

# **TWINTRON 1<sup>TM</sup>**

## **SET-UP INSTRUCTIONS**

**READ THESE INSTRUCTIONS  
BEFORE PLACING THE MERCHANDISER  
ON LOCATION**



**SAVE FOR FUTURE REFERENCE**

**CRANE**

**NATIONAL VENDORS**  
12955 Enterprise Way  
Bridgeton, MO 63044

## **WARRANTY**

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

Compressors are warranted on the above basis for a period of one (1) year after the date of shipment.

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 is also null and void for all electrical components, wiring, or circuits, and/or for all mechanical parts or assemblies damaged as a result of operating the Merchandiser at other than 220-240 volts, 50 Hertz current.

No warranty is given or implied on incandescent lamps, neon lamps, fluorescent lamps, ballasts, or starters, and other expendable items.

Further, National Vendors is not responsible for any costs of service rendered, or repairs made, at other than National Vendors; or by anyone other than an authorized factory Service Representative of National Vendors; 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, and all other obligations or liabilities on National Vendors' part; and National Vendors neither assumes, nor authorizes any person to assume for it, any other obligation or liability in connection with the sale of said Equipment or any part thereof.**

CRANE-National Vendors  
12955 Enterprise Way  
Bridgeton, MO 63044

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## SPECIFICATIONS

**SIZE:** 72" (182.9 cm) high  
38" (96.5 cm) wide  
32-3/4" (83.2 cm) deep

**WEIGHT:** 790 lbs. (358 kg)

**POWER REQUIREMENTS:** 220-240 Volts, 50 Hertz, 12.5 Amps

**SELECTIONS:** 4 Hot - Leaf Tea, F.B. Coffee, Chocolate, Soup, F.D. Coffee  
Extra Strong - for Tea and Coffee  
4 Cold - 3 Syrup and 1 Cold Water

**CUP QUANTITIES:** approx. 750 to 1200

**CUP CAPACITIES:** 7 oz. (210 mL), 8-1/4 oz. (245 mL), 9 oz. (270 mL)

**COIN UNIT:** Mars European "Executive"  
(not included)

**TYPE OF VEND:** Post select. Code number system appearing on Selector Panel.

**HOPPER:** Tea throw adjustable outside Hopper. Saves time and provides a more accurate adjustment.

**STAINLESS STEEL WATER TANK:** No moving parts. Eliminates malfunctions caused by liming. Indicator light glows when water is being heated. Drain at the bottom assures complete emptying of the tank.

**WATER FILTER:** Food quality sequesterant type filter.

**AUTOMATIC BREWER SANITATION:** Automatic Hot Water rinse of entire brewing system. Sanitizing cycle takes place at a predetermined number of hours after the last vend.

**SYRUP TANKS:** Three sanitary injection molded plastic tanks. Two Tanks with a capacity of 3-1/2 gallons each. One tank with a capacity of 1-1/2 gallons.

**SYRUP PUMPS:** Each pump is equipped with a priming switch and motor. Syrup volume is adjustable.

**CO<sub>2</sub> SUPPLY:** Uses either a 15 lb. (6.8 kg) or 20 lb. (9.07 kg) cylinder.

## SPECIFICATIONS (continued)

- REFRIGERATION:** An ice bank system assures a cold drink under any condition. The temperature is maintained by an electronic ice bank control.
- REFRIGERATION CHARGE:** 4.25 oz. (125 mL) R-12 Refrigerant.
- COMPRESSOR:** A 1/5 H.P. Compressor supplies refrigerant to the Water Bath Ice Bank System.
- ELECTRICAL:** The 220-240 Volt input is transformed to 105 Volts for all circuits except the Water Tank and Refrigeration Module. The 105 Volts is transformed to an even lower level for all electronic circuitry.
- ELECTRONIC CONTROL:** The electronic circuitry provides a system whereby all machine functions can be set by pressing the appropriate membrane switch.

## SECTION I

### GENERAL INFORMATION AND INSTALLATION

This Set-Up Instruction provides the information required for proper unpacking, inspection, installation, preparing for vending, adjustment - Removal - Replacement Procedures, Routing Service and Sanitation.

Section I is designed to aid in the unpacking, inspecting, and installation of the Twintron 1™ Hot/Cold Merchandiser.

Read the following instructions thoroughly before unpacking, inspecting, or installing the Merchandiser.

#### WARNING

**For merchandiser operation be sure to follow the sequence as outlined in this section.**

All references to left and right are as seen when looking at the front of the Merchandiser or the assembly being described. To determine the name and the location of various components, see Figure 1-1.

#### I. UNPACKING AND INSPECTING

- A. Carefully remove the Merchandiser from its shipping carton and place it on a level surface.
- B. Inspect the outside of the Merchandiser for dents, scratches, or any damage resulting from improper handling.
- C. Inspect the inside and outside of the cabinet. Carefully remove all packing material. Observe the location and position should reuse become necessary.

- D. Save the packing for later reuse for shipping.

#### NOTE

*If any damage was observed while unpacking this Merchandiser, file a claim immediately with the carrier.*

- E. Remove the Waste Bucket and inspect the contents. The Waste Bucket should contain the following items:
  1. A Water Filter Cartridge.
  2. A Flush Valve Drain Assembly.
- F. A shipping carton containing the following items:
  1. Fill Level Labels for Sugar, Lightener, Chocolate, Soup, Tea, Milk and Coffee Canisters.
  2. A Water Tank Drain Hose.
  3. A CO<sub>2</sub> Regulator Assembly.
  4. A spare 40-mesh Brewer Basket screen.
  5. A record of cleaning card.
  6. A small diameter brush for cleaning tubes.
- G. Move the Merchandiser to the desired location. Level the Merchandiser in a left to right and front to back direction by turning the levelers which are screwed into the cabinet legs.
- H. Check all Merchandiser harness connections.



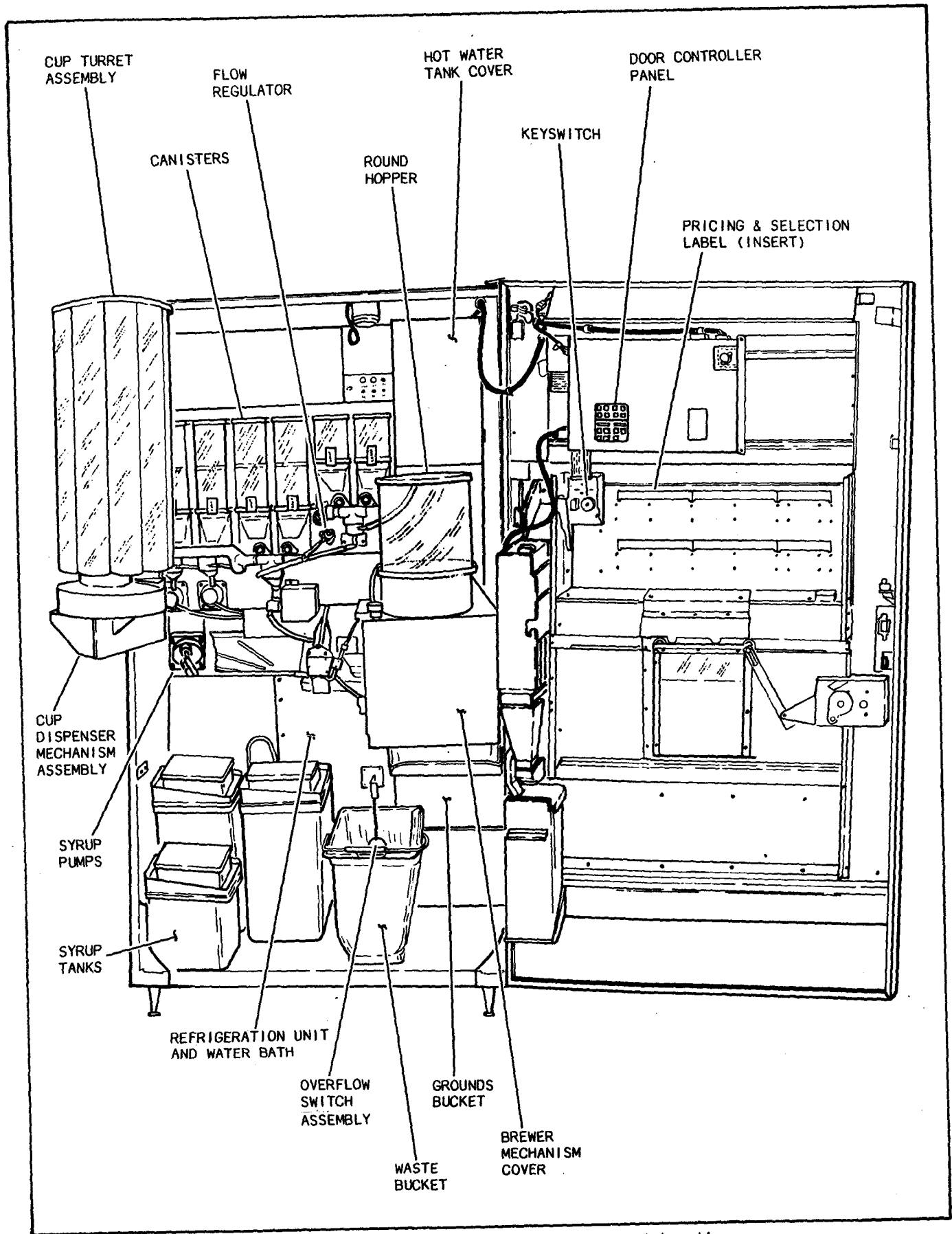


Figure 1-1. Twintron 1 Merchandiser Component Location

## II. THE LOCATIONS ELECTRICAL SUPPLY

The Twintron Hot and Cold Drink Merchandiser is equipped with a service cord. The customer provides the appropriate connector. The wall receptacle into which the service cord connector is plugged must be properly polarized and grounded, and supply a constant 220-240 volts at 50 hertz. The receptacle should be protected by proper rated fuse or circuit breaker.

### A. LINE VOLTAGE

Do not connect the merchandiser to an electrical line on which the voltage may drop below 220 volts during the merchandisers peak power usage times. The warranty of the merchandiser is null and void when the minimum electrical requirements described here are not met. Do not operate the Merchandiser on an electrical line which supplies power to other pieces of equipment, or a line which is fused with other pieces of equipment.

Have a separate electrical line installed for the Merchandiser if the available line does not meet there requirements. If a separate line must be installed, keep the length as short as possible. Match the gauge wire to be used for a 12.5 amp load.

### B. WALL RECEPTACLE POLARITY

The polarity of the wall receptacle is important for customer and serviceman safety and for the protection of the Merchandisers electrical components. Check the polarity of the receptacle.

## III. THE LOCATION'S WATER SUPPLY

### A. NORMAL HARD WATER

The best type of water for coffee brewing is normal hard water.

### B. CHEMICALLY SOFTENED WATER

Never use a water source that supplies chemically softened water. Chemically softened water will cause Merchandiser malfunctions and will cause coffee to have a bitter taste.

1. When possible have a supply of unsoftened water brought to the Merchandiser location.
2. If chemically softened water is the only type available, before installing the Merchandiser, contact your locate water filter supplier for information and suggestions.

### C. WELL WATER

Well water may be used in the Hot Beverage Merchandiser. However, well water with a relatively high percentage of carbonates and alkalies, creates problems similar to those created by chemically softened water.

### D. MERCHANDISER WATER SUPPLY CONNECTOR INFORMATION

The water supply line should be at the rear of the Merchandiser. Located conveniently close to the Merchandiser, the water line should be equipped with a shutoff valve. On the Merchandiser termination side of the valve, copper tubing of not less than 3/8 in. (9.5 mm) outside diameter should be used. The tubing should have sizable loop in it to eliminate vibration noise and should terminate with a flare fitting for connecting the tube to the Merchandiser.

The minimum water supply line water pressure must not be less than 5 psi (34.5kPa) at a 1/2 gallon per minute rate. A water supply line with pressure below 5 psi (34.5kPa) at 1/2 gallon per minute will not be able to keep

the water tank fill during high volume sales periods. The maximum water pressure should not be over 80 psi (552kPa). The use of a good water regulator in the water supply line is recommended for Merchandisers at locations where the water pressure is above 80 psi (552kPa). A Water Pressure Regulator Kit, P/N 311-8098 is available from the National Vendors Parts Department.

#### NOTE

*Flush the water supply line at the location before connecting the line to the Merchandiser. DO NOT flush the Merchandiser water system which is clean when shipped. A minimum of 5 gal. of water line of scale and dirt particles.*

#### E. THE WATER FILTER

If the Merchandiser is equipped with a Water Filter, the filter is located in the rear lower center of the Merchandiser Cabinet. This filter introduces a food grade sequesterant into the water to inhibit the formation of the lime scale which occurs when hard water is heated. The Cartridge is effective for a maximum of 25,000 vends. Local water conditions may require more frequent replacement.

#### IV. INSTALLATION

The instructions included in this paragraph apply to in-shop, as well as, on location set up. If the Merchandiser is first set up in the shop and then moved to a location, or if the Merchandiser is moved from one location to another, drain the Water Tank before moving the Merchandiser.

#### WARNING

**If the Merchandiser has been in recent operation the water is VERY HOT. Exercise care when emptying the Water Tank.**

#### CAUTION

- 1. Drain the Water Tank and Water Filter - the entire Water System of ALL water - anytime there is a danger of freezing, during Merchandiser shipment or storage, or during a prolonged period of power failure.**
- 2. Disconnect the Heater Harness Plug whenever the Water Tank is being emptied, or is empty.**
- 3. DO NOT connect the Heater Harness Plug until the Water Tank is half full of water.**

To perform the initial set up:

- A. Check to be sure the Door Switch is in the OFF position.
- B. If the Merchandiser is equipped with a Water Filter, install the Water Filter Cartridge.

#### NOTE

- 1. The Valve Handle on the Water Filter Head is used to open and close the water inlet to the Merchandiser. Be sure the Valve Handle locks the Colored Ring in place before the Merchandiser is put in operation.*
- 2. DO NOT flush the Water Filter Cartridge. The cartridge is ready for use as soon as it is installed. Flushing reduces the life of the cartridge.*

#### CAUTION

**Merchandisers equipped with the optional Water Filter Assembly cannot be operated without the Water Filter Cartridge properly installed.**

#### NOTE

*Leave enough space between the Merchandiser and the wall to prevent the Rear Air Spacer Baffle from damaging the wall. Leave sufficient space behind the Merchandiser to permit an adequate flow of air to and from the compressor compartment.*

- C. Level the Merchandiser both right to left and front to back. The Leg Levelers can be adjusted with an open end wrench.

### CAUTION

**For Customer and Serviceman Safety, and to assure proper Merchandiser operation, always be sure the Merchandiser is leveled properly on a flat, solid, stable floor or base foundation.**

- D. Check that the Valve Handle on the Water Filter Head has been rotated down, locking the Colored Ring in place.
- E. Attach the water supply line to the Merchandiser. DO NOT open the supply line shut-off valve.
- F. Connect the Merchandiser Service Cord to the properly polarized and grounded wall receptacle. The convenience outlet inside the Merchandiser will be useable and the Service Light will light.
- G. Place the empty Waste Bucket in the Merchandiser and suspend the Overflow Switch Float inside the bucket.
- H. Check to see that the Feeder Cup and Water Bath Overflow Tubes and the Flush Valve Drain Tube are held directly above the Waste Bucket by the Tube Retainer.
- I. Check the Cup Delivery Compartment Drain Tube to be sure it is directed into the Waste Bucket.
- J. Open the water supply line shut-off valve.
- K. Move the Door Switch to the "ON" position. The Display Light will light, the Cabinet Vend Fan Motor will be energized, the Sold-Out Light will be illuminated, the Water Inlet Valve will be energized, and water will flow first into the Water Feeder Cup and then into the Water Tank.
- L. With the Hot Water Tank full of water use the Water Spray Hose attached to the Hot Water Tank to fill the Water Bath Tank. Fill Water Bath Tank while water is still cold and while Hot Water Tank Heater Harness Plug is disconnected.
- M. With the Door Switch in the OFF position connect the Heater Harness Plug the smaller Harness located behind the Hot Water Tank Cover, upper left.

### WARNING

**DO NOT connect or disconnect the Heater Harness Plug with the Main Switch in the ON position.**

- N. Move the Door Switch to the ON position. The Water Tank Heater and Heater Indicator Light will be energized. The average length of time required to initially fill and heat a tank of water to brewing temperature is approximately three hours. When the Water Tank is full, the Water Inlet Valve will be deenergized and the flow of water will be stopped. The Sold-Out Light will remain lit however because the Cup Dispenser is empty.



## SECTION II

### PREPARING THE MERCHANDISER FOR VENDING

The Twintron I Hot and Cold Beverage Merchandiser has a microprocessor for product adjustments and selections. See Figure 2-1.

#### I. INGREDIENTS AND OPERATIONAL SUPPLIES REQUIRED

- A. The coffee or tea used is to be of a grind or leaf produced especially for use in a single cup coffee brewing merchandiser. An Ingredients Grind designed for batch brew or home type maker should not be used.

Single cup vending machine coffee is available in either a fine or coarse grind. The fine grind is satisfactory for use in most locations, but locations with soft water problems may require the use of a coarse grind. The grind of coffee is important both for quality of delivered drink, and for proper Merchandiser operation. The wrong grind of coffee or tea can cause the Merchandiser to malfunction. The Round Hopper holds a maximum of 14 lbs. (6.4 kg) of coffee and 10 lbs. (4.5 kg) of tea. See the Round Hopper Loading Instructions in this section.

- B. The lightener is to be of non-caking powder type. The Lightener Canister holds approximately 7 lbs. (3.2 kg) lightener. See the Lightener Canister Loading Instructions in this section.
- C. The sugar is to be regular fine granulated table sugar. The Sugar Canister holds approximately 11 lbs. (5 kg) of sugar. See the Sugar Canister Loading Instructions in this section.

- D. The chocolate is to be all in one commercial chocolate mix. The Chocolate Canister holds approximately 11 lbs. (5 kg) of chocolate. See the Chocolate Canister Loading Instruction in this section.

- E. For Merchandisers equipped to vend soup, the soup is to be of the instantly soluble type made for vending use. The Soup Canister holds approximately 11 lbs. (5 kg) of soup. It is recommended however, that in locations where soup does not have a high vend rate, the Soup Canister be loaded with only 2-3 lbs. (.9-1.4 kg) of soup power. See Soup Canister Loading Instructions in this section.

- F. For Merchandisers equipped to vend F/D coffee, the coffee is to be of the instantly soluble type. The F/D Coffee Canister holds approximately 3 lbs. (1.4 kg) of coffee. See the F/D Coffee Loading Instructions in this section.

- G. The dried Milk is to be of non-caking powder type. The MLK Canister holds approximately 3 (lbs.) (1.4 kg) of dried Milk. See the MLK Loading instructions in this section.

- H. Desired syrup flavors.

- I. The cups to be used are to be of the type manufactured for use in hot beverage vending machines. The size of the cup to be used depends on the choice of the operator. The Merchandiser when shipped vends 7 oz. (210 mL) cups. The Cup Dispenser will dispense 7, 8 1/4, or 9 oz. (210 mL,

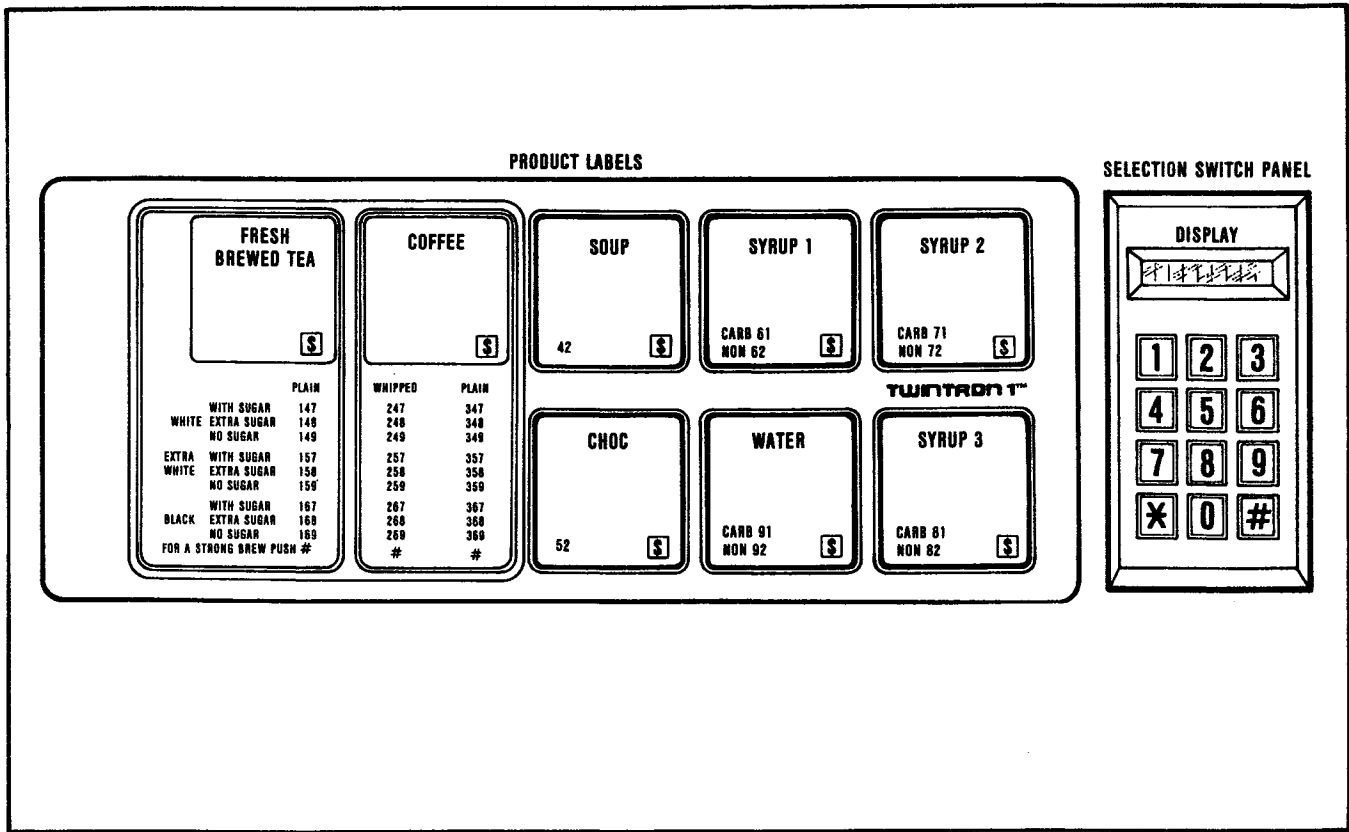


Figure 2-1. Typical Selection Labels and Selection Switch Panel

245 mL, or 270 mL) cups. See the Cup Dispenser Loading Instructions given in this section.

## II. LOADING THE DRY INGREDIENTS CANISTERS

Starting at the left hand side of the Dry Ingredients shelf is the Choc Canister, followed by the Soup, Lightener, Sugar, Tea and Decaf. See Figure 2-2 for typical Canister. See Figure 2-3 and Table 2-2 for typical Canister Labeling.

### A. Chocolate Canister.

Load the canister to the desired level. The Chocolate Canister holds approximately 11 lbs. (5 kg) of chocolate powder. Do not tap the chocolate in the canister. The powder must remain fluffy.

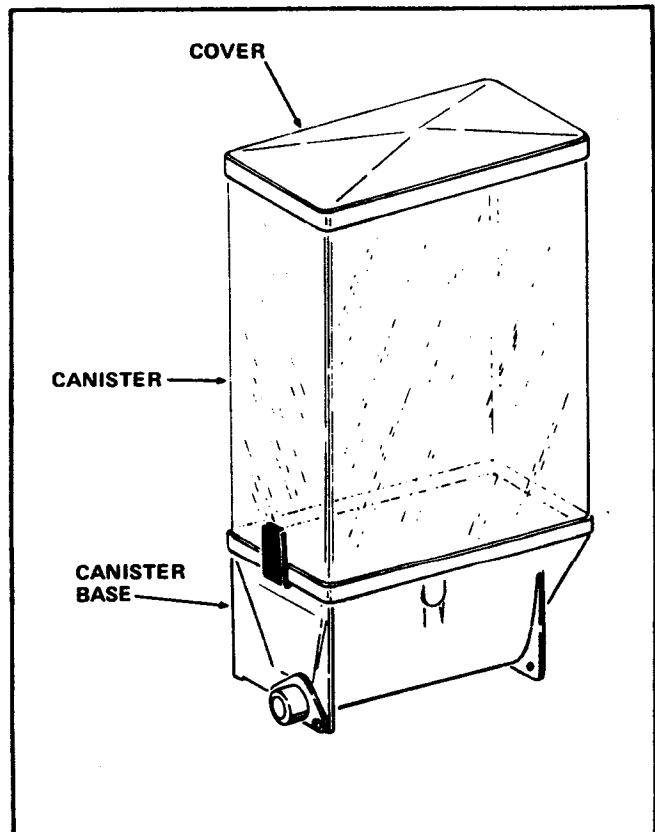


Figure 2-2. Typical Canister

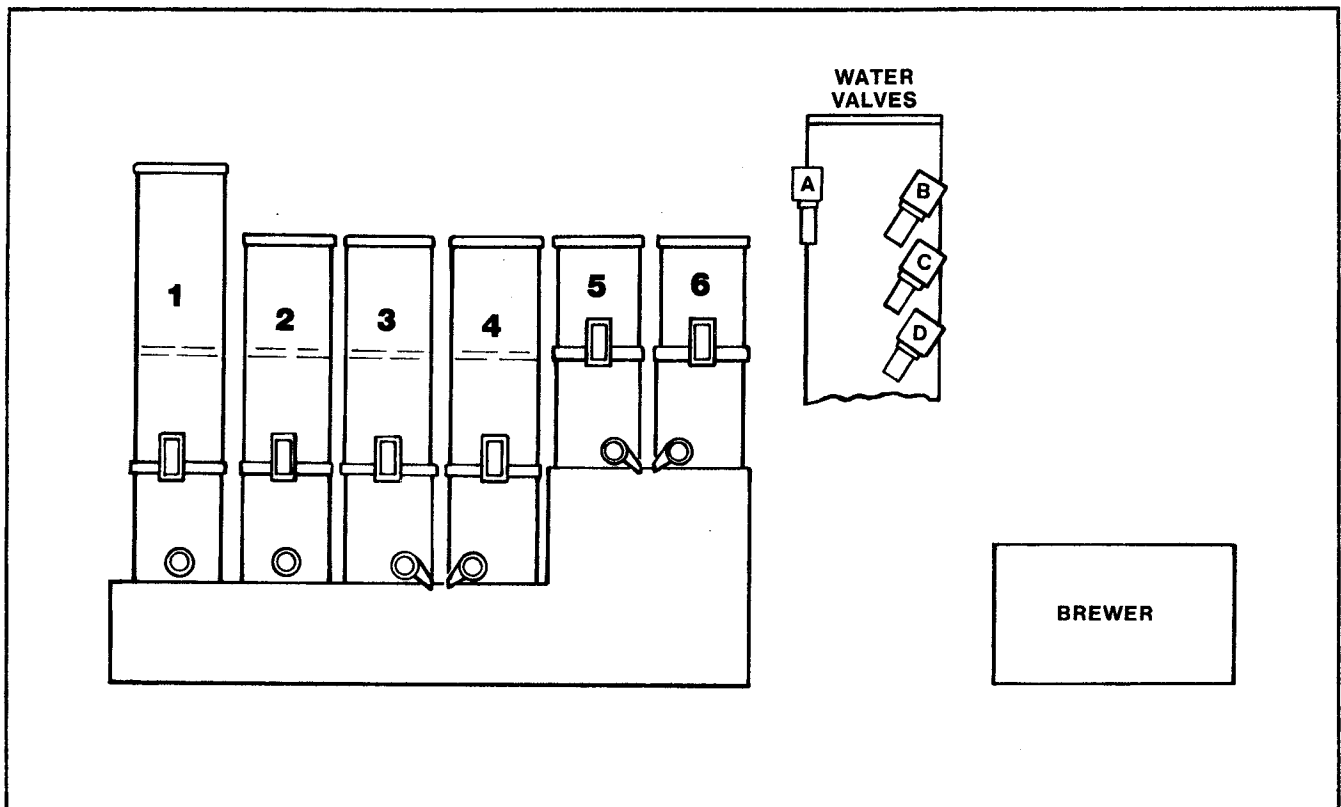


Figure 2-3. Canister and Valve Assignment

**B. Sugar and Lightener Canisters.**

Load the canisters to the desired level. The Sugar Canister holds approximately 11 lbs. (5 kg) of sugar. The Lightener Canister holds approximately 7 lbs. (3.2 kg) of lightener.

