



The Citronix ciSeries



Operation Guide

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Firmware 4.03



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ciSeries Operation Guide

This guide explains the basic operation and care of a ciSeries Continuous Ink Jet System.

To the best of our knowledge, the information contained in this manual was correct at the time of printing. However, continual enhancement of our products can result in some differences between instructions represented in this manual and your ciSeries System.

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DECLARATION of CONFORMITY

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Declare under sole responsibility that the product identified herein, has been designed, manufactured and tested in accordance to the following European Council Directives:

EN60950: 1992 +A1: 1993 + A2: 1993 + A3: 1995 + A4: 1997 and A11: 1997
EN55022for Class A
EN55024

Each product marketed, is identical to the representative unit tested and found to be compliant with the standards.

Trade Name:	Citronix
Type of Product:	Ink Jet Printing System
Model:	ci500, ci700, ci1000

Fort Worth, Texas USA, 2003-06-01


Richard Fox
President



ciSeries Operation Guide

Owner's Record

The model and serial numbers are located on the left side of the unit. Record the serial number in the space provided below.

Model Number: _____

Serial Number: _____

Always use the correct ink, makeup, and cleaning solvent for filling or cleaning. Record this information here for future reference:

Ink Type: _____

Ink Part Number: _____

Makeup Part Number: _____

Clean Solvent Part Number: _____

Air Filter Part Number: _____



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Section 1 General Information

1.1 Welcome to the ciSeries Ink Jet Printing Systems

The Citronix ciSeries Continuous Ink Jet Printing Systems print high-speed small character lot / date codes to a variety of surfaces.

What this guide covers:

This manual covers the following:

- operate the system
- use the user interface (keyboard and display)
- clean and care for the system
- troubleshoot basic problems

Where to find more information:

Refer to the ciSeries Technical Service Manual for information about installation, programming replacing components, servicing and troubleshooting.

1.2 Before You Begin

Before you can begin printing, make sure:

1. The ciSeries system is completely and correctly installed and integrated with your production line.
2. At least one message has been programmed and saved.

1.3 Safety Information

Before operating any part of this system, all warnings and notes should be read and completely understood.

At appropriate areas in this manual, WARNINGS, CAUTIONS and NOTES are provided. These are provided to avoid hazards, and understanding how to safely operate this system.



A WARNING symbol identifies an operating procedure which if not strictly followed could result in injury or death to personnel. Warnings will be identified by a general warning symbol, or a specific warning symbol



A CAUTION identifies an operating procedure which if not strictly followed could result in equipment damage.



A NOTE indicates an operating procedure that is essential but not known to cause hazards as indicated by a warning or caution.

The following WARNINGS should be read and understood by all personnel involved in the operation and maintenance of this system.

Specific WARNINGS:



PERSONAL INJURY: The system uses extremely high voltages only trained and authorized personnel must complete maintenance work.



PERSONAL INJURY: Use goggles or face mask when using ink, makeup, or solvents to prevent from entering the eyes.



FIRE HAZARD: The ink, makeup, and solvents are flammable, do not smoke or use a flame in the vicinity of the system, or chemicals.



General WARNINGS:

PERSONAL INJURY: Wear protective gloves and clothing when handling ink, makeup, or solvent.

PERSONAL INJURY: Do not drink, ink, makeup, and solvents are poisonous if taken internally.

PERSONAL INJURY: Prolonged exposure to ink, makeup, or solvent vapors may cause drowsiness and effects similar to alcohol intoxication. Use only in a well ventilated open areas.

PERSONAL INJURY: Immediately after use remove paper towels or cloths that are saturated with ink, makeup, or solvent. Dispose of in a manner to ensure there is no danger of a fire or health hazard.

WARNING: Experienced, trained personnel must perform electrical troubleshooting.

WARNING: Remove power from the system prior to servicing.

1.3.1 Print Testing

When test printing, to avoid the risk of fire, it is required that the ink used for printing be earthed to dissipate the charge that is applied during the print process. Use only metal containers with a wire connected to an earth point.

