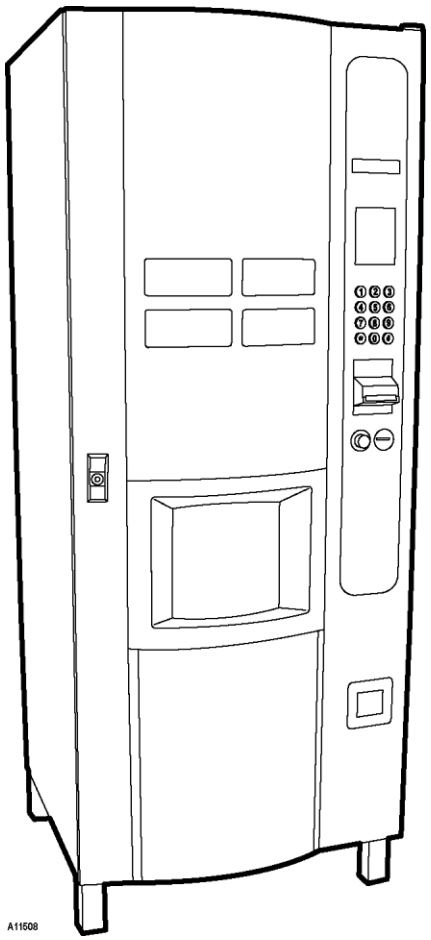
Number One In Quality

HOT BEVERAGE MERCHANDISER



MODEL
3205 FRESH BREW
3206 FREEZE DRY

SERVICE MANUAL

(Factory Trained Tech)

MAR 2006 **Technician**

TABLE OF CONTENTS

The Model and Serial numbers are needed for you to obtain quick service and parts information for your machine. The numbers are listed on the identification plate located on the back side of the cabinet of the machine.

MODEL NUMBER: _____

SERIAL NUMBER: _____

INTRODUCTION

1. The information contained in this service manual is applicable to the Hot Beverage Merchandiser. The Hot Beverage Merchandiser line consists of two types of coin-operated, microprocessor controlled, Hot Beverage Merchandisers that dispense a range of hot beverages in response to keypad selections.
2. Two versions of each model are available:
   - Freeze-dried (INST) - Freeze-dried Coffee and Tea
   - Fresh Brew (SFB) - Fresh Brew Coffee
3. This manual uses the SFB version as the basis for examples. Where significant differences between versions exist this will be highlighted in the main body of the document. Due to customer requirements, however, some features may vary from those described, i.e. extras fitted, variations in programming etc.
4. Cups from a cup drop mechanism are dispensed to contain the beverages.
5. Selections are made on a 12 button keypad and an LCD display panel indicates status and drink selection information.
6. The status of the machine may be monitored and the configuration altered by accessing a menu of program options using both internal and external keypads. A number of sub-options are included under each option, the settings of which can be altered.
7. A feature of the Hot Beverage Merchandiser is the mobile dispense head which moves to a parked position away from the cup port after each beverage is vended, preventing the possibility of any residue from the previous delivery cycle dripping into the next one.
8. Hot Beverage Merchandiser machines require a single-phase 120V electrical supply from a 12A outlet, and a cold water supply. These services connect to the machine through the rear of the cabinet.
9. Maintenance of the coffee machine must be undertaken only by ***personnel who are authorized and suitably qualified.***
10. The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. The manufacturer reserves the right to modify the designs or specifications of such products at any time without notice.

SPECIFICATIONS

DIMENSIONS

HEIGHT: 72 inches (1830 mm)

DEPTH: 26.8 inches (680 mm)

WIDTH: 27.6 inches (700 mm)

SHIPPING WEIGHT

360 lbs (163 kg) – Fresh Brew version

ELECTRICAL

120 Volts, 60 Hz, 9.2 Amps nominal

240 Volts, 50 Hz, 13 Amps

CUP CAPACITY

QUANTITY: Up to 400 (12 oz) cups

SIZES: 2.8" and 2.9" diameter (70 and 73 mm diameter)

OPERATING ENVIRONMENT

LOCATION: ***For indoor use only.***

SOUND LEVEL: Produces less than 70dBA during normal operation

TEMPERATURE: Between 32°F/0°C and 100°F/37.8°C

SAFETY WARNINGS

- **DISCONNECT / UNPLUG POWER TO THE MACHINE BEFORE SERVICING**. Lethal voltages are exposed when any panel inside the cabinet is removed if power is supplied to the on/off switch.
- Installation and maintenance of the Hot Beverage Merchandiser is to be undertaken only by ***trained personnel*** who are fully aware of the dangers involved and who have taken adequate precautions.
- **The Hot Beverage Merchandiser must be grounded. Do not tamper, modify or remove the ground pin from the power plug. Should the power cord or plug become damaged, a trained person from an approved service agent must perform the replacement using only factory approved parts. Do not ground the machine to the water supply pipe.**
- ***Keep clear of the Brewer Unit when it is indexing***.
- The Hot Beverage Merchandiser is a heavy item. Ensure that sufficient personnel are available for lifting and transporting the machine. Use proper lifting procedures and equipment.
- The water in the heater tank and the tank itself are hot enough to scald or burn even some time after the machine has been switched off. The water tank must be drained, filled with cold water and drained again before any attempt is made to handle it or any of its associated parts.
- The Controller Board is fitted with a lithium battery. Abuse of this type of battery can lead to overheating, venting, explosion, release of potentially hazardous materials and spontaneous ignition. The lithium battery **must not** be charged by, or connected to, any other source of power. The battery **must not** be short-circuited or forced to discharge its stored energy. The battery **must not** be subjected to physical damage or overheating. If the Controller Board is to be replaced, it must be handled with care, taking all practical anti-static precautions.
- Care must be taken to protect the Hot Beverage Merchandiser from frost. Do not attempt to operate the machine if it becomes frozen. Contact the nearest service agent immediately. Do not restore the machine to operation until it has been checked and approved for use by the service agent.
- **Due to the risk of being scalded by hot beverages, young children, the aged and the infirm should not be allowed to operate the Hot Beverage Merchandiser unsupervised.**

IMPORTANT: Please refer to the safety manual (p/n 4206816) for additional safety information.

INSTALLATION

WARNING: Disconnect or unplug power to the machine before servicing.

1. Servicing personnel must be familiar with the SAFETY WARNINGS listed in this manual and the Safety Manual (P/N 4206816) before undertaking any installation or maintenance procedure on the Hot Beverage Merchandiser. Any procedure which is found to be impractical, inadequate or inaccurate should be reported to the Management for further investigation.
2. The information given in this section covers installation and maintenance procedures for the Hot Beverage Merchandiser. Only authorized personnel who have knowledge or experience with the equipment, and using only the manufacturer's approved parts should carry out these procedures.
3. The requirements of proper hygiene in respect of food products must be ensured at every level of contact with the Hot Beverage Merchandiser and the ingredients associated with it.

IMPORTANT: **You are required to be aware of and adhere to all Federal, State, and Local laws regarding food handling and storage.** ***NOTE: DO NOT use non-food safe lubricants or cleaners.***

SET-UP REQUIREMENTS

ELECTRICAL SUPPLY

- 110V, 60Hz, 12A fused
- 240V, 50Hz, 13A fused

The electrical outlet and supply circuit must be dedicated and isolated before connecting power to the machine. The electrical outlet must be within 6 ft (2 m) of the machine. Preferably, the switched outlet should be located behind the machine to prevent accidental damage or misuse.

WATER SUPPLY

The main water supply must have 15-116 psi pressure. The water outlet must have a shutoff valve so that the water supply to the merchandiser may be turned off during servicing. The one-piece water supply hose with ½ inch female connector must be long enough to reach the machine. The water outlet should be located behind the machine to prevent misuse.

LOCATION

WARNING:	**The Hot Beverage Merchandiser is a heavy item. Ensure that sufficient personnel are available for lifting and transporting the machine. Use proper lifting procedures and equipment.**

The Hot Beverage Merchandiser must be located close to the appropriate electrical and water outlets.

There must be a minimum of 4 inches (100mm) clearance between the rear of the cabinet and the wall to allow adequate ventilation. See **Figure 4a**.

If placing in a corner location, there must be at least 16 inches (406mm) of space to the right hand wall to allow the door to open properly.

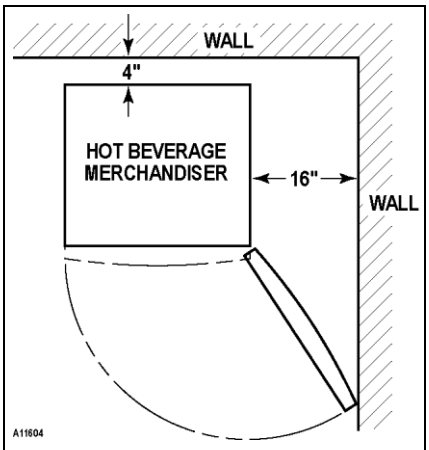


Figure 4a. Distance From Wall

LEVELING

The Hot Beverage Merchandiser must be level for proper operation. Using a level as a guide turn the machine's leg levelers as needed until all levelers are touching the floor. If it is properly leveled, the merchandiser should not "rock" or "teeter" on any of the levelers.

When the machine is level, the door can be opened to any position and not swing either way. Try the door at various open positions before deciding that the machine is leveled.

CONNECT WATER

Before connecting the hose to the machine, flush the water supply system via the shutoff valve to remove any impurities which may have accumulated in the supply pipe or water hose.

The merchandiser's water inlet - a standard 1/2 inch (13mm) male water hose connector - is located on the back of the machine. Remove the plastic protective cap by unscrewing it counter-clockwise. See **Figure 4b**.

Connect the water supply hose to machine water inlet and ensure that all fittings are tight. Turn on the water supply at the shutoff valve and check for leaks both outside and inside of the machine.

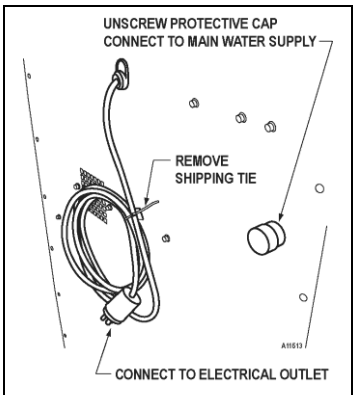


Figure 4b. Power Cord & Water Inlet

CONNECT ELECTRICAL

The Hot Beverage Merchandiser power cord is fitted with a molded 15A plug and is connected as follows:

- GREEN (or GREEN/YELLOW) wire to GROUND terminal (T).
- WHITE wire to the NEUTRAL terminal (N).
- BLACK wire to the LIVE terminal (L).

Connect the cable plug to a 110V, 60Hz, 12A (240V, 50Hz, 13A) switch supply socket. With the plug fitted to the socket, ensure that the cable is not stretched, distorted or hampered by any object.

CHECKLIST

It is ***essential*** that the technician responsible for installing and commissioning the machine ensures the following:

1. All electrical and water supplies are correctly and safely connected and that the water heater overflow pipe is not trapped or pinched (remove canisters to access and remove rear panel to check status of overflow pipe.)
2. All covers, panels and access doors are in place and secured, and the machine is in a SAFE condition.
3. The Operator is familiar with the SAFETY PRECAUTIONS for the machine.
4. The Operator appreciates the importance of hygiene and regular cleaning of the merchandiser.

With water and electricity sources connected to the machine, check the water heater operation as follows:

1. **Press merchandiser on/off switch (upper left side of interior back wall) to the ON position. Water will flow into the water tank. Wait approx. 1 minute and the water will shut off (safety feature). Then turn the power switch OFF, wait a few seconds and turn the power switch back ON. Water will continue to fill the tank. When water reaches the probe level, the heater will turn on as indicated by the heater indicator light (to the right of the on/off switch).** There should be no water overflow into the waste basket.
2. Ensure that the waste level probe is positioned in the waste basket.
3. **Press the merchandiser on/off switch to the OFF position.**

NOTE: Water tank MUST be allowed to preheat for 15 to 20 minutes before filling coin mechanism or performing test vends because these will be automatically disabled if water temperature does not meet standard.

FILL PRODUCT CANISTERS

WARNING: FILL PRODUCT CANISTERS WITH POWDERED INGREDIENTS ONLY. DO NOT USE LIQUID INGREDIENTS.

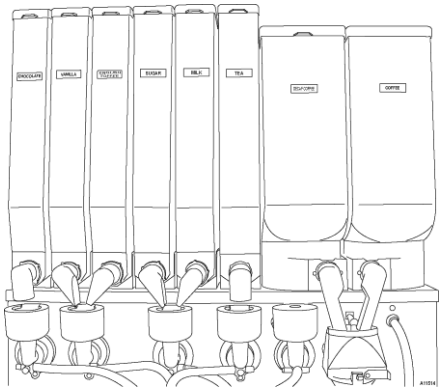


Figure 5a. Canister Lineup

1. Rotate the product chute so that it points up (loading position). See **Figure 5b**.
2. When filling the canisters, hold the top and bottom of the canister and slowly lift it up so that the locator peg clears the peg hole. **Figure 5c**. Slide the canister forward until it is out of the ingredient motor shaft. **Figure 5d**.
3. Place canister on a sheet of paper or on an easily cleaned surface.
4. Remove lid from the canister. **Figure 5e**.
5. Open product bag that matches the name on the Canister Label (where applicable) according to the instructions on the bag.
6. Slowly pour the product into the canister until the canister is almost full. **Figure 5f**.
   - Product **must** be loose for proper dispensing.
   - **DO NOT** tap the sides of the canister.
   - **DO NOT** compress or compact product into the canister.
   - Leave a gap from the top of the product to the lip of the canister. **Figure 5g**.
7. Replace canister lid. **Figure 5e**.
8. Review the canister arrangement as shown in **Figure 5a**. Hold the canister carefully at the bottom and top to prevent spilling. Gently place the filled canister back on the product shelf. **Figure 5d**.
9. Line up the hollow shaft in the back of the canister with the ingredient motor shaft. See **Figure 5d**.
10. Slowly slide the canister toward and over motor shaft until locator peg falls inside the hole on the product shelf. See **Figure 5c**.

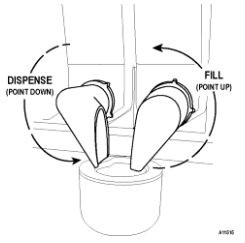


Figure 5b. Product Chute

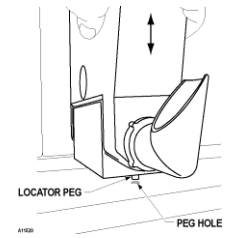


Figure 5c. Locator Peg

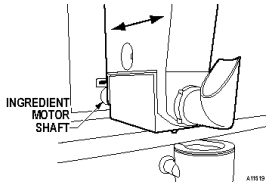


Figure 5d. Motor Shaft

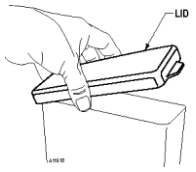


Figure 5e. Canister Lid

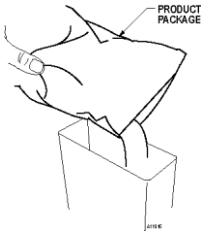


Figure 5f. Fill Canister

11. Rotate the product chute so that it points down (dispense position) to the whipper bowl. See **Figure 5b**.
12. Repeat above steps for other canisters.

