CHART

ROWE VENDING MACH. C/M USAGE — COIN ACCEPTORS

COINCO

Model	Description	406 # PUMP	406 W/BA	406 # PUMP	406 W/BA	406 W.A.D.	425	425 W/BA	425 W.A.D.	487	487 W/BA	448 E2	5900	548
9300S	SINGLE PRICE $12.75 MAX 120 VAC	X		X			X			X				
9340S	SINGLE PRICE $12.75 MAX 120 VAC	X	X	X	X		X	X		X	X			
9360S	SINGLE PRICE $12.75 MAX 120 VAC	X	X	X	X		X	X		X	X			
S75-9800B-907	SINGLE PRICE $3.15 MAX	X		X			X			X				
S75-9400B-977	SINGLE PRICE $1.55 MAX	X		X			X			X				
F300E-9210	4 PRICE $3.15 MAX 120V	X	X ##	X	X ##		X	X		X	X			
F300-9400	4 PRICE $3.15 MAX 120V	X		X			X			X				
S300-9410	SINGLE PRICE $3.15 MAX 120V	X	X	X	X		X	X		X	X			
9300L	MICROMECH 110 VPDC					X			X			X	X	X
9302LF	MICROMECH 24 VPDC 15 PIN CONNECTOR												X	

MARS

Model	Description	406 # PUMP	406 W/BA	406 # PUMP	406 W/BA	406 W.A.D.	425	425 W/BA	425 W.A.D.	487	487 W/BA	448 E2	5900	548
TRC6010XV	24 VPDC MICROMECH 15 PIN CONNECTOR												X	X
MC5000	MICROMECH 117 VPDC $12.75 MAX					X			X			X	X	X
TRC6000	MICROMECH 117 VPDC $12.70 MAX					X			X			X	X	X
TRC6200 (TRC6200H = W/BA 120V)	SINGLE PRICE $6.35 MAX	X	X H	X	X H		X	X H		X	X H			
TRC6800 (TRC6800H = W/BA 120V)	SINGLE PRICE $10.00 MAX	X	X H	X	X H		X	X H		X	X H			
MC5802	SINGLE PRICE 115 VAC	X	X	X	X		X	X		X	X			
MC5807	SINGLE PRICE 115 VAC	X	X	X	X		X	X		X	X			
MC5920 (MC5920H = W/BA 115 VAC)	FOUR PRICE $6.35 MAX	X	X **	X	X **		X	X **		X	X **			
MS1600	6 COIN ACCEPTOR EUROPEAN 24 VAC 50 HZ											X **	X **	X ***
MS1700	6 COIN ACCEPTOR EUROPEAN TROPICALIZED 24 VAC 50 HZ											X **	X **	X ***
ME1900	6 COIN ACCEPTOR EUROPEAN 24 VAC 50 HZ											X **	X **	X ***

N.R.I. — NATIONAL REJECTOR INC.

Model	Description	406 # PUMP	406 W/BA	406 # PUMP	406 W/BA	406 W.A.D.	425	425 W/BA	425 W.A.D.	487	487 W/BA	448 E2	5900	548
G-26.4400	EUROPEAN 24 VAC 50 Hz.											X **	X **	X ***

* = USE W/ 406-6027 KIT
** = REMOVE R35 FROM MC5920AH WHEN USING CBA-2 B.A. (ALSO NEEDS 426-1858 HARNESS)
*** = EUROPEAN COIN MECH.
**** = NEEDS 4 PRICE KIT
H = B.A. COMPATIBLE

548 FEATURES

MESSAGE CENTER

20 character vacuum-display can scroll up to 300 characters, can be programmed to display a custom message, time and, date can be displayed.

By pressing two keys on the Message Center, various information can be displayed:

<BLANK> <C>	Inside temp. celsius
<BLANK> <D>	Date and time
<BLANK> <F>	Inside temp. Fahrenheit
<BLANK> <H>	Health control status
<BLANK> <I>	Machine ID number

EASYKEY MENU SYSTEM

Programming is so simple that you don't even need a manual.

Only four keys are used to program the machine:

<UP>
<DOWN>
<SET>
<NEXT>

REAL TIME CLOCK

Keeps track of start and stop times for options and when faults occur.

TURRET LOCKOUT

Up to 6 large sections (12 small sections) can be reserved until a specified time.

RANDOM FREE VEND

Customer can win a free product. Variable odds (1:50 to 1:300).

DISCOUNTS

Up to three discount schedules can be offered. Each with their own start and stop times by date and time.

PROGRAMMABLE COIN LOADING

Coins can be loaded through the top or side of coin mech.

MIS (MANAGEMENT INFORMATION SYSTEM)

Keeps track of:
Sales by shelf
Sales by product codes
Number of free vends

Value of free vends
Number of random free vends
Value of random free vends
Number of discount #1 sales
Value of Discount #1 sales
Number of discount #2 sales
Number of discount #3 sales
Value of discount #3 sales
Number of schedule #1 vends
Number of schedule #2 vends
Number of schedule #3 vends

Accurate inventory of money in Cash Box, Coin Mechanism, Bill Stacker and Credit Card sales has both resetable and non-resetable money inventory printer output.

MULTIVIEW

Rotates the turret, 3 sections, every 3 minutes at programmable start and stop times.

CREDIT CARD READER CAPABILITY

FIFO or SHOPPER CAPABILITY

NEW TURRET DESIGN

Can be rotated in either direction.
Can be easily removed in one piece.
Removable blower screen at vend door.
Dynamic non-mechanical brake.

FOUR SHELVES FOR INSIDE STORAGE

COIN MECHANISM

Can use either 110VDC (12 or 15 pin) or 24VDC (15 pin) Coin mechanisms

NOTE:

See Coin Mech Chart page iv.

REFRIGERATION SYSTEM

Unit easily removable in one piece
Uses environmental friendly refrigerant R502.
Compressor start delayed to prolong the life of the compressor.

SECTION 1 DESCRIPTION

INTRODUCTION

The 548 has a maximum capacity of 154 items. It is 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 Universal Control Board (UCB) 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 3 - 1. The 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 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 - 4 and 4 - 9 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 it's 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 EasyKey™ Menu System described in the Service Mode Operation Section on page 3 - 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.

NOTE:

Do Not use a 24 Volt Mech with the 12 pin, 120 volt plug. If used damage to Coin Mech and Unit will Occur. (See page iv of Coin Mech Chart for applicable Coin Mech use.)

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 inside 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 3 - 21 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.

Electronic Digital Thermometer

Located on the inside of the Main Door. This Probe device is used to monitor the temperature for the Universal Control Board which in turn controls the unit Temperature and Health Control.

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, or <BLANK> then <C> for celsius.

Health Control

After opening and closing the main door, the compressor has 30 minutes in which to bring the temperature inside the vending compartment to 45 F. During the 30 minute pull down period, if the black <BLANK> key is depressed and then the <H> key is depressed, "HEALTH DELAY XX MINS" will appear on the message center, where XX is a number between 30 and 1, starting at 30 and decreasing by one every minute.

After the 30 minute pull down period expires, if the black <BLANK> key is depressed and then the <H> key is depressed "HEALTH CONTROL ON" will appear on the message center. This indicates that the temperature inside the vending compartment is now being monitored. If the temperature inside the vending compartment rises above 45 F for a one minute period, the machine will go out of service. If this occurs, depressing the black <BLANK> key and then the <H> key will display "OFF 'TIME' 'DATE' " on the message center, where 'TIME' and 'DATE' are the time and date when the machine went out of service due to a health control error.

To reset a "HEALTH TIME EXPIRED" error, clear the errors and open and shut the main door. Depress the black <BLANK> key and then depress the <H> key to display "HEALTH DELAY XX MINS" on the message center. If the message center still displays "OFF 'TIME' 'DATE' ", then there is a problem with the main door switch.

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.

Compressor Algorithm

The compressor will turn on one minute after closing the main door and will stay on for 20 minutes unless the temperature inside the vending compartment is below 34 F. If the compressor does not bring the temperature below 34 F within the 20 minute period then the compressor will turn off for a period of two minutes. After two minutes have expired, the compressor will turn back on for another 20 minute period. This 20 minute on and two (2) minute off cycle will continue until the temperature in the vending compartment falls below 34 F.

Once the temperature inside the vending compartment falls below 34 F, the compressor will turn off. After three minutes if the temperature inside the vending compartment reaches 38 F the compressor will turn on for at least 90 seconds. After 90 seconds, if the temperature inside the vending compartment falls below 34 F the compressor will turn off. To display the temperature inside the vending compartment, depress the black <BLANK> key and then the <F> key "TEMPERATURE = XX F".

NOTE:

The compressor control processing runs independently of the health control processing. If the machine goes out of service, the compressor control processing will continue to operate.

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 96° F regardless of the true air temperature.

POINT OF SALES MESSAGES

ENGLISH	FRENCH	SPANISH
THANK YOU	MERCI	GRACIAS
CREDIT - $ 1.25	CREDIT - $ 1.25	CREDITO - $ 1.25
COINS ONLY PLEASE	PIECES SEULEMENT SVP	SOLO MONEDAS
INSERT MONEY	INTRODUIRE PIECES	INTRUDUZCA MONEDAS
DOOR A IS OPEN	PORTE A OUVERTE	PUERTA A ABIERTA
EXACT CHANGE PLEASE	MONTANT EXACT SVP	CAMBIO EXACTO
PRESS SELECTOR KEY D	APPUYER LA TOUCHE D	SELECCIONE TECLA D
SHELF J NOW READY	PLATEAU J PRET	REPISA J PREPARADA
MAKE FREE SELECTION	SELECTION GRATUITE	SELECCIONE
HEALTH CONTROL ON	CONTROLE EN COURS	REVISANDO PRODUCTO
ITEM PREVIOUSLY SOLD	ARTICLE VENDU	ARTICULOS AGOTADOS
INSUFFICIENT CREDIT	MONNAIE INSUFFISANTE	CREDITO INSUFICIENTE
MUST MAKE SELECTION	DOIT FAIRE UN CHOIX	SELECCIONE OPCION
SORRY-OUT OF SERVICE	HORS SERVICE	FUERA DE SERVICIO
RESERVED SECTION	SECTION RESERVE	PRODUCTO ELEGIDO
ITEM IS NOT AT DOOR	ARTICLE NON-ALIGNE	ARTICULO AGOTADO
YOU ARE A WINNER	VOUS AVEZ GAGNE	HAS GANADO
CAN'T MAKE CHANGE	CAN'T MAKE CHANGE	CAN'T MAKE CHANGE
ONE MOMENT PLEASE	UN MOMENT SVP	UN MOMENTO POR FAVOR
11.59PM SUN 12/31/91	11.59PM DIM 12/31/91	11.59PM DOM 12/31/91
11.59PM MON 12/31/91	11.59PM LUN 12/31/91	11.59PM LUN 12/31/91
11.59PM TUE 12/31/91	11.59PM MAR 12/31/91	11.59PM MAR 12/31/91
11.59PM WED 12/31/91	11.59PM MER 12/31/91	11.59PM MIE 12/31/91
11.59PM THU 12/31/91	11.59PM JEU 12/31/91	11.59PM JUE 12/31/91
11.59PM FRI 12/31/91	11.59PM VEN 12/31/91	11.59PM VIE 12/31/91
11.59PM SAT 12/31/91	11.59PM SAM 12/31/91	11.59PM SAB 12/31/91
TEMPERATURE 36 F	TEMPERATURE 36 F	TEMPERATURA 36 F
HEALTH DELAY 30 MINS	DELAI DE TEMP 30 MIN	REVISION 30 MINS
OPEN	OPEN	OPEN
SOLD	SOLD	SOLD

TABLE 1 - 1

POINT OF SALE MESSAGE

Point of Sale Messages described on next page

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 error conditions 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 Mechanism. 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.

HEALTH CONTROL ON 30 Minute Health Delay expired. Depress <BLANK> Key and then the <H> Key.

ONE MOMENT PLEASE Machine is locating zero position.

11.59PM SUN 12/31/91 Depress <BLANK> Key and then <D> Key. Time - Day of Week - Date

TEMPERATURE 36 F Depress <BLANK> Key and then <F> Key. Displays current temperature of Vend Compartment.

HEALTH DELAY 30 MINS   Time remaining during 30 Minute Health Delay, Depress <BLANK> Key and then the <H> Key.

Credit Messages

CREDIT - $ 1.25 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 Not enough credit to purchase item.

MUST MAKE SELECTION <Coin Return> depressed when vendor has Forced Vend Option in use.

PRESS SELECTOR KEY J Vend attempted at FIFO Door. User must press the <Selector> key corresponding to the desired shelf.

SHELF J NOW READY Fifo Shelf has been positioned to vend.

DOOR D IS OPEN Delivery Door D is open.

YOU ARE A WINNER Random Free Vend Option is on. Customer receives Free Vend.

CAN'T MAKE CHANGE Prohibit Overbuy Option is on, correct change unavailable for vend selected.

ITEM PREVIOUSLY SOLD This message appears when and a vend door with a previously purchased compartment is attempted to be opened.

RESERVED SECTION Turret Delay is in use. Can not vend from that section.

OPEN On Column Display when a vend door is open.

Vend Completed

THANK YOU Transaction has been completed successfully

SOLD On Column Display when an item has been sold.

Printer

A serial printer may be connected to the UCB to print the MIS information displayed in the MIS Menu. The recommended printer for this purpose is a Star DP8340 though there are probably many that can be used. The communication is RS-232, 1200, 2400, 9600 baud, 1 stop bit, 8 data bits and no parity bit. A "PRINTER NOT READY" message will be displayed if a print MIS is attempted and the printer is not connected or is off-line.

Vend Cards

The 548 is capable of interfacing with a debit card system without any setup or modifications. The New NAMA MC5000 Interface for Debit Card Systems has been implemented and it is not backwardly compatible to the Old NAMA standard. If an Old NAMA standard debit card system is used, the debit card system will not receive all of the credit signals being used by the 548 and card credit may be lost. If a Debitek brand debit card system is being used, it is recommended that the system be configured in "Coins to Card Mode". If the "No Coins To Card" mode is used, there may be discrepancies in the coin MIS displays when credit exists prior to insertion of the card. The 548 will recognize and support 1 cent credit even though the machine prices are settable in 5 cent increments. Credit acceptance will be disabled once the maximum current machine price is exceeded. There is vend card sales information in the MIS menu and printout. If a vend card is inserted in service mode, the credit transferred can only be viewed in the diagnostic menu. The coin payouts are disabled while vend card credit is established.

