

1470058 Rev E

Refresh Center

474/475/476

MECHANICAL SET-UP, OPERATION and MAINTENANCE MANUAL



CRANE®

CRANE-NATIONAL VENDORS

12955 ENTERPRISE WAY
BRIDGETON, MO 63044

TABLE OF CONTENTS

REFRESHMENT CENTER and SNACK CENTER Warranty	ii
Maintenance and Certifications	ii
Table of Contents	iii
Overview of Merchandiser Installation	1
Model Identification	7
I-1: Electrical Service	8
I-2: Water Service	9
I-3: Major Assemblies and Components	10
I-4: Initial Set-Up Guide	15
I-5: Turning the Merchandiser ON and OFF	18
I-6: Moving Merchandiser Through Narrow Doorway	19
I-7: Water Inlet Elbow Installation	21
I-8: Water Filter Cartridge Installation	21
I-9: Positioning the Merchandiser	22
I-10: Leveling the Merchandiser	22
I-11: Mounting the Optional Base Plate	23
I-12: Hot Drink Price Label Adjustment	24
I-13: Connecting the Water Heater Harness	24
GUIDE TO MECHANICAL SET-UP	25
Coin Mechanism Set-Up	26
GUIDE TO TRAY SET-UP	27
S-1: Putting Tray In Loading Position	28
S-2: Wide Product Set-Up	29
S-3: Removing A Tray	30
S-4: Removing Column Dividers	31
S-5: Removing and Installing Spirals	32
S-6: Removing A Spiral Coupler	34
S-7: Replacing A Motor With A Spiral Bearing	35
S-8: Installing A Gear	36
S-9: Installing A Spiral Coupler	37
S-10: Putting A Tray In the Merchandiser	38
S-11: Connecting and Disconnecting A Motor Harness	39
S-12: Removing and Installing A Spiral Motor	40
S-13: Moving a Tray Up or Down	41
S-14: Installing and Removing Product Spacers	45
S-15: Loading A Tray With Product	46
S-16: Returning A Tray To the Vending Position	49
S-17: Installing and Setting Price Labels	50
S-18: Installing Selection ID Labels	52
GUIDE TO GUM & MINT SET-UP	55
G-1: Putting Gum & Mint Unit In Loading Position	56
G-2: Column Reducer Removal and Installation	57
G-3: Loading Gum & Mint Unit With Product	58
G-4: Putting Gum & Mint Unit In Vending Position	59
G-5: Installing Product Price Labels	60
GUIDE TO COLD CAN MODULE SET-UP	61
C-1: Product Labels for Cold Can Selections	62
C-2: Price Labels for Cold Can Selections	62
C-3: Loading the Cold Can Module	63
GUIDE TO HOT DRINK MODULE SET-UP	65
H-1: Loading Dry Ingredient Canisters	67

TABLE OF CONTENTS
(Continued)

H-2: Cup Mechanism Adjustment 68
H-3: Loading the Cup Mechanism 71
H-4: Cup Deflector Adjustment 71
H-5: Water Measurement and Adjustment 72
H-6: Dry Ingredient Measurement and Adjustment 74
H-7: Air Pressure Adjustment 76

GUIDE TO OPERATIONAL READINESS CHECK 77
RC-1: Anti Hang-Up Procedure Overview 79
RC-2: Indexing 1 Spiral Used With A R-Hand Motor 80
RC-3: Indexing 1 Spiral Used With A L-Hand Motor 81
RC-4: Indexing 2 Spirals Used With 1 Motor 82
RC-5: Indexing 2 Spirals Used With 2 Motors 83
RC-6: Installing A Product Pusher 84
RC-7: Installing and Removing Spiral Wall Retainer 85
RC-8: Retrieving A Product 86
RC-9: Testing the Bill Validator 87

GUIDE TO MAINTENANCE PROCEDURES 89
GUIDE TO ELECTRICAL WIRING DIAGRAMS 117

NOTE

THE INSTRUCTIONS FOR INSTALLING AND OPERATING THIS MERCHANDISER ARE CONTAINED IN THE FOLLOWING MANUALS:

MECHANICAL SET-UP, OPERATION and MAINTENANCE MANUAL
Part Number: 1470058

PROGRAMMING GUIDE
Part Number: 1470059

DETAILED PART INFORMATION IS CONTAINED IN THE FOLLOWING MANUAL:

PARTS MANUAL
Part Number: 1470060

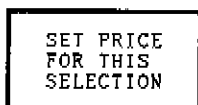
OVERVIEW OF MERCHANDISER SET-UP

* A set of flowcharts has been included in this manual to guide you through the set-up procedure. The charts are summarized in the table below.

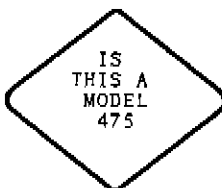
NAME OF CHART	WHEN TO USE THE CHART	WHERE CHART IS LOCATED
Overview	This is the starting point for all merchandisers. All of the other charts branch from here and return to here.	Pages 2-6
I-4 Initial Set-Up	This sequence is normally done only when the merchandiser is installed on a site for the first time.	Pages 15-17
Guide to Tray Set-Up	This sequence will be completed for Model 147, 148, 474 and 475 merchandisers.	Page 27
Guide to Gum & Mint Dispenser Set-Up	This sequence will be completed when an optional Gum & Mint Dispenser is installed in a Model 147, 148, 474 or 475 merchandiser.	Page 55
Guide to Cold Can Module Set-Up	This sequence will be completed when a Cold Can Module is installed in a Model 474 or 475 merchandiser.	Page 61
Guide to Hot Drink Module Set-Up	This sequence will be completed when a Hot Drink Module is installed in a Model 475 Merchandiser.	Pages 65-66

* The boxes and diamonds on the left side of each chart contain "WHAT TO DO" instructions.

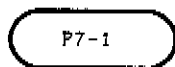
* The ovals on the right side of each chart contain references to the necessary "HOW TO DO IT" information.



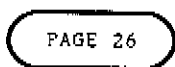
this contains an instruction



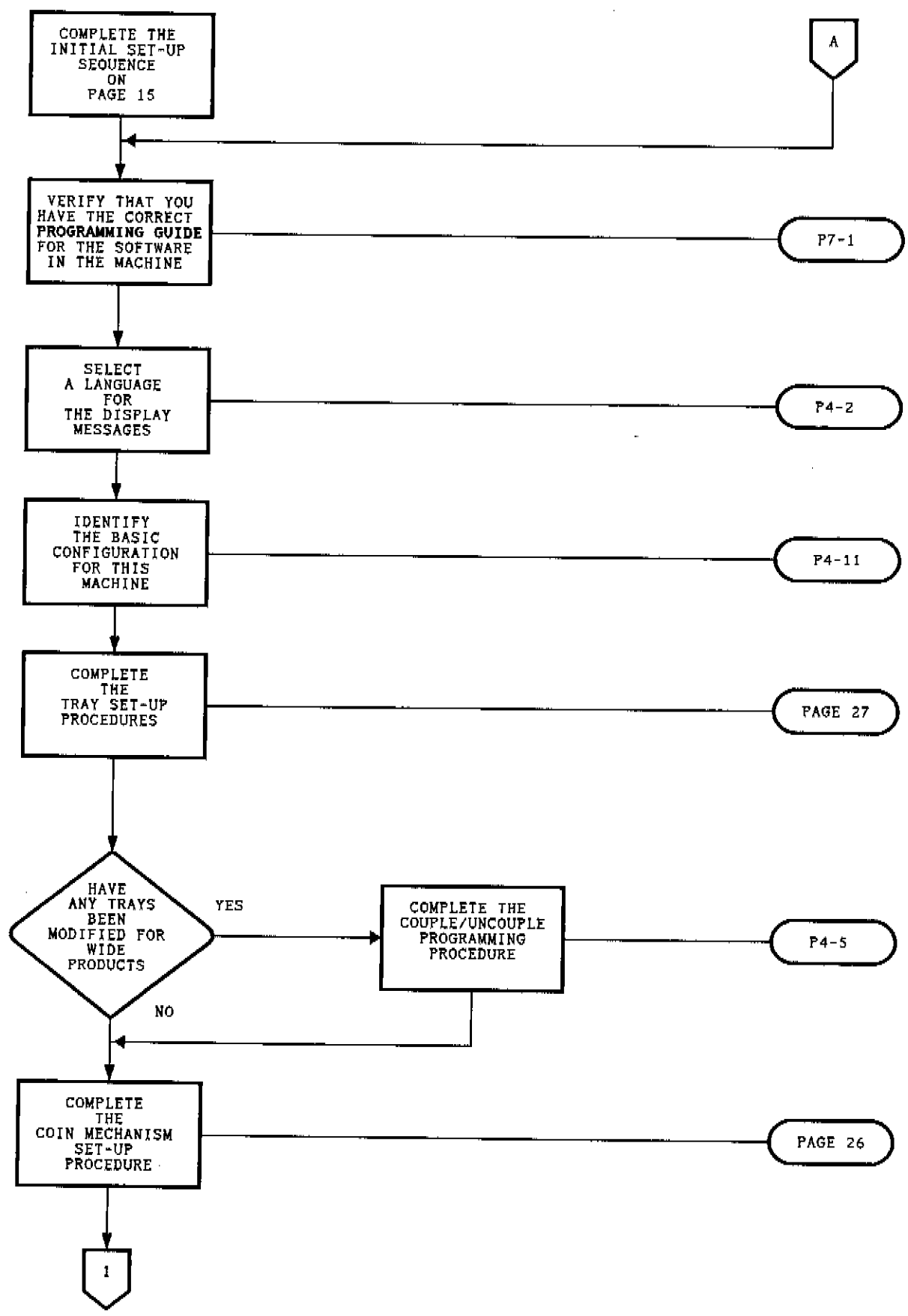
this contains a question or asks you to choose a direction

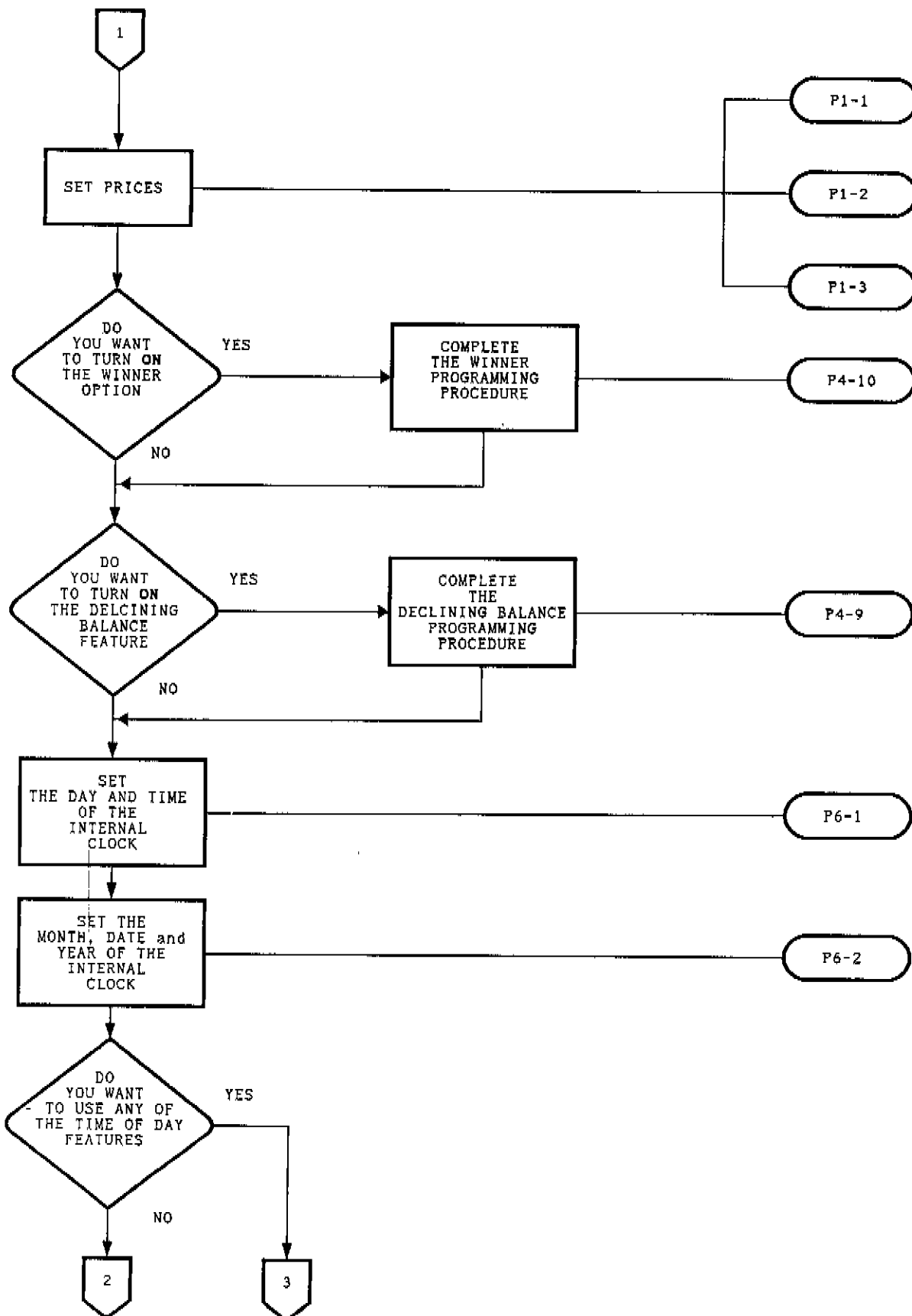


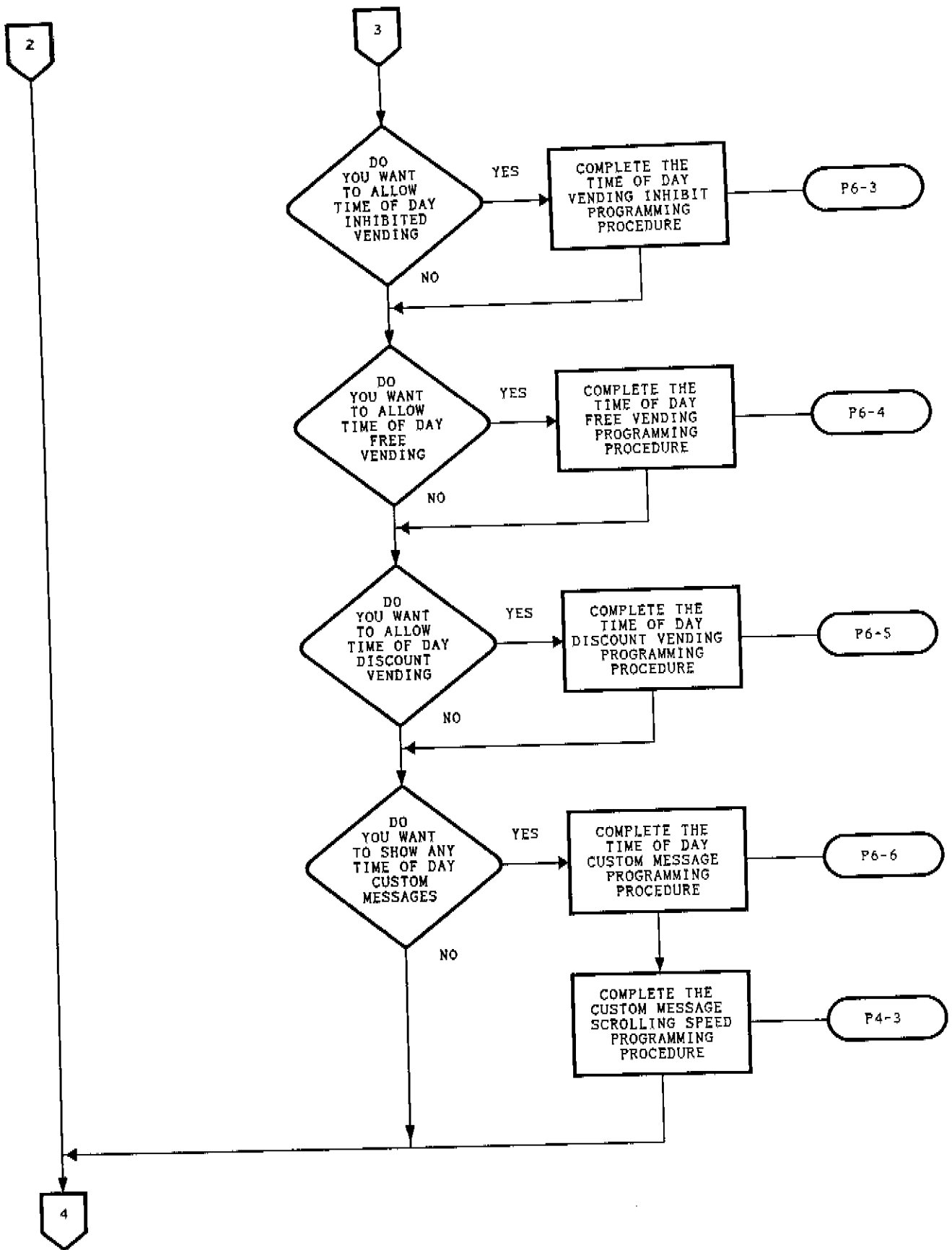
this refers you to procedure P7-1 in the PROGRAMMING GUIDE, part number 1470059.

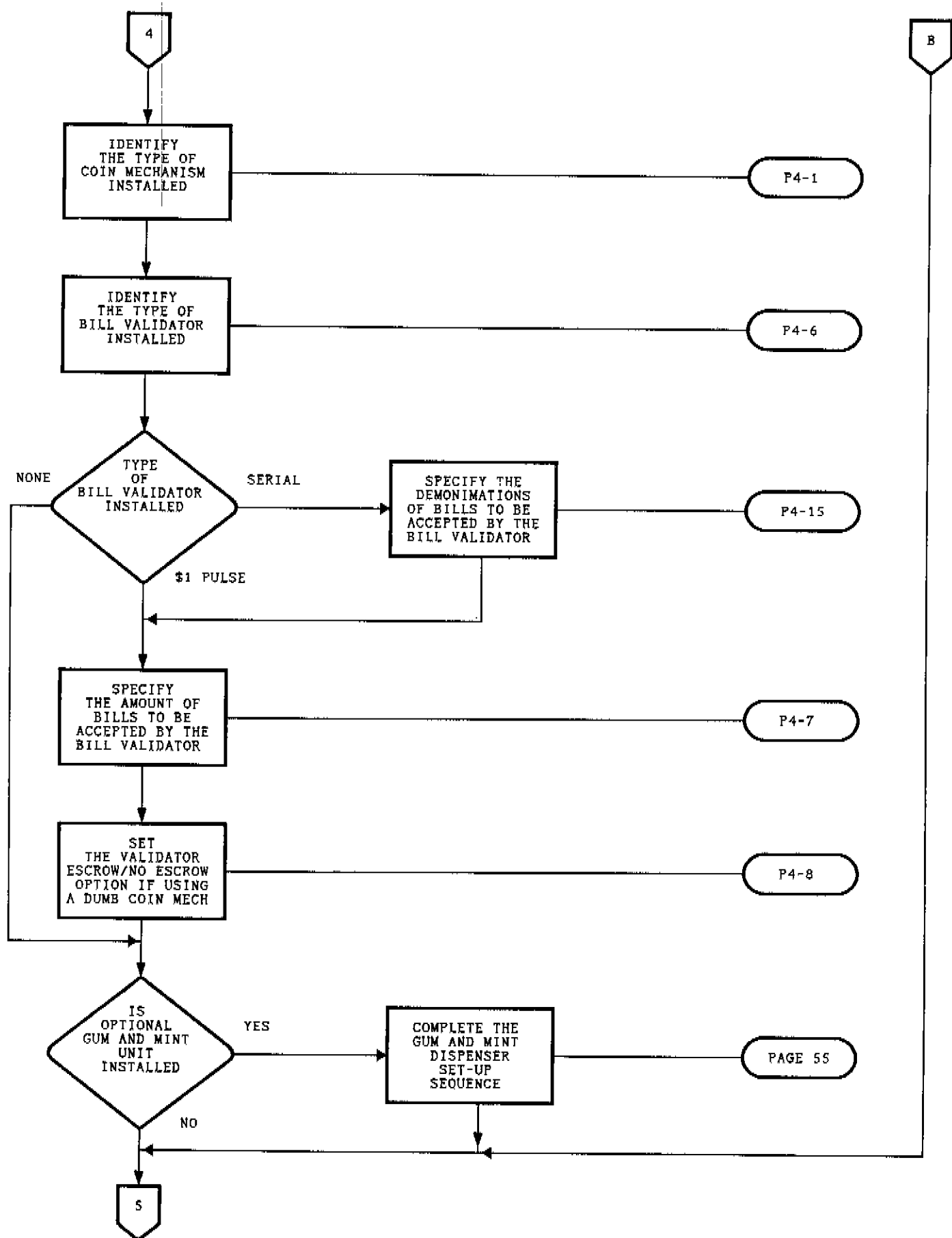


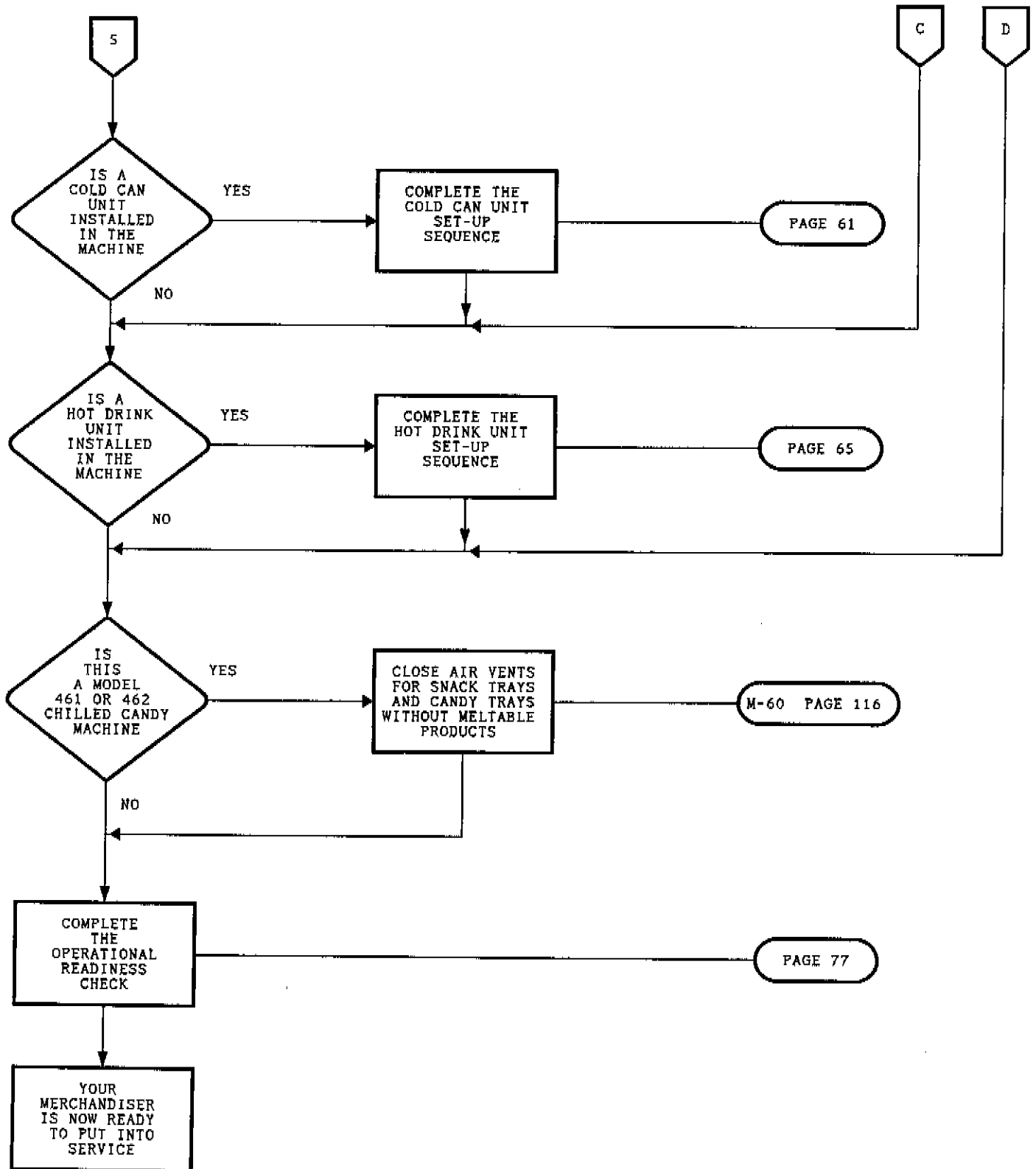
this refers you to page 26 in this manual

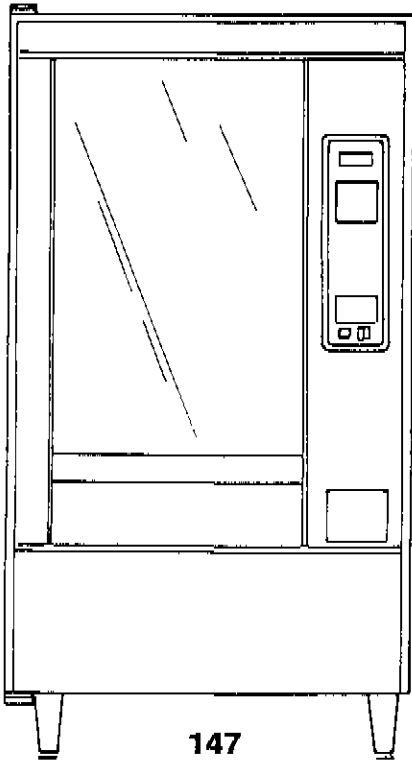




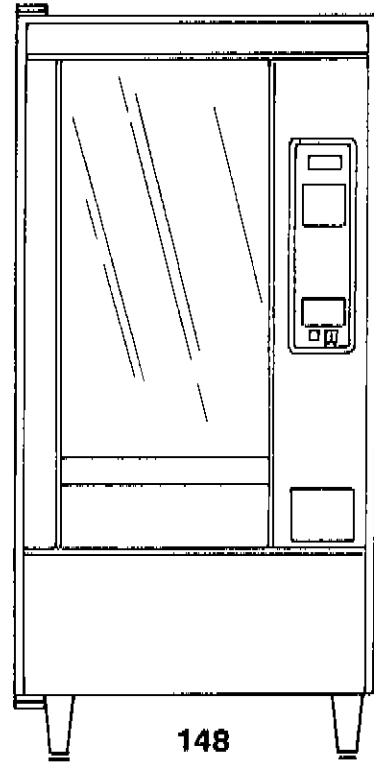




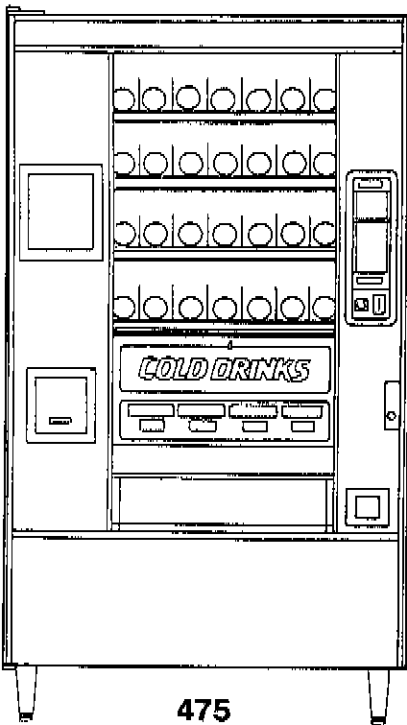




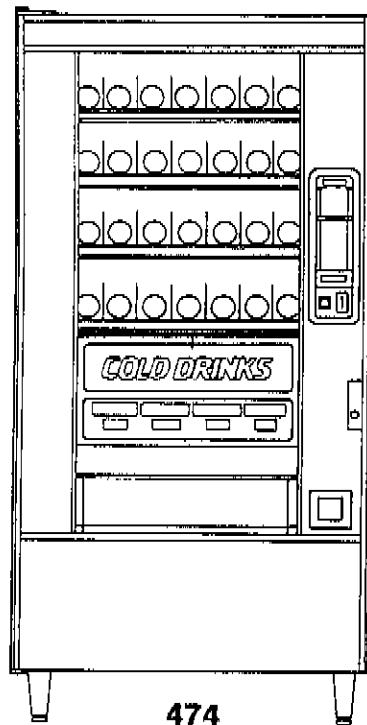
147
461



148
462



475



474

POWER REQUIREMENTS

	147/148	474	475	461/462
VOLTS AC	115	115	115	115
AMPS	3	5	15	9
HZ	60	60	60	60
PHASE	Single	Single	Single	Single
OUTLET TYPE	3-pin grounded	3-pin grounded	3-pin grounded	3-pin grounded

CHECKING THE POWER OUTLET**VOLTAGE CHECK**

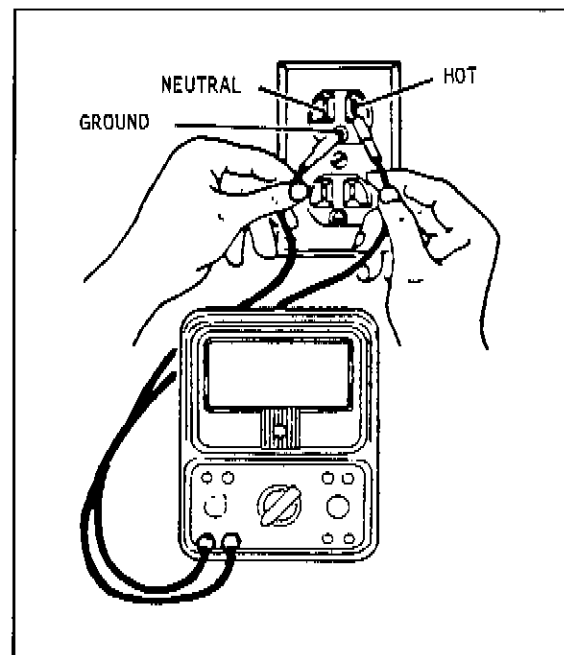
When placed across the **HOT** and **NEUTRAL** terminals, a volt-ohmmeter should indicate 110-130 volts ac.

