Model Z9

CENTRALIZED CARD ISSUANCE SYSTEM

Matica SYSTEM

OPERATOR MANUAL

Revision 2.02

CE

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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. Avoid using plugs-in placed on the same circuit in connection with machines starting up and stopping periodically. Take care of the power supply cable, in order to avoid damaging or wearing out.
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	more than 350 card per hour (40 ch./card)
Card Format	ISO CR80 – ISO 7810
Hopper Capacity	Input: 250 cards Output: 200 embossed cards (approx.)
Size	Width: 82 cm (32.3”) Depth: 60 cm (23.6”) Height: 38 cm (15”)
Weight	65 Kg (143 lbs)
Communication Interface	RS232 serial port
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 Z9 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 Z9 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 Z9 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 into a wooden case.
It's necessary to pay attention to the infrastructures' size (doors, hoists, etc.) through witch the machine must be passed to be definitively settled in its site.

To dismantle the case, carry out the following procedure:

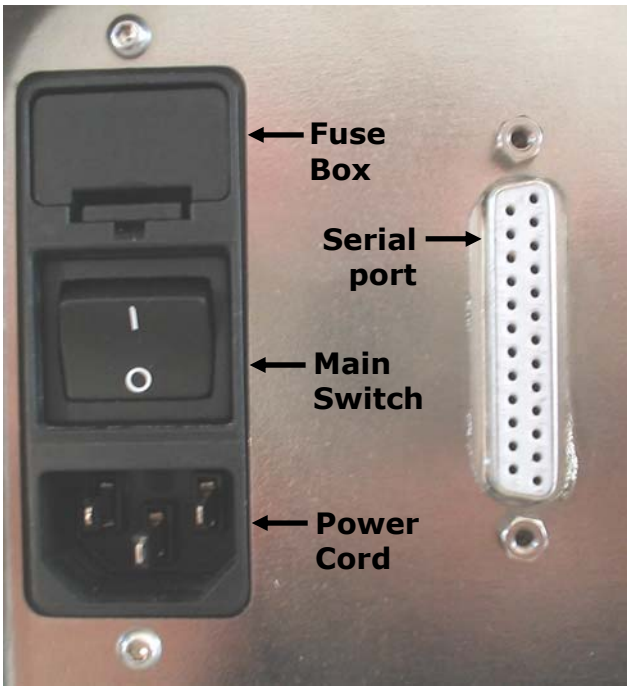
- Unscrew the side upper screws to remove the top cover.
- Remove the accessories: cables, keyboard, documentation, etc.
- Remove the top polyurethane shell.
- Unscrew the bottom screws to remove the side cover.
- Extract the machine from the bottom polyurethane shell (using at least two persons).
-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

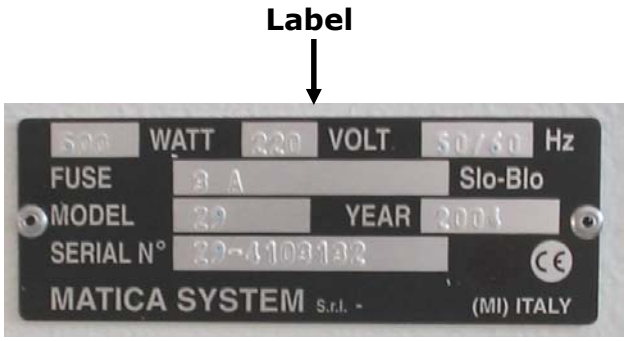
It is advisable to keep the case and the protective materials for possible reuse.

In addiction to the machine, the following components are also packed inside: Power cord, Serial 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.



