



PegasusHS

Service Manual

P/N 361854-21

Revision: AA, November 2006

Copyright 2006, Clearmark solutions LLP. (herein referred to as ICE). All rights reserved.

This document is the property of Clearmark solutions.and contains confidential and proprietary information owned by ICE Any unauthorized copying, use or disclosure of it without the prior written permission of ICE is strictly prohibited.

ICE (interactive coding equipment)

Olympic House, Willow Drive
Sherwood Park, Nottingham
NG15 0DP

Phone: 01159 640144
Fax: 01159 639317

www.interactivecoding.com

Compliance Information

For Customers in U.S.A.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.



Warning

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide responsible protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. In such cases, the users will be required to correct the interference at their own expense.

Shielded cables must be used with this unit to ensure compliance with Class A FCC limits.

The user may find the following booklet prepared by the Federal Communications Commission helpful: [How to Identify and Resolve Radio-TV Interference Problems](#). This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-00-00345-4. This equipment has been tested and certified for compliance with U.S. regulations regarding safety and electrical emissions by TUV Rheinland of North America, Inc.

For Customers in Canada

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This equipment has been tested and certified for compliance with Canadian regulations regarding safety and electrical emissions by TUV Rheinland of North America, Inc.

Pour la Clientèle du Canada

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Cet équipement est certifié CSA.

For Customers in the European Union

This equipment displays the CE mark to indicate conformance to the following legislation.

- EN55022:1998
- EN55024:1998
- EN61000-6-2:2001
- FCC CFR 47 parts 15.107 and 15.109

Support and Training

Contact Information

If you have any questions or need assistance, please contact ICE Technologies Inc. at 01159 640144

Interactive Coding Equipment (ICE)
Olympic House
Willow Drive
Sherwood Park
Nottingham
NG15 0DP
T: 01159 640144
F: 01159 639317

Service Program

About **Total Source Commitment**

Total Source® TOTAL SERVICE PLUS RELIABILITY, is the ICE. commitment to provide you - our customer - the complete service you deserve.

The **Total Source Commitment**

The ICE Service Program is an integral part of our business in providing marks, codes, and images where, when, and how often customers specify for packages, products, or printed materials. Our commitment includes:

- Applications support
- Installation services
- Maintenance training
- Customer response center
- Technical support
- Field service
- Extended hours phone assistance
- Parts and supplies
- Repair service

Customer Training

If you wish to perform your own service and maintenance on the printer, ICE. highly recommends that you complete a Customer Training Course on the printer.

Note: The manuals are intended to be supplements to (and not replacements for) ICE. Customer Training.

For more information on ICE. Customer Training Courses, call 01159 640144.

Table of Contents

Compliance Information

<i>For Customers in U.S.A.</i>	<i>i</i>
<i>For Customers in Canada</i>	<i>i</i>
<i>Pour la Clientèle du Canada</i>	<i>ii</i>
<i>For Customers in the European Union</i>	<i>ii</i>

Support and Training

<i>Contact Information</i>	<i>iii</i>
<i>Service Program</i>	<i>iii</i>
<i>Customer Training</i>	<i>iv</i>

Chapter 1 — Safety

Introduction	1-1
Safety Conventions Used in the Manual	1-2
General Warning Notices	1-2
General Caution Notices	1-3
Safety Guidelines	1-4
Comply with Electrical Codes	1-4
Do Not Remove Warning Labels	1-5
Placement of the Printer	1-5
Using Printer Accessories	1-5

Chapter 2 — Introduction

Equipment Description	2-1
About this Manual	2-2
Related documents	2-2
Theory of Printing	2-3
Intermittent Motion Printing	2-3
Continuous Motion Printing	2-4

Chapter 3 — Technical Description

Unpacking the Printer	3-1
Installing the Printer	3-3
Mounting Considerations	3-3
Printer	3-3
CLARiTY Controller	3-5
Air Regulator	3-7
Encoders	3-7
Installing the Ribbon in the Cassette	3-8
Adjusting the Air Pressure	3-12

Working with Printer Connections	3-12
Product Sensors / Print Signals	3-12
Encoder	3-14
Interlocks and Annunciation	3-15
Data Communication	3-16
Cable Connections	3-16
Switching the Power On	3-18
Configuring the Printer	3-19
CLARiTY™ Configuration Manager	3-19
Installing the CLARiTY Configuration Manager	3-21
Connecting the CLARiTY Configuration Manager to the Printer	3-21
Editing Parameters	3-23
Saving the Changes in the Printer	3-24
Archiving the Current Parameters	3-24
Loading a Saved Archive	3-25
Working with the Inputs and Outputs	3-25
The Inputs	3-25
The Outputs	3-25
Default Options Configuration	3-26

Chapter 4 — CLARiTY Operating System

Getting started with the CLARiTY	4-1
Using the Tools Page	4-2
Working with Setup Page	4-3
Working with Diagnostics	4-8
Working with Passwords	4-25
Password Protection Set-up	4-26

Chapter 5 — Maintenance

Maintaining the Power Supply	5-2
Replacing the Mains Fuse	5-2
Maintaining the CLARiTY Controller	5-3
Replacing the Power Supply Unit	5-3
Replacing the CLARiTY Processor PCB and LCD Touchscreen Assembly	5-5
Maintaining the Printer	5-11
Replacing the Compact Flash Card	5-11
Replacing the Main PCB	5-12
Replacing the Peel Roller	5-15
Replacing the Printhead	5-17
Setting the Printhead Resistance	5-18
Maintaining the Cassette	5-19

Updating the CLARiTY Operating Software	5–23
---	------

Chapter 6 — System Events

Chapter 7 — Troubleshooting

Chapter 8 — Illustrated Parts List

How to Read the IPL	8–1
Illustrations	8–1
Alphabets	8–2
Numbers	8–2
Tables	8–3
Controller Assembly	8–4
Printer Assembly	8–5
Printhead Assembly	8–5
Cassette Assembly	8–7
Accessories	8–8
Printer Ribbons	8–9

Chapter 9 — Drawings

Printer Dimensions	9–1
Electrical Wiring Schematics	9–4

Safety

1

This chapter contains the following topics:

- Safety conventions used throughout this manual
- Important safety guidelines to follow while operating the equipment



Warning

EQUIPMENT MAINTENANCE. Read this chapter thoroughly before attempting to install, operate, service, or maintain this product.

Introduction

The policy of ICE. is to manufacture printing / coding systems and supplies that meet high standards of performance and reliability. Therefore, we employ strict quality control measures to eliminate the potential for defects and hazards in our products.

The intended use of this printer is to print information directly onto the product. Use of this equipment for any other purposes may lead to serious personal injury.

The safety guidelines provided in this chapter are intended to educate the operator on all safety issues, so that the operator can operate the printer safely.

Safety Conventions Used in the Manual

Specific safety information is listed throughout this manual in the form of Warning statements. Pay close attention to these statements as they contain important information that help in avoiding potential hazards to yourself or to the equipment.

General Warning Notices

The following warnings supplement the specific warnings that appear elsewhere in the manual. These are general warnings which must be read, completely understood, and applied by all the personnel involved in the operation, and /or the maintenance of the machine.



Warning

PERSONAL INJURY. Only trained service or maintenance personnel should perform these installation procedures. Qualified personnel have successfully completed the training courses, have sufficient experience with this printer, and are aware of the potential hazards to which they may be exposed.



Warning

PERSONAL INJURY. Before attempting any maintenance or repair on any part of the product, disconnect the printer from the main power supply and isolate the printer from any external energy sources including other connected equipment.



Warning

PERSONAL INJURY. Before connecting the compressed air supply to printer, ensure that the air supply has been isolated. Turn the regulator adjustment knob counter-clockwise.



Warning

PERSONAL INJURY. The printer uses an operator control console. Ensure that this panel is mounted at an appropriate working height and orientation for comfortable operation.

**Warning**

PERSONAL INJURY. Keep hands and clothing clear of the printer while it is on.

**Warning**

PERSONAL INJURY. To ensure that the connecting cables and pipes do not become a trip hazard or become entangled in any machinery, all connecting cables and pipes must be secured safely during installation.

**Warning**

ELECTRICAL HAZARD. Voltages used to connect the printer to other equipment must be limited to no greater than 50 V DC or peak AC.

**Warning**

ELECTRICAL HAZARD. Always wear a properly ground wrist-ground strap when handling printed circuit boards. Failure to do so can result in damage to the board components due to static electricity.

General Caution Notices

The following caution statements supplement the specific cautions that appear elsewhere in the manual. These are general cautions, which must be read, completely understood and applied by all the personnel involved with the operation, and /or the maintenance of the machine.



Caution

EQUIPMENT MAINTENANCE. Before and after performing any maintenance or repair on the product, check that the two safety labels are clearly visible. One is on the power supply cover and the other by the potential nip point next to the pulley in the printer body.



Caution

EQUIPMENT DAMAGE. The use of incompatible ribbon can seriously damage your printer and such damage is not covered by your printer warranty. Use only ribbon approved by your dealer.

Safety Guidelines

This section contains important safety guidelines pertaining to the operation and handling of the printer and associated equipment.



Warning

SAFETY GUIDELINES. Always observe the following safety guidelines when operating and handling the printer and associated equipment.

Comply with Electrical Codes



All the electrical wiring and connections must comply with applicable local codes. Consult the appropriate regulatory agency for further information.

Do Not Remove Warning Labels



Do not, under any circumstances, remove or obstruct any warning or instruction labels on the printer.

Placement of the Printer



Warning

PERSONAL INJURY. Do not place the printer in a hazardous location. Hazardous locations might create an explosion, leading to personal injury.

Hazardous locations, as defined in the United States, are those areas that may contain hazardous materials in a quantity sufficient to create an explosion. These are defined in Article 500 of the National Electrical Code ANSI / NFPA 70–1993.

Outside the United States, you must ensure compliance with all local regulations regarding equipment placement in potentially hazardous locations.

Using Printer Accessories

To maintain regulatory approval for the printer, use only Videojet approved accessories when attaching any device to the equipment.

This chapter contains the following topics:

- A description about the intended use of the product
- Information about the audience for whom this manual is intended
- A description of how the manual is organized
- Information about other manuals that are associated with this printer
- A description of the theory of printing



Warning

PERSONAL INJURY. Read Chapter 1, “Safety” before attempting to operate the equipment.

Equipment Description

The Videojet 6210 printer uses high-resolution thermal transfer technology with a unique electronic ribbon drive system. The printer offers greater reliability and ease of operation compared to earlier systems. It can print barcodes, dates, text, and graphics onto flexible packaging films and labels.

The printer is a suitable replacement for either hot stamp or rotary printers. It can print in either of the following modes:

- Intermittent Mode (i.e., while the substrate is stationary)
- Continuous Mode (i.e., while the substrate is moving)

It is suitable for use on most horizontal form / fill / seal, vertical form / fill / seal, and self-adhesive labeling machines.

The product is available in either left-handed or right-handed versions to suit different configurations of the packaging machine.

About this Manual

This service manual includes information about installing, maintaining, troubleshooting, and servicing the printer. It also contains sections about the theory of operation and component identification, including an illustrated parts breakdown.

This document is intended to be used only by trained service personnel. It is intended to be a supplement to (and not a replacement for) formal training. Keep this manual in a safe location where it can be easily accessed for reference.

Related documents

The Videojet 6210 Operator Manual (P / N 361853) is intended for the operator and contains information on routine operation of the printer. Unless specified, all procedures in this manual can be performed by the operator of the printer. It is mandatory that the personnel read the Operator Manual before reading the Service Manual.

This manual is a supplement to (and not a replacement for) formal training.



Warning

PERSONAL INJURY. Customers who intend to service and maintain the printer themselves must use only qualified personnel to perform these procedures. Qualified personnel have successfully completed the training courses, have sufficient experience with this printer, and are aware of the potential hazards to which they may be exposed.

Theory of Printing

The information on how the thermal transfer printer works is as follows (Figure 2-1):

- The printhead contains miniature heating elements under a glass coating (300 dpi - 12 dots/min)
- A carrier ribbon, with ink bonded to one side is used as the printing media
- The printhead presses against the thermal transfer ribbon with the ink side of ribbon in contact with the substrate, creating an image.
- Print elements heat small areas of the ribbon and this transfers the ink to the target substrate
- The printhead and the substrate move relative to each other
- The print elements are programmable and controlled to create an image

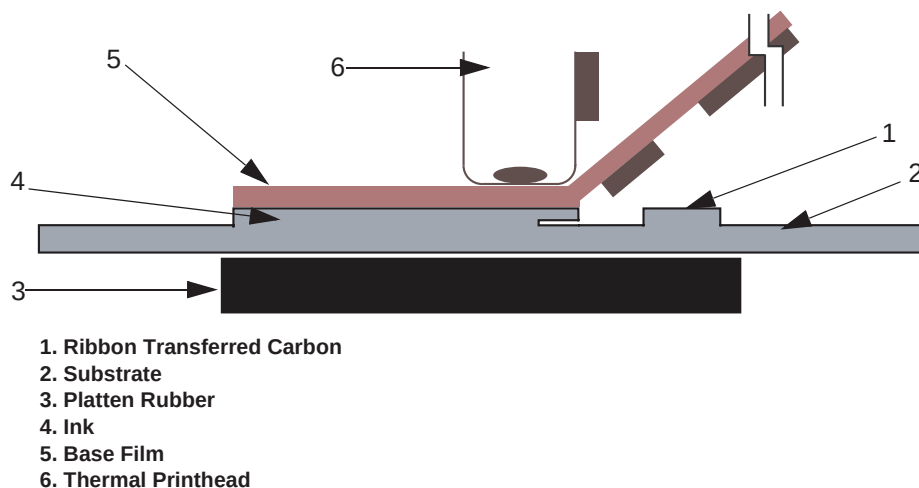


Figure 2-1: Printing Process

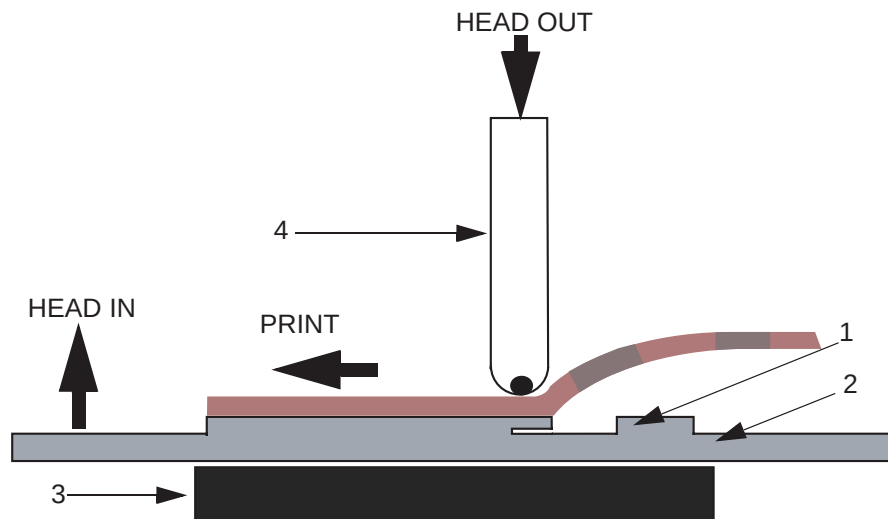
Intermittent Motion Printing

Intermittent motion printing (Figure 2-2 on page 2-4) is the concept used for printing on stationary packaging films in packaging equipment that has a start/stop action each time a product is packed. Such applications can be found in intermittent Vertical Form Fill Seal (VFFS) or bagging machines, and self adhesive label applicators.

Intermittent motion printing has the following features:

- The substrate is stationary

- The printhead traverses across the ribbon, causing print to transfer onto substrate.
- The printhead presses against a flat platten pad.



1. Ribbon Transferred Carbon
2. Substrate
3. Platten Rubber
4. Thermal Printhead

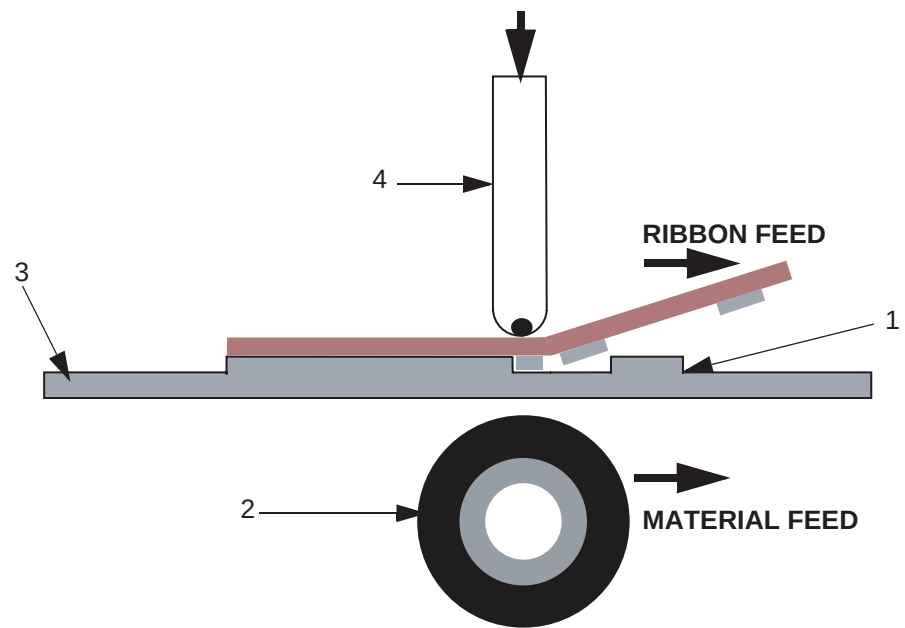
Figure 2-2: Intermittent Printing Motion

Continuous Motion Printing

Continuous motion printing (Figure 2-3 on page 2-5) is the concept used for printing on moving packaging films in packaging equipment that has a continuous moving action each time a product is packed. Such applications can be found in Continuous Vertical Form Fill Seal (VFFS) and Horizontal Form Fill Seal (HFFS) or flow-wrap machines.

Continuous motion printing has the following features:

- The substrate moves while the printhead is stationary
- Speed of the substrate is monitored by an encoder
- The ribbon and the substrate speeds are matched by the ribbon drive
- The printhead presses against a rotating print roller



- 1. Ribbon Transfer Carbon Print
- 2. Platten Roller
- 3. Substrate
- 4. Thermal Printhead

Figure 2-3: Continuous Print Motion

This chapter contains the following topics:

- Unpacking the Printer
- Installing the Printer
- Mounting Considerations
- Installing the Ribbon in the Cassette
- Adjusting the Air Pressure
- Working with Printer Connections
- Switching the Power On
- Understanding Printhead LEDs
- Configuring the Printer
- Working with the Configurable Inputs and Outputs

Unpacking the Printer

Inspect the kit for any damage carefully. Refer the list of parts in Table 3-1 and Figure 3-1 on page 3-2. If any item is damaged or missing, call ICE., Customer Service Department at 01159 640144.

Printer Part
Printer
Cassette
CLARiTY Controller
Air Regulator
Power Cable
I/O Low Profile Cable Assembly

Table 3-1: Printer Configuration Parts List

Printer Part
CLARiTY Configuration Manager CD
4mm Air Tubing
CLARiTY Controller Bracket
QA Documentation and CE Certificate

Table 3-1: Printer Configuration Parts List (Continued)

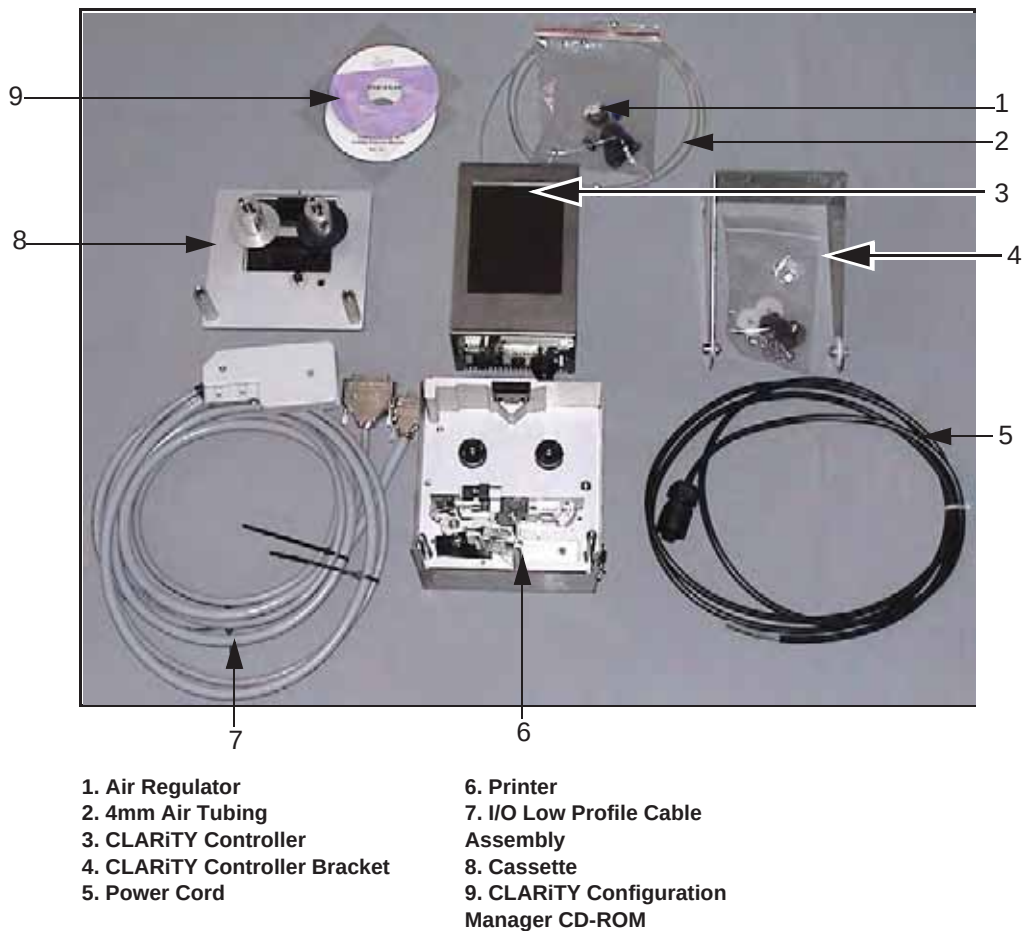


Figure 3-1: Printer Configuration Parts

Installing the Printer

Ensure that the following services are available while the printer is being installed:

- Power: 90 - 264 VAC, 320 VA, 47 - 63 Hz
- Compressed Air: 87 psi (6 bar) max, dry, uncontaminated with a 6 mm pipe fitting
- Print signal: This is the signal that triggers the printing operation and can either be a:
 - PLC signal
 - 24 V DC, PNP registration photocell
 - 24 V DC, PNP proximity switch detecting a cam timing point
- An encoder kit (P / N 403358) is required to monitor the speed of the packaging film on continuous motion packaging machines.

Mounting Considerations

The thermal printhead must act against a flat print platen (in an intermittent mode) or a print roller (in a continuous mode) in order to print. The platen or roller is a part of the mounting bracketry.

Printer

The printer can be mounted in any orientation. However, it is important to ensure that adequate operator access is available to remove and replace the cassette easily.

The exact position of the printer relative to the packaging machine, needs to account for:

- The physical constraints of the available space and operator access
- The required position of the print on the substrate

Figure 3-2 on page 3-4 shows the relevant dimensions of the printer relative to the mounting holes and the printhead. It also shows the additional space required to give adequate clearance to cables and air pipes that connect to the unit.