POLARITY CHECK

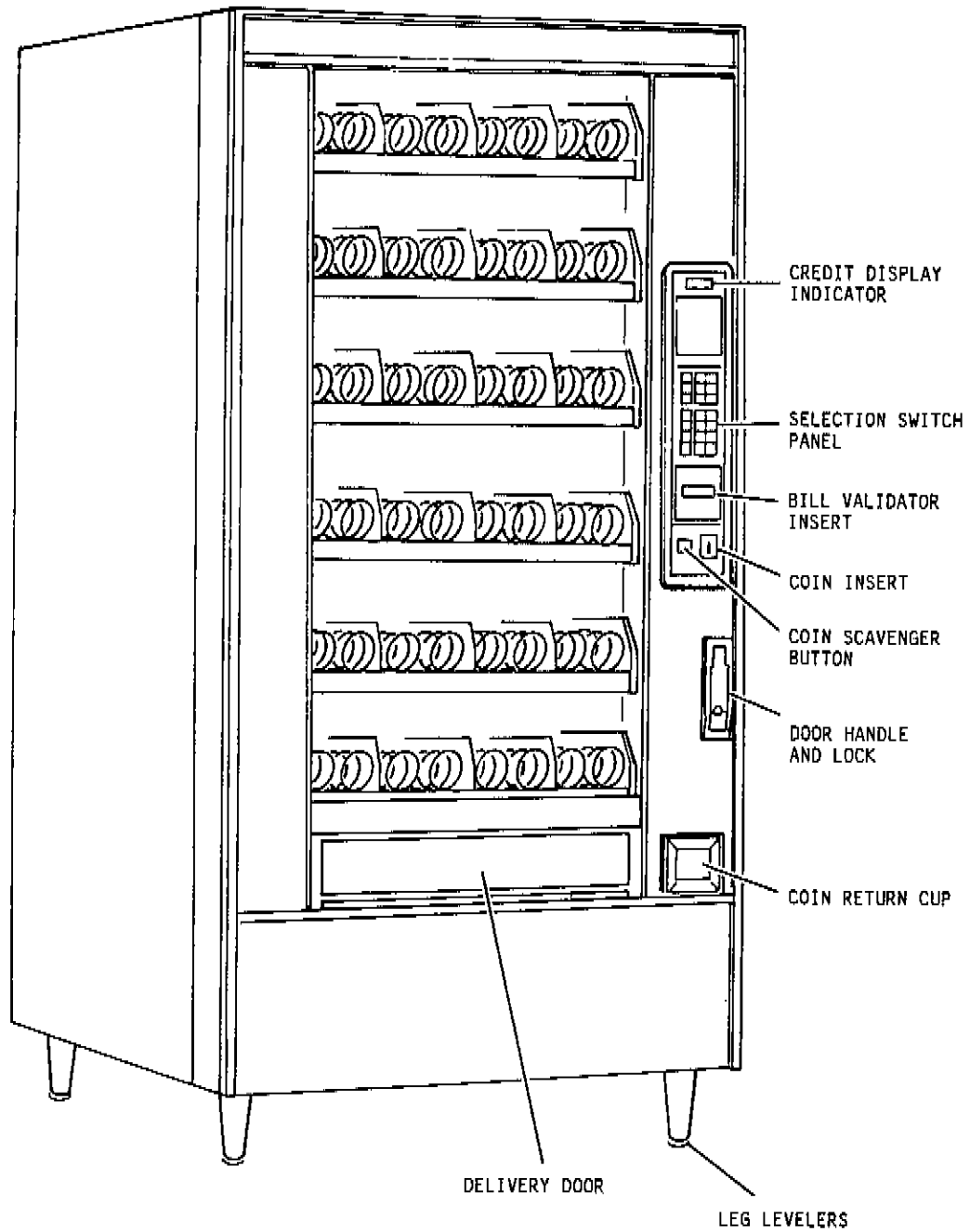
When placed across the **HOT** and **GROUND** terminals, a volt-ohmmeter should indicate 110-130 volts ac.

NOISE POTENTIAL CHECK

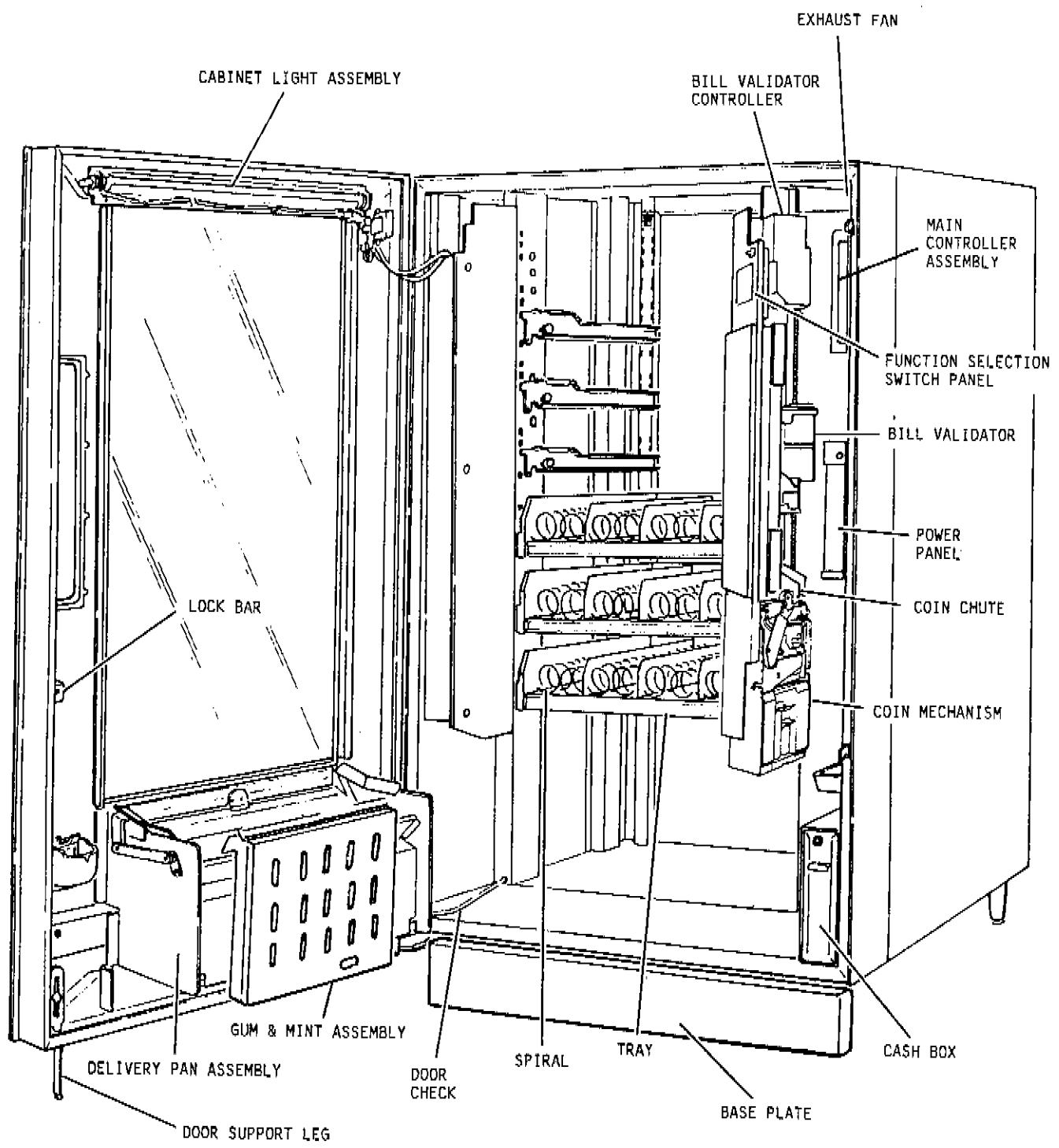
When placed across the **NEUTRAL** and **GROUND** terminals, a volt-ohmmeter should indicate 0 volts ac. A reading of greater than 1.5 to 2.0 volts ac could result in noise problems for the electronic circuitry.



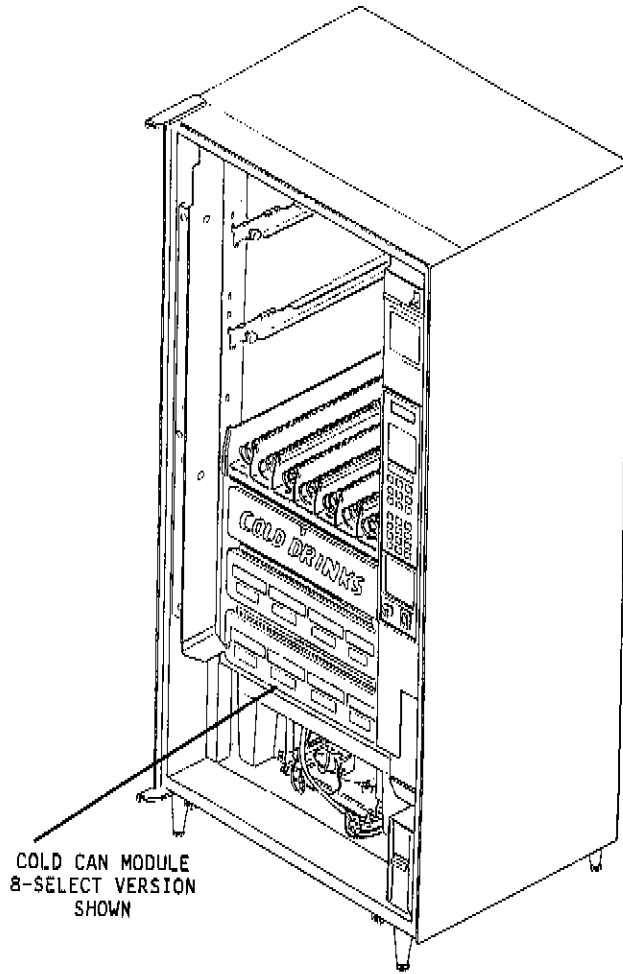
**I-3 IDENTIFICATION AND LOCATION OF
MAJOR ASSEMBLIES AND COMPONENTS**



**MODEL 148 - EXTERIOR VIEW
(147, 461, 462 and 474 HAVE SIMILAR APPEARANCE)**

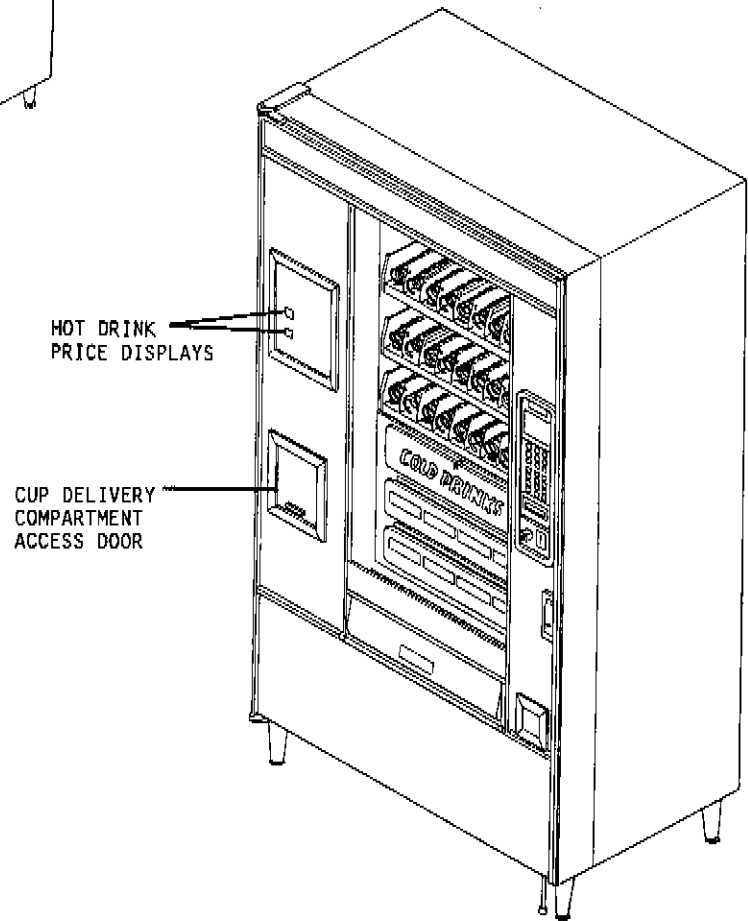


**MODEL 148 - INTERIOR VIEW
(147 HAS SIMILAR APPEARANCE)**



COLD CAN MODULE
8-SELECT VERSION
SHOWN

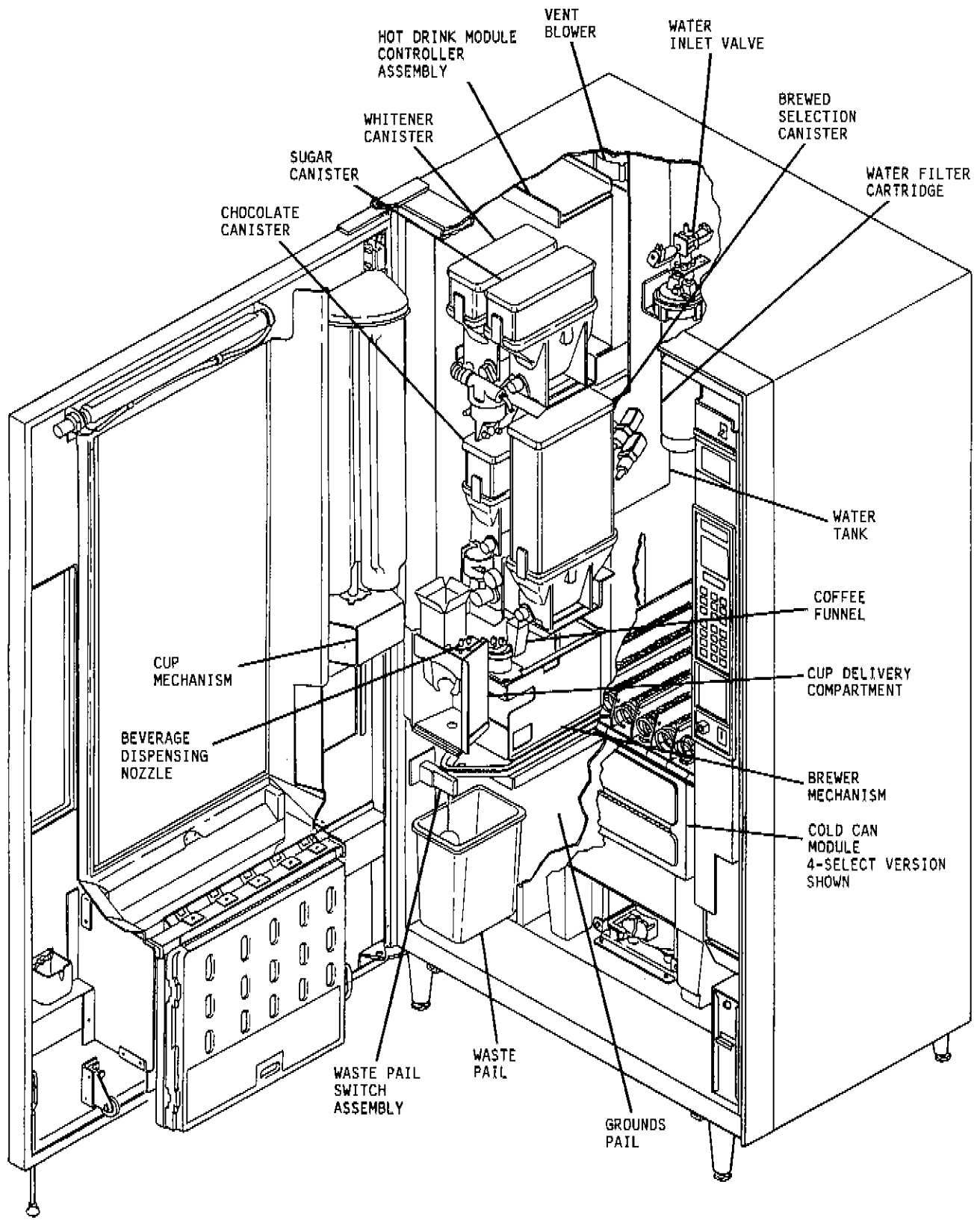
MODEL 474 - INTERIOR VIEW



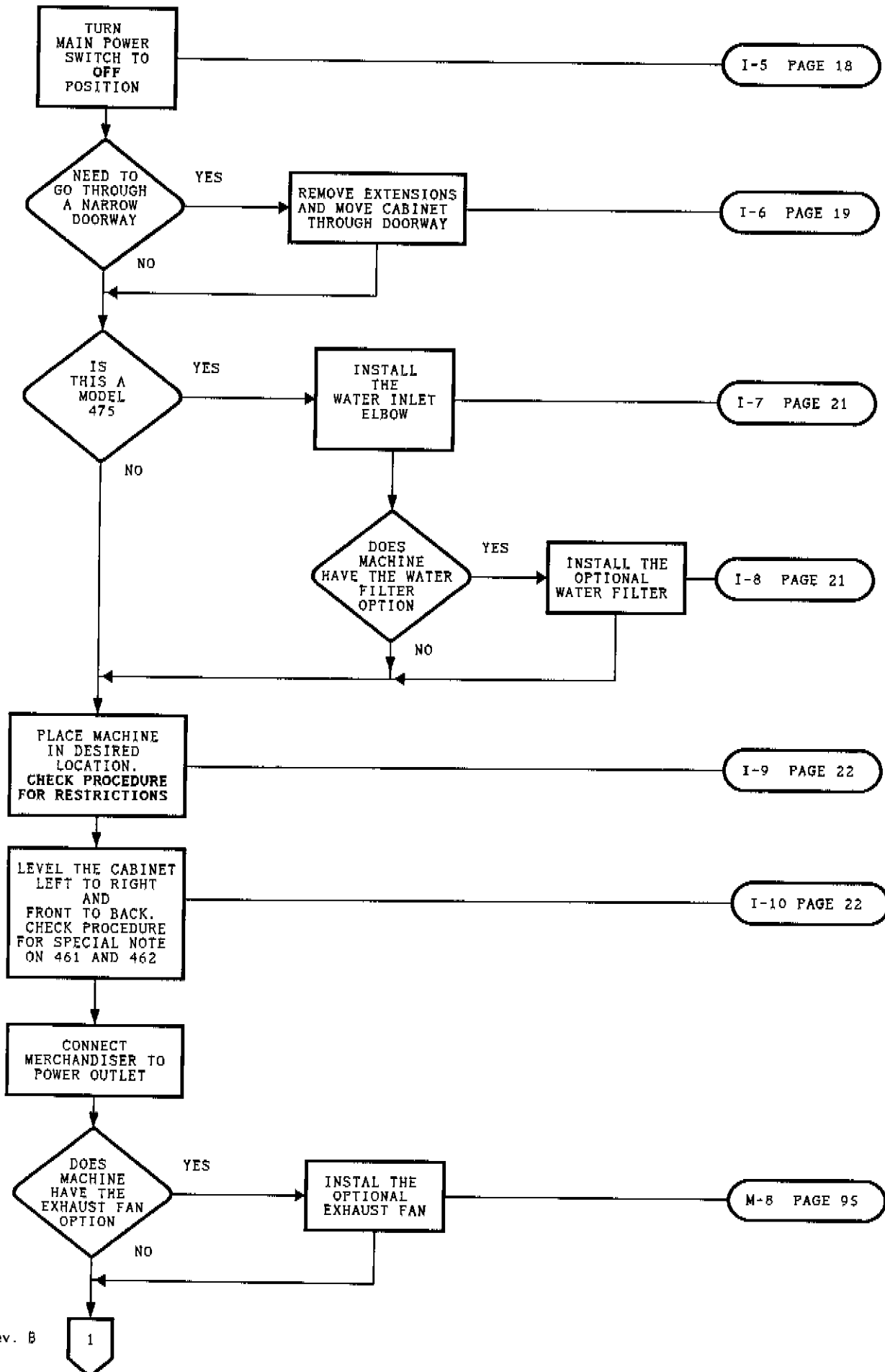
HOT DRINK
PRICE DISPLAYS

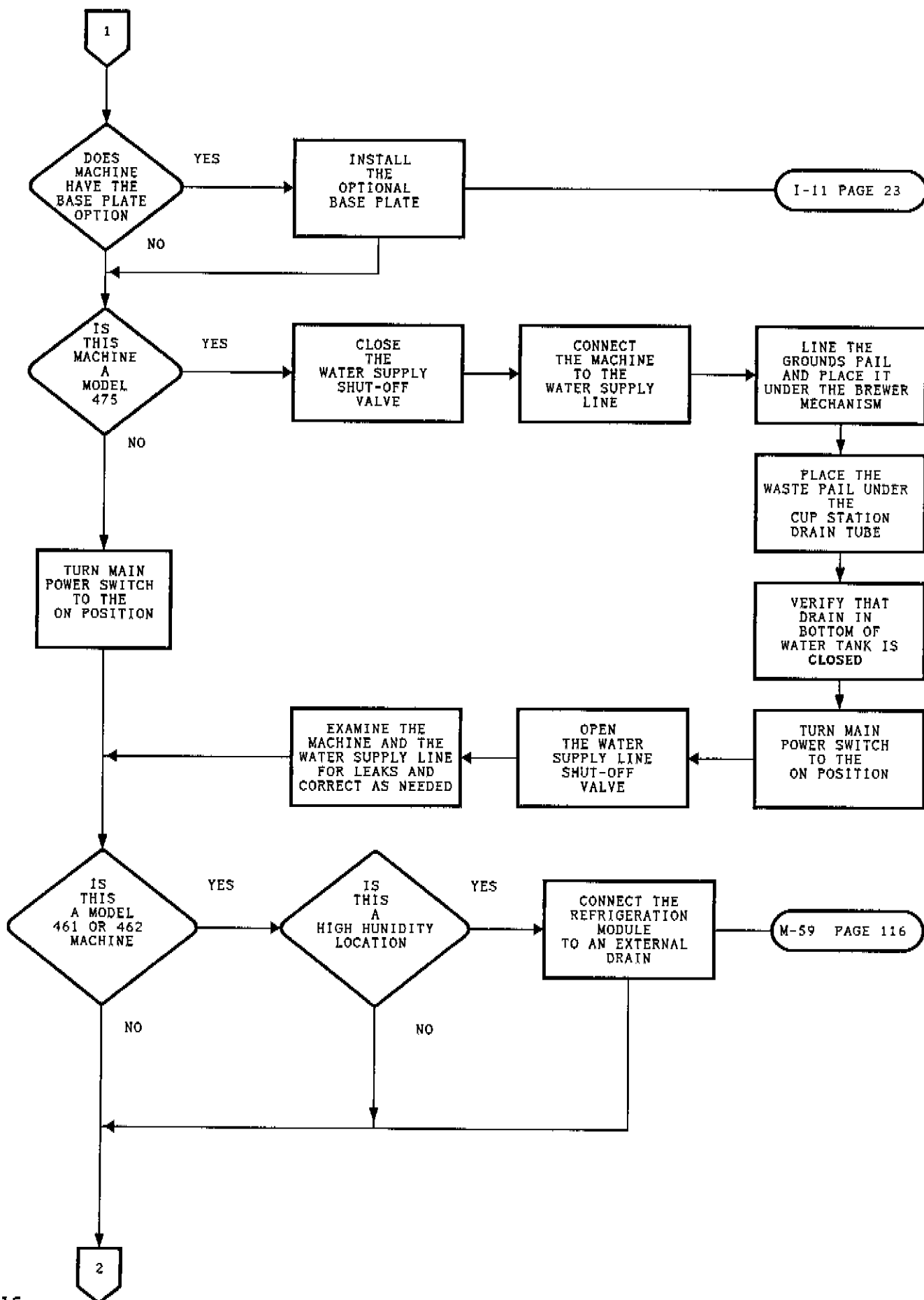
CUP DELIVERY
COMPARTMENT
ACCESS DOOR

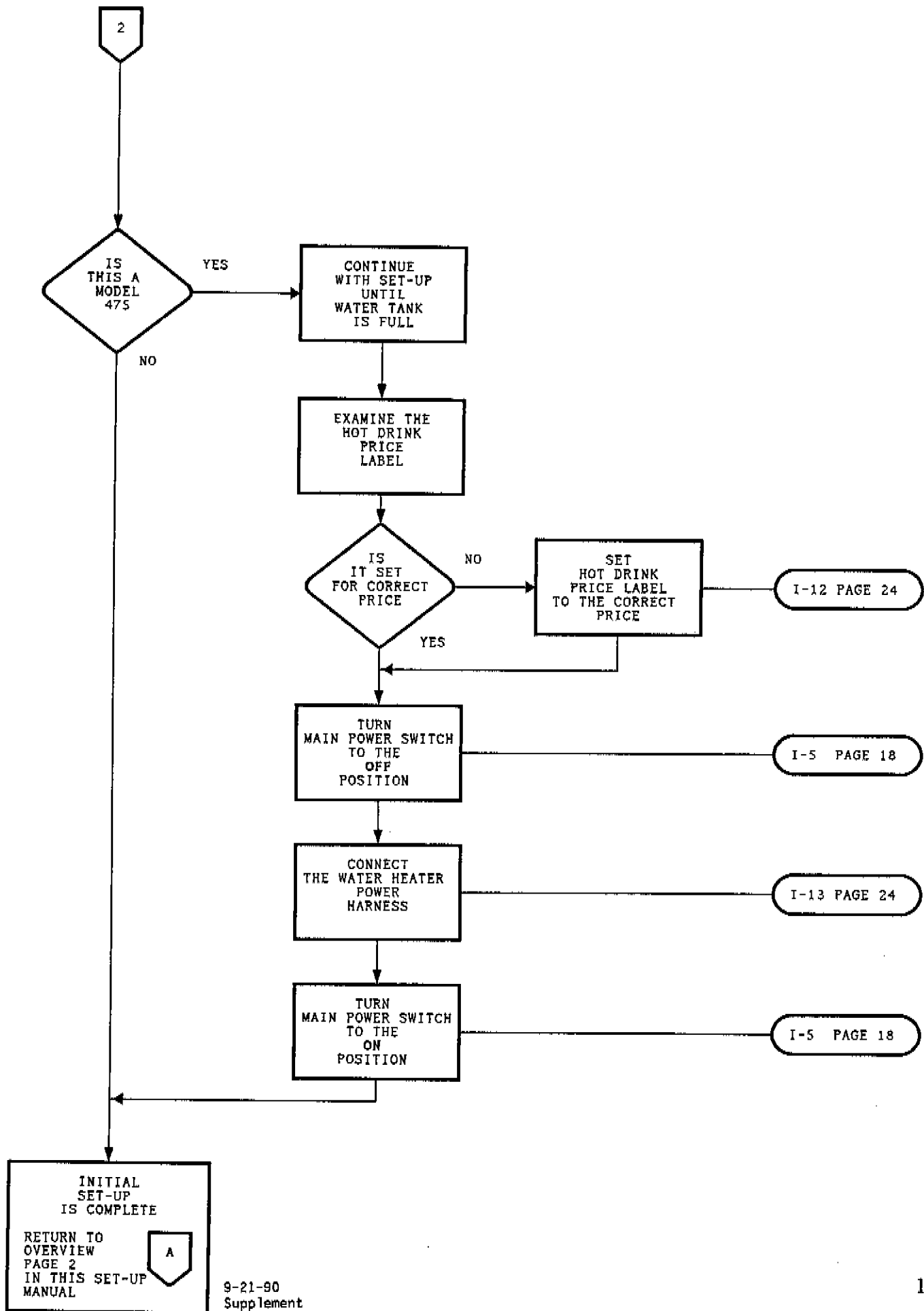
MODEL 475 - EXTERIOR VIEW



MODEL 475 - INTERIOR VIEW





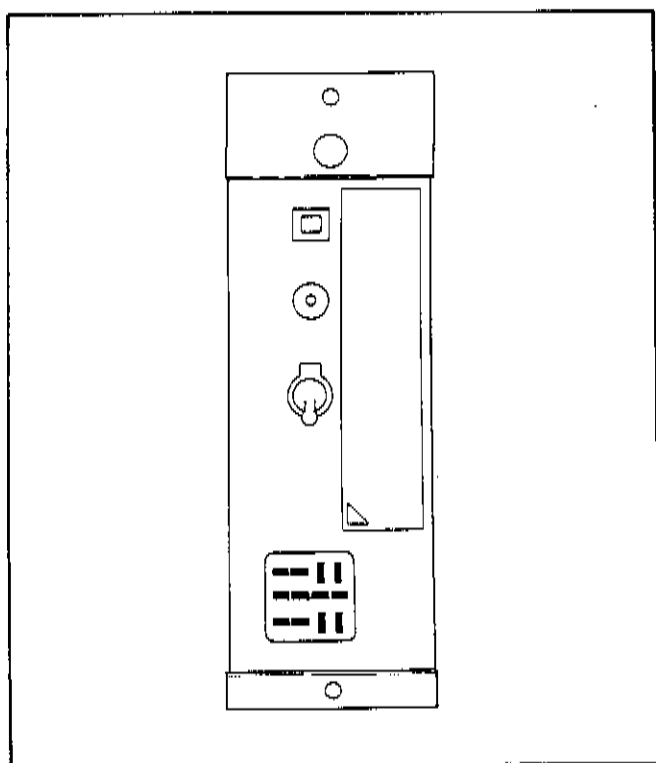


- * Power to the merchandiser is controlled by the Main Power Switch. It is located on the Power Panel.
- * The Power Panel is on the right side of the merchandiser, behind the monetary door.

WARNING

You should unplug the merchandiser whenever you do one of the following:

- Change a fuse
- Change the flourescent lamp
- Change the lamp starter
- Connect or disconnect a harness (Except a motor harness when the tray has been removed)



NOTE

The Tray List feature (P4-9) is set at the factory to list the trays that were installed at the time of shipping. If any trays are not locked in place and do not make good electrical contact, the display will alternate between:

ID TRAY - UNLATCHED

when the door is closed. You will hear a beeping sound. This condition will continue for one minute. The normal stand-by message will return to the display at the end of this period of time. You may disable this feature by using procedure P4-9 to remove all trays from the list.

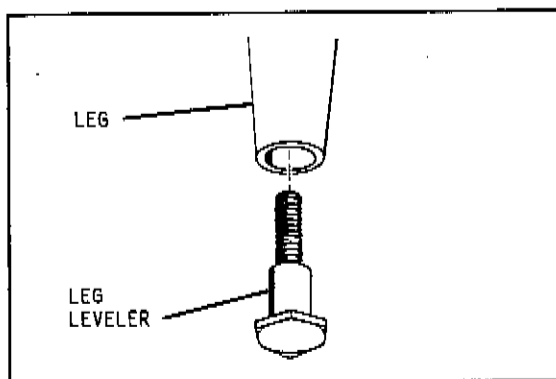
When the merchandiser is part of a bank of machines, it should be leveled in reference to the other machines.

CAUTION

HAVE AN ASSISTANT HOLD THE MERCHANDISER WHILE YOU ADJUST THE LEG LEVELERS.

If the merchandiser is not level, move the Leg Levelers in or out to make it level.

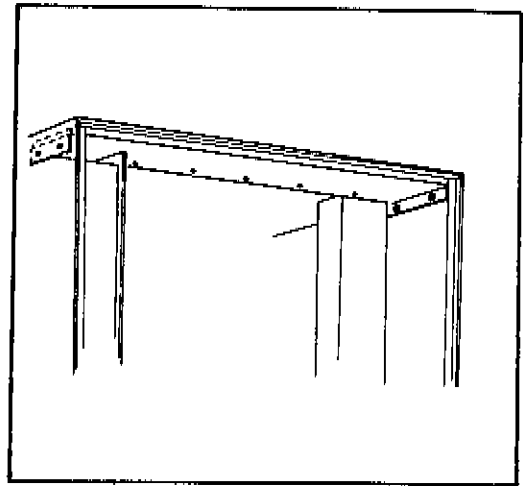
You may need to use pliers or channel locks to loosen the leg levelers.



