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Update Firmware on Italian Fiscal Printer

Italian Fiscal Printer – Registratore Telematico

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1. INTRODUCTION

This document describes the procedure to update the firmware on Italian fiscal printers (RT and Server RT).

There are different ways to update the fiscal firmware:

1. Using the remote update procedure without the removing fiscal seal and setting download URLs.
2. Using the remote update procedure without the removing fiscal seal and using a USB pen drive.
3. Removing the fiscal seal and using a USB pen drive.

IMPORTANT: The fiscal seal can only be removed by an authorised technician that has a fiscal stamp or a fiscal label. Without them, you can only use the printer in a laboratory environment or similar.

With method 3 above, after having loaded the firmware, the fiscal printer parameters will need to be reprogrammed.

The following data items are always maintained unaltered:

1. Fiscal serial number.
2. Electronic journal data (MPD / DGFE).
3. Fiscal memory data (MPR).

Attention: With method 3 above, before opening the printer and before disconnecting the customer display and eventual RS-232 serial cable, please remove the power by disconnecting the 220 V power cable. The frontal switch does not switch off the fiscal board.

If a pen drive is used, it must contain a single partition and be FAT32 formatted. A so-called partitionless drive is not supported. Please see Preparing a USB Pen Drive chapter in this document.

2. RELATIVE DOCUMENTS

- EPSON Serie FP Manuale Operatore (User Manual)
- Communication Protocol

3. ABBREVIATIONS AND TERMINOLOGY DEFINITIONS

ACK	Acknowledgement
AE or AdE	Agenzia dell'Entrate (Italian tax authority)
CNT	Frame counter
CKS	Frame checksum
EJ	Fiscal Electronic Journal (DGFE / MPD)
ETX	End of Text frame identifier
FM	Fiscal Memory / MPR
MF	Misuratore Fiscale (fiscal printer based on 1983 fiscal law)
MMC	Multimedia Card (No longer used). Must be SD type.
MPD	New name for EJ (DGFE) in the case of RT printers
MPR	New name for FM (Fiscal Memory) in the case of RT printers
PDU	Protocol Data Unit
RT	Registratore Telematico (fiscal printer based on new data transmission law)
STX	Start of Text frame identifier

4. PRINTER PREPARATION

If necessary, make a note of the printer settings and/or the counters that you manage (our EpsonFpWizard utility can be used to back up the configuration). The remote update procedure automatically retains key settings, but a backup is always recommended. The Electronic Journal data is not affected by firmware loading or printer resets.

If the printer is operable, the fiscal day must be closed. Carry out a fiscal daily closure (chiusura fiscale giornaliera Z-01 / Z-02). The attached keyboard can be used. Press:

- 2 2 2 2 → Chiave → 0 1 or 0 2 → Contante → Chiave

Alternatively, the following tags can be used with the Web Service:

- printZReport
- printXZReport

5. REMOTE UPDATE PROCEDURE

There are two ways to update the fiscal firmware via the remote update procedure:

1. Setting download URLs
2. Using a correctly prepared USB pen drive. See Preparing a USB Pen Drive

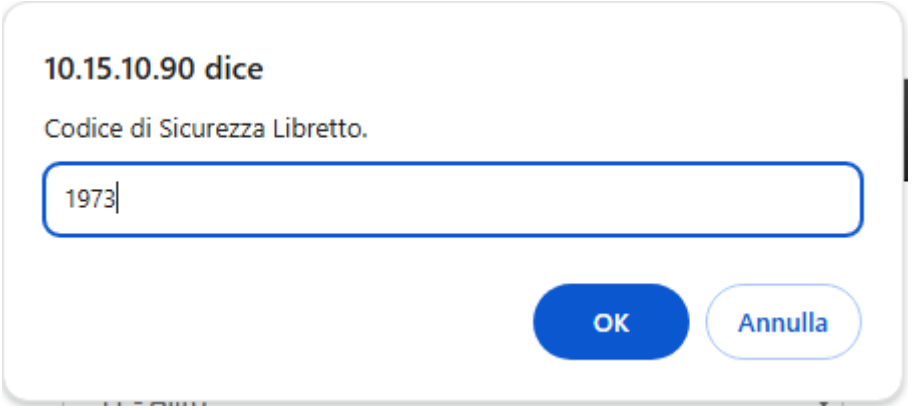
There are two utilities available that can be used to update the fiscal firmware:

1. Libretto Elettronico
2. EpsonFpWizard

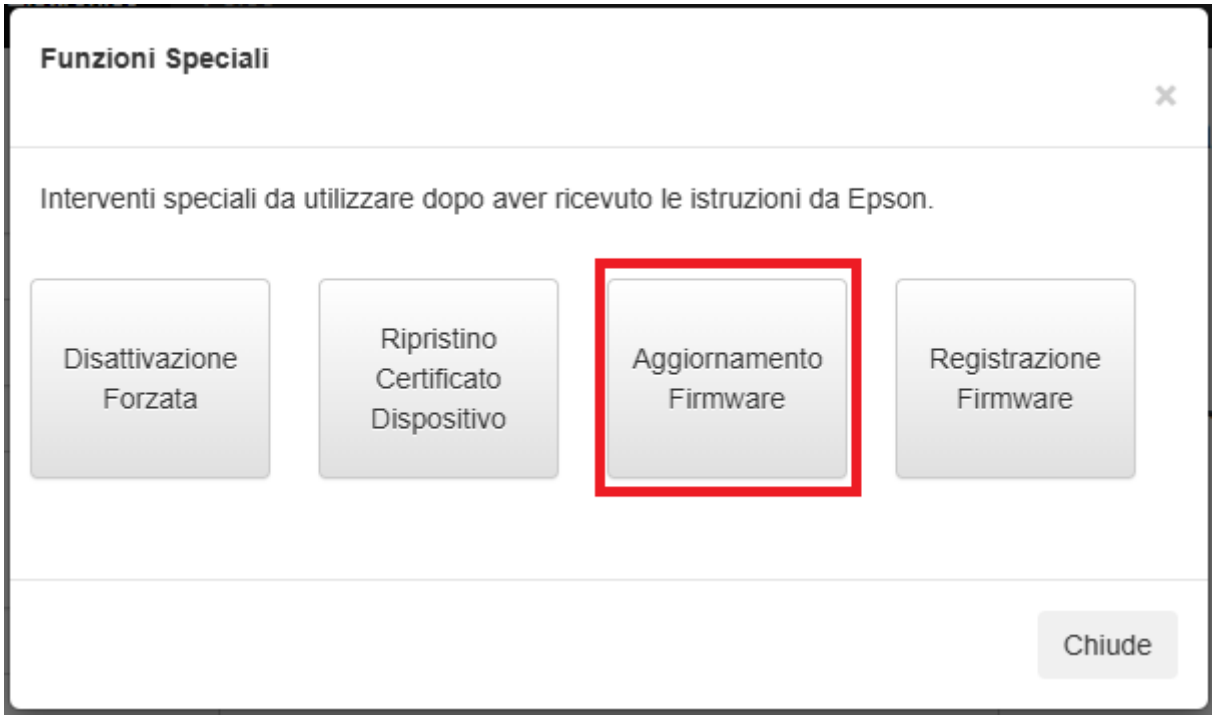
5.1. Libretto Elettronico

1. Click "Funzioni Speciali" button:

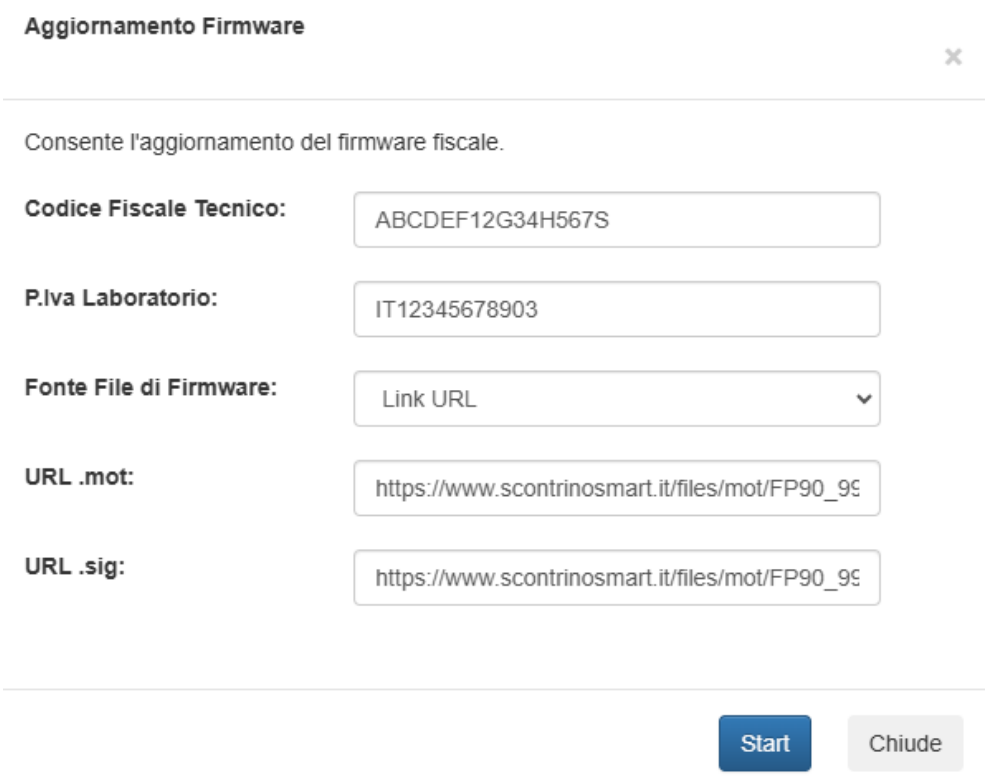
2. Enter "Codice di Sicurezza" 1973 and click OK:

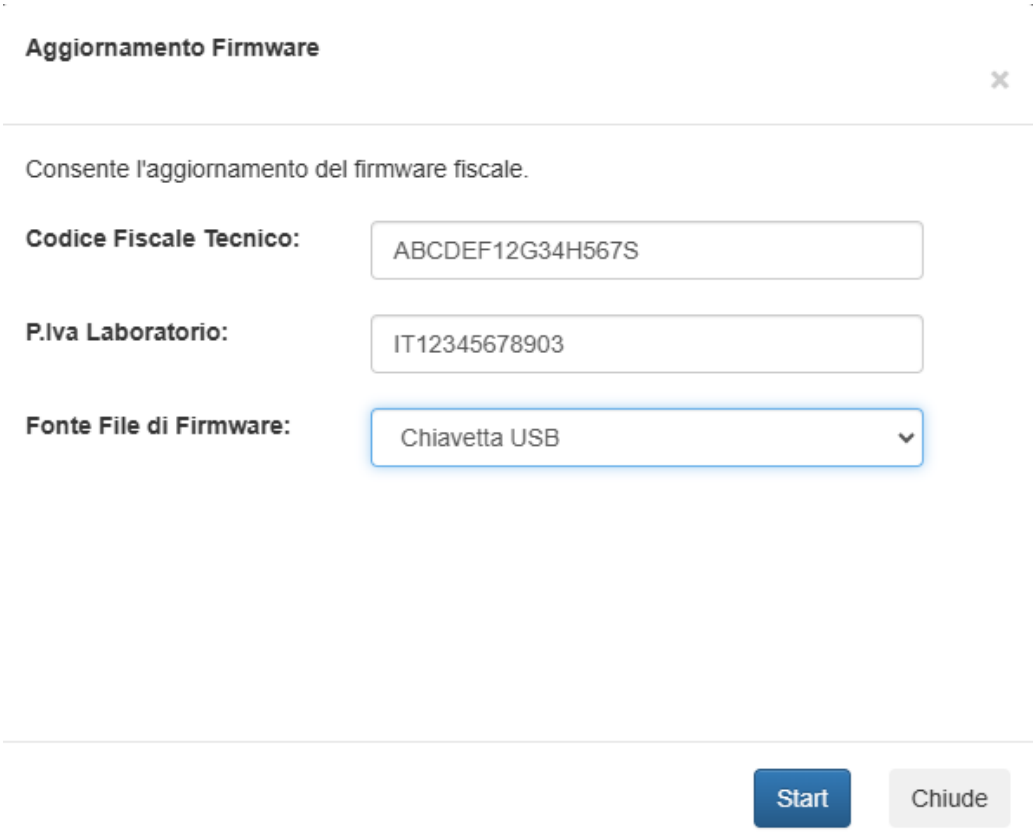


3. Click Aggiornamento Firmware button:



4. Compile the form choosing between URL and pen drive (Chiavetta USB) and click Start:

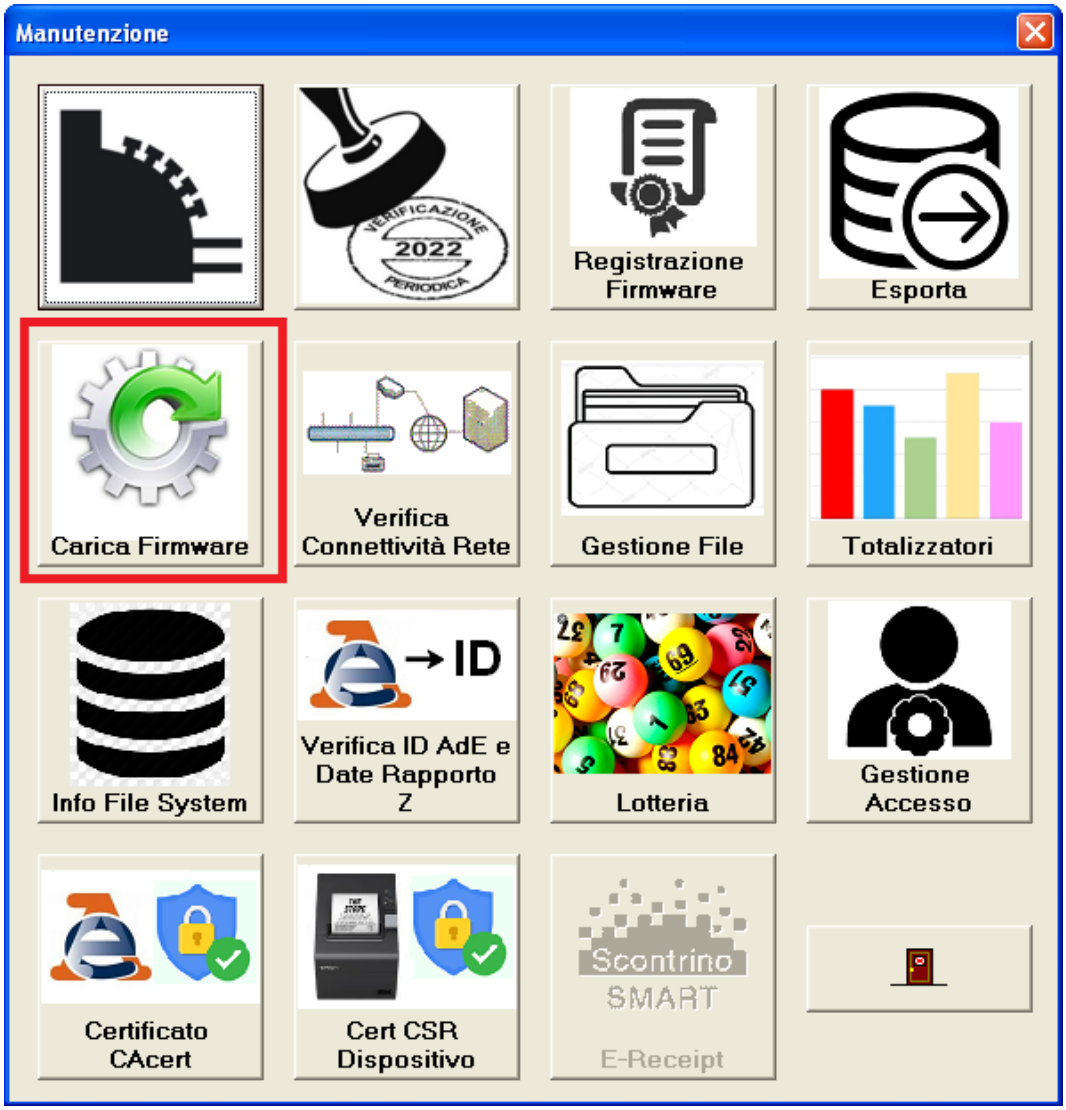




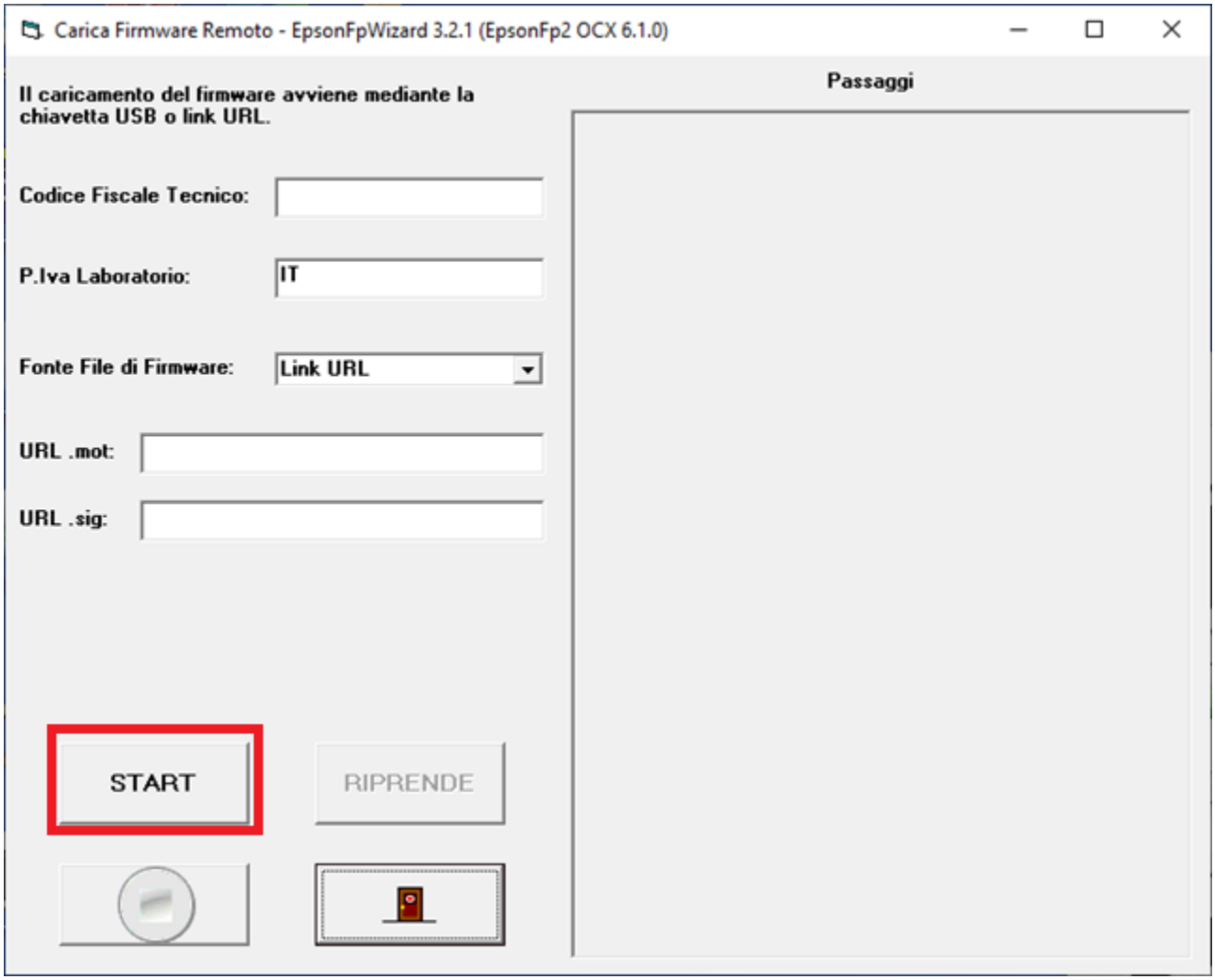
5.2. EpsonFpWizard

1. Click "Manutenzione":

2. Click "Carica Firmware":



3. Compile the form choosing between URL and pen drive (Chiavetta USB) and click Start:



5.3. Update