SECTION 2 INSTALLATION

INTRODUCTION

This section contains instructions for unpacking the merchandiser and installing it on location. Installation is quickly and easily accomplished.

Unpacking Instructions

The merchandiser is shipped in one carton with all major assemblies in place, ready for installation. The shipping carton should be opened carefully to prevent the merchandiser from being scratched or damaged. Inspect the exterior and interior of the cabinet for evidence of damage. In case of damage, please notify the delivering carrier at once to examine the vendor regardless of the external condition of the carton. Under U.S. Regulations, damage claims must be collected from the consignee. Do not return shipping-damaged merchandise until after your claim has been established. Once your claim is established, damaged merchandise may then be returned to your Rowe Distributor for repair. The invoice for repair charges may then be collected from the carrier. Do not destroy packing material or boxes until the carrier's agent has examined them.

> ### CAUTION !
> Pushing or sliding the merchandiser (by hand) on the floor can result in considerable damage to the machine and/or personal injury. Always use appropriate material handling equipment and adequate protective padding to protect the merchandiser.

Set-Up Instructions

1. Place the unit in a well ventilated location with a minimum of SIX INCHES between unit and back wall.

2. Remove all tape and packing material from cabinet.

3. Unit must be leveled. Perform level adjustment by using the following illustration
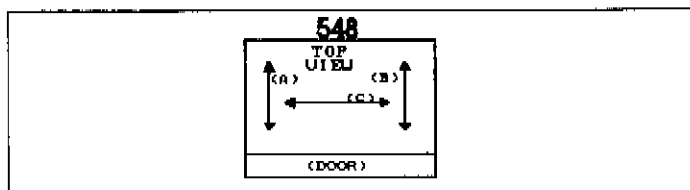
Place level in the (A) position and adjust bottom leg levelers. Perform same on position (B) then (C).

> ### CAUTION !
> If unit is not leveled correctly the Refrigerator Evaporator may freeze up, causing unit shutdown.

4. Check that circuit breakers are firmly in place and that fluorescent lamps are secure in their sockets.

5. Check that the Main Power Switch is in the OFF Position.

6. Plug the line cord into a dedicated 120 VAC 60 HZ. positively grounded ("U" ground) receptacle, capable of delivering 20 amps.

7. Install recommended Coin Mech (See Specification Sheet page ii).

8. Install letter labels (Enclosed in plastic envelope) in the corresponding vend doors. ("A" on top to "K" on bottom).

9. Check and insure all electrical connections are seated properly, especially at the circuit boards.

If any of the following steps do not operate or is incorrect please refer to the Troubleshooting Section of this manual for correction.

10. Turn on the Main Power Switch.

11. Upon Power-up the following sequence of displays should occur.

    A. The Price Display Boards shall read from top to bottom:

a.		b.
"11111"		"99.95"
"22222"		"99.95"
"33333"		"99.95"
"44444"		"99.95"
"55555"		"99.95"
"66666"	{THEN}	"99.95"
"77777"		"99.95"
"88888"		"99.95"
"99999"		"99.95"
"AAAAA"		"99.95"
"BBBBB"		"99.95"

B. The Message Center should display

a. "SELF TEST OK VER#.##"
(VER = latest version of Message Center Display)

{Then}

b. "ROWE 548 - REV X"
(REV = latest revision EPROM on UCB)

{Then}

c. "SERVICE MENU" or "ERROR MESSAGE"

12. Check that all Fluorescent lamps are illuminated.

13. Check the following LED's lights on the Universal Control Board to be illuminated:

+5 VDC   (Logic Voltage)

VFD   (Vacuum Fluorescent Display voltage)

VSRC   (Device Source voltage)

TEST   Blinking (Control Board operating heartbeat)

14. Check the service switch operation by rotating the Turret one full rotation. (See location of switch on page 6 - 23 of Parts Section).

15. Perform a full initialization as follows:

A. In the Service Mode depress the <NEXT> key until the Message Center displays "DEFAULT MENU"

B. Depress the <SET> key; "MACHINE INIT - NONE" should display.

C. Depress the <UP> key until; "MACHINE INIT - FULL" displays.

D. Depress the <SET> key; "TURN UNTIL ZERO POS" or "SERVICE MENU" should display.

E. With outside transport switch, rotate the turret until "SERVICE MENU" displays.

NOTE:

Main Door must be closed.

F. The 548 unit is now programmed to factory default settings. See page 3 - 3.

Coin Mech Loading

16. This unit must be set up for total cash accountability to operate correctly. You may use one of these two methods to load the coin mechanism.

A. In the Service Mode (with coin mech door open) all coin denominations may be loaded through the top flight deck of the coin mech.

B. Programming Method: You must keep count and load all the coin denominations through the side loading tubes. In the MIS MENU of the coin level section, the inserted amounts can be keyed in into the program. (See page 3 - 6 of MIS MENU Section, and perform detailed instructions in the Set Coin Tubes section).

PRE-OPERATION CHECK

1. Perform a Basic Program Set-up routine located in the Service Mode Operation, Section - 3.

2. Close all machine doors. "INSERT MONEY" or other vending mode message should display if all parameters were set correct and no error exist (See Point of Sale Message Table 1 - 1, page 1 - 3.)

3. Rotate turret one full revolution to the left with transport rocker switch.

4. Rotate turret one full revolution to the right with transport rocker switch.

5. Insert Coins (5¢, 10¢, 25¢) and make a vend.

6. Check and verify coin return amount.

7. (If equipped with Bill Acceptor) Insert bill(s), make a vend.

8. Check and verify coin return amount.

9. Vend test every vend door, rotating the turret one space between vends.

10. Close and latch main door to reset electronic count down timer. The vendor now has 30 minutes to reach 45° F (7.2°C) interior cabinet temperature vending circuit will be interrupted by the Controller Board, if temperature requirement is not satisfied.

NOTE:
On initial start up in high ambient temps. it is normal to experience a shut down after the first 30 mins.. Simply open main door, momentarily turn OFF main line switch, (resets the fault code in controller) turn ON main line switch. No further shut down should occur.

11. Unit is now ready, all systems go!

SECTION 3 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 nine menu items which are available for setting up and/or servicing the 548 Showcase Merchandiser.

The Message Center has ten service keys, four of which are used to access the EasyKey™ 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.
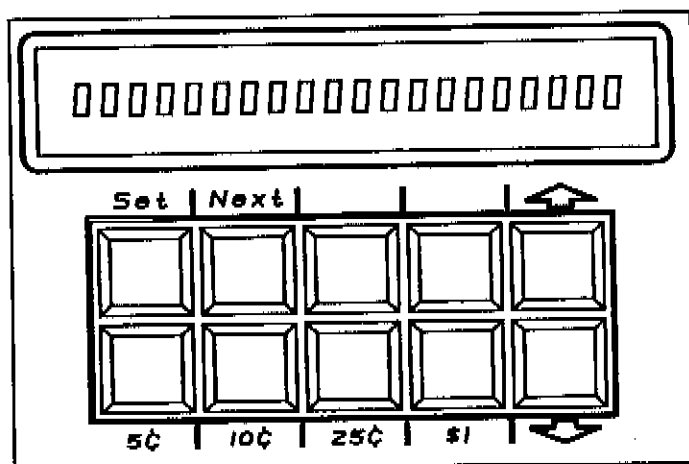

FIGURE 1

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

The <5¢>, <10¢>,and <25¢> 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 - NO". 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.

If you do not want to see each individual error message press the <NEXT> key to display "CLEAR ERRORS - NO". Use the <UP> or <DOWN> keys to select "YES" or "NO".

BASIC PROGRAM SET-UP

This section covers a quick Set-up for customers not interested in utilizing special features.

Open the Coin Mech Door to display and enter the "SERVICE MODE".

If "ERROR MESSAGE" displays refer to the Troubleshooting Section of manual for correction.

1. SET PRICE

    Perform the following:

Depress Key	Displays
A. NEXT	"PRICE MENU"
B. SET	"PRICE SCHED - 1 ACTIVE"
C. SET	"SET PRICE 1 - $ X.XX"
D. ↑ or ↓	"SET PRICE 1 - $ X.50 (Use arrow keys to increment price up or down)

    Upon setting (Step D) for price desired, click applicable vend door to right for this price setting.

    Perform (Step D) again for different prices.

2. SET SELF SIZE

Perform following:

Depress Key	Display
A. SET	"SHELF SIZE - HALF"
B. ↑↓	"SHELF SIZE - FULL"

Toggle (Step B) to desired shelf size and click applicable vend door(s) to the right.

3. SET SHOPPER/FIRST IN FIRST OUT

Perform following:

Depress Key	Display
A. SET	"VEND MODE - SHOP"
B. ↑↓	"VEND MODE - FULL"

Toggle (Step B) to desired shelf mode and click applicable vend door(s) to the right.

4. If unit is equipped with Bill Acceptor, perform the following:

A. Depress the <NEXT> key until "OPTION MENU" displays.

B. Depress the <SET> key until "BILL ACCEPTOR OFF" displays

C. Depress <↑ or ↓> arrow key to toggle Bill Acceptor enable to OFF or ON.

D. Depress the <NEXT> key to exit Option Menu.

Security Code

If the Security Code feature is enabled, the display will show "SECURITY CODE - ✳ ✳ ✳ ✳". Use the <UP> or <DOWN" arrow keys to display the first character in the Security Code. When the first character is displayed, press the <SET> key. Continue this procedure for the remaining characters in the Security Code.

After entering the correct Security Code and pressing the <SET> key for the last character in the Security Code the message center will display "FULL ACCESS GRANTED".

If the security code is unknown the operator may press the <NEXT> key which will enable him to have access only to the PRICE, MIS, AUTO PRICE, and DIAGNOSTIC menus.

If the Security Code is lost or misplace and the operator has a need to know the code, depress the <BLANK> key and then the <K> key to display an eight character display. Note the eight character display, the serial number of the machine, and the owner of the machine and call the Rowe International Techinical Service Department.

Sold Out Check Feature

Used to verify if a compartment has been refilled with tampered food.

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 with the outside transport switch 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 ***".

Filling The Turret

Since the Universal Control Board keeps track of the compartment states, it needs to be notified when the machine is being filled. If the main door is opened and the service switch is turned on without touching any message center keys in between, the 548 assumes it is being filled and a "FILLING MACHINE" message is displayed and all compartment states are set to "FULL". If any key is touched before turning on the service switch, the machine assumes it is being serviced, a "SERVICING MACHINE" message is displayed and the compartment states remain unmodified.

Exact Change Mode

The 548 is in exact change mode unless one of the following conditions is met. Otherwise "EXACT CHANGE ONLY" will be displayed on the message center.

1. The machine has been set to "FREE VEND"

2. 2 dimes and a nickel, or 5 nickels are in the coin tubes, then "COINS ONLY PLEASE" will be displayed on the message center.

3. If the bill acceptor is enabled and 3 quarters 2 dimes and a nickel, or 3 quarters and 5 nickels are in the coin tubes, then "INSERT MONEY" will be displayed on the message center.

TABLE 3 - 1   **Service Mode Operation - 3**

INITIAL PROGRAM SETTINGS

The following program settings are the factory default settings which will be obtained upon the operation of the DEFAULT MENU/ INITALIZE FULL routine.

Price Menu

PRICE SCHED - 1 ACTIVE	(Price Display all 99.95)
PRICE SCHED - 2 ACTIVE	(Price Display .05 thru .55)
PRICE SCHED - 3 ACTIVE	(Price Display .60 thru 1.10)
SET PRICE 1 - $ .50	(5¢ to $99.95)
SHELF SIZE HALF	(FULL)
SET VEND MODE - SHOP	(FIFO)
MULTICODES - OFF	(ON)
SET PROD CODE - 0	(0 to 99)

MIS Menu

SET COIN TUBES - NONE
BILL ACCPT EMPTY - NO
CASH BOX EMPTY - NO
PRINT MIS DATA - NO
CLEAR MIS DATA - NO
SALES (R) - $ .00
SALES (n) - $ .00
BAG TOTAL - $ .00
CASHBOX - $ .00
CARD SALES - $ .00
BILL TOTALS - $ .00
ONES - 0 $ .00
TWOS - 0 $ .00
FIVES - 0 $ .00
COIN TOTALS - $ .00
$1 COINS - 0 $ .00
QUARTERS - 0 $ .00
DIMES - 0 $ .00
NICKLES - 0 $ .00
RAND VEND - $ .00
FREE VEND - $ .00
DISC 1 - $ .00
DISC 2 - $ .00
DISC 3 - $ .00
TOTAL VENDS - 0
SCHED 1 VENDS - 0
SCHED 2 VENDS - 0
SCHED 3 VENDS - 0
VENDS PER SHELF (Price display will indicate vend amount at each door.)
RAND VENDS - 0
FREE VENDS - 0
DISC 1 VENDS - 0
DISC 2 VENDS - 0
DISC 3 VENDS - 0
MIS CLEAR COUNT - X (Non-Resettable)
POWER LOSSES - NO

PRICE CHANGED - NO
OUT OF SERVICE - NO
TIME OVER HEALTH - NO
MAX TEMPERATURE - NO
MIN TEMPERATURE - NO
CLOCK CHANGES - 0

Options Menu

MULTIVIEW - OFF
FORCED VEND - OFF
BILL ACCEPTOR - OFF
SOLD OUT CHECK - OFF
FREE VEND - OFF
RNDM FREE VEND - OFF
DISPLAY TIME - OFF
SET MACHINE ID - NO
SECURITY CODE - OFF
SET MESSAGE - OFF
COLUMN DISPLAY - SOLD
PROHIBIT VENDING - NO
LANGUAGE - ENGLISH

Clock Menu

DATE - 1/17/92
SET TIME - NO
TIME - 11.32
SET TIME - NO

Turret Menu

TURRET DELAY - OFF

Auto Price Menu

ENABLE SCHED 2 - NO
ENABLE SCHED 3 - NO

Discount Menu

SET DISCOUNT 1 - NO
SET DISCOUNT 2 - NO
SET DISCOUNT 3 - NO

Diagnostic Menu

HEALTH TEST - NO
CARD CREDIT - $ .00
SET ZERO POS - NO

Default Menu

MACHINE INIT - NONE
PRINT BAUD RATE - 9600

548 QUICK-REFERENCE GUIDE.

To check inside cabinet temperature (without opening Coin Mech. Door):

1. Press Blank key on keypad
2. Press F key (F is for Fahrenheit)
3. Press C key (C is for Celsius)

To check Health Control time delay (without opening Coin Mech. Door):

1. Press Blank key on keypad
2. Press H key (H is for Health Control Status and for time left in initial 30 min. health delay check).

