NEVA 4
BEVERAGE MACHINE

TECHNICAL MANUAL

NEVA 4 BEVERAGE MACHINE

TECHNICAL MANUAL

CONTENTS

FOREWORD

1. The information contained in this technical manual is applicable to the Neva 4 Beverage Machine. Due to customer requirements some units may vary from the one described in the manual.

2. Personnel who have undergone relevant equipment training must only undertake maintenance of the beverage machine.

3. 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.

4. The Neva 4 Beverage Machine is designed for indoor use, in an environment with an ambient temperature range of between 0°C and 40°C.

This page is intentionally blank.

Section 1
Technical Information

INTRODUCTION

1. The Neva 4 Beverage Machine dispenses hot beverages in response to a simple keypad selection. All beverages are dispensed in cup measures. All operations are microprocessor controlled.

2. A cup is placed under the dispense head and the selection is made on the keypad. The drink is then dispensed in the required quantity. The machine does not accept money, but a feature such as this can be added.

3. The status of the machine may be monitored, and the configuration altered, by accessing a program using an internal keypad and display. The program offers a menu of options, each consisting of a number of sub-options which can be altered. Programming is accomplished using a dedicated programming keypad and display mounted on the rear side of the machines door.

4. The Neva 4 Beverage Machine requires a 230V, 13A single-phase supply.

FIG 1.1 NEVA 4 BEVERAGE MACHINE

SPECIFICATIONS

5.

(a) Weight: 26kg

(b) Height: 68cm

(c) Width: 32cm

(d) Depth: 47cm

(e) Temp. Range: 0ºC to 55ºC (ambient)

SERVICES REQUIRED

Electrical Supply

6. Single Heater Operation

(a) Supply voltage: 230V, 50-60Hz, single phase fused supply

(b) Current rating: 13A

(c) Connection to the domestic mains supply is via a factory fitted mains lead incorporating a moulded domestic plug suitable for connection to a switched socket. The socket should be located within 1m of the beverage machine.

7. 6kW Model for Fused 30 Amp supply.

(a) as above

(b) Current Rating 23A

(c) The fused electrical supply must be terminated at a safety isolator switch, which provides a contact separation of at least 3mm. The isolator should be located within 1m of the beverage machine. Note the mains lead appropriate to the 6kW heater load is not suitable for use with a rewireable domestic plug and no attempt should be made to fit one.

Water Supply

8.

(a) 15mm dia. water mains supply, terminating at a convenient stop tap located within 1m of the beverage machine.

(b) Water Pressure

Minimum: 1 bar

Maximum: 8 bar

(c) A 15mm double backcheck valve with inspection port should be fitted prior to the flexible hose.

GENERAL DESCRIPTION

9. The Neva 4 Beverage Machine is a free-standing unit which may be mounted on a secure table, bench, cabinet or food and drink counter.

Cabinet Front

10. The cabinet front door has a large picture panel area and located within this area are 8 pushbuttons, which have removable front covers to enable fitting of individual selection labels. On the rear of the door is the display for accessing product information and machine settings plus the internal keypad, which provides access to the Operator's and Engineer's Program.

11. The panel can, when unscrewed, be hinged to give access to the MPU, display lamps and keyboard PCB.

12. A gear driven worm screw located in the base of each canister dispenses ingredients in exact amounts. The ingredient is then mixed with hot water in a mixing bowl prior to the beverage being poured from the dispense head. A plastic agitator, located inside the canisters, ensures a free and consistent flow of powder. Additionally, a whipper unit, located beneath the mixing bowls, ensures that the product and water are properly blended.

13. The machine On/Off switch is located on the lower panel. Access to all other components is either by removal of the motor shelf or side panels.

Cabinet Interior

14. Further access to the inner components is achieved by removing the left-hand side panel by lifting it upwards, clear of its keyhole shifts. Removing this panel gives access to all internal components.

15. The mains electricity supply cable enters the machine via a cable gland on the base panel of the machine, where it terminates in a terminal block.

Water System

16. The main water supply enters the machine via a double chamber inlet valve, which is mounted in the cabinet base panel. A length of tube then takes the water supply into the top of the water boiler via an air break into a channel, which is directed to the bottom of the heater tank.

17. Hot water is dispensed from the boiler, via the appropriate solenoid operated valve, to the mixing bowl. A length of tube directs any overflow from the boiler to the waste tray.

18. The water is maintained at a constant level in response to signals from a water level probe, which is connected to the Controller Board.

19. The water is heated to the required temperature by one or two heating element(s), depending on the model. The Controller Board ensures that the temperature is maintained to a predetermined level by controlling the supply to the heater(s) in response to signals from the N.T.C. temperature sensor which forms part of the level/temperature probe assembly. Safety cut out switches mounted on the front of the boiler ensure that power is removed from the heaters in the event that a fault with the control system leads to the water in the tank beginning to boil.

20. Hot water from the boiler is fed directly to the mixing bowls, where it mixes with the dispensed ingredient to produce the selected beverage. Solenoid operated valves distribute the hot water to the selected mixing bowl, the amount of water being determined by the program setting.

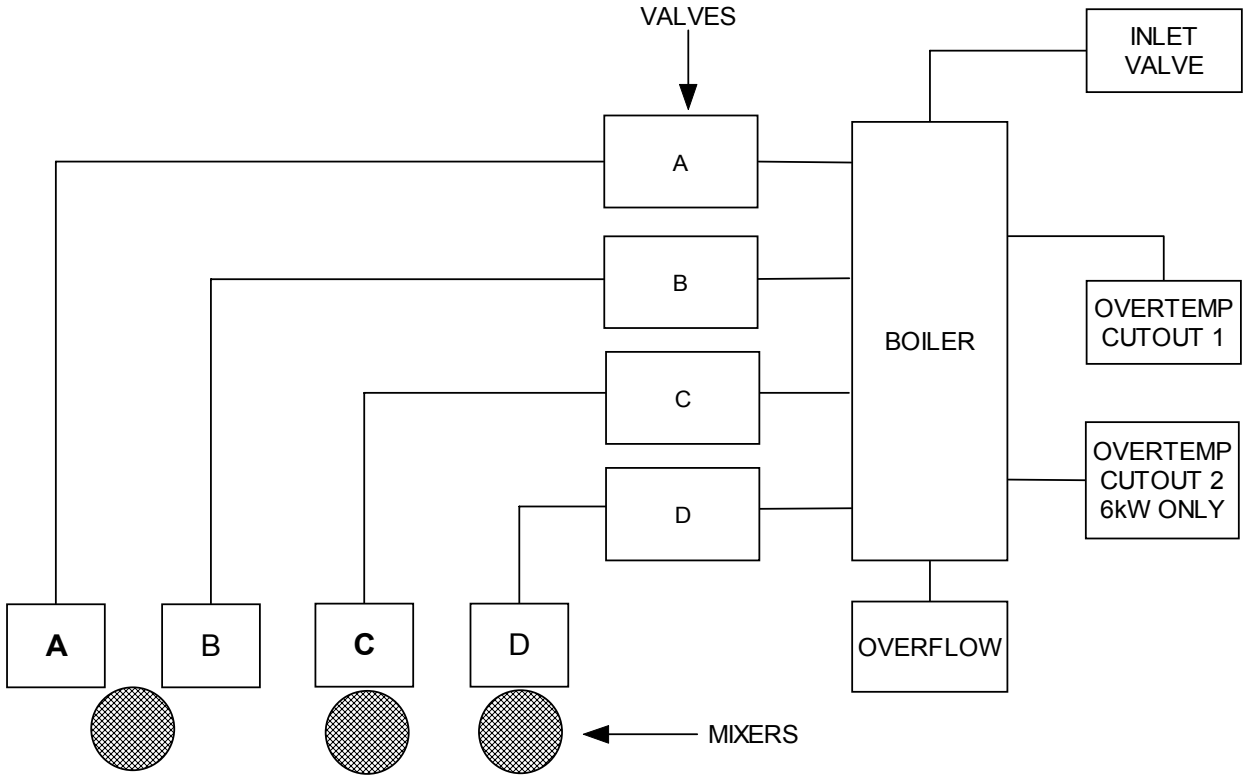


FIG 1.2 WATER SYSTEM – FUNCTIONAL DIAGRAM

ELECTRICAL AND ELECTRONIC SYSTEM

Functional Description

21. The MPU Controller Board employs microprocessor technology to monitor and control the operation of the beverage machine. The board contains the main System Program, the Operator's Program and the Engineer's Program, each stored in programmable read only memory (EPROM).