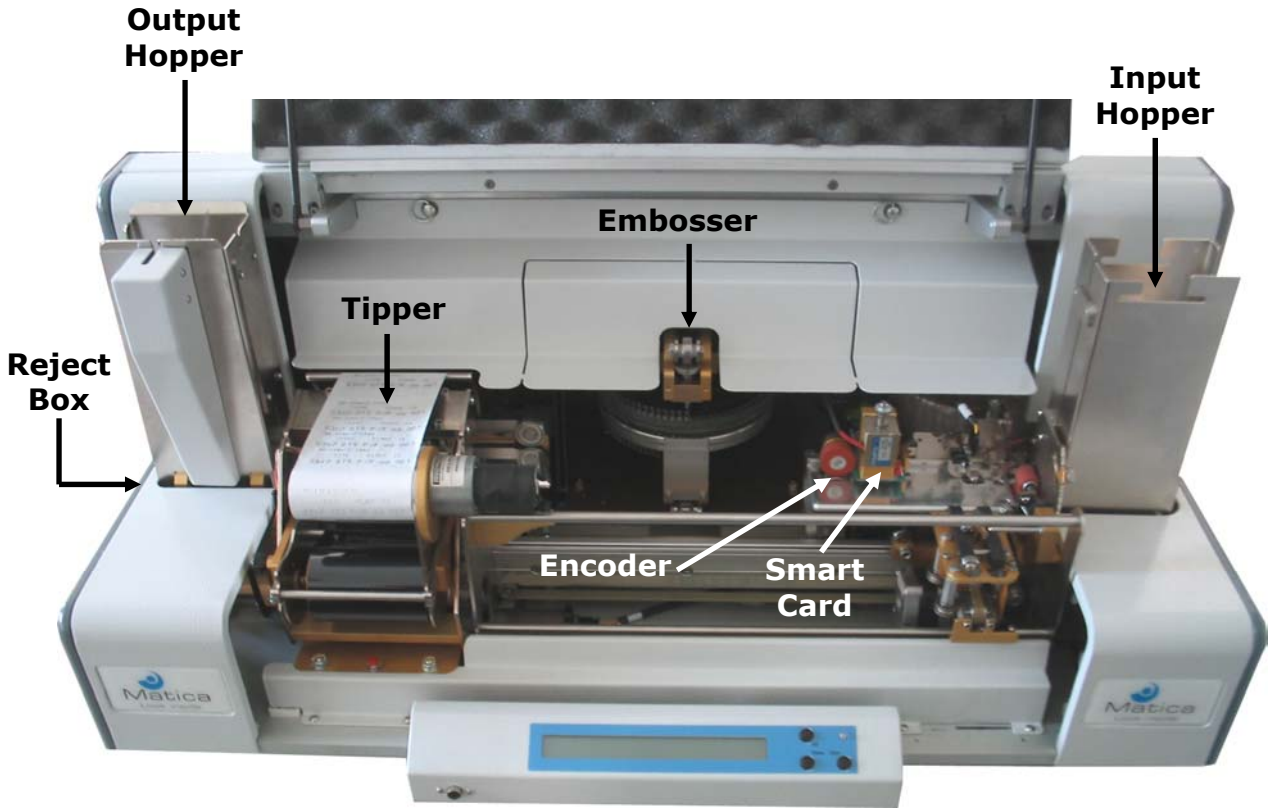


Chapter 2 – Start up

2.1 Configuration

The Z9 system is provided with the following features:

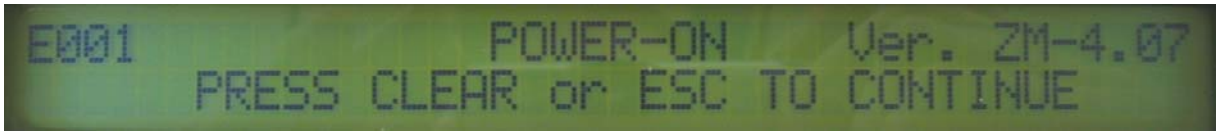
- Automatic Input Hopper
- HiCo (2540~4000 Oe) / LoCo (300 Oe) Magnetic Stripe Encoder
- Single Smart card personalization module (as optional)
- Embossing module (Front/Rear Indent as optional)
- Tipper module
- Output Hopper with Reject Box



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 Z9 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.

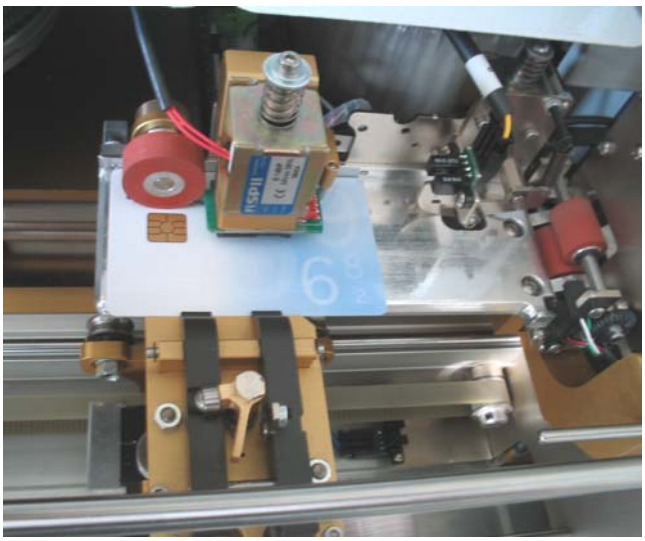
3. Two colors LED with the following meaning:
   - GREEN color : when the machine is READY
   - RED color : when standing the machine is BUSY
     when blinking the machine is in ALARM

4. One connector for the keyboard

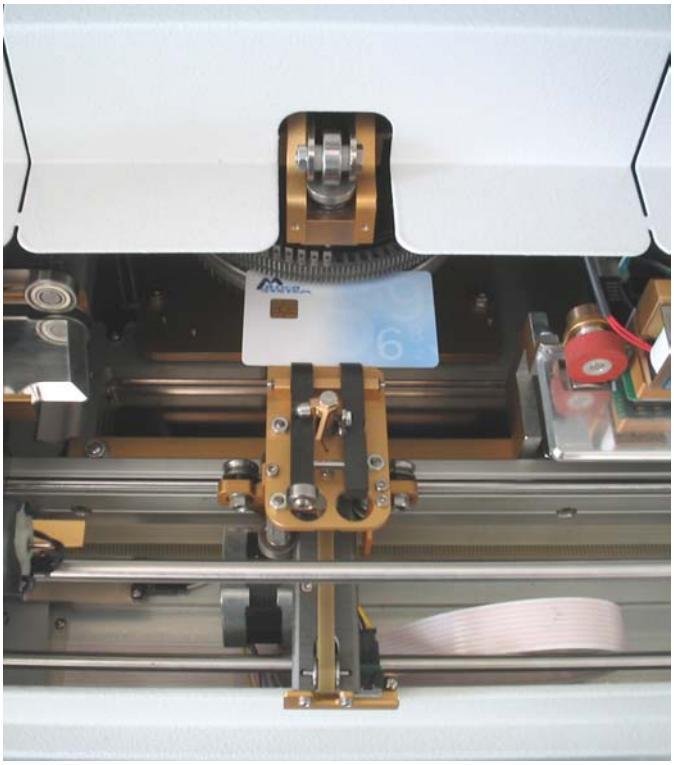
2.4 Working Cycle

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.
Then the Clamp carries the card to the Embosser.



