



Videojet DataFlex 6420

Service Manual

P/N 462397-01

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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 reasonable 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:

EN 61000-6-2

Generic Immunity standard, Industrial Environment.

EN 61000-3-3

Voltage Fluctuation and Flicker

EN 55022: Class A

Radio Disturbance Characteristics: Limits & Methods of measurement for IT Equipment.

EN 55024

Immunity Characteristics: Limits & Methods of measurement for IT Equipment.

Following the provisions of EU EMC Directive 2004/108/EC

EC Low Voltage Directive 2006/95/EC

Essential health and safety requirements relating to electrical equipment designed for use within certain voltage limits.

EN 60950-1

Safety requirements for information technology equipment including electrical business equipment.

Support and Training

Contact Information

If you have any questions or need assistance, please contact Videojet Technologies Inc. at 1-800-843-3610 (for all customers within the United States). Outside the U.S., customers should contact their Videojet Technologies Inc. distributor or subsidiary for assistance.

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Service Program

About *Total Source* Commitment

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

The *Total Source* Commitment

The Videojet *Total Source*® 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, Videojet Technologies Inc. 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) Videojet Technologies Inc. Customer Training.

For more information on Videojet Technologies Inc. Customer Training Courses, call 1-800-843-3610 (within the United States only). Outside the U.S., customer should contact a Videojet subsidiary office or their local Videojet distributor for more information.

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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 Videojet Technologies Inc. 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.



Warning

PERSONAL INJURY. There are sections of the control board that are permanently powered via the on-board lithium battery.

Therefore it is essential that the board should never be placed on, or stored in any conductive surface (including conductive, plastic bags etc.) as this would flatten the battery and/or potentially result in battery overheating.

The battery is not to be replaced.

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 approved accessories when attaching any device to the equipment.

Introduction

2

This chapter contains the following topics:

- A description about the intended use of the product
- Information about this manual
- 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



Figure 2-1: Videojet DataFlex 6420 Printer

The Videojet DataFlex 6420 printer uses high-resolution thermal transfer technology with a unique electronic ribbon drive system. This system reduces the wear on printer parts and the maintenance adjustments normally associated with thermal transfer printers that use mechanical ribbon drives. 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 labelling machines.

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

The product is available in the following models:

- Standard - 53 mm print width option
- Standard - 107 mm print width option

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 DataFlex 6420 Operator Manual (P/N 462396) is intended for the operator and contains information on routine operation of the printer. Unless specified, all procedures in the operator 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 following section explains the theory of printing of the thermal transfer printer (Figure 2-2 on page 2-3):

- The printhead (item 6, Figure 2-2) contains miniature heating elements under a glass coating (300 dpi - 12 dots/min)
- A carrier ribbon (item 5), with ink bonded to one side is used as the printing media
- The printhead presses the thermal transfer ribbon onto the substrate (item 2), with the ink side of ribbon in contact with the substrate
- 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

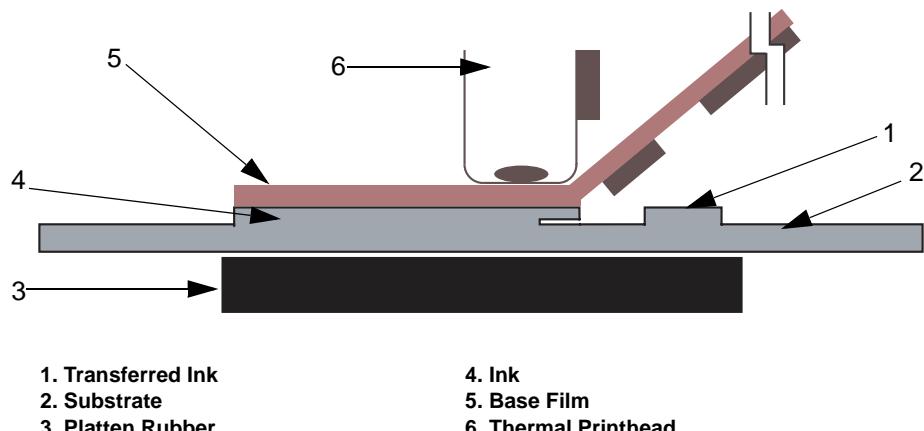


Figure 2-2: Printing Process

Intermittent Motion Printing

Intermittent motion printing (Figure 2-3 on page 2-4) is used for printing on stationary packaging films in packaging equipments having 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 (item 2, Figure 2-3) is stationary.
- The printhead (item 4) traverses across the ribbon (item 1) and the substrate to print.
- The printhead pushes the substrate against a flat platten pad (item 3).

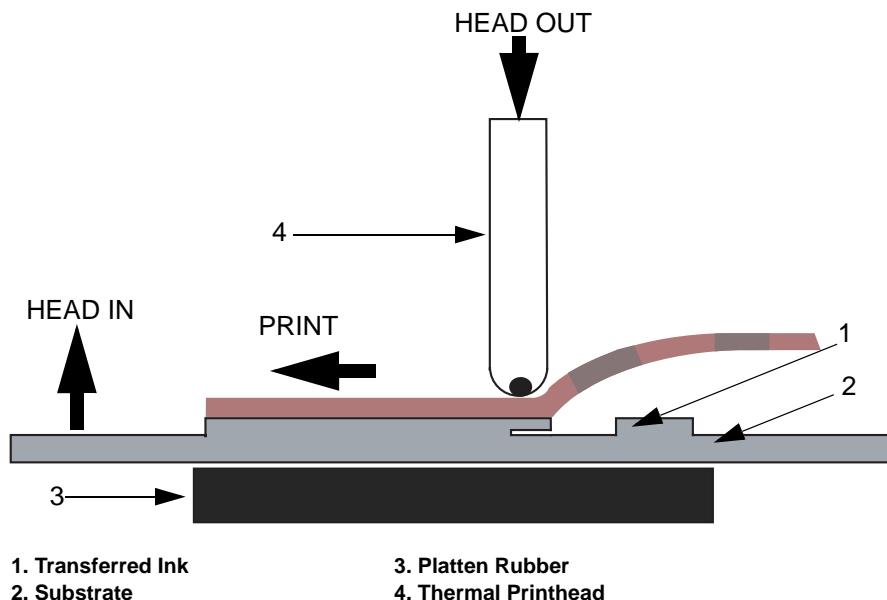


Figure 2-3: Intermittent Printing Motion

Continuous Motion Printing

Continuous motion printing (Figure 2-4 on page 2-5) is 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 VFFS and Horizontal Form Fill Seal (HFFS) or flow-wrap machines.

Continuous motion printing has the following features:

- The substrate (item 3, Figure 2-4 on page 2-5) moves while the printhead (item 4) 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 pushes the substrate against a rotating print roller (item 2).

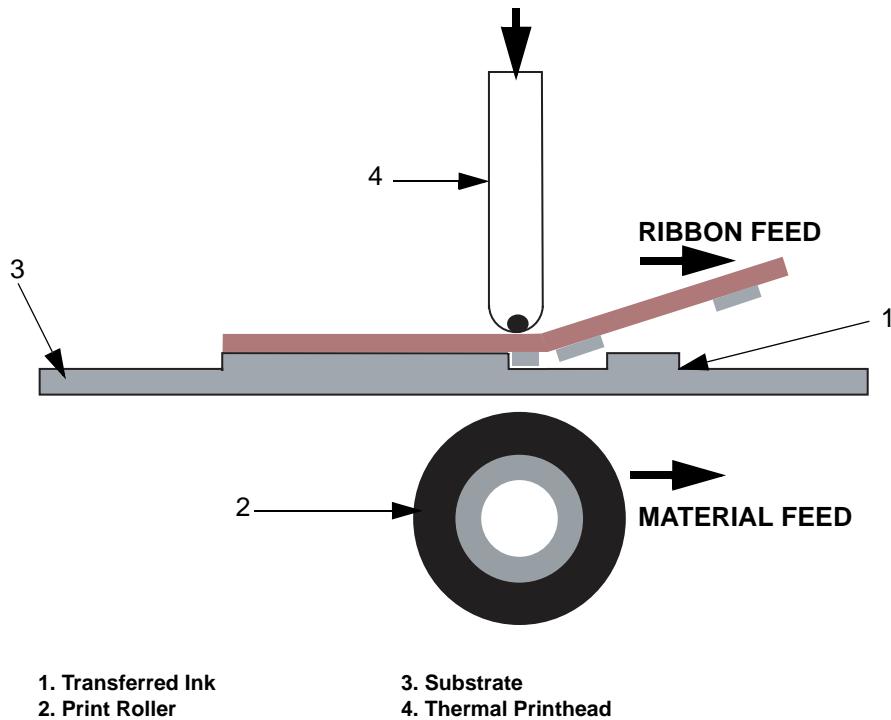


Figure 2-4: Continuous Print Motion

Technical Description

3

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 Standard Printer

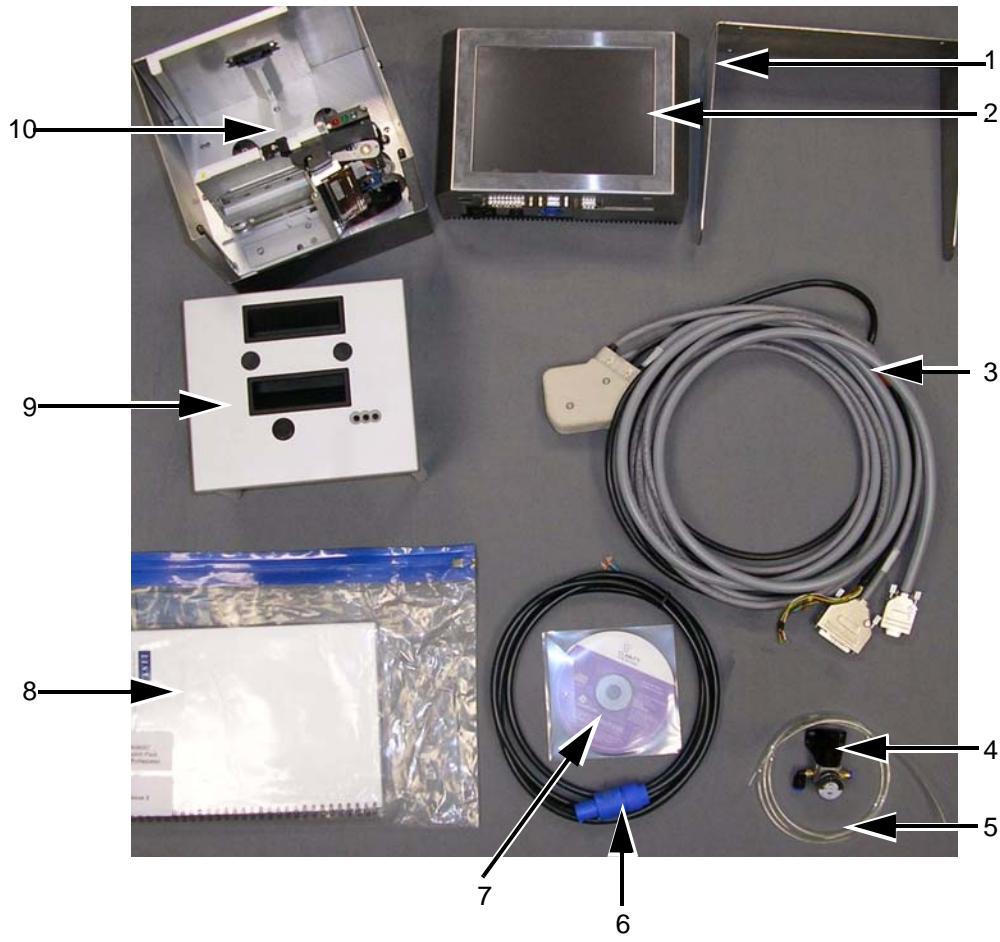
Inspect the kit for any damage carefully. Refer the list of parts in Table 3-1 and Figure 3-1 on page 3-2. If any item is damaged or missing, please contact Videojet Technologies Inc. at 1-800-843-3610 (for all customers within the United States). Outside the U.S., customers should contact their Videojet Technologies Inc. distributor or subsidiary for assistance.

Printer Part
Printer
Cassette
CLARiTY® Controller
Air Regulator
Power Cable
Low Profile Cable Assembly

Table 3-1: Printer Configuration Parts List

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

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



- | | |
|---|---|
| 1. CLARiTY® Controller Bracket
2. CLARiTY® Controller
3. Low Profile Cable Assembly
4. Air Regulator
5. 4-mm Air Tubing | 6. Power Cable
7. CD
8. QA Documentation and CE Certificate
9. Cassette
10. Printer |
|---|---|

Figure 3-1: Standard Printer Configuration Parts

Installing the Printer

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

- Power: 100 -240 VAC, 50/60 Hz, 3.2-1.3 A
- Compressed Air: 90 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 assembly (P/N 402787) 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 platten (in intermittent mode) or a print roller (in continuous mode) in order to print. The platten 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.

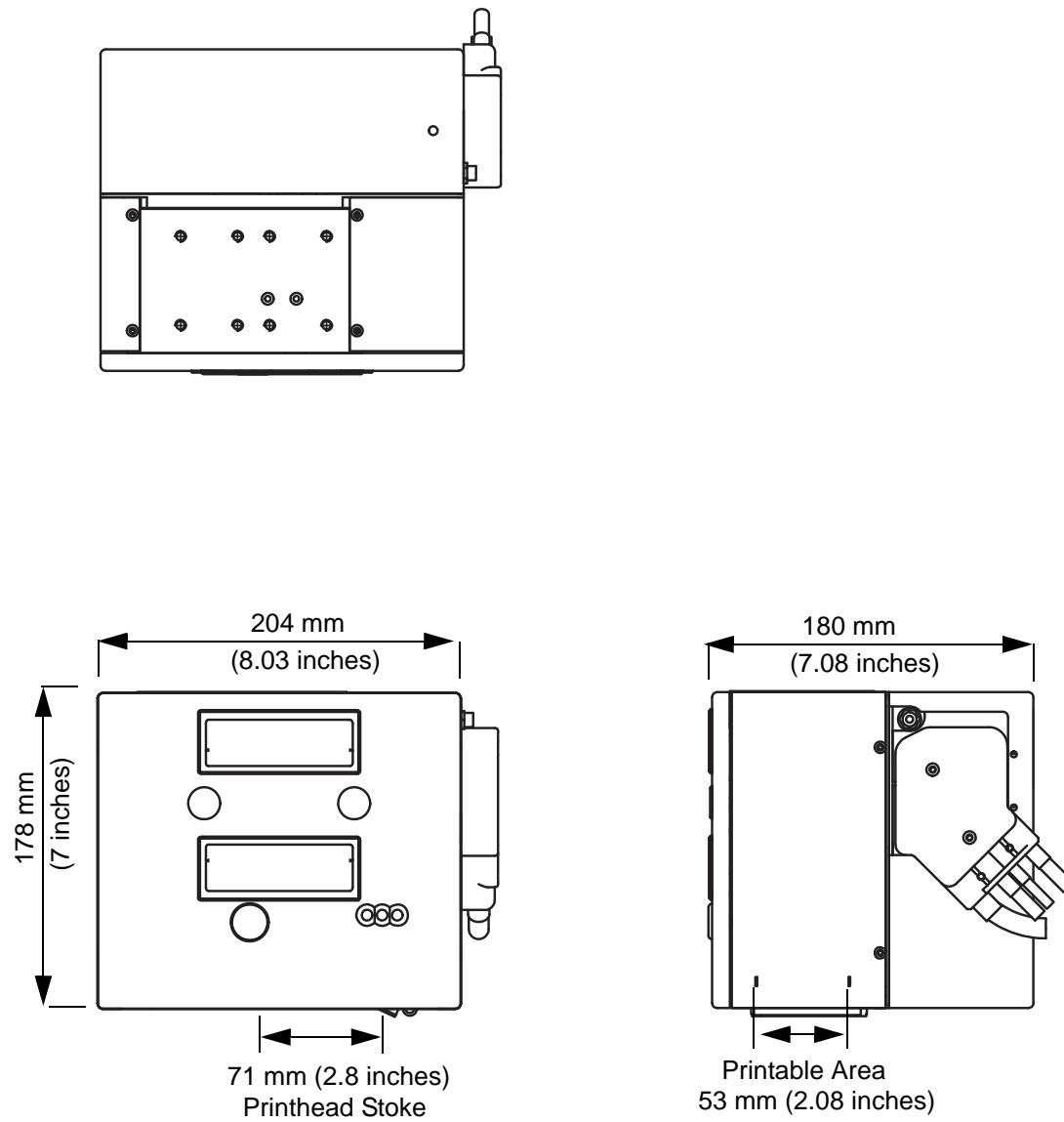


Figure 3-2:53 mm LH Standard Printer Dimensions

For further information, refer to "Printer Dimensions" on page 9-1.

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).

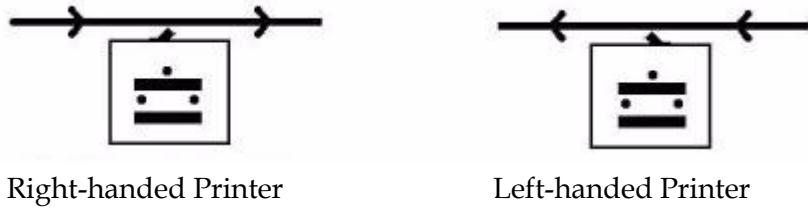


Figure 3-3: Right-handed and Left-handed Printer

The print platten rubber (for printers in intermittent mode) or the roller (for printers in continuous mode) should be positioned such that it is at 184 mm and 185.5 mm (7.25 inches to 7.30 inches) distance from the back edge of the printer (Figure 3-4). Also, print platten rubber or the roller should be adjusted such that there is a nominal gap of 2 mm (0.07 inch) between the printhead and the roller/platten rubber when the printhead is in the *ready to print* position.

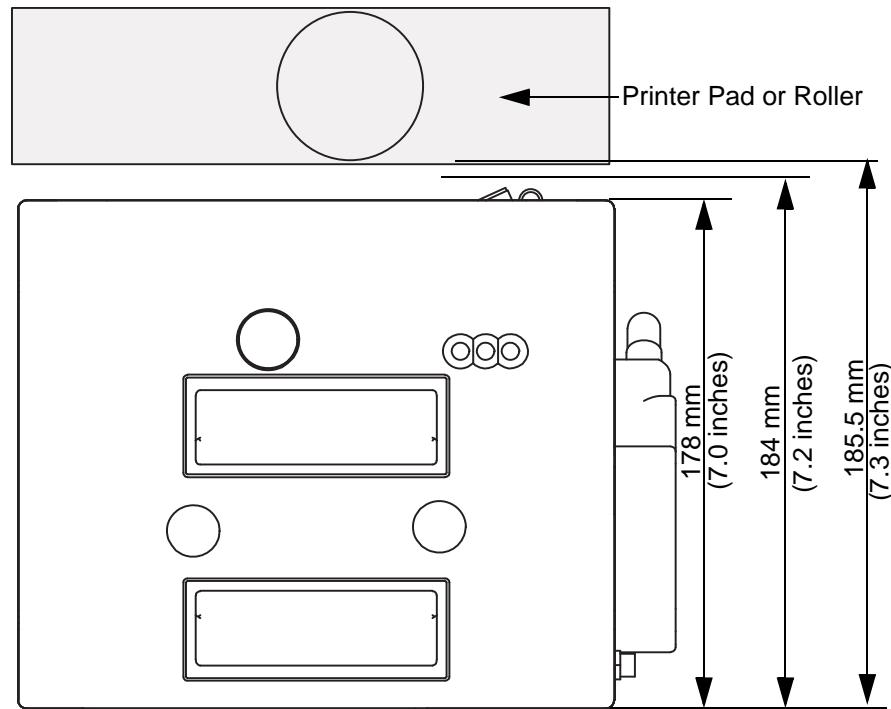


Figure 3-4: Printer Pad or Roller Position

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 for the standard controller.

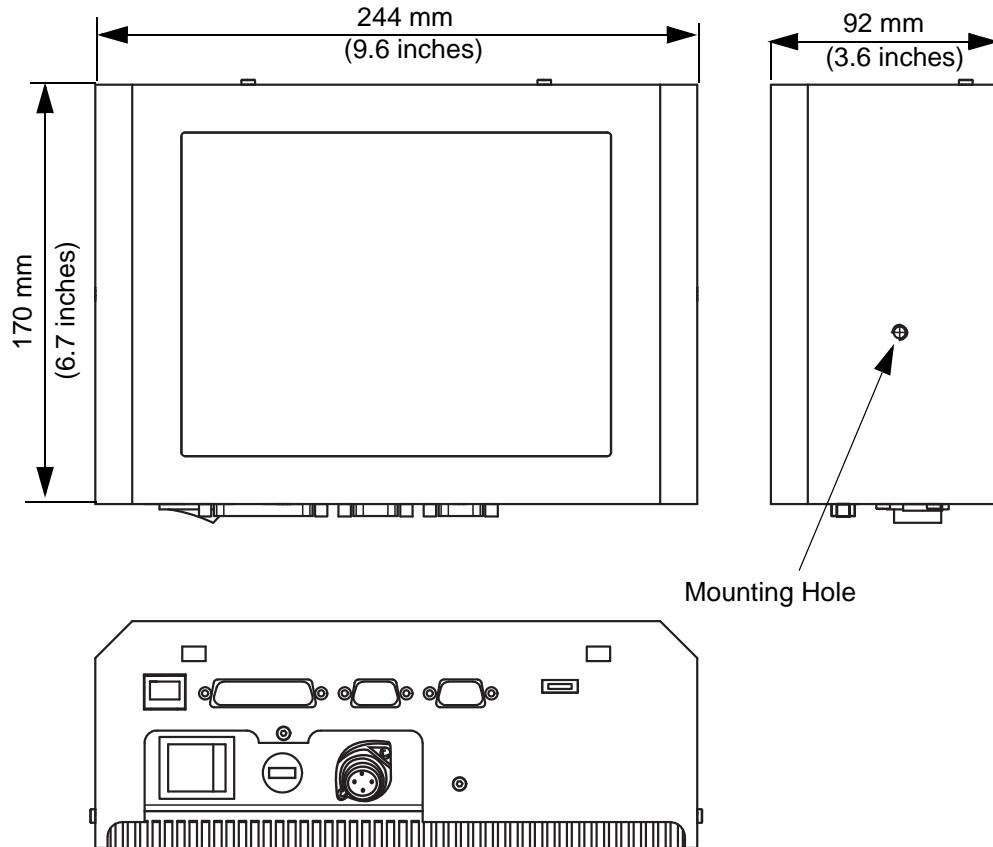


Figure 3-5:Standard CLARiTY® Controller -Mounting Hole

The maximum distance of the CLARiTY® controller from the printer body is 3 m (9.8 ft) as standard (5 m is available as an option).

The controller can be mounted in any convenient location, provided that the maximum lead length is not exceeded. The mounting brackets provided allow you to position the controller against a convenient flush surface, which enables you to position the controller panel for optimum viewing.

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.

Encoders

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

The encoder must measure three pulses per mm. For example, a 500 line encoder with a 53.05-mm tracking wheel is suitable.

The encoder output can be one of the following:

- Open collector, quadrature
- Push-pull, 24 V

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.

Installing the Ribbon in the Cassette

For installing the ribbon in the cassette, refer to section “Checking and Replacing the Ribbon” of chapter 5 in Videojet DataFlex 6420 operator manual.

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 according to the following table:

Printer Type	Air Pressure
53 mm	3.5 to 4 bar (50.7 to 58.0 Psi)
107 mm	4.5 to 5 bar (65.2 to 72.5 Psi)

Table 3-2: Air Pressure

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

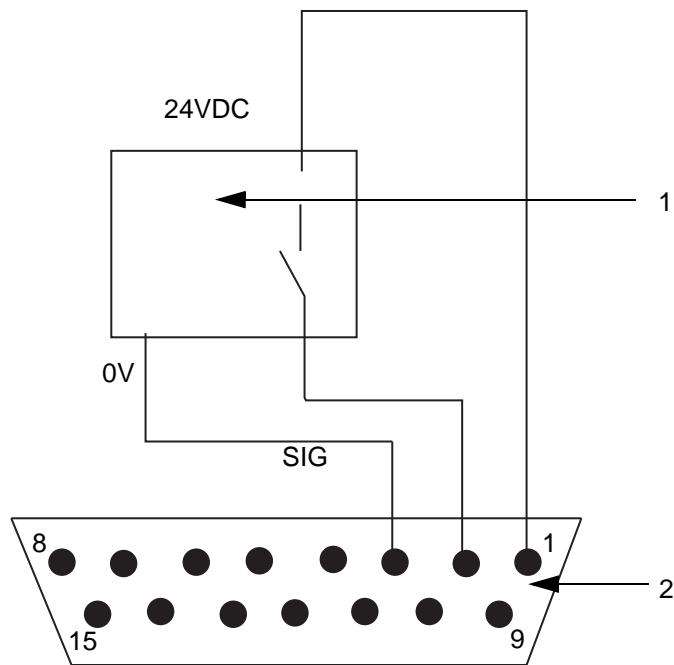
One 15-pin D-Type (male) connector, located on the side of the printer is dedicated for input and output connections.

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.

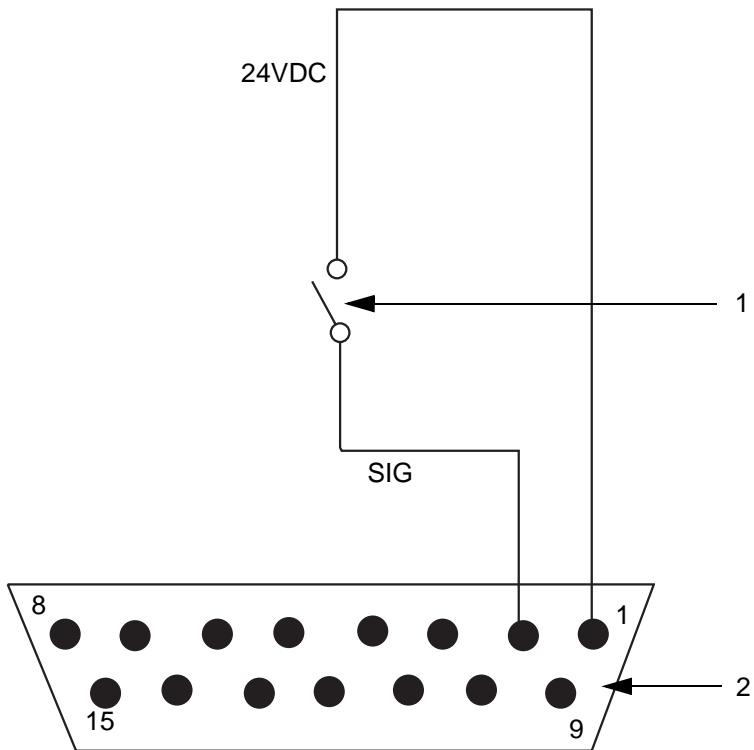
Note: These settings are known as configuration settings and cannot be set on the CLARiTY® panel. For further information, refer “Configuring the Printer” on page 3-17.

Connect the wiring for the sensor or mechanical contact operation, as shown in Figure 3-6 and Figure 3-7 on page 3-10.



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

Figure 3-6: PNP Sensor Wiring (Print Sensor)



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

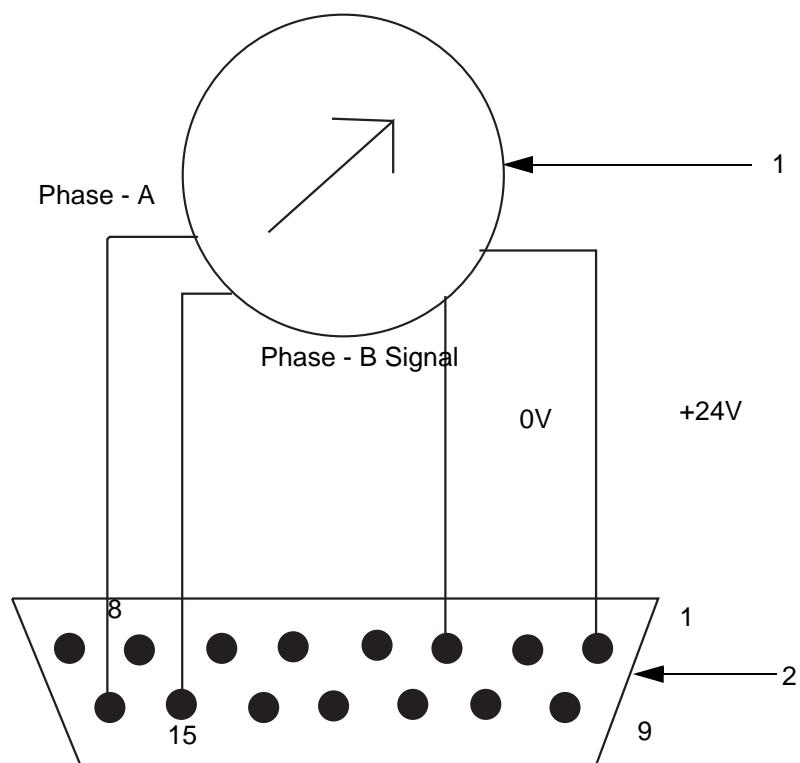
Figure 3-7: Mechanical Contact Wiring (Print Sensor)

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, but is capable of using a single-phase encoder. The use of a quadrature mode encoder enables the printer to react if the packaging material is travelling backwards. This prevents the occurrence of breaks in the ribbon and possible damage to the printer. The use of a quadrature mode encoder is strongly recommended. If a single-phase encoder is used, the Phase-B connection marked in Figure 3-8 is not required.

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 3-17.



1. Encoder
2. 15-pin Male D-type Connector

Figure 3-8: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 3-1 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	External input #3 PNP 24 V
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	PNP 24 V Output #2
14	Encoder Phase B input
15	Encoder Phase A input

Table 3-3: Input and Output Connections

Note: For more information on configuring the inputs and outputs, refer "Working with the Configurable Inputs and Outputs" on page 3-26.

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)
- Ethernet 10baseT/100baseTX High Speed Network Port (RJ45 Connector)

Table 3-4 lists the connections to the RS232 Serial Communications Port.

Pin	Connection
1	Data Carrier Detect (DCD)
2	Receive Data (Rx)
3	Transmit Data (Tx)
4	Data Terminal Ready (DTR)
5	GROUND
6	Data Set Ready (DSR)
7	Request To Send (RTS)
8	Clear To Send (CTS)
9	Ring Indicator (RI)

Table 3-4: RS232 Serial Communications Port Connections

The printer is primarily designed to communicate with the CLARICOM™ Package Coding Management Software, such as the CLARiSOFT™ Image Design Software and CLARiNET™ Coder Networking Software (supplied separately). CLARiTY® is supplied with some default images installed in its database memory.

CLARiTY® can be configured to work in one of the following modes:

- 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®.

- Network Mode

Create images on a PC using CLARiSOFT®.

Download to CLARiTY® using the Ethernet TCP/IP network and CLARiNET® network software.

Images (Jobs) can be requested from the CLARiTY® panel or can be selected and downloaded from any networked PC workstation that is running CLARiNET®.

Cable Connections

Figure 3-9 displays the details of the printer cable connections.

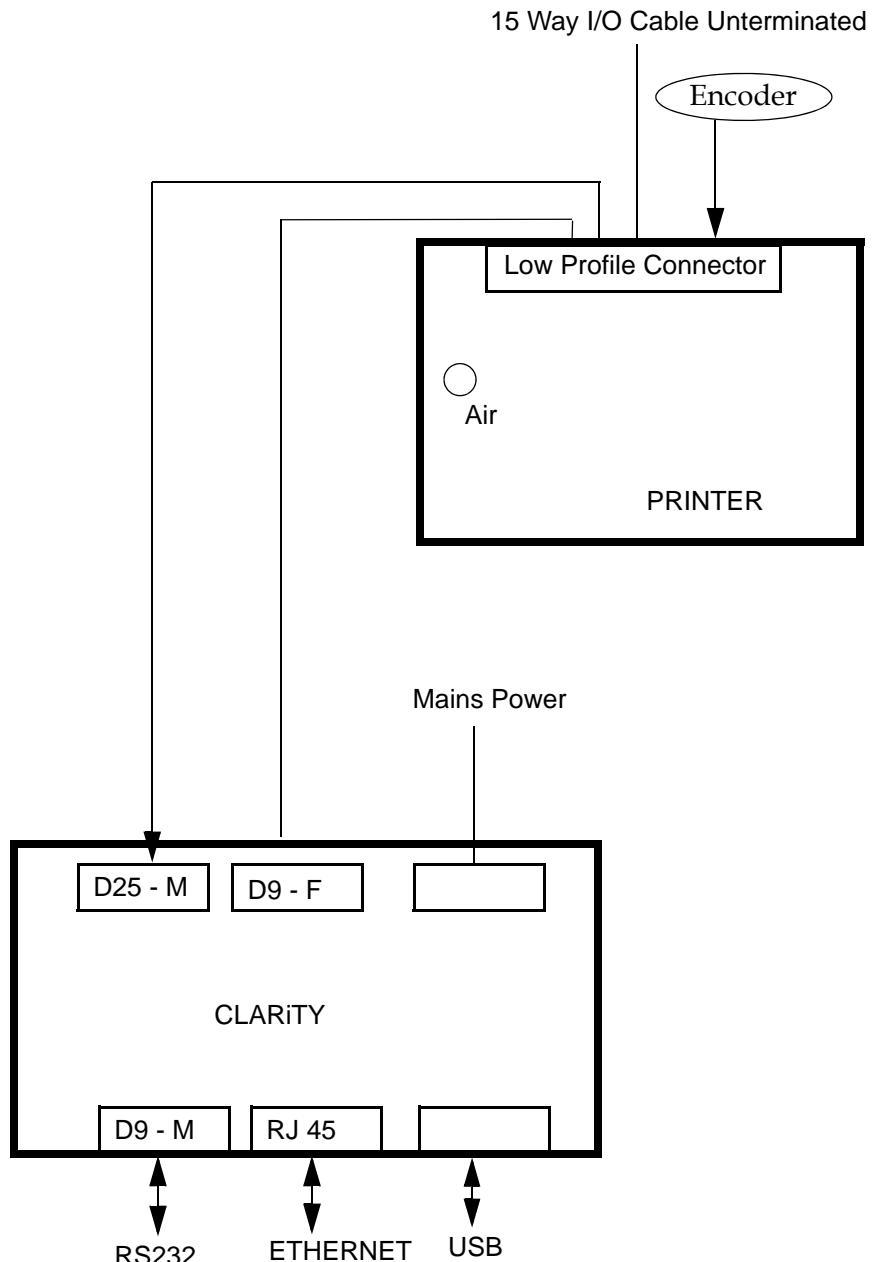


Figure 3-9: Cable Connections

Switching the Power On

To switch the printer on, turn the power switch on the CLARiTY® controller to the I (On) position (Figure 3-10).

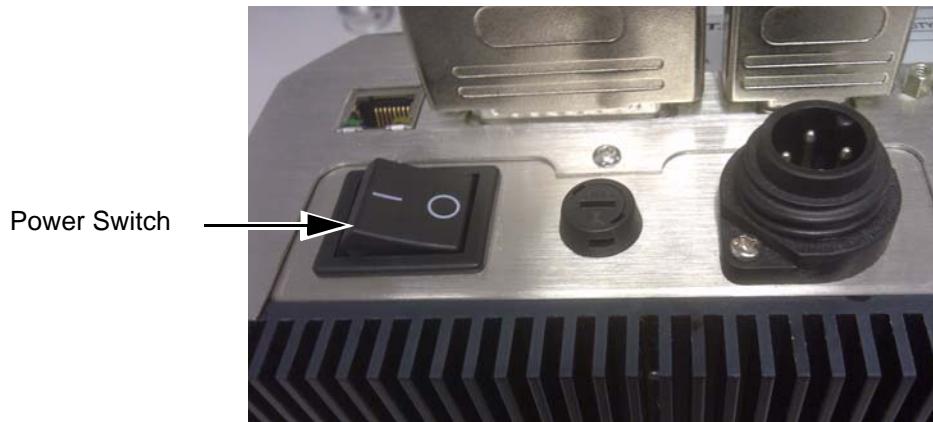


Figure 3-10:Standard Printer Power Switch

Once power is switched ON, the controller will boot-up. This will take approximately 90 seconds, during which startup screen appears.

On successful boot-up, the home page appears (Figure 3-11 on page 3-16).

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 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.

Figure 3-11 displays the CLARiTY® home page in the OFFLINE state.

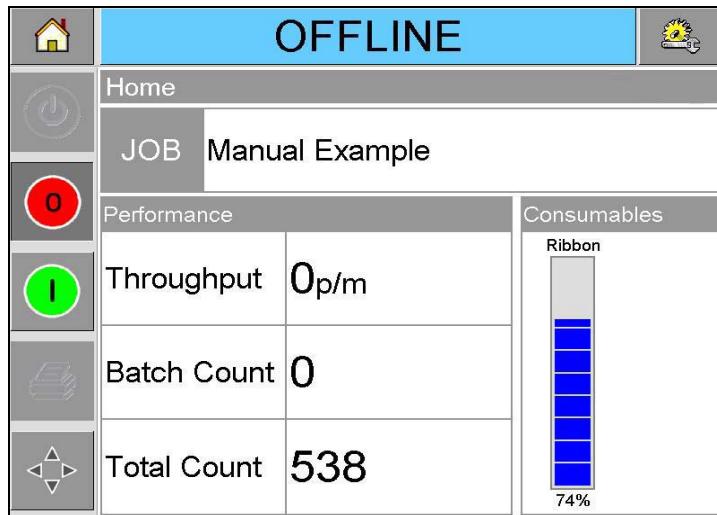


Figure 3-11:CLARiTY® Home Page in the Offline State

Understanding Printhead LEDs

Table 3-5 lists the printhead LEDs that indicate the status of the printer.

Color	On	Flashing	Off
Amber	Warning signal	Fault signal	No warning or fault
Green	—	Printhead is printing	—
Blue	Power on	—	No power to printhead

Table 3-5: LED Indicators

Note: The amber LED also flashes when the printer is being powered on and the printhead is initializing.

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.