To check Machine ID:

1. Press Blank then I key.

To set prices:

1. Press NEXT key on Message Center to reach (PRICE MENU)
2. Press SET key to reach (PRICE 0.00)
3. Change price shown by using up or down keys
4. Toggle doors you wish to change to that price

To payout change from coin mech (manually):

1. Press coin switch (5¢, 10¢, or 25¢) on Message center.

To extract MIS data:

1. Press NEXT key on Message Center to reach (MIS MENU)
2. Press SET to advance through each MIS category
3. (SALES <N>) is Non-resettable (cumulative) cash meter
4. (SALES <R>) is Resettable cash meter

To print MIS data:

1. Connect compatible printer using proper interface cable
2. Press NEXT key on Message Center to reach (MIS MENU)
3. Press SET key to reach (PRINT MIS DATA -NO)
4. Press up or down key to change it to (PRINT MIS DATA -YES)
5. Press SET key to automatically print data

To clear SOLD-out doors:

1. Open Main Cabinet Door
2. Rotate turret with Service Switch, not outside switches

To clear an error (if lights go out, but prices remain lit):

1. Error description will appear when coin mech door is opened
2. Press SET key each time an error message displays.
3. (CLEAR ERRORS -NO) will appear
4. Press up or down key to change it to (CLEAR ERRORS -YES)
5. Press SET key again, which will clear the error

NOTE:

If it is a Health Time Expired error, main door must be opened and shut again to reset. It will now have 30 minutes to cool down.

If it is a Main Door Open error, make sure the main door is securely latched before attempting to clear error.

TABLE 3 - 2 MISCELLANEOUS INFORMATION	
Maximum price :	$99.95
Number of price schedules :	3
Number of discounts :	3
Maximum product code :	99
Free vend odds range :	50-3000
Maximum scrollable message length :	300 chars
Maximum fixed message length :	20 chars
Maximum machine id length :	12 chars
Maximum security code length :	4 chars
Multiview time period :	3 minutes
Acceptable line voltage range :	105 VAC - 130 VAC (approx)
Compressor turn on temperature :	38 degrees F
Compressor turn off temperature :	34 degrees F
Compressor minimum on time :	90 seconds
Compressor minimum off time :	180 seconds
Maximum health control temperature :	45 degrees F
Maximum time over health control temperature :	60 seconds
Health Control pull down delay :	30 minutes
Health test delay time :	20 seconds

TABLE 3 - 3

SERVICE MENU
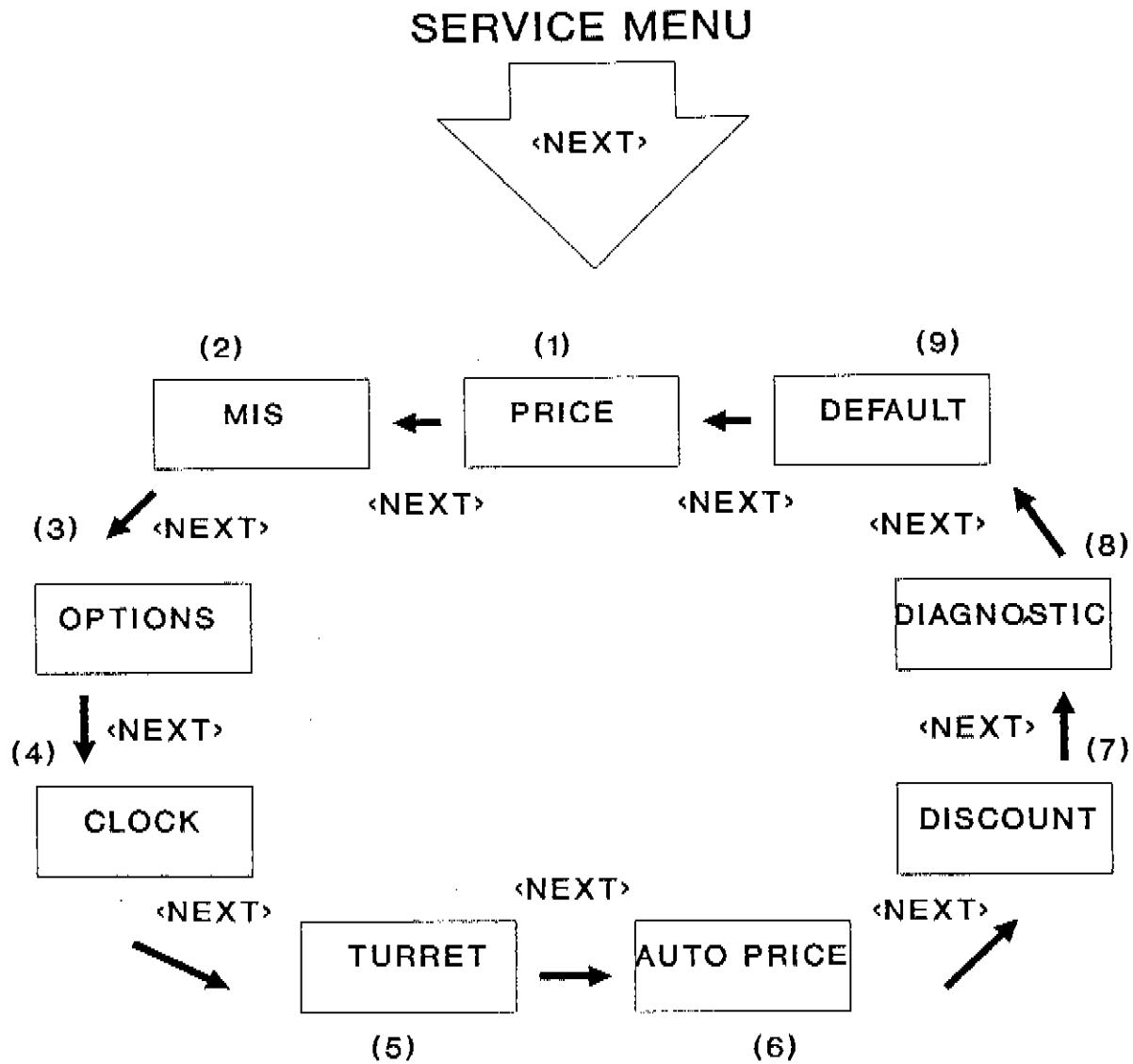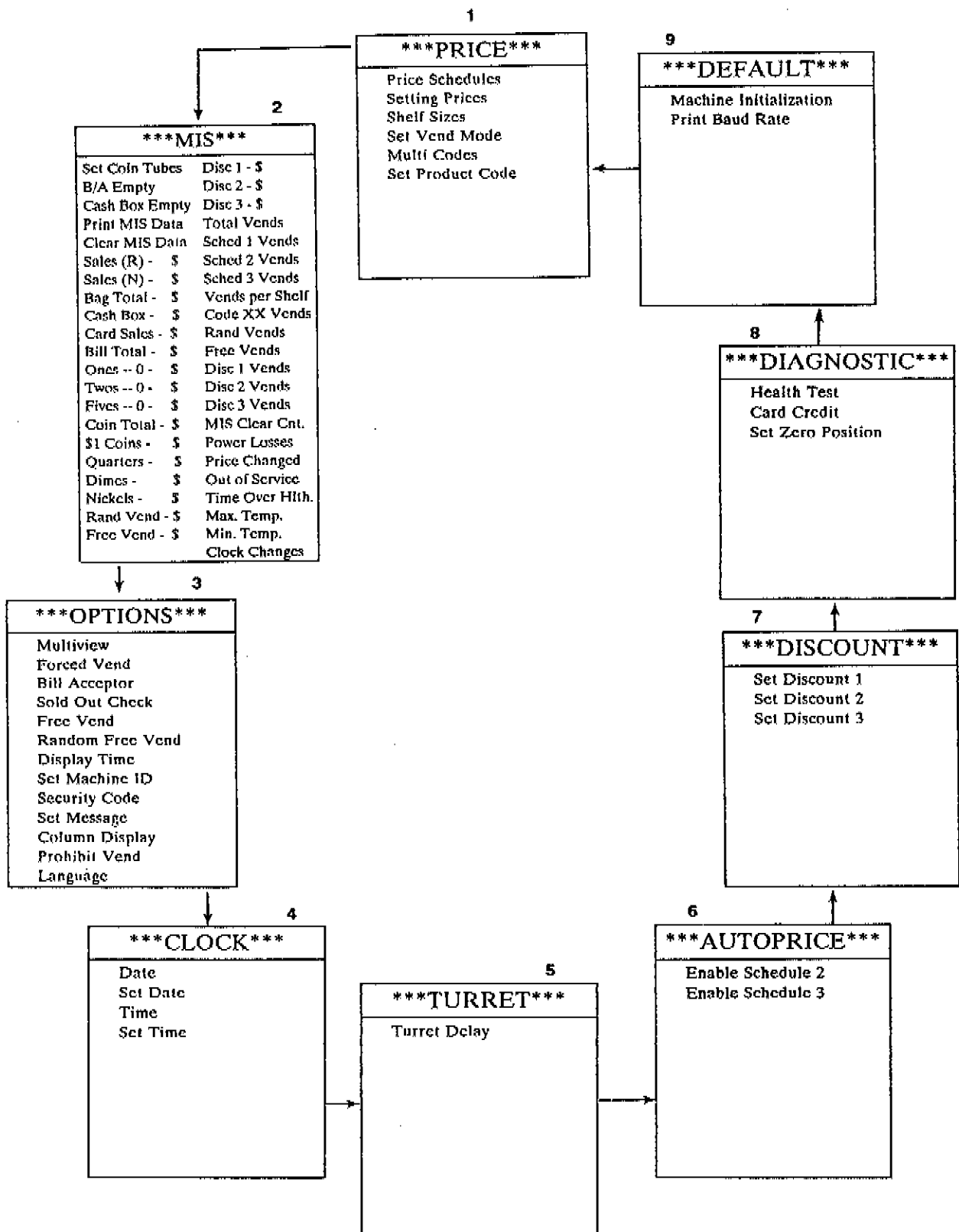

For items within each menu see page 3 - 7.

<NEXT> key moves through the menus.

<SET> key moves through items in a menu.

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

TABLE 3 - 4   ITEMS WITHIN EACH MENU

1

PRICE

Price Schedules
Setting Prices
Shelf Sizes
Set Vend Mode
Multi Codes
Set Product Code

9

DEFAULT

Machine Initialization
Print Baud Rate

2

MIS

Set Coin Tubes	Disc 1 - $
B/A Empty	Disc 2 - $
Cash Box Empty	Disc 3 - $
Print MIS Data	Total Vends
Clear MIS Data	Sched 1 Vends
Sales (R) - $	Sched 2 Vends
Sales (N) - $	Sched 3 Vends
Bag Total - $	Vends per Shelf
Cash Box - $	Code XX Vends
Card Sales - $	Rand Vends
Bill Total - $	Free Vends
Ones -- 0 - $	Disc 1 Vends
Twos -- 0 - $	Disc 2 Vends
Fives -- 0 - $	Disc 3 Vends
Coin Total - $	MIS Clear Cnt.
$1 Coins - $	Power Losses
Quarters - $	Price Changed
Dimes - $	Out of Service
Nickels - $	Time Over Hlth.
Rand Vend - $	Max. Temp.
Free Vend - $	Min. Temp.
	Clock Changes

8

DIAGNOSTIC

Health Test
Card Credit
Set Zero Position

3

OPTIONS

Multiview
Forced Vend
Bill Acceptor
Sold Out Check
Free Vend
Random Free Vend
Display Time
Set Machine ID
Security Code
Set Message
Column Display
Prohibit Vend
Language

7

DISCOUNT

Set Discount 1
Set Discount 2
Set Discount 3

4

CLOCK

Date
Set Date
Time
Set Time

5

TURRET

Turret Delay

6

AUTOPRICE

Enable Schedule 2
Enable Schedule 3

<SET> key steps through the items within each menu.

This section will provide the descriptions of all the Rowe 548 Refrigerated Merchandiser Service Menus utilizing the (D) Revision software on Universal Control Board.

SERVICE MENU

The purpose of the SERVICE MENU is to provide an introduction to the SERVICE MODE.

PRICE MENU

The PRICE menu contains the menu items that set the prices, shelf sizes, vending modes and product codes of the machine.

PRICE SCHED

The purpose of the PRICE SCHED is to select the active Price Schedule. (See section SET PRICE.)

There are three Price Schedules that may be activated manually or automatically by time and day (See section AUTO PRICE MENU).

To select a price schedule, depress the <SET> key until "PRICE SCHED-N ACTIVE" is displayed on the message center. (Where N = 1, 2, or 3.) Use the <UP> or <DOWN> arrow key to select schedule "1", "2", "3", or "AUTO N". The schedule that is selected will determine what prices the machine will use in vend operation. If "AUTO" is selected, the active schedule number (N) determined by the active AUTOPRICE times (See section AUTOPRICE MENU) is displayed also. If no times have been set up or the AUTOPRICE schedules are disabled, Schedule 1 is used.

SET PRICE

The purpose of the SET PRICE is to set each shelf or compartment to a specific price.

To set prices, depress the <SET> key until SET PRICE N-$ .XX" is displayed on the message center. (N = 1, 2, or 3, XX = .05 to 99.95.) Use the <UP> or <DOWN> arrow key to select the desired price, then toggle the corresponding vend door to set the price. (Notice the column display will reflect the desired price for that shelf)

SHELF SIZE

The purpose of the SHELF SIZE is to set a compartment to either "HALF" size or "FULL" size. If the shelf sizes are
set to "HALF", then there are 14 compartments to a shelf, if they are set to "FULL", then there are 7 compartments to a shelf. The default for all shelves is "HALF" size.

To set the size of a shelf, depress the <SET> key until the message center displays "SHELF SIZE - HALF". Use the <UP> or <DOWN> arrow key to change the setting to either "HALF" or "FULL". Toggle the door corresponding to the desired shelf and notice the column display will reflect the size configuration of
the shelf. (i.e. - "HALF" or "FULL")

SET VEND MODE

The purpose of SET VEND MODE is to set a shelf's vend mode to either "SHOP" or "FIFO" mode. If a shelf is set to "FIFO" mode, the machine dispenses items in the order they were loaded. In other words, the First In is the First Out ("FIFO"). If this mode is to be implemented, it should be done after initialization, or after the shelves have been filled using the SERVICE / FILLING SWITCH, and before any vends have been made. If the shelf is set to "SHOP" mode, the machine allows the customer to choose any product on a shelf provided that the compartment has not been sold. "SHOP" mode may be implemented at any time and is the default setting. If "FIFO" mode is chosen, the machine will allow vends starting from the first compartment or zero position, incrementing up to compartment 14 if "HALF" size shelve, or compartment 7 if "FULL" size shelves.