This merchandiser can be moved through an opening as narrow as 30 inches by removing the Cabinet Extensions.

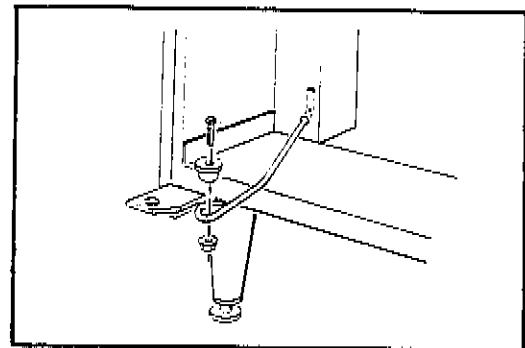
REMOVING THE TOP EXTENSION (Figure -A)

- * Remove the two screws that secure each end of the extension to the sides of the cabinet.
- * Model 147 - Remove the other five screws that secure the extension to the cabinet.
- Model 148 - Remove the other four screws that secure the extension to the cabinet.
- * Pull extension forward to remove it from the merchandiser.



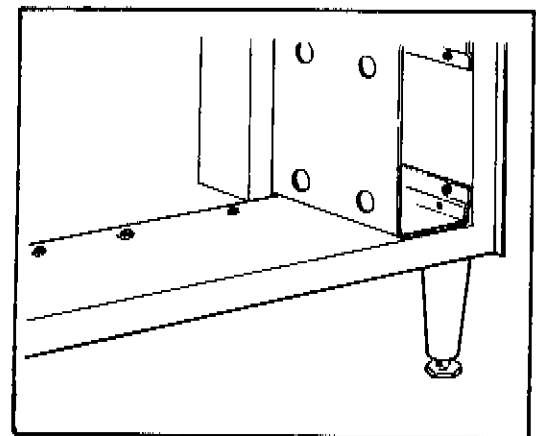
REMOVING THE DOOR CHECK (Figure -B)

- * Remove the nut and bolt that secure the Door Check to the Door Check Plate.
- * Pull the Door Check fully forward, lift upward and pull the short end of the Check from the Door Check Plate and Spring Assembly.



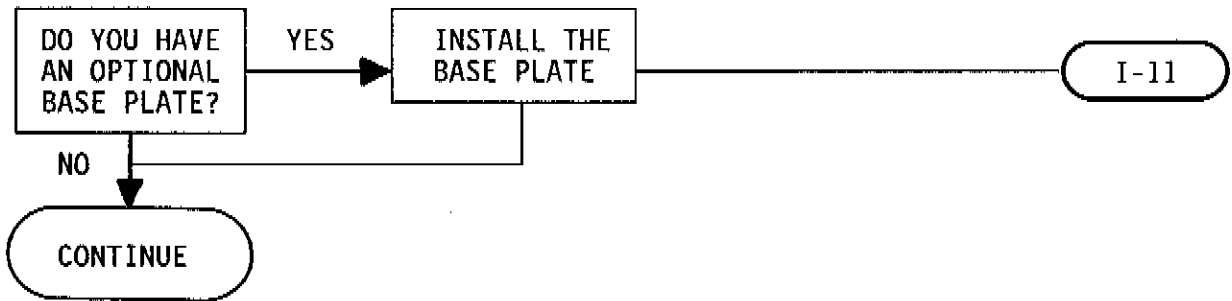
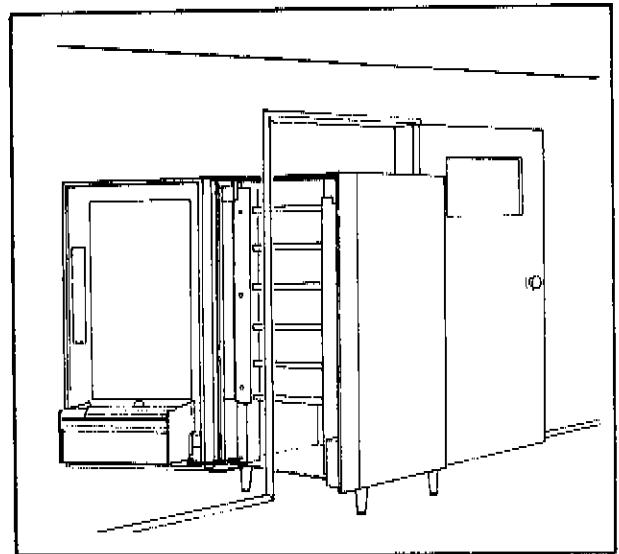
REMOVING THE BOTTOM EXTENSION (Figure -C)

- * Remove the two screws that secure each end of the extension to the sides of the cabinet.
- * Model 147 - Remove the other five screws that secure the extension to the bottom of the cabinet.
- Model 148 - Remove the other four screws that secure the extension to the bottom of the cabinet.
- * Pull the extension forward and remove it from the cabinet.



TAKING THE MERCHANDISER THROUGH THE OPENING

- * Open the Cabinet Door and place it square with the left side of the Cabinet.
- * Carefully walk the merchandiser through the opening.



REASSEMBLE THE MERCHANDISER

- * Replace the Upper Extension.
- * Replace the Lower Extension.
- * Replace the Door Check.

POSITIONING THE MERCHANDISER

You can position this merchandiser anywhere in a bank of machines. It can even be placed on an end flush against a side wall.

The 147 and 148 merchandisers should be located at least one inch away from the back wall.

The 461, 462, 474 and 475 merchandisers should be placed at least six inches away from the back wall. This will provide adequate air circulation for the refrigeration unit.

The 461 and 462 merchandisers will operate more efficiently when placed in a shaded location.

There should be enough room in front of the merchandiser for the door to move freely.

WARNING: THIS MACHINE IS ONLY RATED FOR INSTALLATION IN AN INDOOR LOCATION.

LEVELING THE MERCHANDISER**IMPORTANT**

A level merchandiser is less likely to tip over and cause personal injury.

Level the merchandiser from right to left and from front to back. Use of a spirit level is recommended.

A slight slope from front to back will improve the draining of condensate from 461 and 462 merchandisers.

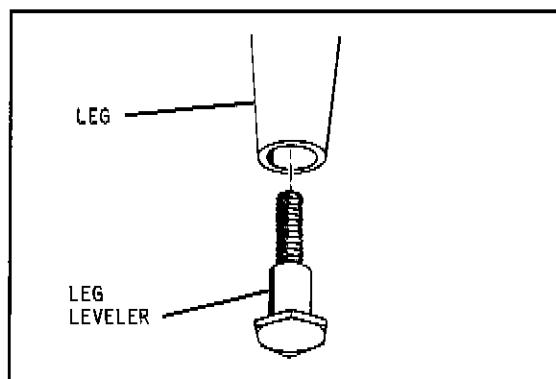
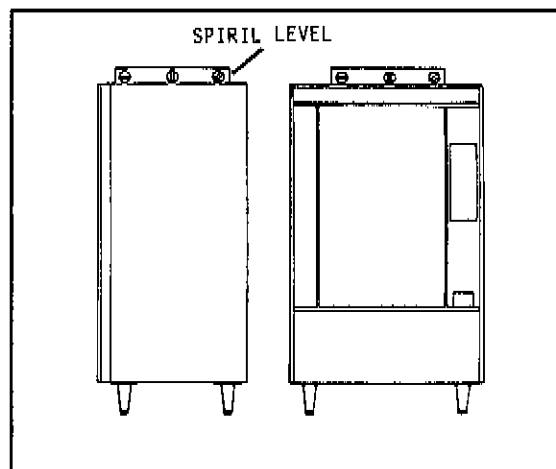
When the merchandiser is part of a bank of machines, it should be leveled in reference to the other machines.

CAUTION

HAVE AN ASSISTANT HOLD THE MERCHANDISER WHILE YOU ADJUST THE LEG LEVELERS.

If the merchandiser is not level, move the Leg Levelers in or out to make it level.

You may need to use pliers or channel locks to loosen the leg levelers.

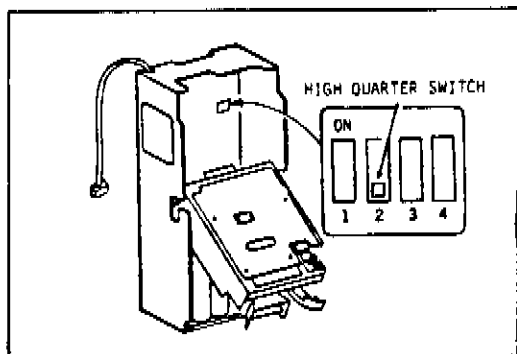


The information in this part of the manual has been provided to help you prepare the merchandiser for vending.

MODEL and APPLICATION			DESCRIPTION	PAGE
147, 148, 461 and 462	474	475		
X	X	X	Coin Mechanism Set-Up Guide	26
X	X	X	Tray Set-Up Guide	27
X	X	X	Gum & Mint Dispenser Set-Up Guide	55
	X	X	Cold Can Module Set-Up Guide	61
		X	Hot Drink Module Set-Up Guide	65

- * If the changer is not a MARS TRC 6000, procede to "Loading the Coin Mechanism".
- * If the changer is a MARS TRC 6000, you must set the high quarter switch.

SETTING THE QUARTER SWITCH

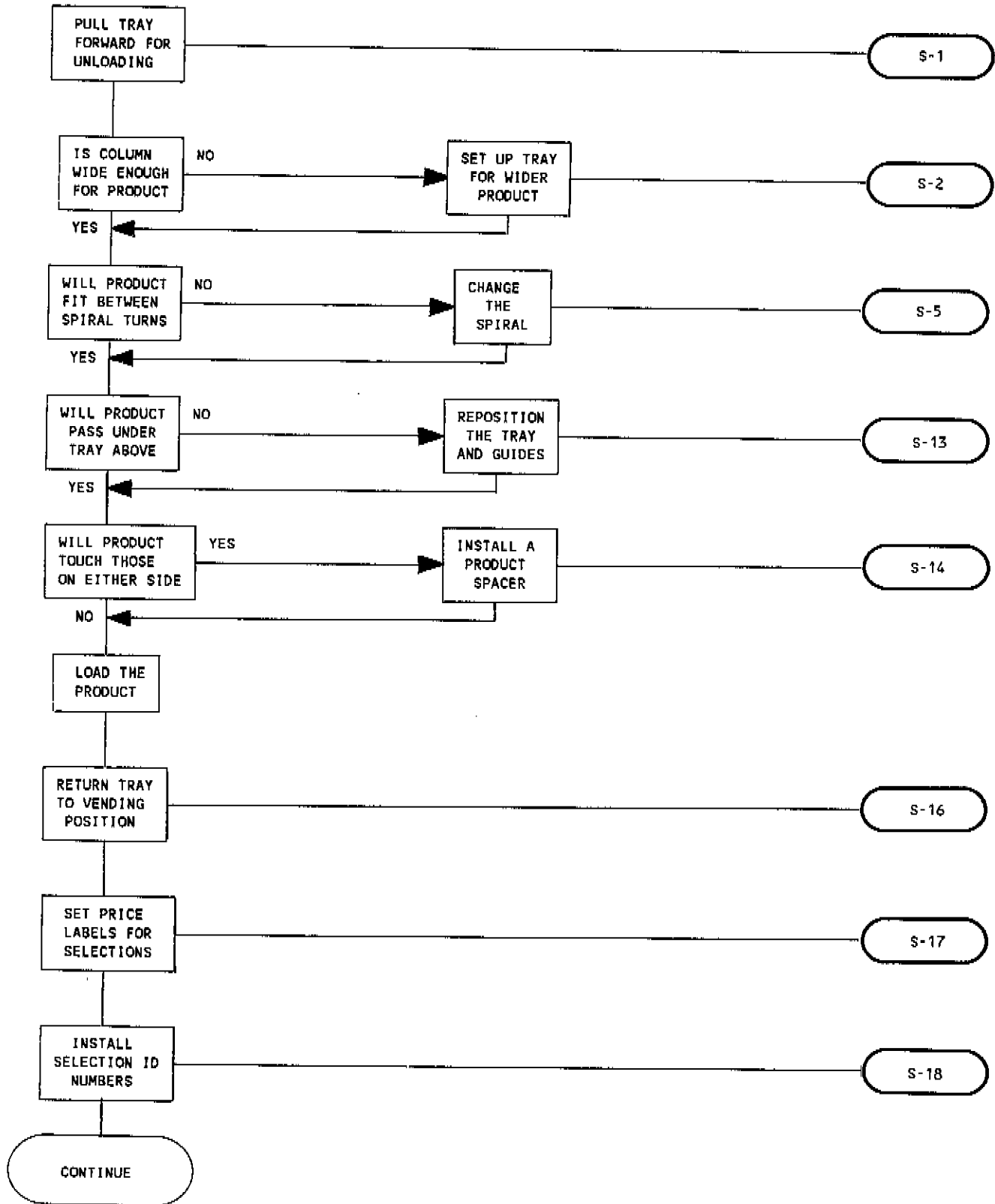


QUARTER SWITCH POSITION	ACTION
LOW	Will accept only one \$1.00 bill.
HIGH	Will accept \$1.00 bills equal in value to first whole dollar above highest vend price.

LOADING THE COIN MECHANISM

- * Open the Cabinet Door.
- * Open the Monetary Door.
- * Insert coins one at a time until each of the coin tubes has been filled.
- * Inspect the tubes for shingled coins and correct if necessary.

MECHANICAL SET-UP OF TRAYS



- * Place both hands on the Tray as shown in Figure S-1a.
- * Lightly push back on the Tray with your palms. This will release the Tray Catches on the sides of the Tray.
- * Push down on the Tray Catches with your thumbs.
- * Pull the Tray forward until you hear and feel the rear rollers of the Tray drop into a cut-out in the top of the Guide Rail.
- * Continue pulling the Tray forward for another inch. You will then be able to tilt the Tray downward into the loading position as shown in Figure S-1b.

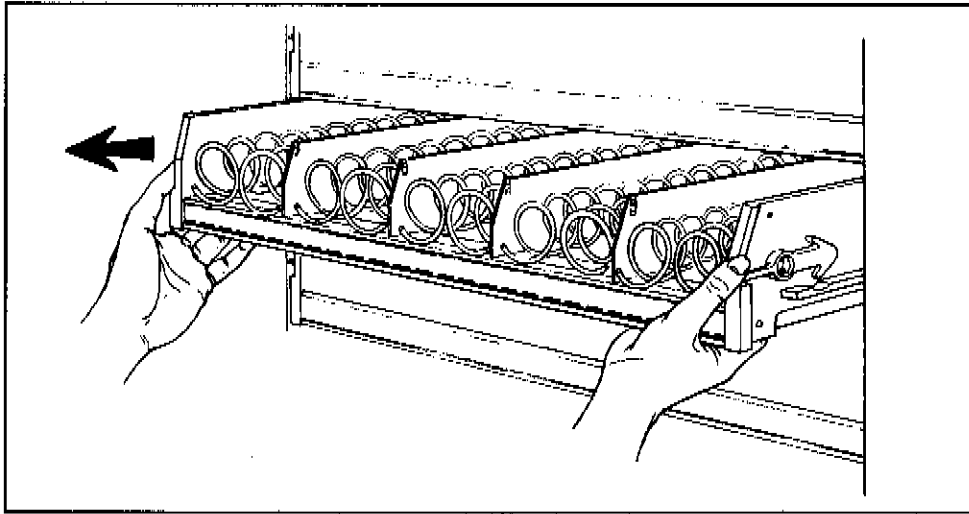


Figure S-1a

NOTE

When the Cabinet Door is not fully open, the bottom tray will rest on the Delivery Pan Assembly. Handle the Tray with care to avoid scratching the Delivery Pan Assembly.

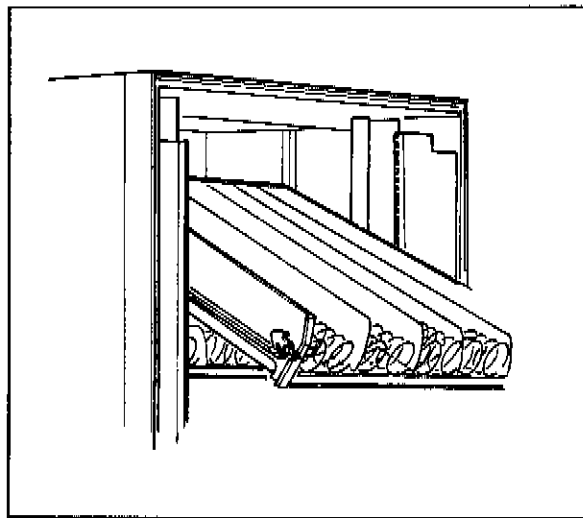
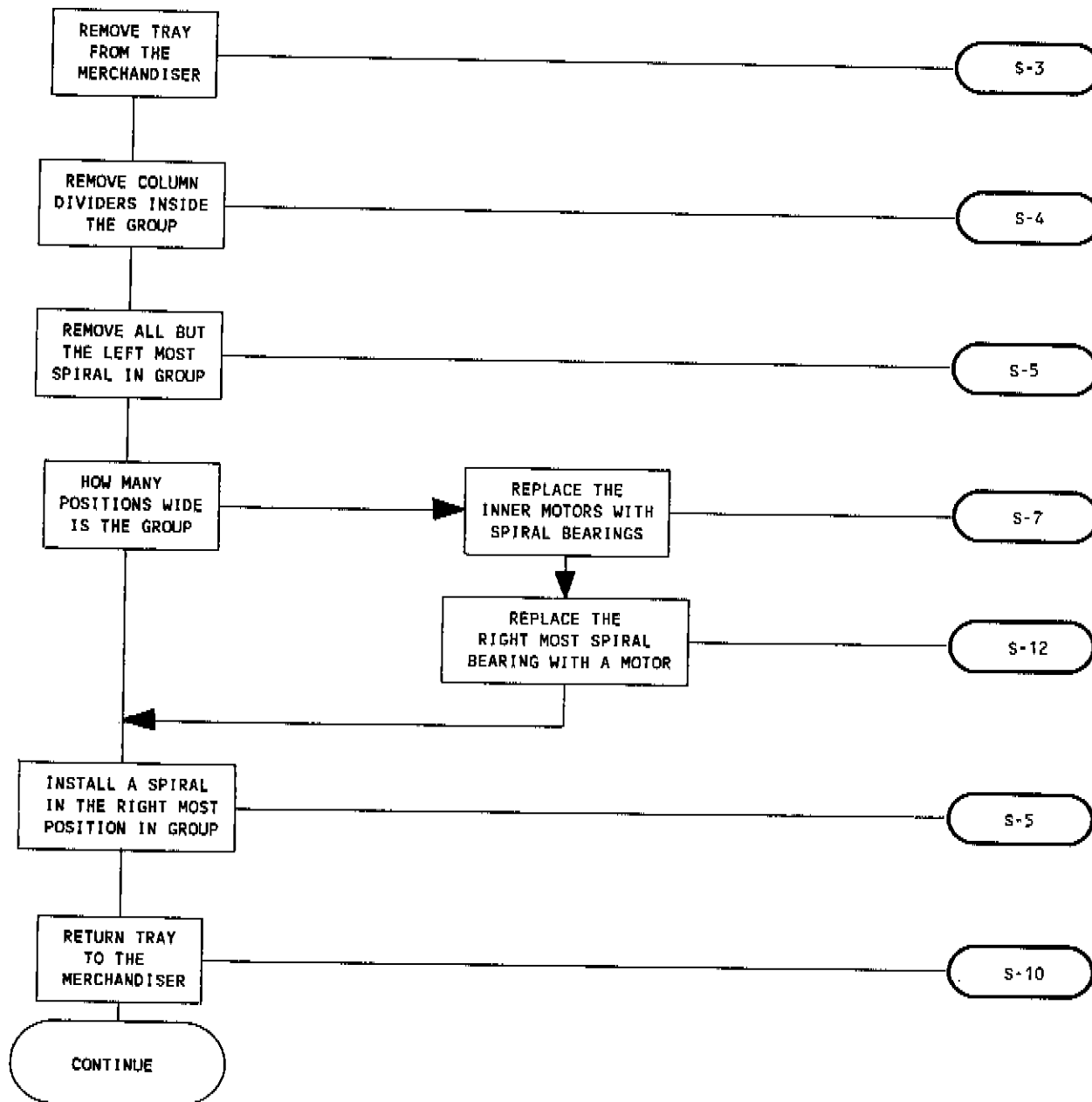


Figure S-1b

**CANDY TRAY
SET-UP FOR WIDER PRODUCTS**



NOTE

The left-most position of a coupled group must be position 0 or an even numbered position.

- * Push back on the tray slightly with with your palms. This releases the the tray catches.
- * Push down on the tray catches with your thumbs.
- * Pull the tray forward until you hear and feel the back rollers of the tray drop into the cut-out in the top of the guide rail. See Figure S-3a.

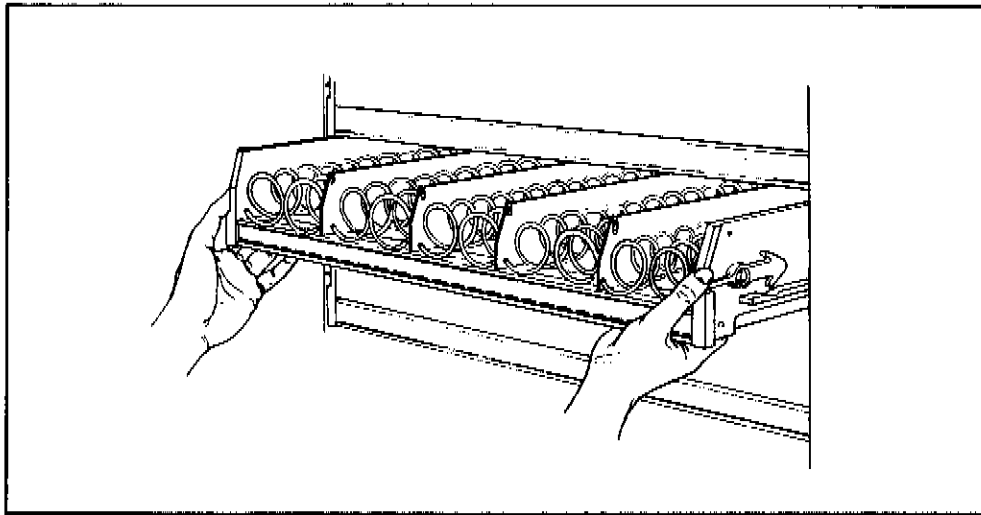


Figure S-3a

- * Lift up on the tray and slide it toward the back. No more than an inch should be needed.
- * The tab near the back of the tray should align with the cut-out in the top of the guide rail. See Figure S-3b.
- * Lift the tray clear of the guide rail and out of the merchandiser.

NOTE

When the cabinet door is not fully open, exercise extra care in removing the bottom tray. Failure to do so may result in damage to the tray or to the delivery pan assembly.

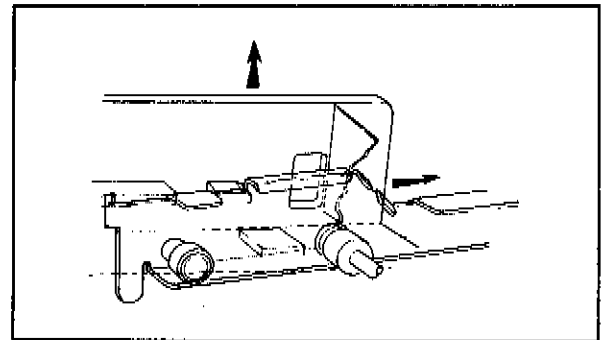


Figure S-3b

* Push the Column Divider toward the back of the Tray. See Figure S-4a.

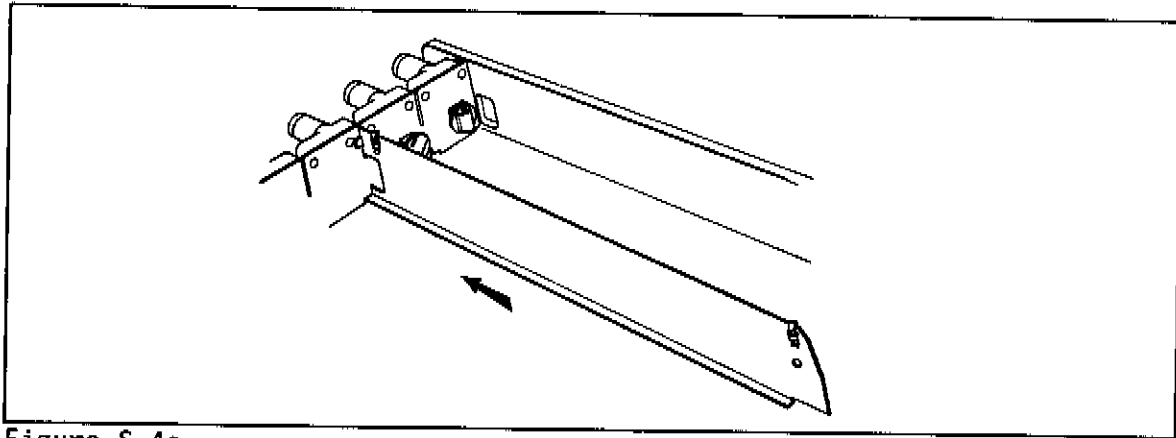


Figure S-4a

* Lift the Column Divider clear of the Tray. See Figure S-4b.

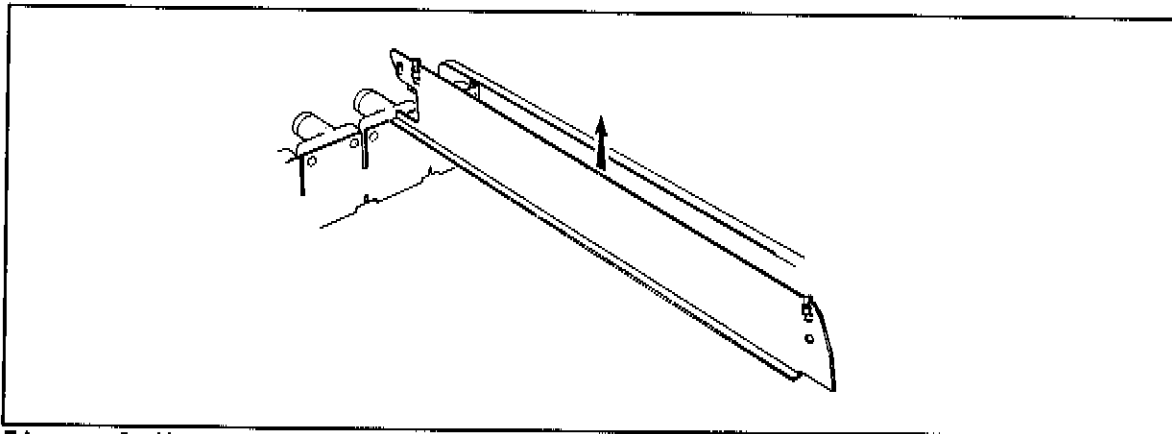
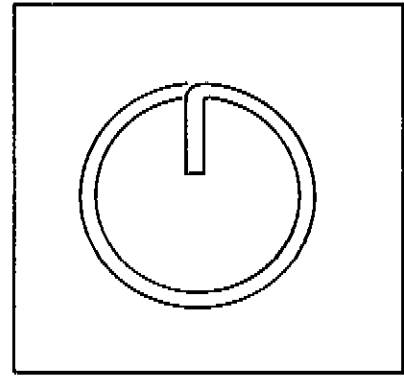


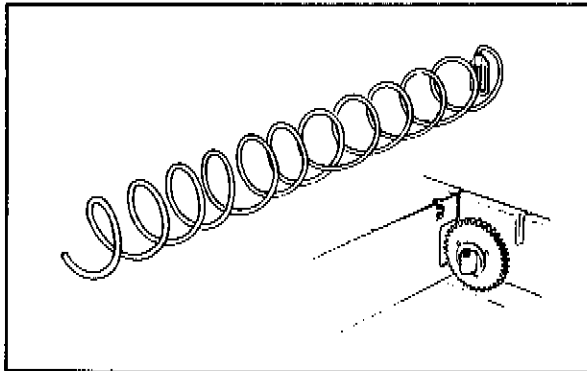
Figure S-4b

* All spirals are the same diameter.

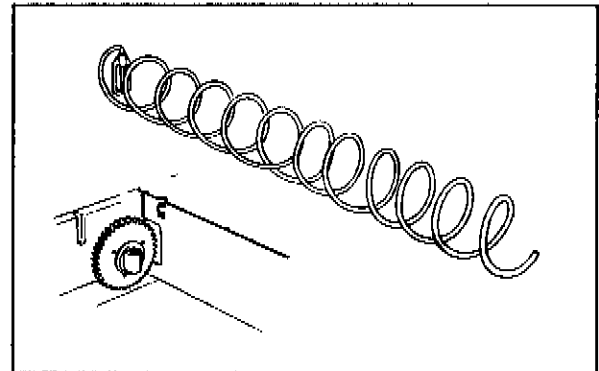


* There are two types of spirals:

COUNTER-CLOCKWISE



CLOCKWISE

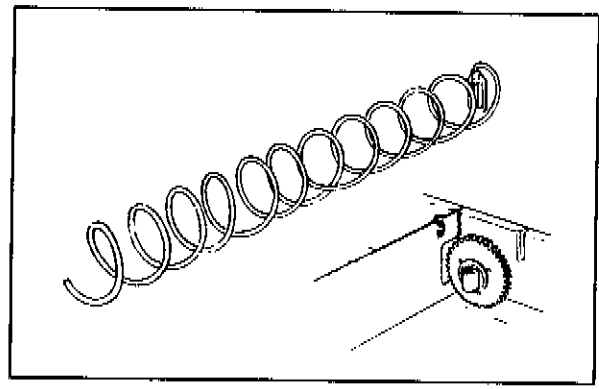
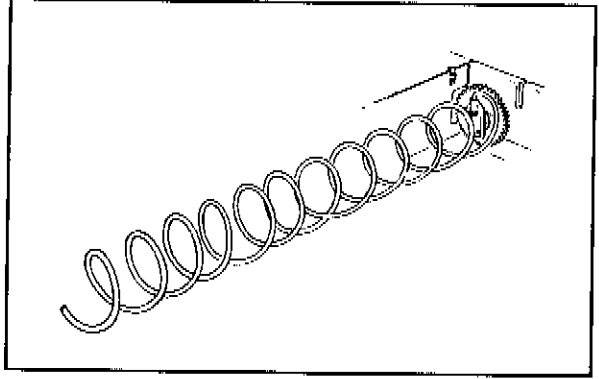


* Spirals are available in eight different capacities. Four of these are standard and four are options.