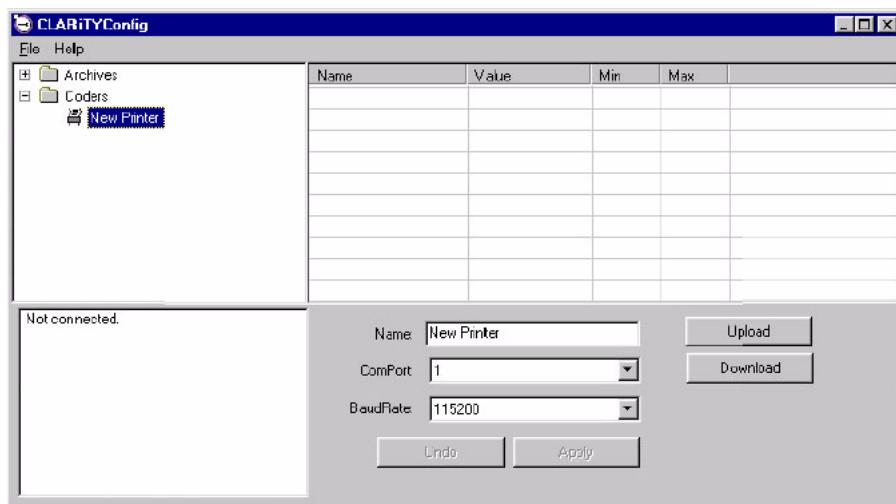


Figure 3-12: CLARiTY® Configuration Manager

The CLARiTY® Configuration Manager (Figure 3-12) 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,

- 1 Insert the Operator Manual CD (P/N: 462398)
- 2 Click on CLARiTY® Configuration Manager in the home page.
- 3 Run the CLARiTYConfig.exe file.
- 4 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.
- 2 Ensure that all other programs (such as, Active sync and other PDA applications) that use the serial port are disabled.
- 3 Run the CLARiTY® Configuration Manager on the PC (Figure 3-13).

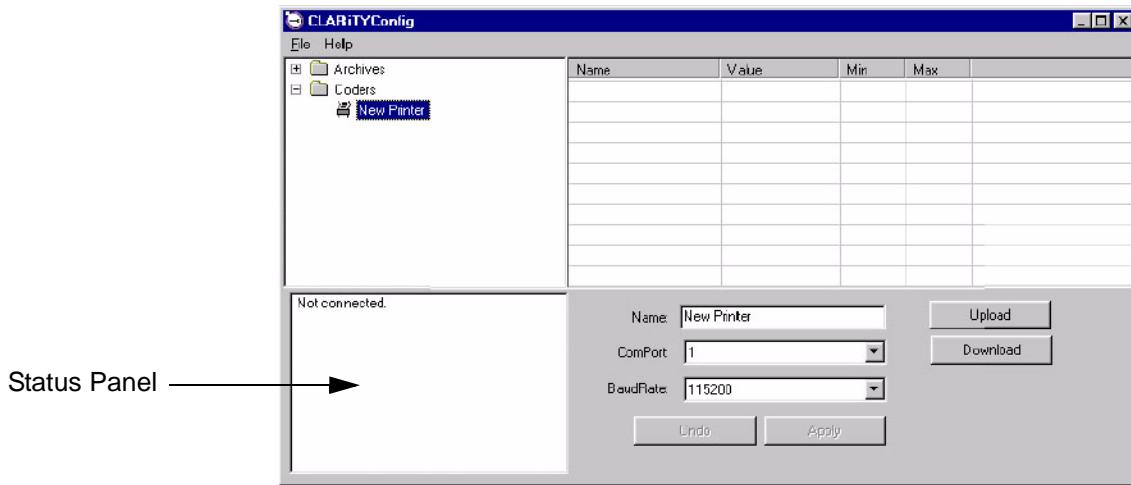


Figure 3-13: CLARiTY® Configuration Manager

- 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 3-13, 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).

Connecting the CLARiTY® Configuration Manager to the Printer using an Ethernet cable

Connecting the printer to CLARiTY® Configuration Manager via Ethernet requires the following

- A correct Ethernet cable:
 - If connection is being made directly between the PC and the printer a crossed Ethernet cable must be used
 - If the connection is being made via an office LAN or Ethernet hub, then an ordinary uncrossed patch cable is required
- Correct configuration of the PC ethernet port
- Correct configuration of the printer's ethernet port

To connect the CLARiTY® Configuration Manager to the printer, the following settings have to be done on the PC ethernet port and printer's ethernet port:

PC

The PC Ethernet port must be set up to connect at a specific IP address. If you are connecting via an office LAN, consult with your IT manager before assigning IP addresses to your PC. If you are making a direct connection, you may specify any IP address.

- 1 Open the PC Ethernet port properties and modify the TCP/IP not to assign an IP address automatically. Then specify the new address (for example 10.27.55.130 in Figure 3-14 on page 3-21) and the subnet mask (Usually 255.255.255.0).

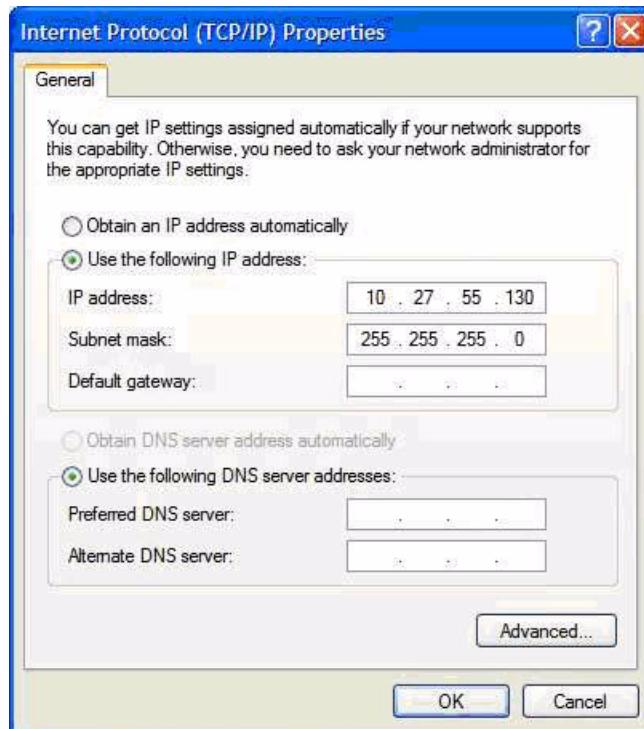


Figure 3-14: IP Address Settings on the PC

- 2 Click OK to apply the settings.

Printer (Coder) Ethernet Port

- 3 Connect the CLARiTY® Configuration Manager to the printer using an RS232 connection and upload the printers parameters.

- 4** Locate the TCP/IP configuration parameters as shown in Figure 3-15.

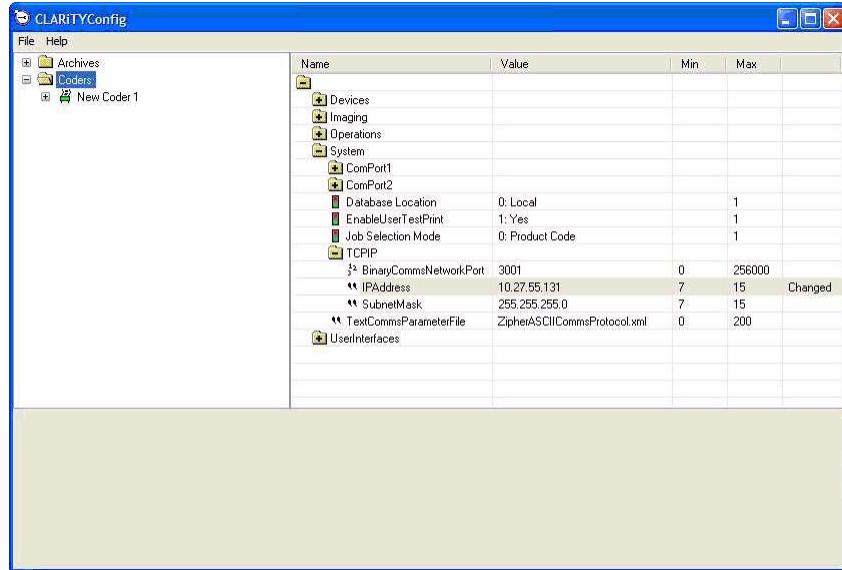


Figure 3-15: IP Address Settings on the Printer

- 5** Set the BinaryCommsNetworkPort parameter to 3001.
6 Set the IP address to be in the same range as the PC port (for example 10.27.55.131 in Figure 3-15 on page 3-22)
- Note: The printer IP address should not be the same as the IP address of the PC.*
- 7** Set the subnet mask to match that of your PC port.
8 Click the Download button to download the parameters to the printer.

- 9** Click the New printer icon and change the method of connection to Network. Enter the correct IP address and Port number to match the values downloaded into the printer (Figure 3-16).

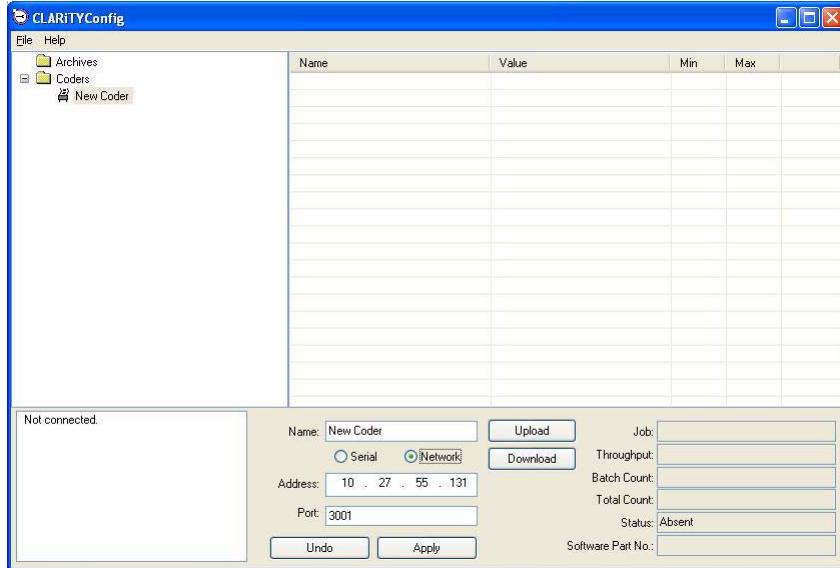


Figure 3-16: Printer Settings

- 10** Click Apply and the new settings are activated and the printer icon turns green (Figure 3-17).

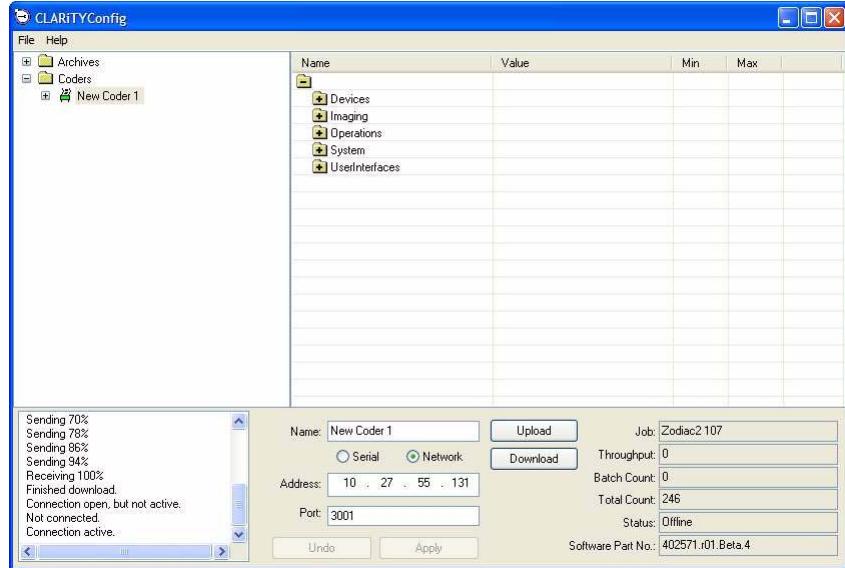


Figure 3-17: Printer Settings

- 11** 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 3-18 displays the list of parameters that are available in the printer settings.

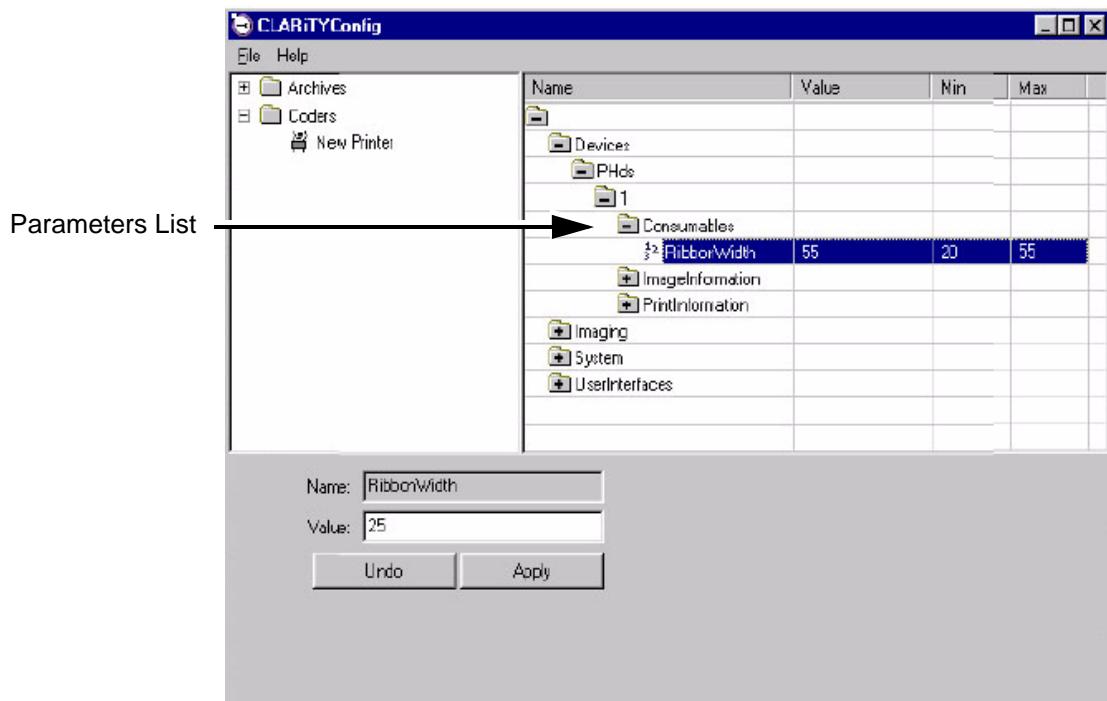


Figure 3-18: Parameter Settings

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 (refer Table 3-5).

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 Configurable Inputs and Outputs

The printer has a fully software configurable input/output system for interfacing the printer to the packaging equipment or the packaging line.

The configuration system allows the installer to define:

- Which logical printer events are assigned to each input
- When any input is logically On (in its high or low state)
- Which logical printer events cause each output to switch on
- Which logical printer events cause each output to switch off
- Whether an output is latched on or whether it is a 100 mS pulse event

The inputs and outputs are all configured using CLARiTY® Configuration Manager.

Configuring the Inputs

To configure the inputs, proceed as follows:

- 1 Connect CLARiTY® Configuration manager to the printer and upload the parameters.

2 Open the input configuration folder.

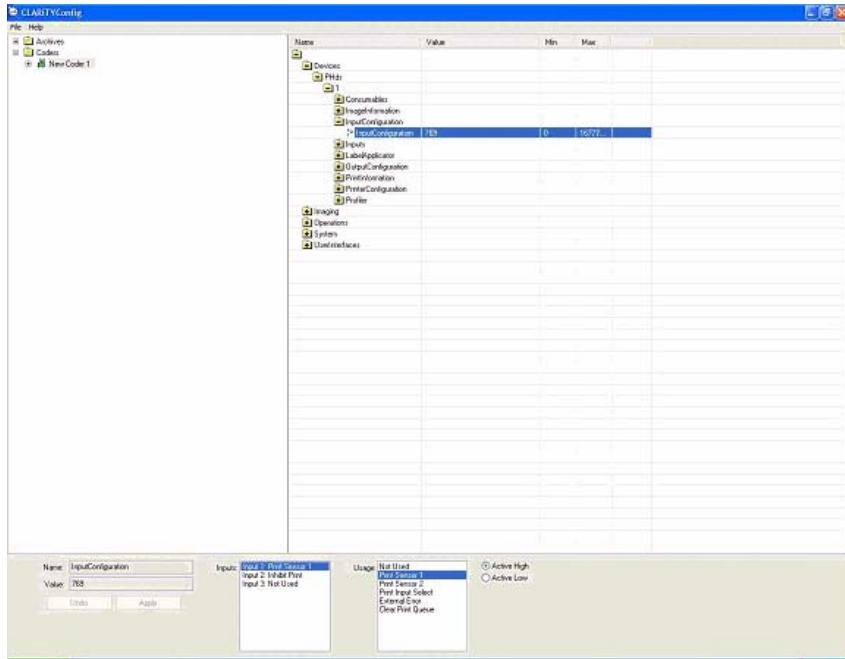


Figure 3-19:Input Configuration Window

- 3 The three physical inputs are displayed in the lower area of the screen. Click the one you wish to configure. The available options for that input are displayed in the Usage List.
- 4 Click the usage you wish to assign to that input and then click the radio button to set whether that input should be considered 'On' when it goes high or low.
- 5 Click apply to save these settings.

The available Usage options are:

- Print Sensor 1: Using a 24 V PNP input to trigger the printer to start printing
- Print Sensor 2: Using a 24 V PNP input to trigger the printer to start printing

Note: The printer supports the use of two print sensor options. Only one may be in use at a given time. The purpose of this is to accommodate two different methods of print triggering, for example a registration mark on printed film and a cam proximity sensor for use on unprinted film.

- Print Input Select: Uses an input to determine if Print Sensor 1 or Print Sensor 2 is the active print sensor for this print job

- External error: 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 run
- Clear print queue: Using a 24 V PNP input to inform the printer that the job allocation queue should be cleared (refer “Working with Print Allocations” on page 5-59 for allocations)

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

Configuring the Outputs

To configure the outputs, proceed as follows:

- 1 Connect the CLARiTY® Configuration manager to the printer and upload the parameters.
- 2 Open the output configuration folder.

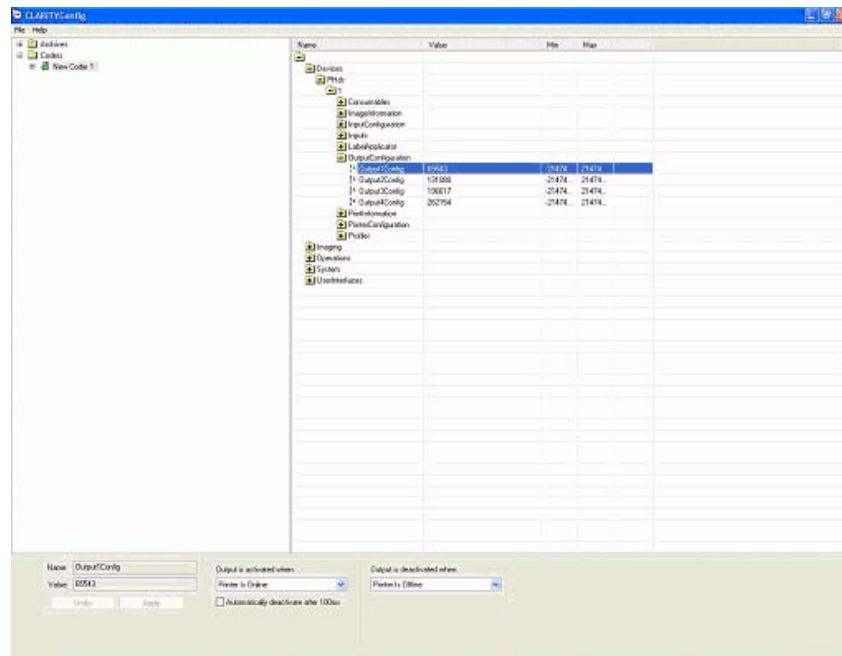


Figure 3-20:Output Configuration Window

- 3 Click on the output you wish to configure. The logical conditions that activate or deactivate the output are viewed in the lower area of the screen.
- 4 Select the event that you wish to activate or deactivate the output and click the radio box if you wish the output to be latched high/low or to operate as a 100 ms pulsed signal upon activation.
- 5 Click apply to save the settings.

The available options for activation/deactivation are:

- Job allocation has completed: Refer “Working with Print Allocations” on page 5-59 for allocations
- Job update queue is full: Refer “Working with Print Allocations” on page 5-59 for allocations
- Job update queue is not full: Refer “Working with Print Allocations” on page 5-59 for allocations
- Labeller may feed labels: Not currently supported
- Labeller may not feed labels: Not currently supported
- New job allocation is received: Refer “Working with Print Allocations” on page 5-59 for allocations
- Not used: The output has no function
- Print cycle complete: The printer can now start a new print (motors and ribbon are now stationary)
- Print cycle starts: Print signal has been received and any registration delay has expired
- Print failed: A request to print was not successfully completed.
Possible causes are
 - Aborted print
 - No allocation available but print signal received
 - No print job is selected but a print signal received
- Print signal ignored: The print signal has been ignored by the printer. A print signal was received whilst a registration delay was being counted. The printer can be printing and counting down the next registration delay from a new print signal (that is processing two print signals simultaneously) but one of the print signal events must be in the printing phase whilst the other is in the registration phase. You cannot have two print signals in the same phase of printing or registration
- Printer enters fault: A fault condition has occurred
- Printer enters warning: A warning condition has occurred
- Printer finishes printing: The printer has stopped physically printing onto the product
- Printer is busy: The printhead is out in its printing position
- Printer is not busy: The printhead is retracted from its printing position
- Printer is online: The Start button has been pressed and the printer is ready to run

- Printer is offline: The Stop button has been pressed and the printer is not ready to run
- Printer leaves fault: The fault condition has been cleared
- Printer leaves warning: The warning condition has been cleared
- Printer starts printing: The printer has started to physically print onto the product

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

Default Options Configuration

Table 3-5 lists the default options configuration for the printer.

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
Devices, Phds,1	Consumables	End Of Reel Detection	Detection Mode	None	Reactive	Sets the end of reel detection to Reactive or Predictive.
		Ribbon Color	Ribbon Color	None	Black	Sets the ribbon color to Black, White or Other.
		Ribbon Type	None	None	Standard/Premium	Sets the ribbon type to Standard/Premium, High Speed or Standard/Long
		Ribbon Width	Ribbon Width	mm	55	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).

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
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
	Input Configuration		Input Configuration	None	IP1=Print sensor 1 IP2 = Inhibit Print IP3 = Not used All are active high	Permits configuration of the 3 software configurable printer inputs.
	Inputs, Encoder	Encoder Mode	None	None	Quadrature	Sets the encoder logic to either single or 2 phase operation. 2 phase operation enables the coder to sense film direction. It requires a quadrature encoder (as supplied by the manufacturer)
		Encoder Number Of Lines	Number of Lines	None	500	Resolution of the encoder (lines per revolution).

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
Devices, Phds,1	Inputs, Encoder	Encoder Wheel Diameter HMM	Wheel Diameter	0.01mm	5335	Diameter of the encoder wheel
		Encoder Source	Encoder Source	None	24V Push-Pull Inputs	Sets the input source to 24V push-pull input or RS422
		Missing Speed	Missing Speed	None	No	Activates the fault for the missing speed signal
	RS422 Encoder	Encoder Pulses Per HMM	Encoder Pulses	0.01mm	10833	Sets the number of pulses for the RS422 encoder between 600 and 50000
	Label Applicator					All parameters reserved for future use
	Output Configuration	Output1Config	None	None	Printer is online/offline	Permits configuration of programmable output #1 to set the logical on and off events
		Output2Config	None	None	Printer in Warning/not warning	Permits configuration of programmable output #2 to set the logical on and off events
		Output3Config	None	None	Printer is Busy/not busy	Permits configuration of programmable output #3 to set the logical on and off events
		Output4Config	None	None	Printer starts printing/stops printing	Permits configuration of programmable output #4 to set the logical on and off events

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
Devices, Phds,1	Print Information	Abort Print Time out	None	mS	2000	A time out only used in conjunction with Low Speed Behavior. The time-out starts when a low speed pack is detected (<40mm/s) When the time-out expires, the print is aborted. No further print is placed on that bag. This parameter is only effective when the Low Speed Behavior parameter is set to Abort after Time-out.
		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.
Devices, Phds,1	Print Information	Continuous Maximum Print Speed	None	mm per sec	1000 for 53 mm printer 800 for 107 mm printer	Limits the maximum print speed in continuous mode printing in order to maximise the number of packs per minute. Used when the actual film speed is significantly below the printers specified maximum print speed but the number of packs per minute required is high. Limiting maximum print speed reduces the ribbon waste that has to be reclaimed and shortens the print/rewind cycle.

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

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	0.01mm	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
		High Speed Printing	High Speed Printing	None	No	Allows selection of High throughput or Increased throughput modes of printing

Table 3-5: Videojet DataFlex 6420 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 OCR Mode	Intermittent OCR Mode	None	No	Allows selection of Intermittent OCR (optical character recognition) 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	0.1mm	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.

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
Devices, Phds,1	Print Information	Low Speed Behavior	None	None	Resume on speedup	Sets 4 options for how the coder behaves when the film speed drops below 40mm/s while the coder is printing in continuous print mode. 1) Resume on speedup - resume printing the image from the point printing stopped as soon as the film speed reaches 65mm/s 2) Abort instantly- Abandon the print and wait for the next bag 3) Abort after time-out. If the bag becomes stationary the print aborts after the time-out elapses. No further print is on the bag. It requires the parameters Maximum Re Print Gap, Abort Print Time out and Unprinted Pack Behavior to be set as well, depending on the behavior required 4) Print- Continue Printing
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
		Printhead Width	Printer Width	mm	53	Width of the printhead (53mm or 107mm)
		Printhead to Platten Gap	Printhead to Platten Gap	mm	1.5	Allows selection of the distance between the printhead and platten between 0.5 to 4.5mm

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
Devices, Phds,1	Print Information	Print Sensor Deb ounce	None	mm	1	<p>The distance of film that has to advance with the print signal being 'on' before it is accepted.</p> <p>Used to avoid multiple erroneous print signals when a sensor or signal is not giving a clean switch.</p> <p>Works in conjunction with Print Sensor Deb ounce Time - the first to expire wins.</p> <p>Using the distance method of debouncing guarantees print registration, the time based system doesn't.</p>
Devices, Phds,1	Print Information	Print Sensor Deb ounce Time	None	mS	10	<p>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.</p> <p>Works in conjunction with Print Sensor Deb ounce Time - the first to expire wins.</p> <p>Using the distance method of debouncing guarantees print registration, the time based system doesn't.</p>

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
Devices, Phds,1	Print Information	Print Speed	Print Speed	mm per sec	200	The print speed to be used in intermittent mode printing
		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
		Ribbon Save Mode	Ribbon Save Mode	None	0	Sets the ribbon save mode 0) None 1) Interleaved images 2) Radial Printing 3) Intermittent stripes
		Trailing Edge Darkness	None	None	100	Allows the setting from 25 to 125

Table 3-5: Videojet DataFlex 6420 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	<p>There are 3 options.</p> <p>1) No fault. The coder carries on without error if there are uncoded or under speed packs</p> <p>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.</p> <p>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.</p>
		Vertical Registration	Vertical Registration	mm	0	Moves the image across the width of the printhead
	Printer Configuration	Auto Clear Faults On Cassette Insert	None	None	No	Determines if all faults are cleared when the cassette is inserted
	Printing mode	Printing mode	None	0	Thermal Transfer	Allows the selection between thermal transfer and direct thermal
	Profiler	Capture Encoder Profile	Capture Encoder Profile	None	None	Triggers the capturing of an encoder profile

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
Imaging	Date Codes	Character Set	Character Set	None	0: ASCII	Sets the character sets ASCII, UTF8 or UNICODE
		Day of month codes	None	None	1, 2, 3	Allows the setting of unique special codes for each day of the month. It is a global setting for the printer and all layouts that reference a day of month code print these values
		Day of week codes	None	None	A, B, C, D, E, X, S	Allows the setting of unique special codes for each day of the week. It is a global setting for the printer and all layouts that reference a day of week code print these values
		Hour Codes	None	None	A, B, C, D, E, F, G, H, J, K, L, M, N, P, Q, R, S, T, U, V, W, X, Y, Z	Allows the setting of unique special codes for each hour of the day. It is a global setting for the printer and all layouts that reference an hour of day code print these values
Imaging	Date Codes	Minute Codes	None	None	AG, AH, AI, AJ, AL, AM, AN, AO, AP, BG, BH	Allows the setting of unique special codes for each minute of the day. It is a global setting for the printer and all layouts that reference a minute of day code print these values
		Month Codes	None	None	JA, FE, MR, AL, MA, JN, JL, AU, SE, OC, NO, DE	Allows the setting of unique special codes for each month of the year. It is a global setting for the printer and all layouts that reference a month of year code print these values
		Week of Year Codes	None	None	1, 2, 3, 4, 5, 6, 7....	Allows the setting of unique special codes for each week of the year. It is a global setting for the printer and all layouts that reference a week of year code print these values

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
Imaging	Date Codes	Year of Decade Codes	None	None	A, B, C, D, ...	Allows the setting of unique special codes for each year of the decade. It is a global setting for the printer and all layouts that reference a year of decade code print these values
	Line Selection	Enable Line Selection	Enable Line Selection	None	No	Allows the set up of Line Select Mode
		Line Selection Mode	Line Selection Mode	None	Binary Inputs	Sets up line selection mode: 0) Communications 1) Binary Inputs 2) Binary Hot Bit Inputs
		Number of Lines	None	None	4	Sets the number of production lines between 2 & 4
	Printhead Mapping		None	None	Printhead 1	Used in Master/Slave setup only
	Printer Codes	Equipment ID	None	None	1	Allows the setting of a unique special code for the Equipment ID. It is a global setting for the printer and all layouts
		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 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
Imaging	Shift Codes	Number of Shifts	None	None	0	The number of shifts per day
		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
	Transmitted Fields	Character set	None	None	ASCII	Sets the character set to ASCII, UTF8, UNICODE
		Parse Escape Sequence	None	None	No	Sets the Parse Escape Sequence to Yes or No
		Trigger Mode	None	None	Disabled	Sets the trigger mode: 0) Disabled 1) Transmit on Job Select/Update 2) Transmit on Print
	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	Trigger log files generation
		Perform Motor Calibration	None	None	None	Calibrate the stepper motors
		Print Test Image	None	None	None	Print a test image
System	ComPort1	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

Table 3-5: Videojet DataFlex 6420 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, Text Communications, CLARiTY® Comms, ZPL Emulation)
	ComPort2 (option)	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
		Usage	Usage	None	None	Sets the protocol running on the port (None, Text Communications, CLARiTY® Comms, ZPL Emulation)
	Data Base Location		None	None	Local	Is the layout database local in the printer, or remote, accessed via CLARiNET®
	Enable User Test Print		None	None	Yes	Decides whether the printer Test Print function is available from the CLARiTY® home screen
	Job Selection Mode		None	None	Product Code	Selection of job by product code or tiered job selection (via CLARiNET)
	Power Saving Mode		None	None	None	Selects the required power saving mode None, Minimal, High, Full
	Show Job Description on Home Screen	Show Job Description on Home Screen	None	None	No	Set to 'Yes', to show the selected job description on the home screen

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARI ^T Y® Name	Units	Default	Functionality
System	TCPIP	BinaryCommsNetworkPort	Port	None	0 or 3001	Set to Zero if Ethernet is not being used, otherwise it is set to the Ethernet Port
		IP Address	IP Address	None	0.0.0.0	IP address of the printer on an Ethernet network
		Subnet mask	Subnet Mask	None	255.255.255.0	Ethernet network subnet mask
		Text Comms	Job Selection Mode	None	Normal	Select from normal or selection per print
			Network Port	None	0	Allows setting of network port (0 - 256000)
		ZPL Emulation	Network Port	None	0	Allows setting of network port (0 - 256000)
		Text comms Async notification	None	0	0	Allows the enabling and set up of the Asynchronous text communications
		Text comms Parameter File	None	None	None	Allows the enabling and set up of the Asynchronous text communications

Table 3-5: Videojet DataFlex 6420 Printer Configuration Manager (Continued)

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
System	USB	Prompt on CLARiTY® Data File Detect	Prompt on CLARiTY® Data File Detect	None	Yes	Enables or Disables Prompt when Data files detected on USB
		Prompt on CLARiTY® Parameter Archive Detect	Prompt on CLARiTY® Parameter Archive Detect	None	No	Enables or Disables Prompt when Parameter Archives detected on USB
		Prompt on CLARiTY® Printer Clone Detect	Prompt on CLARiTY® Printer Clone Detect	None	No	Enables or Disables Prompt when Printer Clone detected on USB
		Prompt on CLARiTY® Update Detect	Prompt on CLARiTY® Update Detect	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 disk. When the USB is disabled, the user has to manually initiate the action from the user interface screen.
	ZPL	Barcode Sizing	Barcode Sizing	None	Balanced	Sets the required barcode size: Favour smaller barcodes, balanced, favour larger barcodes
		Emulation Resolution	Emulation Resolution	DPI	203 dpi	Sets emulation resolution at 203, 300 or 600 dpi
		Print Limit Mode	Print Limit Mode	None	Unlimited Prints	Sets the print limit at 0) Unlimited prints 1) Uses ZPL supplied print limit
		Print Mode	Print Mode	None	Download only	Sets the print mode: Download only, download & Select, Download, select & delete after use or select only (do not use database)

Section	Sub-Section	Parameter Name	CLARiTY® Name	Units	Default	Functionality
User Interfaces	CLARiTY®	Language	Language	None	English	Sets the active language being used by CLARiTY®
	Passwords	Enable Passwords	None	None	Disabled	Enables normal/advanced or disables password protection. If enabled, the passwords must be set up
	Re calibrate Touchscreen		Re calibrate Touchscreen	None	None	Triggers re calibration of the touchscreen
	Printhead Resistance		Printhead Resistance	None	1300	Sets the printhead resistance between 1074 and 1476
	Set Screen Orientation		Screen Orientation	Degrees	0	Rotates the entire display by 180 degrees
User Interfaces	Set Screen Contrast To Default			None	None	Not used on the Videojet DataFlex 6420 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)
	WebServer	Enabled	Enabled	None	No	Enables or Disables WebServer

Table 3-5: Videojet DataFlex 6420 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® operating system are explained in the Videojet DataFlex 6420 Operator Manual (P/N 462396). All technical aspects of the printer setup and control are accessed through the Tools button.

Figure 4-1 on page 4-2 shows the home screen of the CLARiTY® operating system.

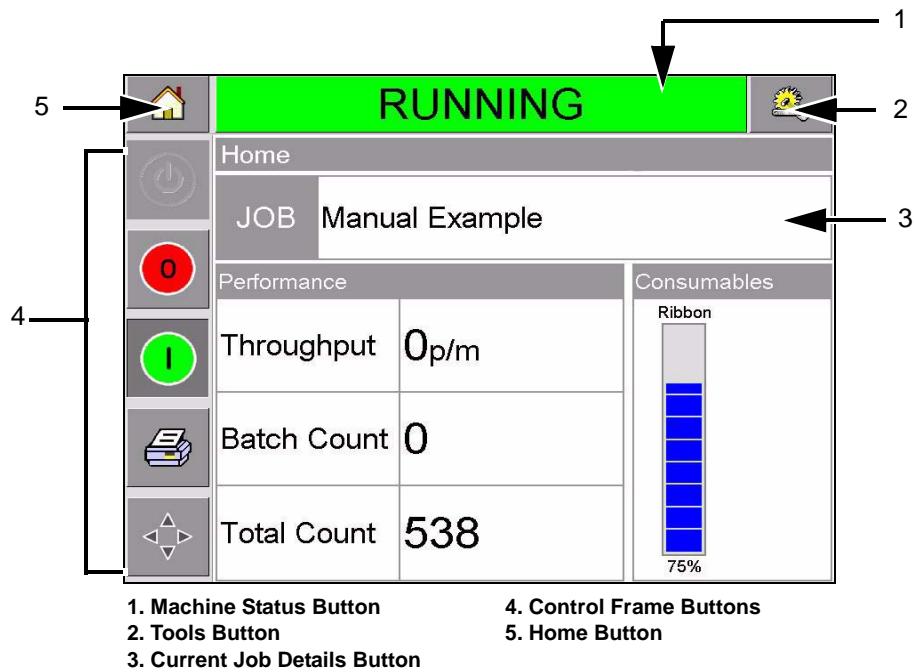


Figure 4-1: CLARiTY® Home Screen

Using the Tools Page

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

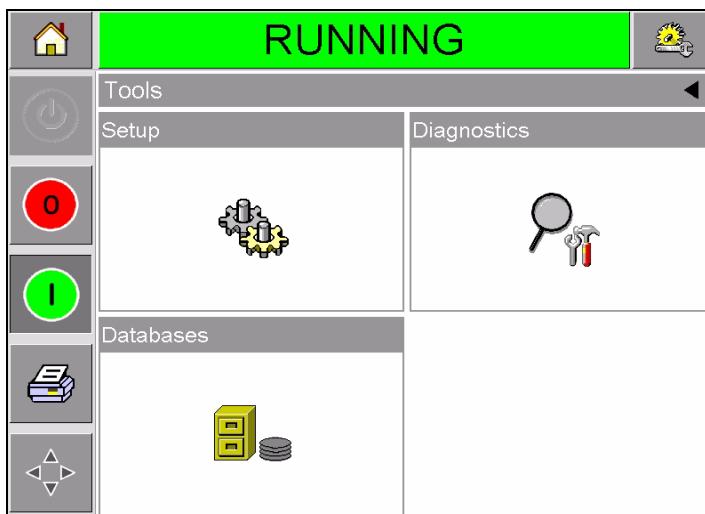


Figure 4-2: Tools Page

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).

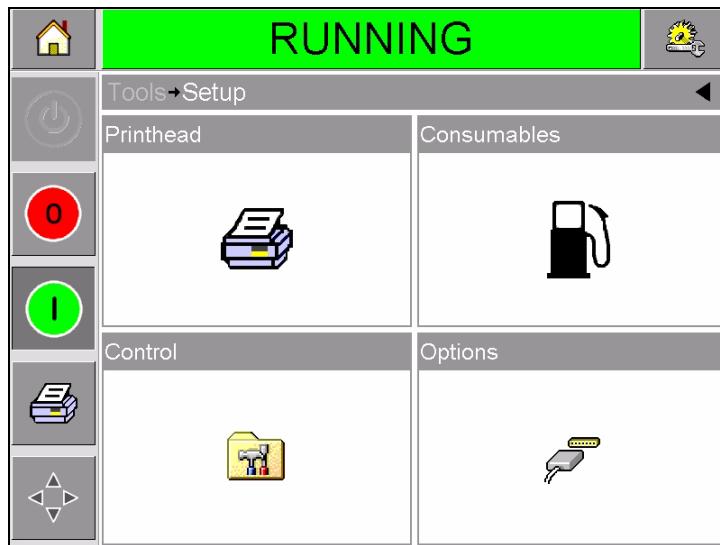


Figure 4-3: Setup Page

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 printer's 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 printer's 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.

