

# **Astro**

**Espresso  
Fresh Brew**

**UK**      English



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**DICHIARAZIONE DI CONFORMITA'**  
**DECLARATION OF CONFORMITY**  
**DÉCLARATION DE CONFORMITÉ**  
**KONFORMITÄTSEKTLÄRUNG**  
**DECLARACIÓN DE CONFORMIDAD**  
**DECLARAÇÃO DE CONFORMIDADE**  
**VERKLARING VAN OVEREENSTEMMING**  
**INTYG OM ÖVERENSSTÄMMELSE**  
**OVERENSSTEMMELSESEKTLÆRING**  
**YHDENMUKAISUUSTODISTUS**

Valbrembo, 03/05/2001

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.

Intygar 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 direktiverne **89/392, 89/336** og **73/23 EU** og de senere ændringer og tillæg.

Forsikrer under eget ansvar at apparatet som beskrives i identifikasjonsplaten, er i overensstemmelse med vilkårene i EU-direktivene **89/392, 89/336, 73/23** med endringer.

Vahvistaa, että arvokyltissä kuvattu laite vastaa **EU**-direktiivien **89/392, 89/336, 73/23** sekä niihin myöhemmin tehtyjen muutosten määräyksiä.



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**NECTA VENDING SOLUTIONS SPA**

VIA ROMA 24 - 24030 VALBREMBO (BG) Italy

VIA DEL CHIOSO ANG. CAPITANI DI MOZZO - 24030 MOZZO (BG) Italy

for the following field of activities

Design, manufacturing and sale of electronic/electromechanical vending machines

Refer to quality manual for details of applications to ISO 9001:2000 requirements  
has implemented and maintains a

Quality Management System

which fulfills the requirements of the following standard


**ISO 9001:2000**

Issued on: 2002 - 09 - 04

Registration Number: IT - 12979

  
Fabio Roversi  
President of IQNet



  
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CERTIFICAZIONE DEI SISTEMI DI GESTIONE AMBIENTALE DELLE AZIENDE  
CERTIFICATION OF COMPANIES ENVIRONMENTAL MANAGEMENT SYSTEMS



CERTIFICATO n. **9191.ZAV2**  
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Apparecchiature elettromeccaniche/elettroniche per la  
distribuzione automatica e la ristorazione  
Electronic/electromechanical vending-machines

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Prima emissione  
First issue

19 Dicembre 1997

Emissione corrente  
Current issue

31 Marzo 2000

La validità del presente certificato è subordinata a sorveglianza annuale e al riesame completo del Sistema di  
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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 information on installation safety, operating instructions and maintenance.

**This manual is divided into three chapters.**

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

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

**The operations described in the second and third chapters 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

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 identification of the machine, and carries all data which readily and safely gives technical information supplied by the manufacturer. It also assists in the spare parts management.

## IN THE EVENT OF FAILURES

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 the following:

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.

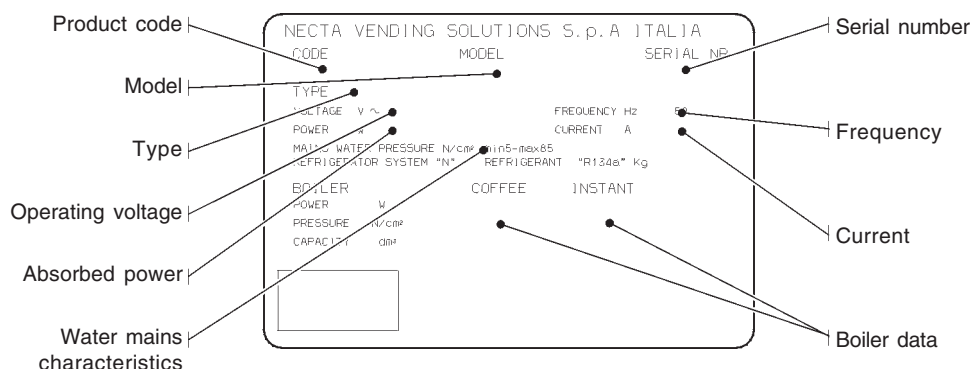
The machine can be lifted by a motor-driven or manual forklift truck, and the forks are to be placed underneath the machine from the side clearly indicated by the symbol on the cardboard package.

### 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.





## POSITIONING THE VENDING MACHINE

The vending machine is not suitable for outdoor installation. It must be positioned in a dry room where the temperature remains 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 Fig. 12).

## 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 is responsible for any damage to the machine or to things and persons caused by faulty installation.

**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.**

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.

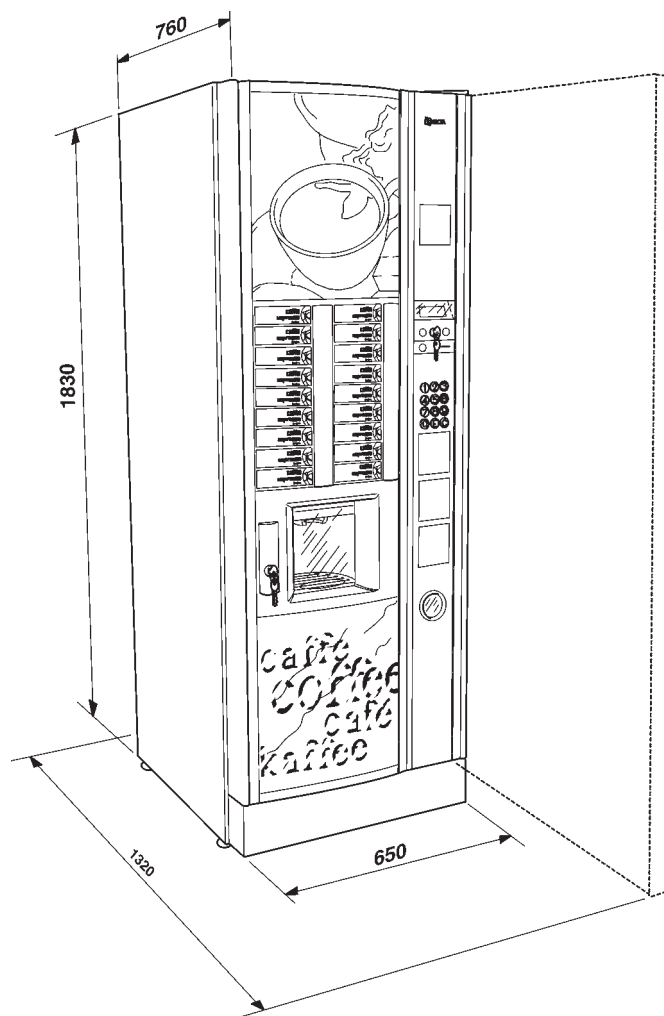
## WARNING FOR SCRAPPING

Whenever 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.

## TECHNICAL SPECIFICATIONS

Height	1830 mm
Width	650 mm
Depth	760 mm
Overall depth with door open	1320 mm
Weight	170 Kg



Power supply voltage	230 V~
Power supply frequency	50 Hz
Installed power	2400 W

### CUP DISPENSER

- Suitable for cups with a rim diameter of 73-74 mm with a capacity of approximately 650 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 DC 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 programmable price can be set for each single selection; the standard setting has the same sales price for all selections.

## ENERGY SAVING

Option of setting the automatic switch-off of lamps and/or boilers over 2 daily time bands on a weekly basis, to save electric power during the machine idle periods.

## 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 aluminised plate. Cover and lock are available as accessories.

## WATER SUPPLY

From the mains, with a pressure of 5 to 85 N/cm<sup>2</sup>.

The machine software is pre-set to control the water supply from an internal tank (optional kit).

## AVAILABLE ADJUSTMENTS

Espresso: grade of grinding, coffee and water doses by volume.

Fresh-brew: timed coffee or tea dose and water dose, brewing time and drying time.

Instant: timed coffee, instant product and water doses.

## Temperature

Adjusted via software.

## CONTROLS

- Presence of cups
- Presence of water
- Presence of coffee
- Position of coffee unit
- Fresh-brew unit in start position
- Liquid waste container empty
- Operating temperature reached
- Position of mobile dispensing spouts

## SAFETY DEVICES

- Door switch
- Manual-reset boiler safety thermostat
- Air-break float jammed
- Overflow solenoid valve
- Float for full liquid waste container
- Boiler sensor short-circuit/failure control

- Timer protection for:

Pump  
Coffee unit ratiomotor  
Coffee dispensing  
Coffee grinder  
Cup column shift motor  
Mobile spouts ratiomotor  
Fresh-brew unit ratiomotor  
Fresh-brew product dispensing

- Overheating protection for:

Doser units  
Coffee unit ratiomotor  
Fresh-brew unit ratiomotor  
Coffee release magnets  
Pump  
Mixers  
Coffee grinder motor

- Fuse protection for:

Main electrical circuit  
Electronic card and coin mechanism power supply transformer (primary and secondary windings)

## CAPACITY OF CONTAINERS

Coffee beans	(single)	4.2	Kg
fresh-brew tea		4.5	Kg
Cups		Approx. 650	

According to the model, containers with 4.5 or 11-litre capacity or a two compartment container can be fitted for instant products. Products quantities are indicated in the following table:

Container size (litres)			Compartment	
	4.5	11	3.5	7
Instant coffee Kg	1.2		0.9	1.8
Milk Kg	1.3	3.2	1.0	2.0
Chocolate Kg	3.1	7.5	2.4	4.8
Sugar Kg	4.2		3.3	6.6

The effective quantity can differ from what is indicated, according to the density of the various products.

## 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.

With an ambient temperature of 22 °C the following power consumption levels resulted:

30 drink selections	1.00 l
average drink temperature	78.6° C
<b>Power consumption</b>	
to reach operating temperature	458.8 Wh
24 h of stand-by	3408 Wh
30 selections /hour	265.5 Wh

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



## CHANGEABLE COMBINATION LOCK

Some machine models are fitted with a changeable combination lock.

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

The lock can be customised by means of a kit, available as accessory, permitting changing of the lock combination.

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.

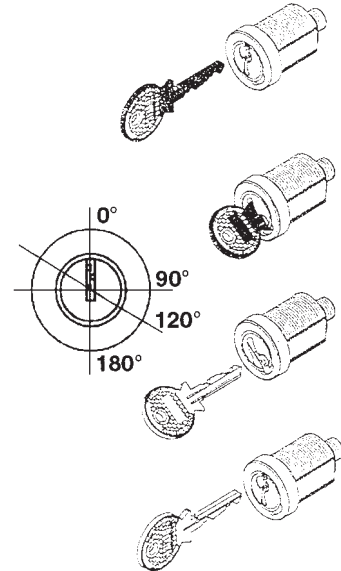
**Do not use the change key for normal opening, as it may damage the lock.**

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 new change key (gold);
- 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 vary its performance:

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

**Installation and the following testing operations must be carried out exclusively by personnel who have a specific knowledge of the machine functions from a point of view of electrical safety and health regulations.**



## Chapter 1

# 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 which require the machine to be energised with the door open must be carried out EXCLUSIVELY by qualified personnel who are aware of the specific risks of such condition.**

### CLEANING AND DISINFECTION

According to current safety and health rules and regulations, the operator of an automatic vending machine is responsible for the hygiene of materials that come in contact with foodstuff; therefore he must carry out maintenance on the machine to prevent the 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.

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

The manufacturer declines all responsibility for damage caused by non-compliance with the above instructions or by the use of strong or toxic chemical agents.

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

### USING THE VENDING MACHINES FOR HOT DRINKS IN OPEN CONTAINERS (Ex.: plastic cups, ceramic cups, jugs)

Vending machines for drinks in open containers should be used only to sell and dispense drinks obtained by:

- brewing products like coffee and tea;

- reconstituting instant and lyophilised 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.

## CONTROLS AND INFORMATION

The machine should operate at an ambient temperature of 2°C to 32°C.

The user controls and information are located on the outside of the door (see Fig. 1).

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

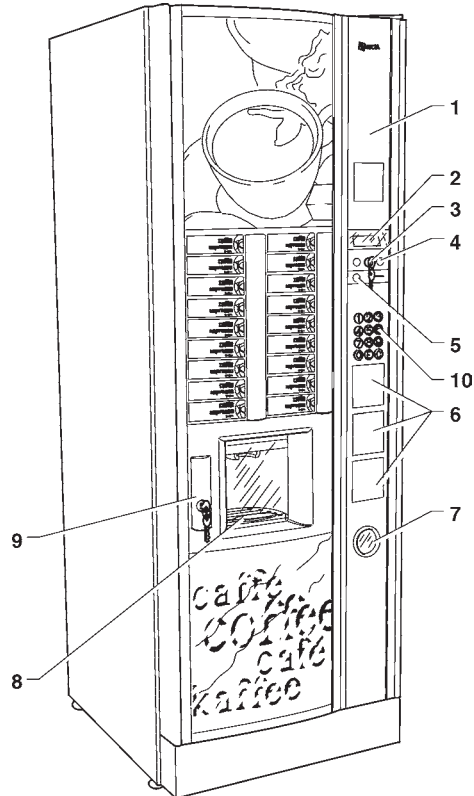


Fig. 1

- 1 - Space for payment systems
- 2 - Alphanumeric display (4x20)
- 3 - Jug facilities / free-vend key
- 4 - Sugar dose selection
- 5 - Coin slot/return
- 6 - Operating instructions labels
- 7 - Coin return flap
- 8 - Dispensing compartment
- 9 - Lock
- 10 - Direct selection keypad as alternative to (11)
- 11 - Numeric keypad as alternative to (10)

The connector for the RS232 serial port and 5 service buttons are located inside the machine, on the coin mechanism cover.

### NOISE LEVEL

The continuous, weighted equivalent acoustic pressure level is below 70 dB.



## 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;
- rotate the shelf outwards, undoing the securing magnet;
- remove the lid from 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;
- fill the empty column;
- release one or more cups with the special button and replace the cover.

The cup dispenser shelf has a double joint that improves access to the cup dispenser, especially when the machine is installed in a bank.

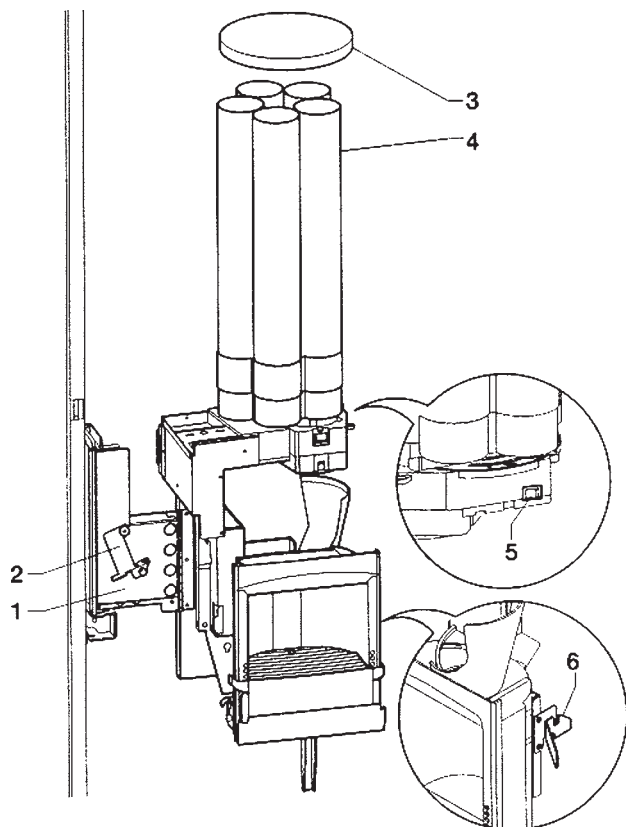


Fig. 2

- 1 - Hinged bracket
- 2 - Hinge release lever
- 3 - Lid
- 4 - Cup stacker
- 5 - Cup release button
- 6 - Shelf securing stop

## LOADING COFFEE

Lift the cover and fill the hopper with coffee, ensuring that the shutter is fully open (see Fig. 3).

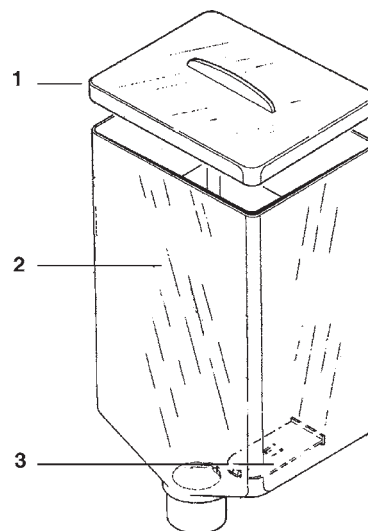


Fig. 3

- 1 - Lid
- 2 - Coffee hopper
- 3 - Shutter

## LOADING SUGAR AND INSTANT 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 MIXERS AND THE FOODSTUFF CIRCUITS

When installing the 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.

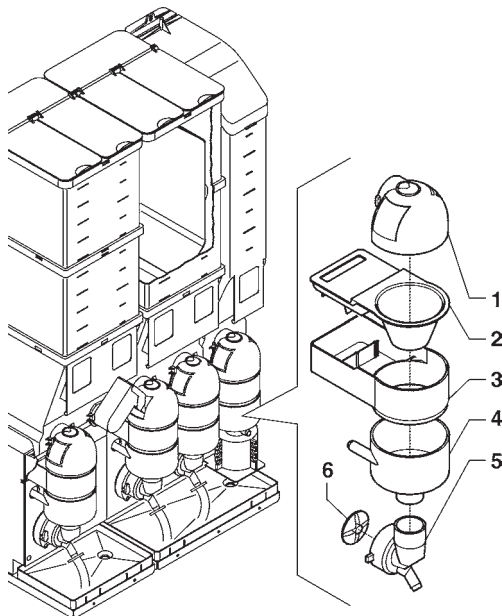
**Do not use sprayed water for cleaning.**



The parts to be cleaned are as follows:

- powder deposit drawers, mixer and instant drink dispensing conduit;
- dispensing tubes and spouts;
- dispensing compartment;
- remove the powder and the water funnels, the feeders, the powder deposit drawers and the mixer wheels from the mixers (see Fig. 4);

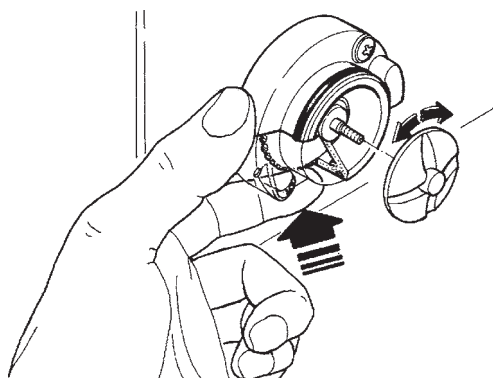
Fig. 4



- 1 - Powder feeder
- 2 - Powder funnel
- 3 - Powder deposit box
- 4 - Water funnel
- 5 - Mixer feeder
- 6 - Mixer impeller

- in order to undo the rotors, simply block the disk fitted on the mixer shaft with a finger (see Fig. 5);

Fig. 5



- wash all parts with detergent (using the doses indicated by the manufacturer) 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 rinsing and drying them.

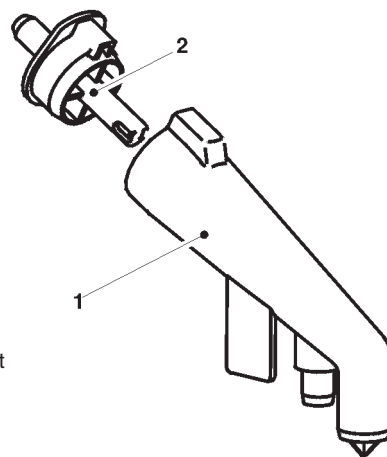
**After reinstalling all parts the following is however required:**

- enter into "Filler" 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.**

Some models, with fresh product dispensed directly into the cup, are fitted with a special spout (see Fig. 6) that prevents the pressure created by the brewing piston from discharging directly into the cup.

Fig. 6



- 1 - Tea dispensing spout
- 2 - Cap

Also this spout and the cap should be cleaned following the same procedure described for the mixers.

**In order to speed up the sanitising operations, the machine is supplied with spares to replace the parts to be cleaned, following the instructions included with the machine.**



## WEEKLY CLEANING OF ESPRESSO UNIT

Every time coffee is refilled, or at least once a week, any powder residue should be removed from the external parts of the coffee unit, particularly from the coffee funnel.

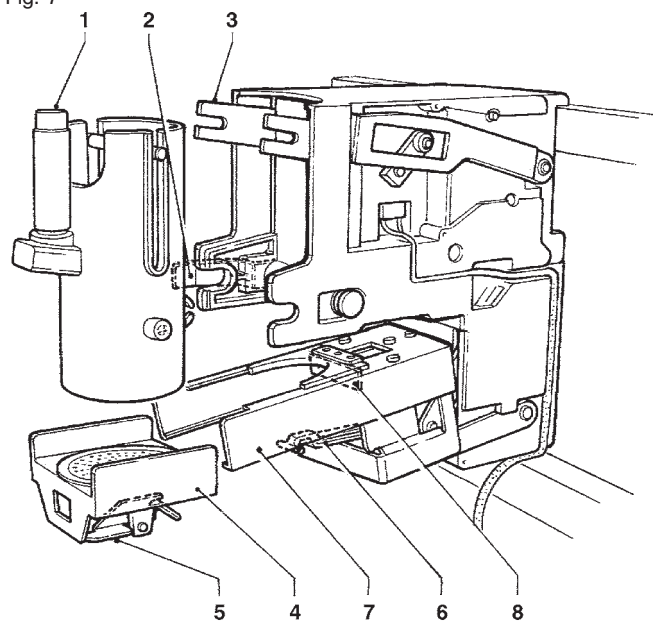
## WEEKLY CLEANING OF BREWER UNIT

Every week, as well as removing powder residue from the external parts of the brewer unit, especially from the funnel area, all parts that come into contact with the brewer unit's drink should be sanitised.

**These operations must be carried out with the machine switched off.**

- Undo the 2 fastening screws and remove the cover to access the brewer unit.
- Disconnect the tube from the mixer and remove the mixer itself (7-1) from the brewing cylinder.
- Release the cylinder from the unit by pulling the release lever (7-2) and remove the piston control fork (7-3) by pulling it outwards.
- Remove the piston from the cylinder.
- Extract the sliding filter holder (7-4) from the slide (7-7) releasing the rod (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 the chlorine-based detergent of the type used for the mixers.

Fig. 7



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

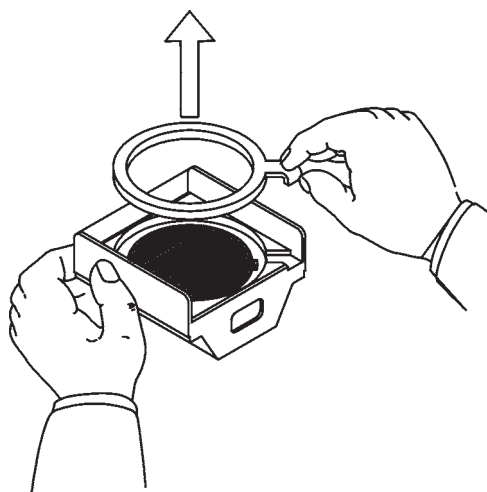


**Do not use screwdrivers or other sharp objects on the filter holder gasket and do not place it onto any surface that could damage it.**

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

To remove the metal filter, take the gasket out by forcing its edge (see Fig. 8).

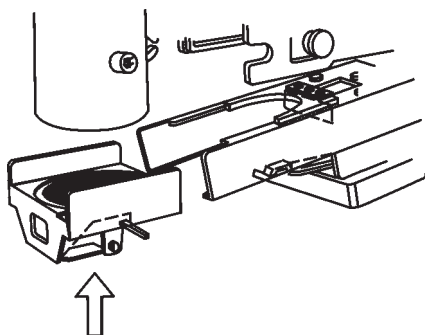
Fig. 8



The filter must be cleaned in any case at least once every 2500 selections.

To reassemble the brewer unit proceed in the reverse order from the one indicated above, taking care to fit the gasket before inserting the filter (see Fig. 9).