22. Variables, such as the amount of ingredients dispensed, are stored in non-volatile random access memory (NVRAM) and are called up by addressing either the Operator's Program or the Engineer's Program as appropriate.

23. The main System Program tasks the microprocessor with continually checking the status of the input devices (keypad, probe, etc) and responding to data received by signaling the output devices (LCD display, motors, whippers, etc) to take the appropriate action. The System Program also requests the microprocessor to interrogate the variable settings in NVRAM and to modify its actions accordingly.

24. Output transistors and F.E.T. devices on the MPU Controller Board convert signals from the Controller's microprocessor circuit to the current drive necessary to operate output devices, i.e. motors, whippers and inlet valve.

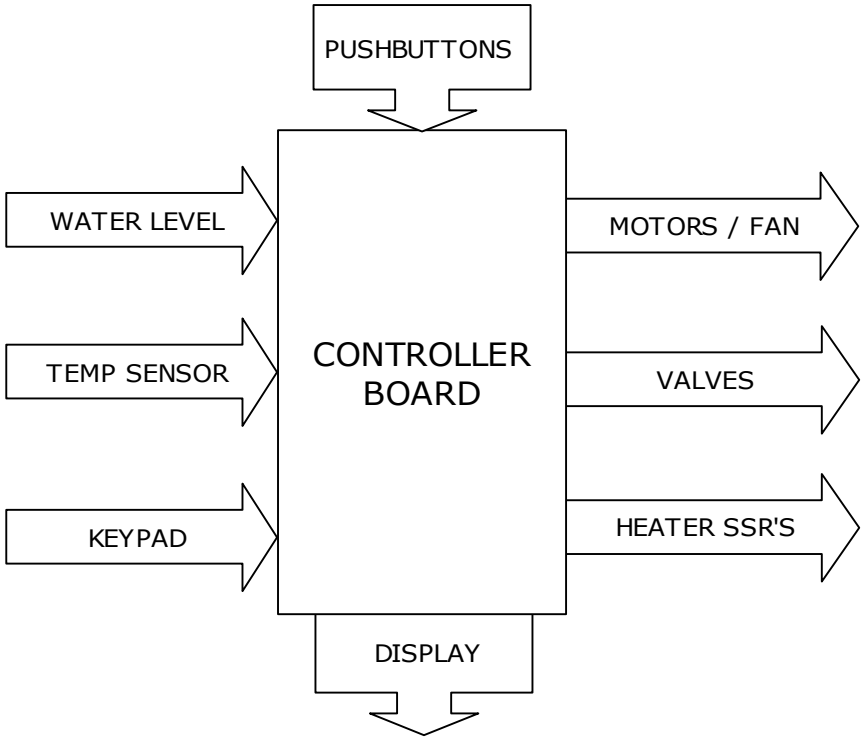


FIG 1.3 ELECTRICAL & ELECTRONIC SYSTEM – FUNCTIONAL DIAGRAM

Circuit Description

25. The beverage machine is connected to a 230V single-phase supply that terminates at a terminal block (TBA). From here AC supplies are taken to the heater element(s) and Power Supply PCB.

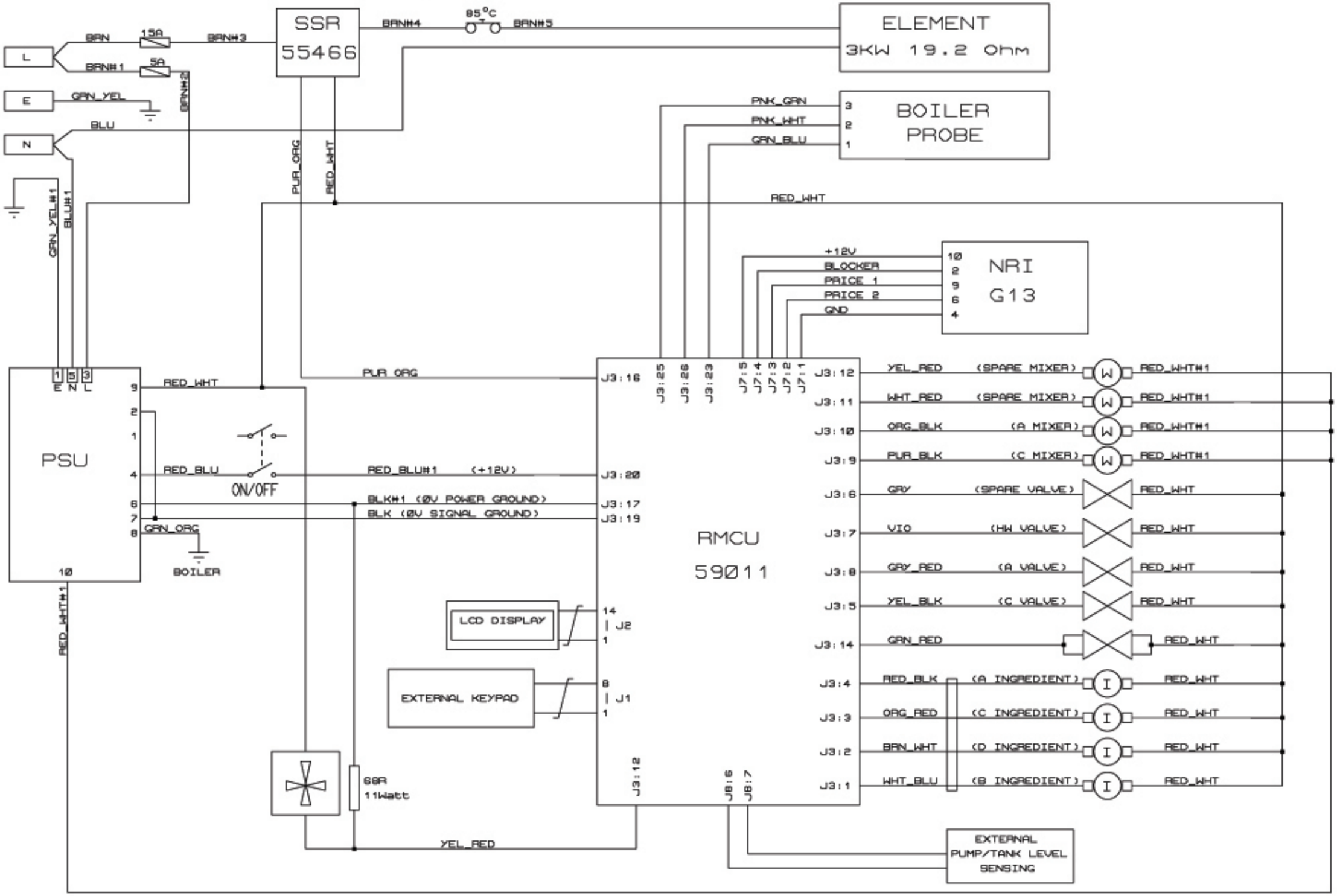
26. A 15A fuse(s) protect the heater circuit(s). A solid state relay (SSR) and high temperature cutout are also placed in each heater circuit. The SSR switches the supply to the heater as directed by the MPU Controller in response to data received from the temperature sensor part of the temperature/level probe, thus maintaining the water in the boiler at the correct temperature. However, if the water in the boiler starts to boil, the high temperature cutout removes the supply to the heater. Once operated, the cutout must be reset manually. The reset buttons are located on the boiler cover behind the ingredient canisters. On the 3kW model the single active element is designated as HEATER 1.

