

Spring 700- 850 -1000

SM 700- 850 -1000

BS 700- 850 -1000

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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

Valbrembo, 04/09/2000

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.

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ANTONIO CAVO

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Via Roma, 24 - I-24030 VALBREMBO (BG)

for the following field of activities
Design, manufacturing and sale of
electromechanical vending machines
has implemented and maintains a
Quality Management System
which fulfills the requirements of the following standard

ISO 9001

Issued on: 2000 - 03 - 31

Registration Number: IT - 12979

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Catherine Neville
President of IQNet



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President of CISO

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Progettazione, produzione e commercializzazione di
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Design, manufacturing and sale of
electromechanical vending machines

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La validità del presente certificato è subordinata a sorveglianza annuale e al riesame completo del Sistema di
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The validity of the certificate is submitted to annual audit and a reassessment of the entire Quality System
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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, operating and maintenance safety.

This manual is divided into three sections.

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

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

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

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

IDENTIFICATION OF THE VENDING MACHINE AND ITS CHARACTERISTICS

Every machine is identified by its own serial number, indicated on the rating plate placed internally on the right side.

This plate (see figure below) 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 CASE OF FAILURE

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

Should there be serious failures or malfunctions, then contact 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.

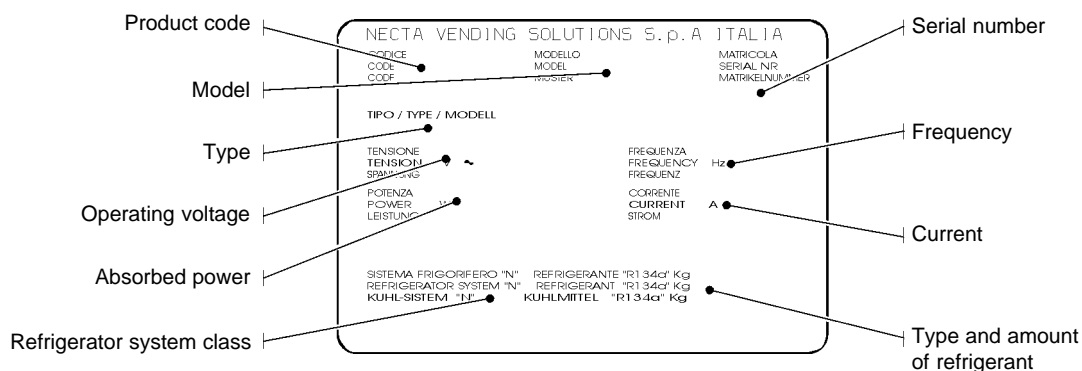
The machine can be lifted by a motorised or manual fork lift truck, and the forks are to be placed underneath the machine from the side clearly indicated by the symbol on the cardboard package.

Do not:

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

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

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



USING THE VENDING MACHINE OF PACKAGED PRODUCTS

A different sale price can be set for each product selection by the machine electronic control. The various functions are programmed through the selection keypad without any need for additional equipment.

All models are equipped with variable configuration trays, increasing or decreasing the number of modular product holders; therefore the machine can be suited to specific needs.

All product holders are preset for operation of up to 10 selections (maximum setting).

The holders are equipped with independent motors and spirals; each selection will continue its operation autonomously even if the other selections are disconnected.

This vending machine should only be used to sell and dispense packaged products that do not need refrigeration to be preserved.

Strictly comply to the producer's specifications regarding storage method and expiry date for each product.

Any other use is incorrect and thus potentially dangerous.

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.

The back panel should be at least 10 cm from the wall so that correct ventilation may be ensured. The machine should never be covered with cloth or the like.

Front foot covers should not be fitted when the room temperature is greater than 30° C.

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

If necessary provide proper levelling by way of the adjustable feet included.

WARNING FOR INSTALLATION

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

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

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

PRECAUTIONS IN USING THE MACHINE

The following precautions will help 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 off the machine lighting during periods of inactivity, thus achieving considerable energy savings;
- keep the machine away from heat sources;
- regularly check the condition of the door seal to limit any heat dispersion;
- limit as much as possible door opening time during loading operations to avoid temperature increase inside the cabinet and subsequent power consumption.

WARNING FOR SCRAPPING

When the machine is to be scrapped, the laws in force regarding environmental 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;
- the gas inside the cooling unit, regardless of the type (see the identification plate), should be recovered by qualified companies by means of special equipment.

TECHNICAL DATA

Power supply voltage	230	V~
Power supply frequency	50	Hz
Max. absorbed power	700	W
Max. operating conditions:		
Ambient temperature	32	°C
Relative humidity	70%	

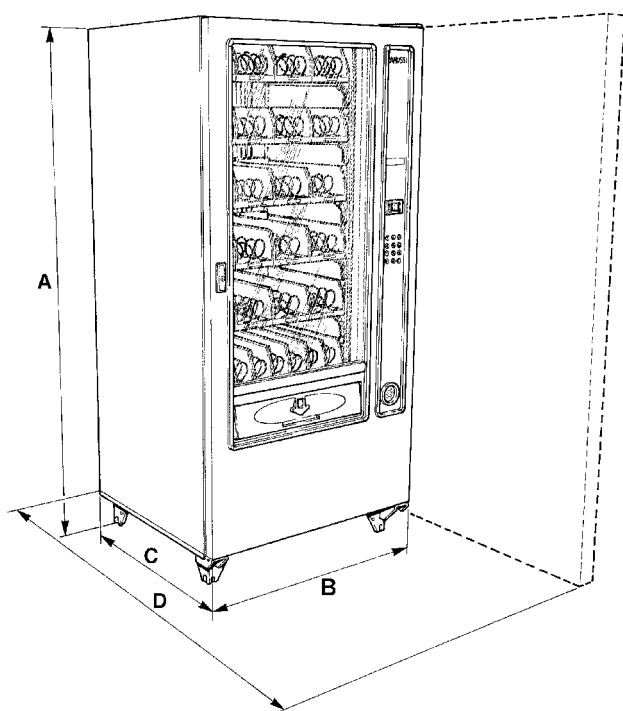
Refrigeration system:

Cooling unit: 1/3 HP

Fan-forced evaporator

Programmable defrosting cycle

DIMENSIONS



MODEL	DIMENSIONS (mm)				WEIGHT (Kg) (without packing)
	A	B	C	D	
700	1830	695	760	1430	223
850	1830	850	760	1580	257
1000	1830	1005	760	1730	290

NOISE LEVEL

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

COIN MECHANISM

The machine is factory-fitted for installation of Executive coin mechanisms and parallel-type validators.

SALES PRICES

A different programmable price can be set for each single selection.

COIN BOX

Cover and lock are available as an optional feature.

CONTROLS AND SAFETY DEVICES

- Warning message "Working"
- Warning message "Exact amount" (with suitable coin mechanisms)
- Door switch
- Maximum time power supply to dispensing motors
- Compressor overheating protection
- Line fuses
- Fuses on transformer primary and secondary windings,

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.

POWER CONSUMPTION

The machine power consumption depends on many factors, such as ambient temperature and ventilation, temperature of loaded products, internal temperature of the refrigerated box, frequency and number of door opening etc.

Under average operating conditions the following power consumption levels resulted:

MODEL	CONSUMPTION*	TYPE	FREON	g.
700	5.3 kWh	N	R134a	330
850	6.7 kWh	N	R134a	420
1000	6.7 kWh	N	R134a	420

* Approximate consumption referred to 24 hours
 - Ambient temperature: 25°C
 - Refrigerated box temperature: 5°C

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

Warning!

In order to ensure the programmed condition in the SPRING 1000 vending machines without cooling unit, the individual trays should be loaded with no more than 20 kg for the 2 lower trays and no more than 10 kg for the other trays.

CHANGEABLE COMBINATION LOCK

Some machine models are fitted with a changeable combination lock.

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

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

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

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

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

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

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

To change combination do as follows:

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

The lock will now have the new combination.

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

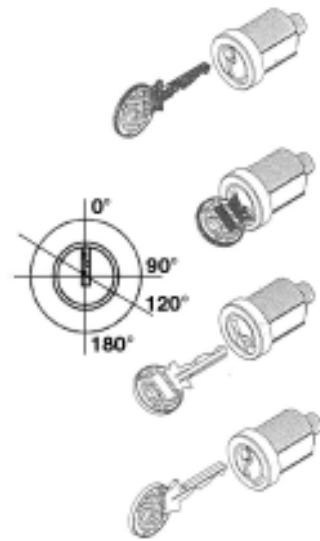


Fig. 1

LOADING AND CLEANING

DOOR SWITCH

A microswitch is located in the power supply unit (see Fig. 10) that can be switched on by pulling out the actuator. The microswitch cuts off the power from the machine electrical system;

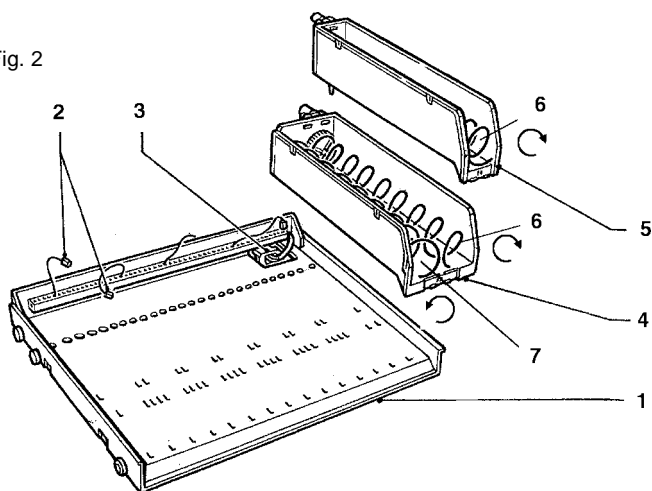
the only parts that stay energised are those protected by covers and carrying a plate with the warning "disconnect the power before removing the cover".

All operations requiring the machine to be energised with the door open must be carried out by qualified personnel, aware of the specific risks of such condition.

CONFIGURING THE SPIRALS

According to the size of the products to be dispensed, each machine can be fitted with a variable number of trays (maximum 7) and with dispensing spirals of different pitch. The spirals can be housed either in 140 mm product holders (two spirals, right-hand and left-hand, in each product holder) for large size products, or into 70 mm product holders (one right-hand spiral in each product holder) for small size products.

Fig. 2



- 1 - Tray
- 2 - Product holder connectors
- 3 - Tray connector
- 4 - Large product holder
- 5 - Small product holder
- 6 - Right-hand spiral
- 7 - Left-hand spiral

When dispensing sticks of candies or similar products, it is possible to set the rotation of the spirals to 180° instead of 360° for the 70 mm product holders and use a special right hand spiral fitted with a divider (see Fig. 3), doubling the capacity of the holder.

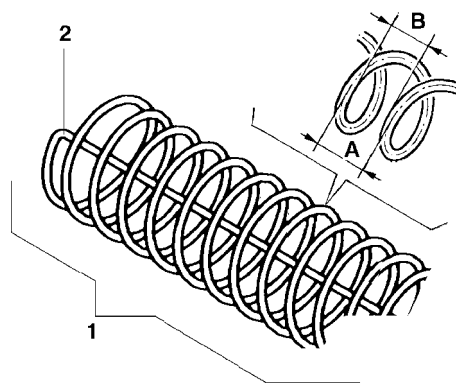


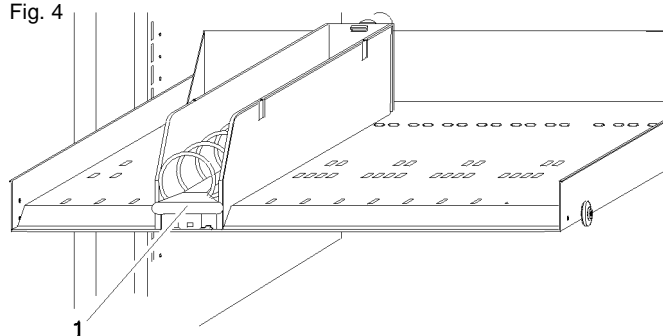
Fig. 3

- 1 - 180° rotation spiral
- 2 - Divider
- A - Spiral pitch
- B - Maximum product size

As standard feature or using special kits, the machine can be equipped with small product holders, suitable for dispensing 66 mm dia. cans, 66÷69 mm dia. PET bottles, Tetra-Pak.

The product holders equipped in this way can be recognised by the shape of the support bracket (see Fig. 4). The spirals can be positioned with 18 degree steps by rotating them in the direction of ejection. Normally, the products can be dispensed without any problems when the spiral end is in the lower centre position.

Fig. 4



- 1 - Support bracket

The maximum size (see Fig. 3) and the number of products, the pitch and the direction of rotation of the spirals are shown in the following table.

	A mm.	B mm.	N°
↺↻	84	80	5
	64	60	6
	54	50	7
	46	42	8
	40	36	9
	34	30	11
	30	26	13
	24	20	16
	21	17	19
↻	73	69	5
↻	24 (180°)	20	17+17

The configuration can be changed following the indications of the relevant chapter.

As standard feature or using special kits, the machine can be equipped with small product holders, suitable for dispensing 66 mm dia. cans, 66÷69 mm dia. PET bottles, Tetra-Pak.

The product holders equipped in this way can be recognised by the shape of the support bracket (see Fig. 4).

The spirals can be positioned with 18 degree steps by rotating them in the direction of ejection.

Normally, the products can be dispensed without any problems when the spiral end is in the lower centre position.

HYGIENE AND MAINTENANCE

According to current health and safety regulations, the operator of vending machines is responsible for their hygiene and maintenance.

It is advisable to use sanitising products (chlorine based detergent or similar) to clean all surfaces even if not in direct contact with food.

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

The manufacturer declines all responsibility for damage to persons caused by the noncompliance with current regulations.

At least every six months it is necessary to clean the cooling unit condenser using a vacuum cleaner or compressed air.

Under no circumstances should sprayed water be used.