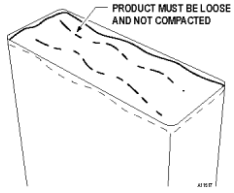


Figure 5g. Do Not Pack

CHANGE MENU SELECTION LABELS

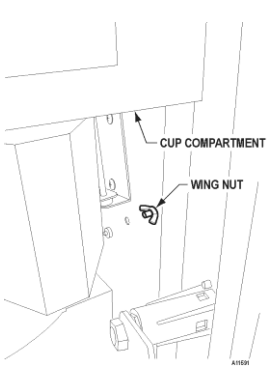


Figure 6a. Bottom Wing Nut

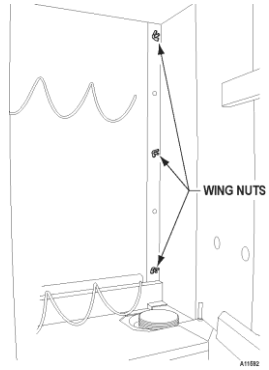


Figure 6b. Inside Wing Nuts

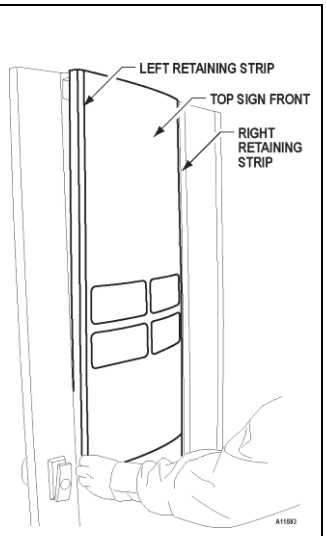


Figure 6c. Remove Top Sign Front

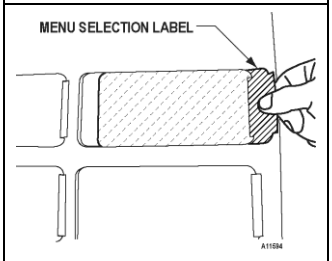


Figure 6d. Menu Selection Label

1. Remove and save the wing nut located on the right side below the cup compartment (as viewed from behind the door). See **Figure 6a**.
2. Open the cup compartment door. Remove and save the 3 wing nuts located on the right side of the cup compartment. See **Figure 6b**.
3. Loosen Retaining Strip on the left side of the Top Sign Front (on the front of cabinet door). Remove the Retaining Strip and Top Sign Front assembly. See **Figure 6c**. (*This is most easily done by applying outward pressure on the wing nut screws on the inside of the door.*)
4. Place the Top Sign Front on a clean, non-abrasive surface.
5. Locate the menu selection label behind the Top Sign Front. See **Figure 6d**. Carefully slide the menu selection label out of its pocket.
6. Insert the new menu selection label through the slots. Check the front of the Top Sign Front to make sure that the menu selection labels are correctly aligned.
7. Insert the right edge of the Top Sign Front into the slot of the right side Retaining Strip. See **Figure 6c**.
8. Slip the left side Retaining Strip over the left edge of the Top Sign Front. Push the Retaining Strip back into place. See **Figure 6c**. (*To accommodate the rounded front design, carefully bow the left edge of the assembly to the right until you are able to press the three retaining screws back into position.)*
9. Reinstall and tighten the wing nuts saved from steps 1 and 2. See **Figure 6a** and **Figure 6b**.

NOTE: These steps change only the beverage label. Only the Trained Technician may change beverage type or content.

SET SELECTION PRICE

The following procedure sets the price for the three (3) item types: filled Regular Cup, Cup Only and a filled Large Cup. For additional information regarding **Set Pricing Modes** and **Change Prices**, please refer to the **programming section** of this manual. (To shorten the procedure the Technician may want to use the Operator code, which will enter directly into Set Selection Price.)

STEP	DISPLAY
1. On ***internal*** keypad, press **5** **PROG**.	**PLEASE ENTER ACCESS CODE**
2. On ***external*** keypad, enter code **1111**	**SET PRICING MODE**
3. Press **2** or **8**.	**CHANGE PRICES**
4. Press **0**.	**NORMAL PRICES**
5. Press **0**. First selection price will display.	**COFEE Price=$0.60**
6. Press **2** or **8** to scroll to other selection price settings.	
7. Press **0** to select a selection price to change.	**Price=$0.00**
8. Press **4** (move curser left) or **6** (move cursor right) or press **2** (increase value) or press **8** (decrease value).	
9. Press **0** to accept the price set for **Regular Filled Cup**.	**COFFEE Price=$0.00**
10. Repeat steps **6** thru **9** to set price for other products.	
11. Press **#** (ESCAPE).	**NORMAL PRICES**
12. Press **8** to view **Empty Cup** pricing.	**CUP PRICE**
13. Press **0**.	**CUP Price=$0.00**
14. Press **0**.	**Price=$0.00**
15. Press **2** (increase value) or **8** (decrease value).	
16. Press **0** to accept **Cup Price**. (Leave price at default value-do not change)	**CUP PRICE**
17. Press **8** to view **Large Cup** pricing.	**LARGE PRICE**
18. Press **0**.	**COFFEE Price=$0.60**
19. Press **0** to begin changing the price of the first selection	
*(20. OR press **8** or **2** to scroll to another Large Cup selection.)*	
21. Press **0** to begin changing selection price.	**Price=$0.00**
22. Press **4** (move cursor left) or press **6** (move cursor right) or press **2** (increase value) or press **8** (decrease value).	**COFFEE Price=$0.00**
23. Press **0** to accept new **Large Cup** price.	
24. Repeat steps 20 thru 23 to set price of other **Large Cup** products.	
25. Press **#** three times to exit the programming mode.	**SELECT DRINK FROM MENU**

CUP SIZE ADJUSTMENT

IMPORTANT: Your Hot Beverage machine has been factory-set for use of 8.25 oz. PAPER hot beverage cups. The machine can also be set up to use 7, 9, 10, or 12 oz. cups. If you are not using 8.25 oz. cups, you must readjust the machine before use. This is a 2-part procedure. **Both Cup Size Adjustment and Adjusting Cup Dispenser Opening must be accomplished.**

Action	Display
1.Press Program on the Internal Keypad	Enter Code
2.Enter the Manager Code on the customer keypad	Ingredient Times
3.Using 2 or 8 curser to Config MC	
4.Press 0	7 oz.
5.Using 2 or 8, curser to the desired cup size	(7, 8.25, 9, 10, or 12 oz.)
6.Press 0 to confirm selection	
7.Press # to exit programming mode	
8.Proceed to **Adjusting Cup Dispenser Opening** instructions (next page)	

ADJUSTING CUP DISPENSER OPENING

The cup mechanism has been factory adjusted for an 8.25 oz. paper hot beverage cup. Follow the instructions below to adjust the cup (diameter) size if necessary.

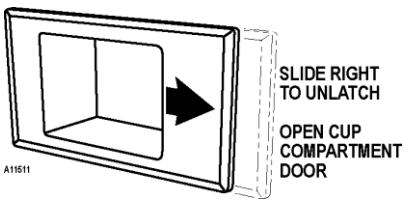


Figure 8a. Cup Compartment Latch

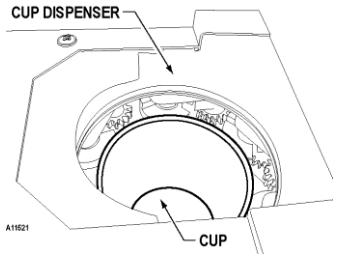


Figure 8b. Cup Ring

1. Open the cup compartment door by sliding its plastic latch to the right. See **Figure 8a**.
2. Take a cup from the stack of cups that will be used in the machine and place the cup in the cup dispenser ring. See **Figure 8b**.
3. While facing the back of the door, find the cup dispenser adjustment screw located on the right side of the cup dispenser. Use a Phillips screwdriver to loosen the screw. **DO NOT** remove the screw. See **Figure 8c**.
   - 3a. Adjust the cup mechanism back and forth so that the cup lip rests on top of the circular cams of the cup dispenser mechanism. See **Figure 8d**.
   - 3b. Push or tap the cup from the bottom end so that it moves up and down freely. If it does not move freely or if it falls through the mechanism when tapped go back to step 3a.
   - 3c. When steps 3a and 3b are satisfied then tighten the screw. See **Figure 8c**.
4. Place a stack of cups to the left of the cup ring. On the ***internal*** keypad press the **Cup Test** button. The entire cup stack should advance and fall into the cup ring. If a cup drops completely through the mechanism, the mechanism still needs adjustment—return to step **3a**.

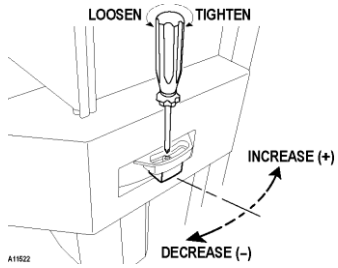


Figure 8c. Cup Diameter Adjustment

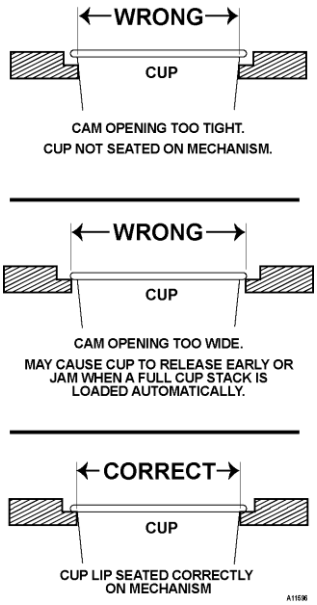


Figure 8d. Cup Position In Mechanism

FILL CUP COMPARTMENT

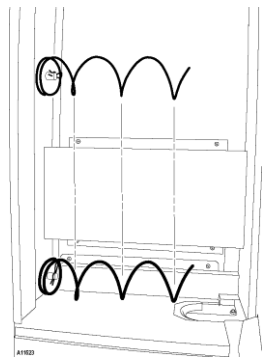


Figure 9a. Cup Spirals

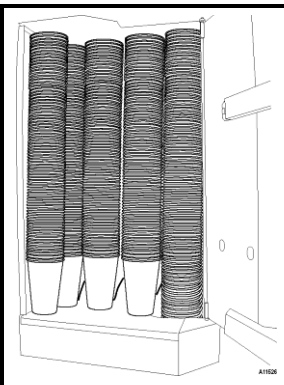


Figure 9b. Cup Stacks

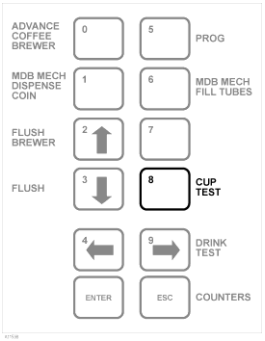


Figure 9c. Keypad Cup Test

1. Check that the top and bottom spirals are aligned the same and have room for three (3) stacks of cups. See **Figure 9a**.
2. The cup compartment can have a total of five (5) cup stacks. Load the compartment with cups starting with the first stack in the cup dispenser mechanism followed by three (3) additional cup stacks. See **Figure 9b**. The cup-stacks must be aligned with the top and bottom spirals. Add the fifth cup stack directly in front of the fourth cup stack and place it tight against the left side wall of the compartment.
3. Close and latch the cup compartment door.
4. Find the ***internal*** keypad on the left side of the door (as viewed from the rear of the door). Press the square marked "**CUP TEST**". See **Figure 9c**.
   - 4a. The cup should be dispensed via the stainless steel cup chute and land squarely on the platform of the delivery compartment. See **Figure 9e**.
   - 4b. If the cup gets stuck at the counter-balance wire, loosen the counterweight and slide it up to lessen the weight against the cup. See **Figure 9d**. Repeat step 4.

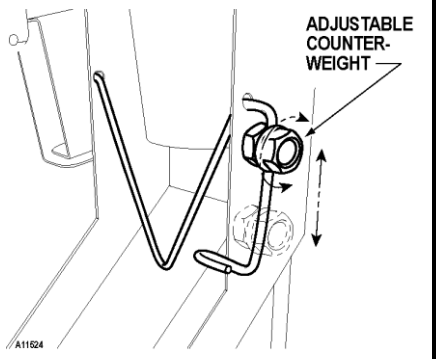


Figure 9d. Counterweight

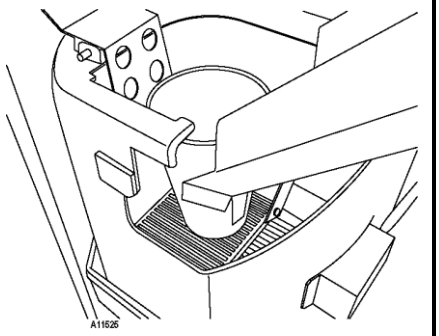


Figure 9e. Delivery Compartment

INGREDIENT VOLUME ADJUSTMENT

Follow the instructions below to change the ingredient volume settings.

STEP	DISPLAY
1. On ***internal*** keypad, press **PROG**.	**PLEASE ENTER ACCESS CODE**
2. On ***external*** keypad, enter code **4444** (or current Technician code).	**INGREDIENT TIMES**
3. Press **2** repeatedly to scroll to screen **"configure mc"**	**CONFIGURE MC**
4. Press **0**.	**GENERAL SETTINGS**
5 Press **0**.	**SILENT KEYS**
6. Press **2** twice.	**REGULAR SCALING**
7. Press **0** to begin changing **Regular Cup** volume.	
8. Press **4** (move cursor left) or **6** (move cursor right). Press **2** (increase) or **8** (decrease). Change value to: 000**90** = 7 oz 00**120** = 8-1/4 oz 00**140** = 9 oz 00**170** = 12 oz	**REGULAR SCALING** **Value=00120**
9. Press **0** to accept the scaling value for **Regular Cup** volume.	**REGULAR SCALING**
10. To exit, go to step 13. To change **Large Cup** volume, press **8** and continue with steps 11 thru 14.	**LARGE SCALING**
11. Press **0**.	**LARGE SCALING** **Value=00120**
12. Press **4** (move curser left) or **6** (move cursor right). Press **2** (increase) or **8** (decrease). Change value to: 00090 = 7 oz. 00120 = 8-1/4 oz. 00140 = 9 oz. 00170 = 12 oz.	
13. Press **0** to accept the scaling value for **Large Cups**.	**LARGE SCALING**
14. Press **#** three (3) times to exit the programming mode.	**SELECT DRINK FROM MENU**

FLUSH HEATER TANK, BOWL & BREWER

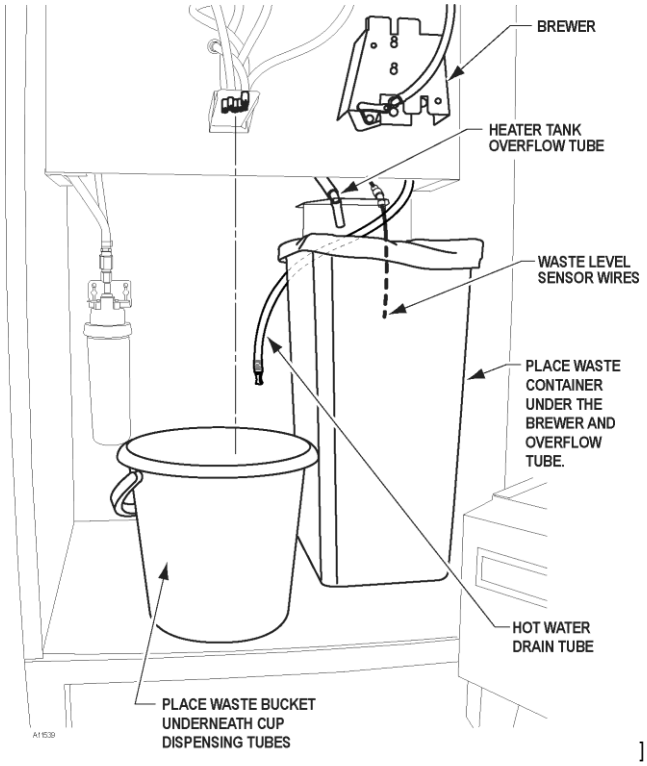


Figure 11a. Waste Buckets

INSTALL WASTE CONTAINERS

1. Place a trash liner (10 Gal) inside the large waste container. Place the waste container under the heater tank overflow tube and the brewer.
2. Place the small bucket under the cup dispensing tubes. See **Figure 11a**.

