

Jaime 1000 S4 Plus

PRINTER MANUAL

A13540

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Edition Anglaise

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A13540 Version E

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Read all these instructions

- FIRE :

CAUTION :

Consult the safety data sheet for the ink to determine whether your printer uses INFLAMMABLE inks and additives.

If this is the case:

- Place a foam, CO2 or powder extinguisher close to the printer (maximum 10 metres).
- The printer must be kept in a well aired place away from sources of heat, flames or sparks.
- Never leave ink, additive or cleaning solution cans or cloths soaked in ink near the printer.
- Never smoke near the printer. Display a notice with "NO SMOKING, INFLAMMABLE INK" close to the printer.
- Make sure to keep the printer very clean, as a dry ink deposit is highly inflammable.
- The ink, additive and cleaning solution cans must be closed and stored in a well aired room.

- ELECTRICAL CONNECTION :

- The connection to the single phase electricity supply network must use a standard 3 pin plug with earth ; this plug must be easy to access.
- The earth connection must comply with applicable regulations.

- HEALTH :

- It is strictly forbidden to wear contact lenses when handling consumable products.
- It is recommended that ink-resistant gloves and safety goggles should be worn during filling and cleaning operations.

Disconnect the printer from the mains power supply before any intervention.

IMAJE cannot be in any way held responsible should the above-mentioned rules not be respected, and in general for the non-respect of elementary safety rules concerning the utilization of these machines.

All modifications without written authorization from Imaje are prohibited and their possible consequences are the responsibility of the person who performed them.

The same applies for any use of the printer which does not comply with the printer's specifications.

REVISION

Update of the Jaime 1000 S4 Plus "Printer Manual"

- The revision index A corresponds to the initial edition of this manual.
- The revision index changes with every modifications.
The modified pages are mentioned in the following table. This one indicates all updating since the first edition.

Date of edition	Document revision index	JAIME 1000 Software index	Modified pages
January 1994	A0	D4	Initial edition
January 1995	B	D5.0 - A1.0	All
April 1996	C	D6 - A2	All
February 1998	E	D7-A3	All

This document was written by Christian MILLET.

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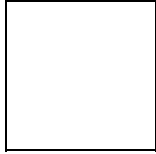
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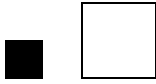
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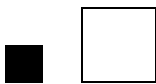
Generalities



1 Installation

The printer must be installed in a ventilated room.

If necessary, connect the vapour outlet located underneath the control unit of S4 Plus Hi-P65 printers to an external evacuation outlet.



2 Ink jet printing

Ink jet printing enables contact-free marking or dating of items.

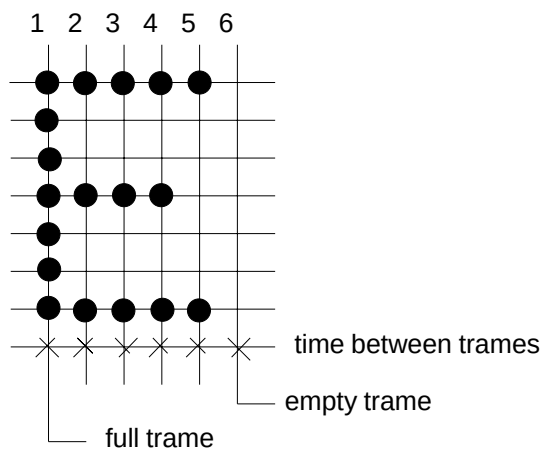
The principle used by IMAJE printers is the "deflected continuous jet" with dot-matrix type characters.

2.1 Dot-matrix characters

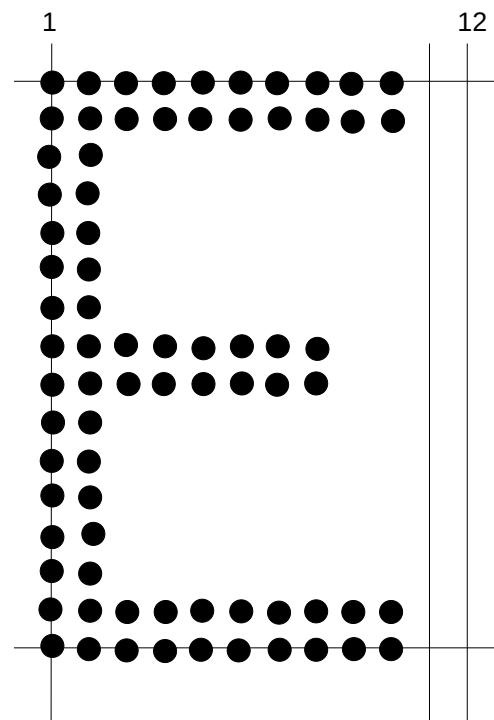
Each symbol (letter, digit, punctuation mark, etc.) is contained within a rectangular area known as the "matrix", divided into columns known as "trames" and defined by height and width

Example : 7 x 6 matrix - 16 x 12 matrix

The first digit is the number of dots per frame and the second digit is the number of trames per matrix.



7 x 6 matrix



16 x 12 matrix

2.2 Principle of the continuous deviated ink jet printing process

The printer head is supplied with pressurized ink.

The ink arrives in a cannon (2) with a hole ("nozzle") (3) through which the ink is ejected to form a jet.

The ink jet is modulated by a piezo-electric resonator (1) to form calibrated and equidistant droplets.

The droplets not used for printing are recuperated in a gutter (6) to be re-used.

The droplets used for printing are polarized electrically by a charge electrode (4) and then deflected from their initial path by two deflector plates (5) to produce the required symbol. The deflection of a droplet depends on its polarization value.

The droplets are projected onto the item to be printed. A character is formed frame by frame; these frames may be full, partial or empty. Moving the object perpendicularly to the deflection plane enables the frames to be offset from each other.

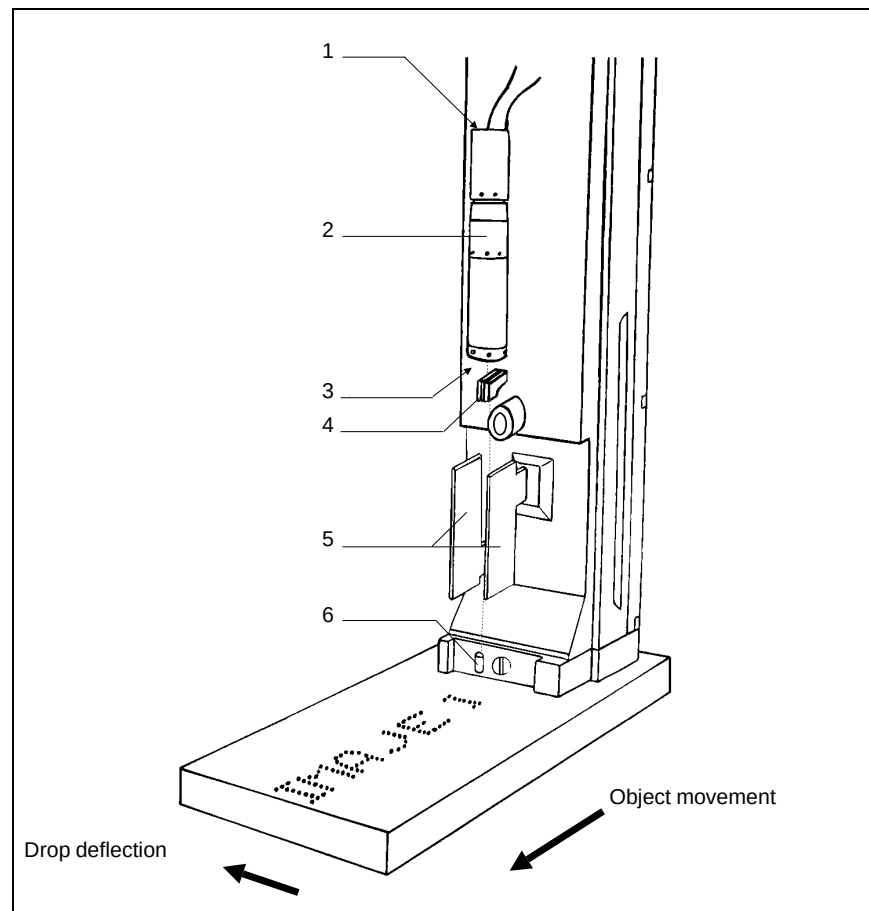
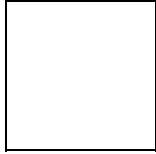
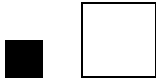


Figure 1



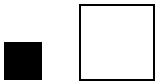
Generalities



3 Preparing the printer

The Jaime 1000 S4 Plus printers are equipped with a universal standard program, which need to be adapted to your machine.

You can thus choose the language for operator dialog, adjust the clock and validate the access codes, option or parameters.



4 Editing a message

Editing a message consists on one hand of the creation of a text, code or illustration, using characters, symbols, elements of a counter or clock memorized in the printer, and on the other of assigning printing values and evolution modes to the message.



5 Editing symbols

Editing symbols means the creation of characters, signs, drawings or logos and storing them in memory for later use.

6 Production

Now that your printer is ready (initialized) and the messages are programmed, you can start production. Simply switch on the printer and select the message to be printed.

A self-diagnostic function may be used at any time to provide information on the printer status, stated plainly in the operator's language.

Direct jet controls and regular cleaning will help keep the printer in good working order.

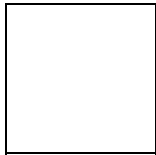
Vital data on the operation of the ink circuit can be displayed on the screen.

Printer running parameters can be obtained by simple keyboard operation, which are very useful when communicating with an IMAJE technician or to optimize a setting.

INTRODUCTION TO PRINTERS IN THE Jaime 1000 S4 Plus RANGE (18 pages)

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Introduction to printers in the Jaime 1000 Plus range

This manual is intended for the various printers in the Jaime 1000 Plus range:

- S4 Plus,
- BARCODER Plus
- S4 Plus Hi-P65

Various items of equipment may be installed on your printer, depending on the configuration.

Specific points of the S4 Plus Hi-P65 printers are grouped in Section 7 of this chapter.



1 The console

Figure 1 : Overall view of the printer

- | | | |
|---|-------|---|
| 1 | ----- | Umbilical |
| 2 | ----- | Operator Interface: screen, keyboard |
| 3 | ----- | Cover for access to electronics compartment |
| 4 | ----- | Door for access to hydraulics compartment |
| 5 | ----- | Printing head |

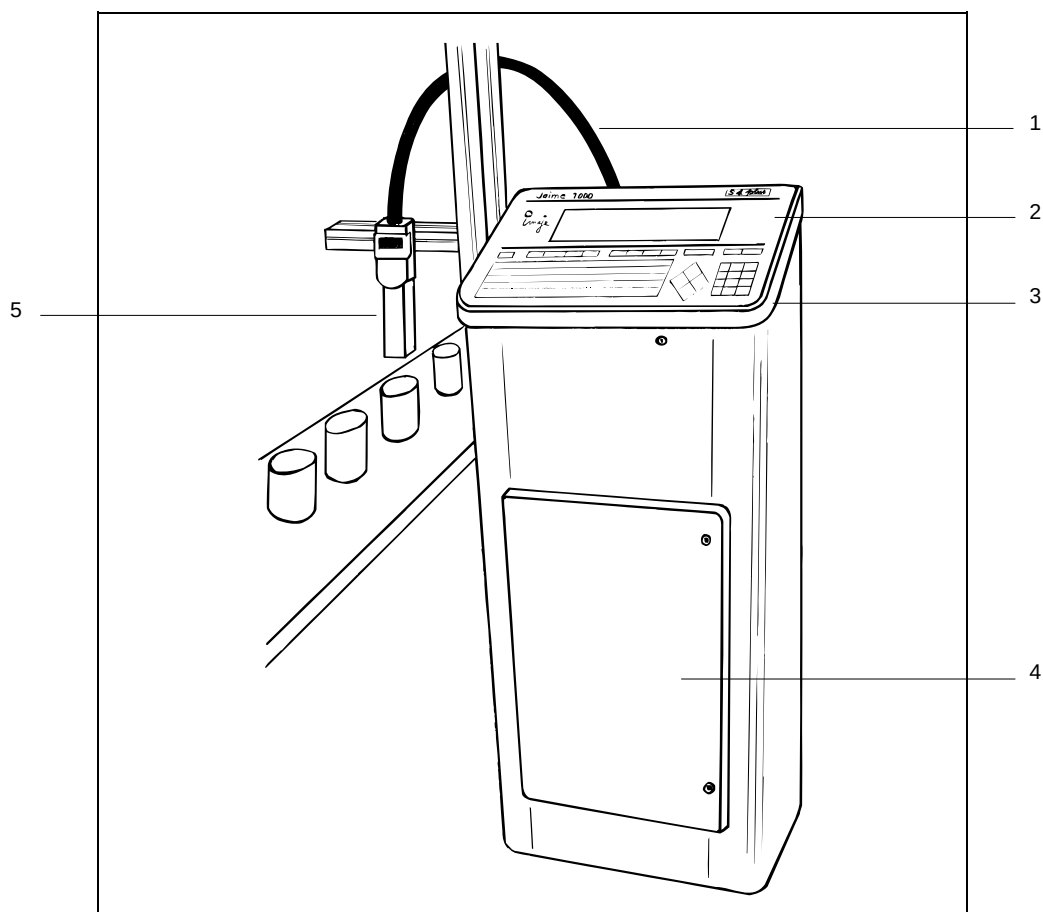
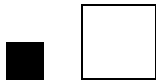


Figure 1



2 The Operator Interface

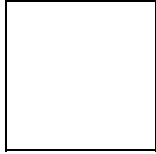
Keyboard

Completely dustproof and waterproof with tactile keys. It can be cleaned with the cleaning solutions used by the printer.

Display

Wide LCD screen with WYSIWYG (What You See Is What You Get) message display and programming and maintenance help messages.

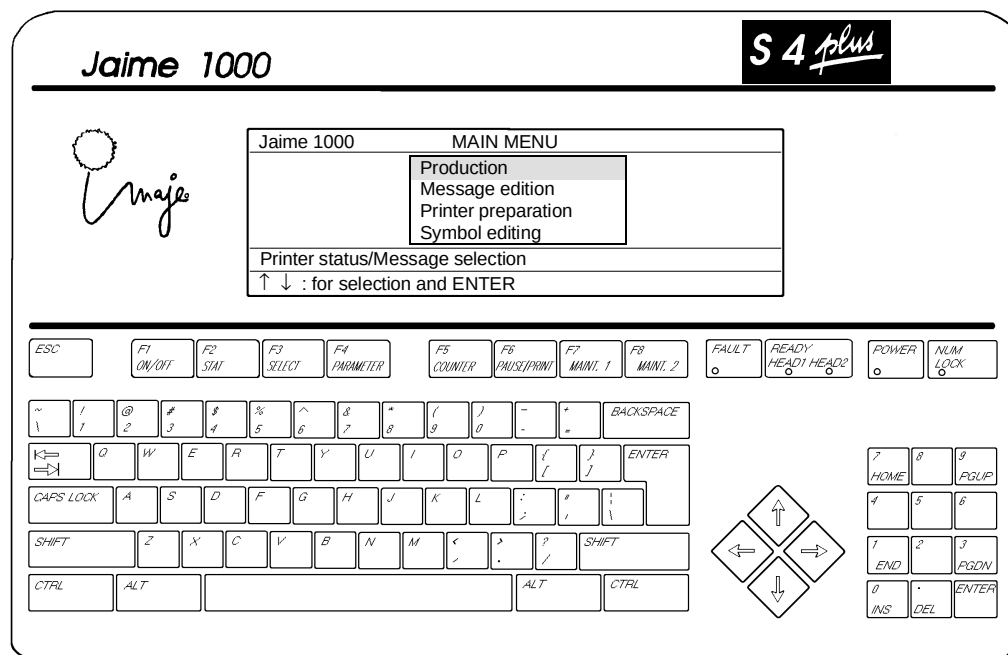
NOTE	1) The screen disappears when no keys on the keyboard have been used for five minutes. The screen reappears when you press on any key.
	2) An "idle" screen indicating the time is displayed by pressing on the ESC key from the main menu. To return to the main menu, press on any key.



Indicators

Provide a rapid indication of the printer status.

- POWER : Green. Lit when the printer is switched on.
- FAULT : Red. Lit when the printer has detected general faults or faults in the head.
- READY HEAD1, HEAD2 : Green. Lit when the head is ready to print.
Blinks when the head is switched on but not ready
or there is a fault.
Off when the head is switched off.
- NUM LOCK : Green. Lit when the digital keys can be accessed.



3 Printing head

The Jaime 1000 printers can be equipped with 1, 2 or 4 printing jets (4 jets for the BARCODER printer).

Figure 1 : Overall view of the printing head with cover open

- 1 ----- Gutter open/close tap
- 2 ----- Recuperation gutter
- 3 ----- Deflector plates
- 4 ----- Detection electrode
- 5 ----- Charge electrode
- 6 ----- Cannon

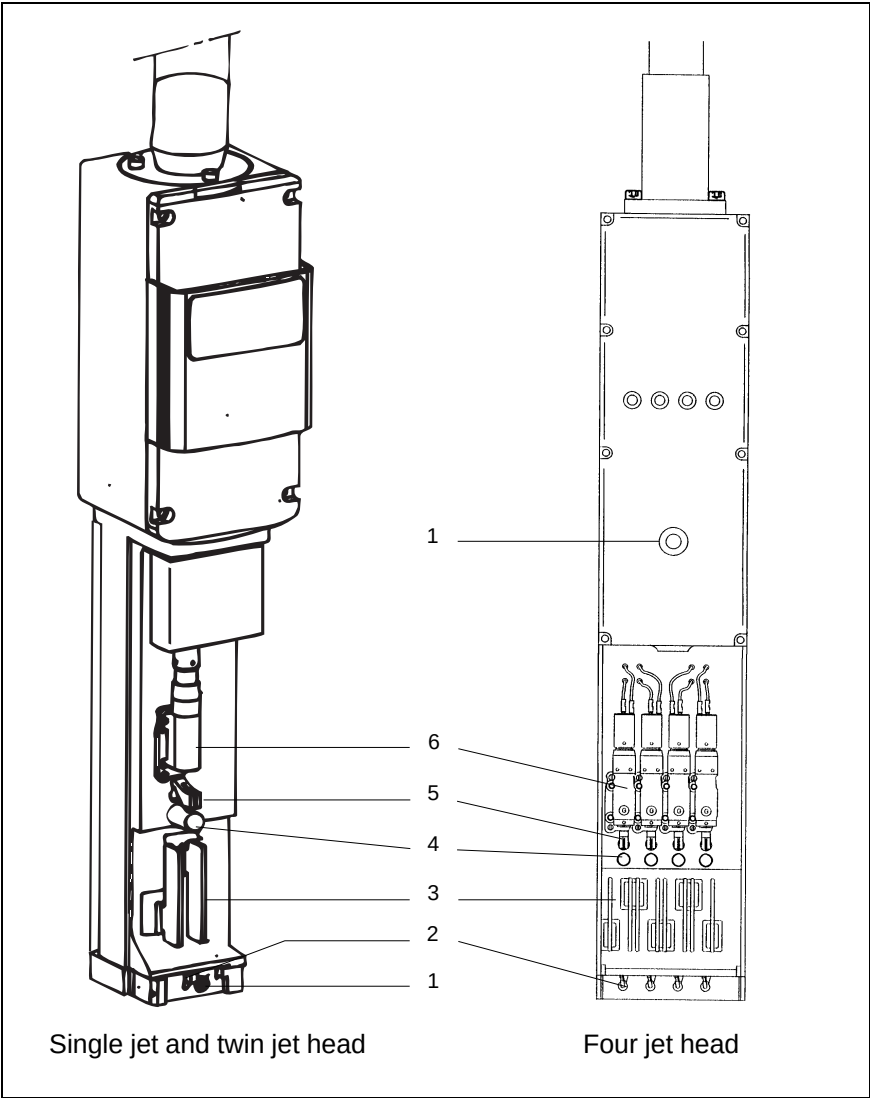


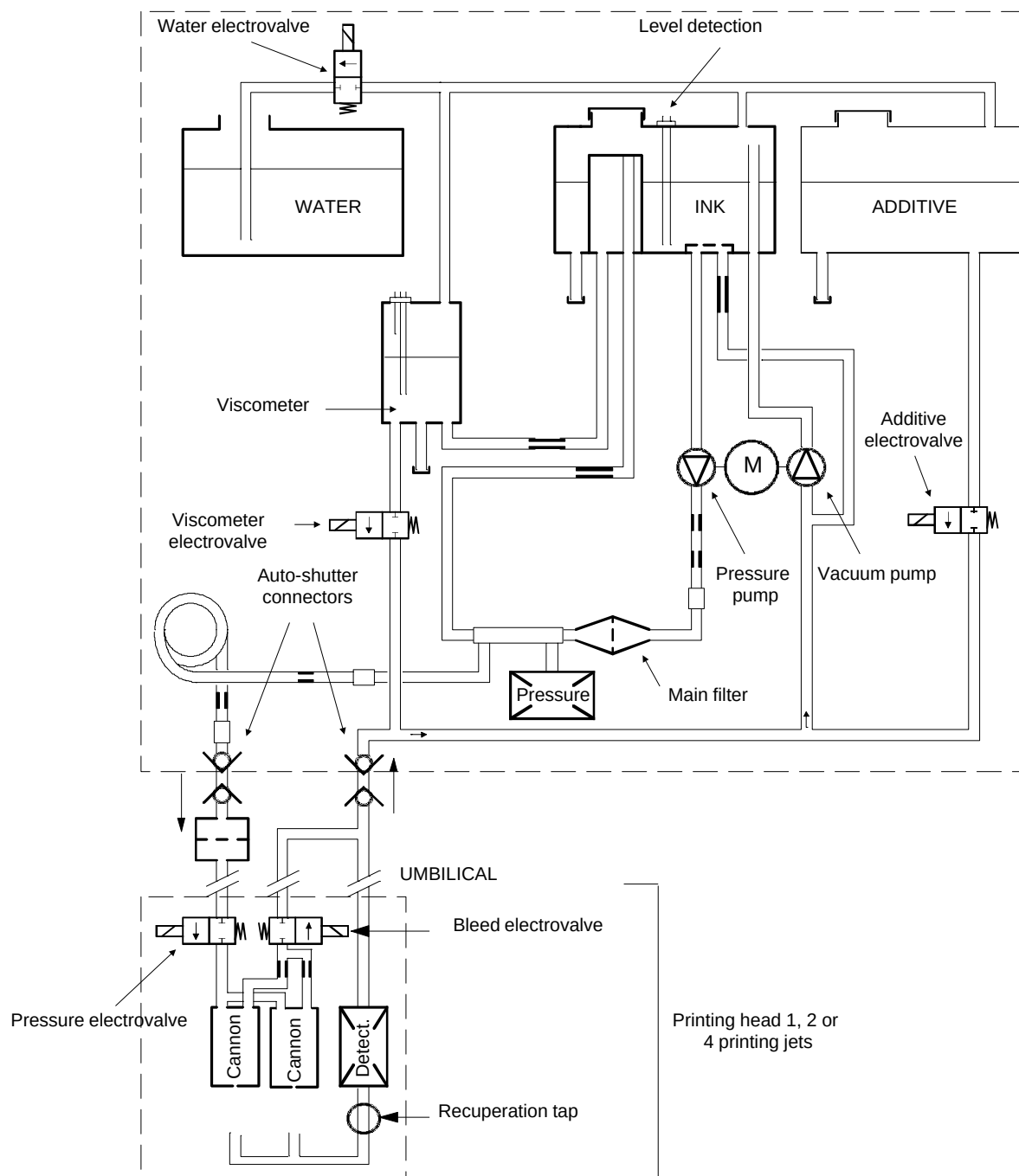
Figure 1

4 Ink circuit

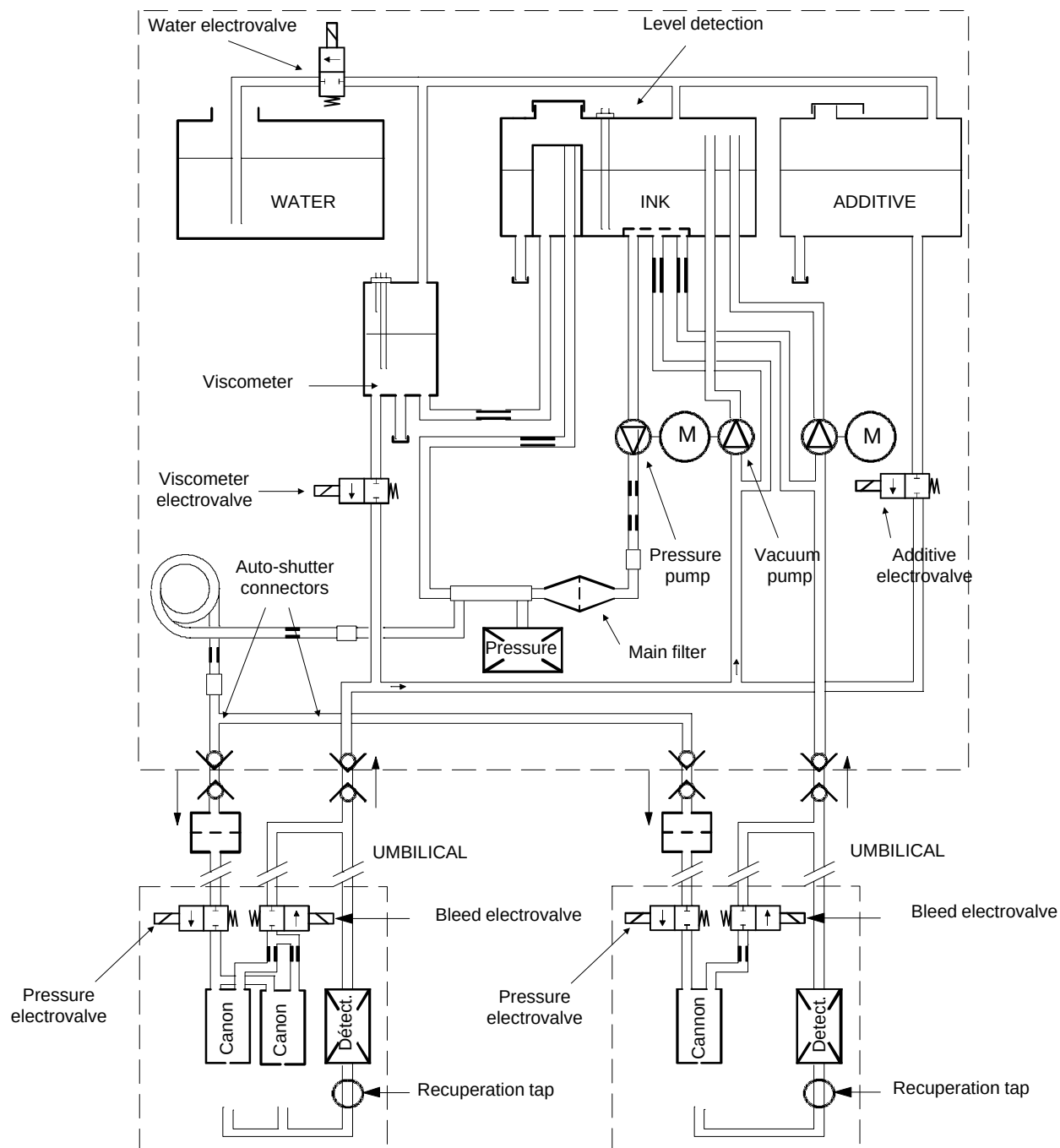
The ink circuit is fitted on runners so that it can be removed easily if required.
To do this:

- Stop the printer and unplug from mains.
- Pull the ink circuit as far as it will go.
- Press the right and left stops at the same time and pull forwards.