- Ribbon Saving Mode: This mode enables a choice of either Interleaved Images or Radial Printing.
 - Interleaved Images enables a lower quality draft mode of printing with a 50% saving in ribbon consumption.
 - Radial Printing enables multiple prints to be printed across the width of the ribbon. The number of prints is automatically calculated by the system depending on the image height and the ribbon width.
- Printhead Resistance: Matches the drive electronics of the printer to the resistance characteristics of the printhead (Refer “Setting the Printhead Resistance” on page 5-23 for details of setup)

Printhead Setting in Continuous Mode

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

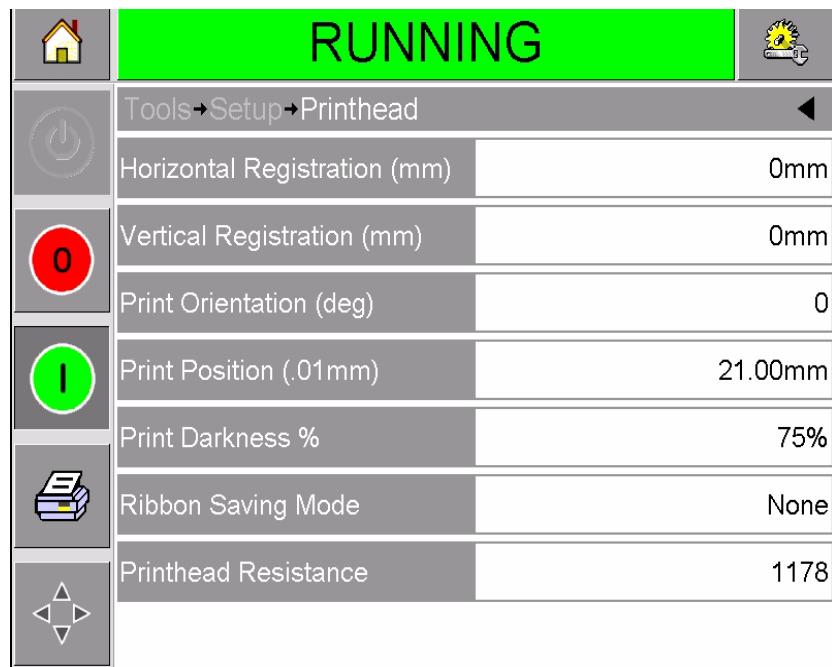


Figure 4-5: Printhead Parameters in Continuous Mode

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
- Ribbon Type: The default setting of Standard/Premium selects the standard printhead darkness controls. The High Speed setting selects a new set of controls designed for high speed ribbon. These new controls give better print performance across the print speed range.
- Ribbon Length: Allows the printer to set both the standard and longer ribbon length. The maximum ribbon length is 1200 meters.

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 user interface and the international region which control date/time formats displayed on the screen.
- Recalibrate Touchscreen: Allows the user to recalibrate the touchscreen, if touching the screen does not accurately locate the correct 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 control 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 control panel is installed in an inverted orientation
- Date and Time: Sets the system date and time of the coder
- Labeller Control: This option is only available when the coder is set to Intermittent Mode. It is a legacy feature and is not used in current applications.

- 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).

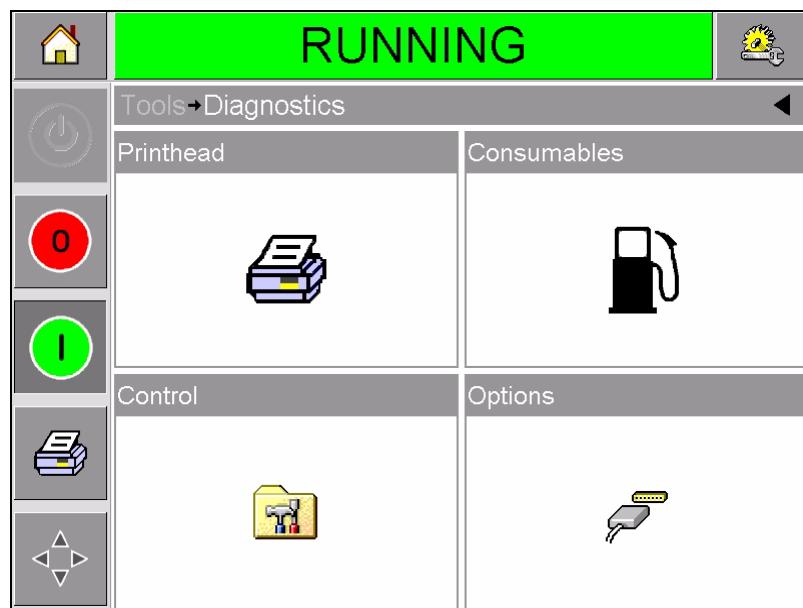


Figure 4-8: Diagnostics Page

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).

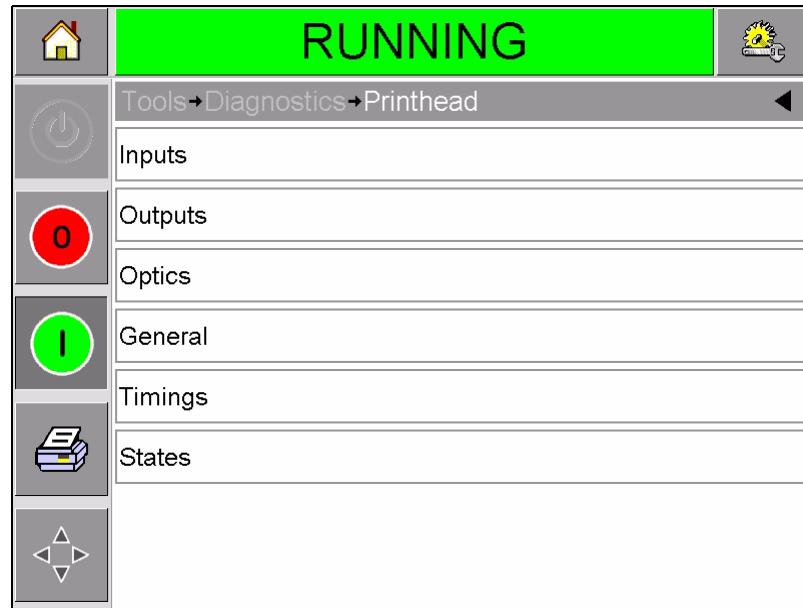
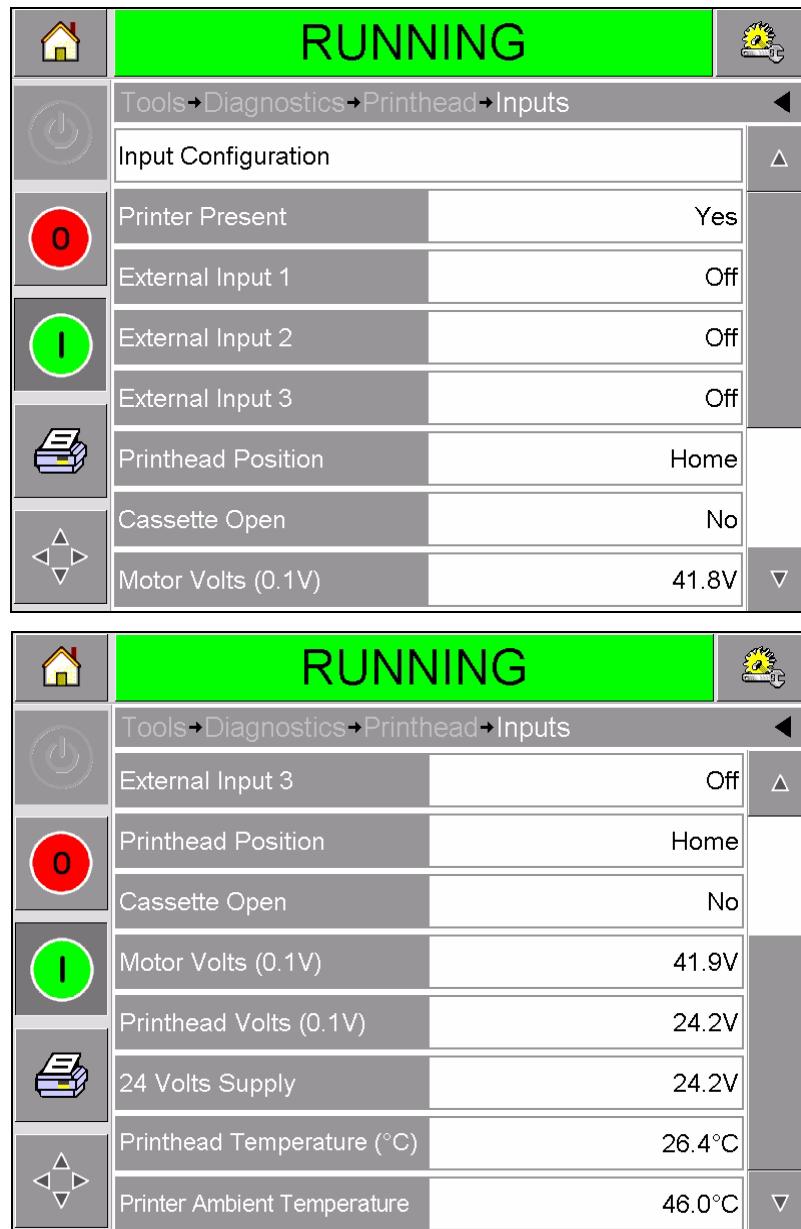


Figure 4-9: Printhead Diagnostics Page

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

- Inputs
- Outputs
- Optics
- General
- Encoder Profiles (not shown in screen above): This line will only be displayed when the printer is configured for continuous mode
- Timings
- States

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



RUNNING		
	Tools→Diagnostics→Printhead→Inputs	
	Input Configuration	
	Printer Present	Yes
	External Input 1	Off
	External Input 2	Off
	External Input 3	Off
	Printhead Position	Home
	Cassette Open	No
	Motor Volts (0.1V)	41.8V

RUNNING		
	Tools→Diagnostics→Printhead→Inputs	
	External Input 3	Off
	Printhead Position	Home
	Cassette Open	No
	Motor Volts (0.1V)	41.9V
	Printhead Volts (0.1V)	24.2V
	24 Volts Supply	24.2V
	Printhead Temperature (°C)	26.4°C
	Printer Ambient Temperature	46.0°C

Figure 4-10: Printhead Inputs Diagnostics Page (Complete List)

The input diagnostics page allows you access the following parameters:

- **Input configuration:** The coder has three software configurable inputs which are setup using CLARiTY® configuration manager. Touch the Input Configuration button to view a new page which informs you about the current usage of the three inputs (as defined by CLARiTY® configuration manager). For more details refer “Configuring the Inputs” on page 3-26.

- 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).

Note: The item Encoder will only appear when the printer is configured for continuous mode.

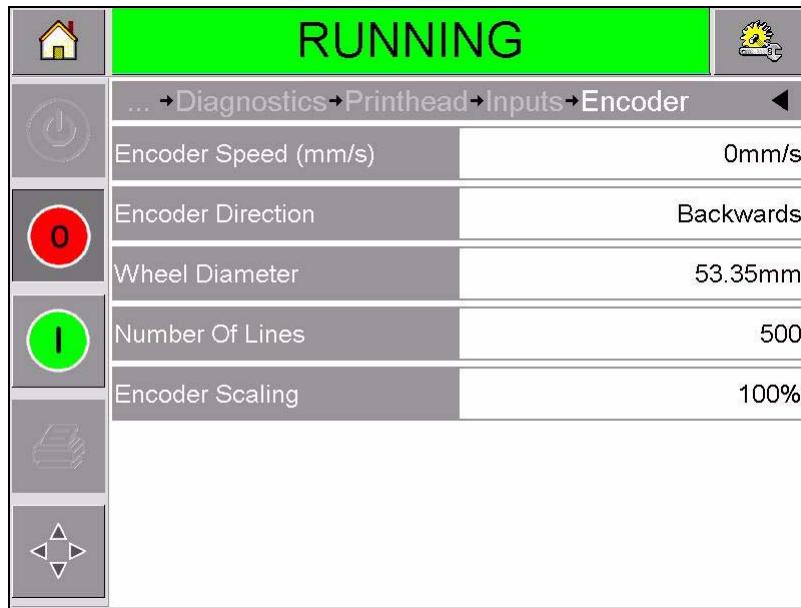


Figure 4-11: Encoder Diagnostics Page

- Encoder Speed: Shows the actual real-time speed of the film being measured by the encoder
- Encoder Direction: Shows the direction of rotation of the encoder if it is a quadrature device
- Wheel diameter: Shows the diameter of the encoder wheel
- Number of lines: Shows the resolution of the encoder expressed as the number of pulses per revolution
- 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 three inputs
- 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 42V)
- Printhead Volts: Shows the drive voltage to the printhead. This varies, depending on the printhead resistance but should be in the range of 23V
- 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).

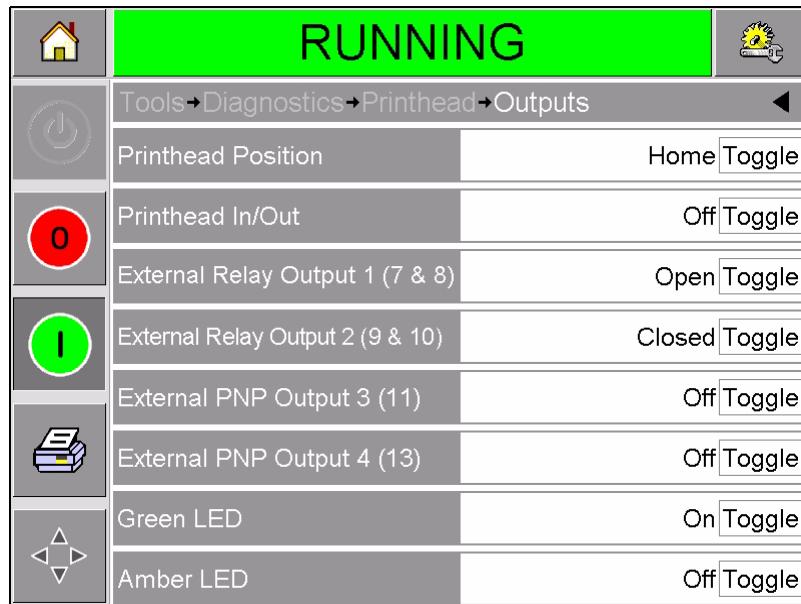


Figure 4-12: Printhead Outputs Diagnostics Page

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 platten or roller
- External Relay and PNP Outputs: The printer has 2 configurable relay outputs and 2 configurable PNP 24V outputs. For more details on

configuration, for more details refer “Setting the End of Reel Detection” on page 5-57.

- Green LED: Toggles the green LED at the front of the printer
- Amber LED: Toggles the orange at the front of the printer

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

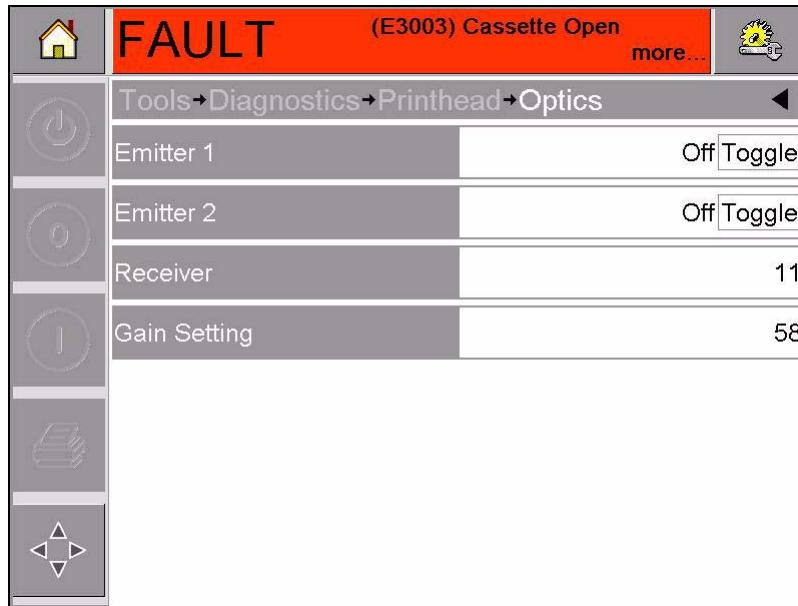
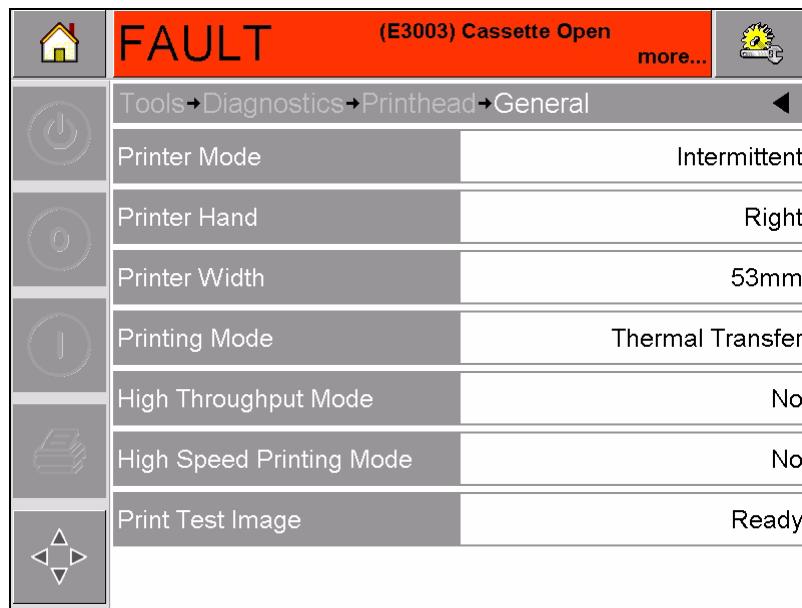


Figure 4-13: Printhead Ribbon Calibration Page

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 around 250 are read when 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.
- 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 60 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.



	FAULT	(E3003) Cassette Open	more...	
	Tools→Diagnostics→Printhead→General			
	Printer Mode	Intermittent		
	Printer Hand	Right		
	Printer Width	53mm		
	Printing Mode	Thermal Transfer		
	High Throughput Mode	No		
	High Speed Printing Mode	No		
	Print Test Image	Ready		

Figure 4-14: Printhead General Diagnostics Page

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

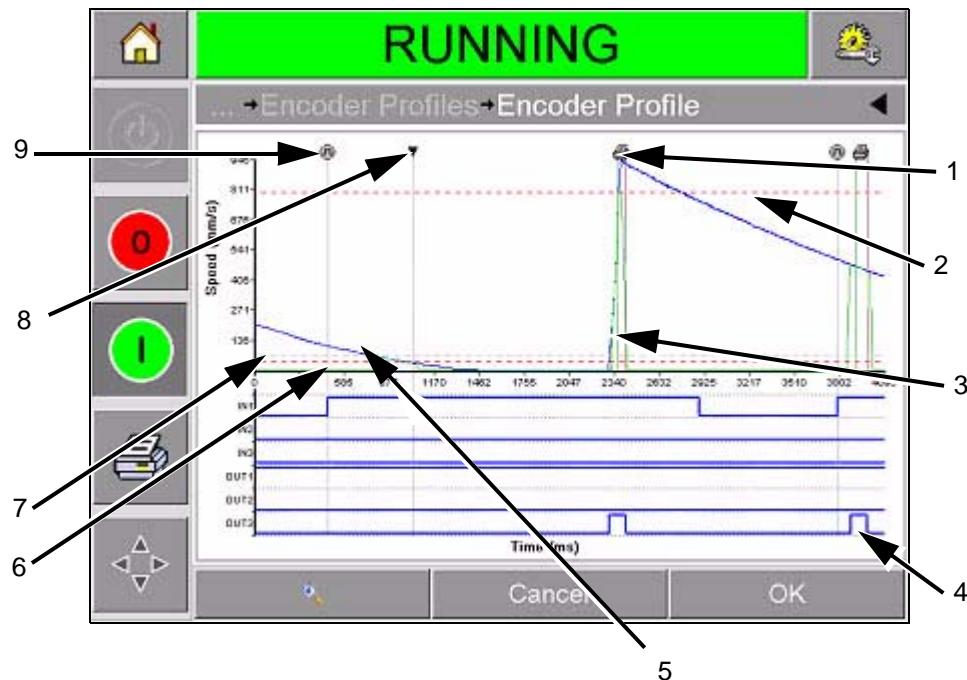
- Printer Mode: Indicates if the printer is configured as intermittent or continuous motion
- Printer Hand: Indicates what handing the printer is configured as
- Printer Width: Indicates whether the printer is configured as a 53-mm or 107-mm unit
- Printing Mode: This indicates whether the coder is set for Thermal Transfer (that uses a ribbon) or Direct (that uses the coder without a ribbon and printing directly on to thermal sensitive labels).
- High Throughput Mode: Indicates whether High Throughput Mode is enabled or not
- High Speed Printing Mode: Indicates whether high speed printing is enabled on the coder.
- 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 printer due to excessive linear speed or acceleration problems.

Encoder profiling allows the printer to capture the behavior of the packaging film from the encoder and plot the information onto the user interface 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.



- | | |
|---|---|
| 1. Printing
2. Printers Max Print Speed Setting
3. Green Line Shows Ribbon drive speed
4. Input and Output Status
5. Blue Line Film Speed measured by encoder | 6. Speed at which Low Speed Printing Resumes
7. Speed at which low speed printing stops
8. Trigger Point for Start of Profiling
9. Print Signal Received |
|---|---|

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 screen, proceed as follows:

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

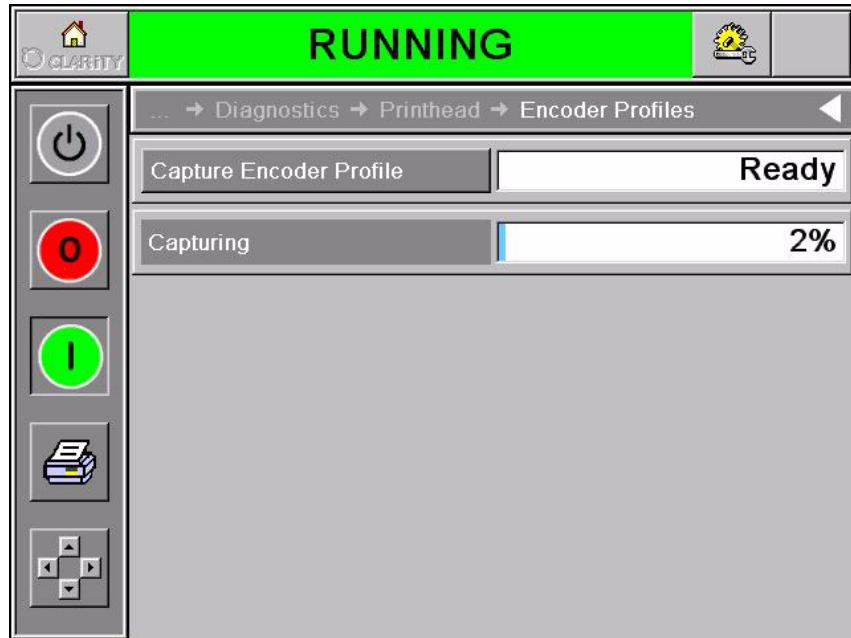


Figure 4-16: Encoder Profiles Page

- 2 To set up the options for the profile you want to capture, touch the following buttons:
 - Profiling starts: Has three options
 - Allows you to capture the profile automatically after you touch the Capture Encoder Profile button
 - Allows you to only capture a profile if the film speed drops below the minimum limit of the printers specification
 - 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.

In addition, if CLARiTY® Configuration Manager is communicating with the printer, the encoder profile may be uploaded to a PC for analysis.

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

- 1 Click on the new coder icon and navigate through devices and select Capture Encoder Profile from the list as shown in Figure 4-17.

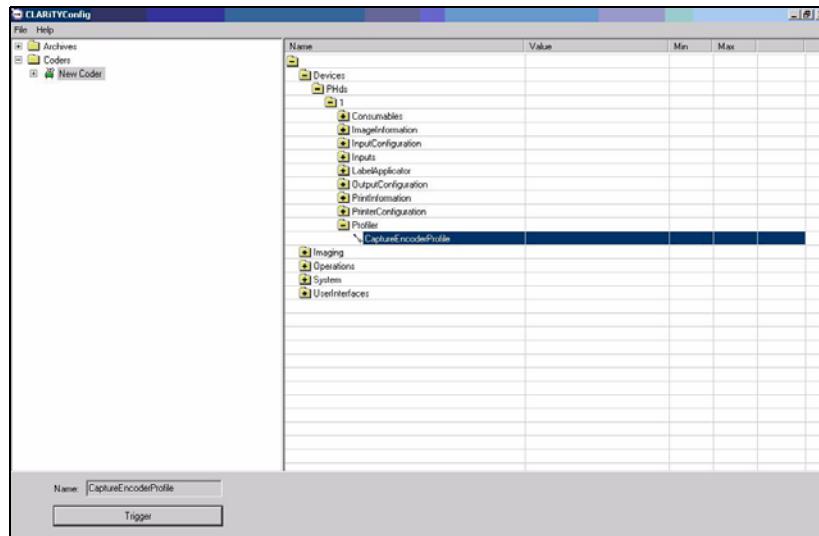


Figure 4-17: Encoder Profiles - CLARiTY® Configuration Settings

- 2 Click on Trigger button, the profile is captured in a file which is in comma separated value format (csv).
- 3 To access this file, select Log Files folder from new coder as shown in Figure 4-18.

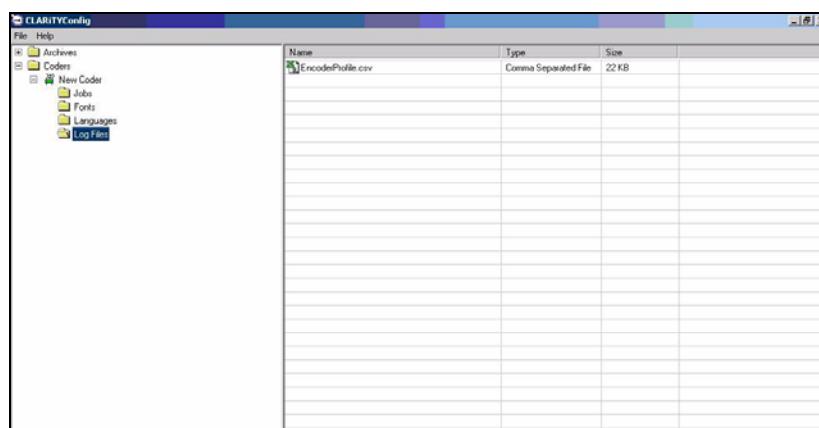


Figure 4-18: Encoder Profiles - Log Files

This file can be loaded into spreadsheet programs such as Microsoft Excel and using a Chart Wizard, a graph similar to that shown on the screen of CLARiTY® can be viewed.

Working with Printhead Timings

Touch the Timings button on the Printhead Diagnostics page access to the timings page (Figure 4-19 on page 4-18). 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.

Printhead Timings Diagnostics Page (Complete List)

Parameter	Value
Minimum Speed (mm/s)	0mm/s
Maximum Speed (mm/s)	0mm/s
Minimum Print Speed (mm/s)	0mm/s
Maximum Print Speed (mm/s)	0mm/s
Cycle Time (ms)	0
Printing Time (ms)	0
Job Selection Time (ms)	238
Job Data Update Time (ms)	0
Minimum Print Speed (mm/s)	0mm/s
Maximum Print Speed (mm/s)	0mm/s
Cycle Time (ms)	0
Printing Time (ms)	0
Job Selection Time (ms)	238
Job Data Update Time (ms)	0
Counter Update Time (ms)	0
Time/Date Update Time (ms)	0

Figure 4-19: Printhead Timings Diagnostics Page (Complete List)

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).

RUNNING	
Tools→Diagnostics→Consumables	
Ribbon Tension Statistics	
End Of Reel Detection	
Nominal Tension Demand	2200
Last Tension Measurement	2093
Min Tension Measurement	1415
Max Tension Measurement	4323
Spool 1 Diameter (.1mm)	38.2mm
Spool 2 Diameter (.1mm)	97.1mm

Figure 4-20: Printhead Consumables Diagnostics Page

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

- Ribbon Tension Statistics: This is for software debugging only and is not described here.
- End of Reel Detection: Touch on this button to open up a new diagnostics page dealing with the different methods of end of reel detection.

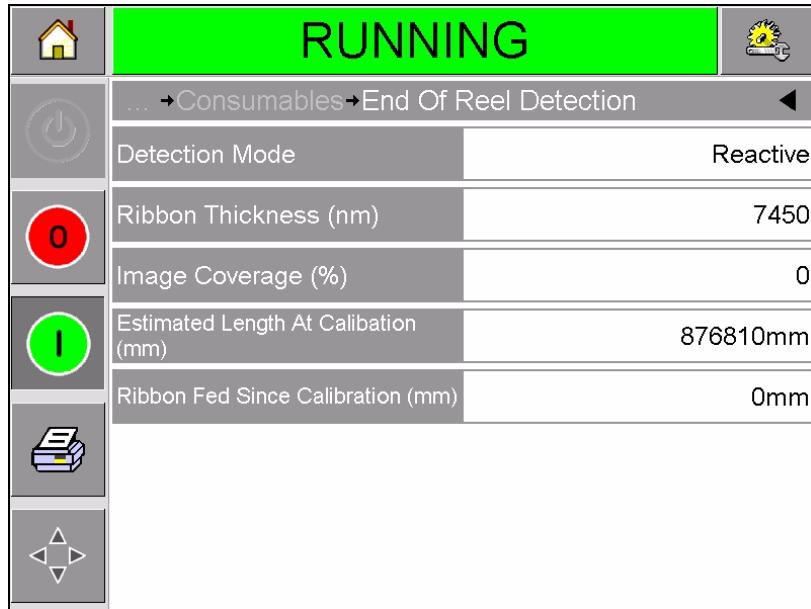


Figure 4-21: End of Reel Detection Parameters

The following parameters are access in this page:

- Detection Mode: Indicates which of the two end of reel detection methods are enabled (Refer “Setting the End of Reel Detection” on page 5-57 for more details)
- The other parameters are for software debugging only and are not described here
- Tension demand and measurement parameters are for debugging only and are not described here
- 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.

Working with Control Diagnostics

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

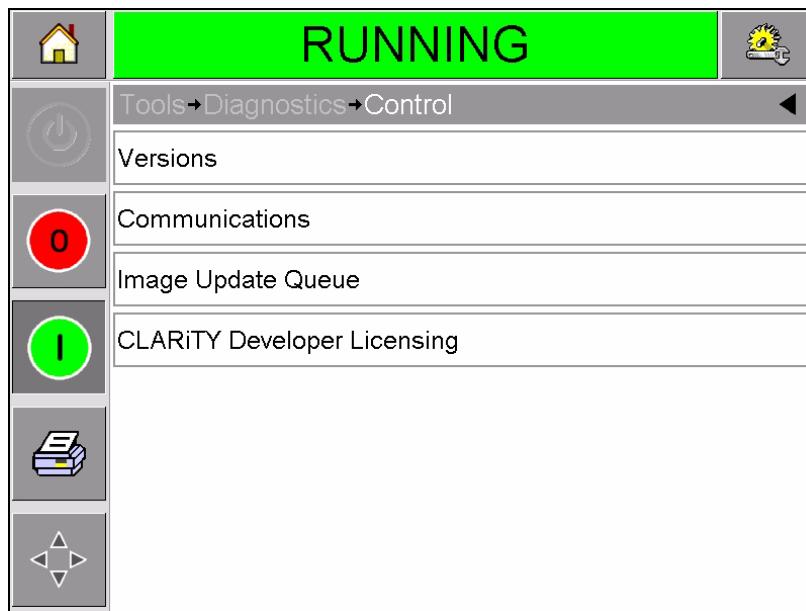


Figure 4-22: Control Parameters

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 access functions of each of the Communication Ports on the printer. The following parameters can be accessed in this page:

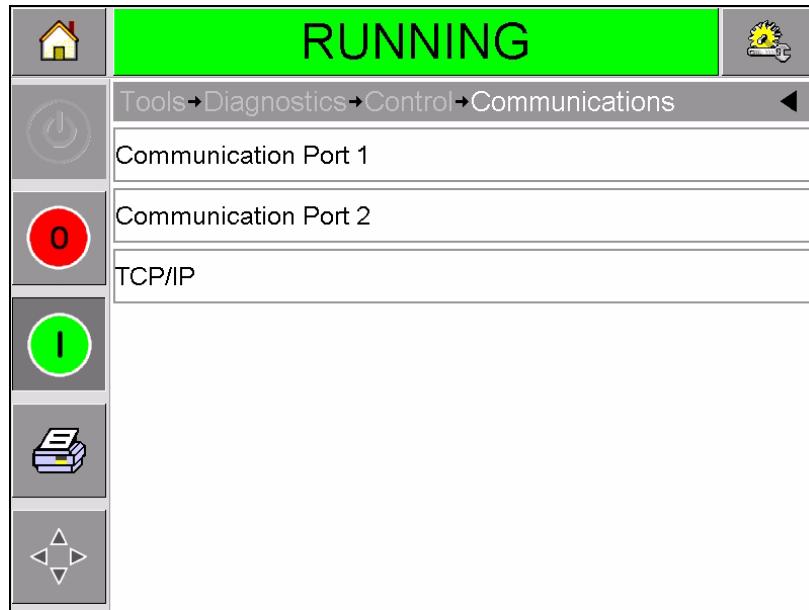


Figure 4-23: Communications Parameters

- Communication Ports 1, 2: Displays the status of each of the two serial ports, including the Baud rate the port is set to
- TCP/IP: Displays the status of the Ethernet port.
 - Text Communications: This indicates whether the text communications has been enabled for this coder.
 - ZPL Emulation: This indicates whether ZPL Emulation has been enabled for this coder.

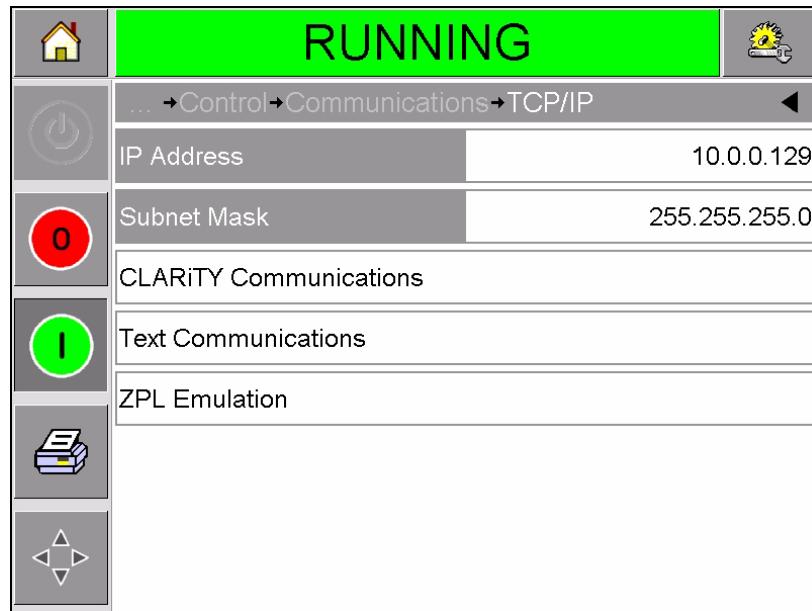


Figure 4-24: TCP/IP Parameters

- Image Queue Update: Allows you to view all the print jobs that are in the allocation queue (refer “Working with Print Allocations” on page 5-59 for more details)
- CLARiTY® Developer Licensing: This is not a feature supported in this version of the software

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.

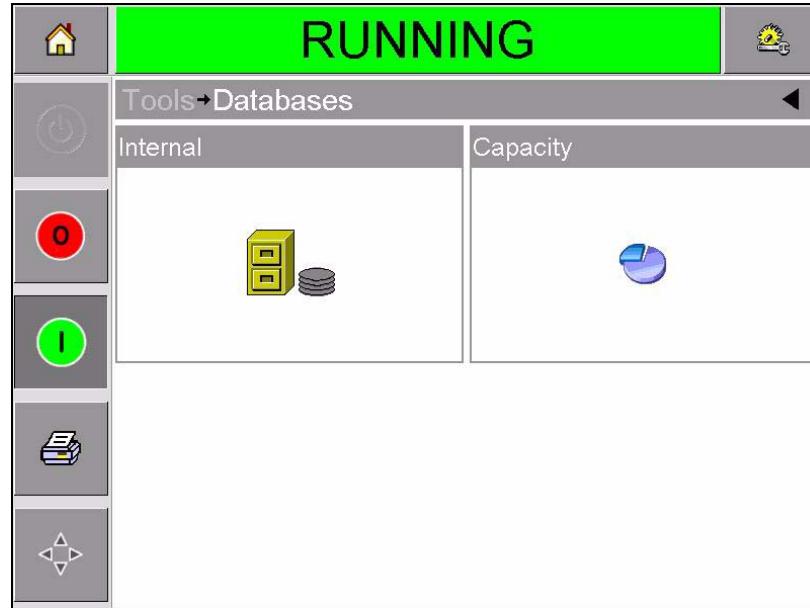


Figure 4-25: Database Page

The following parameters can be accessed 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 4-26).



Figure 4-26: Standard Printer USB Port

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

- 1 Use the *Print to File* option within CLARiSOFT® to download the Image CIFF file into a root directory called \jobs on the USB memory device.
- 2 Insert the USB memory device into the USB port (Figure 4-26).
- 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 4-27).

