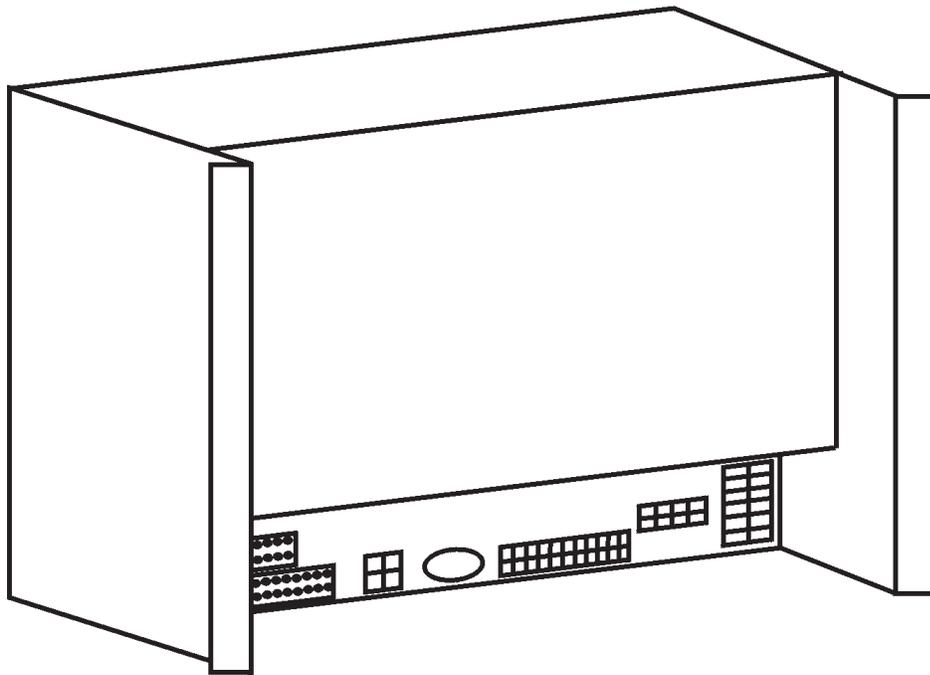


**DIXIE-NARCO, INC.**

# **SIID ELECTRONIC VENDERS**

**WITH TWO BUTTON PROGRAMMING**



**Operation and Service Manual**  
*First Production 0773-6201CS*  
**September 1994**

Revised 7/15/99  
803,902,510.31



Dixie-Narco, Inc.  
P.O. Box 719  
Williston, SC 29853  
(800) 688-9090  
(803) 266-5000



# Index

INTRODUCTION .....	4
SPECIFICATIONS .....	4
VENDER IDENTIFICATION .....	4
RECEIVING INSPECTION .....	5
UNPACKING THE VENDERS .....	5
ELECTRIC POWER NEEDED .....	5
GROUND THE VENDER .....	5
COIN CHANGERS & OTHER ACCESSORIES .....	6
COIN CHANGERS .....	6
BILL ACCEPTORS .....	6
OTHER ACCESSORIES .....	6
INSTALLING A COIN CHANGER .....	7
PLACING THE VENDER ON LOCATION .....	7
LEVEL THE VENDER .....	7
SPACE THE VENDER .....	7
LOADING THE VENDER .....	8
INITIAL LOADING .....	8
INSTALLING FLAVOR CARDS .....	8
SIID HARDWARE CONFIGURATION .....	8
FEATURES .....	9
SIID AUDIT FEATURES .....	10
SYSTEM SET-UP/AUDIT MENU .....	10
ELECTRONIC ACCESS .....	10
PROGRAMMING THE SIID VENDER .....	14
SIID CONTROLLER PROGRAMMING .....	
0773-6201CS & HIGHER .....	15
NORMAL MODE: .....	15
SYSTEM SET-UP/AUDIT/DIAGNOSTICS MODE: .....	15
FRONT PANEL PROGRAMMING .....	
SYSTEM SET-UP/AUDIT/DIAGNOSTICS MENU .....	16
ELECTRICAL PARTS AND FUNCTIONS .....	26
CORRECT CHANGE LAMP .....	26
SOLD OUT SWITCHES .....	26
VEND MOTOR .....	28
VEND MOTOR SWITCH .....	28
VEND MOTOR WIDE COLUMN .....	28
VEND MOTOR NARROW COLUMN .....	29
CAM INSTALLATION AND REMOVAL .....	32
TO INSTALL A VENDING CAM: .....	32
TO INSTALL AN ADJUSTABLE CAM: .....	32
TO REMOVE AN ADJUSTABLE CAM: .....	32
TO REMOVE THE VENDING CAM: .....	32
TIMING .....	32
TO SET THE TIMING OF A NARROW COLUMN VEND MOTOR: .....	32
TO SET THE TIMING OF A WIDE COLUMN VEND MOTOR: .....	33
REAR SPACER .....	33
CLEANING THE VENDER .....	37
WHAT TO CLEAN .....	37
LUBRICATING THE VENDER .....	37
TEMPERATURE CONTROL ADJUSTMENTS .....	38
<i>SIID VENDING</i> .....	56
<i>SIID COIN / CURRENCY</i> .....	57
<i>SIID SOLD-OUT MESSAGE</i> .....	59
<i>SIID SELECT PANEL / DISPLAY</i> .....	60
REFRIGERATION PARTS AND FUNCTIONS .....	62
MECHANICAL PARTS .....	62
ELECTRICAL PARTS .....	62

# GENERAL INFORMATION

## INTRODUCTION

Please read this manual in its entirety. This service information is intended to be used by a qualified service technician who is familiar with proper and safe procedures to be followed when repairing, replacing or adjusting any Dixie-Narco vender components. All repairs should be done using genuine Dixie-Narco factory parts. Repairs should be performed by a qualified service technician who is equipped with the proper tools and replacement components, using genuine Dixie-Narco Factory Parts.



Repairs and/or servicing attempted by uninformed persons can result in hazards developing due to improper assembly or adjustments while performing such repairs. Persons not having the proper background may subject themselves to the risk of injury or electrical shock which can be serious or even fatal.

## SPECIFICATIONS

### **DNCB 168**

Height: 1439mm (56 11/16")  
Width: 711mm (28 5/16")  
Depth: 737mm (30 1/2")  
Shipping  
Wt: 211 (464 lbs)

### **DNCB 348**

Height: 1829mm (72")  
Width: 940mm (37 1/16")  
Depth: 737mm (30 1/2")  
Shipping  
Wt: 330 (728 lbs)

### **DNCB 440**

Height: 2007mm (79 1/2")  
Width: 940mm (37 1/16")  
Depth: 737mm (30 1/2")  
Shipping  
Wt: 331 (730 lbs)

### **DNCB 180**

Height: 1439mm (56 11/16")  
Width: 711mm (28 5/16")  
Depth: 737mm (30 1/2")  
Shipping  
Wt: 211 (464 lbs)

### **DNCB 360**

Height: 1829mm (72")  
Width: 940mm (37 1/16")  
Depth: 737mm (30 1/2")  
Shipping  
Wt: 288 (634 lbs)

### **DNCB 501T**

Height: 1829mm (72")  
Width: 940mm (37 1/16")  
Depth: 813mm (32")  
Shipping  
Wt: 344 (758 lbs)

### **DNCB 276**

Height: 1829mm (72")  
Width: 711mm (28 5/16")  
Depth: 737mm (30 1/2")  
Shipping  
Wt: 260 (574 lbs)

### **DNCB 368**

Height: 1829mm (72")  
Width: 940mm (37 1/16")  
Depth: 737mm (30 1/2")  
Shipping  
Wt: 312 (688 lbs)

### **DNCB 522T**

Height: 1829mm (72")  
Width: 940mm (37 1/16")  
Depth: 813mm (32")  
Shipping  
Wt: 305 (672 lbs)

### **DNCB 300**

Height: 1829mm (72")  
Width: 711mm (28 5/16")  
Depth: 737mm (30 1/2")  
Shipping  
Wt: 260 (574 lbs)

### **DNCB 414**

Height: 2007mm (79 1/2")  
Width: 940mm (37 1/16")  
Depth: 737mm (30 1/2")  
Shipping  
Wt: 358 (790 lbs)

### **DNCB 600T**

Height: 2007mm (79 1/2")  
Width: 940mm (37 1/16")  
Depth: 813mm (32")  
Shipping  
Wt: 381 (840 lbs)

## VENDER IDENTIFICATION

The age of Dixie-Narco products is determined by the date code incorporated in the serial number. The vender serial number takes the form xxxx-yyyzzz. The first 4 digits (xxxx) identify the specific vender. The next 4 digits (yyyy) identify the manufacturing run that the vender was built in. The last two alpha characters (zz) identify the quarter and the year the vender was built.

The first alpha character identifies the quarter:

A = 1st quarter  
B = 2nd quarter  
C = 3rd quarter  
D = 4th quarter

The second alpha character identifies the year:

S = 1994  
T = 1995  
U = 1996  
V = 1997  
W = 1998  
X = 1999  
Y = 2000  
Z = 2001

# INSTALLATION & SET-UP

The Dixie-Narco SIID can and bottle vender is designed utilizing the latest technology. The SIID Electronic Vender features a highly sophisticated, microcomputer based control system and is designed to meet the growing need for accountability, multi-pricing, programmability, and system diagnostics in can vending equipment. Along with these functions, DEX/UCS-communications to a hand-held computer is available to provide the ability to measure each vending location for product performance, vender performance, and accessing accounting data. This data can be used to maximize the efficiency of routes for servicing vendors. DEX communications also provides the bottler security for the integrity of the "cash in" versus the "product sold". The vender design provides the flexibility required for the changing beverage industry as well as dependable performance for many years.

This manual will assist with proper vender installation and set-up. Please read this manual carefully and become familiar with the SIID Vender before placing the vender on location.

## RECEIVING INSPECTION

After receiving the vender, inspect it for any shipping damage. If there is any damage have the driver note the damage on the bill of lading and notify Dixie-Narco. Although the terms of sale are FOB shipping point, which require the consignee to originate shipping damage claims, Dixie-Narco will gladly help if you must file a claim.

## UNPACKING THE VENDERS

Remove the stretch wrap and top cover from the vender. If flavor labels were shipped with your vender they will be affixed to the back of a vender in the shipment or in the cash box.



---

**DO NOT STORE THE VENDER OUTSIDE WITH THE STRETCH WRAP ON. THIS COULD CAUSE THE STRETCH WRAP TO BOND TO THE VENDER'S SURFACE, WHICH COULD DAMAGE THE FINISH.**

---

Remove the shipping boards from the bottom of the vender. The shipping boards are attached by the leveling legs. Use a 1-1/2" "socket-type" wrench to unscrew the leveling legs and remove the shipping boards. Be sure to replace the legs after removing the shipping boards.

To open the vender, locate the door lock keys that are secured inside the coin return cup. After unlocking the door, rotate the "T"-handle counter-clockwise until the door can be opened. Once inside, check the coin box on the door for any additional parts, pricing labels, or information concerning factory equipped accessories. Check the "T"-handle for proper alignment and locking functions. Check the lamps for proper installation.

Dixie-Narco, Inc.



**Warning**

---

**ENSURE THAT POWER IS DISCONNECTED FROM THE VENDER OR THAT THE POWER INTERRUPT SWITCH (IF PROVIDED) IS NOT DEFEATED BEFORE INSPECTING OR REPLACING THE LAMPS. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY SUBJECT THE USER TO THE RISK OF INJURY OR ELECTRICAL SHOCK, WHICH CAN BE SERIOUS OR FATAL.**

---

## ELECTRIC POWER NEEDED

Refer to the cabinet serial number plate to determine the proper voltage and frequency the machine requires (domestically this requirement is 115 Volts, 60 Hertz). Domestic venders will operate properly at +/- 10% of the specified voltage. For domestic models this is between 103 volts and 127 volts. The cabinet serial plate also indicates the amperage of the vender. Single phase, alternating current is required. The vender must be plugged in its own properly rated circuit with its own circuit protection (fuse/circuit breaker).

**DO NOT USE AN EXTENSION CORD.**

## GROUND THE VENDER

The vender is equipped with a three wire power supply cord and MUST be plugged in a properly grounded outlet.



---

**DO NOT REMOVE THE GROUND PIN OR IN ANY WAY BYPASS THE GROUNDING OF THE VENDER.**

---

If the outlet will not accept the power cord plug, contact an electrician to install a proper AC outlet.



**Warning**

---

**FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY SUBJECT THE USER TO THE RISK OF INJURY OR ELECTRICAL SHOCK THAT CAN BE SERIOUS OR FATAL.**

---

# INSTALLATION & SET-UP

## COIN CHANGERS & OTHER ACCESSORIES

### COIN CHANGERS

The SIID vender must have a coin changer installed. If the coin changer and other accessories are not factory installed refer to the instructions received from the manufacturer of the coin changer and other accessories for proper set-up and installation.

The SIID vender will support the following coin changers:

- Micro-Mech/Controller 110 V (12 pin) Changers (Domestic)
  - Mars TRC 6000
  - Coinco 9300L
  - Maka USPX001
- Micro-Mech Controller 24 V (15 pin) Changers (Domestic)
  - Mars TRC 6010 XV
  - Coinco 9302LF

**DO NOT USE 24 V (12 PIN) CHANGERS.**  
 USE OF 24 V (12 PIN) CHANGERS WILL CAUSE DAMAGE TO ELECTRONICS PACKAGE AND CHANGER.



- Multi-Drop Coin Mech (Domestic)
  - Coinco 9302GX
  - Mars TRC6510
- L+ Coin Mech (International)

### INSTALLING A COIN CHANGER

Hang the coin changer on its mounting plate and secure it by tightening the three securing screws. Plug the coin changer into the 15 pin Jones socket or the 6 pin socket for MDB changers in the vender. The 15 pin Jones socket is designed to accept the 12 pin plug used on 110 V controller style coin changers.



**POWER MUST BE REMOVED FROM THE DOOR BEFORE PLUGGING IN THE COIN CHANGER OR THE COIN CHANGER MAY NOT POWER ON PROPERLY. IF A BILL ACCEPTOR IS BEING USED, THE BILL ACCEPTOR MUST BE INTERFACED TO THE SIID CONTROL BOARD.**

After restoring power, manually load the coin changer coin tubes with at least 10 coins each. Following the programming instructions for the SIID Vender, program each selection for its own vend price. A price of \$0.00 is free vend. After the pricing is set return the vender to its operate mode either by closing the door or pulling the door closed switch out. "Prime" the coin changer by making a correct change transaction.

**Note:** If using a Mars TRC-6000 coin changer, function switch #4 in the coin changer must be set in the off position (down).

### BILL ACCEPTORS

The SIID vender may optionally have a bill acceptor installed. If a bill acceptor is not factory installed a bill acceptor interface harness must be ordered from Dixie-Narco. Refer to the chart below:

\* Also requires parts from acceptor manufacturer.

**Note:** Whenever the door interlock switch is in the center position (service mode enable), the bill acceptor will be inhibited. The bill acceptor will be inhibited even if the service mode time out has occurred and the vender has been restored to normal operation.

Acceptor	Pepsi-Cola & Other Venders	Coca-Cola Venders
Ardac USA	804,909,720.01 (Lo Level)	804,909,720.01 (Lo Level)
Mars VFM-1 & VFM-3	*804,909,720.01 (Lo Level)	*804,909,720.01 (Lo Level)
Mars VN2XX1	*804,909,720.01 (Lo Level)	*804,909,720.01 (Lo Level)
Mars VN2XX2	*Multidrop Bus	*Multidrop Bus
Maka NB-10L-200	804,909,760.01 (Hi Level)	*804,909,760.01 (Hi Level)
Coinco/Rowe CBA-2 \$1 Only	*804,909,750.01 (Hi Level)	804,909,750.01 (Hi Level)
Rowe CBA-2 \$1 & \$5 (UBA)	*804,909,750.01 (Hi Level)	*804,909,750.01 (Hi Level)
Coinco BA-30	*804,909,790.01 (Hi Level)	*804,909,790.01 (Hi Level)
Coinco BA-30	*Multidrop Bus	*Multidrop Bus

\*ALSO REQUIRES PARTS FROM ACCEPTOR MANUFACTURER.

### OTHER ACCESSORIES

The SIID Vender is capable of interfacing to Debit Card and Data Recording systems. At this time only a few such accessories have been tested by Dixie-Narco. If such accessories are to be used check with either Dixie-Narco or the accessory manufacturer about physical and electrical compatibility before attempting to interface such accessories to the SIID Vender.

# INSTALLATION & SET-UP

## PLACING THE VENDER ON LOCATION



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

The vender must be located on a solid, flat, and level surface. The vender must be positioned close enough to an electrical outlet that an extension cord is not required. If securing the vender to the floor or wall is required, call the Dixie-Narco Factory Service Department or your Dixie-Narco Representative for suggestions.

### LEVEL THE VENDER

When the vender is level the door can be opened to any position and it will not move by itself. Open the door to several different positions before deciding the vender is level.

Make sure that all of the leveling legs are touching the floor. If you cannot level the vender, select another location. Do not place any objects under the machine.

## DANGER

**THE VENDER MUST BE PROPERLY LOCATED AND LEVELED TO MINIMIZE THE RISK OF INJURY OR DEATH FROM TIPPING IN THE EVENT OF USER MISUSE OR VANDALISM.**

### SPACE THE VENDER

Do not block the rear of the vender. Keep the vender 4 inches (10 cm) from the wall to insure adequate airflow to the condenser and compressor. At the front of the vender, make sure that nothing obstructs the air intake at the bottom of the main door. At the rear of the vender, make sure nothing obstructs the air exhaust at the bottom of the cabinet.

## LOADING THE VENDER

All SIID Venders are shipped ready to vend 12 oz. cans unless another package was specified at the time the vender was ordered from the factory. If a package other than a 12 oz. can is to be vended, contact a Dixie-Narco Factory Service Representative or refer to the proper technical bulletin for spacer settings and shims.

### INITIAL LOADING

Oscillators must be in the extreme left or right position to insure proper loading. When loading wide columns, the first row of cans should be loaded on the bottom bar of the oscillator. The second row of cans must be loaded on the top bar of the oscillator. Always load complete rows; do not load only to the back or only to the front of the column. Rotors must be in the "cup" position to receive the first cans. When loading narrow columns lay the rows in the column until the column is full.

Do not fill the columns to the top of the cabinet. Allow approximately 3 inches at the top of the column because the can stack will move up and down in the column during the vend cycle. Correct loading will prevent service calls and insure proper vending.

After loading a vender for the first time, test vend each selection with money until the first can is delivered. This will ensure that the vender is loaded and working properly.

**TO INSURE PROPER AIRFLOW THROUGH THE EVAPORATOR, DO NOT PLACE CANS OR OTHER FOREIGN OBJECTS IN THE BOTTOM OF THE TANK.**

### INSTALLING FLAVOR CARDS

The flavor cards may be inserted one of two ways:

1.) In the select buttons:

Swing the coin changer mounting plate away from the outer door, exposing the back of the select buttons. The flavor cards are inserted in the back of the select buttons from either side.

**or**

2.) In the flavor card carrier:

Swing the coin changer mounting plate away from the outer door, exposing the back of the select panel. Remove the flavor card carrier. Ensure the flavor cards are placed in the select button flavor card carrier position that corresponds to the column in which the product is loaded.

# INSTALLATION & SET-UP

## SIID HARDWARE CONFIGURATION

The hardware configuration for the SIID Controller consists of a main control board and a display board. The select panel consists of low voltage switches. Sold-out indicators have been eliminated in the SIID. The select switches interface directly to the main controller.

The motors used on the stack continue to be 115 VAC. The vend switches and sold-out switches are low voltage. There is only one vend switch per motor and one sold-out switch per column. The motors, vend switches, and sold-out switches directly interface to the main controller board. Each motor is independently controlled to provide the maximum flexibility for space to sales. The Main Controller supports up to 10 motors and 10 selections.

The Main Controller consists of one board. It consists of all the intelligence, memory, switch interfaces, stack interface (motors, vend switches, and sold-out switches), and peripheral interfaces which include coin changers, dollar bill validators, DEX interface and debit systems.

The DEX interface supports both an internal connection as well as an external connection. The interconnect is a 1/4" phono jack as specified and approved by NAMA. All electrical specifications, protocols, and baud rates are identified in the specification.

The door switch is included to determine door accesses. A service switch is located on the main controller board to access accounting data, programming features, and access diagnostic features through the front select panel.

A real time clock (RTC) with battery backed memory is provided so memory can be maintained during power failures. The life expectancy is 5 years shelf life and 10 years operational. The real time clock is displayed in military time (24-hour clock). The RTC is used for time stamping door closures, power outages, limited access, and selective discount pricing.

The intelligence of the Main Controller is an Intel 80C32 microprocessor. A minimum of 128k of EPROM and 8k of RAM (battery backed) is provided.

Early Display Boards consisted of four, seven segment LEDs to provide alpha-numeric characters. Current Display Boards consist of four, fourteen segment LEDs to provide clearer alpha-numeric characters. Also, the exact change indicator consists of an LED.

## FEATURES

The following is a description of all the features of the SIID.

### **DEX Compatible Hand-held Interface**

The vending industry (NAMA) has established an audit data protocol which is defined by DEX (Direct Exchange Of Data) and UCS (Uniform Communications Standards). This interface is a direct connect as defined by the specification. The SIID has provisions for an internal and external connection. The external connection provides a limited amount of information.

The internal connection provides the full capability of DEX/UCS. These capabilities include full audit of interval and historical data, system programming, diagnostics, and limited access.

### **10 Column Stack Compatible**

The SIID Controller is capable of driving up to 10 stack motors independently. The motors are 110 VAC. The vend switches and sold-out switches are low voltage, gold cross-point switches. The interface for the cam position and empty detection is located on the controller board.

### **Low Voltage Select Panel**

The select panel consists of gold cross-point switches. The interface circuitry is located on the controller board. The controller board supports up to 10 selections.

### **Programmable Space-To-Sales**

Programmable space-to-sales allows columns to be assigned to select buttons. Columns are dispensed evenly when more than one column is assigned to a select button or group of select buttons.

### **Select Panel Controller Programming or Hand-held Controller Programming**

The SIID vender has the capability to be programmed through the select panel. The SIID vender can also be programmed through the DEX port with the same hand-held device used to access the accounting data.

### **LED Display (Light Emitting Diodes) Optional LCD Display (Liquid Crystal Diodes)**

Early displays consist of 4 characters utilizing 7 segment LEDs for each character to provide a true alpha-numeric display. Current display boards consist of four, fourteen segment LEDs to provide clearer alpha-numeric characters. The display is implemented on its own printed circuit board.

### **Sold Out Message/Selection**

Each selection is supported by a sold-out message. When a given selection is sold-out and that selection is pressed, "SOLD Out" will scroll across the display.

# INSTALLATION & SET-UP

---

## Price Displayed when Selection is pressed

The operation of the vender in the ready mode provides the customer the price of any selection when that particular select button is pressed. If all selections are set at the same price in primary set price and the same price in secondary set price, the vend price is displayed at all times on the display.

## Single Price/Multi-Price via Select Panel or Hand-held

Prices for each selection are programmed either through the front select panel or through the DEX hand-held device. For single price configuration, each selection must be programmed for the same price.

## Accounting Data Provided

The accounting features are accessed through the front select panel. These include **(HD)** historical data, which is not resettable, and **(RD)** resettable data, which is resettable.

(HD) Historical Data Includes - the total cash collected by the vender, the total number of vends by the vender and the number of vends by each selection.

(RD) Resettable Data Includes - the total cash collected since the last counter reset, the total number of vends since the last counter reset, the number of vends by each selection since the last counter reset and allows the resettable data to be zeroed.

The types of data that can be retrieved via the DEX interface to a hand-held device is addressed in the SIID Audit Features section.

## Limited Access on Selection (Time, Days, Price)

The limited access feature allows each selection to be inhibited with respect to time and selected days of the week. Also, prices of selections can be altered (Happy Hour) with respect to time and selected days of the week.

## Multiple Coin Changer Interfaces

The SIID Controller supports the following coin changer interfaces.

- A) MC5000 Micro Mech/Controller (USA)
- B) MDB Multi-Drop Specification (USA)
- C) L+ Coinco Micro Mech Equivalent (International)

## Low-Level/Hi-Level/MDB Bill Validators

Ardac USA, Mars VFM-1, VFM-3 and Mars VN2000 Series, Maka, Coinco/Rowe CBA-2 (\$1 only), Rowe CBA-2 \$1 and \$5 (UBA), and Coinco BA-30 Bill Validators interface to the SIID Controller. Also, validators which interface to the new MDB (Multi Drop Bus) specification should also be compatible, but have not been tested and approved as of this publication. If a bill acceptor is not factory installed, an interface harness will need to be ordered from Dixie-Narco, and/or the bill acceptor manufacturer.

## Verifone/Debitek Card Compatible

The SIID is capable of interfacing to Debit Card and Data recording systems. At this time only a few such accessories have been tested by Dixie-Narco. If such accessories are to be used check with either Dixie-Narco or the accessory manufacturer about physical and electrical compatibility before attempting to interface such accessories to the SIID vender. The SIID supports any Debit Card/Data Recording manufacturer's systems that meet NAMA II protocol.

# INSTALLATION & SET-UP

## SIID AUDIT FEATURES

The SIID provides two methods of accessing audit data. A limited amount of audit information is available in the system set-up/audit menu. More extensive audit information is accessible electronically.

### SYSTEM SET-UP/AUDIT MENU

Six types of audit data are available in the system set-up/audit menu: Historical Data (**HD**) which includes total cash collected, total vends and the total number of vends by each selection; Resettable Data (**RD**) which includes total cash collected since last counter reset, total vends since last counter reset and total number of vends by each selection since last counter reset.

The audit data is accessed by pressing the system set-up/audit switch. The display shows "**HD**". Pressing select button "1" displays the total cash collected by the vender. Pressing select button "2" displays the total vends by the vender. Pressing select button "3" displays the total number of vends by each selection. Each selection is automatically scrolled across the display. Pressing select buttons "1" and "2" simultaneously will move to the next function. The display will show "**RD**". Pressing select button "1" displays the total cash collected since the last counter reset. Pressing select button "2" displays the total vends since the last counter reset. Pressing select button "3" displays the total number of vends by each selection since the last counter reset.

