



Book for service engineers

internal use only ■ ■ ■



9040



markem·imaje

the team to trust ■ ■ ■

A **DOVER** Company



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Contents



Notes:



Safety



Safety



Notes:



■ Reminder

Please read all the safety instructions that appear in the manuals provided to the customers.

■ Supplement for Markem-Imaje technicians

Responsibility

Markem-Imaje machines must not be modified by customers without the prior permission of Markem-Imaje S.A. They must be used in accordance with the specifications in the operator's manual. Changes to non-Markem-Imaje machines must be performed by customers.

Health and Hygiene

The safety data sheet (SDS) on the following pages is provided as an example only.

Always read the SDSs for consumables used by a customer carefully.



Ink-resistant gloves and safety glasses must be worn during filling and cleaning operations. Technicians are strongly advised to wear a protective mask in the absence of a specific ventilation system.



The electronic circuit boards pose an electrocution hazard if touched.

Fire prevention

Follow the instructions on the safety data sheet (SDS) for each consumable used to the letter.



Have a foam, CO2 or powder fire extinguisher placed in the immediate vicinity of the printer (distance of 10 meters maximum).

Do not use spark-producing equipment (drills, grinders, welders, etc.) within a 5 meter radius around the printer.)

Do not place electrical equipment (bulbs, etc.) within a 1 meter radius around the print head, particularly when performing maintenance and cleaning.

Safety



**NO SMOKING –
FLAMMABLE INK**



Always keep away from open flame. Never smoke near the printer. Place a sign with the words “NO SMOKING – FLAMMABLE INK” near the printer.

Containers of ink, additive and cleaning solution must be closed and stored in a ventilated room or a fireproof cabinet.

Environment

Take the necessary precautions if the printer is used in an electrostatic environment.

System

The printer must be connected to a single-phase grounded outlet with the cord provided with it. The standard wall outlet must be above the printer in an easy-to-access location.

Handling

If the printer contains consumables, move it vertically. Do not tip it over.

Drain the printer completely before moving it in a position other than vertical.

Servicing - troubleshooting

If a specific vapor exhaust system is not in use, wear the personal protective equipment mentioned earlier (mask).



Consumables

Consumables and the printer

The Markem-Imaje printer has been factory set for the ink type selected by the customer at ordering.

We strongly advise against changing the ink type.

Using another type of ink, additive or cleaning product will severely damage the printer.

Markem-Imaje equipment is guaranteed only if used with Markem-Imaje consumables.

Use of consumables

Refer to the safety data sheets (SDS) for the ink before using a consumable.

Consumables must be used before the expiration date on the label. Beyond this date, they are no longer 100% compliant with the original specifications for use.



Safety equipment for Markem-Image technicians

Code	Description	
A20281	Safety boots	Size 40 (7½ U.S.)
A20282	Safety boots	Size 41 (8 U.S.)
A20283	Safety boots	Size 42 (8½-9 U.S.)
A20284	Safety boots	Size 43 (9½-10 U.S.)
A20285	Safety boots	Size 44 (10½ U.S.)
A20286	Safety boots	Size 45 (11-11½ U.S.)
A10937	Latex gloves - CE marked (× 20)	Palm widths: 7-7.5 cm
A10936	Latex gloves - CE marked (× 20)	Palm widths: 8-8.5 cm
A38559	Latex gloves	Size XL
A12762	Markem-Image smock	Size 2 (medium)
A12763	Markem-Image smock	Size 3 (large)
A12765	Markem-Image smock	Size 4 (X-large)
A16820	Markem-Image smock	Size 5 (XX-large)
A18588	Respirator	
A16089	Polypox liquid soap	
A16091	Blick 1000 barrier cream	
A16092	Actilis topical cream	
A20853	Personal eyewash	
A12158	Eyewash station	
A20592	Ear plugs	
A20387	Wide vision safety glasses	
EN6771	Additive transport case	



Rules of conduct for Markem-Imaje technicians when visiting customers

Safety

Technicians must comply with the safety rules in effect at the customer's site:

Prevention plan: Technicians must request and examine the customer's prevention plan (where applicable) in advance or upon arriving at the customer's site.

- Traffic areas
- Authorization to use spark-producing tools
- Authorizations to perform work
- Necessary accreditation (chemical, electrical, etc.)

If the business being visited does not provide specific equipment, technicians must wear Markem-Imaje personal protective clothing at least (see list).

System

Neither the printer nor the maintenance stand should be located in a traffic area. The entire system must be easy to access. The print head must be at least 1 meter away from all electrical devices, flames, etc.

The following safety equipment must be installed near the printer:

- Eyewash
- Safety glasses
- Appropriate gloves
- Protective mask

Make sure the head, conduit and printer do not vibrate.

The conduit should be free of wear caused by rubbing.

Check the antistatic system (antistatic brush and grounding braid) used where plastic film is manufactured/converted, extrusion is performed, surfaces rub against each other, etc.

Markem-Imaje technicians are not permitted to modify the customer's electrical system. The customer is responsible for providing compressed air, electricity and other utilities.

All sources of electric power should be outside a 1 meter radius around the head of the machine while it is running and during cleaning/maintenance.

Block drafts within the vicinity of the print heads.

Check the condition of the machine power sources.

Check the machine and stands for proper grounding.

A suitable fire extinguisher should be located no more than 10 meters from the machine.



Work

Leave the area clean after completing maintenance.

Pick up all cloths and clean all traces of ink on the console.

Dispose of waste in the appropriate receptacles (check with customer).

With the customer, go over any problems that may arise on account of the system's current configuration:

Training

Servicing

Changes

Installation

Maintenance tray accessibility and stability

Accessories

Etc.

Make sure the doors on the printer close correctly.

Follow up maintenance with a production check.

If the printer is to be moved, obtain the customer's permission first and use the appropriate tools.



Reminder of the main safety pictograms



TOXIC



XI - IRRITANT



OXIDIZER



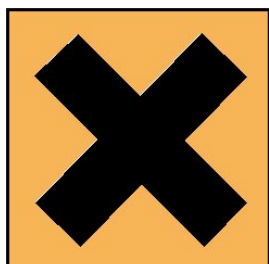
CORROSIVE



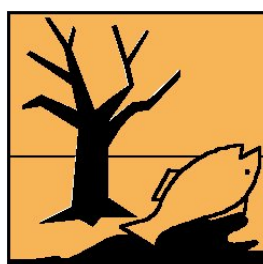
EXPLOSIVE



FLAMMABLE F, F+, F++



XN - HARMFUL



DANGEROUS FOR
THE ENVIRONMENT



Printer description



Printer description



Notes:



■ What's new on 9040?

New design of the key board with Markem-Imaje colours

A new User Interface board (called "PC board" in the past) is available from beginning of December on 9040 Series. It will offer new capabilities as a standard, such as:

- Ethernet and USB port,
- Full compatibility with existing installed base,
- No more ENR parts available for such item.

A new software version is also implemented on 9040 at the same time, and offers the possibility to manage some "Operator Variables".

■ More features on 9040 user interface board

More connectivity capabilities

As a reminder, this new board:

- Contains the firmware and the printer data.
- Ensure the Man/Machine interface
- Ensure the connectivity between the printer and the external communication network

The new "IHM" board (ref. A37883 – see picture on next page) will come with new features as a standard:

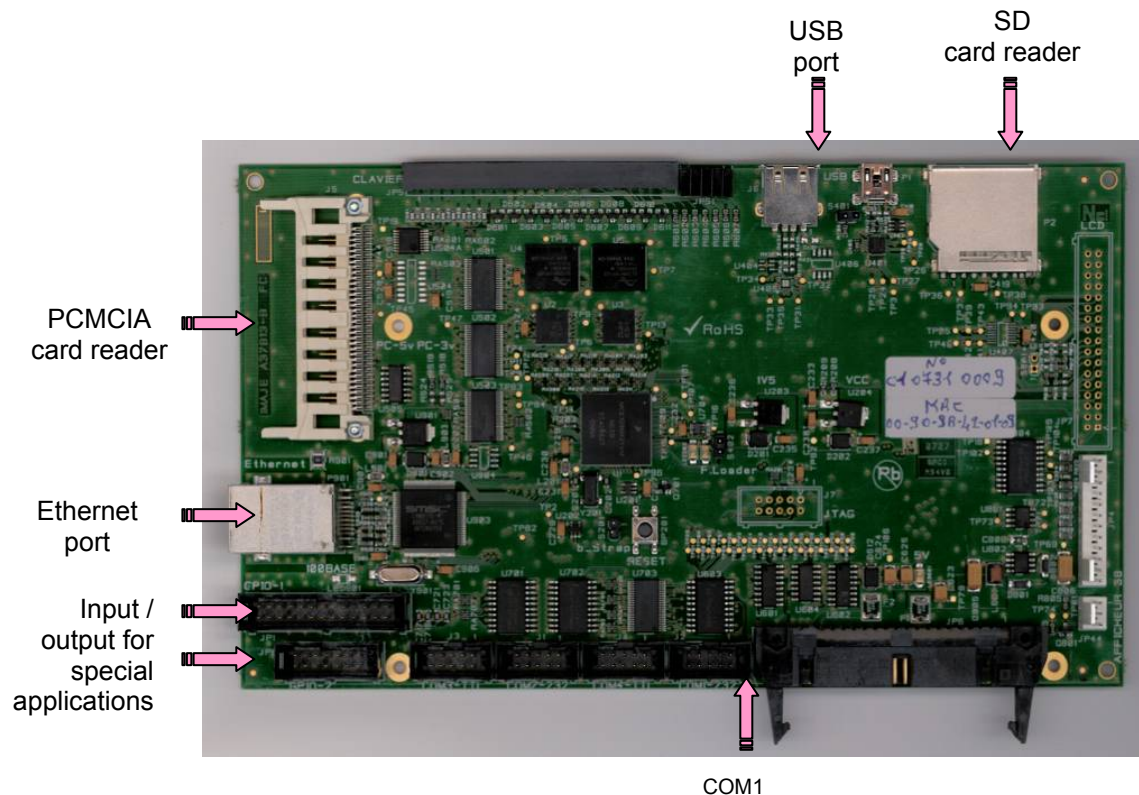
To interface the printer with the customer network:

- 1 Ethernet Port (using RJ45 connector)
- 1 "COM 1" port: optional RS232 communication for special application

To download data to or from the printer:

- 1 PCMCIA card reader,
- 1 USB port (USB2.0 compliant),
- 1 SD card reader.

Printer description



New operating system

We took this new design opportunity to implement the “Windows CE” operating system (a Windows CE license sticker is applied on each board).

New software features

Printer parameters

Due to this new board, the “*Printer Preparation*” menu was modified accordingly to add:

- Data transfer using PCMCIA, USB or SD (on the previous board, only PCMCIA transfer was possible)

- Ethernet settings

Printer description



New configuration tool (for Imaje technician adjustment)

For information: thanks to Windows CE capabilities, the configuration tool offer a new “Windows like” design.

This clarify the screen architecture and is more user-friendly for the technician (see the screen example hereafter).

NOZZLE RINCING / STANDBY MODE		VISCOSITY / INK MANAGEMENT		HEAD PARAMETERS	
PRINTER CONFIGURATION		PRINTING PARAMETERS		COUNTER / AUTODATING	
Head type	AUTO	☒ IP65 option			
Interface type	CONTEXTUAL ICONS	☐ Wide Keyboard			
		☐ Ack with simplified protocol			
		☐ Compatibility with S4/S8			
		☐ Code 39 : checksum modulo 10			
		☐ No quiet zone with datamatrix			
		☐ One DTOP by message			
		☐ Update message out of printing			
Distance between photocells	0 mm				
Maximum time between photocells	0 sec				

F1 - Help, UP/DOWN Arrows - Navigate between items, TAB - Next control

After-sales policies

Only the **ENM37883** board will be available for sales as a spare part. The ENR board (repaired board) will not be created.

Compatibility with existing 9040 printers

The new user interface board ENM37883 is full compatible with the previous 9040 PC board (ENM/ENR36929)*.

NOTE: For each upgrade or replacement, the printer software must be updated to version J40/M40.

Pc board	Software version	
	J40/M40	J10/M40
ENM37883	✓	
ENM36929		✓

* For S8 range, ENM/ENR36929 will be still available.

Printer description



Phase-out

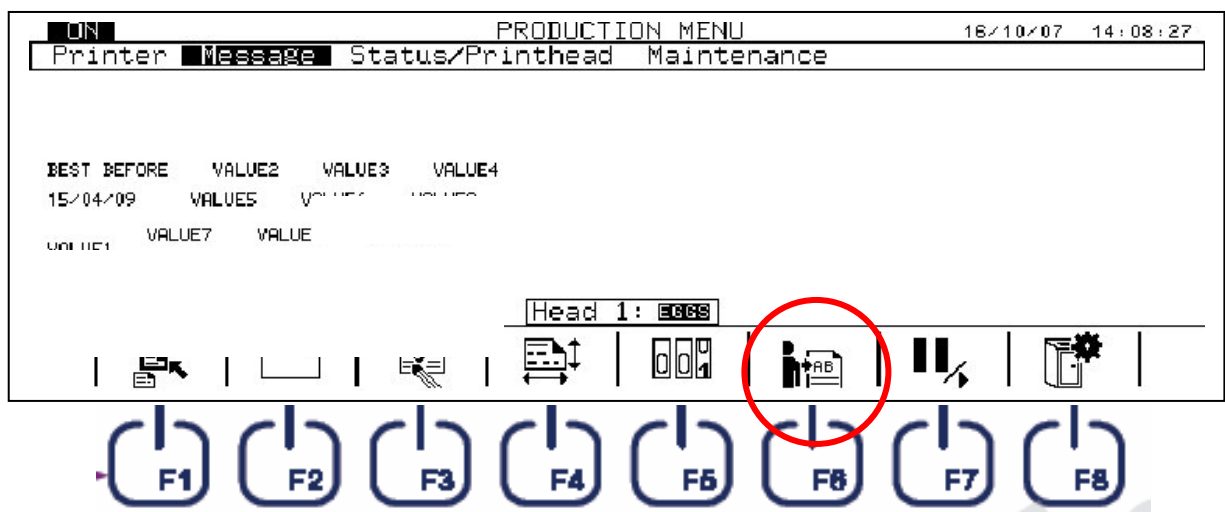
As Ethernet port is now part of the new IHM board, the Ethernet option A37271 is not necessary any more. As a consequence, this reference will be removed from the SAP configurator.

Nevertheless, the ETHERNET EXTENSION BOARD for 9040 (ENM36799) will still remain available for our installed base, since we have a few boards in stock.

■ New software feature: operator variable management

We now have the capability to define and insert one or several operator variables (also called “User Prompt”) when editing a message.

A new symbol, directly linked to the “F6” shortcut key, will appear now in the bottom line of the screen, as soon as the message selected includes almost one variable operator.



Each “User prompt” can be defined in the menu “*Messages Editing/Variables/User Prompt*” as follow:

- Size of the variable (up to 99 characters)

- Name of the user prompt (example: “Date”)

- Default value: value which is printed by default if nothing is entered in production

Printer description



UN		MESSAGE EDITING MENU		BOTTLE	
Message Font Variables Parameters					
Size (#. of characters): 1 Element identification: Default value:					

Up to **20** variables could be managed per message (10 fields per page).

Pressing  will allow to key-in the variable content.

UN		PRODUCTION MENU		16/10/07 14:08:39	
Printer BEST BEFORE 15/04/09 VALUE1 USERPROMPT1 USERPROMPT10 USERPROMPT2 USERPROMPT3 USERPROMPT4 USERPROMPT5 USERPROMPT6 USERPROMPT7 USERPROMPT7 USERPROMPT9 VALUE1 VALUE10 VALUE2 VALUE3 VALUE4 VALUE5 VALUE6 VALUE8 VALUE7 VALUE9					

Advantages of the User Prompt:

Decrease the risk to print a wrong message, as the operator has a limited access to the message modification.

Production can work with full capacity (less product wastage due to human error).

Less training for the operator, as the message editing is really simplified (no need to edit the whole message and change the parameters).

Printer description



■ 9040 strong points:

A lot of configurations: mono or twin-head, mono or twin-jet G, M or P, IP54 or IP65.

1 to 2 print jets per head (unique on the market)

Ergonomic interface operator

Large range of consumables

Economic management of the consumable

PCMCIA/Compact Flash for back up

Logo creation

Large choice of barcodes, including Datamatrix

Up to 8 lines

Up to 2000 messages

Ethernet connection (option)

IP65 rating (option)

Fast connection of the main accessories

Printer description



■ The range

The Markem-Imaje 9040 range includes the following versions:

Markem-Imaje 9040

Markem-Imaje 9040 IP65

Markem-Imaje 9040 Contrast

Markem-Imaje 9040 S

Markem-Imaje 9040 S IP65

This range is completed with two printers:

Markem-Imaje S8 C2

Markem-Imaje S8 C2 China

■ Configurations

	9040 (IP54)			9040 IP65		9040 Contrast		9040 S	9040 S IP65
	G	M	P	G	M	G	M	M	M
1.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
1.2	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
2.1	Yes	Yes	No	Yes	Yes	No	No	No	No
2.2	Yes	Yes	No	Yes	Yes	No	No	No	No

	S8 C2		S8 C2 China	
	G	M	G	M
1.1	Yes	Yes	Yes	Yes

For other special configurations dedicated to integrators, such as Schleuniger, Komax, Alcoa (for US only), Serac, Staalkat and Moba, please contact Product Marketing

Printer description



■ Cabinet

2 types of cabinet are available:

- Ventilated IP54
- No ventilated IP65



The cabinet is compact, it is manufactured out of stainless steel (304L quality), the IP65 one requires a connection to the compressed air.

The electrical connections (power supply, industrial inputs/outputs, V24...), pneumatic connections (air pressurisation) and umbilical are located behind the cabinet. Vapours extraction connection is under the cabinet.

IMPORTANT: *The printer must run with the door closed.*

The printer must be equipped with the stability kit or fixed on the floor.

It is possible, to use a trolley which allows to move the printer.

Printer description



■ Operator Interface

The operator interface is user friendly thanks to:

- A screen with icons for daily operations & consumable level indication
- Windows-type menu structure
- Help message to guide the operator through the different menu levels
- LED indicators which provide a quick indication of the printer status
- Large choice of operator languages

Operator Languages

29 operator languages are available for the printer.

English	Swedish	Hungarian	Japanese
French	Danish	Czech	Chinese
Italian	Norwegian	Polish	Korean
Spanish	Finnish	Croatian	Thai
Portuguese	German	Slovenian	Taiwanese
Greek	Dutch	Russian	Vietnamese
Hebrew	Arabic	Bulgarian	Indonesian
Brazilian			

Keyboard

There are 5 keyboards available to facilitate the edition of message with non–latin alphabets.

Latin	Cyrillic	Chinese
Arabic	Hebrew	

Printer description



■ Electronic compartment

The electronic compartment is located on the top of the printer.

The main electronic elements are:

- The mains filter (located on the radiator of power supply board)

- The power supply board

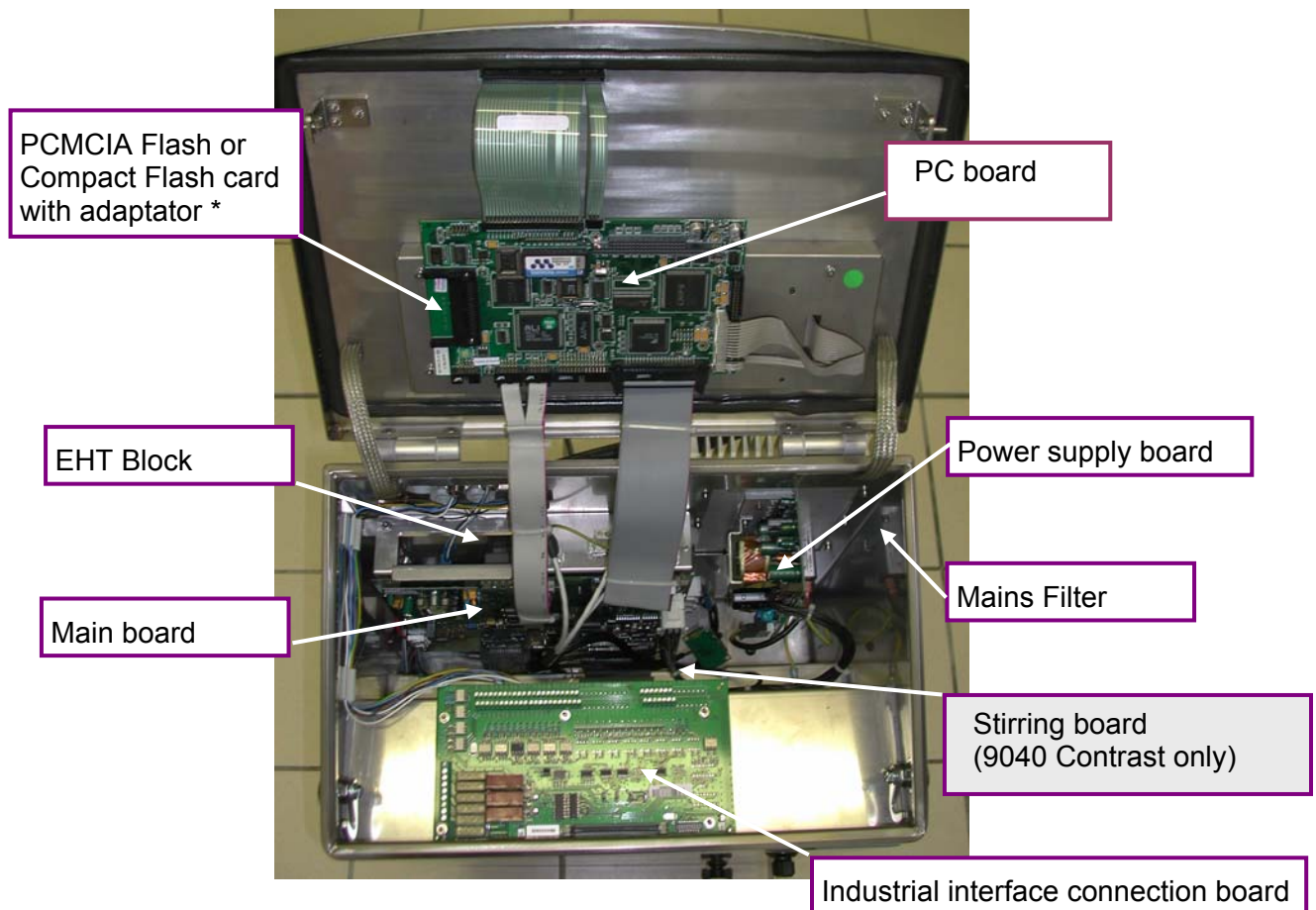
- The main board

- The EHT block

- The industrial interface board (easily accessible)

- The PC board

- The stirring board (9040 contrast)



Printer description



Main board

5 types of main boards are available.

Mono-head, mono-jet

Mono-head, twin-jet

Twin-head, mono-jet

Twin-head, twin-jet

9040S

The CPU and printing functions are located on the same board.

The following elements are connected to the main board:

Power supply

Industrial interface and accessories connectors

EHT block

Ink circuit

Printing module

PC board

Power supply board

This board supplies all voltages (24v, 15v, -15v, 5v) to all others elements.

Stirring motor board

Board connected on the CPU board.

Available for S8.

Industrial interface connection board

This board allows the connection of external devices.

Connectors for all inputs/outputs: photo cell, tacho, alarms (idem 9020/9030)

2 types of boards are available.

Mono-head without external link

Twin-head with parallel interface and RS422

Printer description



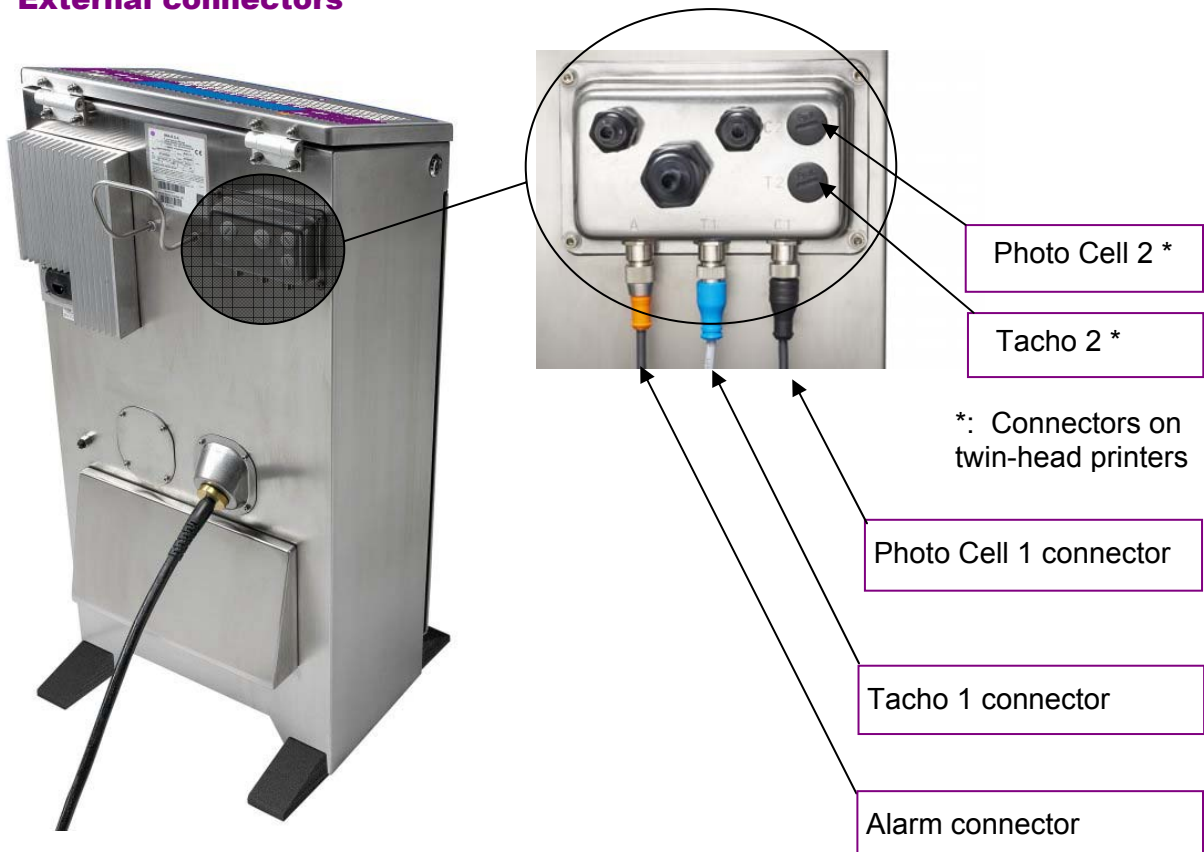
There are different ways to connect an external device to the printer.

For the basic and more common signals (photo cell, tacho & alarm), 3 or 5 IP65 external connectors are available to easy installation.

REMINDER: *The Markem-Imaje photocells, tachometers and illuminated alarms are supplied with compatible IP65 connectors.*

All the signals, can be connected on the industrial interface connection board through screw connector blocks and, all of them, can be connected through HE14 connectors (See Electronics chapter).

External connectors

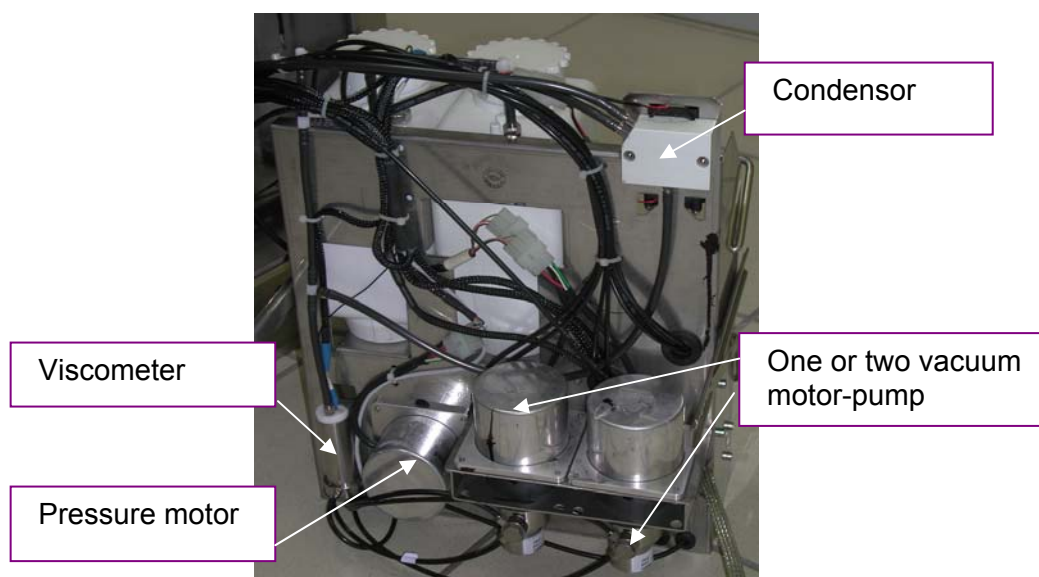
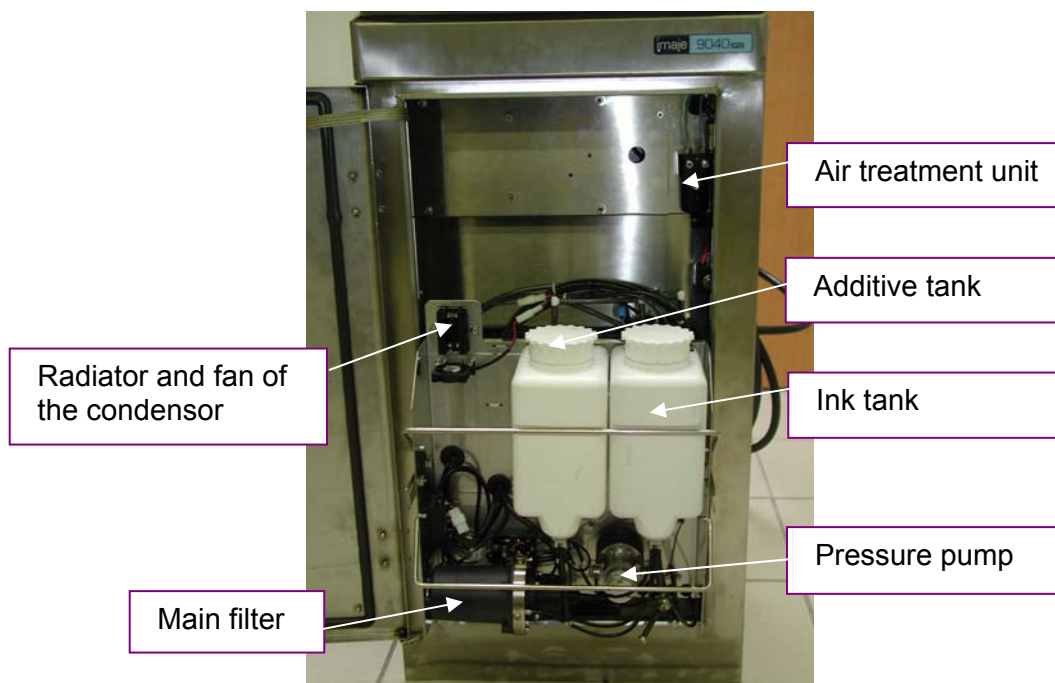


Printer description



■ Hydraulic compartment

This compartment contains the hydraulic circuit and the air treatment unit (on IP65 printers or in case of head pressurisation)



Printer description



■ Print-Head & Umbilical

The print head is available in 2 versions: 1 or 2 jets

The print head is available in 3 different nozzle sizes:

72 μ for G head (nominal resolution: 2.8 dots/mm)

50 μ for M head (nominal resolution: 4.5 dots/mm)

38 μ for P head (nominal resolution: 7 dots/mm)

For 9040 IP65 printer, the print head is protected by a stainless steel head protection accessory (except on bent umbilicals).

REMARK: This stainless steel head protection kit is available as an accessory for 9040.

Characteristics:

1 to 2 jets per head

Regulation of the jet speed

One piece moulded head

Unalterable head electrode alignment

Head pressurization (the printer must be connected to the plant air) (option)

Compound filled umbilical

Bent umbilical available in some configurations

Maximum umbilical axial rotation on itself: 180° in static, 0° in dynamic (no dynamic torsion)

Minimum bend radius of the umbilical: 115 mm dynamic, 100 mm static

Water, Mek and alcohol proof umbilical

Compressible value of the umbilical: 10 bars during 30 seconds

Automatic nozzle cleaning system.

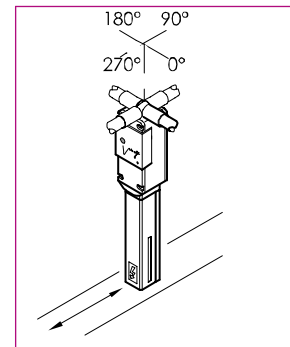
Printer description



■ Umbilical configuration

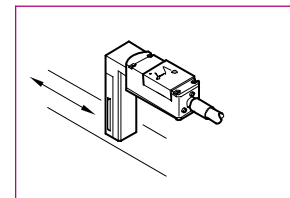
The umbilical lengths available are 3, 5 and 8.35 meters.

On the heads G and M, the option “bent umbilical” (angled conduit) is available in 4 configurations: (0°, 90°, 180° and 270°).

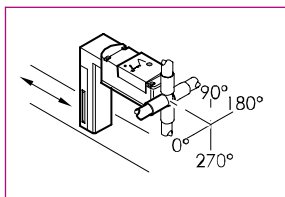


■ Head configuration

On the heads G and M, the option “angled head” is available.