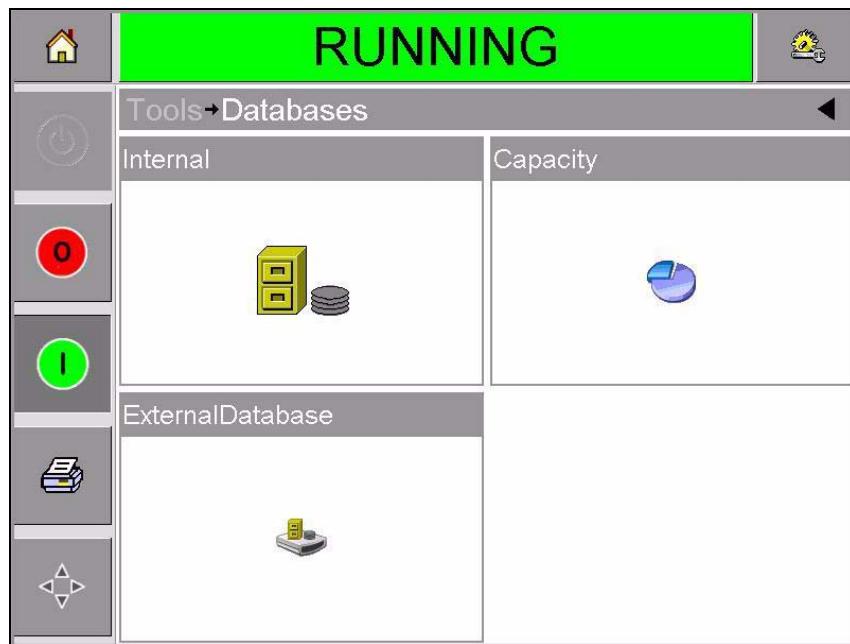


Figure 4-27: External Database

- 4 Touch External Database button to view all the jobs in the USB device (Figure 4-28).

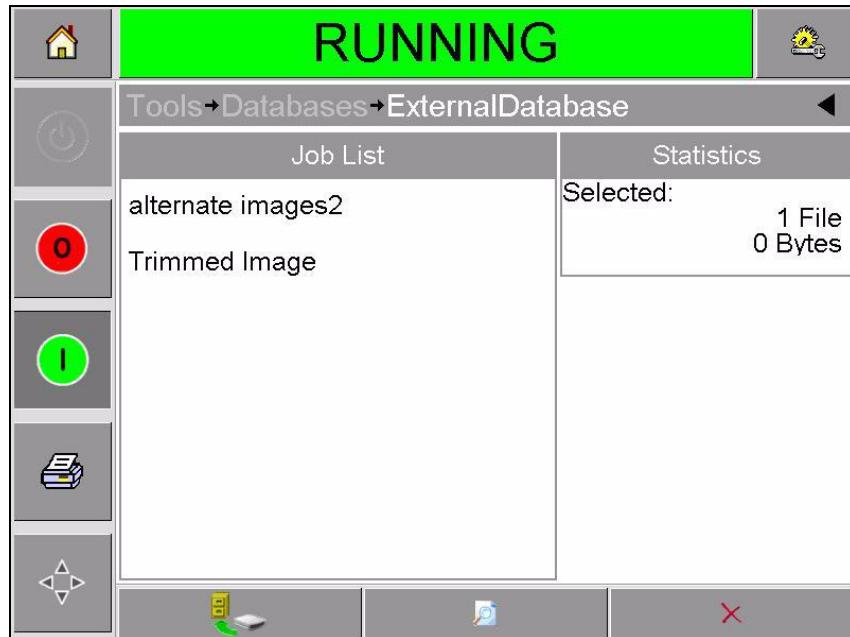


Figure 4-28: Jobs List on USB Device

- 5 Touch on the job you require, the file size is displayed

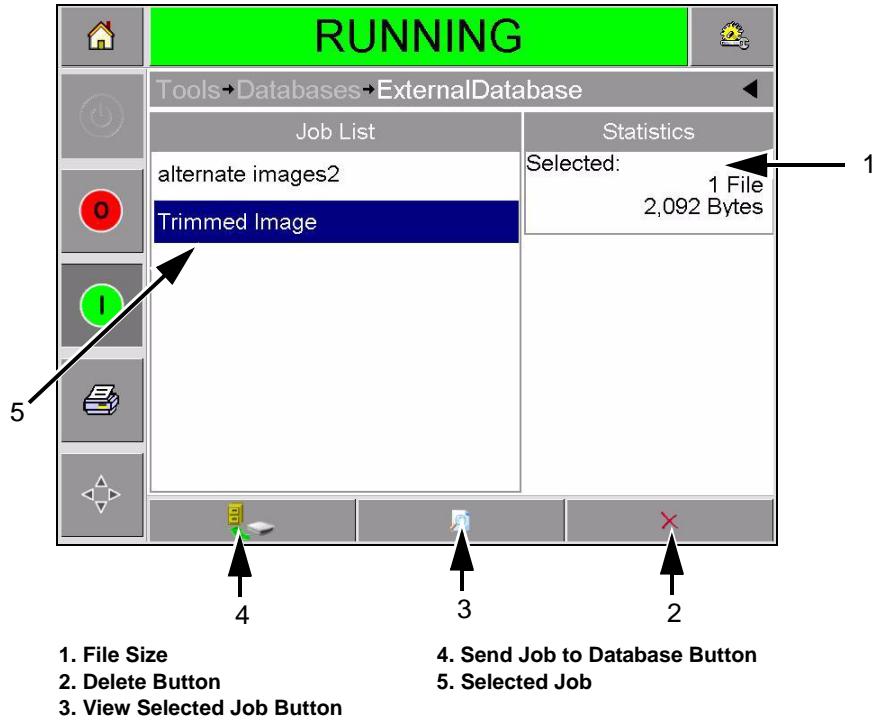


Figure 4-29: Jobs Details

Using the buttons in the bottom of the page (Figure 4-29) you can either view the job, or send a file to the local database, or delete the job from the USB device.

- 6 Touch on the send a file to the local database button. A confirmation appears (Figure 4-30). Touch ok to confirm.



Figure 4-30: 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 the user interface.

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 the user interface is done using the CLARiTY® Configuration Manager.

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

Navigate to *User Interfaces > CLARiTY > Passwords > Enable Passwords* (see Figure 4-31).

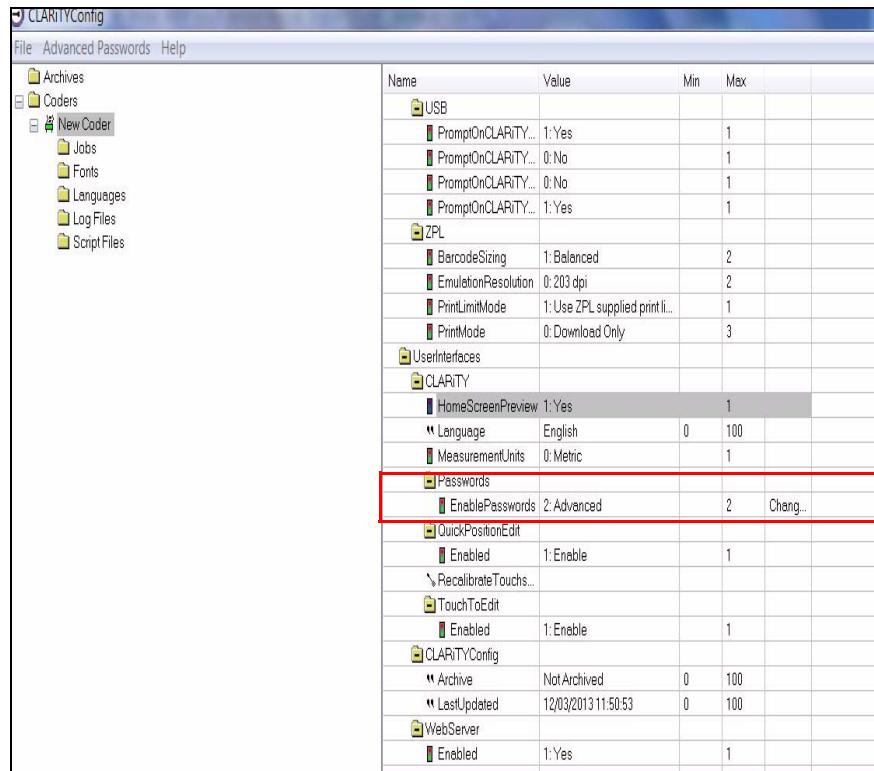


Figure 4-31: Password Setup

Select between 'Disabled', 'Normal' or 'advanced' and set up the parameters as required.

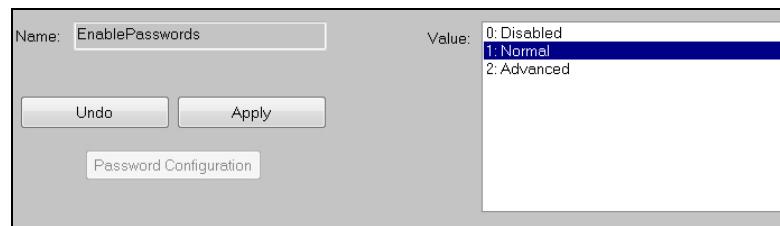


Figure 4-32: Enable Passwords

Maintenance

5

This chapter contains the following topics:

- Maintaining the Power Supply
- Maintaining the CLARiTY® Controller
- Maintaining the Printer
- Maintaining the Cassette
- Setting the End of Reel Detection
- Working with Print Allocations
- 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).

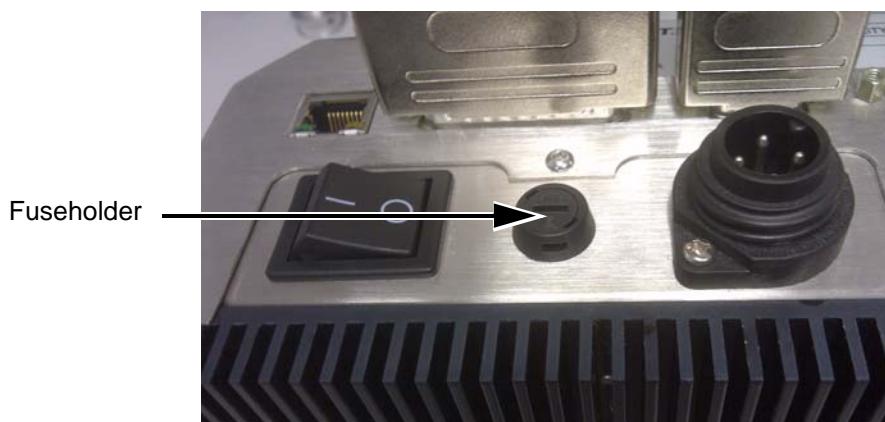


Figure 5-1: Fuseholder

- 2 Replace the fuse (p/n 400885) if it is defective.
- 3 Refit the fuseholder in its original position.

Maintaining the CLARiTY® Controller

This section contains the information on how to replace:

- The mains switch assembly in the controller
- The CLARiTY® processor PCB, LCD display and touchscreen in the controller
- The LCD inverter in the controller
- The internal fuse on the CLARiTY® processor PCB

Replacing the Mains Switch Assembly

To open and replace the Mains Switch Assembly, proceed as follows:

- 1 Remove and retain the six screws from the sides of the top case (Figure 5-2).

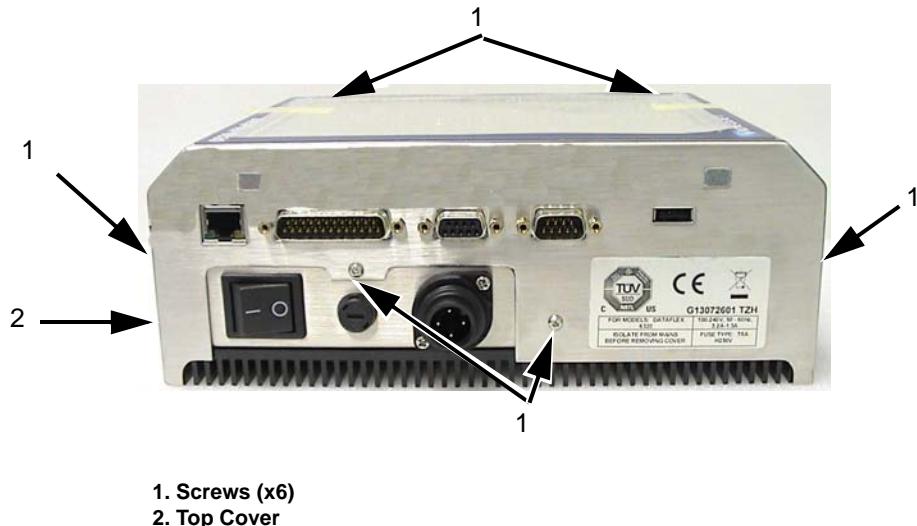


Figure 5-2:Controller Opening

- 2 Remove the top case (Figure 5-3).

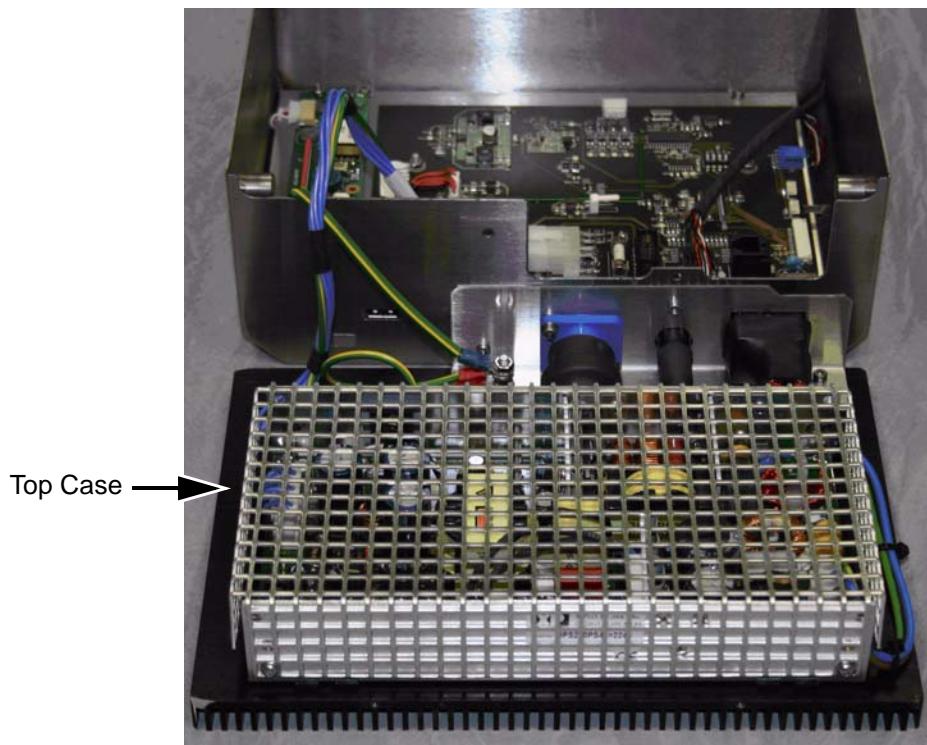


Figure 5-3:Top Case Removal

- 3 Remove the three button-head screws and washers securing the power supply guard and remove it from the top cover (Figure 5-4).

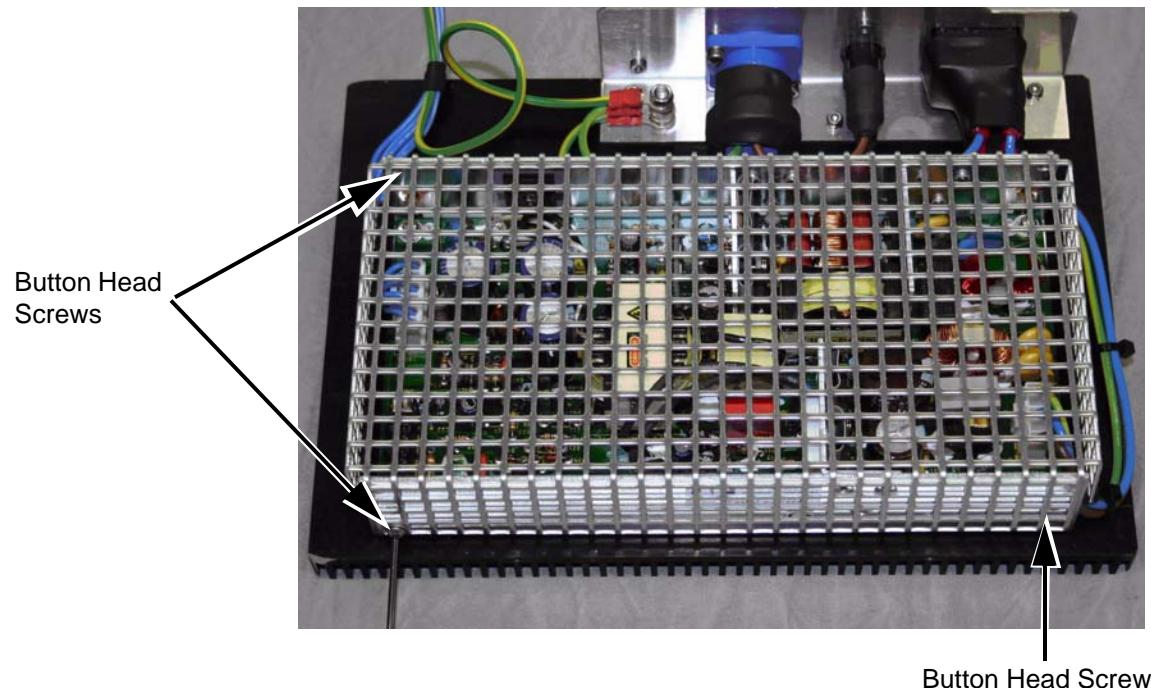


Figure 5-4:Power Supply Guard - Removal

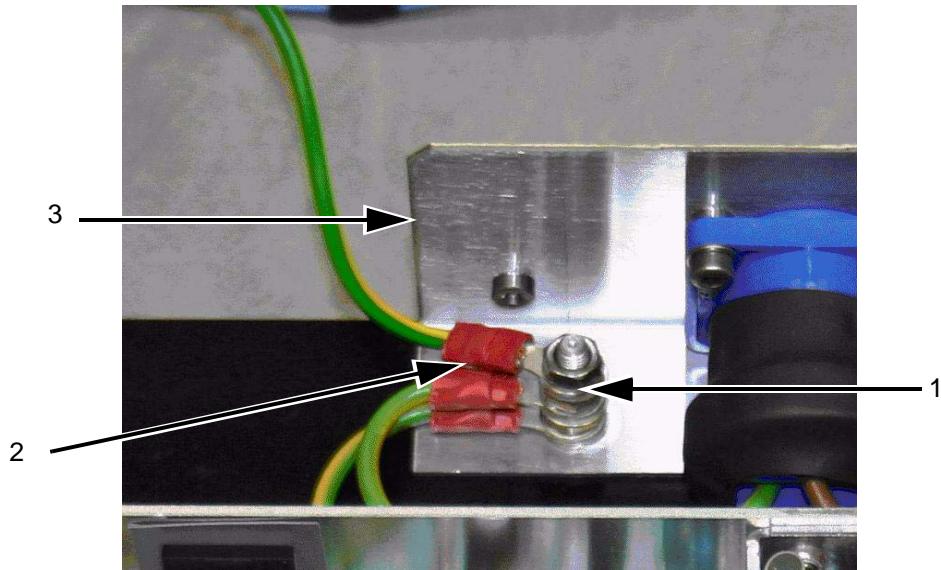
- 4 Remove the internal mains cable and the mains switch assembly cable (Figure 5-5).



1. Mains Switch Assembly Cable
2. Internal Mains Cable

Figure 5-5:Connectors Removal

- 5 Remove and retain the nut that secures the Flat steel washer, Earth tag, shakeproof washer and remove it from the mains switch assembly plate (Figure 5-6).



1. Nut
2. Earth Tags
3. Mains Switch Assembly Plate

Figure 5-6:Earth Tags Removal

- 6 Remove and retain the three screws that secure the Mains Switch Assembly plate to the base of the power supply (Figure 5-7).

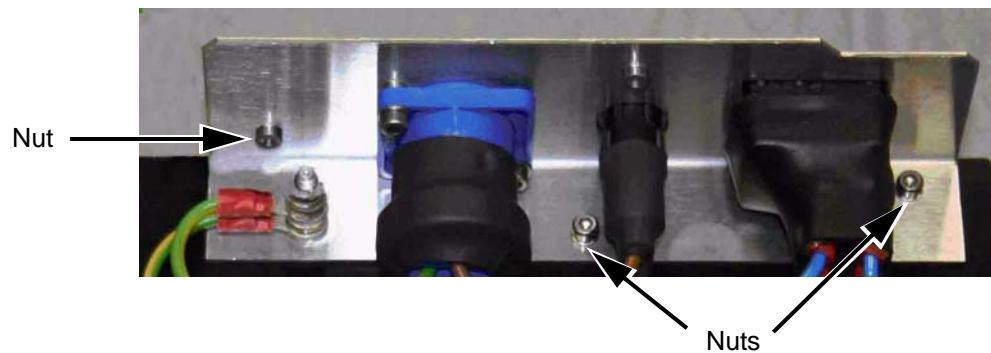


Figure 5-7:Main Switch Assembly Plate Screws Removal

- 7 Remove the assembly from the power supply base (Figure 5-8).



Figure 5-8:Main Switch Assembly Removal

- 8 Place the new mains switch assembly on the power supply base and secure them using the three screws retained in step 6.
- 9 Refit the Flat steel washer, earth tags, shakeproof, and locking nut respectively on the Mains switch assembly plate.
- 10 Re-connect the internal mains cable and the mains switch assembly cable to their respective positions.
- 11 Place the power supply guard on the power supply base and secure it using the three button head screws retained in step 1.

This completes the replacing of Mains Switch assembly.

Replacing the LCD Touch screen

To replace the LCD display and Touch screen, proceed as follows:

- 1 Open the top case of the CLARiTY® controller as described in steps 1 and 2 of “Replacing the Mains Switch Assembly” on page 5-3.
- 2 Remove and retain the six screwlocks that secure the CLARiTY® Processor PCB (Figure 5-9).

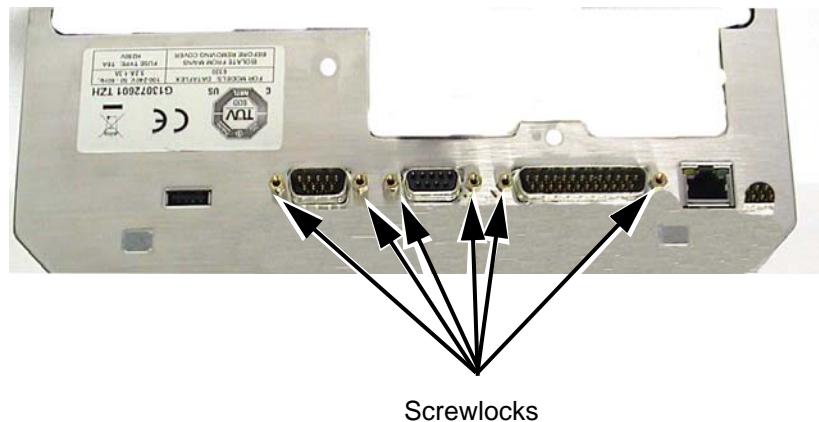
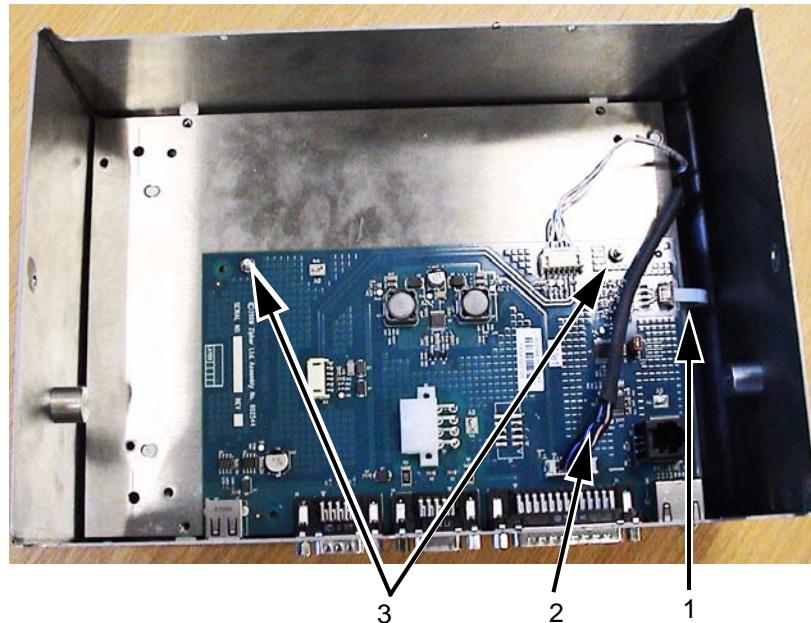


Figure 5-9: Screwlocks - Removal

- 3 Remove and retain the two nuts and nylon washers that secure the CLARiTY® Processor PCB, and disconnect the touchscreen ribbon cable and LCD power cable (Figure 5-10).



1. Touchscreen Ribbon Cable
2. LCD Power Cable
3. Nuts and Nylon Washers

Figure 5-10: CLARiTY® Processor PCB - Connectors

- 4 Remove the CLARiTY® Processor PCB and nylon stand off pillars underneath the PCB.

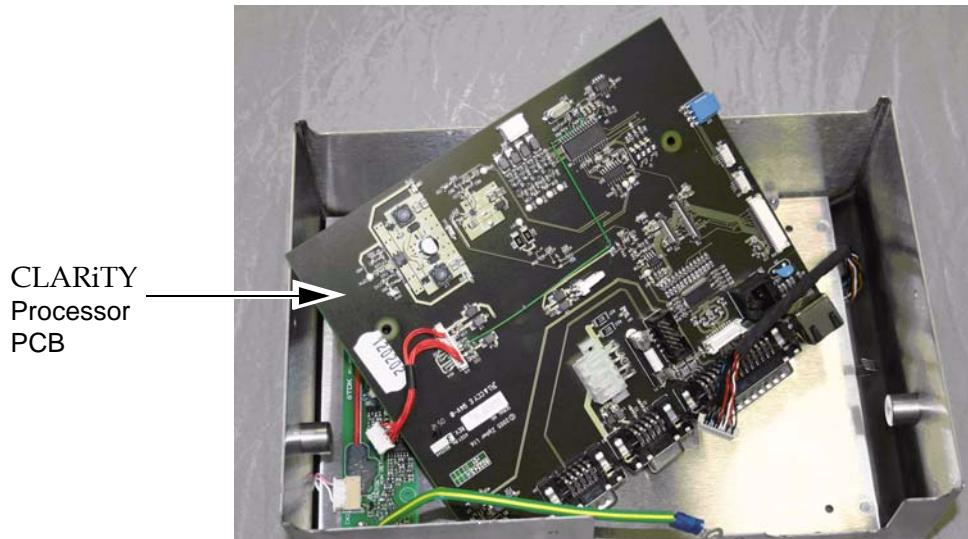


Figure 5-11: CLARiTY® Processor PCB - Removal

- 5 Remove and retain the four screws (including the button-head screw) that secure the LCD Touchscreen. Note the position of the button head screw which is located behind the CLARiTY® Processor PCB and the Earth strap tag (Figure 5-12).

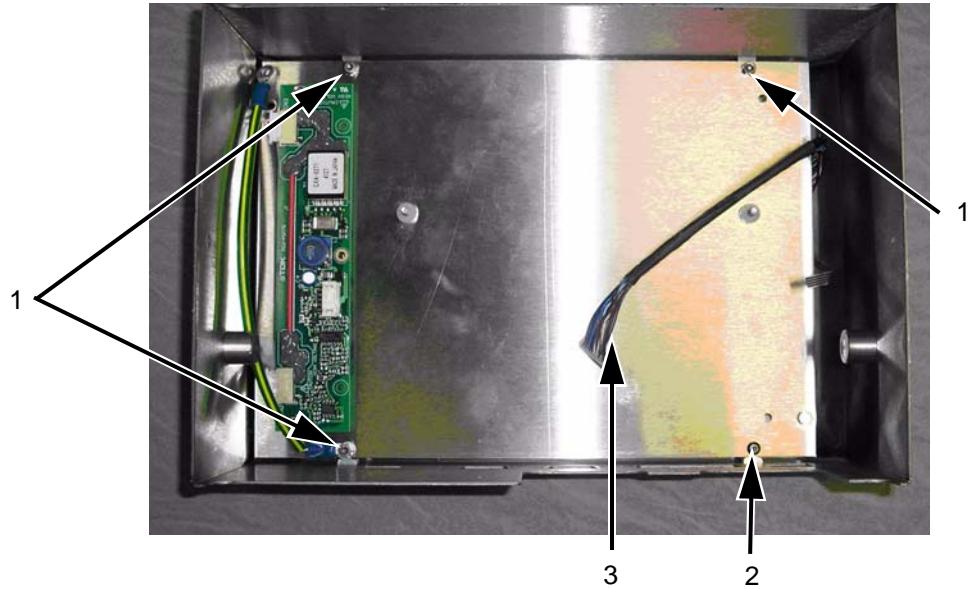
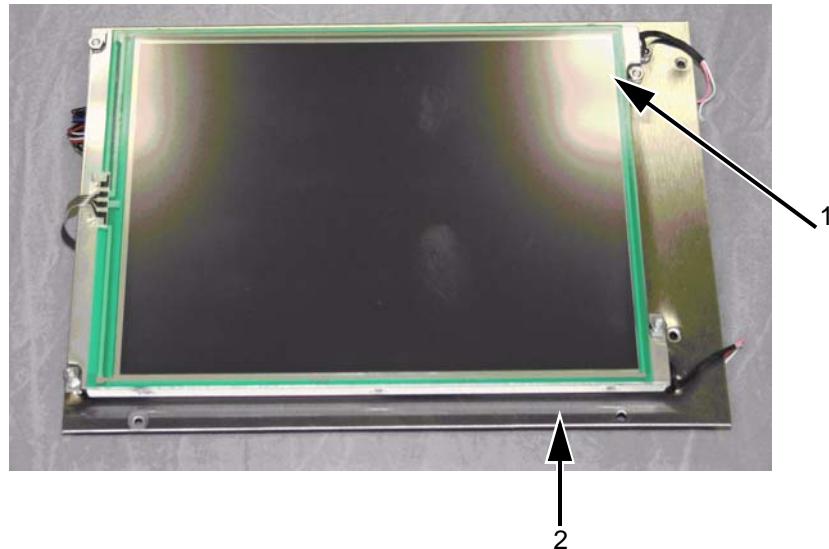


Figure 5-12: LCD Touch Screen - Screws

- 6 Remove the LCD Touchscreen along with the mounting plate from the outer case (Figure 5-13).



1. LCD and Touchscreen
2. Mounting Plate

Figure 5-13: LCD Touch Screen

- 7** Remove and retain the four nuts that secure the LCD and Touchscreen to the mounting plate (Figure 5-14).



Figure 5-14: LCD Touch Screen - Nuts

- 8** Remove the LCD Touchscreen from the mounting plate (Figure 5-15).

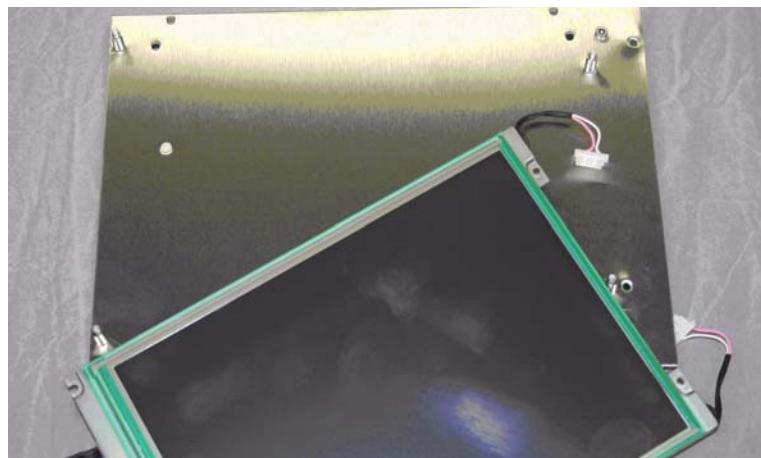


Figure 5-15: LCD and Touch Screen - Removal

- 9** Place the new LCD and Touchscreen on the mounting plate and secure it with the nuts retained in step 8.
- 10** Place the LCD and Touchscreen along with the mounting plate in the outer case and secure it using the four screws retained in step 6.
- 11** Refit the CLARiTY® processor PCB to the LCD Touchscreen and secure it using the two nuts and nylon washers retained in the step 4.
- 12** Close the top case of the CLARiTY® controller as described in step 11 of “Replacing the Mains Switch Assembly” on page 5-3.

This completes replacing of LCD Touchscreen.

Removing the CLARiTY® Processor PCB

Refer to “Replacing the LCD Touch screen” on page 5-7.

Maintaining the Printer

This section contains the information on how to replace:

- The standard cassette of the printer
- The Main PCB of the printer
- The ribbon driver motor assembly
- The printhead and printhead cable
- The air cylinder
- The calibration emitter assembly
- The calibration detector assembly
- The printhead microswitch
- The peel roller
- The timing belt
- The linear slide
- The cassette rollers
- The cassette latch
- The cassette mandrel

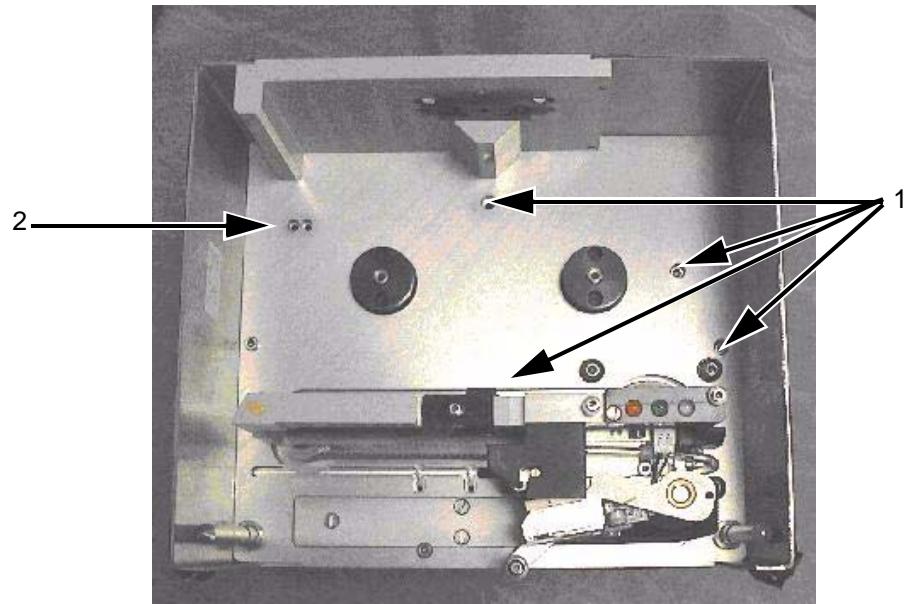
Removing and Reinstalling the Standard Cassette

Refer to Operator Manual (chapter 5, “Routine Fault Finding and Maintenance”) for standard cassette removal and installation procedures.

Replacing the Main PCB

To replace the Main PCB, proceed as follows:

- 1 Remove the cassette from the printer.
- 2 Remove the four screws from the front of the printer base plate (Figure 5-16).



1. Screws (x4)
2. Printer Base Plate

Figure 5-16: Printer Main PCB - Screws Removal

To access the main PCB, remove the rear cover.

- 3 To remove the rear cover, remove the two screws as shown in Figure 5-17.

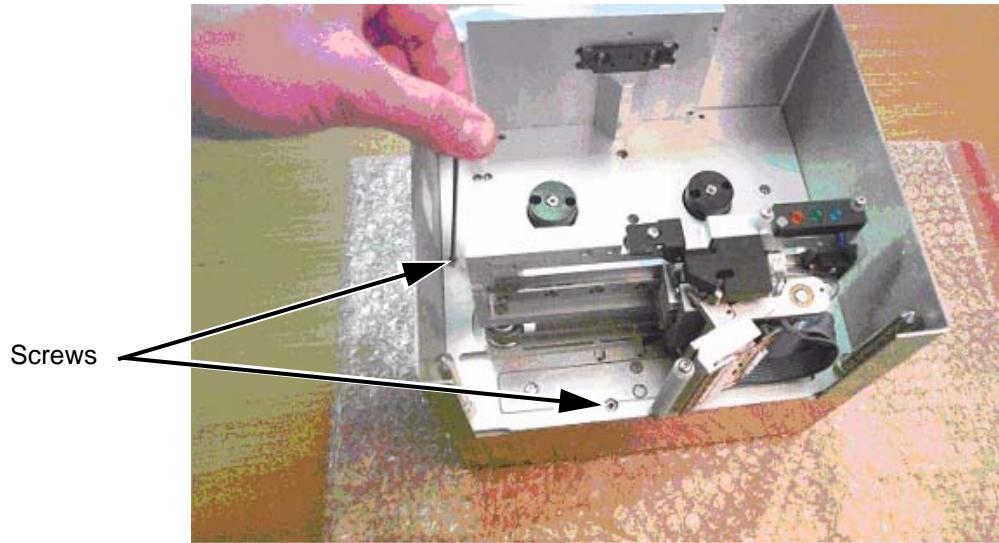


Figure 5-17: Printer Rear Cover - Screws Removal

- 4 Remove the screws from the side panel as shown in Figure 5-18.

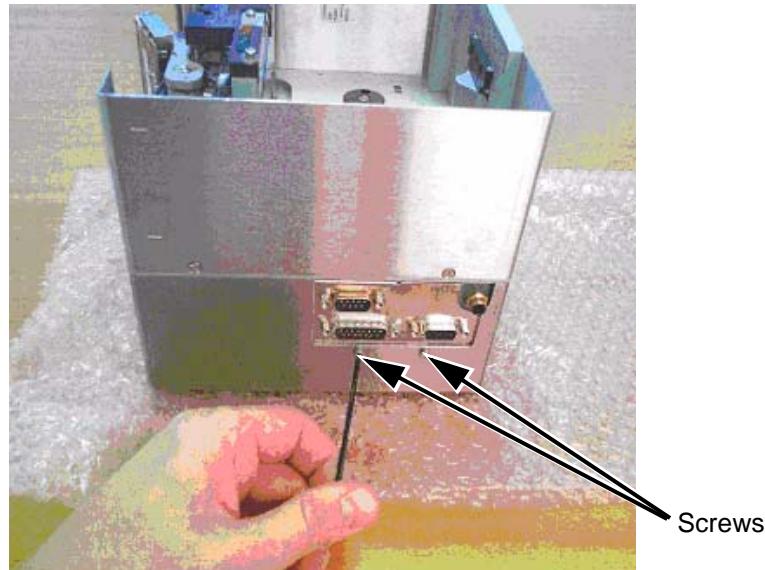


Figure 5-18: Printer Rear Cover Side Panel Screws Removal

- 5 Turn the printer over on a soft surface and lift the rear cover from the base plate.