### ELECTRONIC ACCESS

A much more extensive amount of audit information is accessible electronically. It is retrieved with a portable data collection device and typically loaded in a computer at a central location. The data can then be tracked with a data base, for preparing route stocking lists, tracking cash flow, doing inventory control and other tasks. Data collection devices are available from several sources including: Norand, Fujitsu, Panasonic, Telxon, Verifone and Mars. Dixie-Narco currently collects data with a PC program running on a portable notebook computer.

The SIID uses the DEX/UCS protocol as the method of exchanging data with the portable data collection device. DEX/UCS was formally adopted as the standard method of collecting audit data for the vending industry by the National Automatic Merchandising Association (NAMA) in April of 1991. DEX/UCS has been used in related industries since 1989. It was developed by the Arthur D. Little Company and is administered and maintained by the Uniform Code Council (UCC). The NAMA Vending Electronics Standardization Committee developed and published a comprehensive set of data records relevant to the vending industry. The SIID reports the portion of these related to this specific machine design. The current list of records and their usage by the SIID follows.

DEX stands for Direct Exchange of data, which means there is a hard-wired connection between the two systems exchanging data. This is done by inserting a ¼ inch phone plug on the portable data collection device in a jack mounted on the SIID. Inserting the plug automatically initiates the exchange of data, which takes several seconds. No other machine functions are available while the exchange is taking place. The operator is told that the exchange is taking place by the display of the message "DEX IN PROGRESS". Most of the data records are reported in both an interval and historical format. The historical values represent a total of the values since the machine shipped from the factory. The interval values are the data collected since the last time it was collected electronically.

The following types of audit data are accessible electronically:

- Machine Identity Information
- Date and Time of Interrogation
- Cash Sales Summary
- Cash Input and Output Summary
- Product Sales Information
- Machine Configuration
- Events: Door Openings
- Interrogations
- Programmable Access Limits
- Time of Day Discounts

In addition to retrieving audit data, every machine configuration parameter that can be programmed in the service menu can be programmed electronically via the DEX port.

The following types of data can be configured electronically:

- Machine Identity
- Date and Time
- Price and Product Information
- Space to Sales
- Limited Access Control Parameters
- Time of Day Discounts Control Parameters
- Escrow Mode \*

\* Escrow mode cannot be transferred with the Norand Device.

# INSTALLATION & SET-UP

## SAMPLE SIID CONFIGURATION & ACCOUNTING REPORT

**Vender Identification:**

Serial Number: 1234-6132BR  
 Model Number: DNCB501T SIID  
 Location: NAMA SHOW - CHICAGO, IL  
 Asset Number: 362436  
 # of Columns: 8  
 # of Selections: 8

**Significant Events:**

	<u>RECENT</u>	<u>HISTORICAL</u>
Door Openings:	2	12
Power Outages:	1	2
Total Vends:	10	213
Total Sales:	\$7.50	\$159.75

**Vender Configuration:**

Coin Mechanism: MICRO MECH  
 Escrow Mode: ESCROW TO SELECT / dollar bill escrow

---

**SELECTION PRICE(\$) HHPRICE(\$) DESCRIPTION**

1	0.75	0.50	Cola
2	0.75	0.50	Cola
3	0.75	0.50	Cola
4	0.75	0.50	Apple Juice
5	0.75	0.50	Diet Cola
6	0.75	0.50	Diet Cola
7	0.75	0.60	Tea
8	0.75	0.60	Water

**Space to Sales Configuration:**

<u>Selections:</u>	<u>Columns</u>							
	1	2	3	4	5	6	7	8
1 Cola	X							
2 Cola		X						
3 Cola			X					
4 Apple Juice				X				
5 Diet Cola					X			
6 Diet Cola						X		
7 Tea							X	
8 Water								X

**Limited Access:**

Days:	S	M	T	W	Th	F	S
		X	X	X	X	X	

Times: 11:00 to 12:00 and 13:00 to 14:00

Selections: 1 Cola  
 2 Cola  
 3 Cola  
 5 Diet Cola  
 6 Diet Cola

**Happy Hour Times:**

Days:	S	M	T	W	TH	F	S
						X	

Time: 08:30 to 17:30

# INSTALLATION & SET-UP

## Vender Accounting Summary:

Selection	Vends	Sales(\$)	His. Vends	His. Sl\$.
1 Cola	0	0.00	65	48.75
2 Cola	5	3.75	43	32.25
3 Cola	0	0.00	7	5.25
4 Apple Juice	0	0.00	18	13.50
5 Diet Cola	1	0.75	20	15.00
6 Diet Cola	4	3.00	41	30.75
7 Tea	0	0.00	10	7.50
8 Water	0	0.00	9	6.75
TOTAL	10	7.50	213	159.75

## HAPPY HOUR (hh) Accounting Summary:

Selection	hhven	hhsal(\$)	hishhven	hishhsls
1 Cola	3	0.50	1	0.45
2 Cola	0	0.50	8	3.60
3 Cola	0	0.50	1	0.50
4 Apple Juice	0	0.50	0	0.00
5 Diet Cola	0	0.50	0	0.00
6 Diet Cola	0	0.50	5	2.50
7 Tea	0	0.50	2	1.20
8 Water	0	0.50	0	0.00
TOTAL	3	1.50	17	8.50

## Vender Cash Accounting:

<b>BILLS &amp; COIN IN</b>	<b>COIN PAID OUT</b>	<b>CASH OUT MANUALLY</b>
Recent Hist.	Recent Hist.	Recent Hist.
7.50 159.75	3.50 19.50	0.00 0.75
<b>COIN TO BOX</b>	<b>COIN TO TUBES</b>	<b>BILLS IN</b>
4.75 43.50	.75 8.25	2.00 108.00

## Sold Out Activity:

Selection	DATE	TIME	SELECTS ATTEMPTED
1 Cola	9-24-93	1:32pm	13
2 Cola	9-25-93	1:23pm	12
3 Cola	=====	=====	=====
4 Apple Juice	=====	=====	=====
5 Diet Cola	=====	=====	=====
6 Diet Cola	9-26-93	11:30am	5
7 Tea	=====	=====	=====
8 Water	=====	=====	=====

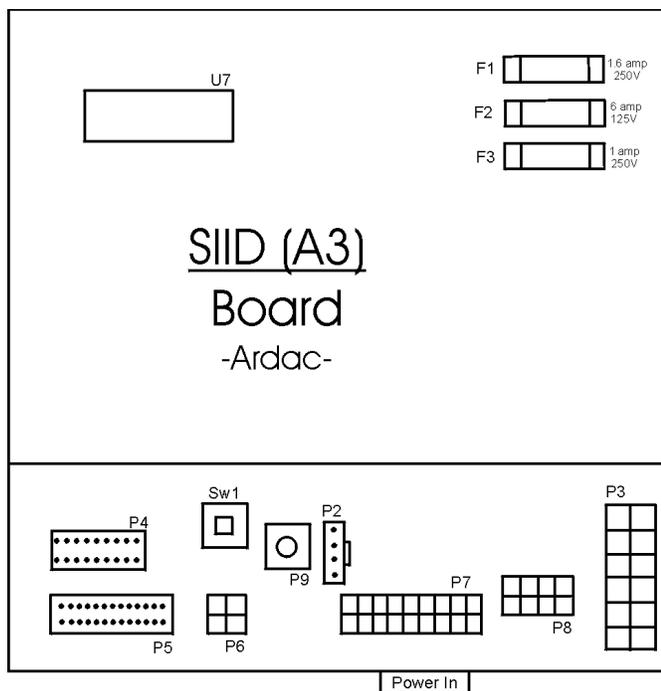
# INSTALLATION & SET-UP

## PROGRAMMING THE SIID VENDER

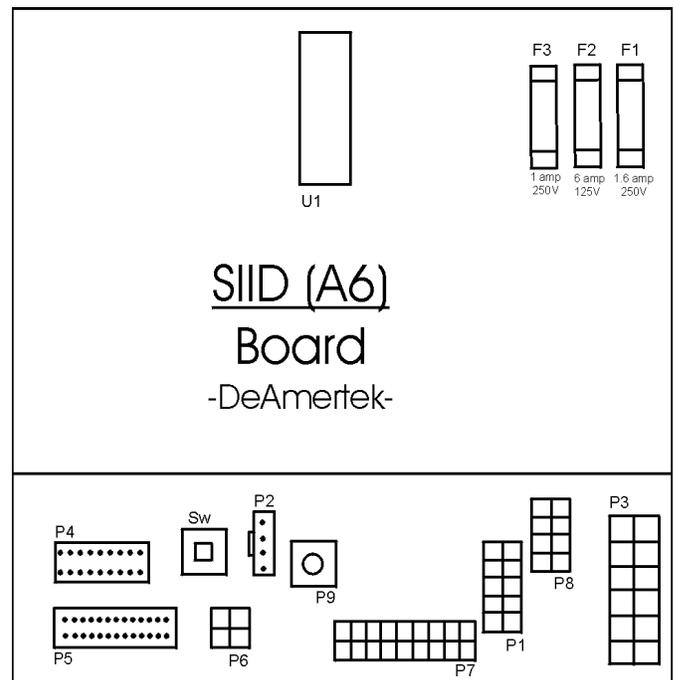
To program the SIID Vender enter the System Set-Up/Audit/Diagnostics Mode. Open the inner door and press the Service Switch on the control board. The display will read "HD". If the display reads 1.00 the door switch did not go to its center position or the switch is defective.

Note: The door switch has three positions. Fully in and fully out puts the vender in its normal mode. When the switch is in its center position the System Set-Up/Audit/Diagnostics Mode may be entered.

There is a time out for the service Mode. If no accounting or set-up functions are used for 2 minutes, the vender will return to its normal mode. After time out, the service switch on the control board must be pressed to re-enter the System Set-Up/Audit Mode.



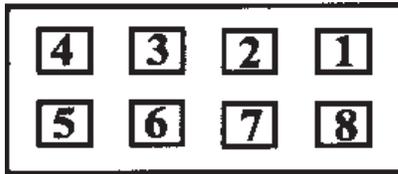
- P2 - External Dex
- P3 - Motor Power
- P4 - Select Panel
- P5 - Vend / Sold-Out
- P6 - Display
- P7 - Coin Mech
- P8 - Note Acceptor
- P9 - Dex-Phono
- Sw1 - Service Switch
- U7 - Eprom
- F1 - 1.6 Amp Fuse (board power)
- F2 - 6 Amp Fuse (motor)
- F3 - 1 Amp Fuse (peripheral)



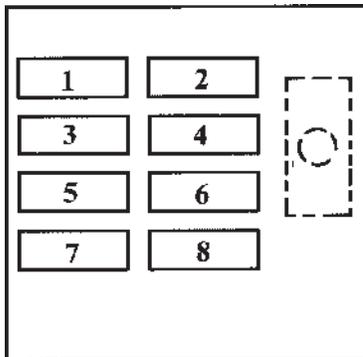
- P1 - Power In
- P2 - External Dex
- P3 - Motor Power
- P4 - Select Panel
- P5 - Vend / Sold-Out
- P6 - Display
- P7 - Coin Mech
- P8 - Note Acceptor
- P9 - Dex-Phono
- Sw - Service Switch
- U1 - Eprom
- F1 - 1.6 Amp Fuse (board power)
- F2 - 6 Amp Fuse (motor)
- F3 - 1 Amp Fuse (peripheral)

# INSTALLATION & SET-UP

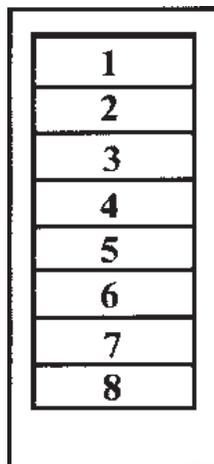
## SIID CONTROLLER PROGRAMMING 0773-6201CS & HIGHER



**Horizontal**



**Side-By-Side**



**In-Line**

The controller has two modes of operation: NORMAL and SYSTEM SET-UP/AUDIT/DIAGNOSTICS MODE.

### **NORMAL MODE:**

In normal mode, the display will show a decimal point. If the decimal is blinking, an error or problem has been recognized in the vender. When money is inserted, the display indicates the total amount of the deposit. The select buttons are used to select the product.

### **SYSTEM SET-UP/AUDIT/DIAGNOSTICS MODE:**

System set-up/audit/diagnostics mode is entered when the vender inner door is open and the service switch is pressed. The display will show a list of error codes for errors that have occurred since the door was last opened.

“JC-#” is a jammed column, “SS-#” is a select switch problem, and “EN-#” is an enable error (board component failure). To acknowledge an error, press any select button, at this time you will enter the menu. The display will show “HD” at this time. Some of the menu items have sub-menus. To move through the menus and sub-menus follow these instructions.

#### **TO MOVE THROUGH MENU:**

Press select buttons 1 & 2 simultaneously to scroll down through the menu. While scrolling down through menu, release, press select buttons 1 & 2 simultaneously to scroll up through menu.

#### **TO ENTER SUB-MENU:**

Press and hold select button 1 to enter a sub-menu.

#### **TO EXIT SUB-MENU:**

With “RTN” on display, press and hold select button 1 to exit a sub-menu.

#### **TO EXIT SYSTEM SET-UP/AUDIT/DIAGNOSTICS MODE:**

Closing the inner door or a two-minute inactivity time-out will exit the system set-up/audit/diagnostics mode.

# INSTALLATION & SET-UP

## **FRONT PANEL PROGRAMMING SYSTEM SET-UP/AUDIT/DIAGNOSTICS MENU**

### **HD – HISTORICAL DATA**

This section shows the user the vender accounting over the life of the vender. Use the following select buttons to view the total sales in dollars, total number of vends and the total number of vends for each selection.

- Press Select Button 1:  
Shows the historical total cash sales for the life of the vender.
- Press Select Button 2:  
Shows the historical total number of vends.
- Press Select Button 3:  
Shows the historical number of vends by selection. Each selection automatically scrolls across the display.
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

### **RD – RESETTABLE DATA**

This section shows the user the vender accounting data since the time of the last counter reset. This data can be reset either from this menu or by a DEX interrogation.

- Press Select Button 1:  
Shows the total cash collected since the last counter reset.
- Press Select Button 2:  
Shows the total number of vends since the last counter reset.
- Press Select Button 3:  
Shows the total number of vends by selection since the last counter reset. Each selection automatically scrolls across the display.
- Press Select Button 4:  
This button zeros the resettable data described above. Hold button “4” for 5 seconds and “COUNTERS RESET” will be displayed. At this time all resettable data will return to “0”.
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

### **S-P - SET PRICE**

This function is used to set the price of each selection. When a select button is pressed, the price for that selection will be displayed. If the button is held in the price will increment or decrement. To change from increment to decrement, release the select button and press it again. To set all selections for the same price: set desired vend price on select button #1, then simultaneously press and hold select buttons 3 & 4 for five seconds. This will change the vend price of all selections, both primary and secondary, to the price programmed to select button #1.

Note: The SIID’s multi-pricing capability allows you to set all selections to any price in the range of \$0.00 to \$99.95.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

### **C-D - COIN DUMP/COIN FILL MODE COIN DUMP:**

This section is used to dump coins from the coin mechanism while in “C-D” mode.

- Press & hold Select Button 1:  
Dump Nickels.
- Press & hold Select Button 2:  
Dump Dimes.
- Press & hold Select Button 3:  
Dump Quarters.
- Press & hold Select Button 4:  
Dump 4<sup>th</sup> tube in 4 tube changers.

### **COIN FILL MODE**

This section is used to count coins loaded in the top (separator) of the coin mech. Insert coins in the top (separator) of the coin mech. The total value of the coins will be displayed. The coins will be counted in the DEX audit data and the SIID controller will know exactly how much change is in the coin mech.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

# INSTALLATION & SET-UP

## USER - USER OPTIONS MENU

This function is used to configure the vender to operate in the fashion best suited for the vender location. To move to diagnostics (DIAG), press & hold select buttons 1 & 2 simultaneously; to enter the USER sub-menus press select button 1.

The following are sub-menus of the User Option Menu: "STS", "TIME", "DATE", "ESC", "LANG", "PROM", "ECNT", "NF", "CR", "BILL", "LIM", "SEC", "ACD", "FREE", "DST", "DSTR", "SCE", "COIN", "SSM", "MV", and "RTN".

## STS - SPACE-TO-SALES

To view the space-to-sales condition, press any select button and the current columns assigned to that select button will display.

To change space-to-sales condition:

To Add Selection:

Press Service Switch and "ADD" will be displayed. Note: Pressing the service switch will toggle between add and delete. A 10 second inactivity time-out will return to "STS". Press and hold any select button; whichever select button you are holding is the select button to which the additional column will be assigned. While holding the select button, the display will read "ADD #" and the selection will increment from 1 to 10. Release the select button when the desired column # to be added is displayed. A message will scroll across the display telling you what column will be assigned to the button you were holding. Press service switch to complete space-to-sales decision and re-enter service mode.

To Remove Selection:

Press Service Switch and "ADD" will be displayed. Press service switch again and "DEL" will be displayed. Note: Pressing the service switch will toggle between add and delete. A 10 second inactivity time-out will return to "STS". Press and hold any select button. The select button you are holding is the select button from which the additional column will be removed. While holding select button, the display will read "DEL #" and the selections will increment from 1 to 10. Release the select button when the desired column # to be removed is displayed. A message will scroll across the display telling you what column will be deleted from the button you were holding. Press service switch to complete space to sales decision and re-enter service mode.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## TIME - TIME

To display time, press and let go of any select button. The time will be displayed in military time (24 hour clock). To change the time, press and hold select button 1 or 2. The time will increment or decrement. To change from increment to decrement, release the select button and press it again.

To change time:

- Press & hold Select button 1: set Hours
- Press & hold Select button 2: set Minutes
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## DATE - DATE

To view the date, press and let go of select button 1 or 2. Month and day will be displayed as "X.YY" where "X" represents the month and "YY" represents the day. Press and let go of button "3" to display day of week. Press and let go of button "4" to display year.

To change date:

- Press & hold Select Button 1: set Month
- Press & hold Select Button 2: set Day
- Press & hold Select Button 3: set Day Of Week

Sunday	1	Thursday	5
Monday	2	Friday	6
Tuesday	3	Saturday	7
Wednesday	4		

- Press & hold Select Button 4: set Year
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

# INSTALLATION & SET-UP

## ESC - ESCROW

This section supports 4 (four) escrow options. Press any select button to show the current escrow condition.

To change the escrow condition:

- Press & hold Select Button 1:  
**“Pr” - Escrow to Price**  
The escrow condition is “escrow to price”. All dollar bills will be stacked. No cancel sale is allowed once minimum vend price is met or exceeded.
- Press & hold Select Button 2:  
**“E-S4” - Escrow to Select 4**  
The escrow condition is “escrow to select” with all dollar bills being stacked. Cancel sale will return the deposit from the coin changer (i.e. 4 quarters).
- Press & hold Select Button 3:  
**“E-S1” - Escrow to Select 1**  
The escrow condition is “escrow to select”, with the last dollar bill that meets or exceeds maximum vend price being escrowed in the validator. Cancel sale will return the held dollar bill. Any amount over \$1 will be returned from the coin changer.
- Press & hold Select Button 4:  
**“E-P2” - Escrow No Cancel**  
The escrow condition is “escrow no cancel” with all bills stacked. Cancel sale is not allowed unless the vender is in exact change and the maximum vend price is exceeded. Note: Any money entered below the vend price cannot be returned.
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## LANG - LANGUAGE

This function is used to set the language that will be used for display messages. Press select button 1 to display the current language selected. To change the language selected, press & hold select buttons 1 and 2 simultaneously to scroll through the language menu. Once the desired language is shown on the display, let go of the buttons. The display will then return to “LANG”.

English	ENGL	French	FRN	Dutch	DUT
German	GER	Italian	ITA	Slovenia	SLOV
Spanish	SPN	Portuguese	PORT		

- Press and hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## PROM - PROMOTIONAL SALES

This function is used to initiate a promotional sale.

To show the current promotional condition:

- Press Select Button 1:  
To show “UN-#”, where # equals the number of vends required to initiate promotion.
- Press Select Button 2:  
To show “FR-#”, where # equals the number of free beverages to be delivered after the number of required vends have occurred, as programmed, to initiate promotion.
- Press Select Button 3:  
To show enabled #'s of the selections that are enabled for the promotion.

To change the promotional sales conditions:

- Press & hold Select Button 1:  
The number of vends required to initiate the promotional sale will increment from zero to 25 and then return to zero. Release the select button when the desired number of vends to initiate the promotional sale is displayed.

Note: If “UN-0”, the promotion is disabled.

- Press & hold Select Button 2:  
The number of free beverages to be delivered after the number of vends have occurred will increment from zero to 25 and then return to zero. Release the select button when the desired number of free beverages to be delivered is displayed.

Note: If “FR-0”, the promotion is disabled.

- Press & hold Select Button 3:  
Display will show “ENABLED SEL # (s) where # shows the selections that are enabled for the promotion to occur.

To add or delete selections:

- A) Press the service switch. The display will show “ADD”, indicating selections will be added. Press the service switch again and the display will show “DEL”, indicating selections will be deleted.
- B) Press and hold any select button. The display will show “ADD #” or “DEL #”, where # is a select button number. While holding a select button, the # will increment from 1 to the maximum select button number and return to 1.

# INSTALLATION & SET-UP

- C) Release the select button when the desired selection # to be added or deleted is displayed. A message will scroll across the display, telling you what selection will be added or deleted.
- D) Press the service switch to complete the decision.

NOTE: Only one selection may be added or deleted at a time. The service switch must be pressed before and after each change.

Important: Promotional sales, when enabled, will be on at all times of the day.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## ECNT - ELECTRONIC COUNTER

This function is used to show historical total vends, historical product counts that have occurred for prices being used, and interval product counts for each selection from outside the vender. To program the SIID to use this function, press any select button. The current setting or four (4) key programming will be displayed. If "—" is displayed, no code is programmed.

To program or to change four (4) key program:

- A) Press service switch. Display will show "----", indicating the new code is ready to be entered.
- B) Press the four (4) select buttons that are desired to be in the code. As they are pressed the display will change to show the four (4) select buttons chosen. Note: Four (4) separate buttons must be used or the pattern will not be saved. Note: Only select buttons 1 through 9 may be used.
- C) Press the service switch. The display will change back to "ECNT".

To show the current count

- hold the four keys programmed for five (5) seconds. The display will show historical total vends.

To view other data:

- Press & hold Select Button 1:  
Show historical total vends.
- Press & hold Select Button 2:  
Show list of prices and historical product counts that have occurred for those prices.
- Press & hold Select Button 3:  
Show interval product count for each selection.
- Press & hold Select Button 4 for five seconds:  
Resets interval data. "COUNTERS RESET" will scroll across display.
- Press any select button greater than 4 to return the vender to normal operation.

Note: There is a two (2) minute time-out that will return the vender to normal vending mode.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## NF - NOTE FACTOR

### (for use with foreign note acceptors only)

This will only be present in the menu if SET BILLS ONLY is programmed to "BILLS YES".

Some foreign note acceptors that use a pulsed signal to indicate the value of the note being accepted must have the value of that pulse (the note factor) programmed in the vender. The SIID determines the value of the note inserted by multiplying the number of pulses counted by the Note Factor programmed.

To show the current Note Factor "NF" condition:

- Press any select button and the current value will be displayed.

To change the Note Factor "NF" condition:

- Press and hold any select button. The Note Factor will increment or decrement from 100 to 10,000. To change from increment to decrement, release the select button and press it again. Note: 100 is \$1.00 in domestic use.

NOTE: The coin mech will communicate the decimal point position to the SIID control board.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## CR - CHANGE RULES

### (for use with foreign L-Plus coin mechs only)

Some countries have coin mechs that do not use all three coin tubes. This would not allow the SIID to come out of exact change mode. To accommodate this the Change Rules section allows the SIID to be programmed to use the tubes necessary for the SIID to not be in an exact change mode.

To show the current Change Rules condition, press any select button. The display will show "ABC", indicating tubes A, B, and C must have change. "A" refers to the tube on the left, "C" refers to the tube on the right, and "B" refers to the tube in the middle.

To change the Change Rule Condition:

- Select Button 1:  
When pressed, enables and disables Tube A.
- Select Button 2:  
When pressed, enables and disables Tube B.
- Select Button 3:  
When pressed, enables and disables Tube C.
- Press and hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

# INSTALLATION & SET-UP

## BILL - SET BILLS ONLY (SIID Only)

This function is used to program the vender to take bills only.

To show the current "BILL" condition:

- Press select button 1 and the current condition will be displayed.

To change the "BILL" condition:

- Press Select Button 1:  
When pressed, enables "BILLS YES" mode. You no longer need to use a changer; the controller will operate with bills only.
- Press Select Button 2:  
When pressed, enables "BILLS NO" mode. A changer is needed. The controller will not operate the note acceptor without a changer.
- Press and hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## LIM - LIMITED ACCESS MENU

This function is used to program the vender to use the Limited Access Features. To move to Secondary Price Menu "SEC", press & hold select buttons 1 & 2 simultaneously. To enter the sub-menu press select button 1. The following are sub-menus of Limited Access Menu: "LAOS", "LAOD", "PER1", "PER2", and "RTN".

## LAOS - LIMITED ACCESS ON SELECTION

This function is used to set selection(s) which will be limited during certain periods of the day. Press any select button to view the limited access on selection condition. The display will show "DISABLED" or "ENABLED SEL - #(s)", where # shows the selections that are set for limited access. To change limited access on any selection, press and hold the desired select button until the message displayed is the desired limited access condition for that selection.

ENABLED SEL - #(s) - Selection(s) displayed are on limited access.

DISABLED - All selections are not on limited access.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## LAOD - LIMITED ACCESS ON DAYS:

This function is used to set the days of the week for limited access. To view the limited access on days condition, press and let go of any select button. The display will show "ENABLED ON DAYS - #(s)"

Day of Week:

Sunday	1	Wednesday	4	Saturday	7
Monday	2	Thursday	5		
Tuesday	3	Friday	6		

To change limited access on days:

To Add Days:

Press service switch. "ADD" will appear on display. Press and hold any select button to scroll through days. Release select button at desired day to turn on limited access. Press service switch to complete limited access on days decision. This must be done for each day to be added.

