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INSTALLAZIONE, USO, MANUTENZIONE  
INSTALLATION, MODE D'EMPLOI, ENTRETIEN  
INSTALLATION, USE, MAINTENANCE  
INSTALACIÓN, USO, MANTENIMIENTO  
INSTALLATION, BEDIENUNG, WARTUNG  
HANDBOEK VOOR GEBRUIK, INSTALLATIE, ONDERHOUD

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# Zeta

**BISTANDARD ELECTRONICS**

**Executive - MDB protocols**

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**ZANUSSI** by  **NECTA**  
V E N D I N G



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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  
OVERENSSTEMMELSESERKLÆRING**

Valbrembo, 04/04/00

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

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

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

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

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

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

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

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

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

GOFFREDO BUTTAZZONI

Direttore Generale  
Directeur General  
Director General  
Directeur-generaal  
Direktør

General Manager  
Generaldirektor  
Director-Geral  
Verkställande direktor

**ZANUSSI**  
V E N D I N G

A handwritten signature in black ink, appearing to read "Goffredo Buttazzoni".



THE EUROPEAN NETWORK FOR QUALITY SYSTEM ASSESSMENT AND CERTIFICATION

*This is to state that*

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

*holds the Quality System Certificate*

CISQ/CISQ 9130-ZA18

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

Signed for and on behalf of EQNet member

Federazione CISQ  
IL PRESIDENTE  
Dr. Ing.

DATE

June 1st, 1994

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The issuing member holds all other EQNet members harmless for any claims arising from the existence of this document.



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



CERTIFICATO n.  
CERTIFICATE No. 9130-ZA18

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

ZAMUSSI VENDING S.p.A.

Via Roma, 24 - 24030 VALEREMBO (BG)

UNITA' OPERATIVA  
OPERATIVE UNIT

Via Roma, 24 - 24030 VALEREMBO (BG)

E' CONFORME ALLA NORMA  
IS IN COMPLIANCE WITH THE STANDARD UNI-EN 29001-ISO 9001

PER I SEGUENTI TIPI DI PRODOTTI - PROCESSI - SERVIZI  
CONCERNING THE FOLLOWING KINDS OF PRODUCTS - PROCESSES - SERVICES

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

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

25 Luglio 1994

DATA DI RILASCIO  
ISSUED ON

IMO

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

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

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

MLU 373-500-694

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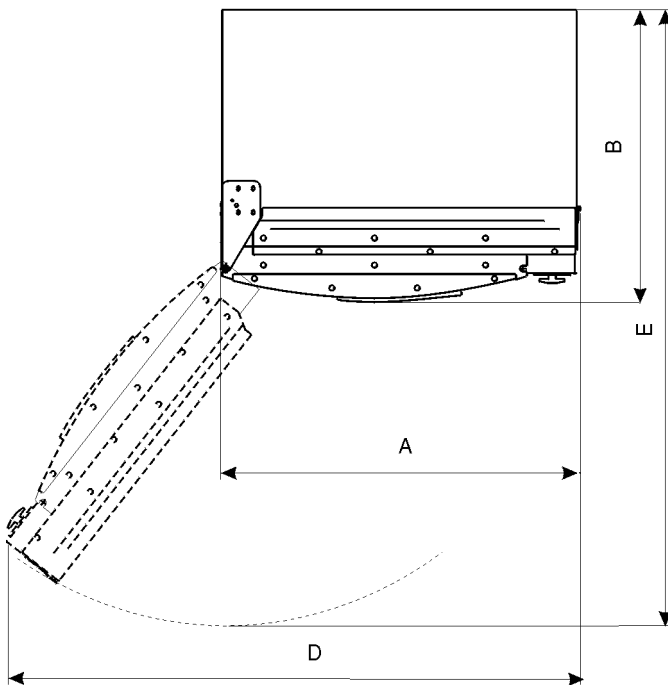
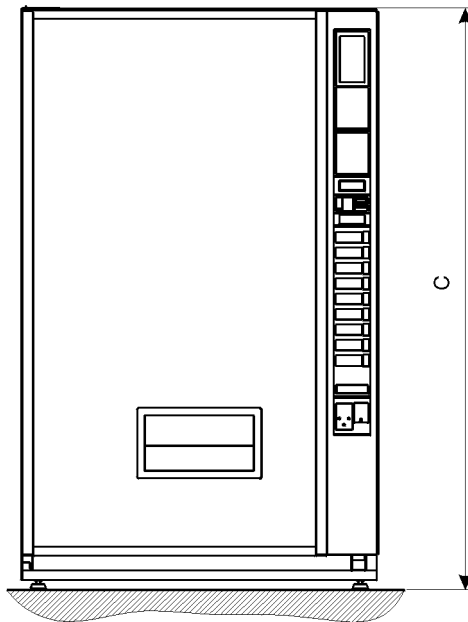


Fig. 1

**DIMENSIONI  
DIMENSIONS  
DIMENSIONES  
ABMESSUNGEN  
AFMETINGEN**

Zeta	450	550	750
A mm	720	870	1115
B mm	910	910	910
C mm	1830	1830	1830
D mm	1100	1450	1800
E mm	1555	1680	1940

# INTRODUCTION

This technical documentation is part and parcel of the vending machine.

**Therefore it must always follow the machine in the case when it is moved or ownership is transferred, so that different operators may be able to consult it.**

Before installing and using the machine, it is first necessary to carefully read and understand the instructions contained in this manual, as they offer important information for safe installation, use and maintenance.

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

The **first section** describes the loading and routine cleaning operations which are carried out in areas of the machine accessible with the sole 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 the software programming.

**The operations described in the second and third sections 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.**

## IDENTIFICATION OF THE VENDING MACHINE AND ITS CHARACTERISTICS

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

This plate (see Figure 2) 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.

It is therefore recommended that this plate be neither damaged nor removed.

## 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 more serious problems 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 fork lift truck, and the forks are to be placed underneath the machine from the side clearly indicated by the symbol on the cardboard package.

**Do not:**

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

The machine should be stored in a dry room where the temperature remains between -5 and 50° C.

## USE OF THE CAN & BOTTLE VENDING MACHINE

Can & bottle vending machines should only be used to sell and dispense drinks contained in factory-sealed cans and bottles made of different materials (such as metal, glass, plastic. etc.).

**Strictly comply with the manufacturer's specifications regarding storage and expiry date for each product.**

Any other use is incorrect and thus potentially dangerous.

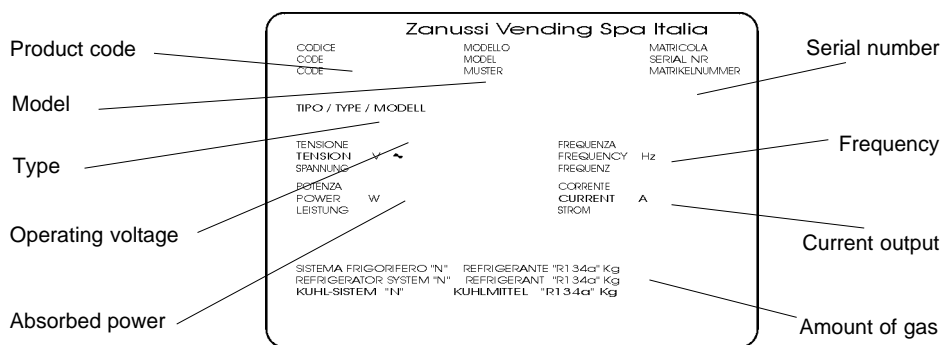


Fig. 2

## 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 away from heat sources and close to a wall, so that the back panel is at a minimum distance of 10 cm from it and correct ventilation may be ensured, especially in the compressor area.**

**The machine should never be covered with a cloth or the like.**

The machine should be positioned in such a way that it has a maximum inclination of 2°.

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

Should it become necessary, it is possible to secure the machine to the floor.

Pre-drilled holes at the bottom of the machine are positioned as indicated in the drawing below:

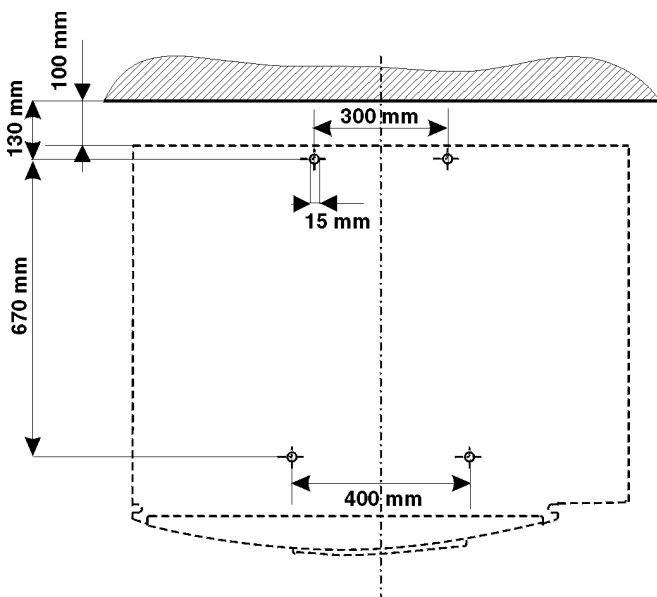


Fig. 3

Alternatively the machine can be secured to a wall by means of the special spacer kit ,available as accessory, to be fixed to the top of the cabinet.

### WARNING

**When the vending machine is completely filled with products it may attain a total mass concentrated on the four supporting feet included between 500 and 700 Kg, according to model.**

**A proper installation surface should be provided for the machine so that such weight may not cause dangerous conditions such as crash or collapse, sinking, damage and more generally any possible instability.**

## WARNING FOR INSTALLATION

**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 unit or to things and persons caused by incorrect 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.**

## WARNING FOR 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;
- keep the machine away from heat sources;
- regularly check the condition of the door seal to limit heat transfer to a minimum;
- limit as much as possible door opening time during loading operations to avoid temperature increase inside the cabinet and subsequent increase in power consumption.

## 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.
- 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 SPECIFICATIONS

Zeta	450	550	750
Weight (Kg)	285	317	410
Power supply voltage (V~)	230	230	230
Power supply frequency (Hz)	50	50	50
Installed power (W)	750	750	800
Short door-lamp (V~)	230	230	230
Short door-lamp (W)	36	30	36
Long door-lamp (V~)	230	230	230
Long door-lamp (W)	//	58	2 x 36

### Compressor GP14-TB

Cylinder	14	cc
Absorbed power	*400	W
Maximum current input	2.6	A
Refrigerating capacity	500	W

\* With a room temperature of +32° C, condensing temperature of +55° C and evaporation temperature of -10°C.

## NOISE LEVEL

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

## PAYMENT SYSTEM

The machine is factory-fitted for Executive and MDB protocol, as well as parallel-type validators.

## SALES PRICES

A different price can be set for each single selection.

## COIN BOX

Cover and lock are available as an optional feature.

## AVAILABLE SELECTIONS

The machine can be set to dispense the following selections:

- 62 to 73 mm diameter, 246 to 280 mm high bottles in single row;
- 62 to 73 mm diameter, 196 to 245 mm high bottles in double row;
- 66 mm diameter, 250 cc., 330 cc., and 355 cc. cans in quadruple row.

The "setting table", enclosed with the rest of the documentation, includes all optimum settings, as directly established by the manufacturer, for some of the most common types of bottles. For other types of bottles, the best possible setting in the dispensing device must be identified.

Bottles which are too irregular or not firm enough may not be suitable for automatic dispensing.

## CONTROL AND SAFETY DEVICES

- "Machine working" warning
- "Exact amount" warning (with a suitable coin mechanism)
- "Full column" micro-switch for each single selection
- Door switch
- Vending motors' switch
- Maximum preset time for power supply to the vending motors
- Overheating cutout for dispensing motors
- Overheating cutout for compressor
- Line fuses
- Fuses on transformer primary and secondary winding.

## 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 and internal temperature of the refrigerated boxes.

Under average conditions, and namely:

- ambient temperature: 32° C
- refrigerated box temperature: 1.5° C

the following power consumption resulted for each hour of stand-by:

Zeta	450	550	750
Wh	208	390	570

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

## VARIABLE COMBINATION LOCK

Some machine models are fitted with a variable combination lock.

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

The lock can be customised by using a kit, available as accessory, which permits the combination of the lock to be changed. This kit includes a change key (black) for the current lock combination as well as the change (gold) and use (silver) keys for the new combination.

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

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

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

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

**To change combination do as follows:**

- insert the current change key (black) and rotate to the change position (reference notch at 120°);
- remove the current change key and insert the 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.**

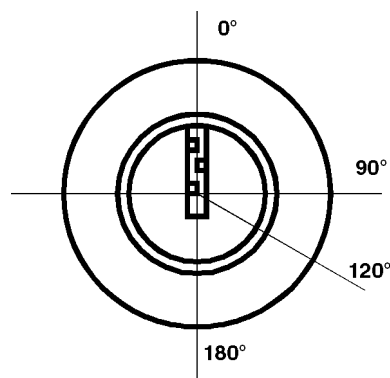


Fig. 4



# LOADING AND CLEANING

## DOOR SWITCH

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

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

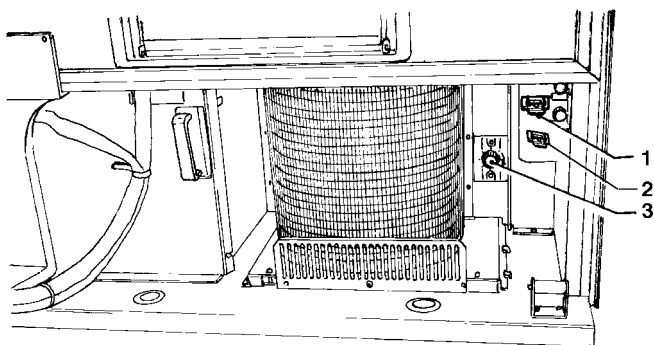


Fig. 5

- 1 - Door switch
- 2 - Vending motors' switch
- 3 - Adjustable thermostat

## DISPENSING MODULES

To get the best possible use of the machine based on the available internal space, the number of selections and the size of the dispensed products, the machines belonging to this range can be equipped with three different types of dispensing devices, i.e.:

- a dispensing module for cans;
- single columns;
- double columns.

