

Small character
ink-jet printing

S8 Range



S8 Classic



A20733 B1

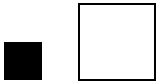
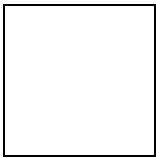


A DOVER COMPANY

Presentation		1
Initial programming		15
Message programming		29
Servicing		65
Troubleshooting		93
Adjustment and replacement procedures		107
Consumables		119
Technical specifications		125
Input / Output Connections		129

Contents

1	Presentation	2
1.1	Control panel	2
1.2	Operator interface	3
1.3	Print head	6
1.4	Ink circuit: S8 Classic (without condenser)	7
1.5	Ink circuit: S8 Classic (with condenser option)	8
1.6	Ink circuit: S8 Egg Classic	9
2	Ink jet printing	10
2.1	Matrix printing	10
2.2	Continuous deviated ink jet printing	11
3	Startup and shutdown	12
3.1	Starting the printer	12
3.2	Stopping the printer	12
	General summary table	13



1 Presentation

1.1 Control panel

Figure 1: Control panel

1	Conduit
2	Print head
3	Electronic compartment
4	Hydraulic compartment (tanks for consumables)
5	Operator interface (keyboard - screen)
6	Industrial interface compartment (inputs - outputs)

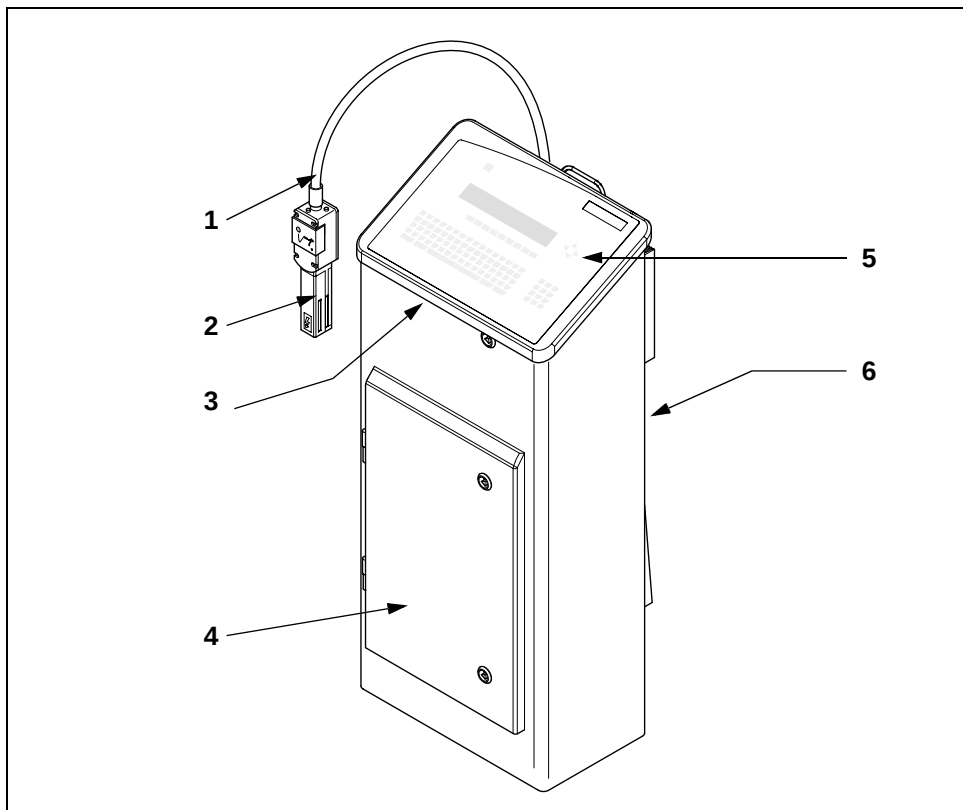
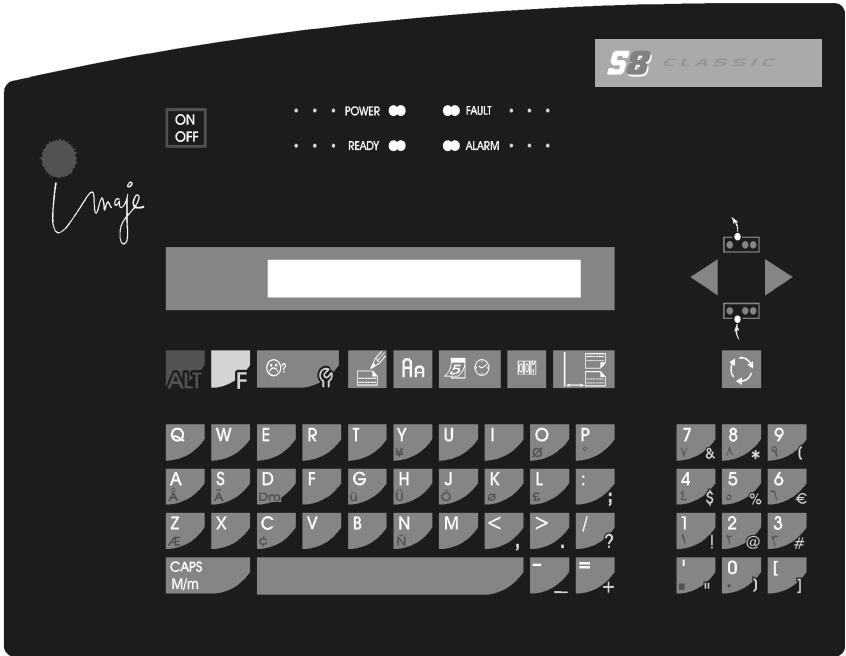
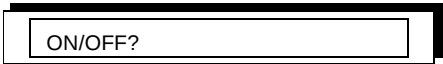


Figure 1

1.2 Operator interface



Display



- 40 character liquid crystal display to:
- Display messages.
 - Dialog with the operator.

Keys



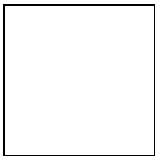
On/Off.



Autodating.



Counter.



Presentation



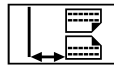
- Press directly to display and clear faults.
- After pressing , access to maintenance functions.



Edit or modify message.



Access character style (font, bolderization, tabulation, etc.).



Access to message parameters.



Enter alphabetic characters in upper or lower case.

The start and end of message delimiters on the display are shown as follows:

-  when entering upper case.
-  when entering lower case.



Direct keypress.

After pressing .

After pressing .



Exit a function.
Delete characters, delete a line.



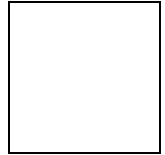
Change function.
Move cursor.
Modify numerical value.



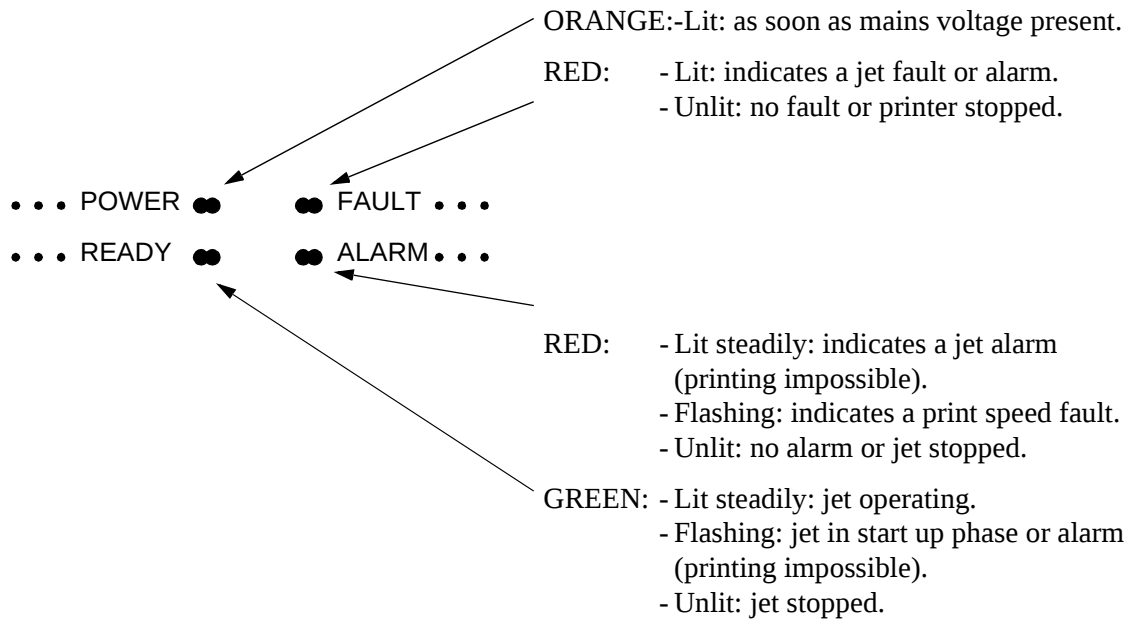
Insert characters.
Select a message to be printed or modified.

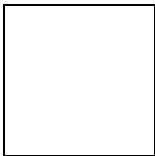


Enter modify mode for a function.
Swap text.
Enter double line mode.



Indicators





1.3 Print head

Figure 1: Overall view of print head with cover open

- | | |
|---|-----------------------|
| 1 | Gutter open/close tap |
| 2 | Recuperation gutter |
| 3 | Deflection plates |
| 4 | Detection electrode |
| 5 | Charge electrode |
| 6 | Cannon |
| 7 | Nozzle rinse spray |

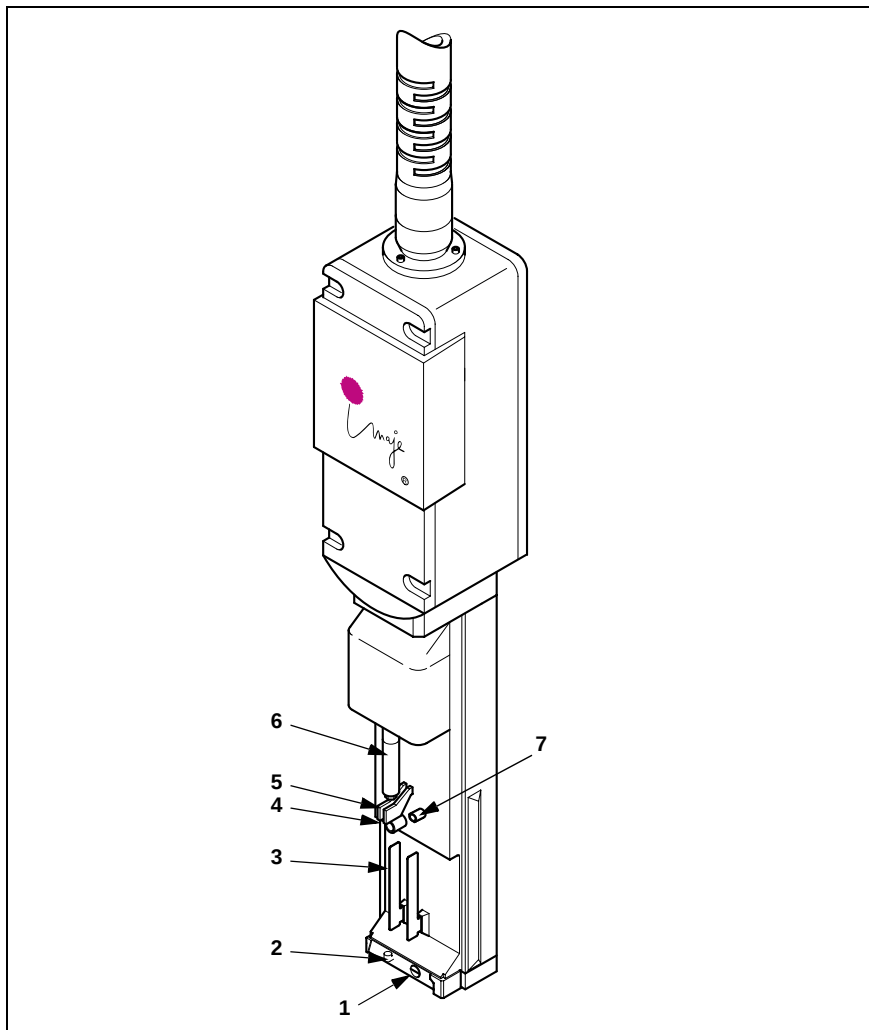
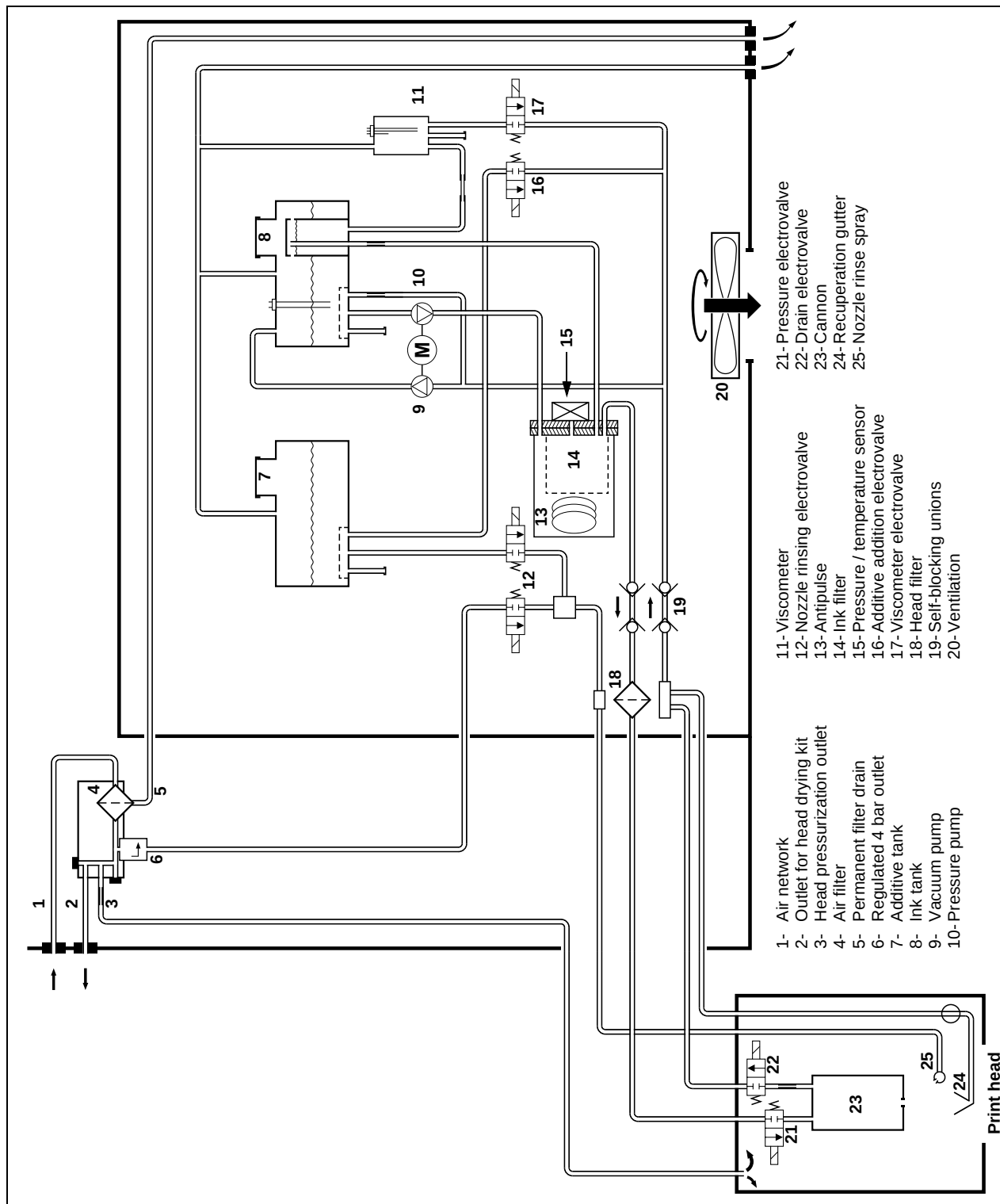
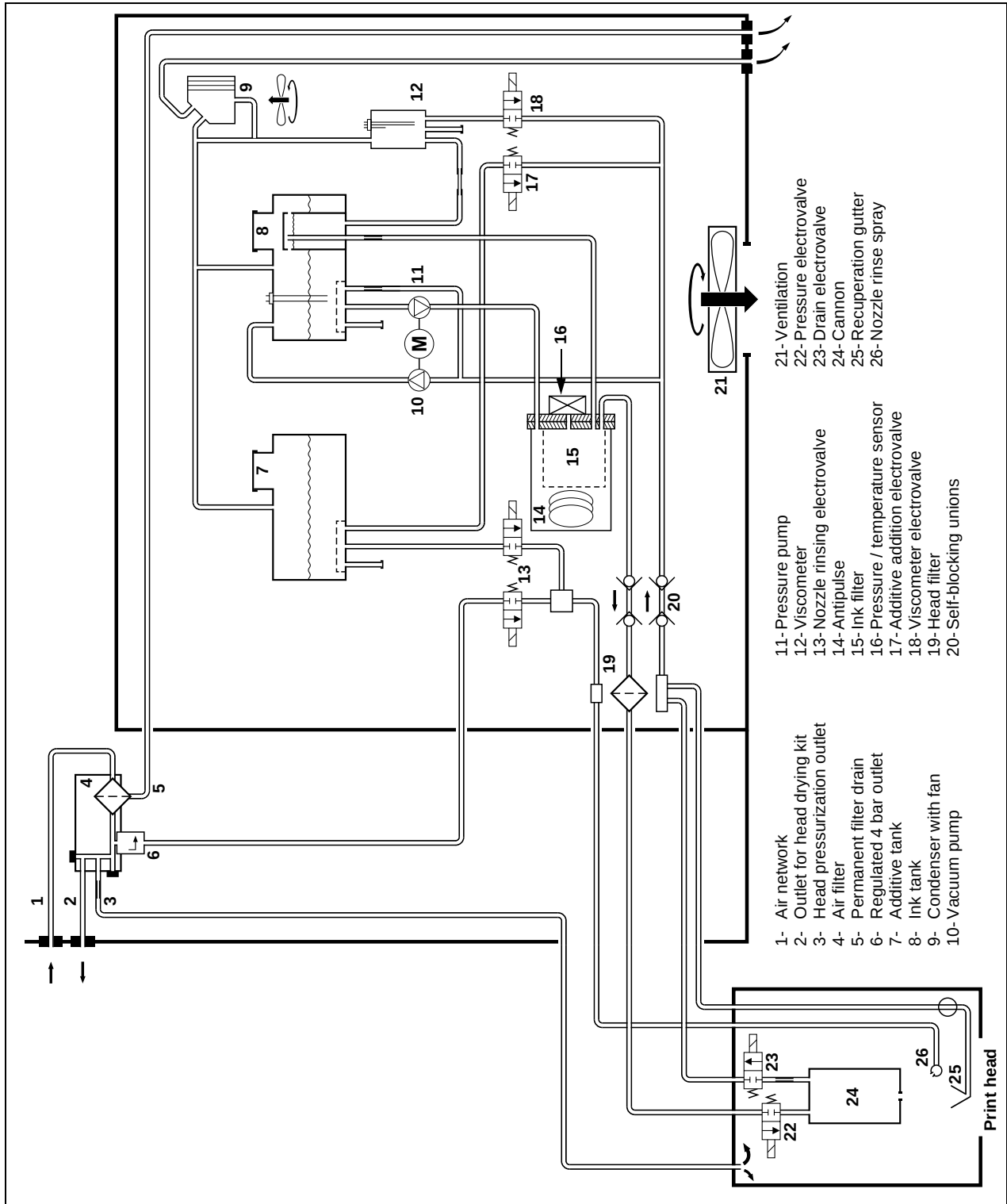


Figure 1

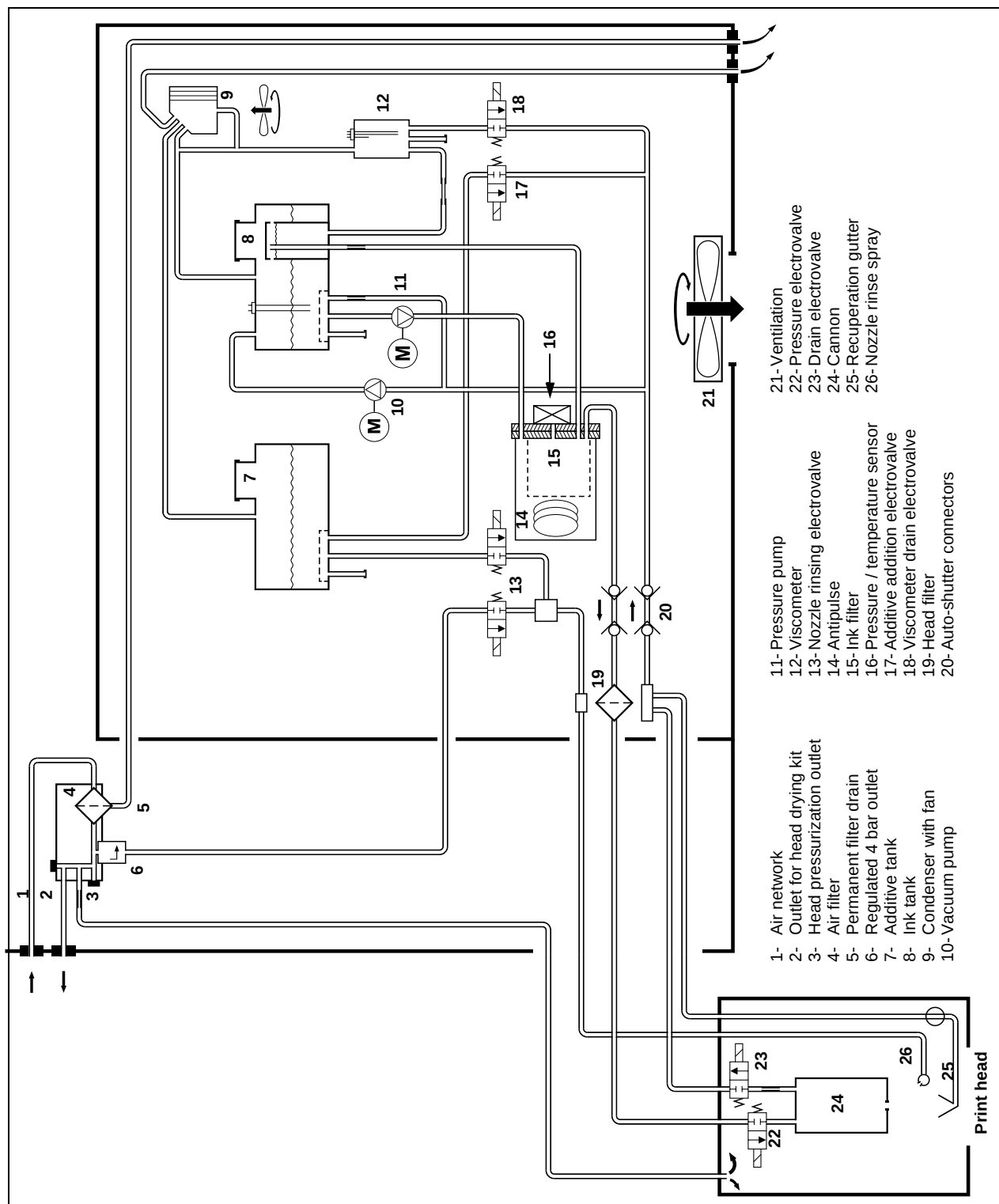
1.4 Ink circuit: S8 Classic (without condenser)

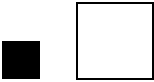
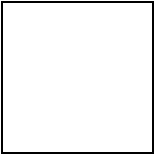


1.5 Ink circuit: S8 Classic (with condenser option)



1.6 Ink circuit: S8 Egg Classic





2 Ink jet printing

Ink jet printing enables contact-free marking to identify, date or customize a product.