To Remove Days:

Press service switch. "ADD" will appear on display. Press service switch again. "DEL" will appear on display. Press and hold any select button to scroll through days. Release select button at desired day to turn off limited access on that day. Press service switch to complete limited access on days decision. This must be done for each day to be removed.

NOTE: Only one limited access on days change may be made at a time. The service switch must be pressed before and after each change.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## PER1 - PERIOD 1

This function is used to set time to start and end limited access. To display PER1 start time, press and let go of select button **1 or 2**. To display PER1 end time, press and let go of select button **3 or 4**.

To Change:

- PER1 Start Time:

To change start time, press and hold select button 1 to change hours, and select button 2 to change minutes. The time will increment or decrement. To change from increment to decrement, release the select button and press again.

- PER1 End Time:

To change end time, press and hold select button 3 to change hours, and select button 4 to change minutes. The time will increment or decrement. To change from increment to decrement, release the select button and press again.

NOTE: Start time has to be less than end time. You must set an on and off time when using PER1.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## PER2 - PERIOD 2

Set time to start and end limited access the same as Period 1.

Limited access can be enabled for two different periods in one day.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

# INSTALLATION & SET-UP

## RTN - RETURN

This function is used to return to the User Option Menu.

- Press select buttons 1 & 2 simultaneously to return to "LAOS".
- Press select button 1 to return to the User Option Menu at "LIM".
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## SEC - SECONDARY PRICE MENU

This function is used to program a second price for each selection. To enter the sub-menu press select button 1. The following are sub-menus of Secondary Price Menu: "S-P2", "PR2P", "PR2D" and "RTN". To move to User Options Menu press select buttons 1 & 2 simultaneously until "RTN" shows on the display. Press select button 1 to return to "USER".

## S-P2 - SET SECONDARY PRICE

This function is used to set a secondary price for each selection. When a select button is pressed the price for that selection will be displayed. If the button is held in the price will increment or decrement. To change from increment to decrement, release the select button and press it again.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## PR2P - SET SECONDARY PERIOD

This function is used to set time to start and end secondary prices. To display PR2P start time, press and let go of select button 1 or 2. To display PR2P end time press and let go of select button 3 or 4.

To Change:

- PR2P Start Time:  
To change start time, press and hold select button 1 to change hours. Press and hold select button 2 to change minutes. The time will increment or decrement. To change from increment to decrement, release the select button and press again.
- PR2P End Time:  
To change end time, press and hold select button 3 to change hours, and select button 4 to change minutes. The time will increment or decrement. To change from increment to decrement, release the select button and press again.

There is only one period in a day for enabling secondary pricing.

NOTE: Start time has to be less than end time. You must set an on and off time when using PR2P.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## PR2D - SET SECONDARY DAYS

This function is used to set the days of the week for secondary pricing. To view the PR2D press and let go of any select button.

The display will show "ENABLED ON DAYS - ".

Day of Week:

Sunday	1	Wednesday	4	Saturday	7
Monday	2	Thursday	5		
Tuesday	3	Friday	6		

To change PR2D:

To Add Days:

Press service switch. "ADD" will appear on display. Press and hold any select button to scroll through days. Release select button at desired day to turn on PR2D. Press service switch to complete PR2D decision. This must be done for each day to be added.

To Remove Days:

Press service switch. "ADD" will appear on display. Press service switch again. "DEL" will appear on display. Press and hold any select button to scroll through days. Release select button at desired day to turn off PR2D. Press service switch to complete PR2D decision. This must be done for each day to be removed.

NOTE: Only one secondary pricing on days may be made at a time. The service switch must be pressed before and after each change.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## RTN - RETURN

This function is used to return to the User Options Menu.

- Press select buttons 1 & 2 simultaneously to return to "S-P2".
- Press select button 1 to return to "SEC".
- Press select buttons 1 & 2 simultaneously to move to the next item on the menu.

## ACD - SET ACD AUDIT BOX

(Note: This feature is available in specific software rev. levels only.)

This function is used to support the Greenwich Audit Box features when enabled. To view "ACD" setting, press and release select button 1. The display will show "ENABLED" or "DISABLED". To change from "ENABLED" to "DISABLED" press and release select button 1.

- Press select buttons 1 & 2 simultaneously to move to the next item on the menu.

# INSTALLATION & SET-UP

## FREE - FREE VEND ENABLE

This function is used to allow 5, 6, and 8 column venders to be set on free-vend using a mechanical switch. The free-vend enable must be turned on for the switch to allow free-vend, and a free-vend switch kit (491,742,600.04) must be installed using installation instructions E004.X from Dixie-Narco.

- Press Select Button 1:  
Toggle free-vends on (ENABLED) and off (DISABLED).
- Press Select Button 2:  
To display the number of free-vends.
- Press Select Button 3:  
To clear or reset the free-vend counter.
- Press select buttons 1 & 2 simultaneously to move to the next item on the menu.

## DST – DAYLIGHT SAVINGS TIME

This function is used to turn the “DST” option on or off.

To show current “DST” condition:

- Press any select button and the display will show the current setting.

To change the “DST” condition:

- Press & hold Select Button 1 to turn “DST” on. Display will show “ON”.
- Press & hold Select Button 2 to turn “DST” off. Display will show “OFF”.

Press & hold Select Buttons 1 & 2 simultaneously to move to the next item on the menu.

## DSTR – DAYLIGHT SAVINGS TIME RULES

This function is used to set the “DSTR” as it applies to American time or European time.

To show current “DSTR” condition:

- Press any select button and the display will show the current settings.

To change the “DSTR” condition:

- Press & hold Select Button 1 to turn “DSTR” to American rule for daylight savings time – set clock back one hour on the last Sunday of October (2:00am), set clock ahead 1 hour on the first Sunday in April (2:00am). The display will show “AMER”.
- Press & hold Select Button 2 to turn “DSTR” to European rule for daylight savings time – set clock back 1 hour on the last Sunday in October (1:00am), set clock ahead 1 hour on the last Sunday in March (1:00am). The display will show “EURO”.
- Press and hold Select Buttons 1 & 2 simultaneously to move to the next item on the menu.

## SCE – SMALL COIN TYPE ENABLE

### (Mdb Coin Mechs Only)

This function is used in situations where an Mdb coin mech will recognize a coin which has a lesser value than tube coins and send it to the cash box. This coin is not kept in the coin tubes and the customer wants to use these coins. Important: Under certain conditions, if one of these coins is accepted and escrow return is done, the controller may not be able to pay back the credit as displayed and that coin will be lost.

To show current “SCE” condition:

- Press any select button and the display will show the current setting.

To change the “SCE” condition:

- Press and hold Select Button 1 to turn “SCE” on. Display will show “ON”.
- Press and hold Select Button 2 to turn “SCE” off. Display will show “OFF”.
- Press and hold Select Buttons 1 and 2 simultaneously to move to the next item on the menu.

## COIN – COIN RULES

This function is used to allow the exact change light to turn on, when appropriate, as related to coin tube status or to set the exact change light to never turn on, which will allow bills and coins to be accepted regardless of the tube level status of the coin mech.

To show current “COIN” condition:

- Press any select button and the display will show the current setting.

To change the “COIN” condition:

- Press and hold Select Button 1 to turn “COIN” on. Display will show “ON”.
- Press and hold Select Button 2 to turn “COIN” off. Display will show “OFF”.
- Press and hold Select Buttons 1 and 2 simultaneously to move to the next item on the menu.

## SSM – SCROLLING MESSAGE MODE

This function is used to turn on a scrolling message “ICE COLD DRINKS”.

To show current “SSM” condition:

- Press any select button and the display will show the current setting.

To change the “SSM” condition:

- Press and hold Select Button 1 to turn “SSM” on. Display will show “ON”.
- Press and hold Select Button 2 to turn “SSM” off. Display will show “OFF”.
- Press and hold Select Buttons 1 and 2 simultaneously to move to the next item on the menu.

# INSTALLATION & SET-UP

## MV – MULTI VEND

This function, when turned on, allows credit to be retained after a vend so the customer can vend from another selection (i.e. .50¢ vend price, put in \$1.00, push a select button and vends, 50¢ still shows on display, push a second selection button and vends). Credit is cancelled after 5 minutes of inactivity. Note: If “MV” is turned on, “COIN” will automatically turn coin rules off. There is unlimited acceptance. If a customer wants their credit (money) back, the escrow lever must be pressed. To show current “MV” condition, press any select buttons and the display will show the current setting.

To change the “MV” condition:

- Press and hold Select Button 1 to turn “MV” on. Display will show “ON”.
- Press and hold Select Button 2 to turn “MV” off. Display will show “OFF”.
- Press and hold Select Buttons 1 and 2 simultaneously to move to the next item on the menu.

## RTN - RETURN

This function is used to return to the User Options Menu.

- Press select buttons 1 & 2 simultaneously to return to “STS”.
- Press select button 1 to return to “USER”.
- Press and hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## DIAG - DIAGNOSTICS MENU

This function allows you to systematically diagnose problems related to the vender. To move to “AUTO” press select buttons 1 & 2 simultaneously. To enter sub-menu press select button 1. The following are sub-menus of Diagnostics Menu: “SE-”, “SP-”, “SW-”, “MT-”, “CM”, “NA”, “DSP”, “VERS”, “VNDR”, and “RTN”.

“SE-” - Select Switch Test

- Press any select button and the display will indicate the number of the select button pressed.
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

“SP-” - Sold Out Paddle Test

Use this to test the sold-out switches if the vender is empty. The display will reflect any Sold Out Paddles that are pressed, indicating that a column is full. The display will automatically scroll through the columns in which the sold-out paddles are pressed.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

“SW-” - Sold Out Switch Test

Use this to test the sold-out switches if the vender is full. The display will reflect any Sold Out Switches that are pressed, indicating that the column is empty. The display will scroll through the columns that are sold out.

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

“MT-1” - Motor Test

Use this test to run any motor in the stack. Use the following select buttons to run this test.

- Select Button 1:  
Press until desired motor # to run is shown on the display.
- Select Button 2:  
Press to run the selected motor. The display will show “TESTING” and the selected motor will run.
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

“CM” - Coin Mech Test

Use this test to check coin mech programming, coin chute work, and coin mech payout systems. Insert coins. The value of coins will be reflected on display.

- Press & hold Select Button 1:  
Displays the Coin Mechanism setting.  
“MM” - Micro Mech interface  
“Lt” - L-Plus interface  
“MDB” - Multi Drop Bus interface
- Press & hold Select Button 2:  
Returns the coins inserted.
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

“NA” - Note Acceptor Test

Use this test to check acceptor functions. Insert note. The value of note will be reflected on display.

- Press & hold Select Button 1: Displays the Note Acceptor setting. (“LL” - low level, “HL” - high level or “MDB” - multi-drop note acceptor)
- Press & hold Select Button 2: Stacks the note and cancels the credit shown on display.
- Press & hold Select Button 3: Returns the note and cancels the credit shown on display.
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

# INSTALLATION & SET-UP

---

## “DSP” - Display Test

- Press any select button and the display segments will illuminate in a scrolling manner, while blinking the exact change LED.
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## “VERS” - Version of Software

- Press any select button and the display will scroll the software revision level in the control box. Example: ###.## represents the installed software revision.
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## “VNDR” - Vender Identification

- Press any select button and the display will show the vender type, that the software has determined, based on the select panel harness input. The vender types are:

“00” - Coke Venders

“01” - Pepsi and Generic Venders

- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## **RTN - RETURN TO MAIN MENU**

- Press & hold select buttons 1 & 2 simultaneously to return to “SE- “.
- Press & hold select button 1 to return to “DIAG”.
- Press & hold select buttons 1 & 2 simultaneously to move to the next item on the menu.

## **AUTO - Auto Testing**

This function is used in Dixie-Narco’s manufacturing process and is not intended for use in the field. Its purpose is a self-test routine to check the SIID components listed. For further details contact Dixie-Narco Factory Service.

- |                          |                          |
|--------------------------|--------------------------|
| A. Control Box           | D. Motors, Vend Switches |
| B. Select Switch Harness | E. Note Acceptors        |
| C. Sold Out Switches     | F. Coin Mech             |

The operator will manipulate switches, run motors, and insert money while the SIID control box monitors all these functions. If any errors are found, they will be logged and displayed to the operator on the display.

# INSTALLATION & SET-UP

## SIID QUICK REFERENCE MENU PROMPTS

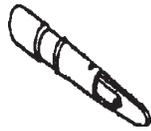
Main Menu		Sub-Menu		Sub-Menu
HD	(Historical Data)			
RD	(Resettable Data)			
S-P	(Set Price)			
C-D	(Coin Dump / Coin Fill)			
USER	(User Options)			
		STS	(Space-To-Sales)	
		TIME	(Time)	
		DATE	(Date)	
		ESC	(Escrow)	
		LANG	(Language)	
		PROM	(Promotional Sales)	
		ECNT	(Electronic Counters)	
		NF	(Note Factor)	
		CR	(Change Rules)	
		BILL	(Bill Only)	
		LIN	(Limited Access)	LAOS (Limited Access on Selection)
				LAOD (Limited Access on Days)
				PER1 (Period 1 Start/End)
				PER2 (Period 2 Start/End)
				RTN (Return)
		SEC	(Secondary Prices)	S-P2 (Set Secondary Prices)
				PR2P (Set Secondary Period)
				PR2D (Set Secondary Days)
				RTN (Return)
		ACD	(Set ACD Audit Box)	
		FREE	(Free Vend Enable -5, -6, -7, & -8 selects)	
		DST	(Daylight Savings Time)	
		DSTR	(Daylight Savings Time Rules)	
		SCE	(Small Coin Enable)	
		COIN	(Coin Rules)	
		SSM	(Scrolling Message Mode)	
		MV	(Multi Vend)	
		RTN	(Return)	
DIAG	(Diagnostics)	SE-	(Select Switch Test)	
		SP-	(Sold-Out Paddle Test)	
		SW-	(Sold-Out Switch Test)	
		MT-	(Motor Test)	
		CM	(Coin Mech Test)	
		NA	(Note Acceptor Test)	
		DSP	(Display Test)	
		VERS	(Software Version)	
		VNDR	(Vender Identification)	
		RTN	(Return)	
AUTO	(Auto Testing)			

- A. Press & hold buttons 1 & 2 simultaneously to move through the menu from top to bottom.
- B. Press select button 1 to move left or right in the menu, depending on the menu prompt on the display.

# INSTALLATION & SET-UP

## ELECTRICAL PARTS AND FUNCTIONS

### CORRECT CHANGE LAMP

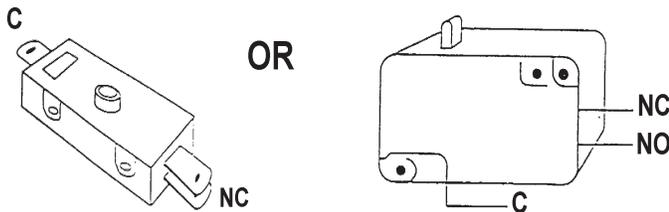


Correct Change Lamp

The Correct Change Lamp is mounted in the Coin Insert Casting.

The Correct Change Lamp is controlled by the SIID Controller Board and is "OFF" when coins are in the tubes of the Coin Changer.

### SELECT SWITCH



Select Switch

The Select Switch is located in the Select Panel behind the Select Button and is secured with two (2) screws.

The normally closed contact of the Select Switch is in the SIID Control Board and Vend Motor Coil Circuits. This normally closed contact opens and the SIID Control Board Circuit completes the Vend Motor Coil Circuit.

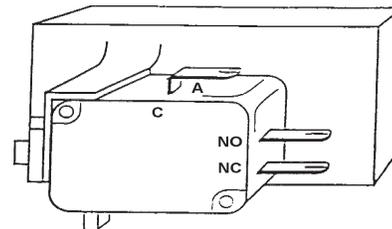
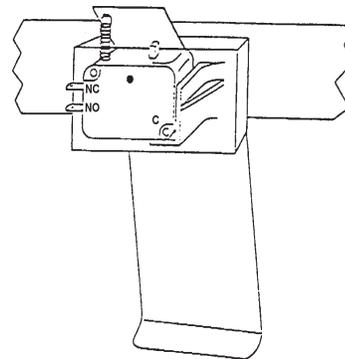
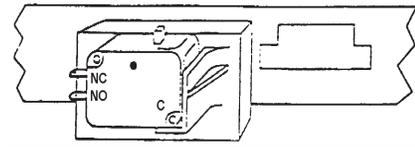
The normally open contact of the Select Switch has no function.

## SOLD OUT SWITCHES

The Sold Out Switch is located on the Front Mechanism Plate under the Vend Motor Cover.

The Sold Out Switch is the "snap in" type. To install, place the switch in position over the opening in the Front Mechanism Plate, push in and at the same time slide to the right.

Sold-Out Switch Pak

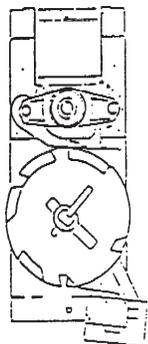


### A) Vend Sold Out Switch

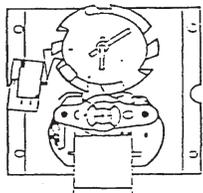
The normally closed contact of the Sold Out Switch has no function. The normally open contact of the Sold Out Switch is in the Sold Out Circuit (kept open by a can or bottle). When not kept open by a can or bottle, the normally open contact closes and completes the Sold Out Message Circuit via the SIID Controller Board.

# INSTALLATION & SET-UP

## VEND MOTOR



For Narrow Column



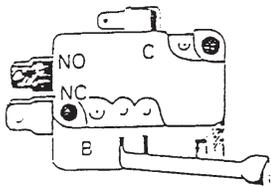
For Wide Column

The Vend Motor (one for each vending stack) is mounted on a bracket at the front of the Front Mechanism Plate.

The Vend Motor is in the Vend Motor Coil Circuit. The Vend Motor runs when a normally closed contact of the Select Switch pushed, then it opens and signals the SIID Controller Board to run the Motor.

The Vend Motor continues to run via the SIID Controller Board while the Vend Motor Switch is on high side of Cam. The Vend Motor stops when the Vend Motor Switch Arm drops off the high side of the Vend Motor Cam, and the normally closed contact of the Vend Motor Switch closes, signaling the SIID Controller Board to stop power to the Vend Motor Coil Circuit.

## VEND MOTOR SWITCH



All Columns

### A. VEND MOTOR SWITCH

The **Vend Motor Switch**, one (1) for each circuit, is located on the Vend Motor Assembly and secured by two (2) screws.

The normally closed contact of the Vend Motor Switch is in the Vend Motor Coil Circuit. This normally closed contact opens in the Vend Motor Coil Circuit to keep the Vend Motor running, via the SIID Controller Board, until the Arm of the Vend Motor Switch drops in the Cam notch and the Vend Motor stops.

The normally open contact of the Vend Motor Switch has no function.

## VEND MOTOR WIDE COLUMN

The vend motor wide column is mounted on the Vender with the Vend Switch on the left side (See Fig. 3). The Linkage and Drive Arm assembly is used to connect the Vend Motor to the Oscillator. (See Fig. 4)

Vend Motor Switch  
804,100,73x.x1

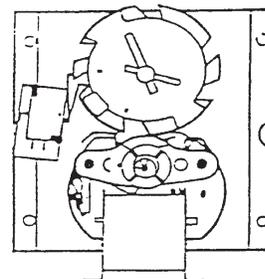


Figure 3

Vend Motor - Wide Column  
572,070,10x.x3 - 1 1/4"  
565,070,20x.x3 - T-models  
609,070,70x.x3 - E-models

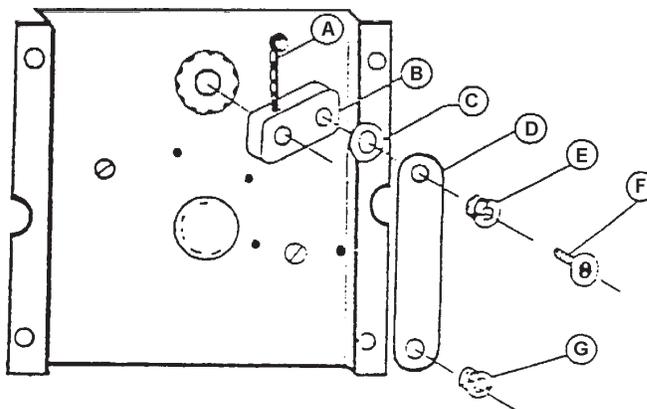


Figure 4

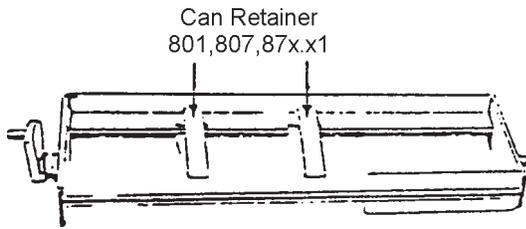
### OLD STYLE

A. Drive Pin	900,901,94x.x1
B. Drive Arm	801,200,95x.x1
C. Washer	900,700,60x.x1
D. Linkage Arm	801,201,03x.x1
E. Nyliner (Top)	901,803,16x.x1
F. Sems Screw	900,301,64x.x1
G. Nyliner (Bottom)	901,804,77x.x1

### NEW PLASTIC STYLE

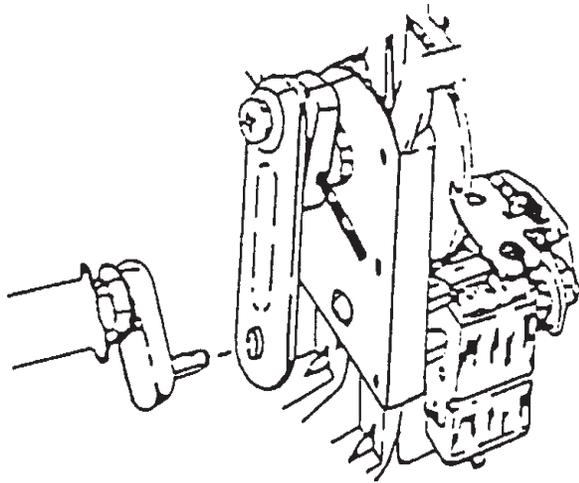
B. Drive Arm (Plastic)	801,806,16x.x1
B. Drive Arm (Zinc E-Models)	801,200,95x.x1
D. Linkage Arm (Plastic)	801,806,17x.x1
D. Linkage Arm (Zinc E-Models)	801,201,59x.x1

# INSTALLATION & SET-UP



Can Retainer  
801,807,87x.x1

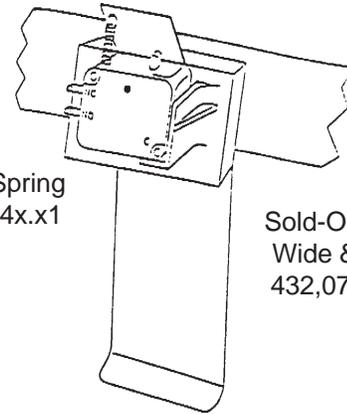
Oscillator Assembly  
801,201,01x.x1 - 1 1/4"  
801,201,02x.x1 - T-models  
801,201,57x.x1 - E-models




Nyliner (Rear Stack)  
801,803,17x.x1



Nyliner (Front Stack)  
901,804,23x.x1



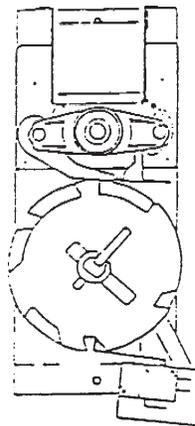
Sold-Out Spring  
901,700,74x.x1

Sold-Out Paddle  
Wide & Narrow  
432,070,19x.x3

Sold-Out Switch Assembly Snap In  
804,100,75x.x1 SIID  
(Insulator & Switch are one piece)

## VEND MOTOR NARROW COLUMN

The vend motor narrow column is mounted on the vender with the vend motor switch on the underside (see figure 1). The shaft of the vend motor slides into a slot in the vend rotor (see figure 2).



Vend Motor Switch  
804,100,73x.x1

Vend Motor - Narrow Column  
572,070,00x.x3 - 1 1/4"  
565,070,10x.x3 - T-model  
609,070,90x.x3 - E-model

Figure 1

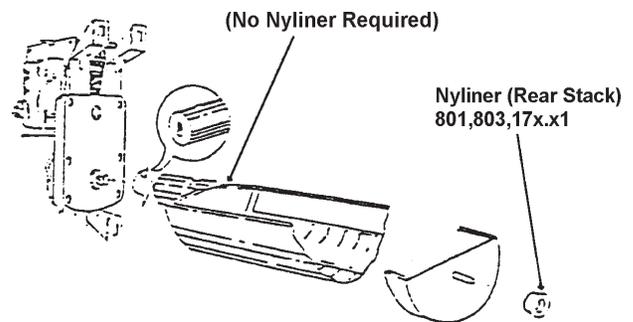


Figure 2  
Vend Rotor  
801,201,21x.x1 - 1 1/4"  
801,201,22x.x1 - T-models, wide  
801,201,23x.x1 - T-models, Narrow  
801,201,56x.x1 - E-models

## PRODUCT SHIMMING

Refer to the appropriate technical bulletin for proper set-up and vending procedures. Listed are a few of the more widely used Technical Bulletins relating to shimming.