Each machine can have a dispensing module for cans and a variable number of columns according to the model.

Each device is set to dispense only one type of product with precise dimensional characteristics.

**Before loading the machine, it is therefore essential to know exactly the type of product for which the device was set.**

### DISPENSING MODULE FOR CANS

(where installed)

The module (toboggan), installed on the left hand side of the machine, is used to dispense four different types of drink and can be adjusted for 250, 330 or 355 cc cans.

The selections, from top to bottom, coincide with the order of the first four selection buttons and have a maximum capacity of:

- 25 cans for the first selection
- 23 cans for the second selection
- 19 cans for the third selection
- 15 cans for the fourth selection

Each of the four selection buttons is fitted with its own "empty" warning lamp; when loading the first can the warning lamp corresponding to the selection button is switched off.

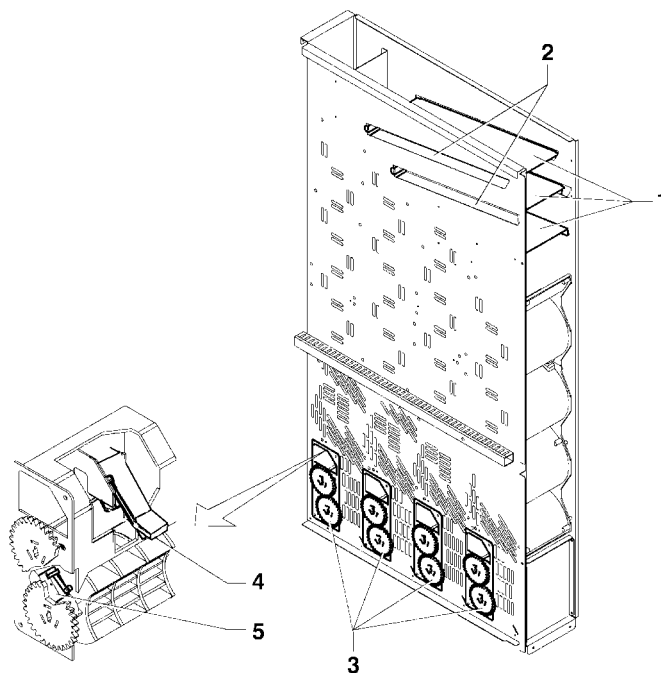


Fig. 6

- 1 - Inlet to product chutes
- 2 - inserts to vary the height of cans
- 3 - Release unit
- 4 - "Empty" micro-switch
- 5 - Limit micro-switch.

## COLUMNS

The columns, according to the width, can be either double or single; for the double columns the rows of products must be loaded in alternation, right and left (see Fig. 7).

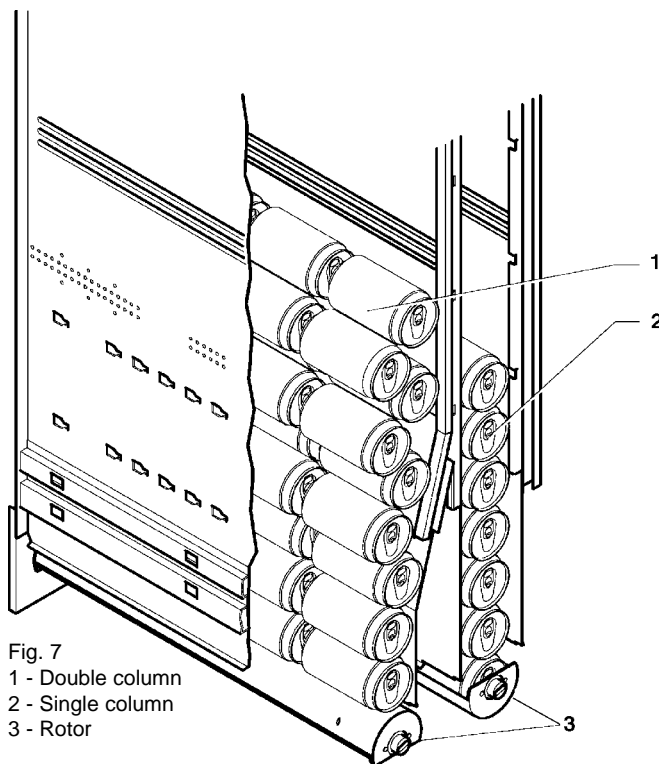


Fig. 7

- 1 - Double column
- 2 - Single column
- 3 - Rotor

The columns can be preset for dispensing 66 dia. cans or round bottles with a diameter range of 62 to 73 mm.

**Warning: glass bottles can be dispensed only from single columns.**

According to the height, the column can be set for loading products in single, double or quadruple row (see Fig. 8).

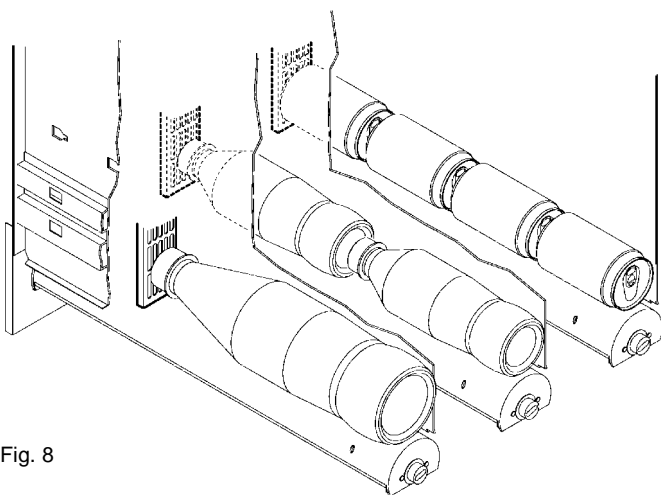


Fig. 8

When dispensing some types of bottles, special guides may need to be used to keep the bottles correctly positioned.

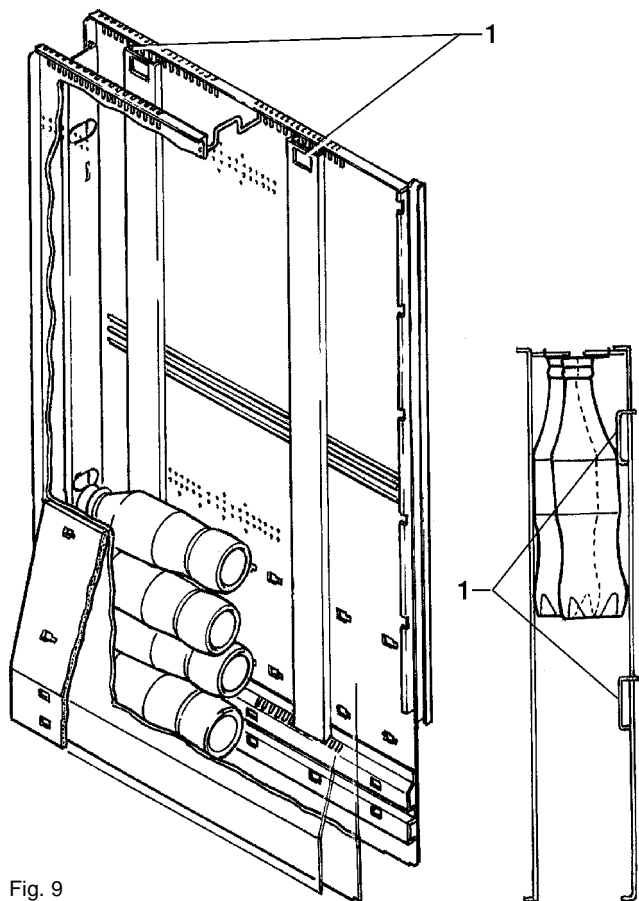


Fig. 9

1 - Bottle guides for single column

**It is essential to know exactly for which product and how the column was set to be able to load it correctly.**

Each column is fitted with its own "empty" warning device.

## CONTROLS AND INFORMATION

All user controls and information are located on the external side of the door, i.e. display, selection menu, coin slot and return, "exact amount" warning lamp, and if fitted the bottle opener.

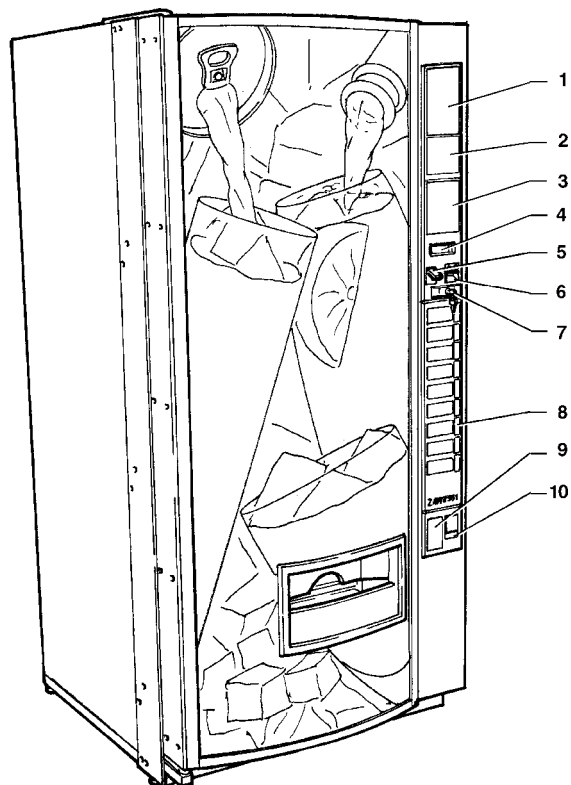


Fig. 10

- 1 - Operating instructions
- 2 - Advertising space or bill validator
- 3 - Advertising space or cashless payment system
- 4 - Display
- 5 - Coin return lever
- 6 - Coin slot and warning lamp "insert exact amount"
- 7 - Lock
- 8 - Selection buttons
- 9 - Bottle opener provision
- 10 - Coin return

## LOADING

Once identified the type of product to be dispensed for a certain selection, the vending machine can be loaded.

The sliding support (see Fig. 11) can be used as bearing surface for the product containers, thus making loading operations easier.

To load the dispensing module for cans, place the cans sideways at the chute inlet and let them roll down. It is not important which side the top of the can is facing.

**Should a product chute be completely empty (for ex. when first installing the machine), after loading make a selection to bring the first can into release position.**

To correctly load the products to be dispensed in the columns, do as follows:

- open the bottle retaining gate by sliding it inside the guides toward the left;

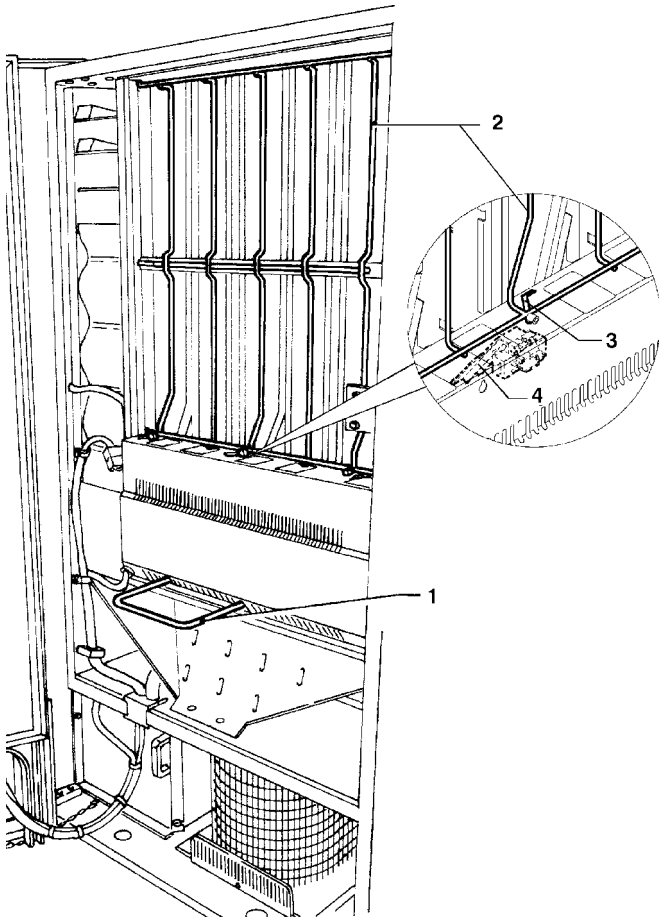


Fig. 11  
 1 - Sliding support for product containers  
 2 - Bottle retaining gate  
 3 - Gate sliding guide  
 4 - "Empty" warning device

- load one, two or four items in a line on top of the rotor (bottles must be loaded with the top facing the back of the column).
- load the next rows, alternating right and left if it is a double column.

**Special care must be taken when loading columns fitted with the bottle guides.**

If a double column, back and front rows must be loaded evenly, so that the stacks of bottles are constantly kept at the same level. The bottles in the right-hand rows will be slightly tilted (see Fig. 12).