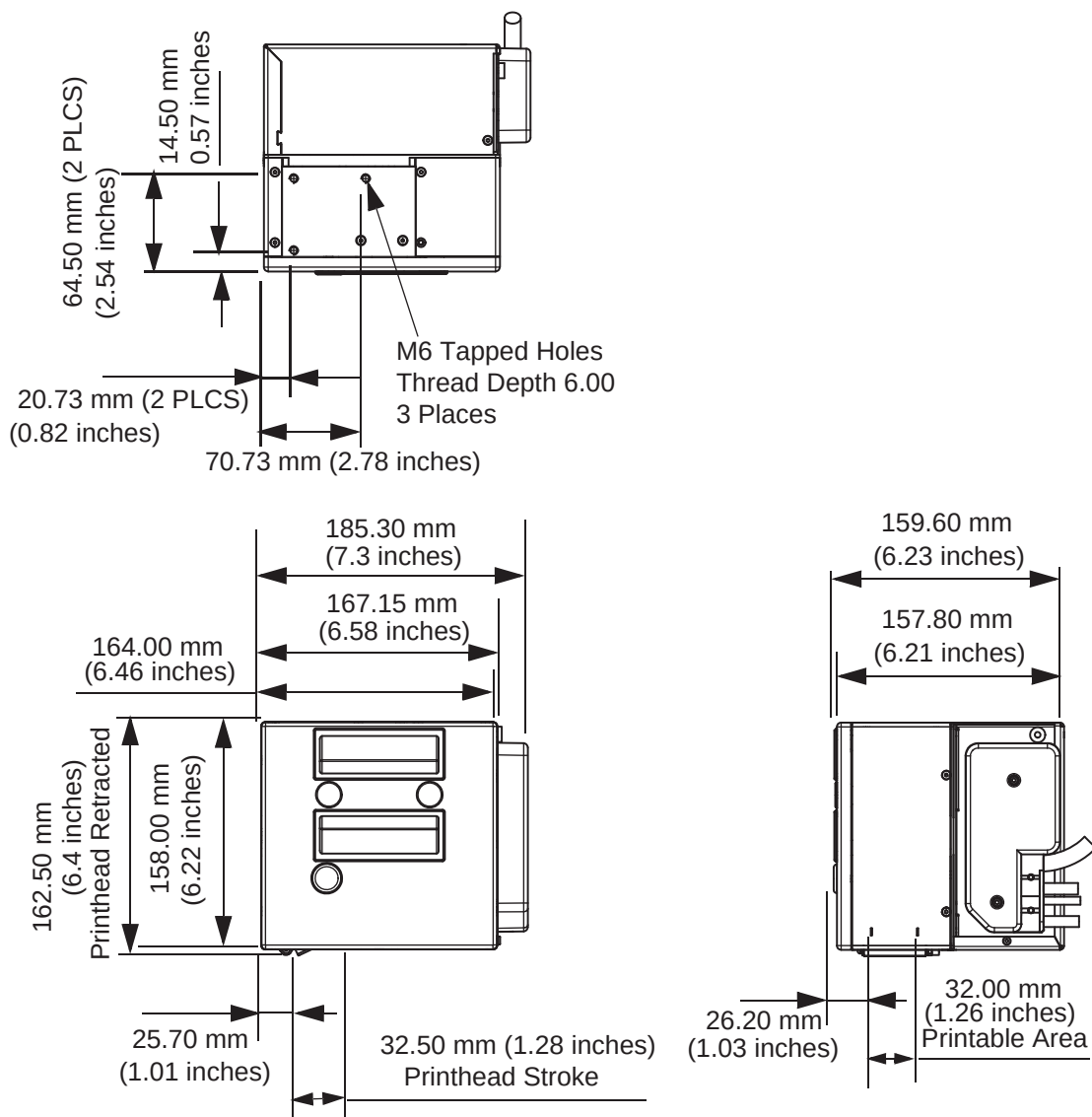


Figure 3-2: Videojet 6210 30 mm RH Printer Dimensions

Mount the printer using four M6 screws. Consider the direction of travel of the target material relative to the printer, when you mount the printer on a continuous motion packaging machine. This determines whether the printer in use is left-handed or right-handed (Figure 3-3).

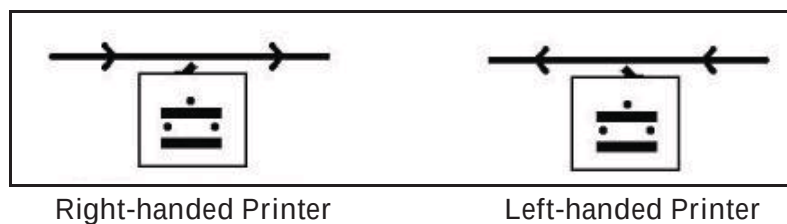


Figure 3-3: Right-handed and Left-handed Printer

The print platen rubber (for printers in intermittent mode) or the roller (for printers in continuous mode) should be positioned such that it is at a distance between 6.45 inches and 6.50 inches (164 mm and 165.5 mm) from the back edge of the printer (Figure 3-4).

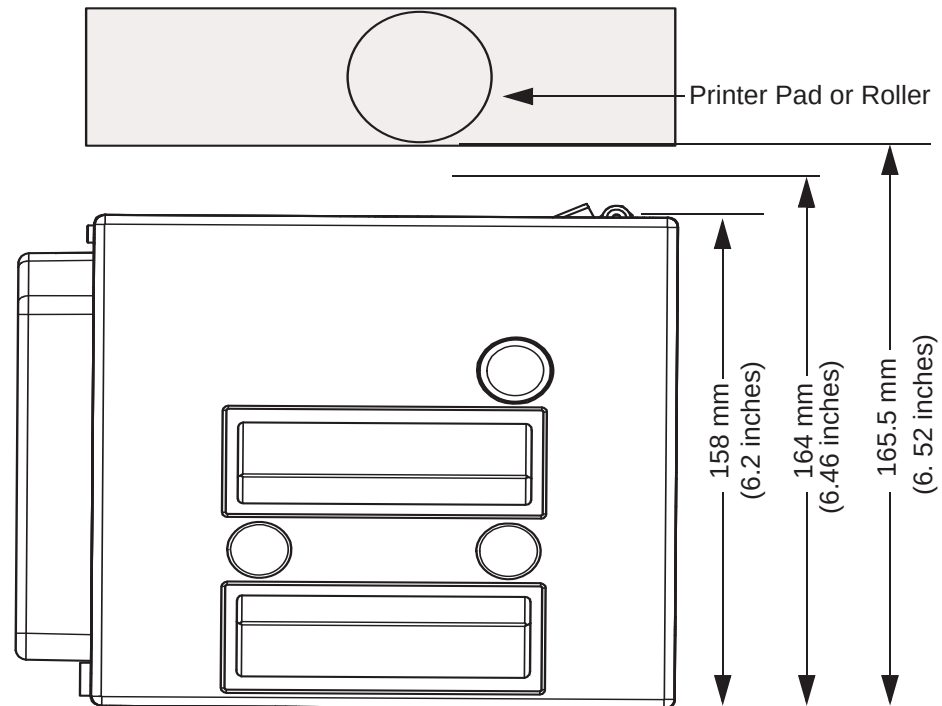


Figure 3-4: Printer Pad or Roller Position

CLARiTY Controller

The CLARiTY operator interface can be mounted at a convenient location so that the operator has adequate access to the panel. The CLARiTY controller has a built-in power supply unit.

The unit has two M6 mounting holes located at the sides of the unit, as shown in Figure 3-5 on page 3-6.

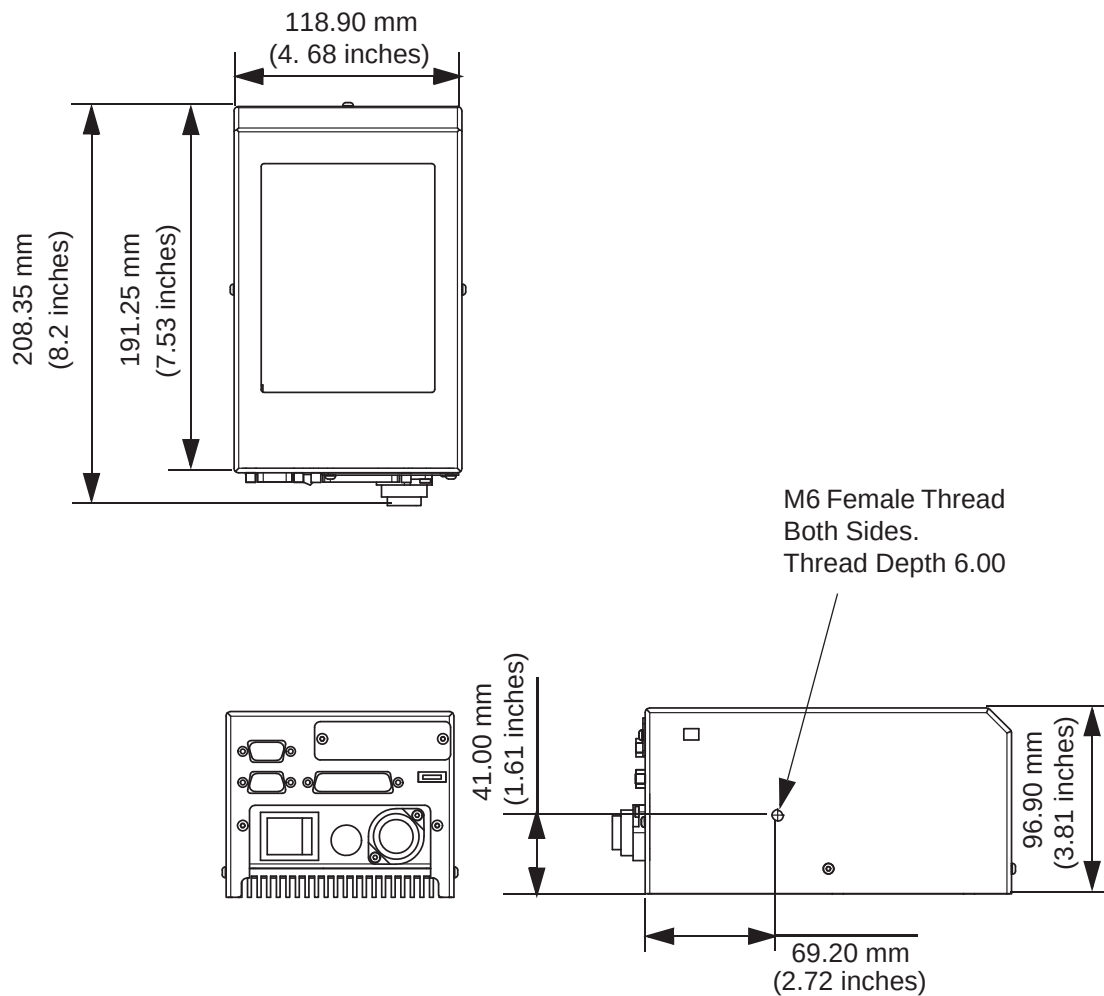


Figure 3-5: CLARiTY Controller Dimensions

The maximum distance of the CLARiTY controller from the printer body is 9.8 ft (3 m).

The CLARiTY controller can be mounted in any convenient location, provided that the maximum lead length of 9.8 ft (3 m) is not exceeded. The mounting brackets provided allow you to position the controller against a convenient vertical flush surface.

Air Regulator

The air regulator should be connected to a clean, dry factory air supply using a 6 mm pipe. The 4 mm diameter pipe should be used to connect the air regulator to the printer.

The air regulator should be mounted close to the printer. The regulator should be accessible for adjusting and checking the correct pressure of 3 bar.

Encoders

An encoder is used to match the printing speed to the speed of the target material as it passes the printhead.

Use the Encoder Kit part number 403358 for these applications.

The encoder must ideally be mounted to run on the packaging film, close to the printer, in order to accurately measure the film speed. Any discrepancy between measured and actual film speed can result in poor print quality or ribbon breakage.

Note: Use the encoder only in the continuous mode.

Installing the Ribbon in the Cassette



Caution

EQUIPMENT DAMAGE. The use of incompatible ribbon can seriously damage your printer and such a damage is not covered by your printer warranty. Use only the ribbon that is approved by your dealer.

To install the ribbon, proceed as follows:

- 1 Remove the cassette (Figure 3-6).

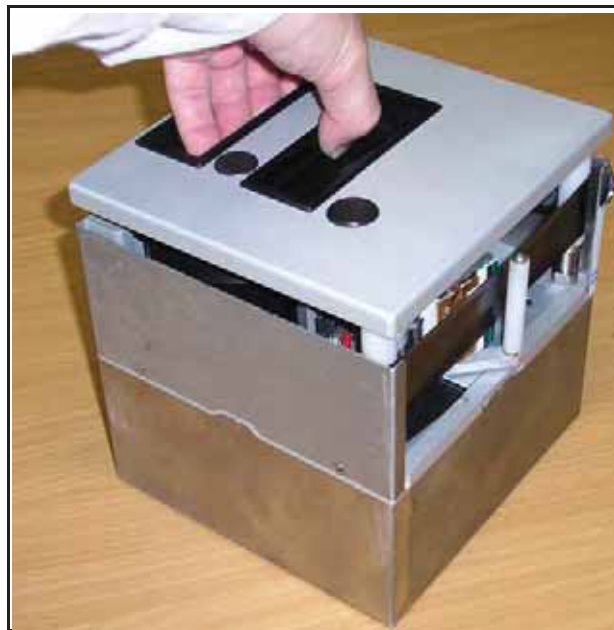
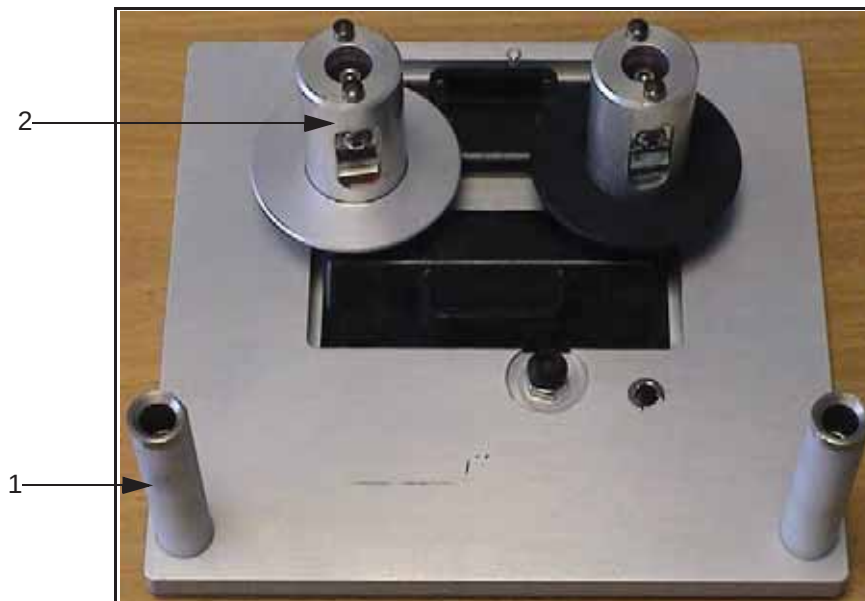


Figure 3-6: Cassette Removal

- 2 Put the cassette down on a flat surface with the ribbon spools (Item 1, Figure 3-7 on page 3-9) facing upwards and the ribbon rollers (Item 2) towards you.



- 1. Ribbon Roller (x2)
- 2. Ribbon Spool (x2)

Figure 3-7: Cassette Removed

- 3 Pull the two ribbon spools (one containing the entire used ribbon) from the cassette firmly, as shown in Figure 3-8. The discs that are situated under each spool can be used to lever the spool off the cassette.



Figure 3-8: Ribbon Spools Removal

- 4 Discard the used ribbon and the spools.
- 5 Open a new shrink-wrapped roll of ribbon, and unwind about 12 inches (30 cm) of ribbon.

The spool holders on the cassette have different color discs:

- The black disc for the new roll of ribbon
- The silver disc for the empty roll

When the printer is running, the new ribbon unwinds from the black holder and winds onto the silver spool holder.

- 6 Slide the full spool onto the spool holder that has a black disc. The roll should be located such that the ribbon unwinds in the direction as shown in Figure 3-9.

Note: Ensure that the spool is pushed completely down onto the holder.



Figure 3-9: Ribbon Spool Installation

- 7 Route the ribbon, so that it:
 - Unwinds from the outside of the full roll
 - Goes around the outside of the white roller that is nearest to the full roll
 - Runs along the bottom of the cassette
 - Goes around the outside of the second white roller
 - Passes around the outside of the empty spool

- 8 Slide the empty spool completely down onto the holder that has a silver disc (Figure 3-10).



Figure 3-10: Ribbon Spool Complete

- 9 Turn the empty spool by hand to take up any excess ribbon. Stop turning the empty spool when the full spool starts to rotate (Figure 3-11).

Note: If the supplied ribbon has a transparent section or printed leader at the start, rotate the empty spool to take up all the transparent ribbon.

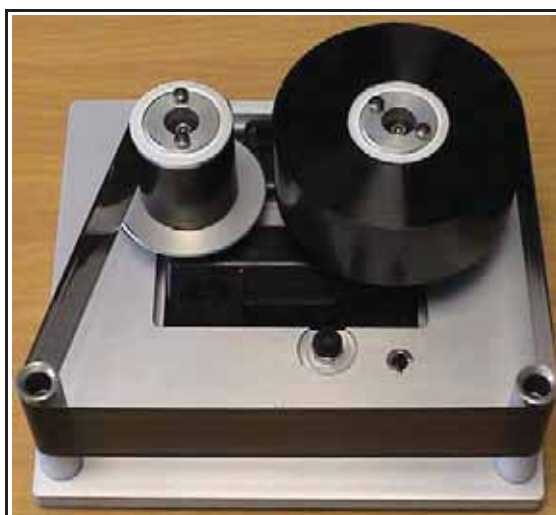


Figure 3-11: Ribbon Spool Routing

- 10 Insert the cassette into the printer body.

Note: Ensure the following:

- *The ribbon runs in between the printhead and the printer's print roller or print pad*
- *The ribbon is not twisted or caught*
- *The ribbon has not become loose while replacing the cassette*

Adjusting the Air Pressure



Warning

PERSONAL INJURY. Before connecting the compressed air supply to the printer, ensure that the air regulator adjustment knob is turned fully counterclockwise.

Use the regulator to set the air pressure to 3.0 bar (43.5 psi). Setting the pressure too high can shorten the lifetime of the printhead. Setting the pressure too low can cause poor print quality.

Working with Printer Connections

Product Sensors/Print Signals

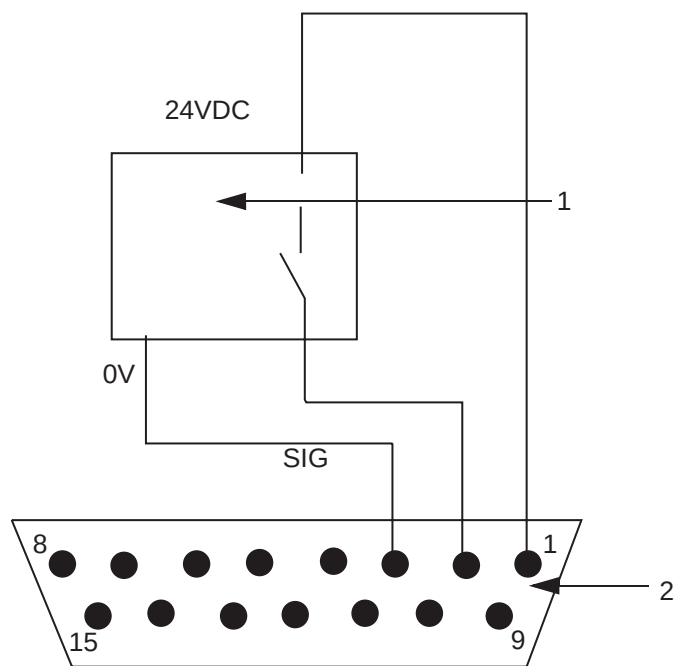
One 15-pin D-Type (male) connector, located on the side of the printer is dedicated for input and output connections.

The printer can be triggered to print either by a mechanical contact-print signal or a 24 V DC PNP product sensor.

The printer can be configured to print either on a positive or a negative edge signal.

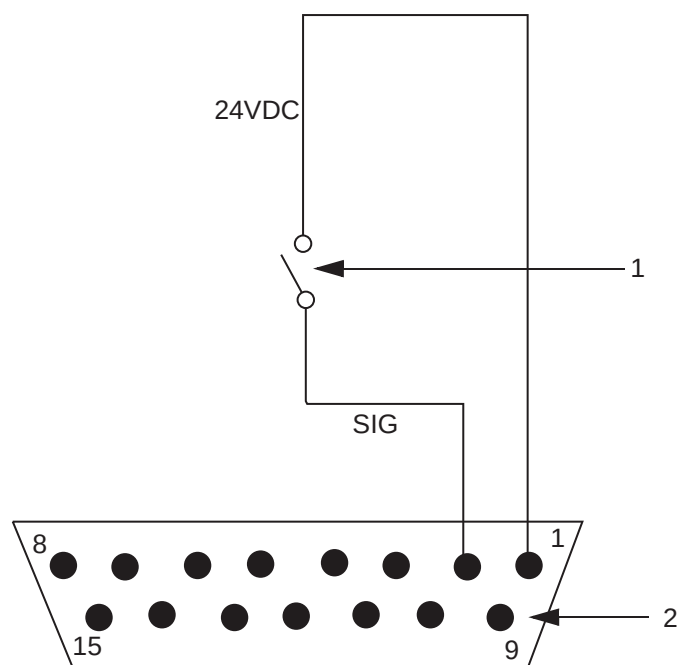
Note: These settings are known as configuration settings and cannot be set on the CLARiTY panel. For further information, refer "Configuring the Printer" on page 3-19.

Connect the wiring for the sensor or mechanical contact operation, as shown in Figure 3-12 on page 3-13 and Figure 3-13 on page 3-13.



- 1. PNP Sensor
- 2. 15-pin Male D-type Connector

Figure 3-12: PNP Sensor Wiring (Print Sensor)



- 1. Print Signal Relay Contact
- 2. 15-pin Male D-type Connector

Figure 3-13: Mechanical Contact Wiring (Print Sensor)

Encoder

For the continuous motion operation of the printer, an encoder is used to track the speed of the packaging material. The encoder is wired into the printer's input/output connector.

The printer is configured to use a quadrature mode encoder by default, N. The use of a quadrature mode encoder enables the printer to react if the packaging material is traveling backwards. This prevents the occurrence of breaks in the ribbon and possible damage to the printer. The use of a quadrature mode encoder is obligatory.

Note: These settings are known as configuration settings and cannot be set at the CLARiTY panel. For further information, refer "Configuring the Printer" on page 3-19.

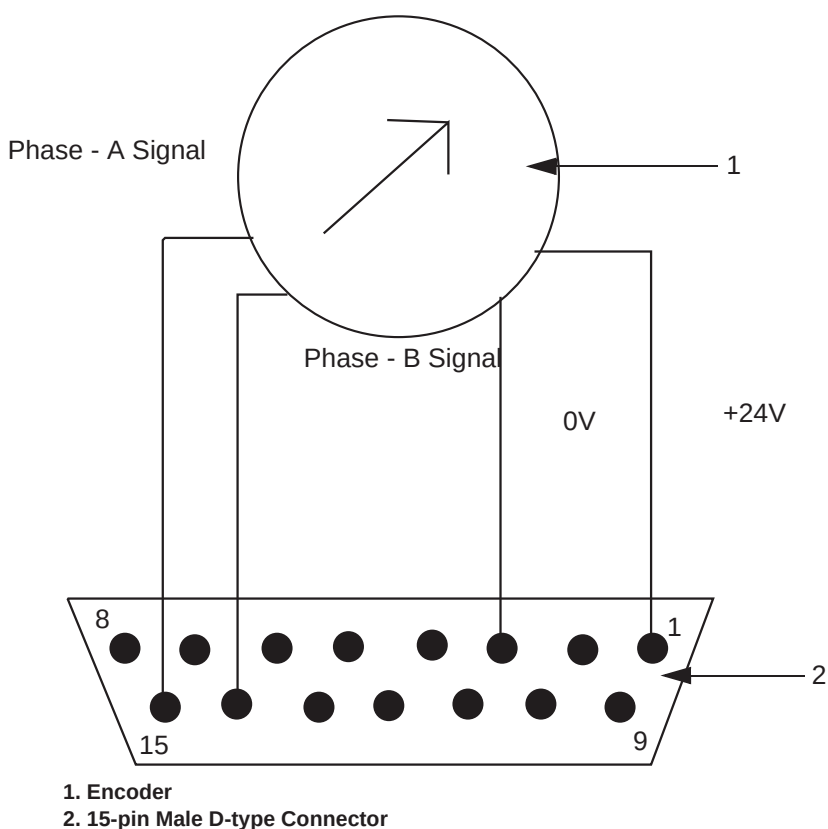


Figure 3-14: Encoder Wiring

Interlocks and Annunciation

The 15-pin D-type (male) connector, located on the side of the printer unit is available for connecting with a variety of useful interlock and annunciation signals.

Table 3-2 summarizes the input and output connections.

Pin	Purpose
1	+24 V
2	External input #1 PNP 24 V
3	0 V
4	External input #2 PNP 24 V
5	Not Used
6	Relay output #1 N/C
7	Relay output #1 common
8	Relay output #1 N/O
9	Relay output #2 common
10	Relay output #2 N/O
11	PNP 24 V Output #1
12	0 V
13	Not Used
14	Encoder Phase B input
15	Encoder Phase A input

Table 3-2: Input and Output Connections

Note: For more information on configuring the inputs and outputs, refer “Working with the Inputs and Outputs” on page 3-25.

Data Communication

All external data communication to the printer are connected through the CLARiTY controller. It contains the following communication ports:

- RS232 Serial Communications Port (9-pin Male D-type Connector)

Table 3-3 lists the connections to the RS232 Serial Communications Port.