Load the canister to the desired level. The MLK Canister holds approximately 3 lbs. (1.4 kg) of milk powder of the instantly soluble type made for vending machine use.

**CAUTION**

**DO NOT load a canister with an ingredient that the Merchandiser is not equipped to vend or that the canister is not equipped to vend. Each canister is labeled to indicate the ingredient that is to be vended.**

**C. If the Merchandiser is equipped to vend soup:**

Load the canister to the desired level. The Soup Canister holds approximately 11 lbs. (5 kg) but it is recommended that in locations where soup does not have a high vend rate, the Soup Canister be loaded with only 2-3 lbs. (.9-1.4 kg) of soup powder.

**E. If the Merchandiser is equipped to vend F/D coffee:**

Load the canister to the desired level. The F/D Coffee Canister holds approximately 3 lbs. (1.4 kg) of F/D coffee product.

**D. If the Merchandiser is equipped to vend Dried Milk.**



### III. LOADING THE ROUND HOPPER

- A. Remove the Hopper Cover.
- B. Fill the Hopper to the desired level. The Hopper will hold approximately 14 lbs. (6.4 kg) of coffee or 10 lbs. (4.5 kg) of tea.

#### NOTE

*Use care when loading Hopper. DO NOT spill ingredient outside of the hopper.*

- C. Replace the cover.

### IV. LOADING THE CUP DISPENSER

- A. Unlatch and rotate the Cup Dispenser Assembly out of the cabinet.
- B. Remove the Cup Dispenser Turret Cover.
- C. Flex the cup stacks and load each of the cup tubes. The maximum capacity of the Cup Dispenser Magazine is 900, 7 oz. (210 ml) squat cups; 825, 8 1/4 oz. (247 ml) squat cups; 750, 9 oz. (270 ml) squat cups; 1200 7 oz. or 9 oz. 210 ml or 270 ml) tall hot/-cold cups.

#### CAUTION

- 1. **Use only cups manufactured for use in Beverage Vending Merchandisers.**
- 2. **DO NOT allow the stacks of cups to drop onto the Cup Dispenser Base or into the Drop Ring Opening. Place one hand under the Cup Tube being loaded, to catch the cups as they drop.**
- 3. **Careless loading of the Cup Tubes can cause problems with the cup drop ring and turret indexing.**

- D. Replace the Turret Cover.

- E. Rotate the Cup Dispenser into the cabinet.

- F. Test vend several cups. See Section II, SERVICE, CUP DROP mode to Test Vend cups. If the cup does not drop properly, see Section III, ADJUSTMENT OF CUP DISPENSER.

### V. FILLING THE SYRUP TANK

- A. Remove a Syrup Tank Lid and carefully fill the tank with syrup of the desired flavor. Do not fill the tank above a point one inch below the tank brim. Match the syrup flavor in each tank with the desired code shown on each selection label. See Figure 2-1 and Table 2-3 for typical canister labels and codes.
- B. Be sure the Syrup Dip Tube Assembly is seated firmly on the right rear corner of the Syrup Tank.
- C. Repeat steps A and B for each Syrup Tank.
- D. Using a clean, damp, disposable paper wiper, clean the catch brims on the Syrup Tank Covers.

### VI. PRIMING THE SYRUP SYSTEM

- A. Inspect each Syrup Tank making sure each tank has been filled with the desired syrup flavor.
- B. Move the Door Switch to the ON position.
- C. Place a clean empty cup in the Cup Delivery Compartment.
- D. Move a Syrup Pump Priming Switch to the ON position. See Figure 2-4. Air present in the syrup line will be forced out the Syrup Dispensing Spigot.

**Table 2-1. Product Coding**

DRINK FUNCTION	DIGIT			STRONG
	1st	2nd	3rd	
SUGAR			7	
EX. SUGAR			8	
MILK				
EX. MILK				
LIGHTENER		4		
EX. LIGHTENER		5		
COFFEE (F.D.)	3			
EX. COFFEE (F.D.)				#
TEA BREW	1			
EX. TEA BREW				#
CHOCOLATE	5	2	-	
SOUP	4	2	-	
NO SUGAR			9	
NO LIGHTENER		6		
WHIPPED COFFEE	2			
EX. COFFEE	2			#
SYRUP 1	6			
SYRUP 2	7			
SYRUP 3	8			
SPARKLING WATER	9	1		
STILL WATER	9	2		

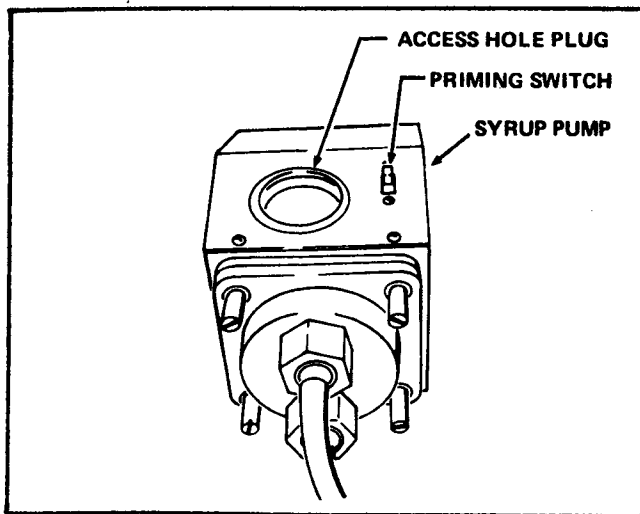


Figure 2-4. Syrup Pump and Priming Switch

#### NOTE

If the Merchandiser is to be started under conditions of high ambient temperature or high water temperature, pour a bag of ice into the Water Bath Tank before filling the tank with water. This method greatly reduces the load on the refrigeration unit, especially when the unit is started after being inoperative for a prolonged period.

#### CAUTION

To prevent overloading of the Compressor, Water Bath temperature should be at 75°F or below.

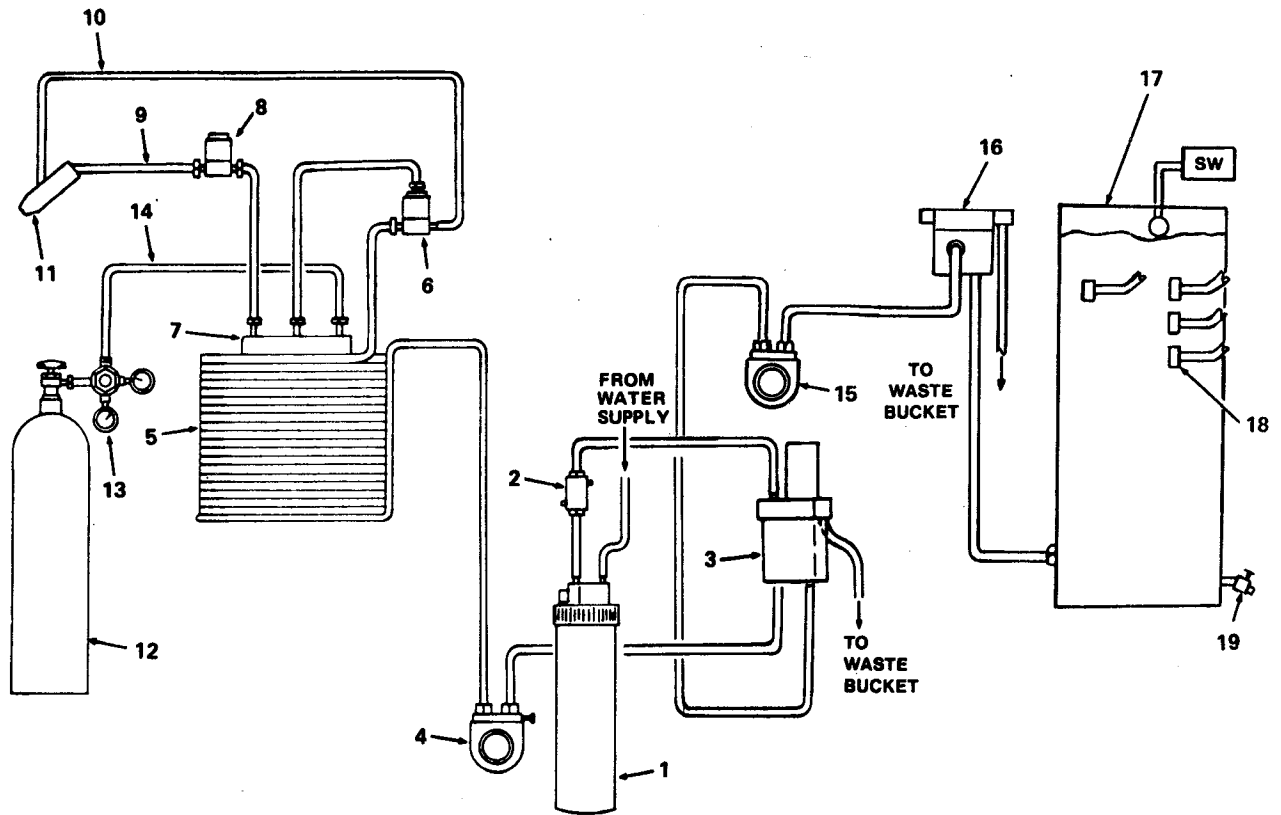
- E. When a continuous flow of syrup, free of air bubbles, is coming from the syrup Dispensing Spigot, move the Syrup Pump Priming Switch to the OFF position.
- F. Return the dispensed syrup to the appropriate Syrup Tank.
- G. Repeat steps C through F for each Syrup Pump.

#### VII. FILLING THE TWO WATER FEEDER CUPS, WATER COOLING COIL, CARBONATOR, HOT WATER TANK AND WATER BATH

- A. Remove the Water Bath Cover.
- B. Check that the Door Switch is in the OFF position.
- C. Check that the Valve Handle on the Water Filter Head, has been rotated down locking the Colored Ring in place.
- D. Disconnect the Hot Water Tank Heater Harness Plug.
- E. Open the shut-off valve on the water supply line attached to the Merchandiser.

- F. With the Door Switch in the ON position observe:

1. The Water Inlet Solenoid Valve will open and water will flow into the two Water Feeder Cups. See Figure 2-5.
2. The refrigeration systems will be operating.
3. The Water Pump will operate and pump water into the Water Cooling Coil and Carbonator and the hot water tank.
4. The Water Inlet Solenoid Valve will close and stop the flow of water to the two Water Feeder Cups.
5. The Merchandiser Display Lights will be illuminated.
6. With the Hot Water Tank full of water use the Water Spray Hose attached to the Hot Water Tank to fill the Water Bath Tank with cold water.
7. With the Door Switch in the OFF position connect the Hot Water Tank Heater Harness Plug.



1. WATER FILTER
2. WATER INLET SOLENOID VALVE
3. WATER FEEDER CUP
4. WATER PUMP
5. WATER COOLING COIL
6. NON-CARBONATED WATER VALVE
7. CARBONATOR
8. HIGH-CARBONATED WATER VALVE
9. HIGH-CARBONATED WATER DISCHARGE LINE
10. NON-CARBONATED WATER DISCHARGE LINE
11. WATER DISCHARGE SPIGOT
12. CO<sub>2</sub> CYLINDER
13. CO<sub>2</sub> REGULATOR
14. CO<sub>2</sub> FLEXIBLE LINE
15. SMALL WATER PUMP
16. WATER FEED CUP
17. HOT WATER TANK
18. WATER VALVES
19. PET COCK

Figure 2-5. Water and Carbonation System with Water Filter

## NOTE

1. The Twintron Merchandiser is equipped with one refrigeration system that functions to supply refrigerant to the Water Bath Evaporator Coil. An icebank is formed in the Water Bath in the area of the Evaporator Coil.
2. The Syrup Tubes are immersed in the Water Bath to cool the syrup. These Tubes are not within the area of the ice bank, therefore, tubes for dietetic syrups are safe from freeze-up.

G. Replace the Water Bath Cover.

## VIII. LOADING THE COIN MECHANISM CHANGE TUBES

Before placing the Merchandiser in service, load the Coin Mechanism Change Tubes with coins.

- A. Unlatch and swing the Coin Mechanism out from the door.
- B. Remove the Coin Mechanism Cover.
- C. Load the change tubes with coins. Insert the coins one at a time.
- D. Operate the Manual Payout Lever to payout about six coins to insure proper loading.
- E. Reload the dispensed coins.
- F. Visually check the tubes for shingling of coins. All coins must lay flat in the tubes.
- G. Replace the Coin Mechanism Cover.
- H. Return the Coin Mechanism to the in-cabinet position and latch in place.

## IX. INSTALLING THE CO<sub>2</sub> CYLINDER AND REGULATOR

- A. Position the CO<sub>2</sub> Cylinder in the Merchandiser. See Figure 2-6. Attach the Retaining Chain to hold the Cylinder upright and in place.

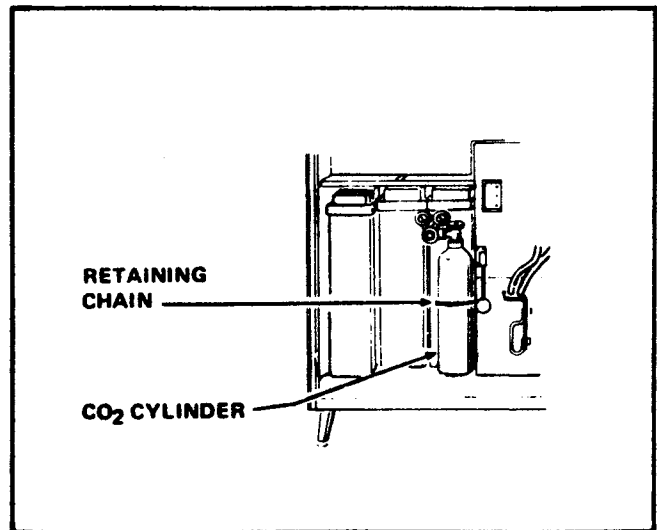


Figure 2-6. CO<sub>2</sub> Cylinder Placement

- B. Before attaching the CO<sub>2</sub> Regulator to the CO<sub>2</sub> Cylinder, open and close the CO<sub>2</sub> Cylinder Valve to blow out any foreign matter.

## WARNING

A full CO<sub>2</sub> Cylinder is potentially dangerous. Handle the Cylinder with care at all times. A few safety rules are:

1. Use only approved cylinders.
2. Each cylinder is marked and labeled. Learn what the markings means.
3. Do not store full cylinders in or near a furnace or boiler. Temperatures over 125 degrees F (52 degrees C) are dangerous.

4. Do not store full cylinders near ungrounded electrical machinery.
5. Do not store or transport full cylinders in a truck when the temperature is extremely hot. Keep the number of cylinders on truck at a minimum at all times.
6. Storage areas should be dry, well-ventilated, and fire proof.
7. Be careful not to strike the neck of the cylinder when handling it.
8. Store the cylinders in a secure upright position.

These are only a few safety suggestions given in a booklet "N.A.M.A. Safety Manual For Carbon Dioxide (CO<sub>2</sub>) Cylinders". This booklet may be obtained by writing the National Automatic Merchandising Association, 7 South Dearborn Street, Chicago, Illinois, 60603. A small fee is charged non-members of the Association for copies of this safety booklet.

#### NOTE

*Never use a regulator gasket more than one time. Small hard-to-locate CO<sub>2</sub> leaks can result from using these gaskets a second time.*

- C. Attach CO<sub>2</sub> Regulator to the CO<sub>2</sub> Cylinder. Be sure the fitting is tight.
- D. After attaching the CO<sub>2</sub> Regulator, turn the Regulator Adjusting Screw counterclockwise several turns.
- E. SLOWLY open the CO<sub>2</sub> Cylinder Valve.

#### NOTE

1. The High Pressure Gauge indicator should indicate between 900 and 1000 psi (62 and 69 bar) when the CO<sub>2</sub> Cylinder is full.

2. National Vendors suggests replacing the CO<sub>2</sub> Cylinder when the indicator falls into the Red area on the High Pressure Gauge.

- F. Attach the Red Hose from the Carbonator to the CO<sub>2</sub> Regulator. Be sure the fitting is tight.

#### CAUTION

1. DO NOT turn the Regulator Adjusting Screw counterclockwise if the Low Pressure Gauge indicates pressure, unless the outlet from the Regulator is open and gas is flowing.
2. DO NOT use the Regulator Adjusting Screw to open or close the CO<sub>2</sub> supply. Use the CO<sub>2</sub> Cylinder Valve to open and close the CO<sub>2</sub> supply.

- G. Turn the Regulator Adjusting Screw clockwise until the Low Pressure Gauge indicator moves to 60 psi (4.1 bar).

#### NOTE

*When a Merchandiser is initially put into service, air may be present in the Carbonator. This air will not mix with nor will it be absorbed in the water. As pressure builds up in the Carbonator, the air will become trapped in the top of the Carbonator and will prevent the Carbonator from becoming filled with water. The Water Pump will not be able to pump against the air pressure and it will operate continually; the water will pass through the Water Pump by-pass, rather than into the Carbonator. The Carbonator can be freed of air by lifting the body of the Relief Valve. Once this condition is corrected it will not re-occur as long as the Merchandiser is properly serviced.*

- H. Remove the Water Bath Cover by loosening the screw on the left side of the Water Bath.

I. Using the blade of a screwdriver, lift the Relief Valve located on top of the Carbonator. See Figure 2-7.

J. To insure against leaks in the carbonation system and loss of the CO<sub>2</sub> perform the following tests:

1. After opening the CO<sub>2</sub> Cylinder Valve, observe both the High and Low Pressure Gauges.

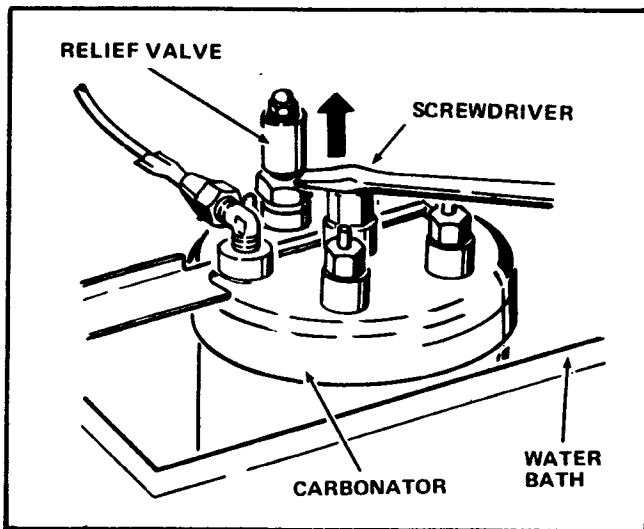


Figure 2-7. Carbonator Relief Valve

a. The Low Pressure Gauge should indicate 60 psi (4.1 bar).

b. The High Pressure Gauge should indicate between 900 and 1000 psi (62 and 69 bar).

2. Close the CO<sub>2</sub> Cylinder Valve.

3. Observe the Low Pressure Gauge. If the reading on the gauge decreases, there is a leak in the carbonation system.

4. Open the CO<sub>2</sub> Cylinder Valve.

5. Brush all connections with a soapy water solution. A bubble will appear whenever there is a leak.

6. Close the CO<sub>2</sub> Cylinder Valve.

7. Reseat any fitting that leaks. Be sure fitting is tight.

#### X. TESTING FOR PROPER IN-CUP COLD WATER THROW

See TABLE 3-4 for the suggested amount of water for a full cold drink in each size cup.

To test the In-Cup Water throw for a selection:

A. Press the CARB LEVEL switch on the Door Controller Panel. See Figure 2-13.

B. Press the # switch on the Selection Switch Panel to advance to the desired product. See Figure 2-1.

C. Hold a graduated flask under the Water Dispensing Spigot.

D. Press the TEST THROW switch for COLD DRINKS on the Door Controller Switch Panel. See Figure 2-13.

E. If the In-Cup Water Throw is not as desired, see Section III for adjustment procedures.

#### XI. TESTING TO DETERMINE POWDER THROW FOR HOT DRINKS

The selector switch numbers for each product was preprogrammed to Tables 2-2, 3-1 and 3-2 for time and amount of powder ingredients.

A. Unlatch and rotate Cup Dispenser out of the cabinet to gain access to the canisters.

**Table 2-2. Timing for Machine Functions**

MACHINE LOCATION	INGREDIENT FUNCTIONS	7 OZ. CUP	8¼ OZ. CUP	9 OZ. CUP
		SECONDS	SECONDS	SECONDS
4	SUGAR (F.B. & F.D.)	1.30	1.55	1.65
4	EX. SUGAR (F.B. & F.D.)	1.75	2.00	2.25
3	MILK (F.B.)	1.75	2.00	2.25
3	EX. MILK (F.B.)	2.25	2.65	2.90
5	LIGHTENER (F.D.)	1.75	2.00	2.25
5	EX. LIGHTENER (F.D.)	2.25	2.25	2.90
6	COFFEE (F.D.)	4.00	4.70	5.15
6	EX. COFFEE (F.D.)	4.50	5.30	5.70
1	CHOCOLATE	2.50	2.95	3.20
2	SOUP	3.00	3.55	3.85

- B. Check contents of each canister. Be sure the canister under test has enough ingredients to make a proper throw.
- C. Remove the Mixing Bowl or Funnel from the canister assembly under test.
- D. Press the TIME INGRED switch on the Door Controller Switch Panel. See Figure 2-13.
- E. Hold a clean empty cup under the exit chute of the Canister under test. See Figures 2-8, 2-9 and 2-10.
- F. Press the # switch on the Selection Switch Panel to advance to the desired product. See Figure 2-1.
- G. Press the TEST THROW switch for HOT DRINKS while catching a throw of ingredient under test. See Figure 2-13.
- H. Weigh the amount of ingredient delivered. Use an accurate gram scale. If a gram scale is not available, make several throws. Weigh the entire amount and determine the weight of an average throw.

**NOTE**

*A gram scale, Part Number 610-4096, for measuring the dry ingredients throw may be purchased from National Vendors.*

- I. If the amount of ingredient is not as desired reprogram time as required for each product or trouble shoot. (See Tables 2-2, 3-1 and 3-2) See PROGRAM OPERATION TIME INGRED mode for reprogramming.
- J. If the throw is as desired replace Mixing Bowl and Funnel.

**XII. TESTING TO DETERMINE THE COFFEE OR TEA GROUNDS THROW**

Test to determine the ingredient throw. (The Coffee Hopper is mechanically adjusted only.)

- A. The Round Hopper is factory set to delivery approximately .28 oz. (8 g) of ingredient per vend cycle. See Table 3-1.
- B. Press the SERVICE switch on the Controller Panel and the word SERVICE appears on the display. See Service Hopper mode.