FLUSH WHIPPER BOWLS & BREWER

1. Go to the ***internal*** keypad, press the square next to **FLUSH** to clean the whipper bowls. See **Figure 11b**.
2. In a Fresh Brew Machine, **also** press the square next to **FLUSH BREWERS** to clean the brewer and filter. See **Figure 11b**

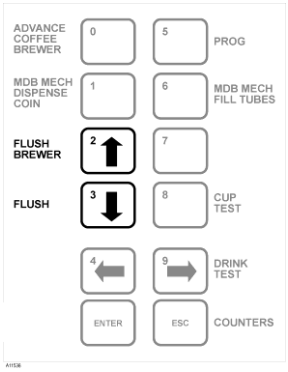


Figure 11b. Keypad Flush

FLUSH HOT WATER TANK

1. Turn off the merchandiser Power Switch. Remove the plug from the hot water tank drain tube which will empty the tank contents into the drain bucket.
2. Replace the plug into the drain tube. Open the main water valve to the machine. Press merchandiser on/off switch to the ON position. Water will flow into the water tank. ***Wait approx. 1 minute and the water will shut off (safety feature). Then turn the power switch OFF, wait a few seconds and turn the power***

switch back ON. Water will continue to fill the tank. When water reaches the probe level, the heater will turn on as indicated by the heater indicator light.

NOTE: Water tank MUST be allowed to preheat for 15 to 20 minutes before filling coin mechanism or performing test vends because these will be automatically disabled if water temperature does not meet standard.

DRIP CATCHER

Place a cup on the Drip Catcher Holder to prevent any remaining liquid in the base of the cup station from dripping onto the floor when the door is opened during servicing.

1. The Drip Catcher is located on the inside of the door below the Cup Station.
2. Place a small cup on the Drip Catcher Cup Holder. See **Figure 12a**.
3. **IMPORTANT**: Place the Overflow Bucket Sensor inside the drain bucket before closing the door. See **Figure 12b**.

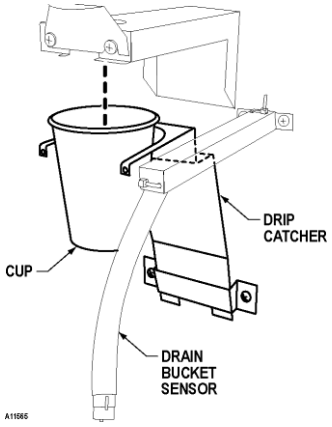


Figure 12a. Drip Catcher

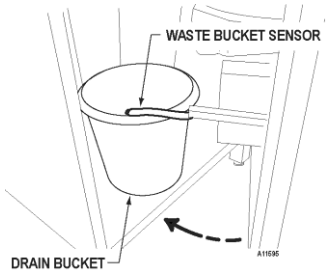


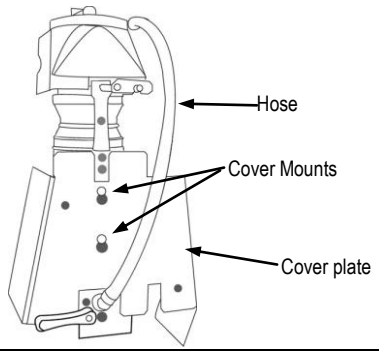
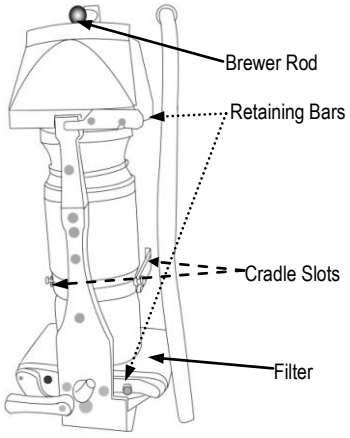
Figure 12b. Waste Bucket Sensor

MERCHANDISER RECORD

A schedule sheet for cleaning and maintenance should be kept up to date at all times. A schedule sheet clip has been provided for your convenience. It can be found beneath the internal keypad. The space is large enough for an 8.5x11 sheet.

CLEANING BREWER AND FILTER

(Fresh Brew Model only)

1. Disconnect hose from bottom front of brewer. 2. Slip cover plate up and away from brewer assembly. 3. Flip up the 2 retaining bars at top right and bottom right of brewer. 4. Gently pull filter assembly out and set aside 5. Pull the rod which drops down into the center of the brewer toward the front. It will pop away from the rod extending out of the brewer back panel and fall into the brewer assembly.	
6. Carefully remove the remaining brewer assembly by pulling toward you and off its support pins. 7. Clean or replace brewer and filter assembly—you do not need to disassemble them further for this. 8. Replace brewer assembly by sliding onto its support pins at the top—bottom of assembly will snap into cradle slots. Be sure that assembly snaps all the way into the slots. 9. Lift the rod that fell into the brewer at disassembly back up into place and snap back onto the rod extending from back panel. 10. Slide filter assembly back into place using guide pins at top and bottom, and reposition the 2 retaining bars at the top right and bottom right of the brewer. 11. Slip assembly cover back into place and reattach hose.	

CLEANING MERCHANDISER CABINET

Care should be taken when cleaning the interior of the merchandiser as high temperatures may be present on components and liquids.

CAUTION

Always disconnect the power source before cleaning the machine.

CABINET EXTERIOR

Wash with mild detergent and warm water, rinse and dry thoroughly. Wax occasionally with a quality car wax. Plastic exterior parts may be cleaned with a quality plastic cleaner.

CABINET INTERIOR

Use a clean bucket and a cleaning solution of mild detergent (that will not leave a film on the cabinet or its components) and warm or hot water. Adding baking soda or ammonia in the cleaning solution may help eliminate odors from parts being sanitized.

When cleaning areas such as the mixing bowls, cup chute, etc., that come in contact with the cup or product, ***use only sanitizers that are approved for use on food contact surfaces.***

The following procedure should be used each time the machine is serviced.

1. Unplug the machine.
2. Remove the product canisters.
   a. Rotate the product canister spout until it is pointed straight up.
   b. Lift up the front end of the canister (so that the canister pin clears the shelf pin hole) then pull the canister forward. See **Figure 5d.**
   c. Set the canisters aside. Clean and refill them prior to replacing them on the canister shelf. See step 10.
3. Clean around the ingredient drive motors and the cup mechanism with a small brush or with filtered compressed air if available.
4. Wipe the canister shelves with a clean damp cloth.
5. Clean the interior of the vendor including the top and side walls using a solution of mild detergent and warm water.
6. Use the hot water from the rinse hose (hanging on the left cabinet wall) to thoroughly rinse the cleaning solution from all components.
7. Use the hot water from the rinse hose to rinse all mixing bowls and hoses thoroughly to remove any residue. Periodically remove mixing bowls and clean thoroughly using warm water and detergent. Rinse bowls thoroughly before replacing.
9. Clean the cup station, cup chute, and other areas that the cup might contact. Clean the cabinet door and door trim panel.
10. Clean each canister (full or partially filled) in the following manner:
    a. With the canister lid on, place the lid end of the canister against your chest with the dispensing spout up
    b. Set the canister upside down on a table with the lid still in place.
    c. Pull the spout off of the canister. Soak the lid in the bucket of cleaning solution while cleaning the spout with a small brush or piece of clean terry cloth. Rinse the spout with tap water and dry with a clean towel before re-installing to the canister.
    d. Holding the canister upside down with the lid in place, shake the canister to loosen and aerate the ingredients.
    e. Set the canister right side up on the table. Remove the lid. Fill the canister with product (ingredient) but do not pack products tightly into the canister. Do not tap the canister or slap the canister sides. Replace lid.
    f. Place the canister back on the canister shelf, guiding it into the back shaft and positioning pin as shown in **Figures 5c** and **5d**. Rotate canister spouts into the downward position.
11. Empty the waste bucket and clean. Create an anti-bacterial solution in the waste bucket using 100 ppm Chlorine solution. The anti-bacterial solution can be created using two (2) teaspoons of household bleach (5% Chlorine) mixed with one (1) gallon of tap water to retard bacterial growth. Apply the anti-bacterial solution to the waste bucket. Do not rinse bucket after anti-bacterial solution is used. When replacing the waste bucket, make sure all hoses are in position.
12. Return the power to the merchandiser and run at least one flush cycle. See FLUSH HEATER TANK, BOWL & BREWER instructions.

GENERAL DESCRIPTION

Operational components which form the Hot Beverage Merchandiser are housed in a metal cabinet, access to which is gained by a swivel door secured by a key operated locking mechanism. With the door open the switch for ON/OFF operation of the machine is visible in the top left corner of the machine (above and behind the product canisters).

Equipment inside the cabinet is arranged in two sections: front and rear. On opening the door, the Operator is immediately faced with those items of equipment to which he or she requires access, i.e. Ingredient Canisters, Cup Compartment, Coin Mechanism, Waste Buckets, etc. The remaining items of equipment, e.g. Water Heater, Valves, Electrical and electronics components, etc, to which only the Trained Technician requires access are located behind the Ingredient Canisters and Whipper Motor and Dispense Head Assembly panel, at the rear of the cabinet.

CABINET FRONT

The Cup Drop Assembly, Coin Mechanism, Controller Board and Cup Station are fitted to the rear of the door. The Customer's keypad is fitted to the front panel and is connected to the Controller board via a cable assembly.

Ingredient canisters are located on a shelf approximately half way up the cabinet. At the front of the shelf is a duct assembly to which an extractor fan is connected. The fan pulls air from the extract duct, which in turn removes steam/moist air from the mixing systems, which are located on a vertical panel below the canister shelf. The moving dispense head protrudes through and is fastened to this vertical panel and in the case of the fresh brew versions this vertical panel also provides the mounting for the fresh brew units.

On the fresh brew version a large plastic waste bucket is located underneath the Brewer Unit, in addition to the small one placed at the front of the cabinet beneath the Cup Station (when the door is closed). Water heater overflow pipes, and a water level probe, are directed into the smaller bucket. When the waste liquid in the bucket(s) reaches the level sensor probe, the water supply inlet is shut off and the machine is rendered inoperable.

CABINET REAR

Access to the components and equipment in the rear section of the cabinet is obtained by removing the ingredient canisters and the relevant back panel.

Cold water enters the cabinet through an aperture in the rear panel and connects to a twin chamber inlet valve for the hot water supply. A length of tubing takes the water supply from the inlet valve into the water heater and then to the water heater tank located at the top of the cabinet. Hot water in the correct quantity is then directed from the tank to the appropriate mixing bowl via a solenoid operated dispense valve. A dispense valve is associated with each ingredient. Any overflow from the tank is directed into the waste bucket via an overflow tube. Fitted to this tube is a high temperature cut-out switch, when operated, cuts off the electrical supply to the heater in the tank. The cut-out must then be reset to restore the supply. Another length of tubing facilitates draining of the heater.

A level probe is fitted to the rear of the cabinet door and a similar device is located in the fresh brew waste container. When the door is closed these devices act as contact probes allowing the units control system to monitor the liquid level in the waste containers.

Two printed circuit boards are fitted to the top right hand side of the cabinet rear panel; the DC Remote Input/Output Board (DC RIO) and the Power Supply Unit (PSU). The DC RIO Board provides the high current drives to operate the output devices (valves, motors etc) in response to signals from the Controller Board.

A solid-state relay, located beneath the printed circuit boards, pulses current to the heater in response to signals from the DC RIO Board. The DC RIO board receives signal from the Controller via an I²C link. The temperature of the water in the boiler is measured by the Controller Board using an NTC thermistor mounted at the end of a stainless steel probe immersed in the hot water tank.

WATER SYSTEM

The cold water supply enters the machine via double-solenoid operated inlet valve at the rear of the cabinet. This valve controls the flow of water to the unit's hot water tank via a water filter.

HOT WATER SYSTEM

Water is supplied via the Hot Inlet valve to the heater tank via a water filter where it is heated to the required temperature by a heating element in the tank. Water temperature is controlled by a combined temperature and level probe assembly in the tank which causes the supply to the heater to be removed when the preset temperature is reached. The probe assembly also acts as a level sensor, causing the Hot Inlet valve to open when

the water in the tank falls below a preset level. The probe (i.e. the input device) is monitored by the Controller Board, and the water heater and Hot Inlet valve (i.e. the output devices) are controlled by the DC RIO Board in response to signals from the Controller Board.

Depending on the type of hot beverage selected, hot water from the heater tank is fed via solenoid operated dispense valves to the appropriate mixing bowl or Brewer Unit container. Ingredients and water are mixed in exact quantities in the mixing bowl or Brewer Unit container. Ingredients and water are mixed in exact quantities in the mixing bowl and then directed to the dispense head. Similarly, water and ingredient are brewed in exact amounts in the Brewer Unit and then directed to the dispense head.

A resettable cut-out sensor, mounted on the boiler lid, cuts off the electrical supply to the tank heater circuit if the water in the tank starts to boil. Additionally, if the fluid level in the overflow waste bucket rises above the preset level, it is detected by a level probe and reported to the Controller Board, which responds by closing the inlet valve via the DC RIO Board and rendering the machine inoperable.

