

# Cartadis TC41

User's and technical

Manual V6.2

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≧ SAFETY ≦

This CARTADIS product and supplies are manufactured and certified to strict safety regulations, electromagnetic regulations and established environmental standards.

≧ WARNING ! ≦

Any unauthorised alteration, which may include the addition of new functions or connection of external devices, may impact the product certification. Please contact your CARTADIS representative for more information.

⇒ Warning markings

All warning instructions marked on or supplied with the product should be followed.

⇒ Electrical supply

This product shall be operated from the type of electrical supply indicated on the product's data plate label. If you are not sure that your electrical supply meets the requirements, please consult your local power company for advice.

To disconnect all electrical power to the product, the disconnect device is the power cord. Remove the plug from the electrical outlet.



⇒ Intervention

Any installation, removing or intervention on the Cartadis unit require previously to unplug the copier or the multifunction. If not, damages may occur on the copier or on the multifunction.

⇒ Operator accessible areas

This product has been designed to restrict operator access to safe areas only. Operator access to hazardous areas is restricted with covers or guards which would have to be removed using a tool. Never remove these covers or guards.

⇒ Maintenance

Any operator product maintenance procedure will be described in the user documentation supplied with the product. Do not carry out any maintenance on the product which is not described in the customer documentation.

⇒ Cleaning your product

Before cleaning this product, unplug the product from the electrical outlet. Always use materials specifically designated for this product. The use of other materials may result in poor performance and may create a hazardous situation. Do not use aerosol cleaners, they may be flammable under certain circumstances.

*For more information on Environment, Health and safety in relation to this CARTADIS product and supplies, please contact the following customer help lines:  
Europe : +33 1 48 77 40 60.*



The CE mark applied to this product symbolises CARTADIS declaration of conformity with the following applicable European Union Directives as of the dates indicated:

⇒ January 1, 1995 :

Council directive 73/23/EEC, amended by Council Directive 93/68/EEC, approximation of the laws of the member states related to low voltage equipment.

⇒ January 1, 1996 :

Council directive 89/336/EEC, approximation of the laws of the member states related to electromagnetic compatibility.

A full declaration of conformity, defining the relevant directives and referenced standards, can be obtained from your CARTADIS representative.

≧ WARNING ! ≦

In order to allow this equipment to operate in proximity to Industrial, Scientific and Medical (ISM) equipment, the external radiation from the ISM equipment may have to be limited or special mitigation measures taken.

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# INTRODUCTION

Thank you for your choosing the **Cartadis** product range.

The **CARTADIS TC41** is an autonomous payment terminal working with magnetic cards.

The magnetic cards in use are in "privative" type, i. e. they are used for a particular field only (canteen management, subscription, club, ...) and have nothing to do with bank payment systems.

The **CARTADIS TC41** has 3 processing modes. The selection of the mode is carried out at the time of system installation and can not be modified anymore :

- Restaurant.
- Keyboard.
- Timer.

In restaurant mode, the **TC41** enables a pre-programmed amount stored in its memory to be debited. Up to 57 preprogrammed prices can be registered in **TC41**'s memory (often called PLU, Price Look Up). A card can also be credited or reloaded. With an optional printer, a "ticket" containing all the debit/credit information of a customer's card can be printed.

The keyboard mode is a simplified version of the restaurant mode. The amount to be debited is completely entered on the keyboard. There is no price code in this mode.

The timer mode is very different from the 2 previously mentioned. It is generally selected when **TC41** is used as an access control and payment system for another equipment (computer, TV, etc ...). The customer's card is kept inside **TC41** while the equipment is used. The card debit is proportional to the time of equipment use. The equipment enabling is carried out by a Normally Open contact between the BLUE and GREY wires of **CARTADIS TC41**.

The various parameters : pre-programmed amounts, price code labels, selection of the processing mode ... are defined from **TC41**'s keyboard once a card called ADMINISTRATION has been inserted. This ADMINISTRATION card is systematically delivered with **CARTADIS TC41**.

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## GLOSSARY

- ADMINISTRATOR :*** Is the owner of the "**Administration**" card and has access to all **CARTADIS TC41**'s functions, including card recording.
- ACCESS CODE :*** Is a code composed of four figures which will be requested from user's card owners, should these cards have been recorded with such a protection code.
- ACCOUNT :*** Is an area in **TC41**'s memory containing the number of units (or currency) made by the user(s) of a card allocated an account number. **TC41**'s memory contains 1 000 account numbers, each one capable of storing a number composed of maximum 7 figures.

- GROUP NO. :** Each **TC41** has 3 group numbers. All user's cards also have a group no. A user's card will only be accepted by a **TC41** if it has the same group no as one of the 3 group numbers of **TC41**. In order to modify a group no., see section "group PARAMETER".
- SERIAL NO. :** Each **TC41** has a non-modifiable serial no. The "Administration" card also has a serial no. The "Administration" card is accepted by one **TC41** only, the one which has the same serial no. as the one written on the card.
- OPERATOR :** He is the owner of the "**Operator's**" card. He has access to all account or department management functions, but he cannot record users' cards.
- TRANSACTION :** A transaction is the succession of the following operations :
- Insertion of a user's card,
  - Taking units (any quantity),
  - Recovery of the user's card.
- USER :** He is the owner of a user's card. The only operation made accessible to him is taking units. He has no access to **TC41's** programming.
- VALUE :** This is a number recorded on a user's card. It represents a credit for units. Each unit made is deducted from this credit.

## 3

# TC41 AND ITS USERS

## 3.1. RESTAURANT MODE

Following example describes step by step a user transaction with **TC41** in "restaurant" mode :

<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <b>CARTADIS TC41</b>  <b>Insert your card</b> </div> <p style="text-align: center;"><i>Insert a user's card first recorded</i></p>	
<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <b>Card value = 878.00</b> </div> <p style="text-align: center;"><i>CARTADIS TC41 waits for the entry on keyboard of one or several price codes</i></p>	
<p><i>Price code "1" defines a product cost to £ 0.35</i>  press (1) then (E)</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <b>Card value = 874.50</b>  <b>1 Bred 0.35</b> </div>	<p><i>Price code "3" defines a product cost to £ 1.05</i>  press (3) then (E)</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <b>Card value = 864.00</b>  <b>3 Salad 1.05</b> </div>
<p><i>see next page</i></p>	

Price code prix "4" defines a product cost to £ 1.80  
press (4) then (E)

**Card value = 846.00**  
**4 Meat 1.80** ■

*The value of the card is immediately debited*

**CARTADIS TC41**  
**Insert your card**

*The card is ejected by pressing (E)*

In above example, the customer's card had only a value without identification of the card holder. Should this card have an identification (account n°), **TC41** will store the balance of the card with a view to print a global status of all the customers' balances by the administrator.

## 3.2.KEYBOARD MODE

The access to **CARTADIS TC41** keyboard mode requires the price code 59 opening (see section "processing mode PARAMETER"), the detail of possible screen sequences is as follows :

**CARTADIS TC41**  
**Insert your card**

*Insert a user's card first recorded*  
*Example : insertion of a card at 2 000 points*

**Card value = 2000**  
■

*The CARTADIS TC41 wait for the entry on keyboard*  
*of the number of points (or currency) to decrement*

*Example : 120 points*

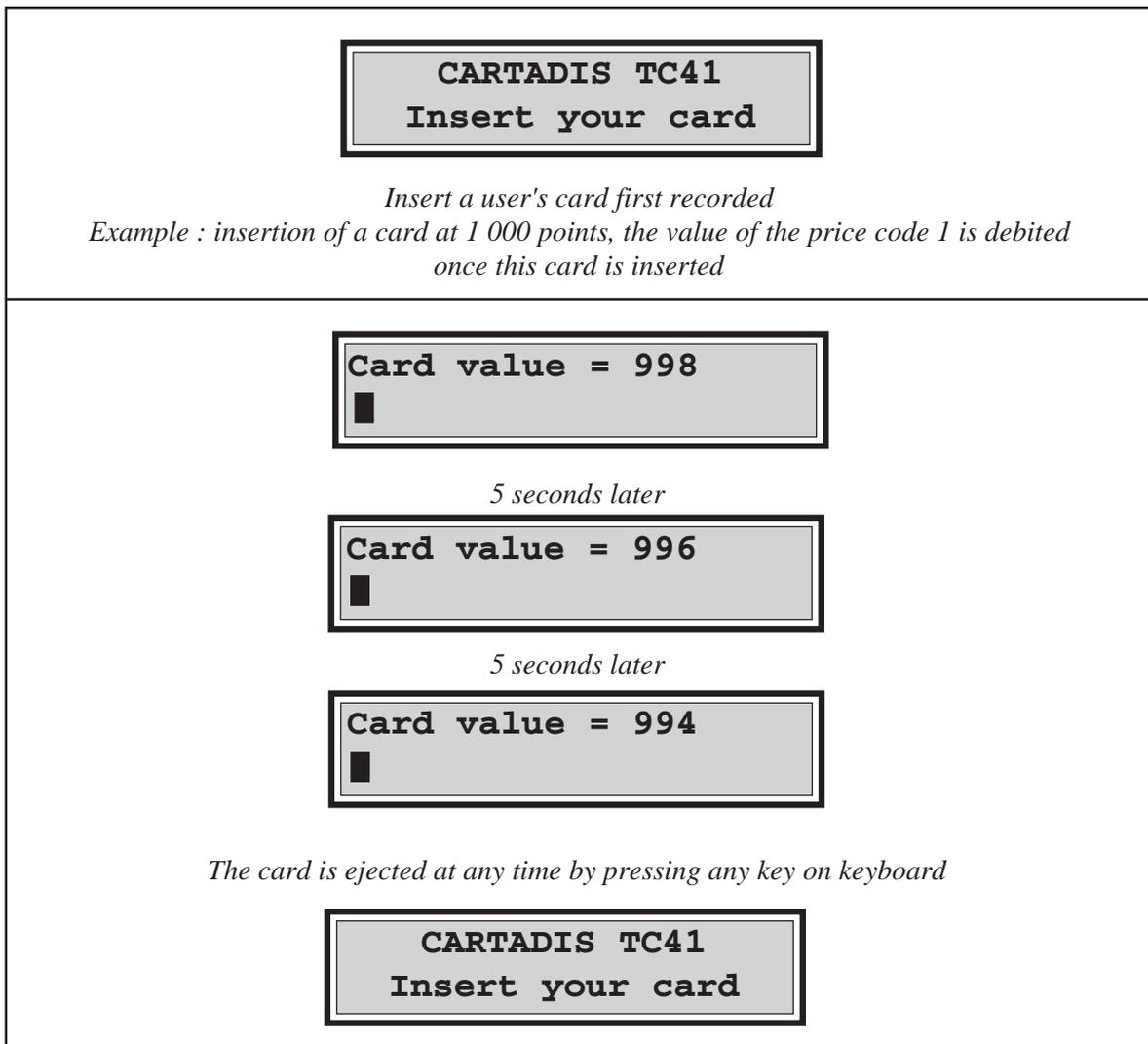
Press (1) (2) (0) then (E)