TB 450 Miscellaneous Worldwide Can Shimming, Shimless Stack Series 90

TB 451 Miscellaneous Worldwide Plastic Bottle Shimming, T-Models

TB 452 Miscellaneous Worldwide Non-Returnable Bottle Shimming, T-Models

TB 453 Miscellaneous Worldwide Plastic Bottle Shimming, Shimless Stack Series 90

TB 454 Miscellaneous Worldwide Non-Returnable Bottle Shimming, Shimless Stack Series 90

TB 455 Miscellaneous Worldwide Can Shimming, T-Models

TB 456 Miscellaneous Worldwide Returnable Bottle Shimming, Shimless Stack Series 90

TB 457 Miscellaneous Worldwide Returnable Bottle Shimming, Wide Stack Series 90

TB 473 Miscellaneous Worldwide Non-Returnable Bottle Shimming, Wide Stack Series 90

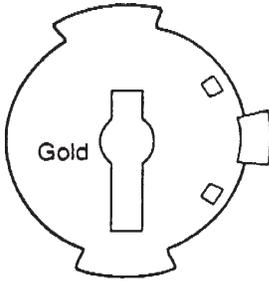
TB 474 Miscellaneous Worldwide Plastic Bottle Shimming, Wide Stack Series 90

TB 475 Miscellaneous Worldwide Can Shimming, Wide Stack Series 90

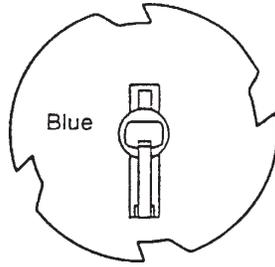
TB 476 Miscellaneous Worldwide Returnable Bottle Shimming, T-Models

For E-Model set-ups not listed on the inner door diagram, contact the Dixie-Narco Factory Service Department.

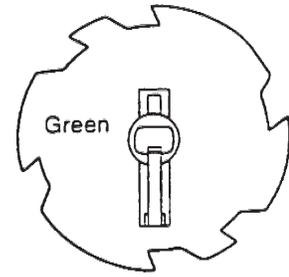
For shimming of venders or products not listed in the above Technical Bulletins call the Dixie-Narco Factory Service Department or contact your Dixie-Narco Representative.



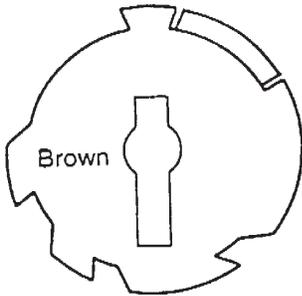
1. Adjustable Cam For:
  - a. DNCB 1 1/4" deeper wide column.
  - b. DNCB T-models single, double, or triple depth wide column.
  - c. Color of cam is gold.
  - d. Part # 801,806,40x.x1



2. Vending Cam For:
  - a. DNCB 1 1/4" deeper single double depth wide column.
  - b. DNCB T-models single depth wide column.
  - c. Color of cam is blue.
  - d. Part # 801,806,39x.x1



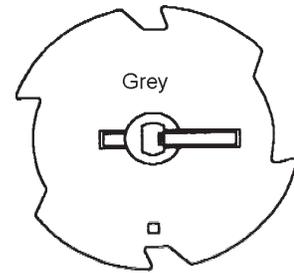
3. Vending Cam For:
  - a. DNCB T-models double or triple depth wide column.
  - b. Color of cam is green.
  - c. Part # 801,806,41x.x1



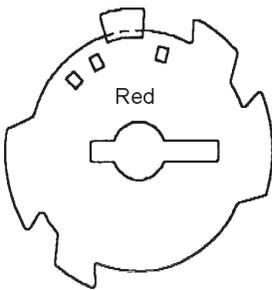
4. Adjustable Cam For:
  - a. DNCB 1 1/4" deeper narrow column.
  - b. DNCB T-models single, double, or triple depth narrow column.
  - c. DNCB E-models single, double, or triple depth narrow column.
  - d. Color of cam is brown.
  - e. Part # 801,806,61x.x1



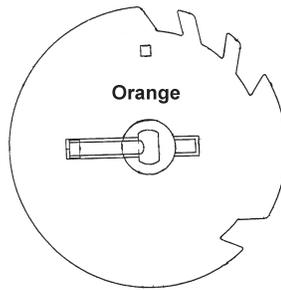
5. Vending Cam For:
  - a. DNCB 1 1/4" deeper narrow column.
  - b. DNCB T-models single, double, or triple depth narrow column.
  - c. DNCB E-models single, double, or triple depth narrow column.
  - d. Color of cam is brown.
  - e. Part # 801,806,18x.x1



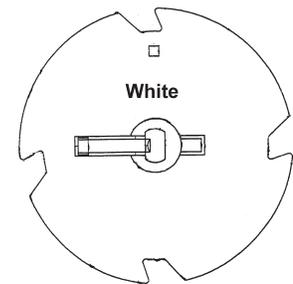
6. Vending Cam For:
  - a. DNCB E-Models double or triple depth wide column.
  - b. Color of cam is grey.
  - c. Part # 801,809,80x.x1



7. Vending Cam For:
  - a. DNCB E-Models double or triple depth wide column.
  - b. Color of cam is red.
  - c. Part # 801,809,79x.x1



8. Vending Cam For:
  - a. DNCB E-Models 4 deep narrow column.
  - b. Color of cam is orange.
  - c. Part # 801,810,39x.x1



9. Vending Cam For:
  - a. DNCB T-Models double depth 20 oz. bottles.
  - b. Color of cam is white.
  - c. Part # 801,806,99x.x1

## CAM INSTALLATION AND REMOVAL

### TO INSTALL A VENDING CAM:

1. Select the Vending Cam required (See page 29.)
2. Locate the Hub at the center of the Cam (See Fig. 6.)
3. With the Hub facing you, slowly slide the Cam on the front shaft of the Vend Motor while depressing the Lock Tab. (See fig. 6.)

NOTE: Reference below for timing of the Motors.

4. A distinct click will be heard, when the tab has locked into the locator hole of the motor shaft.

---

*DEPRESS THE SWITCH ARM WHEN INSTALLING THE CAM TO PREVENT POSSIBLE DAMAGE TO THE SWITCH ARM.*

---

### TO INSTALL AN ADJUSTABLE CAM:

1. Select the Adjustable Cam required. (See page 29.)
2. Locate the Lift Tab on the outer edge of the Cam. (See fig. 5.)
3. With the Lift Tab facing you, align the slot of the adjustable Cam with the Locking Tab of the Vending Cam.
4. Place the Adjustable Cam on the Vending Cam.

---

*DEPRESS THE SWITCH ARM WHEN INSTALLING THE CAM TO PREVENT POSSIBLE DAMAGE TO THE SWITCH ARM.*

---

5. Lift the Lock Tab of the Vending Cam, at the same time lift the Lift Tab of the Adjustable Cam and rotate the Adjustable Cam clockwise to the desired setting.

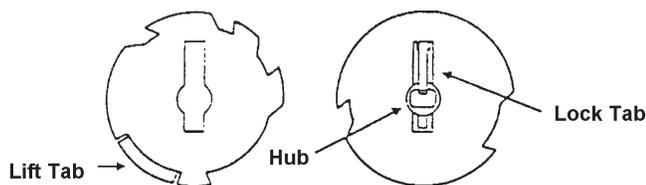


Figure 5  
Adjustable cam

Figure 6  
Vending Cam

### TO REMOVE AN ADJUSTABLE CAM:

1. Lift the Lift Tab and rotate the Adjustable Cam clockwise until the Vending Cam Lock Tab is aligned with the slot of the Adjustable Cam.
2. Remove the Adjustable Cam from the shaft of the Motor.

### TO REMOVE THE VENDING CAM:

1. Depress (push in) the Lock Tab firmly to disengage it from the Motor shaft.
2. At the same time pull the Vending Cam towards you until it is removed from the Motor shaft.

## TIMING

### TO SET THE TIMING OF A NARROW COLUMN VEND MOTOR:

1. Make sure the hole through the rear shaft is in a horizontal plane. (If a pin were inserted in the hole, the pin would be horizontal.) See Fig. 8.
2. The Vend Rotor must be in the loading position when the Motor shaft is inserted in the end of the Rotor. See Fig. 8.
3. Insert the Motor shaft in the Rotor and secure the Motor.
4. Install the Vending Cam on the front shaft of the Motor making sure the Lock Tab is at the 9 o'clock position. See Fig 7.
5. Install the Adjustable Cam per the instructions given previously.

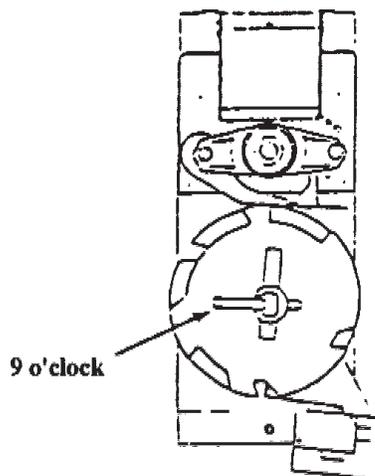


Figure 7

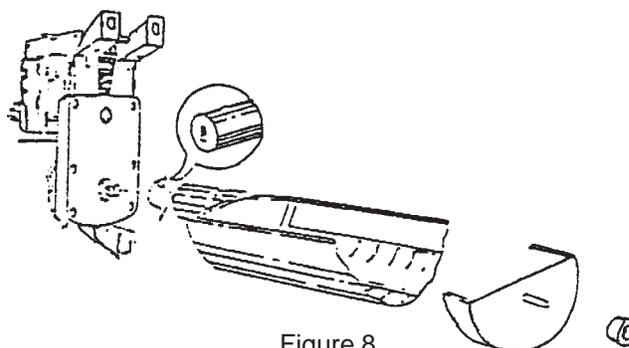


Figure 8

**TO SET THE TIMING OF A WIDE COLUMN VEND MOTOR:**

1. Make sure the hole through the rear shaft is in a horizontal plane. (If a pin were inserted in the hole, the pin would be horizontal). See Fig. 10.
  2. Slide the Drive Arm (with linkage attached) on the rear shaft as shown. See Fig. 10.
  3. Secure by installing the Groove Pin.
  4. With the Oscillator in position, align the hole in the Linkage Arm with the pin of the Oscillator.
  5. Slide the Linkage on the pin.
  6. Install the Vending Cam on the front shaft of the Motor making sure that the Lock Tab is at 6 o'clock as shown. See Fig. 11.
- NOTE: When the screw holding the Linkage Arm to the Drive Arm is at the 12 o'clock position (See Fig. 10), the Lock Tab will be at the 6 o'clock position (See Fig. 11).
7. Install the Adjustable Cam per the instructions on page 30.

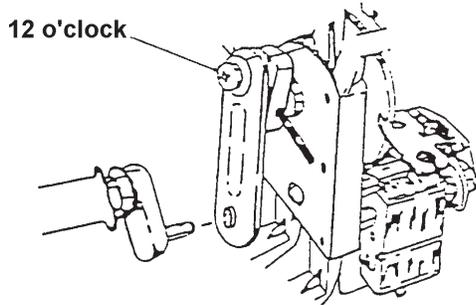


Figure 10

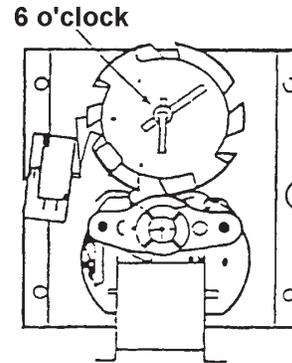
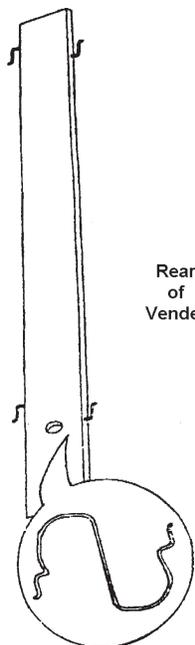


Figure 11

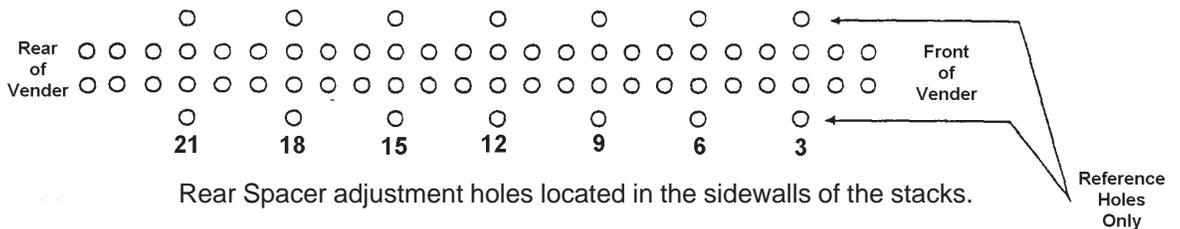
**REAR SPACER**

The Rear Spacer, one for each column, is located vertically at the rear of the column. The Springs, adjustable by hand, slide into the holes in the column wall for cans and other package settings.

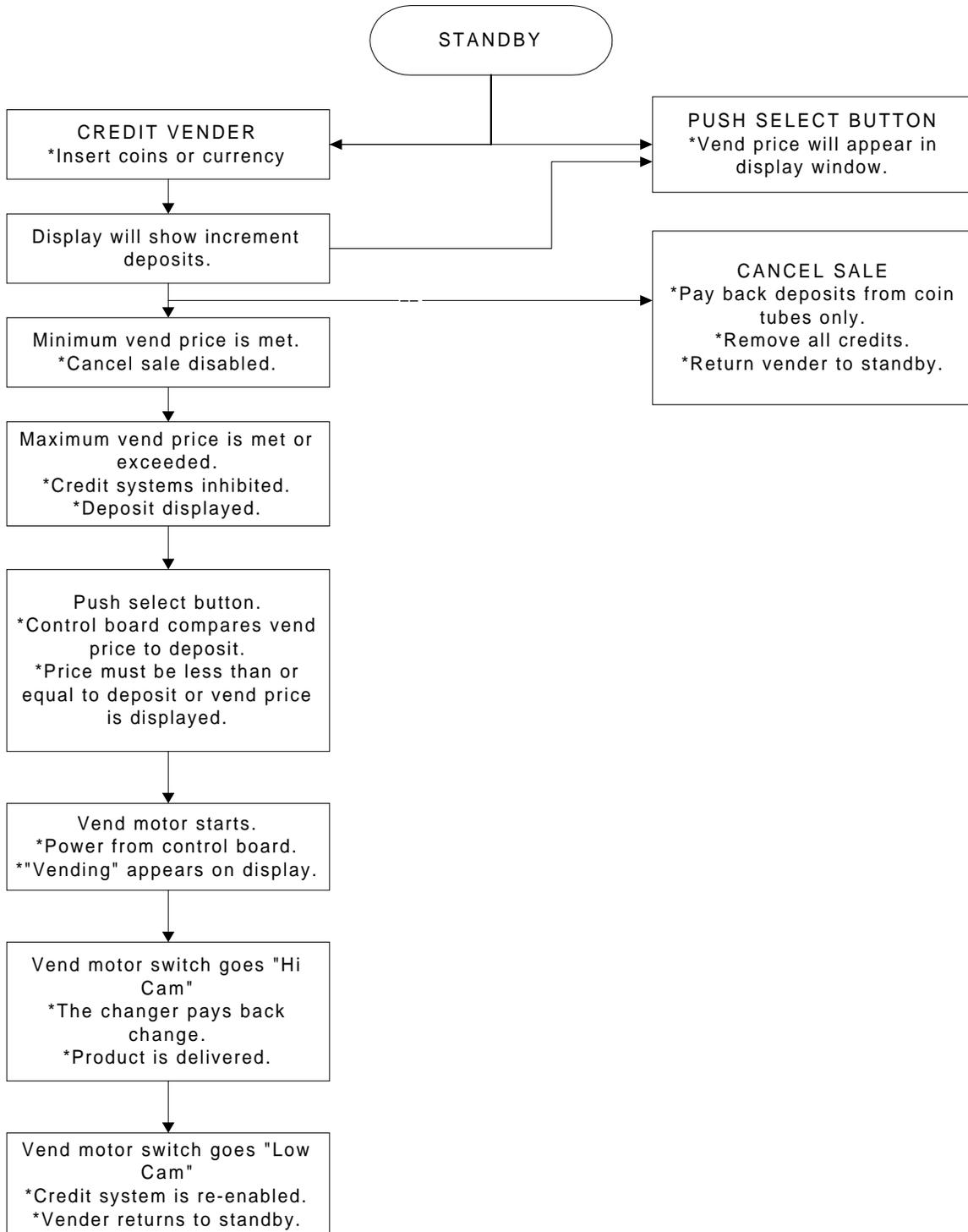


Rear Spacer Assembly

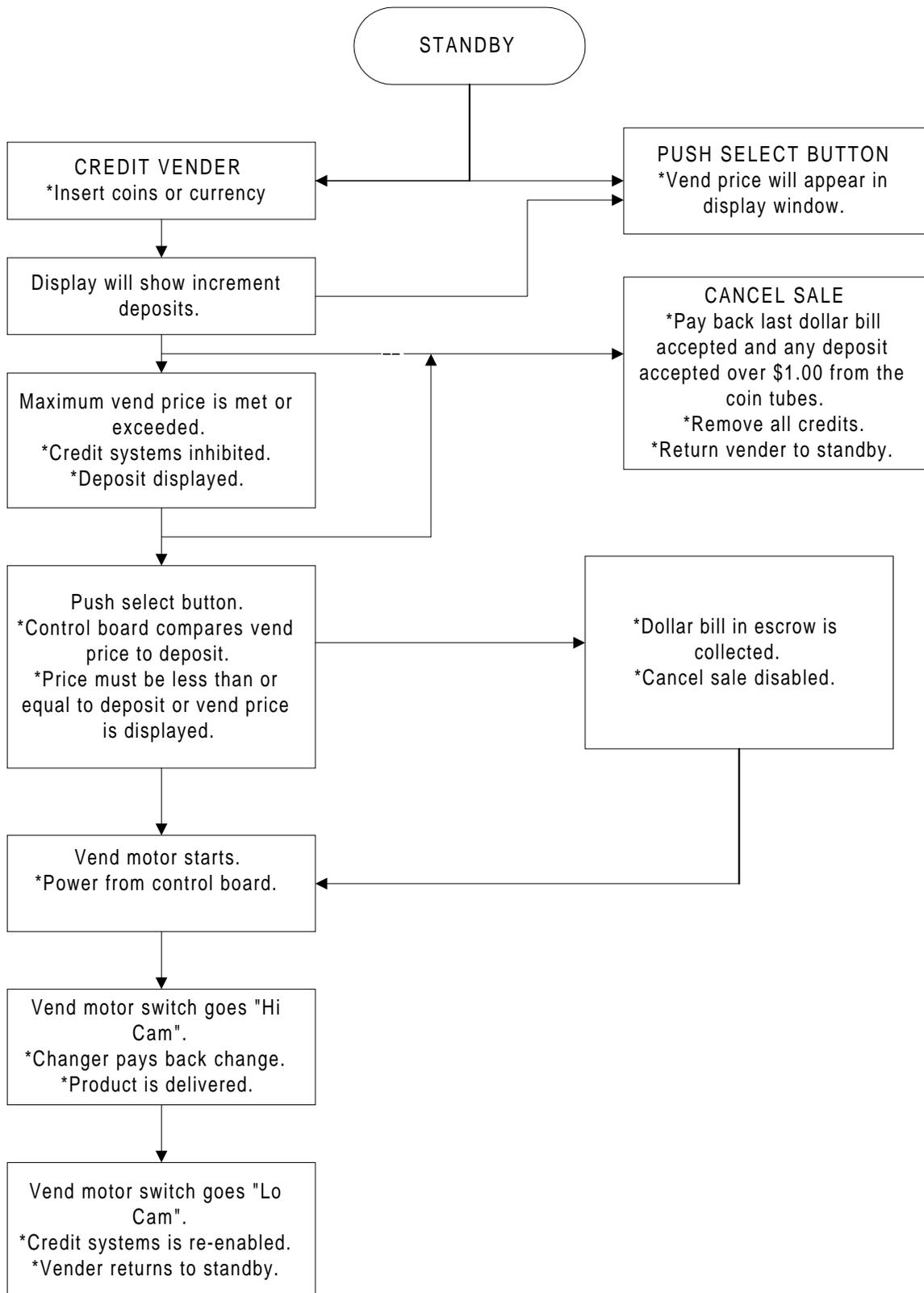
FOR REFERENCE ONLY



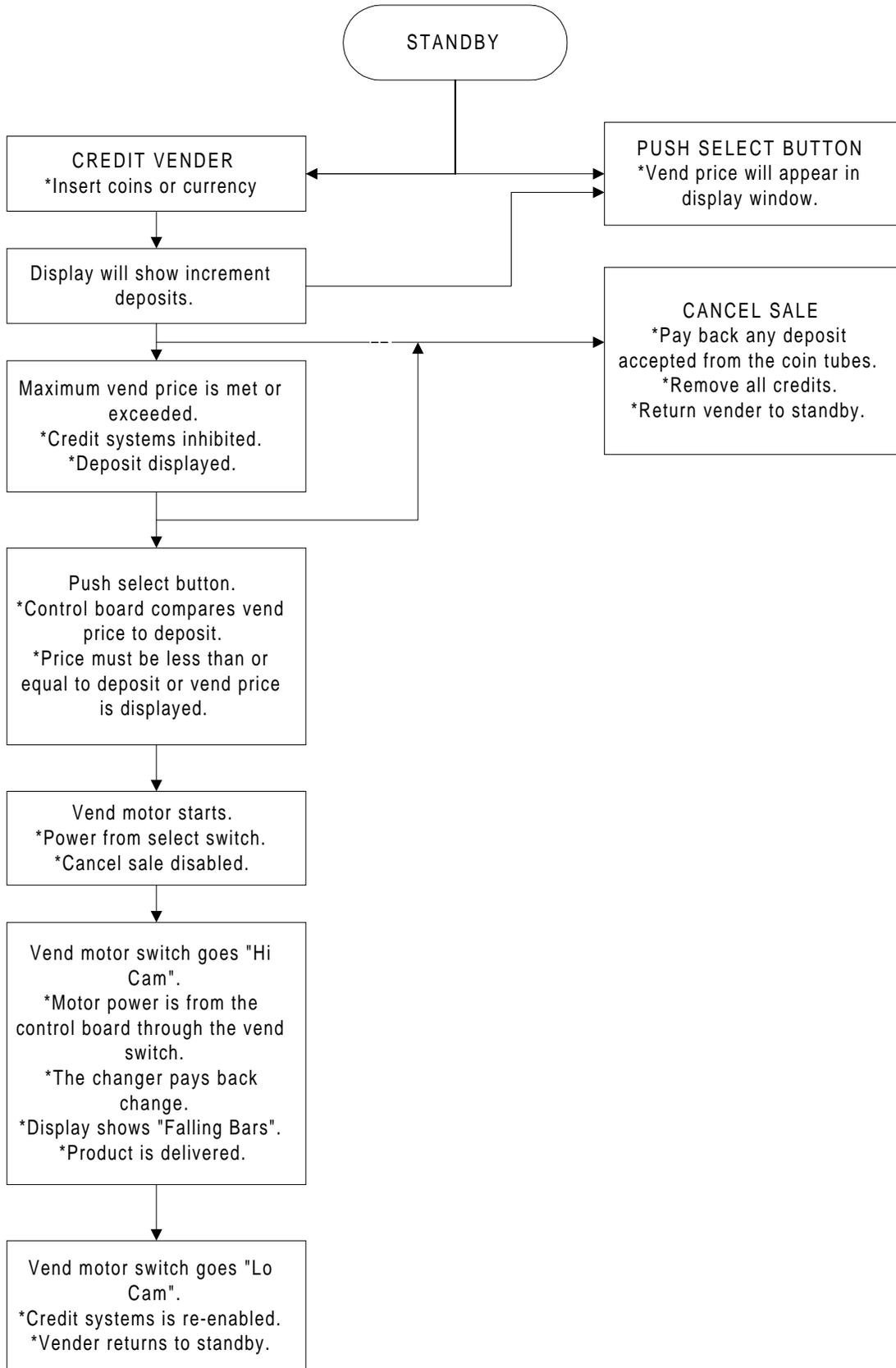
**SIID SEQUENCE OF OPERATION  
CONTROLLER STYLE CHANGERS  
ESCROW TO PRICE AND NO BILL ESCROW (PR)**



**SIID SEQUENCE OF OPERATION  
CONTROLLER STYLE CHANGERS  
ESCROW TO SELECT & LAST BILL ESCROW (E-S1)**



**SIID SEQUENCE OF OPERATION  
CONTROLLER STYLE CHANGERS  
ESCROW TO SELECT AND NO BILL ESCROW (E-S4)**



# VENDER MAINTENANCE

## CLEANING THE VENDER



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

### WHAT TO CLEAN

#### SIGN FACE

The polycarbonate sign face requires proper cleaning to prolong its service life. It is recommended that you periodically clean the sign face as follows:

1. Rinse the sign with a soft cloth or sponge soaked in warm water.
2. If necessary use a mild soap to loosen any dirt or grime. To prevent damage, DO NOT SCRUB or use a brush or squeegee, as some signs have a clear ultraviolet resistant coating to prevent yellowing.
3. Repeat the above steps as necessary, then dry using a soft cloth to prevent spotting.

#### CABINET

1. Wash the cabinet with a good detergent or soap mixed in warm water.
2. Wax the vender often with a good grade of automobile wax.
3. Any corrosion inside the vender should be removed with fine steel wool and the area should be painted with aluminum paint.
4. Repair any scratches on painted surfaces to prevent corrosion.



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

#### REFRIGERATION CONDENSER

1. Check the condenser periodically for dirt or lint build up.
2. Remove the build up with a brush or vacuum, or blow the dirt out of the condenser with compressed air and approved safety nozzle.
3. Ensure nothing obstructs air intake at the bottom of the main door.
4. Ensure nothing obstructs air exhaust at the rear of the cabinet.

#### COIN ACCEPTOR

Follow the Coin Acceptor Manufacturer's instructions.

### LUBRICATING THE VENDER

The vender refrigeration system does not require any field lubrication. The hermetic refrigeration system and fan motors are manufactured with lifetime lubrication.

TIME	COMPONENT	LUBRICANT EXAMPLE
Every 6 Months (or as needed)	<b>Main Door</b> 1. Lock Bolt & Nut Retainer 2. Hinge Pivot Points	Mechanics Friend
	<b>Inner Door</b> 1. Hinge Pivot Points	Mechanics Friend
Every Year (or as needed)	<b>Inner Door</b> 1. Door Gasket	Petroleum Jelly

## TEMPERATURE CONTROL ADJUSTMENTS

### Adjustment #1 - Temperature Adjustment

Turn the adjustment clockwise for colder product and counter-clockwise for warmer product. This will change the cut-out temperature only, the cut-in temperature remains constant.

