NEXUS

TECHNICAL MANUAL

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FOREWORD

1. The information contained in this service manual is applicable to the Nexus beverage machine. Four versions of each type are available:

   (a) Instant (INST)

   (b) Single Fresh Brew (SFB)

   (c) Double Fresh Brew (DFB)

   (d) Bean To Cup (BTC)

2. The machine described in this manual is the Nexus SFB version, which includes features of all models. Due to customer requirements, however, some features may vary from the one described, e.g. extras fitted, variations in programming etc.

3. Maintenance of the beverage machine must only be undertaken by personnel who are authorised and suitably qualified.

4. The Manufacturer reserves the right to make changes without notice to the design of the beverage machine, which may affect the information contained in this manual.

5. Outline Specification

(a)	Dimensions		
	Height	1830 mm	(6”)
	Depth	680 mm	(27”)
	Width	700 mm	(27 ½ “)
(b)	Weight	100kg (hot only versions)	
(c)	Operating Environment		
	Temperature	1°C min - 40°C max	
	Humidity	TBA max	
(d)	Cup Capability		
	Quantity	Standard Version Plus Versions 73mm	600 cups 950 Typical
	Sizes	70, 73 & 78 mm diameter	
(e)	Chiller Unit		
	Weight	20kg	
	Refrigerant	R134A	
	Refrigerant Weight	TBA	
(f)	Carbonator Unit		
	Weight	26.5kg	
	Refrigerant	R134A	
	Refrigerant Weight	155gms	

SAFETY WARNINGS

1. Maintenance of the beverage machine is only to be undertaken by trained personnel who are fully aware of the dangers involved and who have taken adequate precautions, e.g. ensuring that, whenever possible, the beverage machine is isolated from the mains electrical supply.

2. Lethal voltages are exposed when any panel inside the cabinet is removed and the mains electrical supply is available (i.e. on/off switch is overridden). The mains electrical supply is maintained to the Carbonator even when the door is open.

3. The beverage machine must be earthed.

4. Keep clear of the Brewer Unit when it is indexing.

5. The beverage machine is a heavy item. Ensure that sufficient personnel are available for lifting and transporting the machine. Use proper lifting procedures and equipment.

6. 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 heater 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.

7. The water available from the option shower head cleaning attachment is hot enough to scald or burn. Appropriate care must be taken when using this attachment.

   Note: Initially the water flowing from the attachment will be cool, but will rapidly become extremely hot.

8. 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 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.

9. Care must be taken to protect the beverage machine 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 operational use until it has been checked and approved for use by the service agent.

10. Young children, the aged and the infirm should not be allowed to operate the beverage machine unsupervised, in order to protect them from the risk of being scalded by hot beverages.

11. Replacement of the Type Y mains cable requires special tools. Should the cable become damaged, a trained person from an approved service agent must only carry out replacement.

Section 1
Technical Information

INTRODUCTION

1. The Nexus range consists of four basic types of coin-operated, microprocessor controlled beverage machines that dispense a range of hot and cold drinks in response to keypad selections. The main difference between the models is the option of either Instant or Fresh Brew drinks with or without a chiller or carbonation unit and optionally enhanced cup capacity.

2. Four versions of each model are available:

   (a) Instant (INST) - Instant Coffee and Tea

   (b) Single Fresh Brew (SFB) - Fresh Brew Tea and Soluble Coffee

   (c) Double Fresh Brew (DFB) - Fresh Brew Tea and Coffee

   (d) Bean to Cup (BTC) - Fresh Brew Tea and Bean Coffee

3. This manual uses the SFB version as the basis for examples. Where significant differences between versions exist, this will be highlighted in main body of the document. Due to customer requirements, however, some features may vary from those described, e.g. extras fitted, variations in programming etc.

4. Three options are available to add a cold drinks capability to machines in the Nexus range. An optional chiller allows the addition of a cold water selection. A chiller incorporating a pair of syrup pumps allows for the addition of two flavoured cold drinks, whilst a carbonator provides the option of two flavours of still and carbonated drinks in addition to cold water. The same options are available on the enhanced cup capacity versions, but the enhanced cup capability is not retrofittable, i.e. it must be specified at the time of order.

5. Cups from a cup drop mechanism are dispensed to contain the drinks. However, a key-operated jug facility is also provided.

6. Selection is made on a 10 buttons attached to a LCD display panel that shows status and drink selection information.

7. The status of the machine may be monitored, and the configuration altered, by accessing a menu of program options using the internal keypad. Each option comprises a number of sub-options, the settings of which can be altered.

8. A feature of the Nexus beverage machines is the mobile dispense head which moves the head to a parked position away from the cup port after each drink is vended, preventing the possibility of any residue from the previous drink dripping into the next one. The dispense head is fitted with two groups of nozzles, one for hot drinks and one for cold. Upon selection, the required group is moved into place above the cup port.

9. The Nexus machines require a single-phase 240V electrical mains supply from a domestic 13A outlet, and a cold water supply from the domestic cold water main. These services enter the machine at the rear of the cabinet.

GENERAL DESCRIPTION

10. The operational components which form a Nexus beverage machine are housed in a metal enclosure, access to which is gained by a swivel door secured by a key operated locking mechanism. Turning the key in the lock releases a door handle, which allows the locking mechanism to move to the unlocked state and the door to be opened. With the door open the mains isolation switch for ON/OFF operation of the machine is visible in the top left corner of the machine.

11. 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, e.g. Ingredient Canisters, Cup Turrets, Coin Mechanism, CO_2 Bottle, Waste Trays, etc. The remaining items of equipment, i.e. Water Heater, Valves, Electrical and Electronic components, etc, to which specifically the Engineer requires access (and from which the Operator must be shielded) are located behind the Ingredient Canisters and Whipper Motor and Dispense Head Assembly panel, at the rear of the cabinet.

CABINET FRONT

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

13. 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.

14. If fitted, the optional cold drinks unit is located in the lower left hand corner of the cabinet. In the case of a carbonated unit, the CO_2 cylinder is placed in the lower right hand corner of the cabinet with the two syrup containers at its side. A gas regulator with associated pressure gauge is fitted to the CO_2 cylinder in addition to an ordinary cylinder pressure gauge. The regulator is set to give an output pressure of 50 psi.

15. On the Fresh Brew versions a large plastic waste bucket is located underneath the Brewer Unit(s), in addition to the smaller one placed at the front of the cabinet, beneath the Cup Station (when the door is closed). Water heater and carbonator overflow pipes, and a waste 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

16. 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.

17. Cold water mains supply enters the cabinet through an aperture in the rear panel and connects to a twin chamber inlet valve for the hot water supply. There is also a similar twin chamber inlet valve dedicated to the cold water supply. This is fitted only in the case where a cold drinks system is required.

18. A length of tubing takes the water supply from the inlet valve into 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 (or two cut-outs, depending on the model) which, 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.

19. The Carbonator is provided with three inputs: cold water from the inlet valve; two types of syrup, pumped from the syrup containers; and carbon dioxide from the CO_2 cylinder. Still or carbonated water and syrup are taken from the carbonator, via separate tubes, to the dispense head.

20. 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.

21. 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.

22. 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 Board via an I^2C 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

23. The cold water mains supply enters the machine via a 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. If an optional cold drink system is fitted, a separate inlet valve is used to connect it to the mains water supply. In this eventuality a special 'Y' shaped mains water supply hose is required.

HOT WATER SYSTEM

24. Water is supplied via the Hot Inlet valve to the heater tank 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.

25. Depending on the type of hot drink 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 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.

26. The resettable cut-out sensor(s), mounted on the boiler overfill tube, 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 a 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.

COLD WATER SYSTEM

27. Water is supplied from the Cold Inlet valve to the chiller or carbonator unit (if fitted) via a pressure regulator. The chiller / carbonator provides either cold still water or cold carbonated water (carbonator only). The selected type of water (still or carbonated) is controlled by solenoid operated dispense valves. Flavoured syrup, if available, is added to the drink by means of oscillating pumps.