**Card value = 1880**  
■

*Pressing again key (E) ejects the card*

### 3.3.TIMER MODE

The access to **CARTADIS TC41** timer mode requires the price code 1 opening in which the number of points to decrement by time slice is also defined. The time slice is defined by the value (in seconds) of the parameter "time slice" accessible from the MAINTENANCE menu. The detail of possible screen sequences is as follows :





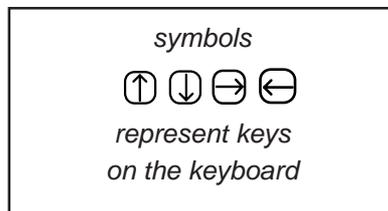
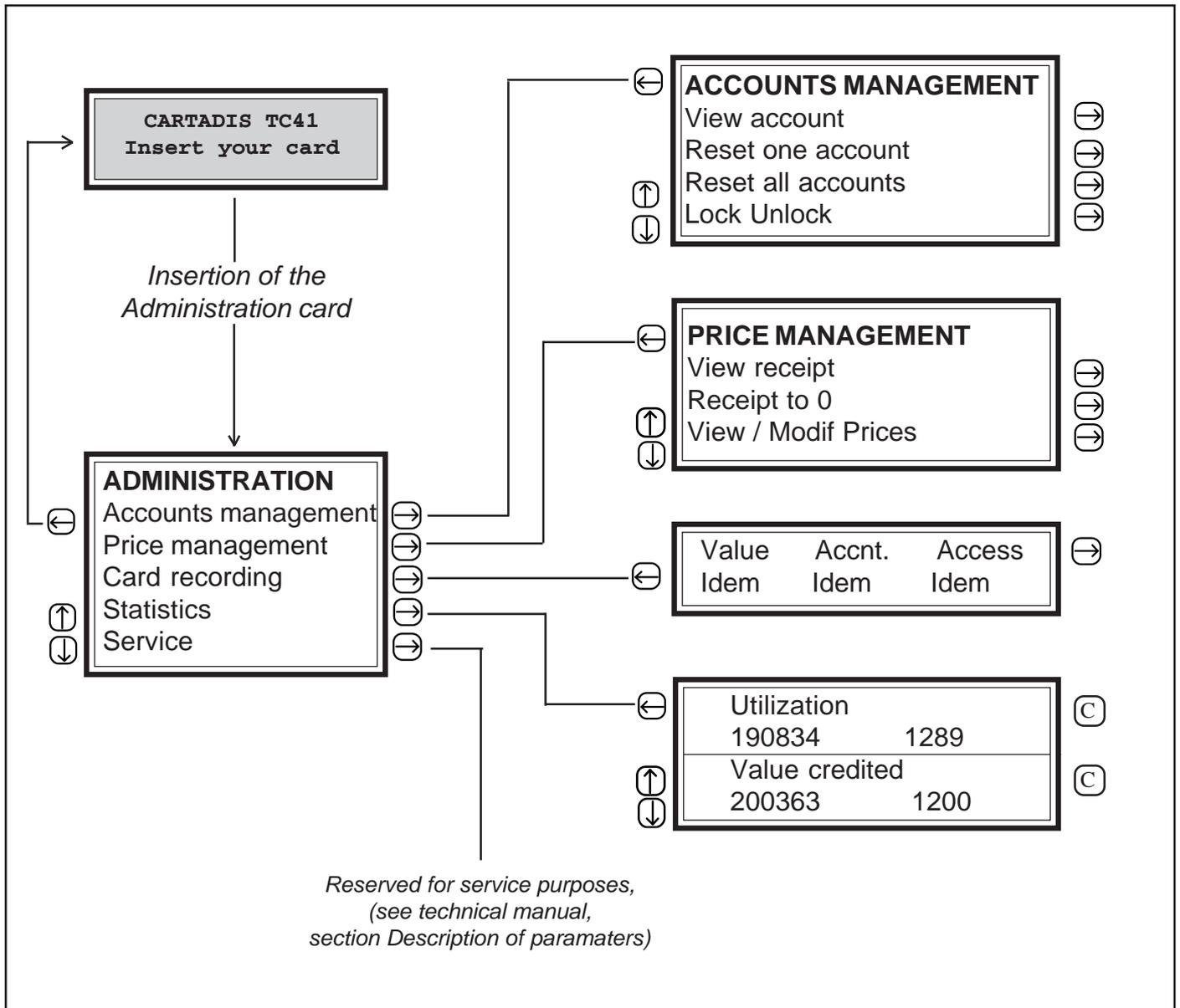
---

# TC41 AND ITS ADMINISTRATOR

All **CARTADIS TC41** programming functions are accessible once the **ADMINISTRATION** card has been inserted. As previously mentioned, this card contains the serial number of the **CARTADIS TC41** with which it has been delivered. It can run with one only unit, the unit which contains in its memory a serial number identical with the one written on the magnetic track.

This card normally remains in the possession of the person in charge of the equipment and is generally not made available to users.

All **CARTADIS TC41** functions are organized in "menus" and "submenus". The sequence of these menus is described in a diagram on the next page.



After a 4 minute inactivity within the ADMINISTRATION function, **CARTADIS TC41** automatically leaves this program and reverts to User mode.

## 4.1. SEQUENCE OF MENUS

A menu is always displayed on two lines on the screen. The upper line is in capitals and represents the title of the current menu, the lower line represents the element of the menu which has been selected.

In order to select an element of the menu other than the one displayed on the second line, you just need to press keys  $\downarrow$  or  $\uparrow$  call the next or the previous element to the display. To call the function selected, use key  $\rightarrow$ .

To leave a menu and return to the upper level menu, press key  $\leftarrow$ .

This key also enables to leave the main **ADMINISTRATION** and **OPERATOR** menus and to set **CARTADIS TC41** back to normal operation.

In addition to the need for moving across the various menus, the Administrator will have to enter numbers, e.g. an account number, a value, etc. In this case, **CARTADIS TC41** will show that it is waiting for an entry by having its cursor blink  $\blacksquare$

The meaning of the keys will then be as follows :

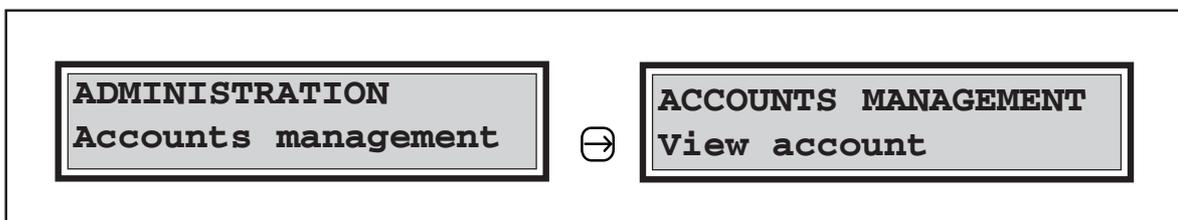
- keys  $\text{\textcircled{0}}$  to  $\text{\textcircled{9}}$  to enter the digits of the number.
- key  $\text{\textcircled{C}}$  to cancel the last entered digit.
- key  $\text{\textcircled{E}}$  to validate the entry of the number.

## 4.2. ACCOUNTS MANAGEMENT

Accounts management includes the four following functions:

- View one or several accounts.
- Reset one account at a time.
- Reset all accounts at the same time.
- View the status of an account, i.e. *locked* or *unlocked* , and modify this status.

