



TECHNICAL AND MAINTENANCE MANUAL



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REVIEWS CHART

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1. INTRODUCTION

This manual contains information and basic procedures for the installation and maintenance of the ONDA S cash register; it must be used together with the programming and user's manual.

1.1 TECHNICAL CHARACTERISTICS

Power Supply: DC 12V MAX 3A

Operating temperature: 0 to +50 °C

Thermal Printer: ELM 208

Thermal Paper Rolls: 1 x 57.5 mm max diameter 50 mm

E.J.: MMC

Connection of the ONDA S cash register to the power grid is done by means of an easily accessible electric outlet, located near the device and equipped with grounding. The device must not be exposed to rain or humidity.

This device is compliant to European directives EMC 89/336/EEC and LVD 73/23/EEC (EC marking). In order to guarantee compliance to safety and electromagnetic compatibility norms, use original spare parts only. In case of the power supply should fail, replace it entirely. Respect original positioning of all cables.

The builder is not responsible for any damage the product may cause in case of: improper use, non-compliant installation with norms in force, technical assistance that is not authorized or that does not respect instructions supplied, the use of non original spare parts, or the removal of parts that are fundamental for safely using the device.

1.2 OPERATION

The ONDA S cash register has been specifically studied for the markets for the emission of receipts on thermal paper and the storage of the journal on E.J. (Electronic Journal: MMC support).

The cash register must only use homologated specific thermal paper rolls in order to guarantee the permanence of registered date on paper.

Norms on cash registers give the following indications for the use and storage of rolls and daily reports:

- Daily report rolls and receipts must be stored in appropriate areas: temperature must not exceed 35°C, humidity must not exceed 80%.
- Rolls and receipts must not come into contact with PVC; this avoids the risk of erasing the writings.

Thermal paper rolls for cash registers must be used before the expiration date written on the roll itself.

CHECK BEFORE INSTALLATION

- That the feeder cable is easily accessible by the user, and therefore located close to the device. If necessary, it must be possible to easily find the electrical outlet so that the plug can be removed if necessary.
- That the serial number printed on the cash register corresponds to the one indicated on the serial plate.

1.3 PREPARATION BEFORE USE

Insert the thermal paper roll (only use homologated high-quality rolls, fit for use with cash registers).

Turn on the device and verify the following:

- Test the display, the keyboard and the printer according to the instructions contained in the auto-diagnostics chapter of this manual.
- Check if the fiscal memory has already been initialized.

1.4 CASH REGISTER START-UP

Carry out periodical testing according to the instructions required by the authorized laboratory that is responsible for the cash register's start up.

2. SERVICE MODE

To enter the SERVICE mode, press **5 + [KEY]**.
 Insert the password **555**, and then press **[CASH]**.
 Press **[+%**] to enter the circular function menu.

2.1 AUTOMATIC RECEIPT

In the **SVR** mode (5 and [KEY]), press **[+%**] to visualize “**Auto receipt**” (Automatic receipt).

- SERVICE -
Auto receipt

A) press the [CASH] key

TIME INTERVAL ?
0

B) insert the length of the interval in seconds between the emission of one receipt and the next. Press [CASH].

Note: it is not possible to execute automatic receipts leaving the default value to zero.

Press the **[CL]** key to exit.

The display returns to the main menu; to exit the menu press [Void].

```

RCH S.P.A.
VIA CENDON, 39
SILEA (TV)
VAT CODE

TEST RECEIPT N. 0001

CLK#1
N.0001 11/03/10 12:50
  
```

Example of an automatic receipt

Each new receipt increments an automatic receipt counter.

2.2 PRINT TEST

In the **SVR** mode (5 and [KEY]), repeatedly press the **[+%**] key to visualize “**Print test**”.

- SERVICE -
Print test

A) press [CASH]

A receipt is printed to test the integrity of the printer head.

The display returns to the main menu; to exit the menu press [Void].

2.3 PRINTER DARKNESS

In the **SVR** mode (5 and [KEY]), repeatedly press the [+%] key to visualize “**Print intensity**” (*Printer darkness*).

- SERVICE -
Print intensity

A) Press [CASH]



INTENSITY (0 - 4)?
2

B) Insert a number from 1 to 4 depending on the darkness required for the receipt. Default value is 2. After inserting the number press [CASH].



The display returns to the main menu; to exit the menu press [Void].

NOTE: a higher darkness value increases the emission time of the receipt; the appropriate value depends on the sensibility of the thermal paper.

2.4 BATTERY CHECK

This function allows to set the voltage threshold value of the external battery (only for factory test). If battery voltage goes below a programmed value, after emitting the receipt the device indicates the problem of insufficient electrical Power Supply on the display.

- SERVICE -
Battery Check

A) Press [CASH]



CHECK. BATTERY ?
ON / <OFF>

B) The OFF value is preset for the ONDA S device; press [%-] and the [CASH] key to enable checking



WARNING LEVEL ?
10,5

B) Default value is 10,5 V (recommended by RCH), but can be manually changed depending on the battery connected. Press [CASH]



The display returns to the main menu; to exit the menu press [Void].

2.5 BATTERY VOLTAGE

This function allows to visualize current battery voltage on the display.

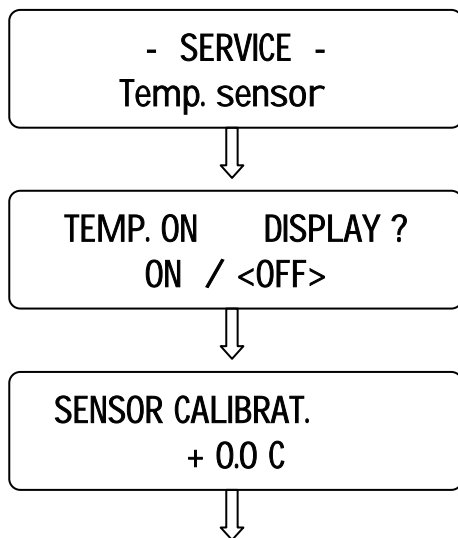
In the **SVR** mode (5 and [KEY]), repeatedly press the [%+] key to visualize “**Battery Voltage**”, and press the [CASH] key to visualize the value.

To exit the menu press [Void].

2.6 TEMPERATURE SENSOR

This function allows to enable the current temperature of the room on the Operator’s display.

In the **SVR** mode (5 and [KEY]), repeatedly press the [%+] key to visualize “**Temp. sensor**”.



A) Press [CASH]

B) The OFF value is preset for the ONDA S device; press [%-] and the [CASH] key to enable the visualization on the Operator’s display, along with the date and time of the day.

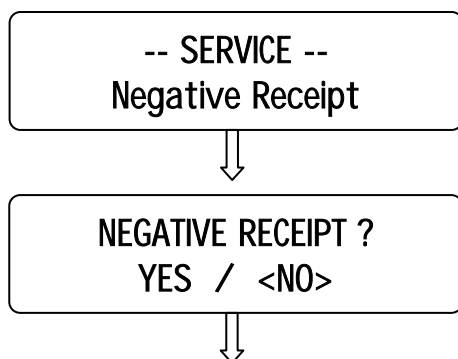
C) The Sensor Calibration parameter (default is zero) allows to vary the temperature shown on the display from -5 to +5 degrees; this allows to calibrate the value according to the room’s climatic conditions. Use the [%+] and [%-] keys to change the value; each time a key is pressed temperature is changed by +/- half a degree. Press the [CASH] key to confirm calibration.

The display returns to the main menu; to exit the menu press [Void].

2.7 NEGATIVE RECEIPT

ONDA S not fiscal version gives the possibility to issue negative receipts.

To enable this function, enter the **SRV** mode (5 + [KEY]), and scroll the menu with the [%+] key until “**Negative Receipt**” is visualized.



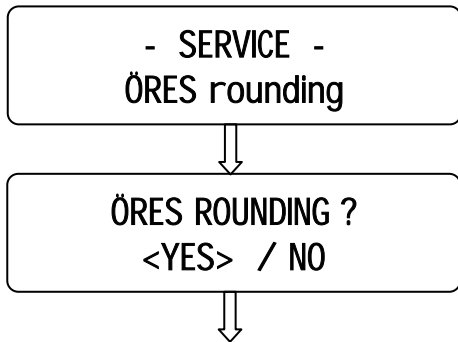
A) Press [CASH] to start.

B) Press the [%-] key and then press [CASH] (<YES>) to enable the possibility to issue negative receipts, or else press [%+] and then press [CASH] (<NO>) to have the possibility to issue only positive receipts.

The display returns to the main menu; to exit the menu press [Void].

2.8 ÖRES ROUNDING

This function allows to enable/disable the 5 cent rounding of the total and of the change. To change the Öres rounding setting, enter in **SRV** Mode (5 + [KEY]), repeatedly press the [%+] key to visualize “**Öres rounding**”.



A) Press [CASH]

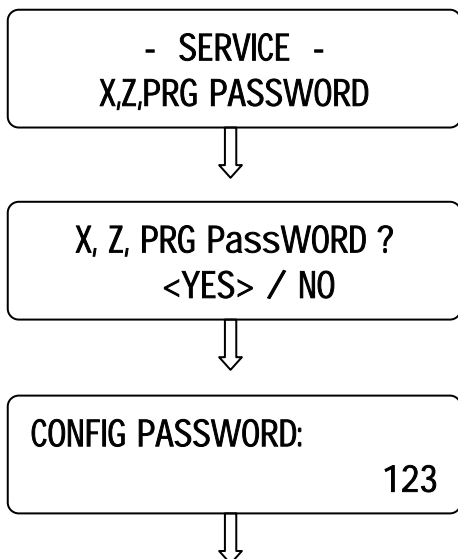
B) Press the [%-] key and [CASH] to enable the rounding function (<YES>), or press the [%+] key and [CASH] key to disable.

The display returns to the main menu; to exit the menu press [Void].

2.9 ENABLING THE X,Z,PRG PASSWORD

In SERVICE mode, you can use the X, Z, PRG PASSWORD function to set a numeric password of up to four digits. You can change the password at any time by returning to the password function and entering the existing password. If you forget or lose the password, the only way that the technician changes it in SRV mode.

In **SRV** (5 [KEY] 555 [CASH]) press [%+] repeatedly until **X,Z,PRG PASSWORD** appears.



A) Press the [CASH] key.

B) Press the [%-] key and [CASH] to enable the password in X, Z, PRG mode (<YES>), or press the [%+] key and [CASH] key to disable.

C) Enter the new password (up to four digits). The actual numbers are displayed so that you can check them. Once you have entered the complete new password, press CASH.

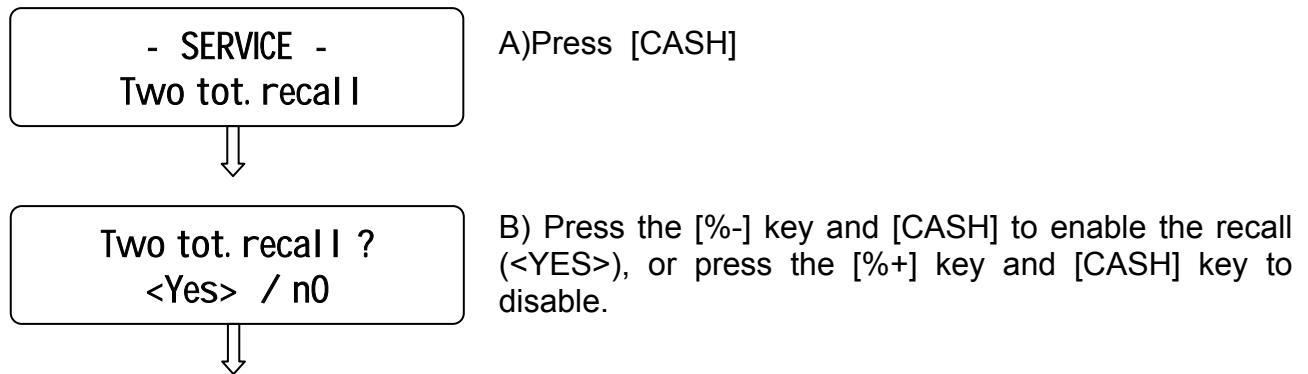
The display returns to the main menu. Press [VOID] to quit the menu.

NOTE: If the password exceeds three digits, a point (dot) is displayed after every group of three figures you enter. This character has no influence on the remaining figures in the password. For example, if you enter the password 1234, as you proceed the display will read out 1.234. The dots must not be entered when you enter the password.

2.10 RECALL OF THE LAST TWO TOTALS

This function allows to enable the recall of the last two totals pressing the [SUBTOTAL] key in REG mode.

In the **SVR** mode (5 and [KEY]), repeatedly press the [%+] key to visualize “**Two Tot. recall**”.



The display returns to the main menu; to exit the menu press [Void].

2.11 ORGANIZATION NUMBER, SERIALIZE ECR, ACTIVATE E.J.

The instructions below are referred to the activation of the ECR

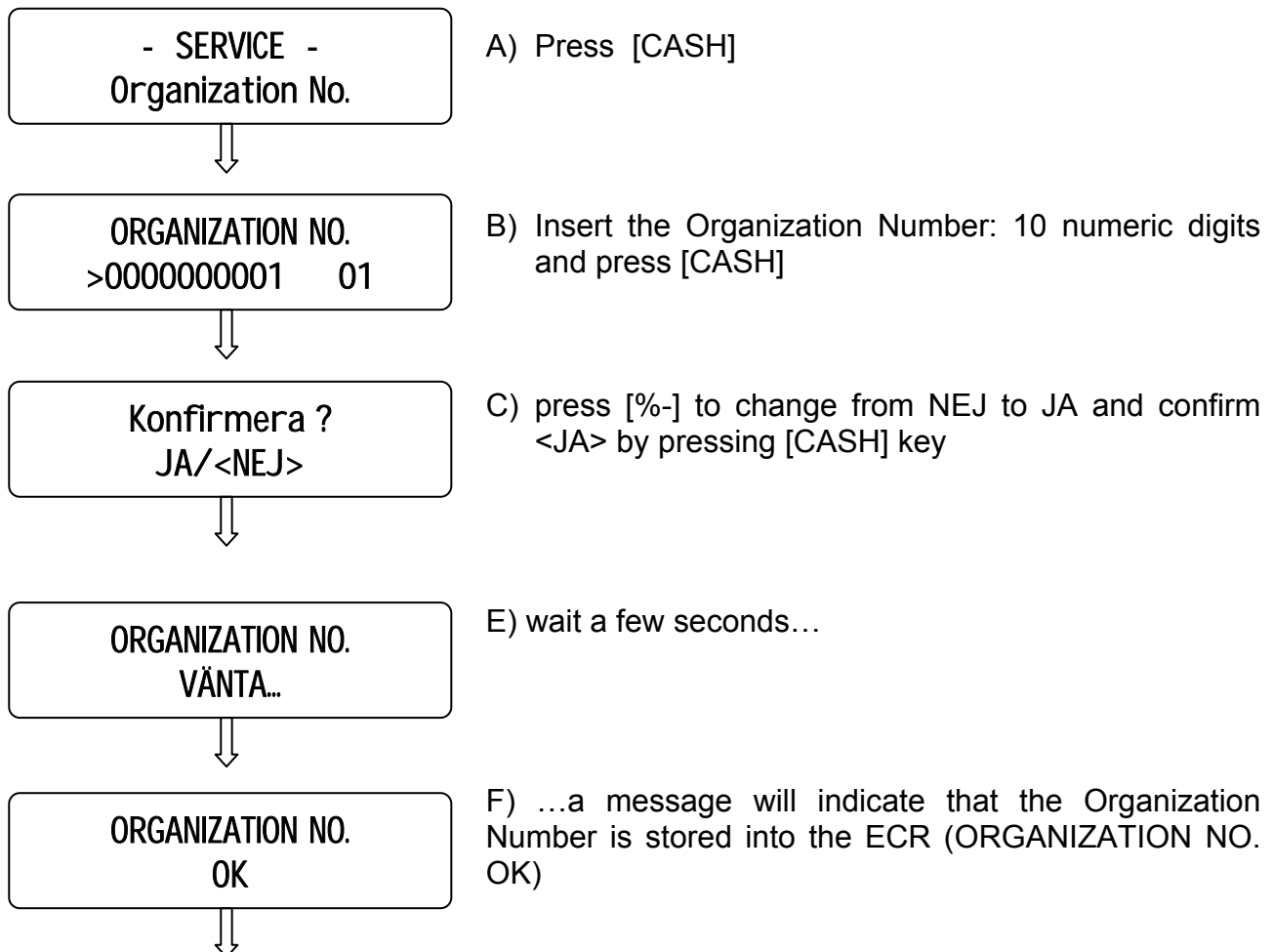
2.11.1 FIRST CONFIGURATION

STEP 1: SET ORGANIZATION NUMBER

To enter in SVR mode:

- Press 5 and KEY
- Insert password 555,
- Confirm by CASH

In the **SVR** repeatedly press the [%+] key to visualize “**Organization No.**” (Set Organization Number).