NOTE:
If TURRET DELAY is active no shelves are allowed to be in "FIFO" mode. (See section TURRET DELAY)

To set "FIFO" or "SHOP" mode, depress the <SET> key until the message center displays "SET VEND MODE - SHOP". Use the <UP> or <DOWN> arrow key to change the setting to either "FIFO" or "SHOP". Toggle the door at the desired shelf and notice the column display will reflect the status of that shelf. (i.e "FIFO" or "SHOP")

MULTI CODES

The purpose of MULTI CODES is to set individual product codes for each compartment on a shelf. To set multicodes mode on, press the <SET> key until the message center displays "MULTI CODES - OFF". Use the <UP> or <DOWN> arrow key to change the setting to either "ON" or "OFF". Toggle the door at the desired shelf and notice the column display will reflect the status of that shelf. (i.e. - "ON" or "OFF")

SET PROD CODE

The purpose of the SET PROD CODE is to set each shelf or compartment (See section MULTI CODES) to a specific product code.
To set product codes, press the <SET> key until the message center displays "SET PROD CODE - 0". Use the <UP> or <DOWN> arrow key to select the desired product code, then toggle the door at the desired shelf and notice the column display will display the product code. To set a different product code simply change the product code with the <UP> or <DOWN> keys and toggle any door to set the shelf to the new product code. If multicodes is on, the operator can rotate the turret and set each compartment to a different product code the same as setting product codes for a shelf. The product codes range from 0 to 99.

NOTE: Pressing the <NEXT> key at any time will advance to the following menu. All changes that have been set will automatically be saved.

MIS MENU

The MIS menu contains the menu items that handle the MIS data collected by the 548.

SET COIN TUBES

The purpose of SET COIN TUBES is to empty, or fill the coin tubes to a desired level. Depress the <SET> key until "SET COIN TUBES- NONE" appears on the message center.
To empty the coin tubes completely, use the <UP> or <DOWN> arrow keys until "SET COIN TUBES-EMPTY" is displayed on the message center and depress the <SET> key. Ensure all coins have been depressed from coin tubes.
To fill the coin tubes from the side of the coin mechanism, use the <UP> or <DOWN> arrow keys until "SET COIN TUBES - LOAD" is displayed on the message center and depress the <SET> key. Loading the coin tubes can can also be performed by loading the coins through the top flight deck of the Coin Mech. at anytime during service mode.

$1 COINS ADDED

"$1 COINS ADDED - 0" appears on the message center. Use the <UP> or <DOWN> arrow keys to display the number of dollar coins that are being added through the side of the coin tube and depress the <SET> key.

QUARTERS ADDED

"QUARTERS ADDED - 0" appears on the message center. Use the <UP> or <DOWN> arrow keys to display the number of quarters that are being added through the side of the coin tube and depress the <SET> key.

DIMES ADDED

"DIMES ADDED - 0" appears on the message center. Use the <UP> or <DOWN> arrow keys to display the number of dimes that are being added through the side of the coin tube and depress the <SET> key.

NICKELS ADDED

"NICKELS ADDED - 0" appears on the message center. Use the <UP> or <DOWN> arrow keys to display the number of nickels that are being added through the side of the coin tube and depress the <SET> key.

NOTE: If the "EMPTY" option is used, the coin amounts that the coin mechanism delivers are recorded in the BAG TOTAL. (See section BAG TOTAL.) If the "LOAD" option is used, then the new coin totals will be reflected in the tube totals. (See sections COIN TOTAL, $1 COINS, QUARTERS, DIMES, and NICKELS.)

BILL ACCEPT EMPTY

The purpose of BILL ACCEPT EMPTY is to clear the bill tallies after the bill stacker is emptied. The bill tallies are added to the BAG TOTAL.

After the bill stacker is emptied, depress the <SET> key until "BILL ACCEPT EMPTY - NO" appears on the message center. Use the <UP> or <DOWN> arrow keys, display "YES" on the message center and depress the <SET> key. (See section BAG TOTAL.)

CASH BOX EMPTY

The purpose of CASH BOX EMPTY is to clear the cash box tallies after it is emptied. The cash box tallies are added to the BAG TOTAL.

After the cash box is emptied, depress the <SET> key until "CASH BOX EMPTIED - NO" appears on the message center. Use the <UP> or <DOWN> arrow keys, display "YES" on the message center and depress the <SET> key. (See section BAG TOTAL.)

PRINT MIS

The PRINT MIS menu item sends the MIS data to the RS-232 port (if equipped) to be printed. All of the MIS menu data, the software version, time and date, machine ID, audit number and other pertinent information will be included. (See Sections CLOCK MENU, and SET MACHINE ID)

To send the MIS information depress the <SET> key until "PRINT MIS DATA - NO" appears on the message center. Use the <UP> or <DOWN> arrow keys, display "YES" on the message center and depress the <SET> key.

CLEAR MIS DATA

The purpose of CLEAR MIS DATA is to perform a MIS Reset, which will zero all totals in the MIS data except for the non-resettable information.

To clear the MIS information, depress the <SET> key until "CLEAR MIS DATA - NO" appears on the message center. Use the <UP> or <DOWN> arrow keys, display "YES" on the message center and depress the <SET> key. (See section MIS CLEAR COUNT.)

SALES (R)

The purpose of SALES (R) is to display the total amount of sales that the machine has made since the last initialization or MIS Reset. "SALES (R)-$ .XX" will appear on the message center, where XX is the dollar amount. When the amount exceeds $99999.95 it will restart at $ .00 .

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To display the non-resettable sales, depress the <SET> key until "SALES (R)-$ .XX" appears on the message center. (Where XX is the dollar amount.)

SALES (N)

The purpose of SALES (N) is to display the total amount of sales that the machine has made. It will never be reset. SALES (N)-$ .XX" will appear on the message center, where XX is the dollar amount. When the amount exceeds $99999.95 it will restart at $ .00 .

To display the non-resettable sales, depress the <SET> key until "SALES (N)-$ .XX" appears on the message center. (Where XX is the dollar amount.)

BAG TOTAL

The purpose of BAG TOTAL is to display the total amount of money that has been emptied from the coin mechanism, the bill acceptor and the coin box. When the amount exceeds $99999.95 it will restart at $ .00 .

To display the bag total, depress the <SET> key until "BAG TOTAL-$ .XX" appears on the message center. (Where XX is the dollar amount.)

CASH BOX

The purpose of CASH BOX is to display the total amount of money in the cash box. When the amount exceeds $99999.95 it will restart at $ .00 .

To display the cash box total, depress the <SET> key until "CASH BOX-$ .XX" appears on the message center. (Where XX is the dollar amount.)

CARD SALES

The purpose of CARD SALES is to display the total amount of vend card sales (if equipped). When the amount exceeds $99999.95 it will restart at $ .00 .

To display the card sales, depress the <SET> key until "CARD SALES-$ .XX" appears on the message center. (Where XX is the dollar amount.)

BILL TOTAL

The purpose of BILL TOTAL is to display the total value of the bills held in the bill stacker. When the amount of bills exceeds 999 it will restart at $ .00 .

To display the bill total, depress the <SET> key until "BILL TOTAL-$ .XX" appears on the message center. (Where XX is the dollar amount.)

ONES

The purpose of ONES is to display the total number and value of one dollar bills held in the bill stacker. When the amount of bills exceeds 999 it will restart at 1.

To display the one dollar bill total, depress the <SET> key until "ONES-N $ .XX" appears on the message center. (Where N is the number of bills and XX is the dollar amount.)

TWOS

The purpose of TWOS is to display the total number and value of two dollar bills held in the bill stacker. When the amount of bills exceeds 999 it will restart at 1.

To display the two dollar bill total, depress the <SET> key until "TWOS-N $ .XX" appears on the message center. (Where N is the number of bills and XX is the dollar amount.)

FIVES

The purpose of FIVES is to display the total number and value of five dollar bills held in the bill stacker. When the amount of bills exceeds 999 it will restart at 1.

To display the five dollar bill total, depress the <SET> key until "FIVES-N $ .XX" appears on the message center. (Where N is the number of bills and XX is the dollar amount.)

COIN TOTAL

The purpose of COIN TOTAL is to display the total value of the coins held in the coin tubes. When the amount of coins exceeds 999 it will restart at $ .00 .

To display the coin total, depress the <SET> key until "COINS TOTAL-$ .XX" appears on the message center. (Where XX is the dollar amount.)

$1 COINS

The purpose of $1 COINS is to display the total number and value of $1 coins held in the coin mech tubes.

To display the $1 coin total, depress the <SET> key until "$1 COINS-N $ .XX" appears on the message center.(Where N is the number of coins and XX is the dollar amount.)

QUARTERS

The purpose of QUARTERS is to display the total number and value of quarters held in the coin mech tubes.

To display the quarter coin total, depress the <SET> key until "QUARTERS-N $ .XX" appears on the message center.(Where N is the number of coins and XX is the dollar amount.)

DIMES

The purpose of DIMES is to display the total number and value of dimes held in the coin mech tubes.

To display the dime coin total, depress the <SET> key until "DIMES-N $ .XX" appears on the message center. (Where N is the number of coins and XX is the dollar amount.)

NICKELS

The purpose of NICKELS is to display the total number and value of nickels held in the coin mech tubes.

To display the nickels coin total, depress the <SET> key until "NICKELS-N $ .XX" appears on the message center. (Where N is the number of coins and XX is the dollar amount.)

RAND VENDS-$

The purpose of RAND VENDS-$ is to display the total monetary amount of random free vends sales that have occurred. When the number of random free vends exceeds 9999, random free vend value will restart at $ .00 .

To display the random vend monetary total, depress the <SET> key until "RAND VEND-$ .XX" appears on the message center. (Where XX is the dollar amount.)

FREE VENDS-$

The purpose of FREE VENDS-$ is to display the total monetary amount of random free vends sales that have occurred. When the number of free vends exceeds 9999, free vend value will restart at $ .00 .

To display the free vend monetary total, depress the <SET> key until "FREE VEND-$ .XX" appears on the message center. (Where XX is the dollar amount.)

DISC 1 - $

The purpose of DISC 1 - $ is to display the amount of money discounted from the scheduled prices while Discount 1 was active. When the number of Discount 1 exceeds 9999, the Discount 1 vend value will restart at $ .00 .

To display the Discount 1 monetary total, depress the <SET> key until "DISC 1 - $ .XX" appears on the message center. (Where XX is the dollar amount.)

DISC 2 - $

The purpose of DISC 2 - $ is to display the amount of money discounted from the scheduled prices while Discount 2 was active. When the number of Discount 2 exceeds 9999, the Discount 2 vend value will restart at $ .00 .

To display the Discount 2 monetary total, depress the <SET> key until "DISC 2 - $ .XX" appears on the message center. (Where XX is the dollar amount.)

DISC 3 - $

The purpose of DISC 3 - $ is to display the amount of money discounted from the scheduled prices while Discount 3 was active. When the number of Discount 3 exceeds 9999, the Discount 3 vend value will restart at $ .00 .

To display the Discount 3 monetary total, depress the <SET> key until "DISC 3 - $ .XX" appears on the message center. (Where XX is the dollar amount.)

TOTAL VENDS

The purpose of TOTAL VENDS is to display the total number of vends that have occurred. When the amount of total vends exceeds 9999 it will restart at 1.

To display the total number of vends, depress the <SET> key until "TOTAL VENDS - N" appears on the message center. (Where N is the number of vends.)

SCHED 1 VENDS

The purpose of SCHED 1 VENDS is to display the total number of vends that have occurred while Schedule 1 prices were active. Schedule 1 is the default schedule. When the amount of Schedule 1 vends exceeds 9999 it will restart at 1.

To display the number of vends during Price Schedule 1, depress the <SET> key until "SCHED 1 VENDS - N" appears on the message center. (Where N is the number of vends.)

SCHED 2 VENDS

The purpose of SCHED 2 VENDS is to display the total number of vends that have occurred while Schedule 2 prices were active. When the amount of Schedule 2 vends exceeds 9999 it will restart at 1.

To display the number of vends during Price Schedule 2, depress the <SET> key until "SCHED 2 VENDS -N" appears on the message center. (Where N is the number of vends.)

SCHED 3 VENDS

The purpose of SCHED 3 VENDS is to display the total number of vends that have occurred while Schedule 3 prices were active. When the amount of Schedule 3 vends exceeds 9999 it will restart at 1.

To display the number of vends during Price Schedule 3, depress the <SET> key until "SCHED 3 VENDS - N" appears on the message center. (Where N is the number of vends.)

VENDS PER SHELF

The purpose of VENDS PER SHELF is to display on the column display the total number of vends that have occurred on each of the shelves. When the amounts of vends per shelf vends exceed 9999 they will restart at 1.

To display the vends per shelf depress the <SET> key until "VENDS PER SHELF" appears on the message center.

CODE P VENDS

The purpose of CODE P VENDS is to display the amount of vends by product code for each of the vended compartments that have a non zero product code (See Sections MULTI CODES and SET PROD CODE). If no vends were made for a product code, it will not be displayed. When the amounts of product code vends exceed 9999 they will restart at 1.

To display the total number of vends for a particular product code, depress the <SET> key until "CODE P VENDS - N" appears on the message center. (Where P is the product code and N is the number of vends.)

RANDOM VENDS

The purpose of RANDOM VENDS is to display the total number of random free vends that have occurred (See Section RNDM FREE VEND). When the amount of random vends exceeds 9999 it will restart at 1.

To display the total number of random free vends, depress the <SET> key until "RANDOM VENDS - N" appears on the message center. (Where N is the number of vends.)

FREE VENDS

The purpose of FREE VENDS is to display the total number of free vends that have occurred. When the amount of free vends exceeds 9999 it will restart at 1.

To display the total number of free vends, depress the <SET> key until "FREE VENDS   - N" appears on the message center. (Where N is the number of vends.)

DISC 1 VENDS

The purpose of DISC 1 VENDS is to display the total number of discounted vends while Discount 1 was active. When the amount of Discount 1 vends exceeds 9999 it will restart at 1.

