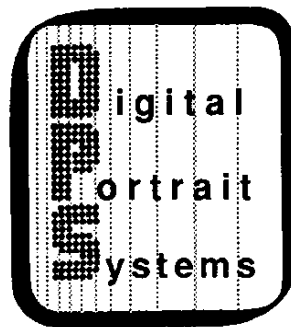


Mini Bocca della Verità
Mini Colour Analyser
Mini Horoscope Caster



DPS - Mini games
Technical reference

Mini Bocca della Verità

Mini Colour Analyser

Mini Horoscope Caster

These machines are a versatile project that can be assembled as an electronic test or Horoscope or palm reader to be hanged on a wall and to distribute a ticket to customer .

Electronics and mechanics of the machines has been implemented for this purpose.

We will now see what are the parts of the machine, their function and possible maintenance.

The main parts of the machine are as follows:

- 1- Power supply unit (PSU)
- 2 - Main logic board (CPU)
- 3 - Printer interface board (PIB)
- 4- Coin acceptor
- 5 - Thermal printer
- 6 - Automatic cutter
- 7 - Dedicated boards as:
 - 7a- Mini Bocca hand Led Board (BDV-HLB)
 - 7b- Horoscope Keyboard assembly (HKA)
 - 7c- Horoscope Front panel assembly (HFPA)

1- Power supply unit (PSU)

It is a linear power supply that erogates the following voltages:

5 V (+/- 5%)	4A
12V (+/- 5%)	2A
-12V (+/- 5%)	2A
24V (+/- 5%)	3A

If there are any problems with the machine the first thing to do is check the voltages and misconnections on the PSU connector.

It is also very important to check the power plug (220v or 110 v) and avoid absolutely to plug the machine unto a multiplug or to a plug with no earth. PSU has no protection on the exits and it is a must not to work on the machine with power on to avoid burning the power transistors for a short circuit.

2 - Main logic board (CPU)

This board has been expecially designed for these machines and it is the actual brain with its microprocessor 6501 and Eprom memory chips.

It has got a built-in real-time clock that keeps date and time along with some important data as counter and some machine sets.

It has got a special reset circuit that monitors power supply to prevent Microprocessor to run out of program in case of momentary power failure.

Watch dog timer is also implemented in the reset circuitry.

This board has got 2 push buttons by means of which you can set all function of the machine as explained in details in an other part of the operating manual.

This board does not have special problems and it is very difficult that a defect of the machine depends on it. There are no repetitive faults to be reported here.

3 - Printer interface board (PIB)

This board receives parallel centronics type data from the main CPU board and controls the thermal printer mechanics and head.

It has got its own microprocessor and it is a stand alone interface with its own features.

Depending on the type of microprocessor installed it can work in different languages. The actual character set is stored in the microprocessor Eprom, so there is a special chip for Europe, another one for Japan etc.

Here are the codes of the microprocessor used with their program characteristics:

FTP OCC :Fujitsu printer, standard US ASCII characters
LTP 25 :Seiko printer,standard US ASCII characters
JAP22 :Seiko printer,Japanese character set
FTP JAP :Fujitsu printer,Japanese character set
EBR22 :Seiko printer, Hebrew character set

This board drives the automatic cutter by means of a power driver type L293B.

The voltages required by this board are 5V,24V,12V.

There is no repetitive trouble to report.

4- Coin acceptor

It is a mechanical coin acceptor that checks weight, diameter, thickness, magnetic characteristic of coin used. It is very simple and does not have recurrent troubles.

Of course it is the part more in contact with public and sometimes it can be blocked by the insertion of chewing gums, paper, ice-cream sticks etc.

The only required maintenance is to clear it from time to time.

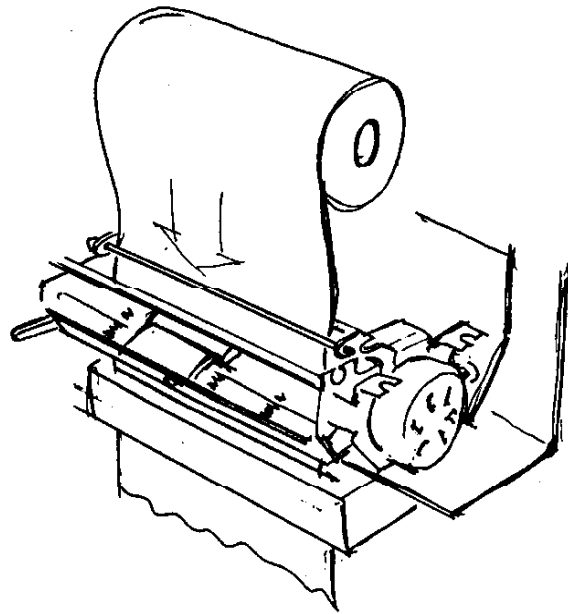
Mounted on the coin acceptor you have a lock-out coil that prevents the machine from cashing money in case it is not operative or in case the power has been switched off. It is normal that this coil becomes hot during normal operation.