■ Angled umbilical on angled head



REMARK: All these configurations depending on:

the type of the head (G, M or P ; angled or not)

the type of the umbilical (length ; angled or not)

need a special part number. Please refer to the “9040 Spare Parts and Accessories Catalog”.

Printer description



■ General specification of the printer

Operating limits

Operating temperature	☐ + 5°C to + 45°C. (Use of certain ink can limit the temperature range, see ink technical data sheet).
Humidity	☐ 10 to 90 % without condensation.
Altitude	☐ 2000 m maximum.

Installation details

Working position of the printer	☐ Vertical for the printer cabinet ☐ Any position for print head
--	---

Compliance with standard

Safety	☐ Conformity (self-certification): CE marking conforms with the machine directive, the electromagnetic compatibility directive and the low voltage directive: CEI 60950 (UL 60950, EN60950), CEI 60204-1 (EN60204-1). ☐ Accreditations (third-party bodies): UL label according to UL 60950, CSA label according to CSA C.22.2.950, GS label according to EN 60204-1 and ZH 1/10* EX-RL/03.85.	
Protection Mechanical parts	☐ EN60529	
	☐ Vibrations	NF EN 22247 NF EN 60068-2-29
	☐ Impacts (bare product)	falls/impacts NF EN22248 NFH00 -60 NFH00-41, 47, 58, 59
Electromagnetic compatibility	☐ Emissions	EN 61000-6-4
	☐ Immunity	EN 61000-6-2

Printer description



Energy

Electricity

100 - 240V alternative
Frequency 50 to 60 Hz

Air pressurized (for 9040 IP65)

Specifications	Value
Air quality	Max: 0.12 grams of water/m ³ (0.15 oz. of water/cubic foot) – 1 PPM of oil and size of particle < 5μ
Filtration	➤ 90% (particle > 0.1μm)
Required air input flow rate	800 NI/hour (0.47 scfm) for a IP54 version equipped with air pressurisation at 7 bar (101 PSI)
	1600 NI/hour (0.94 scfm) for a 9030 IP65 printer at 7 bar (101 PSI)
Nominal air supply pressure	5 < P < 8 bar (72.5 < P < 116 PSI)

- No adjustment of the air input pressure is necessary
- Little maintenance
- Permanent draining of the water (through a pipe connected of the bottom of the cabinet).
- Possibility to connect the air drying kit

Printer description



Notes:



Product features



Product features



Notes:

Product features



In this chapter, only two functions are described.

■ Code 128

Availability in the range

	Code128
Markem-Imaje 9040	✓

General Definition

The Code 128 is a very effective, high-density symbology which permits the encoding of alphanumeric data.

This symbology has been widely implemented in many applications where a relatively large amount of data must be encoded in a relatively small amount of space.

Code 128 is a continuous, multilevel, full ASCII code.

Each of the Code 128 characters consists of three bars and three spaces. The bars and spaces may be one, two, three, or four modules wide. The total length of each code 128 character is eleven modules, with the total length of the bar modules odd, and the total length of the space modules even.

The character set consists of 103 different characters, three different start characters, and one unique stop character.

Three different start characters determine which character set will be used in the following encoding.

The character set may also be changed in the middle of the barcode thanks to three shift codes.

For example, the barcode starts in "Character set A" to encode the text "Markem-Imaje", and then switches to "Character set C" to more efficiently encode the numbers "9040".

With the three different start characters, there are three different code subsets available. They are:

- Using the "A" start character - All upper case alphanumeric characters plus all of the ASCII control characters.

- Using the "B" start character - All upper and lower case alphanumeric characters.

- Using the "C" start character - Double density numeric characters, all number pairs from 00 to 99.

The symbology includes a checksum digit for verification, and the barcode may also be verified character-by-character verifying the parity of each data byte.

Product features



Code 128 in 9040

A message can contain up to 4 barcodes.

With 9040, we are able to manage the code 128 with the code set A, B and C.

A maximum of 50 characters can be inserted in the code 128 barcode in using the code set A or B and up to 100 characters in using the code set C (the special characters NUL, SOH, STX etc and the shift code to switch to another characters set are counted for one character each time).

When we create a new code 128 barcode on the Keyboard, that is the code set B by default.

UN MESSAGE EDITING MENU CODE

Message Font Variables Parameters

CODE 128

Counter
Counter 2
Time
Date
Postdate
Postdate 2
Shift code
External element
Special characters
128 mode: B

Composition: [B]

That is possible to select another Code set at the beginning of the code.

UN MESSAGE EDITING MENU CODE

Message Font Variables Parameters

CODE 128

Counter
Counter 2
Time
Date
Postdate
Postdate 2
Shift code
External element
Special characters
128 mode: B

Code A
Code B
Code C

Composition: [B]

During the barcode edition, it is possible to change the code set in the middle of the barcode.

UN MESSAGE EDITING MENU CODE

Message Font Variables Parameters

CODE 128

Counter
Counter 2
Time
Date
Postdate
Postdate 2
Shift code
External element
Special characters
128 mode: C

Composition: [B]IMAGE[9040]

Product features



In the barcode the data could be constant or/and variable (counter, shift code) or/and external (sent by the V24 line).

During the edition of the message, text could be inserted above or under the barcode according to the available place and the speed selected.



Product features



Parameters used

In the barcode parameters, it is possible to choose if the readable text will be printed or not according to edition height:

If the height bar with height font is superior to edition height, the barcode is inserted without the text

If the height bar is superior to edition height, the barcode is not inserted

When the readable text and the bar are present on the same jet, there are 3 "blank" drops between the text and the bar.

Code128: The height parameter 'JET' is not adjustable and fixed to maximum height edition.

1/2Code128: It is allowed to choose the height of the bar.

MESSAGE EDITING MENU		CODE
Message	Font	Variables
Parameters		

Narrow bars:	☐	Plain text:	NONE
Narrow spaces:	☐	Height:	JET
Wide bars:	☐	Inverse print:	☐
Wide spaces:	☐	Check digit:	☒
		Optimization:	☐

The code 128 can be printed with the font raster available in the printer or with the full jet raster:

1G Head: Maximum height (full jet raster) = 27 dots (maximum printing speed = 372 mm/s)

1M Head: Maximum height (full jet raster) = 24 dots

"Inverse Print" parameter allows the barcode to be printed in inverse video.

"Optimization" parameter allows to automatically switching in code C in the barcode, when there are enough numeric digit in order to get a code of smaller length.

"Optimization" parameter is not available through the V24 protocol.

Product features



Additional information: Characters set

VAL.	CODE A	CODE B	CODE C	MODULES						VAL.	CODE A	CODE B	CODE C	MODULES					
				B	E	B	E	B	E					B	E	B	E	B	E
0	SP	SP	00	2	1	2	2	2	2	53	U	U	53	2	1	3	1	3	1
1	!	!	01	2	2	2	1	2	2	54	V	V	54	3	1	1	1	2	3
2	"	"	02	2	2	2	2	2	1	55	W	W	55	3	1	1	3	2	1
3	#	#	03	1	2	1	2	2	3	56	X	X	56	3	3	1	1	2	1
4	\$	\$	04	1	2	1	3	2	2	57	Y	Y	57	3	1	2	1	1	3
5	%	%	05	1	3	1	2	2	2	58	Z	Z	58	3	1	2	3	1	1
6	&	&	06	1	2	2	2	1	3	59	[	[	59	3	3	2	1	1	1
7	'	'	07	1	2	2	3	1	2	60	\	\	60	3	1	4	1	1	1
8	(	(	08	1	3	2	2	1	2	61	]	]	61	2	2	1	4	1	1
9	)	)	09	2	2	1	2	1	3	62	^	^	62	4	3	1	1	1	1
10	*	*	10	2	2	1	3	1	2	63	-	-	63	1	1	1	2	2	4
11	+	+	11	2	3	1	2	1	2	64	NUL	`	64	1	1	1	4	2	2
12	,	,	12	1	1	2	2	3	2	65	SOH	a	65	1	2	1	1	2	4
13	-	-	13	1	2	2	1	3	2	66	STX	b	66	1	2	1	4	2	1
14	.	.	14	1	2	2	2	3	1	67	ETX	c	67	1	4	1	1	2	2
15	/	/	15	1	1	3	2	2	2	68	EOT	d	68	1	4	1	2	2	1
16	0	0	16	1	2	3	1	2	2	69	ENQ	e	69	1	1	2	2	1	4
17	1	1	17	1	2	3	2	2	1	70	ACK	f	70	1	1	2	4	1	2
18	2	2	18	2	2	3	2	1	1	71	BEL	g	71	1	2	2	1	1	4
19	3	3	19	2	2	1	1	3	2	72	BS	h	72	1	2	2	4	1	1
20	4	4	20	2	2	1	2	3	1	73	HT	i	73	1	4	2	1	1	2
21	5	5	21	2	1	3	2	1	2	74	LF	j	74	1	4	2	2	1	1
22	6	6	22	2	2	3	1	1	2	75	VT	k	75	2	4	1	2	1	1
23	7	7	23	3	1	2	1	3	1	76	FF	l	76	2	2	1	1	1	4
24	8	8	24	3	1	1	2	2	2	77	CR	m	77	4	1	3	1	1	1
25	9	9	25	3	2	1	1	2	2	78	SO	n	78	2	4	1	1	1	2
26	:	:	26	3	2	1	2	2	1	79	SI	o	79	1	3	4	1	1	1
27	;	;	27	3	1	2	2	1	2	80	DLE	p	80	1	1	1	2	4	2
28	<	<	28	3	2	2	1	1	2	81	DC1	q	81	1	2	1	1	4	2
29	=	=	29	3	2	2	2	1	1	82	DC2	r	82	1	2	1	2	4	1
30	>	>	30	2	1	2	1	2	3	83	DC3	s	83	1	1	4	2	1	2
31	?	?	31	2	1	2	3	2	1	84	DC4	t	84	1	2	4	1	1	2
32	@	@	32	2	3	2	1	2	1	85	NAK	u	85	1	2	4	2	1	1
33	A	A	33	1	1	1	3	2	3	86	SYN	v	86	4	1	1	2	1	2
34	B	B	34	1	3	1	1	2	3	87	ETB	w	87	4	2	1	1	1	2
35	C	C	35	1	3	1	3	2	1	88	CAN	x	88	4	2	1	2	1	1
36	D	D	36	1	1	2	3	1	3	89	EM	y	89	2	1	2	1	4	1
37	E	E	37	1	3	2	1	1	3	90	SUB	z	90	2	1	4	1	2	1
38	F	F	38	1	3	2	3	1	1	91	ESC	{	91	4	1	2	1	2	1
39	G	G	39	2	1	1	3	1	3	92	FS		92	1	1	1	1	4	3
40	H	H	40	2	3	1	1	1	3	93	GS	}	93	1	1	1	3	4	1
41	I	I	41	2	3	1	3	1	1	94	RS	~	94	1	3	1	1	4	1
42	J	J	42	1	1	2	1	3	3	95	US	DEL	95	1	1	4	1	1	3
43	K	K	43	1	1	2	3	3	1	96	FNC 3	FNC 3	96	1	1	4	3	1	1
44	L	L	44	1	3	2	1	3	1	97	FNC 2	FNC 2	97	4	1	1	1	1	3
45	M	M	45	1	1	3	1	2	3	98	SHIFT	SHIFT	98	4	1	1	3	1	1
46	N	N	46	1	1	3	3	2	1	99	CODE C	CODE C	99	1	1	3	1	4	1
47	O	O	47	1	3	3	1	2	1	100	CODE B	FNC 4	CODE B	1	1	4	1	3	1
48	P	P	48	3	1	3	1	2	1	101	FNC 4	CODE A	CODE A	3	1	1	1	4	1
49	Q	Q	49	2	1	1	3	3	1	102	FNC 1	FNC 1	FNC 1	4	1	1	1	3	1
50	R	R	50	2	3	1	1	3	1	103	START A	START A	START A	2	1	1	4	1	2
51	S	S	51	2	1	3	1	1	3	104	START B	START B	START B	2	1	1	2	1	4
52	T	T	52	2	1	3	3	1	1	105	START C	START C	START C	2	1	1	2	3	2
														B E B E B E B					
										STOP				2 3 3 1 1 1 2					

Product features



Additional information: Checksum digit calculation

The Symbol Check Character shall be included as the last symbol character before the Stop Character. The Symbol Check Character shall not be represented in the Human Readable Interpretation, nor shall it be transmitted by the decoder.

The checksum digit is based on a modulo 103 calculation based on the weighted sum of the values of each digits, including the start character.

The steps for calculating of the check digit are as follows:

Add the start character value (103, 104, or 105) to the running checksum.

Take each character in the message, take its value, and multiply it by its character position,

and add the total to the running checksum.

Divide the resulting running checksum by 103. The remainder becomes the checksum digit which is added to the end of the message.

The stop character is appended after the checksum digit.

Example to calculate the checksum digit:

Data: "Code A" **MARKEM-IMAJE** "Code C" **9040**

String	Start A	I	M	A	J	E	Start C	90	40
Value	103	41	45	33	42	37	99	90	40
Weight	1	1	2	3	4	5	6	7	8
Sum	103	41x1=41	45x2=90	33x3=99	42x4=168	37x5=185	99x6=594	90x7=630	40x8=320

Summing up the sum of each character. The sum is
 $103 + 41 + 90 + 99 + 168 + 185 + 594 + 630 + 320 = 2230$.

2230 divides 103, the remainder is 67, so the checksum digit is 67.

NOTE: Note that the checksum starts with the first Start Character, with a weight of 1, and that the first data character also has a weight of 1.

Product features

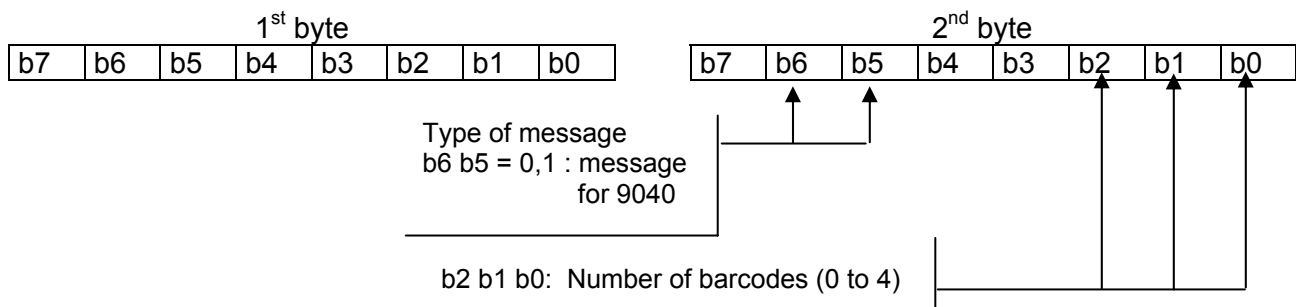


V24 protocol

In the V24 structure described below to transfer a non-library message, the bytes used to configure the counters are marked in gray color.

Identifier	1 byte	57h	Transmit non-library message
Length	2 bytes	xxh, xxh	
Head number: 01h=head1 02h=head2	1 byte	xxh	
Structure indicator	2 bytes	xxh, xxh	To define the presence of the following parameters, text and variables
General message parameters	14 bytes	xxh, xxh	To define the print parameters (direction, mode, margin, speed, etc)
Counter 1 and 2 parameters	2 x 26 bytes	xxh, xxh	To define the counter parameters (mode, start and final value, etc)
Postdate 1 and 2 parameters	2 x 2 bytes	xxh, ... xxh	To define the postdate interval and the unit
Barcode or Datamatrix 1, 2, 3, 4 parameters	4 x 10 bytes	xxh, xxh	To define the code type, the height, the bar width...
Message to print	N bytes	xxh,xxh	
Checksum	1 byte	xxh	

"Structure indicator" byte

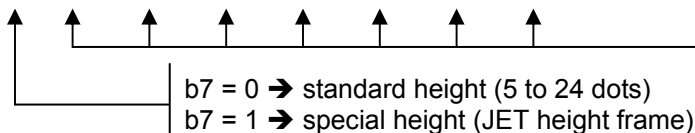
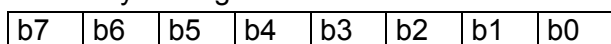


Product features



"Barcode parameters" bytes

1st byte: height of the bar



2nd byte: type of barcode

10h = Code 128

11h = ½ Code 128

3rd byte: Expansion (bolderization) factor

For Code 128, this value is always equal to 1

4th byte: narrow space/bar.

The size of the space and bar are not used in the code 128 because there are 4 types of spaces and bars.

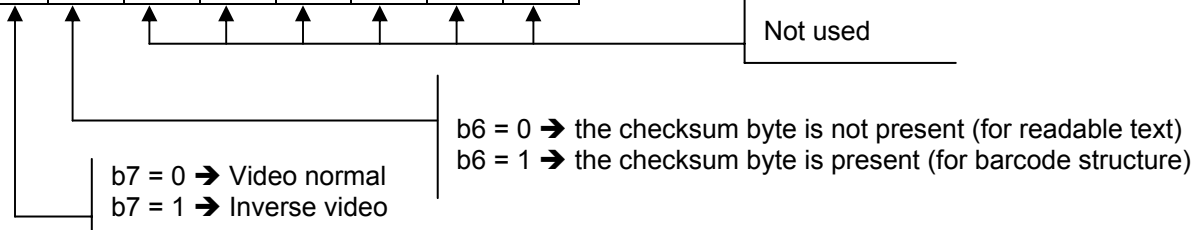
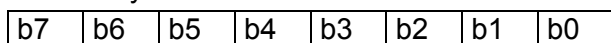
The width value for narrow items is set at 1 (09h).

5th byte: wide space/bar.

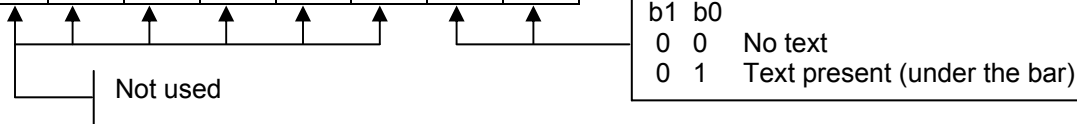
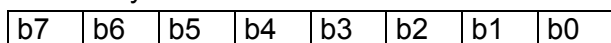
The size of the space and bar are not used in the code 128 because there are 4 types of spaces and bars.

The value for wide items is set at 2 (22h).

6th byte: video mode and barcode checksum



7th byte: Text



The next three bytes (8th 9th 10th bytes) are not used and set at 00h



Product features

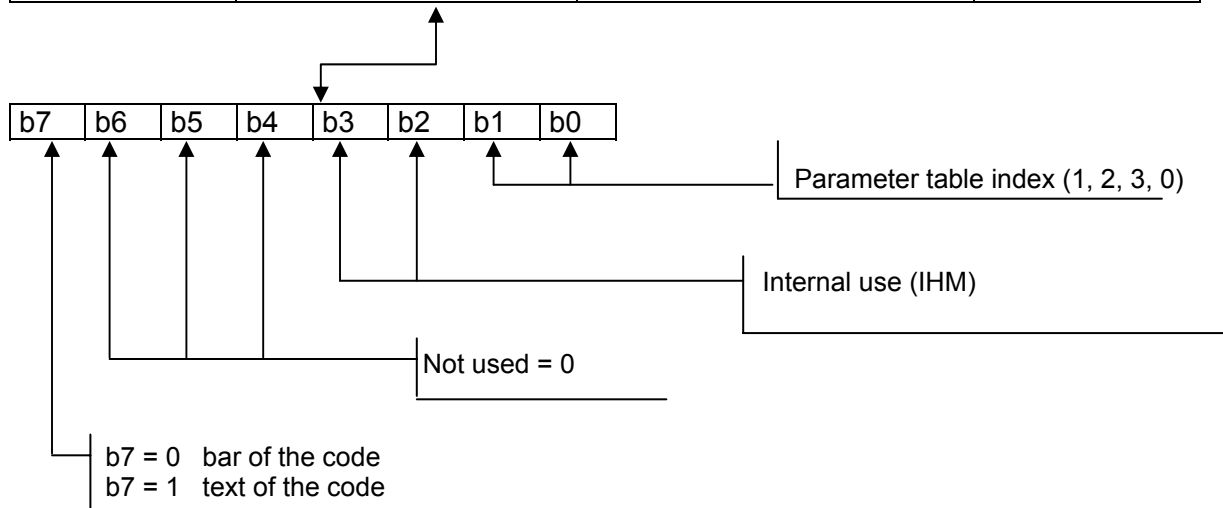


"Barcode bytes" in the text block

In the block text, a similar protocol can be used for the bar and the readable text of the barcode.

The b7 of the "definition of the code" allows to configure the bar or the text mode.

Barcode delimiter 1Fh	Definition of the code 1 byte	Data to be encoded + 1 byte for the check digit of the barcode	Barcode delimiter 1Fh
--------------------------	----------------------------------	---	--------------------------



Product features



NOTE 1: *The size of the space and bar are not used in the code 128 because there are 4 types of spaces and bars.*

In the V24 barcode parameters, it is recommended to set the narrow space/bar at 1 frame and the wide space/bar at 2 frames.

NOTE 2: *In the V24 barcode structure, one byte has to be inserted at the end of the data barcode for the barcode check digit (30h for example). The value of this byte will be automatically recalculated by the printer for the check digit value.*

NOTE 3: *In the V24 barcode structure, we can use the ASCII table to insert the characters bytes.*

If we use the Code 128 characters table, we have to add 20h to the characters to be encoded.

In the code A, we have to add 20h to the special characters (NUL, SOH, STX...). For example, to insert STX, we have to send 62h (In the code 128 table STX = 66 decimal = 42h).

In the Code C, a couple of digit have to be inserted with 2 bytes (example 07 will be 30h 37h).

That is not necessary to add 20h to the variable delimiter and variable elements (counter, date, etc).

NOTE 4: *In the V24 readable text structure, the start byte has to be present. The switch byte has not to be present. The check digit has not to be present.*

Product features



V24 protocol sample: Transmit a non-library message

The message is composed of 2 code 128 barcode on twin jet printer.

The first code 128 barcode is on the jet 1 with the readable text in 5 dots under the bar.
The bars are in 16 dots high.

The text is "MARKEM-IMAJE" with "MARKEM-IMAJE" in Code A and "9040" in Code C.

The second barcode is a code 128 with the readable.

The bar are located on the jet 1 using the full jet raster (30 dots).

The readable text is in 7 dots font under the bar on the other jet.

The text is "SN230306000000001" with in Code A.

"23" is the day of the month.

"03" is the month.

"06" is the year.

"000000001" is the counter 1.

Product features



Identification (1 byte)	57h	
Length (2 bytes)	00h B5h	
Head number (1 byte)	01h	
Structure indicator (2bytes)	C4h 22h	Presence of general parameter Presence of message text 1 counter / 2 barcodes
General parameter (14 bytes) Printing parameters Multitop mode Object top filter & Tacho division Forward margin Return margin Interval Printing speed Algorithm number	00h 00h 01h 01h 00h 03h 00h 03h 00h 03h 00h 64h 00h 00h	Normal sense / Tacho mode off / Object Disabled Filter = 100 3 mm 3 mm 3 mm 100 mm/s Auto
Parameters for counter1 (26 bytes) Counter parameters Start value in ASCII End value in ASCII Counter step in ASCII Batch counter in ASCII	89h 80h 8 x 30h 31h 9 x 39h 30h 31h 00h 00h 00h 01h	Leading zeros / 9 digits Start value = 000000001 End value = 999999999 Counter step = 01 Batch counter = 000001
Parameters for barcode1 (10 bytes) Height Type of barcode Bolderization Narrow space / Narrow bar Wide space / Wide bar Mode video / control byte Position of the text Reserved	10h 11h 01h 09h 22h 40h 01h 3 x 00h	16 dots ½ Code 128 Bold = 1 1 frame 2 frames Video normal & with control byte Text present unused
Parameters for barcode2 (10 bytes) Height Type of barcode Bolderization Narrow space / Narrow bar Wide space / Wide bar Mode video / control byte Position of the text Reserved	9Bh 11h 01h 09h 22h 40h 01h 3 x 00h	Full jet raster ½ Code 128 Bold = 1 1 frame 2 frames Video normal & with control byte Text under the code unused



Product features



TEXT		
Identification line 1	0Ah	
Start first block position	80h 24h	Position 36 (bar of the first barcode)
Font & bolderization	53h 01h	Font 5 dots / Bold = 1
Text delimiter	10h	
Barcode delimiter	1Fh	
Definition of the code	05h	Bar of the first code / barcode 1 / Parameter barcode 1
Start Code A	87h	87h – 20h = 67h = 103 decimal (start A in code128 table)
I	49h	49h – 20h = 29h = 41 decimal (I in code128 table)
M	4Dh	4Dh – 20h = 2Dh = 45 decimal (M in code128 table)
A	41h	41h – 20h = 21h = 33 decimal (A in code128 table)
J	4Ah	4A – 20h = 2Ah = 42 decimal (J in code128 table)
E	45h	45h – 20h = 25h = 37 decimal (E in code128 table)
Switch to Code C	83h	83h – 20h = 63h = 99 decimal (Code C in code128 table)
9	39h	9
0	30h	0
4	34h	4
0	30h	0
Check digit	30h	
Barcode delimiter	1Fh	
Text delimiter	10h	
Bolderization & Font	01h 53h	Bold = 1 / Font 5 dots
End first block position	80h 24h	Position 36 (bar of the first barcode)
Start second block position	80h 1Ch	Position 28 (bar of the second barcode)
Font & bolderization	38h 01h	Font 16 dots / Bold = 1
Text delimiter	10h	
Barcode delimiter	1Fh	
Definition of the code	0Ah	Bar of the second code / barcode 2 / Parameter barcode 2
Start Code A	87h	87h – 20h = 67h = 103 decimal (start A in code128 table)
S	53h	53h – 20h = 33h = 51 decimal (S in code128 table)
N	4Eh	4Eh – 20h = 2Eh = 46 decimal (N in code128 table)
Delimiter of the autodating	1Ah	
Day of the month	49h 4Ah	Day of the month
Month of the year	50h 51h	Month of the year
Year	55h 56h	Year
Delimiter of the autodating	1Ah	
Delimiter of the counter	1Ch	
Counter 1	01h	Counter 1
Delimiter of the counter	1Ch	
Check digit	30h	
Barcode delimiter	1Fh	
Text delimiter	10h	
Bolderization & Font	01h 38h	Bold = 1 / Font 16 dots
End second block position	80h 1Ch	Position 28 (bar of the second barcode)



Product features



Identification line 2	0Ah	
Start third block position	80h 1Ch	Position 28 (text of the first barcode)
Font & bolderization	53h 01h	Font 5 dots / Bold = 1
Text delimiter	10h	
Barcode delimiter	1Fh	
Definition of the code	85h	text of the first code / barcode 1 / Parameter barcode 1
Tabulation delimiter	1Eh	
54 empty raster	36h	54 empty raster
Tabulation delimiter	1Eh	
Start Code A	87h	87h – 20h = 67h = 103 decimal (start A in code128 table)
I	49h	49h – 20h = 29h = 41 decimal (I in code128 table)
M	4Dh	4Dh – 20h = 2Dh = 45 decimal (M in code128 table)
A	41h	41h – 20h = 21h = 33 decimal (A in code128 table)
J	4A	4A – 20h = 2Ah = 42 decimal (J in code128 table)
E	45h	45h – 20h = 25h = 37 decimal (E in code128 table)
9	39h	9
0	30h	0
4	34h	4
0	30h	0
Tabulation delimiter	1Eh	
55 empty raster	37h	55 empty raster
Tabulation delimiter	1Eh	
Barcode delimiter	1Fh	
Text delimiter	10h	
Bolderization & Font	01h 53h	Bold = 1 / Font 5 dots
End third block position	80h 1Ch	Position 28 (text of the first barcode)



Product features



Start fourth block position	80h 09h	Position 9 (text of the second barcode)
Font & bolderization	38h 01h	Font 16 dots / Bold = 1
Text delimiter	10h	
Barcode delimiter	1Fh	
Definition of the code	8Ah	text of the second code / barcode 2 / Parameter barcode 2
Tabulation delimiter	1Eh	
80 empty raster	1Dh	29 empty raster
Tabulation delimiter	1Eh	
Start Code A	87h	87h – 20h = 67h = 103 decimal (start A in code128 table)
S	53h	53h – 20h = 33h = 51 decimal (S in code128 table)
N	4Eh	4Eh – 20h = 2Eh = 46 decimal (N in code128 table)
Delimiter of the autodating	1Ah	
Day of the month	49h 4Ah	Day of the month
Month of the year	50h 51h	Month of the year
Year	55h 56h	Year
Delimiter of the autodating	1Ah	
Delimiter of the counter	1Ch	
Counter 1	01h	Counter 1
Delimiter of the counter	1Ch	
Tabulation delimiter	1Eh	
80 empty raster	1Dh	29 empty raster
Tabulation delimiter	1Eh	
Barcode delimiter	1Fh	
Text delimiter	10h	
Bolderization & Font	01h 38h	Bold = 1 / Font 16 dots
End fourth block position	80h 09h	Position 9 (text of the second barcode)
End message delimiter + checksum	0Dh 69h	



Product features



■ Counters and Counter parameters

Presentation

There are **two available counters per head** whatever the head type.

These counters can be inserted several times in a same message without limitation.

For each message, the counter parameters (start and final value, step, incrementation type...) can be different.

Disponibilité dans la gamme

	Counters	Reset Counter Inputs Industrial Interface	Increment Counter Input Industrial Interface
MARKEM- IMAJE 9040	✓	✓	✓

✓: Standard ✗: Not available

Parameters

Each of the two counters can be inserted in the message from the **"Message Editing Menu"**:

"Message Editing Menu/Variables/Counter"

"Message Editing Menu/Variables/Counter 2"

The counter parameters relative to each of the two counters are available from :

"Message Editing Menu/Parameters/Counter"

"Message Editing Menu/Parameters/Counter 2"

The counter parameters are saved per messages.

In the menus **"Message Editing Menu/Parameters/Counter"** and **"Message Editing Menu/Parameters/Counter 2"**, 7 parameters are used to configure the counter and its incrementation type.

ON

MESSAGE EDITING MENU

COUNTER

Message Font Variables Parameters

First digit: 000000001

Last digit: 999999999

Counter step: 01

Batch counter: 000001

Incrementation type: MESSAGE

Leading zeros: ☒

Reinit./top object: ☐



Product features



First digit:

This parameter allows to choose the start counter value.
From 000 000 000 to 999 999 999.

Last digit:

This parameter allows to choose the finale counter value.
From 999 999 999 to 000 000 000.
After having reached the final value, the counter re-starts to its start value
If the final value is less than the start value, then, the counter decrements

Counter step:

This parameter allows to choose the counter incrementation step.
Minimum value : 01
Maximum value : 99

Batch counter:

This parameter allows to select the item number contained in the batch. The counter increments when the batch value is reached.
Minimum value: 000 001
Maximum value: 999 999

Incrementation type:

This parameter allows to choose the incrementation type of the counter in the message.
Object: The counter increments on activation of the 'Top-Object' input.
Message: The counter increments on the message print.
Ext: The counter increments on activation of the INCC1 (for head1) or INCC2 (for head2) input of the Industrial interface.
Linked: This parameter is only available for the "Counter2" from "**Message Editing/Menu/Parameters/Counter 2**". The counter2 increments when the counter1 reaches its final value.

NOTES: When the Incrementation type = "**Object**", the counter increments only if the jet is ready to print (unless that the cable printing option is selected)

When the Incrementation type = "**Ext**", the counter increments whatever the jet status (ready to print, in fault or stopped) and whatever the printer status (ON or stand-by).

Product features



Leading zeros:

This parameter allows to print or not the leading zeros.

- ☒ The leading zeros will be printed.
- ☐ The leading zeros will not be printed and replaced into back spaces

Reinit./top object:

This parameter allows to reset the counter when receiving the 'Top Object' signal. This parameter can be useful for the applications that use the repetitive mode.

Some other parameters exist while they are not displayed in the User Interface

Reset counter:

Manual Reset: It is allowed to reset the counter values from the Production menu.

Automatic Reset: The counter will be automatically reinitialized to its start value when:

- At least one of the counter parameters is modified in the current message

- A new message is selected, and at least one of the counter parameters is different

This is because it has been considered that when one counter parameter is modified or different, it concerns a new production.

NOTE: A software option allows to avoid the automatically reset of the counter value in the two above cases.

External Reset: The counter1 of each head can be reinitialized to its start value on activation of the RAZ1/CRZ1 or RAZ2/CRZ2 input (depending of the head) of the industrial interface.

NOTES: This External Reset mode is permanently active.

When receiving an External Reset signal, the counter is reinitialized whatever the jet status (ready to print, in fault or stopped) and whatever the printer status (ON or stand-by)

External Reset through RS232 link: It is allowed to reset the counter values through RS232 link by using 3Ah sending.

Product features



Output activation:

Two outputs FIN1/CFN1 and FIN2/CFN2 allows to know when final value of the counter1 of each head is reached.

NOTES: *These two outputs are activated when the final value of the Counter1 is printed (more precisely the output is activated at the end of the printing of the margin).*

Counter value modification:

It is allowed to modify the current counter value from the Production menu or through RS232 link by using 51h sending.