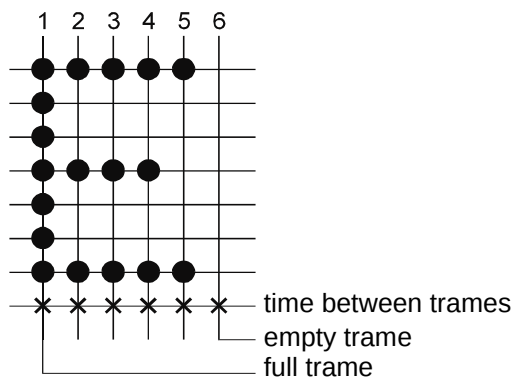
Image printers use the "deflected continuous jet" principle with dot-matrix type characters.

2.1 Matrix printing

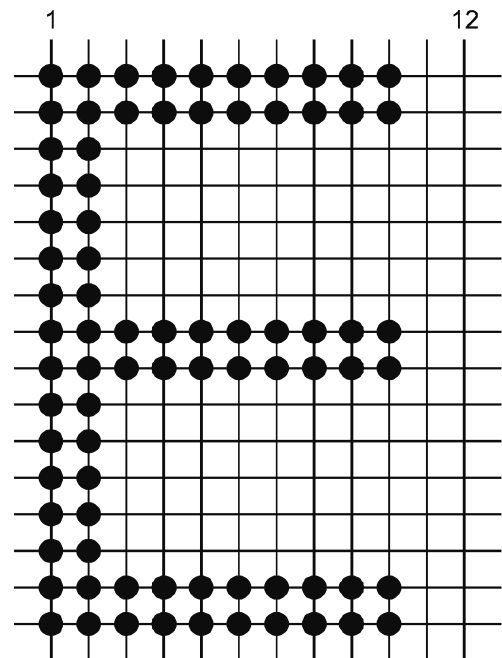
Each symbol (letter, digit, punctuation mark, etc.) is contained within a rectangular area known as a "matrix", which is divided into columns known as "trames" and which has a defined height and width

Example: 7×6 matrix - 16×12 matrix

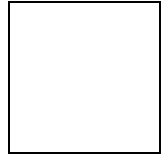
The first digit is the number of dots per trame and the second digit is the number of trames per matrix.



7×6 matrix



16×12 matrix



2.2 Continuous deviated ink jet printing

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 reused.

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.

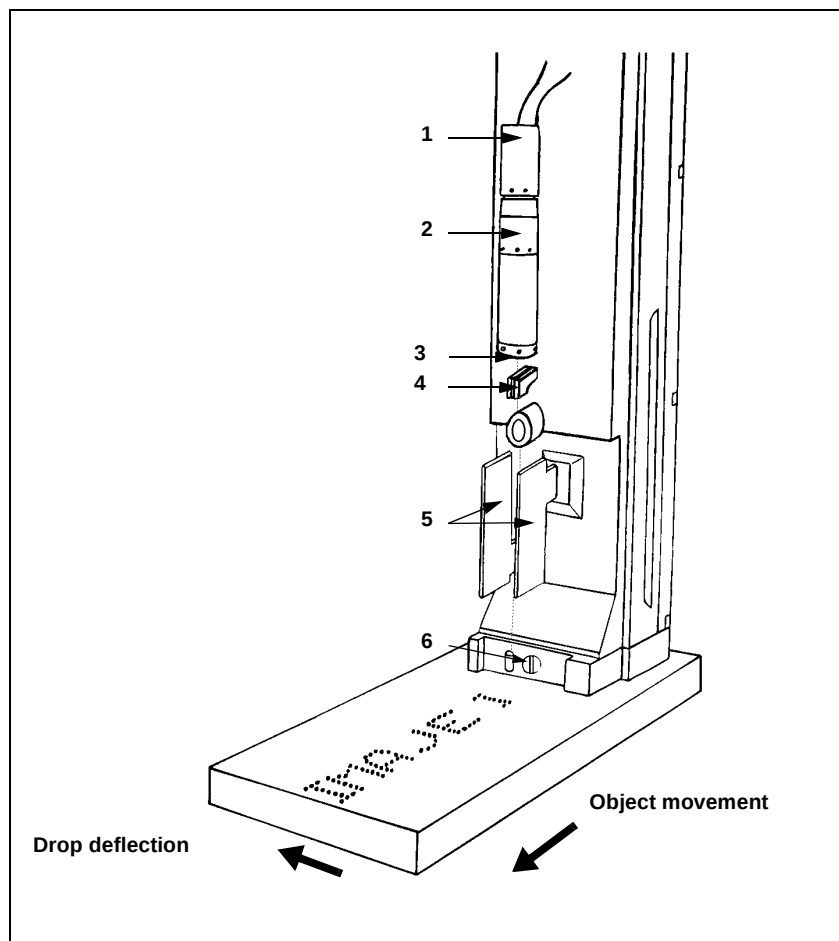
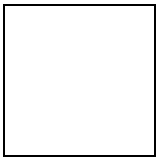
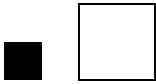


Figure 1



Presentation



3 Startup and shutdown

3.1 Starting the printer

Press .

The jet starts automatically after an ink conditioning phase.

NOTE

The jet starts automatically by default, but may be programmed to start manually ( ).

3.2 Stopping the printer

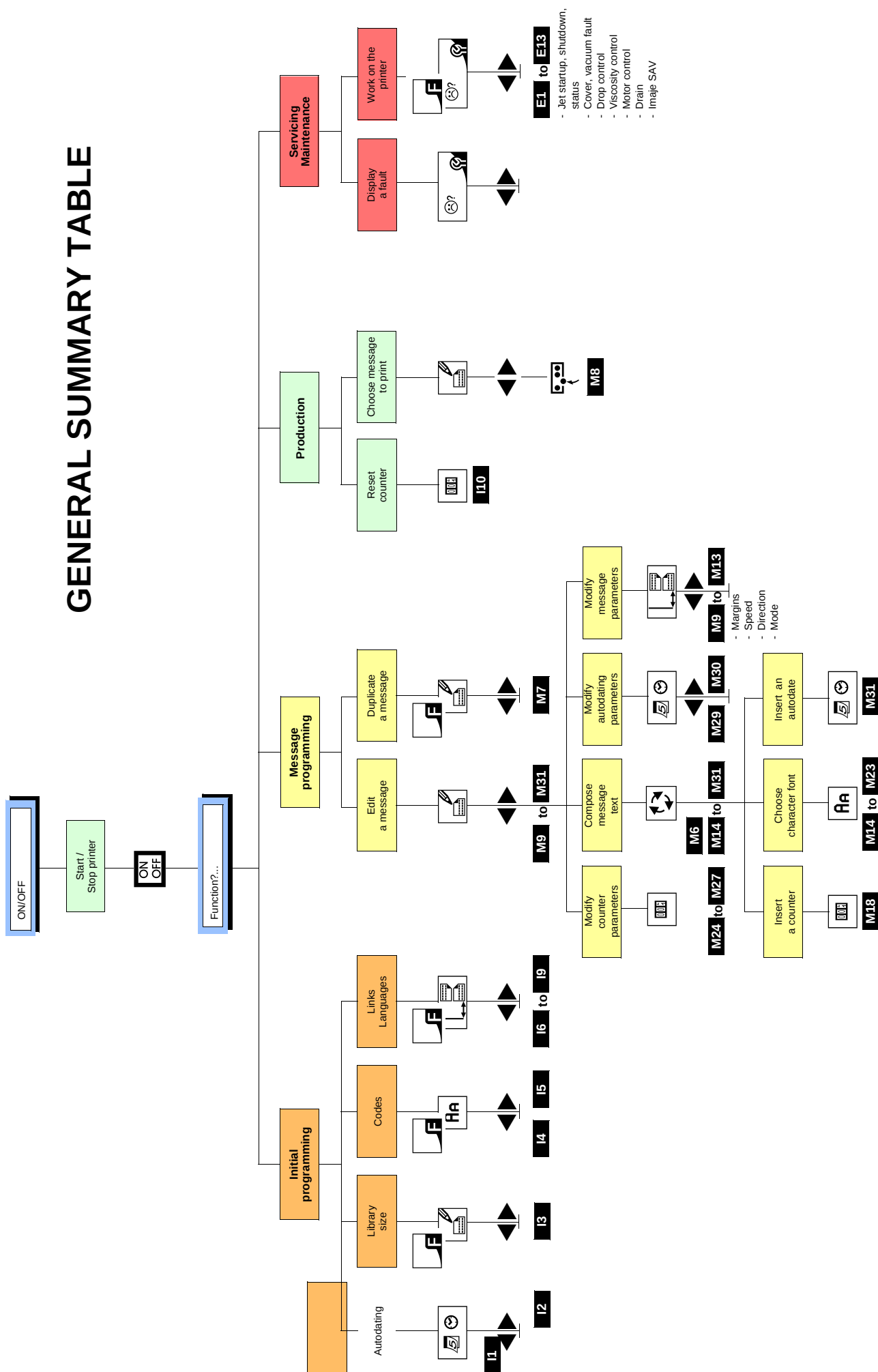
Press .

Stop? Y-N



Wait 2 mn

GENERAL SUMMARY TABLE

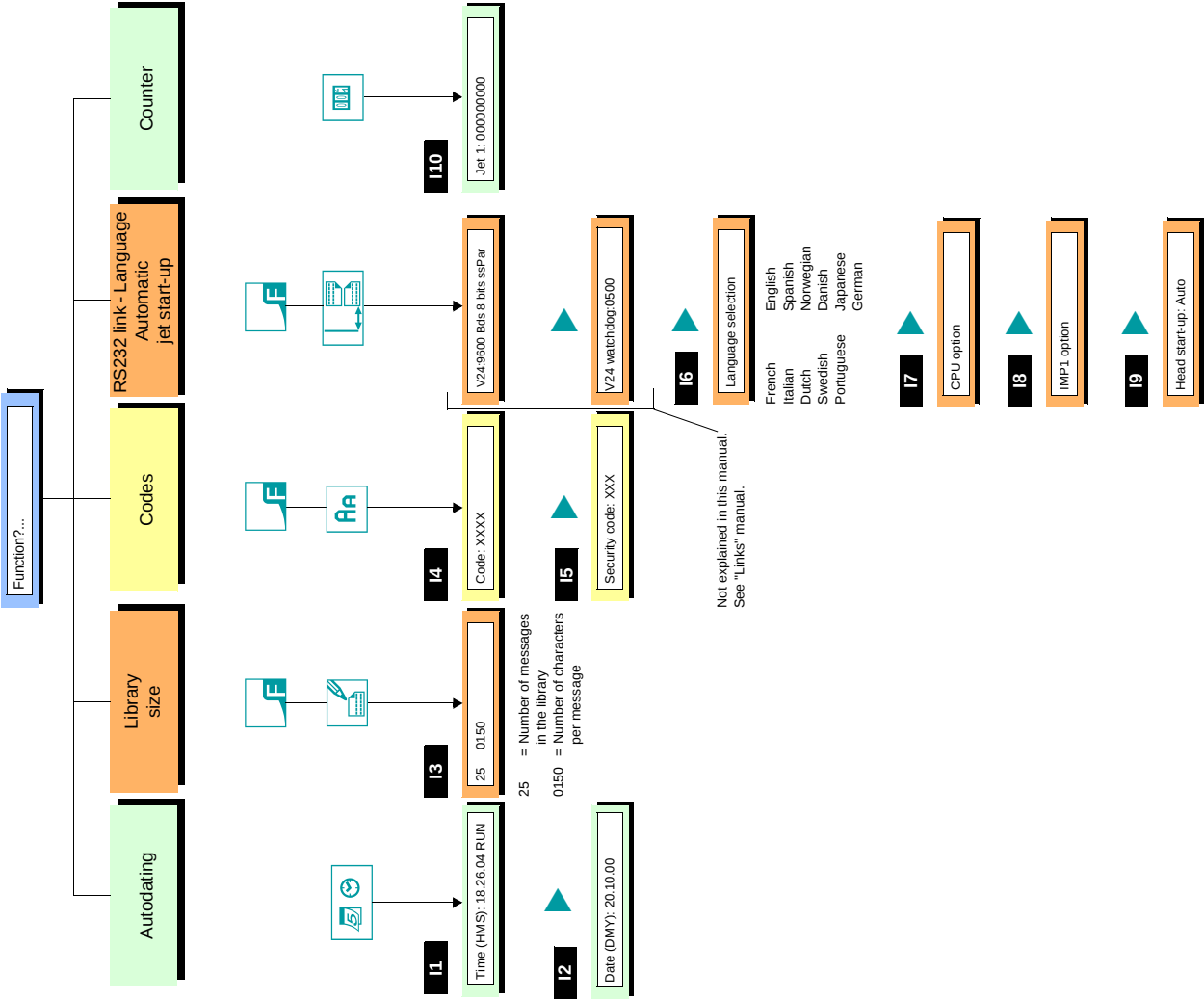


PERSONAL NOTES

Contents

SETTING THE TIME	17
SETTING THE DATE	18
LIBRARY SIZE	19
KEYBOARD CODE	20
SECURITY CODE	21
CHOICE OF DIALOG LANGUAGE	22
CPU OPTIONS	23
PRINT BOARD OPTIONS	25
HEAD START-UP	26
COUNTER DISPLAY, RESET AND LEADING ZEROS	27

Initial programming summary table



Software version D8x.

The numbers 1... before each operation correspond to the sections in the "Initial programming" chapter.

I1

SETTING THE TIME

The printer has an internal clock and autodating functions which can be inserted in a message.

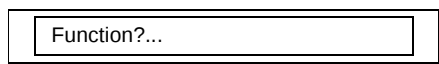
To insert dates in a message, see the "Message programming" chapter.

RUN/STOP clock (option):

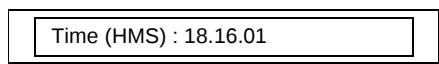
- In RUN position, the time displayed and printed changes in real time.
- In STOP position, the time displayed and printed is fixed.

By default, resetting the time automatically restores RUN mode.

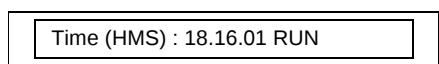
Access



Display



or



if the clock RUN/STOP option is fitted.

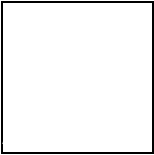
Modify using

 + enter new values,  to move the cursor.

 +  to change mode (RUN/STOP).

Choices

Clock RUN or STOP option.



I2

SETTING THE DATE

Access

Function?...



Display

Date: (DMY) : 10.02.01

Modify using



+ enter new values, ► to move the cursor.



to change the format (DMY or MDY) if the cursor is under the first digit of the day.



to print the month as two digits or three letters if the cursor is under the first digit of the month.

Choices

Format DMY (D = day, M = month, Y = year).
or MDY (M = month, D = day, Y = year).
Month as two digits or three letters.

NOTE

The display shows "Error: date" if the months or days exceed the permitted range.

I3

LIBRARY SIZE

The size of the printer’s library is variable and can be programmed by the operator. The number of characters available per message depends on the number of messages selected. These two values are displayed together.

Access

Function?...



Display

25 > 0150 <

- 25 = Number of messages in the library.
- 0150 = Number of characters per message (including unprintable characters such as expansion value, etc.).

Modify using



(The number of messages flashes after pressing).

IMPORTANT

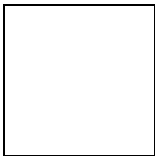
After accessing the library, whether or not the size is changed, the message "DELETE? Y-N" is displayed.
If you reply Y (YES), the library is deleted and the modifications are taken into account.
If you reply N (NO), the library is retained unchanged, ignoring any modifications.

Choices

1 to 4 messages comprising 1024 characters.
to
79 messages comprising 21 characters.

NOTE

This function may be used to delete the messages loaded by default after resetting the CPU board.



I4

KEYBOARD CODE

This code locks the keyboard.

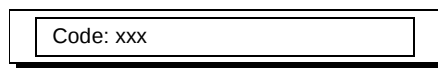
NOTE

The code is deleted each time the printer is started using the ON/OFF KEY.

Access



Display



Modify using

- To enter a code (if no code present):

 +  (yes) + enter new code

- To change the code:

 + enter the old code +  + enter the new code

- To delete the code:

 + enter the old code +  (code deleted)

Choices

3-character code.

I5**SECURITY CODE**

This code locks the counter, autodating and message editing functions (changes to the content).

Access
**Display**
Modify using

- To enter a security code (if no code present):

+ (yes) + enter new code

- To change the code:

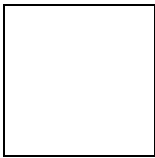
+ enter the old code + + enter the new code

- To delete the code:

+ enter the old code + (code deleted)

Choices

3-character code.

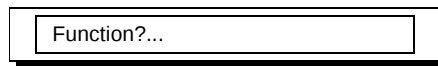


I6

CHOICE OF DIALOG LANGUAGE

This function is used to choose the language in which all operator interface messages are displayed.

Access



Display



Modify using



The choice is validated as soon as you leave this mode.

Choices

Français	French
English	English
Deutsch	German
Italiano	Italian
Español	Spanish
Nederlands	Dutch
Norsk	Norwegian
Swenska	Swedish
Dansk	Danish
Portugues	Portuguese
Japanese	Japanese

Stop function using

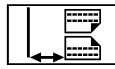


I7**CPU OPTIONS**

This function is used to display the CPU board options present in the printer.
It also enables Image technicians to identify faults on the CPU board.

Access

Function?...



▶ (3 times)

Display

Number of heads Machine software version / revision

CPU: 11 D80 1101000 10000000

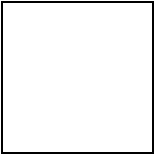
Number of jets per head CPU options



Chk: 3E 3A 8F Hard: 00000000 00056H

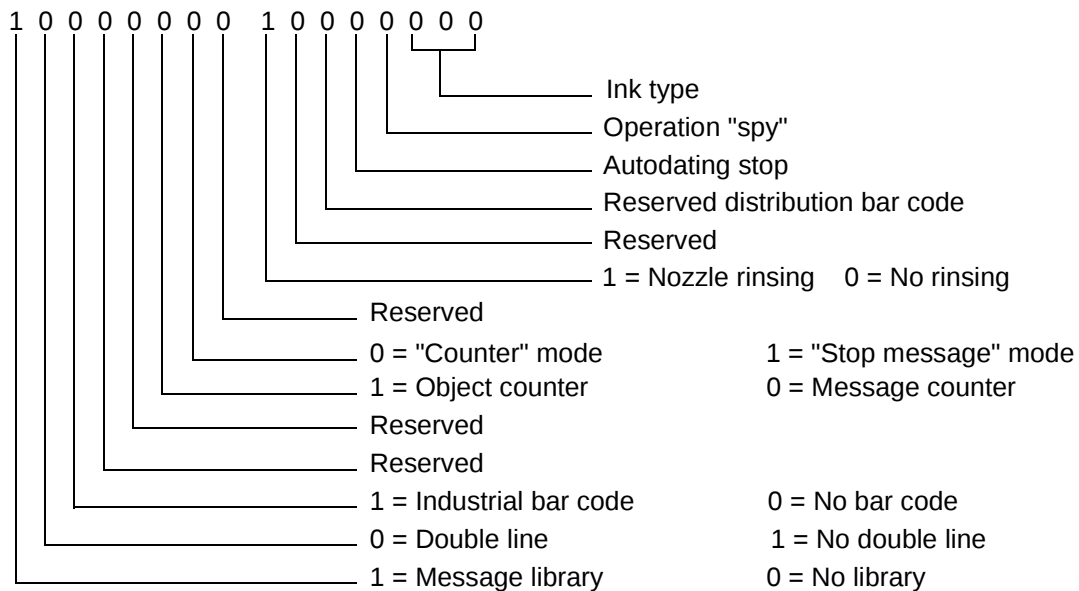
CPU board faults

Number of hours of printer operation



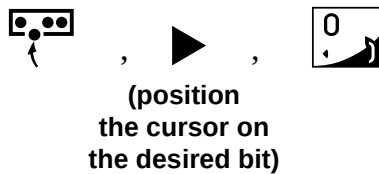
Choices

The CPU options are indicated by two sets of 8 digits (bits).
Each bit corresponds to one option and can be either "0" or "1".
The option is present in the printer if the corresponding bit is set to "1".