ITEM CAPACITY OF SPIRAL	PART NUMBER	
	CLOCKWISE (RH)	COUNTERCLOCKWISE (LH)
6 (Optional)	1477104	1477102
11 (Standard)	1477027	1477024
13 (Standard)	1477033	1477030
15 (Standard)	1477039	1477036
20 (Standard)	1477045	1477042
25 (Optional)	1477051	1477048
30 (Optional)	1477057	1477054
38 (Optional)	1477063	1477060

TO REMOVE A SPIRAL

- * Pull forward on the retaining clip and remove the end of the spiral from the spiral coupler.
- * Remove the spiral from the tray.

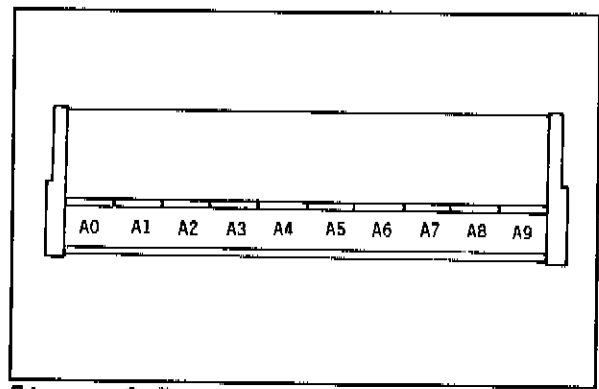


TO INSTALL A SPIRAL

- * Pull the bottom of the retaining clip toward the front of the spiral.
- * Lower the spiral into the tray column and insert the end of the spiral into the spiral coupler.
- * Release the retaining clip.

SHOULD I USE A CLOCKWISE OR A COUNTERCLOCKWISE SPIRAL?

- * The type of spiral used is determined by the column position it will occupy in the tray.
- * Refer to Figure S-5a and Table S-5a to find the correct spiral type.



SPIRAL TYPE	COLUMN POSITION				
CLOCKWISE (RH)	A1	A3	A5	A7	A9
COUNTERCLOCKWISE (LH)	A0	A2	A4	A6	A8

Table S-5a

Figure S-5a

REMOVING A SPIRAL COUPLER

- * Pinch together the prongs on the end of the Spiral Coupler.
- * Pull the Coupler forward.

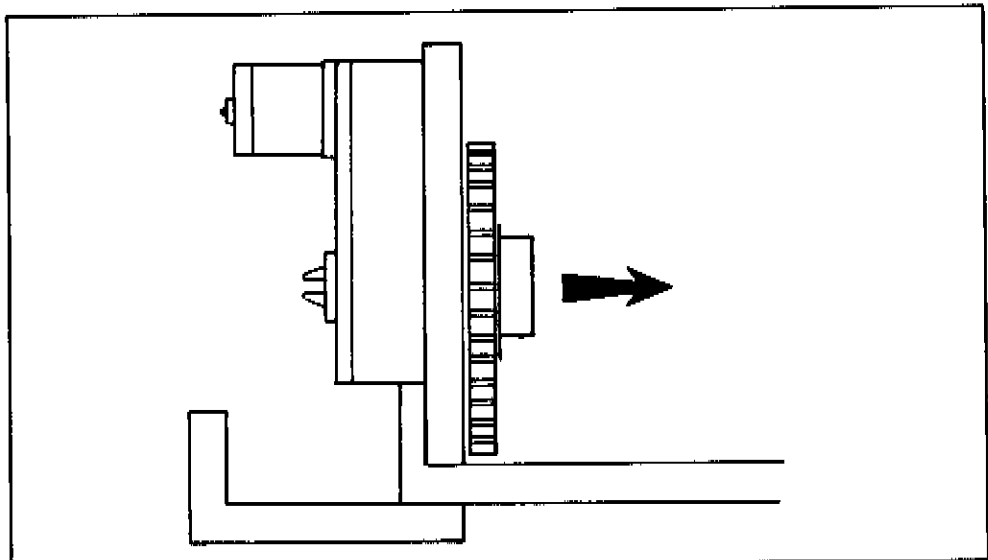


Figure S-6a

REMOVING A MOTOR

- * Disconnect the Harness from the Motor. See S-11
- * Remove the Spiral. See S-5
- * Remove the Spiral Coupler. See S-6
- * Lift the Motor clear of the Tray Assembly.

INSTALLING A SPIRAL BEARING (See Figure S-7a)

- * Put Gear in position if required in this set-up. See S-8
- * Install the Spiral Coupler. See S-9

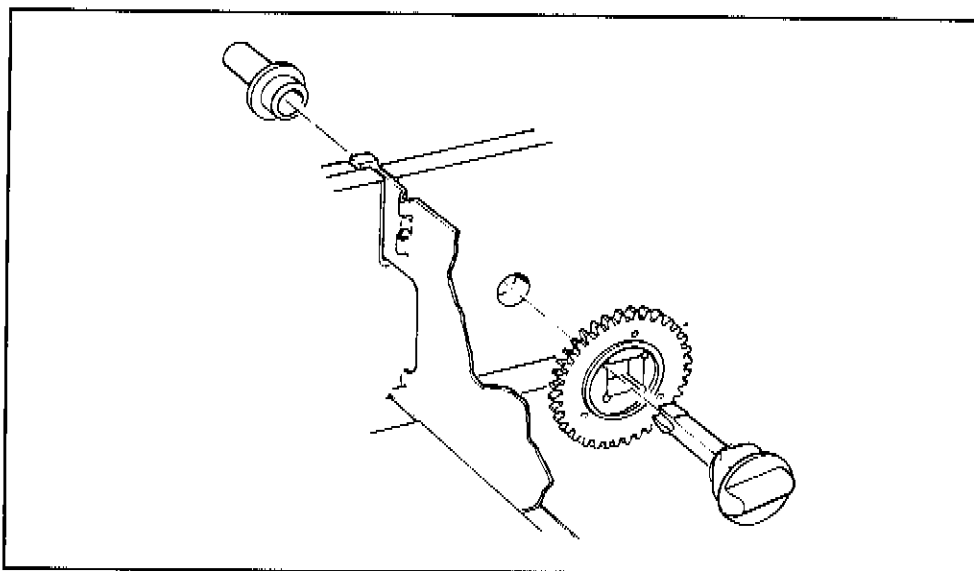


Figure S-7a

INSTALLING A SPIRAL COUPLER

- * Place Gear in position if one is required for this set-up. See S-8

WHEN USED WITH A MOTOR - See Figure S-9a

- * Hold Motor in place and push Spiral Coupler through the Motor Gear Box until it locks into position.

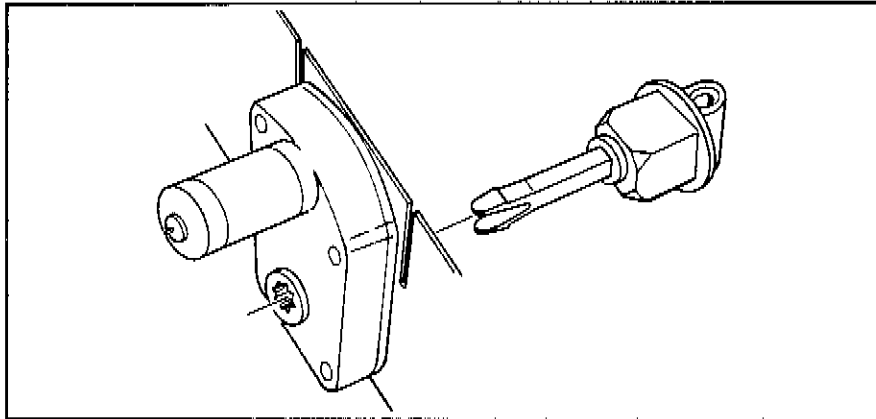


Figure S-9a

WHEN USED WITH A COUPLER BEARING - See Figure S-9b

- * Hold the Coupler Bearing in place and push the Spiral Coupler through the Bearing until the Couple locks into position.

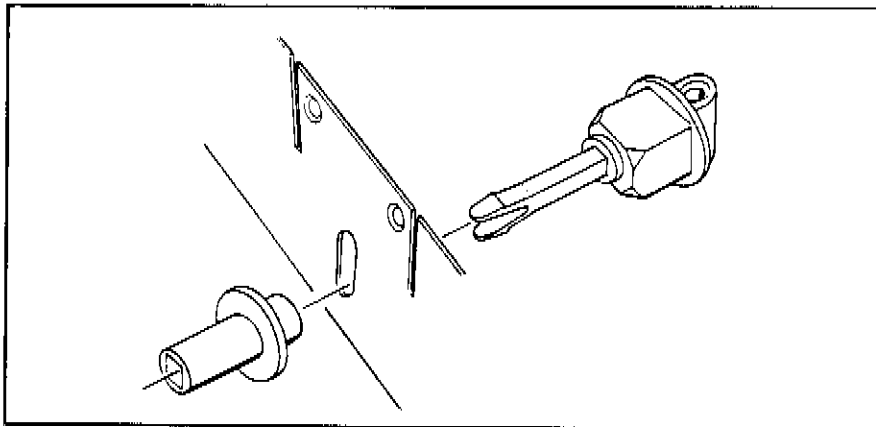
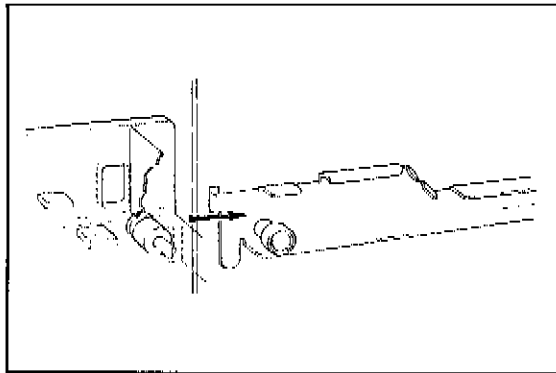


Figure S-9b

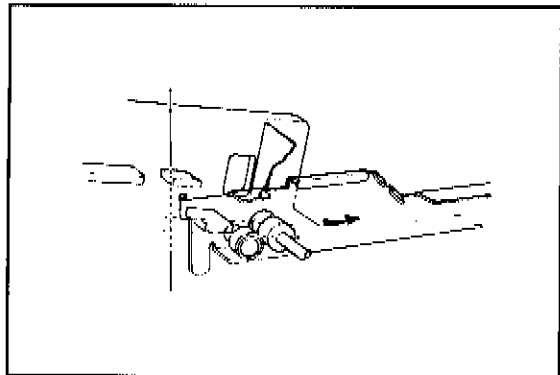
INSTALLING A TRAY IN THE MERCHANDISER

- * Study this procedure before you install a tray for the first time.
- * While you are holding the tray you will not be able to see this area.
- * Complete the following procedure when installing a tray:

1. Insert the tray so that the tray rollers pass over the tray-guide rollers.

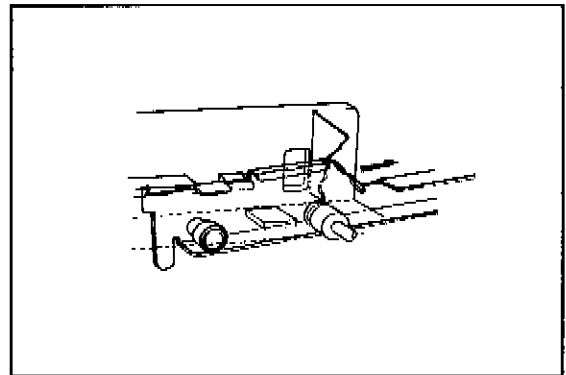


2. Bring the tray roller to rest on the tray guide.



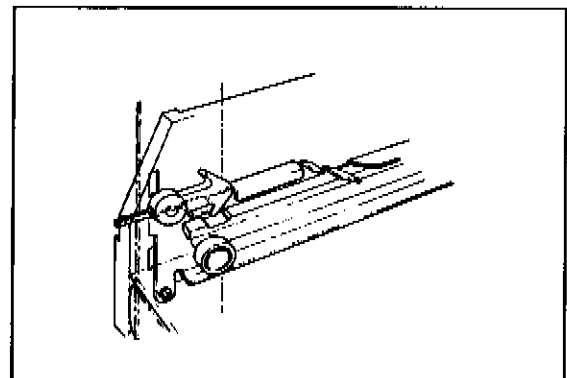
3. Tilt the tray upward.

4. Hold the tray up while pushing it toward the rear. Stop when the tab on the tray aligns with the opening in the tray guide.



5. Lower the tray until it rests on the tray-guide roller. Push the tray in all the way.

6. The tray retaining clip will fall into the locking position.

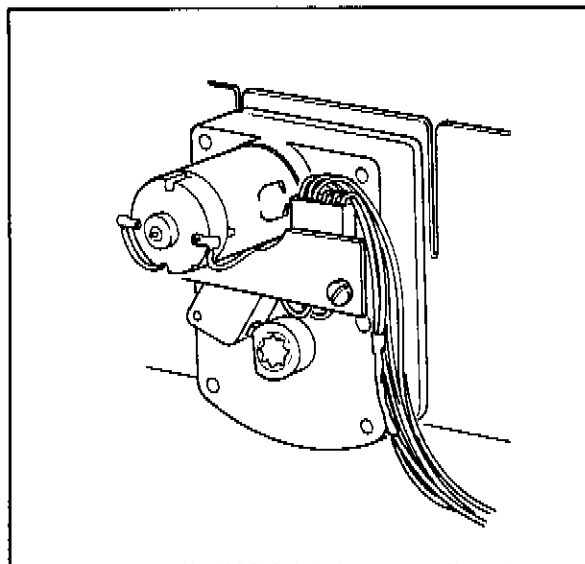


NOTE

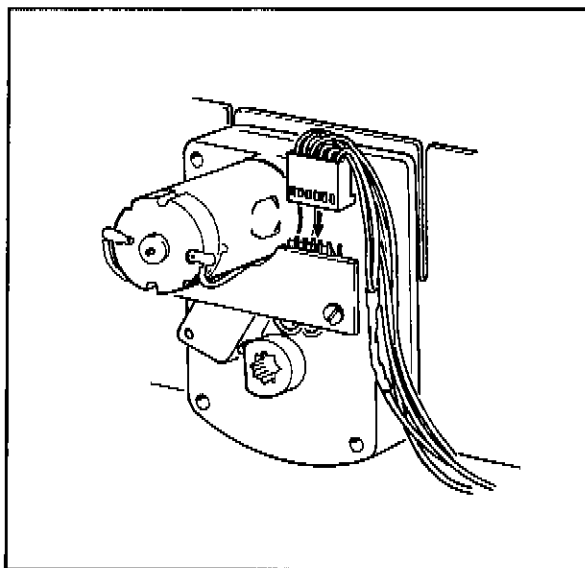
Hold the header on the Motor Circuit Board whenever connecting or disconnecting a Motor Harness. This will help prevent breakage of the Circuit Board.

DISCONNECTING A MOTOR HARNESS

- * Pull the harness connector away from the circuit board.
- * Tuck the unused part of the Harness out of the way in the trough at the back of the Tray.

**CONNECTING A MOTOR HARNESS**

- * Locate the harness connector for the tray position of interest.
- * Push the harness connector over the header pins on the Motor Circuit Board.



REMOVING A SPIRAL MOTOR

- * Place the Tray in the loading position. See S-1
- * Disconnect the Motor Harness. See S-11
- * Remove the Spiral. See S-5
- * Remove the Spiral Coupler. See S-6
- * Lift the Motor clear of the Tray.

INSTALLING A SPIRAL MOTOR (See Figure S-12a)

- * Place the Tray in the loading position. See S-1
- * Place the Motor in the correct position at the rear of the Tray.
- * Place a Gear in position if required by this set-up. See S-8
- * Install a Spiral Coupler. See S-9

NOTE

*The Spiral Coupler
holds the motor
in place.*

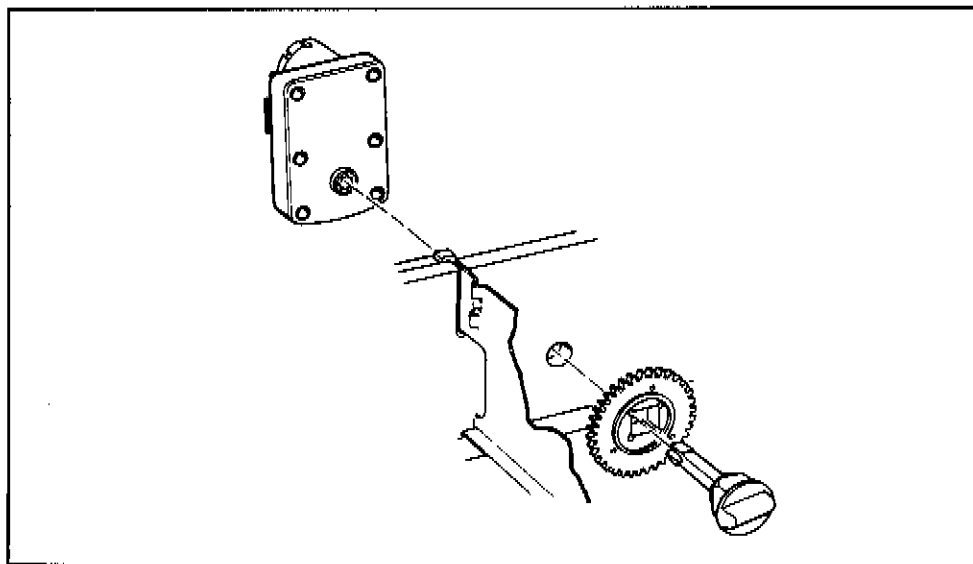


Figure S-12a

- * Connect the Motor Harness. See S-11

- * This merchandiser can be adjusted to vend taller products.
- * When you increase the product height for one tray, you will be decreasing the product height available for the tray below, the tray above or sometimes for both of these trays.
- * The Trays can be relocated as follows:

6-TRAY CONFIGURATION						
TRAY	A (BOTTOM)	B	C	D	E	F
POSSIBLE POSITIONS	1	2	3	3	3	3

- * When relocating Trays, the following rules apply:

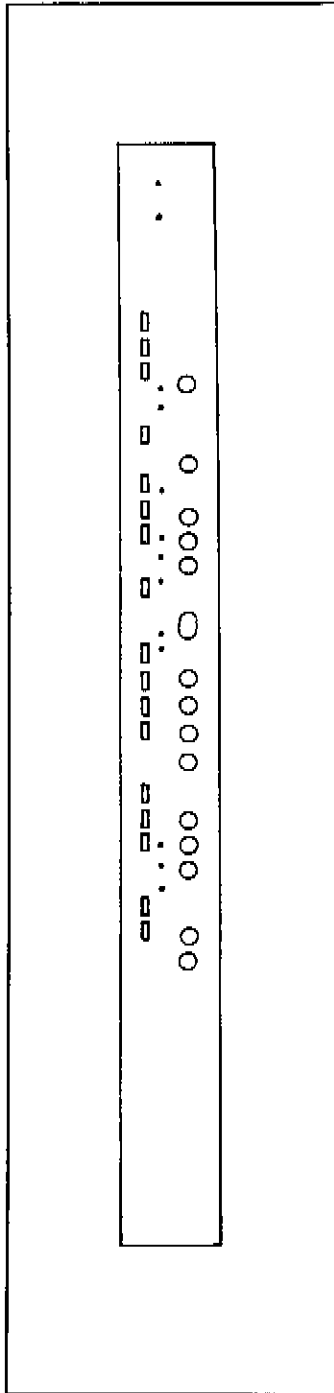
NEW POSITION OF TRAY BEING MOVED	ALLOWABLE POSITIONS FOR TRAY ABOVE	ALLOWABLE POSITIONS FOR TRAY BELOW
UPPER	MIDDLE UPPER	UPPER MIDDLE LOWER
MIDDLE	UPPER MIDDLE LOWER	UPPER MIDDLE LOWER
LOWER LOWER	UPPER MIDDLE LOWER	MIDDLE LOWER

CAUTION

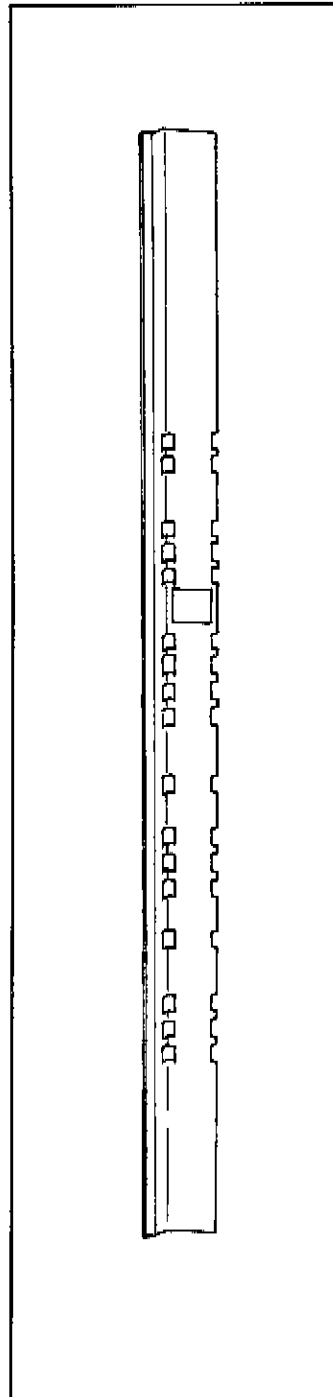
The trays in a Model 461 or 462 merchandiser should not be positioned over an open air discharge vent.

* The slot number used in the Tray-Guide Mounting Channels will be the same as the slot number used in the Receptacle Mounting Channel.

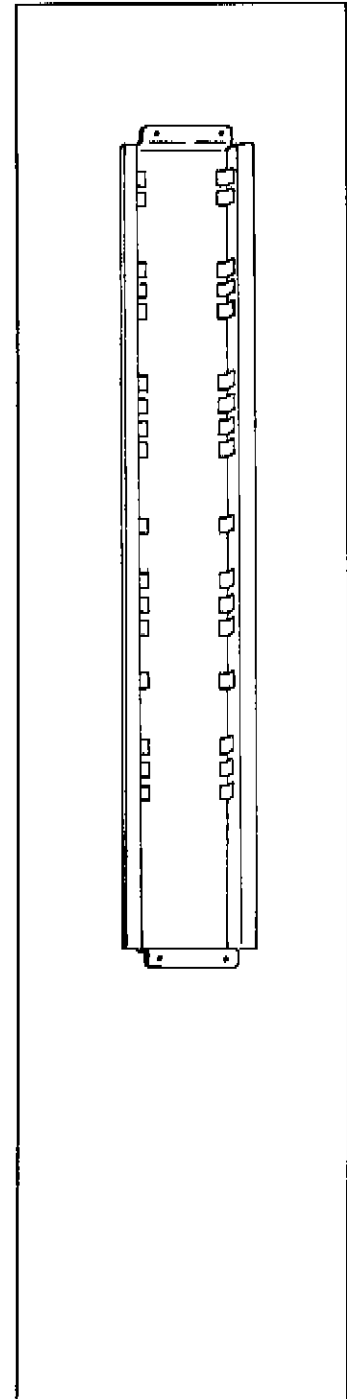
**FRONT GUIDE
MOUNTING CHANNEL**



**REAR GUIDE
MOUNTING CHANNEL**



**RECEPTACLE BLOCK
MOUNTING CHANNEL**



TO RELOCATE A TRAY

1. Remove the Tray from the merchandiser. See S-3
2. Remove the screw that secures the Left Tray-Guide to the Front Guide-Mounting Channel. See Figure S-13a.

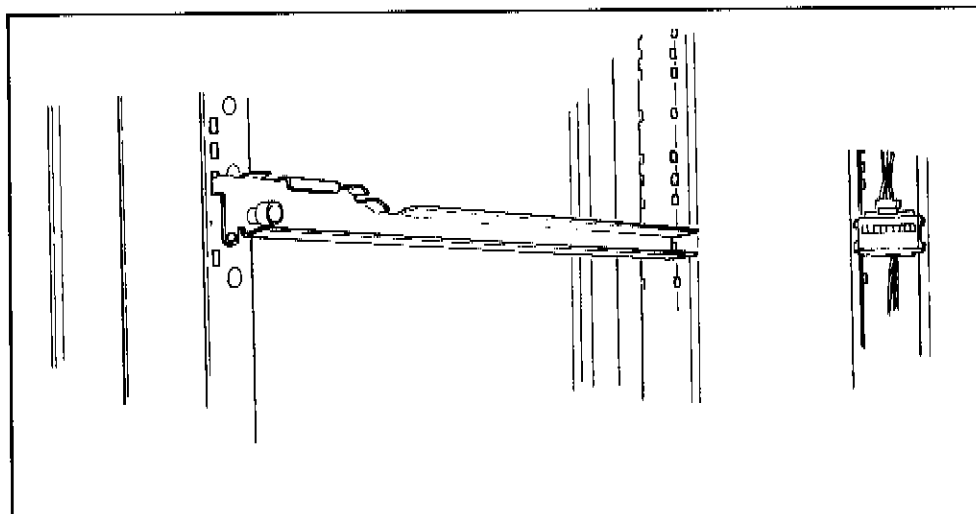


Figure S-13a

3. Tap up on the Tray Guide and unseat the Guide Rail tabs from the channel slots.
4. Pull the Guide Rail away from the Channels.
5. Move the Tray Guide to the desired position.
6. Insert the Guide Rail tabs into the Channel slots. See Figure S-13b.
7. Tap down on the Guide Rail to seat the tabs in the Channel slots.
8. Replace the screw that secures the Guide Rail to the Front Guide-Mounting Channel. See Figure S-13a.
9. Repeat Steps 2-8 for the Right Guide Rail.
10. Disconnect the Harness from the Receptacle Block. See Figure S-13a.
11. Press the blade of a slotted head screw driver between one of the Receptacle Block locking tabs and the Receptacle Mounting Channel. See Figure S-13c. This will unseat the locking tab.
12. Pull the Receptacle Block away from the Channel.
13. Move the Receptacle Block to the desired position.

14. Push the tabs of the Receptacle Block into the slots in the Channel.
15. Reconnect the Harness to the Receptacle Block.
16. Return the Tray to the Merchandiser. See S-10

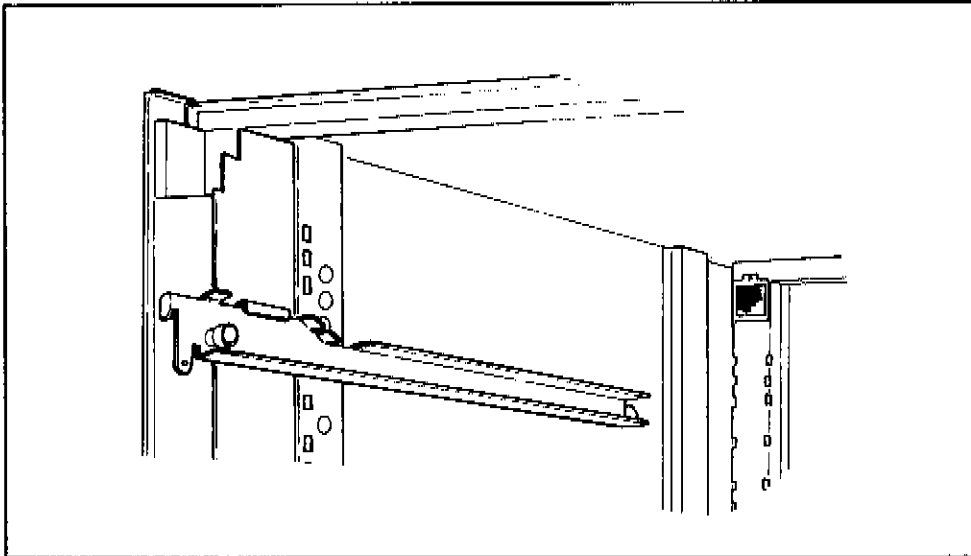


Figure S-13b

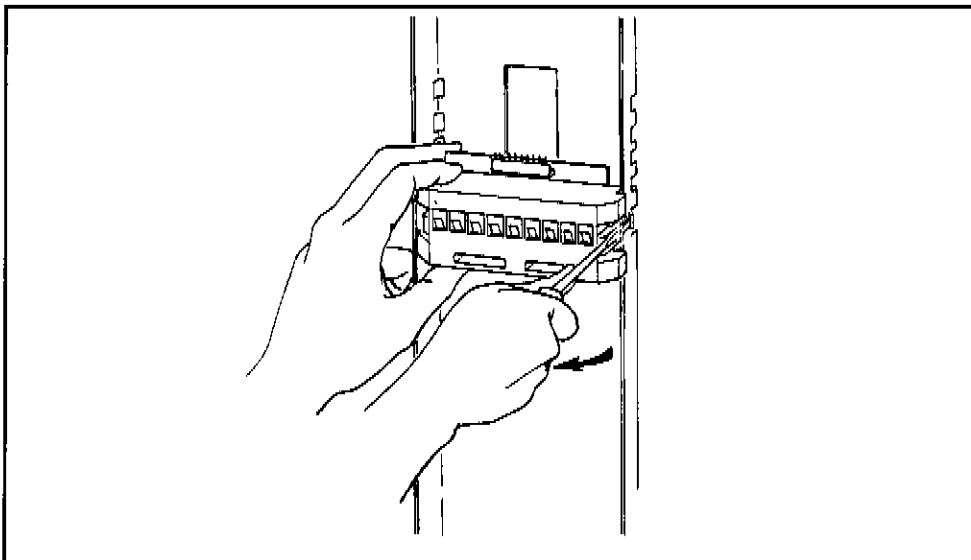


Figure S-13c

INSTALLING A PRODUCT SPACER

Insert the mounting pins of the Product Spacer into the Column Divider. See Figure S-14a

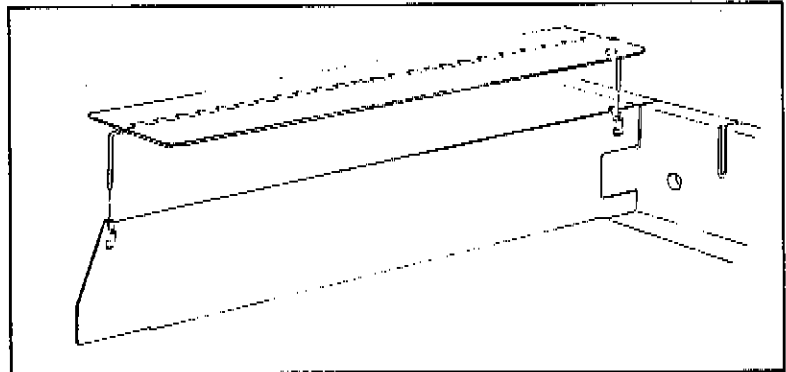


Figure S-14a

ADJUSTING A PRODUCT SPACER

With product loaded in Tray, rotate the Product Spacer up or down to keep the product upright. See Figure S-14b.