27. A 230V AC main supply is taken from the terminal block to the Power Supply PCB via the On/Off switch. The Power Supply PCB provides DC supplies of 24V, 12V and 5V. The 24V DC output supplies the ingredient motors, whipper motors, extraction fan, SSR and solenoid operated valves. The 12V DC output supplies the MPU Controller Board and operational coin acceptor (if fitted).

28. The MPU Controller Board continually checks the status of input devices connected to plugs J1 and J3, and responds to any change of state by signaling the operation of the relevant output devices via on-board current drive transistors. Thus, for example, the water level probe controls the operation of the inlet valve and the temperature sensor controls the operation of the SSR.

29. The dispensing of a beverage begins with the keypad selection, which is scanned by the MPU Controller Board via a ribbon connector. Control signals corresponding to the required actions are then generated by the MPU Controller to operate the relevant output devices in the correct sequence and for the specified duration. User data information is then sent in parallel form to the front panel (LCD) display.

NEVA 4 ELECTRICAL SCHEMATIC



Section 2
Programming

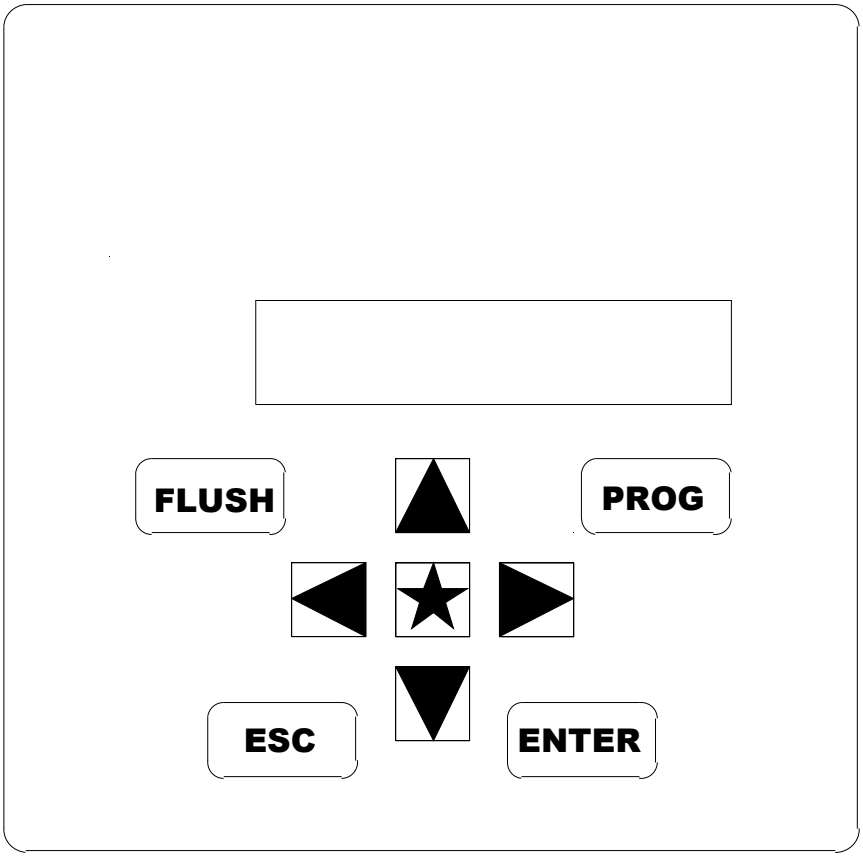
INTRODUCTION

1. The Neva 4 Beverage Machine provides two discrete user programs: The Operator's Program and the Engineer's Program. The Operator's Program is available to both the Operator and the Service Engineer, but the Engineer's Program is only available to the Service Engineer.

2. Both the programs are stored in programmable read only memory on the Controller Board. The values and settings (Variables) which the program allows the programmer to alter are stored in NVRAM (non-volatile random access memory).

3. Settings are maintained, without the need for back-up battery, when the power supply is removed.

INTERNAL KEYPAD LAYOUT



KEYPAD FUNCTIONS

4. The Operator's Program is available to the Operator and Service Engineer. The Program provides options for counting the number of drinks dispensed for each beverage, monitoring the weight of ingredients used, showing the total vends dispensed and resetting the drink counters if applicable. Additionally, the operator can set the machine to "Out of Service" mode, if required.

5. Keypad key functions, when used in the operator's programming mode, are as follows:

    a. Key (ENTER) used to access a function;

    b. Key (ESC) used to escape from the operators mode;

    c. Key (PROG) used to access the Operator's Program, then used to change menu functions;

    d. ARROWS UP (⮝), DOWN (⮟), LEFT (⮜), RIGHT (⮞) are used for adjustments when in program mode;

    e. ★ key is used for selecting option when in output test mode.

OPERATORS PROGRAM

ACCESSING THE OPERATORS MODE

6. Accessing the Operator's Program is by pressing the PROG key on the internal keyboard. The display will show:

PRESS DRINK TO DISPLAY COUNTER

DISPLAY COUNTER

7. The DISPLAY COUNTER option is accessed on entering the Operator's Program. The resettable vend counts may be viewed by pressing each drink key (as shown on the keypad) in turn.

8. To access other options, press PROG on the internal keypad. The other options are as follows:

TOTAL VENDS

RESET COUNTERS

DISABLE VENDS

VIEW INGREDIENT COUNTERS

TOTAL VENDS

9. Access the TOTAL VENDS COUNT option using PROG key, the display will show total vend count.

RESET COUNTERS

10. Access RESET COUNTERS by using PROG key, to clear drink counters press ENTER. The display will show:

ARE YOU SURE?
ENTER (Y), ESC (N)

DISABLE VENDS

11. The machine may be disabled without switching off the electrical supply by pressing DISABLE VEND.

12. To enable vends, enter the Operator's Program and press ENABLE VEND.

VIEW INGREDIENT COUNTERS

13. Access the VIEW INGREDIENT COUNTERS option by using PROG key. Press ENTER to display the first counter, then press the UP (↑) arrow to scroll through the others.

ENGINEERS PROGRAM

ACCESSING THE ENGINEER'S PROGRAM

14. The Operator's Program must be accessed before the Engineer's Program can be accessed, the operation is as follows:

    (1) Press PROG to access the Operator's Program, the display will show:

    PRESS DRINK TO DISPLAY COUNTER

    (2) Press PROG again , the display will show:

    TOTAL VENDS

    (3) Now, press the bottom left hand selection button on the front of the door. The display will now show:

    SELECT DRINK TO MODIFY

    (4) The machine is now in engineer's mode.

Program Options

15. Thirteen program options are available as follows:

SELECT DRINK TO MODIFY

SELECT DRINK TO TEST

OUTPUT TEST

CHANGE PRICE OF, OR INHIBIT DRINKS

SET INGREDIENT THROW RATE

TANK STATUS

INITIALISE

CHANGE SETTINGS

PRESS DRINK FOR FIXED COUNTERS

EDIT BIN NAMES

SAVE TO HIGH MEMORY BANK

SET FACTORY DEFAULTS

LEAVE ENGINEERS PROGRAM

16. Repeated pressing of PROG key causes the program to scroll through the options in the above sequence. Therefore a specific option is accessed by pressing PROG key until that option is displayed. To access any program press ENTER.

SELECT DRINK TO MODIFY

Ingredient/Water/Whipper Adjustments Program concept

17. The central concept behind the Coffetek NewGeneration software is that each individual drink button can be programmed to have any combination of ingredients present in the machine in its recipe. Therefore scrolling down the list of settings for a given button, start and run durations for each motor, mixer and valve will be seen. This can be disconcerting to those unfamiliar with this approach. Since any button can be configured to produce any drink, limited only by the available ingredients, a facility to change the name of the drink displayed when the button is pressed is also included in this section. Other control parameters that apply specifically to the beverage associated with each specific selection button are included in these menus.

18. The SELECT DRINK TO MODIFY option allows modification of individual drink timings.

    (1) First select the drink; e.g. Product A. The display will show:

    DRINK 03 NAME IS
    PRODUCT A

    If name is correct move to step 4.