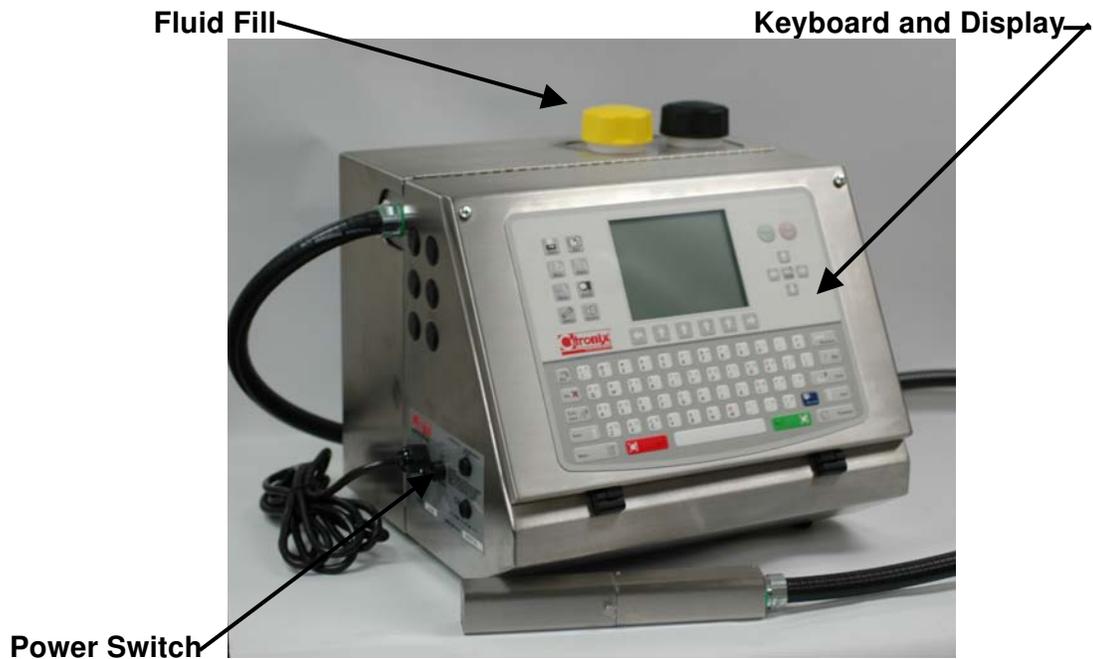
Section 2

Basic Components

The system consists of the controller and a printhead that are connected by an umbilical.



The keyboard and display are used to operate the system. The power switch is used to turn the system on and off. Ink and Makeup fluids are added at the top of the systems.



Section 3

The Power Switch

The power switch is located on the left hand side of a ciSeries controller.



Power Switch ON



Power Switch OFF

3.1 Powering the System On

Turning the power switch to the ON position powers and initializes the system. After the initialization screen appears, the Citronix Main Screen will appear.

3.2 Powering the System Off

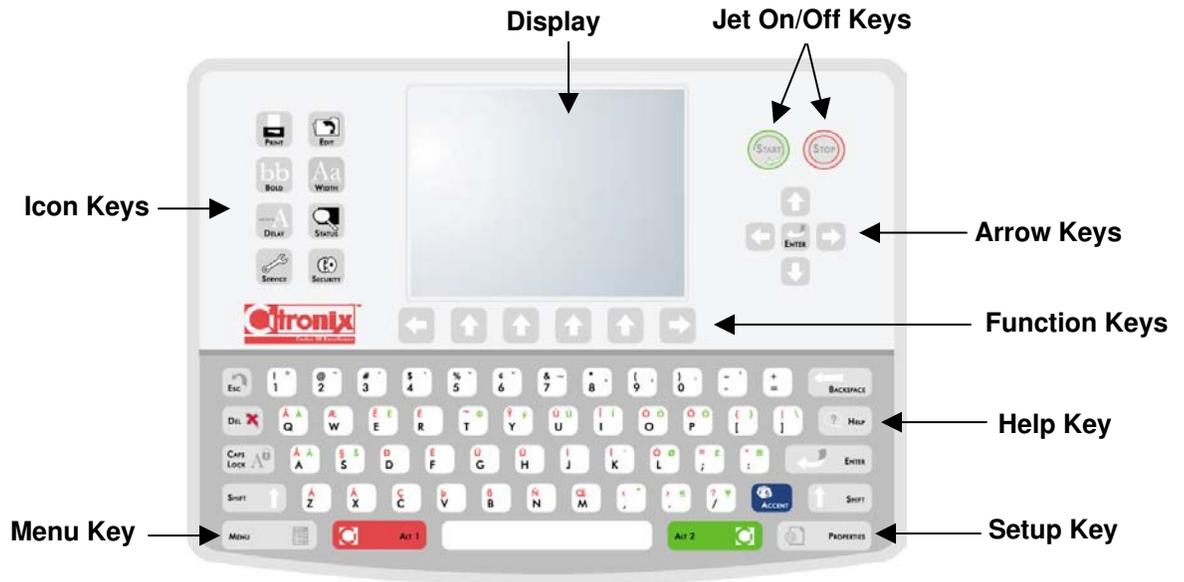
The system does not require the power switch to be turned off, unless the system is not going to be used for a lengthy period of time (several days). The power switch can be left in the ON position over weekends or short periods of non-use. Refer to Shutting the System Down for more information.



CAUTION: DO NOT TURN THE POWER SWITCH OFF WITHOUT SHUTTING DOWN THE JET.

Section 4 The Display and Keyboard

On the front of the controller is the user interface made up of a display and a keyboard. The display and keyboard are used to control and program the system.



