

Model T20

CENTRALIZED CARD ISSUANCE SYSTEM



OPERATOR MANUAL

Revision 2.03



Important: the technical information contained in this manual is property of MATICA System S.r.l. and is secured by copyright. The terms of the license define and specify permitted uses and other limitations.

Reproduction of any part of this manual, in any form, is forbidden without the explicit written permission of MATICA System S.r.l.

Technical information contained in the present manual is subject to change without notice. If not otherwise specified, any reference to companies, names, dates and addresses is purely incidental and is only intended to illustrate the use of the MATICA System S.r.l. product.

Every care has been taken in the collection and verification of the documentation inserted in this manual; nevertheless MATICA System S.r.l. cannot assume any responsibility deriving from its use.

Copyright © 2006 **MATICA System S.r.l.**
All rights reserved
Published by **MATICA System S.r.l.**

Printed in Italy
Issue: October 2006
Revision 2.03

MATICA System S.r.l.
via Guido Rossa, 4/6
20037 – Paderno Dugnano
MILAN - ITALY
Phone +39.02.92272501
Fax +39.02.92272540

E-mail: info@maticasystem.it
Web: <http://www.maticasystem.it>

Table of contents

Chapter 1 – Introduction	4
1.1 Warnings	4
1.2 Specifications	4
1.3 Choice of site.....	5
1.4 Removal of the package.....	5
1.5 Installation.....	6
Chapter 2 – Start up	7
2.1 Configuration.....	7
2.2 Power On	7
2.3 Console	8
2.4 Working cycle	9
Chapter 3 – Consumables.....	15
3.1 Changing Thermal module cleaning tape	15
3.2 Changing Thermal module printing ribbon.....	16
Chapter 4 – Error List.....	19
Chapter 5 – Cleaning	23
5.1 Thermal Printer cleaning	23

Chapter 1 – Introduction

1.1 Warnings

Respect these warnings and follow the indications labeled on the system. Power the system through the electrical power supply indicated on the related label. Connect the system to plugs-in provided with a grounding device. The system has never to be installed near heat or cooling sources. When the cover is open the system automatically stops all the motors; this kind of safety is useful when cleanings and changing of consumables have to be performed.

Only perform the adjustments reported in this manual: a wrong adjustment may cause serious damages.

1.2 Specifications

Productivity Speed	1000 card per hour (Monochrome printing) 120 card per hour (Color "edge-to-edge")
Printing Mode	Thermal Transfer and Sublimation 300 DPI Edge-to-edge printing
Ribbon Type	Black monochrome (1000 or 5000 prints) Other monochrome: Red, Blue, Green, White, Gold and Silver (1000 prints) Scratch-off (1000 cards) 2 panels Black and Overlay (500 images) 5 panels YMCKO (200 or 1000 images) 6 panels YMCKOK (200 images) Half-panel YMCKO (400 images)
Card Format	ISO CR80 – ISO 7810
Hopper Capacity	Input: 250 cards Output: 250 cards
Size (incl. floor support)	Width: 154 cm (60.6") Depth: 55 cm (21.7") Height: 118 cm (46.5")
Weight (incl. floor supp.)	125 Kg (276 lbs)
Communication Interface	RS232 serial port and two USB
Electrical Requirements	110V, 120V, 220V, 240V; 50/60 Hz
Operational Environment	Temperature: 13/35°C (55/95°F) Humidity: 20% to 80% non-condensing

1.3 Choice of site

Follow the instructions reported below to choose the site where you want to place the T20 system and to remove the package.

Before starting the installation, choose a wide and functional area with the following requirements:

- A level and rigid surface. Yielding surfaces, like pre-manufactured platforms or floors covered with a fitted carpet, don't guarantee the right alignment of the modules making up the T20 system.
- A good accessibility. Leave free spaces all around the machinery, in order to allow access to inspection and maintenance areas, and a right ventilation of the system. Also leave at least one meter in front of the machine, so that the operator using the front panel has got a proper working area.
- Favorable environment conditions. Install the T20 system in a cool and dry place; avoid too cold or too warm temperatures; keep the machinery far from humidity, dust and smoke. Don't directly expose to heat or sunlight. No electromagnetic interferences.
- Proper electrical power supply. Connect the system and its devices with cables fit to your electrical power supply net. When using extensions or multiple plugs-in, be sure that the total absorption doesn't exceed the maximum allowed value.

1.4 Removal of the package

The system is delivered with two wooden cases: one for the machine and the other for the floor support.

It's necessary to pay attention to the infrastructures' size (doors, hoists, etc.) through which the machine must be passed to be definitively settled in its site.

To dismantle the cases, carry out the following procedure:

- Unscrew the side upper screws to remove the top cover.
- Remove the accessories: cables, keyboard, documentation, etc.
- Remove the top polyurethane shell.
- Unscrew the bottom screws to remove the side cover.
- Extract the machine or the support from the bottom polyurethane shell (using at least four persons).
- Remove the polyurethane film protection.