    (2) Press ENTER. The display will show:

    PRODUCT A
    ▲, ▼ ENTER OR ESC

    (3) Press ▲ to scroll other drink name options available or press ▼ to return to Product A. Press ENTER to enter new option.

    (4) If drink name is correct, use ▲, ▼ to step through program. The display will show:

    USES NOZZLE
    000

19. The machines software is capable of dispensing up to three beverages at one time. Of course the mechanics of the machine must be such that this is possible. That is to say, as a minimum it must have more than one dispense head! Otherwise several beverages would emerge at the single dispense head at the same time with obviously unsatisfactory results. The software allows for three dispense heads 0, 1 & 2. Only one drink assigned to each nozzle will be allowed at any time. As the Neva 4 only has 1 nozzle, all drinks should be programmed to use Nozzle 0.

Drink Timings

20. For each ingredient motor, its associated valve and mixer there is a start and a run time, These times are in tenths of a second.

(1) Press ▲, ▼ to show Ingredient Settings in turn. The display will take one of the forms below as the list is scrolled through:

INGREDIENT **ING**
XXX (START)

INGREDIENT **ING**
XXX (DUR))

INGREDIENT **WATER**
XXX (START)

INGREDIENT **WATER**
XXX (DUR)

INGREDIENT **WHIP**
XXX (START)

INGREDIENT **WHIP**
XXX (DUR)

Key:

INGREDIENT is one of the following:
MILK, CHOCOLATE, COFFEE, ESPRESSO

ING indicates that the display relates to the timing of an ingredient motor.

WATER indicates that the display relates to the timing of a dispense valve.

NUMBER OF CYCLES
001

Setting this to more than one causes the drink cycle to repeat however many times this number is set to, e.g. set to 005 for ½ pot option.

SCALE FACTOR
%

This is a percentage scale factor in % applied to all DURation times for the selection. Thus setting it to 125 will cause the selection to be 1 ¼ times its normal size.

21. Example to adjust the strength of the Coffee drink.

(1) With the SELECT DRINK TO MODIFY menu displayed press the button on the EXTERNAL keypad that is assigned to the Coffee drink. Then use the ▲, ▼ to scroll through to the display that controls the coffee ingredient motor run time. It will be of the form below.

COFFEE ING
(DUR)

Note: It is the **DUR**ation we want to change to adjust the strength, NOT the **START** time which would only control when the ingredient starts being dispensed.

(2) Press ENTER - display will show:

COFFEE ING
VALUE = 01<u>2</u> (Flashing Digit)

(3) Press ▲ to increase or ▼ to decrease. Press ENTER to accept the new value.

(4) Press ▲ to step through program to adjust other value or press ESC to return to SELECT DRINK TO MODIFY, then press ESC again to return to normal operating mode.

SELECT DRINK TO TEST

22. The SELECT DRINK TO TEST option allows any selected drink to be dispensed, while still in the Engineer's Program, in order to be tested. This facility is useful for testing a drink that has been modified.

23. Press DRINK A, for example, to test a change made to the selection in the SELECT DRINK TO MODIFY option.

OUTPUT TEST

24. The OUTPUT TEST option allows an output device to be operated. All output devices are described as Whipper A/B, C, D or Motor A, B, C D or Valve A/B, C, D. These components correspond to the position the canisters are located, i.e. from right to left.

MOTOR A	**MOTOR B**	**MOTOR C**	**MOTOR D**
WHIPPER A/B	**WHIPPER C**	**WHIPPER D**	

(1) For example, to operate the Ingredient Motor C, select Motor C by pressing ⏃ until it appears in the display window, then press ★ to switch the motor ON, then press ★ to switch the motor OFF.

(2) To select other components, press ⏃ (UP) or ⏄ (DOWN) to list all other components and repeat the procedure above.

CHANGE PRICE OF, OR INHIBIT DRINK

25. The CHANGE PRICE OF, OR INHIBIT DRINK option allows individual drinks to be priced or inhibited.

(1) Press the drink key (e.g. DRINK A). The display will show:

DRINK A
FREE

(2) To set DRINK A to FREE, press ENTER, otherwise press ⏃ (UP) and the display will show:

DRINK A
PRICE 1

(3) To set PRICE 1, press ENTER, otherwise press ⏃ (UP) and the display will show:

DRINK A
PRICE 2

(4) To set PRICE 2, press ENTER, otherwise press ⏃ (UP) and the display will show:

DRINK A
INHIBITED

(5) To set DRINK A INHIBITED, press ENTER.

(6) Once a setting has been made by pressing ENTER, the program exits from the CHANGE PRICE OF, OR INHIBIT DRINK option and returns to the main Engineer's Program.

SET INGREDIENT THROW RATE

26. The SET INGREDIENT THROW RATE option allows the engineer to alter ingredient throw rates in grams dispensed per second of operation of the ingredient motor for the product usage calculation displayed in the Operator's Program.

(1) Press ENTER. The display will show:

INGREDIENT A (grams per second)
00001.05

(2) To change the value of the Espresso throw rate, press ENTER again. The display will show:

INGREDIENT A (grams per second)
VAL = 00001.05

(3) Press ▲ (UP) to increase the value or ▼ (DOWN) to decrease it.

(4) Having set the new throw rate, press ENTER to enter the new value.

(5) Press ▲ (UP) to display the next ingredient.

(6) Press ESC to exit from the SET INGREDIENT THROW RATE option.

TANK STATUS

27. The TANK STATUS option allows the Engineer to view the status of the boiler water level and temperature.

(1) Press ENTER to display the tank status. The display will show:

PROBE IS WET
ADC = 315 (0,0)

The value 315 is a number corresponding to the temperature setting.

The value (0,0) is the element status.

(2) Press PROG to exit from the TANK STATUS option and access the next Engineer's Program option.

INITIALISE

28. The INITIALISE option allows the engineer to initialise the machine.

(1) Press ENTER. The display will show:

ARE YOU SURE?
ENTER (Y) ESC (N)

(2) Press ENTER to initialise the machine or PROG to access the next Engineer's

Program option.

CHANGE SETTINGS

29. CHANGE SETTINGS allows alteration of the following machine settings:

CUP BOOST	Allows increase/decrease of temperature boost per cup dispense.
HALF JUG BOOST	Allows increase/decrease of temperature boost per 1/2 jug dispense.
FULL JUG BOOST	Allows increase/decrease of temperature boost per full jug dispense.
OUT OF SERVICE	Enables machine to be programmed out of service: 0 = On, 1 = Off
GLOBAL SCALING	Adjustment of cup volume of drinks. All aspects of drink are scaled, i.e. product, whipper, water.
DRY VEND FLAG	Enables product only operation: 0 = Water On, 1 = Water Off
CREDIT LOCK	Disables all free drink facilities: 0 = Credit Lock disabled (default setting) 1 = Credit Lock active When Credit Lock is set to 1, Credit Device and Credit Lock settings are not displayed. Additionally, Select Drink to Test, Select Drink to Restore Presets, Change Price or Inhibit Drinks and Initialise options are disabled. To disable the Credit Lock after it has been set, see paragraph 30.
DESIRED TEMP	Allows setting of normal operating temperature.
TEMPERATURE LOW	Allows setting of low cut-out point.
CREDIT DEVICE	Selects cash system: 0 = No cash system* 1 = Digicard system 2 = Reserved for future use 3 = G13 coin acceptor No cash system (0) is the default setting following INITIALISE.

(1) To change the GLOBAL SCALING setting, for example, press ENTER. The display will show:

GLOBAL SCALING %
100

(2) To alter the GLOBAL SCALING percentage value (from 100), press ENTER. The display will show:

GLOBAL SCALING %
VALUE = 100

The cursor will be flashing on the last digit of the number 100.

(3) Alter the GLOBAL SCALING percentage value, as required, using ⮝ (UP), ⮟ (DOWN), ⮜ (LEFT) and ⮞ (RIGHT).

(4) Press ENTER to enter the new setting or press ESC to leave the original setting.