The Embosser module embosses the characters present into its drum in the desired position on the card. This module can be equipped with two indent module, front and rear, to perform the indenting personalization of both sides of the card in a single pass.



Now the card passes into the Tipper module, which colors the embossed characters; the color depends on the kind of ribbon mounted.

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 Indent ribbon

To change the Indent ribbon, first of all you must unhook the desired Indent cartridge by pulling the related lever; for the upper cartridge the lever is on the left side (**fig. 1**) while for the lower cartridge the lever is on the right side (**fig. 2**).

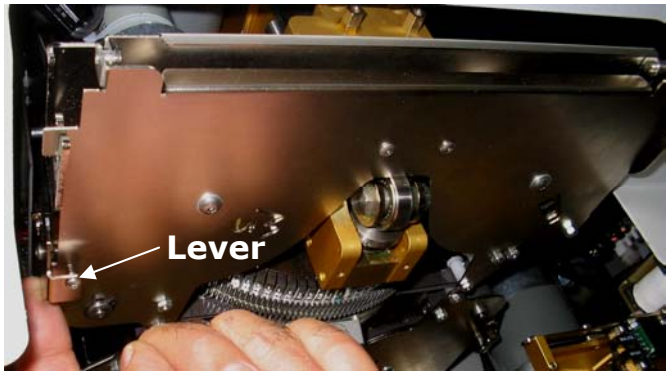


fig. 1

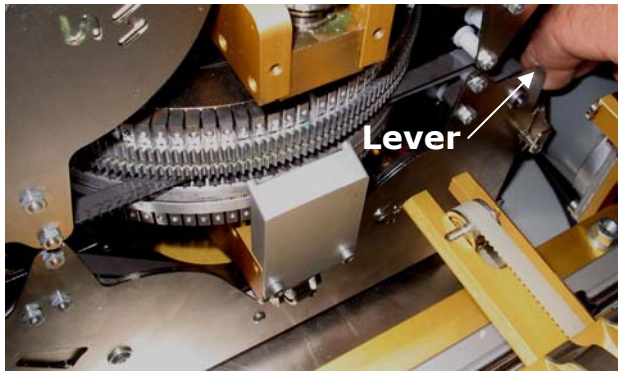


fig. 2

Now you can pull out the upper (**fig. 3**) or the lower (**fig. 4**) cartridge.

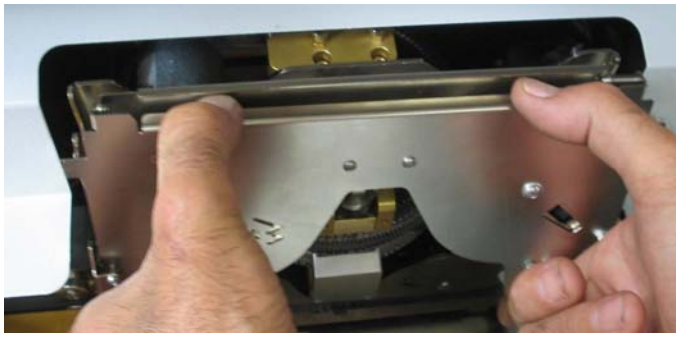


fig. 3

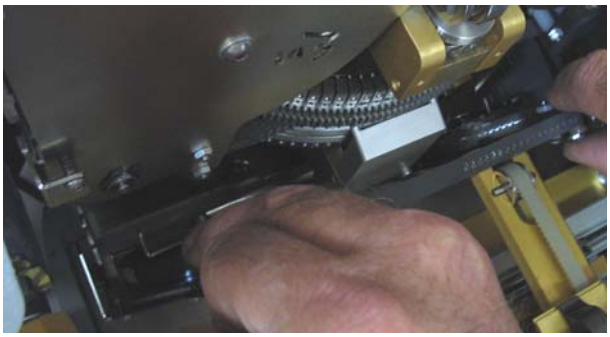


fig. 4

Then you have to put the cartridge, either upper or lower, on a plain surface (**fig. 5**) and pull the spring that releases the ribbon cover (**fig. 6**).