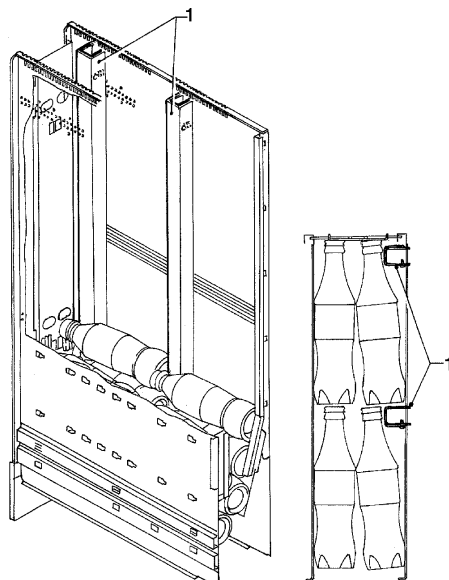


Fig. 12  
 1 - Bottle guides

If a single column, a plastic diaphragm, hooked to the upper side of the column.

In order to correctly load the column, do as follows:

- release the diaphragm by lifting it by its grip;
- load some bottles in the back row (to half height) and position the diaphragm against it;
- load the bottles in the front row;
- complete loading of the back row and re-hook the diaphragm.
- complete loading of the column.

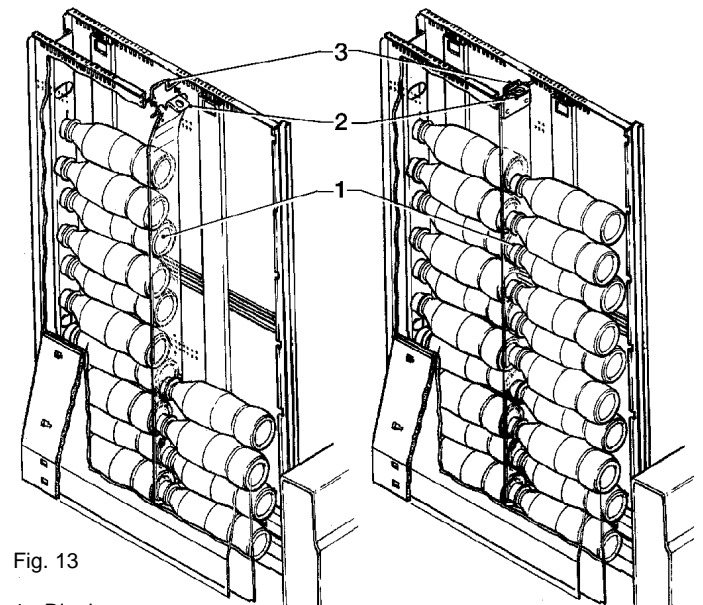
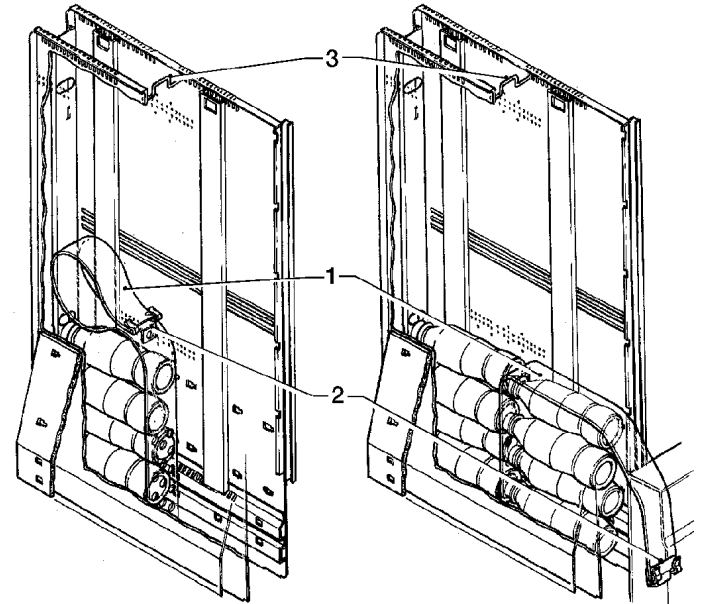


Fig. 13  
 1 - Diaphragm  
 2 - Diaphragm grip  
 3 - Diaphragm hook

After completely loading the machine:

- close the retaining gate;
- after all loading operations make a test selection for each product.

**All loading operations must be carried out as quickly as possible, to limit as much as possible the increase of temperature inside the refrigerated box and therefore power consumption.**

## TEMPERATURE CONTROL

The thermostat is initially adjusted so that a temperature of +1.5°C is maintained in the lower portion of the refrigerated box (containing bottles and cans which will be sold first).

The thermostat is located next to the refrigerating unit (see Fig. 5).

To change temperature, turn the thermostat knob keeping in mind that the temperature is approximately:

- position "7" = + 1,5°C
- position "1" = + 5°C
- position "OFF" = Switched off

## RELEASING A COLUMN

It may occur that, for any reason, the products are jammed in the dispensing area.

In this case, to restore the full functionality of the jammed column, do as follows:

- manually empty the concerned column, being sure that the rotor area is clear;

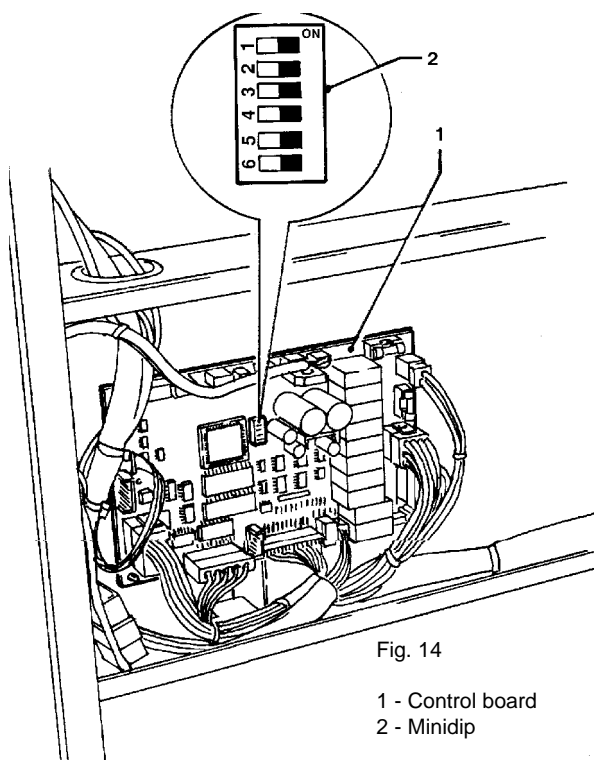


Fig. 14

- 1 - Control board
- 2 - Minidip

- move minidip 6 on the control card (see Fig. 14) to position ON.
- close the door and wait a few seconds to allow the motor to reach the correct position;
- open the door and move minidip 6 back to position OFF
- reload the column and close the machine, then check that the corresponding selection is working correctly.

## ROUTINE MAINTENANCE

Before any cleaning or maintenance operations, disconnect the machine from the mains power supply.

**Under no circumstances should sprayed water be used to wash the machine.**

## MAINTENANCE TO THE COOLING UNIT

Condensed water within the refrigerated box is drained into the cup placed in the compressor compartment, and then it evaporate because of the heat generated by the condenser coil.

However it is advisable to periodically check that there is not excessive water in the cup; in this case check for any cracks or loosening of the refrigerated box seals.

- Periodically, or in the case of product breakage, the cup must be cleaned to prevent mould and unpleasant odour.
- Ensure that there is no buildup of dirt between the condenser blades (brush the front part regularly) as this may lead to poor air suction resulting in rapid reduction of cooling performance.
- Do not use sharp tools to clean the evaporator or the condenser.

Do not place any products in the area around the evaporator, as this would hinder the flow of cold air, which must be allowed to flow freely, otherwise ice may build up on the evaporator surface.

## PERIODICAL CLEANING

Clean the galvanised parts and the anti-friction elements (see Fig. 10) with lukewarm water and mild detergent; then rinse thoroughly and wipe dry carefully.

**When cleaning metal parts DO NOT use any detergent containing abrasive or corrosive agents; do not use common steel wool, wire brushes or steel scrapers.**

## SUSPENDING FROM USE

**In the case of failure or malfunction switch the machine off.**

If for any reason the machine should remain switched off for a period of time exceeding the use-by date of the products, or anyway for a long time, take the following precautions:

- disconnect the plug from the power outlet;
- remove all products from the columns and clean the inside and all accessories.

# INSTALLATION

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

To energise the electrical system of the machine with the door open, simply insert the special key into the door switch (see Fig. 5).

**The dispensing motors remain disconnected, thanks to the special switch (see Fig. 5), even with the key inserted.**

This is to avoid the risk of accidental injury.

**The rotors must be electrically operated with the door closed.**

**Energised parts cannot be accessed with the door open. Only those parts inside the machine with protective covers, and carrying the message "disconnect electricity before removing the protective cover", remain energised.**

**Before removing such protective covers, the external switch must be disconnected.**

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

**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 65%.**

## 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.**

The machine is supplied with a door stop chain secured only on the door side

At installation the chain must be secured also on the cabinet side, adjusting the length according to the space available.

## 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.**

- Fit the coin mechanism and make sure that the selector coin inlet and the coin return lever are aligned with the coin chute and the selector opening cam;
- according to the type of coin mechanism, to achieve such alignment move the plastic inserts in the adjacent openings;
- ensure that all relevant parameters are programmed correctly.

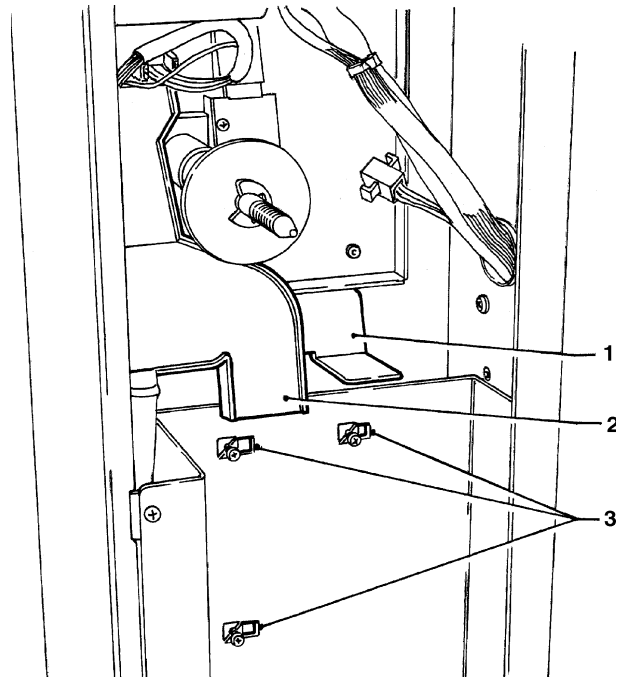


Fig. 15

- 1 - Selector opening cam
- 2 - Coin chute
- 3 - Openings for plastic inserts

## 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 should be within the range recommended for the connection points;
- the main switch should be located within easy reach and be suitable to withstand the peak load required, and at the same time should ensure proper omnipolar disconnection from the power grid with an opening gap of the contacts of at least 3 mm. 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 3x1.5 mm<sup>2</sup> section.

**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.**

## CONFIGURATION OF THE DISPENSING MODULES

Should it be necessary to change the size of the products to be dispensed, the dispensing modules for cans or the columns (single and double) can be reconfigured by using some elements available as optional.

**The machine is supplied with a table containing details of the settings as determined by the manufacturer during tests and experiments performed with the most common product types.**

Settings for other product types can be determined by following the information indicated below.

**In any case it will be necessary to test each module to be sure of its correct operation.**

Products which are too irregular or not firm enough may not be suitable for automatic dispensing.

### DISPENSING MODULES FOR CANS

The modules can be adapted for dispensing 250, 330 and 355 cc cans by simply replacing the guides fitted at the inlet of the two upper chutes with others which are adequately sized.

The guide has the function of preventing the cans from rotating and getting into a transverse position.

The guides are secured to the left hand wall of the module (see Fig. 6) and are fixed with only one screw.

### COLUMNS

The columns can be adapted for dispensing:

- 62 to 73 mm dia. bottles with 246 to 285 mm height in a single row;
  - 62 to 73 mm dia. bottles with 196 to 246 mm height in a double row;
  - 66 mm dia., 250 cc - 330 cc - 355 cc cans in quadruple row.
- The following procedure must be adopted.

**According to the type of bottle it will be necessary to make some adjustments to the settings indicated below.**

**Glass bottles can be dispensed only from single columns.**

To adjust a column for dispensing a certain product, the type and position of the following elements must be checked:

- rotor insert and side spacer, according to the product diameter;
- product side support and motor cam, according to the number of rows and to the product height;
- anti-friction elements and column backing, according to the number of rows and to the product height;
- if the bottles have a long tapered neck, the positioning of the bottle guides;
- for cans only, correct position of anti-theft plates.

### ROTOR INSERT AND SIDE SPACERS

According to the diameter the appropriate rotor insert and side spacers must be fitted.

The side spacer can be identified by its dimension (see Fig. 16).

Rotor inserts and side spacers are available for the following diameters:

- 62-63-64 mm.
- 65-66-67 mm.
- 68-69-70 mm.