To display the total number of vends while discount 1 was active, depress the <SET> key until "DISC 1 VENDS - N" appears on the message center. (Where N is the number of vends.)

DISC 2 VENDS

The purpose of DISC 2 VENDS is to display the total number of discounted vends while Discount 2 was active. When the amount of Discount 2 vends exceeds 9999 it will restart at 1.

To display the total number of vends while discount 2 was active, depress the <SET> key until "DISC 2 VENDS - N" appears on the message center. (Where N is the number of vends.)

DISC 3 VENDS

The purpose of DISC 3 VENDS is to display the total number of discounted vends while Discount 3 was active. When the amount of Discount 3 vends exceeds 9999 it will restart at 1.

To display the total number of vends while discount 3 was active, depress the <SET> key until "DISC 3 VENDS - N" appears on the message center. (Where N is the number of vends.)

MIS CLEAR COUNT

The purpose of MIS CLEAR COUNT is to display the number of times that the MIS has been cleared via the MIS CLEAR menu item or "FULL" machine initialization. (See sections CLEAR MIS DATA and MACHINE INIT.) This data is non-resettable.

To display the number of times the MIS has been cleared, depress the <SET> key until "MIS CLEAR COUNT-N" appears on the message center. (Where N is the number of clears.)

POWER LOSSES

The purpose of POWER LOSSES is to display the last time and date that the machine lost power. If the machine has never lost power, " NOT APPLICABLE" will be displayed. This data is non-resettable.

To display the last time the machine lost power, depress the <SET> key until "POWER LOSSES - NO" appears on the message center. By using the <UP> or <DOWN> arrow keys, displaying "YES" on the message center and depressing the <SET> key, the last time, day and date the power to the machine had been off will appear.

PRICE CHANGED

The purpose of PRICE CHANGED is to display the last time and date that a price was changed. If the prices have never been changed, then " NOT APPLICABLE" will be displayed. This data is non-resettable.

To display the last time a price changed, depress the <SET> key until "PRICE CHANGED - NO" appears on the message center. By using the <UP> or <DOWN> arrow keys, displaying "YES" on the message center and depressing the <SET> key, the last time, day and date a 'price had changed will appear. (To set or change prices see section SET PRICE.)

OUT OF SERVICE

The purpose of OUT OF SERVICE is to display the last time and date that the machine went out of service. If the machine has never gone out of service then " NOT APPLICABLE" will be displayed. This data is non-resettable.

To display the last time the machine went out of service, depress the <SET> key until "OUT OF SERVICE - NO" appears on the message center. By using the <UP> or <DOWN> arrow keys, displaying "YES" on the message center and depressing the <SET> key, the last time, day and date a the machine went out of service will appear.

The purpose of Time Over Health is to display the amount of time the refrigerated compartment has been over the health temperature. If the compartment has not exceeded the health temperature after the Pull Down period then "NOT APPLICABLE" will be displayed, otherwise the length of time the compartment has been over the health temperature and the maximum temperature that the compartment has reached will be displayed.

To display the TIME OVER HEALTH, depress the <SET> key until "TIME OVER HEALTH - NO" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "YES" and depress the <SET> key. "HH.MM.SS XX F MAX" will appear on the message center. If the temperature in the refrigerated compartment did not exceed the maximum health temperature then "NOT APPLICABLE" will appear on the message center. (Where HH is hours, MM is minutes, SS is seconds, and XX is degrees farenheit)

MAX TEMPERATURE

The purpose of MAX TEMPERATURE is to allow the operator to display the maximum temperature that the refrigerated compartment has achieved after the machine has reached the pull down temperature. The message center will display the maximum temperature along with the date and time the maximum temperature was achieved. If the temperature inside the refrigerated compartment has not reached the pull down temperature then "MIN TEMP NOT REACHED" will appear on the message center.

To display the maximum temperature, depress the <SET> key until "MAX TEMPERATURE-NO" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "YES" and depress the <SET> key. TTF MM/DD/YY HH.NNXM will appear on the message center. (Where TT is the maximum termperature in farenheit, MM is the month, DD is the day, YY is the year, HH is the hour, NN is the minute, and XM is either AM or PM.) If the temperature inside the refrigerated compartment has not reached the pull down temperature then "MIN TEMP NOT REACHED" will appear on the message center.

MIN TEMPERATURE

The purpose of MIN TEMPERATURE is to allow the operator to display the minimum temperature that the refrigerated compartment has achieved after the machine has reached the pull down temperature. The message center will display the minimum temperature along with the date and time the minimum temperature was achieved. If the temperature inside the refrigerated compartment has not reached the pull down temperature then "MIN TEMP NOT REACHED" will appear on the message center.

To display the minimum temperature, depress the <SET> key until "MIN TEMPERATURE-NO" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "YES" and depress the <SET> key. TTF MM/DD/YY HH.NNXM will appear on the message center. (Where TT is the minimum termperature in farenheit, MM is the month, DD is the day, YY is the year, HH is the hour, NN is the minute, and XM is either for AM or PM.) If the temperature inside the refrigerated compartment has not reached the pull down temperature then "MIN TEMP NOT REACHED" will appear on the message center.

CLOCK CHANGES

The purpose of CLOCK CHANGES is to display the number of times the clock has been changed. If the clock has never been changed then " NOT APPLICABLE" will be displayed. This data is non-resettable.

To display the number of times the clock has been changed, depress the <SET> key until "CLOCK CHANGES - NO" appears on the message center. By using the <UP> or <DOWN> arrow keys, displaying "YES" on the message center and depressing the <SET> key, "TIMES CHANGED - N" will appear. (Where N is the number of times the clock has changed. To change or set the date, time, or day see section SET DATE, SET TIME, or SET DAY.)

NOTE: Pressing the <NEXT> key at any time will advance to the following menu. All changes that have been set will automatically be saved.

OPTIONS MENU

The OPTIONS menu contains the menu items that select the options in the machine.

MULTIVIEW

The purpose of MULTIVIEW is to rotate the turret three sections every three minutes. The turret will not rotate if there is credit pending in the machine or if a vend or turret rotation had occurred 15 seconds prior to the scheduled MULTIVIEW rotation. If MULTIVIEW is selected, the active time period must be specified. A time period is described by start and end times between and including the start and end days. For example if MULTIVIEW should be in effect 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. To use the MULTIVIEW option, depress the <SET> key until "MULTIVIEW - OFF" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "ON" and depress the <SET> key.

START TIME

"START TIME - HH.MM XM" will appear on the message center. This is the time of day that MULTIVIEW 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

"SET HOURS - 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 MULTIVIEW 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

"SET HOURS - 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 MULTIVIEW 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 MULTIVIEW 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.

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

FORCED VEND

The purpose of FORCED VEND is to prevent the 548 from being used as a change machine. If credit is established in vend mode and the coin return is depressed, "MUST MAKE SELECTION" is displayed if the FORCED VEND option is active. FORCED VEND OFF is the default.

To set the FORCED VEND option, depress the <SET> key until "FORCED VEND - OFF" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "ON" and depress the <SET> key.

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BILL ACCEPTOR

The purpose of BILL ACCEPTOR is to enable the bill acceptor and the type of bills that the bill acceptor will accept.

To enable the bill acceptor, depress the <SET> key until "BILL ACCEPTOR - OFF" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "ON" and depress the <SET> key.

$1 BILLS

"$1 BILLS - REJECT" will appear on the message center. To accept one dollar bills use the <UP> or <DOWN> arrow keys to display "ACCEPT" and depress the <SET> key.

$2 BILLS

"$2 BILLS - REJECT" will appear on the message center. To accept two dollar bills use the <UP> or <DOWN> arrow keys to display "ACCEPT" and depress the <SET> key.

$5 BILLS

"$5 BILLS - REJECT" will appear on the message center. To accept five dollar bills use the <UP> or <DOWN> arrow keys to display "ACCEPT" and depress the <SET> key.

SOLD OUT CHECK

The purpose of SOLD OUT CHECK is to assist in the detection of possible product tampering. When this option is active, "SOLD" will be indicated on the column display for each compartment selected and "CHECK SOLD OUT DOORS" will appear on the message center at the start of the service menu. For each compartment that displays a "SOLD" message on the column display, the door should be opened. Any product found in a sold compartment should be discarded. The column display will change to "NONE". When all the "SOLD" compartments have been toggled to "NONE", the column display will display the current prices and the message center will display "*** SERVICE MENU ***". After filling the machine and closing the main door, "SET FIRST EMPTIES" will be displayed. The turret should be turned to the first empty compartment on each shelf (starting from Section 1) and the door toggled. The compartments from that Section to Section 7 will be set to "not filled". Any shelf not set will be considered completely full once the <SET> key has been depressed. To use the SOLD OUT CHECK option, depress the <SET> key until "SOLD OUT CHECK - OFF" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "ON" and depress the <SET> key.

FREE VEND

The purpose of FREE VEND is to put the machine in free vend mode. When this option is active, the column display will show .00 and "MAKE FREE SELECTION" will be displayed in Vend Mode unless a point of sale message is invoked. (See section SET MESSAGE.)

To use the FREE VEND option, depress the <SET> key until "FREE VEND - OFF" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "ON" and depress the <SET> key.

RNDM FREE VEND

The purpose of RNDM FREE VEND is to randomly give a free vend. The occurrance of a free vend can be set from 1 in 50 to 1 in 3000. When a random free vend occurs, the vend price will be returned and the message center will display " YOU ARE A WINNER".

To use the RNDM FREE VEND option, depress the <SET> key until "RNDM FREE VEND - OFF" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "ON" and depress the <SET> key.

ODDS

"ODDS - 1 IN N" will appear on the message center. To increment or decrement the odds, use the <UP> or <DOWN> arrow keys and depress the <SET> key. (N = 50 to 3000.)

DISPLAY TIME

The purpose of DISPLAY TIME is to display on the message center during vend mode the time, day and date in vend mode providing that no point of sale message is active, the machine is not OUT OF SERVICE, and the machine is not in EXACT CHANGE MODE.

To use the DISPLAY TIME option, depress the <SET> key until "DISPLAY TIME - OFF" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "ON" and depress the <SET> key.

SET MACHINE ID

The purpose of SET MACHINE ID is to set a machine ID of of up to 12 letters, numbers, or characters.
To set the MACHINE ID, depress the <SET> key until "SET MACHINE ID - NO" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "YES" and depress the <SET> key. "MACH ID-_ _ _ _ _ _ _ _ _ _ _" will appear on the screen. Use the <UP> or <DOWN> arrow keys to change the character that is being displayed. When the desired character is displayed depress the <SET> key. The flashing " ^ " character signifies the current character. If less than 12 characters, use the end bracket "] " to signify the end of message routine. When all the characters in the ID are set or an end bracket character is used, the message center will again display "SET MACHINE ID - NO". Depress the <SET> key for the next menu item. The machine ID can be displayed temporarily by depressing the black <BLANK> key and then the <I> key on the key pad at any time.

SECURITY CODE

The purpose of the SECURITY CODE option, is to prevent access to certain features of the 548. If the security code option is active, the only MENUS that would be accessible without the correct security code are : PRICE, MIS, AUTOPRICE, and DIAGNOSTICS. When the security code option is active, "SECURITY CODE - _ _ _ _" will be displayed in the Service Mode after clearing all error messages (if applicable) and "CHECK SOLD OUT DOORS" (if applicable) appears. The operator must then enter the security code. If the code is correct, "FULL ACCESS GRANTED" will be temporarily displayed and all the service menus are available. If the code is incorrect, only the menus listed above will be available.

To set the SECURITY CODE, depress the <SET> key until "SECURITY CODE - OFF" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "ON" and depress the <SET> key. "EDIT SEC CODE - NO" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "YES" and depress the <SET> key. "SECURITY CODE _ _ _ _" will appear on the screen. Use the <UP> or <DOWN> arrow keys to change the character that is being displayed. When the desired character is displayed depress the <SET> key. The flashing " ^ " character signifies the current character. If less than 4 characters use the end bracket "] " to signify the end of message routine. When all the characters in the security code are set or an end bracket character is used, the message center will again display "EDIT SEC CODE - NO". Depress the <SET> key for the next menu item.

SET MESSAGE

The SET MESSAGE option is used to set a user defineable Point of Sale Message. The Point of Sale Message may be a fixed length message, which can be up to 20 characters long or a scrolling message, which can be up to 300 characters long. Either type of message will be displayed on the message center provided that the machine is in Vend Mode, not OUT OF SERVICE, and not in EXACT CHANGE MODE.

To set the Point of Sale Message, depress the <SET> key until "SET MESSAGE - OFF" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "FIXED" or "SCROLL" and depress the <SET> key. "EDIT MESSAGE - NO" will apear on the Message Center. Use the <UP> or <DOWN> arrow keys to display "YES" and depress the <SET> key. "_____ _____" will appear on the screen. Use the <UP> or <DOWN> arrow keys to change the character that is being displayed. When the desired character is displayed depress the <SET> key. The flashing " ^ " character signifies the current character. The end bracket "] " signifies the end of message character. When all the characters in the ID are set or an end bracket character is used, the message center will again display "SET MESSAGE - NO". Depress the <SET> key for the next menu item.

COLUMN DISPLAY

The purpose of COLUMN DISPLAY is to eliminate the "SoLd" messages on the column display when a compartment has been sold. If COLUMN DISPLAY-PRICE is selected, the column will continue to display the price of each sold compartment. If "COLUMN DISPLAY-SOLD" is set, then "SoLd" will be displayed on the column for each sold compartment. In either case, each compartment can only be sold one time. "ITEM ALREADY SOLD" will be displayed on the message center when attempting to open a sold compartment.

To set the column display after a vend, depress the <SET> key until "COLUMN DISPLAY-SOLD" is displayed on the message center. Use the <UP> or <DOWN> arrow keys to display "PRICE" and depress the <SET> key for the price to be displayed after a vend, otherwise depress the <SET> key for the next menu item. (The default is "SoLd".)

PROHIBIT VENDING

The purpose of PROHIBIT VENDING is to allow the operator to put the machine OUT OF SERVICE without an error. When the service door is closed, the machine will be out of service, but there will be no error messages shown when service mode is entered.

To set the machine out of order, depress the <SET> key until "PROHIBIT VENDING-NO" is displayed on the message center. Use the <UP> or <DOWN> arrow keys to display "YES" and depress the <SET> key.