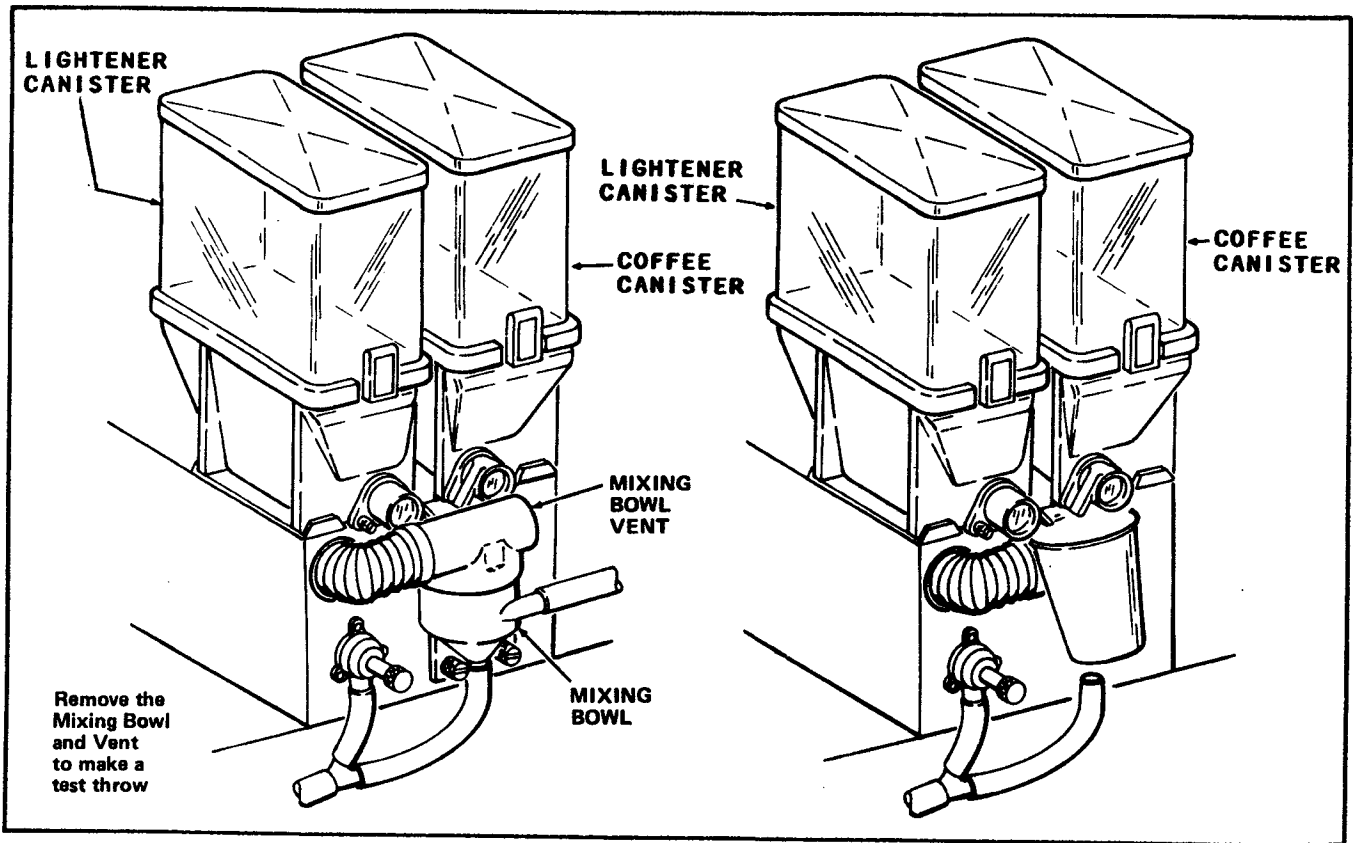


Figure 2-8. Lightener and Coffee Powder Test Throw

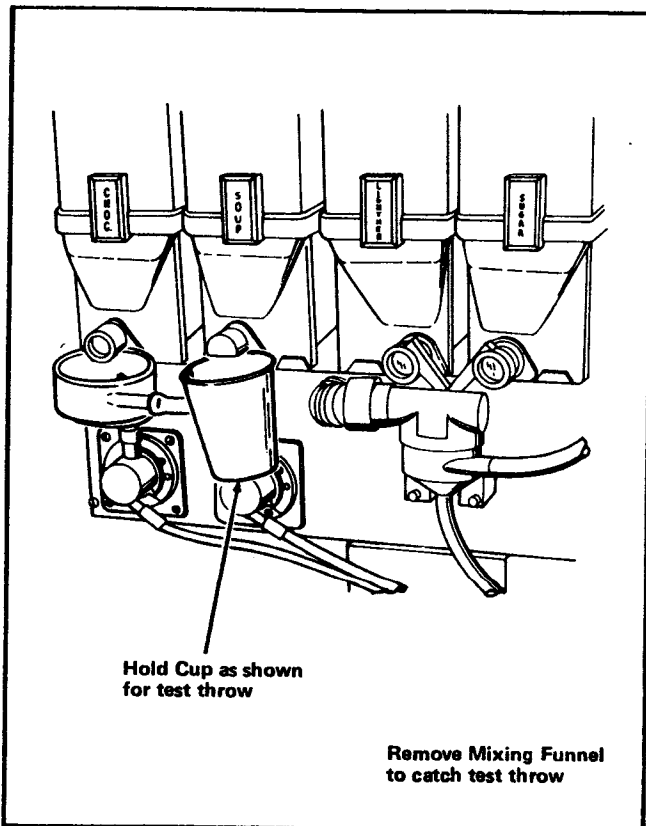


Figure 2-9. Soup Powder Test Throw

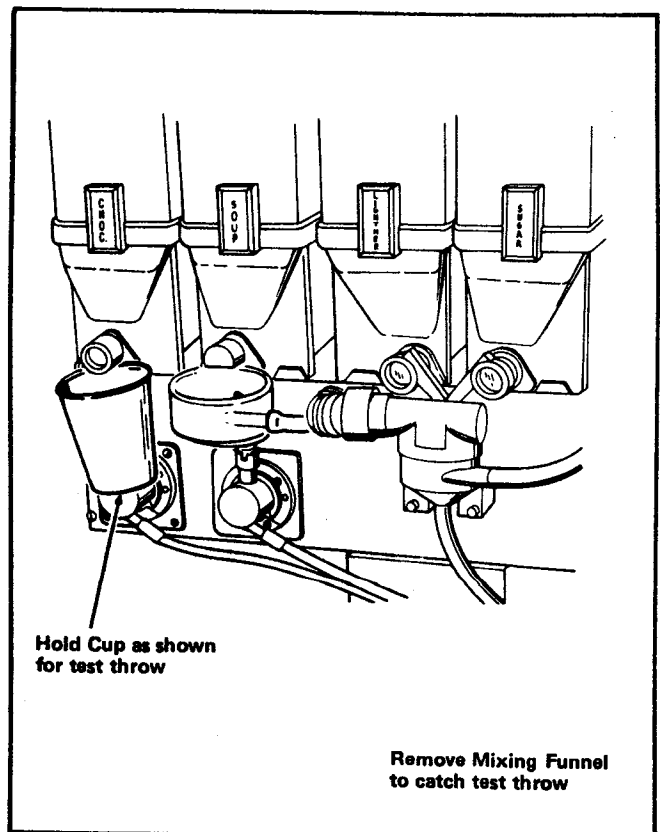


Figure 2-10.

C. Press the # switch on the Selection Switch Panel to advance to the Hopper mode.

D. Remove the Brewer Mechanism Cover.

**WARNING**

**SAFETY GLASSES SHOULD BE WORN WHEN THE BREWER COVER IS TO BE REMOVED. KEEP HANDS AWAY FROM MOVING PARTS DURING THE CYCLE. REPLACE THE COVER AFTER SERVICING.**

E. Hold a clean empty cup or canister lid under the Hopper Discharge Funnel. Press the \* switch. See Figure 2-11.

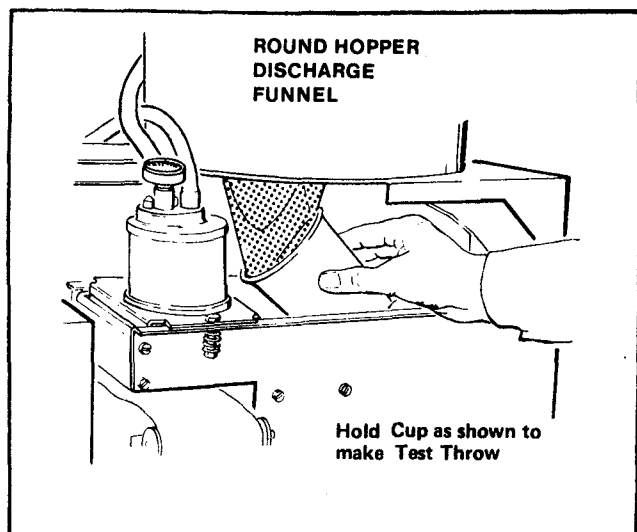


Figure 2-11. Brewer Ingredient Test Throw

F. Catch a throw of ingredients.

G. Weigh the amount of ingredients delivered. Use an accurate gram scale. If a gram scale is not available, make several throws. Weigh the entire amount and determine the weight of an average throw. There are approximately 28.35 g to an ounce.

H. If the ingredient throw is as desired, replace the Brewer Mechanism cover.

I. If the ingredient throw is incorrect, make the required adjustment. See Section III, ADJUSTMENT OF COFFEE OR TEA GROUNDS THROW.

**XIII. TESTING TO DETERMINE THE HOT BEVERAGE THROW**

The selection switch numbers for each product was preprogramed to Tables 2-3, and 3-3 for time of flow and amount of water. To obtain and measure the amount of water proceed as follows:

A. Press the TM WATER Switch on the Door Controller Switch Panel. See Figure 2-13.

B. Press the # switch on the Selection Switch Panel to advance to the desired product.

**Table 2-3. Timing of Machine Functions**

MACHINE LOCATION	WATER FUNCTIONS	7 OZ. CUP	8¼ OZ. CUP	9 OZ. CUP
		SECONDS	SECONDS	SECONDS
D	WATER - BREW (TEA)	3.00	3.55	3.85
A	WATER - COFFEE (F.D.)	8.20	9.65	10.55
B	WATER - CHOCOLATE	11.20	12.00	13.10
C	WATER - SOUP	11.20	12.00	13.10

C. Proceed as follows for each product:

1. COF - Remove hose (lower water valve to brewer) from brewer then press TEST THROW switch for hot drinks and catch Hot Water from tube into cup. See Figure 2-12.

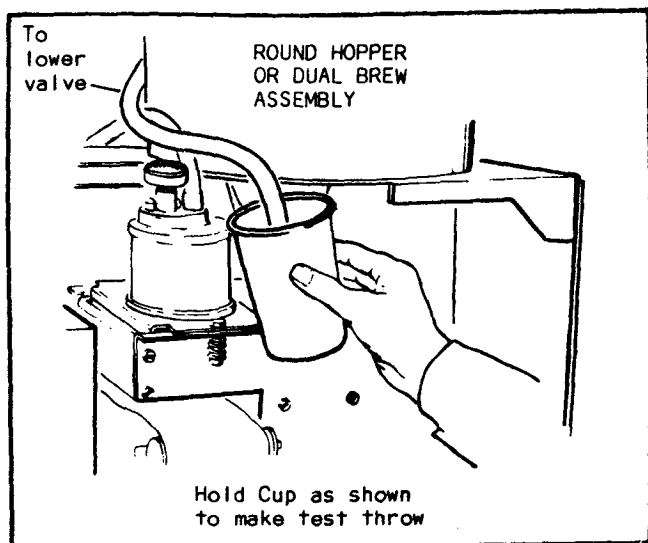


Figure 2-12. Hot Water Test Throw

2. T/DEC - Press the TEST THROW Switch for Hot Drinks and catch Hot Water from cup station into cup.
  3. SOUP - Press the TEST THROW Switch for Hot Drinks and catch Hot Water from cup station into cup.
  4. CHOC - Press the TEST THROW Switch for Hot Drinks and catch Hot Water from cup station into cup.
- D. Measure the amount of water in a graduated flask. The coffee grounds will absorb and retain about .5 oz. (15 mL) of water. See Table 3-3 for water volume for each product.
- E. If the water throws are not as desired make the required adjustments. See Section III

ADJUSTMENT OF THE IN-CUP CHOCOLATE, SOUP COFFEE AND TEA BEVERAGE THROW.

#### XIV. TESTING FOR PROPER IN-CUP SYRUP THROW

- A. Check to be sure the Syrup Tanks have been filled with the desired flavor of syrup.
- B. Be sure the syrup system is properly primed. See Section II, PRIMING THE SYRUP SYSTEM.
- C. Press the SYRUP switch on the Door Controller Switch Panel. Press the # Switch on the Selection Switch Panel to advance to desired syrup product.
- D. Hold a graduated flask under the Syrup Dispensing Spigot - or at dispensing station.
- E. Press the TEST THROW switch for COLD DRINKS.
- F. Measure the amount of syrup dispensed; the amount of syrup dispensed should be as shown in Table 3-4, Section III.
- G. Rinse the flask.
- H. Repeat steps A-G for each syrup flavor.
- I. If the amount of In-Cup Syrup Throw for any of the flavors is not as desired, see Section III Adjustment of the In-Cup Syrup Throw.

#### NOTE

*If drinks are being vended at more than one carbonation level, be sure to test one selection set at each carbonation level used. If tea is being vended, be sure to test a tea selection.*

## XV. INSTALLING THE SELECTION AND PRICING LABELS

To replace or change the combination labels.

1. Open the cabinet door.
2. Pull the incorrect label out and/or insert the correct labels into the selection window arrangement. See Figure 1-1 and 2-1.
3. Match labels to appropriate syrup tank and ingredient canisters. See Figures 2-1, 2-3 and Tables 2-1, 2-2 and 2-3.

## XVI. PROGRAM OPERATION

The Selection Membrane switches on the Selection Switch Panel (See Figure 2-1) control the normal operating or vending of products. The Door Controller Membrane Switches (Figure 2-13) and the Selection Membrane Switches control

the set-up, testing and initial operation of the Merchandiser. Using the Figures as a guide, read the following instructions.

To operate the Door Controller Switches and the Selection Switches with the door open the Door Switch must be bypassed. (Mechanically held-in). The operations herein are accomplished with the cabinet door open to gain access to the Door Controller switches.

The time for each powdered ingredient and water level and other functions have been preprogrammed on the P/C Boards (Door EPROM and the Machine EPROM) The Merchandiser program may be changed by simply pressing the numbers on the selection switch panel to the desired time while in the particular mode or product.

The amount of carbonated water and still water for cold drinks is mechanically adjusted. The percentage of mixing carbonated water and still water can be programmed from 0 to 100%.

The desired price for each product can be programmed and viewed on the Display while in the price set Mode. Other modes are preprogrammed for testing and for reading data on the display.

Locking/unlocking the Controller switches is done by turning the key switch to the ON position and pressing the "thinking head" switch and then pressing the switch to be locked or unlocked. The audio annunciator is used to signal the lock/unlock status of the switch. A long beep indicates locked, and a medium beep indicates unlocked. The owner may pick and choose which Controller switch function he desires to be left locked or unlocked for security reasons. This way the merchandiser service attendant may even be limited access to some controller switch functions.

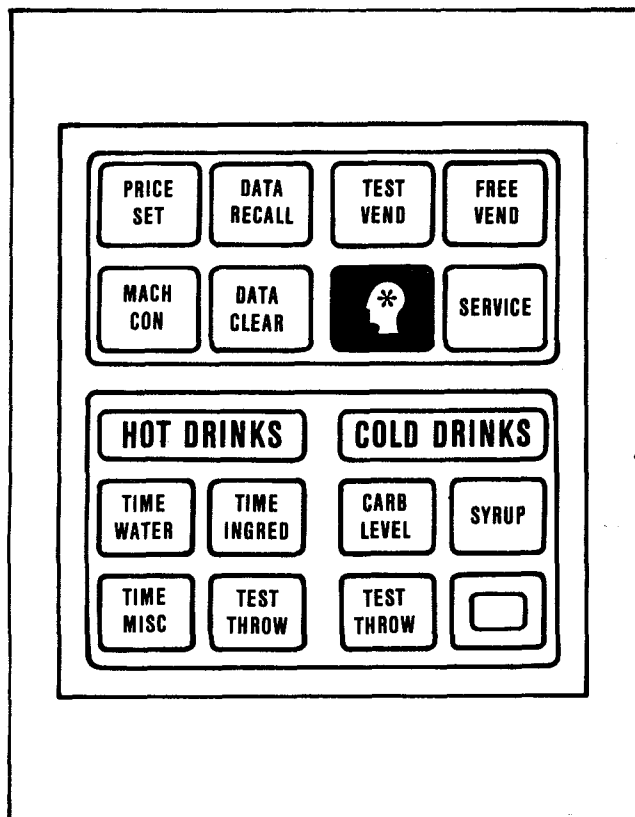


Figure 2-13. Door Controller Switch Panel

If any of the tests or programmed adjustments do not perform properly turn to Section III for mechanical or pot adjustments or trouble shooting as required.

#### A. PRICE SETTING

1. Press the PRICE SET switch on the Door Controller Panel and the word PRICE appears on the Display of the Selection Switch Panel. Press the # switch on the Selection Switch Panel to advance to each product in succession. (HOT 1, HOT 2, SOUP, CHOC, CLD1, CLD 2, CLD 3 and CLD 4). Read the product and price on the display each time the # switch is pressed. To change the price while in each product mode press the numbers on the Selection Switch panel for the desired price.
2. If a selection or product is not available, it can be locked out. Press # switch to advance to desired product to be locked out. Press \* switch and a line will appear though the selection on Display. If a customer would make that selection the Display will read SELECTION/ERROR.

#### B. DATA RECALL

Press the DATA RECALL switch on the Door controller Panel and the word DATA appears on the display. While in this mode, press the # switch on the Selection Switch Panel each time to advance to each of the following functions.

1. ID - (Identification numbers appear on the display) to reprogram press and hold the blank switch on the Door Controller Panel until a second beep is heard (approx. 5 seconds). Enter or change the Machine ID by pressing the desired selection switch numbers.
2. SLS - (Read total sales in money on the Display)
3. VND - (Read total vends)
4. FV - (Read total free vends)
5. TST - (Read total test vend count.)
6. RINS - (Read total rinses made)
7. CTH 1 - (Read total drinks dispensed)
8. CTH 2 - (Read total drinks dispensed)
9. SOUP - (Read total drinks dispensed)
10. CHOC - (Read total drinks dispensed)
11. CTC 1 - (Read total drinks dispensed)
12. CTC 2 - (Read total drinks dispensed)
13. CTC 3 - (Read total drinks dispensed)
14. CTC 4 - (Read total drinks dispensed)

#### NOTE

*Any of the DATA Recall functions may be set to zero by pressing DATA CLEAR, when desired. See DATA CLEAR.*

*All resettable counters can be cleared at one time by performing the following.*

1. *The Key Switch must be off.*
2. *Press the Thinking Head Switch on the Controller Panel.*
3. *Press and hold the blank switch on the Controller Panel for approximately 4 seconds. A beep is heard and the Display will read RAM CLEAR.*
4. *All counters of the Data Recall will be cleared. The ID is not cleared since it is not a counter.*

### C. TEST VEND

1. Press the TEST VEND switch on the controller panel. The word TEST will appear on the selection panel display. With zero credit one test vend can be made of each product by pressing the selection switch numbers for each product.
2. The Merchandiser can be test vended with or without the use of coins. Coins are primarily used, when test vending, to check the operation of the Coin Mechanism and, if a multi-price Coin Mechanism; is used, to be sure the selections will vend at the desired price. The Cabinet Door may be open while test vending to observe the electro-mechanical operation of the Merchandiser.

To Test Vend The Merchandiser with coins:

1. Use coins in the correct amount and make a vend from each selection.
2. Use coins of an amount less than the purchase price of the selections and attempt to purchase a drink from each selection. None of the selection should operate. Add coins until a selection can be made.
3. Use coins of an amount greater than purchase price of the selection. Proper change must be dispensed.

### D. FREE VEND

Press the FREE VEND switch on the controller panel. The words NO MONEY/REQUIRED will flash alternately on the display. In this mode all products are dispensed free until FREE VEND switch is pressed a second time.

### E. MACHINE CONFIGURATION

Press the MACH CON switch on the Door Controller Assembly and the word CONFIGURE will appear on the display. Press the # switch on the Selection Assembly, CONF appears and the merchandiser configuration numbers will appear on the display. The first digit indicating 1-Fresh Brew Tea, 2-Fresh Brew, (Coffee) 3-Freeze Dry; the second digit indicating the number of syrups, the third digit indicating the cup size. Desired codes can be selected by pushing the desired numbers on the selection switch panel.

### F. DATA CLEAR

If for some reason presently displayed data needs to be cleared, (this would be unusual) follow this procedure. The key switch must be "on" and the DATA CLEAR switch must be pressed and held for approximately 4 seconds. A beep will be heard and the displayed data is cleared.

#### **NOTE**

*The DATA CLEAR would not be used to clear functions that can be set by pressing selection numbers, but primarily for Data Recall functions.*

### G. SERVICE

PRESS the SERVICE switch and the word SERVICE appears on the display. Press the # switch for each of the following functions in succession.

1. VERS 1 - Press \* switch and observe on the display the software version number of the Door P/C-Board-EPROM.
2. VERS 2 - Press \* switch and observe on the display the software version number of the Machine P/C-Board-EPROM.

3. CUP DROP - Press the \* switch and observe a cup drop.
  4. WHIPPERS - PRESS THE \* switch and listen for operation of 3 whipper motors in succession.
  5. BOWL RINSE 1 - Press the \* switch and listen for the coffee lite bowl valve operate, the whipper motor operate, the Coffee Sugar Bowl valve operate and the whipper motor operate in sequence. Then observe 2 rinses in rapid sequence.  
Then listen for the Soup and Choc valve and motors run and 2 streams of water together.
  6. SEL SWITCH - Press each number to see if display reads number pressed. Also listen for Beep each time.
  7. DISPLAY CK - Press \* and observe on display if all segments of all characters appear at one time.
  8. Hopper - The Round Coffee Hopper is mechanically adjusted only and is factory set at .28 oz. (8g) of ingredient per vend cycle. An ingredient (grounds) Test Throw is made by pressing the \* switch in this mode. See Section II, (TESTING TO DETERMINE THE COFFEE OR TEA GROUNDS THROW) for completed testing instructions.
  9. BREWER - Press the \* switch and listen for the operation of the brewer motor go to a clamp position. Press \* switch again and the motor homes.
  10. BREW RINSE - Press the \* switch and the listen for following: Brew motor goes to clamp position. Dwell Water valve opens. Air Compressor turns on. Then the Brew Motor and Dwell Water Valve returns home. The Air Compressor blows out 2 streams of water in succession.
  11. FLUSH CARB - To flush Carbonator press \* switch. Water is drained from Short Probe to Long Probe in Carbonator. Then the Carbonator is refilled with water. The display records the amount of time to refill. (15 to 19 seconds).
  12. PURGE CARB - To purge or empty Carbonator press the \* switch. Water is drained from the Short Probe to the bottom of the Carbonator. Press the # switch or go to the next mode for the Carbonator to refill.
- H. TIME WATER
1. Press the TIME WATER switch. The word TM WATER appears on the display. Press the # switch to advance to each product. (Read, COF, TDEC, SOUP, CHOC). Read the preprogramed time for each product. See Table 2-3.
  2. To reprogram the amount of water while in the TIME WATER product mode desired, press the numbers on the Selection Switch Panel for the desired time for flow of water.
  3. See Section II, TESTING TO DETERMINE THE HOT BEVERAGE THROW for procedure to obtain and measure the amount of water for each product.

## I. TIME INGREDIENTS

Press the TIME INGRED switch. The word TM INGR appears on the display. Press the # switch to advance to each ingredient. (T/FD, XT/FD, C/FD, XC/FD, SUG, X SUG, CRM, X CRM, MLK, XMLK, SOUP or CHOC). Read the preprogramed time for each ingredient. See Section II Testing Powder Throw, if reprogramming does not provide desired results. To reprogram for the amount of ingredients, while in the TM INGR Mode, press the # to advance to product ingredient desired. Then press the numbers on the Selection switch panel for the desired time for flow of ingredient.

## J. TIME MISC

Press the TIME MISC switch. The word TM MISC appears on the display. Press the # switch to advance to each function (STEEP, X STP, COMP or RNSE HR). Read the preprogramed time for each function. The time can be increased or decreased by pressing the desired numbers on the selection switch panel.

### NOTE

*These times are factory set and would not want to be set too long or the customers would wait too long.*

1. STEEP is the time in seconds of Hopper Ingredients is in contact with hot water in the brewer. Steep is measured by the time the brew hot water valve is shut off to the time the Air Compressor turns on.
2. X STEEP is the extra time added to STEEP time. The customer sees this as an extra strong brew.
3. COMP is the time in seconds the Air Compressor is on. It is the time required to force the brewed coffee out of the brewer through the filters under pressure.

4. RNSE HR is the time of the last brewed vend until an automatic Brew Rinse is accomplished. It is set in half hour increments normally at a time when there are few or no vends or customers.

## K. CARB LEVEL

Press the CARB LEVEL switch. The word CARB LVL appears on the display. Press the # switch to advance to each carbonation product. (CARB 61, CARB 62, CARB 71, CARB 72, CARB 81, CARB 82, CARB 91 and CARB 92). Also, read the 0 to 100 percentage of carbonated water to still water for each product. The desired percentage can be programed by pressing the numbers on the selection switch panel.

## L. SYRUP

Press the SYRUP switch. The word SYRUPS appears on the display. Press # switch to advance to each syrup product. (SYRUP 1, SYRUP 2, SYRUP 3 or SYRUP 4). A Syrup Test Throw is made by pressing the COLD DRINKS TEST THROW switch on the Door Controller Panel. See Section II, TESTING FOR PROPER IN-CUP SYRUP THROW, for complete testing instructions.

### NOTE

*If drinks are being vended at more than one carbonation level, be sure to test one selection set at each carbonation level used. If tea is being vended, be sure to test a tea selection.*

## M. DIAGNOSTICS

1. There is no Diagnostics mode. Three tests with the door open can be observed.
  - a. With no cups in dispenser the Display will read NO CUPS.



- b. When the waste bucket is full of liquid the Display will read WASTE PAIL.
- c. With the water tank water level Low the Display will read LOW WATER.

**NOTE**

*To return to the standby mode, press the FREE VEND switch 2 times. (Enter FREE VEND and exit FREE VEND). The display will be blank after doing this and selections may then be made by entering product code. Even though the*

*product is not delivered, the messages "THANK YOU" and "PRICE XX.XX" will be shown.*

- 2. Two tests with the door closed are observed.
  - a. With no cups in dispenser the Display will read TEMPORARY/OUT/OF SERVICE, alternately.
  - b. When the coin exchanger is out of change the Display will read PLEASE USE/EXACT/CHANGE, alternately.

## SECTION III

### ADJUSTMENT, REMOVAL, AND REPLACEMENT PROCEDURES

The procedures provided in this Section are arranged in alphabetical order to make specific Adjustment, Removal and Replacement information easy to locate.

Read the instructions thoroughly before performing any procedures.

#### I. ACCESS TO THE CONDENSER FAN MOTOR

Follow this procedure when servicing the Condenser Fan Motor.

- A. Remove or move Syrup Tanks Waste Bucket and CO<sub>2</sub> Tank as necessary for access to the rear of Cabinet.
- B. Remove attaching Screws and then lift upward to remove the Refrigeration Module Side Panel from the Merchandiser. See Figure 3-1.
- C. Remove the two Screws attaching the left side of the Condenser Assembly to the Module Base. See Figure 3-1.
- D. Pivot the Condenser Assembly clockwise for access to the Condenser Fan Motor. See Figure 3-2.

#### II. ACCESS TO THE REFRIGERATION MODULE

Follow this procedure when removing the Refrigeration Module from the front of the Merchandiser. See Figure 3-1.

- A. Remove the Waste Bucket from the Merchandiser.
- B. Remove the Syrup Tanks and CO<sub>2</sub> Tank.

- C. Remove fastener and pull the Air Inlet Screen out of the Merchandiser.
- D. Move the Drain Tube from the Tube Retainer attached to the Refrigeration Module Front Panel.
- E. Remove four attaching Screws and the Refrigeration Module Front Panel from the Merchandiser.
- F. Remove attaching Screws and then lift upward to remove the Refrigeration Module Side Panel from the Merchandiser.

#### NOTE

*The Refrigeration Module Assembly may now be pulled out the front of the Merchandiser after the two Hex. Hd. Screws attaching the Module to the Cabinet Base are removed.*

#### CAUTION

**Removal of the Refrigeration Module requires servicing of the entire Refrigeration System. This should be performed by a qualified Refrigeration Service Engineer following accepted trade practices.**

#### III. ADJUSTMENT OF THE AIR COMPRESSOR AIR PRESSURE

The Air Compressor Regulator is located behind the Round Hopper. The Air Compressor gauge is located on top of the Brewer Barrel.

The recommended air pressure for proper flow of coffee is 6 psi (41 kpa).

To adjust the air pressure:

- A. Loosen the Adjusting Knob Lock on the Compressor Regulator. See Figure 3-3.