Fig. 9



## REPLACING THE FILTERING CARTRIDGE

Every 30,000 selections, or in any case every 6 months, the main filter cartridge should be replaced, proceeding as described in the chapter "Fitting the filtering 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 dosing grinder by dispensing coffee until the empty condition is indicated;
- completely empty the air-break and the instant product boiler, by means of the special valve.

**Before restarting the machine the cleaning and sanitation operations described in the chapter "Yearly sanitation" must be carried out.**



## Chapter 2 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 vending machine must be installed in a dry room where the temperature remains between 2° C and 32° C, and not where water jets are used for cleaning (e.g. in large kitchens, etc.).

**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.**

### 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. 10).

**With the door open, there is no access to energised parts. Inside the machine, the only parts that stay energised are those protected by covers and carrying a plate with the warning “Disconnect the power before removing the protective cover”.**

**Before removing such covers disconnect the power supply cable from the grid.**

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

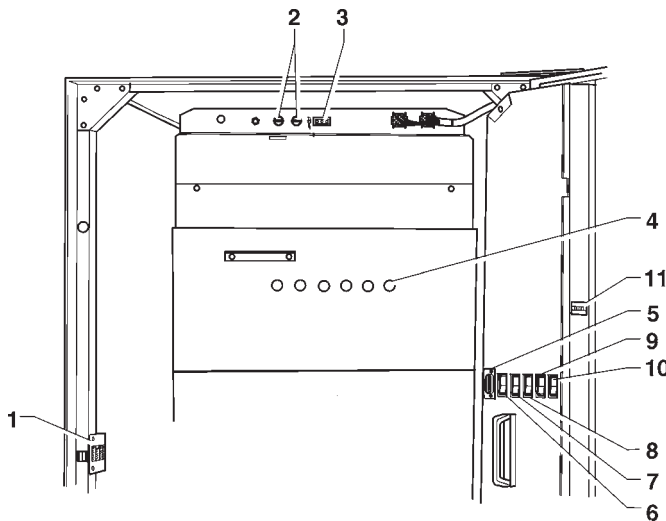


Fig. 10

- 1 - Door switch
- 2 - Mains fuses
- 3 - Permanently live socket (230 V~ 2 A Max)
- 4 - Instant prod. solenoid valves adjustment holes
- 5 - RS232 serial port
- 6 - "Flush" button
- 7 - "Statistics" button
- 8 - "Spout" button
- 9 - "Programming" button
- 10 - "Ingredient Priming" button
- 11 - Mechanical counter

## UNPACKING THE VENDING MACHINE

After removing the packing, ensure that the machine is intact.

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 authorised containers and the recyclable ones must be recovered by qualified 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 Fig. 11).

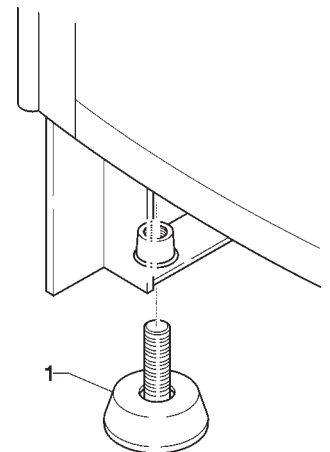


Fig. 11

- 1 - Adjustable foot

## INSERTING THE PRODUCT LABELS

To be able to insert the product labels, it will be necessary to remove the sheet-metal protection by loosening the fastening screws.

Remove the label support, after undoing the fastening screws, pressing onto the clamping tangs (see Fig. 12).

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

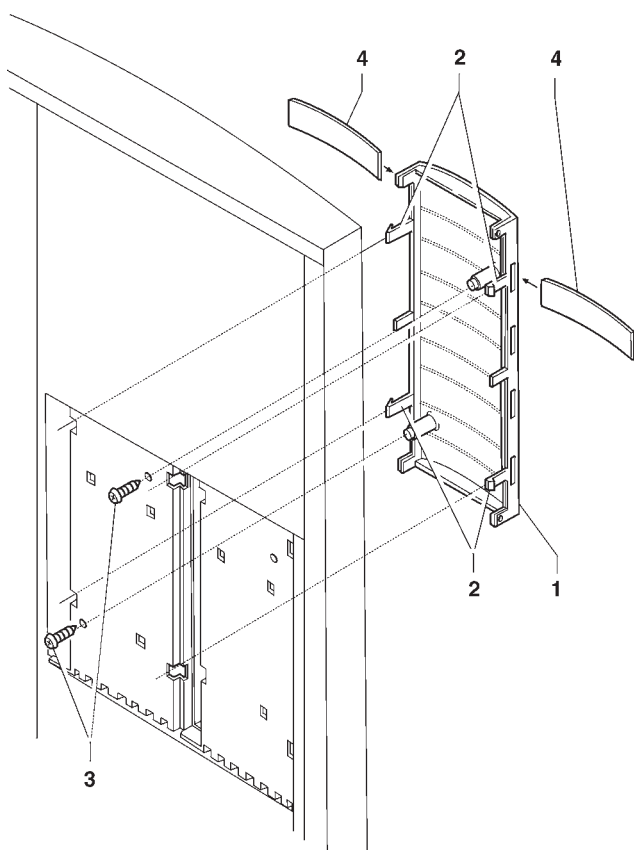
According to the model, some buttons may not be used (refer to the selection dose table).

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. 12

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



## FITTING THE FILTERING CARTRIDGE

Ensure that the coloured ring is in the lower position (rotated to the left). Wet the two cartridge gaskets (see Fig. 13).

- a) insert the cartridge into the ring,
- b) rotate the cartridge to the right,
- c) rotate the ring fully to the right until locking the cartridge;
- d) block the ring by lowering the lever, bringing it in front of the spur of the ring.

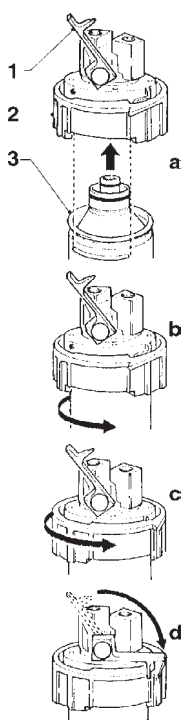
**N.B. The lever works like a tap**

**raised lever = closed tap**

**lowered lever = open tap**

Fig. 13

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



## CONNECTING THE MACHINE TO THE WATER MAINS

The machine must be connected to the drinking water mains, taking into account law provisions in force in the country where the machine is installed.

The water pressure must be 5 to 85 N/cm<sup>2</sup>.

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 fitting (1/4" gas) of the water inlet solenoid valve (see Fig. 14).

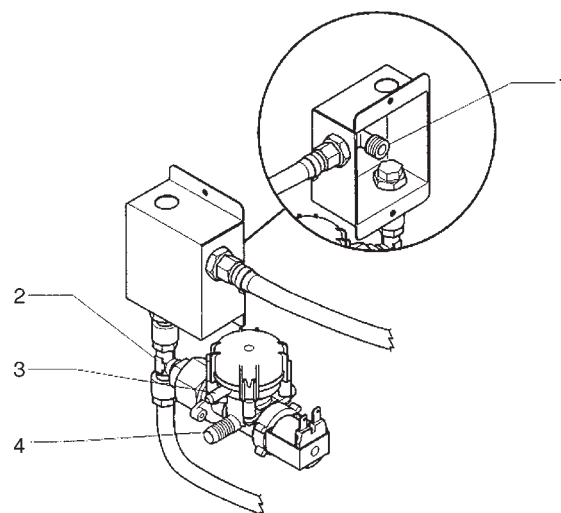


Fig. 14

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

**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. 14) 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:

- disconnect the electricity from the machine;
- drain the water contained in the overflow hose;
- shut off the water supply using the tap 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. 14);
- open the tap and switch the machine on.



## CONNECTING THE MACHINE TO THE POWER SUPPLY

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

Before making the connection, ensure that the rating corresponds to that of the power grid, and more specifically:

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

**The switch, the power outlet and the plug must be located in an easily 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 power supply cable is of the type with a fixed plug. Any replacement of the power cable (see figure) should be made by qualified and suitably trained personnel only using cables type HO5 RN - F or HO5 V V-F or HO7 RN-F with a 3x1.5 mm<sup>2</sup> section.

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

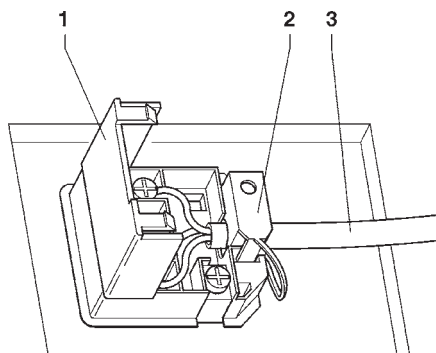


Fig. 15

- 1 - Lift cover
- 2 - Cable clamp
- 3 - Power supply cable

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

## 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 relevant parameters are programmed correctly.
- adjust the selector opening lever bracket to allow 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

“INSTALLATION”

for the entire duration of the cycle;

- the air-break and the instant product boiler are filled;
- (for espresso models only) the coffee solenoid valve is opened so that air may be bled from the boiler and 600 cc. of water 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 manually, using the special function from the “test” menu in “Technician” mode, if the **kit (optional) for water supply from an internal tank is fitted** or after any **maintenance** requiring the boiler to be emptied but not the air-break.



# ESPRESSO UNIT OPERATION

## COFFEE DISPENSING CYCLE

When selecting coffee, the grinder is started and will continue until the coffee doser chamber is full (see Fig. 19). When the doser unit is full, the ground coffee dose is released into the coffee unit.

The coffee falls into the vertical brewing chamber (1) (see Fig. 16).

The ratiomotor handle engaged with the disk (2) located outside of the assembly rotates by 180°, making the brew chamber swing and lowering the upper piston (3) (see Figure 16).

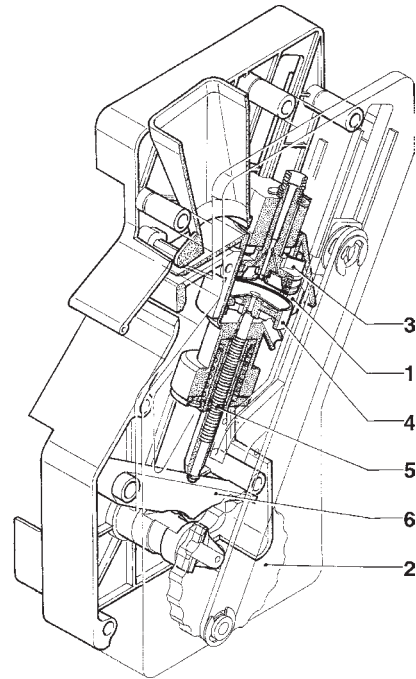
Due to the water pressure, the pre-brewing spring (5) sinks and the lower piston (4) goes down 4 mm, thus forming a water cushion which allows an even use of the coffee dose. At the end of the dispensing cycle and during a pause of 3 seconds, the pre-brewing spring (5) will discharge the water through the third way of the dispensing solenoid valve, lightly pressing the used coffee dose.

By completing its rotation, the ratiomotor makes the swinging lever (6) lift the pistons and the tea dose.

At the same time, when the brewing chamber returns to its vertical position, the scraper on the coffee hopper stops the used coffee dose and drops it.

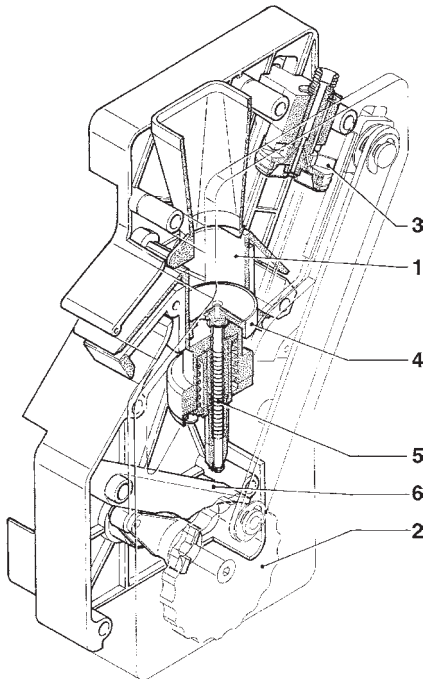
The lower piston now returns to the bottom dead centre.

Fig .17



- 1 - Brewing chamber
- 2 - External disk
- 3 - Upper piston
- 4 - Lower piston
- 5 - Pre-brewing spring
- 6 - Swinging lever

Fig. 16



- 1 - Brewing chamber
- 2 - External disk
- 3 - Upper piston
- 4 - Lower piston
- 5 - Pre-brewing spring
- 6 - Swinging lever

## CHECKING AND ADJUSTING THE MACHINE SETTINGS

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

### For coffee

That the used coffee dose is lightly compressed and damp.

The grade of grinding of coffee.

The dose weight of ground coffee.

The dispensing temperature.

The water dose.

### For instant products

The weight of instant products.

The drink temperature.

The water dose.

Should the standard settings be varied, proceed as indicated in the next sections of this manual.

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

To adjust them it is therefore necessary to follow the programming procedures.



## STANDARD SETTINGS

The vending machine is supplied with the following settings:

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

The machine standard settings assign the same price, expressed in number of basic coins, to all selections.

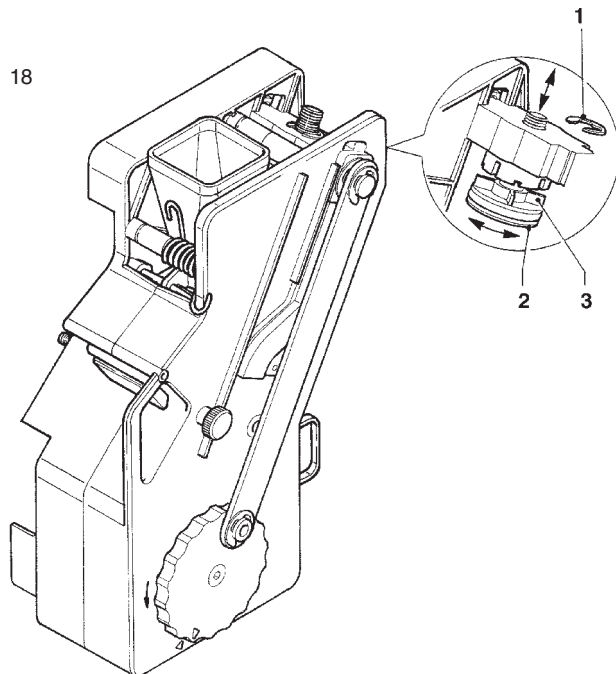
## ADJUSTING THE BREWING CHAMBER VOLUME

When the upper piston is correctly positioned, the coffee unit can operate with coffee doses of 5.5 to 8.5 g.

To change the piston position (see Fig. 18) do as follows:

- remove the snap ring from its seat;
- place the piston in the proper adjusting notches:
  - .less deep notches for 5.5 to 7.5 g doses;
  - .deeper notches for 6.5 to 8.5 g doses.

Fig. 18



- 1 - Snap ring
- 2 - Upper piston
- 3 - Reference fins

## ADJUSTING THE GRADE OF GRINDING

When a variation in the grade of grinding is desired, turn the relevant adjusting knob on the grinder (see Fig. 19) and more specifically:

- turn the knob anticlockwise for coarser grinding;
- turn the knob clockwise for finer grinding.

For optimum results, it is advisable to vary the grade of grinding with the coffee grinder motor running.

**NB: After adjustment of the grade of grinding, at least 2 test selections must be performed in order to check the new grade of grinding for ground coffee:**

The finer the grade of grinding the longer the time necessary for dispensing the coffee and vice versa.

## ADJUSTING THE COFFEE DOSE

The dose adjusting lever can be positioned in one of the 6 reference notches bearing in mind that:

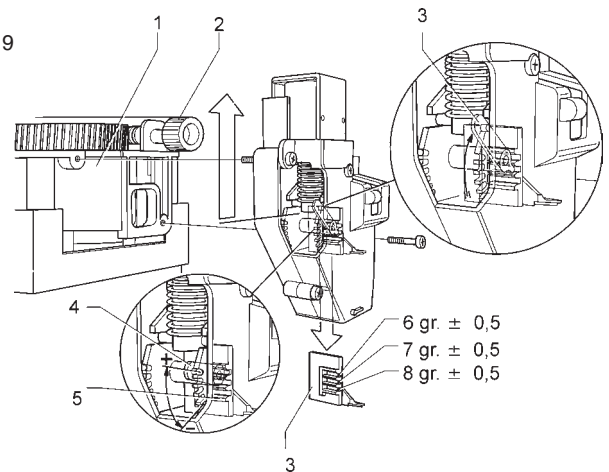
- the dose is increased by lifting the lever:
- the dose is reduced by lowering the lever:
- every notch changes the dose by approx. 0.25 g.

In addition, when the lever is fully rotated upwards, the ratchet can be released from the groove in the dose regulator (see Fig. 19) and replaced into a different groove to change the average dose setting to:

- low 6 g  $\pm$  0,5
- medium 7 g  $\pm$  0,5
- high 8 g  $\pm$  0,5

To take the dose just remove the coffee unit and use the special function from the "Test" menu in "Technician" mode (see relevant section).

Fig. 19



- 1 - Coffee grinder
- 2 - Grinding adjustment knob
- 3 - Reference notches
- 4 - Dose adjusting lever
- 5 - Dose regulator

## Important notice!!!

To refit the coffee unit, pay special attention to the piston position. Reference notches on the external disk and on the unit case should match (see Fig. 22).

## WATER TEMPERATURE CONTROL

The boiler temperature is controlled by the software and can be adjusted directly from the menu.



## BREWER UNIT OPERATION

The unit is designed for brewing tea or coffee (suitable for vending machines).

**Ensure that the powder funnel is thoroughly washed at the end of dispensing.**

### DISPENSING CYCLE

When making a selection, the brewer unit motor (20-1) lifts the sliding filter holder (20-2) against the brewing chamber cylinder (20-3) until water tightness is achieved.

At the same time the brewing piston (20-4) is lifted to allow the entry of water and product into the chamber.

Water dispensing starts one second after the unit motor starts.

Brewing is maintained for a length of time, programmable via software; then the piston is lowered, dispensing the brewed drink and drying the compressed grounds for a programmable length of time.

At the end of dispensing the filter holder is lowered, filter holder motor (20-5) draws back the sliding filter holder, allowing the scraper (20-6) to discharge the used product. A drying pause can also be programmed to further improve the drink.

To improve the product appearance, some models are fitted with a special dispensing spout (see Fig. 6) that prevents the pressure created by the brewing piston from discharging directly into the cup.

### CHECKING AND ADJUSTING THE MACHINE SETTINGS

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

- The dose weight of the products.
- The water dose.
- The drink temperature.

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

To adjust them it is therefore necessary to follow the programming procedures.

### STANDARD SETTINGS

The vending machine is supplied with the following settings:

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

### CUP SENSOR

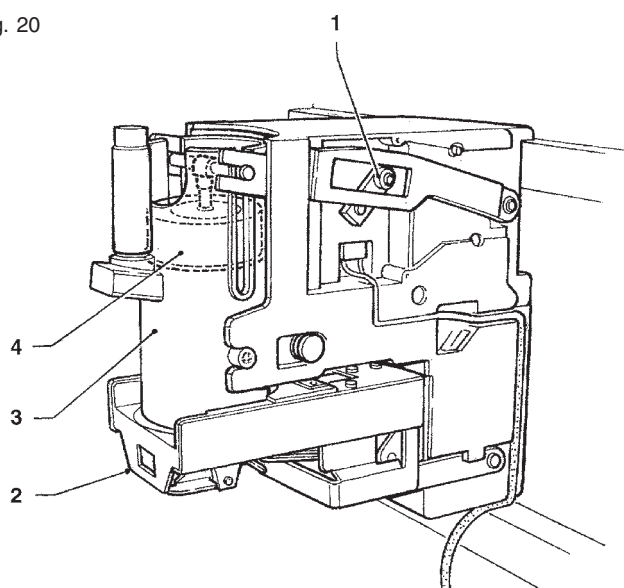
The cup sensor (Fig. 21) is adjusted as to detect the presence of objects (orange LED glowing) placed between the sensor lens and the reflector.

The green LED glows when the reading from the reflector is correct.

The sensor's depth of reading is adjusted by turning the trimmer (preset at the factory).

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

Fig. 20



- 1 - Brewer unit motor handle
- 2 - Sliding filter holder
- 3 - Brewing chamber cylinder
- 4 - Brewing piston
- 5 - Sliding filter holder motor
- 6 - Grounds discharge scraper

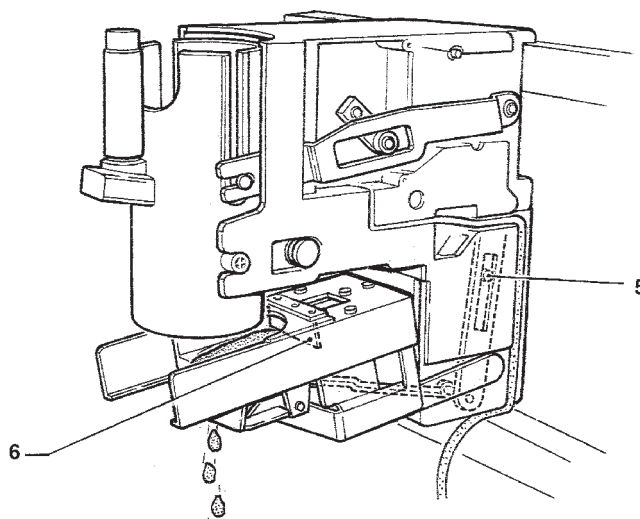
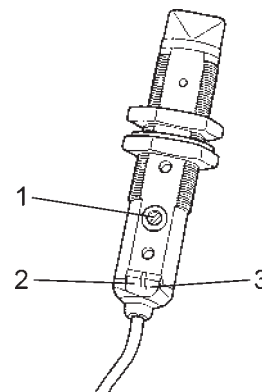


Fig. 21

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





## OPERATING MODES

Three different operating modes are provided for the machine; the buttons will have different functions according to the machine operating mode.

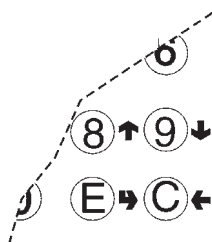
The available operating modes are as follows:

	FUNCTIONS
<b>Normal operating mode</b>	coins accepted products dispensed
<b>Filler menu</b>	test dispensing machine maintenance
<b>Technician menu</b>	Programming of different parameters

## USER INTERFACE

The interaction between system and user occurs through the following components:

- Liquid Crystal Display (LCD), 4 lines x 16 characters.
- External numeric selection keypad which takes on the following functions when in "Filler" and "Technician" mode:



### Scrolling keys "↓" and "↑":

To move to the next or previous menu option.

### Confirm key "→":

To go from a menu to a sub-menu, or to confirm the information on the display.

### Exit button "←":

To move back from a sub-menu to the higher level menu, or used to cancel the current information on the display. It is also used for going from "Technician" mode to "Filler" mode and vice versa.

## SERVICE BUTTONS

### Flush button:

used for performing a mixer wash cycle.

### Statistics button:

used for immediate reading of the machine statistics.

### Spout button:

used for testing the movement of the spouts, to verify that the hoses are not too taut during such movement.

### Programming button:

used for accessing the "Technician" and "Filler" menus.

### Ingredient Priming button:

used for rotating the instant product doser devices, holding the button pressed, when the feeders are empty.

## 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 button	Machine ready
Vending machine out of service	Machine out of service
Selected drink in process Wait please	Drink preparation drink
Drink ready Take drink	Dispensing ended correctly

## FILLER MENU

When pressing once the programming button located on the coin mechanism compartment, the machine goes into "Filler menu" mode.