The keyboard is comprised of several keys for operation:

- Alphanumeric and special character keys in QWERTY form are used for programming.
- Operation keys are used for moving around during programming.
- Icon function keys are used for operation.

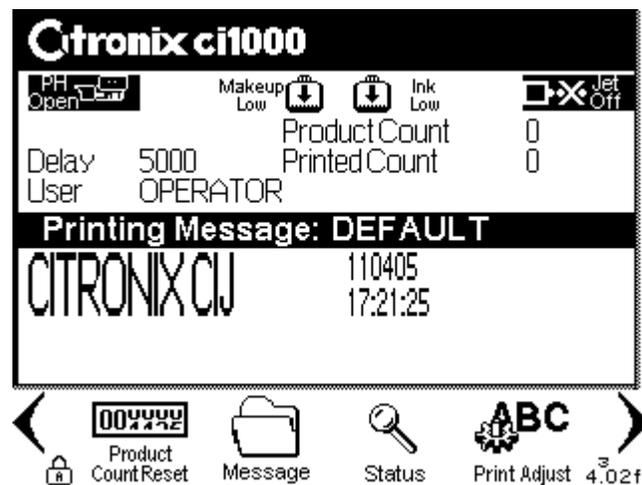
Operation Keys		Icon Keys	
Up Arrow	Moves cursor up	Start	Starts the jet
Down Arrow	Moves cursor down	Stop	Stops the jet
Right Arrow	Moves cursor right	Menu	Listing of commands
Left Arrow	Moves cursor left	Properties	System setup
Function	Selects icons on display	Help	Help with programming
Enter	Selects or saves changes	Edit	Edit the selected message
Escape	Aborts changes	Print	Select a message to print
Delete	Deletes character behind cursor	Delay	Enter print delay value
Caps Lock	Toggles upper/lower case	Bold	Enter message bold value
Shift	Toggles upper/lower case	Width	Enter message width value
Alt 1	Selects special characters	Status	View system status
Alt 2	Selects special characters	Service	System service functions
Space	Enter space into message	Security	Login/logout of system
Accent	Selects accent marks for characters		

Section 5

The Main Screen

The main screen displays:

- The current time and date
- Makeup and ink status
- Jet status and high voltage status
- Print delay value
- Number of prints since the count was reset
- Number of prints since new message was selected
- Current user logged on
- Message printing and preview of message
- Function icon keys
- Flash writing status
- Caps, shift, and alternate character status
- Screen number, and firmware version



To display a new screen, press the desired function icon key.



NOTE: If asked to enter a password, see your company's setup technician.

Product Count Reset – Resets product counter.

Message – Allows creation, editing or selection of a message for printing.

Status – Displays status of the system.

Print Adjust – Allows adjustment of print parameters.



NOTE: Refer to the Technical Service Manual for more details about these menus.

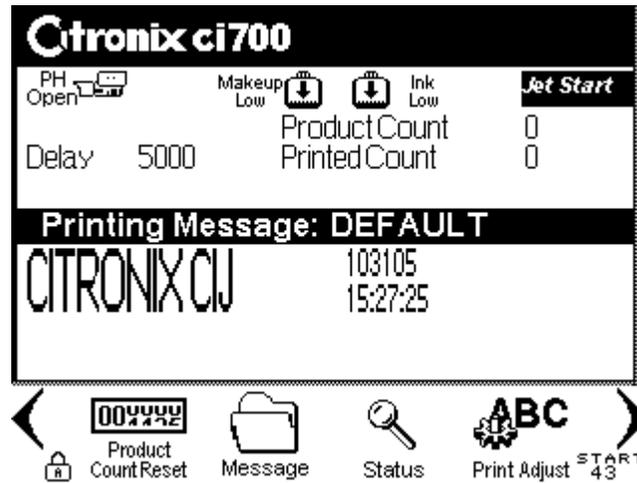


NOTE: When the clock graphic is displayed in the lower left hand corner the system is writing information to flash. Recent changes made will not be saved if system is shutdown writing to flash.

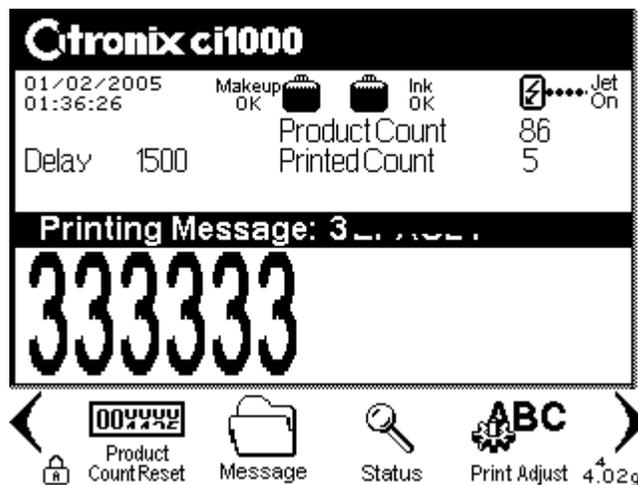
Section 6

Starting the Jet

After powering on the system, the jet must be started to print. To start the Jet, press the START key. The system will start the jet and display “Jet Start” in the upper right hand corner of the screen and a timer will count down in the lower right hand corner under the word “start”.