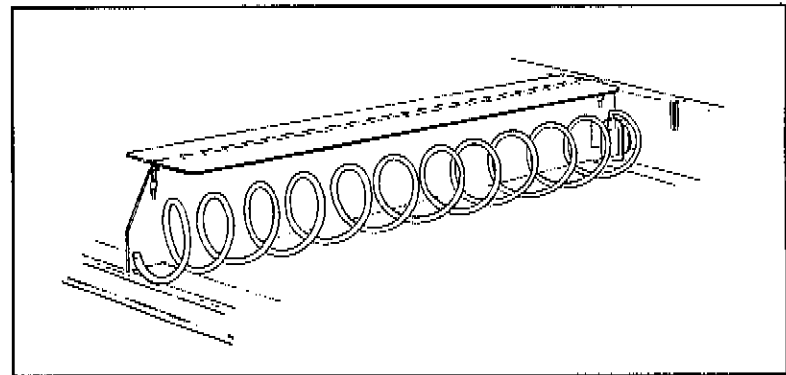


Figure S-14b

REMOVING A PRODUCT SPACER

Pull the mounting pins of the Product Spacer from the Column Divider. See Figure S-14c.

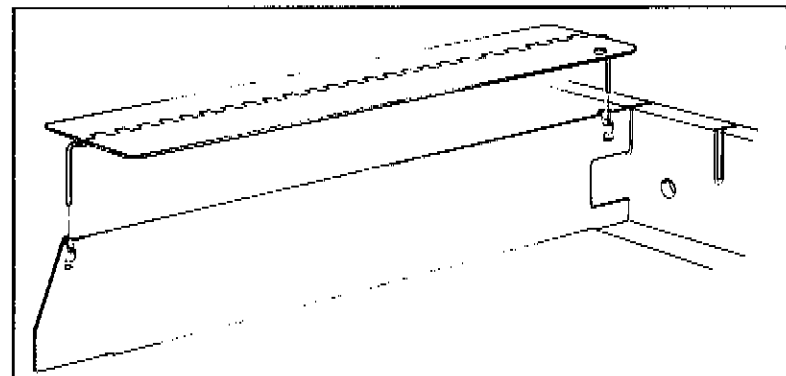


Figure S-14c

LOADING A TRAY WITH PRODUCTS IN GENERAL

Place tray in the loading position. See S-1.

Begin loading products at the front of the tray and work to the back.

Position the product so the package rests on the tray.

DO NOT force a product into a spiral.

If the fit is too light or too loose, change the spiral size. See S-12.

Be sure there are no empty positions between products in each spiral.

SPECIAL CONSIDERATIONS

Bagged Products - position package upright, then push tops slightly toward rear of the tray

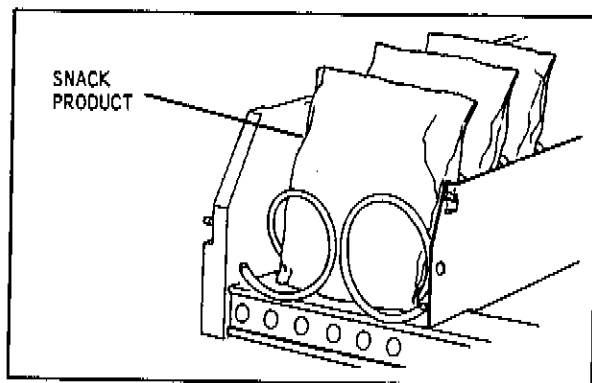
Thin Packages - position package upright

KitKat - the two right-most columns of a candy tray are designed to accept the KitKat candy bar

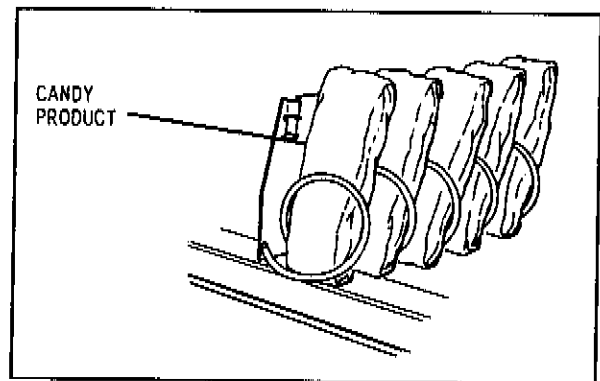
Chilled Candy - use the lowest trays for candy that is to be chilled

WARNING

THIS MERCHANDISER DOES NOT HAVE A HEALTH CONTROL CIRCUIT. IT IS NOT APPROVED FOR THE VENDING OF PERISHABLE FOOD ITEMS.



**CORRECT LOADING
OF
SNACKS**



**CORRECT LOADING
OF
CANDY**

PREPARING MERCHANDISER FOR VENDING "LUNCH BUCKET"

Because of the weight and shape of the package, National Vendors recommends that this product be vended only from the bottom tray.

To vend this product, two adjacent positions must be coupled together.

See S-8 for mechanical coupling directions or see P4-5 for electrical coupling directions.

The left spiral coupler should be installed one position counter-clockwise from the vertical position.

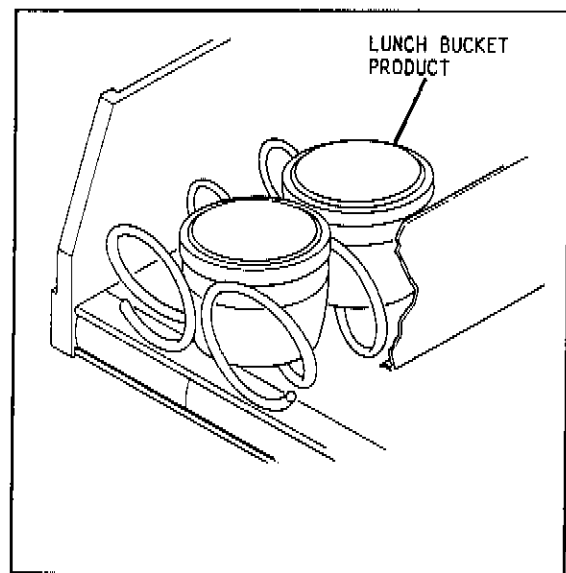
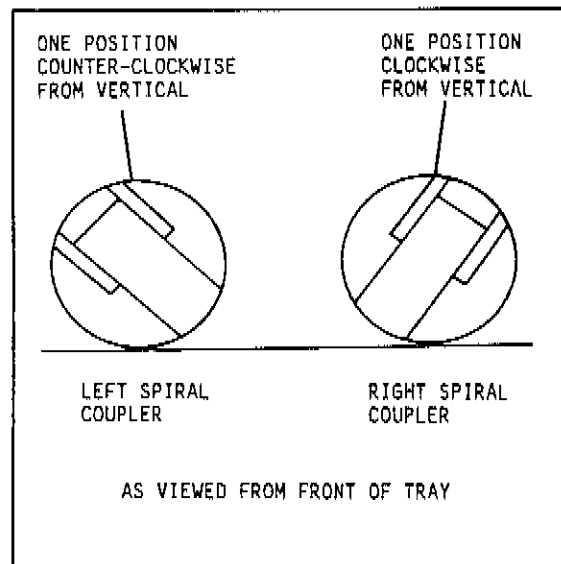
The right spiral coupler should be installed one position clockwise from the vertical position.

Replace the current spirals with six-count spirals. These are available from National Vendors Parts Department. See S-5 for removal and replacement instructions.

A pad can be installed in the bottom of the delivery pan to quiet and cushion the delivery. This part is available from National Vendors Parts Department.

LOADING "LUNCH BUCKET"

CORRECT LOADING
OF
"LUNCH BUCKET"



PREPARING MERCHANDISER FOR VENDING "TOP SHELF"

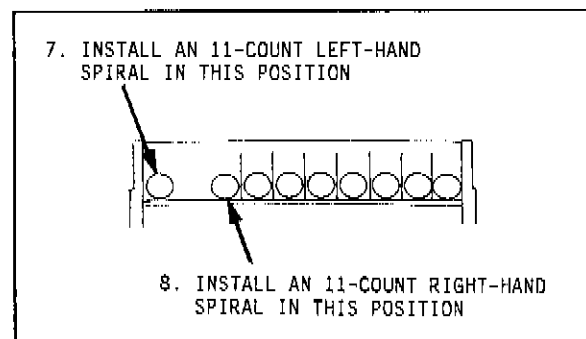
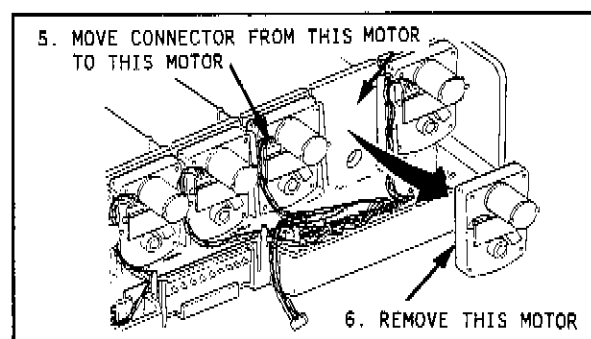
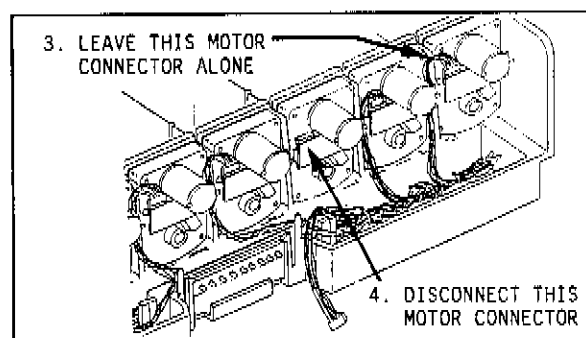
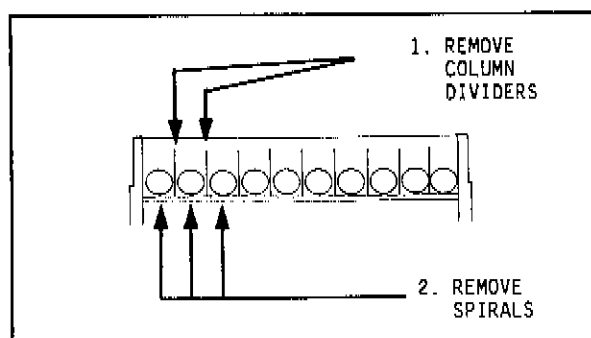
National Vendors recommends that this product be vended from a candy tray.

Move the tray so the package can be loaded standing on its left or right edge. See S-13 in this manual.

The following steps must be completed for three adjacent positions on the tray:

NOTE

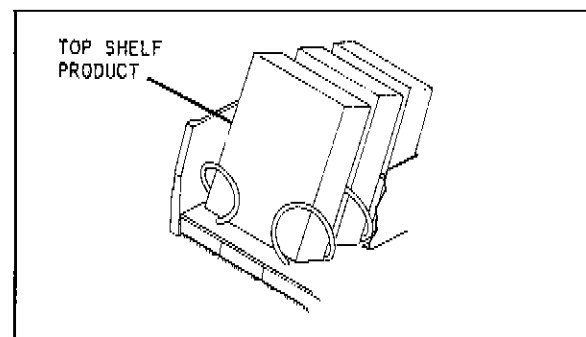
The left-most position in the group of three must be an even numbered position.



Couple the left motor to the right motor. See P4-5 in the PROGRAMMING GUIDE.

LOADING "TOP SHELF"

CORRECT LOADING
OF
TOP SHELF



WHEN THE TRAY IS IN THE LOADING POSITION:

- * Lift the Tray until it is parallel to the floor. See Figure S-16a.

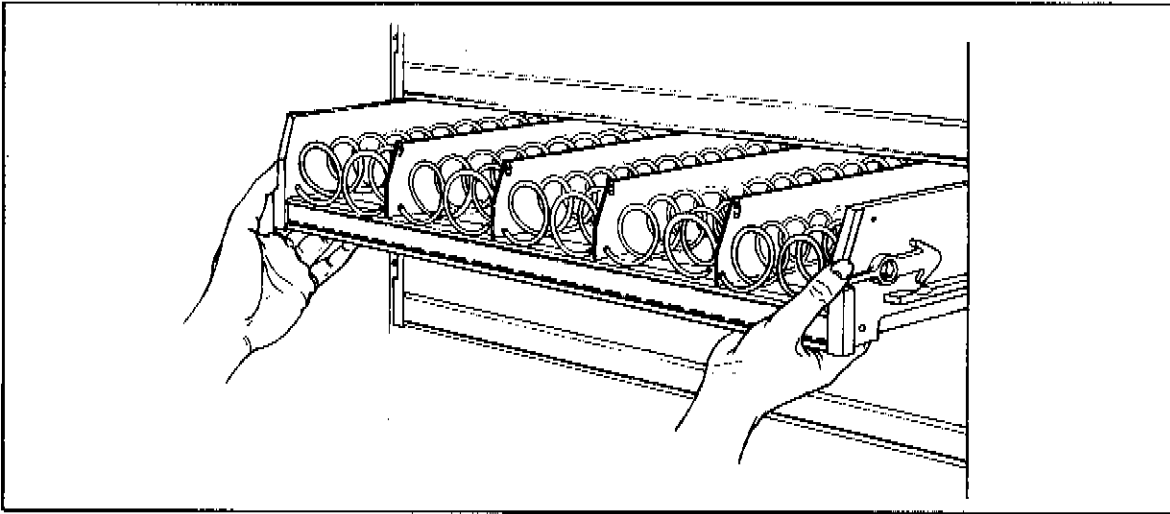


Figure S-16a

- * Push the Tray toward the back of the cabinet.
 - The connector on the back of the Tray mates with the Receptacle Block
 - The retaining clips on the sides of the Tray lock into position.

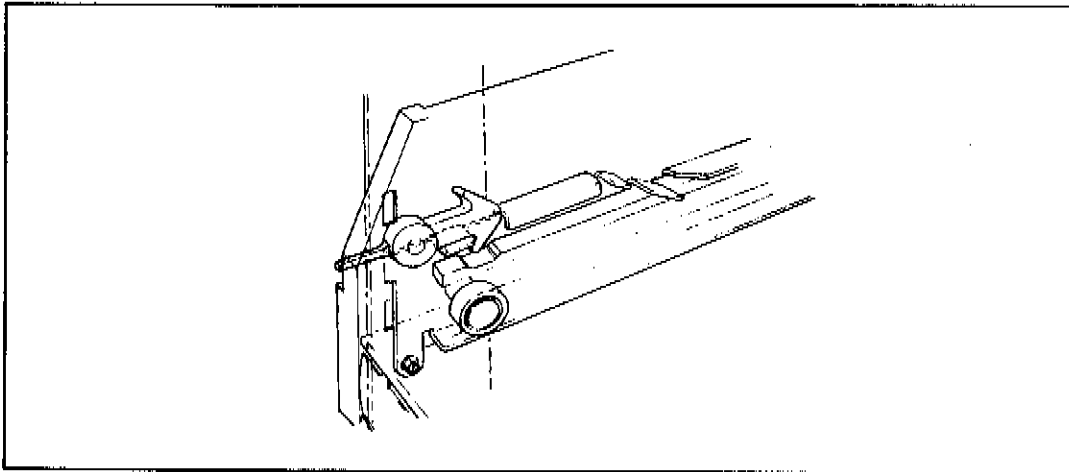


Figure S-16b

Price labels are printed on coiled-up rolls. You will find these in the plastic bag that contained this manual. See Figure S-17a.

There are two types of price rolls:

- * Dollar Roll - 1 to 12 increments of 1
- * Cents Roll - 00 to 95 increments of 05

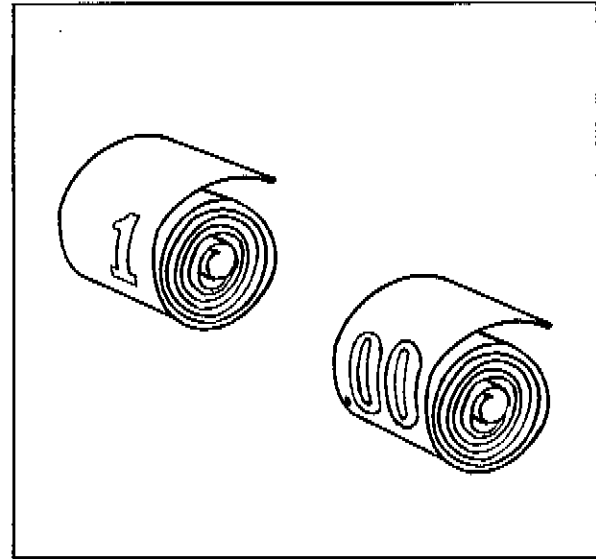


Figure S-17a

INSTALLING PRICE LABELS

- * There are three pairs of slots in the front of the Tray for each column position.
- * Insert the dollar roll in the left-most pair of slots if the price is \$1.00 or more. See Figure S-17b.
- * Insert the cents roll in the center pair of slots. See Figure S-17b.
- * The low-number end of the roll goes in the top slot and the high-number end of the roll goes in the bottom slot.

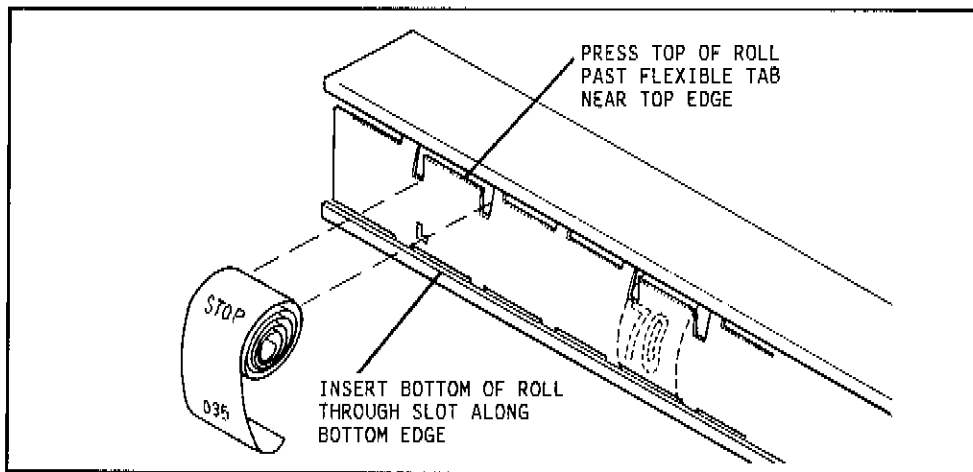


Figure S-17b

ADJUSTING THE PRICE LABELS

* You can set selection prices within the following range:

Minimum Price \$.00

Maximum Price \$12.95

Increment \$.05

* Use your thumb to move each price roll up or down as needed to set the desired price. See Figure S-17c.

NOTE

You will see the word STOP near either end of the roll.

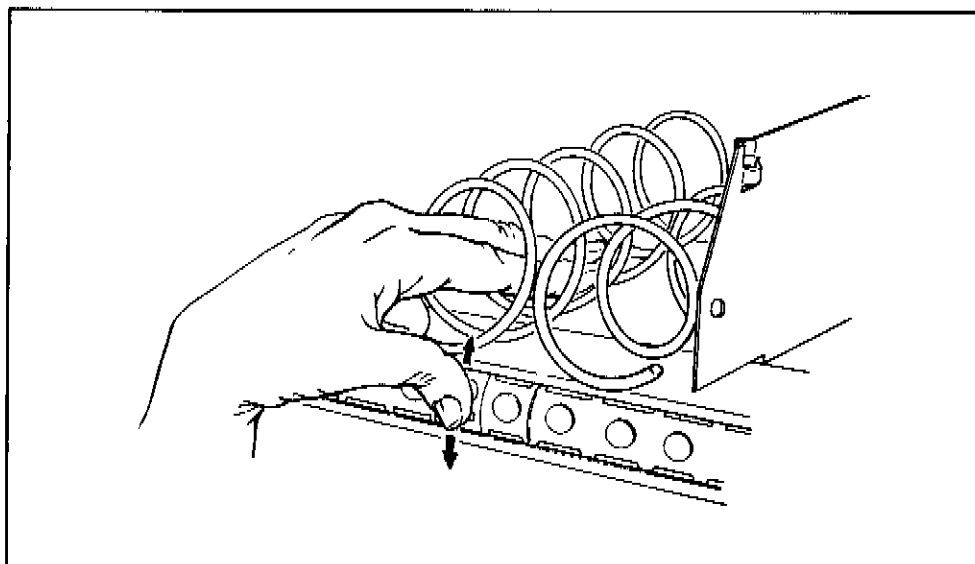


Figure S-17c

Selection ID Numbers are printed on clear plastic labels. You will find these in the plastic bag that contained this manual. See Figure S-18a.

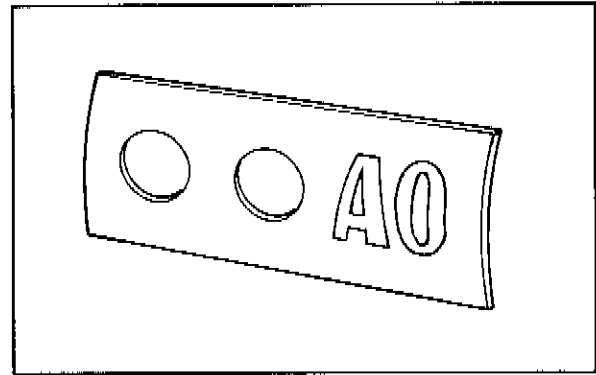


Figure S-18a

INSTALLATION OF SELECTION ID NUMBERS

- * The price label should be installed first.
- * Press the two long edges of the label together.
- * Snap the label into position on the front of the Tray. See Figure S-18b.

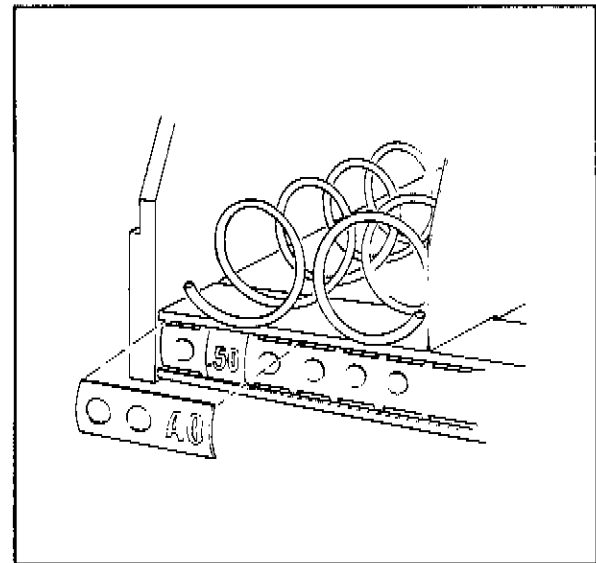


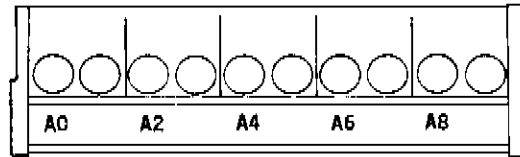
Figure S-18b

WHICH LABEL GOES WITH WHICH SELECTION?

		MOTOR POSITION									
TOP TRAY	TRAY A	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9
	TRAY B	B0	B1	B2	B3	B4	B5	B6	B7	B8	B9
	TRAY C	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9
	TRAY D	D0	D1	D2	D3	D4	D5	D6	D7	D8	D9
	TRAY E	E0	E1	E2	E3	E4	E5	E6	E7	E8	E9
BOTTOM TRAY	TRAY F	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9

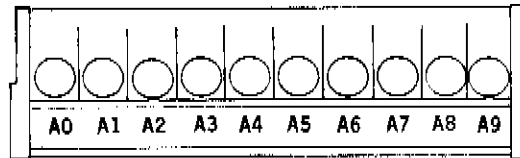
EXAMPLE OF A
BASIC SNACK
TRAY

LABEL TO USE

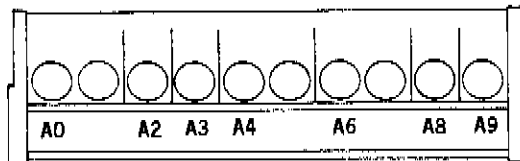


EXAMPLE OF A
BASIC CANDY
TRAY

LABEL TO USE

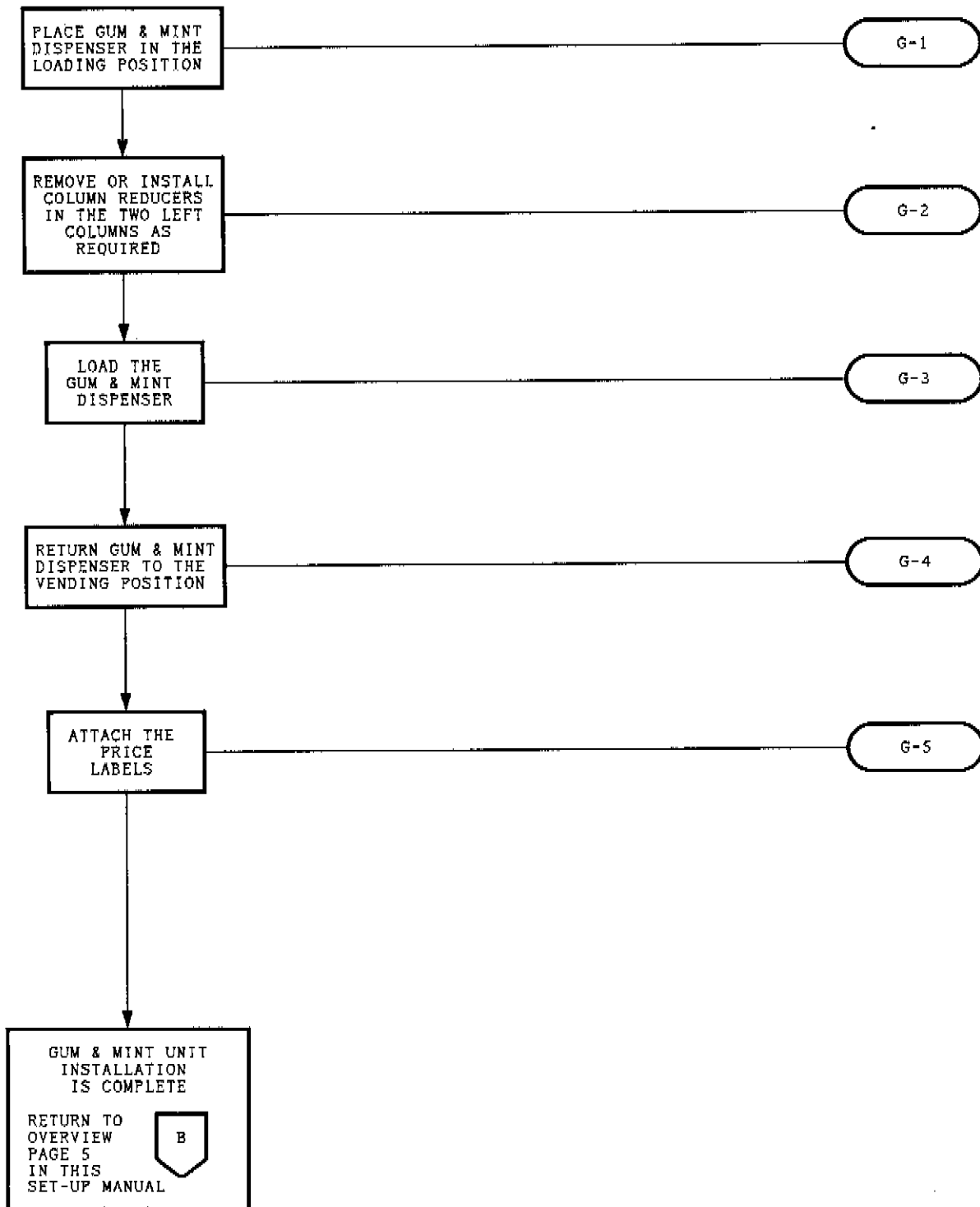


EXAMPLE OF A
COUPLED CANDY
TRAY



* When motor positions have been coupled together, the *SMALLEST EVEN-NUMBERED* position within the group will be the selection ID Number that you should use for this selection.

The information in this part of the manual has been provided to help you set up the Gum & Mint Dispenser.



- * The Gum & Mint Assembly is hinged to the Delivery Pan Assembly.
- * The Gum & Mint Assembly is held in the vending position by two magnets.
- * On version number 1, pivot the Gum & Mint Assembly upward until the support arms fall into the locked position. See Figure S-30a below.
- * On version number 2, the Gum & Mint assembly is held in the loading position by a hook and a loop. One end of the hook is attached to the right side of the door. The loop is mounted on the right side of the Gum & Mint assembly. Use the loop as a handle and raise the Gum & Mint magazine with your left hand. Use your right hand to move the free end of the hook so it catches the loop. This will hold the magazine while you are loading it with product. See Figure S-30b below.
- * The lid of the Gum & Mint assembly is held closed by two magnets.
- * Pivot the lid up and back until it is a little past the vertical position.
- * The Gum & Mint Assembly is now in the loading position

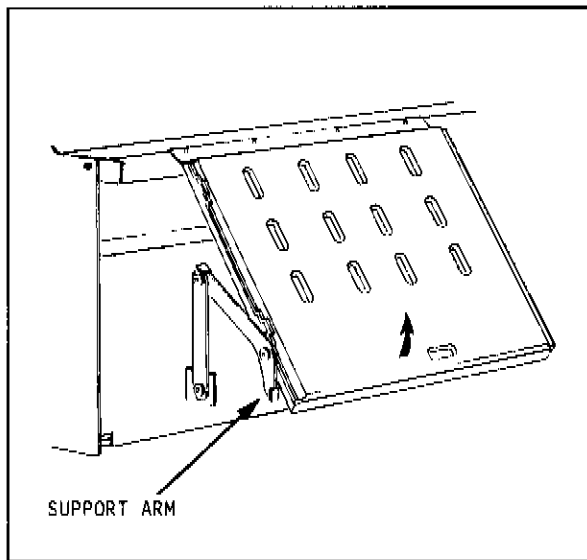


Figure S-30a Version Number 1

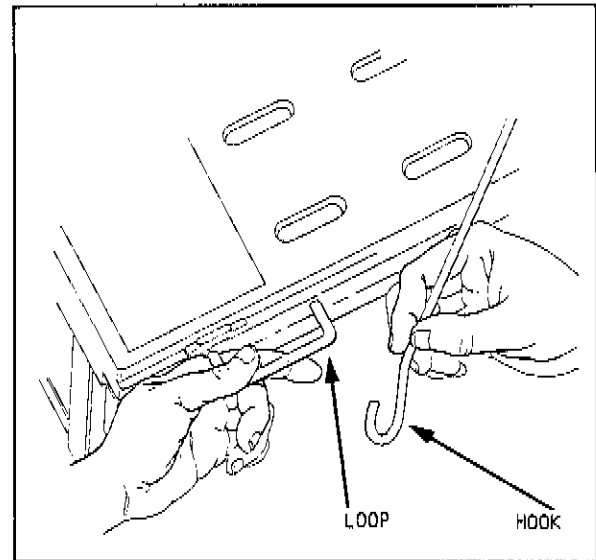


Figure S-30b Version Number 2

- * The two left-most vending columns (as seen from the loading side) can be adjusted for two different widths.
- * When a column reducer is in place, the width of the column will be 3-1/16 inches.
- * When the column reducer is removed, the width of the column will be 3-7/8 inches.