Product features



Example of application

Case A: Counter incrementation in OBJECT mode

With the following parameters:		
Set Off: "Object"	Incrementation type: "Object"	Reinit./top object: ☐ (no)

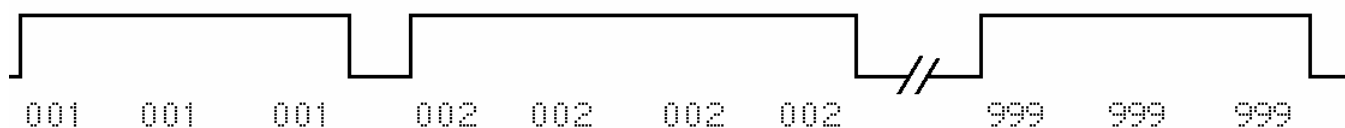


With the following parameters:		
Set Off: "Object"	Incrementation type: "Message"	Reinit./top object: ☐ (no)

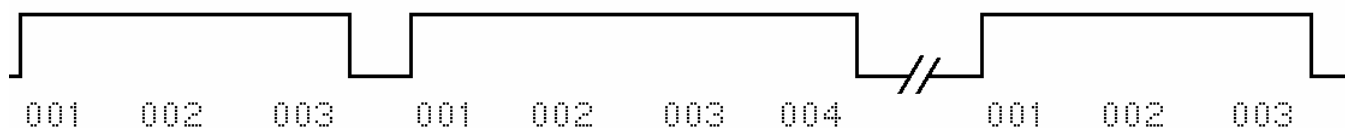


Case B : Counter incrementation in REPETITIVE mode

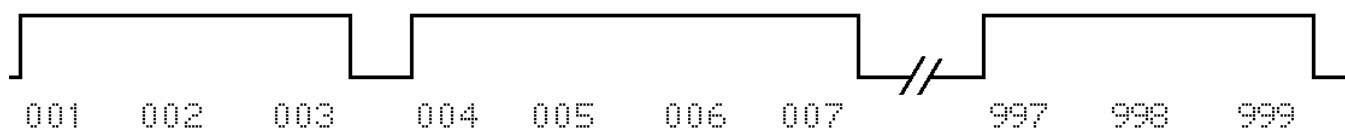
With the following parameters:		
Set Off: "Repetitive"	Incrementation type: "Object"	Reinit./top object: ☐ (no)



With the following parameters:		
Set Off: "Repetitive"	Incrementation type: "Message"	Reinit./top object: ☒ (yes)



With the following parameters:		
Set Off: "Repetitive"	Incrementation type: "Message"	Reinit./top object: ☐ (no)

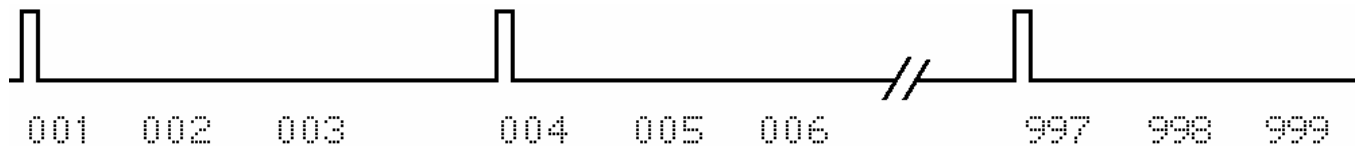


Product features

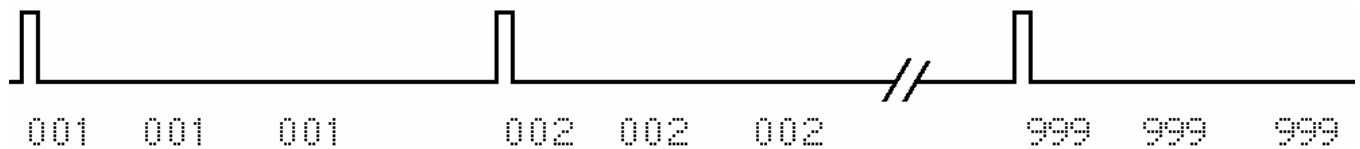


Case C: Counter incrementation in MULTITOP mode (3 for example)

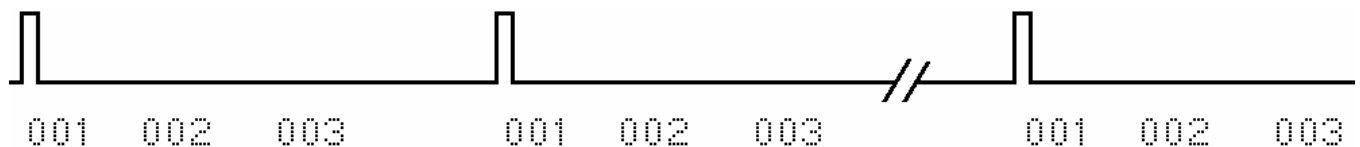
With the following parameters:		
Set Off: "Multitop"	Incrementation type: "Message"	Reinit./top object: ☐ (no)



With the following parameters:		
Set Off: "Multitop"	Incrementation type: "Object"	Reinit./top object: ☐ (no)



With the following parameters:		
Set Off: "Multitop"	Incrementation type: "message"	Reinit./top object: ☒ (yes)



Product features

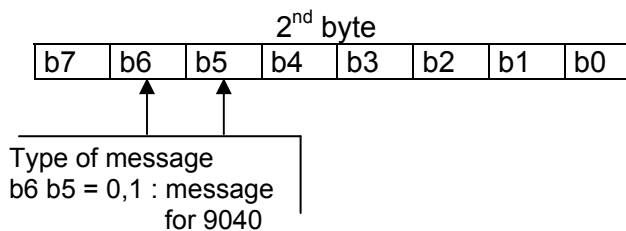
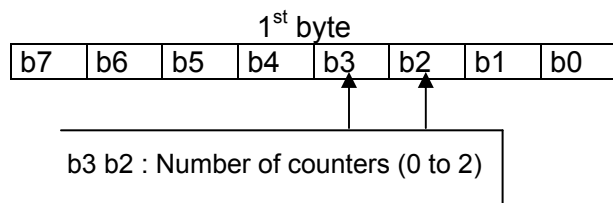


V24 protocol

In the V24 structure described below to transfer a non-library message, the bytes used to configure the counters are marked in gray color.

Identifier	1 byte	57h	Transmit non-library message
Length	2 bytes	xxh, xxh	
Head number: 01h=head1 02h=head2	1 byte	xxh	
Structure indicator	2 bytes	xxh, xxh	To define the presence of the following parameters, text and variables
General message parameters	14 bytes	xxh, xxh	To define the print parameters (direction, mode, margin, speed, etc)
Counter 1 and 2 parameters	2 x 26 bytes	xxh, xxh	To define the counter parameters (mode, start and final value, etc)
Postdate 1 and 2 parameters	2 x 2 bytes	xxh, ... xxh	To define the postdate interval and the unit
Barcode or Datamatrix 1, 2, 3, 4 parameters	4 x 10 bytes	xxh, xxh	To define the code type, the height, the bar width...
Message to print	N bytes	xxh,xxh	
Checksum	1 byte	xxh	

Structure indicator bytes

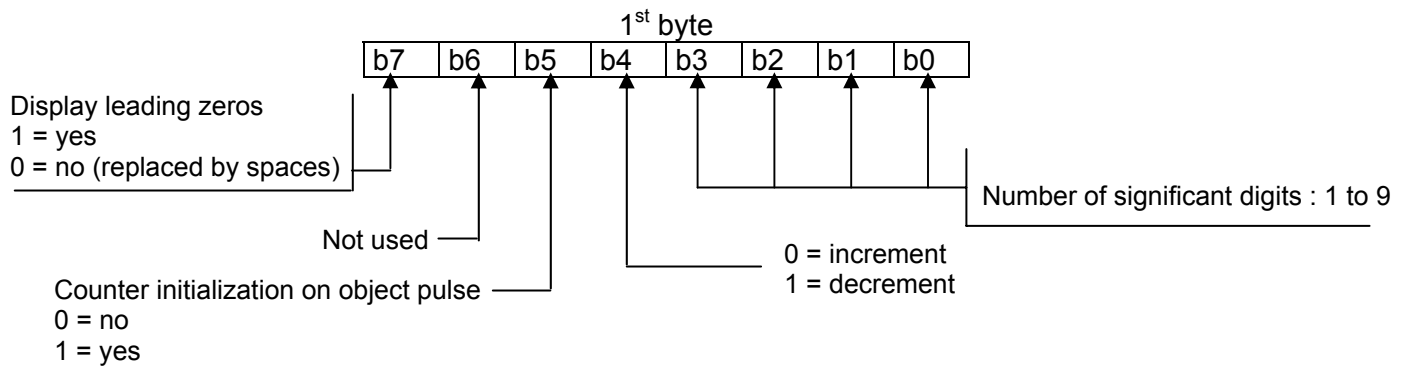


Product features



Counter parameters bytes

The 26 bytes below must be configured for a counter. Each counter has a corresponding 26-byte configuration.



Product features



2 nd byte: Incrementation type								
	b7	b6	b5	b4	b3	b2	b1	b0
Object	0	1	1	0	0	0	0	0
Message	1	0	0	0	0	0	0	0
Ext	0	0	1	0	0	0	0	1
Linked (only for Counter2)	0	0	0	0	0	0	0	0

The following 24 bytes are used to define the following parameters:

9 bytes to define the counter start value (ASCII).

For example, to define a start value of "000000001", it has to be sent 30h 30h 30h 30h 30h 30h 30h 30h 31h.

Even if the counter is defined with less than 9 digits, it is necessary to define the start value with 9 bytes.

9 bytes to define the counter final value (ASCII).

For example, to define a final value of "999999999", it has to be sent 39h 39h 39h 39h 39h 39h 39h 39h 39h.

Even if the counter is defined with less than 9 digits, it is necessary to define the final value with 9 bytes.

2 bytes to define the counter step (ASCII).

4 bytes to define the counter batch (only the 3 low order bytes are significant)

For example, to define a counter batch of "000001", it has to be sent 00h 00h 00h 01h.

Counter bytes in the text block

Counter delimiter 1Ch	Counter number 01 to 02 1 byte	Barcode delimiter 1Ch
--------------------------	-----------------------------------	--------------------------



V24 protocol sample: Transmit a non-library message

Example with a message composed of 2 counters:

The counter 1 is composed of 1 numerical digit for the digit after the coma.

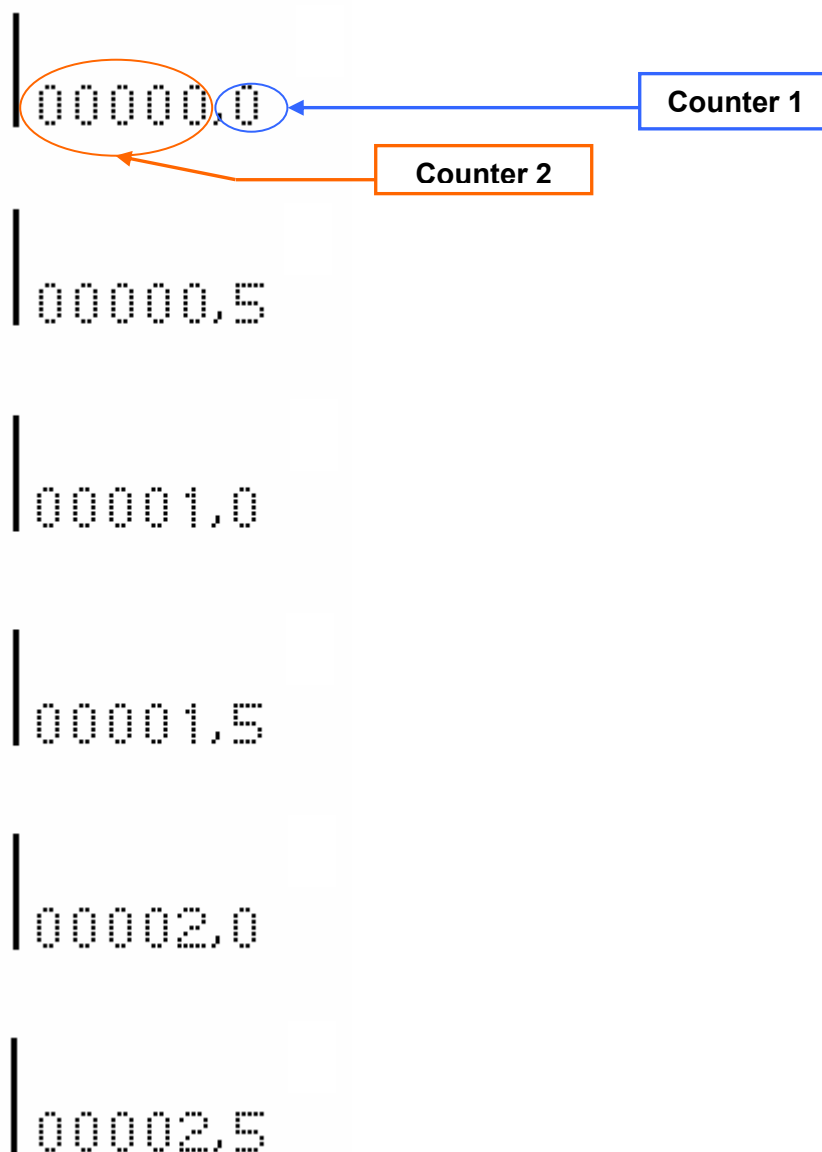
The counter 1 is incremented by the photocell.

The step counter is 5 (xxxxx,0 xxxxx,5 xxxxx,0 xxxxx,5 xxxxx,0 xxxxx,5...)

The counter 2 is composed of 5 numerical digits.

The counter 2 is linked with counter 1.

The step counter is 1.



Product features



Identification (1 byte)	57h	
Length (2 bytes)	00h 5Ah	
Head number (1 byte)	01h	
Structure indicator (2bytes)	C8h 20h	Presence of general parameter Presence of message text 2 counters / 0 post-date / 0 barcode
General parameter (14 bytes)		
Printing parameters	00h	Normal sense / Tacho mode off / Object
Multitop mode	00h	Disabled
Object top filter & Tacko division	01h 01h	Filter = 100
Forward margin	00h 03h	3 mm
Return margin	00h 03h	3 mm
Interval	00h 03h	3 mm
Printing speed	00h 64h	100 mm/s
Algorithm number	00h 00h	Auto
Parameters for counter 1 (26 bytes)		
Counter parameters	01h 61h	Leading zeros / 1 digit / object incrementation
Start value in ASCII	9 x 30h	Start value = 000000000
End value in ASCII	8 x 30h	End value = 000000005
	35h	
Counter step in ASCII	30h 35h	Counter step = 05
Batch counter in ASCII	00h 00h	Batch counter = 000001
	00h 01h	
Parameters for counter 2 (26 bytes)		
Counter parameters	85h 00h	Leading zeros / 5 digits / incrementation linked with the precedent counter
Start value in ASCII	9 x 30h	Start value = 000000000
End value in ASCII	4 x 30h	Start value = 000099999
	5 x 39h	
Counter step in ASCII	30h 31h	Counter step = 01
Batch counter in ASCII	00h 00h	Batch counter = 000001
	00h 01h	
TEXT		
Identification line 1	0Ah	
Start first block position	80h 01h	Position 01 (position of the counter 1 & 2)
Character generation & expansion	34h 01h	Font 7 dots / Bold = 1
Text delimiter	10h	
	20h 20h	
Counter delimiter	1Ch	
Counter 2	02h	Counter 2
Counter delimiter	1Ch	
Character “ , ”	2Ch	“ , ”
Counter delimiter	1Ch	
Counter 1	01h	Counter 1
Counter delimiter	1Ch	
Text delimiter	10h	
Character generation & expansion	01h 34h	Bold = 1 / Font 7 dots
End first block position	80h 01h	Position 01 (position of the counter 1 & 2)
End message delimiter + checksum	0Dh 46h	





Compatibility



Compatibility



Notes:



■ Compatibility S8 G1 → 9040

Information about the range

S8 Classic, Mailjet & S8Master 1.4 remain in G1 software mode. Models still available in 2006 product portfolio.

Principles

With S8G1, the structure of the message is managed line by line and jet per jet whereas the message with 9040 are managed as a whole (per head) whatever the quantity of lines (1 up to 4) and jet configuration.

Printing datas = Algos such as 9020-9030.

When you set up a new message Need to enter the speed value of the conveyor whatever the printing mode (standard =without encoder or Tachy = with encoder). Need to select the suitable printing algorithm for some applications (Multiple lines, G30, M20).

These choices can be pre-selected / pre-programmed in the preference menu when we use the same type of algos.

9040 Features – Main differences with S8 G1 for new messages

Bar code: Ability to print only 4 bar-code per head (whatever the head configuration single jet or bijet) S8 G1 can manage 4 per jet = 8 for Bi-jet)

Industrial Bar code: It is not possible to print an industrial barcode (code 39, interleaved 2/5) with the full jet raster.

Bar code (EAN;UPC & code 128): Possibility to print the readable text of the barcode or not (setting through the barcode parameters). If the speed and the algorithm allow it, it is possible to print the bar and the readable text on single jet machine

Post-date: Ability to print only 2 post-dates per head (whatever the head configuration single jet or bijet). S8 G1 can manage 2 per jet = 4 for Bi-jet.

Compatibility



Post-date & table horo (custom) month: With 9040, the 1st post-date is tight to language table (month), the 2nd post-date is tight to the custom table whereas the post-dates of S8 G1 are tight to the custom table but with the possibility to be customised or not.

	Post Month 1		Post Month 2	
Month autodatng table set like the month table	S8G1 prints the month	9040 prints the month	S8G1 prints the month	9040 prints the month
Month autodatng table is customised	S8G1 prints the customised month	9040 prints the month	S8G1 prints the customised month	9040 prints the customised month

Shift code: 9040 can print only 2 shift codes per head (whatever the head configuration single jet or bijet) whereas S8 G1 can print 2 per jet = 4 for bi-jet.

Multi-lines messages: In some multi-lines configurations (message with 5 or 7 dot fonts, position 3 or 4) , S8G1 can print faster.

Multi-top: Maximum value is 256 (65536 for S8G1).

Margin: Minimum gap of 3 mm between Dtop and start of printing.

Message transfer via PCMCIA card or V24 (S8 G1 ⇌ 9040)

Prerequisite: Fonts used in S8 G1 (source) must be available in 9040.

Sending messages without parameters: If a message is sent without parameters through the V24 line, the parameters used will be the default parameters present in the menu Preparation / Message / Parameters.

Specific printing data: Messages could be wrongly converted in case of messages using non standard printing data.

2x11dot font: Messages using 2x11dot font will be wrongly converted. The second line of 11dots will be positioned on the line 1(even if the 11 dots font appears only on one line).

2x11dot font & tacky mode: Messages using 2x11dot font with tacky mode may be wrongly printed (wrong print length) (even if the 11 dots font appears only on one line).

G30 ou M20: If the customer uses G30 or M20 printing data, it is recommended to download only G30 or M20 algos in 9040 to get an automatic algo selection when the message is converted.

If all algorithms are present in the printer, the algo number must be selected in the menu Preparation / Message / Parameters in order to force it for the conversion.

Remark: with 9040, the “head – object” parameter is only used for the drop flight compensation. This parameter is not used for the algorithm selection.

Compatibility



Multi-line 5 & 7 dot font algo: If the customer uses messages including multi lines which will necessitate the use in 9040 of multi line algos, the algo number must be selected in the menu Preparation / Message / Parameters. As it is only possible to set one algo number, the algo used in 9040 may be incorrect for some messages when converted if the conversion required different algo number.

Rapid algo & Tacky mode: As the speed is not described in the G1 message structure (tacky mode), the speed must be set in the menu Preparation / Message / Parameters for the message conversion.

Tacky mode: If the customer uses several messages with different print heights (7dot font, 2x7 dot font, 16 dot font, 24 dot font, etc...) and the speeds of the conveyor are close to printing speed performances of each message (if the speed of the conveyor changes according to the message), the algo used in 9040 may be incorrect for some messages when converted.

Tacky division: In most cases (but not in all), tacky division will be well converted.

Margin: Margin can be different (print gap).

Inverted vertical mode: A message created with the inverted vertical mode on S8G1 will be wrongly converted on 9040. The lines of the same jet will be reversed between them and the text of jet 1 will be inverted with text of jet 2.

Multi-top: If a message without parameters is sent to 9040, the Multi-top value (used by 9040) will be the value set in the Parameters By Default in the menu Preparation / Parameters / Message.

Top Filter: If a message without parameters is sent to 9040, the Top Filter value (used by 9040) will be the value set in the Parameters By Default in the menu Preparation / Parameters / Message.

Industrial barcode & full jet raster: With S8G1, if the message is composed of industrial barcode (code 39, interleaved 2/5) using the full jet raster, the barcode will be printed with 24 dots high on 9040.

Distribution bar code & single jet : With S8G1 single jet, the distribution barcode is only composed of the bar (without readable text). With 9040, this type of barcode will be also converted with only the bar like S8G1 features.

Distribution bar code & bi-jet: With S8G1 twin jet, the distribution barcode is composed of the bar on one jet and the readable text is placed on the other jet. With 9040, this type of barcode will be correctly converted with the bar and the readable text as S8G1 features.

V24 Compatibility (G1 protocol towards 9040)

Protocol 4Ah of S8G1 (transfer of variable data) can not run with the bi-jet configuration.

Protocol 43h (request of current message) runs differently. 9040 re-sent a message with 9040 structure (architecture).

Protocol 44h (request for recorded operating parameters) can not runs on 9040.

Compatibility



Do not modify from keyboard, parameters of a complete message sent via serial S8 G1 protocol.

Timing: When 9040 receives messages via serial S8 G1 protocol, V24 timing is slightly longer (ex : 100 ms for 2 lines of 7 dot font points, 10 characters per line with 9040 instead of 40 ms with S8 G1).

Direct mode: Direct mode does not run in case of G1 protocol G1 towards 9040.

Message selection by parallel interface

With S8G1, the structure of the message is managed jet per jet whereas the message with 9040 are managed as a whole (per head) whatever the quantity of lines and jet configuration.

With S8G1 multi-jet configuration, a printed message is composed of one message per jet. With 9040, a printed message is composed of one message whatever the jet configuration.

With S8G1, the message selection by the number on the parallel interface inputs must be done in coherence with the jet/head configuration.

With 9040, the message selection by the number on the parallel interface inputs is different because the message number is still the same whatever the jet configuration.

With 9040, an option is available in the configuration tool, to have an parallel interface management as S8G1.

Industrial interface

For 9040, a new industrial interface board has been designed.

Some inputs – outputs available on S8G1 are no more present on 9040.

- ▣ Current loop is no more available on 9040

- ▣ Only one output for the Sprog & Buzy signals and configuration of the output by jumper (Sprog & Buzy).

Remark: Sprog and Buzy signal give the status of the printing. These 2 signals are in opposite phase.

- ▣ Opto-coupled DSR input is no more available.

Remark: The DSR V24 input support up to 30V.

- ▣ On 9040, the head alarm relay management is different compared to S8G1 in order to have an unique status when the printer is ready to print.

Remark: With S8G1, the head alarm relay has the same status when the printer is OFF and when the head is ready to print.

Hardware

Due to the RoHs regulation, a 9040 machine must be repaired by using 9040 parts only (RoHs compliance).



9040 – G Head – Printing speed

Full algorithms: All drops are presents in the height.

Multiline algorithms: Drops that are not used for the space between lines are not presents in the algorithm to increase the speed.

Full Algorithm ms	High Quality 30mm	Quality 10mm	Rapid 10mm	Specific
EAN RASTER		0.37 m/sec 72.8 FPM		
24 dots	0.37 m/sec 72.8 FPM Allowing 1 line of 24 dots font 1 line of 16 dots font Up to 2 lines 11 dots font Up to 2 lines 9 dots font Up to 3 lines 7 dots font Up to 4 lines 5 dots font	0.37 m/sec 72.8 FPM Allowing 1 line of 24 dots font 1 line of 16 dots font Up to 2 lines 11 dots font Up to 2 lines 9 dots font Up to 3 lines 7 dots font Up to 4 lines 5 dots font	0.79 m/sec 155.5 FPM Allowing 1 line of 24 dots font 1 line of 16 dots font Up to 2 lines 11 dots font Up to 2 lines 9 dots font Up to 3 lines 7 dots font Up to 4 lines 5 dots font	
20 dots			0.89 m/sec 175.2 FPM Allowing 1 line of 16 dots font 1 line 11 dots font Up to 2 lines 9 dots font Up to 2 lines 7 dots font Up to 3 lines 5 dots font	
18 dots			1.17 m /sec 230.3 FPM Allowing 1 line of 16 dots font 1 line 11 dots font 1 line 9 dots font Up to 2 lines 7 dots font Up to 3 lines 5 dots font	
16 dots	0.39 m/sec 76.8 FPM Allowing 1 line of 16 dots font 1 line 11 dots font 1 line 9 dots font Up to 2 lines 7 dots font Up to 2 lines 5 dots font	0.55 m/sec 108.3 FPM Allowing 1 line of 16 dots font 1 line 11 dots font 1 line 9 dots font Up to 2 lines 7 dots font Up to 2 lines 5 dots font	1.31 m/sec 257.8 FPM Allowing 1 line of 16 dots font 1 line 11 dots font 1 line 9 dots font Up to 2 lines 7 dots font Up to 2 lines 5 dots font	
11 dots		0.93 m/se 183.1 FPM 1 line 11 dots font 1 line 9 dots font 1 line 7 dots font Up to 2 lines 5 dots font	1.86 m/sec 366.1 FPM 1 line 11 dots font 1 line 9 dots font 1 line 7 dots font Up to 2 lines 5 dots font	

Compatibility



Full Algorithms	High Quality 30mm	Quality 10mm	Rapid 10mm	Specific
9 dots		1.11 m/sec 218.5 FPM 1 line 9 dots font 1 line 7 dots font 1 line 5 dots font	2.23 m/sec 438.9 FPM 1 line 9 dots font 1 line 7 dots font 1 line 5 dots font	
7 dots	0.97 m/sec 190.9FPM Allowing 1 line of 7 dots font 1 line 5 dots font	1.39 m/sec 273.6 FPM Allowing 1 line of 7 dots font 1 line 5 dots font	3.72 m/sec 732.2 FPM Allowing 1 line of 7 dots font 1 line 5 dots font	3.18 m/sec 625.9 FPM Pigment 1 line of 7 dots font 1 line 5 dots font
5 dots		1.86 m/sec 366.1 FPM Allowing 1 line of 5 dots font	5.58 m/sec 1098.3 FPM Allowing 1 line of 5 dots font	4.46 m/sec 877.9 FPM Pigment 1 line of 5 dots font

Multiline Algorithms	Quality 10mm	Rapid 10mm
4 x 7 dots		0.6m/sec – 118.1 FPM
4 x 5 dots		0.93m/sec – 183.1 FPM
3 x 7 dots		1.01m/sec – 198.1 FPM
3 x 5 dots	0.55m/sec – 108.3 FPM	1.39m/sec – 273.6 FPM
2 x 9 dots	0.43m/sec – 84.6 FPM	1.11m/sec – 218.5 FPM
2 x 7 dots	0.65m/sec – 128 FPM	1.48m/sec – 291.3 FPM
2 x 5 dots	0.92m/sec – 181.1 FPM	2.02m/sec – 397.6 FPM



S8G1 – G Head – Printing speed

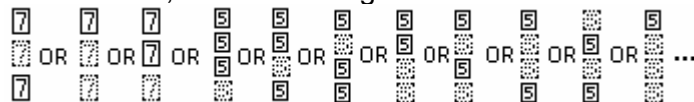
Standard Print data	High Quality 30mm	Quality 10mm	Rapid 10mm	Specific
24 dots		0.37 m/sec	0.79 m/sec	
4 x 5 dots		0.36 m/sec	0.91 m/sec	
3 x 7 dots		0.32 m/sec	0.66 m/sec	
3 x 5 dots		0.49 m/sec	1.21 m/sec	
2 x 9 dots		0.39 m/sec	1.1 m/sec	
16 dots	0.39m/sec	0.61 m/sec	1.3 m/sec	
2 x 7 dots	0.39m/sec	0.61 m/sec	1.56 m/sec	
11 dots		0.92 m/sec	1.84 m/sec	
2 x 5 dots		0.92 m/sec	2.17 m/sec	
9 dots		1.1 m/sec	2.2 m/sec	
7 dots	1m/sec	1.38 m/sec	3.64 m/sec	3.13 m/sec Pig
5 dots		1.84 m/sec	5.41m/sec	4.35 m/sec Pig

Potential risk with G head

2 x 7 dot font: 2x7 dot font messages to be on the loop (1.56m/sec with S8G1 & 1.48m/sec with 9040).

Basic Multi-lines messages: Messages made only of de multi-lines fonts (5 & 7 dots) without 11, 16 or 24 dot fonts AND at least one line is missing below a line at up position, 9040 will print slower.

For instance, in the following cases:



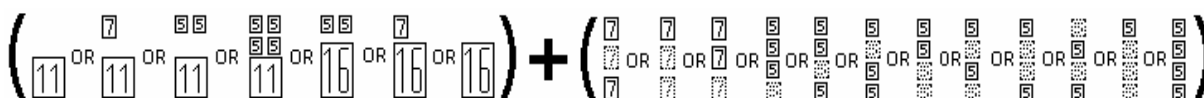
Multi-lines & 11 dot font : Messages made of 1 line of 11 dot font with another line at upper position (5 or 7 dot font), 9040 will print slower.

For instance, in the following cases:



Multi-lines 4x5 dot font & 11 or 16 dot font: Messages made of one line of 11 or 16 dot font AND 4 x5 dot font , 9040 will print slower.

For instance, in the following cases:



Compatibility



9040 – M Head – Printing speed

Full algorithms: All drops are presents in the height.

Multiline algorithms: Drops that are not used for the space between lines are not presents in the algorithm to increase the speed.

Full Algorithms	High Quality 20mm	Quality 8mm	Rapid 8mm	Specific
EAN RASTER				
24 dots	0.23 m/sec 45.3 FPM Allowing 1 line of 24 dots font 1 line of 16 dots font Up to 2 lines 11 dots font Up to 2 lines 9 dots font Up to 3 lines 7 dots font Up to 4 lines 5 dots font	0.23 m/sec 45.3 FPM Allowing 1 line of 24 dots font 1 line of 16 dots font Up to 2 lines 11 dots font Up to 2 lines 9 dots font Up to 3 lines 7 dots font Up to 4 lines 5 dots font	0.59 m/sec 116.1 FPM Allowing 1 line of 24 dots font 1 line of 16 dots font Up to 2 lines 11 dots font Up to 2 lines 9 dots font Up to 3 lines 7 dots font Up to 4 lines 5 dots font	
18 dots			0.92 m/sec 181.1 FPM Allowing 1 line of 16 dots font 1 line 11 dots font 1 line 9 dots font Up to 2 lines 7 dots font Up to 3 lines 5 dots font	
16 dots		0.37 m/sec 72.8 FPM Allowing 1 line of 16 dots font 1 line 11 dots font 1 line 9 dots font Up to 2 lines 7 dots font Up to 2 lines 5 dots font	0.97 m/sec 190.94 FPM Allowing 1 line of 16 dots font 1 line 11 dots font 1 line 9 dots font Up to 2 lines 7 dots font Up to 2 lines 5 dots font	
11 dots	0.38 m/sec 74.8 FPM Allowing 1 line 11 dots font 1 line 9 dots font 1 line 7 dots font Up to 2 lines 5 dots font	0.55 m/sec 108.3 FPM 1 line 11 dots font 1 line 9 dots font 1 line 7 dots font Up to 2 lines 5 dots font	1.42 m/sec 279.5 FPM 1 line 11 dots font 1 line 9 dots font 1 line 7 dots font Up to 2 lines 5 dots font	
9 dots		0.63 m/sec 124.0 FPM 1 line 9 dots font 1 line 7 dots font 1 line 5 dots font		
7 dots	0.57 m/sec 112.2 FPM Allowing 1 line of 7 dots font 1 line 5 dots font	0.8 m/sec 157.5 FPM Allowing 1 line of 7 dots font 1 line 5 dots font	2.64 m/sec 519.6 FPM Allowing 1 line of 7 dots font 1 line 5 dots font	2.31 m/sec 454.7 FPM Pigment 1 line of 7 dots font 1 line 5 dots font
5 dots		1.68 m/sec 330.7 FPM Allowing 1 line of 5 dots font	3.7 m/sec 728.3 FPM Allowing 1 line of 5 dots font	3 m/sec 590.55 FPM Pigment 1 line of 5 dots font



Compatibility



Multiline Algorithms	Quality 8mm	Rapid 8mm
4 x 7 dots		0.37 m/sec – 72.8 FPM
4 x 5 dots		0.71 m/sec – 139.8 FPM
3 x 7 dots		0.71 m/sec – 139.8 FPM
3 x 5 dots	0.34 m/sec – 66.9 FPM	0.92 m/sec – 181.1 FPM
2 x 7 dots	0.39 m/sec – 76.7 FPM	
2 x 5 dots	0.52 m/sec – 102.4 FPM	1.42 m/sec – 279.5 FPM

Full Eggs Algorithms	Resolution 2.8dots/mm
16 dots	1.28 m/sec – 252.0 FPM
11 dots	1.84 m/sec – 362.2 FPM
7 dots	3.66 m/sec – 720.5 FPM
5 dots	4.17 m/sec – 820.9 FPM

Ultra High Speed Algorithms	Resolution 2.8dots/mm
7 dots	3.72 m/sec – 732.2 FPM
5 dots	5.95 m/sec – 1171.2 FPM

Multiline Eggs Algorithms	Resolution 2.8 dots/mm
2 x 7 dots	1.73 m/sec – 340.5 FPM
2 x 5 dots	2.26 m/sec – 444.9 FPM

CAN Algorithms Head Object 14mm	Resolution 2.8 dots/mm
7 dots	2.74 m/sec – 539.3 FPM
2 x 7 dots	1.75 m/sec – 344.5 FPM



S8G1 – M Head – Printing speed

Standard Print data	High Quality 20mm	Quality 8mm	Rapid 8mm	Specific
24 dots		0.23 m/sec	0.57 m/sec	
4 x 5 dots			0.41 m/sec	
3 x 7 dots			0.47 m/sec	
3 x 5 dots			0.55 m/sec	
16 dots		0.37 m/sec	0.96 m/sec	
2 x 7 dots	0.24 m/sec	0.54 m/sec	0.91 m/sec	
11 dots	0.38 m/sec	0.54 m/sec	1.14 m/sec	
2 x 5 dots		0.83 m/sec	1.13 m/sec 0.83 m/sec	
7 dots	0.57 m/sec	0.83 m/sec	2.59 m/sec *	2.27 m/sec Pig
5 dots		1.82 m/sec	3.6 m/sec **	3 m/sec Pig

* 6 dots full raster

** 4 dots full raster

Potential risk with M head

Quality 2 x 7 dot font: 2x7 dot font messages to be on the loop (0.54m/sec with S8G1 & 0.39m/sec with 9040).