From the main menu, access is given to accounts management submenu as follows:



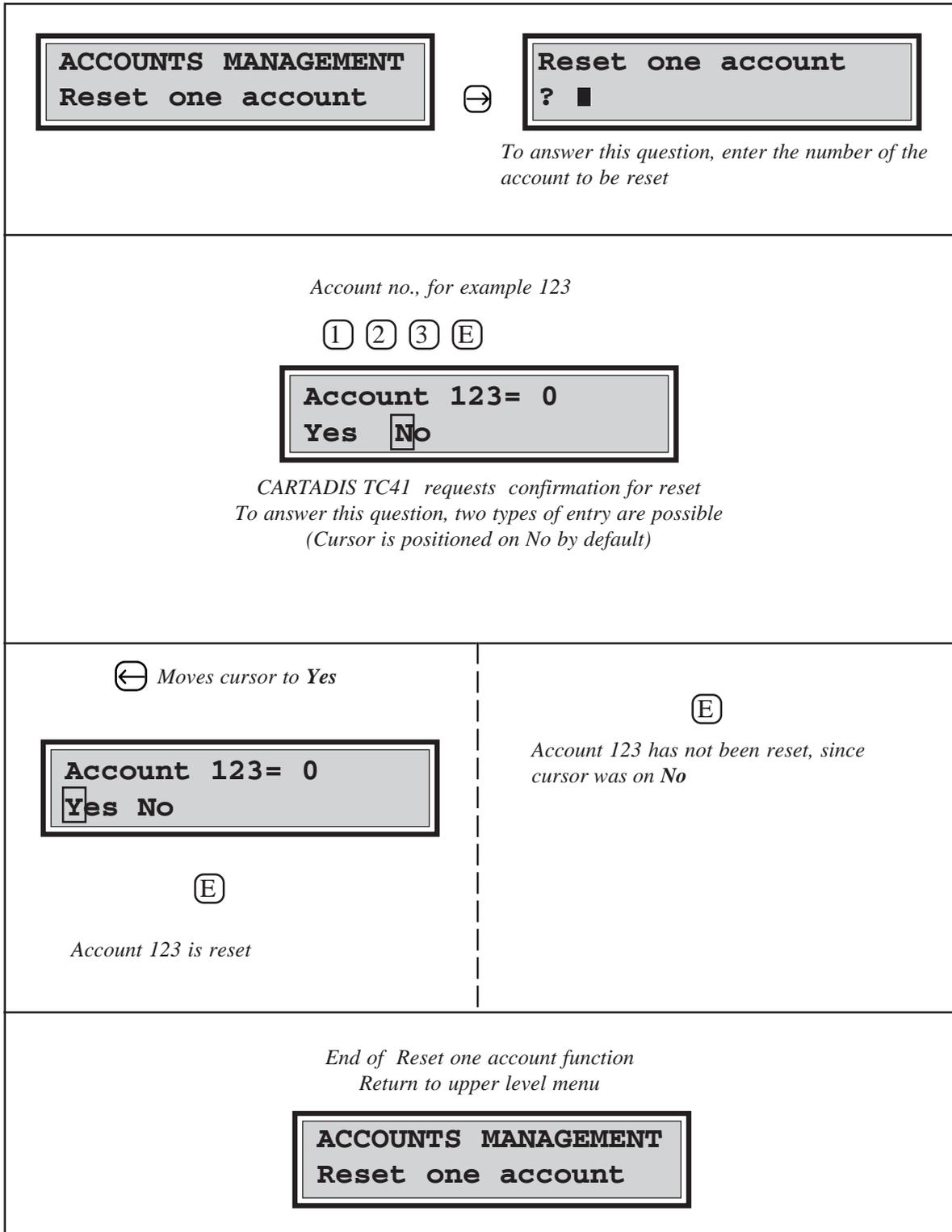
## VIEW ACCOUNTS

This function enables the number of points (or currency) charged to one or several accounts to be displayed. It also displays the total amount of points (or currency) in all accounts. The detail of possible screen sequences is as follows:

<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>ACCOUNTS MANAGEMENT</b>  <b>View account</b> </div>		<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>View account</b>  <b>? ■</b> </div> <p style="text-align: center; font-size: small;"><i>To answer this question, two types of entry are possible:</i></p>	
<p><i>Type 1 entry</i></p> <p style="text-align: center; font-size: small;"><i>Account no., for example 123</i></p> <p style="text-align: center;"> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">1</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">2</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">3</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">E</span> </p> <div style="border: 1px solid black; padding: 5px; display: inline-block; width: 80%;"> <b>View account</b>  <b>Account 123= 78.01</b> </div>	<p><i>Type 2 entry</i></p> <p style="text-align: center; font-size: small;"><i>No account no. entered</i></p> <p style="text-align: center;"> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">E</span> </p> <div style="border: 1px solid black; padding: 5px; display: inline-block; width: 80%;"> <b>View account</b>  <b>Account 10= 129.80</b> </div> <p style="text-align: center; font-size: small;"><i>(In this example, account 10 is the first non-zero account)</i></p>		
<p><b><i>In both cases, 4 types of entries are possible</i></b></p>			
 <i>Exit from View accounts function.</i> <i>(Return to menu)</i>	 <i>View next account</i>	 <i>View previous account</i>	 <i>View all non-zero accounts automatically</i>  <i>(stop scrolling by</i> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">C</span> <i>)</i>
<p><b>Note :</b> Once the last account has been displayed, the total of all copies charged on all accounts is displayed as follows:</p>			
<div style="border: 1px solid black; padding: 10px; display: inline-block;"> <b>View account</b>  <b>Total = 278.01</b> </div>			

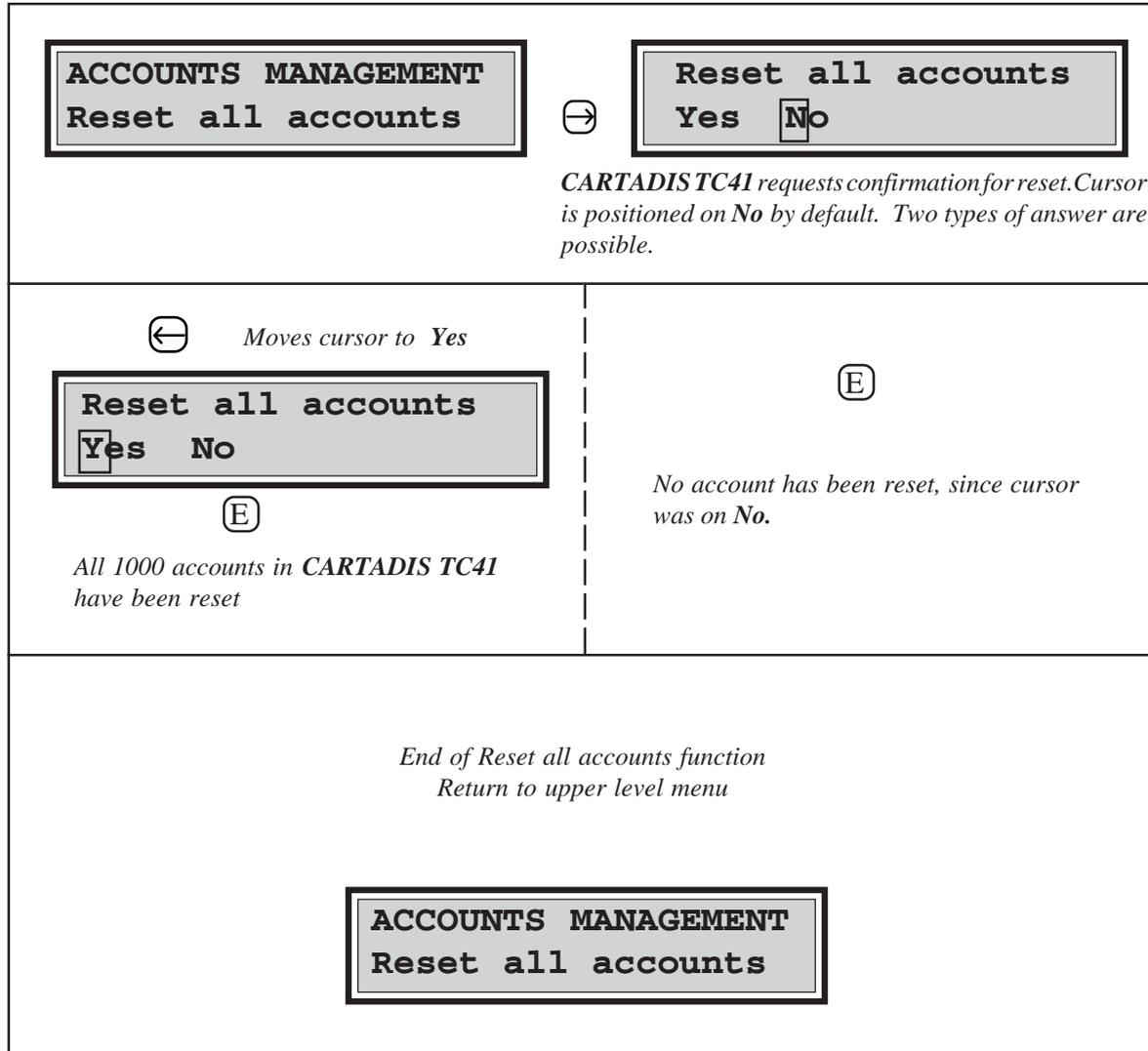
## RESET ONE ACCOUNT

This function enables one account to be reset from any of the 1 000 accounts in **CARTADIS TC41**. The detail of possible screen sequences is as follows:



## RESET ALL ACCOUNTS

This function enables all 1 000 accounts in **CARTADIS TC41** to be reset in a single operation. The detail of possible screen sequences is as follows:



## LOCK UNLOCK AN ACCOUNT

**CARTADIS TC41** enables an account to be locked in order to forbid the holder of any card with a given account number to use the device. This function is useful in case of loss, since it prevents any person who found the card from operating the device.