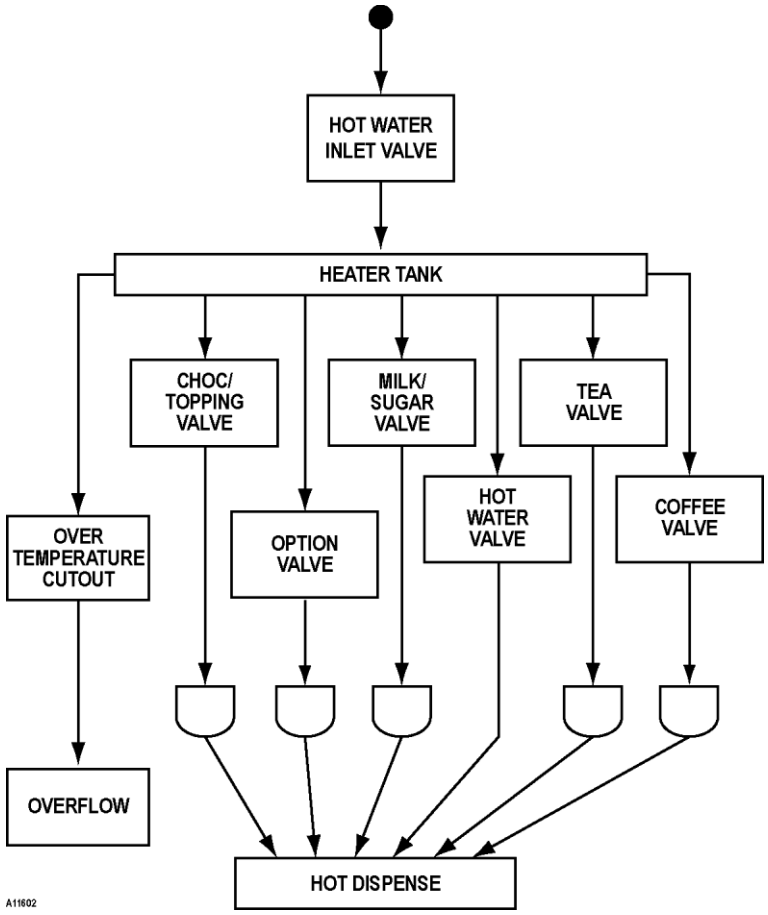


Figure 1.1A Water System Diagram - Instant

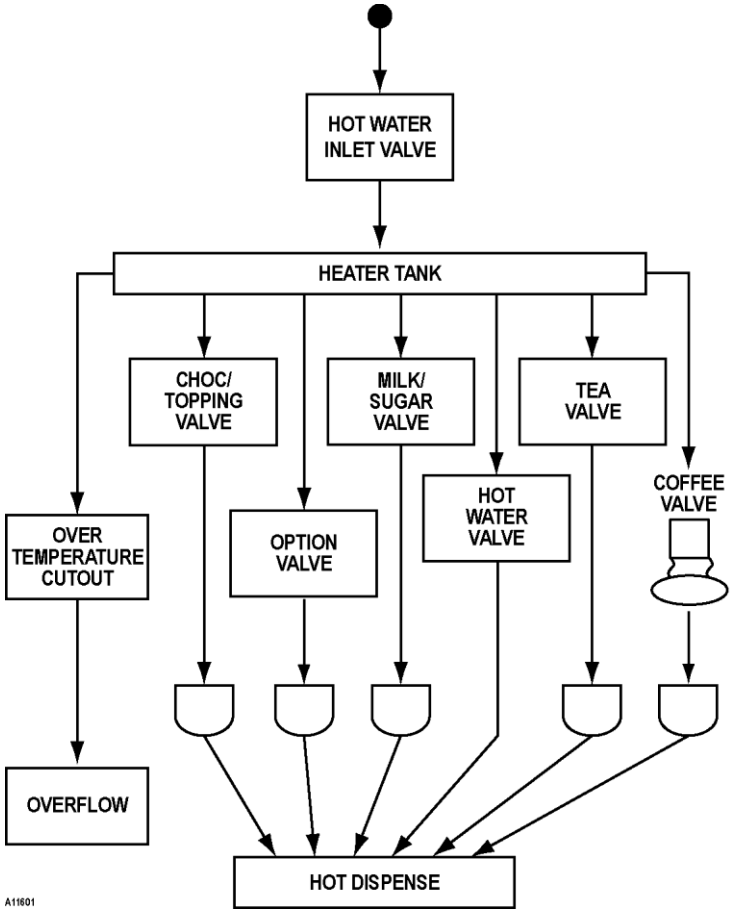


Figure 1.1B Water System Functional Diagram –Fresh Brew

ELECTRICAL & ELECTRONIC SYSTEM

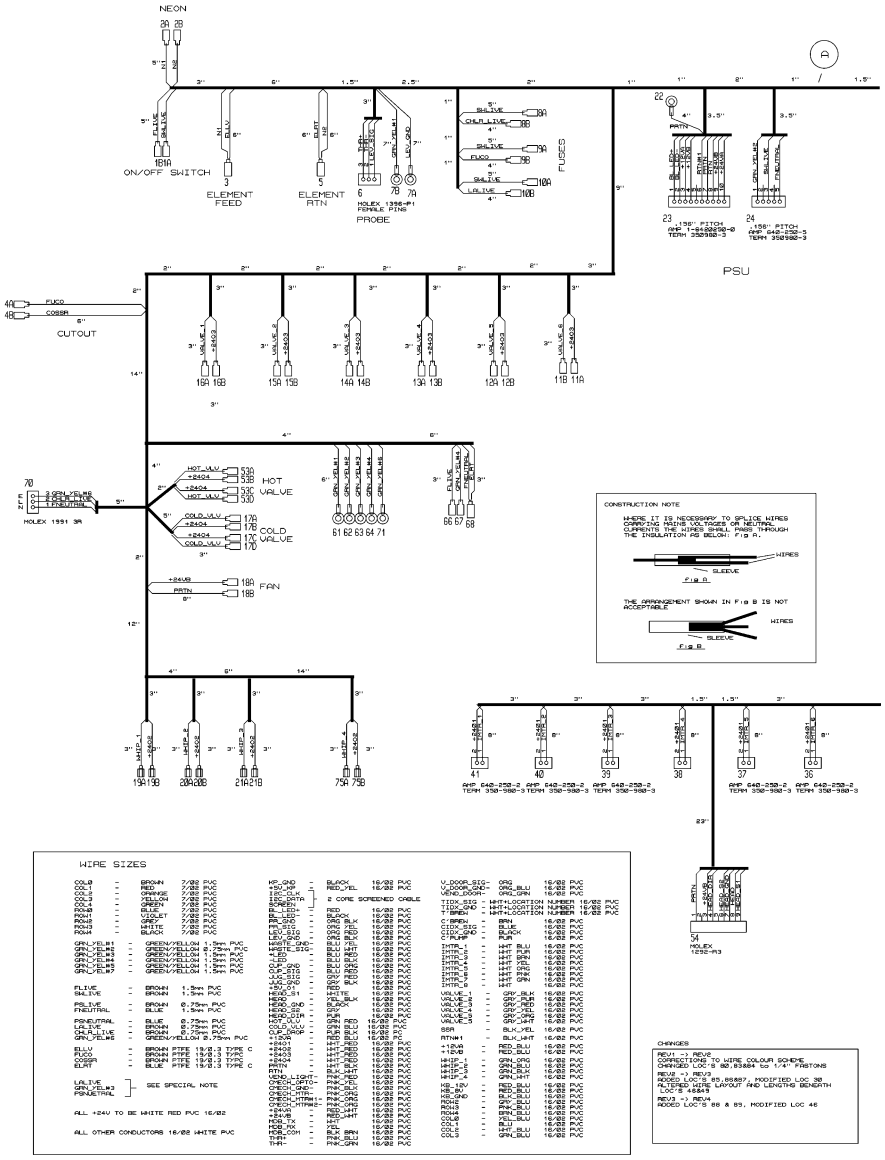
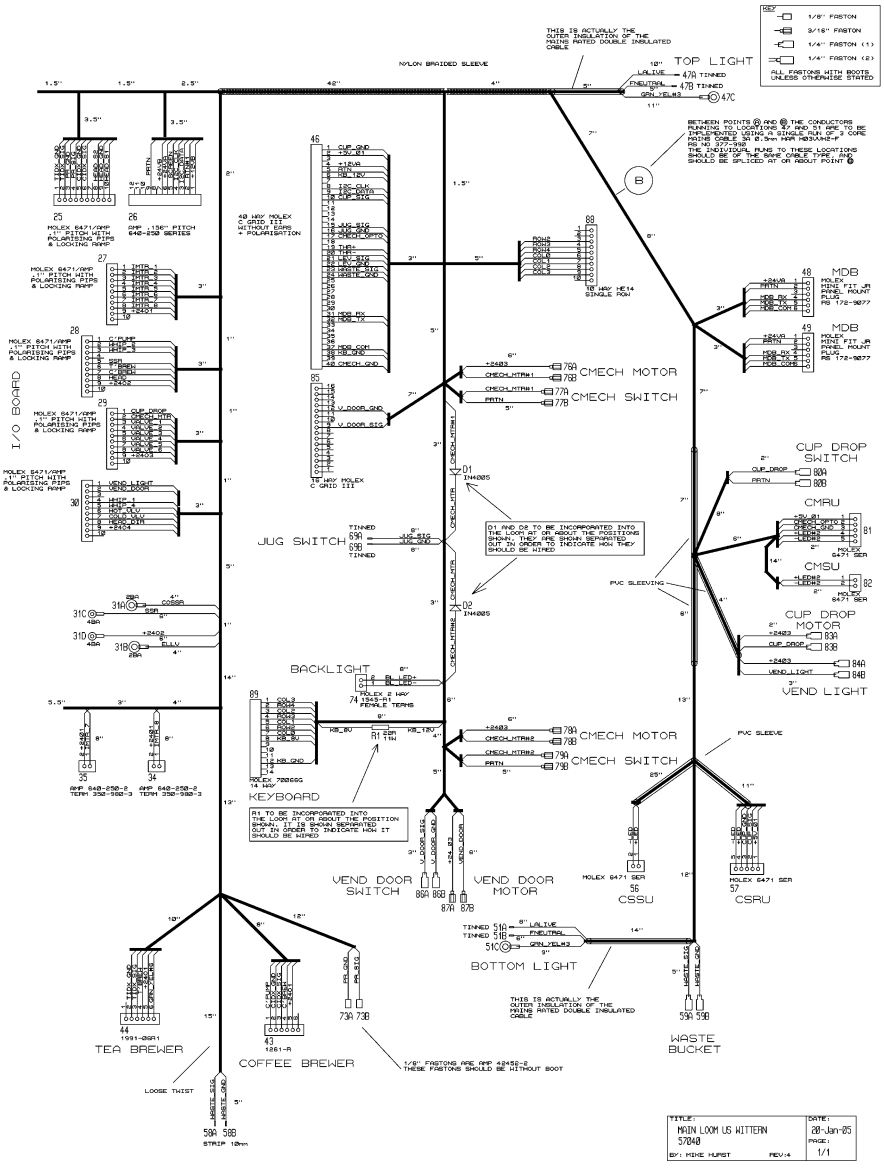


Figure 1.2 Electrical Wire Loom Diagram


TOP LIGHT
BOTTOM LIGHT
I/O BOARD
JUG SWITCH
CMECH MOTOR
CMECH SWITCH
CUP DROP SWITCH
CUP DROP MOTOR
VEND LIGHT
BACKLIGHT
KEYBOARD
VEND DOOR SWITCH
VEND DOOR MOTOR
CMRU
CMSU
CSSU
CSRU
MDB
TEA BREWER
COFFEE BREWER
WASTE BUCKET
NYLON BRAIDED SLEEVE
PVC SLEEVING
D1 AND D2 TO BE INCORPORATED INTO THE LOOM AT OR ABOUT THE POSITIONS SHOWN. THEY ARE SHOWN SEPARATED OUT IN ORDER TO INDICATE HOW THEY SHOULD BE WIRED
R1 TO BE INCORPORATED INTO THE LOOM AT OR ABOUT THE POSITION SHOWN. IT IS SHOWN SEPARATED OUT IN ORDER TO INDICATE HOW IT SHOULD BE WIRED
LOOSE TWIST
7/8" FASTONS ARE AMP 42455-2 THESE FASTONS SHOULD BE WITHOUT BOOT
1/8" FASTON
3/16" FASTON
1/4" FASTON (1)
1/4" FASTON (2)
ALL FASTONS WITH BOOTS UNLESS OTHERWISE STATED
MAIN LOOM US WITTERN
57040
BY: MIKE HURST
REV:4
20-Jan-05
1/1

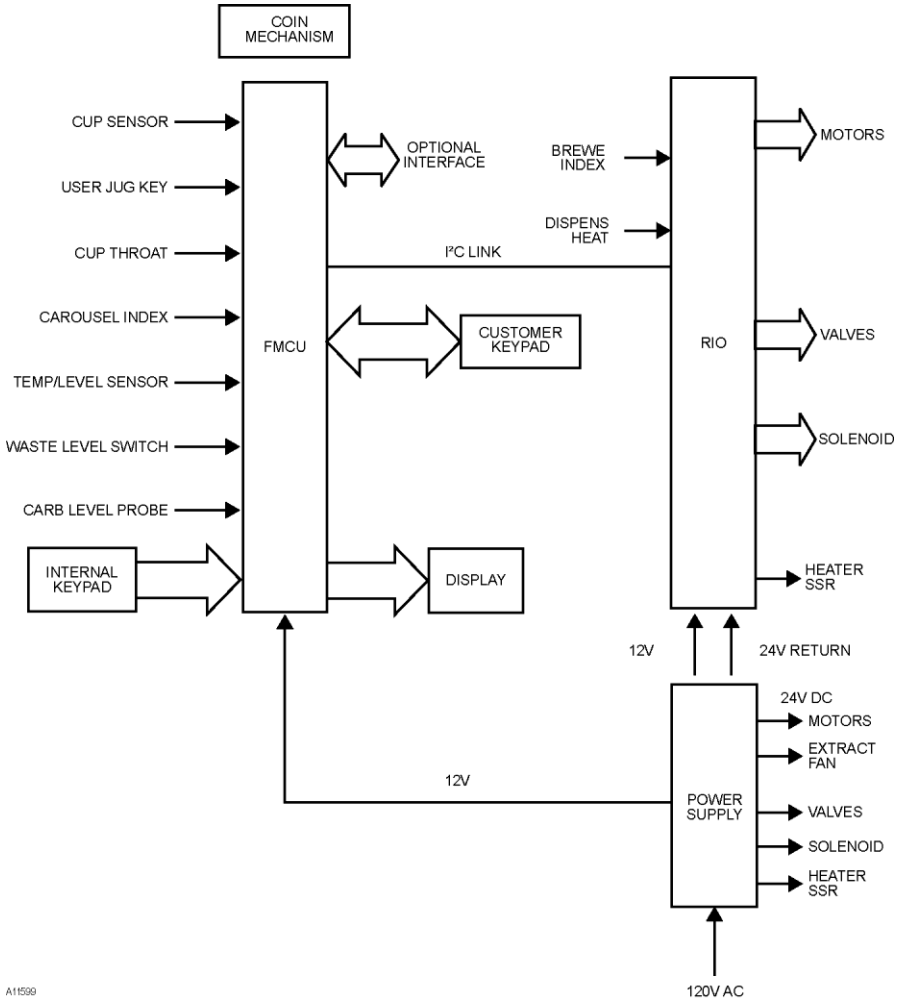


Figure 1.3 Electrical & Electronic System – Functional Diagram

INTERNAL KEYPAD FUNCTIONS

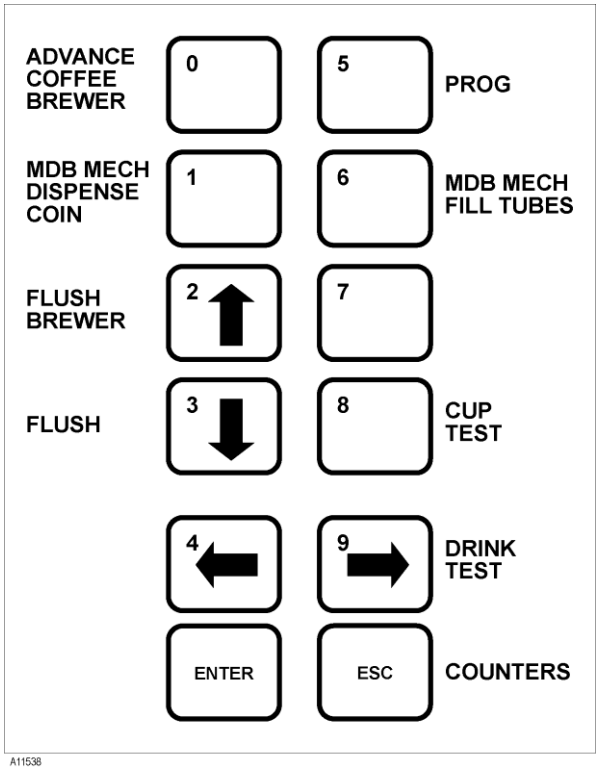


Figure 2a

The **internal keypad** is used to carry out a number of frequently required machine functions without entering any of the user programs.

