

Zenith

Fresh Brew

Instant

UK English



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EDITION 1 0011



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DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY
DÉCLARATION DE CONFORMITÉ
KONFORMITÄTSESKLÄRUNG
DECLARACIÓN DE CONFORMIDAD
DECLARAÇÃO DE CONFORMIDADE
VERKLARING VAN OVEREENSTEMMING
INTYG OM ÖVERENSSTÄMMELSE
OVERENSSTEMMELSESERKLÆRING

Valbrembo, 04/04/00

Dichiara che la macchina descritta nella targhetta di identificazione, è conforme alle disposizioni legislative delle direttive: **89/392, 89/336, 73/23 CEE** e successive modifiche ed integrazioni.

Declares that the machine described in the identification plate conforms to the legislative directions of the directives: **89/392, 89/336, 73/23 EEC** and further amendments and integrations.

Déclare que l'appareil décrit dans la plaque signalétique satisfait aux prescriptions des directives: **89/392, 89/336, 73/23 CEE** et modifications/intégrations suivantes.

Erklärt, daß das im Typenschild beschriebene Gerät den **EWG** Richtlinien **89/392, 89/336, 73/23** sowie den folgenden Änderungen/Ergänzungen entspricht.

Declara que la máquina descrita en la placa de identificación, resulta conforme a las disposiciones legislativas de las directivas: **89/392, 89/336, 73/23 CEE** y modificaciones y integraciones sucesivas.

Declara que o distribuidor descrita na chapa de identificação é conforme às disposições legislativas das directivas **CEE 89/392, 89/336 e 73/23** e sucessivas modificações e integrações.

Verklaart dat de op de identificatieplaat beschreven machine overeenstemt met de bepalingen van de **EEG** richtlijnen **89/392, 89/336** en **73/23** en de daaropvolgende wijzigingen en aanvullingen.

Zanussi intyggar att maskinen som beskrivs på identifieringsskylten överensstämmer med lagstiftningsföreskrifterna i direktiven: **89/392, 89/336, 73/23 CEE** och påföljande och kompletteringar.

Det erklæres herved, at automaten angivet på typeskiltet er i overensstemmelse med ovsdirektiverne **89/392, 89/336** og **73/23 CEE** og de senere ændringer og tillæg.

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THE EUROPEAN NETWORK FOR QUALITY SYSTEM ASSESSMENT AND CERTIFICATION

This is to state that

ZAMUSSI VENDING S.p.A.
Via Roma, 24 - 24030 VALEREMBO (BG)

holds the Quality System Certificate

CISQ/CISQ 9130-ZA18

*for the standard from the
ISO 9000 / EN 29000
series, and the scope as specified therein*

Signed for and on behalf of EQNet member

Federazione CISQ
IL PRESIDENTE
Dr. Ing.

DATE

June 1st, 1994

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CERTIFICAZIONE ITALIANA DEI SISTEMI
QUALITA' AZIENDALI
ITALIAN CERTIFICATION OF COMPANIES
QUALITY SYSTEMS



CERTIFICATO n.
CERTIFICATE No. 9130-ZA18

SI CERTIFICA CHE IL SISTEMA QUALITA' DI
WE HEREBY CERTIFY THAT THE QUALITY SYSTEM OPERATED BY

ZAMUSSI VENDING S.p.A.

Via Roma, 24 - 24030 VALEREMBO (BG)

UNITA' OPERATIVA
OPERATIVE UNIT

Via Roma, 24 - 24030 VALEREMBO (BG)

E' CONFORME ALLA NORMA
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PER I SEGUENTI TIPI DI PRODOTTI - PROCESSI - SERVIZI
CONCERNING THE FOLLOWING KINDS OF PRODUCTS - PROCESSES - SERVICES

Progettazione, produzione e commercializzazione di
apparecchiature elettromeccaniche/elettroniche per
la distribuzione automatica e la ristorazione
*Design, manufacturing and sale of
electromechanical/electromechanical vending machines*

IL PRESENTE CERTIFICATO E' SOGGETTO AL RISPETTO DEL REGOLAMENTO
DELL'IMO PER LA CERTIFICAZIONE DEI SISTEMI QUALITA' DELLE AZIENDE
THIS CERTIFICATE SHALL SATISFY THE REQUIREMENTS ESTABLISHED BY IMO
FOR THE CERTIFICATION OF SUPPLIERS' QUALITY SYSTEMS

25 Luglio 1994

DATA DI RILASCIO
ISSUED ON

IMO

Il presente certificato annulla e sostituisce il precedente 9130.ZA18 del 01.06.94
This certificate supersedes the previous one 9130.ZA18 issued on 01.06.94

CISQ è un sistema internazionale di
certificazione indipendente del Siste-
mi Qualità aziendali, gestito in modo
coordinato da organismi di certifica-
zione referenziali.

The CISQ is an international system of
independently certification of Suppliers'
Quality Systems, which is coordinated
by several certification bodies.

MLU 373-500-694

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INTRODUCTION

This technical documentation is part and parcel of the vending machine and must always follow the machine in case it is moved or transfer of ownership, so as to allow consultation by different operators.

Before starting installation and using the machine, it is first necessary to carefully read and understand the instructions contained in this manual, as they offer important hints on installation, operating and maintenance safety.

This manual is divided into three sections.

The **first section** describes the loading and routine maintenance operations which are carried out in areas of the machine accessible with simple use of the door key, without using any other tools.

The **second section** contains the instructions for correct installation and all information necessary for optimum use of the machine.

The **third section** describes maintenance operations which involve the use of tools to access potentially dangerous areas.

The operations described in the second and third sections must be carried out only by personnel who have the specific knowledge of the machine functioning from a point of view of electrical safety and health regulations.

IDENTIFICATION OF THE VENDING MACHINE AND ITS CHARACTERISTICS

This manual describes the following machines:

- models with two units for brewing espresso coffee and reconstituting instant products;
- models with one unit for brewing espresso coffee and reconstituting instant products;
- instant models for reconstituting instant products.

Each machine is identified by its own serial number, indicated on the rating plate attached inside the cabinet on the right side.

This plate is the only one acknowledged by the manufacturer as the identification of the apparatus, and carries all the data which readily and safely give technical information supplied by the manufacturer. It also assists in the spare parts management.

IN CASE OF FAILURE

In most cases, any technical problems are corrected by small repair operations; however, before contacting the manufacturer we recommend that this manual be read carefully.

Should there be serious failures or malfunctions, then contact:

NECTA VENDING SOLUTIONS SpA
Via Roma 24
24030 Valbrembo
Italy - Tel. +39 035606111

TRANSPORT AND STORAGE

To prevent any damage, special care should be taken when loading or unloading the vending machine.

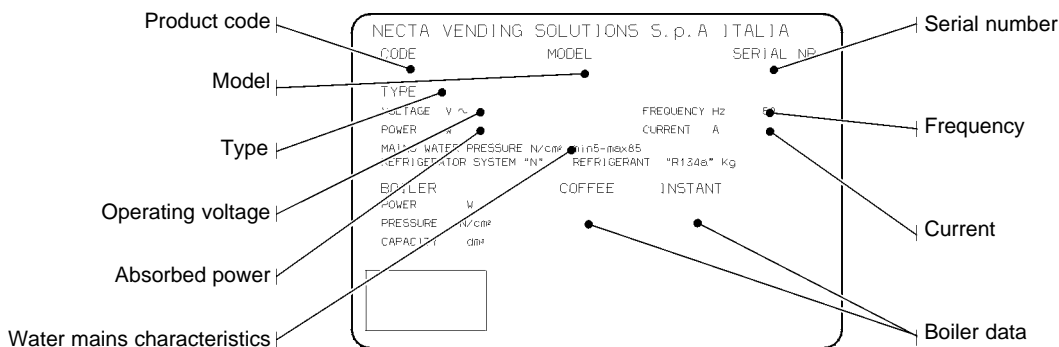
The machine can be lifted by a motor-driven or manual fork lift truck, and the forks are to be placed underneath the machine from the side clearly indicated by the symbol on the cardboard package.

Do not:

- overturn the vending machine;
- drag the vending machine with ropes or similar;
- lift the vending machine by its sides;
- lift the vending machine with slings or ropes;
- shake or jolt the vending machine and its packing.

The machine should be stored in a dry room where the temperature remains between 0° C and 40° C.

Avoid stacking machines one on top of the other and always keep it upright as indicated by the arrows on the packing.



USING THE VENDING MACHINES OF HOT DRINKS IN OPEN CONTAINERS

(Ex.: plastic cups, ceramic cups, jugs)

The vending machines of drinks in open containers should be used only to sell and dispense drinks obtained by:

- brewing products like coffee and tea;
- reconstituting instant and lyophilized products;

These products should be declared by the manufacturer as "suitable for automatic vending" in open containers.

The dispensed products should be consumed immediately. They should never be preserved and/or packed for later consumption.

Any other use is unsuitable and thus potentially dangerous.

POSITIONING THE VENDING MACHINE

The vending machine is not suitable for outdoor installation. It must be installed in a dry room where the temperature is between 2° C and 32° C, and not where water jets are used for cleaning (e.g. in large kitchens, etc.).

The machine should be placed close to a wall, so that the back panel is at a minimum distance of 4 cm from it and correct ventilation may be ensured.

The machine must never be covered with cloth or the like. The machine should be positioned with a maximum inclination of 2°.

If necessary provide proper levelling by way of the adjustable feet included (see Figure 9).

WARNING FOR INSTALLATION

The machine installation and the following maintenance operations should be carried out by qualified personnel only, who are trained in the correct use of the machine according to the standards in force.

The machine is sold without payment system, therefore the installer of such a system has sole responsibility for any damage to the machine or to things and persons caused by faulty installation.

The integrity of the vending machine and its conformity with the rules and regulations in force for its relevant systems must be checked by qualified personnel at least once a year.

All packing materials shall be disposed of in a manner which is safe for the environment.

PRECAUTIONS IN USING THE MACHINE

The following precautions will assist in protecting the environment:

- use biodegradable products only to clean the machine;
- adequately dispose of all containers of the products used for loading and cleaning the machine;
- switch the machine off during periods of inactivity, thus achieving considerable energy savings.

WARNING FOR SCRAPPING

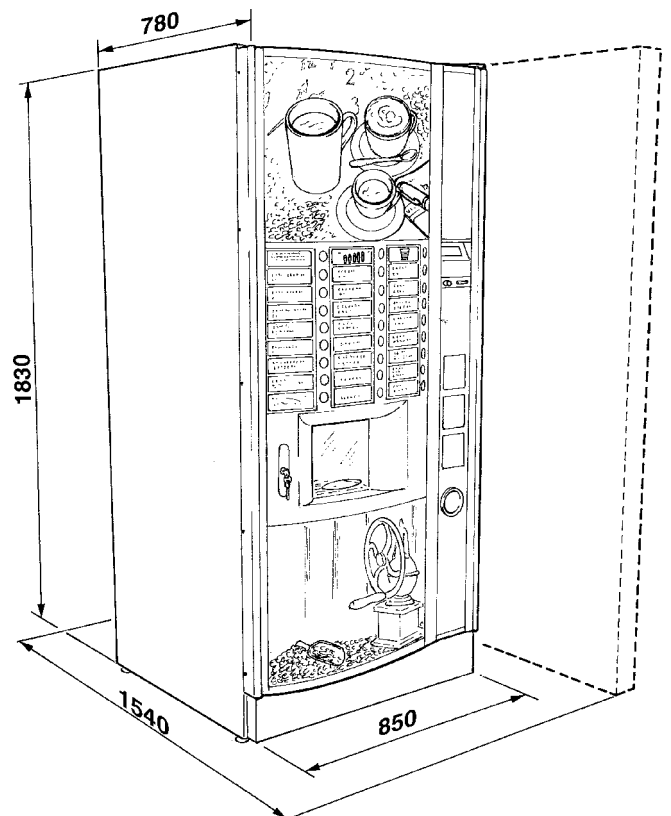
When the machine is to be scrapped, the laws in force regarding environment protection should be strictly observed. More specifically:

- ferrous and plastic materials and the like are to be disposed of in authorized areas only;
- insulating materials should be recovered by qualified companies.

DIMENSIONS

Height	1830 mm
Width	850 mm
Depth	780 mm
Overall depth with door open	1540 mm
Weight:	

Zenith	Fresh Brew	Instant
Kg	225	220



TECHNICAL SPECIFICATIONS

Power supply voltage	230	V~
Frequency	50	Hz
Installed power	2400	W
Lighting lamps power		

Lamps (230 V~)	N.	W
Advertising panels	2	15
Selection menu	3	8
Internal (optional)	1	8

CUP DISPENSER

Suitable for cups with a rim diameter of 73-74 mm. with a capacity of approximately 900 cups;

PAYMENT SYSTEM

The machine is supplied with all electrical prearrangement for systems with Executive, BDV and MDB protocol, as well as for installation of 24 V validators.

Beside the coin mechanism housing, suitable space is provided for the installation (optional) of the most widely used payment systems.

SALES PRICES

A different price in 4 programmable time periods can be set for each selection; the standard setting has the same sales price for all selections without any time bands.

JUG FACILITIES AND FREE VEND

Using a special key, up to 9 freshly brewed drinks can be dispensed to fill a jug without releasing any cups; alternatively to get free dispensing of normal selections.

COIN BOX

Made of aluminized plate.
Cover and lock are available as accessories.

WATER SUPPLY

From the mains, with a pressure of 5 to 85 N/cm².

AVAILABLE ADJUSTMENTS

Time adjustment for coffee, instant products and water doses.

Temperature control programmable via software.

CONTROLS

- Presence of cups
- Presence of water
- Presence of the brewing unit
- Liquid waste container full
- Operating temperature reached
- Position of mobile dispensing spouts

SAFETY DEVICES

- Door switch
- Manual-reset boiler safety thermostats
- Air-break float jamming
- Overflow solenoid valve
- Float for full liquid waste container
- Instant boiler anti-overboiling thermostat
- Boiler sensor short-circuit/failure control
- Timer protection for:
 - Brewing unit ratiomotor
- Overheating protection for:
 - Doser units
 - Brewing unit ratiomotors
 - Whippers
- Fuse protection for:
 - Main electrical circuit
 - Board power supply transformer
 - Coin mechanism power supply

CAPACITY OF CONTAINERS

Fresh coffee	5.5	Kg.
Sugar	4.4	Kg.
Powdered milk	1.4	Kg.
Instant coffee	1.3	Kg.
Tea	4.7	Kg.
Chocolate	6.8	Kg.
Soup	3.6	Kg.

POWER CONSUMPTION

The machine power consumption depends on many factors, such as the temperature and ventilation of the room where it is installed, the inlet water and boiler temperature, etc.

Under average conditions, and namely:

- Ambient temperature: 20° C
- Coffee boiler temperature: 96° C
- Instant boiler temperature: 90° C
- Inlet water temperature: 18° C
- Water (average) per selection: 90 cc

the following power consumption levels resulted:

Zenith power consumption (Wh)	Fresh Brew	Instant
To reach operating temperature		370
For each hour of stand-by		215
For each drink (average)		
For each litre of drink		

The above power consumption calculated from average data should only be taken as an indication.

VARIABLE COMBINATION LOCK

Some machine models are fitted with a variable combination lock.

The lock is supplied with two silver colour keys to be used for normal opening and closing.

The lock can be customised by using a kit, available as accessory, which permits the combination of the lock to be changed.

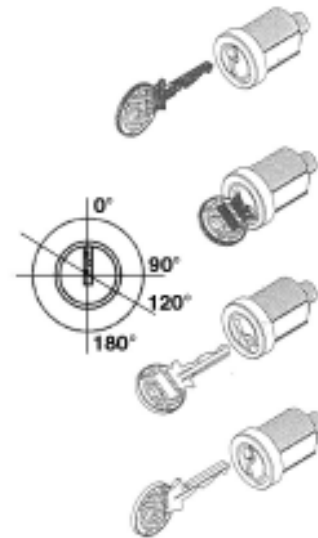
This kit includes a change key (black) for the current lock combination as well as the change (gold) and use (silver) keys for the new combination.

Sets of change and use keys with other combinations can be supplied on request.

Additional sets of use keys (silver) may be requested, indicating the combination stamped on the keys.

Generally, only the use key (silver) is used, while the combination change keys (gold) can be kept as spares.

Do not use the change key for normal opening, as it



may damage the lock.

TO CHANGE COMBINATION DO AS FOLLOWS:

- insert the current change key (black) and rotate to the change position (reference notch at 120°);
- remove the current change key and insert the change key (gold) with new combination;
- rotate to the close position (0°) and remove the change key.

The lock will now have the new combination.

The keys with the old combination cannot be used for the new combination.

ACCESSORIES

A wide range of accessories can be installed on the machine to change its performance:

The various kits are supplied with their own installation instructions, which must be strictly observed to ensure the machine's safety.

Installation and the following testing operations, must be carried out only by qualified personnel who have the specific knowledge of the machine functioning from a point of view of both electrical safety and health regulations.

LOADING AND CLEANING

DOOR SWITCH

When opening the door a special switch disconnects the power from the machine electrical system to allow the operations described below, regarding loading and routine cleaning, in full safety.

All operations requiring the machine to be energized should be carried out by qualified personnel ONLY, informed about the specific risks of such situation.

The service power socket, permanently live, is sized for small tools; care should be taken not to exceed the rating indicated on the specific place.

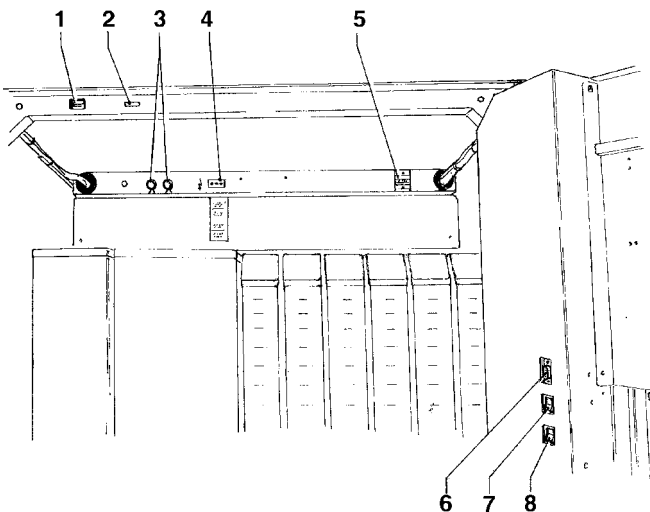
To energize the system with the open door, simply insert the special key into the slot (see Figure 1).

The door can be closed only after removing the key.

Do not leave the vending machine unattended with the door open.

Fig. 1

- 1 - Door switch
- 2 - internal lamp switch (optional)
- 3 - Network fuses
- 4 - Permanently live socket (230v~ 2 A. Max)
- 5 - Mechanical counter
- 6 - RS232 serial port
- 7 - Mixer cleaning button
- 8 - Programming access button



Some parts of the machine can be damaged by strong detergents.

The manufacturer declines all responsibility for any damage to persons resulting from failure to comply with current regulations.

Before starting any maintenance operations requiring parts of the unit to be removed, the machine must always be disconnected from the power supply.

CONTROLS AND INFORMATION

All user controls and information are conveniently located on the external side of the door (see Figure 2).

The labels with the selection menu and instructions, supplied with the machine, must be inserted at the time of installation.

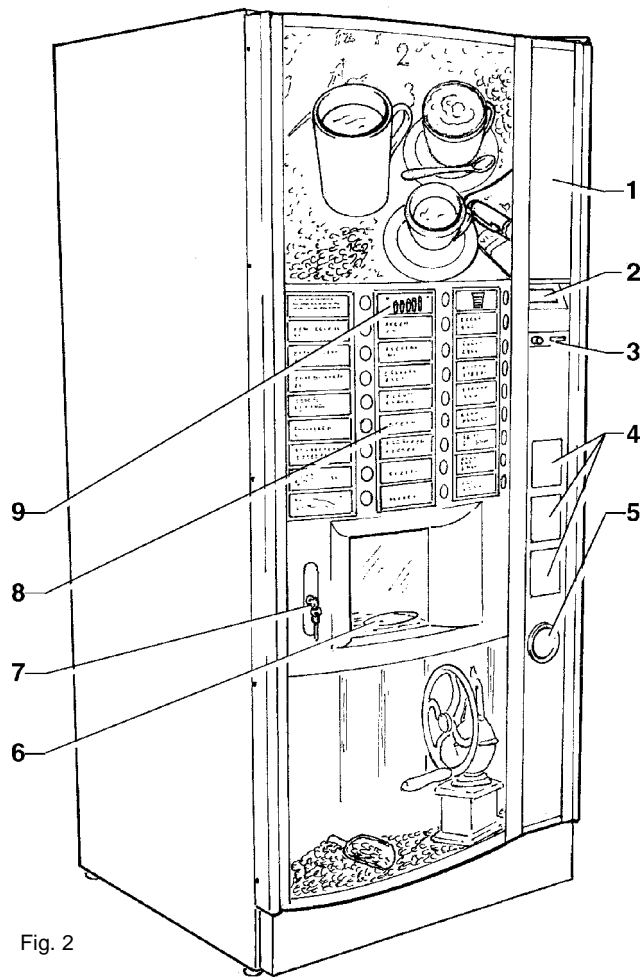


Fig. 2

MAINTENANCE AND DISINFECTION

According to current safety and health rules and regulations, the operator of an automatic vending machine is responsible for the hygiene and the maintenance of the foodstuff circuits, to prevent formation of bacteria.

At installation the hydraulic circuits and the parts in contact with foodstuff should be fully sanitised to remove any bacteria which might have formed during storage.

It is advisable that specific sanitising agents (such as chlorine-based detergents or similar) are used for cleaning also the surfaces which are not directly in contact with foodstuff.

- 1 - Modular elements for payment systems
- 2 - Alphameric display (4x20)
- 3 - Coin slot-return.
- 4 - Operating instructions labels
- 5 - Coin return flap
- 6 - Dispensing compartment
- 7 - Lock
- 8 - Selection menu
- 9 - Coffee dose selection

The Programming button, to access the machine functions, and the mixer cleaning button are located on the coin mechanism compartment cover.

LOADING CUPS

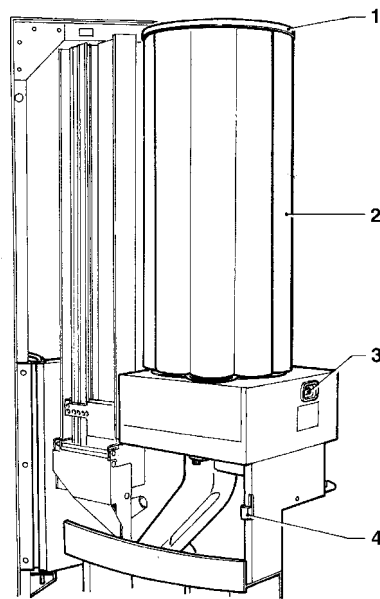
When loading cups for the first time (i.e. with the cup dispenser completely empty) do as follows:

- disconnect the electricity from the machine;
- remove the cover of the cup container;
- fill the columns with cups, except the one aligned with the dispensing opening;
- switch the machine on and the full column will be positioned automatically over the dispensing opening;

All operations requiring the machine to be energized should be carried out by qualified personnel ONLY, informed about the specific risks of such situation.

- fill the empty column;
- release one or more cups with the special button and replace the cover.

Fig. 3



- 1 - Cover
- 2 - Cup stacker
- 3 - Cup release button
- 4 - Shelf release lever

LOADING SUGAR AND PRODUCTS

A self-adhesive label indicating the product is attached on each container.

After lifting their cover, fill the single containers with the appropriate products, taking care not to compress them to prevent packing.

Make sure the products do not contain any clots.

SANITISING THE FOODSTUFF CIRCUITS AND THE MIXERS

When installing the vending machine, and then at least once a week or even more frequently according to the use of the machine and the quality of the inlet water, the mixers and the dispensing conduits must be thoroughly sanitised (cleaned and disinfected), to guarantee proper hygiene of the dispensed products.

In order to make sanitising operations quicker, some spare parts, which can replace the parts to be cleaned, are supplied with the machine.