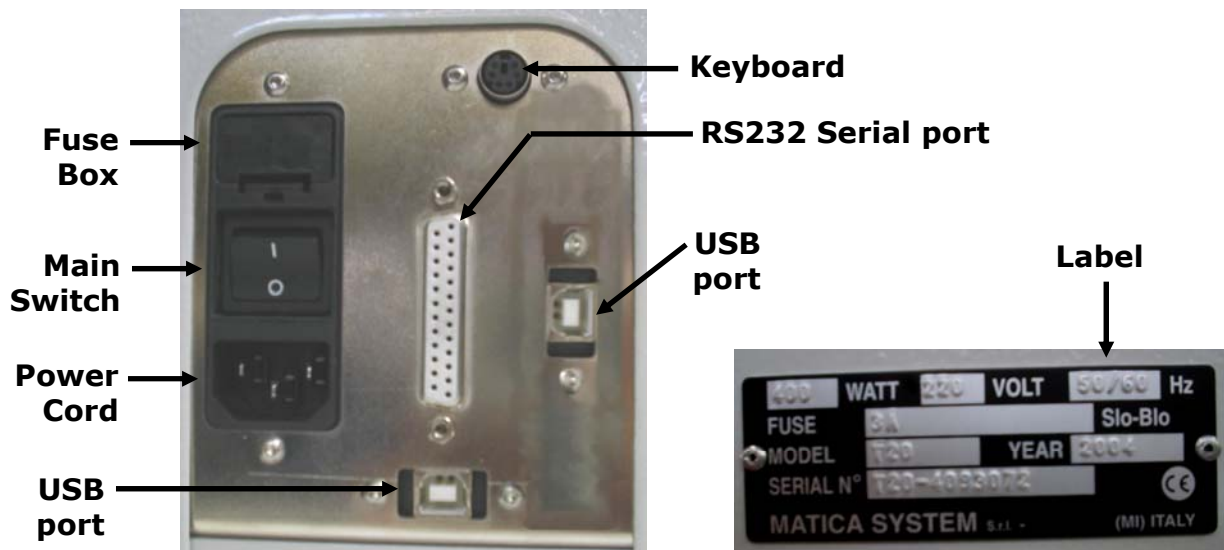
Inside the machine floor support there is the monitor support.

It is advisable to keep the cases, the pallets and the protective materials for possible reuse.

In addition to the machine, the following components are also packed inside: Power cord, two USB cables, Serial cable, Parallel cable, Keyboard, CD containing MatiCard® Card Design Software, Operator Manual and other documentations.

1.5 Installation

In order to install the system, you have to connect the power cord and the interface cable on the back panel of the system. On the same side you'll find the machine label containing the specifications of the system; verify that the voltage marked on the label corresponds with your country voltage supply.

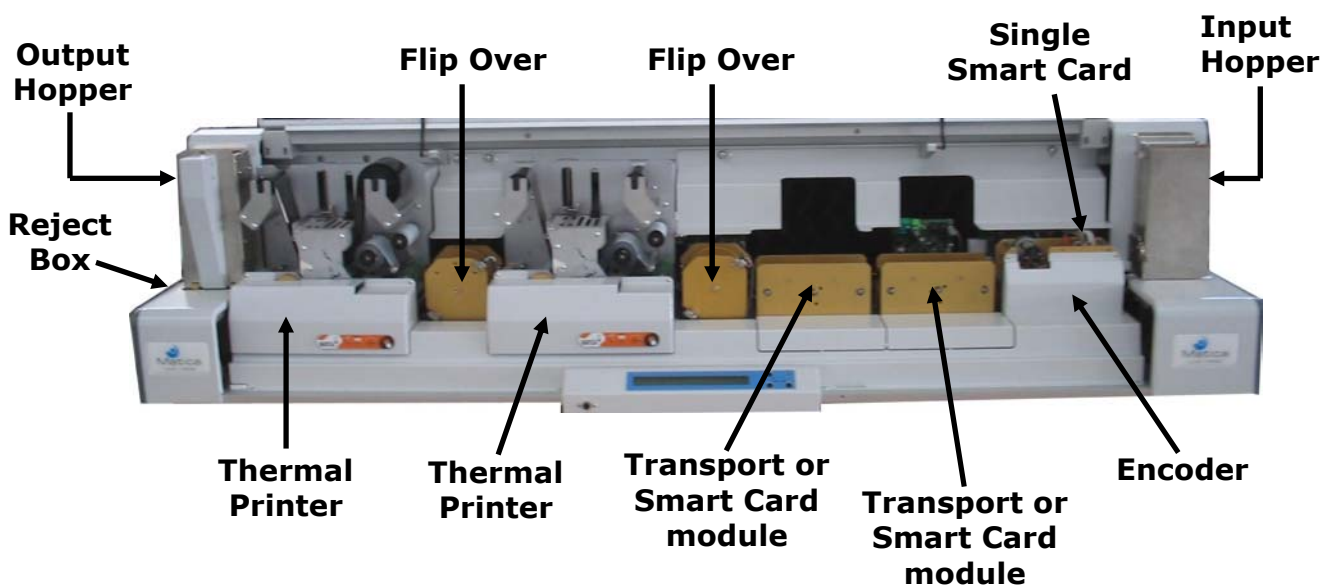


Chapter 2 – Start up

2.1 Configuration

The T20 system is provided with the following features:

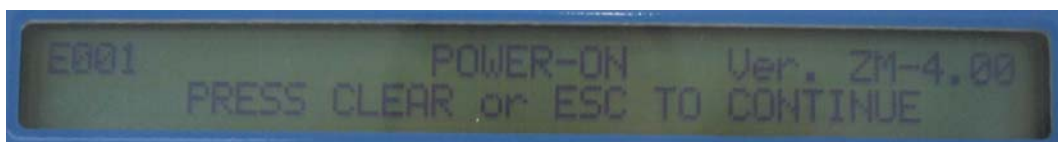
- Automatic Input Hopper
- HiCo (2540~4000 Oe) / LoCo (300 Oe) Magnetic Stripe Encoder
- Single Smart card personalization module (as optional)
- Two Transport modules or two Smart card modules or one Transport module and one Smart card module
- Two Flip Over modules for dual sided printing
- Two Full color Thermal Printer modules
- Output Hopper with Reject Box



Refer to paragraph 2.4 for details and to chapter 3 for consumables.

2.2 Power On

Power on the machine switching the main switch in the **I** position and the LCD display will show:



Press CLEAR on the console (or ESC on the keyboard) to restore the machine and the LCD display will show:



Now the system is ready to work.