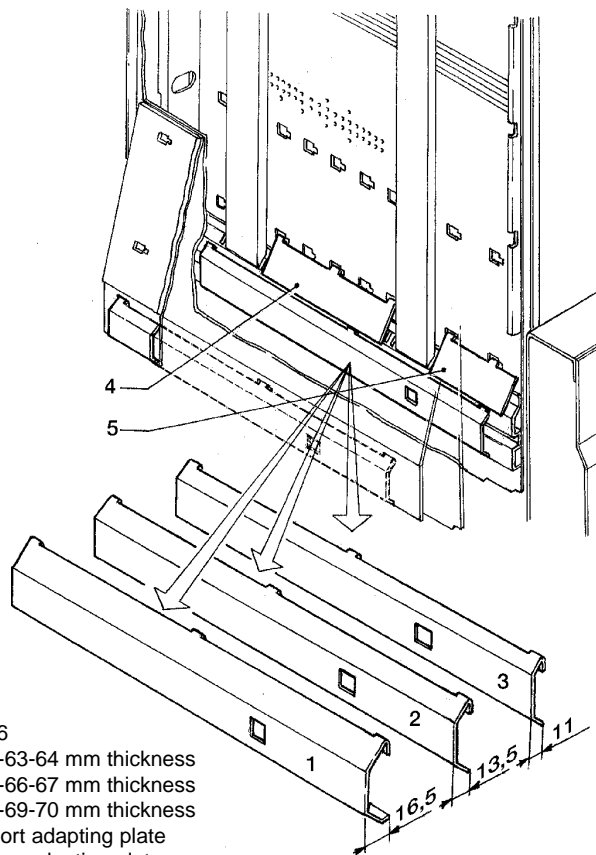


Fig. 16  
 1 - 62-63-64 mm thickness  
 2 - 65-66-67 mm thickness  
 3 - 68-69-70 mm thickness  
 4 - Short adapting plate  
 5 - Long adapting plate

There is no need for inserts or side spacers for products with 71-72-73 mm diameter.

**To dispense 62-mm diameter glass bottles from single columns, it may be necessary to fit adapting plates as indicated in the figure.**

The rotor insert can be identified by the dispensed product diameter printed on the element.

To install or replace the rotor insert and the spacers it is advisable to remove the rotor from the machine, proceeding as follows:

- undo the screws securing the release motor and extract the assembly;
- push and extract the insert from the rotor;
- replace the insert and apply pressure to fit it into the rotor, ensuring that it is properly secured in all points;

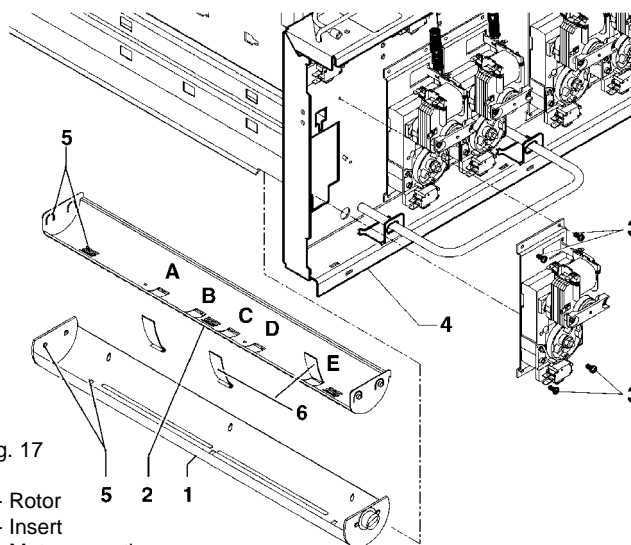


Fig. 17  
 1 - Rotor  
 2 - Insert  
 3 - Motor mounting screws  
 4 - Slider  
 5 - Fixing points for insert  
 6 - Anti-theft plates for cans

- to adjust the rotor for dispensing cans in four rows, it is necessary to insert three anti-theft plates into the special slots (see Fig. 11). The plates stop the cans from sliding in the rotor when this is partially empty. The plates must be inserted into the slots B-D-E for 250 cc cans and into the slots A-C-E for 330 and 355 cc cans.
- insert the new spacer in the special slots located on the left end of the column.

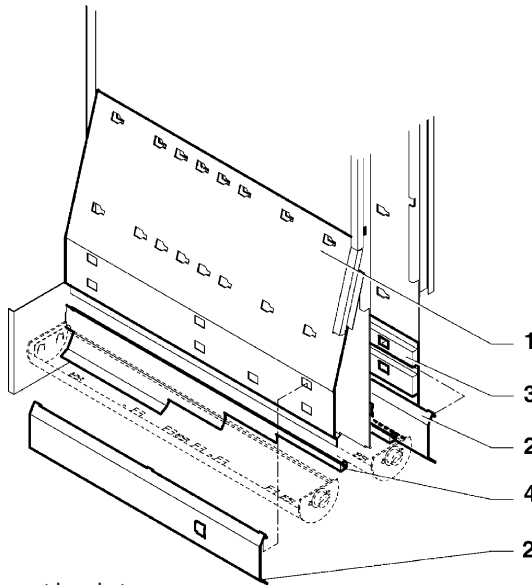


Fig. 18

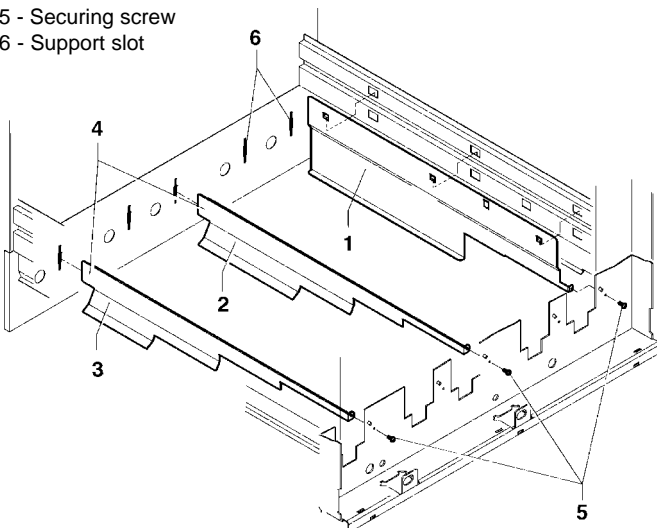
- 1 - Baffle
- 2 - Spacers
- 3 - Spacer support bracket
- 4 - Product side support

**NUMBER OF ROWS**

Bottles with 246 to 285 mm height can dispensed only from a single row column.  
 Bottles with 196 to 246 mm height must be dispensed from a double row column.  
 Cans must be dispensed from a quadruple row column.  
 To configure a column with the desired number of rows, the appropriate product side support must be fitted and the correct number of free slots on the motor control cam must be left.  
 The side support is fitted by inserting the special tab into the slot located at the back of the slider and then secured with a screw at the front (see Fig. 19).

Fig. 19

- 1 - Support for 1 or 2 rows
- 2 - Support for 4 rows (330 and 350 cc cans)
- 3 - Support for 4 rows (250 cc cans)
- 4 - Tab
- 5 - Securing screw
- 6 - Support slot



The cam slots must be closed with the removable inserts fitted on the cam as indicated in Fig. 20.  
 The cam slots are identified by numbers stamped on the cam.

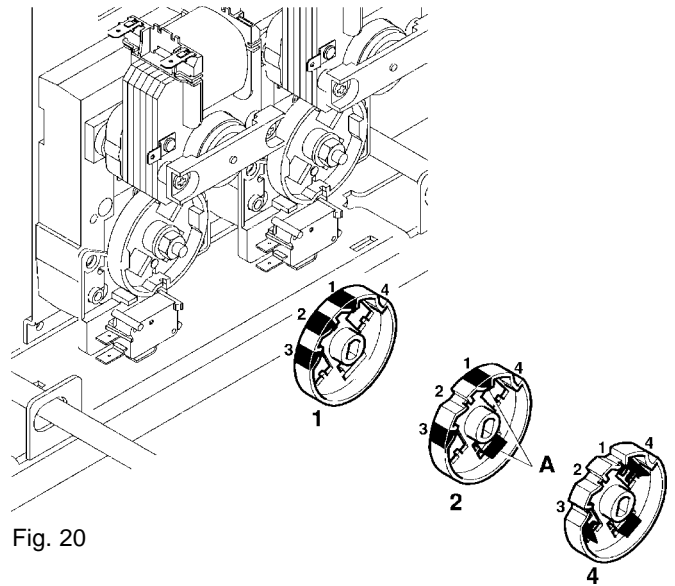


Fig. 20

- A - Removable inserts
- 1 - 1 row
- 2 - 2 rows
- 4 - 4 rows

For single row dispensing slots 1 - 2 and 3 must be closed;  
 For double row dispensing slots 1 and 3 must be closed;  
 For quadruple row dispensing all slots must be open.

**ANTI-FRICTION ELEMENTS**

The anti-friction elements are frames made of special plastic material which facilitate product sliding.  
 For dispensing bottles the anti-friction elements are fitted on the double column baffles and on the corresponding left hand wall. The anti-friction elements are not necessary for single columns or for dispensing cans.  
 Four anti-friction elements are used for each double column. According to the height of the bottles and to the number of rows, they are installed as indicated in Fig. 21, using the slots on the baffle.

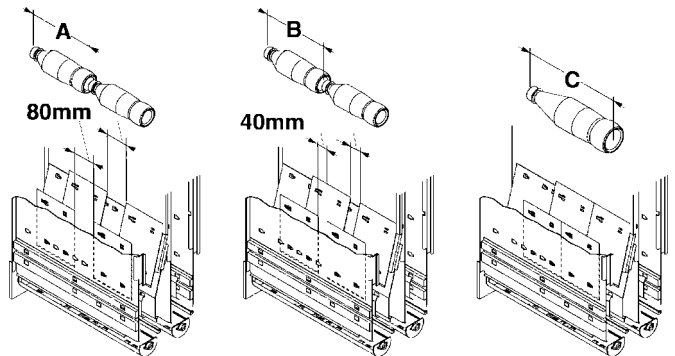


Fig. 21

- Product height
- A - 210 to 246 mm
- B - less than 209 mm
- C - 246 to 285 mm

The following table indicates the different configuration according to the number of rows for each column.

The anti-friction elements must not be used for dispensing cans or for single columns.

Product	Rows per column	Type of side support	Free cam slots	Position of anti-friction elements
Can 250 cc	4	4x250	4	none
Can 330 cc	4	4x330	4	none
Can 355 cc	4	4x330	4	none
Bottle h < 210	2	2	2	A
Bottle h 210÷246	2	2	2	B
Bottle h > 246	1	2	1	C

### COLUMN DEPTH

Each column, single or double, is fitted with a back panel which can be moved by positioning the support springs into the appropriate hole (see Fig. 22).

To move the back panel the column must be empty.

Press the support springs (see Fig. 22) to release the back panel and reposition it, ensuring that it is vertically and horizontally straight.

The column depth must be a few millimetres greater than the sum of the product heights.

Measure the height from the frame edge (see Fig. 23) to the back panel.

The correct measure must be 18 mm plus the sum of the product heights.

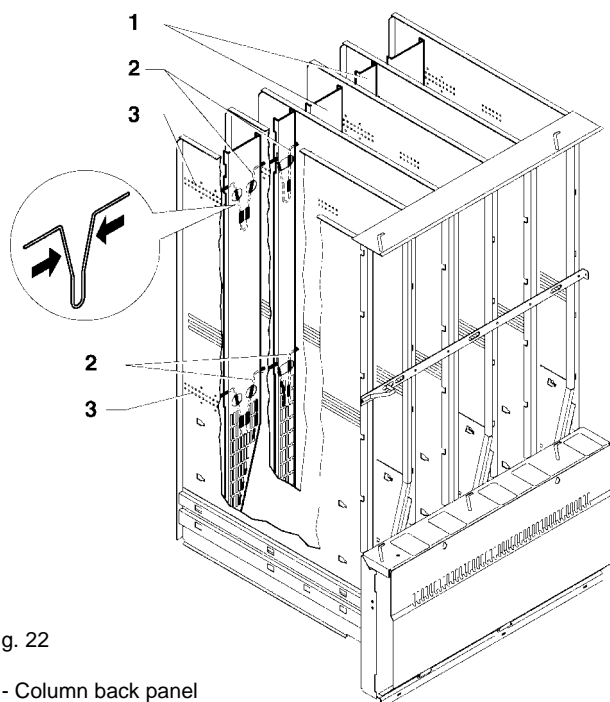


Fig. 22

- 1 - Column back panel
- 2 - Support springs
- 3 - Spring securing holes

For example, for 250 cc 94 mm high cans, the distance between the frame edge and the back panel will be  $(94 \times 4) + 18 = 394$  mm.

After replacing the back panel, load the column following the same procedure as for first loading.

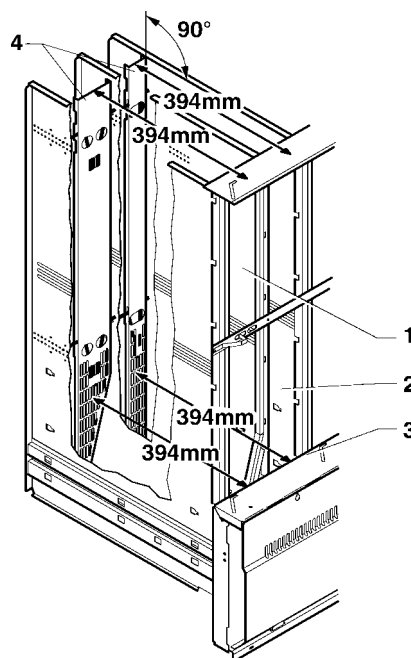


Fig. 23

- 1 - Double column
- 2 - Single column
- 3 - Frame
- 4 - Column back panel

### BOTTLE GUIDES FOR SINGLE COLUMNS

The bottle guides have the function of keeping bottles with a tapered neck correctly aligned, so that they do not tilt forward. For single columns, the guides are to be secured by hooking them onto the special numbered slots. The correct distance is obtained when the bottles fall and stay horizontal right down to the rotor.