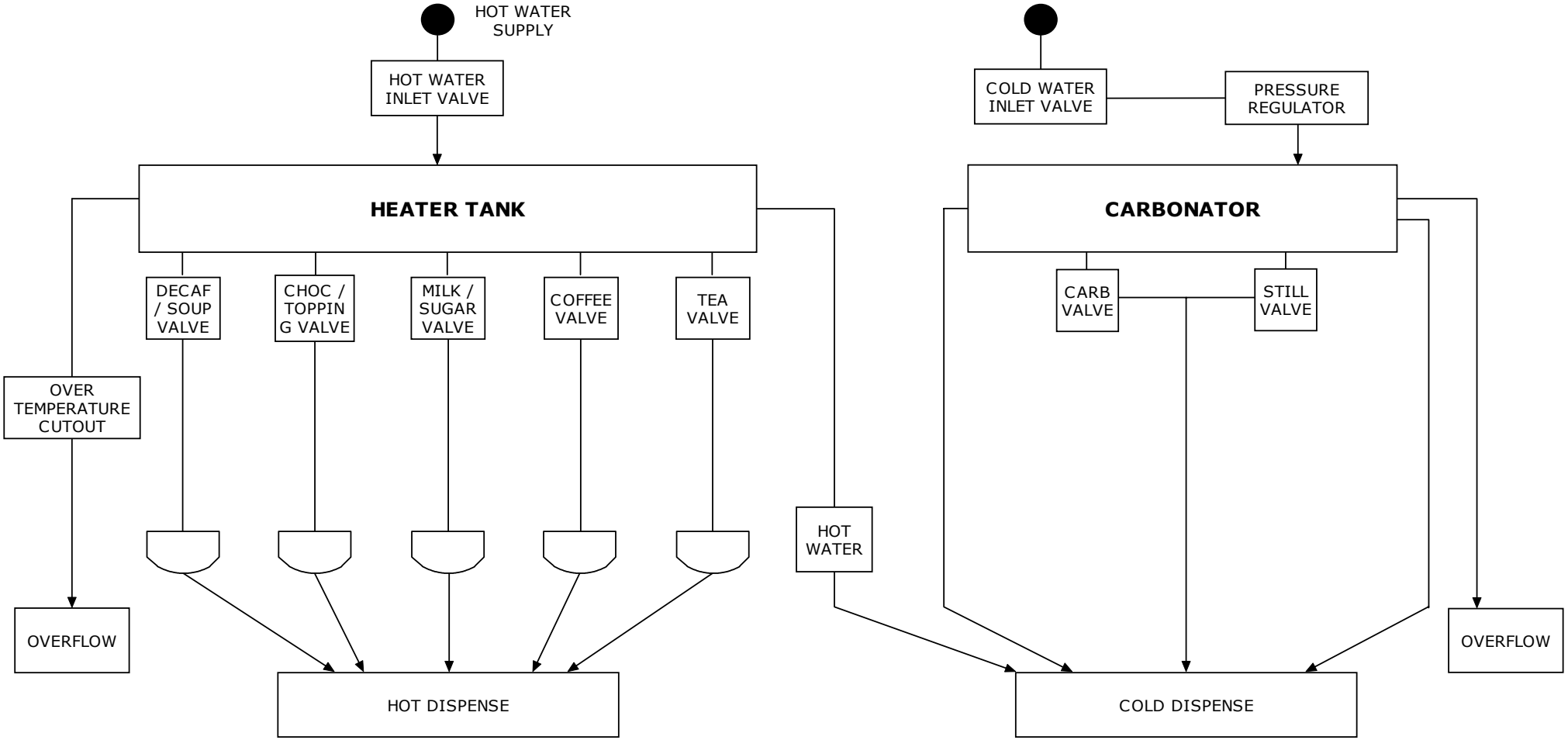


FIG 1.1A WATER SYSTEM FUNCTIONAL DIAGRAM INSTANT

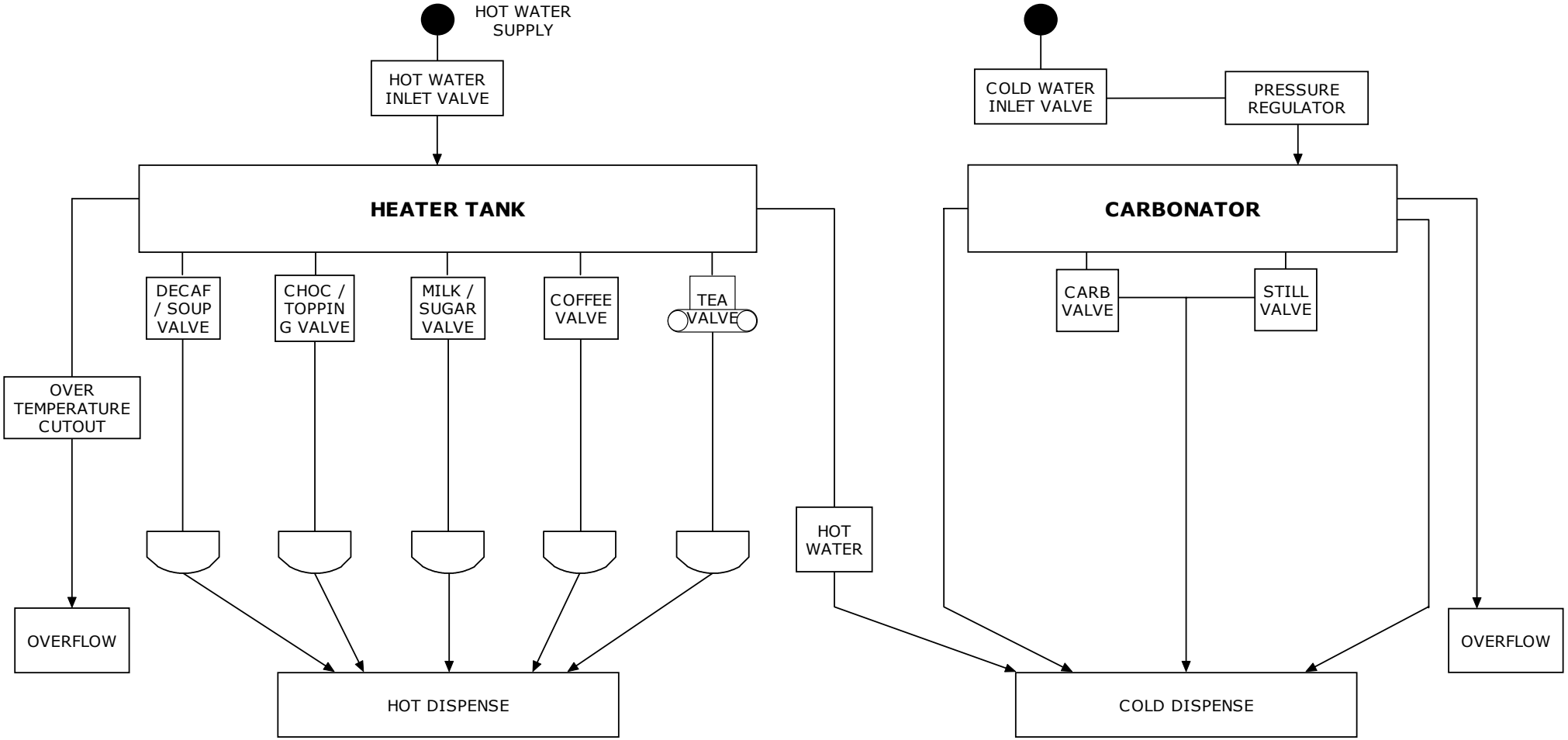


FIG 1.1B WATER SYSTEM FUNCTIONAL DIAGRAM SINGLE FRESH BREW TEA

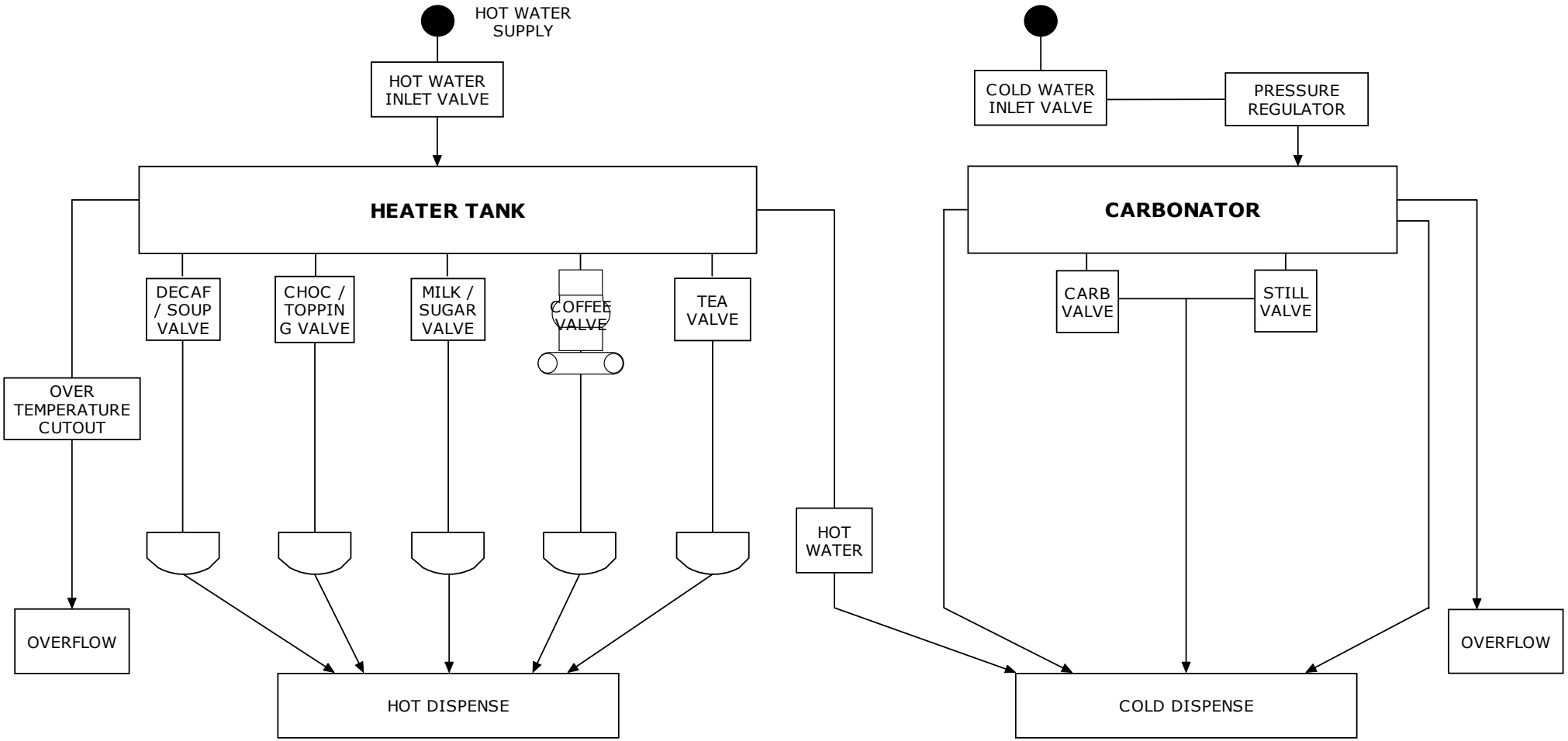


FIG 1.1C WATER SYSTEM FUNCTIONAL DIAGRAM SINGLE FRESH BREW COFFEE

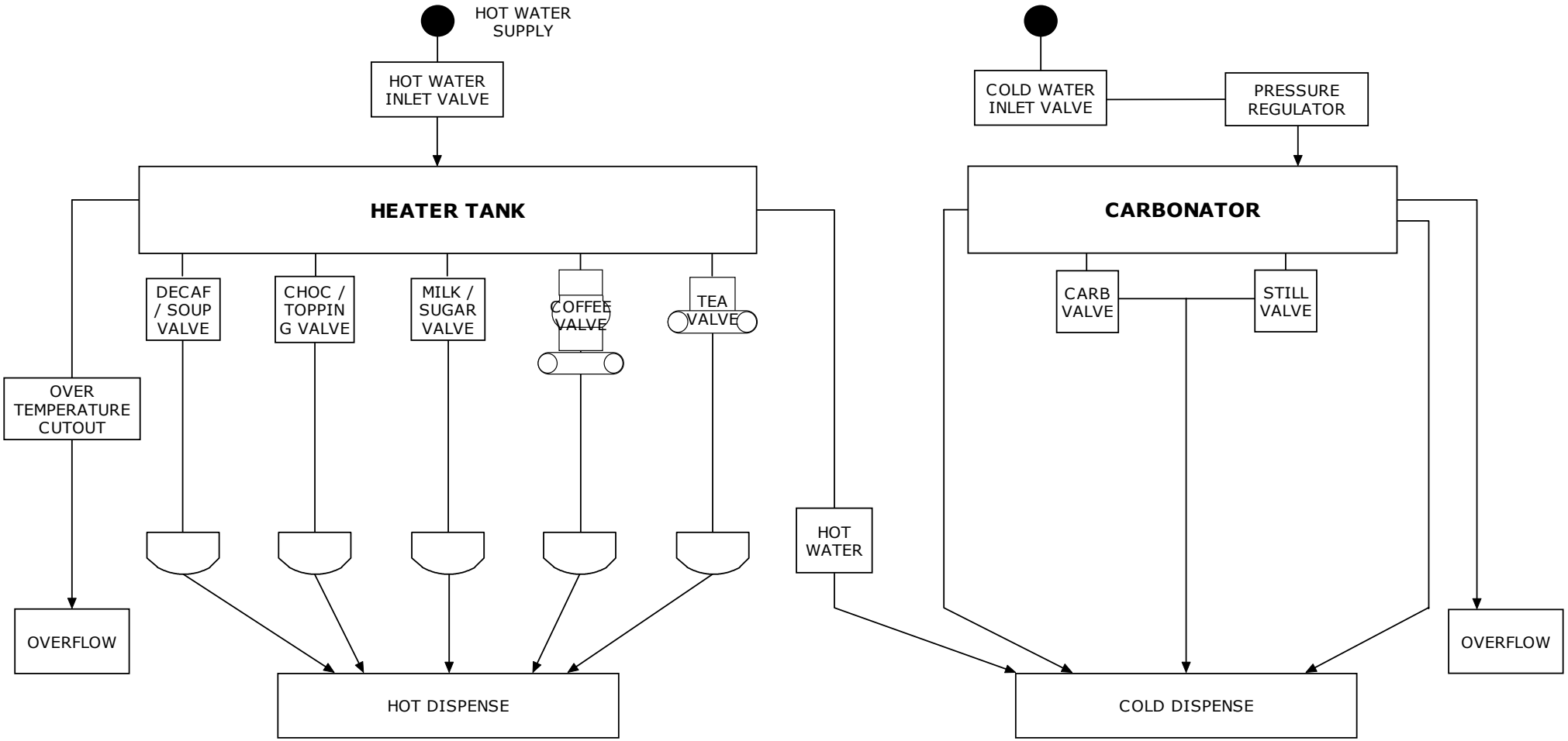
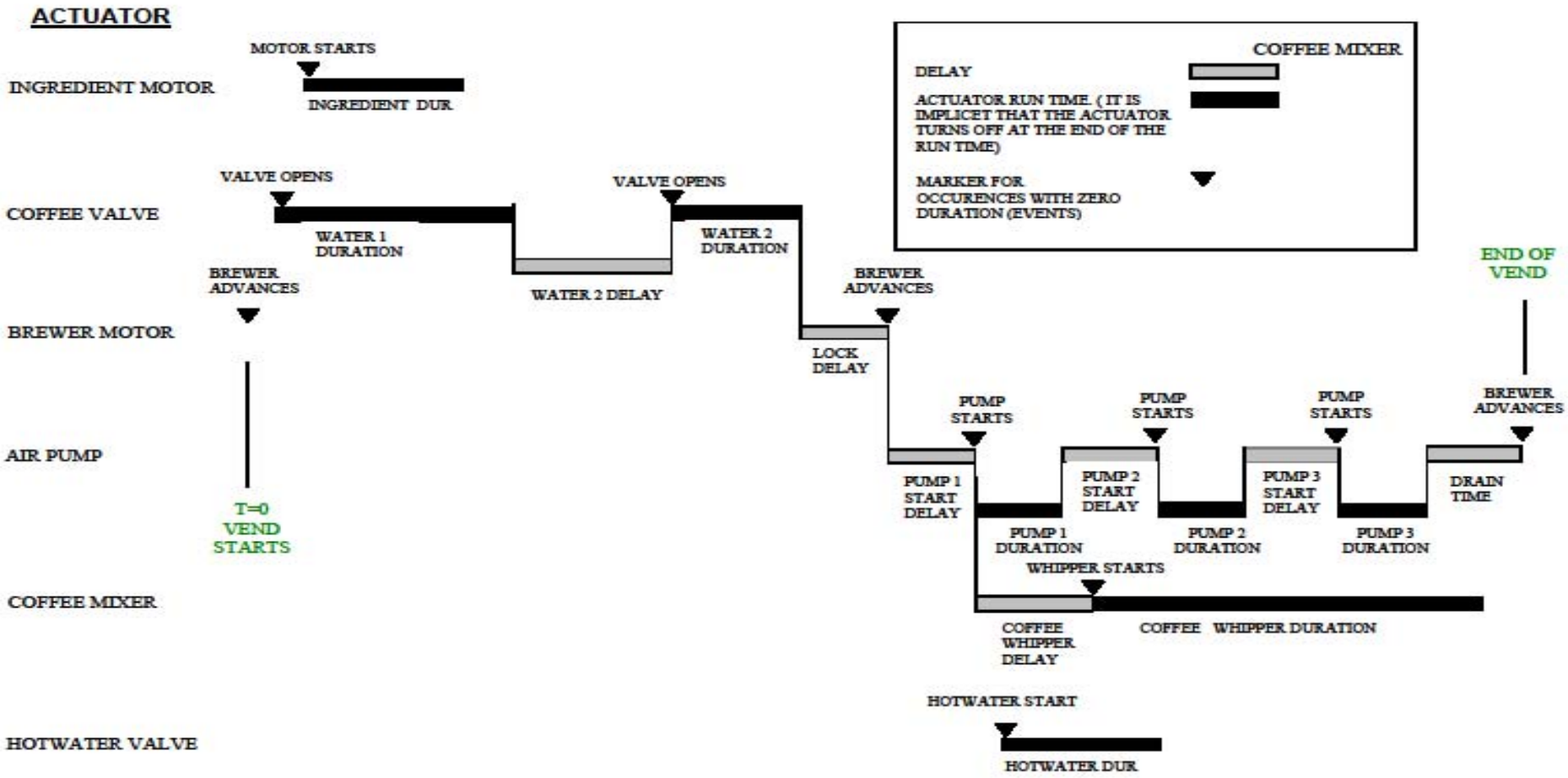
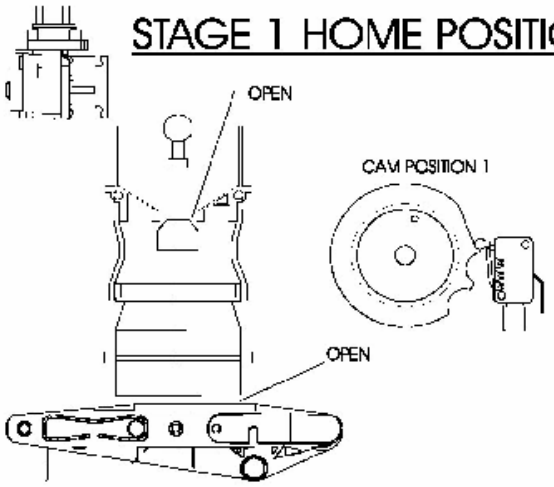


FIG 1.1D WATER SYSTEM FUNCTIONAL DIAGRAM DOUBLE FRESH BREW & BTC+SFBT

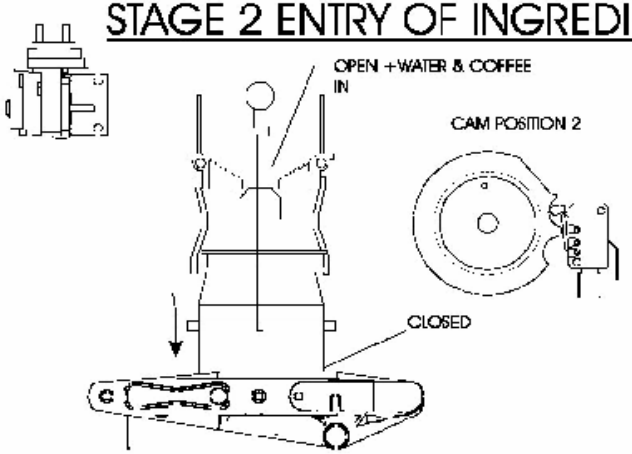
Coffetek Coffee Brewer Timing Relationships



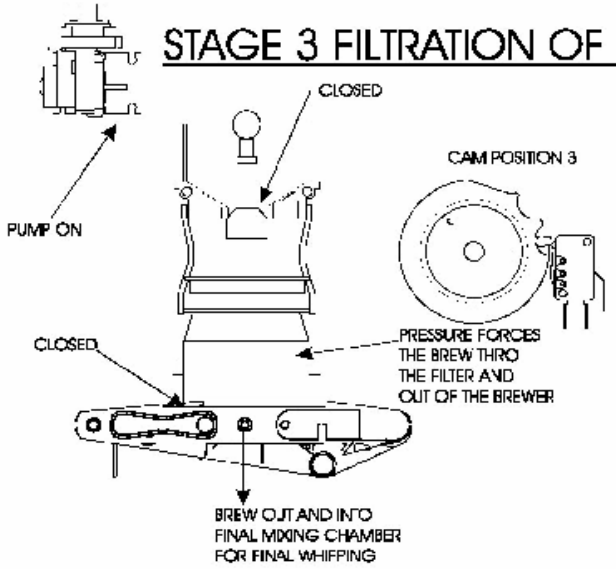
STAGE 1 HOME POSITION



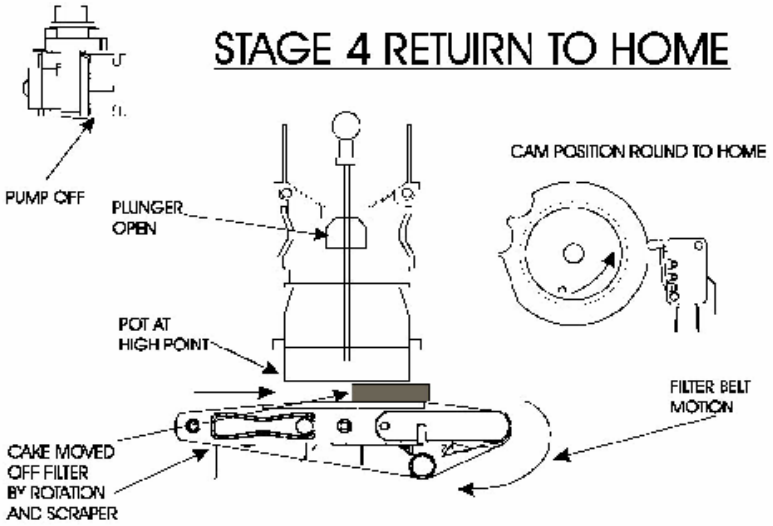
STAGE 2 ENTRY OF INGREDIENTS



STAGE 3 FILTRATION OF INGREDIENTS



STAGE 4 RETUIRN TO HOME



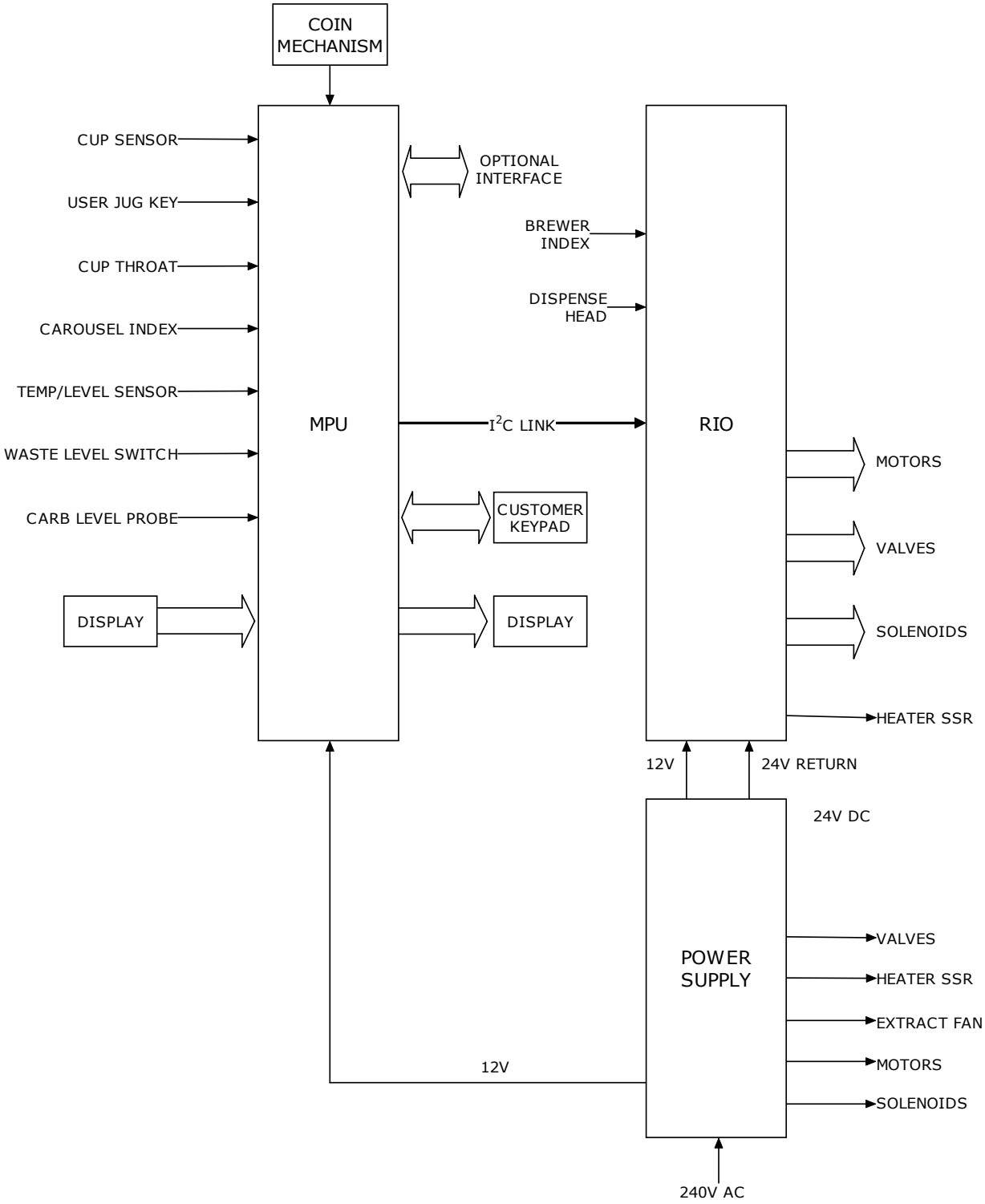


FIG 1.2 ELECTRICAL & ELECTRONIC SYSTEM – FUNCTIONAL DIAGRAM

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Section 2
Internal Keypad Functions

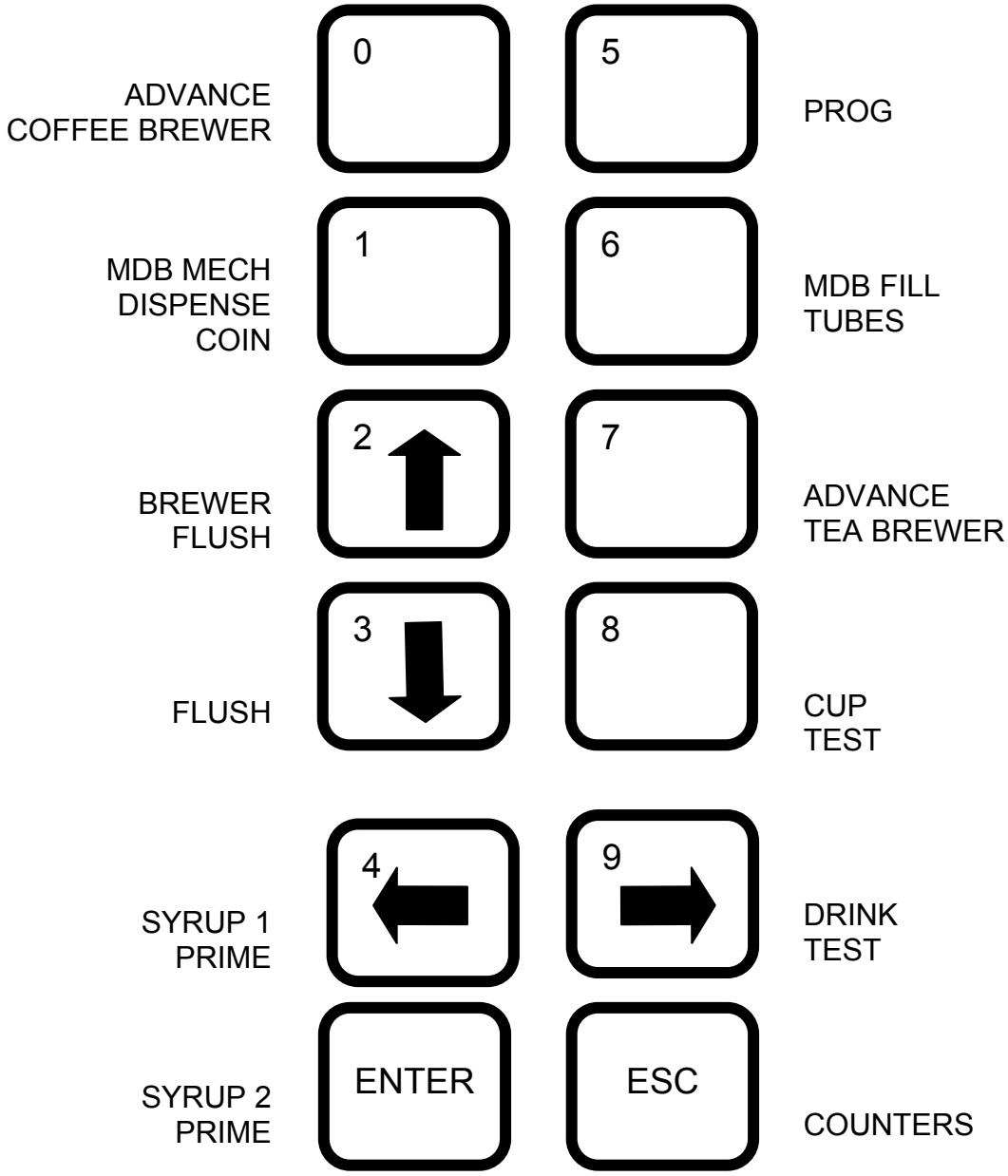


FIG 2.1 NEXUS INTERNAL KEYPAD

1. The internal keypad provides the facility to carry out a number of frequently required machine functions without the necessity to enter any of the user programs.