Quality 2 x 5 dot font: 2x5 dot font messages to be on the loop (0.83m/sec with S8G1 & 0.52m/sec with 9040).

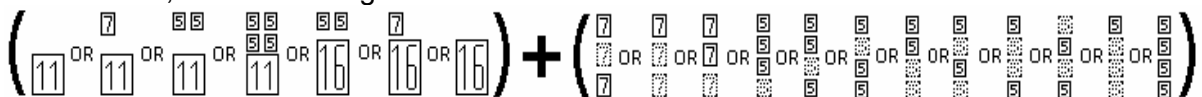
Basic Multi-lines messages: Messages made only of de multi-lines fonts (5 & 7 dots) without 11, 16 or 24 dot fonts AND at least one line is missing below a line at up position, 9040 will print slower.

For instance, in the following cases :



Multi-lines 4x5 dot font & 11 or 16 dot font: Messages made of one line of 11 or 16 dot font AND 4 x5 dot font, 9040 will print slower.

For instance, in the following cases:





9040 – P Head – Printing speed

Full algorithms: All drops are presents in the height.

Multiline algorithms: Drops that are not used for the space between lines are not presents in the algorithm to increase the speed.

Full Algorithms	Quality 6 mm	Rapid 6 mm
24 dots	0.19m/sec 37.4 FPM Allowing 1 line of 24 dots font 1 line of 16 dots font Up to 2 lines 11 dots font Up to 2 lines 9 dots font Up to 3 lines 7 dots font Up to 4 lines 5 dots font	0.22m/sec 43.3 FPM Allowing 1 line of 24 dots font 1 line of 16 dots font Up to 2 lines 11 dots font Up to 2 lines 9 dots font Up to 3 lines 7 dots font Up to 4 lines 5 dots font
16 dots	0.35 m/sec 68.9 FPM Allowing 1 line of 16 dots font 1 line 11 dots font 1 line 9 dots font Up to 2 lines 7 dots font Up to 2 lines 5 dots font	0.56 m/sec 110.2 FPM Allowing 1 line of 16 dots font 1 line 11 dots font 1 line 9 dots font Up to 2 lines 7 dots font Up to 2 lines 5 dots font
11 dots	0.51 m/sec 100.4 FPM 1 line 11 dots font 1 line 9 dots font 1 line 7 dots font Up to 2 lines 5 dots font	0.81 m/sec 159.4 FPM 1 line 11 dots font 1 line 9 dots font 1 line 7 dots font Up to 2 lines 5 dots font
9 dots	0.61 m/sec 120.1 FPM 1 line 9 dots font 1 line 7 dots font 1 line 5 dots font	0.99 m/sec 194.9 FPM 1 line 9 dots font 1 line 7 dots font 1 line 5 dots font
7 dots	0.77 m/sec 151.6 FPM Allowing 1 line of 7 dots font 1 line 5 dots font	1.28 m/sec 251.9 FPM Allowing 1 line of 7 dots font 1 line 5 dots font
5 dots	1.05 m/sec 206.7 FPM Allowing 1 line of 5 dots font	1.79 m/sec 352.3 FPM Allowing 1 line of 5 dots font

Multiline Algorithms	Rapid 6mm
4 x 5 dots	0.45 m/sec – 88.6 FPM
3 x 7 dots	0.42 m/sec – 82.7 FPM
3 x 5 dots	0.59 m/sec – 116.1 FPM
2 x 7 dots	0.63 m/sec – 124.0 FPM
2 x 5 dots	0.89 m/sec – 175.2 FPM



S8G1 – P Head – Printing speed

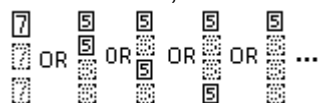
Standard Print data	Quality 6mm	Rapid 6mm
24 dots		0.22 m/sec
4 x 5 dots		0.26 m/sec
3 x 7 dots		0.28 m/sec
3 x 5 dots		0.39 m/sec
16 dots	0.36 m/sec	0.55 m/sec
2 x 7 dots	0.38 m/sec	0.63 m/sec
11 dots	0.52 m/sec	0.8 m/sec
2 x 5 dots	0.51 m/sec	0.88 m/sec
7 dots	0.8 m/sec	1.26 m/sec *
5 dots	1.1 m/sec	1.76 m/sec **

Potential risk with P head

Quality font: Quality font messages to be on the loop.

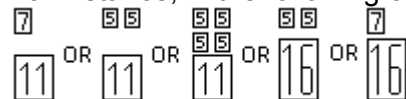
Basic Multi-lines messages: messages made only of de multi-lines fonts (5 & 7 dots) without 11, 16 or 24 dot fonts AND at least one line is missing below a line at up position, 9040 will print slower.

For instance, in the following cases:



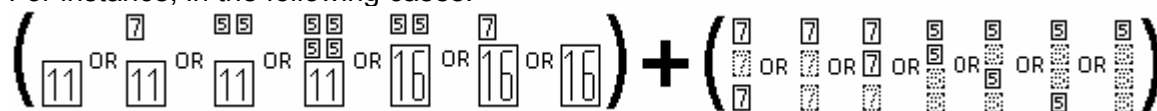
Multi-lines & 11 or 16 dot font: Messages made of 1 line of 11 dot font or 1 line of 16 dot font with another line at upper position (5 or 7 dot font), 9040 will print slower.

For instance, in the following cases:



Multi-lines 4x5 dot font & 11 or 16 dot font: Messages made of one line of 11 or 16 dot font AND 4 x5 dot font , 9040 will print slower.

For instance, in the following cases:





Pre-installation Installation



Pre-installation, installation



Notes:

Pre-installation, installation



■ Ink jet Presale Form

REFERENCES

Date: _____ Form written by: _____ Commercial engineer: _____
 Customer name: _____ Group : _____
 Address: _____
 Commercial contact name: _____ Tel.: _____
 Technical contact name : _____ Tel.: _____

ENVIRONMENT

Temperature , max.:	°C	Working Temperature:	
Humidity: max.:	%	☐ dusty	☐ splashing
Connection:	☐ Link to BDD	☐ Network connection	☐ Message selection

LINE DESCRIPTION

Conveyor speed	Maxi speed:	m/min	Mini speed:	m/min
	Nb of product per year:	products	Maxi rate:	products /hour

PRODUCT DESCRIPTION

Type:	size:	x	x	mm
Substrate type:	Substrate color:	Ink suggested:		
Printing immediate result: example: dry in 2 sec, then holding at the sterilization 121°C, 30 min				
Printing later result: example: holding at the refrigerator, erasable at alkali, anti-migrant, etc				
Printing sample: ☐	Place:	Date:		

PRINTING DESCRIPTION

Nb of line per jet:	☐ logos	☐ barcode
Message contents:		
Font size: 5, 7, 9, 11, 16, 24, 2x24:	Applicative:	
Head mounting ☐	Head height adjustment ☐	
Head movement:	Acceleration:	Movement:
Umbilical length: bent:	Difference in level :	

SUGGESTION

S8: Classic, 9020, 9030,9040:		
Nb Jet : 1, 2	Head: G, M, P	Software version
Ref ink	Ref Machine	Derogation ☐
Specific project	Cabling, cable crossing,...	
Integration:	Customer in charge ☐	Markem-Imaje in charge ☐
Accessories:		
Comments:		

The customer will check that Markem-Imaje printing offer is conformed at the requirement level on term of quality and printing holding.

Name and Signature for Markem-Imaje:

Name and Signature for the customer:



markem·imaje

A  Company

Pre-installation, installation



■ Out Of Box Checking List

Date:	Markem-Imaje	Page: 1/1	GDS.
Out Of Box Checking List. OOBCL (to be filled by Markem-Imaje technicians)			
Customer:	Service engineer:	File name:	
New printer or secondhand printer:	Ink:	QAG-127 A	
Serial Number:	Type:	SCP	
Manufacturing date:	Printer start up on:		
1- RECEPTION: SHIPMENT & PACKING CHECK (mark-up if yes)			
Did you make a Logistic Complaint ?		☐	
<i>In case of Logistic Problem, please refer to QAG-101</i>			
2- STARTING UP: (Mark-up if yes)			
Start-up<15mn ?		☐	
(from on/off to ready to print)			
Description of problems		Remarks	
Canon problem			
Jet not centered in the gutter		☐	
Unstable jet		☐	
Canon blocked		☐	
Exchange necessary		☐	
ELV / valve problem			
ELV / valve blocked		☐	
Exchange necessary		☐	
Pressure or vacuum problem			
Blockage		☐	
Leakage		☐	
Ink module or pump exchange		☐	
Motor speed or auto calibration problem			
Electronic or electric problem			
Electronic part exchange		☐	
Break-off point setting problem			
Poor printing quality			
EHT Defaults/open cover/vacuum/levels			
Accessories problem			
3- CONTRACT REVIEW (for local analysis)			
Internal complaint		☐	
Difference between the offer and customer needs		☐	
Difference between offer and order		☐	
Difference between order and acknowledge of receipt		☐	
Remarks			
4- REMARKS			
		Time for starting up	hour
		Time for complete installation	hour

Pre-installation, installation



■ Installation Safety Certificate

I hereby certify that I have read and acknowledge the safety data sheets and general conditions of use of Markem-Imaje Ink Jet Printers, as they were mentioned on Printer Manual.

A copy of the material safety data sheets (MSDS) corresponding to the ink that I am currently using is in my possession and its contents were explained to me by _____, the Markem-Imaje Technician who performed the installation.

Company Name: _____
(Please Print)

Name: _____
(Please Print)

Signature: _____

Date: _____

Pre-installation, installation



■ Information on new 9040 PC board and PCMCIA card

The new PCMCIA card is now delivered with a Secure Digital card inserted into a PCMCIA adapter. This new card CANNOT be formatted into the PC board of a printer, even though the previously available card could.

Using a PCMCIA card on the new PC board

Previous PCMCIA card A27126

The previously delivered PCMCIA card was delivered as an ATA card, then delivered as a Compact Flash inserted into a PCMCIA adapter. Those cards must be formatted using the PC board of a printer.



ATA card

**USE A PRINTER
TO FORMAT
THOSE CARDS**



*Compact Flash +
PCMCIA adapter*

Pre-installation, installation



New PCMCIA card A27126

The new PCMCIA card A27126 is delivered with a SD card inserted into a PCMCIA adapter as of week 08. This type of PCMCIA CANNOT be formatted using the printer's PC board. Doing so corrupts the card making it unusable. The only way to recover the new PCMCIA card formatted with a printer's PC board is by using a laptop, and to format it again using the FAT format.



SD card + PCMCIA adapter

Pre-installation, installation

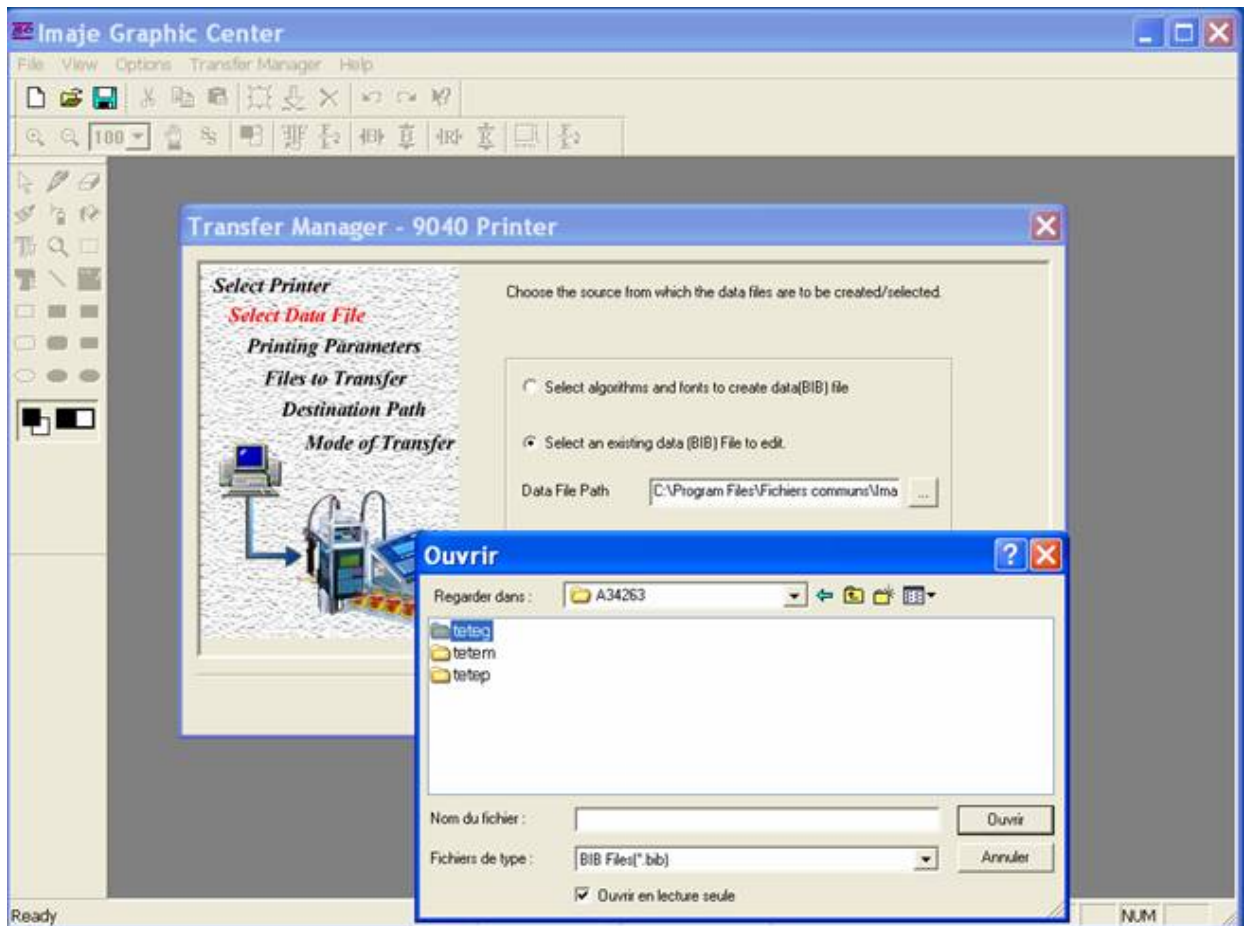


Font Creation Advice

It is advised to make the font package on the basis of the standard font package. The goal is to assure that all the standard algorithms related to the print head are chosen correctly.

Proceed as follows:

Use the menu Transfer Manager > Build and transfer data > Select 9040 printer > Select an existing data file to edit



Select the standard font package according to the print head

G head standard font = ..A34263/TETEG/ STDG.BIB

M head standard font = ..A34263/TETEM/ STDM.BIB

P head standard font = ..A34263/TETEP/ STDP.BIB

S head standard font = ..A34264/TETEM/ BOISSON.BIB

Select the font which best corresponds to the customer's needs

Follow the following step to configure the PCMCIA card with this font

Pre-installation, installation



Font download procedure

Proceed as follows:

Organize the files on the PCMCIA card's root, such that all files lie in a directory. In this example, all the data generated in our previous step could be included in a folder called "FONT".

Insert the PCMCIA card in the PC board

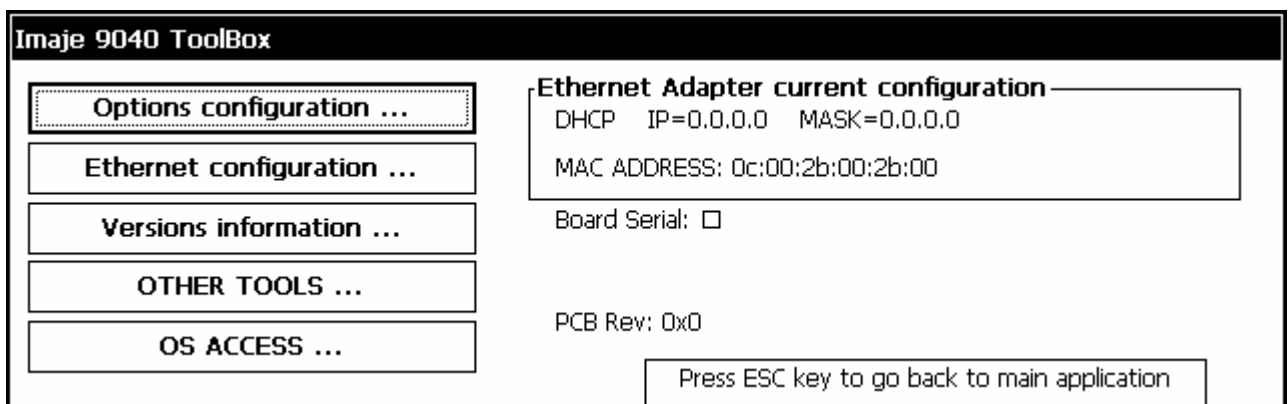
Go to the Preparation Menu > Initialisation > PCMCIA/USB/SD transfer:



- Select the folder "FONT"
- Select "FONTS" as Data Type
- Choose the menu "<== PCMCIA" to import the fonts into the printer

Other tools menu

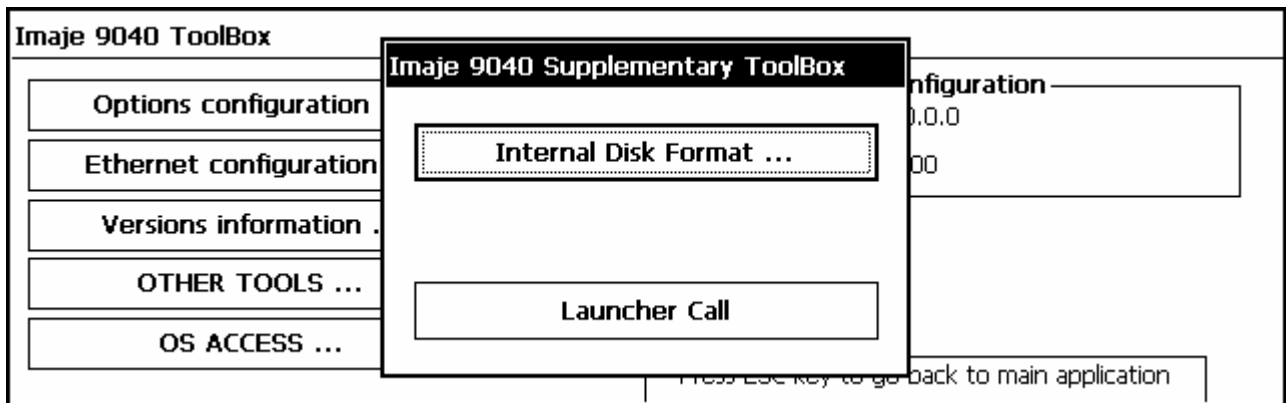
To access the configuration tool from the 9040 menu, press keys **Ctrl** and **=** simultaneously. The following screen will appear:



Pre-installation, installation



If the “other tools” menu is selected, the following screen will appear:

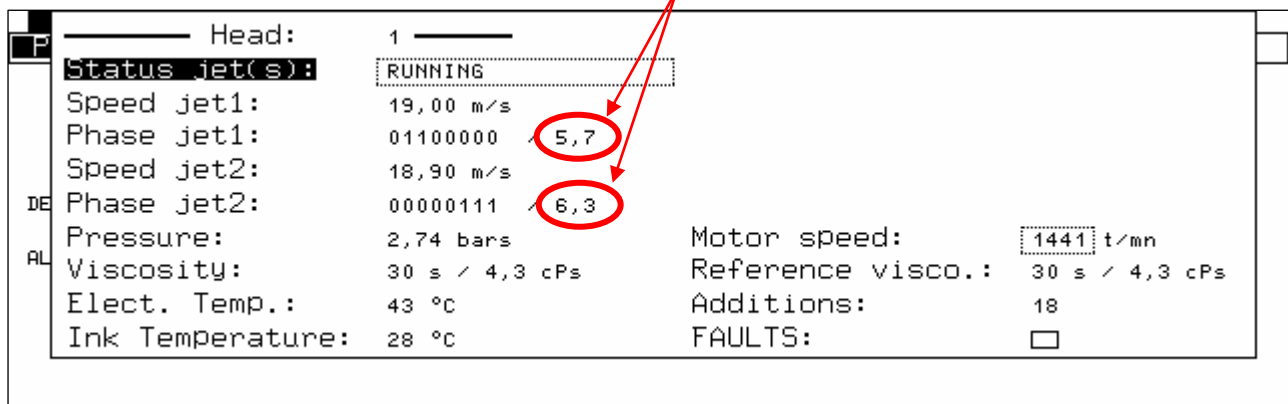


The “Internal Disk Format” function deletes all the data from the disk, it is mandatory to have a tool card to recover the system after using this function.

The 9040 tool card will be created within the coming weeks. Its creation will be announced through a NTI.

Additional parameter in the Status/printhead

The Status/Printhead menu displays a new parameter to the right of the jet phase.



This new parameter is related to the location of the break-off point. It has been added for production purpose only, and used to measure the production process' consistency. There is no nominal value which could help to set the break-off point

Pre-installation, installation



Notes:

Pre-installation, installation



Notes:



Troubleshooting



Troubleshooting



Notes:



■ Head faults

A / D Description	Context Consequences	Check / Cause/ Remedy / Solution
Recuperation	Suction is present	- Inhibit the recuperation fault. - Start-up the jet - Evaluate the rate of suction - If the suction is low → The problem is hydraulic 1) pump 2) drop in in the recuperation tub 3) air inlet 4) output of the condensor - If the suction is normal → The problem is electronic 1) inside of the head dirty (open the rear cover) 2) wire in the umbilical 3) connections 4) quality of the ink 5) MAIN board
	No suction	1) Motor/pump 2) Blocking 3) Gutter electrovalve blocked 4) Recuperation one way valve blocked 5) Tub or umbilical folded
Phase detection		1) Cleaning - Clean the head, the cover and the inside of the head 2) Ink quality - Dust, moisture, use-by date. 3) Electronics - Break-off point (piezo, piezo board, MAIN board) - Charge signal (MAIN board) - Detection signal (ADP board, MAIN board,

Troubleshooting



EHV	Unwanted EHV detected on the deflection plates by the printer. The printer detected an insulation fault on the EHV lines during operation (current leak of more than 10μA).	1) Cleanliness of deflection plates Cleaning with soapy water and letting dry may solve the problem. 2) Cleanliness inside head Open the rear cover Clean away any traces of ink 3) EHV block 4) MAIN board
EHV	The printer detected: - unwanted EHV on the deflection plates - a current leak of more than 10μA	Disconnect the EHV cables in the electronic compartment and acquit the fault: - The fault persists: Its origin is in the cabinet MAIN board Connections EHV block - The fault does not persist: Its origin is in the print module Deflection plates (Cleaning with soapy water and letting dry may solve the problem) External electrostatic perturbations Internal parts of the head damaged or dirty
Cover missing		Check: - MAIN board - connections and conduits (Black/white & green)



■ Ink circuit faults

A / D Description	Context Consequences	Check / Cause/ Remedy / Solution
Viscosity	Draining or filling of the viscometer > 90s	Check all the elements of the viscosity measurement circuit (ELV, calibrated leak, calibrated tube, connections, MAIN board, ...). Check the safety level blocks Check the conductivity of the ink
Ink level low		Check the electrodes (dry ink), the ELV and the connections Check the safety level blocks Check the conductivity of the ink Check the MAIN board
Additive level low Solvent fault	NEW: This fault appears after two fillings of the viscometer without additive.	Check the ELV and the connections Check the safety level blocks Check the conductivity of the ink Check the MAIN board Caution: If the printer is stopped when the "Solvent fault" is active, there is no "Active Stanby".
Incorrect pressure		P < 2,4bars: Connections Ink too much fluid Pump used P > 3,6 bars (5.5 bars on P head): The circuit is partially blocked after the main filter (head filter, tube folded in the umbilical or in the head, ...) Caution: Always wait 15 seconds minimum between the "Stop" and the "Restart" of the printer (requisite time to put the pressure circuit to the atmospheric pressure.



■ General faults

Printing speed	This alarm appears after printing to indicate that the tachometer speed (after division) is too high for the algo. used in the message.	Check the message parameters, the algo. and the resolution mainly if the message is send by V24.
Internal serial link		
Fan / Compressed air	Compressed air on IP65 only, fan on all other versions.	Check: - the rotation of the fan or the presence of the compressed air. - the presence of 24V - the MAIN board - the connections Caution: The fault is managed during the “veille active”.
Temperature	The electronic compartment temperature > 70 °C	Check: - the presence of 15V on the power supply board - the connections - the MAIN board
CPU - IMP communication Communication stopped on port 2 or 4. Only on S8C2 and S8C2 China	The fault occurs after the conveyor has been stopped for a long time during message printing The fault persist after attempting to print the message at constant speed.	Restart printing The connection between the PC board and the MAIN board is faulty. The MAIN board is faulty
Memory lost		Check the position of the jumper Lithium battery (voltage < 3V)

Troubleshooting



CPU faulty		
Unknown gene. n°		Ensure that the fonts contained in the message correspond to the fonts contained in the printer.



Troubleshooting



Notes:



After sales policy



After sales policy



Notes:

After sales policy



■ Time between services

On the 4 different models of printers, 9040, 9040 IP65, 9040 S and S8C2, the lifetime is:

10 000 hrs for Vacuum pump

14 000 hrs for Pressure pump

Filter replacement:

Main filter must be replaced (refer to the printer manual and/or to the Ink Running Sheet)

Head pressurization kit filter can be replaced (refer to the printer manual)

The moulded head filter can be replaced (refer to the printer manual)

NOTE: *The additive filter (for cannon flushing system) does not need to be replaced*

Maintenance contracts

Two contracts are offered: STANDARD and ACCESS.

(See details of these contracts on following pages)

After sales policy



■ List of points to be checked during STANDARD maintenance agreement (9040, S8 C2, 9040 IP65, 9040S)

General information

Customer name: _____ Date : _____
Town : _____ Printer no. : _____
Contact name : _____ Visit report no. : _____
Contract no : _____ Service engineer : _____

Printer information

Type of printer: 9040 ☐ 9040 IP65 ☐ 9040 S ☐ S8 C2 ☐
Configuration: 1.1 ☐ 1.2 ☐ 2.1 ☐ 2.2 ☐ Type of head: G ☐ M ☐ P ☐
Ink: _____ Additive: _____
Hours counter: _____

Installation

	Checked
Accessory adjustment (cell, tacho., etc.)	☐ _____ _____
Installation to Markem-Image specifications (temperature, console/head distance)	☐ _____ _____
Printer connected to suitable power supply and correctly grounded	☐ _____ _____
No vibrations on head(s)	☐ _____ _____
Head/object distance as specified	☐ _____ _____
Position of umbilical (no vibrations, radius of curvature > 150 mm)	☐ _____ _____
Correct grounding of cabinet, head and stand	☐ _____ _____

After sales policy



Operational check before maintenance

	Checked	Comments
Visual inspection of all wiring and ribbon cables (machine OFF)	☐	_____
Check connection of the Peltier condenser	☐	_____
Check Peltier condenser fan rotation	☐	_____
Check cleanness of fan guard (grid)	☐	_____
Check rotation of main fan (flow of air from top to bottom)	☐	_____
General appearance of ink circuit (no signs of damage, etc.)	☐	_____
Ink low level (disconnect a probe on ink reservoir)	☐	_____

	Checked		Comments
	Head 1	Head 2	
Print module visual appearance	☐	☐	_____
Head electrovalves operate correctly	☐	☐	_____
Jet stable and centred	☐	☐	_____
Break-off point setting	☐	☐	_____
Pressure: _____	Viscosity: _____		Vm: _____

MANUAL PRINT TEST SAMPLE (or comments in case the printer does not function properly)



After sales policy



Ink circuit flushing session

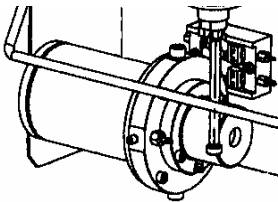
Drain the ink circuit and check cleanliness
of grid filter in ink and additive tanks
Flush ink circuit using the flushing tool

Completed Comments

☐ _____

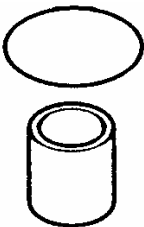
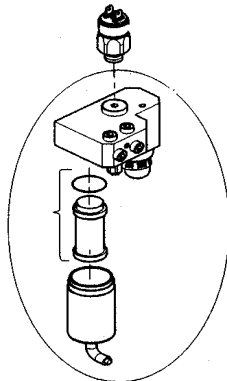
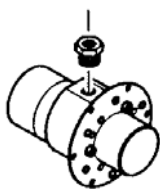
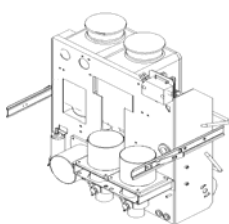
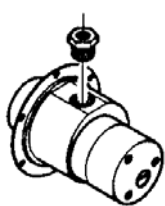
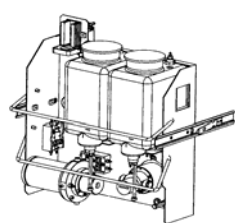
☐ _____

Parts replaced

Ink Filter	Part	Main location	Comments
Part number: - ENM5934 - ENM37176 for ink 5151 Main location: Ink circuit Replacement: - 1 year or 3 600 Hrs - 2 000 Hrs for ink 5151 Quantity: 1			☐ Part replaced
Head filter 14μ	Part	Main location	Comments
Part number: ENM34410 Main location: Printing module Replacement: - 1 year or 3 600 Hrs - 2 000 Hrs for ink 5151 Quantity: 1per head		Cabinet, hydraulic compartment	☐ Part replaced

After sales policy



Filter(s) for pressurization kit	Part	Main location	Comments
Part number: ENM20498 Main location: Air treatment unit in the hydraulic compartment Replacement: 12 months * * could be 6 months according to the quality of the air Quantity: 1			□ Part replaced
Vacuum pump(s)	Part	Main location	Comments
Part number: - ENM4295 - ENM16891 for inks 5117 and 5127 Main location: Ink circuit Replacement: - 10 000 Hrs - 6 000 Hrs for inks 5117 and 5127 Quantity: 1per head		 (S8 C2 , 9040)	□ Part replaced
Pressure pump(s)	Part	Main location	Comments
Part number: - ENM5629 (G & M-head) - ENM18221 (P-head) Main location: Ink circuit Replacement: - 14 000 Hrs - 8 000Hrs for inks 5117 and 5127 Quantity: 1		 (S8 C2 , 9040)	□ Part replaced

After sales policy



Checking pumps

	Completed	Comments
Pump pressure ≥ 3.5 bar at 1,500 rpm (motor speed locked, use by-pass for test). (If not, recommended replacement of pump) Nominal values are 1500rpm +/- 50rpm (1.4 head: 1800rpm,P head:2500rpm)	☐	_____
Pump 1 vacuum level > 0.6 bar and at stable level (visco ELV closed)	☐	_____
Pump 2 vacuum level > 0.6 bar and at stable level	☐	_____

Parts replaced (other than those included in the maintenance agreement)

	Yes	No
Parts replacement	☐	☐

Part number	Description	Comments
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

After sales policy



Operational test after maintenance

	OK	Not OK	Comments
Cover fault	☐	☐	
Recuperation fault	☐	☐	
EHT fault	☐	☐	
Jet stable and centered	☐	☐	
Break-off point setting	☐	☐	
Pressure: _____		Viscosity: _____	Vm: _____

MANUAL PRINT TEST SAMPLE

After sales policy



User

	Yes	No	Comments
The user knows the safety rules	☐	☐	
Printer documentation is available	☐	☐	
The user knows basic maintenance procedures	☐	☐	
The user knows how to use the operator Interface	☐	☐	
The user needs training	☐	☐	

Maintenance report

	Yes	No	Comments
Maintenance complete	☐	☐	

Action to be taken by Markem-Imaje by __ / __ / __	Action to be taken by customer by __ / __ / __
Service engineer Name: Signature:	Customer Name: Signature:



Appendix: Time schedule

We have tried to estimate the time you need for each section.

This sheet is for the Markem-Imaje network, but can be given to the customer on request.