Pin	Connection
1	
2	Receive Data (Rx)
3	Transmit Data (Tx)
4	
5	GROUND
6	
7	
8	
9	

Table 3-3: RS232 Serial Communications Port Connections

The printer is primarily designed to communicate with the CLARICOM™ Package Coding Management Software, such as the CLARiSOFT™ for VJ6210 Image Design Software (P / N 703490). CLARiTY is supplied with some default images installed in its database memory.

CLARiTY can be configured to work in the following mode:

- Standalone Mode

Download images to CLARiTY using a standard PC null-modem cable (twisted 9-pin D-type, female to female) connected between PC COM1 port and CLARiTY RS232 port (cable supplied separately), using CLARiSOFT.

Cable Connections

Figure 3-15 on page 3-17 displays the details of the printer cable connections.

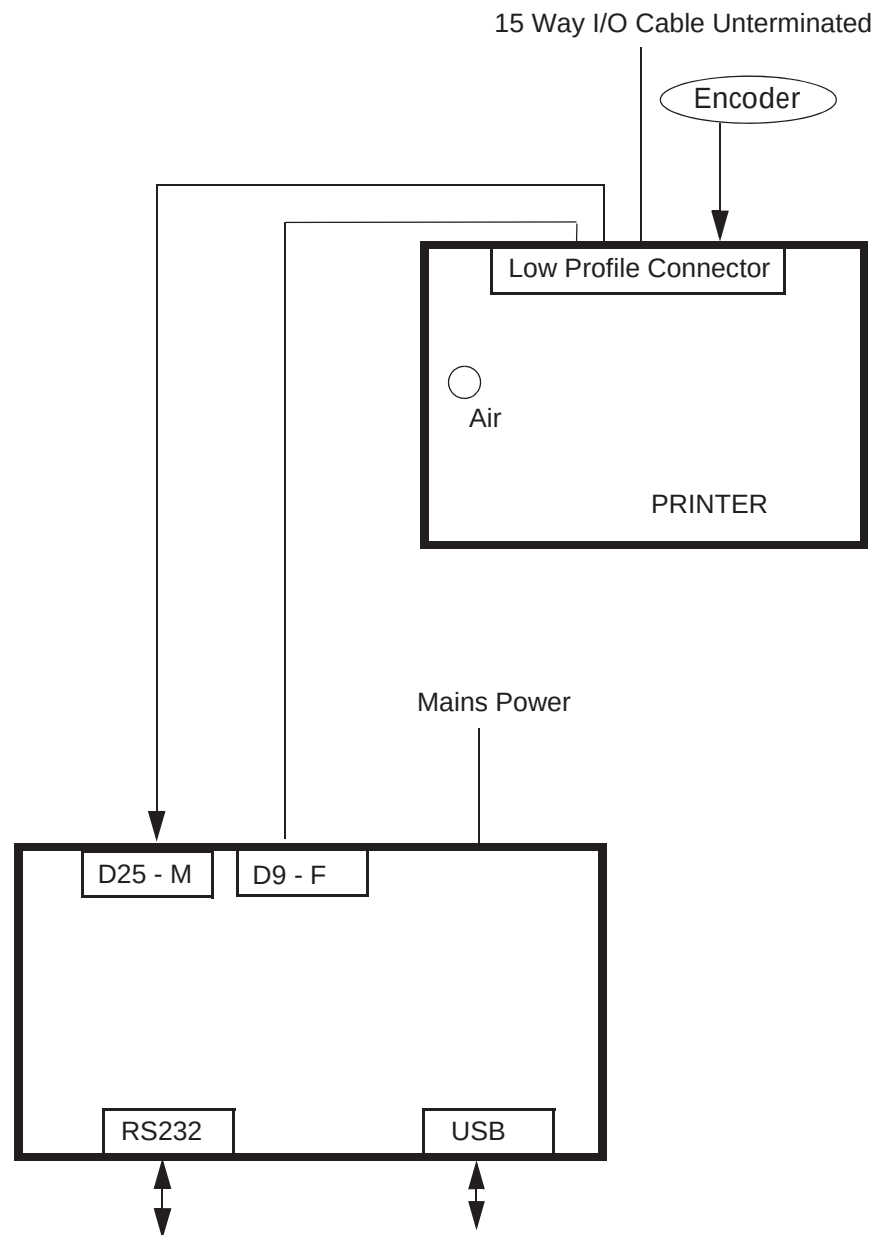


Figure 3-15: Videojet 6210 Cable Connections

Switching the Power On

To switch the printer on, turn the power switch on the CLARiTY controller to the I (On) position (Figure 3-16).

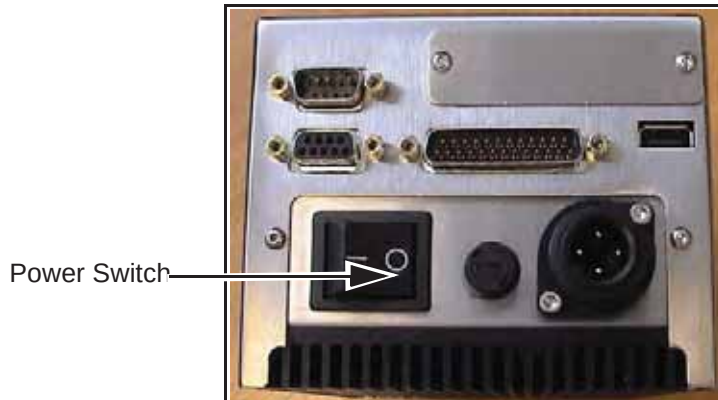


Figure 3-16: Printer Power Switch

The boot-up takes approximately 90 seconds. During this a "starting CLARiTY ..." message appears. Following this, the CLARiTY home page (Figure 3-17 on page 3-19) is displayed.

An initialization process of 15 seconds begins, during which the printer calibrates the ribbon drive. The status bar flashes the words STARTING UP and the amber LED flashes on and off. When the process is complete, the home page changes, as follows:

- The CLARiTY status panel changes from STARTING UP to OFFLINE.
- The Consumables area displays the percentage of ribbon remaining.
- In the Control Frame, the Start and Stop buttons are enabled.
- The blue Power LED on the printer is illuminated.

Figure 3-17 on page 3-19 displays the CLARiTY home page in the OFFLINE state.



Figure 3-17: CLARiTY Home Page in the Offline State

Configuring the Printer

CLARiTY™ Configuration Manager

As coding and labelling equipment have become increasingly versatile and flexible with a wide range of applications, the number of variables that can be configured within a printer, has become very large. Although printers are pre-programmed with default values, as the extent of the application increases, it becomes less likely that the default configuration is ideal. This can lead to a large and cumbersome Menu Tree on the printer's controller that users have to work with.

Most printer variables are set during the installation process. The variables are set to values that tailor the printer to the application. Once set, these variables only need to be changed when the application for the printer changes. As such, there is no need to make these installation parameters available at the printer interface. They are set through a configuration programme called CLARiTY Configuration Manager.

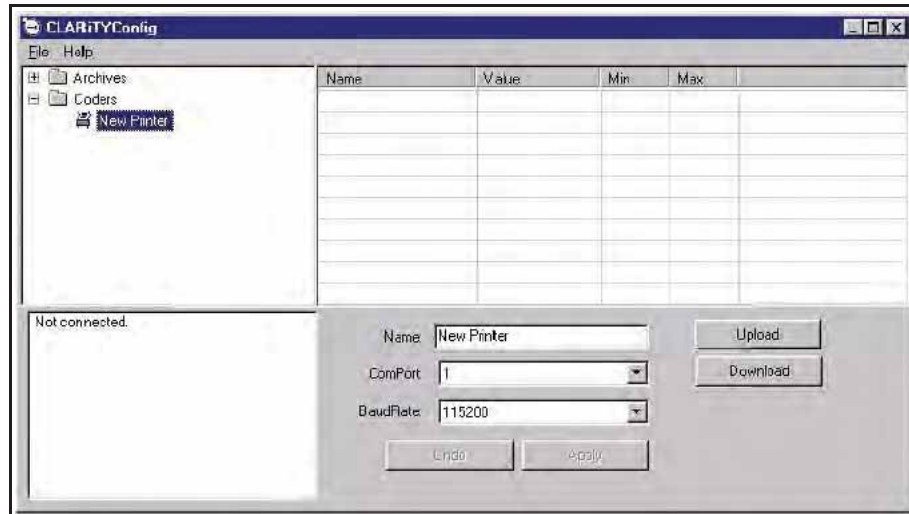


Figure 3-18: CLARiTY Configuration Manager

The CLARiTY Configuration Manager (Figure 3-18) is a PC software program, that provides the following basic features:

- Setting all the printer variables
- Saving / retrieving a set of variable values to a PC file for later / repeated use
- Downloading a set of variables to the printer's CLARiTY controller for non-volatile (permanent) memory storage in the printer
- Uploading a set of variables from the printer for review / comparison / modification
- Updating the system software
- Saving / retrieving language files
- Saving / retrieving job, font, and graphics files
- Configuring master / slave functionality
- Snapshot of CLARiTY screens

As a result, the CLARiTY Controller only retains the availability of a small number of operating variables for the user to change. Apart from making the CLARiTY control system more simple and user-friendly, it also provides an increased level of printer system integrity, because the configuration variables cannot be accessed from the printer itself, but only from a connected PC.

If the printer is installed to run in a standalone mode (i.e., the printer is not networked), the PC is only linked briefly (via the RS232 serial or ethernet port) for the period of upload / download of the variables (a few seconds). The PC would then be removed.

In a networked environment, system administrators could have direct

access to the printer, while line operators are limited to accessing only the operating variables that are relevant to them.

Installing the CLARiTY Configuration Manager

To install the CLARiTY Configuration Manager on a PC, insert the CLARiTY Configuration Manager CD-ROM. The installation routine commences automatically. Follow the on-screen instructions to install the software.

If your PC has the auto run facility disabled, the installation routine will not start automatically. To enable the installation procedure, proceed as follows:

- 1 Click the Start button.
- 2 Click the Run button to open a dialog box.
- 3 Type "D:\setup.exe" in the dialog box and press enter / return key.

Note: D: is the drive letter of the PC's CD-ROM drive. If it is different for your PC, replace the letter D with the appropriate drive letter.

The software is installed in the PC and is ready for use.

Connecting the CLARiTY Configuration Manager to the Printer

Connecting CLARiTY Configuration Manager to the Printer using an RS 232 connection

To connect the CLARiTY Configuration Manager to the printer, proceed as follows:

- 1 Connect the PC serial port to the CLARiTY controller using the null-modem cable.

Ensure that all other programs (such as, Active sync and other PDA applications) that use the serial port are disabled.

- 2 Run the CLARiTY Configuration Manager on the PC (Figure 3-19).

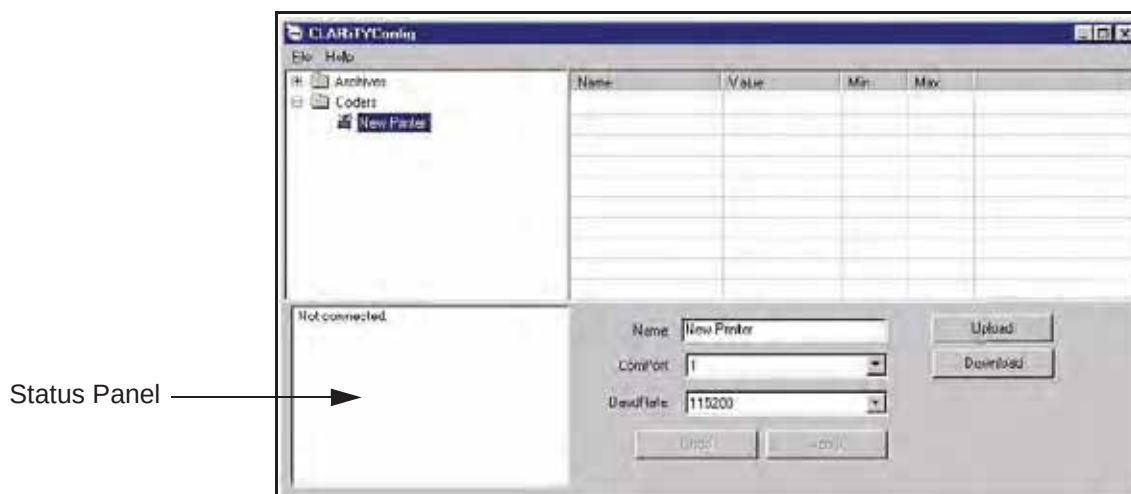


Figure 3-19: CLARiTY Configuration Manager

- 3 Ensure that the printer status panel (at the bottom left of the window) reports the message "Connection Active" and the new printer icon turns green.

If the status displays "Not connected", as shown in Figure 3-19, disable or quit the other applications running on the PC that are using the serial port. Check that the baud rate settings on the Configuration Manager matches with the printer's baud rate.

- 4 Click the Upload button. The progress of the operation is displayed in the status pane. This uploads the printer parameters set to the PC.

The list of folders containing the configuration parameters appears in the parameter listing (in the right hand frame of the Configuration Manager).

Editing Parameters

Figure 3-20 displays the list of parameters that are available in the printer settings.

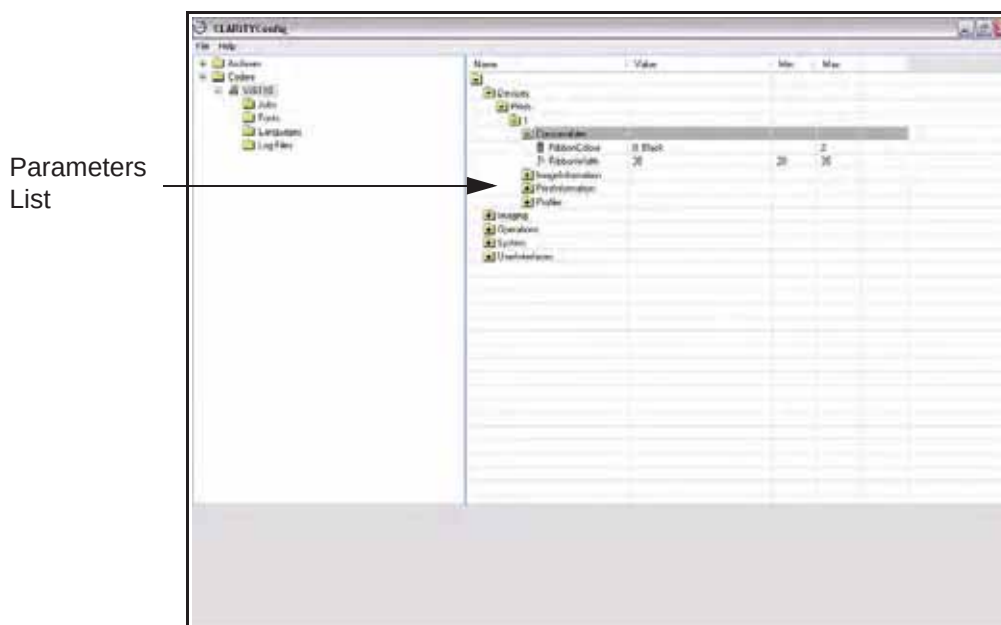


Figure 3-20: Parameter Settings

Click the folder required to open or close it or to gain access to the parameters it contains. You may have to click and open a number of nested folders to get to the parameter that you want.

There are a number of different types of parameters. Click 'Help' on the menu at the top of the screen, and select 'Key To Legends' to get a complete list of the different types of parameters.

To change the value of a parameter, proceed as follows:

- 1 Click the required parameter from the parameter list. The current value is displayed in the 'Value' box at the bottom of the screen.
- 2 Change the value to the required value using the mouse and the keyboard.
- 3 Click the Apply button. The value displayed in the parameters list is updated to reflect the change.

Note: Event parameters do not have values that can be set. Touching the Trigger button that is available in the bottom pane causes the printer to perform the given action immediately.

For many parameters, it may be satisfactory to leave them with their default values. Some of the parameters may need tuning after some initial prints have been made. Some of the listed parameters are available at the

CLARiTY panel. It may be more convenient to make final adjustments at the panel rather than using the CLARiTY Configuration Manager.

Saving the Changes in the Printer

To make the changes effective, proceed as follows:

- 1 Click the printer icon in the left-hand pane to open the printer controls at the bottom pane of the window.
- 2 Click the download button to update the printer with the changes that you have made to the parameters.

A dialog box opens with the message “The parameters to be downloaded have not been saved to an archive”.

- 3 Touch OK to continue with the download.
- 4 The new parameters are active when the download is complete.

Note: Unless steps 1 to 4 are performed, none of the parameter changes become effective in the printer.

Archiving the Current Parameters

The set of parameters can be saved as an archive and are stored on the PC. The archive can be loaded into the Configuration Manager and downloaded to the printer again at a later date to revert to the archived set of parameters.

Once the printer has been configured, it is recommended that all the parameters be uploaded into the PC, and saved as an archive.

To archive the current parameters, proceed as follows:

- 1 Right click the Archives folder in the left-hand panel.
- 2 Select the New Save option from the pop-up menu.

A file for the new save appears under the archives folder with a name containing the current time and date.

- 3 Change the name of the archive in the bottom panel, and click the Apply button.

Loading a Saved Archive

To load an archive that was saved previously, proceed as follows:

- 1 Locate the archive in the left panel and right click on it.
- 2 Choose Load from the pop-up menu.

The archived parameters are displayed on the right-hand pane.

Click the printer icon from the left-hand panel and click the Download button to load the archive of parameters to the printer.

Working with the Inputs and Outputs

The printer has a number of input/outputs for interfacing the printer to the packaging equipment or the packaging line.

The Inputs

The inputs are pre-configured as:

- Print Sensor: Using a 24 V PNP input to trigger the printer to start printing
- Inhibit Print: Using a 24 V PNP input to inform the printer that the host packaging machine or line has an error and the printer should not print.
- Spare Input 1: Not Available for Use

Repeat the steps 1 to 5 for all the three inputs and then download the parameters to the printer to apply these new settings.

The Outputs

The Outputs are pre-configured as follows:

- Output 1: Printer enters fault: A fault condition has occurred
- Output 2: Printer enters warning: A warning condition has occurred
- Output 3: Printer is busy: The printhead is out in its printing position
- Spare Output: Not Available for Use.

Default Options Configuration

Table 3-1 lists the default options configuration for the printer.

Section	Sub-Section	Parameter Name	CLARiTY Name	Units	Default	Functionality
Devices, Phds,1	Consumables	Ribbon Color	Ribbon Color	None	Black	Sets the ribbon color to Black, White or Other.
		Ribbon Width	Ribbon Width	mm	35	The width of the ribbon running on the machine (mm)
	Image Information	Mirrored Image	None	None	No	Converts the selected image to print as if it were viewed in a mirror (used if it is required to print on the inside of a bag, instead on the outside of a bag).
Devices, Phds,1	Image Information	Print Orientation	None	Degrees	0	Rotates all selected images through 180 degrees
		Reset Image Sequence On Offline	None	None	Yes	When using a sequence of print images, this parameter forces the sequence to reset back to the start when the printer goes offline
Devices, Phds,1	Print Information	Continuous Auto Print Triggering	None	None	No	Allows indefinite continuous motion printing from a single print trigger. Each print is separated by a distance set in the parameter Continuous Repeat Distance
		Continuous Head Down Time	None	mS	15	Time taken for the printhead to travel from the ready to print position, to printing against the roller in continuous mode.

Table 3-1: Videojet 6210 Printer Configuration Manager

Section	Sub-Section	Parameter Name	CLARITY Name	Units	Default	Functionality
Devices, Phds,1	Print Information	Continuous Multi Print Mode	None	None	No	Enables Multi Print mode in continuous motion printing. One print signal generates a number of prints, separated by a defined distance. Enabling this mode requires the user to also set the Continuous Prints per Signal, Continuous Repeat Distance and Continuous Registration Delay parameters correctly
		Continuous Print Position	Print Position	0.01m m	2100	Position of the printhead from its parked position, when printing in continuous motion. Defines the position of the printhead relative to the print roller
		Continuous Prints per Signal	None	None	1	The number of prints per print signal when using Continuous Multi Print Mode
Devices, Phds,1	Print Information	Continuous Registration Delay	Horizontal Registration	mm	0	The distance to delay the print after receipt of the print signal. In Continuous Multi Print Mode this defines the distance to the first print.
		Continuous Repeat Distance	None	mm	100	The distance between successive prints in Continuous Multi Print Mode
		Encoder Scaling Percent	Encoder Scaling	%	100	Permits the machine to be run with a slightly mismatched ribbon and substrate speed
		Interleaved Images	Interleaved Images	None	No	Enables ribbon saving via interleaved images

Table 3-1: Videojet 6210 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY Name	Units	Default	Functionality
Devices, Phds,1	Print Information	Intermittent Head Down Time	None	mS	20	The time for the printhead to move from its ready to print position to contact with the print pad in intermittent printing mode.
		Intermittent Print Delay	None	mS	500	The time to wait after receiving the print signal before commencing an intermittent print.
		Intermittent Print Registration	Horizontal Registration	mm	0	A print registration delay in the direction of the printhead movement, effectively moving the print further from the starting point of printhead contact with the film.
		Intermittent Start Border Tmm	None	0.1m m	20	Distance moved by the printhead before starting to print in intermittent mode. Used to compensate for any bouncing of the printhead as it hits the print pad.
Devices, Phds,1	Print Information	Maximum Re Print Gap	None	mm	40	If the Low Speed Behavior is set to Resume on Speedup, then if the bag moves a distance greater than this parameter, whilst in 'low speed', the coder prints a complete, whole code on the bag as soon as the film speed exceeds 65mm/s
		Print Darkness	Print Darkness	%	75	Sets the amount of energy being sent to the printhead
Devices, Phds,1	Print Information	Print Sensor Debounce	None	mm	1	The distance of film that has to advance with the print signal being 'on' before it is accepted. Used to avoid multiple erroneous print signals when a sensor or signal is not giving a clean switch. Works in conjunction with Print Sensor Debounce Time - the first to expire wins.
						Using the distance method of debouncing guarantees print registration, the time based system doesn't.

Table 3-1: Videojet 6210 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY Name	Units	Default	Functionality
Devices, Phds,1	Print Information	Print Sensor Debounce Time	None	mS	10	Sets the time to wait before accepting a valid print signal input as being logically 'On'. Used to avoid multiple erroneous print signals when a sensor or signal is not giving a clean switch when the film speed may drop to zero or near zero when the print signal is issued - in this situation the distance based method of debounce would not work because the print signal would go away before the film distance is advanced. Works in conjunction with Print Sensor Debounce Time - the first to expire wins. Using the distance method of debouncing guarantees print registration, the time based system doesn't.
		Print Speed	Print Speed	mm per sec	200	The print speed to be used in intermittent mode printing
Devices, Phds,1	Print Information	Printer Hand	Printer Hand	None	No default- requires setting	LH or RH configuration
		Printer Type	Printer Mode	None	Intermittent	Sets whether the printer is running in intermittent or continuous print mode

Table 3-1: Videojet 6210 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY Name	Units	Default	Functionality
Devices, Phds,1	Print Information	Unprinted Pack Behavior	None	None	No Fault	There are 3 options. 1) No fault. The coder carries on without error if there are uncoded or under speed packs 2) Fault on all undersized packs. Stop with fault whenever the film speed drops below 40mm/s AND a second print signal is received before the first print completes. 3) Fault on unprinted packs. Stop with a fault when a second print signal is received before the first print is completed, regardless of film speed.
		Vertical Registration	Vertical Registration	mm	0	Moves the image across the width of the printhead
	Profiler	Capture Encoder Profile	Capture Encoder Profile	None	None	Triggers the capturing of an encoder profile
Imaging	Printhead Mapping		None	None	Printhead 1	Required parameter -do not adjust
	Printer Codes	Factory ID	None	None	1	Allows the setting of a unique special code for the Factory ID. It is a global setting for the printer and all layouts that reference a factory ID code print this value
		Line ID	None	None	1	Allows the setting of a unique special code for the production Line ID. It is a global setting for the printer and all layouts that reference a Line ID code print this value

Table 3-1: Videojet 6210 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY Name	Units	Default	Functionality
Imaging	Printer Codes	Machine ID	None	None	1	Allows the setting of a unique special code for the production Machine ID. It is a global setting for the printer and all layouts that reference a Machine ID code print this value
	Shift Codes	Number of Shifts	None	None	0	The number of shifts per day
Imaging	Shift Codes	Start of Day	None	None	+00:00:00	Sets the start of the day when all automatically calculated date codes change e.g. the factory 'day' can be set to start at 2.00am or 6.00am
	Update Queue	Max Queue Length	None	None	1	Sets the limit on the number of jobs that can be in the selection queue when Allocation printing is enabled
Operations		Cycle Head Position	None	None	None	Cycle moving the printhead from its parked position to its printing position
		Cycle Print	None	None	None	Cycle the unit printing continuously
		Generate Log Files	None	None	None	Triggering this Operation will cause log files to be generated in the Log File Folder within the coder. These files would be requested by Technical Support in the event of the coder have persistent issues.
		Perform Motor Calibration	None	None	None	Calibrate the stepper motors
		Print Test Image	None	None	None	Print a test image
		Baud Rate	Baud Rate	Bits/sec	115200	Sets the baud rate of serial comm port
		Flow Control	None	None	None	Sets hardware or software handshaking
System	ComPort1					

Table 3-1: Videojet 6210 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY Name	Units	Default	Functionality
System	ComPort1	Usage	Usage	None	CLARiTY comms	Sets the protocol running on the port (None, CLARiTY comms)
	Enable User Test Print		None	None	Yes	Decides whether the printer Test Print function is available from the CLARiTY home screen
User Interfaces	CLARiTY	Language	Language	None	English	Sets the active language being used by CLARiTY
	Passwords	Enable Passwords	None	None	Disabled	Enables or disables password protection. If enabled, the 3 levels of passwords must be set up using the following 9 parameters
		Level 1: Mask	None	None	None	Check which functions are to be available to Level 1 users
		Level 1: Name	None	None	None	The name of a level 1 user e.g. Operator
		Level 1: Password	None	None	None	The password for level 1 (numeric only)

Table 3-1: Videojet 6210 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY Name	Units	Default	Functionality
User Interfaces	Passwords	Level 2: Mask	None	None	None	Check which functions are to be available to Level 2 users
		Level 2: Name	None	None	None	The name of a level 2 user e.g. Supervisor
		Level 2: Password	None	None	None	The password for level 2 (numeric only)
		Level 3: Mask	None	None	None	Check which functions are to be available to Level 3 users
		Level 3: Name	None	None	None	The name of a level 3 user e.g. Technician
		Level 3: Password	None	None	None	The password for level 3 (numeric only)
	Prompt On CLARiTY Update Detect		None	None	Yes	When a USB memory stick is inserted and USB is enabled, CLARiTY automatically runs the CLARiTY update if there is a valid file on the stick. When the USB is disabled, the user has to manually initiate the action from the CLARiTY screen
User Interfaces	Re calibrate Touchscreen		Re calibrate Touchscreen	None	None	Triggers re calibration of the touchscreen
	Set Screen Contrast To Default			None	None	Not used on the Videojet 6210 Coder
	CLARiTY Config	Archive		None	None	Flags whether this setup has ever been archived (auto set)
		Last Updated		None	None	Flags when the setup was last changed (auto set)

Table 3-1: Videojet 6210 Printer Configuration Manager (Continued)

CLARiTY Operating System

4

This chapter contains the following topics:

- Getting started the CLARiTY Operating System
- Using the Tools page
- Working with Passwords

Getting started with the CLARiTY

CLARiTY is an icon-based operator control system. It has an easy-to-use touch screen and most areas of the display are "active", that is, touching an area on the screen is like pressing a "button" on a traditional control panel. The basics of the CLARiTY operator system are explained in the Videojet 6210 Operator Manual (P / N 361853). All technical aspects of the printer setup and control are accessed through the Tools button.