This function also enables the status, locked or unlocked, of one or several accounts to be read. It also enables its status to be modified, i.e. lock an account that was unlocked, or conversely unlock an account that was locked. The detail of screen sequences and keying relating to this function is as follows:

<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>ACCOUNTS MANAGEMENT</b>  <b>Lock Unlock</b> </div>		<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>Lock Unlock</b>                  ? █             </div>		
<p><i>CARTADIS TC41 is waiting for the entry of an account no.</i></p>				
<p><i>Entry of the account no., for example 123</i></p> <p>① ② ③ ④</p>				
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>Account 123 locked</b>  <b>= No</b> </div>				
<p><i>CARTADIS TC41 displays the status of the account; in this example, Account 123 is unlocked</i></p> <p><b>From now on, 5 types of entries are possible</b></p>				
				
<p><i>Exit from Account lock unlock function (Return to menu)</i></p>	<p><i>View next account</i></p>	<p><i>View previous account</i></p>	<p><i>View all accounts automatically (stop scrolling by )</i></p>	<p><i>Account status modification . See keying detail next page.</i></p>

## 4.3. PRICES MANAGEMENT

This menu features functions:

- view sales statistics,
- reset statistics,
- initialization of price codes.

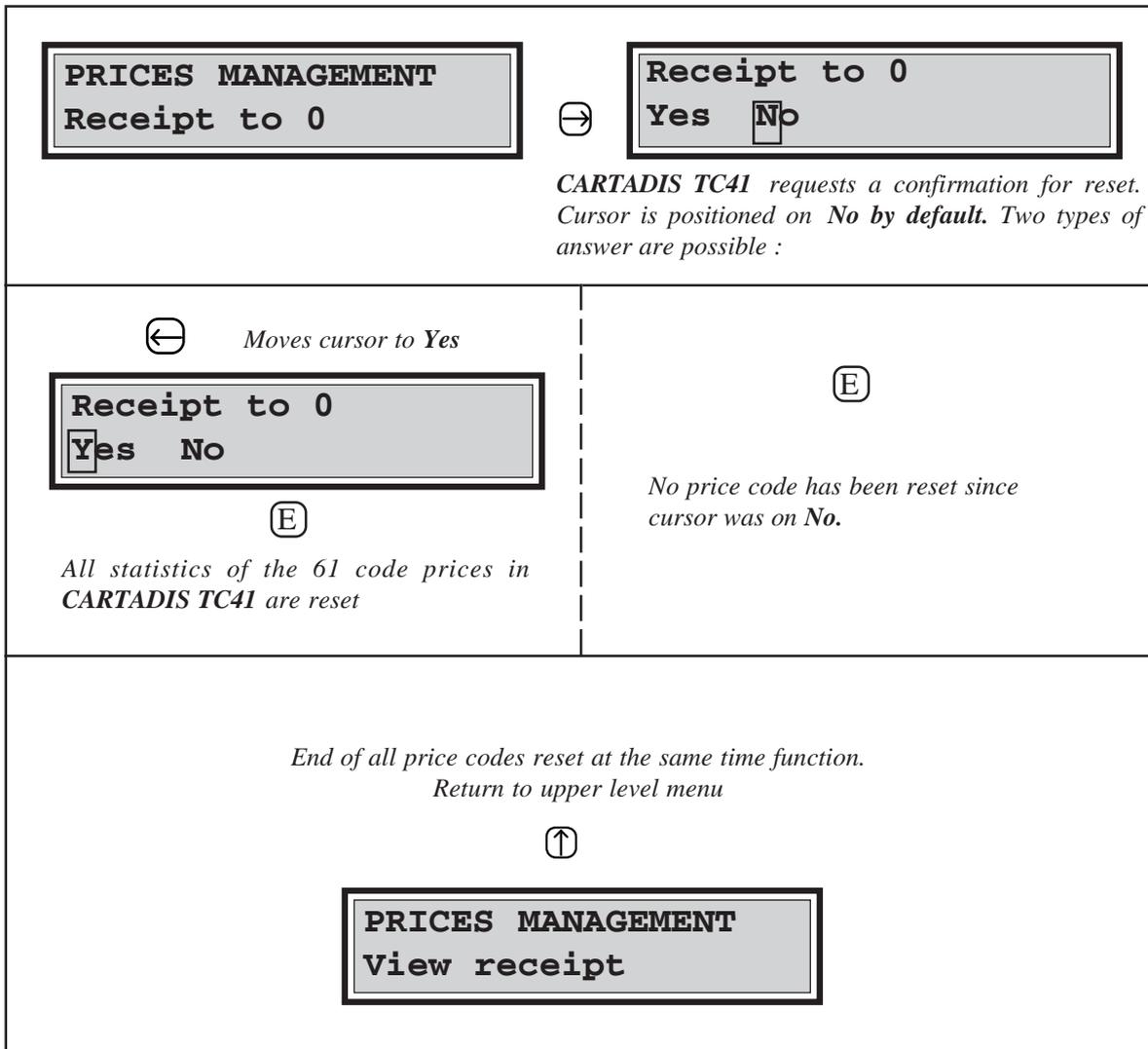
### 4.3.1 VIEWING RECEIPT

This function enables the sales cumulative form (left part of the screen) and cancellations (right part of the screen) to be displayed for every price code. The detail of possible screen is as follows :

<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>PRICES MANAGEMENT</b>  <b>View receipt</b> </div>		<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>Price</b>  <b>? ■</b> </div> <p style="font-size: small; margin-top: 5px;"><i>To answer this question, two types of entry are possible :</i></p>	
<p style="font-size: x-small; margin-bottom: 5px;"><i>Type 1 entry</i></p> <p style="text-align: center; margin-bottom: 5px;"><i>Price code 2</i></p> <p style="text-align: center; margin-bottom: 5px;"> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">2</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">E</span> </p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>02 Bread</b>  <b>15.00                      0.00</b> </div>		<p style="font-size: x-small; margin-bottom: 5px;"><i>Type 2 entry</i></p> <p style="text-align: center; margin-bottom: 5px;"><i>No price code entry</i></p> <p style="text-align: center; margin-bottom: 5px;"> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">E</span> </p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>03 Steak</b>  <b>56.00                      0.00</b> </div> <p style="font-size: x-small; margin-top: 5px;"><i>(In this example, price code 3 is the first non-zero code)</i></p>	
<p><b><i>In both cases, 4 types of entries are possible</i></b></p>			
 <i>Exit from view receipt function (return to menu)</i>	 <i>View next code</i>	 <i>View previous code</i>	 <i>View all non-zero codes automatically (stop scrolling by <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">C</span> )</i>
<p><b>Note :</b> After the last code has been displayed, the total of points (or currency) charged on price code is displayed as follows :</p>			
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>Total</b>  <b>278.01                      0.00</b> </div>			

### 4.3.2 RECEIPT TO 0

This function enables all sales statistics to be reset. The detail of possible screen is as follows:



### 4.3.3 VIEW / MODIF PRICES

The CARTADIS TC41 has 61 price codes. Some of them have a special use (see next page);

~ From Code 1 to Code 57 :

Price code adjustable by the user, can be labelled on 8 characters, every code can be open or closed.

The related process for the entry of a price code is :

- The amount of the price code is deducted from the card (if it contains a value).  
If the value of the card is too small, the message "INSUFFICIENT CREDIT" is displayed, debit is therefore not achieved.
- User's account, if there is one, is increased by the amount of the price code.
- The corresponding price code statistic is updated.
- General "UTILIZATION" counter is updated too.

~ Code 58 Card reloading :

Enables the value of a card to be reloaded. This code does not make sense for a pure account card.

The related process is :

- Card value is increased by the entered amount.
- The account, if there is one, does not change.
- Statistic of code 58 is updated.
- "VALUE CREDITED" general counter is updated.

~ Code 59 Manual debit :

Enables the debits of the products having no price code to be updated.

TC41 waits for the entry of the sale amount.

The related process is :

- The amount entered is debited from the card (if it contains a value). If the value of the card is not enough, the message "INSUFFICIENT CREDIT" is displayed, motion is therefore not achieved.
- User's account, if there is one, is increased by the entered amount.
- Statistic of code 59 is updated.
- General "UTILIZATION" counter is updated.

~ Code 60 Cancellation :

Enables a reverse debit/credit to be achieved, this operation is applicable to codes 1 to 59.

All the credits are achieved in reverse order of a normal sale, except for price code statistic where cancellation is different from a normal sale. If the card contains an account number, the credit of this account must be greater than cancellation (an account never becomes negative).

~ Code 61 Multiplying coefficient :

TC41 waits for the entry of a multiplying coefficient then for a normal entry operation. This code price is always open.

**Setting a new price code :**

A price code PLU contains several fields to set up step by step :

- code,
- labelling (initialize according the ASCII code of page 36),
- value,
- status (open or close).