The display returns to the main menu; to exit the menu press [Void].

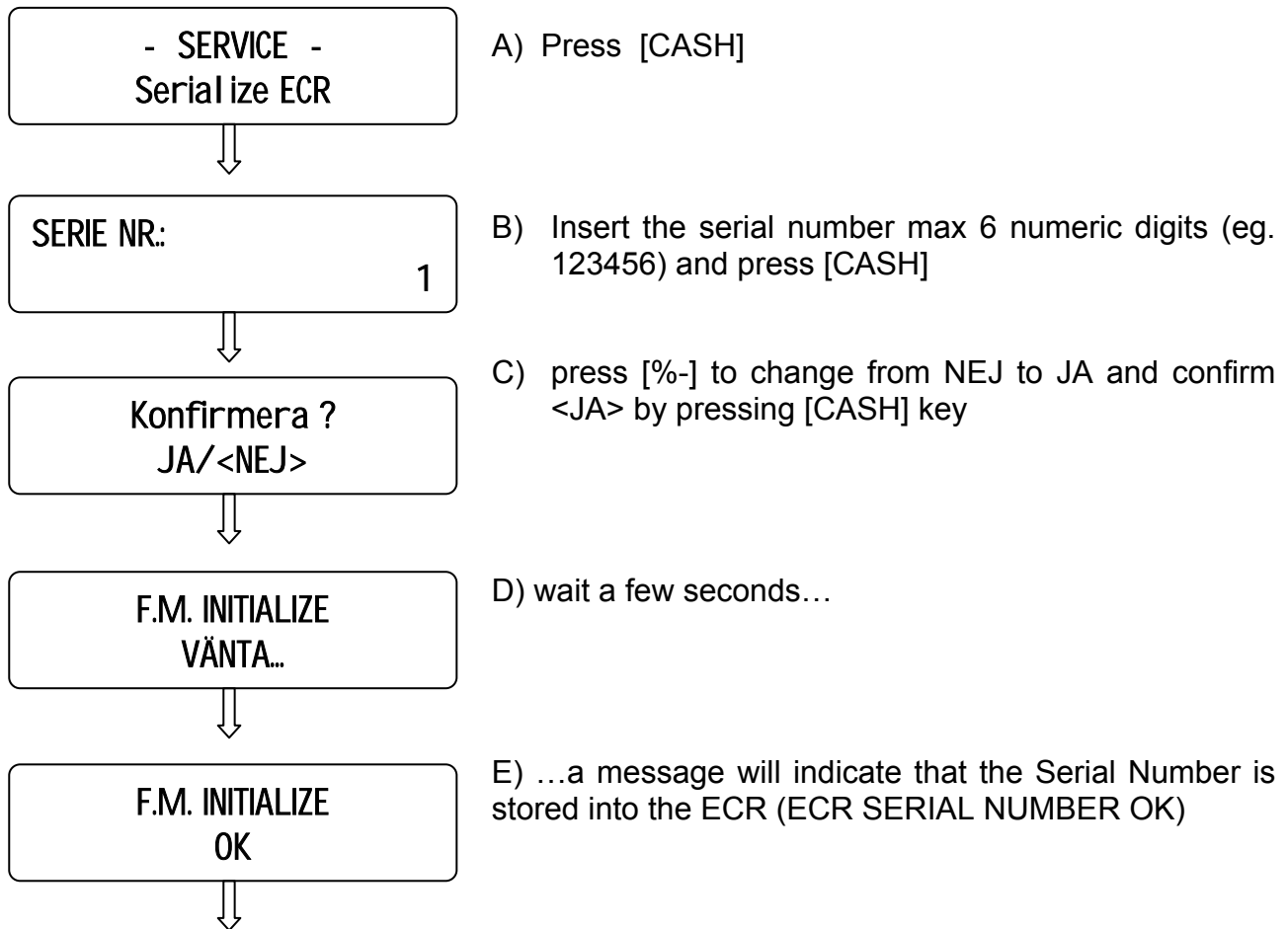
NOTE: if the Organization Number has been inserted yet, you'll visualize the following message on the clerk display: “ORGANIZATION NR. INITIALIZED! [CL]”, press [CL] to returns to the main menu.

STEP 2: SERIALIZE ECR

To enter in SVR mode:

- Press 5 and KEY
- Insert password 555,
- Confirm by CASH

In the **SVR** repeatedly press the [%+] key to visualize “**Serialize ECR**” (Set ECR Serial number).



The display returns to the main menu; to exit the menu press [Void].

NOTE 1: if the Serial Number has been inserted yet, you'll visualize the following message on the clerk display: “ECR ÄNNU EJ SERIALIZED! [CL]”, press [CL] to returns to the main menu.

NOTE 2: : if the ECR has been activated yet, you'll visualize the following message on the clerk display: “E.J. ÄNNU EJ AKTIVERAD! [CL]”, press [CL] to returns to the main menu.

STEP 3: ACTIVATE E.J. (Electronic Journal - MMC)

Before proceeding with the activation of the Electronic Journal be sure that:

- Cash register is serialized (see step 2)
- A new MMC is inserted in the apposite slot next to the serial port.
- Control Box is correctly connected to the serial port of ONDA S

This function enabled the write into Electronic Journal and it must be done just at the first installation of cash register.

To enter in SVR mode:

- Press 5 and KEY
- Insert password 555,

Confirm by CASH

In the **SVR** mode repeatedly press the [%+] key to visualize "**Aktivera E.J.**" (*Activate Electronic Journal*).

- SERVICE -
AKTIVERA E.J.

A) Press [CASH]

AKTIVERA E.J.
JA/<NEJ>

B) Press the [%-] key and [CASH] key to initialize the first E.J. and confirm <JA> by pressing [CASH] key, otherwise press the [%+] key and [CASH] to exit the procedure.

DAG: 11

C) Insert the **day** and press [CASH]
Insert the **month** and press [CASH]
Insert the **year** and press [CASH]

TIM: 15

D) Insert the **hours** and press [CASH]
Insert the **minutes** and press [CASH]

NY LÖP.NR.
0

E) Insert the current number of the fiscal sale receipt (0) and press [CASH]

NY DOKUMENT NR.
0



F) Insert the current number of the document (0) and press [CASH]

NY Z RAPPORT NR.
0



G) Insert the current number of the Z daily report (0) and press [CASH]

After the setup of Date/Time and the receipts number, it's displayed:

SÄTT IN NY MMC tryck
på tangent



H) press the key [CASH]

AKTIVERA E.J.
OK



I) After a few seconds a message will indicate E.J. initialization; a receipt is printed with the initialization date of the first E.J. (electronic journal).

J) When "OK" is visualized, press [CASH] to exit.

EJ Activation completed

ECR is ready to work with the control box

```

** EJ FISKAL **

E.J. 01 INITIALIZED
DATUM 01/05/12 TID 15:30

CLK 1
    01/05/2012 15:30
DOK.NR. 00000001

** EJ FISKAL **

```

Example of EJ Activation receipt

The display returns to the main menu; to exit the menu press [Void Receipt/Void].

IMPORTANT NOTE: After every total reset or upgrade procedure, ECR is no longer active. You must repeat Step 1, 2 and 3 to restart to work.

NOTE: : if the Electronic Journal has been activated yet, you'll visualize the following message on the clerk display: "E.J. ÄNNU EJ AKTIVERAD! [CL]", press [CL] to returns to the main menu.

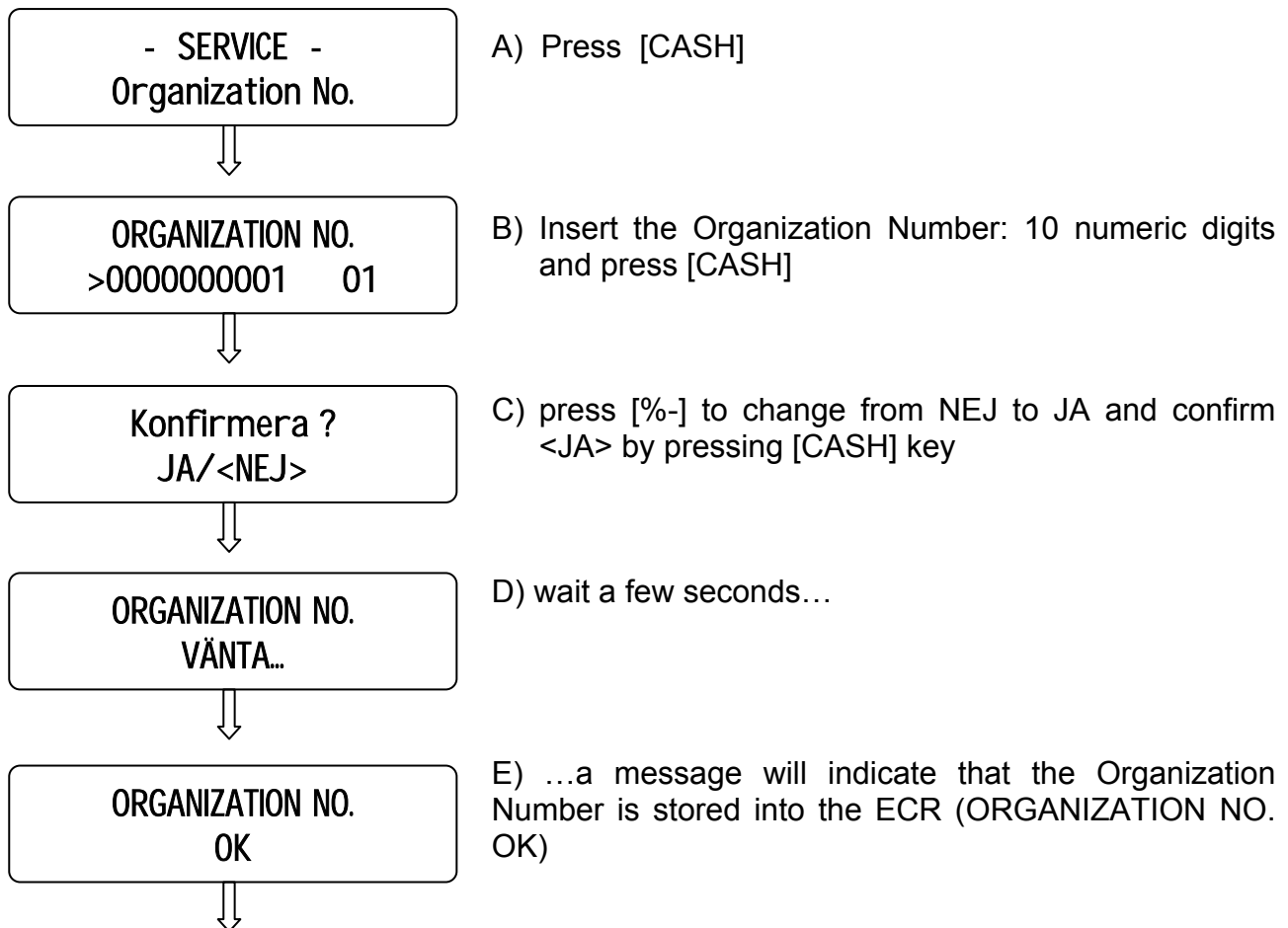
2.11.2 RECOVERY AFTER A HW-INIT PROCEDURE

STEP 1: SET ORGANIZATION NUMBER

To enter in SVR mode:

- Press 5 and KEY
- Insert password 555,
- Confirm by CASH

In the **SVR** repeatedly press the [%+] key to visualize “**Organization No.**” (Set Organization Number).



The display returns to the main menu; to exit the menu press [Void].

NOTE: if the Organization Number has been inserted yet, you'll visualize the following message on the clerk display: “ORGANIZATION NR. INITIALIZED! [CL]”, press [CL] to returns to the main menu.

STEP 2: SERIALIZE ECR

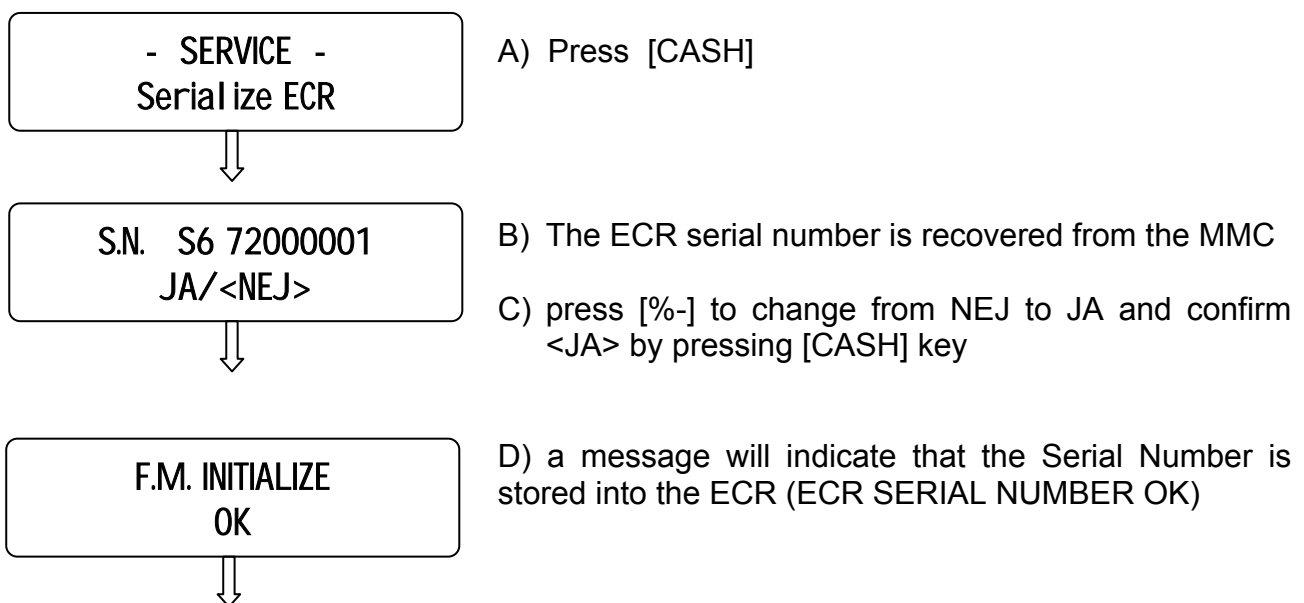
Before proceeding with the ECR serialization be sure that:

- The MMC used before the reset is inserted in the apposite slot next to the serial port.

To enter in SVR mode:

- Press 5 and KEY
- Insert password 555,
- Confirm by CASH

In the **SVR** repeatedly press the [%+] key to visualize “**Serialize ECR**” (Set ECR Serial number).