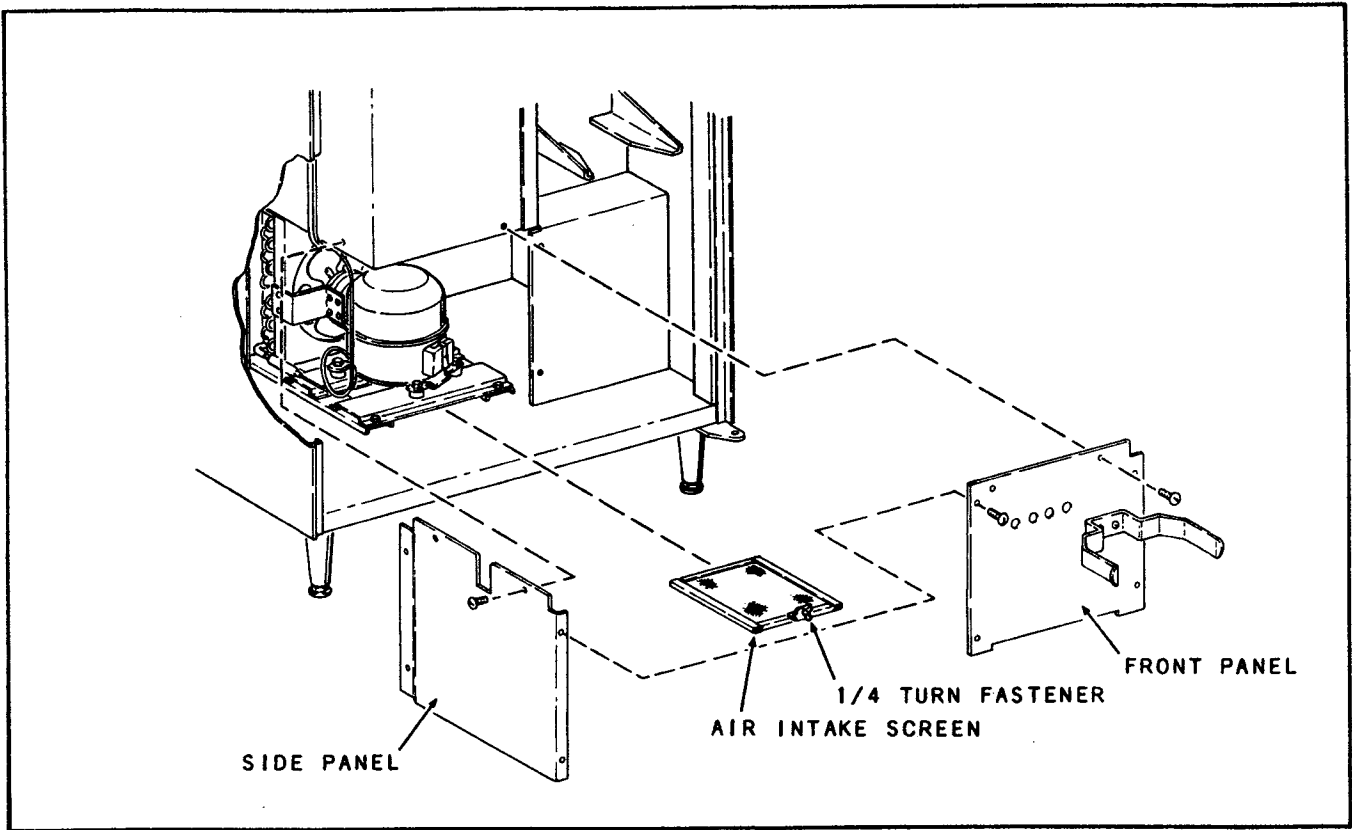


Figure 3-1. Access to Refrigeration Module

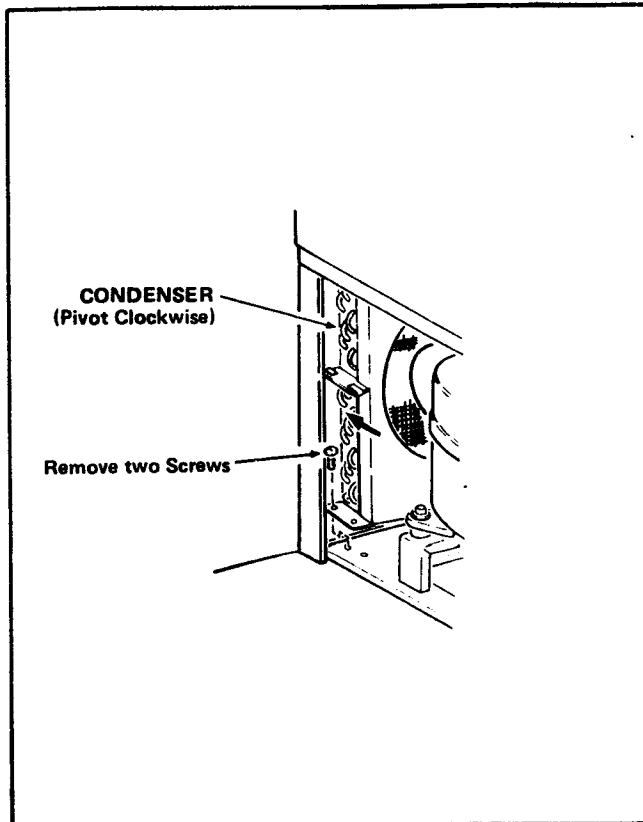


Figure 3-2. Access to Fan Motor

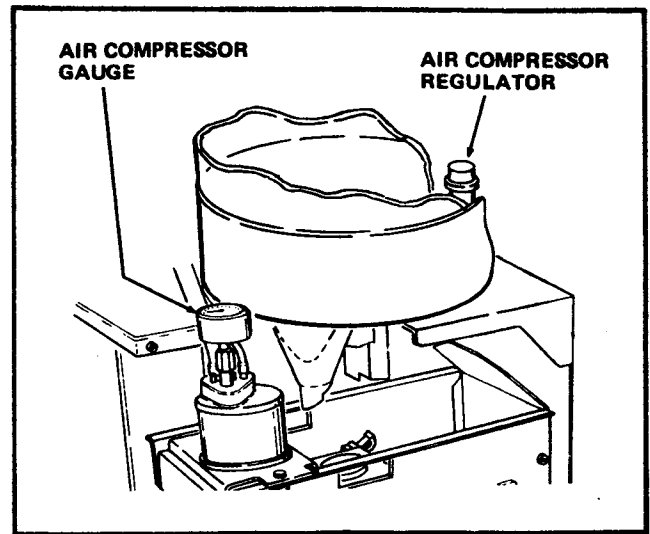


Figure 3-3. Air Compressor Adjustment

B. Depress the Test Vend Switch on the Controller Switch Panel.

**NOTE**

*Be sure the Waste Bucket is in position on the overflow locating tray. See Figure 1-1. Hot coffee will flow into the Bucket.*

- C. Press the switch numbers on the Selection Switch Panel for a Brew (149).
- D. While the Air Compressor is running, turn the Adjusting Knob on the Compressor Regulator until the gauge shows a 6 PSI (41.4 Kpa) pressure reading.
- E. Repeat steps A through D, if necessary, until the regulator is adjusted to the proper pressure.
- F. Tighten the lock on the regulator.

#### IV. ADJUSTMENT OF THE COFFEE OR TEA GROUNDS THROW

The Round Hopper has an Adjustment Screw on the front of the hopper.

- A. Turn the Round Hopper Adjustment Screw **CLOCKWISE** to **INCREASE** the Coffee or Tea Grounds Throw or **COUNTER-CLOCKWISE** to **DECREASE** the Grounds Throw. Turn the Screw approximately two turns. See Figure 3-4.
- B. Make two Coffee or Tea Grounds Test Throws. See Section II, PROGRAM OPERATION, SERVICE, HOPPER mode and TESTING TO DETERMINE THE COFFEE OR TEA GROUNDS THROW.

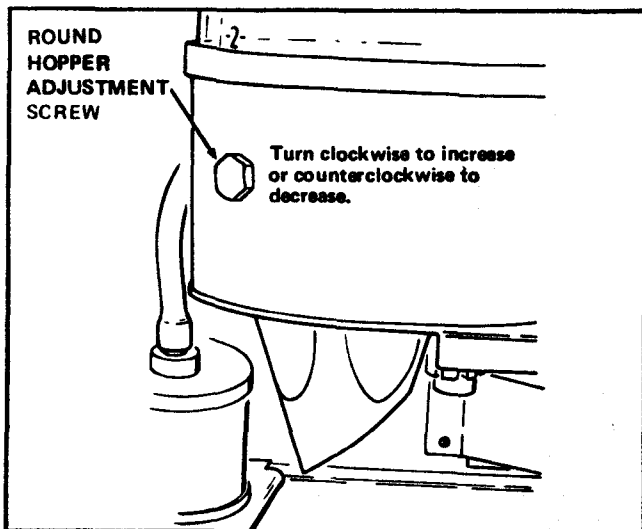


Figure 3-4. Round Hopper Adjustment

- C. Weigh second throw of grounds only.
- D. Repeat steps A thru C if necessary, until the desired throw of grounds is obtained.

#### V. ADJUSTMENT OF THE CUP DEFLECTOR ASSEMBLY

The Cup Deflector in the Cup Compartment is adjustable to permit the use of various cup sizes.

To adjust the Cup Deflector:

- A. Place a cup which will be used for vending, in the Cup Compartment.
- B. Loosen the thumb screw at the top of the Cup Deflector and move the Cup Deflector and Pivot Bar until the surface of the deflector is about 1/4 in. (6 mm) from the cup. See Figure 3-5.

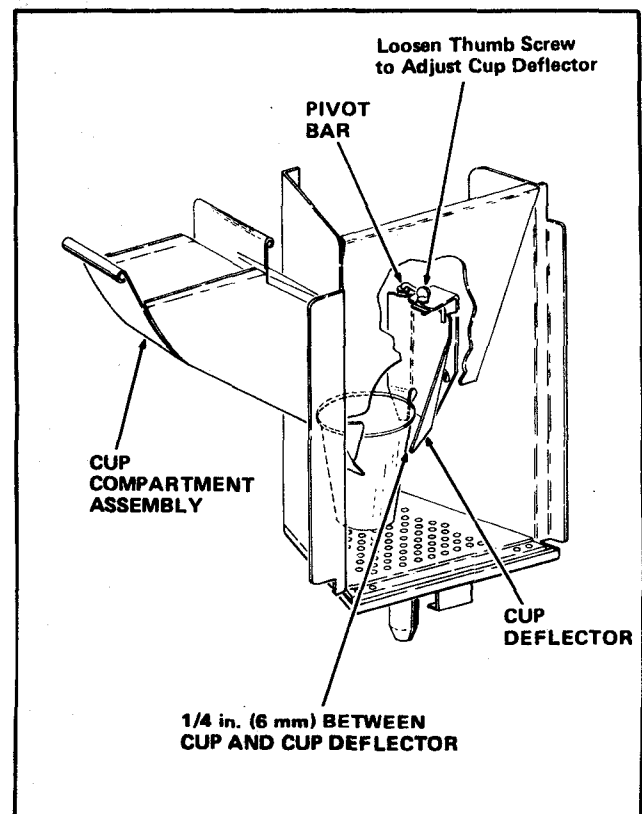


Figure 3-5. Adjustment of the Cup Deflector

C. Hold the Pivot Bar and Cup Deflector in place and tighten the thumb screw.

D. Test the new setting by dropping several cups into the Cup Compartment.

## VI. ADJUSTMENT OF THE CUP DISPENSER

A. To adjust the at rest position of the Cup Drop Ring Lever:

1. Check the underside of the Cup Dispenser Mechanism Assembly to be sure the Cup Drop Ring Lever is in the at rest position. See Figure 3-6, View A.
2. Loosen the adjustment screw on the spring loaded Cup Release Arm.
3. Move the Cup Ring Release Arm (underneath the spring-loaded Cup Release Arm) to the left, until the right inside edge of the Bushing in the Cup Ring Release Arm just contacts the right edge of the Cup Ring Lever. See Figure 3-6, View A.
4. Tighten the adjustment screw.

B. To adjust the Drop Position of the Cup Release Arm Stop:

### NOTE

*Perform this adjustment after procedure A above. Be prepared to move the Door Switch to the OFF position, when the Cup Drop Ring Lever shifts to the Drop Position in step 1.*

1. Test vend the Merchandiser. See Section II, PROGRAM OPERATION Service Cup Drop mode to test vend cups.

The Cup Drop Ring Lever should be quickly pulled to the drop position and a cup will drop. See Figure 3-6, View B.

2. As soon as the cup drops move the Door Switch to the OFF position.

3. Loosen the two adjustment screws on the Release Arm Stop. See Figure 3-6, View B. Move the spring-loaded Cup Release Arm Assembly to the left, to gain access to the adjustment screw underneath.

4. Release the spring-loaded Cup Release Arm Assembly and slide the Release Arm Stop to the left, until the small flange on the Release Arm Stop contacts the large flange on the Cup Release Arm, and the right edge of the Cup Drop Ring Lever just contacts the right inside edge of the Bushing in the Cup Ring Release Arm. See Figure 3-6, View B.

5. Tighten both adjustment screws.

6. Move the Door Switch to the ON position.

7. Test vend the Merchandiser. See Section II, PROGRAM OPERATION Service, Cup Drop, mode to test vend cups. Be sure the cup seats properly in the Cup Dispenser.

C. To adjust diameter of the Cup Drop Ring.

1. Check the underside of the Cup Dispenser Assembly and observe the position of the cup in the Cup Drop Ring Assembly.

### NOTE

*Check the position of the lip and upper side of the cup in relation to the cams in the Cup Drop Ring. Notice the three examples in Figure 3-7. When adjustment is necessary, perform the appropriate adjustment procedure that follows.*

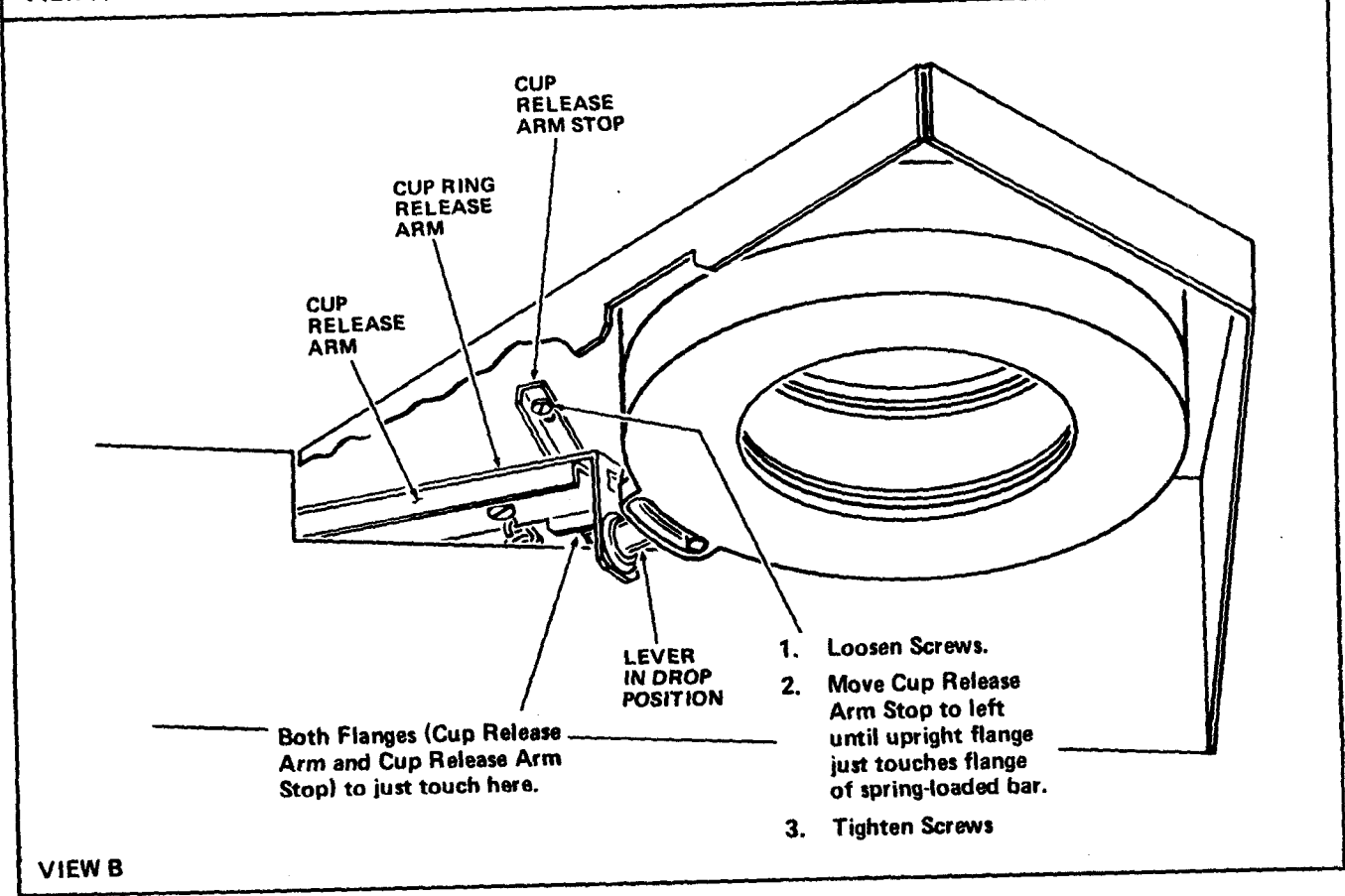
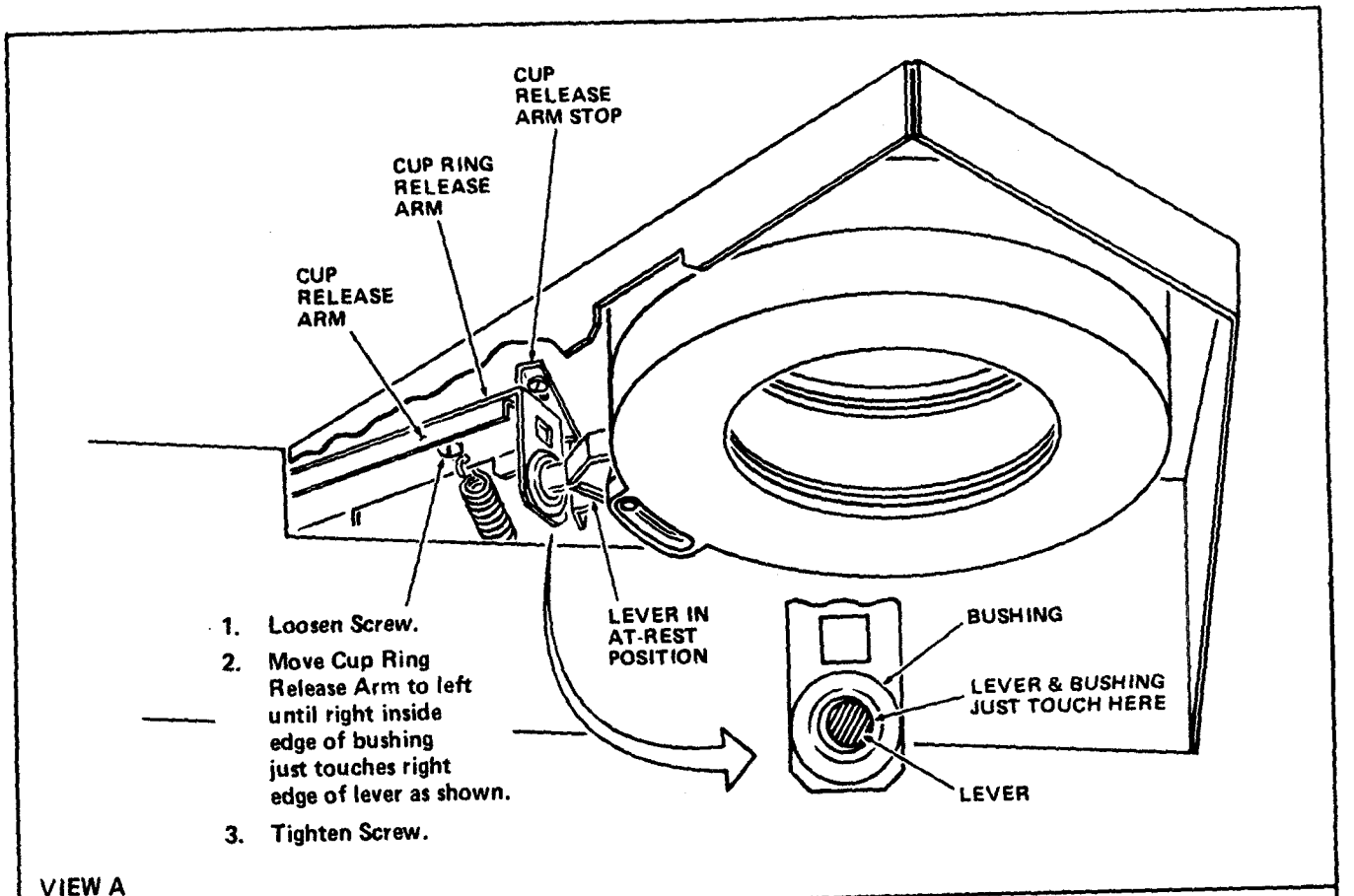


Figure 3-6. Cup Drop Ring Lever Adjustment

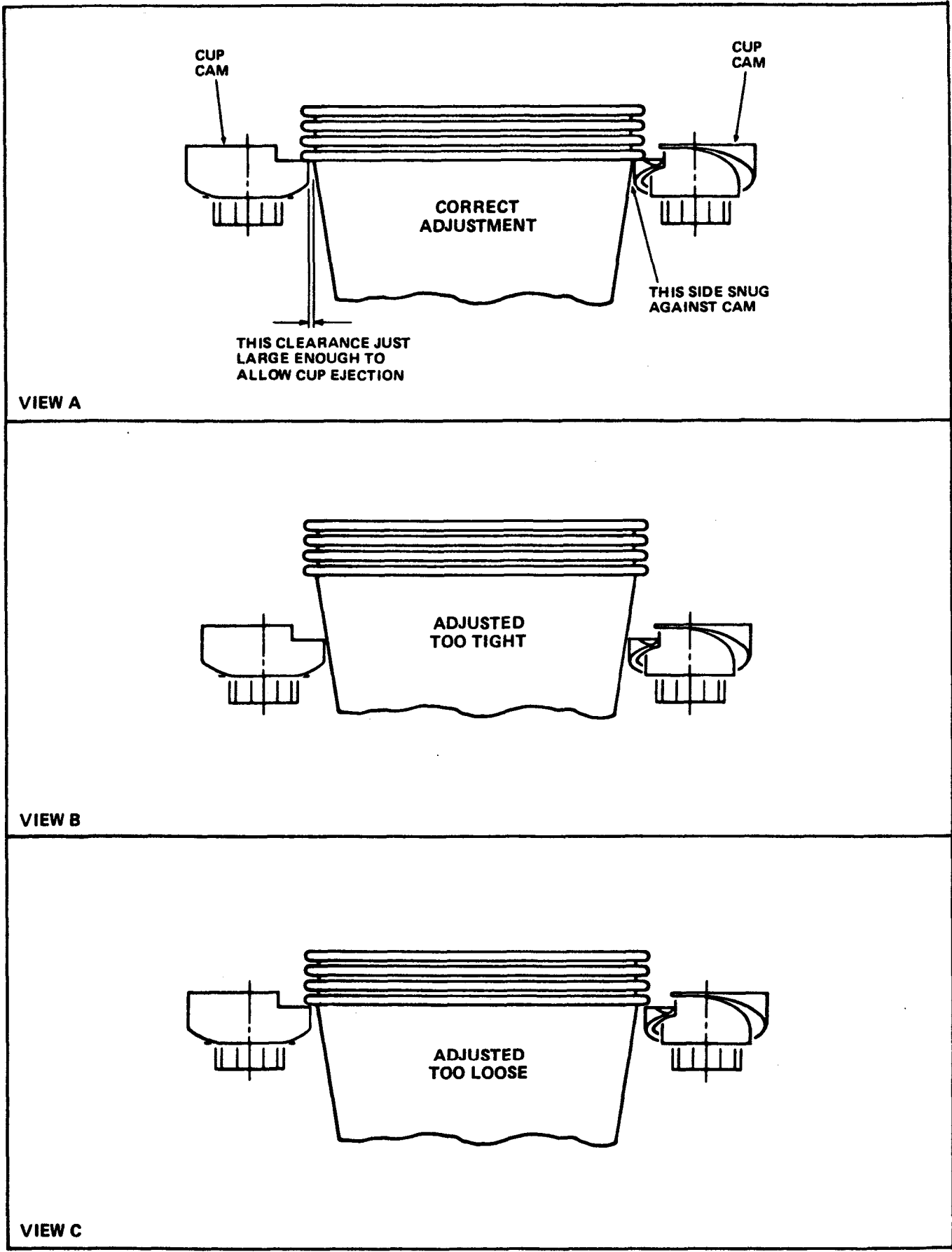


Figure 3-7. Sample Cup Positions

2. Loosen the Screw on the Adjusting Arm. See Figure 3-8.

**NOTE**

*When adjusting the Cup Drop Ring, be sure not to deform the cup in any way, or the adjustment will be incorrect.*

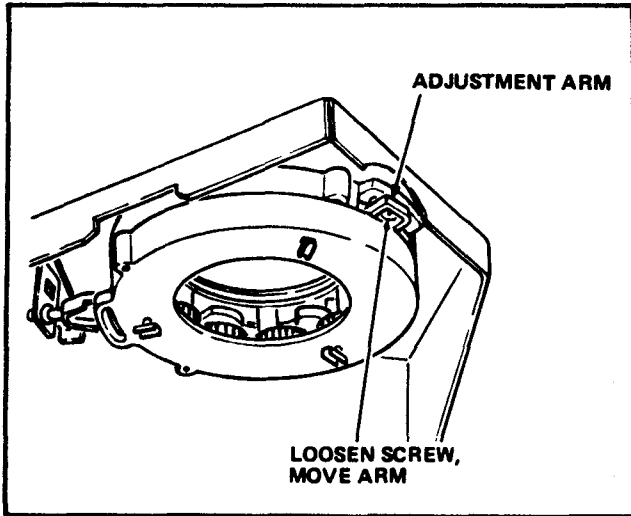


Figure 3-8. Cup Drop Ring Adjustment

3. Hold the cups snug against the cams on the right half of the ring and move the Adjusting Arm until the ring is adjusted correctly as shown in Figure 3-7 and 3-8.