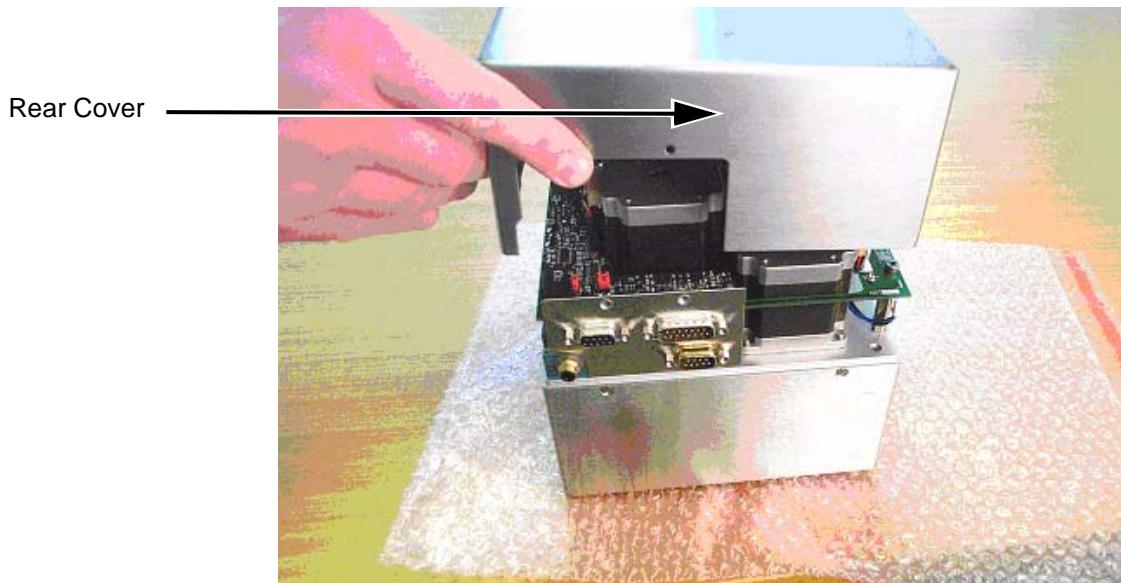


Figure 5-19: Printer Rear Cover Removal

- 6 Disconnect the cable assemblies you can reach from around the edge of the PCB.

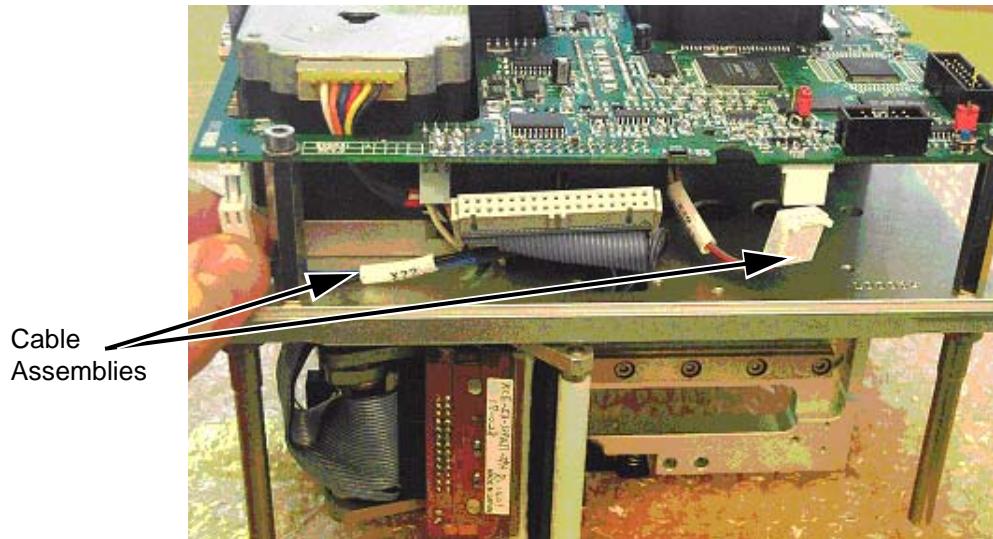


Figure 5-20: Printer Rear Cover Removal

- 7 Removing the 3 screws securing the PCB.

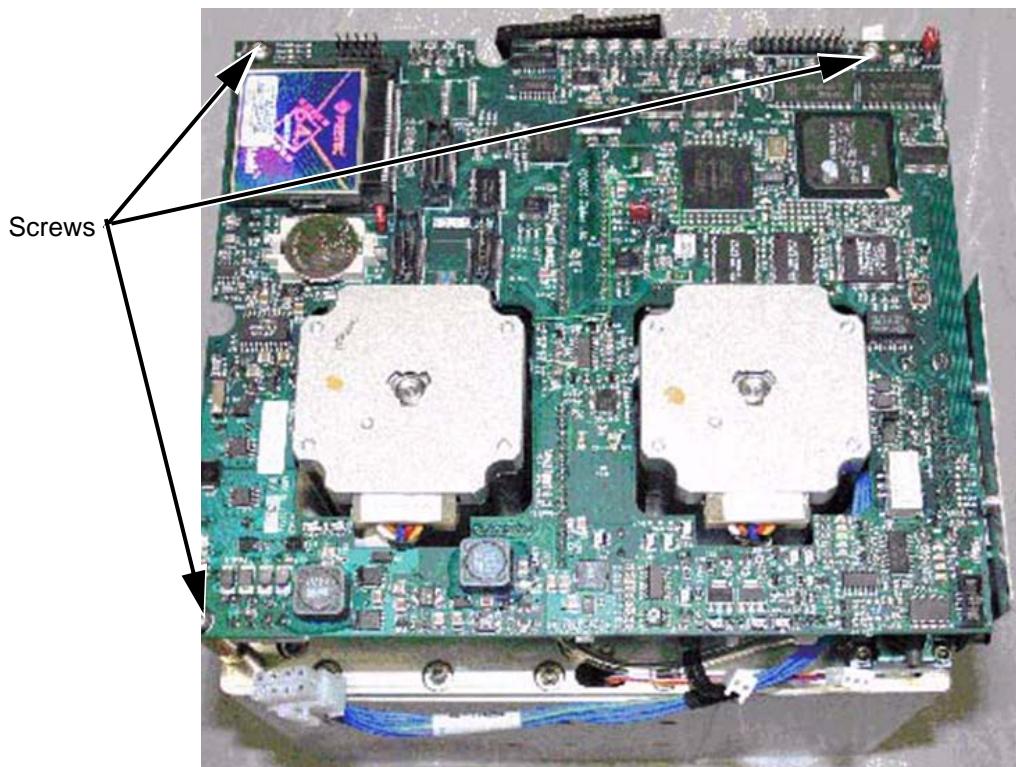


Figure 5-21: PCB Removal

- 8 Lift the PCB carefully and disconnect the remaining cable assemblies.

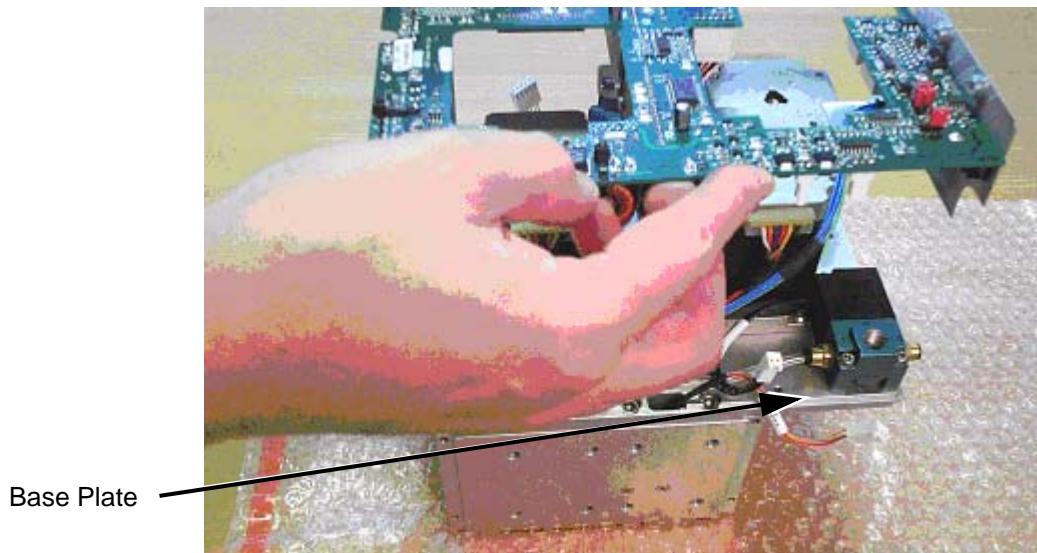


Figure 5-22: PCB Removal

- 9 Replace and reassemble the PCB, but make sure that the cables are not trapped between the heatsink and the base plate or the rear cover and base plate.

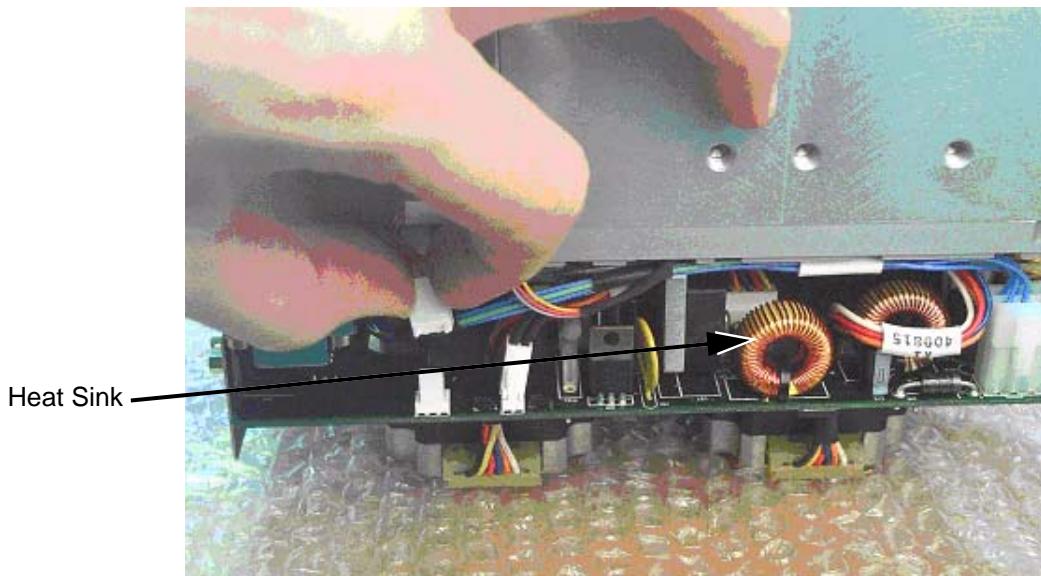


Figure 5-23: Heat Sink

Note: Make sure that all the screws on the front of the base plate are replaced

- 10 Reconnect the cable assemblies to the PCB.
- 11 Refit the rear cover using the screws removed in steps 3 and 4.
- 12 Secure the PCB to the base plate using the screws removed in step 1.

Replacing the Ribbon Drive Motor Assembly

To replace the Ribbon Motor Drive Assembly, proceed as follows:

- 1 Remove the rear cover and the printer PCB as described in “Replacing the Main PCB” on page 5-12.
- 2 Remove the four screws that secure the motor flange to the printer base plate.

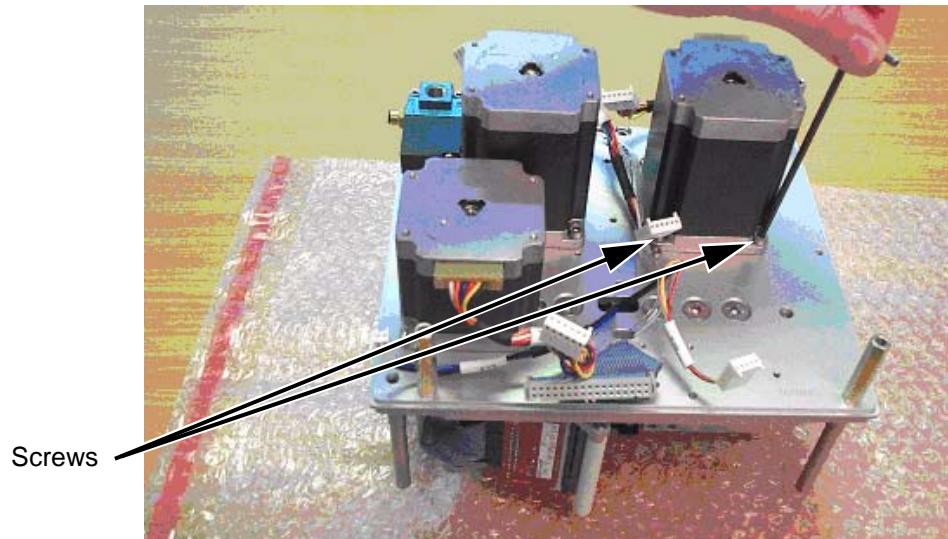


Figure 5-24: Ribbon Motor Drive Assembly-Screws

- 3 Unplug the motor connector and lift the ribbon motor assembly from the base plate.

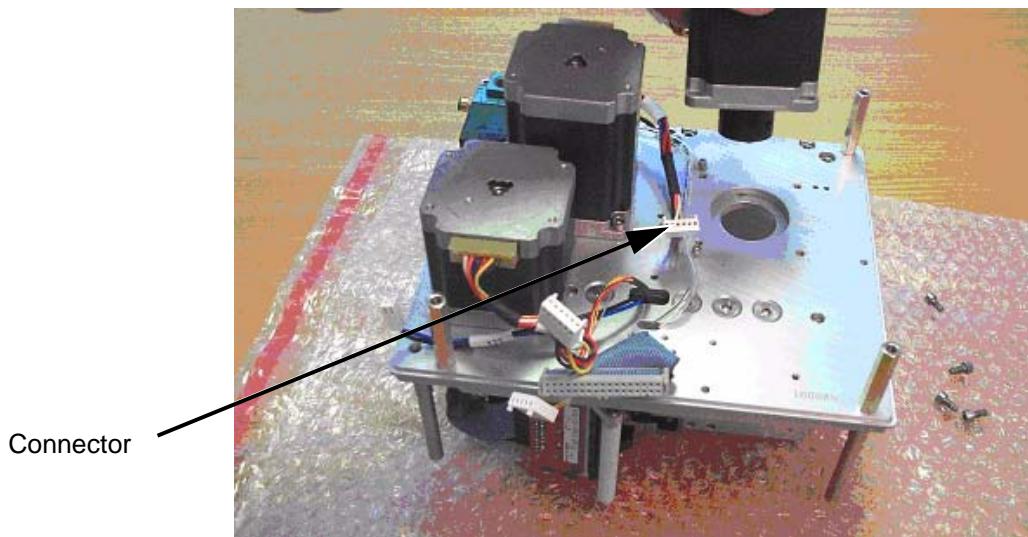


Figure 5-25: Ribbon Motor Drive Assembly- Removal

- 4 Place the new ribbon motor assembly on the base plate.

- 5 Reconnect the motor connector to the ribbon motor assembly.
- 6 Secure the ribbon motor assembly to the base plate using the screws removed in step 2.
- 7 Refit the rear cover and the printer PCB as described in “Replacing the Main PCB” on page 5-12.

Replacing the Printhead Drive Motor Assembly

To replace the Printhead Motor Drive Assembly, proceed as follows:

- 1 Remove the rear cover and the printer PCB as described in “Replacing the Main PCB” on page 5-12.
- 2 Remove the three motor screws from the front of the base plate.

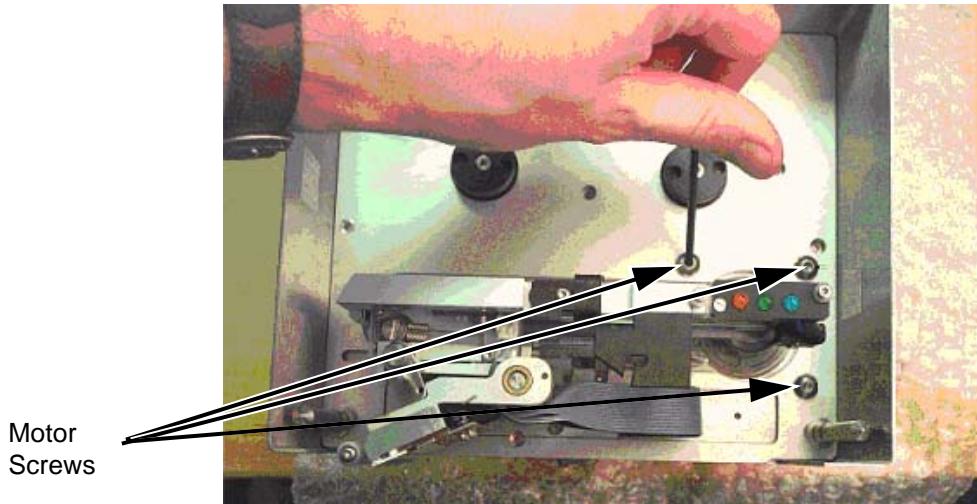


Figure 5-26: Printhead Motor Drive Assembly- Removal

- 3 Disconnect the motor connector from the motor assembly and remove the assembly from the base plate.

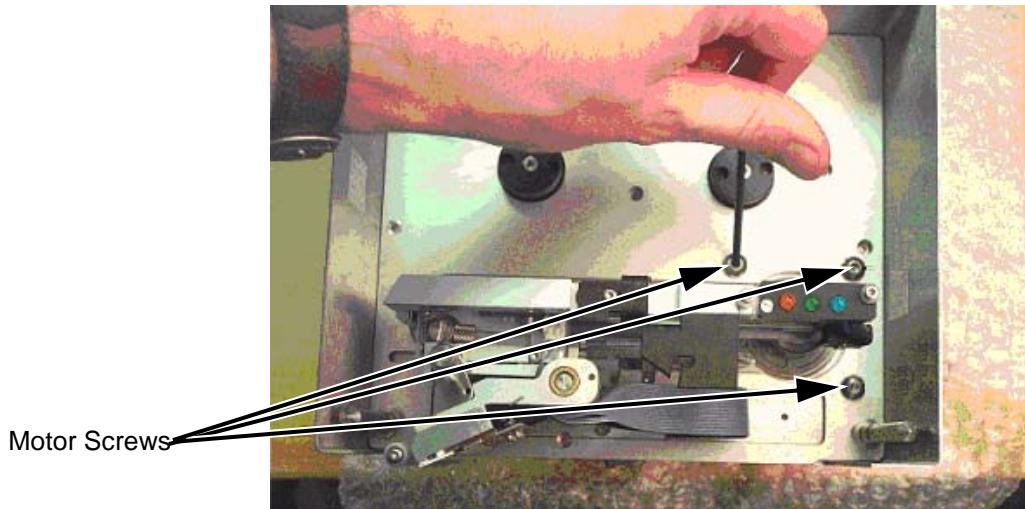


Figure 5-27: Printhead Motor Drive Assembly- Removal

- 4 Place the new printhead motor assembly on the base plate and plug in connector.
- 5 Secure the printhead motor assembly using the screw removed in step 2, but do not tighten it fully.
- 6 Tension the timing belt as described in "Tensioning the timing belt" on page 5-19
- 7 Refit the rear cover and the printer PCB as described in "Replacing the Main PCB" on page 5-12.

Tensioning the timing belt

This procedure describes how to set the correct belt tension. You must perform this procedure in the following two conditions:

- Printhead drive motor is replaced
- Belt is replaced.

Tools required:

- 3-mm Hex key for motor securing screws
- Tie-wraps
- Weight Scales - 15kg minimum (refer Figure 5-28 on page 5-20)



Figure 5-28: Weight Scales

To set the correct tension in the timing belt, proceed as follows:

We consider that the rear cover is removed and the three screws that attach the motor to the base plate are present, but loose.

- 1 Loop as many tie-wraps around the motor as required
- 2 Make sure that the tie-wrap does not hold any cables between the motor and the tie-wrap(s) (refer Figure 5-29).

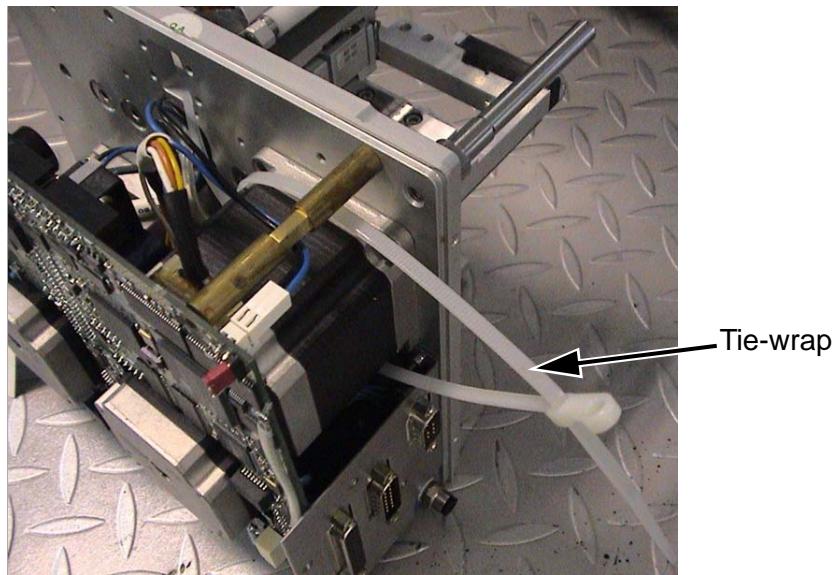


Figure 5-29: Tie-Wrap

- 3 Move the printhead carriage to a middle position so that it is not parked (refer Figure 5-30).

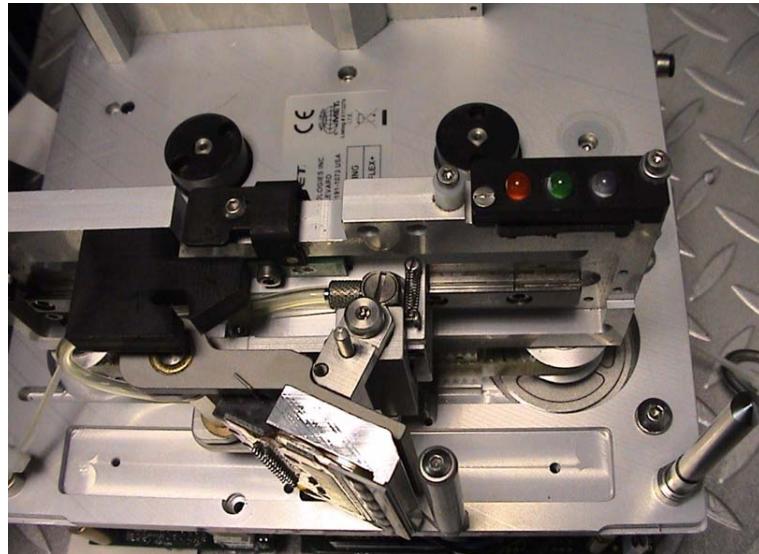


Figure 5-30: Printhead Carriage

- 4 Attach the printer in a fixed position, motors down and make sure that the PCB of the printer is not damaged.
- 5 Attach the scales to the tie-wraps (refer Figure 5-31).

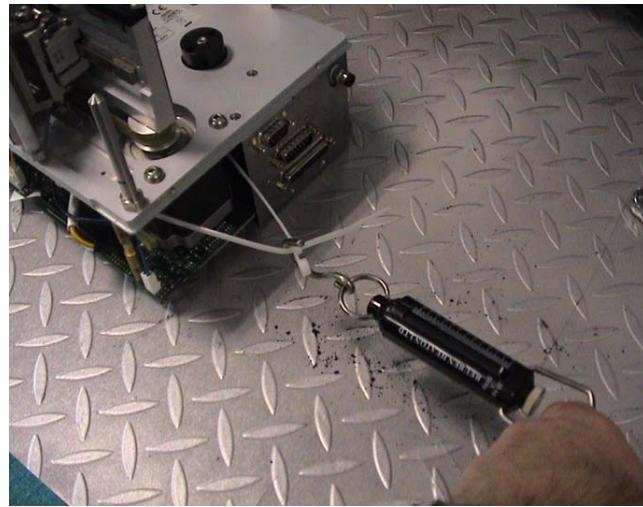


Figure 5-31: Attach the Scales

- 6 Pull the scales until 9kg ($\pm 1\text{kg}$) is achieved and tighten the three securing screws while you maintain this force (refer Figure 5-32).

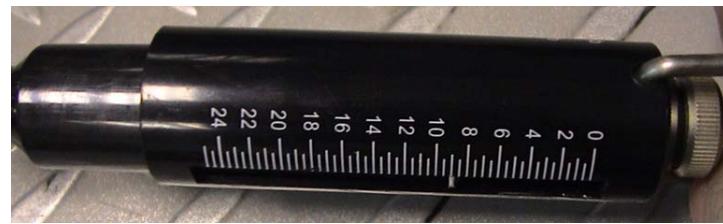


Figure 5-32: Scale

- 7 Remove the tie-wraps, park the printhead, and replace the back cover.
You can now use the printer.

Replacing the Printhead

To replace printhead, proceed as follows:

- 1 Remove the two printhead retaining screws as shown in Figure 5-33.

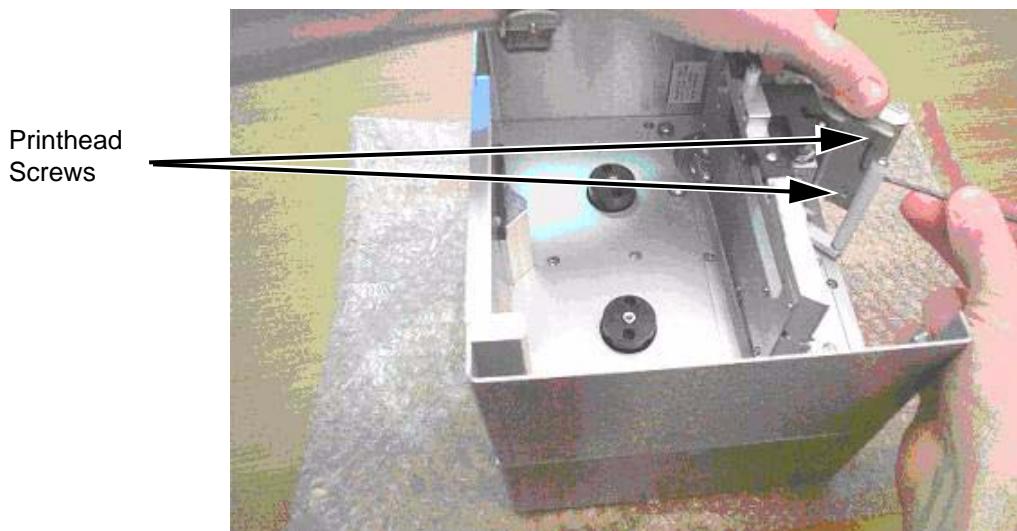


Figure 5-33: Printhead Screws Removal

- 2 Move the printhead from the parked position.



Figure 5-34: Printhead Removal

- 3 Disconnect the printhead connector and remove the printhead.



Figure 5-35: 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 screws.

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, as shown in, from the label on the printhead (e.g. R=1432).

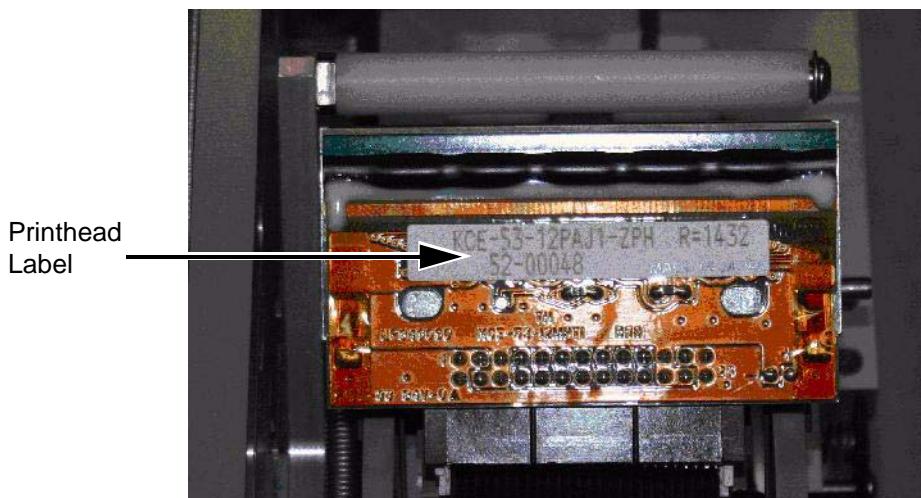


Figure 5-36: Printhead Resistance Value

- 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 5-37 on page 5-25).



Figure 5-37: Printhead Resistance Setting

- 6 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.

Replacing the Printhead Ribbon Cable

To replace the printhead cable, proceed as follows:

- 1 Remove the rear cover as described in "Replacing the Main PCB" on page 5-12.
- 2 Remove the three screws from the printhead cable clamp plate.

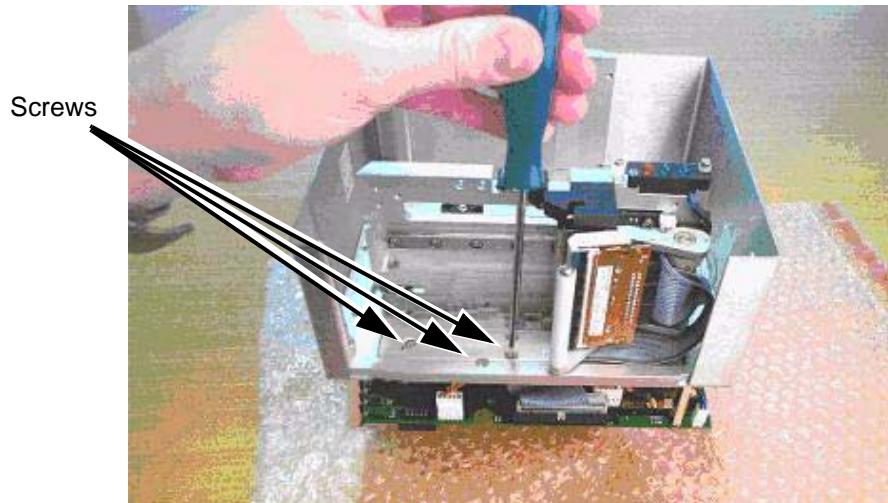


Figure 5-38: Printhead Cable Clamp Screws

- 3 Remove the printhead cable clamp plate.

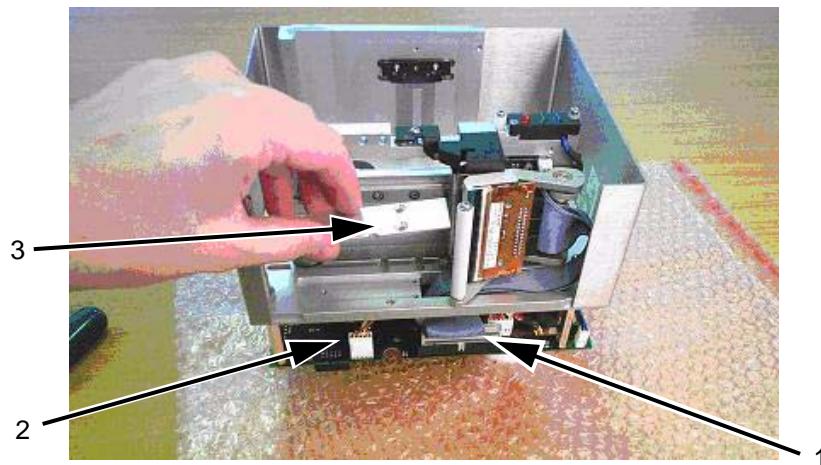


Figure 5-39: Printhead Cable Clamp - Removal

- 4 Disconnect the connector from the printer PCB.

5 Fold the ribbon cable close to the connector as shown in Figure 5-40

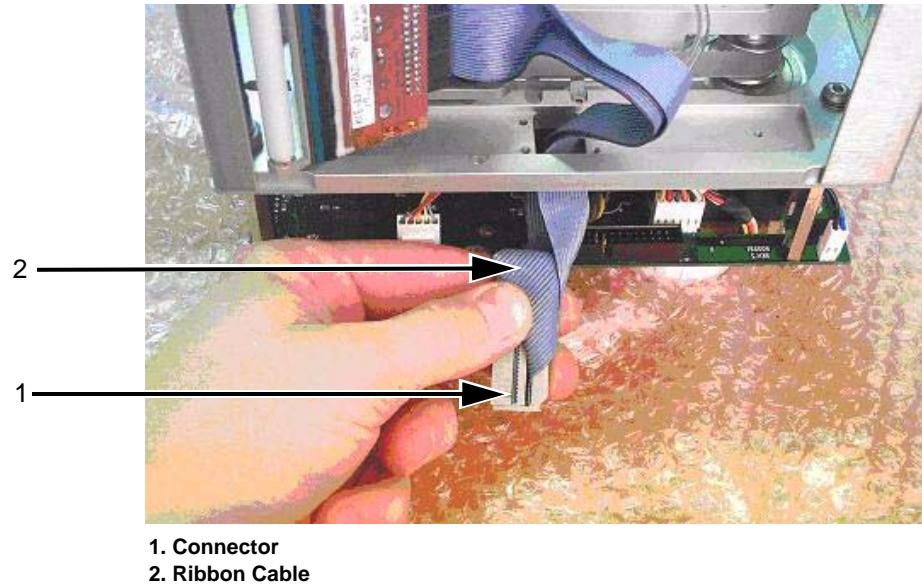


Figure 5-40: Ribbon Cable Orientation

6 Place the connector at an angle (Figure 5-41), between Printer PCB and printer base plate.

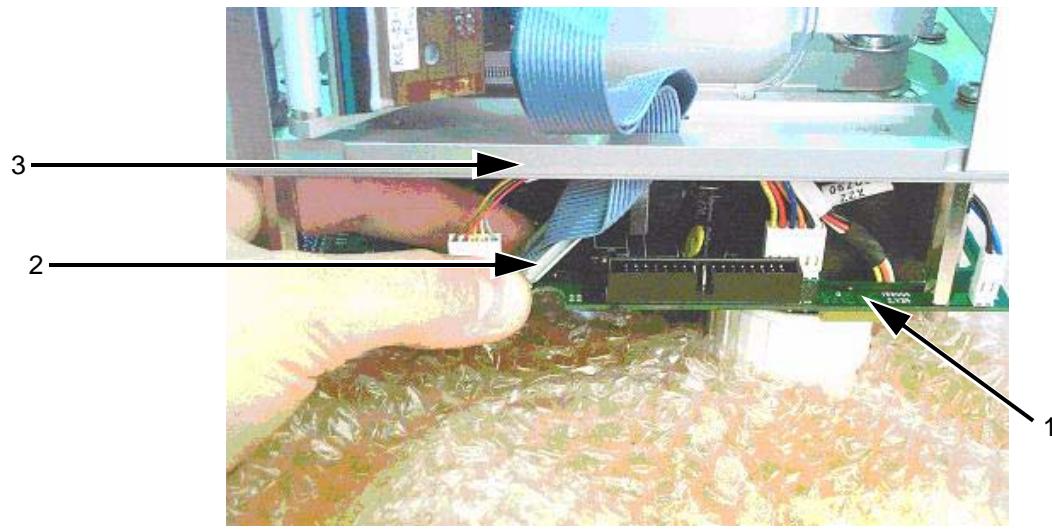


Figure 5-41: Connector Orientation

- 7 Pull the connector and ribbon cable through the base plate (Figure 5-42).

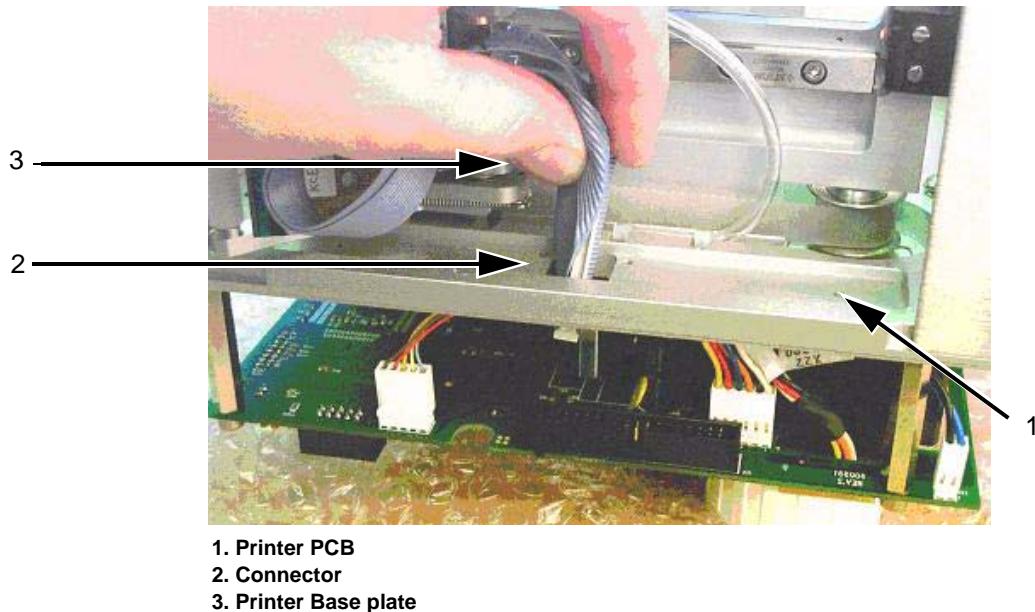
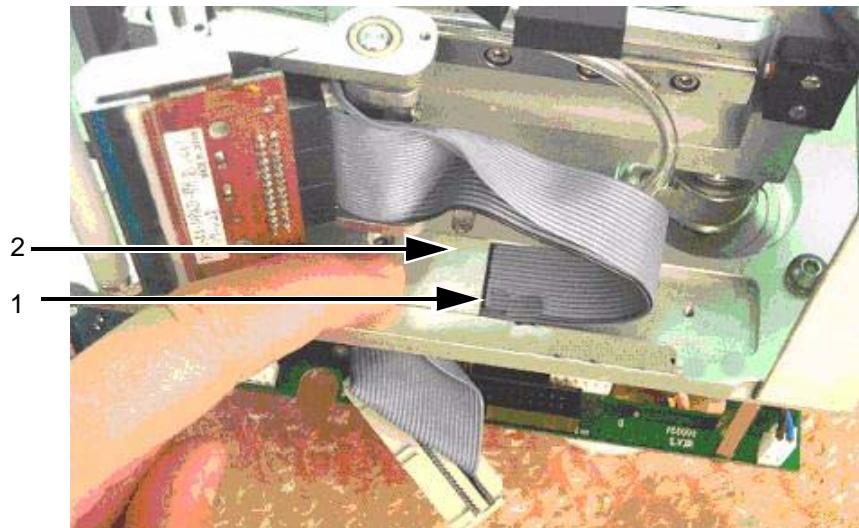


Figure 5-42: Ribbon Cable Orientation

- 8 Remove the printhead as described in “Replacing the Printhead” on page 5-22 and disconnect the ribbon cable.
- 9 Connect the new cable to the printhead and replace the printhead to the printer.