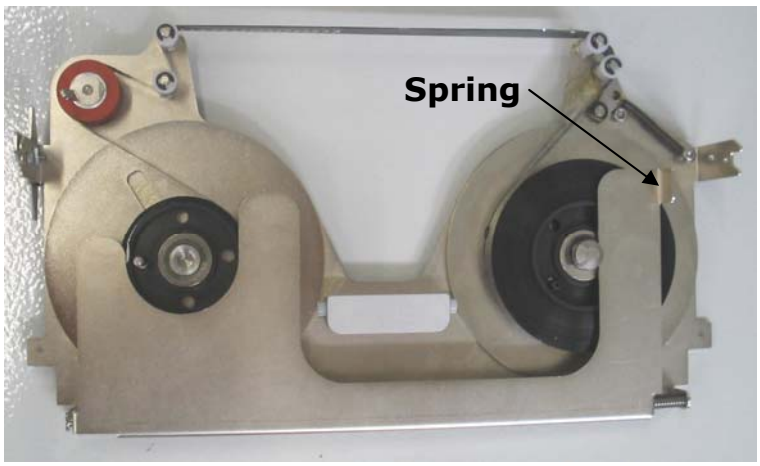


fig. 5

fig. 6

At this point you need to lift up the ribbon cover (**fig. 7**) and remove the used ribbon from the cartridge (**fig. 8**).

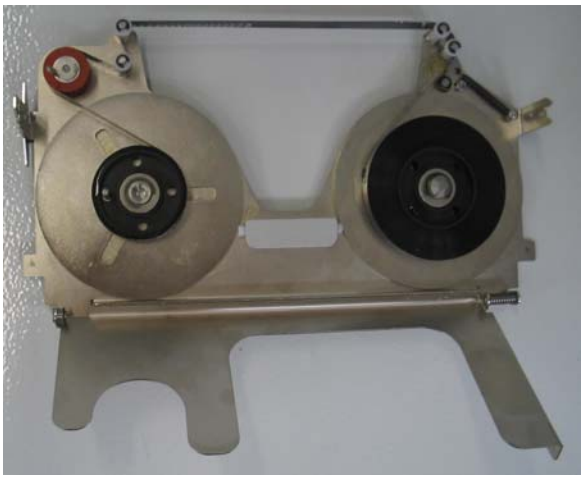


fig. 7

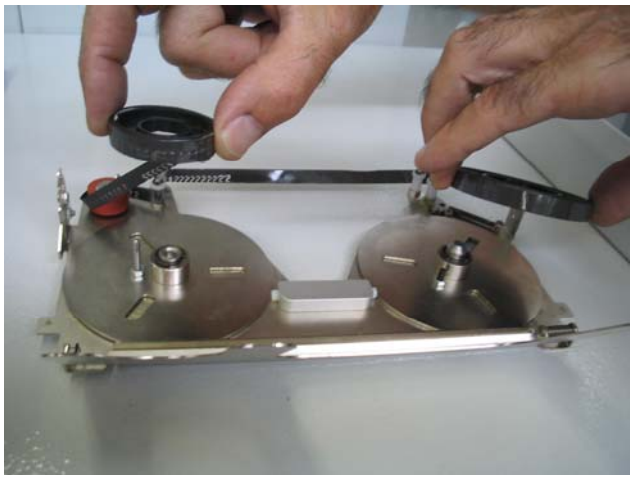


fig. 8

Now you can insert the new ribbon in the related pins with the full spool on the left pin and the empty spool on the two right pins (**fig. 9**), from the ribbon rolls point of view.

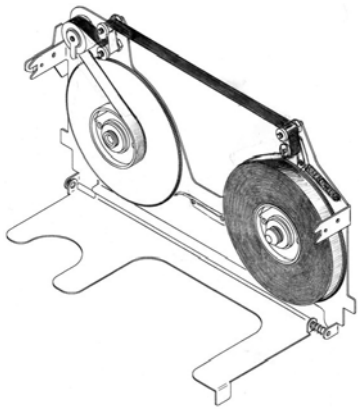


fig. 9

You must be absolutely sure that the ribbon runs with the ink side opposite to the pin spools, trough this path: outside the two rolls near the full spool (**fig. 10**), outside the first roll and inside the second roll near the empty spool and finally outside the big red roll (**fig. 11**).

fig. 10

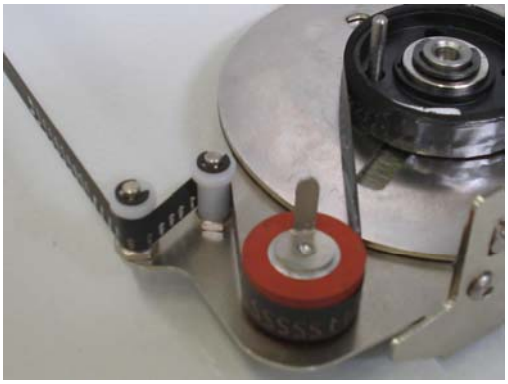


fig. 11

Then you have to put the side projections of the upper cartridge in the related inserts on the module (**fig. 12**). Finally you must push the cartridge in order to hook it, paying attention to pass the ribbon under the upper punches (**fig. 13**).

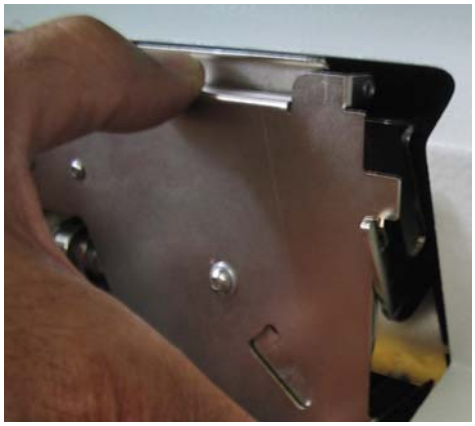


fig. 12

fig. 13

Similarly, you have to put the side projections of the lower cartridge in the related left (**fig. 14**) and right (**fig. 15**) inserts on the module

fig. 14

fig. 15

Finally you must push the cartridge in order to hook it, paying attention to pass the ribbon over the lower punches (**fig. 16**).