NOTE

To temporarily delete an option, alter the corresponding bit from 1 to 0.



IMPORTANT

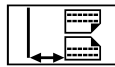
The value 0 is saved. To recover the initial option, set the corresponding bit to 1.

I8**PRINT BOARD OPTIONS**

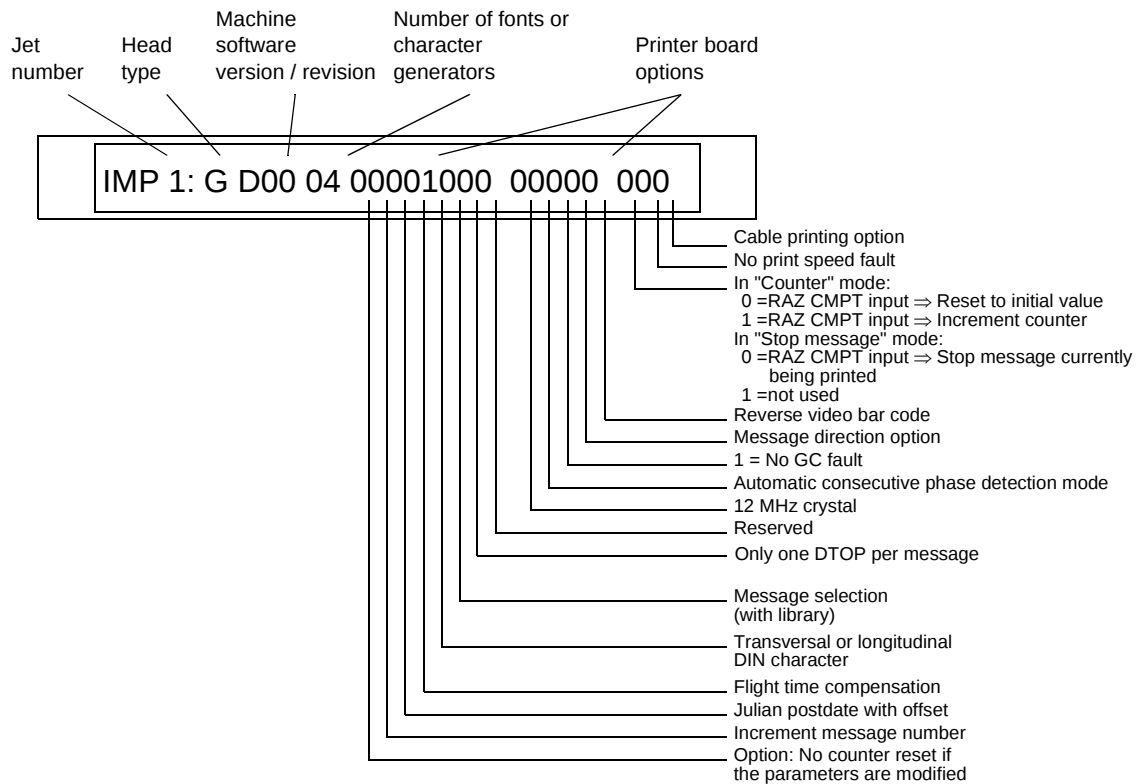
This function is used to display the printer board options present in the printer.
It also enables Image technicians to identify faults on the printer board.

Access

Function?...



(4 times)

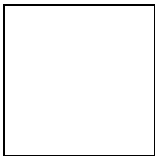
Display

Chk: 12 91 B4 Hard: 00000000

Printing board fault

Modify using

Impossible.

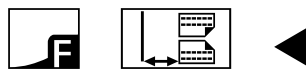


I9

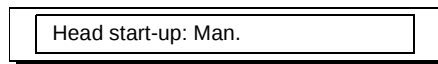
HEAD START-UP

This function selects whether the jet is started up automatically or manually after starting the printer.

Access



Display



Modify using



to enter the function,



to modify.

Choices

Automatic or manual.

I10**COUNTER DISPLAY, RESET AND LEADING ZEROS****Role**

This function is used to:

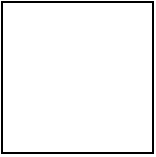
- Display the counter value for the message currently being printed (one counter per message).
- Reset it to the initial value.
- Select whether or not leading zeros are printed.

Access
Display
Modify using

: Reset to initial value.



: Toggle whether or not leading zeros are printed.

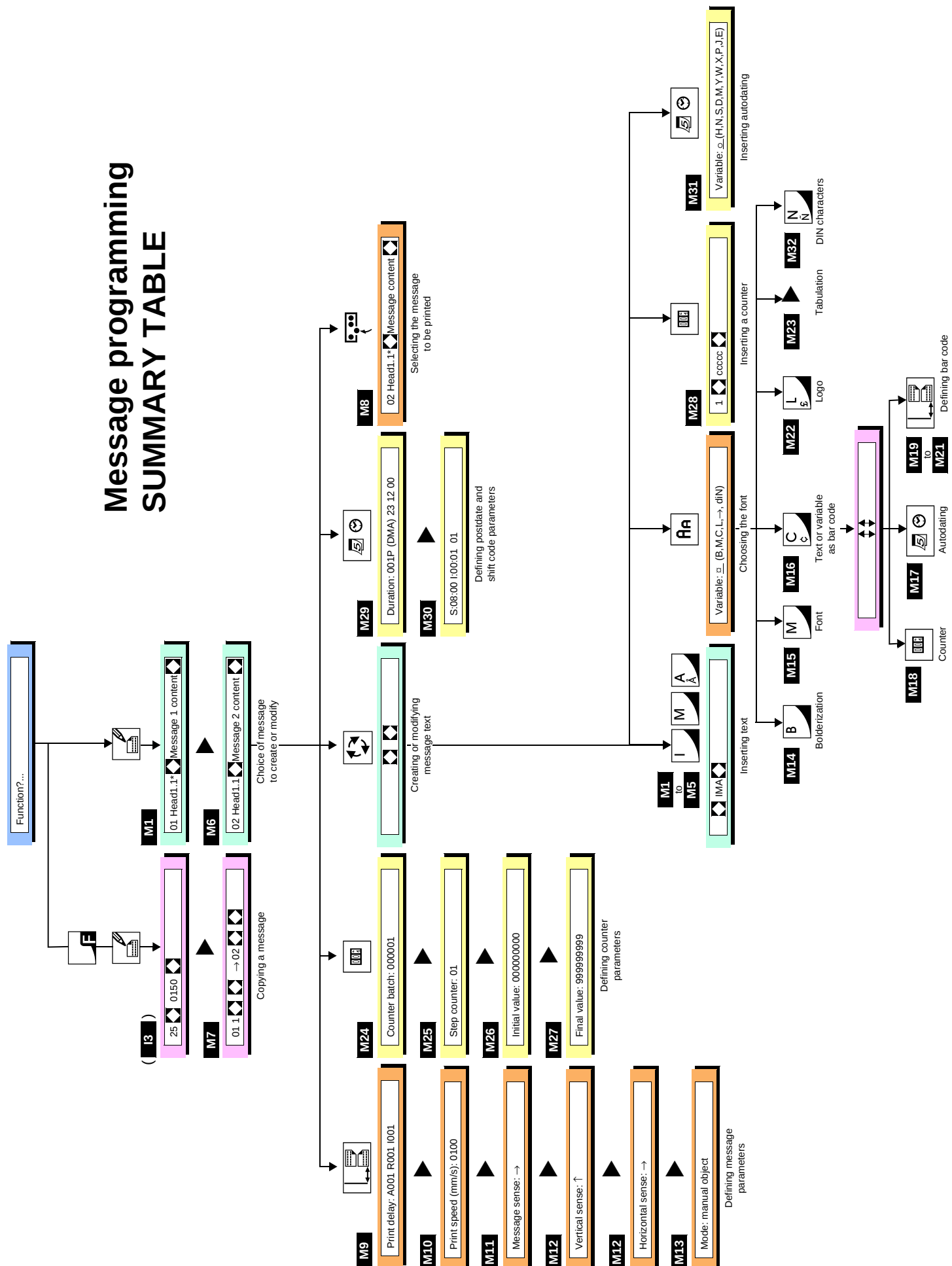


NOTES

Contents

COMPOSING A MESSAGE CONTAINING ONE LINE OF CHARACTERS	31
COMPOSING A MESSAGE CONTAINING TWO LINES OF CHARACTERS	32
DELETING A CHARACTER	33
DELETING A LINE	34
RETURN TO SINGLE LINE MODE	35
CREATING MESSAGES IN THE LIBRARY	36
LIBRARY: Copying messages and/or print parameters	37
MESSAGE: Selection for printing	38
PRINTING DELAY	39
PRINTING SPEED OR TACHOMETRIC DIVISION	40
MESSAGE SENSE	41
VERTICAL & HORIZONTAL SENSE OF CHARACTERS	42
PRINTING: Trigger mode	44
BOLDERIZATION	45
MATRIX: Changing	46
BAR CODES: Composing and inserting in the message	47
BAR CODES: Inserting autodatting	48
BAR CODES: Inserting a counter	49
BAR CODES: Type	50
BAR CODES: Control word	51
BAR CODES: Bar / space ratio	52
LOGO: Inserting	53
TABULATION	54
COUNTER BATCH	55
STEP COUNTER	56
START VALUE	57
FINAL VALUE	58
INSERTING INTO MESSAGE	59
POSTDATE	60
TIME CODE	61
TIME, DATE, POSTDATE, TIME CODE: Inserting into the message	62
DIN CHARACTERS (Option)	64

Message programming SUMMARY TABLE



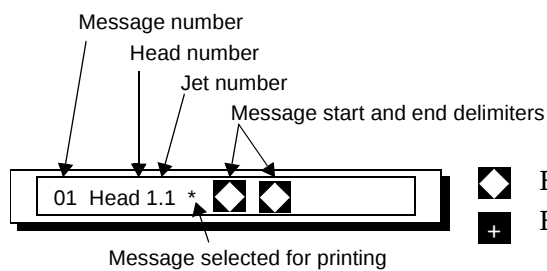
M1

COMPOSING A MESSAGE CONTAINING ONE LINE OF CHARACTERS

Press



Display



Comment



To access the content.

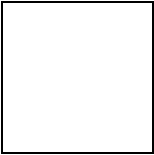


Enter message text.



twice





M2

COMPOSING A MESSAGE CONTAINING TWO LINES OF CHARACTERS

Press

Display

Comment



Start of message 1 displayed.



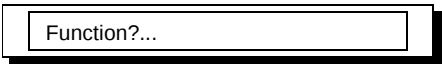
To access the content.



Enter double line mode and display line 2.



Enter characters on the second line.



M3

DELETING A CHARACTER

Press

Display

Comment

► OR ◀



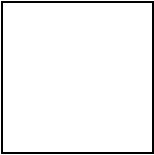
2 CLAASSIC

2 CLAASSIC

2 CLASSIC

Move the cursor and position it underneath the character to be deleted.

Delete the character.



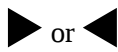
M4

DELETING A LINE

Press

Display

Comment

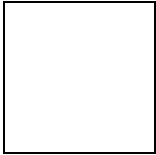


or



Move the cursor and position it under the start of line index.

Delete the contents of the line.



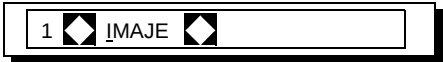
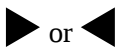
M5

RETURN TO SINGLE LINE MODE

Press

Display

Comment

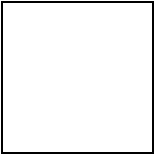


Move the cursor and position it under the line number.

The line number disappears.

IMPORTANT

All these modifications are only effective after exiting the message editing function .



M6

CREATING MESSAGES IN THE LIBRARY

Press

Display

Comment



01 Head 1.1 *  



Select the desired message (e.g. 02).

02 Head 1.1  



To access the contents of message 2.



Type in characters.



02 Head 1.1  Batch: 26 



Function?...

Message 2 is saved.

M7

LIBRARY: Copying messages and/or print parameters

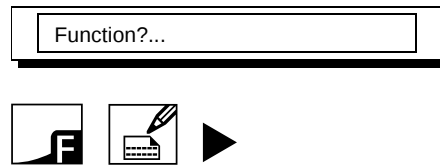
Role

This function is used to:

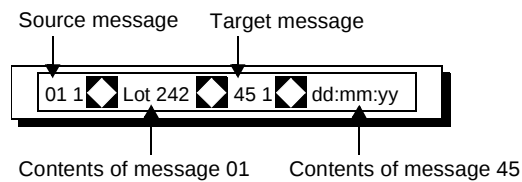
- Copy a source message to a target message (text and print parameters).
- Copy parameters from a source message to all messages (print parameters, counter parameters, postdate).

To copy only the print parameters from one message to all other messages, "***" must be selected instead of the target message number. To do this, press  once with target message 01 displayed.

Access



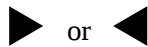
Display



Modify using



To select the source or target message (which flashes).

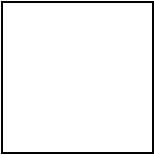


or

To modify the flashing message number (source or target).



To copy the source message to the target message.



M8

MESSAGE: Selection for printing

Role

This function is used to select the message to be printed.

Access



Display the message
number by pressing



or



then



Display

01 = Message number

Head 1.1 = Head 1 jet 1

* = indicates that the message is selected for printing

BEST BEFORE = shows the start of message 01.

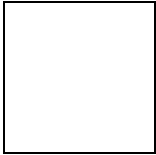
Modify using



To display a new message to be printed



To select the message displayed. When a message is selected,
an asterisk "*" is displayed after the head number.



M9

PRINTING DELAY

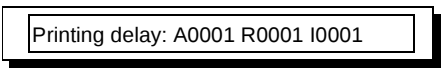
Role This function is used to create a margin before the message is printed.

NOTE This margin, expressed in mm, is only equal to the actual margin if the displayed print speed is equal to the actual speed.

Access

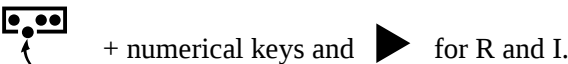


Display



A0001= forward delay in mm (Forward margin).
 R0001= return delay in mm (Return margin).
 I0001= interval between messages (for printing in automatic mode).

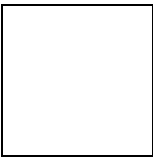
Modify using



Choices

Forward delay, return delay, interval.

IMPORTANT Margin minimum: 1 mm.



M10

PRINTING SPEED OR TACHOMETRIC DIVISION

Role

The printing speed can be adapted to the speed at which the object moves, which may be fixed (expressed in mm/s) or variable. If it is variable, the print speed is controlled by a tachometric generator, in which case the user must specify a value for the tachy division.

Access



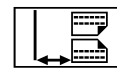
Display the message
number by pressing



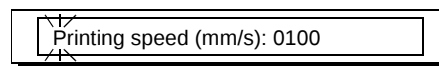
or



then



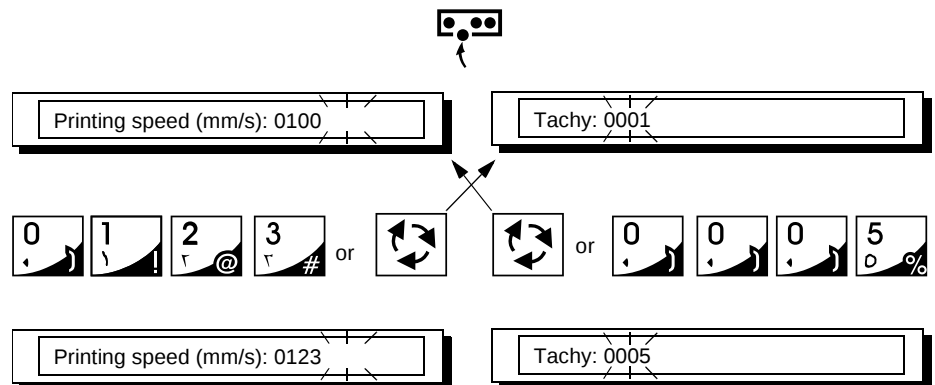
Display



or

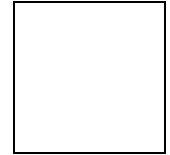


Modify using



Exit / Confirm using





M11

MESSAGE SENSE

Role

This function can be used to invert the direction in which the message is printed (from the beginning to the end or from the end to the beginning).

NOTE

The "message sense", "vertical sense" and "horizontal direction" combined with the direction in which the object moves determine the result.

Access



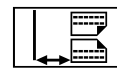
Display the message number by pressing



or

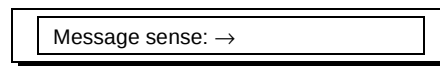


then



(twice)

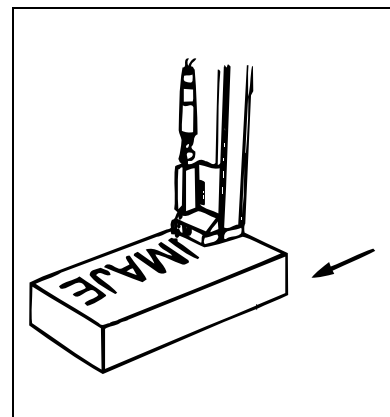
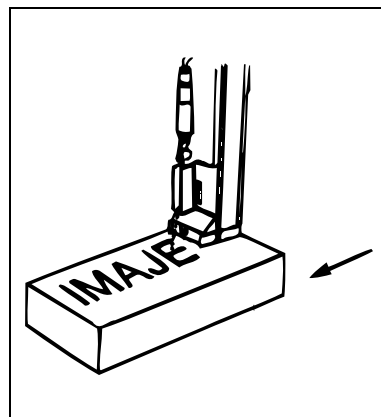
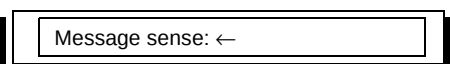
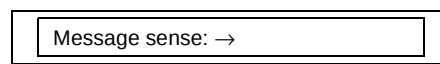
Display

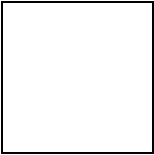


Modify using



Choices





M12

VERTICAL & HORIZONTAL SENSE OF CHARACTERS

Role

The vertical sense setting reverses all the characters in a message in a vertical plane, e.g. **R - L** becomes **Я - 1** .

The horizontal sense setting reverses all the characters in a message in a horizontal plane, e.g. **R - L** becomes **Я - 1** .

NOTE

The "message sense", "vertical sense" and "horizontal sense" combined with the direction in which the object moves determine the result.

Access



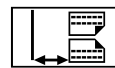
Display the message number by pressing



or

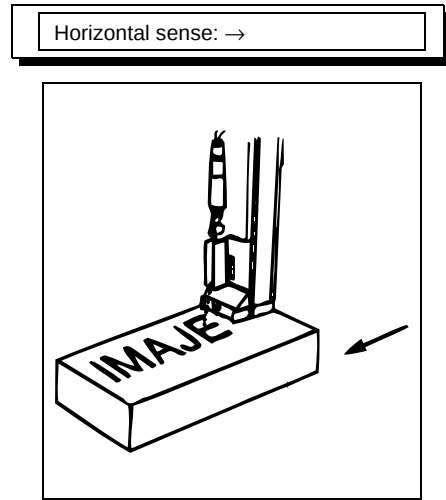
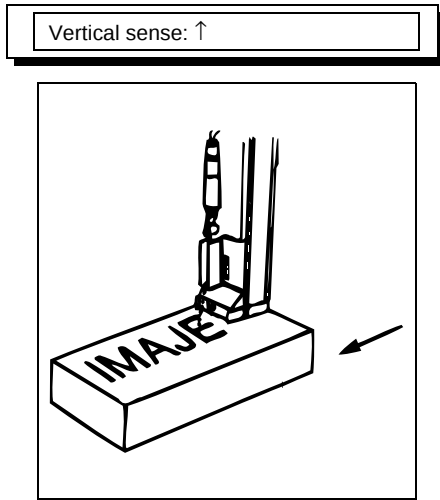


then

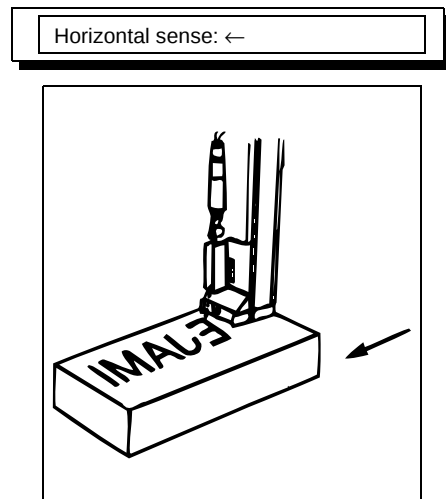
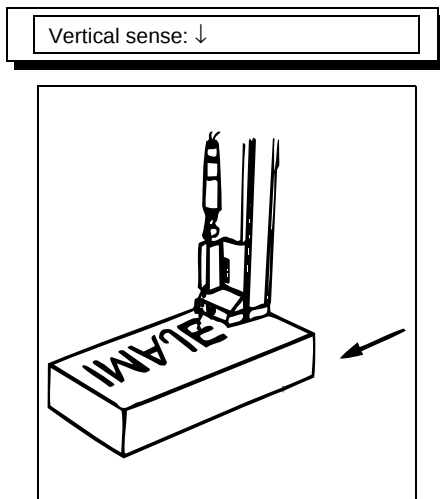


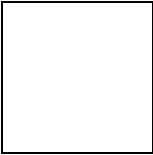
(3 times)

Display



Modify using





M13

PRINTING: Trigger mode

Role

This function is used to define the printing trigger mode.