2.3 Console

The T20 console is made by:

1. LCD display (2 lines per 40 characters)





2. Three function keys:

- key CLEAR to clear the error condition
- key PAUSE to enter in pause mode
- key SET to personalize the card in pause mode one module per time.

Pressing the PAUSE key the RED LED will blink. Now use the CLEAR key to have a "Step to Step" motor motion (only in the embosser module). When finished, press the PAUSE key again.



3. Two colors LED with the following meaning:

- GREEN color : when the machine is READY
- RED color : when standing the machine is BUSY
when blinking the machine is in ALARM

2.4 Working Cycle

To perform a working cycle you must introduce the plastic cards to be personalized into the automatic Input Hopper, with the magnetic stripe on the bottom right side of the card. Then you had to run the desired job with the MatiCard® software.



The card is first moved towards the Encoder. This module encodes (write & read) the magnetic stripe present on the card, with a capacity of reading and writing 3 tracks at high or low coercivity. The Encoder could also be equipped with a chip contact to personalize a smart card.

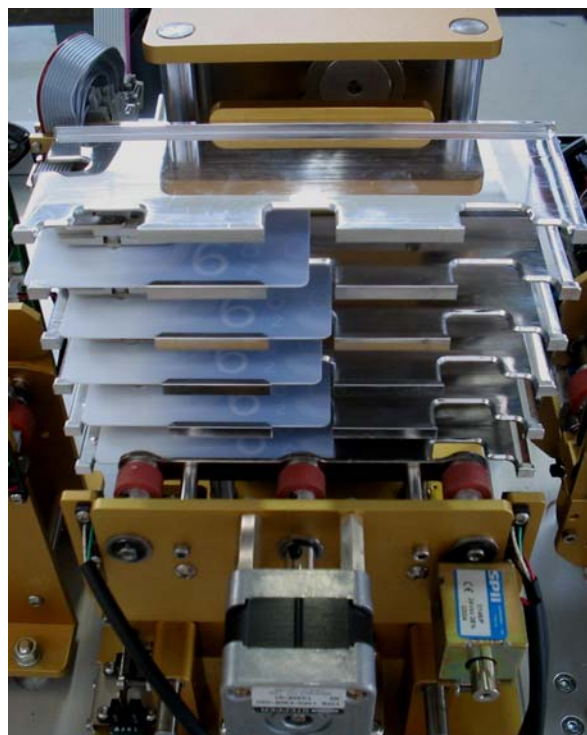


The card is then passed to a Transport module or to a Smart Card personalization module, depending on the configuration of the system.

The Transport module only passes the card to the next module.



The Smart Card module can manage the personalization of the chip present up to five cards in the same time. The mechanism works as an “elevator” by which the 5-station Smart Card module raises itself one station at the time until all 5 stations have been loaded, upon which the module descends to its initial position. At this point the first card, now fully personalized, is transferred to the next module and replaced by a new card, and the process described above is repeated. If there isn’t any chip personalization, the Smart Card module just passes the card to the next module.

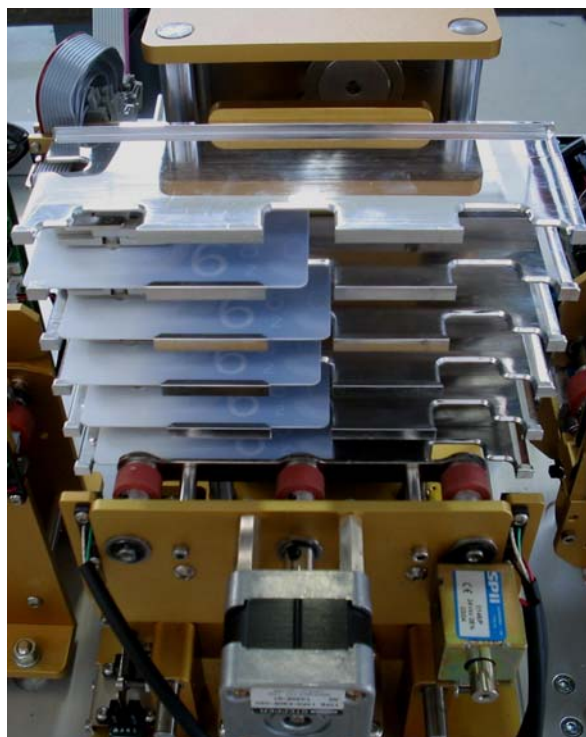


The card is passed again to a Transport module or to a Smart Card personalization module, depending on the configuration of the system.

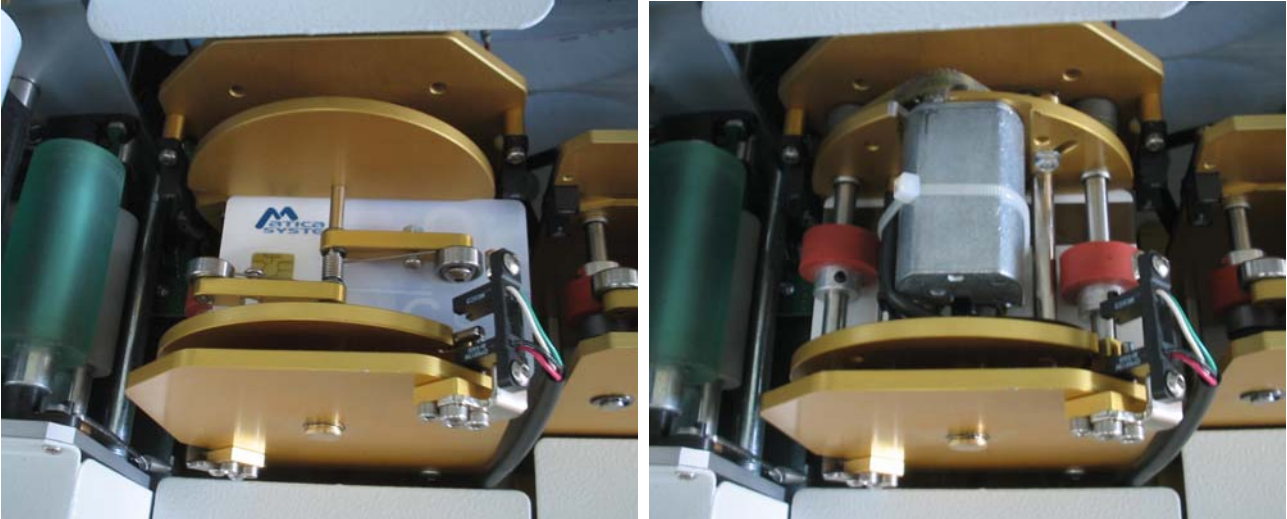
The Transport module only passes the card to the first Flip Over module.



