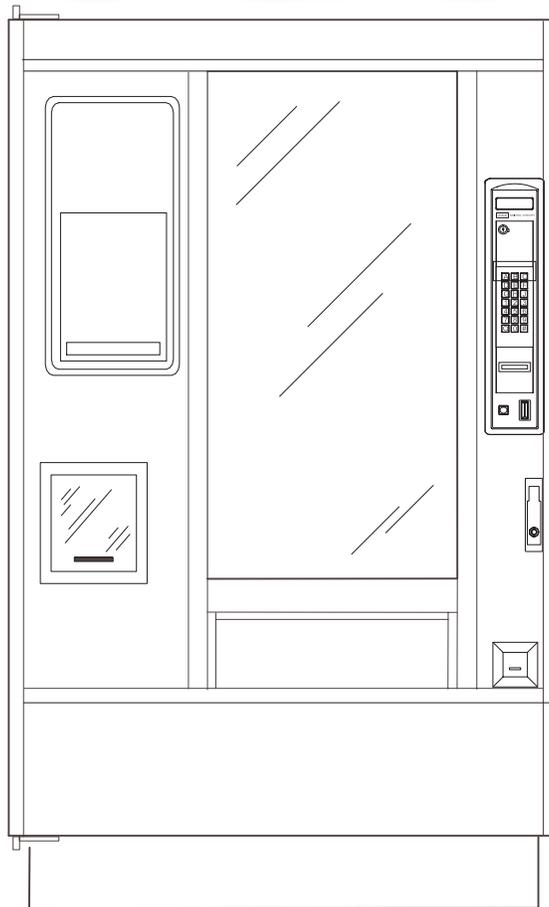


Model 451

Instant Noodle Merchandiser



Set-Up & Operators' Guide

CRANE NATIONAL VENDORS
12955 Enterprise Way
Bridgeton, Missouri 63044-1200
(314) 298-3500
www.nationalvendors.com



This machine has been engineered to our own rigid safety and performance standards. It has been designed to comply with sanitation and health guidelines recommended by the Automatic Merchandising Health-Industry Council (AMHIC) and it conforms with all other NAMA safety recommendations.

This machine has been manufactured in accordance with the safety standards of both Underwriter's Laboratories and the Canadian Standards Association. To maintain this degree of safety and to continue to achieve the level of performance built into this machine, it is important that installation and maintenance be performed so as to not alter the original construction or wiring and that replacement parts are as specified in the **Parts Manual**. Your investment in this equipment will be protected by using this **Setup and Operator's Guide** and the **Parts Manual** in your operation, service and maintenance work. By following prescribed procedures, machine performance and safety will be preserved.

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1. SITE REQUIREMENTS

I. ELECTRICAL SERVICE

The merchandiser is supplied with a service cord for the country of use and is terminated in a grounding type plug. The wall receptacle used for this merchandiser must be properly polarized, grounded, and of the correct voltage. Operating the merchandiser from a source of low voltage will **VOID YOUR WARRANTY**. Each merchandiser should have its own electrical circuit and that circuit should be protected with a circuit breaker or fuse conforming to local regulations.

Voltage Check - Place the leads of a voltmeter across the LINE (LIVE) and NEUTRAL terminals of the wall receptacle. The voltmeter should indicate 110-130 volts ac for 120 volt, 60 Hz locations, or 220-240 volts ac for 230 volt, 50 Hz locations.

Polarity Check - Place the leads of a voltmeter across the LINE (LIVE) and GROUND terminals of the wall receptacle. The voltmeter should indicate 110-130 volts ac for 120 volt, 60 Hz locations, or 220-240 volts ac for 230 volt, 50 Hz locations.

Noise Potential Check - Place the test leads of a voltmeter across the NEUTRAL and GROUND terminals of the wall receptacle. The meter should indicate 0 volts ac. A measurement greater than 1.5 - 2.0 volts ac could result in problems for the merchandiser's electronic circuitry caused by electrical noise.

Any deviation from these requirements could result in unreliable performance from your merchandiser

II. WATER SERVICE

Water Supply

The best type of water is normal hard water.

If your location has chemically softened water, one of the following steps is advised:

- Have a non-softened supply line run to the merchandiser.
- Contact your local water filter supplier for information and suggestions.

Well water can also be used in your merchandiser. However, you should have it checked for levels of carbonates and alkalies. Contact your water filter supplier if these values are relatively high.

Water Pressure Requirements

Minimum water pressure: 10 psi (69.0 kPa) at ½ gallons per minute.

Maximum water pressure: 80 psi (522.0 kPa) at ½ gallons per minute.

Flushing The Water Supply Line

Flush the water supply line before connecting it to the merchandiser. A minimum of five gallons is usually required before connecting the merchandiser to the supply line. DO NOT flush the merchandiser water system.

Supply Line Requirements

Locate the supply line so it will be behind the merchandiser and equip it with a shut-off valve.

To Connect The Merchandiser To The Supply Line

You will need the following:

- A coil of copper tubing with an outside diameter of $\frac{3}{8}$ " (9.5 mm) or greater. The appropriate plastic tubing may be substituted.
- A $\frac{3}{8}$ " flare fitting.

Using A Water Filter Cartridge

The filter cartridge supplied with this merchandiser will do the following:

- Filter many particles suspended in the water.
- Introduce a good grade of sequesterant into the water to inhibit the formation of lime scale when hard water is heated.

The filter cartridge is effective to the following limits:

- 7 oz. cup - 26,000 vends
- 8.25 oz. cup - 22,000 vends
- 9 oz. cup - 20,000 vends

2. UNPACK THE MERCHANDISER

Remove all packing materials from the interior of the machine. Keep all documents; warranty cards, etc. Set aside the base plate kit (if present).

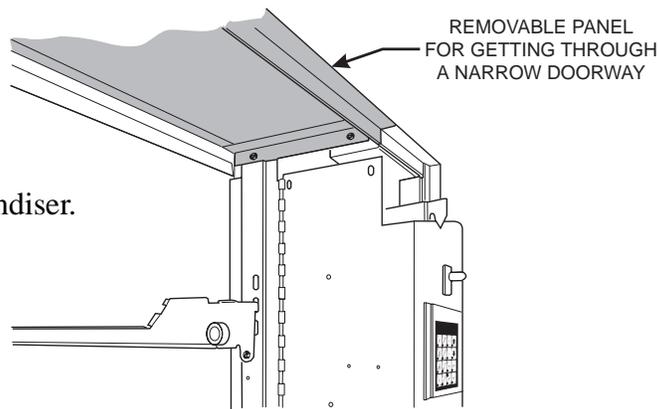
3. INITIAL SETUP

I. MOVE THE MERCHANDISER THROUGH A NARROW DOORWAY

If necessary, this merchandiser can be moved through an opening as narrow as 30 inches by removing panels at the top and bottom of the cabinet.

Remove The Top Panel

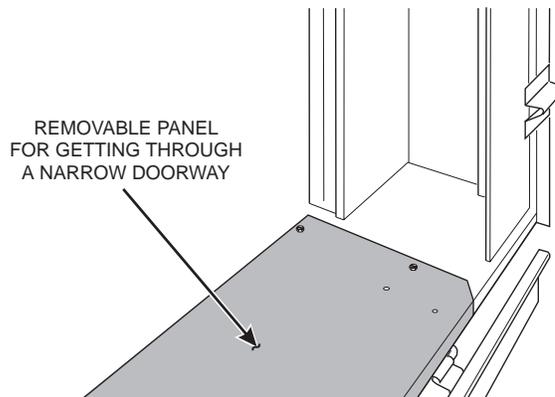
1. Remove the two screws that secure each end of the panel to the cabinet.
2. Pull the panel forward to remove it from the merchandiser.



VIEW LOOKING INTO THE TOP OF THE CABINET

Remove The Bottom Panel

1. Remove the screws that secure the panel to the cabinet.
2. Pull the panel forward to remove it from the cabinet.



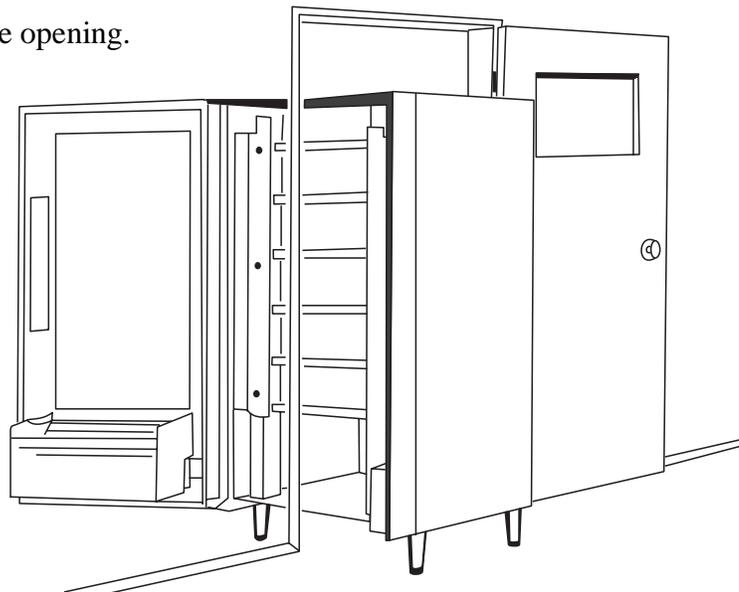
VIEW LOOKING INTO THE BOTTOM OF THE CABINET

Take The Merchandiser Through The Opening

1. Open the cabinet door and place it square with the left side of the cabinet.
2. Carefully walk the merchandiser through the opening.

Reassemble The Merchandiser

1. Replace the upper and lower panels.



II. POSITION THE MERCHANDISER

Move the merchandiser to its *approximate* position. (There are some procedures you need to do before it is in its permanent location.) Plug in your merchandiser and turn the power switch to **ON**.

- You can position this merchandiser anywhere in a bank of machines. It can even be placed on an end flush against a side wall.
- Be sure to locate the machine at least one inch away from the back wall.
- There should be enough room in front of the merchandiser for the door to move freely.

NOTE

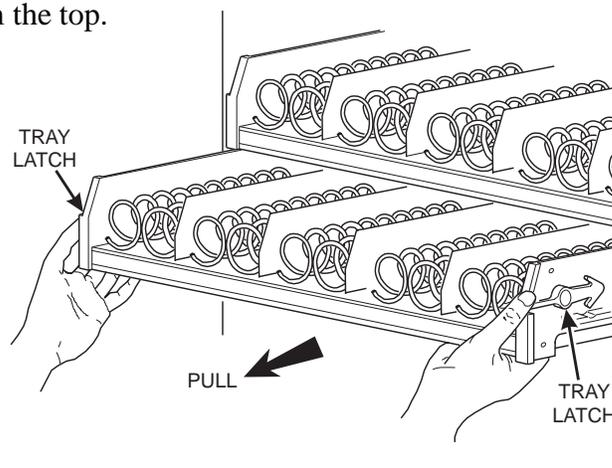
This machine is only rated for installation in an indoor location.

III. INSTALL THE WATER FILTER CARTRIDGE

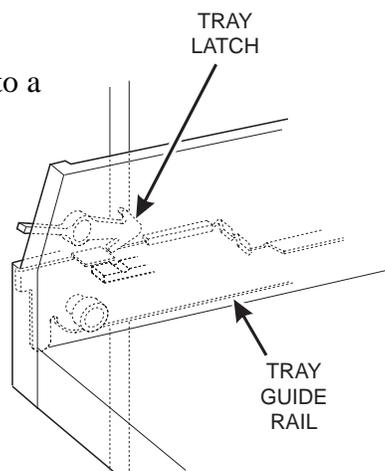
Remove Two Trays

You will need to remove the second and third trays from the top. This will make it much easier to install the water filter cartridge.

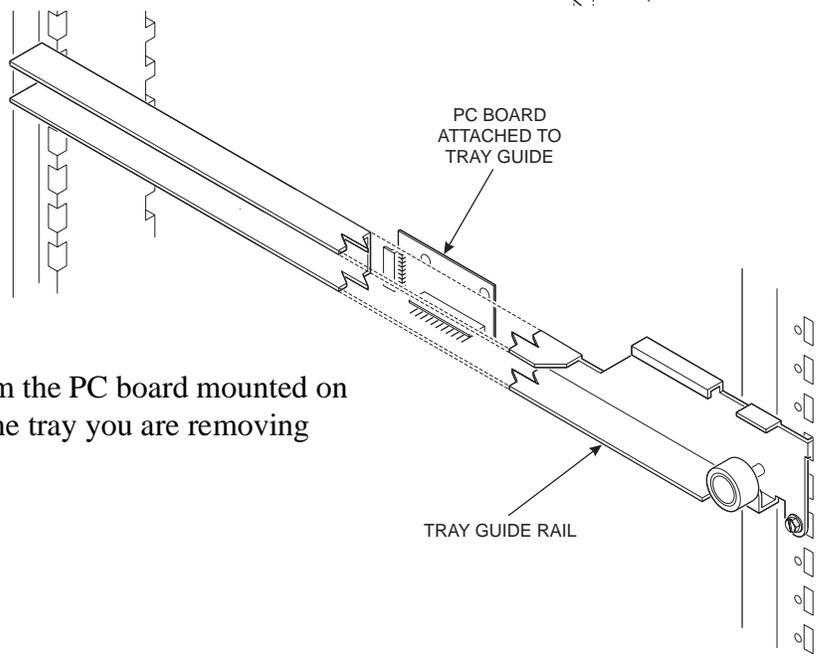
1. Push down on the tray latches with your thumbs.