TO REMOVE A COLUMN REDUCER

- * Pull the reducer away from the cabinet door to disengage the locking tabs.
- * Lift up to remove the reducer from the Gum & Mint Assembly.

TO INSTALL A COLUMN REDUCER

- * Place the reducer on the Gum & Mint Dispenser so the locking tabs are in the slots.
- * Push the reducer toward the cabinet door to lock the reducer in position.

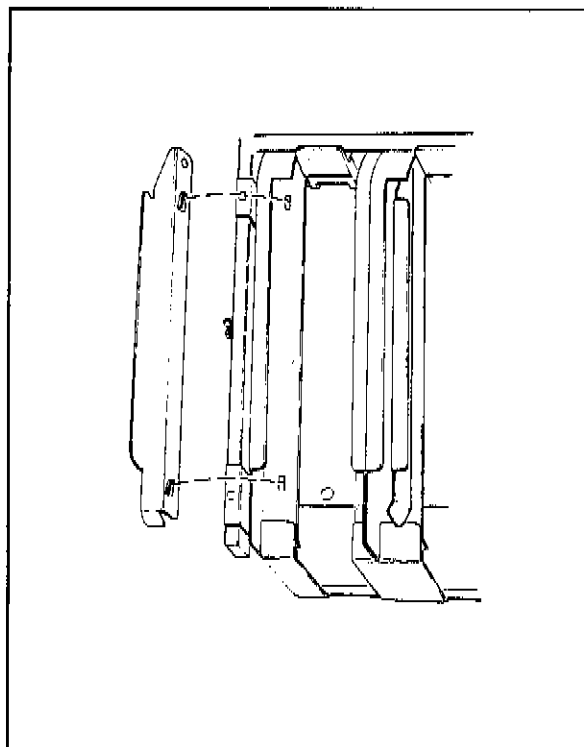


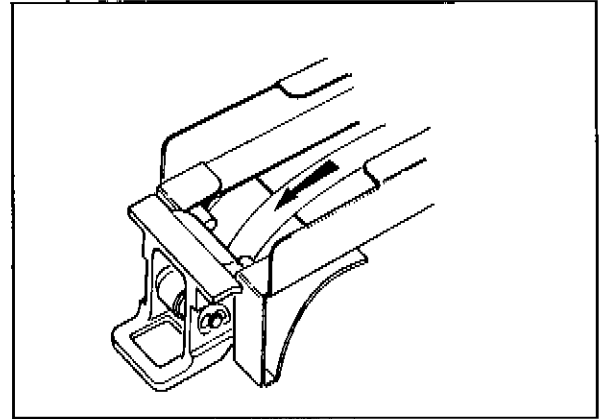
Figure S-31a

* Complete the following steps when loading the Gum & Mint Dispenser:

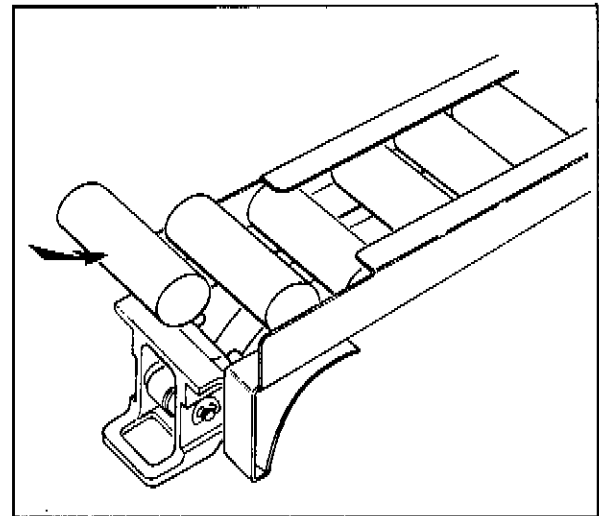
CAUTION

Keep your hand on the product pusher until it is locked in place. Failure to do so may result in damage to the Dispenser or in personal injury.

1. Move the product pusher into the loading position.
 - Pull back on the pusher.
 - Pull down on pusher and lock the front glide into position.



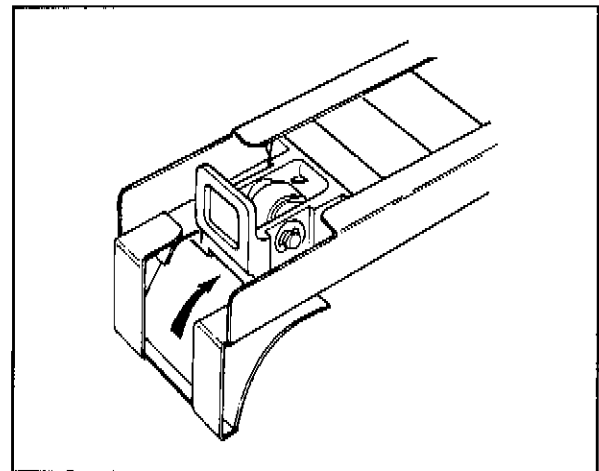
2. Load the product.
 - Push product forward.
 - Be sure last item is completely under the product retaining lip.



CAUTION

Keep your hand on the product pusher until it comes to rest behind the last item in the column. Failure to do so may result in damage to the dispenser, damaged product or personal injury.

3. Move the product pusher into the dispensing position.
 - Pull pusher down to unlock the front glide.
 - Guide the pusher toward the product.



- * All product pushers should be in the vending position.
- * Close the lid of the Gum & Mint Assembly.
- * On version number 1, hold the assembly as shown in Figure S-33a. While your fingers are supporting the magazine assembly on the bottom side, press down on the support release tabs with your thumbs and lower the magazine back into the vending position.

WARNING

Your hands must be in the position shown in Figure S-33a. In addition, continue to hold the magazine assembly until it has been fully lowered. You may be injured if you do not follow this procedure.

- * On version number 2, hold the loop on the right side of the magazine with your left hand. Release the hook with your right hand and lower the magazine. Continue to hold the loop until the magazine has been fully lowered.
- * Pivot the Gum & Mint Assembly back to the vending position.

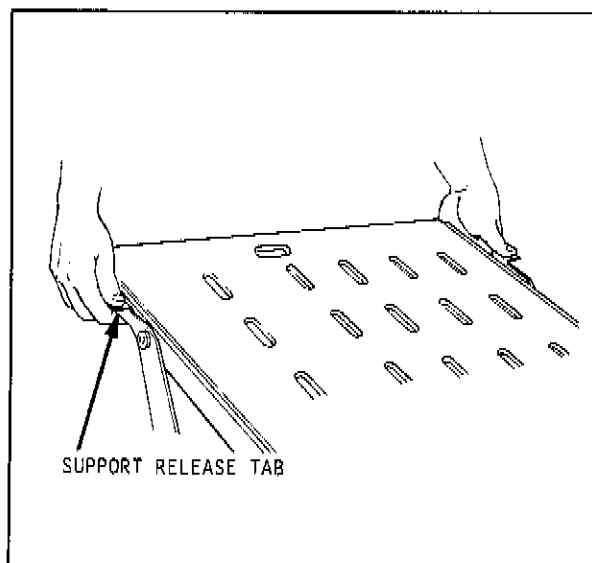


Figure S-33a Version Number 1

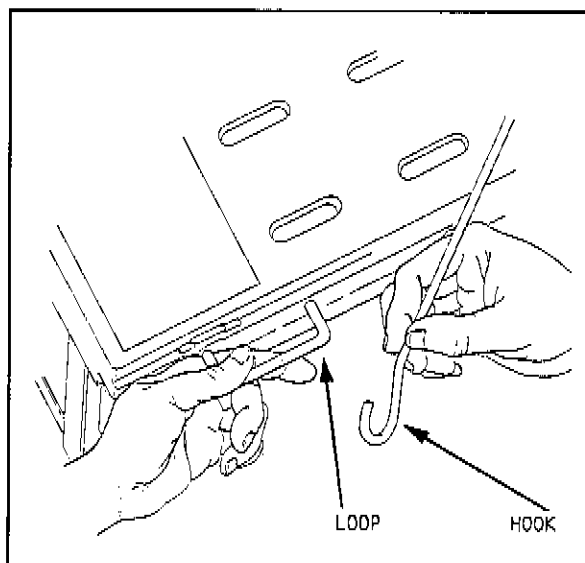


Figure S-33b Version Number 2

G-5 INSTALLING PRICE LABELS

- * The column ID labels have already been attached to the rear delivery door.
- * A set of self-adhesive price labels are in the plastic bag that contained this manual.
- * Stick the desired price label next to the column ID number as shown in Figure S-34a.
- * Peel the old price label off when you want to change the price for a selection.

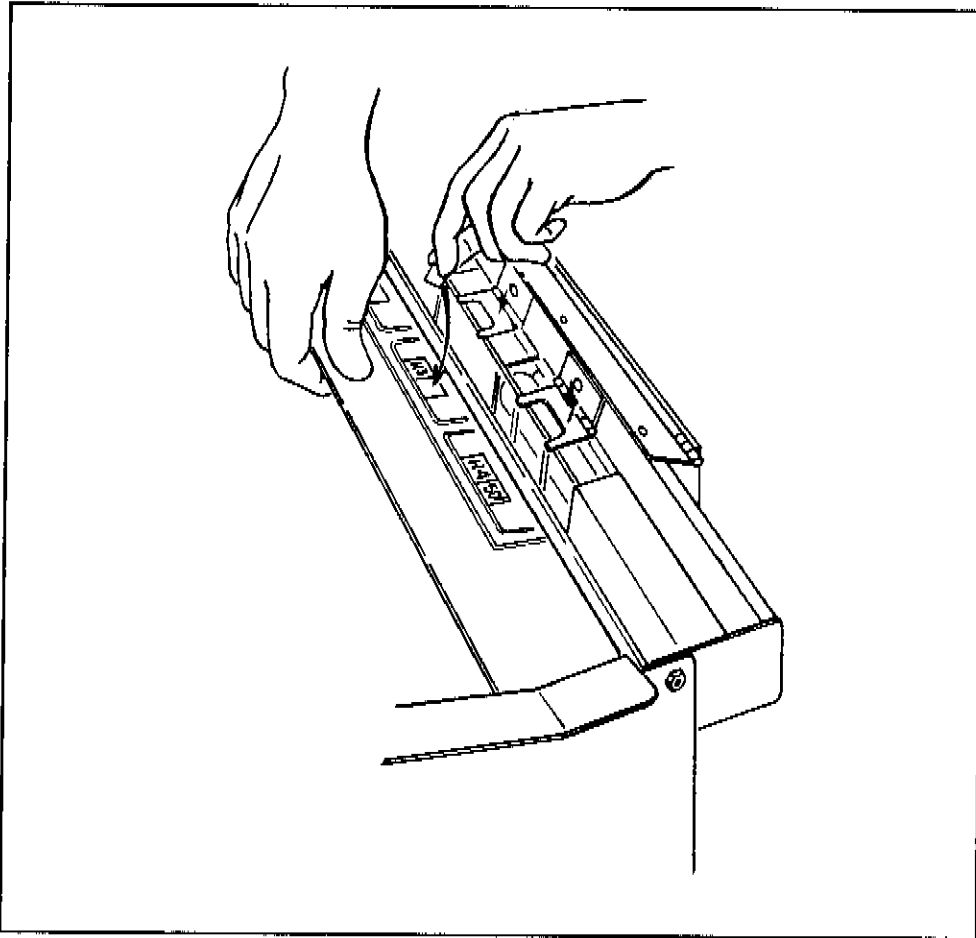
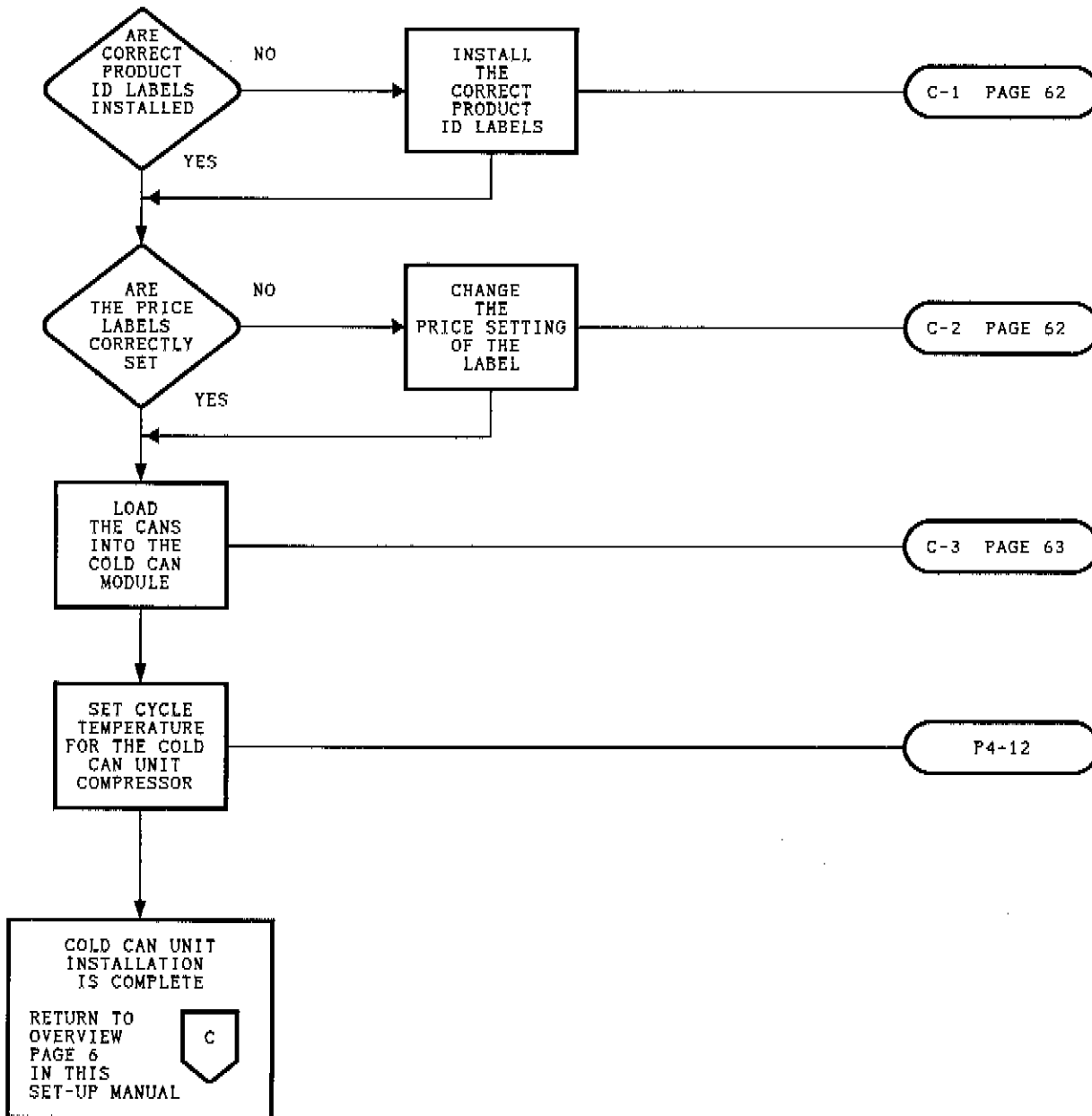


Figure S-34a

The information in this part of the manual has been provided to help you set up the Cold Can Module.



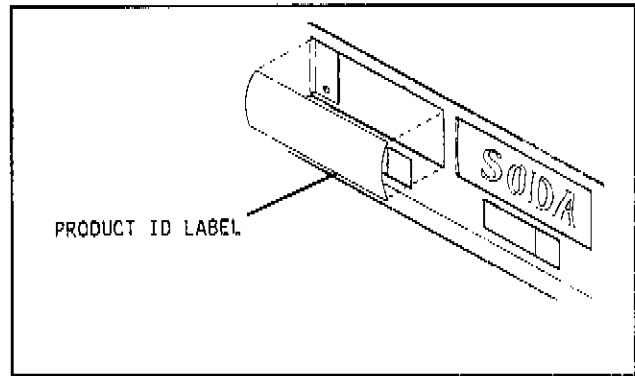
PRODUCT ID LABELS FOR COLD CAN SELECTIONS

Refer to the figure below.

- * Product ID labels are held in place above the price labels for each selection.
- * To install a new ID label, flex the label as shown and place in position.
- * Release the label and the label frame will hold it in place.
- * A pencil or a finger nail can be used to pop a label out of place.
- * If you need an ID label for a product and it was not included in the plastic bag that contained this manual, contact:

SCREEN ART
 1801 Mid Park Drive
 Knoxville, TN 37921
 Phone: 1-800-251-9031
 In Tenn: 1-800-332-9924

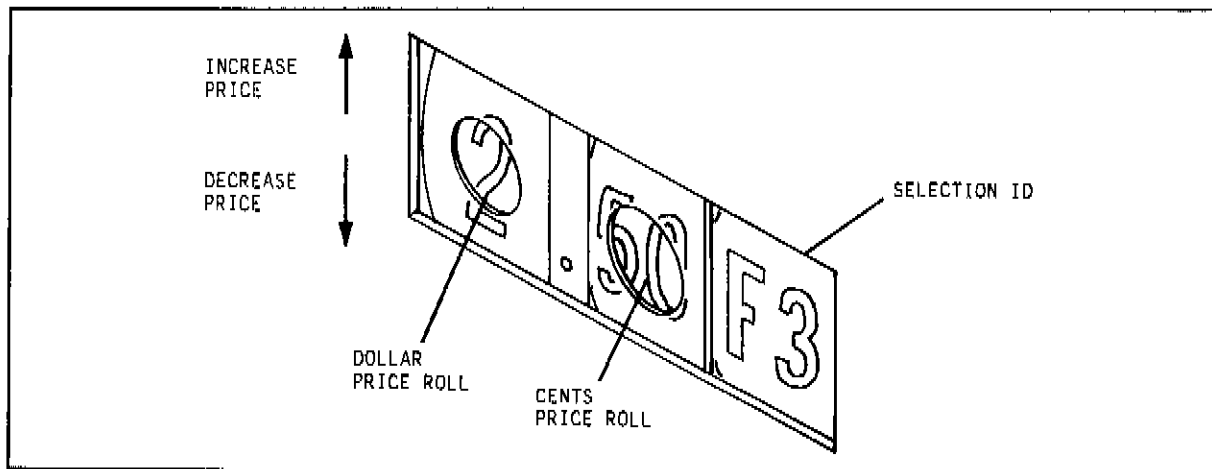
Refer to style: SA13
 (1.75 x 4.62)



SETTING PRICE LABELS FOR COLD CAN SELECTIONS

Refer to the figure below.

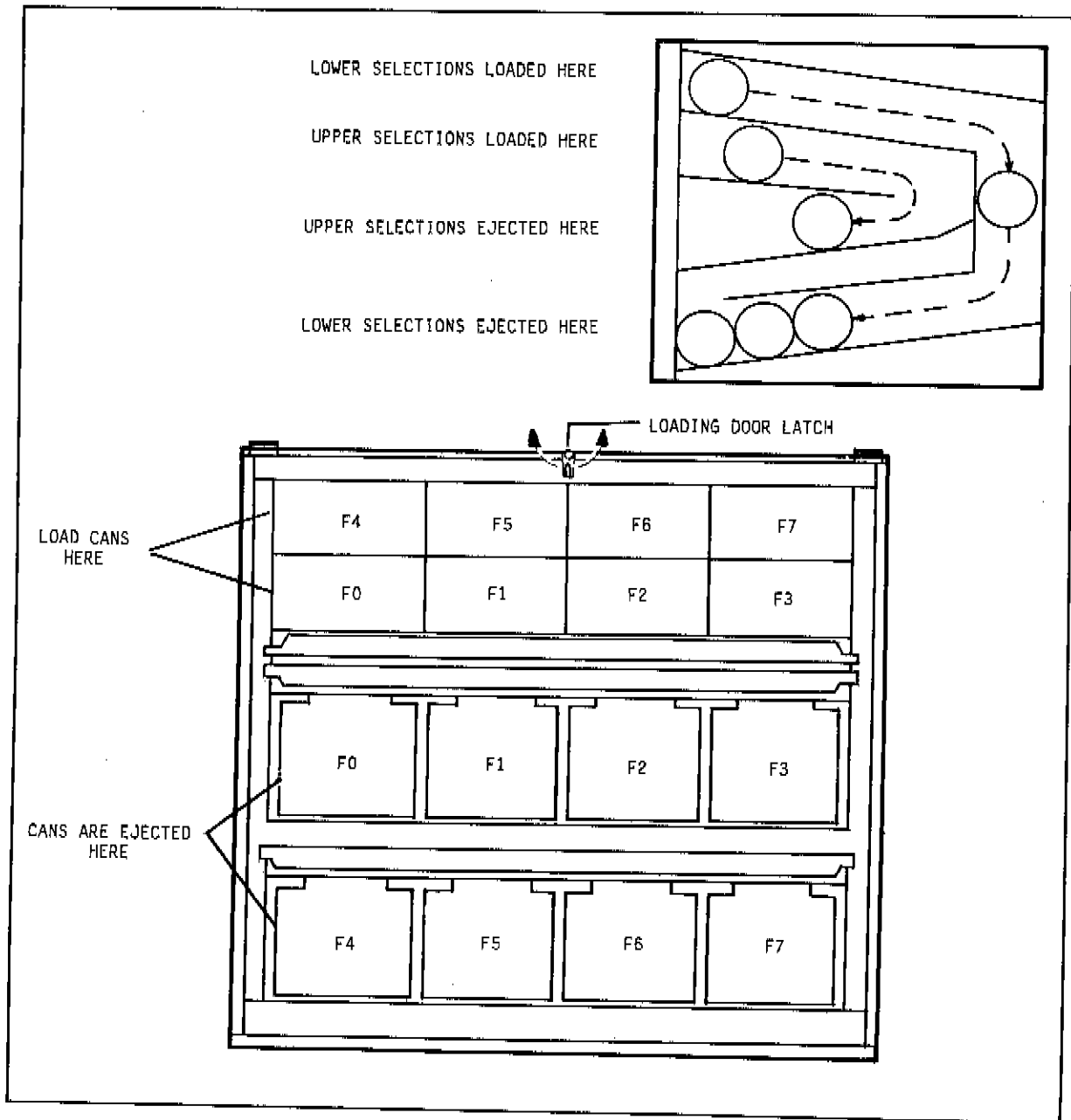
- * There are two price label rolls for each selection.
- * The roll on the left is for dollars. It goes from \$0 to \$12.
- * The roll on the right is for cents. It goes from .00 to .95 in steps of .05.
- * Scroll downward to decrease the price.
- * Scroll upward to increase the price.
- * The rolls are easier to scroll if you use the eraser on the end of a pencil.



LOADING THE COLD CAN MODULE

Refer to the figures below.

- * Turn the loading door latch to the left or to the right.
- * Lower the loading door into the loading position.
- * Load each of the selections as shown.
- * After all selections are loaded, raise the door and secure it in place.
- * In the four-select version, cans are loaded directly above the matching selection position.
- * In the eight-select version, cans are loaded as shown below.

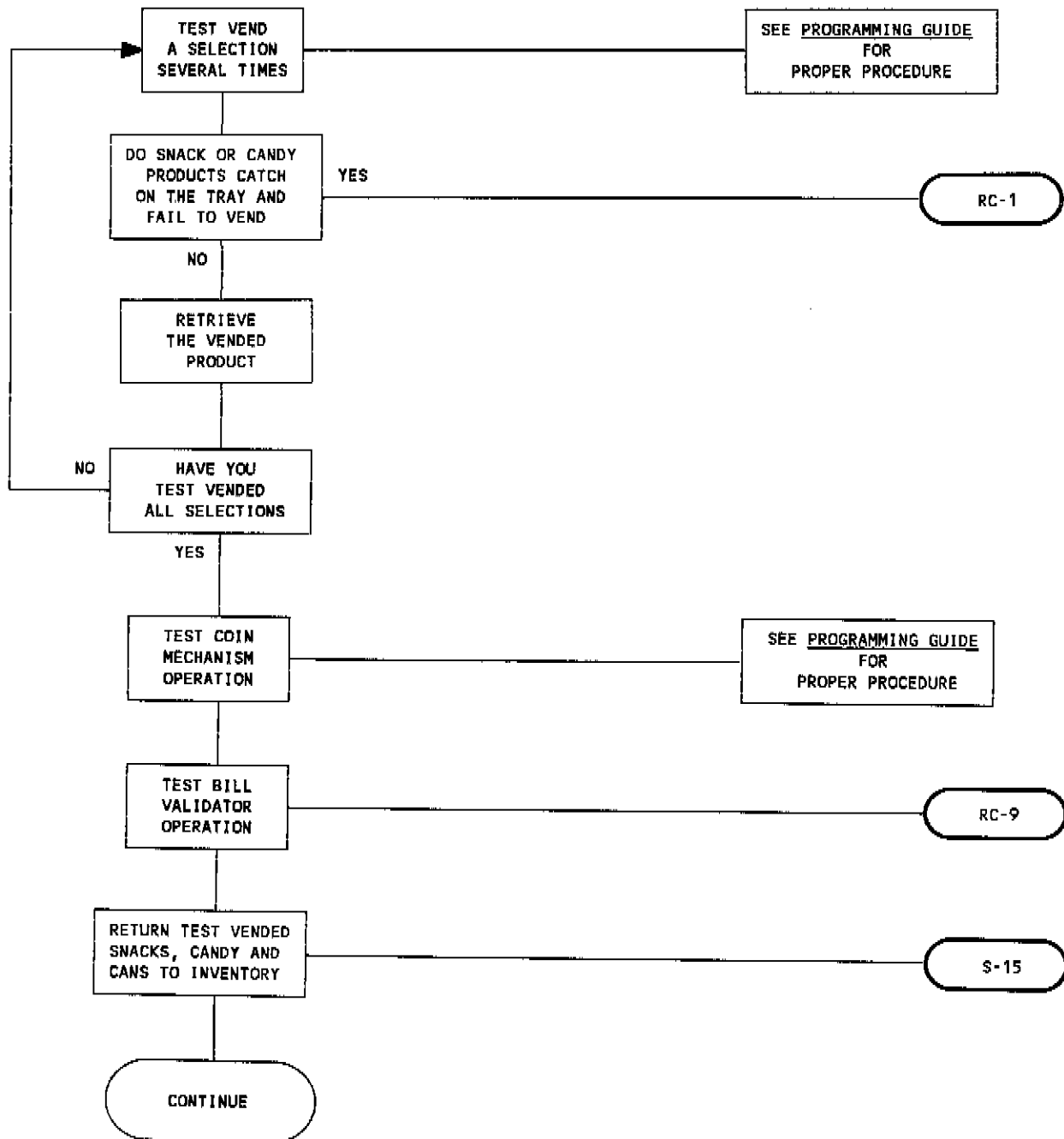


The information in this part of the manual has been provided to help you determine if the merchandiser is ready to put into operation.