Before any maintenance operation always switch the machine off.

At least once a year the machine should be tested by qualified personnel to verify its correct functioning and compliance with all relevant regulations.

LOADING PRODUCTS

- Remove one tray at a time, lifting the stop lever placed on the right-hand guide and pulling towards the outside of the machine until it reaches the stop point. The tray will tilt downwards to facilitate loading.

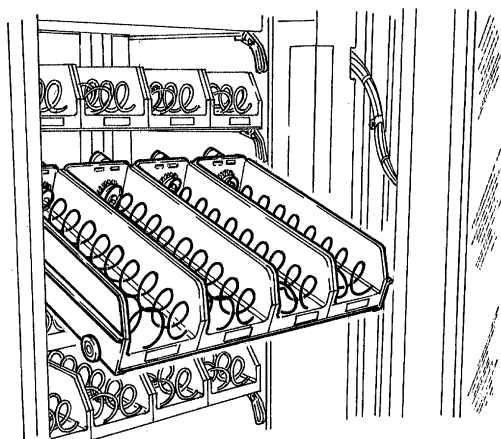


Fig. 5

- Load all products starting at the front, without inserting products with a temperature above 32° C, ensuring that all spaces are filled. The bottom of the product must rest at the bottom of the compartment with the label facing the window so that it can be identified.

All products should load easily, do not insert products which are too large for the space.

- Ensure that the trays are pushed towards the back of the cabinet allowing all electrical connections to be made and the stop lever to be moved into position.

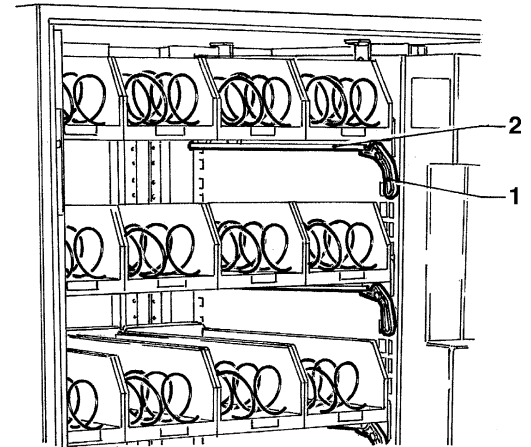


Fig. 6

- 1 - Stop lever
- 2 - Tray guide

The sealed end of bags may be caught under the spiral, preventing the free fall of the product.

Fold the seal towards the front of the unit and upwards before inserting the product in the spiral.

More fragile products must be placed on the lower trays to prevent damage when they drop.

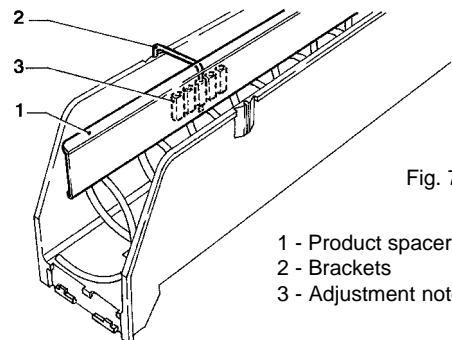
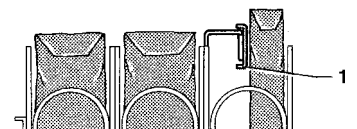


Fig. 7

- 1 - Product spacer
- 2 - Brackets
- 3 - Adjustment notches



STARTING THE MACHINE

Each time the machine is started, the number of trays connected to the system are checked by the electronic controls and indicated on the display.

This permits to check that all trays were correctly connected after loading.

Also the number of actually connected product holders is checked.

INSTALLATION

The machine installation and the following maintenance operations should be carried out with the machine energised and therefore by qualified personnel, who are trained in the correct use of the machine and are aware of the specific risks of such condition.

To energise the machine electrical system with the door open, it is sufficient to pull the door switch actuator outward (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 protective covers the external switch must be disconnected.

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

The relative humidity must not exceed 75%.

UNPACKING THE VENDING MACHINE

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

If the vending machine is found to be damaged, immediately inform the carrier and 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.

If the vending machine had been laid down during transport, allow at least one hour before connecting it to the mains.

INSTALLING THE PAYMENT SYSTEM

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

- Switch off the machine and fit the coin mechanism;
- adjust the selector opening cam bracket in such a way as to allow the selector to open completely;
- adjust the coin chute according to the type of coin mechanism.

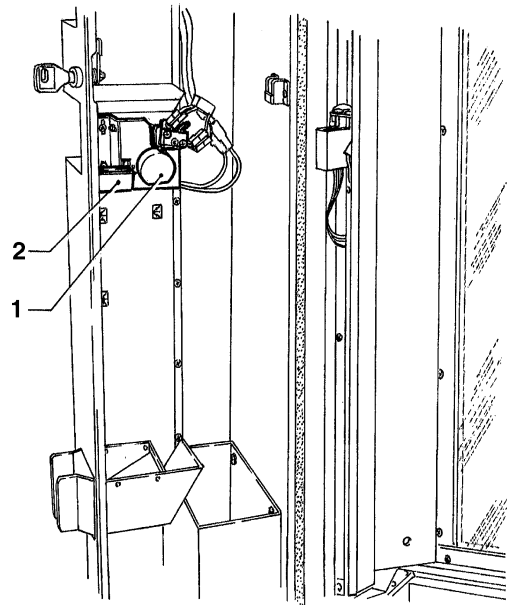


Fig. 8

- 1 - Selector opening cam
- 2 - Coin chute

CONNECTING THE MACHINE TO THE POWER SUPPLY

The machine is designed to operate under single-phase 230 V~ voltage and is protected by 10 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 must be able to withstand 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 cable must be fitted with a fixed plug.

Any replacement of the power cable should be made by qualified and suitably trained personnel only using cables type HO5 RN - F, HO5 V V-F or H07 RN-F with a section of 3 x 1-1.5 mm².

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

THE MANUFACTURER DECLINES ALL RESPONSIBILITY FOR ANY DAMAGE CAUSED BY NONCOMPLIANCE WITH THE ABOVE MENTIONED PRECAUTIONS.

CONTROLS AND INFORMATION

The user controls and information are located on the outside of the door (see Fig. 9).

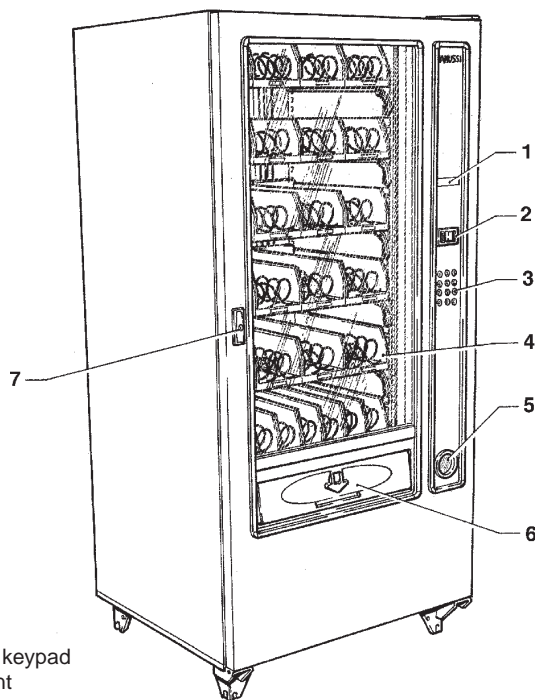


Fig. 9

- 1 - Display
- 2 - Coin slot
- 3 - Selection keypad
- 4 - Glass front
- 5 - Coin return
- 6 - Product flap
- 7 - Lock

The credit and all function messages are indicated on the display.

As well as than the slot, the coin insert plate contains also the coin return button and the “exact amount” warning light indicating that the change tubes are empty.

The keypad contains a series of numbered keys. To select a product, key in the double digit number corresponding to the desired product.

Key © is used to cancel a selection already made.

Keys Ⓔ and Ⓕ are not available to the user, they are used only for programming.

INTERNAL COMPONENTS

The evaporator assembly mounted on the cabinet shelf comprises a fan, the evaporator, the air duct and a water retaining tray placed under the evaporator.

The C.P.U. board (central processing unit) fitted inside the coin mechanism compartment controls the different functions of the vending machine.

The cooling unit, mounted in the lower part of the box keeps products at the correct temperature.

The cooling unit is defrosted automatically every 6 hours. However, the time is programmable.

The power supply unit, mounted in the lower section of the cabinet, contains the relay cards which trigger the various 230 V users, the protective fuses and the door switches. The product flaps and the 3-point door locking rod are designed to reduce any risk of theft to a minimum.

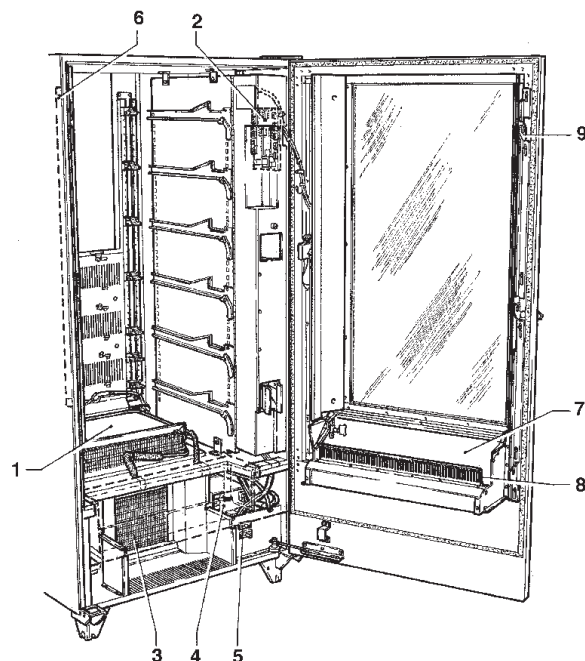


Fig. 10

- 1 - Evaporator assembly
- 2 - C.P.U. board
- 3 - Cooling unit
- 4 - Power supply unit
- 5 - Door switch and programming switch
- 6 - Lamp
- 7 - External foam injected flap
- 8 - Anti-vandalism internal flap
- 9 - 3-point door locking rod

DOOR SWITCHES

Two micro-switches are fitted in the power supply unit (see Fig. 10) which can be operated after pulling the special actuator outward.

The upper micro-switch cuts off power from the electrical system of the machine,

except from the terminal board supporting the line cable and from the micro-switch area. Before removing the cover from these parts (indicated with a specific plate) it is necessary to disconnect the external switch.

The power supply can be reconnected, if necessary, by pulling the special actuator outward.

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

The lower micro-switch indicates to the machine that the door is open. In this situation the message “M>1 STATISTICS” is indicated on the display, the fans, the cooling unit and the lighting are switched off.

In this situation the vending cycle is excluded and only the programming and testing functions are available.

All normal functions can be reset, with the door open, by pulling the special actuator outward.

OPERATING MODES

The machine control software has three different function levels, which are:

- normal operation;
- maintenance;
- programming.

According to the operating mode, the display and keypad functions change as described in the following paragraphs.

USER INTERFACE

The interaction between system and operator happens through the following components:

- Liquid crystal display (LCD) 2 lines of 20 characters.
- External keypad configured via software with numeric keys from 1 to 9 and three other keys with the following functions in the maintenance and programming modes:

FORWARD key ⏩:

To move to the following menu option. In the case of command management it varies the status of Logical Data where required, or in the case of Numeric Data it writes the value 0.

ENTER key ⏹:

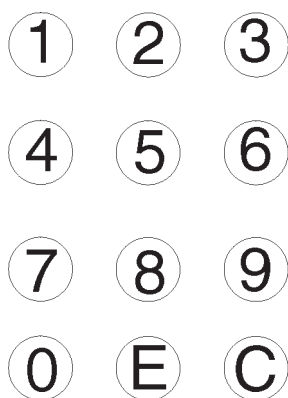
To move from a menu to a sub-menu or to enter a command. In the case of Logical Data it enters the status that appears on the display.

EXIT key ⏪:

To move from a sub-menu to the higher level menu, or to exit from the current command.

It is also possible to directly select a menu item by keying in the corresponding number shown in the summary tables included in the appendix to this manual.

Fig. 11



NORMAL OPERATION

The machine is preset to "Normal operation" mode when connected to the power supply and the door (see Door switches' in Figure 10) is closed.

The lighting is switched on and the messages for the customer are indicated on the display.

MAINTENANCE

The machine is preset to "Maintenance" mode when switched on with the door open (see Door switches' in Figure 10).

The key ⏩ scrolls through the maintenance menu which permits:

- Viewing of statistics;
- Printing of statistics. It is possible to print all of the statistics described in the paragraph "Displaying the statistics" by connecting a serial printer RS232 with 9600 Baud rate, 8 bit data, no parity, 1 bit stop to port placed on the board (see figure 18) (we recommend a CITIZEN I-DP 3110-24RF 230 A p/n 9210219); the machine code and the progressive print number are also shown on the printout. The progressive print number can be reset only by initialising the machine.
- Dispensing test of the individual selections
- Configuration of selections (spiral compartment) according to any changes made;
- Checking, one after the other, all configured spiral and column motors.

The key ⏹ is used to access directly to price/selection setting, if the function is enabled in the "Programming" menu.

STATISTICS

The managed data viewed on the display are

- Total sales (if a validator is used as a payment system) highlighting the cash value, amount sold and any possible increased income due to credit control.
- The partial amounts of sales, i.e. the cash value for each selection, the number and type of coins received (if a validator is used) and the number of tokens received (if the payment system accepts them).
- Failure counters

When printing, as well as the displayed data, also the cashed amounts for each selection in each time band and the total amount in each time band are printed.

Statistical data can be reset only by initialising the machine.

NUMBER OF FAILURES

The maintenance menu includes an item that displays the number of times the malfunctions being monitored have occurred.

The monitored failures are:

Compressor

The machine is blocked if the compressor runs nonstop for more than three hours.