The first option of the "filler" menu is displayed, allowing the following functions:

"Statistics"	Data reading
"Prices"	Changing the price for one selection
"Tubes control"	Manual refill and release of change tubes
"Boiler temperature"	Displaying the boiler temperature in degree C.
"Test"	Complete dispensing Dispensing water only Dispensing powder only Dispensing without accessories Dispensing accessories only
"GSM"	Pre-alarm counter reset
"EVADTS"	Connection



## STATISTICS

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

### PRINT

Connect an RS232 serial printer having a Baud rate of 9600, 8 data bit, no parity, 1 stop bit to the serial port located on the push button board to print all of the statistics, and namely:

#### Total



- 1 - counter by selection
- 2 - counter by time bands
- 3 - discount counter
- 4 - failure counter
- 5 - coin mechanism data

#### Relative


- 1 - counter by selection
- 2 - counter by time bands
- 3 - discount counter
- 4 - failure counter
- 5 - coin mechanism data

The printout will also contain the machine code, the date and the software version.

To connect the printer, do as follows:

- press the confirm print button “”, displaying the message “Confirm?”;
- connect the printer before confirming;
- press the confirm button “” to start printing.


### DISPLAY

When pressing the confirm button “” the data described in the paragraph “Printing the statistics” is sequentially displayed.

### DELETING THE RELATIVE STATISTICS

Statistics can be reset for relative counters globally (all types of data) or selectively for:

- selections
- failures
- coin mechanism data

Press the confirm button “”, and the message “Confirm?” starts blinking.

Press the confirm button “”, the message “Working” is displayed for a few seconds and all statistics are reset.

## SELECTION PRICES


This function is used for changing the sales price for each selection and for each time band that may be set.

### CHANGETUBES CONTROL

By accessing the “Tube control” function the change tubes can be filled or released manually.

Confirm refilling, and the display will indicate

“Credit: —” which is the value of money available in change the tubes; insert the desired coin into the validator and the display will indicate the value of money available in the change tubes.

When confirming releasing, it will be possible to decide which tube to release. Each time the confirm button “” is pressed, a coin is ejected from the active tube.

### DISPLAYING THE TEMPERATURE

With this function, it is possible to read the temperature from the coffee boiler and from the instant boiler, directly in °C.

### TEST DISPENSING

For complete or partial dispensing tests each button (or combination of buttons according to the model) 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.**

### GSM PRE-ALARMS

The control software can send, via GSM modem, a signal indicating an “ending product” signal, when there is only a certain (programmable) number of pieces or grams of powder of a given product left. With this function the counters that control the pre-alarms are reset.

### EVADTS TRANSFER

When activating this function, the machine awaits the connection with a device to acquire the EVADTS statistics.



## TECHNICIAN MENU

When pressing button “←” from “Filler” mode, the machine is preset to “Technician menu”.


The first option of the programming menu is displayed, enabling the following functions:


Failures	Reading present failures Delete Fluorescent lamps switched off		Display	Counters by: selection time bands discounts failures coin mech data
Prog. parameters	Cash Prices Coin mechanisms Decimal point		Delete	Partial Total
	Selections Water doses Powder doses Accessories Selection status Button-Selection Check selection number		Display relative	Counters by: selection time bands discounts failures coin mechanisms
	Machine parameters Boiler temperature Tank Wash button Mixer heating Fast cycles N. maintenance sel. Enable autom. cleaning Cup settling time Energy saving Photocell Slider det. time Decaf cycle	Test	Delete relative	Partial Total
	Display Language Promotional message Contrast control		Enable counter at start-up	
	Pre-selections No cup Extra sugar Sugar Less sugar More sugar More water Less water More powder Less powder Coffee powder dose Extra milk Mokka Sugar +/-		Print	Partial Total
	Miscellaneous FB unit data Jug Facilities Password Enable filler menu		Relative print	Partial Total
Statistics	Electr. counters Reading Delete		Dispensing	complete water only powder only without accessories accessories only
			Special functions	Unit rotation Coffee release Boiler emptying Manual installation Unit FB1 Unit FB2
			Autotest	
		Miscellaneous	Machine information	Installation date Machine codes Operator code
			Initialising	
			Set cold unit ID	
			Spout exit time	
			Enable hot water addition	
		EVADTS	Pass code	
			Security code	
			Connection	
		GSM	Pin Code	Set the code for the modem
			Pre-alarms	Set thresholds Reset Counters
			No. in bank	Slave identification



# FAILURES

## READING PRESENT FAILURES

When the “Failure” function is displayed, press the confirm button “” to display the present failures.

If no failures are currently present, after pressing the confirm button “” the message “End failures” will be displayed.

The possible failures are indicated in the following cases:

### No water

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.

If the machine is equipped with an internal water supply tank the pump will be switched off.

### Waste container full

The machine locks if the liquid waste container float is triggered.

### Air-break

The machine will lock if after dispensing water corresponding to 190 pulses of the flow meter (volumetric counter) the microswitch has not yet signalled that the pre-set water level was reached.

### No cups

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

### Mobile spouts

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

### Volumetric counter

Failed computation of the volumetric counter (flow-meter) within a max. given time.

### Instant boiler

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

### Machine control board

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

### 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).

## 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.

### Espresso unit

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.

### No coffee

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

### 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.

### Espresso boiler

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

### Cup release

If the cup sensor photocell is fitted, after three unsuccessful attempts at releasing cups the display will indicate the message “No cups”. Using a special function, it is possible to define whether this failure must lock the machine or leave it available for dispensing into a ceramic cup.

### Fresh-brew piston 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 piston 2 / Fresh-brew scraper 2

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

### Coffee release 2 - No coffee 2

As in “Coffee release” and “No coffee” for the second doser unit (optional).



**Slider motor**

The machine stops if no opening/closing of the slider lock motor control switch is detected.

**Capsule lock**

This failure, although present in the list, is not monitored in the models described in this manual.

**Cold drinks pressure switch**

In the event of lack of pressure from the mains, the cold drinks selections are disabled.

**No syrup 1 and 2**

Locking the relevant selection in the event of lack of syrup.

**Empty carbonator**

If the level control device of the carbonator indicates it is empty, cold drink selections are placed out of service.

**Cold drinks compressor**

This failure, although present in the list, is not monitored in the models described in this manual.

**Cold drinks board**

This failure, although present in the list, is not monitored in the models described in this manual.

**RESET**

By confirming this function all current failures will be reset.

**EXTERNAL LIGHTING**

Setting whether or not the lighting lamps in the external panels are to be switched on when the machine is out of service or during the "Energy saving" time band.



# PROGRAMMING PARAMETERS

## CASH

This set of functions controls all parameters regarding the payment systems and the sales prices.

## 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.

Should the majority of products be sold at the same price, it will be convenient to set the price globally and then change the figure of the selections with different prices.

## TIME BANDS

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

The time periods are programmable for beginning and end time by hours (00 to 23) and minutes (00 to 59).

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.

## 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 "Validat. Lines" (line setting) function of the "technician" menu is displayed, the value of the 6 validator coin lines, A to F, can be changed.

## BDV

The BDV protocol menus are used for defining the following functions:

### 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.

### Change control

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

If enabled, this function allows the return of coins even if the first selection was not dispensed.

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.

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.

### Not accepted coins

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.

### Dispensing buttons

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

### Value of "exact amount"

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. device

It dialogues with the coin mechanism if devices are installed or removed from the serial interface (C.P.C.-type devices - 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 VMC

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, enabled by default) and the price of the selections must be set to zero.

### MDB

The MDB protocol menus are used for defining the following functions:

### 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 (if the function is enabled), the available credit is returned up to the maximum change value.

### Change control

To enable/disable the operation of the coin return button.

### 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. 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 when the change tubes are full.

Check the coin mechanism configuration for the correct coin to value matching.

### Returned coins

It is possible to define which, among the coins available in the tubes, are to be used for returning the change. This parameter is active only with coin mechanisms that do not automatically control the choice of tube to be used (Auto changer payout).

Check the coin mechanism configuration for the correct coin to value matching.

### Accepted bills

It is possible to define which, among the bills recognised by the reader, are to be accepted.

Check the reader configuration for the correct bill to value matching.

### Minimum level of tubes

This function is used for setting the number of coins (0 to 15) to determine the status of full change tubes and the "Insert exact amount" message for the user.

### Accepted coins with "exact amount"

It is possible to define which, among the coins recognised by the validator, are to be accepted when the machine is in the "exact amount" condition.

Check the coin mechanism configuration for the correct coin to value matching.

### Accepted bills with "exact amount"

It is possible to define which, among the bills recognised by the acceptor, are to be accepted when the machine is in the "exact amount" condition.

Check the acceptor's configuration for the correct bill to value matching.

## COMMON FUNCTIONS

### IMMEDIATE CHANGE

Normally, the amount of 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.

### DECIMAL POINT

Press the confirm button "➡" 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 button "➡", these values will start blinking and can then be modified as necessary.



## SELECTIONS

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 button and therefore each product assigned to it; the display indicates the name of the product being selected.

### WHIPPER CONTROL

The whipping time can be set for each selection button, for each water dose that composes such selection.

The duration can be set in two different modes:

#### Absolute

i.e. independent from the solenoid valve opening time. The whipping duration is set as tenths of a second for Instant models and as volumetric counter pulses for Espresso models.

#### Relative

i.e. based on the difference, plus or minus, from the moment the solenoid valve closes.

The whipping duration is always expressed in tenths of a second.

### SOLENOID VALVE SETTINGS

It is 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.

### Mobile spout return time

The wait time (programmable from 0 to 2000 hundredths of a second) from end of dispensing to the mobile spout return can be set for each selection in order to leave time to the tubes to drain.

### POWDER DOSE

The powder dose, expressed in grams, can be set for each selection button and therefore each product assigned to it; the display indicates the name of the product being selected.

For correct conversion of product dose values, the flow rate of the single doser units, expressed in g/s, can be set to calculate the amount of powder to be dispensed.

It is also possible to program the doses of a product "Globally", i.e. setting all selections with a single operation.

### ACCESSORIES

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

### SELECTION STATUS

Each single selection button can either be enabled or disabled.

### BUTTON-SELECTION

Permitting the association of a selection number, indicated in the selection dose table, to a button in the direct selection keypad.

### CHECKING SELECTION NUMBER

Verifying the selection number (for direct selection models only) associated to a button.

## VENDING MACHINE PARAMETERS

### TEMPERATURE

This function is used for setting the operating temperature, expressed in °C, of the boilers installed in the machine.

After selecting the boiler, press the confirm button "↵", the temperature value on the display will start blinking and can be modified as necessary.

### TANK

The machine water supply can be from the mains or from an internal tank. For some applications it is also possible to use two internal tanks at the same time.

With this function it is possible to define whether the machine water supply is from the mains (tank = 0) or from the tanks (tank = 1 or 2).

### ENABLING THE WASH BUTTON

With this function it is possible to enable the operation of the mixer wash button.

Normally the button is disabled.

### MIXER HEATING

If the function is enabled and no selections were made in the last 3 minutes, a small amount of hot water is dispensed into the milk or instant coffee mixers before dispensing short instant coffee, instant coffee with milk and espresso coffee with milk.

### FAST CYCLES

When this function is enabled, some of the time that is useful for improving the drink quality is eliminated.

- all of the products that compose the drink are dispensed at the same time;
- the "Post-whipping" time is eliminated.

### For espresso based selections

- pre-brewing of ground coffee is not performed.

### SETTING THE REGENERATION COUNTER

It is possible to display the message "Regenerate the water softener"

upon accessing "Filler" mode after a programmable number of drinks dispensed.

### AUTOMATIC WASH

Option of setting the time when automatically cleaning the mixers and rotating the brewing units installed. When setting the time to 24.00 the function is disabled (default).

### COLUMN ROTATION DELAY

This function is used to set the delay time in stopping the cup column rotation in order to compensate any inertia due to the cup type.



## ENERGY SAVING

In order to save electric power 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
Time 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
Time 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

## CUP SENSOR

The machine is fitted with a "cup sensor" composed of a photocell that detects the presence of an object in the dispensing compartment.

When the function is enabled, if an object is detected in the dispensing compartment, a cup is not released and the display indicates the message "Without cup".

It is also possible to define whether, after two attempts to release a cup without the photocell detecting any objects in the dispensing compartment, the failure should lock the machine or leave it to operate using a ceramic cup.

A lighting lamp inside the dispensing compartment is controlled by the cup sensor.

If the the cup is still inserted, when the next selection is made the message "Remove cup" is displayed.

## AUTOMATIC SLIDER

The machine is fitted with a device that automatically lifts the drink dispensing compartment slider. With this function it is possible to define whether the device is present in the machine and how long (programmable between 0 and 300 t/s, 70 by default) the slider is to be kept lifted.

The programmed duration controls also a lighting lamp inside the dispensing compartment if the cup sensor is not fitted.

In the event of a malfunction, in both opening and closing, the "Slider failure" is indicated in the failure list, not affecting the operation of the machine.

During the next 4 selections attempts are made to reposition the slider, then it will be necessary to switch off and on again the machine to reset the slider failure and the attempt counter.

In any case, the slider can still be operated manually.

## DECAFFEINATED CYCLE

When enabling this function, instant coffee powder (if present) is dispensed in two steps to improve the appearance of the drink.

## DISPLAY

### LANGUAGE

There is an option of language, selected among the ones available in the software, to be used for the messages on the display.

### SETTING THE PROMOTIONAL MESSAGE

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

Press the confirm button "→", the first character will start blinking and can be modified.

The message is stored by pressing button "←".

### LCD CONTRAST CONTROL

This function is used for adjusting the display contrast from 5% to 99% (default).

## PRE-SELECTIONS

During normal operation button "↑" is used for increasing the sugar dose by 1/5 of the median dose; when the highest level is reached, pressing button "↑" again will bring the sugar dose to 0 (unsweetened selection).

The LEDs will indicate the average dose change.

According to the layout set at the time of initialising, button "↓" can be used as a normal selection button or for pre-selecting the use of decaffeinated coffee in coffee based drinks.

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.

## MISCELLANEOUS

### 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.

### JUG FACILITIES

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

### 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.

### FILLER MENU MASKING

This function is used to determine the filler menu options to be left active or to be disabled.

The reference numbers of the menus do not change even if some are disabled.




## STATISTICS

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

### GENERAL COUNTER

An electronic counter stores the total of all selections made since the last reset.

### DISPLAYING GENERAL STATISTICS


When pressing the confirm button “” the stored data is sequentially displayed, and namely:


- 1 - counter by single selection
- 2 - counter by time bands
- 3 - discount counter
- 4 - failure counter
- 5 - coin mechanism data

### RESETTING GENERAL STATISTICS


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

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

Press the confirm button “”, and the message “Confirm?” starts blinking.

Press the confirm button “”, the message “Working” is displayed for a few seconds and all statistics are reset.

### DISPLAYING RELATIVE STATISTICS


When pressing the confirm button “” the stored data is sequentially displayed, and namely:

- 1 - counter by single selection
- 2 - counter by time bands
- 3 - discount counter
- 4 - failure counter
- 5 - coin mechanism data

### RESETTING RELATIVE STATISTICS

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

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

Press the confirm button “”, and the message “Confirm?” starts blinking.

Press the confirm button “”, the message “Working” is displayed for a few seconds and all statistics are reset.



## ENABLING COUNTER DISPLAY

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

### PRINT

Connect an RS-232 serial printer with a Baud rate of 9600, 8 data bit, no parity, 1 stop bit to the serial port located on the push button board, to print all the statistics described in the sections “Displaying general statistics” and “Displaying relative statistics”. The hardcopy 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 button “”, displaying the message “Confirm?”;
- connect the printer before confirming;
- press the confirm button “” to start printing.

## TEST

### DISPENSING

With this function it is possible to obtain, with the door open and without inserting any money, for each selection dispensing of:

- complete selection
- water only
- powder only
- without accessories (cup, sugar and stirrer)
- accessories only


### SPECIAL FUNCTIONS



By accessing this function it is possible to:

- to operate the espresso brewer unit (if fitted);
- to grind and release a coffee dose;
- open a solenoid valve to allow the intake of air in the event of emptying the boiler for maintenance;
- manually install boiler.
- to operate the fresh-brew units 1 and 2 (if fitted).

### AUTOTEST

This function allows testing, in a semiautomatic way, of the main machine components.

Press button “” and the message “AUTOTEST” will start blinking.

It is possible to cancel each operation and go to the next one by pressing button “”, confirming with button “” to start the autotest routine.

Some checks occur automatically, others need the manual operation of the monitored component.



In a sequence:

- activation of the doser units for 2 seconds
- activation of the mixers for 2 seconds
- release of a cup
- release of a stirrer
- operation/repositioning of the dispensing spouts
- (only for the brewer units that are actually present) rotation of the brewer unit (grinding for the espresso brewers) and dispensing of a coffee dose
- wash button; the machine awaits until the wash button is operated manually
- waste container switch; the machine awaits until the waste container microswitch is manually operated
- switching on of the fluorescent lamps
- switching on of the dispensing compartment lamp
- push-button panel test; the machine will display the number of the button which must be pressed and awaits the actuation before going to the next button
- boiler temperature reading
- triggering of a sound signal
- coin mechanism test; checking that communication with the coin mechanism takes place correctly and which validator lines are set as being active.

## MISCELLANEOUS

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

### MACHINE INFORMATION

#### INSTALLATION DATE

This function is used to store the current date of system as installation date.

The date is printed when retrieving the statistics.

#### 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).

## INITIALISING

When the "Initialise" function is displayed the vending machine can be initialised restoring all default data.

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

Except for the general electronic counter, all statistical data is reset.

Press confirm button "↵" and the display will indicate the message "Confirm?". Press the confirm button "↵" again and some parameters will be requested, which are:

#### "Country"

intended as type of base doses for the different selections (e.g. IT coffee = 60 cc - FR coffee = 106 cc).

The available "countries" vary according to the models.

#### "Layout"

A number of Button/Selection combinations to choose from is provided for each model and dose type (the combinations available for each layout are indicated in the dose selection table supplied with the machine).

#### "Tank"

Defining whether the water supply is:

0 - from the mains

1 - from an internal tank

2 - from two internal tanks

When confirming the options the message "Working" is displayed for a few seconds.

## SETTING THE COOLING UNIT ID

This is used for indicating to the software the identification number (0 to 9 for the models where it is fitted) of a cooling unit connected to the vending machine.

With more machines connected in a bank the ID numbers of the cooling units must be different from each other.

### MOBILE SPOUT EXIT TIME

In models with the spout support extension for cold drinks the positioning control is timed.

There are 2 programmable times expressed in tenths of a second:

100 to 150 to position the spouts for dispensing cold drinks;

100 to 200 to position the spouts for dispensing hot water

(function provided only in some models). With the time set to 200 the mobile spouts reach the end of travel.

### ADDING HOT WATER

It enables the option, in some models only, of adding or not hot water for some selections.






## EVADTS CODES

The EVADTS (European Vending Association Data Transfer System) communication protocol has two codes for identifying the machine and for recognising the data transfer terminal:

### PASS CODE

It is a four-digit alphanumeric code (0-9; A-F) that must be the same as the one in the data transfer terminal to allow its identification.

Press the confirm button “” and the code is displayed as “0000” regardless of the actual value; then press the correction button “” and the first digit will start blinking. Using the scrolling buttons, its value can be changed (during the change operation the value becomes visible). Press the confirm button “” and the next digit starts blinking.

Press the confirm button “” after changing the fourth digit; the value is stored and the display indicates “0000” again.

### SECURITY CODE

It is a further alphanumeric code for reciprocal recognition between machine and EVADTS terminal.

Programming works as in the “Pass” code.

Connection

This function places the machine in wait mode for connection to retrieve data.

### EVADTS CONNECTION

When activating this function, the machine awaits the connection with a device to acquire the EVADTS statistics.

## GSM

The control software can send, via GSM modem, a signal indicating a machine failure or an “ending product” “pre-alarm”, after dispensing a certain (programmable) number of selections of a given product.

### PIN CODE

This function is used for programming the identification code that will be sent to the GSM modem (optional) when switching the machine on.

### SETTING THE THRESHOLDS

This function is used for defining the number of pieces or grams of powder for a given product, after which a “ending product” pre-alarm is signalled via modem.

### RESETTING THE COUNTERS

With this function the counters that control the pre-alarms are reset.

### MACHINE BANK NUMBER

The number in the bank of machines (1 to 7) identifies the machines that have the “slave GSM” function, therefore sending data via the modem of the “master” machine.

The number 0 identifies the machine that is connected directly to the modem, i.e. the “master GSM”.



## Chapter 3 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 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).

**Under no circumstances should water jets be used to clean the machine.**

### ESPRESSO UNIT MAINTENANCE

Every 10,000 selections or every 6 months some maintenance of the coffee unit must be carried out.

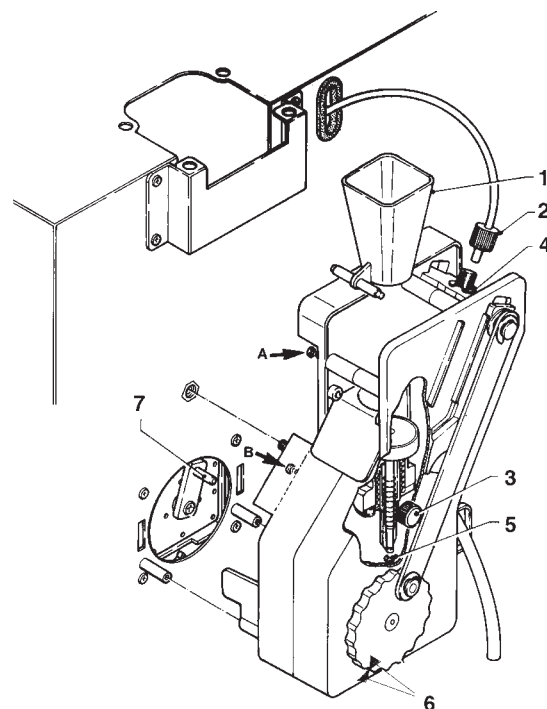
Maintenance is carried out as follows:

- remove the boiler Teflon hose connection from the upper piston, paying attention not to lose the seal (see Fig. 22);
- undo the knob securing the unit to the bracket;
- remove the coffee unit.

### Removing the upper filter

- Take the snap ring out of its seat;
- remove the piston from the crosspiece;
- remove the filter and the piston seal.

Fig. 22



- 1 - Coffee funnel
- 2 - Boiler connecting hose
- 3 - Unit securing knob
- 4 - Upper piston snap ring
- 5 - Lower piston snap ring
- 6 - Reference notches
- 7 - Ratiomotor handle pin

### Removing the lower filter

- Loosen screws A and B enough to release the coffee funnel (see fig. 22);
- remove the lower piston snap ring;
- take the piston out of brewing chamber and remove the filter.

Soak all components removed from the unit in a solution of boiling hot water and coffee machine detergent for approx. 20 minutes.

Thoroughly rinse and dry all parts, then reinstall them in the reverse order of disassembly, taking particular care that:

- the piston is positioned in the correct notch for the coffee dose used (see relevant section);
- the two reference notches match and that the coffee unit is inserted.

### Important notice!!!

**Check that the handle pin of the ratiomotor is correctly engaged in its seat.**



## BREWER UNIT MAINTENANCE

As well as cleaning every week and/or every 2500 selections, the brewer filter and gasket must be replaced every 25000 selections, even if apparently still efficient.

Every 100,000 selections the brewer unit must be disassembled completely to thoroughly clean all parts and replace the worn ones.

In any case, the brewing cylinder must be replaced even if apparently still efficient.

During these operations also the area under the brewing chamber must be cleaned.

### **Important notice!!**

Should the unit need to be removed completely, it must not be held by the cylinder or by the filter holder.

### **OVERHEATING PROTECTION**

If the brewer unit locks, the software control disconnects the power from the brewer unit's motor.

In any case the motor is fitted with an automatic reset overheating protection device.

## BOILER MAINTENANCE

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

**This operation should be carried out by qualified technicians only.**

To descale the boiler, it is necessary to remove it from the machine.

For descaling use only biodegradable, non-toxic and mild products.

Thoroughly rinse all parts before reassembling.

### **When reassembling make sure that:**

- the electrical contacts (terminals, fastons etc.) are thoroughly 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 operating without water, check the correct functioning of the boiler temperature sensor before restarting the machine.