After the start process is complete, a graphic in the upper right hand portion of the screen displays that the jet is on.



NOTE: If system indicates a Phase, Charge, Gutter, or HV Trip error, perform a Daily Printhead Cleaning routine. If error persists, potentially a Backflush Routine can correct. See Cleaning and Maintenance.

Section 7

Selecting a Print Message

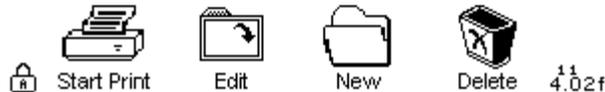
The Print Message select allows you to preview and select messages for printing.

- 1) Press the Print Key. The print message select menu is displayed.
- 2) Use the Up-Arrow or Down-Arrow keys to move the cursor through the list until it is beside the desired message. The print message title will be highlighted, and a preview of the print message will be displayed.

Print Message

SELL BY: 12/05/2006

Message Name	Date	Time
6574923	11/04/2005	17:30
8956284	11/04/2005	17:30
9273485	11/04/2005	17:30
977735	11/04/2005	17:31
98887612	11/04/2005	17:32



- 3) Press the START PRINT icon function key to select a Print Message to print.

The main screen will be displayed. The print message selected will be printing and be displayed.



NOTE: The last message printed will be ready to print after restarting system.



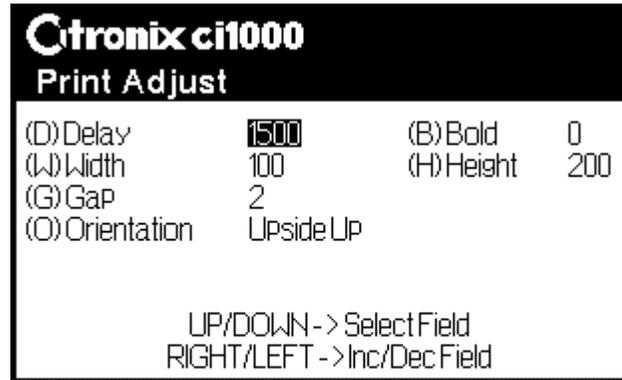
Refer to sections in this guide for detailed instructions on how to perform the tasks indicated:

- 1) Turn the power on the system – see Section 3.
- 2) Start the Jet – see Section 6.
- 3) Select the message that you want to print – see Section 7.

Section 9

Adjusting the Print

To allow adjustment of print parameters during the print process, press the Print Adjust, Bold, Gap, or Width icon keys.



The following methods allow adjustments on the fly:

- 1) Select the appropriate letter (D, W, G, B, H, O) to adjust the specific print adjustment parameter by entering a value.
- 2) Use the up/down arrows to select the appropriate parameter to be adjusted. Using the right and left arrows, the values can be incremented or decremented by one.

Either method will allow the adjusted value to take affect on the next print cycle.

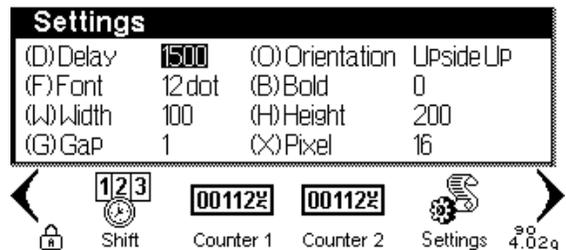
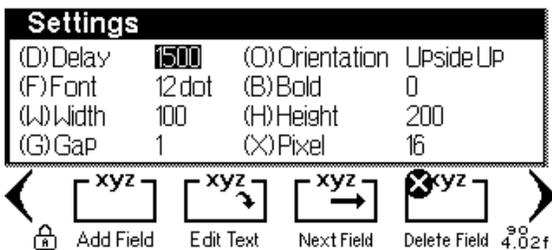
The following table indicates values that can be entered:

Print Adjustment Parameters		
Command	Value min/max	Description
Delay	0 – 99999999	Adjusts location of print on product
Width	0 – 255	Adjusts width of print
Gap	0 – 9	Adjusts inter-character spacing
Bold	0 – 9	Adjusts width of print by duplicating rasters.
Height	120 – 255	Adjusts height of print by spacing vertical pixels
Orientation	Upside Up Upside Down Mirror Up Mirror Down Tower CW Tower CCW	Rotates print (Tower orientation only available if TOWER PRINT is enabled in the PROPERTIES-APPLICATION menu)