TC41 display :

<div style="border: 2px solid black; padding: 5px; display: inline-block;"> <b>PRICES MANAGEMENT</b>  <b>View / Modif Prices</b> </div>	
<p><i>a</i></p> <p style="text-align: center;">Press key <b>→</b></p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <b>Price</b>  <b>? █</b> </div>	<p><i>b</i></p> <p style="text-align: center;">Enter the price code number and validate by <b>E</b></p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <b>15 E 15</b>  <b>0.00 Close</b> </div>
<p><i>c</i></p> <p style="text-align: center;">Press key <b>C</b> to modify the labelling</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <b>█</b> </div>	<p><i>d</i></p> <p style="text-align: center;">Enter the label of the concerned price code according to the ASCII code Example : BRED = 66 E, 82 E, 69 E, 68 E</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <b>BRED</b> </div> <p style="text-align: center;">then validate by <b>E</b></p>
<p><i>e</i></p> <p style="text-align: center;">Press key <b>→</b> to move the cursor</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <b>15 BRED</b>  <b>█ 0.00 Close</b> </div>	<p><i>f</i></p> <p style="text-align: center;">Press key <b>C</b> then enter the concerned price code <b>in pennies</b> and validate by <b>E</b> Example : 350 E</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <b>15 BRED</b>  <b>█ 3.50 Close</b> </div>
<p><i>g</i></p> <p style="text-align: center;">Press key <b>→</b> to move the cursor</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <b>15 BRED</b>  <b>3.50 Open</b> </div>	<p><i>h</i></p> <p style="text-align: center;">Press key <b>C</b> then validate by <b>E</b></p>
<p>Pressing several times <b>←</b> enables the cursor to moved back for setting an other price code or leaving from programming menu</p>	

## 4.4.MAGNETIC CARD RECORDING

The magnetic cards in use are in **High Coercitivity** technology, i.e. they are not sensitive to magnetic fields in office environments: magnetic clip holder, keys, magnetized scissors, etc. This feature is one of the major improvements achieved by **CARTADIS TC41**, and greatly increases the safety of all information contained in the cards.

Two types of cards can be used:

- reloadable cards, (max value 999 999).
- disposable cards, (max value 500).

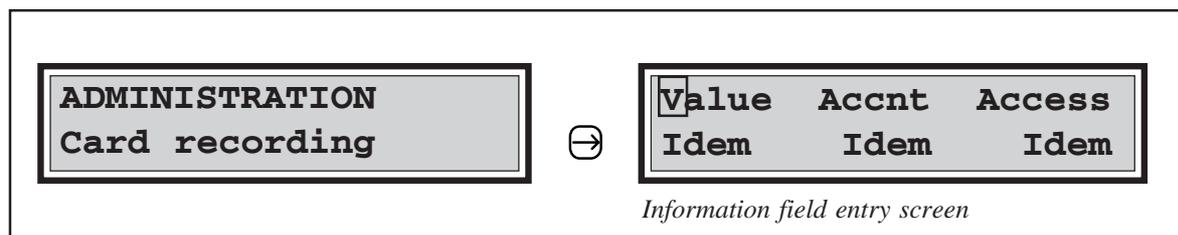
Both of them are initially supplied blank, without any data. They have therefore to first be recorded before use. They are programmed by means of the recording function described in this section. It is also possible to re-record a reloadable card once its value has come down to 0 or a value has to be changed, on the contrary it is not possible to re-record a disposable card. **Cartadis TC41** 's reliability depends to a large extent on the good physical condition of the cards in use. Therefore, reloadable cards with a worn-out magnetic track, i.e. with their plastic surface protection deeply scratched, should not be re-recorded. In order to be protected against such re-recording, **Cartadis TC41** checks that they have not carried out more than 3 000 transactions.

A magnetic card is composed of several fields: value, department, account, access code. The presence or absence of some of these fields will enable the administrator to adapt **CARTADIS TC41** operation to his management requirements.

The recording procedure is composed of two steps :

- 1) Setting up the information fields in **TC41**'s memory.
- 2) Recording the card.

The entry screen for information fields is accessible from the main menu as follows :



Each field can be initialized with three types of value :

- 1) A **NUMBER** composed of several digits.
- 2) **VOID**, which is a keyword meaning that this field is not to be recorded on the track.
- 3) **IDEM**, which is a keyword meaning that the information already present on the track must not be changed (this only makes sense when re-recording).

Following table describes as an example the initialization of a **Value** type card. With card value set to 1500, this example describes, in the first stage, the initialization of **Value**, **Account** and **Access** fields, with respectively **1500**, **Void** and **Void**, and in the second stage, the actual recording of this card.

*First stage*

*a*

Value	Acct.	Access
Idem	Idem	Idem

*Information field entry screen.  
Value field is selected, since cursor is placed on it.*

(C) request for value field modification

---

*b*

Value	Acct.	Access
█	Idem	Idem

(1) (5) (0) (0) (E)

*Value entry and validation*

---

*c*

Value	Acct.	Access
1500	Idem	Idem

(→) Account field selection

---

*d*

Value	Acct.	Access
1500	Idem	Idem

(C) request for Account field modification

---

*e*

Value	Acct.	Access
1500	█	Idem

*e*

Value	Acct.	Access
1500	█	Idem

(O) (E) Entry of keyword Void

---

*f*

Value	Acct.	Access
1500	Void	Idem

(→) Access field selection

---

*g*

Value	Acct.	Access
1500	Void	Idem

(C) request for Access field modification

---

*h*

Value	Acct.	Access
1500	Void	█

(O) (E) Entry of keyword Void

---

*i*

Value	Acct.	Access
1500	Void	Void

*All fields are correctly initialized*

## Second stage

<p><i>a</i></p> <table border="1"> <tr> <td><b>Value</b></td> <td><b>Acct.</b></td> <td><b>Access</b></td> </tr> <tr> <td>1500</td> <td>Void</td> <td>Void</td> </tr> </table> <p>→ Recording selection</p>	<b>Value</b>	<b>Acct.</b>	<b>Access</b>	1500	Void	Void	<p><i>d</i></p> <p><i>One second later</i></p> <table border="1"> <tr> <td><b>Extract card</b></td> <td></td> <td></td> </tr> <tr> <td>1500</td> <td>Void</td> <td>Void</td> </tr> </table> <p><i>USER's card extraction</i></p> <table border="1"> <tr> <td><b>Insert card</b></td> <td></td> <td></td> </tr> <tr> <td>1500</td> <td>Void</td> <td>Void</td> </tr> </table> <p>From now on, there are 2 possibilities :</p> <ol style="list-style-type: none"> <li>1 - Recording a new card.</li> <li>2 - Return to Entry menu, by striking any key.</li> </ol>	<b>Extract card</b>			1500	Void	Void	<b>Insert card</b>			1500	Void	Void
<b>Value</b>	<b>Acct.</b>	<b>Access</b>																	
1500	Void	Void																	
<b>Extract card</b>																			
1500	Void	Void																	
<b>Insert card</b>																			
1500	Void	Void																	
<p><i>b</i></p> <table border="1"> <tr> <td><b>Insert card</b></td> <td></td> <td></td> </tr> <tr> <td>1500</td> <td>Void</td> <td>Void</td> </tr> </table> <p><i>CARTADIS TC41 is waiting for a card. You have to insert a USER 's card, either blank or already used (but for less than 3000 transactions).</i></p>	<b>Insert card</b>			1500	Void	Void													
<b>Insert card</b>																			
1500	Void	Void																	
<p><i>c</i></p> <p><i>Insertion of a USER's card</i></p> <table border="1"> <tr> <td><b>Reading</b></td> <td></td> <td></td> </tr> <tr> <td>1500</td> <td>Void</td> <td>Void</td> </tr> </table> <p><i>One second later</i></p> <table border="1"> <tr> <td><b>Writing</b></td> <td></td> <td></td> </tr> <tr> <td>1500</td> <td>Void</td> <td>Void</td> </tr> </table>	<b>Reading</b>			1500	Void	Void	<b>Writing</b>			1500	Void	Void							
<b>Reading</b>																			
1500	Void	Void																	
<b>Writing</b>																			
1500	Void	Void																	

Let us now deal with a second example about recording a **Value/Account** type card. This card has value 2000, account 53. In the same way as in previous example, the first stage carries out Value, Account and Access field initialization with respectively 2000, **53**, Void.

The second stage carries out the actual card recording.

First stage

*a*

Value	Acnt.	Access
Idem	Idem	Idem

Information field entry screen  
Value field is selected, since cursor is placed on it

(C) request for value field modification

---

*b*

Value	Acnt.	Access
█	Idem	Idem

(2) (0) (0) (0) (E)

Value entry and validation

---

*c*

Value	Acnt.	Access
2000	Idem	Idem

(→) Account field selection

---

*d*

Value	Acnt.	Access
2000	Idem	Idem

(C) request for Account field modification

---

*e*

Value	Acnt.	Access
2000	█	Idem

*e*

Value	Acnt.	Access
2000	█	Idem

(5) (3) (E)

Entry of account 53

---

*f*

Value	Acnt.	Access
2000	53	Idem

(→) Access field selection

---

*g*

Value	Acnt.	Access
2000	53	Idem

(C) request for access field modification

---

*h*

Value	Acnt.	Access
2000	53	█

(0) (E) Entry of keyword Void

---

*i*

Value	Acnt.	Access
2000	53	Void

All fields are correctly initialized

Actual card recording is very similar to the procedure described on page 25. A difference only occurs when recording a second card. In order to simplify administrator's keying, **CARTADIS TC41** increases the account number by one, i.e. in our example, **Account** field will automatically turn to 54. This feature allows recording a set of **Value/Account** cards, with the same value and a different account number on each card, without the need to revert to the entry menu every time.