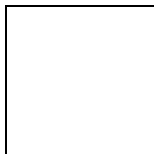
4.1 Diagram (1 head)



4.2 Diagram (2 heads)



Possibility: 2 single jet heads or 2 twin jet heads



4.3 Location of components

4.3.1 Front view of the ink circuit (1 or 2 heads)

Figure 1 : Front view of the ink circuit

1	-----	Ink circuit loom
2	-----	Drainage plug
3	-----	Main ink filter

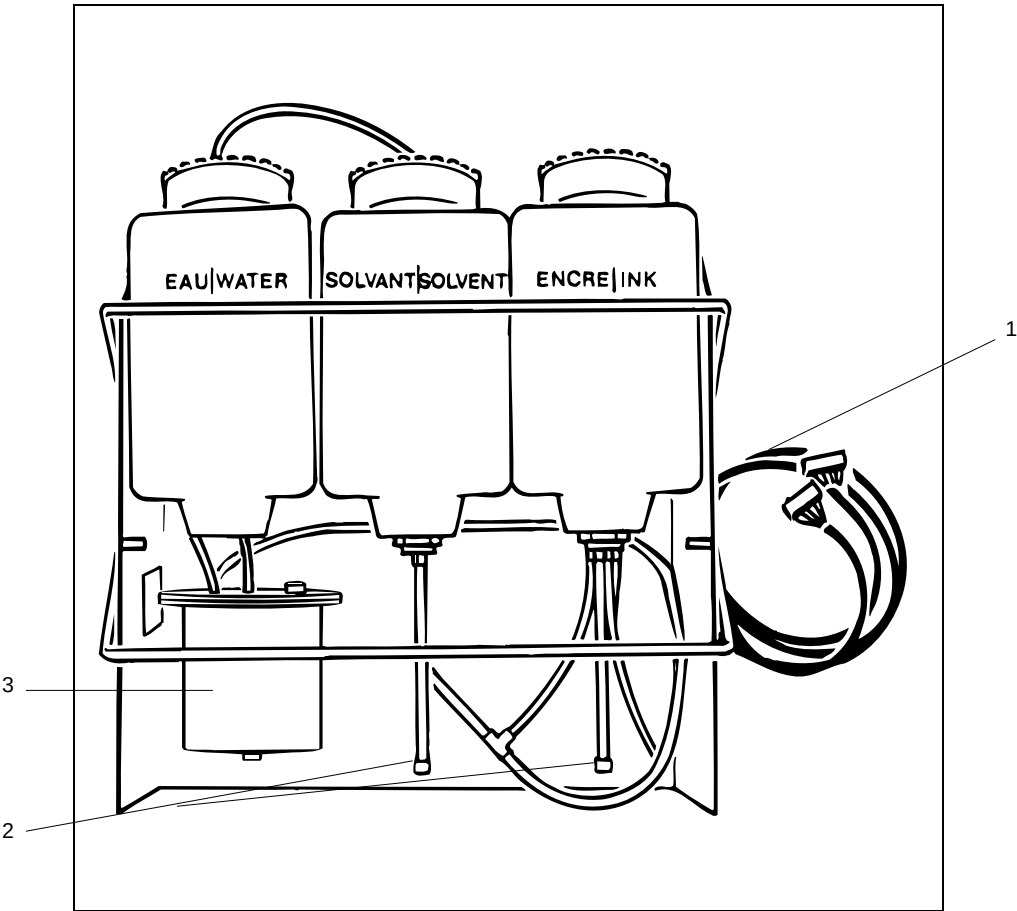


Figure 1

4.3.2 Rear view of ink circuit (1 head)

Figure 2 : Rear view of ink circuit

- | | | | |
|----|-------|-----------------------|--------------------|
| 1 | ----- | Water valve | |
| 2 | ----- | Pressure sensor | |
| 3 | ----- | Visco drainage valve. |] In the same unit |
| 4 | ----- | Additive valve | |
| 5 | ----- | By-pass setting | |
| 6 | ----- | Pressure pump | |
| 7 | ----- | To main filter | |
| 8 | ----- | Visco purge. | |
| 9 | ----- | Intake pump | |
| 10 | ----- | Viscometer | |
| 11 | ----- | Pressure balancing | |
| 12 | ----- | Ink tank | |
| 13 | ----- | Additive tank | |
| 14 | ----- | To umbilical | |
| 15 | ----- | Water tank | |

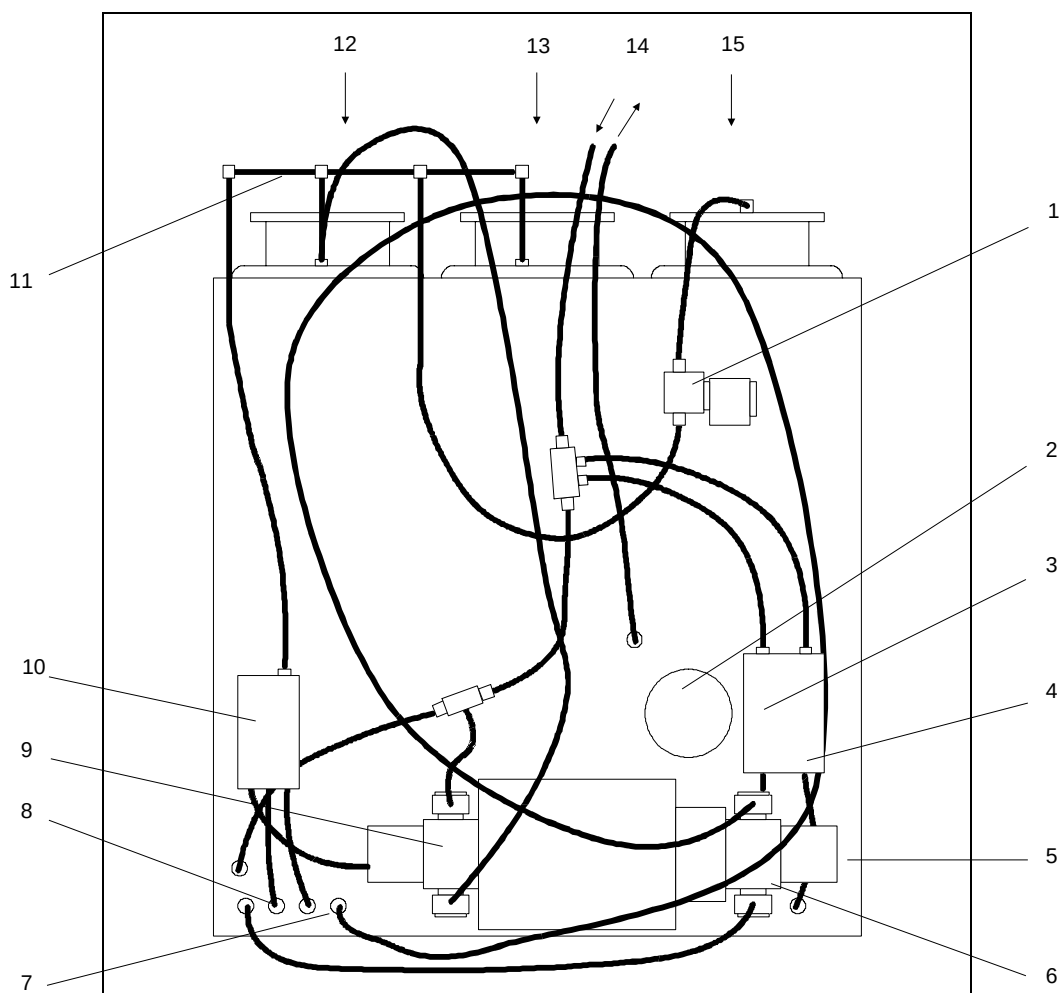
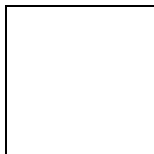


Figure 2



4.3.3 Rear view of ink circuit (2 heads)

Figure 2 : Rear view of ink circuit

- | | | | |
|----|-------|-----------------------|--------------------|
| 1 | ----- | Water valve | |
| 2 | ----- | Pressure sensor | |
| 3 | ----- | Visco drainage valve. | |
| 4 | ----- | Additive valve |] In the same unit |
| 5 | ----- | By-pass setting | |
| 6 | ----- | Pressure pump | |
| 7 | ----- | To main filter | |
| 8 | ----- | Visco purge. | |
| 9 | ----- | Intake pump head 1 | |
| 10 | ----- | Viscometer | |
| 11 | ----- | Pressure balancing | |
| 12 | ----- | Ink tank | |
| 13 | ----- | Additive tank | |
| 14 | ----- | To umbilicals | |
| 15 | ----- | Water tank | |
| 16 | ----- | Intake pump head 2 | |
| 17 | ----- | Flywheel | |

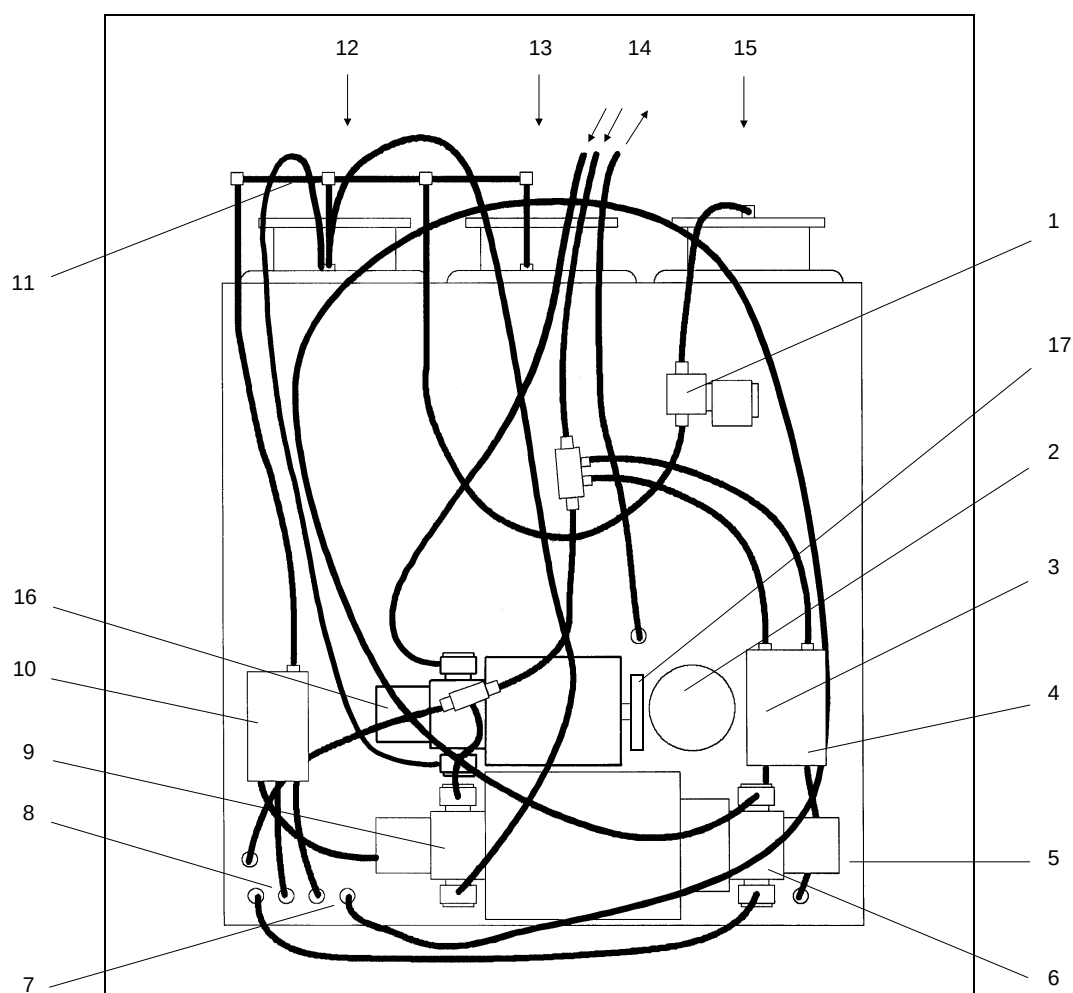


Figure 2

5 Appearance of electronic boards

The various boards are shown on figures 1 and 2.

Figure 1: Electronics compartment of the console

- | | | |
|---|-------|---|
| 1 | ----- | Control bipolar motor card |
| 2 | ----- | Power supply unit |
| 3 | ----- | Bottom of rack board |
| 4 | ----- | CPU board |
| 5 | ----- | IMP1 board (jets 1 and 2) and IMP2 board (jets 3 and 4) |
| 6 | ----- | PC interface board |
| 7 | ----- | Support plate of the security block |

Figure 2: Industrial Interface board compartment

- | | | |
|---|-------|---|
| 1 | ----- | Industrial Interface board |
| 2 | ----- | 3-pin plug on machine connector with fuse |

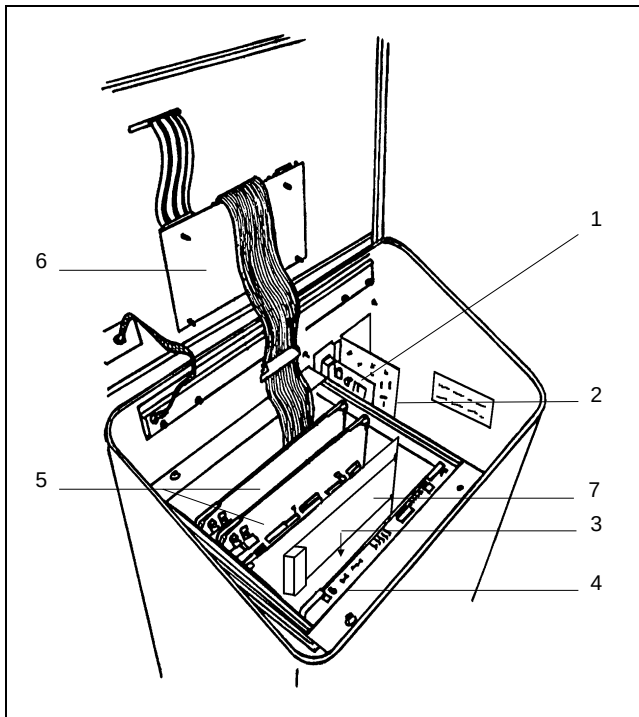


Figure 1

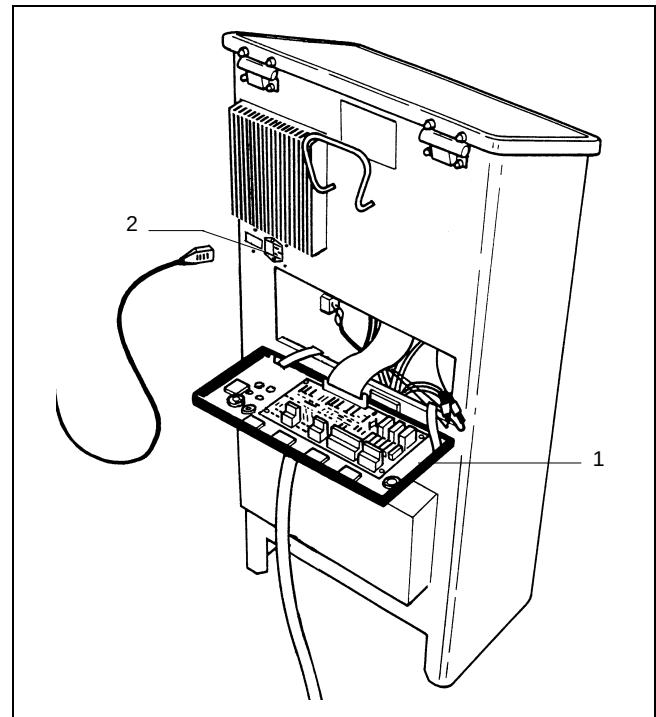
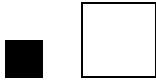
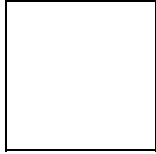


Figure 2



6 Servicing suitcase

This case contains the equipment needed for maintenance of your printer.

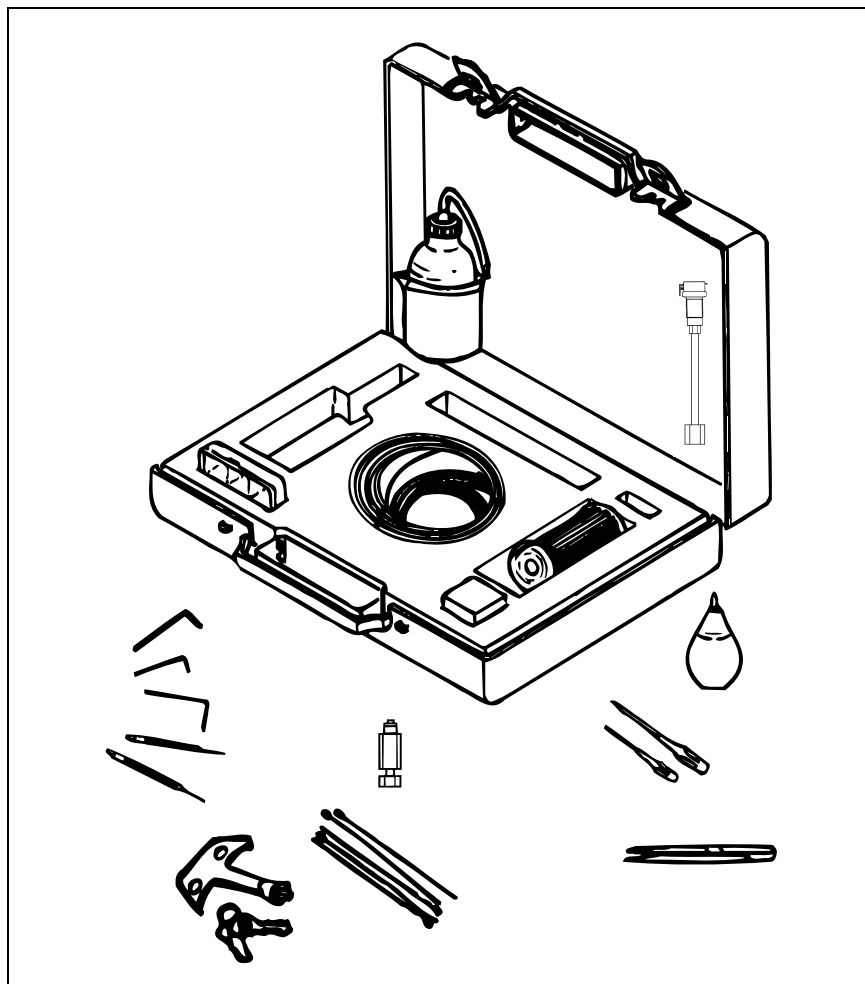


Figure 1

7 Information specific to S4 Plus Hi-P65

7.1 Generalities

S4Plus Hi-P65 are protected from dust and humidity thanks to an air circulation, that ensures the pressurization and air renewal inside the printer electronic and hydraulic compartments

At every start-up, in order to remove any eventual solvent inside the printer, the air is renewed during 30 seconds thanks to a high flow valve. During this phase, the air flow is quite important and can be a little bit noisy.

Compressed air is mandatory for the start-up. In case of pressure fall during the running, a pressure electric switch triggers a "Ventilation fault" and the machine stop procedure.

The plant air must be clean, dry and oil-free. The input pressure range is 5 to 10 bars (72.5 to 145 psi). The minimal rate is 15 Nm³/h (9 SCFM). The printer is equipped with a permanent draining filter.

N.B.	The 15 Nm³/h (9 SCFM) rate is necessary for 30 secondes when the printer start-up. When the printer is running, the normal rate is 1,5 Nm³/h (0.882 SCFM) for a one head printer and 1,9 Nm³/h (1,117 SCFM) for a twin head printer. The connection of the air tube requires a 1/8 G male connector.
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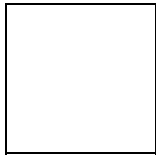
WARNING	In order to comply with the flow rates above, the printer air supply must take account of the following rules: - pipe diameter greater than 8 mm (0.31"), - pipe length less than 5 m (197"), - no elbows, - valve passage diameter greater than 8 mm (0,31").
----------------	--

A condensor of ink and solvent vapors enables decreasing vapours emission. The radiator of this condensor is cooled by an air flow.

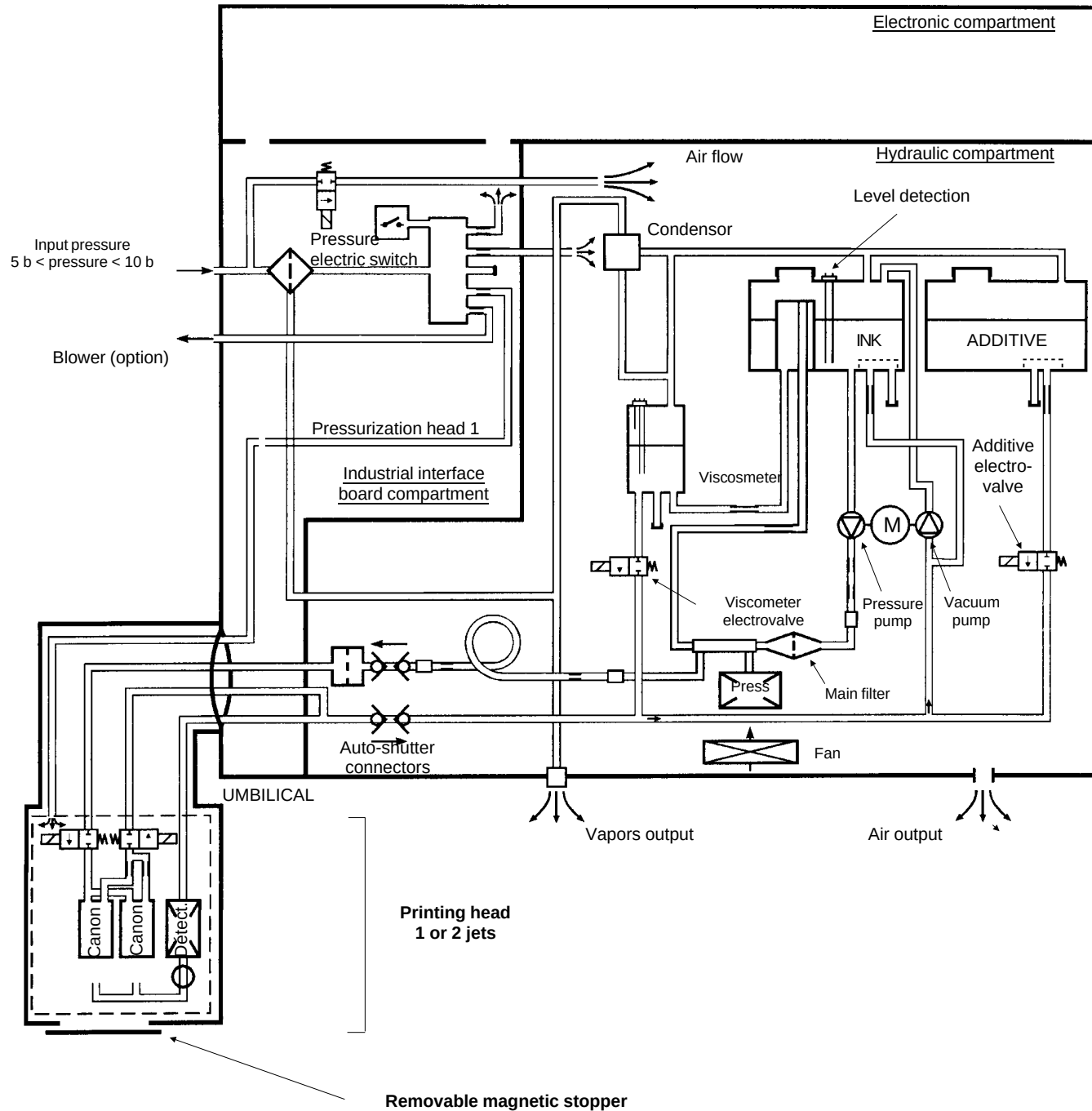
A fan homogeneizes the air and temperature of the hydraulic compartment.

It is mandatory to mount the Hi-P65 printer on the trolley delivered with the machine.

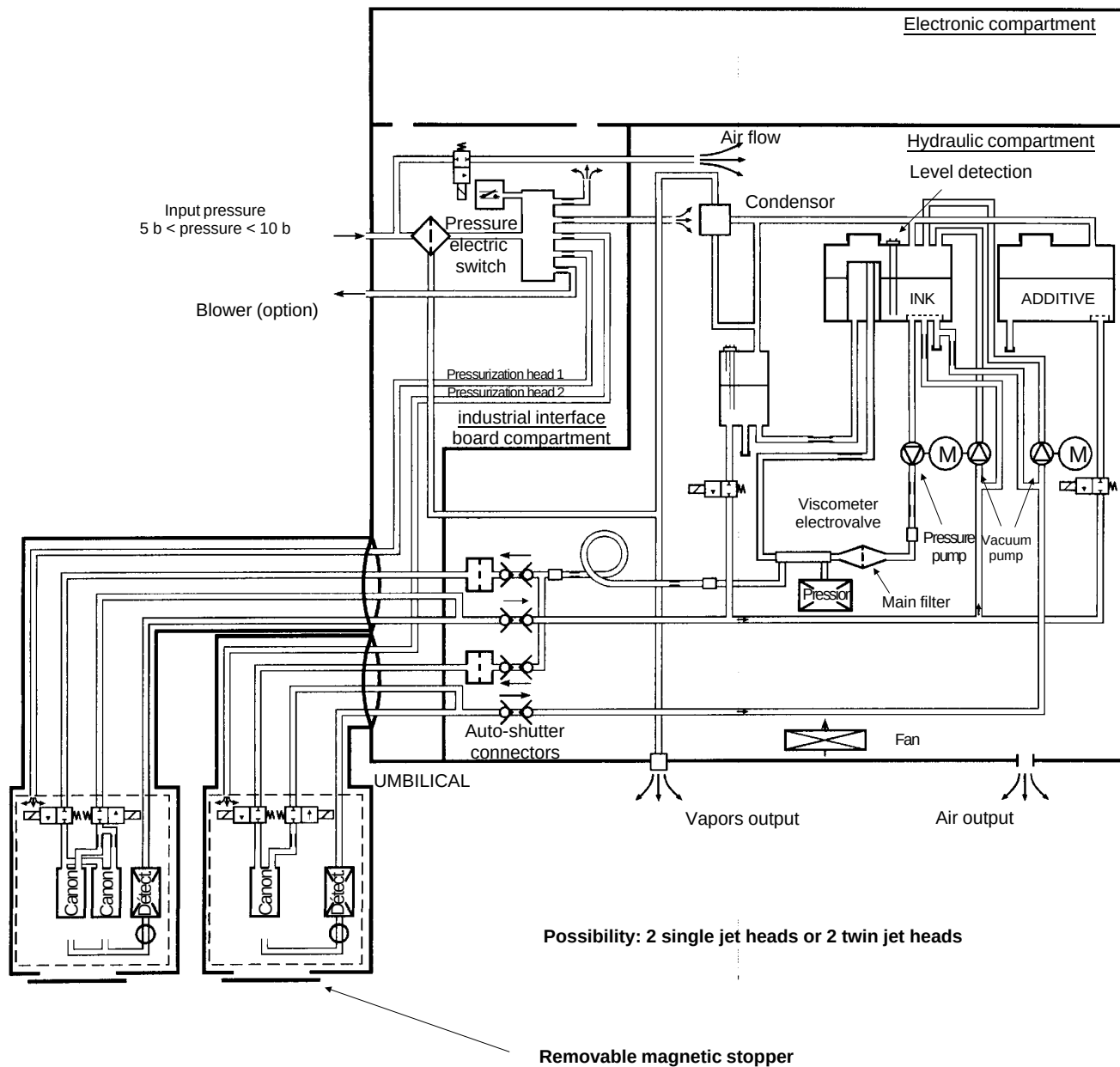
The Hi-65 printing head are protected by a head protector with a removable magnetic stopper.