Section 10 Message Creation and Editing

10.1 To create a message:

- 1) Select the Message icon key from the Main Screen.
- 2) Select New or Edit Message icon key.
- 3) If creating a new message: Enter the New Message Name, press Enter.
- 4) If editing, or after entering a New Message Name, the following screen is displayed to finish creating a message or edit an existing message:



Message creation or editing

Scrolling over display additional icons

Editor Controls			
Add Field	Adds a data field	*Delay	Use "D" to adjust Delay
Edit Field	Edit information in text data field	*Font	Use "F" to adjust Font
Next Field	Moves between fields	*Width	Use "W" to adjust Width
Delete Field	Delete data field	*Gap	Use "G" to adjust Gap
Left Arrow	Moves data field left	*Bold	Use "B" to adjust Bold
Right Arrow	Moves data field right	*Orientation	Use "O" to adjust Orientation
Up Arrow	Moves data field up	*Caps Lock	Toggles between upper/lower
Down Arrow	Moves data field down	*Shift	Toggles between upper/lower
Alt 1	Selects special characters	Alt 2	Selects special characters



NOTE: The pixel parameter should be set to the lowest value in relation to the largest character or characters.

NOTE: *The Caps Lock and Shift keys operate dual function during editing. Shift and Caps Lock are used in the traditional sense for selecting upper and lower case characters during data entry, and also operate during the adjustment of a setting between a positive and negative increment of the setting.



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- 5) After editing or creating a new message, press the Enter key to save. If editing a message, the current message name will pop-up to allow the ability to save as a new name (copy/save as function). Should the same name be kept, a separate file will be created based on time and date.

10.2 Font Chart

The following fonts are available for selection:

Font Name	Description	All models	Ci1000 only
5 Dot	5 x 5 Dot Matrix	1, 2, 3, or 4 Line	5 Line
7 Dot	7 x 5 Dot Matrix	1, 2, or 3 Line	4 Line
9 Dot	9 x 7 Dot Matrix	1, 2 or 3 Line	N/A
12 Dot	12 x 8 Dot Matrix	1 or 2 Line	N/A
16 Dot	16 x 12 Dot Matrix	1 Line	N/A
19 Dot	19 x 15 Dot Matrix	1 Line	N/A
25 Dot	25x18 Dot Matrix	1 Line	N/A
31 Dot	31x20 Dot Matrix	N/A	1 Line

10.3 AutoCode Chart

The following autocodes are available for selection when adding a data field:

Time Based	Date Based (Normal) (Expiration) (Rollover) (Expiration Rollover)	Shift	2 Counters
HH:MM:SS	Day of Year	Three Shift Codes	1-12 Digit Counters
HH:MM	MMDDYY or MMDDYYYY		
Hours	MM/DD/YY or MM/D/YYYY		
Minutes	MM.DD.YY or MM.DD.YYYY		
Seconds	Day of Month		
	Number of Month		
	Alpha Month		
	Week		
	Day of Week		
	Alpha Day		
	1, 2, or 3 Digit Year		
	Hijri Date		
	Hijri Day		
	Hijri Month		
	Hijri Year		



NOTE: The MonthDayYear configuration can be changed to DayMonthYear or YearMonthDay by using the left or right arrow keys.

10.4 Bar codes

The following bar codes are available for selection:

Description	Input (enter data)	Human Readable Text Available (yes/no)	Check Digit
I 2 of 5	Up to 256 numeric characters or Counter	Yes	Automatic
UPC A	11 numeric characters	Yes	Automatic
UPC E	6 numeric characters	No	Automatic
EAN13	12 numeric characters	Yes	Automatic
EAN8	7 numeric characters	Yes	Automatic
Code 39	Up to 256 alpha-numeric characters or Counter	Yes	Manual – must enter
Code 128	Up to 256 alpha-numeric characters or Counter	Yes	Manual – must enter



NOTE: Utilize the “Bold” setting to increase size of the bar code. The bold setting defines the number of printed columns used for the wide and narrow spaces and bars.

Section 11 Adding Ink and Makeup

11.1 Adding Ink and Makeup Safety



PERSONAL INJURY: Do not remove foil seal on bottle prior to filling.

EQUIPMENT DAMAGE: Ensure ink and makeup being used has the same part number as indicated on the machine ink and makeup labels.

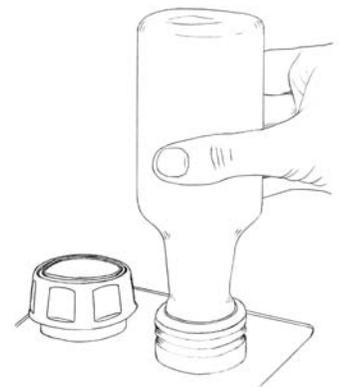
EQUIPMENT DAMAGE: Do not fill ink or makeup reservoirs unless the ink low, ink out or makeup low, makeup out message is displayed.