The Smart Card module can manage the personalization of the chip present up to five cards in the same time. The mechanism works as an “elevator” by which the 5-station Smart Card module raises itself one station at the time until all 5 stations have been loaded, upon which the module descends to its initial position. At this point the first card, now fully personalized, is transferred to the first Flip Over module and replaced by a new card, and the process described above is repeated. If there isn't any chip personalization, the Smart Card module just passes the card to the first Flip Over module.



The first Flip Over module can simply pass the card to the first Thermal Printer module, if the card has to be printed on the top side, or rotate it 180° if the card has to be printed on the bottom side.



The first Thermal Printer module performs a 300 dpi graphic printing of the card in the desired position. The module can print the card from edge to edge (for the available MATICA ribbons see paragraph 1.2). The Printer is equipped with a system which combines a cleaning tape and a cleaning roller called AdvanceClean®, and ensures that cards are free from dust and debris. Furthermore the Thermal module every 5000 cards automatically gives a warning, by blinking a red led on its console, to remember that the printing head has to be cleaned.



The card is then passed to the second Flip Over; this module can simply pass the card to the second Thermal Printer, if the card has to be printed on the same side, or rotate it 180° if the card has to be printed on the other side.



Also the second Thermal Printer module performs a 300 dpi graphic printing of the card in the desired position. The module can print the card from edge to edge (for the available MATICA ribbons see paragraph 1.2). The Printer is equipped with a system which combines a cleaning tape and a cleaning roller called AdvanceClean®, and ensures that cards are free from dust and debris. Furthermore the Thermal module every 5000 cards automatically gives a warning, by blinking a red led on its console, to remember that the printing head has to be cleaned.



At the end of the cycle, the card is stored in the Output module; if the card is well personalized will be in the upper Output Hopper, while if the card is rejected or defective will be in the lower Reject Box.



Chapter 3 – Consumables

3.1 Changing Thermal module cleaning tape

When the Thermal Printer cleaning tape is finished (**fig. 1**), you have to replace it, in order to avoid plastic cards from dust before printing. First of all you must remove the used tape from its rolls (**fig. 2**).

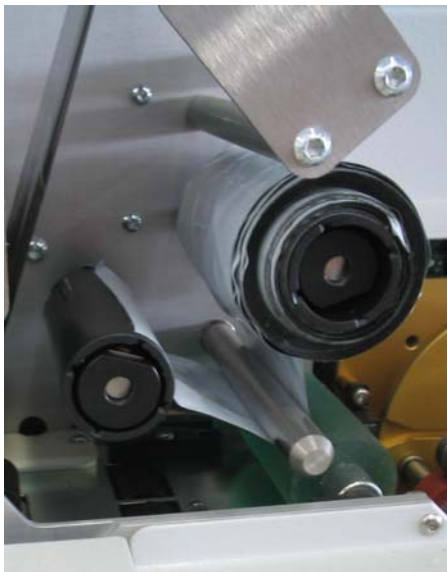


fig. 1



fig. 2

Now you need to insert the new tape in the two related rolls (**fig. 3**) with the full spool in the left roll, the empty spool in the right one and the ribbon over them. Be careful to put the tape under the shaft between the rolls (**fig. 4**).



fig. 3

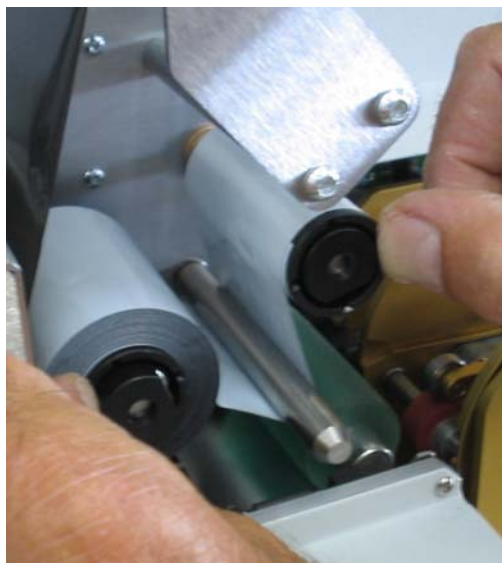
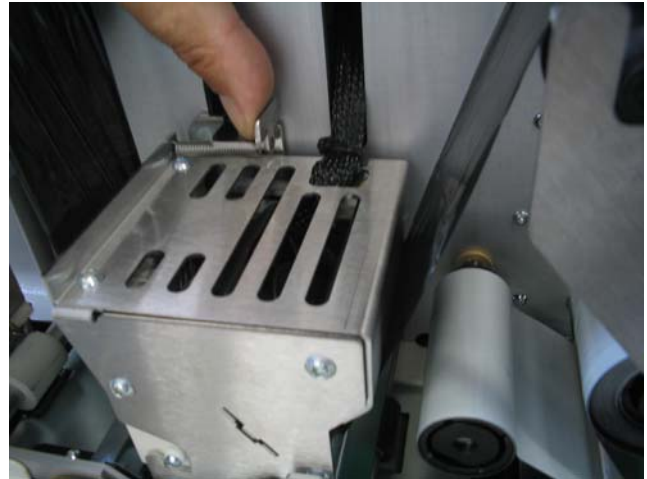