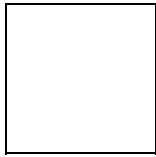


7.2 Diagram (1 head)



7.3 Diagram (2 heads)





7.4 Location of components

7.4.1 Front view of the ink circuit (1 or 2 heads)

Figure 1 : Front view of the ink circuit (Hi-P65)

- | | | |
|---|-------|------------------|
| 1 | ----- | Ink circuit loom |
| 2 | ----- | Drainage plug |
| 3 | ----- | Main ink filter |
| 4 | ----- | Condensor |

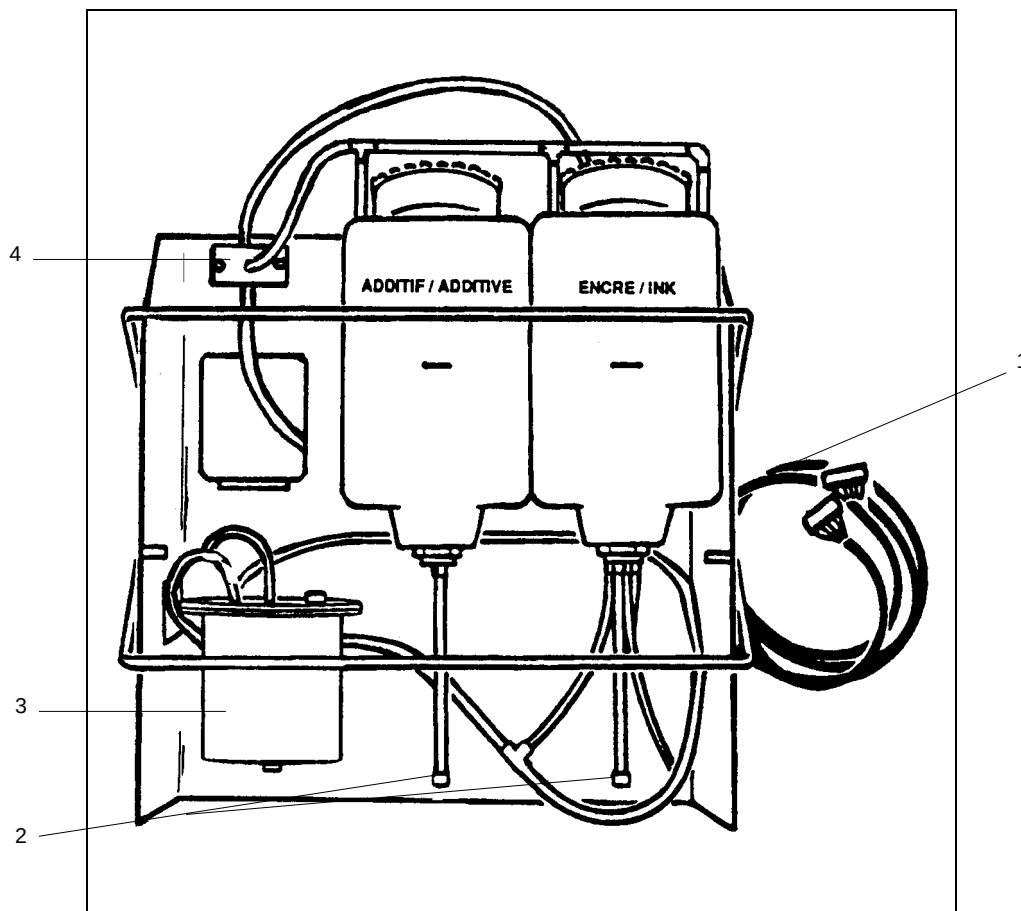


Figure 1

7.4.2 Rear view of ink circuit (1 head)

Figure 2 : Rear view of ink circuit (Hi-P65)

- | | | | |
|----|-------|-----------------------|--------------------|
| 1 | ----- | To vapour output | |
| 2 | ----- | Pressure sensor | |
| 3 | ----- | Visco drainage valve | |
| 4 | ----- | Additive valve |] In the same unit |
| 5 | ----- | By-pass setting | |
| 6 | ----- | Pressure pump | |
| 7 | ----- | To main filter | |
| 8 | ----- | Visco purge | |
| 9 | ----- | Intake pump | |
| 10 | ----- | Viscometer | |
| 11 | ----- | Pressure balancing | |
| 12 | ----- | Ink tank | |
| 13 | ----- | Additive tank | |
| 14 | ----- | To umbilical | |
| 15 | ----- | Radiator of condensor | |

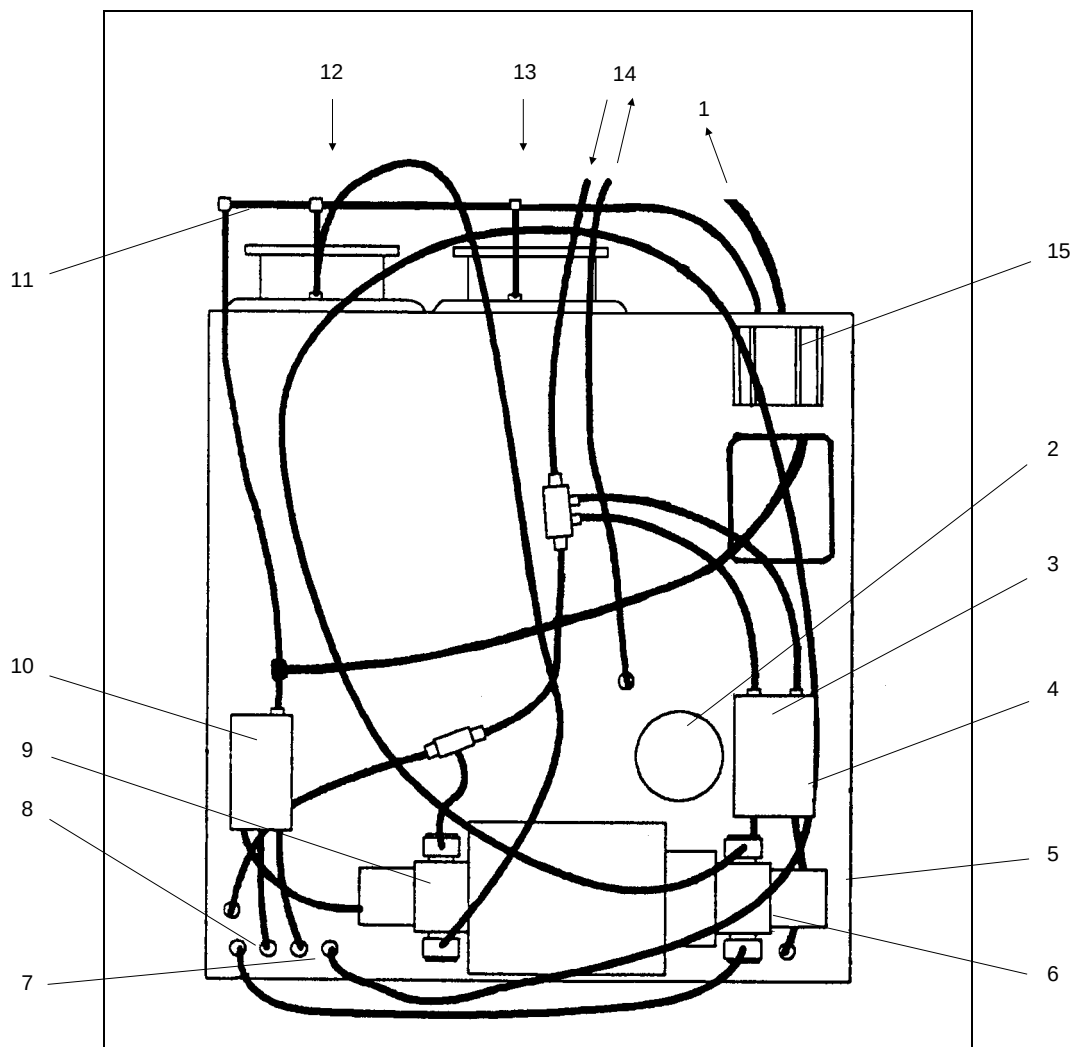
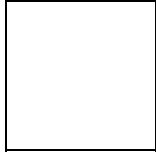


Figure 2



7.4.3 Rear view of ink circuit (2 heads)

Figure 2 : Rear view of ink circuit (Hi-P65)

- | | | | |
|----|-------|-----------------------|--------------------|
| 1 | ----- | To vapour output | |
| 2 | ----- | Pressure sensor | |
| 3 | ----- | Visco drainage valve | |
| 4 | ----- | Additive valve |] In the same unit |
| 5 | ----- | By-pass setting | |
| 6 | ----- | Pressure pump | |
| 7 | ----- | To main filter | |
| 8 | ----- | Visco purge | |
| 9 | ----- | Intake purge | |
| 10 | ----- | Viscometer | |
| 11 | ----- | Pressure balancing | |
| 12 | ----- | Ink tank | |
| 13 | ----- | Additive tank | |
| 14 | ----- | To umbilical | |
| 15 | ----- | Radiator of condensor | |
| 16 | ----- | Intake pump head 2 | |
| 17 | ----- | Flywheel | |

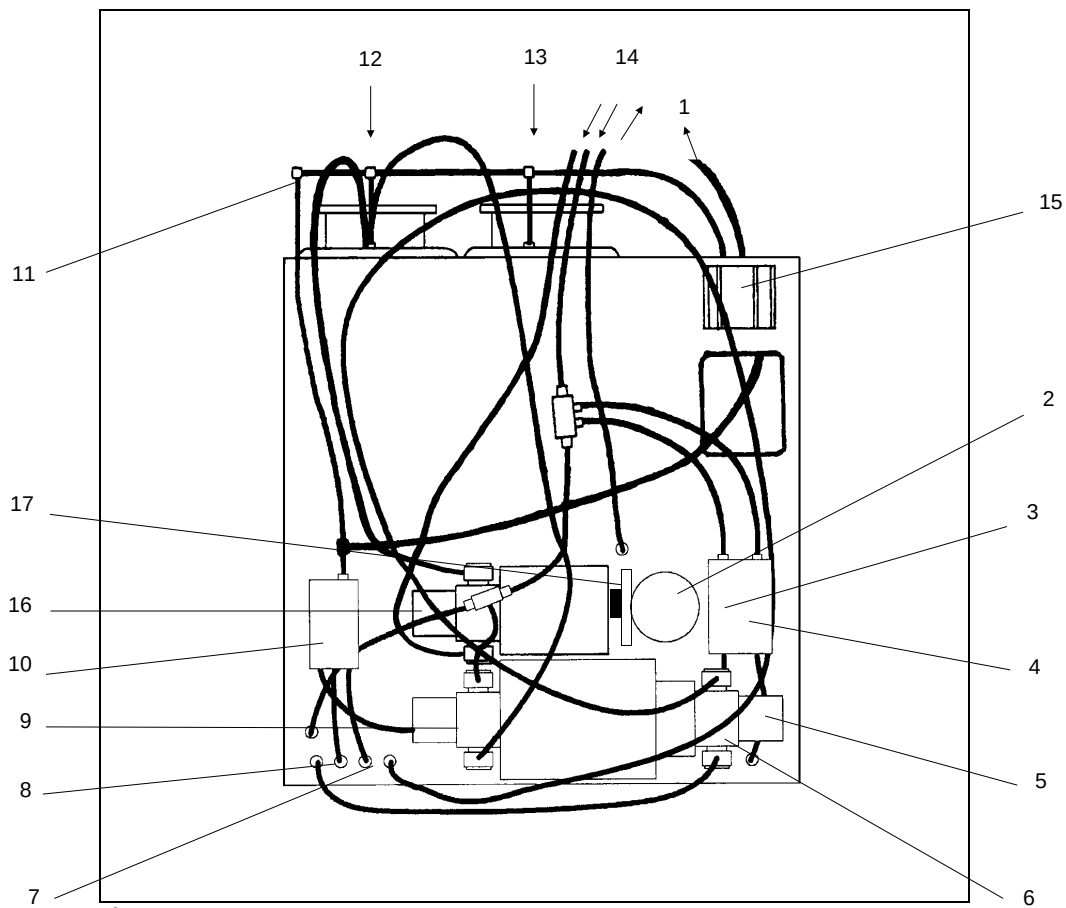


Figure 2

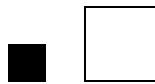
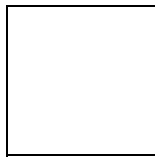
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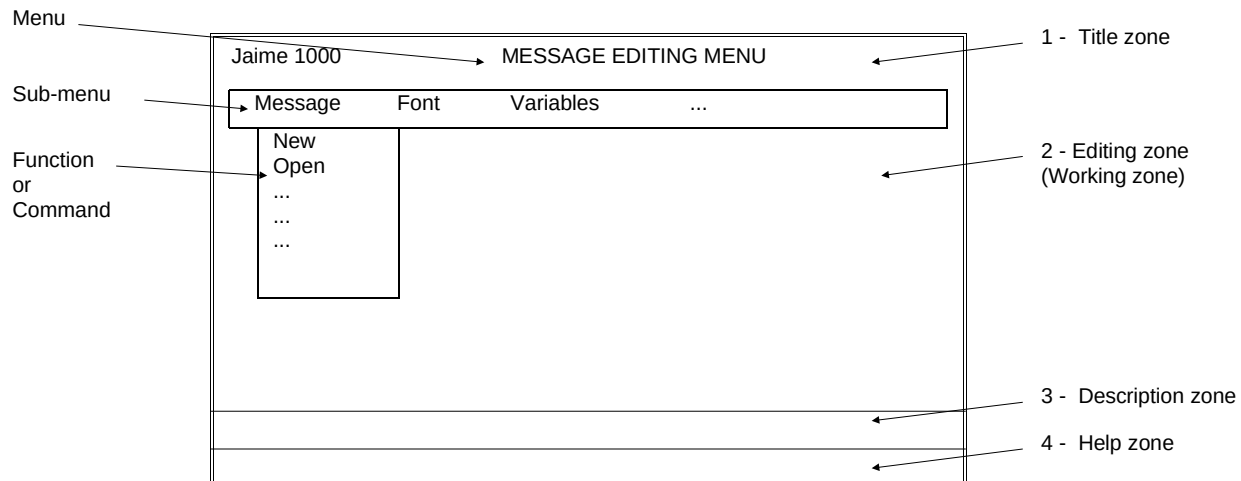
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1 Description of the S4 Plus screen



1 Title zone

This zone contains the name of the menu you are in as well as the name of the message you are working on.

2 Edit zone

At the top of this zone a menu bar shows all the sub-menus belonging to the selected menu. This bar is always displayed
A function box is shown for each sub-menu when validated.
A function or command may then be selected and the box disappears from the screen to leave as much space for working as possible.

NOTE	The sub-menus and functions cannot be accessed when they are shown as a dotted line.
-------------	---

3 Description zone

Describes the indicated function. Specific operations may be mentioned between <<---->>

4 Help zone

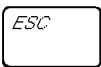
Describes the operations to be performed to select a command, change a value, validate a function, etc.

CAUTION	In general, you should always take note of the explanations and instructions in the help and description zones, as this will prevent you making a wrong operation.
----------------	---

2 How to reach the desired function or command

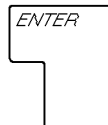
Jaime 1000						MAIN MENU					
F1 ON		F2 STAT		F3 SELECT		F4 PARAM.		F5 COUNTER		F6 PAUSE	
Production Message editing Printer preparation Symbol editing											
Message composition / Printing parameters											
↑ ↓: selection and ENTER											

A selection between several menus is proposed. Choose the one you want.

↑  Please follow the directions

Jaime 1000				MESSAGE EDITING MENU			
Message		Font		Variables		Parameters	
Set up, modify, erase messages							
← →: selection and ENTER							

↑  There is no access to dotted menus

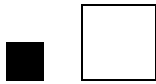
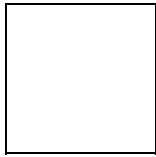
 ↓

Another choice is proposed. Continue in this way until you reach the desired function or command.

Jaime 1000				MESSAGE EDITING MENU			
Message		Font		Variables		Parameters	
New Open Save Save as Delete Load printer Close							
Set up a new message							
↑ ↓ ← →: selection and ENTER							

The various steps crossed remain permanently displayed. Specific help instructions are proposed at each step. This is the principle of the pull-down menus that you will use.

Function description



3 Appearance of the keyboard

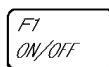
This includes:

- Alphabetic keys, a standard keypad and certain symbols (% , \$, etc.).
- The "ALT" "SHIFT" "CTRL" "ESC" keys, etc.
- An edit zone with four arrows
- Function keys F1 to F8.

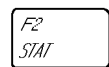


4 Using the keys

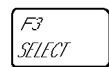
Direct access keys:



ON/OFF.



Used to display and acknowledge a fault or an alarm detected by the printer. This key is inoperative when a dialog box is open.



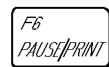
Used to select the message to be printed.



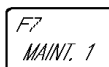
Used to modify the parameters of the active message(s).



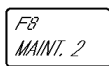
Used to display and initialise counters.



Used to stop printing momentarily then restart. This key does not affect messages printed in manual mode.

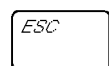


Used for direct access to the jet maintenance functions (Stop, Start-Up, Renewal, Stability, Solution introduction, Nozzle unclogging, Adjustment).

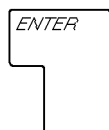


Used to control the opening and closing of the various solenoid valves in the ink circuit directly.

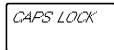
Other keys :



This key is used to go back to the previous menu and/or the main menu. It can also be used to abandon the input of a value or to exit parameter modification, ignoring the data changed.



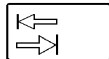
This key is used to validate a choice or a menu and to record current operations.



This key is used to toggle between upper and lower case letters.
In upper case mode, a symbol appears at the bottom right of the screen :



This key is used "Edit Message" to select the mode:
- Insertion: the cursor is vertical and modifications can be inserted into the message without overwriting the contents.
- Overtyping: the cursor is horizontal and the message is modified by writing over the previous characters.



In "EDIT MESSAGE", this key is used to access tabulation mode and vice versa.

In tabulation mode, a symbol appears at the bottom right of the screen.



Barre Espace

This key is used to make selections from the various dialog boxes.



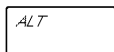
This key is used to delete an element (trame, character or variable) selected by the cursor in overtype mode.
In insertion mode, the character to the right of the cursor is deleted.



This key is used to return to the start of a message or a list.



This key is used to go to the end of a message or a list.



This key gives rapid access to the various menus using the upper case letter in the title of the menu, e.g. "ALT" "F" for "Font".



Used in special cases, in conjunction with other keys.

CTRL + F : In "Edit message" this key is used to screen and select existing fonts in the message.

CTRL + P : In the STATUS dialog boxes and  this key is used to start manual printing.

CTRL + V : In "Edit messages", when the cursor is placed on a barcode, the key is used to screen the contents of the code.

CTRL + S : In "Edit messages" this key is used for screening spaces (dots appear on the screen).

CTRL + E : Used to invert the video mode of the display at any time.

CTRL +  or  adjust the display contrast.



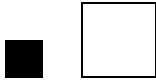
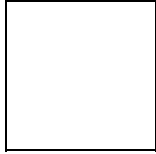
This key is used to display the "previous list" permanently.



This key is used to display the "next list" directly.

CAUTION

In Symbol editing mode, some of these keys can have other meanings.
See the Symbol Editing Menu chapter.



5 General appearance of the menus

The main menu has been split into three or four independent menus.

They appear in the following order:

- The **PRODUCTION** menu, containing all the functions and commands for normal printer use.
- The **EDIT MESSAGE** menu which contains all the functions and commands used to create and modify the messages to be printed.
- The **PREPARE PRINTER** menu containing all the functions and commands used to initialize the printer when it is used for the first time.
- The **SYMBOL EDITING** menu containing all the functions and commands used to create and modify symbols, logos and drawings.

CAUTION

This menu is only present on printers equipped with this option.

In this chapter, each function is explained individually. If some functions are inter-dependent, this is mentioned in the explanation of each one.
The order of presentation in this chapter follows the order of presentation on the printer screen.

It is however recommended first of all to select the language and set the clock, and to create a message before printing.

6 Detailed description of each function or command

This section explains each function and command of the "S4 Plus", in the order in which they appear on the screen.

An overall view of all the menus forming a quick reference guide is shown below:

PRODUCTION

Printer	Message	Status/Printhead(s)	Maintenance
Start-up Shut-down Jet(s) start-up Jet(s) stop	Message selection Library creation Counter display/reset External control	Status jet(s) FAULTS CLEAR Motor speed	Clear faults ELV status modification Flushing

MESSAGE EDITING

Message	Font	Variables	Parameters
New Open Save Save as Delete Load printer Close	Select font Select Symbols Bolderization Tabulation Barcodes	Counter Time Date Postdate Postdate 2 Shift code External	Message Counter Postdate Postdate 2 Shiftcode Barcode

PRINTER PREPARATION

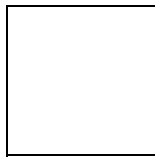
Initialization	Parameters	Options	Access codes
Language Autoclock Jets alignment V24 Connection (RS-232) Pcmcia transfer Font(s) downloading	Message Counter Postdate Postdate 2 Shiftcode Barcodes	Versions Hour counter Machine options	Keyboard Security

SYMBOL EDITING

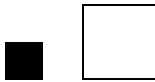
Symbol	Size
New Open Save Save as Delete Close	Symbol size

NOTE

The initials in upper case letters can be used to access the commands directly. If several commands in a menu have the same upper case letter (e.g. Bolderization and Barcodes) pressing the key toggles from one to the other.



Utilization



7 PRODUCTION menu

Production			
Printer	Message	Status/Printhead	Maintenance

The "Production" menu is used for printer operation, message selection, printer head status and access to maintenance functions.

7.1 Printer

Printer			
Start-up			
Shut-down			
Jet(s) start-up			
Jet(s) stop			

The "Printer" menu is used to start and stop the printer and the jets.

7.1.1 Start-up

The Start-up command is used to start up the printer. When you choose Start-up, the dialog box displayed on the screen is used to choose the jet start-up mode (automatic or manual).

NOTE	You can use the direct key F1 = ON to start the printer and jets automatically.
-------------	--

An initialization time is required at each start-up. During this period, the following message:

Machine set-up processing

is displayed on the screen.

7.1.2 Shut-down

The shut-down command is used to stop the printer at the end of production. A dialog box asks you to enter the time in minutes before stopping. The printer will stop working after this time and will enter a 2-minute stop phase during which printing will be impossible. The jet can then be stopped automatically.

The following message is displayed on the screen:

PRINTER SHUT-DOWN PROCESSING..

CAUTION	Do not interrupt this stop phase!
----------------	--

NOTE	You can use the direct access key F1 = OFF.
-------------	--

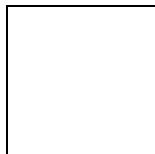
7.1.3 Jet(s) start-up

The **Jet(s) start-up** command is used to start up all the jets in the following three cases:

- printer start-up with manual jet start-up.
- restarting jets after an automatic stop due a fault detected by the printer.
- restarting the jets after being stopped by the user.

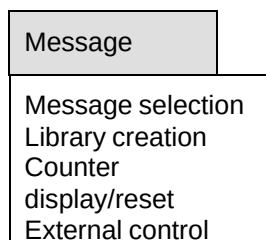
7.1.4 Jet(s) stop

The **Jet(s) stop** command is used to stop the jets of the same head for maintenance (e.g. cleaning) without stopping the printer.



Utilization

7.2 Message



The **Message** menu is used to select the messages to be printed, to create a library and to reset the message counter during printing.

7.2.1 Message selection

The **Message selection** command is used to select the message to be printed and to assign it to a head.

The messages are chosen from those created and stored in the printer memory.

The list of messages appears in a dialog box.

The message can be selected:

- either by selecting and validating the message in the list proposed.
- or by calling the "message" by its name (space bar followed by the name of the message or the start of the name).

A given message can be assigned to either of the heads, or to both heads at once (modified with the space bar).

NOTE

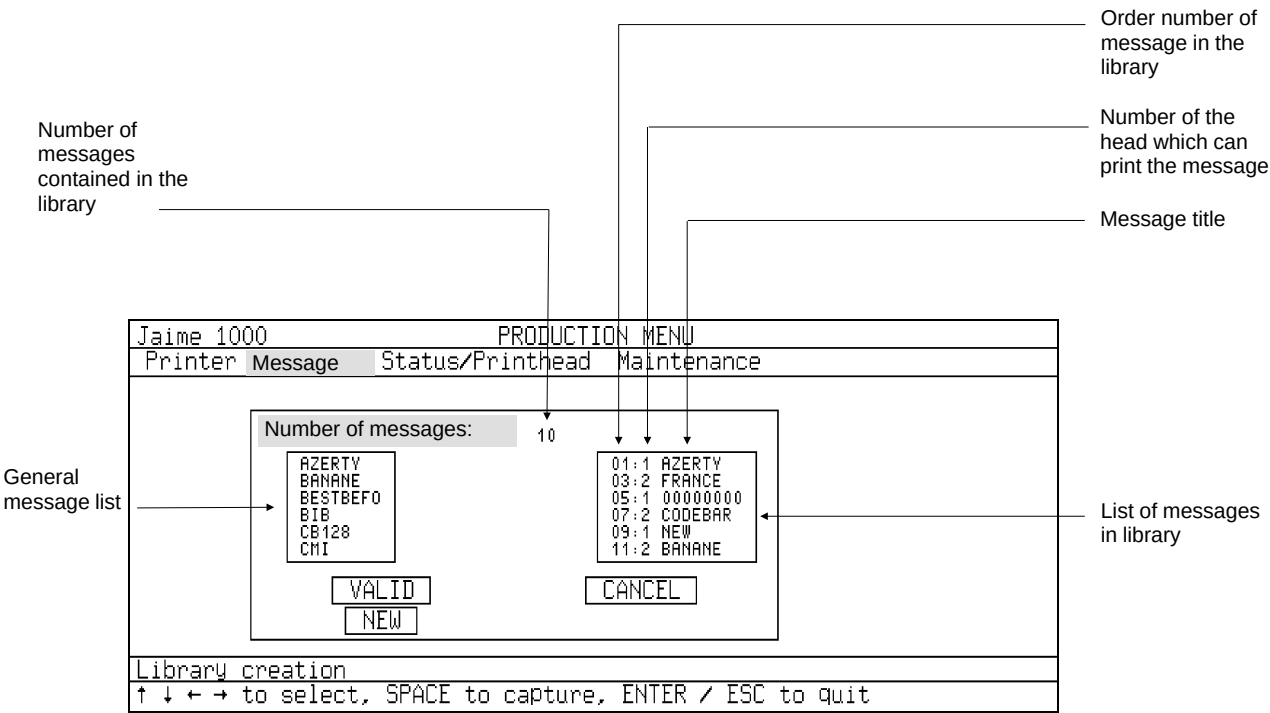
You can use the direct access key F3 = Select.

7.2.2 Library creation

The "Library" command is used to preselect messages and present them to the user in the form of selective lists which are, if applicable, specific to each head.

IMPORTANT The "Library" is optional if you dialog with you printer directly via the operator interface and mandatory if you dialog with you printer via an external link (serial or parallel).

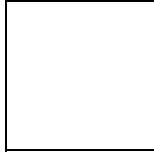
The dialog box displayed on the screen is as follows:



CAUTION The number of messages contained in a library must be greater than the number of printer head.

The library is limited to a maximum of:
 79 messages for 1 or 2 single jet head printer.
 39 messages for a 1 or 2 twin-jet head printer.
 19 messages for a 1 quadruple jet head printer.

The greater the size of the library, the lower the number of characters used per message.
 The smaller the size of the library, the higher the number of characters used per message.



Utilization

To create a library:

- 1) Set the size of the library by specifying the number of messages to be included.
[SPACE BAR]
- 2) Select the messages in the general list and store them in the library.
Select the message with [↓] or [↑] and press "ENTER".

IMPORTANT

**The message numbers are arranged in increasing order. If you have a two-head printer, the messages are alternately assigned to head 1 and head 2.
If you have one or two-nozzle heads, the message numbers increase in twos.
If you have a quadruple jet head, the message numbers increase in fours.**

- 3) Validate the library.
Select the "VALIDATION" box with the [←] key and press [ENTER].

To modify a library completely:

- 1) Delete the previous library.
Select the "NEW" box with the [←] or [→] keys and press [ENTER].
- 2) Set the size of the library by specifying the number of messages to be included.
- 3) Select the messages in the general list and store them in the library.
Select the messages with the [↑] or [↓] keys and press [ENTER].
- 4) Validate the library.
Select the "VALIDATION" box with the [→] key and press [ENTER].

To reduce the size of the library:

- 1) Delete undesirable messages from the library.
Select the messages to be deleted and press [ENTER].

IMPORTANT

The remaining messages move up in the list.

- 2) Modify the number of messages.
- 3) Validate. "VALIDATION" followed by [ENTER].

To increase the size of the library:

- 1) Increase the number of messages.
- 2) In the general list, select the message to be added to the library and press [ENTER]. It is added to the end of the library list.

To modify the contents of the library:

- 1) Select the message to be deleted and press [ENTER].

IMPORTANT	The following messages move up in the list
------------------	---

- 2) In the general list, select the message to be inserted and press [ENTER]. It is added to the end of the library list.

To delete the library:

- 1) Delete the existing library with "NEW".
- 2) Set the number of messages to zero.
- 3) Validate. "VALIDATION" followed by [ENTER].

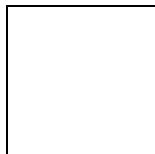
7.2.3 Counter display / reset

This command is used to watch the counter in real time and to reset it if necessary.

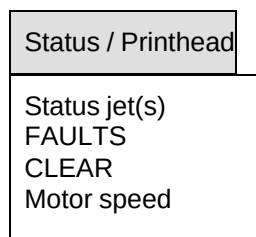
NOTE	You can use the direct access key F5 = COUNTER.
NOTE	In this menu, using the [CTRL] [P] (Control Print) keys at the same time prints the message if it is set to "Manual Object" or "Manual Auto".

7.2.4 External control

This command can only be used if your printer is equipped with special functions.



7.3 Status / Printhead



The Status / head menu is used for jet maintenance, several maintenance functions are available.

You can also view in real time the various measurements made by the printer (jet ejection speed, temperature of circuit boards, ink viscosity, etc.).

You can also use this menu to display and cancel the faults detected by the printer.

Head: 1		Head: 2	
Status jet(s):	RUNNING	Status jet(s):	RUNNING
Speed jet1:	JET SHUT DOWN	Speed jet1:	19,90 m/s
Phase jet1:	JET START UP	Phase jet1:	11000011
Speed jet2:	REFRESHMENT	Speed jet2:	20,00 m/s
Phase jet2:	STABILITY	Phase jet2:	11110000
Pressure:	INTRO. SOLUTION	Motor speed:	2000 t/mn
Viscosity:	NOZZLE UNBLOCKING	Reference visco.:	32 s / 4,6 cPs
Temperature:	JET ADJUSTMENT	Additions:	00
FAULTS:	☒	CLEAR:	☐
Machine status / Operations on heads			
↑ ↓ ← → to select, SPACE to capture, ENTER / ESC to quit			

NOTE

In this menu, using the [CTRL] [P] (Control Print) keys at the same time prints the message if it is set to "Manual Object" or "Manual Auto" and if the jet is set to "ON".