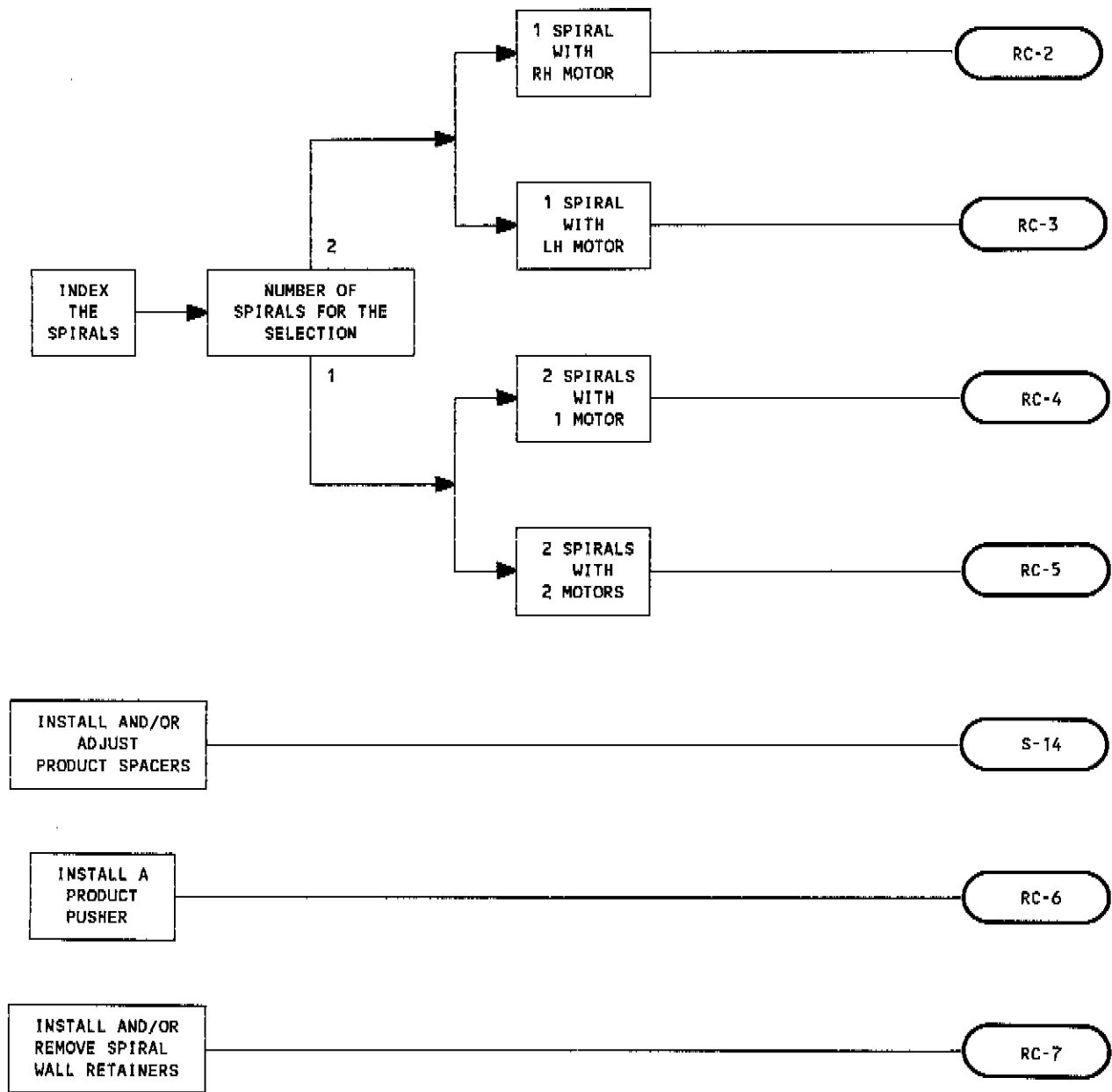
OPERATIONAL READINESS CHECKING PROCEDURES

- RC-1 Anti Hang-Up Procedure Overview
- RC-2 Indexing 1 Spiral Used With A Right Hand Motor
- RC-3 Indexing 1 Spiral Used With A Left Hand Motor
- RC-4 Indexing 2 Spirals Used With 1 Motor
- RC-5 Indexing 2 Spirals Used With 2 Motors
- RC-6 Installing A Product Pusher
- RC-7 Installing and Removing A Spiral Wall Retainer
- RC-8 Retrieving A Product Through the Delivery Door
- RC-9 Testing the Bill Validator

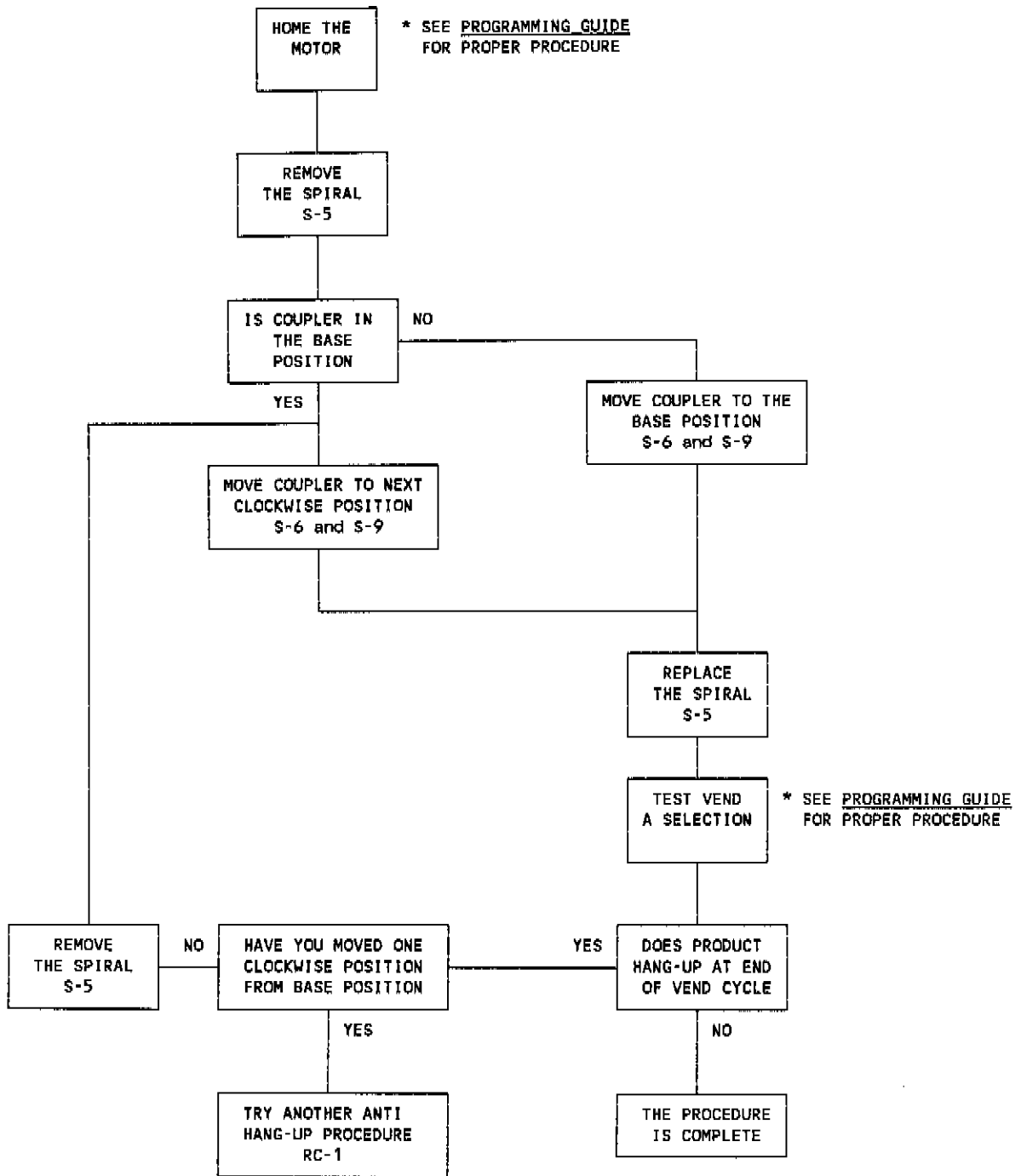
COMPLETE THE OPERATIONAL READINESS CHECK
WHEN YOU ARE INSTALLING A NEW MERCHANDISER,
WHEN YOU CHANGE THE SET-UP OF A TRAY OR
AFTER YOU HAVE CHANGED A PART OF THE CONFIGURATION

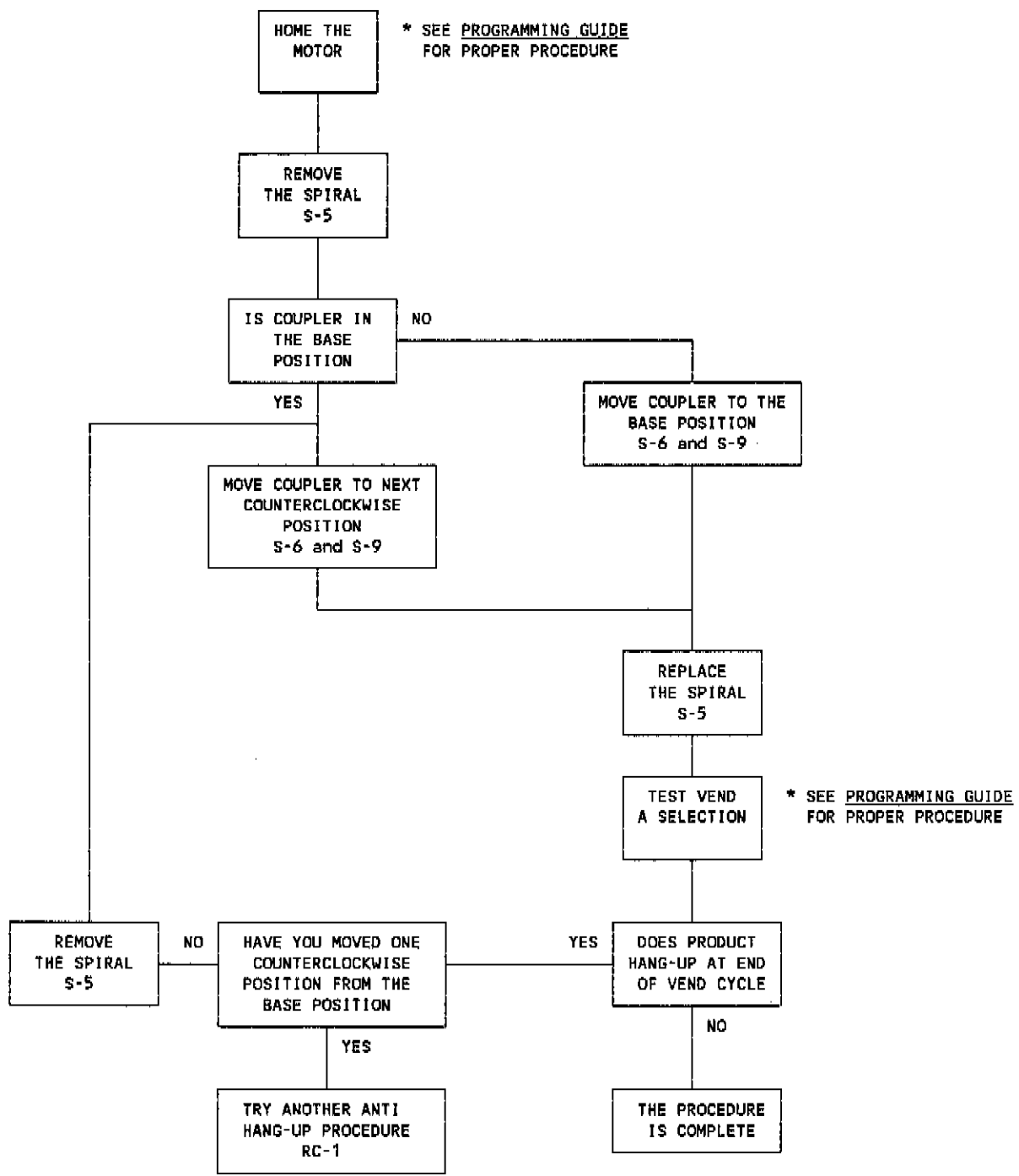


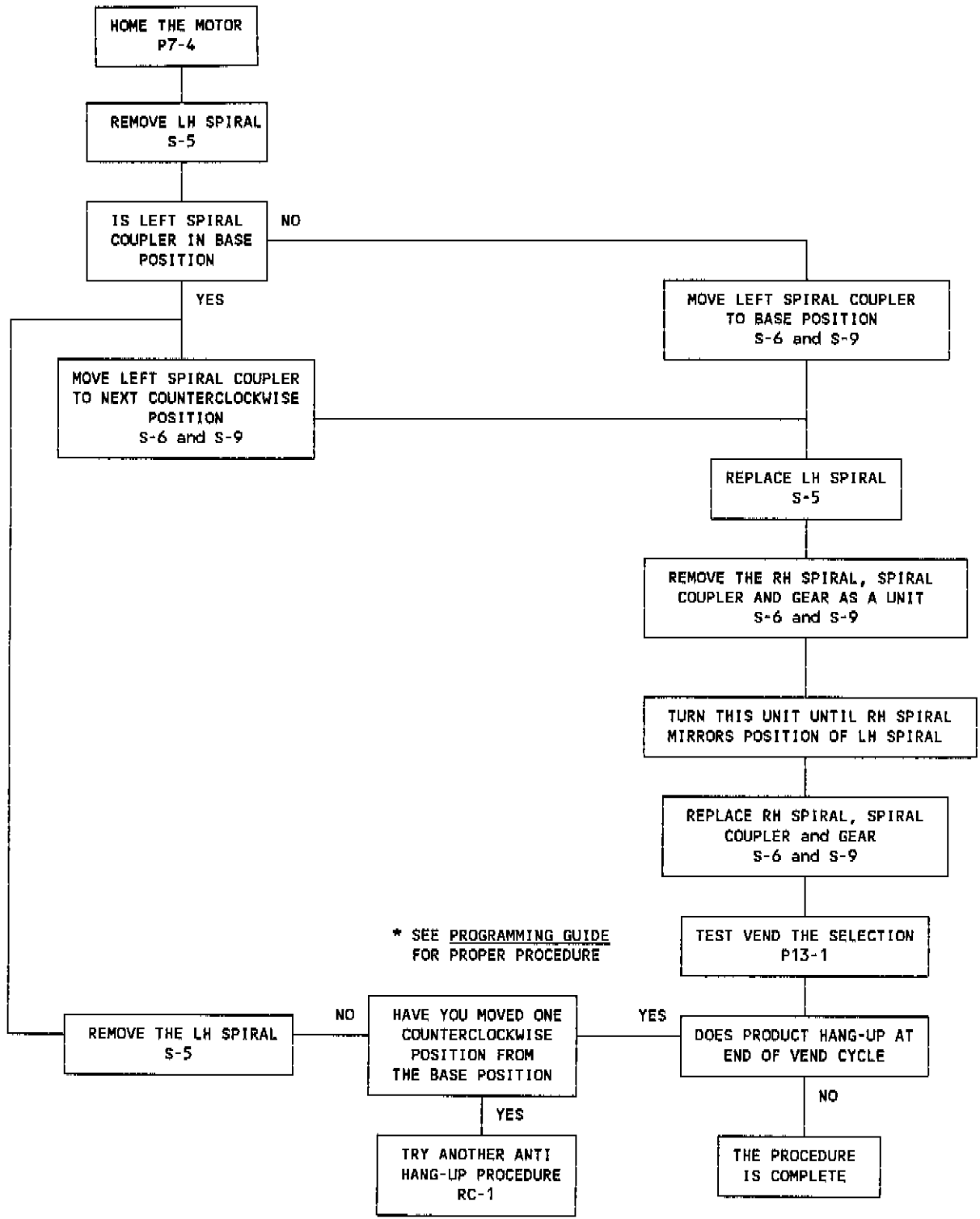
ANTI HANG-UP PROCEDURES FOR FINE TUNING SPIRALS

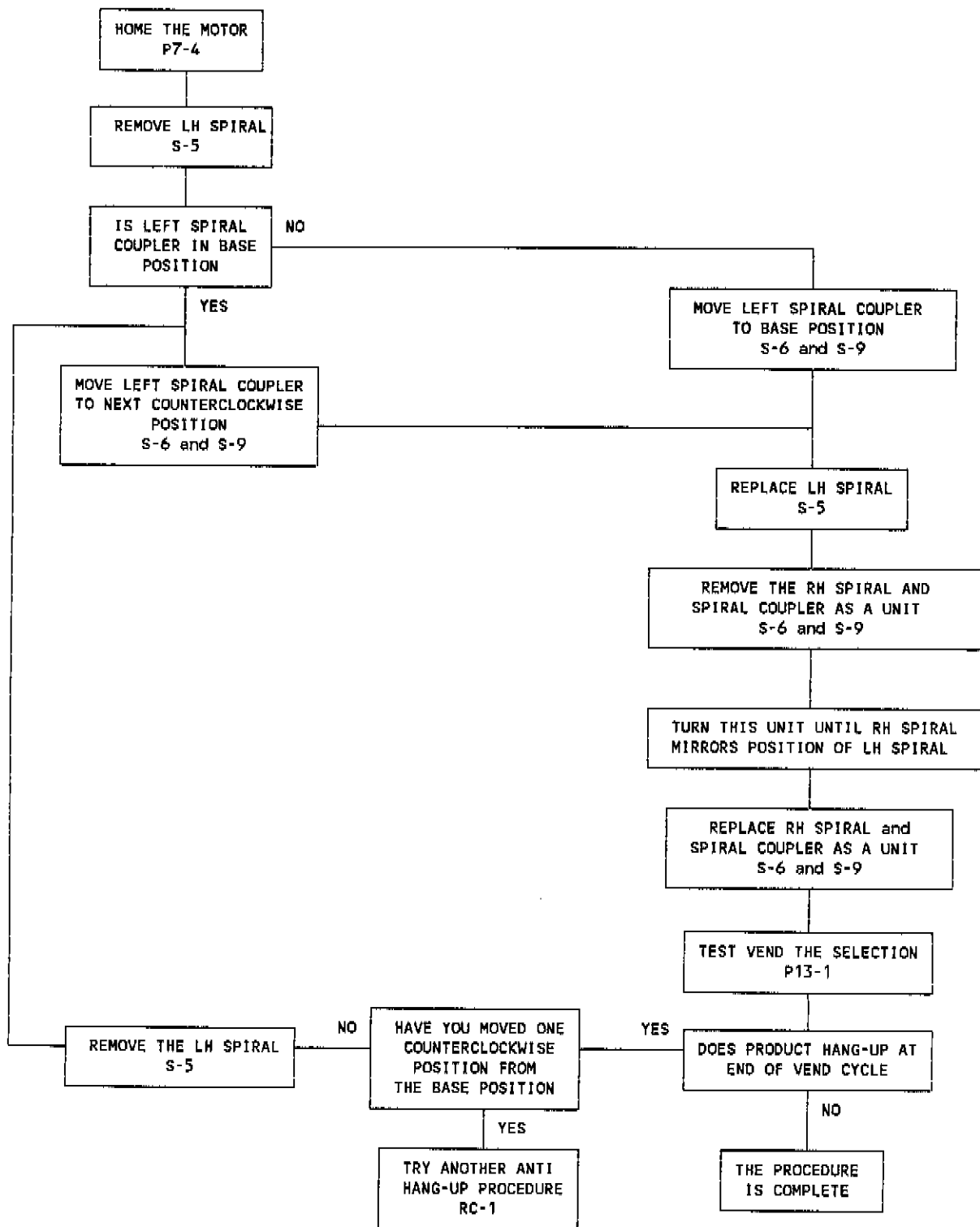


* Work with these procedures individually and in various combinations. If you are not able to eliminate a hang-up, contact National Vendors Service Department for help.

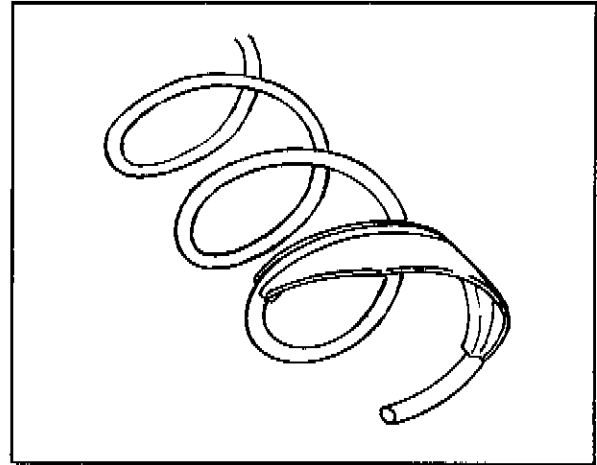








- * A Product Pusher is normally used in the following cases:
 - The spiral has a capacity of 15, 13 or 11
 - The package is non-rigid like bagged peanuts
- * The Product Pusher can also be used with other spirals and types of products.

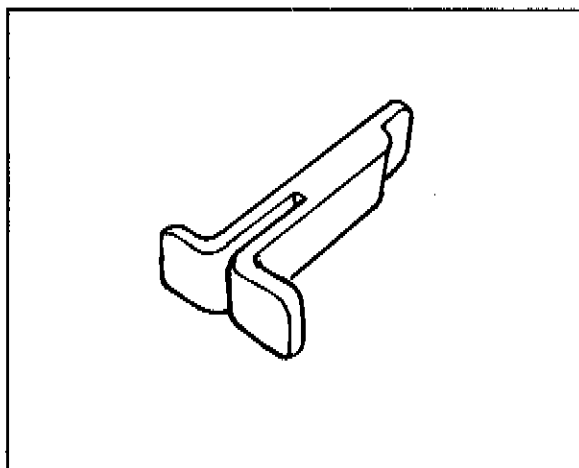


- * A bag of Product Pushers has been shipped with the merchandiser. Additional product pushers are available from National Vendors Parts Department.
- * Snap the Product Pusher on the Spiral as shown above.
- * Test Vend the selection.
- * If the product still hangs up, reposition the product pusher or try another anti hang-up procedure.

* A Spiral Wall Retainer is normally used in the following cases:

- The spiral has a capacity of 20, 25, 30 or 38.
- The product is thin
- The product is on a candy tray.

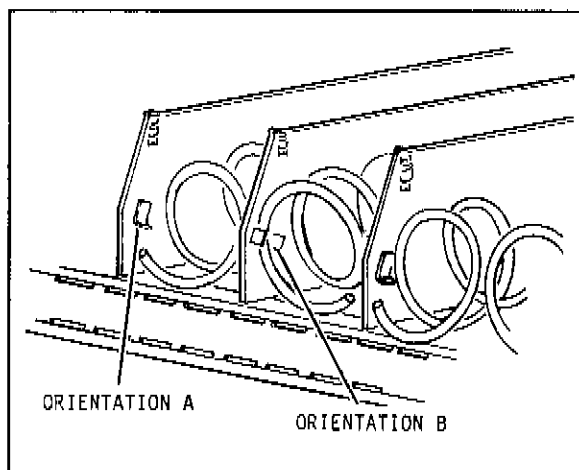
* The Spiral Wall Retainer can also be used with other spirals and types of products.



* The Spiral Wall Retainer is installed near the front of the Column Divider.

* There are two ways to install the Spiral Wall Retainer.

	RETAINER ORIENTATION	
	A	B
COLUMN	0 and 1	1 and 2
DIVIDER	2 and 3	3 and 4
BETWEEN	4 and 5	5 and 6
THESE	6 and 7	7 and 8
POSITIONS	8 and 9	



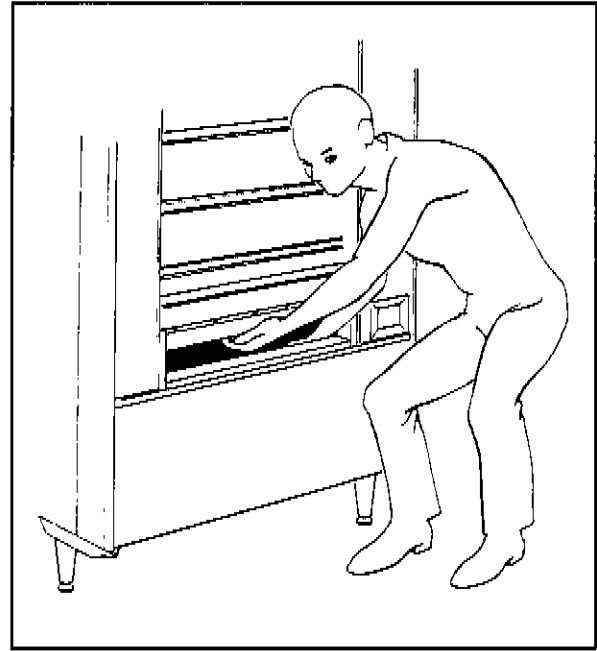
* To install a Spiral Wall Retainer, insert the Retainer in the square slot near the front of the Column Divider.

* The Spiral Wall Retainer must be removed in two cases:

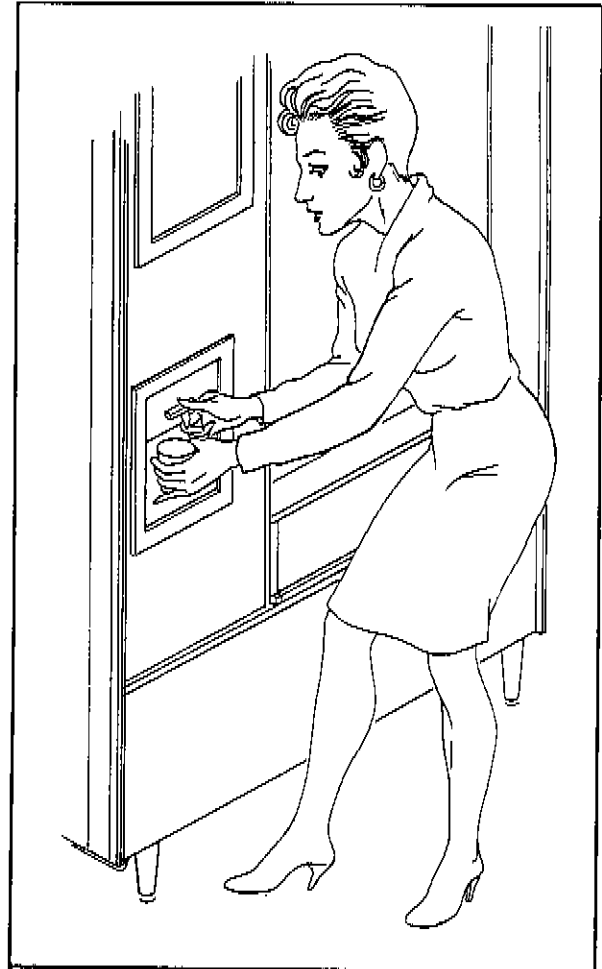
- A *KIT-KAT* bar loaded into either of the two right hand positions of a tray will not clear the Retainer on the Column Divider between the two positions.
- A Product Pusher will catch on a Retainer in *ORIENTATION A*.

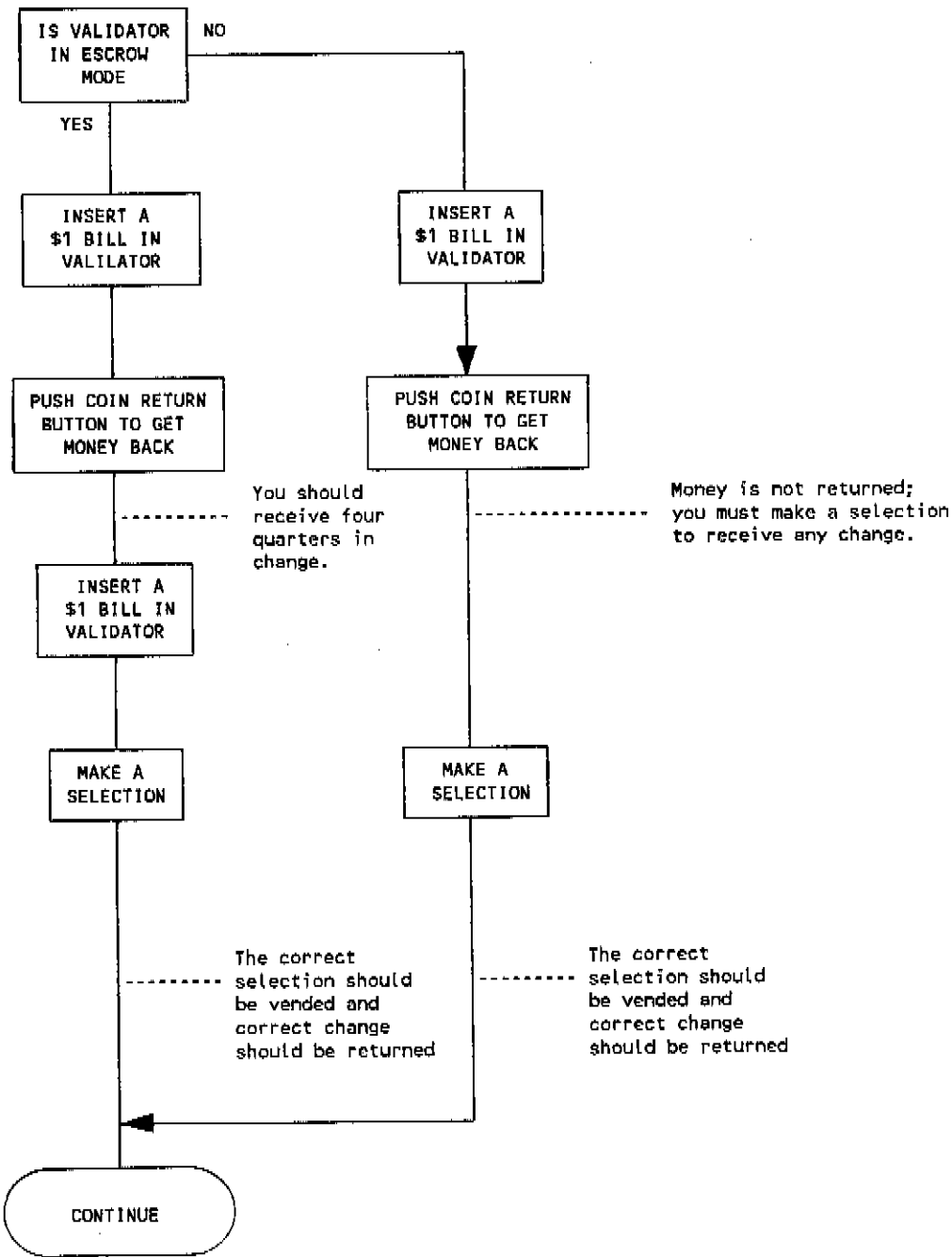
RC-8: RETRIEVING A PRODUCT

- * Snack, candy and cold can selections are dispensed into the delivery pan.
- * Push inward on the delivery door with one hand. Retrieve the selection with your other hand.



- * Hot drink selections are dispensed into cups that have been dropped into the cup delivery station.
- * Lift up on the cup station door with one hand. Carefully remove the hot drink selection with your other hand.





The information in this part of the manual has been provided to help you service and maintain the merchandiser.

DIRECTORY OF MAINTENANCE PROCEDURES

PROCEDURE	DESCRIPTION	PAGE
M-1	Reserved for future use	--
M-2	Removing the controller PC boards	92
M-3	Door lock removal	93
M-4	Cash box lock installation	93
M-5	Cash box removal and replacement	93
M-6	Fluorescent lamp replacement	94
M-7	Lamp starter replacement	94
M-8	Exhaust fan installation	95
M-9	Coin mechanism inspection and cleaning	96
M-10	Bill validator inspection and cleaning	96
M-11	Emptying the bill validator magazine	97
M-12	Dispenser motor positioning	97
M-13	Lubrication	97
M-14	Overall cleaning	98
M-15	Can compartment door removal	98
M-16	Removing the can unit from the merchandiser	99
----	Identification of brewer components	100
M-18	Spring inspection	100
M-19	Worn parts inspection	100
M-20	Brewer barrel and manifold removal	101
M-21	Brewer barrel and manifold disassembly	101
M-22	Brewer manifold inspection	101
M-23	Brewer seal inspection	102
M-24	Brewer basket removal	102
M-25	Brewer basket replacement	102
M-26	Brewer basket screen removal	102
M-27	Brewer basket screen and brewer barrel screen cleaning	103
M-28	Brewer basket screen and brewer barrel screen replacement	103
M-29	Brewer barrel and manifold reassembly	103
M-30	Brewer barrel and manifold replacement	103
M-31	Brewer funnel removal	104
M-32	Brewer funnel replacement	104

PROCEDURE	DESCRIPTION	PAGE
M-33	Centering the brewer basket	104
M-34	Cam switch adjustment	105
M-35	Brewer barrel support spring adjustment	105
M-36	Brewer mechanism cleaning	105
M-37	Brewer mechanism washing	106
M-38	Cup delivery compartment removal and replacement	107
M-39	Cup delivery compartment sanitizing	107
M-40	Cup delivery compartment mounting bracket removal and replacement	107
M-41	Beverage dispensing nozzle sanitizing	107
M-42	Grounds pail cleaning	108
M-43	Waste pail sanitizing	108
M-44	Vent blower filter removal and replacement	108
M-45	Water filter cartridge service limits	108
M-46	Water temperature measurement and setting	109
M-47	Water filter cartridge removal	109
M-48	Water valve removal and replacement	110
M-49	Tube replacement	110
M-50	Water tank heater removal and replacement	111
M-51	Reserved for future use	--
M-52	Reserved for future use	--
M-53	Dry ingredient air fluffing	114
M-54	Sugar and whitener mixing bowl inspection	114
M-55	Dry ingredient shelf cleaning	114
M-56	Canister sanitizing	114
M-57	Mixing bowl sanitizing	114
M-58	Chocolate funnel and impeller housing sanitizing	115
M-59	Connecting a Model 461 or 462 refrigeration module to an external drain	116
M-60	Opening, closing and adjusting the air discharge vents	116

**THE MOST PROFITABLE MERCHANDISER
 IS CLEAN AND WELL MAINTAINED**

RECOMMENDED SANITATION

PROCEDURE	REFERENCE	DAILY	WEEKLY	MONTHLY	QUARTERLY	SEMI-ANNUAL
Clean brewer mechanism	M-36		X			
Wash brewer mechanism	M-37			X		
Clean ingredient shelf	M-55	X				
Sanitize canisters	M-56			X		
Rinse mixing bowls	NR	X				
Sanitize mixing bowls	M-57		X			
Sanitize impeller funnel	M-58		X			
Sanitize dispenser nozzles	M-41		X			
Replace tubing	M-49					X See Note 1
Sanitize cup compartment	M-39	X				
Clean the grounds pail	M-42	X				
Sanitize the waste pail	M-43	X				
Clean merchandiser overall	M-41	X				

NOTE 1: Replace the tubing only if needed. Use of the auto rinse feature extends the life of the tubing.