2. 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 ESCAPE key.

3. The functions available from the internal keypad are as follows:

(a) Advance Coffee Brewer.

If a coffee brewer is fitted, a single depression of this key will cause 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.

(b) MDB Mech Dispense Coin.

This key provides a method to empty the change tubes of an MDB coin mechanism, which does not itself possess the necessary buttons to do so. 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 lowest value coin tube in the coin 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 cause a coin to be dispensed from the currently selected tube. Pressing the ↑ (UP) or ↓ (DOWN) selects the next/previous coin tube. Repeated use of the ↑ (UP), ↓ (DOWN) & ENTER keys enables all tubes to be emptied. Pressing the ESCAPE key ends the process.

(c) Brewer Flush

This key provides the means to initiate a flush cycle of the fresh brew units. A single press of this key will initiate a cleaning cycle for all brewers fitted to the machine simultaneously. In the case of the instant version this function is redundant.

(d) Syrup 1 Prime

Manually controls the pump associated with flavoured syrup number 1. The first press turns on the pump; a second press turns it off again. Pressing the ESC key will also turn off the pump.

(e) Syrup 2 Prime

Manually controls the pump associated with flavoured syrup number 2. The first press turns on the pump; a second press turns it off again. Pressing the ESC key will also turn off the pump.

(f) Prog

This key activates the code entry sequence required to access the protected levels of the machine control programs. See section 3.

(g) MDB 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 ESCAPE will cause the machine to return to normal operation and zero the credit.

(h) Advance Tea Brewer.

If a tea brewer is fitted, a single depression of this key will cause 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.

(i) Cup Test

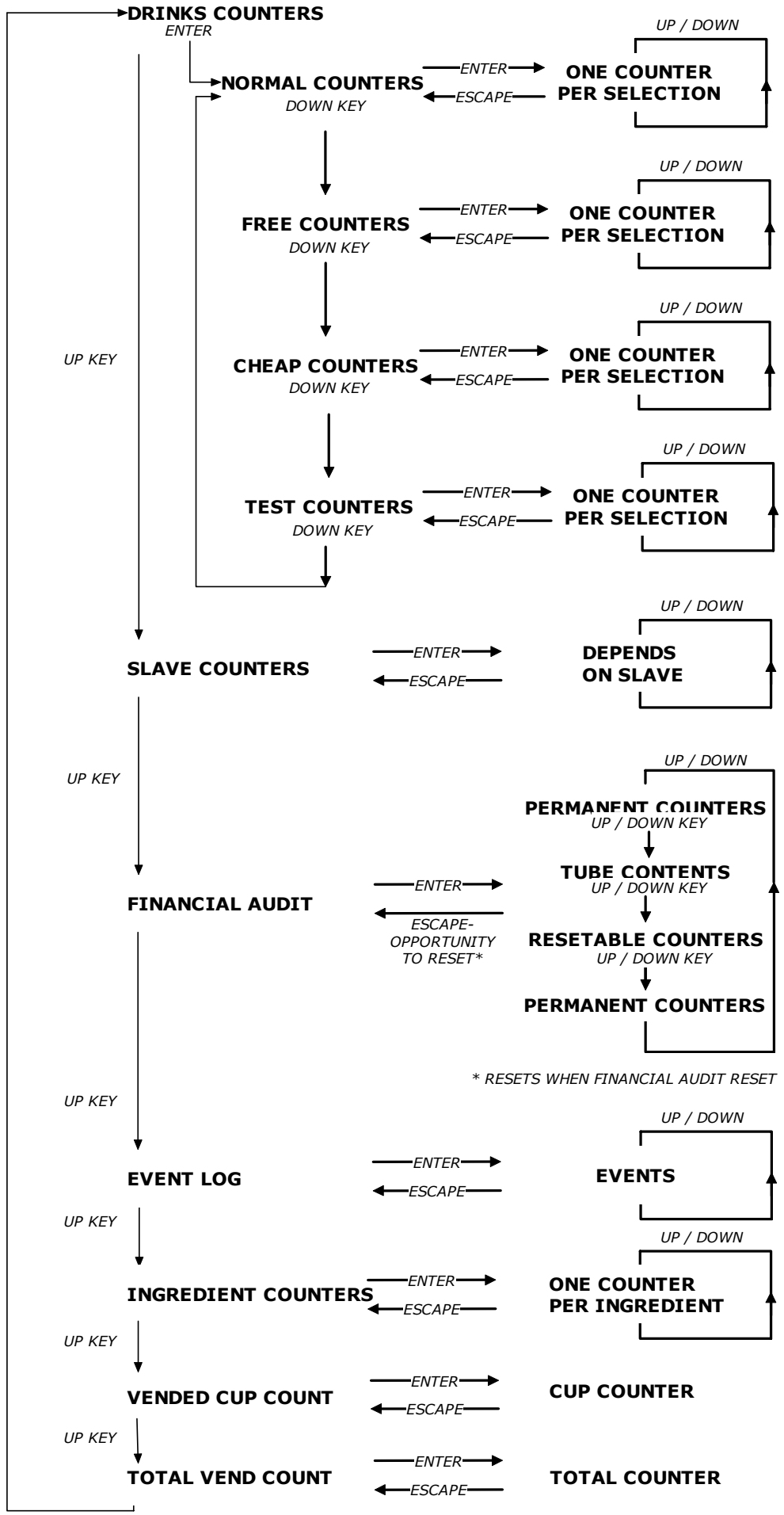
Causes a cup to be dispensed by the cup drop mechanism. The cup carousel will not index, unless a selection is made or a cup test performed. This reduces the possibility of damage; prevents damage to the carousel occurring because the cup stack has been pushed up from below causing a false out of cups signal to the control board.

(j) Drink Test

Allows the next selection to be taken as a free vend.

(k) 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 whilst the key presses required to navigate the menu are shown in *italics*.


DRINKS COUNTERS
ENTER
NORMAL COUNTERS
DOWN KEY
ENTER
ESCAPE
ONE COUNTER PER SELECTION
UP / DOWN
FREE COUNTERS
DOWN KEY
CHEAP COUNTERS
DOWN KEY
TEST COUNTERS
DOWN KEY
UP KEY
SLAVE COUNTERS
DEPENDS ON SLAVE
FINANCIAL AUDIT
ESCAPE- OPPORTUNITY TO RESET*
PERMANENT COUNTERS
UP / DOWN KEY
TUBE CONTENTS
RESETABLE COUNTERS
* RESETS WHEN FINANCIAL AUDIT RESET
EVENT LOG
EVENTS
INGREDIENT COUNTERS
ONE COUNTER PER INGREDIENT
VENDED CUP COUNT
CUP COUNTER
TOTAL VEND COUNT
TOTAL COUNTER

Section 3
Programming

1. The Nexus vending machine has a comprehensive configuration program to allow the behaviour and function of the machine to be changed to meet a customer's requirement. There are three levels of access to the configuration functions of the machine. Access 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

   - Limited range modification of recipes
   - Access to price related features
   - Set date and time
   - Inhibit selections
   - Set the free drink code
   - Change the name of a selection
   - Change Operator level access code
   - Factory default Code 3333

   (3) Engineer level access

   - Full access to all features
   - Factory default code 4444

ACCESSING THE USER PROGRAMS

2. The programs are accessed by pressing key 5 (PROG) 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 INTERNAL keypad.

   (4) After pressing the PROG key the display will change to: -

PLEASE ENTER ACCESS CODE

   (5) Use the numbered keys on the INTERNAL 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.

   (6) 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 labelled ENG LINK on the Control Board. This bypasses the entry of the four-digit code, giving the engineer level access immediately upon pressing the PROG key. **If the ENG LINK is left in place during power up, the machine will boot straight into the engineer's program with full access.**

NOTE REGARDING POWER UP PROBLEMS

3. The Nexus 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 the engineer's mode during this window.

   Some configuration faults related to unintialised 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 engineer'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.

PROGRAM FUNCTIONS

4. The following table shows the functions available and the access level required to use them within the Nexus configuration program:

FUNCTION	ACCESS LEVEL REQUIRED		
	OPERATOR	MANAGER	ENGINEER
INGREDIENT TIMES		• limited	•
SET DATE /TIME		•	•
SET PRICING MODE	•	•	•
CHANGE PRICES	•	•	•
INHIBIT DRINK		•	•
ALTER DRINK NAME		•	•
TIMED ACTIVITIES			•
TEMP SETTINGS			•
OUTPUT TEST			•
INPUT TEST			•
SET PRODUCT CONSTS			•
MACHINE STATUS			•
SET DRY VEND MODE			•
SERIAL NUMBER			•
CONFIGURE MACHINE			•
MDB CONFIG			•
EVA-DTS CONFIG			•
PRODUCT CODES			•
OPERATORS CODE		•	•
MANAGERS CODE			•
ENGINEERS CODE			•
FREE DRINK CODE		•	•
EDIT DRINK MAP			•
CARD ACTIONS			•
SET CUP TYPES			•
CONFIGURE SLAVE			•
ING RESTRICTIONS			•
ECONOMY MODE			•
DEPRESSURISE COFFEE BREWER			•

PROGRAMMING SEQUENCE OF OPERATIONS

5. The method of navigating the menu structure is consistent throughout the program. The ↑ (UP) and ↓ (DOWN) keys are used to index through the headings in a particular level or increment / decrement a value. Pressing ENTER will select a submenu or confirm a change whilst ESCAPE will reject a change or return to the previous menu level. The sequence for accessing a menu option and then accessing a submenu within that option and finally selecting and changing a parameter's value, is shown diagrammatically in Fig 3.1.

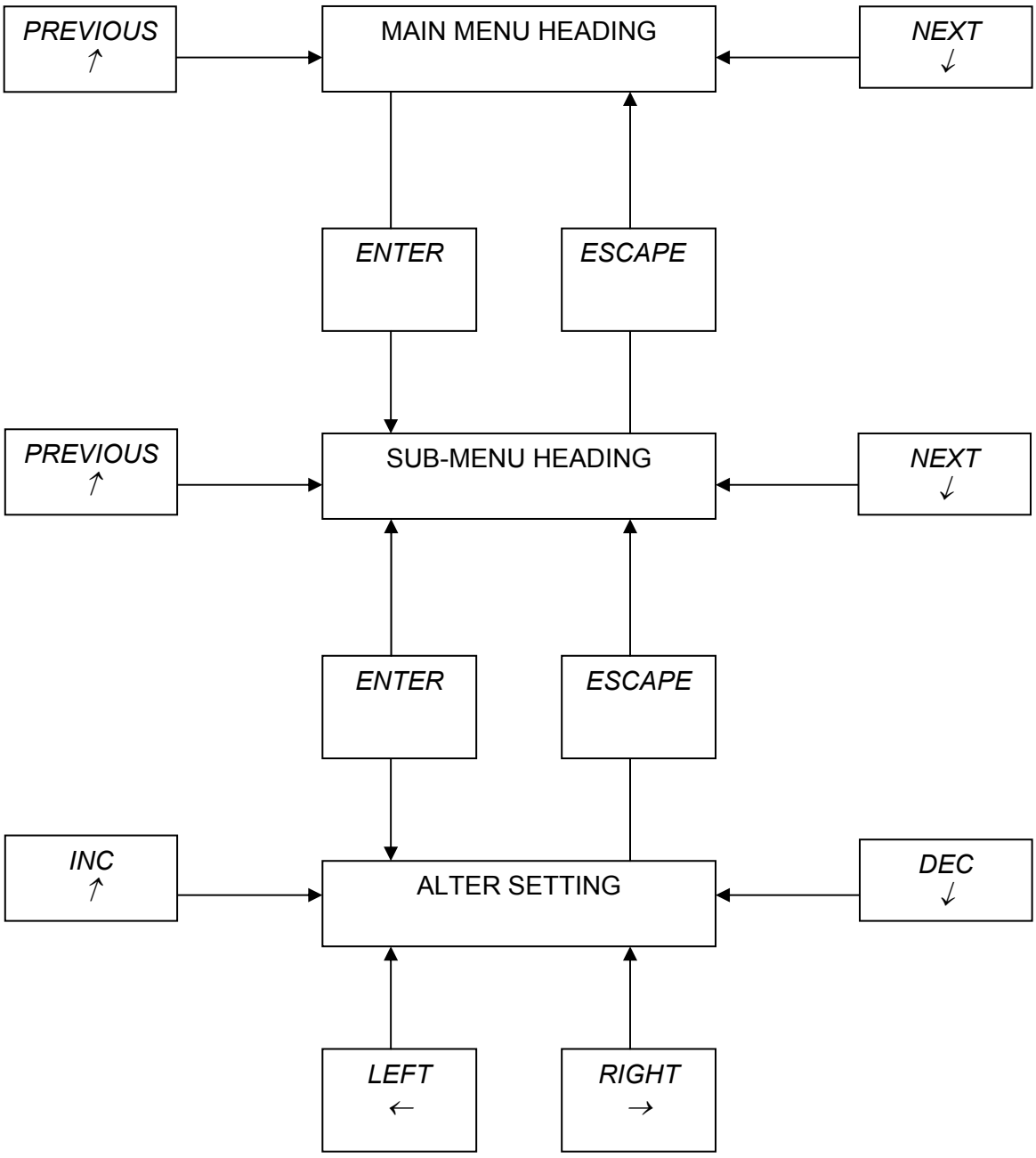


FIG 3.1 ACCESSING AN OPTION SETTING – FLOW DIAGRAM

MENU OPTIONS

Ingredient Times

6. INGREDIENT TIMES provides access to a set of submenus, which allow modification of the parameters controlling the recipe and dispensing of individual drinks. The actual content of the submenu is dependent on the configuration of the machine. That is for example a Nexus Instant Hot version will have different drinks in its INGREDIENT TIMES submenu to a Double Fresh Brew version fitted with a carbonator. In general the entries of the INGREDIENT TIMES menu will consist only of the drinks available on that particular configuration of machine. The Nexus range has a number of pre-defined configurations. For each configuration each selection button is associated with a particular drink. This association is pre-defined for each configuration, but can be modified within narrow limits using the EDIT DRINK MAP menu. Note: Changes to the menu will lead to initialisation of all machine.

7. For each selection a user with manager level access is granted a limited range adjustment on a subset of the parameters. This allows the site-based personnel to perform minor taste profile modifications without the need to call an engineer. When the Ingredient Times has been selected it will give you the option to select the drink to alter and using the arrow keys you will be able to select your specific drink. The limited range adjustment is implemented as a multiplying scale factor of between 75% and 125%. In the 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 manager level user as:

OP: COFFEE MOD **+5%**

When viewed with engineer level access this would appear as:

OP: COFFEE MOD **105**

In each case the same parameter is being viewed.

8. The following tables describe the parameters that can be adjusted for each drink, and indicate the parameters visible at the different access levels. The drinks available in each configuration are described in Table 3.2 later in this Section.