CAUTION

In the case of a two head printer:
- a head can only be started up if the other head is in Run mode or stopped.
Similarly, refreshment, stability, solution introduction, nozzle unblocking and adjustment are possible on one head unless the other head is in Run mode.

7.4 Maintenance

Maintenance
Clear faults ELV status modification Flushing.

The **Maintenance** menu allows you to temporally inhibit the permanent head cover and recuperation checks, modify the state of the ink circuit solenoid valves or start a machine flushing cycle.

7.4.1 Clear faults

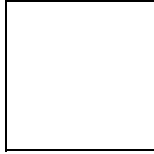
The **Clear faults** command is used to remove temporarily the "heads present" and "recuperation" checks. The following dialog box appears on the screen:

Jaime 1000	PRODUCTION MENU
Printer Message Status/Printhead	Maintenance
Head cover fault: ☐ Recuperation fault: ☐	
Cover fault and recuperation fault override	
↑ ↓ to select, SPACE to capture, ENTER / ESC to quit	

7.4.2 ELV status modification

The **ELV status modification** command is used to control the viscometer bleed valves and additive valves so that the printer operates correctly. The following dialog box appears on the screen:

Jaime 1000	PRODUCTION MENU																
Printer Message Status/Printhead	Maintenance																
<table border="1"> <tr> <td>Visco.:</td> <td>CLOSED</td> <td>Visco. level:</td> <td>0%</td> </tr> <tr> <td>Additive:</td> <td>CLOSED</td> <td>Visco. High level:</td> <td>-</td> </tr> <tr> <td>Viscosity:</td> <td>00 s / 0,0 cPs</td> <td>Visco. Low level:</td> <td>-</td> </tr> <tr> <td>Reference visco.:</td> <td>32 s / 4,6 cPs</td> <td>Ink level:</td> <td>LOW</td> </tr> </table>		Visco.:	CLOSED	Visco. level:	0%	Additive:	CLOSED	Visco. High level:	-	Viscosity:	00 s / 0,0 cPs	Visco. Low level:	-	Reference visco.:	32 s / 4,6 cPs	Ink level:	LOW
Visco.:	CLOSED	Visco. level:	0%														
Additive:	CLOSED	Visco. High level:	-														
Viscosity:	00 s / 0,0 cPs	Visco. Low level:	-														
Reference visco.:	32 s / 4,6 cPs	Ink level:	LOW														
Head 1: FRANCE - Head 2: BESTBEFO																	
Electrovalve status modification																	
↑ ↓ to select, SPACE to capture, ENTER / ESC to quit																	



Utilization

7.4.3 Flushing

After connecting the flushing tool, the Flushing command allows you to start a flush and rinse cycle and follow its progress.

Jaime 1000		PRODUCTION MENU	
Printer	Message	Status/Printhead	Maintenance
Motor speed: 2000 Pressure: 0,00 Jet(s) status: RUNNING Flushing phase: 6 / 4 Time spent: 09:32:09 Operation: Cleaning of the ink circuit.			
Head 1: 0 - Head 2: 0			
Ink circuit flushing			
ENTER / ESC to quit			

8 The MESSAGE EDITING menu

MESSAGE EDITING			
Message	Font	Variables	Parameters

This menu contains all the functions needed to create and modify messages to be printed, regarding their content and format.

REMINDER	On your screen, the editing zone depends on the number of jets on the print head. This zone is shown by a vertical boundary at the left of the screen.
----------	--

8.1 Message

A "Message" is what is written by a head.

Message
New
Open
Save
Save as
Delete
Load printer
Close

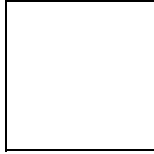
REMINDER	The upper case letter in each command can be used to access the command directly.
----------	---

The **Message** menu can be used to create a new message, to open or copy a message already created, to store a message in memory or delete it from memory, or to print a message. This menu can be accessed at any time, irrespective of whether the printer is running or not.

8.1.1 New

The **New** command is used to create a new message. When you choose **New**, a dialog box asks you to enter a name for your message (maximum 8 characters).

After this, a flashing cursor appears at the top left of the working zone, on the top line of your message.



Utilization

You can place the cursor wherever you like, on either of the lines available in your working zone. These lines are shown by vertical boundaries to the right of the zone boundary. You can then compose a text, which will be printed with a default font. To customise your messages with other fonts, use the Font menu.

8.1.2 Open

The **Open** command is used to enter an existing message in order to modify its content, format or printing parameters.

When you select **Open**, a dialog box shows you the start of the list of the messages in memory. You can then scroll through the titles and select the one you want (follow the instruction in the help zone at the bottom of the screen).

8.1.3 Save

The **Save** command is used to save the messages that you have created or modified. This command can only be accessed after "New" or "Open"..

8.1.4 Save as

The **Save as** command is used to save the modified version of an existing message without losing the original.

This command can only be accessed after "New" or "Open".

- 1- Select the original message using "Open".
- 2- Modify this message.
- 3- Select "save As".
- 4- A dialog box appears with the message name.
- 5- Give a new name to the modified message.

The new message title appears at the top right of the screen and is added to the list of existing messages.

8.1.5 Delete

This command is used to delete a message from the printer memory.

CAUTION

**Once a message has been deleted, it cannot be recovered.
As a safeguard, the system asks you to confirm the deletion of
the selected message.**

8.1.6 Load printer

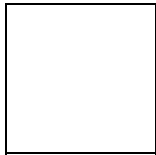
This command is used to transfer the message being edited to the printer head (e.g. for a printer test).

8.1.7 Close

The **Close** command is used to exit from the message that you have just created or modified.

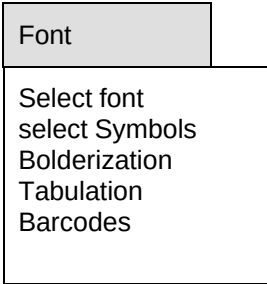
CAUTION	"Close" is compulsory to exit the MESSAGE EDITING menu.
----------------	--

If the message has not already been saved, or if an existing message has been modified, a dialog box asks you if you want to save it. Select "YES" if you want to save changes before closing or "NO" if you do not.



8.2 Font

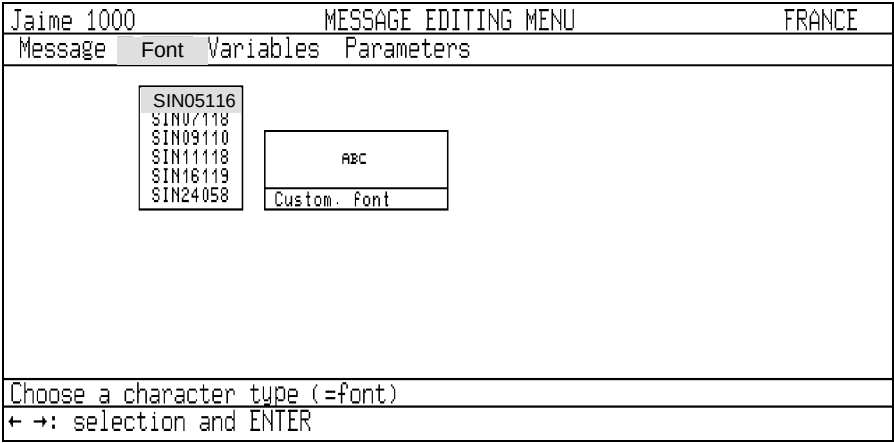
A "Font" is a group of characters or symbols in the same style and of the same size



This menu contains all the functions required to choose the style and size of your characters or symbols so that you customize your markins. One or more of these commands may be applied to your text, sometimes at the same time.

8.2.1 Select Font

When this command is selected, a dialogue box lists all the fonts available in your printer. A preview of a few characters from the selected font allows you to view your choice. After validation, the cursor takes on the size of the chosen font and the line delimiters indicate the accessible lines.



NOTE

Fonts whose name includes a H (e.g. SIN5H116) can be used in the High part of the printing zone for each jet (option 3 and 4 lines per jet). Selecting a H font gives access to the corresponding lines.

8.2.2 Select Symbols

When this function is validated, all the symbols or characters of the previously selected font are displayed in a dialog box (some fonts cannot be fully displayed, in this case, use the [HOME], [END], [←], [→] keys to see all the characters).
Use [←] and [→]. keys to choose the symbols. The symbols preselection is done with the [SPACE] bar. Use [ENTER] to insert the selected characters at the cursor position.

This function is to be used in particular for special fonts with characters which do not exist on the keyboard (e.g. logos).

8.2.3 Bolderization

This function is used to print bold characters in the message, without altering their height. A dialog box asks you to enter the required stretch factor, from 1 to 9, with 9 being the boldest (this factor is at 1 by default).

Jaime 1000	MESSAGE EDITING MENU	BOL
Message	Font	Variables Parameters
Bolderization 3		
Bolderization capture		
ENTER / ESC to quit		

Next, all the selected symbols are written in the screen with the programmed stretched factor (what you see on the screen is what will be printed). There is no restriction to the number of stretches that can be performed per line or per message.

8.2.4 Tabulation

This function is used to define a blank zone between two characters or symbols of a width different from the standard space of the font used. A dialog box asks you to enter the number of frames in this blank zone (1 to 255).

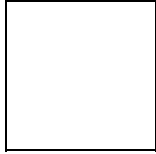
To place a tab:

- move the cursor to the desired position,
- enter "Tabulation" mode ( key),
- insert a tabulated [SPACE ] key),
- exit "Tabulation" mode ( key).

At any time during message editing, it is possible to add or remove frames from a tab.

To adjust a tab:

- position the cursor on the tab, 
- enter "Tabulation" mode ( key),
- adjust ( or  keys) 
- exit "Tabulation" mode ( key).

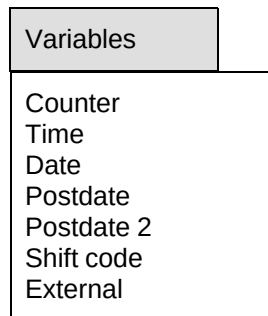


8.2.5 Barcodes

This function is an option on the S4Plus version. It can be used to insert up to 4 bar codes per jet in your message.
The programming details of these bar codes are given at the end of this chapter in a special paragraph.

8.3 Variables

A "Variable" is an element that varies according to the time, such as the clock and time code, or according to the counter.



This menu is used to insert variable data items in your message.

8.3.1 Counter

This message is used to insert counters into your message.
The initial counter value is displayed in your message on the screen.

8.3.2 Time

This menu is used to insert the time and date in your message.
A dialog box asks you to enter "time" variable consisting of hours, minutes and seconds, in the required order.

8.3.3 Date

This menu is used to insert calendar data in your message.
A dialog box asks you to enter your "date" variable using the following elements:

- Day of the week (one digit, from 1 for Sunday to 7 for Saturday).
- Day of the month (1 to 31).
- Day of the year (1 to 366).
- Week of the year (1 to 53).
- Month of the year (1 to 12 or 3 letters).
- Year.
- Last digit of the year.

8.3.4 Postdate

This menu is used to enter a postdate in your message.

A dialog box is used to enter a "Postdate" variable using the following elements:

- "Postday" of the month.
- "Postday" of the year.
- "Postweek" of the year.
- "Postmonth" of the year in numbers or letters.
- "Postyear".

The Postdate duration is set in the parameters menu.

8.3.5 Postdate 2

This menu allows you to insert a second postdate in your message.

A dialogue box offers the same items as for the first postdate.

The duration for Postdate 2, different from the first, is set in the Parameters menu.

8.3.6 Shift Code

This function is used to insert an hour code (alphabetic or numeric) for a time period into the message.

This code and its parameters are chosen from the Parameter menu.

8.3.7 External

This function is used for reserving within a message locations for variable characters for external delivery (V24).

If no information is sent by the external link, these reserved locations are shown when printing by the selected display symbol as shown on the screen.

A dialog box can be used to specify the number of locations to be reserved and the screen symbol.



8.4 Parameters

Parameters
Message
Counter
Postdate
Postdate 2
Shift code
Barcode

This menu is used to program the parameters of the variables used in the messages and the message parameters which adapt the printer to your production line. All these parameters are dedicated to a message and so may be different for each message.

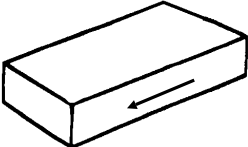
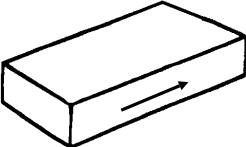
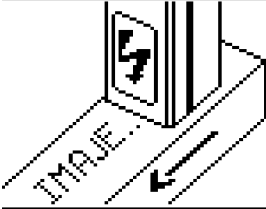
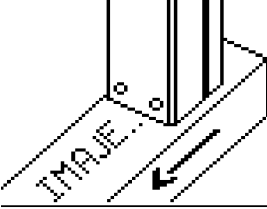
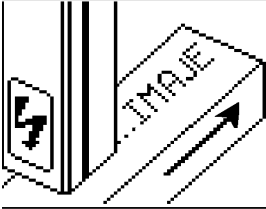
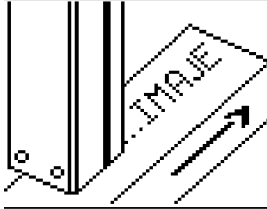
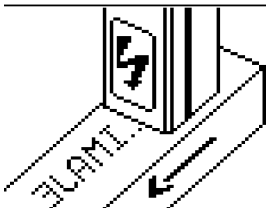
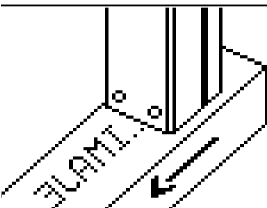
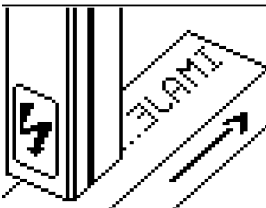
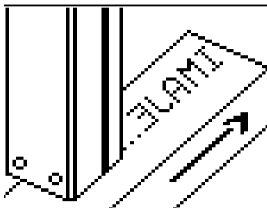
8.4.1 Message

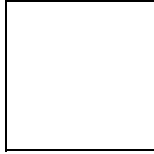
All the data required to customize your message appears in a dialog box.

Jaime 1000	MESSAGE EDITING MENU	FRANCE															
Message	Font	Variables															
Parameters																	
<table border="1"><tr><td>Head sense</td><td>Set off:</td><td>MANUAL OBJECT</td></tr><tr><td>Tacho mode:</td><td>☐ Forward margin: (mm)</td><td>1</td></tr><tr><td>Print speed: (mm/s)</td><td>100 Return margin: (mm)</td><td>1</td></tr><tr><td>Printing repetition:</td><td>1 Interval: (mm)</td><td>1</td></tr><tr><td>DIN characters:</td><td>☐ Top filter: (us)</td><td>100</td></tr></table>			Head sense	Set off:	MANUAL OBJECT	Tacho mode:	☐ Forward margin: (mm)	1	Print speed: (mm/s)	100 Return margin: (mm)	1	Printing repetition:	1 Interval: (mm)	1	DIN characters:	☐ Top filter: (us)	100
Head sense	Set off:	MANUAL OBJECT															
Tacho mode:	☐ Forward margin: (mm)	1															
Print speed: (mm/s)	100 Return margin: (mm)	1															
Printing repetition:	1 Interval: (mm)	1															
DIN characters:	☐ Top filter: (us)	100															
Message parameters																	
↑ ↓ ← → to select, SPACE to capture, ENTER / ESC to quit																	

• **Head sense**

The table below summarises the various possibilities.

Direction of the item				
Direction of the head				
Direct vision				
Transparent vision				



Utilization

- **Tacho mode :**

The printing speed of the printer and the conveyor speed can be continuously synchronized by installing a tachometric pulse generator, "Tacho", on your production line. This option is particularly useful if the items do not pass at a constant speed. If you tick this box, the printer will follow the rate given by the tacho pulses.

CAUTION

Do not tick this box if your system does not have a "tacho".

- **Print speed (or tacho division):**

If the items pass at a constant speed, enter this speed in millimetres per second. If you have ticked the tacho box, you must then enter a "tacho division" (number between 1 and 9999). Depending on the result given by printing, you can increase or decrease this number.

- **Printing repetition:**

This parameter is used to repeat the printing, a programmed number of times whatever the object length.

CAUTION

**Printing repetitions: 1 means 1 message printed, no repetition.
Printing repetitions: 2 means 2 messages printed, no repetition.**

- **Set off:**

This function is used to choose between: MANUAL OBJECT
MANUAL AUTO
OBJECT
REPEAT

Select:

MANUAL OBJECT or MANUAL AUTO: If you want to perform manual printing tests.

- MANUAL OBJECT: Printing is started by pressing the space bar on the keyboard, one print is obtained every time the space bar is pressed.
- MANUAL AUTO: Printing is started by pressing the space bar ; printing will continue until the space bar is pressed again.
This prints the same message several times automatically between the first time the space bar is pressed until it is pressed again.

OBJECT or REPEAT during manufacture.

- **Forward margin:**

- **Return margin:**

- **Interval:**

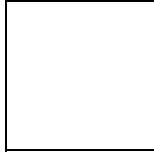
- **Top filter:**

- **DIN characters:**

123ABC CBA321

1 2 3 A B C D E A 3 2 1

DIN characters are available on single jet heads only.



8.4.2 Counter

All the data required to modify the counter appears in a dialog box.

Jaime 1000		MESSAGE EDITING MENU		FRANCE																
Message	Font	Variables	Parameters																	
<table border="1"><tr><td>First figure:</td><td>000000001</td><td>Incrementation type:</td><td>OBJECT</td></tr><tr><td>Last figure:</td><td>999999999</td><td>Zeros before figure:</td><td>☒</td></tr><tr><td>Counter step:</td><td>01</td><td>Reinit./top object :</td><td>☐</td></tr><tr><td>Batch counter:</td><td>000001</td><td></td><td></td></tr></table>					First figure:	000000001	Incrementation type:	OBJECT	Last figure:	999999999	Zeros before figure:	☒	Counter step:	01	Reinit./top object :	☐	Batch counter:	000001		
First figure:	000000001	Incrementation type:	OBJECT																	
Last figure:	999999999	Zeros before figure:	☒																	
Counter step:	01	Reinit./top object :	☐																	
Batch counter:	000001																			
Counter parameters																				
↑ ↓ ← → to select, SPACE to capture, ENTER / ESC to quit																				

- **First figure, Last figure:**
These are the values between which the counter will be updated. If the start value is less than the end value, the counter will count normally. If, on the other hand, the start value is greater than the end value, it will count backwards. When either of these values is reached, the counter loops back to the other value.
- **Counter step:**
This is the value by which the counter is incremented (from 00 to 99).
- **Batch counter:**
This is the number of items in a batch. The counter is incremented when the batch number is reached.
- **Incrementation type:**
You can choose whether the counter is incremented for a number of items or for a number of messages.
- **Zeros before figure:**
Tick this box if you want non-significant leading zeros to be printed. In any case, the space taken up by the counter in the message takes the zeros into account, whether they are printed or not.

NOTE	Leading zeros cannot be suppressed in a bar code.
-------------	--

- **Reinit./top objet :**
Tick this box if you want the counter to be reset to its start value whenever the "object pulse" signal is received.

8.4.3 Postdate/Postdate 2

A dialogue box asks you to specify the duration of the postdate in days or months.

8.4.4 Shift Code

All the data required to modify the time code appears in a dialog box.

Starting time : 00 : 00
Interval : 00 : 01
Type : NUMERICAL
LETTER
LETTER (-I -O) (except I and O)

Example :

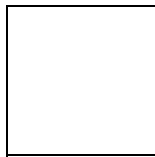
Starting time : 06 : 00
Interval : 08 : 00
Type : LETTER

The following will be printed:

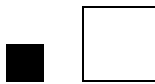
A - from 6:00 h to 13:59 h,
B - from 14:00 h to 21:59 h,
C - from 22:00 h to 05:59 h the following day .
and so forth.

8.4.5 Barcode

All the data required to customize your barcodes appears in a dialog box.



Utilization



9 Printer preparation menu

Printer preparation			
Initialization	Parameters	Options	Access codes

The **Printer Preparation** menu allows you to configure the printer yourself (operator language, local time, etc.). It must therefore be used when the printer is installed.

9.1 Initialization

Initialization
Language
Autoclock
Jets alignment
V24 connection (RS-232)
Pcmcia transfer
Font(s) downloading

The **Initialisation** menu allows you to choose the language for dialogue between the printer and the operator, to set the date and time on the clock, to align the printing zones of the jets, to configure the V24 link, to save and load working data.

9.1.1 Language

The **Language** function is used to select the language used for menus, functions, commands, help instructions, error messages, etc.

When you select **Language**, a dialog box asks you to select the language you want from a list. This language will remain valid until you change it.

9.1.2 Autoclock

The **Autoclock** function is used to set the clock, and the date and to set the time and the date format.

When you choose **Autoclock** the following message appears on the screen.

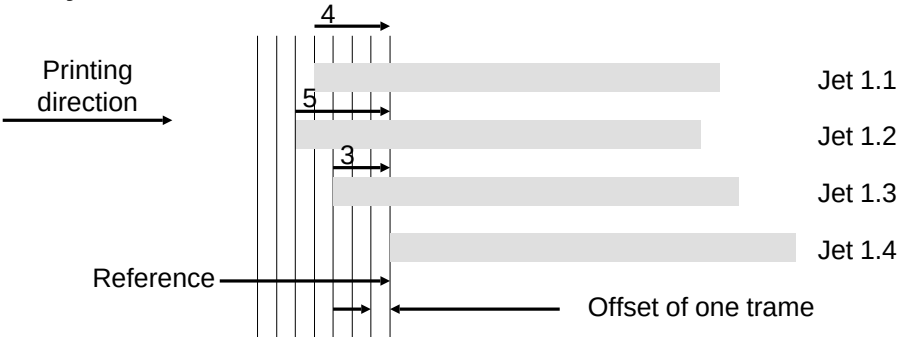
Jaime 1000		PRINTER PREPARATION MENU	
Initialization		Parameters Options Access codes	
Hour (H:M:S): 09:32:09 Run/Stop autodating: ☐ ← Date (dd/mm/yy) : 19/11/93 Date format: dd/mm/yy (19/NOV/93)			
Autodating initialisation			
↑ ↓ ← → to select, SPACE to capture, ENTER / ESC to quit			

☐ the timer display and printing are updated in real time.
☒ the time display and printing are fixed.

9.1.3 Jet alignment

The "Jet alignment" function is used to align the jet print-outs in relation to each other. To align the jets, the jet with the largest offset must be identified and the other jets must be assigned a corresponding number of offset frames.

Example : 4 jet head



In the above example, the jet with the largest offsets is jet 1.4. Therefore, the offset must be:

- 4 frames for jet 1.1,
- 5 frames for jet 1.2,
- 3 frames for jet 1.3,

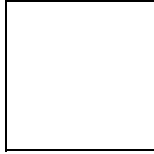
for all the jets to be aligned on reference jet 1.4.

IMPORTANT Take the printing direction into account when defining the reference jet.

A dialog box therefore suggests associating a jet number with a number of alignment frames

Jaime 1000		PRINTER PREPARATION MENU	
Initialization		Parameters Options Access codes	
Jet number 1.1 Alignment: 0 - + VALID			
Jets alignment ↑ ↓ ← → to select, SPACE to capture, ENTER X ESC to quit			

Using ENTER on the + - button adjusts alignment



9.1.4 V24 connection

The "V24 connection" function is used to configure the serial link with a device outside the printer.

The dialog box displayed on the screen is used to select:

- The baud rate (4800, 9600, 19200 or 38400).
- The parity (none, even or odd).
- The number of stop bits (1 or 2).
- The watchdog value in seconds (from 1 to 99).

IMPORTANT	The 8 bit transmission format is fixed.
------------------	--

9.1.5 PCMCIA transfer

This function enables working data (message, parameters, fonts, machine configuration) for the S4 Plus to be saved on a PCMCIA card and/or the contents of a PCMCIA card to be loaded into the printer.

CAUTION	Use a PCMCIA card with a capacity of at least 512 Kb.
----------------	--

- To store working data on a PCMCIA card
 - Insert a PCMCIA card on its connector.
 - Select "**New**" ( or  then ).
 - Give a directory name (max. 8 characters) then  .
 - Select "**=> PCMCIA**".
 - All the working data present in the printer is then transferred to the PCMCIA card by pressing the  key.
- To load a directory from a PCMCIA card into the printer
 - Insert the PCMCIA card on its connector.
 - Select the directory to be loaded into the printer from the list of data ().
 - Select "**<= PCMCIA**".
 - All the data present in the directory is then transferred by pressing the  key.

- To delete a directory from a PCMCIA card:
 - Insert the PCMCIA card on its connector.
 - Select the directory to be deleted from the list of data ().
 - Select "**DELETE**".
 - Press the  key.
 - It is necessary to validate by pressing  again before the directory is permanently deleted.
- To format a PCMCIA card:
 - Insert the PCMCIA card on its connector.
 - Select "**FORMAT**".
 - Validate by pressing  .

9.1.6 Font(s) downloading

This function is only present on printers with the "Symbol printing" function. A dialogue box proposes the full list of fonts present.
In this list, mark a maximum of 10 fonts which can be used in the "Message editing" menu.

9.2 Parameters

Parameters
Message Counter Postdate Postdate 2 Shift code Barcode

This menu is used for presetting the message and variable parameters for all new messages. The parameters can be modified in the **Message Editing** menu to adjust them for each message.
See the **Message Editing, Parameters**, menu for the explanation concerning these parameters.



9.3 Options

Options
Versions Hour counter Machine options

The **Options**, menu is used to display data of a general nature (program version, operating time) and to validate temporary functions.

9.3.1 Versions

The **Versions** function is used to display the program versions contained in your printer.

9.3.2 Hour counter

The **Hour counter** function is used to display the number of hours that your printer has been operating.

9.3.3 Machine options

The **Machine options** function is used to validate or cancel temporary functions and to see whether your printer is equipped with the barcode option.

The following dialog boxes appear on the screen:

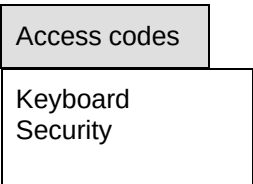
Jaime 1000		PRINTER PREPARATION MENU	
Initialization	Parameters	Options	Access codes
jet number:	1.1	Cable printing option:	☐
Counter increment. on ext. input:	☐	Julian post date (offset):	☐
Speed fault cancellation:	☐	One DTOP per message:	☐
Authorised Barcodes:	☒		
Options per jets			
↑ ↓ ← → to select, SPACE to capture, ENTER / ESC to quit			

Cable printing option: With this option, the counters are incremented when an object pulse is received, whatever the jet status (even if a fault is present).

Julian postdate: This option is used to add a number from 0 to 999 to the Julian calendar.

One DTOP per message : With this option, the same message can only be printed after it has been modified.

9.4 Access codes



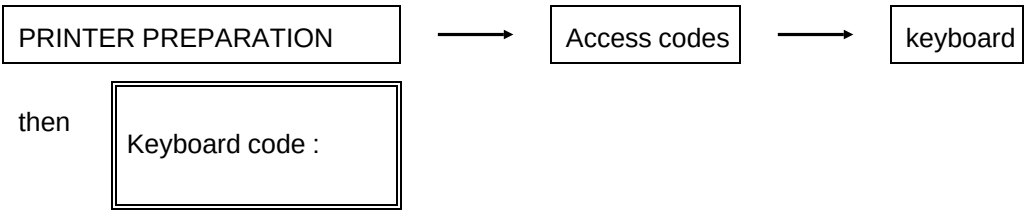
This menu is used to insert codes which deny access to certain functions.

9.4.1 Keyboard

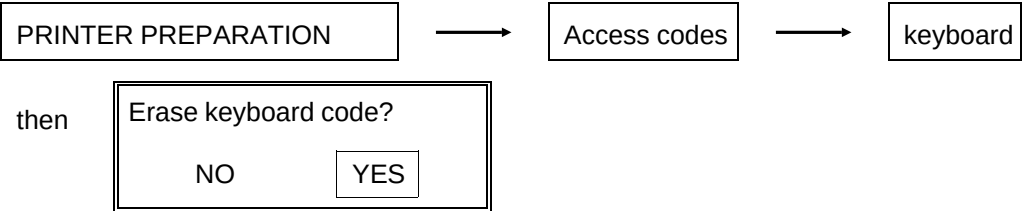
The **Keyboard** command is used to deny access to the keyboard menus except for the FAULT function, which can be accessed at any time using F2.

When you select **Keyboard**, a dialog box asks you to enter a 3-character code. This code will be requested whenever access to a menu is attempted.

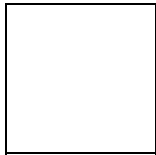
- **To create a keyboard code:**



- **To delete a keyboard code:**



CAUTION The keyboard code will be asked for access to the "Printer preparation" menu.