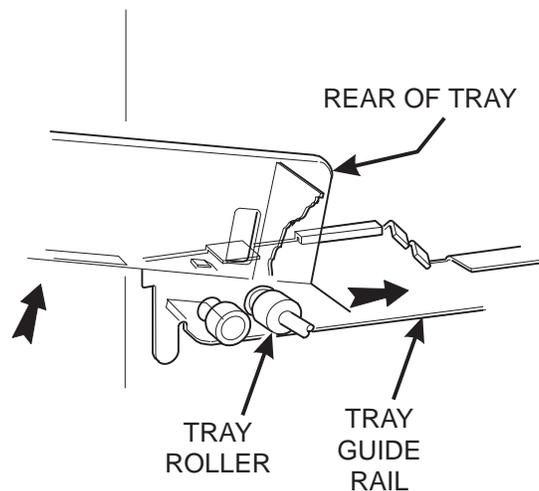
2. Pull the tray forward until you hear and feel the rear tray rollers drop into a cut-out in the top of the guide rail.



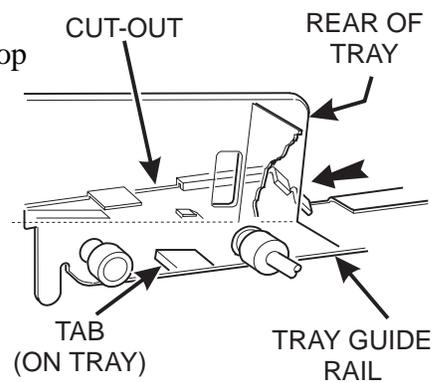
3. Unplug the tray wiring harness from the PC board mounted on the tray guide rail JUST ABOVE the tray you are removing



4. Lift up on the tray and slide it toward the back. No more than an inch should be needed.



5. The tab near the back of the tray should align with the cut-out in the top of the guide rail as shown.
6. Lift the tray clear of the guide rail and out of the merchandiser.



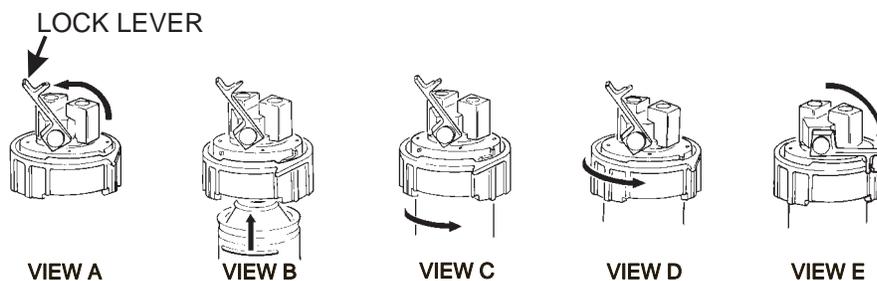
Install The Cartridge

1. Make sure the main power switch is in the **OFF** position.
2. Locate the water filter. Flip the lock lever **UP** to the OFF position (view A).
3. As viewed from above, rotate the locking collar clockwise about 60° until it drops to the filter receiving position.
4. Align the raised rib near the top of the cartridge with the ribless portion of the locking collar.
5. Push the cartridge up into the filter head (view B).
6. As viewed from above, rotate the cartridge clockwise until the lock lever engages the locking collar (view C).
7. Push the lock lever **DOWN** to the ON position (view E).

NOTE

The water filter assembly cannot be operated without a properly installed water filter cartridge.

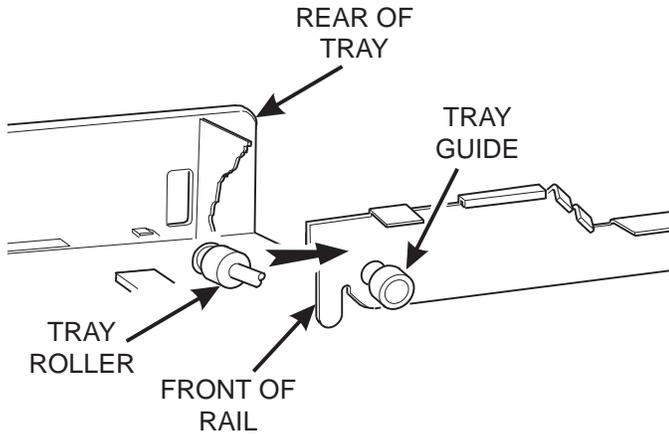
The valve handle on the water filter head is used to open and close the water inlet to the merchandiser.



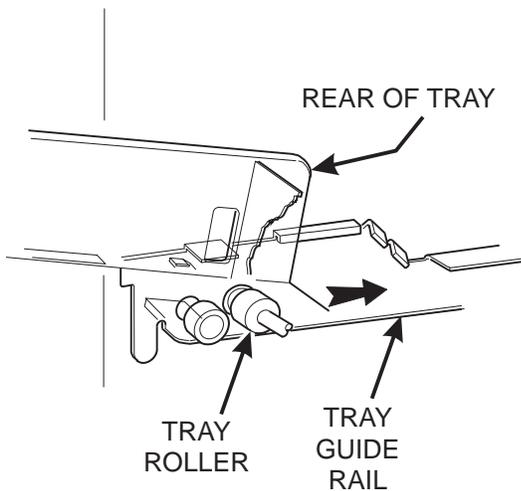
Replace The Two Trays

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. Proceed as follows:

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



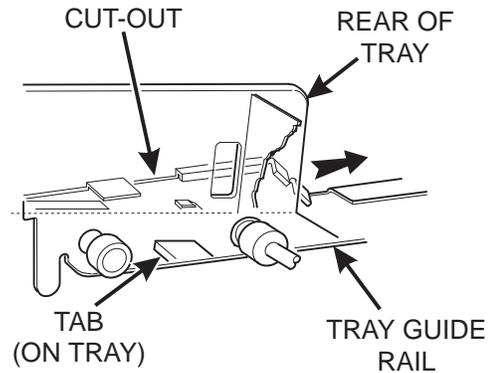
2. Bring the tray roller to rest on the tray guide.



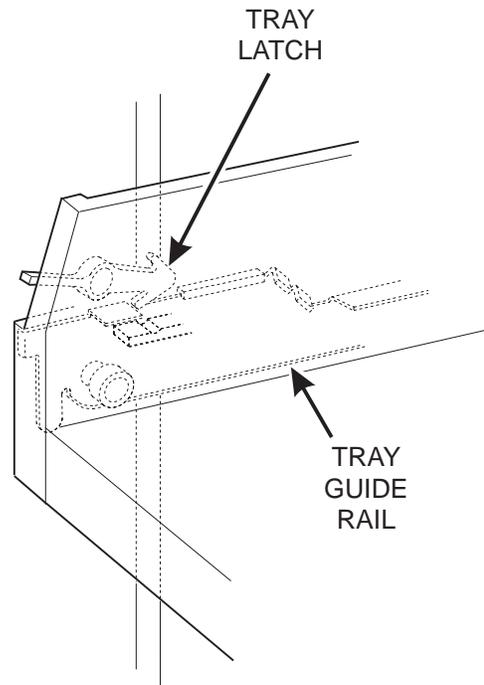
3. Tilt the tray upward.

4. Connect the tray wiring harness to the PC board mounted to the guide rail JUST ABOVE the tray you are installing.

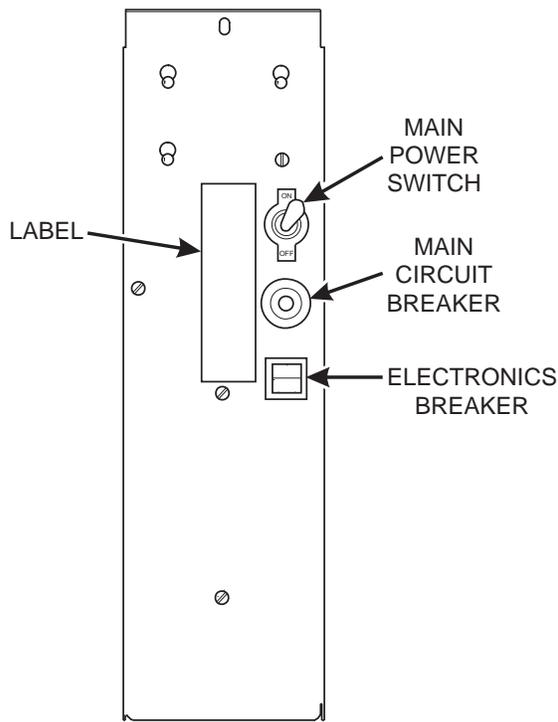
5. Hold the tray up while pushing it toward the rear. Stop when the tab on the tray aligns with the opening in the tray guide.



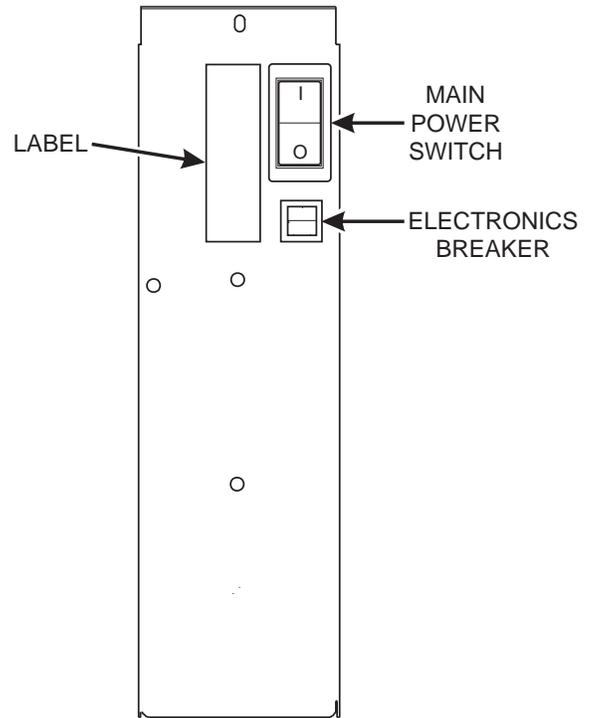
6. Lower the tray until it rests on the tray guide roller. Push the tray in all the way.
7. The tray latch will fall into the locking position.



IV. HOW TO TURN THE MERCHANDISER ON AND OFF



U.S./CANADA POWER PANEL



INTERNATIONAL POWER PANEL

- Power to the merchandiser is controlled by the main power switch, located on the power panel.
- The power panel is on the right side of the merchandiser, behind the monetary door.

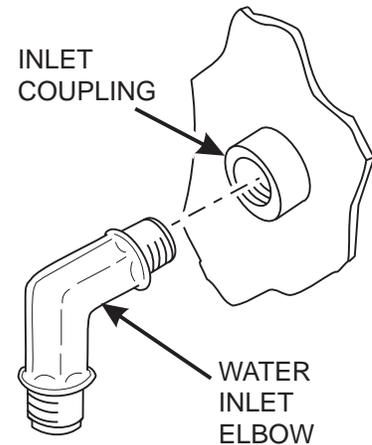
V. INSTALL THE WATER INLET ELBOW

- A $\frac{3}{8}$ " flare x $\frac{3}{8}$ " NPTF elbow fitting is included in the same plastic bag that contained this manual.
1. Apply one turn of teflon tape or a thin coating of teflon paste to the threads, if they are not already coated.
 2. Turn the pipe thread end of the elbow into the inlet coupling mounted in the back wall of the cabinet.

CAUTION

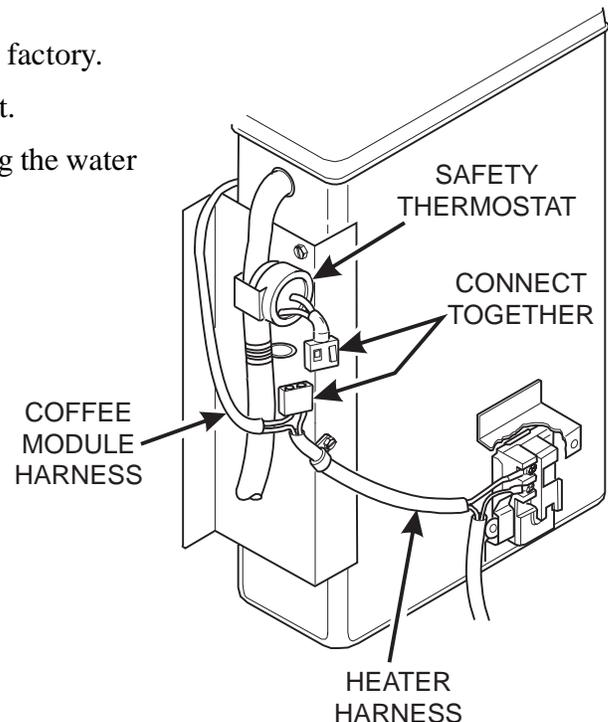
Do not overtighten the elbow. Doing so could cause the weld between the coupling and the cabinet to break.