Coin mechanism

The machine is locked if it receives an impulse for longer than 2 seconds on a validator line or if there is no communication with the serial coin mechanism for more than 30 seconds.

RAM data

The data contained in the RAM (the chip that memorises settings) is incorrect and must be retrieved from the EPROM causing the loss of all statistical data.

Sensor

The machine is locked after 5 minutes if the internal temperature sensor is disconnected; the display will indicate a temperature of -5° C.

The machine is locked after one hour if a sensor short circuit is detected; in this case the display will indicate a temperature of +32° C.

After the sensor failure has been displayed for two hours, a Compressor failure will also be indicated.

PROGRAMMING

Using the programming procedures described in this section, it is possible to set all variables regarding machine configuration.

The machine is preset to "Programming" mode when switched on with the door open ("Maintenance" mode - see 'Door switches' in Figure 10) and key Ⓒ is pressed.

N.B. By pressing key Ⓒ while in the programming menu, the machine will return to "Maintenance" mode.

The key Ⓒ scrolls through the programming menu which permits:

- Setting of selection prices.
- Management of general data.
- Management of time bands for energy saving (switching the lighting off) and for discounts on displayed prices.
- Setting of cooling unit parameters.
- Management of possible malfunctions.
- Initialising of the RAM.
- Setting of the promotional message.
- Management of the validator lines value

SELECTION PRICES

For each selection it is possible to set two prices, a normal one and a discounted one. The discounted price, if enabled, comes into effect according to the programmed timetable.

Both normal and discounted prices can be programmed (0 to 65,535) either globally (same price for all selections) or for each individual selection (10 to 79).

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.

GENERAL DATA

With this menu it is possible to set the various general functions.

Displaying messages for the user

It is possible to choose the kind of information to be indicated on the display during normal operation. The following information is possible:

- No information.
- Internal temperature (refrigerated food compartment).
- Date and time.

Choice of language

It is possible to choose the language for the displayed messages.

Setting the promotional message

It is possible to choose whether or not to enable the display of the promotional message which will alternate with other user messages.

Position of the decimal point

It allows the definition of the position (0 to 3) of the decimal point when displaying credit or prices.

Credit management

When using a validator as system of payment it is possible to activate or deactivate the possibility making the left over credit available to the user.

Quick access to prices

It is possible to choose whether or not to enable the function of quick access to selection prices from the "Maintenance" menu.

TIME BANDS

Two time periods can be programmed, both for switching the lighting off (Energy saving) and for selling products at a discounted price.

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

The time is taken from an internal clock which can be programmed for year, month, day, hour and minutes.

If the value 24.00 is entered, the time band is disabled.

REFRIGERATION PARAMETERS

The operation of the refrigeration system can be programmed for the following functions.

Internal temperature

The machine internal temperature during normal operation can be set directly in °C (5 to 20° C).

Differential temperature

With this function the deviation in °C (2 to 6° C) of the temperature defined with the previous function is set to start/stop the cooling unit.

Type of cooling

With this function the fan control can be changed for internal air ventilation, in order to have uniform or stratified cooling (temperature of the lower trays as programmed and the temperature of the upper trays approximately 7° C higher).

Defrosting

This function allows for a defrosting cycle (switching the cooling unit off, regardless of the temperature) of 30 minutes. The time interval between cycles can be programmed from 0 to 99 hours (set to 6 hours by default); the time interval will be determined according to the relative humidity and the frequency of door openings.

With the timing set to 0 the function is disabled.

CURRENT FAILURES

This function lists any current failures that can be deleted from memory once the problem is corrected.

With this function, it is also possible to know how many malfunctions occurred to each motor (10 to 79) and what the current condition is, which can be:

- OK.
- Blocked.
- Interruption after closing the door.
- Continuous rotation

Motors that are not present are detected as malfunctioning.

INITIALISING

This function sets all area data of the vending machine to default values.

It must be used when the board or the EPROM is replaced or the configuration of the board is changed.

Should initialising not be carried out, when reading the "Current failures" menu the message "Initialise RAM!" is displayed.

OPERATOR CODE

The machine can memorize a series of codes which will identify it when retrieving statistics.

More specifically the following can be stored:

- The 4-digit operator code which also represents the password to allow access to code changes.

- The 6-digit machine code which identifies the machine.

- The 6-digit location code which identifies the place of the machine.

SETTING THE PROMOTIONAL MESSAGE

When in this menu, the keys are assigned more than one alphanumeric value which are shown alternately as illustrated in the following table:

Alphanumeric value of the keys	
Key	Character
1	A B C D E F
2	G H I J K L
3	M N O P Q R
4	S T U V W X
5	Z [¥] ^ Y
6	0 1 2 3 4 5
7	6 7 8 9 ; :
8	! " # \$ %
9	, - . / * +

Pressing key Ⓢ the character shown is stored and the cursor moves to the next position.

The message is stored by pressing key Ⓢ when on the last position.

SETTING THE VALIDATORS LINES

The 6 coin-lines of the validators (A to F) can be set to assume a value from 0 to 65,535.

Also if not using a validator it is advisable to set the values of the coins accepted by the coin mechanism, as these values are indicated on the display as accepted coins when a selection number is entered.

SELECTIONS WITH TWO MOTORS

In order to dispense long products, special holders can be used that operate with two motors for one selection.

This function is used to set the selection number and the pair of motors that will be controlled simultaneously by such selection.

A maximum of 18 selections can be set for two motor operation, identified by a letter.

For example, for selection A it is possible to assign the operation of motor N. 61 (tray 6, first position) and motor N. 63 (tray 6, third position) (position 62 is empty).

The position defined as motor N. 1 (61 in the example) will be available to the user as selection number.

Important notice!

After changing these parameters and after a failure to the motors of these selections, the machine configuration procedure in the "Maintenance" menu must be followed.

PROGRAMMER (OPTIONAL)

AUTOMATIC SETUP TRANSFER

With the programmer device, the programming routines set and transferred to other machines can be read from a reference vending machine.

These data is preserved also when the programmer is disconnected, thanks to a couple of Duracell batteries LR03 Format AAA 1.5 V (to be replaced every 12 months). The programmer allows up to twenty different programs (setups) to be stored.

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

< - > = Setup free

< □ > = Setup with data.

When creating the setup only those programs containing data are available; if no setup contains data, the message "no data available" will appear on the programmer display.

To connect the programmer to the machine the special holder is to be used (see Fig. 12) connecting the special cable to the connector of the C.P.U. board (see Fig. 13). Then enter the "programming" or "maintenance" mode. At this point, inserting the programmer in its holder, connection will take place automatically, and the setup menu will be shown on the programmer display:

- Pressing key **Ⓔ** will access the displayed function;
- Pressing key **⓪** will display the following function;
- Pressing key **Ⓢ** will display the previous function.

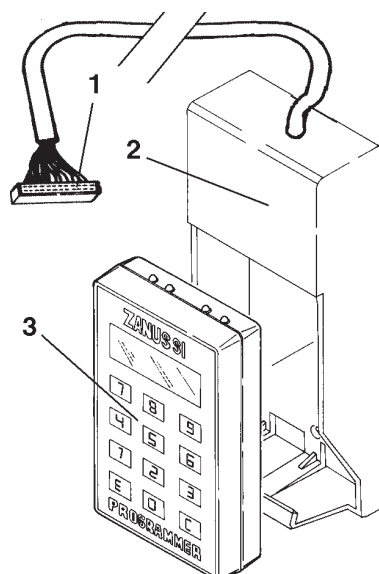


Fig. 12

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

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

TRANSFERRED DATA

The programming data transferred through the programmer is as follows:

- Price table
- Prices/selection status
- Decimal point position
- Discount data
- Time bands
- Refrigeration parameters

SETTING THE LANGUAGE

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

- fit the programmer in its holder and start the machine.
- wait about 10 secs. and then press programmer keys "Ⓢ" and "⓪"; the first function will be displayed:

LANGUAGE CONFIGURATION	CONFIGURATION ITALIAN	CONFIGURATION Confirm?
	CONFIGURATION FRENCH	
	CONFIGURATION GERMAN	
	CONFIGURATION ENGLISH	
	CONFIGURATION SPANISH	
CONFIGURATION	INITIALISING INITIALISING	Confirm?
CONFIGURATION CONFIG. END	Exit from the configuration menu The software restarts from address 0000 (as when starting the machine)	

MAINTENANCE

The maintenance operations described in this chapter should be carried out with the machine energised and therefore by qualified personnel, who are trained in the correct use of the machine and are aware of the specific risks of such condition.

To energise the machine electrical system with the door open, it is sufficient to pull the door switch actuator outward (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 protective covers the external switch must be disconnected.

PRINTED BOARD FUNCTIONS AND INDICATOR LIGHT

The C.P.U. (Central Processing Unit) board controls all users set for the maximum configuration of the spiral compartment and processes the input signals from the keypad, the payment system and the cooling unit sensors. The board also houses the EPROM (i.e. the chip which contains the program) as well as a series of minidips (see Fig. 13) permitting the board to be configured according to the use of the machine (see relevant chapter).

There are also some LEDs which furnish the following indications during operation of the vending machine:

- Yellow LED (2): glows when 5 VDC are detected;
- Yellow LED (3): glows when 24 VDC are detected;
- Green LED (4): blinks during normal operation of the C.P.U. board;
- Green LED (6): glows when a motor is operating;
- Red LED (7): glows when for any reasons (e.g. blocked motor) there is an overcurrent during the operation of a dispensing motor.

CONFIGURING THE BOARD

By means of the configuration minidips (see Fig. 13 - 8) the board can be set to operate with the different payment systems (minidips 1-4) and indicate the messages on the LCD display in different languages (minidips 6-8). Minidip 5 is not used.

This board is preset for the MDB protocol.

The 2 minidips for setting the MDB coin mechanism (see Fig. 13 - 21) should both be set to OFF (Executive).

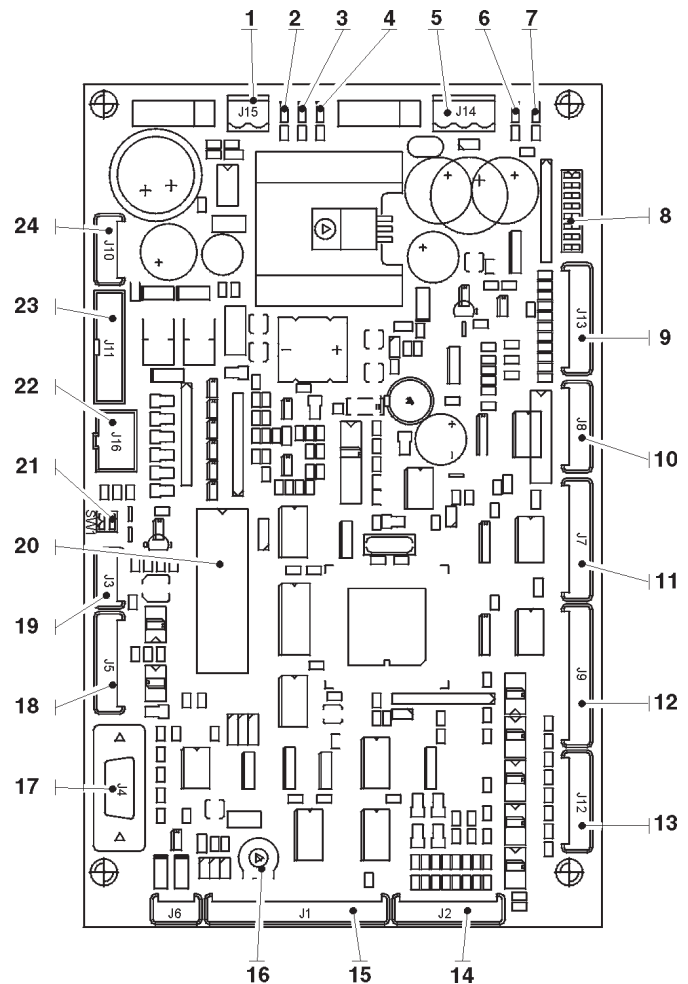


Fig. 13

- | | |
|----|---|
| 1 | - Connector for power supply to MDB coin mechanism |
| 2 | - Yellow LED: 5 V DC |
| 3 | - Yellow LED: 24 V DC |
| 4 | - Green LED: C.P.U. operation |
| 5 | - 24 V AC power supply |
| 6 | - Green LED: spiral motor operation |
| 7 | - Red LED: spiral motor overcurrent |
| 8 | - Configuration minidips |
| 9 | - Connector for sensor input and door micro-switch |
| 10 | - Motor connector |
| 11 | - Motor connector |
| 12 | - Input & output connector |
| 13 | - Connector not used |
| 14 | - Keypad connector |
| 15 | - LCD display connector |
| 16 | - LCD contrast adjustment trimmer |
| 17 | - RS232 serial port for printer |
| 18 | - Programmer connector |
| 19 | - Executive coin mechanism connector |
| 20 | - EPROM |
| 21 | - Minidips for setting MDB coin mechanisms |
| 22 | - Connector for MDB coin mechanism |
| 23 | - Validator connector |
| 24 | - Connector for token-type mechanism or stamping device |

CONFIGURING THE PAYMENT SYSTEMS

Minidip 1

When set to ON, the functioning of the Executive payment systems is enabled, when set to OFF the 24 V validators are activated.

Minidip 2

When set to ON the "Price Holding" function is enabled.

Minidip 3

When set to ON the U-KEY payment systems can be used.

Minidip 4

When set to ON the ECS payment systems can be used.

Important notice! The functions of minidips 2 - 3 - 4 are alternative to each other. Only one of the three minidips can be set to ON.