(5) Press ⮟(DOWN) to access the next setting (OUT OF SERVICE) and repeat sub-paras (3) to (5). Continue in this manner until all required settings have been altered.

(6) Press PROG to exit from the CHANGE SETTINGS option and access the next Engineer's Program option.

Disabling the Credit Lock

30. To disable the CREDIT LOCK after it has been set, proceed as follows:

(a) Enter CHANGE SETTINGS and set the Dry Vend Flag to 42.

(b) Exit from CHANGE SETTINGS.

(c) Enter CHANGE SETTINGS and set the Dry Vend Flag to 0.

(d) Set the Credit Lock to 0.

PRESS DRINK FOR FIXED COUNTERS

31. PRESS DRINK FOR FIXED COUNTERS option allows the Engineer to view the resettable vend counters associated with a selected drink.

(1) Press the drink selection key on the keypad.

(2) Press PROG to exit from the PRESS DRINK FOR FIXED COUNTERS option and access the next Engineer's Program option.

EDIT BIN NAME

32.

(1) Press ENTER. Display will show

NAME FOR BIN A (Right Hand Canister)

(2) Press ENTER. Display will show

INGREDIENT TYPE
⮝, ⮟ ENTER OR ESCAPE

(3) Press ⮝ or ⮟ to scroll to option required to change

(4) Press ENTER

(5) Press ⮝ to scroll to name for Bin B.

(6) Press ⮝ or ⮟ to find option.

(7) Press ESC to exit Engineers Program.

SAVE TO HIGH MEMORY BANK

33.

(1) Move the link on LK1 to the centre and left hand position on the MPU, then press ENTER. The display will show:

ARE YOU SURE?
ENTER (Y), ESC (N)

(2) Press ENTER. The display will show:

SAVE TO HIGH MEMORY

(3) Press ESC to return to normal operating mode.

(4) Keeping the machine switched on, move the link on LK1 to the centre and right hand position on the MPU. These new settings are retained in High Level Memory. The machine setting can be adjusted but if the machine is initialised, the machine will return to High Level Memory.

SET FACTORY DEFAULTS

34. The SET FACTORY DEFAULT option will allow the engineer to initialise a new MPU Board with default settings, if not using Palmtop PC.

(1) Press ENTER, the display will show:

ARE YOU SURE?
ENTER (Y), ESC (N)

(2) Press ENTER to list default factory settings for;

CAFE PRO 548 VER1
CAFE PRO 540 JUG

(3) Press ENTER to reset MPU to required settings.

(4) Now program the machine to correct defaults and save to High Memory Bank.

This page is intentionally blank.

Section 3
Installation and Maintenance

INTRODUCTION

1. The information given in this Section covers installation, commissioning and maintenance procedures for the Neva 4 Beverage Machine. These procedures must be carried out by authorised personnel who are fully conversant with the equipment, using only manufacturer's approved parts.

2. Servicing personnel must be familiar with the SAFETY WARNINGS, as detailed, 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.

4. In compliance with current regulations, the materials used in the manufacture of the beverage machine are non-corrosive, non-tainting and do not support the growth of bacteria. Refer to Statutory Instrument 1987 No.1523, and to The Model Water Bylaws 1986, Statutory Instrument 1987, No.1147. Non-metallic materials in contact with drinking water comply with the requirements of BS6920: Part 1: 1988. Therefore, only manufacturer's parts must be used.

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.

2. Lethal voltages are exposed when the mains electrical supply to the beverage machine is available and any of the following items are removed:

   - Lid and cover assembly
   - Motor shelf
   - Side panels

3. Maintenance personnel must ensure that the machine is isolated from the mains electrical supply before removing any of these items.

4. 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.

5. THIS APPLIANCE MUST BE EARTHED.

6. Ensure that the connection to the water system is compliant with the pertinent national and local legislation. In the UK the Model Water Bylaws 1986 Statutory Instrument (SI) No.1147 are applicable.

7. Ensure that the unit is positioned such that the plug connecting the unit to the mains supply is accessible.

8. The beverage machine is designed for indoor use, in an environment with an ambient temperature range of between 0°C and 40°C. The machine should be located 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, and, if in a corner location, not closer to the right hand wall than 400mm (16in) to accommodate opening of the door.

   The unit should not be situated in an area where a water jet could be used.

9. The beverage machine is a heavy item. Care must be taken when lifting it.

10. The water in the boiler, and the boiler itself, are hot enough to scald or burn, even some time after the machine has been switched off. The boiler must be drained, filled with cold water and drained again before any attempt is made to handle it or any of its associated parts.

11. 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.

FROST WARNING

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.

INSTALLATION

WARNINGS

(1) THE BEVERAGE MACHINE IS A HEAVY ITEM. CARE MUST BE TAKEN WHEN LIFTING IT.

(2) THE BEVERAGE MACHINE MAY TOPPLE IF THE MOUNT IS WEAK OR INSECURE. ENSURE THAT THE MOUNT IS SECURE AND THAT IT CAN SUPPORT THE WEIGHT OF THE MACHINE.

(3) ENSURE THAT THE MAINS ELECTRICAL SUPPLY IS ISOLATED BEFORE CONNECTING THE SUPPLY CABLE TO THE MACHINE.

Location

12. The beverage machine is designed for indoor use, in an environment with an ambient temperature range of between 0°C and 40°C. The machine should be located 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, and, if in a corner location, not closer to the right hand wall than 400mm (16in) to accommodate opening of the door.

The unit should not be situated in an area where a water jet could be used.

Levelling

13. 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.

The unit must be mounted within 10º of the vertical for safe operation.

Securing

14. The Neva 4 Beverage Machine is a free-standing unit which can be mounted on a secure table, bench, cabinet or food and drink counter.

CONNECTING THE WATER SERVICES

Refer to the current requirements of The Model Water Bylaws 1986 Statutory Instrument (SI) No.1147.

15. 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 15mm double backcheck valve, with inspection port, should be fitted to the flexible hose.

16. 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.

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

18. 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

WARNINGS

(1) THE MACHINE MAINS CABLE MUST BE CONNECTED TO THE SUPPLY VIA A SAFETY ISOLATOR SWITCH WHICH PROVIDES A CONTACT SEPARATION OF AT LEAST 3mm.

(2) REPLACEMENT OF THE Y TYPE MAINS CABLE REQUIRES SPECIAL TOOLS. SHOULD THE CABLE BECOME DAMAGED, REPLACEMENT MUST ONLY BE CARRIED OUT BY A TRAINED PERSON FROM AN APPROVED SERVICE AGENT.

(3) ENSURE THAT THE SUPPLY TO THE ISOLATOR SWITCH IS ISOLATED BEFORE MAKING ANY CONNECTIONS TO IT.

(4) ENSURE THAT THE SUPPLY TO THE BEVERAGE MACHINE IS ISOLATED BEFORE MAKING ANY CONNECTIONS TO THE TERMINAL BLOCK AT THE REAR OF THE MACHINE.

(5) THE BEVERAGE MACHINE MUST BE EARTHED.

19. The beverage machine is fitted with a domestic 3 pin plug for connection to a standard 13A supply, alternatively, the beverage machine may be connected via a safety isolator switch with a contact separation of at least 3mm, to a 230V, 50Hz, 13A supply. Note that replacement of the Y Type mains cable requires special tools. Should the cable become damaged, replacement must only be carried out by a trained person from an approved service agent.

    To reconfigure the machine to operate from a 110V supply, move the voltage selector link on the PSU to the 110V position and replace the 240V 3kW element (part no. 12345) with a 110V 1.6kW element (part no. 56223).

20. Preferably, the isolator switch should be located behind the machine to prevent accidental damage or misuse.

DESCALING THE TANK

WARNING

ENSURE THAT THE TANK IS FLUSHED WITH COLD WATER BEFORE ATTEMPTING TO HANDLE IT.

21. If the tank requires descaling, proceed as follows:

(1) Isolate the machine from the electrical supply.

(2) Flush the tank with cold water.

(3) Remove the tank, taking note of the connections, which have been removed.

(4) Remove the solenoid operated valves and the thermostat probe from the tank.