3. Before connecting your water line to the merchandiser, flush the line as follows:
 - a. Place the free end of the water line in a large container.
 - b. Turn on the water at its source, and let at least five gallons of water flow through the line.
 - c. Turn off the water at its source.
4. Connect the water line to the water inlet elbow.
5. Turn on the water at its source and check for leaks.
6. Make sure the main power switch is **OFF**. Plug in the machine. Turn the main power switch to ON. Listen for the water tank to begin filling. Check for leaks from time to time while the tank is filling.



VI. ENERGIZE THE WATER TANK HEATER CIRCUIT

- The water tank heater circuit is disconnected at the factory.
- Wait until the water tank is half full, then reconnect.
- Always disconnect the heater circuit when emptying the water tank.



4. FINAL INSTALLATION

Move the merchandiser to its *final position*. **Remember:**

- 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 merchandiser should be located at least one inch away from the back wall.
- 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.

I. LEVEL THE MERCHANDISER

1. Using a spirit level, adjust the legs until the merchandiser is level from front to back and side to side.

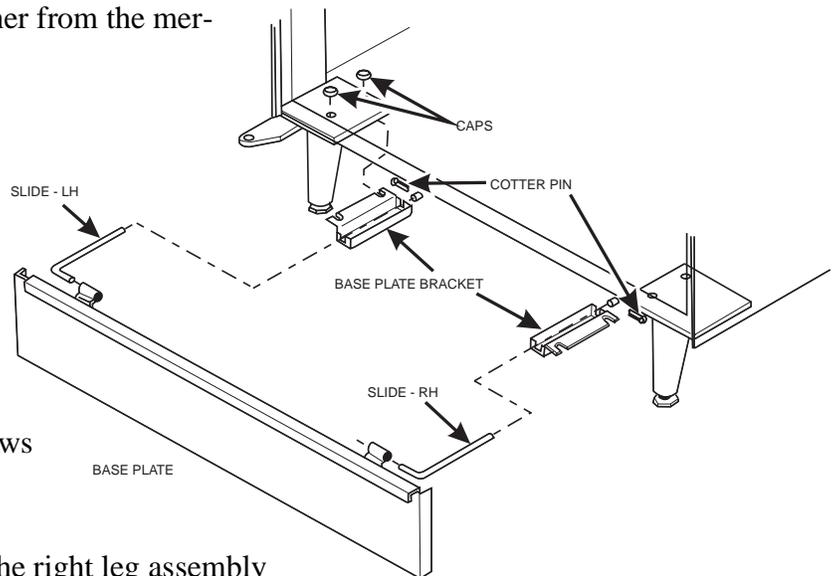
II. INSTALL THE BASE PLATE

Refer to the figure below while completing the following procedures:

WARNING

Do not move the cabinet while the hex head screws and/or carriage bolts are loosened. The cabinet would become unstable and likely to tip and cause injury.

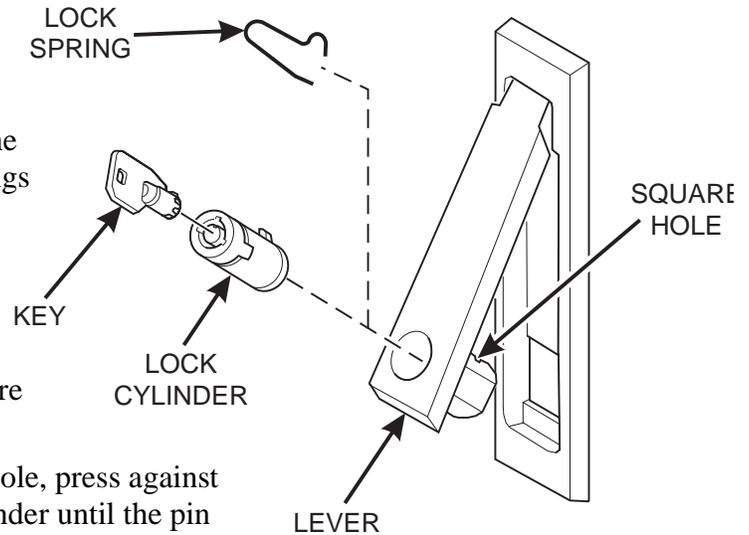
1. Remove the waste pail and the floor liner from the merchandiser.
2. Remove the two caps as shown.
3. Loosen the left leg assembly carriage bolts and nuts to allow mounting a base plate bracket.
4. Secure one of the base plate brackets to the leg assembly using the two carriage bolts. Tighten the carriage bolts and nuts.
5. Loosen the right leg assembly hex screws to allow mounting the other base plate bracket.
6. Secure the other base plate bracket to the right leg assembly using the two hex head screws. Tighten the hex head screws.
7. Insert the short arms of the slides into the hinged tabs of the base plate. Position the slide so the notch near the short arm is on the bottom side.
8. Insert the long arms of the slides into the base plate brackets.
9. Insert and secure a cotter pin through the hole in the back of each of the slides.
10. Push the base plate toward the merchandiser cabinet. The front tabs of the base plate brackets should seat in the notches in the long arms of the slides.
11. Replace the caps and liner removed previously.



III. INSTALL THE LOCK CYLINDER

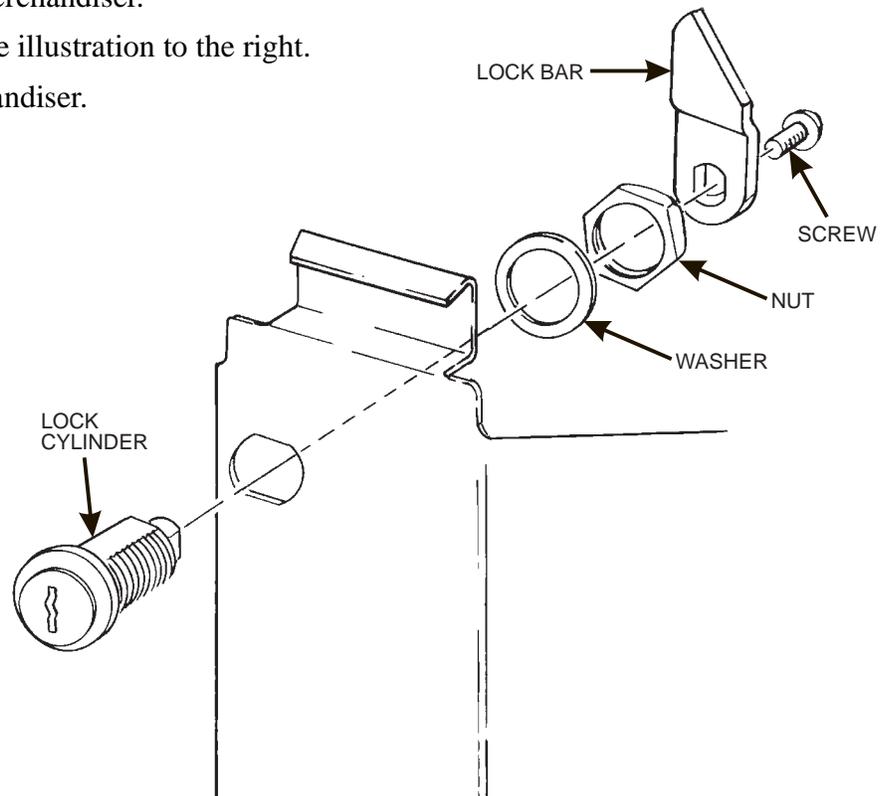
Install an optional lock cylinder in the merchandiser as follows:

1. Position the lift handle lock lever as shown.
2. Depress the lock spring at the square hole of the lock cylinder receptacle and pull the lock springs out through the front.
3. Position the lock cylinder as shown. Depress the spring loaded lock pin.
4. Push the cylinder into the cylinder receptacle in the lever. The pin should snap into the square hole.
5. 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.
6. **Leaving the door open**, test the lock mechanism with a key.



IV. INSTALL THE OPTIONAL CASH BOX LOCK

1. Remove the cash box from the merchandiser.
2. Assemble the lock as shown in the illustration to the right.
3. Return the cash box to the merchandiser.

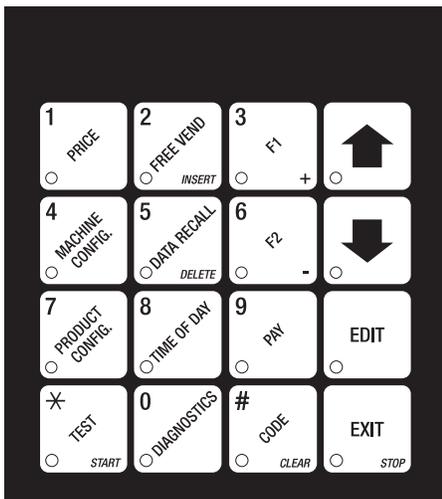


V. LOAD THE COIN MECHANISM

1. Open the cabinet door.
2. Open the monetary door.
3. Insert coins one at a time until each of the coin tubes has been filled.
4. Inspect the tubes for shingled coins and correct if necessary.

5. BASIC PROGRAMMING

The Service Keypad



The service keypad (shown on the left) is your major tool to program your merchandiser. If you just need to get your merchandiser up and running, you only have to set prices. That procedure is given below. For a thorough explanation of how to do all the custom programming features available to you, consult your *Programming Guide*. It will tell you how to:

- Set up custom time-of-day vending periods;
- Look at sales and vending data;
- Test various machine functions;
- Customize trays for vending unique products;
- Enter custom display messages;
- And much more!

I. SET PRICES

1. Press . The display shows **** 2.50 .25**. This display shows the maximum and minimum prices set in the machine.
2. Press the number of the selection to be priced. (Example: B1.) The display shows **B1 X.XX**. Enter a price using the number keys. The selection is now priced.
3. Press another letter key, or  to price another selection.

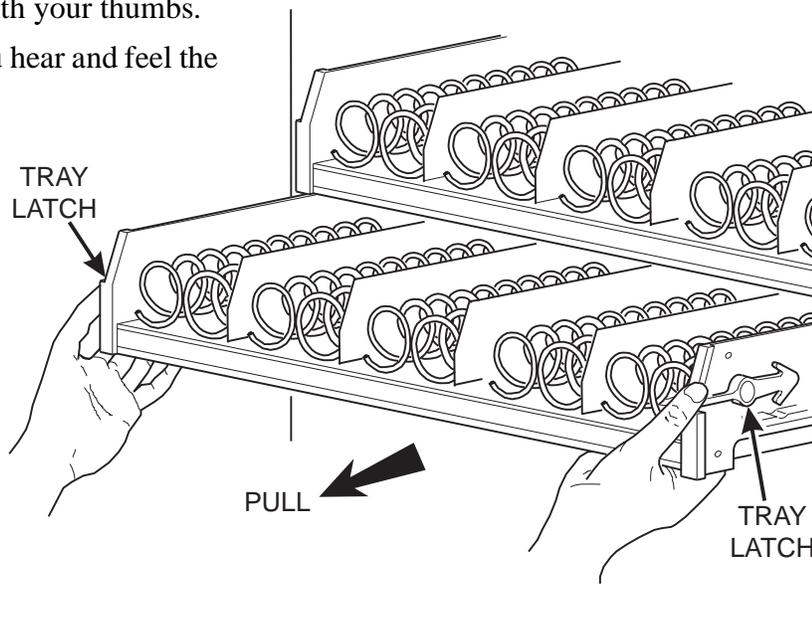
NOTE

Refer to your *Programming Guide* for other pricing options.

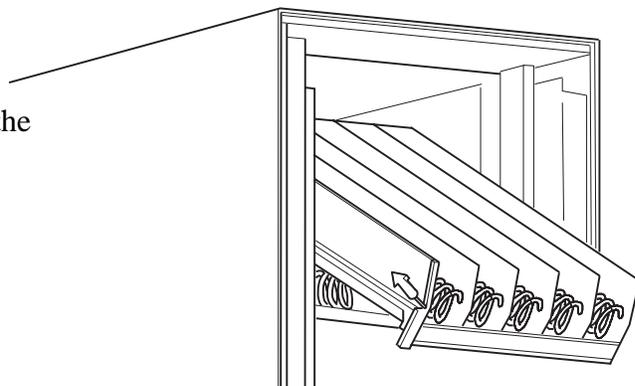
6. SNACK SECTION SETUP

I. PLACE A TRAY IN THE LOADING POSITION

1. Push down on the tray latches with your thumbs.
2. Pull the tray toward you until you hear and feel the rear tray rollers drop into a cut-out in the top of the guide rail



3. Continue pulling the tray forward for another inch. You will then be able to tilt the tray downward into the loading position as shown.