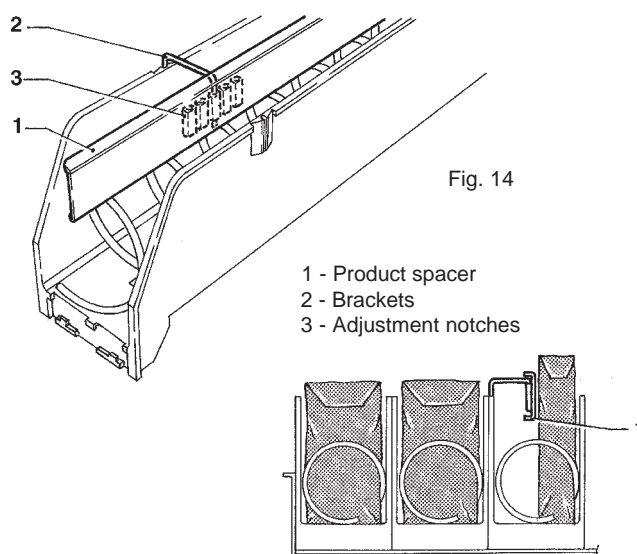
SETTING THE LANGUAGE

Depending on how minidips 6 - 7 - 8 are set (see the information table supplied with the machine) the messages on the LCD display will appear in one of the programmed languages.

TRAY CONFIGURATION

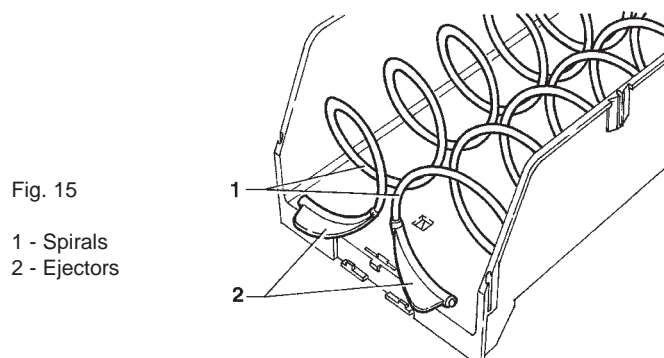
PRODUCT SPACERS

The spacers are used when loading "narrow" products. The spacers should be fitted to contain products, without blocking them, towards the right-hand side of the compartment, so that they stay upright. According to the type of products, assess whether it is more convenient to use the short or long side of the brackets and in which of the five adjustment notches to connect them. Pull the spacer towards the front to close the space and push it back to open the space. There must be at least 3 mm between the spacer and the products.



PRODUCT EJECTOR

The ejectors, right-hand and left-hand, must be used for products packed in bags, such as potato crisps or similar. As they are hooked at the end of the spiral they push the products further out. If necessary slide the ejector along the spiral wire to locate the most appropriate position according to the product being dispensed.



REPLACING THE SPIRALS

In order to change the number and the setup of the product holders, proceed as follows:

- Slide out the concerned tray.
- Separate the connector of the spiral motor.
- Remove the product holder from the tray, lifting it from the motor side.
- Rotate the spiral, holding the plastic support flange still, to separate the two parts and fit the other spiral.
- Fit the new spiral assembly proceeding in the opposite direction, ensuring that the spiral is positioned correctly

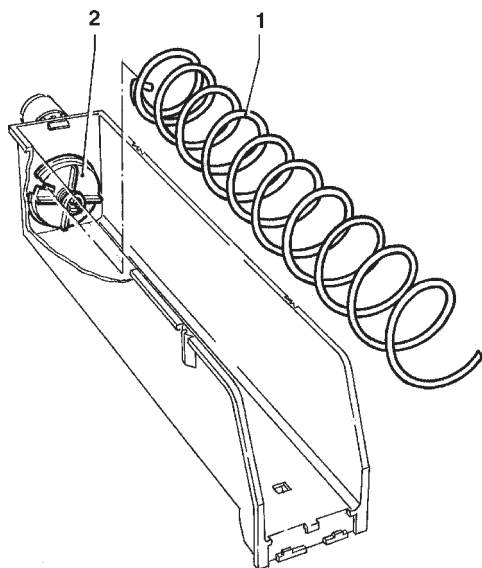


Fig. 16

1 - Spiral
2 - Plastic flange

REMOVING THE TRAYS

To replace the trays proceed as follows:

- Lift the stop lever.
- Pull the tray to the stop, then lift the lever to unlock the back wheels of the tray.
- To fit a new tray proceed in the opposite way.
- Ensure that the electrical connector is inserted properly when closing it.

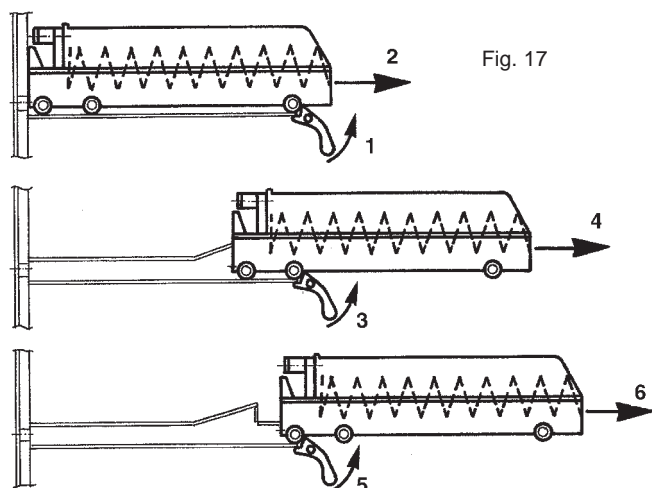


Fig. 17

CHANGING THE NUMBER OF TRAYS

The vending machines are supplied with 6 trays. It is however possible to bring the number trays to 7 can, proceeding as follows:

- Disconnect the plug from the power supply.
- Remove all trays from the machine.
- Move the guides (see Figure 19) placed on the side supports, except the first ones at the bottom which stay in the same position.
- Carry out the same operation for the connectors, placed at the bottom of the cabinet.
- Add a pair of guides to be fitted into the holes provided.
- Replace the trays, ensuring that the connectors are inserted properly.
- Reprogram the machine.

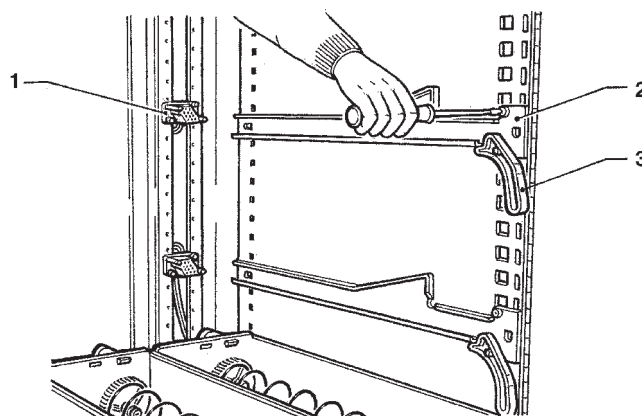


Fig. 18

1 - Tray connector
2 - Tray guide
3 - Locking lever

REPLACING THE PRODUCT HOLDERS

It is possible to replace a large two-spiral product holder with two small one-spiral holders and vice versa, according to needs, proceeding as follows:

- Remove the tray to be modified.
- Disconnect the motor connectors of the product holders to be replaced.
- Remove the holder from the tray, lifting it from the side of the motor.
- Replace the small holders with a large one or vice versa.
- Insert the new holder in the special slots on the tray.

- Connect the motor connectors.
- Insert the new price and selection label.
- Insert the modified tray ensuring that the connector is plugged in.

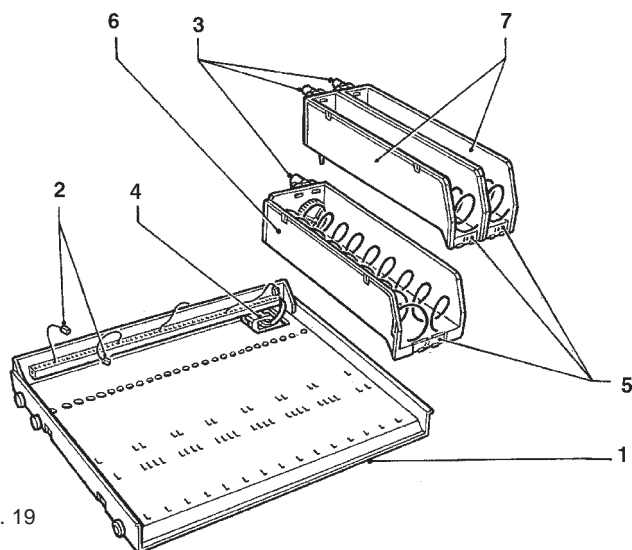


Fig. 19

- 1 - Tray
- 2 - Spiral motor connectors
- 3 - Spiral motors
- 4 - Tray connector
- 5 - Price label
- 6 - Large product holder
- 7 - Small product holders

- Program the new selections at the desired vending price.
- Test the modified selections to be sure they operate correctly

N.B.: The selection numbers are formed by two figures; the first figure refers to the tray number, counting from the top (1-7), the second figure refers to the holder number, counting from the left (0-9).

The selection number to which the motor is connected will therefore be formed by the tray number plus the wire code number.

HOLDERS FOR LONG PRODUCTS

Trays for long products (selections with two motor) are wired in such a way as to be able to connect both standard holders (two-pole connectors) and adjustable holders (three-pole connectors) for selections using two motors at the same time.

One or two adjustable holders, using two motors at the same time, can be fitted on each tray.

To install an adjustable holder, do as follows:

- Slide out the tray to be modified;
- disconnect the motor connectors of the holders to be replaced;
- remove the holders from the tray, lifting them from the motor side;

- insert the new holder (right-hand side and left-hand side) using the special slots on the tray, according to the length of the products to be dispensed (200 or 280 mm);
- connect the three-pole connectors to the motors, keeping in mind that connector pairs are fixed: i.e. the connectors marked with number 1 and 3 can be connected to the left-hand holder and the connectors marked with number 5 and 7 can be connected to the right-hand holder (see example in Fig. 20);

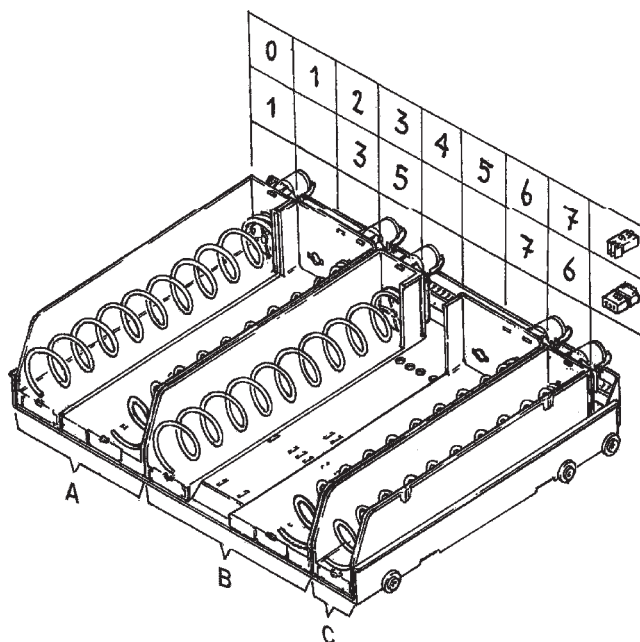


Fig. 20

- A - 200 mm adjustable holder, selection N. X1
- B - 280 mm adjustable holder, selection N. X5
- C - Single holder, selection N. X6

Important notice!

Two-pole connectors for standard holders are electrically controlled, with equal number, together with the three-pole connectors for adjustable holders.

If a single holder is to be connected, as in the example of Fig. 20, two-pole connector N. 6 must be used:

- check the setting of the minidips that control the direction of rotation; these are located on the adjustable holder motors.

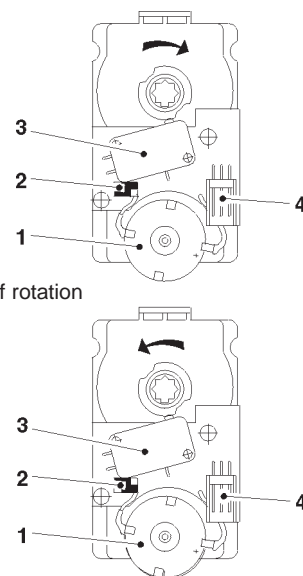


Fig. 21

- 1 - Adjustable holder motor
- 2 - Minidips controlling the direction of rotation
- 3 - Limit micro-switch
- 4 - Three-pole connector

- program the new selection with the desired price;
- test the modified selections, to be sure of their correct operation
- insert the new price and selection labels;
- install the modified tray, ensuring that the connector is properly connected;
- program the new selection with the desired price;
- change configuration from the "Maintenance" menu;
- test the modified selections, to be sure of their correct operation .

POWER SUPPLY UNIT

Fuses, switches and connectors positioned at the front of the power supply unit have the functions indicated below. Protection fuses of the transformer secondary winding are located inside the power supply unit.

When replacing any fuses the power supply cable must be disconnected from the mains.

MAINTENANCE AND CLEANING

The machine must be kept clean at all times, both inside and outside.

Normally available products, as long as they are mild, may be used for cleaning.

Any detergent residue can cause unpleasant odour inside the machine!

A layer of dust is formed on top of the condenser as a result of constant air circulation above the cooling unit, therefore the unit must be kept clean by using a vacuum cleaner, a brush or similar implements.