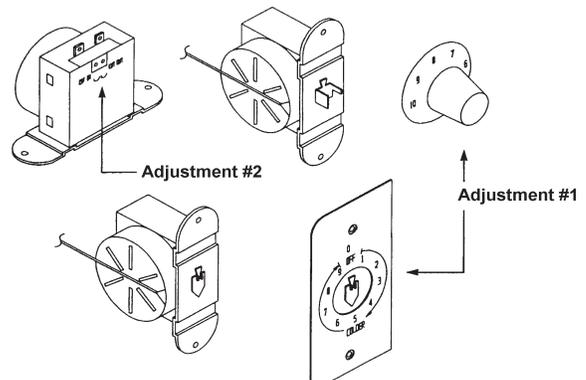
### Adjustment #2 - Altitude Adjustment



**DISCONNECT POWER TO THE VENDING MACHINE BEFORE PROCEEDING WITH THIS ADJUSTMENT.**

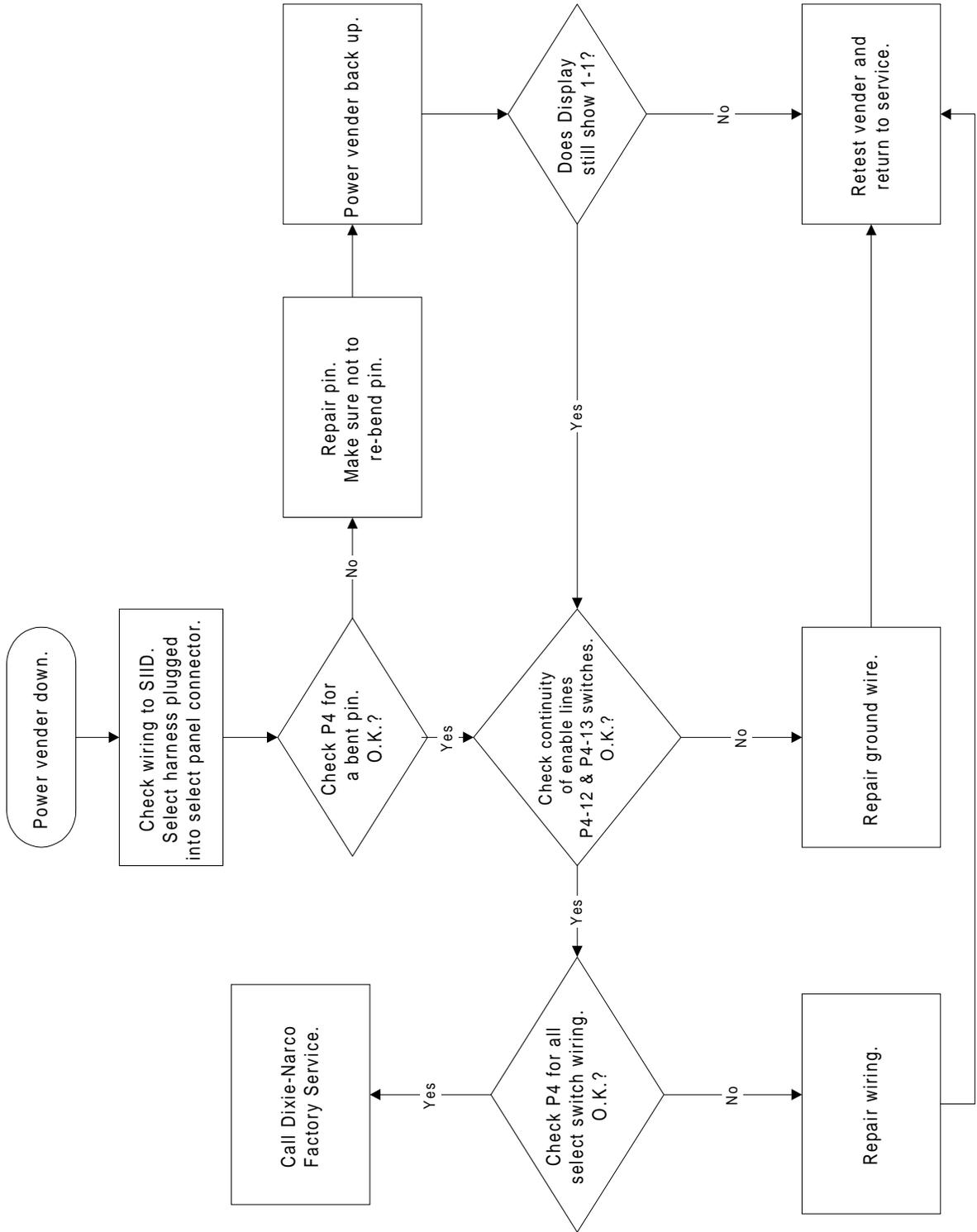
The control is factory set for an altitude of 152 M (500 ft.). For higher altitudes, adjust the inside range screws to prevent freeze-up of the product. Adjust the inside range screws as follows.

ALTITUDE		CUTLER-HAMMER 9531N272
Meters	Feet	Turn Both Screws Counter Clockwise
610	2,000	1/8 Turn
1219	4,000	1/4 Turn
1829	6,000	1/2 Turn
2438	8,000	5/8 Turn

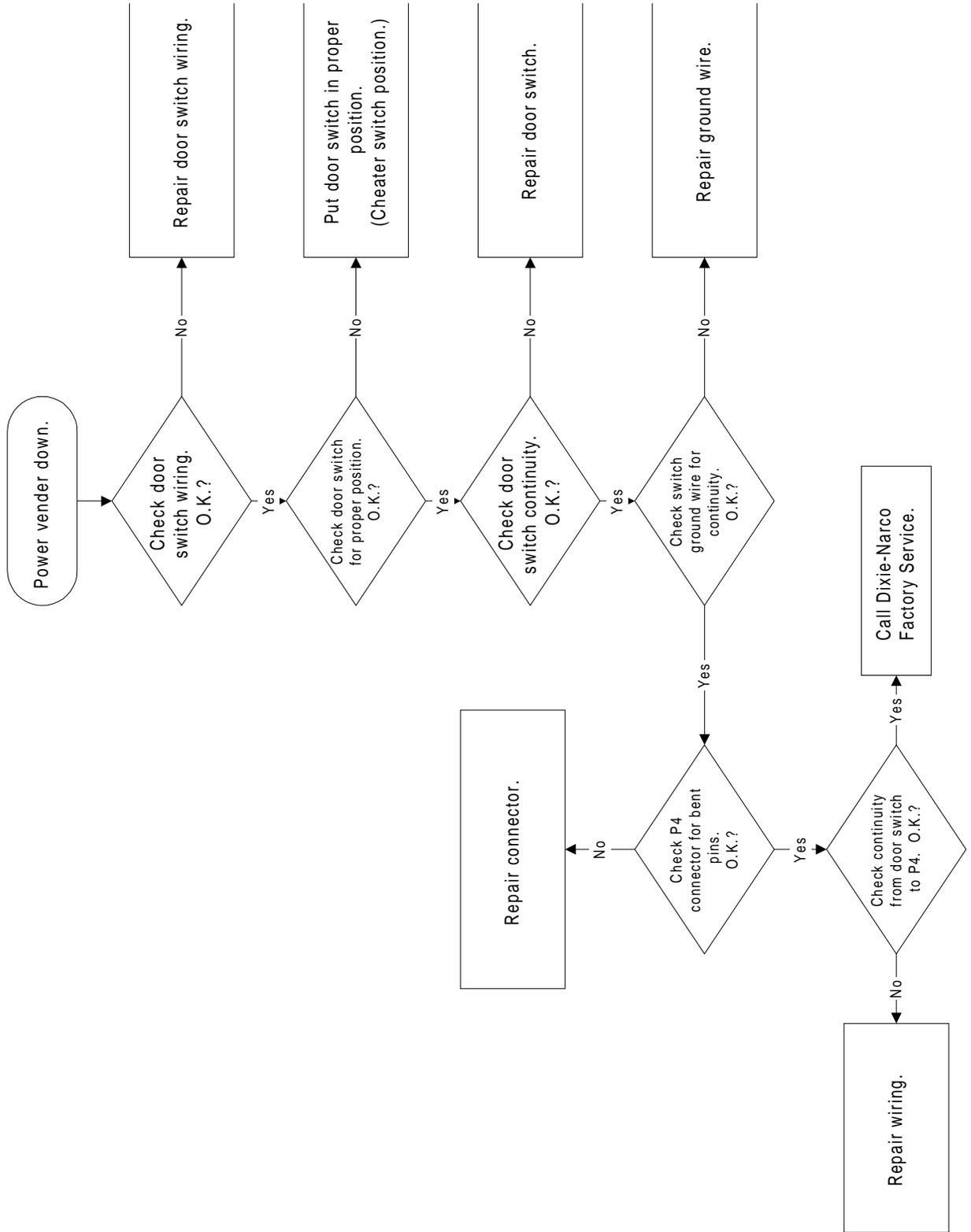


# Select Panel Troubleshooting Chart

## Problem: When vender powers up, 1-1 scrolls on the display

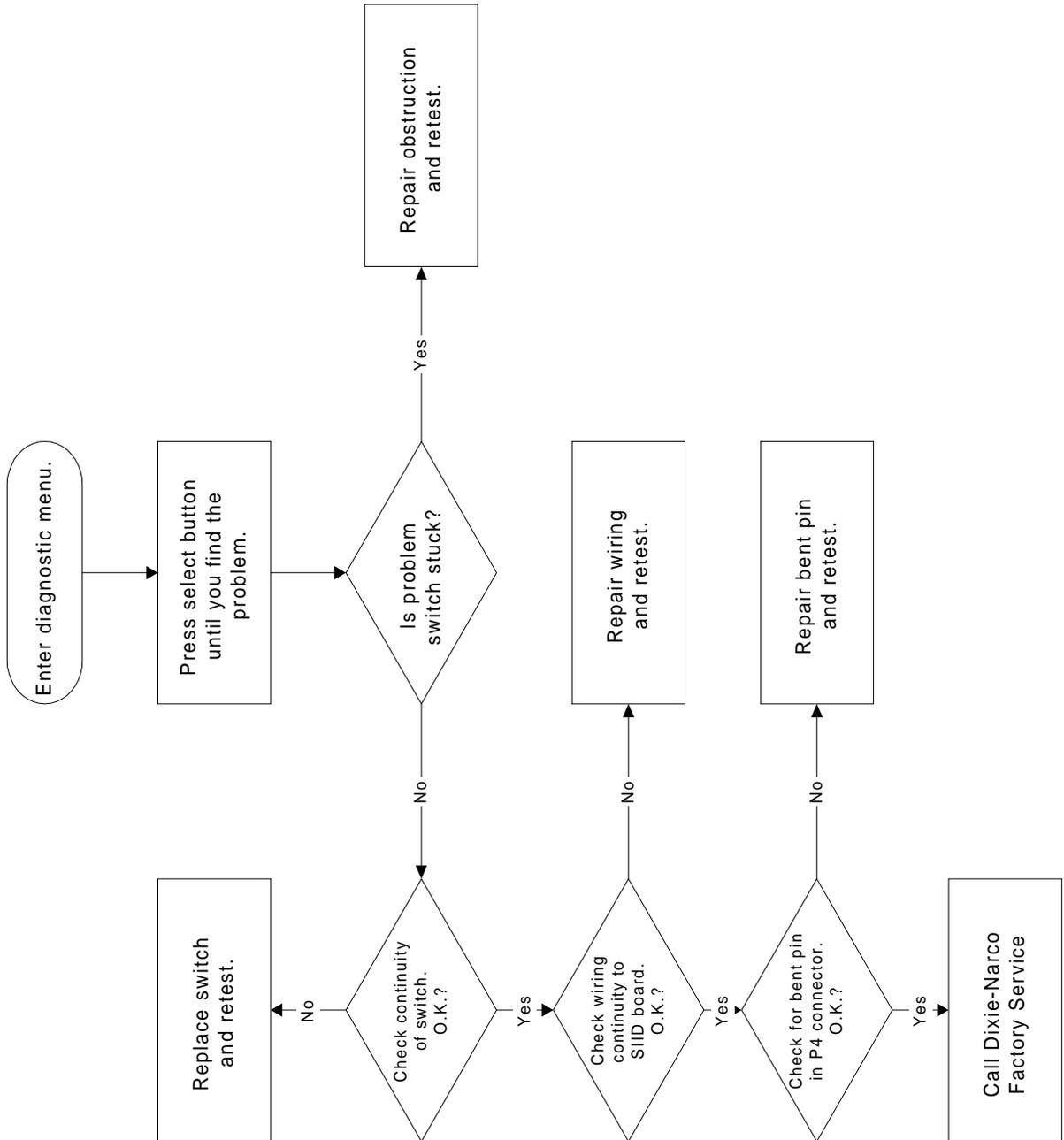


**Select Panel Problems**  
**Problem: Cannot enter menu or diagnostics menu.**



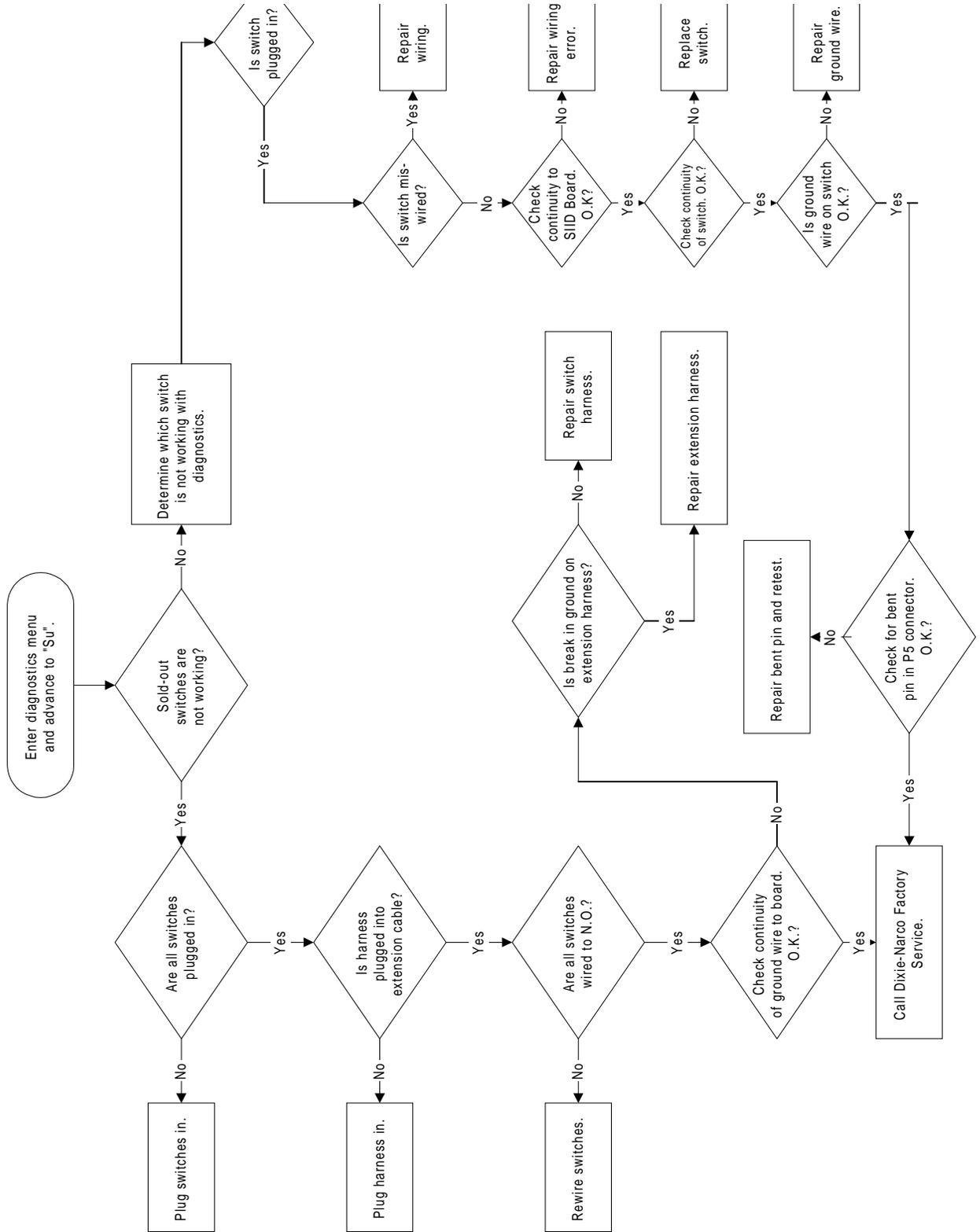
# Select Panel Problems

**Problem: 1 or more switches not functional.**

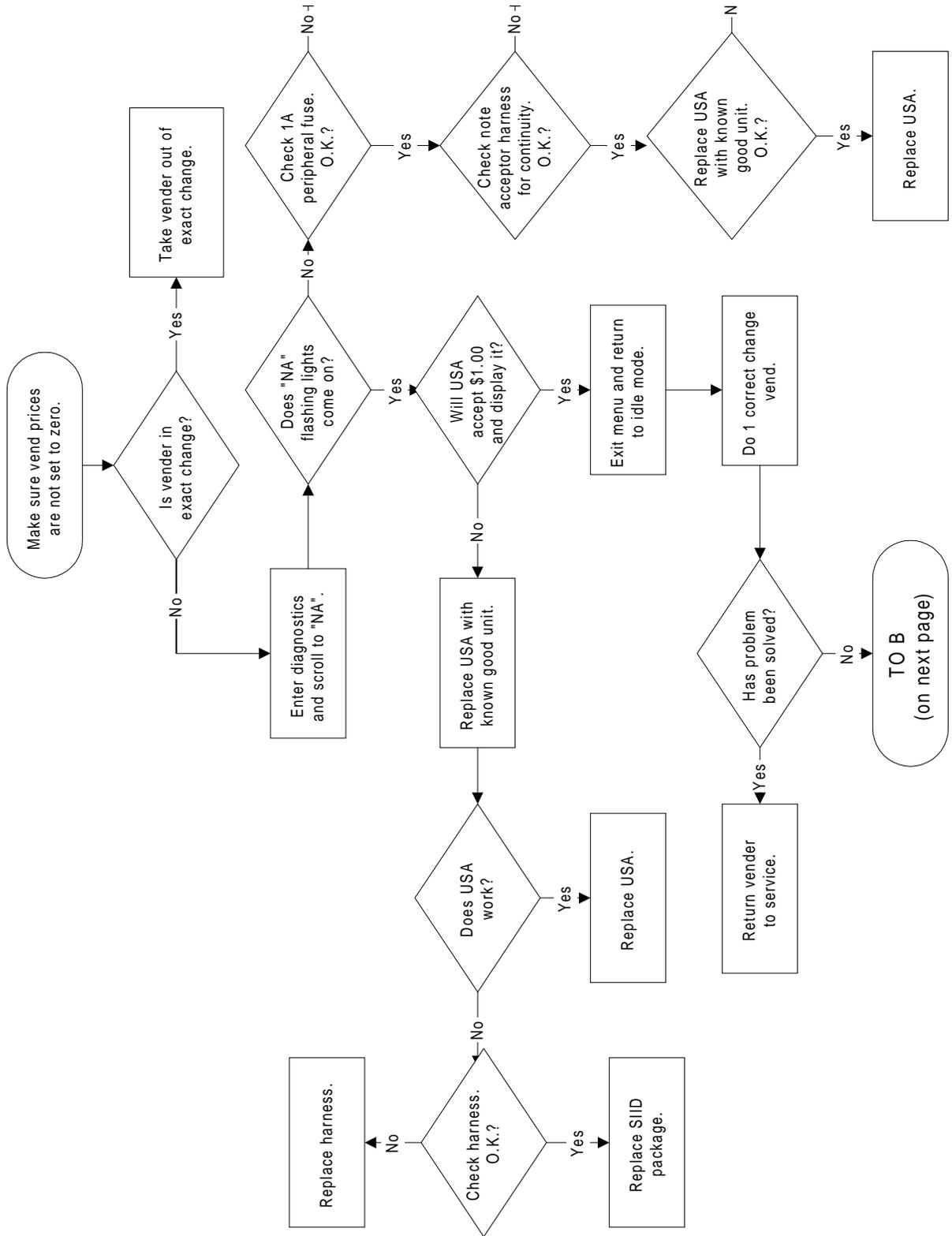


# Sold-Out Switch Problem

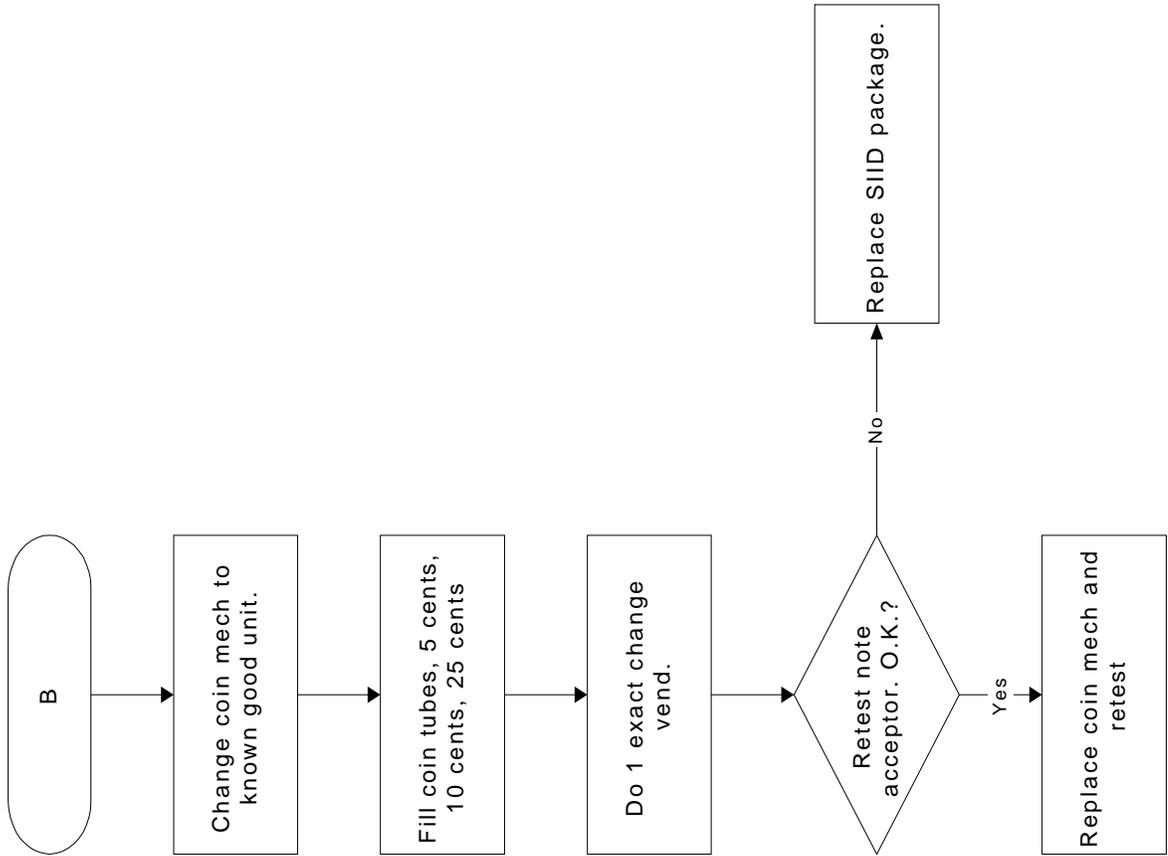
**Problem: Vender will not recognize a sold-out column.**



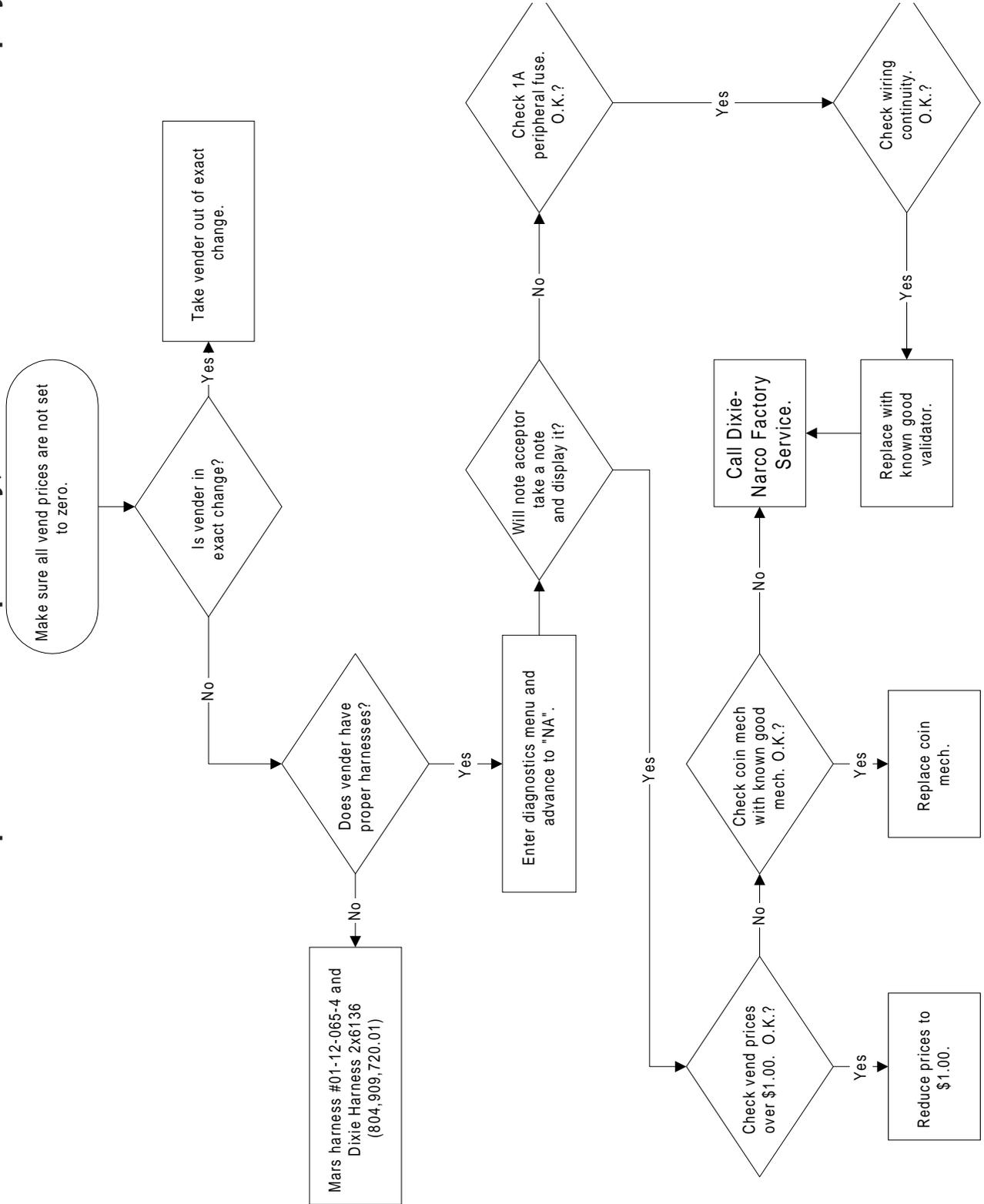
**Note Acceptor Troubleshooting USA Low Level**  
**Problem: Acceptor will not take notes or does not display them.**