Section	Approx time (min)	Comments
General information		To be filled in before service
Printer information	5	
Installation	5	
Operational check before maintenance	5	
Ink circuit flushing session – Parts replaced	115 (130)	Filters and pumps (in case of 2 vacuum pumps)
Checking pumps	15	
Parts replaced (other than those included in the maintenance agreement)	-	Related to the part changed
Operational test after parts replacement	20	
User	10	
Maintenance report	5	

After sales policy



After sales policy



■ List of points to be checked during ACCESS maintenance agreement (9040, S8 C2, 9040 IP65, 9040S)

General information

Customer name: _____ Date : _____
Town : _____ Printer no. : _____
Contact name : _____ Visit report no. : _____
Contract no : _____ Service engineer : _____

Printer information

Type of printer: 9040 ☐ 9040 IP65 ☐ 9040 S ☐ S8 C2 ☐
Configuration: 1.1 ☐ 1.2 ☐ 2.1 ☐ 2.2 ☐ Type of head: G ☐ M ☐ P ☐
Ink: _____ Additive: _____
Hours counter: _____

Installation

	Checked
Accessory adjustment (cell, tacho., etc.)	☐ _____ _____
Installation to MARKEM-IMAJE specifications (temperature, console/head distance)	☐ _____ _____
Printer connected to suitable power supply and correctly grounded	☐ _____ _____
No vibrations on head(s)	☐ _____ _____
Head/object distance as specified	☐ _____ _____
Position of umbilical (no vibrations, radius of curvature > 150 mm)	☐ _____ _____
Correct grounding of cabinet, head and stand	☐ _____ _____

After sales policy



Operational check before maintenance

	Checked	Comments
Visual inspection of all wiring and ribbon cables (machine OFF)	☐	_____
Check connection of the Peltier condenser	☐	_____
Check Peltier condenser fan rotation	☐	_____
Check cleanness of fan guard (grid)	☐	_____
Check rotation of main fan (flow of air from top to bottom)	☐	_____
General appearance of ink circuit (no signs of damage, etc.)	☐	_____
Ink low level (disconnect a probe on ink reservoir)	☐	_____

	Checked		Comments
	Head 1	Head 2	
Print module visual appearance	☐	☐	_____
Head electro valves operate correctly	☐	☐	_____
Jet stable and centered	☐	☐	_____
Break-off point setting	☐	☐	_____
Pressure: _____	Viscosity: _____		Vm: _____

MANUAL PRINT TEST SAMPLE (or comments in case the printer does not function properly)



After sales policy



Ink circuit flushing session

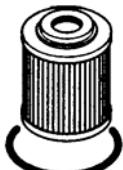
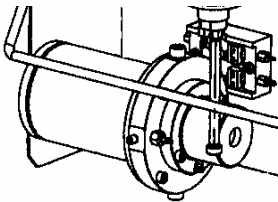
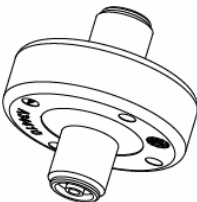
Drain the ink circuit and check cleanliness
of grid filter in ink and additive tanks
Flush ink circuit using the flushing tool

Completed Comments

☐ _____

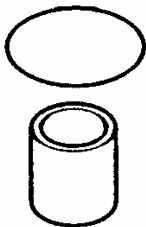
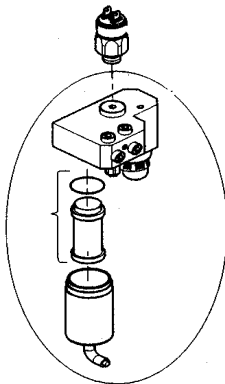
☐ _____

Parts replaced

Ink Filter	Part	Main location	Comments
Part number: - ENM5934 - ENM37176 for ink 5151 Main location: Ink circuit Replacement: - 1 year or 3 600 Hrs - 2 000 Hrs for ink 5151 Quantity: 1			☐ Part replaced
Head filter 14μ	Part	Main location	Comments
Part number: ENM34410 Main location: Printing module Replacement: - 1 year or 3 600 Hrs - 2 000 Hrs for ink 5151 Quantity: 1per head		Cabinet, hydraulic compartment	☐ Part replaced

After sales policy



Filter(s) for pressurization kit	Part	Main location	Comments
Part number: ENM20498 Main location: Air treatment unit in the hydraulic compartment Replacement: 12 months * * could be 6 months according to the quality of the air Quantity: 1			☐ Part replaced

Checking pumps

	Completed	Comments
Pump pressure ≥ 3.5 bar at 1,500 rpm (motor speed locked, use by-pass for test). (If not, recommended replacement of pump) Nominal values are 1500rpm +/- 50rpm (1.4 head: 1800rpm, P head: 2500rpm)	☐	_____
Pump 1 vacuum level > 0.6 bar and at stable level (visco ELV closed)	☐	_____
Pump 2 vacuum level > 0.6 bar and at stable level	☐	_____

After sales policy



Parts replaced (other than those included in the maintenance agreement)

		Yes	No	
Parts replacement		☐	☐	
Part number	Description			Comments
_____	_____			_____
_____	_____			_____
_____	_____			_____
_____	_____			_____

Operational test after maintenance

	OK	Not OK	Comments
Cover fault	☐	☐	_____
Recuperation fault	☐	☐	_____
EHT fault	☐	☐	_____
Jet stable and centered	☐	☐	_____
Break-off point setting	☐	☐	_____
Pressure: _____	Viscosity: _____		Vm: _____

MANUAL PRINT TEST SAMPLE



	Yes	No		Comments
The user knows the safety rules	☐	☐		
Printer documentation is available	☐	☐		
The user knows basic maintenance procedures	☐	☐		
The user knows how to use the operator Interface	☐	☐		
The user needs training	☐	☐		

	Yes	No	Comments
Maintenance complete	☐	☐	





Appendix: Time schedule

We have tried to estimate the time you need for each section.

This sheet is for the Markem-Imaje network, but can be given to the customer on request.

Section	Approx time (min)	Comments
General information		To be filled in before service
Printer information	5	
Installation	5	
Operational check before maintenance	5	
Ink circuit flushing session – Parts replaced	90	Filters
Checking pumps	15	
Parts replaced (other than those included in the maintenance agreement)	-	Related to the part changed
Operational test after parts replacement	20	
User	10	
Maintenance report	5	

After sales policy



■ List of points to be checked during STANDARD maintenance agreement (9040 Contrast)

General information

Customer name: _____ Date : _____
Town : _____ Printer no. : _____
Contact name : _____ Visit report no. : _____
Contract no : _____ Service engineer : _____

Printer information

Configuration : 1.1 ☐ 1.2 ☐ Type of head: G ☐ M ☐
Ink: _____ Additive: _____
Anti-blockage system: yes ☐ no ☐
Hours counter: _____

Installation

	Checked
Accessory adjustment (cell, tacho., etc.)	☐ _____ _____
Installation to MARKEM-IMAJE specifications (temperature, console/head distance)	☐ _____ _____
Printer connected to suitable power supply and correctly grounded	☐ _____ _____
No vibrations on head(s)	☐ _____ _____
Head/object distance as specified	☐ _____ _____
Position of umbilical (no vibrations, radius of curvature > 150 mm)	☐ _____ _____
Correct grounding of cabinet, head and stand	☐ _____ _____

After sales policy



Operational check before maintenance

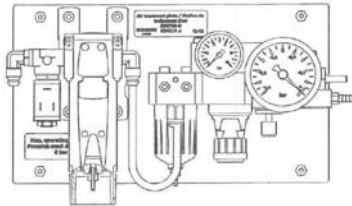
	Checked	Comments
Visual inspection of all wiring and ribbon cables (machine OFF)	☐	_____
Check cleanness of fan guard (grid)	☐	_____
Check rotation of main fan (flow of air from top to bottom)	☐	_____
General appearance of ink circuit (no signs of damage, etc.)	☐	_____
Print module visual aspect	☐	_____
Head electro valves operate correctly	☐	_____
Jet stable and centered	☐	_____
Break-off point setting	☐	_____
Viscosity value	☐	_____
Jet pressure value	☐	_____
Input pressure value = jet pressure + 0.7 bar	☐	_____
Divider bridge pressure value (> 0.8 and < 2 bar)	☐	_____
Transfer time value (between 10 and 20 sec)	☐	_____
Vacuum value setting (see Ink technical data sheet)	☐	_____

MANUAL PRINT TEST SAMPLE (or comments in case the printer does not function properly)

After sales policy



Plant Air kit

<u>Part number:</u> ENM16203 and A38029 for plant air ENM38028 ENM16203 and A38042 for plant air ENM36796 <u>Main location:</u> cabinet <u>Replacement:</u> 2000 h <u>Quantity:</u> 1		Plant air kit in the hydraulic compartment 	☐ Part replaced
---	---	--	---

	Completed	Comments
Clean air ejector (venturi)	☐	_____

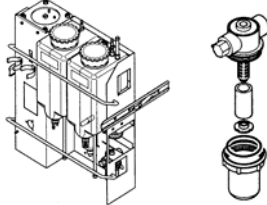
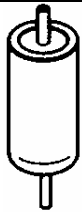
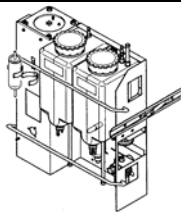
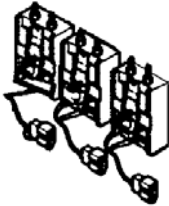
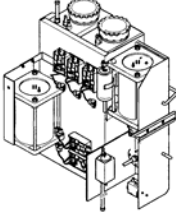
Ink circuit flushing session Completed Comments

Ink low level (disconnect a probe on ink reservoir)	☐	_____
Drain ink circuit (ink tank, vacuum tank) and check cleanliness of grid filter in ink and additive tanks	☐	_____
Check transparent tubing's cleanliness	☐	_____

After sales policy

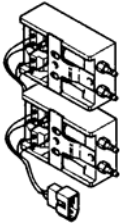
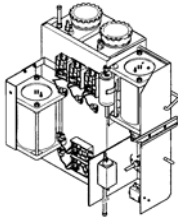
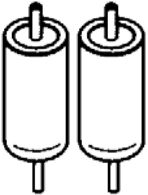
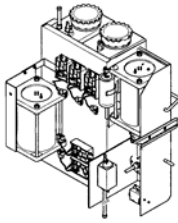
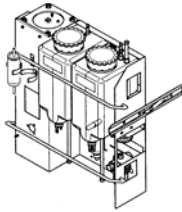
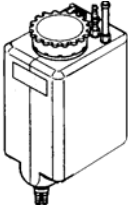
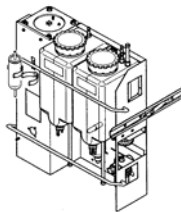


Parts replaced

Ink Filter	Part	Main location	Comments
Part number: ENM5553 Main location: Ink circuit Replacement: 2000 Hrs Quantity: 1			☐ Part replaced
Head filter 32μ	Part	Main location	Comments
Part number: ENM34411 Main location: Printing module Replacement: 2000 Hrs Quantity: 1		Cabinet, hydraulic compartment	☐ Part replaced
Coalescent filter (recup tank)	Part	Main location	Comments
Part number: ENM7765 Main location: Ink circuit Replacement: 2000 Hrs Quantity: 1			☐ Part replaced
Air electro valve	Part	Main location	Comments
Part number: ENM10133 Main location: Ink circuit Replacement: 12000 Hrs Quantity: 3			☐ Part replaced

After sales policy



Ink electro valve	Part	Main location	Comments
Part number: ENM10133 Main location: Ink circuit Replacement: 16000 Hrs Quantity: 2			☐ Part replaced
Coalescent filters (visco/accu/input)	Part	Main location	Comments
Part number: ENM7765 Main location: Ink circuit Replacement: 6000 Hrs Quantity: 2 or 3			☐ Part replaced
Stirring bar	Part	Main location	Comments
Part number: ENM11428 Main location: Ink circuit Replacement: 1 year Quantity: 1			☐ Part replaced
Ink reservoir	Part	Main location	Comments
Part number: ENM6246 Main location: Ink circuit Replacement: 3 years Quantity: 1			☐ Part replaced

After sales policy



Parts replaced (other than those included in the maintenance agreement)

		Yes	No	
Parts replacement		☐	☐	
Part number	Description			Comments
_____	_____			_____
_____	_____			_____
_____	_____			_____
_____	_____			_____

Operational test after maintenance

	Checked	Comments
Cover fault	☐ _____	_____
Recuperation fault	☐ _____	_____
EHT fault	☐ _____	_____
Jet stable and centered	☐ _____	_____
Break-off point setting	☐ _____	_____
General appearance of ink circuit (no signs of damage, etc.)	☐ _____	_____
Viscosity value	☐ _____	_____
Jet pressure value	☐ _____	_____
Input pressure value = jet pressure + 0.7 bar	☐ _____	_____
Divider bridge pressure value (> 0.8 and < 2 bar)	☐ _____	_____

After sales policy



Transfer time value
(between 10 and 20 sec)

☐ _____

Vacuum value setting
(see Ink technical data sheet)

☐ _____

MANUAL PRINT TEST SAMPLE

User

	Yes	No	Comments
The user knows the safety rules	☐	☐	_____
Printer documentation is available	☐	☐	_____
The user knows basic maintenance procedures	☐	☐	_____
The user knows how to use the operator interface	☐	☐	_____
The user needs training	☐	☐	_____

Maintenance report

	Yes	No	Comments
Maintenance complete	☐	☐	_____ _____ _____ _____ _____

Action to be taken by Markem-Imaje by __ / __ / __	Action to be taken by customer by ____ / ____ / ____
Service engineer Name: Signature:	Customer Name: Signature:

Appendix: Time schedule

We have tried to estimate the time you need for each section.

This sheet is for the Markem-Imaje network, but can be given to the customer on request.

Section	Approx time (min)	Comments
General information		To be filled in before service
Printer information	5	
Installation	5	
Operational check before maintenance	10	
Plant air kit	30	Filter and cleaning
Ink circuit flushing session – Parts replaced	150	Filters and electro valves, cleaning
Parts replaced (other than those included in the maintenance agreement)	-	Related to the part changed
Operational test after parts replacement	15	
User	5	
Maintenance report	5	

After sales policy



■ List of points to be checked during ACCESS maintenance agreement (9040 Contrast)

General information

Customer name: _____ Date : _____
Town : _____ Printer no. : _____
Contact name : _____ Visit report no. : _____
Contract no : _____ Service engineer : _____

Printer information

Configuration: 1.1 ☐ 1.2 ☐ Type of head: G ☐ M ☐
Ink: _____ Additive: _____
Anti-blockage system: yes ☐ no ☐
Hours counter: _____

Installation

	Checked
Accessory adjustment (cell, tacho., etc.)	☐ _____ _____
Installation to MARKEM-IMAJE specifications (temperature, console/head distance)	☐ _____ _____
Printer connected to suitable power supply and correctly grounded	☐ _____ _____
No vibrations on head(s)	☐ _____ _____
Head/object distance as specified	☐ _____ _____
Position of umbilical (no vibrations, radius of curvature > 150 mm)	☐ _____ _____
Correct grounding of cabinet, head and stand	☐ _____ _____

After sales policy



Operational check before maintenance

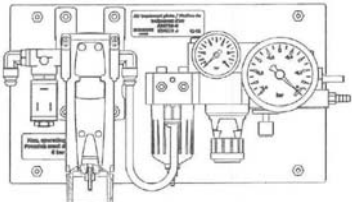
	Checked	Comments
Visual inspection of all wiring and ribbon cables (machine OFF)	☐	_____
Check cleanness of fan guard (grid)	☐	_____
Check rotation of main fan (flow of air from top to bottom)	☐	_____
General appearance of ink circuit (no signs of damage, etc.)	☐	_____
Print module visual aspect	☐	_____
Head electro valves operate correctly	☐	_____
Jet stable and centered	☐	_____
Break-off point setting	☐	_____
Viscosity value	☐	_____
Jet pressure value	☐	_____
Input pressure value = jet pressure + 0.7 bar	☐	_____
Divider bridge pressure value (> 0.8 and < 2 bar)	☐	_____
Transfer time value (between 10 and 20 sec)	☐	_____
Vacuum value setting (see Ink technical data sheet)	☐	_____

MANUAL PRINT TEST SAMPLE (or comments in case the printer does not function properly)

After sales policy



Plant Air kit

<u>Part number:</u> ENM16203 and A38029 for plant air ENM38028 ENM16203 and A38042 for plant air ENM36796 <u>Main location:</u> cabinet <u>Replacement:</u> 2000 Hrs <u>Quantity:</u> 1		Plant air kit in the hydraulic compartment 	☐ Part replaced
---	---	--	---

	Completed	Comments
Clean air ejector (venturi)	☐	_____

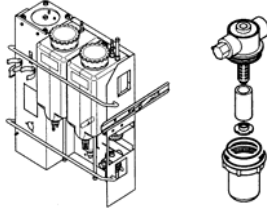
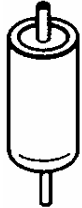
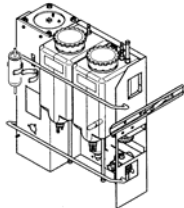
Ink circuit flushing session Completed Comments

Ink low level (disconnect a probe on ink reservoir)	☐	_____
Drain ink circuit (ink tank, vacuum tank) and check cleanliness of grid filter in ink and additive tanks	☐	_____
Check transparent tubing's cleanliness	☐	_____

After sales policy



Parts replaced

Ink Filter	Part	Main location	Comments
Part number: ENM5553 Main location: Ink circuit Replacement: 2000 Hrs Quantity: 1			☐ Part replaced
Head filter 32μ	Part	Main location	Comments
Part number: ENM34411 Main location: Printing module Replacement: 2000 Hrs Quantity: 1		Cabinet, hydraulic compartment	☐ Part replaced
Coalescent filter (recup tank)	Part	Main location	Comments
Part number: ENM7765 Main location: Ink circuit Replacement: 2000 Hrs Quantity: 1			☐ Part replaced

Parts replaced (other than those included in the maintenance agreement)

		Yes	No
Parts replacement		☐	☐
Part number	Description	Comments	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	

After sales policy



Operational test after maintenance

	Checked	Comments
Cover fault	☐ _____	_____
Recuperation fault	☐ _____	_____
EHT fault	☐ _____	_____
Jet stable and centred	☐ _____	_____
Break-off point setting	☐ _____	_____
General appearance of ink circuit (no signs of damage, etc.)	☐ _____	_____
Viscosity value	☐ _____	_____
Jet pressure value	☐ _____	_____
Input pressure value = jet pressure + 0.7 bar	☐ _____	_____
Divider bridge pressure value (> 0.8 and < 2 bar)	☐ _____	_____
Transfer time value (between 10 and 20 sec)	☐ _____	_____
Vacuum value setting (see Ink technical data sheet)	☐ _____	_____

MANUAL PRINT TEST SAMPLE

After sales policy



User

	Yes	No	Comments
The user knows the safety rules	☐	☐	_____
Printer documentation is available	☐	☐	_____
The user knows basic maintenance procedures	☐	☐	_____
The user knows how to use the operator interface	☐	☐	_____
The user needs training	☐	☐	_____

Maintenance report

	Yes	No	Comments
Maintenance complete	☐	☐	_____

Action to be taken by Markem-Imaje by __ / __ / __

Action to be taken by customer by __ / __ / __

Service engineer
Name:
Signature:

Customer
Name:
Signature:



Appendix: Time schedule

We have tried to estimate the time you need for each section.

This sheet is for the Markem-Image network, but can be given to the customer on request.

Section	Approx time (min)	Comments
General information		To be filled in before service
Printer information	5	
Installation	5	
Operational check before maintenance	10	
Plant air kit	30	Filter and cleaning
Ink circuit flushing session – Parts replaced	105	Filters and electro valves, cleaning
Parts replaced (other than those included in the maintenance agreement)	-	Related to the part changed
Operational test after parts replacement	15	
User	5	
Maintenance report	5	

After sales policy



■ Preventive maintenance table

9040, 9040 IP65, 9040S, S8C2

Frequency	Action	Duration	Comments
Once a week	Cleaning of the head	5 min.	Cleaning the print-head once a week is advised to obtain optimal printing performances. See "User manual"
Once a year or 3 600 hours or 2 000 hours for ink 5151	Draining and flushing of the ink circuit. Changing of the main ink filter and of the head filter	2 hours	
Once a year or every 4 months according to the quality of the air.	Changing of the air treatment filter	10 min	Only on printers equipped of the pressurization kit.
10 000 hours or 6 000 hours for inks 5117 and 5127	Changing of the vacuum pump	15 min. Per pump.	1 pump per head
14 000 hours or 8 000 hours for inks 5117 and 5127	Changing of the pressure pump	15 min	

After sales policy



9040 Contrast

Frequency	Action	Duration	Comments
Once a week	Cleaning of the head	5 min.	Cleaning the print-head once a week is advised to obtain optimal printing performances. See "User manual"
4 months or 2 000 hours	Changing of the air treatment filter Draining and flushing of the ink circuit. Changing of the main ink filter, of the head filter and of the coalescent filter (recup tank)	2 hours	
6 000 hours	Changing of the coalescent filters (visco/accu/input)	20 min	
8 000 hours	Changing of the air electro valves	30 min	
12000 hours	Changing of the ink electro valves	30 min	
Once a year	Changing of the stirring bar	10 min	
3 years	Changing of the ink reservoir	20 min	

After sales policy



Notes:



Electronics



Electronics



Notes:



■ Industrial Interface Board

Generalities

There are two different boards:

The “1 head board” (simple board), used only for the mono-head printers. Photo cells, tachometer, alarms and V24 are possible.

Only the signals in “grey” in the following tables are available on this board.

The “2 heads board” (complete board), used for mono-head printers with external link (parallel link, V24) and twin-head printers with or without external link.

Signals

Signal	Connector block	Mark on the board	Function / Comments	Available on “1 head board”
T1-	B4-1	T1-	Head 1 alarm, dry contact inverted (1A)	☑
T1+	B4-2	T1+	Head 1 alarm, dry contact normal (1A)	☑
COMT1	B4-3	CT1	Head 1 alarm, dry contact common	☑
T2-	B4-4	T2-	Head 2 alarm, dry contact inverted (1A).	
T2+	B4-5	T2+	Head 2 alarm, dry contact normal (1A)	
COMT2	B4-6	CT2	Head 2 alarm, dry contact common	
GENE-	B4-7	GE-	General alarm, dry contact inverted (1A)	☑
GENE+	B4-8	GE+	General alarm, dry contact normal (1A)	☑
COMGENE	B4-9	CGE	General alarm, dry contact common	☑
OPTOGENE	B1-2	OGE	Optocoupled general alarm output	☑
COMGENE	B1-1	COGE	Common optocoupled general alarm	☑
START	B1-4	STR	Printer start/stop input	☑
COMSTART	B1-3	CSTR	Common printer start/stop	☑
TXDEXT	B1-5	TXD	TX RS232	☑
RXDEXT	B1-6	RXD	RX RS232	☑
DTREXT	B1-7	DTR	DTR RS232	☑
DSREXT	B1-8	DSR	DSR RS232	☑
TXD422+	B1-24	TD4+	TX RS422 +	
TXD422-	B1-23	TD4-	TX RS422 -	
RXD422+	B1-18	RD4+	RX RS422 +	
RXD422-	B1-17	RD4-	RX RS422 -	
DTR422+	B1-22	DT4+	DTR RS422 +	
DTR422-	B1-21	DT4-	DTR RS422 -	
DSR422+	B1-16	DS4+	DSR RS422 +	
DSR422-	B1-15	DS4-	DSR RS422 -	
VALID422+	B1-20	VAL422+	Enable RS422	
VALID422-	B1-19	VAL422-	Enable RS422	





Signal	Connector block	Mark on the board	Function / Comments	Available on "1 head board"
OUT1	B1-10	OT1	Not use	☑
COMOUT1	B1-9	COT1	Not use	☑
IN1	B1-12	IN1	Not use	☑
COMIN1	B1-11	CIN1	Not use	☑
GND	B1-13/14/25	GND		☑ only B1-13/14
+5V	B1-26	+5V		
+15V	B1-27	+15V		
-15V	B1-28	-15V		
DTOP1	B2-4	TOP1	Photo cell head 1 input. Positive pin.	☑
COMDTOP1	B2-3	CTP1	Photo cell head 1 input. Negative pin.	☑
VALIMP1	B2-6	VAL1	Validation input head 1. Positive pin.	☑
COMVALIMP1	B2-5	CVAL1	Validation input head 1. Negative pin.	☑
TACHY1	B2-8	TAC1	Tacho coder input. Positive pin.	☑
COMTACHY1	B2-7	CTC1	Tacho coder input. Negative pin.	☑
RAZC1	B2-10	RAZ1	Head 1 reset counter 1 input	☑
COMRAZC1	B2-9	CRZ1		☑
INCC1	B2-12	IC1	Head 1 increment counter 1 input	☑
COMINCC1	B2-11	CIC1		☑
STOPI1	B2-14	STO1	Stop printing head 1 input	☑
COMSTOPI1	B2-13	CTO1		☑
SPROGI1	B2-16	SPR1	Complete printing output. Positive pin.	☑
COMSPROG1	B2-15	CSP1	Complete printing output. Negative pin.	☑
VALFINI1	B2-18	FIN1	Final value of the counter output	☑
COMVALFIN1	B2-17	CFN1		☑
OPTOT1	B2-20	OPT1	Optocoupled head 1 alarm output. Positive pin.	☑
COMOPTOT1	B2-19	COT1	Optocoupled head 1 alarm output. Negative pin.	☑



Signal	Connector block	Mark on the board	Function / Comments	Available on "1 head board"
D0T1	B2-24	D0T1	D0 head 1 parallel interface input. Positive pin.	
D1T1	B2-25	D1T1	D1 head 1 parallel interface input. Positive pin.	
D2T1	B2-26	D2T1	D2 head 1 parallel interface input. Positive pin.	
D3T1	B2-27	D3T1	D3 head 1 parallel interface input. Positive pin.	
D4T1	B2-28	D4T1	D4 head 1 parallel interface input. Positive pin.	
D5T1	B2-29	D5T1	D5 head 1 parallel interface input. Positive pin.	
D6T1	B2-30	D6T1	D6 head 1 parallel interface input. Positive pin.	
D7T1	B2-31	D7T1	D7 head 1 parallel interface input. Positive pin.	
COMDATA1	B2-23	CDT1	Common head 1 parallel interface inputs. Negative pin.	
+24VT1	B2-2/32	+24V	+24 Volts available for head 1 accessories. Maximum current available : 300mA.	☒ only B2-2
GND	B2-1/21/22	GND	Grounds available for accessories and optocouplers head 1.	☒



Signal	Connector block	Mark on the board	Function / Comments	Available on "1 head board"
DTOP2	B3-4	TOP2	Photo cell head 2 input. Positive pin.	
COMDTOP2	B3-3	CTP2	Photo cell head 2 input. Negative pin.	
VALIMP2	B3-6	VAL2	Validation input head 2. Positive pin.	
COMVALIMP2	B3-5	CVAL2	Validation input head 2. Negative pin.	
TACHY2	B3-8	TAC2	Tacho coder input. Positive pin.	
COMTACHY2	B3-7	CTC2	Tacho coder input. Negative pin.	
RAZC2	B3-10	RAZ2	Head 2 reset counter 1 input	
COMRAZC2	B3-9	CRZ2		
INCC2	B3-12	IC2	Head 2 increment counter 1 input	
COMINCC2	B3-11	CIC2		
STOPI2	B3-14	STO2	Stop printing head 2 input	
COMSTOPI2	B3-13	CTO2		
SPROGI2	B3-16	SPR2	Complete printing output. Positive pin.	
COMSPROG2	B3-15	CSP2	Complete printing output. Negative pin.	
VALFINI2	B3-18	FIN2	Final value of the counter output	
COMVALFINI2	B3-17	CFN2		
OPTOT2	B3-20	OPT2	Optocoupled head 2 alarm output. Positive pin.	
COMOPTOT2	B3-19	COT2	Optocoupled head 2 alarm output. Negative pin.	
D0T2	B3-24	D0T2	D0 head 2 parallel interface input. Positive pin.	
D1T2	B3-25	D1T2	D1 head 2 parallel interface input. Positive pin.	
D2T2	B3-26	D2T2	D2 head 2 parallel interface input. Positive pin.	
D3T2	B3-27	D3T2	D3 head 2 parallel interface input. Positive pin.	
D4T2	B3-28	D4T2	D4 head 2 parallel interface input. Positive pin.	
D5T2	B3-29	D5T2	D5 head 2 parallel interface input. Positive pin.	
D6T2	B3-30	D6T2	D6 head 2 parallel interface input. Positive pin.	
D7T2	B3-31	D7T2	D7 head 2 parallel interface input. Positive pin.	
COMDATA2	B3-23	CDT2	Common head 2 parallel interface inputs. Negative pin.	
+24VT2	B3-2/32	+24V	+24 Volts available for head 2 accessories. Maximum current available: 300mA.	
GND	B3-1/21/22	GND	Grounds available for accessories and optocouplers head 2.	



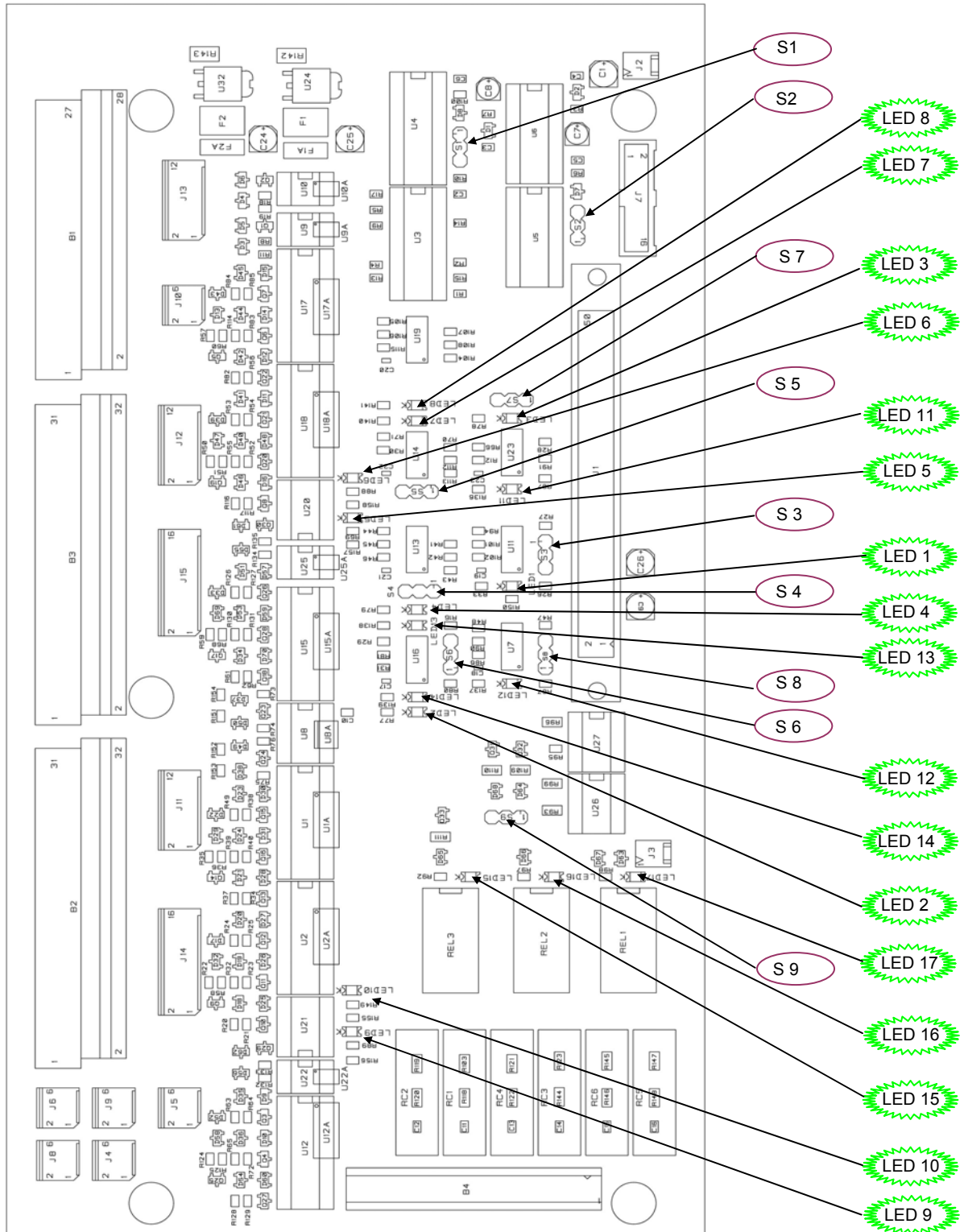


Jumpers and switches

Standard position			ID	LEGEND	POSITION	FUNCTION / COMMENTS
1	2		S1-1	VAL	VAL	RS422 point-to-point link (just one printer on the link).
			S1-3	VAL	not VAL	RS422 point-to-multipoint link (printer selected with VALID422).
1	2		S2_1	RXD	232	RS232 serial link mode selected
			S2_3	RXD	422	RS422 serial link mode selected.
	2	3	S3-3	TOP2	TOP2	DTOPIMP2 signal from optocoupled input DTOP2.
			S3-1	TOP2	not TOP2	DTOPIMP2 signal from input DTOP1 (when operating with two heads and a single DTOP cell)
	2	3	S4-3	TAC2	TAC2	TACHYIMP2 signal from optocoupled input TACHY2.
			S4-1	TAC2	not TAC2	TACHYIMP2 signal from input TACHY1 (when operating with two heads and a single tachometer).
			S5-3	INV2	INV2	DTOPIMP2 signal inverted.
1	2		S5-1	INV2	not INV2	DTOPIMP2 signal not inverted.
			S6-3	INV1	INV1	DTOPIMP1 signal inverted.
1	2		S6-1	INV1	not INV1	DTOPIMP1 signal not inverted.
			S7-3	SPROG2	SPROG2	SPROGI2 signal operates in SPROG mode.
1	2		S7-1	BUSY2	BUSY2	SPROGI2 signal operates in BUSY mode.
			S8-3	SPROG1	SPROG1	SPROGI1 signal operates in SPROG mode.
1	2		S8-1	BUSY1	BUSY1	SPROGI1 signal operates in BUSY mode.
			S9-3	T2	T2	24V alarm on J5 operates with 2 heads
1	2		S9-1	T2	not T2	24V alarm on J5 operates with one head



Equipment:





LED status

These LEDs provide a visual indication that specific output signals from the printer or input signals from an external device connected to the board are operating correctly.