- In "Manual Object" mode, printing is triggered by pressing the  bar.
- In "Manual Auto" mode, continuous printing is triggered by pressing the  bar.
- Printing is stopped by pressing the  bar again.
- In "Object" mode, printing is triggered by the object detection cell.
- In "Auto" mode, the message is printed continuously while the object detection cell is active.

NOTE

The interval between messages is set by the interval parameter in the Printing delay function.

Access



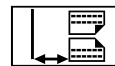
Display the message number by pressing



or



then



(5 times)

Display

Modify using



Choices

Mode: "Manual Object" (default mode)
Mode: "Manual Auto"
Mode: Object
Mode: Auto

M14

BOLDERIZATION

Role

This function is used to increase the thickness of characters by assigning them an expansion or "bolderization" coefficient from 1 to 9.

These coefficients can be assigned to one or more characters, and several coefficients can be used in a single message.

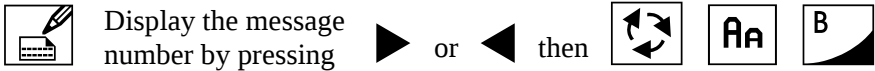
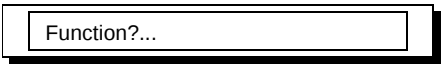
NOTE

Changing the bolderization coefficient when creating or modifying a message affects all characters entered after making the change.

NOTE

The bolderization coefficient cannot be applied to a bar code sequence

Access



Display



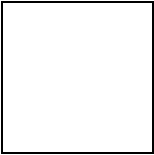
Modify using

Numeric keys.

Exit using

Choices

From 1 to 9.



M15

FONTS (MATRIX): Changing

Role

This function can be used to list all fonts present in the printer and select those used to compose the message.

Access

Function?...



Display the message
number by pressing



or



then



Display

Font: R 07 x 06: 053

R or L depending on configuration

07 = number of dots per frame

06 = number of trames per character

053 = character generator number

001 to 200 = generator number for fonts in the Imaje catalog

201 to 210 = generator number for non-catalog fonts

241 to 255 = generator number reserved for logos, never displayed in this function.

Modify using



then



to confirm the change of font.

The change only affects characters entered after the change.

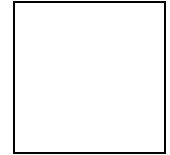
Choices

Fonts available in the printer.

IMPORTANT

Only fonts compatible with the message are displayed.

For example, only 7 x 6 fonts are displayed for single-line messages, whereas 7 x 6 and 16 x 12 fonts are displayed for double-line messages.



M16

BAR CODES: Composing and inserting in the message

Role

This function is used to insert a bar code sequence in a message. The height of the bar code frames is equal to the height of the last font selected. The bar code type and parameters are defined in the "Bar code: type, etc." function.

Access



Display the message number by pressing



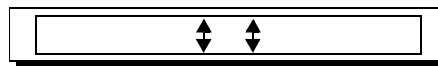
or



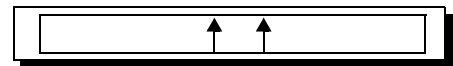
then



Display



For 2/5 interleaved code

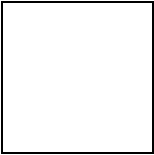


For code 39

Choices

Enter the characters to be coded.

- 2/5 interleaved codes can only be used to encode numerical characters.
- Code 39 can be used to encode alphabetic and numerical characters as well as the following symbols: =, /, - and %.
- Maximum number of characters: 32 (including check byte).



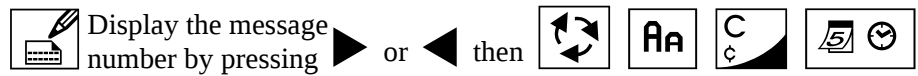
M17

BAR CODES: Inserting autodating

Role

This function is used to insert autodating information in the bar code text.

Access



Display

Modify using

Enter the character representing the autodating element to be inserted (see **M31** for the correspondence).

Choices

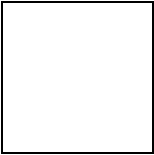
Numerical autodating fields for 2/5 interleaved codes.
Numerical and alphabetic characters for Code 39.

M18**BAR CODES: Inserting a counter****Role**

This function can be used to insert a counter in the bar code text.

AccessA rectangular dialog box with a thin border. Inside, there is a text field containing the placeholder text "Function?...".**Display**A rectangular display area with a thin border. Inside, there is a text field containing the text "CCC" with double-headed vertical arrows on either side, indicating it is a counter.**Choices**

Counter with parameters defined in the  +  function.



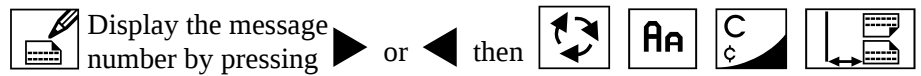
M19

BAR CODES: Type

Role

This function is used to define the parameters of the bar code.

Access



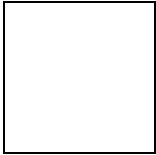
Display

Modify using



Choices

2/5 interleaved code, Code 39.



M20

BAR CODES: Control word

Role

The control word is used to ensure that a bar code has been read correctly. It corresponds to a digit located at the end of the code, identifying the parity of the preceding coded text. It may optionally be inserted in the text.

Access

Bar code type:

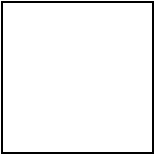
Display

Control word: yes

Modify using

Choices

Yes / No.



M21

BAR CODES: Bar / space ratio

Role

This function is used to adjust the readability of the code.

Access

Control word:

Display

Ratio: nb: 1 wb: 3 ns: 1 ws: 3

Narrow bars (nb), wide bars (wb), narrow spaces (ns) and wide spaces (ws).

Modify using

Numeric key to modify the digit at the cursor position.

Choices

nb: 1 to 7 ns: 1 to 7 wb: 1 to 9 ws: 1 to 9

M22**LOGO: Inserting****Role**

This function can be used to insert from 1 to 15 predefined custom logos into the message.

For further details, contact your usual Imaje correspondent.

Access



Display the message
number by pressing



or



then

**Display**

Modify using

Enter the logo number using numeric keys 1 to 9 and alphabetic keys A to F. The logo must be inserted in line 1 of a double-line message.

After inserting logo 5, for example, the following is displayed:

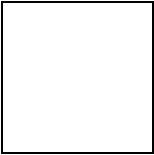
NOTE

The error message "double line required" is displayed if the logo is inserted into a single-line message. The error message "insert code on line 1" (upper line) is displayed if the logo is inserted in line 2 (lower line).

Choices

Up to 15 different logos.

- Logos 1 to 9, press the numeric keys.
- Logo 10, press A.
- Logo 11, press B.
- Logo 12, press C.
- Logo 13, press D.
- Logo 14, press E.
- Logo 15, press F.



M23

TABULATION

Role

This function is used to insert empty frames between characters in a message.

Access



Display the message
number by pressing



or



then



Display

Modify using

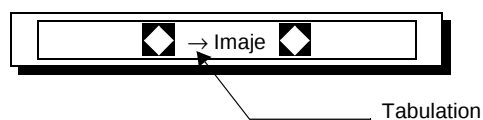
Numeric keys.

Choices

0 to 255 frames.

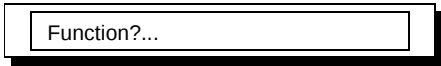
Display

A tabulation in the message is represented by:



M24**COUNTER BATCH****Role**

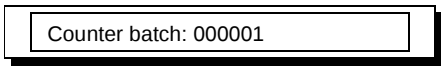
This function is used to determine the number of messages in a batch. The counter changes when the batch value is reached.

AccessFunction?...

Display the message
number by pressing



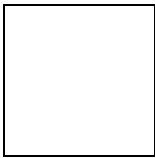
or

**Display**Counter batch: 000001**Modify using**

+ Numeric keys.

Choices

000001 to 999999.



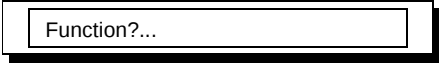
M25

STEP COUNTER

Role

This function is used to determine the value by which the counter is incremented.

Access

Function?...

Display the message
number by pressing



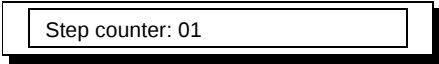
or



then



Display

Step counter: 01

Modify using



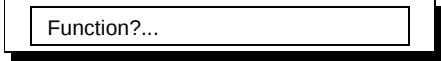
+ Numeric keys.

Choices

01 to 99.

M26**START VALUE****Role**

This function is used to determine the initial value of the counter. If the start value is greater than the final value, the counter counts backwards.

Access

 Function?...


Display the message
number by pressing



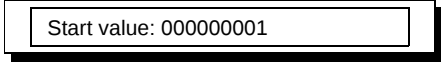
or



then



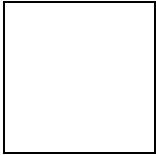
twice

Display

 Start value: 000000001
Modify using

+ Numeric keys.

Choices

000000001 to 999999999.



M27

FINAL VALUE

Role

This function is used to determine the final value of the counter. If the start value is greater than the final value, the counter counts backwards.

Access



Display the message
number by pressing



or

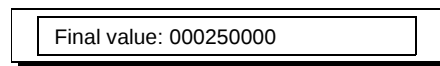


then



3 times

Display



Modify using



+ Numeric keys.

Choices

000000001 to 999999999.

M28**INSERTING INTO MESSAGE****Role**

This function is used to insert the contents of a counter into a message.

Access

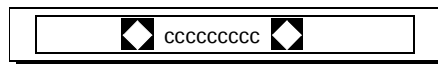
Display the message
number by pressing



or



then

**Display****Modify using**

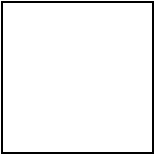
Insert the counter into the message by pressing .

Choices

The counter may be inserted into the message several times in character mode or bar code mode.

NOTE

The content of the counter is considered as a whole character in the message. It can be bolderized, displayed in different fonts or converted into a bar code.



M29

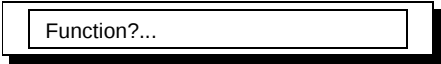
POSTDATE

Role

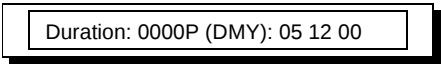
This function is used to program the number of days difference between the current date and the desired postdate.

NOTE If the printer is fitted with the programmable offset Julian calendar option, postdates are not shown.

Access



Display



Modify using



Choices

0000 to 9999 days.

M30**TIME CODE****Role**

This function is used to define the parameters of the time code.

Access


Display the message
number by pressing



or



then

**Display**

S : 08:00 = time code start time

I : 00:01 = interval between each code change

01 : type of code to print

Modify using

to move the cursor to "S", "I" or code type.



+ numeric keys for "S" and "I".



for the type of code to print.

Choices

S = 00:00 to 23:59

I = 00:01 to 23:59

01 = numeric code from 01 to 24

A = alphabetic code from A to Z

A-O-I = alphabetic code from A to Z, excluding O and I.

Example:

Start time = 05:00

Interval = 8:00

Code = A

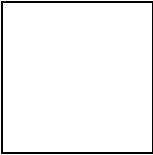
The time code printed is:

from 05:00 to 12:59: A

from 13:00 to 20:59: B

from 21:00 to 04:59: C

etc.



M31

TIME, DATE, POSTDATE, TIME CODE:

Inserting into the message

Role

This function is used to insert autodating elements (time, date, postdate, time code) into the message. The autodating elements are displayed as lower case letters as shown below. When they are printed the actual values are inserted. A single element can be inserted several times.

REMINDER	See autodating programming in initial programming section.
----------	--

Access

Function?...



Display the message
number by pressing



or



then



Display

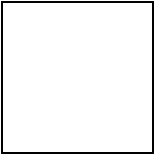
Variable: (H N S D M Y W X Z P J E)

Modify using

Enter the characters shown in brackets on the display.

Choices

H	= hour, represented by "hh" in the message.
N	= minutes, represented by "nn" in the message.
S	= seconds, represented by "ss" in the message.
D	= day of the month, "dd" in the message.
M	= month, "mm" in the message for two-digit months and "mom" for three-letter months (the format is chosen when setting autodating parameters during initial programming).
Y	= year, "yy" in the message.
W	= week number, "ww" in the message.
X	= day of the week number, "x" in the message.
Z	= last digit of the year, "y" in the message.
P + D	= postday, "pd" in the message
P + M	= postmonth, "pm" in the message for two-digit months and "pmo" for three-letter months.
P + Y	= postyear, "py" in the message.
P + J	= postdate in the Julian calendar (0 to 365 days), "pju" in the message.
J	= julian day of the year (day 0 to 365), "jjj" in the message.
E	= time code, "e" in the message for alphabetic time codes, "ee" for numeric time codes.



M32

DIN CHARACTERS (Option)

Role

The part of the message or the message created with this option will be printed as follows:

123ABC CBA321

NOTE

If you also have a "chimney" font (Font menu), the print result is as follows:

└─ 1 2 3 A B C C B A 3 2 1 ─┘

Access

Function ?...



Display the message
number by pressing



or



then



Display

DIN : yes

Modify using



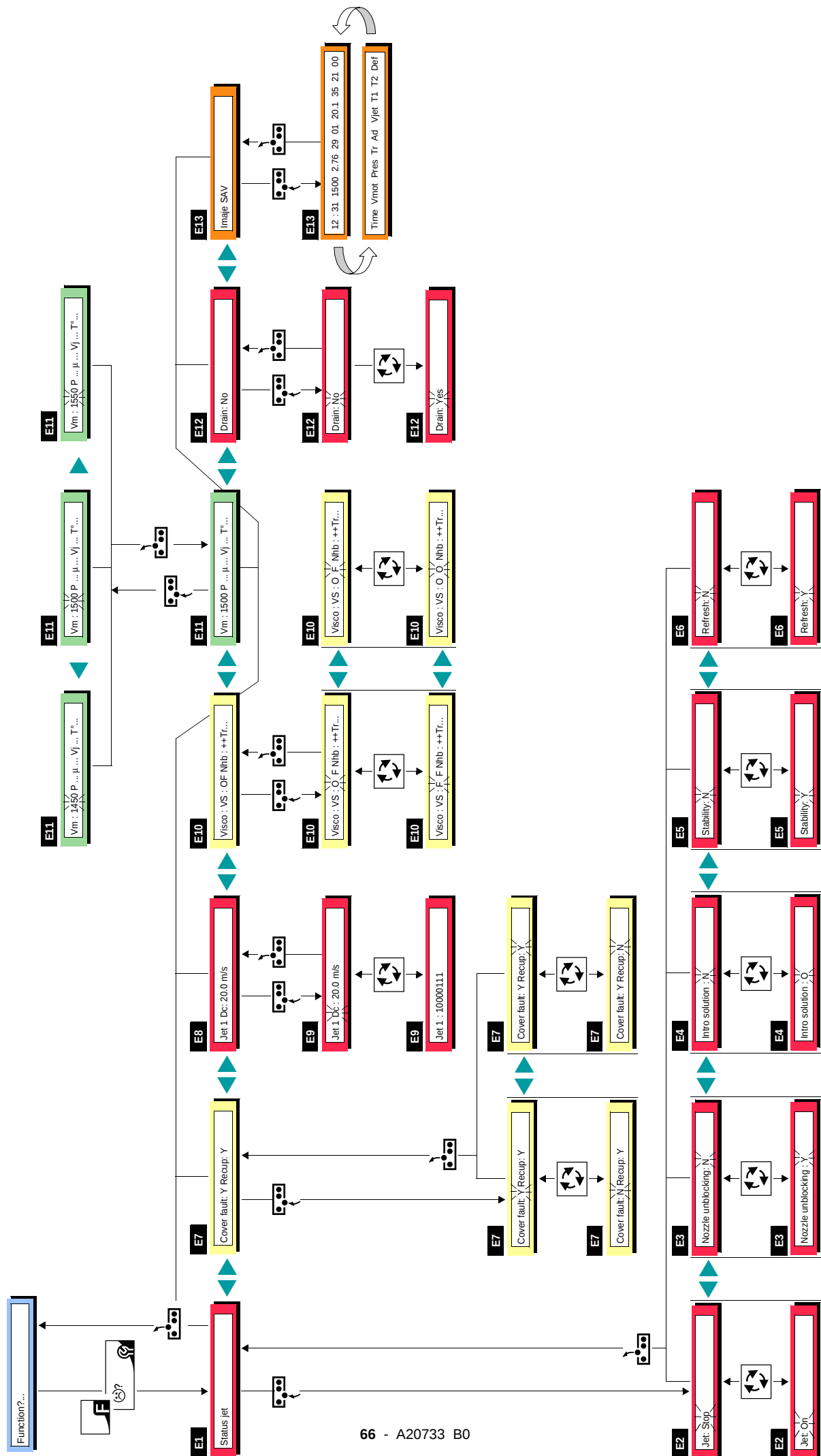
Choices

Yes or no.

Contents

1	Introduction	67
2	Servicing and maintenance function	67
3	Preventive maintenance procedures	84
3.1	General preventive maintenance table	84
3.2	Shutdown and start-up procedures	85

Servicing and Troubleshooting Summary Table



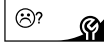
1 Introduction

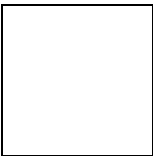
The aim of this section is to provide all the information needed to perform servicing correctly.

All the procedures given in this chapter are standard operations which must be performed correctly for optimum printer operation.

2 Servicing and maintenance function

The servicing and maintenance function allows the operator to retrieve information about printer operation and control certain specific elements of the head or ink circuit.

This function is accessed by pressing   in turn.



E1

STATUS JET

Role This function gives access to the various instructions for jet servicing and maintenance operations.

Access

Function?...

F

⊖?

⊕

Display

Status jet

Modify using

⊖ ⊕ ⊖

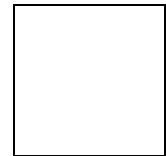
⬇

Choices

Stop/Start
Nozzle unblocking
Intro. solution
Stability
Refresh

IMPORTANT

All these instructions are independent of each other. However in some cases it is recommended that they be performed in order: [Nozzle unblocking], [Intro. solution], [Stability].



E2

JET: Stop/Start

Role

This instruction is a sub-function of the [Status jet] function

It is used to stop or start the jet.

The jet is operational after a stabilization phase lasting approx. 50 seconds (green jet indicator lit steadily).

Access

Status jet



Display

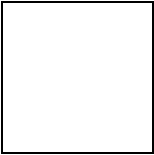
Jet: -Stop -

Modify using



Choices

Stop or Start.



E3

NOZZLE UNBLOCKING

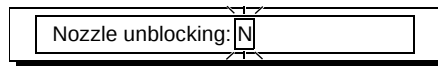
Role

This instruction is a sub-function of the [Status jet] function.
It is used when the jet is missing or deviated out of the recuperation gutter.

Access



Display



Modify using



Choices

N = no or Y = yes

Procedure

- Validate the [Nozzle unblocking] function.
- Close the recuperation gutter (Figure 1).
- Spray cleaning solution onto the nozzle using the cleaning bottle (Figure 2).
- Stop the [Nozzle unblocking] function after approx. 30 seconds by pressing .

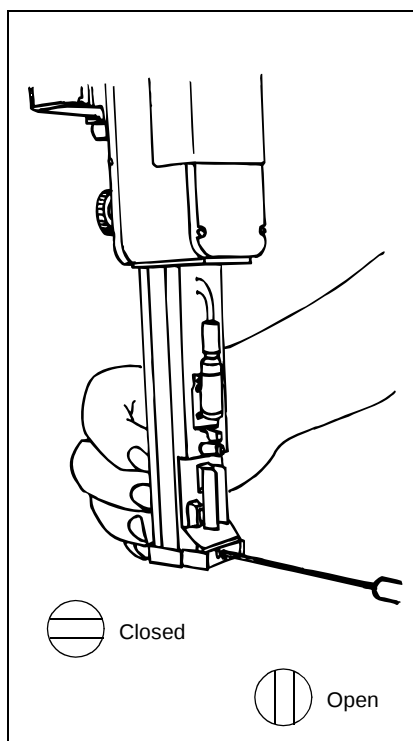


Figure 1

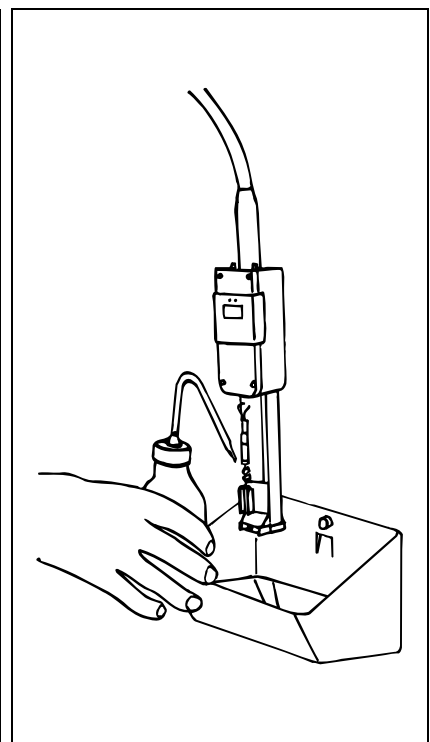
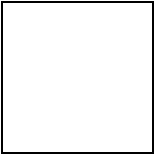


Figure 2



E4

INTRODUCING CLEANING SOLUTION

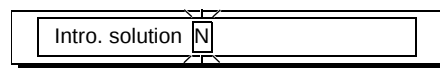
Role

This instruction is a sub-function of the [Status jet] function.
It is used to clean the nozzle and the inside of the cannon, by provoking a pressure drop inside the cannon causing cleaning solution to be sucked in through the ejection nozzle.