Figure 4-1 shows the home screen of the CLARiTY operator system.

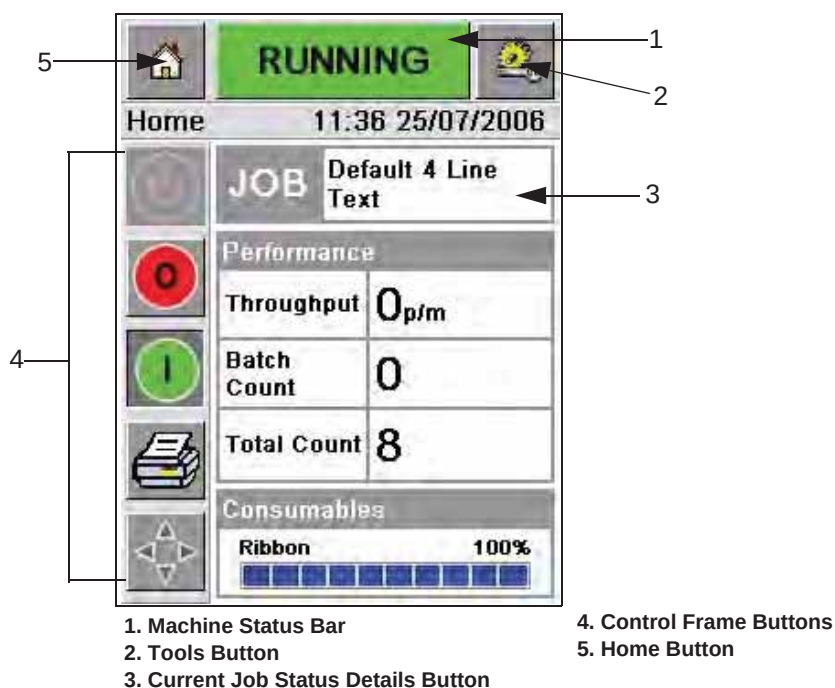


Figure 4-1: CLARiTY Home Screen

Using the Tools Page

Touch the Tools button on the home screen to access the Tools page (Figure 4-2).



Figure 4-2: Tools Page

The tools page allows you to access the following pages:

- Setup page: Permits you to modify a small subset of the printer setup parameters
- Diagnostics page: Provides on-line fault finding routines and diagnostic functions
- Databases page: Provides control over the jobs database of the coder.

Working with Setup Page

Touch Setup button on the tools page to access the setup page (Figure 4-3).



Figure 4-3: Setup Page

The Setup page allows you to access the following parameters:

- Printhead and printing operations
- Consumables (ribbon)
- General Control (e.g. time, date, language)
- Options

Printhead Setting in Intermittent Mode

Touch the Printhead button on the setup page to access the printhead parameters.



Figure 4-4: Printhead Parameters in Intermittent Mode

The Printhead page in intermittent mode allows you to access the following parameters:

- **Horizontal Registration:** The position of the print in the printers overall printing window, measured in mm across the width of the printhead. It enables you to position the print along the width of the printhead.
- **Vertical Registration:** The position of the print in the printers overall print window, measured in mm in the direction perpendicular to the printhead.
- **Print Orientation:** Allows rotation of the whole image through 180 degrees
- **Print Delay:** The delay between the print signal and the commencing of the print. Measured in milliseconds, it allows time for the packaging film to come to a complete rest before the printhead comes in contact. It should be set to the smallest possible value that gives a good quality print.
- **Print Speed:** The target printing speed of the head in mm/sec. It should be set to the lowest speed that allows completion of the print in the available dwell time of the packaging film

- **Print Darkness:** The amount of energy being transferred into the printhead. It should be set to the lowest value that provides acceptable quality of print at the required throughput.
- **Interleaved Images:** Enables a lower quality draft mode of printing with a 50% saving in ribbon consumption
- **Printhead Resistance:** Matches the drive electronics of the printer to the resistance characteristics of the printhead.

Printhead Setting in Continuous Mode

Touch the Printhead button on the setup page to access the printhead parameters.



Figure 4-5: Printhead Parameters in Continuous Mode

The Printhead page in continuous mode allows you to access the following parameters:

- **Print Position:** Changes the angle of the printhead against the target material. This angle affects the print quality. If the angle is not suitable, the resulting print may appear faded.

Note: Other parameters are same as intermittent mode.

Working with the Consumables Setup Page

Touch Consumables button on the setup page to access the consumables parameters (Figure 4-6).



Figure 4-6: Consumables Page

The consumables page allows you to set the following parameters:

- **Ribbon Width:** Sets the ribbon tension to the optimum value depending on the ribbon width (narrow ribbons stretch more than wide ones and should run at lower tension)
- **Ribbon Color:** Allows the printer to accurately predict the end of reel condition when using the predictive end of reel detection systems

Working with the Control Setup Page

Touch the control button on the setup page to access the control page (Figure 4-7).



Figure 4-7: Control Page

The control page allows you to set the following parameters:

- **Internationalisation:** Sets the language of the CLARiTY screen and the international region which control date / time formats displayed within CLARiTY
- **Recalibrate Touchscreen:** Allows the user to recalibrate the touchscreen, if touching the screen does not accurately locate the correct CLARiTY button or Icon. The printer requests the user to touch several crosses which are displayed on the screen, one after the other. The screen is recalibrated when the automated process is complete.

Note: If the calibration of the machine has too many errors and does not allow a user to navigate to this screen via the CLARiTY panel, the same functionality can be triggered from within CLARiTY Configuration manager.

- **Set Screen Orientation:** Rotates the entire display through 180 degrees in the event that the CLARiTY panel is installed in an inverted orientation
- **Date and Time:** Sets the system date and time of the coder
- **Communications:** Enables resetting of all serial communication reports in the event that their setup has become corrupted.

Working with the Options Setup Page

There are no options available at this time, it may be introduced in the next versions of the CLARiTY.

Working with Diagnostics

Touch diagnostics button on the tools page to access the diagnostics page (Figure 4-8).



Figure 4-8: Diagnostics Page

The diagnostics page allows you to access the following pages:

- Printhead and printing operations diagnostics
- Consumables (ribbon) diagnostics
- General control (e.g. software versions, communications port status) diagnostics
- Options

Working with Printhead Diagnostics

Touch Printhead button on the Diagnostics page to access the printhead diagnostics page (Figure 4-9).

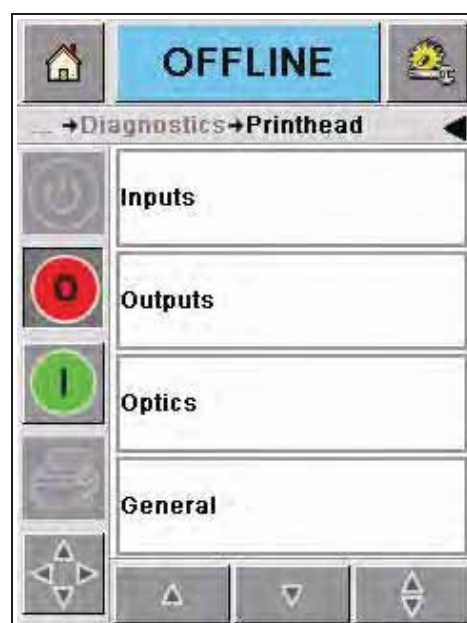


Figure 4-9: Printhead Diagnostics Page

The printhead diagnostics page allows you to access the following parameters:

- Inputs
- Outputs
- Optics
- General
- Encoder Profiles
- Timings
- States

Use the Up and Down arrow keys to navigate through the options.

Touch Inputs on the Printhead diagnostics page to access the input parameters (Figure 4-10).

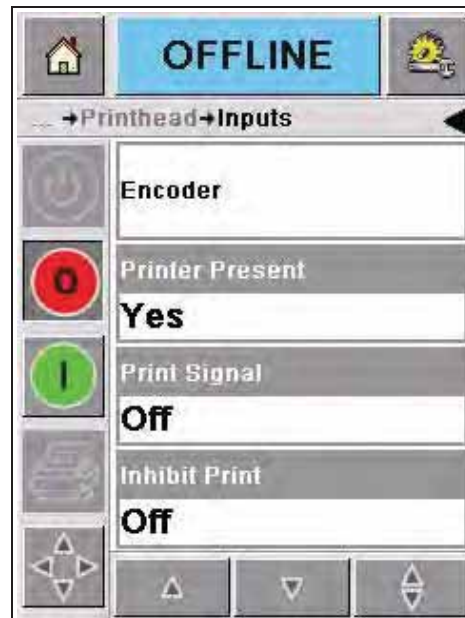


Figure 4-10: Printhead Inputs Diagnostics Page

The input diagnostics page allows you access the following parameters:

- Encoder: Touch the encoder button to access the encoder diagnostics page. The encoder diagnostic page allows you to access the following encoder parameters (Figure 4-11)



Figure 4-11: Encoder Diagnostics Page

- Encoder Speed: Shows the actual real-time speed of the film being measured by the encoder
- Encoder Scaling: A parameter set to run the printing ribbon at a slightly lower speed to the packaging film. This can improve printing quality at very high packaging film speeds.
- External Inputs 1, 2, 3: Shows the real-time status of each of the two inputs and the unused spare input.
- Printhead Position: Indicates whether the printhead home sensor is detecting the head as parked or not
- Cassette Open: Indicates whether the cassette home sensor is recognising the cassette as being open or closed
- Motor Volts: Shows the voltage supply to the stepper motors (must be 36V)
- Printhead Volts: Shows the drive voltage to the printhead. This varies, depending on the printhead resistance but should be in the range of 22V-27V depending on printhead resistance.
- 24 Volt Supply: Shows the voltage supply for the printers I/O (must be 24V)
- Printhead Temperature: Shows the real-time reading of the thermistor on the thermal printhead
- Printer Ambient Temperature: Shows the real-time temperature of the hottest component inside the printer unit.

Touch Outputs on the Printhead Diagnostics page to access the output parameters (Figure 4-12).



Figure 4-12: Printhead Outputs Diagnostics Page

Each button shows the status of a physical output on the printer. Touching the Toggle button allows you to force the state of an output, high or low which is useful for diagnostic purposes.

- Printhead Position: Moves the printhead from its parked to its printing position
- Printhead In/Out: Drives the air solenoid that moves the printhead in and out towards the print platen or roller
- External Relay and PNP Outputs: The printer has 2 relay outputs and 2 PNP 24V outputs.

Touch the Optics button on the Printhead Diagnostics page to access the ribbon calibration system page.



Figure 4-13: Printhead Ribbon Calibration Page

The ribbon calibration systems works on a shadowgraph principle. A pair or LED's are mounted inside the printer and a receiver is mounted onto the back of the printhead carriage. When the ribbon cassette is placed in the printer, the calibration process moves the printhead up and down its carriage such that the receiver can detect the edges of the shadow cast by the rolls of ribbon. Using geometry, the printer can then accurately calculate the diameter of both the supply and waste rolls.

- Emitter 1, 2 allows you to toggle the LED's.
- Receiver gives a real-time reading of the output. High numbers of greater than 250 are read when one of the LED's are shining directly at the receiver. Low numbers (less than 10) are read when there is an obstruction between the LED and the receiver. Test the optics by toggling each one on in turn.
- Gain Setting is the gain applied by the electronics to keep the LED signals within the correct limits. As the LED's become old, more gain needs to be applied to the circuit, which is represented by a lower number in the diagnostic. New LED's must have a gain of around 50 and old LED's must have a gain significantly less than this number, indicating that the LED needs to be replacement.

Touch the General button on the Printhead Diagnostics page access to the general diagnostic parameters.



Figure 4-14: Printhead General Diagnostics Page

The printhead general diagnostics page allows you access the following parameters:

- **Printer Mode:** Indicates if the printer is configured as intermittent or continuous motion
- **Printer Hand:** Indicates what handing the printer is configured as
- **Print Signal Logic:** Indicates whether the print signal is Positive or Negative Edge Triggering.
- **Print Test Image:** Triggers the printing of a test image.

Encoder Profiling

Encoder profiling is designed for continuous motion applications where there may be doubt over suitability of the application for the VJ6210 printer due to excessive linear speed or acceleration problems.

Encoder profiling allows the VJ6210 printer to capture the behavior of the packaging film from the encoder and plot the information onto a useful CLARiTY screen which also shows an 'on-line oscilloscope' of the machine inputs and outputs at the same time.

Figure 4-15 shows a typical screen display of an encoder profile.

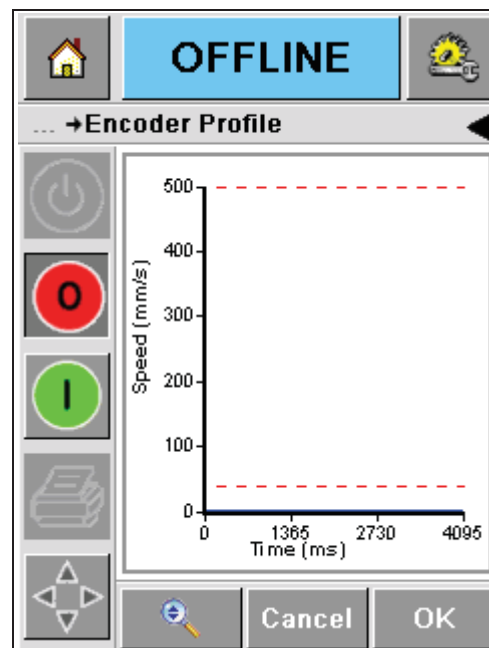


Figure 4-15: Encoder Profiles Graph

The graph displayed on the CLARiTY Operator Interface takes into account, settings for 'Maximum Print Speed', current 'Registration' settings and the image size printed.

Using these values, the graph shows where the print signal was received and where the print would occur within the profile, as shown in Figure 4-15.

This feature can be used to solve problems such as, drifting print registration caused by the packaging film travelling above the maximum print speed of the printer during the registration phase.

To capture the Encoder profiling on the CLARiTY screen, proceed as follows:

- 1 Touch the Encoder Profiles button on the Printhead Diagnostics page access to the Encoder Profiles parameters (Figure 4-16).



Figure 4-16: Encoder Profiles Page

- 2 To set up the options for the profile you are want to capture, touch the following buttons:
 - Profiling starts: Has three options
 - Automatically allows you to capture the profile after you touch the Capture Encoder Profile button
 - On Print Underspeed allows you to only capture a profile if the film speed drops below the minimum limit of the printers specification
 - On Print Signal allows you to only capture a profile after a print signal has been received
 - Profile Type: Has three options which present the information in slightly different graphical forms. Choose the one which best suits your needs
 - Profile X Axis: Allows you to set the X Axis of the chart to be either time or distance
- 3 Once the options have been setup, start the capture process by touching the Capture Encoder Profile button.

Note: Encoder profiles are not captured during the ribbon calibration sequence.

To upload encoder profile to a PC, proceed as follows:

- 3 To access this file, select Log Files folder from new coder as shown in Figure 4-18.

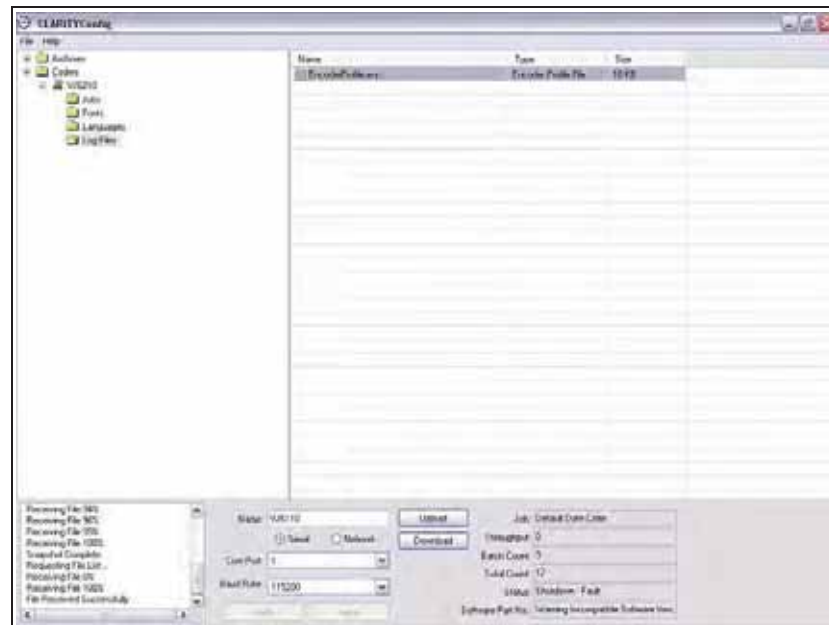


Figure 4-18: Encoder Profiles - Log Files

This file can be used for diagnostic purposes by the Development Team for advanced diagnostics purposes.

Working with Printhead Timings

Touch the Timings button on the Printhead Diagnostics page access to the timings page (Figure 4-19). This diagnostic page provides information about the last print or print job selection that was made. It is useful in high throughput applications to understand what the printer is trying to do, especially in continuous motion applications.



Figure 4-19: Printhead Timings Diagnostics Page

The following parameters can be accessed in the printhead timings diagnostics page

- Minimum speed (mm / s): Indicates the minimum film speed during the previous printing cycle
- Maximum speed (mm / s): Indicates the maximum film speed during the previous printing cycle
- Minimum print speed (mm / s): Indicates the actual minimum printing speed during the previous printing cycle
- Maximum print speed (mm / s): Indicates the actual maximum printing speed during the last printing cycle
- Cycle Time (ms): Indicates the total time from the end of the print registration delay to the end of the printing operation
- Printing Time (ms): Indicates the actual time taken to print the image in the previous printing cycle
- Job Selection Time (ms): Indicates the time taken in selecting the last job from the moment the image was confirmed, to being ready to print.

- Job Data Update Time (ms): Indicates the total time taken to update all the dynamic variables in the image (time, date, counters)
- Counter Update Time (ms): Indicates the time taken to update all the counter fields in the image
- Time / Date Update Time (ms): Indicates the time taken to update all the time / date fields in the image

The States button in the printhead diagnostics screen is for software debugging only and is not described in this manual.

Working with Consumables Diagnostics

Touch Consumable button on the Diagnostics page to access to the Consumables diagnostics page (Figure 4-20).



Figure 4-20: Printhead Consumables Diagnostics Page

The following parameters can be accessed in the consumables diagnostics page:

- Spool 1, 2 Diameters (0.1mm) are the measured diameters of the ribbon and can be compared to the actual ribbon diameters after calibration to determine the accurate functioning of the calibration system.
- Tension demand and measurement parameters are for debugging only and are not described here
- Ribbon Tension Statistics: This is for software debugging only and is not described here

Working with Control Diagnostics

Touch Control button on the Diagnostics page to access the system Control page.



Figure 4-21: Control Parameters

The following parameters can be accessed in this page:

- **Versions:** Displays the software versions of the various software components installed in the printer. The most important number displayed when this button is touched is the Software Part Number. This is the master version number and all the other data displayed is of secondary importance.

Note: If there is any inconsistency among the software components that are installed in the printer, the Software Part Number displays the message 'Incompatible Software Versions'. If this is seen, a CLARiTY software update must be performed, otherwise the coder may perform in an unpredictable manner.

- **Communications:** Touch this button to check the functions of the Communication Port on the printer. The following parameters can be accessed in this page:
 - **Communication Ports:** Displays the status of the serial ports, including the Baud rate the port is set to
- **Image Queue Update:** Allows you to view all the print jobs that are in the allocation queue.

Working with Options

There are no diagnostics for the Options menu.

Working with Database

Touch Database button on the Diagnostics page to access the Database page.

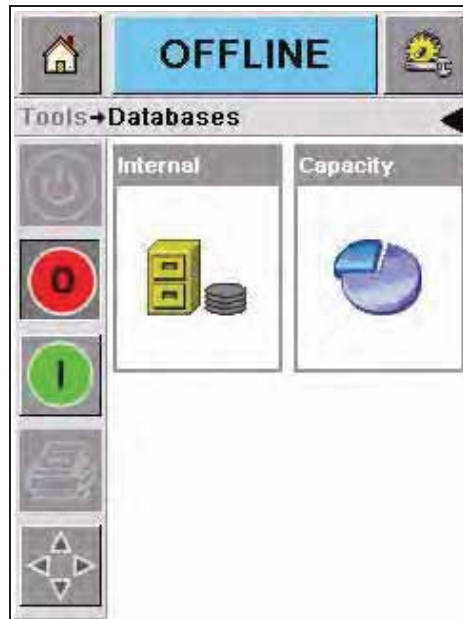


Figure 4-22: Database Page

The following parameters can be access in this page.

- Internal: Shows the job stored in the printer.
- Capacity: Shows the details like the space used in the internal database and space available.

When an external USB memory device is connected to the printer, it is accessed in the same page.

Connecting the USB Database

Instead of connecting a PC / laptop to the printer via a null modem cable in order to download jobs, the USB device can be connected directly into the USB port on the CLARiTY Operator Interface (Figure 4-23).

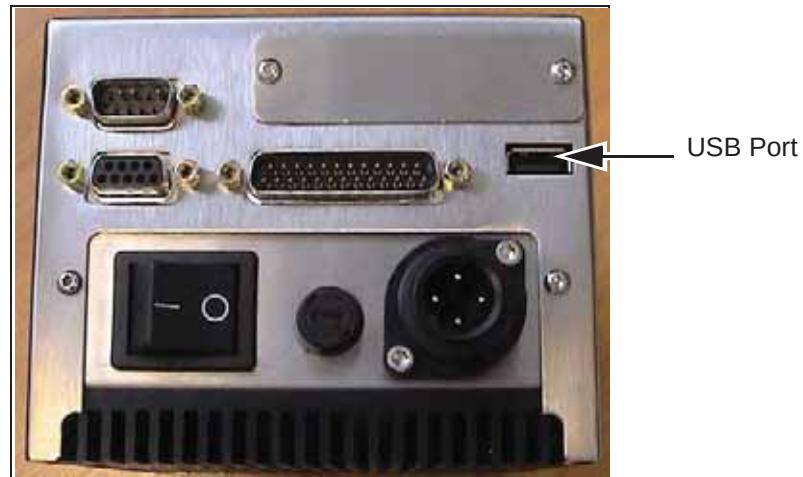


Figure 4-23: Printer USB Port

To download a job from the USB device, proceed as follows:

- 1 Copy the Image ClFF file into a root directory called \jobs on the USB memory device.
- 2 Insert the USB memory device into the USB port (Figure 4-23).
- 3 Touch the Tools button on the home page and touch Database button to access the database page.