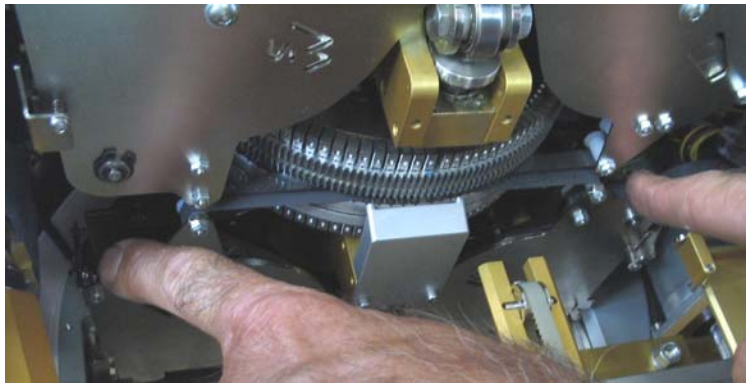


fig. 16

3.2 Changing Tipper ribbon

When the Tipper ribbon is finished (**fig. 1**) you have to unhook the ribbon cartridge, by pulling the black knob on the left of the module, in order to extract the cartridge itself (**fig. 2**).

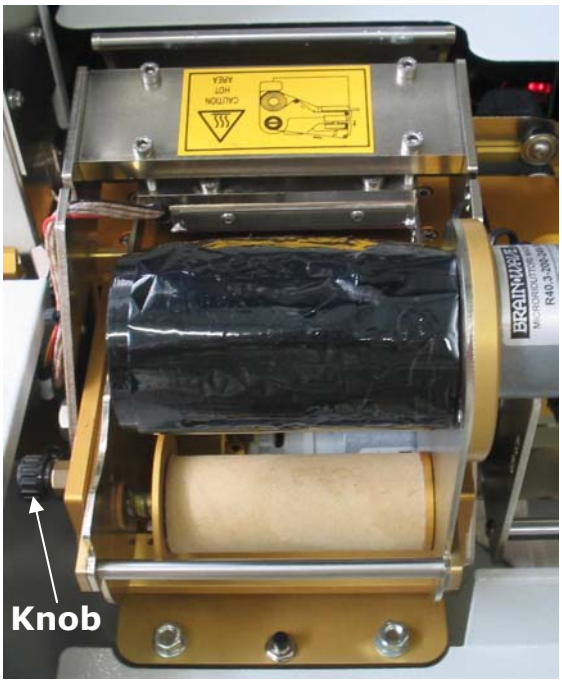


fig. 1

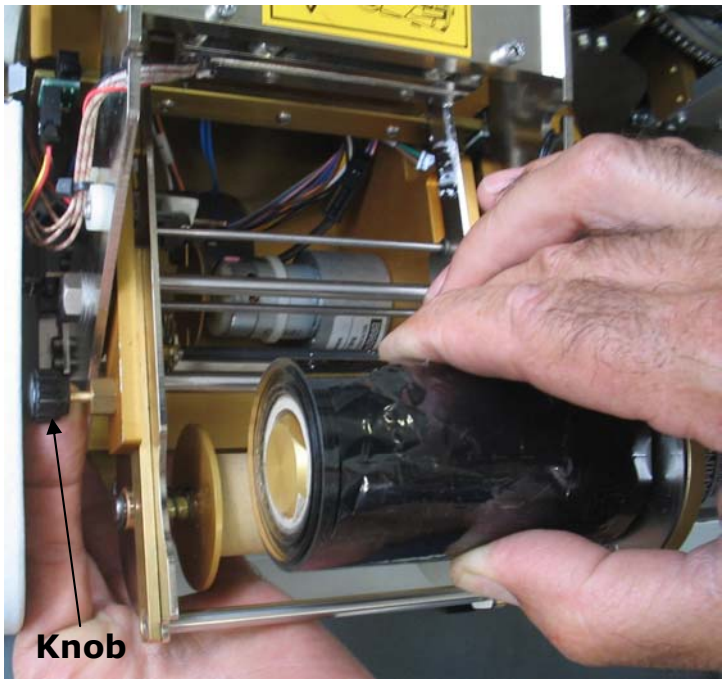


fig. 2

While you are holding the cartridge, you must remove the used ribbon from its spool (**fig. 3**) and pull the disk spring that holds the old carton core (**fig. 4**).