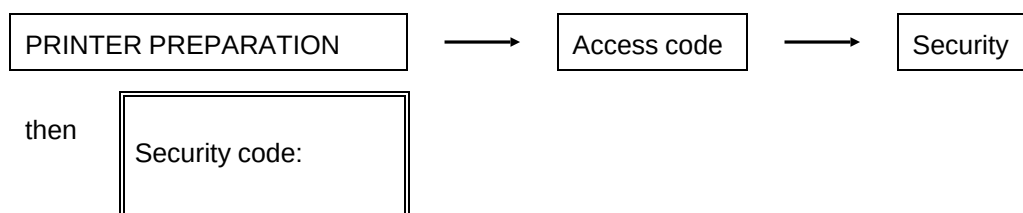


9.4.2 Security

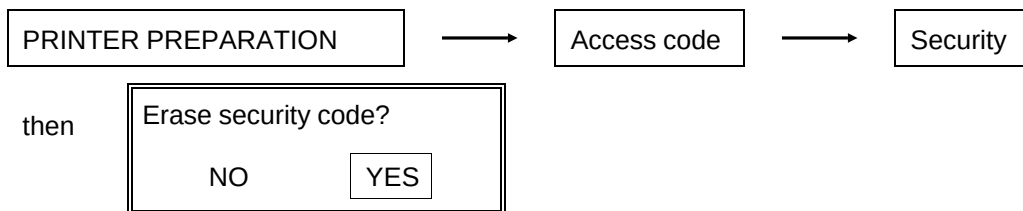
This key is used to deny access to the MESSAGE EDITING and PRINTER PREPARATION menus, leaving access free to the PRODUCTION and SYMBOL EDITING menus.

When you select **Security**, a dialog box asks you to enter a 3-character code.

- **To create a security code:**



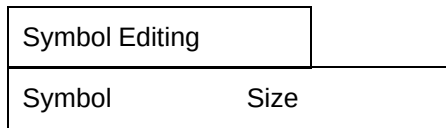
- **To delete a security code:**



CAUTION

The security code will be asked for access to the "Printer preparation" menu.

10 Symbol Editing menu (option)

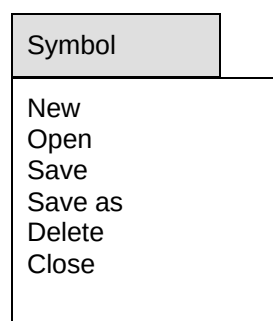


The **Symbol Editing** menu enables you to create your own symbol or logo.

CAUTION

The height of a symbol is defined when it is created. To enable it to be printed, an Image font with at least the same height as the symbol must be present in the printer.

10.1 Symbol



The **Symbol** menu is used for creating a new symbol, for modifying or copying an existing symbol, for storing a symbol in memory or for deleting it.

The menu can be accessed at any time, whether the printer is switched on or off

10.1.1 New

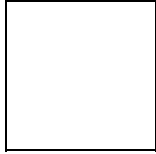
The **New** command is for creating a new symbol to be lodged in a font. When choosing **New**, a dialog box will ask you for:

- the title of the font (max. 8 characters).
- the number of the font (210 to 255).
- the symbol number (001 to 224).

REMINDER

A font is a group of symbols of the same size

A second dialog box will ask for the size to be given to the symbols.
(height: 24, 16, 11, 9, 7 or 5 points ; width : from 1 to 127 points.)



10.1.2 Open

The **Open** command is for accessing an existing symbol for modification.

When you select **Open**, a dialogue box shows the start of the list of existing symbol fonts. You can scroll through the titles and choose the one which interests you, or display a cursor by pressing the the SPACE bar and enter the start of the title of the font you are looking for.

10.1.3 Save

The **Save** command is for saving the symbol created or modified. The command can therefore only be accessed after "**New**" or "**Open**".

10.1.4 save As

The **Save as** command is for saving a version modified with an existing symbol without losing the original.

The command can only be accessed after "**New**" or "**Open**".

10.1.5 Delete

This command offers the choice of a **Symbol** or **Symbol font** deletion.

Select **Symbol** if you want to delete only one symbol.

Select **Symbol font** if you want to delete a complete font of symbols.

10.1.6 Close

The **Close** command is for leaving a font in which you have just created or modified a symbol.

When using **Close**, the contents of the font in which you have just been working are saved.

CAUTION

- 1) To be used for message printing, a symbol font must be transferred.
 - 2) To transfer a symbol font, you have two possibilities:
 - Create the font and transfer it immediately. Close, save, then using the the SPACE bar, select this font in the list proposed (10 maximum).
 - Create the font, save it, and only transfer it when needed. Use the "PRINTER PREPARATION" menu, "Initialisation", "Transfer font(s)".
-

10.2 Size

Size	
Symbol	Size

This command is for modifying the height and width of the symbols defined in a font.

CAUTION

**If you reduce the size the symbols drawn will be truncated.
If you increase the size the symbols drawn will be lodged at the bottom left of the definition.**

10.3 General rule for creating one or more symbols in a font

To create the font:

- Give the font a name (8 characters).
- Give the font a number (201 to 255).
- Give a number to the symbol in the font (006 to 224).
- Give the symbols a height (24..... 5 points).
- Give the symbols a width (1 to 127 points).

To create the symbol:

- Drawn the symbol
- Save the symbol.

To create a new symbol:

- Recall the font (by name or number).
- Give the new symbol a number.
- Draw the symbol.
- Save.

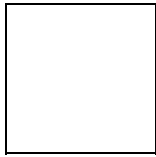
To close the font:

- The font is saved in the PC.

To transfer the font (to the printer):

- Tick the font to be transferred.

The font can now be used in the **Message Editing** menu.

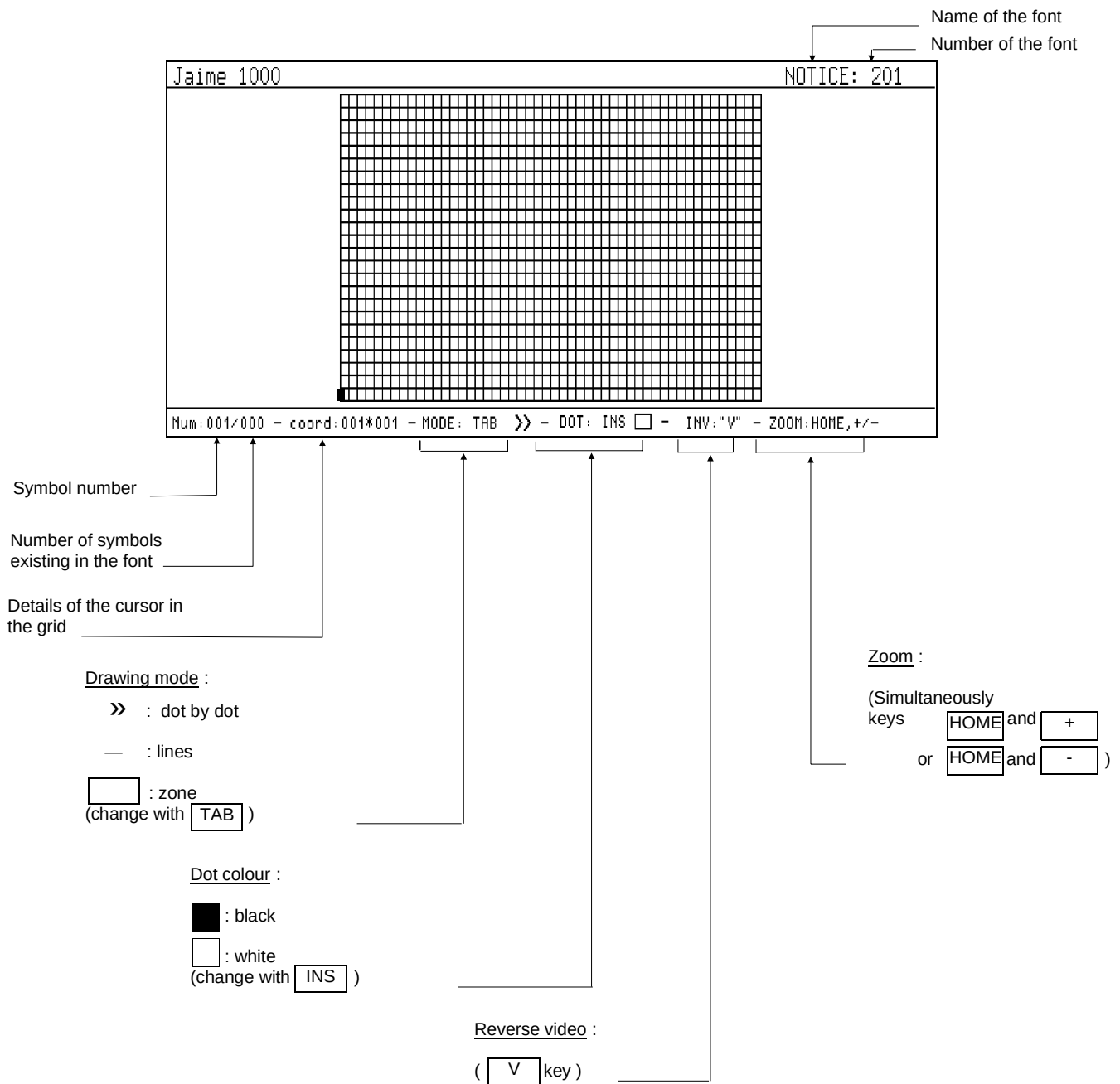


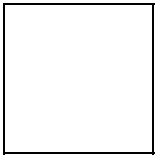
Utilization

10.4 Drawing a symbol

10.4.1 Screen

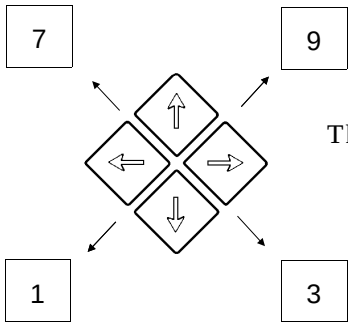
After definition of the name and number of the font, the number and size of the symbol, the printer will display the following screen.





10.4.2 Using the keys

In dot by dot " mode:



The cursor can be position in the drawing grid, in the direction of the arrows.

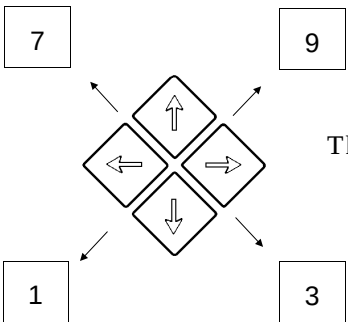


For changing the colour of the dot pointed by the cursor.

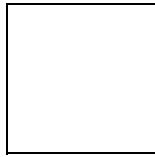
In line — mode:



For selecting the colour of the line (white or black).



The lines can be traced in the direction of the arrows.

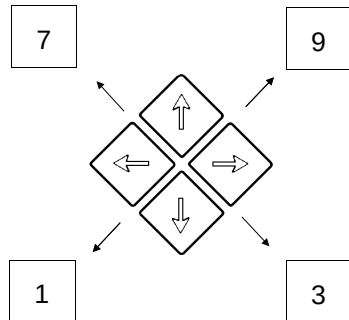


Utilization

In zone mode: ☐



For selecting the colour of the zone (white or black).

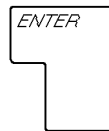


Depress 2 keys repeatedly to define a zone.

10.4.3 Other keys, other functions

- Screening of the symbol at scale 1:

Key



The symbol is displayed in a window at the top right or top left according to the position of the cursor.

- Zoom:

This function is valid when the cursor is at the bottom left of the screen coordinate 001.

Press ☐ + or ☐ - key to enlarge or reduce the grid.

- Home function:

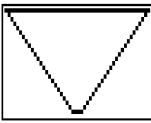
Key  to position the cursor at the bottom left of the screen.

Key   to position the cursor at the top right of the screen.

- Delete symbol:

Key  with request for confirmation.

10.4.4 Symbol display screen

Jaime 1000		NOTICE: 201
Symbol	Size	
		
Format: 24*50 - num: 003/004 - ref: 034		
Choice of a symbol in the selected font.		
← → CTRL← CTRL→: selection and ENTER.		

This screen can be used to display and select a symbol from an existing font in order to enable the shape, size or number to be modified if desired.

Format = symbol format: height* width.

num = number of the symbol in the font / number of symbols in the font

ref = symbol reference in decimals (the reference begins at 32 (\$20)).

Selecting a symbol:

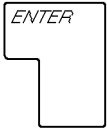
Key  to display the following symbol.

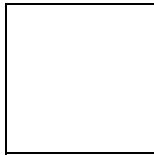
Key   to display the following tenth symbol

Key  to display the preceding symbol.

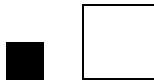
Keys   to display the preceding tenth symbol.

Access to edition :

Key 



Utilization



11 Special "Barcode"

If your printer has the "barcode" option, up to 4 bar codes per jet may be inserted in each message.

The list of the various types of barcode is given in the menu:

MESSAGE EDITING

Parameters

Barcodes

Whichever of the two barcodes is chosen, a specific dialog box will be displayed, thus limiting access to the modifiable parameters for each type of code.

Jaime 1000	MESSAGE EDITING MENU	BARCODE
Message	Font	Variables
Parameters		
Interleaved 2/5 CODE 39 ITF 14 ITF 6 EAN / UPC EAN128 / CODE128		
Define barcode parameters		
← →: selection and ENTER		



Jaime 1000	MESSAGE EDITING MENU	BARCODE
Message	Font	Variables
Parameters		
Narrow bars: 1 Height: 7 Narrow spaces: 1 Inverse print: ☐ Wide bars: 3 Check digit: ☐ Wide spaces: 3 Optimisation: ☐		
Barcode parameters		
↑ ↓ ← → to select, SPACE to capture, ENTER / ESC to quit		

Narrow bars must be strictly less than **Wide bars**.

Narrow spaces must be strictly less than **Wide spaces**.

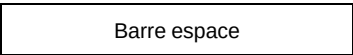
Height: expressed in points, limited to the height of the fonts present.

Inverse print : enables printing in reverse video.

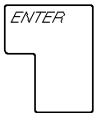
Check digit: may be present ☑ or not ☐.
Optimisation: enables the size of the bar code to be optimised.

Certain parameters may be shown dotted in certain bar codes, in which case they cannot be modified.

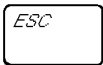
11.1 Using the "barcode" keys



- If necessary, it displays an additional dialog box.
- Is used to tick in additional dialog boxes (date, time, postdate).
- Inserts the counter and time code values directly in the barcode input.
- Insert a space in the composition zone, if this is accepted.



- Validates the final barcode.
- Validates the additional dialog box input.



- Can be used ESCAPE back without validating.

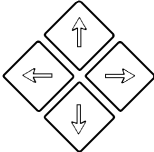


- When the cursor is placed in front of a bar code which has already been entered, these two keys, pressed simultaneously, enable the layout of this bar code to be displayed.

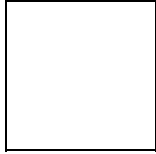
CAUTION **The control byte is not displayed.**



- Used to enter a dialogue box.



- Used to move the selection in the various dialogue boxes.



11.2 General rule for composing a barcode

When creating or modifying a message in the **Message Edition menu** :

- 1) Fix the parameter of the type of barcode type to be composed (parameters, barcodes).
- 2) Compose the barcode inserting the fixed or variable elements (Fonts, barcodes). This code will be displayed with the parameters fixed from the start.

Jaime 1000	MESSAGE EDITING MENU	BARCODE
Message	Font	Variables Parameters
Interleaved 2/5 Counter Time Date Postdate Postdate 2 Shift code External element Composition:		
Choose / Insert a barcode		
↑ ↓ ← → to select, SPACE to capture, ENTER / ESC to quit		

- The fixed elements allowed (digits or letters) can be directly inserted.
- "External element" is used for reserving within a barcode locations for the variable characters to be sent by external link (V24).

NOTE

In "Printer Preparation, Parameters" it is possible to give preference to a type of barcode together with its parameters.

This barcode will then be systematically displayed in message edition. Another type of barcode, however, can be inserted by following the procedure described above.

11.3 Detail of each barcode

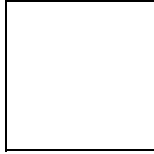
Interleaved 2/5

- Used to transcribe numerical characters only into barcode form.
- These characters may be variables (counter, date, etc.).
- 32 characters max.

CAUTION	1) Without a check byte (☐) the number of characters input must be even.
	- With a check byte (☒) the number of characters must be odd.
	2) Alphabeticals representation of dates, postdate and time code is not possible.

Code 39

- Used to transcribe alphabetic characters, numeric characters and the following symbols : = . , space \$ / + % into barcode form
- These characters may be variables (counter, date, etc.).
- 32 characters max.



Utilization

ITF 14, ITF 6 (high code)

- Used to transcribe fixed numerical characters only into barcode form.
- 14 obligatory characters for ITF 14.
- 6 obligatory characters for ITF 6.

CAUTION

**1) The last character (14th for ITF 14, 6th for ITF 6) is a check character.
It cannot be entered and is therefore calculated and positioned by the printer automatically.
The printer signals if it is entered and incorrect and automatically replaces it with the correct value.**

2) To print these codes, it is necessary to have a twin jet or four jet head, type G.

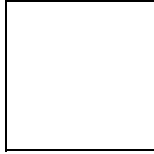
**3) In a twin-jet head, an ITF code occupies the 2 available jets (height 54 points).
In a four-jet head, an ITF code occupies the 4 available jets (height 108 points).
The items which do not form part of the ITF code can therefore only be inserted before or after this code in a message.**

EAN / UPC

- Possible choices : EAN 13, 1/2 EAN 13, EAN 8, 1/2 EAN 8, UPCA, 1/2 UPCA, UPCE, 1/2 UPCE;
- Used to transcribe fixed numerical characters only into barcode form.
- 13 obligatory characters for EAN 13 and 1/2 EAN 13.
- 8 obligatory characters for EAN 8 and 1/2 EAN 8.
- 12 obligatory characters UPCA and 1/2 UPCA.
- 8 characters for UPCE and 1/2 UPCE.

CAUTION

- 1) The last character is a check character.
It cannot be entered and is therefore calculated and positioned by the printer automatically.
The printer signals if it is entered and incorrect and automatically replaces it with the correct value.
- 2) In a mono-jet head the plaintext transcription of the barcode is not printed.
- 3) These codes require a twin-jet or- 4-jet head for simultaneous display of the barcode and its plaintext transcription beneath.
- 4) In a twin-jet head, an EAN or UPC code occupies the 2 available jets (barcode on one jet and plaintext transcription on the other).
- 5) In a four-jet head, an EAN or UPC code occupies the available jets (barcode on 3 jets and plaintext transcription on the 4th jet).
- 6) In a 4-jet head, the 1/2 EAN and 1/2 UPC codes can be inserted on jets 1 and 2, 2 and 3 or 3 and 4.
- 7) The first character of a UPCE code is necessarily a 0 (zero).



EAN 128, Code 128

- Possible choices: EAN 128, 1/2 EAN 128, code 128, 1/2 code 128.
- These codes are divided into 4 different modes: Mode A, Mode B, Mode C and Auxiliary characters.
- 39 characters max.
- **Mode A:** includes all standard upper case alphanumeric characters, control characters and special characters.
- **Mode B:** includes all standard upper and lower case alphabetic characters and special characters. This is the default mode, its size is optimised.
- **Mode C:** includes the set of 100 pairs of digits from 00 to 99 and special characters (the characters are entered two by two).
- **Special characters:** includes the following characters only: DEL, SHIFT, FNC2, FNC3 and FNC4.

The dialog box is as follows:

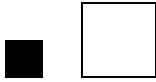
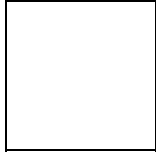
Jaime 1000		MESSAGE EDITING MENU		BARCODE
Message	Font	Variables	Parameters	
EAN 128				
Counter Time Date Postdate Postdate 2 Shift code External element Special characters 128 mode: B				
Composition: B				
Choose / Insert a barcode				
↑ ↓ ← → to select, SPACE to capture, ENTER / ESC to quit				

CAUTION

- 1) The character in reverse video A, B or C are displayed in the composition to codes A, B or C.
 - 2) Whatever the number of jets on the head, a 128 or EAN 128 code occupies the full height of the jets.
 - 3) The height of a 1/2 code 128 or 1/2 EAN 128 can be chosen from the barcode parameters.
 - 4) In a mono-jet head, the plaintext transcription of the barcode is not displayed.
 - 5) If you have checked the "Optimisation" parameter, only mode B is available.
-

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1 Introduction

This chapter is a troubleshooting guide which enables any user to locate the origin of a fault logically and quickly.

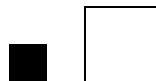
Using the simple fault diagnostics, the search will narrow down to the part at fault without having to disassemble the machine.

This guide lists all the possible faults and related remedies to resume normal operation.

The equipment required is limited to the use of the printer servicing suitcase.

The adjustment procedures described in this chapter do not need the printer to be disassembled.

The replacement procedures concern spare parts supplied in the maintenance kit (fuse).

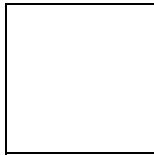


2 Preliminary checks

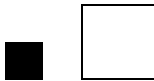
All troubleshooting operations should begin with the preliminary checks. These are used to spot problems such as soiled parts, ink leakages or faulty electrical or hydraulic connections with the naked eye.

Stop the printer and unplug it from the mains. Check the points below.

	Check	Type of problem sought
External appearance	Console and operator interface	Shocks, power cuts
	Printing head	Soiled electrodes Damaged or badly set mechanical parts Leakage
	Accessory connections	Disconnections Power cuts
Ink circuit appearance	Tanks	Tanks open or damaged. Leakage Ink and additive tanks empty Ink appearance (odour, consistency) Additive appearance (odour, colour)
	Hydraulic connections and tubes	Leakage Folded, damaged or cut pipe
	Electrical connections of the various parts	Bad connections: - of the ink circuit loom - of the ink level detector (top of ink tank) - of the fan - of the viscometer - of the valves
Electronics compartment	Presence of various parts in the electronics compartment rack	Board missing
	Connections in the electronics compartments	Bad connections: - of a rack board onto the motherboard, - of the "Front" board, - of the "Motor control" board, - of the power supply unit.
Industrial interface compartment	Electrical connections accessible from the rear panel	Bad connections: - of a ribbon cable of the umbilical to the motherboard, - of the EHT unit to the corresponding cables of the umbilical, - of the ribbon cable on the industrial interface board. - on the industrial interface board terminals. - of the solenoid valve or condenser on the backplane board (S4 Plus Hi-P65 only). - of the fan connection on the pressure sensor (S4 Plus Hi-P65 only).
	Pneumatic connections	Bad connections: - of air hoses at the inlet and outlet of the solenoid valve (S4 plus Hi-P65 only).



Troubleshooting



3 General printer operating parameters check

All information on the general operation of the printer appears in the menu PRODUCTION

- Status / head or key  .

Head: 1		Head: 2	
Status jet(s):	RUNNING	Status jet(s):	RUNNING
Speed jet1:	20,10 m/s	Speed jet1:	20,00 m/s
Phase jet1:	01111000	Phase jet1:	00111100
Speed jet2:	19,90 m/s	Speed jet2:	20,10 m/s
Phase jet2:	11110000	Phase jet2:	00001111
Pressure:	2,60 bars	Motor speed:	2000 t/mn
Viscosity:	31 s / 4,4 cPs	Reference visco.:	32 s / 4,6 cPs
Temperature:	30 °C	Additions:	00
FAULTS:	☒	CANCEL:	☐
Machine status / Operations on heads			
↑ ↓ ← → to select, SPACE to capture, ENTER / ESC to quit			

NOTE

The example screen above is specific to a 2-head, twin-jet printer. On some printer configurations, some of the above data is not shown.

4 Diagnostics help

4.1 Introduction

The tables shown in this chapter have the following two columns:

- Problems.
- Remedies.

Each problem is identified in the table by a number in bold type.

Each problem may be solved by several "Remedies".

4.2 Diagnostics example

Problems	Remedies
Press the key 	1a- Switch the printer off and on again.
1- Indicators and display on operator interface off. The motor starts.	1b- The keyboard is at fault. Contact the IMAJE Technical Assistance.

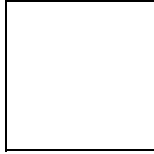
The operator's first tasks it to do the preliminary checks.

For each problem (example above: 1), the operator must then:

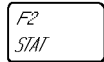
- Apply the first remedy (example above: 1a).
- If the problem reappears, apply the second remedy (example above: 1b).

Once the incident has been rectified, clear the fault using the key

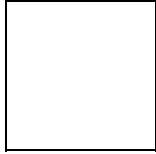




4.3 At printer start-up

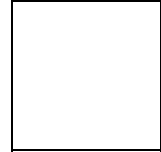
Problems	Remedies
1- Green "power on" indicator not lit.	1a- Check the mains supply. 1b- Change the 4A delayed-action fuse (see corresponding procedure).
2- Operator Interface display off. The motor starts.	2a- Switch the printer off and on again. 2b- The front board is at fault. Contact the IMAJE Technical Assistance.
3- Indicators and display on the operator interface off. The motor does not start. or Indicators and display on the operator interface are lit and remain fixed. The motor does not start.	3a- Switch the printer off and on again. 3b- Check the power supply voltage LEDs on the CPU board. - If only two LEDs are lit, the power supply unit is at fault. Contact IMAJE Technical Assistance. - If all LEDs are lit, onof the CPU or Motor Control boards is at fault. Contact IMAJE Technical Assistance.
4- Red alarm / fault indicators lit.	4a- Perform self-diagnostics by pressing 
5- Memory lost.	5a- Reprogram the printer then contact IMAJE Technical Assistance.
6- CPU faulty.	6a- If fault persists, contact IMAJE Technical Assistance.
7- Ink level low.	7a- Add ink to the tank (1/2 tank max.). 7b- The CPU board may be at fault. Contact Imaje Technical Assistance.
8- Additive.	8a- Add additive to the tank (1/2 tank max.). 8b- Check that the additive valve is working correctly (Menu PRODUCTION - Maintenance - ELVS status modif.). Check the viscometer circuit. 8c- If the fault persists contact IMAJE Technical Assistance.

Problems	Remedies
9- Fan / compressed air.	9a- Fan fault or absence of compressed air.
	9b- Check the connection and the fan rotation. The fan must turn continually just after the start-up of the Printer.
	9c- Check the pressurisation air, the connection and the pressure-switch
	9d- The CPU board is at fault. Contact the IMAJE Technical Assistance.
10- Temperature	10a- The surrounding temperature where the printer is installed is too high, resulting in the temperature inside the electronics compartment being greater than 70°C. Change the installation.
	10b- The CPU board is at fault. Contact the IMAJE Technical Assistance.
11- Viscosity	11a- Check the viscosity measurement circuit.
	11b- Check that the viscometer valve is operating correctly by testing the variation in the viscometer level (Menu PRODUCTION - Maintenance - ELVS status modif.).
	11c- If the fault persists contact IMAJE Technical Assistance.



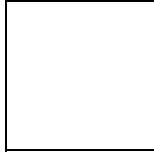
4.4 At jet start-up

Problems	Remedies
1- Cover missing	1a- Close or check the closure of the corresponding head closing system. 1b- The cover magnet is absent. 1c- The cover detector is faulty or the corresponding IMP board is at fault. Contact the IMAJE Technical Assistance.
2- EHT	2a- Carefully clean and dry the jet electrodes. 2b- Make sure that the environmental conditions (humidity, temperature) comply with the specifications in the ink data sheet. If they do not, contact the IMAJE Technical Assistance to adapt the dry air head pressurization accessories. 2c- Check the electromagnetic environment of the head (interference). 2d- The corresponding IMP board is at fault. Contact the IMAJE Technical Assistance.
3- Jet n : Recuperation	3a- Re-start the jets and watch them. If one of the jets is unstable or deviates (outside the gutter), validate the function "Introduce solvent" and "stability test". If the jet is missing, validate the functions "Unblock nozzle", "Stability Check" and "Refresh" functions. 3b- If the jet(s) are still missing, one of the pressure circuit components is at fault. Contact the IMAJE Technical Assistance. 3c- If there is a lack of suction in the gutter, one of the recuperation circuit components is at fault. Contact the IMAJE Technical Assistance.

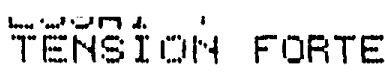
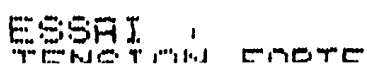


4.5 During printing

Problems	Remedies
1- "Jet n : Phase detection" (n = 1 to 4)	1a- Clean and dry the jet electrodes. 1b- Check the general printer operation parameters. Consult the remedies for faults relating to parameters at their limit values, e.g.: Fault °C. Wrong pressure; Visco fault. 1c- Make sure that the ink in the printer is valid; expiry date (refer to markings on container), frequency of changing and environmental conditions (see ink data sheet). 1d- Validate the "Ink refresh" instruction for 2 minutes. 1e- Test the electromagnetic environment of the head (interference). 1f- The corresponding IMP board is at fault. Contact the IMAJE Technical Assistance.
2- CPU-IMP communication	2a- The fault appears after a prolonged stoppage of the conveyor during message printing. Repeat message printing. 2b- The fault persists after trying to print the message at a constant speed. The IMP or CPU board is at fault. Contact the IMAJE Technical Assistance.
3- Printing speed	3a- Modify the "Tacho division" or "Printing speed" parameters for the printer.