The database page displays the External Database (Figure 4-24).



Figure 4-24: External Database

- 4 Touch External Database button to view all the jobs in the USB device (Figure 4-25).



Figure 4-25: Jobs List on USB Device

Using the buttons in the bottom of the page (Figure 4-25 on page 4-24) you can either view the job, or send a file to the local database, or delete the job from the USB device.

- 5 Touch on the send a file to the local database button. A confirmation appears (Figure 4-26). Touch ok to confirm.



Figure 4-26: Confirmation Screen

Working with Passwords

Password protection on the CLARiTY user interface allows different protected access levels for the various operational features of CLARiTY for up to three different user groups. For example, the three user groups may be classified as Operators, Production Supervisors and Maintenance Personnel, each group requiring access to either all or a subset of the total functions of CLARiTY.

Protection may be globally enabled or disabled through the CLARiTY Configuration Manager. The password protection is disabled in the default factory settings.

CLARiTY has five different functions that may be optionally password protected:

- Job Select
- Registration

- Set-up
- Diagnostics
- Databases

This is can be easily explained by means of an example (Table 4-1):

	Job	Registration	Set-up	Diagnostics	Databases
Level 1 (Operator)	X				
Level 2 (Line Super- visor)	X		X	X	X
Level 3 (Maintenance)			X	X	X

Table 4-1: Password Protection - Example

In this example, registration is not selected for any of the three user access levels, therefore available to all the users to use without any password protection.

If there is at least one X in a column, then that function is only available to a user level against which a X appears. Example: Set-up column in the Table 4-1 is accessible (via a password) only to Level 2 and Level 3 personnel.

Each user level has a different numeric password that can be between 4 and 10 digits.

Password Protection Set-up

Set-up of password protection for CLARiTY is done using the CLARiTY Configuration Manager.

Run CLARiTY Configuration Manager on the PC and upload the printer parameters.

The menu tree to reach password protection set-up is shown in the CLARiTY screen in Figure 4-27.

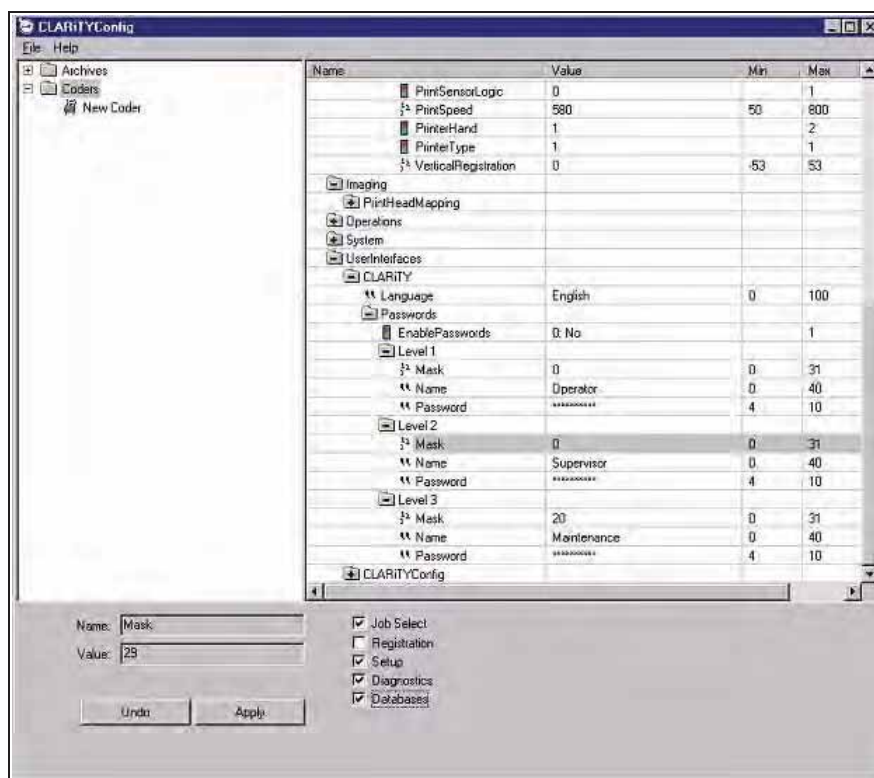


Figure 4-27: Password Set - up

In addition to the global enable / disable of passwords there are three parameters for each of the three user levels available:

- **Mask:** This enables / disables user access to each of the 5 CLARiTY functions - Job selection, Image registration, Set-up, Diagnostics and Databases. Use the tick boxes at the bottom of the above CLARiTY Configuration Manager screen to select the required options and CLARiTY Configuration Manager generates the appropriate mask number.
- **Name:** A name that may be optionally given to each user level as a reminder of the user group during set-up of password protection.
- **Password:** The password required for each user access level.

For each level, select each of these parameters in turn as shown and set them as required. When each parameter has been set, select 'Apply'. Finally right-click on the 'New Coder' icon and select 'Download' to change the set-up of the printer. Password protection is now be enabled.

This chapter contains the following topics:

- Maintaining the Power Supply
- Maintaining the CLARiTY Controller
- Maintaining the Printer
- Maintaining the Cassette
- Updating the CLARiTY Operating Software



Warning

PERSONAL INJURY. Before attempting any maintenance or repair on any part of the product, disconnect the printer from the main power supply and isolate the printer from any external energy sources including other connected equipment.

Maintaining the Power Supply

This section contains the information on how to replace the fuse.

Replacing the Mains Fuse

The fuses are the only user-serviceable parts in the power supply unit.

To replace the mains fuse, proceed as follows:

- 1 Using a small screwdriver, press and turn the fuseholder anticlockwise, and remove the fuseholder (Figure 5-1).

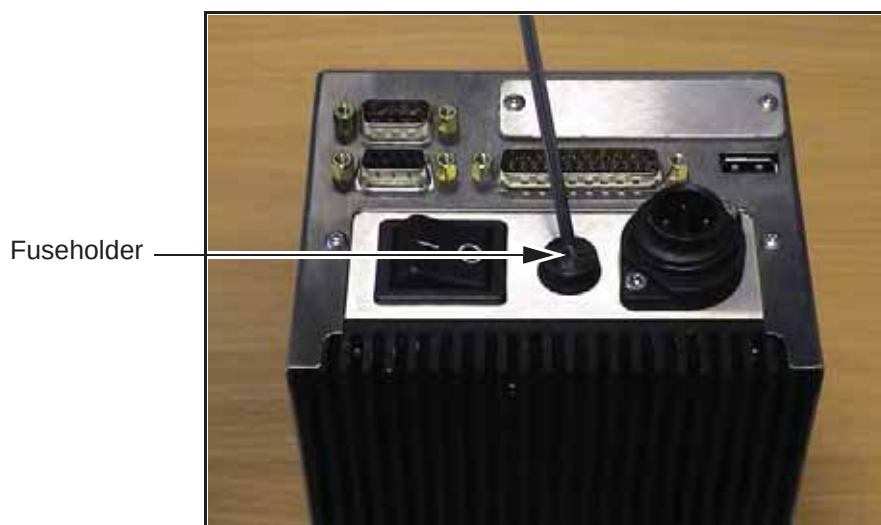


Figure 5-1: Fuseholder

- 2 Replace the five ampere fuse if it is defective (Figure 5-2).



Figure 5-2: Fuse

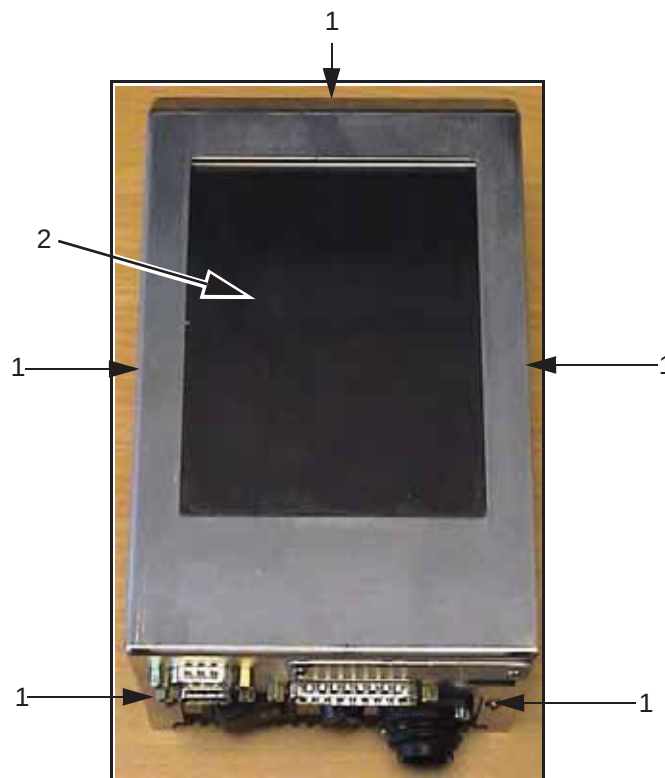
- 3 Refit the fuseholder in its original position.

Maintaining the CLARiTY Controller

Replacing the Power Supply Unit

To open and replace the Power Supply Unit, proceed as follows:

- 1 Remove the top cover from the base of the CLARiTY Unit by unscrewing the 5 screws shown in Figure 5-3.



1. Screws (x5)
2. Top Cover

Figure 5-3: Controller Opening

- 2 Disconnect the white power connectors from the front and back of the PSU and from the main PCB as shown in Figure 5-4.

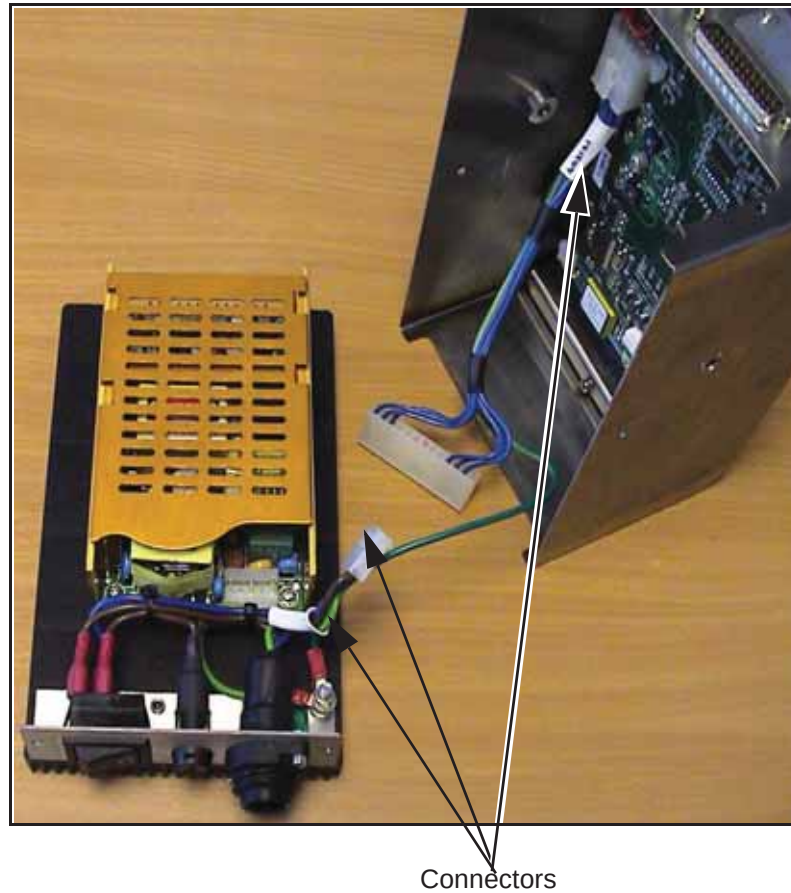


Figure 5-4: Power Connections Removal

- 3 Next turn the base over and undo the four screws from the base plate. The PSU can now be separated from the base plate.

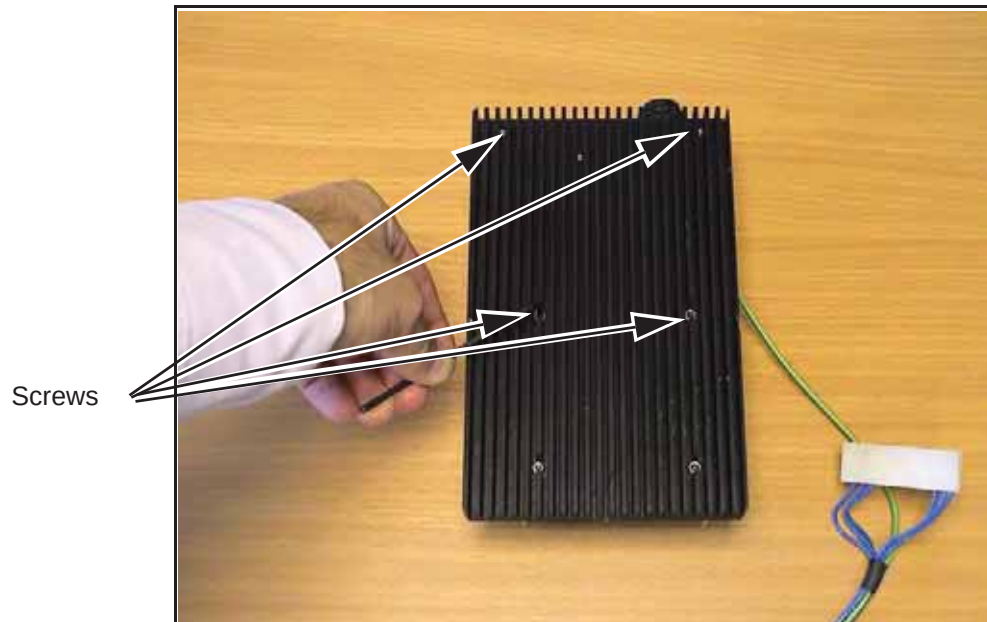


Figure 5-5: Base Screw Removal

- 4 To re-assemble reverse the above procedure ensuring that all electrical connectors are securely pushed into place.

Replacing the CLARiTY Processor PCB and LCD Touchscreen Assembly

In order to replace the CLARiTY Processor PCB or the LCD / Touchscreen Assembly, remove the top cover as described in the section “Replacing the Power Supply Unit” on page 5-3”.

Then follow the additional procedure below.

- 1 Remove the power connector from the main PCB.

- 2 Remove the six securing screws from the D-type connectors on the bottom of the CLARiTY unit (Figure 5-6).

D-Type Securing Screws



Figure 5-6: Top Case Detail

- 3 Carefully remove the three connectors from the PCB taking care not to bend or twist the cables (Figure 5-6).

- 4 Remove and retain the two screws securing the PCB (Figure 5-7).

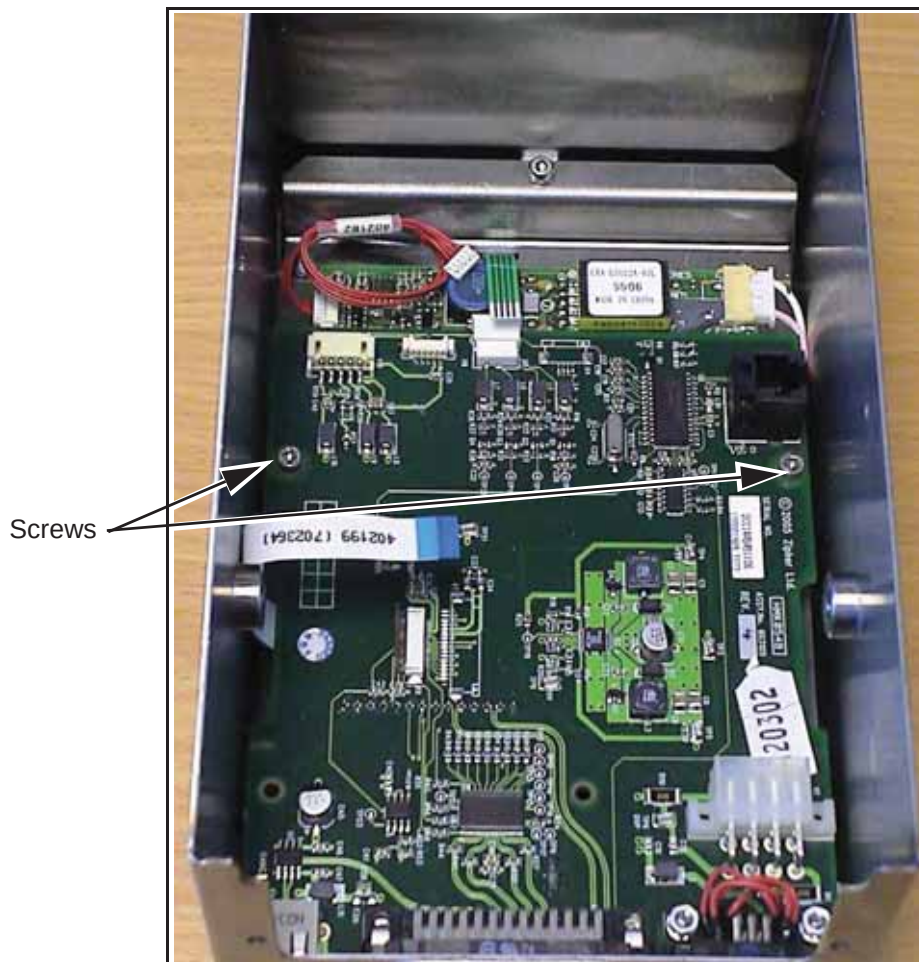


Figure 5-7: PCB Connections

- 5 Gently slide and lift the PCB away from the LCD and touch screen assembly taking care not to damage the three cables coming from the LCD / Touchscreen module.

If replacing the Processor PCB then refer to section 13 below. If replacing the LCD / Touchscreen Assembly then continue below.

Replacing the LCD/Touchscreen Assembly

- 6 Remove and retain the three screws and anti-vibration washers holding the whole assembly and inverter module. Remove this module from the case, taking care not to remove the seal around the

case aperture (Figure 5-8).



Figure 5-8: PCB Removal

- 7 Disconnect the backlight power cable (white / pink) connection.
- 8 Remove and retain the four screws holding the LCD / touchscreen assembly to the metal support plate.

- 9 Remove and retain the white ribbon cable from the now separated LCD / touchscreen assembly (Figure 5-9).



Figure 5-9: Separated LCD Assembly

- 10 Place the new LCD / touchscreen assembly face down on a clean, soft surface and fit the support plate using the four screws removed earlier. Ensure that the touchscreen signal ribbon cable is carefully routed through the slot in the base plate without damage (Figure 5-10).



Figure 5-10: Touch Screen Ribbon Cable Routing

- 11 Replace the white ribbon cable ensuring that the right angle is as shown (Figure 5-11).



Figure 5-11: LCD Ribbon Cable Detail

- 12 Slide / lower this assembly back into the top case, being careful not to damage the seal or to trap the backlight power cable and re-fit the three securing screws and the anti-vibration washers.
- 13 Refit the Processor PCB with its two securing screws again taking care not to trap the backlight power cable.
- 14 Refit the three connectors to the PCB and the securing screws for the D-type connections.
- 15 Refit the power connector.
- 16 Replace the Top cover over the base and secure with the five screws on the sides.

Maintaining the Printer

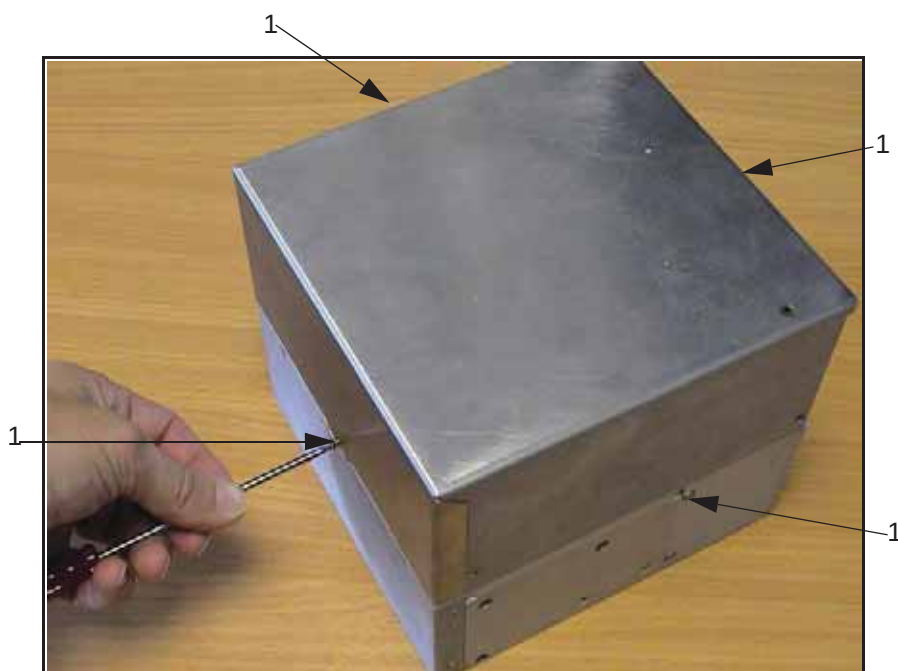
This section contains the information on how to replace:

- The Compact Flash Card
- The Main PCB of the printer
- The Peel Roller
- The Printhead
- The Cassette Rollers

Replacing the Compact Flash Card

To replace the compact flash card, proceed as follows:

- 1 Remove the cassette and place the printer face down on a flat surface. Remove the rear cover by unscrewing the 4 screws, one from each side of the printer (Figure 5-12) and then lift the cover off.



1. Screws

Figure 5-12: Rear Cover Removal

- 2 The Compact Flash card is located on the side with the mounting plate (the opposite side to the printhead). Using a pair of long nosed pliers, gently grip the Compact Flash Card and pull to extract (Figure 5-13).

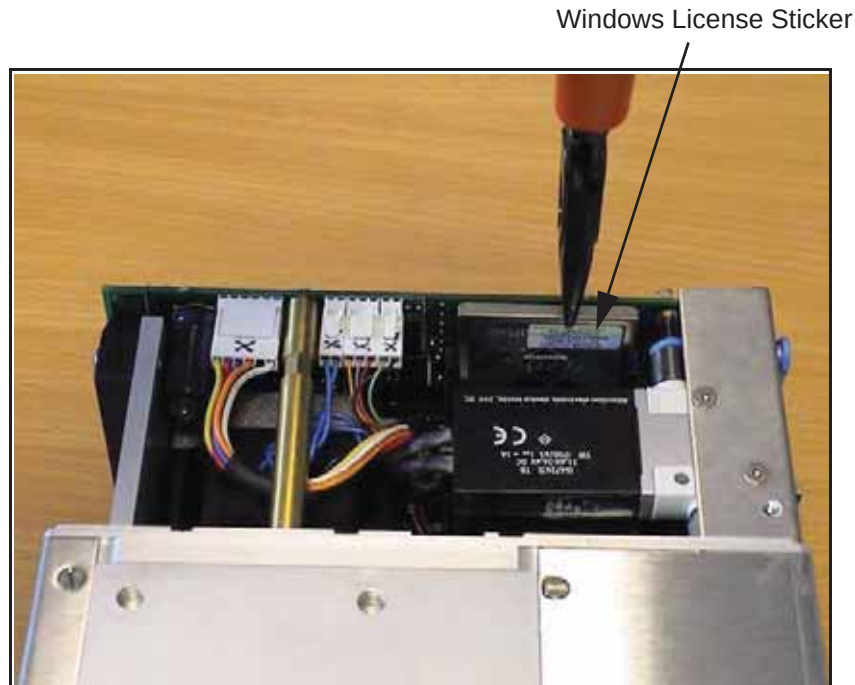


Figure 5-13: Compact Flash Card Removal

- 3 Take the new card, orientate such that the face with the Windows License sticker is facing away from the PCB and gently but firmly push home.
- 4 Replace the rear cover.

Replacing the Main PCB

To replace the main PCB, proceed as follows:

- 1 Before removing the rear cover, place the printer on a flat surface cassette side up and remove the cassette if this hasn't already been removed.

- 2 Locate and remove the 2 screws (Figure 5-14).