II. SET UP TRAYS TO VEND PRODUCTS

These instructions will guide you through setting up your trays for vending. You will be asked to determine if your tray can physically hold the products you intend to vend. If not, you will be directed to other procedures which will help you get them set up. Follow these nine steps for each tray in your machine:

1. Make sure the tray is in the loading position.
2. Is the column wide enough for the intended product? If so, proceed to the next step. Otherwise, set up your tray to vend wider products. When you're done, return to step 3 in this procedure.
3. Will the products fit between the spiral turns? If so, proceed to the next step. Otherwise, change the spiral.
4. Will the product pass under the tray immediately above? If so, proceed to the next step. Otherwise, reposition the tray and guides.
5. Will the product touch products on either side? If not, proceed to the next step. Otherwise, install a product spacer.
6. Load products in the tray.
7. Return the tray to the vending position.
8. Install the price rolls.
9. Install the selection ID numbers.

III. SET UP A TRAY TO VEND WIDE PRODUCTS

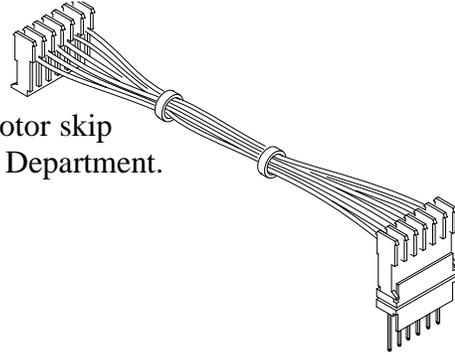
The following steps will help you configure your tray to vend wide products. When you have completed the procedures called out in each step, return to the next step in the procedure. When you are done with the entire wide product steps, return to the set-up procedures above.

1. Remove the tray from the merchandiser and place on a flat surface (see **REMOVE TWO TRAYS**, page 5).
2. Based on the size of the product you want to vend, decide how many spiral positions it will occupy. Please remember that the leftmost spiral in the group **must** have an even ID number (0, 2, 4, etc.) For example, if a product is three spirals wide, the left spiral will be ID number 0, and the right spiral will be ID number 2. Be careful how wide you set up for, because very wide products could get hung up in the delivery door.
3. Remove the column dividers inside the group. In the example of three spiral positions, you would be removing the dividers between spiral ID numbers 0 and 1, and 1 and 2.
4. If your group only consists of 2 spirals, replace the rightmost motor with a spiral bearing and gear, and install a gear on the leftmost motor. Skip to step 8.
5. Remove all spirals in the group except the leftmost spiral.

6. Do one of the following:
 - a. If your group has an **ODD** number of spirals (3, 5, etc.) remove the harnesses from all motors in the group except the leftmost one. To the rightmost motor, connect the harness from the motor immediately to its left.

NOTE

If the motor harness you disconnected does not reach, use the motor skip harness, P/N 1599024, available from the National Vendors Parts Department.

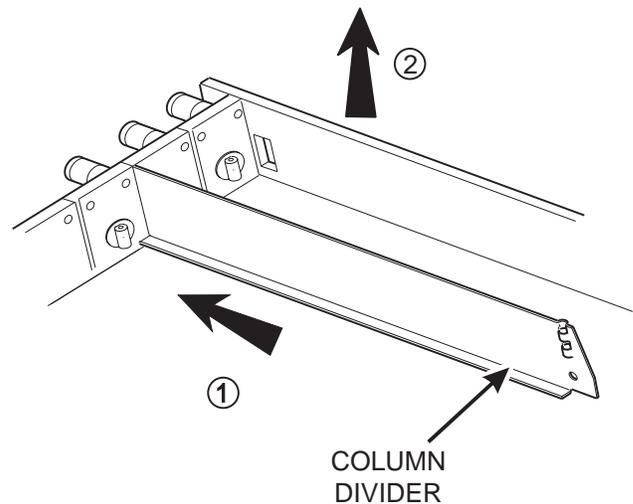


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- b. If your group has an **EVEN** number of spirals (4, 6, etc.) remove the harnesses from all motors inside the group (leave the harnesses connected to the leftmost and rightmost motors).
7. Install a spiral at the rightmost position in your group. Make sure it has the same product capacity and is opposite to the one in the leftmost position.
8. Return the tray to the merchandiser (see **REPLACE THE TWO TRAYS**, page 8).
9. Electronically couple the motors as needed (see your **Programming Guide** for information).
10. Return to step 3 in the **Set Up Trays to Vend Products** procedure (page 15).

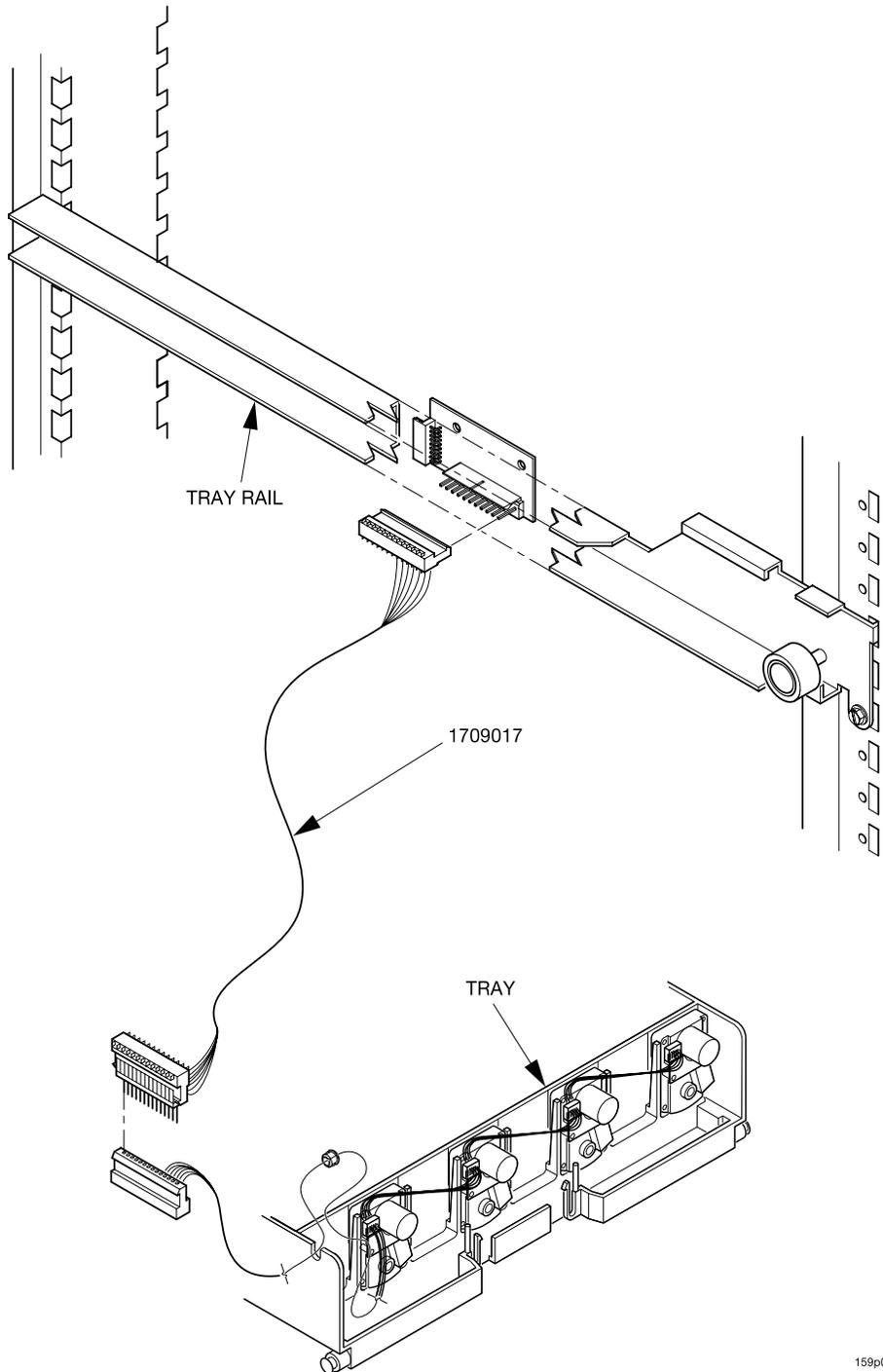
IV. REMOVING AND INSTALLING COLUMN DIVIDERS

1. Push the column divider toward the back of the tray - 1
2. Lift the column divider clear of the tray - 2
3. Install the column divider in the reverse order of removal.



V. OPERATE A TRAY OUTSIDE THE MACHINE

Tray harness extension (P/N 1709017) is available from your National Vendors Parts department. The extension will enable you to remove the tray from the machine and still operate the motors and spirals. Connect it as shown:

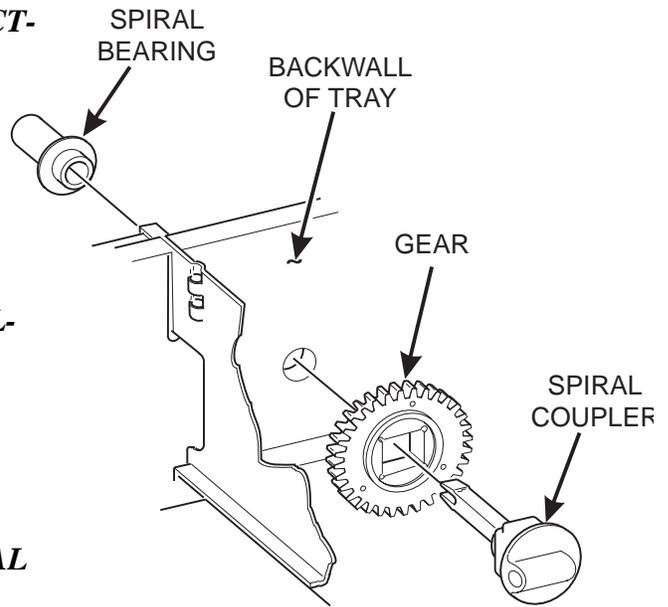


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VI. REPLACING A MOTOR WITH A SPIRAL BEARING

Removing A Motor:

1. Disconnect the harness from the motor (see **CONNECTING AND DISCONNECTING A MOTOR HARNESS**, page 19).
2. Remove the spiral (see **REMOVING AND INSTALLING SPIRALS**, page 20).
3. Remove the spiral coupler (see **REMOVING A SPIRAL COUPLER**, page 21).
4. Remove the motor (see **REMOVING AND INSTALLING A SPIRAL MOTOR**, page 21).



Installing A Spiral Bearing:

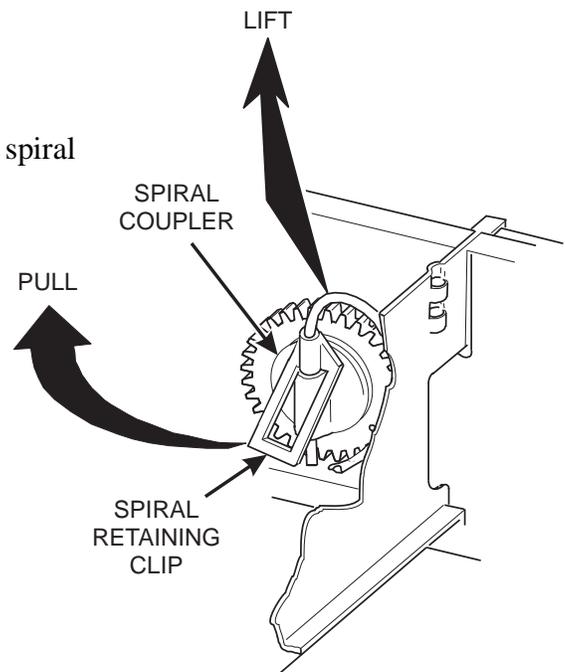
1. Put the gear into position if required in this set-up as shown (see **INSTALLING A GEAR**, page 22).
2. Install the spiral coupler (see **INSTALLING A SPIRAL COUPLER**, page 23).

To Remove A Spiral:

1. Pull forward on the retaining clip and remove the end of the spiral from the spiral coupler as shown.
2. Remove the spiral from the tray.

To Install A Spiral:

1. Pull the bottom of the retaining clip toward the front of the spiral.
2. Lower the spiral into the tray column and insert the end of the spiral into the spiral coupler as shown.
3. Release the retaining clip.



VII. CONNECTING AND DISCONNECTING A MOTOR HARNESS

CAUTION

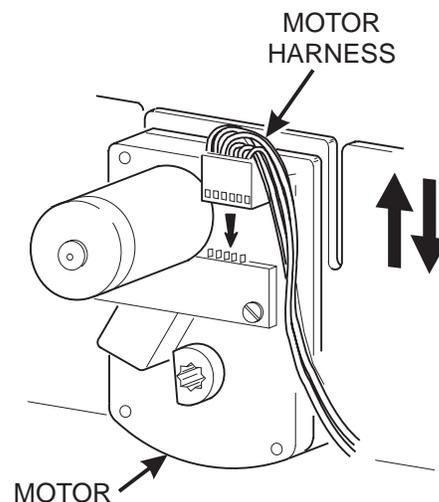
To avoid breaking the motor circuit board, hold the header on the circuit board whenever connecting or disconnecting a motor harness.