** E indicates engineer access level*
M indicates manager access level

INSTANT COFFEE

Parameter Name	Function	Units	Level See *
COFFEE TIME	Ingredient Control	.1s	E
COFFEE ADJUST	Increment applied to coffee auger run time when strong selected	.1s	E
WATER TIME	Coffee water dispense valve open duration	.1s	E
COF MIXER TIME	Coffee whipper motor run duration	.1s	E
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected, e.g. 75 will allocate 75% of the water to the milk valve	%	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	E
MILK TIME	Auger run time for Optional ingredient if selected	.1s	E
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	E
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	E
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	%	E ,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	%	E,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	%	E,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	%	E,M

CHOCOMILK

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
CHOCOLATE START	Start time for the chocolate components of the drink referenced to t=0	.1s	E
CHOCOLATE TIME	Auger run time for Chocolate ingredient	.1s	E
TOPPING START	Start time for the topping components of the drink referenced to t=0	.1s	E
TOPPING TIME	Auger run time for Topping ingredient	.1s	E
WATER TIME	Topping/chocolate dispense valve open duration	.1s	E
MIXER TIME	Chocolate mixer motor run time	.1s	E
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	%	E,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	%	E,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	%	E,M

CHOCOLATE

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
CHOCOLATE TIME	Auger run time for Chocolate ingredient	.1s	E
WATER TIME	Chocolate dispense valve open duration	.1s	E
MIXER START	Chocolate mixer start time	.1s	E
MIXER TIME	Chocolate mixer motor run time	.1s	E
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	%	E,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	%	E,M

** E indicates engineer access level*
M indicates manager access level

DECAF COFFEE (INSTANT)

Parameter Name	Function	Units	Level See *
COFFEE TIME	Decaf ingredient duration control	.1s	E
COFFEE ADJUST	Increment applied to decaf auger run time when strong selected	.1 s	E
WATER TIME	Coffee water dispense valve open duration	.1s	E
MIXER TIME	Coffee whipper motor run duration	.1s	E
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected	%	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	E
MILK TIME	Auger run time for Optional ingredient if selected	.1s	E
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	E
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	E
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	%	E,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	%	E,M
OP: Coffee Mod	Manager level control applied to COFFEE TIME The actual decaf auger run time will be: COFFEE TIME x OP: Coffee Mod /100	%	E,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	%	E,M

CAPPUCCINO (INSTANT COFFEE)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
COFFEE WTR TIME	Coffee water dispense valve open duration	.1s	E
TOPPING WTR TIME	Topping water dispense valve open duration	.1s	E
SUGAR WATER TIME	Sugar water dispense valve open duration	.1s	E
TOPPING TIME	Auger run time for topping ingredient	.1s	E
COF MIXER TIME	Coffee whipper motor run duration	.1s	E
COFFEE TIME	Auger run time for coffee ingredient	.1s	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	E
COFFEE START	Offset from t=0 applied to all coffee related components. Ensures drink with white head.	.1s	E
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	%	E,M
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	%	E,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	%	E,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	%	E,M

CAFÉ LATTE (INSTANT COFFEE)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
COFFEE TIME	Coffee Ingredient Auger Control	.1s	E
COFFEE ADJUST	Increment applied to coffee auger run time when strong selected	.1s	E
WATER TIME	Coffee water dispense valve open duration	.1s	E
COF MIXER TIME	Coffee whipper motor run duration	.1s	E
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected, e.g. 75 will allocate 75% of the water to the milk valve	%	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	E
MILK TIME	Auger run time for Milk ingredient	.1s	E
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	E
COFFEE DELAY	Time after t=0 that coffee components of drink start	.1s	E
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	%	E ,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	%	E,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	%	E,M

ESPRESSO (INSTANT COFFEE)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
COFFEE TIME	Coffee Ingredient Auger Control	.1s	E
COFFEE ADJUST	Increment applied to coffee auger run time when strong selected	.1s	E
WATER TIME	Coffee water dispense valve open duration	.1s	E
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected	%	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	E
MILK TIME	Auger run time for Optional ingredient if selected	.1s	E
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	E
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	E
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	%	E,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	%	E,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	%	E,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	%	E,M

CAFÉ MOCHA (INSTANT COFFEE)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
CHOCOLATE START	Chocolate ingredient start time referenced to t=0	.1s	E
CHOCOLATE TIME	Chocolate ingredient auger run time	.1s	E
TOPPING START	Topping ingredient start time referenced to t=0	.1s	E
TOPPING TIME	Topping ingredient auger run time	.1s	E
WATER TIME	Total amount of valve opening time for this selection allocation of water to the three bowls is automatic	.1s	E
COFFEE START	Start time for coffee component of this selection. Offset from t=0 for Ingredient, water and mixer	.1s	E
COFFEE TIME	Coffee ingredient auger run time	.1s	E
CHOC MIXER TIME	Chocolate Mixer run time referenced to t=0 other mixer times are calculated automatically	.1s	E
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	%	E,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	%	E,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	%	E,M
OP: Water Mod	As engineers mode equivalent however the factor is displayed as a value between –25 and +25 % the increments are 5%	%	E,M

** E indicates engineer access level*
M indicates manager access level

WHIPPED COFFEE (INSTANT)

Parameter Name	Function	Units	Level See *
COFFEE TIME	Coffee Ingredient Auger Control	.1s	E
COFFEE ADJUST	Increment applied to coffee auger run time when strong selected	.1s	E
WATER TIME	Coffee water dispense valve open duration	.1s	E
MIXER TIME	Coffee mixer motor run time	.1s	E
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected, e.g. 75 will allocate 75% of the water to the milk valve	%	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	E
MILK TIME	Auger run time for Optional ingredient if selected	.1s	E
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	E
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	E
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	%	E ,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	%	E,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	%	E,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	%	E,M

** E indicates engineer access level*
M indicates manager access level

WHIPPED DECAF COFFEE (INSTANT)

Parameter Name	Function	Units	Level See *
COFFEE TIME	Decaf Ingredient Auger Control	.1 s	E
COFFEE ADJUST	Increment applied to decaf auger run time when strong selected	.1 s	E
WATER TIME	Coffee water dispense valve open duration	.1 s	E
MIXER TIME	Coffee Mixer motor run time	.1 s	E
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected	%	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.1 s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1 s	E
MILK TIME	Auger run time for Optional ingredient if selected	.1 s	E
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1 s	E
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	E
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	%	E,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	%	E,M
OP: Coffee Mod	Manager level control applied to COFFEE TIME The actual decaf auger run time will be: COFFEE TIME x OP: Coffee Mod /100	%	E,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	%	E,M

** E indicates engineer access level*
M indicates manager access level

INSTANT TEA

Parameter Name	Function	Units	Level See *
TEA TIME	Auger run time for tea ingredient	.1s	E
TEA ADJUSTMENT	Increment applied to Tea auger run time when strong selected	.1s	E
WATER TIME	Tea water dispense valve open duration	.1s	E
WATER SPLIT	Fraction of total water time, above, to be allocated to the milk sugar valve if milk or sugar is selected	%	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.1s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1s	E
MILK TIME	Auger run time for Optional ingredient if selected	.1s	E
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1s	E
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	%	E,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	%	E,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	%	E,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	%	E,M

SOUP

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
SOUP TIME	Auger run time for soup ingredient	.1 s	E
WATER TIME	Soup water dispense valve open duration	.1s	E
MIXER TIME	Soup mixer motor run time	.1s	E
MIXER START	Soup mixer motor start time referenced to t-=0	.1s	E
OP: Soup Mod	Manager level control applied to SOUP TIME The actual soup auger run time will be: SOUP TIME x OP: Soup Mod /100	%	E,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	%	E,M

LEMON (STILL DRINK 1)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
WATER TIME	Chilled water dispense valve open duration	.1s	E
SYRUP 1 TIME	Syrup pump one operating time	.1s	E
OP: Water Mod	Manager level control applied to WATER TIME The actual valve opening time will be: WATER TIME x OP: Water Mod /100	%	E,M
OP: Syrup 1 time	Manager level control applied to SYRUP 1 TIME The actual syrup pump run time will be: SYRUP 1 TIME x OP: Syrup 1 time /100	%	E,M

ORANGE (STILL DRINK 2)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
WATER TIME	Chilled water dispense valve open duration	.1s	E
SYRUP 2 TIME	Syrup pump two operating time	.1s	E
OP: Water Mod	Manager level control applied to WATER TIME The actual valve opening time will be: WATER TIME x OP: Water Mod /100	%	E,M
OP: Syrup 2 time	Manager level control applied to SYRUP 2 TIME The actual syrup pump run time will be: SYRUP 2 TIME x OP: Syrup 2 time /100	%	E,M

COLD WATER

** E indicates engineer access level*
M indicates manager access level

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

COLA (SPARKLING DRINK 1)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
WATER TIME	Sparkling water dispense valve open duration	.1s	E
SYRUP 1 TIME	Syrup pump one operating time	.1s	E
OP: Water Mod	Manager level control applied to WATER TIME The actual valve opening time will be: WATER TIME x OP: Water Mod /100	%	E,M
OP: Syrup 1 time	Manager level control applied to SYRUP 1 TIME The actual syrup pump run time will be: SYRUP 1 TIME x OP: Syrup 1 time /100	%	E,M

ORANGE (SPARKLING DRINK 2)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
WATER TIME	Sparkling water dispense valve open duration	.1s	E
SYRUP 2 TIME	Syrup pump two operating time	.1s	E
OP: Water Mod	Manager level control applied to WATER TIME The actual valve opening time will be: WATER TIME x OP: Water Mod /100	%	E,M
OP: Syrup 2 time	Manager level control applied to SYRUP 2 TIME The actual syrup pump run time will be: SYRUP 2 TIME x OP: Syrup 2 time /100	%	E,M

SPARKLING WATER

** E indicates engineer access level*
M indicates manager access level

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

HOT WATER

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
HOT WATER TIME	Hot water dispense valve open duration	.1s	E
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	%	E,M

FRESH BREW TEA

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
TEA WATER TIME	Tea water dispense valve open duration	.1s	E
SUGAR WATER TIME	Milk/Sugar dispense valve opening time if optional ingredient selected. This will be deducted from the TEA WATER TIME if so used	.1 s	E
TEA TIME	Auger run time for tea ingredient	.1s	E
TEA ADJUSTMENT	Increment applied to tea auger run time when strong selected	.1 s	E
TEA MIXER START	Mixer start time for the optional milk/sugar component. That is the milk/sugar mixer start time ref t=0	.1 s	E
TEA MIXER TIME	Mixer run time for the optional milk/sugar component	.1 s	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.1 s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.01 s	E
MILK TIME	Auger run time for Optional ingredient if selected	.01 s	E
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1 s	E
PAUSE TIME	Delay between first dose of water through brew chamber and the second dose	.1s	E,M
DRAIN TIME	Time to allow tea to drain from the brew chamber before allowing the head to move	.1s	E,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	%	E,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	%	E,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	%	E,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	%	E,M

FRESH BREW COFFEE

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
INFUSION TIME	Delay after coffee & water are added to brew chamber before brewer closes	.1s	E
WATER START TIME	Time after start that coffee water valve opens	.1s	E
WATER TIME	Coffee brewer dispense valve open duration	%	E
M&S WATER TIME	Milk & Sugar valve opening time		E
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	E
COFFEE ING TIME	Coffee Ingredient Auger Control	.1 s	E
STRENGTH ADJUST	Increment applied to coffee auger run time when strong selected	.1s	E
SUGAR TIME	Auger run time for Optional ingredient if selected	1. s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.01 s	E
MILK TIME	Auger run time for Optional ingredient if selected	.01 s	E
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1 s	E
PUMP 1 DURATION	Duration of first air pump operation	.1 s	E
PUMP 1 DELAY	Inactive period following first air pump operation	.1 s	E
PUMP 2 DURATION	Duration of second air pump operation	.1 s	E
PUMP 2 DELAY	Inactive period following second air pump operation	.1 s	E
MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1 s	E
HOT WATER TIME	Duration for which hot water valve opens to supplement brewer volume for larger drinks	.1 s	E
BLACK DRAIN TIME	Idle time before head retracts following dispense of selection with no optional components	.1 s	E
WHITE DRAIN TIME	Idle time before head retracts following dispense of selection where milk or sugar have been selected	.1 s	E
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	%	E,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	%	E,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	%	E,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	%	E,M

WHIPPED FRESH BREW COFFEE

** E indicates engineer access level*
M indicates manager access level

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

FRESH BREW DECAF COFFEE

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
INFUSION TIME	Delay after coffee & water are added to brew chamber before brewer closes	.1s	E
WATER START TIME	Time after start that coffee water valve opens	.1s	E
WATER TIME	Coffee brewer dispense valve open duration	%	E
M&S WATER TIME	Milk & Sugar valve opening time		E
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	Ratio X 10	E
COFFEE ING TIME	Decaf Ingredient Auger Control	.1 s	E
STRENGTH ADJUST	Increment applied to decaf auger run time when strong selected	.1s	E
SUGAR TIME	Auger run time for Optional ingredient if selected	1. s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.01 s	E
MILK TIME	Auger run time for Optional ingredient if selected	.01 s	E
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1 s	E
PUMP 1 DURATION	Duration of first air pump operation	.1 s	E
PUMP 1 DELAY	Inactive period following first air pump operation	.1 s	E
PUMP 2 DURATION	Duration of second air pump operation	.1 s	E
PUMP 2 DELAY	Inactive period following second air pump operation	.1 s	E
MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1 s	E
BLACK DRAIN TIME	Idle time before head retracts following dispense of selection with no optional components	.1 s	E
WHITE DRAIN TIME	Idle time before head retracts following dispense of selection where milk or sugar have been selected	.1 s	E
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	%	E,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	%	E,M
OP: Coffee Mod	Manager level control applied to COFFEE TIME The actual decaf auger run time will be: COFFEE TIME x OP: Tea Mod /100	%	E,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	%	E,M

WHIPPED FRESH BREW DECAF COFFEE

** E indicates engineer access level*
M indicates manager access level

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

** E indicates engineer access level*
M indicates manager access level

ESPRESSO

Parameter Name	Function	Units	Level See *
INFUSION TIME	Delay after coffee & water are added to brew chamber before brewer closes	.1s	E
WATER START TIME	Time after start that coffee water valve opens	.1s	E
WATER TIME	Coffee brewer dispense valve open duration	%	E
M&S WATER TIME	Milk & Sugar valve opening time		E
SUGAR TIME	Auger run time for Optional ingredient if selected	1. s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.01 s	E
MILK TIME	Auger run time for Optional ingredient if selected	.01 s	E
MILK ADJUSTMENT	Increment applied to milk auger run time when extra milk selected	.1 s	E
COFFEE ING TIME	Coffee Ingredient Auger Control	.1 s	E
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	E
PUMP 1 DURATION	Duration of first air pump operation	.1 s	E
PUMP 1 DELAY	Inactive period following first air pump operation	.1 s	E
PUMP 2 DURATION	Duration of second air pump operation	.1 s	E
PUMP 2 DELAY	Inactive period following second air pump operation	.1 s	E
MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1 s	E
BLACK DRAIN TIME	Idle time before head retracts following dispense of selection with no optional components	.1 s	E
WHITE DRAIN TIME	Idle time before head retracts following dispense of selection where milk or sugar have been selected	.1 s	E
STRENGTH ADJUST	Increment applied to coffee auger run time when strong selected	.1s	E
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	%	E,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	%	E,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	%	E,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	%	E,M

CAPPUCCINO (FRESH BREW COFFEE)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
TOPPING START	Start time topping & sugar components. Referenced to t=0.	.1s	E
INFUSION TIME	Delay after coffee & water are added to brew chamber before brewer closes	.1 s	E
WATER START TIME	Time after start that coffee water valve opens	.1s	E
WATER TIME	Coffee brewer dispense valve open duration	.1 s	E
TOPPING WATER TIME	Topping dispense valve open duration	.1s	E
MILK MIXER TIME	Topping mixer motor run time	.1s	E
COFFEE ING TIME	Coffee Ingredient Auger Control	1. s	E
COFFEE MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1 s	E
MILK MIXER TIME	Run time for topping mixer motor	.1 s	E
SUGAR WATER TIME	Sugar valve open time if sugar selected if not water is added to topping water	.1 s	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.01 s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1 s	E
TOPPING TIME	Auger run time for Topping Ingredient	.1 s	E
PUMP 1 DURATION	Duration of first air pump operation	.1 s	E
PUMP 1 DELAY	Inactive period following first air pump operation	.1 s	E
PUMP 2 DURATION	Duration of second air pump operation	.1 s	E
PUMP 2 DELAY	Inactive period following second air pump operation	.1 s	E
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	%	E,M
OP: Milk Mod	Manager level control applied to TOPPING TIME The actual topping auger run time will be: TOPPING TIME x OP: Milk Mod /100	%	E,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	%	E,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	%	E,M

CAFÉ LATE (FRESH BREW COFFEE)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
COFFEE ING TIME	Coffee Ingredient Auger Control	.1s	E
INFUSION TIME	Delay after coffee & water are added to brew chamber before brewer closes	.1 s	E
WATER START TIME	Time after start that coffee water valve opens	.1s	E
WATER TIME	Coffee brewer dispense valve open duration	.1 s	E
PUMP 1 DURATION	Duration of first air pump operation	.1 s	E
PUMP 1 DELAY	Inactive period following first air pump operation	.1 s	E
PUMP 2 DURATION	Duration of second air pump operation	.1 s	E
PUMP 2 DELAY	Inactive period following second air pump operation	.1 s	E
MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1 s	E
MILK START	Start time milk & sugar components. Referenced to t=0	.1s	E
MILK TIME	Auger run time for Milk ingredient	.1 s	E
MILK WATER TIME	Milk/Sugar dispense valve open duration	.1 s	E
SUGAR TIME	Auger run time for Optional ingredient if selected	.1 s	E
SUGAR ADJUSTMENT	Increment applied to sugar auger run time when extra sugar selected	.1 s	E
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	%	E,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	%	E,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	%	E,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	%	E,M

CAFÉ MOCHA (FRESH BREW COFFEE)

** E indicates engineer access level*
M indicates manager access level

Parameter Name	Function	Units	Level See *
COFFEE TIME	Coffee Ingredient Auger Control	1. s	E
WATER START TIME	Time after start that coffee water valve opens	.1s	E
COFFEE WATER	Coffee brewer dispense valve open duration	.1 s	E
COFFEE MIXER TIME	Run time for coffee mixer motor referenced to the beginning of the first air pump activity	.1 s	E
TOPPING TIME	Auger run time for ingredient	.1 s	E
CHOCOLATE TIME	Auger run time for ingredient	.1s	E
CHOC WATER TIME	Choc/Topping dispense valve open duration	.1s	E
CHOC MIXER TIME	Run time for choc/topping mixer motor	.1 s	E
BREWER START	Brewer cycle start time	.1s	E
PUMP 1 DURATION	Duration of first air pump operation	.1 s	E
PUMP 1 DELAY	Inactive period following first air pump operation	.1 s	E
PUMP 2 DURATION	Duration of second air pump operation	.1 s	E
PUMP 2 DELAY	Inactive period following second air pump operation	.1 s	E
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	%	E,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	%	E,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	%	E,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	%	E,M

Set Date and Time

9. Entering SET DATE & TIME provides access to a submenu consisting of SET DATE and SET TIME.

   (a) Set Date

   The SET DATE option allows the programmer to change the displayed date.

   (b) Set Time

   The SET TIME option allows the programmer to change the displayed time.

   The battery fitted to the 54955 Control Board has an open circuiting link to prevent discharge during extended periods of storage. When commissioning a new board the links labelled CLOCK BAT on the control board must be fitted otherwise the board will not maintain the time when power is removed.

10. The 54955 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

11. Entering SET VEND PRICING allows the programmer to select one of the following pricing modes:

   - NORMAL PRICES
   - ALL DRINKS ARE FREE
   - CHEAP DRINKS

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

Change Prices

12. Entering CHANGE PRICES provides access to the following submenu:

   - NORMAL PRICES
   - ALL CHEAP PRICES
   - ALL NORMAL PRICES
   - OWN CUP DISCOUNT
   - CHEAP PRICES

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

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

   Entering OWN CUP DISCOUNT allows the programmer to select the price of a plastic cup (and is preset at 0 pence). The value entered here is deducted from the normal price of a drink when there is no requirement for a dispensed plastic cup, i.e. when customers' own cups or mugs are used.