The parts to be cleaned are as follows:

- mixer and instant drink dispensing conduit;
- coffee dispensing spout;
- cup chute;
- dispensing compartment.
- remove the feeders, the powder and water funnels, the powder deposit drawers and the mixer wheels from the mixers (see Figure 4);
- a splash guard ring is also fitted in the fresh coffee and milk mixers; this must be cleaned and then replaced in the same mixers;

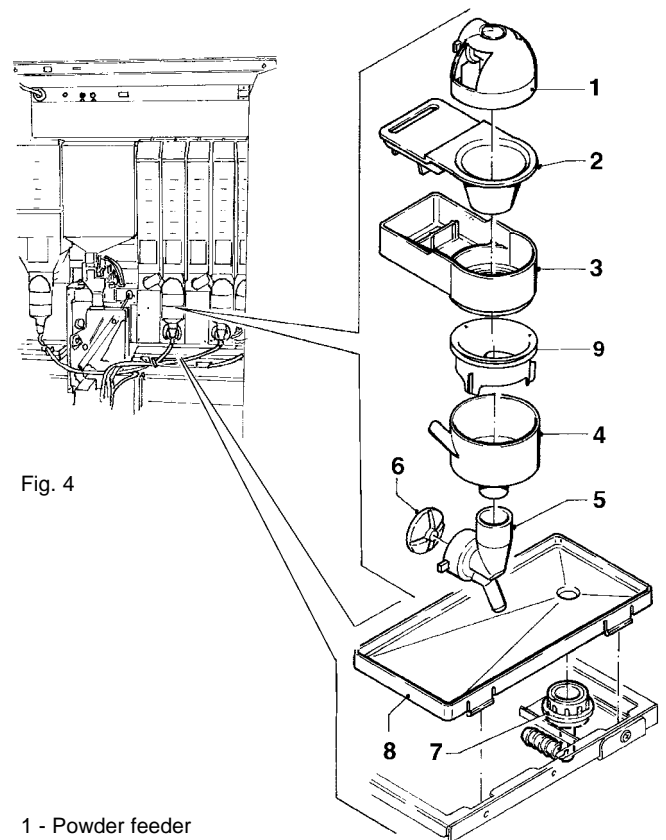
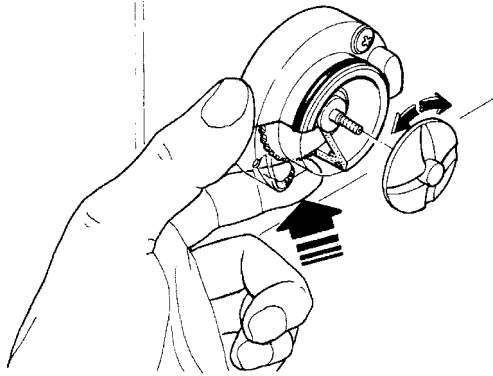


Fig. 4

- 1 - Powder feeder
- 2 - Powder funnel
- 3 - Powder deposit drawer
- 4 - Water funnel
- 5 - Feeder
- 6 - Mixer wheel
- 7 - Tray drain
- 8 - Overflow tray
- 9 - Splash guard ring

- in order to remove the wheels, block the disk fitted on the mixer shaft with a finger;

Fig. . 5



- wash all parts with detergent, being sure that all visible residue and product layers are mechanically removed, using a brush if necessary;

Disinfection should be carried out using chlorine-based detergents.

- soak all components for approx. 20 minutes in a container filled with the previously prepared chlorine-based detergent;
- reinstall the feeders and the water funnels;
- reinstall the powder deposit drawers and the powder funnels after thoroughly drying them.

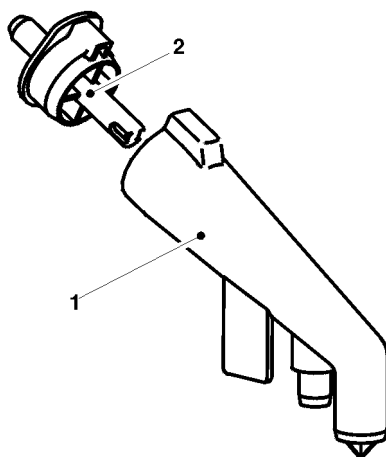
After reinstalling all parts the following is however required:

- enter into "Maintenance" mode to clean the mixers (see relevant paragraph) and add a few drops of the chlorine-based detergent in the various funnels.
- After disinfection thoroughly rinse all components to ensure that all residue of the detergent solution is removed.

All operations requiring the machine to be energized should be carried out by qualified personnel ONLY, informed about the specific risks of such situation.

- 1 - Tea dispensing spout
- 2 - Cap

Fig. 6



Some models, with the fresh product being dispensed directly into the cup, are fitted with a special spout (see Figure 6), as alternative to the splash guard ring, preventing the pressure created by the brewer piston from being discharged into the cup.

Also this spout and its plug must be cleaned following the same procedure indicated for the mixers.

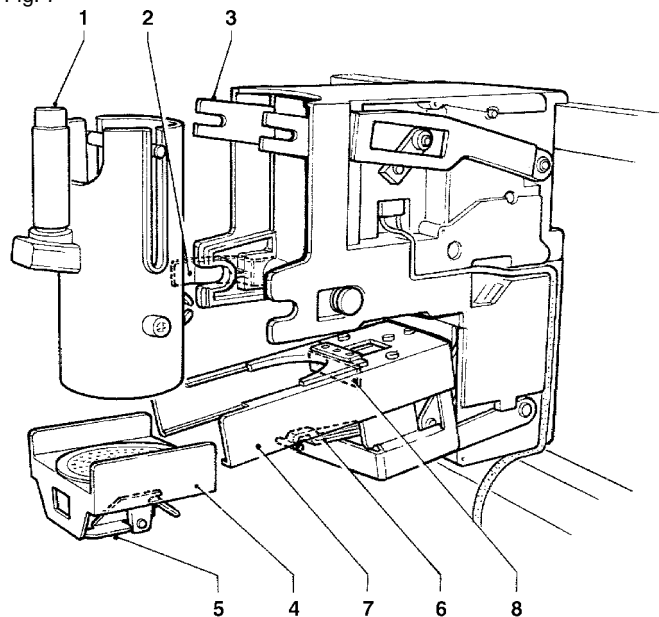
WEEKLY CLEANING OF THE BREWING UNIT

On a weekly basis, besides cleaning the external parts of the brewing unit to remove any dust residue, especially in the area of the funnel, also the parts of the unit which come into contact with the drink should be sanitised.

These operations should be carried out with the machine disconnected from the power supply.

- Undo the fastening screw and remove the cover to access the brewing unit.
- Disconnect the hose from the mixer and remove the mixer (7-1) from the brewing cylinder.
- Disengage the cylinder from the assembly by pulling the release lever (7-2) and slide it out of the piston control fork (7-3) by pulling it outwards.
- Slide out the piston from the cylinder.
- Extract the sliding filter holder (7-4) from the guide (7-7) releasing the link (7-6) from the stop lever (7-5).
- Extract the scraper assembly (7-8).
- Wash all parts with mild detergent, being sure that all visible residue and product layers are mechanically removed, using a brush if necessary.
- Soak them for approx. 20 minutes in a container filled with a chlorine-based detergent similar to the one used for the mixers.

Fig. 7



- 1 - Mixer
- 2 - Cylinder release lever
- 3 - Piston control lever
- 4 - Sliding filter holder
- 5 - Filter holder release lever
- 6 - Control link
- 7 - Guide
- 8 - Scraper assembly

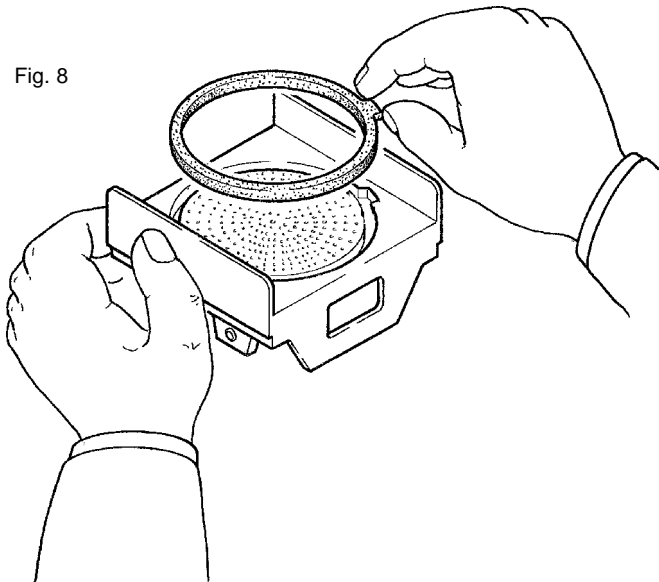
Do not use screwdrivers or any other sharp objects against the filter holder seal and do not place the seal on surfaces which may damage it.

If the metal filter is clogged, it should be replaced or cleaned with a specific product.

To remove the metal filter, first pull out the seal from its edge (see Fig. 8).

The filter must be cleaned at least every 2,500 selections. To reassemble the brewing unit follow the above instruction in the reverse order, making sure that the seal is installed before the filter.

Fig. 8



REPLACING THE FILTER CARTRIDGE

Every 30,000 drink selections or every 6 months, the main metal filter cartridge should be replaced according to the procedure described in section "Installing the filter cartridge".

SUSPENDING FROM USE

If for any reason the machine is switched off for a period exceeding the use-by date of the products, the following will be necessary:

- completely empty the containers and thoroughly wash them with the chlorine-based detergents used to clean the mixers.
- completely empty the doser-grinder unit by dispensing coffee until the empty condition is indicated.
- completely empty the air-break and the instant product boiler, loosening the clamp on the hose.

Before reinstating the machine, the cleaning and sanitising procedure described in the section "Yearly sanitising" should be carried out.

INSTALLATION

Installation and the following maintenance operations should be carried out with the **machine switched on** and therefore by qualified personnel only, who are trained in the correct use of the machine and informed about the specific risks of such situation.

The machine should be installed in a dry room where the temperature remains between 2° C and 32° C.

At installation the hydraulic circuits and the parts in contact with foodstuff should be fully sanitised to remove any bacteria which might have formed during storage.

UNPACKING THE VENDING MACHINE

After removing the packing, check that the machine is not damaged.

If in doubt do not use the machine.

No packing elements (i.e. plastic bags, polystyrene foam, nails, etc.) should be left within the reach of children, as they are potentially dangerous.

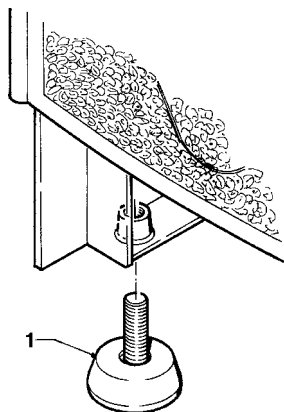
Packing materials must be disposed of in authorized areas only, and all recyclable materials must be recovered by specialised companies.

Important notice!!

The machine should be positioned with a maximum inclination of 2°.

If necessary provide proper levelling by way of the adjustable feet included (see Figure 9).

Fig. 9



1 - Adjustable foot

INSERTING THE PRODUCT LABELS

To be able to insert the product labels, the front panel must be removed. Undo the fastening screws and then press the clamping tangs (see fig. 10).

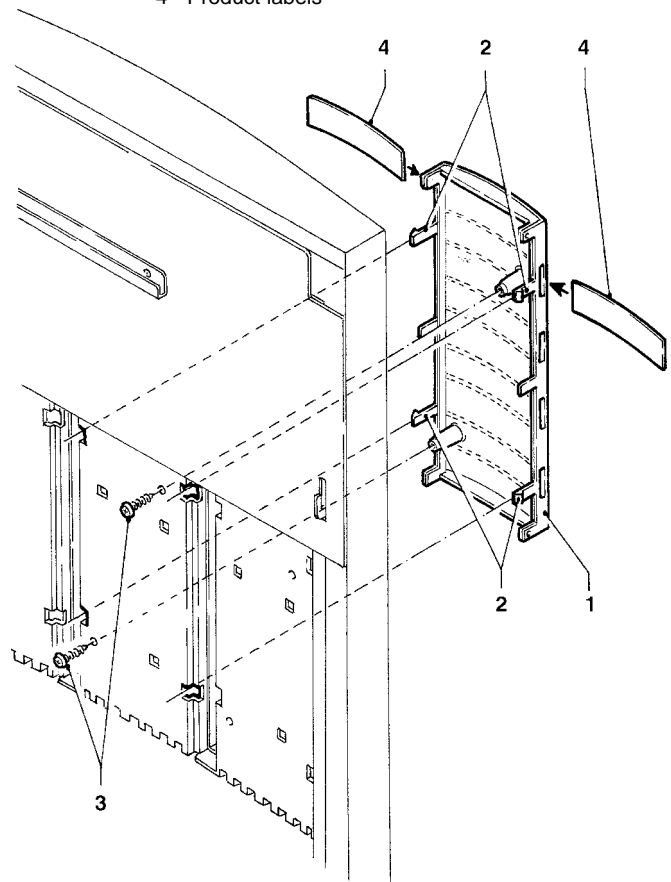
The labels must be inserted into the special slots with the opening positioned alternating on the left and right hand side.

According to the model, some buttons may not be used (refer to the selection dose table).

The machine is supplied also with the self-adhesive labels to be attached to the product containers according to the layout (refer to the selection dose table).

Fig. 10

- 1 - Label support
- 2 - Clamping tangs
- 3 - Fastening screws
- 4 - Product labels



INSTALLING THE FILTER CARTRIDGE

Make sure that the coloured ring is in the lower position (turned to the left).

Wet the two cartridge seals (see Fig. 11).

- a) insert the cartridge into the ring,
- b) turn the cartridge to the right,
- c) turn the ring fully to the right until locking the cartridge;
- d) block the ring into place by lowering the lever, so that it is just in front of the ring nose.

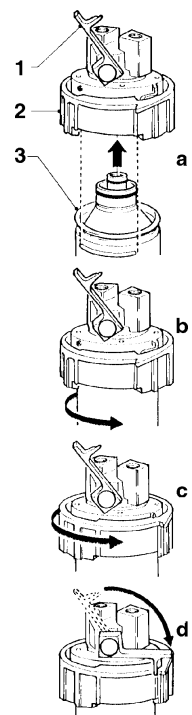
NOTE: The lever is used as a tap.

lever lifted = tap closed

lever lowered = tap open.

Fig. 11

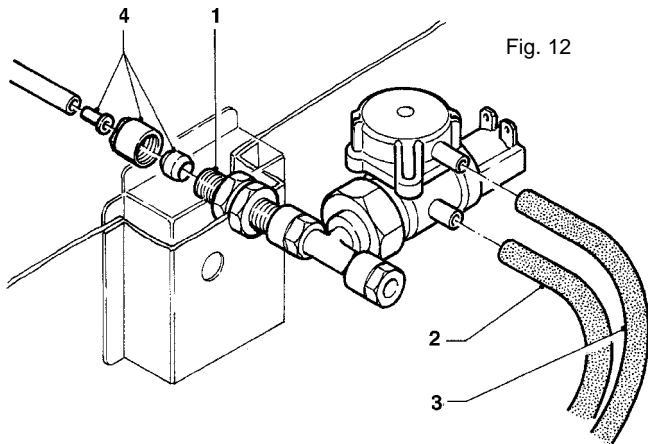
- 1 - Lock lever
- 2 - Coloured ring
- 3 - Cartridge



CONNECTING THE MACHINE TO THE WATER MAINS

The machine must be connected to the drinking water mains. The water pressure must be 5 to 85 N/cm². Run some water from the mains until it is clear and without impurities.

Use a hose capable of withstanding the water mains pressure and suitable for use with foodstuff (min. inside diameter of 6 mm) to connect the water supply to the union (3/8" gas) of the water inlet solenoid valve (see Figure 11).



- 1 - Water inlet union (3/8" gas)
- 2 - Water supply hose
- 3 - Overflow hose
- 4 - Inlet hose union

It is good practice to install the water supply tap outside the machine in an easily accessible position.

OVERFLOW DEVICE

The water inlet solenoid valve (see Fig. 11) is equipped with an overflow device which mechanically stops the water inlet if there is a malfunction in the solenoid valve or in the boiler water level control device.

To restore normal operation, proceed as follows:

- drain the water contained in the overflow pipe;
- shut off the valve of the water supply outside the machine;
- loosen the nut which secures the solenoid valve supply hose to relieve the water mains residual pressure and then tighten again (see Fig. 11);
- open the valve and switch on the machine.

CONNECTING THE MACHINE TO THE POWER SUPPLY

The vending machine is designed to operate under a single-phase 230 V~ voltage and is protected by 15 A fuses.

Before connecting the power supply make sure that the ratings correspond to those of the power grid, and more specifically:

- the supply voltage rating should be within the limits recommended for the connection points;
- the main switch should be located within easy reach and be capable of withstanding the peak load required, and at the same time should ensure proper omnipolar disconnection from the power grid with the opening gap of the contacts of at least 3 mm.

The main switch, the power socket and the plug must be in an accessible position.

The electrical safety of the machine is ensured only when it is correctly earthed according to the safety standards in force.

This fundamental safety requirement must be duly verified, and if in doubt the system must be carefully tested by qualified technicians.

The supply cable is of the type with a fixed plug.

Any replacement of the supply cable should be made by qualified and suitably trained personnel only using only cables of the type HO5 RN - F, HO5 V V-F or HO7 RN-F with a section of 3x1-1.5 mm².

Do not use adapters, multiple sockets and/or extensions.

Before switching the machine on, be sure it is correctly connected to the water mains and the cutoff valve is open.

THE MANUFACTURER DECLINES ALL RESPONSIBILITY FOR ANY DAMAGE CAUSED BY THE NON-COMPLIANCE WITH THE ABOVE MENTIONED PRECAUTIONS.

DOOR SWITCH

When opening the door a special microswitch disconnects the power from the machine electrical system.

To energize the system with the open door, simply insert the special key into the slot (see Fig. 1).

With the door open, there is no access to energised parts. The only energised parts inside the machine are the ones protected with covers carrying a plate with the wording "disconnect power supply before removing the cover".

Before removing such covers disconnect the external switch.

The door can be closed only after removing the key from the door switch.

INSTALLING THE PAYMENT SYSTEM

The machine is sold without payment system, therefore the installer of such a system is responsible for any damage to the machine or to things and persons caused by faulty installation.

- Install the desired coin mechanism according to the appropriate instructions and make sure that the programming of the relevant parameters is correct.
- adjust the selector opening lever square piece in order to enable complete opening of the selector;
- adjust the coin chute according to the type of coin mechanism installed.

FILLING THE WATER SYSTEM

If the air-break device indicates the no-water condition for more than 10 seconds after the machine has been switched on, an installation cycle will automatically be started, and namely:

- the display will show "OUT OF SERVICE"

for the entire duration of the cycle;

- the air-break and the instant product boiler are filled;

N.B.: If there is no water flow from the mains during the installation cycle, the machine will be blocked until the water is resumed or the machine is switched off.

This operation must be carried out by hand after any maintenance requiring the boiler to be emptied but not the air-break.

BREWING UNIT OPERATION

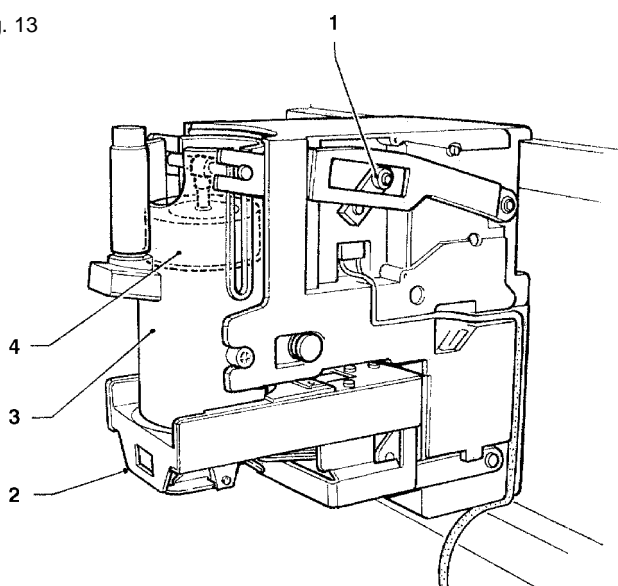
The unit is designed to brew ground coffee (suitable for vending machines).

Ensure that the powder funnel is cleaned thoroughly at the end of the dispensing cycle.

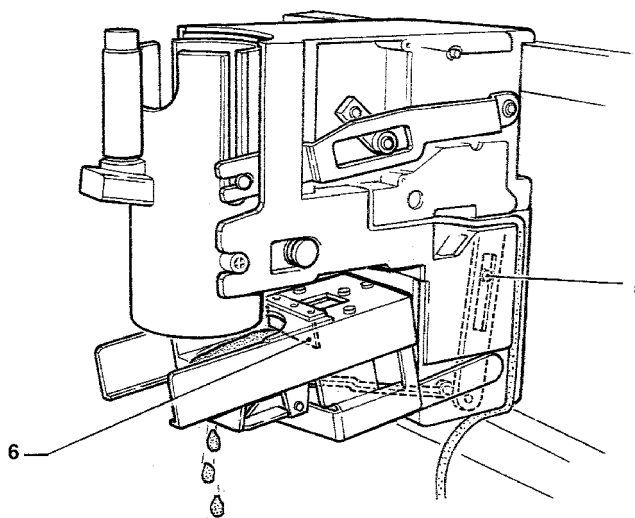
DISPENSING CYCLE

When a selection is made, the brewing unit motor (12-1) will lift the sliding filter holder (12-2) against the cylinder of the brewing chamber (12-3) until proper seal is achieved. At the same time, the brewing piston (12-4) is raised to let the water and the product mixture into the chamber. Water dispensing starts one second after the unit motor starts.

Fig. 13



- 1 - Brewing unit crank
- 2 - Sliding filter holder
- 3 - Brew chamber cylinder
- 4 - Brewing piston
- 5 - Sliding filter holder motor
- 6 - Grounds removing scraper



Brewing will continue for a preset period of time, which can be programmed via software, then the piston is lowered to dispense the brewed drink and dry the dose of grounds. At the end of drink dispensing, the filter holder will be lowered, the filter holder motor (12-5) moves back the sliding filter holder, thus enabling the grounds to be removed by the scraper (12-6).

It is also possible to program a pause for drying the product dose to further improve the drink quality.

To improve the product aspect, a special dispensing spout is used (see Fig. 6), which prevents the pressure generated by the brewing piston from being discharged directly into the cup.

CHECKING AND ADJUSTING THE MACHINE SETTINGS

To get the best possible results from the product used, the following should be checked:

product weight in grams

water dose

drink temperature.

The weight of the products and the water dose are directly controlled by the microprocessor.

To vary these parameters, it is therefore necessary to follow the programming procedures.

STANDARD SETTINGS

The vending machine is supplied with the following factory settings:

- brew temperature (at the spout) 85-89°C approx.;
- instant product temperature (at the spout) 75°C approx.;

CUP SENSOR

The cup sensor is adjusted in such a way as to detect objects (red LED glowing) placed between the sensor lens and the reflector.

The green LED glows when the reflector is read correctly. By means of the trimmer (preset at the factory) the sensing depth can be varied; the correct setting is approximately 30°, clockwise, from the maximum.

For a correct operation, the infrared transmitter and the reflector must be kept clean.

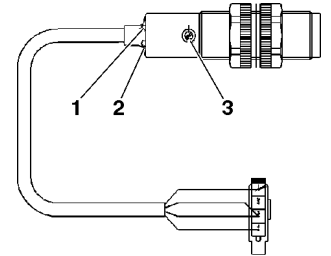


Fig. 14

- 1 - Green LED
- 2 - Red LED
- 3 - Adjustment trimmer

OPERATING MODES

Three different operating modes are provided for the machine, accordingly the buttons may have different functions based on the preset mode of the buttons. The available operating modes are as follows:

	FUNCTIONS
Normal operating mode	coins accepted products dispensed
Maintenance mode	test dispensing machine maintenance
Programming mode	programming the different parameters

USER INTERFACE

The following components are used as interface between the system and the user:

- Liquid Crystal Display (LCD), 4 lines x 20 characters.
- External push-button panel, with keys which have the following functions when in maintenance and programming mode (see Fig. 13):

Scrolling Keys “↑” and “↓” :

to move to the previous or next menu option.

Confirm key “→”:

to move from one menu to a sub-menu or to confirm the data on the display.

Exit key “←”:

to return from a sub-menu to the higher level menu, or to clear the data on the display. It is also used to go from "programming" mode to "maintenance" mode and vice versa.

NORMAL OPERATING MODE

When switching the machine on, the message "Starting" is displayed for a few seconds, after which the machine goes into normal operating mode.

The displayed messages indicating the operation being carried out are fixed, while the instructions requiring an action from the user are blinking; the messages include the following:

DISPLAY	FUNCTION
Select drink Press key	Machine ready
Vending machine out of service	Machine out of service
Selected drink processed Wait please	Processing the drink
Drink ready Take drink	Dispensing ended correctly

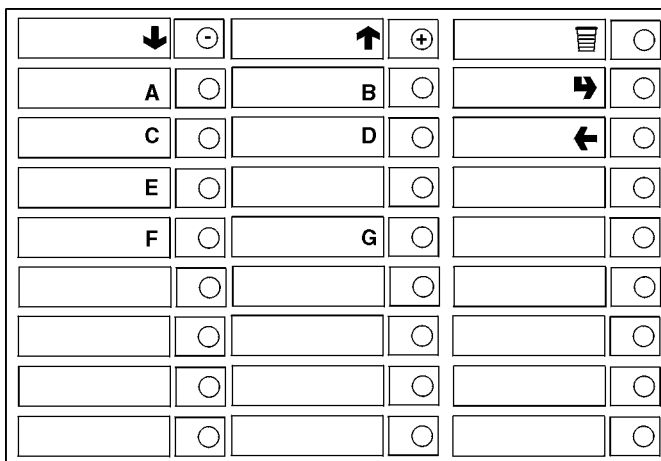
MAINTENANCE OPERATING MODE

When pressing the programming key on the coin mechanism compartment once, the machine goes into "Maintenance" mode.

The first option of the "maintenance" menu is displayed to activate the following functions:

"Compl. selec."	Dispensing test including cup, sugar and stirrer
"Water only"	Dispensing water only
"Powd. only"	Dispensing powder only
"No Accessories"	Dispensing test without cup, sugar and stirrer
"Accessories only"	Dispensing cup, sugar and stirrer only (if dispensed into cup).
"Boiler temperature"	Displaying the boiler temperature in degree C.
"Unit Control"	Temporarily enabling and operating keys A÷G.