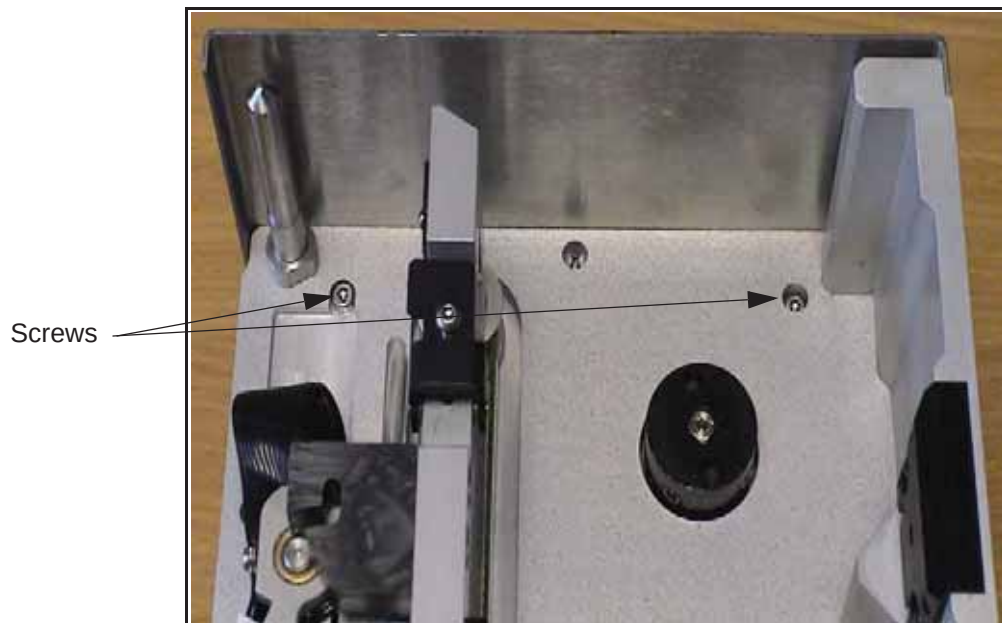


Figure 5-14: Cassette Screws Removal

- 3 Remove the rear cover as detailed above in the section “Replacing the Compact Flash Card” on page 5-11.
- 4 Next remove the nuts securing the D-Type connectors to the side plate still secured to the unit (Figure 5-15).



Figure 5-15: D-Type Securing Nuts

- 5 Disconnect the 8 electrical connectors located around the edge of the PCB.
- 6 Undo the 2 screws securing the PCB to the supports and carefully withdraw the PCB including the 15way D-Type connector for the I/O connections (Figure 5-16).

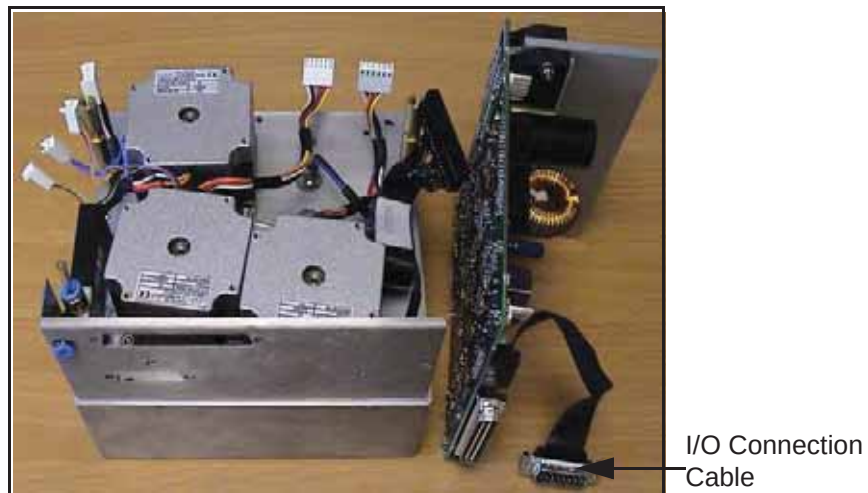


Figure 5-16: Main PCB Removed

- 7 Remove and retain the I/O connection ribbon cable.
- 8 To replace the PCB firstly insert and secure the I/O D-Type connector to the side plate (Figure 5-17).

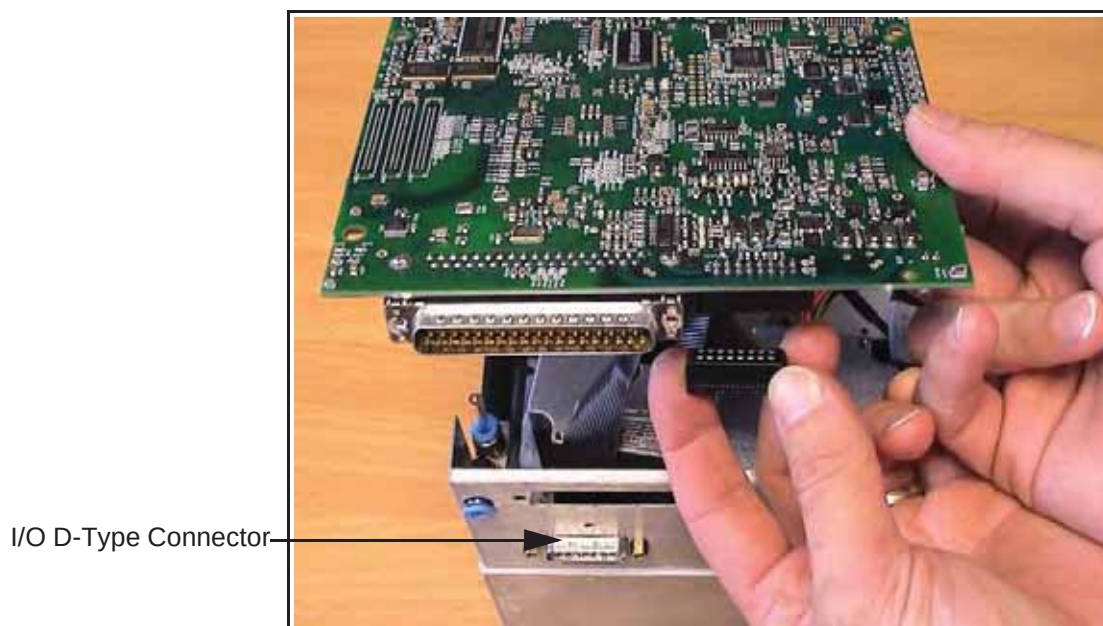


Figure 5-17: Main PCB Replacement

- 9 Then connect the I/O ribbon cable to the PCB and slide it into place. Ensure that the connector X9 is threaded through the access hole in the heat sink (Figure 5-18).



Figure 5-18: X9 Connector Access

- 10 Secure the PCB using the 2 screws and then reverse the procedure from 5 to 1 above.

Replacing the Peel Roller

To replace the peel roller, proceed as follows:

- 1 Remove the cassette from the printer.

- 2 Remove the screw on the top of the peel roller as shown in Figure 5-19.

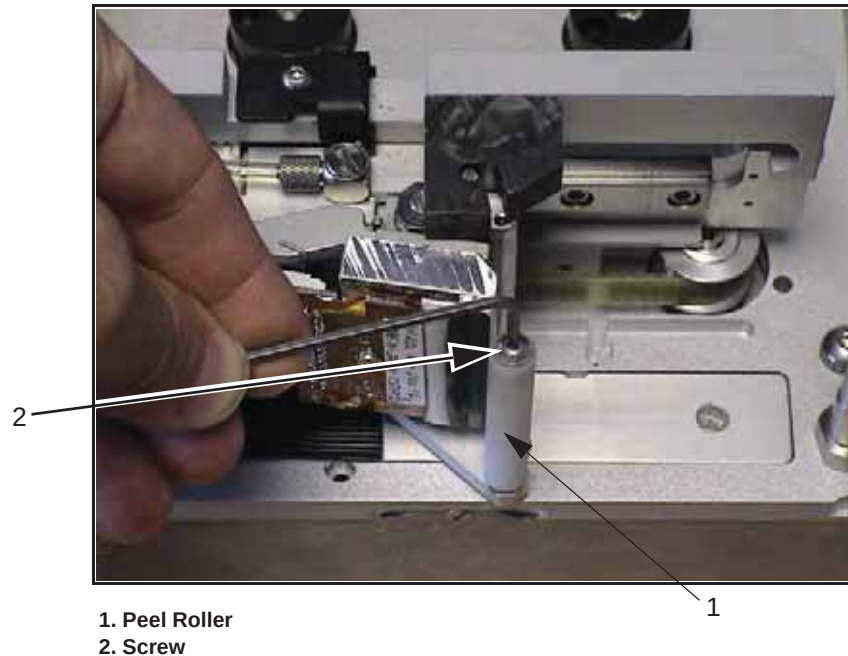


Figure 5-19: Peel Roller Screw Removal

- 3 Remove the peel roller.

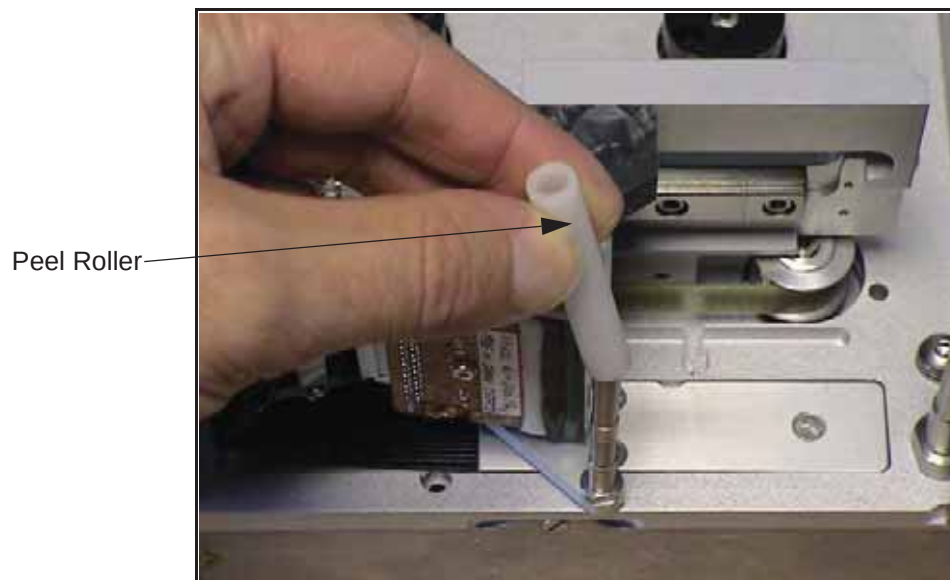


Figure 5-20: Peel Roller Removal

- 4 Replace the peel roller and secure it using the screw removed in step 2.
- 5 Refit the cassette to the printer.

Replacing the Printhead

To replace the printhead proceed as follows.

- 1 Remove the printhead retaining screw as shown in Figure 5-21.

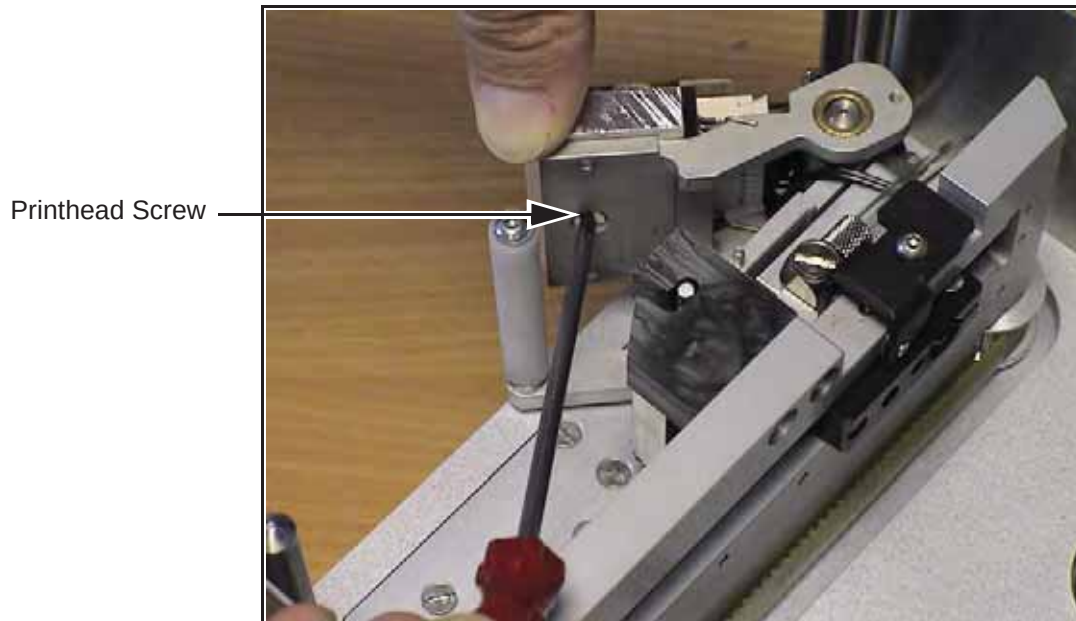


Figure 5-21: Printhead Screw Removal

- 2 Move the printhead from the parked position.
- 3 Disconnect the printhead and remove.



Figure 5-22: Printhead Removal

- 4 Reconnect the printhead connector to the new printhead.
- 5 Place the printhead in the parked position and secure it with the printhead screw.
- 6 Set the printhead resistance.

Setting the Printhead Resistance

Printheads are manufactured with variations in their resistance. The printhead resistance is pre-set in the factory. The printer must be set up with the correct printhead resistance.



Caution

PRINTHEAD RESISTANCE. If the printhead is changed, the new printhead resistance must be set. If not set correctly, damage could occur to the printhead, or poor quality images could result. Such damage is not covered by your printer warranty.

To set the printhead resistance, proceed as follows.

- 1 Find and note the printhead resistance value from the label on the printhead (e.g. R=1113 O) as shown in Figure 5-23.

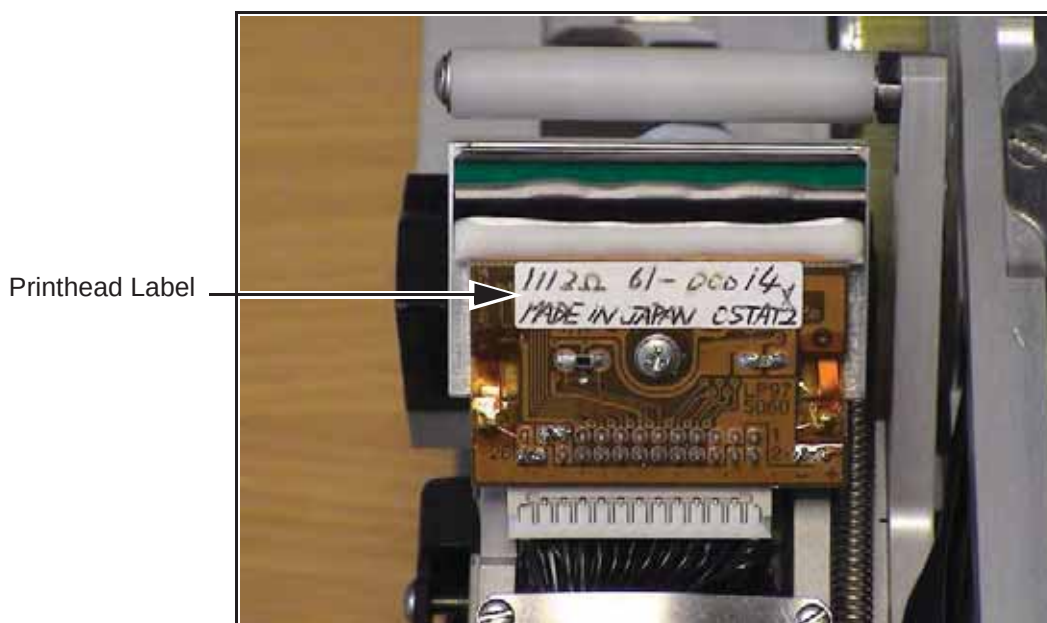


Figure 5-23: Printhead Resistance Value

- 2 Touch the Tools button on the Home page.
- 3 Touch the Setup button on the Tools page.

- 4 Touch the Printhead button to open the Printhead Setup Page.
- 5 Select the Printhead Resistance parameter and enter the resistance value that was displayed on the printhead label (Figure 5-24).

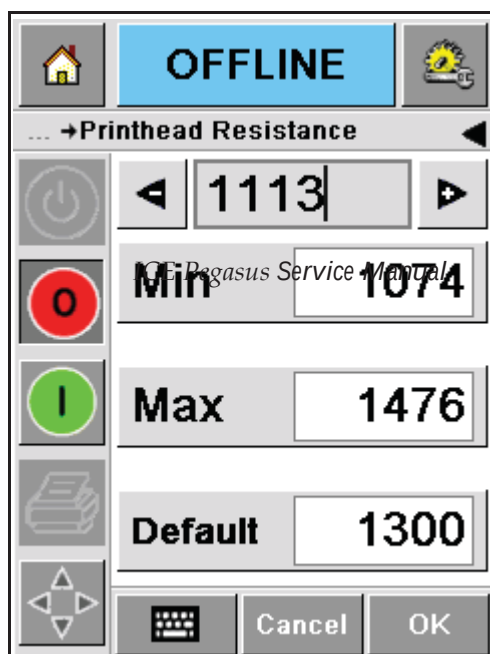


Figure 5-24: Printhead Resistance Setting

- 6 Use the arrows or the keypad to set the settings and touch OK to save the settings.
- 7 A confirmation message is displayed to ensure that this parameter is not changed inadvertently. Choose 'Yes' to proceed to set the new value.

Maintaining the Cassette

Replacing the Cassette Rollers

To replace the cassette rollers, proceed as follows.

- 1 Remove the cassette from the printer.
- 2 Remove the ribbon from the cassette.

- 3 Loosen and remove the ribbon guide, with a 12 mm spanner from the cassette, as shown in Figure 5-25.



Figure 5-25: Roller Guide Removal

- 4 Remove the roller from the ribbon guide, as shown in Figure 5-26.



Figure 5-26: Roller Removal

- 5 Place the new roller on the ribbon guide.
- 6 Install the ribbon guide on the cassette.
- 7 Replace the ribbon in the cassette.
- 8 Replace the cassette in the printer.

Adjusting the Cassette Latch

The latch components on the printer are set at the factory and normally do not require adjustment.

If it is necessary to adjust the latch, proceed as follows.

- 1 Remove the cassette from the printer.
- 2 Remove any ribbon from the cassette.
- 3 Loosen the lock nut on the cassette latch (10 mm), as shown in Figure 5-27.



Figure 5-27: Latch Screw Locking Nut Loosening

- 4 Adjust the latch screw (4 mm hex socket) and hold it in place while tightening the lock nut, as shown in Figure 5-28.



Figure 5-28: Latch Screw Adjustment

Note: A correctly adjusted latch should not allow the movement of the cassette when in the printer, but should allow the cassette to be pulled from the printer under any circumstances when the release button is pressed.

Updating the CLARiTY Operating Software

The operating software of the printer can be upgraded by a process called a CLARiTY Update.

The current version of the software is displayed at the page TOOLS > DIAGNOSTICS > CONTROL > VERSIONS where the software part number can be read.

The part number has the format:

Part.Version.Service Pack

Eg 403034.R01.SP01 would be part number 403034, Revision 01, Service pack 1.

In the event that the software has become corrupt or was incorrectly installed, the software part number states 'Incompatible Software Versions'.

If this is seen, a CLARiTY update must be performed immediately to correct the situation, otherwise unpredictable printer behavior may result.

The printer should be used only when a valid part number is displayed in the part number window.

There are two ways of performing a CLARiTY Update:

- 1 Connecting the printer to a PC, that runs CLARiTY Configuration manager
- 2 Inserting a USB memory stick containing the update file into the printer

Before performing a CLARiTY Update it is strongly recommended that a parameter archive is saved using CLARiTY Configuration Manager (Refer "Archiving the Current Parameters" on page 3-24).

CLARiTY Update Via a PC

It is recommended that when updating via a PC, the PC-Printer connection is done via Ethernet. This makes the process a lot quicker.

You must have the CLARiTY Update CAB file stored on the PC disk. Contact your local service representative to obtain the correct file for your printer.

To update the CLARiTY, proceed as follows:

- 1 Connect the printer to the PC and when the coder icon is green, right click on the icon.

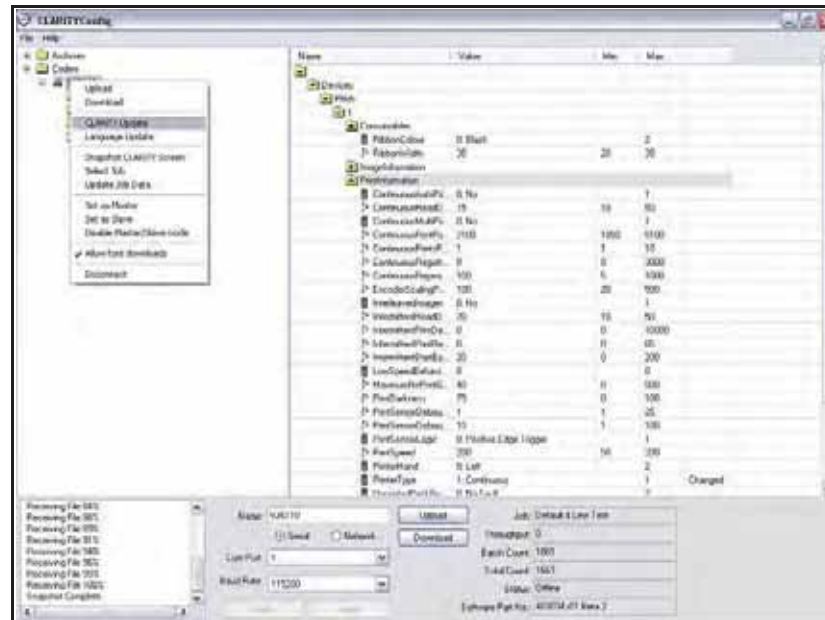


Figure 5-29: CLARiTY Update Window

- 2 Click on CLARiTY Update and navigate to the CAB file stored on the PC disc.
- 3 Click on the file name and the update process commences.
- 4 The update file is initially downloaded and the progress of the download can be followed in the Progress pane of the CLARiTY Configuration Manager screen.
- 5 Once the download is completed the CLARiTY Update of the printer starts and the CLARiTY screen indicates the progress of the update.

Note: It is very Important to ensure that the power to the printer is not removed during the update process, or the flash card in the printer may get corrupted.

When the update is finished, CLARiTY automatically re-boots and the CLARiTY Home Screen is finally displayed.

- 6 Check the Software Part number in the Diagnostics screen to ensure that the update has been successful.

CLARiTY Update via a USB Memory Stick

Updating of printer software is possible from a USB memory stick as opposed to a PC/Lap top and CLARiTY Configuration Manager.

To update the CLARiTY using an USB, proceed as follows:

- 1 Copy the CLARiTY software onto a USB memory stick.

Note: The software must be stored in a root directory called \CLARiTY update.

- 2 Connect the stick to the CLARiTY Operator Interface via the USB port as shown in Figure 5-30.

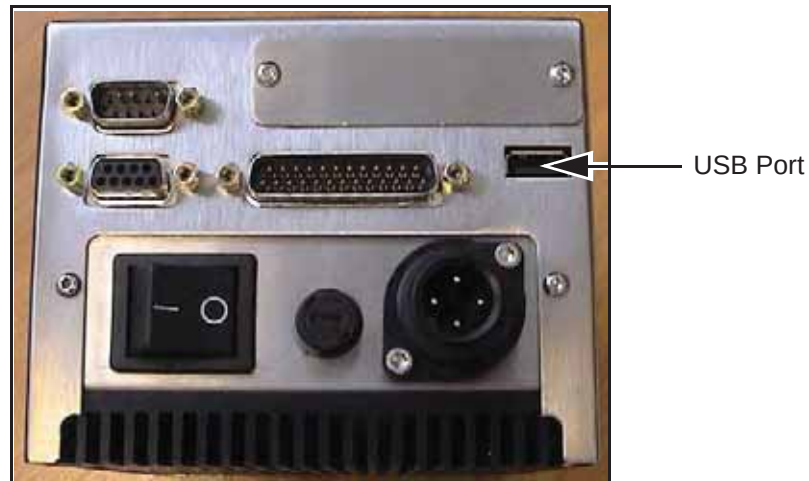


Figure 5-30: USB Location

- 3 If the CLARiTY Configuration Manager parameter called "Prompt On CLARiTY Update Detect" is set to Yes, when the device is connected to the CLARiTY Operator Interface, a confirmation page is displayed (Figure 5-31).



Figure 5-31: Confirmation Page

- 4 If the parameter is set to No, navigate to **TOOLS>SETUP>CONTROL** and touch the CLARiTY Update button.
- 5 Select 'Yes' to proceed to the next stage of the update or 'No' to return to the 'Home' screen.

If 'Yes' is selected, the CLARiTY update screen is displayed.



Figure 5-32: CLARiTY Update Page

Only updates applicable to the current model of printer are displayed.

- 6 Touch OK, a confirmation page appears (Figure 5-33).