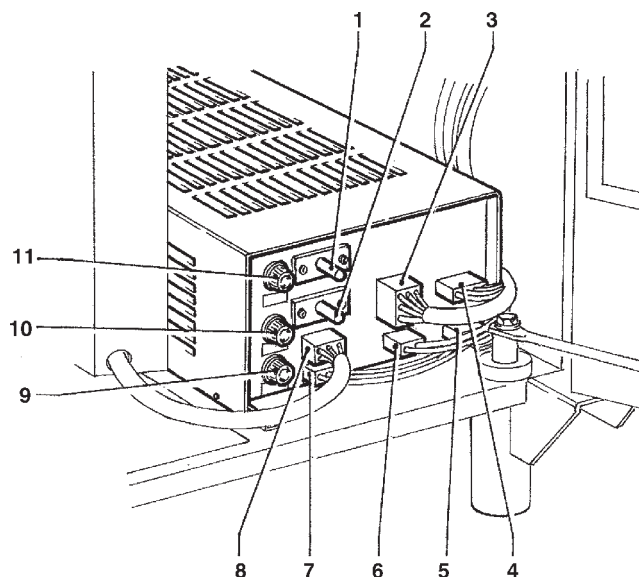
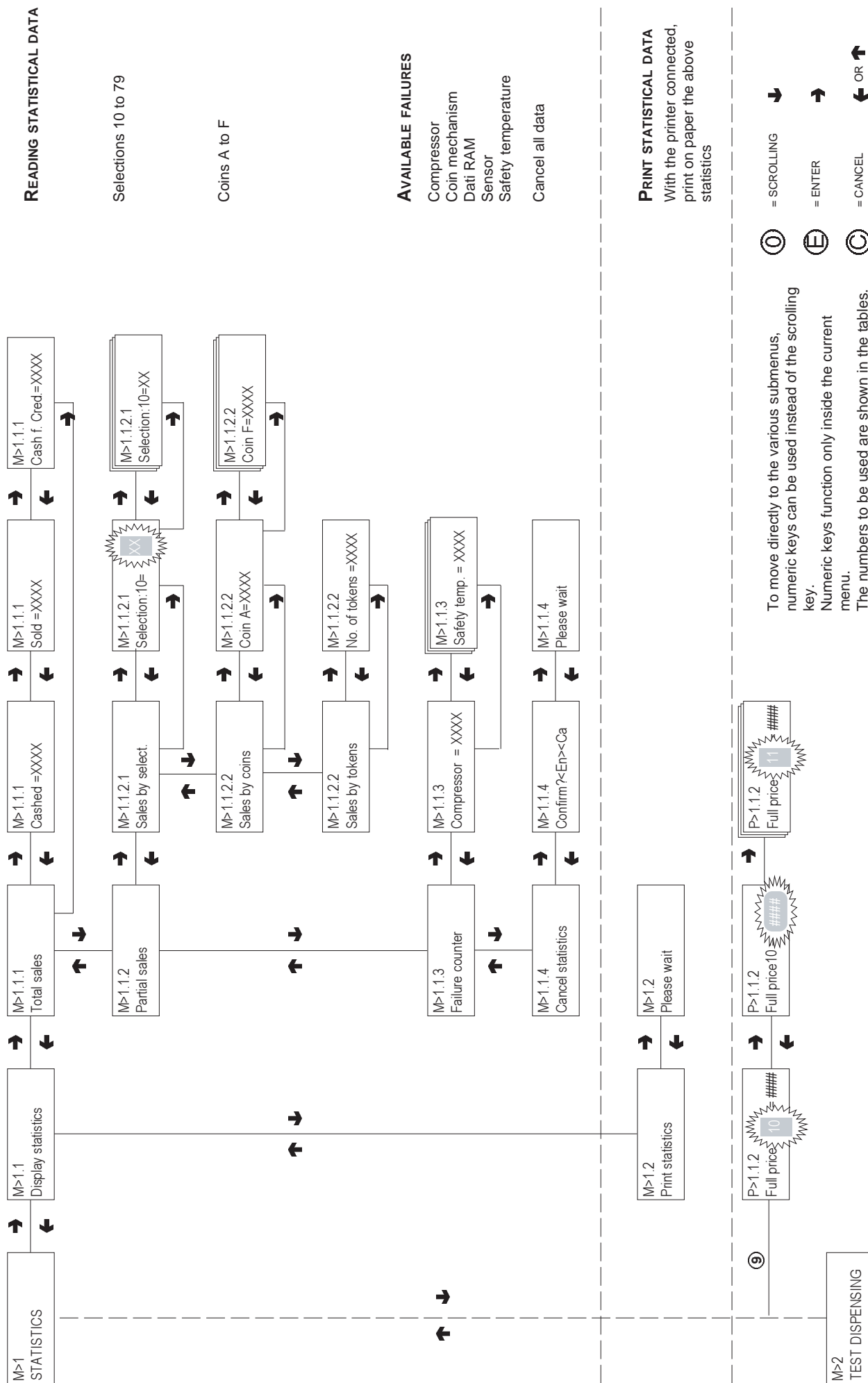


Fig. 22

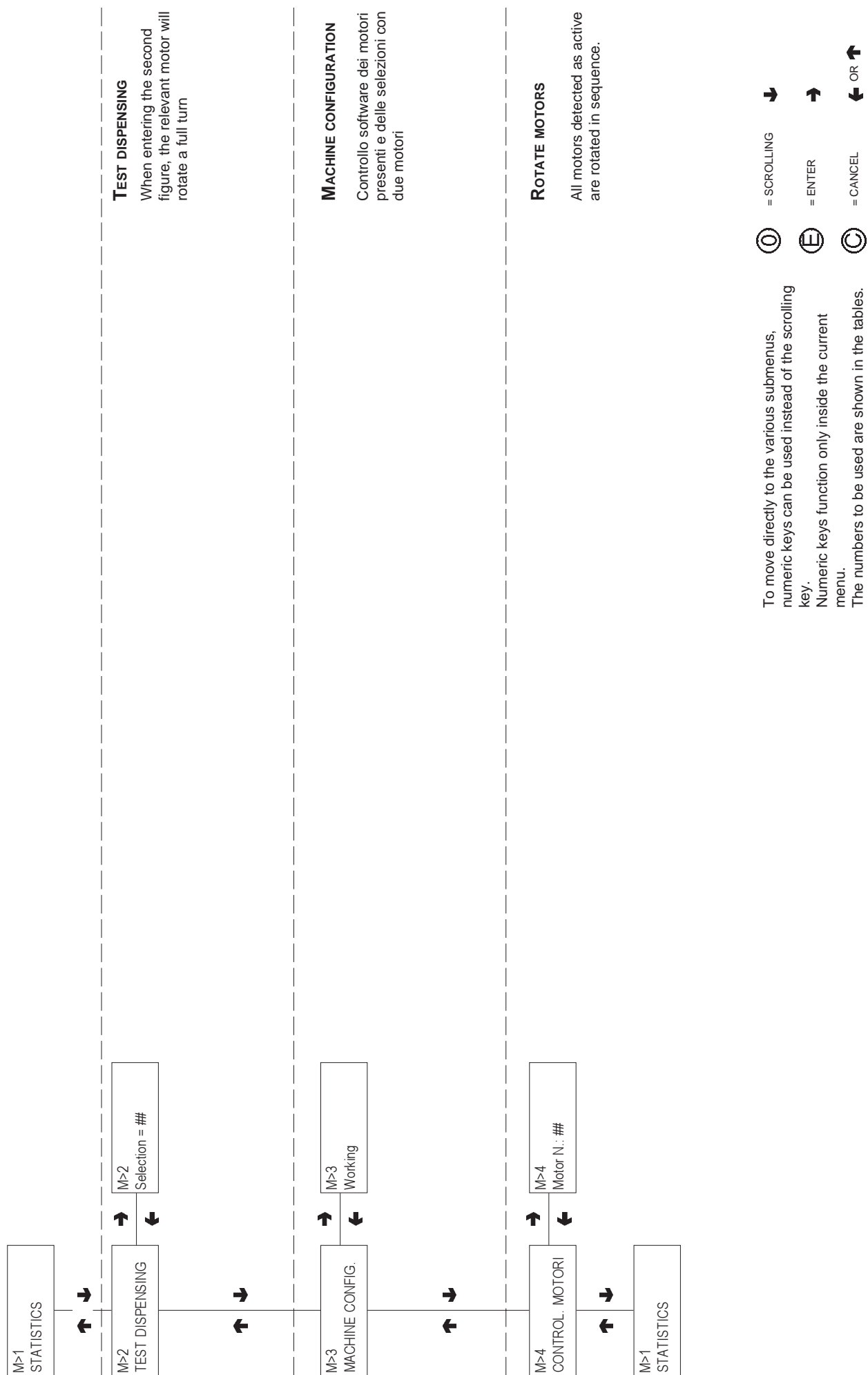
- | | |
|----|--------------------------------|
| 1 | Main switch |
| 2 | Open door indicator switch |
| 3 | To the CPU board |
| 4 | 230 V output connector |
| 5 | Connector for lamps |
| 6 | To the CPU board |
| 7 | Fan connector |
| 8 | Cold unit connector |
| 9 | C.P.U. board power supply fuse |
| 10 | Line fuse T 10 A. |
| 11 | Line fuse T 10 A. |

"Maintenance" Menu

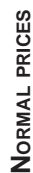
When energised with the door open, the machine is set to "Maintenance" mode.



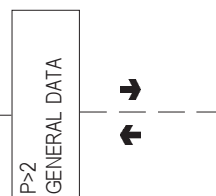
"Maintenance" Menu



Press key **C** from the
"Maintenance" mode to
access "Programming" mode

= selection price with validators
price number with Price Holding

DISCOUNTED PRICES



To move directly to the various submenus, numeric keys can be used instead of the scrolling key.

Numeric keys function only inside the current menu.

The numbers to be used are shown in the tables.