**Note Acceptor Troubleshooting USA Low Level**  
**Problem: Acceptor will not take notes or does not display them.**

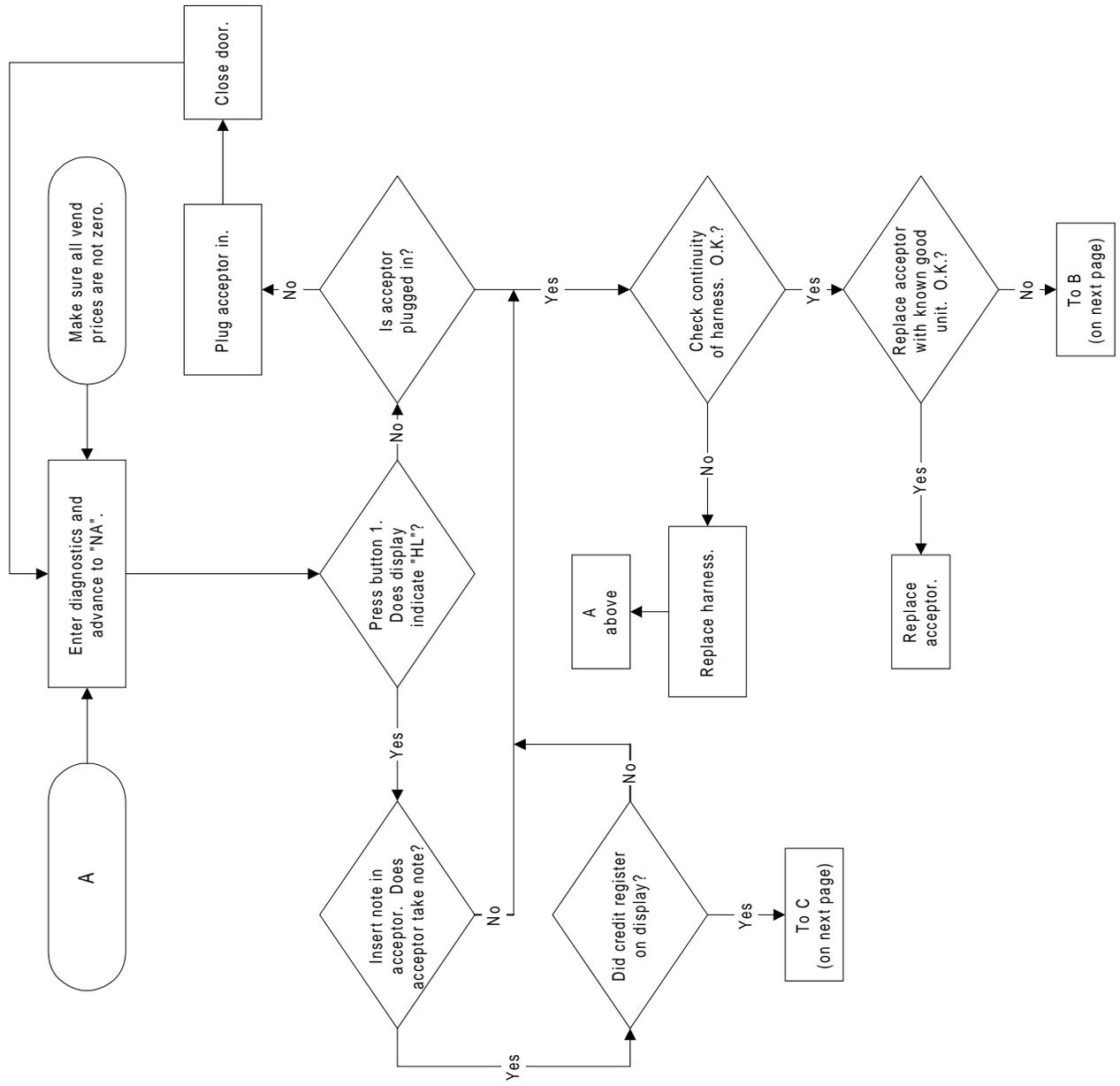


**Note Acceptor Troubleshooting Mars VFM1 or VFM3 Low Level Acceptor**  
**Problem: Note acceptor will not accept money; or takes note and does not display credit.**

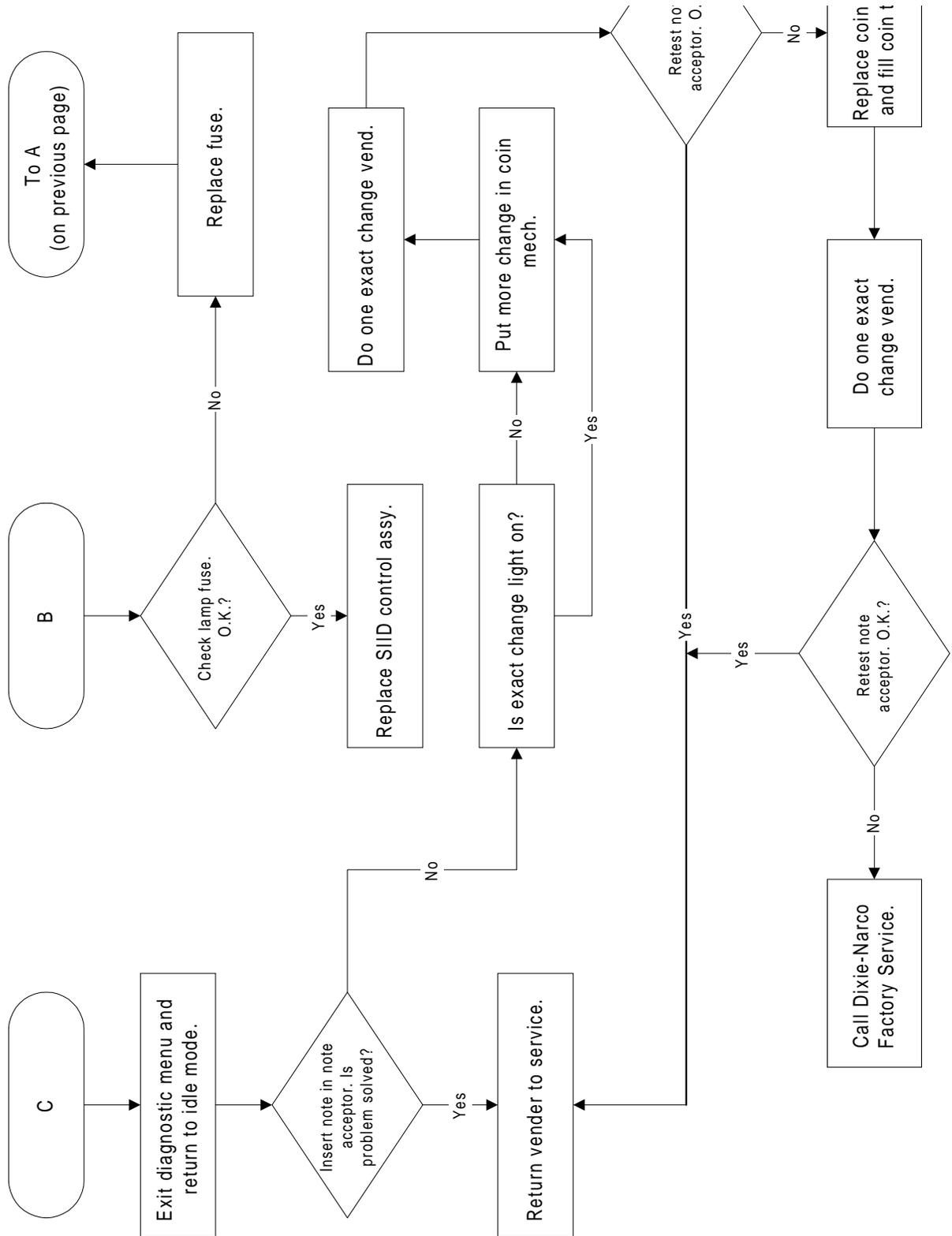


# High Level Note Acceptor Troubleshooting (All Acceptors)

**Problem: Note acceptor will not take note or display credit when it does take note.**

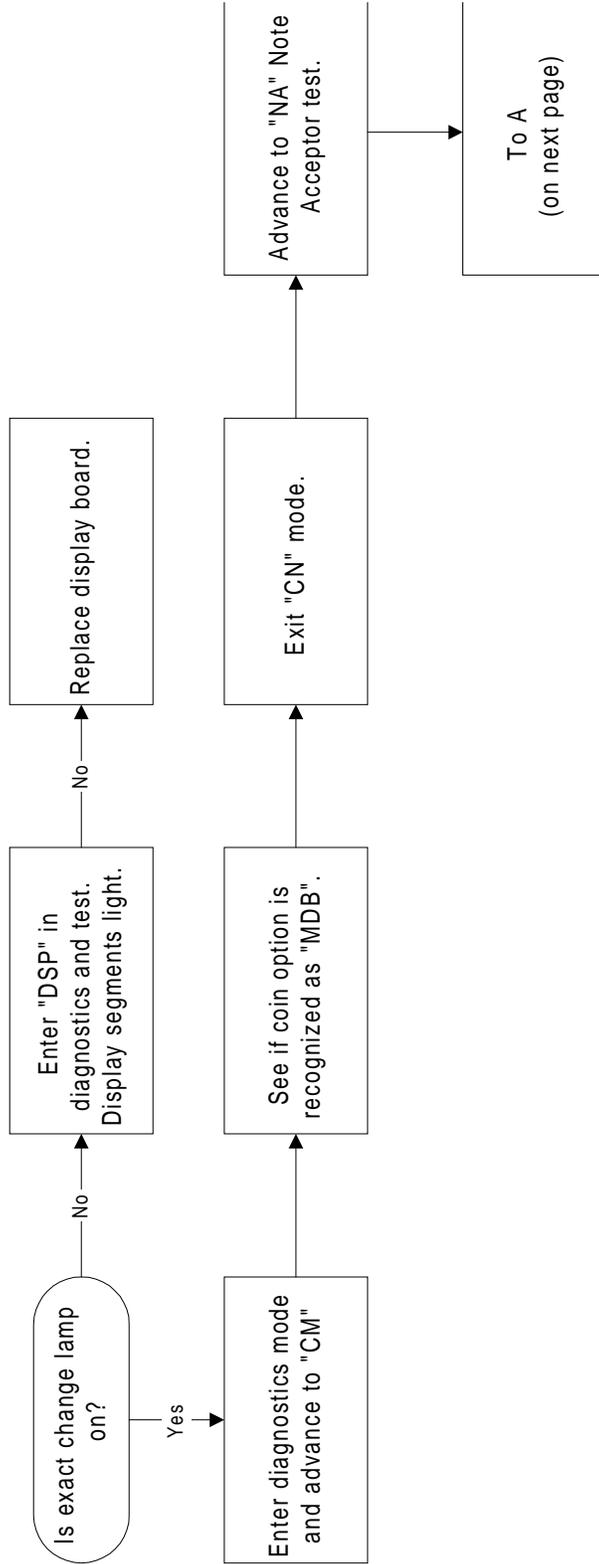


**High Level Note Acceptor Troubleshooting (All Acceptors)**  
**Problem: Note acceptor will not take note or display credit when it does take note.**



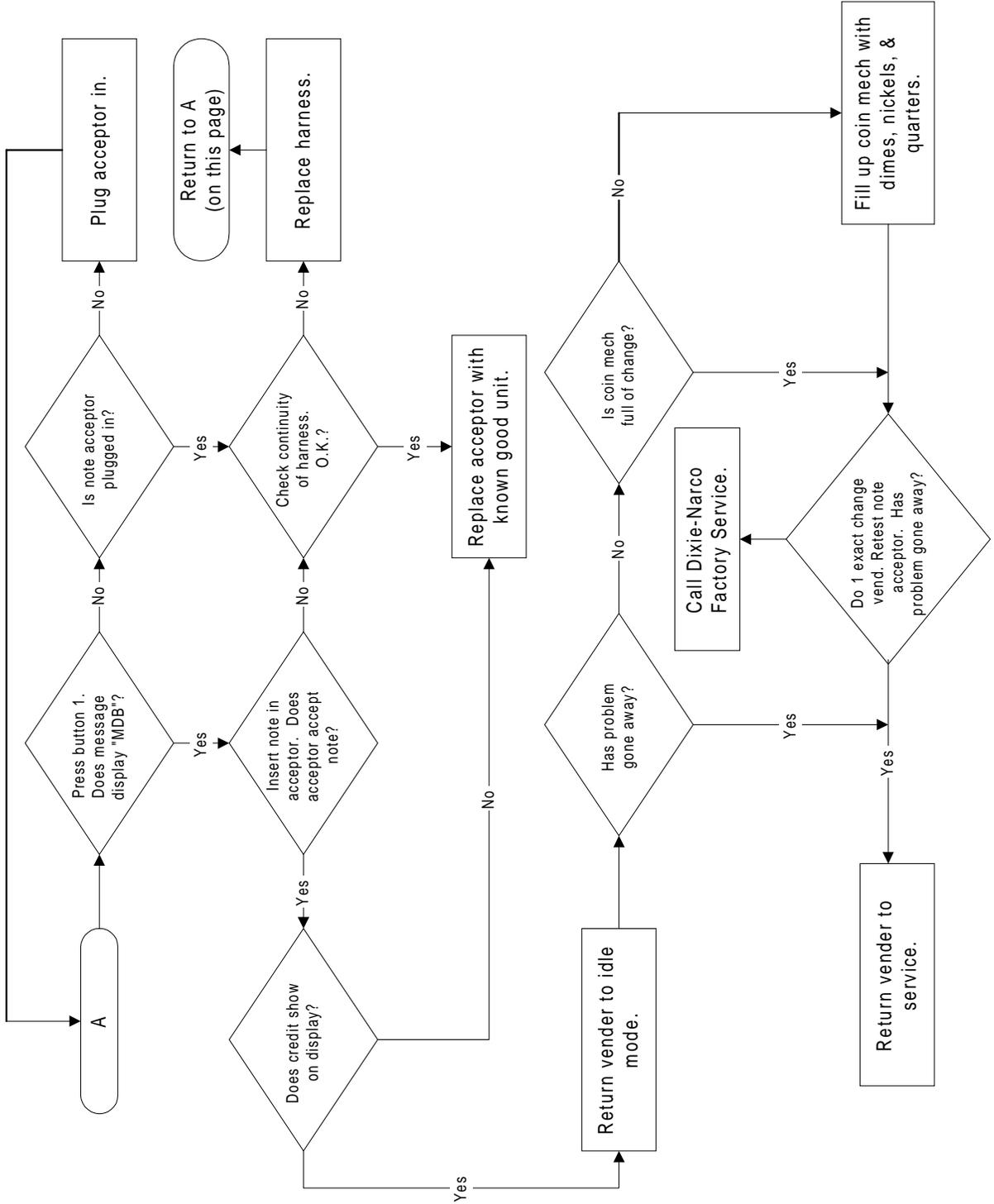
## Multidrop Coin Mech / Note Acceptor Troubleshooting

**Problem: Note acceptor will not accept coins, and the exact change light is off.**



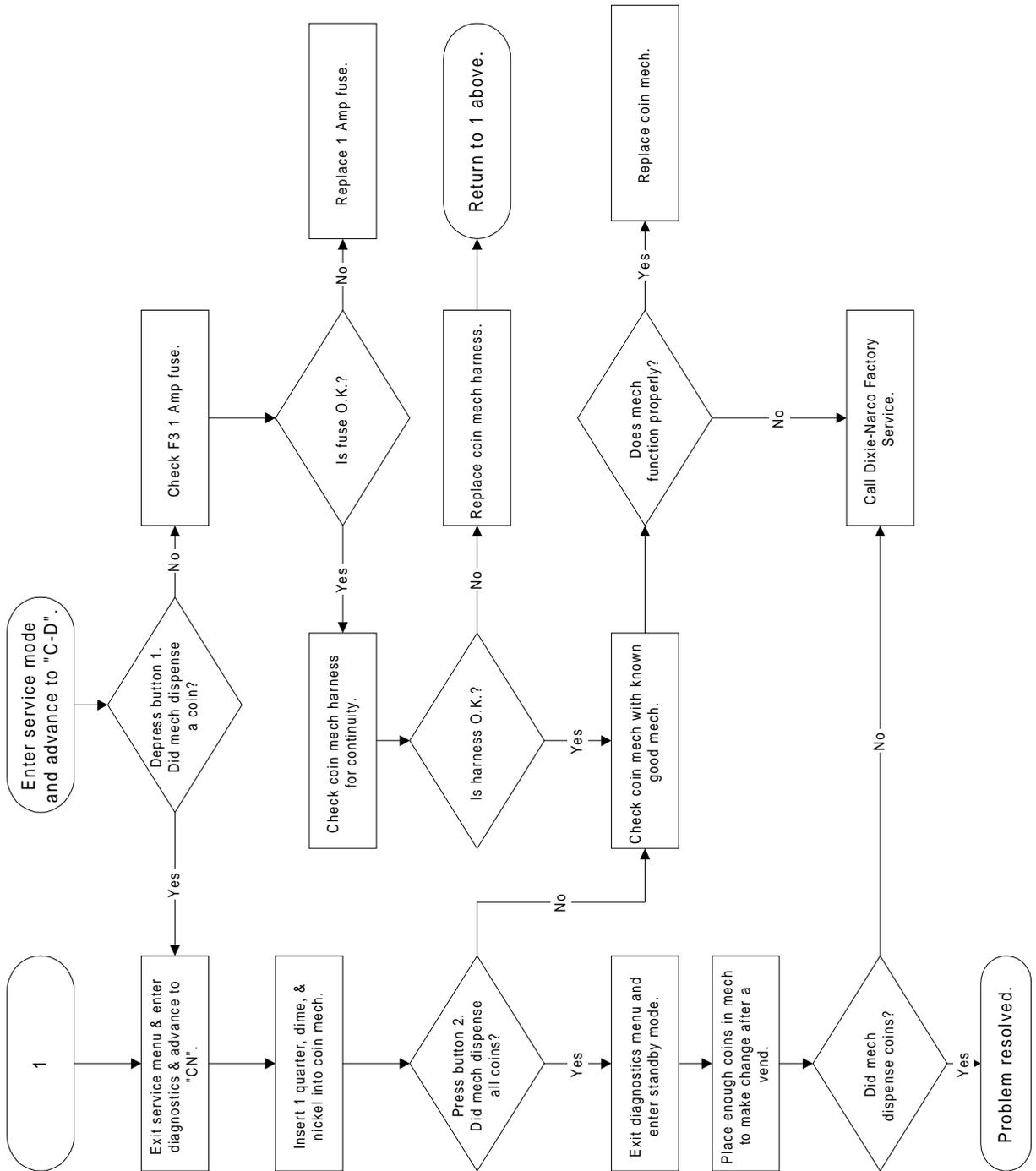
# Multidrop Coin Mech / Note Acceptor Troubleshooting

**Problem: Note acceptor will not accept coins, and the exact change light is off.**



# Coin Mech Troubleshooting MC-5000 Micro Mechs (All Coin Mechs)

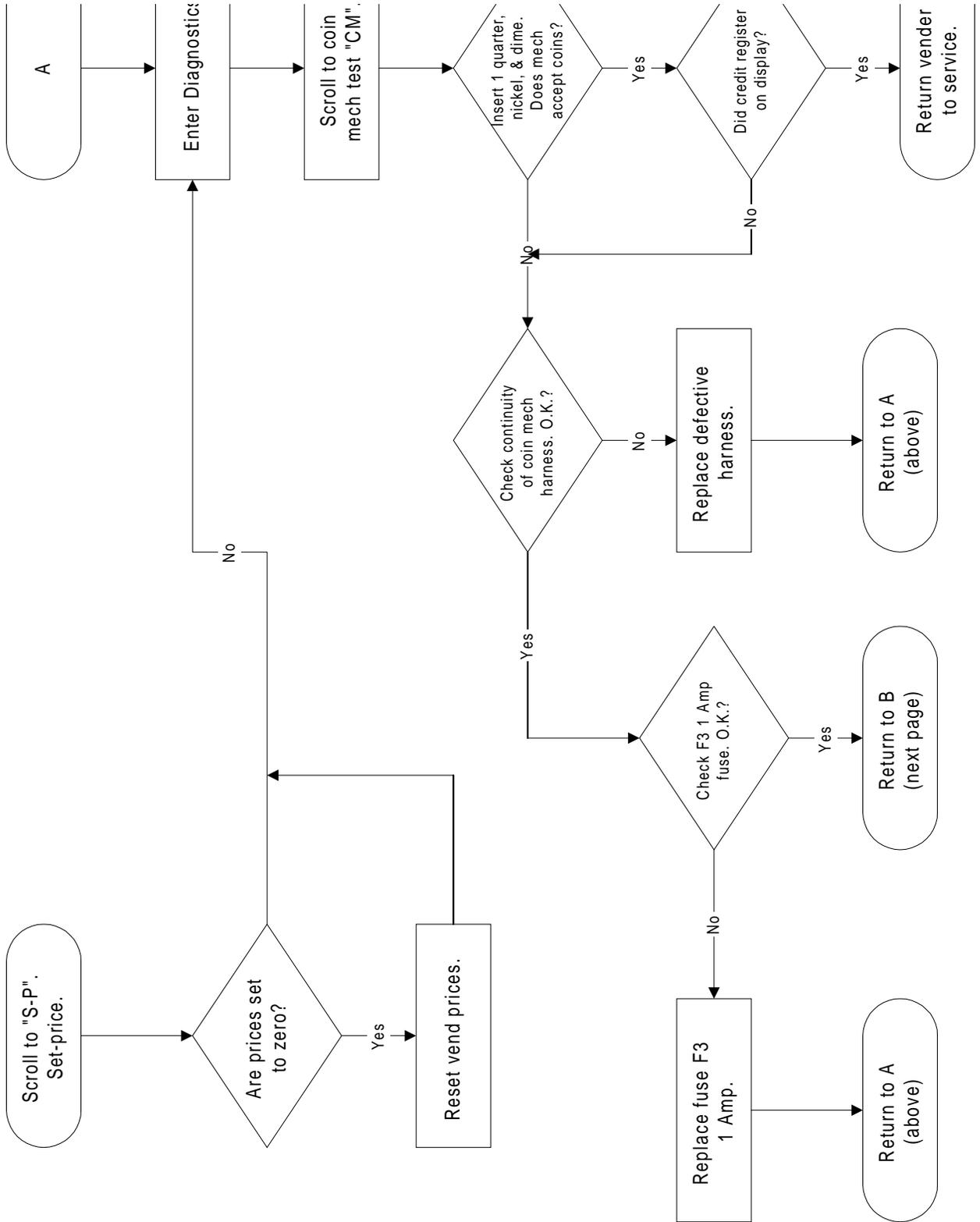
## A - Coin Mech accepted coins, but will not dispense them.