(5) Check the heater element for signs of deterioration. Replace if necessary.

(6) Descale the tank in the approved manner.

(7) After descaling, flush the tank thoroughly with cold water, refit the solenoid operated valves and thermostat probe, and install and reconnect the tank to the machine.

(8) Restore the electrical supply to the machine and carry out a test of the quality of each beverage before returning the machine to operational use.

COMMISSIONING

WARNINGS

(1) TO AVOID EXPOSURE TO HAZARDOUS VOLTAGES, DO NOT LEAN INTO THE MACHINE OR TOUCH ANY EXPOSED LIVE POINTS WHEN THE MAINS SUPPLY IS AVAILABLE TO THE MACHINE AND ANY OF THE FOLLOWING ITEMS ARE REMOVED: INGREDIENT CANISTER ENCLOSURE, LID AND COVER ASSEMBLY, MOTOR SHELF, SIDE PANELS.

(2) THE WATER IN THE BOILER IS HOT. AVOID CONTACT WITH WATER LEAKING FROM THE BOILER OR FROM ANY OF ITS ASSOCIATED VALVES, TUBES AND PIPES.

22. 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.

23. With the water and electrical supplies connected to the machine, proceed as follows:

(1) Set the On/Off switch on the machine to OFF.

(2) Isolate the electrical supply from the machine.

(3) Open the cabinet door and locate the waste tray.

(4) Ensure that the overflow pipes are not trapped.

(5) Restore the electrical supply to the machine.

(6) Set the On/Off switch on the machine to ON.

(7) Check that the boiler fills with water and that the water supply cuts off when the correct level is reached, i.e. no water overflows into the waste tray. (The machine may have to be switched OFF and ON several times in order to fill the tank.)

(8) Check that the heater heats the water to the correct temperature.

(9) Select the Engineer's Program and run through the Output Test to check that all components are functioning correctly.

(10) Fill the ingredient canisters.

(11) Check the complete range of machine operations.

(12) If required, select the Engineer's Program and change the pre-set values to suit

customer requirements.

(13) Set the On/Off switch on the machine to OFF.

(14) Isolate the electrical supply from the machine.

(15) Check all hose connections for leaks.

(16) Clean the interior and exterior of the cabinet.

(17) Restore the electrical supply to the machine.

(18) Set the On/Off switch on the machine to ON.

(19) Operate the machine through the complete range of dispense operations and check that each one is correct.

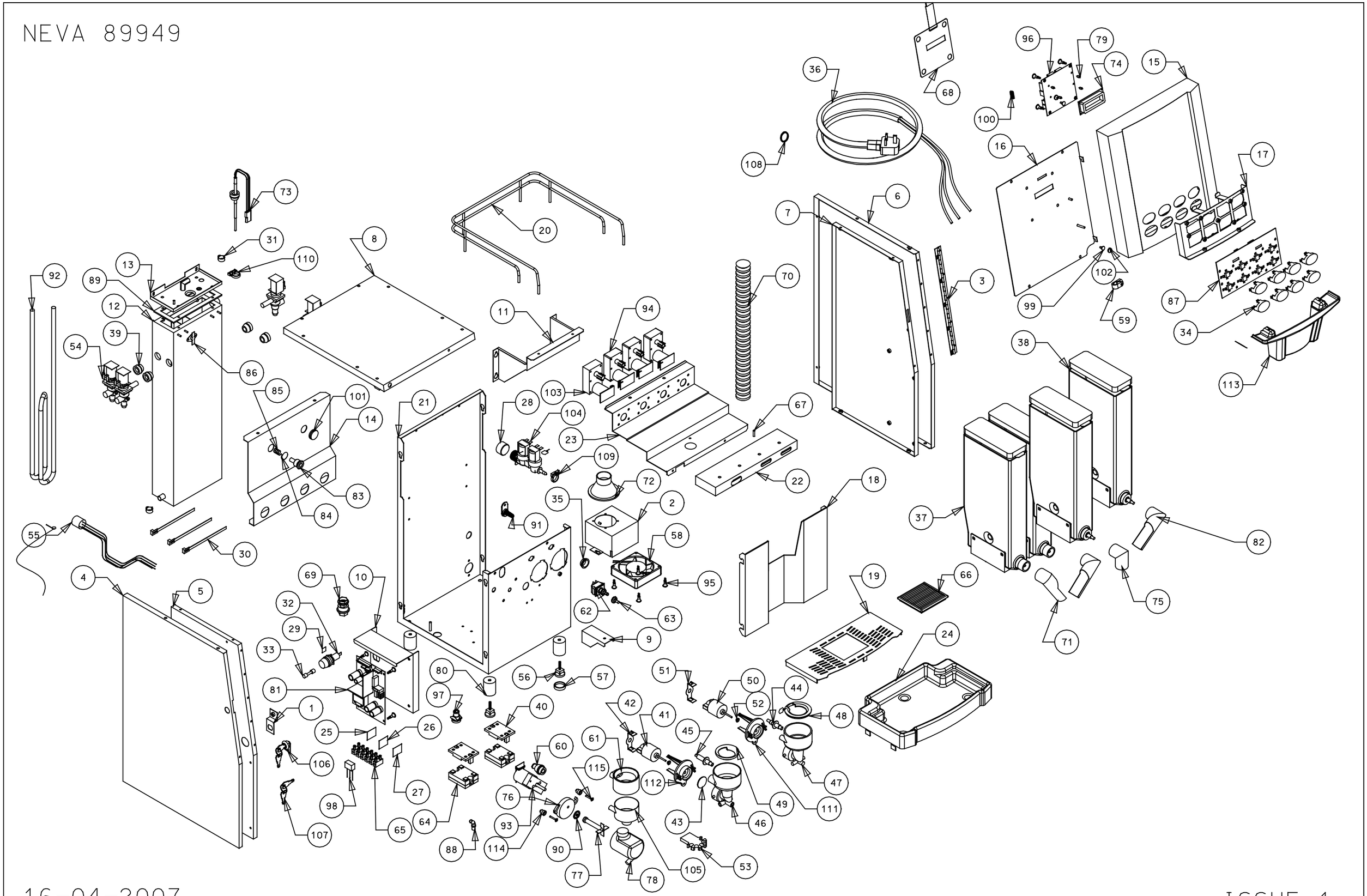
FAULT FINDING GUIDE

FAULT		POSSIBLE CAUSE		ACTION
FATAL I^2C ERROR displayed	(a)	Electrical noise	(a)	Check motors
	(b)	MPU Board fault	(b)	Replace MPU Board
	(c)	Software error	(c)	Reset power
Keypad does not bleep	(a)	Keypad damaged	(a)	Replace keypad
	(b)	Keypad disconnected	(b)	Reconnect
	(c)	MPU Board fault	(c)	Replace MPU Board
Drinks cold	(a)	Heater fuse blown	(a)	Check and replace
	(b)	Thermal cut-out tripped	(b)	Reset trip
	(c)	Desired temperature incorrectly set	(c)	Check desired temperature setting
	(d)	Excessive scaling in heater tank	(d)	Check tank and descale if necessary
	(e)	Solid state relay fault	(e)	Check relay
	(f)	Low cut-out in program incorrectly set	(f)	Reset low cut-out setting
	(g)	Temperature probe wet	(g)	Dry probe and check for leaks.
No motor operation	(a)	Jammed motor	(a)	Check motor operation
	(b)	Power Supply failure safety trip	(b)	Reset power
Machine inoperable; no display	(a)	Power Supply failure	(a)	Replace Power Supply Board
Heater tank not filling	(a)	Low water pressure	(a)	Check water pressure
	(b)	Inlet valve fault	(b)	Check inlet valve
	(c)	MPU Board fault	(c)	Replace MPU Board