The display returns to the main menu; to exit the menu press [Void].

NOTE 1: if the Serial Number has been inserted yet, you’ll visualize the following message on the clerk display: “ECR ÄNNU EJ SERIALIZED! [CL]”, press [CL] to returns to the main menu.

NOTE 2 : if the ECR has been activated yet, you’ll visualize the following message on the clerk display: “E.J. ÄNNU EJ AKTIVERAD! [CL]”, press [CL] to returns to the main menu.

NOTE 3 : if you set “S.N. S6 72xxxxxx JA/<NEJ>”, you can set the Serial Number of the ECR manually. MMC changed is required and go to the Step 3 of the chapter: “*First Inizialization*”.

STEP 3: ACTIVATE E.J. (Electronic Journal - MMC)

Before proceeding with the activation of the Electronic Journal be sure that:

- Cash register is serialized (see step 2)
- The MMC, used before the reset, is inserted in the apposite slot next to the serial port.
- Control Box is correctly connected to the serial port of ONDA S

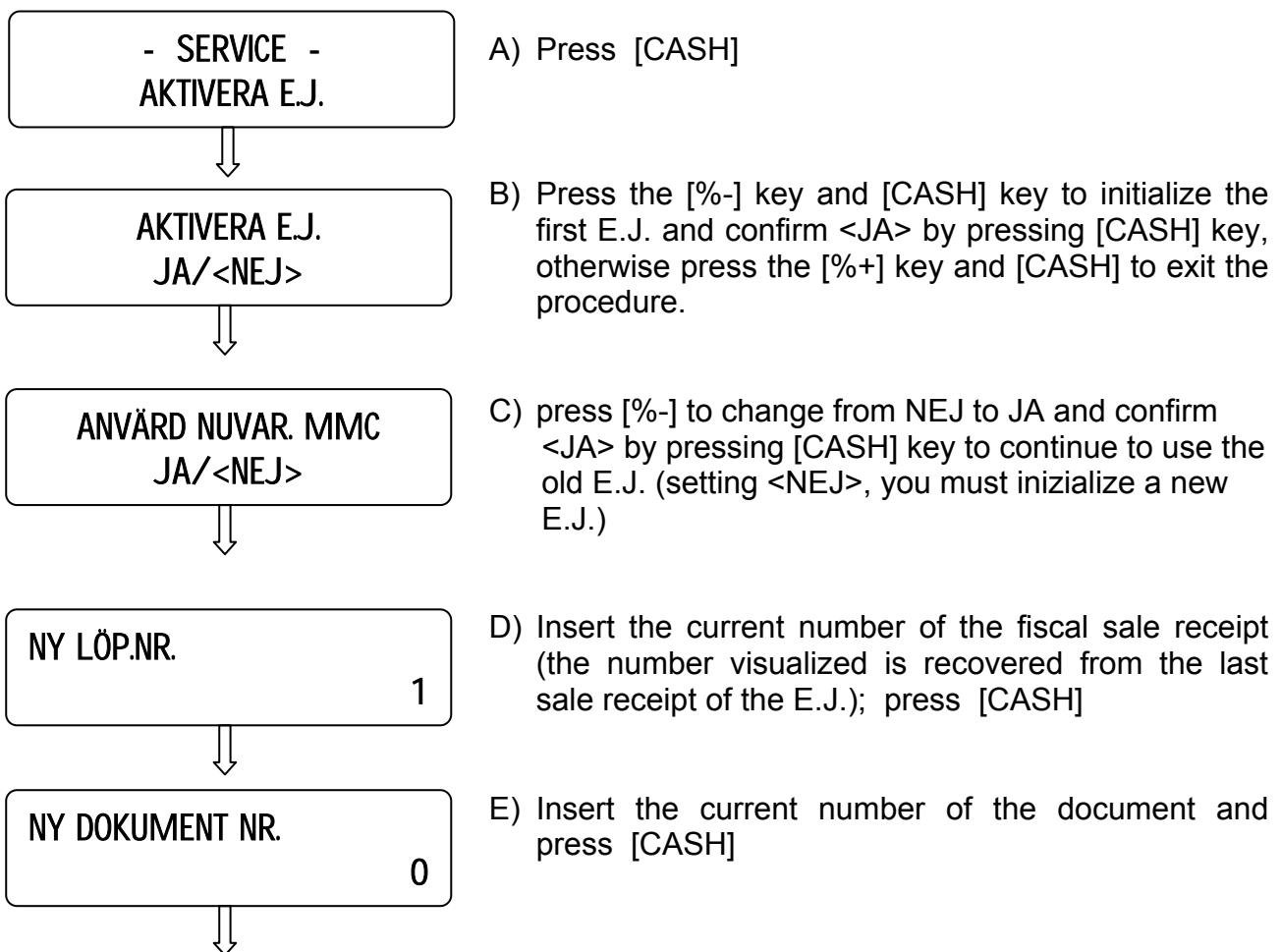
This function recover the Electronic Journal used before the Hw-Init procedure, and its content.

To enter in SVR mode:

- Press 5 and KEY
- Insert password 555,

Confirm by CASH

In the **SVR** mode repeatedly press the **[+%]** key to visualize "**Aktivera E.J.**" (*Activate Electronic Journal*).



NY Z RAPPORT NR. 0



AKTIVERA E.J. OK



EJ Activation completed

F) Insert the current number of the Z daily report and press [CASH]

G) After a few seconds a message will indicate E.J. activation.

ECR is ready to work with the control box

The display returns to the main menu; to exit the menu press [Void].

NOTE: : if the Electronic Journal has been activated yet, you'll visualize the following message on the clerk display: "E.J. ÄNNU EJ AKTIVERAD! [CL]", press [CL] to returns to the main menu.

2.12 LOADING GRAPHICS

In the **SVR** mode (5 and [KEY]), repeatedly press the [**+%]** key to visualize “**Load logo**” (*Loading Graphics*).

With the ONDA S device it's possible to manage:

- 1 programmable STORE LOGO (receipt heading logo)
- 4 standard (present by default) + 1 programmable (receipt end logo) HALO LOGOS

2.12.1 LOGO DIMENSIONS

The STORE LOGO and the HALO LOGO (footer) have the same fixed dimension: **384 x 156** pixels (width x height), which correspond to 7,37 Kb and must be saved in a monochromatic bitmap format (**.bmp**).

Create your Logos respecting the dimensions and the format indicated. Please avoid using long horizontal lines for the logos, since they are particularly severe on the type of thermal printer currently used for the ONDA S device. It is advised to use less than 1/3 the dots available per printing line, which means using black for less than 30% on each single printing line. If this warning is not respected when printing the logo, the ONDA S device may signal “*E60: PAPER OUT*” (end of paper). In this case, modify the logo by significantly reducing the amount of black present in the logo.

Example of compliant logos



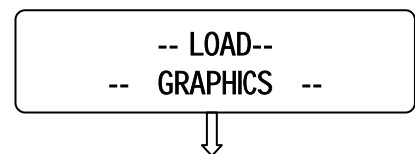
Example of non-compliant logos



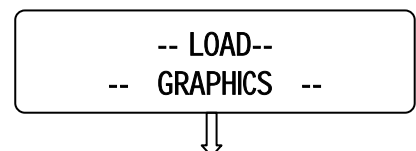
2.12.2 LOADING THE LOGOS

Once the logos have been created and saved (heading and/or footer) proceed as follows:

- From the RCH website, download the GRLOGO program for loading the logos on the ONDA S device (attached to the ONDA S firmware version).
- Connect the cable (ONDA S - Pc) between the serial port of the PC and the serial port 1 of the ONDA S device.
- Launch the GRLOGO program (with WIN 2000 or higher O.S.) present in the *PROGRAMMA_CARICO_LOGO* folder; the program window appears.
- Select the COM used for the connection between the PC and the ONDA S device in the lower left box.
- From the **Work Directory** box, select the folder that contains the logo.
- Select the logo (.bmp file) from the **Bitmap Select** box. Note: The **Rom File Select** box is not used.
- After selecting the Logo to insert before the receipt heading (visible in the preview), checkmark the **TO AREA 1** box.
- Now operate on the ONDA S device; in SERVICE mode (5 and [KEY]), with the **LOAD LOGO** function (loading graphics), press [CASH]



- Using the mouse, press the **TRANSMIT** button within the next ten seconds. A beep of the ONDA S device and a progress bar on the PC's monitor indicate the reception of the logo by the cash register.
- From the PC, select the Halo logo (footer) to insert at the end of the receipt (visible in the preview) and checkmark the **TO AREA 2** box.
- Now operate on the ONDA S device; in SERVICE mode (5 and [KEY]), with the **LOAD LOGO** function (loading graphics), press [CASH]



- Using the mouse, press the **TRANSMIT button** within the next ten seconds. A beep of the ONDA S device and a loading bar on the PC's monitor indicate the reception of the logo by the cash register.
- The display returns to the main menu; to exit the menu press [Void Receipt/Void].
- Close the GRLOGO application on the PC (clicking on the **X** in the upper right-hand corner of the active window).

2.12.3 ENABLING LOGO PRINTING ON THE RECEIPT

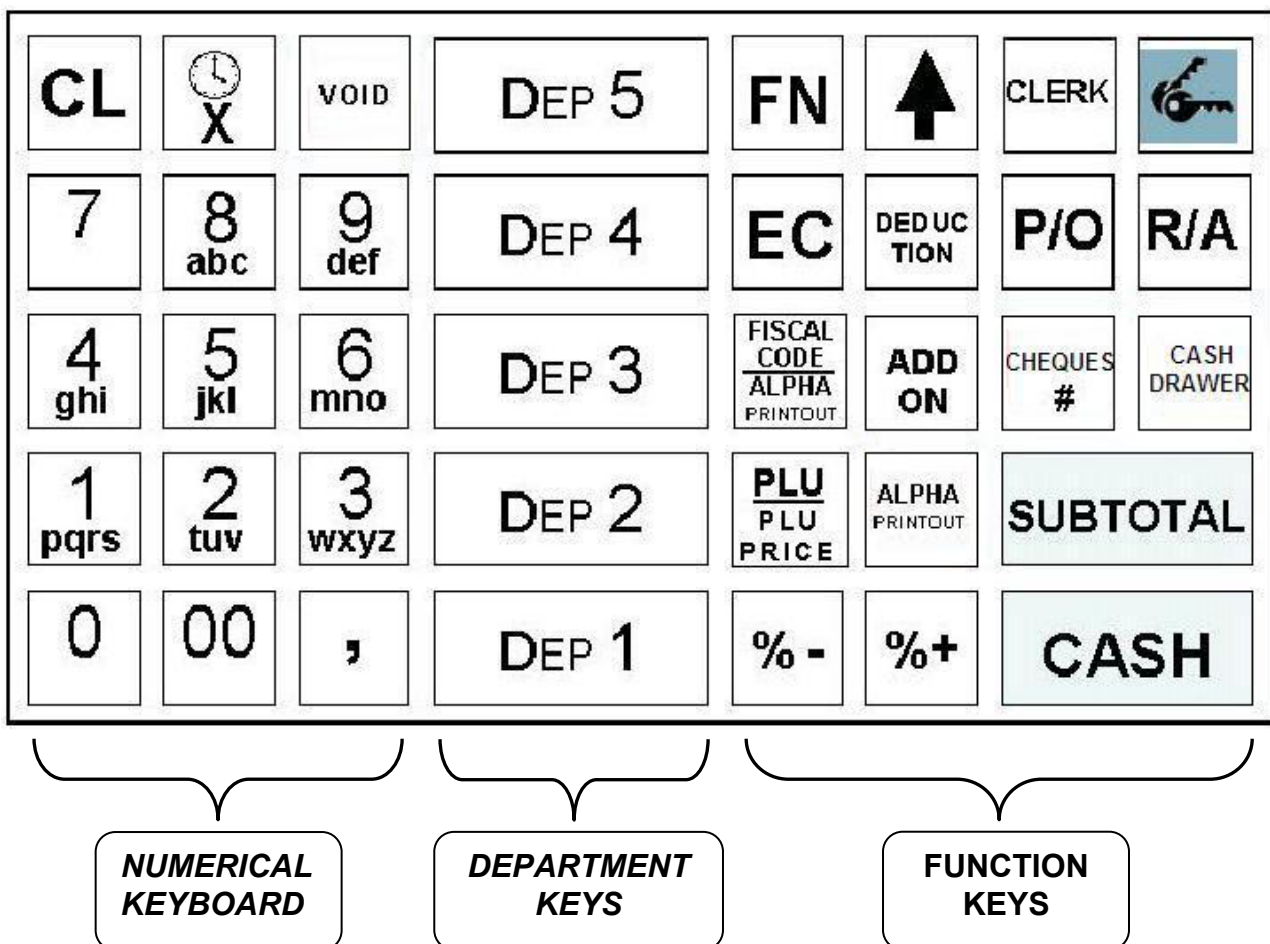
To enable logo printing on the receipt, switch to Programming mode **PRG** (4 + [KEY]) and press the [+%] key to visualize the **Header Msg** (Heading) function to enable the Store Logo, and then the **Footer Logo** (Footer) function to enable the Halo Logo.

Press [CASH] to enter function programming, followed by the [+%] key to visualize “(-SELECT LOGO-) **by user** ”; confirm using the [CASH] key. The ONDA S display visualizes the request for inserting heading lines. If programming the header is not necessary, exit programming by pressing the [Void Receipt/Void] key.

2.12.4 PRINTING LOGOS ON THE RECEIPT

After enabling Logo printing in the Programming mode, switch to Registration mode (1 + [KEY]) and start emitting a receipt. The Halo logo will be printed at the end of the receipt, and starting from the following receipt the Store logo will always be printed as well.

2.13 KEYBOARD CONFIGURATION



It is possible to personalize the supplied keyboard by positioning the single keys in a different location (see the figure above) according to specific operator needs. The keys that can be moved are the DEPARTMENT and FUNCTION keys.

To reposition some of the keys, switch to SERVICE mode (5 + [KEY]) and scroll the menu using the [+%] key until “**Keyboard Config**” (Keyboard Configuration) is visualized.

- SERVICE -
Keyboard config

Press [CASH] to start.

FUNCTION CODE ?
0

Each repositionable key is identified by a code as shown in the following table

Code	FUNCTION	Code	FUNCTION
1	SUBTOTAL / HELP (Subtotal / Help)	From 16	From DEP 1 (Department 1)
2	KEY (Key)	To 25	To DEP 10 (Department 10)
3	CLERK (Operator)		
4	PAPER FEED (Paper advance)	From 26	From DEP 11 (Department 11)
6	EC (Cancel)	To 35	To DEP 20 (Department 20)
7	ALPHA PRINTOUT (Alphanumerical String)		
8	FISCAL CODE / ALPHA PRINTOUT (Fiscal Code / Alphanumerical String)	36	TOTAL 1 CASH (Total 1 Cash)
9	PLU/PLU PRICE (PLU Price)	37	TOTAL 2 (CHEQUE)
10	DISCOUNT (Deductions)	38	TOTAL 3
11	ADD-ON (Increases)	40	VOID
12	P/O (Withdrawals)	41	E.J. LAST RECEIPT
13	R/A (Proceeds)	61	NO FUNCTION
14	+ % (scroll ahead)	62	FN (Second function)
15	- % (scroll back)		

Digit the function's code and press the [X/Hour] key;

PRESS KEY
TO CONFIGURE

Press the key where the function is to be positioned.

The display visualizes the request for any further insertion of a code; continue until all the functions on the keys are repositioned.

To exit press the [VOID] key.

If a certain function is programmed on another key, the function itself will remain on the default key until it's not replaced with another function. For example, if the [EC] function is programmed on the default [P/O] key, the keyboard will have two keys with the [EC] function. It is therefore necessary to configure the default [EC] key with another of the available functions.