## 5.5. STATISTICS COUNTERS

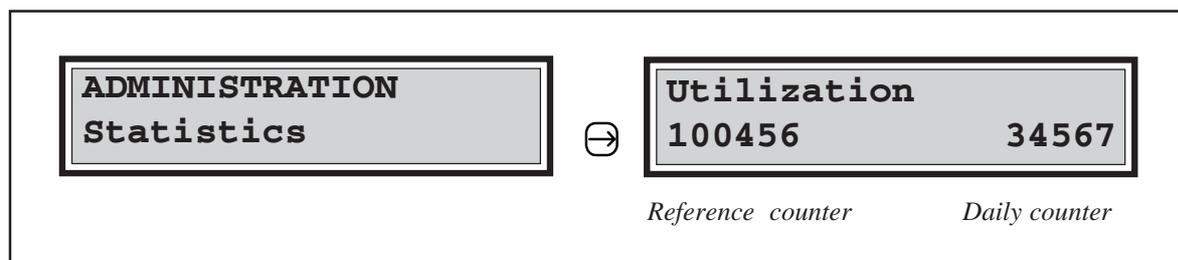
Two counters are available from main administration menu. The first one is called **Utilization** counter, and reflects device utilization. Each time an operation is made, it is increased by the number of units decremented.

The second counter is called **Value credited** counter, and represents the amount of money (or the number of points) deposited on user's cards. Each time the administrator credits a value on a user's card, this counter is increased by the value credited.

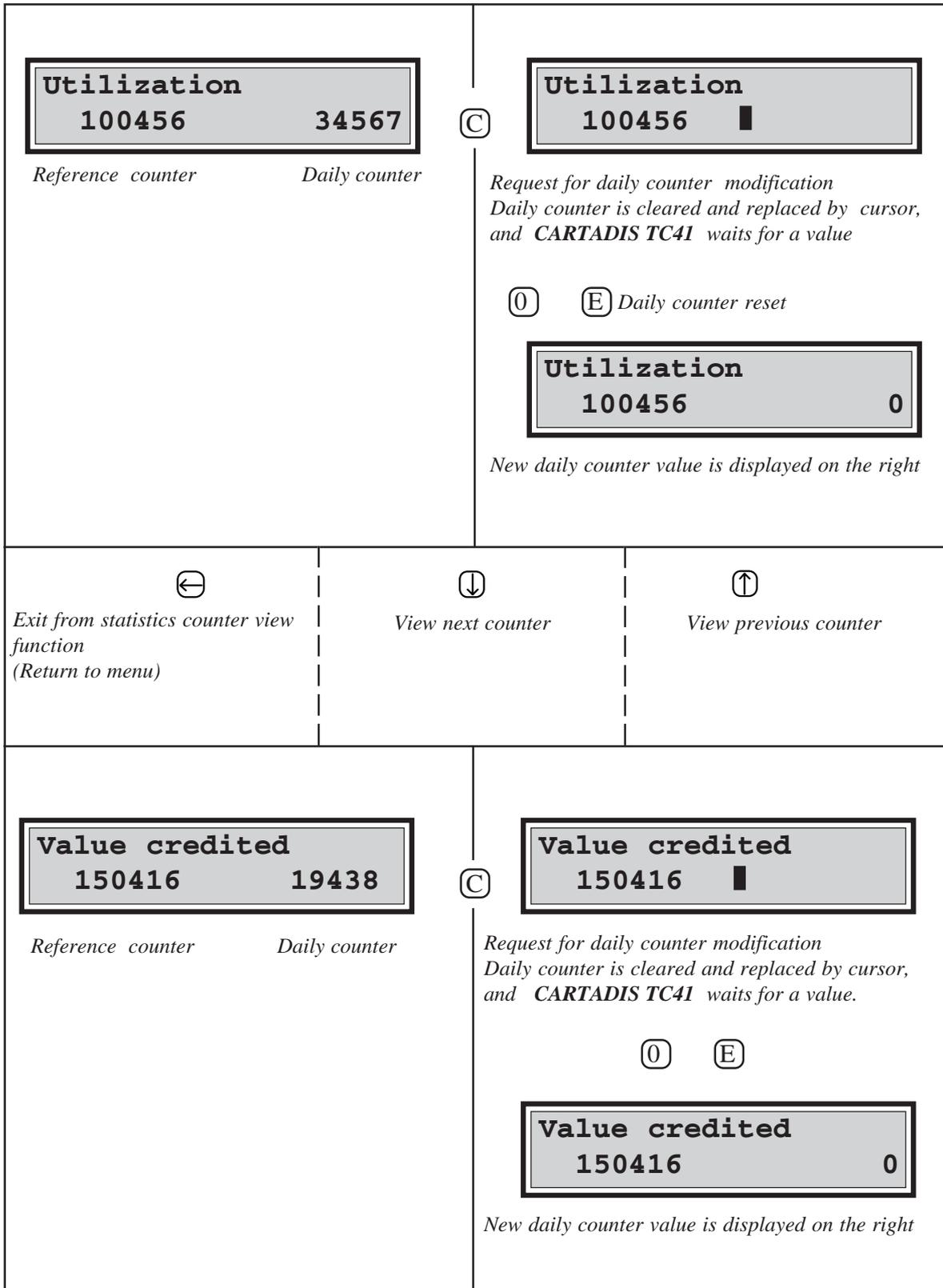
**Attention:** In case a card with a non-zero residual value is being reloaded, this former value is subtracted from the **Value credited** counter, then new card value is added into same counter.

Both counters are double counters, i.e. they contain a first counter which cannot be modified by the administrator, and a second one which can. The first one is called the reference counter, the second one acts as a daily counter. Beside the fact that the daily counter can be modified by the administrator, it runs in the same way as the reference counter. The reference counter is displayed on the left side of the screen, the daily counter on the right.

Main menu gives access to statistics counters as follows:



Statistics counter views and daily counter modifications are described below:





## 5

---

# USE OF PRINTER

**CARTADIS TC41** is equipped with a printer output via a five pin **DIN** plug located on the front of the unit.

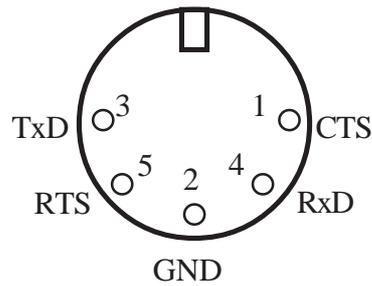
**CARTADIS TC41** automatically detects the presence of the printer and prints all required information at the right moment.

In order to print the information generated by accounts or prices management, or statistics counters, follow the procedure below :

- 1 - Switch on printer.
- 2 - Connect printer to **TC41's DIN** plug.
- 3 - Call required information as you would for screen display.

## Printer output connections and specifications

Electrical connection :	RS232
Bit rate :	1200 bits/sec
Number of data bits :	7
Parity :	none
Stop bits :	2
Flow control :	RTS/CTS



The printer can also be connected continuously to **CARTADIS TC41** to print a ticket for every operation made.

Example of a customer's ticket printing :

```

-----
CARTADIS                               3278/15

Card value = 87.80

BRED           0.35
SALAD          1.05
MEAT           1.80

Card value = 84.60
-----

```

---

## DESCRIPTION OF PARAMETERS

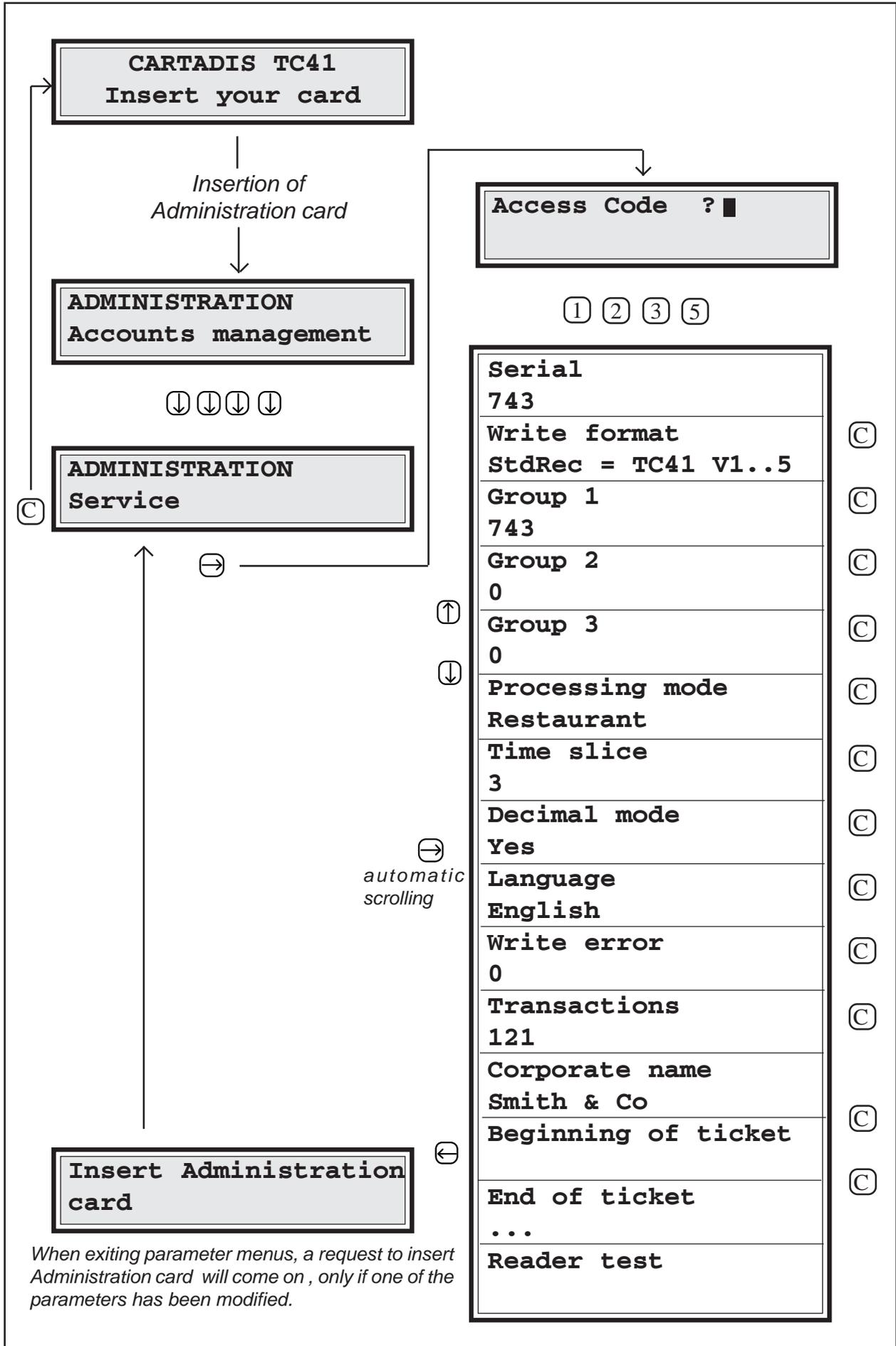
**CARTADIS TC41** contains 14 internal parameters which can all be read by the administrator or the technician; some of them can be modified to adapt **TC41** to the equipments, others to adapt its operation to customer's wishes, and further ones provide statistical information.