EQUIPMENT DAMAGE: Do not insert makeup in ink filler assembly, or ink in makeup filler assembly.

WARNING: Fluidic portion of enclosure has drain holes in bottom. In case of spill or overflow make sure excess fluid is captured and disposed of in accordance with local regulations.

11.2 Adding Ink and Makeup for the ci1000/ci700

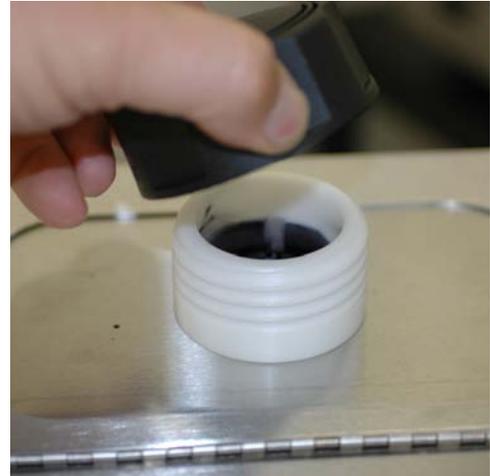
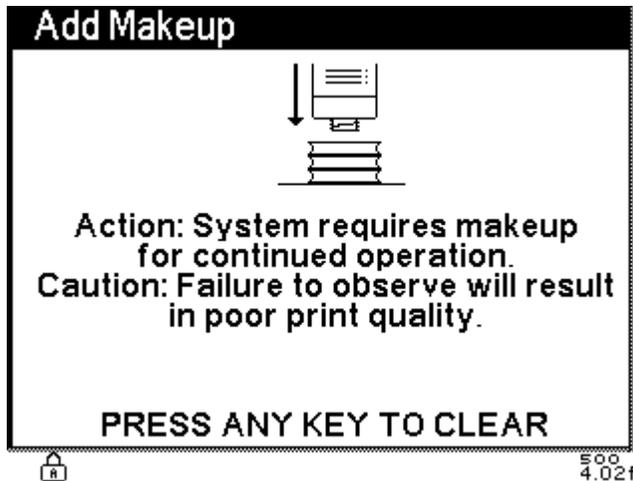
- 1) If the ink low, ink out, or makeup low, makeup out message appears on the main screen, remove the ink or makeup reservoir filler cap.



- 2) Insert ink or makeup bottle in the reservoir filler assembly. Fill one (1) or two (2) bottles of ink or makeup into ink or makeup reservoir.
- 3) Ensure bottles are completely empty before removing. When the bottle is empty, remove it and dispose of it in accordance with local regulations.
- 4) Refit ink or makeup reservoir filler cap.

11.3 Adding Ink and Makeup for the ci500

- 1) If the ink low or ink out message appears on the main screen, remove the ink reservoir filler cap.
- 2) When the instruction screen indicates, add the 4oz Makeup cartridge to the same filler cap.



- 3) Filling Ink: Insert the ink container in the reservoir filler assembly. Fill one (1) or two (2) bottles of ink into the reservoir.
- 4) Filling Makeup: Insert one (1) cartridge of Makeup (4oz Cartridge).
- 5) Ensure bottles are completely empty before removing. When the bottle is empty, remove it and dispose of it in accordance with local regulations.
- 6) Refit ink reservoir filler cap.

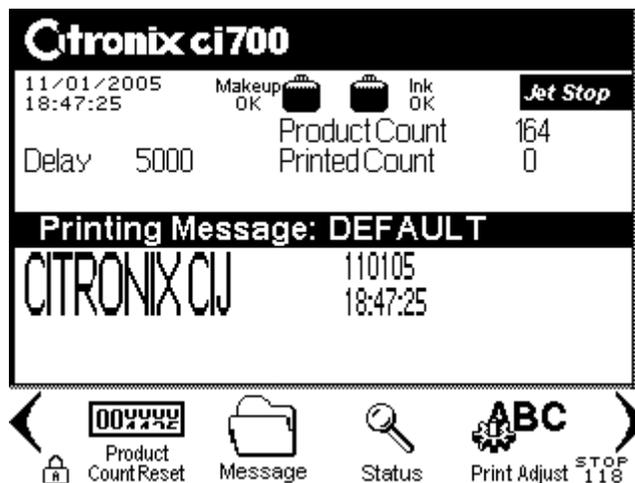
Section 12 Shutting the System Down

12.1 Shutting the System Down

- 1) Stop the jet by pressing the STOP key. The system will stop the jet and display “Jet Stop” in the upper right hand corner of the screen and a timer will countdown below the word “stop” in the lower right hand corner.
- 2) Turn the system power off.
- 3) Perform a daily printhead cleaning routine.