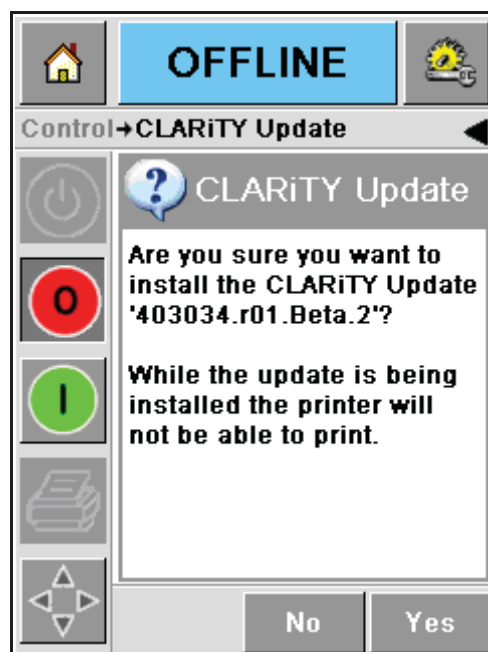


Figure 5-33: CLARiTY Confirmation Page

- 7 Touch Yes and the printer starts to update the software.

Note: It is very important to ensure that the power to the printer is not removed during the update process or the flash card in the printer may get corrupted.

When the update is finished CLARiTY automatically re-boots and the CLARiTY Home Screen is finally displayed.

- 8 Check the Software Part number in the Diagnostics screen to check that the update has been successful.

System Events

6

This chapter contains the following topic:

- List of faults and warnings

Table 6-1 lists the faults and warnings

Error No	Report on CLARiTY Operator Interface	Status
E1001	'Count Limit Reached' - One or more of the counters in the image has reached the end value set in the image design. Please select a new job and touch the Clear button to restart the printer.	Fault
E1002	'Operation Aborted' - The operation of the printer has been intentionally aborted by a host control system. When ready to resume the operation, the host control system cleared this abort condition, and then this fault message clear automatically.	Fault
E1003	'Real-time Clock Fault' - There is a problem with the real-time clock which is required for the system to operate correctly.	Fault
E1004	'Backup Battery is Flat' - The battery which powers the printer's clock is flat. This means that the date and time, the currently selected job and some performance data is lost when the printer is switched off.	Warning
E1006	'Image Update Failure' - CLARiTY is unable to update the image that is printed next. This usually occurs because products are too close to each other. Touch the Clear button to restart the printer.	Fault
E1007	'Image Update Failure' - CLARiTY is unable to update the image that is printed next. This usually occurs because products are too close to each other. Touch the Clear button to restart the printer.	Fault
E3000	'Printer Hand Not Set' - Set the Printer hand in CLARiTY Config	Fault

Table 6-1: List of Faults and Warnings

Error No	Report on CLARiTY Operator Interface	Status
E3001	'Perform Motor Calibration' - Motors have not been calibrated. Calibrate via CLARiTY Config	Fault
E3002	'Printhead Resistance Not Set' - Set the printhead resistance on CLARiTY - Tools>Setup>Print-head>Printhead resistance	Fault
E3003	'Cassette Open' - Re-insert the ribbon cassette into the printer	Fault
E3004	'Ribbon Break' - Print ribbon has broken or run out	Fault
E3005	'End of Reel' - Print ribbon has run out	Fault
E3006	'Calibration Failed' - Ensure that the correct ribbon is being used and the ribbon core is not slipping on mandrel bodies.	Fault
E3007	'Printhead Crash' - Printhead carriage is jammed. Remove the cassette and check for any obstruction	Fault
E3008	'Optical Calibration Dirty' - Remove the cassette and clean the optical sensors on the printhead carriage and the printer body.	Fault
E3009	'Bad Optical Calibration' - Ribbon cores are of incorrect size	Fault
E3010	'Thermistor Fault' - Printer has detected fault with the thermistor or the thermistor is disconnected.	Fault
E3011	'Printhead Over Temperature' - Coder operating over 65 degrees Celsius	Fault
E3012	'Low Ribbon' - Less than 50 metres of ribbon left on the reel	Warning
E3013	'Printhead Absent' - Communications between CLARiTY and the printer have been lost, check the cabling.	Fault
E3014	'Webbing Error' - The ribbon has been incorrectly loaded onto the cassette.	Fault
E3015	'Motor Volts Error'	Fault
E3016	'Printhead Volts Error'	Fault
E3017	'Check the Set Up' - Substrate speed and the encoder speed do not match. Ribbon speed is not matched to substrate speed.	Fault
E3018	'Ribbon Pull Through' - Ribbon is 'stuck' to the substrate and has been pulled from the cassette.	Fault

Table 6-1: List of Faults and Warnings

Error No	Report on CLARiTY Operator Interface	Status
E3019	'Unprinted Pack' - Substrate speed fell below 40mm/s for too long to print last pack.	Fault
E3020	'Incorrect Reel Size'	Fault
E3021	'Print Cycle Error' - Note the values in Tools>diagnostics>printhead>states>captured states and report. Possible printer PCB or motor fault	Fault
E3024	'24 Volt Error' - The 24 volts supply is not in the working range. Power the printer OFF and ON to try and clear the fault. If the problem persists, call your maintenance engineer or local service representative.	Fault
E3025	'Printer Ambient Temperature' - The internal ambient temperature of the printer is outside its recommended operating range. Touch the Clear button below to clear this warning.	Warning
E3026	'External Error' - The operation of the printer has been suspended by the control system. If the Clear button is available below, you may touch it to clear this error and resume printing.	Fault
E1100	'Invalid Job File (Bad Field Reference)' - Source field reference incorrect - correct in CLARiSOFT	Warning
E1101	'Invalid Job File (Missing Data Source Field)' - Job file missing a data field - correct in CLARiSOFT	Warning
E1102	'Invalid Job File (Duplicate Named Fields)' - Field names have been duplicated in Job File - correct in CLARiSOFT	Warning
E1000	'Image Update Failure' - CLARiTY is unable to update the image before receiving the next print signal since the products are too close to each other.	Fault
E1001	'Count Limit Reached' - One or more fields in the image design has reached the allocated end value.	Fault
E1002	'Abort (Operation Aborted)' - 'The operation of the printer has been stopped by the host control system.	Fault

Table 6-1: List of Faults and Warnings

This chapter contains the following topic:

- Information on error messages, its possible causes and the remedies

Table 7-1 lists the error messages, its possible causes and the remedies

Error Message	Possible Causes	Remedies
Cassette Open	Cassette not fully seated	Push the cassette in until you hear it “click” into place
	Cassette latch out of adjustment	Adjust the cassette latch
	Faulty cassette sensor	Replace the printhead sensor
	Home switch magnet missing from the cassette base plate	Replace the magnet

Table 7-1: Error Messages and Remedies

Error Message	Possible Causes	Remedies
Ribbon Break	Broken ribbon	Reinstall the ribbon
	Excess of slack in ribbon when the cassette is loaded	Reinstall the ribbon
	Damaged cassette	Check for the damaged cassette base plate, giving misaligned drive or ribbon tracking problems (usually this results when a cassette is dropped from a height onto its ribbon guide rollers). Note: The cassette base plate is usually the part that gets damaged as the ribbon guide rollers is made of stainless steel and therefore unlikely to bend.
	End of reel	Replace the ribbon reel
	Ribbon gets the wrong side of the peel roller while loading the cassette	Reinstall the ribbon
	Host machine is holding the ribbon firmly	Review and correct the application
Calibration Failed	Ribbon installed incorrectly	Reinstall the ribbon
	Ribbon reel diameter is out of range	Use correct ribbon reel
	Damaged cassette	Check for the damaged cassette base plate, giving misaligned drive or ribbon tracking problems (usually this results when a cassette is dropped from a height onto its ribbon guide rollers).
Head Crash	Printhead microswitch is defective or out of adjustment.	Adjust or replace the printhead microswitch.
	Printer hand incorrectly set	Set the printer hand correctly
	Printhead motor stalling due to poorly positioned print platen	Check and adjust the print platen

Table 7-1: Error Messages and Remedies (Continued)

Error Message	Possible Causes	Remedies
Optical Calibration Sensor Dirty	Dirt or obstruction between the emitter and detector	Clean the emitter and detector gently with a soft cloth
	Faulty emitter assembly	Replace the emitter assembly
	Faulty detector assembly	Replace the detector assembly
	Faulty printhead cable	Replace the printhead cable
Optical Calibration Failed	Ribbon reel diameters are out of the expected range	Use the correct ribbon reel
	Ribbon reels and/or cores incorrectly located on the mandrel	Reinstall the ribbon reels and/or cores correctly
	Large ribbon tag on the rewind reel concealing the calibration sensor	Remove the tag
	Large ribbon 'tag' on the rewind reel obscuring the calibration sensor	Remove the tag
Thermistor Fault	Faulty printhead	Replace the printhead
	Ribbon cable has loosened	Push the ribbon back into place
	Faulty printhead ribbon cable	Replace the printhead ribbon cable
Printhead Over Temperature	Printhead overheats	Allow the printhead to cool down
Low Ribbon	Ribbon has to be replaced	Replace the ribbon
Printhead Absent	Loss of communication between the CLARiTY controller and the printer	Check the cable connections. Try cycling between power on and off
Ribbon Error	Ribbon reel eccentricity is excessive	Replace the ribbon
	Ribbon tags on the take up core, fooling the optical calibration system	Remove the tags and wind the take-up reel neatly.
		Replace the take-up reel else replace the supply reel

Table 7-1: Error Messages and Remedies (Continued)

Error Message	Possible Causes	Remedies
Motor Volts Error	Power supply voltage varies too much	Check the power supply output
	Faulty printer PCB	Replace the main printer PCB
	Faulty Motor	Check the motor and replace if necessary
Printhead Volts Error	Power supply voltage varies too much	Check the power supply output
	Faulty printer PCB	Replace the main printer PCB
Printer Hand Not Set	Flash memory is lost	Use the CLARiTY configuration CD
Motor Calibration Required	Flash memory is lost	Use the CLARiTY configuration CD
Printhead Resistance Not Set	Flash memory is lost	Set the resistance value from the user interface
Webbing Error	Supply ribbon reel eccentric (+1mm)	Replace the reel
End of Reel	Less than 20 meters of ribbon remaining on reel	Replace the reel
Incorrect Reel Size	Ribbon cores not fitted	Try using a different reel
	Incorrect roll width fitted	Make sure that the software reel width setting matches the width of the reel that you are using

Table 7-1: Error Messages and Remedies (Continued)

Error Message	Possible Causes	Remedies
Printer is not powered up	Power plug not fully seated in the socket	Check and correct
	Power not turned on at the source or at the power supply	Check and correct
	Power cable not properly connected to the printer and power supply	Check and correct
	Power supply voltage set incorrectly	Check and correct
	Check the 5 A fuse on the CLARiTY unit	Check and correct (Refer "Replacing the Mains Fuse" on page 5-2)
	Blown Fuse	Replace Fuse
CLARiTY controller is not powered up	Cable not properly connected to the printer and controller	Check and correct
	Incorrect cable between the printer and controller	Check and correct
	Faulty controller unit	Check unit and replace the components as required
Printhead does not move in and out	Air supply disconnected	Check and set air pressure to 3 bar
	Solenoid wiring or air lines defective	Check and correct
	Defective solenoid	Check and correct
	Printhead is jammed	Turn the power off and move the head out of its parked position. See if the head is free to move in and out on its pivot assembly. If not, clear the obstruction.

Table 7-1: Error Messages and Remedies (Continued)

Error Message	Possible Causes	Remedies
Printhead does not drive	Condition of the belt drive and pulleys	Check and correct
	Printhead stepper motor not plugged in securely	Check and correct
	Linear slide carriage jammed	Turn the power off. Try to move the linear slide. If jammed, clear the obstruction.
	Incorrect tension on the timing belt	Re-tension the timing belt
	Faulty Motor	Check the motor and replace it, if necessary

Table 7-1: Error Messages and Remedies (Continued)

Error Message	Possible Causes	Remedies
No information is printed	Insufficient or no air pressure	Check and set the air pressure to 3 bar
	No Print Signal	Go to: Tools/Diagnostics/ Printhead/Inputs and check the presence of incoming print signal.
	Low Darkness level	Go to: Tools/Setup/Printhead and increase the Darkness setting.
	Continuous Mode Only: Incorrect or No Encoder signal	Go to: Tools/Diagnostics/ Printhead/Inputs and check for free encoder wheel rotation, "Forward" direction and incoming signal.
	Continuous Mode Only: Incorrect "Print Position" parameter	Go to: Tools/Setup/Printhead and check the print position to ensure optimum printhead position directly over the roller centerline. Parameter should be about: 2100 for right-hand units 2500 for left-hand units.
	Intermittent Mode Only: Substrate is moving while attempting to print	Print signal timing is incorrect. If necessary, delay the print until the film stops and settles (Dwell Time) by entering a "Print Delay" value. Go to: Tools/Setup/Printhead
	Intermittent Mode Only: Incorrect Print Speed	Go to: Tools/Setup/ Printhead. Check and correct the print speed.
	Printhead not contacting the print platen or roller	Check and correct any obstructions
No information is printed	Incorrect Vertical Registration	Set Vertical Registration to 0
	Faulty Printhead	Replace the printhead
	Production line speed fell below 40mm/sec	Confirm minimum speed. Go to: Tools/Diagnostics/ Printhead/Timings and increase the line speed

Table 7-1: Error Messages and Remedies (Continued)

Error Message	Possible Causes	Remedies
Printer will not go on-line	Invalid or no image selected	Select a valid image
	Fault message not cleared	Clear the fault message
Poor print quality	Incorrect air pressure	Check and set the air pressure to 3 bar
	Low Darkness level	Go to: Tools/Setup/Printhead and increase the Darkness setting.
	Dirty Printhead	Allow the printhead to cool and then clean
	Print speed and darkness levels have to be appropriate for the ribbon and substrate	Check and correct
	Continuous Mode Only: Incorrect Encoder signal	Go to: Tools/Diagnostics/ Printhead/Inputs and check for free encoder wheel rotation.
	Continuous Mode Only: Incorrect "Print Position" parameter	Go to: Tools/Setup/Printhead and check the print position to ensure optimum printhead position directly over roller centerline. Parameter should be about: 2100 for right-hand units 2500 for left-hand units.
	Intermittent Mode Only: Substrate is moving while attempting to print	Print signal timing is incorrect. If necessary, delay the print until the film stops and settles (Dwell Time) by entering a "Print Delay" value. Go to: Tools/Setup/Printhead
	Intermittent Mode Only: Incorrect Print Speed	Go to: Tools/Setup/ Printhead. Check and correct.
	Dirty or worn print platen or roller	Check, clean, reposition or replace if necessary

Table 7-1: Error Messages and Remedies (Continued)

Error Message	Possible Causes	Remedies
Top or bottom of print is missing or ragged	Start border too short	Increase the start border
	Intermittent Mode Only: Substrate is moving while attempting to print	Print signal timing is incorrect. If necessary, delay the print until the film stops and settles (Dwell Time) by entering a "Print Delay" value. Go to: Tools/Setup/Printhead
	Intermittent Mode Only: Incorrect Horizontal Registration setting	Check and correct
One or more dots missing (cleaning does not help)	Faulty Printhead	Replace the Printhead
Ribbon is creasing	Poor alignment of printer to platen or roller	Correct the alignment with the shims between the printer and bracket or behind the platen
	Bent peel roller shaft or support	Check and replace if necessary

Table 7-1: Error Messages and Remedies (Continued)

Illustrated Parts List

The Illustrated Part List (IPL) contains the illustrations and the parts lists for the different assemblies in the printer. The parts lists give the part numbers, description and quantity of all the items and the modules in the printer. You can order the items and the modules for which the part numbers are given.

How to Read the IPL

This section describes how the higher assemblies are broken down to their related subassemblies and other separate parts.

Illustrations

Table 8-1 shows the symbols used to indicate the different levels of main assemblies in a printer, and the subassemblies under the main assembly.

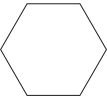
Assembly	Symbol
Main Assembly	
Subassembly 1	

Table 8-1: Symbols Representation - Assemblies

- - - ➡ The arrow indicates further explosion of the main assembly.

Alphabets

- An alphabet is assigned to the main assemblies of a printer and each subassembly under the main assembly. See Figure 8-1.

For example: If A, B, C and D identify the main assemblies of a printer, then the alphabets E, F, and so on identify the subassemblies below each main assembly in a sequence.

- The alphabets assigned to main assemblies are used only for one time.
- The alphabets “I” and “O” are not used because you can read the alphabets incorrectly as the numbers 1 and 0.

Numbers

A natural number (1,2,3.....) is assigned to the standalone parts (in the increasing order) in the chapter. See Figure 8-1.

Note: The numbers assigned to main assemblies are used only for one time.

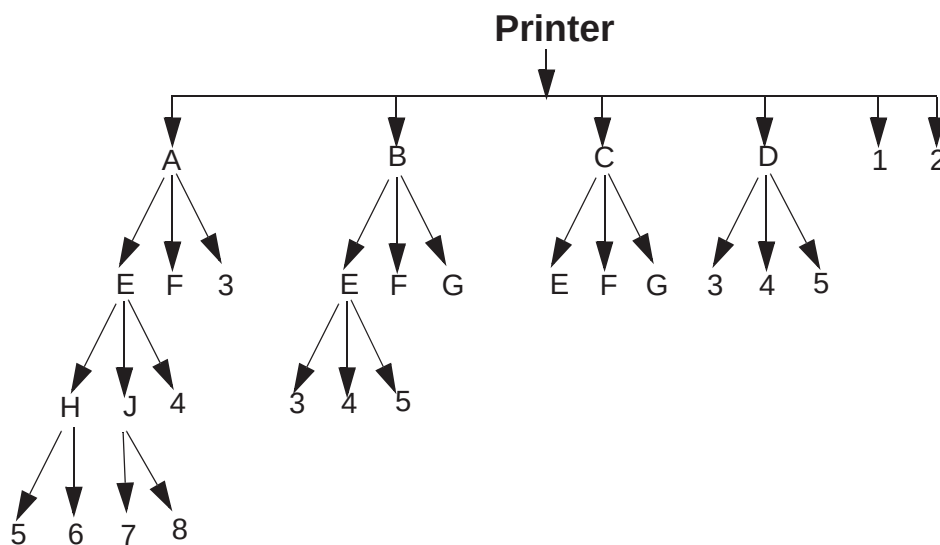


Figure 8-1: Graphical Representation of the different Subassemblies and parts

Tables

Table 8-2 describes the styles used to show the explosion of the main assemblies in the parts lists.

	Item Number	P/N	Description	Qty
Main Assembly →	A			
	1			
	2			
	3			
	4			
	5			
	6			
Main Assembly →	B			
	7			
	8			
Subassembly 1 →	D			
	9			
	10			
Main Assembly →	C			
	11			
	12			
	13			
	14			

Table 8-2: Representation of the different Subassemblies and parts in the Table

Controller Assembly

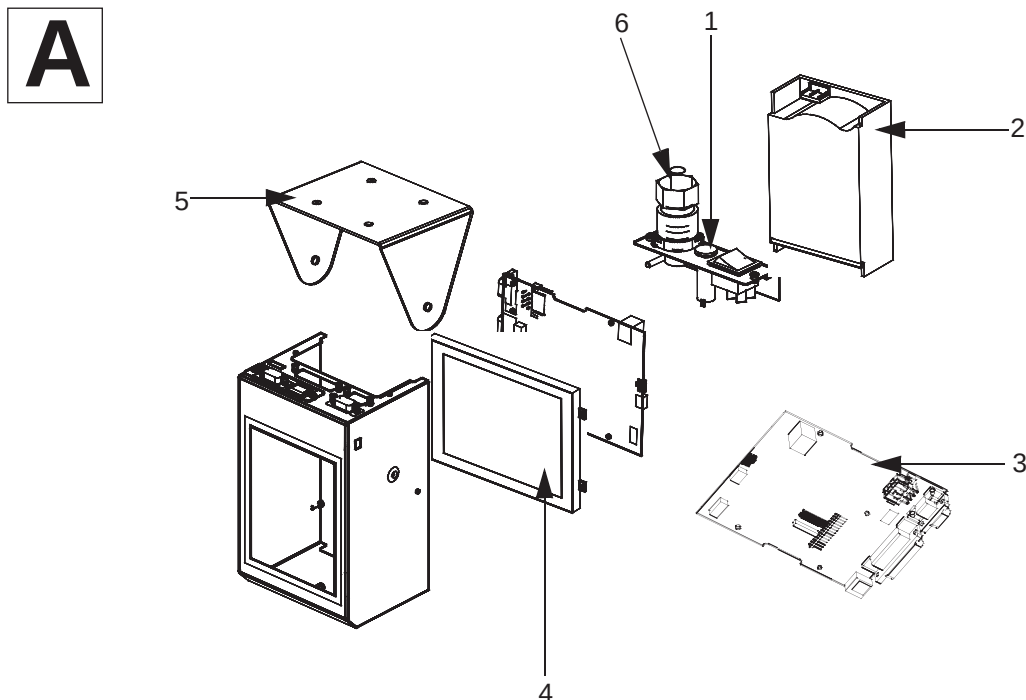


Figure 8-2: Controller Assembly

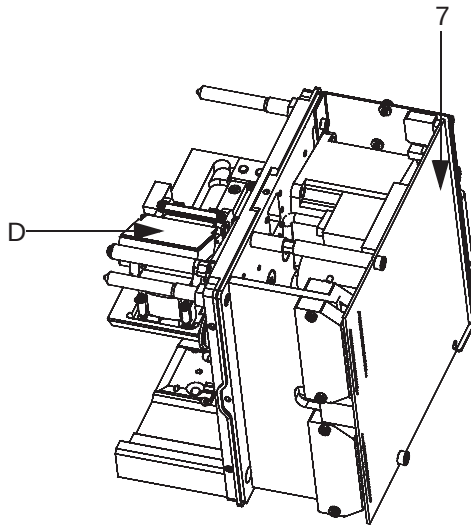
Table 8-3 lists the parts of the controller assembly.

Item Number	P/N	Description	Qty
A		Controller Assembly (Refer to Figure 8-2)	
1	400885	Thermal Coder Fuse Kit	Set of 10
2	403348	Power Supply Unit	1
3	403345	Processor PCB	1
4	403344	LCD Touchscreen	1
5	403183	Controller Mounting Yoke Kit	1
6	402793	Thermal Printer Mains Lead Assembly	1

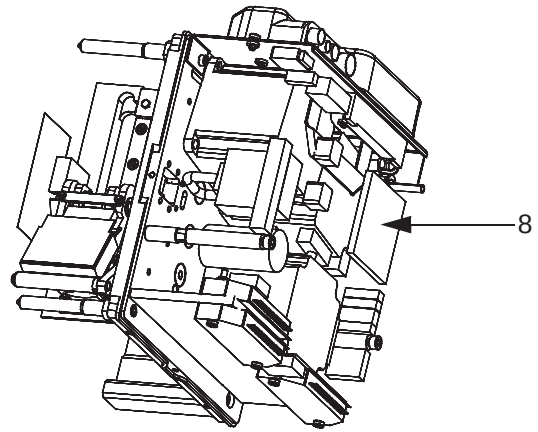
Table 8-3: Controller Assembly - Parts List

Printer Assembly

B



Printer Assembly with PCB



Printer Assembly without PCB

Figure 8-3: Printer Assembly

Printhead Assembly

D

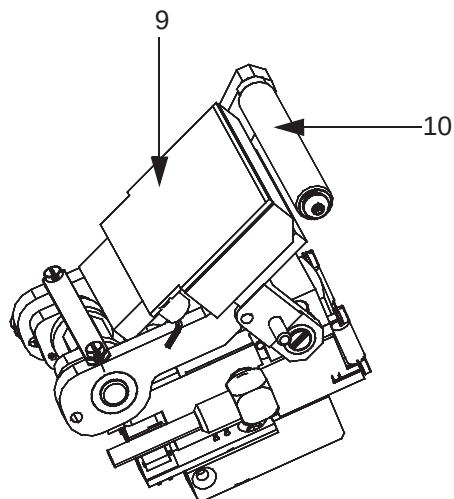


Figure 8-4: Printhead Assembly

Table 8-4 lists the parts of the printer assembly.