Note: The line (item 1 in Figure 5-43) on the ribbon cable assembly should be aligned with the edge of the cable clamp plate (item 2).



1. Line on Ribbon Cable Assembly
2. Cable Clamp Plate

Figure 5-43: Ribbon Cable Alignment

- 10 Secure the printhead clamp to the base plate using the screws removed in step 2.

Replacing the Solenoid Valve Assembly

To replace solenoid valve proceed as follows:

- 1 Remove the rear cover and the printer PCB as described in "Replacing the Main PCB" on page 5-12.

- 2 Remove the air pipe from the fitting in solenoid valve.

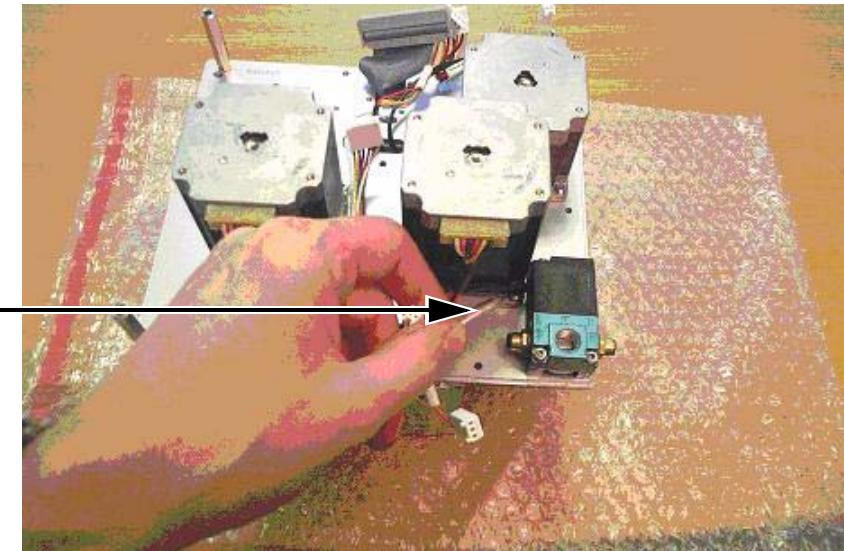


Figure 5-44: Air Pipe

- 3 Remove the two screws that secure the solenoid valve.

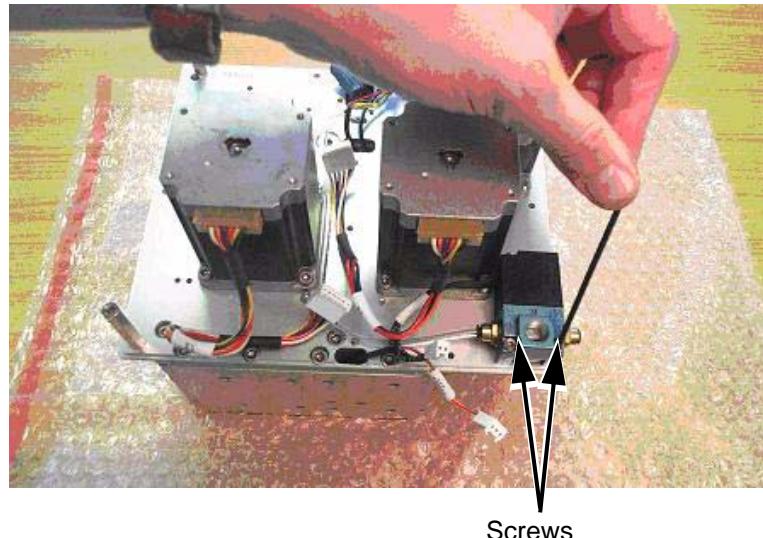


Figure 5-45: Solenoid Valve - Removal

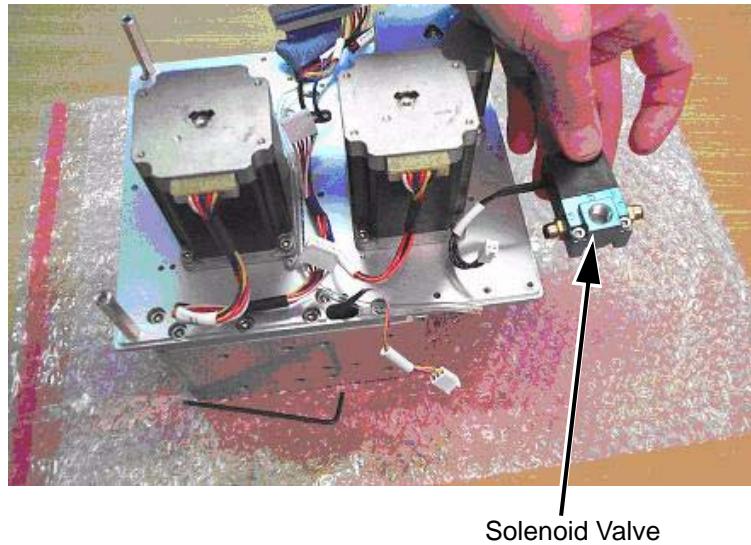
4 Remove the solenoid valve assembly.

Figure 5-46: Solenoid Valve - Removal

- 5** Place the new solenoid valve assembly on the base plate.
- 6** Secure it using the two screws removed in step 3.
- 7** Connect the air pipe to the solenoid valve.
- 8** Refit the rear cover and the printer PCB as described in "Replacing the Main PCB" on page 5-12.

Replacing the Air Cylinder

To replace air cylinder, proceed as follows:

- 1** Remove the side covers.
- 2** Remove the printhead pivot assembly as described in "Replacing the Printhead Pivot Assembly" on page 5-45 (there is no need to remove the printhead if you are careful to protect it from damage).

- 3 Loosen the screw at the top of the air cylinder.

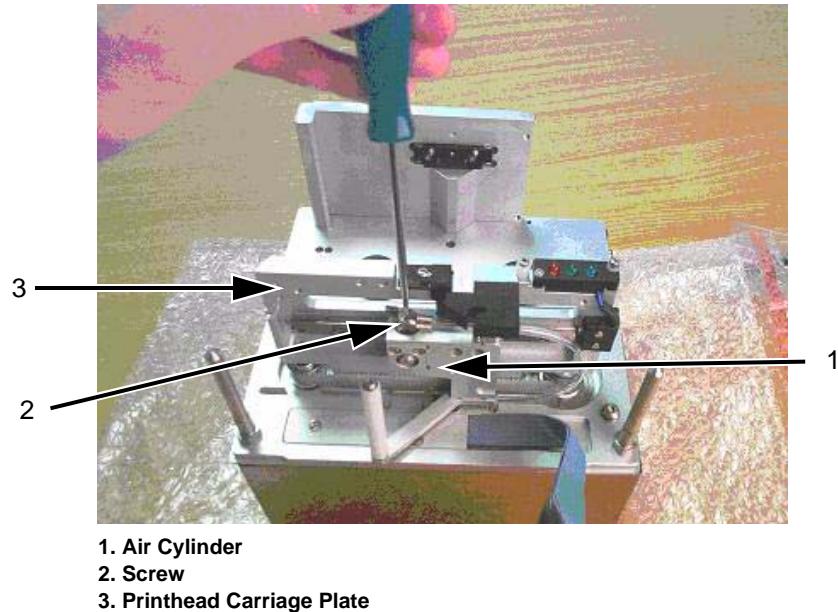


Figure 5-47: Air Cylinder - Removal

- 4 Remove the two screws that secure the air cylinder.

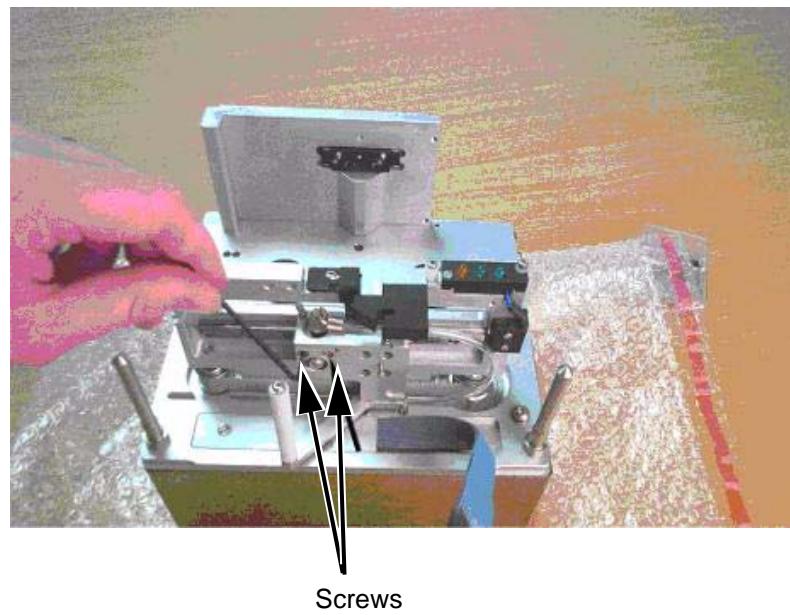


Figure 5-48: Air Cylinder - Removal

- 5 Remove the air cylinder from the printhead carriage plate.

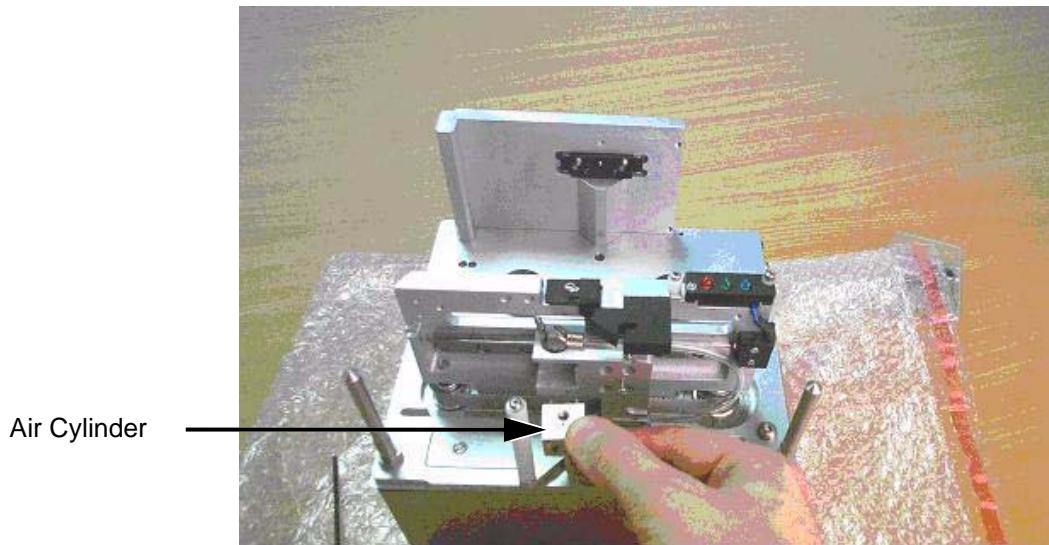


Figure 5-49: Air Cylinder - Removal

- 6 Replace the air cylinder on the printhead carriage assembly.
- 7 Secure it with the two screws removed in step 4.
- 8 Tighten the screw at the top of the air Cylinder.
- 9 Reassemble the printhead pivot assembly as described in “Replacing the Printhead Pivot Assembly” on page 5-45.

Optical Calibration System Check

If you suspected that there is a problem with the optical calibration system, and cleaning the emitters or detector has not solved this problem, then proceed as follows:

- 1 Touch Tools button on the CLARiTY® home page to open the Diagnostics page.
- 2 Touch Diagnostics button on tools page to open the Diagnostics page.

- 3 Touch Printhead button on Diagnostics page to open Printhead Diagnostics page.

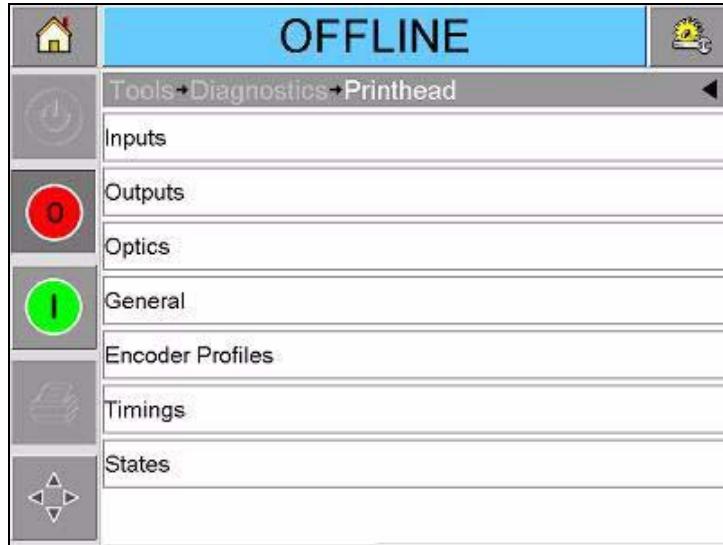


Figure 5-50: Printhead Diagnostics

- 4 Touch Optics button on the Printhead Diagnostics page.

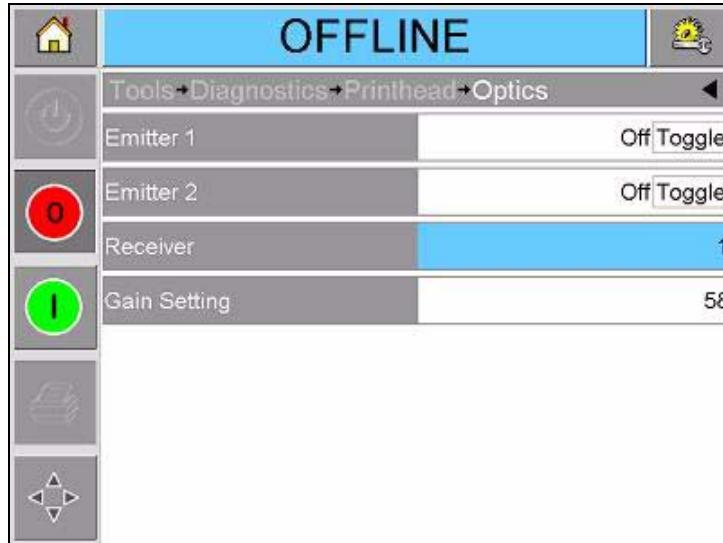


Figure 5-51: Printhead Diagnostics - Optics

The receiver signal level (Figure 5-51 on page 5-34) should be fluctuating slightly with a reading typically less than 30 (under normal office / factory lighting conditions).

- 5 Using a battery-powered torch, shine the beam at the receiver assembly mounted in the slot directly behind the printhead. The receiver reading (Figure 5-51 on page 5-34) should increase significantly, (in the range of 500-1023) indicating that the receiver is working correctly.

If there is no significant change in reading, then one of the following may be faulty

- printhead ribbon cable (refer “Replacing the Printhead Ribbon Cable” on page 5-26)
- emitter assembly
- printhead PCB (refer “Replacing the Main PCB” on page 5-12).

6 Switch off the torch and touch the Emitter 1 Toggle button on the printhead diagnostics -optics page.

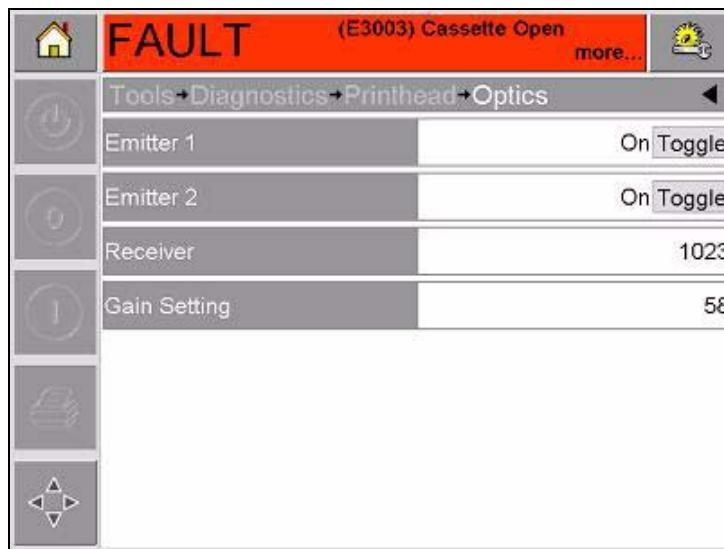


Figure 5-52: Printhead Diagnostics - Optics

The receiver reading should increase significantly.

- 7** Move the printhead on its linear bearing from side to side. The receiver reading peaks at some point in its travel, indicating that the emitter is functioning properly.
If there is no change in reading, then the emitter is faulty and needs to be replaced (“Replacing the Calibration Emitter Assembly” on page 5-36).
- 8** Switch off the Emitter 1 and touch emitter toggle button and move the printhead on its linear bearing, the receiver reading should increase significantly.
If there is no change in reading, then the emitter is faulty and needs to be replaced (“Replacing the Calibration Emitter Assembly” on page 5-36).
If the problem persists after replacing the emitter assembly, then replace the main PCB (“Replacing the Main PCB” on page 5-12).

Replacing the Calibration Emitter Assembly

To replace the calibration emitter assembly, proceed as follows:

- 1 Remove rear cover as described in "Replacing the Main PCB" on page 5-12.
- 2 Remove the two emitter housing screws shown in Figure 5-53

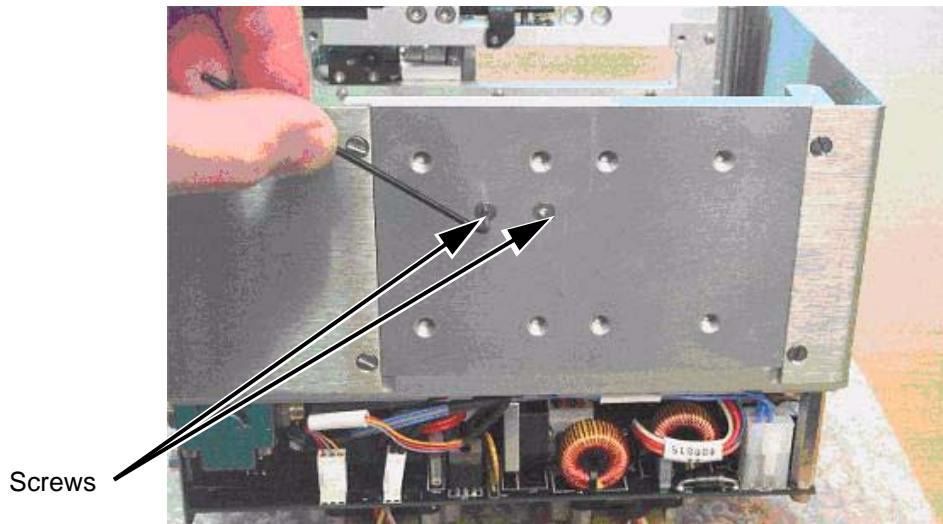


Figure 5-53: Emitter Housing Screws

- 3 Remove the emitter connector from the PCB as shown in Figure 5-54.

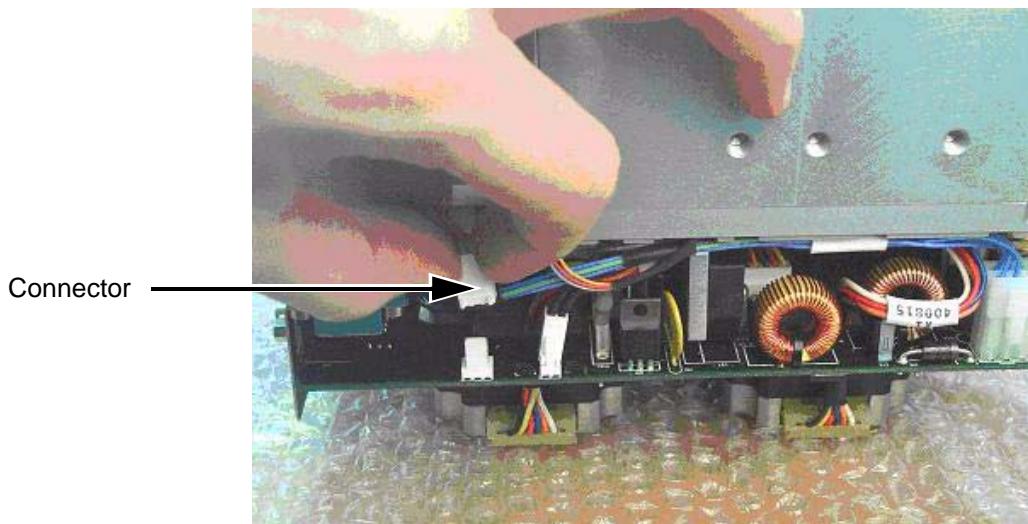


Figure 5-54: Emitter Connector

- 4 Pull the connector through hole in metalwork and remove the emitter assembly as shown in Figure 5-55.

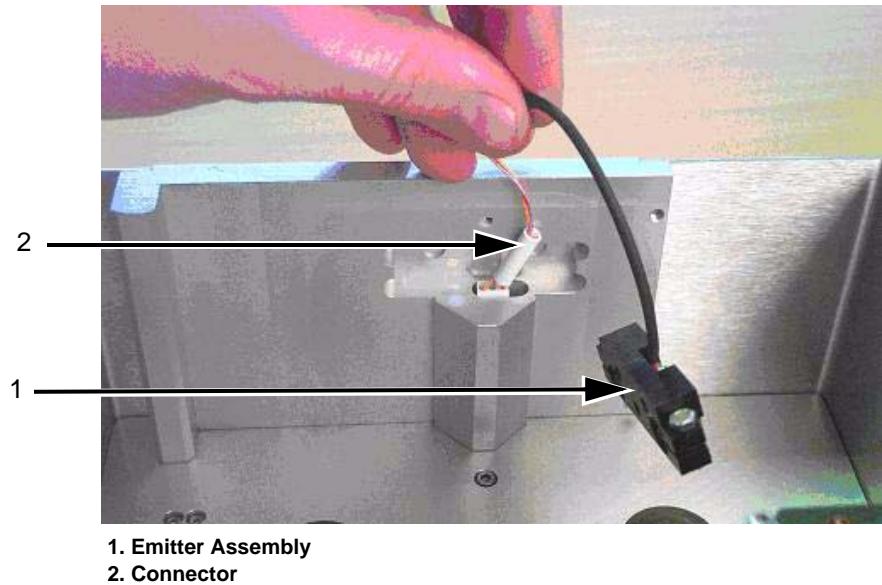


Figure 5-55: Emitter Assembly Removal

- 5 Replace the new emitter assembly and insert the connect through the metal work.
- 6 Connect the connector to the main PCB.
- 7 Secure the emitter using the two emitter using screws removed n step 2.
- 8 Refit the rear cover as described in "Replacing the Main PCB" on page 5-12.

Replacing the Calibration Detector Assembly

To remove the calibration detector assembly, proceed as follows:

- 1 Remove the cassette from the printer.

- 2 Remove the detector connector from the detector assembly as shown in Figure 5-56.

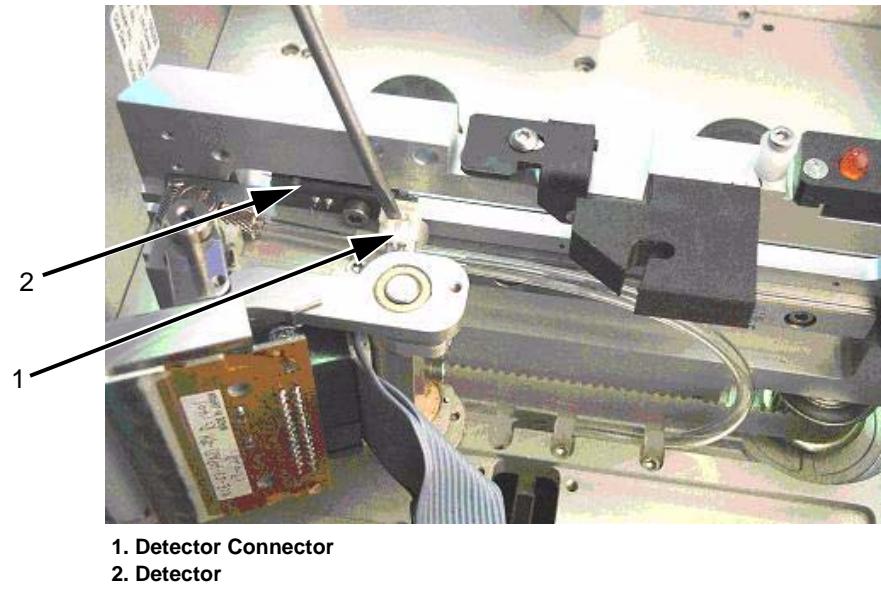


Figure 5-56: Detector Connector Removal

- 3 Remove the two detector screws shown in Figure 5-56 on page 5-38.

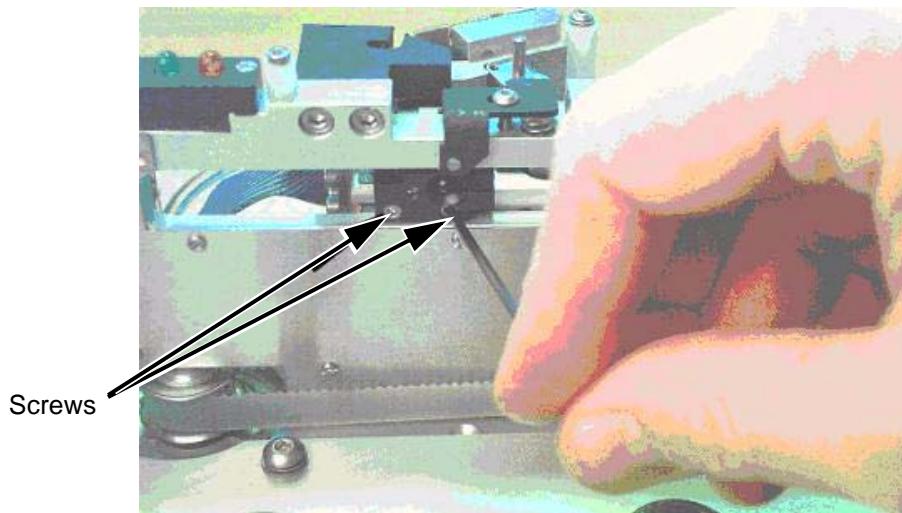


Figure 5-57: Detector Screws Removal

4 Remove the detector assembly (Figure 5-58).

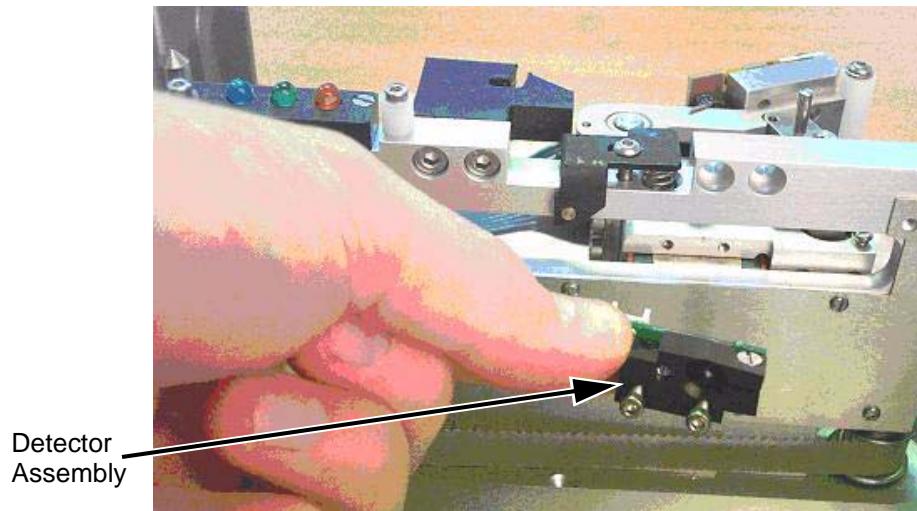


Figure 5-58: Detector Assembly Removal

- 5** Place the new detector assembly and secure it with the two detector screws removed in step 3.
- 6** Reconnect the detector to the detector assembly.
- 7** Refit the cassette to the printer.

Replacing the Printhead Microswitch or LED Indicator PCB Assembly

To replace the printhead microswitch assembly proceed as follows:

- 1 Remove the rear cover and the printer PCB as described in “Replacing the Main PCB” on page 5-12.
- 2 Remove the two microswitch screws as shown in Figure 5-59.

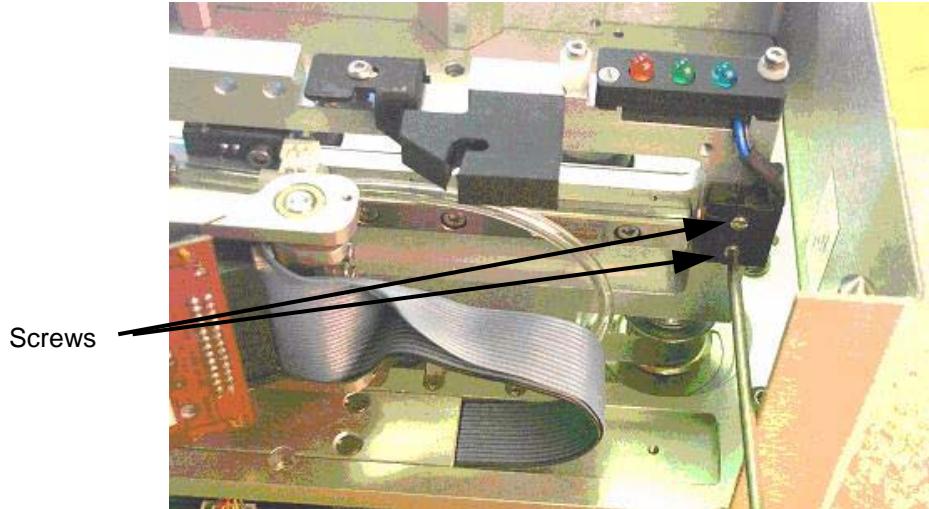


Figure 5-59: Microswitch Screws Removal

- 3 Remove the two indicator housing screws (Figure 5-60).

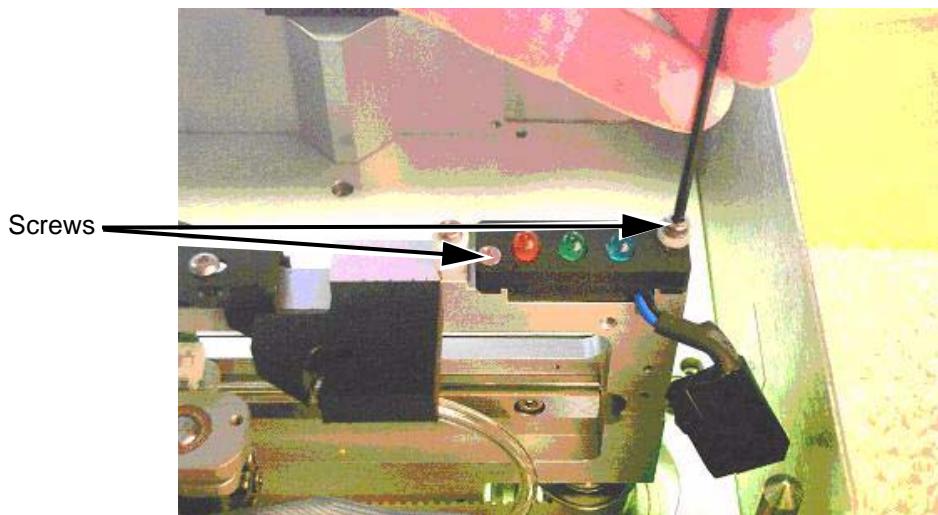


Figure 5-60: Indicator Housing Screws Removal

4 Remove the indicator housing (Figure 5-61).

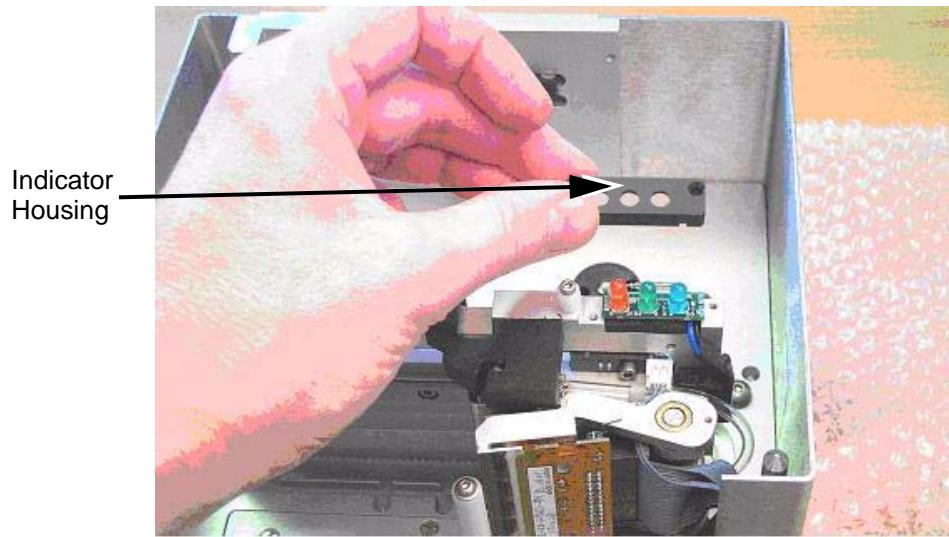


Figure 5-61: Indicator Housing Removal

5 Using a jewellers screwdriver or similar, remove the four M2 screws, that secure the wire cover plate.

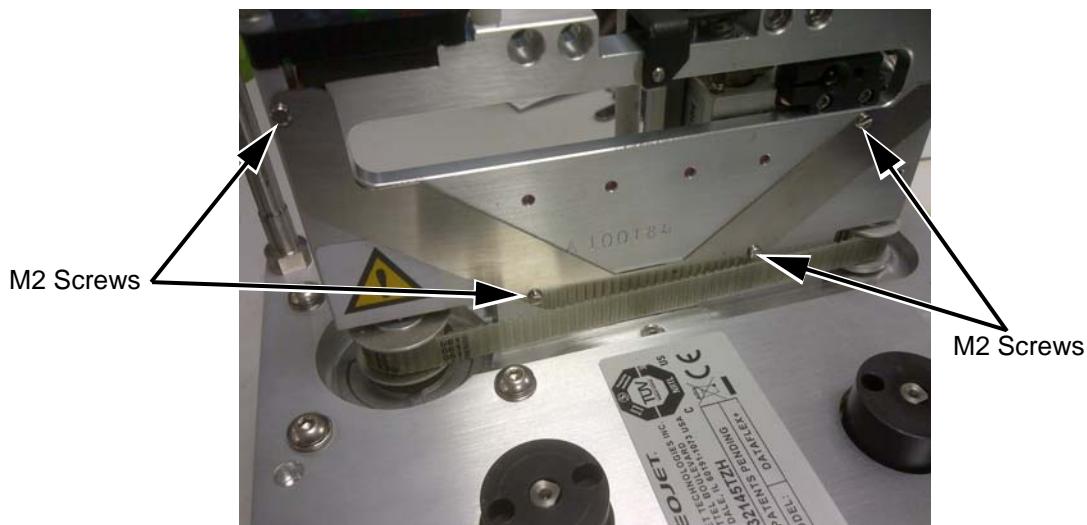


Figure 5-62: Wire Cover Plate Screws Removal

6 Remove the wire cover plate.

Note the positions of the indicator & microswitch wiring in the channels so that you can put them back the same way.

- 7 Remove the wiring from the channels (Figure 5-63).

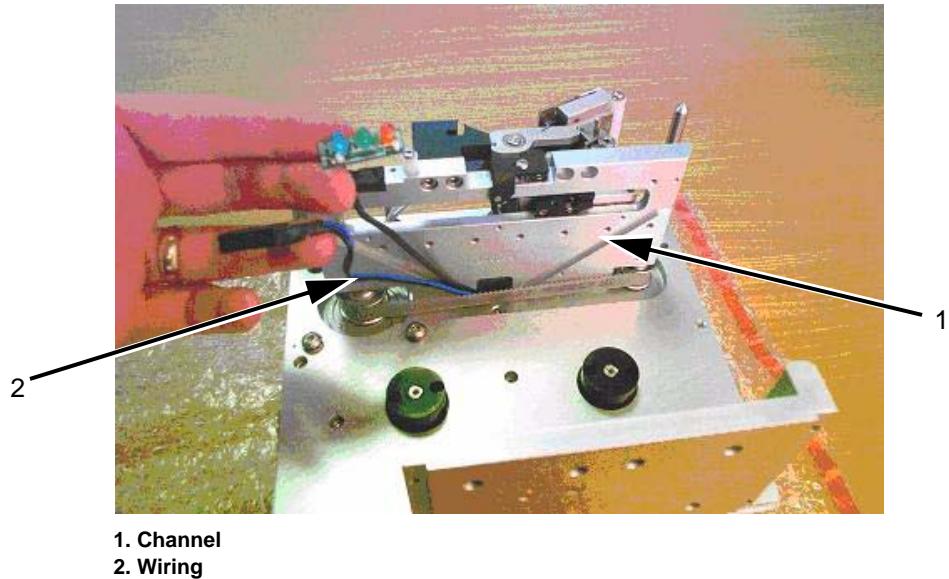


Figure 5-63: Wiring Removal

- 8 Pull the microswitch or indicator assembly connector up through the base plate, use light screwdriver to divert the timing belt if necessary.