fig. 3

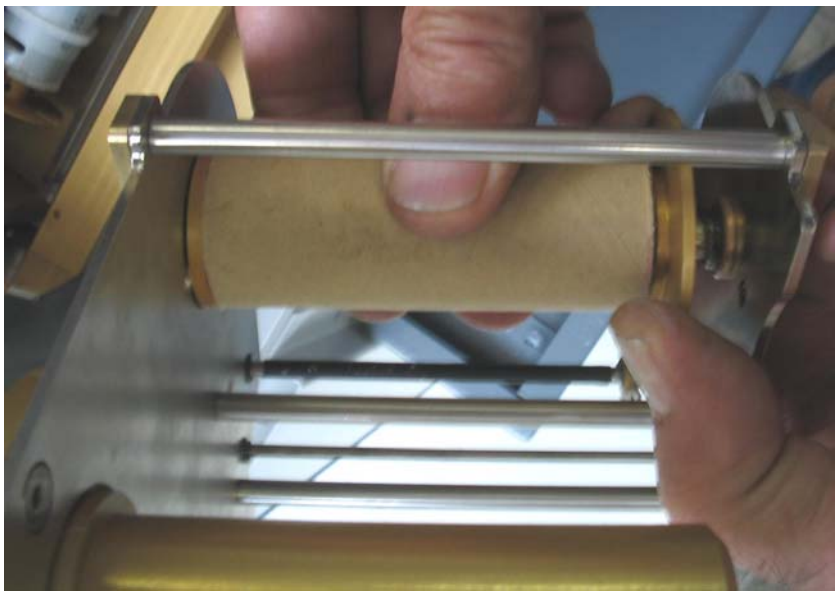


fig. 4

Then you can extract the old carton core (**fig. 5**) and insert in the same position the new ribbon by pulling the related disk spring (**fig. 6**). Be careful that the ribbon unwinds over the core.

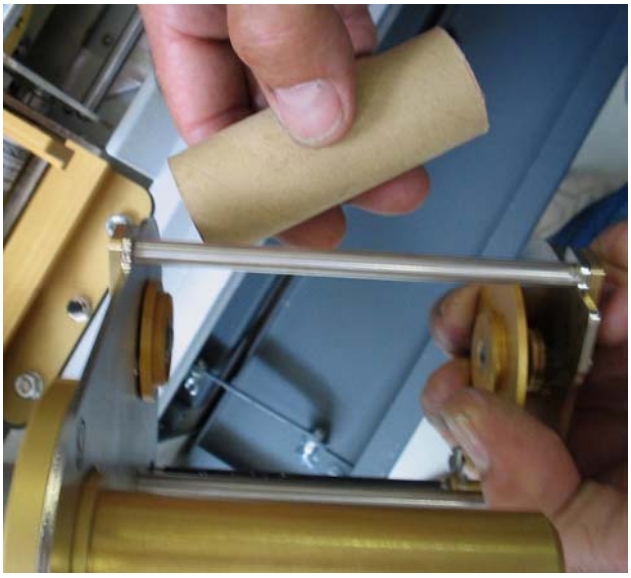


fig. 5

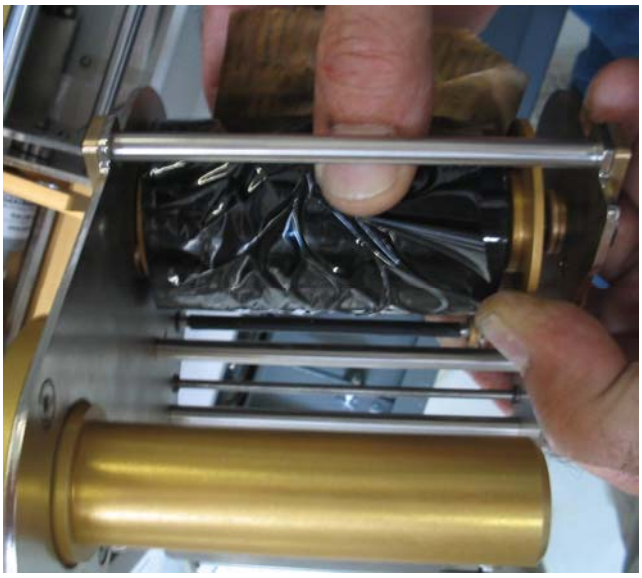


fig. 6

Now you must be absolutely sure that the ribbon follows this path: over the nearest first shaft, under the black shaft (**fig. 7**), between the third little shaft and the fourth one, over the fifth little shaft and finally under the farer shaft (**fig. 8**).

fig. 7

fig. 8

At this point you have to pull up the ribbon, pass it over the upper shaft, and put the cartridge in its beginning position on the module (**fig. 9**); then you can hook the cartridge by pushing it until the black knob clicks (**fig. 10**).