If you notice a difference between coin counter and real coins in the cash box you should verify that the micro-switch lever is properly bent so every coin produces and electric signal. Sometimes this steel wire that actions the microswitch is badly bent and so the coin passes without giving a start signal to the machine. This can be easily checked inserting 20 or more coins and checking that counter has incremented of the same value.

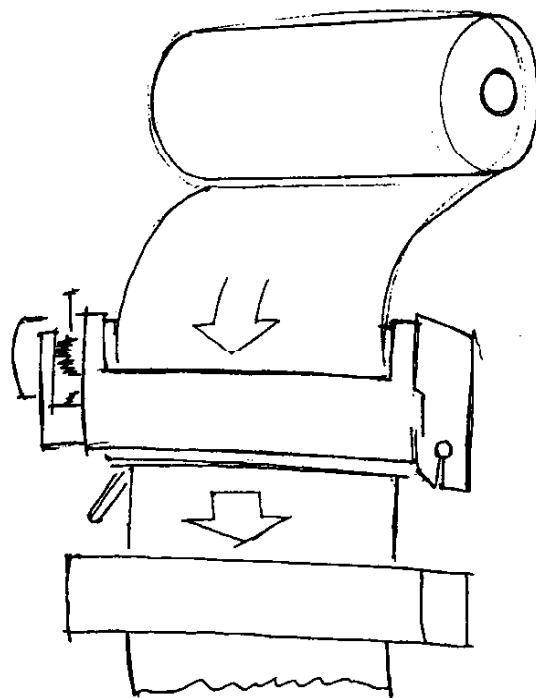
Paper installation on Seiko printers: Simply release the head friction lever and insert paper with printing side facing you. You can see what is the printing side of paper simply heating it up passing rapidly a nail over it. The sensitive part will become black. Push paper so it will come out of the printer and pass it through the cutting unit. Tighten the head friction lever.

Note for Seiko Printers only: It is very important to check that paper is passing below steel wire located on printer's back. If it does not pass below it you will have PE (paper end) signal from time to time.

This has been so far the problem that happens more often on the machines.



Paper installation on Fujitsu printers: Simply release the head friction lever and insert paper with printing side facing down. You can see what is the printing side of paper simply heating it up passing rapidly a nail over it. The sensitive part will become black. Push paper so it will come out of the printer and pass it through the cutting unit. Tighten the head friction lever.



5 - Thermal printer

We use 2 types of thermal printer from 2 manufacturers: Seiko and Fujitsu. We did this choice to be involved not with only one supplier for such a strategic item. It is infact common to have shortages in delivery of those items and also to have variations in price. With 2 suppliers we avoid this even if we have to pay this with a double standard in software and cabling that can cause some misunderstanding. This is any way avoidable with the necessary care.

Metal mounting frame is different for either printer. Mounting holes on chassis are the same.

In both printers you could have a bad printing quality due to dust coming from paper or environment. To prevent this you should blow air inside printer where the printing head is located or even opening the printing head cover and cleaning it with a humid cloth. Never use any solvent on the head.

Another difference between the 2 printers is that with Seiko you will see the printout while coming out and with Fujitsu you will not see it because it prints on lower side.

Both printers are operating at 24 volts and if you have printing probles first thing to do is checking this voltage on PSU.

Basicly there are the following differences in machines with either printer:

Seiko (metallic one)

Printer is directly connected to printer interface.

Power transistor on the PIB (the one located near printer motor connector) can be either a BD370 or a TIP125.

It prints with printing side of paper facing up, so you see what it prints.

Fujitsu (plastic one)

Printer is connected to PIB via a small PCB that has also 2 resistors needed for the printer stepper motor. It is normal that these resistor warm up.

Power transistor on the PIB (the one located near printer motor connector) must be a TIP125.

6- Automatic cutter

This cutter is motorized and will cut the paper after printout. It does not have adjustments and should provide years of trouble free operation. You may encounter a problem if something else than paper goes through it or even is some thing sticks on it.

Never try to clean a paper jam with a metallic device such as a screwdriver . It could easily damage the cutter blade with the result of cutter jamming continuously.

Printer interface controls cutter directly and software is done in a way so if a complete cut is not obtained in one step, the microprocessor will try some more times before signaling a fault.

If you will ever dismount the cutter remember that it must be positioned perfectly aligned with paper output from printer and in a way so paper encounter absolutely no resistance passing from printer into cutter. If this does not happen you will experience continuos jams.