In order to read these parameters, and modify them if needed, the **ADMINISTRATION** card supplied with **CARTADIS TC41** is required. It is of utmost importance that the administrator and the technician read "**TC4 and its Administrator**", in order to become familiar with the various menus and the means to move across them.

All maintenance parameters are accessible from the **SERVICE** function in main menu **ADMINISTRATION**. This function is protected by an access code, intended to protect it from being activated by mistake. This access code is :

1235
------

These 14 parameters are accessible one after each other, their order of display is described in the table on the next page. To modify a parameter, first show it on the display, then strike key C.



When exiting parameter menus, a request to insert Administration card will come on, only if one of the parameters has been modified.

## "Serial" PARAMETER

This parameter is the serial number of **CARTADIS TC41**, it is plant initialized and cannot be modified. Each **TC41** has a different serial number, which is also written on "Administration" card and on the label located on unit rear side. The serial number of **TC41** is displayed on the screen when unit is being turned on.

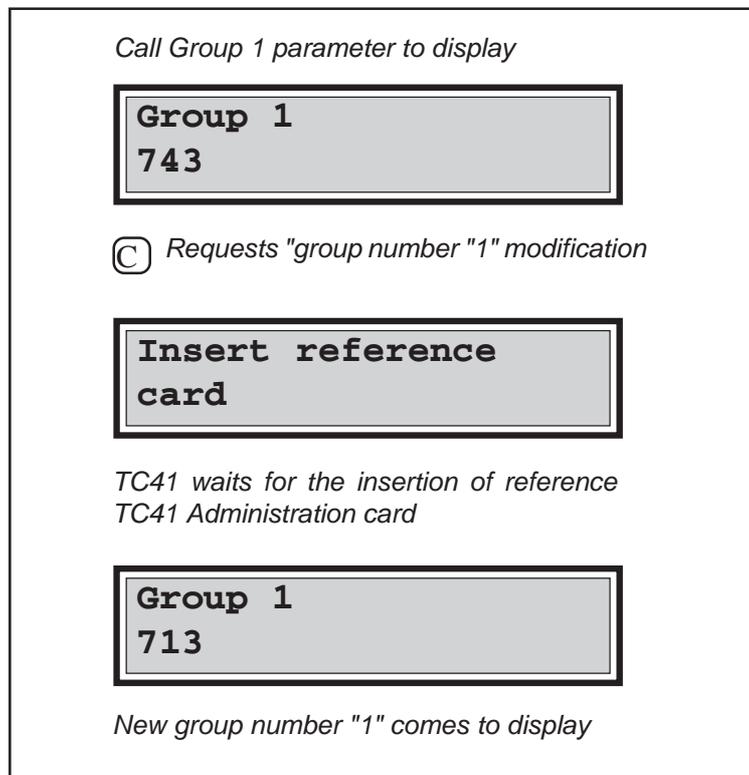
## PARAMETERS "Group 1" - Group 2" - "Group 3"

The purpose of the group number is to allow or inhibit the operation of a set of user's cards. All user's cards have a group number, and **CARTADIS TC41** only accepts those cards with the same group number as one of its group numbers.

The group numbers of a unit are conditionally modifiable; they can only take the value of group numbers of **TC41** units for which you have the "Administration" card. The procedure to modify a group number is as follows :

- Arbitrary choice of a reference **TC41** unit (if it is a matter of population extension, the reference unit will be the old unit, or the old reference unit if there were several).
- For all non-reference-**TC41** units, modification of the group number by means of the Administration card of the reference **TC41**.

*detail of the operations required to modify the group of **TC41***



## "Processing mode" PARAMETER

This parameter indicates the processing mode in which TC41 is setup. There are 3 modes available : keyboard, restaurant, timer. It is modifiable by pressing key **C** then, by means of the **up** and **down arrow** keys, show the chosen mode on the display and validate by key **E**. If "keyboard" mode is chosen, the price code 59 must be opened as described in following table:

TC41 keyboard mode - Opening - Price 59 :

<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>CARTADIS TC41</b>  <b>Insert your card</b> </div>	
<p><i>a</i></p> <p style="text-align: center;"><i>Insert the administration card</i></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>ADMINISTRATION</b>  <b>Accounts management</b> </div>	<p><i>b</i></p> <p style="text-align: center;"><i>Press one time ↓</i></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>ADMINISTRATION</b>  <b>Price management</b> </div>
<p><i>c</i></p> <p style="text-align: center;"><i>Press one time →</i></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>PRICE MANAGEMENT</b>  <b>View receipt</b> </div>	<p><i>d</i></p> <p style="text-align: center;"><i>Press twice ↓</i></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>Price management</b>  <b>View / Modif Price</b> </div>
<p><i>e</i></p> <p style="text-align: center;"><i>Press one time →</i></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>Price</b>  <b>? ■</b> </div>	<p><i>f</i></p> <p style="text-align: center;"><i>Enter 59 then press key E</i></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>59 Miscellaneous</b>  <b>■ 0.00 Close</b> </div>
<p><i>g</i></p> <p style="text-align: center;"><i>Press twice key →</i></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>59 Miscellaneous</b>  <b>0.00 CClose</b> </div>	<p><i>h</i></p> <p style="text-align: center;"><i>Press key C</i></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>59 Miscellaneous</b>  <b>0.00 Open</b> </div>
<p><i>Press five times key ←</i></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>CARTADIS TC41</b>  <b>Insert your card</b> </div>	

Nota : Within maintenance menu, you have to parametrize :

- 1/ Processing mode = keyboard
- 2/ Timer delay = 0
- 3/ Decimal mode = no

If "keyboard" mode is chosen , the price code 59 will also have to be opened as described in the diagram on the previous page.

If the "timer" mode is chosen, the time slice (see parameter timer - delay) and the price code (adjust the price code 1 to the "open" position and its value which will correspond to the number of units decremented time slice) will have to be defined.

## **"Timer delay" PARAMETER**

This parameter makes sense only if the chosen functioning mode is the "timer". It defines the interval of time in seconds on which the debit of the customer's card will be calculated. Everytime, this interval of time has elapsed, the amount defined by the price code 1 will be debited from customer's card.

## **"Decimal Mode" PARAMETER**

This parameter indicates the manner in which numbers are to be displayed. Its possible values are : *Yes* or *No*.

If this parameter is set to *No* , then numbers are shown without a decimal point, and **TC41** is said to be working in "units" or "points" (standard configuration).

If this parameter is set to *Yes* , then numbers are shown with two digits after the decimal point, and **TC41** is said to be working in "currencies". In this case, it can count Pounds or any other currency.

## **"Language" PARAMETER**

This parameter indicates in which language messages are displayed on **TC41** screen.

## **"Write Error" PARAMETER**

This parameter represents the number of errors which occurred when writing on a magnetic card. On a unit in good condition, this number must always be 0. On a site equipped with several **TC41**'s, it is not always easy for the service engineer to locate a unit with intermittent writing errors; this parameter enables him to identify it with certainty and to therefore carry out a corrective service on the faulty unit.

This parameter can be modified, it can for example be reset after service.

## "Transactions" PARAMETER

This parameter represents the number of user's cards which have been inserted. It reflects the usage of **CARTADIS TC41**, and enables service inspections to be planned. This parameter cannot be modified.