fig. 9

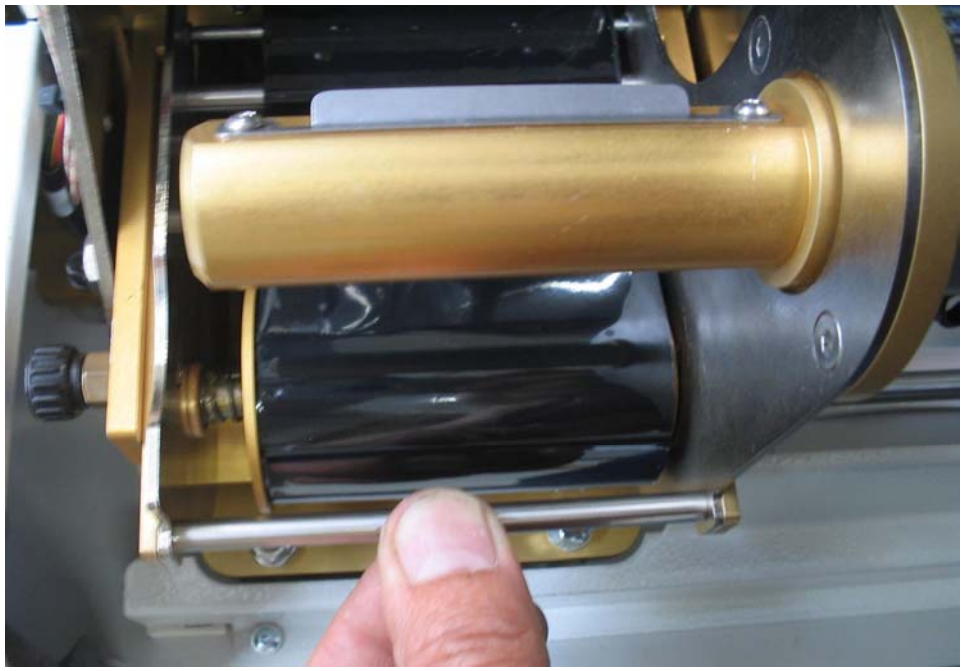


fig. 10

Now you must insert the new carton core in the top spool (**fig. 11**) and fasten the ribbon on it with a stick tape (**fig. 12**).

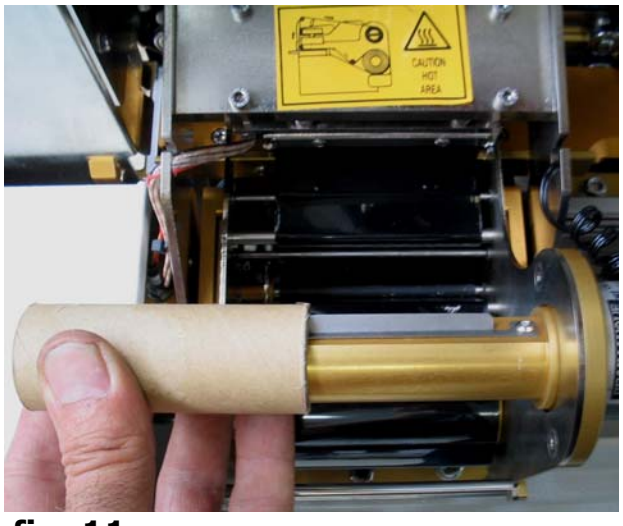


fig. 11

fig.12

Finally you have to push the black button on the module (**fig. 13**) in order to tighten the ribbon and wind it on the top spool (**fig. 14**).

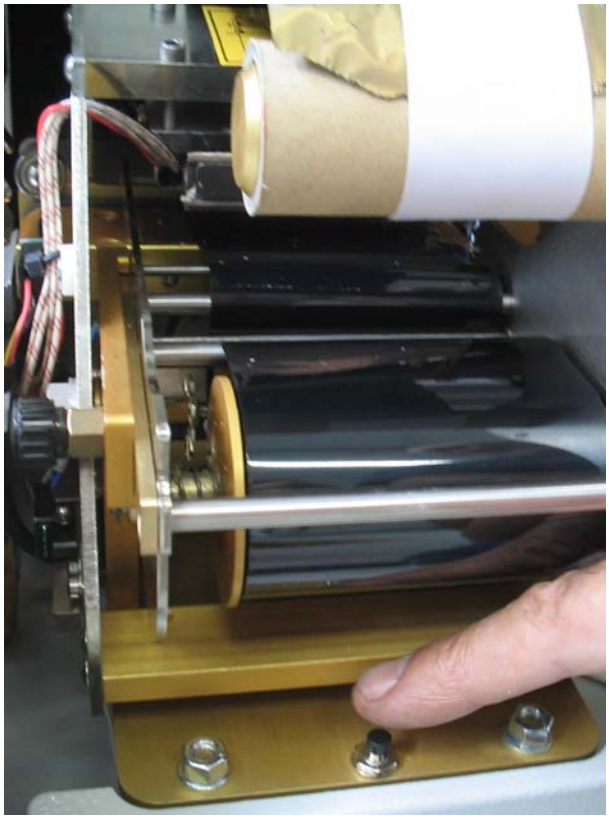


fig. 13

fig. 14

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).

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 digit. 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 digit. 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.
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.

ERROR CODE AND DESCRIPTION	SYMPTOM AND CORRECTIVE ACTION
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).
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
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