Disconnecting A Motor Harness

1. Pull the harness connector away from the circuit board as shown.
2. Tuck the unused part of the harness out of the way in the trough at the back of the tray.

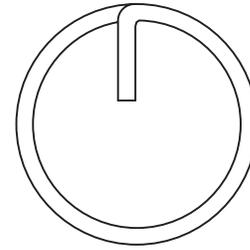
Connecting A Motor Harness

1. Locate the harness connector for the appropriate tray position.
2. Push the harness connector over the header pins on the motor circuit board as shown.



VIII. REMOVING AND INSTALLING SPIRALS

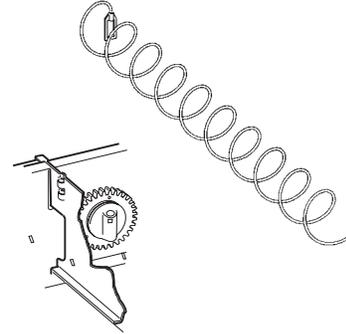
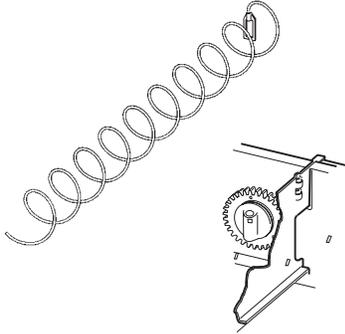
- All spirals are the same diameter:



- There are two types of spirals:

COUNTER-CLOCKWISE (left hand)

CLOCKWISE (right hand)

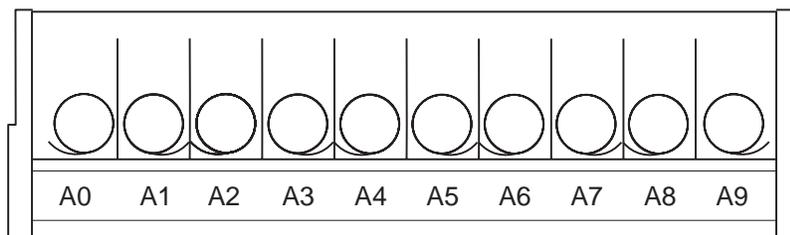


- Spirals are available in eight different capacities. Four of these are standard, and four are options.

ITEM CAPACITY OF SPIRAL	PART NUMBER		CLIP COLOR
	CLOCKWISE (RH)	COUNTERCLOCKWISE (LH)	
6 (Optional)	1477104	1477102	Purple
11 (Standard)	1477027	1477024	Blue
13 (Standard)	1477033	1477030	Yellow
15 (Standard)	1477039	1477036	Red
20 (Standard)	1477045	1477042	White
25 (Optional)	1477051	1477048	Green
30 (Optional)	1477057	1477054	Black
38 (Optional)	1477063	1477060	Orange

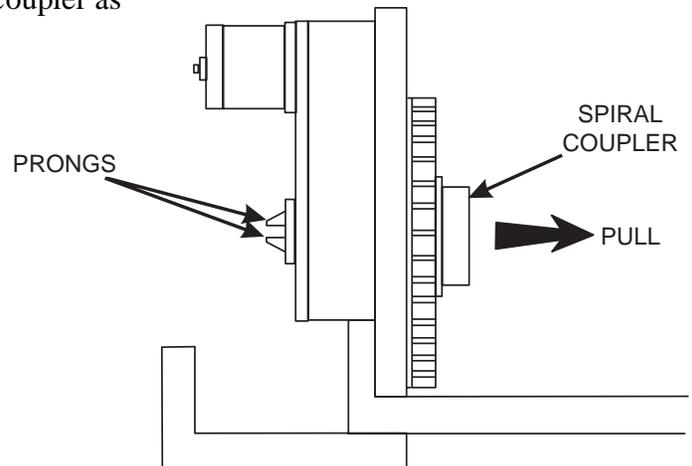
Should I Use A Clockwise Or A Counterclockwise Spiral?

1. The type of spiral used is determined by the column position it will occupy in the tray.
2. Refer to the figure below to find the correct spiral type.



IX. REMOVING A SPIRAL COUPLER

1. Pinch together the prongs on the end of the spiral coupler as shown.
2. Pull the coupler forward (in the direction of the arrow as shown).

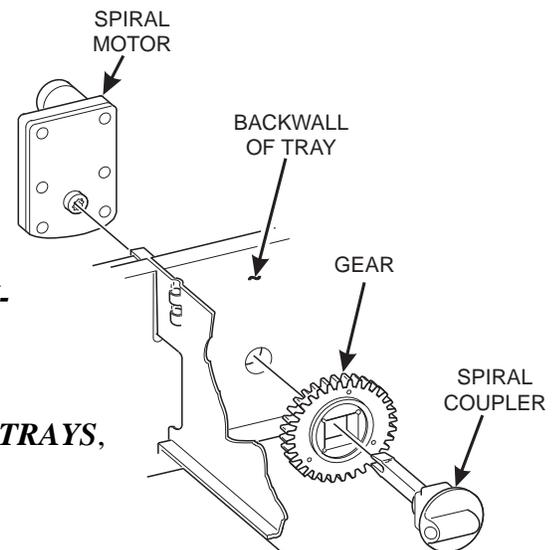


X. REMOVING AND INSTALLING A SPIRAL MOTOR

Removing A Spiral Motor:

NOTE, some steps may already be completed.

1. Remove the tray (see **REMOVE TWO TRAYS**, page 5).
2. Disconnect the motor harness (see **DISCONNECTING A MOTOR HARNESS**, page 19).
3. Remove the spira (see **REMOVING AND INSTALLING SPIRALS**, page 20).
4. Remove the spiral coupler (see **REMOVING A SPIRAL COUPLER**, page 21).
5. Lift the motor clear of the tray.
6. Return the tray to the merchandise (see **REPLACE THE TWO TRAYS**, page 8).



Installing A Spiral Motor:

1. Remove the tray (see **REMOVE TWO TRAYS**, page 5).
2. Place the motor in the correct position at the rear of the tray as shown.
3. Place a gear in position if required by this set-up (see **INSTALLING A GEAR**, page 22).
4. Install a spiral coupler in the proper orientation (see **INSTALLING A SPIRAL COUPLER**, page 23).
5. Connect the motor harness (see **CONNECTING A MOTOR HARNESS**, page 19).
6. Return the tray to the merchandiser (see **REPLACE THE TWO TRAYS**, page 8).

XI. INSTALLING A GEAR

When Are Gears Used?

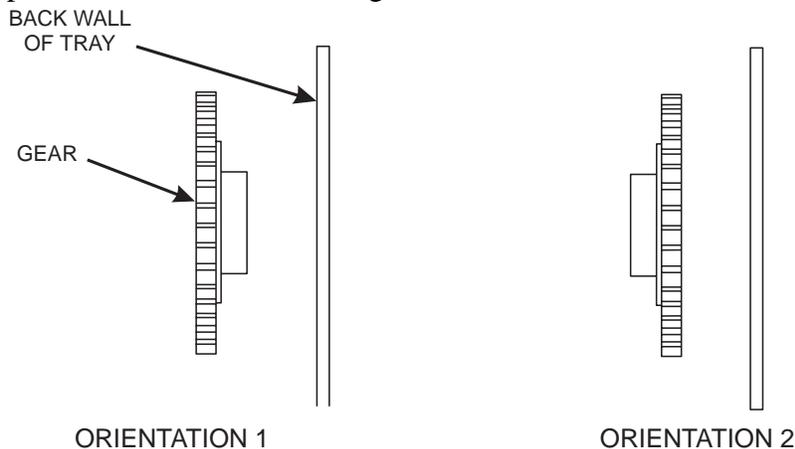
- Gears are used to mechanically couple the spirals together.
- This happens whenever you have two spirals and only one motor for vending a selection.

Where Are The Gears Placed?

- The gear is placed between the back of the tray and the spiral coupler.

How Is The Gear Oriented?

- There are two possible orientations for the gear:



- There are two rules to follow when orienting gears:

RULE 1 - The gears for selections next to each other cannot use the same orientation.

RULE 2 - All gears for a single selection must use the same orientation.

XII. INSTALLING A SPIRAL COUPLER

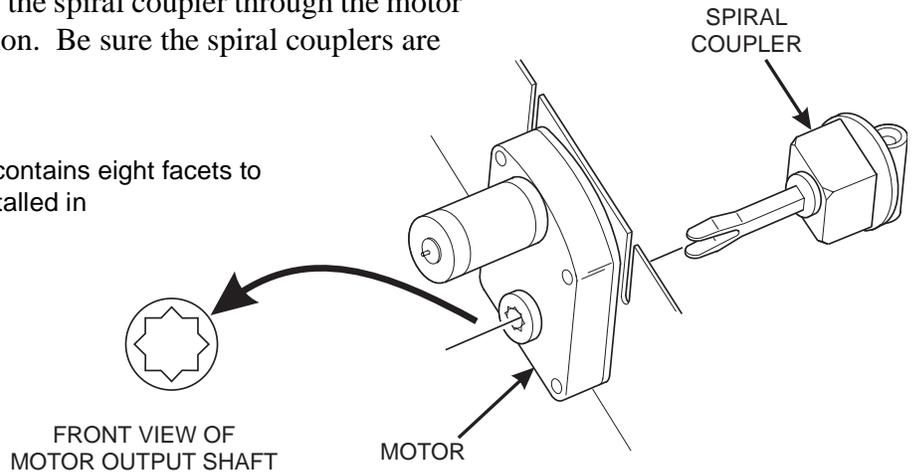
1. Place the gear in position if one is required for this set-up (see *INSTALLING A GEAR*, page 22).

When Used With A Motor:

1. Hold the motor in place and push the spiral coupler through the motor gear box until it clicks into position. Be sure the spiral couplers are oriented as shown below.

NOTE

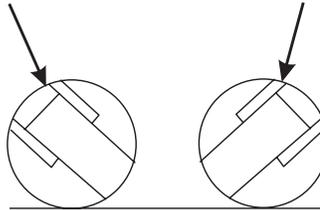
The motor output shaft opening contains eight facets to allow the spiral coupler to be installed in any one of eight positions.



SPIRAL COUPLER ORIENTATION

ONE POSITION
COUNTERCLOCKWISE
FROM VERTICAL

ONE POSITION
CLOCKWISE
FROM VERTICAL



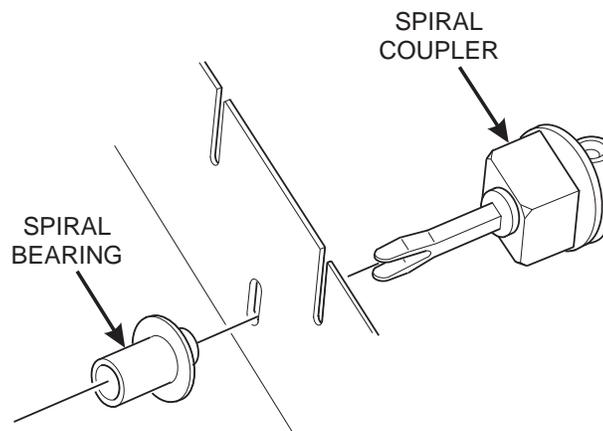
LEFT SPIRAL
COUPLER

RIGHT SPIRAL
COUPLER

AS VIEWED FROM FRONT OF TRAY

WHEN USED WITH A COUPLER BEARING:

2. Hold the coupler bearing in place and push the spiral coupler through the bearing until the coupler clicks into position. Be sure the coupler is in the proper orientation as shown.