Inhibit Drinks

13. Entering INHIBIT DRINKS provides access to a submenu of drinks, each one suffixed with the drink status (ON/OFF). 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.

Alter Drink Name

14. The ALTER DRINK NAME menu has two submenus. These are: DRINK NAME and MENU NAME. To change between the two submenus the ↑ (UP) and ↓ (DOWN) keys are used. Pressing ENTER selects the submenu. Pressing ESCAPE returns to the higher-level menu. The function of each of the sub menus is described below:

    (a) The DRINK NAME submenu allows the name displayed when a particular drink is selected to be changed to one of a number of pre-defined alternatives.

    To avoid confusion the drink retains its original name 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 syrup drinks are to be orange temporarily. Once the lemon name had been changed to orange, 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:

CHOC-O-CINO	BLACKCURRANT	LEMON
COLA	ORANGE	VEG.SOUP
TOMATO SOUP	BEEF SOUP	CAPPUCCINO
LEMON	PEACH	SOUP
LIME	MUSHR'M SOUP	MILO
CAFE MOCHA	ESPRESCHOC	CAFE CREME
ESPRESSO X 2	CHICKEN SOUP	PEPSI COLA
TROPICAL FRUIT	COCA COLA	DIET COCA COLA
PEPSI-MAX	PEPSI	DIET PEPSI
ORANGE TANGO	LEMON	STILL JUSODA
DIET TANGO LEMON	SPARKLING JUSODA	
IRN-BRU	STILL IRN-BRU	FIZZY IRN-BRU
COFFEE	WHIPPED COFFEE	ELDERFLOWER
VIMTO	COLA	LEMON TEA
SOUP	WHIPPED COFFEE	COFFEE
IMPORIENT TEA	FRESHBEAN COFFEE	FAIRTRADE COFFEE
TETLEY LEAF TEA	TYPHOO LEAF TEA	PG LEAF TEA
GOLD BLEND	NESCAFE COFFEE	KENCO COFFEE
LEMON&LIME	SPARKLING WATER	STILL WATER
COLD WATER	HOTWATER	

NOTE

Changing a drinks name **does not affect** the actual parameters that control the drink. It only affects the name displayed when that selection is chosen or audited. If the name of the chocolate selection is changed to LIME, the chocolate ingredient motor, valves and mixer will still run when that selection is taken. To change the drink rather than the drink name, use the EDIT DRINK MAP facility.

(b) The MENU NAME submenu allows the name displayed when a button is assigned a navigation function. A number of pre-defined alternatives are available as listed below:

- MAIN MENU
- DRINK NAMES

To avoid confusion the menu retains its original name in this submenu. The alternative name will be used to reference that selection for all other display. This is done to rule out the possibility of an engineer inadvertently changing all menus to have the same names.

Timed Activities

15. 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) Cheap causes the machine to offer drinks at the reduced rate.

(b) Free causes the machine to offer drinks free.

(c) Flush causes the machine to flush it instant components.

(d) Fl'Brew causes the machine to flush its brewers.

(e) Shutdown causes the machine to stop vending.

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

(g) 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.

16. Entering TIMED ACTIVITIES provides access to a submenu consisting of ten timed activities. Two types of timing routine, Daily and Block, are available for each activity.