After having activated the update in one of the above tools, the FIRMWARE REWRITE START message should appear on the printer customer display. Monitor the display for progress messages.

Note: Please be aware that the progress and outcome cannot be directly determined remotely but only at the completion of the procedure.

The fiscal printer automatically sends a zero value XML file to the tax authorities at the end of the update process integrating the intervention data including the details of the new version. Shortly afterwards, a scan of the unique device QR code should confirm that the version has been registered with the tax authorities.

6. FISCAL SEAL REMOVAL AND DIP SWITCHES

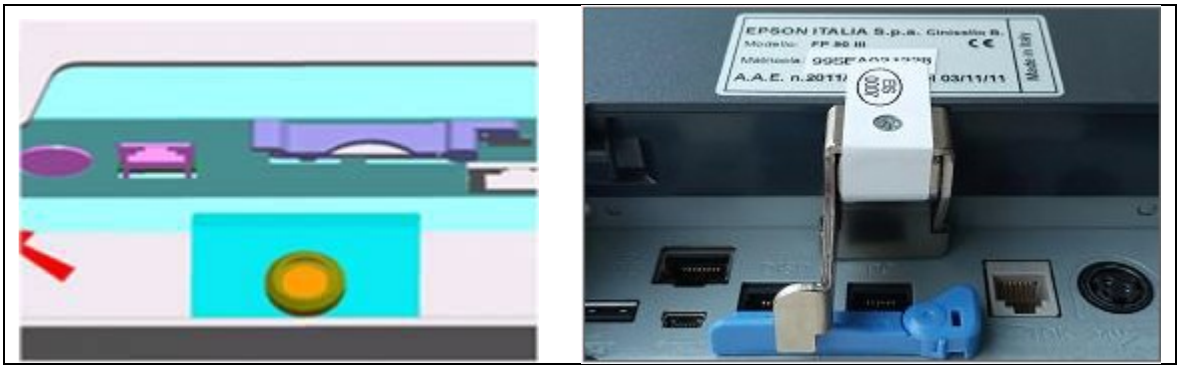
6.1. Removing the Fiscal Seal

1. Switch off the printer at the wall socket and remove all cables. Remove the SD card (EJ) making a note of its orientation.

2. If the model is an RT Modified variant with a lead fiscal seal, use a sharp tool to remove the seal (if present). It can be found at the base of the printer towards the rear near the connectors.

3. Remove the crosshead screw that supports the fiscal seal bracket followed by a second screw. The two screws keep two metal supports bound together – by removing these pieces the outer plastic shell of the printer can then be removed. We ask you to please reattach and lightly fasten the pieces back to the loose plastic shell – in this way you are less likely to mislay these important parts.