7 -dedicated boards

7a- Mini Bocca hand Led Board (BDV-HLB)

This board is placed behind the hand drawing in front of the machine. It consists in multiplexed LEDs that will flash in different sequences.

7b- Horoscope Keyboard assembly (HKA)

It consists of a board with 12 pushbuttons encoded on a PCB for data input in the Horoscope machine.

7c- Horoscope Front panel assembly (HFPA)

It consists of a board with power LED to light front panel signs in a light game.

Function programming:

To access to the "Programming Menu", operate as follows:

- *) Switch the *Mini Bocca della Verità* off
- *) Switch the *Mini Bocca della Verità* on
- *) Press the key **SET** on the main card within 20 seconds

All operation have been correctly performed, it will appear on the printer the following Programming Menu:

Bocca della Verità
Version n.3.0
Copyright 1992 by DPS Italy

```
-----  
Exit                [*]  
Counters           [ ]  
Clock              [ ]  
Attract            [ ]  
Coins              [ ]  
-----
```

The *cursor* [*] shows the option to be selected through the key **SELECT**. To select a different option, press the key **SET** so many times as it appears the *cursor* [*] next to the required function.

Example: to set the clock, press the key **SET** and the following menu will appear on printer:

Bocca della Verità
Version n.3.0
Copyright 1992 by DPS Italy

```
-----  
Exit                [ ]  
Counters           [*]  
Clock              [ ]  
Attract            [ ]  
Coins              [ ]  
-----
```

Press the key **SET** once again, and a further menu with the required option, selected through the *cursor* [*], will be printed.

***) Counters**

Total Coins : 0000006879
Coins since last collection: 0000000000

Date: 06-06-92 19:32
Last date of Collection: 06-06-92

Exit [*]
Reset Coins []

N.B. Machine counts coins (i.e. the inserted coins) and not the played games.

Clock setting:

Select the option **Clock** from the main menu.

It will be displayed the following menu:

06-06-92 19:32

***) Clock**

Exit [*]
Year []
Month []
Day []
Hour []
Min []

The displayed hour is exact, press the key **SELECT** to exit.

Otherwise, select the item to be modified by pressing the key **SET** till the *cursor* [*] reaches the required selection, then press the key **SELECT**.

Example: If you wish to change the present hour and decrease it of one unit

*) Press the key **SET** till the *cursor* [*] reaches the item *hour*

*) Press the key **SELECT**.

Printer will print the selected item (in this case hour) with its present value beside:

Hour = 19

Press the key **SET** and this value will be increased up to the required value:

Hour = 19

Hour = 20

Hour = 21

Hour = 22

Hour = 23

Hour = 00

Hour = 01

Hour = 02

Hour = 03

Hour = 04

Hour = 05

Hour = 06

Hour = 07

Hour = 08

Hour = 09

Hour = 10

Hour = 11

Hour = 12

Hour = 13

Hour = 14

Hour = 15

Hour = 16

Hour = 17

Hour = 18

Now press the key **SELECT** to save your selection, otherwise go on up to the required value.

The key **SELECT** pressed, the "*) Clock menu will be displayed as follows:

06-06-92 18:32

*) Clock

```
-----  
Exit          [ ]  
Year          [ ]  
Month        [ ]  
Day          [ ]  
Hour         [ ]  
Min          [*]  
-----
```

The *cursor* [*] will be on the item after the modified one, thus simplifying the introduction of new values in case of complete change either of the date and of the hour.

N.B. For the item year (Year) the minimum value to be set is 92, the maximum 19 (2019).

Voice Actuation during the ATTRACT MODE phase.

During the waiting for coin (coin inserted by the player), the *Mini Bocca della Verità* sends sounds and messages each 90 seconds.

In order to disable this option, which could be inconvenient in some installations, select the item **Attract** from the main menu.

*) Attract sound:

Exit [*]
Disable []
Enable [x]

In this menu, you find not only the *cursor* [*], but also the symbol [x] which points out the present selection. If this selection is the one required, press the key **SELECT** to exit from this menu and return to the main menu. Otherwise, press the key **SET** till the *cursor* [*] reaches the required selection and save it pressing the key **SELECT**.

SELECTED COINS PER CREDIT

This option enables the programming of the necessary coin number for each play:

*) Coins per credit:

Exit [*]
1 Coin per credit []
2 Coins per credit [x]
3 Coins per credit []
4 Coins per credit []

The symbol [x] shows the present selection, the *cursor* [*] the option to be selected at present. For the selection of the coin number press the key **SET** till the cursor reaches the required item, then press the key **SELECT** to save it. After the selection exit through the item *Exit*.

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DPS Forlì reserves the right to modify any specification data of this manual at any time without giving notice of it.

For further information:

DPS - Digital Portrait Systems snc
47100 Forlì - Italia - Via Edison 27
Tel. (0543) 723428 Fax 725274