FAULT		POSSIBLE CAUSE		ACTION
Heater tank boiling over	(a)	Incorrect desired temperature setting	(a)	Reset desired temperature setting
	(b)	Temperature probe fault	(b)	Replace probe
	(c)	MPU Board fault	(c)	Replace MPU board
	(d)	Short on solid state relay	(d)	Replace relay
Heater tank overfilling	(a)	Probe open circuit	(a)	Check probe circuit
	(b)	Inlet valve fault	(b)	Check inlet valve and replace if necessary
	(c)	Level probe incorrectly positioned	(c)	Reposition probe
Bearding of ingredient	(a)	Extractor fan fault	(a)	Check fan
	(b)	Steam hoods missing from mixing bowls or incorrectly positioned	(b)	Fit steam hoods to mixing bowls and position correctly.
Machine floods	(a)	Dispense pipes incorrectly fitted to dispense head	(a)	Reposition pipes
	(b)	Mixing bowls incorrectly fitted	(b)	Reposition mixing bowls
	(c)	Whipper seals missing	(c)	Check seals
	(d)	Overflow pipe incorrectly fitted	(d)	Refit overflow pipe
No display	(a)	Display connector loose	(a)	Refit connector
TEMP LOW displayed	(a)	Thermal cut-out tripped	(a)	Reset cut-out
	(b)	Heater fuse blown	(b)	Check fuse
	(c)	Incorrect temperature setting	(c)	Check program setting

Section 4
Exploded Parts Diagram

NEVA 89949



16-04-2007

ISSUE 1

...\89949_neva\89949_neva.dgn 16/04/2007 10:51:27

NEVA 89949

NO.	PART NUMBER	QTY.	DESCRIPTION
1	66055	1	Stabilizing bracket
2	66390	1	Fan box
3	69180	1	Door hinge
4	69909	1	Lh side panel
5	69912	1	RH side insert
6	69911	1	Right hand side
7	69910	1	LH side insert
8	69913	1	Lid
9	69914	1	Dispense head bracket
10	69916	1	Electrics panel
11	69918	1	Motor holder
12	69919	1	Boiler
13	69919L	1	Boiler lid
14	69920	1	Boiler cover
15	69921	1	Door
16	69922	1	Door backer
17	69923	1	Switch bracket
18	69924	1	Dispense cover
19	69925	1	Drip tray grill
20	62033	1	Lid wire
21	69950	1	Main body
22	69951	1	Extract duct
23	69952	1	Canister shelf
24	57600	1	Drip tray 2
25	10008	1	Live terminal label
26	10009	1	Neutral terminal label
27	10010	1	Earth terminal label
28	20014	1	Dust cover for inlet valve
29	22022	1	F15 sticker
30	22102	3	Cable tie for boiler
31	54012	2	Cobra clip 15mm normal
32	54025	1	Hpg fuseholder series
33	54026	1	KLK 15A heater fuse
34	54041A	8	Button cap
35	54269	1	Grommet open 64-12 26mm
36	54416	1	UK mains lead with 13A plug
37	54434	2	Can 220mm wire auger + agitat
38	54436	2	Can 220mm Plastic aug+agi
39	54543	4	Swaged port valve seal
40	54552	2	S S R Terminal cover
41	54645	1	Whipper motor
42	54649	1	Motor retainer grey
43	54652	1	Impelor disk grey
44	54654	1	Mix bowl inlet pipe black
45	54656	1	Mix bowl inlet pipe grey
46	54658	1	Whipper chamber grey
47	54659	1	Whipper chamber black
48	54660	1	Steam trap black
49	54662	1	Steam trap grey
50	54676	1	24V DC 16,700RPM
51	54748	1	Motor retainer black
52	54767	2	Whipper seal
53	54858	1	Dispence head
54	55003	4	Outlet valve 8mm 24vDC
55	55150	1	Sub loom whale pump
56	55223	4	Small feet black m8 x 25
57	55226	3	Foot cover non slip
58	55239	1	Extract fan sounon
59	55240	1	Cable cleat size 1
60	55372	1	Mixing bowl skt/sonic weld
61	55408	1	Steam trap clear
62	55462	1	Toggle switch

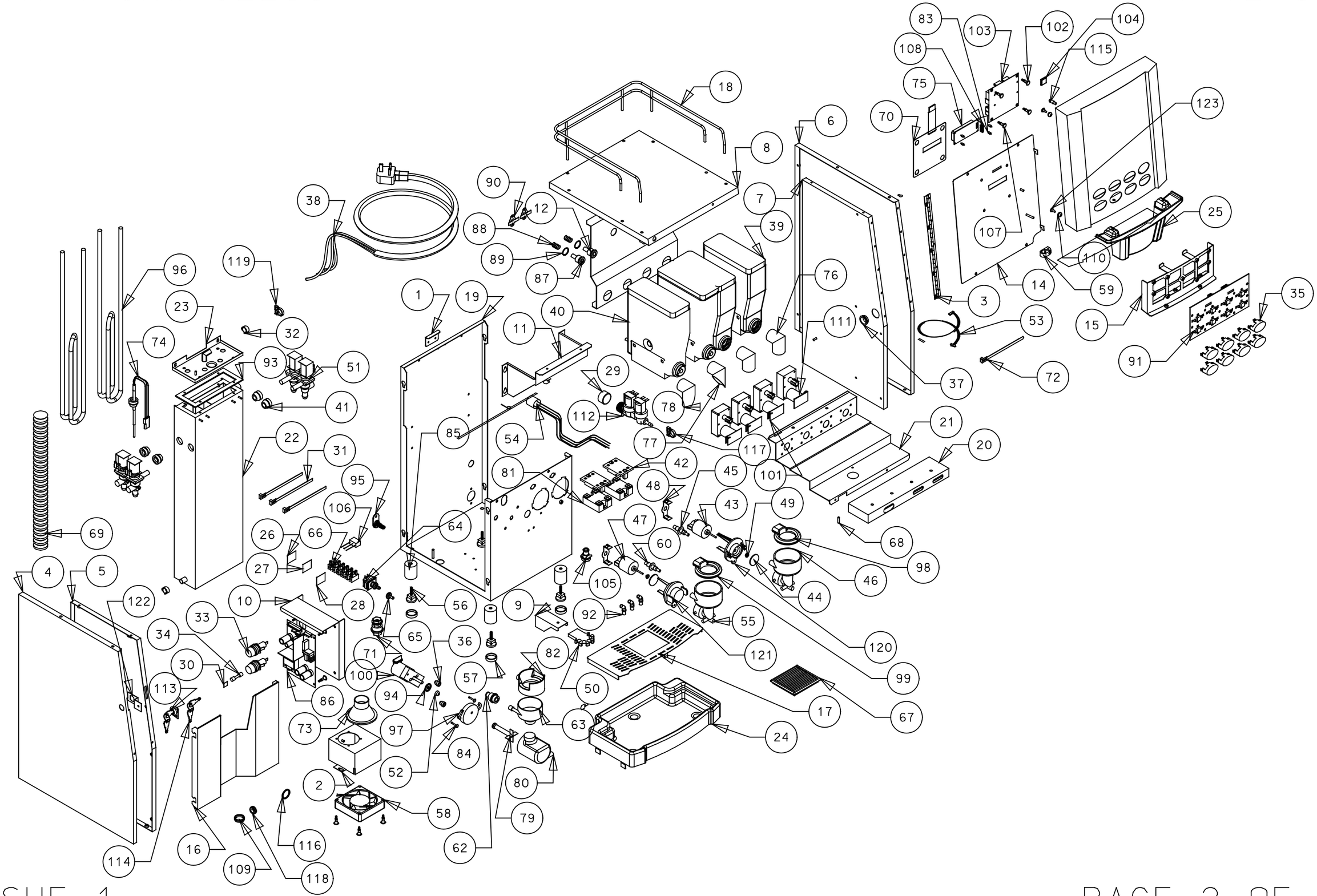
NO.	PART NUMBER	QTY.	DESCRIPTION
63	55463	1	Switch cover
64	55466	2	SS relay 240v
65	55517	1	Terminal block
66	55545	1	Drip tray insert
67	55639	1	4mm pin bullet
68	55700	1	Internal keypad
69	55713	1	Cable gland (nestle)
70	55770	1	Hose 1 1/4 extra flex
71	55819	1	Long chute l/h
72	55930	1	Extract fan funnel
73	94543	1	Boiler probe assembly
74	56026_B	1	Lcd for control box
75	56028	1	Ingredient chute central
76	56036	1	Whipper base milk choc
77	56038	1	Impellor and seal milk/chocol
78	56040	1	Capp whipper chamber l/h
79	56175	4	Circuit board spacer
80	56311	4	Foot spacer 8mm tapped
81	56365	1	Psu gourmet micro
82	56411	2	R/H long chute
83	56457	1	Re-set button
84	56459	1	'O' ring for reset button
85	56469	1	Spring 110Dx12x5x5.1
86	56790	1	Thermo cutout
87	57131	1	Blue halo pcb
88	57364	1	Angled nozel
89	57392	1	Boiler seal
90	57483	1	Slinger washer
91	57485	1	Drain plug
92	57500	1	3kw 500 long element
93	89001	1	Whipper mtr long shaft
94	59002	3	Ing motor 140
95	59004	12	Pcbs black psu dc micro
96	59011	1	Rmcu dc control board
97	59041	1	Bowl adaptor
98	59052	1	Rifa mains capacitor EMC
99	59057	2	Door pips black plastic
100	59077	1	Standoff 14 way (lcd)
101	59139	1	Grommet diaphram type
102	59146	2	Door pip grommet
103	59207	1	Ing motor gear box 80 rpm
104	59235	1	Inlet valve 24v DC double
105	59407	1	Mixing bowl unrest 3.8 br
106	66205	1	Mini camlock & cam 2 keys
107	66205K	1	Key(s)
108	71026	1	Grommet 20mm
109	71740	1	Snapper clip no 10
110	71745	1	Snapper clip no 12
111	84663	1	Whipper base black
112	84665	1	Whipper base grey
113	67602	1	Front cover
114	54126	2	Whipper clip grey
115	56198	2	Whipper screw ds416
116	10049	4	M8 16 screw
117	11108	9	M4 6 mylon screw
118	54132	.2m	12.7mm heat shrink
119	55428	1.3m	Silicone tube 9x15mm
120	55438	.7m	11x18mm silicone tube
121	57380	1	Kb led loom
122	57629	1	Neva instant main loom
123	59046	1	Motor shelf loom
124	59070	1m	Silicone tube 8x12mm