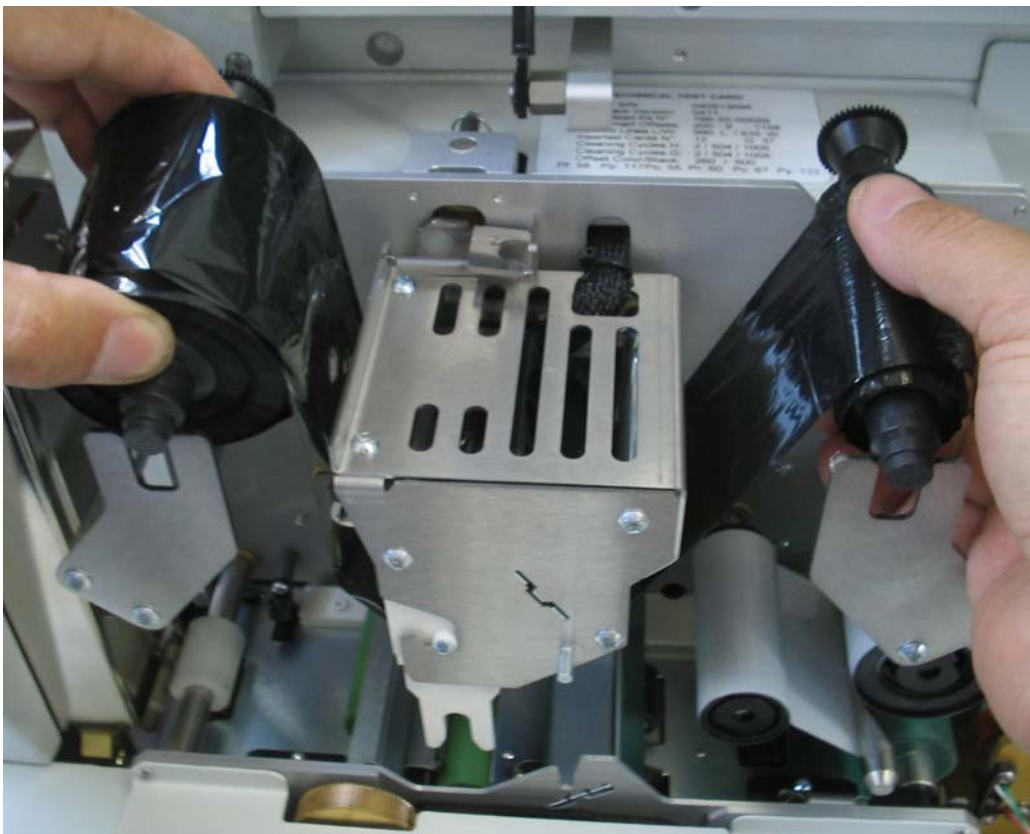
fig. 4

3.2 Changing Thermal module printing ribbon

When a Thermal printing ribbon is finished (**fig. 1**), you must replace it. First of all you had to unhook the print head by pulling the related spring (**fig. 2**), in this way the head lifts up horizontally.

**fig. 1****fig. 2**

Now it's necessary to remove the used ribbon from its inserts (**fig. 3**).

**fig. 3**

Then you have to put the new ribbon over its inserts, with the full spool of the ribbon in the right inserts and the empty spool in the left ones (**fig. 4**). Be sure that the ribbon runs over its spools, and also that the large ends of the ribbon spools will be in the inner inserts and the narrow ends in the outer ones.

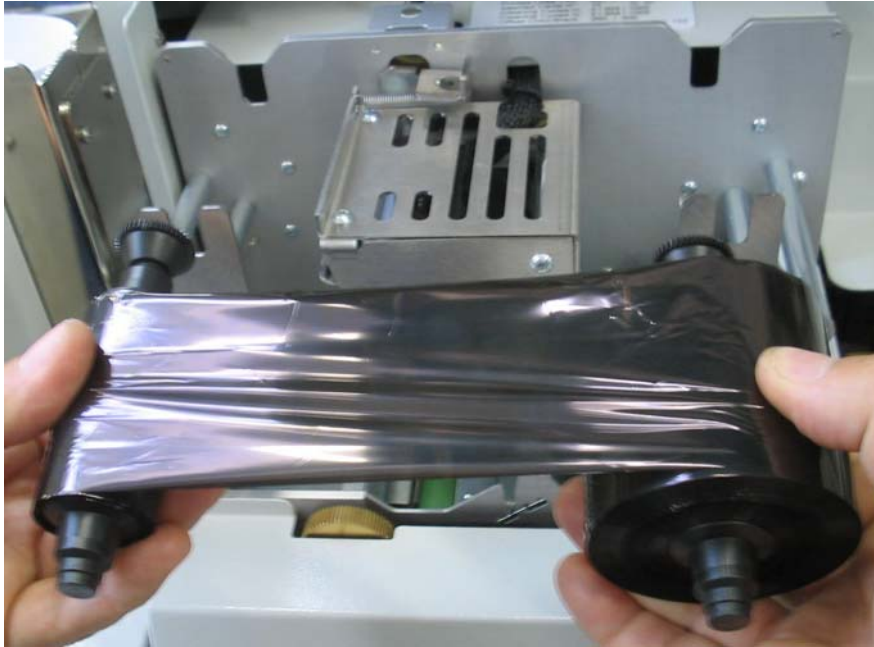


fig. 4

The first spool to insert is the full one, then you must unwind the ribbon and pass it under the print head (**fig. 5**).



fig. 5

Now you can insert also the empty spool (**fig. 6**).



fig. 6

Finally push down the print head (**fig. 7**) in order to hook the related pin to the module (**fig. 8**).



fig. 7



fig.8

Chapter 4 – Error List

When an error occurred the LCD will show the messages listed below. Apply the proper procedure to remove the error condition and then press CLEAR key to continue (please read carefully the error comments).