If dry heating continues until the safety thermostat is activated (see hydraulic system) the boiler temperature sensor will be permanently damaged and must be replaced.



## CLEANING THE CUP DISPENSER

The cup dispenser was designed to be disassembled easily for maintenance operations.

Each single column of the cup stacker and the release ring can be disassembled without using tools.

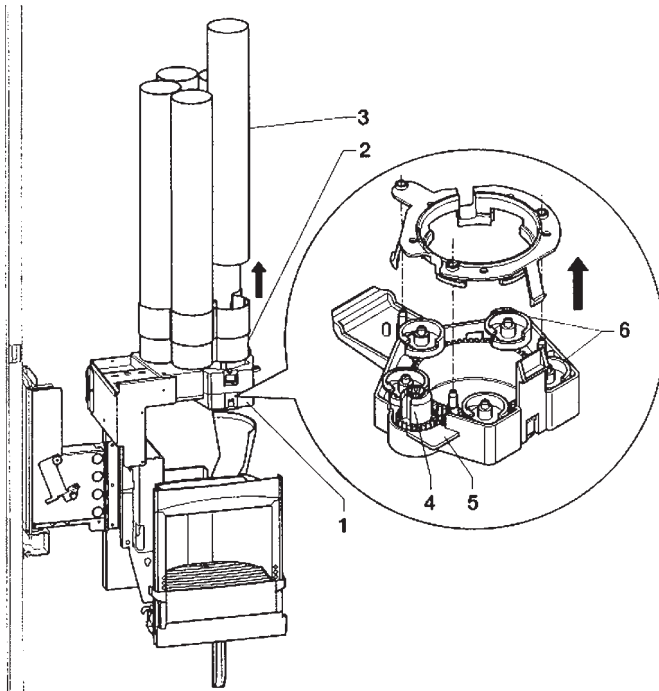
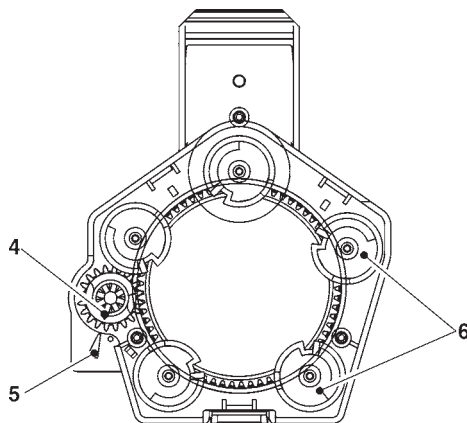


Fig. 23

- 1 - Cup release ring
- 2 - Cup stacker
- 3 - Removable column
- 4 - Microswitch actuation gear
- 5 - Snail gear support
- 6 - Cup release snail gears

Fig. 24



The cup release ring must not be opened for normal cleaning.

Should any adjustments be necessary during re-assembly, special attention must be paid to:

- line up the notch on the microswitch actuation gear with the arrow on the snail gear support.
- respect the orientation of the snail gears, as indicated in the figure.

## ANNUAL CLEANING

At least once a year, or more frequently according to the use of the machine and the quality of the inlet water, the entire foodstuff circuit system must be cleaned and sanitized in the following way:

### SANITISING

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

**Before restarting the machine, the same sanitising procedure described in section “Sanitising the mixers and the foodstuff circuits” should be repeated.**

### CLEANING THE PRODUCT CONTAINERS

- Remove the containers from the machine;
- undo the product ports and slide out the augers from back of the container;
- clean all parts in a solution of hot water and chlorine-based detergents and dry thoroughly.



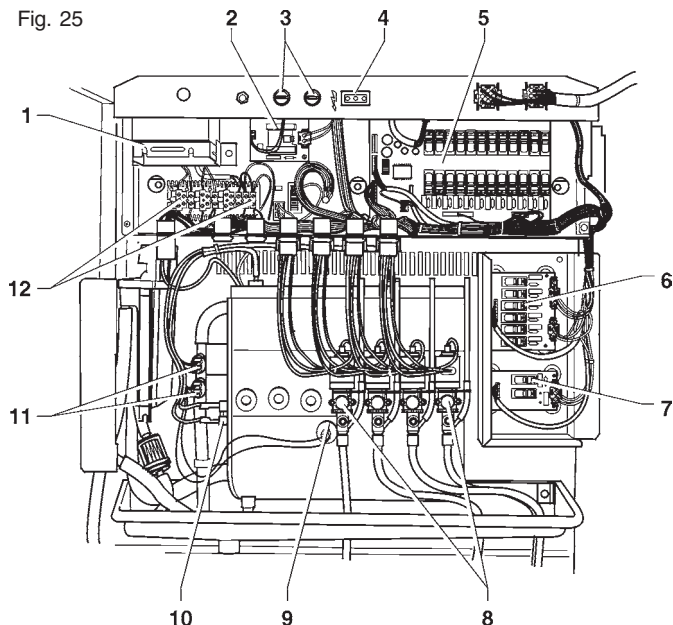
# PRINTED BOARD FUNCTIONS AND INDICATOR LAMPS

## ACTUATION BOARD

This board (see Fig. 25) activates the 230 V~ power users by means of relays. It controls the signals from the cams and/or the microswitches on the various power users. It also controls the boiler card and the relay card.

This board is powered with 24 VAC.

Fig. 25



- 1 - Transformer
- 2 - Instant boiler control board
- 3 - Mains fuses
- 4 - Permanently live socket
- 5 - Actuation board
- 6 - 6-relay card
- 7 - 3-relay card
- 8 - Instant prod. solenoid valves
- 9 - Boiler temperature probe
- 10 - Safety thermostat (manual reset)
- 11 - Anti-boiling thermostats (manual reset)
- 12 - Transformer fuses

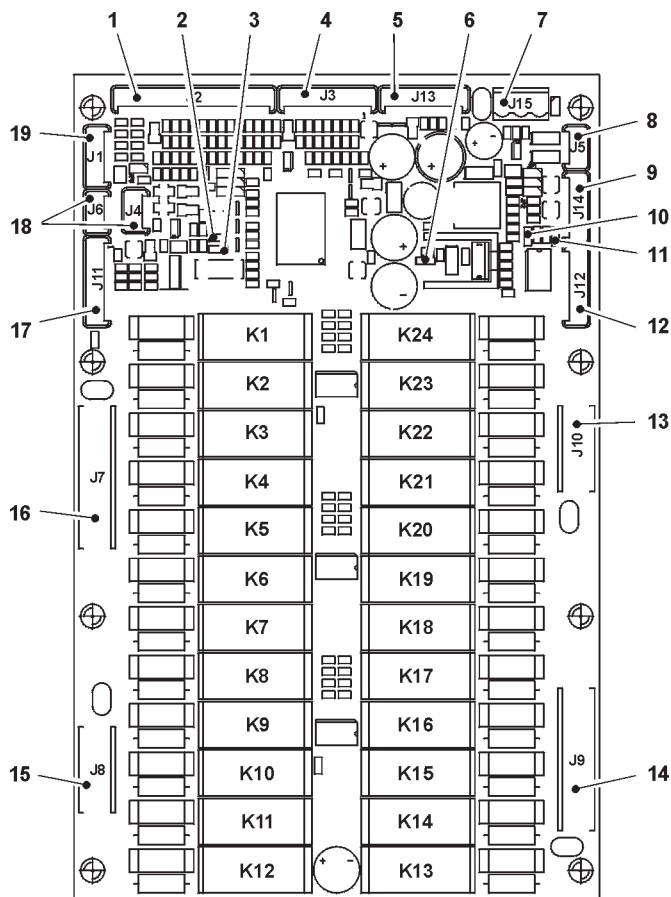
### RELAY FUNCTION (see Wiring diagram)

K1	=	EEA	
K2	=	MSB	
K3	=	MSCB	
K4	=	MDZ	
K5	=	MSP	
K6	=	ESC2	VENT
K7	=	MSU	
K8	=	PM	MF3
K9	=	MD1	
K10	=	MF1	
K11	=	MD2	
K12	=	MF2	
K13	=	E1	
K14	=	E2	
K15	=	E3	
K16	=	E4	
K17	=	E5	
K18	=	E6	
K19	=	LF	
K20	=	MAC	MD4 MDFB
K21	=	ESC	MD5 MFB
K22	=	ER	MF5 MPF
K23	=	M	MD3 MDFB
K24	=	MAC2	MF4 MFFB

The control software of the board is installed directly (via RS232) in the microprocessor.

- the green LED (2) blinks during normal operation of the board
- the yellow LED (6) indicates the presence of 5 V DC
- the red LED (3) glows during the board reset
- the red LED (10) indicates the operating status of the Espresso boiler heating element
- the red LED (11) indicates the operating status of the Instant boiler heating element

Fig. 26



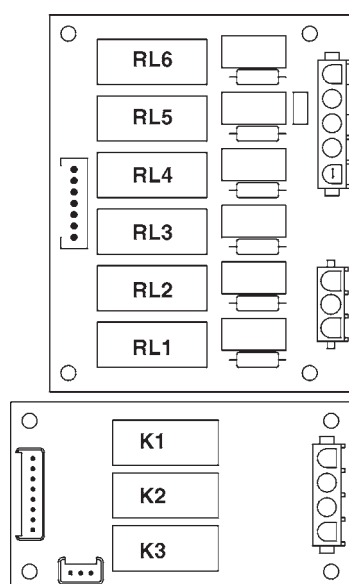
- 1 - Input signal
- 2 - Green LED
- 3 - Red LED
- 4 - Input signal
- 5 - Connector for board programming (RS232)
- 6 - Yellow LED
- 7 - Board power supply (24 VAC)
- 8 - Not used
- 9 - Boiler control probes
- 10 - Red LED - espresso boiler heating element
- 11 - Red LED - instant boiler heating element
- 12 - Connection to 6-relay card
- 13 - 230 V~ power users
- 14 - 230 V~ power users
- 15 - 230 V~ power users
- 16 - 230 V~ power users
- 17 - Connection to 3-relay card
- 18 - "Can Bus" connection
- 19 - Not used



## RELAY CARDS

The 6 and 3 relay cards are controlled by the actuation board and control some 230 V~ power users.

Fig. 27



RELAY FUNCTION (see Wiring diagram)

RL1	=	MF8	MPF
RL2	=	MD6	MDFB
RL3	=	MF6	
RL4	=	MF7	MFFB
RL5	=	MD7	MDFB
RL6	=	MD8	MFB
K1	=	LF (door)	
K2	=	MAS	
K3	=	EVT	

## BOILER CONTROL CARDS

This board (see Fig. 25) controls the instant boiler heating element.

The coffee boiler is controlled by a similar card fitted in the espresso module.

## C.P.U. BOARD

The C.P.U. (Central Processing Unit) board controls all power users set for the maximum configuration and processes the input signals from the keypad, the payment system and controls the actuation board.

The Leeds furnish the following indications during the vending machine operation:

- the green LED blinks during normal operation of the C.P.U. board
- the yellow LED glows when 5 V DC are present
- the red LED glows when, for any reason, the software is reset.

This board is preset for the MDB protocol.

The 4 dip-switches for setting the SW2 coin mechanism (see Fig. 29) should be set to OFF for Executive-BDV and to ON for MDB.

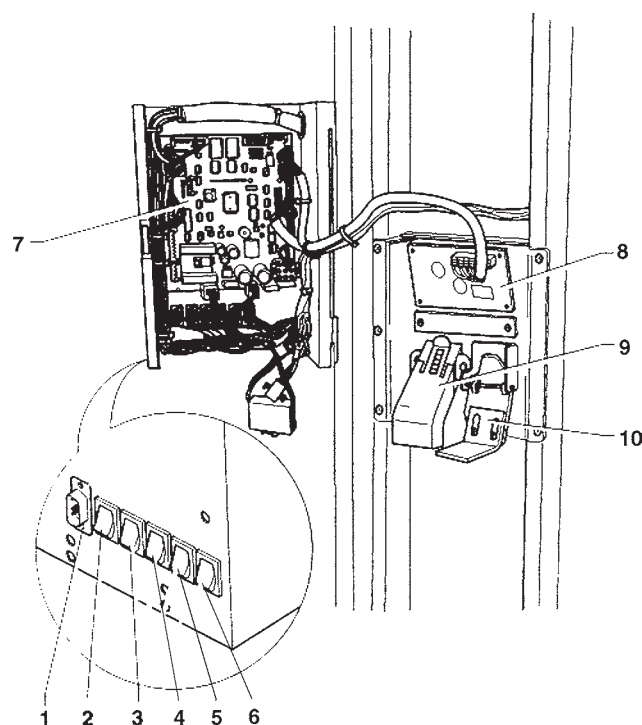


Fig. 28

- 1 - RS232 serial port
- 2 - "Flush" button
- 3 - "Statistics" button
- 4 - "Spout" button
- 5 - "Programming" button
- 6 - "Ingredient priming" button
- 7 - C.P.U. board
- 8 - Display card
- 9 - Coin chute
- 10 - Coin return lever



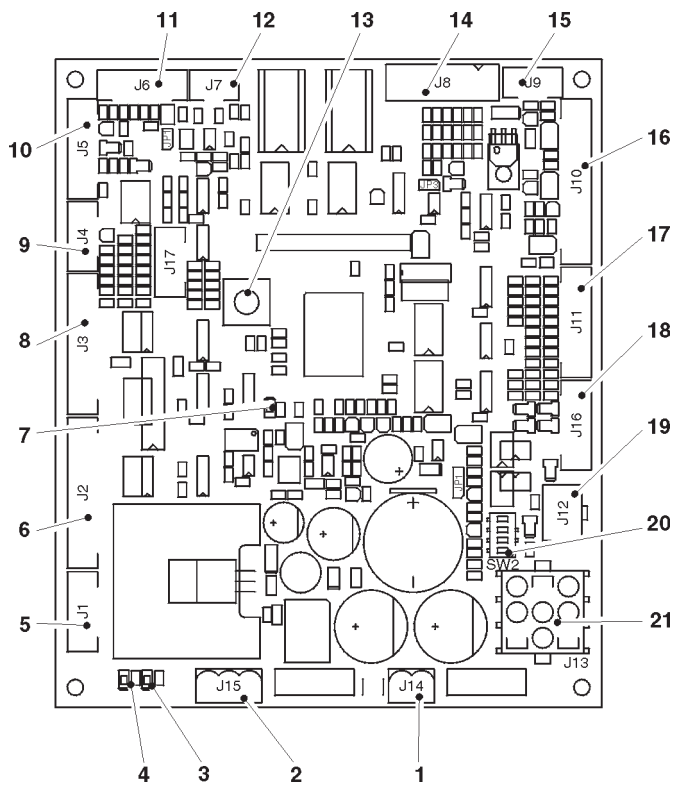


Fig. 29

- 1 - J14 Coin mechanism power supply
- 2 - J15 Board power supply
- 3 - Green LED: run (DL2)
- 4 - Yellow LED: 5 V DC (DL1)
- 5 - Connection to 24 V outputs
- 6 - Connection to 24 V outputs
- 7 - Red LED: CPU reset (DL3)
- 8 - J3 Input/output
- 9 - J4 Not used
- 10 - J5 Programmer (RS232)
- 11 - J6 Not used
- 12 - J7 Can-Bus
- 13 - Pre-programming button
- 14 - J8 Validators
- 15 - J9 Not used
- 16 - J10 LCD display
- 17 - J11 Keypad
- 18 - J16 Keypad
- 19 - J12 MDB coin mechanism
- 20 - Coin mechanism setting minidips (SW2)
- 21 - J13 Expansion for BDV / EXE

## CONFIGURING THE ELECTRONIC BOARDS

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

In the event of replacement, or when wishing to change the machine performance, it will be necessary to check the configuration of the boards and install the appropriate software.

### 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 Palmtop) the machine management software can be updated without replacing the EPROMs.

### PRE-PROGRAMMING

With the new board, after installing the appropriate software, it will be necessary to define which type of keypad to use before initialising and programming the various parameters.

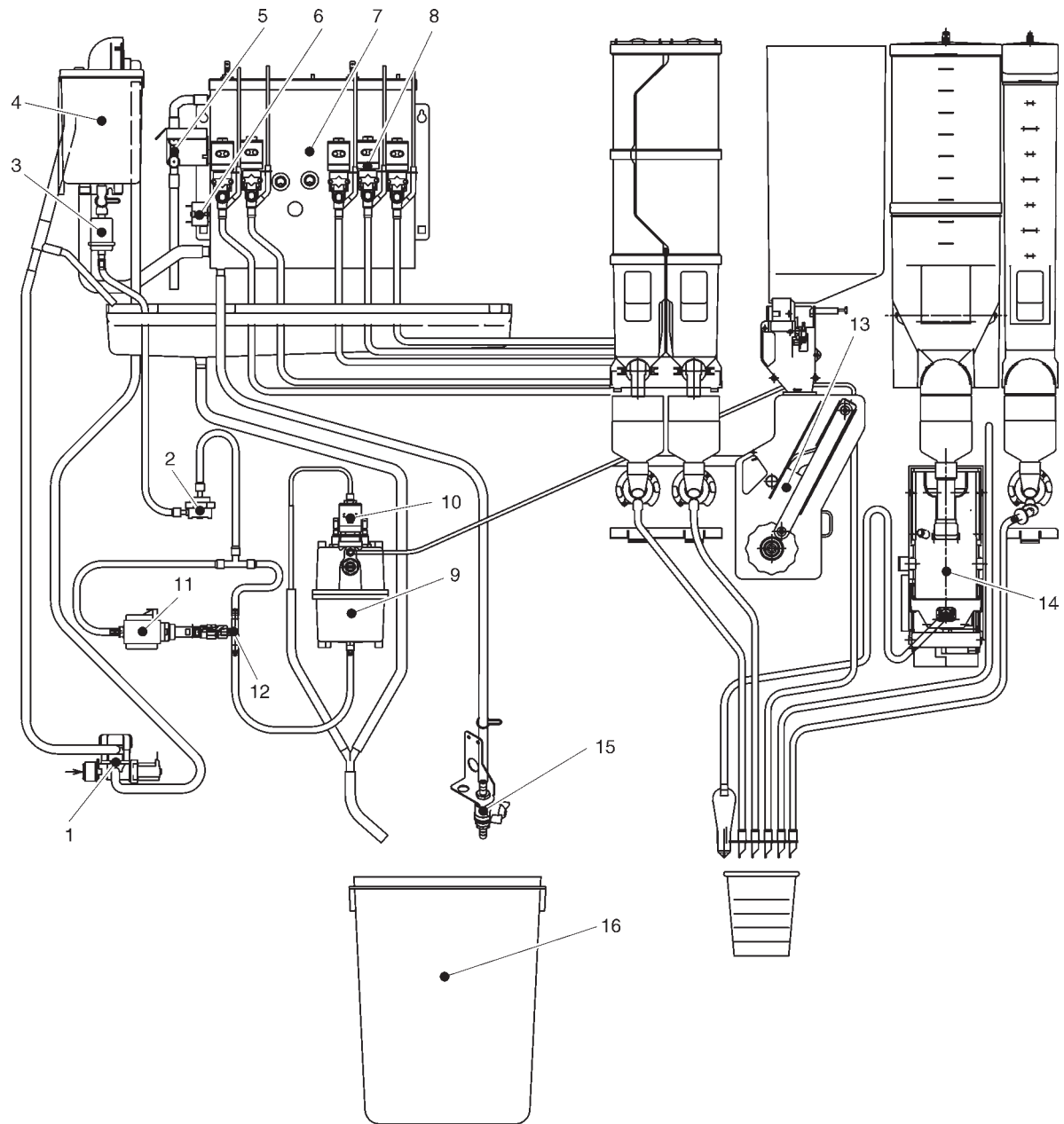
In order to access the pre-programming function (choice of keypad) it will be necessary keep pressed the pre-programming button (see Fig. 29-13) while switching the machine on.

The display will indicate the blinking message "Pre-programming" and by quickly pressing button (13) it will be possible to scroll through the list of keypads (Astro - Numeric - Oblò etc.).

Keep button (13) pressed until a sound signal is emitted, the keypad indicated on the display will be stored and will be possible to initialise the machine.



## HYDRAULIC SYSTEM FOR ESPRESSO/FRESH BREW



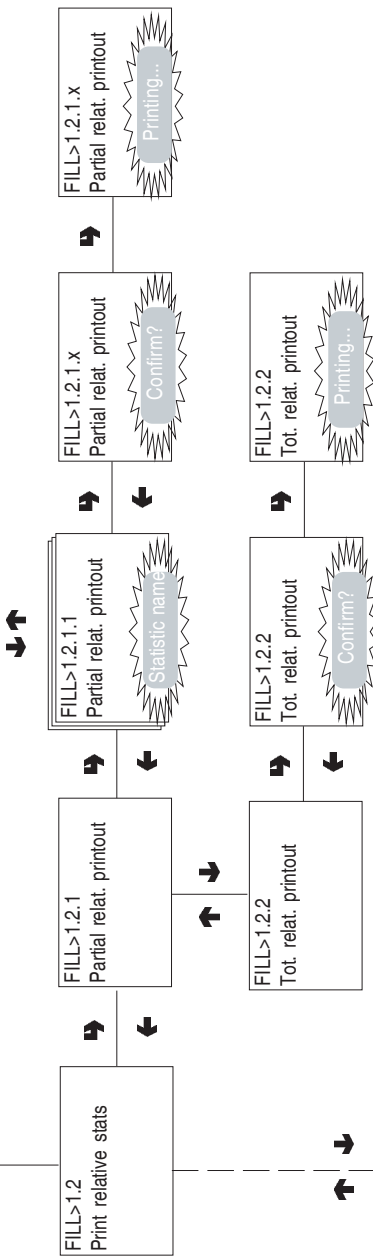
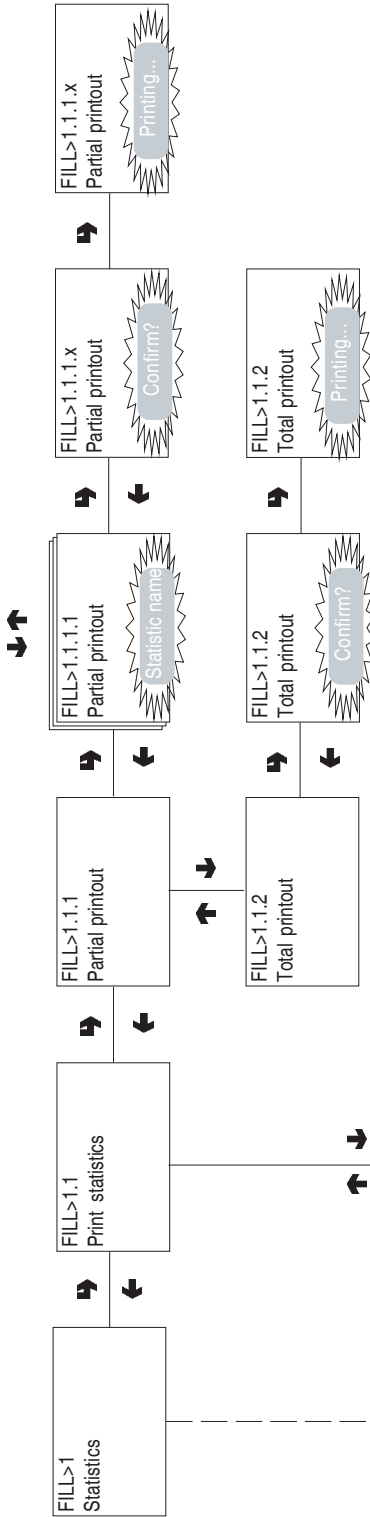
- 1 - Water inlet solenoid valve
- 2 - Volumetric counter
- 3 - Mechanical filter
- 4 - Air-break
- 5 - Anti-boiling thermostat
- 6 - Safety thermostat
- 7 - Instant prod. boiler
- 8 - Instant prod. solenoid valves