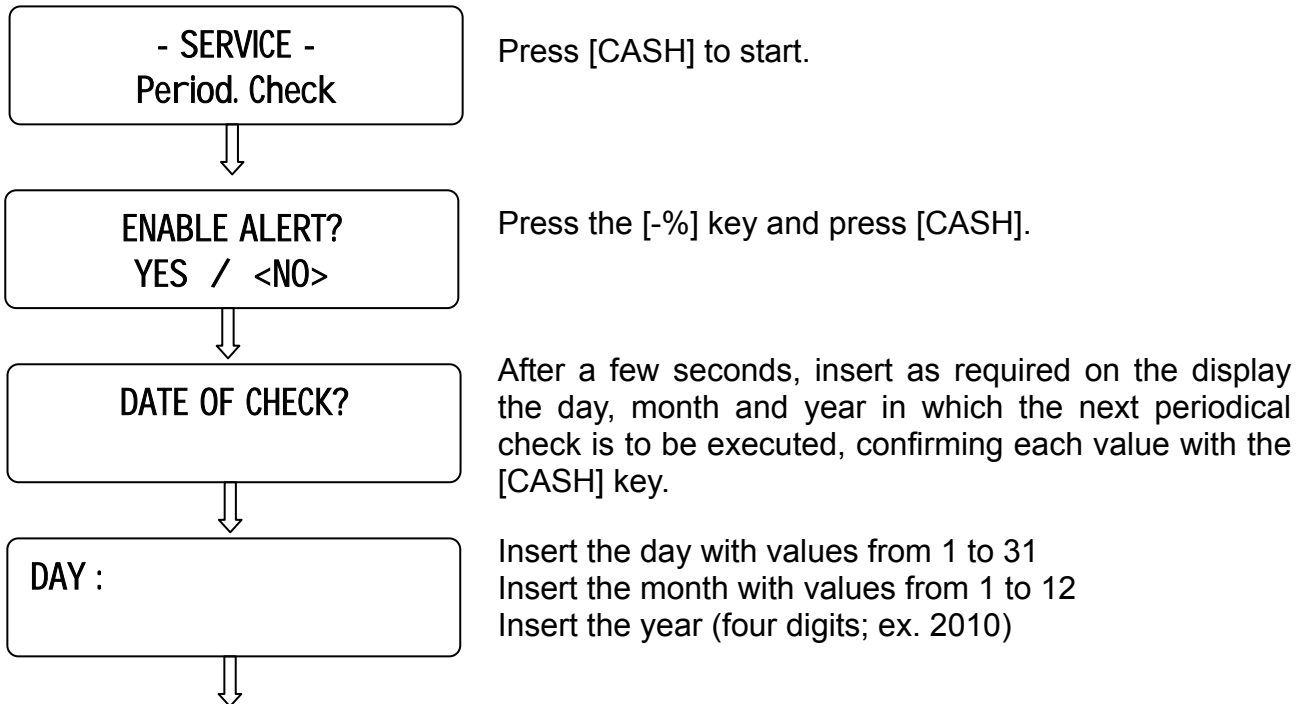
If the ECR is reset, new configurations are deleted and the keyboard returns to its default configuration.

NOTE: Pressing the [X/HOUR] key without inserting a code prints the list of all the function keys and their related code.

2.14 PERIODICAL CHECKING

This procedure allows to enable an acoustic and visual signal when the register is turned on, so that the service center can carry out the annual **periodical check**.

By default, the check is disabled; enable it by entering the SERVICE mode (5 + [KEY]) and scrolling the menu with the [-%] key until **“Period. Check ”** (Periodical Check) is visualized.



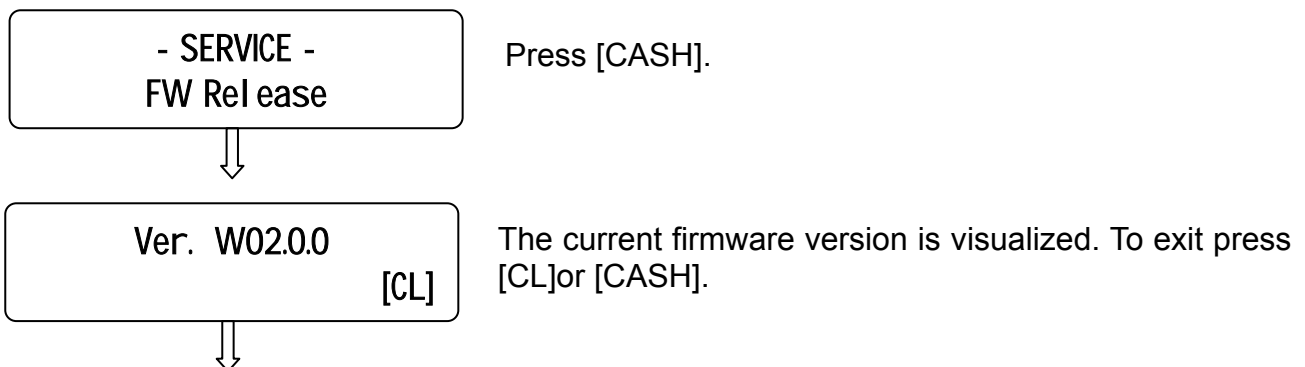
The display returns to the main menu; to exit the menu press [Void].

The periodical check is signaled when the device is turned on twelve days before the programmed date. Press [CL] to stop the signal and continue operation.

Signaling will repeat each time the register is turned on until the technician changes the programmed date.

2.15 PROGRAMMED VERSION (FIRMWARE)

To visualize the current firmware version, enter the SERVICE mode (5 + [KEY]) and scroll the menu with the [%+] key until **“Fw Release ”** (Program Version) is visualized.



The display returns to the main menu; to exit the menu press [Void].

5. PRINTING FUNCTION CODES

Besides managing functions with the circular menu, they can be called on using a unique identification code.

Select the desired configuration (X – Z - PRG - SRV) and press the **[SUBTOTAL]** key to print the list of functions of the current mode.

To access a function, insert the function code followed by the [CASH] key.

The following tables are organized by mode, with complete circular menus and the related codes for each function.

2 [KEY]	X DAY/PERIOD. REPORT - Mode X -
100	DAILY REPORT
110	DAILY DEPTS
111	DAILY PLU
112	DAILY CLERKS
113	DAILY VAT
114	DAILY HOURLY
115	DAILY FINANCIAL
120	PERIOD. DEPTS
121	PERIOD. PLU
123	PERIOD. VAT
124	PERIOD. FINANCIAL
199	VIEW AMOUNTS

3 [KEY]	Z DAY/PERIOD. REPORT AND READ EJ - Mode Z -
200	DAILY RESET
211	DAILY PLU
212	DAILY CLERKS
214	DAILY HOURLY
220	PERIOD.DEPTS
221	PERIOD. PLU
223	PERIOD. VAT
224	PERIOD. FINANCIAL
280	INITIALIZE E.J.
296	DAILY RESETS BETWEEN DATES FROM E.J.
297	DAILY RESETS BETWEEN RECEIPT NUMBERS FROM E.J
300	FULL E.J. (Sale Receipts)
301	SALE RECEIPTS BETWEEN DATES FROM E.J.
302	SALE RECEIPTS BETWEEN RECEIPT NUMBERS FROM E.J
303	SEND EJ TO PC
304	E.J. FREE SPACE
305	DOCUMENTS FROM E.J.
306	DOCUMENTS BETWEEN DATES FROM E.J.
307	PRICE CHANGES FROM E.J.
308	PRICE CHANGES BETWEEN DATES FROM E.J.

4 [KEY]	SETTING - Mode PRG -
110	DEPARTMENTS
111	PLU
112	PAYMENTS
113	CLERKS
114	VAT PERCENTAGE
115	ADD-ON PERCENTAGE
116	DISCOUNT PERCENTAGE
117	DAILY STAT.
118	DATE / DATE
119	HEADER MSG
120	FOOTER LOGO
121	CUSTOMER MESSAGES
122	DRAWER PULSE
123	LCD CONTRAST
124	LCD BACKLIGHT
125	KEY BEEP
127	TANGENT LJUD
199	TA BORT PLU
200	SETTING SUMMARY
211	PLU SUMMARY

5 [KEY]	SERVICE - Mode SVR - Password: 555
910	AUTO RECEIPT
911	PRINT TEST
912	PRINT INTENSITY
913	BATTERY CHECK
914	BATTERY VOLTAGE
915	TEMP. SENSOR
930	NEGATIVE RECEIPT
931	ÖRES ROUNDING
942	X.Z.PRG, LOSENORD
985	TWO TOTAL RECALL
900 -991	(only factory use)
992	ORGANIZATION NO.
993	SERIALIZE FM
994	ACTIVATE EJ
995	LOAD LOGO
996	KEYBOARD CONFIGURATION
997	CUTTER CONFIGURATION
998	PERIODICAL CHECK
999	FW VERSION

6. MAINTENANCE

6.1 PROGRAMMING DATE AND TIME

Set the key in the P position – Programming.

Scroll the menu with [%+] until “ DATE/TIME “ appears: confirm selection with the [CASH] key.

* NW: the **DATE/TIME** (Date / Time) setting function is automatically recalled after each hardware reset.

The following message is shown on the display:

```
“DAY:           “  
“              AB”
```

where AB is the date memorized in the internal clock

It is possible to accept the proposed date or insert a new one using the keyboard; confirm by pressing the [CASH] key.

Repeat the same procedure for the MONTH, YEAR (4 digits), HOUR and MINUTES.

If a wrong value is inserted (for example MONTH = 14 or HOUR = 32) an error message is displayed “DATE ERROR” or “HOUR ERROR”, and reinserting date is required.

6.2 OPENING AND CLOSING THE HOUSING

To open the housing:

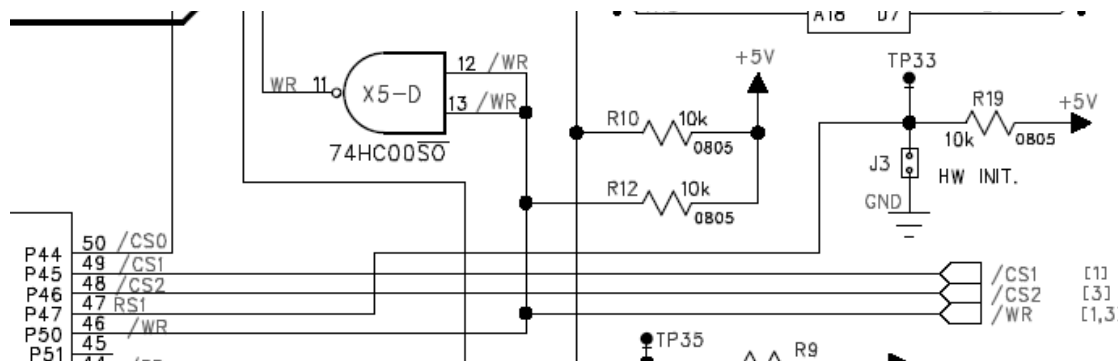
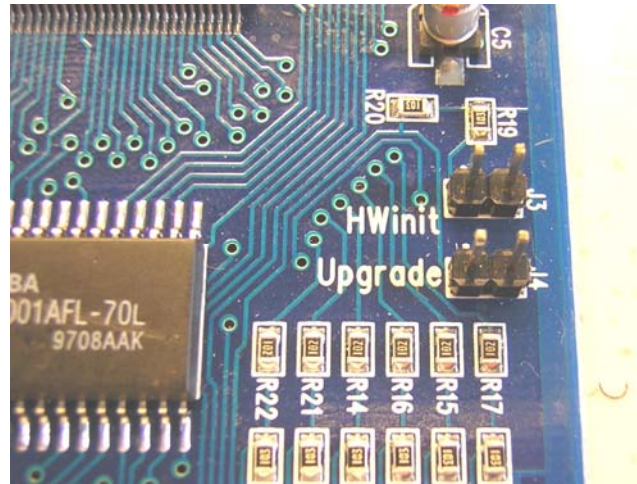
- 1) Remove the MMC (electronic journal support)
- 2) Remove the fiscal screw and the fastening screws on the bottom
- 3) Lift the upper part of the housing and let it slide towards the operator.

To close the housing proceed as follows:

- 1) Hook the front part of the housing onto the base
- 2) Close the rear part by pressing downwards
- 3) Complete by fastening the fiscal screw and the screws located on the bottom
- 4) Insert the MMC (electronic journal).

6.3 TOTAL RESET

In order to reset the cash register, it's necessary to insert the Jumper J3 (indicated with "HWinit" in the picture) with the device turned off. At start-up, after detecting the closed contact, the program asks to confirm with the message "HW.INIT?" on the display. At the end of the reset procedure, the jumper must be removed and the cash register must be reprogrammed.



- 1) Insert the jumper J3 – HW INIT
- 2) Turn on the cash register
- 3) When asked to confirm, select "SI" with the [%-] key and press [CASH]
- 4) Remove the jumper J3
- 5) Insert time and date by pressing [CASH] after each date insertion
- 6) The cash register prints a receipt indicating system reset.

After resetting:

- The reset counter is incremented by one
- The GT (Grand Total) is calculated on the basis of the daily registrations written in the fiscal memory.

6.4 PGRADING THE FIRMWARE

To update the firmware of the ONDA S cash register, you need:

- a PC running Windows 2000 or higher
- the ONDA S – PC cable (part number CABA0056) Note: see the diagram in section 7.1
- two jumpers
- the UPDATEFW.EXE file that comes with the firmware version downloaded from the RCH site
- the latest firmware update, downloaded from the RCH site (reserved area – firmware downloads).

Proceed as follows to update the cash register firmware:

- Download the firmware update from the RCH site into a specially created folder on your PC.
- Remove the four screws from the bottom of the cash register and then the one screw (under the seal) from the front, and lift off the top cover (see section 6.2).
- Fit the two jumpers to J3 (HW Init) and J4 (Upgrade). See the figure in section 6.3.
- Plug the RJ connector of the ONDA S-PC cable into serial port 1 on the cash register and plug the RS232 connector into any available COM serial port on the PC.
- Switch the cash register on. (The operator display appears with the pixels of the first line lit.)
- Run the **Updatefw.exe** program on the PC. Select the serial (COM) port to which the cable is connected on the PC, and click OK.

Note: If an error occurs the first time you run the Updatefw.exe program, copy the "COMCTL32.OCX" file (that comes with the executable file) into the WINDOWS\SYSTEM32 folder and run Updatefw.exe again.

- A window showing the folder appears. Select the firmware file you want to upload (with the **.mot** extension) and click OPEN.
- A firmware loading window and a progress bar are displayed. Wait until the upload has finished (about 1 to 2 minutes).
- Provided the upload finishes correctly the message "FIRMWARE UPDATED SUCCESSFULLY" is displayed. Click OK to exit the program.
- The display now reads out the message **REMOVE HWINIT JUMPERS**. Remove the jumpers from J3 and J4.

- Wait a few seconds and then enter the correct DATE and TIME, pressing the [CASH] key to confirm each value. If the display reads out **FORWARD DATE** after you have entered the new time and date, check the date you have entered because it is three days later than the date when the last cash balance was made.
- The cash register now prints out a report (not a tax receipt) confirming that the new firmware is functioning and then returns to Register mode (REG).
- Check that the paper roll is in place, correctly aligned and fed.
- Proceed as follows to check that the firmware update has been completed correctly:
 - **5 – KEY - 555 – CASH - -%** (twice) - **CASH**
 - (The new FW version is displayed.)
- Switch off the cash register. Unplug the serial connection cable. Replace the top cover and secure it with the screws and seal (see section 6.2).
- Check that the paper roll is still in the right position and proceed to program the cash register.
 - NOTE: If the cash register has already been configured for tax, the receipt header is already in memory and need not be re-programmed. Do not re-program the receipt header if there is no need, to avoid filling the limited memory space available for tax data.