XIII. MOVING A TRAY UP OR DOWN

This merchandiser can be adjusted to vend taller products. Some guidelines must be followed:

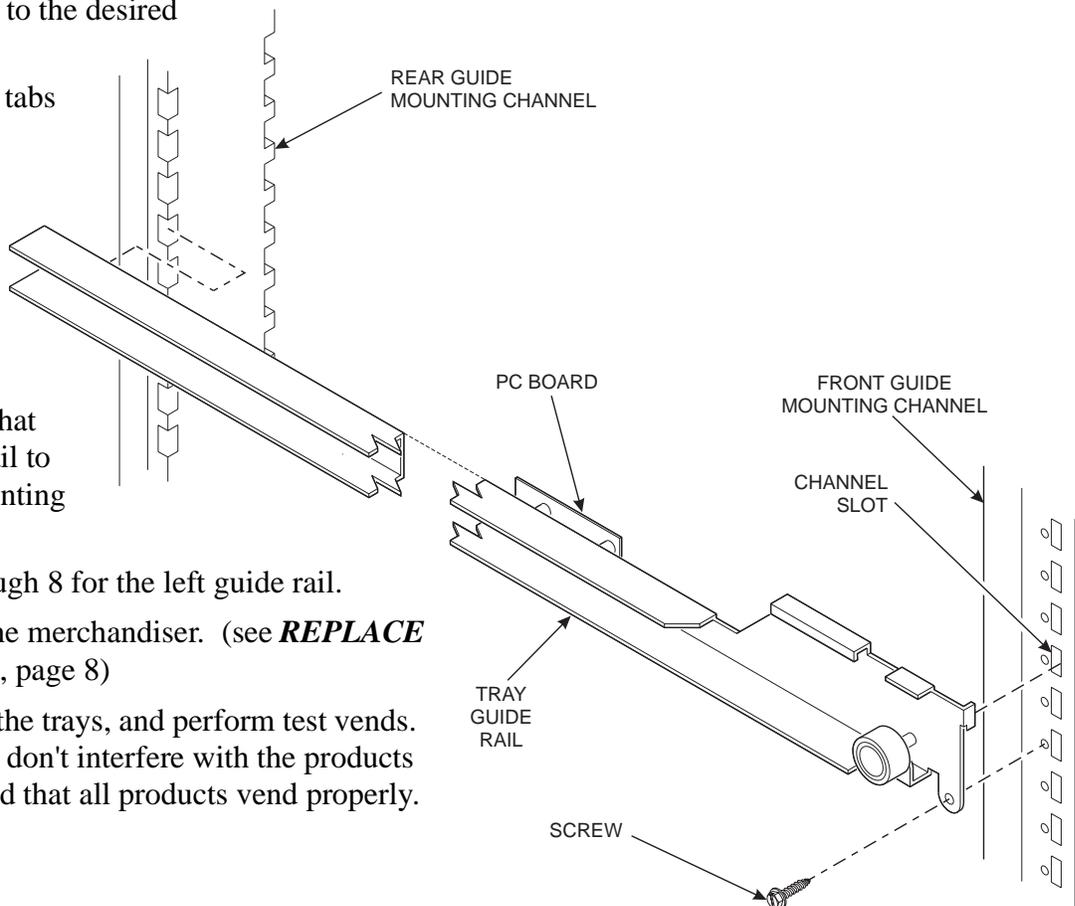
- Keep in mind that when you increase the product height available to a tray by lowering it, you will be decreasing the product height available to the tray below.
- If a tray is in the lowest position, the tray below it should not be in the highest position.
- If a tray is in the highest position, the tray above it should not be in the lowest position.
- You will need to experiment with various tray positions to get the best results for your products.

NOTE

Tray movement is limited because the tray harness will limit the amount of travel available to the tray guide rails.

Proceed as follows:

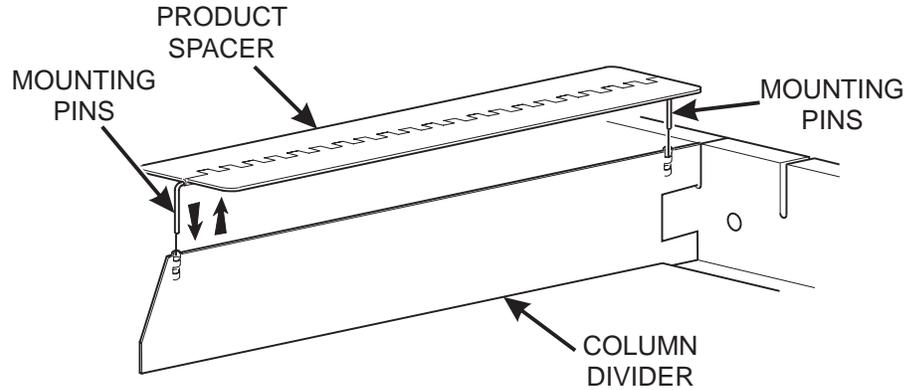
1. Remove the tray from the merchandiser. (see **REMOVE TWO TRAYS**, page 5)
2. Remove the screw that secures the right tray guide rail to the front guide mounting channel as shown.
3. Tap up on the guide rail and unseat the guide rail tabs from the channel slots.
4. Pull the guide rail away from the front and rear guide mounting channels.
5. Move the guide rail to the desired position.
6. Insert the guide rail tabs into the mounting CVchannel slots as shown.
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.
9. Repeat steps 2 through 8 for the left guide rail.
10. Return the tray to the merchandiser. (see **REPLACE THE TWO TRAYS**, page 8)
11. Load products into the trays, and perform test vends. Make sure the trays don't interfere with the products you are vending, and that all products vend properly.



XIV. INSTALLING AND REMOVING A PRODUCT SPACER

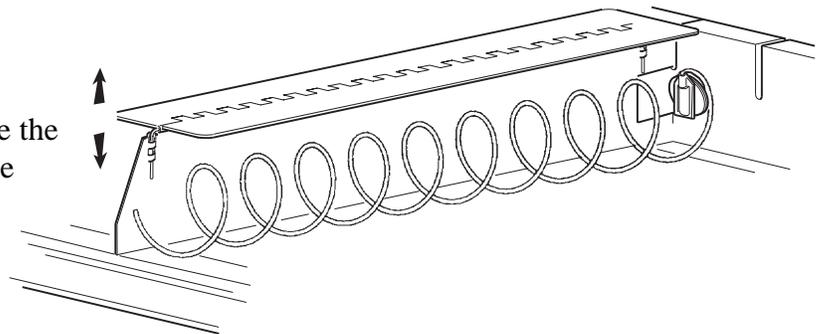
Installing A Product Spacer:

1. Insert the product spacer mounting pins into the column divider as shown.



Adjusting A Product Spacer:

1. With product loaded in the tray, rotate the product spacer up or down to keep the product upright as shown.



Removing A Product Spacer:

1. Pull the product spacer mounting pins from the column divider.

XV. LOAD TRAYS WITH PRODUCT

The color of the spiral coupler (the little plastic tab attached to the rear of the spiral will tell you how many products will fit in the spiral. See table below.

NOTE

Another way to determine spiral capacity is to count the spaces in the spiral !

SPIRAL CAPACITY COLOR CODES

SPIRAL CAPACITY	SPIRAL COUPLER COLOR	SPIRAL CAPACITY	SPIRAL COUPLER COLOR
8	Purple	20	White
11	Blue	25	Green
13	Yellow	30	Black
15	Red	38	Orange

Loading A Tray With Products In General

- See **PRODUCT PUSHER USAGE** (page 28) for spirals with capacity of 11, 13, or 15.
- See **SPIRAL WALL RETAINER USAGE** (page 27) for spirals with capacity of 20, 25, 30, or 38.
- Begin loading products at the front of the tray and work toward 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 tight or too loose, change the spiral size (see **REMOVING AND INSTALLING SPIRALS**, page 20).
- Be sure there are no empty positions between products in each spiral.

Special Considerations:

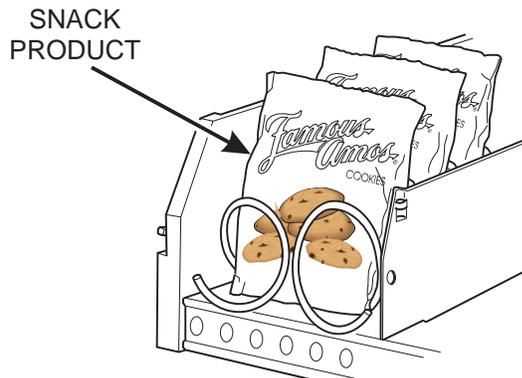
Bagged Products - Position package upright, then push the tops slightly toward the rear of the tray. Also, see **PRODUCT PUSHER USAGE** (page 28).

Thin Packages - Position the package upright. Also, see **SPIRAL WALL RETAINER USAGE** (page 27).

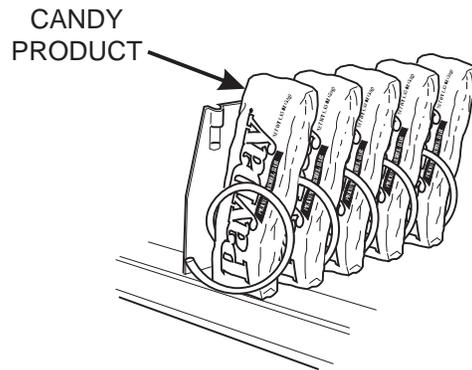
KitKat - The two right-most columns of the candy tray are designed to accept the KitKat candy bar.

WARNING

This merchandiser does not have a health control circuit. It is not approved for the vending of perishable food items.



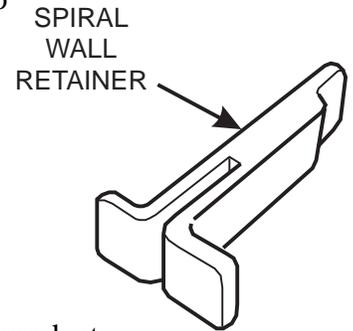
**CORRECT LOADING
OF SNACKS**



**CORRECT LOADING
OF CANDY**

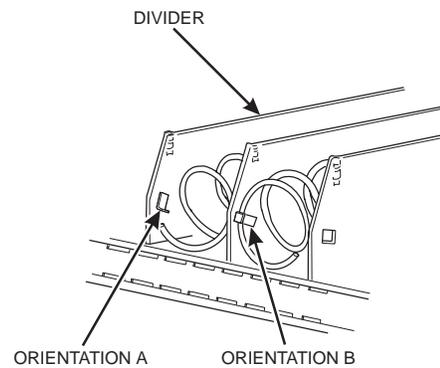
Spiral Wall Retainer Usage

A spiral wall retainer serves to compress the spiral and make it act like a spring to more forcefully eject a product. Do some test vends and use a spiral wall retainer when a product does not readily leave the spiral.



- Use a spiral wall retainer 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 DIVIDER BETWEEN THESE POSITIONS	0 and 1	1 and 2
	2 and 3	3 and 4
	4 and 5	5 and 6
	6 and 7	7 and 8
	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*.

XVI. PRODUCT PUSHER USAGE

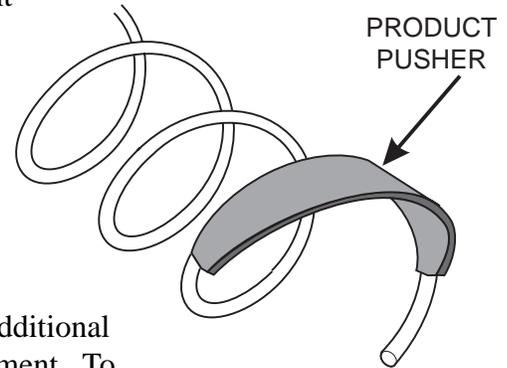
The product pusher will give the top of a product an extra tilt to help it fall into the delivery pan.

Use a product pusher 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 spiral and types of products.

A bag of product pushers has been shipped with the merchandiser. Additional product pushers are available from the National Vendors' parts department. To use a product pusher, snap it on the spiral as shown. You can adjust the product pusher by moving it around on the spiral to achieve the best vending results.



Preparing The 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 **INSTALLING A GEAR** (page 22), for mechanical coupling directions, or see the **Programming Guide** for electrical coupling directions.

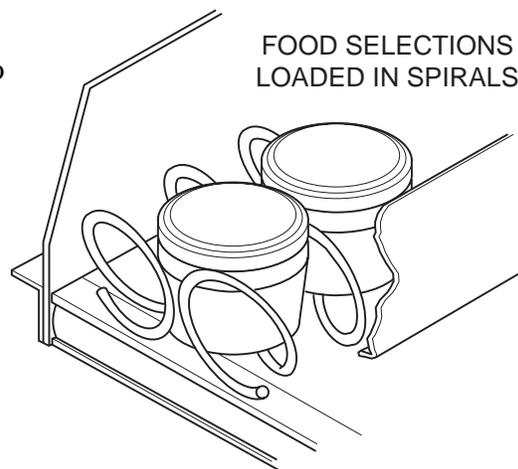
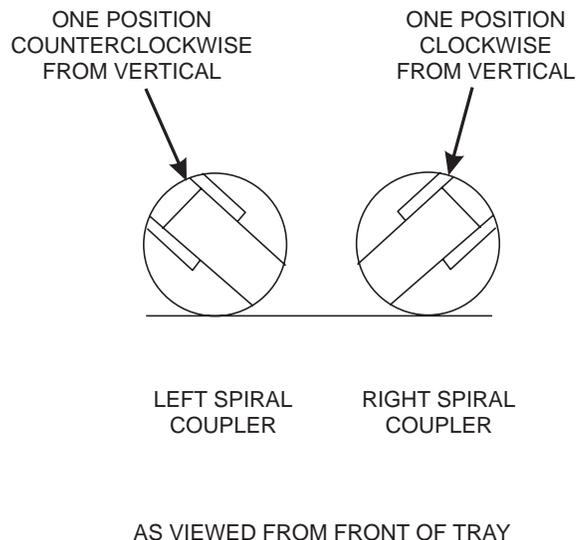
The left spiral coupler should be installed one position counterclockwise from the vertical position.

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 the National Vendors parts department. See **REMOVING AND INSTALLING SPIRALS** (page 20).