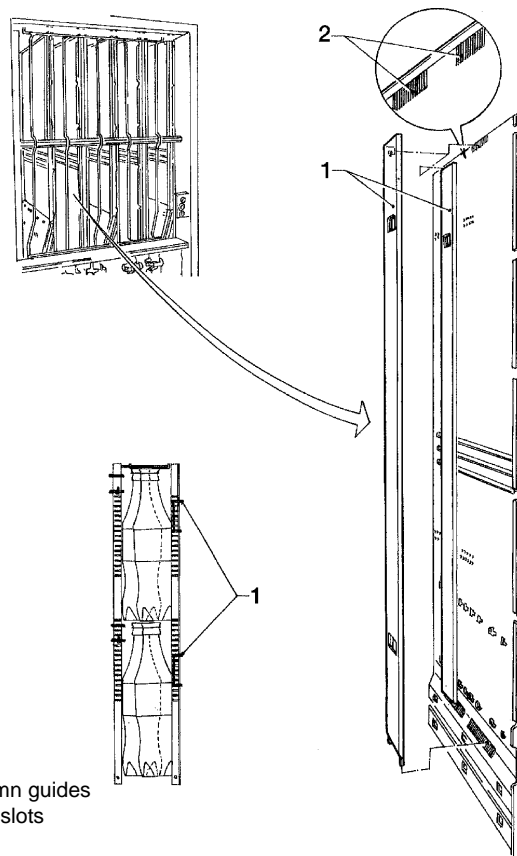


Fig. 24

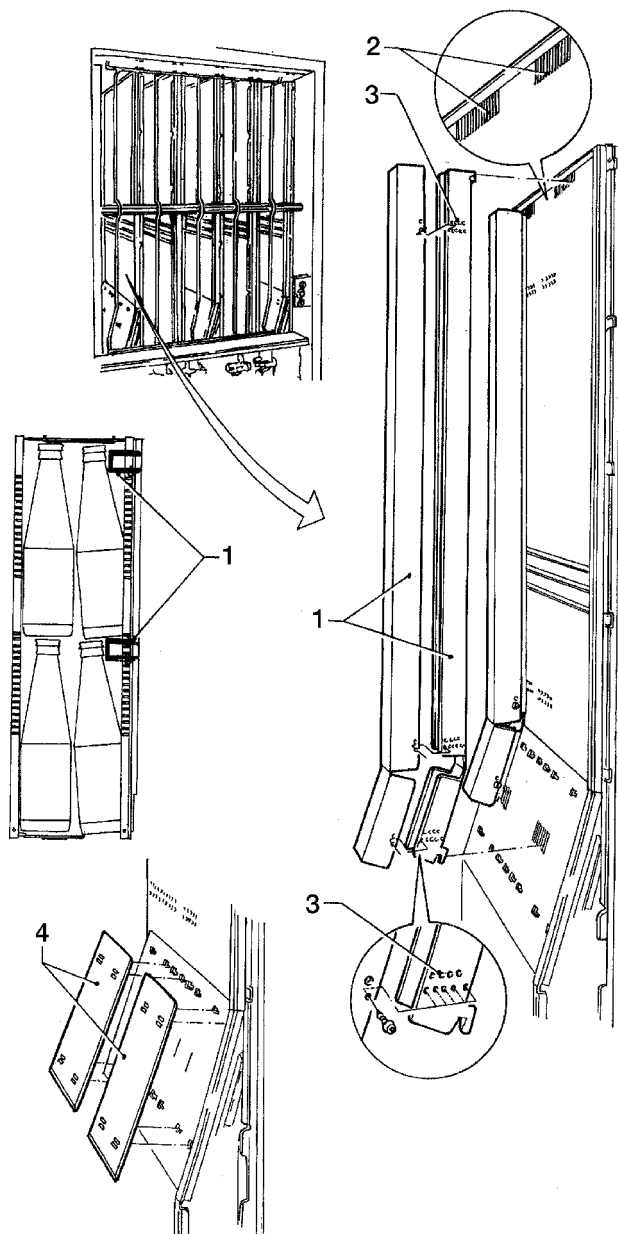
- 1 - Fixed column guides
- 2 - Numbered slots



For double columns, as well as hooking the guides onto the numbered slots, the most suitable spacer must be identified and therefore the guides adjusted. The anti-friction elements must be fit between the bottle guides. The correct distance is obtained when the bottles fall and stay horizontal right down to the rotor.

Fig. 25

- 1 - Extendable column guides
- 2 - Numbered slots
- 3 - Spacer adjustment holes
- 4 - Anti-friction element



**IMPORTANT NOTICE!**

All settings obtained with procedures described in the previous chapters are only given as an indication, as they depend on the geometrical characteristics and mechanical resistance of the bottles.

Each single column must be tested to ensure its correct operation.

Specific accessories must be used for irregularly shaped or lightweight bottles.

**REMOVING THE DOOR**

Should the machine be installed in a room where access is through an opening with a width less than the smallest dimension of the machine, the door and the door frame can be removed to temporarily reduce the depth to 750 mm.

**The disassembly and reassembly operations must be carried out by qualified personnel with specific knowledge of the machine.**

**Because of the door and door frame bulk, such operations must be carried out by two persons.**

To disassemble the door, do as follows:

- disconnect the electrical system connectors;
- disconnect the cable clamp;
- release one side of the door stop chain, undoing the fixing screw;
- remove the plastic plugs and at the same time completely undo the mounting screws from the upper hinge, taking care not to extract the pin from the door-door frame assembly;
- lift the door-door frame assembly and remove it from the lower hinge pin;
- remove the lower hinge.

After passing through the access opening, reassemble the door proceeding in the inverse order.

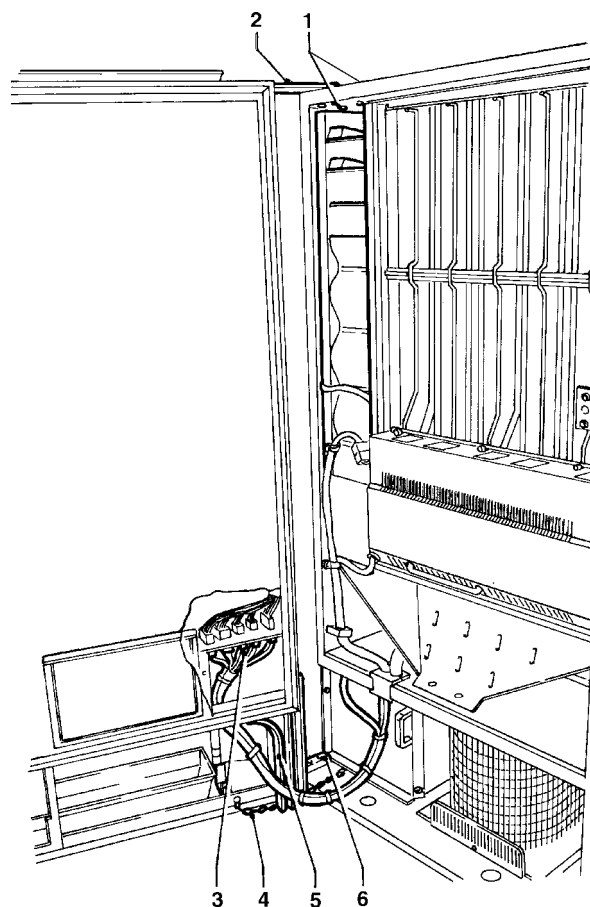


Fig. 26

- 1 - Upper hinge mounting screws
- 2 - Upper hinge
- 3 - Electrical system connectors
- 4 - Door stop chain
- 5 - Door frame hinge
- 6 - Lower hinge

# PROGRAMMING

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.

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

To energise the electrical system of the machine with the door open, simply insert the special key into the door switch.

**The dispensing motors remain disconnected, thanks to the special switch (see Fig. 5), even with the key inserted.**

This is to avoid the risk of accidental injury.

**The rotors must be electrically operated with the door closed.**

**Energised parts cannot be accessed with the door open. Only those parts inside the machine with protective covers, and carrying the message "disconnect electricity before removing the protective cover", remain energised.**

**Before removing such protective covers, the external switch must be disconnected.**

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

## CONTROL BOARD FUNCTIONS AND INDICATOR LIGHTS

The control board controls all of the apparatus functions, and more precisely:

- Serial interface for 24 V ac Executive electronic coin mechanism.
  - Parallel interface for 24 V dc coin validator
  - Serial interface for MDB coin mechanism.
  - Programming of the number of selections: 1 to 10.
  - Programming of the vending price for each single selection.
  - Time-out function for the vending motors, adjustable from 0 to 30 seconds.
  - Programming of the coin values for use with 24 V validator.
  - Storing of the total sales for each selection.
  - Storing of the total amount of all sales.
  - Storing of the total coin value cashed.
  - Storing of the motor locks following a time-out condition.
  - Storing of the total motor resets.
  - Storing of the number of serial transmission failures occurred.
- LED L1 is normally switched off; it blinks when no communication takes place with the coin mechanism.  
LED L2 is switched on when 24 V dc voltage is detected.  
LED L3 is switched on when 5 V dc voltage is detected.  
Trimmer TR1 controls the contrast of the liquid crystal display (available as optional).  
Push-button P1 resets the control board.

## PAYMENT SYSTEMS

### Interface with "Executive" coin mechanism

Connect the coin mechanism to the 15-pin molex power supply connector and to connector CN1 on the control board.

Set the board as described in the "Programming of parameters and prices" section.

Set the two minidips (SW2) to OFF position.

### Interface with MDB coin mechanisms

Connect the coin mechanism to connector CN2 and energise the board with 24 V ac through connector CN19 using the special cable. Set the board as described in the "Programming of parameters and prices" section.

Set the two minidips (SW2) to ON position.

### Interface with 24 V validator

The validator must be connected to connector CN5 on the board (see Fig. 27). Set the board as described in the "Programming of parameters and prices" section.

### Free vend for all selections

Place minidip 5 into position "ON".

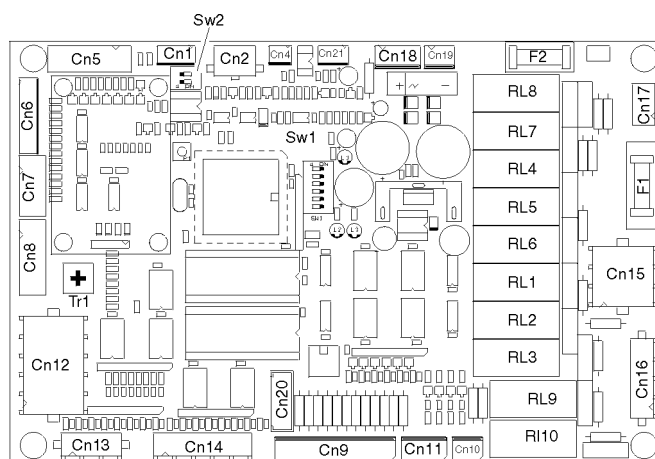


Fig. 27

CN1	Executive serial interface
CN2	MDB serial interface
CN3	RS232 expansion
CN4	Not used
CN5	24 V validator interface
CN6	Not used
CN7	LED segment display
CN8	Provision for LCD
CN9	Input/output keypad 1 to 6
CN10	Input/output keypad 7 to 8
CN11	Input/output keypad 9 to 10
CN12	Empty state micro-switch, motor cam 1 to 7
CN13	Empty state micro-switch, motor cam 8
CN14	Empty state micro-switch, motor cam 9 to 10
CN15	Motor output 1 to 8
CN16	Motor output 9 to 10
CN17	Board power supply
CN18	Not used
CN19	MDB power supply
CN20	Not used
CN21	Not used
F1	Motor fuses
F2	24 Vac board power supply fuse
RL1 - 10	Motor relays
J9	Reset contacts

## MINIDIP FUNCTIONS

Each of the 6 minidip (SW1), when moved to position "ON", activates one of functions indicated below.

The two SW2 minidips have the following functions:

1-2 ON = payment system MDB

1-2 OFF = payment system Executive

MINIDIP	ON	FUNCTION
1	ON	Programming of parameters and sales prices
2	ON	Reading on the display the stored data
3	ON	Not used
4	ON	Total sales display
5	ON	Free vend
6	ON	Motor reset

### Motor reset

When one or more selections are blocked and the motor cams are out of position, placing minidip 6 into position "ON" automatically resets all blocked motors.

This operation is recorded and stored in the data menu with the code "As xxx" (see "Reading data").

When a selection is blocked, the corresponding button is illuminated.

When pressing the illuminated button, the display indicates `- - - - -` if the cause of the blockage is an empty module and `E r r o r` if the cause is a problem connected with the motor or with the micro-switch of that column.

### Instant display of total sales

Placing minidip 4 into position "ON" causes the total sales information to be shown on the display, thus skipping the normal "data" procedure. After storing this value, minidip 4 must be placed back to position "OFF".

### Automatically unloading the columns

Simultaneously placing minidip 4 and 6 into position "ON" enables the function used to automatically unload the columns. After closing the door the message `A U t O -` will be displayed; pressing the button of the selection to be emptied causes the release motor to be activated at intervals of five seconds and up to 30 consecutive selections maximum.

The motor will continue for other four selections after the signal of "empty" condition.

The automatic unload function can be interrupted by pressing any button during the 5 second interval between two releases.