Item Number	P/N	Description	Qty
B		Printer Assembly (Refer to Figure 8-3 on page 8-5)	
7	403332	Videojet 6210 Thermal Printer PCB	1
8	403339	Thermal Printer 128mb Flash Card	1
D		Printhead Assembly (Refer to Figure 8-4 on page 8-5)	
9	403325	Thermal Printhead	1
10	403324	Peel Roller	5 off

Table 8-4: Parts of Printer Assembly

Cassette Assembly

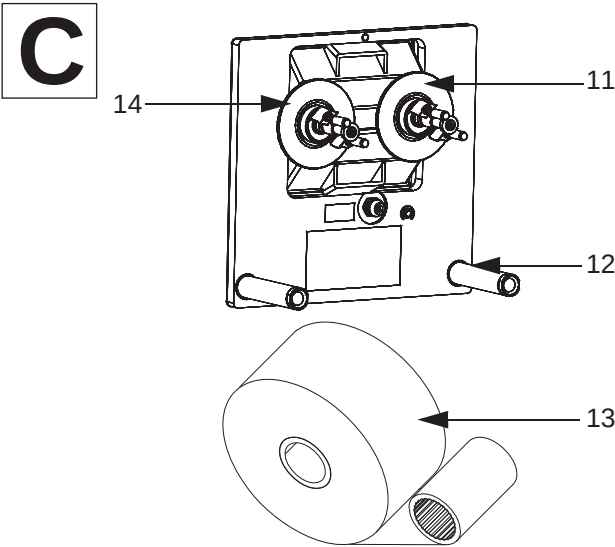


Figure 8-5: Cassette Assembly

Table 8-5 lists the parts of the cassette assembly.

Item Number	P/N	Description	Qty
C		Cassette Assembly (Refer to Figure 8-5)	
11	403327	Silver Disc - Pack	5 off
12	403323	53mm Cassette Roller	Set of 6
13		Print Ribbon (Refer to Table 8-7 on page 8-9 for details)	
14	403326	Black Disc - Pack	5 off

Table 8-5: Parts of Cassette Assembly

Accessories

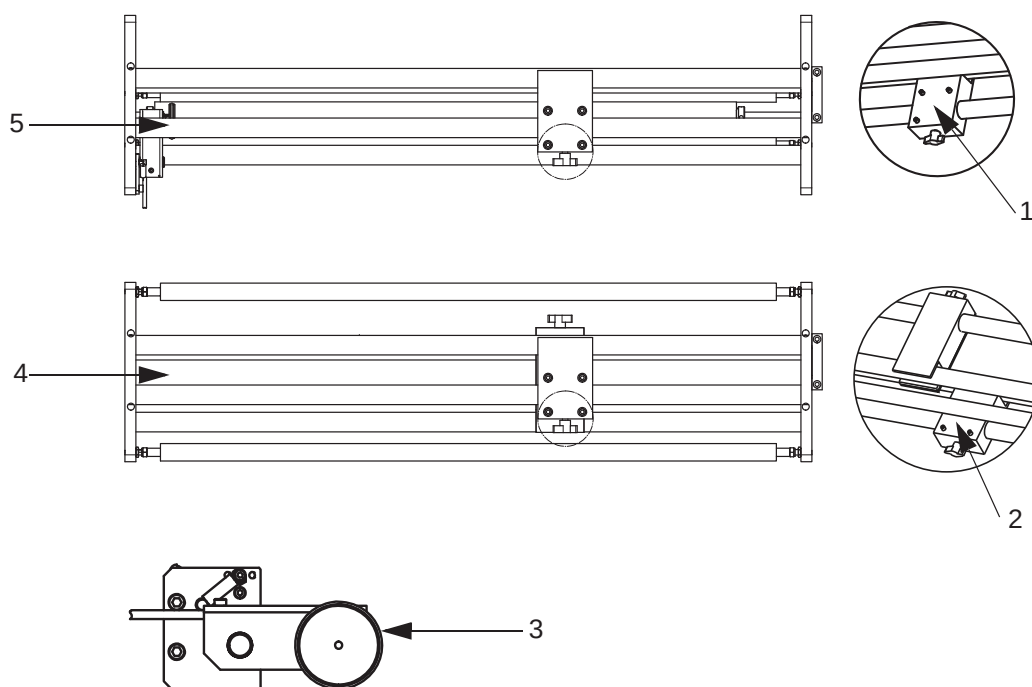


Figure 8-6: Accessories

Table 8-6 lists the accessories of the printer.

Item Number	P/N	Description	Qty
1	403357	Spare 32T Bracket Platen Rubber (Continuous)	Pack of 10
2	403357	Spare 32T Bracket Platen Rubber (Intermittent)	Pack of 10
3	401339	Spare Encoder O-ring	Pack of 10
4	403318	Intermittent Bracket Assembly	1
5	403317	Continuous Bracket Assembly	1

Table 8-6: Accessories List

Printer Ribbons

Table 8-7 lists the ribbons of the printer.

Serial Number	Part Number	Description
1	702305	Standard Black 20mm x 600m
2	702304	Standard Black 35mm x 600m
3		Standard White 20mm x 450m
4		Standard White 35mm x 450m
5		Premium Black 20mm x 550m
6		Premium Black 35mm x 550m
7		Premium White 20mm x 550m
8		Premium White 35mm x 550m

Table 8-7: Printer Ribbons

Printer Dimensions

Figure 9-1 shows the dimensions of the Videojet 6210 (RH) printer.

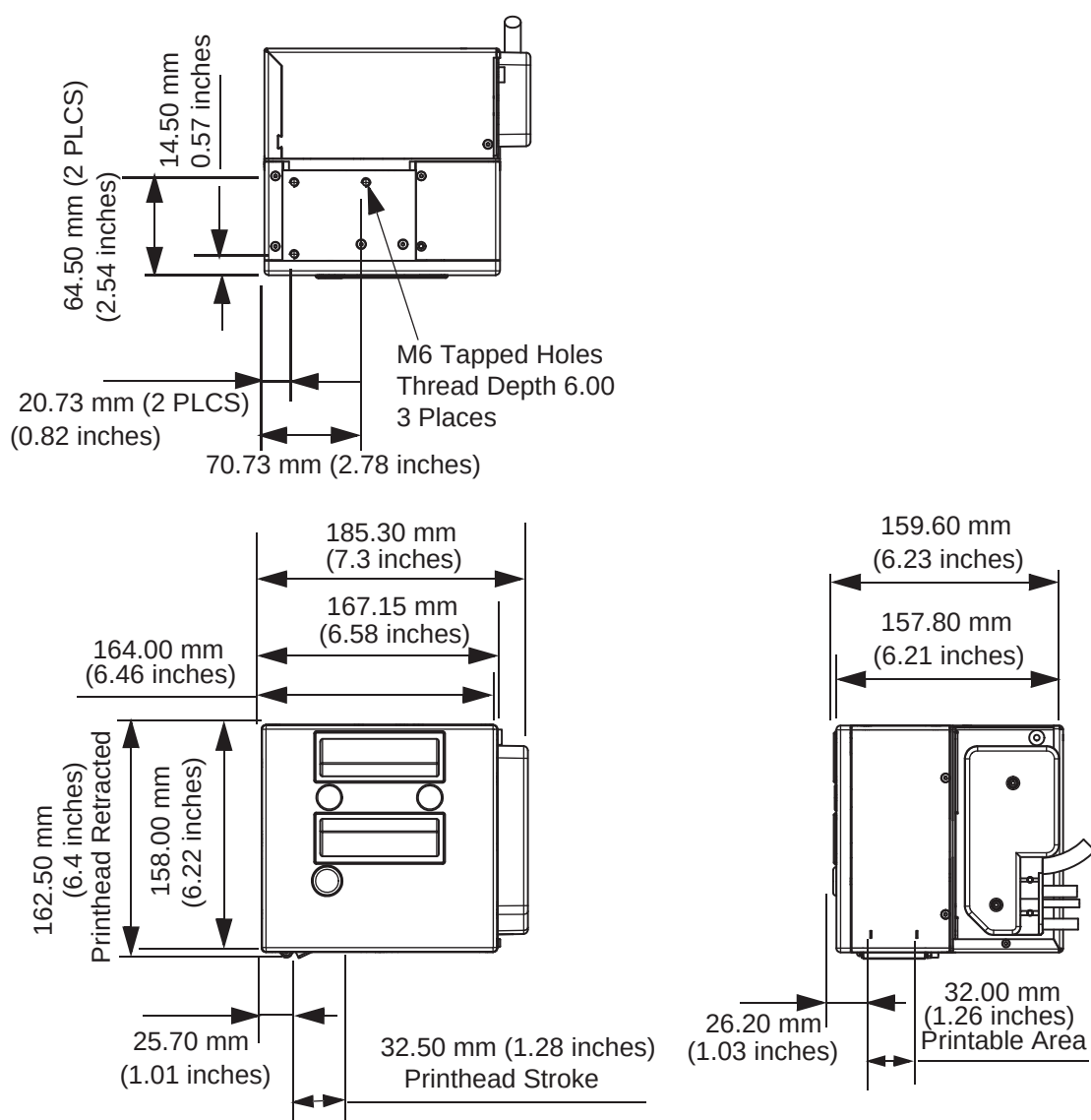


Figure 9-1: Videojet 6210 30 mm RH Printer Dimensions

Figure 9-2 shows the dimensions of the Videojet 6210 (LH) printer.

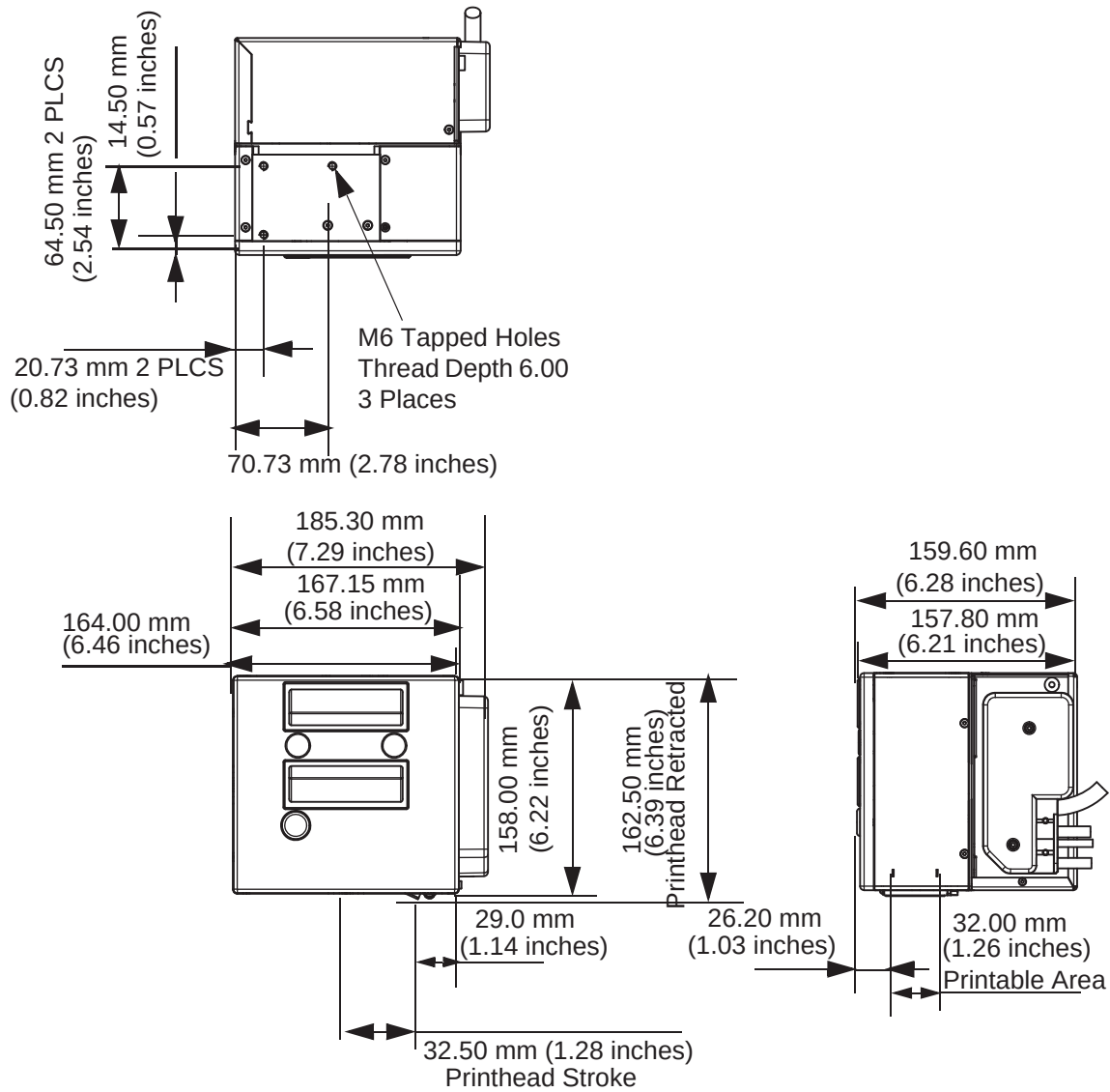


Figure 9-2: Videojet 6210 30 mm LH Printer Dimensions

Figure 9-3 shows the dimensions of the CLARiTY controller.

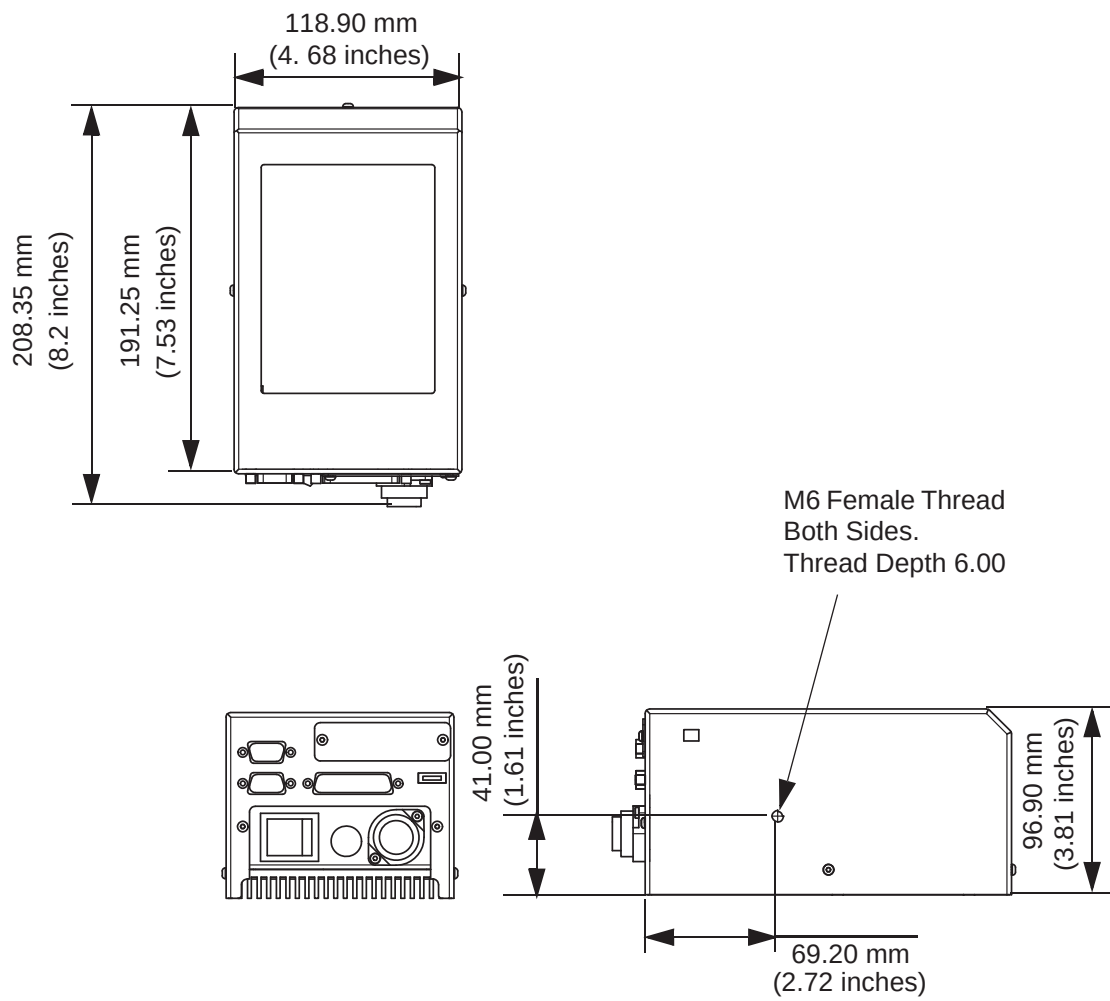


Figure 9-3: CLARiTY Controller Dimensions

Electrical Wiring Schematics

Figure 9-4 shows the electrical wiring schematic of the Clarity controller.

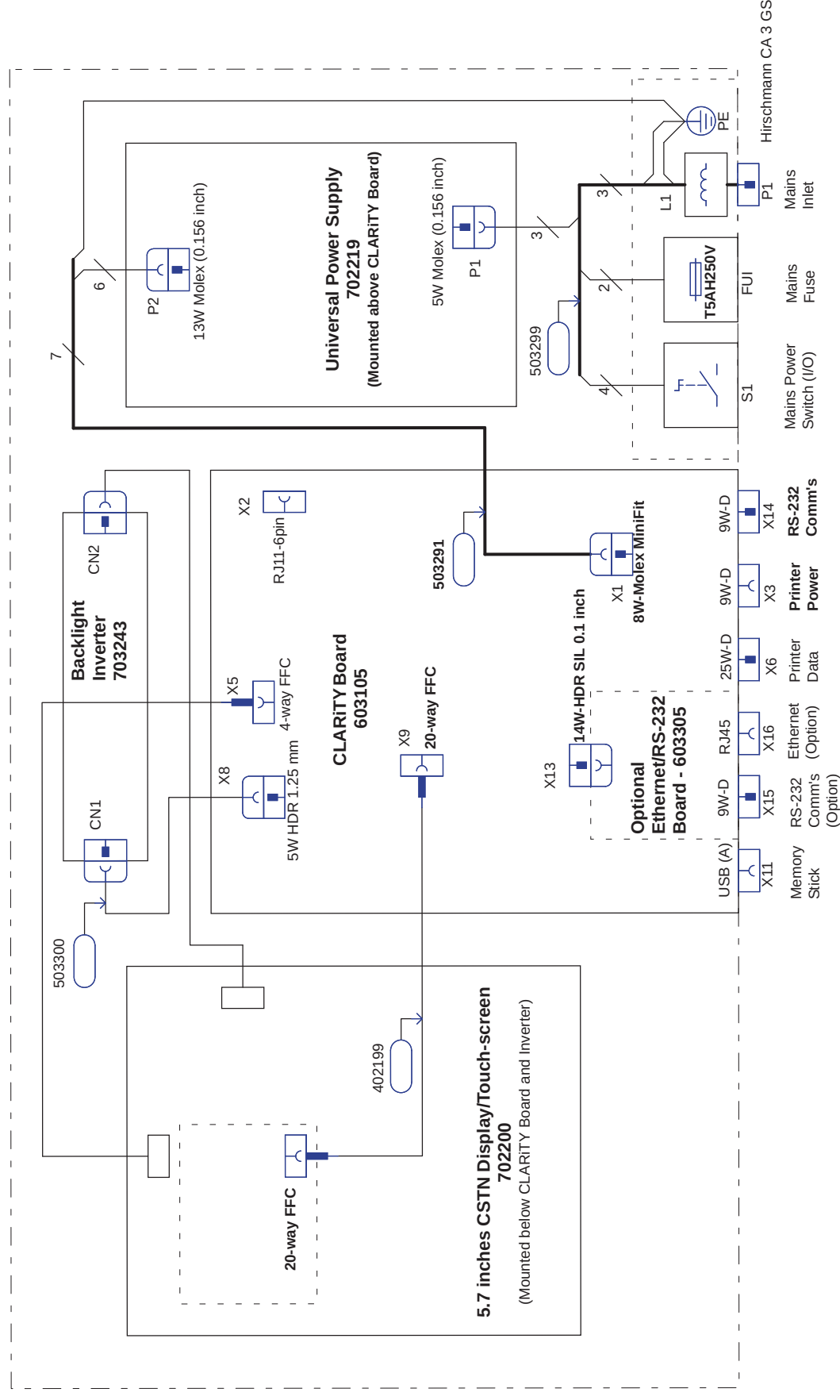


Figure 9-4: Electrical Wiring Schematic of the Clarity Controller

Figure 9-5 shows the electrical wiring schematic of the ICE printer.

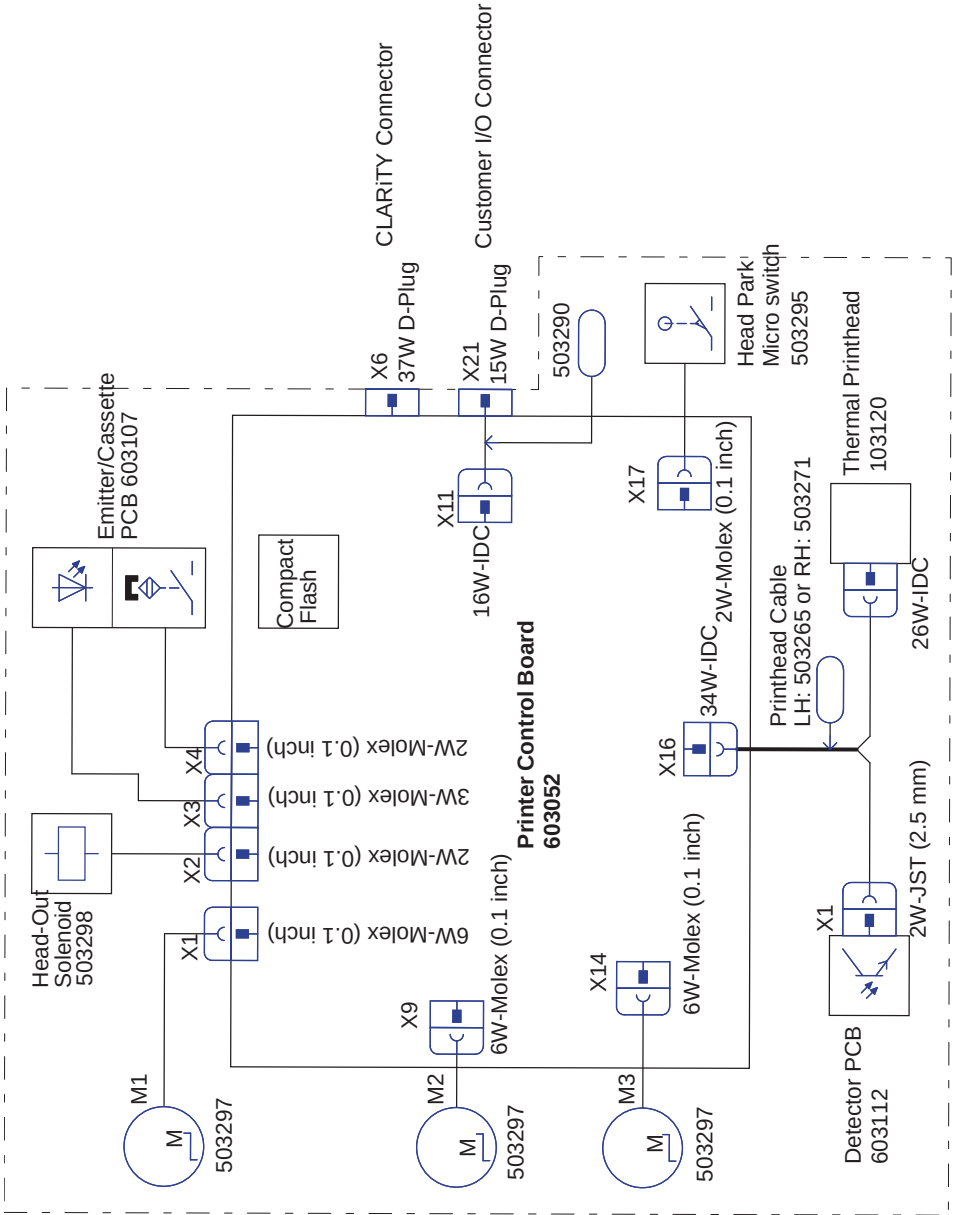


Figure 9-5: Electrical Wiring Schematic of the Videojet 6210 Printer

Table 9-1 lists the different wire colors and their corresponding functions.

X16 Pin #	Wire Color	Function	Factory Default
1	Red (Brown on ENC lead)	+24V	+24V
2	Blue	External input #1 PNP 24V	Print input from host machine
3	Green	0V	0V
4	Black	External input #2 PNP 24V	Inhibit print from host machine
5	White	External input #3 PNP 24V	Spare input-not used
6	Orange	External relay output #1	Fault relay N/C
7	White/Black	External relay output #1	Fault relay COMMON
8	Red/Black	External relay output #1	Fault relay N/O
9	Green/Black	External relay output #2	Warning relay COMMON
10	Orange/Black	External relay output #2	Warning relay N/O
11	Blue/Black	External PNP output #3 PNP 24V	BUSY
12	Black/White (Black on ENC)	0V	0V
13	Red/White	External PNP Output #4 PNP 24V	Spare-not used
14	Green/White (White on ENC lead)	Encoder phase B signal input (24V push/pull preferred or open collector compatible)	
15	Blue/White (Blue on ENC lead)	Encoder phase A signal input (24V push/pull preferred or open collector compatible)	

Table 9-1: List of the Wire Colors for Videojet 6210 Printer Electrical Schematic