- 9 - Espresso boiler
- 10 - Espresso solenoid valve
- 11 - Vibration pump
- 12 - Bypass
- 13 - Espresso unit
- 14 - Fresh-brew unit
- 15 - Instant boiler drain valve / service hot water
- 16 - Liquid waste container



Filler menu - Summary

- TOTAL STATISTICS**  
With the printer connected  
print all data as displayed
- Print data for:  
Selections  
Time bands  
Discounts  
Failures  
Coin mechanism data
- Heading:**  
Current date  
Machine model  
Software edition  
Operator code  
Machine code  
Installation date

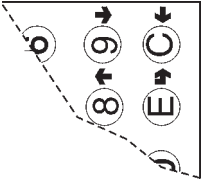


FILL>1.3  
Display statistics

**RELATIVE STATISTICS**

- Print data for:  
Selections  
Time bands  
Discounts  
Failures  
Coin mechanism data

- ↑ NEXT FUNCTION/  
INCREASE DATA UNIT (+1)
- ↓ PREVIOUS FUNCTION/  
DECREASE DATA UNIT (-1)
- CONFIRM DATA/  
CONFIRM FUNCTION
- ← DELETED DATA/  
EXIT FUNCTION



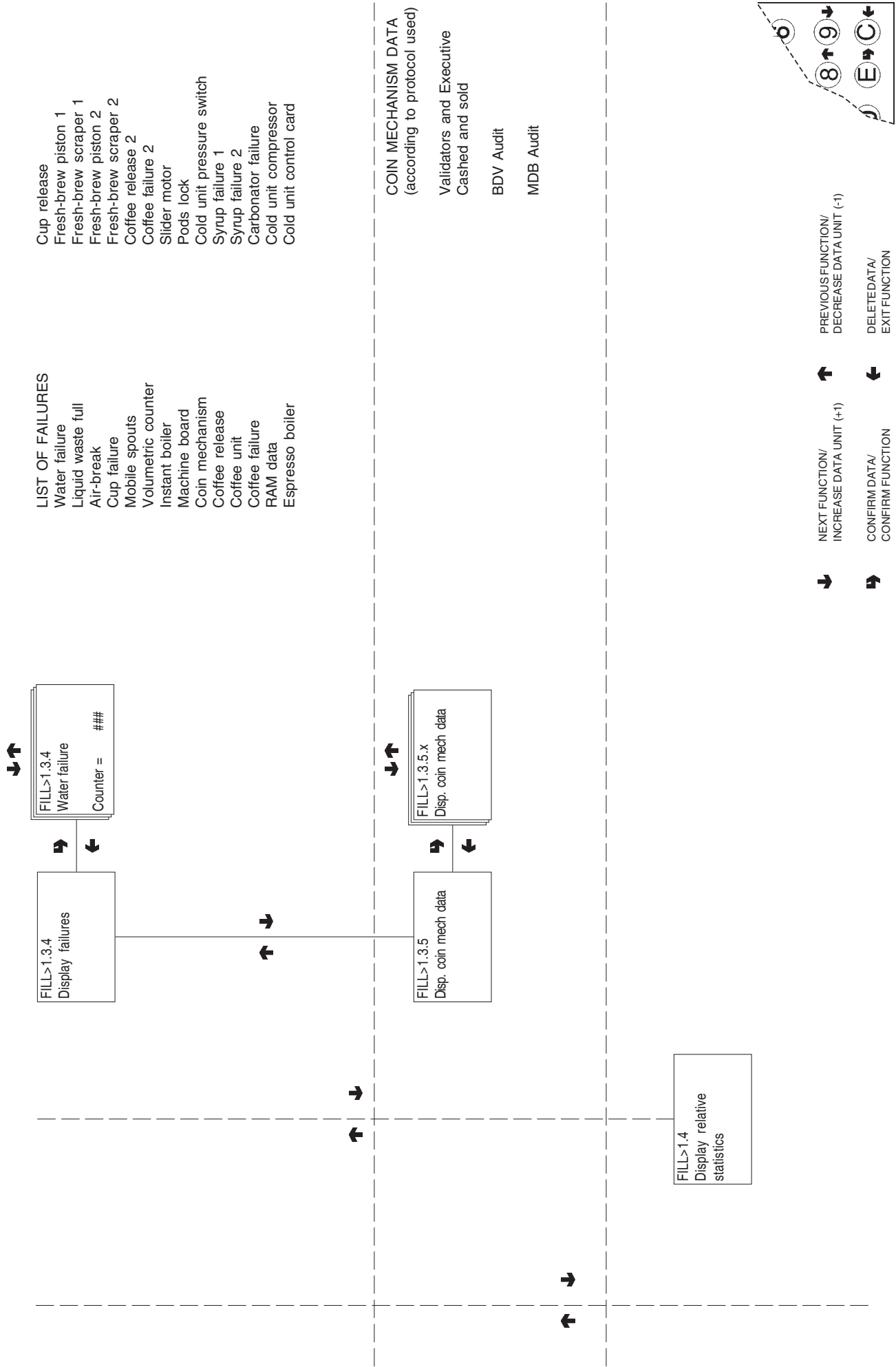


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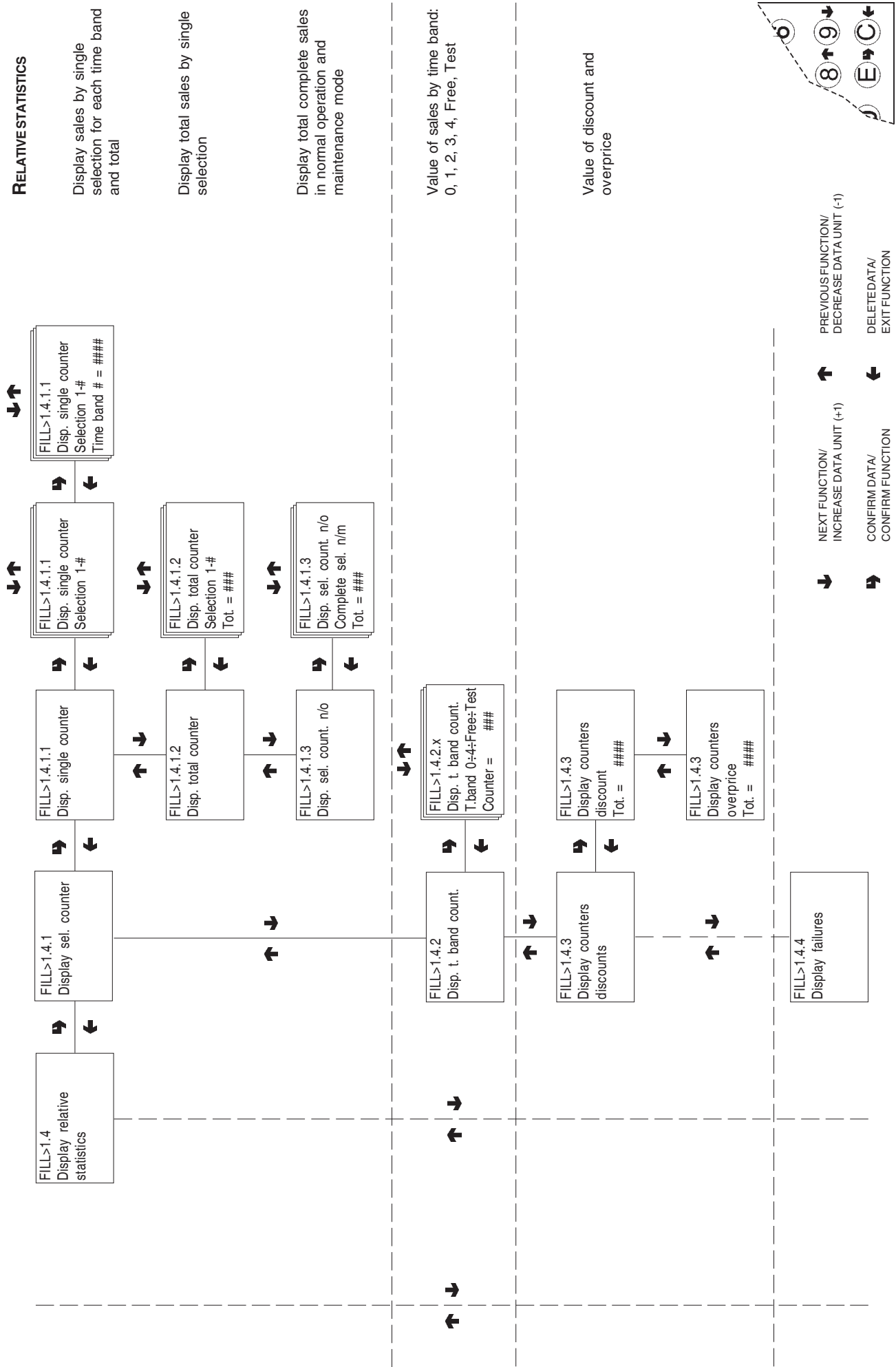


Filler menu - Summary





Filler menu - Summary



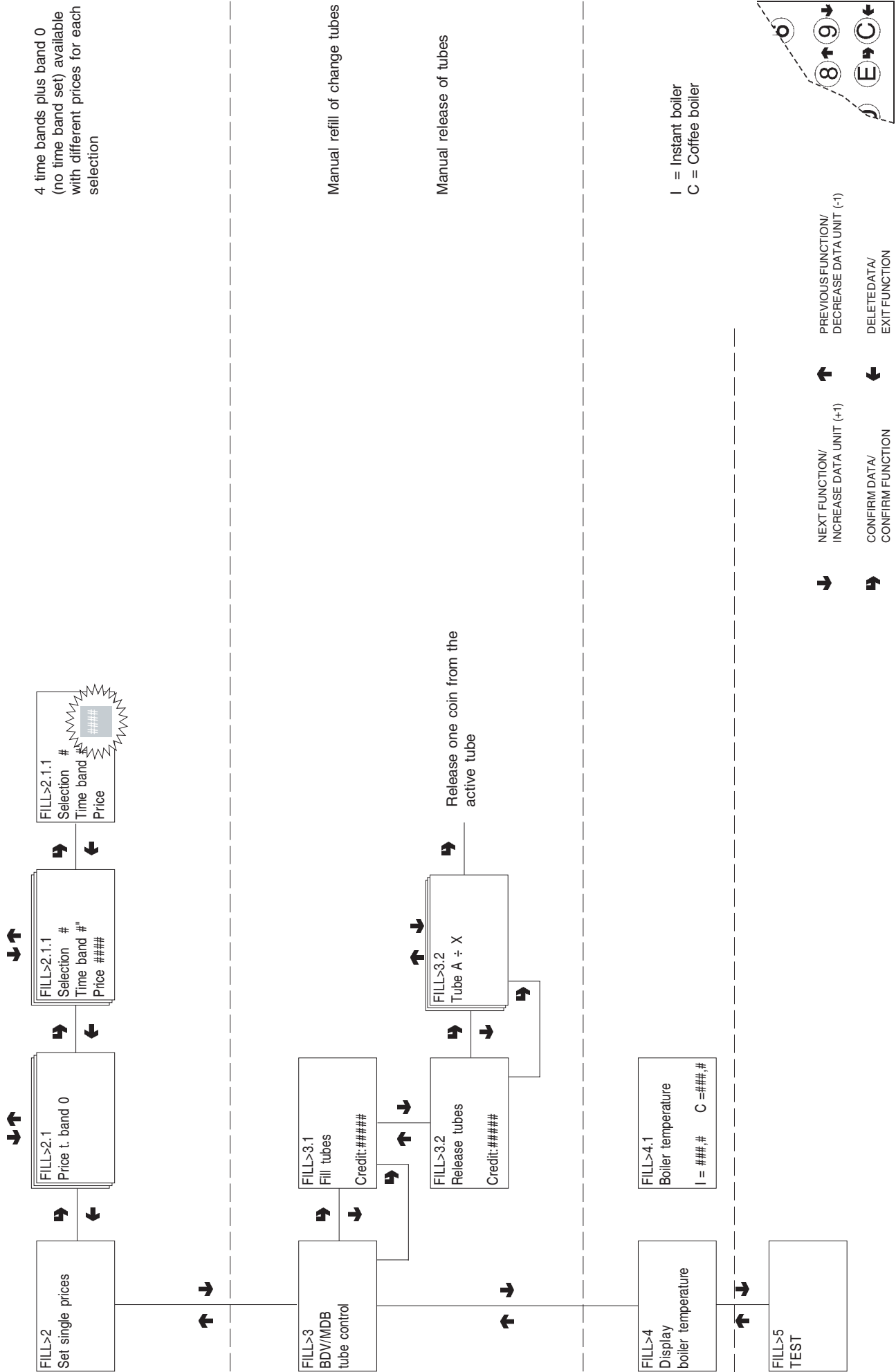


## RELATIVE STATISTICS



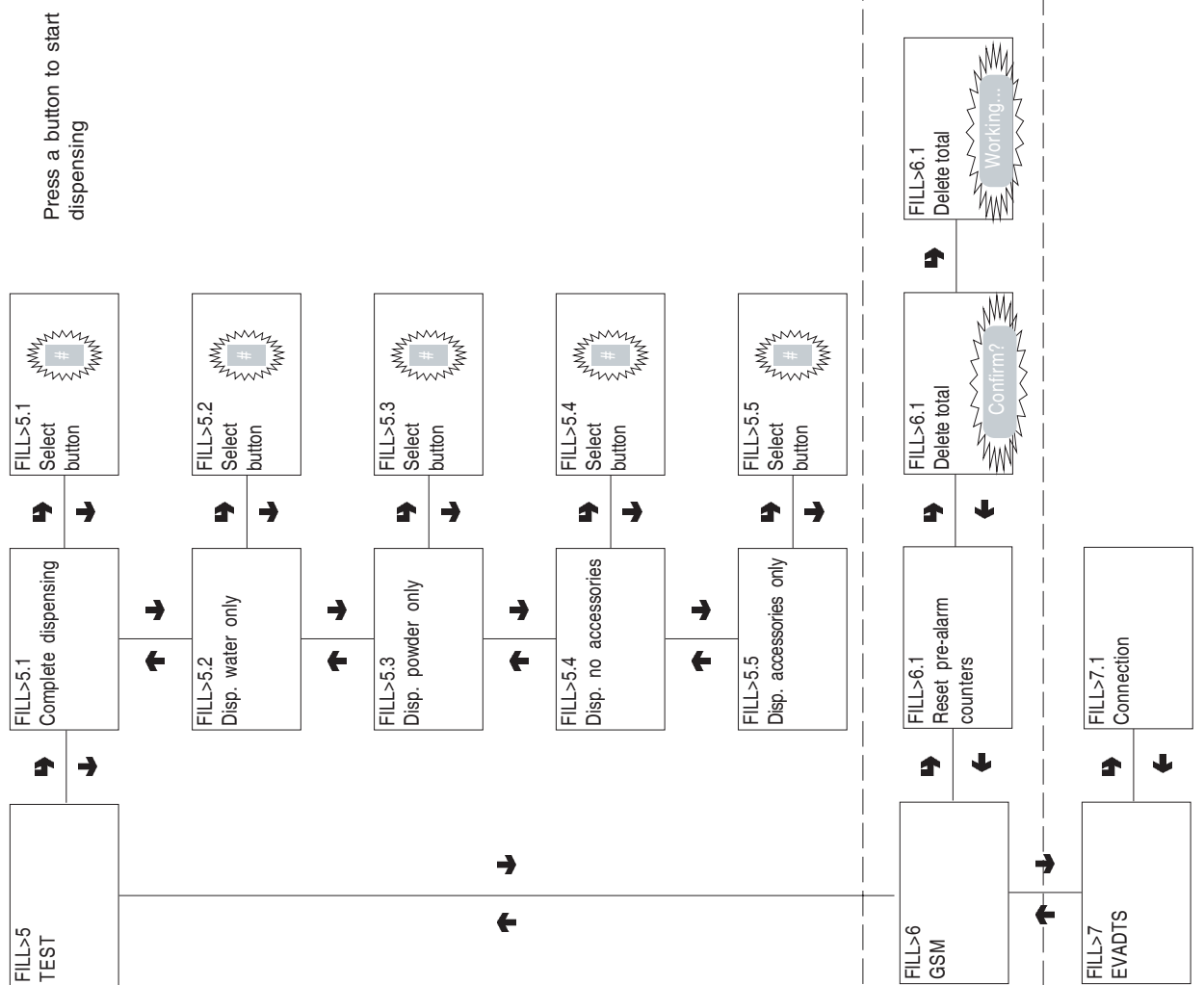


Filler menu - Summary



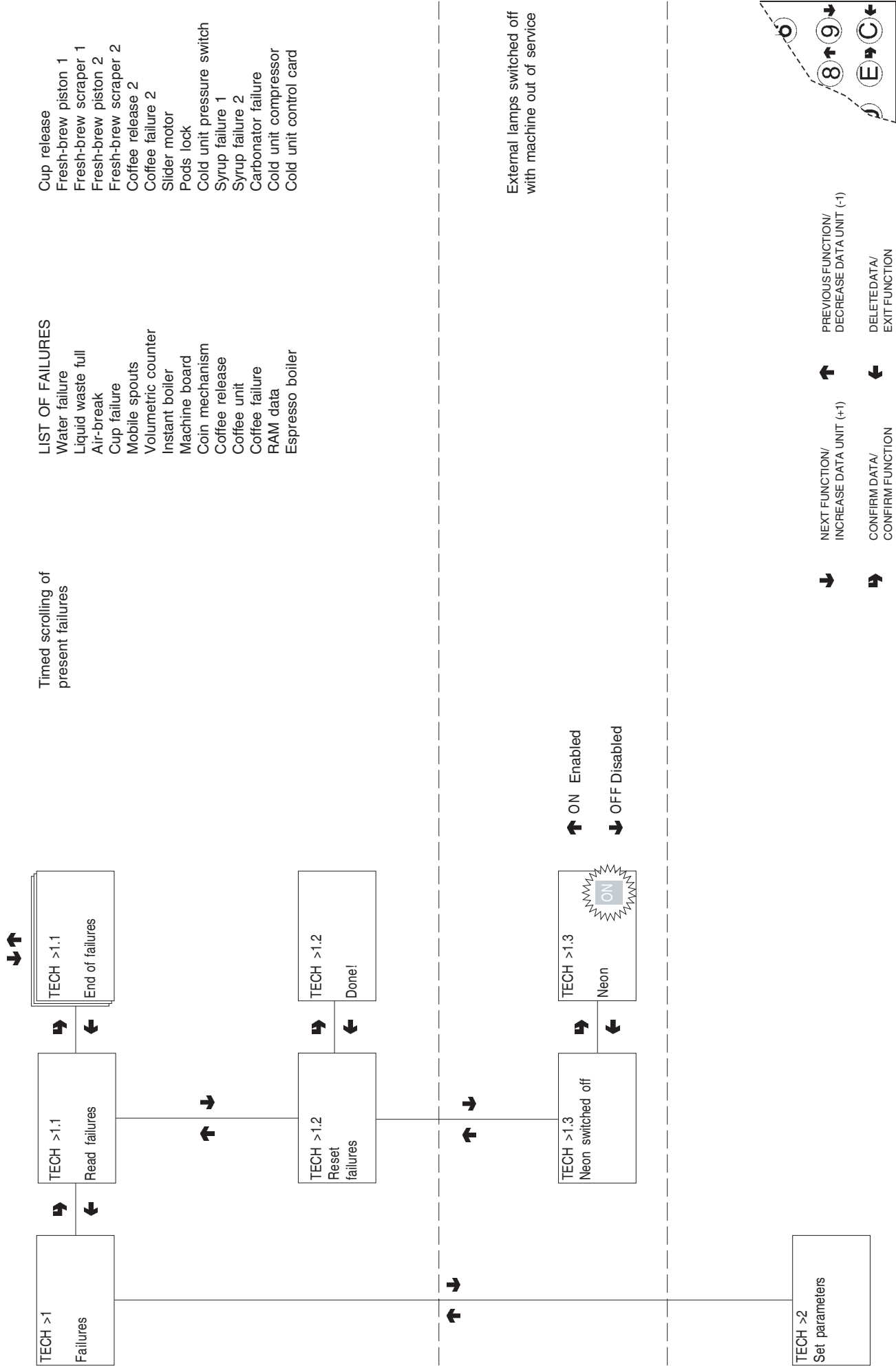


## Filler menu - Summary



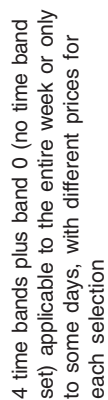


Technician menu - Summary



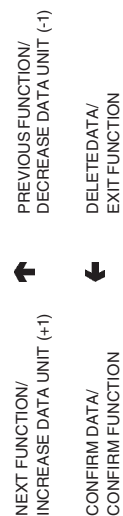


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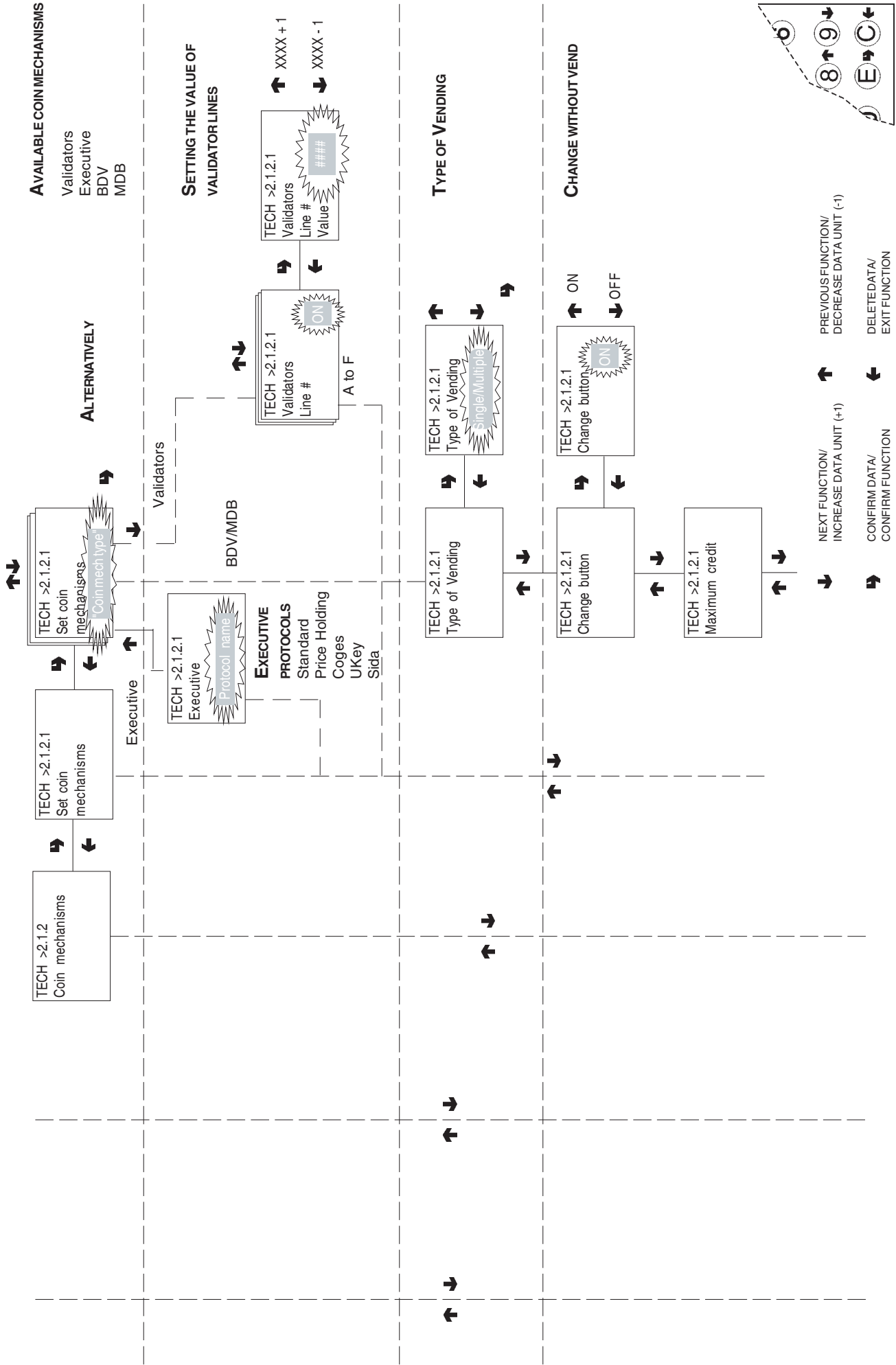
When confirming the blinking values, day, month, year and week day are entered one after the other. When confirming the week day, hour and minutes are displayed, which can then be changed and confirmed.