6.5 ORDINARY AND PERIODICAL MAINTENANCE

6.5.1 RESTRICTIONS:

WARNING: note that the ONDA S cash register only allows first level assistance (replacing entire units such as electronic cards and/or the printing mechanism).

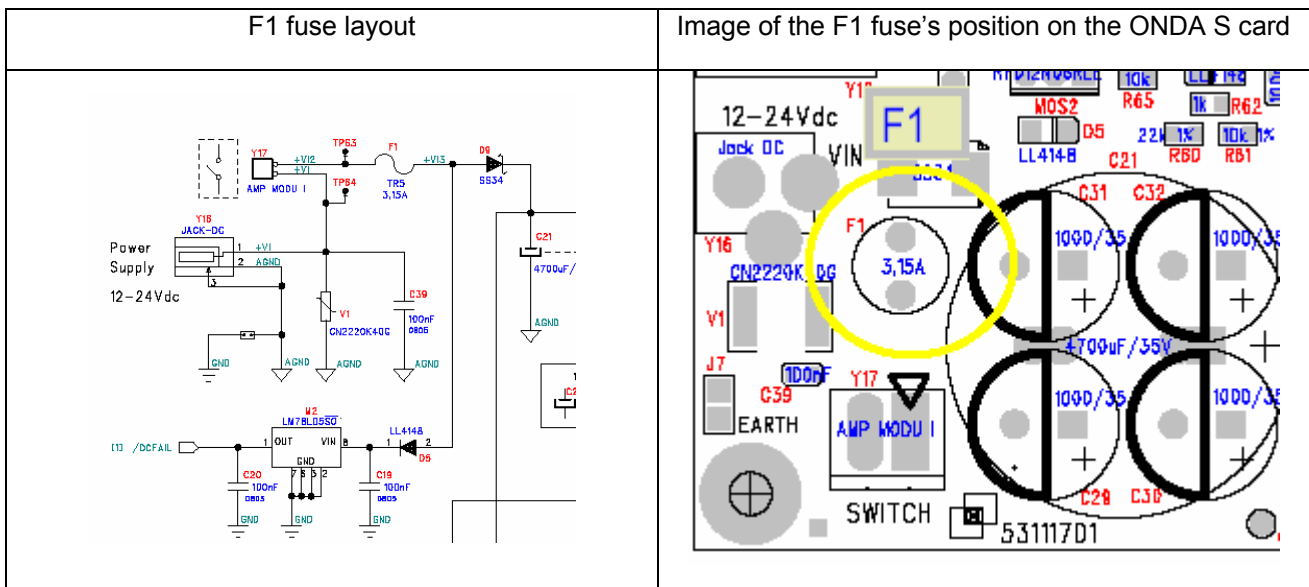
With the exception of the Battery, Fuses, and sub-parts of the keyboard, any interventions that require the replacement of parts on the electronic cards or the printer are strictly forbidden. All spare parts used during assistance operations must be original. The fuses must respect the characteristics and the value indicated where they are mounted or on the electrical layouts.

- Technical assistance operations must be limited to the replacement with original spare parts.

- The device may in no way be modified by technical assistance operations: any part that is replaced or removed due to technical assistance must be reconnected and mounted in its original position.

6.5.2 REPLACING FUSES

The device contains a fuse that can be accessed only by authorized service personnel (RCH technicians). Replacing this fuse requires the use of an automatic un-welding device and a tin welder since the fuse is welded directly to the printed circuit.



7 SERIAL CABLE DRAWINGS

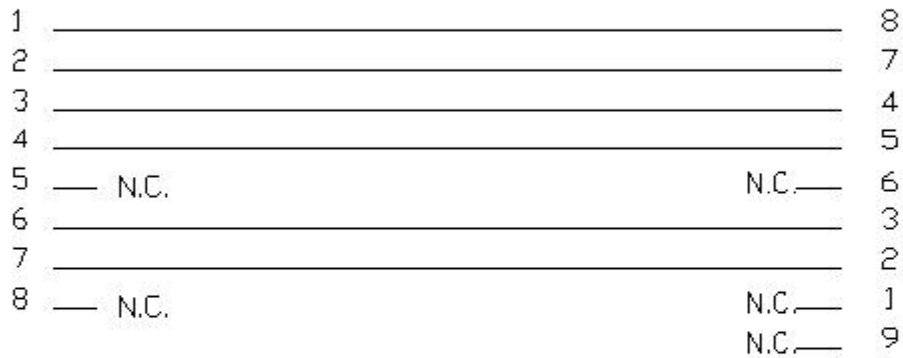
7.1 SERIAL CABLE FOR CONNECTION TO A PC

Cable part number **CABA0056** can be used to connect the ONDA S to a PC in order to:

- Update the ONDA S firmware (CPU card) (see section 6.4)
- Update the keypad display software (LCD card) (see section 4.6)
- Send program data or tax receipts (tax printer mode)



Maximum length 3 metres

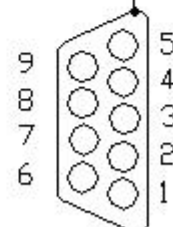


SHEATH CONNECTED ONLY AT DB9 SIDE 39



12345678

Front view of RJ45 connector



Front view of DB9F connector

7.2 SERIAL CABLE FOR CONTROL UNIT CONNECTION

Cable part number **CABA0013** can be used to connect the ONDA S to the Control Unit (CleanCash model)

CABLE ONDA S – CONTROL UNIT RS232

ONDA S RJ45

CONTROL UNIT DB9M

RTS	1	-----	7	CTS
CTS	2	-----	8	RTS
GND	4	-----	5	GND
VCC	5			
RX	6	-----	2	TX
TX	7	-----	3	RX

7.3 POS PLUS CONNECTION

USB adapter (code 240307) must be used to connect the ONDA S to the Control Unit (POS PLUS model).



7.4 SERIAL CABLE ADAPTER FOR COM2

Serial cable adapter code **CABA0090** must be used to connect the **COM2** ONDA S to PC or SCANNER.

CABLE COM2 ADAPTER

RJ45

RJ45F

Gnd	4	-----	4	gnd
Cts	6	-----	2	cts
Tx	7	-----	7	tx
Rx	8	-----	6	rx
Vcc*	1	-----	5	Vcc*

(*) **ATTENTION!!!**; before connecting the device (Scanner), set the correct voltage on J9 (V COM2).

8. SYSTEM ARCHITECTURE

The device is composed of a CPU that controls the following peripheral devices inside the housing: Display, Keyboard, Printer, Fiscal Memory, Rs232 Serial Ports. The interface connector to the MMC is accessible from the outside.

The CPU installs a microprocessor (X1) M16624 connected to an x (X2) 128KB SRAM memory by means of a A0-A17, D0 - D7 bus. S0 and S1 serial lines are dedicated to the reading and writing of the fiscal memory (EEprom 128KB).

By means of some pilot drivers and appropriate control circuits, the microprocessor controls the following external CPU utilities: a change-holder drawer and a thermal printer. The CPU receives control information from the following sensors: TERM for controlling the temperature of the printer head, PA-R for controlling the presence of paper for printing the receipt.

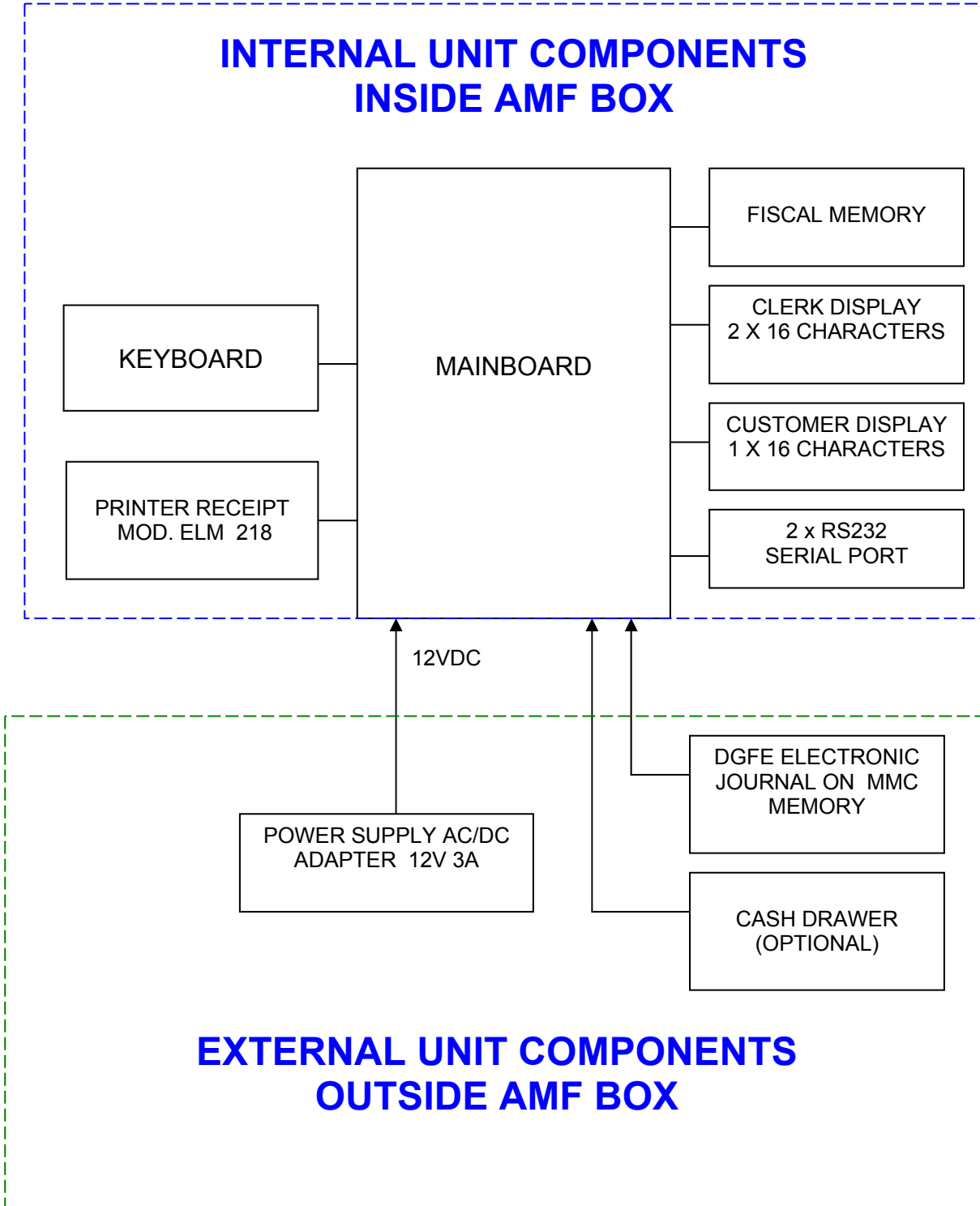
The keyboard is directly controlled by the microprocessor (X1), and is composed of an 8 x 6 line matrix. A scanning signal is generated on the 6 C-0 C-5 lines, while the 8 R0-R7 lines receive information when one of the keys are pressed.

The LCD modules (display devices) are controlled by the (X-1) microprocessor through the LCD D0-D3 lines. Each module uses a dot matrix.

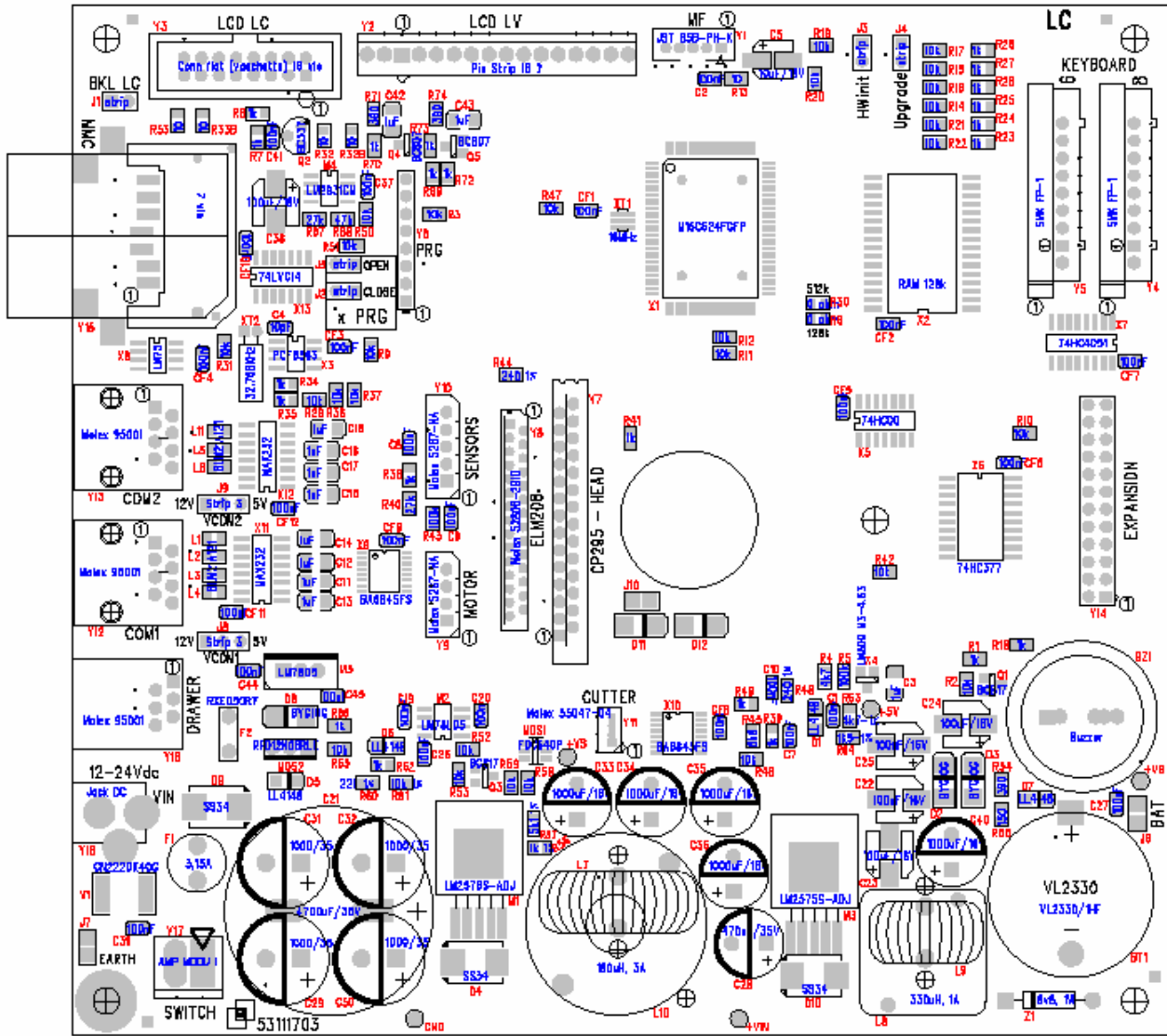
For connecting to the peripheral units, the device is equipped with two serial interfaces type RS232C. The microprocessor directly controls the serial ports through two MAX232 interface circuits (X11 and X12).