(a) Daily

```
DAILY 0930 1730
M0N>FRI REDUCED
```

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

(b) Block

```
BL0CK 0930 M0N>
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.

17. When entering a SELF CLEAN 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 and FL'Brew state must not be entered in a block routine.

18. 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 ESCAPE pressed to leave.

Temperature Settings

19. Entering TEMP SETTINGS provides access to the following submenu:

- DESIRED TEMP
- MINIMUM TEMPERATURE

(a) Desired Temperature allows the desired water heater temperature to be set.

(b) Minimum Temperature allows the minimum temperature at which vending may commence to be set.

The above values are set in degrees centigrade. The minimum possible temperature the control system can measure is 57ºC, and it is not possible to set a desired temperature below this value. The minimum temperature can be set to zero to allow operation with a cold tank for test purposes. The value read by the analogue to digital converter on the control board corresponding to the temperature set is displayed in parenthesis next to the ºC value.

Output Test

20. 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 the ↑ (UP), ↓ (DOWN) 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 whilst the ENTER key will activate and de activate the device.

NOTE 1

It should be noted that some specific devices, specifically the SSR, Carousel 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 the HOT position, and then return to the home position.

NOTE 2

The output test function will not work if the engineers program was entered when the machine was powered up with the ENG LINK in place. See section 3 paragraph 4.

Input Test

21. The INPUT TEST function allows the state of the control board input signals to be examined. The input test menu is common to all versions of the Nexus range 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 ↑ (UP), ↓ (DOWN) keys are used to step through each input in turn. The following input signals can be examined:

INPUT DEVICE	STATE 1	STATE 2
Coffee brewer index	CBREWER HOME	CBREWER NOT HOME
Carousel throat switch	CUPS AVAILABLE	CUPS NOT AVAILABLE
Carousel position switch	CUP DROP IN POS	CUP DROP OUT POS
Dispense arm 'vend position' micro switch	IN V POS i.e. forward and ready to vend	ARM 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 tub probe	WASTE IS WET	WASTE IS DRY
Spare level Input	SPARE IS WET	SPARE IS DRY
User cup sensor	CUPSNS:NO CUP	CUPSNS:NO CUP
Tea brewer index switch	TBREWER NOT HOME	TBREWER HOME
Brewer pressure switch	NO PRESSURE	PRESSURE
Jug switch	0 (Normal)	1 (1=jug or free)
Free Input	OFF	ON (To work must be enabled in General Settings)
Security input	OFF	ON (To work must be enabled in General Settings)
PIR SENSOR	OFF (not fitted as standard)	ON (part of economy mode)

Set Product Constants

22. The Nexus 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

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

- TEMP STATUS
- 1^2C HEALTH
- MEMORY USAGE*
- SOFTWARE VERSION
- FRAM FAULTS

(a) TEMP STATUS

This 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 centigrade derived from the thermistor probe in the water boiler is displayed along with the analogue-to-digital converter value from which the temperature was calculated is parenthesis.

(b) I^2C Health

This display provides information relating to the 1^2C 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.

(c) Software Version

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

(d) FRAM Faults

This checks to see how many times the program has tried to write to the FRAM Memory should always been at (0), this is a program to check for faults that are occurring in the machine.

Set Dry Vends

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

- VENDS ARE WET
- VENDS ARE DRY

(a) Vends are WET

All vends are dispensed with water as normal.

(b) 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

25. Entering SERIAL NUMBER accesses the following submenu:

- M/C SERIAL NUMBER
- C/B SERIAL NUMBER
- M/C AUDIT NUMBER

(a) M/C Serial Number

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

(b) M/C Audit Number

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

Configure Machine

26. Entering CONFIGURE M/C provides access to the following machine configuration submenu headings:

- GENERAL SETTINGS
- SET MACHINE TYPE
- SET CASH SYSTEM
- JUG SETTINGS
- HARDWARE SETTINGS
- CAROUSEL CONFIG

(a) 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** (DEFAULT IN BOLD)	
SILENT KEYS	**0** Keys give audible feedback	1 Keys are silent
TOKEN ONLY	**0** Messages appropriate to coins/card system or free	1 Messages appropriate to token only operation
CHIPPER /CHIPKNIP	**1** Suppress credit display if just card system fitted	0 Normal display of credit
FLUSH ALARM	**0** Sound load siren while flushing	1 Sound siren quietly while flushing
HIDE PRICES	**0**	1

WATER SHOT START	**10** (Consult factory before changing) Time after a fresh coffee dispense cycle ends that a grout clearing water shot starts	
WATER SHOT DUR	**20** (Consult factory before changing) Duration in 1/100 seconds that the water shot described above lasts	
BELT WARN TIME	**700** Time, in 1/100 seconds, after the pressure sensor should have reported the coffee brew chamber depressurised but has not, that a 'New filter belt' warning is displayed	
BELT FAULT TIME	**2000** Time, in 1/100 seconds, after the pressure sensor should have reported the coffee brew chamber depressurised but has not, that a 'New filter belt' fault occurs	
ROTATION LIMIT	**100** Time, in 1/100 seconds, after the pressure sensor should have reported the coffee brew chamber depressurised 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	**1** Do not display information about the state of the filter belt on the user display	0 Display belt warnings on the user display
ENG MODE TIMEOUT	**0** Do not automatically exit engineers mode	30 (recommended**)** Time in 1/10 seconds after which, if no key is pressed exit from the engineers 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	
CURRENCY	0 Don't display currency symbol **1** Currency symbol is £ 2 Currency symbol is € 3 Currency symbol is $	
FREE INPUT	**0** Ignore free input	1 Monitor free input
SECURITY INPUT	**0** Ignore security input	1 Monitor security input
SCREEN SAVE DELAY	**0** Time, in 1/100 seconds, after the machine display has been inactive till it will revert to a screen saving mode	
CLEAR EVENT LOG	**0**	
ALLOW TANK RESET	**1** The number of times the machine will allow the water tank to reset to fill again, this number can be altered to allow more resets	
SIMPLE MDB CODES	**0** Fully encode products, i.e., send product code for: Cheap+Own cup, Cheap No cup, Normal+Own cup and Normal No cup	1 Go light on product codes. MDB sends just one number per selection regardless of price. N&W card reader fix
GLOBAL SCALING	**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	

(b) 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 chillers 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 form:

PREMIER CONFIGS **↑,↓, ENTER OR ESC**

Where **PREMIER CONFIGS** is, there is also a choice of using **NUMERIC CONFIGS** and **STANDARD CONFIGS**. The ↑ (UP) and ↓ (DOWN) keys are used to scroll through the list of possible configurations. Pressing ENTER selects the new configuration.

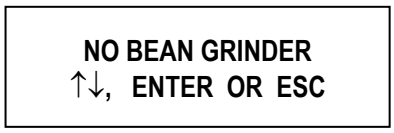
Whilst the set up process takes place the LCD indicates the status of the procedure. On completion the screen reverts to the SET MACHINE TYPE menu. In order to aid understanding the following table contains an explanation of the abbreviations used.

ABBREVIATION	EXPLANATION
C+D	Machine has Coffee & Decaf canisters
C+E	Machine has Coffee & Espresso canisters
C&S	Machine has Coffee & Soup canisters
HOT	Machine has no cold water capability
HC	Machine has a chiller unit for cold water
HC2	Machine has a chiller unit with two flavoured syrups
HCC2	Machine has a carbonator unit with two flavoured syrups
INST	All drinks made from instant products
SFBT	Tea selections are fresh brew
SFBC	Coffee selections are fresh brew
DFB	Tea and regular coffee are fresh brew
Numeric suffix	Sub configuration identifier

If a configuration with a Fresh Brew Coffee capability is selected, you will be offered the opportunity to select between R & G (Default) and BTC (Optional) configuration. The display will appear as below:

SET BREWER TYPE **ENTER=YES ESC=NO**

If ESCAPE=NO is selected, initialisation will be performed using a set of defaults appropriate to R & G ingredients. After pressing ENTER to opt to specify the brewer type, the type can be changed using the ↑ (UP) and ↓ (DOWN) arrow keys:



Select NO BEAN GRINDER for the R & G case and BEAN GRINDER for the BTC case. Pressing ENTER confirms the selection. Whilst 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 previous table contains an explanation of the abbreviations used.

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

At the time of writing there are 108 configurations. The abbreviated machine description and menu associated with each configuration is shown in the following table.

Table 3.2 Machine Configuration Matrix

STANDARD CONFIGURATION

KEY • Instant coffee/Tea ♦ Fresh brew Coffee/Tea	Config No.	Coffee	Tea	Decaf	Espresso	Cappuccino	Café Latte	Mochachino	Espreschoc	Chocolate	Chocomilk	Hot Water	Soup	Still Water	Still Flavour 1	Still Flavour 2	Still Water–own cup	Carb. Water	Carb. Flavour 1	Carb. Flavour 2
INST HOT C+D	000	●	●	●	●	●	●	●	●	●	●									
INST HC C+D	001	●	●	●	●	●	●	●	●	●	●			●						
INST HC2 C+D	002	●	●	●	●	●	●	●	●	●	●			●	●	●	●			
INST HCC2 C+D	003	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●	●
INST HOT C+S	004	●	●		●	●	●	●	●	●	●		●							
INST HC C+S	005	●	●		●	●	●	●	●	●	●		●	●			●			
INST HC2 C+S	006	●	●		●	●	●	●	●	●	●		●	●	●	●	●			
INST HCC2 C+S	007	●	●		●	●	●	●	●	●	●		●	●	●	●	●	●	●	●
SFBT HOT C+D	008	●	♦	●	●	●	●	●	●	●	●									
SFBT HC C+D	009	●	♦	●	●	●	●	●	●	●	●			●			●			
SFBT HC2 C+D	010	●	♦	●	●	●	●	●	●	●	●			●	●	●	●			
SFBT HCC2 C+D	011	●	♦	●	●	●	●	●	●	●	●			●	●	●	●	●	●	●
SFBT HOT C+S	012	●	♦		●	●	●	●	●	●	●		●							
SFBT HC C+S	013	●	♦		●	●	●	●	●	●	●		●	●			●			
SFBT HC2 C+S	014	●	♦		●	●	●	●	●	●	●		●	●	●	●	●			
SFBT HCC2 C+S	015	●	♦		●	●	●	●	●	●	●		●	●	●	●	●	●	●	●
DFB HOT C+D	016	♦	♦	♦	♦	♦	♦	♦	♦	●	●									
DFB HC C+D	017	♦	♦	♦	♦	♦	♦	♦	♦	●	●			●			●			
DFB HC2 C+D	018	♦	♦	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●			
DFB HCC2 C+D	019	♦	♦	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●	●	●	●
DFB HOT C+E	020	♦	♦	♦	♦	♦	♦	♦	♦	●	●									

KEY ● Instant coffee/Tea ♦ Fresh brew Coffee/Tea	Config No.	Coffee	Tea	Decaf	Espresso	Cappuccino	Café Latte	Mochachino	Espreschoc	Chocolate	Chocomilk	Hot Water	Soup	Still Water	Still Flavour 1	Still Flavour 2	Still Water–own cup	Carb. Water	Carb. Flavour 1	Carb. Flavour 2
DFB HC C+E	021	♦	♦	♦	♦	♦	♦	♦	♦	●	●			●			●			
DFB HC2 C+E	022	♦	♦	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●			
DFB HCC2 C+E	023	♦	♦	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●	●	●	●
DFB HOT C+S	024	♦	♦		♦	♦	♦	♦	♦	●	●		●							
DFB HC C+S	025	♦	♦		♦	♦	♦	♦	♦	●	●		●	●			●			
DFB HC2 C+S	026	♦	♦		♦	♦	♦	♦	♦	●	●		●	●	●	●	●			
DFB HCC2 C+S	027	♦	♦		♦	♦	♦	♦	♦	●	●		●	●	●	●	●	●	●	●
SFBC HOT C+D	028	♦	●	♦	♦	♦	♦	♦	♦	●	●									
SFBC HC C+D	029	♦	●	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●			
SFBC HC2 C+D	030	♦	●	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●			
SFBC HCC2 C+D	031	♦	●	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●	●	●	●
SFBC HOT C+E	032	♦	●	♦	♦	♦	♦	♦	♦	●	●									
SFBC HC C+E	033	♦	●	♦	♦	♦	♦	♦	♦	●	●			●			●			
SFBC HC2 C+E	034	♦	●	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●			
SFBC HCC2 C+E	035	♦	●	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●	●	●	●
SFBC HOT C+S	036	♦	●		♦	♦	♦	♦	♦	●	●		●							
SFBC HC C+S	037	♦	●		♦	♦	♦	♦	♦	●	●		●	●			●			
SFBC HC2 C+S	038	♦	●		♦	♦	♦	♦	♦	●	●		●	●	●	●	●			
SFBC HCC2 C+S	039	♦	●		♦	♦	♦	♦	♦	●	●		●	●	●	●	●	●	●	●

NUMERIC CONFIGURATION

KEY ● Instant coffee/Tea ♦ Fresh brew Coffee/Tea	Config No.	Coffee	Tea	Decaf	Espresso	Cappuccino	Café Latte	Mochachino	Espreschoc	Chocolate	Chocomilk	Hot Water	Soup	Still Water	Still Flavour 1	Still Flavour 2	Still Water–own cup	Carb. Water	Carb. Flavour 1	Carb. Flavour 2
INST HOT C+D	040	●	●	●	●	●	●	●	●	●	●	●								
INST HC C+D	041	●	●	●	●	●	●	●	●	●	●	●		●						
INST HC2 C+D	042	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●			
INST HCC2 C+D	043	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
INST HOT C+S	044	●	●		●	●	●	●	●	●	●	●	●							
INST HC C+S	045	●	●		●	●	●	●	●	●	●	●	●	●			●			
INST HC2 C+S	046	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●			
INST HCC2 C+S	047	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SFBT HOT C+D	048	●	♦	●	●	●	●	●	●	●	●	●								
SFBT HC C+D	049	●	♦	●	●	●	●	●	●	●	●	●		●			●			
SFBT HC2 C+D	050	●	♦	●	●	●	●	●	●	●	●	●		●	●	●	●			
SFBT HCC2 C+D	051	●	♦	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
SFBT HOT C+S	052	●	♦		●	●	●	●	●	●	●	●	●							
SFBT HC C+S	053	●	♦		●	●	●	●	●	●	●	●	●	●			●			
SFBT HC2 C+S	054	●	♦		●	●	●	●	●	●	●	●	●	●	●	●	●			
SFBT HCC2 C+S	055	●	♦		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DFB HOT C+D	056	♦	♦	♦	♦	♦	♦	♦	♦	●	●	●								
DFB HC C+D	057	♦	♦	♦	♦	♦	♦	♦	♦	●	●	●		●			●			
DFB HC2 C+D	058	♦	♦	♦	♦	♦	♦	♦	♦	●	●	●		●	●	●	●			
DFB HCC2 C+D	059	♦	♦	♦	♦	♦	♦	♦	♦	●	●	●		●	●	●	●	●	●	●
DFB HOT C+E	060	♦	♦	♦	♦	♦	♦	♦	♦	●	●	●								

KEY ● Instant coffee/Tea ♦ Fresh brew Coffee/Tea	Config No.	Coffee	Tea	Decaf	Espresso	Cappuccino	Café Latte	Mochachino	Espreschoc	Chocolate	Chocomilk	Hot Water	Soup	Still Water	Still Flavour 1	Still Flavour 2	Still Water–own cup	Carb. Water	Carb. Flavour 1	Carb. Flavour 2
DFB HC C+E	061	♦	♦	♦	♦	♦	♦	♦	♦	●	●	●		●			●			
DFB HC2 C+E	062	♦	♦	♦	♦	♦	♦	♦	♦	●	●	●		●	●	●	●			
DFB HCC2 C+E	063	♦	♦	♦	♦	♦	♦	♦	♦	●	●	●		●	●	●	●	●	●	●
DFB HOT C+S	064	♦	♦		♦	♦	♦	♦	♦	●	●	●	●							
DFB HC C+S	065	♦	♦		♦	♦	♦	♦	♦	●	●	●	●	●			●			
DFB HC2 C+S	066	♦	♦		♦	♦	♦	♦	♦	●	●	●	●	●	●	●	●			
DFB HCC2 C+S	067	♦	♦		♦	♦	♦	♦	♦	●	●	●	●	●	●	●	●	●	●	●
SFBC HOT C+D	068	♦	●	♦	♦	♦	♦	♦	♦	●	●	●								
SFBC HC C+D	069	♦	●	♦	♦	♦	♦	♦	♦	●	●	●		●	●	●	●			
SFBC HC2 C+D	070	♦	●	♦	♦	♦	♦	♦	♦	●	●	●		●	●	●	●			
SFBC HCC2 C+D	071	♦	●	♦	♦	♦	♦	♦	♦	●	●	●		●	●	●	●	●	●	●
SFBC HOT C+E	072	♦	●	♦	♦	♦	♦	♦	♦	●	●	●								
SFBC HC C+E	073	♦	●	♦	♦	♦	♦	♦	♦	●	●	●		●			●			
SFBC HC2 C+E	074	♦	●	♦	♦	♦	♦	♦	♦	●	●	●		●	●	●	●			
SFBC HCC2 C+E	075	♦	●	♦	♦	♦	♦	♦	♦	●	●	●		●	●	●	●	●	●	●
SFBC HOT C+S	076	♦	●		♦	♦	♦	♦	♦	●	●	●	●							
SFBC HC C+S	077	♦	●		♦	♦	♦	♦	♦	●	●	●	●	●			●			
SFBC HC2 C+S	078	♦	●		♦	♦	♦	♦	♦	●	●	●	●	●	●	●	●			
SFBC HCC2 C+S	079	♦	●		♦	♦	♦	♦	♦	●	●	●	●	●	●	●	●	●	●	●

PREMIER CONFIGURATION

KEY ● Instant coffee/Tea ♦ Fresh brew Coffee/Tea	Config No.	Coffee	Tea	Decaf	Espresso	Cappuccino	Café Latte	Mochachino	Espreschoc	Chocolate	Chocomilk	Hot Water	Soup	Still Water	Still Flavour 1	Still Flavour 2	Still Water–own cup	Carb. Water	Carb. Flavour 1	Carb. Flavour 2
INST HOT C+D+S	080	●	●	●	●	●	●	●	●	●	●		●							
INST HC C+D	081	●	●	●	●	●	●	●	●	●	●			●						
INST HC2 C+D	082	●	●	●	●	●	●	●	●	●	●			●	●	●	●			
INST HCC2 C+D	083	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●	●
SFBT HOT C+D+S	088	●	♦	●	●	●	●	●	●	●	●		●							
SFBT HC C+D+S	089	●	♦	●	●	●	●	●	●	●	●		●	●			●			
SFBT HC2 C+D+S	090	●	♦	●	●	●	●	●	●	●	●		●	●	●	●	●			
SFBT HCC2 C+D+S	091	●	♦	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●
TFB HOT C+D+E	092	♦	♦	♦	♦	♦	♦	♦	♦	●	●									
TFB HC C+D+E	093	♦	♦	♦	♦	♦	♦	♦	♦	●	●			●			●			
TFB HC2 C+D+E	094	♦	♦	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●			
TFB HCC2 C+D+E	095	♦	♦	♦	♦	♦	♦	♦	♦	●	●			●	●	●	●	●	●	●
TFB HOT C+D+S	096	♦	♦	♦	♦	♦	♦	♦	♦	●	●		●							
TFB HC C+D+S	097	♦	♦	♦	♦	♦	♦	♦	♦	●	●		●	●			●			
TFB HC2 C+D+S	098	♦	♦	♦	♦	♦	♦	♦	♦	●	●		●	●	●	●	●			
TFB HCC2 C+D+S	099	♦	♦	♦	♦	♦	♦	♦	♦	●	●		●	●	●	●	●	●	●	●
DFB HOT C+E	100	♦	♦		♦	♦	♦	♦	♦	●	●									
DFB HC C+E	101	♦	♦		♦	♦	♦	♦	♦	●	●			●			●			
DFB HC2 C+E	102	♦	♦		♦	♦	♦	♦	♦	●	●			●	●	●	●			
DFB HCC2 C+E	103	♦	♦		♦	♦	♦	♦	♦	●	●			●	●	●	●	●	●	●
DFB HOT C+ID	104	♦	♦	●	♦	♦	♦	♦	♦	●	●									
DFB HC C+ID	105	♦	♦	●	♦	♦	♦	♦	♦	●	●			●			●			

KEY ● Instant coffee/Tea ♦ Fresh brew Coffee/Tea	Config No.	Coffee	Tea	Decaf	Espresso	Cappuccino	Café Latte	Mochachino	Espreschoc	Chocolate	Chocomilk	Hot Water	Soup	Still Water	Still Flavour 1	Still Flavour 2	Still Water–own cup	Carb. Water	Carb. Flavour 1	Carb. Flavour 2
DFB HC2 C+ID	106	♦	♦	●	♦	♦	♦	♦	♦	●	●			●	●	●	●			
DFB HCC2 C+ID	107	♦	♦	●	♦	♦	♦	♦	♦	●	●			●	●	●	●	●	●	●
SFBC HOT C+S	108	♦	●		♦	♦	♦	♦	♦	●	●		●							
SFBC HC C+S	109	♦	●		♦	♦	♦	♦	♦	●	●		●	●			●			
SFBC HC2 C+S	110	♦	●		♦	♦	♦	♦	♦	●	●		●	●	●	●	●			
SFBC HCC2 C+S	111	♦	●		♦	♦	♦	♦	♦	●	●		●	●	●	●	●	●	●	●

(c) SET CASH SYSTEM

This option in this submenu allows the type of credit device to be selected. Existing versions of the Nexus range of equipment support MDB change giving coin mechanisms and MDB and DIGICARD card reader units. At present NO SYSTEM, MDB PROTOCOL, MDB (ZIP VARIANT) and DIGICARD are the only options, however other choices to 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. MDB (ZIP VARIENT) should be selected if an N&W ZIP reader is fitted. These units have a different interpretation of the MDB specification to many other readers and require a product specific implementation of the protocol.

OUT OF SERVICE **MECH LINK ERROR**

(d) JUG SETTINGS

The Nexus machine can be switched to a special 'Jug Mode' using a keyed switch located on the RHS inset panel. Whilst in this mode the machine will automatically repeat a number of cycles of a selected single cup portion. The number of repetitions can be altered by repeatedly pressing the selections' key to increase the number of cycles. When the number of cycles reaches a programmable maximum, it resets to one.

By default only the black coffee, decaf and tea selections can be selected in jug mode. However it is possible to override this to enable pot of white / sugared tea and coffee. A further override forces the entire menu to be available. The following table summarises the function of the jug mode parameters:

PARAMETER	FUNCTION
MAX CUPS IN JUG	Maximum number of cycles allowed.
JUG KEY=FREE KEY	Reassign jug key to work as a free key. Default = NO
OPTIONS ON JUGS	Allow milk /sugar to be selected. Default = NO
ALL DRINKS JUGABLE	Allow all menu items to be jugged.
PRICED JUGS	Default = NO Require payment for jug vends.
CODED JUG 999	Default = 0 (NO) If no switch is fitted a code is used to create a jug, message KEY'D JUG SWITCH will appear.

(e) HARDWARE SETTINGS

This submenu 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. Whilst all possible system components are visible in this submenu, irrespective of the machines 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 an 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 dispense head. Default is YES. Can be usefully disabled only for diagnostics. The machine cannot operate with this item deselected.
TEA BREWER	Enable Tea brewer. Default for Fresh Brew machine configurations is YES; for Instant configurations - NO.