If there are two modules of the same kind in the system (for example two Flip Over), in order to distinguish which module generated the error, the related code is followed by another number; this number represents the order, in the working cycle, of one module compared to the other one.

ERROR CODE AND DESCRIPTION	SYMPTOM AND CORRECTIVE ACTION
E001 POWER-ON	At the power on the machine will show this message. Press CLEAR to continue.
E002 CONFIGURATION LOST	Hardware error: the mechanical parameters of the machine are lost. This can happen when a new version is downloaded.
E003 RAM ERROR	Hardware error: the RAM is defect. Power Off and On the machine again, if the error persist is necessary to change the logic board.
E004 WORKING TIME LOST	Hardware error: the working time and counters are lost.
E005 FORMAT AREA DATA LOST	Hardware error: the stored format is lost.
E012 PROTOCOL: FORMAT NUMBER ERROR(F0-F9)	Format error, check the embossing format error. The format number must be from 0 to 9 for the embossing.
E013 PROTOCOL: FORMAT NAME RROR	Format error, check the embossing format error. The Format name is max 8 digits. A SPACE or CR must separate the format name to the next command: F1 FN=TEST1 Y100X100 → OK F1 FN=TEST1Y100X100 → WRONG F1 FN=TEST 1 Y100X100 → WRONG
E014 PROTOCOL: CARD DIMENSION ERROR	Format error, check the embossing format error. Wrong SX or SY command.
E015 PROTOCOL: UNIT MEASUREMENT ERROR	Format error, check the embossing format error. Wrong Un command.
E016 PROTOCOL: FIELD NAME ERROR	Format error, check the embossing format error. The Field name is max 7 digits. A SPACE or CR must separate the Field name to the next parameter: N=LINE1 Y100X100 → OK N=LINE1Y100X100 → WRONG N=LINE 1 Y100X100 → WRONG
E017 PROTOCOL: Y COORDINATE ERROR	Format error, check the embossing format error. Is OK: Y100 X100; Y50 X50; Y050 X050 Is WRONG: Y10 0 X100; Y 50 X50; Y 050 X050
E018 PROTOCOL: X COORDINATE ERROR	Format error, check the embossing format error. Is OK: Y100 X100; Y50 X50; Y050 X050 Is WRONG: Y100 X10 0; Y50 X 50; Y050 X 050
E019 PROTOCOL: TOO MANY FIELDS (max 50)	Format error, check the embossing format error. You exceed the maximum number of fields (50 max).
E020 PROTOCOL: FONT ERROR	Format error, check the embossing format error. Use font 0 (F0) or font 1 (F1).
E021 PROTOCOL: CHARACTER SPACE ERROR	Format error, check the embossing format error. Wrong Cinn or CSnn parameters.
E022 PROTOCOL: VARIABLE FIELD SYNTAX ERROR	Format error, check the embossing format. Check the syntax.

ERROR CODE AND DESCRIPTION	SYMPTOM AND CORRECTIVE ACTION
E023 PROTOCOL: FIX FIELD SYNTAX ERROR	Format error, check the embossing format. Check the syntax.
E024 PROTOCOL: FORMAT WITHOUT FIELDS	Format error, check the embossing format. The format needs at least 1 field to be used.
E025 PROTOCOL: FIELD NOT COMPLETE	Format error, check the embossing format. Check the field.
E026 PROTOCOL: FIELD COMMAND ERROR	Format error, check the embossing format. Command or Parameter wrong.
E027 PROTOCOL: FORMAT MEMORY OVERFLOW	Format error, check the embossing format. The format memory is over. Reediting the stored format and remove not needed Spaces in order to reduce the used memory.
E028 PROTOCOL: FIELD-BUFFER OVERFLOW	Format error, check the embossing format. You exceed the maximum number of characters.
E029 PROTOCOL: ILLEGAL CHARACTER	Format error, check the embossing format. A wrong character is received and cannot be emboss.
E030 PROTOCOL: ERROR IN SEP PROTOCOL	Protocol generic error.
E031 PROTOCOL: ILLEGAL CHAR ON TRACK	You're trying to encode wrong characters. Please check the encoding data.
E032 PROTOCOL: OVERFLOW ERROR – DATA CORRUPTED	Too large buffer error.
E033 PROTOCOL: FIELD THERMO ERROR	Thermal Printer data error.
E034 PROTOCOL: CARD ID ERROR	Cad ID error in readback mode, chip personalization or card ID field.
E035 PROTOCOL: MACHINE STATUS ERROR	Machine status error when the setup is coming via SEP protocol.
E036 PROTOCOL: FIELD ENCODER ERROR	Encoder data error.
E101 FEEDER: FEEDER EMPTY	No card enters the magnetic module. If the hopper is empty add cards. If the hopper isn't empty, check if: a) Cards are stuck together; b) Cards are bowed; c) Mechanical impediments; d) Alignment between modules; e) The DC motor moves correctly; f) Check for correct connection of the motor on the board; g) Replace the motor.
E102 FEEDER: FEED SENSOR HOME	Feed sensor error (if there is the Feeder without the Encoder).
E103 FEEDER: FEED CARD JAM	Feed card error (if there is the Feeder without the Encoder).
E151 ENCODER: COMMUNICATION ERROR	Communication error. Please turn OFF /turn ON the machine.
E152 ENCODER: TRACK 1 EMPTY	The machine stops with a card in the magnetic module. a) Check if the cards are up side down; b) Check if the encoder head is connected correctly on the board (two connectors).
E153 ENCODER: TRACK 2 EMPTY	The machine stops with a card in the magnetic module. a) Check if the cards are up side down; b) Check if the encoder head is connected correctly on the board (two connectors).
E154 ENCODER: TRACK 3 EMPTY	The machine stops with a card in the magnetic module. a) Check if the cards are up side down; b) Check if the encoder head is connected correctly on the board (two connectors).