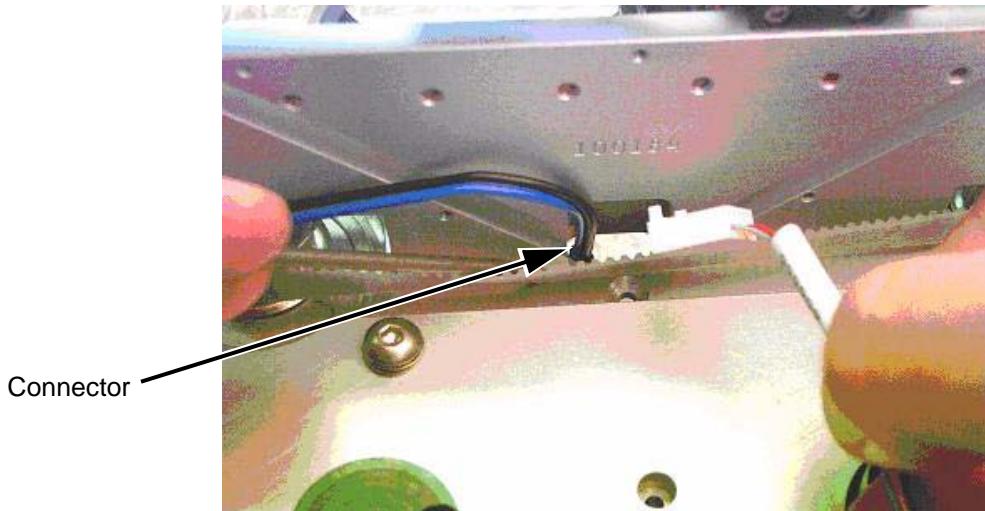


Figure 5-64: Microswitch Connector Removal

- 9 Replace the microswitch or indicator assembly and reconnect the connector through the base plate.
- 10 Reconnect the wiring through the channels and fix the wire cover plate.
- 11 Secure the wire cover plate using the nine M2 screws removed in step 5.

- 12 Place the indicator housing and secure it using the indicator housing screws removed in step 4.
- 13 Secure the microswitch using the two microswitch screws removed in step 2.
- 14 Refit the rear cover and the printer PCB as described in "Replacing the Main PCB" on page 5-12.

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.

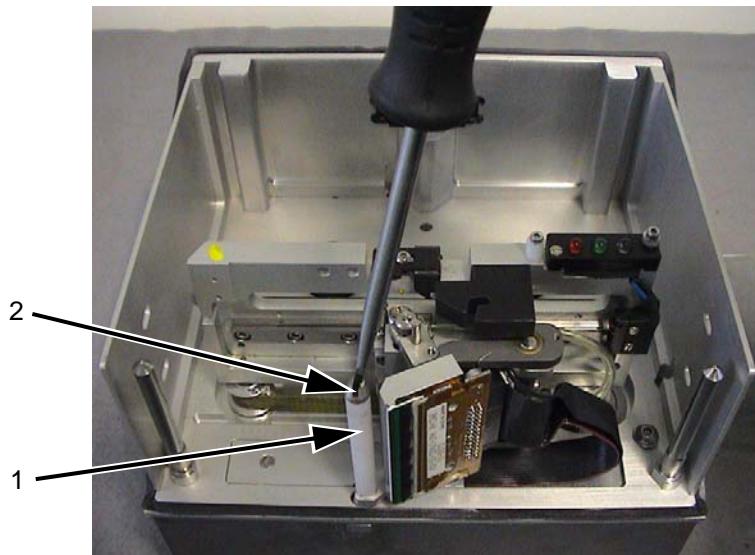


Figure 5-65: Peel Roller Screw Removal

- 3 Remove the peel roller.

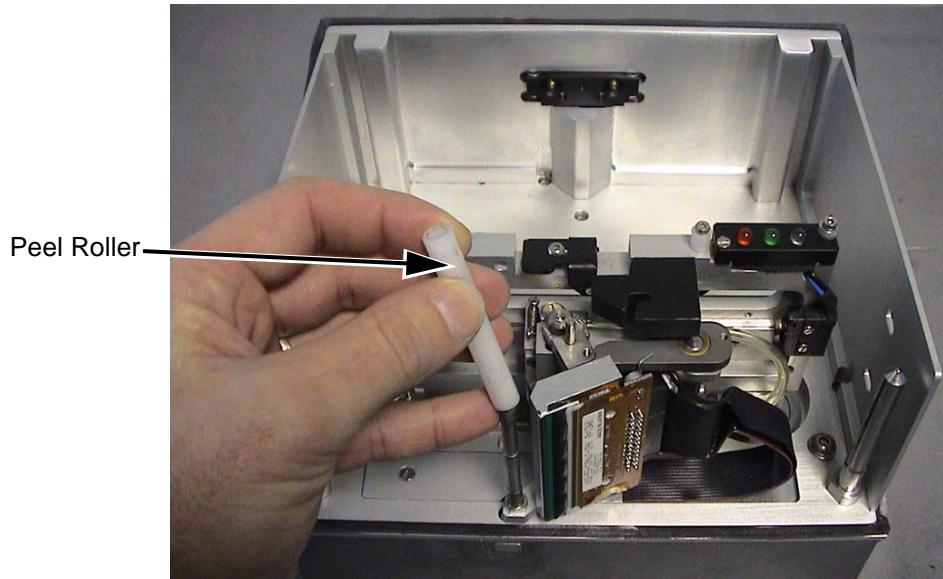


Figure 5-66: Peel Roller Removal

- 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 Pivot Assembly

To replace the printhead pivot assembly, proceed as follows:

- 1 Remove the eight screws, (six shown in Figure 5-67 and two hidden), and remove the side covers.

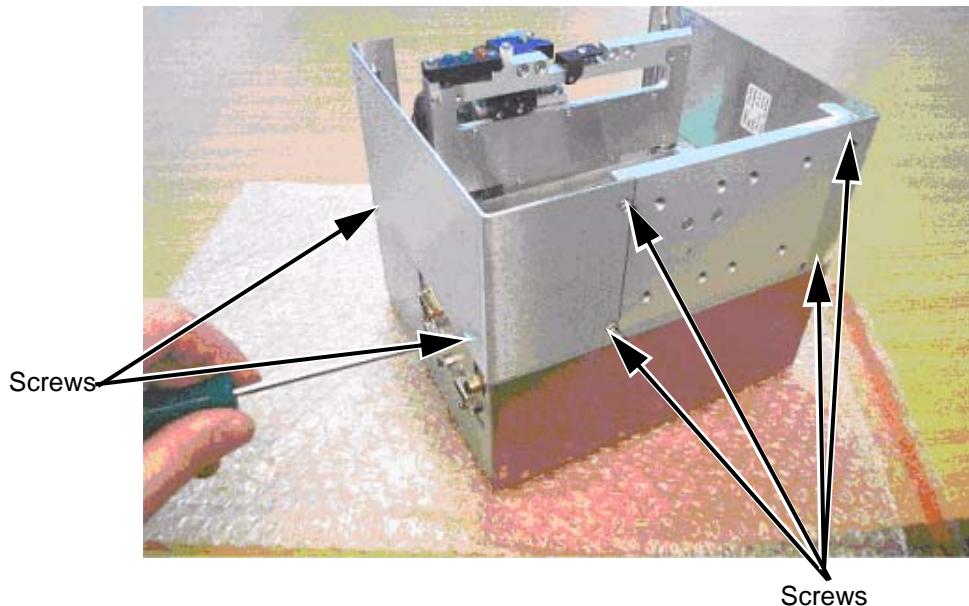


Figure 5-67: Side Cover Removal

- 2 Remove the two small spring screws shown in Figure 5-68.

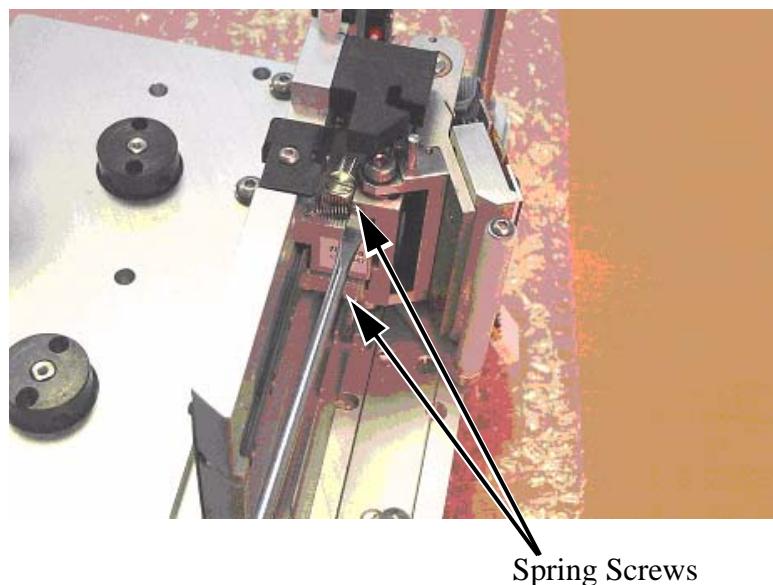


Figure 5-68: Spring Screws Removal

- 3 Disconnect the receiver connector using a screwdriver as shown in Figure 5-69.

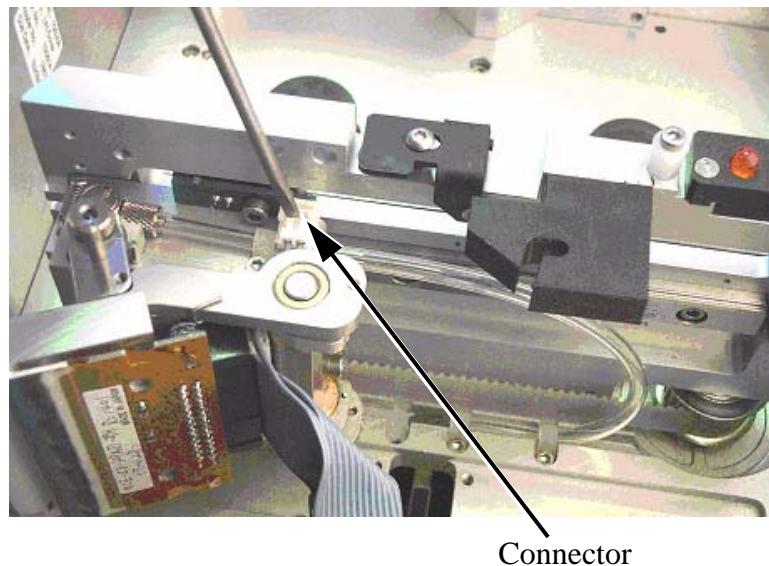


Figure 5-69: Connector Removal

- 4 Remove the printhead as described in "Replacing the Printhead" on page 5-22.
- 5 Remove the three screws shown in Figure 5-70.

Note: The three screws are furthest from the ribbon cable.

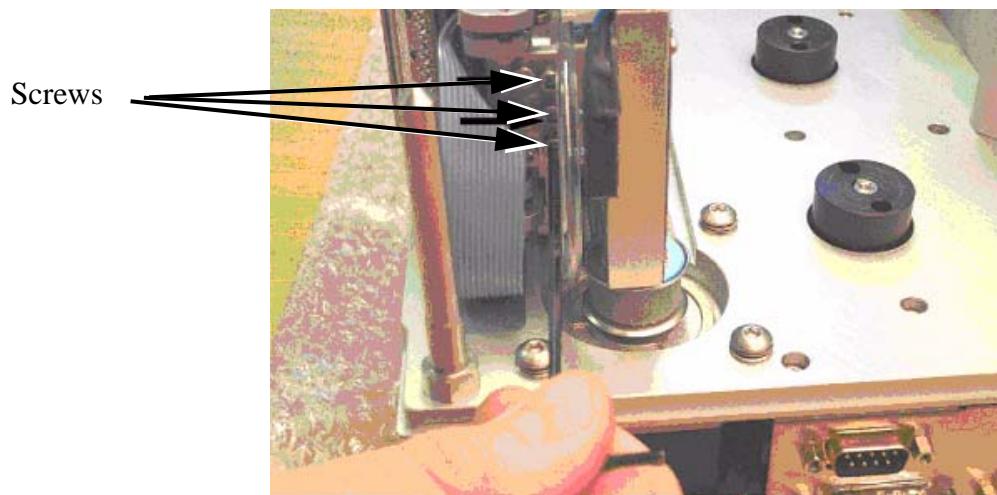


Figure 5-70: Screws Removal

- 6 Carefully remove the pivot assembly. As you do this, you have to move it sideways about 5 mm (as indicated in), so that you unlock it

from the parked position.

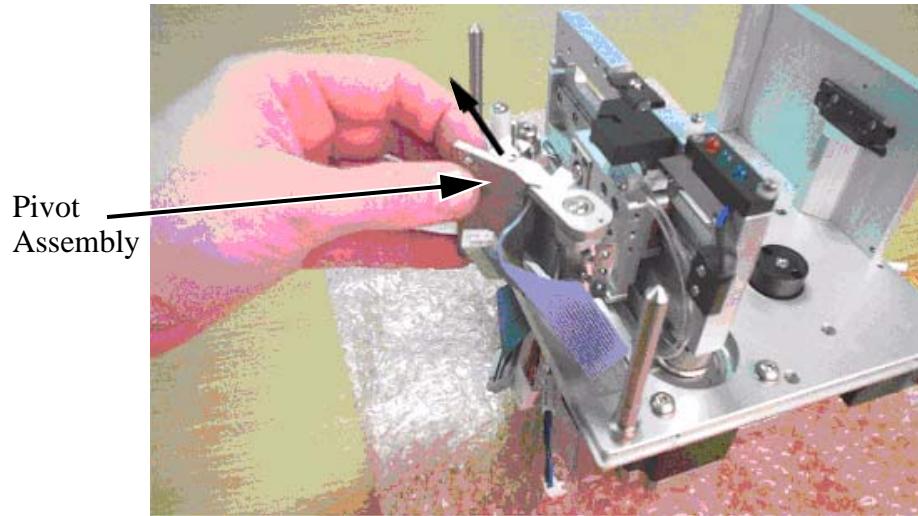


Figure 5-71: Pivot assembly Removal

- 7 Carefully spring forward the printhead mounting plate and pull the detector connector through the resulting gap as shown in Figure 5-72, to free the connector and remove the pivot assembly.

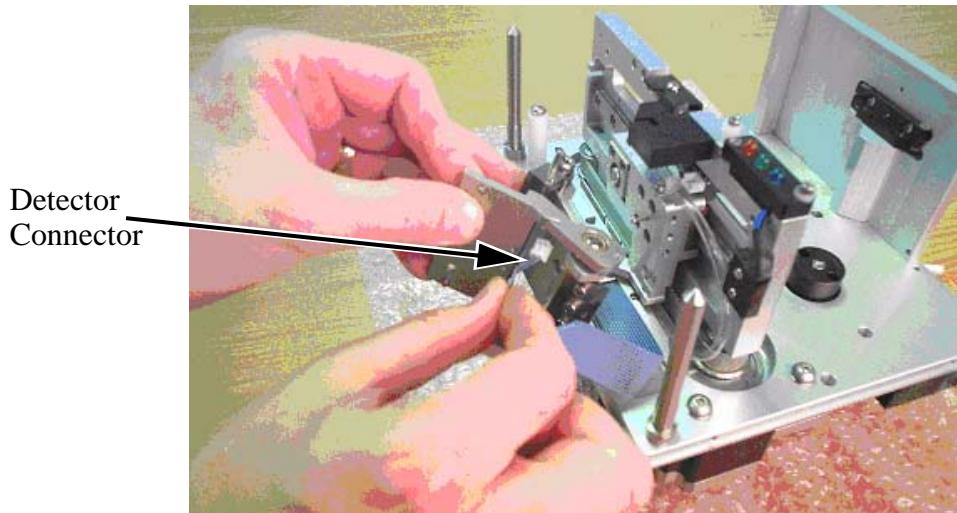


Figure 5-72: Connector Removal

- 8 Replace the pivot assembly and connect the detector connector to the new pivot assembly.
- 9 Place the pivot assembly in the parked position and secure it using the three screws removed in step 5.
- 10 Refit the printhead to the printer as described in "Replacing the Printhead" on page 5-22.

- 11 Reconnect the receiver connector.
- 12 Refit the small springs screws to secure the pivot assembly. The recommended method of replacing the small springs is to hold the screw with thin nose pliers, insert it through the spring loop, into the tapped hole, and turn with screwdriver.

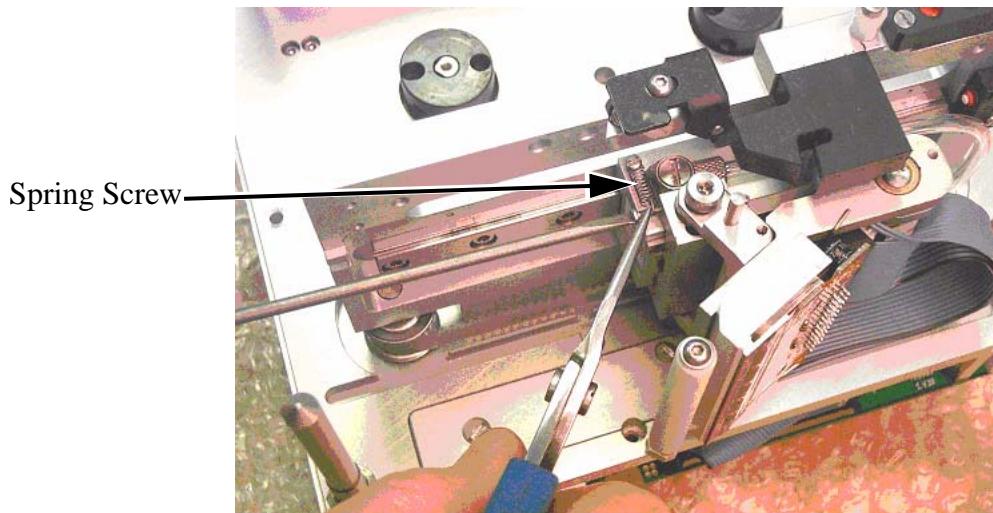


Figure 5-73: Connector Removal

Replacing the Timing Belt

To replace the timing belt, proceed as follows:

- 1 Remove the rear cover as described in "Replacing the Main PCB" on page 5-12.
- 2 Remove the printhead drive motor as described in "Replacing the Printhead Drive Motor Assembly" on page 5-18.
- 3 Remove the calibration detector assembly "Replacing the Calibration Detector Assembly" on page 5-37.

- 4 Remove the seven screws which hold the linear slide rail to its support.

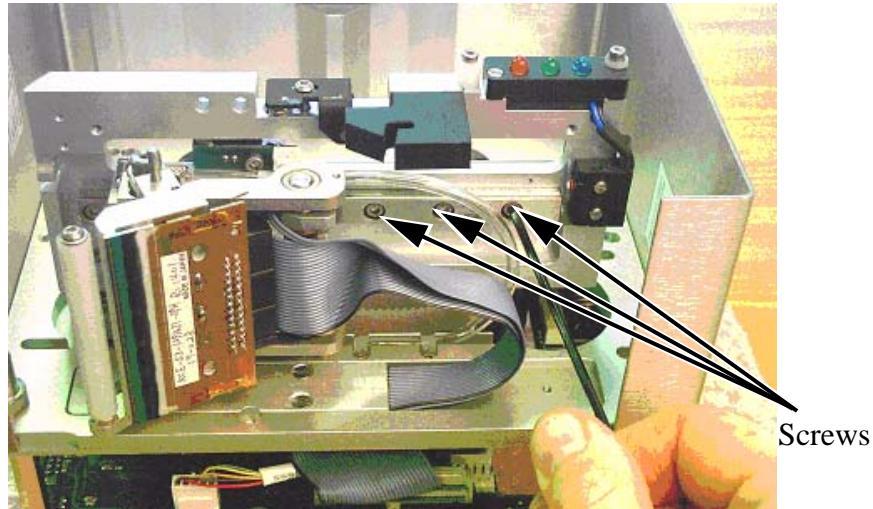


Figure 5-74: Linear Slide Rail - Screws

- 5 Carefully remove the linear slide assembly from its support.

Note: The linear slide rail is free moving. Ensure that it does not slide out of the slide carriage as the balls may fall out. To prevent this, it is recommended that you immediately place a tie wrap or piece of wire or similar through the end holes of the slide as shown in Figure 5-75.

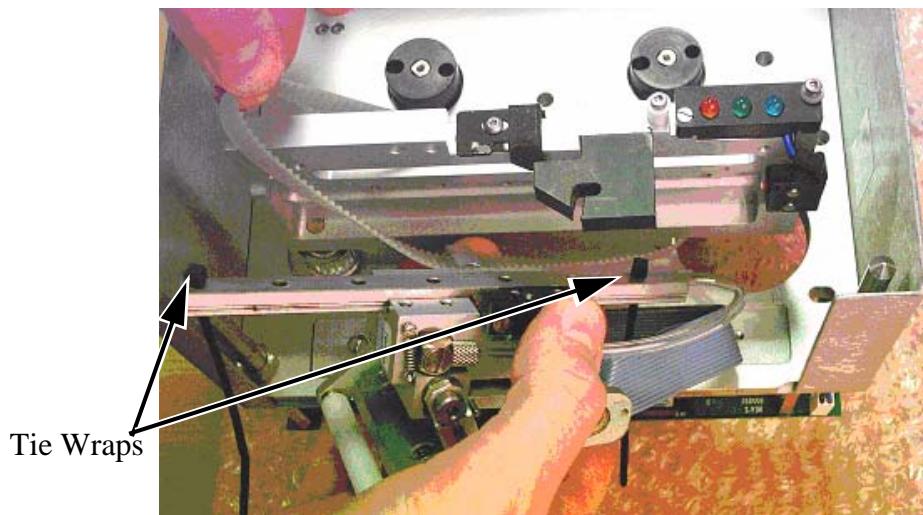


Figure 5-75: Linear Slide Rail - Tie Wraps

- 6 Lift the timing belt over the slide support plate as shown in Figure 5-75.

- 7 Remove the two timing belt clamp screws and replace belt.

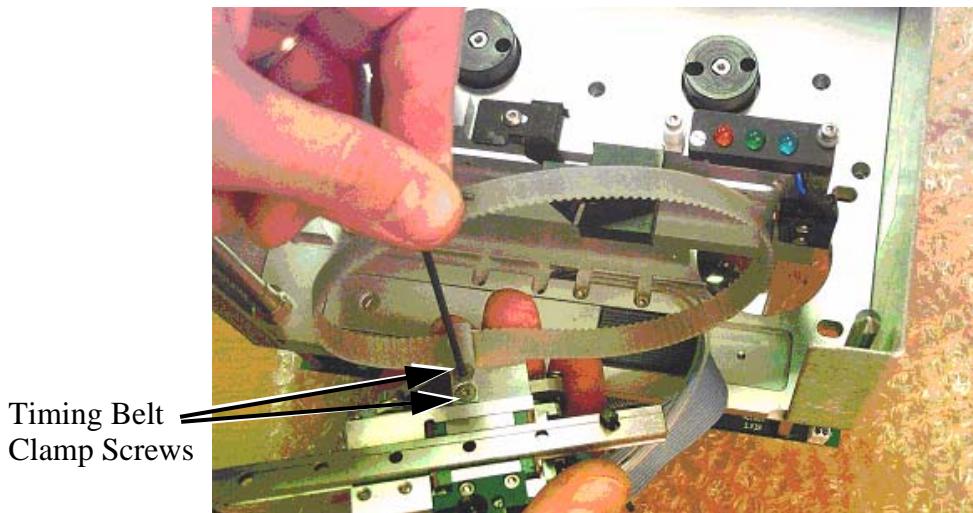


Figure 5-76: Linear Slide Rail - Tie Wraps

- 8 Replace the timing belt, and secure it using two timing belt clamp screws.
- 9 Refit the linear slide assembly to its support and secure it using the seven screws removed in step 4.
- 10 Refit the rear cover as described in "Replacing the Main PCB" on page 5-12.
- 11 Refit the printhead drive motor as described in "Replacing the Printhead Drive Motor Assembly" on page 5-18.
- 12 Refit the calibration detector assembly "Replacing the Calibration Detector Assembly" on page 5-37.

Replacing the Linear Slide

To replace the linear slide, proceed as follows:

- 1 Remove the printhead pivot assembly as described in "Replacing the Printhead Pivot Assembly" on page 5-45 (there is no need to remove the printhead if you are careful to protect it from damage).

- 2 Remove the seven screws which hold the linear rail to its support.

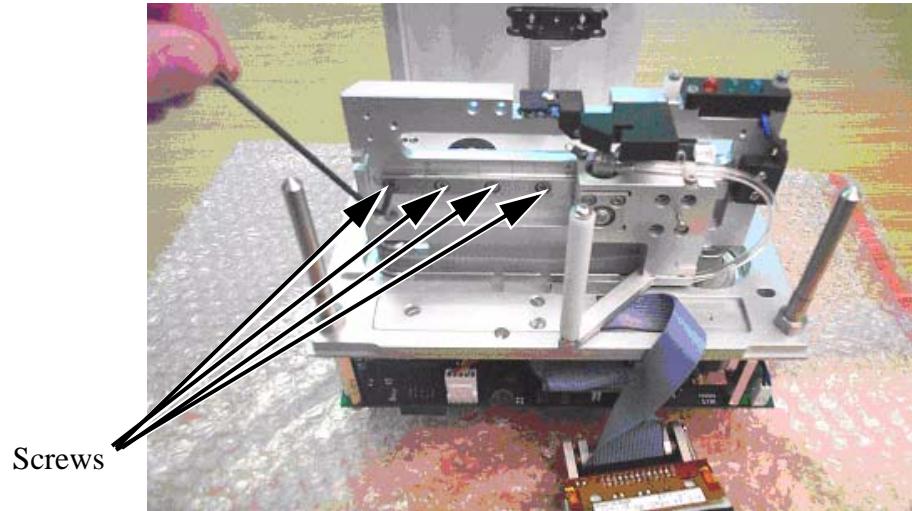


Figure 5-77: Linear Slide Rail Screws

- 3 Carefully remove the linear slide assembly from its support.

Note: The linear slide rail is free moving. Ensure that it does not slide out of the slide carriage as the balls may fall out. To prevent this, it is recommended that you immediately place a tie wrap or piece of wire or similar through the end holes of the slide as shown in Figure 5-78.

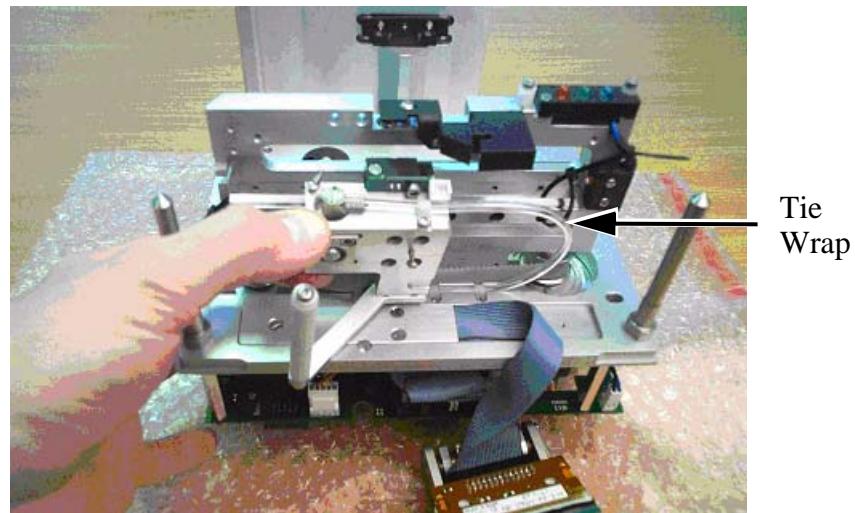


Figure 5-78: Linear Slide Rail

- 4 Remove the four screws which hold the linear slide carriage in place.

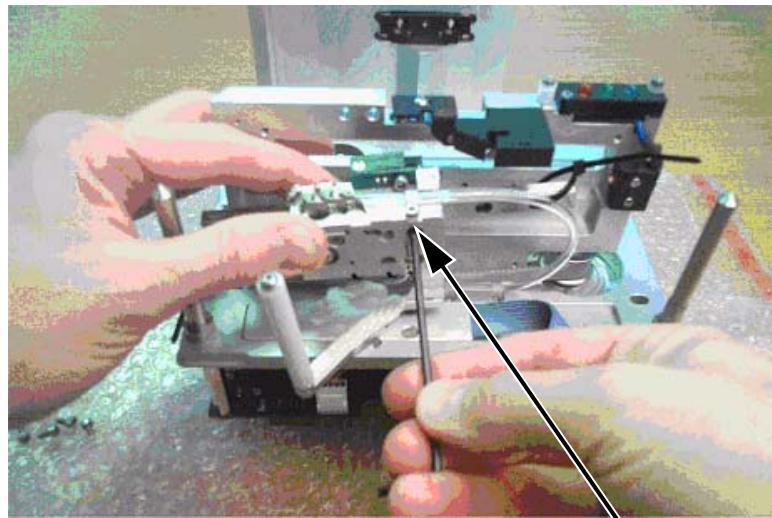


Figure 5-79: Linear Slide Rail - Removal

- 5 Replace the linear slide carriage and secure it with the four screws removed in step 4.

Note: The linear slide rail is free moving. Ensure it does not slide out of the slide carriage as the balls may fall out. To prevent this, it is recommended that you immediately place a tie wrap or piece of wire or similar through the end holes of the slide as shown in Figure 5-79.

Note: The linear slide rail fits only one way, ensure that you have orient it the right way, before you fix the carriage assembly to it.

- 6 Secure the linear slide assembly to the printer using the seven screws, that hold it to the support.
- 7 Refit the printhead pivot assembly as described in “Replacing the Printhead Pivot Assembly” on page 5-45.

Maintaining the Cassette

This section contains the information on how to replace or adjust the components of 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 5-80.



Figure 5-80: Ribbon Guide Removal

- 4 Remove the roller from the ribbon guide, as shown in Figure 5-81.

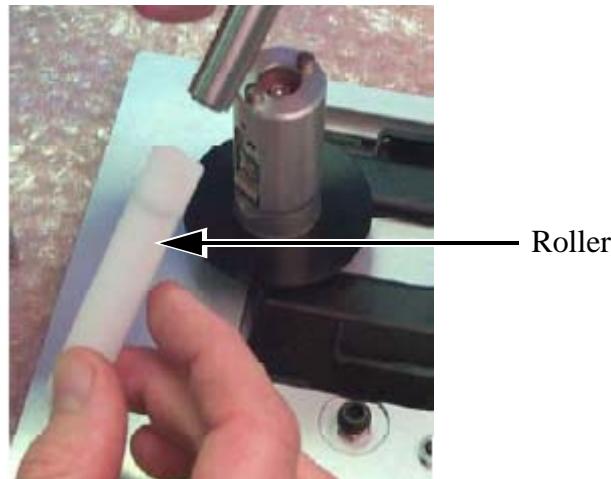


Figure 5-81: Roller Removal

- 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 5-82 on page 5-55.

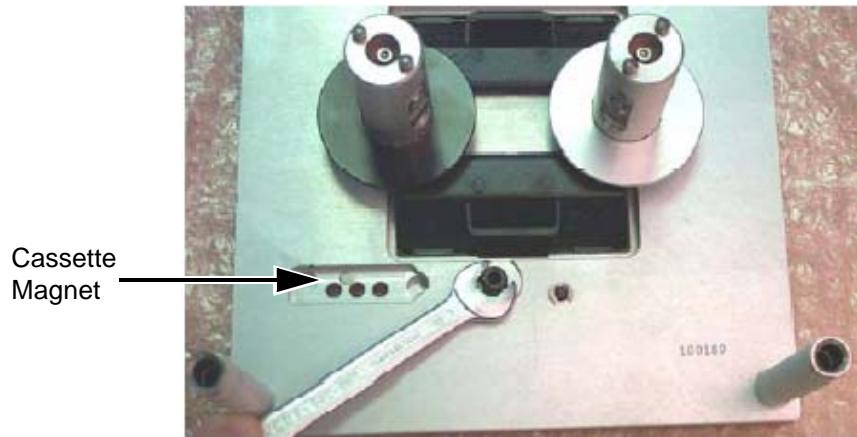


Figure 5-82: Latch Lock Nut Loosening

- 4 Adjust the latch screw (4-mm socket) and hold it in place while tightening the lock nut, as shown in Figure 5-83.

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.



Figure 5-83: Latch Screw Adjustment

- 5 Replace the ribbon in the cassette.
- 6 Replace the cassette in the printer.

Replacing a Cassette Mandrel

Removing the Cassette Mandrel

To remove the cassette mandrel, proceed as follows:

- 1 Remove the cassette from the printer.
- 2 Remove any ribbon from the cassette.
- 3 Loosen the screw (2.5-mm socket) on the top of the mandrel, as shown in Figure 5-84.



Figure 5-84: Mandrel Screw Loosening

- 4 Lift the mandrel and keep it aside, as shown in Figure 5-85.

Note: Do not remove the spring from the mandrel shaft.



Figure 5-85: Mandrel Removal

- 5 Turn the mandrel upside down and collect the friction cone and screw as they come out.
- 6 Place the new mandrel on its shaft, and rotate it until it drops into position.
- 7 Press the mandrel, compressing the spring as far as possible. Hold the mandrel in this position.
- 8 Continue to hold the mandrel down, place the friction cone into the top hole of the mandrel so that the tabs engage the slot in top of the shaft, as shown in Figure 5-86.

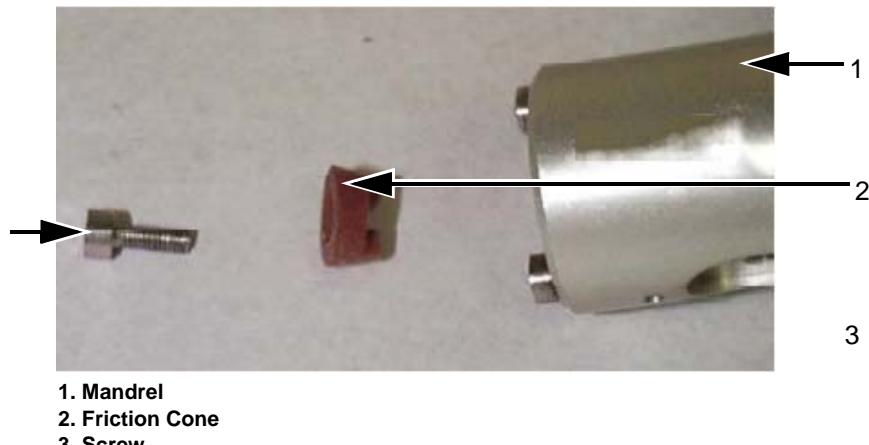


Figure 5-86: Mandrel, Friction Cone, and Screw

- 9 Still holding the mandrel down, secure the mandrel and friction cone with the screw removed in step 3.
- 10 Replace the ribbon in the cassette.
- 11 Replace the cassette in the printer.

Setting the End of Reel Detection

The printer can detect the end of ribbon reel in one of two ways, reactive or predictive.

- Reactive mode: Stops the printer when the end of a reel of ribbon is reached and the last section of ribbon detaches from the supply spool. This mode of detection may suit majority of the applications, however, it is not possible to completely guarantee, that the final product gets coded correctly as the ribbon breaks.
- Predictive mode: Monitors the amount of ribbon remaining on the supply reel and stops the printer when approximately 5 metres of

ribbon (+/- 2.5 metres) remains. Operating in this mode ensures no products remain unprinted when the end of reel is reached.

In case the ribbon breaks in the mid-reel, the reactive mode is always enabled to detect the break. The predictive mode only takes precedent at the end of the reel.

To ensure that both detection modes work to their optimum, it is necessary to input the correct values of the width and the color of the ribbon being used as different colors have different thicknesses.

The ribbon operating mode parameter, Predictive or Reactive, can only be accessed via CLARiTY® Configuration Manager and the parameter called End Of Reel Detection must be set appropriately. The default is Reactive mode.

To view the configured ribbon operating mode on the CLARiTY®, proceed as follows:

- 1 Touch Tools, touch Diagnostics, touch Consumables to access the consumables page.
- 2 Touch the 'End of Reel Detection' button to access the End of Reel Detection page.

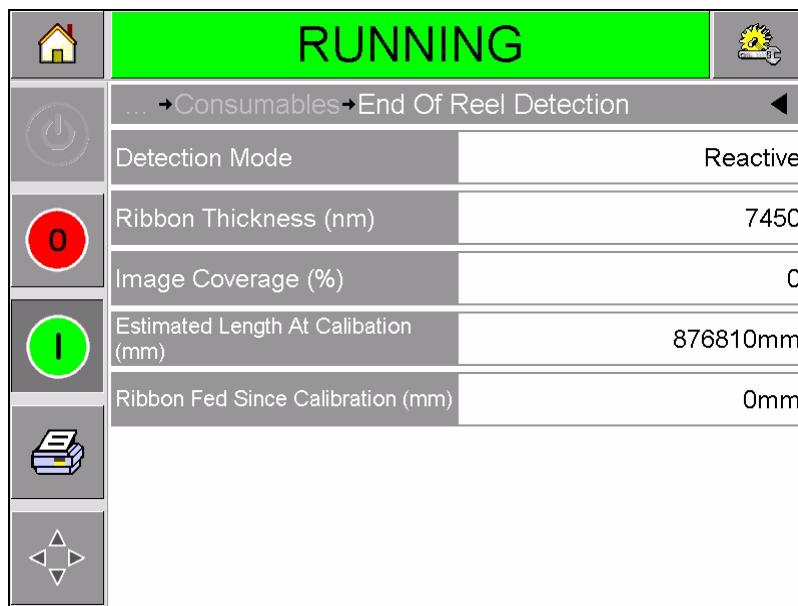


Figure 5-87: End of Reel Detection

The configured mode is displayed.

Working with Print Allocations

Some coding applications demand strict control of batch sizes for example controlled pharmaceutical products.

To work in such production situations it is useful to set the coder so that it only prints a precise number of codes before shutting down and waiting for the next batch instruction.

This is called a Print Allocation and it is administered by another computer or line controller.

When the production control PLC or PC authorises a new production batch, a special message can be sent to the printer using the External Serial Interface. This message selects the Job to print, any variable data in the job, and the allocation count, which is the production batch size. These messages can be stored in a queue in the printer and the size of the permitted queue is configurable.

The printer prints the current job until the number of products printed equals the allocation count sent by the controller, at which point it stops. When one allocation batch has been completed, the next job is automatically selected by the printer if there is a pending job in the queue. If there is no pending job in the queue the printer will not execute any further printing operations until a new allocation is sent to it.

Setup of the allocation operation for the printer is performed via the CLARiTY® configuration manager, where the following parameter can be set:

- Max Queue Length: Defines how many jobs are permitted to be in the Job queue

The configurable inputs and outputs also can be setup to trigger on certain events related to Print Allocations (refer “Setting the End of Reel Detection” on page 5-57 for details on I/O configuration)

- Clear Print Queue (Input) - reset the print job queue and delete all jobs in the queue
- Job allocation has completed (Output): The current allocation of prints has been completed
- Job Update queue is full (Output): The maximum permitted number of jobs in the queue has been reached
- Job Update Queue is not full (Output): The maximum permitted number of jobs in the queue has not been reached
- New Job allocation is received (Output): A new job allocation message has been received by the printer

When allocations are enabled, it is possible to view the job queue at the CLARiTY® panel in two different ways.