ERROR CODE AND DESCRIPTION	SYMPTOM AND CORRECTIVE ACTION
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;
E158 **ENCODER**: ENCODER JAM	The machine stops 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; 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 the sensor which control the card movement works correctly; b) Clean the sensor with compressed air or a lint free cloth; c) Replace broken sensor. 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.
E301 **EMBOSSER**: X-HOME MOTOR ERROR	Check for X home sensor: a) X home sensor is dirty: clean it with compressed air or lint free cloth; b) X home sensor isn't connected correctly on the board. Check that all pulleys are fixed on the shaft. Check X motor connection. Check the belt's state.
E302 **EMBOSSER**: Y MOTOR ERROR	Card is embossed in a wrong way. Remove any impediments along the embossing Y travel.
E303 **EMBOSSER**: X-END MOTOR ERROR	Card is picked by embossing clamp and is taken to the embosser's exit. Check for X end sensor: a) X end sensor is dirty: clean it with compressed air or lint free cloth; b) X end sensor isn't connected correctly on the board; c) Remove any impediments along the X embossing travel; d) Check that all pulleys are fixed on the shaft; e) Check X motor connection; f) Check the belt's state.
E304 **EMBOSSER**: DRUM MOTOR ERROR	The card can even be picked or not by the embosser's clamp and the embossing sequence isn't completed correctly. If the clamp picks the card but doesn't start punching and the drum keeps on moving: a) Check drum motor home sensor; b) Drum motor home sensor is dirty: clean it with compressed air or lint free cloth; c) Drum motor home sensor isn't connected correctly on the board. If the card is picked, but it is embossed in a wrong way check: a) Belt tension; b) If pulleys are fixed on the shafts; c) If the motor is moving correctly or it stalls. If the card is picked by the clamp but the drum doesn't move check: a) Drum motor connection on the board.

ERROR CODE AND DESCRIPTION	SYMPTOM AND CORRECTIVE ACTION
E305 **EMBOSSER**: CARD LOST	Card isn't present in the picker position: a) Card has been mistakenly removed; b) Card jams in the previous module.
E306 **EMBOSSER**: CARD MISFEED-POSITION CARD	The clamp holds the card, but the embossing cycle doesn't start. Check the entry sensor: a) Entry sensor is dirty: clean it with compressed air or lint free cloth; b) Entry sensor isn't connected correctly on the board. The clamp moves straight to embossing area without a card or after having made a bad noise: a) Check for Y home sensor; b) Y home sensor is dirty: clean it with compressed air or lint free cloth; c) Y home sensor isn't connected correctly on the board; d) Check Y motor electrical connections; e) Check if the pulley is fixed on Y motor shaft; f) Check belt state.
E308 **EMBOSSER**: PUNCH MOTOR ERROR	The embossing clamp picks the card but the embossing sequence isn't completed correctly. Check for any mechanical impediments along the embossing leverage. If the card is picked by the embosser's clamp but just one character is embossed: a) Check punch motor home sensor; b) Punch motor home sensor is dirty: clean it with compressed air or lint free cloth; c) Punch motor home sensor isn't connected correctly on the board. If the card data aren't embossed correctly check: a) Belt status; b) All pulleys are fixed on the shaft correctly. The card is picked correctly by the embosser's clamp and it is placed correctly under the drum, but the embosser mechanism doesn't start, check: a) If the embossing motor is connected correctly on the board; b) replace the motor.
E309 **EMBOSSER**: RIBBON INFILLER ERROR	Card not punched in infill way. If ribbon is finished replace it. If ribbon isn't finished: a) Check if ribbon is installed correctly; b) check if ribbon advance sensor is working correctly.
E311 **COVER OPEN**	Machine cover open.
E312 **EMBOSSER**: DRUM MOTOR ERROR	Drum movement error.
E313 **EMBOSSER**: Y MOTOR ERROR	Y-axis movement error.
E314 **EMBOSSER**: X-END MOTOR ERROR	Movement error on the end sensor.
E315 **EMBOSSER**: CARD MISSING	The card goes out from the previous module but doesn't reach the Embosser.
E316 **EMBOSSER**: CARD LOST	Card correctly loaded and then lost by the Embosser card guide.

ERROR CODE AND DESCRIPTION	SYMPTOM AND CORRECTIVE ACTION
E351 **TAPE OUT**: CARD OUT ERROR	Tipper card out error. Check the output sensor or card jam.
E352 **TIPPER**: COMMUNICATION ERROR	Communication error. Please turn OFF /turn ON the machine.
E353 **TIPPER**: HOME ERROR	The card remained under the tipping zone with the platen pushing on the card. Check for any mechanical impediments along the tipping movement.
E354 **TIPPER**: RIBBON ERROR	The tipper ribbon foil doesn't advance correctly. Check if tipper ribbon foil is finished: a) Replace ribbon. If the card is attached to the ribbon with embossed chars flattened: a) Check plate movement sensor; b) Plate movement sensor is dirty: clean it with compressed air or lint free cloth; c) Plate movement sensor isn't connected correctly on the board; d) Check motor tipping encoder sensor; e) Motor tipping encoder sensor is dirty: clean it with compressed air or lint free cloth; f) Motor tipping encoder sensor isn't connected correctly on the board. If the card is tipped correctly, but doesn't leave module check: a) Take up ribbon motor's connections. If the ribbon moves correctly, but the card is not tipped: a) Check ribbon advance encoder sensor; b) The ribbon advance encoder sensor is dirty: clean it with compressed air or lint free cloth; c) Ribbon advance encoder sensor isn't connected correctly on the board; d) The tipping ribbon foil may slip on one of the shaft.
E355 **TIPPER**: WAITING FOR TEMPERATURE	Waiting for the correct temperature for the tipper.
E356 **TAPE OUT**: CARD IN ERROR	Tipper card in error
E357 **TAPE OUT**: CARD POSITIONING ERROR	Card position error for tipping procedure.
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.