Troubleshooting

Problems	Remedies
4- Poor printing quality <u>Example 1 :</u> 	4a- Clean the printing head (including cover) and make sure that there is nothing obstructing the path of the jet. 4b- Check that the head holders are stable (no vibrations). 4c- Check the distance between the head and the object (examples 1 and 2). 4d- Check the centring of the jets in the recuperation gutters (examples 3 et 4).
<u>Example 2 :</u> 	4e- Check the viscosity reference time displayed on the printer and the theoretical viscosity on the ink data sheet. 4f- The head requires a mechanical and/or electrical adjustment. Contact the IMAJE Technical Assistance.
<u>Example 3 :</u> 	4g- The corresponding IMP board is at fault. Contact the IMAJE Technical Assistance.
<u>Example 4 :</u> 	

5 Adjustment

5.1 Break-off point adjustment

Special tools:

- Bifocal lens (magnifying glass).
- Insulated screwdriver 2.4 x 50.

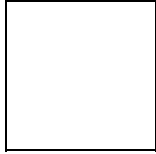
PREPARATION

- 1- Place the head on the maintenance stand.
- 2- Start the jet(s) and leave them running for at least half an hour.
- 3- Remove the upper cover (or the potentiometer protective caps) and the removable cover.

For a multi-jet head, each jet has its own potentiometer (right hand jet = right hand potentiometer, etc.).

ADJUSTMENT

See next page.



Troubleshooting

ADJUSTMENT

- 4- The adjustment procedure below is performed whilst looking at the jet through the magnifying glass. Start the operation with the potentiometer at the left end stop. The jet is continuous. Slowly turn the potentiometer to the right until the jet breaks at the centre of the charge electrode. Aim for the form shown by 6 on Figure 1.

CAUTION

Hold the screwdriver by the insulated part so that the electrical characteristics of the circuit are not altered.
During settings, handle the potentiometer with care to prevent damage.

CHECKS AND TESTS

- 5- Close the head covers. Clear any faults.
6- Perform some printing tests and repeat the setting if necessary.

Figure 1 :

- | | | |
|---|-------|---|
| 1 | ----- | Location of screwdriver (potentiometer) |
| 2 | ----- | Magnifying glass |
| 3 | ----- | Rotation of screwdriver |
| 4 | ----- | Jet seen through the magnifying glass |
| 5 | ----- | Satellite drop |
| 6 | ----- | CORRECT SETTING |
| 7 | ----- | Charge electrode |

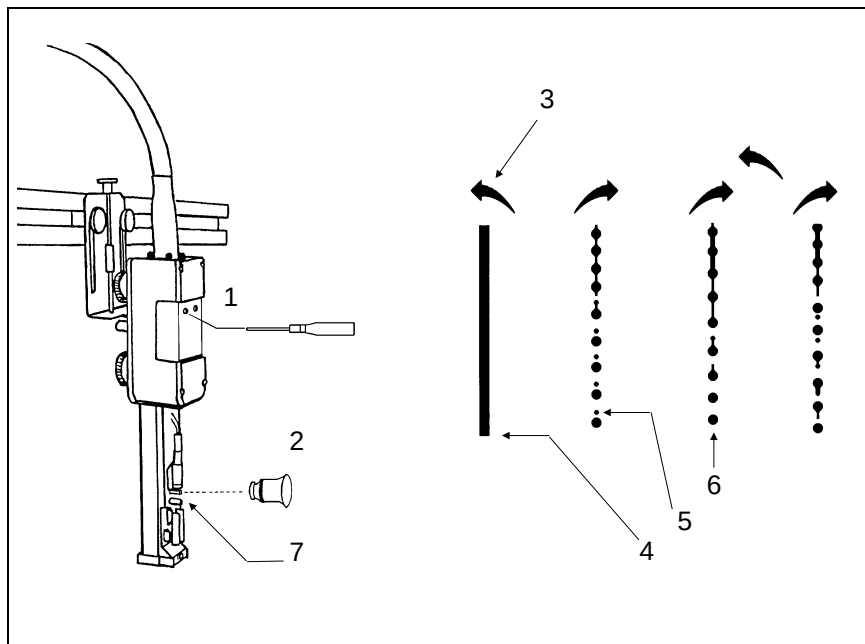
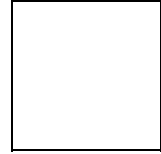


Figure 1



5.2 Adjusting the jet in the gutter

This procedure is valid for cannons with hexagonal or cylindrical nuts.

Special tools:

- Cannon direction tool (pin punch, ring spanner).
- Bifocal magnifying glass.
- Head cleaning kit.
- Goggles.
- Hex. Allen key, 1.5.
- Tweezers.

CAUTION	To avoid getting ink in the eyes, goggles must be worn during these operations.
----------------	--

PRELIMINARY CHECK

- 1- Place the head on the maintenance stand.
- 2- Make sure that the jet is stable by validating the "stability" function.
- 3- Validate the "Adjustment" function.
- 4- Check that the recuperation operates correctly.

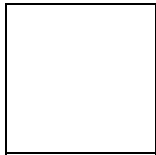
SETTING THE JET IN THE GUTTER

The operation includes three related settings:

- cannon rotation,
- upper cam rotation,
- lower cam rotation.

In general, this is performed gradually, stopping the jet from time to time to clean the electrodes if necessary.

- 5- Remove the wire protection plate from the resonator wires and disconnect them.



Troubleshooting

- 6- Unfasten the cannon-holder screws (see Figure 1).
- 7- Bring the jet close to point A or A' by turning the cannon in the cannon holder with a direction tool placed at the top.

CAUTION **Respect the rotation direction indicate on the figure 1 otherwise to unscrew the cannon nut.**

- Figure 1 :**
- 1 ----- Wires to be disconnected
 - 2 ----- Cam
 - 3 ----- Screw
 - 4 ----- Direction tool (pin punch)
 - 5 ----- Cannon holder
 - 6 ----- Protective plate position
 - 7 ----- Cannon

- Figure 2 :**
- 1 ----- Jet
 - 2 ----- Gutter
 - 3 ----- Jet trajectory when rotating cannon

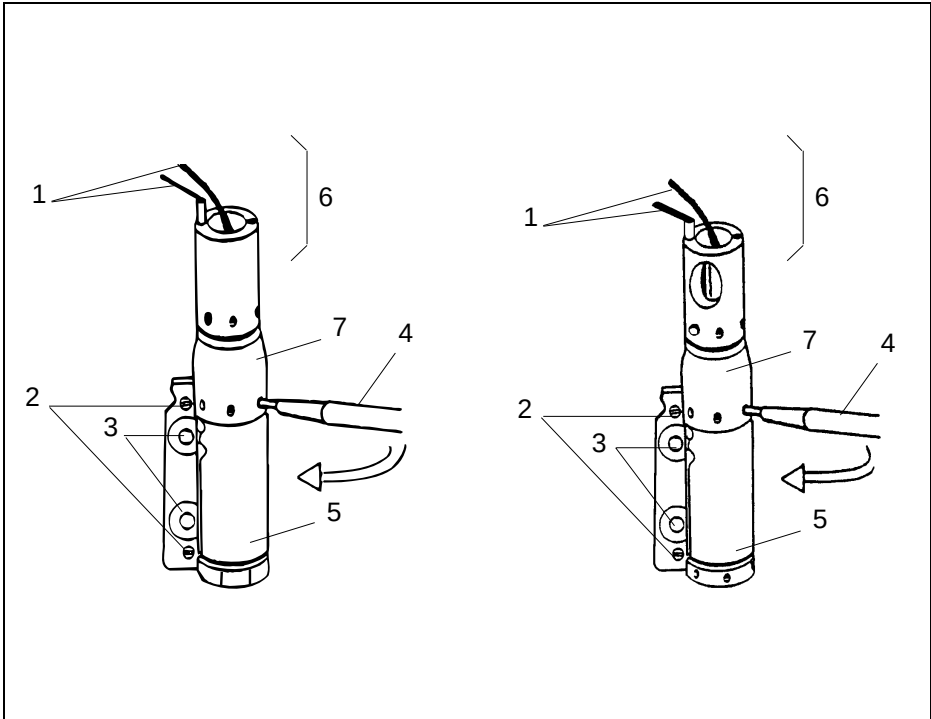


Figure 1

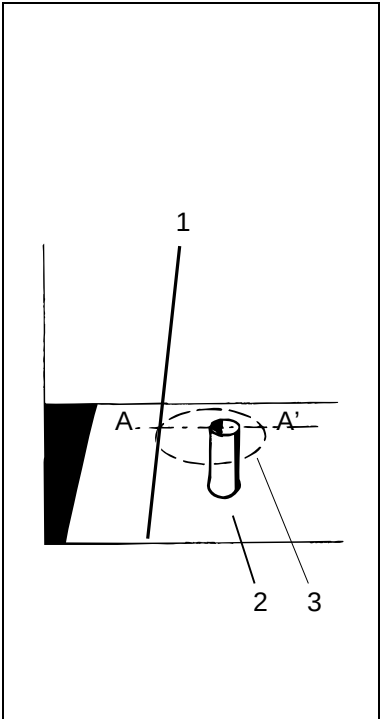


Figure 2

- 8- Centre the jet in the charge electrode by sight using the lower cam (see Figure 1).

CAUTION Do not apply excessive force to the cams. Turn the screw to make the cannon-holder movement easier or stiffer.

- 9- Position the jet in the gutter using the upper cam:
 - in the centre of the gutter for G and M heads (see figure 2),
 - off-centre (1/3 - 2/3) for P heads (see figure 3).
- 10- Repeat steps 7, 8 and 9 until the jet is correctly located in the gutter and centred in the charge electrode.

Figure 1 : G, M and P heads

- 1 ----- Lower cam
 2 ----- Charge electrode

Figure 2 : G and M heads

- 1 ----- Upper cam
 2 ----- Recuperation gutter

Figure 3 : P heads

- 1 ----- Upper cam
 2 ----- Recuperation gutter

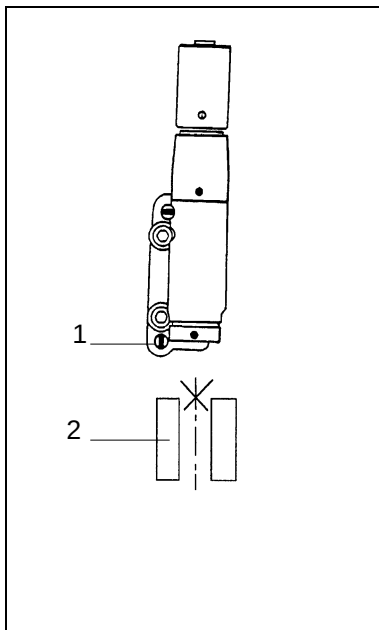


Figure 1

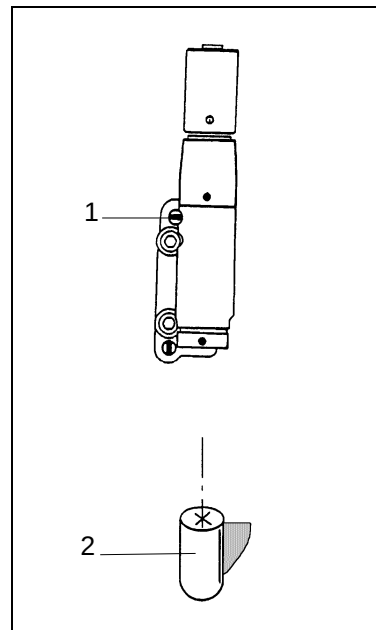


Figure 2

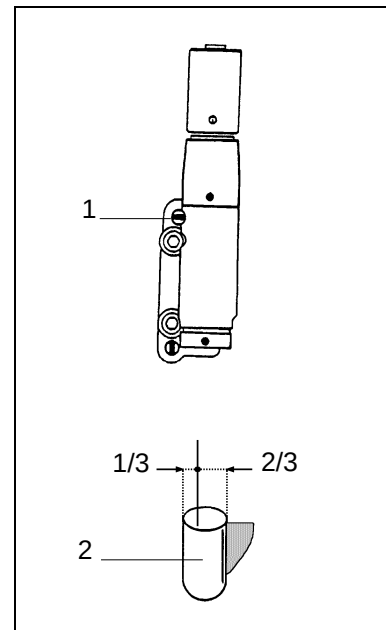
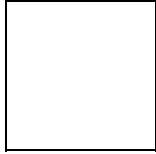


Figure 3



FINAL OPERATIONS

- 11- Tighten the two cannon-holder screws, without forcing them.
- 12- Stops the jets. Clean the head and reconnect the resonator wires. Replace the protective plate. Close the head cover.
- 13- Start-up the jets.
- 14- Check the break-point. Set it if necessary.
- 15- Cancel any faults. Perform continuous printing tests. Check the cleanliness of the electrodes and the gutter after 10 minutes cleaning.

5.3 Pressure motor speed adjustment

Special tools:

- Hex. Allen key 3/32".

The motor speed depends essentially on the viscosity of the ink. The by-pass must not be adjusted unless the ink is at the right viscosity, i.e. when the viscosity measured by the printer is within one second of the viscosity specified on the ink data sheet.

REMINDER: The measured and reference viscosity values can be seen on the printer display ub the "Status/Printhead" Function.

SETTING

- 1- Start the jets and display the motor speed (Status/Printhead function).
- 2- Pull out the ink circuit to the end of the runners, loosen the locking screw, then insert the 3/32" Allen key and turn it by half a turn in either direction and wait for the motor speed variation to be displayed. By iteration you should achieve a speed of 1500 rpm, to within 50 rpm.
- 3- Refasten the screw.

NOTE

This setting may be necessary after changing an ink filter cartridge.

Figure 1 :

- 1 ----- Pressure pump
- 2 ----- Screw

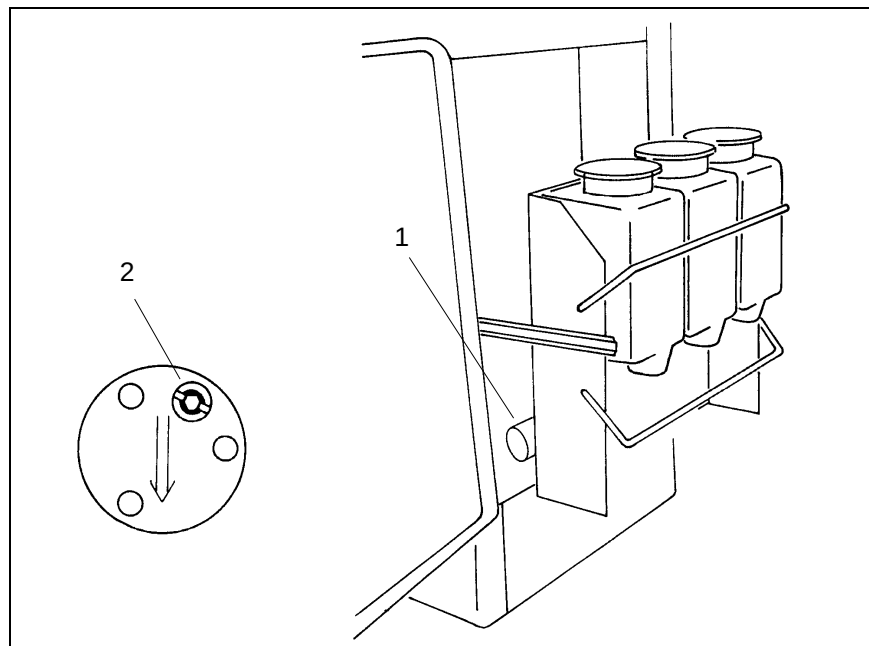
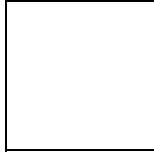


Figure 1



5.4 Four jets head adjustment

Valid for the Barcoder Plus printer, G head.

Specific tooling:

- Pin punch.
- Eye-glass.
- Material for cleaning.
- Hex. male key size 15
- Flat screw-driver.
- Protection glasses.

- 1- Place the head on the maintenance stand. The jet(s) have been adjusted in the gutter.

PRELIMINARY CHECKS

- 2- Check jet stability. Check jet alignment in the middle of the charge electrodes.
- 3- Check the speed of each jet. It must be comprised between 1.95 and 20.5 m/sec (change the cannon if the speed is out of range).
- 4- Place the head on the working stand. Create a message using the "checker" font on the four. Print this message at a head to object distance of 10.5 mm. Check the break-off point and adjust if necessary.
- 5- Check the raster alignment. Adjust if necessary by tilting the cannon in the cannon holder.
- 6- Print a ITF 14 code and adjust the head/object distance to obtain a correct joining of rasters. You can correct a joining fault by adjusting the cannon-holder.
- 7- Check the frame alignment. Adjust if necessary using the "jet alignment" function. Perform an endurance test: print an ITF 14 code at 350 mm/s in Manual Auto mode for 4 hours and check the cleanliness of the head and the frame alignment.

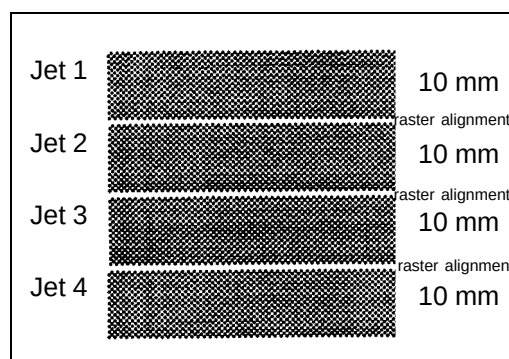


Figure 1

6 Spare Parts sheets

Replacing the mains fuse (4 A delayed-action fuse)

Printer stopped and disconnected.

- 1- Pull down the rear printer panel (unscrew the fixation screws).
- 2- Remove the mains power lead from the printer.
- 3- With a screwdriver, remove the fuse-holder above the mains plug.
- 4- Replace the fuse. Mount the fuse-holder.
- 5- Connect the lead to the printer.
- 6- Close the rear door.
- 7- Connect the printer to the mains power and start with the ON/OFF key.

Figure 1 : Fuse location

- | | | |
|---|-------|----------------------|
| 1 | ----- | Fuse-holder location |
| 2 | ----- | Mains plug |
| 3 | ----- | Protective sleeve |

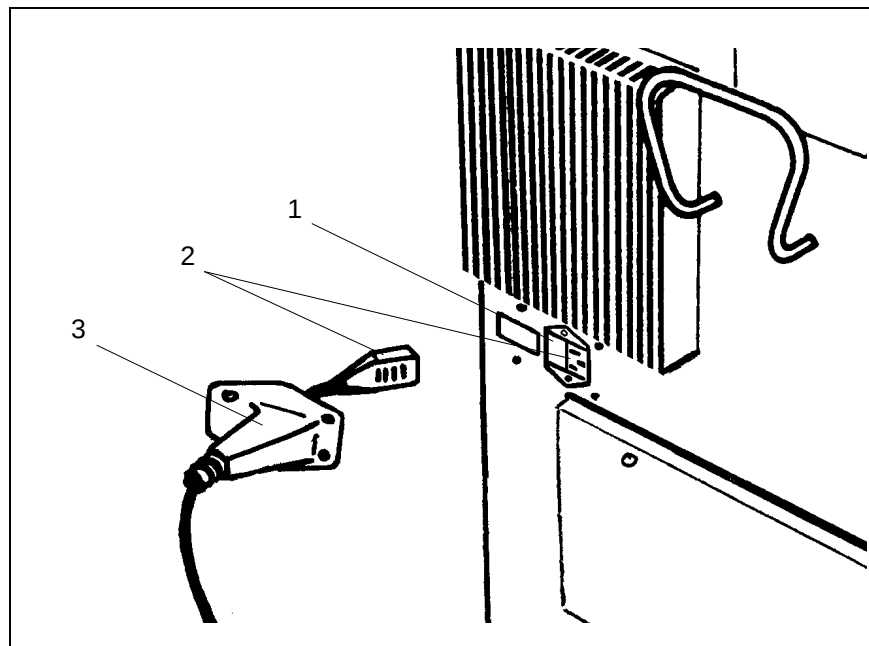


Figure 1

ROUTINE MAINTENANCE (10 pages)

Contents

1	Routine maintenance table	5-2
2	Routine maintenance procedures	5-3
2.1	Changing the vapour catching water	5-3
2.2	Cleaning the heads	5-3
2.3	Rinsing the umbilical/head assembly	5-5
2.4	Restarting after rinsing the umbilical/head assembly	5-6
2.5	Complete flushing of the printer	5-6
2.5.1	Manual rinsing	5-6
2.5.2	Rinsing with the drain/rinse tool	5-7
2.6	Restarting after complete rinsing	5-9
2.7	Replacing the pressurisation air filter S4 Plus Hi-P65	5-10



Routine maintenance

All the instructions in this chapter are routine procedures which should be followed in order to obtain the best results from your printer.



1 Routine maintenance table

FREQUENCY	OPERATION	TIME REQUIRED	COMMENTS
When clogging could cause the printer to malfunction or to produce a poor quality print.	Clean the printing head.	3 mn	See head cleaning procedure "User Guide" and/or following pages.
Every 300 hours	Clean the fan protection grating at the bottom of the console.	5 to 15 mn	With the printer switched off.
Before shutting down for one to two weeks.	Rinsing the head/umbilical assembly.	30 mn	See the procedure on the following pages.
Every 2000 hours and/or before shutting down for more than two weeks.	Rinse the printer thoroughly and change the ink filter.	1 h	See procedure on following pages : - drainage - rinsing - ink refill
Every 6 months for the S4 Plus Hi-P65.	Change the pressurization air filter cartridge.	15 mn	See procedure on following pages.

2 Routine maintenance procedures

2.1 Changing the vapour catching water (except for S4 Plus Hi-P65)

The water is used to catch the additive and ink vapours. This water becomes saturated after 8 hours and can no longer catch the vapours; it must therefore be changed regularly.

The saturated water may be changed during production without stopping the printer (1/2 tank of clean water); it is however better to change the water with the printer shut down.

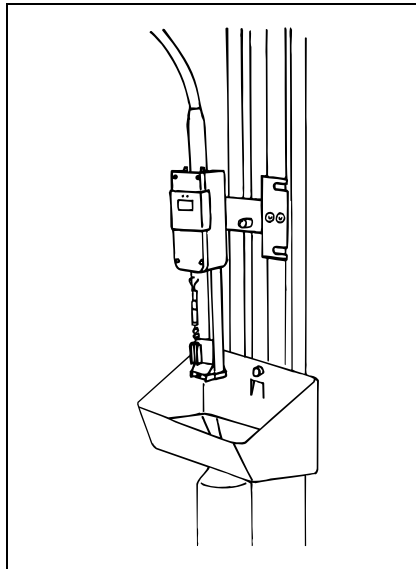
If there are bubbles in the water while the printer is running, this means that the system is working correctly.

2.2 Cleaning the heads

If the heads become clogged with ink, this could cause electronic faults (poor droplet detection, EHT fault, etc.) or poor printing quality (deformed or truncated characters).

Because of this, it is recommended to check the condition of the printing head before starting up the printer (or during a pause for continuous operation).

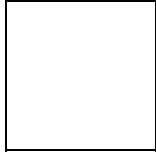
The cleaning procedure is as follows:



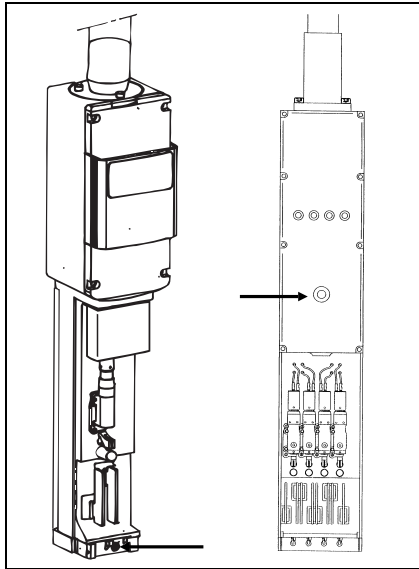
- 1** Stop the jet and position the head on its maintenance stand.

The head should be positioned vertically on its maintenance stand, with the gutters at the bottom to prevent the cleaning solution from trickling into the electronic part of the head on the umbilical side.

The tray under the head recovers the used cleaning solution.



Routine maintenance



2 Close the recuperation gutter.

The recuperation gutter must be closed to prevent an excessive quantity of cleaning solution from being sucked up into the ink circuit.

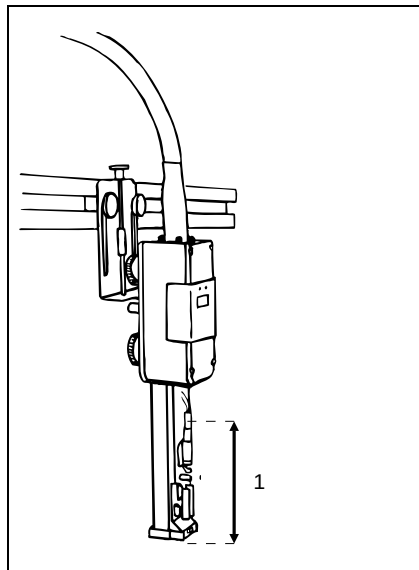
The position of the closing tap depends on the type of head:

- at the bottom for one- and twin-jet heads,
 - at the top for four-jet heads
- (1 tap per head).

Open



Closed



3 Clean the electrodes and the cannon(s) (1). These are cleaned by letting the appropriate cleaning solution trickle over the cannon(s) and electrodes and with a brush may also be used if this is specified in the data sheet for the ink.

4 Dry carefully. Using a puffer or the kit if indicated on the data sheet for the ink.

5 Open the gutter and start up the jet.

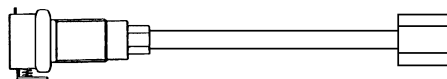


2.3 Rinsing the umbilical/head assembly

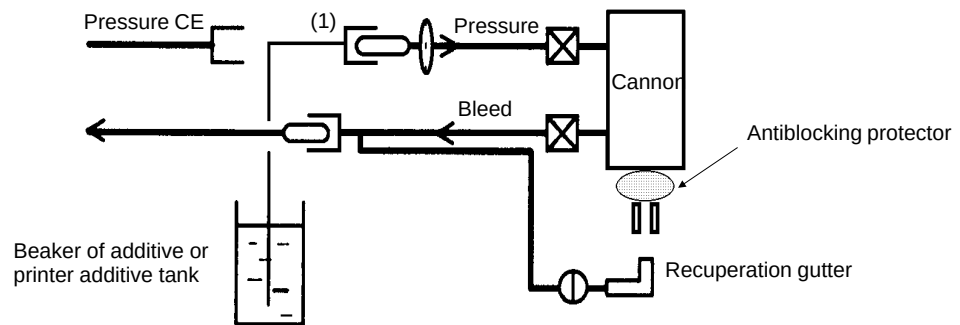
The head and the umbilical can be thoroughly cleaned by letting clean additive pass through them. This allows the printer to be started up easily after having been shut down for 1 to 2 weeks.

The procedure is as follows:

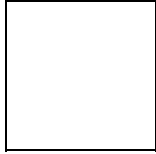
- 1 - With the printer running and the jet idle, make the machine suck up additive from the recuperation gutter for 20 seconds.
- 2 - Stop the printer.
- 3 - Close the recuperation gutter.
- 4 - Uncouple the pressure connector in the hydraulics compartment. For a two-head printer, uncouple both pressure connectors.
- 5 - Connect the rinsing connector (1) to the pressure piping of the umbilical next to the head filter.



- 6 - Immerse the free end of the rinsing connector into a beaker of additive or into the printer additive tank.



- 7 - Obturate the nozzle with a antiblocking protector.
- 8 - Start up the printer and validate the "refresh" function for around 30 seconds (on the appropriate head for a two-head printer).
- 9 - Validate the "Unblock nozzle" function for around 20 seconds.
- 10 - For a two-head printer, rinsing the second head before going on to the next step. Stop the printer and wait until it comes to a complete halt.
- 11 - Reconnect the original hydraulic connections.



2.4 Restarting after rinsing the umbilical/head assembly

Start the printer up normally.

You should however check that the ink jet is present and stable.

- A "stability check" may be required.
- A 5-minute "Ink refresh" must be performed.

NOTE

Remember to open the recuperation gutter.

2.5 Complete rinsing of the printer

Flushing can be performed manually or with the flushing / rinsing tool.

2.5.1 Manual rinsing

This procedure includes 5 steps:

- 1) Drainage.
- 2) Rinsing.
- 3) Drainage.
- 4) Rinsing.
- 5) Rinsing the head/umbilical assembly.

1) Drainage :

With the printer stopped, drain the ink tank, the viscometer circuit (visco + constant level tube) and the main filter (leave the filter cartridge in place).

Using the cleaning solution bottle, spray the inside of the ink tank to remove as much of the residual ink as possible from the strainer at the bottom of the tank and from the constant level tube.