EQUIPMENT DAMAGE: DO NOT TURN THE POWER SWITCH OFF WITHOUT SHUTTING DOWN THE JET.



Note: ci1000 and ci700 systems offer the ability to be shutdown with a flushing of the printhead nozzle. The company trained maintenance or setup technician can set if required for the application.

Section 13 Cleaning and Maintenance

13.1 Maintenance Chart

Period of Time	Task	Reference
Every Day	Check and clean printhead, as required	Section 13.2/13.3
Every Week	Clean controller, umbilical, and printhead enclosure	Section 13.4
Every Three Months or 700 Hours	Replace air filter	Section 13.5
Every 3-6 months or 1200-2000 Hours	Replace main ink filter Replace pre pump filter Replace gutter filter Replace makeup filter (ci1000/ci700)	Technical Service Manual

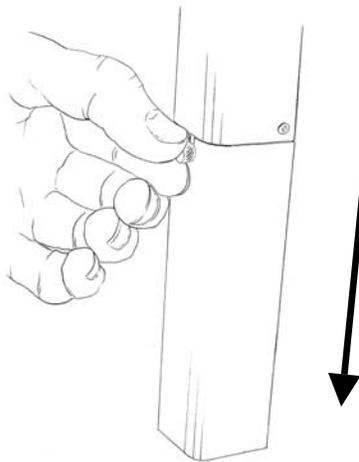


Note: The maintenance chart is a general guideline. Some applications will require more frequent filter changes dependent on the environment.

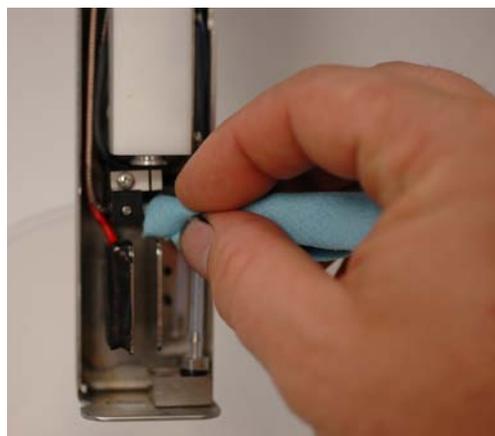
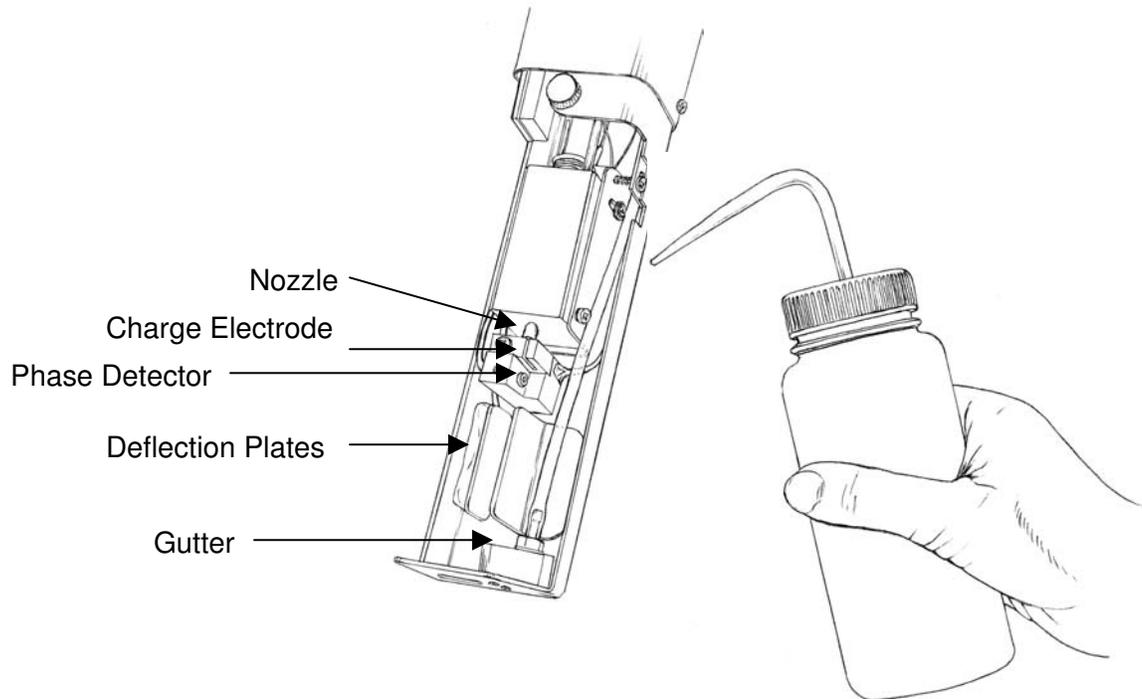
13.2 Check and Clean the Printhead

The system will operate for a considerable time before the printhead will require cleaning. However, peak operating performance and reliability will only be maintained if the printhead is cleaned on a regular basis. To check and clean the printhead:

- 1) Stop the jet.
- 2) Release the thumbscrew securing the printhead front cover and slide off the cover.