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

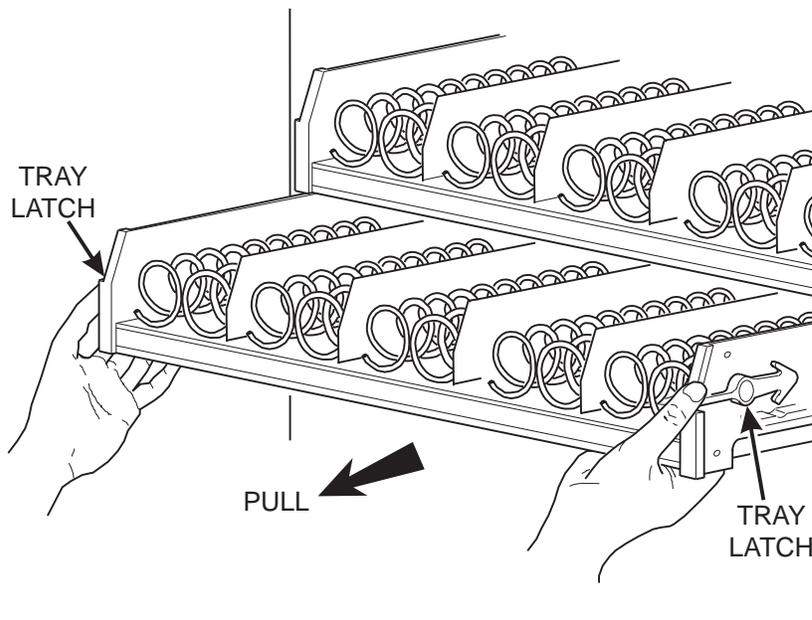
Load "Lunch Bucket" products as shown.



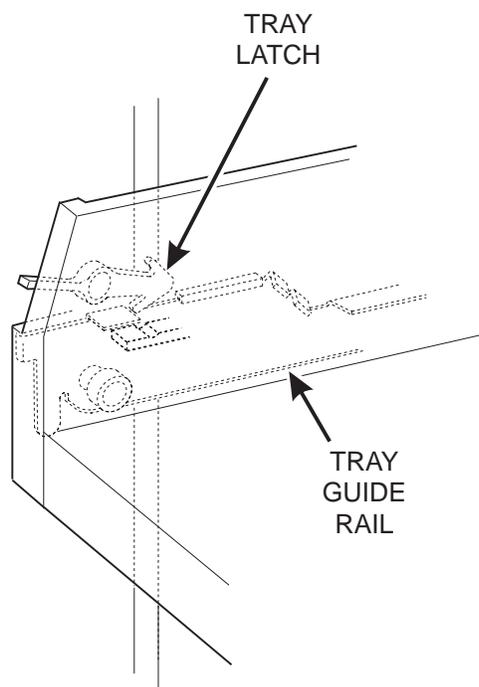
Proper Loading of "Lunch Bucket"

XVII. RETURN THE TRAYS TO THE VENDING POSITION

1. Lift the tray until it is parallel to the floor as shown.

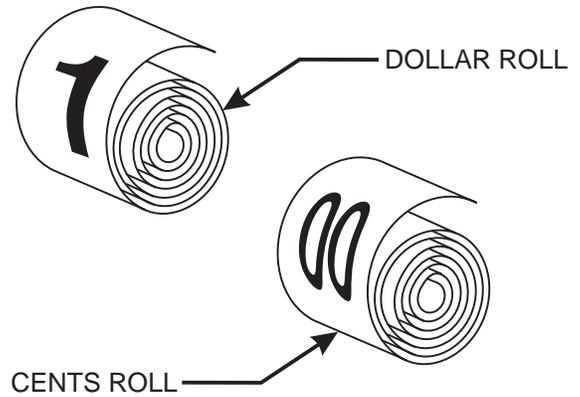


2. Push the tray toward the back of the cabinet. The tray latches on the sides of the tray will lock into position.



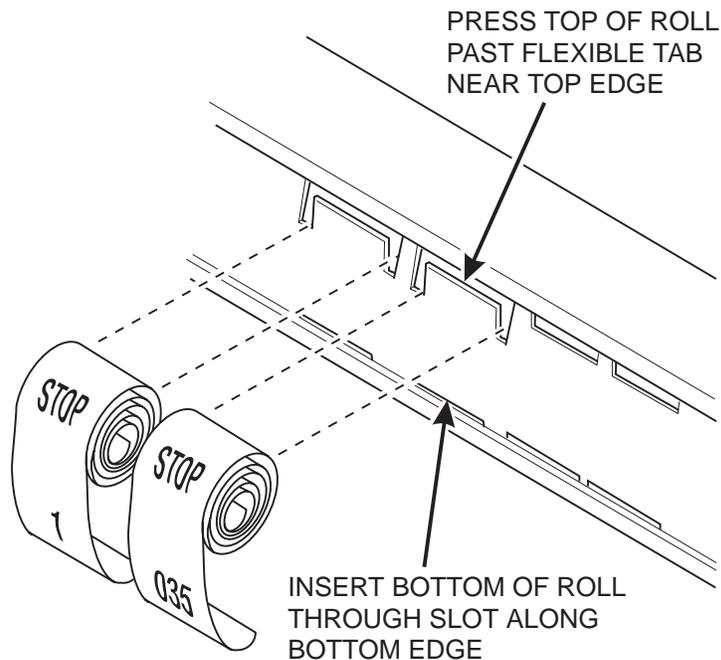
XVIII. INSTALL AND SET PRICE LABELS

- Price rolls are printed on coiled-up strips as shown in this example. (The dollar and cents rolls are factory installed.) If you use another type of currency, you will find the appropriate price rolls in the plastic bag that contained this manual.
- There are two types of price rolls installed:
 - Dollar roll - 1 to 12, increments of 1
 - Cents roll - 00 to 95, increments of 05
- Remove the price rolls as required, and install the appropriate one(s) for your currency.



Installing Price Labels

- There are three pairs of slots in the front of the can unit for each position. Install per this example:
 1. Insert the dollar roll in the left-most pair of slots as shown if the price is \$1.00 or more.
 2. Insert the cents roll in the center pair of slots as shown.
 3. 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.



Adjusting The Price Roll:

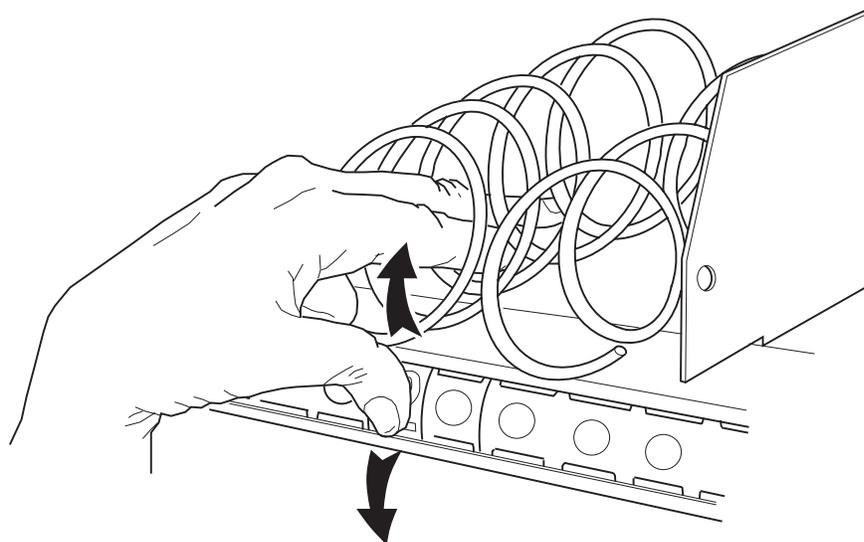
You can set selection prices within the following range:

Minimum price \$.00

Maximum price \$12.95

Increment \$.05

1. Use your thumb as shown to move each price roll up or down as needed to set the desired price.

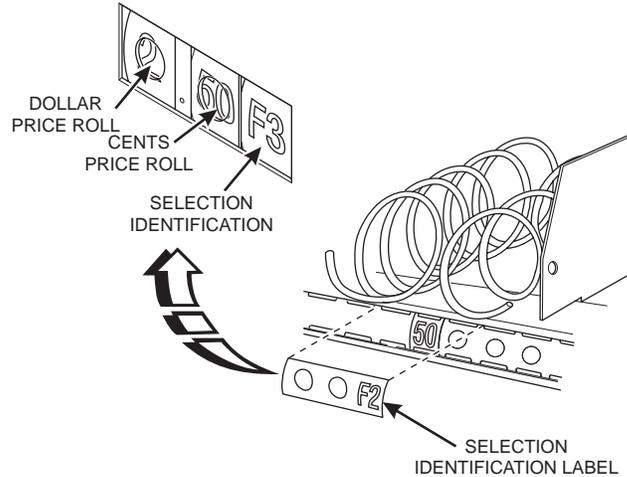


XIX. INSTALL SELECTION ID LABELS

Selection ID numbers are printed on clear plastic sheets. You will find these in the plastic bag that contained this manual. You will need to separate them along the scored lines between the selections. **BE CAREFUL** when doing this, because it is easy to split the labels.

Installing Selection Id Numbers

1. Press together the two long edges of the selection ID label.
2. Snap the selection ID label into position on the front of the tray as shown.



Which ID Label Goes With Which Selection?

See the figures below for snack and candy tray positions.

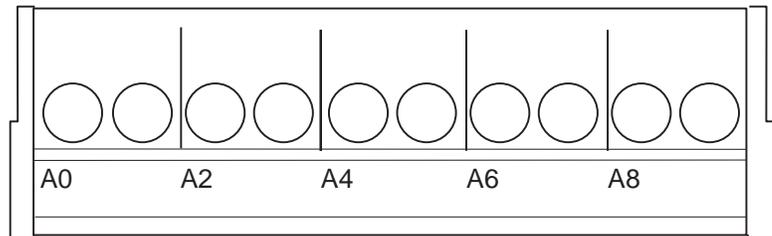
MOTOR POSITION

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
BOTTOM TRAY	TRAY C	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9

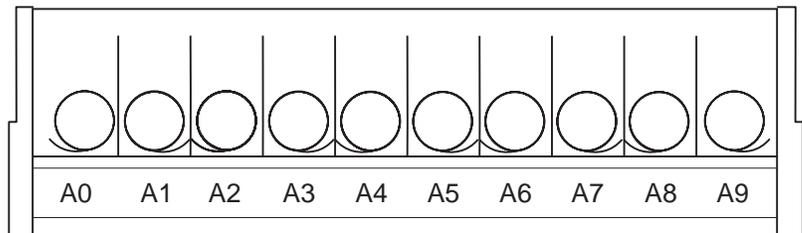
NOTE

This example shows a 3-tray merchandiser. Some merchandisers can have up to 6 trays.

EXAMPLE OF A BASIC SNACK TRAY ID LABEL TO USE



EXAMPLE OF A BASIC CANDY TRAY ID LABEL TO USE



7. FINAL CHECKOUT

Now, you have connected your merchandiser to the utilities, placed it in its final location, loaded it with products, and set the prices. Before you lock the door and move on, you should check to see if your merchandiser will vend products. In case of problems, perform the operational readiness checks beginning on the next page.

I. TEST VEND SELECTIONS

1. Press . The display shows *TEST.00*.
2. Deposit coins and/or currency to establish credit higher than the price of the selection. The display shows *TEST.XX*. XX is the amount of credit you established.
3. Use the selection switch panel to enter the selection number you want to vend. The display shows *PRICE.XX*. XX is the price of the selection.
4. The selection is vended, then correct change and the credit are returned.
5. Test vend other selections, if desired.

II. OPERATIONAL READINESS CHECK

1. Perform test vends on all selections (see the previous page).
2. Do any of the snack or candy products catch on the tray and fail to vend? If not, skip to step 3. If so, perform the following procedures on the affected areas until all products vend properly:
 - a. Install and/or adjust a product spacer.
 - b. Install a product pusher.
 - c. Install and/or remove spiral wall retainers.
 - d. Perform the appropriate spiral anti-hang-up procedure(s) (see below).
3. Test the operation of the coin mechanism (see the *Programming Guide* for the proper procedure.).
4. Test the operation of the bill validator.
5. Return all test vended products to the trays.

III. SPIRAL INDEXING PROCEDURE (ONE SPIRAL, ONE MOTOR)

The spiral indexing procedures involve rotating spirals one position at a time until the product vends properly.

1. Home all the motors (see the ***Programming Guide***).
2. Remove the affected spiral.
3. Is the coupler in the proper position?
NO - Move the coupler to the position as shown in ***INSTALLING A SPIRAL COUPLER*** (page 23). Go to the next step.
YES - Move the coupler to the next clockwise position (if it's on a right-hand motor), or the next counterclockwise position (if it's on a left-hand motor). Go to the next step.
4. Replace the spiral.
5. Perform a test vend (see the previous page).
6. Did the product hang up?
NO - You're finished. Continue to test vend the remaining selections until everything works right.
YES - Go to the next step.
7. Did you previously move the coupler to the next clockwise or counterclockwise position?
NO - Move the coupler to the next clockwise position (if it's on a right-hand motor), or the next counterclockwise position (if it's on a left-hand motor). Return to step 6.
YES - Return to step 2 in the operational readiness check and try another procedure. Do not move the coupler again.