When confirming the blinking values, hour and minute for start and end of time band are entered one after the other. If start and end values are set to 24.00 the time bands are deactivated.



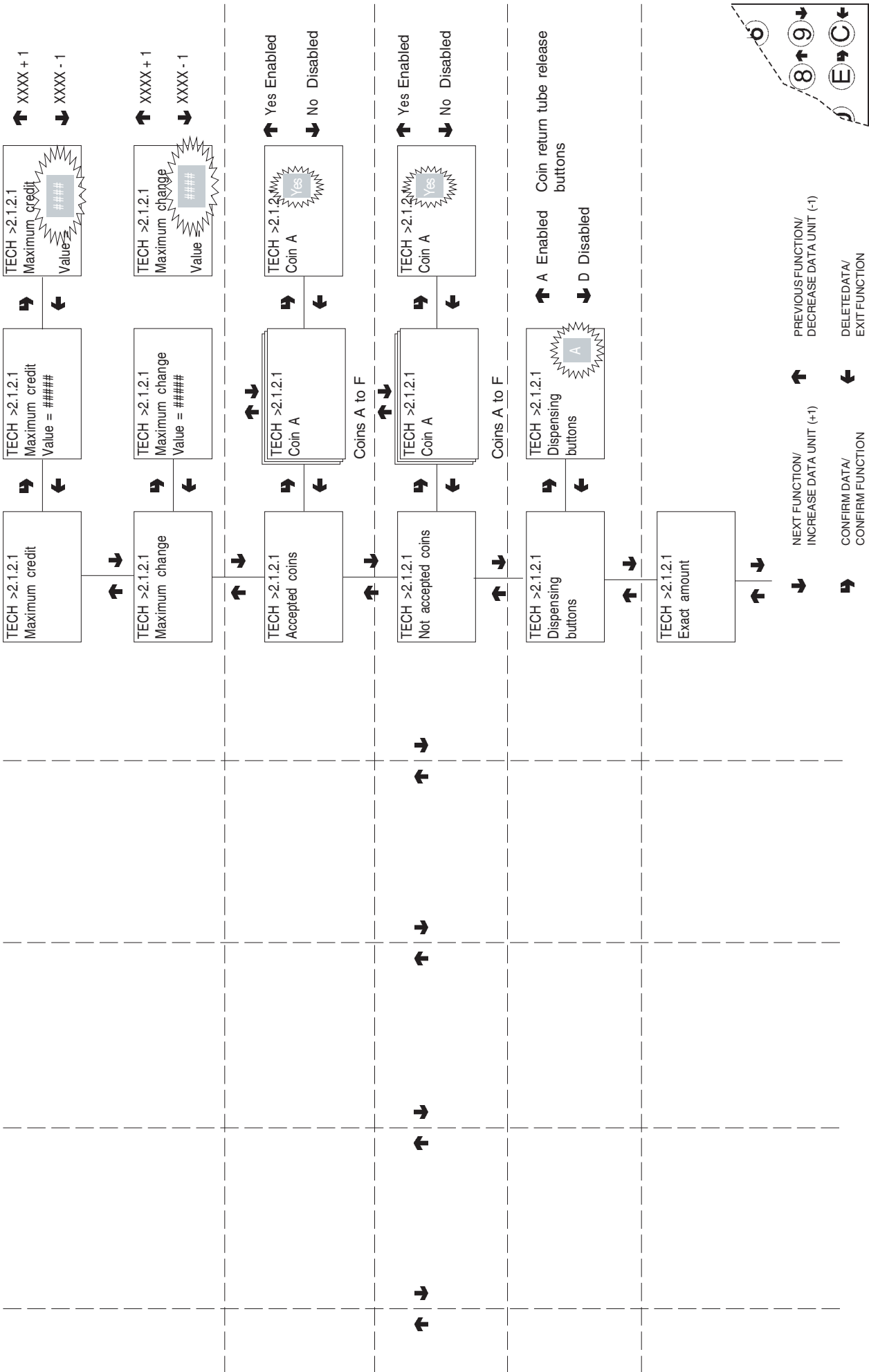


Technician menu - Summary



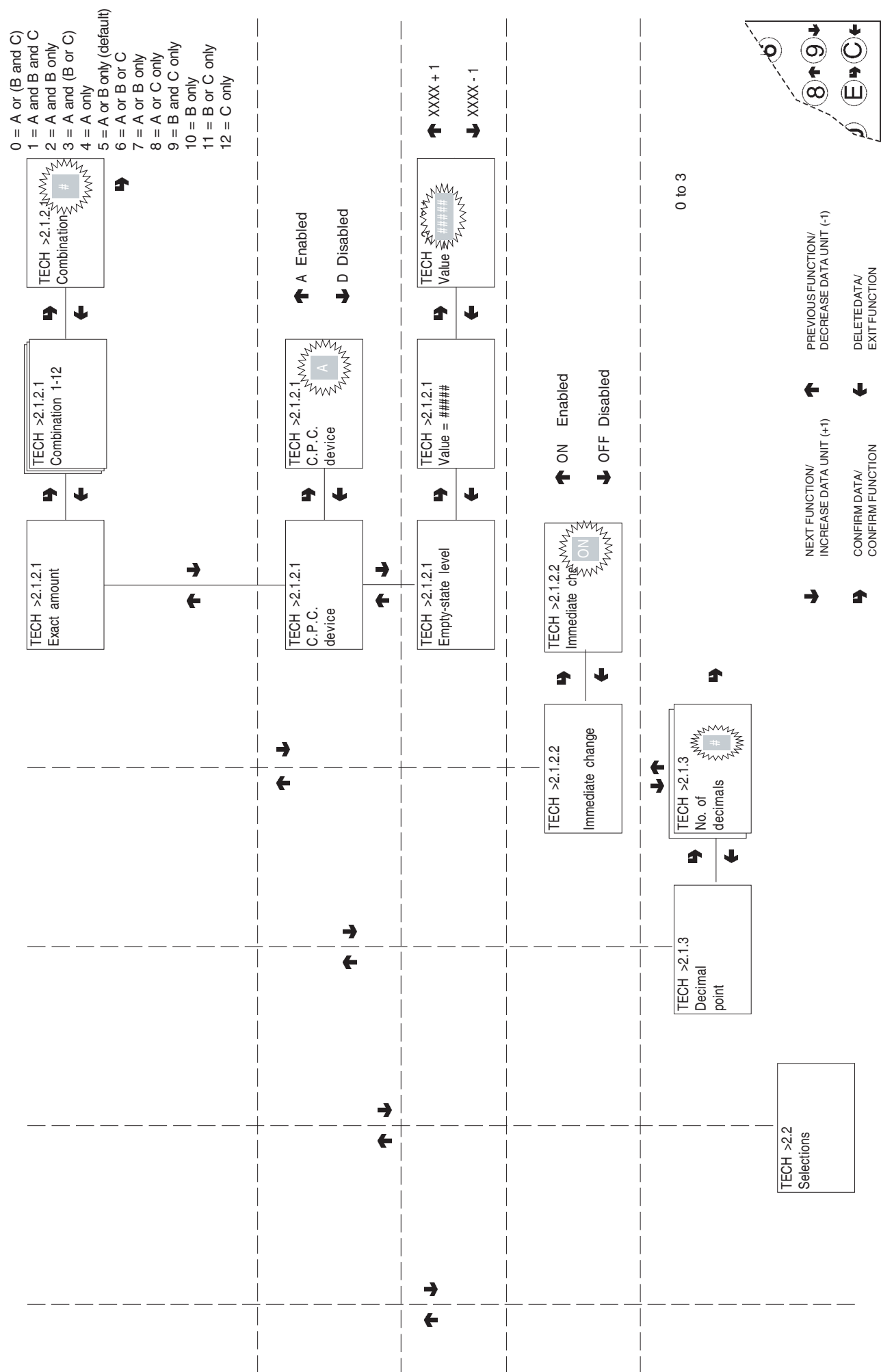


## Technician menu - Summary



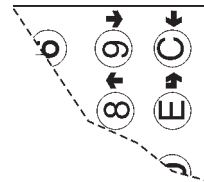
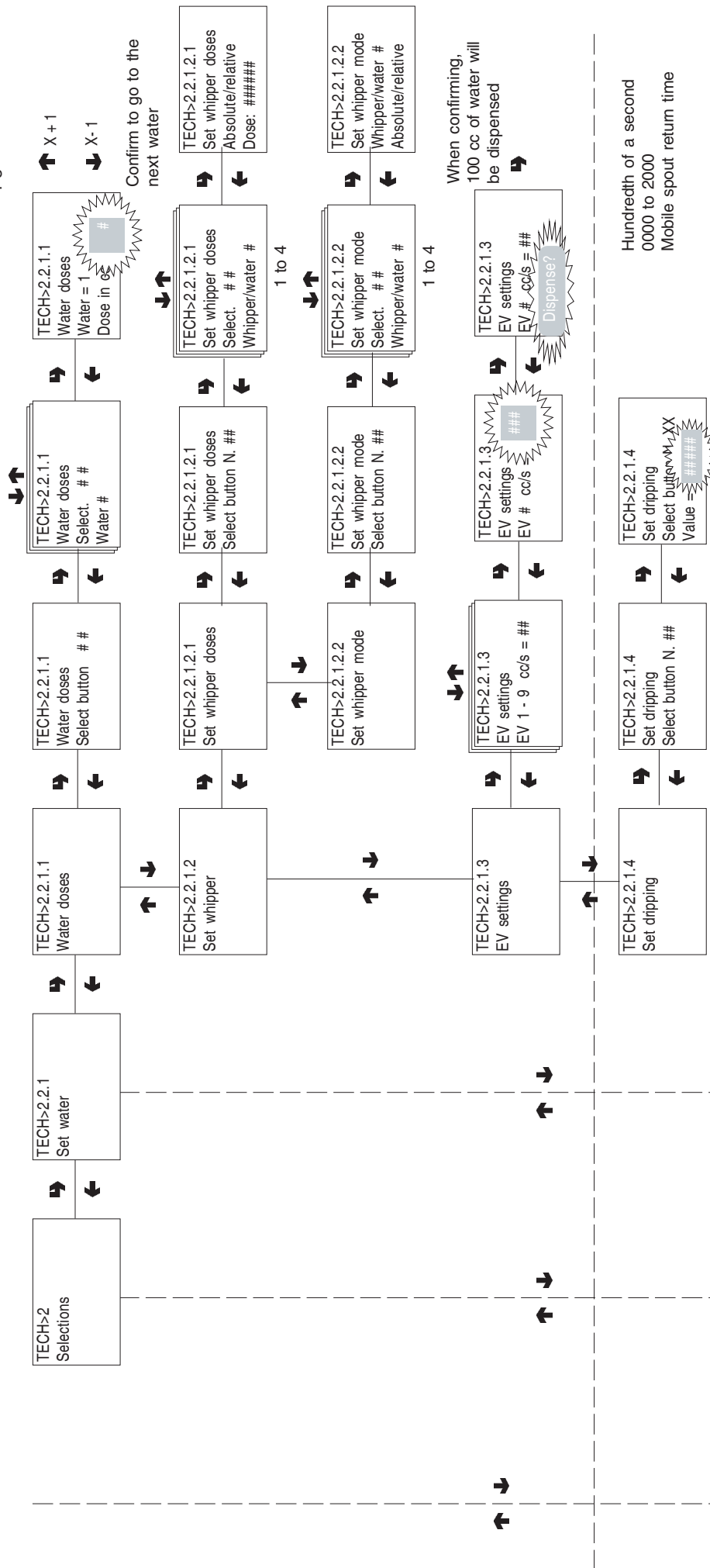


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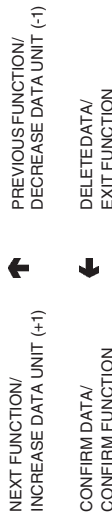
## Technician menu - Summary

Available water doses  
1-3

<p>➡</p> <p>NEXT FUNCTION/ INCREASE DATA UNIT (+1)</p>	<p>⬅</p> <p>PREVIOUS FUNCTION/ DECREASE DATA UNIT (-1)</p>
<p>➡</p> <p>CONFIRM DATA/ CONFIRM FUNCTION</p>	<p>⬅</p> <p>DELETED DATA/ EXIT FUNCTION</p>



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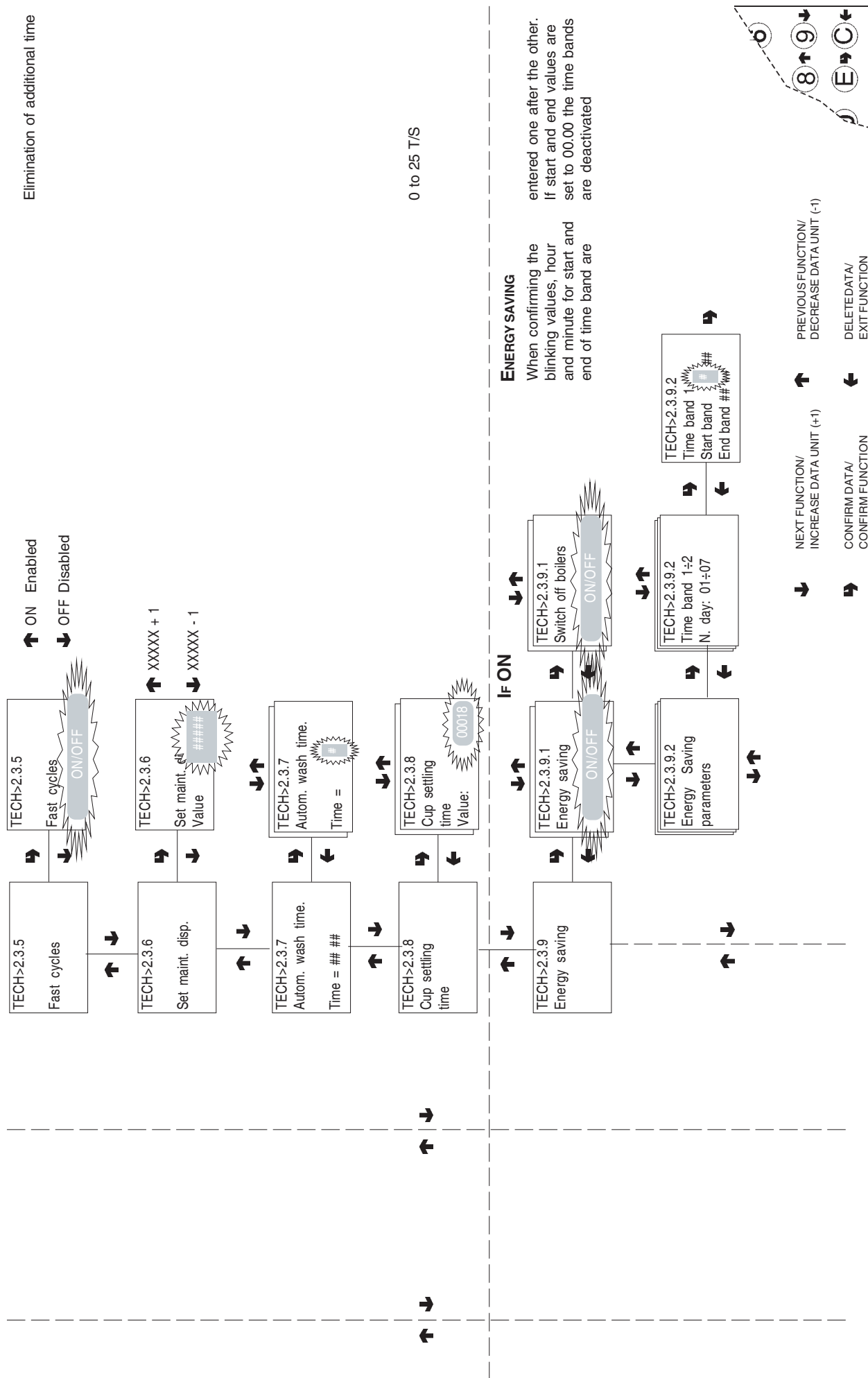


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## Technician menu - Summary





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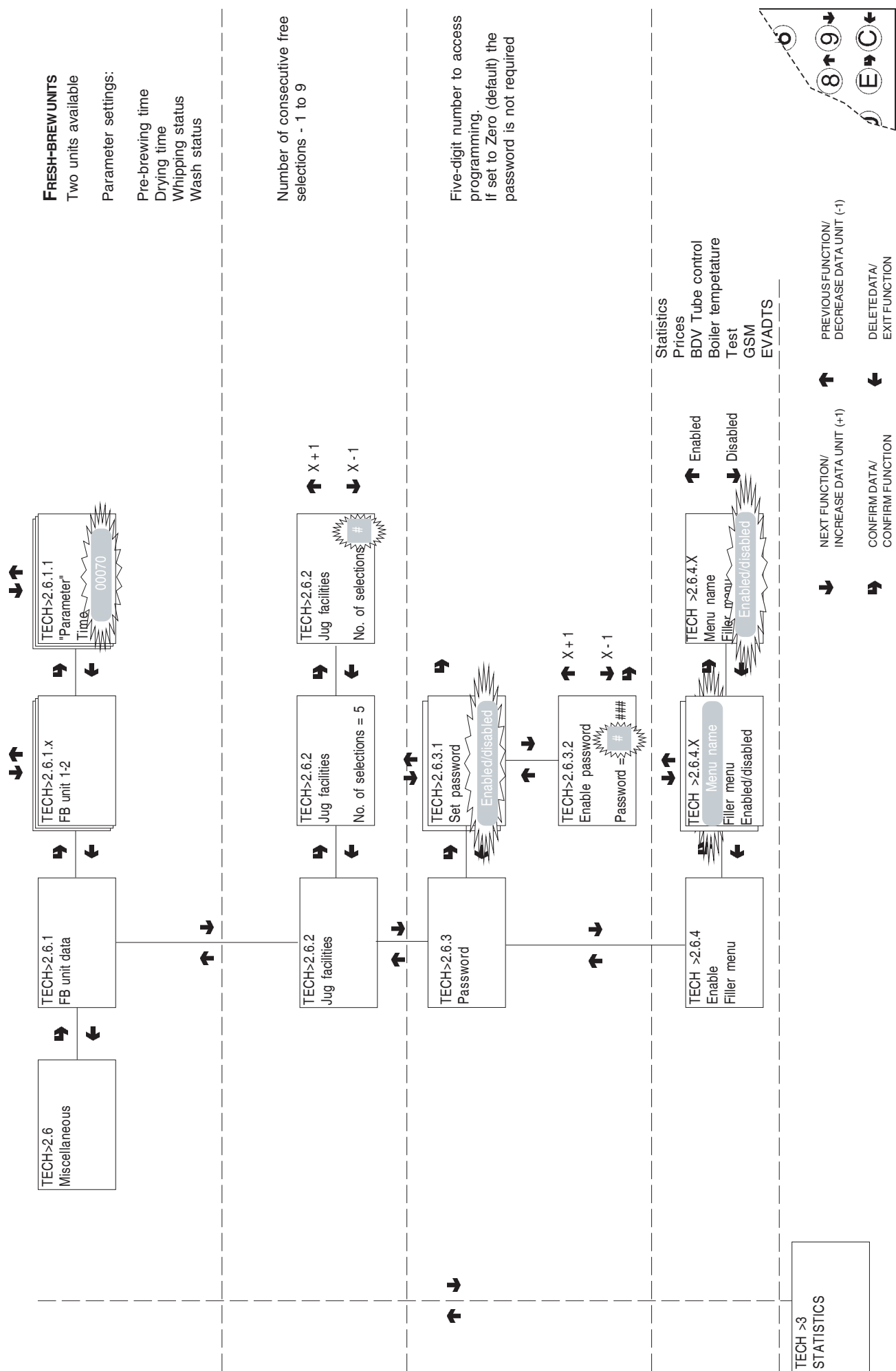


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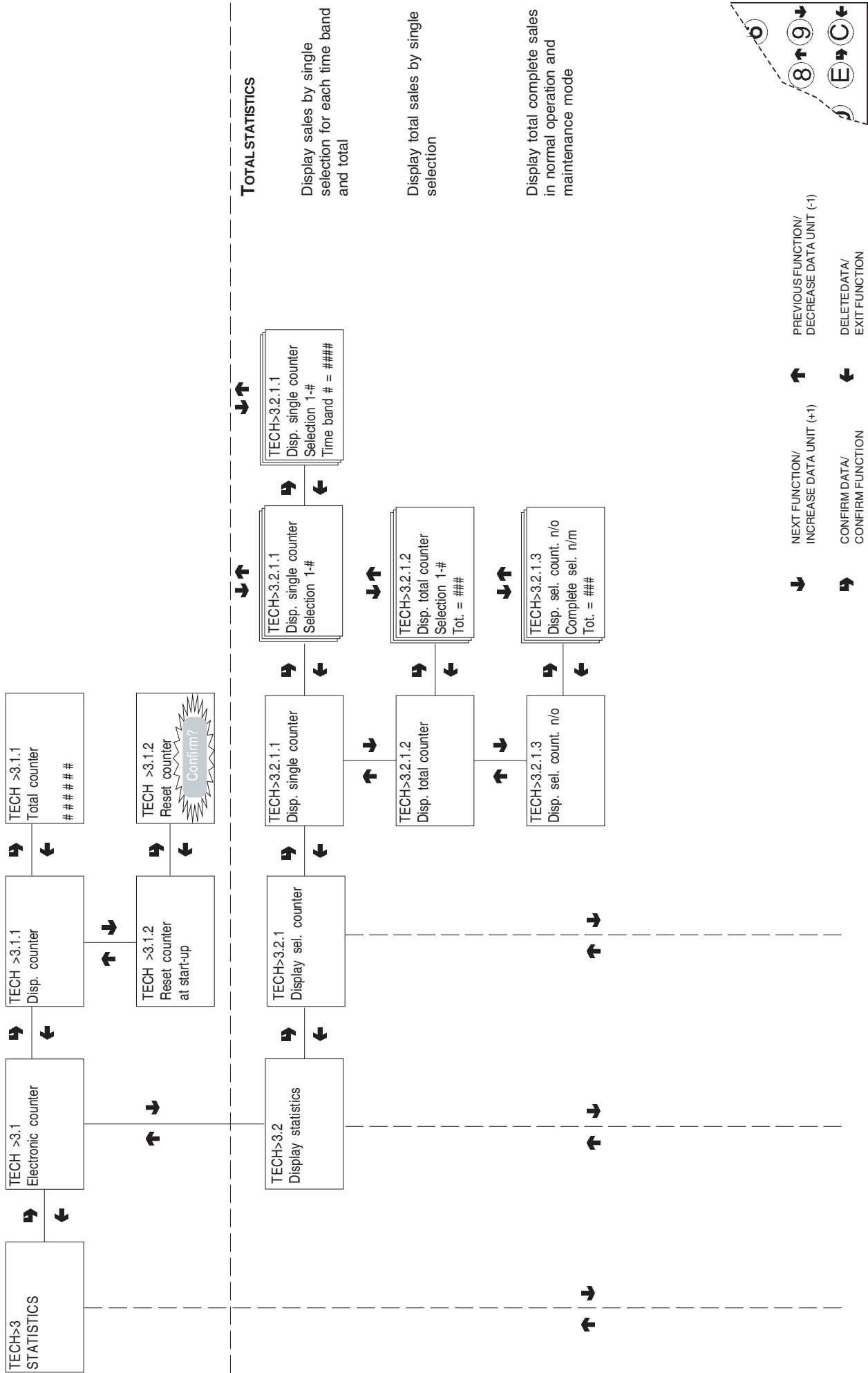