Move the Adjusting Arm:

- a. **CLOCKWISE** if the cups are held too tightly.
  - b. **COUNTER-CLOCKWISE** if the cups are held too loosely.
4. Tighten the Screw on the Adjusting Arm.
  5. Test the new setting by dispensing at least 25 cups through the Cup Dispenser. See Section II, PROGRAM OPERATION, Service, Cup Drop, mode to test vend cups. Include in the test rotating the turret to drop a full

stack of cups into the Cup Dispenser Ring. Dispense about 15 or 20 of the cups from the new stack through the Cup Dispenser.

- D. To adjust the Slow Release Ramp.

Static electricity can build up when vending plastic cups causing the cups to cling together making cup separation difficult and not allowing cups to drop properly. Adjusting the Slow Release Ramp in the Cup Dispenser Mechanism will remedy this situation. Adjust the Slow Release Ramp as follows:

1. Holding the Slow Release Ramp in place, remove the screw attaching the Slow Release Ramp to the Arm and Screw Assembly. See Figure 3-9.
2. Slide the Slow Release Ramp to the left (non-operating position) to align the inside hold on the Slow Release Ramp with the hole in the Arm and Screw Assembly and attach using the Screw removed in Step 3. Make sure the dimple on the Arm and Screw Assembly is in the slot of the Slow Release Ramp. See Figure 3-9.
3. Test vend the Merchandiser. See Section II, PROGRAM OPERATION Service, Cup Drop mode to test vend cups.

- E. To adjust the SOLD OUT Switch:

1. Remove the Cover and lift the Turret Assembly off the Support Shaft.
2. Remove two screws and lift off the Switch Cover. See Figure 3-10.



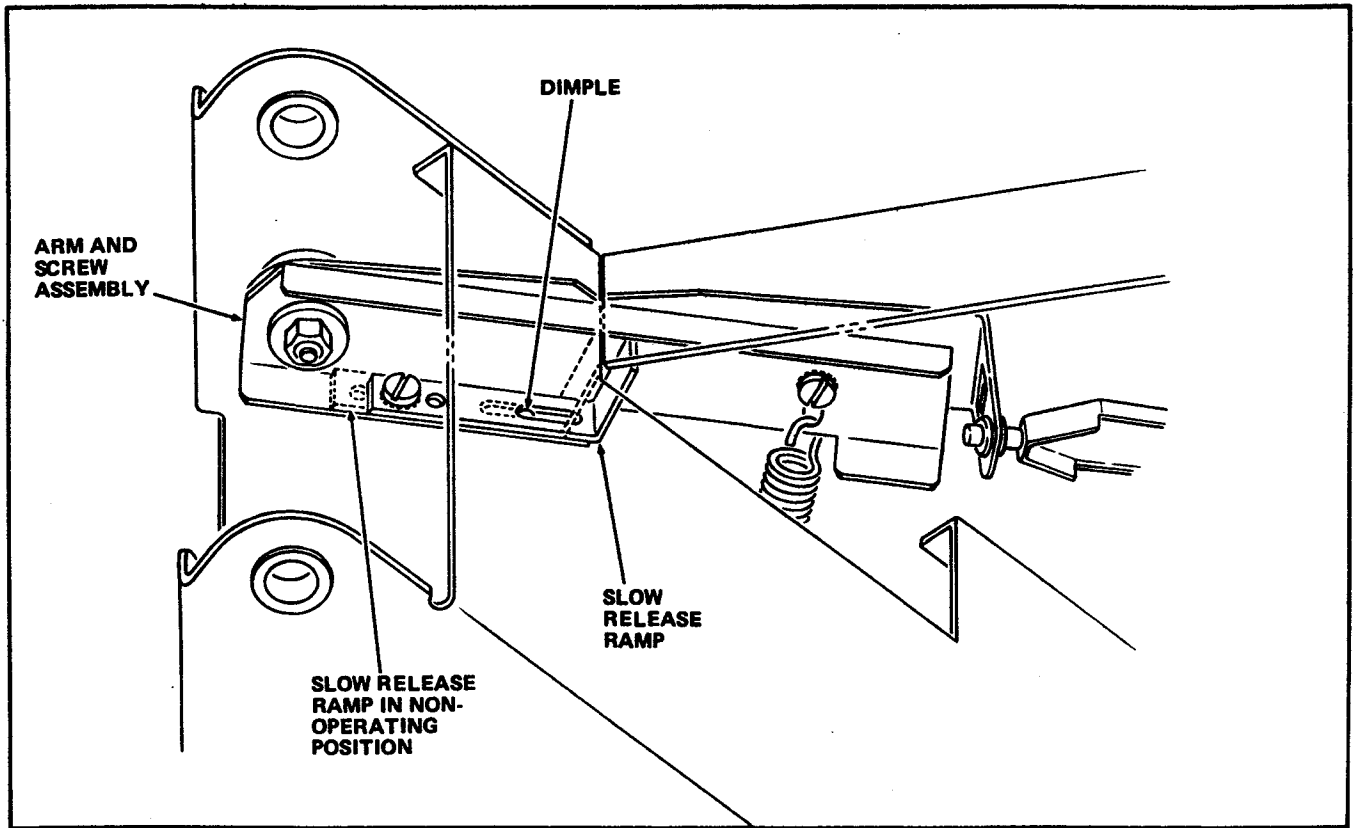


Figure 3-9. Slow Release Ramp Adjustment

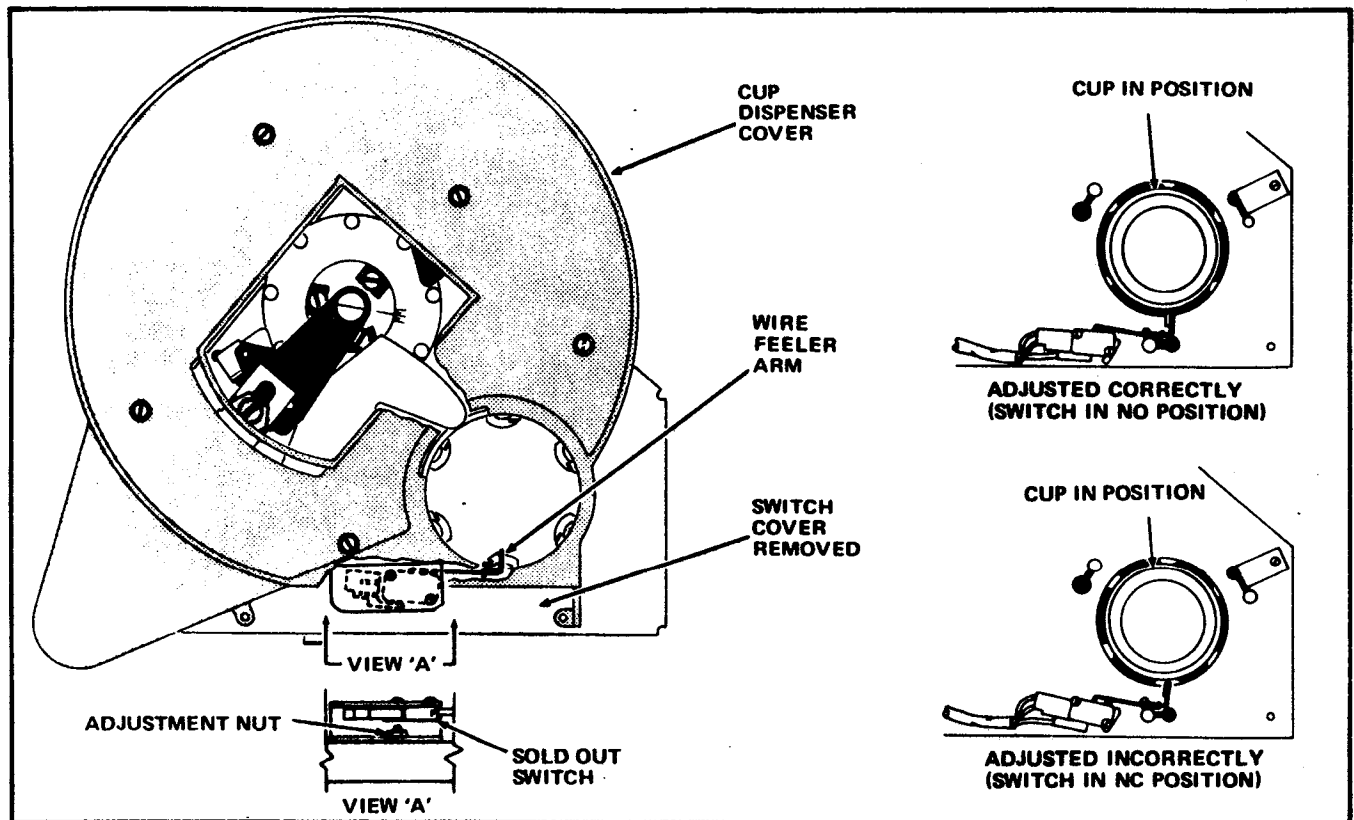


Figure 3-10. Sold-Out Switch Adjustment

3. Loosen the two Nut attaching the Sold-Out Switch and Bracket Assembly to the Cup Dispenser and move the Switch and Bracket Assembly away from the Cup Drop Ring opening. The Display should read NO CUPS. See Figure 3-10.
4. Install a stack of seven or more cups in the Cup Drop Ring.
5. Move the SOLD OUT Switch and Bracket Assembly toward the cup stack until the Wire Feeler Arm contacts the cups and an audible click is heard from the switch. The Display should read normally. See Figure 3-10.
6. Tighten both adjustment Screws.

#### NOTE

*In some instances, the procedure may require repeating. Be sure the Cup Switch Loop is not so tight against the cup that it will not allow the cups to lower themselves past the loop during normal drop cycle. The display automatically reads NO CUPS when less than seven cups are in the ring.*

7. Remove the stack of cups.
  8. Replace the Switch Cover and attach with the two screws removed above.
  9. Replace the Cup Turret Assembly on the Turret Shaft and slowly rotate the turret until the pin in the Turret Torque Tube seats over the notch at the top of the Shaft.
  10. Load the Cup Turret with cups.
  11. Replace the Turret Cover.
  12. Test the new setting by running at least 25 cups through the Cup Dispenser. See Section II, PROGRAM OPERATION Service, Cup Drop mode to test vend cups. Include in the test rotating the turret to drop a full stack of cups into the Cup Drop Ring. Run about 15 or 20 cups from the new stack through the Cup Dispenser. Check to be sure the Display reads normally.
- F. To adjust the Indexing of the cup Turret Assembly:
1. Check to see if the At-Rest Position of the Cup Drop Ring Lever is correct. See Section III, Adjustment of the Cup Dispenser.
  2. Check to see if the Drop-Position of the Cup Drop Ring Lever is correct. See Section III, Adjustment of the Cup Dispenser.
  3. Check to see if the Cup Ring Diameter is set correctly. See Section III, Adjustment of the Cup Dispenser.
  4. Remove the Cup Turret Cover and place a stack of cups down one Cup Turret Tube into the Cup Drop Ring, sufficient to bring the stack of cups to a level just below that of the Cup Turret Tubes. See Figure 3-11.
  5. With a slight pressure, rotate the Cup Turret Assembly counterclockwise a short distance until the Cup Turret Assembly ceases to rotate. See Figure 3-11.
  6. While holding the Cup Turret Assembly in the position described in Step 5, measure the distance from the inside edge of the Cup Turret Tube to the

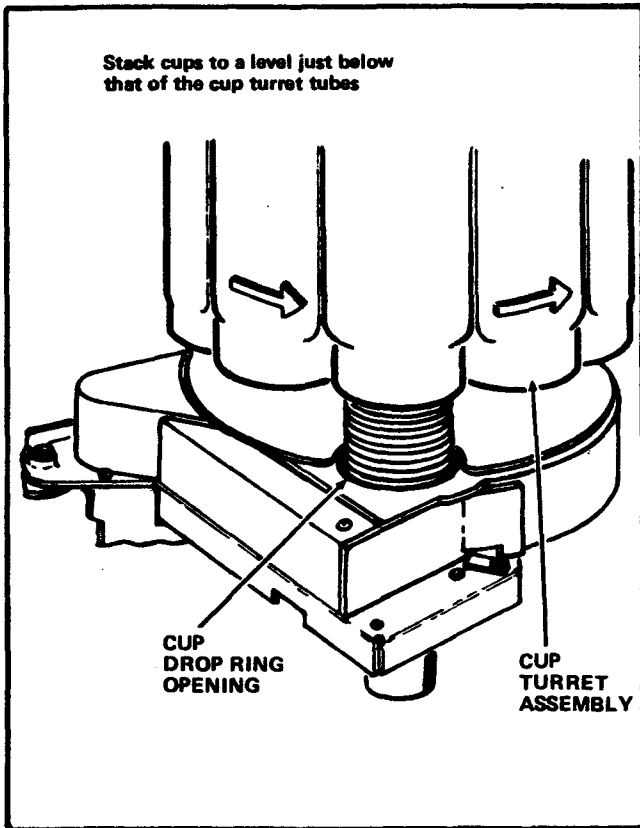


Figure 3-11. Initial Position of Cup Turret Assembly

outside edge of the cup lip. If the outside edge of the cup lip is within  $1/16$ " on either side of the Cup Turret Tube, no adjustment is necessary. See Figure 3-12, Views A and B.

7. If adjustment is necessary:

- a. Record the measurement taken above.
- b. Remove the Cup Turret Assembly and observe the Adjustment Scale. See Figure 3-13.

**NOTE**

To gain access to all three Adjustment Screws, remove the stack of cups from the Cup Drop Ring Opening, move the Cup Feeler out away from the Turret Shaft, and turn the Turret shaft clockwise by hand. See Figure 3-13.

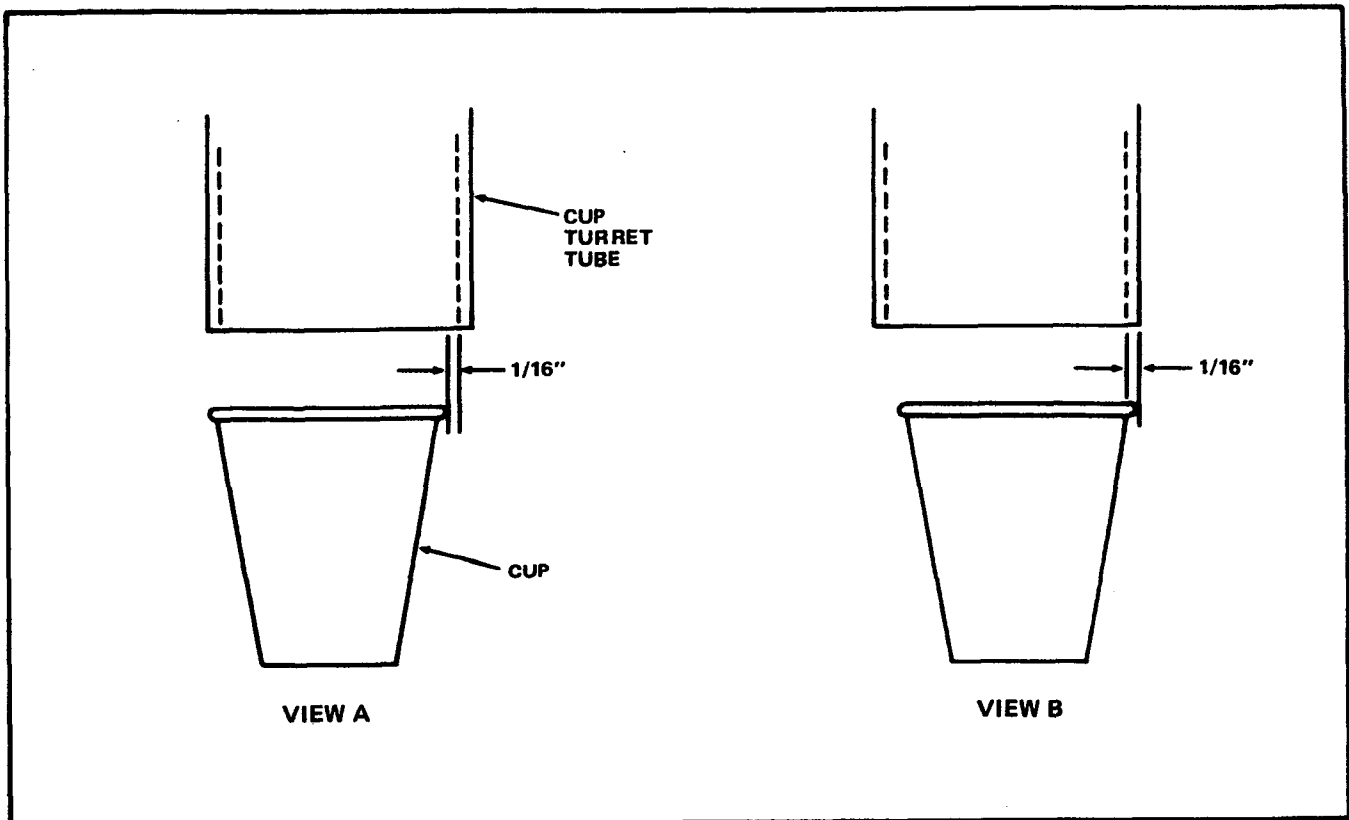


Figure 3-12. Measurement of Distance Between Cup Turret Tube and Cup Lip

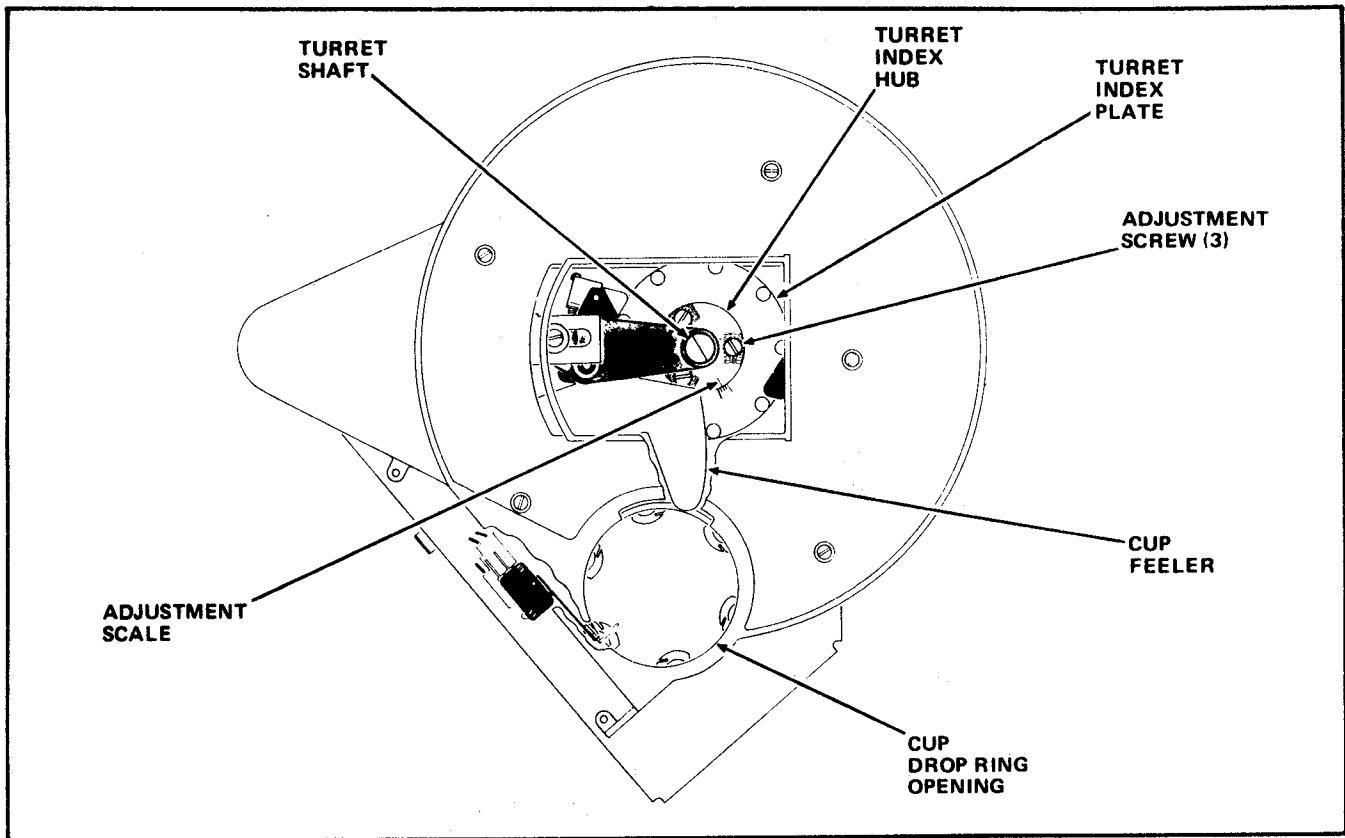


Figure 3-13. Cup Turret Index Adjustment Screws

- c. Loosen the three Adjustment Screws securing the slotted Turret Index Hub. See Figure 3-13.

**NOTE**

*Moving one increment on the Adjustment Scale moves the cup Turret Assembly at the Cup approximately 1/4". See Figure 3-13.*

- d. Rotate the Cup Turret Shaft in the necessary direction to obtain the dimension required.
- e. Tighten the three Adjustment Screws. See Figure 3-13.
- f. Place the stack of cups back into the Cup Drop Ring Opening. See Figure 3-13.
- g. Place the Cup Turret Assembly on the Turret Shaft and slowly rotate the

Cup Turret Assembly until the pin in the Turret Torque Tube seats over the notch at the top of the Turret Shaft.

8. Repeat Steps 5, 6, and 7, as many times as necessary until the correct adjustment is obtained.

**VII. ADJUSTMENT OF THE IN-CUP CHOCOLATE, SOUP, COFFEE, AND TEA BEVERAGE THROW**

The TM WATER mode program individually controls the amount of time the Chocolate, Coffee and Tea and Soup Water Valves are energized, thus controlling the Chocolate Beverage Throw, the Coffee Beverage Throw, the Soup Beverage Throw, and the Tea Beverage Throw. In addition Water Valves can be individually adjusted by turning the Flow Adjustment Screw on the valve.

Be sure to check the valve name and position as shown on the Water Valve Label located on the back of the Water Valves Access Door.

A. To adjust the in-cup chocolate, soup, coffee, and tea beverage throw.

1. Make beverage test throw. See Section II, TESTING TO DETERMINE HOT BEVERAGE THROW.

a. If a beverage throw is not as desired, reprogram. See PROGRAM OPERATION, TM WATER mode Section II to reprogram.

b. If reprogramming and a beverage throw is not satisfactory, see paragraph B for procedure to adjust the Water Valve.

B. To adjust a water valve.

#### NOTE

*Before performing the following procedures, execute the required pre-adjustment steps given in paragraph A.*

1. Open the Water Valves Access Door. See Figure 2-3 and Table 2-3 Section II for identification of valves.
2. To INCREASE the water flow in a Water Valve turn the adjustment screw on the valve COUNTERCLOCKWISE one turn. See Figure 3-14.
3. To DECREASE the water flow in a Water Valve turn the adjustment screw on the valve CLOCKWISE one turn. See Figure 3-14.
4. Make a Beverage test throw. See TM WATER mode Section II.
5. If the Beverage Throw is not as desired, repeat step 2 or 3.

#### VIII. ADJUSTMENT OF THE MERCHANDISER FOR VENDING DRINKS IN 9 OZ. (270 mL) CUPS

To Adjust the Merchandiser to vend 9 oz. (270 mL) cups:

A. Adjust the Cup Deflector using 9 oz. (270 mL) cups. See paragraph V in this section.

B. Adjust the Cup Dispenser using 9 oz. (270 mL) cups. See paragraph VI in this section.

C. Reprogram 3rd digit on Display in the MACH CON mode to change machine Configuration Code for 9 oz. cups. See Section II.

#### NOTE

*By reprogramming MACH CON the Hot Drink TM INGRED and TM WATER automatically switch to a preprogram in the Door P/C Board EPROM.*

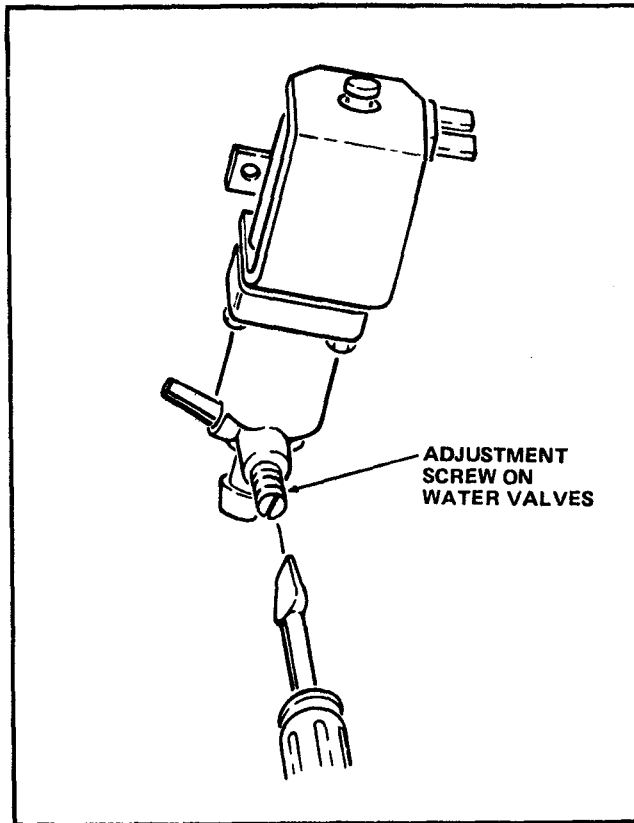


Figure 3-14. Water Valve Adjustment Screw

D. See Section II, TM INGRED and TM WATER to read and reprogram each ingredient and water level and to perform TEST THROWS. See Adjustment of Water Throw in this Section if EPROM preprogram or reprogram is not successful.

E. Make adjustments for Carbonated/ still water and syrup adjustments in this section. See Table 3-4.

F. Adjust the coffee grounds throw. See ADJUSTMENT OF THE COFFEE OR TEA GROUND'S THROW in this section.

#### IX. ADJUSTMENT OF THE MERCHANDISER FOR VENDING DRINKS IN 8.25 OZ. (245)mL)

To vend drinks in 8.25 oz. (245 mL) cups perform adjustments as follows:

A. Adjust the Cup Deflector, using 8.25 oz. (245 mL) cups. See paragraph V in this section.

B. Adjust the Cup Dispenser, using 8.25 oz. (245 mL) cups. See paragraph V in this section.

C. Reprogram 3rd digit on Display in the MACH CON mode to change machine Configuration Code for 8.25 oz. cups. See Section II.

#### NOTE

*By reprogramming MACH CON the Hot Drink TM INGRED and TM WATER automatically switch to a preprogram in the Door P/C Board EPROM.*

D. See Section II, TM INGRED and TM WATER to read and reprogram each ingredient and water level and to perform TEST THROWS. See Adjustment of Water Throw in this Section if EPROM preprogram or reprogram is not successful.