In most cases a single press of the key initiates the function associated with each button. If a further key press is necessary to end the action it will be the **ESC** (escape) key.

The functions available from the **internal keypad** are:

a) **ADVANCE COFFEE BREWER** - If a coffee brewer is fitted, pressing this key one time will force the brewer unit to index to its next position in the cycle. The purpose of this function is to allow the brewer to be locked prior to a flush cycle so that cleaning agents can be added if desired.

b) **MDB MECH DISPENSE COIN** - This key provides a method of emptying the change tubes of an MDB coin mechanism. On pressing the key the ***external*** display will change to:

EMPTY TUBE $0.05
↑,↓ ENTER OR ESC

The currency value shown will be that of the lower value coin tube in the mechanism. The function of the **EXTERNAL** keys will change as described in **Section 3** to allow actions to be performed on either the internal or external keypad. Pressing ENTER will dispense a coin from the selected tube. Pressing ↑ or ↓ selects the next/previous coin tube. Pressing the **ESC** (escape) key ends the process.

c) **MDB MECH FILL TUBES** - If an MDB coin mechanism is fitted this function allows the change tubes to be filled. On pressing the key the ***external*** display will change to:

INSERT FLOAT
$0.00

As coins are inserted the value displayed will reflect the total value of the money inserted. Pressing ESC (escape) will cause the machine to return to normal operation and zero the credit. (Water tank must be heated to spec temperature before this command will function.)

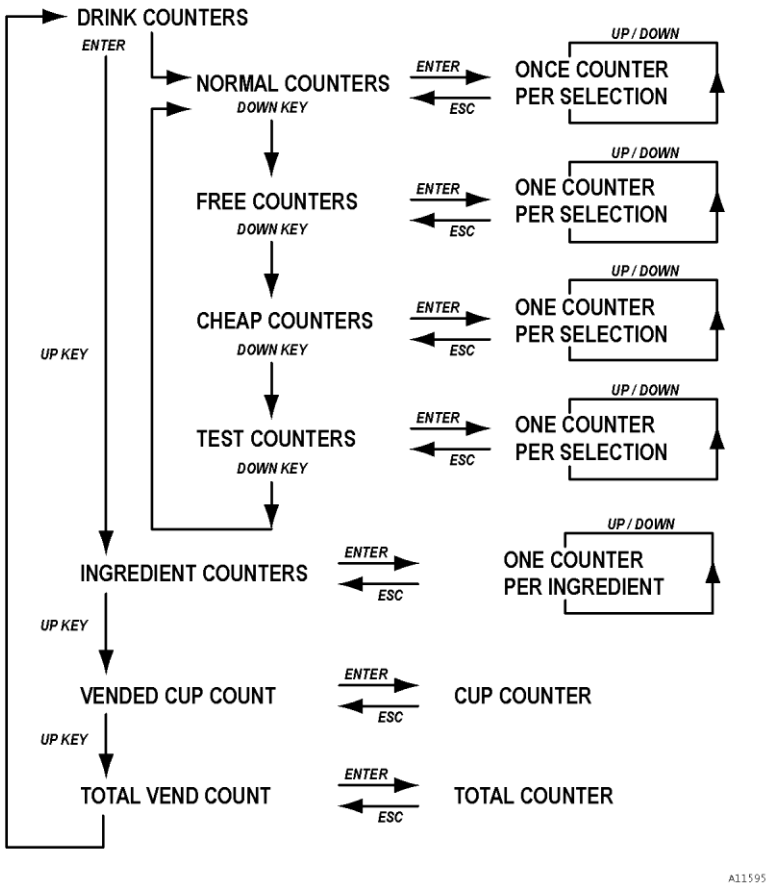
d) **BREWER FLUSH** – (Fresh Brew model only.) Pressing this key initiates a flush cycle of all fresh brew units fitted to the merchandiser simultaneously.

e) **PROG** – Pressing this key activates the code entry sequence required to access the protected levels of the machine control programs. See **Programming** section.

f) **CUP TEST** – Dispenses a cup via the cup drop mechanism. The **cup spiral will not index unless a selection is made or a Cup Test performed**.

g) **DRINK TEST** - Allows the next selection to be taken as **a free vend**.

h) **COUNTERS** - Pressing the **COUNTERS** key places the machine in **manual audit mode**. Audit data is accessed via a series of menus. The chart below shows the menu headings in bold text and the key presses required to navigate the menu are shown in *italics*. While in this mode the functions of the ***external*** keypad change to allow the menus to be accessed from the same side of the door as the display – see **Section 3 paragraph 5** for button function in this mode.



PROGRAMMING

The Hot Beverage Merchandiser has a comprehensive configuration program which enables the machine to meet many specialized behavior and function needs of the customer. There are **three levels** of access to the configuration functions of the machine. **Access to each level is protected by means of a four-digit code**. The facilities available at each level are shown below:

1. **Operator level access**
   - Access to price related features only.
   - Factory default Code 1111.
2. **Manager level access**
   - Access to Price related features.
   - Inhibit selections
   - Limited range recipe modification.
   - Change Operator level access code.
   - Cup size adjustment
   - Timed Activities (limited)
   - Factory default Code 3333.
3. **Trained Technician level access**
   - Full access all features
   - Factory default code 4444.

ACCESSING USER PROGRAMS

Programs are accessed by pressing **PROG** key on the **internal** keypad. The **external** display will then prompt for input of a four-digit entry code. The code is input using the numbers printed on the keys of the **external** keypad

- After pressing the **PROG** key the **external** display will change to:

  PLEASE ENTER
  ACCESS CODE

- Use the numbered keys on the **external keypad** to enter the correct code. It is not necessary to press ENTER. The code will be checked on entry of the fourth digit. **Three attempts are allowed before the PROG key must be pressed again**. On entry of a valid code the display will change to the menu heading appropriate to the level of access. While in programming mode the functions of the ***external*** keypad change to facilitate navigation of the program using the ***external*** keypad.

  In the event that the code has been lost, or when fitting an un-programmed replacement board, it is necessary to complete the circuit between the two pins of the two pin header labeled **ENG LINK** on the Control board. This bypasses the entry of the four-digit code, giving Trained Technician level access immediately upon processing **PROG** key. **If the ENG LINK is left in place during power up, the machine will boot straight into the Trained Technicians program with full access.**

- **Note Regarding Power Up Problems**

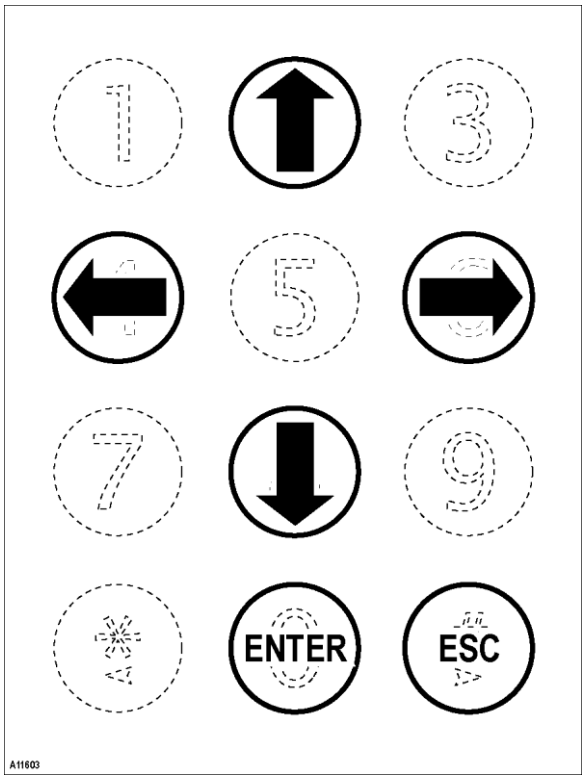
  The Hot Beverage Merchandiser electronics control system has two major elements. These are the Control board and the DC RIO board. The two boards communicate via a three wire Inter Integrated Circuit bus (I^2C bus). Some faults affecting the I^2C bus or Control board configuration can result in persistent system resets. To allow recovery/diagnosis from such situations the control system provides an Access Window to a special 'safe mode' shortly after power is switched on. It is possible to enter Trained Technician's mode during this window.

  Some configuration faults related to initialized boards do not allow the system to get even this far through start up, in which case it is necessary to insert the ENG LINK before switching the power on. In this case the machine will boot straight into the Trained Technician's program.

  In both cases the I^2C bus linking the electronics boards is disabled. Without communication between the DC RIO board and the Control board the OUTPUT TEST facility is ineffective and the state of some inputs will be misreported in the INPUT TEST routines. As a reminder to this effect the sound associated with a key press is truncated to a very short pip rather than a beep.

EXTERNAL KEYPAD

After entering a valid code, the keys on the ***external*** keypad are used to navigate and use the functions of the user programs. In programming mode the keys assume the following alternative functions:



KEY	FUNCTION
↑(2)	Move **UP** a list of menu options or increment a number.
↓(8)	Move **DOWN** a list of menu options or decrement a number.
←(4)	Move the cursor **LEFT**.
→(6)	Move the cursor **RIGHT**.
ESC(#)	**ESCAPE** - move to previous menu option or reject values entered.
ENTER(0)	**ENTER** the menu option displayed or accept the changes made.

PROGRAM FUNCTIONS

The following table shows the functions available and the access level required to use them within the Hot Beverage Merchandiser configuration program:

FUNCTION	ACCESS LEVEL REQUIRED		
	OPERATOR	MANAGER	TRAINED TECHNICIAN
Ingredient Times	-	YES (limited)	YES
Set Date/Time	-	YES	YES
Set Pricing Mode	YES	YES	YES
Change Prices	YES	YES	YES
Inhibit Drink	-	YES	YES
Alter Drink Name	-	YES	YES
Timed Activities	-	-	YES
Temp Settings	-	-	YES
Output Test	-	-	YES
Input Test	-	-	YES
Set Product Consts	-	-	YES
Machine Status	-	-	YES
Set Dry Vend Mode	-	-	YES
Serial Number	-	-	YES
Config MC	-	YES (limited)	YES
MDB Config	-	-	YES
EVA-DTS Config	-	-	YES
Product Codes	-	-	YES
Operator Code	-	YES	YES
Manager Code	-	-	YES
Technician Code	-	-	YES
Free Drink Code	-	YES	YES
Card Actions	-	-	YES

PROGRAMMING SEQUENCE OF OPERATIONS

Navigating the menu is simple and consistent throughout the program. The ↑ and ↓ keys are used to index through the headings in a particular level or increasing/decreasing value. Pressing **ENTER** will select a submenu or confirm a change while **ESC** (escape) will reject a change or return to the previous menu level. The sequence for accessing a menu option and the accessing a submenus within that option and finally selecting and changing a parameters value is shown in **Figure 3a**

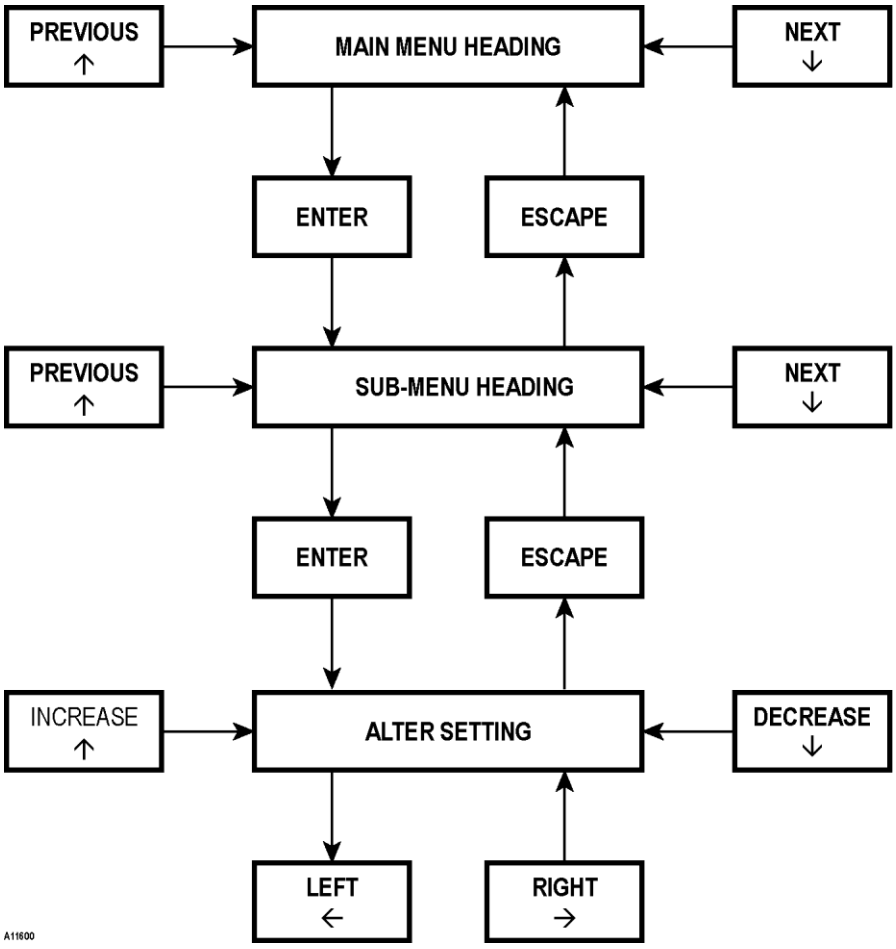


Figure 3a. Accessing an Option Setting – Flow Diagram

MENU OPTIONS

INGREDIENT TIMES

Ingredient Times provides access to a set of submenus which allow modification of the parameters controlling the recipe and dispensing of individual beverages. The actual content of the sub-menu is dependent on merchandiser configuration. (*For example: an **Instant Hot version** will have different beverages in its **Ingredient Times** sub menu than a **Fresh Brew** version.* In general, the entries of the **Ingredient Times** menu will consist only of the drinks available on that particular machine configuration. The Hot Beverage Merchandiser range has a number of pre-defined configurations. For each configuration each selection button is associated with a particular beverage. This association is fixed for each configuration. *(For example: if the top left button in a given configuration provides an instant coffee beverage then the Coffee entry in the Ingredient sub menu will allow adjustment of a limited number of parameters relating to a coffee selection, it is not possible to reprogram the button to behave as a completely different drink e.g. a **Toffee Cappuccino**.*)

For each selection a user with Manager level access is granted a limited range adjustment on a subset of the parameters. This allows site-based personnel to perform minor taste modifications without the need to call a Trained Technician. The limited range adjustment is implemented as a multiplying scale factor of between 75% and 125%. In **Manager's mode** the limited range of adjustment permitted is displayed as a signed value between -25% and +25% and can be changed in 5% increments. For example the limited range strength control for the coffee ingredient of an Espreschoc selection which has had its coffee ingredient increased by 5% would appear to a manger level user as:

OP: Coffee Mod +5%

When viewed with Trained Technician level access this would appear as:

OP: Coffee Mod 105

In each case the same parameter is being viewed.

The following tables describe the parameters that can be adjusted for each beverage, and indicate the parameters visible at the different access levels. The drinks available in each configuration are described in **Table 14b** later in this Section.