## "Corporate name" PARAMETER

This parameter represents a sequence of characters printed on customer's ticket. It is initialized by using the following ASCII code in the same way as price code labelling :

Extract from the ASCII code :

Example : A = 65 then   
 Z = 90 then   
 d = 100 then

Decimal	Character	Decimal	Character
65	A	97	a
66	B	98	b
67	C	99	c
68	D	100	d
69	E	101	e
70	F	102	f
71	G	103	g
72	H	104	h
73	I	105	i
74	J	106	j
75	K	107	k
76	L	108	l
77	M	109	m
78	N	110	n
79	O	111	o
80	P	112	p
81	Q	113	q
82	R	114	r
83	S	115	s
84	T	116	t
85	U	117	u
86	V	118	v
87	W	119	w
88	X	120	x
89	Y	121	y
90	Z	122	z

---

## "Beginning of ticket" PARAMETER

This parameter defines a sequence of characters sent to the printer (optional) **before** the ticket printing. It enables initialization characters to be sent to the printer. It is initialized by using the ASCII code in the same way as price code labelling on the previous page.

## "Ending of ticket" PARAMETER

This parameter defines a sequence of characters sent to the printer (optional) **after** the ticket printing. It sends codes for ticket feed or guillotine. It is initialized by using the ASCII code in the same way as price code labelling on the previous page.

## "Write format" PARAMETER

This parameter has been introduced from V6 version of **TC41**:

- if it is set to "**StdRec = TC41 V1..5**", it means :
  - . Paper cards are programmed by means of a new method enabling a high level of data recovery in case of cards damaged. Paper cards are not compatible with the **CARTADIS TC41 V1 to V5**.
  - . Plastic cards are programmed with the former method, i. e. they are compatible with the **CARTADIS TC41 V1 to V5**.
- if it is set to "**MaxRec = TC41 V6..Vx**", it means :
  - . Both paper and plastic cards are programmed by means of a new method enabling a high level of data recovery in case of cards damaged. Paper and plastic cards are not compatible with the **CARTADIS TC41 V1 to V5**.



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## SERVICE

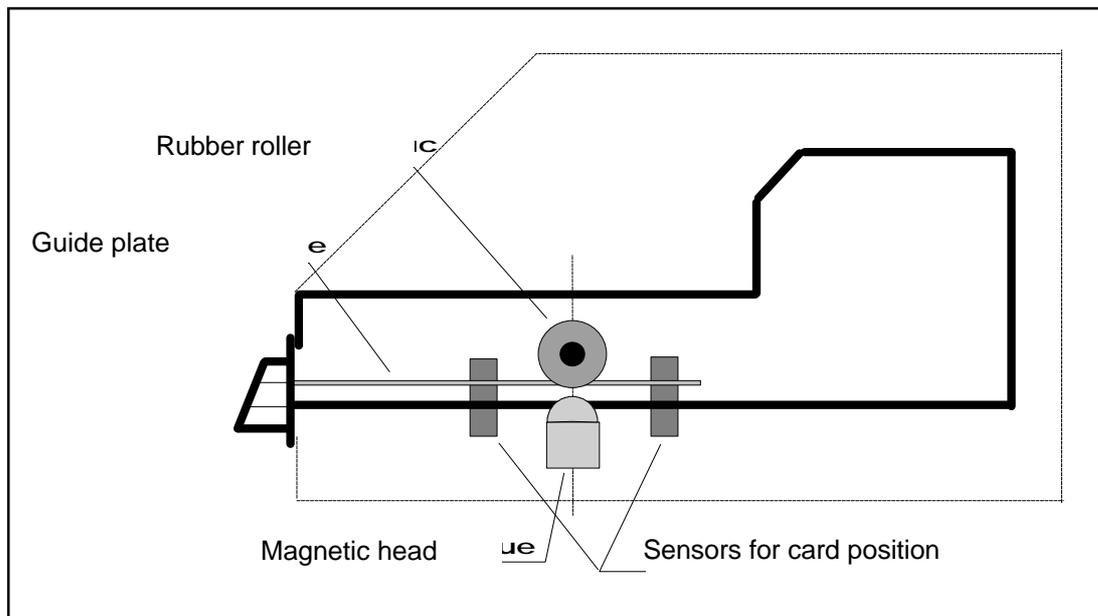
To get good operation from the unit, the following care is advisable :

- clean rubber driving roller with a cloth soaked in alcohol.
- clean magnetic head with a cleaning card soaked in alcohol.
- dedust reader assembly with a compressed air spray.

The frequency of this process depends on the working environment. If **CARTADIS TC41** is installed in an office, then these operations can be considered as required every 20000 transactions, or every six months if this number of transactions is not reached.

The cleaning process must be carried out with the unit disconnected, this applies also for cover removal and replacement.

In order to easily locate the components to be cleaned, refer to the reader sectional view on the next page.

*TC41 reader sectional view*

---

# TROUBLE- SHOOTING

## SCREEN REMAINS OFF

**If unit beeps when connected and top pilot light is on.**

Remove **TC41** cover, then :

- Check display cable connection.
- Adjust display contrast with the adjustable resistor located under keyboard connector on left hand electronic board. **Do not remove electronic boards.**

**If unit does not beep when connected and top pilot light is off.**

It is still a wiring problem :

- Check the connection of the power supply case.

## NO ENABLE TO THE EQUIPMENT WITH A USER'S CARD (within TIMER MODE)

**If center pilot light is on.**

It is still a wiring problem :

- Check copier SHUNT grey and dark blue wire connection.

**If center pilot light is off.**

The problem relates to the user's card involved. Note the message displayed by **TC41**, then refer to Section "**List of messages**".

**TC41 DISPLAYS "MEMORY ERROR"**

A memory error has occurred as a result of : hardware trouble, major electric interference, disconnected electronic cards, etc. To clear this error, just insert "Administration" card into the unit again.

**Attention** : You should not insert the "Administration" card of another **TC41**, otherwise unit serial number will change for the one written on this card.

Message "Memory Error" appears when **TC41** detects that some information which was stored in its memory has been modified without any reason. This damaged information can be related to user's accounts or internal parameters of **TC41**. For greater diagnosis accuracy, **TC41** displays a figure after message "Memory Error", which means :

- "1" means that the error lies among internal parameters of **TC41**. Inserting "**Administration**" card to clear this error will automatically regenerate all parameters of **TC41** : these parameters are present on the magnetic track of the card, from which **TC41** will read them again.
- "2" means that the error lies in user's data. Inserting "**Administration**" card will clear the error, but not regenerate distorted information. A readout of accounts and departments has to be made, in order to check the extent of memory error.
- "3" means that the error is the accumulation of both the above.

**CARTADIS technical assistance**  
**phone : (33) 1 48 77 40 60**  
**or fax : (33) 1 48 77 64 15**

---

## LIST OF MESSAGES

<b>Blank card</b>	This is a new card, ready for recording.
<b>Unknown card</b>	This card has not been read by <b>TC41</b> in spite of several attempts, it is demagnetized, physically damaged, or it is not an original CARTADIS card.
<b>Illegal card</b>	This is a true CARTADIS card, but this type of card is not the one presently expected by TC41. E.g. attempt to record an "Administration" or "Operator" card.
<b>Worn card</b>	Attempt to record a card which has carried out over 3000 transactions.
<b>Card jam</b>	Card is jammed inside the unit for mechanical reasons. Plug <b>TC41</b> out and in. If message comes on again, cut off power supply, then open cover and pull card out.
<b>Illegal extract</b>	This card has not been recovered from the unit by usual means. This is an attempted fraud or a hardware breakdown.
<b>Write error</b>	<b>TC41</b> cannot write the new number of units still available. The number of units displayed on screen is the balance of units of this card, it has to be noted and refunded to user. Plug <b>TC41</b> out and in, generally card is definitively destroyed.
<b>Group error</b>	The magnetic track of this card does not have the same group number as <b>TC41</b> . The group number of a user's card can be changed by recording function initialized with " <b>Idem, Idem, Idem</b> ".

- Serial Error** This "Administration" card does not correspond to this **TC41**.
- Account xx locked** The user in possession of account "xx" is refused access to **TC41**, since the Administrator has locked his account with "Lock Unlock" function.

**10**

---

# TECHNICAL SPECIFICATIONS

<b>TYPE</b>	TC41
<b>FUNCTION</b>	Magnetic card unit (or currency) management
<b>ELECTRONICS</b>	Very high scale integrated 16 bit microcontroller
<b>MEMORY</b>	1000 accounts battery backed (10 years)
<b>OPERATING CONDITIONS</b>	
Moisture	20% à 90% RH
Temperature	10 - 50°C
<b>USE</b>	indoors only
<b>DIMENSIONS</b>	130 (L) x 95 (H) x 180(D) mm
<b>WEIGHT</b>	1.7 kg
<b>POWER SUPPLY</b>	24V DC via external power supply case
<b>POWER CONSUMPTION</b>	95 mA idle 600mA for 0,05sec. at motor start 250mA during motor rotation

**CONNECTION**

RS232

**COUNTERS CAPACITIES**

Account

7 digits, i.e. max.:  
if non-decimal mode 9 999 999  
if decimal mode 99 999,99

Card value

6 digits, i.e. max.:  
if non-decimal mode 999 999  
if decimal mode 9 999,99

Totals

8 digits, i.e. max.:  
if non-decimal mode 99 999 999  
if decimal mode 999 999,99**Manufacturer**CARTADIS - Fontenay-sous-Bois FRANCE  
phone: (33) 1 48 77 40 60