## Technician menu - Summary



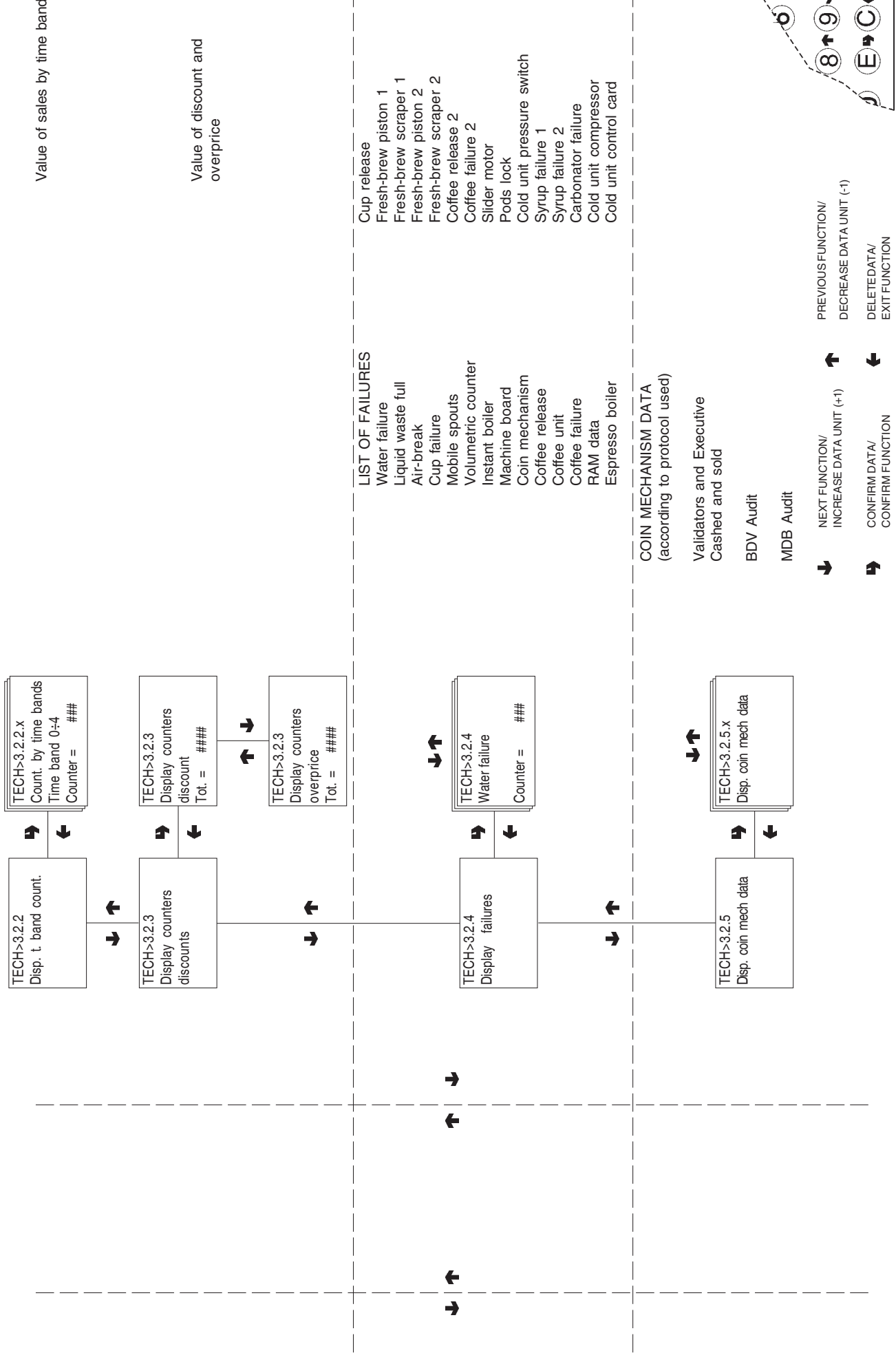


Technician menu - Summary





Technician menu - Summary



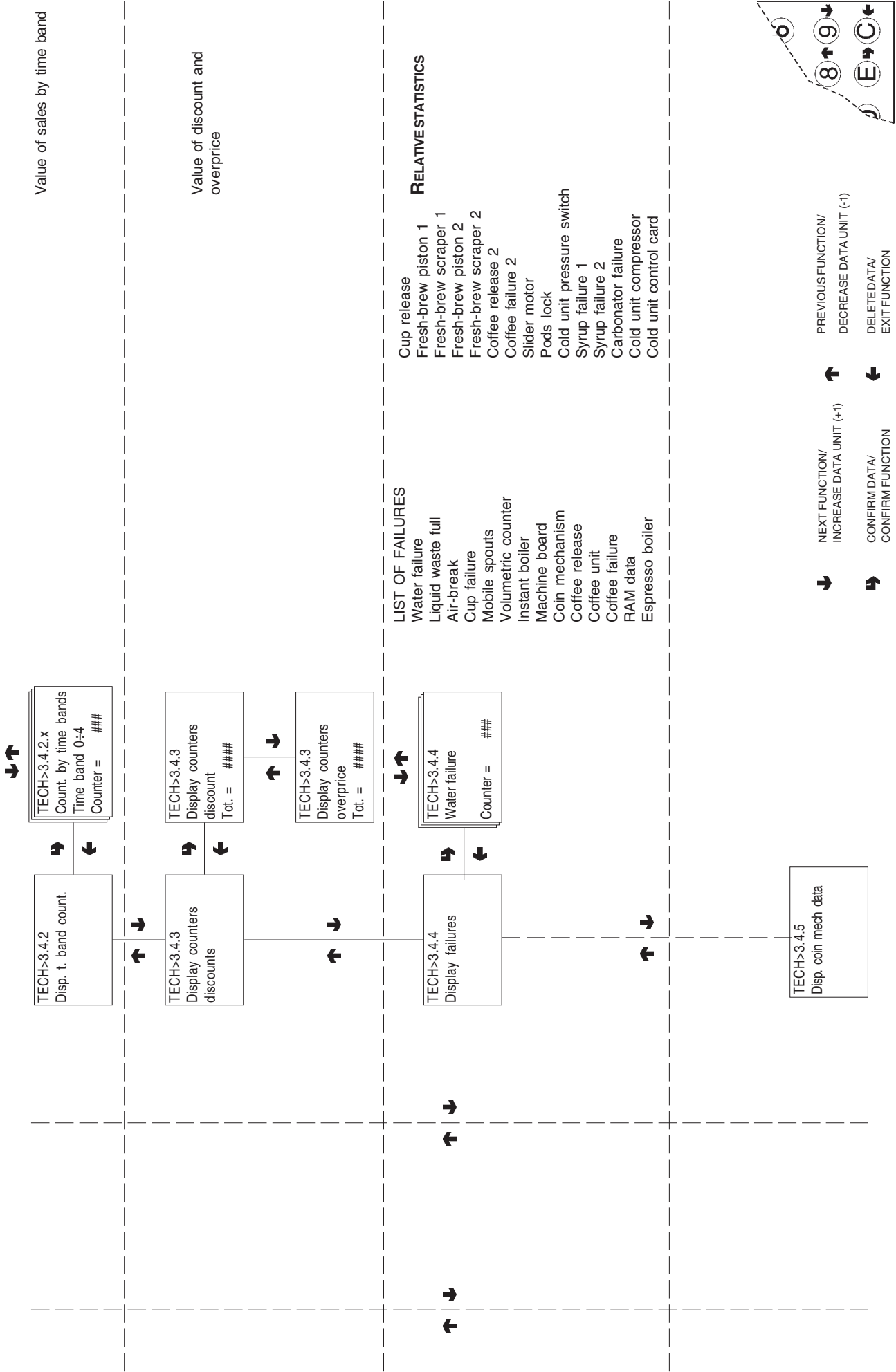


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Technician menu - Summary



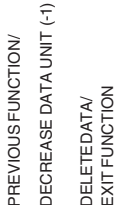


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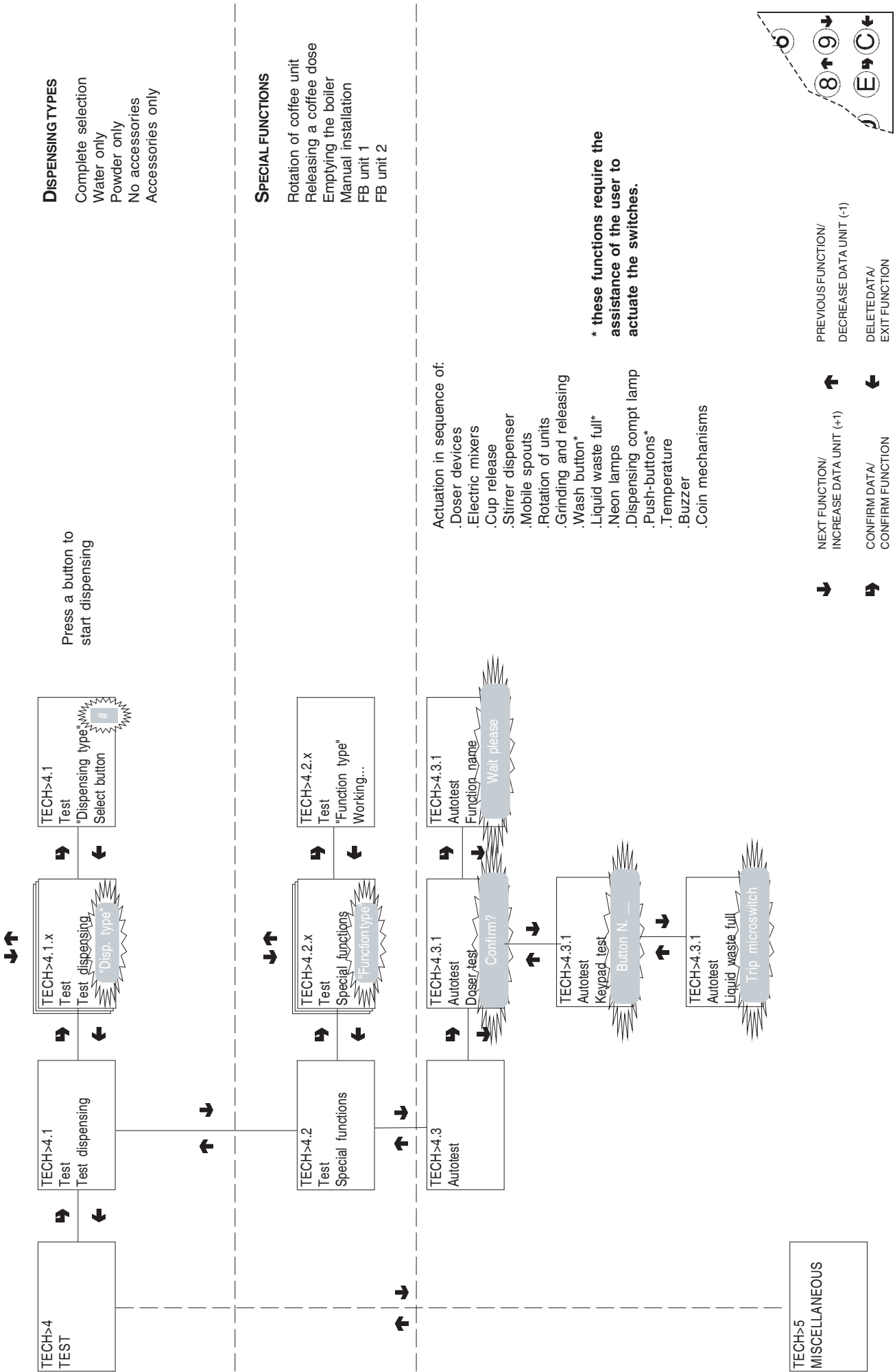


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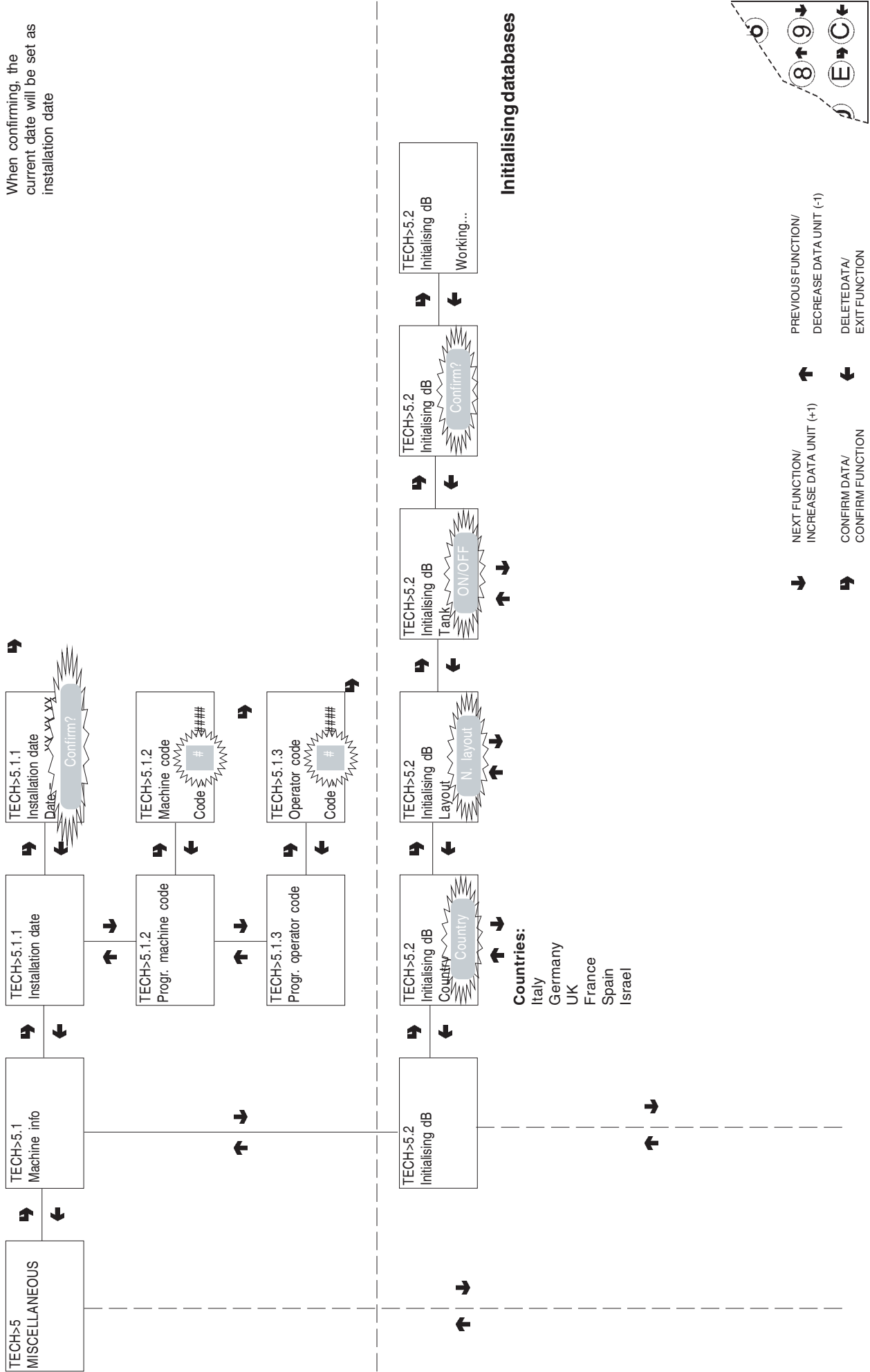


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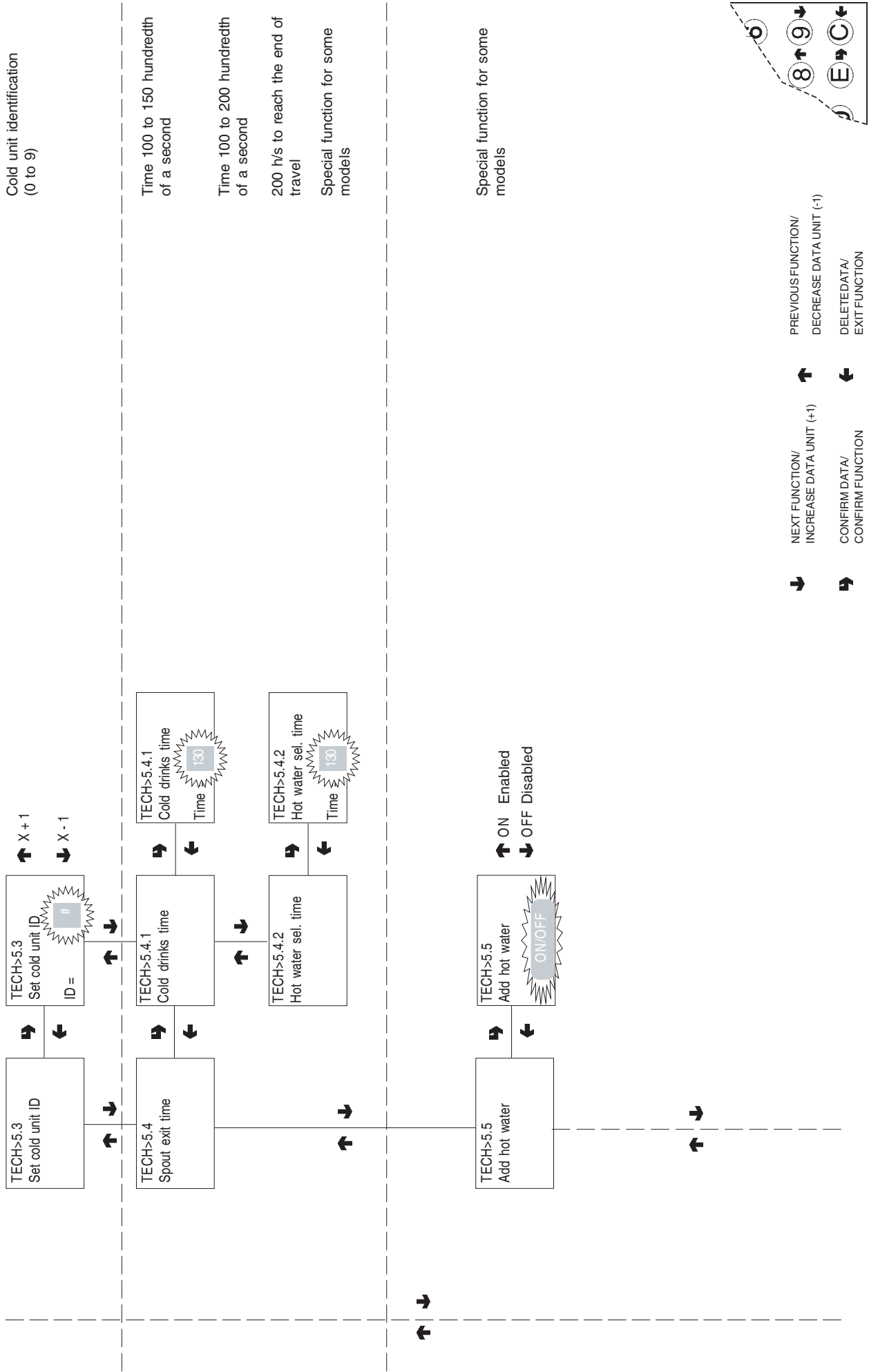


Technician menu - Summary



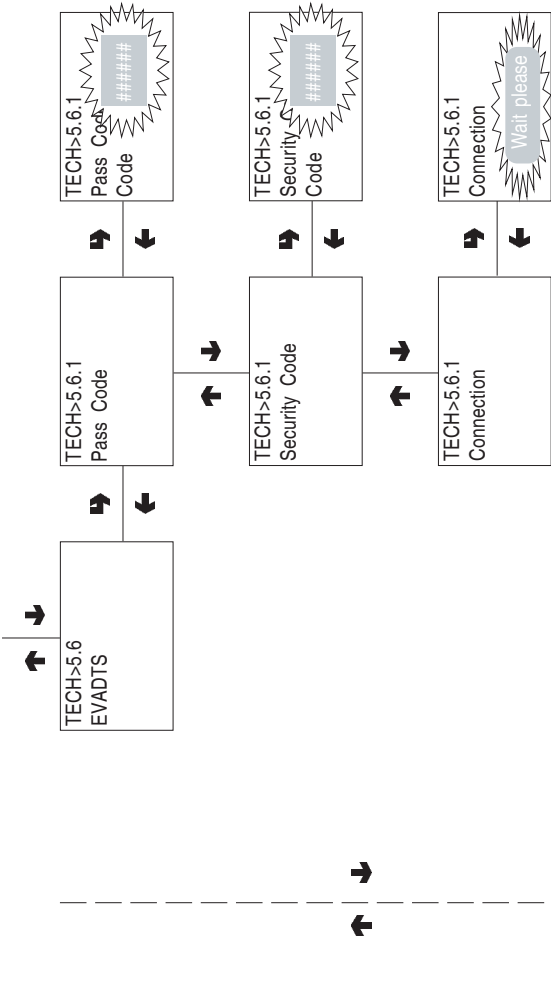


Technician menu - Summary





Technician menu - Summary

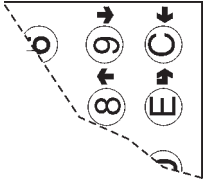


➡ NEXT FUNCTION/  
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⬅ PREVIOUS FUNCTION/  
DECREASE DATA UNIT (-1)

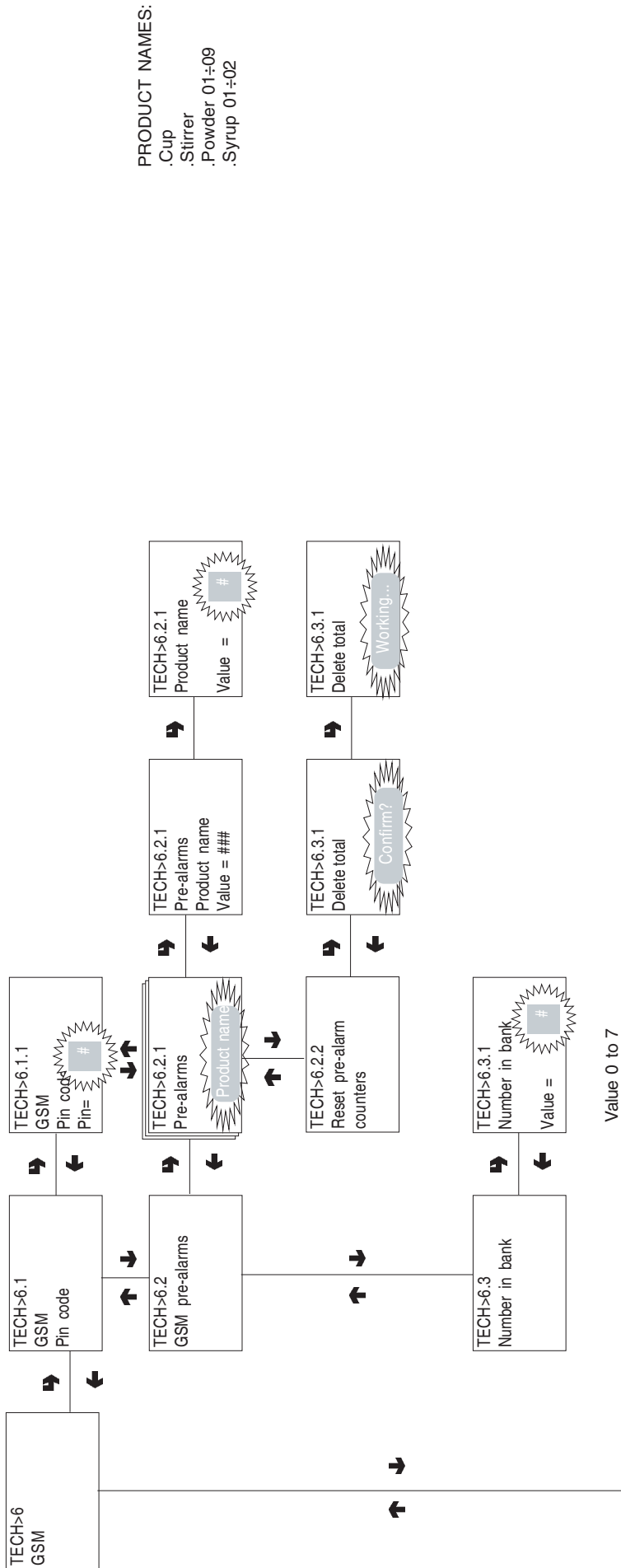
➡ CONFIRM DATA/  
CONFIRM FUNCTION

⬅ DELETED DATA/  
EXIT FUNCTION



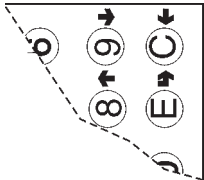


Technician menu - Summary



PRODUCT NAMES:  
.Cup  
.Stirrer  
.Powder 01÷09  
.Syrup 01÷02

➡ NEXT FUNCTION/  
INCREASE DATA UNIT (+1)  
⬅ PREVIOUS FUNCTION/  
DECREASE DATA UNIT (-1)  
➡ CONFIRM DATA/  
CONFIRM FUNCTION  
⬅ DELETED DATA/  
EXIT FUNCTION