Access



Display



Modify using



Choices

N = no or Y = yes

Procedure

- Close the recuperation gutter (Figure 1).
- Validate the [Intro. solution] function.
- Pour cleaning solution onto the cannon for 30 seconds (Figure 2).
- Stop the [Intro. solution] function by pressing .
- Open the recuperation gutter (Figure 1).
- Dry the head (Figure 3).

1	Items to be dried
2	Head drying pump

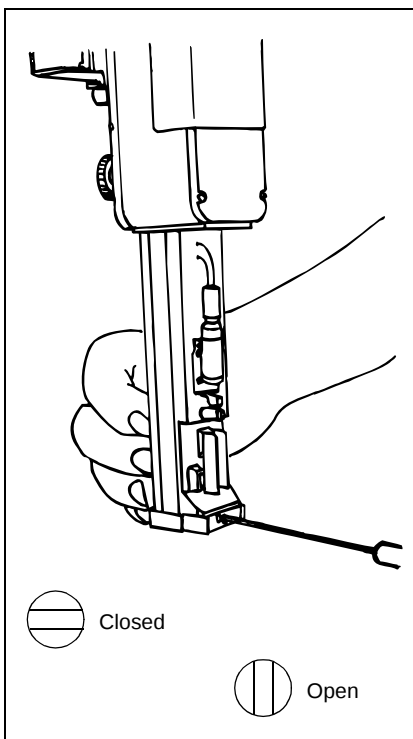


Figure 1

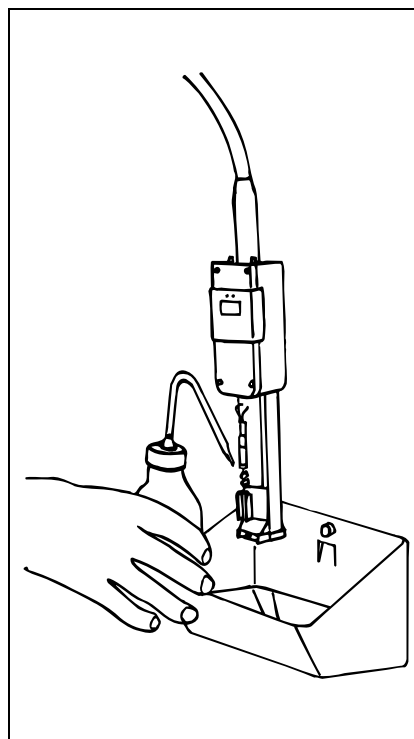


Figure 2

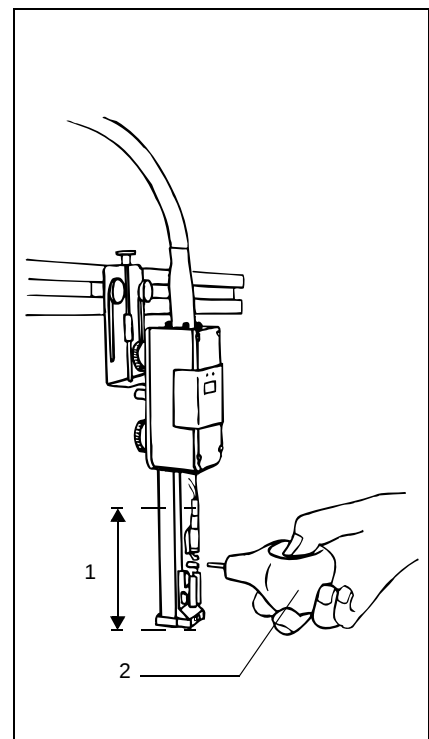
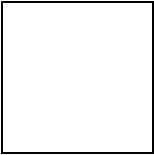


Figure 3



E5

STABILITY

Role

This instruction is a sub-function of the [Status jet] function.
It is used to stabilize the jet in the gutter. This is checked visually when the function is selected using the eyeglass supplied in the servicing kit.

Access



Display



Modify using



Choices

N = no or Y = yes

Procedure

- Validate the [Stability] function.
- Check the position of the jet in the gutter using the eyeglass (Figure 1).

If the jet is stable in the gutter:

- Stop the [Stability] function by pressing .
- Clean the head.

If the jet is unstable (gutter particularly dirty or jet permanently deviated):

- Repeat the [Nozzle unblocking] and/or [Intro. solution] procedures then check the [Stability] again.

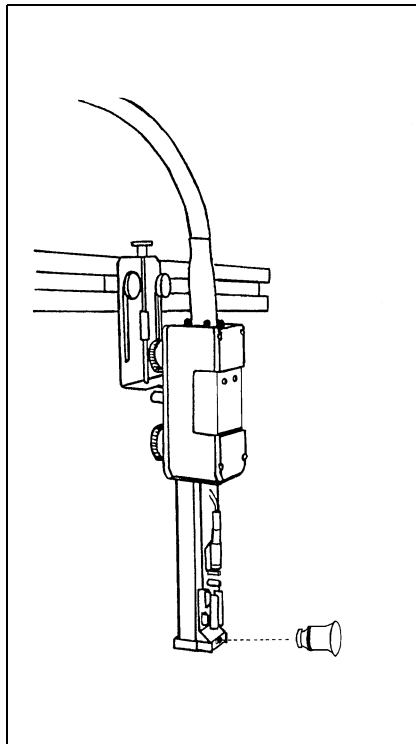
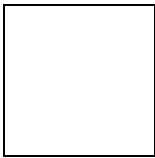


Figure 1



E6

Ink refresh

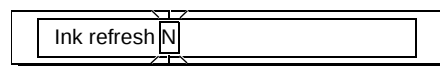
Role

This instruction is a sub-function of the [Status jet] function.
It homogenizes the ink by circulating it in all pipes in the circuit. It is used after a prolonged stop (several days) or after replacing the ink).

Access



Display



Modify using



Choices

N = no or Y = yes

E7

INHIBITING COVER AND VACUUM FAULTS

Role

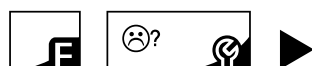
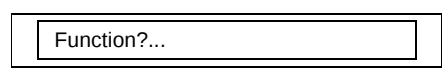
For safety reasons, the printer continuously monitors the presence of the head cover and recuperation of the jet in the gutter (if the jet is operating).

Opening the head cover immediately cuts off the high voltage applied to the deflection plates.

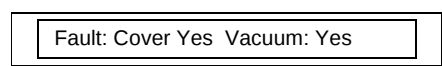
If incorrect ink recuperation in the gutter is detected, the jet is immediately stopped. If the jet has been deviated, this avoids dirtying the head or the products too much.

These two faults are signalled by red indicators on the operator interface. Certain servicing actions require one of these faults to be inhibited.

Access



Display



Modify using



to move from one to the other.

When the printer is started up, cover and vacuum detection are systematically enabled.

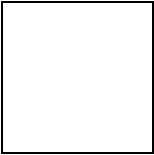
Choices

Yes = Cover or vacuum faults handled normally.

No = Cover or vacuum faults inhibited.

Exit using





Servicing

E8

JET: Speed

Role

This function is used to display the jet speed.

Access

Function?...



(twice)

Display

If the jet is operating:

Jet 1: Dc 20.0 m/s

If the jet is stopped:

Jet 1: Dc 00.0 m/s

Modify using

Impossible.

E9

JET: Drop control

IMPORTANT

Selecting this function stops the current printing process. The green jet control indicator flashes throughout the display phase.

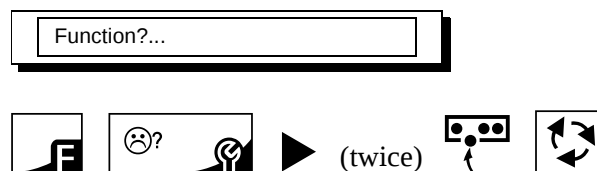
Role

This function displays the quality of the drop charge. It is one of the main characteristics of the ink jet printing principle. The drop charge is determined by the jet break-off point and the ink quality.

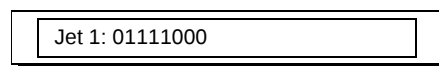
The check is correct if "1" is displayed consistently three or four times in succession.

e.g. "00111100" correct
 "11100001" correct
 "01010011" incorrect

Access



Display



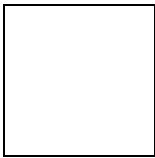
Jet 1: 01111000 = numerical expression of drop charge quality for the jet.

Modify using

Break point adjustment.

Stop function using





E10

INK VISCOSITY CHECK

Role

This function displays the viscosity monitoring data.

The printer continually monitors and controls the ink viscosity to ensure that the break-off point is correct.

Access

Function?...



(3 times)

Display

Visco: PS:OC Lhl:++ Ft:31s → 29s 07add

Number of additive additions since start-up.

Viscometer filling time reference value.

Actual value of viscometer filling time. This value must be less than or equal to the reference value.

Viscometer high and low level.

Electrovalve opening and closing

Additive electrovalve.

Viscometer electrovalve

Viscometer level:

Nhb: ++

Low level: + reached by ink, - not reached by ink.

High level: + reached by ink, - not reached by ink.

Viscometer low level.

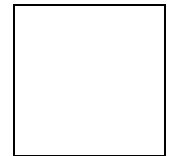
Viscometer high level

Lhl: ++ Viscometer full

Lhl: - + Viscometer filling or emptying

Lhl: - - Viscometer empty

Only the electrovalve status can be modified manually to check that the entire viscometer circuit is operating correctly.



Modify using



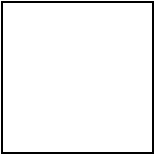
or



to change from one electrovalve to another

Stop function using





E11

PRINTER OPERATING PARAMETERS

Role

This function displays the printer's five main operating parameters.

Access



Display



Vm Pressure motor speed expressed in revolutions per minute (rpm).

P Operating pressure expressed in bar (b).

μ Ink viscosity expressed in centipoise (cPo).

Vj Jet speed expressed in meters per second (m/s).

T: 26 Electronic compartment temperature expressed in degrees Celsius (°C).

20 Ink temperature expressed in Celsius (°C)
(only for certain ink types).

Modify motor speed using



or



to reduce or increase motor speed.

E12

DRAINING

After connecting the draining tool, this function can be used to monitor the operation of the automatic draining cycle

E13

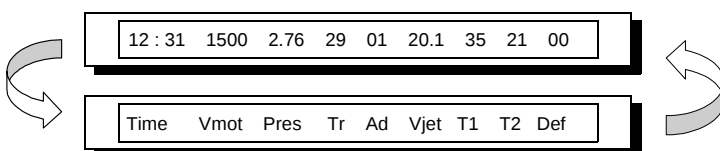
IMAGE SAV

This function displays a recorded history of the printer's operating parameters. Records are at five-minute intervals, and several hours of operation are stored.

The following parameters are stored

- Time
- Vmot: Motor speed (rpm)
- Pres: Ink pressure (bar)
- Tr: Viscometer filling time (s)
- Ad: Number of additive additions
- Vjet: Jet speed (m/s)
- T1: Electronic circuit temperature (°C)
- T2: Ink circuit temperature (°C)
- Def: Hexadecimal value of "general faults" byte.

The two lines below are displayed alternately:



The first record displayed corresponds to the most recent machine status.

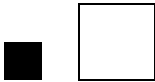
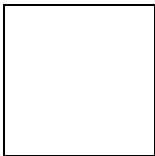
◀ Displays previous records.

▶ Displays subsequent records.

Contents of "General fault" byte:

Bit 7 Ink pigment circuit
 Bit 6 Motor cycle
 Bit 5 Head 2 unserviceable
 Bit 4 Head 1 unserviceable

Bit 3 Memory lost
 Bit 2 Hard CPU
 Bit 1 Pressure
 Bit 0 Ink level low

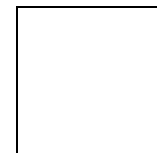


3 Preventive maintenance procedures

The purpose of this section is to specify the procedures to be followed regularly. It also explains the printer shutdown procedures. These procedures depend on the expected duration of the shutdown, and the restarting procedures are adapted accordingly.

3.1 General preventive maintenance table

FREQUENCY	ACTION	DURATION	COMMENT
When clogging is liable to cause malfunctions or poor print quality.	- Clean the print head.	3 mn	See head cleaning procedure. IMPORTANT: some inks require special cleaning procedures as set out on the ink data sheet.
Every 2000 hours.	- Rinse the printer. - Change the ink filter cartridge.	2 hours 15 mn	
Every 6 months.	- Change the air filter cartridge.	15 mn	



3.2 Shutdown and start-up procedures

3.2.1 General table

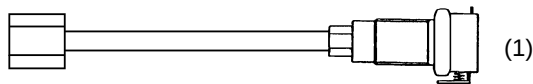
DURATION	SHUTDOWN	RESTART
< 1 week	ON/OFF	ON/OFF
1 week to 2 weeks	Rinse the head and conduit assembly. See page 86. OR ON/OFF daily.	ON/OFF + refresh (5 mins). See page 87. ON/OFF daily + operate jet for 1 hour.
2 weeks to 3 months	Rinse the printer automatically with the draining/rinsing tool. See pages 89 and 90. OR Rinse the printer manually (once). See page 87.	Replace the ink filter cartridge and refill with ink. See page 91. Drain, exchange the ink filter cartridge and refill with ink. See page 88.
Shutdown for more than 3 months	Rinse the printer automatically with the draining/rinsing tool. See pages 89 and 90. OR Rinse the printer manually (twice). See page 87.	Replace the ink filter cartridge and refill with ink. See page 91. Drain, rinse, drain again, exchange the ink filter cartridge and refill with ink. See page 88.
NOTE	A shutdown of any length can be transformed into a series of short stops provided that the printer is operated daily, with the jet running, for at least one hour.	

3.2.2 Rinse the conduit and head assembly

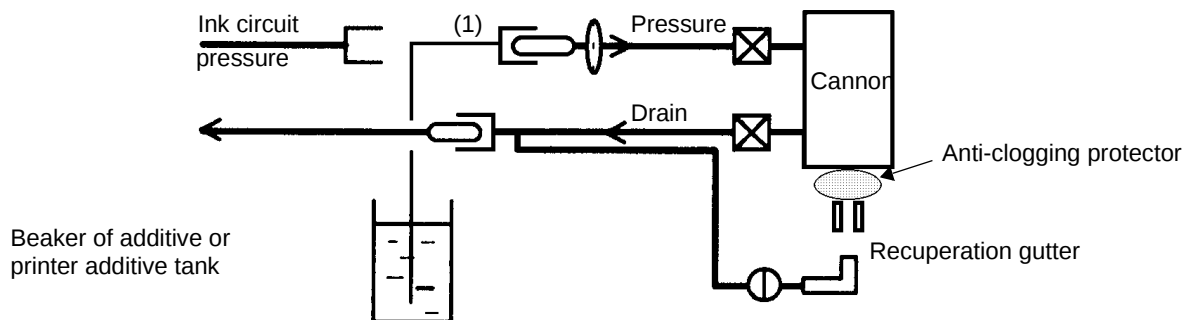
Circulating clean additive through all pipes in the head and conduit ensures that they are perfectly clean and guarantees that the printer can be restarted easily after being shut down for between one and two weeks.

The procedure is as follows:

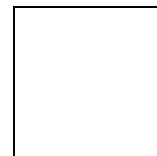
- 1- With the printer running and the jet idle, make the machine take in additive from the recuperation gutter for 20 seconds.
- 2- Stop the printer.
- 3- Close the recuperation gutter.
- 4- Uncouple the pressure connector in the hydraulic compartment.
- 5- Connect the rinsing connector (1) to the conduit pressure pipe next to the head filter.



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



- 7- Block the nozzle with an anti-clogging protector.
- 8- Start up the printer and enable the [Refresh] function for around 30 seconds.
- 9- Enable the [Nozzle unblocking] function for around 20 seconds.
- 10- Shut down the printer and wait for it to stop completely.
- 11- Restore the initial hydraulic connections.



3.2.3 Restarting the printer after rinsing the conduit and head

Restart the printer simply by pressing .

However, we recommend checking that the ink jet is present and stable.

- It may be necessary to use the [Stability] function.
- It is essential to use the [Refresh] function for 5 minutes.

NOTE

Remember to open the recuperation gutter.

3.2.4 Rinsing the printer manually

This procedure involves five phases:

- 1) Drain.
- 2) Rinse the entire ink circuit.
- 3) Drain.
- 4) Rinse the entire ink circuit.
- 5) Rinse the conduit and head.

Draining:

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

Use the cleaning solution spray bottle to spray the inside of the ink tank to remove traces of ink as far as possible from the basket at the bottom of the tank and in the constant level tube. Leave to drain completely.

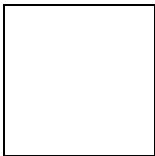
Rinsing the ink circuit:

After replacing the drain plugs, pour one liter of cleaning solution into the ink tank. Start the printer and enable the refresh function for 20 minutes.

Rinsing the conduit and head:

See previous procedure.

Leave the printer full of cleaning solution.



3.2.5 Restarting the printer after manual rinsing

For a shutdown of less than three months:

The procedure involves three phases:

- 1) Drain.
- 2) Change the filter cartridge.
- 3) Refill with ink.

For a shutdown of more than three months:

The procedure involves five phases:

- 1) Drain.
- 2) Completely rinse the ink cartridge.
- 3) Drain.
- 4) Change the filter cartridge.
- 5) Refill with ink.

Draining:

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

Use the cleaning solution spray bottle to spray the inside of the ink tank to remove traces of ink as far as possible from the basket at the bottom of the tank and in the constant level tube. Leave to drain completely.

Replacing the ink filter cartridge:

Open the main filter, remove the old cartridge, thoroughly clean the inside of the casing with fresh cleaning solution, fit a new filter cartridge and reassemble the filter.

Refilling with ink:

After replacing all the drain plugs, fill the ink tank with one liter of ink.

Check the additive level.

Start the printer, checking that the ink jet is present and stable.

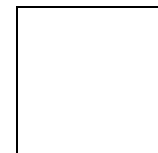
- It may be necessary to use the [Stability] function.

- It is essential to use the [Refresh] function for 5 minutes.

Rinsing the entire ink circuit:

After replacing the drain plugs, pour one liter of cleaning solution into the ink tank.

Start the printer and enable the refresh function for 20 minutes.



3.2.6 Rinsing the printer with the draining/rinsing tool

This procedure involves two phases:

- 1) Manually rinsing the recuperation gutter.
- 2) Automatically rinsing the printer.

Manual rinsing of the recuperation gutter

With the printer running and the jet idle, make the machine take in additive from the recuperation gutter for 20 seconds

Stop the printer and unplug it from the mains.

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

Automatic rinsing of the printer

Disconnect the backplane ribbon cable from the industrial interface board.

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

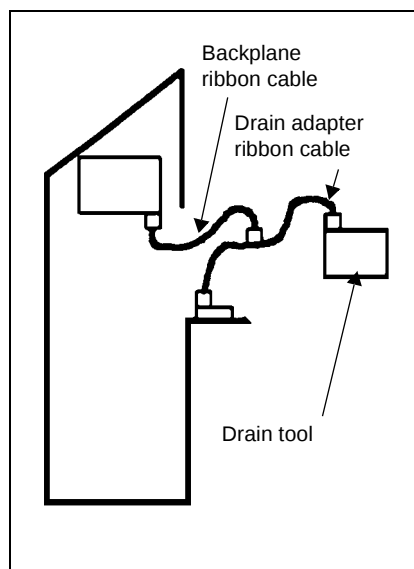
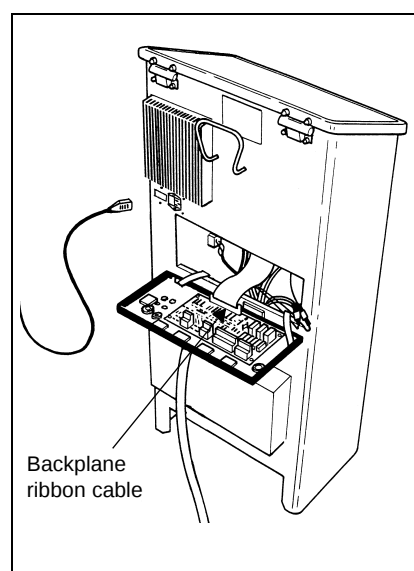
Disconnect the self-closing quick-action pressure connector then fit the rinsing connector (see hydraulic diagram)

Connect the quick-action connector from the drain tool to the ink circuit pressure outlet and place the second hose from the tool into an empty 5-liter tank.

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

Place half a liter of additive in the ink tank, and two liters of additive in the additive tank.

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



Remove and clean the head filter, then replace it.