INSTANT COFFEE

Parameter Name	Function	Units	Level*
COFFEE TIME	Ingredient Control	.1 s	T
COFFEE ADJUST	Increment applied to coffee auger run time when strong selected	.1 s	T
WATER TIME	Coffee water dispense valve open duration	.1 s	T
COF MIXER TIME	Coffee whipper motor run duration	.1 s	T
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected. Eg 75 will allocate 75% of the water to the milk valve.	%	T
SUGAR TIME	Auger run-time for Optional ingredient if selected.	.1 s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1 s	T
MILK TIME	Auger run-time for Optional ingredient if selected	.1 s	T
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1 s	T
VALVE FACTOR	Compensating variable to account for differing flow rates between milk/sugar and coffee valves. If white/sugar drink is bigger than black version decrease, if bigger increase	.1 s	T
OP: Sugar Mod	**Manager level** control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Sugar mod/100	%	T, M
OP: Milk Mod	**Manager level** control applied to MILK TIME. The actual milk auger run time will be MILK TIME x OP:SUGAR MOD/100	%	T, M
OP: Coffee Mod	**Manager level** control applied to COFFEE TIME. The actual milk auger run time will be COFFEE TIME x OP: Coffee mod/100	%	T, M
OP: Water Mod	**Manager level** control applied to COF WATER TIME. The actual dispense valve open time will be COF WATER TIME x OP: Water Mod/100	%	T, M

*T indicates Trained Technician access level, M indicates Manager access level

CHOCOMILK

Parameter Name	Function	Units	Level*
CHOCOLATE START	Start time for the chocolate components of the drink referenced to t=0	.1s	T
CHOCOLATE TIME	Auger run time for Chocolate ingredient	.1s	T
TOPPING START	Start time for the topping components of the drink referenced to t=0	.1s	T
TOPPING TIME	Auger run time for Topping ingredient	.1s	T
WATER TIME	Topping/chocolate dispense valve open duration	.1s	T
MIXER TIME	Chocolate mixer motor run time	.1s	T
OP: Topping Mod	Manager level control applied to TOPPING TIME. The actual topping auger run time will be TOPPING TIME x OP: Topping Mod/100	%	T, M
OP: Chocolate Mod	Manager level control applied to CHOCOLATE TIME. The actual chocolate auger run time will be CHOCOLATE TIME x OP: Chocolate Mod/100	%	T, M
OP: Water Mod	Manager level control applied to WATER TIME. The actual dispense valve open time will be WATER TIME x OP: Water Mod/100	%	T, M

*T indicates Trained Technician access level, M indicates Manager access level

CHOCOLATE

Parameter Name	Function	Units	Level*
CHOCOLATE TIME	Auger run time for Chocolate ingredient	.1s	T
WATER TIME	Chocolate dispense valve open duration	.1s	T
MIXER START	Chocolate mixer start time	.1s	T
MIXER TIME	Chocolate mixer motor run time	.1s	T
OP: Chocolate Mod	Manager level control applied to CHOCOLATE TIME. The actual chocolate run time will be CHOCOLATE TIME x OP: Chocolate Mod/100	%	T, M
OP: Water Mod	Manager level control applied to WATER TIME. The actual dispense valve open time will be WATER TIME x OP: Water Mod/100	%	T, M

*T indicates Trained Technician access level, M indicates Manager access level

DECAF COFFEE (INSTANT)

Parameter Name	Function	Units	Level*
COFFEE TIME	Decaf ingredient duration Control	.1s	T
COFFEE ADJUST	Increment applied to decaf auger run time when strong selected	.1s	T
WATER TIME	Coffee water dispense valve open duration	.1s	T
MIXER TIME	Coffee whipper motor run duration	.1s	T
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected	.1s	T
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	T
MILK TIME	Auger run time for Optional ingredient if selected	.1s	T
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	T
VALVE FACTOR	Compensating variable to account for differing flow rates between mil/sugar and coffee valves. If water/sugar drink is bigger than black version decrease, if bigger increase	.1s	T
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Milk Mod/100	%	T, M
OP: Milk Mod	Manager level control applied to COFFEE TIME. The actual milk auger run time will be MILK TIME x OP: Milk Mod/100	%	T, M
OP: Coffee Mod	Manager level control applied to COFFEE TIME. The actual decaf coffee auger run time will be COFFEE TIME x OP: Coffee Mod/100	%	T, M
OP: Water Mod	Manager level control applied to COF WATER TIME. The actual dispense valve open time will be COF WATER TIME x OP: Water Mod/100	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

CAPPUCCINO (INSTANT COFFEE)

Parameter Name	Function	Units	Level*
COFFEE WTR TIME	Coffee water dispense valve open duration	.1s	T
TOPPING WTR TIME	Topping water dispense valve open duration	.1s	T
SUGAR WATER TIME	Sugar water dispense valve open duration	.1s	T
TOPPING TIME	Auger run time for topping ingredient	.1s	T
COF MIXER TIME	Coffee whipper motor run duration	.1s	T
COFFEE TIME	Auger run time for coffee ingredient	.1s	T
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	T
COFFEE START	Offset from t=0 applied to all coffee related components. Ensures drink with white head	.1s	T
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Sugar Mod/100	%	T, M
OP: Topping Mod	Manager level control applied to COFFEE TIME. The actual topping auger run time will be TOPPING TIME x OP: Topping Mod/100	%	T, M
OP: Coffee Mod	Manager level control applied to COFFEE TIME. The actual coffee auger run time will be COFFEE TIME x OP: Coffee Mod/100	%	T, M
OP: Water Mod	Manager level control applied to water times. The actual dispense valve open times will be <TIME> x OP: Water Mod/100	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

CAFE LATTE (INSTANT COFFEE)

Parameter Name	Function	Units	Level*
COFFEE TIME	Coffee Ingredient Auger Control	.1s	T
COFFEE ADJUST	Increment applied to coffee auger run time when strong selected	.1s	T
WATER TIME	Coffee water dispense valve open duration	.1s	T
COF MIXER TIME	Coffee whipper motor run duration	.1s	T
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected. Eg 75 will allocate 75% of the water to the milk valve	%	T
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	T
MILK TIME	Auger run time for Milk ingredient	.1s	T
VALVE FACTOR	Compensating variable to account for differing flow rates between milk/sugar and coffee valves. If white/sugar drink is bigger than black version decrease, if bigger increase	.1s	T
COFFEE DELAY	Time after t=0 that coffee component of drink start	.1s	T
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Sugar Mod/100	%	T, M
OP: Coffee Mod	Manager level control applied to COFFEE TIME. The actual coffee auger run time will be COFFEE TIME x OP: Coffee Mod/100	%	T, M
OP: Water Mod	Manager level control applied to water times. The actual dispense valve open times will be <TIME> x OP: Water Mod/100	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

ESPRESSO (INSTANT COFFEE)

Parameter Name	Function	Units	Level*
COFFEE TIME	Coffee Ingredient Auger Control	.1s	T
COFFEE ADJUST	Increment applied to coffee auger run time when strong selected	.1s	T
WATER TIME	Coffee water dispense valve open duration	.1s	T
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected		T
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	T
MILK TIME	Auger run time for Optional ingredient if selected	.1s	T
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	T
VALVE FACTOR	Compensating variable to account for differing flow rates between milk/sugar and coffee valves. If white/sugar drink is bigger than black version decrease, if bigger increase	.1s	T
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Milk Mod/100	%	T
OP: Milk Mod	Manager level control applied to MILK TIME. The actual milk auger run time will be MILK TIME x OP: Milk Mod/100	%	T
OP: Coffee Mod	Manager level control applied to COFFEE TIME. The actual coffee auger run time will be COFFEE TIME x OP: Coffee Mod/100	%	T
OP: Water Mod	Manager level control applied to water times. The actual dispense valve open times will be <TIME> x OP: Water Mod/100	%	T

***T indicates Trained Technician access level, M indicates Manager access level**

CAFÉ MOCHA (INSTANT COFFEE)

Parameter Name	Function	Units	Level*
CHOCOLATE START	Chocolate ingredient start time referenced to t=0	.1s	T
CHOCOLATE TIME	Chocolate ingredient auger run time	.1s	T
TOPPING START	Topping ingredient start time referenced to t=0	.1s	T
TOPPING TIME	Topping ingredient auger run time	.1s	T
WATER TIME	Total amount of valve opening time for this selection allocation of water to the three bowls is automatic	.1s	T
COFFEE START	Start time for coffee component of this selection. Offset from t=0 for ingredient, water and mixer	.1s	T
COFFEE TIME	Coffee ingredient auger run time	.1s	T
CHOC MIXER TIME	Chocolate Mixer run time referenced to t=0 other mixer times are calculated automatically	.1s	T
OP: Topping Mod	Manager level control applied to TOPPING TIME. The actual topping auger run time will be TOPPING TIME x OP: Choc Mod/100	%	T, M
OP: Choc Mod	Manager level control applied to CHOCOLATE TIME. The actual chocolate auger run time will be CHOCOLATE TIME x OP: Choc Mod/100	%	T, M
OP: Coffee Mod	Manager level control applied to COFFEE TIME. The actual chocolate auger run time will be COFFEE TIME x OP: Coffee Mod/100	%	T, M
OP: Water Mod	As Trained Technicians mode equivalent however the factor is displayed as a value between -25 and +25 % the increments are 5%.	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

WHIPPED COFFEE (INSTANT)

Parameter Name	Function	Units	Level*
COFFEE TIME	Coffee Ingredient Auger Control	.1s	T
COFFEE ADJUST	Increment applied to coffee auger run time when strong selected	.1s	T
WATER TIME	Coffee water dispense valve open duration	.1s	T
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if mil or sugar is selected. Eg 75 will allocate 75% of water to the milk valve		T
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	T
MILK TIME	Auger run time for Optional ingredient if selected	.1s	T
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	T
VALVE FACTOR	Compensating variable to account for differing flow rates between milk/sugar and coffee valves. If white/sugar drink is bigger than black version decrease, if bigger increase.	.1s	T
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Sugar Mod/100	%	T, M
OP: Milk Mod	Manager level control applied to MILK TIME. The actual milk auger run time will be MILK TIME x OP: Milk Mod/100	%	T, M
OP: Coffee Mod	Manager level control applied to COFFEE TIME. The actual coffee auger run time will be COFFEE TIME x OP: Coffee Mod/100	%	T, M
OP: Water Mod	Manager level control applied to COF WATER TIME. The actual dispense valve open time will be COF WATER TIME X OP: Water Mod/100	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

INSTANT TEA

Parameter Name	Function	Units	Level*
TEA TIME	Auger run time for tea ingredient	.1s	T
TEA ADJUSTMENT	Increment applied to Tea auger run time when strong selected	.1s	T
WATER TIME	Tea water dispense valve open duration	.1s	T
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if mil or sugar is selected	%	T
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	T
MILK TIME	Auger run time for Optional ingredient if selected	.1s	T
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	T
VALVE FACTOR	Compensating variable to account for differing flow rates between milk/sugar and tea valves. If white/sugar drink is bigger than black version decrease, if bigger increase.	8-14	
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Sugar Mod/100	%	T, M
OP: Milk Mod	Manager level control applied to MILK TIME. The actual milk auger run time will be MILK TIME x OP: Milk Mod/100	%	T, M
OP: Tea Mod	Manager level control applied to TEA TIME. The actual tea auger run time will be TEA TIME x OP: Tea Mod/100	%	T, M
OP: Water Mod	Manager level control applied to WATER TIME. The actual dispense valve open time will be WATER TIME x OP: Water Mod/100.	%	T, M

*T indicates Trained Technician access level, M indicates Manager access level

HOT WATER

Parameter Name	Function	Units	Level*
HOT WATER TIME	Hot water dispense valve open duration	.1s	T
OP: Hot Water Mod	Manager level control applied to HOT WATER TIME. The actual valve opening time will be HOT WATER TIME x OP: Water Mod/100	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

WHIPPED FRESH BREW COFFEE

Parameter Name	Function	Units	Level*
MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1s	T
Note: All other settings for this drink are shared with the normal fresh brew coffee drink.			

***T indicates Trained Technician access level, M indicates Manager access level**

FRESH BREW COFFEE

Parameter Name	Function	Units	Level*
INFUSION TIME	Delay after coffee and water are added to brew chamber before brewer closes	.1s	T
WATER TIME	Coffee brewer dispense valve open duration	%	T
M&S WATER TIME	Milk & Sugar valve opening time		T
VALVE FACTOR	Balancing factor to account for difference in flow rate between Milk/Sugar valve and brewer valve. If white/sugar drink is smaller than black version, increase VALVE FACTOR and vice versa. Range 8-14.	Ratio x 10	T
COFFEE ING TIME	Coffee Ingredient Auger Control	.1s	T
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.01s	T
MILK TIME	Auger run time for Optional ingredient if selected	.01s	T
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	T
PUMP 1 DURATION	Duration of first air pump operation	.1s	T
PUMP 1 DELAY	Inactive period following first air pump operation	.1s	T
PUMP 2 DURATION	Duration of second air pump operation	.1s	T
PUMP 2 DELAY	Inactive period following second air pump operation	.1s	T
MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1s	T
HOT WATER TIME	Adds hot water directly to cup	.1s	T
BLACK DRAIN TIME	Idle time before head retracts following dispense of selection with no optional components	.1s	T
WHITE DRAIN TIME	Idle time before head retracts following dispense of selection where milk or sugar have been selected	.1s	T, M
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Sugar Mod/100	%	T, M
OP: Milk Mod	Manager level control applied to MILK TIME. The actual milk auger run time will be MILK TIME x OP: Milk Mod/100	%	T, M
OP: Coffee Mod	Manager level control applied to COFFEE TIME. The actual coffee auger run time will be COFFEE TIME x OP: Tea Mod/100	%	T, M
OP: Water Mod	Manager level control applied to WATER TIME. The actual dispense valve open time will be WATER TIME x OP: Water Mod/100	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

FRESH BREW DECAF COFFEE

Parameter Name	Function	Units	Level*
INFUSION TIME	Delay after coffee & water are added to brew chamber before brewer closes	.1s	T
WATER TIME	Coffee brewer dispense valve open duration	%	T
M&S WATER TIME	Milk and Sugar valve opening time.		T
VALVE FACTOR	Balancing factor to account for difference in flow rate between Milk/Sugar valve and brewer valve. If white/sugar drink is smaller than black version increase VALVE FACTOR and visa versa. Range 8-14.	Ration X 10	T
COFFEE ING TIME	Decaf Ingredient Auger Control	.1s	T
STRENGTH ADJUST.	Increment applied to decaf auger run time when strong selected	.1s	T
SUGAR TIME	Auger run time for Optional ingredient if selected	1.s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.01s	T
MILK TIME	Auger run time for Optional ingredient if selected	.01s	T
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	T
PUMP 1 DURATION	Duration of first air pump operation	.1s	T
PUMP 1 DELAY	Inactive period following first air pump operation	.1s	T
PUMP 2 DURATION	Duration of second air pump operation	.1s	T
PUMP 2 DELAY	Inactive period following second air pump operation	.1s	T
MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1s	T
BLACK DRAIN TIME	Idle time before head retracts following dispense of selection with no optional components	.1s	T
WHITE DRAIN TIME	Idle time before head retracts following dispense of selection where milk or sugar have been selected	.1s	T
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Sugar Mod/100	%	T, M
OP: Milk Mod	Manager level control applied to MILK TIME. The actual milk auger run time will be MILK TIME x OP: Milk Mod/100	%	T, M
OP: Coffee Mod	Manager level control applied to COFFEE TIME. The actual decaf auger runtime will be COFFEE TIME x OP: Tea Mod/100	%	T, M
OP: Water Mod	Manager level control applied to WATER TIME. The actual dispense valve open time will be WATER TIME x OP: Water Mod/100	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

WHIPPED FRESH BREW DECAF COFFEE

Parameter Name	Function	Units	Level*
MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1s	T

Note: All other settings for this drink are shared with the normal fresh brew decaf coffee.