COFFEE BREWER	Enable Coffee brewer. Default for Double Fresh Brew configurations is YES; for Instant and Single Fresh Brew configurations - NO.
COLD UNIT	Indicates the type of cold drinks unit installed. Possible values are: • HOT ONLY • CARBONATOR • CHILLER • CHILLER+SYRUP
SNACK SLAVE (NO) Caution: Setting this variable manually using this menu will result in an incorrectly configured machine. **Don't do it**!	A Plus 7 board and loom are fitted to enable slave operation of a CB300 can and bottle slave. Note: This is the means by which such a unit is disabled. Setting this to ON will result in an incorrectly set up machine. The INST' SNACK SLAVE submenu of CONFIGURE M/C should be used install a slave. This will result in this variable being set.
SLAVE P'COL (NO) Caution: Setting this variable manually using this menu will result in an incorrectly configured machine. **Don't do it**!	The machine is configured for connection to a Coffetek Water or Soup Salve via the Coffetek Slave Protocol. Note: This is the means by which such a unit is disabled. Setting this to ON will result in an incorrectly set up machine. The INITIALISE SLAVE submenu of the CONFIGURE SLAVE MENU should be used install a slave. This will result in this variable being set.

(f) CAROUSEL CONFIG

This informs the machine what type of carousel configuration is fitted. The default for all of the predefined configurations assumes a single 600 cup plastic cup drop unit, Part No. 89332, is fitted. Table 3.3 shows the possible values and corresponding physical hardware it implies.

NOTE

For Two Cup Types and Two Cup Sizes it is preferable to set these by choosing an appropriate configuration via SET MACHINE TYPE than using this menu. If set using this menu, it is necessary to restart the machine before using the SET CUP types menu to define the carousel associated with each selection. For two carousel types the designation of carousel 1 & 2 is as follows:

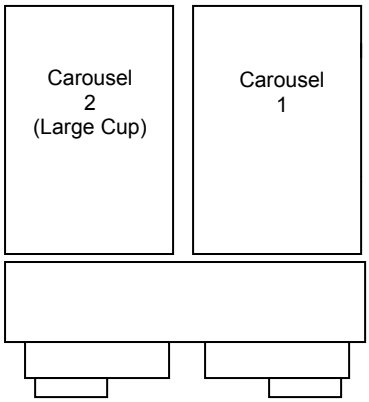


Figure 3.1 Twin Carousel Designations

VALUE	PHYSICAL SET UP
NONE	No cup drop mechanism is present. User supplies own cup.
1000 Cup	Allows 1000* (*=Typically 950) cups of the same size to be put into a double cup drop system. The cups in this system need to be loaded from the left into the right hand cup drop first.
2 Cup Types	Two different types of cup are available.
2 Cup Sizes	Two different sizes of cup available. Set this and then use SET INGREDIENTS to change the two sizes. You must cycle the power after changing this variable.
SINGLE	Standard Plastic 600 cup capacity unit.

Table 3.3

MDB Config

27. This menu provides the means to modify parameters related to MDB peripherals connected to the machine. However as support for additional peripherals is added, so additional settings will be added as appropriate.

The following table lists the submenus and parameters that are configurable:

PARAMETER	DESCRIPTION
MAX CREDIT	This monetary value defines the largest amount that can be accepted by the mechanism. Once the displayed credit reaches the value set in MAX CREDIT, no further coins will be accepted.
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, i.e. not placed directly in the change tubes.
VALIDATOR ESCROW	Provides the means by which an escrow capable validator is informed which of the bills that it can accept should be held in escrow. As with the coin accept masks for coin validators the bills are identified using a 16 bit mask.
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. If a multi session capable card reader is fitted, setting MULTI VEND has the effect of allowing several vends to be taken without removing the card. Note: **The reader must be multisession capable and most are not!**
AUTO CONFIGURE ACCEPTANCE MASKS	This is a function rather than a setting. It is only available if an MDB Changer is fitted. If successful, it will interrogate the reader and set up the ENABLED NORMAL and ENABLED EXACT CHANGE MASKS. If no device is found, the message CONFIG FAILED and a depressing beep will occur.
ENABLED COINS EXACT CHANGE	This variable controls which coins are accepted in circumstances where the exact change message would be displayed. The MBD protocol provides for up to 16 coins. For the purposes of enabling or disabling acceptance, the coins are represented by the letters A through to 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 and zero - rejection. PONMLKJIHGFEDCBA 0000000000000000111 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.
ENABLE BILLS EXACT CHANGE	This variable controls which notes are accepted in circumstances where the exact change message would be displayed. For the purposes of enabling or disabling acceptance, the notes are represented by the letters A through to P, with A being the least value coin. The acceptance status of each note is shown by a 1 or 0 below the corresponding letter. One indicates acceptance and zero - rejection. PONMLKJIHGFEDCBA 0000000000000000000
ENABLE BILLS NORMAL	This variable controls which of the notes 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 notes to be accepted the procedure is the same as for Enable Bills Exact Change above.

EVA-DTS Config

28. 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 submenus of this menu are:

(a) 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 show 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.

(b) METHOD OF AUDIT

Possible values are CARD, DDCMP, DISABLED, PRINT or DEX-CUS. DDCMP selects infrared or direct connect audit. DISABLED turns off the audit system.

(c) AUDIT CONFIG

There are two methods for this, **DDCMP** & **PRINTED**.

DDCMP

PARAMETER	DESCRIPTION
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.
STATION ADDRESS	Default 7 – Identifies the unit as a VMC for audit purposes.

PRINTED

AUDIT BAUD RATE	9600
AUDIT STOP BITES	1

Product Codes

29. This menu allows the product code associated with each selection reported for EVA DTS audit purposes to be viewed and/or changed.

On selecting this option the LCD screen will show a screen detailing drink name and CODE.

COFFEE **CODE=010**

The default codes for each selection vary depending on the configuration. For example, fresh brew tea will have a different product code to instant tea. The ↑ (UP) and ↓ (DOWN) keys can be used to scroll through the drinks to determine the codes. The following table defines the defaults for each drink type.

DRINK NAME	PRODUCT CODE
Fresh Brew Coffee 1	000
Fresh Brew Coffee 2	001
Fresh Brew Espresso	002
Fresh Brew Cappuccino	004
Fresh Brew Latte	005
Fresh Brew Tea	006
Instant Coffee	010

DRINK NAME	PRODUCT CODE
Instant Decaf	011
Instant Espresso	012
Instant Cappuccino	014
Instant Latte	015
Instant Tea	016
Hot Water	021
Cup Only	022
Fresh Brew Espresso Choc	023
Instant Espresso Choc	024
Fresh Brew Mocha	025
Instant Mocha	026
Chocolate	027
Chocó milk	028
Soup	029
Cold Water	031
Syrup Still 1 Drink	032
Sparkling Syrup 1 Drink	033
Syrup Still 2 Drink	034
Sparkling Syrup 1 Drink	035
Sparkling Water	036
Whipped Fresh Brew Coffee 1	037
Whipped Fresh Brew Coffee 2	038
Whipped Instant Coffee	039
Whipped Instant Decaf	040

Table 3.4 Default EVA DTS Product codes

Operators Code (1111)

30. The operator's code submenu is available to Managers and Engineers. It provides the means by which the engineer or manager can change the 4 digit access code used to gain operator level access to the program.

Managers Code (3333)

31. The manager's code submenu is available to Engineers. It provides the means by which the engineer can change the 4 digit access code used to gain manager level access to the program.

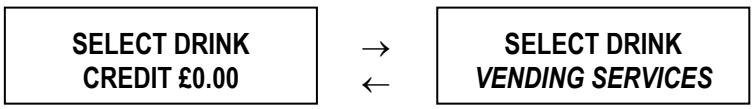
Engineers Code (4444)

32. The engineer's code submenu is available to Engineers. It provides the means by which the engineer can change the 4 digit access code used to gain full access to the program. In the event that the engineer's code is forgotten, making the ENG link connection, LK2, on the 54955 Control Board will grant access to the program, with engineer privileges, on entering any 4 digit code other than the manager's or operator's codes. Entering these codes will grant the associated access only. In summary, it is inadvisable to put the ENG link on and press 1111 or 3333, because these will probably be the operator's codes and you will therefore get restricted access.

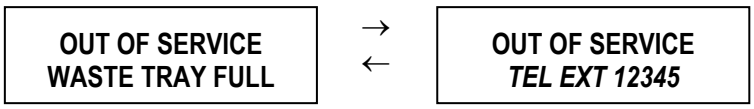
Editable Text

33. The Nexus machine provides two user definable lines of text. These lines, designated to the Select Message Text and the Error Message Text respectively, are displayed at intervals whenever the machine is displaying the select drink or error screens respectively. Each message consists of 1 line of 16 characters.

For example in the select drink state the display could alternate as shown below:



For example while a waste tray full error is present the display could alternate as shown below:

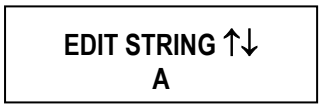


Where the text shown in *italics* is the optional error message text.

The EDIT TEXT menu contains the following submenus, which can be accessed using the ↑ (UP) and ↓ (DOWN) keys:

(a) Edit Select Msg

Allows the programmer to change the line of optional text displayed in the select drink state. On pressing ENTER the display will change to one of the form shown below:



The ↑ (UP) and ↓ (DOWN) keys are used to scroll through the available characters. The ← (LEFT) and → (RIGHT) keys can be used to move the cursor along the line of text. When the correct text has been entered, pressing ENTER confirms the changes whilst pressing ESCAPE discards them.

(b) Edit Error Msg

Allows the programmer to change the line of optional text displayed when the machine is in a fault condition.

(c) Erase Select Msg

Allows the programmer to clear the line of optional select message text.

(d) Erase Error Msg

Allows the programmer to clear the line of optional error message text.

A quick way of deleting the messages added to the machine is to press ENTER and you will be asked to delete string, press ENTER again to delete.

Free Drink Code

34. ONLY AVAILABLE TO NUMERIC BUTTON FRONTED MACHINES.

Some sites have a requirement for the code equivalent of a free key. If enabled, entering the correct 4 digit code instead of the two digit drink code in response to the Select Drink standby prompt will cause the machine to give the next selection for free. The exact submenus of FREE DRINK CODE menu vary depending on whether a free code has been set. By default this feature is disabled. Pressing ENTER when no code has been set will result in the following display:

FREE CODE=OFF
NEW CODE=_111

Entering a new code followed by pressing ENTER will both assign the code and enable the feature. Subsequently on entering the FREE DRINK CODE menu the following submenus will be available using the ↑ (UP) and ↓ (DOWN) keys: EDIT FREE CODE and DISABLE CODE. The function and operation of these two submenus is self explanatory.

Edit Drink Map

35. For each machine type, i.e. Instant, SFB Tea, DFB or SFB Coffee, there is a small number of default configurations. Typically one for each cold system option and each canister/ingredient arrangement. Choosing a configuration using the SET MACHINE TYPE option, see paragraph 26b), sets up a basic menu structure and appropriate drinks are assigned to each button.

When fitting a new control board or having radically changed the machine type by converting for example a single fresh brew machine to instant format it is advisable to carry out this process before proceeding to use the EDIT DRINK MAP FACILITY.

For each combination of canister contents, cold system and brewer options, it is typically only possible to envisage about twenty five drinkable recipes. Each configuration contains templates for all of the possible beverages, which could be produced by a machine for which it is appropriate. Table 3.2 shows the possible drinks for each configuration. The default assignments are identified with a 'D', the remaining unreferenced drinks are labelled with an 'a'.

The EDIT DRINK MAP facility provides the method by which the default menu structure/drink assignments can be changed.

For the purposes of this section and within the EDIT DRINK MAP function the buttons on the external keypad are referred to by number as below. *Note these numbers have no relevance to the values assigned when the buttons are configured for quick code entry.*

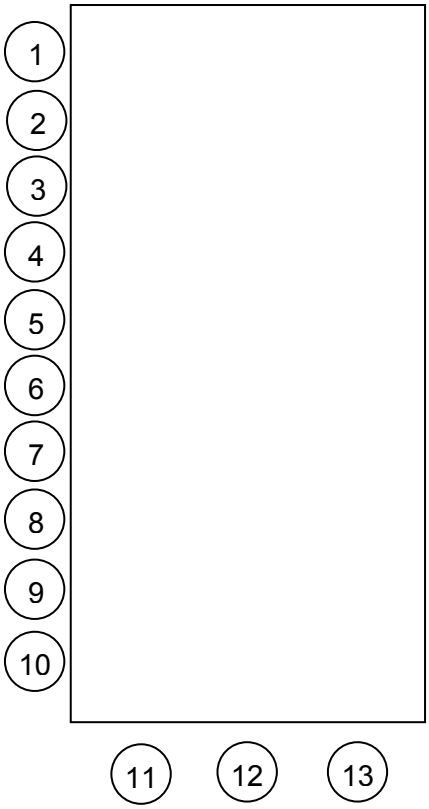


Figure 3.2 Button references used in EDIT DRINK MAP.

In addition to being able to assign drink selection functions to buttons 1 to 10, it is also possible to assign a menu navigation function to these buttons. Three navigation functions are currently available as follows:

- MAIN MENU
- SPECIALITY CHOCS
- COLD DRINKS

Note:
Navigation functions are assigned in exactly the same way as drink entries and it is possible to change the associated text using the MENU NAMES submenu of the ALTER DRINK NAME function, see paragraph 14.

To better understand how these menu navigation functions work it is necessary to understand the menu structure.

NEXUS MENU STRUCTURE

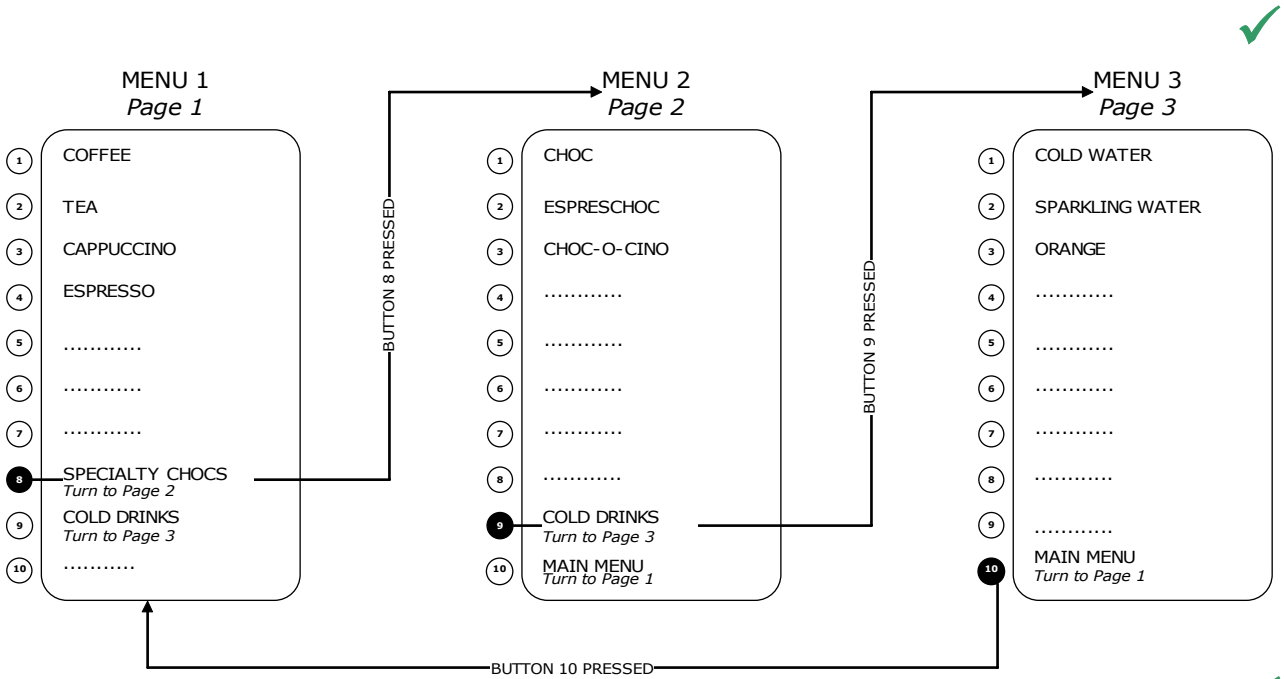
36. The Nexus menu structure consists of 3 pages. The three pages are always available and live. Within the EDIT DRINK MAP function these are referred to as MENU 1, MENU 2 and MENU 3. By default, after power on or if cancel is pressed MENU 1 is displayed. It is possible to assign drinks to each of the ten keys on each of these pages. However, in order for MENU 2 or MENU 3 to be displayed, it is necessary for one of the buttons in another menu to call it up. This is made possible by assigning navigation functions to one or more of the buttons on each menu instead of a drink name.

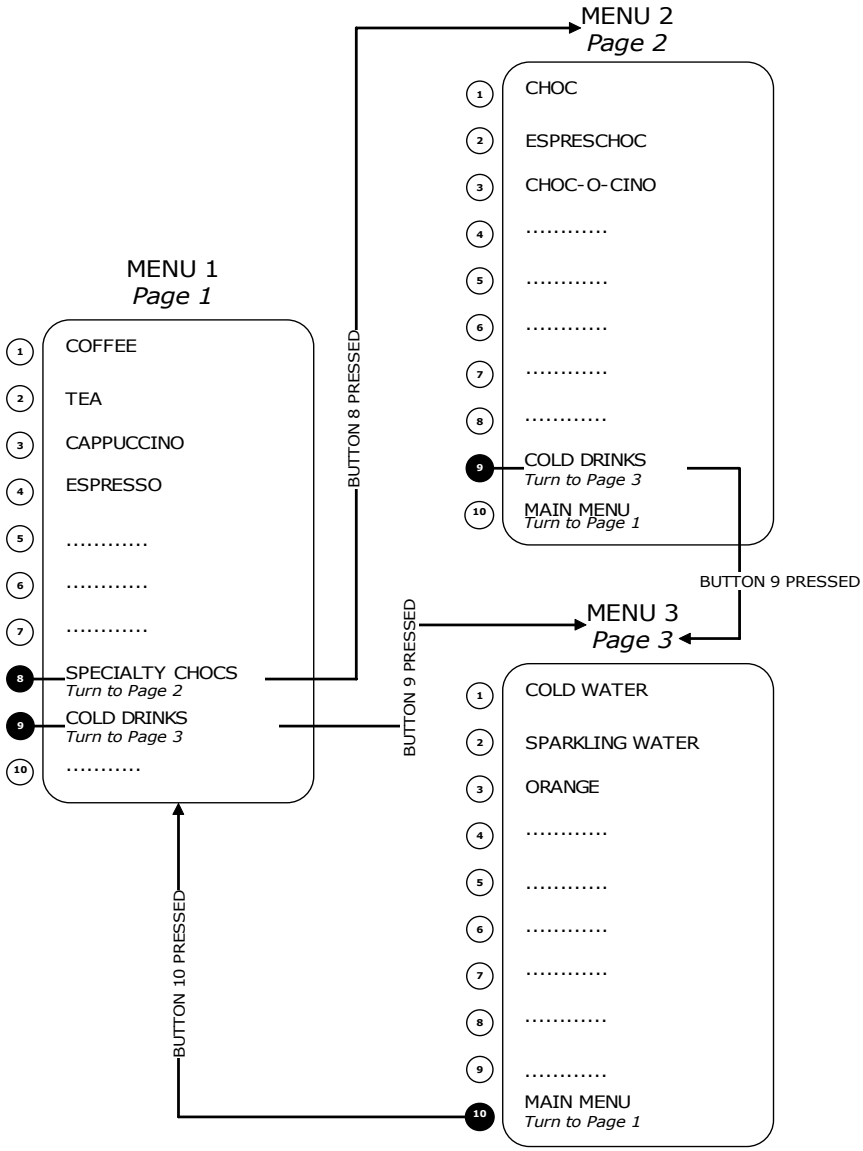
MENU	WHEN VISIBLE	ASSOCIATED NAVIGATION FUNCTION
MENU 1	Displayed in standby state, after cancel is pressed or after a button defined as MAIN MENU is pressed.	MAIN MENU
MENU 2	Displayed when a button designated as SPECIALITY CHOCS is pressed.	SPECIALITY CHOCS
MENU 3	Displayed when a button designated as COLD DRINKS is pressed.	COLD DRINKS

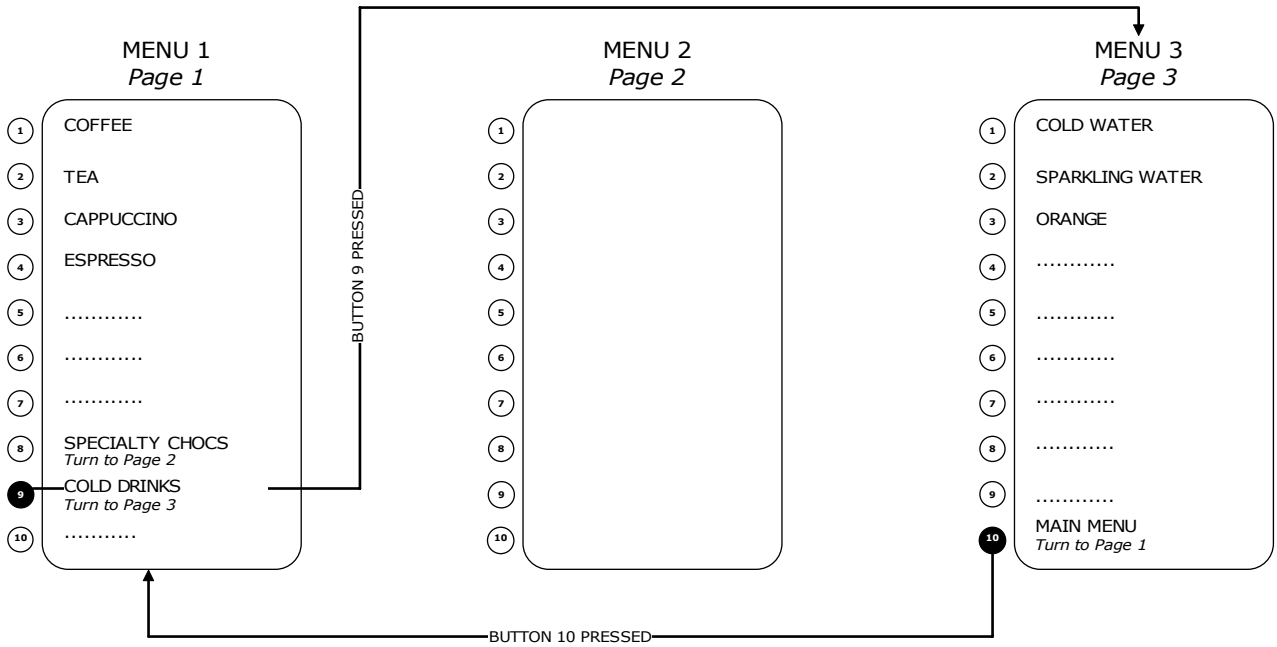
37. By analogy the system can be described as follows:

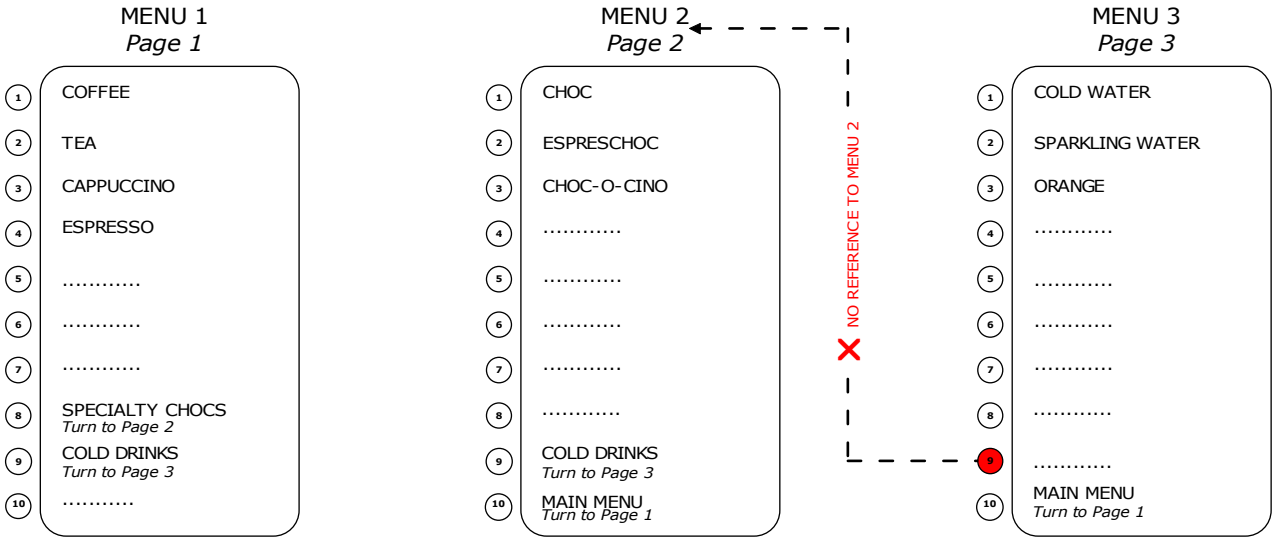
Imagine a book with just three pages. Only one page may be seen at a time. Each page has only ten lines and only one thing can be written on each line. The only things that can be written about are the names of the drinks listed in table 3.2 and one of the following instructions: *Turn to Page 1*, *Turn to Page 2* and *Turn to Page 3*. In order for page two to be read, page one must have the instruction *Turn to Page 2* somewhere on it. Likewise, for page three to be read page 1 or page 2 must have the instruction *Turn to Page 3* somewhere on it. *Turn to Page 2* would be inappropriate to a vending machine display so the default text associated with this instruction is SPECIALITY CHOCS. Likewise by default *Turn to Page 3* is named COLD DRINKS.

The following are examples of possible menu configurations both workable and flawed.






MENU 1
Page 1
1 COFFEE
2 TEA
3 CAPPUCCINO
4 ESPRESSO
5 .....
6 .....
7 .....
8 SPECIALTY CHOCS
Turn to Page 2
9 COLD DRINKS
Turn to Page 3
10 .....
BUTTON 9 PRESSED
MENU 2
Page 2
1
2
3
4
5
6
7
8
9
10
MENU 3
Page 3
1 COLD WATER
2 SPARKLING WATER
3 ORANGE
4 .....
5 .....
6 .....
7 .....
8 .....
9 .....
10 MAIN MENU
Turn to Page 1
BUTTON 10 PRESSED


MENU 1
Page 1
1 COFFEE
2 TEA
3 CAPPUCCINO
4 ESPRESSO
5 .....
6 .....
7 .....
8 SPECIALTY CHOCS
Turn to Page 2
9 COLD DRINKS
Turn to Page 3
10 .....
MENU 2
Page 2
1 CHOC
2 ESPRESCHOC
3 CHOC-O-CINO
4 .....
5 .....
6 .....
7 .....
8 .....
9 COLD DRINKS
Turn to Page 3
10 MAIN MENU
Turn to Page 1
NO REFERENCE TO MENU 2
MENU 3
Page 3
1 COLD WATER
2 SPARKLING WATER
3 ORANGE
4 .....
5 .....
6 .....
7 .....
8 .....
9 .....
10 MAIN MENU
Turn to Page 1

(a) On entering the EDIT DRINK MAP function, a menu number and a key number are displayed on the top line of the display, the drink currently assigned to that key when that menu page is shown on the bottom line.

For example:

MENU 1 ENTRY 1 **MOCCACINO**

The ↑ (UP) and ↓ (DOWN) keys can be used to scroll through the drinks assigned to each button on each page.

(b) To change the drink assigned to a given button press ENTER. The display will change to one of the form below:

MOCCACINO **↑↓ ENTER OR ESCAPE**

The ↑ (UP) and ↓ (DOWN) keys can be used to scroll through the possible alternative drinks. When the desired alternative is displayed pressing ENTER confirms the change. If it is desired to discard the change pressing ESC will leave the assignment unchanged. The display will revert to the form show in (a).

(c) For many of the drinks both fresh brew and instant versions are possible within the same configuration. For example in a DFB machine with an espresso canister, Café Latte may be made with either fresh or instant coffee. Due to the constraints of the display the name used is CAFÉ LATTE in both cases. At any time during the above process pressing the → (RIGHT) arrow will cause additional information about the drink to be displayed. For example when the display is as shown in (b). Pressing → (RIGHT) will cause it to change as follows:

(FRESH COF1) #27 **↑↓ ENTER OR ESCAPE**

The number displayed, #27, is a unique number assigned to the fresh brew based MOCCACINO recipe. The text (FRESH COF1) provides a more intuitive guide that it is made using fresh coffee 1 for the coffee component.

(d) After all drink button reassignments have been made press ESCAPE to exit the facility. The display will change to:

COMMIT CHANGES **ENTER=YES ESCAPE=NO**

If ESCAPE is pressed the machine will remain unchanged. Pressing ENTER will confirm the changes. Only at this point will the changes take effect. A re-initialisation is automatically performed when the drink map is changed. The new menu will be created and default timings assigned to ALL selections.

NOTES

This facility should only be used to edit the drink selection menu immediately following installation of a new board and or use of the SET MACHINE TYPE menu in the CONFIGURE MC menu. It may be used to review the assignments at any time provided the changes are not committed on exit.

This function does not provide the facility to create an entirely new drink, merely to substitute one, which it has already determined can be made with the ingredients available in the machine. One cannot, for instance, add a fresh brew coffee drink to a machine without out a coffee brewer.

The same drink cannot be assigned to two keys and set up differently for each. The two keys will map to the same instance of the drink, so changing one will change the other.

Audit data is mapped to the keys, not to the drinks themselves. Changing the drink map on a machine which has been in service will lead to existing audit data now being tied to drinks to which it does not relate. An initialisation with the ENGINEERS LINK fitted should be performed first, if necessary.

Card Actions