ERROR CODE AND DESCRIPTION	SYMPTOM AND CORRECTIVE ACTION
E155 ENCODER: TRACK 1 ERROR	The machine Stops with a card in the magnetic module. a) Check if the magnetic stripe is scratched / dirty on track1; b) Clean encoder head c) Check for timing belt tension.
E156 ENCODER: TRACK 2 ERROR	The machine stops with a card in the magnetic module. a) Check if the magnetic stripe is scratched / dirty on track2; b) Clean encoder head c) Check for timing belt tension.
E157 ENCODER: TRACK 3 ERROR	The machine stops with a card in the magnetic module. a) Check if the magnetic stripe is scratched / dirty on track3; b) Clean encoder head; c) Check for timing belt tension.
E158 ENCODER: ENCODER JAM	The machine stop with or without card(s) in the module. If there is one card in the magnetic module check if: a) The card is slipping on rollers clean them; b) Check if pulleys are fixed correctly on their shaft; c) Check if the DC motor moves; d) Check motor connector. If there is more than one card in the module check if hopper sensor: a) Is dirty: clean it with compressed air or lint free cloth; b) Isn't connected correctly on the board. No card in the module: a) Check if each of the three sensors which control the card movement works correctly; b) Clean the sensors with compressed air or a lint free cloth; c) Replace broken sensor(s). Check the embosser's clamp, it has to be opened. Check spring pressure in the embosser's module.
E159 CHIP ERROR	Smart card reading / writing error
E160 ENCODER: CARD OUT ERROR	Card out Encoder error.
E203-x FLIP OVER x: ROTATION SENSOR ERROR	Movement error when searching the 180° sensor.
E204-x FLIP OVER x: CARD IN SENSOR ERROR	Card in error.
E205-x FLIP OVER x: CARD OUT SENSOR ERROR	Card out error.
E206-x FLIP OVER x: UNABLE TO ROTATE	The Flip Over can't rotate because of a card not positioned in the middle of the module (but under the card in or the card out sensor).
E207-x FLIP OVER x: NOT CONNECTED	Communication error on the 485 serial with the Flip Over board.
E253-x THERMO x: TERMOGRAFICA ERROR	Thermal printer generic error.
E254-x THERMO x: COMMAND ERROR	Thermal printer command error.
E255-x THERMO x: PARAMETER ERROR	Parameter error in the buffer sent to Thermal printer.
E256-x THERMO x: TIME OUT ERROR	Timeout expired.
E257-x THERMO x: COVER ERROR	Printer head up.
E258-x THERMO x: CARD IN ERROR	Card in error.

ERROR CODE AND DESCRIPTION	SYMPTOM AND CORRECTIVE ACTION
E259-x THERMO x: RIBBON ERROR	Ribbon finished or not present.
E260-x THERMO x: UNKNOWN ERROR	Unknown error.
E261-x THERMO x: CLEAN ERROR	Cleaning cycle error.
E262-x THERMO x: ID SECURITY ERROR	Mismatch between Thermal printer ID card in buffer and ID card present under the printing head.
E263-x THERMO x: RESET COMPLETED	The module reset is completed.
E311 COVER OPEN	Machine cover open.
E401-x MULTICHIP x: HOME SENSOR ERROR	Lift module home error. Check the home sensor.
E402-x MULTICHIP x: CARD IN SENSOR ERROR	The card doesn't get into the module. Check the card in sensor or the input transport.
E404-x MULTICHIP x: CARD OUT SENSOR ERROR	The card doesn't get out of the module. Check the card out sensor or the output transport.
E407-x MULTICHIP x: CASTLE IN ERROR	Card transport input error. Check the related sensor, motor and belt's motor.
E408-x MULTICHIP x: CASTLE OUT ERROR	Card transport output error. Check the related sensor, motor and belt's motor.
E409-x MULTICHIP x: COMMUNICATION ERROR	Check the board and the serial cable.
E410-x MULTICHIP x: CHIP ERROR	Reading or writing error. Check the offset.
E411-x MULTICHIP x: CHIP CONTACT ERROR	The chip contact is up or down while it should be in the other position. Check the related sensor, motor and offset.
E501 OUTPUT STACKER: HOME ERROR	Card can be either ejected or not. During a reset operation or if the card has been ejected: a) Check if the motor moves; b) Motor connection; c) Check stacker sensor; d) Clean the stacker home sensor; e) Check sensor connection; f) Replace stacker sensor. If the card hasn't been ejected: a) Check for mechanical impediments that don't allow the stacker to home correctly.
E502 OUTPUT STACKER: NOT PRESENT	Machine stops Check the stacker present connector
E503 OUTPUT STACKER: STACKER FULL	The machine stops. If the stacker is full unload it. If the stacker isn't full: a) check if the micro is working correctly.
E505 UNLOAD: COMMUNICATION ERROR	Communication error on 485 serial with unload board.

Chapter 5 – Cleaning

To ensure that the system operates correctly, it is necessary to carry out periodic cleaning of some of the components that otherwise could cause problems in cards production.

To clean all the transport rolls of the system and the Encoder module head, you must absolutely use isopropyl alcohol; at this purpose you can use an apposite cleaning card supplied by MATICA®.

It is recommended to use the aforesaid products only for the indicated components, in order to avoid damaging the system.