Led	Legend	Comments
LED1 (green)	TOP2	Signal from DTOP2 input is present (LED flashes in time with the photocell signal).
LED2 (green)	TOP1	Signal from DTOP1 input is present (LED flashes in time with the photocell signal).
LED 3 (green)	TAC2	Signal from TACHY2 input is present (LED flashes in time with the tachometer pulses).
LED4 (green)	TAC1	Signal from TACHY1 input is present (LED flashes in time with the tachometer pulses).
LED5 (green)	FIN2	The LED goes on when the VALFINALIMP2 signal from the printer changes to logic level 0 - i.e. 0V (active status) Indicating that counter 2 on head 2 has reached its final value.
LED6 (green)	SP2	The LED goes on when the SPROG2 signal from the printer changes to logic level 1 - i.e. +5V (active status) in SPROG2 mode (jumper S7-3). The LED goes on when the SPROG2 signal from the printer changes to logic level 0 - i.e. 0V (active status) in BUSY2 mode (jumper S7-1).
LED7 (green)	RC2	Signal from the RAZC2 input is present. (LED flashes in time with the command signal).
LED8 (green)	INC2	Signal from the INCC2 input is present. (LED flashes in time with the command signal).
LED9 (green)	FIN1	The LED goes on when the VALFINALIMP1 signal from the printer changes to logic level 0 - i.e. 0V (active status). Indicating that counter 1 on head 1 has reached its final value.
LED10 (green)	SP1	The LED goes on when the SPROG1 signal from the printer changes to logic level 1 - i.e. +5V (active status) in SPROG1 mode (jumper S8-3). The LED goes on when the SPROG1 signal from the printer changes to logic level 0 - i.e. 0V (active status) in BUSY1 mode (jumper S8-1).
LED11 (green)	STOP2	Signal from STOPI2 input is present. (LED flashes in time with the command signal).
LED12 (green)	STOP1	Signal from STOPI1 input is present. (LED flashes in time with the command signal).
LED13 (green)	RC1	Signal from RAZC1 input is present. (LED flashes in time with the command signal).
LED14 (green)	INC1	Signal from INCC1 input is present. (LED flashes in time with the command signal).
LED15 (green)	DEF	The LED goes on when there is a general fault on the printer. Relay REL2 is activated.
LED16 (green)	T2	The LED goes on when head 2 on the printer is ready to print. Relay REL3 is activated.
LED17 (green)	T1	The LED goes on when head 1 on the printer is ready to print. Relay REL1 is activated.



Screw connectors blocks

■ Block B1: Communication and alarms.

Pin	Connector HE14	Mark on the board	Signal	Comments
1		COGE	COMGENE	Common optocoupled general alarm
2		OGE	OPTOGENE	Optocoupled general alarm output
3		CSTR	COMSTART	Common printer start/stop
4		STR	START	Printer start/stop input
5	J10-3	TXD	TXDEXT	TX RS232
6	J10-4	RXD	RXDEXT	RX RS232
7	J10-2	DTR	DTREXT	DTR RS232
8	J10-1	DSR	DSREXT	DSR RS232
9		COT1	COMOUT1	Not use
10		OT1	OUT1	Not use
11		CIN1	COMIN1	Not use
12		IN1	IN1	Not use
13		GND	GND	
14		GND	GND	
15	J13-1	DS4-	DSR422-	DSR RS422 -
16	J13-2	DS4+	DSR422+	DSR RS422 +
17	J13-3	RD4-	RXD422-	RX RS422 -
18	J13-4	RD4+	RXD422+	RX RS422 +
19		VAL422-	VALID422-	Enable RS422
20		VAL422+	VALID422+	Enable RS422
21	J13-7	DT4-	DTR422-	DTR RS422 -
22	J13-8	DT4+	DTR422+	DTR RS422 +
23	J13-9	TD4-	TXD422-	TX RS422 -
24	J13-10	TD4+	TXD422+	TX RS422 +
25		GND	GND	
26		+5V	+5V	
27		+15V	+15V	
28		-15V	-15V	

CAUTION: The +5V, +15V and -15V outputs are not fuse protected. If using these supplies, care must be taken.



■ Blocks B2 and B3: Print head 1 and 2.

Pin	Connector HE14	Mark on the board	Signal	Comments
1	J11-10	GND	GND	Available for accessories
2	J11-11	+24V	+24VT1	Maximum current available : 300 mA
3	J4-6	CTP1	COMDTOP1	Object detection cell input
4	J4-5	TOP1	DTOP1	
5		CVAL1	COMVALIMP1	Printing validation input
6		VAL1	VALIMP1	
7	J8-6	CTC1	COMTACHY1	Tacho coders input
8	J8-5	TAC1	TACHY1	
9	J14-3	CRZ1	COMRAZC1	Reset counter input
10	J14-4	RAZ1	RAZC1	
11	J14-5	CIC1	COMINCC1	Increment counter input
12	J14-6	IC1	INCC1	
13	J14-7	CTO1	COMSTOPI1	Stop printing input
14	J14-8	STO1	STOPI1	
15	J14-9	CSP1	COMSPROG1	Complete printing output
16	J14-10	SPR1	SPROGI1	
17	J14-11	CFN1	COMVALFIN1	Final value of the counter output
18	J14-12	FIN1	VALFINI1	
19	J14-13	COT1	COMOPTOT1	Alarm head output
20	J14-14	OPT1	OPTOT1	
21	J14-15	GND	GND	Available for accessories
22	J8-2	GND	GND	Maximum current available: 300 mA
23	J11-9	CDT1	COMDATA1	Common parallel interface inputs
24	J11-1	D0T1	D0T1	D0 parallel interface input
25	J11-2	D1T1	D1T1	D1 parallel interface input
26	J11-3	D2T1	D2T1	D2 parallel interface input
27	J11-4	D3T1	D3T1	D3 parallel interface input
28	J11-5	D4T1	D4T1	D4 parallel interface input
29	J11-6	D5T1	D5T1	D5 parallel interface input
30	J11-7	D6T1	D6T1	D6 parallel interface input
31	J11-8	D7T1	D7T1	D7 parallel interface input
32	J8-1	+24V	+24VT1	Available for accessories Maximum current available: 300 mA



■ Block B4: Alarms.

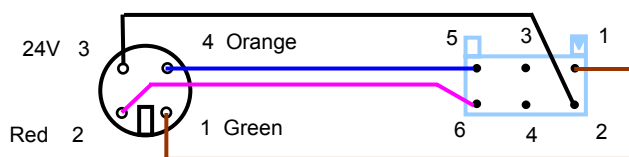
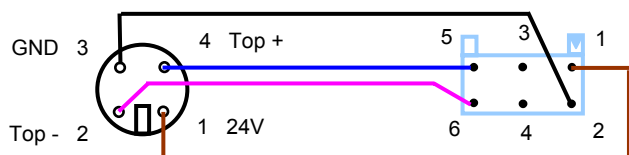
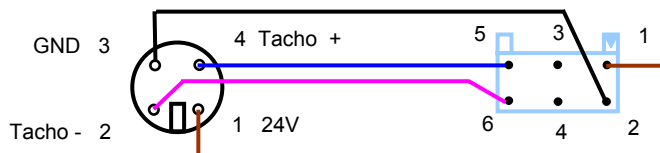
Pin	Mark on the board	Signal	Comments
1	T1-	T1-	Head 1 alarm, dry contact inverted (1A)
2	T1+	T1+	Head 1 alarm, dry contact normal (1A)
3	CT1	COMT1	Head 1 alarm, dry contact common
4	T2-	T2-	Head 2 alarm, dry contact inverted (1A)
5	T2+	T2+	Head 2 alarm, dry contact normal (1A)
6	CT2	COMT2	Head 2 alarm, dry contact common
7	GE-	GENE-	General alarm, dry contact inverted (1A)
8	GE+	GENE+	General alarm, dry contact normal (1A)
9	CGE	COMGENE	General alarm, dry contact common

REMINDER: Optocoupled alarm outputs are also available on screw connector block B1, pins 1-2-3-4.

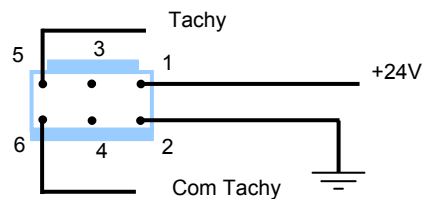


Cables between the Industrial Interface board and the IP65 external connectors

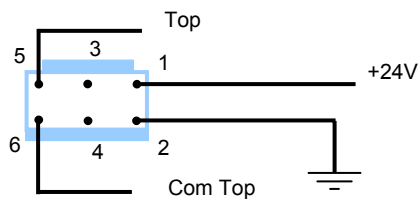
IP65 External connectors



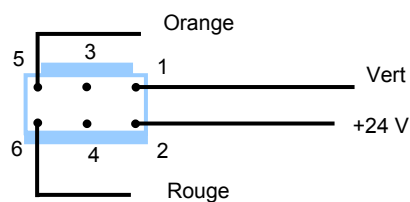
Industrial Interface Board



J8 TACHY 1 - J6 TACHY 2

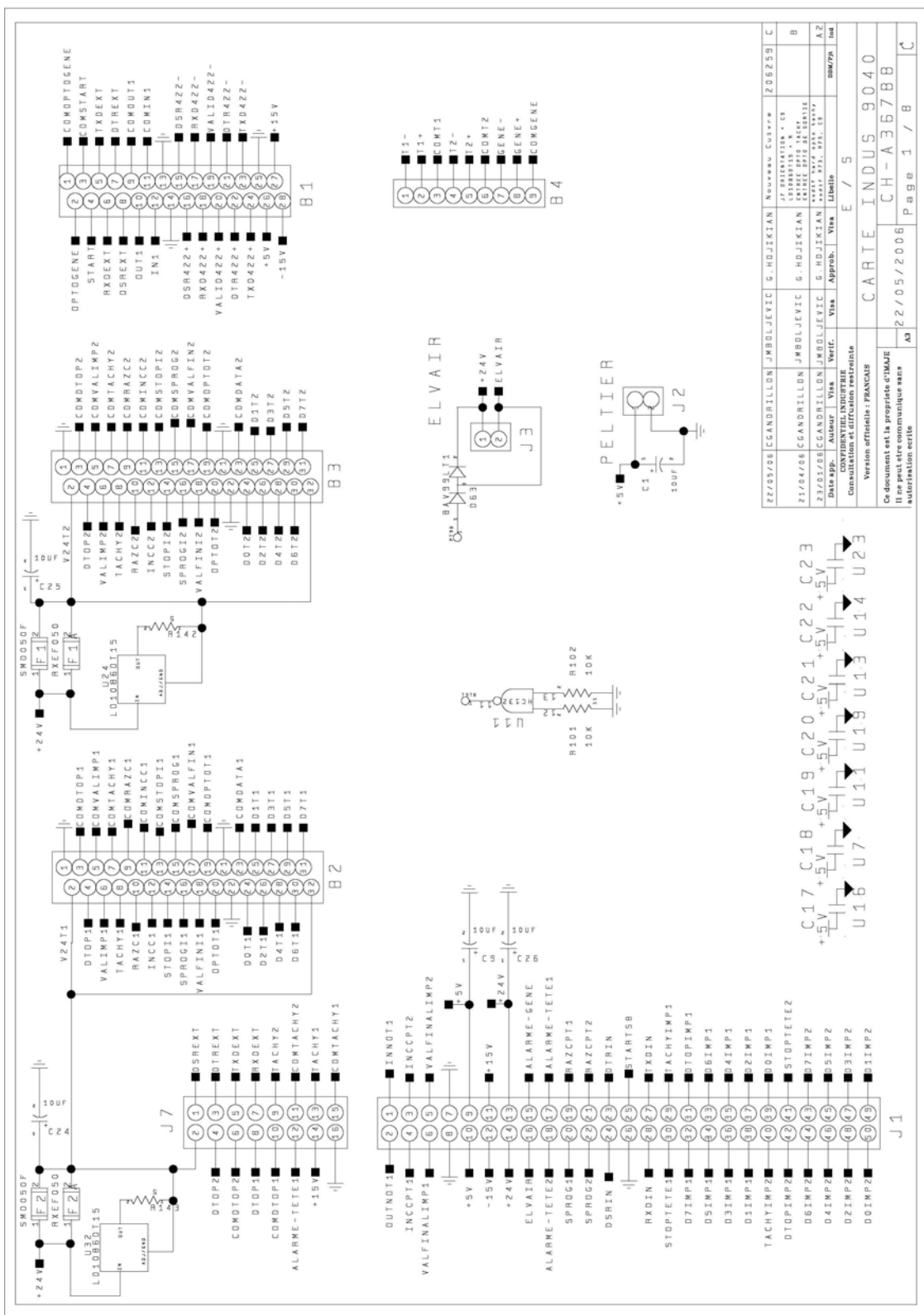


J4 CELLULE 1 - J9 CELLULE 2

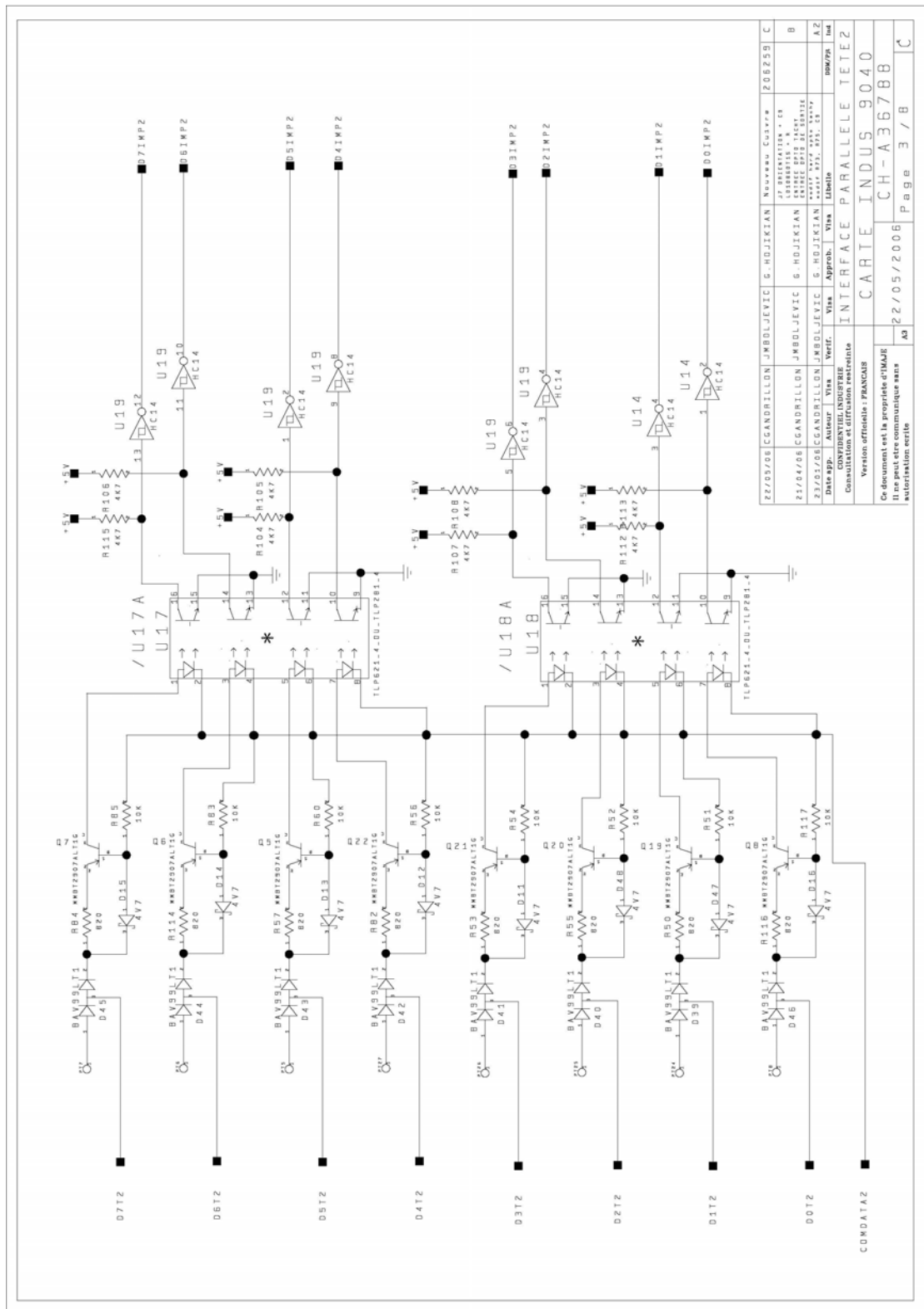


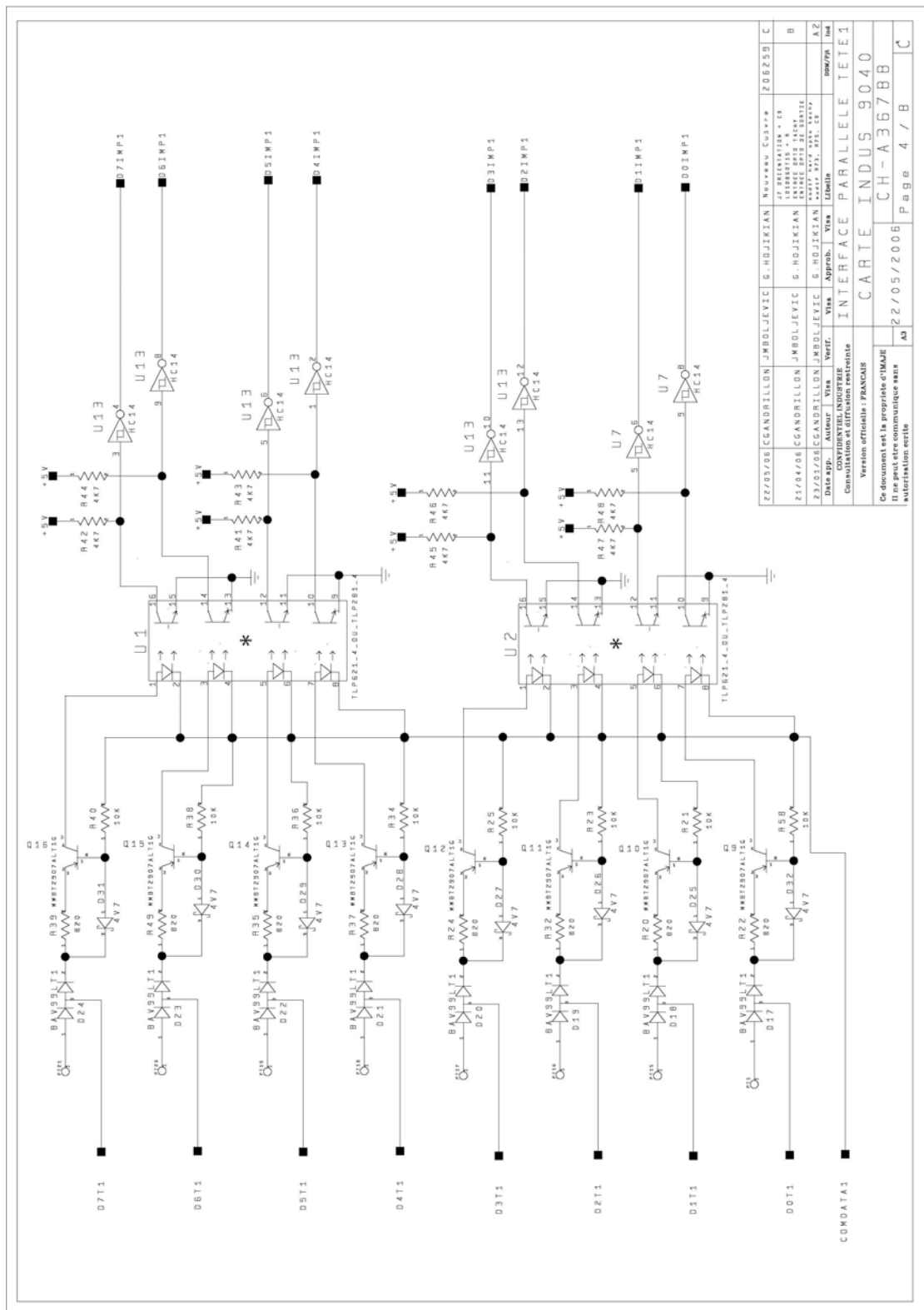
J5 ALARME

Drawings











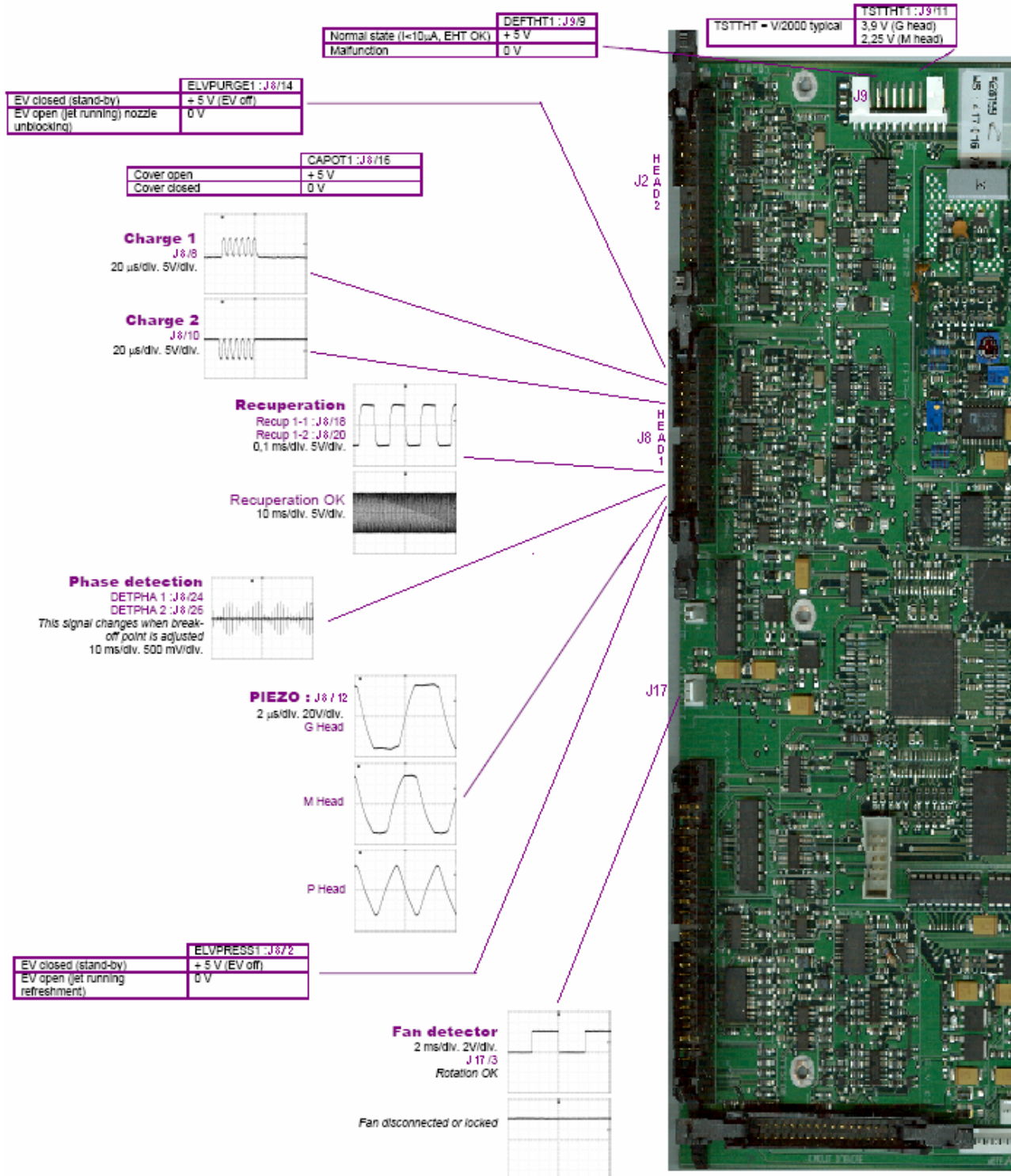








■ Print-head signals on the main board



Electronics



Notes:

Electronics



Notes:



Hydraulics



Hydraulics



Notes:



■ Ink/Jet speed information

In order to be in conformity with the theoretical resolution in G head (2,8 dots per millimetre with typical head/object distance), we had to change the jet speed for different inks.

The general rule is the following:

For G head, all base MEK inks which had a jet speed of 20m/s on Imaje S8 printers, have now a jet speed of 19.5m/s on Markem-Imaje 9040 printers.

For M and P heads, no change.

For water and alcohol base inks, no change.

All the inks which had a jet speed different of 20m/s on S8 printers, no change.

The software of Markem-Imaje 9040 includes this new value as a standard.

The IRS (Ink Running Specification) will be updated.



■ Ink/Jet speed tables

		Parameters S8				Parameters 9040			
		Viscosity management	Jet speed (m/s)			Viscosity management	Jet speed (m/s)		
			G	M	P		G	M	P
5106E-4	ORANGE FLUO	36-29s	20	20	/	MEK Curve	19,5	20	/
5107-4	BLACK	36-29s	20	20	/	MEK Curve	19,5	20	/
5117-4	BLUE	36-29s	20	20	/	MEK Curve	19,5	20	/
5122-4	CARMIN	36-29s	20	20	24	MEK Curve	19,5	20	24
5125-4	GREEN	36-29s	20	20	/	MEK Curve	19,5	20	/
5127-4	INVISIBLE FLUO	36-29s	20	/	/	MEK Curve	19,5	/	/
5128-4	RUBINE	36-29s	20	20	24	MEK Curve	19,5	20	24
5132-4	YELLOW	36-29s	20	20	/	MEK Curve	19,5	20	/
5135E-4	BLACK	36-29s	20	20	24	MEK Curve	19,5	20	24
5139-4	BLACK	36-29s	20	20	/	MEK Curve	19,5	20	/
5140-4	BLACK	36-29s	20	20	24	MEK Curve	19,5	20	24
5144M-4	BLACK	36-29s	20	20	24	MEK Curve	19,5	20	24
5151-4	YELLOW	36-29s	20	20	/	MEK Curve	19,5	20	/
5153-4	BROWN	36-29s	19	19	/	MEK Curve	19	19	/
5157E-4	BLACK	36-29s	20	20	24	MEK Curve	19,5	20	24
5178-4	BLACK	36-29s	20	20	/	MEK Curve	19,5	20	/
5189-4	GREY	36-29s	20	20	/	MEK Curve	19,5	20	/
5197-4	BLACK	10°C = 55-45s 20°C = 36-29s	20	/	/	idem S8			
5220-4	BLACK	36-29s	20	/	/	idem S8			
5311-4	PINK	specific curve	/	20	/	idem S8			
5312-4	BLUE	specific curve	/	20	/	idem S8			
5511-4	INVISIBLE FLUO	36-29s	20	20	/	idem S8			
5533-4	BLACK	36-29s	19,5	/	/	idem S8			
5535-4	INVISIBLE	34-24s	20	/	/	idem S8			
5550-4	BLACK	specific curve	20	20	/	idem S8			
5553-4	INVISIBLE FLUO	34-24s	20	/	/	idem S8			
5554-4	BLACK	36-29s	20	20	/	MEK Curve	19,5	20	/
5588-4	BLACK	specific curve	19,5	/	/	idem S8			





MEK curve			
T°	visco (s)	T°	visco (s)
0	36	25	27
1	36	26	27
2	36	27	26
3	35	28	26
4	35	29	26
5	34	30	25
6	34	31	25
7	33	32	25
8	33	33	24
9	33	34	24
10	32	35	24
11	32	36	24
12	31	37	23
13	31	38	23
14	31	39	23
15	30	40	22
16	30	41	22
17	30	42	22
18	29	43	22
19	29	44	22
20	29	45	22
21	28	46	22
22	28	47	22
23	28	48	22
24	27	49	22



■ Ink circuit operation

Pumps

Each pump on the 9040 is driven by its own DC motor, each with a wider adjustment range.

Measuring viscosity, adding additive and detecting the low additive tank level

It was decided to manage the viscosity of all MEK inks based on the temperature.
The other inks are managed based on temperature if needed by the machine/ink pair.

Principle

The viscometer is used to add additive.

There are four steps:

- Empty the viscometer.
- Open the additive addition electrovalve.
- Wait until the viscometer is filled to the top.
- Read the viscometer filling time.

The viscometer is filled in 9-14 seconds regardless of the level in the additive tank.

This is much faster than the time needed to fill the viscometer with ink during the viscosity measurement and makes it possible to determine whether additive is in the tank.

If the additive filling time is around the same as that for the viscosity (ink measurement), then the additive tank is empty.



Functional safety measures

Risk of additive being colored by the ink

The solvent may be colored if the solvent electro valve is left open for too long. This is because the level of solvent is below the level of ink in the constant-level tube.

To avoid this, we have set the solvent filling time to 2 seconds less than the ink filling time (used to monitor the actual ink viscosity). The absolute filling time cannot exceed 30 seconds.

Influence of temperature on the filling time

Temperature has little effect on the viscosity of solvents, resulting in a stable filling time.

The only effect temperature has is on the amount of additive added each time. The higher the temperature, the lower the ink viscosity and the less additive is actually added.

Ink quality control loop

To ensure proper ink quality management (sufficient additive levels), the amount of additive added is now proportional to the number of nozzles on each machine (and corresponds to measured additive consumption levels).

The rule is simple:

1 nozzle: 1 viscometer per addition of additive.

2 nozzles: 2 viscometers per addition of additive.

And so on.

Additive priming

When additive is added to a completely empty solvent tank, air bubbles form in the tank strainer. These air bubbles tend to block the flow of additive and remain trapped in the strainer.

To prime the system, open the solvent electro valve and viscometer so that the solvent is drawn directly by the scavenge pump.

Always follow the same procedure if there is a solvent problem: try adding solvent, prime the system, try again.



Risk of additive high level in viscometer not being detected

To avoid overfilling the viscometer when additive is added several times in a row, we have separated each additive addition phase with an ink filling phase.

Possibilities for hourly additions of additive

Solvent is added in the following manner: viscosity measured once, solvent added once, four no-load measurements, etc.

Each time solvent is added, the viscosity must be measured five times (total time: approx. 20 seconds).

Thus, for an average viscosity of 30 seconds, solvent can be added once every 170 seconds (21 times per hour) in individual amounts of approx. 3 cc (60 cc per hour).

Rinsing the cannon prior to short/prolonged periods of non-use

The machine will start up better if a maximum of ink is flushed from the cannon when the machine is stopped.

To do so, flow additive through the cannon at negative pressure by opening the head drain electro valve and the additive electro valve on the ink circuit.

Use the 1.1 mm hose in the conduit (used for the spray in the S8) to carry the additive to the cannon.

The additive inlet is protected by a 14 µm filter.

Connect the hose to the tee piece after the head pressure electro valve.

Place a check valve on the additive line to prevent a backflow of additive when the nozzle is started (pressure electro valve opened).

The cannon rinsing cycle lasts for 6 minutes after the machine is stopped.

Additive is not needed in the head cannon in order to start the machine. This is because the direction of the nozzles cannot be changed and the jet would be outside the gutter.

At start-up, run a small amount of additive through the cannon to flush away any ink residue that may have migrated to the bottom of the cannon while the machine was off.

Then run ink through the cannon at negative pressure by opening the drain and head pressure electro valves.

Both negative pressure and zero pressure are necessary during this phase. The former is used to transfer ink from the tank to the cannon and the latter is needed because the drain and head pressure electro valves are opened.

An EGGS ink circuit must be used as it is the only one with a separate motor for each pump, which is needed to drive the pressure and recuperation motors independently.

The cannon is filled with ink in approx. 1 minute when the machine is started.



An electro valve has been installed on the recuperation line for improved cannon rinsing and filling (and greater control over the quantities of additive used).

To avoid problems of the electro valve drying out, it has been placed beneath the ink tank and remains 'wet' when the machine is stopped.

IMPORTANT: *The additive used to rinse the cannon is discharged into the ink reservoir.*

Approx. 20 cc are used during the rinsing cycle and 2.5 cc when the machine is started.

If the machine is stopped twice a day, add 45 cc of additive to the ink.