8.1 BLOCK LAYOUT

ARCHITECTURE AMF



8.2 LAYOUT



8.3 MAIN BOARD CONNECTOR LEGEND

Y 16	input connector P.S. 12V DC
Y 17	switch connector
Y 18	drawer opening connector
Y 8	printer connector ELM 208
Y 9	receipt advancement motor connector
Y 10	motor connector
Y 7	sensor connector
Y 11	cutter connector
Y 5, Y4	keyboard connector
Y 2	operator display card connector
Y 3	customer display card connector
Y 15	MMC (EJ) connector
Y 1	Fiscal memory connector
Y 14	Touch screen display connector
Y 12	RS232C SCOM1 serial port connector
J 1	Back Light LCD Jumper
J 3	Hardware Init Jumper
J 4	Up-grade Firmware Jumper
Y 6, J5, J2	flash programming M16 connector

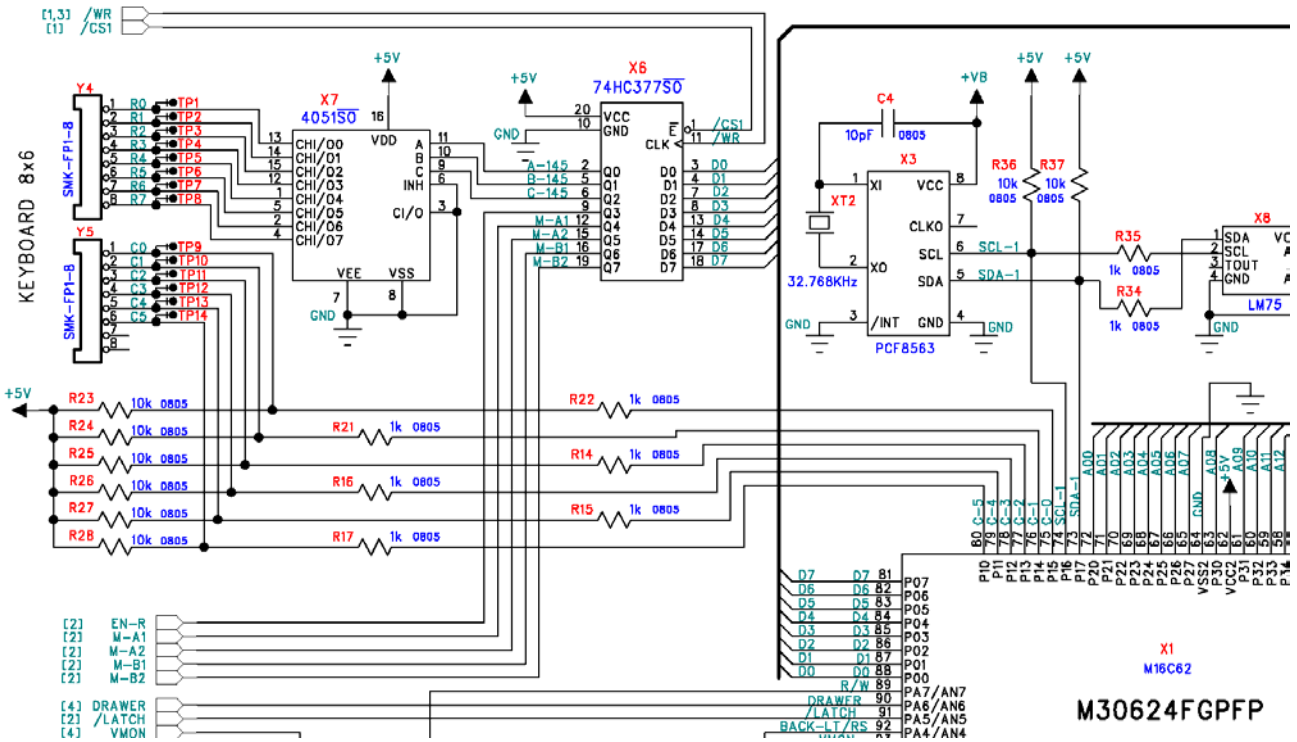
9. CIRCUIT DESCRIPTION

9.1 KEYBOARD CIRCUIT

The keyboard is managed directly by the CPU (X1) through 6 lines (C-0 – C-5). The scanning signal is resent to the CPU after pressing one of the keys of the keyboard through the R0 –R7 lines coded by (X7) 4051 and the decoder (X6) 74hc138.

Pressing one of the keys determines the short circuit of one of the corresponding C0-C5 lines with one of the signal return lines (R0-R7).

The keyboard (with 45 keys) can be easily personalized without opening the device (see chapter 2.13).

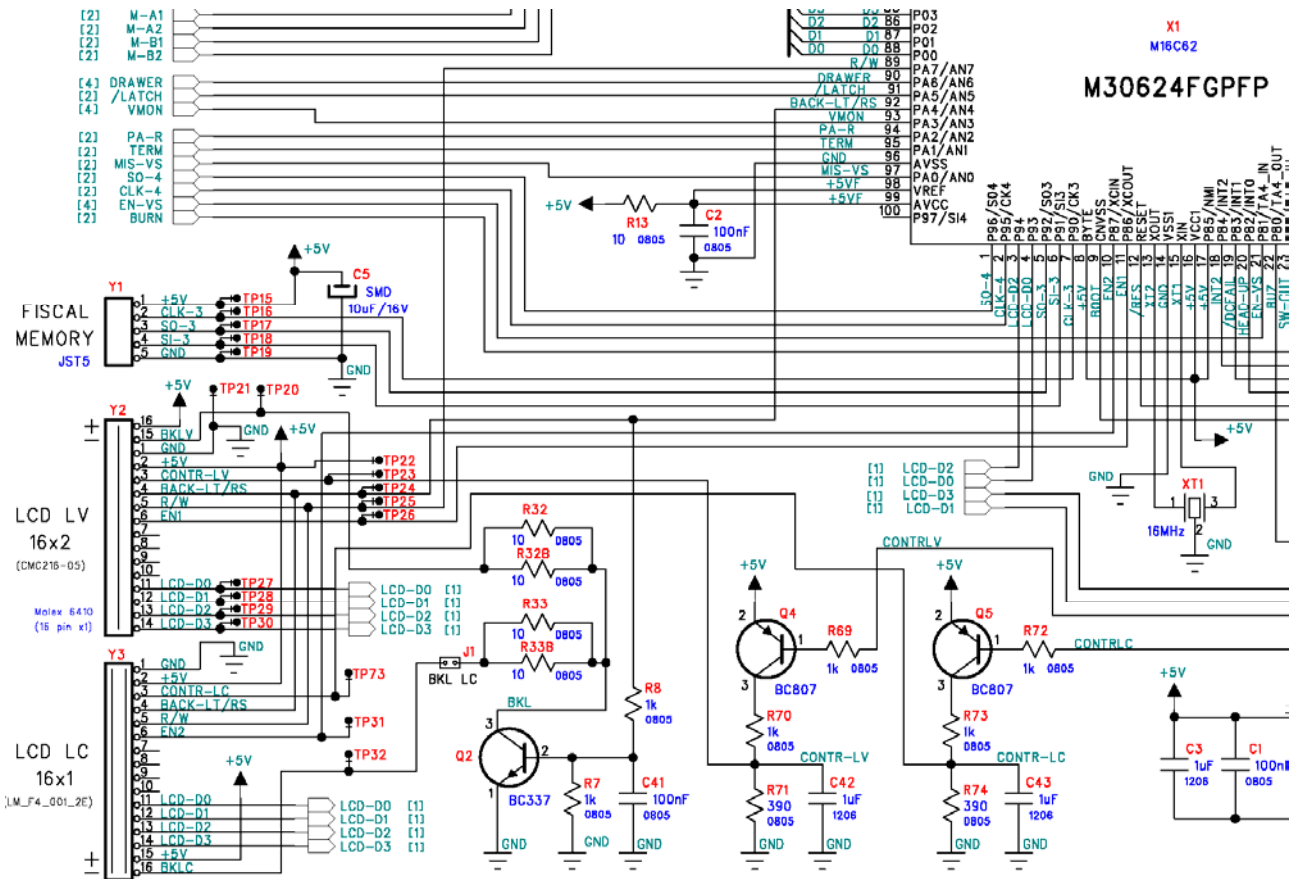


9.2 DISPLAY CIRCUIT

The two DISPLAY MODULES, operator and customer, are controlled in parallel by the LCD D0–D3 lines. The EN1 and EN2 signals respectively control the CLERCK display and the CUSTOMER display. The displays are fed with 5VDC directly by the CPU card, and are both equipped with 5VCC retro-lighting controlled by the microprocessor (X1); it is possible to disable the customer display’s retro-lighting by removing an apposite jumper (J1). Contrast can be regulated independently for both displays: CONTRLV for the Operator’s display and CONTRLC for the Customer’s display respectively control the base of the BC807 (Q4) and (Q5) transistors.

The pilot signals of the dot matrix (corresponding to the characters of the displays) LCD D0-D3 are generated by the CPU (X1) through the ports P73,P75,P93,P94.

Connection control of both connectors of each display is guaranteed by a firmware routine that verifies that the display is available for reading (lines R/W and LCD D0-D3).



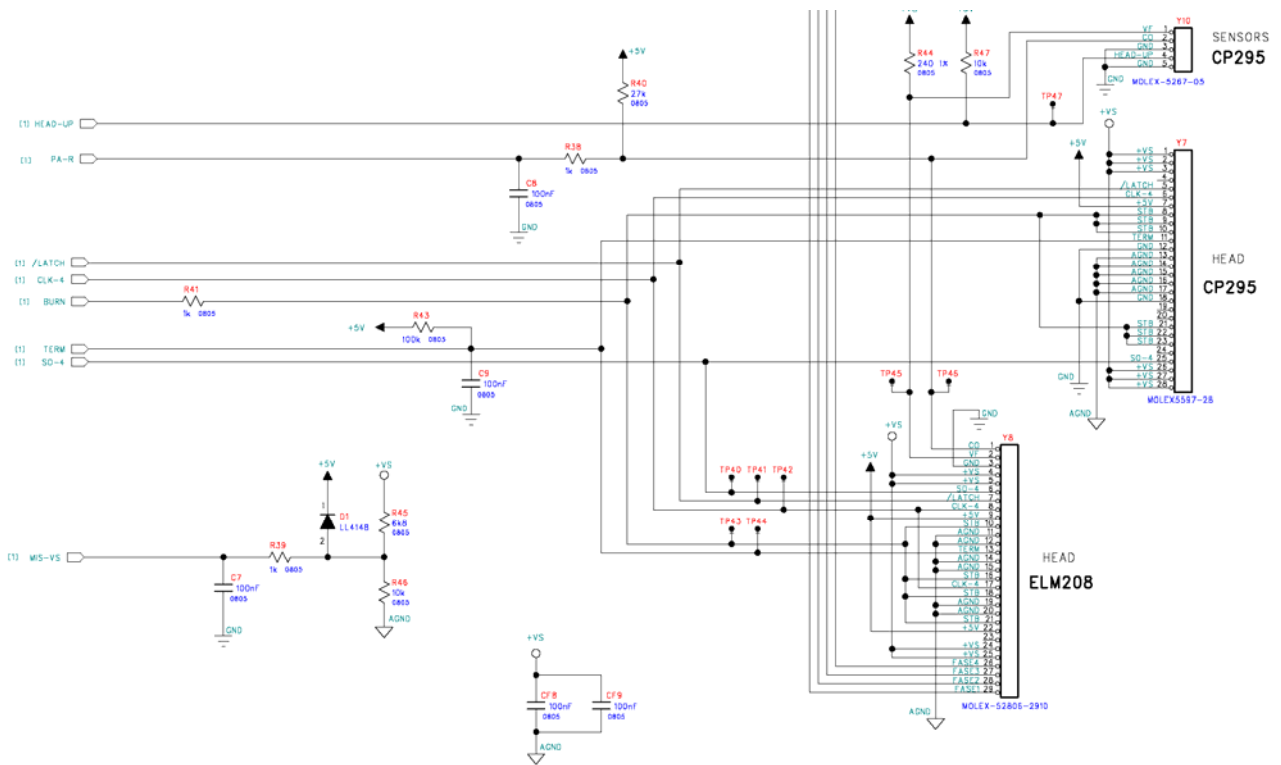
9.3 PRINTER CONTROL CIRCUIT

The thermal head is composed of a row of heating elements piloted by a series of command drivers.

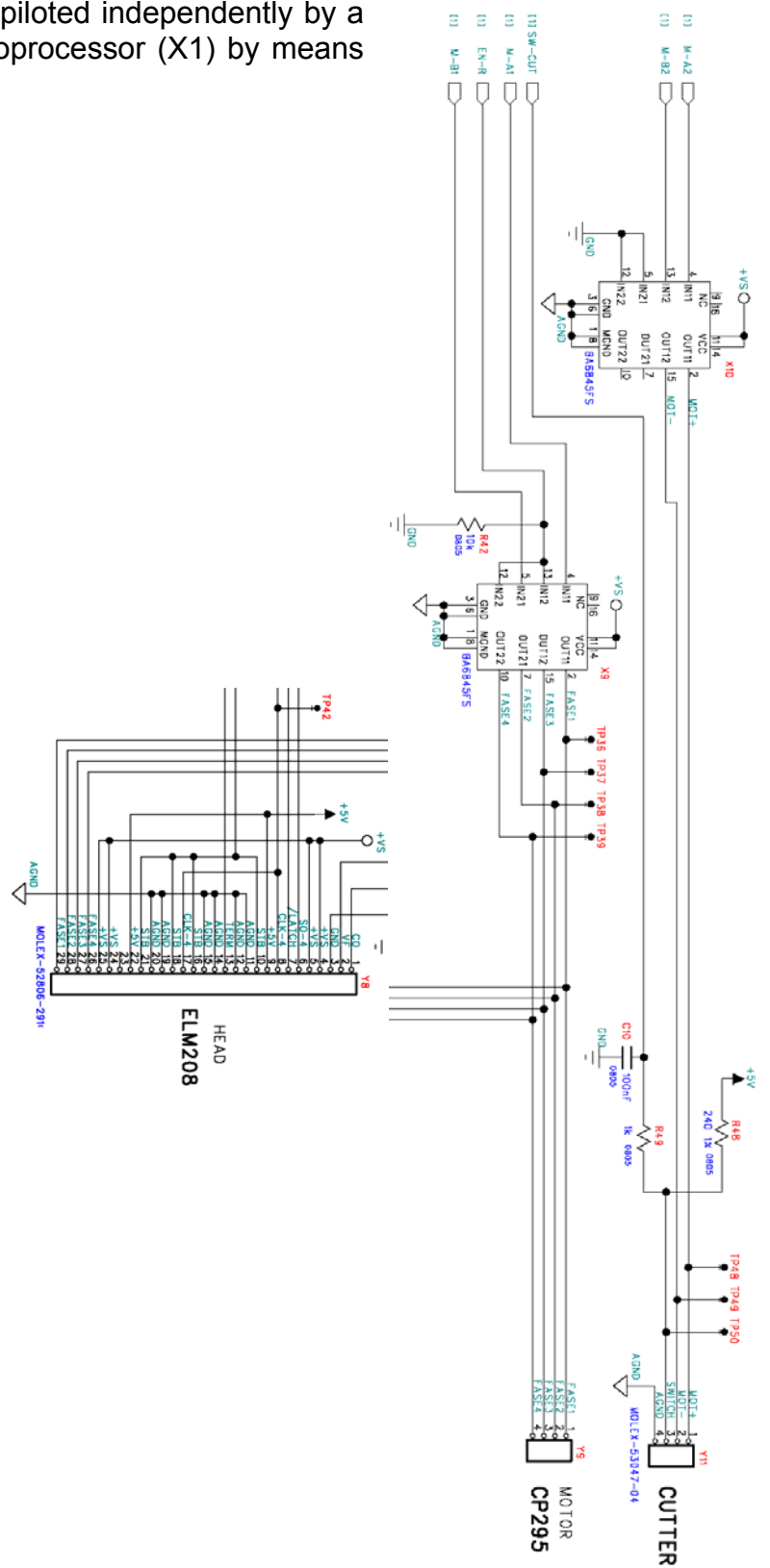
The line of dots to be printed is transmitted by the microprocessor (X1) on the SO-4 line, synchronized with the CLK-4 signal, and then memorized in the latch register of the printer head by the /LATCH signal.