It is also useful to carry out a periodic general cleaning of the system, by using a vacuum cleaner every week or 10,000 cards performed.

5.1 Thermal Printer cleaning

Warning: The Print Head must be cleaned every 5000 cards to satisfy the warranty conditions.

To check the cleaning status press on the keyboard ALT + F12 and then the up arrow key two times. The system display will show two counters and a message.

The first counter is the number of card passed.

The second counter indicates when to perform the cleaning cycle.

The message could be:

THERMO x COUNTER if the cleaning cycle has been performed

or

Tx : CLEANING NEEDED if the cleaning cycle has not been performed

(in both messages the digit **x** represents the position in the working cycle of the displayed Thermo Module, regarding other modules of the same kind present in the whole Card Issuance System).

When the Thermal Printer module has to be cleaned, every 5,000 cards, the right led on its own console starts to blink a red light (**fig. 1**).



fig. 1

To clean the print head you must use a PVC printer cleaning kit (**fig. 2**) provided with a cleaning card (**fig. 3**).



fig. 2



fig. 3

Remove the printing ribbon as shown in paragraph 3.2, being sure that the print head is down. Then insert the cleaning card into the first Flip Over (**fig. 4**) and push it until the Thermal module (**fig. 5**).



fig. 4

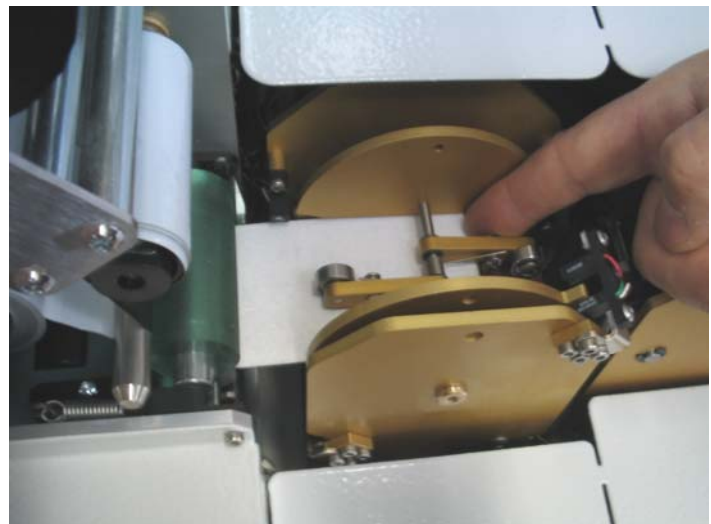


fig. 5

Push and hold the right button on the module console (**fig. 6**).



fig. 6

Now the card passes under the print head (**fig. 7**).

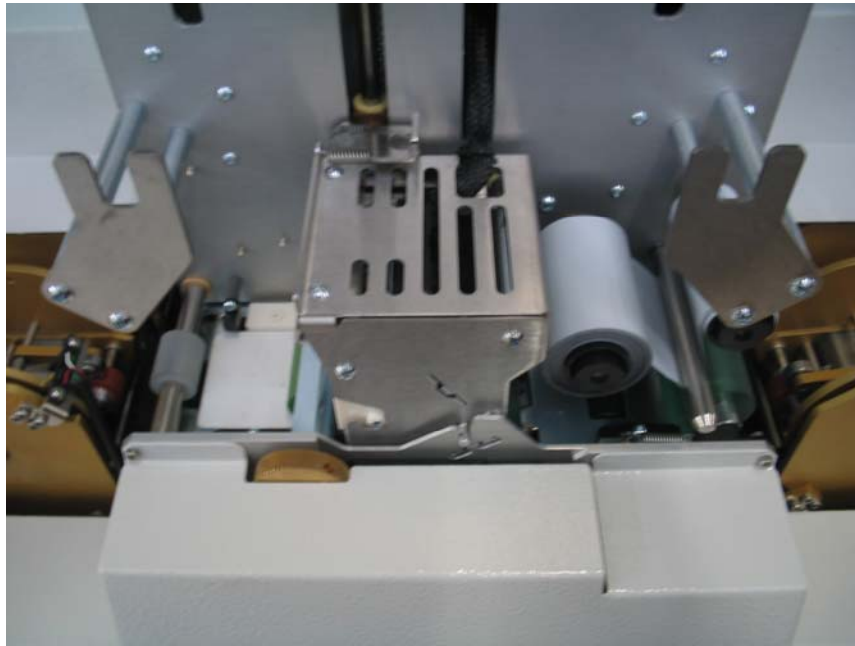


fig. 7

At the end of the cleaning cycle, it goes into the second Flip Over (**fig. 8**) where you can take the card away. Finally you must insert again the printing ribbon as shown in paragraph 3.2.

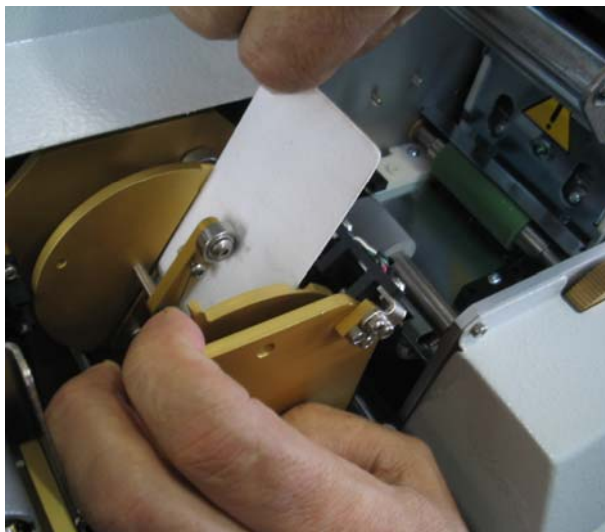


fig. 8