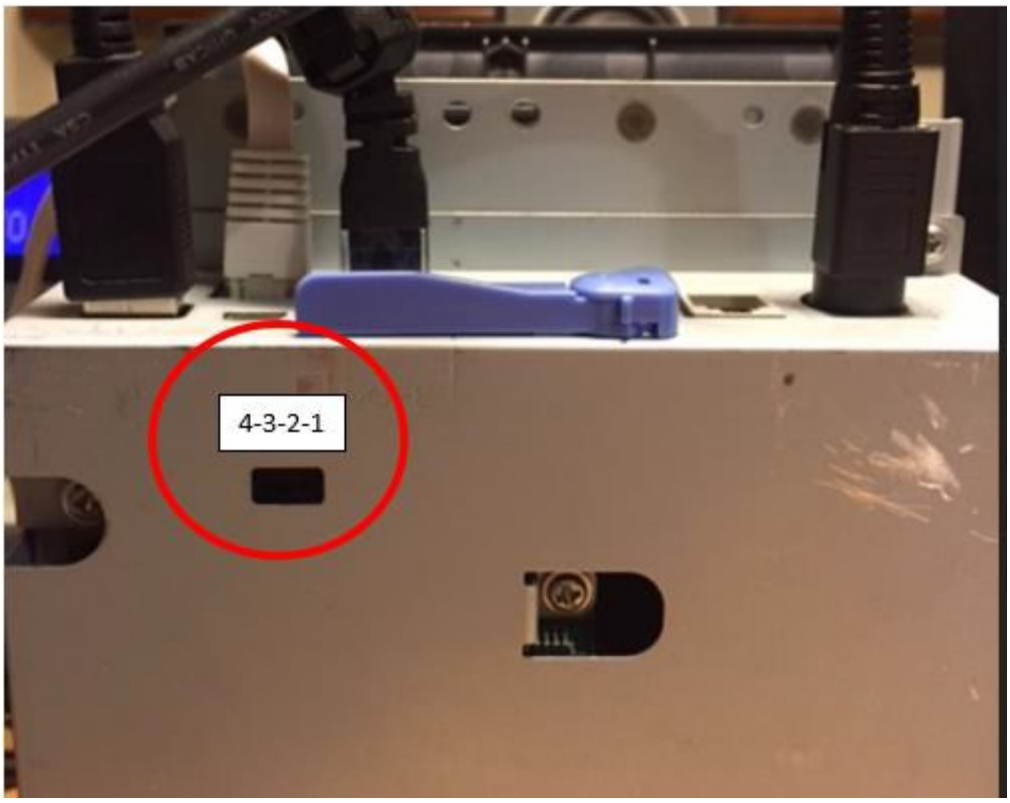
Illustrated below are the two types of fiscal seal:



6.2. DIP Switches

Please see the position of the DIP switches below.

Normally, all four are set to OFF (upper position).



DIP Switch	Fiscal Board loaded with Fiscal Firmware
All OFF	Normal use
1	RAM clear (manovra di ripristino / hard init)
2	n/a
3	Firmware rewrite USB Pen Drive
4	Reactivation

7. PEN DRIVE WITH FISCAL SEAL REMOVAL

1. Power OFF the printer.
2. Set DIP switch 3 ON and all others OFF.
3. Insert USB pen drive in USB host port.
4. Connect customer display.
5. Connect power cable.
6. Power on the printer.
7. Check that at the end of the booting sequence the display shows the following message:

8. Shortly afterwards, rewriting in flash memory should begin:

9. The following message should be display on completion:

10. Remove the power and perform the Reactivation procedure.

8. REACTIVATION

Reactivation should only be necessary if the fiscal seal has been broken and the printer has been fiscalised.

1. With the printer disconnected from the power supply, set DIP-switch position 4 to ON (with the printer orientated so that the opening is to the left, the position order is 4, 3, 2, 1). Set 1, 2 and 3 to OFF.

2. Connect the display.

3. Insert the SD card.

4. Connect the power lead and switch on the printer. Watch the display. The new version should be indicated. The message "DATA RIPRISTINO" with the date below in the "dd/mm/yy" format should appear.