Fig. 15



"Autotest"	<p>Actuation in sequence of power users:</p> <ul style="list-style-type: none"> . doser devices . mixers . cup dispenser . stirrer dispenser . neon lamps . door LED . push-button panel keys . mobile spouts . coffee dose dispenser . unit rotation . waste container switch
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"Filling tubes" (BDV only)	manual refill of change tubes
----------------------------	-------------------------------

TEST DISPENSING

For complete or partial dispensing tests each key is assigned a selection (see the dose selection table).

N.B. For espresso coffee based selections, only the additions are dispensed with the partial dispensing of powder and water; if a selection requires no addition the message "Sel. disabled" indicating a disabled selection will be displayed.

UNIT CONTROL

After accessing the "Unit Control" function, button "A" is used to operate the first coffee unit if this is connected to the electrical system, and to release a dose of coffee if disconnected.

Button "B" has the same function if the second coffee unit is installed; button "C" is used to operate the first "Fresh Brew" unit if this is connected to the electrical system; button "D" is used to operate the second "Fresh Brew" unit if this is connected to the electrical system;

button "E" is used to operate a solenoid valve in the espresso coffee boiler continuously, to empty the boiler through the special cap.

Buttons "F" and "G" are used to operate the syrup dispensing devices (for models fitted with a cold unit).

AUTOTEST

This function allows testing of the main machine components.

Press key "➡" to display the message "AUTOTEST" blinking.

Press key "←" to cancel the operation, confirm with key "➡" to start the autotest routine.

In a sequence:

- the doser devices are activated for 2 seconds
- the mixers are activated for 2 seconds
- a cup is released
- a stirrer is released
- the neon lamps are lit
- the door LEDs are lit
- the push-button panel is tested; the machine will display the number of the key which must be pressed and awaits the actuation before going to the next key
- the dispensing spouts are operated/repositioned
- (for espresso models only) the coffee unit is rotated, coffee is ground and then released when a full dose is reached.
- waste container switch; the machine awaits until the waste container microswitch is manually operated

MANUALLY REFILLING CHANGE TUBES

After accessing the "Filling Tubes" function to manually refill the change tubes, do as follows:

- press confirm key "➡": to enable refilling; the display will indicate Credit : ——— , which is the value of money available in the tubes;
- insert the desired coin into the selector (the display will indicate the value of money available in the tubes;)
- press key "➡" again to end the operation.

PROGRAMMING

When pressing key "←" from "maintenance" mode the machine is set to "Programming" mode. The first option of the programming menu is displayed, enabling the following functions:

Prices	sales price setting
Statistics	data reading
Selections	selection parameter setting
General data	general data setting
Coin mechanisms	setting the payment system protocol
Initialising	RAM data initialising
Failure control	list of current failures
Miscellaneous	list of sub-menu
Time bands	internal clock, 4 time bands for different prices
Pre-selections	enable disable
FB unit data	setting brewing times
Temperature	setting boiler temperature
Display counter	enable/disable display of counter at machine start
Machine code	machine identification code
Operator code	operator identification code
Password	setting the password
En. password	enable/disable password

Custom/Key	push-button panel custom selections
Jug facilities	setting number of selections
Euro	enable display of prices in euro / local currency
Progr. level	displaying complete or simple menu
Custom Select.	selection composition

SELECTION PRICES

Four different prices can be set for each selection according to the programmed time bands for when the time table option is enabled.

For each of the 4 time bands prices (0 to 65,535) can be programmed globally (same price for all selections) or for the single selections.

If the majority of products had the same price, it would be easier to program the prices globally and then change the value of the selections with a different price.

STATISTICS

Data on the machine operations is stored in both general counters and partial counters, which can be reset without losing total data.

DISPLAY

When pressing the confirm key "→" the stored data is sequentially displayed at 1 second intervals, and namely:

general

- 1 - single selection counter;
- 2 - time band counter;
- 3 - discount counter;
- 4 - failure counter;
- 5 - coin mechanism data.

partial

- 1 - single selection counter;
- 2 - time band counter;
- 3 - discount counter;
- 4 - failure counter;
- 5 - coin mechanism data.

PRINT

Connect a serial printer RS-232 having a Baud rate of 9600, 8 data bit, no parity, 1 stop bit (the CITIZEN I-DP 3110-24RF 230A p/n 9210219 printer is recommended) to the serial port located on the push button board to print all of the statistics described in the paragraph "statistics display". The printout will also contain the machine code, the date and the software version.

Statistics can be printed partially or totally.

To connect the printer do as follows:

- Press the confirm print key "↵", displaying the message "Confirm?";
- Connect the printer before confirming;
- Press the confirm key "↵" again to start printing.

RESET

Statistics can be reset either globally (all types of data) or partially for:

global

- selections
- discounts/overprice
- failures
- coin mechanism data

partial

- selections
- discounts/overprice
- failures
- coin mechanism data

Press confirm key "↵", displaying the message "Confirm?" blinking.

Press confirm key "↵", the message "Running" is displayed for a few seconds and all statistics are reset.

SELECTION MENU

The selection menu is composed of various sub-menus which allow setting of the different parameters.

WATER DOSE

The water dose, expressed in cc, can be set for each selection key and therefore each product assigned to it; the display indicates the name of the product being selected. It is also possible to set the water flow rate of the single solenoid valves expressed in cc/s (the default value setting in cc/s is indicated in the selection dose table) to calculate the amount of water to be dispensed.

POWDER DOSE

The powder dose, expressed in grams, can be set for each selection key and therefore each product assigned to it; the display indicates the name of the product being selected. It is also possible to set the flow rate of the single dosing units expressed in g/s to calculate the amount of powder to be dispensed.

ACCESSORIES

Dispensing of sugar, stirrer and cup can be enabled or disabled for each single selection key.

SELECTION STATUS

Each single selection key can either be enabled or disabled.

KEY/SELECTION ASSOCIATION

This function is used to change the order of the selections associated to the push-button panel.

GENERAL DATA

The general data menu is composed of various sub-menus which allow setting of the different parameters.

LANGUAGE

There is the option of language, selected among the ones included in the EPROM, to be used for the messages on the display.

DECIMAL POINT

Press the confirm key "↵" to display the position of the decimal point, i.e.:

0	decimal point disabled
1	XXX.X
2	XX.XX
3	X.XXX

Press the confirm key "↵" to display these values blinking, which can then be modified as necessary.

AUTOMATIC CLEANING

It is possible to determine whether or not to enable the automatic cleaning function for the mixers and for the brewing units, and the time when this will occur.

ENABLING THE PROMOTIONAL MESSAGE

When in this menu, press the confirm key "↵" to display the status of the message (enabled or disabled). The status can then be changed using the "↑" and "↓" keys.

SETTING THE PROMOTIONAL MESSAGE

The 4-line message can be written using the "↑" and "↓" keys to scroll through the available characters.

Press the confirm key "↵" to display the first character blinking, which can then be modified.

The message is stored by pressing the key "←".

CUSTOMISING THE MESSAGES

The machine uses standard messages to give information to the user during normal operation (e.g. "Ready", "Take" etc.). When this function is enabled, the message can be changed in the same manner as setting the promotional message. Changes are stored as copies of the standard messages.

Therefore, if this function is disabled, the standard messages will be displayed again, but the changed messages are still stored.

STOP COFFEE

This function is used to enable/disable the key "☰", stopping coffee selections during normal operation.

SETTING THE WHIPPING TIME

In some models there is the option of setting the whipping time for instant coffee, thus obtaining the best possible drink quality. For models where it is not necessary, this function is in the menu but does not operate.

SETTING THE REGENERATION COUNTER

Upon accessing the "maintenance" mode the message "Regenerate the water softener" can be displayed after a set number of drinks dispensed.

EXTERNAL LIGHTING

There is the option of deciding whether or not the panel lighting lamps are switched on when the machine is out of service or during the "Energy saving" time band.

ENERGY SAVING

In order to save electric energy when the machine is not in use, this function is used to switch off boiler heating and/or external lighting.

2 switch-off time bands can be programmed on a weekly basis; the week days are identified by a progressive number (1=Monday, 2=Tuesday etc.).

The same time band cannot include days from different weeks.

If time bands are set overlapping, the machine will remain switched on for the shorter period.

For example, in order to set energy saving time bands to run the vending machine from 07.00 to 22.00 during the week and leave it switched off on the weekend, the time bands should be set, using the special menu, as indicated in the table below.

Day		1	2	3	4	5	6	7
band 1	start	00.00	00.00	00.00	00.00	00.00	00.00	00.00
	end	07.00	07.00	07.00	07.00	07.00	23.59	23.59
band 2	start	22.00	22.00	22.00	22.00	22.00	00.00	00.00
	end	23.59	23.59	23.59	23.59	23.59	00.00	00.00

COIN MECHANISMS

It is possible to decide which of the payment system protocols available are to be enabled for the functions.

The available payment systems are:

- Executive
- Validators
- BDV
- MDB

By selecting one of the systems it is possible to control its functions.

EXECUTIVE

The following payments systems are available for the Executive system:

- Standard
- Price Holding
- Coges
- U-Key
- Sida

VALIDATORS

When the "Validator Lines" function of the "programming" menu is displayed, the value of the 6 validator coin lines, A to F, can be changed.

BDV / MDB

The BDV and MDB protocol menus are similar to each other: the following structure shows the differences.

Type of vending

Setting the operating mode for multiple or single dispensing. With multiple dispensing, the change is not automatically returned after a successful selection, however the credit is available for further selections. When pressing the coin return button, the available credit is returned if its value is lower than the maximum change value.

Credit control

This function enables/disables the return of credit if no selections are made.

If enabled, this function will hold the credit until the first selection has been made. If however a selection fails for any reason, the change will be returned if requested.

Maximum credit

This function is used to define the maximum accepted credit.

Maximum change

It is possible to set a limit to the total amount of change returned by the coin mechanism when pressing the coin return button or after a single dispensing serving.

The value can be 0 to 250 basic coins. Any credit exceeding the amount programmed with this function will be cashed.

Accepted coins

It is possible to define which, among the coins recognised by the validator, are to be accepted.

Check the label on the coin mechanism for the correct coin to value matching, indicating the position of the coins.

Rejected coins (BDV only)

This function programs the rejection of coins when in "exact amount" mode.

Check the label on the coin mechanism for the correct coin to value matching, indicating the position of the coins.

Disabled coin return (MDB only)

This function disables the return of a specific coin.

Dispensing buttons (BDV only)

This function enables or not the buttons on the coin mechanism used to unload the coins in the change return tubes.

Value of "exact amount" (BDV only)

This value defines the combination of empty coin tubes, setting the coin mechanism in "exact amount" mode. The possible combinations of empty coin tubes are indicated below. For greater simplicity, the combination is described with reference to tubes A, B and C, where tube A receives the lower value coins and tube C the greater value coins.

0	=	A or (B and C)
1	=	A and B and C
2	=	A and B only
3	=	A and (B or C)
4	=	A only
5	=	A or B only (default)
6	=	A or B or C
7	=	A or B only
8	=	A or C only
9	=	B and C only
10	=	B only
11	=	B or C only
12	=	C only

C.P.C. peripherals (BDV only)

It dialogues with the coin mechanism if peripherals are installed or removed from the serial interface (C.P.C.-type peripherals - the monitoring unit is always enabled by default).

Minimum level of tubes

It brings forward the "Insert exact amount" message for the user, by adding a number of coins between 0 and 15 to the programmed number of coins, to set the "full change tubes" status.

Free Vend (BDV only)

Most payment systems with the BDV protocol control the free vend function.

However, there are some payment systems without such function.

In this case, if free selections are to be dispensed, free vending must be enabled with VMC (vending machine control, disable by default) and the price of the selections must be set to zero.

Immediate change (BDV only)

According to the BDV protocol the amount of credit inserted for a selection is cashed after the machine sends the message "Selection successful".

When this function is enabled, disabled by default, the cash message is sent at the beginning of dispensing.

INITIALISING

When the "Initialising" function is displayed the vending machine can be initialized restoring all default data.

This function should be used if there is a memory data error or when the EPROM is replaced.

All statistics information will be reset.

Press confirm key "↵" to display the message "Confirm?".

Press confirm key "↵" a second time and the message "Running" is displayed for a few seconds.

CURRENT FAILURES

READING

When the "Failure" function is displayed, press the confirm key "↵" to display the current failures.

If no failures are currently present, after pressing the confirm key "↵" the message "End failures" will be displayed.

The possible failures are indicated in the following cases:

Water failure

If the air-break microswitch is closed for more than one minute, the water inlet solenoid valve will remain energized until the water flow is restored.

Instant boiler

The machine is locked if after 20 minutes of heating time from machine start or from the last selection, the instant boiler fails to reach the operating temperature.

Espresso boiler

The machine is locked if after 10 minutes of heating time from machine start or from the last selection, the coffee boiler fails to reach the operating temperature.

Mobile spouts

If the spouts do not reach the dispensing position, the machine is disabled.

Cup failure

When the empty cup column microswitch opens, the column shift motor is activated. If after one full turn of the cup dispenser the microswitch is not closed the machine locks.

Espresso unit 1

This failure is due to a mechanical lock of the unit or when the unit is not present. The machine is not locked, but all coffee-based selections are disabled.

Coffee failure 1

If after a period of 15 seconds of grinding coffee, a dose is not obtained, all coffee-based selections are disabled.

Coffee release

If after releasing the ground coffee dose the microswitch of the coffee doser unit indicates the presence of coffee in the dosing chamber, all coffee-based selections are disabled.

Volumetric counter

Failed computation of the volumetric counter within a max. given time.

Liquid waste container full

This occurs after the liquid waste container float is triggered.

Air-break failure

The machine is locked if after 7 selections the microswitch has never signalled the lack of water.

Coin mechanism

The machine is locked if it receives a pulse longer than 2 seconds on a validator line or the communication with the serial coin mechanism does not take place for more than 30 seconds (Executive protocol) or 75 seconds (BDV protocol).

RAM data

One or more areas of the RAM contain wrong data which was corrected with the default values.

The machine will continue to function, but it would be advisable to initialise as soon as possible.

Machine control board

Failed dialogue between C.P.U. board and machine control board.

Fresh-brew unit 1

Due to wrong positioning of the unit (piston opening time > 8 seconds). The machine is not locked, but all fresh product based selections are disabled.

Fresh-brew scraper 1

Wrong positioning of the waste ejection scraper (movement time > 6 seconds).

The machine is not locked, but all fresh product based selections are disabled.

Fresh-brew unit 2 / Fresh-brew scraper 2

As unit and scraper 1 if the second brewing unit is installed.

RESET

By confirming this function all current failures will be reset

MISCELLANEOUS MENU

This menu contains some sub-menus, used less frequently, which permit control of the functions described below.

TIME BANDS

Four programmable time bands are provided for selling products at different prices.

The time bands can be programmed as hour (00 to 23) and minutes (00 a 59) for start and end.

If the values for start and end of the time band are set to 00.00 the time period is disabled.

The reference time is kept by an internal clock, programmable as:

day/month/year week day 1-7

and then

hour/minutes/seconds.

If the values for start and end of the time band are set to 00.00 the time period is disabled.

PRE-SELECTIONS

There is the option of enabling some selection buttons to have dispensing:

- without cup;

- with extra sugar, i.e. a greater amount of sugar (programmable) on all selections where it is dispensed;

- unsweetened, i.e. without sugar on all selections where it is dispensed;

- moka, i.e. with a reduced amount of water (programmable) for coffee.

The "-" and "+" keys can be used to vary the amount of sugar or, alternatively of coffee.

The LEDs will indicate the average dose change.

- strong/light, i.e. varying the amount of product (programmable) for coffee.

- espresso, i.e. varying the amount of water (adjustable) for coffee selections.

- coffee powder, i.e. varying the amount of product (adjustable) for instant and fresh-brew coffee.

For each pre-selection it is possible to decide whether or not it is to be enabled, which button will be assigned to, the selection price change and the percentage change in product dose.

FRESH-BREW UNIT DATA

For each of the two Fresh-brew units installed in the machine, it is possible to set the brewing time, the drying time for the used dose and whether or not to enable product whipping and automatic cleaning of the brewing unit.

TEMPERATURE

This function is used to set the operating temperature, expressed in °C, of the boilers installed in the machine. After selecting the boiler, press the confirm key "►" to display the temperature value blinking to be modified as necessary.

SELECTION COUNTER DISPLAY

This function is used to enable/disable the display of the total number of sales since the last statistic reset, during the start-up phase of the machine.

PROGRAMMING THE MACHINE CODE

When the "Machine code" function is displayed the eight-digit numeric code identifying the machine can be changed (from the default 0).

PROGRAMMING THE OPERATOR CODE

When the "Operator code" function is displayed the six-digit numeric code identifying groups of machines can be changed (from the default 0).

PASSWORD

It is a 5-digit numeric code which is required to access programming.

The default value of this code is set to 00000.

ENABLING THE PASSWORD

This function is used to enable the option of requesting the password to access programming; the password request is disabled by default.

CUSTOM SELECTION BUTTONS

The machine has the option of customising up to four selections as alternative to the 24 standard ones.

With this function it is possible to decide to which button assign them (replacing the standard selection)

JUG FACILITIES

Some models, supplied with a special key, permit dispensing of a number of selections (programmable between 1 to 9; 5 as default) without cup to fill a jug.

EURO

It is possible to decide whether the selection prices are to be displayed in Euros, the local currency or both.


PROGRAMMING LEVEL

Considering the number of functions provided for programming, it is possible to decide whether displaying only the more frequently used menus or all of the available ones.

When this function is enabled, the following menus are displayed:

- from "Maintenance" mode, excluding the autotest function;
- 1 Price setting;
- 2 Statistics management;
- 7 Failure control;
- 8 Miscellaneous, limited to option 8.d which is used to enable/disable the programming level.

N.B. The numbers that identify the menus do not change in the two modes:

In the menu summary, the ones which are available with the function enabled are identified by the symbol .

CUSTOMISING THE SELECTION COMPOSITION

The main parameters can be defined for each of the 28 available selections, regarding both doses and enabling the power users.

This way the composition of each single selection can be customised.

The definition and use of the various parameters is indicated below; the menu and the buttons to be used are indicated in the summary tables of the programming menus.

SELECTION STRUCTURE

This function identifies the parameters, among the available ones (0÷15; 9 are managed on these machines), which can be enabled according to specific needs.

0 Cup

cup dispensing.

1 Sugar

sugar dispensing.

2 Stirrer

stirrer dispensing.

3 Selection

blocking dispensing of a selection even if assigned to a key on the bush-button panel.

4 Sequential water dispensing

For the composite selections, this function defines whether the different water doses must be dispensed sequentially or at the same time.

5 Sugar into the cup

enabling the sugar dispensing device.

6 Pre-mixed sugar

dispensing sugar into the mixer.

7 Spout return delay

delayed return of the mobile spouts after the selection, allowing dispensing of the drink to be completed (e.g., tea brewing coil).

8 "Stop" key

enabling the key that stops strong coffee selections.

9 Spout movement

When disabled, this function blocks the spout movement for selections where it is not required (e.g. cold drinks).

WATER DOSES

Each selection can be composed of 1 to 4 different water doses.

For each of the water doses, the parameters that allow correct dispensing must be defined.

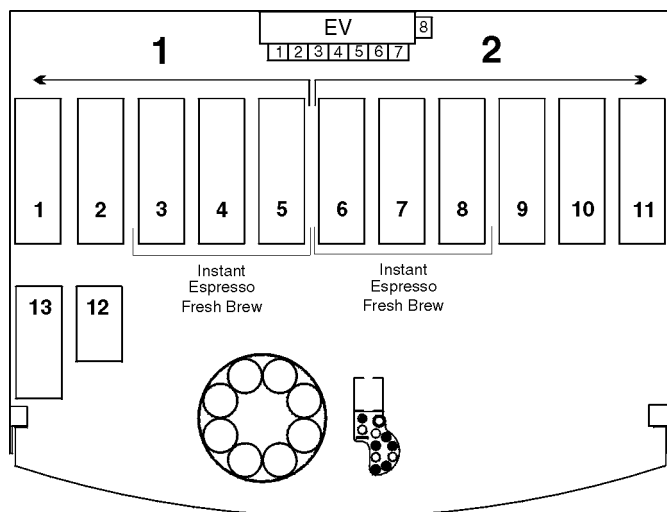
They are:

Unit

The machines in the Zenith range are conceived to ensure top modularity.

They are able to manage many combinations of functional units.

Fig. 16



The following can be fitted as alternatives on two interchangeable shelves:

Three instant product containers.

One espresso unit.

One fresh-brew unit and one instant product container.

For the other positions, a tea brewer can be fitted as alternative to the instant product container.

Then, a unit dispensing cold drinks can be fitted.

The dispensing system for the water dose will change according to the type of unit defined.

The functional units that can be defined are identified by a number:

N.	Unit
1	Instant 1 (LH)
2	Instant 2 (RH)
3	Espresso 1 (LH)
4	Espresso 2 (RH)
5	Fresh brew 1 (LH)
6	Fresh brew 2 (RH)
7	Tea brewer
8	Cold unit

Name

The available names (0÷15; 13 are managed on these machines) identify the products which will be displayed during the programming operations.

The product to number combination indicated in the following table is the same for both water and product doses.

N.	Name
0	Coffee
1	Sugar
2	Milk
3	Chocolate
4	Tea
5	Soup
6	Decaffeinated
7	Syrup
8	Instant coffee
9	Fresh-Brew
10	Lemon
11	Instant
12	Cold
13	
14	
15	

Solenoid valves

Also the solenoid valves (EV1÷9; 8 can be fitted on these machines) are identified by a number.

According to the type of functional unit defined for a given selection, the number will control the solenoid valve:

	Functional unit		
EV	Instant Fresh-brew Tea brewer	Espresso	Cold unit
1	instant boiler	dispensing coffee 1	water powder 1
2	instant boiler	dispensing coffee 2	plain water
3	instant boiler		water powder 2
4	instant boiler		soda
5÷8	instant boiler		
9	not applicable for these models		

Whipper

Assigning the whipper to the selection, identified by a number, 1÷13 (see figure 16).

Water dose

it is the water dose value (4 digits). This value can be changed also from the "Selection menu".

POWDER DOSES

1 to 4 powder (or syrup) doses can be assigned to each water dose composing a selection, For each of the powder doses, the parameters that allow correct dispensing must be defined.

They are:

Dispensing mode

According to the dose and type, there are 4 product dispensing modes, identified by a number, and namely:

- 1- Continuous. Product dispensing starts with a programmable delay after the water dose and continues until the programmed dose is reached. However, product dispensing is stopped at the end of water dispensing.
- 2 - Stepped. The product is dispensed in 5 steps to cover the entire water dispensing time.
- 3 - Instant coffee. The product is dispensed before the water.
- 4 - "Sugar". The pre-selection buttons to vary the dispensed dose apply for the so defined powder.

Name

The available names (0÷15; 12 are managed on these machines) identify the products which will be displayed during the programming operations.

The product to number combination indicated in the table is the same used for water doses.

Doser device

Assigning the doser device to the powder dose, identified by a number, 1÷13 (see figure 16).

If the powder name is defined as "7-syrup", the syrup dispensing devices will be defined as doser 1 and doser 2.

Delay

Defining the product dispensing delay, in tenths of a second, after the water dose dispensing start.

Product dose

it is the water dose value (4 digits) expressed in grams (tenths of a second for syrup).

This value can be changed also from the "Selection menu".

PROGRAMMER (OPTIONAL)

AUTOMATIC SETUP TRANSFER

Using the programmer device makes it possible to read out the programming routines set and transferred to other machines from a reference vending machine.

This data is preserved also when the programmer is disconnected thanks to two Duracell batteries LR03 Format AAA 1.5 V (to be replaced every 12 months).

The programmer allows up to twenty different programs (setups) to be stored.

To differentiate among the 20 setups available those containing data, a special character is displayed, and namely:

< - > = Setup free

< □ > = Setup with data.

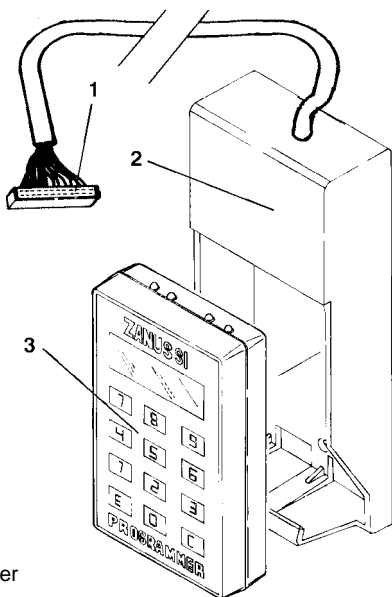
When creating the setup only those programs containing data are available; if no setup contains data, the message "no data available" will appear on the programmer display. To connect the programmer to the machine, the special holder is to be used (see Fig. 17) connecting the cable to the special connector of the push-button board (see Fig. 18).

Then enter the "programming" mode by pressing twice the relevant key on the coin mechanism compartment.

Now, inserting the programmer in its holder, an automatic connection will take place, and the setup menu will be shown on the programmer display:

- Press key "E" to access the displayed function;
- Press key "O" to display the following function;
- Press key "C" to display the previous function.