38. CARD ACTIONS provides access to a number of submenus, which relate to the operation of the Nexus ranges optional smart card interface. The smart card interface provides the capability for both audit and engineering configuration activities. In the event that the reader is not fitted or an unreadable card is placed in the reader, any attempt to enter this menu will result in the message INSERT CARD being displayed. Pressing ESC will return to the main menu. There are two types of card; one type is programmed to hold machine configuration data and the other audit information. The cards are identical; the choice of functionality is made by means of formatting. This must be carried out on a machine before a card can be used. The submenus of CARD ACTIVITIES depend on the type of card inserted and its contents as follows:

(a) FORMAT CARD

Smart cards can be formatted for use as either an audit card or a preset (engineering function) card. A card formatted using the MAKE AUDIT CARD function can only be used to hold audit data and likewise a card formatted using the MAKE PRESET CARD can only be used to hold data files as described in sections below.

Cards formatted as engineering/configuration cards may hold **one** file of each of the following types:

MACHINE	A file containing all of the data necessary to create an exact copy of a machine set up, i.e. to effectively allow a machine to be ‘cloned’. This includes drink parameters, general setting, serial number, counters and timed events and prices.
CONFIG	A file containing all of the data necessary to create a copy of machine’s operational parameters. This includes only the drink parameters and general setting.
PRICE	A file containing the drink details.
EVENTS	A file containing all programmed timed events.
STRINGS	A file containing all the editable text messages.

Cards formatted as AUDIT cards may only hold audit data. Audit data will be written to the card when it is inserted into the reader if the METHOD OF AUDIT in the EVA DTS CONFIG menu has been set to CARD.

(b) LOAD, SAVE & DELETE <filetype> where <filetype> is MACHINE,CONFIG,PRICE or EVENTS

If a card contains a data file of a given type a LOAD & DELETE menu for that file type will be available. If it does not then a SAVE menu to allow its creation will be available. The machine should be switched off and on after loading files.

Cup Config

39. The CUP CONFIGURATION menu allows the carousel to select from which the cup is dispensed, depending on the particular selection made. Its submenus are only available if the carousel type has been set to two types in the Carousel Config submenu of the Configure Machine menu.

If the carousel type is set to two sizes the larger cups are assumed to come from carousel 2, see Fig 3.1 Paragraph 26(f).

Configure Slave

40. The Configure Slave menu is used to set up a Coffetek Water or Soup Slave. It has the following submenus:

- INITIALISE SLAVE
- SYNC WITH SLAVE
- SLAVE STATISTICS
- ELIMINATE SLAVE
- GRAM THROW RATES
- PRODUCT NAME

The operation of the slave units is outside the scope of this manual. However, the procedure is typically as follows: Firstly INITIALISE the slave unit preferably using the slave unit's own engineer's program. Secondly perform SYNC with slave activity. Then invoke the other functions, if needed. If either SYNC or INITIALISATION fails then the ELIMINATE SLAVE function should be used before retrying.

Ing Restrictions

41. The INGREDIENT RESTRICTIONS allows the operator to set an ingredient as unusable by setting the ingredient as RESTRICTED. This is done by using the arrow keys to move to whichever ingredient you wish to restrict and pressing ENTER, then set to RESTRICTED and press ENTER again to save. By doing this it will prevent any drink(s) that use the restricted ingredient from being made. The machine's main display screen will from then on display a message on the drink(s) saying that the particular drink is out of the subsequent ingredient and will not let it be selected. This selection can be removed by setting the ingredient as UNRESTRICTED; this will then allow the drink(s) that use the ingredient to function as normal again.

Economy Mode

42. The ECONOMY MODE menu provides access to a number of facilities related to the configuration of the Nexus range's power saving options. The overall operation of economy mode is governed by the ECONOMY periods set in TIMED ACTIVITIES; unless an economy period is active, no settings made in this menu will have any effect. The settings and submenus in ECONOMY MODE are as follows:

(a) DISABLE KBD O/R

The default method of overriding economy mode and heating the tank is with a key press. If a PIR activity sensor is fitted, then it may be desired to disable this means of override.

(b) ENABLE PIR O/R

PIR override is disabled by default, as a PIR sensor is not fitted as standard.

(c) ADVANCED MODE

Advanced economy mode allows for a greater level of control with regards to when economy mode is active. Enabling economy mode in TIMED ACTIVITIES sets the mode active for the entire duration of the economy period. Advanced mode allows this to be refined into 15 minute blocks. The machine can also be instructed to 'learn' when the machine is heavily used, and to auto-configure the 15 minute periods to either full power or economy as appropriate. Within the ADVANCED MODE submenu there are the following options:

1. ADV MODE ENABLE

Activates/Deactivates advanced mode. The remaining options in this menu are unavailable while advanced mode is inactive.

2. SET LEARN MODE

Configures the machine to 'learn' when the machine is used, and set up advanced mode accordingly. This is achieved by counting the number of vends taken in each 15 minute period, and, if they exceed a given threshold figure, setting the override ON for that period. This process can take place over a period of up to three weeks, with the result (ON/OFF) from previous week(s) being factored in, depending on the settings made in the following process:

- If a learning process is already in progress, this will have to be cancelled before a new one can be set up.
- SET NO OF WEEKS - select a learning process of 1, 2 or 3 week duration.
- If 2 or 3 weeks selected, a WEEK 2 WEIGHTING will be required. This is a percentage figure, determining how much importance is given to the existing setting (i.e. the week 1 result; override ON or OFF) of the current 15 minute period. This can be a value of 10%, 20%, 25%, 33% or 50%.
- If 3 weeks selected, a WEEK 3 INCREMENT will be required. This is a modifier applied to the WEEK 2 WEIGHTING to (optionally) increase the influence of the previous 2 weeks' results in the final result. This can be an add-on value of +10% or +20%, no increment, or a multiplication factor of 1.25, 1.5 or 2.0. For example, if the week 2 weighting was 10%, and a multiplication factor of 1.5 was applied, then the result after weeks 1 & 2 of the process would be given a weighting of 15% of the final determination of the setting.
- Finally, a THRESHOLD figure needs to be set. This is the number of vends required in a 15 minute period for an override to be set.
- Once all settings have been entered, learning mode will be activated. It will cease after the given number of weeks have elapsed, and from then on the override settings will not be automatically modified.

3. END LEARN MODE

This allows the learning process to be terminated early. No changes made to the overrides whilst learning was active will be reversed, but no further changes will be made.

4. MANUAL CONFIG

Allows manual editing of the advanced mode override periods, with each day presented in 6 4 hour blocks of 16 15 minute periods. Each period is represented as a value of 0 (Off) or 1 (On). For example, the override setting for 15.45-15.59 on a Saturday would be represented by the right-most value in the block labelled SAT 1200-1559.

Periods which are marked with a '-', rather than a 0 or 1 are those in which economy mode (as a timed activity) is not active, so editing these settings would have no effect.

Note that any manual changes made while the learning mode process is active will be subject to modification by the learning algorithm.

5. CLEAR OVERRIDES

This resets all advanced mode override periods to zero, effectively making advanced mode behave identically to the basic economy timed event. Note that it does not turn off advanced mode, neither does it cancel learning mode.

(d) ECONOMY DELAY

This configures the time, in minutes, for which the machine should maintain full temperature following an override.

(e) PIR SENSITIVITY

Sets how much activity detected by the PIR is required to trigger an override. When set to ANY PIR ACTIVITY, a single read of activity is sufficient to trigger an override. When set to any other value (1-16), a store is maintained of the most recent 16 reads of PIR status. Only when sufficient of them have shown activity will the override state be activated.

Depressurise Coffee Brewer

42. This feature allows an engineer to depressurise a pressurised coffee brewer during testing/usage. By pressing ENTER on this section in the machine's menu, it allows air to be slowly released from the brewer preventing it from spraying hot liquid over the machine.

Section 4
Installation & Commissioning

INTRODUCTION

1. The information given in this Section covers installation, commissioning and maintenance procedures for the Nexus beverage machine. Authorised personnel, who are fully conversant with the equipment, using only the manufacturers approved parts, must carry out these procedures.

2. Servicing personnel must be familiar with the SAFETY WARNINGS listed on page 81 before undertaking any installation, commissioning or maintenance procedure on the beverage machine. Any procedure, which is found to be impracticable, inadequate or inaccurate, should be reported to the Management for further investigation.

3. The requirements of proper hygiene in respect of food products must be ensured at every level of contact with the beverage machine and the ingredients associated with it.

SAFETY WARNINGS

1. Maintenance of the beverage machine is only to be undertaken by trained personnel who are fully aware of the dangers involved and who have taken adequate precautions, e.g. ensuring that, whenever possible, the beverage machine is isolated from the mains electrical supply.

2. Lethal voltages are exposed when any panel inside the cabinet is removed and the mains electrical supply is available (i.e. on/off switch is overridden). The mains electrical supply is maintained to the Carbonator even when the door is open.

3. The beverage machine must be earthed.

4. Keep clear of the Brewer Unit when it is indexing.

5. The beverage machine is a heavy item. Ensure that sufficient personnel are available for lifting and transporting the machine. Use proper lifting procedures and equipment.

6. 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 heater 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.

7. 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.

8. The lithium battery must not be charged 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.

CAUTION HOT WATER

THE WATER AVAILABLE FROM THE OPTION SHOWER HEAD CLEANING ATTACHMENT IS HOT ENOUGH TO SCALD OR BURN. APPROPRIATE CARE MUST BE TAKEN WHEN USING THIS ATTACHMENT.

NOTE: INITIALLY THE WATER FLOWING FROM THE ATTACHMENT WILL BE COOL, BUT IT WILL RAPIDLY BECOME EXTREMELY HOT.

SERVICES REQUIRED

4.

(a) Electrical Supply: 240V, 50Hz, 13A fused.

(b) Water Supply: 15mm BSP stopcock - 1 bar min, 8 bar max.

A double check valve MUST be fitted and for Hot and Cold Still Machines a 35psi regulator must be fitted.

INSTALLATION

WARNINGS

a. THE BEVERAGE MACHINE IS A HEAVY ITEM. ENSURE THAT SUFFICIENT PERSONNEL ARE AVAILABLE FOR LIFTING AND TRANSPORTING THE MACHINE. USE PROPER LIFTING PROCEDURES AND EQUIPMENT.

b. ENSURE THAT THE MAINS ELECTRICAL SUPPLY IS ISOLATED BEFORE CONNECTING THE ELECTRICAL SUPPLY CABLE TO THE MACHINE.

c. ENSURE THAT THE MAINS WATER SUPPLY IS ISOLATED BEFORE CONNECTING THE WATER SUPPLY HOSE TO THE MACHINE.

d. THE BEVERAGE MACHINE MUST BE EARTHED.

e. DO NOT EARTH THE BEVERAGE MACHINE TO THE MAINS WATER SUPPLY PIPE.

LOCATION

5. Locate the beverage machine close to the appropriate electrical and water services, with a minimum of 100mm (4in) clearance between the rear of the cabinet and the wall to allow adequate ventilation. If situating in a corner location, do not install closer to the right hand wall less than 400mm (16in) to accommodate opening of the door.

LEVELLING

6. The machine should be levelled both fore and aft and side-to-side by adjustment of the four levelling feet, using a spirit level on the cabinet floor to check for level. Incorrect levelling of the machine can result in cup drop failures, door misalignment and coin mechanism malfunctions.

CONNECTING THE WATER SERVICES

7. The water supply should be taken from a 15mm rising main at a pressure of between 1 to 8 bar and should be fitted with a stopcock to isolate the supply during servicing. A double check valve must be fitted to the machine and when installing a Hot/Cold Still machine, a water pressure regulator set at 35psi should be fitted.

8. The outlet should be fitted with BSP connections and must be positioned within 1.5m of the machine to ensure correct fitting of the hose. If possible, the outlet should be located behind the machine to prevent misuse.

9. Before connecting the machine hose to the mains outlet, flush the system via the stopcock to remove any impurities, which may have accumulated in the mains supply pipe.

10. Connect the machine hose to the mains outlet using the seals supplied and ensure that all fittings are tight. Turn on the water supply at the stopcock and check for leaks, both behind and inside the machine.

CONNECTING THE ELECTRICAL SERVICES

11. The beverage machine mains cable is fitted with a moulded 13A fused plug and is connected:

    - GREEN and YELLOW wire to the EARTH terminal (E)
    - BLUE wire to the NEUTRAL terminal (N)
    - BROWN wire to the LIVE terminal (L)

12. Connect the mains cable plug to a switched 240V, 50Hz, 13A supply socket. Preferably, the switched outlet should be located behind the machine to prevent accidental damage or misuse. With the plug fitted to the socket, ensure that the cable is not being stretched, distorted or fouled.

COMMISSIONING

WARNINGS

a. LETHAL VOLTAGES ARE EXPOSED WHEN ANY PANEL INSIDE THE CABINET IS REMOVED AND MAINS ELECTRICAL SUPPLY IS AVAILABLE (I.E. ON/OFF SWITCH IS SWITCHED ON).

b. MAINS ELECTRICAL SUPPLY IS MAINTAINED TO THE CARBONATOR EVEN WHEN THE DOOR IS OPEN.

c. THE WATER IN THE WATER HEATER IS HOT. AVOID CONTACT WITH WATER LEAKING FROM THE HEATER OR FROM ITS ASSOCIATED VALVES, TUBES AND PIPES.

d. KEEP CLEAR OF THE BREWER UNIT WHEN IT IS INDEXING.

13. It is essential that the Service Engineer responsible for installing and commissioning the machine ensures that:

(1) All electrical and water supplies are correctly and safely connected.

(2) All covers, panels or access doors are in place and secured, and the machine is left in a SAFE condition.

(3) The Operator is familiar with the SAFETY PRECAUTIONS for the machine.

(4) The importance of hygiene and regular cleaning is fully appreciated by the Operator.

14. With the water and electrical supplies available to the machine, check the operation of the water heater as follows:

(1) Isolate the mains electrical supply from the machine.

(2) Open the cabinet door and check that the on/off switch is in the OFF position.

(3) Remove the ingredient canisters and back panels.

(4) Ensure that the water heater overflow pipe is not trapped.

(5) Restore the electrical supply to the machine.

(6) Using the main switch, set to the ON position.

(7) Check that the water heater fills with water and that the water supply cuts off when the correct level is reached, i.e. no water overflows into the waste bucket. Ensure that the waste level probe is located in the waste bucket.

(8) Set the main switch to the OFF position.

WARNING

LETHAL VOLTAGES ARE EXPOSED WHEN ANY PANEL INSIDE THE CABINET IS REMOVED AND MAINS ELECTRICAL SUPPLY IS AVAILABLE (I.E. ON/OFF SWITCH IS SWITCHED ON).

15. Prepare the Carbonator for use as follows:

(1) Isolate the mains electrical supply from the machine.

(2) Remove the front and top covers from the Carbonator, fit the small waste bucket in position in the cabinet and place the Carbonator overflow pipe in the bucket.

(3) Slowly fill the Carbonator water reservoir with cold water up to the overflow level.

(4) Purge the Carbonator of air by opening the shut-off valve for approximately 5 seconds.

(5) Using the seals provided, connect the regulator to the $C0_2$ gas cylinder and check that the CO_2 gas pressure is set at 50psi. Secure the cylinder in place in the cabinet.

(6) Turn on the CO_2 gas supply and purge the Carbonator by gently lifting the pressure relief valve for approximately 10 seconds.

(7) Place the waste level probe in the waste bucket and refit the front and top covers to the Carbonator.

(8) Restore the mains electrical supply to the machine.

(9) Place the syrup container in the cabinet and insert the stainless steel dip tubes into the container.

Section 5
Setting up a New or Replacement Control Board

WARNING

THE 54955 FMCU CONTROL BOARD USED IN THE NEXUS VENDING MACHINE UTILISES STATIC SENSITIVE COMPONENTS. PRECAUTIONS FOR HANDLING STATIC SENSITIVE DEVICES SHOULD BE OBSERVED WHEN HANDLING THIS ITEM.

1. The Nexus 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, ref. section 3 paragraph 23c).

2. For machines the software version will typically be of the form NEXUS_XX. Where NEXUS denotes the program and XX is a number defining the version. Latest versions will have software of the form Nexus.XXX New versions will be generated to support customer specific configurations and behaviours. 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 versions may not support a particular machine type.

3. 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. The procedure to achieve this is as follows:

   (1) Switch off the machine.

   (2) Fit the new board and plug in all the connectors. It is not possible to put connectors in incorrectly as the plug sizes prevent this.

   (3) Fit the shorting link between the pins CLK BAT to enable the battery support for the clock.

   (4) Fit a shorting link between the pins labelled ENG LINK.

   (5) Turn on the power.

   (6) The display will change to INGREDIENT TIMES.

   (7) Select the appropriate configuration from within the SET MACHINE TYPE submenu of the CONFIGURE menu using the procedures described in section 3.

   (8) Remove the shorting link from the ENG LINK pins.

   (9) Switch the machine off and on.

   (10) Re-enter programming mode using the default code (4444).

(11) Enable the MDB protocol if a coin / card system is fitted.

(12) Set up the Operator and Manager level codes if different from the default.

(13) Finally adjust the drink settings as required and test each selection.

Section 6
Exploded Parts Diagrams