IV. SPIRAL INDEXING PROCEDURE (TWO SPIRALS, ONE OR TWO MOTORS)

The spiral indexing procedures involve rotating spirals one position at a time until the product vends properly.

1. Home all the motors (see the ***Programming Guide***).
2. Remove the left hand spiral of the affected pair.
3. Is the coupler in the proper position?
NO - Move the coupler to the position as shown in ***INSTALLING A SPIRAL COUPLER*** (page 23). Go to step 4.
YES - Move the left coupler to the next counterclockwise position. Go to step 4.
4. Replace the left hand spiral.
5. Remove the right hand spiral, spiral coupler, and gear (if used) of the affected pair as a unit.
6. Rotate this unit until the right hand spiral mirrors the position of the left hand spiral.
7. Replace the right hand spiral, spiral coupler, and gear (if used).
8. Perform a test vend (see see the previous page).
9. Did the product hang up?
NO - You're finished. Continue to test vend the remaining selections until everything works right.
YES - Go to step 10.
Did you previously move the left hand coupler to the next counterclockwise position?
NO - Remove the left hand spiral of the affected pair. Turn the left spiral coupler to the next counterclockwise position. Return to step 4.
YES - Return to step 2 in the operational readiness check and try another procedure. Do not move the coupler again.

V. TESTING THE BILL VALIDATOR

1. Insert a \$1 bill into the validator.
2. Push the coin return button.
THE BILL VALIDATOR IS IN THE ESCROW MODE - No money is returned - you must make a selection in order to receive any change. Go to step 3.
THE BILL VALIDATOR IS NOT IN THE ESCROW MODE - You should receive four quarters in change. Go to the next step.
3. Make a selection. the correct selection should be vended and correct change should be returned.

Setup is complete. The remainder of this manual shows you how to adjust water temperature and throw times, how to clean and sanitize your merchandiser, and how to remove and replace selected assemblies.

8. MAINTENANCE

I. WATER MEASUREMENT AND ADJUSTMENT

Setting Water Time In A New Merchandiser Or When An Old Merchandiser Has A New Valve

1. Set the water time. See the *Programming Guide* for the correct procedure.
2. Prepare to collect the water throw.

WARNING

The water in the water tank is very hot. Use care when collecting water throws.

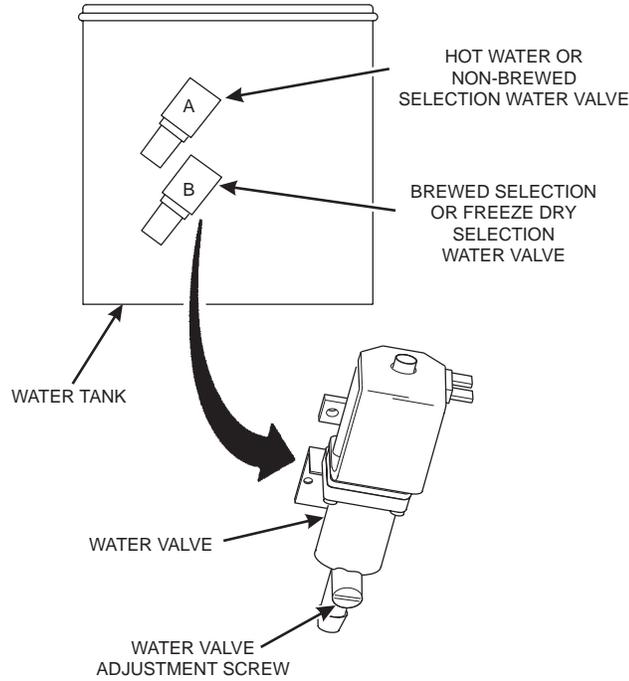
3. With the water time shown in the display, press . Water will be dispensed.
4. Measure the volume of the collected water. It should be approximately 11 ounces.
5. Adjust the valve as needed to increase or decrease water flow. See ***ADJUSTING THE WATER VALVES*** (page 37).
6. Repeat steps 3 through 5 until the correct volume of water is dispensed.
7. If adjusting the valve does not produce the necessary water volume, adjust the throw time to achieve the proper volume. See the *Programming Guide* for the correct procedure.

II. ADJUSTING THE WATER VALVES

WARNING

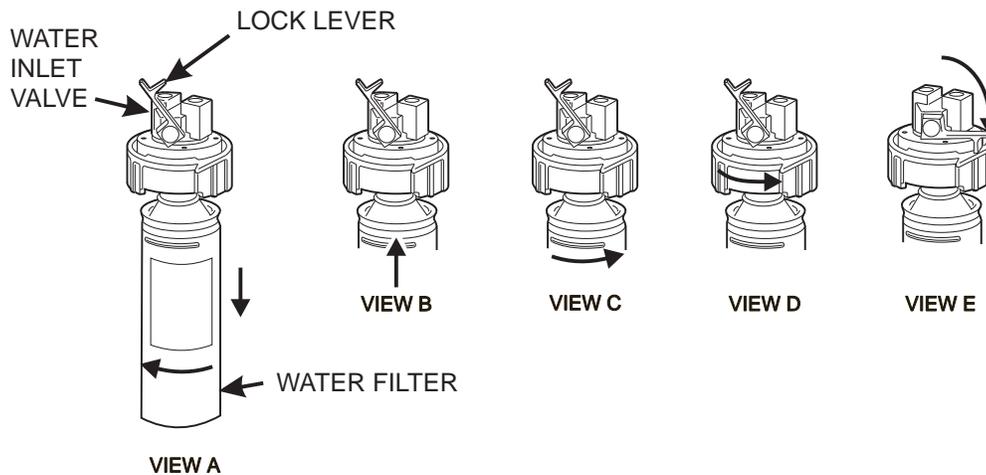
The water in the water tank is very hot. Use care when collecting water throws.

1. Turn the water valve adjusting screw (as shown) clockwise to decrease water flow.
2. Turn the water valve adjusting screw (as shown) counterclockwise to increase water flow.



III. WATER FILTER CARTRIDGE REMOVAL

1. Close the water supply line shut-off valve.
2. Turn the main power switch to the OFF position.
3. Flip the lock lever up (view A).
4. As viewed from above, rotate the cartridge clockwise about 60°. The locking collar will turn with the cartridge.
5. When the locking collar drops about 3/8", rotate the cartridge another 45° or so.
6. Pull the cartridge down to separate it from the head assembly.



IV. MEASURING AND SETTING WATER TEMPERATURE

The temperature of the water in the water tank is controlled by the temperature control thermostat.

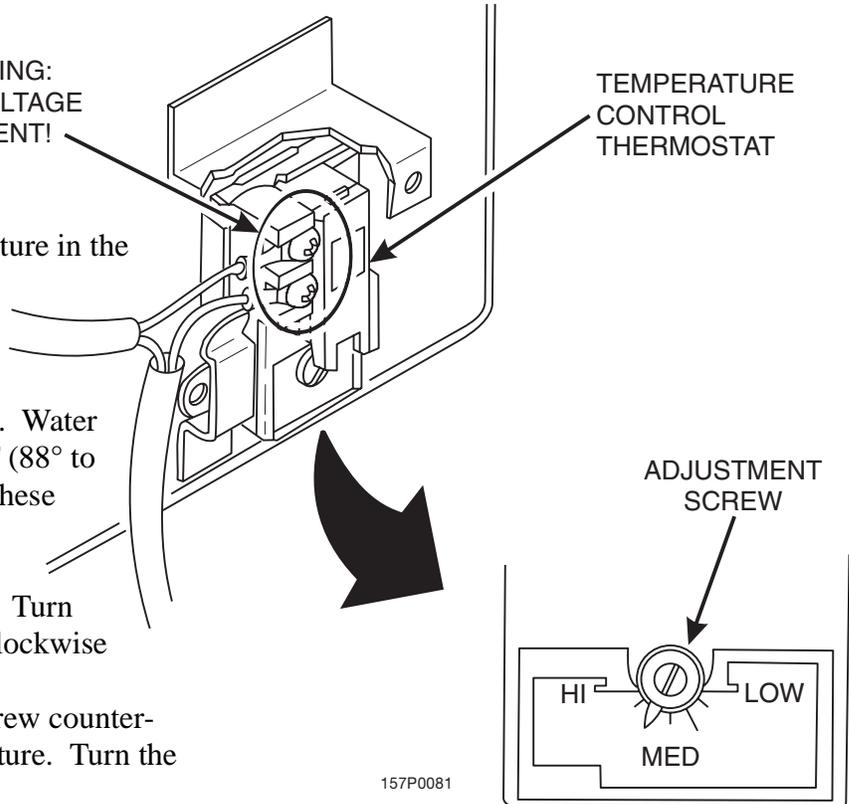
WARNINGS

The water in the tank is very hot. Be careful when adjusting the temperature control thermostat.

115 VAC is present at thermostat terminals as shown. Make sure machine power is OFF before attempting to adjust the thermostat.

1. Place a cup in the cup station.
2. Initiate a water throw. See the ***Programming Guide*** for the correct procedure.
3. Repeat steps 1 and 2 until you have thrown ten cups of water.
4. Wait 20 minutes to allow the temperature in the water tank to stabilize.
5. Place a cup in the cup station and initiate another water throw.
6. Measure the temperature of the water. Water temperature should be 190° to 200° F (88° to 93° C). Compare your reading with these values and adjust the thermostat accordingly:
 - a. Turn the main power switch **OFF**. Turn the thermostat adjustment screw clockwise to increase the temperature.
 - b. Turn the thermostat adjustment screw counter-clockwise to decrease the temperature. Turn the main power switch **ON**.

WARNING:
HIGH VOLTAGE
PRESENT!



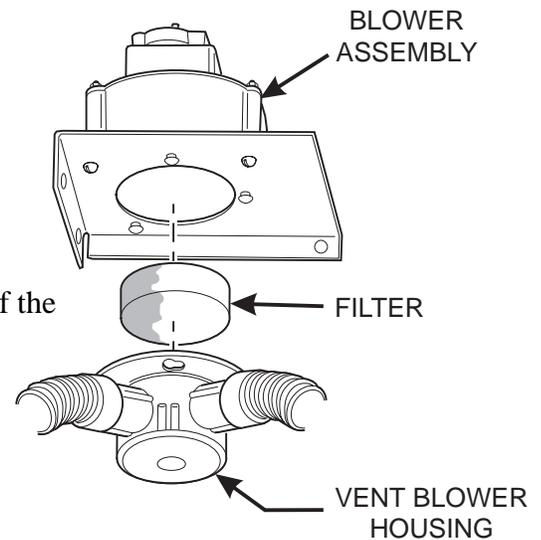
V. VENT BLOWER FILTER REMOVAL AND REPLACEMENT

REMOVAL:

1. Rotate the vent blower housing clockwise.
2. Lower the housing.
3. Remove the filter from inside the housing.

REPLACEMENT

1. Place the new filter in the vent blower housing.
2. Position the housing over the mounting studs on the bottom of the blower assembly.
3. Rotate the housing counterclockwise to secure it in place.



VI. CHECK THE CUP DOOR LOCK SOLENOID

1. With the merchandiser door open and the machine in the service mode, initiate a vend. See the *Programming Guide* for the correct procedure.
2. Place a cup in the cup compartment large enough to hold 11 ounces of water.
3. Observe the door lock solenoid for actuation. Be sure the locking arm is in the lock position over the vend door.
4. When water dispensing stops, the solenoid deactivates and the locking bar retracts to the unlock position.

VII. OVERALL CLEANING

1. Inspect the merchandiser both inside and out. Be sure to check corners and less visible parts of the merchandiser.
2. Clean where needed.
3. Allow the inside of the cabinet to dry thoroughly before closing the door.
4. 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, and other non-electrical components.

NOTICE

Clean the plastic components in this merchandiser with a mild detergent and warm water. Avoid using other cleaning agents because they may damage the material.

This Merchandiser is warranted for one (1) year against defective parts and workmanship. Any part or parts which are proven to be defective within one (1) year of the date of shipment will be repaired or replaced free of charge when the defective part is returned, with transportation charges prepaid, to the destination designated by the National Vendors Warranty Department.

This warranty applies only to the original purchaser of the Merchandiser and is null and void if the Merchandiser is sold during the period of warranty.

This warranty does not apply to a) electrical components, wiring, or circuits and/or for all mechanical parts or assemblies damaged as a result of operating the Merchandiser at other than the design voltage and frequency specified on the Electrical Rating Tag, or b) in event of vandalism, fire or negligence, or c) incandescent lamps, neon lamps, fluorescent lamps, ballasts, starters or other expendable items or d) when other manufactured components are installed in National Vendors Merchandisers.

National Vendors is not responsible for any cost of service rendered or repairs made by customer or its agents on Merchandiser or parts unless authorization to incur such expense has been given in writing by National Vendors prior to incurring such expense.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NATIONAL VENDORS SHALL NOT BE RESPONSIBLE FOR CONSEQUENTIAL OR PUNITIVE DAMAGES. National Vendors neither assumes nor authorizes any person to assume for it any obligation or liability in connection with the sale of said equipment or any part thereof.

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