Fig. 17



- 1 - Connector
- 2 - Programmer holder
- 3 - Programmer

PROGRAMMER SETUP READING	SETUP READING SETUP 01 <X>	SETUP 01 Confirm? <X>
	SETUP READING SETUP 20 <X>	
PROGRAMMER CREATE SETUP	CREATE SETUP SETUP 01 <X>	SETUP 01 Confirm? <X>
	CREATE SETUP SETUP 20 <X>	

TRANSFERRED DATA

The following data is transferred with the setup:

- . Water and powder doses
- . Price table
- . Prices and selections status
- . Basic coin
- . Decimal point position
- . Value of the validator lines
- . BDV / MDB data
- . N. of "Jug Facilities" selections

CONFIGURING THE LANGUAGE

It is possible to change the programmer configuration regarding the language in which the messages are to be displayed as well as to reset all of the data therein contained. To activate the "Programmer configuration" operate as follows:

- insert the programmer in its holder and start the machine.
- wait about 10 seconds and then press programmer keys "C" and "O"; the first function will be thus displayed:

LANGUAGE CONFIGURATION	CONFIGURATION ITALIAN	CONFIGURATION Confirm?
	CONFIGURATION FRENCH	
	CONFIGURATION GERMAN	
	CONFIGURATION ENGLISH	
	CONFIGURATION SPANISH	
CONFIGURATION	INITIALISE INITIALISE	Confirm?
CONFIGURATION CONFIG. END	Exit from the configuration menu The software starts again from address 0000 (as when the machine is started)	

MAINTENANCE

The integrity of the machine and compliance with the standards of the relevant systems must be checked at least once a year by qualified personnel.

Before starting any maintenance operations requiring parts of the unit to be removed, the machine must always be switched off.

The operations described below must be carried out only by personnel who have the specific knowledge of the machine functioning from a point of view of electrical safety and health regulations.

INTRODUCTION

To ensure correct operation for a long period, the machine must be subjected to regular maintenance.

The following sections contain the procedures and the maintenance schedule, which are only a general indication, as they greatly depend on the operating conditions (e.g. water hardness, environmental humidity and temperature, type of product used, etc.).

The procedures described in this chapter are not exhaustive of all maintenance operations to be carried out.

More complex operations (e.g. boiler descaling) should be carried out by qualified technicians only having specific knowledge of the machine.

To prevent any risk of oxidation or the action of chemical agents, the stainless steel and varnished surfaces should be kept clean by using mild detergents (solvents must not be used).

Never use water jets to clean the machine.

BREWING UNIT MAINTENANCE

As well as cleaning once a week and/or every 2,500 selections, the brewer filter and its seal must be replaced every 25,000 selections, even if they appear to be still efficient.

The brewing unit must be disassembled completely and its components thoroughly cleaned every 100,000 selections replacing all worn out parts.

The brewing cylinder must be changed even if it appears to be still sound and efficient.

During these operations the area beneath the brewing chamber is to be properly cleaned.

Important notice!!

Should the whole unit need to be removed, do not handle it by the cylinder or by the filter holder

OVERHEAT PROTECTION

If the brewing unit stops, the software control shuts off the power from the brewing unit motor.

The motor is however fitted with overheat protection device with automatic reset.

BOILER MAINTENANCE

According to the water hardness and to the number of selections made, periodic descaling of the boiler is necessary.

This operation should be carried out by qualified technicians only.

The boiler must be removed from the machine for descaling. Use only biodegradable, non toxic and mild products for descaling. Thoroughly rinse all parts before reassembling them.

When reassembling make sure that:

- the electrical contacts (terminals, fastons etc.) are perfectly dry and correctly connected;
- the safety and anti-boiling thermostats are suitably positioned and fastened;
- the hydraulic connections are correctly made.

IMPORTANT NOTICE!!!

If for any reasons the heating system of the boiler is operated without water, before restarting the machine the correct functioning of the boiler temperature sensor should be checked.

If heating without water continues until the safety thermostat is triggered (see hydraulic system) the boiler temperature sensor will be

PERMANENTLY DAMAGED

AND IT MUST BE REPLACED.

ANNUAL SANITATION

At least once a year, or more frequently depending on the use of the machine and the quality of the inlet water, the entire foodstuff circuit must be cleaned and sanitised in the following way:

- all parts of the system in contact with food, including hoses, must be removed from the unit and fully disassembled;
- all visible residue and product films are mechanically removed using a brush or similar tools, as necessary;
- the components must be soaked in a sanitising solution for at least 20 minutes;
- the unit internal surfaces must be cleaned with the same type of sanitising solution;
- thoroughly rinse and then reinstall the parts.

Before restarting the unit, and after all parts have been reinstalled, the same disinfecting procedure described in section "Sanitising the mixers and the foodstuff circuits" should be repeated.

PRINTED BOARD FUNCTIONS AND INDICATOR LIGHTS

CPU BOARD

The C.P.U. (Central Processing Unit) board is housed in the coin mechanism compartment; this board controls the communication with the control board and processes the input signals from the push-button panel, the payment system and controls the display.

The board houses the EPROMs (the chips containing the program) and a series of minidips (see fig. 20) which allow configuration of the board according to use of the machine (see relevant chapter).

The board also houses some LEDs which, during the machine operation, give the following indications:

- green LED (2) blinking during the normal operation of the C.P.U. board.
- yellow LED (3) lit to indicate the presence of 5 Vdc;
- red LED (4) lit if there is a program error;
- red LED (5) lit during the board reset.

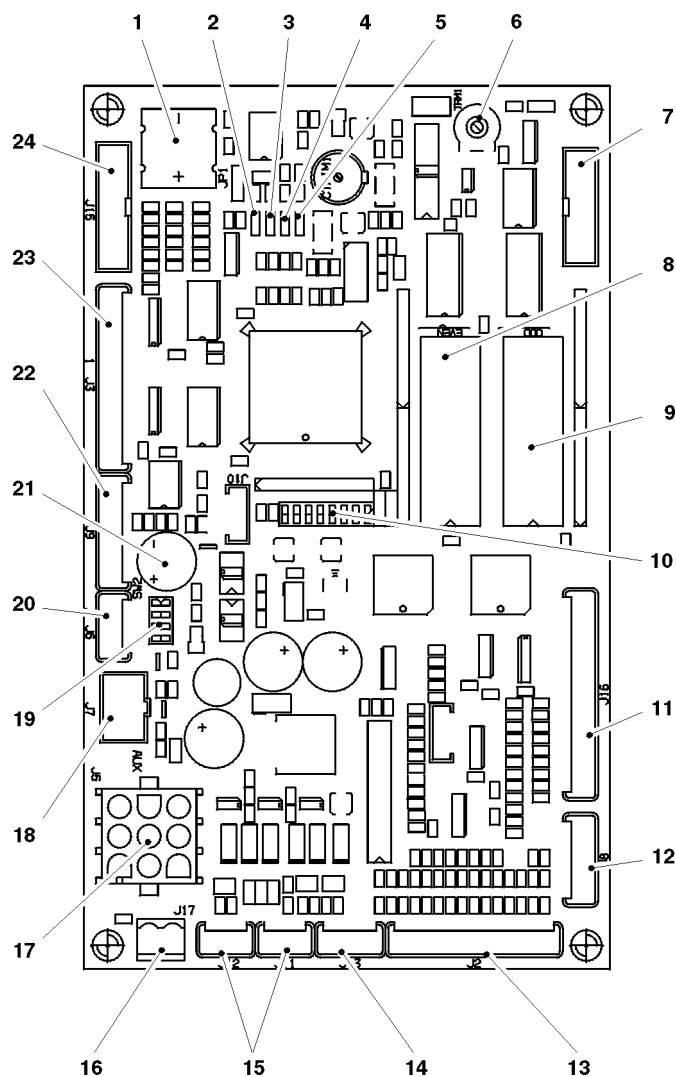
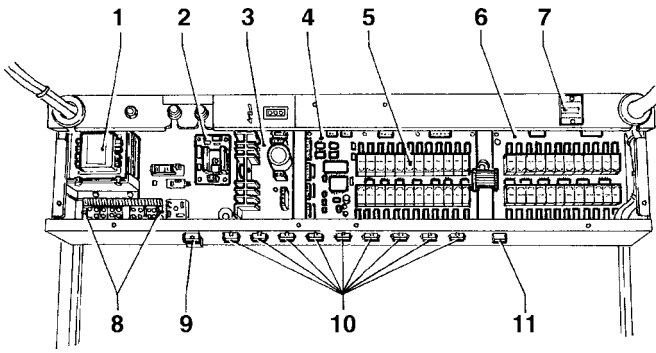


Fig. 18

- | | |
|----|--|
| 1 | - Battery |
| 2 | - Green LED: RUN |
| 3 | - Yellow LED: 5 Vdc |
| 4 | - Red LED: program error |
| 5 | - Red LED: board reset |
| 6 | - LCD contrast control trimmer |
| 7 | - LCD connector |
| 8 | - EPROM: EVEN |
| 9 | - EPROM: ODD |
| 10 | - Configuration Minidips |
| 11 | - Service keys connector |
| 12 | - Connector not used |
| 13 | - Key-pad connector |
| 14 | - Cold unit connector |
| 15 | - Connectors for control board communication |
| 16 | - 24 Vdc power supply to board |
| 17 | - BDV connector |
| 18 | - MDB connector |
| 19 | - Coin mechanism setting Minidip |
| 20 | - Connector not used |
| 21 | - Buzzer |
| 22 | - RS232 connector to programmer |
| 23 | - Connector of cup and sugar control board |
| 24 | - Validator connector |

Fig. 19



- 1 - Transformer
- 2 - Instant boiler control board
- 3 - Power supply board
- 4 - Actuation board
- 5 - Relay
- 6 - Expansion board
- 7 - Mechanical counter
- 8 - Transformer primary/secondary winding fuses
- 9 - Instant boiler connector
- 10 - Solenoid valve connector
- 11 - Sanitising kit connector (optional)

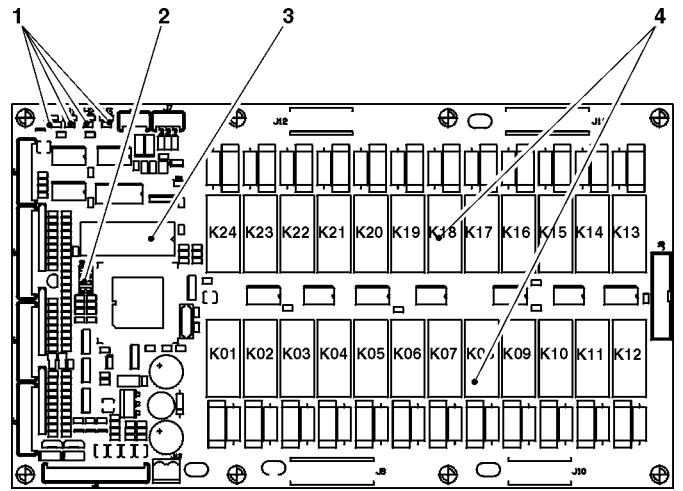


Fig. 20

- 1 - LED indicators
- 2 - EPROM
- 3 - Configuration Minidip
 - 1 = OFF
 - 2 = ON
 - 3 = ON
 - 4 = OFF
- 4 - Relay

RELAY FUNCTION (see Wiring diagram)

BOILER CONTROL BOARD

This board controls the instant boiler heating element.

ACTUATION BOARD

This board (see fig. 20) activates, by means of relays, some of the 230V~ components of the machine.

This board is supplied with 24 Vdc.

The control board EPROM is fitted on this board:

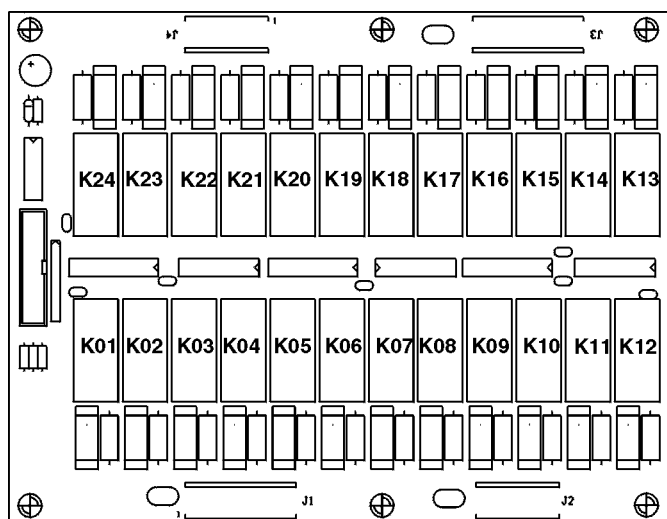
- green LED, blinking at intervals of approximately one second, indicates that the microprocessor is working correctly; if switched on fixed, it indicates that there is communication with the CPU board.
- red LED "H1", indicates the operating status of heating element on the first espresso boiler.
- red LED "H2", indicates the operating status of heating element on the second espresso boiler (if installed).
- red LED "H3", indicates the operating status of heating element on the instant boiler.

K01 =	PM	MF3	
K02 =	MFB	MD5	ESC
K03 =	ER1	MPF	MF5
K04 =	M	MDFB	MD3
K05 =	ER2	MF	MF4
K06 =	MAC	MD	MD4
K07 =	E8		
K08 =	MD1		
K09 =	MF1		
K10 =	MD2		
K11 =	MF2		
K12 =	VENT		
K13 =	E1		
K14 =	E2		
K15 =	E3		
K16 =	E4		
K17 =	E5		
K18 =	E6		
K19 =	E7		
K20 =	E9		
K21 =	MSB		
K22 =	MSU		
K23 =	MSCB		
K24 =	MSP		

EXPANSION BOARD

This board (see fig. 21) activates, by means of relays, the other 230V~ components of the machine.

Fig. 21



RELAY FUNCTION (see Wiring diagram)

K01	=	PM (C2)	MF6	
K02	=	MPF	MF8	
K03	=	M (C2)	MDFB	MD6
K04	=	MF	MF7	
K05	=	MAC (C2)	MD	MD7
K06	=	ESC (C2)	MFB	MD8
K07	=	not used		
K08	=	MVP		
K09	=	not used		
K10	=	not used		
K11	=	MDZ		
K12	=	MD12		
K13	=	MD9		
K14	=	MF9		
K15	=	MD10		
K16	=	MF10		
K17	=	MD11		
K18	=	MF11		
K19	=	PM sanit.		
K20	=	LF		
K21	=	EV sanit.		
K22	=	EEA		
K23	=	non usato		
K24	=	non usato		

CONFIGURING THE ELECTRONIC BOARDS

The electronic boards are designed to be used in many machine models.

When the boards are replaced, or when wishing to change the unit performance, ensure that the board configuration is correct.

Two series of minidip are fitted at the centre of CPU board (see Fig. 18) and of the actuation board (see Fig. 20) allowing the board to be configured for use on the various versions.

To correctly configure the boards, refer to the selection dose table.

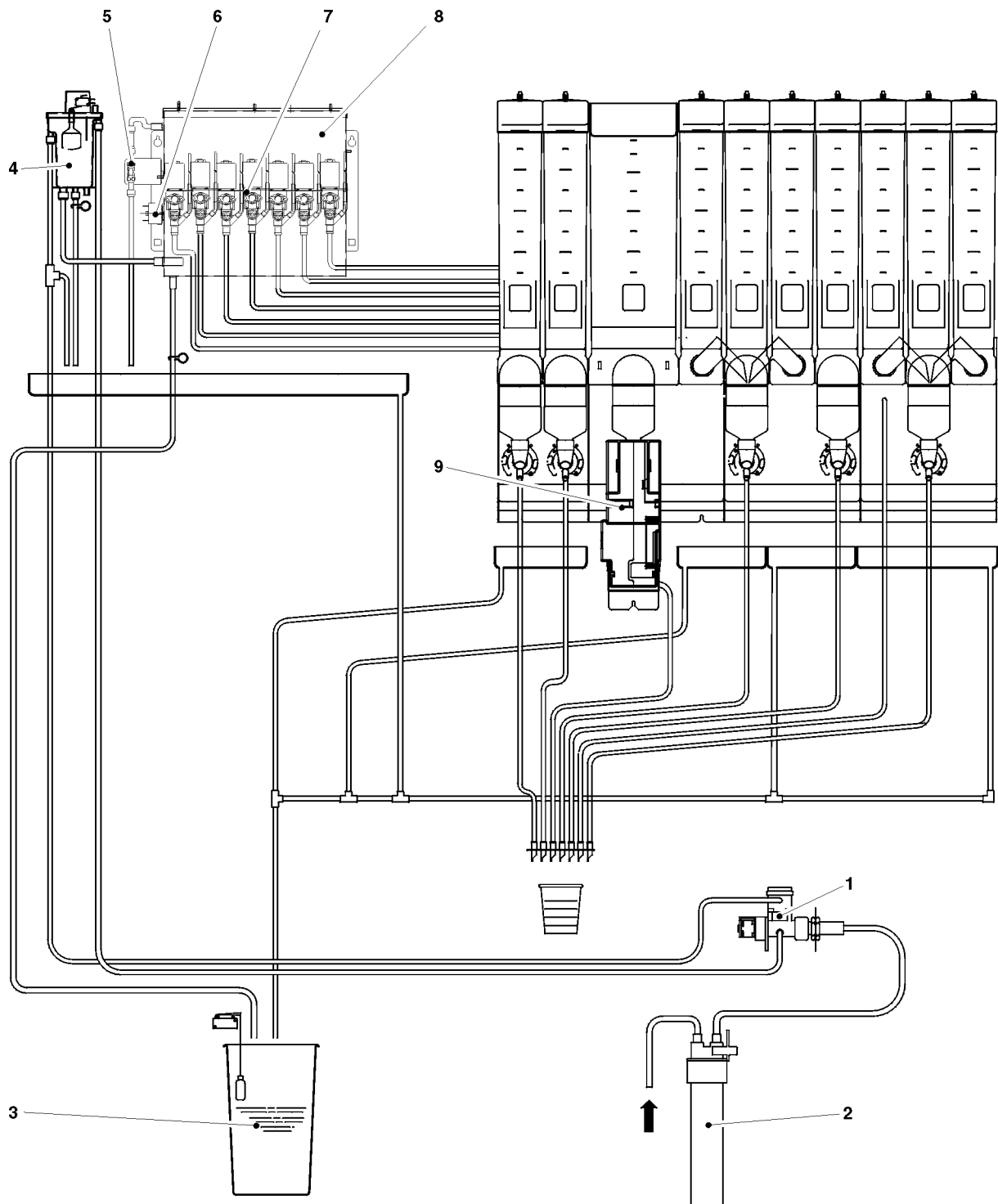
SOFTWARE UPDATE

The machine is fitted with Flash EPROMs which can be electronically updated.

By means of a special program and suitable system (Personal Computer or similar) the machine management software can be updated without replacing the EPROMs.

HYDRAULIC SYSTEM

models equipped with one brewing unit

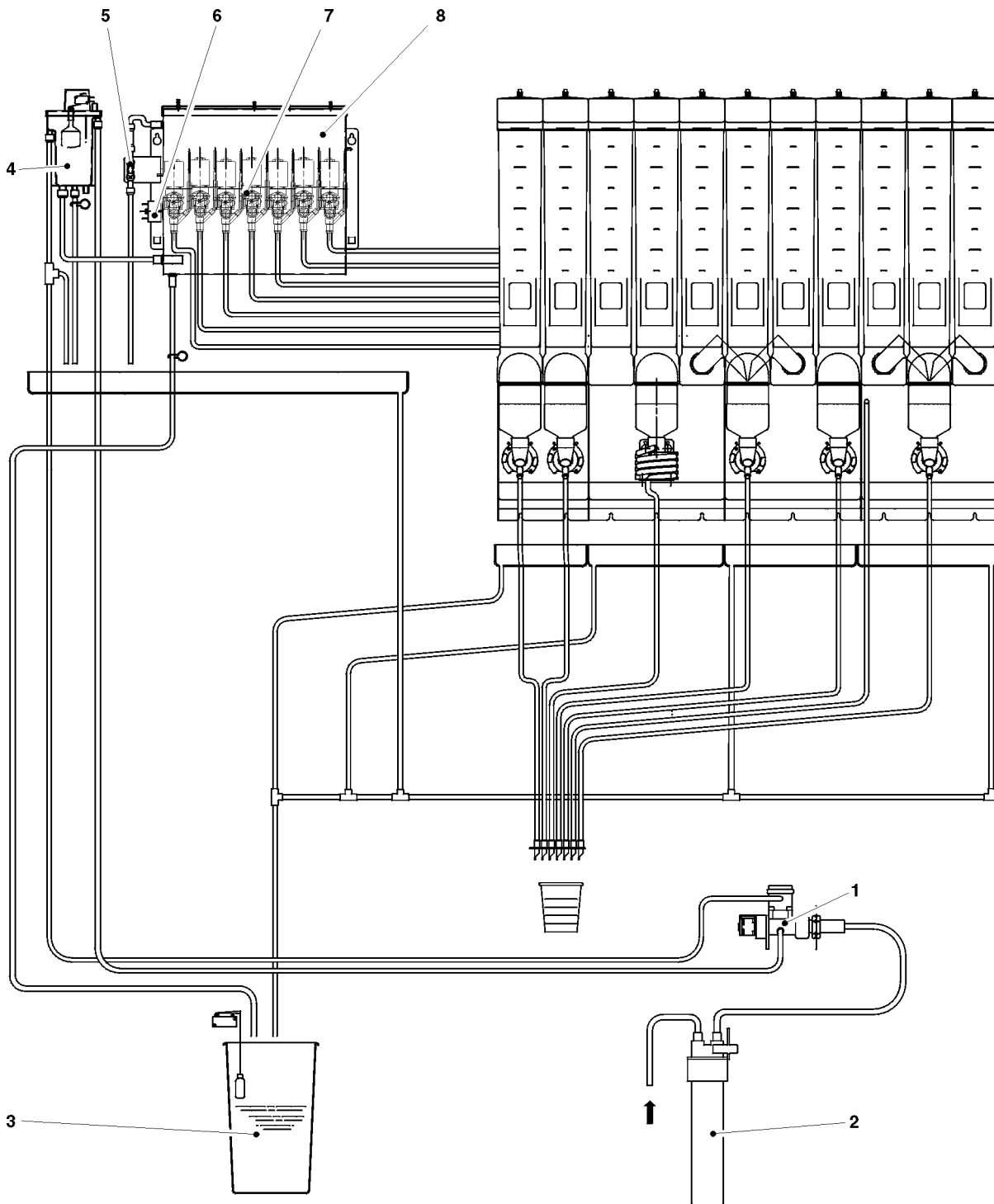


- 1 - Water inlet solenoid valve
- 2 - Everpure filter
- 3 - Liquid waste container
- 4 - Air-break
- 5 - Anti-boiling thermostats

- 6 - Safety thermostat
- 7 - Instant product solenoid valves
- 8 - Instant boiler
- 9 - Brewing unit

HYDRAULIC SYSTEM

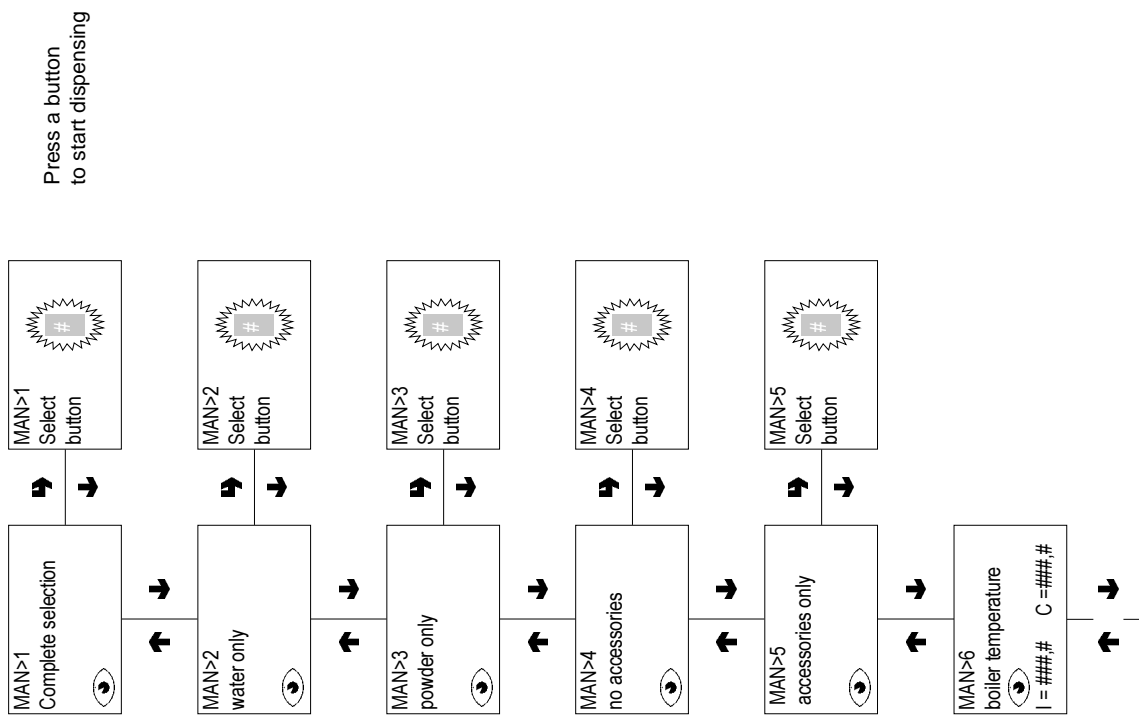
instant models



- 1 - Water inlet solenoid valve
- 2 - Water softener (optional)
- 3 - Liquid waste container
- 4 - Air-break
- 5 - Anti-boiling thermostats