LANGUAGE

The purpose of LANGUAGE is to allow the operator to display the vend message in either "ENGLISH", "FRENCH", or "SPANISH". The default language is English.

To set the vend messages to a language, depress the <SET> key until "LANGUAGE - ENGLISH" appears on the meesage center. Use the <UP> or <DOWN> arrow keys to display either "ENGLISH", "FRENCH", or "SPANISH" and depress the <SET> key.

NOTE: Pressing the <NEXT> key at any time will advance to the following menu. All changes that have been set will automatically be saved.

CLOCK MENU

The CLOCK menu contains the menu items that set the internal clock. Depress the black <BLANK> key on the key pad and then the <D> key to temporarily display the time, date and day of week.

DATE

"DATE - MM/DD/YY" will appear on the message center. This shows the current date. To continue, depress the <SET> key.

SET DATE

"SET DATE - NO" appears on the message center. To change the date use the <UP> or <DOWN> arrow keys to display "YES" on the message center and depress the <SET> key.

SET DAY OF MONTH

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

SET MONTH

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

SET YEAR

"SET YEAR - YY" will appear on the message center. To change the year use the <UP> or <DOWN> arrow keys to display the correct year and depress the <SET> key.

TIME

"TIME - HH.MM XM WWW" will appear on the message center. This is the current time. To continue, depress the <SET> key.

SET TIME

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

SET HOURS

"SET HOURS - 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.

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, te. SUN, MON, TUES, etc)

NOTE: Pressing the <NEXT> key at any time will advance to the following menu. All changes that have been set will automatically be saved.

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TURRET MENU

The TURRET MENU contains the menu items that reserve turret sections in the machine for vending at a later time.

TURRET DELAY

The purpose of TURRET DELAY is prohibit vending in certain sections of the turret. Sections 2-7 may be reserved until some later time. If TURRET DELAY is active and the turret is rotated into a reserved section, the machine will continue to rotate into the first vendible section, the message center will display " RESERVED SECTION" and the column display will show "------" in place of the prices. When the delay end time has been reached, the delay is disabled until the machine is filled again.

NOTE: To make TURRET DELAY active, no shelves can can be in "FIFO" mode. (See section SET VEND MODE)

To use the TURRET DELAY option, depress the <SET> key until "TURRET DELAY - OFF" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "ON" and depress the <SET> key.

DELAY SECTIONS

"DELAY SECTIONS N - 7" will appear on the message center, where N is the starting "locked out" section, that is reserved for later vending. Use the <UP> or <DOWN> arrow keys to display the desired starting reserved turret section and depress the <SET> key.

STOP TIME

"STOP TIME - HH.MM XM" will appear on the message center. This is the time of day that the turret delay will end. To continue, depress the <SET> key.

SET STOP TIME

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

SET HOURS

"SET HOURS - 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.

NOTE: Pressing the <NEXT> key at any time will advance to the following menu. All changes that have been set will automatically be saved.

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AUTO PRICE MENU

The AUTO PRICE menu contains the menu items that set the time periods during which the different price schedules will become active when AUTO PRICE is enabled. A time period is described by start and end times between and including the start and end days. For example if price schedule 2 should be in effect 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.

Setting the prices in the schedules is done in the PRICE MENU. The following instructions can be used for both Schedule 2 and 3.

NOTE: In order to activate a AUTO PRICE Schedule, the PRICE SCHED-AUTO N in the PRICE MENU must be selected after setting the time periods.

(See section PRICE SCHED-N ACTIVE)

ENABLE SCHED N

The purpose of ENABLE SCHED N is to set the time period that price schedule N will be active.

To enable schedule N, depress the <SET> key until "ENABLE SCHED N - NO" appears on the message center. Use the <UP> or <DOWN> arrow keys to display "YES" 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 the schedule N prices 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

"SET HOURS - 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.

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STOP TIME

"STOP TIME - HH.MM XM" will appear on the message center. This shows the time of day that the schedule N prices 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

"SET HOURS - 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 the schedule N prices 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 the schedule N prices 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.)

NOTE: Pressing the <NEXT> key at any time will advance to the following menu. All changes that have been set will automatically be saved.

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.

The following instructions apply to all three discounts.

SET DISCOUNT N

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

To enable DISCOUNT N, depress the <SET> key until "SET DISCOUNT N- 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 show the time of day that Discount N 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

"SET HOURS - 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 N 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

"SET HOURS - 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 N 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 N 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.)

NOTE: Pressing the <NEXT> key at any time will advance to the following menu. All changes that have been set will automatically be saved.

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.

NOTE:Pressing the <NEXT> key at any time will advance to the following menu. All changes that have been set will automatically be saved.

DEFAULT MENU

The DEFAULT menu contains menu items that perform machine initializations.

MACHINE INIT

MACHINE INIT allows the machine to be initialized to a default setting. There are two types of machine initializations; FULL and OPTIONS.

The OPTIONS initialization resets only the 548 options to default states. This type of initialization will turn off all the options that can be set in the OPTIONS MENU. (See section OPTIONS MENU)

To perform an OPTIONS initialization, use the <UP> or <DOWN> arrow key to display "MACHINE INIT - OPTIONS" on the message center and depress the <SET> key.

The FULL initialization resets the 548 to default states. This type of initialization will initialize the entire machine: PRICES, MIS totals (except for the non-resettables), OPTIONS, TURRET DELAYS, AUTO PRICES, and DISCOUNTS.

To perform a FULL initialization, use the <UP> or <DOWN> arrow key to display "MACHINE INIT - FULL" on the message center and depress the <SET> key.

PRINT BAUD RATE

The purpose of PRINT BAUD RATE is to allow to set the baud rate of the printer. there are three baud rates that may be chossen. They are 9600, 2400, or 1200. 9600 is the default baud rate.

To set the baud rate, depress the <SET> key until "PRINT BAUD RATE-BBBB" appears on the message center. Use the <UP> or <DOWN> arrow keys to choose between 9600, 2400, or 1200 depending on the particular printer in use, (Check printer manual for printer baud rate) and depress the <SET> key. (Where BBBB is the baud rate.)

NOTE: Pressing the <NEXT> key at any time will advance to the following menu. All changes that have been set will automatically be saved.

SECTION 4 - 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.

Check all indicator LED's on UCB and Power Supply Asm..

Indicator Lights

A representation of the Power Supply Cover showing the approximate location of these lights is described on page 4 - 7. 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, see pages 4 - 9 & 4 - 10. To view and clear Error Messages see Service Mode Operation, page 1 - 1.

The 548 has self diagnosing software to identify problem conditions. The operator is alerted using error messages rather than error codes. If the error occurs while the coin mech door is open (service mode), an immediate temporary descriptive message is displayed. If the error occurs while the coin mech door is closed (vend mode), the error message is added to an error queue. If there any error messages in the error queue at the start of service mode, they will be displayed in the order in which they occurred. The <Set> key is used to advance to the next message. After all the messages have been viewed, the operator will be given the option of clearing the message queue. If the queue is not cleared, the error messages will continue to appear each time the coin mech door is opened to start the service mode.

Out of Service

When a serious error condition occurs or exists while in vend mode, the machine will be put out of service. If there was credit established at that time, it will be returned. All of the money handling devices will be disabled. The Message Center will display "SORRY-OUT OF SERVICE" and the fluorescent lights will be turned off.

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Turret Motor Errors

Upon full initialization, the turret motor zero position is reset and needs to be located. The zero position is indicated via the activation of a magnetic switch mounted on the main door by a magnet mounted on the turret. The main door must be closed to find zero position. The zero position will also need to be found if any motor error occurs either in vend mode or service mode. If the error occurred in vend mode, the machine will be put out of service, the motor will be disabled and the error message will be inserted into the error queue. If the error happens while in service mode a temporary error message will be displayed. Another temporary error message will appear each time the turret motor is turned until zero position is located again. This can be done in the Diagnostic Menu.

If a motor error occurred while the service switch is on, the temporary message will be displayed and the motor will be stopped. To restart the motor, the service switch must be turned off and then on again.

Coin Mech Problems

The coin mech is required for machine operation in vend mode except when free vend is active. Upon power up and each time the coin mech door is closed, the reset line on the coin mech is toggled which should result in the coin mech sending a power up message to the UCB. If that message is not received in the specified time period, the "COIN MECH NO REPLY" message will be displayed. The machine will be put out of service if this occurs in vend mode. The probable cause of this error is that the coin mech is not plugged in. During service mode, the coin mech is enabled at all times and coins should be accepted. If coins are not being accepted, make sure the coin mech is receiving power from the power supply by pressing the coin payout buttons and listening for the solenoids energizing. If no solenoids are energized, then examine the power connections in the coin mech harness. If the solenoids do energize but the coin mech is not accepting coins in service mode, examine the accept-enable connections in the coin mech harness.

There are three other coin mech error messages that can appear. These will occur if the coin mech itself detects an internal error and are described above. Though these errors will not put the machine out of service, the coin mech should be serviced if they happen often.

Initial Power Up

Upon power up, the column display should show :
<pre>
                    11111
                    22222
                    33333
                    44444
                    55555
                    66666
                    77777
                    99999
                    AAAAA
                    bbbbb
                    CCCCC
</pre>

The displays will remain unchanged until the Universal Control Board sends them messages. If any of the column display tubes fail to "light up" the column display harness should be tested to ensure that power is being supplied.

The Message Center will display a "SELF TEST OK" message upon power up. The display will remain unchanged until the Universal Control Board sends it a message. If the Message Center fails to "light up" the Message Center harness should be tested to ensure that power is being supplied.

When the UCB software starts up, it sends a 548 software revision identification message to the Message Center for a few seconds. The display should then change to service menu processing (assuming the coin mech door is still open). The column display will then receive the compartment prices.

The Test LED on the Universal Control Board will begin to flash indicating that the processor is running. In general, the LED should always be flashing; though there are times when it will stop flashing momentarily during certain normal processing.

If the power up message of either display remains after the UCB Test LED begins flashing, then there is no communication between the UCB and that display and the harness should be examined.

Power-Up Initialization

The UCB features 8 Kbytes of battery backed up RAM enabling the software to "remember" the state of the 548 if power is interrupted for any amount of time. The advertised approximate life of this battery is 10 years. When power to the machine is restored, the prices, options, MIS information etc. are the same as when the power was lost.

Each time the UCB is powered up, two tests are executed to determine if initialization is necessary. One test examines two memory locations for a specific test pattern. The other test performs a memory checksum calculation on most of the code section of UCB EPROM. If either test fails, a full software initialization will take place. This should occur each time a new EPROM is installed. After initialization, all options are disabled, MIS information is cleared,the prices are set back to default etc. The default prices for schedule one are $99.95 for all shelves. The prices for schedules two and three start at 5 cents and increment by 5 cents starting at shelf A, schedule two and ending at shelf K schedule three.

The operator may also manually initialize the machine via the Default service menu. There are two selectable types of initialization available; options and full. The options initialization will initialize all the options found in the Options menu to their default state. The full initialization will work as described above except that the nonresettable MIS totals will not be cleared.

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 μFD and 113 μFD. Once the Motor is running the capacitance is reduced to 25 μFD. 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.

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.

The table below lists the DC resistance of components used in this merchandiser. If the troubleshooting chart indicates a motor or a solenoid malfunction, test the coil with an ohmmeter as instructed below.

Description	Resistance (OHM +/- 10%)	Part No.
Door Latch Solenoid	9 Ohms Reverse meter leads for approximately .2 Ohms difference	548-1857
Lock Bar Solenoid	4.8 (Diode in place) Reverse meter leads for approximately .2 Ohms difference	548-1854
Transport Motor	10 Ohms	548-1815