0 = SCROLLING

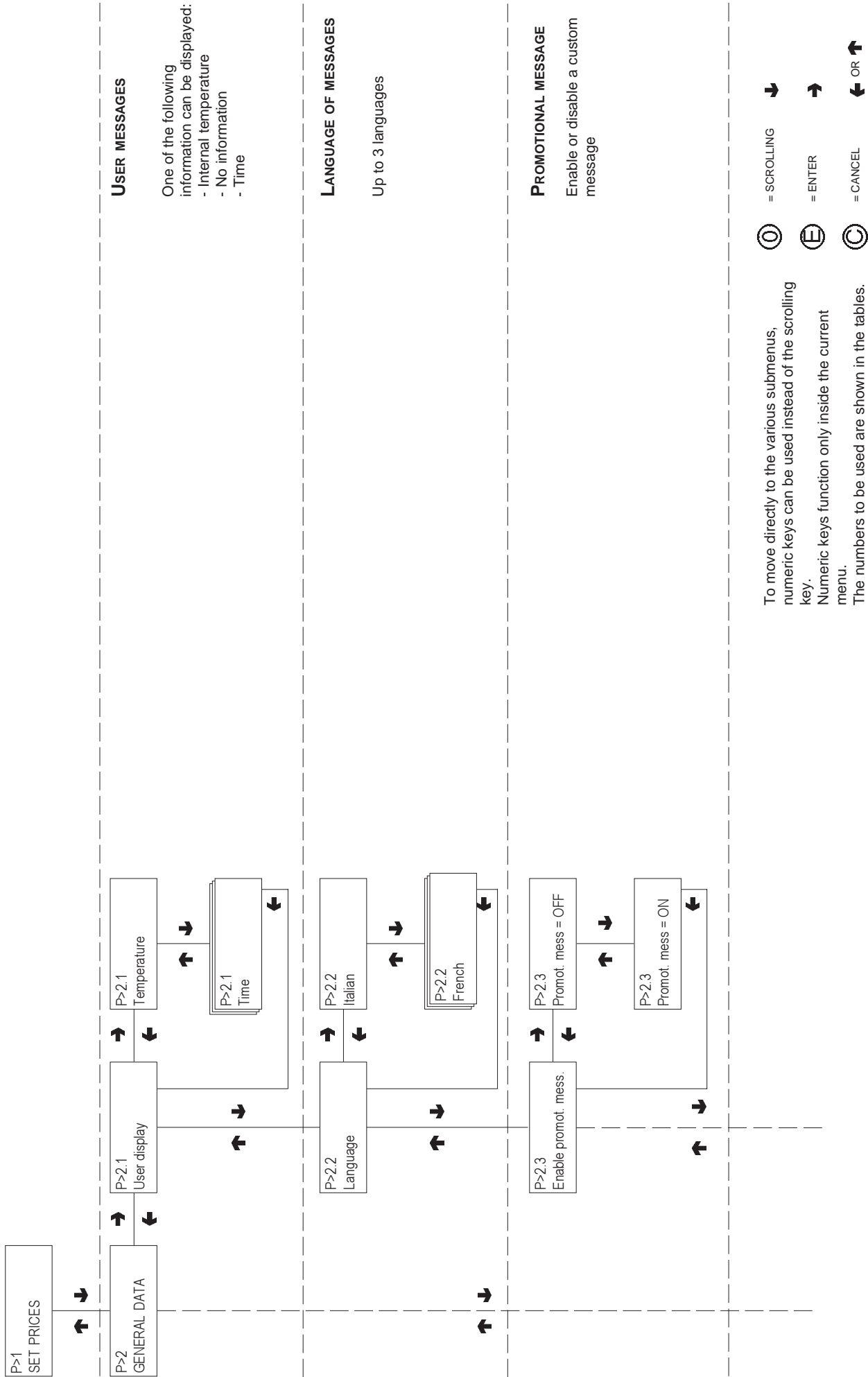
 = ENTER

 = CANCEL

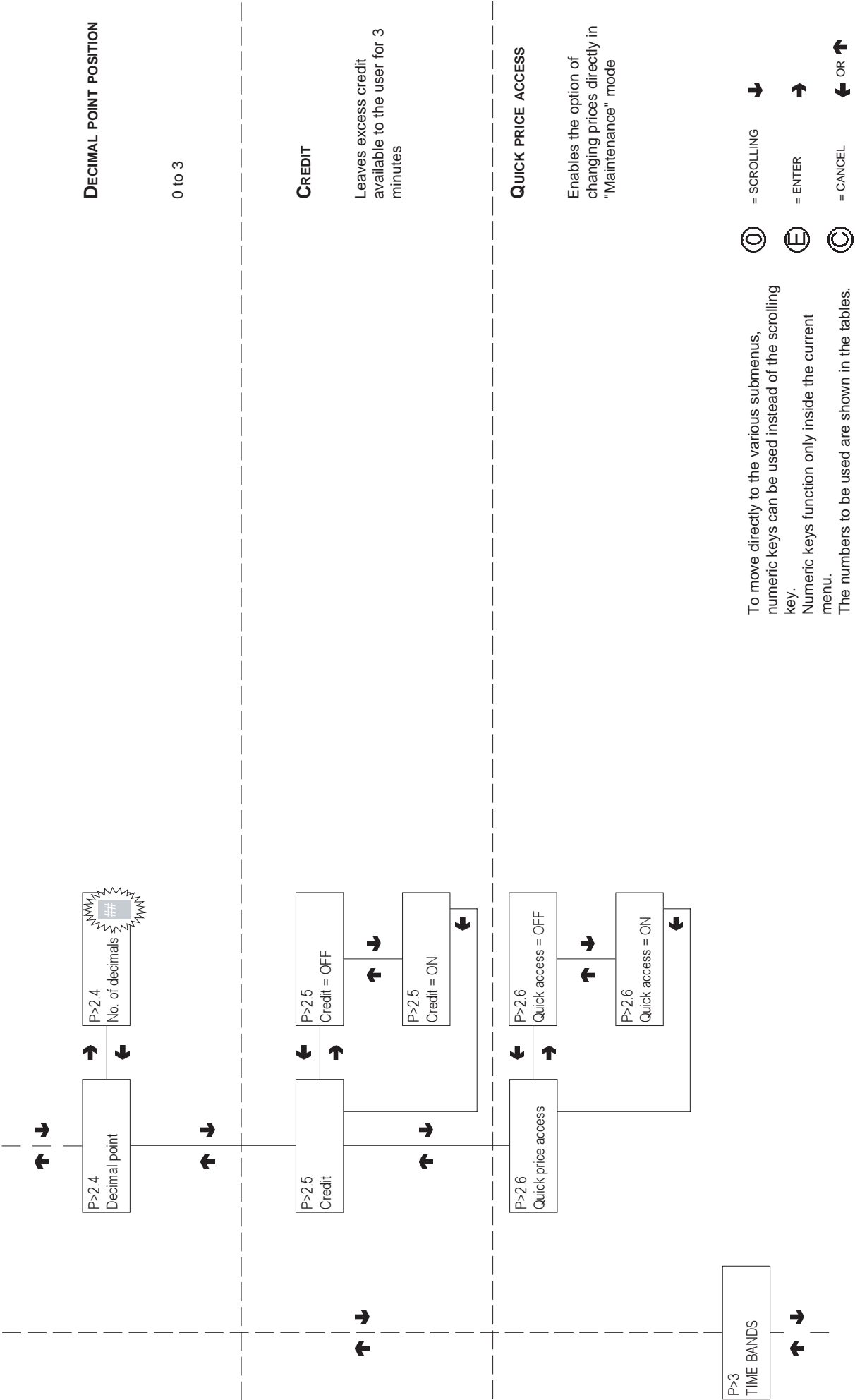
➔

← OR →

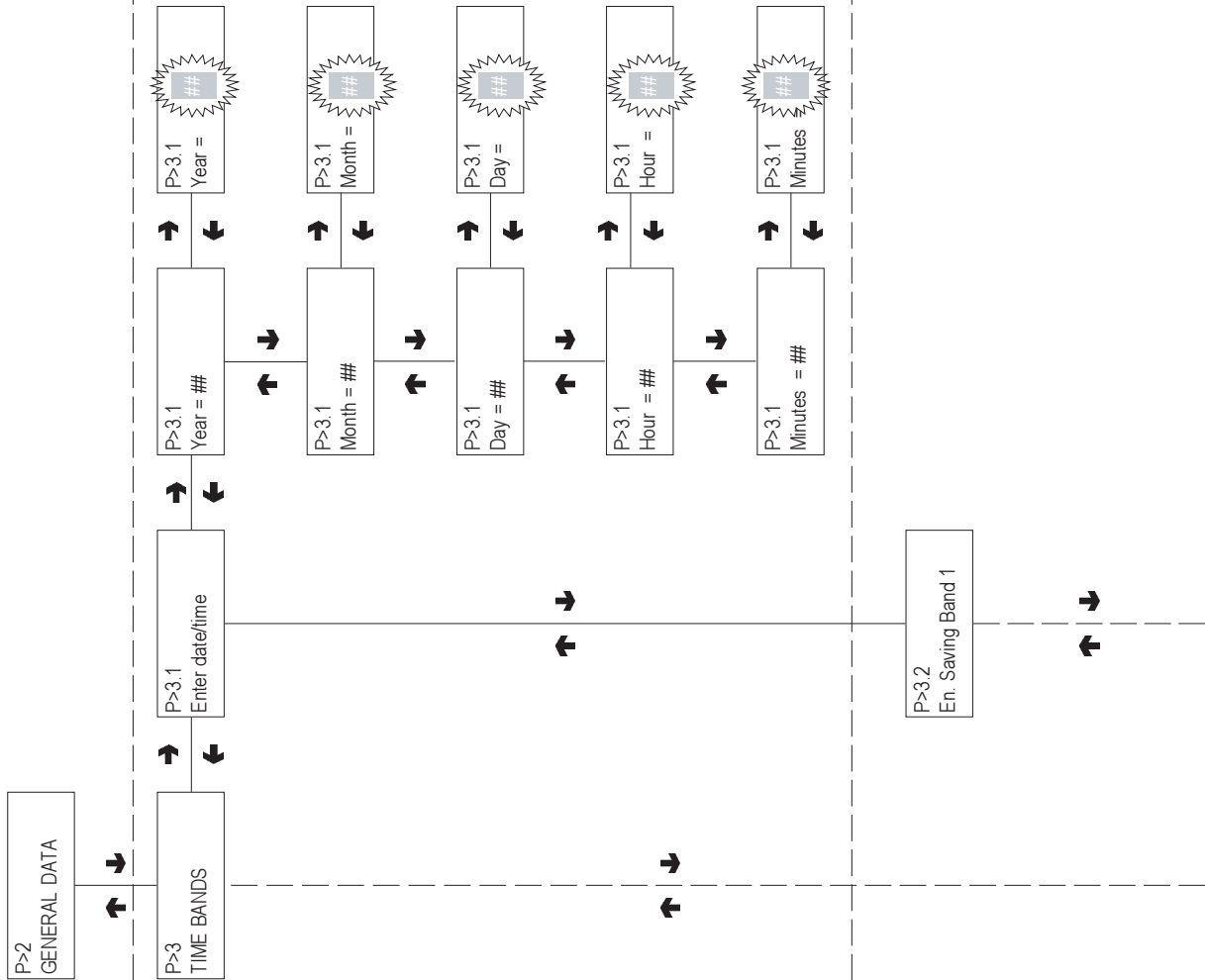
General data "Programming" menu



General data "Programming" menu



Time bands "Programming" menu

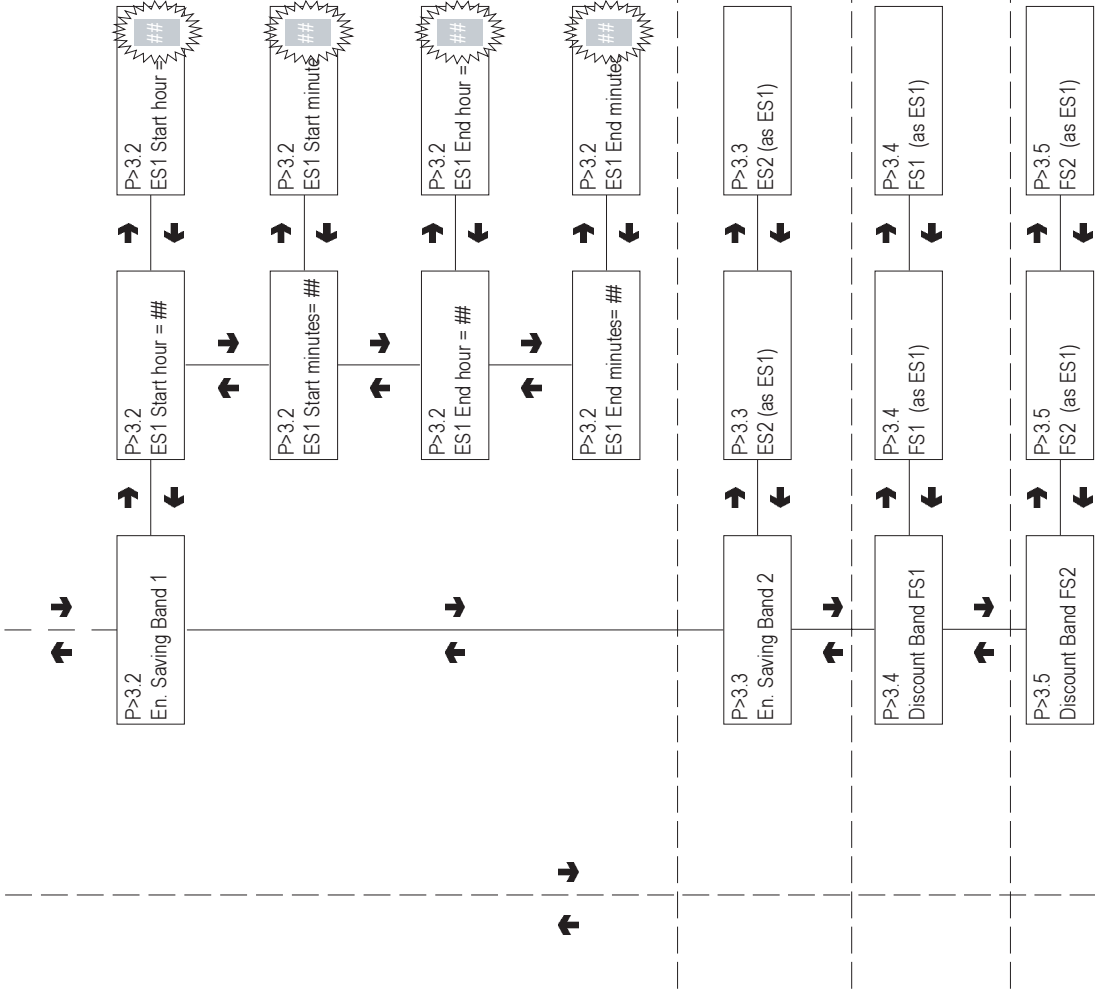


SETTING INTERNAL CLOCK
Entering the second figure confirms the information and the display indicates the following information

- = SCROLLING
- = ENTER
- = CANCEL
- OR

To move directly to the various submenus, numeric keys can be used instead of the scrolling key.
Numeric keys function only inside the current menu.
The numbers to be used are shown in the tables.

Time bands "Programming" menu



With the value set to 24.00 the time bands are disabled. The structure is similar in all 4 time bands.

ENERGY SAVING

Two time bands to program switching off of window lighting

Energy Saving 1

Energy Saving 2

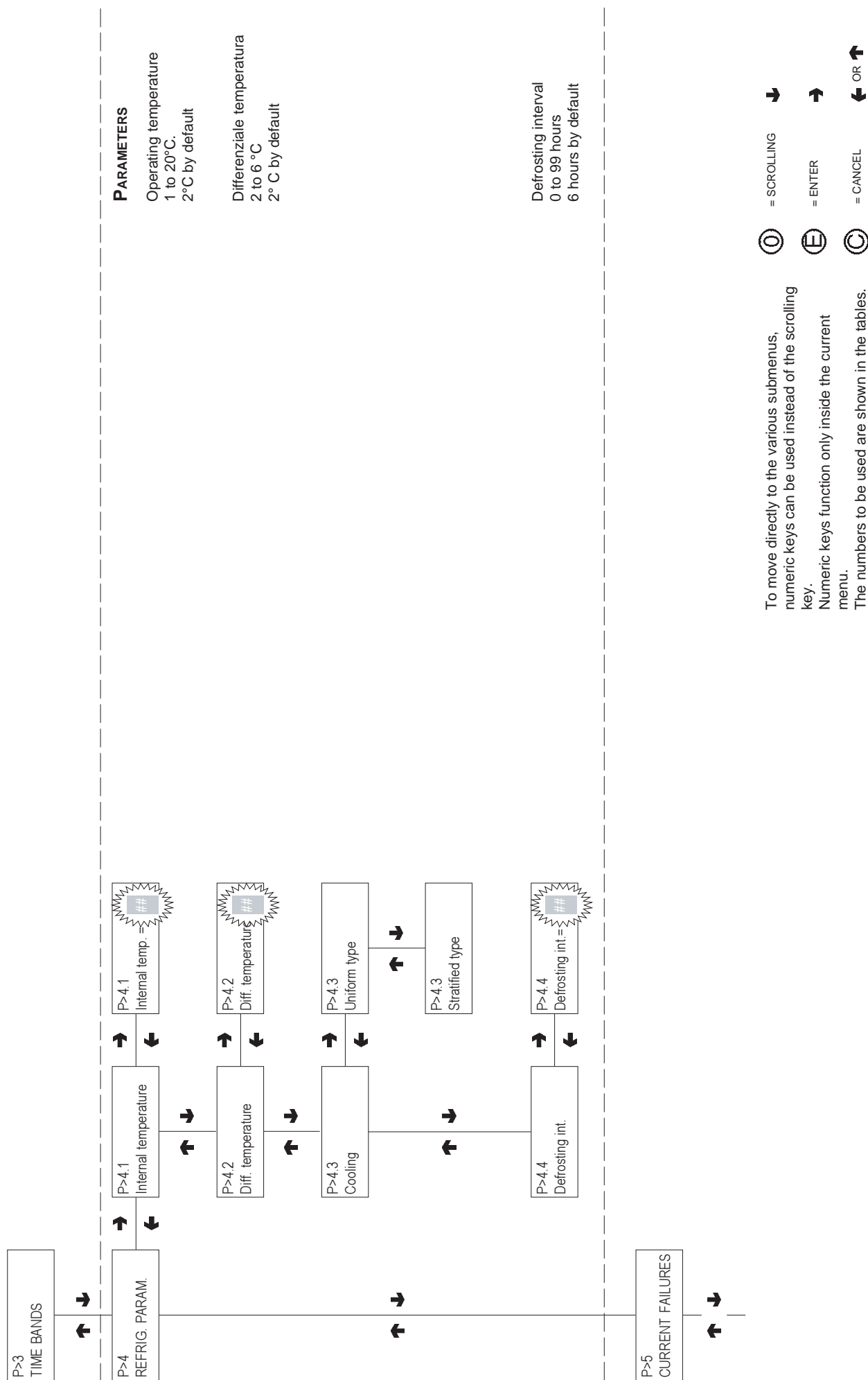
DISCOUNT BANDS

Two discount bands to vary product prices.