- 6 - Safety thermostat
- 7 - Instant product solenoid valves
- 8 - Instant boiler
- 9 - Brewing unit

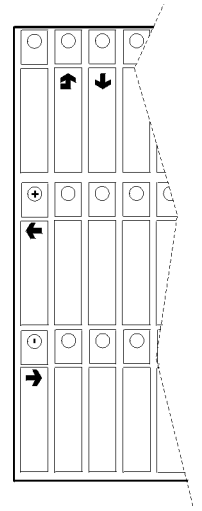
Maintenance Menu - Summary



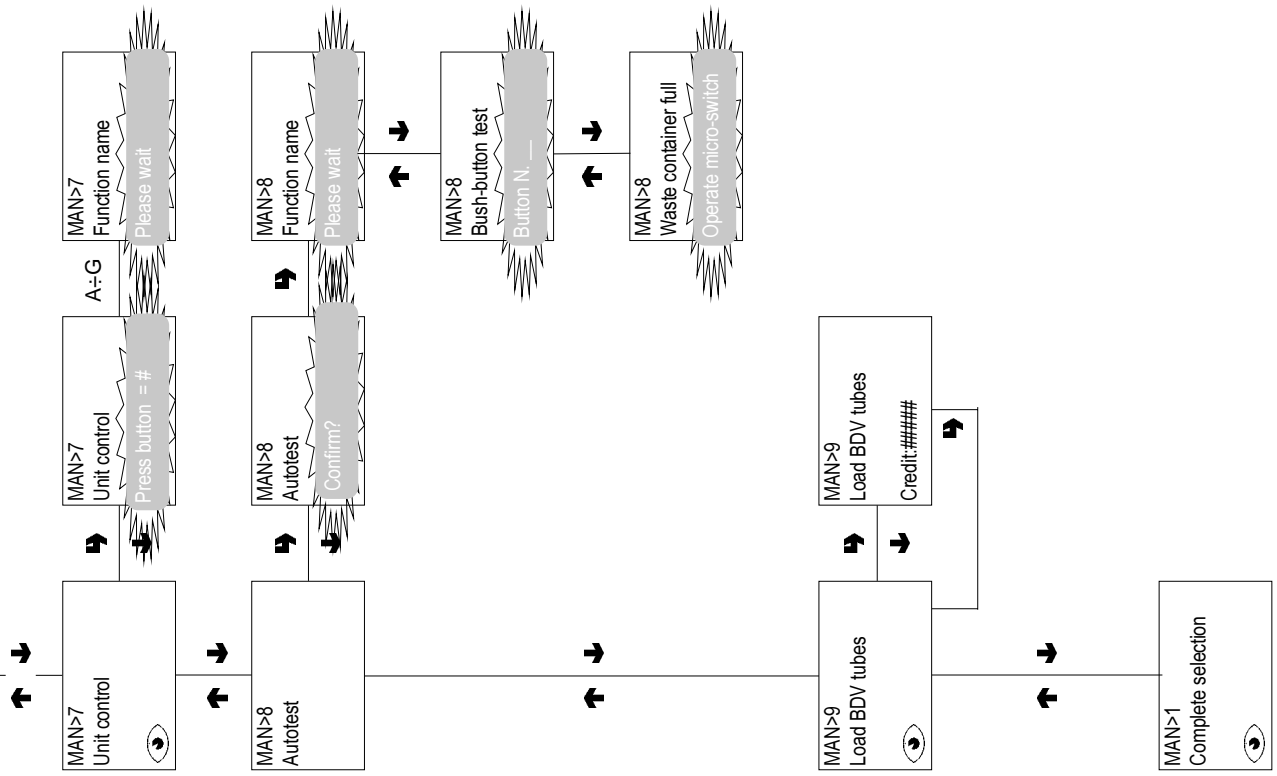
Press the programming button once

Menu displayed at all times

I = Instant boiler
C = Coffee boiler



Maintenance Menu - Summary



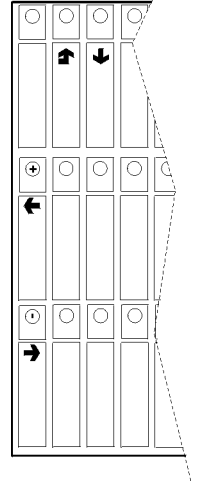
Function buttons A to G (see fig. 15)

Actuation in sequence of:

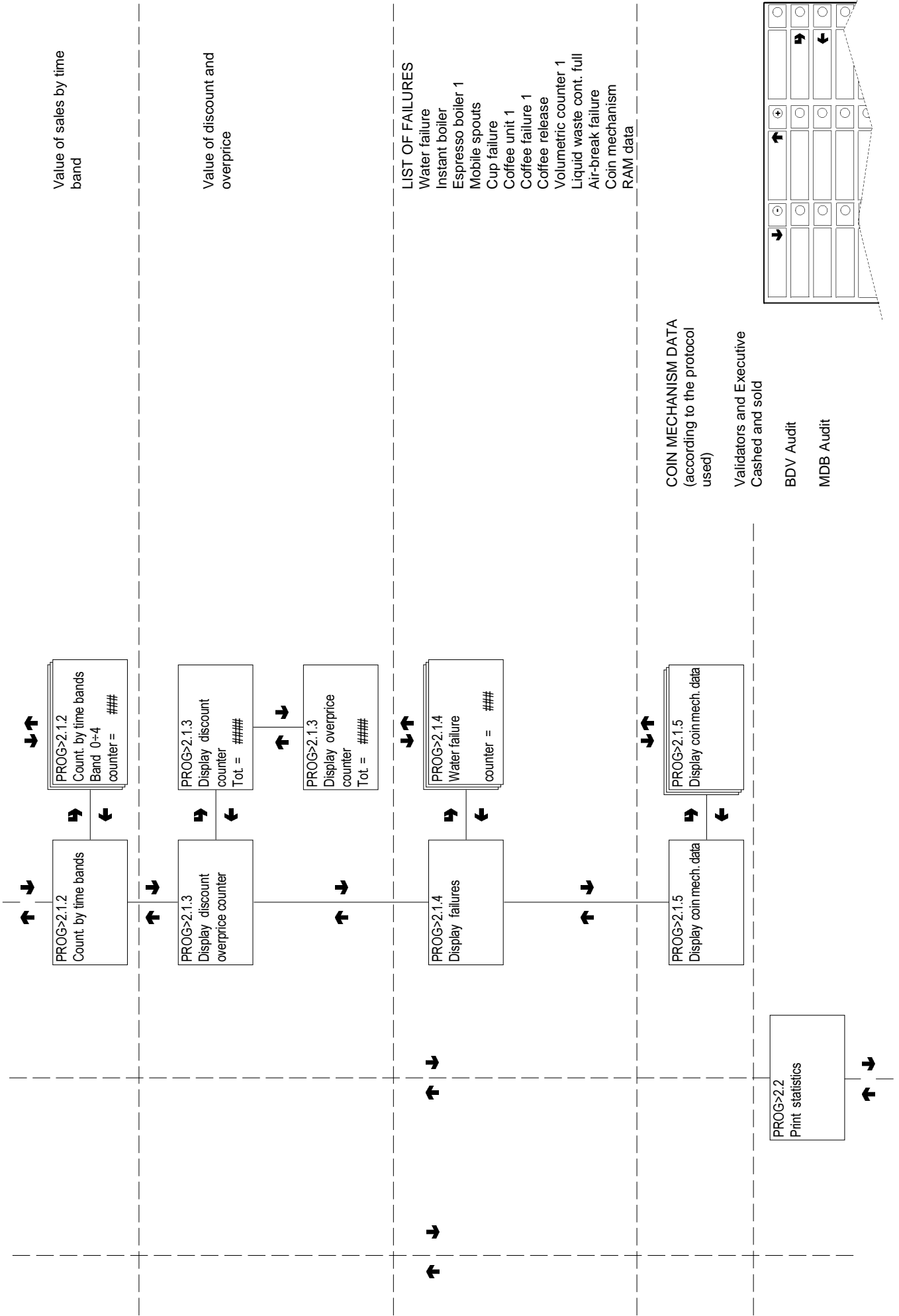
- .doser devices
- .mixers
- .cup dispenser
- .stirrer dispenser
- .neon lamps
- .door LED
- .bush-buttons*
- .mobile spouts
- .coffee dose
- .unit rotation
- .waste container full*

*** these functions require the assistance of the user to actuate the switches.**

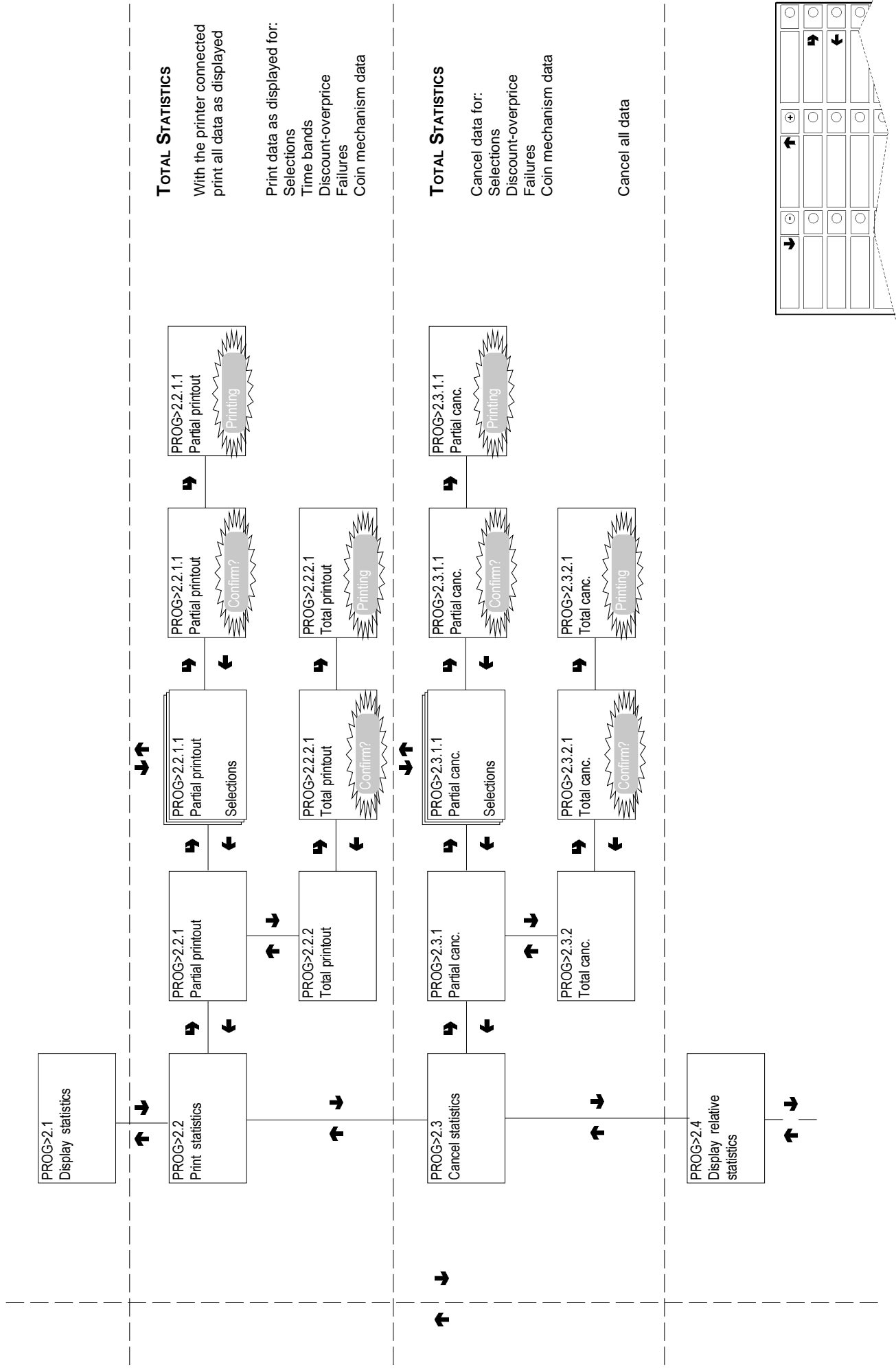
BDV only
Manual change tubes



Programming menu - Summary



Programming menu - Summary



TOTAL STATISTICS
 With the printer connected
 print all data as displayed

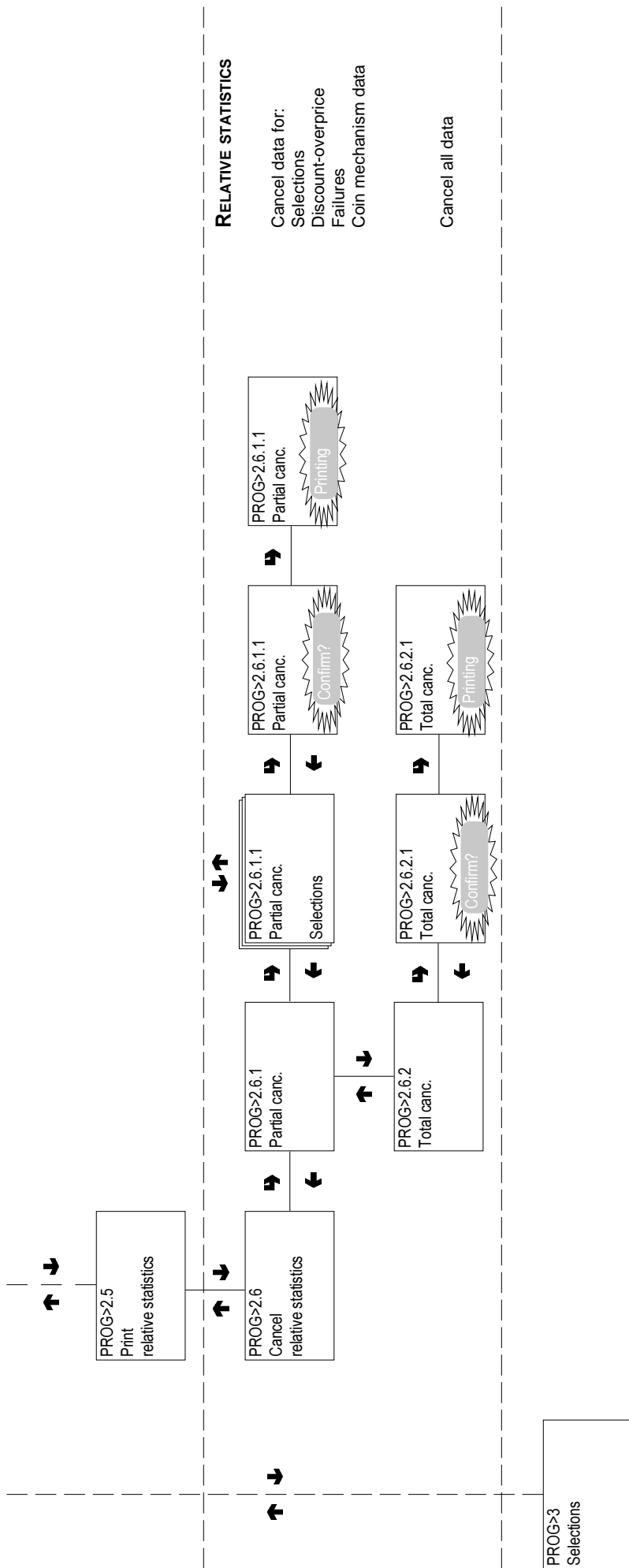
Print data as displayed for:
 Selections
 Time bands
 Discount-overprice
 Failures
 Coin mechanism data

TOTAL STATISTICS
 Cancel data for:
 Selections
 Discount-overprice
 Failures
 Coin mechanism data

Cancel all data

→	←	+	↑	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○

Programming menu - Summary



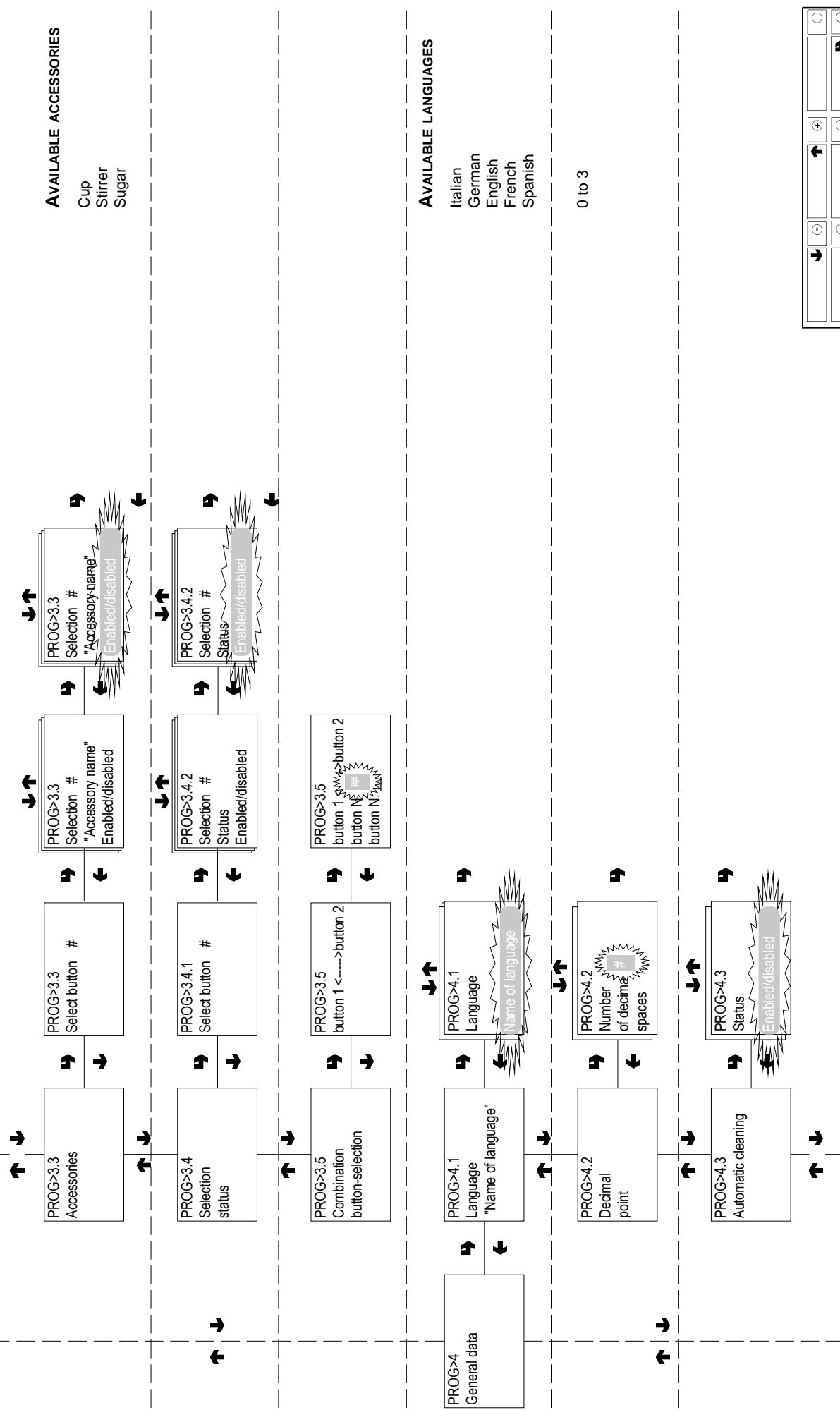
RELATIVE STATISTICS

- Cancel data for:
- Selections
- Discount-overprice
- Failures
- Coin mechanism data

Cancel all data

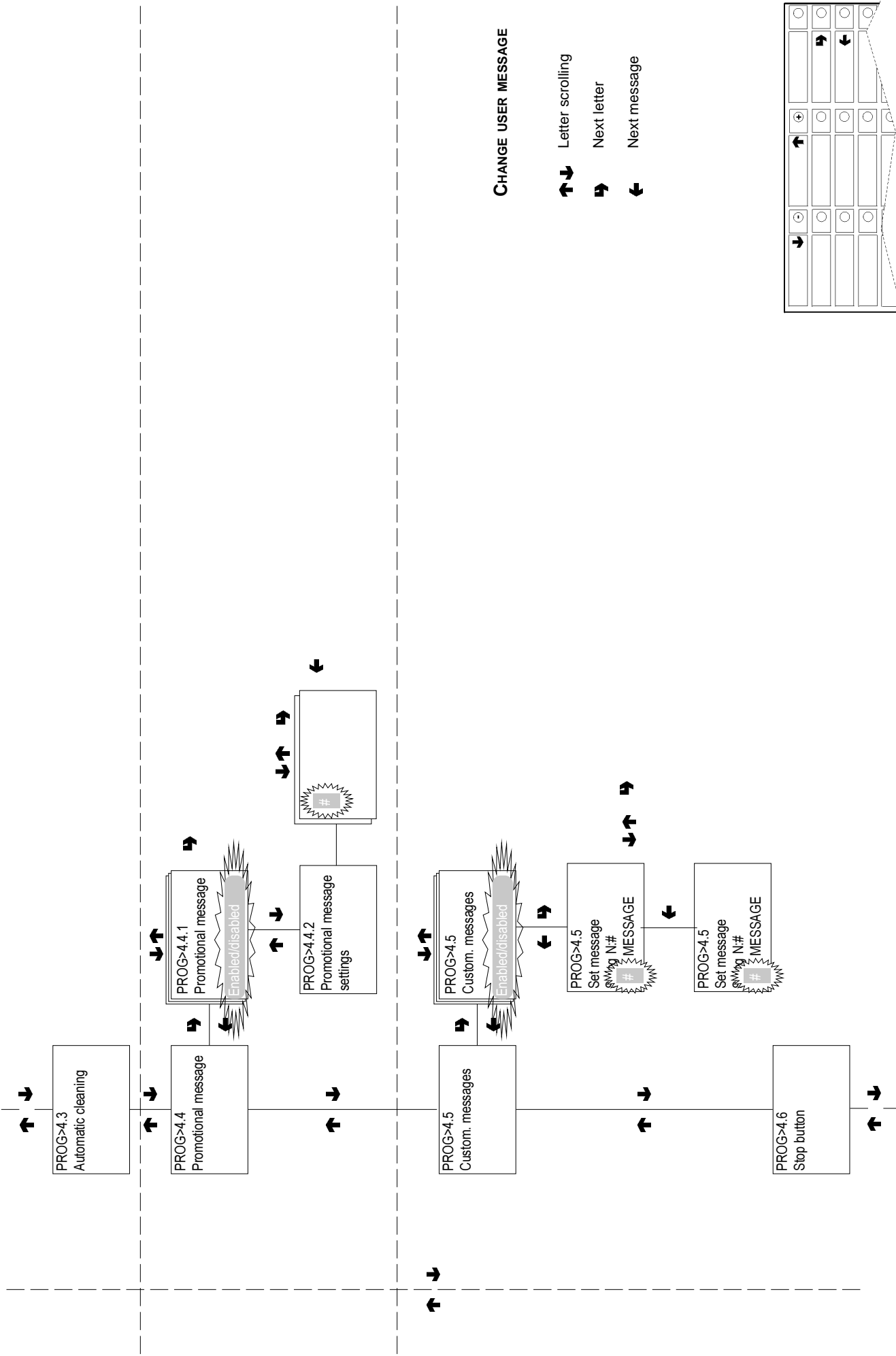
→	←	+	←	→	○	○	○	○
○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○

Programming menu - Summary



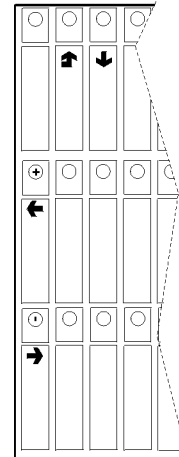
→	←	+	←	→	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○