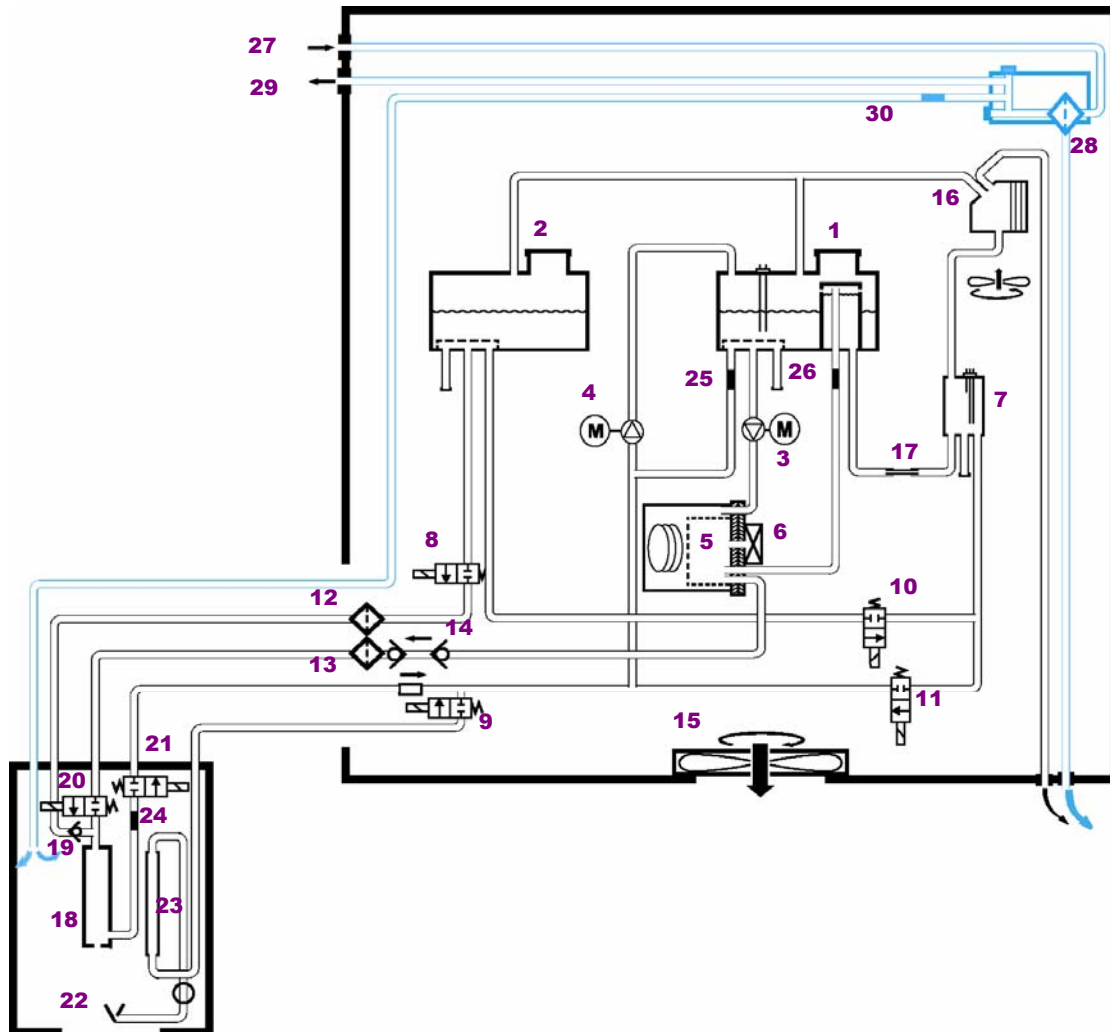
As the machine uses approx. 5 cc per hour, ink thinning problems are possible.

We have added a short machine stop cycle to avoid this (selected by the operator when ON/OFF pressed).

This short stop cycle uses 4 cc of additive and lasts for about 90 seconds after the machine is stopped.



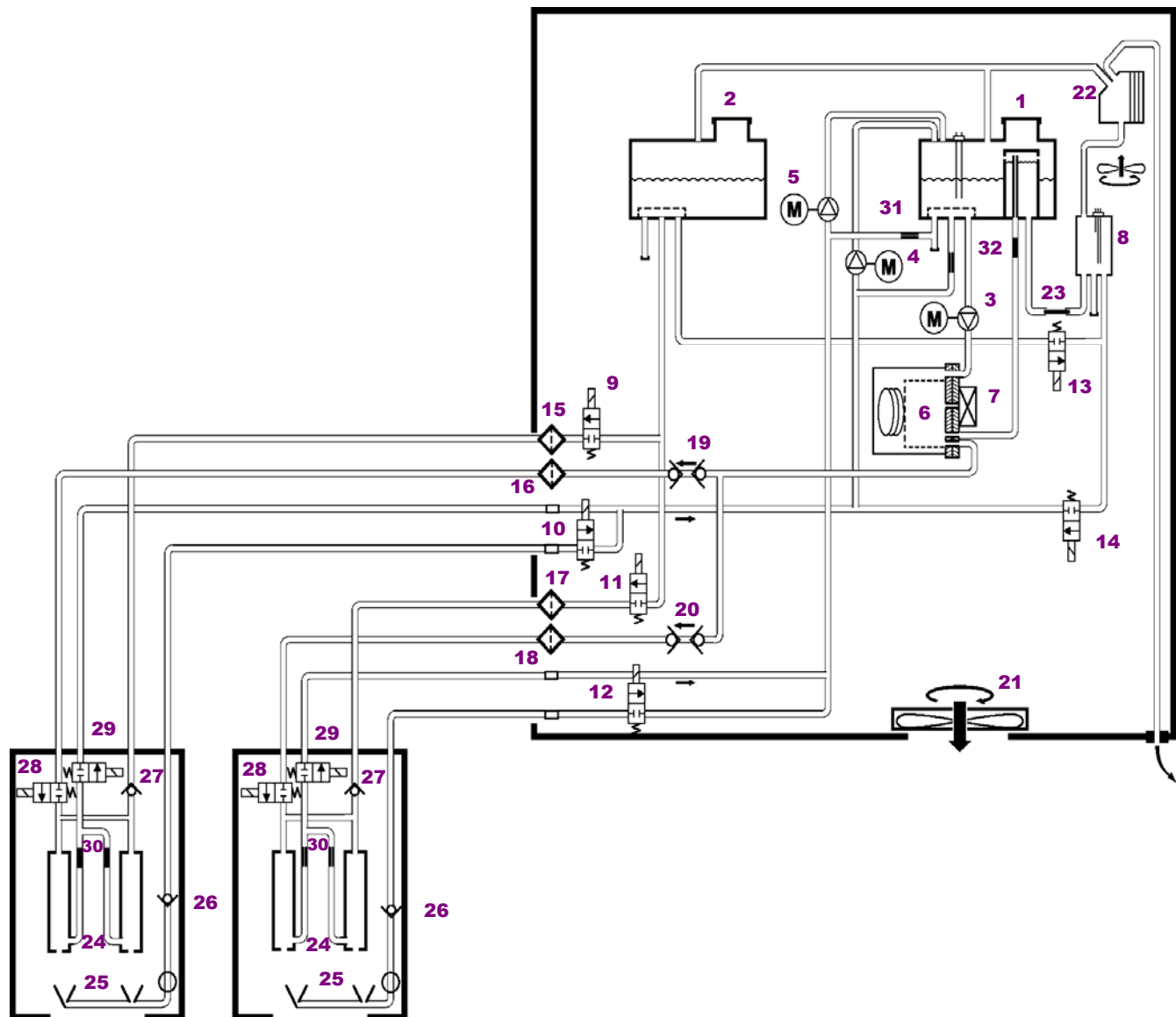
■ Ink circuit 1 head



- | | | |
|------------------------------------|------------------------------------|-------------------------------|
| 1 Ink tank | 11 Viscometer drain electro valve | 21 Drain electro valve |
| 2 Additive tank | 12 Additive head filter | 22 Recuperation gutter |
| 3 Pressure motor/pump | 13 Ink head filter | 23 Streamer |
| 4 Vacuum motor/pump | 14 Auto-shutter connector | 24 Calibrated leak 0.3mm |
| 5 Ink filter with antipulse | 15 Ventilator | 25 Calibrated leak 0.7mm |
| 6 Pressure/Temperature sensor | 16 Condenser with fan | 26 Calibrated leak 0.3mm |
| 7 Viscometer | 17 Ceramic calibrated tube | 27 Air network input (option) |
| 8 Nozzle rinsing electro valve | 18 Cannon | 28 Permanent filter drain |
| 9 Gutter electro valve | 19 One way valve (no return valve) | 29 Outlet for head drying kit |
| 10 Additive addition electro valve | 20 Pressure electro valve | 30 Head pressurization outlet |



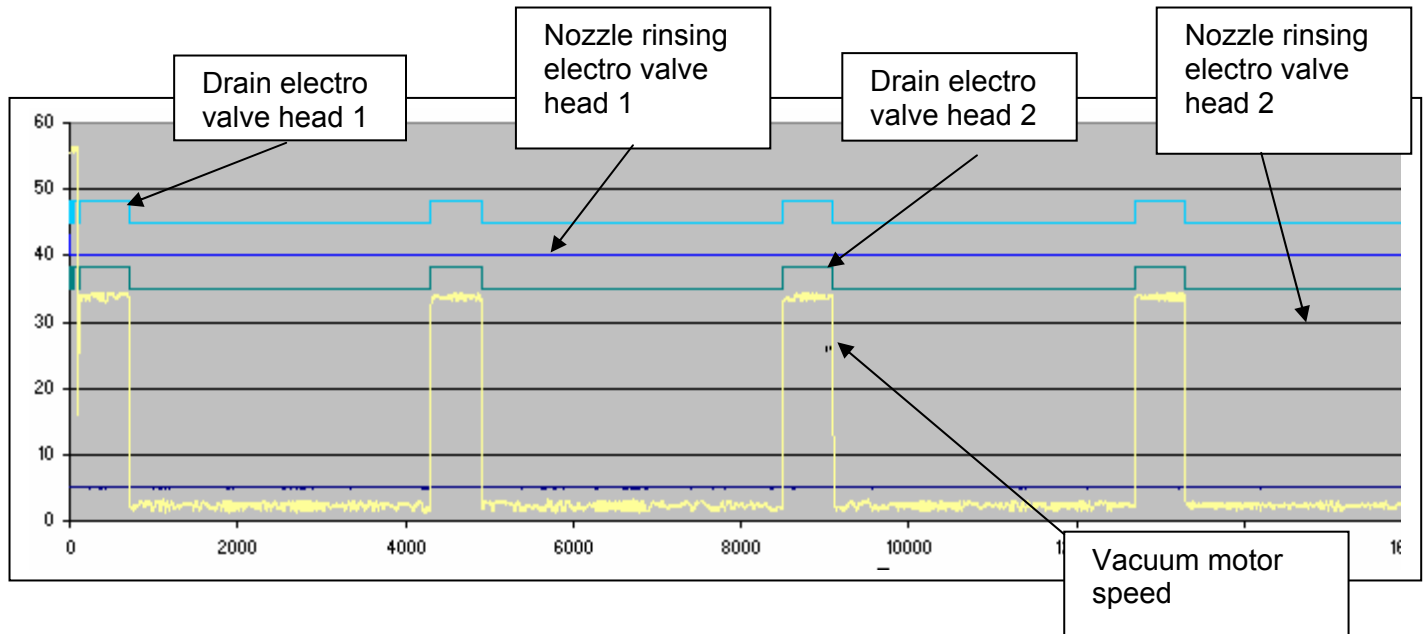
■ Ink circuit 2 heads



- | | | |
|--|------------------------------------|-------------------------------|
| 1 Ink tank | 12 Gutter electro valve head 2 | 23 Ceramic calibrated tube |
| 2 Additive tank | 13 Additive addition electro valve | 24 Cannons |
| 3 Pressure motor/pump | 14 Viscometer drain electro valve | 25 Recuperation gutters |
| 4 Vacuum motor/pump head 1 | 15 Additive head filter head 1 | 26 Recuperation one way valve |
| 5 Vacuum motor/pump head 2 | 16 Ink head filter head 1 | 27 Drain one way valve |
| 6 Ink filter with antipulse | 17 Additive head filter head 2 | 28 Pressure electro valve |
| 7 Pressure/Temperature sensor | 18 Ink head filter head 2 | 29 Drain electro valve |
| 8 Viscometer | 19 Auto-shutter connector head1 | 30 2 calibrated leaks 0.3mm |
| 9 Nozzle rinsing electro valve head 1 | 20 Auto-shutter connector head2 | 31 2 calibrated leaks 0.7mm |
| 10 Gutter electro valve head 1 | 21 Ventilator | 32 Calibrated leak 0.3mm |
| 11 Nozzle rinsing electro valve head 2 | 22 Condenser with fan | |



■ Active Standby diagram

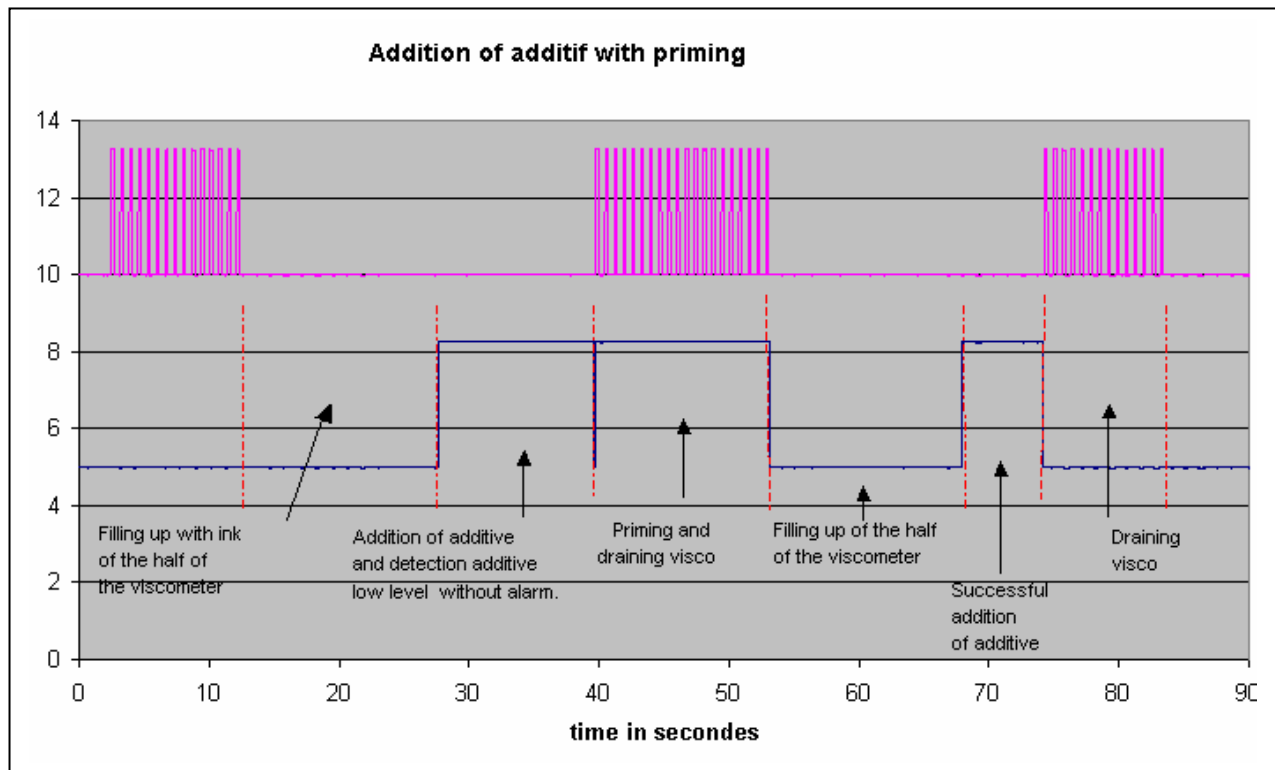


Active standby mode

An active standby mode has been added to the 9040 to increase the rate of good start-ups. If the printer is left on and not used for an extended period of time, it enters active standby mode for the first hours of non-use. Once every hour during this period the software starts the suction pump and opens and closes the head drain electro valve to draw air out of the cannon for 10 minutes. This drains away any condensate that forms inside the cannon.

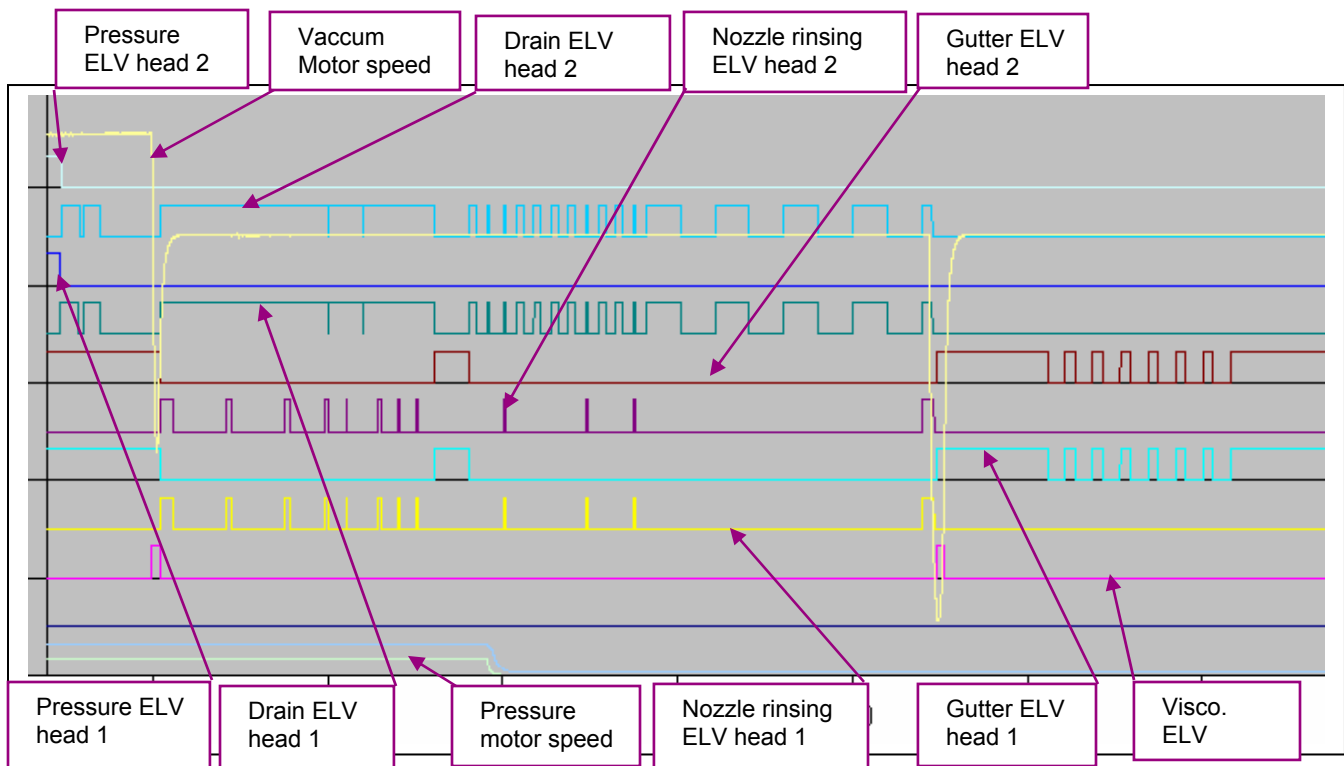


■ Addition of additive with priming





■ Long shut-down



If the printer is stopped with a “Long shut down”:

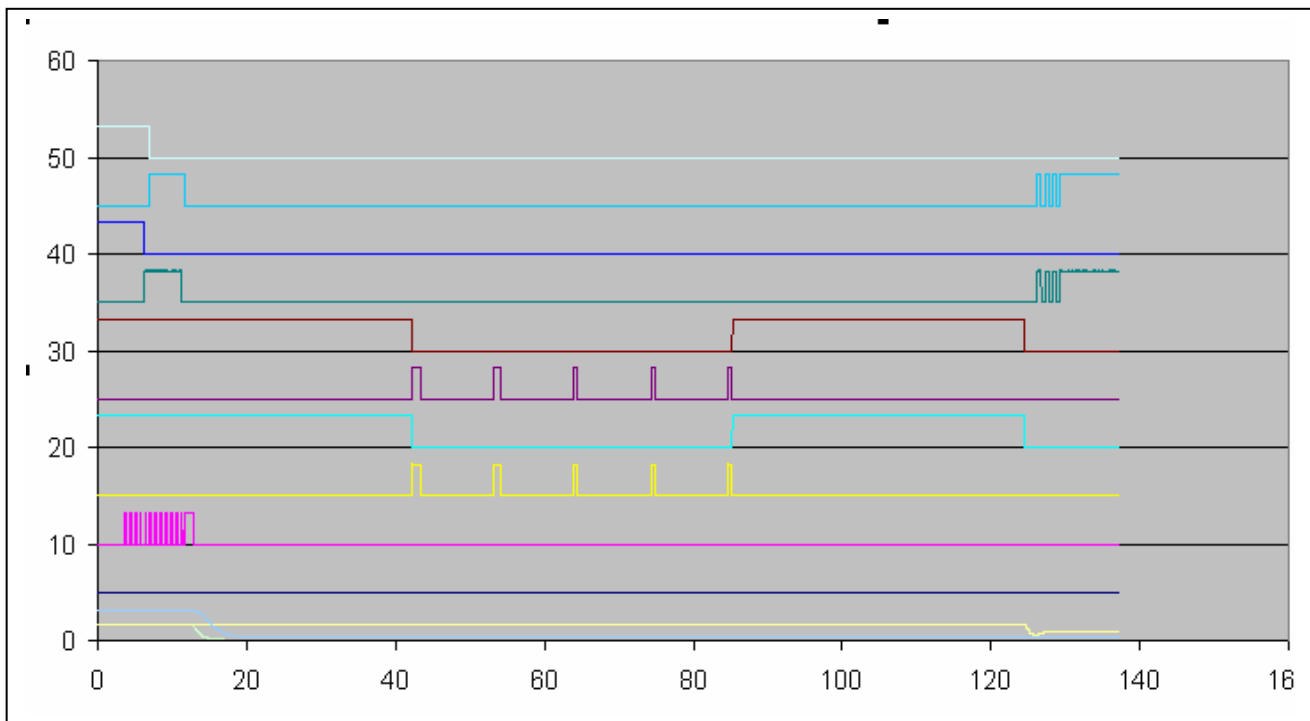
- This long stop cycle lasts for about 6 minutes after the machine is stopped.
- Approx. 20 cc of additive are used during the rinsing cycle and 2.5 cc when the machine is started.
- The standby mode is operational for the first 74 hours of non-use. Once every hour during this period the software starts the suction pump and opens and closes the head drain electro valve to draw air out of the cannon for 10 minutes. This drains away any condensate that forms inside the cannon.

REMINDER: The quantity of additive needed for this operation, must be used during the running period which follows the re-starting of the printer.

FOR EXAMPLE: As the printer uses approx. 5 cc of additive per hour, a 4.5 hours running period is mandatory to use this additive.



■ Short shut-down



If the printer is stopped with a “Short shut down”:

- This short stop cycle lasts for about 90 seconds after the machine is stopped.
- Approx. 4 cc of additive are used during the rinsing cycle and 2.5 cc when the machine is started.
- The standby mode is operational for the first 8 hours of non-use. Once every hour during this period the software starts the suction pump and opens and closes the head drain electro valve to draw air out of the cannon for 10 minutes. This drains away any condensate that forms inside the cannon.



■ General Recapitulative “Stop” table

Stop duration	9040, 9040S, 9040IP65
Stop < 2h	Short Shut down
2h < Stop < 8 days	Long Shut down
8 days < Stop < 15 days	Flushing umbilical and head
15 days < Stop	Flushing printer

Stop duration	9040 Contrast
Stop < 2h	Shut down the printer with OFF key
2h < Stop < 4 days	Stop the jet Spray cleaning solution into the gutter Shut down the printer with OFF key Place anti-clogging protector under the nozzle
4 days < Stop < 1 month	Flushing printer Anti-clogging protector under the nozzle



Configuration tool



Configuration tool



Notes:

Configuration tool



■ Different versions of the configuration tool

In November 2007, a new user interface board and new software (J40/M40) have been designed for the 9040 printers. In the same time, a new configuration tool has been designed.

This chapter describes the old and the new configuration tool.

■ Using the configuration tool before J40/M40

Operator interface language

If French is selected as operator interface language before running the configuration tool, the configuration tool will be automatically in French.

If an other language is selected as operator interface language before running the configuration tool, the configuration tool will be automatically in English.

Launching the configuration tool

Run cf from C:\ using DOS command as follows.

From the 9040 menu, press keys "ALT" and "+" simultaneously

The screen displays C:\>

Type "cf"

Press "Enter"

The screen displays the configuration tool:

CONFIGURATION FILE	
PRINTER CONFIGURATION	HEAD TYPE AUTO
PRINTING PARAMETERS	IP65 OPTION ☐
COUNTER & AUTODATING PARAMETERS	PMI & BEVERAGE (SC) ☐
NOZZLE RINCING & STANDBY MODE	EXTENDED KEYBOARD ☐
VISCOSITY & INK MANAGEMENT	INTERFACE TYPE STANDARD
HEAD PARAMETERS	NEW ADDITIVE LEVEL MANAGEMENT ☐
HIGH LEVEL FUNCTION	DISCONTINUOUS ACTIVE STANDBY ☐
	ACTIVE STANDBY ☐
	ETHERNET OPTION ☐

ESC: Quit, ENTER: Modify, H: HEXA MODE, C: TEXT MODE, S: Save, ARROWS: Move

Configuration tool



Setting the options

In the configuration tool, the following command can be used:

ESC: to cancel the current modification and quit the configuration tool

ENTER: to modify an option

H: to select hexa mode. This mode displays options as hexadecimal values (hexadecimal address and data)

C: to select text mode. This mode displays options

S: to save the modifications

Arrows: to move from option to another

Quitting the configuration tool

Once options have been set:

Press "S" to save the modifications.

Press "ESC" key to quit the configuration tool and come back to DOS commands

The screen displays C:\

Type "exit"

Press Enter

The screen displays the 9040 menu

Enabling the options

If options have been modified, restart the printer with ON/OFF key. Otherwise, the modification will not be taken into account.

Configuration tool



■ Options description of the configuration tool before J40/M40

Printer configuration

CONFIGURATION FILE	
PRINTER CONFIGURATION	HEAD TYPE AUTO
PRINTING PARAMETERS	IP65 OPTION ☐
COUNTER & AUTODATING PARAMETERS	PMI & BEVERAGE (SC) ☐
NOZZLE RINCING & STANDBY MODE	EXTENDED KEYBOARD ☐
VISCOSITY & INK MANAGEMENT	INTERFACE TYPE STANDARD
HEAD PARAMETERS	NEW ADDITIVE LEVEL MANAGEMENT ☐
HIGH LEVEL FUNCTION	DISCONTINUOUS ACTIVE STANDBY ☐
	ACTIVE STANDBY ☐
	ETHERNET OPTION ☐

ESC: Quit, ENTER: Modify, H: HEXA MODE, C: TEXT MODE, S: Save, ARROWS: Move

Head type

Description: the printer recognizes the head type automatically except for 4 jet head.

Choice:

- AUTO for every head type configuration except 4 jet head
- 4 JETS mandatory for 4 jet head printer

IP65 option

Description: IP65 option setting

Choice:

- ☐ for non IP65 printer
- ☒ for IP65 printer

PMI & beverage (SC)

Description: be checked in case of 9040 S printer, allows to inverse message only on jet 1.

Choice

- ☐ for other 9040 printer
- ☒ for 9040 S printer



Extended keyboard

Description: the extended keyboard option allows to use the “ALT” key when editing a message. This option is used with the Arabic keyboard

Choice

- ☐ no extended keyboard
- ☒ extended keyboard

Interface type

Description: allows to choose the 9040 operator interface with or without icons and the way the icons are managed.

Choice

STANDARD: S8 user interface.

WITH ICONS: displays icons of S8 direct access keys.

WITH CONTEXT ICONS: icons change according to the displayed menu.

New additive level management

Description: Not used for 9040 printer.

DISCONTINUOUS ACTIVE STANDBY

Description: Not used for 9040 printer.

Active standby

Description: enables active standby, see figure below.

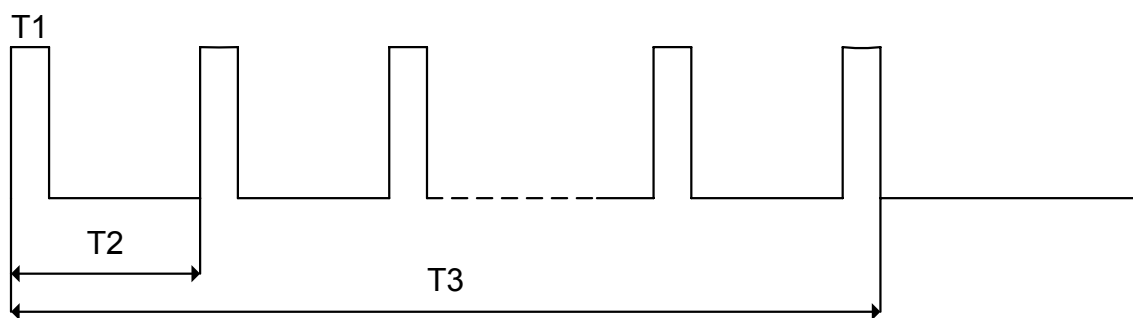
Prerequisite: Nozzle rinsing option must be available.

Choice:

- ☐ no active standby
- ☒ active standby

After stop the printer, if the active standby is selected, an hydraulic action is performed during T1 every T2 second, these cycles are reproduced during T3 time.

Configuration tool



T1: Action time of active standby (=Active standby duration)

T2: Active standby period

T3: Active standby time (could be the short time or the long time)

Ethernet option

Description:

Enables Ethernet link, with Ethernet board connected, the external serial link (RS232 or RS422) is disabled

Choice:



Ethernet disabled



Ethernet enabled



Configuration tool



Printing parameters

CONFIGURATION FILE	
PRINTER CONFIGURATION	
PRINTING PARAMETERS	
COUNTER & AUTODATING PARAMETERS	
NOZZLE RINCING & STANDBY MODE	
VISCOSITY & INK MANAGEMENT	
HEAD PARAMETERS	
HIGH LEVEL FUNCTION	

PRINTING MESSAGE IN LIB. ON DTOP SIGNAL	☐
ONE DTOP BY MESSAGE	☐
MESSAGE SENSE INVERTED WITH D7	☐
MESSAGE SENSE INVERTED IN DIN MODE WITH D7	☐
NO MORE PRINTING SPEED FAULT	☐
FLYING TIME COMPENSATION	☐
PHASE DETECTION IN REPETITIVE MODE	☐
MESSAGE SELECTION IN LIBRARY	☐
DISTANCE BETWEEN PHOTOCCELL	0 mm
MAXIMUM TIME BETWEEN PHOTOCCELL	0 s

ESC: Quit, ENTER: Modify, H: HEXA MODE, C: TEXT MODE, S: Save, ARROWS: Move

Printing message in lib. on Dtop signal

Description: enables automatic increment of the message number in the library. At each DTOP, the printer selects automatically the next message and prints it. The message number varies only in increasing order. When the last message of the library is printed, the next printed message is the first message of the library.

Limitation: NO

Prerequisite: message selection in library option

Incompatibility: one DTOP per message

Choice:

- ☐ disable the option
☒ enable the option

One Dtop by message

Description: Used when it is important to not double a printed message (linked to object sensor). The printer makes sure the message is changed every time from a host computer in order to allow the printing.

When we try to print the same message, a fault appears.

Limitation: use Object set off only

Prerequisite: NO

Incompatibility: Messages selection in library option

NOTE: When editing a message, this message will be re-sent to the printing board, and can be printed without sending a new message through the V24 line.

Choice

- ☐ disable the option
☒ enable the option



Message sens inverted with D7

Description: with this option, it is possible to have an input for the message sense inversion. When this option (Message sense inversion) is selected it is possible to use the bit 7 of the parallel interface as a message direction inversion input.

Note: This input is an input of the parallel port, therefore the data must be validated by an external DTOP. Consequently, It is not possible to modify the sense message during a repetitive printing or during a printing with the Top repetition mode.

Limitation: NO

Prerequisite: complete industrial interface board

Incompatibility: it is not possible to use the message selection in BCD mode because the input D7 is already used.

Choice:

☐

disable the option

☒

enable the option

Message sens inverted in DIN Mode with D7

Description: with this option, it is possible to have an input for the message sense inversion not the normal way but the DIN mode way. When this option (Message sense inversion) is selected it is possible to use the bit 7 of the parallel interface as a DIN mode inversion of the message input.

Note: This input is an input of the parallel port, therefore the data must be validated by an external DTOP. Consequently, It is not possible to modify the sense message during a repetitive printing or during a printing with the Top repetition mode.

Limitation: NO

Prerequisite: complete industrial interface board

Incompatibility: it is not possible to use the message selection in BCD mode because the input D7 is already used.

Choice

☐

disable the option

☒

enable the option



No more printing speed fault

Description: this option allows to ignore the printing speed fault. If the printing speed overpasses the maximum allowed by the symbol generator, the printing speed fault is not given to the user.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice:

☐

disable the option

☒

enable the option

Flying time compensation

Description: this option has been developed to minimize the printing position variation on the support when the speed varies around the printing speed set into the message parameters (problem due to the flying time of the drops from the cannon to the support).

Limitation:

Object set off only and tachy mode.

A margin is necessary in the message in order to reduce it if the printing speed increases.

Prerequisite: NO

Incompatibility: NO

Choice:

☐

disable the option

☒

enable the option

Phase detection in repetitive mode

Description: Not used for 9040, because on 9040, the phase detection could be done during printing.



Message selection in library

Description: allows quick change of the message to be printed. A message library is necessary. Series of message numbers are sent through the parallel interface board from external system.