TABLE 4 - 1

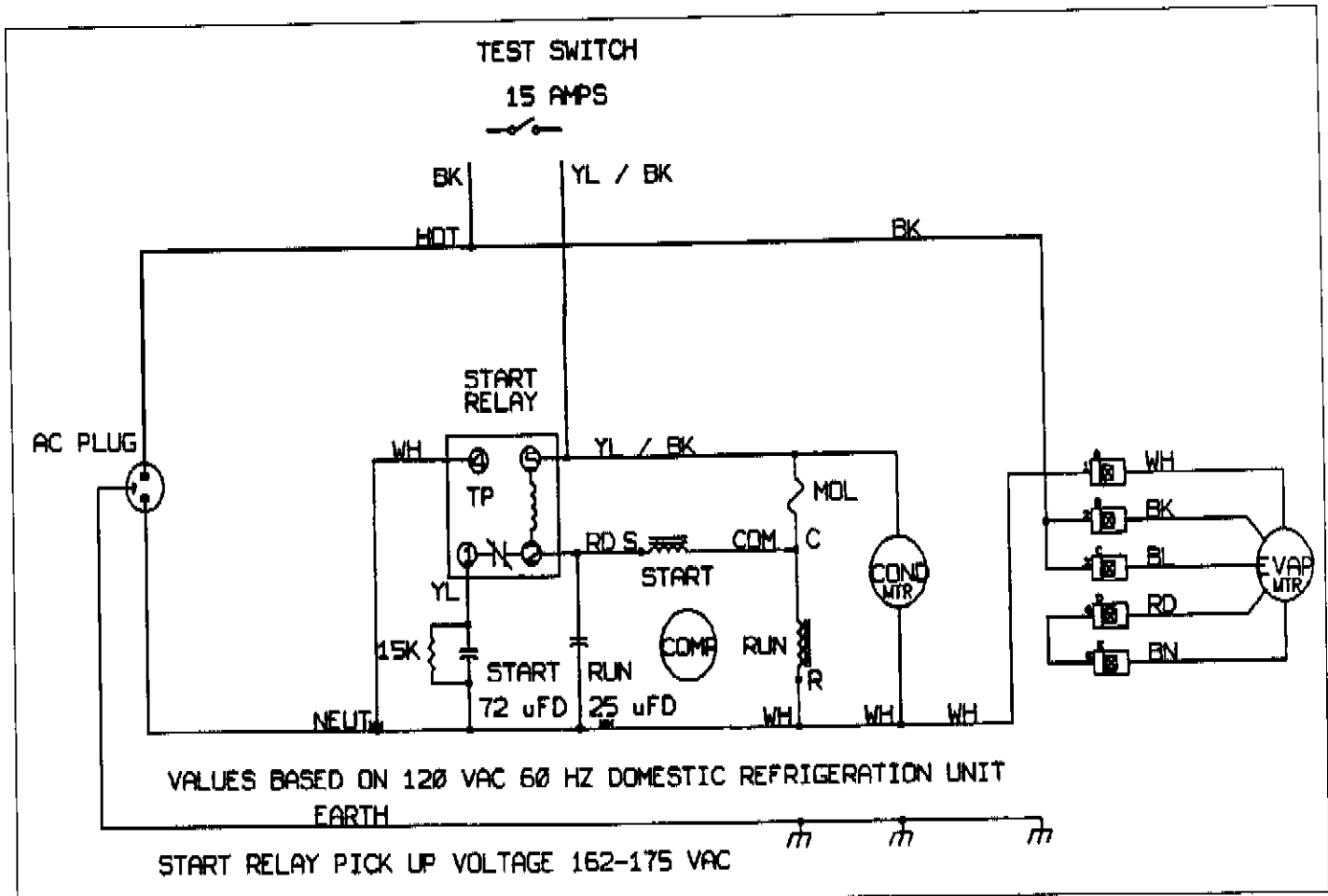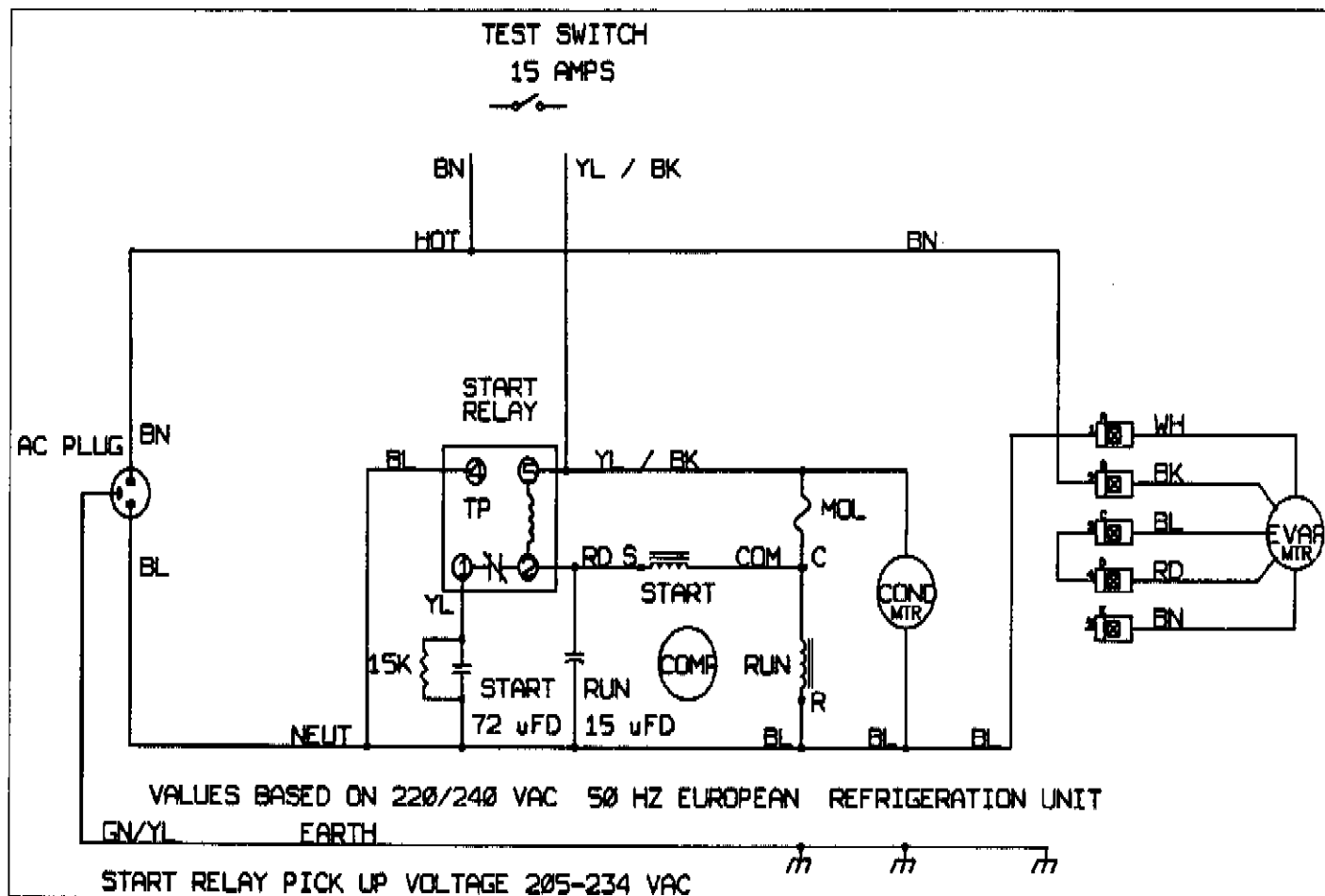## REFRIGERATION SYSTEM WIRING DIAGRAM (DOMESTIC)

FIGURE 4 - 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.

REFRIGERATION SYSTEM WIRING DIAGRAM (EUROPEAN)

FIGURE 4 - 3

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
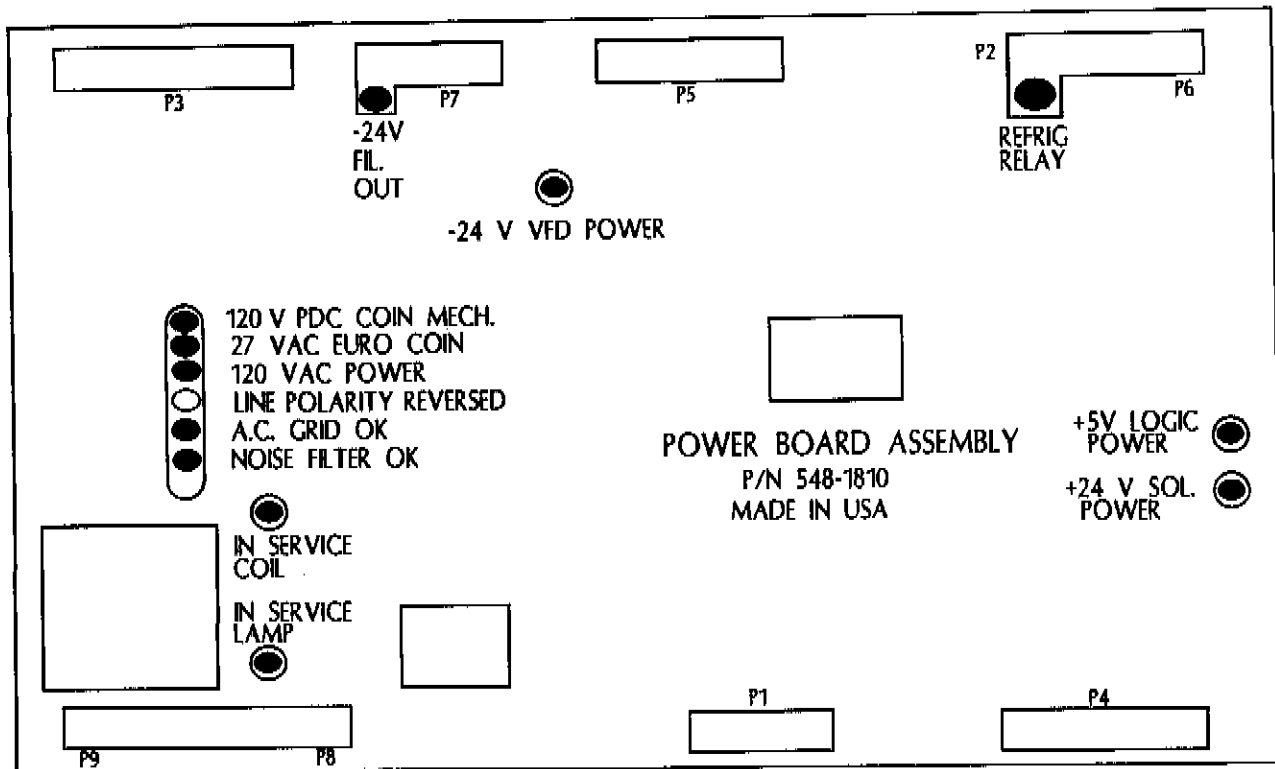
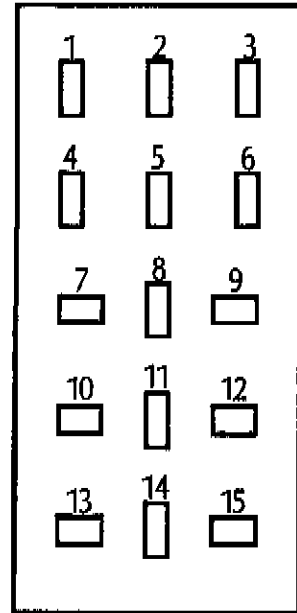| Name	Color	Description
+120 V PDC Coin Mech	Neon	120 V Pulse DC for Coin Mech
27 VAC Euro Coin	Yellow LED	27 VAC for European Executive Coin Mechs and Card Systems.
120 VAC Power	Neon	On indicates differece in voltage.
Line Polarity Reveresed	Neon	ON indicates Reverse Polarity between AC Hot and Neutral.
AC Ground OK	Neon	ON indicates voltage between hot and Earth.
Noise Filter OK	Neon	ON indicates that the Filter Module in not shorted or open.
In Service Coil	Red LED	ON Indicates that the Flourescent Lamp Relay Coil is energized.
In Service Lamps	Neon	ON Indicates that the 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 Message Center.
+5V Logic Power	Red LED	ON Indicates the presence of the +5 VDC Logic Supply.
+24V Solenoid Power	Red LED	ON Indicates the presence of the +24V Solenoid Supply.
Refrig. Relay	Red LED	ON indicates power output to energize refrigeration relay.

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

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.

Pin	Signal
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

TROUBLESHOOTING CHART
(Error Messages)

Error Messages	Probable Cause	Solution
"MOTOR MALFUNCTION"	Turret Motor jammed error, return to zero position	Clear jam, clear motor
	Turret overloaded	Same as above
	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
"HEALTH TIME EXPIRED"	Refrigeration Unit not plugged in	Check and replug
	Refrigeration screen on Condensor clogged	Check and clean
	Refrigeration Relay disconnected or defective	Check and/or replace
	Main Door not closed tightly	Check and readjust latches
	High ambient	Vendor not designed to operate outside
	Temperature reads 96° F continuously.	Temperature Sensor not plugged in, or defective
	Faulty Refrigeration System	See pages 4 - 3, 4 - 5, 4 - 14 and 4 - 15
"MAIN DOOR OPEN"	Switch not activated	Check Main Door and switch adjustment
	Switch broken or defective	Replace switch
	Switch disconnected	Check wiring

TROUBLESHOOTING CHART
(Error Messages) Cont'd

Error Messages	Probable Cause	Solution
"HALF CYCLE SWITCH"	Half Cycle Switch disconnected or defective	Check wiring at Half Cycle Switch Replace Switch
	Motor Interlock Switch disconnected or defective	Check wiring at Motor Interlock Switch Replace Switch
	Half Cycle signal to Controller disconnected or defective	Check I/O Cable between Power Supply P6 to Controller Board P6
	Logic circuit on Power Supply defective	Replace Power Supply Asm.
"ZERO POSITION ERROR"	Unable to locate zero position	Check Zero Position Switch, wiring, and magnet
	Machine initialized, no zero position located	Same as above
	Possible Motor Error	Check Motor wiring connections
"LOCKBAR SWITCH ERROR"	Bad lockbar switch	Check lockbar switch wiring Replace Switch
"LOCKBAR SOL ERROR"	Bad lockbar solenoid wiring Defective Solenoid	Check wiring for lockbar solenoid Replace Lockbar Solenoid
"DEFECTIVE SENSOR MSG"	Defective coin tube sensor	Check Coin Mech Replace Coin Mech
"COIN JAM MSG"	Coin lodged between acceptance gates.	Check and clean jam Clean Flight Deck Replace Coin Mech
"NO STROBE MSG"	Valid coin has been recognized but not detected passing through to the inventory tubes or to the cash box.	Check for blockage in Coin Mech Replace Coin Mech
"COIN MECH NO REPLY"	Coin mech unplugged or defective coin mech	Check Coin Mech Connection Replace Coin Mech

TROUBLESHOOTING CHART
(Problem/Solution)

Problems	Probable Cause	Solution
Message Center does not light	No power to the Message Center	Check for +5 VDC Check for -24 VDC Check for VRTN Above votages are 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 VERX.XX"
Price Column display does not light	Missing Power	Check Power Supply -24V FIL-OUT light indicator
	Harness/Connector Problem	Check from P/S (P7) to Display (P1)
	Defective Column Display	Replace
Does not accept coins	Missing Power	Check Power Supply 120 VPDC Light Indicator
	Harness/Connector Problem	Check Coin Mech Socket, UCB (P8) and P/S (P3)
	Defective Coin Mech	Replace
Does not attempt acceptance	Missing Power	Check power light on Power Supply
	Coin Mech change level low	Add change to Coin Mech.
	Improper coin loading technique	See Coin Loading routine page 2 - 2
	Harness/Connector Problem	Check I/O UCB (P5) to B/A (P2 - P3)
	Bill Acceptor not enabled	Check Options Menu program on page 3 - 16 to see if B/A is enabled.
	Defective Bill Acceptor	Replace

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 UCB 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	Coin Mech mis-programmed	Reload Coin Mech. See page 3 - 8 of Coin Set Tubes.
	Dispense lines to Coin Mech disconnected	Check continuity between:
	Defective controller board	Replace controller board
Turret does not rotate	Harness/Connector problems	Check terminals on Motor
		Check P/S (P4) BK/OR & BL/OR wires to motor terminals
		Check UCB (P6) to P/S (P6)
		Check UCB (P2) to Message Center
	No signal from Message Center	Replace defective Message Center
	UCB ON/OFF output signal missing	Measure P/S (P6 pin 11) to (P5 pin 2 ground) for 12 VDC with Service Switch ON
		Replace UCB if missing voltage
		Replace P/S if voltage is present
	Turret overload or jammed	Remove obstruction
	DC Motor defective	Check for 24VDC across motor, if present, replace
Turret only turns one direction	Key Stuck on Message Center	Disconnect harness
		If turret stops replace Message Center
	Service Switch defective or shorted to door	Check Switch
		Perform continuity test between switch and door chassis for wire short

For the "Dispense lines to Coin Mech disconnected" row, the continuity check is:

Controller J8	Coin Mech
pin 3	pin 9
pin 4	pin 8
pin 5	pin 7
pin 7	pin 14

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TROUBLESHOOTING CHART
(Problem/Solution) Cont'd

Problems	Probable Cause	Solution
Turret only turns one direction	UCB Dir output signal missing	Measure across P/S (P6 pin 9) to (P5 pin 2 ground) for 12 VDC
		Replace UCB if missing voltage
		Replace P/S if voltage is present
	Harness/Connector problems	Check UCB P6 to P/S P6, BL/BK wire for continuity
	Message Center Rocker Sw. defective	Replace message Center
Turret Rotates constantly	Key stuck on Message Center	Disconnect harness from Message Center
		If Turret stops replace Message Center
	Service Switch defective or shorted to door	Check Switch
		Perform continuity test between switch and door chassis for wire short
Vend Door does not open	Turret out of position and/or in FIFO Mode	Check Turret position
		Set Zero Position routine in the Diagnostic Menu.
		Reprogram Shelf Mode
	Compartments in sold condition	Rotate the Turret on full revolution with inside Service Switch
		Check the Sold Out Check program in Options Menu. See page 3 - 18
	Invalid section lockout	Check the Prohibit Vend Program in Options Menu. See page 3 - 20
		Check Solenoid resistance Table 4 - 1. See page 4 - 4

TROUBLESHOOTING CHART
(Problem/Solution) Cont'd

Problems	Probable Cause	Solution
Vend Door does not open	Defective solenoid	Replace Solenoid
	Defective door switch	Replace Switch
	Missing VSOL from Power Supply	Check P/S VSOL indicator light Replace Power Supply
	Temperature Probe defective	Press the <BLANK> then <F> key to display temperature.
Health Control shutdown		If actual temperature is different from display, replace Temperature Probe
	Evaporator Freeze up	Check unit to be level
	Refrigeration problem	See following Troubleshooting problems
Refrigeration inoperative	Refrigeration unplugged or no power	Check and replug
NOTE:	Refrigeration relay unplugged	Connect Refrigeration relay
See Refrigeration System on page 4 - 3.	Refrigeration overload	Clean screen and condenser coils
	Solid State Relay defective	Perform the following: Power Unit OFF. Short together the (blk) and (blk/yl) wire on the Refrig. Relay Power Unit ON
		If (A & B) hold true, replace the Refrigeration Relay: A. (Power Supply Asm.) Refrig. Relay lamp is lit.
		B. Refrigeration Unit now powers up.

TROUBLESHOOTING CHART
(Refrigeration)

Problems	Probable Cause	Solution
Compressor does not start	No voltage on (bk) wire with Evaporator/Blower not running	Defective Refrigeration Unit line cord
	No voltage on (yl/bk) wire	Check and/or replace Refrig. Relay
	Low line voltage	Check voltage. It should be 105V minimum with Compressor running.
	Start Relay contacts defective	Replace Start Relay
	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 pressure checks
	Compressor Start winding defective	Perform Compressor Ohm test. See page 4 - 3 of (Refrigeration System), if fails test, replace Compressor, Start Relay, Start Cap and Run Cap
	NOTE: *Motor will start with Run Capacitor removed or open.*	
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 and install
	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 pressure checks.

SECTION 5 MAINTENANCE

INTRODUCTION

This section contains adjustment, repair and replacement procedures. All lubrication has been done at the factory and no further lubrication is required.

Adjustments

The Showcase Merchandiser is factory adjusted for optimum performance and requires no additional adjustments unless parts have been repaired or replaced. Before attempting to make any adjustments to the mechanism, consult the troubleshooting charts to verify the need.

Delivery Door Switch

With delivery door closed, switch should be open. When delivery door is opened, switch actuator should be making contact with raised part of door follower and switch should be closed. To adjust, loosen switch mounting screws and rotate.

1. Turn main power switch OFF.
2. Loosen both mounting screw and unlatch solenoid assembly.
3. Hold delivery door open 1-3/4" (use wood block).
4. Place .093 gauge under switch roller. Adjust switch until actuator "bottoms".
5. Remove gauge and door block and check for switch roller operation. Make certain there is no binding.
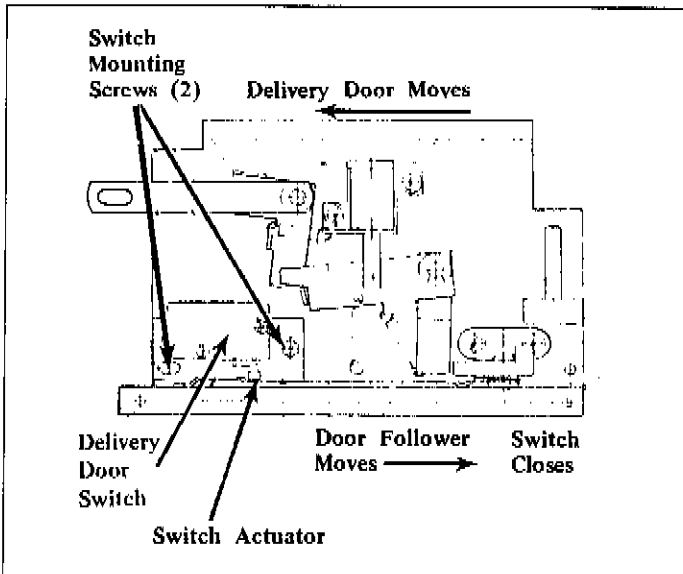

FIGURE 4 - 1 DELIVERY DOOR SWITCH

Lock Bar Switch

Switch should normally be making contact with vertical edge of "cam" and switch should be "open". When solenoid is energized, switch actuator will fall off beveled edge of cam and switch should be "closed".
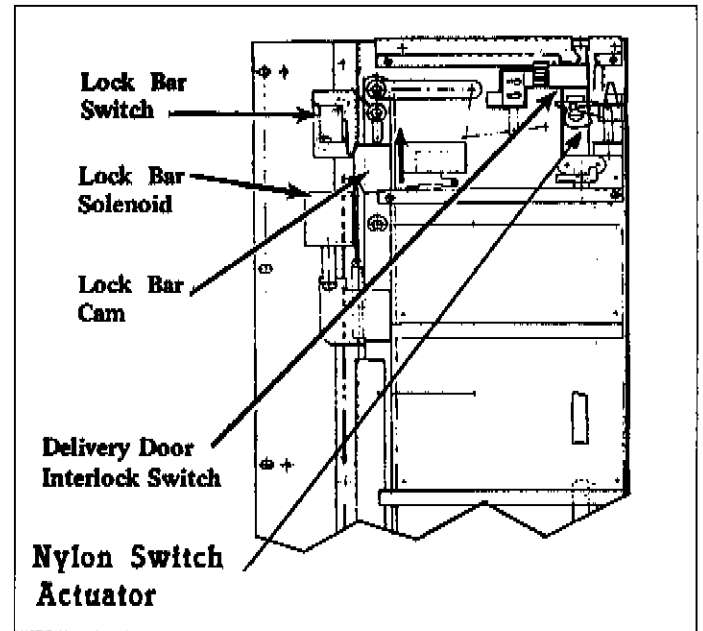

FIGURE 4 - 2
LOCK BAR SWITCH
DELIVERY DOOR INTERLOCK SWITCH

Adjust as follows:
1. Turn main power switch OFF.
2. Unlatch all delivery doors,
3. Connect continuity light to switch (common and normally closed).
4. Slowly close solenoid plunger. All latches must drop out before the light comes on.
5. To adjust, loosen two screws on switch bracket assembly (or switch mounting screws if necessary).

Delivery Door Interlock Switch

Adjust as follows:
1. Remove top cover over Delivery Door Latch Asms..
2. Be certain all delivery doors are completely closed.
3. Manually unlatch any delivery door.
4. While observing the Interlock Switch Actuator, SLOWLY open the unlatched door.

5. Interlock Switch should transfer (break) between 1/32 and 1/16 inch travel of the top interlock slide.

6. Loosen screw on nylon switch actuator (P/N 448-813) and adjust accordingly. (Interlock Switch MUST be in the Normal Closed position when all delivery doors are closed)

7. Recheck after adjusting.

Repair and Replacement

Most of the repair and replacement procedures for the merchandiser are of an obvious nature. The following information is provided to aid service personnel in repairing or replacing parts that require additional information.

Checking Refrigeration System

> **CAUTION !**
> *This Refrigeration Unit Contains 27oz.of R-502 under pressure. Refrigerant contact with skin should be avoided and protective eyegear must be worn. Repairs should only be attempted by qualified mechanics trained and skilled in accepted Refrigeration techniques and procedures. Operating pressures with R-502 are somewhat higher than with previous refrigerants. (High side 265 - 275 psig - Low side 33 - 37 psig @ 75°F ambient air temp.)*
> *R-502 is a R-22/R-115 Azeotrope. NEVER Introduce R-12 Into This System. Operating Temperatures & Pressures Will Be Affected And The Refrigeration Unit Will Not Operate Correctly.*

NOTE:

The entire Refrigeration Unit may be removed from the vendor and run on the bench to troubleshoot any given problem. Install a jumper wire capable of handling 10A (16 gauge) in the Cold Control Thermostat harness connector, and plug power cord into 120V grounded receptacle. DO NOT allow unit to run for extended periods of time as without the Cold Control, the Evaporator may freeze.

If the refrigeration system compressor is inoperative, perform the following checks before replacing the compressor. 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.

2. If line voltage is correct, check the 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.

4. Check Thermal Overload for continuity.

5. Check compressor motor windings with Volt/Ohm meter set on R × 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 to metal casing and Run to metal casing. There should be no continuity. If so, replace compressor.
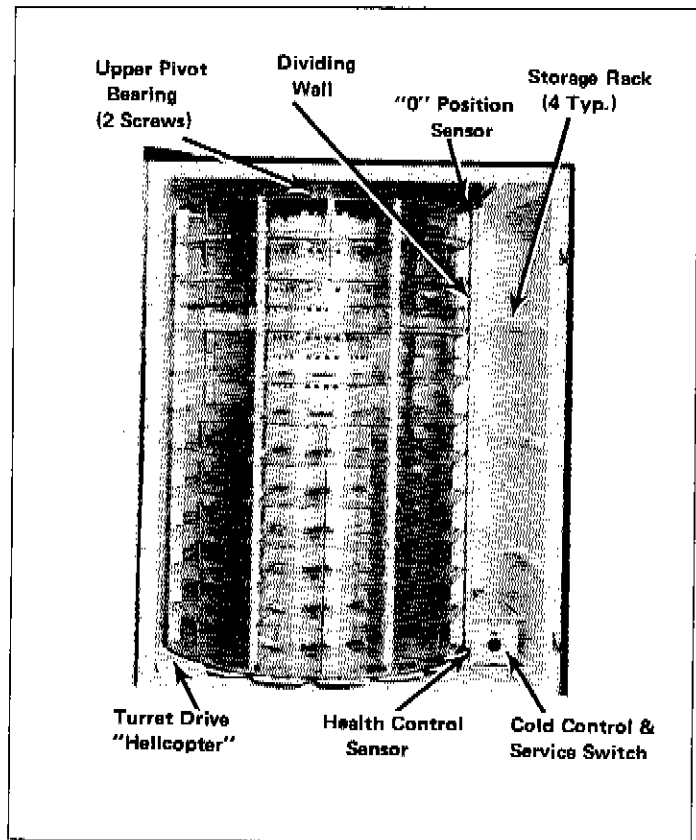

FIGURE 4 - 3 TURRET REMOVAL

Turret Removal instructions on next page.

TURRET REMOVAL

> **CAUTION !**
> To prevent injury or damage to the vendor, two people are required to perform the 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.

DELIVERY DOOR REMOVAL

> **CAUTION !**
> The white cover over the delivery door unlatch mechanisms being removed in step 2 of this procedure must be replaced correctly to ensure anti-cheat protection: the edges of the cover must be installed behind the lip on the delivery door runners.

1. Remove center fluorescent lamp cover and lamp.
2. Remove left hand fluorescent lamp and white cover over Delivery Door Unlatch Mechanisms.
3. Remove four (4) screws from bottom Runner of the door being replaced. (One screw on right end of runner, 3 screw on left side of Delivery Door opening),
4. Remove Anti-Spread Bar.
5. Slide bottom Runner out to the "left".
6. Lift bottom of Door out first, then the top.
7. Unhook Delivery Door Return Spring.
8. To replace, reverse above procedure.

CLEANING

To project the best selling image to the customer, and to prolong the beauty and operation of the vendor, it is important to keep your Showcase Merchandiser clean.

Door Fan Filter

Check and wash out the Door Fan Filter each month or as needed depending on location. If left unclean for long periods, the efficiency and life expectancy of the Fan Motor and Heating Element will deteriorate
See pages 6 - 16, Fig 7 for Filter location.

Unit Exterior

Remove any debris lodged in the vend door runner tracks. Use a clean soft cloth moistened with a mild rated plastic cleaner to clean all vend doors and runner tracks. Metal and vinyl surfaces can be cleaned with warm water and a mild non-dulling detergent.

Unit Interior

Remove any debris that may have spilled or dripped unto the compartments, interior lining and shelf areas. Use a clean lint-free cloth, moistened with a mild Plastic rated cleaner.

Coin Mech

Check and clean regularly the coin paths leading through the flight deck and coin tubes. Use a lint-free cloth, moistened with a mild detergent.

Refrigeration System

The Refrigeration Screen, Condenser Coil and Exhaust Screen should be checked and cleaned at least once a year. More often if location is highly dusty/dirty.

The entire Refrigeration Unit needs to be pulled out so to clean the pervious mentioned items. The process of removing the Refrigeration Unit is simple and easy which should only take approximately five minutes.

1. Turn OFF the Main Power Switch.
2. Unscrew the left side metal panel. See page 6 - 20 index # 17.
3. Unscrew the two bottom hinges of the Power Supply panel. See page 6 - 20 index # 20.
4. Unscrew top center screw of Power Supply Panel and rest entire Power Supply Asm. on floor.
5. Disconnect the refrigeration AC power plug, and the 2 pin harness connectors. See page 6 - 28 index's 5 & 18.
6. Unscrew front mounting bracket holding Refrig. Unit.
7. Unlatch the left & right side Refrig. Unit Levers
8. Slide entire Refrigeration System forward.
9. Clean out any debris in Air Return Housing. See page 6 - 28 , index # 10.
10. Blow-out and clean Condenser Coil Asm. See page 6 - 28, index # 3.
11. Blow-out and clean Cabinet rear exhaust screen.