***T indicates Trained Technician access level, M indicates Manager access level**

ESPRESSO (FRESH BREW COFFEE)

Parameter Name	Function	Units	Level*
INFUSION TIME	Delay after coffee & water are added to brew chamber before brewer closes	.1s	T
WATER TIME	Coffee brewer dispense valve open duration	%	T
M&S WATER TIME	Milk & Sugar valve opening time		T
SUGAR TIME	Auger run time for Optional ingredient if selected	1.s	T
SUGAR ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	T
MILK TIME	Auger run time for Optional ingredient if selected	.01s	T
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk is selected	.1s	T
COFFEE ING TIME	Coffee Ingredient Auger Control	.1s	T
VALVE FACTOR	Balancing factor to account for difference in flow rate between Milk/Sugar valve and brewer valve. If white/sugar drink is smaller than black version, increase VALVE FACTOR and vice versa. Range 8-14.	Ratio X 10	T
PUMP 1 DURATION	Duration of first air pump operation	.1s	T
PUMP 1 DELAY	Inactive period following first air pump operation	.1s	T
PUMP 2 DURATION	Duration of second air pump operation	.1s	T
PUMP 2 DELAY	Inactive period following second air pump operation	.1s	T
MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1s	T
HOT WATER TIME	Run time for hot water directly into cup	.1s	T
BLACK DRAIN TIME	Idle time before head retracts following dispense of selection with no optional components.	.1s	T
WHITE DRAIN TIME	Idle time before head retracts following dispense of selection where milk or sugar have been selected	.1s	T
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Sugar Mod/100	%	T, M
OP: Milk Mod	Manager level control applied to MILK TIME. The actual milk auger run time will be MILK TIME x OP: Milk Mod/100	%	T, M
OP: Coffee Mod	Manager level control applied to COFFEE ING TIME. The actual coffee auger run time will be COFFEE ING TIME x OP: Tea Mod/100	%	T, M
OP: Water Mod	Manager level control applied to water times. The actual dispense valve open times will be <TIME> x OP: Water Mod/100	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

CAPPUCCINO (FRESH BREW COFFEE)

Parameter Name	Function	Units	Level*
TOPPING START	Start time topping & sugar components. Referenced to t=0	0.1s	T
INFUSION TIME	Delay after coffee & water are added to brew chamber before brewer closes	0.1s	T
WATER TIME	Coffee brewer dispense valve open duration	0.1s	T
TOPPING WATER TIME	Topping dispense valve open duration	0.1s	T
COFFEE ING TIME	Coffee Ingredient Auger Control	1.0s	T
COFFEE MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	0.1s	T
MILK MIXER TIME	Run time for topping mixer motor	0.1s	T
SUGAR TIME	Auger run time for Optional ingredient if selected	.01s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	0.1s	T
TOPPING TIME	Auger run time for Topping Ingredient	0.1s	T
PUMP 1 DURATION	Duration of first air pump operation	0.1s	T
PUMP 1 DELAY	Inactive period following first air pump operation	0.1s	T
PUMP 2 DURATION	Duration of second air pump operation	0.1s	T
PUMP 2 DELAY	Inactive period following second air pump operation	0.1s	T
HOT WATER TIME	Run time for hot water directly into cup	0.1s	T
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Sugar Mod/100	%	T, M
OP: Milk Mod	Manager level control applied to TOPPING TIME. The actual topping auger time will be TOPPING TIME x OP: Milk Mod/100	%	T, M
OP: Coffee Mod	Manager level control applied to COFFEE ING TIME. The actual coffee auger run time will be COFFEE ING TIME x OP: Coffee Mod/100	%	T, M
OP: Water Mod	Manager level control applied to water times. The actual dispense valve open times will be <TIME> x OP: Water Mod/100	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

CAFÉ LATTE (FRESH BREW COFFEE)

Parameter Name	Function	Units	Level*
COFFEE ING TIME	Coffee Ingredient Auger Control	.1s	T
INFUSION TIME	Delay after coffee & water are added to brew chamber before brewer closes	.1s	T
WATER TIME	Coffee brewer dispense valve open duration	.1s	T
PUMP 1 DURATION	Duration of first air pump operation	.1s	T
PUMP 1 DELAY	Inactive period following first air pump operation	.1s	T
PUMP 2 DURATION	Duration of second air pump operation	.1s	T
PUMP 2 DELAY	Inactive period following second air pump operation	.1s	T
HOT WATER TIME	Run time for hot water directly into cup	.1s	T
MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1s	T
MILK START	Start time milk & sugar components. Referenced to t=0	.1s	T
MILK TIME	Auger run time for Milk ingredient	.1s	T
MILK WATER TIME	Milk/Sugar dispense valve open duration	.1s	T
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	T
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	T
OP: Sugar Mod	Manager level control applied to SUGAR TIME. The actual sugar auger run time will be SUGAR TIME x OP: Sugar Mod/100	%	T. M
OP: Milk Mod	Manager level control applied to Milk Time. The actual milk auger run time will be MILK TIME x OP: Milk Mod/100	%	T. M
OP: Coffee Mod	Manager level control applied to COFFEE ING TIME. The actual coffee auger run time will be COFFEE ING TIME x OP: Coffee Mod/100	%	T. M
OP: Water Mod	Manager level control applied to water times. The actual dispense valve open times will be <TIME> x OP: Water Mod/100	%	T. M

***T indicates Trained Technician access level, M indicates Manager access level**

CAFÉ MOCHA (FRESH BREW COFFEE)

Parameter Name	Function	Units	Level*
COFFEE TIME	Coffee Ingredient Auger Control	1.0s	T
COFFEE WATER	Coffee brewer dispense valve open duration	0.1s	T
COFFEE MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	0.1s	T
TOPPING TIME	Auger run time for ingredient	0.1s	T
CHOCOLATE TIME	Auger run time for ingredient	0.1s	T
CHOC WATER TIME	Choc/Topping dispense valve open duration	0.1s	T
CHOC MIXER TIME	Run time for choc/topping mixer motor	0.1s	T
BREWER START	Brewer cycle start time	0.1s	T
PUMP 1 DURATION	Duration of first air pump operation	0.1s	T
PUMP 1 DELAY	Inactive period following first air pump operation	0.1s	T
PUMP 2 DURATION	Duration of second air pump operation	0.1s	T
PUMP 2 DELAY	Inactive period following second air pump operation	0.1s	T
OP: Topping Mod	Manager level control applied to TOPPING TIME. The actual topping auger run time will be TOPPING TIME x OP: Topping Mod/100	%	T, M
OP: Choc Mod	Manager level control applied to CHOCOLATE TIME. The actual chocolate auger run time will be CHOCOLATE TIME x OP: Choc Mod/100	%	T, M
OP: Water Mod	Manager level control applied to water times. The actual dispense valve open times will be <TIME> x OP: Water Mod/100	%	T, M
OP: Coffee Mod	Manager level control applied to COFFEE TIME. The actual coffee auger run time will be COFFEE TIME x OP: Coffee Mod/100	%	T, M

***T indicates Trained Technician access level, M indicates Manager access level**

SET DATE AND TIME

(See Page 2, Set-Up Sheet)

Note: The battery fitted to the FMCU control board has an open circuiting link to prevent discharge during extended periods of storage. When commissioning a new board the links labeled CLOCK BAT on the control board must be fitted otherwise the board will not maintain the time when power is removed.

The FMCU control board contains a lithium battery. Care should be taken to dispose of this in an appropriate manner should a board be scrapped. The board should not be disposed of by burning.

SET PRICING MODE

(See Page 1, Set-Up Sheet)

Entering SET MODB PRICING allows the programmer to select one of the following Pricing modes:

- Prices Apply
- All Drinks Free

The selected mode becomes the default setting to which the machine will return after timed activities.

CHANGE PRICES

(See Page 1, Set-Up Sheet)

Entering CHANGE PRICES provides access to the following sub-menu:

- NORMAL PRICES
- CUP PRICE

Entering NORMAL PRICES or LARGE PRICE provides access to a list of drinks with corresponding prices. For regular drink, the price of a displayed drink can be changed by pressing ENTER, altering the value shown, and pressing ENTER again.

CUP PRICE

(See Page 1, Set-Up Sheet)

Entering CUP PRICE allows the programmer to select the price of a cup. **The value entered here is deducted from the normal price of a beverage when there is no requirement for a dispensed cup, i.e. when customers' own cups or mugs are used**. (This price is not ordinarily changed from factory default value.)

INHIBIT DRINK

Entering INHIBIT DRINK provides access to a sub-menu of drinks. The status of a displayed drink can be changed by pressing ENTER, altering the status by using the UP or DOWN keys, and pressing ENTER again. For example, COFFEE: STATUS=ON, makes coffee available for vending.

ALTER DRINK NAME

The ALTER DRINK NAME menu allows the name displayed when a particular beverage is selected to be changed to one of a number or pre-defined alternatives.

To avoid confusion the drink retains its original name as listed in this submenu. The alternative name will be used to reference that selection for all other display and audit activities. The reason retaining the original reference to the name in this submenu is that, for example, it could be that both drinks are to be CHOCOLATE temporarily. Once the VANILLA CAPP. name has been changed to CHOCOLATE it would not be possible to tell the altered drink from the existing one when it came time to change it back again.

The list of alternative drink names is as follows:

COFFEE	**ESPRESSO**	**HOT WATER**
WHIPPED COFFEE	**CAPPUCCINO**	**VANILLA CAPP.**
TEA	**CAFÉ LATTE**	**TOFFEE CAPP.**
DECAF COFFEE	**MOCCACCINO (CAFÉ MOCHA)**	
WHIPPED DECAF	**CHOCOLATE**	

Note: **Changing a drink name does not affect the actual parameters that control the drink. It only affects the name displayed when the selection is chosen or audited**. If the name of the chocolate selection is changed to VANILLA CAPP, the chocolate ingredient motor, valves, and mixer will still run when VANILLA CAPP is selected.

TIMED ACTIVITIES

The TIMED ACTIVITIES option allows the machine to be set to different states on a timed basis. The states currently available are as follows:

(a) Free – causes the machine to offer drinks free.

(b) Flush – causes the machine to flush itself.

(c) Shutdown – causes the machine to stop vending.

(d) Unused – timed activity slot not used, operate as normal.

(e) Flush Brewer – causes the machine to clean Brewer

(f) Economy – causes the machine to temporarily shutdown until a drink is requested. The water in the boiler is maintained at a reduced temperature and a message prompting potential users to press start and so cause the machine to heat and return to operation is displayed. After a period of inactivity the machine returns to low power mode.

Entering TIMED ACTIVITIES provides access to a sub-menu consisting of six timed activities. Two types of timing routine, Daily and Block, are available for each activity.

NOTE: Upon entering TIMED ACTIVITIES, press **4** on the external keypad to move blinking cursor to "**unused**". Then press **4** or **6** to view the six available activities. Press **0** to enter and adjust.

(a) Daily

DAILY 0930 1730
MON>FRI REDUCED

The above display describes a timed activity where, between 9:30am and 5:30pm, Monday to Friday, the machine operates in a reduced price mode.

(b) Block

BLOCK 0930 MON>
1730 FRI REDUCED

The above display describes a timed activity where, between 9:30am on Monday and 5:30pm on Friday, the machine operates continually in the reduced prices mode.

When entering a FLUSH state into a daily routine, a comma will appear between the start and end times, indicating that flushing will occur at the two specified times and not between them. Where only one SELF CLEAN per day is required, the time entered in the second slot should be 1 minute later than the first. If both times entered are the same, flushing may not take place.

Note: The FLUSH state **must not** be entered in a block routine.

The displayed activity can be changed by altering the data using the LEFT, RIGHT, UP and DOWN keys. With the correct data entered, the ENTER key is pressed to move to the next activity or ESC (escape) pressed to leave.

TEMPERATURE SETTINGS

Entering TEMP SETTINGS provides access to the following sub-menu:

- DESIRED TEMP – allows the desired water heater temperature to be set.
- MINIMUM TEMPERATURE – allows the minimum temperature at which vending may commence to be set.
- **NOTE: If the minimum temperature is too close to the high end temperature (i.e. temperature gap is too small), multiple vends CAN cause the water temperature to fall low enough to cause the temperature sensor to inhibit dispensing. To correct this problem, set the MINIMUM temperature closer to 135° F (the lowest temperature allowed) thus widening the temperature gap which the sensor monitors.**

The above values are set in degrees Fahrenheit. The minimum possible temperature the control system can measure is 135°F (57°C), and it is not possible to set a desired temperature below this value. The value read by the analog to digital converter on the control board corresponding to the temperature set is displayed in parenthesis next to the °C value.

OUTPUT TEST

The OUTPUT TEST allows any of the output devices to be turned on and off to aid with diagnostics. On entering output test, the display will show the device name, a prompt indicating that ↑↓ and ENTER keys are active, and a number indicating the position of the device in the list. The arrow keys are used to scroll through the list of devices while the ENTER key will activate and de-activate the device.

Note 1: *It should be noted that some specific devices (specifically the SSR, Cup Spiral Motor and the Inlet Valves) may not respond as anticipated to OUTPUT TEST. The software controlling these devices is*

constantly running and will quickly override the control action of the output test. The output test function for the dispense arm is another special case. If either of the dispense arm actuators (DISPENSE ARM or DISP. ARM FORWARD) is invoked in output test, the arm will advance to ready to vend position, and then return to the home position.

Note 2: The output test function will not work if the Trained Technician program was entered when the machine was powered up with the ENG LINK in place. See Section 3 paragraph 4.

INPUT TEST

The INPUT TEST function allows the state of the control board input signals to be examined. The input test menu is common to both versions of the Hot Beverage Merchandiser line and as such contains references to all possible input devices. The state of brewer position index inputs will be visible even if the brewers themselves are not fitted on a particular version.

On entering INPUT TEST, the display will show the device name of the first device in the list and logical state associated with the condition of its input. That is to say the meaning of the state of the input is displayed rather than a simple high or low value. Thus the values displayed for the waste probe are WET or DRY. The screen will dynamically reflect the condition of the input. The ↑↓ keys are used to step through each input in turn. The following input signals can be examined:

INPUT DEVICE	STATE1	STATE2
Coffee brewer index	CBREWER HOME	CBREWER NOT HOME
	CUPS AVAILABLE	CUPS NOT AVAILABLE
	CUP DROP IN POS	CUP DROP OUT POS
Dispense arm 'forward-ready-to-Vend position' micro switch	IN V POS	NOT IN V POS
Dispense arm 'HOME position' micro switch	ARM NOT HOME	DISP ARM HOME
Boiler level probe	BOILER IS WET	BOILER IS DRY
Waste bucket probe	WASTE IS WET	WASTE IS DRY
User cup sensor	CUPSNS:NO CUP	CUPSNS: CUP PRES
Brewer pressure switch	NO PRESSURE	PRESSURE
Jug switch	0 (Normal)	1 (jug or free)
Free input (J6 pin 13)	OFF	ON
Security (J6 pin 10)	OFF	ON

SET PRODUCT CONSTANTS

The Hot Beverage Merchandiser control system maintains a counter for the amount of each ingredient consumed. For these counters to work correctly, the throw rate in grams per second actually dispensed from each ingredients canister must be input. One way to determine the correct value is to catch the ingredient dispensed during ten vends of a particular type and then divide the weight of ingredients so dispensed by the auger run time figures set for that vend. For this to work all scale factors must be set to 100.