RECOMMENDED SERVICE

PROCEDURE	REFERENCE	DAILY	WEEKLY	MONTHLY	QUARTERLY	SEMI-ANNUAL
Brewer barrel and basket	M-27	X				
Coffee funnel	NR					X
In-tank water temperature	M-46	X				
Water filter service limit	M-45	X				
Water volume check	H-5				X	
Water tank liming inspection	NR					X
Refill coin tubes	Page 12	X				
Inspect and clean coin mech	M-9		X			
Inspect & clean bill validator	M-10		X			
Empty bill magazine	M-11	X				
Refill ingredient canisters	H-1	X				
Fluff dry ingredients	H-53		X			
Test vend products	P13-1	X				
Inspect mixing bowls	M-54	X				
Check ingredient throw	H-6				X	
Refill cup tubes	H-3	X				
Inspect lamp bulbs	M-6	X				
Inspect exhaust filter	M-44		X			
Lubrication	M-13					X
Inspect springs	M-18					X
Inspect moving parts	M-19					X

NR = No reference given.

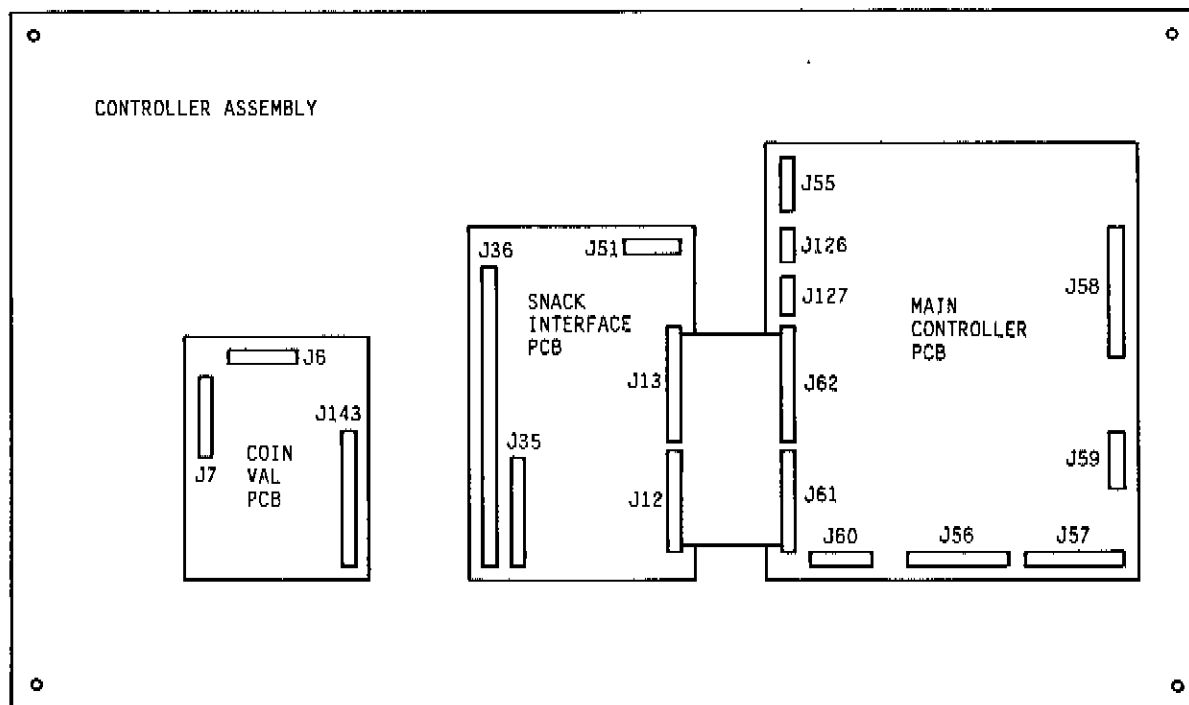
REMOVING PC BOARDS FROM THE CONTROLLER ASSEMBLY**WARNING**

DISCONNECT THE MERCHANDISER FROM ITS POWER SOURCE BEFORE REMOVING ANY OF THE PC BOARDS.

ELECTRO-STATIC DISCHARGE PRECAUTIONS MUST BE TAKEN WHEN HANDLING THE CIRCUIT BOARDS.

REMOVAL

- * Disconnect J58 and J59 from the front of the controller assembly.
- * Pull the controller assembly forward.
- * Remove the cover from the assembly.
- * Disconnect all harnesses and jumpers from the PC Board being removed.
- * Loosen and remove the screws that secure the PC Board to the chassis.
- * Remove the circuit board.

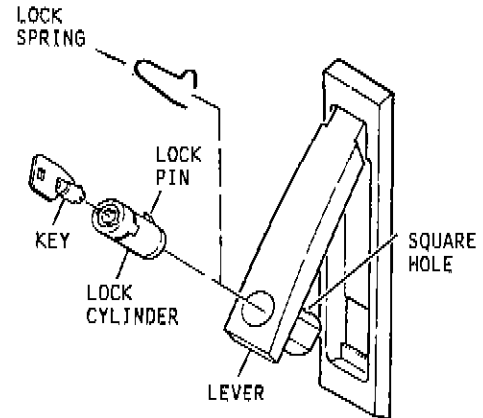
***INSTALLATION***

- * Reverse the removal procedure when installing a PC Board in the controller assembly.

LOCK CYLINDER INSTALLATION

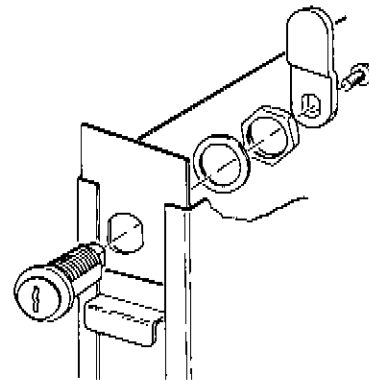
An optional lock cylinder can be installed in the merchandiser by completing the following steps:

- * Position the lift-handle lock lever as shown.
- * Depress the lock spring at the square hole of the lock cylinder receptacle and pull the lock spring out through the front.
- * Position the lock cylinder as shown. Depress the spring-loaded lock pin. Push the cylinder into the the cylinder receptacle in the lever. The pin should snap into the square hole.
- * If the cylinder pin does not seat in the square hole, press against both ends of the lock cylinder. Rotate the cylinder until the pin snaps into place.
- * Test the lock mechanism with a key.



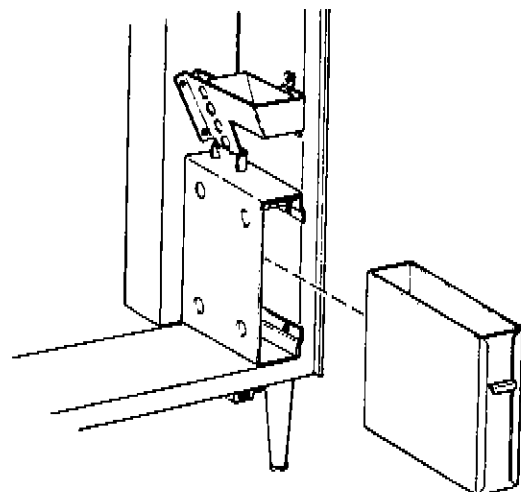
INSTALLING THE OPTIONAL CASH BOX LOCK

- * Remove the cash box from the merchandiser.
- * Assemble the lock as shown in the illustration to the right.
- * Return the cash box to the merchandiser.



REMOVAL AND REPLACEMENT OF CASH BOX

- * The cash box is located in the lower right-hand corner of the merchandiser near the front.
- * If the cash box has a lock, you will need to unlock it first.
- * Pull the cash box forward to remove it from the merchandiser.
- * Reverse the procedure when replacing the cash box.

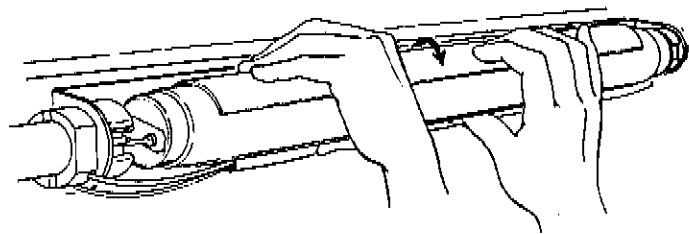


REPLACING THE FLUORESCENT LAMP

* The fluorescent lamp is mounted on the inside of the cabinet door near the top.

REMOVING THE FLUORESCENT LAMP

* Hold the lamp as shown below and turn it to remove it from the lamp sockets.



WARNING

Exercise care when you remove or replace the lamp diffuser. Eye protection should be worn during this procedure.

REPLACING THE FLUORESCENT LAMP STARTER

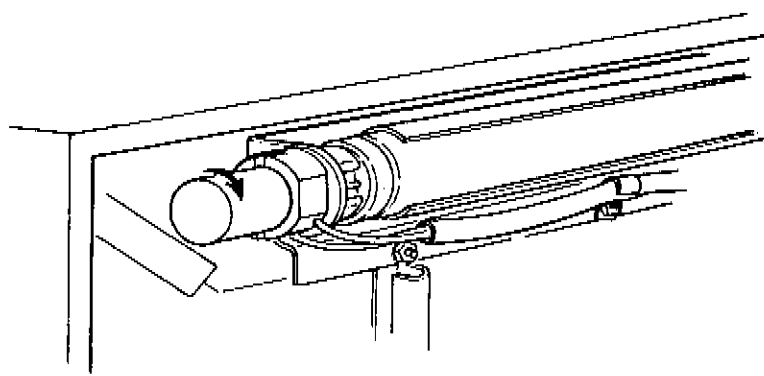
* The starter is mounted on the left end of the lamp assembly.

REMOVING THE STARTER

* Turn the starter counter-clockwise to unseat it from the socket.

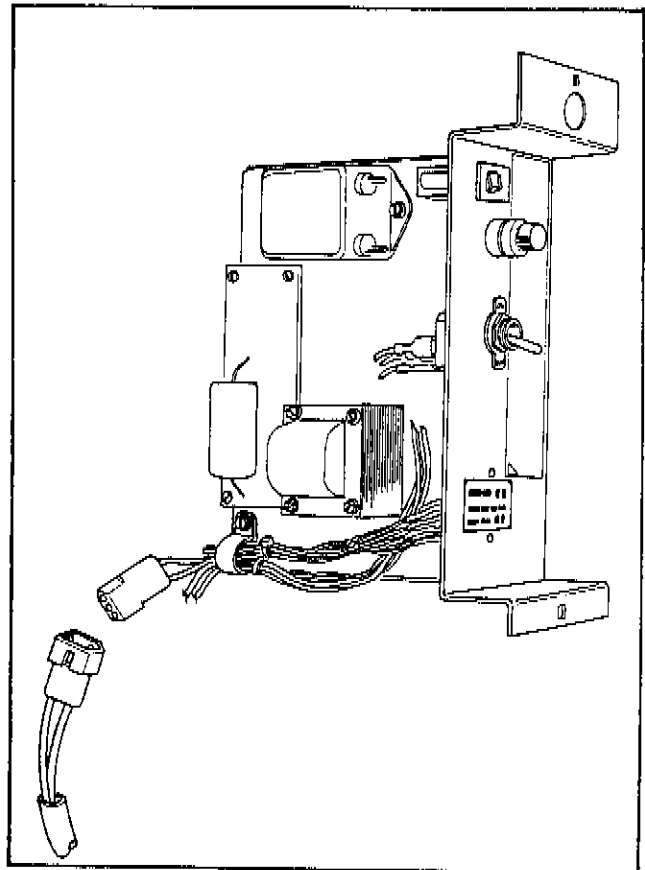
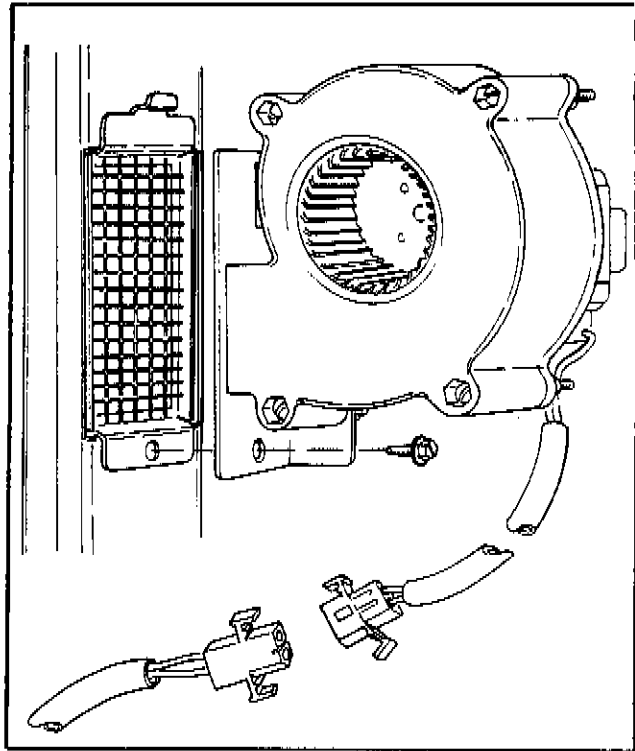
INSTALLING THE STARTER

* Insert the starter and turn it clockwise to seat it in the socket.



INSTALLING THE OPTIONAL EXHAUST FAN

- * There is a vent screen at the top of the right-hand, rear tray-guide mounting channel.
- * The exhaust fan will be mounted over this vent screen. See Figure M-6a.
- * Turn the Main Power Switch to the OFF position.
- * Remove the trays from the merchandiser. See S-3.
- * Remove the screw that secures the cable clamp above the vent screen assembly.
- * Remove the lower screw that secures the vent screen assembly.
- * There is a tab on the top of the vent screen assembly. Hook the small, square hole in the back of the fan mounting over this tab.
- * Secure the fan mounting bracket and the vent screen assembly. Use the screw previously removed.
- * Connect the fan to one end of the jumper that is supplied with the fan.
- * Connect the other end of the jumper to the mating connector in the power harness. See Figure M-6b.
- * Secure the cable clamp above the fan with the screw previously removed.
- * Replace the trays. See S-10.
- * Turn the Main Power Switch to the ON position.



COIN MECHANISM INSPECTION AND CLEANING**WARNING**

TURN THE MAIN POWER SWITCH TO THE "OFF" POSITION and THEN DISCONNECT THE COIN MECHANISM FROM THE POWER PANEL.

- * Remove the coin mechanism from the merchandiser.
- * Clean the coin chute with a tube cleaning brush.
- * Clean the mechanism thoroughly or replace it with a clean unit from the shop.

CAUTION

NEVER USE WATER OR A SPRAY SOLVENT TO CLEAN THE COIN MECHANISM.

- * The coin mechanism can be cleaned by wiping it with a clean cloth.
- * The electrical section must be kept dry. It can be cleaned with a soft brush.
- * The unit must be completely dry before it is returned to service.

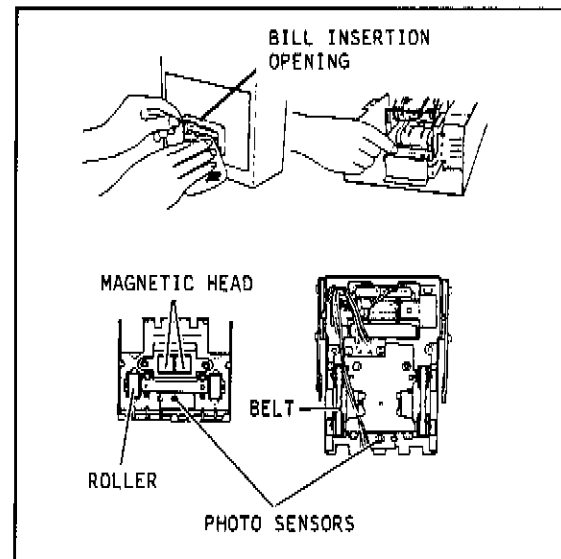
BILL VALIDATOR INSPECTION AND CLEANING**WARNING**

TURN THE MAIN POWER SWITCH TO THE "OFF" POSITION and DISCONNECT THE BILL VALIDATOR FROM THE POWER HARNESS.

- * Open the bill validator.
- * Examine the magnetic heads, the belts and the rollers. See the figure below.
- * Clean the bill insertion opening with a mild detergent.

CAUTION

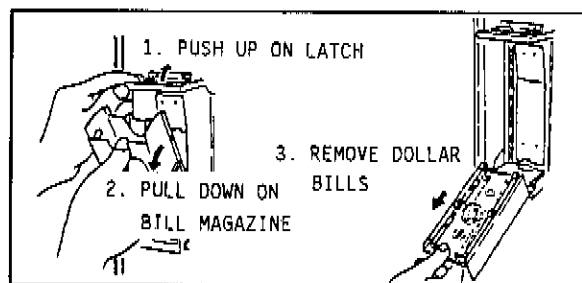
NEVER USE WATER OR SPRAY SOLVENTS TO CLEAN THE BILL VALIDATOR.



- * Clean the magnetic heads by using a cotton applicator and a small amount of denatured alcohol.
- * Wipe clean the rollers and belts.
- * Use a soft brush to remove any loose foreign matter from inside the validator.
- * Inspect latches and levers for smooth operation.
- * Reconnect validator to the merchandiser, restore power and test the unit.

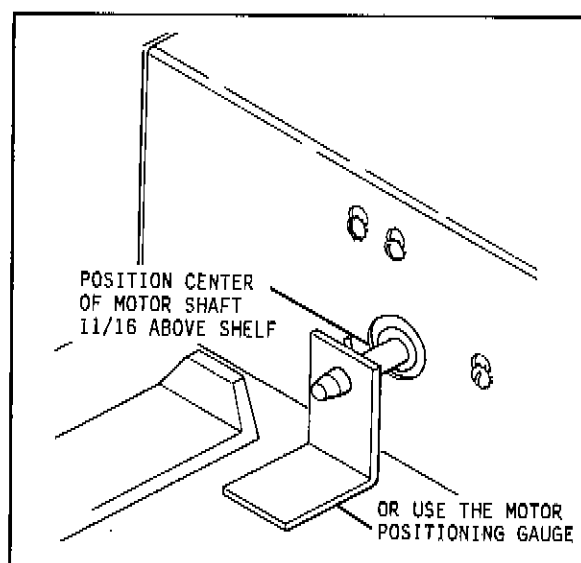
EMPTYING THE BILL MAGAZINE

- * Remove the collected bills from the optional bill validator. See figure to the right.



DISPENSER MOTOR POSITIONING

- * The dispenser motor may stall if the shaft of the motor is not positioned correctly.
- * The center of the shaft should be $11/16$ inch above the shelf. See the figure to the right.
- * A dispenser motor positioning gauge is available from National Vendors' Parts Department. Ask for part number 6220005.



LUBRICATION

- * Permanent lubrication has been incorporated in these merchandisers whenever practical.
- * The Door Check and Lock Bar assemblies are two exceptions. Refer to the assembly location illustrations in I-1 of this manual.
- * Lubriplate or a similar product should be used in the areas listed above.
- * Whenever lubrication does become necessary, *DO NOT* use a silicone based product. A silicone based lubricant can cause electrical failures.

OVERALL CLEANING

- * Inspect the merchandiser both inside and out. Be sure to check corners and less visible parts of the merchandiser.
- * Clean where needed.
- * Allow the inside of the cabinet to dry thoroughly before closing the door.
- * National Vendors recommends using the following supplies:
 - * Use a commercial glass cleaner on the glass in the cabinet door.
 - * Use a mild detergent and warm water on the cabinet, trays, spirals, gum and mint assembly and other *non-electrical* components. Brewer cleaning is discussed later in this manual.

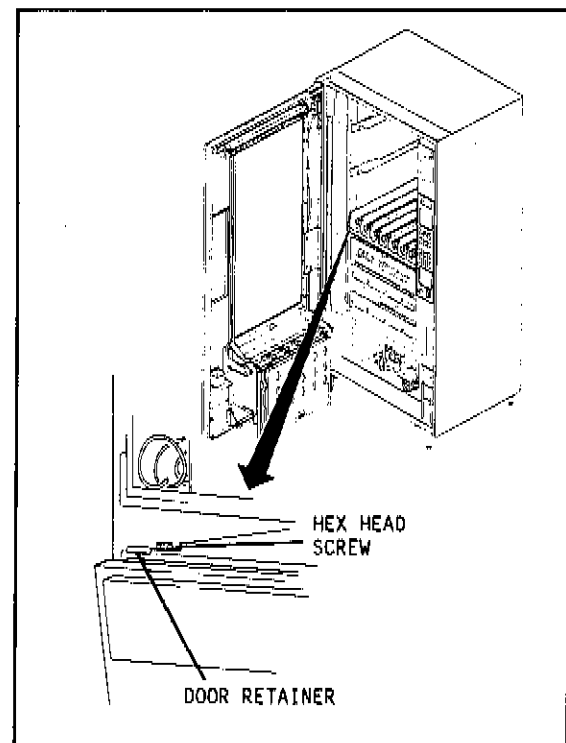
CAUTION

The plastic components in this merchandiser should be cleaned with a mild detergent and warm water. The use of other cleaning agents may damage the material and should be avoided.

REMOVING CAN COMPARTMENT DOOR ASSEMBLY

Refer to the figure on the right during this procedure.

- * Loosen the screws which secure the door retainers to the can compartment.
- * Push up on the retainers and tilt the door forward and down.
- * Lift the door clear of the retaining channel .
- * The product deflector can be pushed aside while removing the door.



REMOVING THE CAN UNIT FROM THE MERCHANDISER

Refer to the figure below during this procedure.

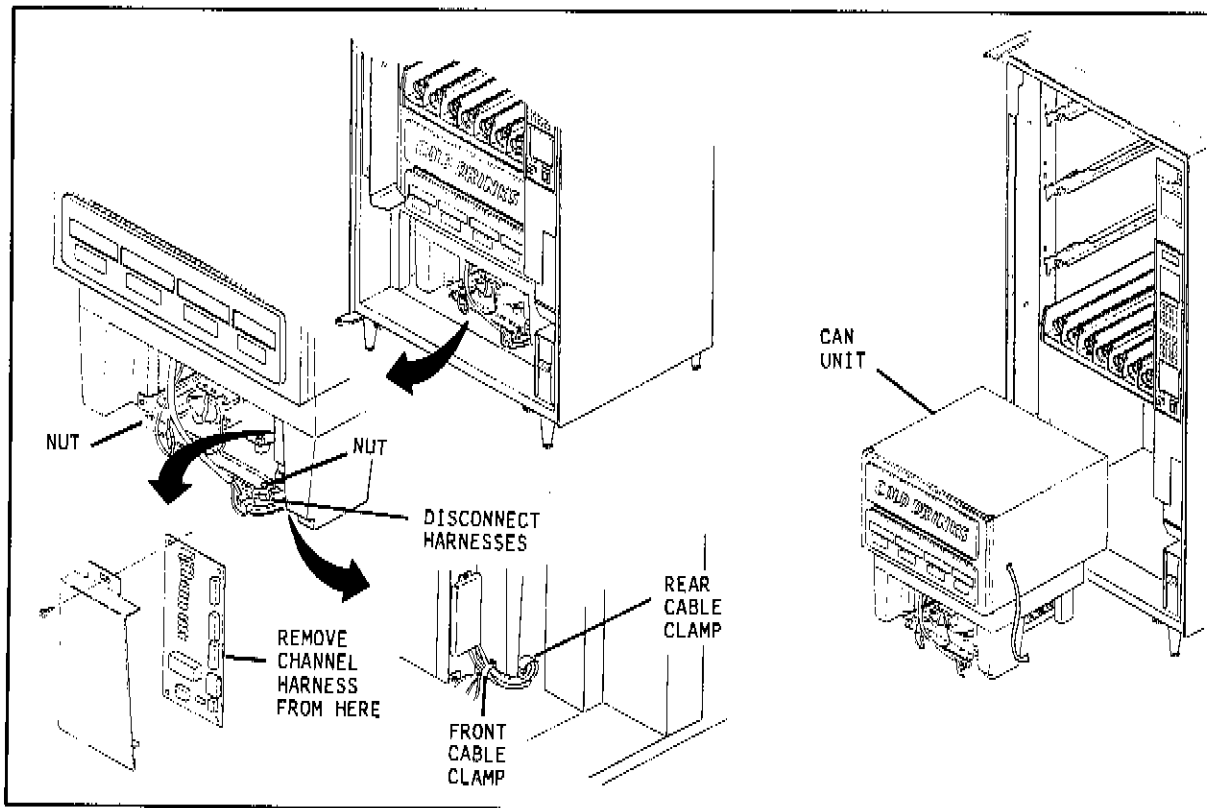
CAUTION

National Vendors recommends that you empty the can compartment before removing the unit. A fully loaded unit may be too heavy to handle safely.

WARNING

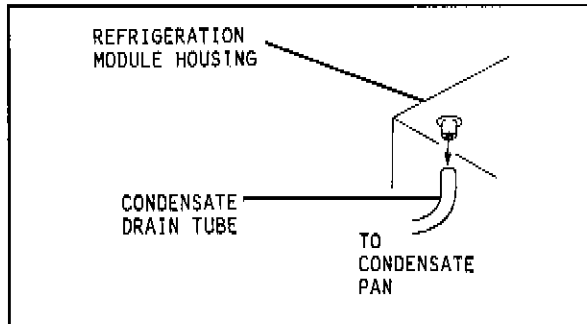
TURN THE MAIN POWER SWITCH TO THE "OFF" POSITION BEFORE STARTING THIS PROCEDURE.

- * Remove the two nuts that secure the can unit to the floor of the cabinet.
- * Disconnect the can unit from the power harness.
- * Remove the cover from the can unit PC Board.
- * Disconnect the channel harness from the can unit PC Board.
- * Free the channel harness from the front cable clamp.
- * Free all wires from the rear cable clamp.
- * Push the channel harness to the side.
- * Carefully slide the can unit out of the cabinet.

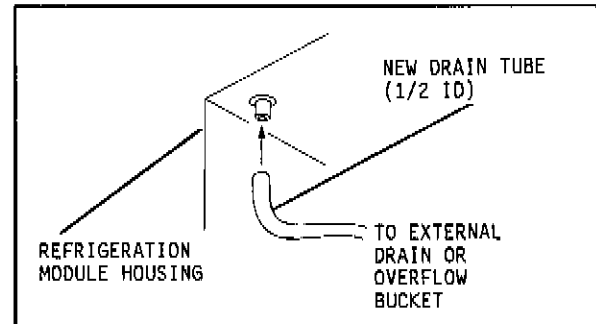


CONNECTING A 461 OR 462 REFRIGERATION MODULE TO AN EXTERNAL DRAIN

METHOD 1:

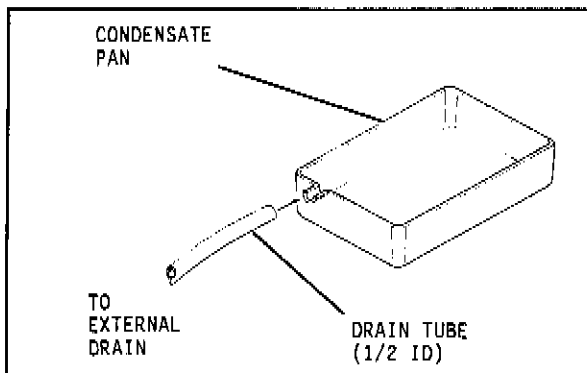


1. Remove the Condensate Drain Tube from the Refrigeration Module.



2. Connect a new Drain Tube to the Refrigeration Module Housing.
3. Route the new tube to an external drain or to an overflow bucket.

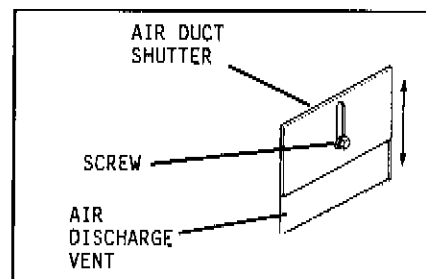
METHOD 2:



1. Connect a drain tube to the condensate pan.
2. Route the drain tube to an external drain or to an overflow bucket.

OPENING, CLOSING AND ADJUSTING THE AIR DISCHARGE VENTS

The Air Discharge Vents are located in the left side-wall near the front of the tray guide rails. The bottom vent cannot be closed or adjusted. The other vents are adjusted by loosening the screw and sliding the Air Duct Shutter up or down as required. With the shutter all the way up, the vent is fully open. The vent is closed when the shutter is all the way down.



GUIDE TO ELECTRICAL WIRING DIAGRAMS

This part of the manual has been provided to help you understand the electrical circuitry of your merchandiser.

WARNING

DISCONNECT THE MERCHANDISER FROM ITS POWER SOURCE BEFORE CHECKING ANY CIRCUITS FOR CONTINUITY.

A VOLT-OHMMETER SHOULD BE USED FOR ALL TESTS. USE OF A JUMPER WIRE OR AN INCANDESCENT LAMP ARE NOT RECOMMENDED

ABBREVIATIONS USED IN WIRING DIAGRAMS

ABBREVIATION	DEFINITION	ABBREVIATION	DEFINITION
CB	Circuit Breaker	MOT	Motor
J	Jack	PCB	Printed Circuit Board
P	Plug	HDLG	Handling
SW	Switch	VAL	Validator
CYC	Cycle	P/O	Part Of
PRES	Present	TEMP	Temperature
SEN	Sense	BAL	Ballast
COL	Column		

WIRE COLOR ABBREVIATIONS

ABBREVIATION	COLOR	ABBREVIATION	COLOR
RD	Red	YEL	Yellow
BLU	Blue	BRN	Brown
ORN	Orange	GRN	Green
TAN	Tan	GRY	Gray
BLK	Black	PNK	Pink
WHT	White	PUR	Purple

* When two colors are shown for a single wire, the first is the basic color of the wire and the second is the color of the stripe. For example: BLK/WHT is a black wire with a white stripe.

* When a color and a number are shown for a single wire, the number is printed on the wire.

ELECTRO-STATIC DISCHARGE PREVENTION

- * Circuit board components are easily damaged by electro-static discharge. This is especially true for EPROMS. A surge of 100 volts or less can cause problems in micro-electronic circuits. Much larger charges are very easy to create. For example, sitting on a varnished wooden stool can generate 20,000 volts. Simply walking across the floor can produce up to 50,000 volts.
- * Fortunately, much can be done to greatly reduce electro-static discharge and the damage it can cause. A successful plan for controlling static discharge includes the following steps:

Eliminate potential sources of friction. Carpet is especially troublesome. Carpet should be treated periodically with an "anti-static" solution;

Avoid a low humidity environment. Humidity levels of 50% or more tend to discourage the formation of static charges;

Provide each machine with a separate, properly grounded outlet;

Use a conductive wrist-strap which is grounded to the machine when servicing controller boards in the merchandiser. An anti-static mat should be used when servicing boards outside of the merchandiser;

Use anti-static containers and packaging for storing and transporting circuit boards and individual EPROMS.