E. Make adjustments for Carbonated/ still water and syrup adjustments in this section. See Table 3-4.

F. Adjust the coffee grounds throw. See ADJUSTMENT OF THE COFFEE OR TEA GROUND'S THROW in this section.

#### X. ADJUSTMENT OF THE INGREDIENT THROW

The amount of powder or ground ingredients for Hot Drinks were preprogramed for the time of flow. To adjust or reprogram the time and amount of ingredient flow see Section II, Testing to Determine Powder Throw and Time Ingredients mode.

#### XI. ADJUSTMENT OF THE IN-CUP SYRUP THROW

The volume of syrup dispensed by each Syrup Pump must be adjusted individually. Syrup Pump removal is not necessary. See Table 3-4.

To Adjust the Syrup Pump:

A. Remove the Hole Plug from a Syrup Pump. See Figure 3-15.

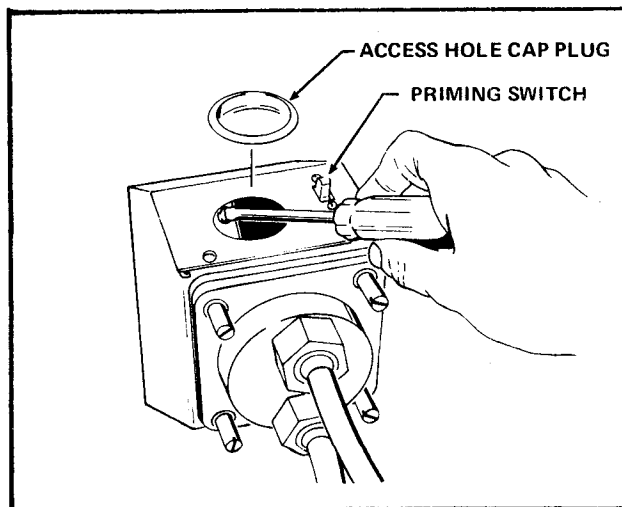


Figure 3-15. Adjustment of Syrup Pump

Table 3-1. Dry Ingredients Settings - Choc/Coffee

CUP SIZE		CHOCOLATE POWDER		COFFEE PRODUCT		LIGHTENER		EXTRA LIGHTENER		SUGAR		EXTRA SUGAR	
mL	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz
210	7	24	0.85	8	0.28	1.5	.05	2.0	.07	6	0.21	8	0.28
245	8 1/4	28	1.0	9	0.32	2	.07	2.5	.09	7	0.25	9	0.32
270	9	31	1.1	10	.35	2.5	.09	3	0.11	8	0.28	10	0.35

Table 3-2. Dry Ingredients Settings - Soup/Tea Decaf.

CUP SIZE		SOUP		TEA BREW		MILK		EX MILK		TEA F/D COFFEE		EXTRA TEA F/D COFFEE	
mL	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz
210	7	6	0.2	4	.14	1.5	.05	2	.07	1.2	.04	1.5	.05
245	8 1/4	8.5	0.3	6	.21	2	.07	2.5	.09	1.5	.05	1.8	.06
270	9	10.5	0.37	7	.25	2.5	.09	3	0.11	1.8	.06	2	.07

Table 3-3. Water Settings

CUP SIZE		CHOCOLATE WATER		COFFEE WATER		SOUP WATER		TEA WATER	
mL	oz	mL	oz	mL	oz	mL	oz	mL	oz
110	7	150	5.1	170	5.8	160	5.5	160	5.5
245	8 1/4	170	5.8	200	6.9	180	6.1	180	6.1
270	9	190	6.50	220	7.5	200	6.9	200	6.9

Table 3-4. Cold Drink Ingredient Settings

CUP SIZE		SYRUP		WATER	
mL	oz	mL	oz	mL	oz
210	7	30	1.0	150	5.0
245	8 1/4	35	1.2	175	6.0
270	9	40	1.4	200	6.7

## NOTE

When adjusting the Crank Arm Adjuster Screw, loosen the Limit Screw 1/4 turn only. Loosening the Limit Screw more than 1/4 turn may allow the Adjuster Screw to shift when the Limit Screw is tightened, resulting in an inaccurate adjustment.

B. Inserting the blade of a screwdriver in the access hole, loosen the Limit Screw (top screw) 1/4 turn only and turn the Adjuster Screw (bottom screw):

1. **CLOCKWISE** to **DECREASE** the volume of syrup dispensed.
2. **COUNTERCLOCKWISE** to **INCREASE** the volume of syrup dispensed.

C. Tighten the Limit Screw.

D. Test the In-Cup Syrup Throw. See Section II, TESTING FOR PROPER IN-CUP SYRUP THROW to make test throw.

E. Repeat steps A through C until the In-Cup Syrup Throw is as desired for each Syrup Pump. Be sure to replace the Hole Plug.

## XII. ADJUSTMENT OF THE IN-CUP COLD WATER THROW

An Adjusting Screw is located on the base of each Water Valve (i.e., the High Carb, Non-Carb, and optional Tea Water Valves). See Figure 3-16. See Table 3-4. Adjust the in-cup water throw for each valve as follows:

1. Remove the Water Bath Cover.

## NOTE

Turn only the Adjusting Screw when making adjustments. DO NOT loosen or remove the Limit Screw located immediately above the Adjusting Screw.

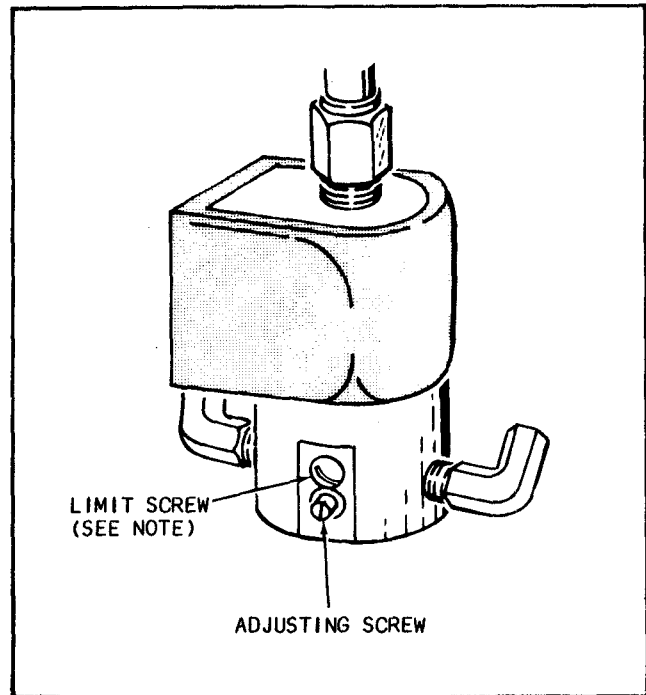


Figure 3-16. Adjustment of Cold Water Valves

2. Rotate the Adjusting Screw 1/8 turn:

- a. **COUNTERCLOCKWISE** to increase the in-cup water throw.
- b. **CLOCKWISE** to decrease the in-cup water throw.

3. Repeat the In-Cup Water Throw Tests. See Section II, Testing for proper In-Cup Cold Water Throw.

4. Repeat steps 2 & 3 until the water throw is as desired.

5. Install the Water Bath Cover.

## XIII. ADJUSTMENT OF THE TEMPERATURE CONTROL THERMOSTAT

The temperature of the water in the Water Tank is controlled by the Temperature Control Thermostat. See Figure 3-17.



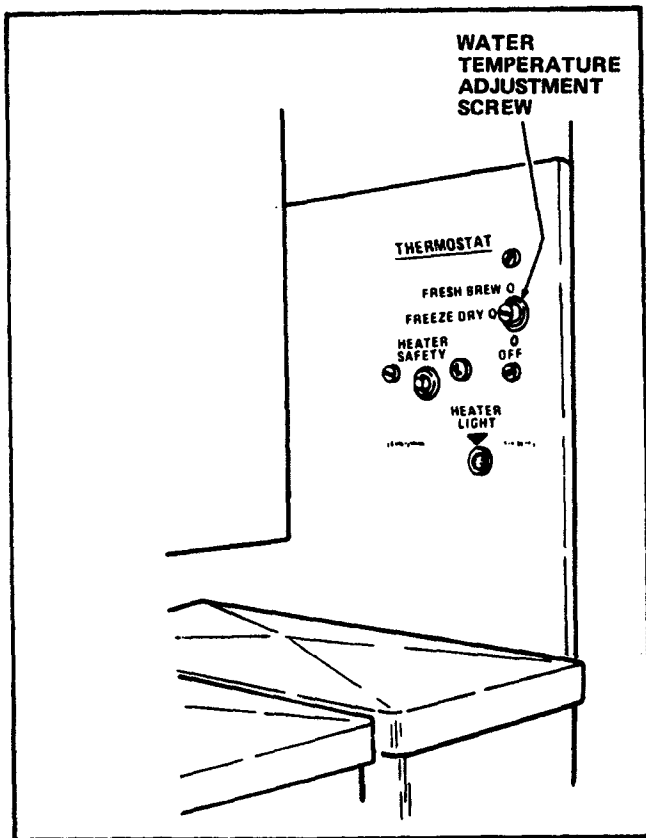


Figure 3-17. Temperature Control Adjustment

To adjust the Temperature Control Thermostat:

- A. Reset the Heater Safety Switch if the switch has broken the circuit to the Heater.
- B. To adjust the thermostat:
  1. Turn the screw on the Thermostat 1/8 of a full turn clockwise to raise the temperature of the water in the tank.
  2. Turn the screw on the Thermostat 1/8 of a full turn counterclockwise to lower the temperature of the water in tank.
- C. Vend ten cups of water and wait for the temperature in the water tank to stabilize.
- D. Repeat steps B and C until the water temperature is satisfactory, 195-205 degrees Celsius).

#### XIV. ADJUSTMENT OF THE WATER VELOCITY IN THE MIXING BOWL

##### NOTE

*If there is an accumulation of sugar and lightener in the Mixing Bowl, the speed of water flow in the Mixing Bowl is not fast enough to thoroughly flush the bowl. If water splashes out of the mixing bowl the water flow is too fast. Before adjusting the Flow Regulator be sure air pressure is properly adjusted - approximately 6 psi. See paragraph III of this section.*

- A. Turn the adjusting knob on the Flow Regulator **CLOCKWISE** to increase the flow or **COUNTER-CLOCKWISE** to decrease the flow. See Figure 3-18.
- B. Make several coffee with lightener and sugar test vend.
- C. Readjust if necessary.

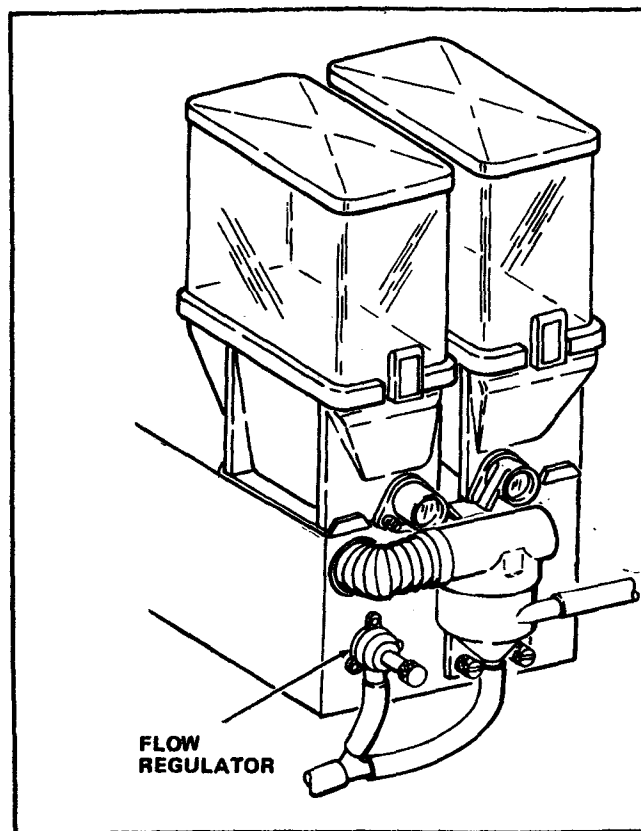


Figure 3-18. Adjustment of Flow Regulator

**XV. REMOVAL AND REPLACEMENT OF THE BREWER BARREL AND MANIFOLD ASSEMBLY, BREWER BASKET, AND BREWER FUNNEL**

**NOTE**

*These parts can be removed individually or collectively. For individual removal, follow only those steps describing removal of the specific parts.*

**A. To Remove The Brewer Barrel And Manifold Assembly:**

**WARNING**

**SAFETY GLASSES SHOULD BE WORN WHEN THE BREWER COVER IS TO BE REMOVED. KEEP HANDS AWAY FROM MOVING PARTS DURING THE CYCLE. REPLACE THE COVER AFTER SERVICING.**

1. Remove the Brewer Mechanism Cover.
2. Rotate the Brewer Barrel and Manifold Assembly 1/4 turn **CLOCKWISE** to align the flanges on the barrel with slots in the frame. See Figure 3-19.
3. Lift the Brewer Barrel and Manifold Assembly out of the Barrel Support Channel.
4. If the barrel and manifold is to be removed as an assembly, detach the tubes from the manifold.

**NOTE**

*The Brewer Barrel and Manifold Assembly need not be completely removed from the Merchandiser to be disassembled.*

- a. Rotate the Brewer Barrel 1/4 turn **CLOCKWISE** and remove the Lower Insert Assembly from the Brewer Barrel.

- b. Rotate the Brewer Barrel 1/4 turn **CLOCKWISE** and remove the barrel from the manifold.

**5. To reassemble the Brewer Barrel:**

- a. Place the Brewer Barrel into the Hose Manifold and rotate 1/4 turn **COUNTERCLOCKWISE** to align the position indicator groove in the barrel in with the position indicator groove in the manifold. See Figure 3-19.

- b. Place the Lower Insert Assembly on to the Brewer Barrel and rotate 1/4 turn **COUNTERCLOCKWISE** to align the position indicator groove in the insert with the position indicator in the barrel. See Figure 3-19.

**B. To Remove the Brewer Basket:**

1. Rotate the basket 1/4 turn **CLOCKWISE** to align the flanges on the basket with the slots in the Basket Lever.
2. Lower the basket out of the Basket Lever.

**C. To Remove the Brewer Funnel Assembly:**

1. Raise the Funnel Mount Lever and tilt the front edge of the Funnel Assembly down and slide the funnel off the pins on the lever.
2. If the funnel is to be completely removed from the merchandiser, remove the Discharge Tube from the funnel.

**D. To Replace the Brewer Barrel and Manifold Assembly**

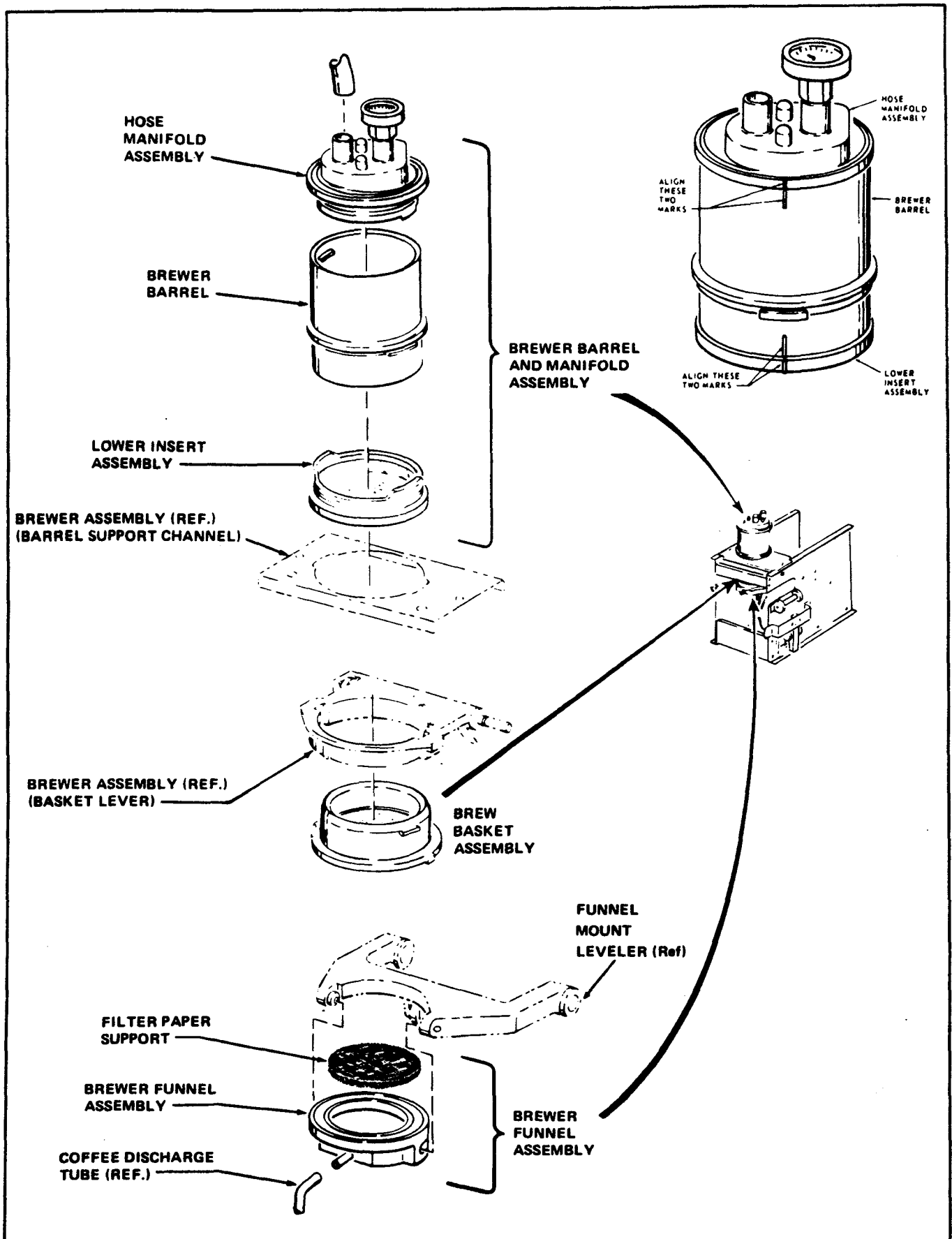


Figure 3-19. Brewer Barrel, Manifold, Basket, and Funnel Assembly

1. If the tubes have been removed from the manifold replace them.
2. Place the Brewer Barrel into the frame with the flanges on the barrel in the slots on the Support Channel.
3. Rotate the Barrel COUNTER-CLOCKWISE 1/4 turn.

**E. To Replace the Brewer Basket**

1. Place the basket into the carrier from the underside of the Brewer Assembly Basket Lever. Align the flanges on the basket with the slots on the lever.
2. Rotate the basket COUNTER-CLOCKWISE 1/4 turn until spring clip in the Basket Lever engages the lock tab on the basket.

**F. To Replace the Brewer Funnel.**

1. Place the Filter Support in the Brewer Funnel.
2. If the tube has been removed from the funnel replace it.
3. Push the Basket Lever to the rear and hold it back.
4. Slide the funnel onto the pins on the Funnel Mount Lever. The flat sides of slots on the funnel must be aligned with the flats on the pins.
5. Rotate the funnel into position.
6. Replace the Brewer Mechanism Cover.

**XVI. REMOVAL AND REPLACEMENT OF THE BREWER BASKET SCREEN ASSEMBLY**

- A. Remove the Brewer Basket Assembly from the Brewer Mechanism.**

- B. Remove the Screen Retainer Spring from the one piece Brewer Basket. See Figure 3-20.**

- C. Remove the screen.**

- D. Remove the Insert-Filter-Housing. Clean and return in place.**

- E. Install the replacement screen. Be sure the screen is pressed firmly in place.**

- F. Insert the plain end of the Retainer Spring into the groove in the Brewer Basket.**

- F. Press the Retainer Spring into place in the groove.**

**XVII. REMOVAL AND REPLACEMENT OF THE BREWER MECHANISM**

**WARNING**

**SAFETY GLASSES SHOULD BE WORN WHEN THE BREWER COVER IS TO BE REMOVED. KEEP HANDS AWAY FROM THE MOVING PARTS DURING THE CYCLE. REPLACE THE COVER AFTER SERVICING.**

**A. To Remove the Brewer Mechanism:**

1. Remove the Brewer Mechanism Cover.
2. Remove the Brewer Barrel and Manifold Assembly.
3. Disconnect the tubes from the Brewer Funnel.
4. Lift upward on the Brewer Mechanism Latch Lever to release the Brewer Mechanism. See Figure 3-21.
5. Lift the front of the Brewer Mechanism and pull out to remove from the Merchandiser.

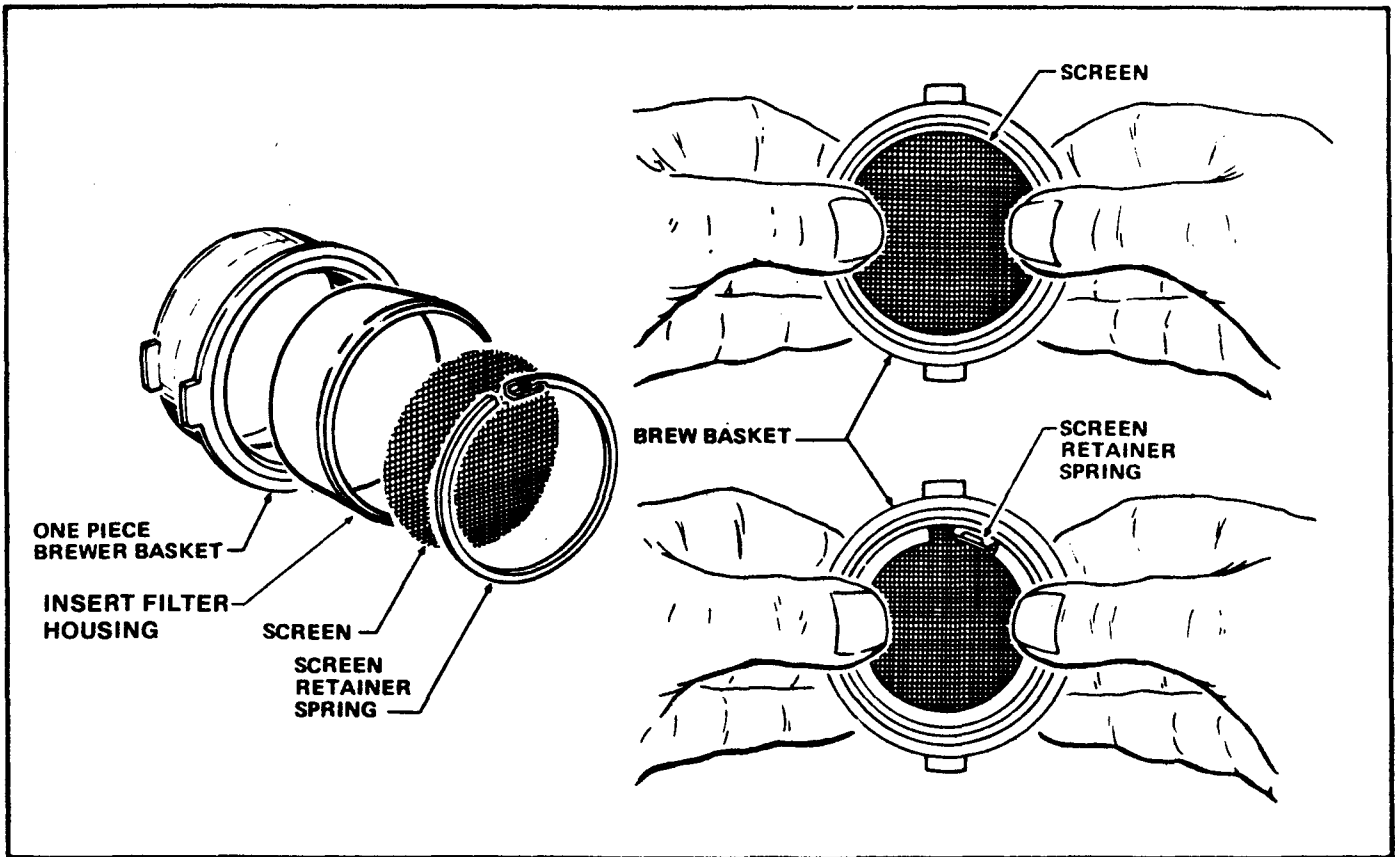


Figure 3-20. Removal and Replacement of the Brewer Basket Screen

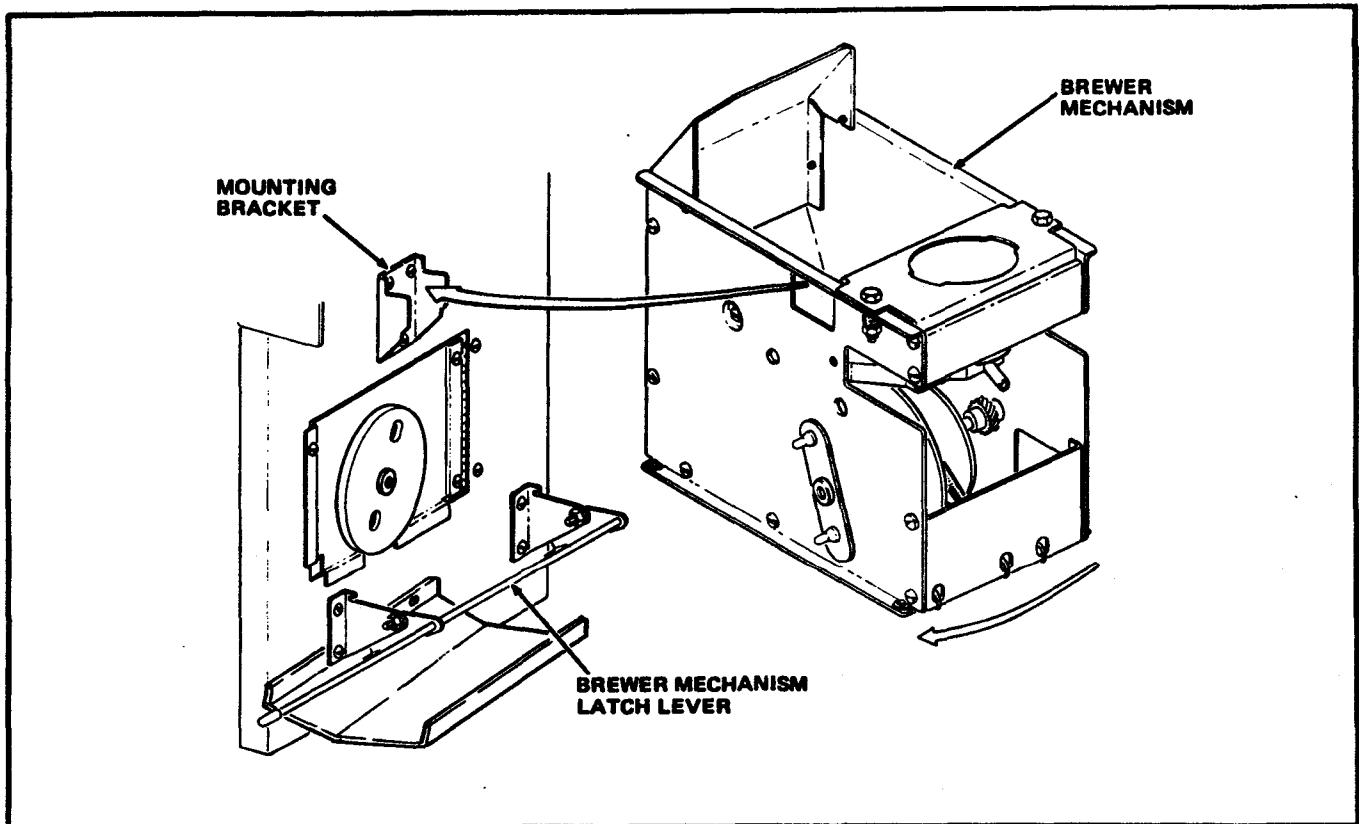


Figure 3-21. Brewer Mechanism Latch Lever

**B. To Replace the Brewer Mechanism.**

Reverse the removal procedure. When replacing the Brewer Mechanism be sure the pins at the rear line up with the slots in the plate. See Figure 3-22.