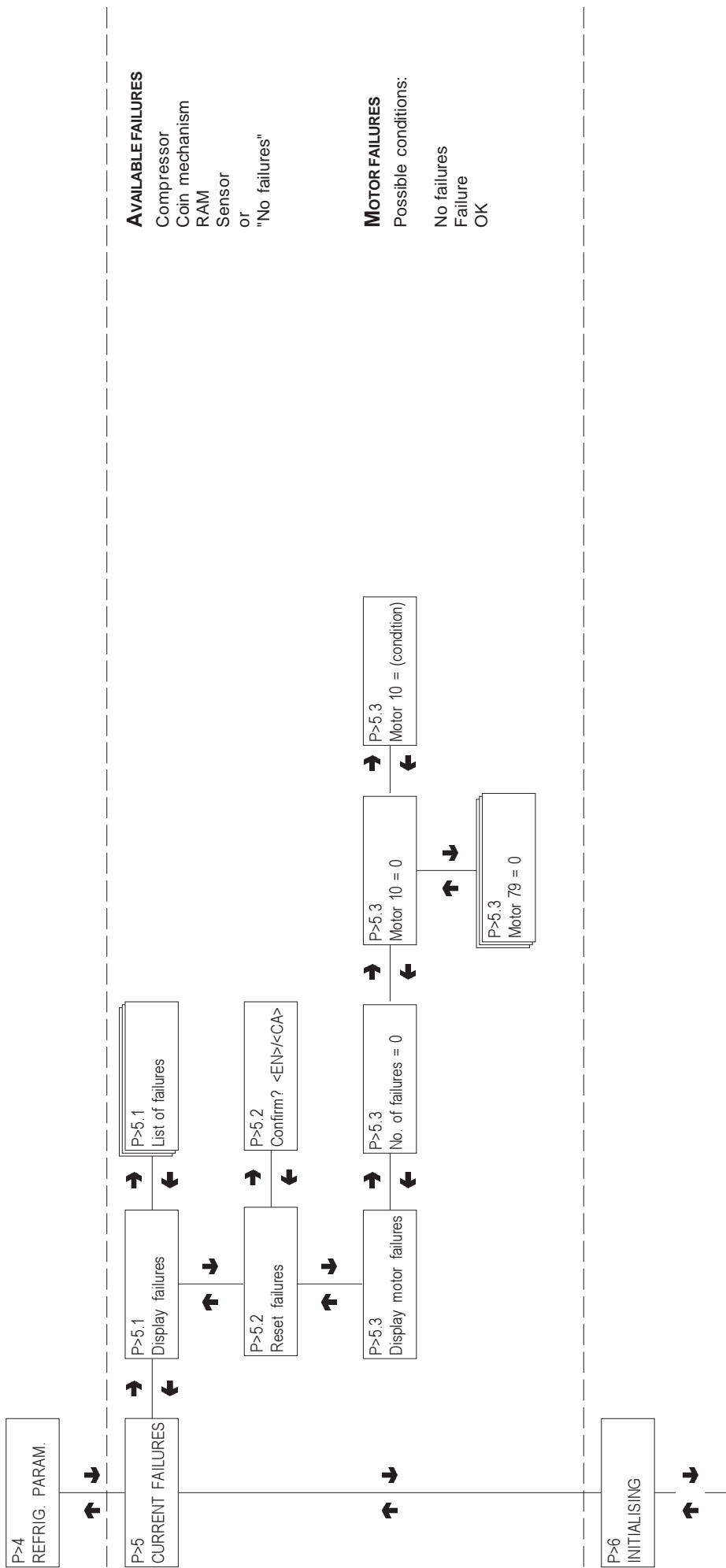
- = SCROLLING
- = ENTER
- = CANCEL
- OR

To move directly to the various submenus, numeric keys can be used instead of the scrolling key.
Numeric keys function only inside the current menu.
The numbers to be used are shown in the tables.

Refrigeration parameter "Programming" menu



Current failures "Programming" menu



AVAILABLE FAILURES

Compressor
Coin mechanism
RAM
Sensor
or
"No failures"

MOTOR FAILURES

Possible conditions:

No failures
Failure
OK

To move directly to the various submenus, numeric keys can be used instead of the scrolling key.
Numeric keys function only inside the current menu.
The numbers to be used are shown in the tables.