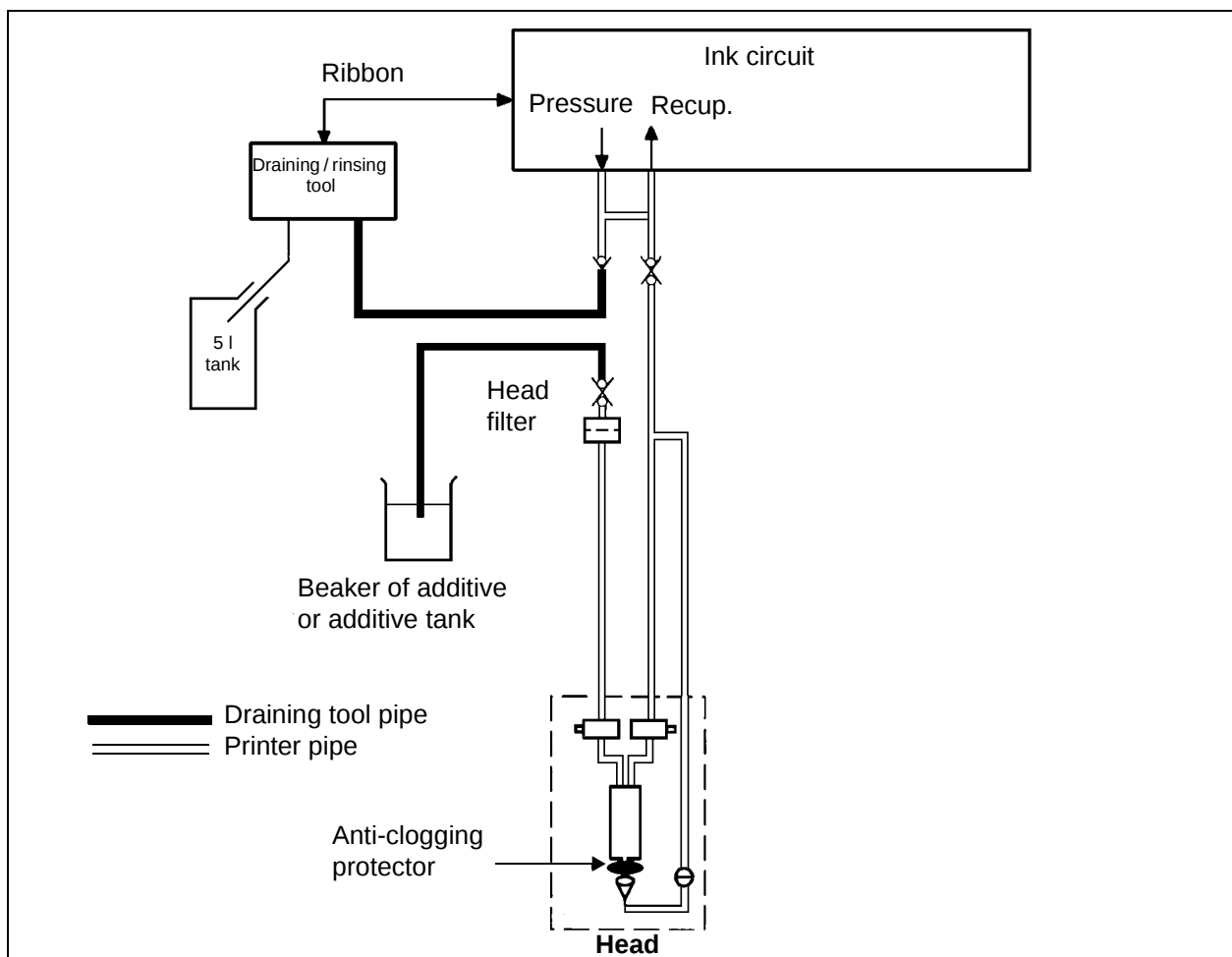
Start the printer. The printer automatically enters "draining" mode and several cleaning, rinsing and draining operations are performed, after which the printer stops automatically.

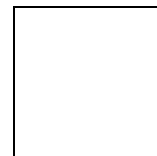
Validate the [Draining] function ( , **E12**) to monitor the progress of the automatic draining cycle.

Wait until the printer stops.

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

Figure 1: Hydraulic diagram





3.2.7 Restarting the printer after rinsing with the tool

This procedure involves two phases:

- 1) Replacing the ink filter cartridge.
- 2) Refilling with ink.

Replacing the ink filter cartridge:

Open the main filter, remove the old cartridge, thoroughly clean the inside of the casing with fresh cleaning solution, fit a new filter cartridge and reassemble the filter.

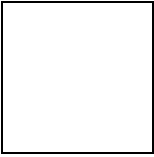
Refilling with ink:

After replacing all the drain plugs, fill the ink tank with one liter of ink.

Check the additive level.

Start the printer, checking that the ink jet is present and stable.

- It may be necessary to use the [Stability] function.
- It is essential to use the [Refresh] function for 5 minutes.

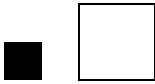
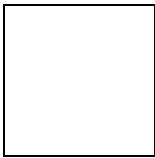


Servicing

NOTES

Contents

1	Introduction	94
2	Preliminary checks	95
2.1	Appearance of ink circuit	96
2.2	Appearance of the electronic compartment and industrial interface board	98
2.3	Checking the printer's general operating parameters	99
3	Help with diagnostics	100
3.1	Introduction	100
3.2	At printer start-up	101
3.3	At jet start-up	103
3.4	During printing	104



1 Introduction

This chapter forms a troubleshooting guide to help users search for the origin of a fault in a quick, logical way.

The search starts with a simple diagnosis of the fault, without disassembling any parts, and is refined by a series of precise checks until the defective part is located.

This guide provides a directory of possible failures and actions to be taken to restore normal operation.

The only equipment required is the printer's maintenance kit.

2 Preliminary checks

All the searches for defective items in the sections below must be preceded by preliminary checks.

These checks allow problems such as dirty parts, ink leaks, faulty electric or hydraulic connections to be detected with the naked eye.

Stop the printer and disconnect it from the mains, then check the items below:

	Check	Type of problem
External appearance	Console and operator interface	Dents or cuts
	Print head	Dirty electrodes Damaged or incorrectly adjusted mechanical parts
	Connection of accessories	Disconnection Cuts
Appearance of ink circuit	Tanks	Tanks open or damaged Leaks Ink or additive tanks empty Appearance of ink (odor, consistency) Appearance of additive (odor, color)
	Hydraulic pipes and connections	Leak Pipes bent, damaged or cut
	Electrical connections	Faulty connections: - ink circuit loom - ink level detector (upper part of ink tank) - fan - viscometer - electrovalves
Electronic compartment	Boards present in electronic compartment	Board missing
	Connections in electronic compartment	Faulty connections: - on "Front panel" board - on "Motor control" board - on power supply board - on main board
Industrial interface compartment	Electrical connections accessible from rear panel	Faulty connections - conduit ribbon cable - EHT block to corresponding cables to conduit - industrial interface ribbon cable - terminal blocks on industrial interface board

2.1 Appearance of ink circuit

- Stop the printer and unplug it from the mains.
- Withdraw the ink circuit until it reaches the stops.
- Press the left and right stops simultaneously and pull.
- Remove the ink circuit and place it at the base of the console, taking care not to damage the electrical and hydraulic connections.

After the checks are complete, replace the ink circuit module in the console:

- Place the ink circuit module guides opposite the corresponding guides in the console.
- Press the left and right stops and push the module to the back of the console.

2.1.1 Ink circuit: S8 Classic

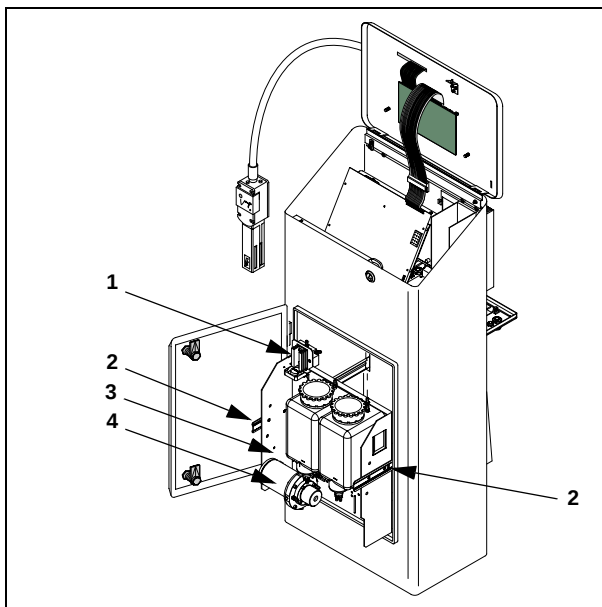


Figure 1: Front view of circuit

- | | |
|---|------------------------------|
| 1 | Condenser fan |
| 2 | Left and right stops |
| 3 | Nozzle rinsing electrovalves |
| 4 | Filter |

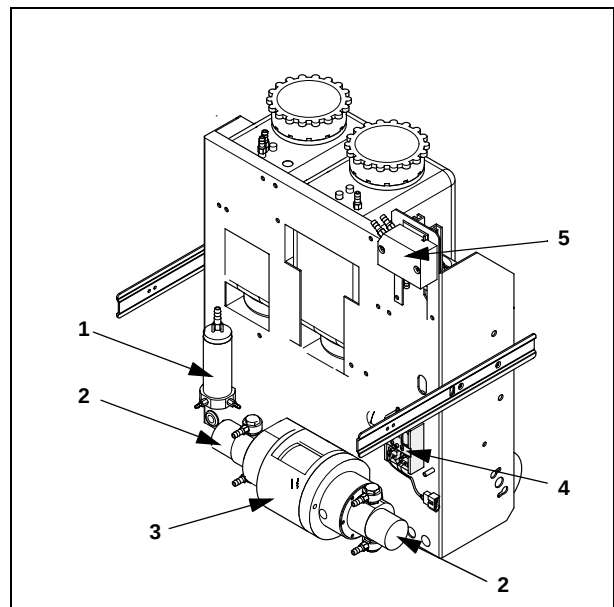
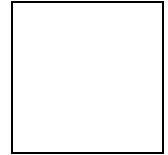


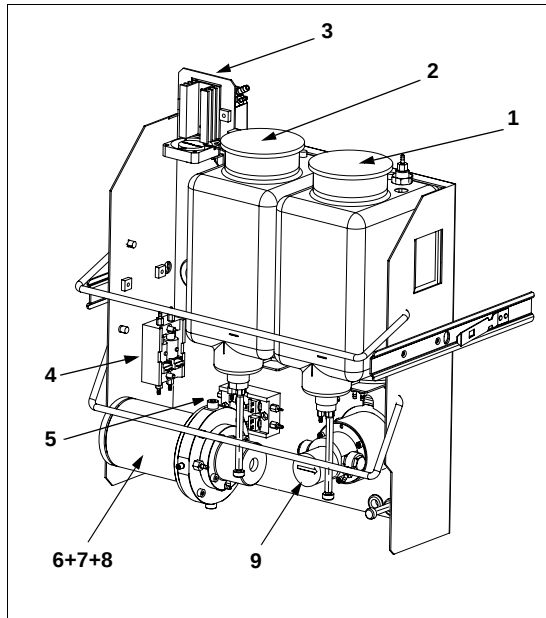
Figure 2: Rear view of circuit

- | | |
|---|---|
| 1 | Viscometer |
| 2 | Pumps |
| 3 | Motor |
| 4 | Viscometer drain and additive electrovalves |
| 5 | Condenser (option) |

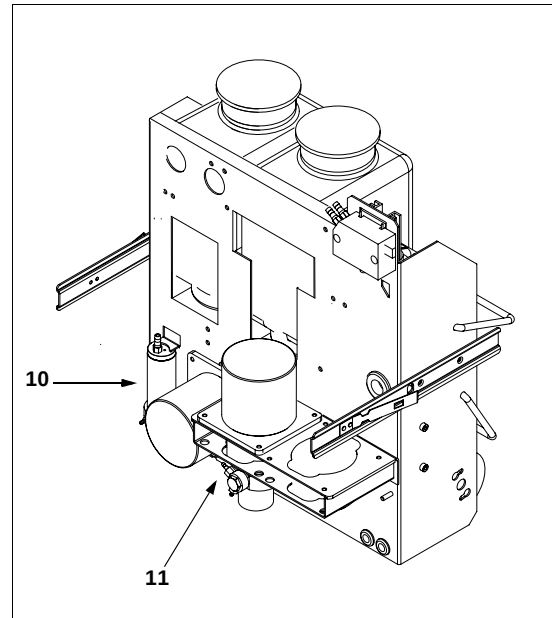


2.1.2 Ink circuit: S8 Egg Classic

Front view



Rear view



- | | |
|----|------------------------------------|
| 1 | Ink tank |
| 2 | Additive tank |
| 3 | Condenser with fan |
| 4 | Viscometer drain electrovalve |
| | Additive addition electrovalve |
| 5 | Nozzle rinsing electrovalves |
| 6 | Anti-pulse |
| 7 | Ink filter |
| 8 | Pressure / temperature sensor |
| 9 | Pressure pump / by-pass adjustment |
| 10 | Viscometer |
| 11 | Motor and vacuum pump for head 1 |

2.2 Appearance of the electronic compartment and industrial interface board

The location of the boards are shown in figures 1 and 2.

Figure 1: Console electronics compartment

- | | |
|---|-----------------------|
| 1 | Motor control board * |
| 2 | Power supply board |
| 3 | Main board |
| 4 | Front panel board |

* The motor control board is installed on main board connectors J13 and J21 on **S8 Egg Classic** printers.

Figure 2:Industrial interface board compartment

- | | |
|---|----------------------------|
| 1 | Industrial interface board |
| 2 | 3-pin socket with fuse |

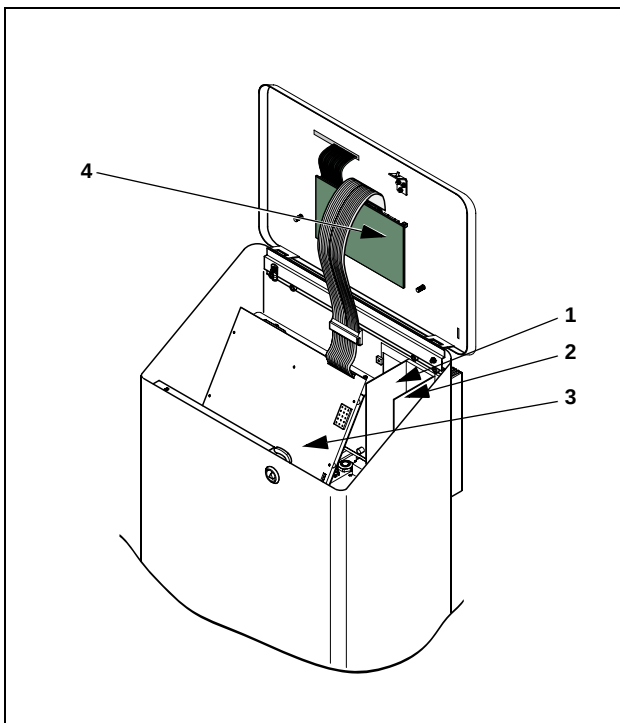


Figure 1

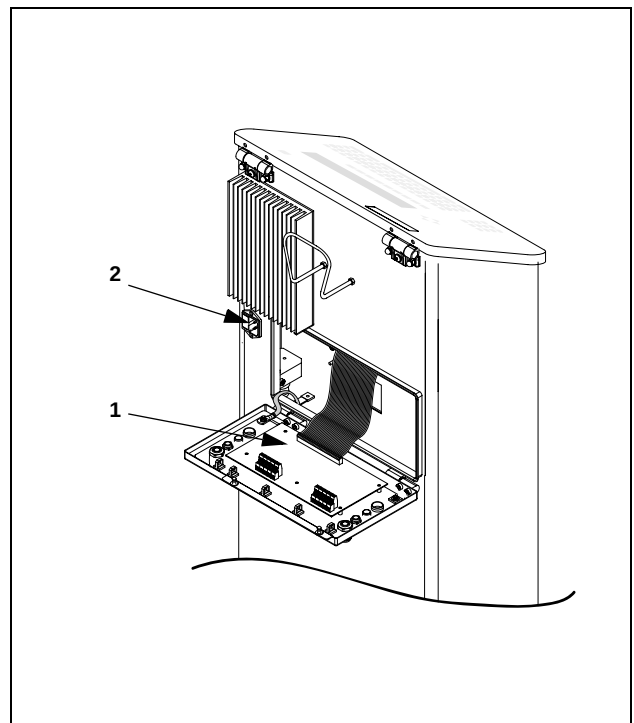
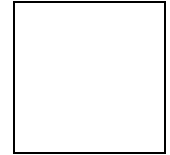


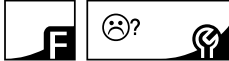
Figure 2



2.3 Checking the printer's general operating parameters

In addition to the steps described in the sections above, the printer's operating status should be checked.

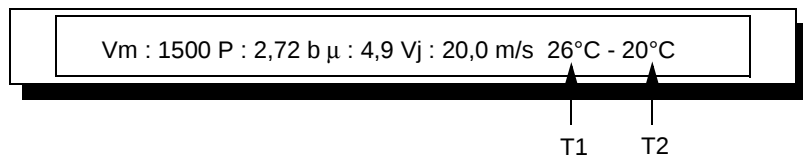
The information is available in the maintenance function, accessible by pressing

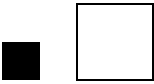
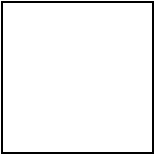


. The following parameters should be noted for subsequent investigation:

- the operating pressure P,
- the ink viscosity μ ,
- The jet speed V_j ,
- the electronic compartment temperature T1,
- the ink temperature T2 (only for certain ink types).

REMINDER: Typical display





3 Help with diagnostics

3.1 Introduction

This chapter contains tables with the following two columns:

- Anomalies observed (by the operator) or displayed (by the printer)
- Solutions

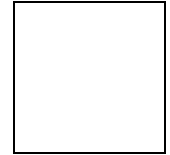
Each anomaly is identified in the tables by a number in bold.

Each anomaly may be resolved by several "Solutions".

After performing the preliminary checks, apply the first solution proposed which corresponds to the situation.

If the anomaly recurs, apply the next solution, and so on.

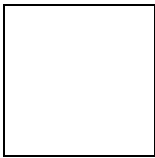
After the incident has been corrected, cancel the fault record by pressing  .

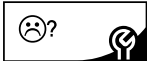
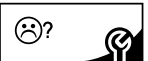


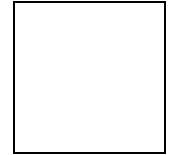
3.2 At printer start-up

Anomalies observed	Solutions
1- Orange mains power indicator off.	1a- Check mains supply. 1b- Replace 4 A delayed-action fuse (see corresponding procedure).
2- Operator interface indicators off but motor starts.	2a- Stop and restart the printer. 2b- The front panel board is faulty. Contact Imaje technical support.
3- Operator interface indicators off. Motor does not start. or Operator interface indicators on and remain steady. Motor does not start.	3a- Stop and restart the printer. 3b- Check the power supply voltage indicator LEDs on the main board. - If only two LEDs are lit, the power supply board is faulty. Contact Imaje technical support. - If all the LEDs are lit, either the main board or the motor control board is faulty. Contact Imaje technical support.
4- Red alarm / fault indicator lit.	4a- Perform autodiagnosis by pressing   .

Anomalies displayed	Solutions
5- Memory lost.	5a- Reprogram the printer then contact Imaje technical support.
6- CPU fault.	6a- Unplug the printer then plug back in and restart. 6b- If the fault persists, contact Imaje technical support.
7- Ink tank level low.	7a- Add ink to the corresponding tank (max. 1/2 tank). 7b- The main board may be faulty. Contact Imaje technical support.

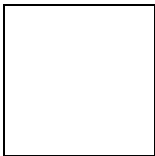


Anomalies displayed	Solutions
8- Additive tank level low or Additive tank empty or Solvent fault	8a- Add additive to the corresponding tank (max. 1/2 tank) 8b- Check that the additive addition electrovalve operates correctly ( ). Check the viscometer circuit. 8c- If the fault persists, contact Imaje technical support.
9- V.24 fault.	9a- Contact Imaje technical support.
10- Fault: °C	10a- The ambient temperature in the room where the printer is too high, causing the temperature in the electronic compartment to exceed 70°C. Modify the installation. 10b- The main board is faulty. Contact Imaje technical support.
11- Viscometer fault	11a- Check that the viscometer electrovalve operates correctly by monitoring viscometer level variations ( ). 11b- If the fault persists, contact Imaje technical support.
12- No message to print	12a- The printer is linked to an external controller and has not received a message to print. Check message transmission and content and check the link.
13- Unknown CG number	13a- The printer is linked to an external controller and the CG (character generator) number received is incorrect. Check the CG numbers in the printer and ensure that the data sent by the controller corresponds. IMPORTANT: the CG numbers are different on each line. 13b- If this fault occurs after resetting the main board, the message library must also be deleted ( ). 13c- The main board may be faulty. Contact Imaje technical support.
14- Fan fault	14a- Check that the fan at the bottom of the console is correctly connected and running. It must run continuously immediately after the printer starts up. 14b- The main board is faulty. Contact Imaje technical support.



3.3 At jet start-up

Anomalies displayed	Solutions
1- Cover missing	1a- Close the head cover or check that it is fully closed. 1b- The cover detector or the main board are faulty. Contact Imaje technical support.
2- EHT	2a- Carefully clean and dry the jet electrodes using the cleaning solution spray bottle and the head drying pump. 2b- Check that the ambient conditions (humidity, temperature) comply with the specifications given on the ink technical data sheet. If not, contact Imaje technical support to fit dry air head overpressure accessories. 2c- Check the electromagnetic environment around the head (interference). 2d- The main board is faulty. Contact Imaje technical support.
3- Gutter fault	3a- Check that the gutter is open . 3b- Clean the print head and the head cover. 3c- Restart the jet and observe it. 3d- If the jet is unstable or not in the gutter, enable the [Intro. solution], [Stability] and [Refresh] functions in turn. 3e- If the jet is missing, enable the [Nozzle unblocking], [Intro. solution], [Stability] and [Refresh] functions in turn. 3f- If the jet is still missing, check all the ink pressurization circuit parts (electrovalves, unions, hoses, pump, motor, ink filter, ink, etc.). 3g- If the jet is present and stable in the gutter, check all ink recuperation circuit parts (gutter, electrovalves, unions, hoses, pump, motor, etc.). 3h- Contact Imaje technical support.