Programming menu - Summary

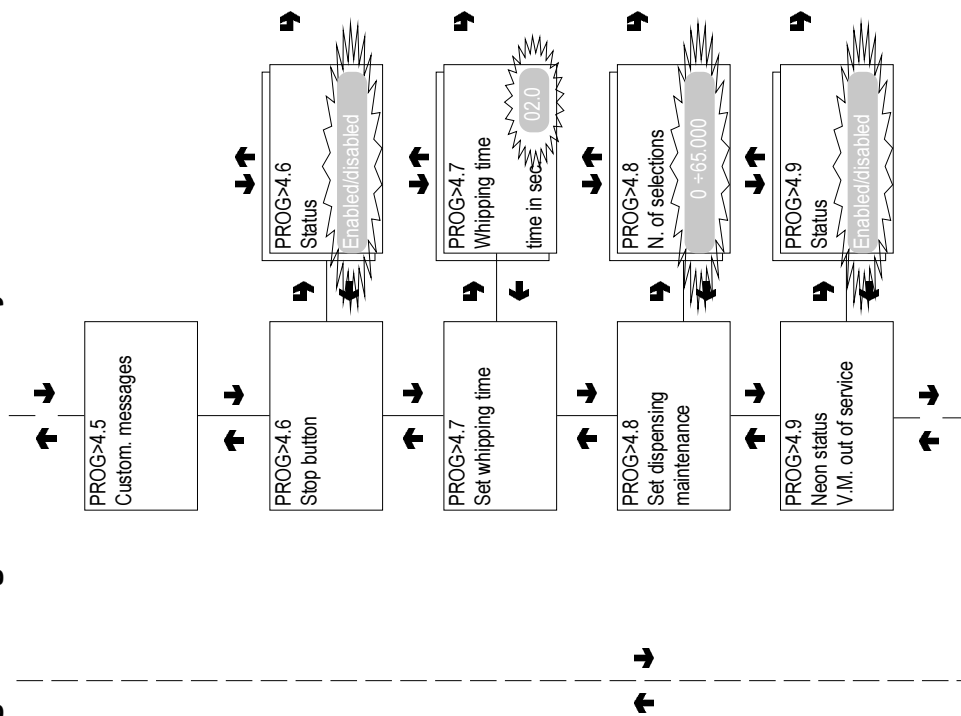


CHANGE USER MESSAGE

- ↕ Letter scrolling
- ➡ Next letter
- ⬅ Next message

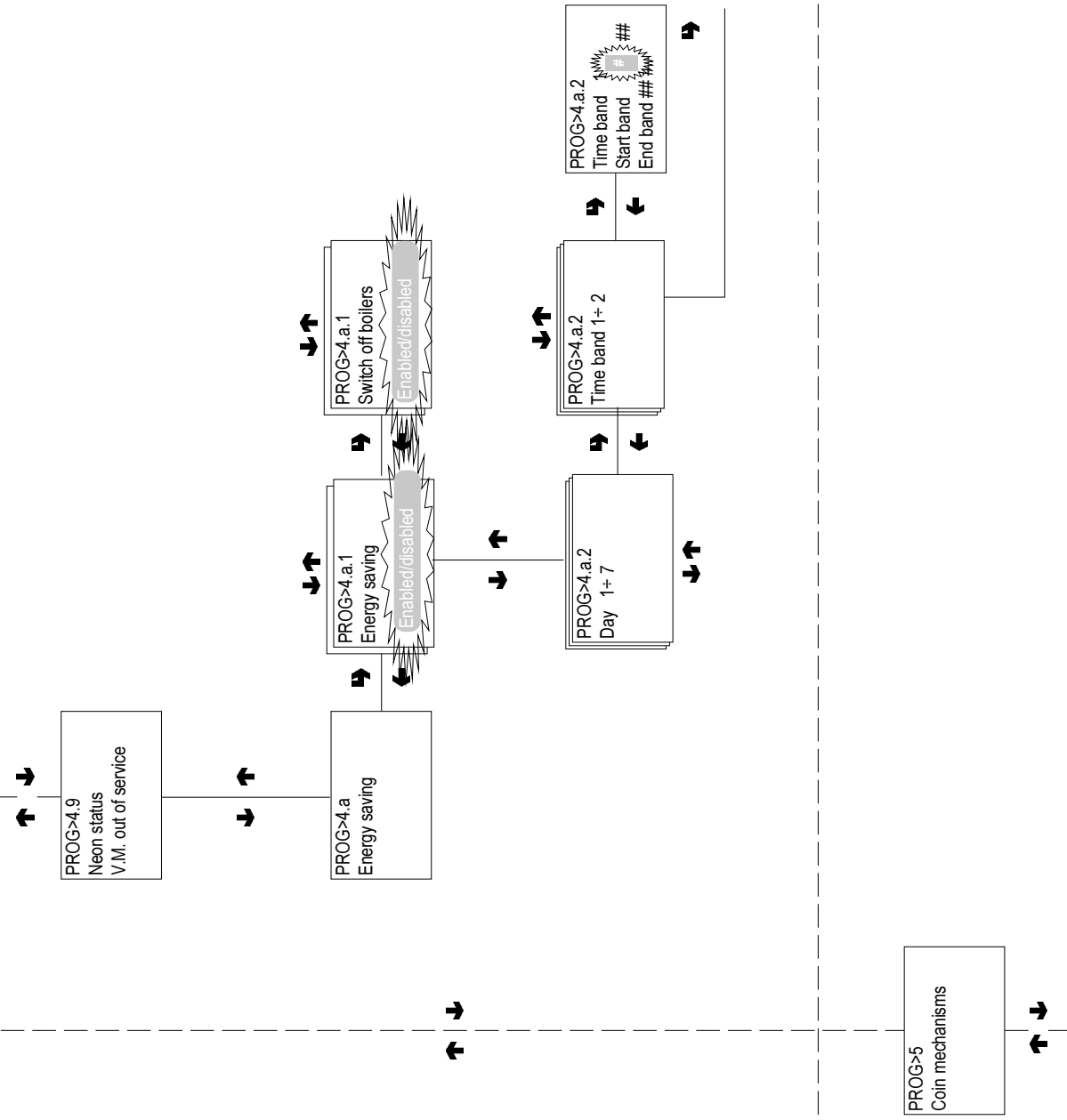


Programming menu - Summary



○	○	○	○
	➡	⬅	
+	○	○	○
⬅			
○	○	○	○
➡			

Programming menu - Summary

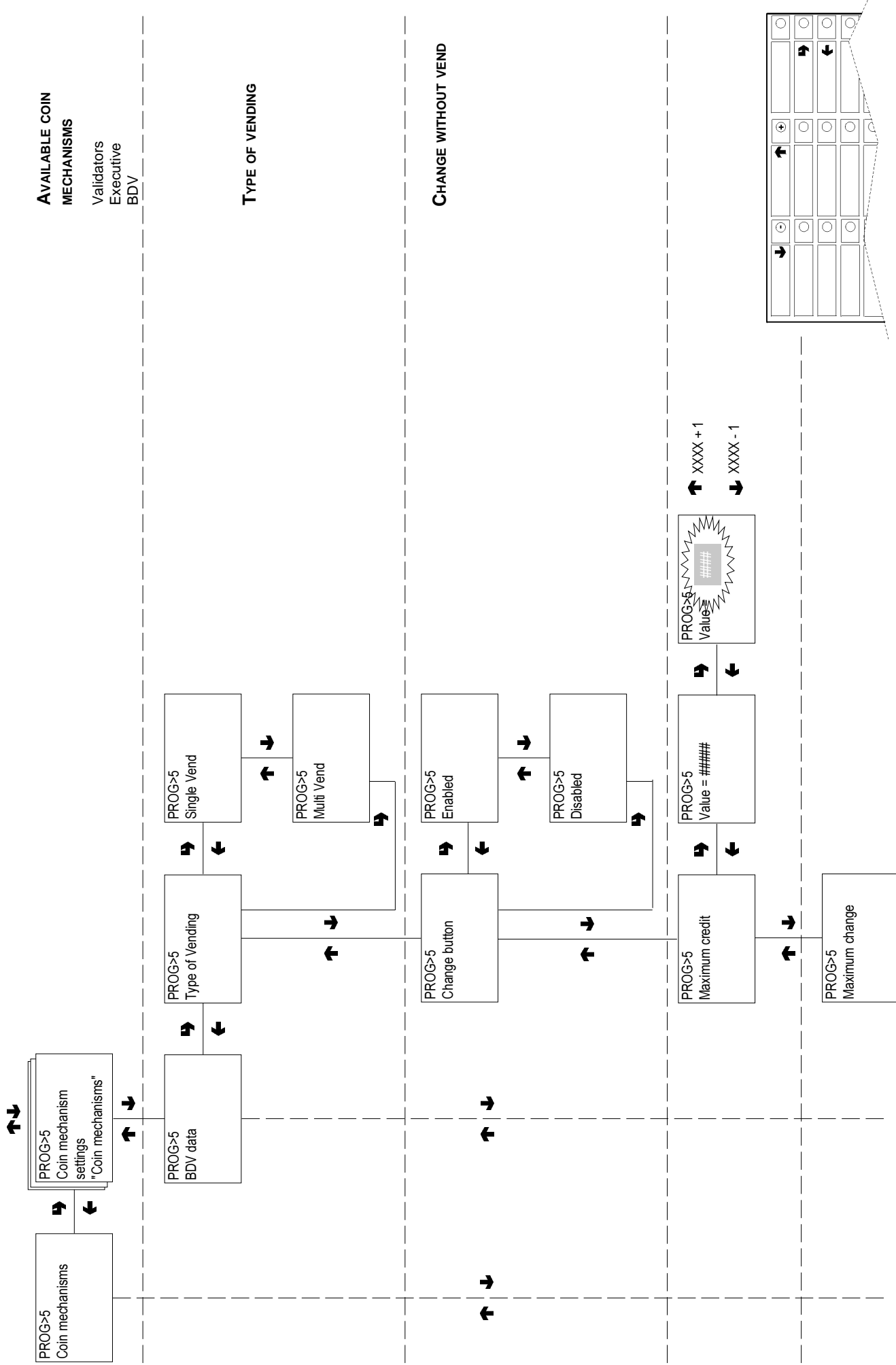


ENERGY SAVING

When the blinking values are confirmed the hour and minutes for each time band start and end are entered one after the other. If start and end values are set to 00.00 the time bands are deactivated

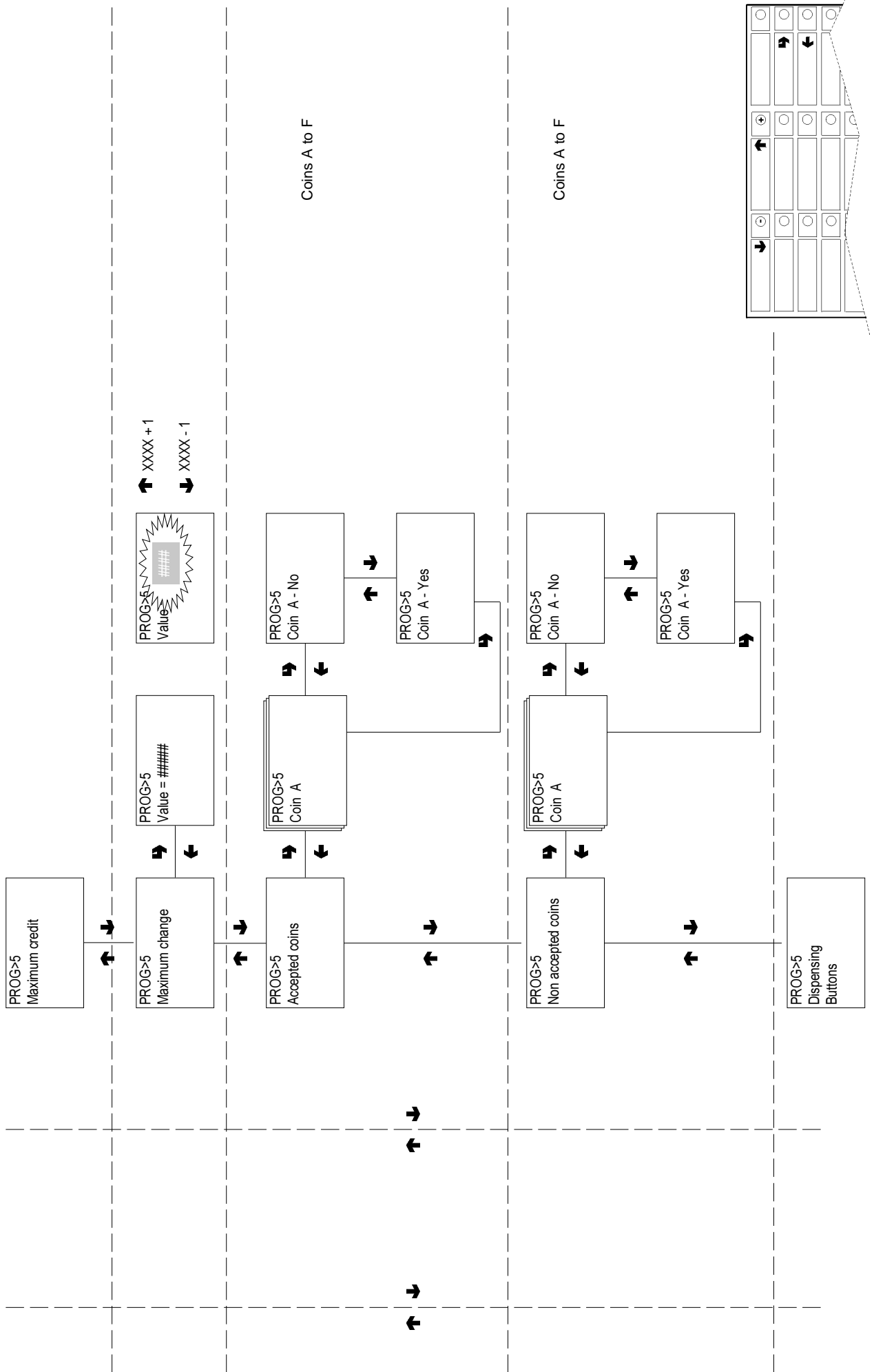
→	←	+	→	←	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○

Programming menu - Summary

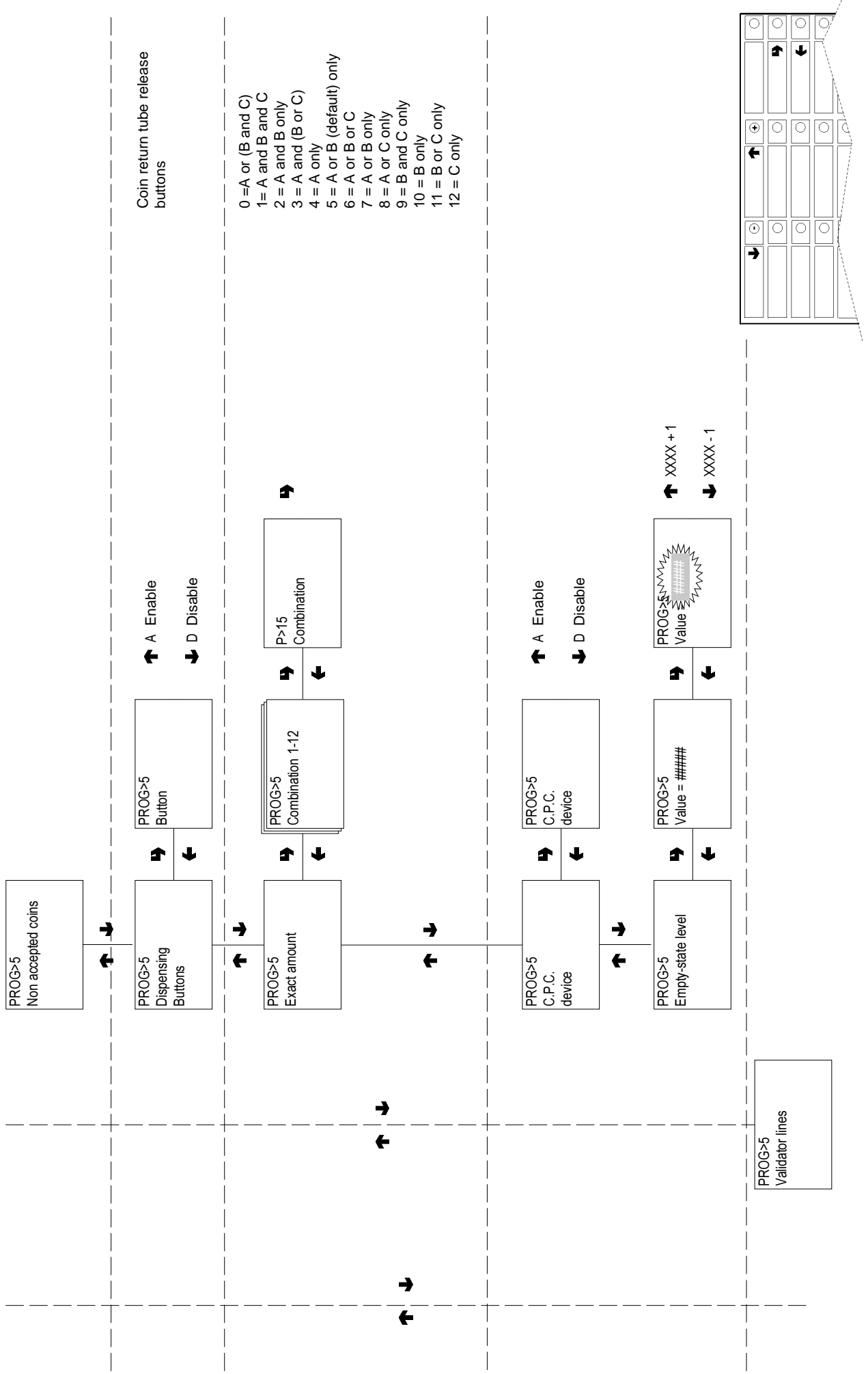


←	→	+	−	0	0	0	0	0	0
←	→	+	−	0	0	0	0	0	0
←	→	+	−	0	0	0	0	0	0
←	→	+	−	0	0	0	0	0	0

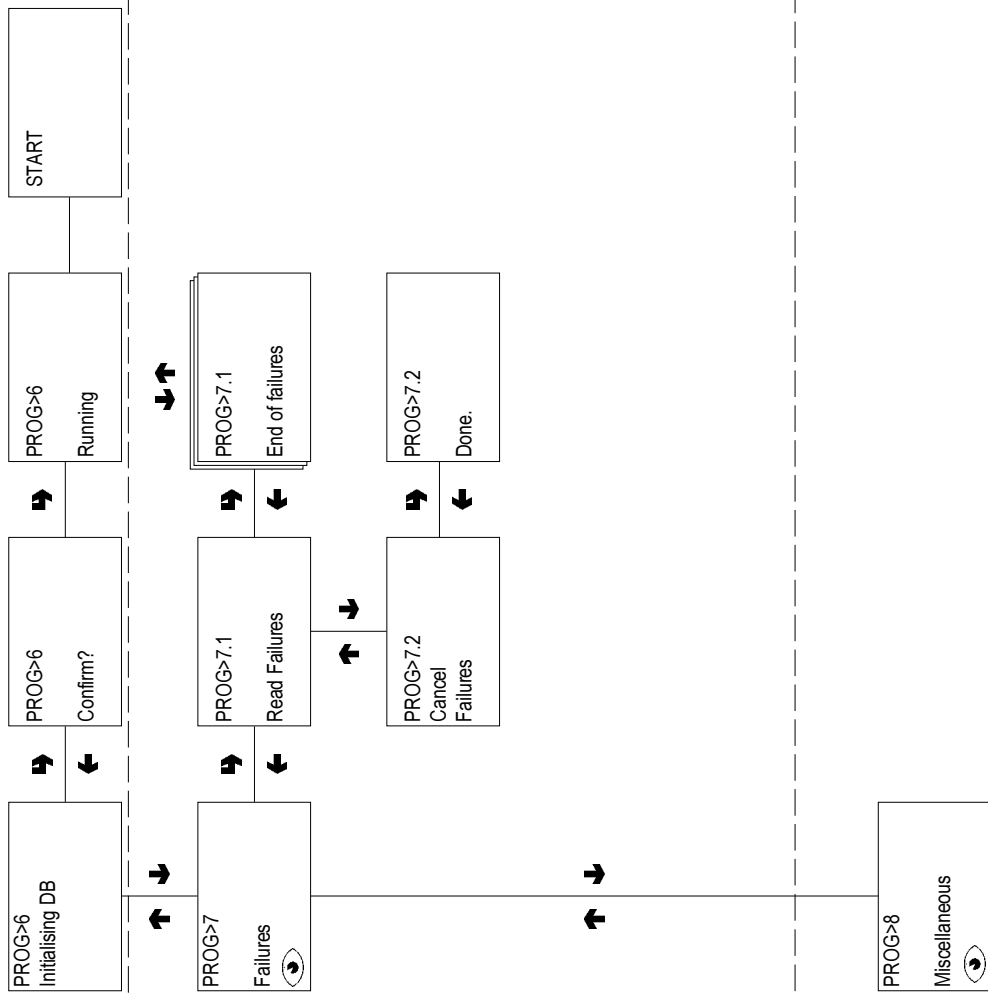
Programming menu - Summary



Programming menu - Summary



Programming menu - Summary



INITIALISING DATABASE

Menu displayed at all times

DISPLAY FAILURES

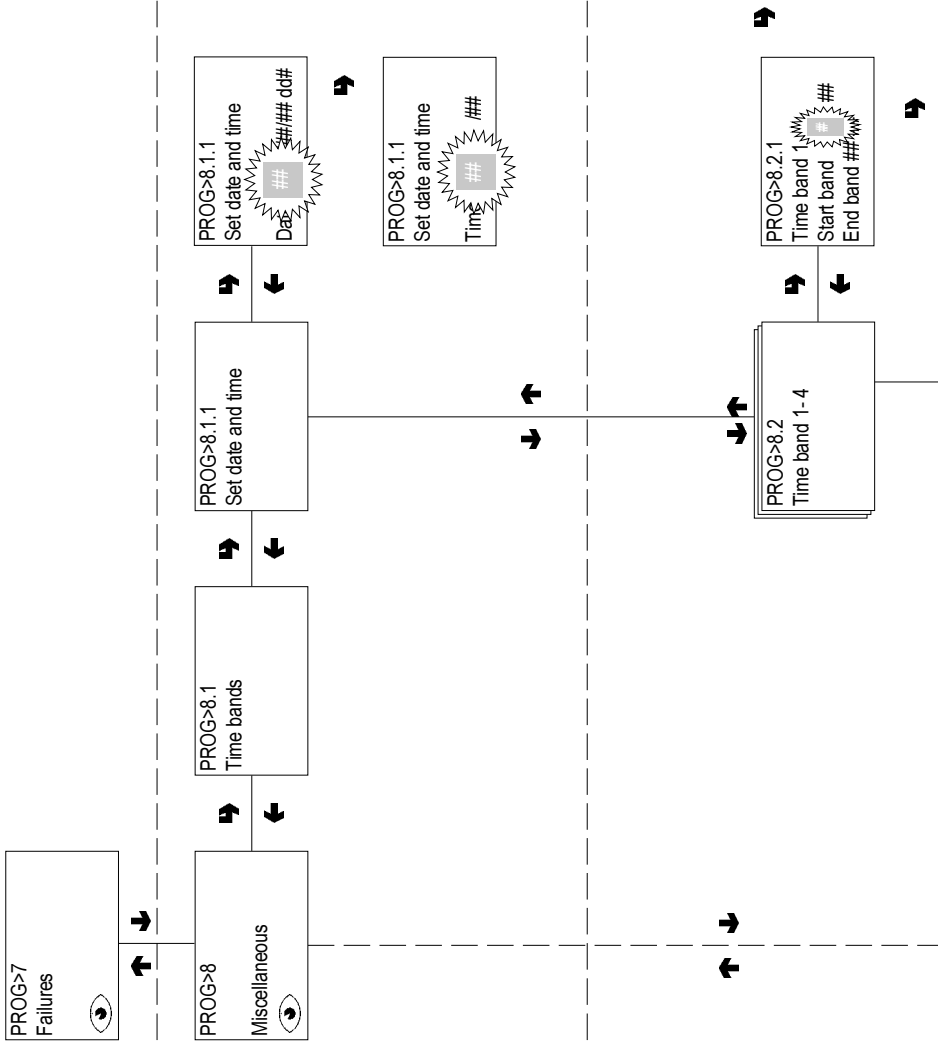
If there are no failures, when pressing button the message "End of failures" is displayed

LIST OF FAILURES

- Water failure
- Instant boiler
- Espresso boiler 1
- Mobile spouts
- Cup failure
- Coffee unit 1
- Coffee failure 1
- Coffee release
- Volumetric counter 1
- Liquid waste cont. full
- Air-break failure
- Coin mechanism
- RAM data

Menu displayed at all times, for 8.d only

Programming menu - Summary



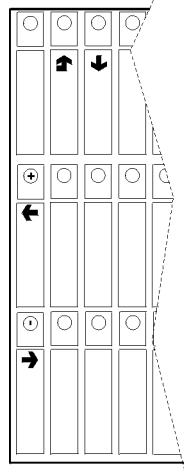
Menu displayed at all times, for 8.d only

CLOCK

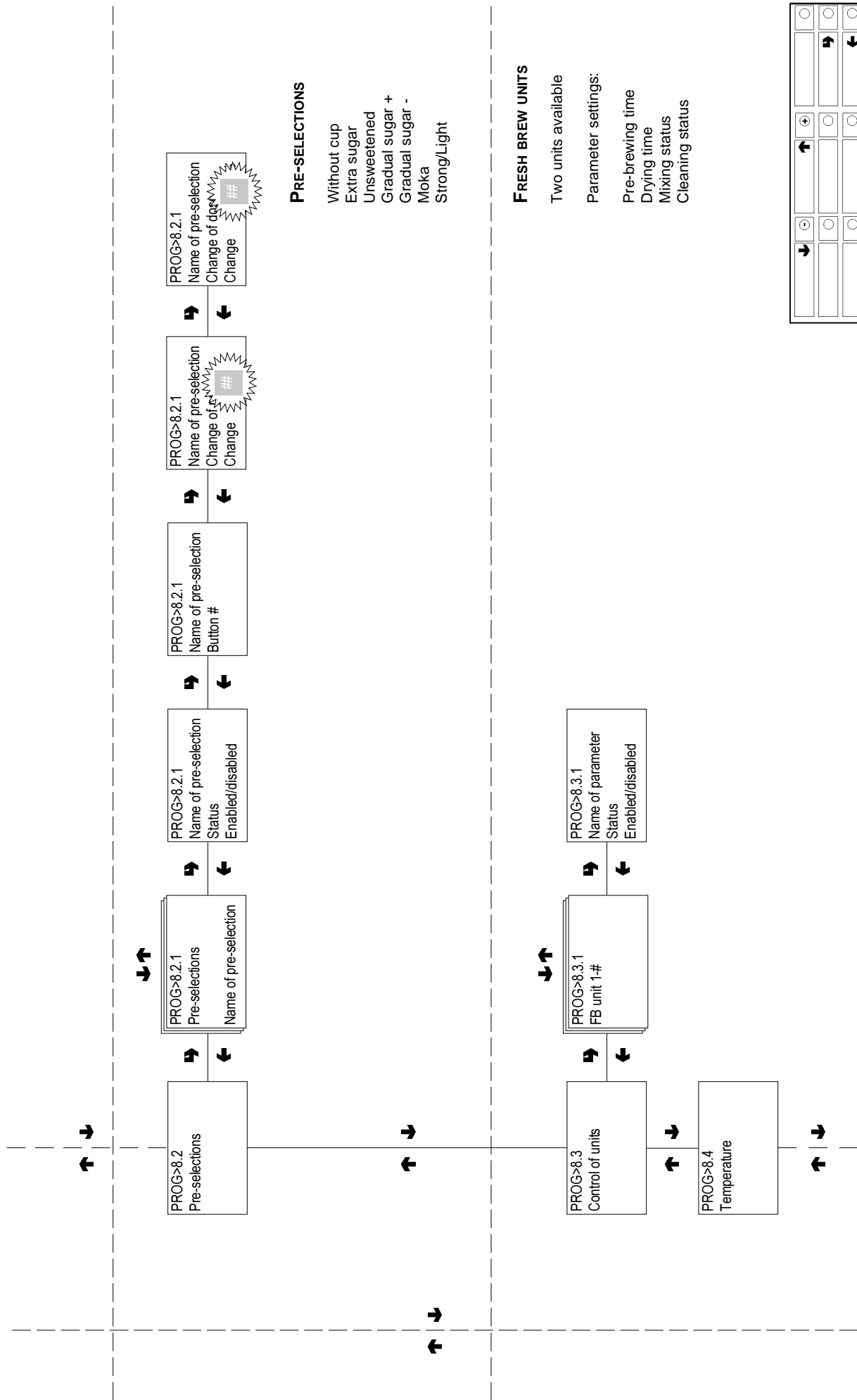
When confirming the blinking values, day, month, year and week day are entered one after the other: When confirming the week day hour and minutes are displayed, which can then be changed and confirmed.