If the ingredient counters are not required this facility can safely be ignored. The values entered are for audit purposes only and do not affect the drink formulations or machine operation in any way.

MACHINE STATUS

Entering MACHINE STATUS provides access to the status of the following machine features.

- TEMP STATUS (VRM)
- I²C HEALTH
- MEMORY USAGE*
- SOFTWARE VERSION

TEMP STATUS

The display provides information relating to the heater control circuit. A power (PWR) level value and a graphical representation of the drive waveform to the heater are displayed. The temperature reading in degrees Fahrenheit derived from the thermistor probe in the water boiler is displayed along with the analog-to-digital converter value from which the temperature was calculated in parenthesis.

I²C HEALTH

This display provides information relating to the I²C serial link between the Controller and RIO Boards. A percentage "health" reading is given, indicating the success rate of communication of the link. A reading of less than 100% may indicate the presence of electrical noise. The number of negative acknowledgements (NACKS) is also recorded.

SOFTWARE VERSION

These displays indicate the version of the software installed on the Controller Board. (Program + EPROM = Firmware). The firmware version US-WIT-XX should be quoted when seeking advice.

SET DRY VENDS

Entering SET DRY VENDS provides access to the following sub-menu:

VENDS ARE WET

All vends are dispensed with water as normal.

VENDS ARE DRY

All vends are dispensed without water. This allows ingredients to be weighed. If a multi-ingredient drink is selected, only those ingredients will be vended.

SERIAL NUMBER

Entering SERIAL NUMBER accesses the following sub-menu:

M/C SERIAL NUMBER

The machine serial number consists of 8 digits and identifies the machine on audit trails.

M/C AUDIT NUMBER

The machine audit number indicates the number of audits carried out to date.

CONFIGURE MACHINE

Entering CONFIGURE M/C provides access to the following machine configuration sub-menu headings:

GENERAL SETTINGS

The GENERAL SETTINGS menu provides access to a number of diverse parameters controlling machine operation that do not naturally group with any of the other control variables.

Parameter	Possible Values
SILENT KEYS	0 (default) – Keys give audible feedback. 1 – Keys are silent.
TOKEN ONLY	0 (default) – Messages appropriate to coins/card system or free. 1 – Messages appropriate to token only operation.
CHIPPER/CHIPKNIP	1 (default) – Suppress credit display if just card system fitted. 0 – Normal display of credit.
FLUSH ALARM	0 (default) – Sound loud siren while flushing. 1 – Sound siren quietly while flushing.
WATER SHOT START	10 (default) – Time after a fresh coffee dispense cycle ends that a grout clearing water shot starts. Consult factory before changing.
WATER SHOT DUR	20 (default) – Duration in 1/100 seconds that the water shot described above lasts. Consult factory before changing.
BELT WARN TIME	700 (default) – Time, in 1/100 seconds, after the pressure sensor should have reported the coffee brew chamber depressurized but has not, that a "New filter belt" warning is displayed.
BELT FAULT TIME	2000 (default) – Time, in 1/100 seconds, after the pressure sensor should have reported the coffee brew chamber depressurized but has not, that a "New filter belt" fault occurs.
ROTATION LIMIT	100 (default) – Time, in 1/100 seconds, after the pressure sensor should have reported the coffee brew chamber depressurized but has not, that a flag is set to perform an extra rotation of the brewer at the end of the next brewer drink cycle.
NO BELT WARNING	0 – Display a message on the LCD when the filter needs changing. 1 - Do not display a message on the LCD when the filter needs changing.
ENG MODE TIMEOUT	0 – Do not automatically exit Trained Technician's mode. Factory default. 30 (recommended) – Time in 1/10 seconds after which, if no key is pressed exit from the Trained Technicians program will commence.
MAX EXTRA CUPS	2 – Number of retries at dispensing a cup before a long delay until next cup occurs to deter theft.
	170 Size of drink in cc. Assuming machine default parameters and valves were set up to give 170cc, then this variable can be used to scale all drinks together to rapidly accommodate changing cup sizes.
SIMCARD LOCATION	J4 - Location of attached smart memory (simcard) to save configuration data. J6 - Location of attached smart memory (simcard) to save configuration data.
CURRENCY	Controls The symbol printed on the LCD before monetary values. € $ £ etc.
FREE INPUT	0 – Disable free input on J6 pin 13. 1 – Enable free input on J6 pin 13. (Disable/Enable exist because in the event of static damage machine can continue operation if this input is ignored)
SECURITY INPUT	0 – Disable security input on J6 pin 10. 1 – Enable security input on J6 pin 10. (Disable/Enable exist because in the event of static damage machine can continue operation if this input is ignored. Can be unrecoverable if set when damage has already occurred.)
BREWER WATER CAP	Maximum open time for brewer water valve 1/10s second. Stops the operator putting too much water in the brewer (if it is set correctly).
BREWER ING. CAP	Maximum run time for coffee motor 1/10s second. Stops the operator putting too much coffee in the brewer (if it is set correctly).

DRINK SIZES	
REGULAR SCALING	When you press for regular you get the regular drink with this scale factor applied to its settings. This is now somewhat redundant and should be left at the value (170). Changes are best done to the actual drink settings.
LARGE SCALING	When you press for large you get the large drink with this scale factor applied to its settings. This is now somewhat redundant and should be left at the value (170). Changes are best done to the actual drink settings.

SET MACHINE TYPE

The SET MACHINE TYPE menu provides the means by which the control board software is configured to produce the desired menu and work with the appropriate combination of brewers and whippers present in the machine. This operation must be carried out when fitting a new or replacement board.

On selecting this option, the display will change to one of the following forms:

MACHINE TYPE #nn
ABCDEFGHI

Where ABCDEFGHI is an abbreviated description of the machine configuration and #nn is the number of the configuration for reference purposes. The ↑↓ keys are used to scroll through the list of possible configurations. Pressing ENTER selects the new configuration. While the set up process takes place, the LCD indicates the status of the procedure. On completion, the screen reverts to the SET MACHINE TYPE menu. In order to aid understanding the following table contains an explanation of the abbreviations used.

Abbreviation	Explanation
SFBC	Fresh brew coffee and other flavored coffee selections.
INSTANT	All Drinks from instant products.

NOTE: Care should be exercised when using this option, as all previous settings will be lost.

Table 1. Machine Configuration Matrix

KEY **• = instant coffee/tea** **♦= Fresh brew coffee**	Coffee	Whip Coffee	Decaf	Whip Decaf	Cappuccino	Café Latte	Café Mocha	Espresso	Tea	Chocolate	Chocomilk	Cup Only	Hot Water	Config No.
INSTANT	•	•	•	•	•	•	•	•	•	•	•	•	•	2
SFB	♦	♦	♦	♦	♦	♦	♦	♦	•	•	•	•	•	1

SET CASH SYSTEM

This option in this sub-menu allows the type of credit device to be selected. Existing versions of the Hot Beverage Merchandiser range of equipment support MDB change giving coin mechanisms and MDB and DIGICARD card reader inputs. At present NO SYSTEM, MDB PROTOCOL and DIGICARD are the only options, however other choices allow the selection of proprietary systems may be added in future versions.

If no payment system is connected, NO SYSTEM should be selected.

To enable an MDB peripheral MDB PROTOCOL should be selected. If MDB PROTOCOL is selected and communication with at least one peripheral does not take place the error screen below will be displayed.

OUT OF SERVICE
MECH LINK ERROR

HARDWARE SETTINGS

This sub-menu allows some machine components to be disabled to allow limited functionality to be restored in the event of a failure. For example in the event that one of the cup sensor PCBs fails, it is possible to inform the control system that these are not fitted. Likewise in the event of a brewer failure setting the COFFEE BREWER to NO will allow any selections not reliant on the brewer to operate. While all possible system components are visible in this sub-menu, irrespective of the machine's configuration, it is only meaningful to ENABLE components that actually exist in the machine. Thus it makes no sense to set TEA BREWER to YES on all-instant machine and indeed will result in an IO MAPPING ERROR.

Parameter	Function
CUP SENSORS	Enable/disable user cup sensors. Default is YES sensors fitted.
DISPENSE ARM	Enable moving the dispense head. Default is YES. Can be usefully disabled only for diagnostics. The machine cannot operate with this item deselected.
TEA BREWER	NO – Default setting for model 3205/3206. WARNING: Do not change this setting or machine may not operate correctly.
COFFEE BREWER	Enable Coffee Brewer – Default for double fresh brew configurations is YES. Instant and single fresh brew configurations NO.
COLD UNIT	Indicates the type of cold drinks unit installed. Default value is NONE. WARNING: Do not change this setting or machine may not operate correctly.
NO CUP MECH	Allows a machine to operate without a cup unit fitted i.e. reliant on users providing their own cups. Default is NO i.e. there is a cup mechanism fitted.
VEND DOOR	YES – Default setting which enables the automatic vend door. NO – Disables the automatic vend door.

MDB CONFIG

This menu provides the means to modify parameters related to MDB peripherals connected to the machine. At present these are limited to those associated with a change giving mechanism. However as support for additional peripheral is added so additional settings will be added as appropriate.

The following table lists the sub-menus and parameters that are configurable:

Parameter	Function
EXACT CHANG LIM	This monetary value represents the value of coins remaining in the change tubes below which the EXACT CHANGE message is displayed. **NOTE**: For the audit system to work correctly it is important that all coins are inserted via the coin insert slot instead of being placed directly in the change tubes.
VEND BEFORE CHANGE	Possible values are YES and NO. When set to YES, change will not be given until a vend cycle has taken place.
CHANGER MODE	Possible values are SINGLE VEND and MULTI VEND. When set to MULTI VEND, change will only be paid in response to depression of the escrow lever. When set to SINGLE VEND, change will be given automatically following the vend cycle or in response to depression of the escrow lever.
AUTO CONFIGURE ACCEPTANCE MASKS	Runs a procedure to carry out automatic configuration of the coin mechanism acceptance masks.
ENABLED NOTES EXACT CHANGE	Specifies which paper currency (bill or notes) the bill validator will accept.
ENABLED NOTES NORMAL	

ENABLED COINS EXACT CHANGE	This variable controls which coins are accepted in circumstances where the exact change message would be displayed. The MDB protocol provides for up to 16 coins. For the purposes of enabling or disabling acceptance, the coins are represented by the letters A through P with A being the least value coin. The acceptance status of each coin is shown by a 1 or 0 below the corresponding letter. One indicates acceptance (1=accept) and zero indicates rejection (0=reject). PONMLKJIHGFEDCBA 0000000000000111 Applied to a silver only changer with 5, 10, 20 & 50p coin tubes the above setting will enable acceptance of the 5, 10 & 20p coins.
ENABLED COINS NORMAL	This variable controls which of the coins that an attached changer is programmed to accept should actually be accepted in normal operation i.e. other than exact change mode. For the purpose of changing the coins to be accepted the procedure is the same as for Enable Coins Exact Change above.
MAX CREDIT	This monetary value defines the largest amount that can be accepted by the mechanism.

EVA-DTS CONFIG

The EVA-DTS configuration menu provides the means to modify parameters controlling the format and method of auditing the machine. At the time of writing, the machine supports EVA-DTS audit via DDCMP protocol IRDA transceiver or Direct connect. The sub-menus of this menu are:

PREVIOUS AUDIT

On selecting this option, the LCD screen will show a screen detailing the time and date of the last audit. The layout of the screen is as shown below:

NO:XXXX **ID:**YYYYYY
DD/MM/YY 00:00

Where

- XXXX represents the audit number maintained by the vending machine and incremented after each audit.
- YYYYY represents the data carrier ID.
- DD/MM/YY is the date the audit took place.
- hh:mm is the time at which the audit took place.

METHOD OF AUDIT

Parameter	Function
AUDIT METHOD	Possible values are: DDCMP - selects infrared or direct connect audit. DISABLED - turns off the audit system. DEX-UCS selects a DEX audit system.

AUDIT CONFIG

Parameter	Function
STATION ADDRESS	Default 7 – Identifies the unit as a VMC for audit purposes.
SECURITY CODE	Default 0 – Any data carrier may audit the machine. The code is set by a data carrier. Once set by a carrier only a carrier with the appropriate code may access the machine.
PASS CODE	Default 0 – Any data carrier may audit the machine. The code is set by a data carrier. Once set by a carrier, only a carrier with the appropriate code may access the machine.

PRODUCT CODES

EVA DTS product code for each selection can be set by the operator if they don't like the default values.

OPERATOR CODE

Use this menu to change the operator's access code. Also refer to PROGRAMMING on page 24.

MANAGER CODE

Use this menu to change the Manager's access code. Also refer to PROGRAMMING on page 24.

TRAINED TECHNICIAN CODE

Use this menu to change the Trained Technician's access code. Also refer to PROGRAMMING on page 24.

FREE DRINK CODE

Use this menu to create a free drink code which can be used to perform a test vend without having to insert money or opening the door to use the internal keypad. While the machine is in normal operation, **press the 9 button twice on the external keypad followed by the four (4) digit code**.

CARD ACTIONS

Available only if a smart card is inserted in the smart card reader. Allows config/audit data to be saved or read from the card.

REPLACEMENT CONTROL BOARD SETUP

The FMCU Control Board (p/n 4214454) used in the Hot Beverage Merchandiser utilizes static sensitive components. Precautions for handling static sensitive devices should be observed when handling this item.

The Hot Beverage Merchandiser control board is programmable on two levels. At the lowest level the board's Flash memory (firmware), can be reprogrammed to enable a wide range of different machines to be controlled. This level of programming requires a PC and special interface equipment and is essentially a factory/main base activity. The firmware programmed into a board can be read from the label fitted to the component side of the board or if placed in a functioning machine using the Machine Status menu. Please refer to section 3 paragraph K.

The Hot Beverage Merchandiser software versions will typically be of the form "US_WIT_XX". "US_WIT" denotes the program and XX is a number defining the version. New versions will be generated to support customer specific configurations and behaviors. It is therefore important to check that the firmware programmed into a board is appropriate to the machine to which it is to be fitted, as older version may not support a particular machine type.

The second level of programming involves setting up the board to operate the correct predefined menu configuration for the machine to which it is fitted. This section details the procedure to achieve this:

- Switch off the machine.
- Fit the new board and plug in all connectors. It is not possible to put connectors in incorrectly as the plug sizes prevent this.
- Fit the shorting link between the pins CLK BAT to enable the battery support for the clock.
- Fit a shorting link between the pins labeled ENG LINK.
- Turn on the power.
- The display will change to INGREDIENT TIMES.
- Select the appropriate configuration from within the SET MACHINE TYPE sub-menu of the CONFIGURE menu.
- Remove the shorting link from the ENG LINK pins.
- Switch the machine off and on.
- Re-enter programming mode using the default code (4444).
- Enable the MDB protocol if a coin/card system is fitted.
- Set up the Operator and Manager level codes if different from the default.
- Finally adjust the drink settings as required and test each selection.

NOTES

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