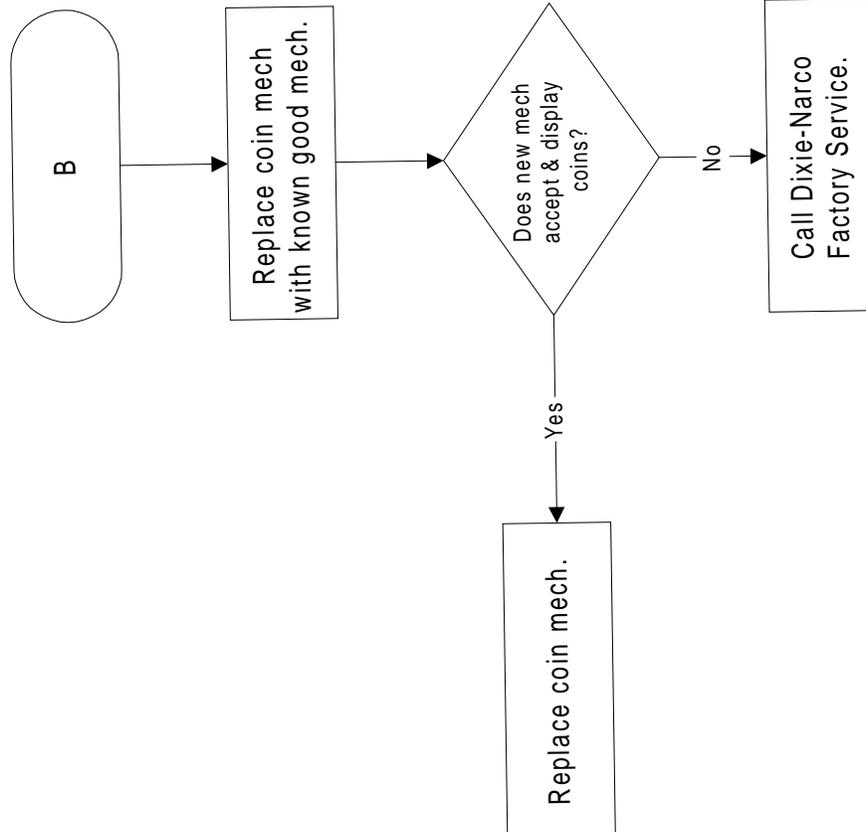


# Coin Mech Troubleshooting MC-5000 (Micro Mech) Interface Maka Only.

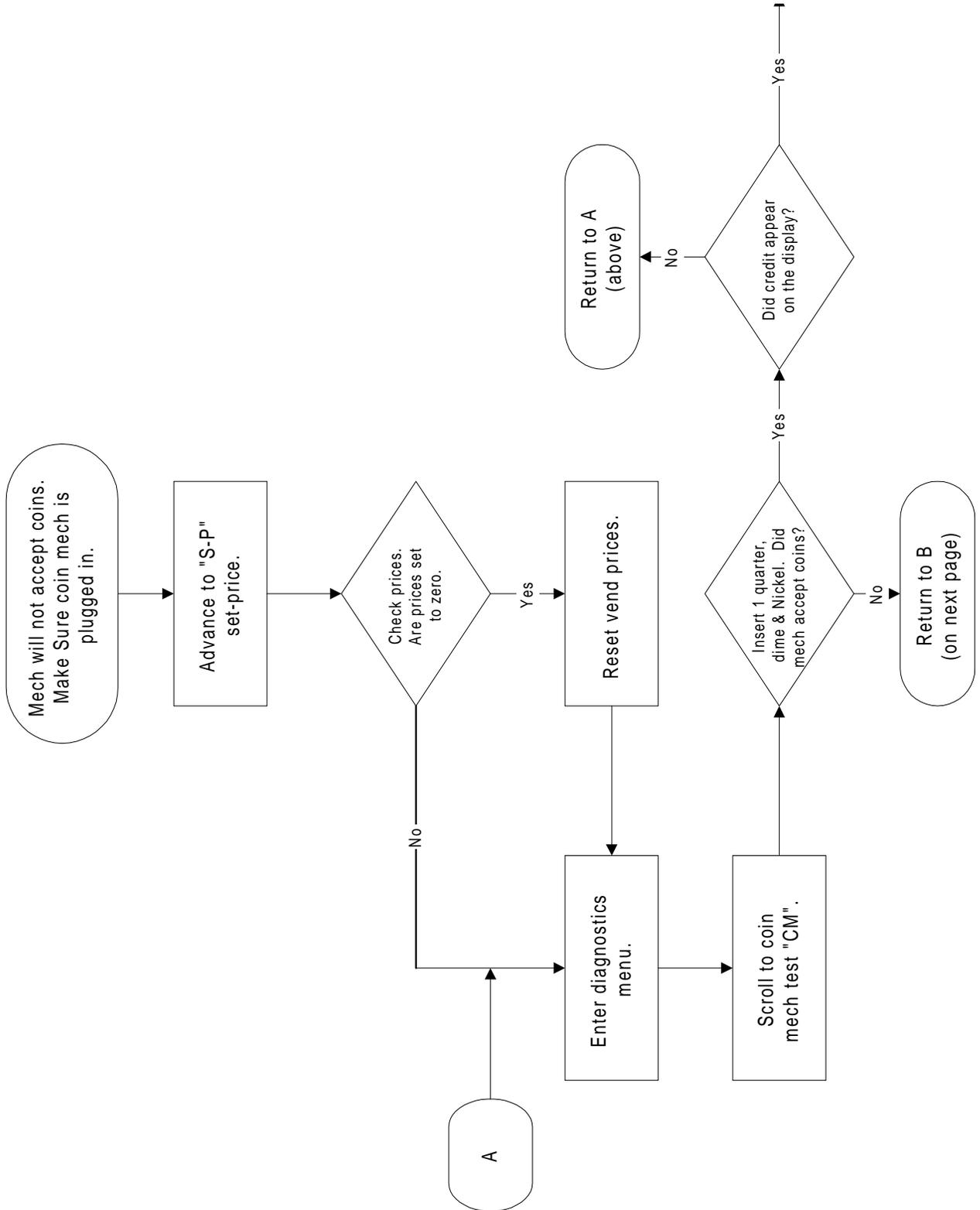
**Problem: Mech will not accept coins.**



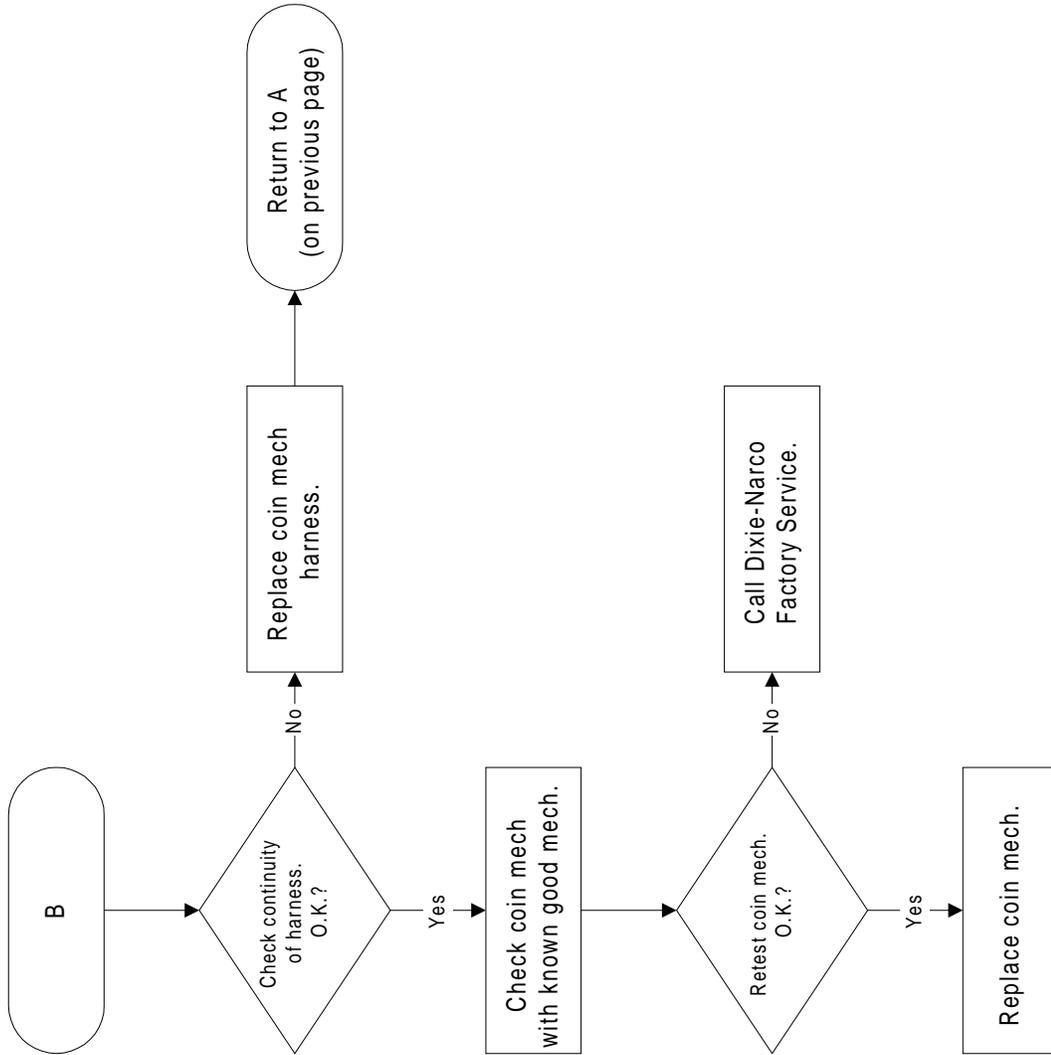
**Coin Mech Troubleshooting MC-5000 (Micro Mech) Interface Maka Only.  
Problem: Mech will not accept coins.**



**Multidrop Coin Mech Troubleshooting**  
**Problem: Mech will not accept coins.**



**Multidrop Coin Mech Troubleshooting**  
**Problem: Mech will not accept coins.**



# TROUBLESHOOTING EXAMPLES

## *SIID VENDING*

1. Problem: Free vend on one column.

Troubleshooting:

- A) Check selection price.
- B) Check for bad connections or broken, backed out, or crossed wires from vend motor to control board.
- C) Check for sticking select button.
- D) Check control board.

2. Problem: One motor continues to home with door closed, shows "JC#" when in diagnostics.

Troubleshooting:

- A) If using Mars Validator, ensure correct interface harness is used.
- B) Check for bad connections or broken, backed out, or crossed wires from vend motor to control board.  
(Note: Check wires on left side of vend motor cover.)
- C) Check vend switch.
- D) Check control board.

3. Problem: One column sold out, but still vends.

Troubleshooting:

- A) Check sold-out switch.
- B) Check for bad connections or broken, backed out, or crossed wires from sold-out switch to control board.  
(Note: Check wires on left side of vend motor cover.)

4. Problem: Vender will not sequence (Coca-Cola only).

Troubleshooting:

- A) Ensure wire #24 is in select panel harness and is in correct pin location.
- B) Check for bad connection or broken wire #24 in select panel harness.
- C) Make sure wire #24 is in correct location.
- D) Check control board.

5. Problem: Free vend on one or more columns.

Troubleshooting:

- A) Check secondary pricing program.
- B) Check for bad connections or broken, backed out, or crossed wires from vend motor to control board.
- C) Check for sticking select button.
- D) Check for bad vend motor switch.
- E) Check control board.

6. Problem: Column Jackpots.

Troubleshooting:

- A) Check problem column(s) in motor test.
- B) Check motor for:
  - 1. Syrup on brake.
  - 2. Locate/check brake spring.
  - 3. Check motor switch.
- C) Check wiring from/to motor switch of problem column.
- D) Check wiring at mate-n-lock on cabinet harness and cabinet extension harness.
- E) Check motor.
- F) Check control board.

7. Problem: Column will not vend.

Troubleshooting:

- A) Go to diagnostics and test.
- B) Check for bad connection or broken, backed out, or crossed wires.  
(Also check ballast wires).

8. Problem: Motor stops on high cam.

Troubleshooting:

- A) Change vend switch.
- B) Install current software.
  - 5 or 380.11 or greater two-button programming.
  - 3.16 or 390.11 or greater four button programming.

9. Problem: No motors work.

Troubleshooting:

- A) Check F2 motor power fuse (6 Amp).
- B) Check lamp and lamp wiring for broken, backed out, or crossed wires.
- C) Check ballast and ballast wiring for broken, backed out, or crossed wires.

10. Problem: F2 motor power fuse continuously blows.

Troubleshooting:

- A) Check if 6 amp fuse is used.
- B) Check that capacitor instead of MOV used at CR1 location.
- C) Check ohms of each motor in off state
  - unplug wires to coil of motor.
  - ohms should be 6.5, if less coil of motor has a short.
- D) Check motor harness.
- E) Check motor extension harness.
- F) Check for bad bulb in lighting system.

### ***SIID COIN / CURRENCY***

1. Problem: Will not accept coins or bills.

Troubleshooting:

- A) Check coin return lever is not pressed.
- B) Check F3 peripheral (1.0 Amp) fuse.
- C) Go to diagnostics and test.
  - 1. Will not take coins, replace coin mech.
  - 2. Still will not take coins, check connections and mech harness.
- D) Check for bad connections or broken, backed out, or crossed wires from validator/changer to control board.
- E) With Mars 6510 Mdb mechs, serialized prior to 176xxxxxxx that do not have a red dot on the coin mech, check the coin mech.
- F) Check control board.

2. Problem: Validator sometimes sets up credit and then steals bill.

Troubleshooting:

- A) Check for proper interface harness.
- B) Check for bad connections or broken, backed out, or crossed wires from vend/sold-out harness.
- C) Check validator.
- D) Check control board.

3. Problem: Accepts coins and displays, but will not vend.

Troubleshooting:

- A) Check coin mech.
- B) Check for bad connections or broken, backed out, or crossed wires from validator/changer to control board.
- C) Check voltage supply (110-115AC) at outlet.
- D) Check control board.

4. Problem: Incorrect change paid back, use correct change lamp stays on.

Troubleshooting:

A) Check control board.

5. Problem: Cannot dump coins when in "Cd" mode.

Troubleshooting:

A) Check for bad connections or broken, backed out, or crossed wires from changer to control board.

B) Check select switches and wiring.

C) Check coin mech.

D) Ensure you are not using Mars International Executive or NRI Simplex changers.

E) Check voltage supply (110-115AC) at outlet.

F) Check control board.

6. Problem: BA30 stealing bills.

Troubleshooting:

A) Check door switch.

B) Check validator.

C) Check interface harness.

7. Problem: Want to install a debit card system.

Troubleshooting:

A) Need to contact card system supplier for details.

8. Problem: \$1 and \$5 Bill Acceptance (Black label box 2 button programming)

Troubleshooting:

A) Works with

1. BA-30

2. VFM-3 Low Level

3. DBA -2 or 3

9. Problem: \$1 and \$5 Bill Acceptance (Red label box 4 button programming)

Troubleshooting:

A) Works with

1. BA-30 Mdb

2. Mars VN 2500 Series Mdb

10. Problem: Install bill, unplug vender, plug in vender, gives \$1 credit and bill back.

Troubleshooting:

A) Set Escrow to "Pr" or "ES-4"

B) Install current software.

-5 or 380.11 or greater two-button programming.

-3.16 or 390.11 or greater four-button programming.

11. Problem: Install Debitek card, unplug vender, plug in vender, jackpots changer.

Troubleshooting:

A) Install current software.

-5 or 380.11 or greater two-button programming.

-3.16 or 390.11 or greater four-button programming.

12. Problem: After a few vends, the Mars 6510 Mdb disables itself (i.e. stops taking coins).

Troubleshooting:

A) Install current software (Eprom)

- 804,911,380.41 or greater two-button programming.

- 804,911,390.21 or greater four-button programming.

13. Problem: Insert \$1.00 bill and \$2.00 or more appears on the display.  
 Troubleshooting:  
 A) Go to "nF" (note factor) in menu and set to 100 (two-button programming only).  
 B) Install a known good validator.
14. Problem: New 4-tube changer will not pay out dollar coin.  
 Troubleshooting:  
 A) Install current software.  
 - 380.51 or greater two-button programming.  
 - 390.11 or greater four-button programming.
15. Problem: Software does not work with free vend note token in BA30.  
 Troubleshooting:  
 A) Install current software.  
 - 380.51A or greater two-button programming.  
 - 390.31 or greater four-button programming.
16. Problem: Coinco 9302GX changer dispenses all nickels first, then correct change lights come on (sample price this occurs .60¢).  
 Troubleshooting:  
 A) Load the nickels in coin fill (CD) mode. Note: This is a Coinco 9302GX problem.
17. Problem: Display increments in value with the door closed or when you push on the door.  
 Troubleshooting:  
 A) If using an SIID A6 Control Board.  
 - Locate the tab below the P8 plug on the board. Put a piece of electrical tape on the board to prevent this tab from making contact with the trace on the board above the tab.
18. Problem: Coinco BA30 programmed for coupon acceptance, accepts bills, stacks, and doesn't give any credit.  
 Troubleshooting:  
 A) Contact Coinco for correction.
19. Problem: Danyl Card Reader - Customer puts card in and changer pays out entire value of card. Card retains its entire value.  
 Troubleshooting:  
 A) Contact Danyl (Schlumberger) for correction.

### **SIID SOLD-OUT MESSAGE**

1. Problem: Sold-out message stays on.  
 Troubleshooting:  
 A) Check limited access program.  
 B) Check for crossed wires in cabinet harness and cabinet extension harness or loose wire harness connection.  
 C) Check for motors rubbing motor cover (on early SIID venders).
2. Problem: Sold-out message comes on with product in column.  
 Troubleshooting:  
 A) Check programming and ensure limited access is not on.  
 B) Check for bad connections or broken, backed out, or crossed wires from select switch to control board. (Note: Check wires on left side of motor cover.)  
 C) Check for motor rubbing motor cover (on early SIID venders).
3. Problem: Sold-out switches work the incorrect column.  
 Troubleshooting:  
 A) Ensure correct cabinet harness and select harness are being used.  
 B) Check for crossed wires in cabinet harness or cabinet extension harness.

## **SIID SELECT PANEL / DISPLAY**

1. Problem: Plug in vender and displays a blank or "rrrr" appears on the display; vender will not function.

Troubleshooting:

- A) Press a select button to change message on display; this should clear "RRRR"s.
- B) Remove power to vender for one minute, then power vender back up.
- C) Check main power plug for loose connection.
- D) Check for bad connections or broken wires from display to control board.
- E) Check display board.
- F) Check control board.

2. Problem: Display will not function.

Troubleshooting:

- A) Check for bad connections or broken wires from display to control board.
- B) Check F1 motor power fuse (1.6 Amp).
- C) Check display board.
- D) Check transformer.
- E) Check control board.

3. Problem: Display shows \$1 and then increases in dollar increments.

Troubleshooting:

- A) Check coin mech.
- B) Check validator.
- C) Check control board.

4. Problem: Cannot set price on a given selection.

Troubleshooting:

- A) Check for bad connections or broken wires from select switch to control board.
- B) Check select switches.
- C) Check control board.

5. Problem: Vender changes a set vend price to .10¢ on selections on its own. (domestic only - .10¢ could be any given price).

Troubleshooting:

- A) Check secondary pricing program.
- B) Check for bad connections or broken wires from select switch to control board.
- C) Check control board. (Possible cold solder joints.)

6. Problem: Control board loses its memory when power is shut off to vender.

Troubleshooting:

- A) Check battery (see problem 16 on next page).
- B) Check control board.

7. Problem: Space to sales does not work properly when adding and deleting columns.

Troubleshooting:

- A) Check for bad connections or broken wires from select switch to control board.
- B) Check control board.

8. Problem: F2 motor power fuse (6 Amp) blows when a given motor runs.

Troubleshooting:

- A) Check motor for short.
- B) Check motor switch and motor wires for short.
- C) Check motor.
- D) Check the ballast, lamps, and lamp harnessing for broken, backed out, or crossed wires.

9. Problem: Board power fuse blows when supplying power.

Troubleshooting:

- A) Check changer and interface harness.
- B) Check validator and interface harness.

10. Problem: Flashing decimal point.

Troubleshooting:

- A) Go to diagnostics.
  - All columns shown to be jammed.
  - Check 6 Amp motor fuse (F2).
  - Select problem.
  - Enable problem (check board).
  - Pb problem (check board).

11. Problem: Plug in vender and "1-1-1-1" scrolls across display.

Troubleshooting:

- A) Remove power to vender for one minute, then power vender back up.
- B) Check for bad connections or broken, backed out, or crossed wires in select panel harness.
- C) Check top of door weld assembly for seal.
- D) Check control board.

12. Problem: Display shows "LOC".

Troubleshooting:

- A) Can only be accessed via DEX or hand-held.
- B) Check control board.

13. Problem: Will not show vend price on display.

Troubleshooting:

- A) All vend prices on primary price have to be the same price, and all prices on secondary price have to be the same price.
  - To quick-set all prices, set vend price on #1 to price you require, then press select buttons 3 and 4 and hold for 10 to 15 seconds. All prices will change to the price programmed at #1 selection. Close the door and the display will now show the vend price.

14. Problem: When programming, the display takes 30 to 45 seconds to go from one program to another.

Troubleshooting:

- A) Unplug the coin mech and then program the SIID control box.

15. Problem: Display goes blank when you press a given select button.

Troubleshooting:

- A) Check for bad vend motor on selection pressed. (Wire broken at coil or possible spade pulled out)

16. Problem: Set price, unplug vender, plug in vender and price changes to 99.95.

Troubleshooting:

- A) Check battery. Follow steps to check.
  1. Unplug vender.
  2. On Ardac boards, locate component LH5168D-10L at U6 on board.  
On DeAmertek boards, locate component LH5168D-10L at U2 on board.
  3. Set volt meter to test DC voltage.
  4. Put one test lead on pin 14.
  5. Put other test lead on pin 28.
  6. Volt meter should read minimum 2 VDC.
  7. If bad battery (under 2 VDC), replace the board.

17. Problem: When programming prices, display will only increment in \$1.00 amounts.

Troubleshooting:

- A) Go to "bill" (set bills only) in menu and set to "bills no" (two-button programming only).
- B) Down-power the vender and plug in the coin mech.
- C) Install a known good coin mech.
- D) Check the control board.

18. Problem: All segments stay illuminated on display.

Troubleshooting:

- A) Toggle to proper setting (14 segment versus 7 segment).
- B) Connector harness loose at display board.
- C) Check for bad connection or broken, backed out, or crossed wires in display harness.

19. Problem: Plug in vender and "1-1-1-1" scrolls across the display. Press the service switch and "EN#" is displayed.

Troubleshooting:

- A) Check control board.

# REFRIGERATION PARTS AND FUNCTIONS

## MECHANICAL PARTS

### COMPRESSOR MOTOR

The compressor motor (sealed in the compressor housing) drives the compressor with a shaft that is shared by both parts. It is started by the temperature control switch and the starting relay. It is stopped by the temperature control switch, and if it gets overloaded, by the thermal overload switch.

### COMPRESSOR

The compressor (sealed in the compressor housing) draws cold, low pressure refrigerant from the evaporator and pumps hot, high pressure refrigerant gas out to the condenser.

### CONDENSER

The condenser, located at the front of the base of the vender, takes heat out of the hot, high pressure gas that comes from the compressor. The gas loses heat as it goes through the condenser coils, and changes into a liquid because it is still under pressure.

### CONDENSER FAN

The condenser fan, located between the condenser and the compressor motor, first draws air from the outside of the vender through the condenser. This air takes heat from the condenser first and then is blown over the compressor housing from which it also takes heat before going back outside of the vender. The condenser fan runs when the compressor motor runs.

### FILTER/DRYER

The filter/dryer is in the liquid line between the condenser and the capillary tube. This dryer filters out any foreign particulate matter and also contains a desiccant to absorb any moisture that may be present in the system.

### CAPILLARY TUBE

The capillary tube (between the condenser and the evaporator in the refrigerant line) has a very small inside diameter, and serves to control the refrigerant flow from the condenser into the evaporator.

### EVAPORATOR

The evaporator (in the vender cabinet) takes heat from the air in the vender cabinet and gives this heat to the liquid refrigerant. The liquid refrigerant is evaporated (boiled off) as a gas, and the gas is drawn out by the compressor.

### EVAPORATOR FAN

The evaporator fan draws warm air from around the cans or bottles in the cooling compartment and blows it across the evaporator. As the air goes across the evaporator, it gives up heat to the evaporator, then goes back to the cans or bottles and takes heat from them. This fan runs continuously while the vender is plugged in.

### CONDENSATE PAN

The condensate pan, located in the compressor compartment, collects the water which runs from the evaporator. The water is evaporated into the surrounding air by soakers. The soakers extend down into the pan to absorb the water. Exposure to the surrounding air evaporates the water in the soakers.

## ELECTRICAL PARTS

### TEMPERATURE CONTROL

The temperature control is the part that is made up of a control bulb connected by a small metal tube to a bellows. The control bulb is in a slot in the evaporator fan housing. The bellows and a switch known as the temperature control switch are in the temperature control box, which is fastened to the right side inside the vender.

The control bulb and the bellows have a vapor in them. When the temperature of the vapor in the bulb rises, it builds up pressure in the bellows tube. This pushes the bellows out. When the control bulb is cool, the vapor shrinks back and the bellows pulls in. These movements of the bellows work the switch, called the temperature control switch, closing it when the bulb is heated and opening it when the bulb is cooled.

The contacts of the temperature control switch are in the compressor motor's running and starting circuits. They are also in the condenser fan motor circuit.

When the cabinet temperature gets up to the cut-in setting, the temperature control switch closes in the compressor motor's starting and running circuits and in the condenser fan circuit. When the cabinet temperature gets down to the cut-out setting, the temperature control switch opens in these circuits.

---

*TO ADJUST THE TEMPERATURE CONTROL SEE PAGE 35.*

---

### THERMAL OVERLOAD ASSEMBLY

The thermal overload is a temperature activated switch that interrupts power to the compressor when excessive temperatures occur. This switch protects the compressor from the damage that will occur if the compressor continues to operate under adverse conditions. The overload also opens under abnormally high amp draws, protecting the motor windings from damage. Frequent overload trips may lead to warm product and this be the first indication of a dirty condenser or other refrigeration related problems that require attention.

### STARTING RELAY

The starting relay is a device that connects the start winding of the compressor during start up. The additional winding (start) helps the compressor motor come up to speed. Once it reaches speed the starting relay disconnects the start winding from the circuit.

## ELECTRICAL OPERATION

When the vender's temperature gets up to the cut-in setting:

1. The temperature control switch closes the run winding circuit of the compressor motor.
2. The temperature control switch closes the relay coil circuit.
3. The temperature control switch closes the condenser fan motor circuit.

The heavy current, drawn by the run winding, also flows in the start relay coil, and:

1. The start relay coil closes the start relay contacts and completes the start winding circuit of the compressor motor.

When the compressor motor gets up to speed:

1. The spring in the relay pushes the start relay contacts apart because....
2. The start relay coil no longer gets enough current to hold the contacts closed.
3. The start relay contacts open in the start winding circuit of the compressor motor.