TIME BANDS

When confirming the blinking values, hour and minute for start and end of time band are entered one after the other. When start and end of time band are set to 24.00 the bands are not activated



Programming menu - Summary

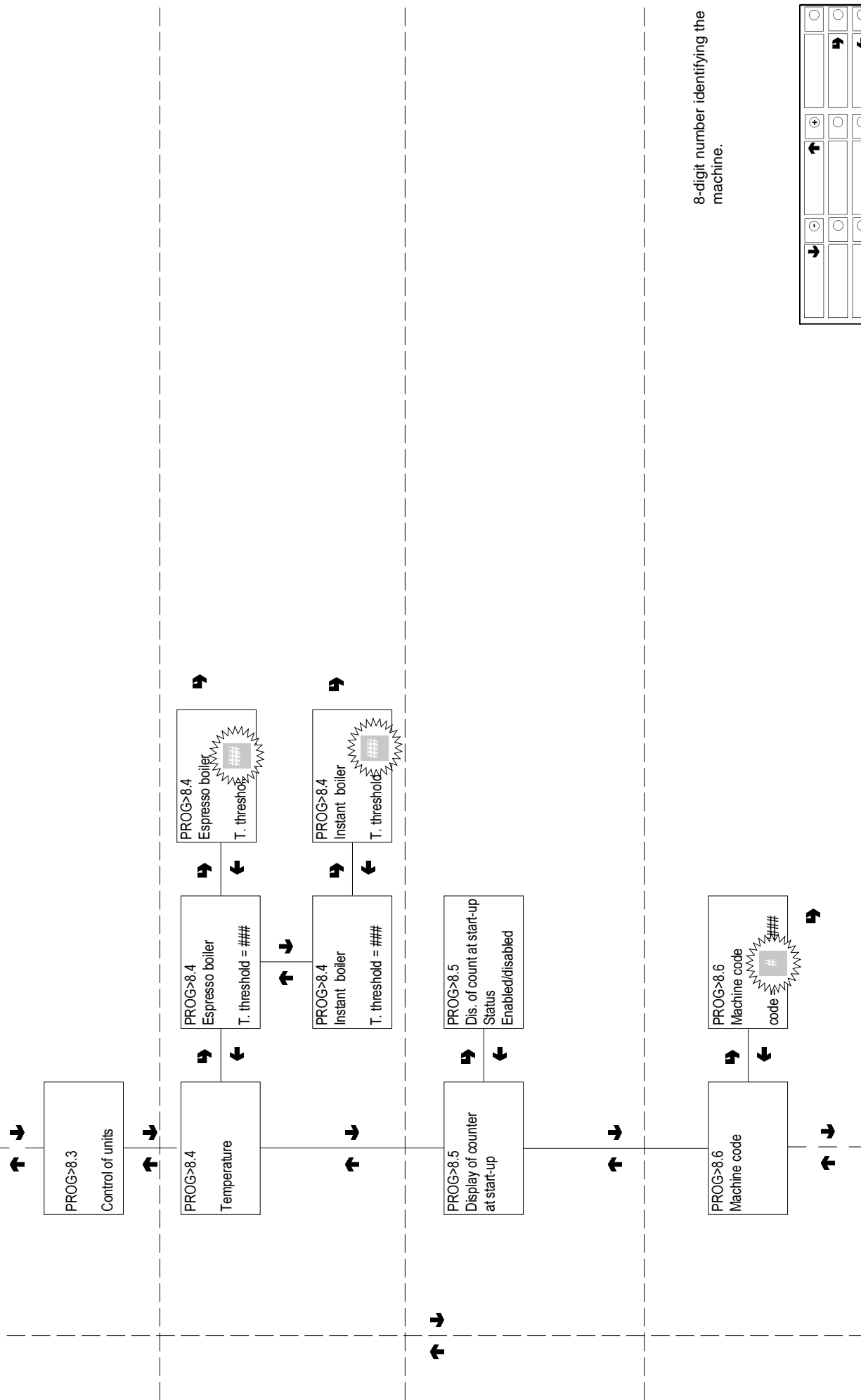


→	←	+	←	→	←
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○

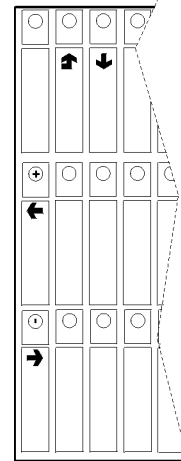
FRESH BREW UNITS

- Two units available
- Parameter settings:
 - Pre-brewing time
 - Drying time
 - Mixing status
 - Cleaning status

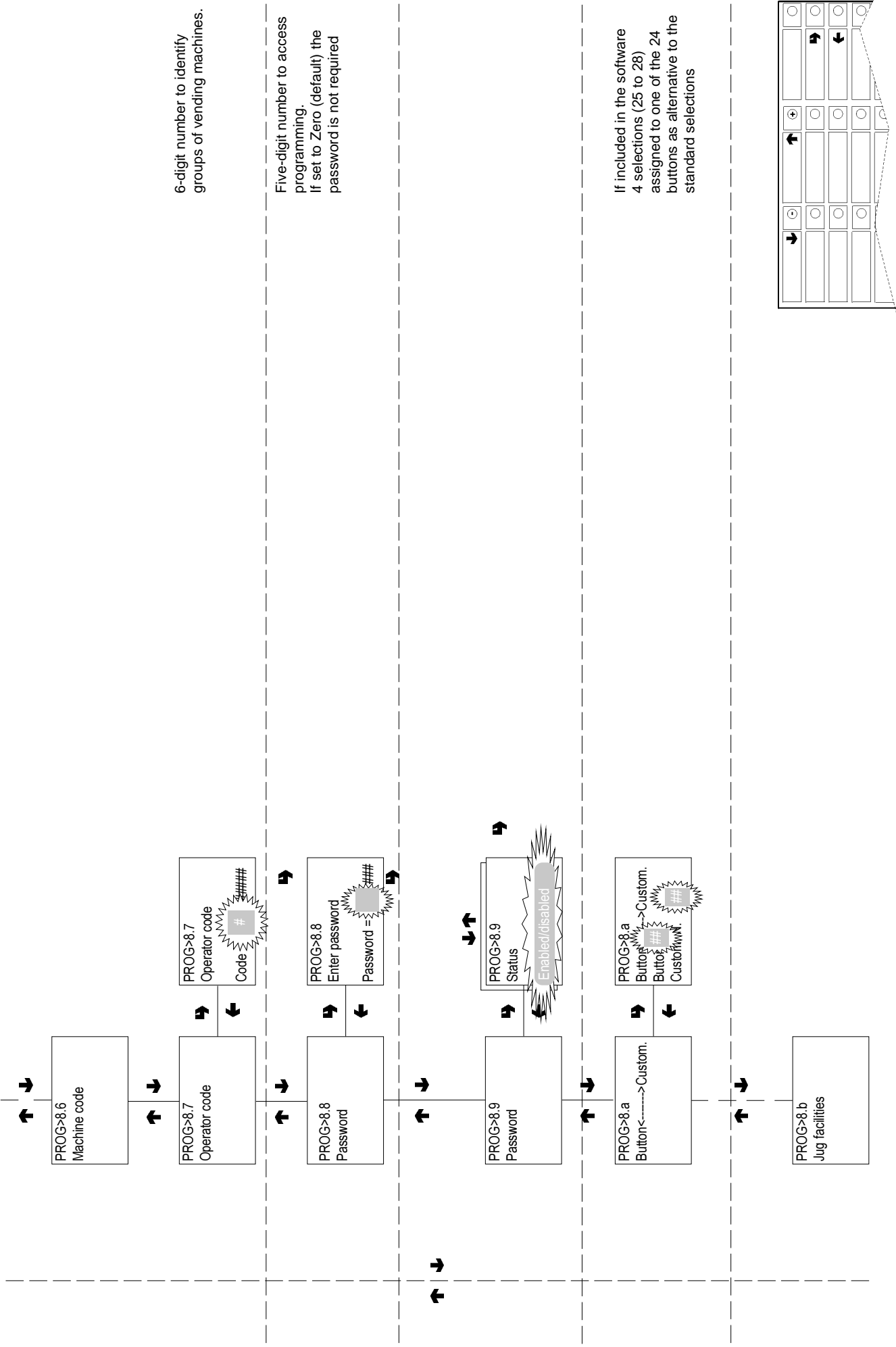
Programming menu - Summary



8-digit number identifying the machine.



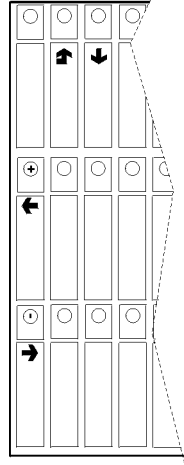
Programming menu - Summary



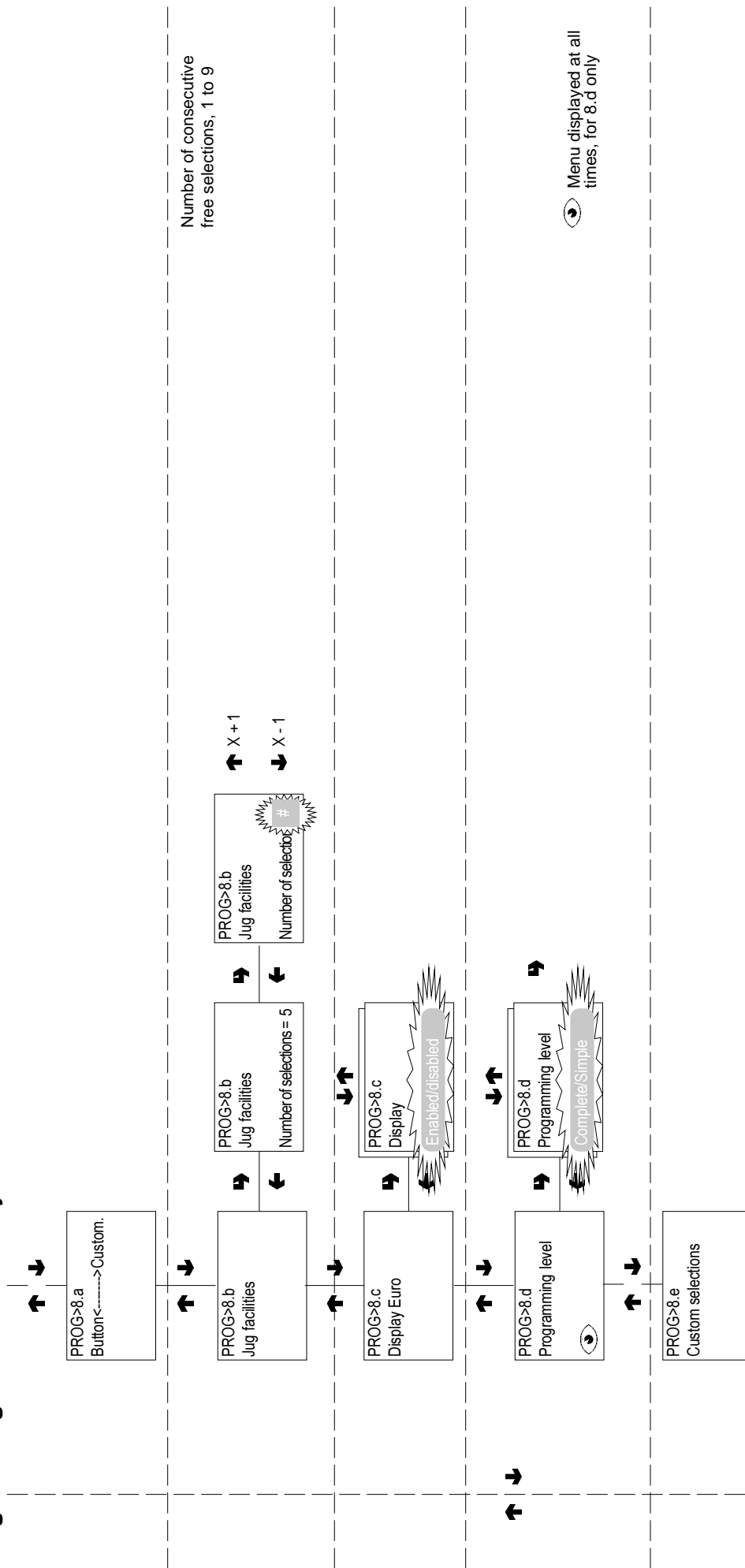
6-digit number to identify groups of vending machines.

Five-digit number to access programming.
If set to Zero (default) the password is not required

If included in the software 4 selections (25 to 28) assigned to one of the 24 buttons as alternative to the standard selections



Programming menu - Summary



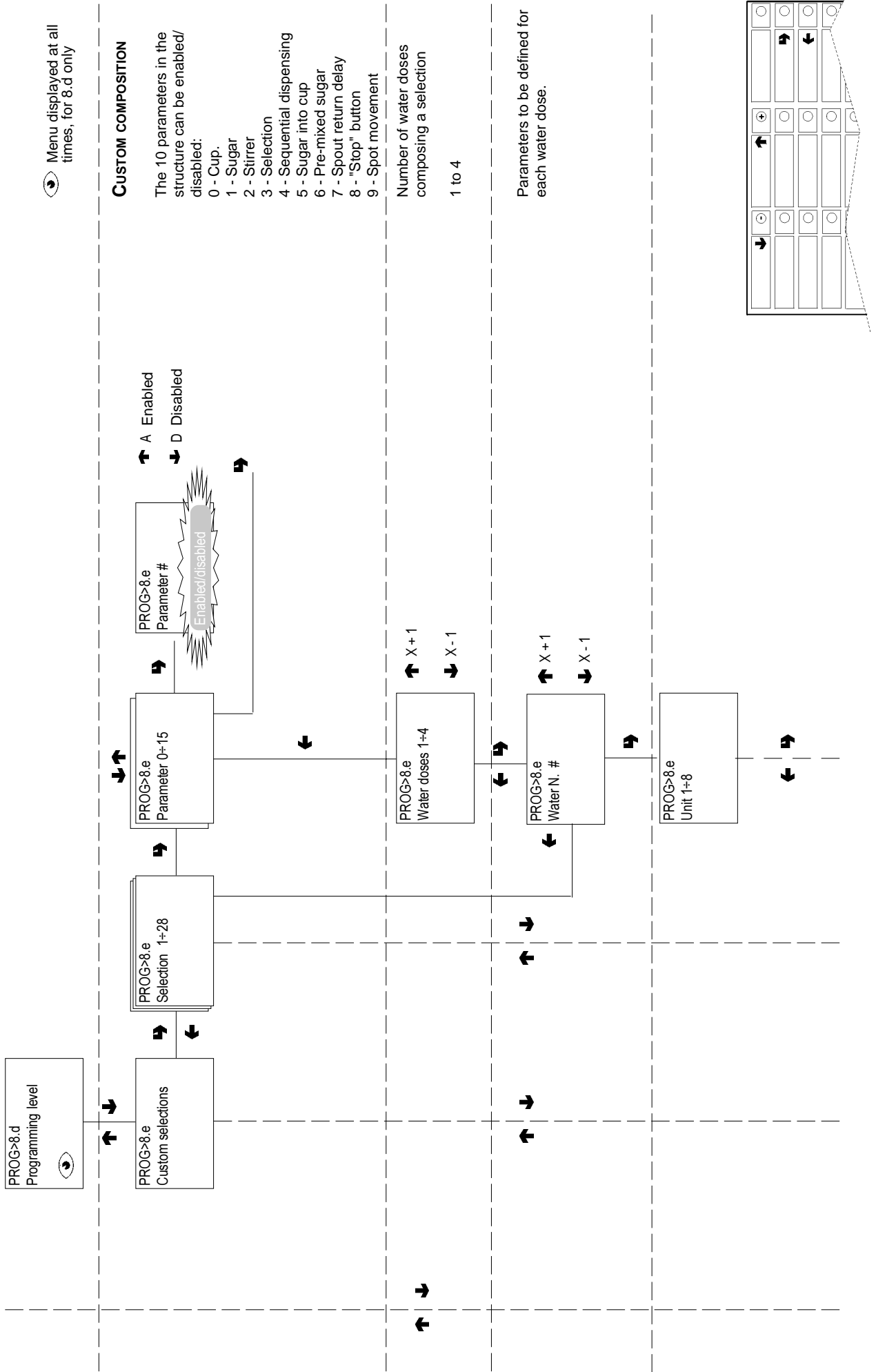
Number of consecutive free selections, 1 to 9

↕ X + 1
↕ X - 1

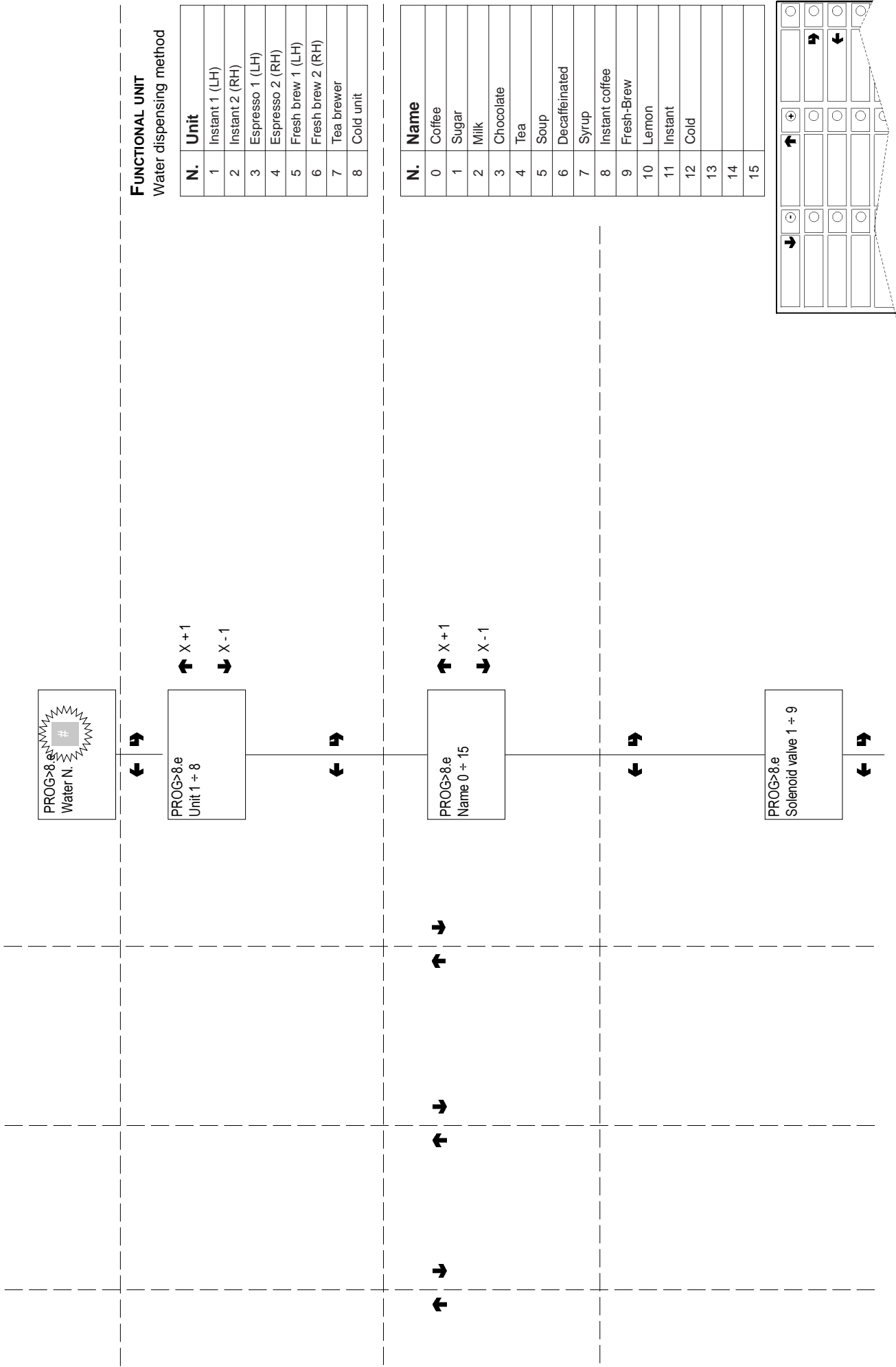
👁️ Menu displayed at all times, for 8.d only

○	○	○	○	○	○	○	○	○	○
➔	➔	➔	➔	➔	➔	➔	➔	➔	➔
➔	➔	➔	➔	➔	➔	➔	➔	➔	➔
➔	➔	➔	➔	➔	➔	➔	➔	➔	➔
➔	➔	➔	➔	➔	➔	➔	➔	➔	➔
➔	➔	➔	➔	➔	➔	➔	➔	➔	➔
➔	➔	➔	➔	➔	➔	➔	➔	➔	➔
➔	➔	➔	➔	➔	➔	➔	➔	➔	➔
➔	➔	➔	➔	➔	➔	➔	➔	➔	➔
➔	➔	➔	➔	➔	➔	➔	➔	➔	➔