The information memorized in the LATCH REGISTER is printed afterwards by piloting the drivers with the BURN print signal which reports to the STROFE pins of the printer head. The temperature of the printer head is controlled by the microprocessor by reading the value of the thermistor (TERM) positioned in the sub layer of the printer component.

The presence of paper in the printer station is controlled by reading the output of the optical sensor integrated in the printer's paper path: the PA-R signal senses the absence of paper. All the control and command lines report to the microprocessor (X1).



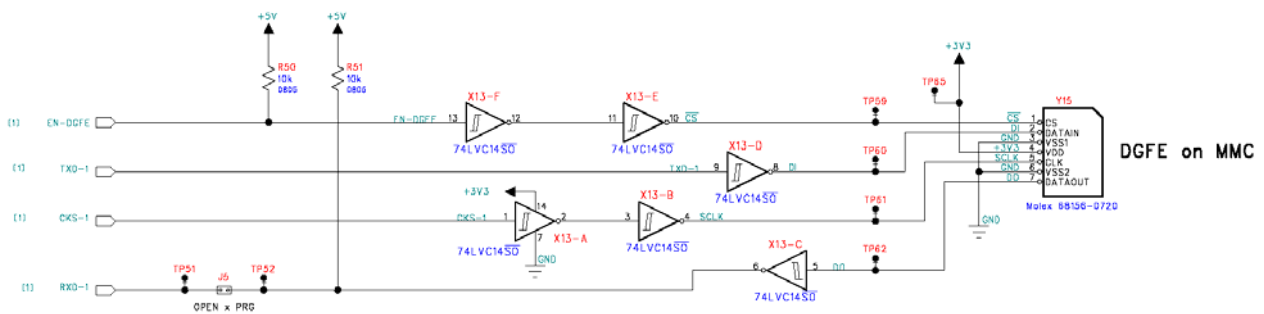
Power Supply of receipt paper is piloted independently by a step motor managed by the microprocessor (X1) by means of the BA6845 (X9) drivers.



9.4 E.J. WRITING / READING CIRCUIT (ELECTRONIC JOURNAL)

The (X1) microprocessor directly controls the removable MMC used as the electronic support for the journal. Serial type communication with MMC protocol is carried out through the 4 signals TXD-1, RXD-1, CKS-1 and EN-EJ:

- TXD-1 Date Transmission
- RXD-1 Date Reception
- CKS-1 Synchronization signal
- EN-EJ Writing/Reading enabling

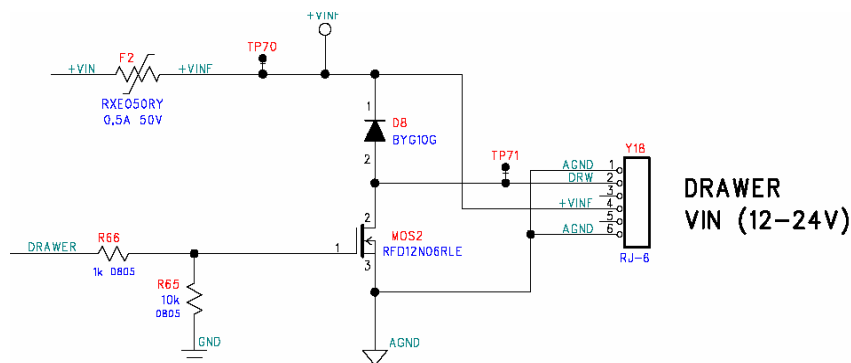


The J5 jumper should be closed during the device’s normal operation with the MMC, while it must be open for the direct programming of the FLASH memory (firmware uploading) of the microprocessor (X1). Direct programming is typically done for the first time by the builder, or afterwards after the replacement of the microprocessor itself.

9.5 DRAWER OPENING CIRCUIT

The timed signal for opening the drawer, coming from the (X1) microprocessor’s DRAWER port, pilots the driver MOS2: the transistor’s saturation activates the drawer’s slider electromagnet.

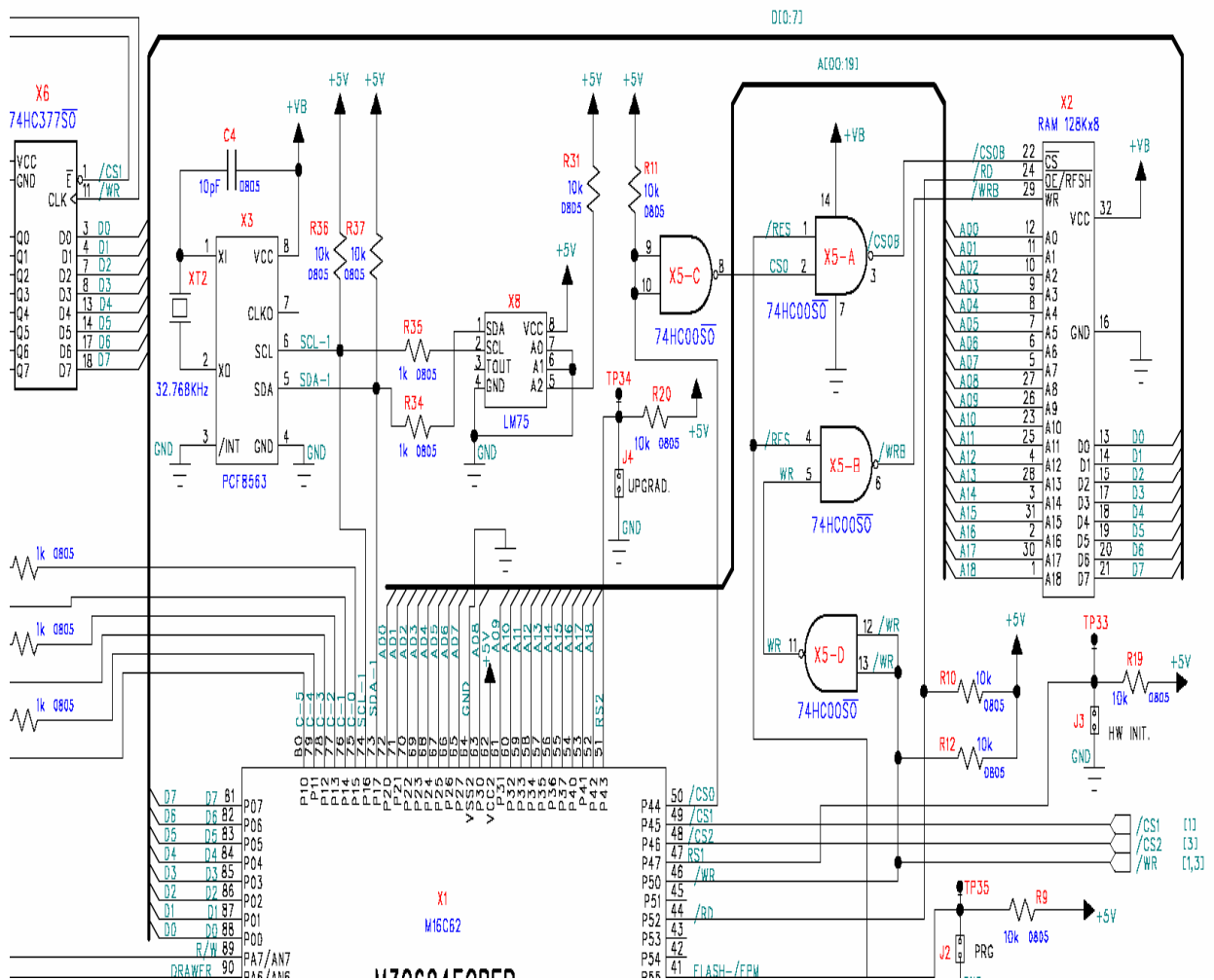
The auto-recovering safety component F2 (Polyswitch RXE050RY) interrupts current in case of circuit overloading .



9.6 ADDRESS BUS AND DATE BUS CIRCUITS

The CPU (X1) uses a bus composed of a 20 bit (A0-A19) ADDRESS BUS and an 8 bit (D0-D7) DATE BUS for transferring date with the SRAM, and a 75hc377 (X6) interface to generate the scanning signal of the keyboard lines, through the decoder (X7) 4051. Furthermore, the 75hc377 (X6) interface pilots the drivers (X9, X10) of the printer's paper advancement motor.

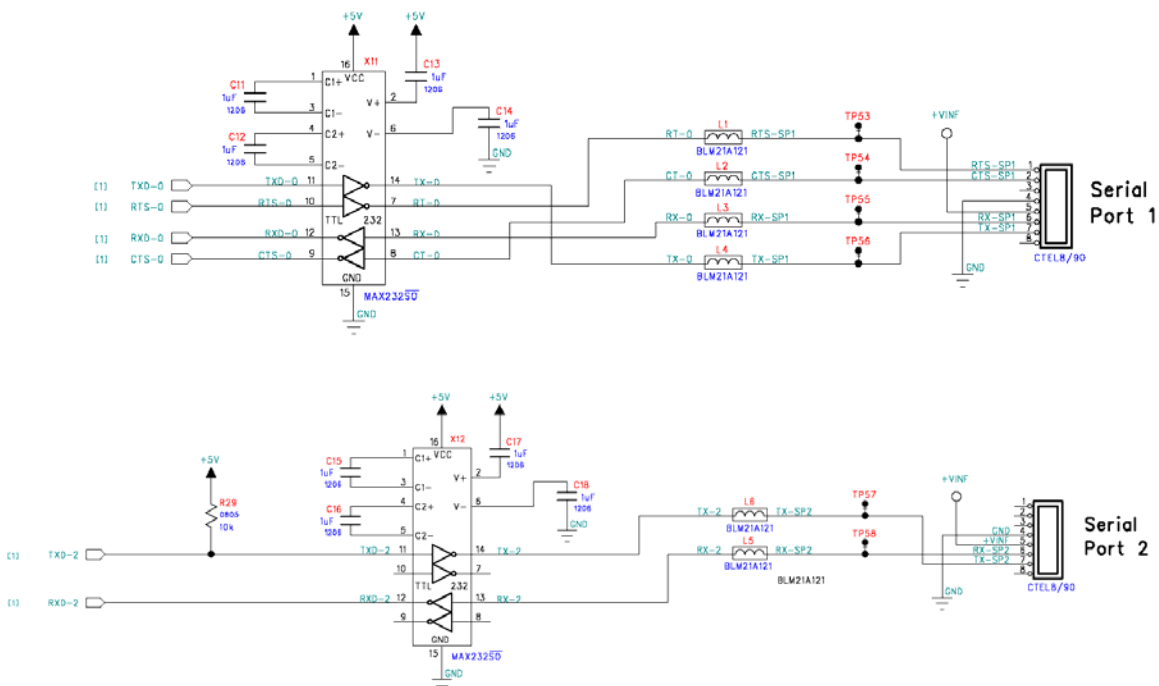
All the components connected to the BUS are activated by the microprocessor, signals CS0 and CS1 for the SRAM and the interface of the date bus 75hc377 (X6).



9.7 COMMUNICATION SERIAL PORTS RS232

Serial Port 1 and Serial Port 2 are two serial ports that can be used as communication ports for connecting to external peripheral units. The controlling circuit is integrated within the microprocessor which uses two MAX232 (X11, X12).

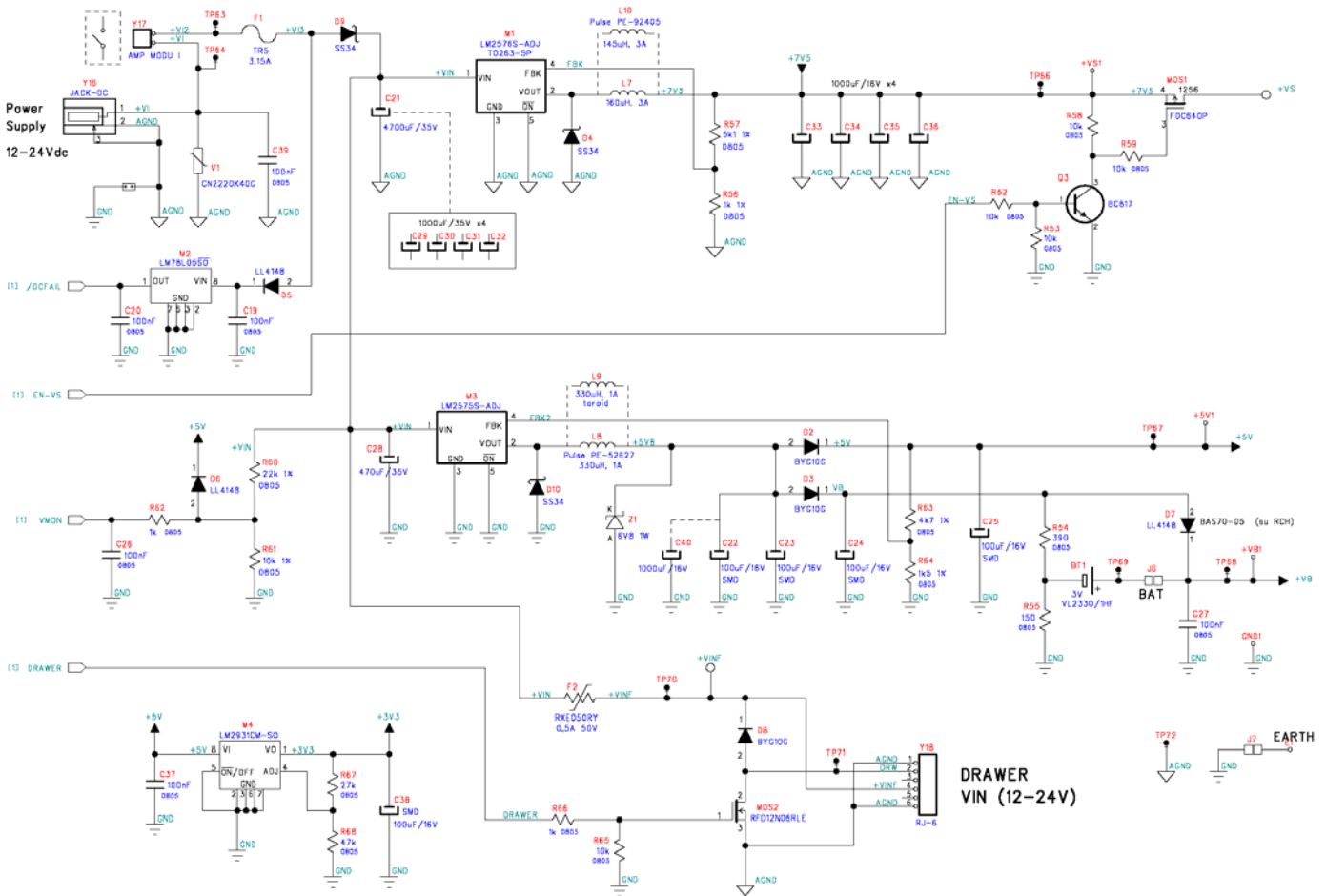
The two serial ports are RS232C type. The connector carries TXD, RXD, CTS and RTS signals; furthermore, 12VDC voltage max 0.5A is available on pin 5 for Power Supply any LCB certified by RCH.



9.8 POWER SUPPLY CIRCUIT

The input voltage V_I 12VDC allows to obtain the voltage V_S for Power Supply the printer unit, $V_{CC} +5V$ voltage for Power Supply the logical unit, V_B voltage for Power Supply the SRAM and the RTC (real time clock). Furthermore, 3.3V voltage is obtained from $V_{CC} +5V$ voltage by means of a voltage regulator.

The following safety features are installed: a T3.15 A (F1) fuse on the input voltage as general protection of the Power Supply circuits; in addition, (F2) limits la current in case of overloading on the pilot driver of the drawer's electromagnet.