Leave to drain.

2) Rinsing:

Replace the drainage caps and pour 1 litre of cleaning solution into the ink tank. Start the printer and validate the refreshing for 20 min.

3-4) Repeat the **drainage and **rinsing** operations.**

- 5) Conclude this procedure by **a rinsing of the umbilical/head assembly**. Leave the cleaning solution in the printer.

2.5.2 Rinsing with the drain/rinse tool

This procedure contains two phases:

- 1) Manual rinsing of the recuperation gutter.
- 2) Automatic rinsing of the printer.

1) Manual rinsing of the recuperation gutter:

With the printer running, jet(s) stopped, spray cleaning solution into the recuperation gutter(s) for 20 seconds.

Stop the printer and unplug it from the mains.

Close the gutter(s) and block the nozzle(s) with a clean anti-clogging protector.

2) Automatic rinsing of the printer

Disconnect the backplane ribbon cable from the industrial interface board.

Connect the S4 Plus drainage adapter ribbon cable between the draining tool and the industrial interface board, then connect the backplane ribbon cable to the adapter (see diagram opposite).

Disconnect the self-closing quick-action pressure connector(s) then connect the rinsing connector(s) (see hydraulic diagram).

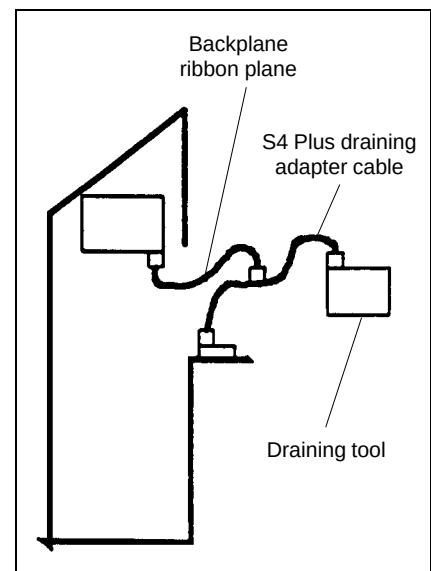
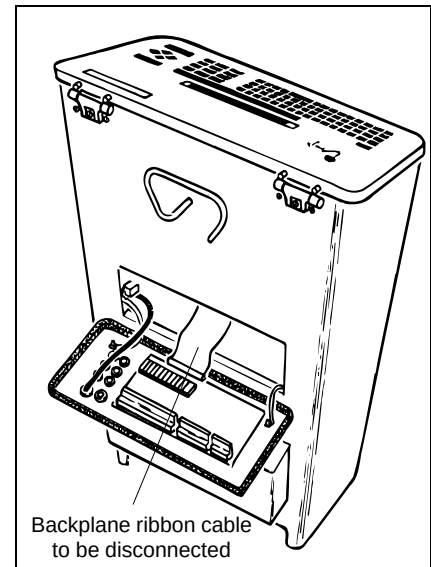
Connect the quick-action connector from the draining tool to the pressure outlet of the ink circuit and place the second hose from the tool into a empty 5 litre drum.

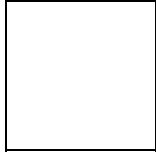
Drain the ink tank, the viscosity meter circuit (viscosity meter + constant level tube) and the main filter (leave the filter cartridge in place).

Place half a litre of additive in the ink tank.
Place two litres of additive in the additive tank.

Plunge the free end of the rinsing connector in a clean beaker containing cleaning solution, or in the printer's additive tank.

Disassembly and clean the head filter(s) then reassemble.



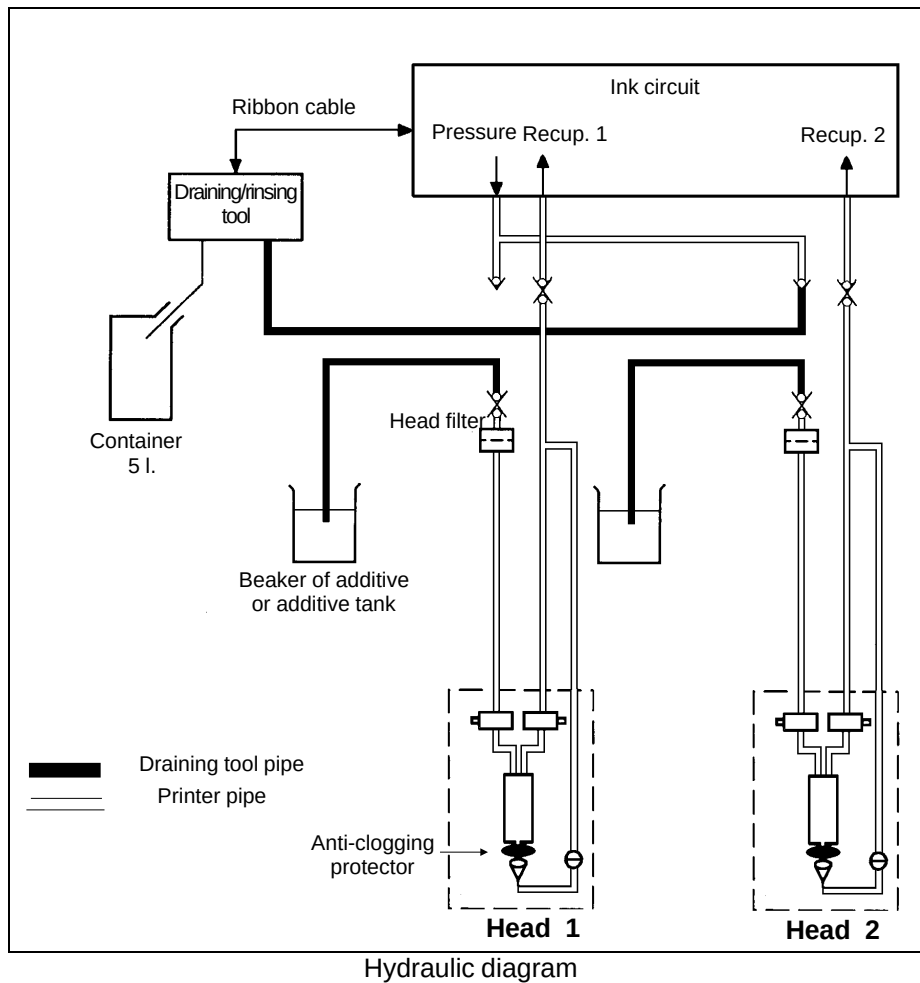


Routine maintenance

Start the printer. The printer automatically enters "draining" mode and several cleaning, rinsing and draining operations are performed, after which the printer stops automatically.

Wait until the printer stops.

Restore the initial hydraulic circuit. Disconnect the printer from the mains, then unplug the draining tool ribbon cable and reconnect it to the industrial interface board



2.6 Restarting the printer after complete rinsing

This procedure includes 3 steps.

1) Drainage:

Stop the printer and unplug it from the mains.

Drain the ink tank, the visco circuit and the main filter. Clean the inside of the ink tank thoroughly using cleaning solution. Leave to drain.

2) Changing the ink filter cartridge:

Open the main filter, remove the spent cartridge, clean the inside of the casing thoroughly using cleaning solution, put the filter back in place.

3) Ink refill:

Replace all the drainage caps and put 1 litre of ink in the ink tank.

Check additive and water levels.

Start up the printer and check that the ink jet is present and stable.

- A "stability check" may be required.
- A 5-minute "refresh" must be performed.

Figure 1 :

- | | | |
|---|-------|-------------|
| 1 | ----- | Drain screw |
| 2 | ----- | Main filter |
| 3 | ----- | Drain plug |

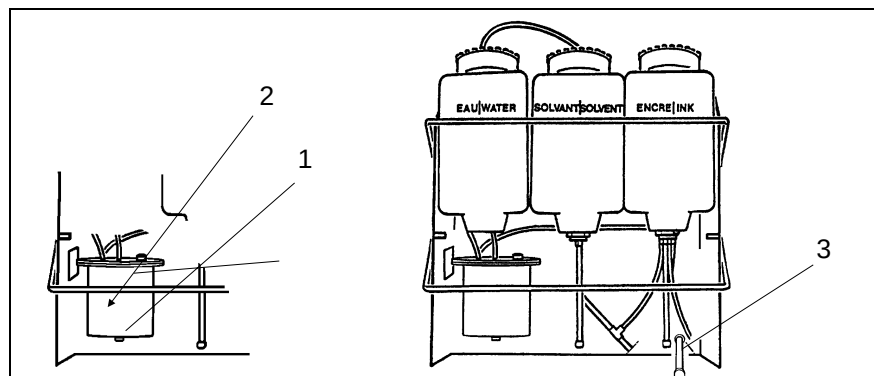
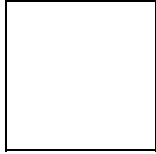


Figure 1



2.7 Replacing the pressurisation air filter S4 Plus Hi-P65

The filter of the pressurisation block must be changed every 6 months.

- 1) Switch off the printer and unplug the power cable.
- 2) Disconnect the air inlet and close the tap.
- 3) Unscrew the filter tank (4).
- 4) Unscrew the filter holder (3).
- 5) Free the filter (1).
- 6) Clean the mesh (2) with the cleaning solution.
- 7) Change the filter and the seal joint.
- 8) Reassemble.

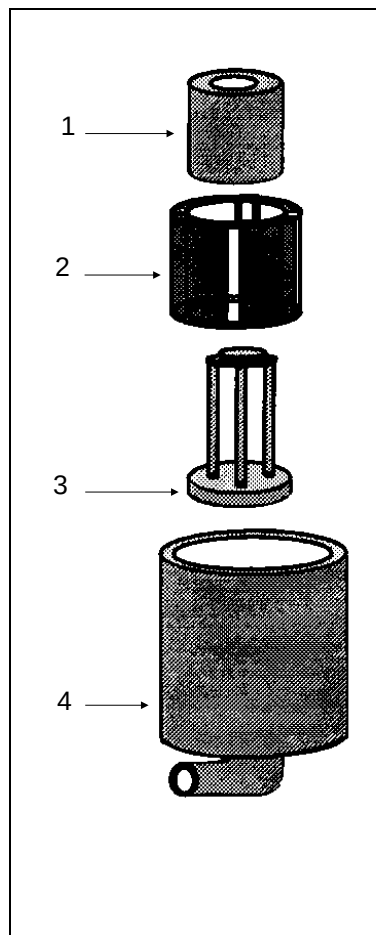
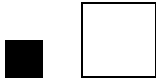
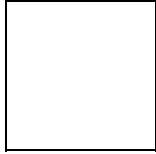


Figure 1

CONSUMABLES (6 pages)

Contents

1	Consumables	7-2
1.1	Definitions	7-2
1.2	Sales units	7-2
1.3	Labelling	7-3
2	Consumables and the application	7-4
3	Consumables and the printer	7-4
3.1	Specification of ink use	7-4
3.2	Consumption	7-4
4	Consumables and safety	7-5
5	Consumables, the guarantee and public liability	7-6



1 Consumables

1.1 Definitions

The term consumables refers to the products consumed during printing or used to ensure correct operation of the printer. The consumables include:

- **Ink:**
Used for printing.
The formula of the ink contains all the elements needed for:
 - stability in the container (expiry date) and in the machine,
 - printing performance (adhesion on a given medium and resistance to specific constraints).It may be presented ready for use or in the form of several components to be mixed.
- **Additive:**
Used to correct the viscosity of the ink.
Its composition strictly matches the operational requirements of the ink.
- **Cleaning solution:**
Used for printer maintenance (head cleaning, etc.).
Its composition is compatible with the ink and additive used.
- **Rinsing liquid:**
Used on specific printers.
Its composition allows various maintenance operations to be performed (rinsing of the ink circuit, etc.).
- **Anti-clogging liquid:**
Used for specific inks.
Its composition prevents the ink drying within the gun during a machine shutdown.

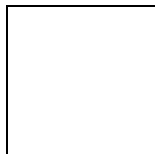
1.2 Sales units

Depending on the type of ink and additive, Imaje offers group of 4 or 6 units an starter kits containing ink and additive.

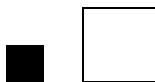
1.3 Labelling

This serves three purposes:

- Identify the supplier, giving address and contact details.
- Inform the user about the product itself:
 - article reference,
 - manufacturing batch number: this should be quoted if you need to contact our Technical Support department,
 - use before date: date guaranteeing original product quality.
- Inform the user about the nature of the specific risks concerning the substances in the ink, such as inflammability, irritation of eyes, etc.



Consumables



2 Consumables and the application

The customer alone is responsible for qualifying the intended application. In order to help both its existing and prospective customers qualify their applications (covering ink, ink-jet equipment, type of substrate, manufacturing process, print specifications sheet, etc.) Imaje makes available a wide range of printers and inks for the production of printing samples.



3 Consumables and the printer

3.1 Specification of ink use

(This sheet is essential, available on request from our Commercial agencies).

This sheet informs users about operating parameters (viscosity, jet speed, etc.) and special printing characteristics (printing speed, head/object distance, etc.) as a function of the printer configuration (size of nozzle, number of nozzles, etc.) and the selected ink.

3.2 Consumption

It should be noted that ink consumption over a given period depends on the number of characters printed per object, the number of objects printed during this period, the font (matrix dilation) and the diameter of the nozzle.

Consumption of additive depends primarily on the number of hours of operation and the ambient temperature.

4 Consumables and safety

Safe use of Image consumables implies knowledge of some of the corresponding physical and chemical properties, as well as the safety recommendations for storage, handling and use of these products.

All this information is included on a safety data sheet, available on request from our Sales offices.

Read these sheets before starting the application.

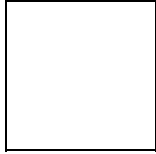
NOTE	The presentation and content of the Safety Data Sheets comply with Directive 6748/EEC and the OSHA (Occupational Safety and Health Administration) nomenclature (through the HCS - Hazard Communication Standard).
-------------	---

You will find all the following information on these safety data sheets:

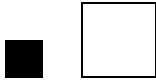
- Identification of the preparation and the manufacturer.
- Composition / information about components.
- Identification of dangers.
- First aid.
- Fire fighting measures.
- Measures to be taken in the event of accidental spillage.
- Handling and storage.
- Inspection of operation / individual protection.
- Physical and chemical properties.
- Stability and reactivity.
- Toxicological information.
- Ecological information.
- Considerations for elimination.
- Information concerning transport.
- Regulatory information.
- Other information.

For:

- Operators and technicians.
- The plant health and safety committee.
- Occupational Medicine doctors.
- Transport companies.
- Emergency services.
- Warehouse staff.



Consumables

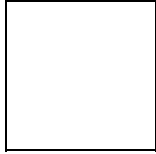


5 Consumables, the guarantee and public liability

Our consumable products have been specially designed for use with Imaje printers and produce optimum results in terms of convenience of use and level of consumption.

The use of any consumable products other than those supplied by Imaje will render the equipment guarantee null and void and result in the exclusion of any claim relating to impaired performance which may result in halted production.

TECHNICAL SPECIFICATIONS
(9 pages)



Technical specifications

Physical description	Dimensions (inches)
	Weight (Lbs)
	Volume
Performance parameters	Printing
	Head-object distance/Maxi speed
Different functions (depending on printer model)	
	Possible functional mode (depending on the model)
	Functional characteristics
Energy source	Voltages
Ink	Colour
	Official approval UL
Limits of use	Functional temperature
	Humidity
Installation conditions	Working position
	Height difference between head/printer body
	Distance between head/printer body

Technical specifications

- Command console: 41.40 x 18.24 x 13.29
- Print head: 8.86 x 1.75 x 1.87 (mono or bijet) ; 14.9 x 2.05 x 2.20 (fourjet)

- | | |
|-------------------------|-------|
| • Command console: | 88.18 |
| • "Head umbilical" set: | 6.61 |

- | | | |
|---------------|-----------------|-----------------|
| • Reservoirs: | Total: 2 litres | Useful: 1 litre |
|---------------|-----------------|-----------------|

- On any support, in all positions
- Up to 1024 characters per message
- 1 to 4 variables lines per jet,
- 1 to 4 jets per printer.
- 1 to 2 mono or bi jet per printer.
- Character height (depending on option)
- Choice of character fonts: 5, 7, 9, 11, 16, 24 and (2 x 24) dots
- Possibility of printing characters and graphics of all kinds.
- Symbol editing.
- National characters: Arabic, Norwzgian, Swedish, Spanish, Greek, Cyrillic, Hebrew.
- Inversion of characters and of their printing sense.

- G head: 0.39 inch or 1.18 inch depending on the font used / Up to 17.72 ft/s
- M head: 0.32 inch or 0.79 inch depending on the font used / Up to 11.81 ft/s
- P head: 0.24 inch / Up to 5.25 ft/s

- Object counting by units or batches, complete auto-clock, variable message library, logos (15 per jet)
- Special characters: "Chimney", transversal and longitudinal "DIN".

- Non-doubles printing of a same message.
- Fast selection of messages from the library using the parallel interface.
- Programmable print delays.
- Piloted by the operator interface or any system with a serial interface.

- Automatic regulation of ink viscosity.
- Automatic procedure for unblocking nozzle.
- Auto-diagnostic of printer states.
- Automatic rinsing and emptying.

- | | |
|--------------------|--------------------------|
| • 100 V - 240 V ac | Frequence 50 Hz to 60 Hz |
|--------------------|--------------------------|

- See ink catalogue.

- Available for all inks and additives of the catalogue.

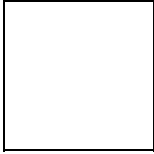
- 0°C to +50°C

- 10 to 90 %

- | | |
|-----------------------------|--------------------------|
| • Command console: vertical | Print head: any position |
|-----------------------------|--------------------------|

- ± 6.56 ft

- 9.84 ft, 16.40 and 26.25 ft depending on machine type and options.



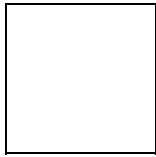
Technical specifications

Standard respect

Protection index	Hi-P65 printers
Maximum noise level	
Usual accessories	

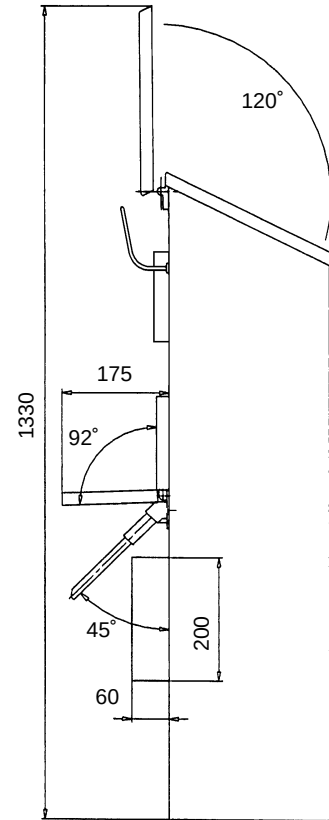
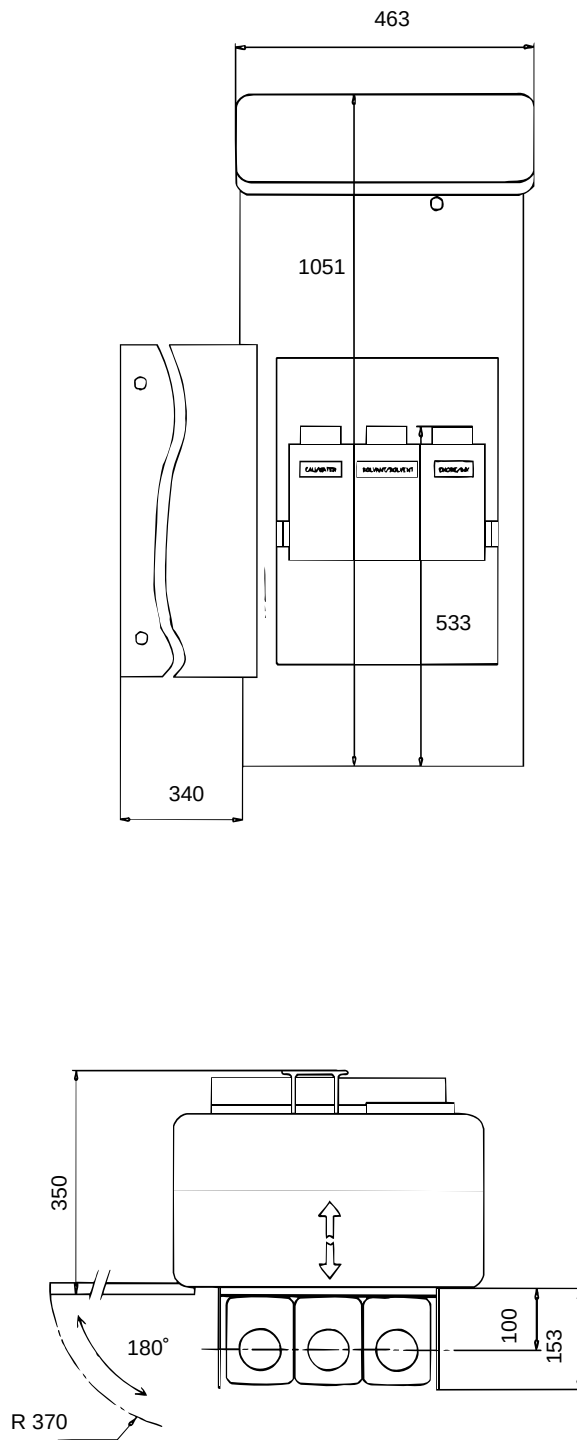
Technical specifications

• EMC	Emission	EN55011 - Class B FCC - Class B
	Immunity	IEC 801-2 - Level 3 IEC 801-3 - Level 3 IEC 801-4 - Level 3 IEC 801-5 - Level 3
• Safety	UL and CSA complies with UL 1950 (IEC950) GS: EN60204-1 and ZH 1/10 * EX-RL/03.85	
• CE conformity	EC declaration of conformity machine directive and EMC directive.	
• Console IP65		
• < 60 db A		
• Head support		
• Object detector		
• Tachometric generator		
• External alarm (visual or sonic)		
• Head pressurisation		
• Head traversing device		

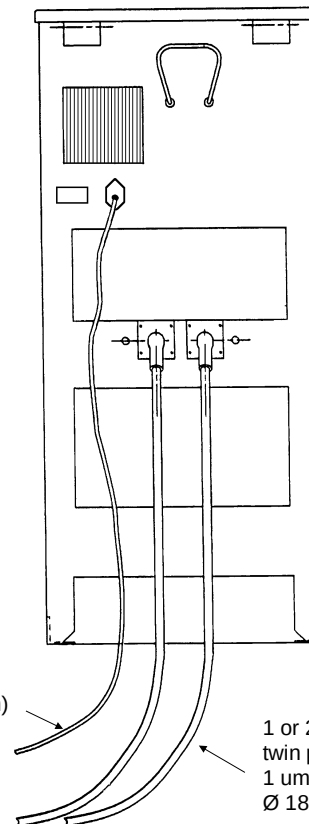


Technical specifications

Jaime 1000 PRINTER

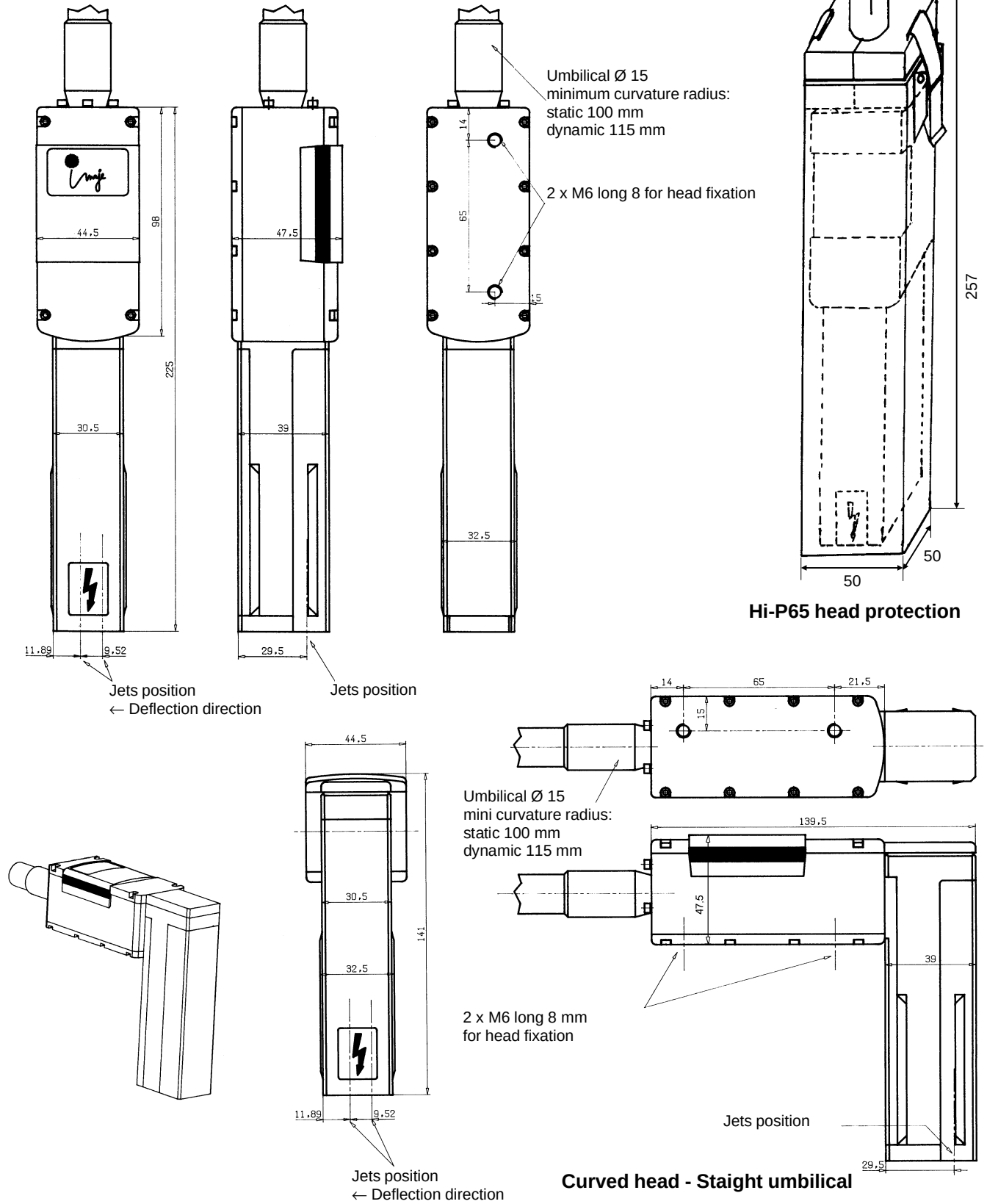


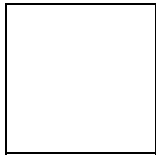
Main power cord (Lg : 1,8 m)