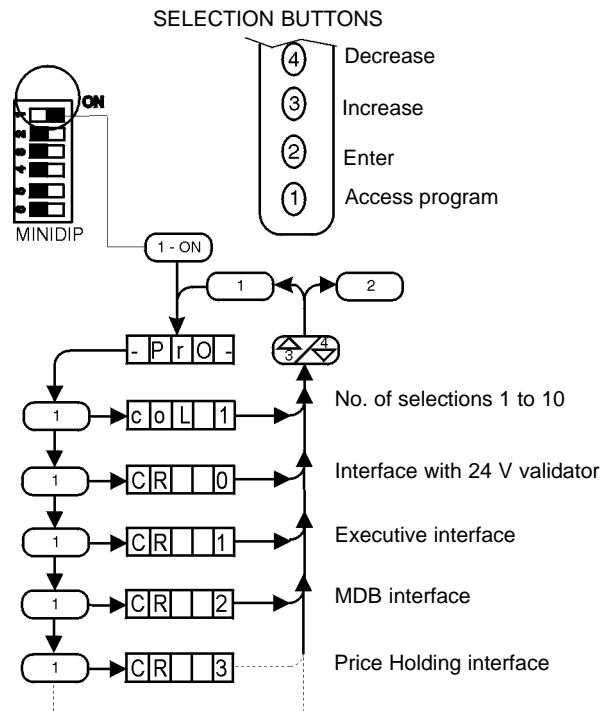
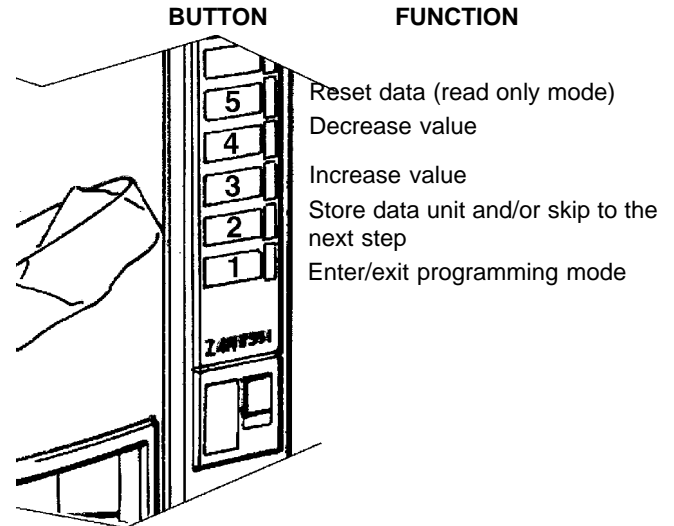
## PROGRAMMING OF PARAMETERS AND PRICES

Place minidip 1 into position "ON".

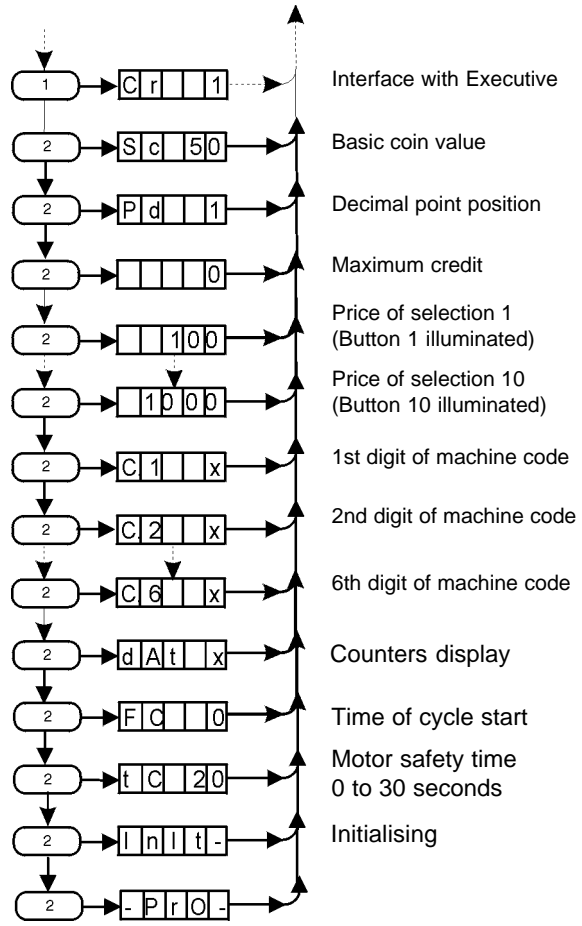
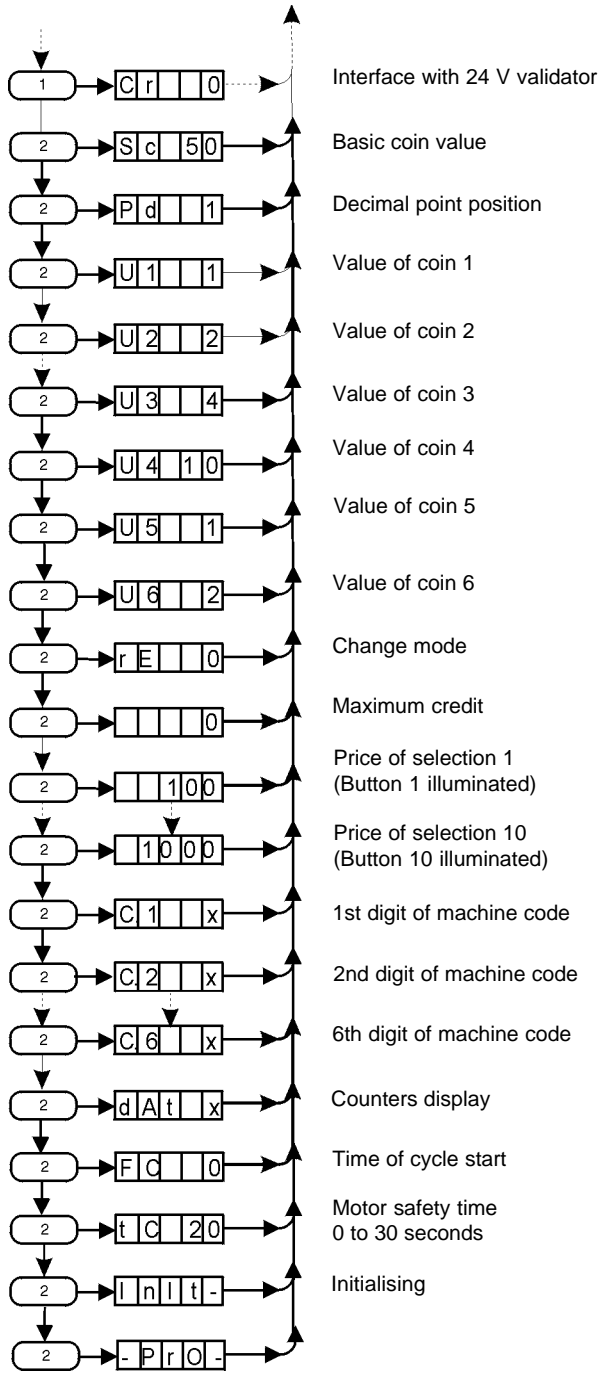
The indication "-Pro-" will be displayed.

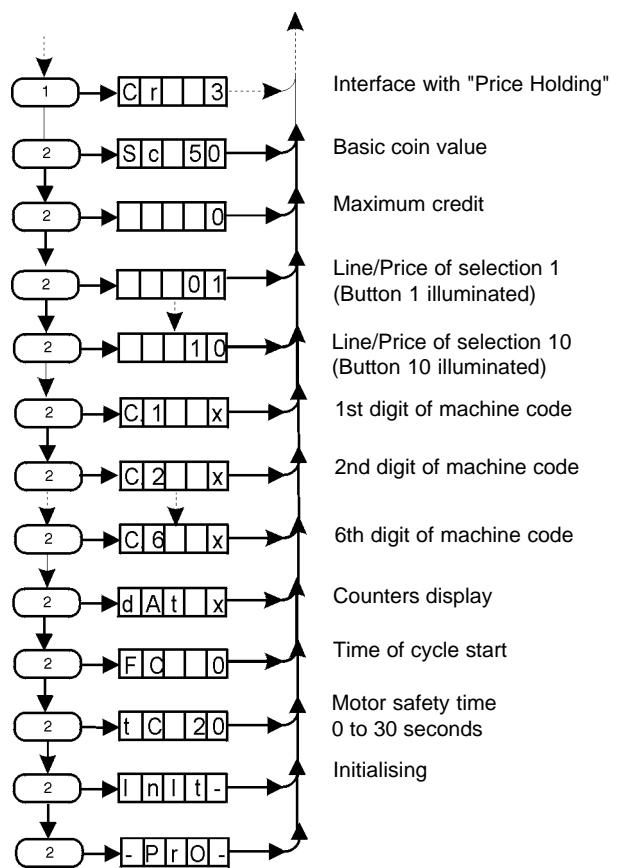
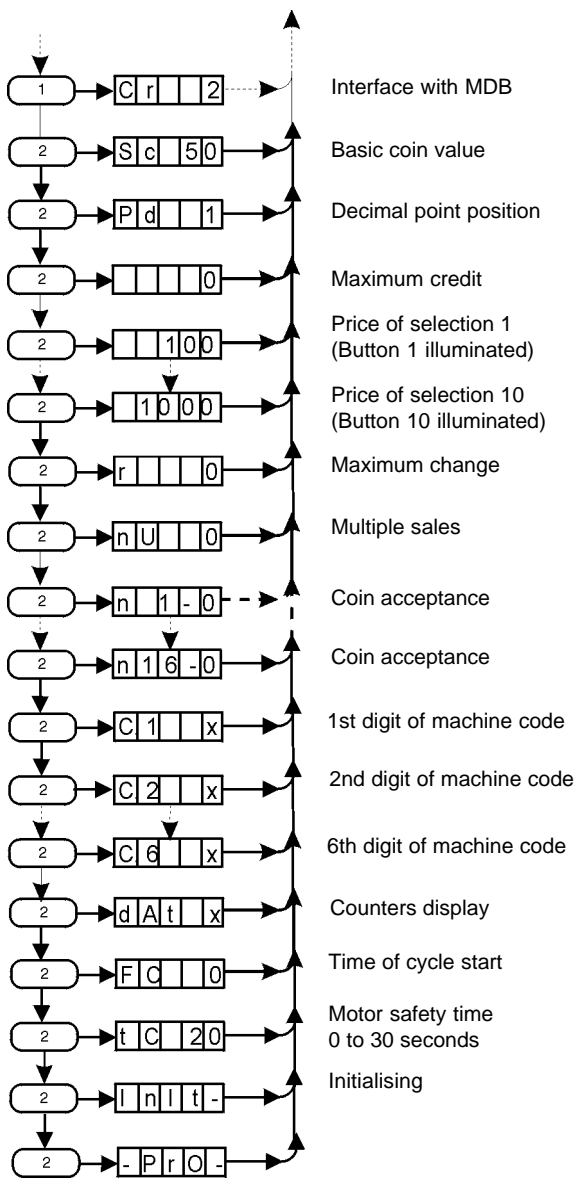
Now the last four selection buttons are illuminated and are given the following functions:

Fig. 28



The setting sequence of the parameters varies according to the type of interface selected (refer to the following tables).





To start programming press button 1, the message "col 6" will be displayed indicating the number of selections for the machine. If this is the desired number, press button 2 to go to the next parameter, otherwise set the new value by using button 3 to increase or button 4 to decrease (minimum 1, maximum 10 columns), then press button 2 to store the new data unit and go to the next parameter.

**col | | x** "x" is the number of selections.

It can be set to values varying from 1 to 10 (default = 6).

**Cr | | | x** **Type of payment system**

CR 0 = Validators

CR 1 = Executive

CR 2 = MDB

CR 3 = Price holding

**Sc | | x x** **Value of basic coin.**

"xx" must be given the value of the lowest coin denomination accepted by the coin mechanism. For Italy this value is 50 (Lire), for other countries generally it is 10 (cents). In "serial" operating mode, this information is transmitted directly from the coin mechanism to the control board.

**Pd | | | x** **Decimal point.**

"x" is the number of the display digit (1-4) where the decimal point is shown. With x=1 this point is not displayed; to have two decimal digits displayed, enter x=3. In serial operating mode also this information is transmitted directly to the control board.

**Ux | x | x** **Ux - coins accepted by the validator.**

This function is used only when the control board is interfaced with a coin validator.

Multiply the basic coin value by "xx", to assign the value to the six coins. For example, if the basic coin is set to 50 (Sc 50):

(1st coin) U1	x=1	50x1	= 50
(2nd coin) U2	x=2	50x2	= 100
(3rd coin) U3	x=4	50x4	= 200
(4th coin) U4	x=10	50x10	= 500
(5th coin) U5	x=1	50x1	= 50
(6th coin) U6	x=2	50x2	= 100

**r | E | | x** **Credit mode (validators only)**

This function is used to make available to the user any amount exceeding the selection price

0 = excess cashed

1 = excess made available

2 = excess made available for a programmed time; confirm this option to access function **t | r | x | x** which allows programming of such time for up to a maximum of 99 seconds.

**| | | | x** **Maximum credit**

The maximum credit (expressed in number of basic coins) accepted by the coin mechanism is displayed . If such value is set to 0 this function is ignored.

**x | x | x | x** **Sales prices per selection.**

"xxxx" is the price value of a selection; the selection button to which the price is referred is illuminated. The maximum value is 255 times the basic coin (ex. Sc = 50, Max price = 50x255 = 12750).

**| | | | x** **Maximum change (MDB only)**

It is the value of the maximum amount of change returned. If set to 0 the maximum possible value is returned.

**n | U | | x** **Multiple sales (MDB only)**

This function is used to make available to the user any amount exceeding the selection price.

0 = change returned after each selection

1 = change returned only after pressing the button

**n | x | x | - | y** **Accepted coins (MDB only)**

The MDB protocol allows acceptance of 16 coins:

XX = 1 to 16

Y = 0 = disabled

Y = 1 = enabled

The actual number of usable coins depends on the coin mechanism installed.