= SCROLLING



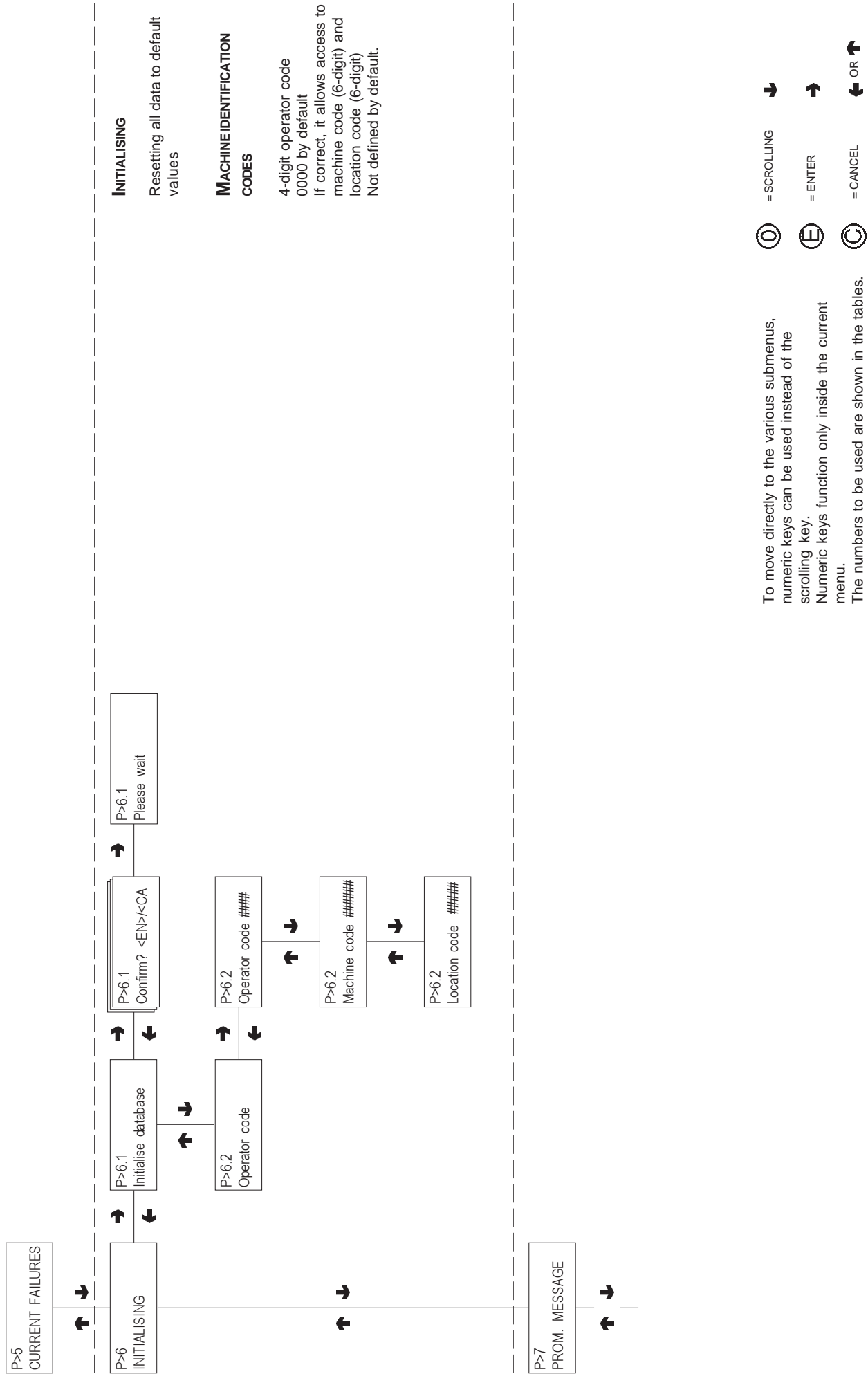
= ENTER



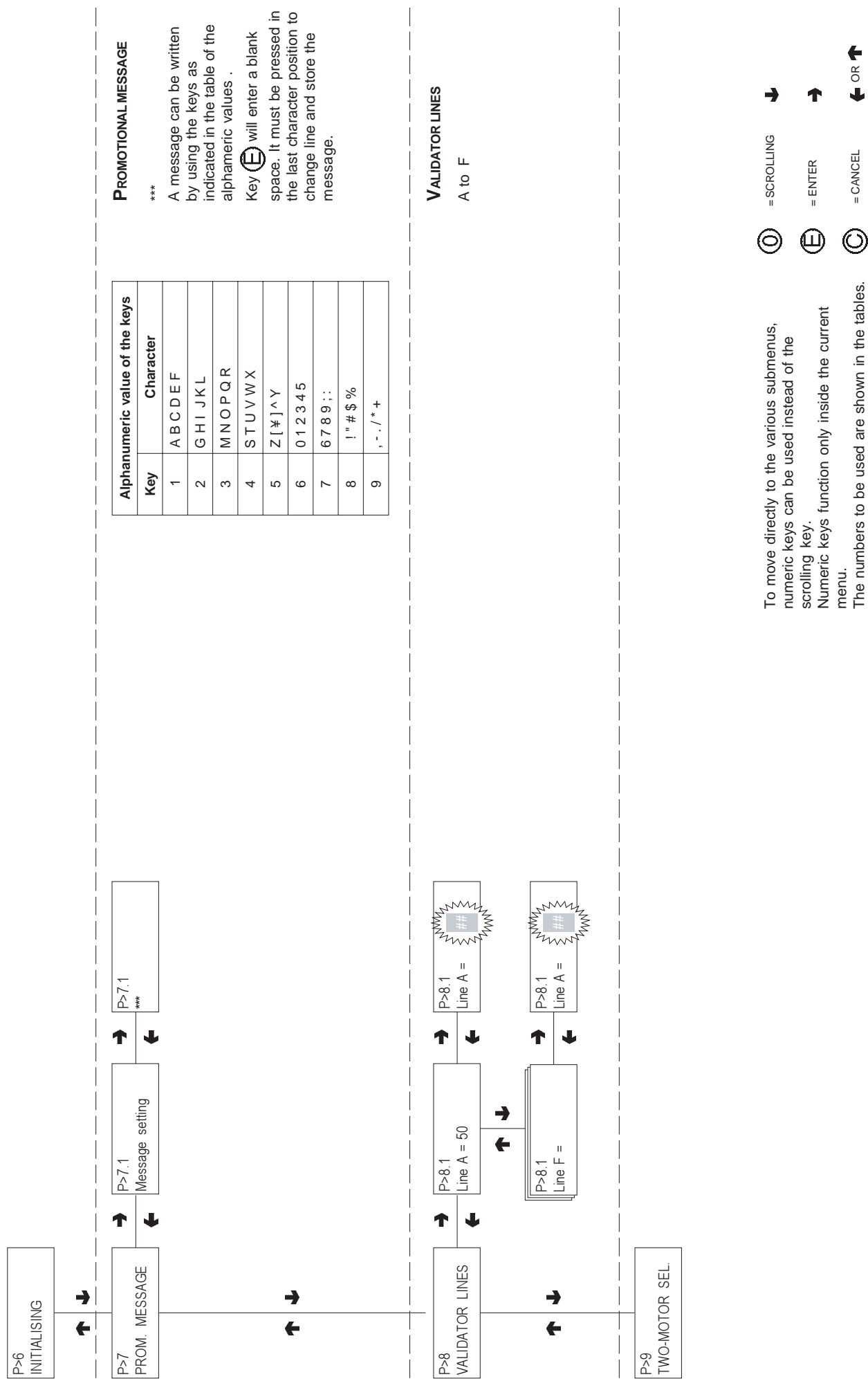
= CANCEL



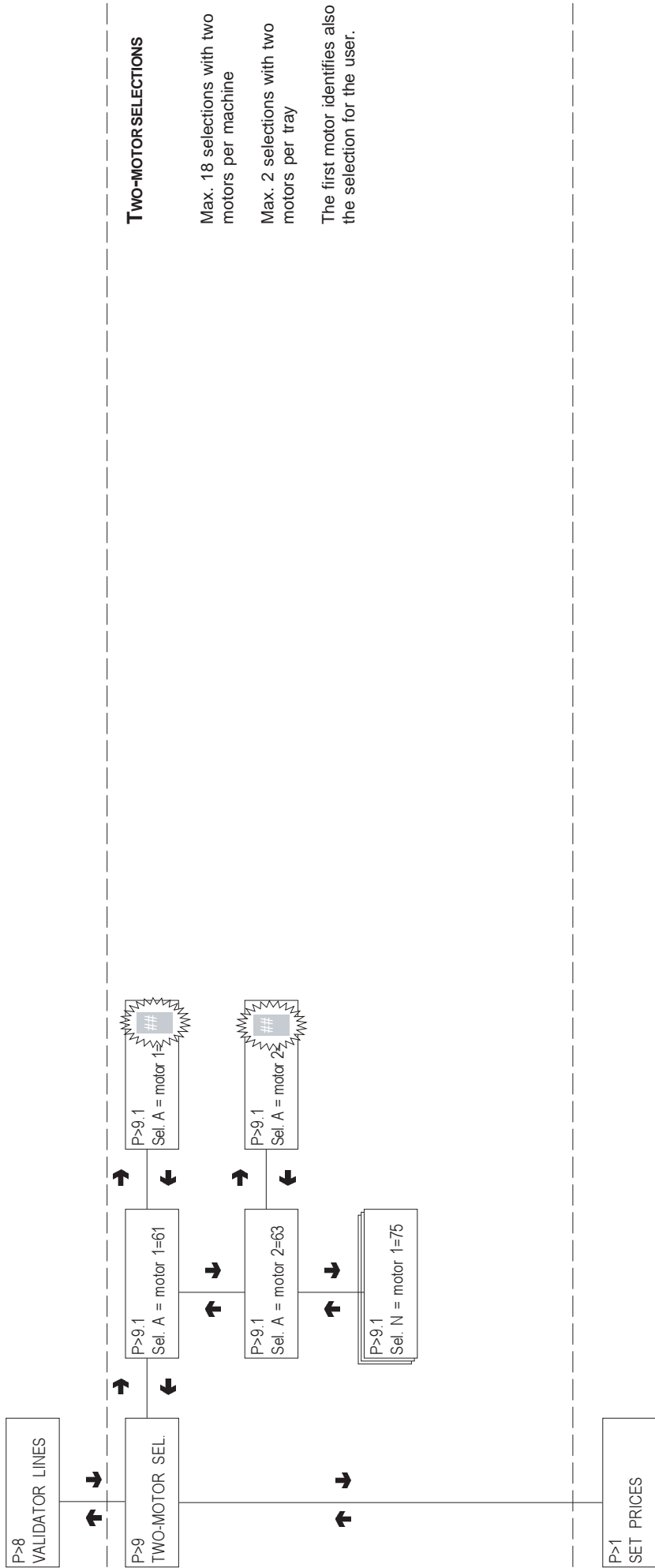
Initialising "Programming" menu - Identification codes



Promotional message and validator line "Programming" menu



Two-motor "Programming" menu



To move directly to the various submenus, numeric keys can be used instead of the scrolling key.

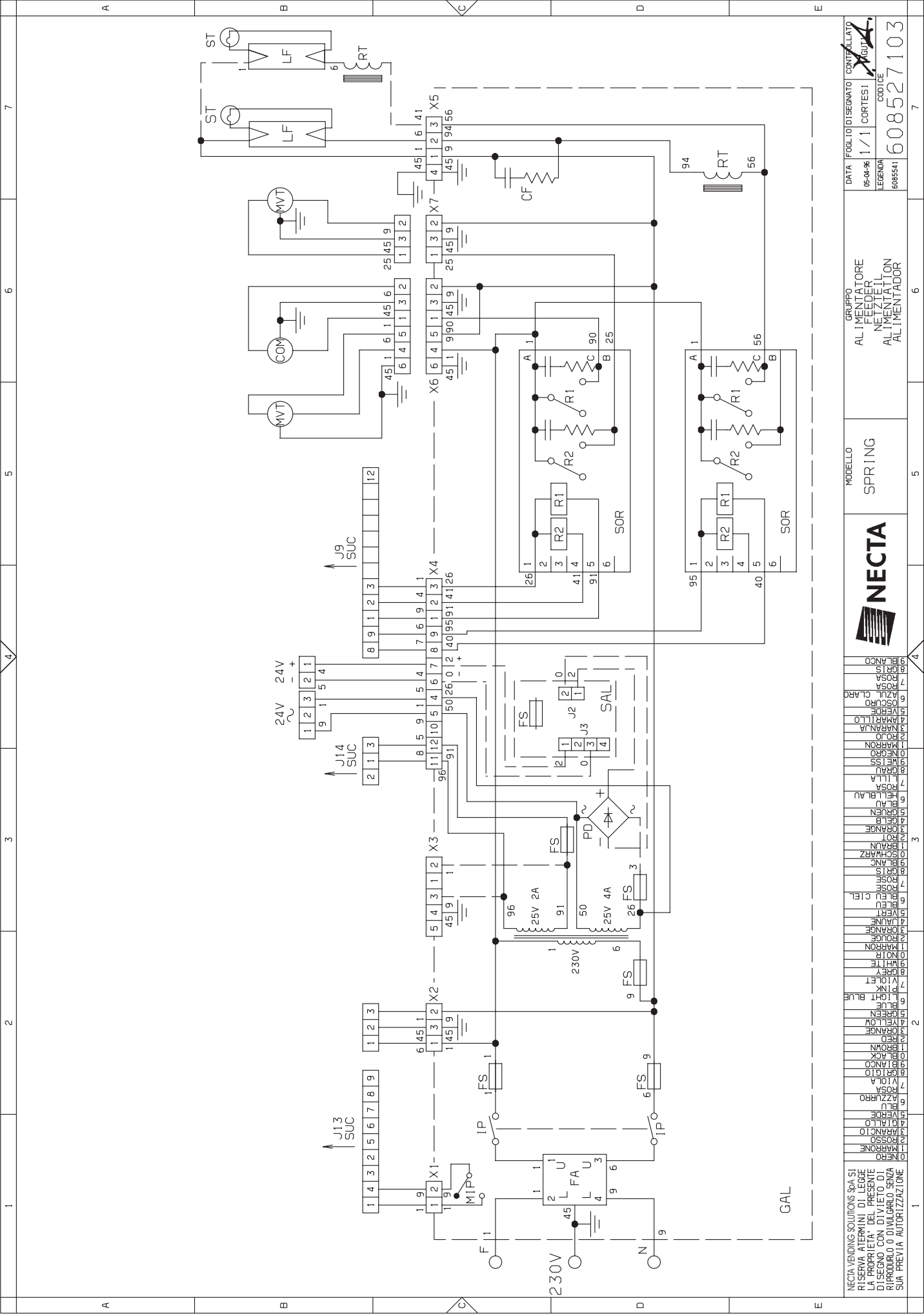
Numeric keys function only inside the current menu.

The numbers to be used are shown in the tables.

	= SCROLLING	
	= ENTER	
	= CANCEL	

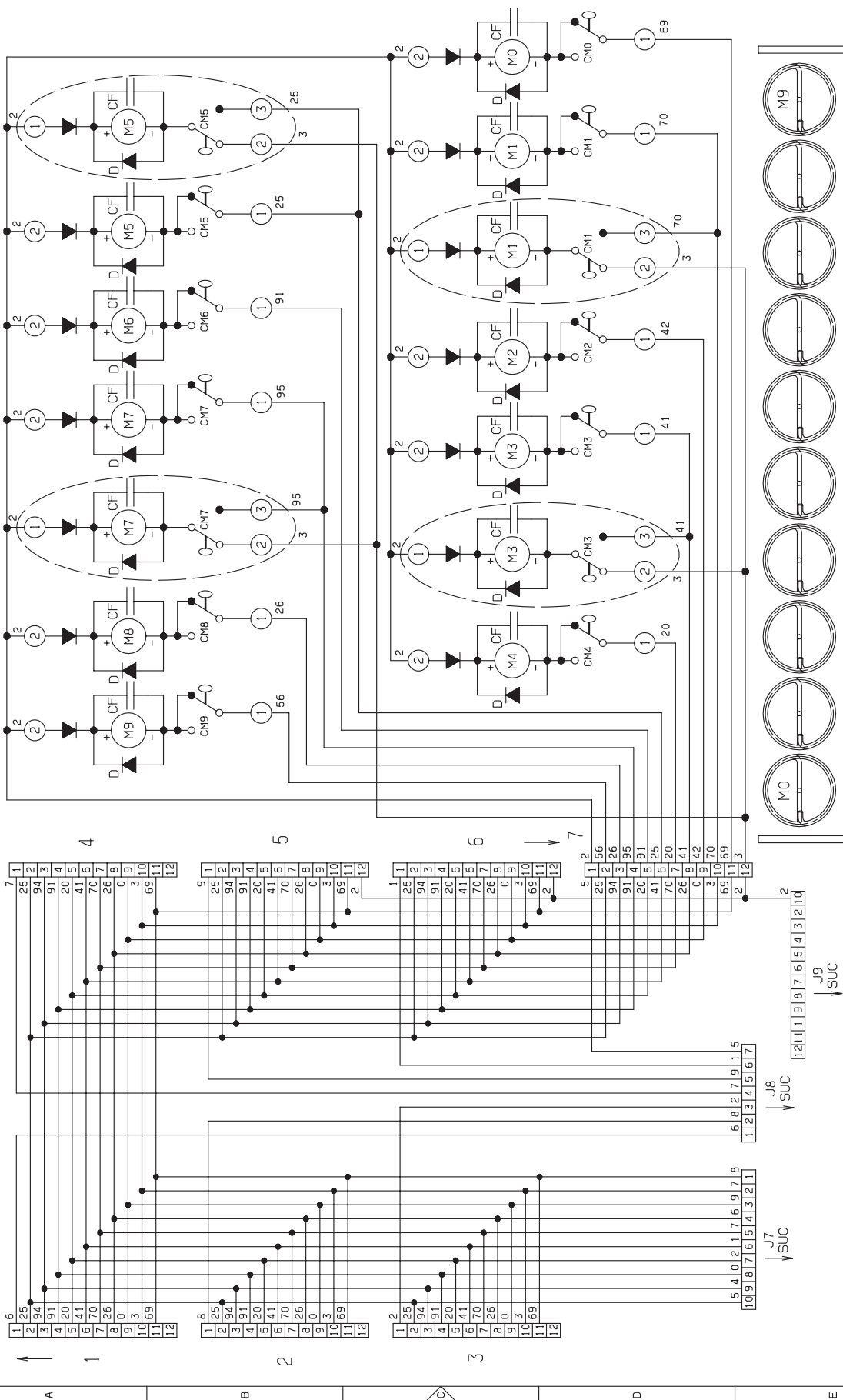
WIRING DIAGRAM LEGEND**FÖRKLARING AV DET ELEKTRISKT
KOPPLINGSSCHEMAT**

INITIALS	DESCRIPTION	BETECKN	BESKRIVNING
BDV	BDV COIN MECH CONNECTORS	BDV	KONTAKTDON FÖR MYNTAPPARAT BDV
CF	FILTER CONDENSER	CF	KONDENSATOR FILTER
CM0-9	VENDING MOTOR CAM	CM0-9	KAM MOTOR FÖR FÖRSÄLJNING
CMR	COIN RETURN CAM	CMR	KAM MOTOR FÖR ÅTERLÄMNANDE AV RESTPEN
COM	COMPRESSOR	COM	KOMPRESSOR
D	DIODE	D	DIOD
EX	EXECUTIVE COIN MECH CONNECTOR	EX	KONTAKTDON FÖR MYNTAPPARAT EXECUTIVE
FA	RADIO INTERFERENCE SUPPRESSOR	FA	STÖRNINGSSKYDDSFILTER
FS	FUSE	FS	SÄKRING
GAL	FEEDING ASSEMBLY	GAL	MATARENHET
IP	DOOR SWITCH	IP	DÖRRKONTAKTBRYTARE
LF	LAMP	LF	LAMPA
M0-9	VENDING MOTORS	M0-9	MOTORER FÖR FÖRSÄLJNING
MDB	CONNECTOR FOR MDB COIN MECHAN	MDB	KONTAKTDON FÖR MYNTAPPARAT MDB
MIP	PROGRAMMING ACCESS MICRO-SWITCH	MIP	MIKROBRYTARE I INGÅNG PROGRAMMERING
MR	COIN RETURN MOTOR	MR	MOTOR FÖR ÅTERLÄMNANDE AV RESTPENGA
MVT	FAN	MVT	MOTORFLÄKT
NTC1-.	TEMPERATURE PROBE	NTC1-.	SOND FÖR TEMPERATURAVLÄSNING
PD	DIODE RECTIFIER	PD	ÖVERKOPPLING DIODER
PRR	COIN RETURN BUTTON	PRR	TRYCKKNAPP FÖR ÅTERLÄMNANDE AV RESTPE
R1-...	RELAIS	R1-...	RELÄ
RT	BALLAST	RT	BALLAST
SAL	VOLTAGE SUPPLY BOARD	SAL	MATNINGSKORT
SLCD	LIQUID CRYSTAL DISPLAY	SLCD	DISPLAY BASERAD PÅ FLYTANDE KRISTALLER
SOR	OUT/R BOARD	SOR	KORT FÖR OUT/R
SP	PUSH-BUTTON BOARD	SP	KORT FÖR TRYCKKNAPPAR
ST	STARTER	ST	STARTER
SUC	C.P.U. BOARD	SUC	KORT FÖR CENTRALPROCESSOR



NECTA VENDING SOLUTIONS S.p.A. SI RISERVA A TERNI DI LEGGE LA PROPRIETÀ DEL PRESENTE DI SEGNO CON DIVIETO DI RIPRODURLO O DIVULGARLO SENZA SUA PREVIA AUTORIZZAZIONE	MODELLO		GRUPPO		FOGLIO DISSEGNO		CONTROLLATO	
	SPRING		ALIMENTATORE FEEDER NETZTEIL ALIMENTATION ALIMENTADOR		1/1		CORTESI	
							LEGENDA	
							6085541	
							608527103	

CASSETTI/TRAYS



NECTA Spring		GRUPPO		FOGLIO DISEGNATO		CONTROLLATO	
NECTA		MOTORI SPIRALI.		20-11-96		1/1	
LEGENDA		CODICE		608541		608541	
SUA PRETIA AUTORIZZAZIONE		SUA PRETIA AUTORIZZAZIONE		SUA PRETIA AUTORIZZAZIONE		SUA PRETIA AUTORIZZAZIONE	

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