If the compressor motor draws too much current and causes the thermal overload assembly to get too warm:

1. The thermal overload switch opens the run winding circuit and disconnects the compressor motor.

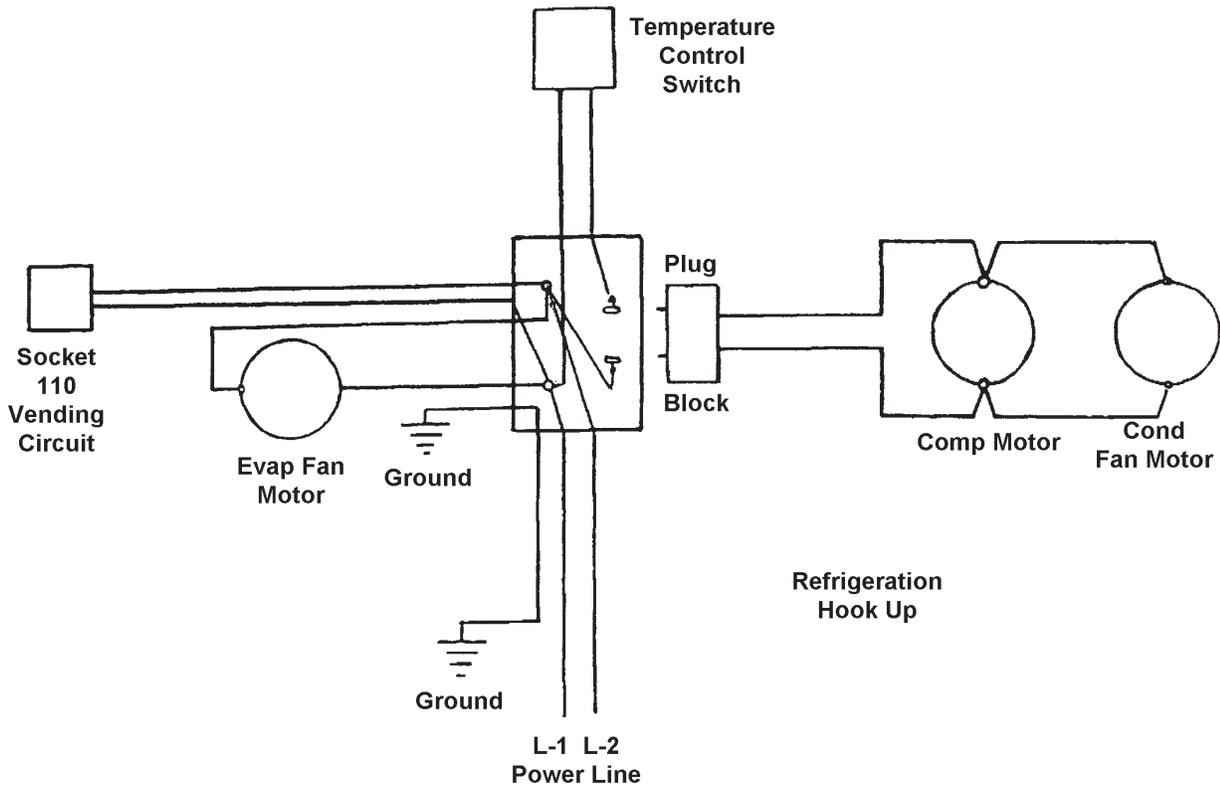
When the vender temperature gets down to the cut-out setting:

1. The temperature control switch opens in the run winding circuit of the compressor motor.
2. The temperature control switch opens in the starting relay coil circuit.

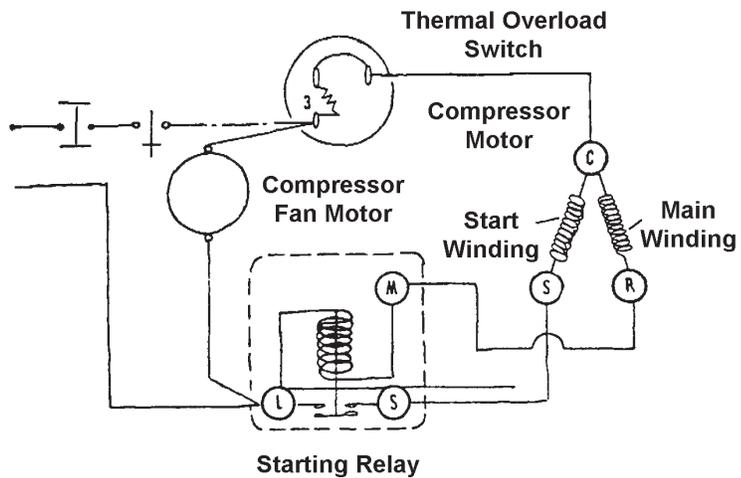
## COMPRESSOR MOTOR RUN WINDING CIRCUIT

SW ITCHE S IN THE W R N G	W HAT THE SW ITCHE S D O	W HAT MAKES THE SW ITCHE S W O R K
1. Tem perature control sw itch.	1. Turns the com pressor and condenser fan m otor on and off.	1. The tem perature in the vender has com e up to the cut-in point (or gotten down to the cut-out point) set on the tem perature control sw itch.
2. Start Relay	2. Turns the start windings on and off.	2. The presence or absense of heavy current sw itches the relay which energizes or de- energizes the start windings.
3. Therm al Overbad Sw itch	3. Protects the windings of the com pressor.	3. C urrent drawn by the m otor of heat from the com pressor can raise the tem perature of the therm al overload sw itch cut-out, which rem oves power from the com pressor.

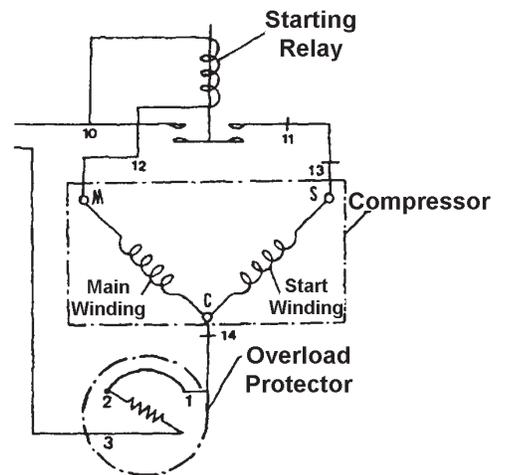
# REFRIGERATION CIRCUIT DIAGRAMS



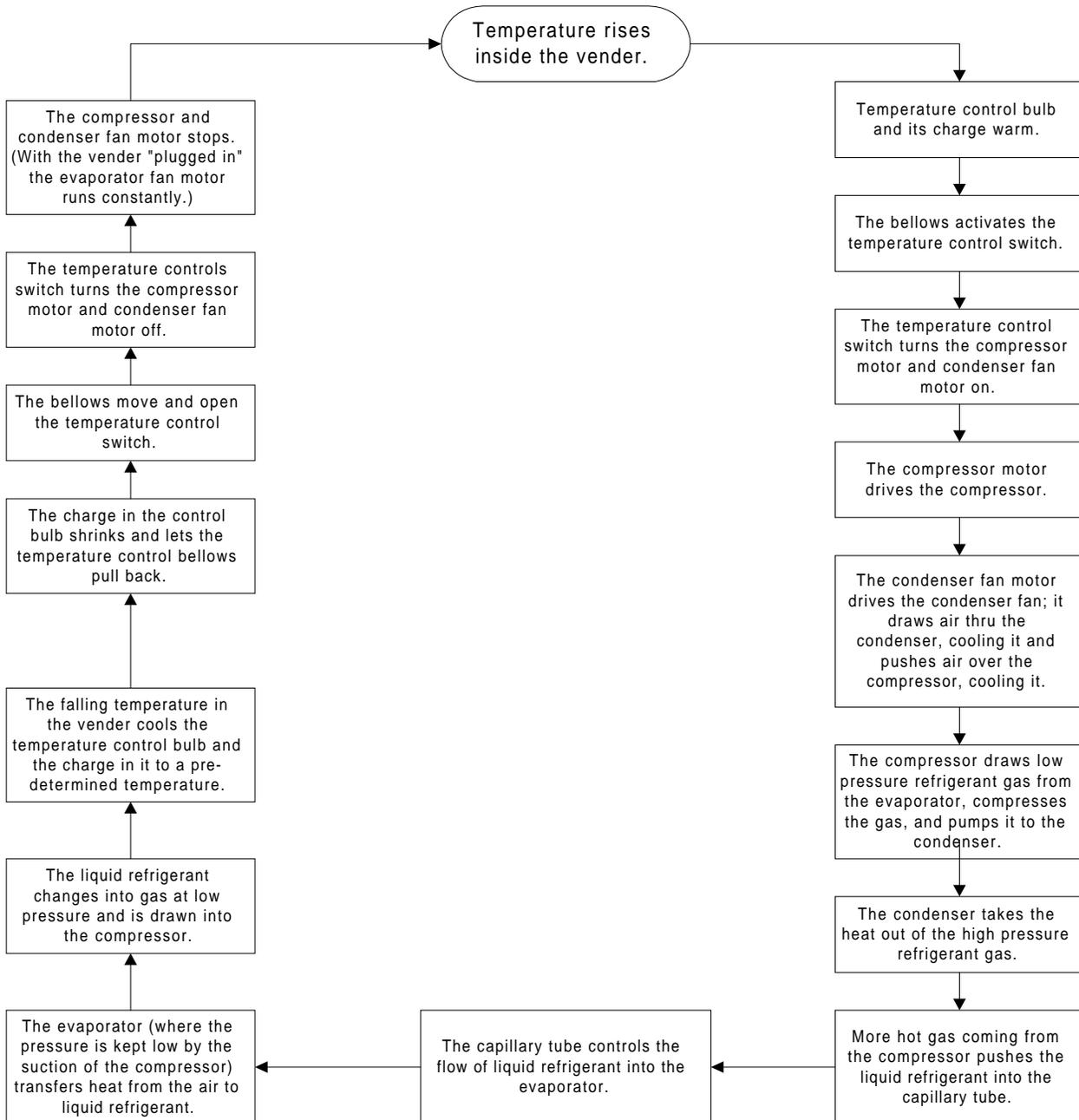
## Tecumseh



## Embraco



# REFRIGERATION CYCLE



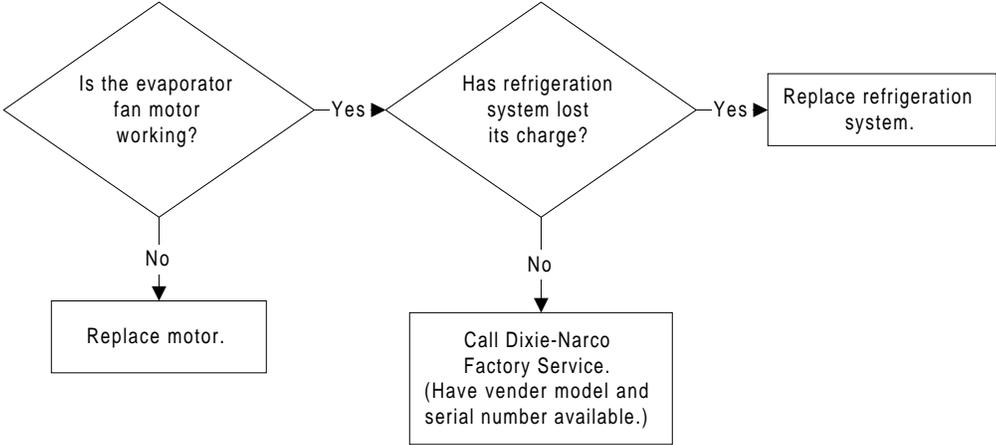
**SYMPTOM: PRODUCT HOT  
POSSIBLE CAUSE: COMPRESSOR WILL NOT RUN**



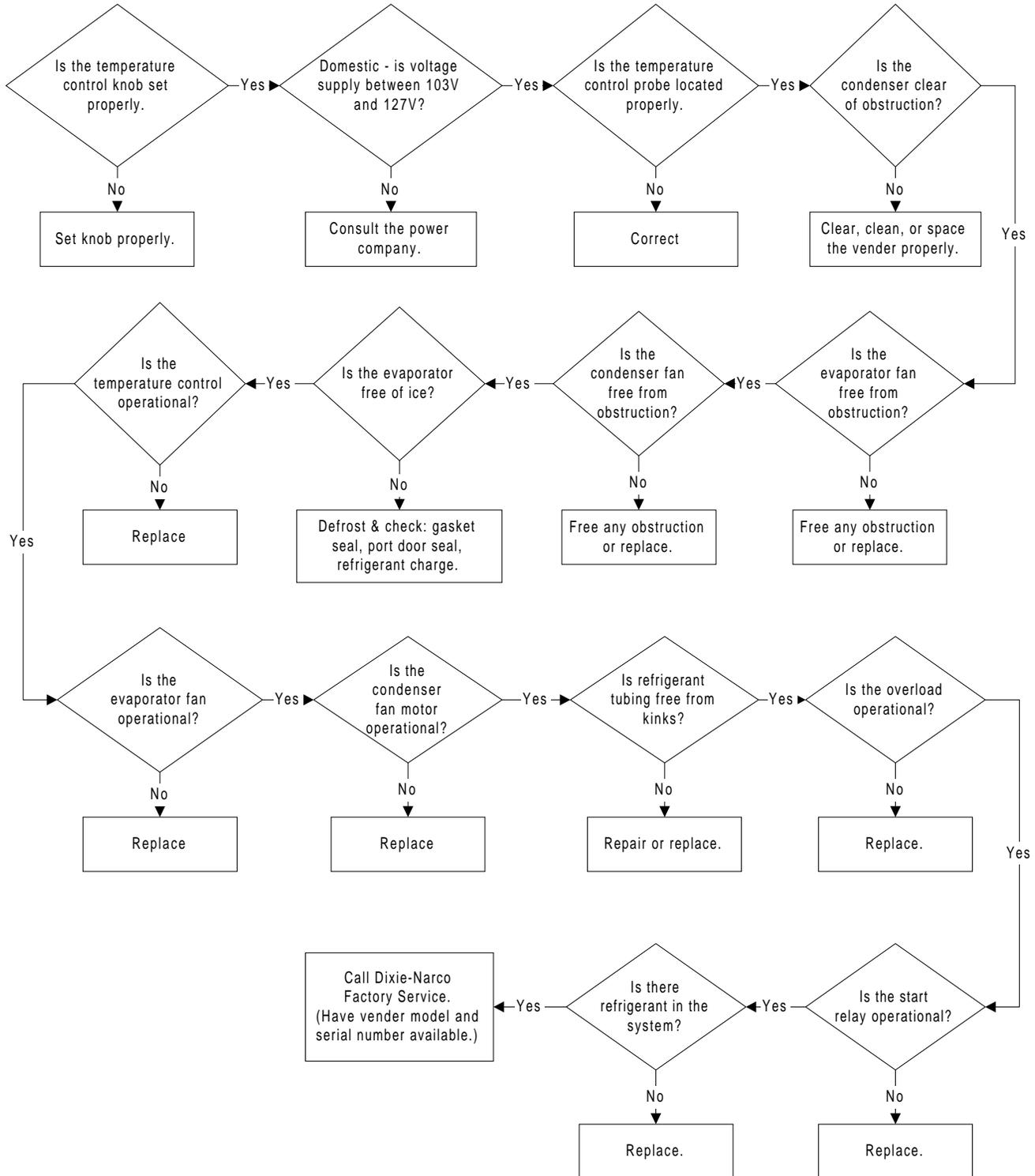
**SYMPTOM: PRODUCT HOT**  
**POSSIBLE CAUSE: COMPRESSOR STARTS BUT WILL NOT CONTINUE RUNNING**



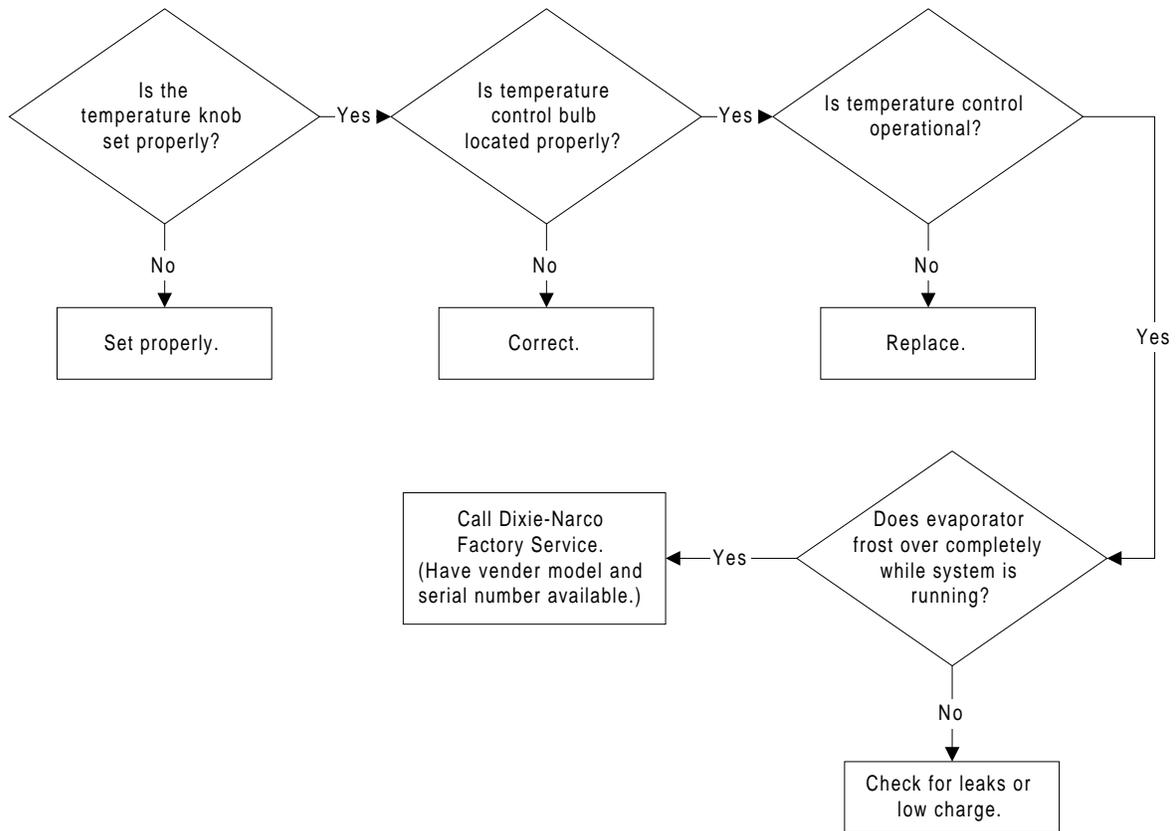
**SYMPTOM: PRODUCT HOT  
POSSIBLE CAUSE: MISCELLANEOUS**



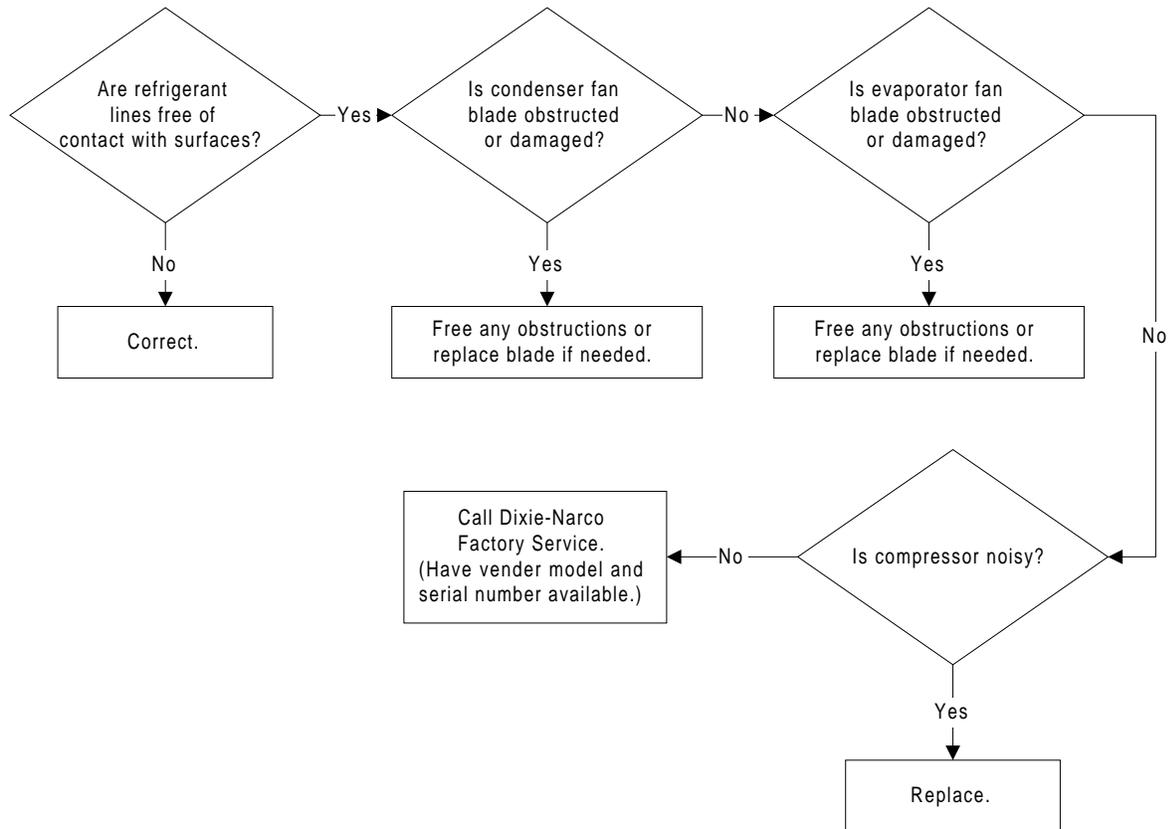
**SYMPTOM: PRODUCT COLD BUT NOT COLD ENOUGH  
 POSSIBLE CAUSE: COMPRESSOR RUNS BUT WILL NOT COOL PRODUCT.**



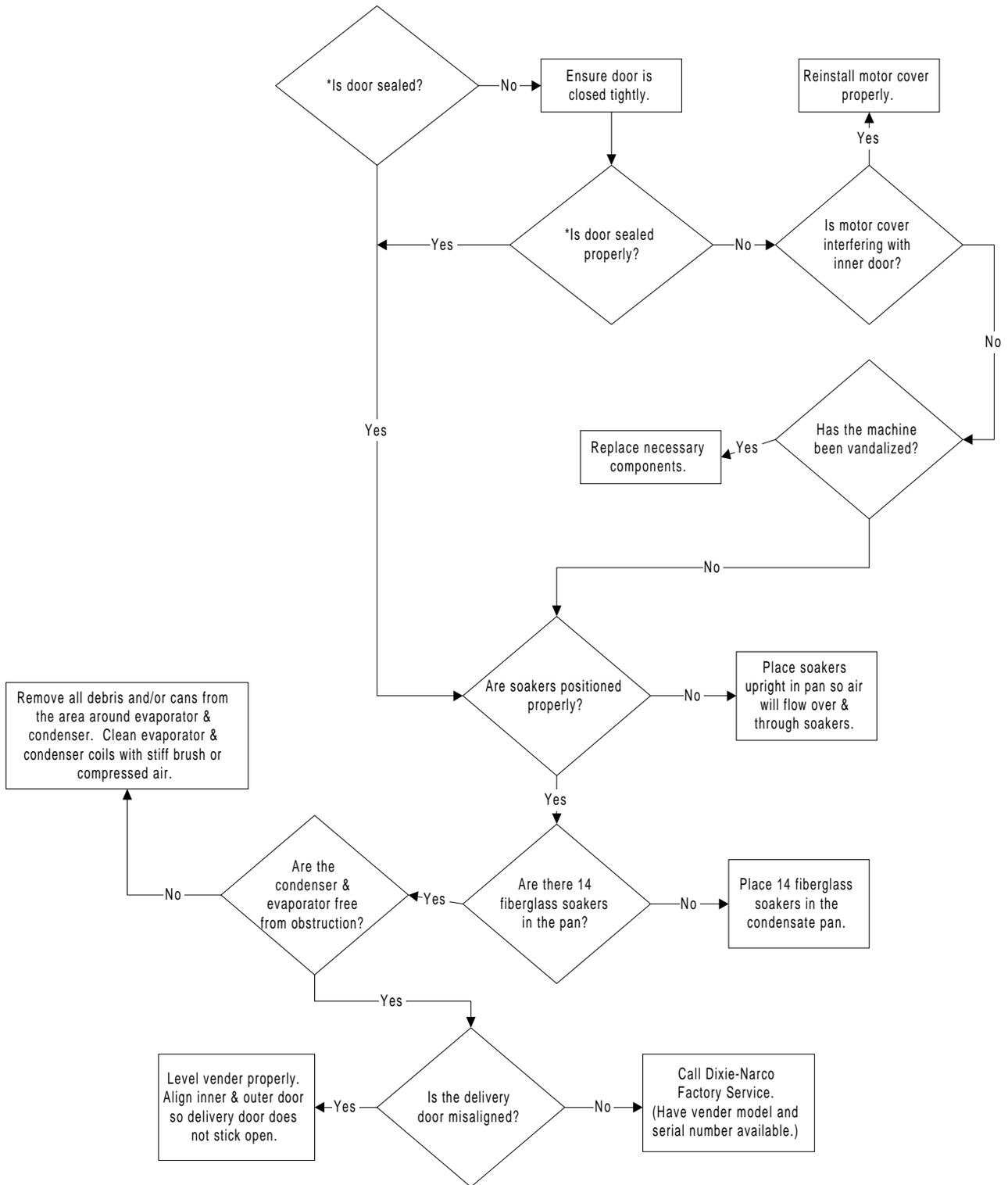
**SYMPTOM: PRODUCT TOO COLD OR FROZEN**  
**POSSIBLE CAUSE: COMPRESSOR RUNS TOO LONG OR CONTINUOUSLY**



# SYMPTOM: NOISY REFRIGERATION UNIT



# SYMPTOM: EXCESSIVE CONDENSATE



\*Can be check by inserting a piece of paper, thin plastic, or paper currency between the cabinet and the door seal when the main door is open. When the door is closed properly, the paper should exert some resistance as it is pulled out.

# GLOSSARY

1. **DEX** - **D**irect **E**xchange of Data
2. **“Dixie Bus”** - Dixie-Narco Serial Communication Specification to allow Dixie-Narco to add extra features without affecting current vender designs.
3. **IR** - **I**nfrared
4. **LCD** - **L**iquid **C**rystal **D**iodes
5. **LED** - **L**ight **E**mitting **D**iodes
6. **MDB** - **M**ulti-**D**rop **B**us Coca-Cola Serial Communication Specifications. Used in all Dixie SIID can venders.
7. **NAMA** - **N**ational **A**utomatic **M**erchandising **A**ssociation
8. **UCS** - **U**niform **C**ommunications **S**tandards
9. **UCC** - **U**niform **C**ode **C**ouncil

**IF REFRIGERATION TROUBLESHOOTING PROCEDURES FAIL,  
CONSULT DIXIE-NARCO FACTORY SERVICE OR  
YOUR DIXIE-NARCO REPRESENTATIVE.**

**1-800-688-9090  
1-803-266-5000**

**NOTE: HAVE THE VENDER MODEL # AND SERIAL # AVAILABLE.**