**C | 1 | | | x** **Machine code**

The machine is identified by a 6-digit code, useful in the case of automatic data collection.

"x" is the value (0 to 9) which can be assigned to the digits (1 to 6).

**d | A | t | | x** **Counters display**

This function enables the possibility of displaying or not the total selection counter when switching the machine on.

x=0      Function disabled

X=1      Function enabled

**F | c | | | O** **Control of cycle start time.**

This function is not used for this machine, therefore it MUST be set to ZERO.

**t | c | | x | x** **Time-out.**

It controls the maximum operating time (expressed in seconds) of the dispensing motors. If such time is exceeded, the control board stops the motor and switches the appropriate "empty" warning lamp on. The "empty" condition is recorded and the selection is blocked until it is reset (see paragraph "motor reset").

**| | n | | t | -** **Initialising**

This function is used in the case of stored data error or when replacing the EPROM. All statistical data will be reset.

Press the confirm button 3 and the prompt message **C | o | n | F | -** to confirm will be displayed.

Press again button 3 and initialising will start; press button 4 to cancel the initialising routine.

**Place minidip 1 back to position "OFF" to return to the normal operating mode.**

## READING THE STORED DATA

Place minidip 2 into position "ON".

3 selection buttons are used, and given the following functions:

BUTTON 1 Data input/output  
 BUTTON 2 Data sequence  
 BUTTON 5 Data reset

When pressing button 1, the number of sales in the first selection is displayed and button 1 is illuminated.

To read the number of sales related to the other selections, press button 2 each time, the illuminated button indicates the selection to which the value on the display is referred.

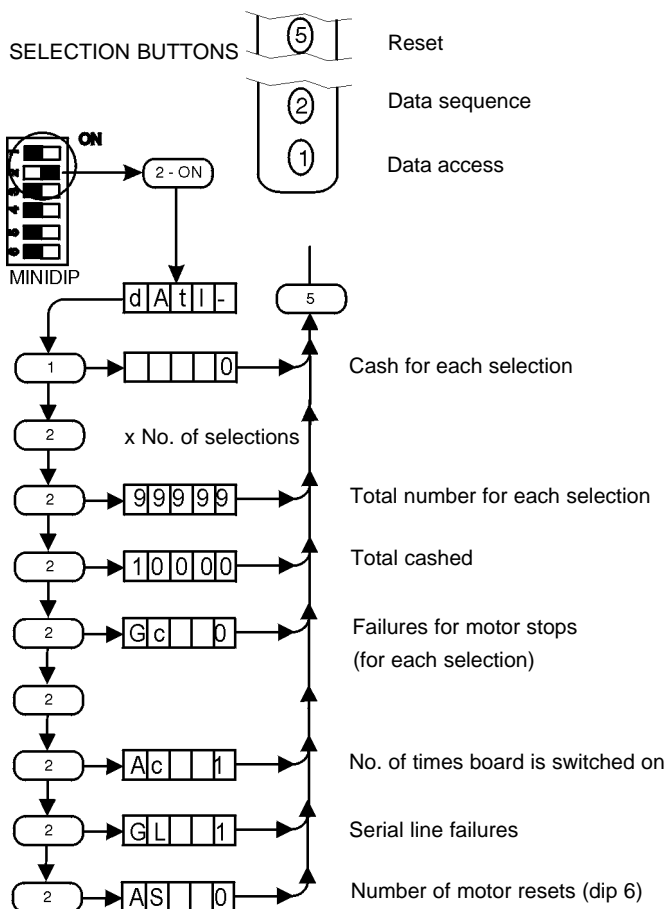
To reset a value press button 5, the display will be reset and the next data unit will automatically be displayed.

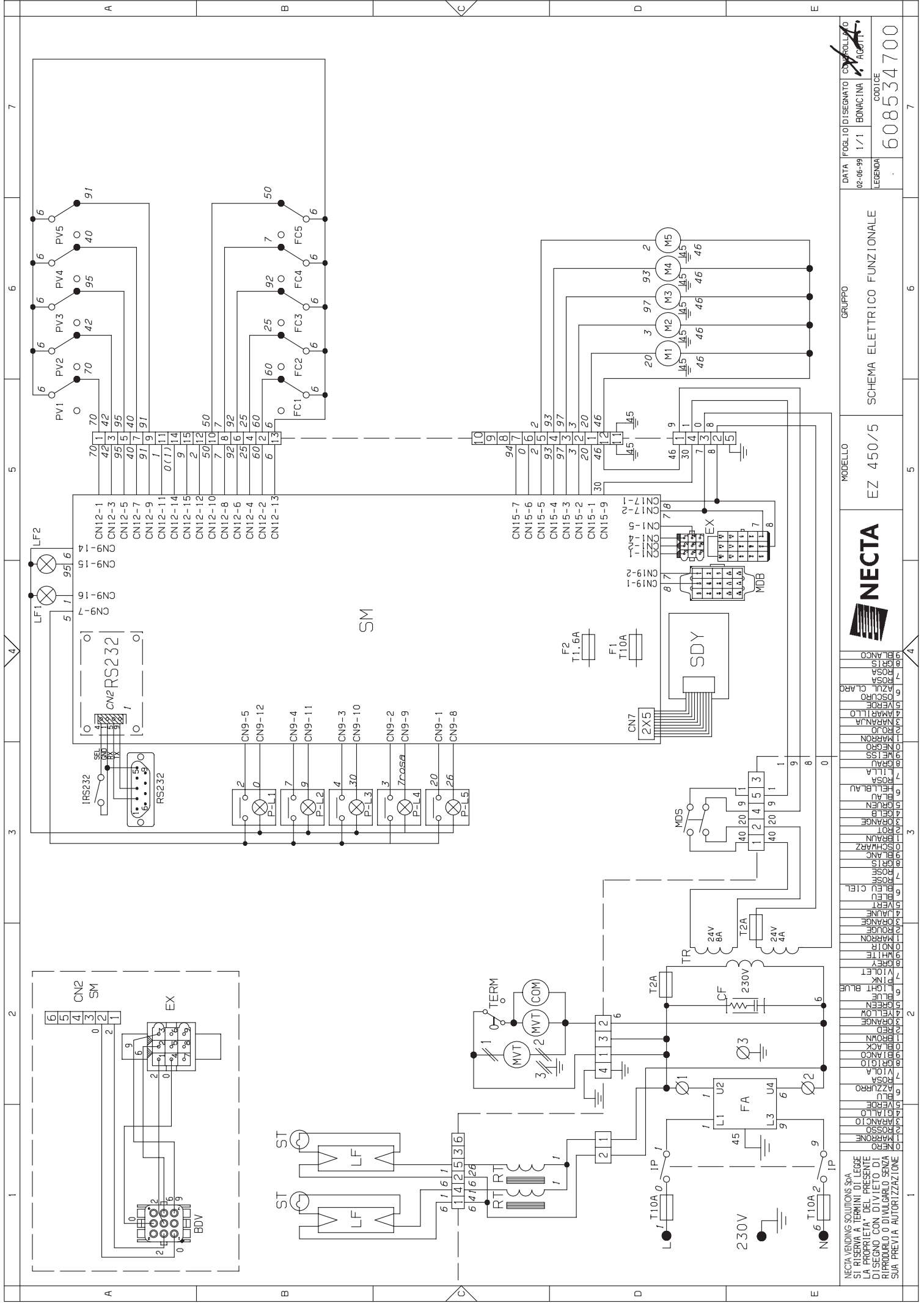
**Warning: The values relating to global data, sales and cash cannot be reset with button 5 (see relevant section).**

The maximum value which can be stored is 50,000, beyond which counting starts again from 0.

## WIRING DIAGRAM LEGEND

CODE	DESCRIPTION
CF	FILTER CONDENSER
COM	COMPRESSOR
EX	EXECUTIVE COIN MECH CONNECTOR
FA	RADIO INTERFERENCE SUPPRESSOR
FC1-..	LIMIT MICRO-SWITCH
IP	DOOR SWITCH
LF	LAMP
LF1-..	LAMP
M1-...	RELEASE MOTOR
MDB	CONNECTOR FOR MDB COIN MECHANISM
MDS	SAFETY MICROSWITCH
MVT	FAN
P-L1..	ILLUMINATED BUTTONS
PV1-..	FULL / EMPTY MICRO-SWITCH
RT	BALLAST
SDY	DISPLAY CARD
SM	CONTROL BOARD
ST	STARTER
TERM	THERMOSTAT
TR	TRANSFORMER
TX...	DELAYED FUSE (X=CURRENT)





DATA	FOGLIO DI SEGNATO	CONTROLLO
02-06-99	1/1	BONACCINA
LEGENDA		
		CODICE
		608534700

GRUPPO  
SCHEMA ELETTRICO FUNZIONALE

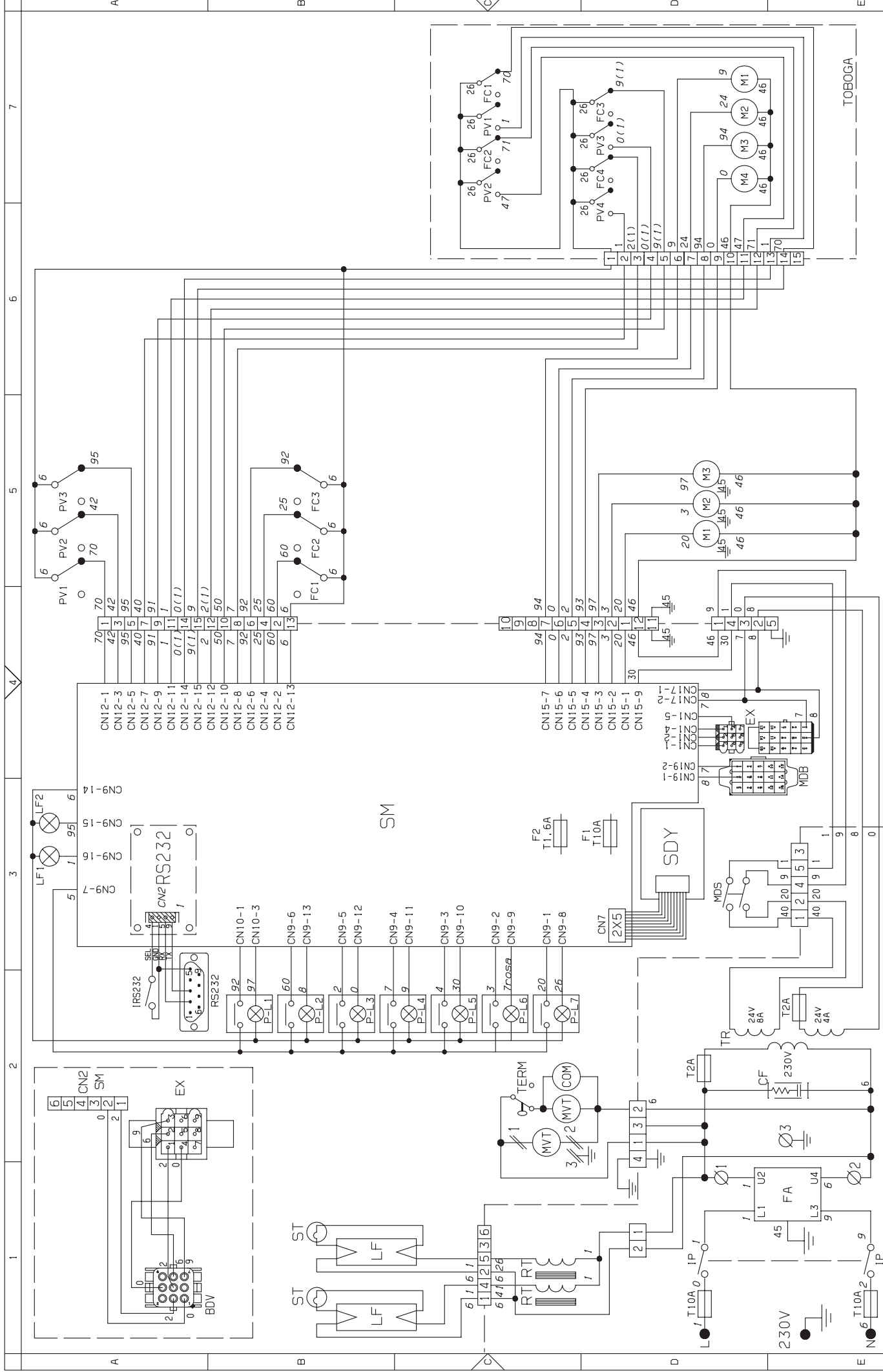
MODELLO  
EZ 450/5



1	NERO
2	GRIGIO
3	BIANCO
4	GRIGIO
5	GRIGIO
6	GRIGIO
7	GRIGIO
8	GRIGIO
9	GRIGIO
10	GRIGIO
11	GRIGIO
12	GRIGIO
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87	GRIGIO
88	GRIGIO
89	GRIGIO
90	GRIGIO
91	GRIGIO
92	GRIGIO
93	GRIGIO
94	GRIGIO
95	GRIGIO
96	GRIGIO
97	GRIGIO
98	GRIGIO
99	GRIGIO
100	GRIGIO

NECTA VENDING SOLUTIONS S.p.A.  
SI PRESERVA TERMINI LEGGE  
D'1 PRODOTTORE DEL PRESENTE  
D'1 SEGNIO CON DIVIET DI  
RIPRODURRE O D'1 NUOVO SENZA  
SUA PREVIA AUTORIZZAZIONE