Use with compatibility option, the selection of message is done like S8 printer.

Limitation: NO

Prerequisite: complete industrial interface

Incompatibility: NO

Choice:

☐

disable the option

☒

enable the option

Distance between photocells

Description: Not available on 9040 version M05 / J05.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: From 0 to 999 mm

Maximum time between photocells

Description: Not available on 9040 version M05 / J05.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: From 0 to 255 s

Configuration tool



Counter & autdating parameters

CONFIGURATION FILE	
PRINTER CONFIGURATION	
PRINTING PARAMETERS	
COUNTER & AUTODATING PARAMETERS	
NOZZLE RINCING & STANDBY MODE	
VISCOSITY & INK MANAGEMENT	
HEAD PARAMETERS	
HIGH LEVEL FUNCTION	

COUNTER INCREASING WITH FAULT ON THE HEAD	☐
NO COUNTER RESET	☐
JULIAN POSTDATE WITH OFFSET	☐
FIRST DAY OF THE WEEK	MONDAY
POSTDATE CHANGE ON THE FIRST DAY OF THE WEEK	☐
ACK WITH SIMPLIFIED PROTOCOL	☐
COMPATIBILITY WITH S4/S8	☐
CODE39 CHECKSUM MODULUS 10	☐
NO QUIET ZONE WITH DATAMATRIX	☐
COUNTER 1 & 2 RESETE BY HARDWARE INPUT	☐

ESC: Quit, ENTER: Modify, H: HEXA MODE, C: TEXT MODE, S: Save, ARROWS: Move

Counter increasing with fault on the head

Description: this function enables the counter to be updated with the cell tops even if the print heads are not ready to print. That means that just after printer start-up, the counter will be incremented, even if a head is faulty.

Limitation: object set off only

Prerequisite: NO

Incompatibility: NO

Choice

- ☐ disable the option
- ☒ enable the option

No counter reset

Description: normally, changing the counter parameters resets the counter to the initial value. This option allows to change the counter parameters without reset of the counter to the initial value.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice:

- ☐ disable the option
- ☒ enable the option

Configuration tool



Julian postdate with offset

Description: used when you want to have an offset on the post-date and a particular printing.

Example:

Real post-date	Julian post-date	Offset (days)	Printing with option	Printing without option (402-365)
02/Jan/07	002	400	402	37

Limitation: Julian date + offset ≤ 999 ; offset max. ≤ 633

Prerequisite: NO

Incompatibility: NO

Choice:

☐

disable the option

☒

enable the option

First day of the week

Description: with this option, it is possible to choose the first day of the week. The week number change is synchronised with the first day of the week.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY

Postdate change on the first day of the week

Description: this option allows the printer to synchronize the postdate change with the first day of the week.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice:

☐

disable the option

☒

enable the option

Configuration tool



ACK with simplified protocol

Description: this option allows the printer to answer ACK when using a simple protocol in standard mode.

Limitation: NO

Prerequisite: Simplified protocol

Incompatibility: NO

Choice:

☐

disable the option

☒

enable the option

Compatibility with S4/S8

Description: this option allows:

the management of the parallel interface like S8

the reverted printing with the same way as a S8.

Limitation: in case of reverted printing, jets are reverted as S8 but lines within a jet are not reverted.

Example:

	User interface	S8 reverted printing	9040 reverted printing (enabled option)	9040 reverted printing (disabled option)
Mono-jet	line 1 line 2 line 3	line 3 line 2 line 1	line 1 line 2 line 3	
Bi-jet	line 1 line 2 line 3 line 4 line 5 line 6	line 6 line 5 line 4 line 3 line 2 line 1	line 4 line 5 line 6 line 1 line 2 line 3	line 1 line 2 line 3 line 4 line 5 line 6

Prerequisite: NO

Incompatibility: NO

Choice:

☐

disable the option

☒

enable the option



Code 39 checksum modulus 10

Description: this new option allows to change the code39 checksum from modulus 43 (standard) to modulus 10.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice:

☐

disable the option (code 39 modulus 43)

☒

enable the option (code 39 modulus 10)

No quiet zone with datamatrix

Description: this new option allows to suppress the quiet zone of a Datamatrix (=margin define in the standard of the Datamatrix).

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice:

☐

disable the option (standard Datamatrix quiet zone)

☒

enable the option (no Datamatrix quiet zone)

Counter 1 & 2 reset by hardware input

Description: this new option allows to reset counters 1 and 2 by the counter reset input (=RAZC1 input for head 1 and RAZC2 input for head 2).

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice:

☐

disable the option

☒

enable the option

Configuration tool



Nozzle rinsing & standby mode

CONFIGURATION FILE	
PRINTER CONFIGURATION	
PRINTING PARAMETERS	
COUNTER & AUTODATING PARAMETERS	
NOZZLE RINCING & STANDBY MODE	
VISCOSITY & INK MANAGEMENT	
HEAD PARAMETERS	
HIGH LEVEL FUNCTION	
NOZZLE RINCING OPTION	NOT AVAILABLE
NOZZLE RINCING STATUS	NOT ACTIVATED
ADDITIVE FILLING TIME	600 ms
ADDITIVE BLOWING TIME	20 s
NOZZLE DRYING TIME	1 s
DEFLATING TIME OF THE TUBE	10 s
SHORT STOP ACTIVE STANDBY TIME	8 h
LONG STOP ACTIVE STANDBY TIME	74 h
ACTIVE STANDBY PERIOD	1 h
ACTIVE STANDBY DURATION	10 m

ESC: Quit, ENTER: Modify, H: HEXA MODE, C: TEXT MODE, S: Save, ARROWS: Move

Nozzle rinsing option

Description: This option indicate the printer is bounded with hydraulic part which allow the rinsing nozzle of 9040

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: AVAILABLE, NOT AVAILABLE

Nozzle rinsing status

Description: This option allows to activate the hydraulic phase of the rinsing, :

- When printer start, the nozzle is filled with ink,
- When printer stop the nozzle is rinsed with additive,

Limitation: NO

Prerequisite: Nozzle rinsing option must be available

Incompatibility: NO

Choice: ACTIVATED, NOT ACTIVATED

Additive filling time

Not used for 9040 printer, coming from S8 printer.

Additive blowing time

Not used for 9040 printer, coming from S8 printer.

Configuration tool



Nozzle drying time

Not used for 9040 printer, coming from S8 printer.

Deflating time of the tube

Not used for 9040 printer, coming from S8 printer.

Short stop active standby time

Description: see chapter 2.1.8, this is the time of the active standby when the operator have choose the short stop of the printer.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: From 0 to 99 hours

NOTE: the default value should not be modified

Long stop active standby time

Description: see chapter 2.1.8, , this is the time of the active standby when the operator have choose the long stop of the printer.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice : From 0 to 99 hours

NOTE: the default value should not be modified

Active standby period

Description: see chapter 2.1.8, during the active standby we have many cycles reproduced each period.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: From 0 to 99 hours.

NOTE: the default value should not be modified

Configuration tool



Active standby duration

Description: see chapter 2.1.8, during the active standby we have many cycles reproduced, for each cycles we have time defined for execute hydraulic action.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: From 0 to 255 minutes

NOTE: *the default value should not be modified*

Configuration tool



Viscosity & ink management

CONFIGURATION FILE	
PRINTER CONFIGURATION	MANAGEMENT OF THE VISCOSITY IN TEMPERATURE ☐
PRINTING PARAMETERS	INK WITH INVERTED VISCOSITY ☐
COUNTER & AUTODATING PARAMETERS	AJOUT ELEMENTAIRE DE SOLVANT 20 ELU
NOZZLE RINCING & STANDBY MODE	VISCOSITY CURVE (IN SECONDES) 1
VISCOSITY & INK MANAGEMENT	STANDARD INK : 36 34 33 32 31 30 29 29 29 29
HEAD PARAMETERS	PIGMENTED INK : 35 35 35 35 35 35 35 35 35 35
HIGH LEVEL FUNCTION	JET SPEED : STANDARD INK I PIGMENTED INK
	G HEAD : 20,0 m/s 19,0 m/s
	M HEAD : 20,0 m/s 18,5 m/s
	P HEAD : 24,0 m/s 23,0 m/s

ESC: Quit, ENTER: Modify, H: HEXA MODE, C: TEXT MODE, S: Save, ARROWS: Move

Management of the viscosity in temperature

Description: this option allows to manage the viscosity with the temperature.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice:

- ☐ disable the option (in that case standard viscosity curves appear on the screen instead of the 50 viscosity values)
- ☒ enable the option (in that case 50 viscosity values appear as shown above)

Ink with inverted viscosity

Description: this option is used in case of inverted viscosity curve (the viscosity increases with additive addition)

Limitation: NO

Prerequisite: inverted viscosity ink

Incompatibility: NO

Choice:

- ☐ disable the option
- ☒ enable the option



Ajout elementaire de solvant

Depending of ink.

Viscosity curve (in seconds)

Description: viscosity values

Limitation: NO

Prerequisite: NO

Incompatibility: No

Choice:

STANDARD INK AND PIGMENTED (with management of the viscosity in temperature disabled):

from printer start-up, the viscosity reference changes every 20 minutes to the final viscosity reference according to a table that contains 10 values (from 0 to 89 s). One table among 8 can be selected and every value of the table can be modified.

With management of the viscosity in temperature enabled:

the viscosity reference changes according to a table (from 0°C to 49°C) that contains 50 values.

Jet speed

Description: value of the jet speed according to ink.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: from 0 to 25.5 m/s (step: 0.1 m/s)

Configuration tool



Head parameters

CONFIGURATION FILE	
PRINTER CONFIGURATION	<pre>G HEAD HEAD OBJECT DISTANCE : 10 mm HORIZONTALE RESOLUTION : 28 pts/cm M HEAD HEAD OBJECT DISTANCE : 8 mm HORIZONTALE RESOLUTION : 45 pts/cm P HEAD HEAD OBJECT DISTANCE : 6 mm HORIZONTALE RESOLUTION : 70 pts/cm</pre>
PRINTING PARAMETERS	
COUNTER & AUTODATING PARAMETERS	
NOZZLE RINCING & STANDBY MODE	
VISCOSITY & INK MANAGEMENT	
HEAD PARAMETERS	
HIGH LEVEL FUNCTION	

ESC: Quit, ENTER: Modify, H: HEXA MODE, C: TEXT MODE, S: Save, ARROWS: Move

Head object distance

Description: This value is used only for the calculation of the option flying time compensation.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: from 0 to 100 mm

Horizontale resolution

Description: This value allows to reduce or increase the horizontal resolution of the printed message, it is used for the calculation of the option flying time compensation.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: From 0 to 100 dot/cm

Configuration tool



High level function

CONFIGURATION FILE	
PRINTER CONFIGURATION	PURGE ALLOWED DURING JET START-UP ☒
PRINTING PARAMETERS	PHASE DETECTION ELECTROD FENDUE
COUNTER & AUTODATING PARAMETERS	EHT LEVEL
NOZZLE RINCING & STANDBY MODE	G HEAD : 8100 V
VISCOSITY & INK MANAGEMENT	M HEAD : 4500 V
HEAD PARAMETERS	P HEAD : 3600 V
HIGH LEVEL FUNCTION	RECUPERATION THRESHOLD LEVEL
	G HEAD : 1400 mV
	M HEAD : 1400 mV
	P HEAD : 1400 mV
	NUMBER OF PHASE FAULT DETECTION BEFORE FAULT 10

ESC: Quit, ENTER: Modify, H: HEXA MODE, C: TEXT MODE, S: Save, ARROWS: Move

Purge allowed during jet start-up

Description: this option allows purge during jet start-up. This option depends on the ink and on the head.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice:

☐

disable the option (no purge during jet start-up)

☒

enable the option (purge during jet start-up)

NOTE: the default value should not be modified

Phase detection electrod

Description: this option allows to choose the detection electrode type mounted on the heads.

Limitation: NO

Prerequisite: NO

Incompatibility: NO

Choice: FENDUE (split electrode) PLANE (flat electrode)

Configuration tool



EHT level:

From 3600 V to 8100 V (step: 300 V)

NOTE: the default value should not be modified

Number of phase fault detection before fault:

From 0 to 99

NOTE: the default value should not be modified

Configuration tool



■ Using the configuration tool since J40/M40

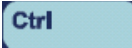
To access the configuration tool from the 9040 menu, press keys  and  simultaneously. The following screen will appear:

Image 9040 ToolBox	
Options configuration	DHCP IP=0.0.0.0 MASK=0.0.0.0
Ethernet configuration	MAC ADDRESS: 00:90:9b:42:01:05
Versions information	Board Serial: C107310005 Date: 2007 09 10-11:00:10
OS ACCESS	PCB Rev: 0x0
Press ESC key to go back to main application	

If French is selected as operator interface language before running the configuration tool, the configuration tool will appear in French.

If any other language is selected as operator interface language before running the configuration tool, the configuration tool will be displayed in English.

To enter a menu, select it using the keys  and  on the keyboard and press .

NOTE: press  to get help on navigation in the Toolbox

Configuration tool



■ Options configuration

Image 9040 ToolBox	
Options configuration	DHCP IP=0.0.0.0 MASK=0.0.0.0
Ethernet configuration	MAC ADDRESS: 00:90:9b:42:01:05
Versions information	Board Serial: C107310005 Date: 2007 09 10-11:00:10
OS ACCESS	PCB Rev: 0x0
Press ESC key to go back to main application	

Select *Options Configuration* and press Enter to access the configuration tabs.

Among the many tabs shown in this view, several printer settings and options can be configured.

Press keys **Ctrl** and then **←** simultaneously to navigate from one tab to the next.

NOZZLE RINSING / STANDBY MODE		VISCOSITY / INK MANAGEMENT		HEAD PARAMETERS	
PRINTER CONFIGURATION		PRINTING PARAMETERS		COUNTER / AUTODATING PARAM.	
Head type	AUTO	☒ IP65 option			
Interface type	CONTEXTUAL ICONS	☐ Extended Keyboard			
Vaccum motor speed	1500 tr/mn	☐ Ack with simplified protocol			
Distance between photocells	0 mm	☐ Compatibility with S4/S8			
Maximum time between photocells	0 sec	☐ Code 39 : checksum modulo 10			
		☐ No quiet zone with datamatrix			
		☐ One DTOP by message			
		☐ Update message out of printing			
F1 - Help, KEYBOARD - Fill the field, TAB - Next control					

Configuration tool



The Printer Configuration Tab

NOZZLE RINSING / STANDBY MODE		VISCOSITY / INK MANAGEMENT		HEAD PARAMETERS	
PRINTER CONFIGURATION		PRINTING PARAMETERS		COUNTER / AUTODATING PARAM.	
Head type	AUTO			☒	IP65 option
Interface type	CONTEXTUAL ICONS			☐	Extended Keyboard
Vaccum motor speed	1500	tr/mn		☐	Ack with simplified protocol
Distance between photocells	0	mm		☐	Compatibility with S4/S8
Maximum time between photocells	0	sec		☐	Code 39 : checksum modulo 10
				☐	No quiet zone with datamatrix
				☐	One DTOP by message
				☐	Update message out of printing
F1 - Help, KEYBOARD - Fill the field, TAB - Next control					

Head type

4 jets: for 4 jet Printers

AUTO: for all other configuration

Interface type

STANDARD: S8 user interface

FIXED ICONS: displays icons of S8 direct access keys

CONTEXTUAL ICONS: icons change according to the menu displayed

Vacuum motor speed (not available on J40, available since J41)

By fault, the value is 1500.

Can be adjust between 1500 and 3500

Distance between photocells:

Not Available

Maximum time between photocells:

Not Available

Configuration tool



IP65:

For IP65 printers

Wide keyboard:

Allows using the “ALT” key when editing a message with the Arabic keyboard

Ack with simplified protocol:

Allows the printer to answer ACK when using a simple protocol in standard mode.

Compatibility with S4/S8:

The management of the parallel interface and reverted printing are the same as S8 printers.

Limitation: in case of reverted printing, jets are reverted as in the S8 but the lines in a jet are not reverted.

Code 39: checksum modulo 10:

Allows changing the calculation of the code 39 checksum from 43 (standard) to 10.

No quiet zone with datamatrix:

Option to reduce the code's margin, as defined in the Datamatrix specifications.

One DTOP by message:

The printer makes sure the message is modified from a host computer before allowing the printing. Otherwise, a fault appears.

Limitation: Object set off only

Incompatibility: option Message selection in library

Update message out of printing:

This option can be used in repetitive mode. The next message to be printed can be sent to the printer using the V24 link during the current printing.

Configuration tool



The Printing Parameters Tab

NOZZLE RINCING / STANDBY MODE	VISCOSITY / INK MANAGEMENT	HEAD PARAMETERS
PRINTER CONFIGURATION	PRINTING PARAMETERS	COUNTER / AUTODATING
☐ Extended graphic mode ☐ PMI and Beverage (5C) ☐ Printing message in library on DTOP signal ☐ Message sense inverted with D7 ☐ Message sens inverted in DIN mode with D7 ☐ No more printing speed fault ☐ Metric interval	☐ Flying time compensation ☐ Message selection in library ☐ Meter/Feet conversion ☐ Jets sense inverted ☐ 2 lines 7 dots with 12m head - Small gab ☐ Manage message's data by jet	
F1 - Help, SPACE - Check/Uncheck, TAB - Next control		

Extended Graphic mode:

Allows using a font which contains up to 256 symbols.

(Standard fonts contains up to 224 symbols)

PMI and Beverage (9040S):

Select this option for 9040S printers to reverse the message on jet 1 only.

Printing message library on DTOP signal:

Enables automatic increment of the message number in the library. At each DTOP, the printer automatically selects and prints the next message. The message number varies only in increasing order. When the last message of the library is printed, first message of the library is printed next.

Prerequisite: option Message selection in library.

Incompatibility: one DTOP by message.

Message orientation inverted with D7:

Allows having an input for the message sense inversion. When this option is selected it is possible to use the bit 7 of the parallel interface as a message direction inversion input.

NOTE: this input is an input of the parallel port, therefore the data must be validated by an external DTOP. Consequently, It is not possible to modify the sense message during a repetitive printing or during a printing with the Top repetition mode.

Prerequisite: complete industrial interface board

Incompatibility: it is not possible to use the message selection in BCD mode because the input D7 is already used.



Message orientation inverted in DIN mode with D7:

Allows having an input for the message orientation: not the normal way but the DIN mode way. When this option is selected, it is possible to use the bit 7 of the parallel interface as a DIN mode inversion of the message input.

NOTE: *this input is an input from the parallel port, therefore the data must be validated by an external DTOP. Consequently, it is not possible to modify the message's orientation during a repetitive printing or during a printing with the Top repetition mode.*

Prerequisite: complete industrial interface board

Incompatibility: it is not possible to use the message selection in BCD mode because the input D7 is already used.

No more printing speed fault:

Allows ignoring the printing speed fault. If the printing speed overpasses the maximum allowed by the symbol generator, the printing speed fault is not given to the user.

Metric interval:

In repetitive mode, the *Interval* in the message parameters gives the distance between the end of the previous printing and the beginning of the next one. With the option Metric interval, the *Interval* in the message parameters gives the distance between the beginning of the previous printing and the beginning of the next one. This option limits interval variation between printed messages in repetitive mode.

Limitation: no barcode in the message. 10 ms are required between two printings.

Flying time compensation:

Allows minimising the printing position variation on the support when the speed varies from the printing speed set into the message parameters (problem is due to the flying time of the drops from the cannon to the support).

Limitation: Object set off only and tachy mode. A margin is necessary in the message in order to reduce it if the printing speed increases.

Message selection in library:

Allows quick change of the message to be printed. Series of message numbers are sent through the parallel interface board from external system.

Used with compatibility option, the selection of message is done like S8 printer.

Prerequisite: complete industrial interface

Configuration tool



Meter/feet conversion:

An external variable can contain the corresponding value in feet or meters of counter 1.

Feet to meters conversion → external variable = counter 1 x 0.3046

Meters to feet conversion → external variable = counter 1 x 3.2808

When using this option, the conversion must be set into the Printer preparation / Initialization / Feet/Meter conversion menu:

Jets sense inverted:

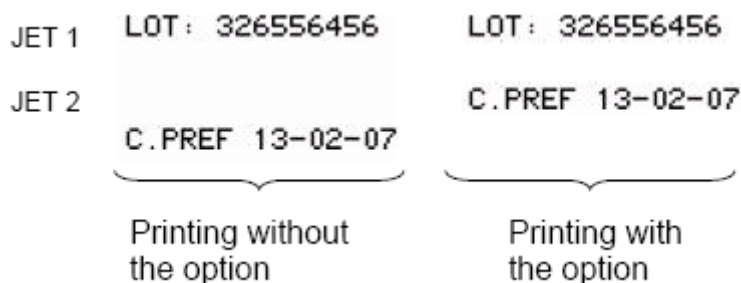
With 2 jet printers, printing on jet 1 and jet 2 are rotated by 180 degrees.

	Message displayed in Message editing menu	Message printed
Jet 1	LOT: 326556456 C.PREF 13-02-07	LOT: 326556456 C.PREF 13-02-07
Jet 2	LOT: 326556456 C.PREF 13-02-07	LOT: 326556456 C.PREF 13-02-07

Limitation: length of every line must be exactly the same. Add tabulation if need. Otherwise, option Manage message's data by jet must be also used.

2 lines 7 dots with 12m head – small gap:

This option can be selected when using algorithm 007 and 060 in message parameters in order to move up the printing of the jet 2 (10 drops above the initial location).



Manage message's data by jet:

When using option Jets sense inverted, if the length of each line is not exactly the same, the option must also be used.

Configuration tool



The Counter / Autodating Param. Tab

NOZZLE RINSING / STANDBY MODE		VISCOSITY / INK MANAGEMENT		HEAD PARAMETERS	
PRINTER CONFIGURATION		PRINTING PARAMETERS		COUNTER / AUTODATING PARAM.	
First day of the week	MONDAY v	☐	Counter increasing with fault on the head		
☐ POSTDATE change on the first day of the week		☐	No counter Reset		
☐ POSTDATE locked at the message selection		☐	Counter 1 and 2 reseted by hardware input		
☐ Julian POSTDATE with offset					
☒ Input POSTDATE 1 value and update Library in Production menu					
F1 - Help, SPACE - Check/Uncheck, TAB - Next control					

First day of the week:

The week number change is synchronised with the first day of the week (from Monday to Sunday).

Postdate change on the first day of the week:

Allows the printer to synchronize the postdate change with the first day of the week.

Postdate locked at message selection:

Allows to give the postdate a fixed value once the message has been selected.

Input POSDATE 1 value and update Library in Production menu (not available on J40, available since J41)

Allows giving the duration of the POSDATE 1 from the active message and up-dating all the messages in the library witch have the same Unit (day or month)

Counter increasing with fault on the head:

Enables the counter to be updated with the cell tops even if the print heads are not ready to print. That means that just after printer start-up, the counter will be incremented, even if a head is faulty.

Limitation: object set off only

No counter reset:

Normally, changing the counter parameters resets the counter to its initial value. This option allows changing the counter parameters without reset of the counter to the initial value.

Counter 1 and 2 reseted by hardware input:

Allows resetting counters 1 and 2 by the counter reset input (=RAZC1 input for head 1 and RAZC2 input for head 2).

Configuration tool



The Nozzle rinsing / Standby mode Tab

PRINTER CONFIGURATION		PRINTING PARAMETERS		COUNTER / AUTODATING PARAM.	
NOZZLE RINSING / STANDBY MODE		VISCOSITY / INK MANAGEMENT		HEAD PARAMETERS	
Nozzle rinsing option	AVAILABLE ▼	Short stop active standby time	8	h	
Nozzle rinsing status	ON ▼	Long stop active standby time	74	h	
		Active standby period	1	h	
		Active standby duration	10	min	
☒ Chern pigment ink		☒ Active standby			
F1 - Help, UP/DOWN Arrows - Navigate between items, TAB - Next control					

Nozzle rinsing option:

Shows if the printer allows (available) or not (not available) the nozzle rinsing option.

Nozzle rinsing status:

Allows activating (on) or not (off) the nozzle rinsing at start up and shut down.

Chern pigment ink (not available on J40, available since J41)

Activates the “Chern pigment ink” mode (Miller option).

The “Nozzle rinsing option” and the “Active standby” must be activated.

CAUTION: This option is for Miller specific application **ONLY**.

Short stop active standby time:

Allows setting the duration (T3 from 0 to 99) of the active standby when the operator have chosen short stop of the printer.

NOTE: the default value should not be modified.

Long stop active standby time:

Allows setting the duration (T3 from 0 to 99) of the active standby when the operator have chosen long stop

NOTE: the default value should not be modified.

Active standby period:

Gives the duration (T2 from 0 to 99) of the period for the active standby. If this value is set to 1, the nozzle rinsing process will start every 1 hour.

NOTE: the default value should not be modified.

Configuration tool



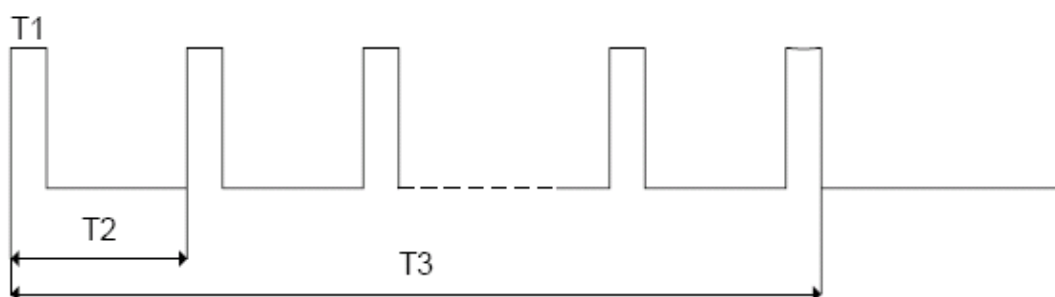
Active standby duration:

Gives the duration (T1 from 0 to 255) of the nozzle rinsing process. If this value is set to 10, the nozzle rinsing process will last for 10 minutes.

NOTE: the default value should not be modified.

Active stand by:

Activates the active stand by mode.



T1: Action time of active standby (=Active standby duration)

T2: Active standby period

T3: Active standby time (could be the short time or the long time)



Configuration tool



The Viscosity / Ink management Tab

PRINTER CONFIGURATION	PRINTING PARAMETERS	COUNTER / AUTODATING																																																			
NOZZLE RINCING / STANDBY MODE	VISCOSITY / INK MANAGEMENT	HEAD PARAMETERS																																																			
☒ Management of the viscosity in temperature ☐ Ink with inverted viscosity																																																					
Viscosity table in temperature - from 0° to 49°C -																																																					
<table border="1"><tr><td>36</td><td>36</td><td>36</td><td>35</td><td>35</td><td>34</td><td>34</td><td>33</td><td>33</td><td>33</td><td>32</td><td>32</td><td>31</td><td>31</td><td>31</td><td>30</td><td>30</td></tr><tr><td>30</td><td>29</td><td>29</td><td>29</td><td>28</td><td>28</td><td>28</td><td>27</td><td>27</td><td>27</td><td>26</td><td>26</td><td>26</td><td>25</td><td>25</td><td>25</td><td>24</td></tr><tr><td>24</td><td>24</td><td>24</td><td>23</td><td>23</td><td>23</td><td>22</td><td>22</td><td>22</td><td>22</td><td>22</td><td>22</td><td>22</td><td>22</td><td>22</td><td>22</td><td>22</td></tr></table>			36	36	36	35	35	34	34	33	33	33	32	32	31	31	31	30	30	30	29	29	29	28	28	28	27	27	27	26	26	26	25	25	25	24	24	24	24	23	23	23	22	22	22	22	22	22	22	22	22	22	22
36	36	36	35	35	34	34	33	33	33	32	32	31	31	31	30	30																																					
30	29	29	29	28	28	28	27	27	27	26	26	26	25	25	25	24																																					
24	24	24	23	23	23	22	22	22	22	22	22	22	22	22	22	22																																					
F1 - Help, SPACE - Check/Uncheck, TAB - Next control																																																					

Navigate in viscosity table with :

- F6 : Go to first line
- F7 : Go to second line
- F8 : Go to third line
- TAB : Go to next field
- SHIFT+TAB : Go to previous field

Management of the viscosity in temperature:

When enabling the option, 50 viscosity values appear as shown above.

When disabling the option, the standard viscosity curves appears on the screen instead.

Viscosity values can be changed.

Ink with inverted viscosity:

is used in case of inverted viscosity curve (the viscosity increases with additive addition).

Prerequisite: inverted viscosity ink

Configuration tool



Tab Head parameters

PRINTER CONFIGURATION		PRINTING PARAMETERS		COUNTER / AUTODATING	
NOZZLE RINCING / STANDBY MODE		VISCOSITY / INK MANAGEMENT		HEAD PARAMETERS	
Choice the head to configure S-head ▼		Head independant settings			
Head-object distance	10 mm	Phase detection electrod	SPLIT ▼		
Horizontal resolution	28 pts/cm	Number of phase detection before fault	32		
EHT level	8100 v	☒ Purge allowed during jet start-up			
Jet speed : standard ink	19.5 m/s	☐ FT163 ink management			
Jet speed : pigmented ink	19.0 m/s	F1 - Help, UP/DOWN Arrows - Navigate between items, TAB - Next control			
Recuperation threshold level	1400 mV				

Choice of the head to configure:

G; M or P head according to the printer configuration.

Head-object distance:

is used for the calculation of the flying time. Value from 0 to 100 mm.

Horizontal resolution:

Reduces or increases the horizontal resolution (from 0 to 100 dot/mm) of the printed message. It is used for the calculation of the flying time.

EHT level:

From 3600 V to 8100 V (step = 300 V)

NOTE: the default value should not be modified.

Jet speed: standard ink:

Gives the jet speed for non pigmented ink from 0 to 25.5 m/s.

Jet speed: pigmented ink:

Gives the jet speed for pigmented ink from 0 to 25.5 m/s.

Configuration tool



Recuperation threshold:

Is a recuperation level to manage the recuperation fault.

NOTE: *the default value should not be modified.*

Phase detection electrode:

Must be set according to the print head (plane or split)

Number of phase fault detection before fault:

From 0 to 99

NOTE: *the default value should not be modified*

Purge allowed during jet start-up:

Allows purge during jet start-up. This option depends on the ink and on the head.

NOTE: *the default value should not be modified.*

FT163 ink management:

Must be selected if the printer runs with ink FT163.

Configuration tool



■ Ethernet configuration

Image 9040 ToolBox	
Options configuration	DHCP IP=0.0.0.0 MASK=0.0.0.0
Ethernet configuration	MAC ADDRESS: 00:90:9b:42:01:05
Versions information	Board Serial: C107310005 Date: 2007 09 10-11:00:10
OS ACCESS	PCB Rev: 0x0
Press ESC key to go back to main application	

NOTE: print acknowledgement does not work with Ethernet.

The IP Address Tab

If “Obtain an IP address via DHCP” is selected, the address is automatically set and can be seen in the Printer preparation menu.

When selecting “Specify an IP address”, the address must be entered manually.

Image 9040 T	'SMSC12X Ethernet Driver' Settings	OK X
Options configuration	IP Address Name Servers	
Ethernet configuration	An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space provided.	
Versions information	☒ Obtain an IP address via DHCP	
OS ACCESS	☐ Specify an IP address	
	IP Address: . . .	
	Subnet Mask: . . .	
	Default Gateway: . . .	
		ation

Configuration tool



Tab Name Servers

This tab is unused. It has been created for future application.

Image 9040 T		'SMSC12X Ethernet Driver' Settings		OK X	
		IP Address Name Servers			
Option		Name server addresses may be automatically assigned if DHCP is enabled on this adapter. You can specify additional WINS or DNS resolvers in the space provided.			
Ethernet		Primary DNS:			
		Secondary DNS:			
Version		Primary WINS:			
		Secondary WINS:			
		ation			



Configuration tool



■ Versions information

Imaje 9040 ToolBox	
Options configuration	DHCP IP=0.0.0.0 MASK=0.0.0.0
Ethernet configuration	MAC ADDRESS: 00:90:9b:42:01:05
Versions information	Board Serial: C107310005 Date: 2007 09 10-11:00:10
OS ACCESS	PCB Rev: 0x0
Press ESC key to go back to main application	

This screen gives information about the revision of the Operating System.

Kernel revision information	
Revision data:	
1240	//Highest committed revision number
2007/09/17 12:40:14	//Date of highest committed revision
1240	//Update revision range
http://subversion/svn/S8G2/CS9040/BSP/WINCE500/trunk	//Repository URL of the working copy
""	
""	
(c) IMAJE 2007 : this file is the OS VERSION TAG	
Press ESC to quit...	

Configuration tool



■ OS Access

Imaje 9040 ToolBox

Options configuration

Ethernet configuration

Versions information

OS ACCESS

DHCP IP=0.0.0.0 MASK=0.0.0.0

MAC ADDRESS: 00:90:9b:42:01:05

Board Serial: C107310005

Date: 2007 09 10-11:00:10

PCB Rev: 0x0

Press ESC key to go back to main application

To access OS, a password must be entered.

In order to secure the Imaje 9040 software, this access is limited to Imaje developers only.

Unlock ?

Seed:1034

Password

Cancel

OK

=0.0.0.0 MASK=0.0.0.0

MAC ADDRESS: 00:90:9b:42:01:05

Board Serial: C107310005

Date: 2007 09 10-11:00:10

PCB Rev: 0x0

Press ESC key to go back to main application

Configuration tool



Notes:

Configuration tool



Notes:



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