5. Key in the date, month and year (only two digits) and press the X key.

   Only if the "PRIMA CONFERMA" message appears, press the Sub Totale twice:

   Only if the "PRIMA CONFERMA" message had appeared should you notice the "SECONDA CONFERMA" and then "DATA CONFERMATA" messages.

   In case of error, press CL Clear.

6. Press the Contante key. "ORA RIPRISTINO: hh:mm" should be displayed.

7. Enter the hours and minutes (24-hour format). For example, 1800. Then press the X key followed by the Contante key.

8. Only if you are sure about the correctness of the date and time, confirm by pressing the ↑G key. A message similar to "PONTICELLO ON tasto CL --> continua" should appear on the display. Press the CL Canc key.

9. If necessary, set the paper width. Key in the following sequence:

   - 3 3 3 3 → Chiave → 1 5 → Contante 11 times until the "STAMPA 80/60/58" wording appears → 0 or 2 → Contante →Chiave
     0=80mm
     2=58mm

10. If necessary, format the DGFE:

    - 2 2 2 2 → Chiave → 9 7 → ↑G → Chiave

11. The message TERMINA RIPRISTINO ESEGUIRE CHIUSURA should be shown on the display. Enter the following shortcut to perform a zero value daily closure:

    - 1 9 7 3 ↑G

12. Remove the power lead and return DIP-switch number 4 to OFF. Therefore, all positions are OFF.

13. Reprogram the printer. The fiscal serial number does not need to be reprogrammed. The SD card (EJ) does not need to be formatted.

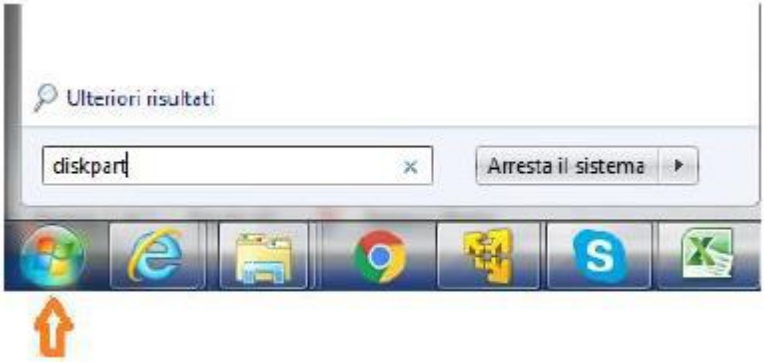
14. Remove the power lead and then the SD card.

15. Refit the shell and the brackets, connect the cables and insert the SD card.

16. Switch on the printer and leave it on for 24 hours if had been idle for a prolonged period so that the internal battery can fully charge up.

9. PREPARING A USB PEN DRIVE

1. Insert the USB PEN DRIVE in a Windows computer and open the diskpart utility as follows:



2. Run the list disk command:

```
Microsoft DiskPart versione 6.1.7601
Copyright (C) 1999-2008 Microsoft Corporation.
Nel computer LAB-OPTIPLEX790

DISKPART> list disk

  N. disco  Stato          Dimensioni     Disponibile    Din  GPT
  --------  -------------  -------------  -------------  ---  ---
  Disco 0    Online            465 Gbytes    1024 Kbytes
  Disco 1    Online           1850 Mbytes          0 byte

DISKPART> _
```

3. Select the USB disk as follows:

```
DISKPART> select disk 1

Il disco attualmente selezionato è il disco 1.

DISKPART>
```

4. Clean (erase) the pen drive:

```
DISKPART> clean

Pulitura del disco completata.

DISKPART> _
```

5. Create a primary partition and activate it:

```
DISKPART> create partition primary

Creazione della partizione specificata completata.

DISKPART>
```

```
DISKPART> active

Partizione corrente contrassegnata come attiva.

DISKPART>
```

6. Format the disk as a FAT32 file system and when done type exit:

```
DISKPART> format fs=fat32 label="pen_drive" quick
  Percentuale completata: 100
DiskPart: formattazione del volume completata.
DISKPART>
```