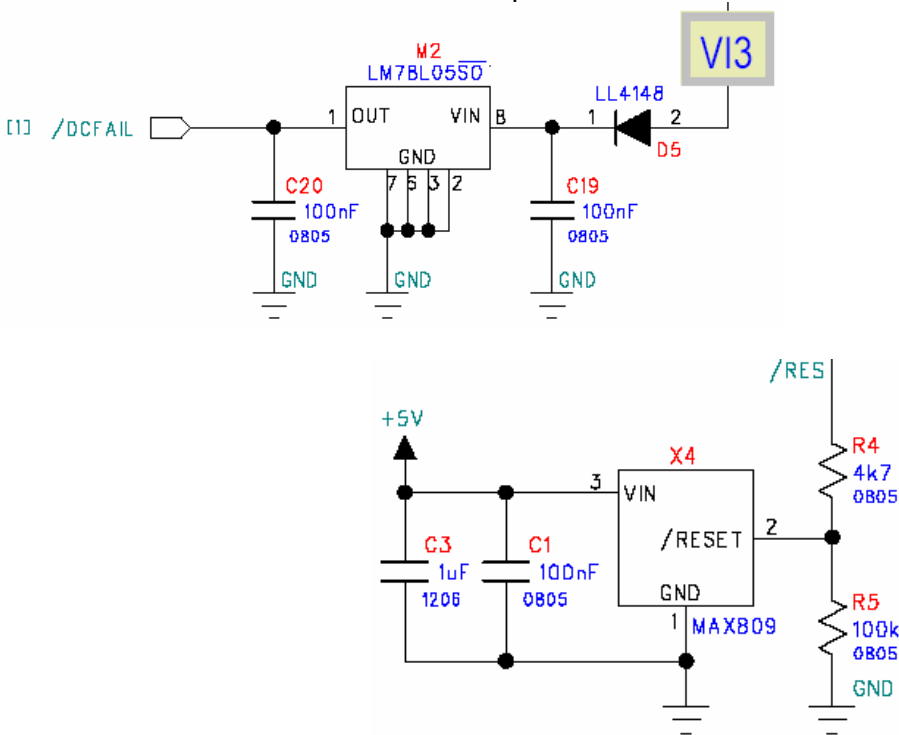


9.9 RESET AND POWER FAILURE CIRCUITS

The reset and power failure circuits allow to control the microprocessor's Power Supply voltage, and allow to intervene when turning the system on and off.

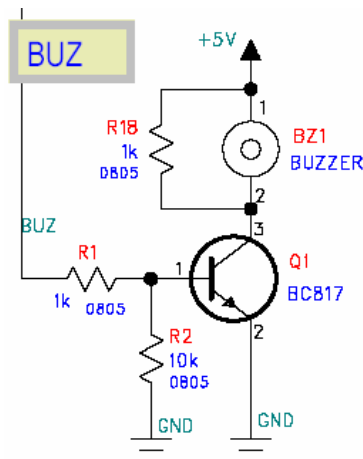
During system startup, the power failure circuit disenable the /DCFAIL signal when the input voltage (VI) is sufficient for system operation. Simultaneously, the circuit in charge of checking the Power Supply voltage of the system's logical unit (VCC +5V), allows the microprocessor to start operation (/RES) when Power Supply voltage +5V becomes stable at 5V.

During system shutdown, the power failure circuit warns the microprocessor of the missing input voltage in advance with respect to the signal /RES which would intervene to block microprocessor as well as SRAM and MMC memories operation.



9.10 BUZZER CIRCUIT

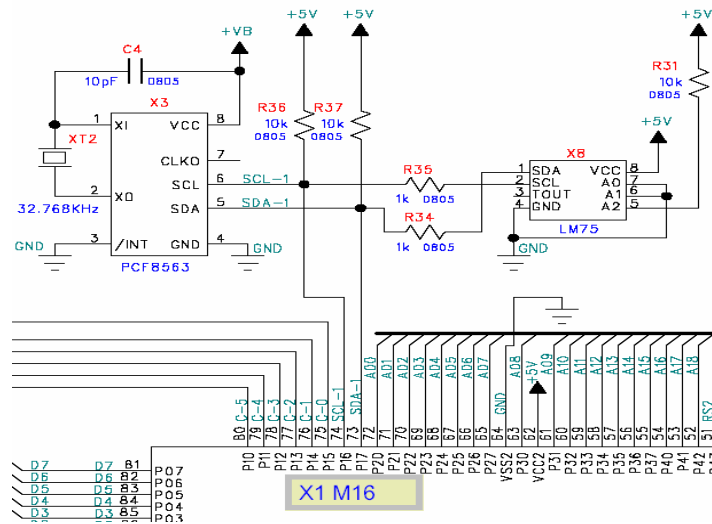
The command circuit for the Error signal buzzer, for support when striking keys and in the visualization of some messages, is controlled by the microprocessor through the BUZ port by means of the Q1 transistor, which grounds the negative terminal of the BZ1 buzzer transducer.



9.11 QUARTZ OSCILLATING CIRCUITS

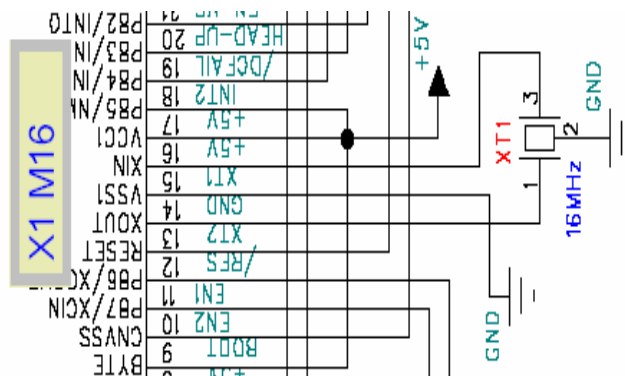
9.11.1 RTC CIRCUIT (time / date)

The PCF 8553 (X3) RTC circuit has time / date functions. It makes use of an external quartz oscillating circuit (XT2) with 32,768kHz frequency for clock scanning. The circuit is fed by the VB voltage, and has serial communication with the microprocessor (x1)



9.11.2 MICROPROCESSOR U17 CLOCK CIRCUIT

The terminals XIN – VSS1 - XOUT are connected to the quartz oscillating circuit XT1 (16 MHz) that scans the microprocessor work frequency.



9.12 RAM, RTC and CPU MEMORY BACKUP CIRCUIT

When the device is fed normally, output voltage of the circuit (M3) is about 5,8V; this voltage goes through the diodes D2 and D3 with output being respectively +5V for all logical circuits, and VB which feeds the charging circuit of the buffer battery, Power Supply the integrated SRAM memory and RTC clock circuits through the diode D7 (+VB).

In particular, the VB voltage is backed-up by a rechargeable battery VL2330 (BT1) which has the function of keeping date in the SRAM and RTC in case of no power supply (if the device is turned off).

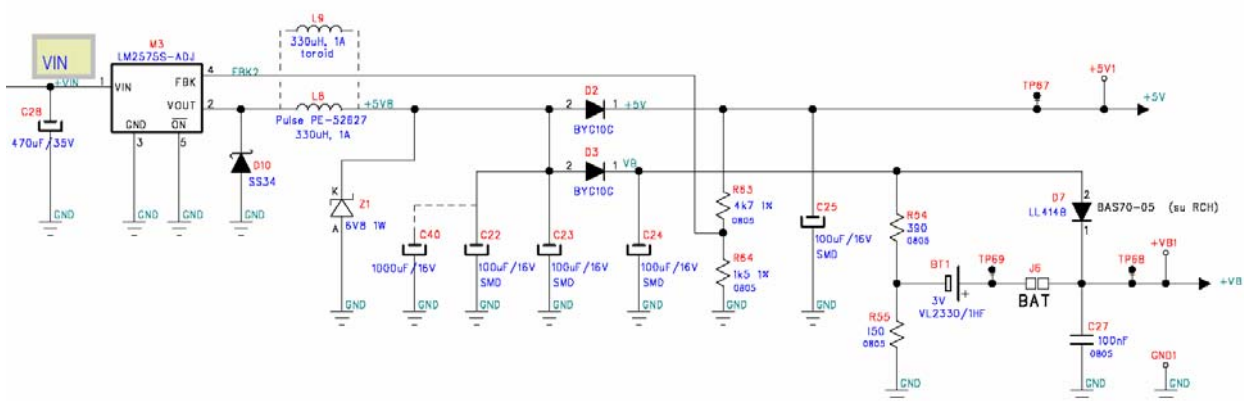
Without power supply (switch is OFF), +VB voltage is supplied to the RAM and the microprocessor thanks to a rechargeable BT1 battery; in this case, the VB voltage rating is about +3V.

The circuit is protected from current overloads by the resistor R55. R54 is the limiter of the buffer battery.

The battery used is a rechargeable lithium battery. Voltage rating is 3V and capacity is 30mAH.

WARNING:

Exhausted batteries must be disposed of by technical service personnel, according to the norms regarding rechargeable lithium batteries.



10. ERROR MESSAGES LIST

CODE	DESCRIPTION
E01	"VALUE NOT VALID [CL] " It Indicates that the last key pressed is not matching the current procedure
E02	"WRONG FUNCTION Press [CL] " It indicates an error in the current procedure. Press CL and verify again the entering of the data.
E03	"WRONG DATE Press [CL] " The format of the date entered is incorrect (refer to chapter 6.9)
E04	"WRONG TIME Press [CL] " The format of the hour entered is incorrect (refer to chapter 6.9)
E05	"WORD TOTALE NOT ADMITED [CL] " It is not possible to program a word including the word TOTALE.
E06	"BARCODE WRONG [CL] " It Indicates that the barcode entered is wrong. Press CL and verify the code again.
E07	"FISCAL CODE WRONG [CL] " It Indicates that the barcode entered is wrong. Press CL and try again.
E10	"MMC FORMAT NOT CORRECT! [CL] " It Indicates that the MMC entered is other than the type supplied by RCH. Enter only MMC supplied by RCH.
E11	"MMC ALREADY USED! [CL] " It Indicates that the (electronic journal) inserted is not brand new. Insert another brand new MMC.
E12	"E.J. ABSENT OR WRONG [CL] " It indicates that MMC is missing (electronic journal), or that the E.J. cumulative number is wrong. Insert a new MMC or the proper E.J..
E14	"MMC WRITE ERROR!" It indicates that an error occurred during the writing of the data onto the electronic journal (E.J.). Switch off and switch on again the cash counter, fully cancelling the current receipt (Receipt void). Should the problem appear several times, contact the service centre.
E20	"WRONG SEQUENCE Press [CL] " It indicates that the pressure onto the last pressed key is incorrect in the sequence of the current commands.
E21	"OPERATION NOT ADMITED! [CL] " It indicates that the last operation performed is not allowed by the current procedure.
E22	"ITEM NOT FOUND [CL] " It indicates that the item code (PLU) entered is not in the cash counter memory. Verify the code.
E23	"CONTROL KEY MISSING [CL] " It means that one or more mandatory keys are missing. The mandatory keys (or control keys) are: [CASH], [SUBTOTAL], [%+], [% -] and receipt [Void]. They must always be present.
E30	"E.J. FULL! Press [CL] " It indicates that the electronic journal (MMC) is finished. Replace MMC (refer to chapter 13).
E31	"E.J. NEAR FULL [CL] " It indicates that the electronic journal (MMC) is almost full and that must be changed the soonest possible (refer to chapter 13).
E40	"NEGATIVE RECEIPT [CL] " The Cash counter accepts that the subtotal may be negative. However, it prevents the receipt from being closed. Sell further items to close the receipt at zero or with a positive balance.

E41	"OVERFLOW RECEIPT [CL] " The amount of the current receipt has exceeded the allowed limit. Cancel the receipt or close it and open a new one concerning the non-registered items.
E42	"DAILY NET OVERFLOW [CL] " The SALES adding machine has reached its limit. Close or cancel the current receipt and perform a fiscal daily report.
E43	"PROGR NET OVERFLOW [CL] " The Cash counter has reached the maximum value that may be reached as Grand Total. Close or cancel the current receipt and ask for RCH service.
E44	"ITEMS OVERFLOW [CL] " It indicates it has reached the maximum number of items that may be recorded onto the current receipt. Close the receipt and open a new one to record the missing items.
E45	"CHANGE NOT ADMITED [CL] " The closing total utilised is programmed not to accept any change. Use another Total or re-program the one used.
E51	"FISCAL MEMORY ALREADY SET [CL] " Performing the serialisation procedure is not possible (already done by the manufacturer).
E52	"DATA NOT CLEARED [CL] " It indicates that before continuing performing a fiscal daily report is mandatory.
E60	"PAPER OUT Press [CL] " It indicates that the paper roll has finished. Replace the roll paper as indicated in chapter 12 of the operating manual.
E61	"HEAD ERROR Press [CL] " It indicates that the thermal head connector (printer) is disconnected from the printer logic card.
E62	"POWER ERROR Press [CL] " It indicates that the cash counter is improperly fed. Contact RCH service centre to verify the feeder.
E63	"PRINTER ERROR Press [CL] " It indicates anomalous printer operations. It may indicate the incorrect closing of the upper part or that some connectors are disconnected from the logic card. Should the problem continue, contact RCH service centre.
E64	"HEAD UP [CL] " It indicates that the replacement of the paper roll was improper. Read again chapter 12 of the operating manual. Should the problem continue, contact RCH service centre.
E65	"CUTTER ERROR [CL] " It indicates the presence of paper stuck in the cutter. Remove the paper and press CL . Should the problem continue, contact RCH service centre.
E70	"LOW BATTERY [CL] " The battery is down; re-charge the battery and continue the sales.
E80	"FISCAL MEMORY NOT CONNECTED" It indicates that the fiscal memory is disconnected. Contact RCH service centre to reinstate its working.
E81	"ERROR READ FISCAL MEMORY" It indicates a problem to access the fiscal memory. Switch off and switch on again the cash counter. Should the problem continue, contact RCH service centre.
E82	"ERROR WRITE FISCAL MEMORY" It indicates a writing problem onto the fiscal memory. Contact RCH service centre.
E83	"FISCAL MEMORY FULL!" It indicates that all the settings to zero available have been completed (2000). Call RCH service centre.

E84	"FISCAL MEMORY NOT SERIALISED " It indicates that it is not possible to subject the cash counter to taxes, as fiscal memory has not the series number.
E85	"DISPLAY LCD NOT CONNECTED" It indicates that the display is disconnected: Contact RCH service centre to control the display.
E86	"ERROR MEMORY RAM." There has been a malfunctioning on the cash counter RAM memory. Contact RCH service centre to reinstate the system.
E87	"RAM ERROR / FISCAL MEMORY " There has been a malfunctioning between the cash counter RAM memory and the fiscal memory. Contact RCH service centre to reinstate the system.
E90	"CONTROL UNIT" "CONNECTION ERROR" No connection with Control Unit
E94	"INVALID SEQUENCE [CL]" Invalid command to control unit.
E96	"C. U. NOT OP." "CALL SERVICE!" Communication error with control unit.
E97	"ID ERROR" " CALL SERVICE!" Control unit serial number not correct.
E98	"C.U. INTERNAL" "ERROR!" Control unit with problems; call service.
E100	"NO STATUS" "INFORMATIONS!" No answer from status information.
E101	"C.U. CODE ID" "NOT AVAILABLE!" Serial number error; no reply to code id request.
E102	"SIGNATURE" "NOT AVAILABLE!" Signature error; no reply to signature request.
E103	"C.U. FATAL" "ERROR: XXXX" Control unit error; check the error code xxxx and call service.
W01	"C.U. WARNING" "CONDITION [CL]" Warning condition from control unit.
W02	"C.U. ERROR" "CONDITION [CL]" No fatal error from control unit.
W04	"C.U. BUSY" "WAIT .. PRESS [CL]" Control unit busy. Try later.