16-04-2007

ISSUE 1

NEVA 4 6KW 82238

17-12-07



ISSUE 1

...\neva\82238_neva.dgn 17/12/2007 13:39:46

NEVA 4 6KW

17-12-07

NO.	PART NUMBER	QTY.	DESCRIPTION
1	66150	1	Rear lid holder
2	66390	1	Fan box
3	69180	1	Door hinge
4	69909	1	Lh side panel
5	69910	1	LH side insert
6	69911	1	Right hand side
7	69912	1	RH side insert
8	69913	1	Lid
9	69914	1	Dispense head bracket
10	69916	1	Electrics panel
11	69918	1	Motor holder
12	69920	1	Boiler cover
13	69921	1	Door
14	69922	1	Door backer
15	69923	1	Switch bracket
16	69924	1	Dispense cover
17	69925	1	Drip tray grill
18	62033	1	Lid wire
19	69950	1	Main body
20	69951	1	Extract duct
21	69952	1	Canister shelf
22	62239-B	1	Boiler
23	62239_L	1	Boiler lid
24	87600	1	Drip tray neva 4 chrome
25	87602	1	Front cover chrome
26	10008	1	Live terminal label
27	10009	1	Neutral terminal label
28	10010	1	Earth terminal label
29	20014	1	Dust cover for inlet valve
30	22022	1	F15 sticker
31	22102	3	Cable tie for boiler
32	54012	2	Cobra clip 15mm normal
33	54025	2	Hpg fuseholder series
34	54026	1	KLK 15A heater fuse
35	54041A	8	Button cap
36	54126	2	Whipper clip grey
37	54269	1	Grommet open 64-12 26mm
38	54416	1	UK mains lead with 13A plug
39	54434	2	Can 220mm wire auger + agitator
40	54436	2	Can 220mm Plastic aug+agi
41	54543	4	Swaged port valve seal
42	54552	2	S S R Terminal cover
43	54645	1	Whipper motor
44	54652	2	Impelor disk grey
45	54654	1	Mix bowl inlet pipe black
46	54659	1	Whipper chamber black
47	54676	1	24V DC 16,700RPM
48	54748	1	Motor retainer black
49	54767	2	Whipper seal
50	54858	1	Dispence head
51	55003	4	Outlet valve 8mm 24vDC
52	55048	1	Whipper seal red
53	55136	1	Internal keypad loom
54	55150	1	Sub loom whale pump
55	55215	1	Whipper chamber beige
56	55223	4	Small feet black m8 x 25
57	55226	4	Foot cover non slip
58	55239	1	Extract fan sounon
59	55240	1	Cable cleat size 1
60	55241	1	Mix bowl inlet pipe beige
61	55243	1	Motor retainer beige
62	55372	1	Mixing bowl skt/sonic weld
63	55407	1	Mixing bowl rest inlet
64	55462	1	Toggle switch
65	55463	1	Switch cover
66	55517	1	Terminal block
67	55545	1	Drip tray insert
68	55639	1	4mm pin bullet
69	55770	1	Hose 1 1/4 extra flex
70	55700	1	Internal keypad
71	55713	1	Cable gland (nestle)
72	55748	1	Cable tie re-usable
73	55930	1	Extract fan funnel
74	94543	1	Boiler probe assembly
75	56026_B	1	Lcd for control box
76	56028	2	Ingredient chute central
77	56032	1	R/h chute
78	56037	1	L/h chute
79	56038	1	Impellor and seal milk/chocolate
80	56039	1	Capp whipper chamber r/h
81	56077	2	Solid state relay
82	56164	1	Steam trap double clear
83	56175	4	Circuit board spacer
84	56198	2	Whipper screw ds416
85	56311	4	Foot spacer 8mm tapped
86	56365	1	Psu gourmet micro
87	56457	1	Re-set button
88	56469	1	Spring 110Dx12x5x5.1
89	56459	1	'O' ring for reset button
90	56790	1	Thermo cutout
91	57131	1	Blue halo pcb
92	57364	3	Angled nozel
93	57392	1	Boiler seal
94	57483	1	Slinger washer
95	57485	1	Drain plug
96	57500	2	3kw 500 long element
97	57700	1	Whipper base big system
98	57772	1	Milano steam hood black
99	57774	1	Milano steam hood beige
100	89001	1	Whipper mtr long shaft
101	59002	3	Ing motor 140
103	59011	1	Rmcu dc control board
104	59014	1	Eprom psd 312b-15j (State type)
105	59041	1	Bowl adaptor
106	59052	1	Rifa mains capacitor EMC
107	59004	12	Pcbs black psu dc micro
108	59077	1	Standoff 14 way (lcd)
109	59139	1	Grommet diaphram type
110	59146	2	Door pip grommet
111	59207	1	Ing motor gear box 80 rpm
112	59235	1	Inlet valve 24v DC double
113	66205	1	Mini camlock & cam 2 keys
114	66205K	1	Key(s)
115	67041	1	Door pin
116	71026	1	Grommet 20mm
117	71740	1	Snapper clip no 10
118	71023	1	Grommet 12mm maxi
119	71745	1	Snapper clip no 12
120	84663	1	Whipper base black
121	85247	1	Whipper assy base beige
122	66055	1	Stabilizing bracket
123	59057	2	Door pips black plastic
124	10049	4	M8 16 screw
125	11108	9	M4 x6 nylon screw
126	54132	.2m	54132
127	55428	1.3m	9x15 silicone
128	55438	.7m	11x18mm silicone
129	56564	1	Ultra 3 decals
130	57380	1	Loom led keyboard
131	57701	1	Ptfe washer 14mmx6.5
132	57737	1	Main loom Neva 6kw
133	59046	1	Motor shelf loom 4-48
134	59070	1m	Tube 8x12mm