Programming menu - Summary



Programming menu - Summary

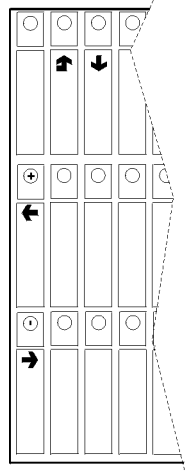


FUNCTIONAL UNIT

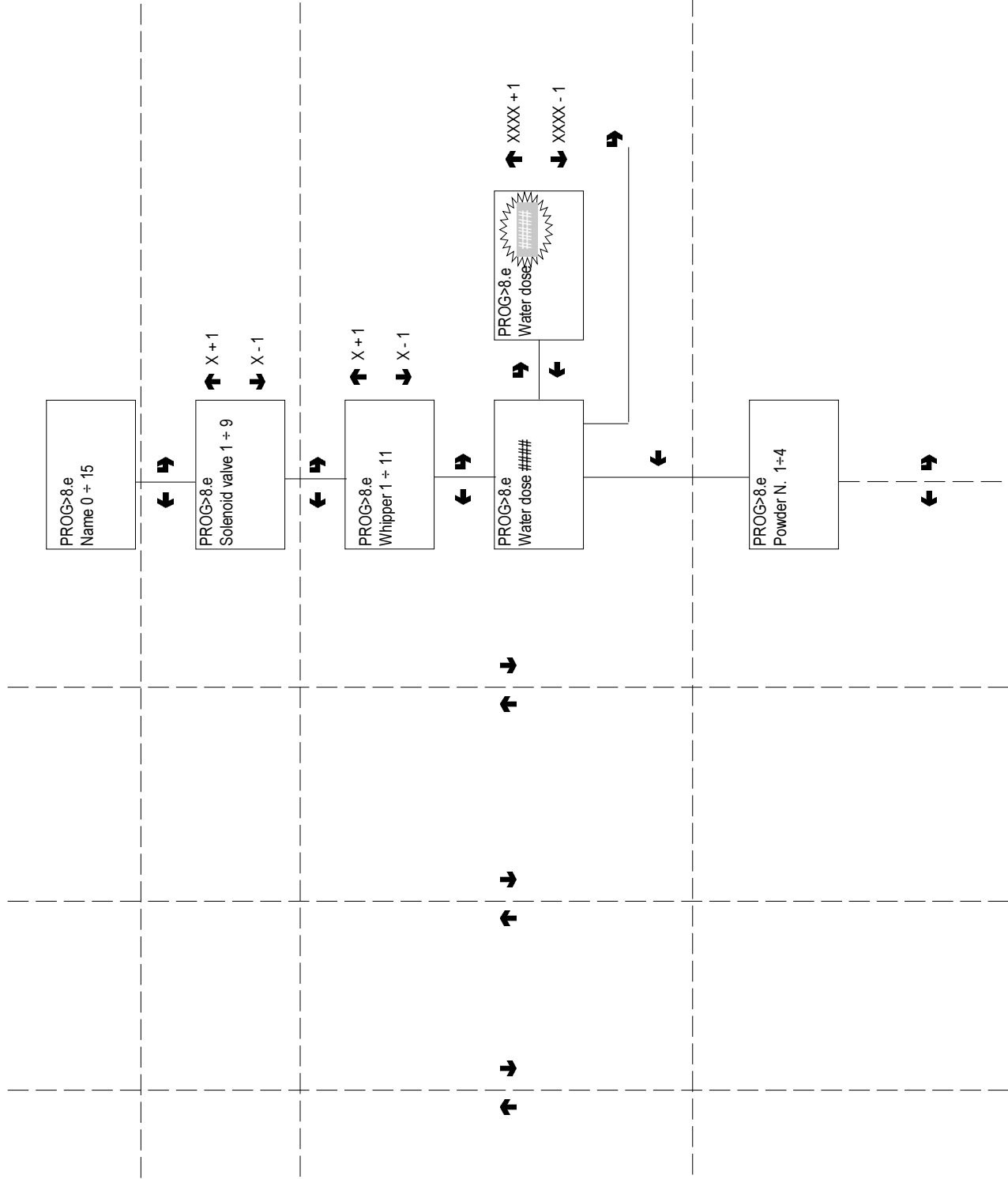
Water dispensing method

N.	Unit
1	Instant 1 (LH)
2	Instant 2 (RH)
3	Espresso 1 (LH)
4	Espresso 2 (RH)
5	Fresh brew 1 (LH)
6	Fresh brew 2 (RH)
7	Tea brewer
8	Cold unit

N.	Name
0	Coffee
1	Sugar
2	Milk
3	Chocolate
4	Tea
5	Soup
6	Decaffeinated
7	Syrup
8	Instant coffee
9	Fresh-Brew
10	Lemon
11	Instant
12	Cold
13	
14	
15	

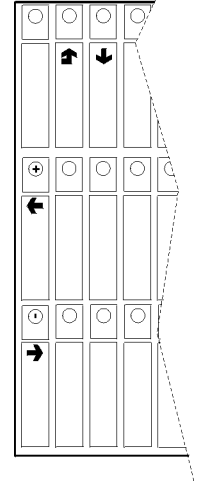
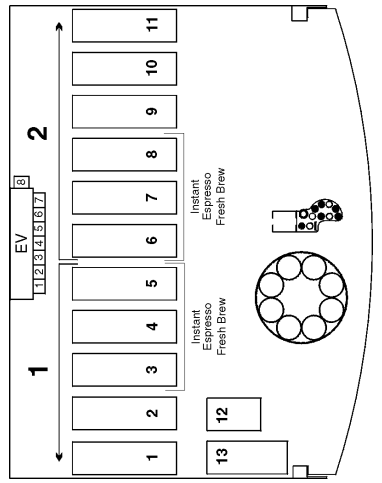


Programming menu - Summary

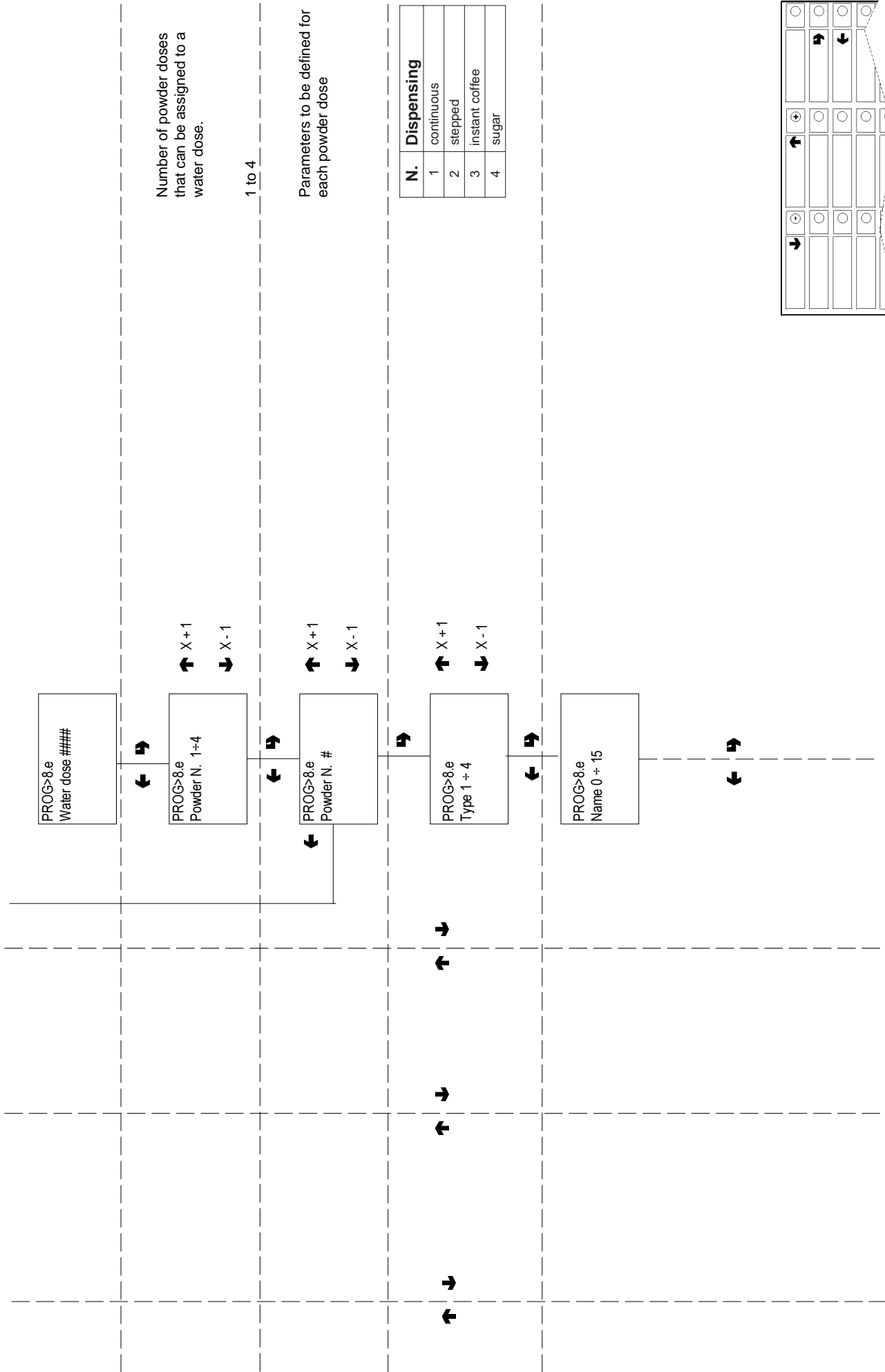


DEFINITION OF USERS LAYOUT

Functional unit	
Instant Fresh-brew Tea brewer	Espresso Cold unit
1 instant boiler	dispensing coffee 1 water powder 1
2 instant boiler	dispensing coffee 2 plain water
3 instant boiler	water powder 2
4 instant boiler	soda
5-8 instant boiler	
9 not applicable for these models	

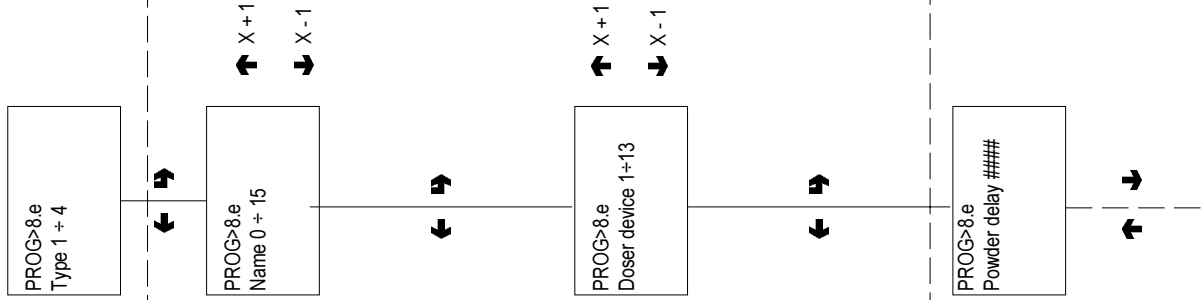


Programming menu - Summary



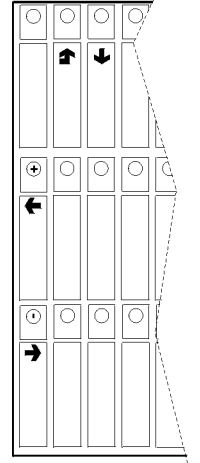
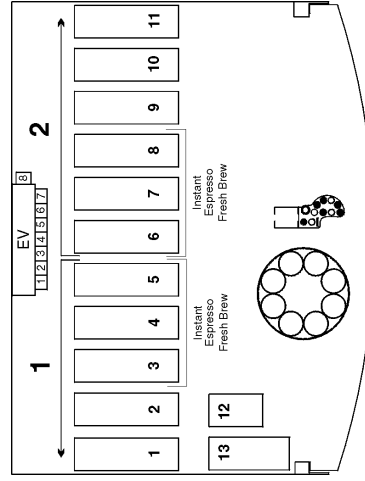
Programming menu - Summary

N.	Name
0	Coffee
1	Sugar
2	Milk
3	Chocolate
4	Tea
5	Soup
6	Decaffeinated
7	Syrup
8	Instant coffee
9	Fresh-Brew
10	Lemon
11	Instant
12	Cold
13	
14	
15	

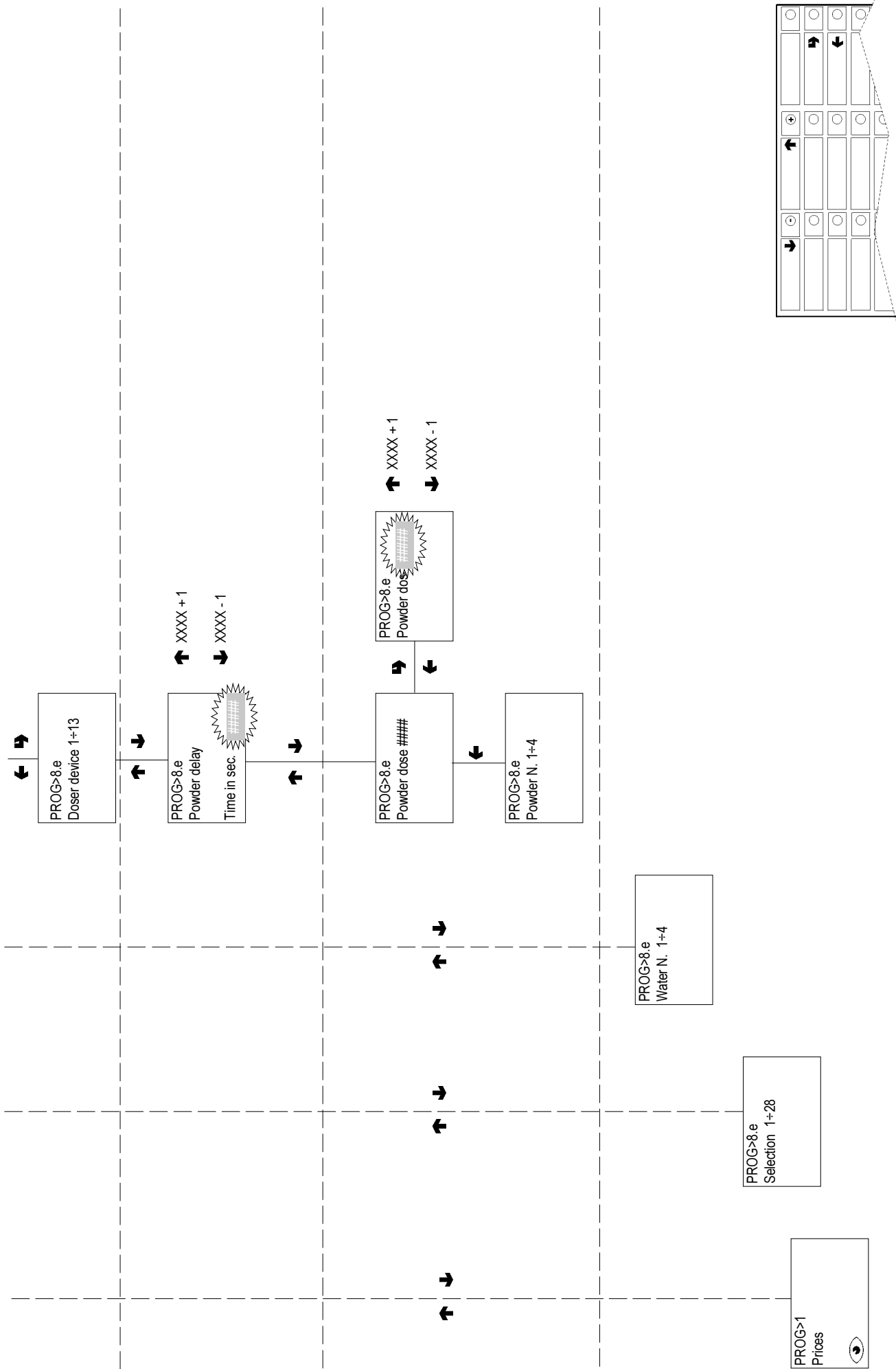


WARNING!

If the powder name is defined as "Syrup", doser devices 1 and 2 will be assigned to the syrup dispensers.

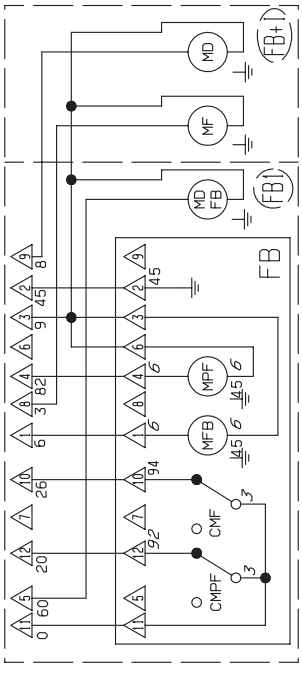
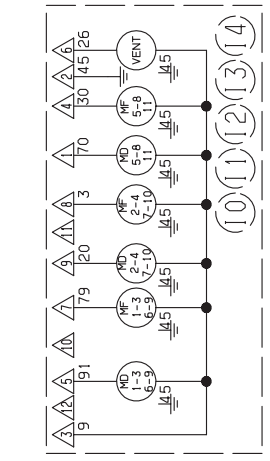
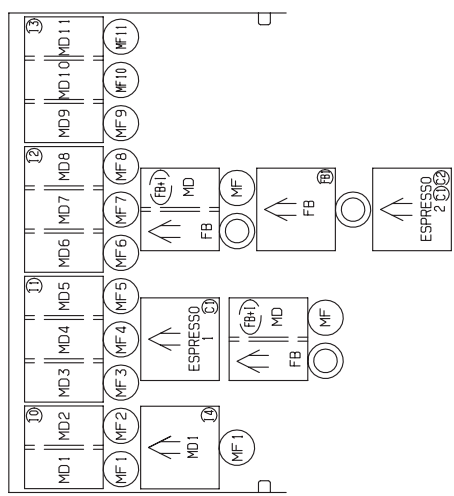
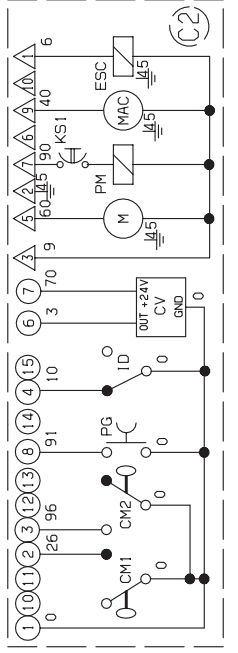
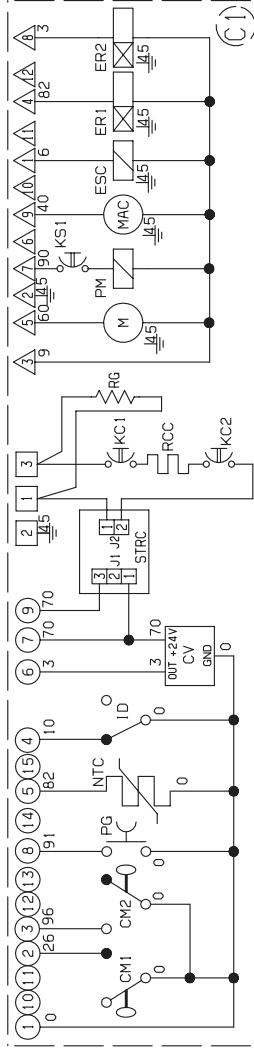
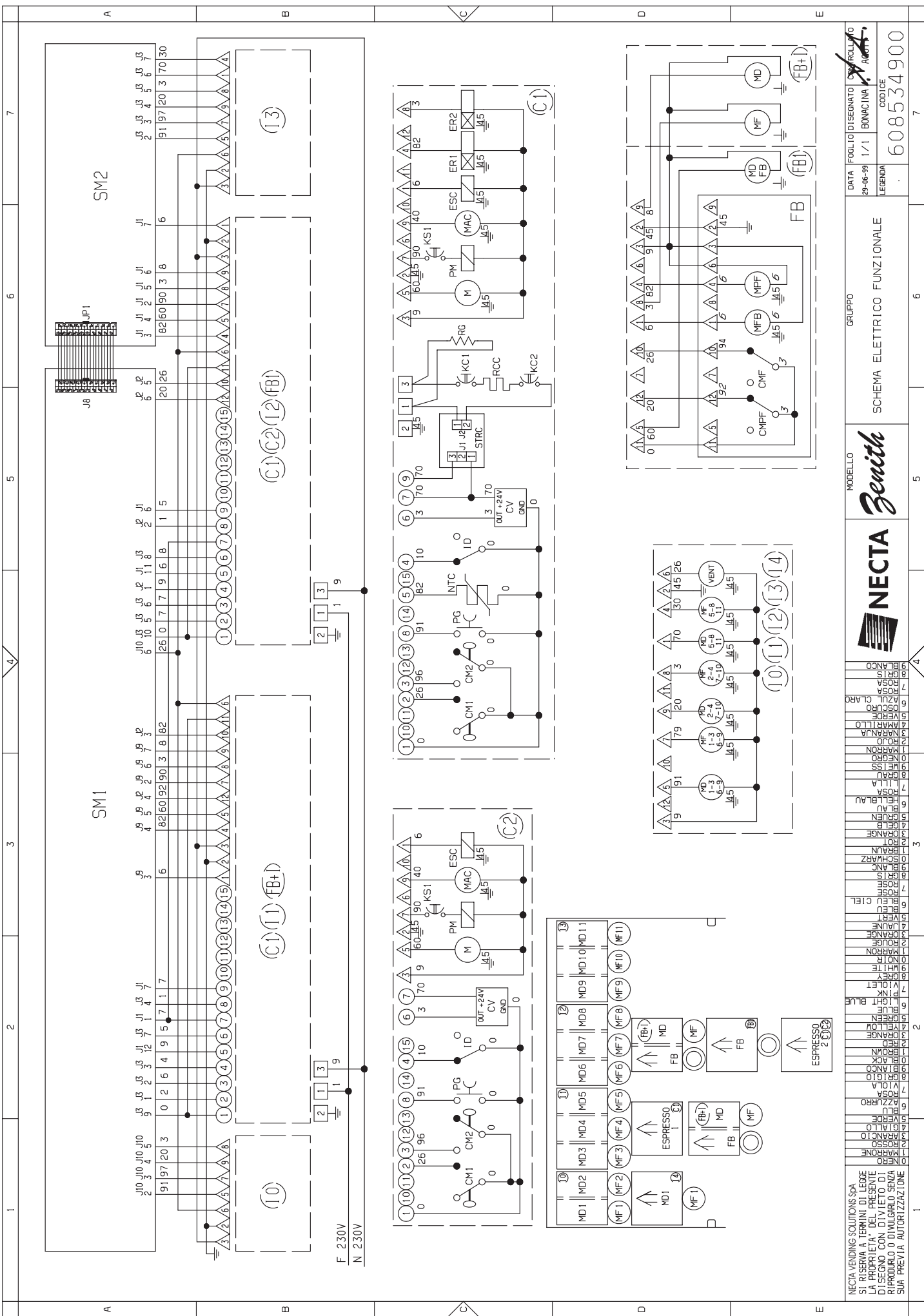


Programming menu - Summary



WIRING DIAGRAM LEGEND

INITIALS	DESCRIPTION	INITIALS	DESCRIPTION
BDV	BDV COIN MECH CONNECTORS	MPF	FRESH BREW PISTON MOTOR
CCG	GENERAL COUNTER	MPU	SPOUT POSITIONING MICROSWITCH
CM1	COFFEE UNIT MOTOR CAM	MSB	CUP RELEASE MOTOR
CM2	COFFEE DISPENSER POSITION CAM	MSCB	CUP CONTAINER SHIFT MOTOR
CMF	FRESH BREW MOTOR CAM	MSP	STIRRER RELEASE MOTOR
CMPF	FRESH BREW UNIT PISTON MICROSWITCH	MSU	SPOUT MOVING MOTOR
CMSB	CUP RELEASE MOTOR CAM	MVP	EMPTY STIRRER DISPENSER MOTOR
CV	VOLUMETRIC COUNTER	NTC1..	TEMPERATURE PROBE
EEA	WATER INLET SOLENOID VALVE	NTCS	INSTANT BOILER TEMPERATURE PROBE
ER	COFFEE DISPENSER SOLENOID VALVE	PAG	FAILURE RESET BUTTON
ESC	COFFEE RELEASE MAGNET	PB	POWER SUPPLY SOCKET
EV	SANITISING KIT SOLENOID VALVE	PD	DIODE RECTIFIER
EX	EXECUTIVE COIN MECH CONNECTOR	PG	UNIT DETECTION MICROSWITCH
FA	RADIO INTERFERENCE SUPPRESSOR	PIP	PROGRAMMING BUTTON
FREE	FREE VENDING SWITCH	PM	PUMP
I	SANITISING KIT SWITCH	PSB	CUP RELEASE BUTTON
ID	COFFEE DOSE SWITCH	RCC	COFFEE BOILER HEATING ELEMENT
IMSP	STIRRER RELEASE MICRO-SWITCH	RG	UNIT HEATING ELEMENT
IP	DOOR SWITCH	RS232	SERIAL PORT
IPF	WASTE CONTAINER OVERFLOW SWITCH	RT	BALLAST
IVA	EMPTY BOILER MICRO-SWITCH	SAL	VOLTAGE SUPPLY BOARD
IVB	EMPTY CUP DISPENSER MICRO SWITCH	SLCD	LIQUID CRYSTAL DISPLAY
IVP	EMPTY STIRRER DISPENSER MICRO-SWITC	SLED	LED BOARD
JUG	JUG FACILITIES SWITCH	SM1	CONTROL BOARD
KC1-..	COFFEE BOILER CUTOUT	SM2	EXPANSION BOARD
KS1-..	SAFETY CUTOUT	SP	PUSH-BUTTON BOARD
LF	LAMP	ST	STARTER
M	COFFEE UNIT MOTOR	STRC	BOILER HEATING TRIAC BOARD
MAC	GRINDER	SUC	C.P.U. BOARD
MD1-..	DOSER DEVICES - INSTANT	TR	TRANSFORMER
MDB	CONNECTOR FOR MDB COIN MECHANISM	TX....	DELAYED FUSE (X=COURRENT)
MDFB	DOSER DEVICE - FRESH BREW	TZ	CUP SENSOR
MDZ	DOSER DEVICE - SUGAR	UPS	COLD UNIT PRINTED BOARD
MF1-..	WHIPPERS	VENT	FAN
MFB	FRESH-BREW MOTOR		



NECTA VENDING SOLUTIONS SPA SI RISERVA LA PROPRIETA' DEL PRESENTE DI SEGNO CON DIVIETO DI RIPRODURRE O DIVULGARLO SENZA SUA PREVIA AUTORIZZAZIONE.	NECTA	MODELLO <i>Benith</i>	GRUPPO SCHEMA ELETTRICO FUNZIONALE	DATA 29-06-99	FOLIO 1/1	DISSEGNO A. AGOSTINI	ROLL NO 608534900
1	2	3	4	5	6	7	8

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EDITION 11 00 CODE: H 148U 01