PRINT MODULE

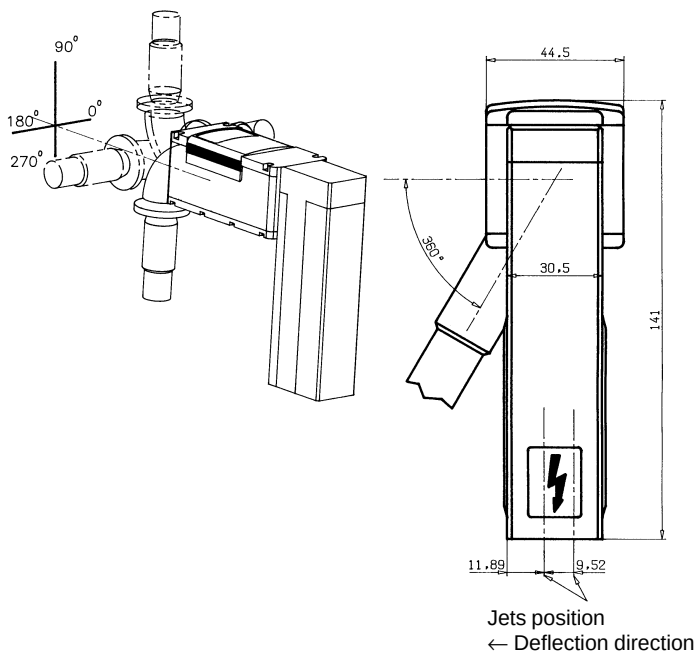
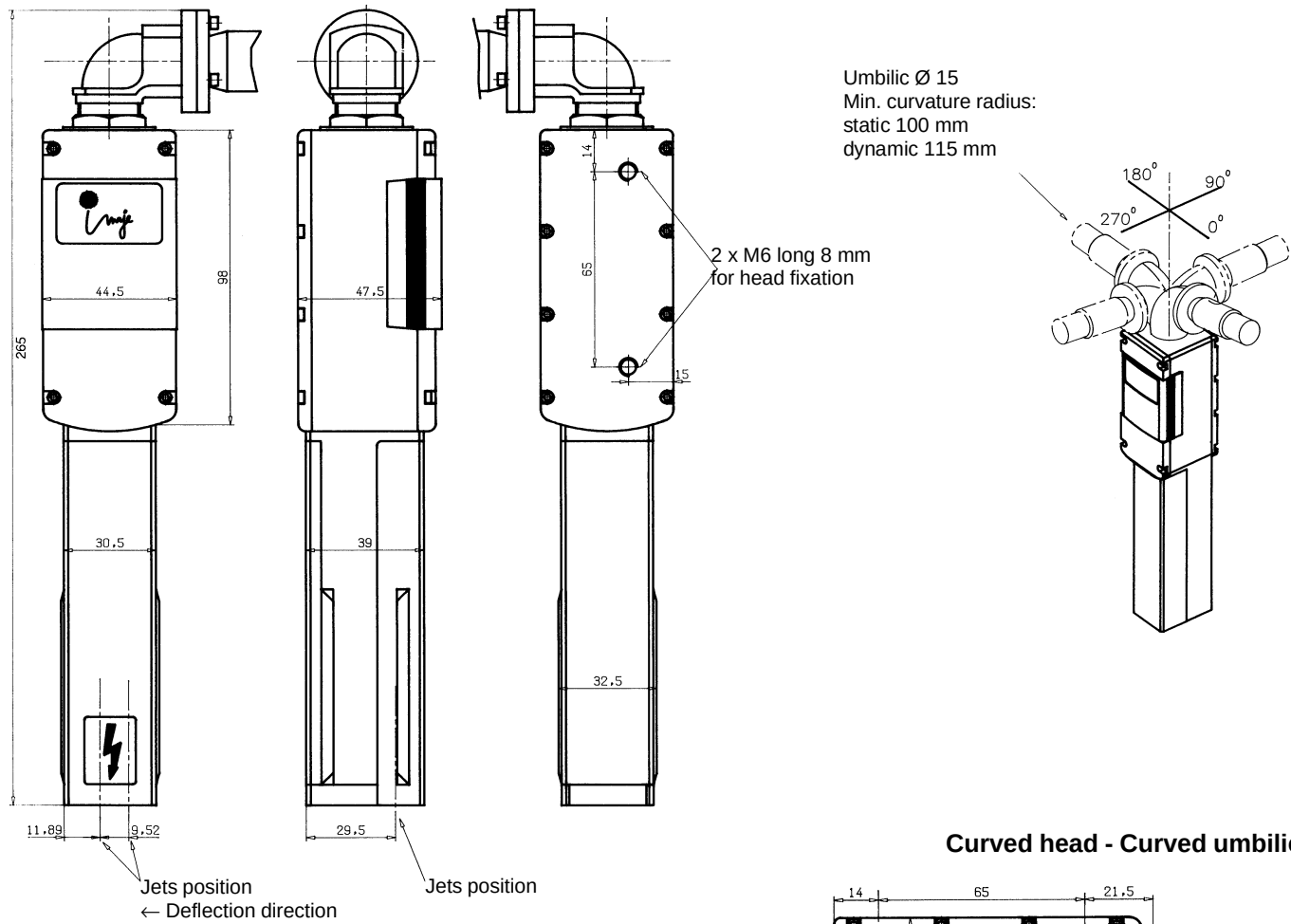
Straight head - Straight umbilical



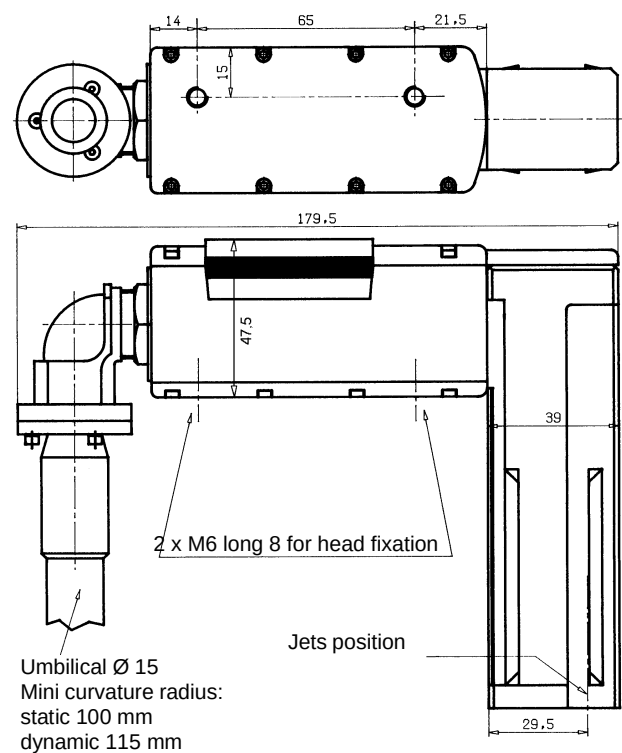


Technical specifications

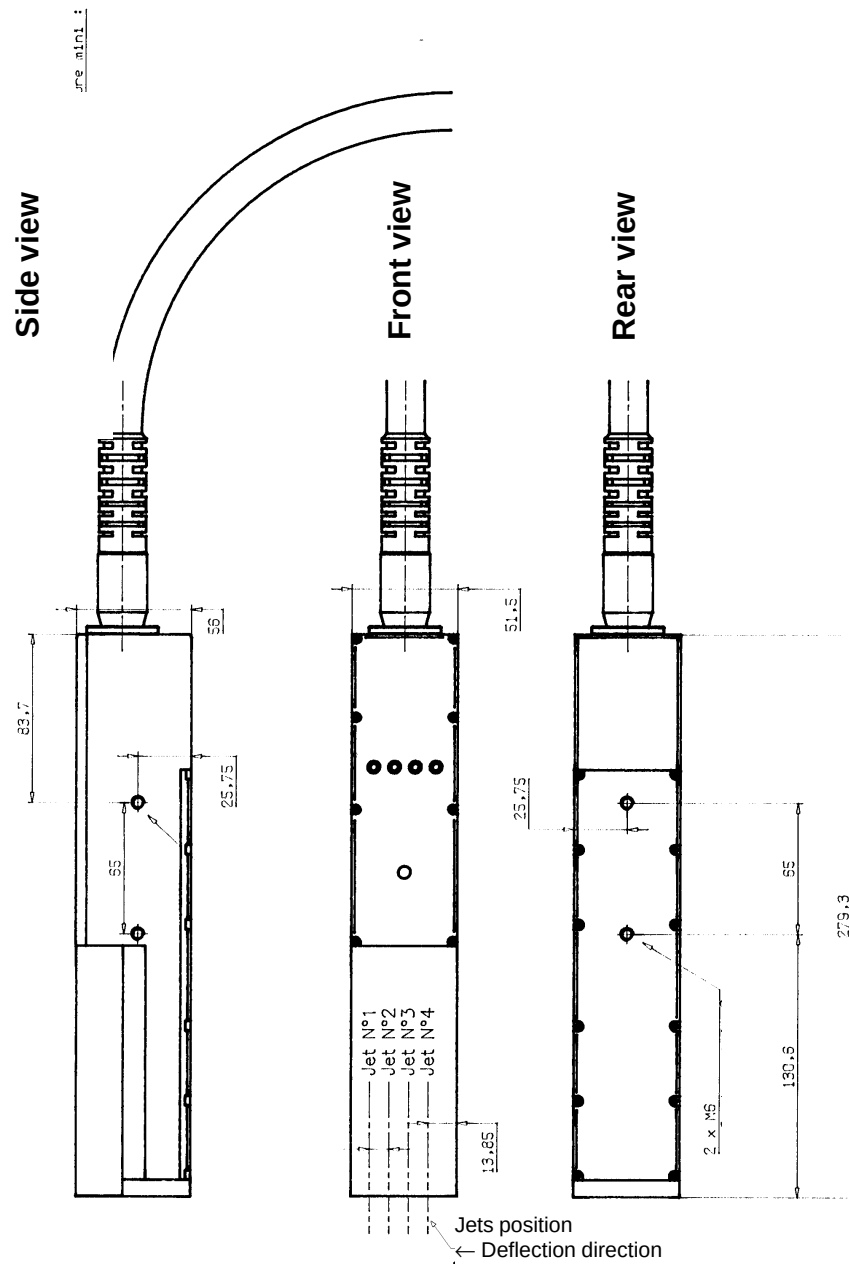
Straight head - Curved umbilical



Curved head - Curved umbilical



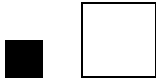
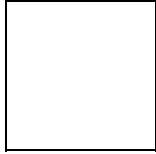
Four jets head



INPUT / OUTPUT CONNECTION AND ACCESSORIES (11 pages)

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1	Access to the "Industrial Interface" card	9-2
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2.1	The object detection cell	9-6
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1 Access to the "Industrial Interface" card

To connect the accessories, you have to open the rear access door.
To do this:

- Unscrew the two self-retaining screws which are located on each side of the rear door.
- Gently pull open the door (see figure 1).

The 4 connector blocks of the Industrial Interface are organized in the following way:

- | | |
|------------------------------|---------------------|
| • Connector B1 : 2 x 20 pins | CPU signals |
| • Connector B2 : 22 pins | Head 1 signals |
| • Connector B3 : 22 pins | Head 2 signals |
| • Connector B4 : 9 pins | Alarm relay signals |

Definition of every pin is set out on the next pages.

Figure 1: View of the Industrial Interface

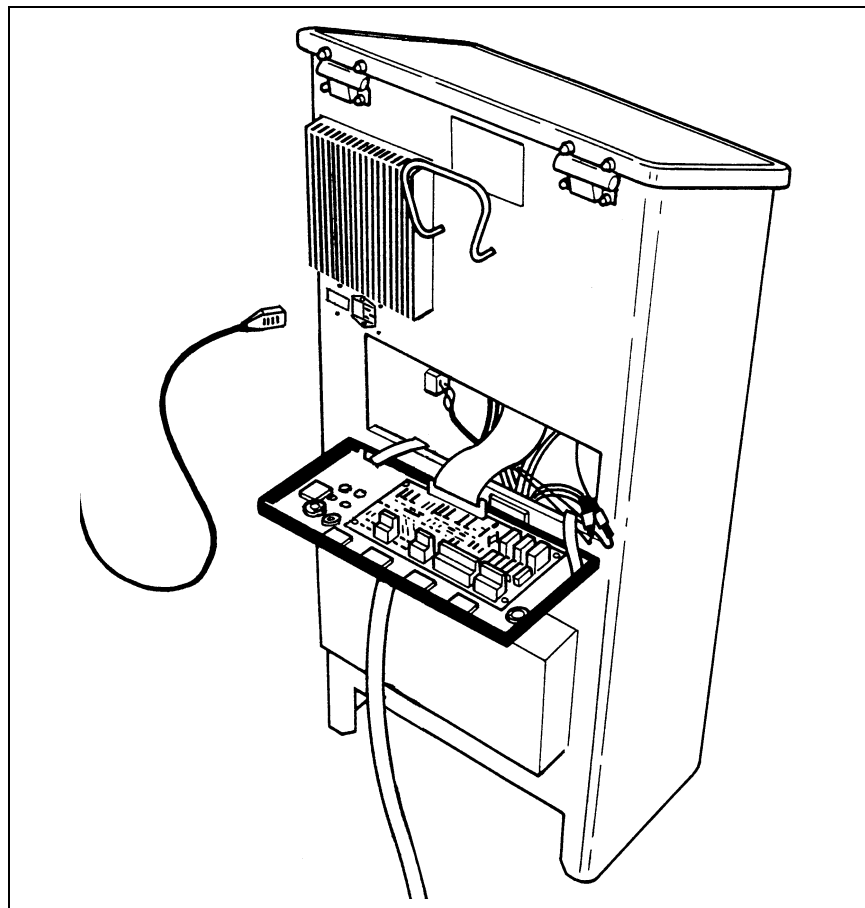
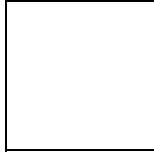


Figure 1

Connector B1: CPU

**"RS232C" asynchronous serial link and "20 mA current loop".
Program output - Counter reset. "RS422" synchronous serial link.**

1	TTYOUT-	DO NOT USE			
2	TTYOUT+				
3	TTYIN-				
4	TTYIN+				
5	-TXDOUT		Transmit data	RS232C	
6	RTSOUT		Request to send		
7	DTROUT		Data Terminal ready		
8	-RXDIN		Receive data		
9	CTSIN		Clear to send		
10	DSRIN		Data send ready		
11	DSR-		Photocoupler DSR input		
12	DSR+				
13	GND		0V		
14	SPROG 2	Program exit			
15	COMSPROG				
16	SPROG 1	Reset counter			
17	COMRAZC 1				
18	RAZC1				
19	COMRAZC2				
20	RAZC2				
21	RESET-				
22	RESET+				
23	-DSR422-	DSR photocoupler input		RS422	Not mounted on simplified industrial interface
24	-DSR422+				
25	RXD422-	Data reception			
26	RXD422+				
27	RXC422-	Reception's clock input			
28	RXC422+				
29	VALID422-				
30	VALID422+				
31	-DTR422-	Terminal ready exit			
32	-DTR422+				
33	TXD422-	Data transmission			
34	TXD422+				
35	TXC422-	Emission's clock exit			
36	TXC422+				
37	GND				
38	+ 5 V	300 mA		CAUTION: no fuse protection	
39	+ 15 V	50 mA			
40	- 15 V	50 mA			

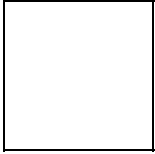


Input/Output connection

Connector B2: Printing head 1

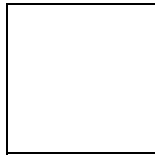
1	GND		0V
2	+ 24V T1		+ 24 V 300 mA power supply non galvanic isolement (non present when machine switched OFF)
3	COMDTP1	Common Top objet	] Connector for object detection photocell
4	DTP1	Top objet	
5	COMVALIMP1	Common VALIMP	] Inhibition of object detection signal
6	-VALIMP1	VALIMP	
7	COMTACHY1	Common TACHY	] Connector for tacho generator (open collector)
8	TACHY1	Tachy	
9	TACHY1+	] Differentials input	] Connector for differential tacho generator
10	TACHY1-		
11	COMBUSY1	Common BUSY	] Printing start signal EXIT
12	-BUSY1	BUSY-	
13	COMDATA1	Common DATA	] Parallel Interface input used in "Message selection" (option in the Industrial interface)
14	D0 1	DATA 0	
15	D1 1	DATA 1	
16	D2 1	DATA 2	
17	D3 1	DATA 3	
18	D4 1	DATA 4	
19	D5 1	DATA 5	
20	D6 1	DATA 6	
21	D7 1	DATA 7	
22	+24 T1		+ 24 V 300 mA power supply non galvanic isolement (non present when machine switched OFF)

Connector B3 : Printing head 2 (As head 1).

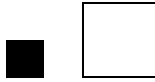


Connector B4: Printing Alarms.

1	-T1	Rest	}	Printing Head 1 Alarm Exit
2	T1	Work		
3	COM T1	Common		
4	-T2	Rest	}	Printing Head 2 Alarm Exit
5	T2	Work		
6	COM T2	Common		
7	-GENE	Rest	}	General Alarm Exit
8	GENE	Work		
9	COM GENE	Common		



Input/Output connection



2 The inputs

2.1 The object detection cell

- **Role:**

The object detector is to be connected on "DTOP" and "COMDTOP-" terminals of the Industrial Interface card.

When it is activated by an object, the detector sends a signal to the printer which activates printing.

In order to avoid interference, DTOP is filtered to a minimum of 100 μ s (programmable value).

The object detection input uses the properties of a high speed photocoupler in which the insulation voltage is 2.5 KV.

2.2 Inhibition of the object detector

- **Role:**

The terminals "-VALIMP" and "COMVALIMP" on the Industrial Interface allow the inhibition of the object detection signal. They can be connected to any accessory or system that respects the specifications mentioned.

The inhibition object input uses the properties of a high speed photocoupler with an insulation voltage of 2.5 KV.

2.3 Tachometric generator

- **Role:**

When the conveyor belt speed is variable, the terminals "TACHY" and "COMTACHY" on the Industrial Interface card enable to connect a tachometric generator in order to sequence printing. The tachometric input uses the properties of a high speed photocoupler in which the maximum insulation voltage is 2.5 KV.

"TACHY+" and "TACHY-" plug permit to connect a differential tacho generator.

2.4 Data Transmission Inputs by the parallel Interface ("Message selection" mode)

- **Role :**

The "D0, D1, D2, D3, D4, D5, D6, D7" terminals on the Industrial Interface card enable the transmission of message numbers for the print head.

The parallel transfer enables to use the "Message selection" option with the Message library. Refer to the Interface Manual (V24 and Parallel interfaces).

2.5 Values of absolute functional limits

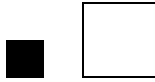
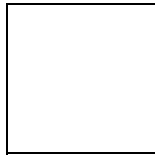
- Courant maximum admissible dans la LED du photocoupleur :

DC = I_F = 25 mA

AC = I_F = 50 mA with a duty cycle of 50 % and a pulse width of 1 mS.

In pulse I_F = 1 A with a pulse width of or $\leq 1 \mu\text{S}$ and 300 pulses/sec.

- Maximum dissipation: 45 mW
- Maximum functional frequency: 150 kHz (duration of pulses $> 2 \mu\text{S}$) for Tachy input and 10 kHz for detection cell, parallel interface and counters reset.



3 The outputs

3.1 "General alarm" output

- **Role :**

The type of malfunction identified by the General Alarm does not stop the printing process. When this alarm is activated, the operator must look for the origin of the problem and suppress it.

Two types of contacts are available for this output: one contact normally closed or one contact normally open.

3.2 "Jet Alarm" output

- **Role :**

This output signals a malfunction in the printer which blocks the printing process. This output can be connected to a girolamp, a siren or to the power supply of the production conveyor to stop it running if necessary.

When the fault output is activated, the alarm output is always activated at the same time.

Two types of contacts are available for this output: one normally closed or one normally open.

3.3 Electrical characteristics of alarm outputs

- Max. voltage : 380 Vac
- Max. current : 1 A

For a DC voltage, the maximum admissible current is 1A.
These are relay contact free of any voltage. Thus, a contact switches the alarm system or electrical assemblies in direct contact with the Mains supply.

The electrical contacts are protected by RC filters (0,1 μ F/250 V + 47 Ω).
Whatever the type of voltage (ac or dc) applied to the terminals, the filter should never be disconnected.

3.4 Start printing signal output

- **Role:**

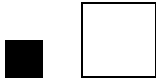
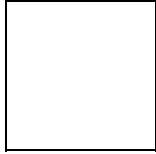
The terminals "-BUSY-1" and "COM BUSY1" for the head 1 and "-BUSY-2" and "COM BUSY2" for the head 2 on the Industrial Interface card supply a signal for printing synchronisation on a message. This allows a stroboscopic visualisation of a message when on continuous printing or to know when a message printing is finished.

This message synchronisation output uses the output characteristics of a high speed photocoupler in which the phototransistor is of type open collector.

- **Functional characteristics:**

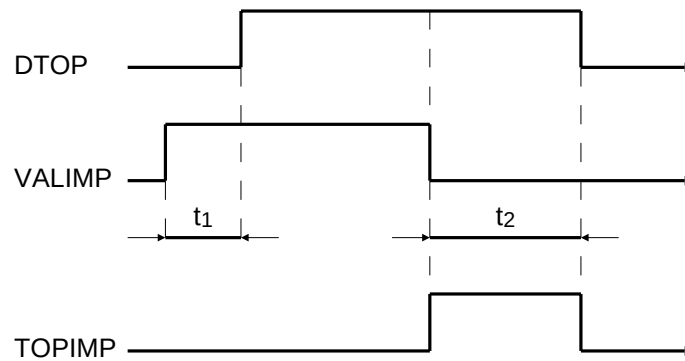
- Supply voltage between "-BUSY" and "COM BUSY" : – 0,5 V to 15 V
- Maximum output current I_S terminal "-BUSY" : 2.5 mA
- Maximum functional frequency 10 KhZ
- Maximum output power 100 mW

The photocoupler remains switched on during the whole printing message process.



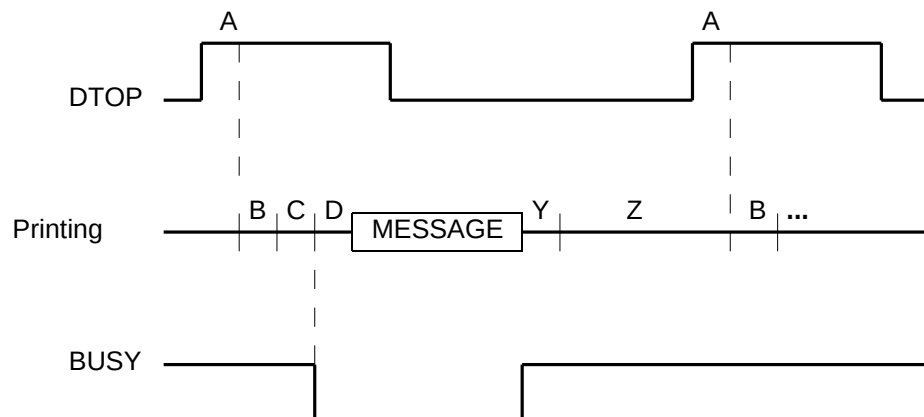
4 Timing diagrams

4.1 DTOP and VALIMP



$t_1 \geq 1 \mu s$
If $t_2 > (\text{filter})$ $\Rightarrow$ Print message
If $t_2 \leq (\text{filter})$ $\Rightarrow$ Do not print

4.2 DTOP, message printing and BUSY



A = TOPIMP > (filter)

B = CPU/IMP communication

= de 0 to 700 μs if "Run/Stop" option on Run
= 0 if "Run/Stop" option on Stop

C = print signal processing

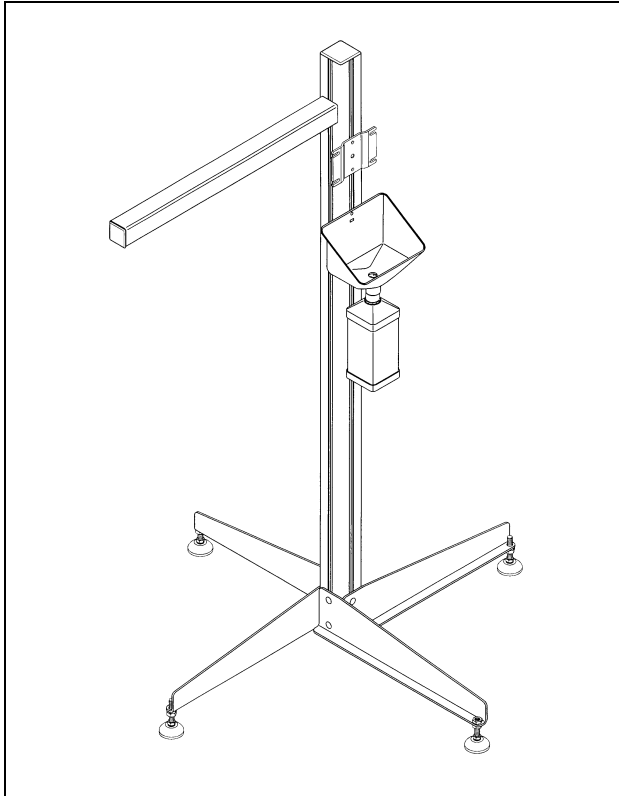
= 1 to 9 ms if message with bar code
= 800 μs if message without bar code

D = print delay

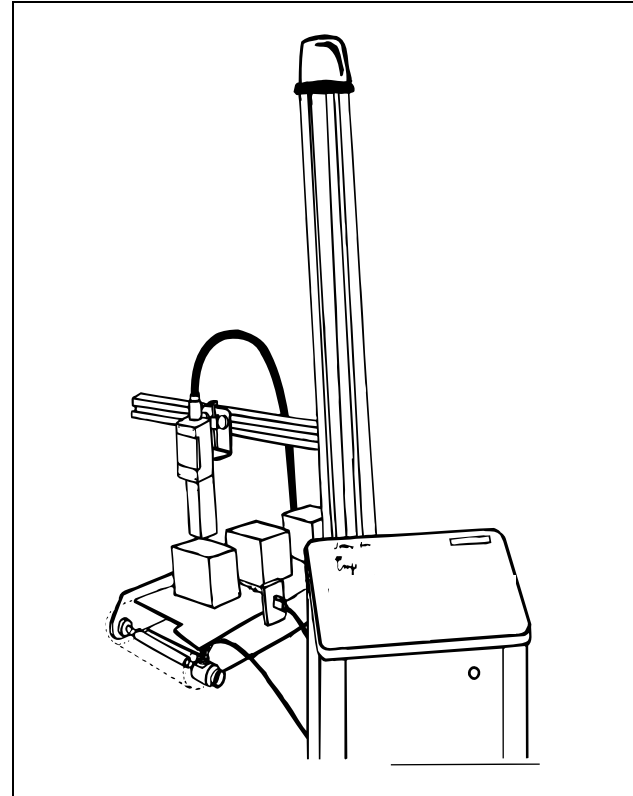
Y = phase measurement = 3 msec

Z = minimum time between phase measurement and new DTOP = 1 μs

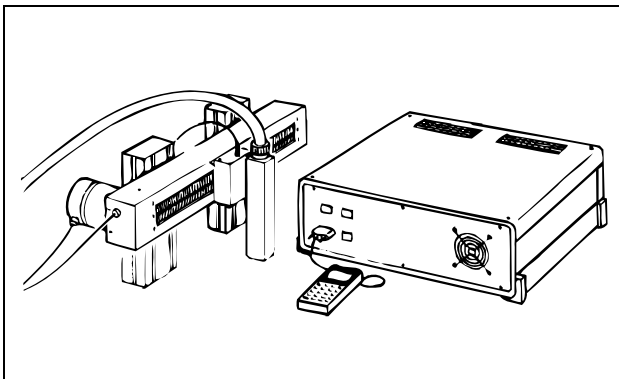
5 Accessories



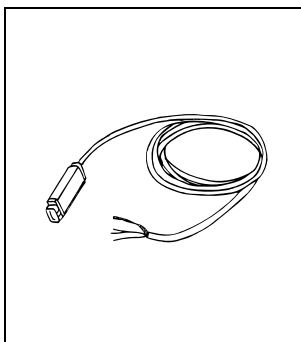
Support stand with servicing tray



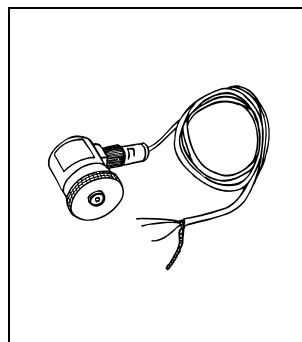
Alarm light indicator



Head movement



Object detector



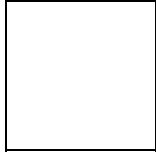
Tachometric generator

- Trolley for printer.
- Head protection.
- Head pressurization.
- Head drying.
- Frequency multiplier.
- Fan of electronic compartment.
- Metric counter.

etc.

For all informations about these accessories, contact IMAJE contact.

GLOSSARY
(4 pages)



B

Bolderization:

Function used to lay down more ink per character printed and thus increase contrast with substrate.

C

Cannon:

Hollow cylindrical element of the print head, which, when it receives pressurized ink, creates the ink jet through an ejection nozzle.

Character font:

Group of characters defined by the number of drops per trame.

Charge electrode:

Element of the print head used for the polarisation of ink drops.

"Chimney" :

Printing norm with characters positioned one above the other.

Consumables:

Ink, cleaning solution or any specific liquid used in the printer.

D

Din:

Standard making it possible to print characters so that they can be read in both directions

Detection electrode:

Element of the print head used to control the quality of polarisation of the drops.

Deflection plates:

Metallic plates (situated in the print head) which are submitted to an Extra High Tension in order to deviate the drops polarised during printing.

Double line message:

Printed message of 2 lines of character.

I**Ink circuit loom:**

Cable assembly which carries command signals and voltage supplies to ink circuit components.

M**Matrix:**

Structure of impression of a character which associates a number of drops per trames and a number of trames.
Example: "Matrix 7 x 6" = 6 trames of 7 drops

O**Operator Interface:**

Upper part of console comprising the keyboard, the display and the indicators.

P**Potentiometer:**

Electronic component which is used to vary voltage.

R**Recuperation gutter:**

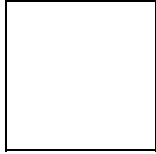
Stainless steel tube fixed at the base of the head. Allows the recuperation and recycling of drops not utilised for printing.

Reset:

Operation consisting of the reinitialisation of an electronic component.

Resonator:

Commonly called a piezo. This element vibrates under the action of an electrical potential.



T

Trame:

Group of drops disposed on a vertical axis. A character is defined by a given number of trames.

Tachometer:

Apparatus which permits the control of the distance between marking in relation to the speed of a conveyor.

U

Umbilical:

Organ which electrically and hydraulically joins the command console to the print head.

V

Viscometer:

Apparatus which serves to determine the flow resistance of a liquid.

Voltmeter:

Apparatus for the measure of electrical potential.