**XVIII. REMOVAL AND REPLACEMENT OF A CANISTER**

Any one or all of the canisters may be individually removed for cleaning or replacement.

**A. To remove a canister:**

Lift the front end of the canister and remove from the Merchandiser. See Figure 3-23.

**B. To replace a canister, reverse the removal procedure.**

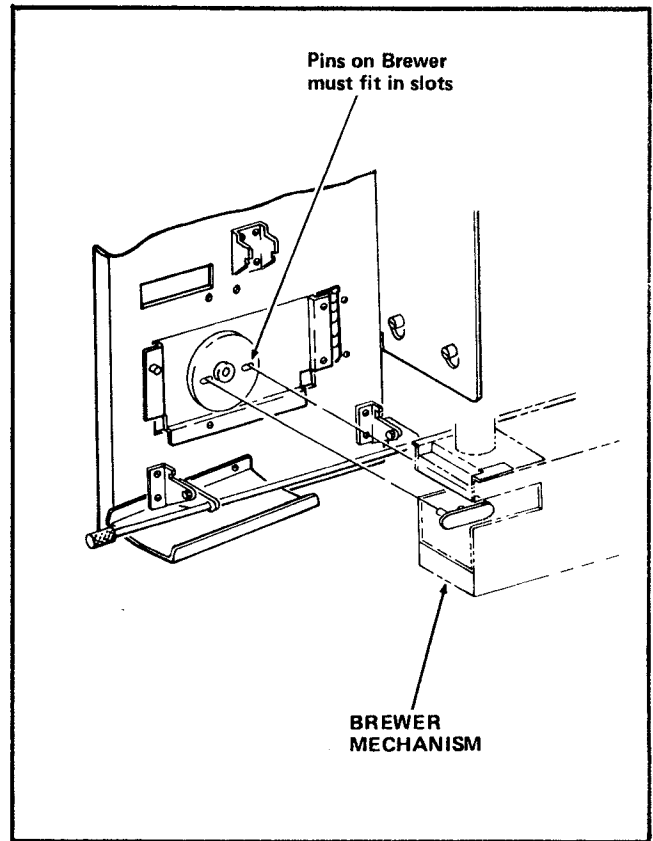


Figure 3-22. Replacement of the Brewer Mechanism

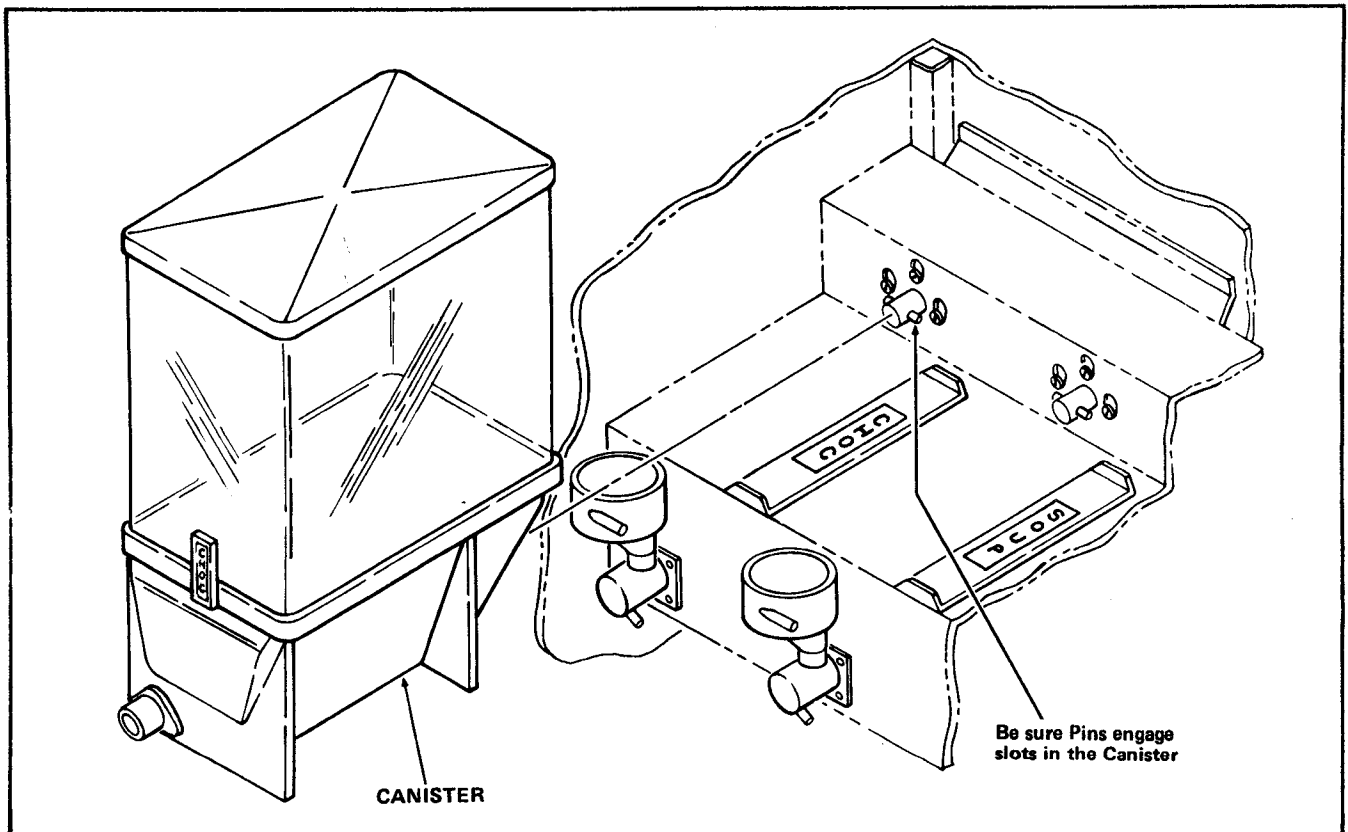


Figure 3-23. Removal and Replacement of Canister

## XIX. REMOVAL AND REPLACEMENT OF THE EXHAUST FILTER

### A. To remove Exhaust Filter.

1. Pull out the Exhaust Filter drawer. See Figure 3-24.
2. Remove the Exhaust Filter.

### B. To replace the Exhaust Filter reverse the removal procedures.

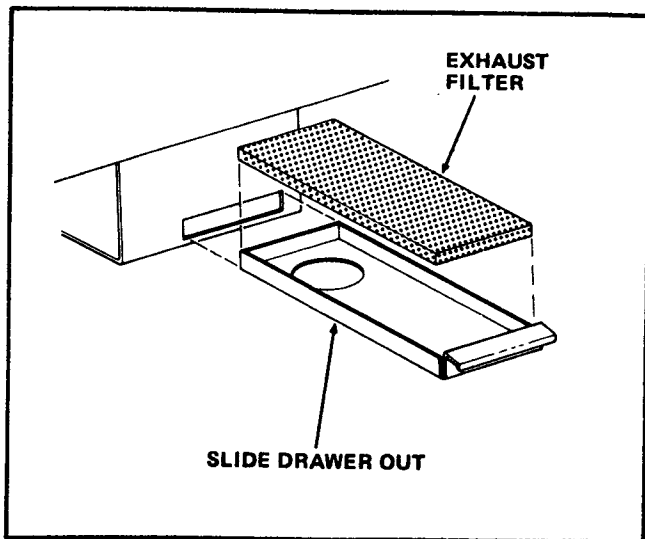


Figure 3-24. Exhaust Filter Removal

## XX. ADJUSTMENT OF THE WATER PUMP FLOW

- ### A. Measure the rate of water flow from the Pump. Refer to Section II for SERVICE, FLUSH CARB mode.

#### NOTE

*The Water Pump should require between 15 and 19 seconds to refill the Carbonator. If the refill time is incorrect, adjust the Water Pump flow as described below.*

- ### B. Remove the Water Bath Cover from the Water Bath.

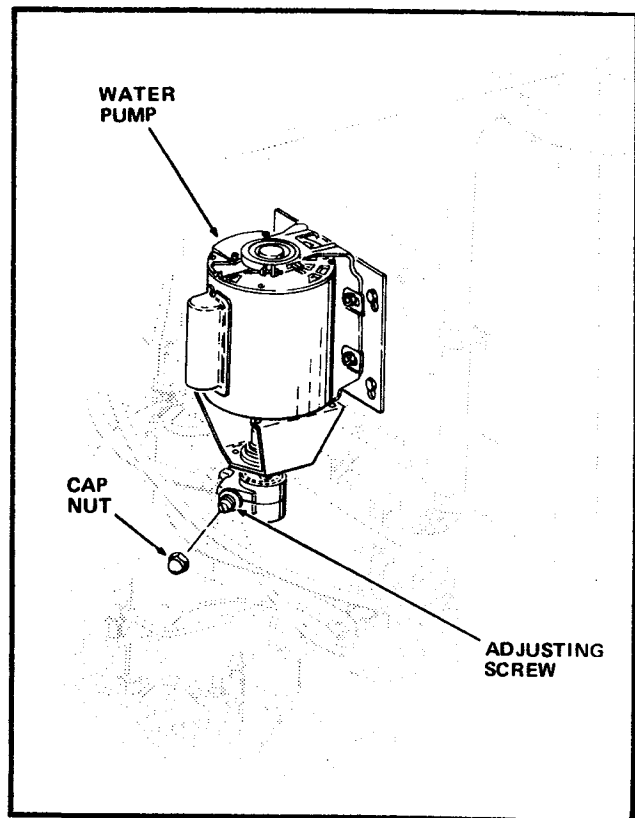


Figure 3-25. Water Pump Adjusting Screw

- ### C. Remove the Cap Nut from the base of the Water Pump Assembly to expose the Adjusting Screw. See Figure 3-25.
- ### D. Turn the Adjusting Screw - COUNTERCLOCKWISE to decrease the refill time (increase water pressure) or COUNTERCLOCKWISE to increase refill time (decrease water pressure).
- ### E. Repeat Step A to check the refill time.
- ### F. Repeat Steps D and E until the refill time falls within the 15-19 second range.
- ### G. Install the Cap Nut on the Water Pump Assembly.

#### NOTE

*The Water Pump will leak if the Cap nut is not reinstalled.*

## **XXI. INSTALLATION OF A LOCK CYLINDER**

The Merchandiser is shipped from the factory with a Lock Spring installed in the door. To install your permanent Lock Cylinder read the instructions detailed in Figure 3-26.

## **XXII. REMOVAL AND REPLACEMENT OF THE REFRIGERATION AIR INTAKE SCREEN**

### **A. To remove the Intake Screen:**

1. Remove the Waste Bucket.
2. Pull the Intake Screen out the front of the Refrigeration Compartment as shown in Figure 3-27.

### **B. To replace the Intake Screen reverse Step A.**

## **XXIII. REMOVAL AND REPLACEMENT OF THE CUP DELIVERY COMPARTMENT**

**A. To remove the Cup Delivery Compartment** unlatch and rotate the Cup Dispenser out of the cabinet and then simply lift the Cup Delivery Compartment off the Bracket Assembly.

**B. To replace the Cup Delivery Compartment,** lower the Cup Delivery Compartment onto the Bracket Assembly while aligning the pivot pins with holes.

## **XXIV. REMOVAL AND REPLACEMENT OF REFRIGERATION REAR SCREEN**

### **A. To remove the Rear Screen:**

Remove the screws holding the largest square screen outside and back of merchandiser. Then remove the screen.

**B. To replace screen,** reverse the removal procedure.

## **XXV. REMOVAL AND REPLACEMENT OF SYRUP IN THE MERCHANDISER**

Perform the following procedures to (1) change syrup flavors, (2) replace syrup tubes, or (3) when preparing the Merchandiser for shipping or storage.

### **A. To Remove the Syrup:**

1. Empty the Syrup Tank and sanitize according to the procedures in Section IV, SEMI-ANNUAL SANITATION.
2. Place the Waste Bucket under the Syrup Dispensing Spigots.
3. Connect the Syrup Dip Tube to the Flush Valve Drain Tube. See Figure 3-28.
4. Slowly open the Convenience Water Valve to flush the syrup out of the system.
5. When the Syrup System has been flushed, close the Convenience Water Valve.
6. Disconnect the Syrup Dip Tube from the Flush Valve Drain Tube and Syrup Pump Inlet.
7. Close the CO<sub>2</sub> Cylinder Valve.
8. Remove the CO<sub>2</sub> Hose from the Carbonator.
9. Hold the CO<sub>2</sub> Hose on the Syrup Pump Inlet and open the CO<sub>2</sub> Cylinder Valve to force the water out of the system.
10. When water stops flowing from the Syrup Dispensing Spigot, close the CO<sub>2</sub> Cylinder Valve.
11. Repeat steps 2 through 10 for each Syrup Pump and Syrup Tank.



These instructions apply to Merchandisers equipped with the Lift Handle Lock Lever and received without a Lock Cylinder installed. The \*Flex-ACE® Lock Cylinder, Part Number 9992-000, the National Lock Cylinder and the New Style Van Lock Cylinder may be used in the Lift Handle Lock Lever.

Before starting the actual installation of a Lock Cylinder, read these instructions through carefully. Follow instructions carefully when performing the installation.

A. To Install the Flex-ACE Lock or the new style Van Lock.

**CAUTION**

The Van Lock Kit, Part Number 311-2165, which contains a Van Lock Key, Part Number 311-2164 and a Van Lock Cylinder, Part Number 311-2163, are for use in the Lift Handle Lock Lever. Earlier styles of Van Lock Keys will not operate the Van Lock Cylinders for which they were designed if the Cylinders are installed in the Lift Handle Lock Lever.

1. Move the Lift Handle Lock Lever to the position shown in Figure A, open the Door and remove the Lock Spring.
2. Raise the Lift Handle Lock Lever and turn the Lock Cylinder so the Spring Loaded Lock Pin is on top. See Figure B. Press in on the Spring Loaded Lock Pin and insert the Lock Cylinder into the Lock Cylinder Hole of the Lift Handle Lock Lever.
3. Push the Lock Cylinder in and turn slightly with the key if necessary until the Spring Loaded Lock Pin snaps up through the square hole in the top of the Lift Handle Lock Lever. See Figure C.

**CAUTION**

Test the Lock release and latching operation thoroughly BEFORE closing the Door.

4. Close and lock the Cabinet Door.

B. To Install a National Lock.

1. Move the Lift Handle Lock Lever to the position shown in Figure A, open the Door, and remove the Lock Spring.
2. Raise the Lift Handle Lock Lever and turn the Lock Cylinder so the Spring Loaded Lock Pin is on the bottom. See Figure D. Press in on the Spring Loaded Lock Pin and insert the Lock Cylinder into the Lock Cylinder Hole of the Lift Handle Lock Lever.
3. Push the Lock Cylinder in and turn slightly with the Key if necessary until the Spring Loaded Lock Pin snaps through the groove in the bottom rear side of the Lock Cylinder Hole. See Figure E.

**CAUTION**

Test the Lock release and latching operation thoroughly BEFORE closing the Door.

4. Close and Lock the Cabinet Door.

\*Flex-ACE is the Registered Trade Mark of the Chicago Lock Co.

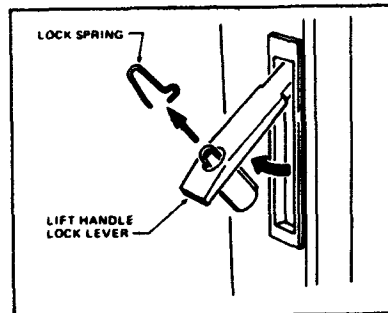


FIGURE A

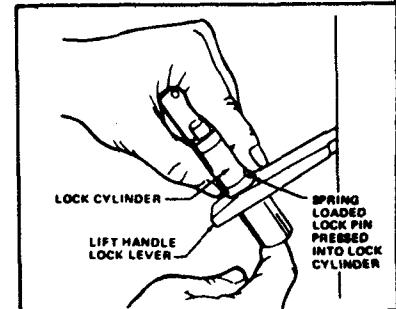


FIGURE B

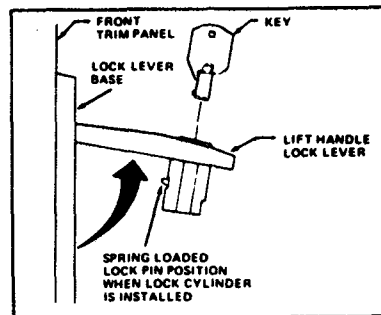


FIGURE C

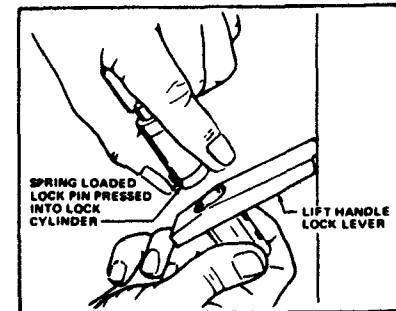


FIGURE D

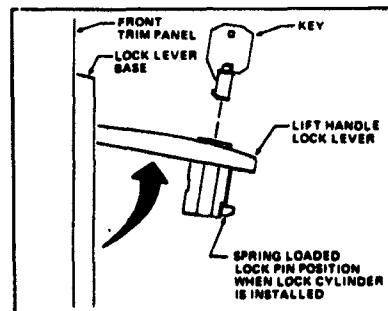


FIGURE E

Figure 3-26. Installation of a Lock Cylinder in a Lift Handle Lock

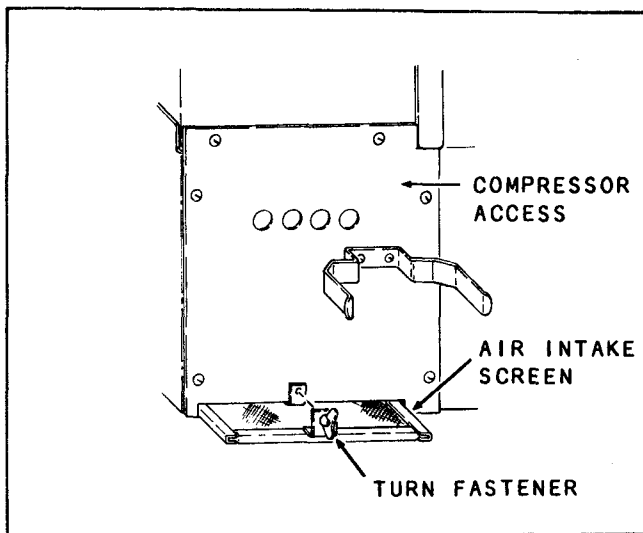


Figure 3-27. Air Intake Screen

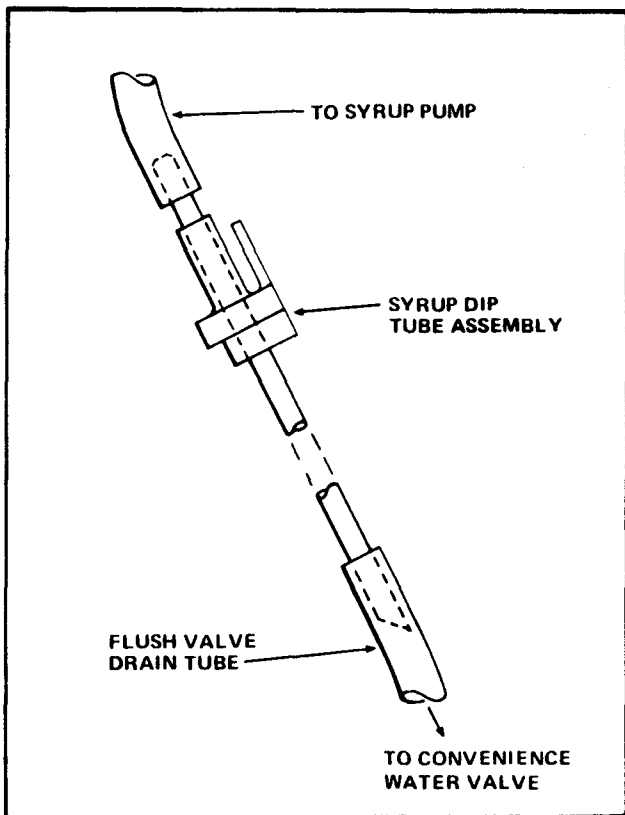


Figure 3-28. Connection of the Syrup Dip Tube to the Flush Valve Drain Tube

12. Connect the CO<sub>2</sub> Hose to the Carbonator and open the CO<sub>2</sub> Cylinder Valve.

The Merchandiser is empty of Syrup. If the Merchandiser is being prepared for storage or shipping, see paragraph XXVIII in this Section for removal of water.

## B. To Replace th Syrup.

1. Inspect all plastic tubing in the Merchandiser. National Vendors suggest replacing all tubing at least once a year.
2. Follow the procedures in Section II to replace the syrup and prepare the Merchandiser for vending.

## XXVI. REMOVAL AND REPLACEMENT OF THE WATER FEEDER CUPS

### A. To Remove the Cold Water Feeder Cup:

1. Move the Door Switch to the OFF position.
2. Close the water valve at the Water Filter Head or at the water supply to the merchandiser.

#### NOTE

*The clear plastic tubing attached to the bottom of the Water Feeder Cup serves as a sight glass and indicates when the water level drops below the Water Feeder Cup.*

3. Loosen hose clamp and remove tube to catch water from Wter Feeder Cup. Drain Water Feeder Cup into container.
4. Loosen the hose clamp and remove the tube from the Water Feeder Cup Cover.
5. Tag and disconnect the connectors of the Water Feeder Cup Harness from the receptacles on the Water Feeder Cup Cover.
6. Remove the Cover from the Water Feeder Cup.
7. Loosen the Round Head Screw on the left mounting bracket of the Water Feeder Cup.

8. Lift the Water Feeder Cup off the attaching screws.
9. Loosen the three hose clamps and remove each tube from the Water Feeder Cup.

**B. To Replace the Water Feeder Cup:**

1. Attach the plastic tubes removed in above steps to the Water Feeder Cup. Be sure the hose clamps are tight.
2. Seat the Water Feeder Cup on the attaching screws.
3. Tighten the Round Head Self Tapping Screw on the left mounting bracket of the Water Feeder Cup.
4. Replace the Water Feeder Cup Cover on the Water Feeder Cup and lock in place.
5. Attach the tubes removed in above step to the Water Feeder Cup Cover. Be sure the hose clamp is tight.
6. Identify the tagged connectors of the Water Feeder Cup Harness and connect them to the two switch receptacles on the Water Feeder Cup Cover. If the front light does not light when the power is turned back on, then these connectors have been reversed.
7. Move the Door Switch to ON position, and open the Water Valve.
8. Press the TEST VEND Switch. The Water Feeder Cup will fill with water.

- C. To remove and replace the other Water Feeder Cup, follow the same procedure except with the Door Switch off drain water through the Water Feeder Cup, the Hot Water Tank, and the Spray Hose.**

**XXVII. REMOVAL AND REPLACEMENT OF THE WATER FILTER CARTRIDGE**

For removal and replacement, follow the Instructions included with the Water Filter Cartridge.

**NOTE**

*The Merchandiser cannot be operated without the Water Filter Cartridge properly installed.*

**XXVIII. REMOVAL AND REPLACEMENT OF THE WATER IN THE MERCHANDISER**

**CAUTION**

**Drain the Water Bath, Carbonator, Water Cooling Coil, Water Feeder Cups, Water Filter, Water Pump, Hot Water Tank and the entire Merchandiser of ALL water, anytime there is a danger of freezing or a prolonged power failure period, and during shipment and storage.**

**A. To Remove the Water:**

1. Move the Door Switch to the OFF position.
2. Empty the Waste Bucket and place it in the Merchandiser. Be sure all drain tubes are directed into the Waste Bucket.
3. Loosen the screw on the left side of the Water Bath and remove the Water Bath Cover.
4. Unclip the Water Bath Drain Tube and drain half the water from the Water Bath. Replace the Drain Tube.
5. Direct the drain tube into the Waste Bucket.
6. Move the Door Switch to the ON position.

7. Press the SERVICE switch. Press the # switch to advance to PURGE CARB mode. Press the \* switch.
  8. The Carbonator will be drained of water.
  9. When water stops flowing from the Water dispensing Spigot and CO<sub>2</sub> gas can be heard escaping from the Dispensing Spigot, move the Door Switch to the OFF position.
  10. Close the water valve at the water supply to the Merchandiser.
  11. Disconnect the tube at the Feeder Cup and Water Pump Intake Connector. See Figure 2-5. Drain the water from this connector into the Water Bath. Do not reconnect the tube at this time.
  12. Drain the Water Bath.
    - a. Empty the Waste Bucket and place in front of the Merchandiser.
    - b. Unclip the Water Bath Drain Tube and place the tube in the Waste Bucket. Hot water may be sprayed from Hot Water Tank or poured into the Water Bath to melt any remaining ice in the Water Bath.
    - c. After the Water Bath is empty, replace the Water Bath Drain Tube.
  13. Remove the Water Filter Cartridge and drain the water in the tube attached to the Water Filter Head. See paragraph, Removal and Replacement of Water Filter Cartridge, this Section.
  14. Drain the hot Water Tank by turning the pet-cock valve on the bottom of the Tank and directing the hot water into the waste bucket. See Warning for Removal and Replacement of the Water Tank Heater.
  15. The Merchandiser is empty of water. If the Merchandiser is being prepared for storage or shipping, see Section III for Removal and Replacement of Syrup in the Merchandiser.
- B. To Replace the Water.
1. Reconnect all the plastic tubing in the Merchandiser. See Figure 2-5 for routing. National Vendors suggests replacing all plastic tubing at least once a year.
  2. Follow the procedures in Section II to replace the water and prepare the Merchandiser for vending.
- XXIX. REMOVAL AND REPLACEMENT OF THE WATER NOZZLE**
- A. To remove the Water Nozzle.
1. Pull the Clip from the Capillary Tube and Nozzle.
  2. Pull the Capillary Tube off the Nozzle.
  3. Pull the plastic Non-Carb Tube off the Nozzle.
  4. Remove two attaching Screws and the Clamp from the Holder Assembly.
  5. Pull the Water Nozzle out of the holder Assembly.
- B. To replace the Water Nozzle reverse Step A.