## WIRING DIAGRAM LEGEND

INITIALS	DESCRIPTION	INITIALS	DESCRIPTION
CCG	GENERAL COUNTER	MF1-..	WHIPPERS - INSTANT
CM1	COFFEE UNIT MOTOR CAM	MFB	FRESH-BREW MOTOR
CMF	FRESH BREW MOTOR CAM	MPF	PRESH BREW PISTON MOTOR
CMPF	FRESH BREW UNIT PISTON MICROSWITCH	MPU	SPOUT POSITIONING MICROSWITCH
CMSB	CUP RELEASE MOTOR CAM	MS1	DISP COMPT SLIDER MICROSWITCH
CV	VOLUMETRIC COUNTER	MSB	CUP RELEASE MOTOR
E1-...	INSTANT SOLENOID VALVE	MSCB	CUP CONTAINER SHIFT MOTOR
EEA	WATER INLET SOLENOID VALVE	MSP	STIRRER RELEASE MOTOR
ER	COFFEE DISPENSER SOLENOID VALVE	MSU	SPOUT MOVING MOTOR
ERS	SLIDER DELAY MAGNET	MVT	FAN
ESC1-.	COFFEE RELEASE MAGNET	NTC	TEMPERATURE PROBE
EVT	TANK SOLENOID VALVE	NTCS	INSTANT BOILER TEMPERATURE PROBE
EX	EXECUTIVE COIN MECH CONNECTOR	PB	POWER SUPPLY SOCKET
FA	RADIO INTERFERENCE SUPPRESSOR	PIP	PROGRAMMING BUTTON
FREE	FREE VENDING SWITCH	PL	WASH CYCLE BUTTON
ID1-..	COFFEE DOSE SWITCH	PM	PUMP
IMSP	STIRRER RELEASE MICROSWITCH	PPO	"PRIMING" BUTTON
IP	DOOR SWITCH	PSB	CUP RELEASE BUTTON
IPF	WASTE CONTAINER OVERFLOW SWITCH	PST	STATISTICS BUTTON
ISA	OPEN DISP COMPT SLIDER SWITCH	PSU	SPOUT MOVEMENT BUTTON
IVA	EMPTY BOILER MICROSWITCH	RCC	COFFEE BOILER HEATING ELEMENT
IVB	EMPTY CUP DISPENSER MICROSWITCH	RG	UNIT HEATING ELEMENT
JUG	JUG FACILITIES SWITCH	RS232	SERIAL PORT
KC1-..	COFFEE BOILER CUTOUT	RT	BALLAST
KS1-..	SAFETY CUTOUT	SM1	CONTROL BOARD
KS3-4	PUMP SAFETY CUTOUT	SM2	EXPANSION BOARD
LCD	LIQUID CRYSTAL DISPLAY	SM3	RELAY BOARD
LF	LAMP	SP	PUSH-BUTTON BOARD
M	COFFEE UNIT MOTOR	ST	STARTER
MAC1-.	COFFEE GRINDER	STRC	BOILER HEATING TRIAC BOARD
MAS	SLIDER OPENING MOTOR	SUC	C.P.U. BOARD
MD1-..	DOSER DEVICES - INSTANT	TR	TRANSFORMER
MDB	CONNECTOR FOR MDB COIN MECH	TX....	DELAYED FUSE (X=CURRENT)
MDFB	DOSER DEVICE - FRESH BREW	VENT	FAN
MDZ	DOSER DEVICE - SUGAR		

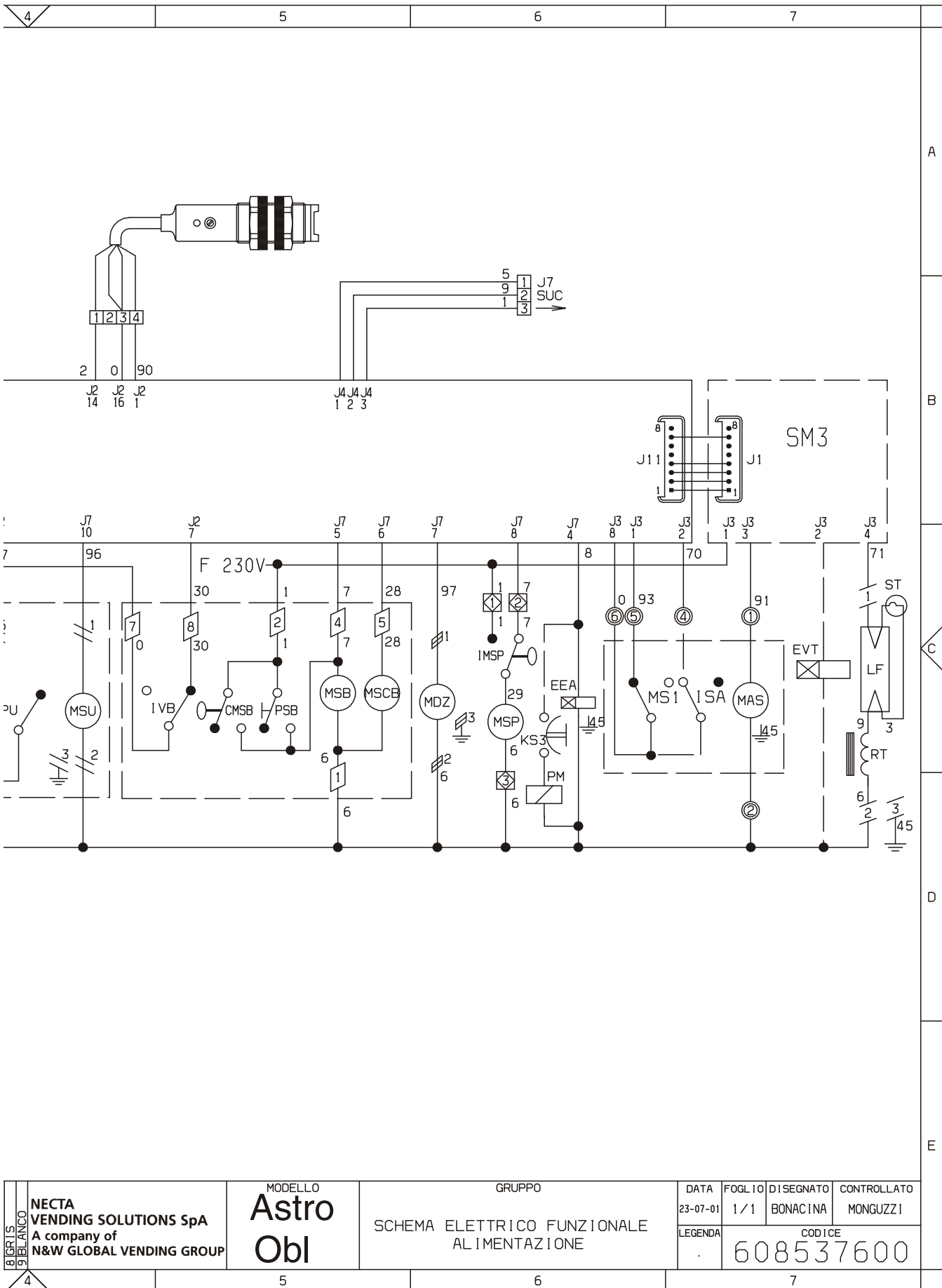




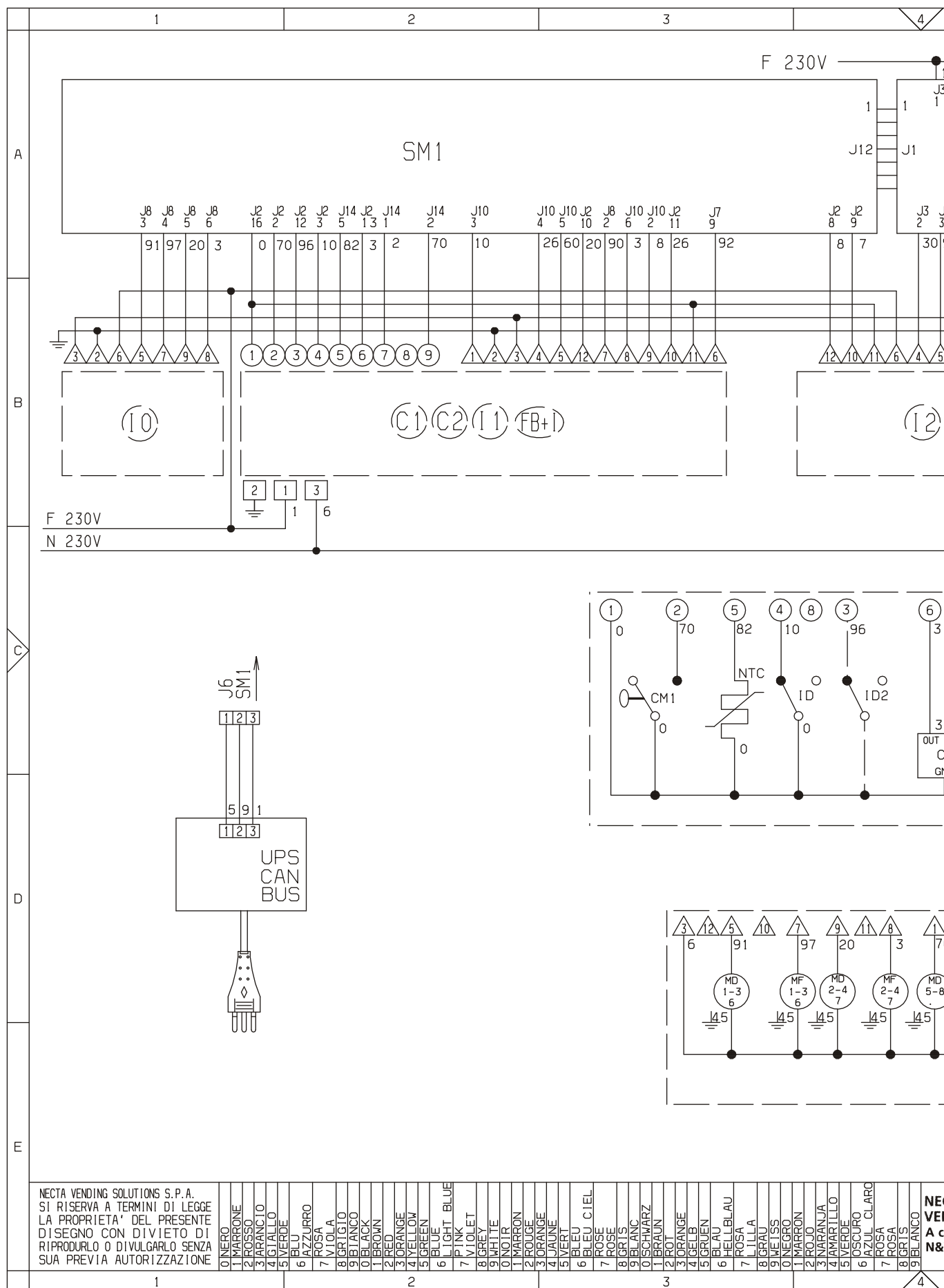




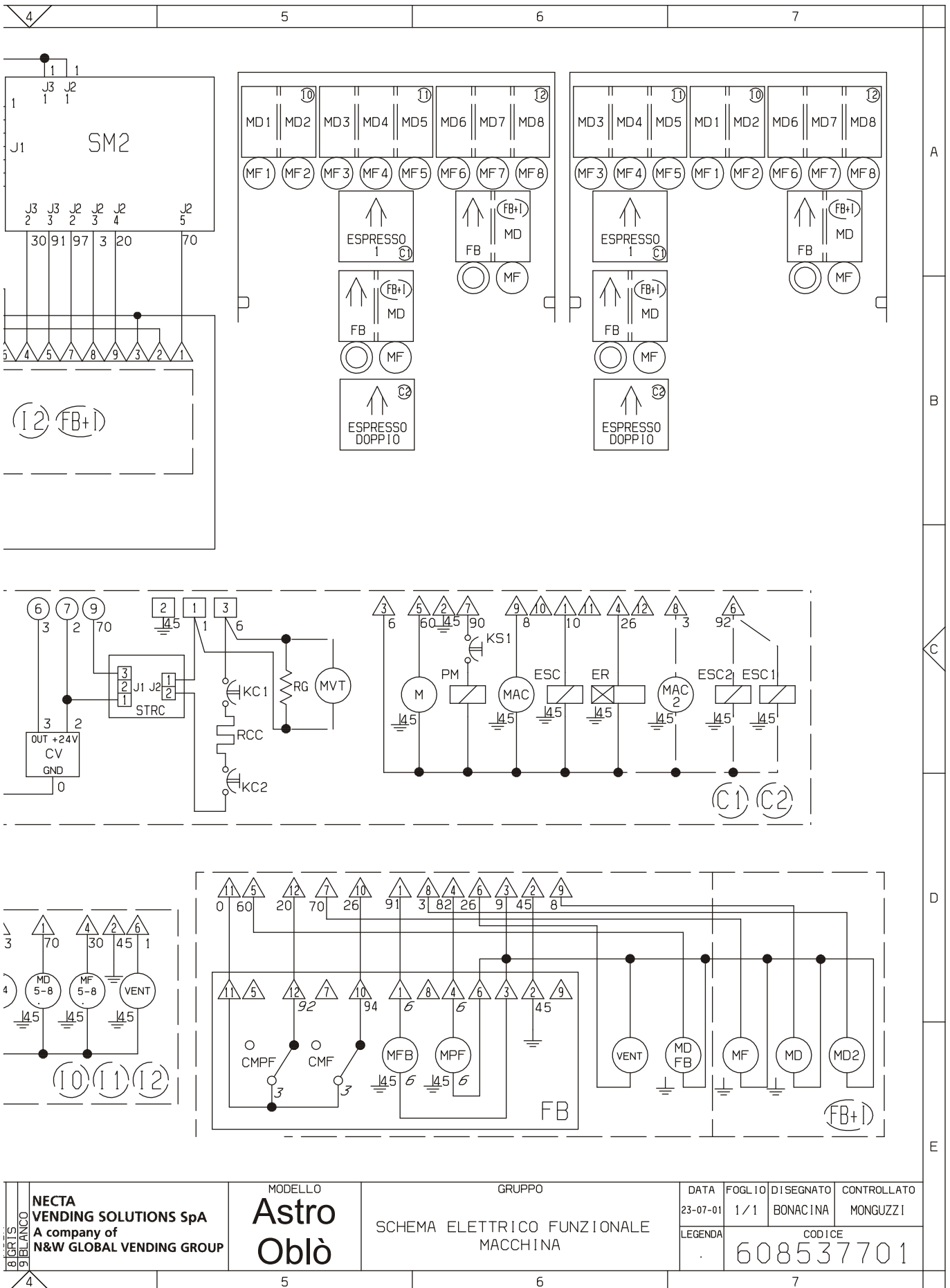








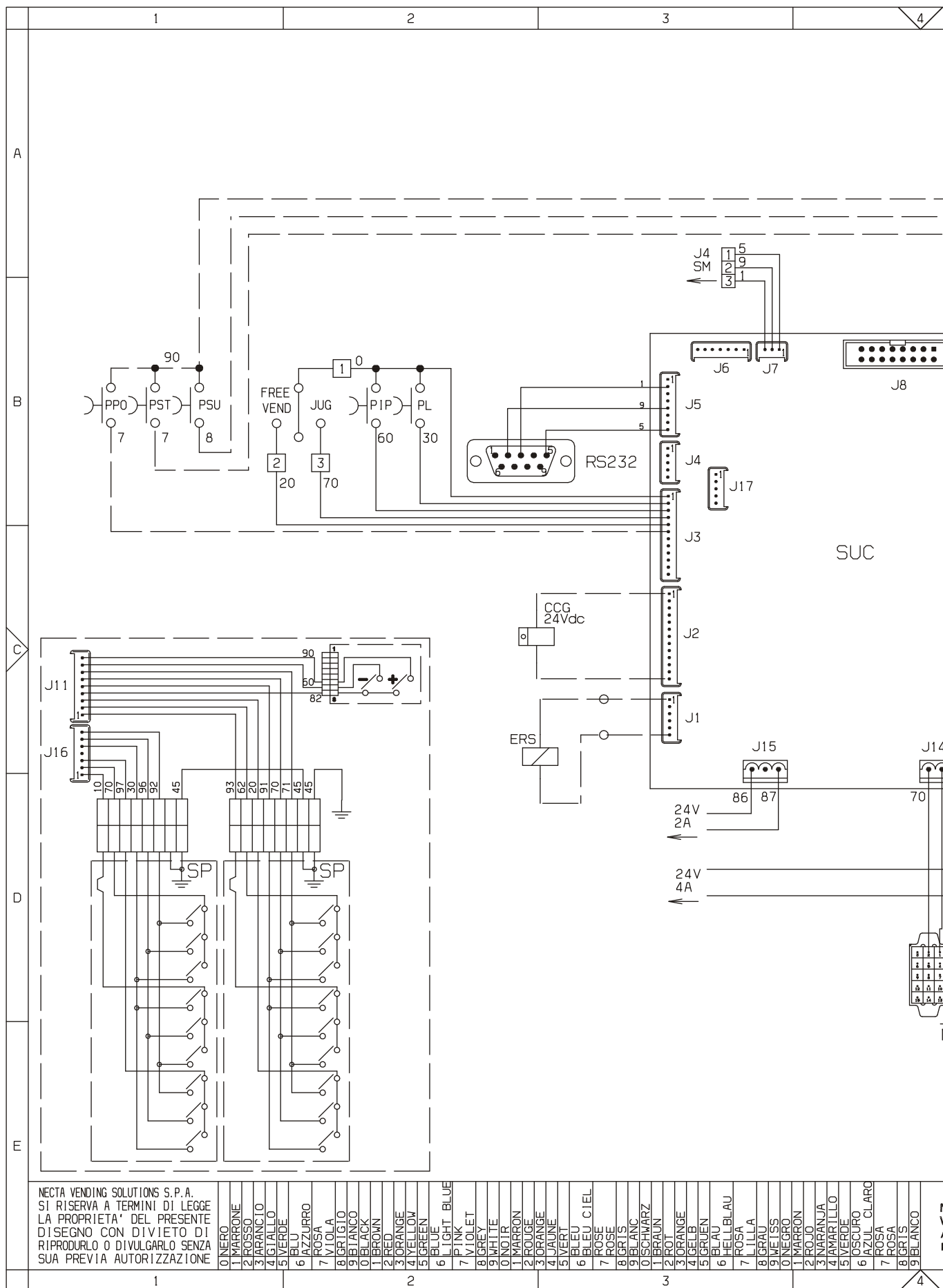




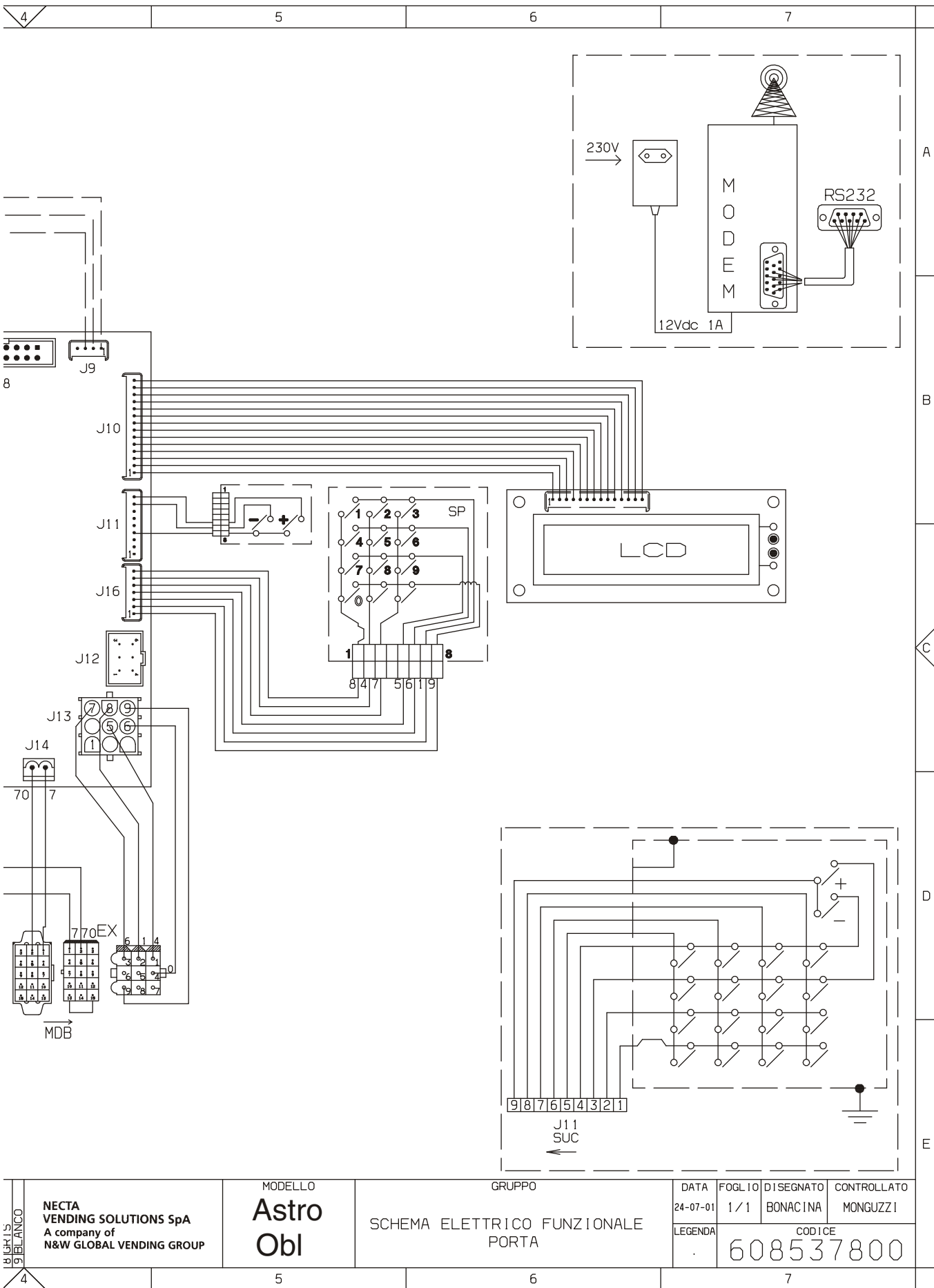
BGRIS SILBLANCO	NECTA VENDING SOLUTIONS SpA A company of N&W GLOBAL VENDING GROUP	MODELLO <b>Astro Oblò</b>	GRUPPO SCHEMA ELETTRICO FUNZIONALE MACCHINA	DATA 23-07-01	FOGLIO 1 / 1	DISEGNATO BONACINA	CONTROLLATO MONGUZZI
				LEGENDA	CODICE 608537701		

















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