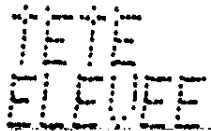
3.4 During printing

Anomalies displayed	Solutions
1- Jet 1: Phase detection	1a- Carefully clean and dry the jet electrodes using the cleaning solution spray bottle and the head drying pump. 1b- Check the printer's general operating parameters. 1c- Check that the ink used in the printer is valid: expiry date (see information on flask), replacement frequency, ambient conditions (see ink technical data sheet). 1d- Enable the [Refresh] function for 2 minutes. 1e- Check the electromagnetic environment around the head (interference). 1f- The main board is faulty. Contact Imaje technical support.
2- IMP does not reply	2a- The fault appears after a prolonged conveyor stoppage while printing a message in Tachy mode. Restart message printing. 2b- The fault persists after trying to print the message at constant speed. Contact Imaje technical support.
3- Printing speed	3a- Check the definition of the [Tachy division] or [Printing speed] parameters on the printer.

Anomalies

4- Poor print quality

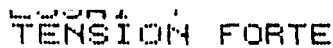
Example 1:



Example 2:



Example 3:

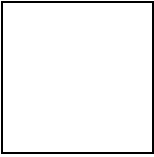


Example 4:



Solutions

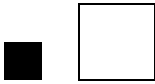
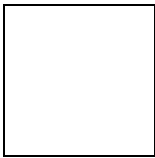
- 4a-** Clean the print head (including the cover) and check that there is nothing obstructing the path of the jet.
- 4b-** Check that the head support is stable (no vibrations).
- 4c-** Check the distance between the head and the object (examples 1 and 2).
- 4d-** Check that the jet is centered in the recuperation gutter (examples 3 and 4).
- 4e-** Check the viscosity reference time displayed on the printer and the theoretical viscosity given on the ink data sheet.
- 4f-** The head requires mechanical and/or electronic adjustment. Contact Imaje Technical Support.
- 4g-** The main board is faulty. Contact Imaje Technical Support.



NOTES

Contents

1	Adjustment procedures	108
1.1	Jet break-off point	108
1.2	Adjusting the jet in the gutter	110
1.3	Adjusting the pressure motor speed	114
2	Replacement procedures	115
2.1	Replacing the mains fuse (4 A delayed-action fuse)	115
2.2	Changing the ink	116
2.3	Replacing the ink filter cartridge	117
2.4	Replacing the pressurization air filter	118



1 Adjustment procedures

1.1 Jet break-off point

Special tools:

- Bifocal lens (eyeglass).

PREPARATION

- 1- Place the head on the support stand.
- 2- Start the jet and leave it running for at least half an hour.
- 3- Remove the upper cover and the head cover.

ADJUSTMENT

- 4- The adjustment procedure must be performed while looking at the jet through the eyeglass (see Figure 1).
Start the operation by turning the potentiometer to its anti-clockwise end stop. The jet will be continuous. Turn slowly clockwise until the jet break-off point is observed at the centre of the charge electrode. Aim for the form shown by 6 on Figure 1.

IMPORTANT

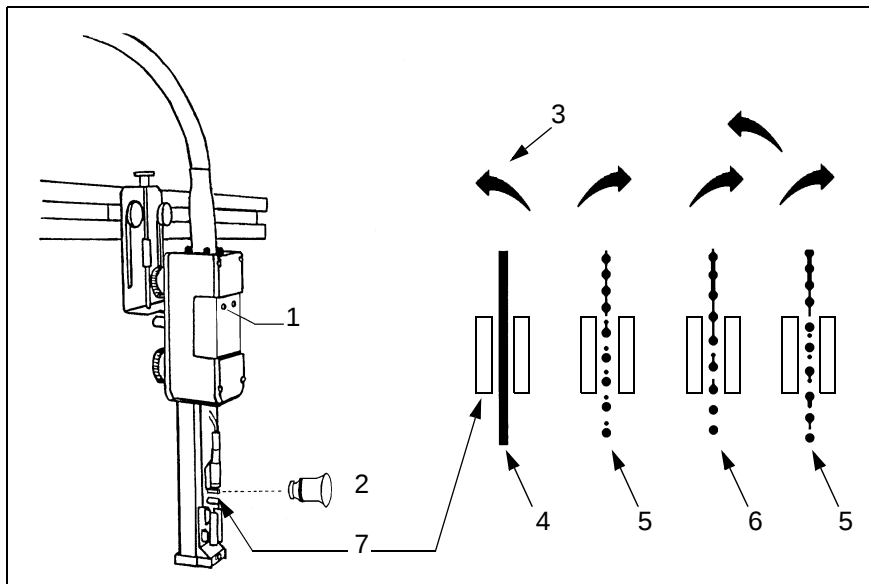
Adjust the potentiometer carefully to avoid damaging it.

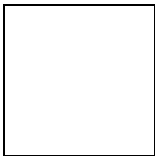
CHECKS AND TESTS

- 5- Close the head cover. Clear any faults.
- 6- Perform printing tests and adjust again if necessary.

Figure 1: Adjusting the break-off point

- | | |
|--------------|---------------------------|
| 1 | Potentiometer housing |
| 2 | Eyeglass |
| 3 | Rotation |
| 4-5-6 | Jet seen through eyeglass |
| 5 | Satellite drop |
| 6 | CORRECT SETTING |
| 7 | Charge electrode |





1.2 Adjusting the jet in the gutter

Special tools:

- Cannon orientation tool, ring spanner.
- Bifocal lens (eyeglass).
- Head cleaning kit.
- Protective goggles.
- 1.5 mm Allen wrench.
- Tweezers.

IMPORTANT

Protective goggles must be worn during this operation to avoid any ink being splashed into your eyes.

PRELIMINARY CHECKS

- 1- Place the head on the maintenance stand.
- 2- Ensure that the jet is stable by using the [Stability] function.
- 3- Disable the vacuum fault check and start the jet.
- 4- Check that recovery works correctly.

ADJUSTING THE JET IN THE GUTTER

The operation involves three related settings:

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

In general the settings should be adjusted slowly, stopping the jet to clean the electrodes if necessary.

- 5- Remove the resonator lead protective cover and disconnect the leads.

- 6- Loosen the cannon holder lock screws (see Figure 1).
- 7- Bring the jet closer to point A or point A' by pivoting the cannon in the cannon holder using an orientation tool at the top (Figure 2).

IMPORTANT Rotate in the direction shown on the diagram to avoid unscrewing the cannon nut.

Figure 1: Canon pressetting

- 1 Leads to be disconnected
- 2 Cams
- 3 Lock screw
- 4 Orientation tool
- 5 Cannon holder
- 6 Protective cover location
- 7 Cannon

Figure 2: Pressetting the jet in the gutter

- 1 Jet
- 2 Gutter
- 3 Jet trajectory as cannon is rotated

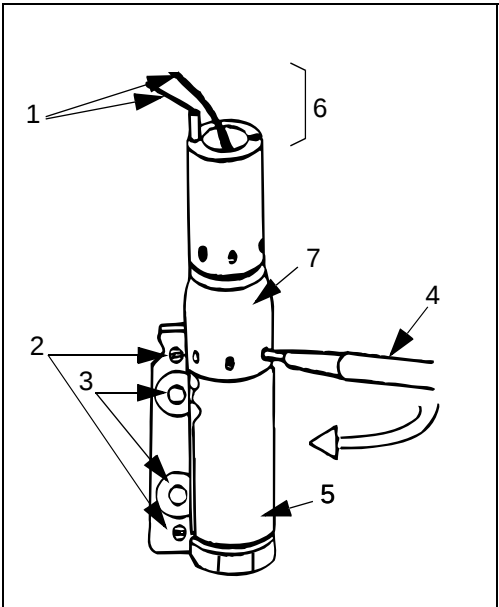


Figure 1

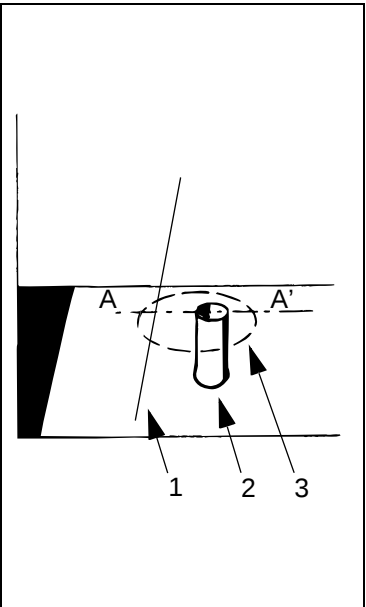
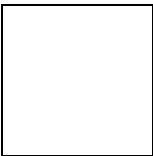


Figure 2



Adjustment and replacement procedures

8- Visually center the jet in the charge electrode using the lower cam (see Figure 3).

IMPORTANT Do not force the cams. Loosen or tighten the lock screws to ease or restrict the movement of the cannon holder.

- 9- Center the jet in the gutter using the upper cam (Figure 4).
- 10- Repeat points 7, 8 and 9 until the jet is correctly centered in both the gutter and the charge electrode.

Figure 3: Centering the jet in the charge electrode

- 1 Lower cam
2 Charge electrode

Figure 4: Centering the jet in the gutter

- 1 Upper cam
2 Recuperation gutter

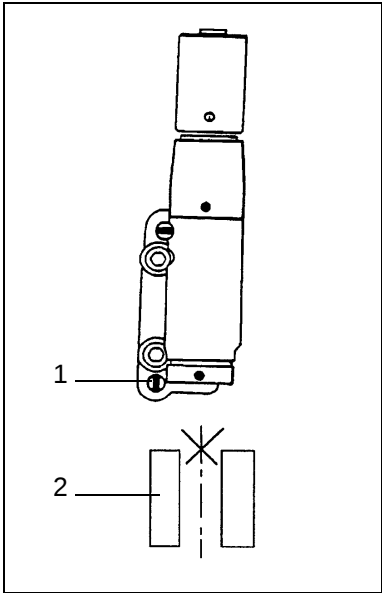


Figure 3

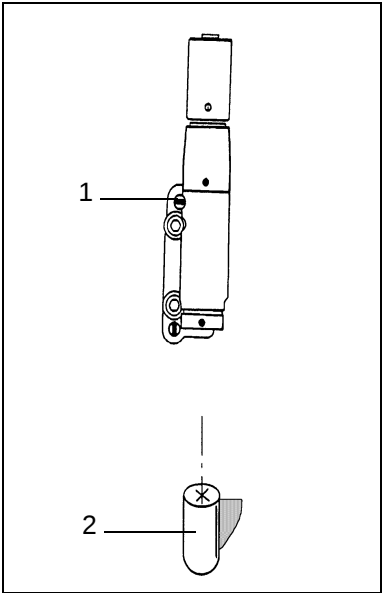
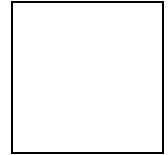


Figure 4



FINAL OPERATIONS

- 11- Tighten the two cannon holder lock screws without forcing them.
- 12- Stop the jet. Clean the head and reconnect the resonator leads. Replace the protective cover.
Close the head cover.
- 13- Start the jet and re-enable the "Recup. fault" check.
- 14- Check the break-off point and adjust if necessary.
- 15- Clear any faults. Perform continuous printing tests.
Check that the electrodes and gutter are clean after printing for 10 minutes.

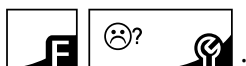
1.3 Adjusting the pressure motor speed

Special tools:

- Allen wrench.

The speed of rotation of the motor primarily depends on the ink viscosity. The by-pass must not be adjusted unless the ink viscosity is correct, i.e. when the viscosity measured by the printer is within one second of the reference viscosity.

REMINDER: The measured and reference viscosity values can be displayed by pressing



ADJUSTMENT

- 1- Start the jets and display the motor speed (  ).
- 2- Withdraw the ink circuit to the end of the runners. Insert the Allen wrench (3) and turn it half a turn in either direction and wait for the motor speed displayed on the console to change. By iteration you should achieve a speed of 1500 rpm, to within 50 rpm.

NOTE

It may be necessary to adjust the motor speed after changing the ink filter cartridge.

- | | |
|---|---------------------------------|
| 1 | Pressure pump on S8 Classic |
| 2 | Pressure pump on S8 Egg Classic |
| 3 | By-pass adjustment |

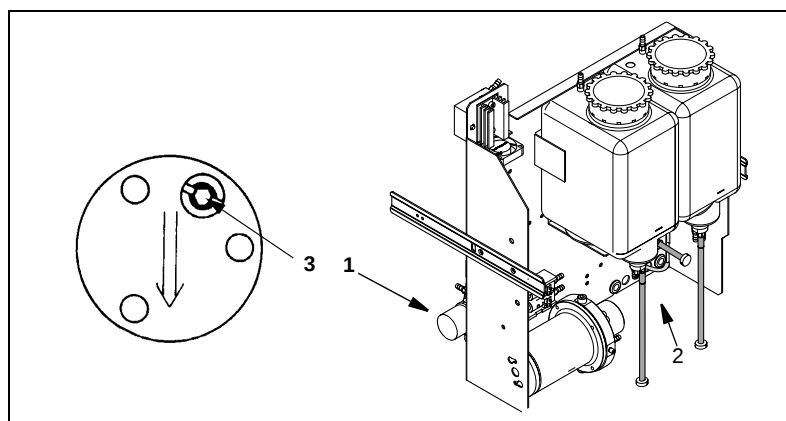


Figure 1

2 Replacement procedures

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

With the printer stopped and unplugged.

- 1- Unscrew the mains lead protective sleeve.
- 2- Remove the mains lead from the printer.
- 3- Use a screwdriver to remove the fuse holder from adjacent to the mains plug.
- 4- Change the fuse and replace the fuse holder.
- 5- Plug the mains lead back into the printer.
- 6- Replace the protective sleeve.
- 7- Connect the printer to the mains and start it up.

Figure 1: Fuse location

1	Fuse holder location
2	Mains plug
3	Protective sleeve

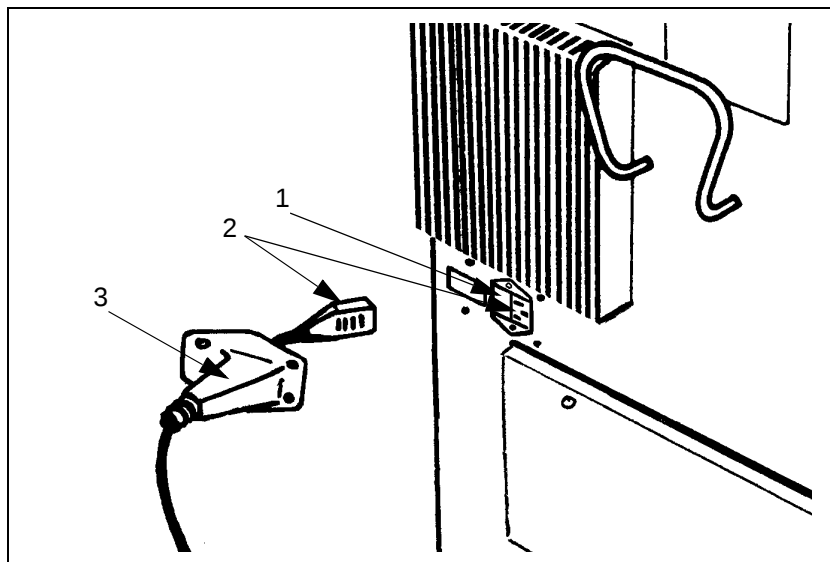


Figure 1

2.2 Changing the ink

Special tools:

- 3 mm Allen wrench.
- Recovery tray.
- Protective equipment (latex gloves, goggles, cloths).

Frequency:

See ink technical data sheet.

Take great care to avoid spilling any ink onto your clothes or the floor.

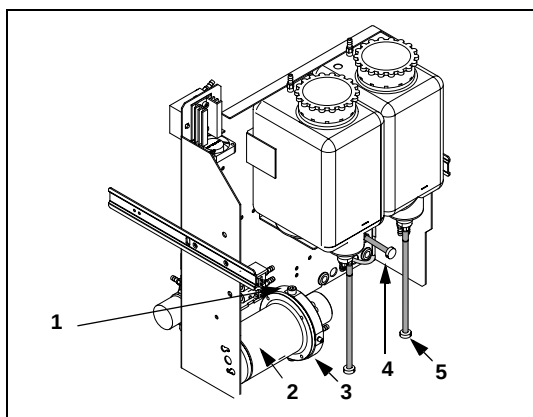
WITH THE PRINTER SWITCHED OFF:

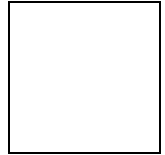
- 1- Open the front door of the console.
- 2- Place the recovery tray under the ink tank and drain it (with the drain pipe, see Figure 1). Replace the drain plug.
- 3- Drain the viscometer in the same way.
- 4- Place the recovery tray under the main filter. Using the 3 mm Allen wrench, unscrew the lower screw then the upper screw holding the main filter and drain it. Take care with the O-rings around the screws. Wait until the filter is completely empty (see Figure 1). Replace the upper screw then the lower screw (remember to fit the O-rings).

The old ink must be stored in a closed container.

Figure 1:

1	Upper screw
2	Main filter
3	Lower screw
4	Viscometer draining pipe
5	Ink tank draining pipe





2.3 Replacing the ink filter cartridge

Special tools:

- Standard draining and cleaning equipment.
- 3 mm Allen wrench.

PREPARATION

- 1- Stop the printer and unplug it from the mains. Withdraw the ink circuit to the end of the runners.
- 2- Drain the ink tank by removing the drain plug. Drain the main filter by loosening the two drain screws. Replace the cap and tighten the screws when the filter is empty.

REPLACEMENT

- 3- Open the main filter and remove the old cartridge.

CAUTION: Take precautions as some ink will remain and may pour out.

REFITTING AND TESTING

- 4- Refit:
 - the anti-pulsing bellows
 - the new filter cartridge
 - the O-ring.

Check that the drain circuits are closed then pour a little ink into the tank.

- 5- Start the printer and check that there are no leaks and that the pressure is correct.

ROUTINE CHECKS

Figure 1:

- | | |
|---|----------------------------|
| 1 | Drain screw |
| 2 | Main filter |
| 3 | Metal anti-pulsing bellows |
| 4 | Filter cartridge |
| 5 | O-ring |

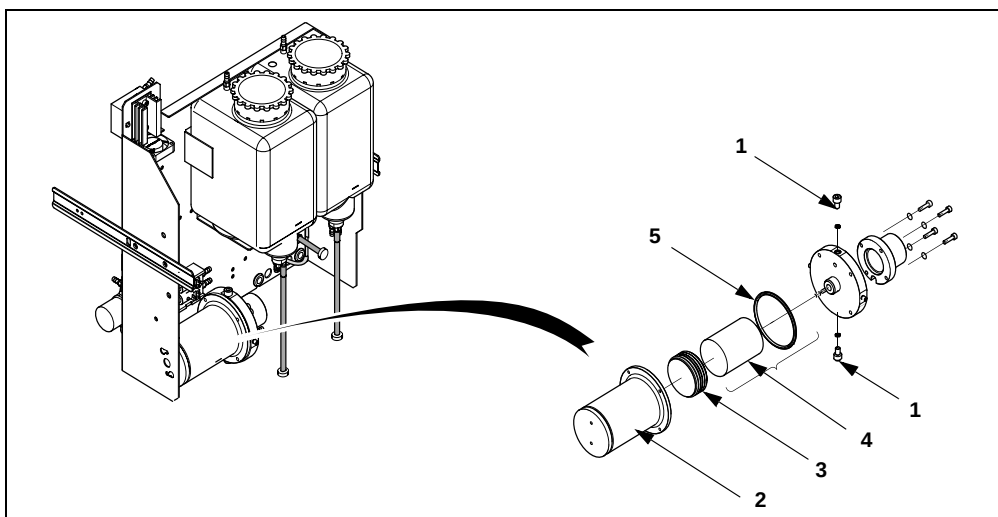
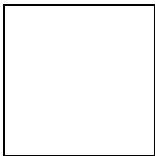


Figure 1



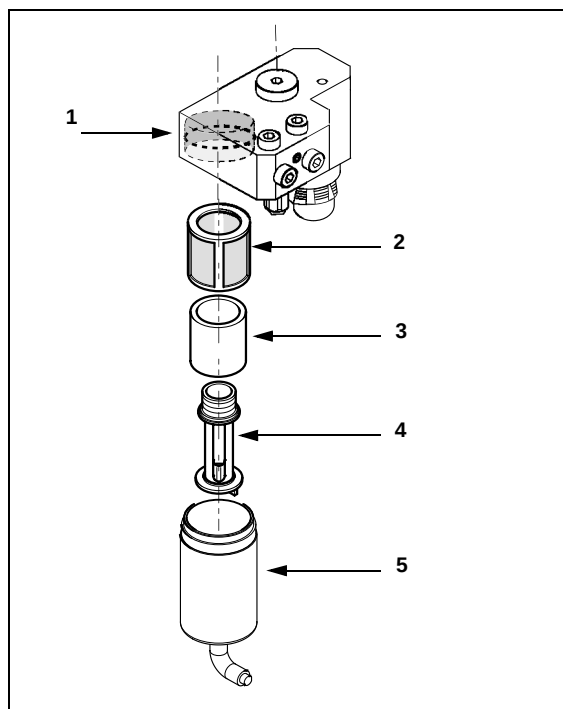
2.4 Replacing the pressurization air filter

The filter is located on the air treatment unit, in the rear compartment.