- 3) Check inside the printhead cover for a build up of ink deposits, if any deposits are evident then clean the inside of the cover.
- 4) Check the printhead for build up of ink deposits and where necessary use the appropriate cleaning solvent compatible with the type of ink being used. Pay particular attention to the **Nozzle**, **Charge Electrode**, **Phase Detector**, **Deflection Plates and Gutter**.
- 5) Using a suitable container to catch excess cleaning solvent. Dispose of excess cleaning solvent in accordance with local regulations.



NOTE: The printhead must be completely dry before attempting to start the jet. Use lint free cloths for drying or low-pressure dry clean air. Do not use high-pressure air, or cloths or paper towels with lint waste.



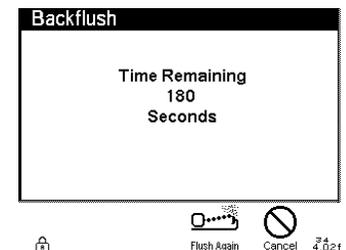
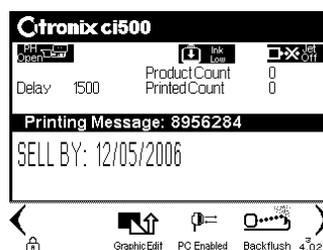
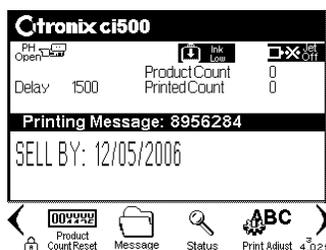
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6) Allow the printhead to dry, ensure that the slot in the charge electrode is clear of cleaning solvent. Refit the printhead cover and tighten the thumbscrew.

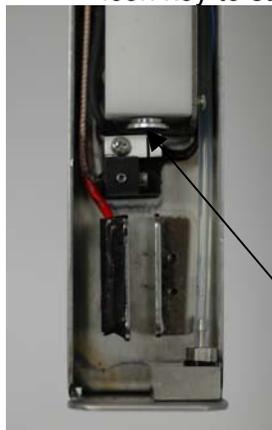
13.3 Backflush Routine

In the event the jet does not start correctly after a Daily Printhead Cleaning, a Backflush Routine can be performed to clear nozzle blockages or partial nozzle blockages. To perform a Backflush routine:

- 1) Stop the jet.
- 2) Locate the BACKFLUSH function icon key: On the main screen – use the function icon arrow keys to scroll left or right to access the BACKFLUSH function icon key.



- 3) Release the thumbscrew securing the printhead front cover and slide the cover off.
- 4) Press the Backflush function icon key. The system will vacuum from the nozzle until the CANCEL function icon key has been pressed. Perform in intervals of 10 seconds. After ten seconds press the CANCEL function icon key to stop the process.



Spray cleaning solvent into nozzle

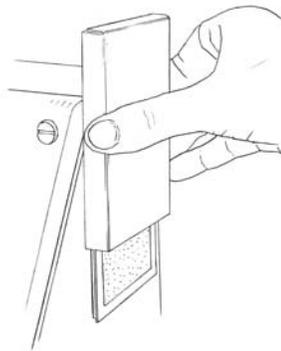
- 5) While the backflush operation is in process, apply the appropriate cleaning solvent to the nozzle. Observe the cleaning solvent being vacuumed through the nozzle.
- 6) If this does not clear the problem – repeat six times. If problem persists contact a maintenance technician.

13.4 Clean Controller, Umbilical, and Printhead Enclosures

Clean the system enclosures with stainless steel cleaner, and a lint free cloth.

13.5 Replace Air Filter

The air filter is located on the right hand side of the cabinet, beneath the air filter protection cover. To replace the air filter:



- 1) Remove the air filter protection cover.
- 2) Remove the air filter.
- 3) Replace the air filter.
- 4) Replace the air filter cover.

Section 14 Troubleshooting

14.1 Poor Print Quality

Poor print quality is typically caused by one of the following:

- 1) Dirty printhead – Perform Daily Printhead Cleaning and/or Backflush Routine (see Section 13)
- 2) Incorrect setup of a printing message, review pixel setting and fields used for printing (See Section 10)

14.2 Fluid Low or Out

If the ink low, ink out, makeup low, or makeup out error message is displayed, add ink or makeup. For all other error messages contact maintenance personnel for assistance.

14.3 Alarm Beacon

If your system is equipped with the optional alarm beacon, the light illuminates when an alarm condition is present. When the beacon is flashing refer to the display to note what the system error is. The error screen will indicate the corrective action required.