### XXX. REMOVAL AND REPLACEMENT OF THE WATER TANK HEATER

#### A. To Remove the Water Tank Heater:

1. Move the Door Switch to the "OFF" position.

#### WARNING

**The Water Tank can be very Hot. The water temperature may be between 195-205 degrees F (90-96 degrees C). Use care.**

2. Drain the Heater Tank. See paragraph, Removal and Replacement of Water.
3. Remove the Heater Terminal Cover.
4. Remove the wires from the Heater Terminals.
5. Remove the six nuts which attach the heater to the Water Tank and remove the heater.

#### B. To Replace the Water Tank Heater, reverse the removal procedure.

### XXXI. REMOVAL AND REPLACEMENT OF THE WATER VALVES

#### WARNING

**The Water Valves and Water Tank can be very HOT. The water temperature maybe between 195-205 degrees F (90-96 degrees C). Use care.**

#### A. To remove a Water Valve, see Figure 3-29 and 2-3.

1. Move the Door Switch to the OFF position.
2. Open the Water Valves Access Door.
3. Disconnect the wire terminals from the Water Valve to be removed.

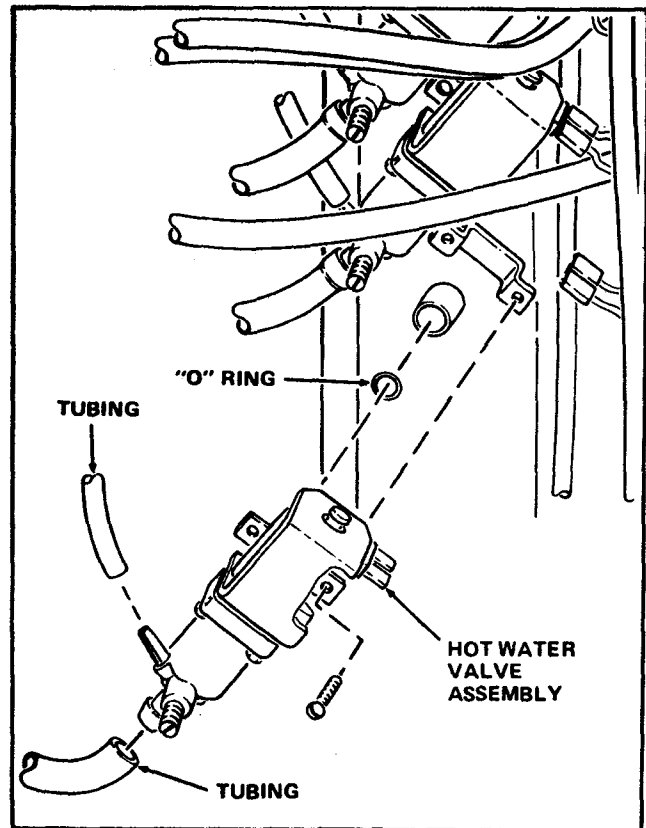


Figure 3-29. Removal of Hot Water Valves

4. Drain the water below the water valves using the spray hose.

#### NOTE

*When the water no longer comes out of the hose the water will be below the water valves.*

5. Disconnect the tubes from the Water Valve.
6. Remove the screw which attaches the Water Valve and remove the Water Valve.

#### B. To replace the Water Valves, reverse the appropriate removal procedures.

#### NOTE

*Inspect the O-Ring on the Water Valve. If damaged or cracked, replace with a new O-Ring.*

## XXXII. REMOVAL AND REPLACEMENT OF THE VENT SCREENS

### A. To remove the Exhaust Fan Screen:

Loosen the Wing Nut behind the Exhaust Fan Assembly and slide the Exhaust Fan Screen down and remove from Cabinet. See Figure 3-30.

### B. To remove the Cabinet Vent Screen.

Remove the screws holding the vertical rectangular screen outside and back of merchandiser. Then remove screen.

### C. To replace the screens, reverse the removal procedures.

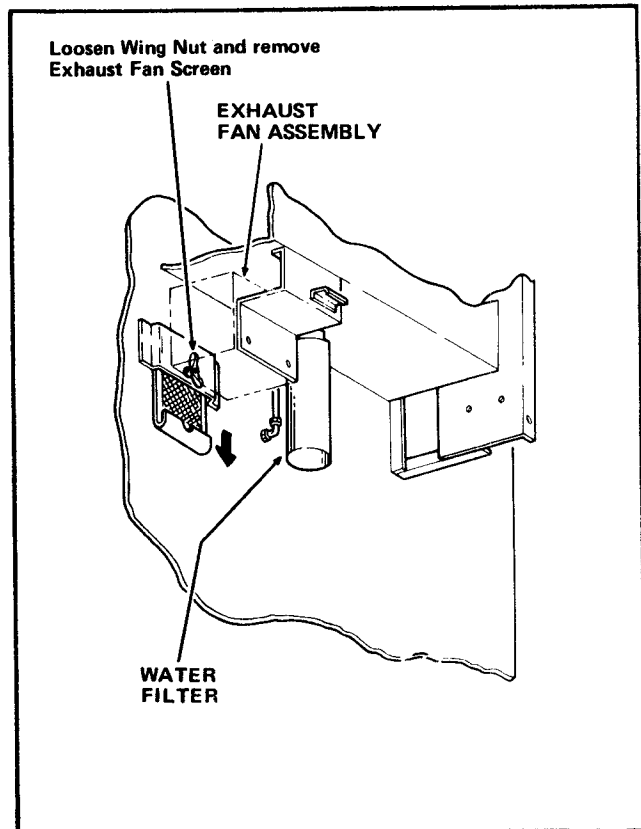


Figure 3-30. Removal of the Exhaust Vent Screen



## SECTION IV

### ROUTINE SERVICE AND SANITATION

Sanitation is an important phase of Merchandiser operation. The lack of proper service and sanitation can cause Merchandiser malfunction and loss of sales.

The periods and suggested procedures for Service and Sanitation are daily, weekly, monthly, quarterly, and semi-annually. These periods and procedures are given as guides only and are not to be construed as absolute or invariable. Local conditions must always be considered. Certain installations require that some or all of the steps under Monthly Service and Sanitation be performed weekly, etc. Each Merchandiser must be maintained individually in accord with its particular requirements. National Vendors, however, stresses: **A CLEAN MERCHANDISER IS THE MOST PROFITABLE MERCHANDISER.**

#### WARNING

1. **Unplug the Merchandiser Service Cord before using water on the merchandiser. Do not get any of the electrical components damp or wet.**

#### NOTE

1. *Contact the Local Health Authorities and obtain their acceptance of the sanitizer you intend to use when cleaning and sanitizing the Merchandiser.*
2. *When cleaning and sanitizing the Merchandiser, use CLEAN, DISPOSABLE, PAPER WIPERS rather than cloths.*
3. *The Water Spray Hose is the source of clean, hot water use when cleaning and sanitizing the Merchandiser.*
4. *Clean the screen in the Spray Hose approximately once a month to remove any lime deposits.*

5. *The Water Filter Cartridge is effective for a maximum of 25,000 vends. Local water conditions may require more frequent cartridge replacement.*

#### I. DAILY SERVICE

- A. Replace burned-out or discolored bulbs.
- B. Refill the empty Cup Turret Tubes.
- C. Check the level of the ingredients in the Round Hopper and add ingredients if necessary. Be careful, do not spill ingredients outside of the hopper.
- D. Check the contents level of the lightener, Sugar, Milk, Chocolate, Soup, and F.D. Coffee, Canisters. Fill if necessary. If there is accumulation of sugar and lightener, the air pressure or water velocity in the Mixing Bowl must be adjusted. See Section III for adjustment procedure.
- E. Check all Syrup Tanks to determine if syrup refilling is required. Do not fill the Syrup Tanks above a point one inch below the tank brim. Be sure the Syrup Dip Tube extends to the bottom of the tank. The Syrup Pump cannot deliver syrup if the Syrup Dip Tube is not below the level of syrup in the tank.
- F. Check the CO<sub>2</sub> High Pressure Gauge. If the indicator moves into the red area on the gauge, change the cylinder. The volume of gas remaining in the cylinder, when the indicator is in the red area, probably will not be sufficient to last for the rest of the day. If the daily service schedule is not maintained, the



cylinder should be changed when the indicator is close to the red area.

- G. Replenish coin tubes in the Coin Mechanism.
- H. Check Water Filter Cartridge vend record. If the cartridge needs changing, replace it. See Note 5.
- I. Check temperature of the water in the Water Tank, be sure the temperature is approximately 200 degrees F. (93.3 degrees Celsius).
- J. Empty the Waste Bucket and Grounds Bucket.
- K. Test vend the merchandiser. See SECTION II, TEST VEND mode.

## II. DAILY SANITATION

- A. Remove the Cup Delivery Compartment.
- B. Wash and sanitize the Cup Delivery Compartment and Waste Bucket with a chlorinate detergent or equivalent chemical. Use a clean, damp, disposable paper wiper. Contact your Local Health Authorizes and obtain their approval of the sanitizer you use. Rinse with clean, hot, flowing water and dry thoroughly.
- C. Wash the Cabinet Door, inside and out, with a clean, damp, disposable paper wiper. Dry thoroughly.
- D. Wipe the top of the Water Bath Cover, Tubes, and Base of the Merchandiser, with a clean, damp, disposable paper wiper. Dry thoroughly.
- E. Clean the Dry Ingredients Canisters and Hopper with a soft dry brush. DO NOT use a damp wiper on these units or get them wet.

F. See Section II, Service modes (BOWL RINSE 1, BOWL RINSE AND BREW RINSE) to flush the Mixing Bowls. DO NOT wet the Canister Exit Tubes.

- G. Clean the Dry Ingredients Shelf with a clean, damp, disposable paper wiper. Dry thoroughly.
- H. Empty Waste Bucket and Grounds Bucket.
- I. Install the Cup Delivery Compartment.
- J. Sprinkle half a handful of detergent powder in the Waste Bucket. This will help prevent odors which may emanate from the bucket.
- K. Rinse and reline Grounds Pail with a clean polyethylene bag.
- L. Place the Overflow Switch Float in the Waste Bucket. Make certain all drain tubes are held by the Tube Retainer directly above the Waste Bucket.

## III. WEEKLY SERVICE

- A. Follow the Daily Service Instructions.
- B. Inspect the Vapor Exhaust Filter. Clean and replace before it becomes clogged.
- C. Inspect the Coin Mechanism Slug Rejector and clean if necessary.
- D. Brush the Vent Screens (inside and back of merchandiser).
- E. Invert the Dry Ingredients Canisters to air-fluff and prevent the packing of the powers.
- F. Inspect the Refrigeration Compartment Air Intake Screen. Brush the screen to remove any accumulated dust. See Figure 3-27.

#### IV. WEEKLY SANITATION

- A. Follow the Daily Sanitation Instructions.
- B. Sanitize the Dispensing Spigots.
  1. Disconnect all the plastic tubes from the Syrup and Water Dispensing Spigots.
  2. Dip the Tube Cleaner Brush, shipped with the Merchandiser, in a sanitizing solution and thoroughly brush the Dispensing Spigots.
  3. Rinse the Tube Cleaner Brush thoroughly with clean, hot water and brush the Dispensing Spigots thoroughly between each rinse.
  4. Wash and sanitize the outside of the spigots and bracket with a chlorinated detergent or equivalent chemical approved by the local health authorities. Use a clean, damp, disposable paper wiper. Rinse with clean, hot, flowing water and dry thoroughly.
  5. Reconnect the plastic tubes to the Syrup and Water Dispensing Spigots.
  6. Test vend the Merchandiser to rinse the spigots of any sanitizer. See Section II, TEST VEND mode to test vend.
- C. Inspect the Merchandiser for overall cleanliness, especially the corners.
- D. Remove the Cup Dispenser Turret and Cup Dispenser Mechanism. Clean thoroughly with a clean, damp, disposable paper wiper. Dry thoroughly.
- E. Replace the Cup Dispenser Mechanism and the Turret.
- F. Remove and sanitize the Mixing Bowls.
- G. Remove and sanitize the Chocolate and Soup Blenders.
- H. Remove and sanitize the Beverage Discharge Nozzles.
- I. Sanitize the Brewing System as follows:
  1. Be sure the Waste Pail is in position.
  2. Place a pinch of urn cleaner in the Brewer Basket. Only a small amount is needed.
  3. To perform brew rinse see SECTION II, SERVICE, BREW RINSE mode.
  4. Allow the Brewer Mechanism to complete its cycle.
  5. Repeat step 2 through 4 for another cleaning cycle.
  6. Remove the Brewer Basket, Brewer Barrel, and Brewer Funnel from the Brewer Cleaning System.
  7. Inspect the Brewer Basket Screen, the Brewer Barrel Screen, and the Filter Support Screen. If these screens are not completely clean, prepare a solution of urn cleaner in a container and agitate the screens in the solution and brush both sides of all of the screens with a soft bristle brush until clean. Rinse the screens thoroughly in clean, hot water. See Section III, Removal and Replacement of the Brewer Barrel and Manifold Assembly, Brew Basket, and Brewer Funnel.

### NOTE

A preferred alternate to step 9 is to replace the Brewer Basket Screen or the entire Brewer Basket Assembly, Brewer Barrel and Brewer Coffee Funnel with parts that have been shop sanitized. A spare 40 mesh Brewer Screen Assembly is supplied with the Merchandiser. If this method is used, National Vendors suggests that a spare Brewer Barrel, and Brewer Coffee Funnel also be obtained.

8. Replace the Brewer Basket, Brewer Barrel, and Brewer Funnel.
- K. Use a soft brush to clean the Brewer Mechanism of loose grounds.
- L. Remove the Cup Turret and clean the top of the Cup Mechanism with a damp wiper. Dry thoroughly.
- M. Inspect the Merchandiser for overall cleanliness, especially the corners.

### V. MONTHLY SERVICE

- A. Follow the Weekly Service Instructions.
- B. Clean the Coin Chute and Slug Rejector. See the procedures for Cleaning the Slug Rejector and Coin Chute in this section.
- C. Remove the Brewer Basket, Brewer Barrel, and Brewer Funnel.
  1. Check the parts for worn Brewer and Brewer Funnel seals. If a seal has lost its resiliency or if a cut is visible in the seal a leak may develop. Replace the defective seal.

### NOTE

A leak is the visible discharge of either steam or water, forced out between the Brewer Barrel and the Brewer Basket, or the Brewer Basket and Brewer Funnel.

2. Check the Brewer Basket Assembly for a clogged or broken screen. Replace the screen if necessary.

- D. Replace the Brewer Barrel, Brewer Basket and Brewer Funnel.
- E. Remove the Brew Water Valve Outlet and Seat Assembly. Inspect the Valve Seat for a worn or damaged seal. Replace the seal if necessary.
- F. Remove the Cabinet Vent Fan Filter. Clean the fan with a dry cloth, wash with a warm detergent solution, rinse and dry. Clean the screen thoroughly and reassemble. See Section III, Removal and Replacement of the Vent Screens.
- G. Clean the screen in the Spray Hose to remove any accumulated lime deposits.

### VI. MONTHLY SANITATION

- A. Follow the Weekly Sanitation Instructions for Merchandisers.
- B. Drain and refill the Water Bath.
- C. Move the Door Switch to the OFF position.
- D. Remove the Water Feeder Cup Cover.
- E. Remove the Water Feeder Cup. See Section III, REMOVAL AND REPLACEMENT OF THE WATER FEEDER CUPS.
- F. Wash and sanitize the Water Feeder Cup with a clean, damp, disposable PAPER WIPER. Rinse the cup with lean, hot, flowing water and dry thoroughly.

G. Replace the Water Feeder Cup and cover. Be sure the cover is properly installed and locked in place.

H. Move the Door Switch to the ON position.

I. The Water Feeder Cup will fill with water.

## VII. QUARTERLY SERVICE

A. Follow the Monthly Service Instructions.

B. Check the in-cup water volume for coffee, chocolate, soup, tea, and decaf.

C. Check the Round Hopper grounds throws.

D. Check the sugar, lightener, milk, chocolate, coffee, F.D. coffee, soup, and tea powder throw.

## VIII. QUARTERLY SANITATION

A. Follow the Quarterly Sanitation Instructions for Merchandisers.

B. Empty the Chocolate, Sugar, Milk Lightener, F.D. Coffee, and Soup Canisters. Wash and sanitize the canisters. Rinse with clean, hot water and dry thoroughly before replacing and refilling.

C. Remove and clean the Brewer Mechanism. The Brewer Mechanism can be cleaned with detergent and hot water, but it has to be completely dry before it is replaced in the Merchandiser.

## IX. SEMI-ANNUAL SERVICE

A. Follow the Quarterly Service Instructions.

B. Inspect the Merchandiser for worn parts and replace where necessary.

C. Inspect the springs. Replace any springs that are over stretched.

D. Lubricate all moving parts that do not come in contact with coffee grounds or drying ingredients.

### CAUTION

**Do not use Silicone lubricants. Silicone can cause electrical contact failures.**

E. Inspect the Hot Water Tank for liming. If the tank shows evidence of liming, de-lime following the instructions given on the deliming product. Rinse the tank thoroughly before refilling.

## X. SEMI-ANNUAL SANITATION

A. Follow the Quarterly Service Instructions.

B. Empty the Round Hopper and thoroughly clean with a soft brush.

C. Inspect the plastic Tubing. Replace the tubing if necessary.

D. To sanitize the Syrup System:

1. Empty the Syrup Tanks and add approximately one quart of sanitizing solution to each Tank.

2. Pump the sanitizing solution through each Syrup Pump and the Syrup Lines by moving the Syrup Pump Priming Switch to the ON position. After the Syrup System has been sanitized, pump clean, clear water through each System.

3. Fill each Syrup Tank with the desired syrup flavor.

4. Place a clean, empty cup under the Syrup Dispensing Spigot.

5. See Section II, Priming the Syrup System to fill the syrup lines.
- E. Cleanse the Cold Water System as follows:
1. Move the Door Switch to the OFF position.
  2. Empty the Waste Bucket and place it in the Merchandiser. Make certain all drain tubes are directed into the Waste Bucket.
  3. Loosen hose clamp and remove tube to catch water from Water Feeder Cup.
  4. Reconnect the tube and clamp to the Water Feeder Cup and pour a quart solution of citric acid into the Water Feeder Cup. This solution consists of 1 oz. of citric acid crystals to each quarter of water, (29 grams per Liter).
  5. Move the door switch to the ON position. Advance to the PURGE CARB mode. Press \* switch. See Section II, PROGRAM OPERATION, SERVICE, PURGE CARB mode.
  6. When water stops flowing from the Water dispensing Spigot and CO<sub>2</sub> gas can be heard escaping from the Dispensing Spigot, the Carbonator is drained of water.
  7. Press # Switch to advance to next mode. The Water Pump will operate and the Citric Acid solution will be drained from the Water Feeder Cup into the Carbonator. The Feeder Cup is now filled with fresh water. The Carbonator is filled with the Acetic Acid Solution.

8. Press # switch to advance again to PURGE CARB mode. Press \* switch.
9. When water stops flowing from the Water dispensing Spigot and CO<sub>2</sub> gas can be heard escaping from the Dispensing Spigot, press # switch. The Water Pump operates. The Water Feeder Cup; Precooling Coil and carbonator have fresh water.
10. Return to standby mode by pressing the FREE VEND switch twice.

#### NOTE

*Citric acid in crystal form can be obtained from drug stores. This acid is a refreshing agent and is not harmful. It is used in a mild solution in all fruit flavored syrups. Using it in the stronger solution mentioned, will cleanse all surfaces it comes in contact with and will leave no bad after taste.*

#### XI. ANNUAL SERVICE

Follow the Semi-Annual Service Instructions.

#### XII. ANNUAL SANITATION

Follow the Semi-Annual Sanitation Instructions.

#### XIII. CLEANING THE COIN CHUTE AND SLUG REJECTOR

The Coin Chute and Slug Rejector should be inspected at regular intervals and cleaned on approximately a monthly schedule.

- A. Remove the Slug Rejector from the Merchandiser.
- B. Clean the Coin Chute with a soft bristle brush to remove any accumulated dust and foreign matter.
- C. Clean the Slug Rejector thoroughly or replace the Slug Rejector with a clean unit from the shop.

## SECTION V CIRCUITRY

This Section is supplied as an aid in understanding the Electrical Circuitry of the Merchandiser.

### WARNING

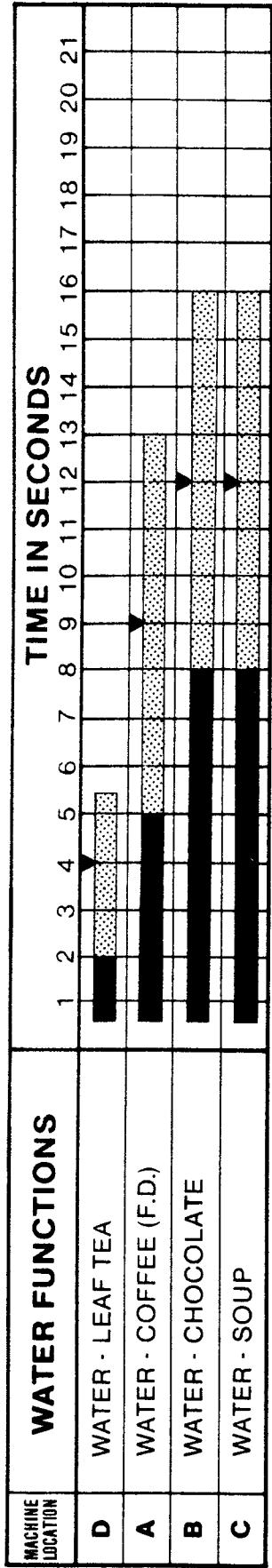
**To avoid shock hazard when making a continuity check of the Merchandiser:**

- a. **Unplug the Merchandiser Cord.**
- b. **DO NOT use an incandescent lamp or jumper wire, make all tests with a volt-ohmmeter.**

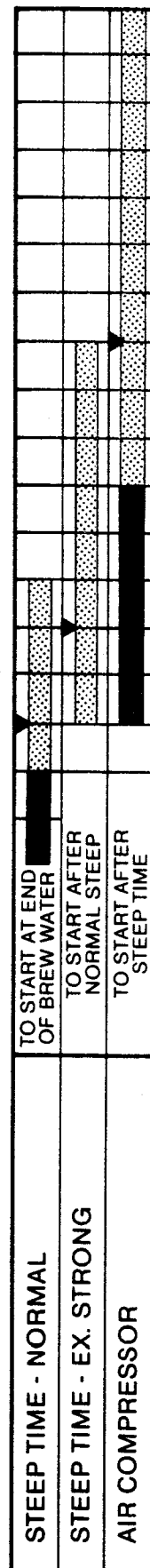
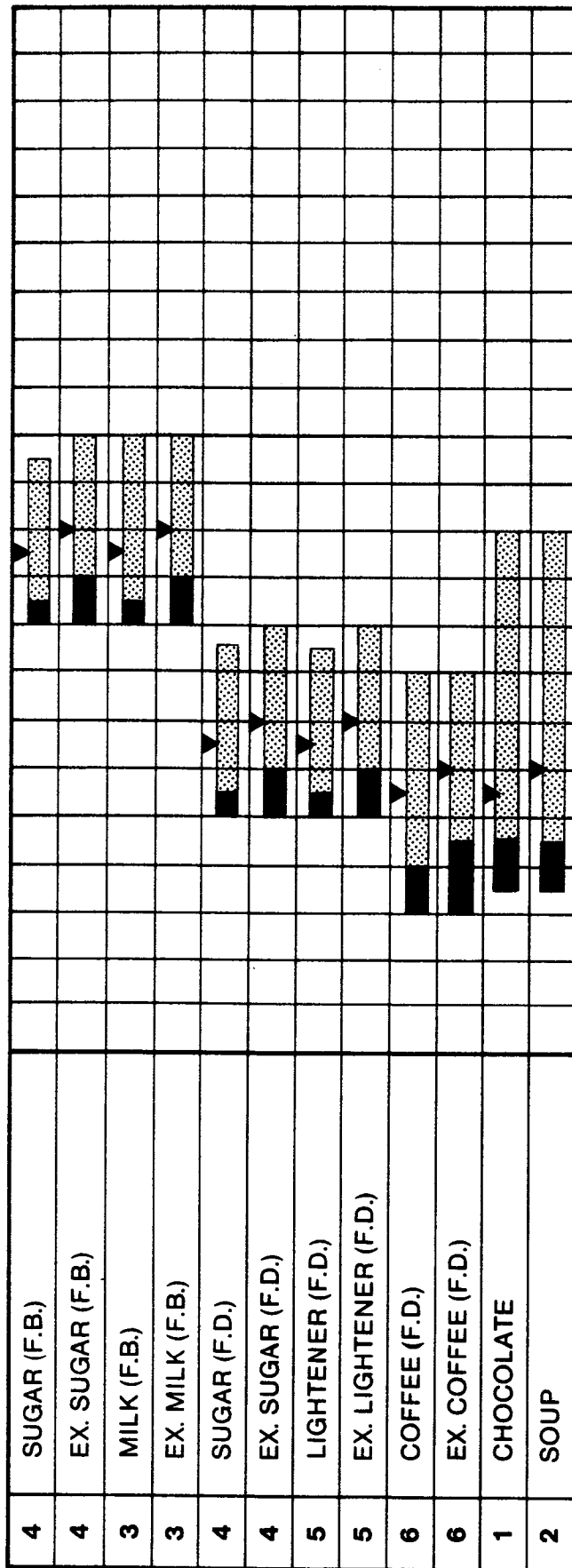
The abbreviated color code used in the diagrams is shown in the following list. When two colors are shown, the first color is the solid color of the wire and the second color is the color

of the strip (e.g. Blk-Wht is a black wire with a white stripe). A Color with a number indicates that a number is printed on the wire (e.g. Blk 15 is a black wire with the number 15 printed on the wire).

Abbreviation		Color
BLK	-	Black
BLU	-	Blue
BRN	-	Brown
GRN	-	Green
GY	-	Gray
ORN	-	Orange
PINK	-	Pink
PR	-	Purple
RED	-	Red
TAN	-	Tan
WHT	-	White
YEL	-	Yellow



**INGREDIENT FUNCTIONS**



**LEGEND:** ■ FIXED TIMING    ▨ VARIABLE TIMING    ▼ MEAN TIMING (7 OZ. CUP)

Figure 5-1. Timing Chart F.B. Leaf Tea