- 1) Stop the printer and unplug it from the mains.
- 2) Disconnect the air inlet or close the valve.
- 3) Pull out the air treatment unit.
- 4) Unscrew the air filter housing and pull it downwards.
- 5) Unscrew the filter.
- 6) Clean the grid
- 7) Replace the filter and the seal.
- 8) Refit.

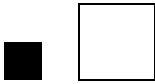
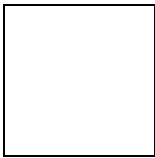
Figure 1: Air treatment unit

1	Seal
2	Grid
3	Filtering cartridge
4	Filter care
5	Tank



Contents

1	Consumables	120
1.1	Definition	120
1.2	Sales units	120
1.3	Labeling	121
2	Consumables and the application	122
3	Consumables and the printer	122
3.1	Ink usage specification	122
3.2	Consumption	122
4	Consumables and safety	123
5	Consumables, printer warranty and public liability	124



1 Consumables

1.1 Definition

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

- **Ink:**

Used for printing.

The formula contains all the ingredients needed for:

- stability in the container (expiry date) and in the machine,
- printing performance (adhesion on a given surface, resistance to specific constraints).

It may be presented ready for use or as 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 enables various maintenance operations to be performed.

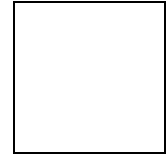
- **Anti-clogging liquid:**

Used for specific inks.

Its composition prevents the ink drying within the cannon during a printer shutdown.

1.2 Sales units

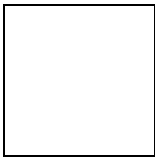
Depending on the type of ink and additive, Imaje offers packs of 4 or 6 units and starter kits containing ink and additive.



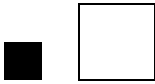
1.3 Labeling

Labeling serves three purposes:

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

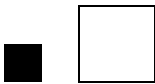


Consumables



2 Consumables and the application

The customer is solely responsible for qualifying the intended application. To help existing and prospective customers qualify their applications (including the ink, ink jet equipment, nature of surfaces, manufacturing process, printing specifications, etc.), Imaje makes a wide range of printers and inks available for producing print samples.



3 Consumables and the printer

3.1 Ink usage specification

This document is essential, and can be obtained from our sales offices.

The sheet informs the user about the operating parameters (viscosity, jet speed, etc.) and specific printing characteristics (printing speed, head to object distance, etc.) depending on the printer configuration (nozzle size, number of nozzles, etc.) and the chosen ink.

3.2 Consumption

The 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, bolderization) and the nozzle diameter.

Additive consumption depends primarily on the number of hours of operation and the ambient temperature.

4 Consumables and safety

Safe use of Imaje consumables implies knowledge of some of the corresponding physical and chemical properties as well as the safety recommendations for storing, handling and using the products.

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

Please read these sheets before using the products.

NOTE

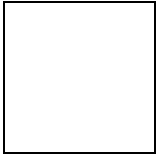
The presentation and content of the Safety Data sheets comply with EEC Directive 67/548 and the OSHA (Occupational Safety and Health Administration) nomenclature (through the HCS, Hazard Communication Standard).

The safety data sheets include all the following information:

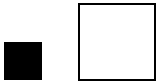
- Identification of the substance and manufacturer
- Composition / information on ingredients
- Hazard identification
- First aid measures
- Fire-fighting measures
- Accidental release measures
- Handling and storage
- Exposure controls / personal protection
- Physical and chemical properties
- Stability and reactivity
- Toxicological information
- Ecological information
- Disposal considerations
- Transport information
- Regulatory information
- Other information

For:

- Operators and technicians
- Works health & safety committee
- Occupational Medicine doctors
- Transport companies
- Emergency services
- Warehouse staff



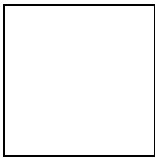
Consumables



5 Consumables, printer warranty and public liability

Our consumables are specially designed for use with Imaje printers and produce optimum results in terms of convenience of use and consumption levels.

The use of any consumable products other than those supplied by Imaje shall render the equipment warranty null and void and result in the exclusion of any claims concerning impaired performance potentially causing production stoppages.



Technical specifications

• Physical description

- Dimensions :
 - Control cabinet: 1051 mm x 463 mm x 340 mm (41.4" x 18.2" x 13.4")
 - Print head: 225 mm x 44.5 mm x 47.5 mm (8.8" x 1.7" x 1.9")
- Weight :
 - Control cabinet: 40kg (88.2 lbs)
 - Head and conduit: 3kg (6.6 lbs)
- Volume:
 - Tanks: Total: 2 liters (3.52pts)
 Useful: 1 liter (1.76pts)

• Installation conditions

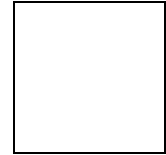
- Working position:
 - Control cabinet: vertical
 - Print head: any position
- Max. height difference between head and printer body:
 - ± 2 meters (± 6.56 ft)
- Distance between head and printer body:
 - 3 meters (9.8ft), 5 meters (16.4ft), and 8 meters (26.2ft)
(dépendant on machine and options)

• Power source

- Electrical :
 - 100 V - 240 V ac
 - Frequency 50 Hz-60 Hz
- Compressed air:
 - Min. 5 bar (72 PSI) - Max. 10 bar (145 PSI)
 - Flow rate: 800 NL/h at 7 bars (0.47 Scfm at 101 PSI)
 - Air quality: - 0.12 g water/m³ (0.15 oz/cubic foot)
 - 1 PPM oil
 - particles < 5 μ m

• Limits of use

- Operating temperature:
 - 0°C to 50°C (32°F to 122°F)
- Humidity:
 - 10 to 90 %



- **Standard accessories**

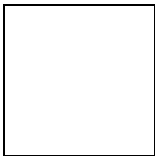
- Head support stand
- Object detector
- Tachometric generator
- External alarm (girolamp or siren)
- Head protection
- Transport trolley
- Head movement

- **Main operating characteristics**

- counting of individual objects or batches,
- full autodatting,
- variable message library,
- logo printing (15 logos/jet)
- special characters: "Chimney", transversal and longitudinal "DIN"
- non-doubled printing of a given message
- programmable print delays
- controlled by operator interface or any system with a serial interface
- auto-diagnosis of printer status
- automatic ink viscosity regulation
- automatic nozzle unclogging system
- automatic rinsing and flushing of printer
- automatic nozzle rinsing (depending on configuration)
- pressurized print head(s)

- **Performance parameters**

- Printing:
 - On any support, in all positions
 - Up to 1024 characters per message
 - 1 to 2 lines per jet (1 to 4 variable lines per jet on serial link)
 - One single-jet head
 - Choice of character fonts: 5, 7, 9, 11, 16, and 24 dots
 - Possibility of printing all types of characters and graphics
 - National characters: Arabic, Norwegian, Swedish, Spanish, Greek, Cyrillic, Hebrew
 - Inversion of character reading and printing directions
- Head to object distance:
 - G head: 10 mm (0.39") or 30 mm (1.18") depending on font used
 - M head: 8 mm (0.32") or 20 mm (0.79") depending on font used
- Max. speed :
 - G head: up to 5.4 m/s (1063 ft/mn) depending on font used
 - M head: up to 3.6 m/s (708.7 ft/mn) depending on font used



Technical specifications

- **Ink**

- Color:
 - See ink catalog

- **Standards compliance**

- EMC:
 - Emission EN55011 - Class B
FCC - Class B
 - Immunity IEC 1000-4-2 (10 Kv)
IEC 1000-4-3 (10 v/m)
IEC 1000-4-4 (2 Kv)
IEC 1000-4-5 (2 Kv)
- EC conformity
 - Declaration of conformity with EC machine and EMC directives

- **Max. noise level**

< 60 db A

Contents

1	Industrial Interface board	130
2	Inputs	133
2.1	Object detection cell	133
2.2	Object detector inhibit	133
2.3	Tachometric generator	133
2.4	Absolute limit values for inputs	134
3	Outputs	135
3.1	"General alarm" output	135
3.2	"Jet alarm" output	135
3.3	Electrical characteristics of the outputs	135
4	Timing diagrams	136
4.1	DTOP and VALIMP	136
4.2	DTOP, message printing and BUSY	137

1 Industrial Interface board

The rear access door must be opened to connect accessories.
To do this:

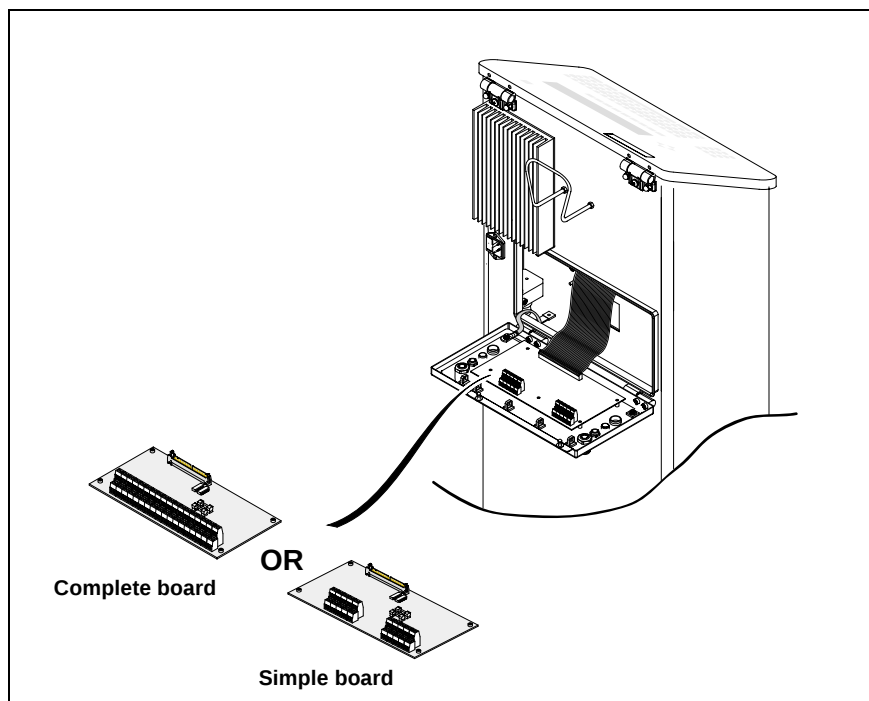
- Unscrew the two quarter-turn screws located on either side of the rear door.
- Gently pull the door open (see Figure 1).

The connection terminal blocks on the Industrial Interface board are organized as follows:

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

Details of the pinouts are shown on the following pages.

Figure 1: View of the industrial interface board



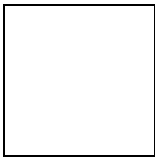
Connector B1:CPU

RS232C asynchronous serial link and 20 mA current loop

Program output - counter reset. RS422 synchronous serial link.

1	TTYOUT-	Photocoupled output	20 mA current loop
2	TTYOUT+		
3	TTYIN-	Photocoupled input	RS232C Link
4	TTYIN+		
5	-TXDOUT	Transmit Data	
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-	Photocoupled DSR input	
12	DSR+		
13	GND	0 V	
14	SPROG 2	Program output	
15	COMSPROG		
16	SPROG 1	Counter reset	
17	COMRAZC 1		
18	RAZC1	Not used	
19	COMRAZC2		
20	RAZC2		
21	RESET-		
22	RESET+		
23	-DSR422-	Photocoupled DSR input	RS422 link
24	-DSR422+		
25	RXD422-	Receive Data	
26	RXD422+		
27	RXC422-	Receive Clock input	
28	RXC422+		
29	VALID422-		
30	VALID422+		
31	-DTR422-	Data Terminal Ready	
32	-DTR422+		
33	TXD422-	Transmit Data	
34	TXD422+		
35	TXC422-	Transmit Clock output	
36	TXC422+		
37	GND		
38	+ 5 V	300 mA	CAUTION: No fuse protection
39	+ 15 V	50 mA	
40	- 15 V	50 mA	

Not fitted to
simplified
industrial
interface
board



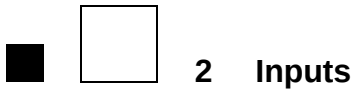
Input / Output Connections

Connector B2: Head printing

1	GND		0V
2	+ 24V T1		+ 24 V power supply, max. 300 mA, not galvanically isolated (not present when machine stopped)
3	COMDTOP1	Object pulse common	Terminals for connecting object detection cell
4	DTOP1	Object pulse	
5	COMVALIMP1	VALIMP common	Inhibition of object detection signal
6	-VALIMP1	VALIMP	
7	COMTACHY1	Tachy common	Terminals for connecting tachometric generator (open collector)
8	TACHY1	Tachy	
9	TACHY1+	Differential	Terminals for connecting tachometric generator (differential)
10	TACHY1-	inputs	
11	COMBUSY1	BUSY common	Printing start output
12	-BUSY1	BUSY-	
13	COMDATA1	DATA common	Parallel interface inputs used in "message selection" (option on industrial interface board)
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 power supply, max. 300 mA, not galvanically isolated (not present when machine stopped)

Connector B4: Print alarms

1	-T1	Inactive	Head printing alarm output
2	T1	Active	
3	COM T1	Common	
4	-T2		Not used
5	T2		
6	COM T2		
7	-GENE	Inactive	General alarm output
8	GENE	Active	
9	COM GENE	Common	



2 Inputs

2.1 Object detection cell

- **Role:**

The object detector is connected to the DTOP and COM DTOP terminals on the industrial interface board.

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

To avoid spurious signals, the DTOP input is filtered to a minimum of 200 μ s.

The object detection input uses the properties of a high-speed photocoupler with an isolation voltage of 2.5 kV.

2.2 Object detector inhibit

- **Role:**

The "-VALIMP" and "COM VALIMP" terminals on the industrial interface board can be used to inhibit the object detection signal. They can be connected to any accessories which comply with the specifications given.

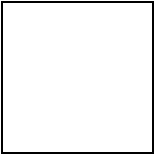
The object detector inhibit input uses the properties of a high-speed photocoupler with an isolation voltage of 2.5 kV.

2.3 Tachometric generator

- **Role:**

When the conveyor belt speed is variable, the "TACHY" and "COM TACHY" terminals on the industrial interface board can be used to connect an open-collector tachometric generator to sequence printing. The tachometric input uses the properties of a high-speed photocoupler with an isolation voltage of 2.5 kV.

The "TACHY+" and "TACHY-" terminals can be used to connect a differential tachometric generator.



2.4 Absolute limit values for inputs

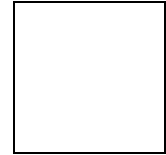
- Maximum permissible current in photocoupler LED:

DC: $I_F = 25 \text{ mA}$

AC $\sim$: $I_F = 50 \text{ mA}$ with a duty cycle of 50% and a pulse width of 1 ms.

Pulsed: $I_F = 1 \text{ A}$ with a pulse width $\leq 1 \mu\text{s}$ and 300 pulses/sec.

- Maximum power dissipation: 45 mW
- Maximum operating frequency:
 - 150 kHz (duration of pulses $> 2 \mu\text{s}$) for the TACHY input,
 - 10 kHz for the object detector, parallel interface and counter reset inputs.

 **3 Outputs****3.1 "General alarm" output****• Role:**

This output signals a printer malfunction which does not stop printing. This alarm is generated to warn the operator to correct the cause of the anomaly.

Two types of contact are available for this output: an "Inactive" (normally closed) dry contact or an "Active" (normally open) dry contact.

3.2 "Jet alarm" output**• Role:**

This output signals a printer malfunction which stops printing.

This output may be connected to a girolamp or a siren, and also to the conveyor control system to stop the production line.

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

Two types of contact are available for this output: an "Inactive" (normally closed) dry contact or an "Active" (normally open) dry contact.

3.3 Electrical characteristics of the outputs

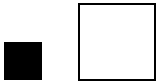
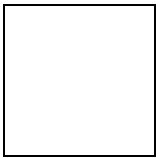
- Max. voltage: 250 Vac
- Max. current: 1 A

For a DC voltage, the maximum permitted current is 1 A.

These are potential-free dry contacts, which can be used to control alarm systems or electrical assemblies directly connected to the mains.

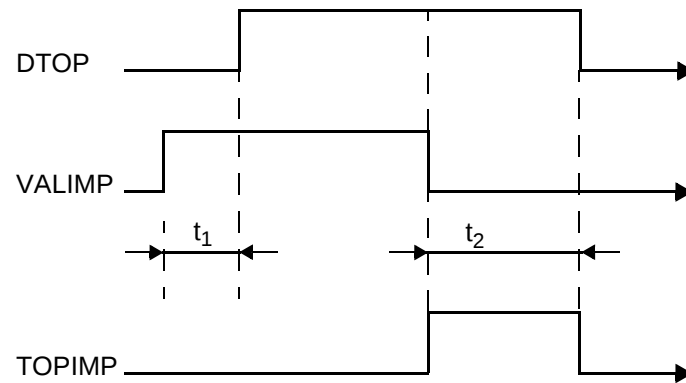
The electrical contacts are protected by RC filters (0.1 μ F/250 V + 47 Ω).

Whatever the type of voltage (AC or DC) applied to these terminals, the filter should never be disconnected.



4 Timing diagrams

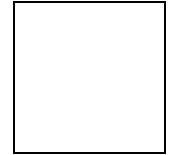
4.1 DTOP and VALIMP



$$t_1 \geq 1 \mu s$$

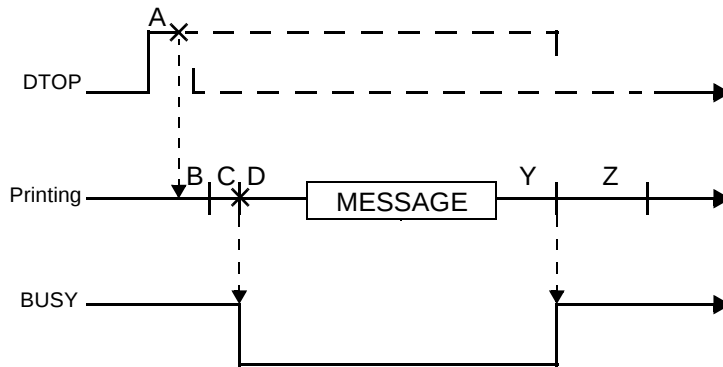
If $t_2 > \text{filter value}$ $\Rightarrow$ Message printed

If $t_2 \leq \text{filter value}$ $\Rightarrow$ No message printed



4.2 DTOP, message printing and BUSY

4.2.1 Printing : "Object mode"



A = TOPIMP > filter value

B = CPU/IMP communication

C = print signal processing

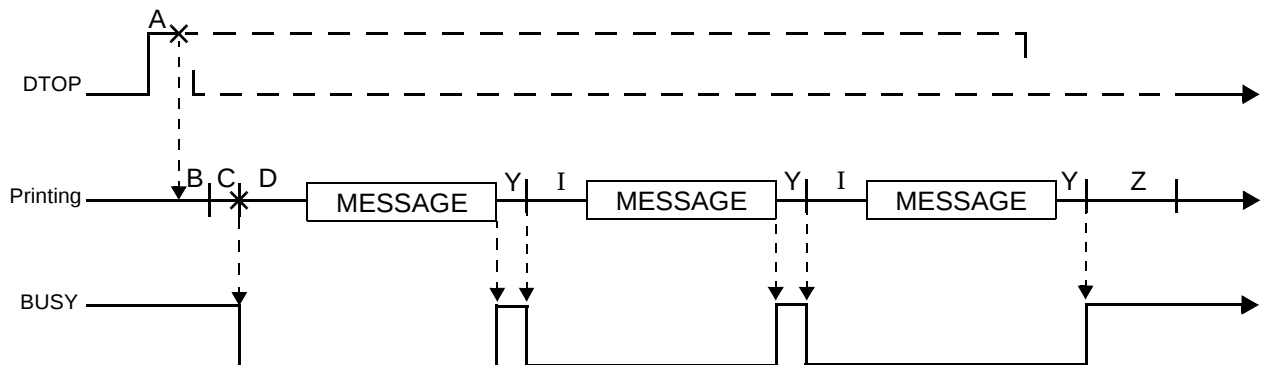
D = print delay

Y = phase measurement = 3 ms

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

= from 0 to 700 μ s if "Run/Stop" option set to Run
 = 0 if "Run/Stop" option set to Stop
 = 1 to 9 ms for message with bar code
 = 800 μ s for message without bar code

4.2.2 Printing : "Repeat mode"



A = TOPIMP > filter value

B = CPU/IMP communication

C = print signal processing

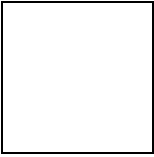
D = print delay

I = Interval

Y = phase measurement = 3 ms

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

= from 0 to 700 μ s if "Run/Stop" option set to Run
 = 0 if "Run/Stop" option set to Stop
 = 1 to 9 ms for message with bar code
 = 800 μ s for message without bar code



Input / Output Connections

NOTES

Manual updates

- Revision index A corresponds to the first edition of this manual.
- The revision index changes with each update.
- The modified pages are shown in the table below. This gives the history of updates since the first edition.

Date of issue	Document revision index	Software index	Pages modified
02/2001	A0	D80	First edition
11/2002	B0	D8x	All
04/2003	B1	D8x	114 - 139 - 140

Photos and diagrams not contractually binding. Photos: GINKO, X



Image S.A.
Siège social,
9, rue Gaspard Monge,
BP 110,
26501 Bourg-lès-Valence Cedex
France
Tél.: (33) 04 75 75 55 00
Fax : (33) 04 75 82 98 10
<http://www.imaje.com>



Image S.A. reserves the right to modify the technical characteristics of the product without prior notice.
Reproduction, in whole or in part, is prohibited.
English edition

04/2003