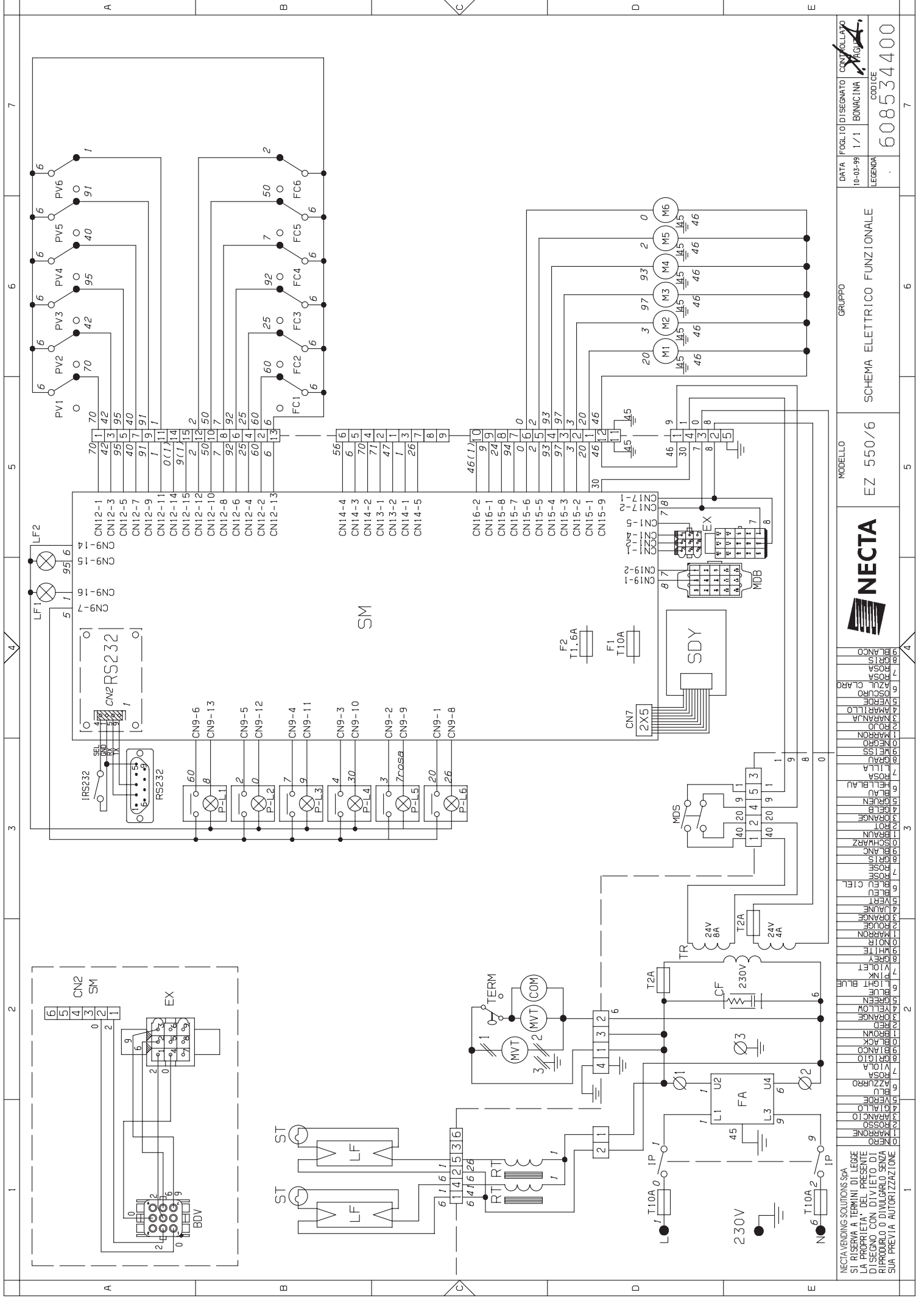




NECTA VENDING SOLUTIONS SPA SI RISERVA A TERMINI DI LEGGE LA PROPRIETA' DEL PRESENTE DISEGNO CON DIVIETO DI RIPRODURLO O DIVULGARLO SENZA SUA PREVIA AUTORIZZAZIONE.		GRUPPO		SCHEMA ELETTRICO FUNZIONALE		MODELLO		EZ 450/7		LEGENDA		DATA		FOGLIO DI DISSEGNO		CONTRATTATO	
												27-07-99		1/1		BONIFICINA	
																CODICE	
																608535100	

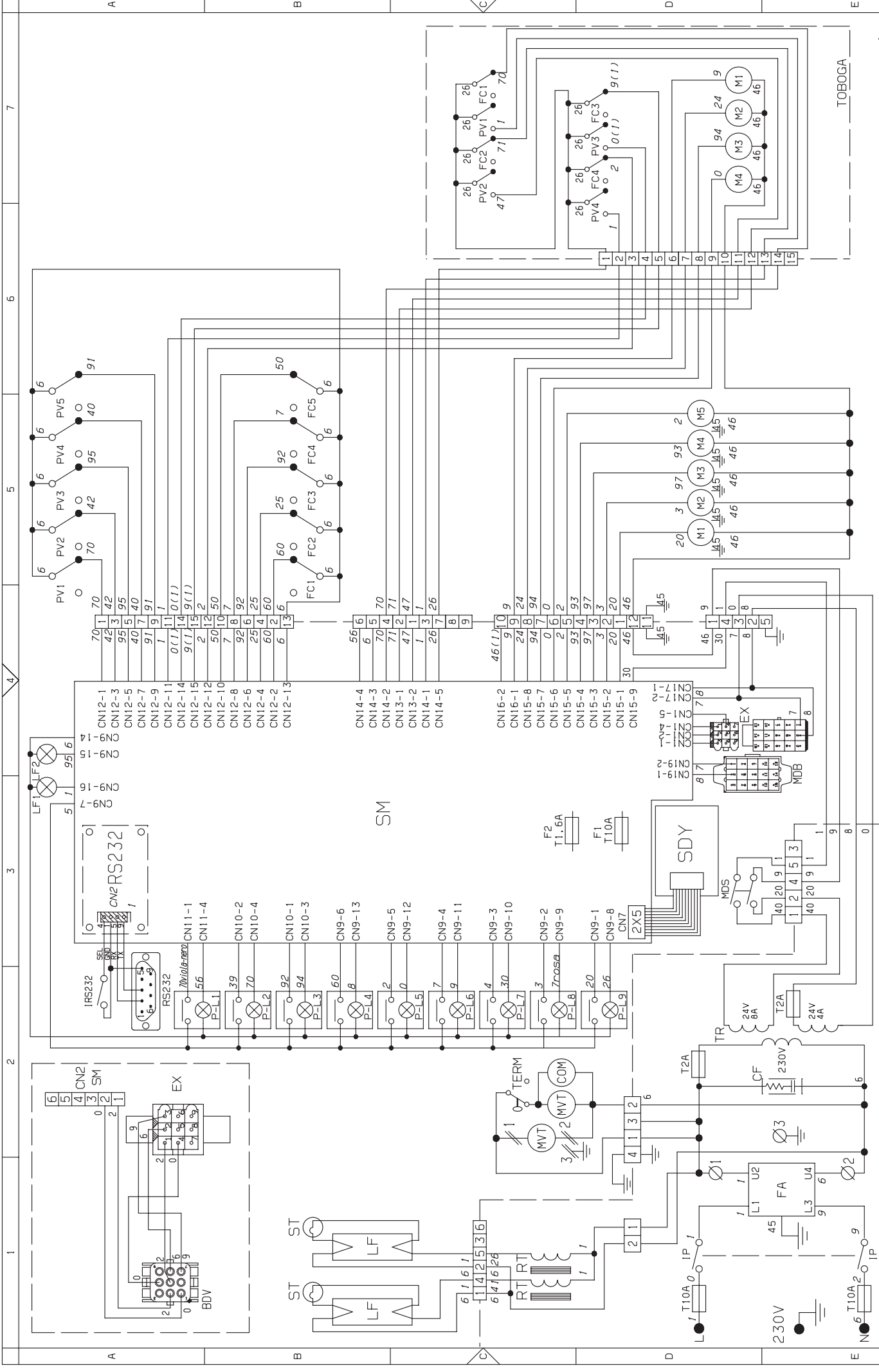


NECTA VENDING SOLUTIONS SPA  
SI RISERVA A TERMINI DI LEGGE  
LA PROPRIETA' DEL PRESENTE  
DISEGNO CON DIVIETO DI  
RIPRODURLO O DIVULGARLO SENZA  
SUA PREVIA AUTORIZZAZIONE.



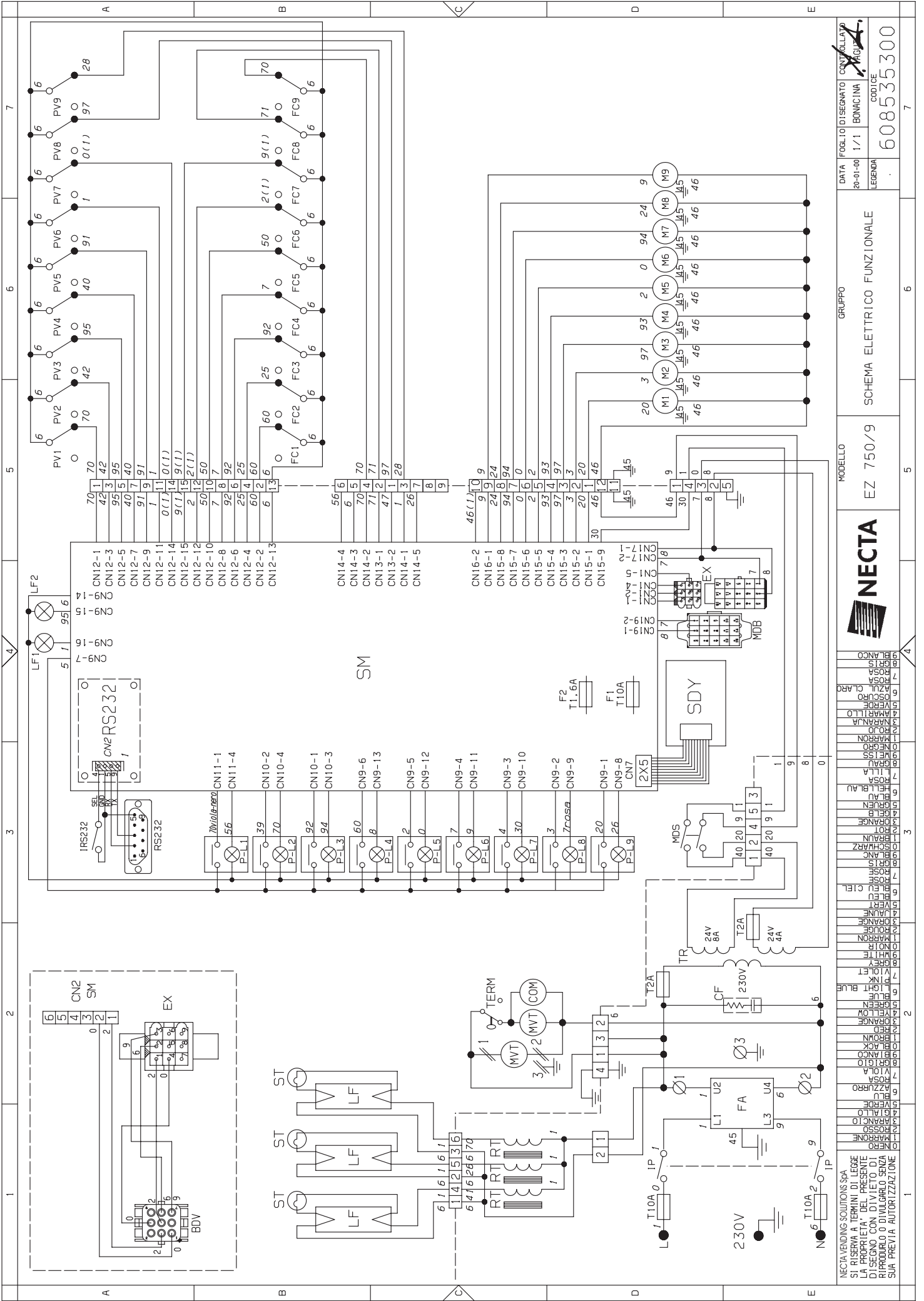
9	BLANCO
8	GRIS
7	ROSA
6	NERO
5	VERDE
4	MARRON
3	BLAU
2	ROSSO
1	BIANCO
0	GRIGIO
9	GRIGIO
8	GRIGIO
7	GRIGIO
6	GRIGIO
5	GRIGIO
4	GRIGIO
3	GRIGIO
2	GRIGIO
1	GRIGIO
0	GRIGIO





NECTA		MODELLO		SCHEMA ELETTRICO FUNZIONALE		GRUPPO		CONTRALLATO	
EZ 550/9								22-07-98	
								1/1	
								BONACINA	
								LEGENDA	
								CODICE	
								608534002	

NECTA VENDING SOLUTIONS Spa  
 SI RISERVA A TERMINI DI LEGGE  
 LA PROPRIETA' DEL PRESENTE  
 DISEGNO CON DIVIETO DI  
 RIPRODURLO O DIVULGARLO SENZA  
 SUA PREVIA AUTORIZZAZIONE



NECTA VENDING SOLUTIONS SPA  
 SI RISERVA A TERMINI DI LEGGE  
 LA PROPRIETA' DEL PRESENTE  
 DI SEGNO CON DIVIETO DI  
 RIPRODURLO O DIVULGARLO SENZA  
 SUA PREVIA AUTORIZZAZIONE

GRUPPO	LEGENDA
1	NERO
2	MARRONE
3	MARRONE
4	MARRONE
5	MARRONE
6	MARRONE
7	MARRONE
8	MARRONE
9	MARRONE
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99	MARRONE
100	MARRONE



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**FOR APPROVAL**

**The Manager**