To view job queue, proceed as follows:

- 1 Touch the Job Preview button on the home screen to access the Job Preview page.

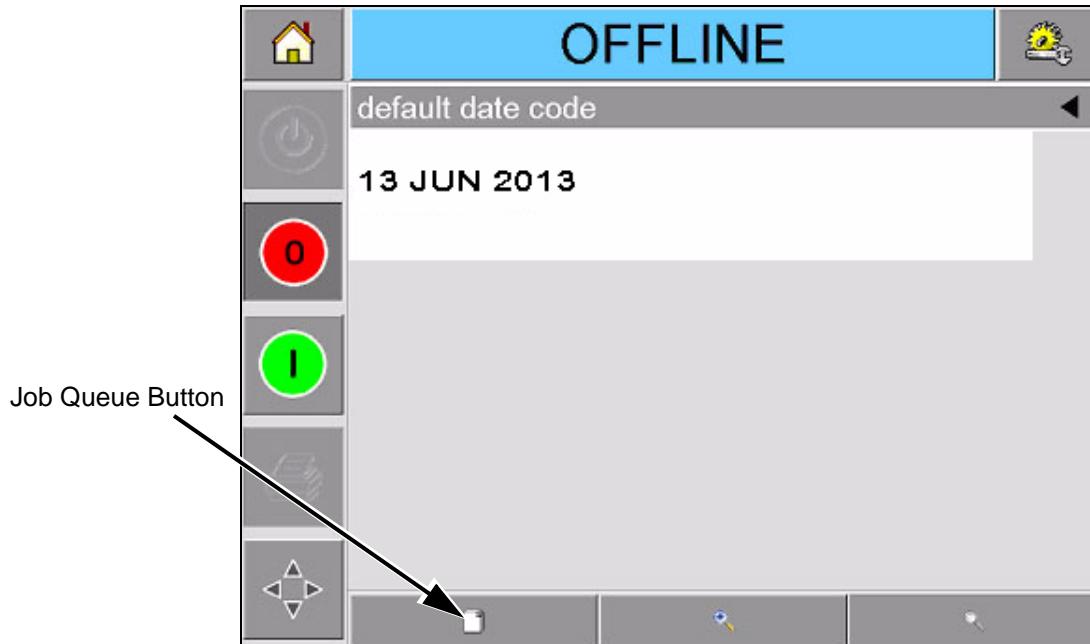


Figure 5-88: Job Preview Page

- 2 Touch the job queue button, to display the Job Queue page.
The queue of jobs can be viewed and the progress of the current job and allocation can be seen. Figure 5-89 on page 5-61 shows that the first job in the queue is called 'default date code' and has completed 0 prints from an allocation of 3 products. The second job in the queue is 'default 4 line text code' and it has completed 0 prints out of an allocation of 10.

- 3 Touch the 'X' button beside each of the jobs in the queue, to delete a job from the queue.

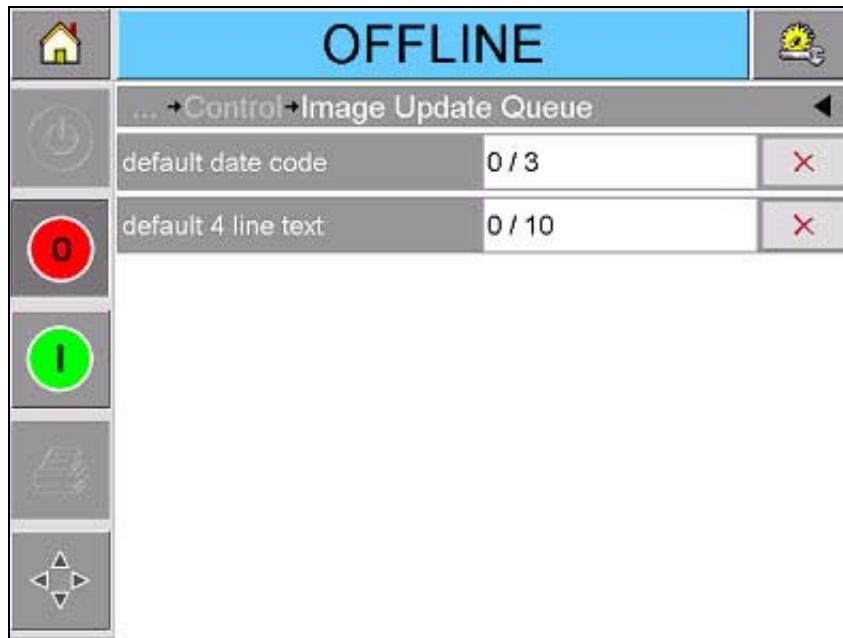


Figure 5-89: Job Queue Page

Alternately, touch Tools, touch Diagnostics, touch Control and touch Image Update.

This shows the image queue in the same way as the Job Preview screen but there is also the option to delete an entry in the job queue by touching the Red Cross button to the right of the queue entry.

The printer requests confirmation of the deletion before the entry is deleted from the queue.

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.revision

Eg 402571.r10 would be part number 402571, revision 10.

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 3-25).

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 (refer “Connecting the CLARiTY® Configuration Manager to the Printer using an Ethernet cable” on page 3-20 for connecting a PC to the printer via Ethernet).

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.

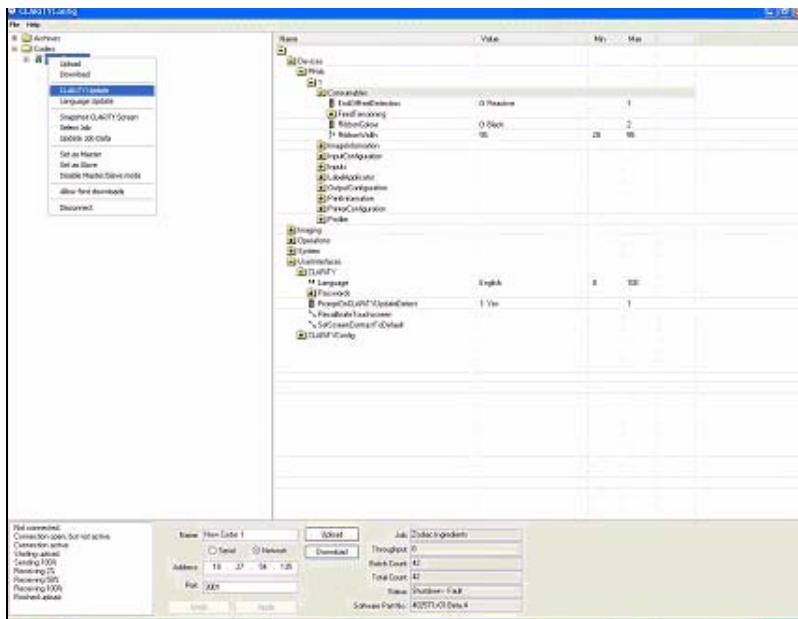


Figure 5-90: CLARiTY® Update Window

- 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 an 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 5-91.



Figure 5-91: 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 5-92).

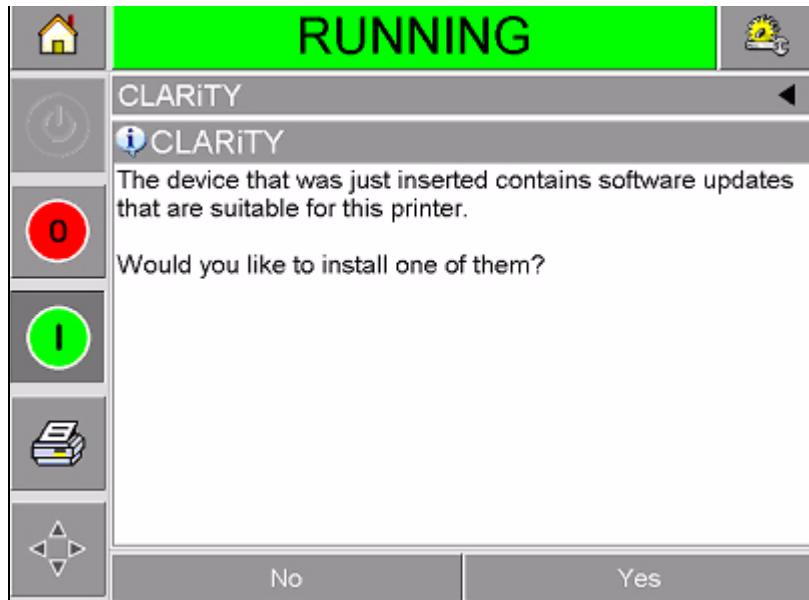


Figure 5-92: Confirmation Page

- 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.

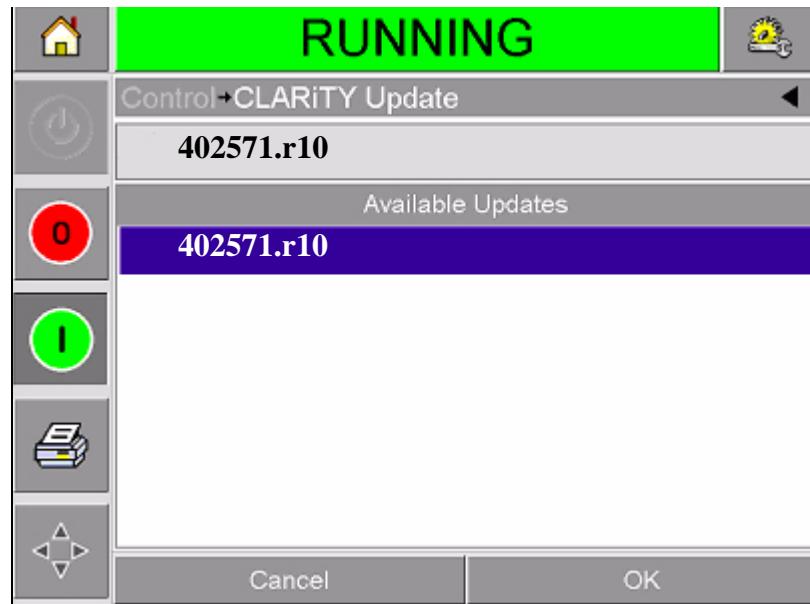


Figure 5-93: CLARiTY® Update Page

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

- 6 Touch OK, a confirmation page appears (Figure 5-94).

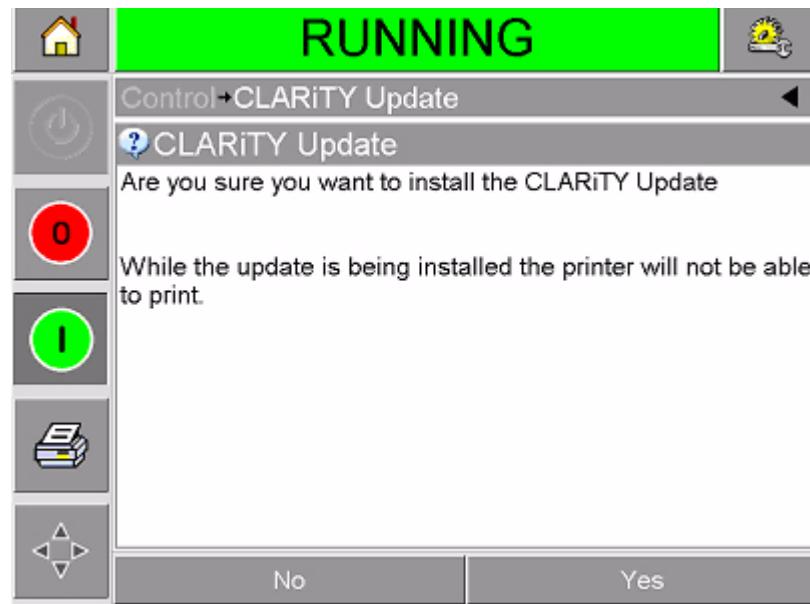


Figure 5-94: CLARiTY® Confirmation Page

- 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
E1005	'Print Limit Exceeded' - The current job is selected with a print limit (i.e. a limit on the number of times the job can be printed). This limit has been reached but the printer has received a further print signal that would have exceeded the limit. This error clears after selecting a new job. Alternatively, a job selection command or variable data update from an external source also clears this error.	Fault
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

Table 6-1: List of Faults and Warnings

Error No	Report on CLARiTY® Operator Interface	Status
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
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 > Printhead > 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

Table 6-1: List of Faults and Warnings

Error No	Report on CLARiTY® Operator Interface	Status
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
E3019	'Unprinted Pack' - Substrate speed fell below 40 mm/s for too long to print last pack.	Fault
E3020	'Incorrect Reel Size'	Fault
E3021	'Print Cycle Error' - Note the values in <i>Tools > diagnostics > printhead > states > captured states</i> 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
E1103	'Invalid Job File (failed To Render Logo)' - Invalid or missing graphic file - correct in CLARiSOFT	Warning
E1104	'Invalid Job File (Invalid User Concession)' - Default offset date falls outside the date range - correct in CLARiSOFT	Warning

Table 6-1: List of Faults and Warnings

Error No	Report on CLARiTY® Operator Interface	Status
E1200	'Invalid Job File (Invalid Barcode Character)' - Barcode contains invalid characters for type - correct in CLARiSOFT	Warning
E1201	'Invalid Job File (Invalid Barcode Check Digit)' - Check if the digit is incorrect - correct in CLARiSOFT	Warning
E1202	'Invalid Job File (EAN data longer than 48 characters)' - EAN barcode contains more than 48 characters - correct in CLARiSOFT	Warning
E1203	'Invalid Job File (EAN barcode out of specification)' - Characters to create Application Identifier is insufficient - correct in CLARiSOFT	Warning
E1204	'Invalid Job File (Application Identifier Incorrect)' - Application Identifier contains non-numeric data - correct in CLARiSOFT	'Warning
E1205	'Invalid Job File (Application Identifier Length Incorrect)' - Application Identifier 23 requires a length digit - correct in CLARiSOFT	Warning
E1206	'Invalid Job File (EAN Field Incorrect Length)' - EAN barcode does not have expected number of digits specified by Application Identifier - correct in CLARiSOFT	Warning
E1207	'Invalid Job File (EAN barcode out of specification)' - Separator character being used to terminate barcode data - correct in CLARiSOFT	Warning
E1208	'Invalid Job File (EAN field value out of range)' - Data out of range, e.g. '13' for a month code or '25' for an hour code - correct in CLARiSOFT	Warning
E1209	'Invalid Job File (EAN requires decimal point specifier)' - EAN requires digit to specify the position of the decimal point - correct in CLARiSOFT	Warning
E1210	'Invalid Job File (EAN field invalid or missing check digit)' - Application identifier requires the missing check digit - correct in CLARiSOFT	Warning
E1211	'Invalid Job File (EAN over 165 mm long)' - Barcode too large - resize to maximum length of 165 mm - correct in CLARiSOFT	Warning
E1212	'Invalid Job File (Barcode Length Incorrect)' - Barcode field does not have expected number of characters - correct in CLARiSOFT	Warning

Table 6-1: List of Faults and Warnings

Error No	Report on CLARiTY® Operator Interface	Status
E1213	'Invalid Job File (barcode out of limits)' - Barcode over-runs image area. Resize image area to accommodate the barcode - 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
E1300	'Slave Printer Absent' - Communications between the Master printer and the Slave have been lost - check cabling.	Fault
E1301	'Master Printer Absent' - Master printer configured incorrectly (Slave) - check configuration and cabling.	Fault
E1302	'Slave Job Select Failed' - Communications between the Master and Slave printer is lost - check cabling.	Fault

Table 6-1: List of Faults and Warnings

Troubleshooting

7

This chapter contains 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).

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

Error Message	Possible Causes	Remedies
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 platten	Check and adjust the print platten
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 (Refer "Replacing the Calibration Emitter Assembly" on page 5-36)
	Faulty detector assembly	Replace the detector assembly (Refer "Replacing the Calibration Detector Assembly" on page 5-37)
	Faulty printhead cable	Replace the printhead cable (Refer "Replacing the Printhead Ribbon Cable" on page 5-26)
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

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

Error Message	Possible Causes	Remedies
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 (Refer “Replacing the Printhead Ribbon Cable” on page 5-26)
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
Motor Volts Error	Power supply voltage varies too much	Check the power supply output
	Faulty printer PCB	Replace the main printer PCB (Refer “Replacing the Main PCB” on page 5-12)
	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 (Refer “Replacing the Main PCB” on page 5-12)
Printer Hand Not Set	Flash memory is lost	Use the CLARiTY® configuration CD

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

Error Message	Possible Causes	Remedies
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
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 fuses on the CLARiTY® unit and CLARiTY® processor PCB	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

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

Error Message	Possible Causes	Remedies
Printhead does not move in and out	Air supply disconnected	Check and set air pressure to 4 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.
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 4 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 platten or roller	Check and correct any obstructions

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

Error Message	Possible Causes	Remedies
No information is printed	Incorrect Vertical Registration	Set Vertical Registration to 0
	Faulty Printhead	Replace the printhead
	Production line speed fell below 40 mm/sec	Confirm minimum speed. Go to: Tools/Diagnostics/Printhead/Timings and increase the line speed
Printer will not go on-line	Invalid or no image selected	Select a valid image
	Fault message not cleared	Clear the fault message

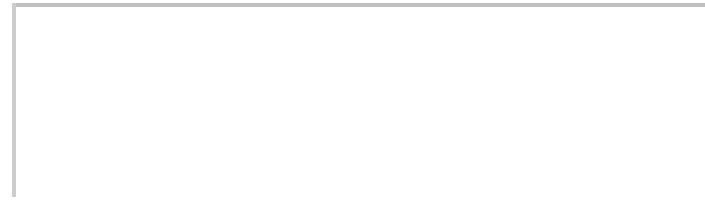
Table 7-1: Error Messages and Remedies (Continued)

Error Message	Possible Causes	Remedies
Poor print quality	Incorrect air pressure	Check and set the air pressure to 4 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 platten or roller	Check, clean, reposition or replace if necessary

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

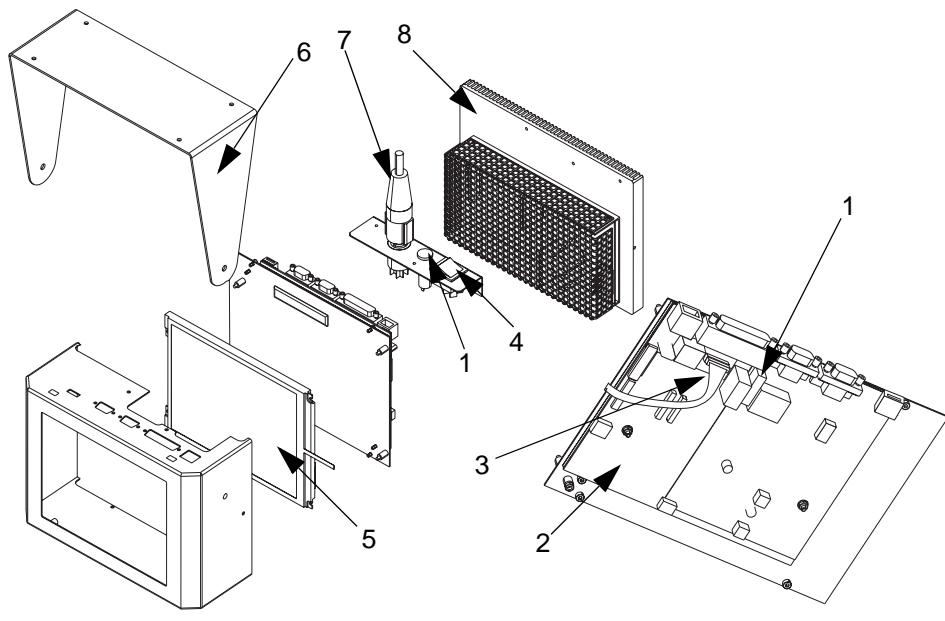
Error Message	Possible Causes	Remedies
Top or bottom of print is missing or ragged	Start border too short	Increase the start border
	Intermittent Mode Only: Substrate is moving while attempting to print	Print signal timing is incorrect. If necessary, delay the print until the film stops and settles (Dwell 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 (Refer "Replacing the Printhead" on page 5-22)
Ribbon is creasing	Poor alignment of printer to platten or roller	Correct the alignment with the shims between the printer and bracket or behind the platten
	Bent peel roller shaft or support	Check and replace if necessary

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



The illustrations and the associated tables provide detailed information about the parts of each module of the Videojet DataFlex 6420 printer. This information is useful for ordering the spare parts for the printer.

Standard Controller Assembly



- | | |
|---------------------------|--|
| 1. Thermal Coder Fuse Kit | 5. LCD Touchscreen |
| 2. Processor PCB | 6. Controller Mounting Yoke Kit |
| 3. LCD Cable | 7. Thermal Printer Mains Lead Assembly |
| 4. Mains Switch Assembly | 8. Power Supply Unit |

Figure 8-1: Standard Controller Assembly

Table 8-1 lists the parts of the controller assembly.

Item Number	Part Number	Description	Quantity
1	400885	Thermal Coder Fuse Kit	Set of 10
2	402796	Processor PCB	1
3	402797	LCD Cable	1
4	402799	Mains Switch Assembly (Standard only)	1
5	402789	LCD Touchscreen	1
6	402809	Controller Mounting Yoke Kit	1
7	See Table 8-2	Thermal Printer Mains Lead Assembly (See Table 8-2 for country specific part codes)	1
8	402801	Power Supply Unit	1
9*	402916	Thermal Printer Lead Assembly	1
10*	405735	Spare DATAFLEX 6420 Controller	1
11*	405737	Spare DATAFLEX 6420 Slave Controller	1

Table 8-1: Standard Controller Assembly - Parts List

Note: * indicates items not shown in the figure.

Table 8-2 lists the parts of the thermal printer mains lead assembly.

Part Number	Description
504646-01	Videojet DataFlex 6420 mains lead - US Canada
504646-02	Videojet DataFlex 6420 mains lead - Europe
504646-05	Videojet DataFlex 6420 mains lead - Brazil
504646-06	Videojet DataFlex 6420 mains lead - Japan
504646-08	Videojet DataFlex 6420 mains lead - Italy
504646-10	Videojet DataFlex 6420 mains lead - China
504646-18	Videojet DataFlex 6420 mains lead - Denmark

Table 8-2: Thermal Printer Mains Lead Assembly- Parts List

Part Number	Description
504646-21	Videojet DataFlex 6420 mains lead - UK
504646-38	Videojet DataFlex 6420 mains lead - Switzerland
504646-39	Videojet DataFlex 6420 mains lead - India/South Africa
504646-42	Videojet DataFlex 6420 mains lead - South America/Philippines

Table 8-2: Thermal Printer Mains Lead Assembly- Parts List

Cassette Assembly

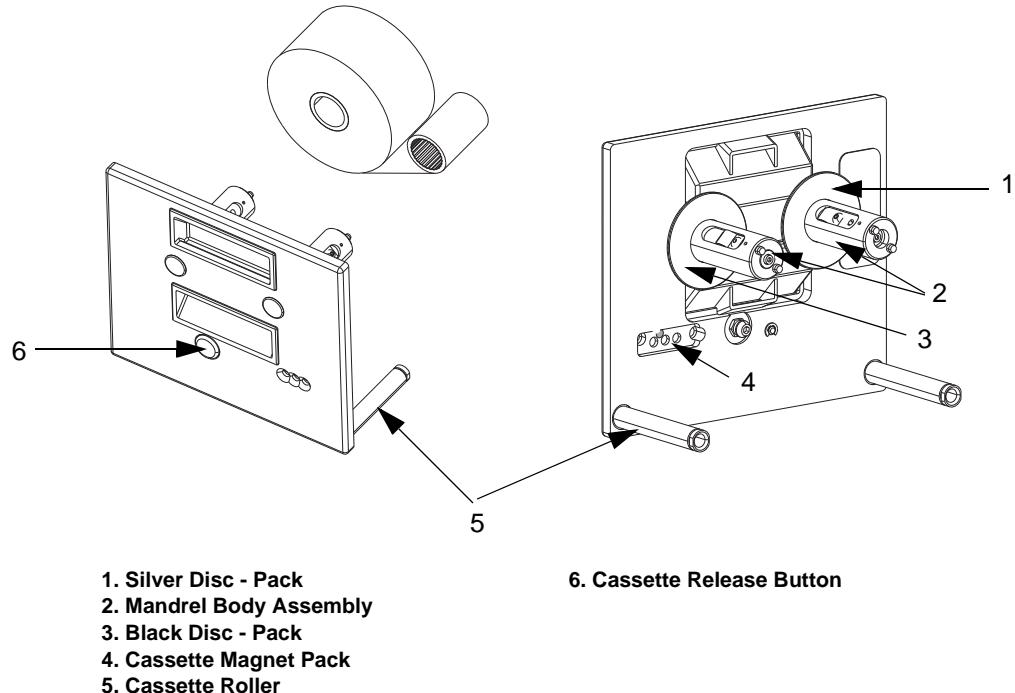


Figure 8-2: Cassette Assembly

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

Item Number	Part Number	Description	Quantity
1	216809	Silver Disc - Pack	5 off
2	216049	53 mm Mandrel Body Assembly	1
2	216581	107 mm Mandrel Body Assembly	1
3	216808	Black Disc - Pack	5 off
4	216853	Spare Cassette Magnet	10 off
5	216032	53 mm Cassette Roller	Set of 6
5	216584	107 mm Cassette Roller	Set of 6
6	216810	Spare Cassette Release Button	1
7*	217806	53 mm Mandrel Refurbishment Kit	1
8*	401956	107 mm Mandrel Refurbishment Kit	1
9*	403057	Spare Friction Cones	Pack of 10
10*	402411	Spare/leaf Spring	Pack of 10
11*	405743	Spare DATAFLEX 6420 53mm Cassette	1
12*	405744	Spare DATAFLEX 6420 107mm Cassette	1

Table 8-3: Cassette Assembly - Parts List

Note: * indicates items not shown in the figure.

Printer Assembly

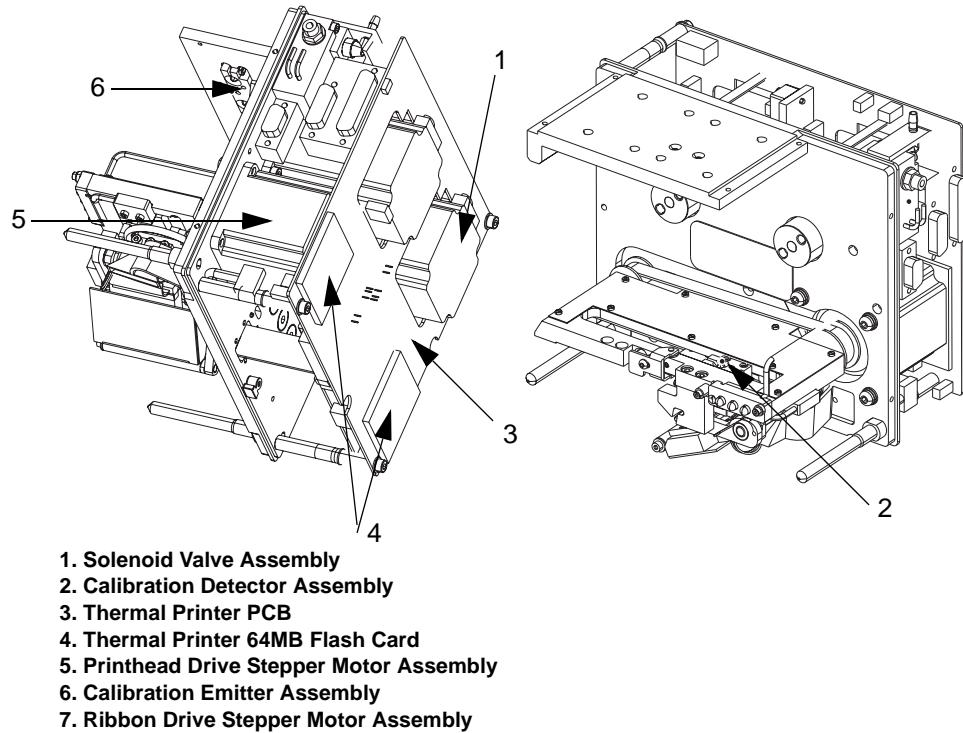


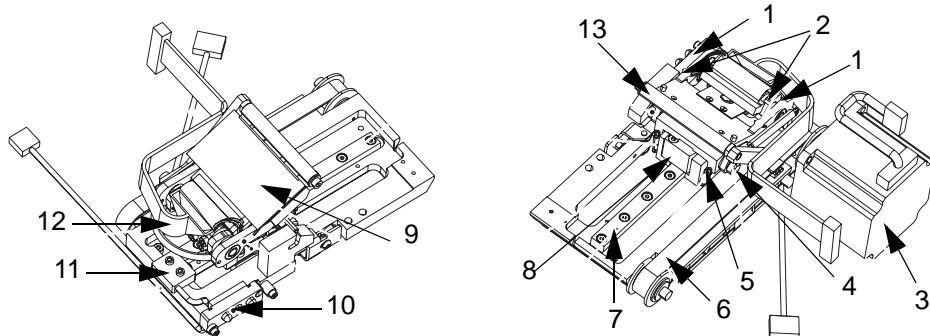
Figure 8-3: Printer Assembly

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

Item Number	Part Number	Description	Quantity
1	215994	Solenoid Valve Assembly	1
2	216367	Calibration Detector Assembly LH	1
	215991	Calibration Detector Assembly RH	1
3	402810	Thermal Printer PCB	1
4	402795	Thermal Printer Flash Card	1
5	215993	Printhead Drive Stepper Motor Assembly	1
6	215990	Calibration Emitter Assembly	1
7	215992	Ribbon Drive Stepper Motor Assembly	1

Table 8-4: Printer Assembly - Parts list

Printhead Assembly



1. Printhead Pivot Assembly
2. Strut Return Spring
3. Printhead Drive Stepper Motor Assembly
4. Printhead Pivot Screws
5. Printhead Spring
6. Timing Belt Set
7. Linear Slide Assembly
8. Short Stroke Cylinder
9. Thermal Printhead Assembly
10. Status Indicator Assembly
11. Printhead Microswitch Assembly
12. Printhead Cable Assembly
13. Peel Roller

Figure 8-4: Printhead Assembly

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

Item Number	Part Number	Description	Quantity
1	401165	53 mm Printhead Pivot Assembly LH	1
1	401072	53 mm Printhead Pivot Assembly RH	1
1	216588	107 mm Printhead Pivot Assembly LH	1
1	216580	107 mm Printhead Pivot Assembly RH	1
2	216047	Strut Return Spring	10 off
2	216047	Strut return spring	10 off
3	215993	Printhead Drive Stepper Motor Assembly	1
4	401878	Printhead Pivot Screws	10 off
5	215986	Printhead Spring	10 off
6	216037	Timing Belt Set	5 off
7	216035	Linear Slide Assembly	1
7	216579	Linear Slide Assembly	1
8	216033	Short Stroke Cylinder Assembly	1
8	401609	Short Stroke Cylinder Assembly	1
9	215984	53 mm Thermal Printhead Assembly	1
9	216585	107 mm Thermal Printhead Assembly	1
10	215989	Status Indicator Assembly	1
11	216036	Printhead Microswitch Assembly	1

Table 8-5: Printhead Assembly - Parts List

Item Number	Part Number	Description	Quantity
12	216366	53 mm Printhead Cable Assembly LH	1
	215983	53 mm Printhead Cable Assembly RH	1
12	216578	107 mm Printhead Cable Assembly LH	1
12	216577	107 mm Printhead Cable Assembly RH	1
13	216031	Peel Roller	5 off
13	216583	Peel Roller	5 off

Table 8-5: Printhead Assembly - Parts List (Continued)

Accessories

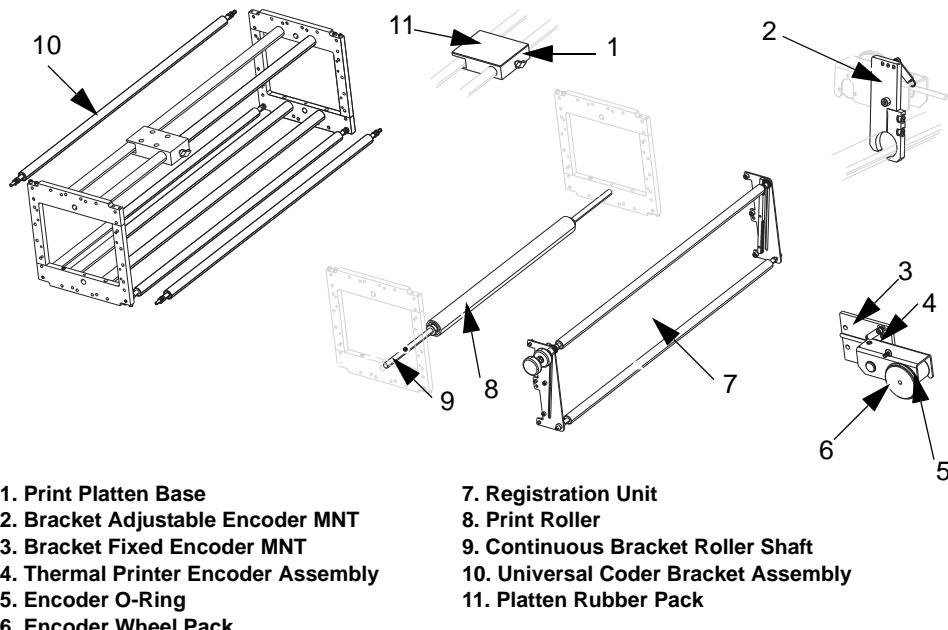


Figure 8-5: Accessories

Table 8-6 lists the accessories of the printer

Item Number	Part Number	Description	Quantity
1	216370	Print platten Base	1
2	216046	Bracket Adjustable Encoder Mount	1
3	216045	Bracket Fixed Encoder Mount	1
4	402802	Thermal Printer Encoder Assembly	1
5	215964	Encoder O Ring	10 off
6	402803	Encoder Wheel Pack	5 off
7	216042	Registration Unit	1

Table 8-6: Accessories List

Item Number	Part Number	Description	Quantity
8	216381-300	Print Roller 300 Long	1
	216381-400	Print Roller 400 Long	1
	216381-450	Print Roller 450 Long	1
	216381-500	Print Roller 500 Long	1
	216381-550	Print Roller 550 Long	1
	216381-600	Print Roller 600 Long	1
	216381-650	Print Roller 650 Long	1
	216381-700	Print Roller 700 Long	1
	216381-750	Print Roller 750 Long	1
	216381-800	Print Roller 800 Long	1
9	216381-850	Print Roller 850 Long	1
	216381-900	Print Roller 900 Long	1
	216369	Continuous Bracket Roller Shaft	1
10	216368	Universal Coder Bracket Assembly	1
11	215965	platten Rubber Pack	10 off

Table 8-6: Accessories List (Continued)

Drawings

9

Printer Dimensions

Figure 9-1 shows the dimensions of the 53-mm (RH) printer.

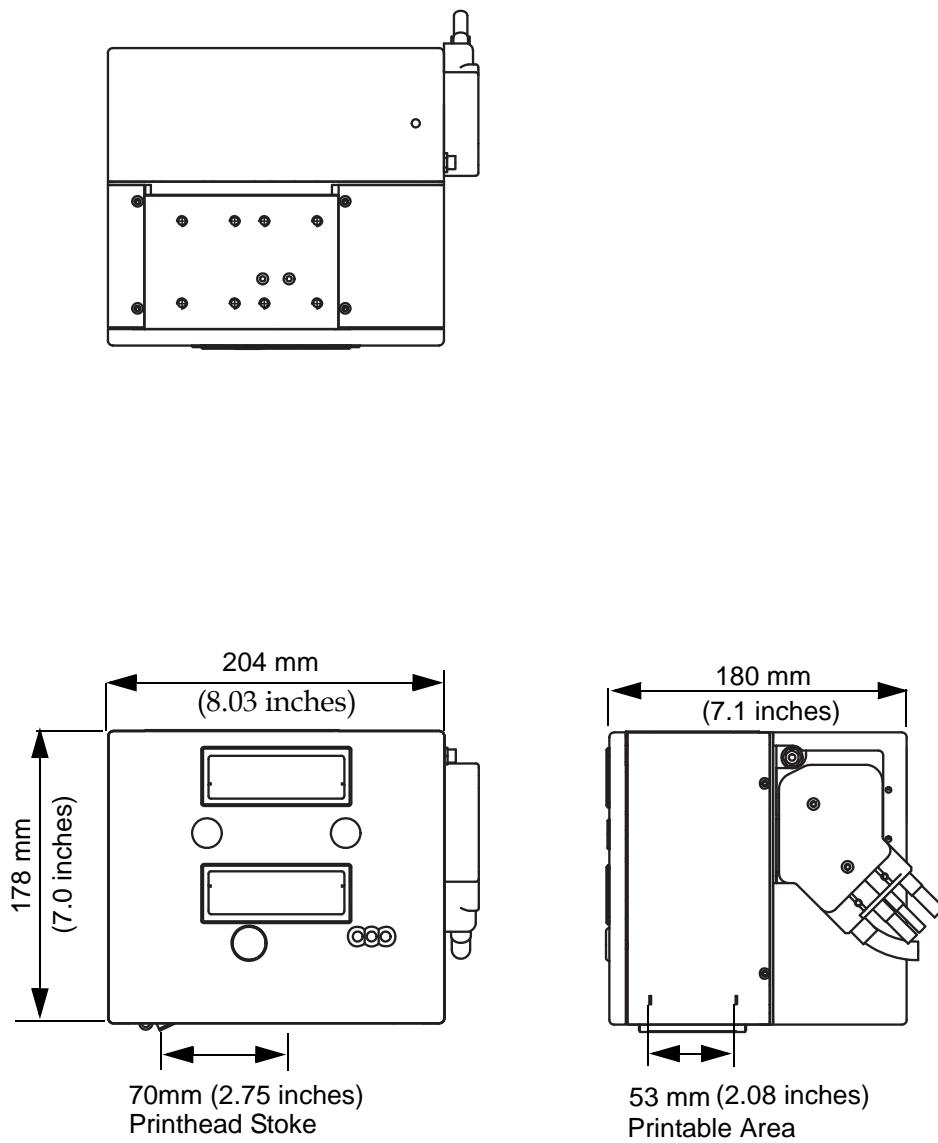


Figure 9-1: 53mm RH Printer Dimensions

Figure 9-2 shows the dimensions of the 53mm (LH) printer.

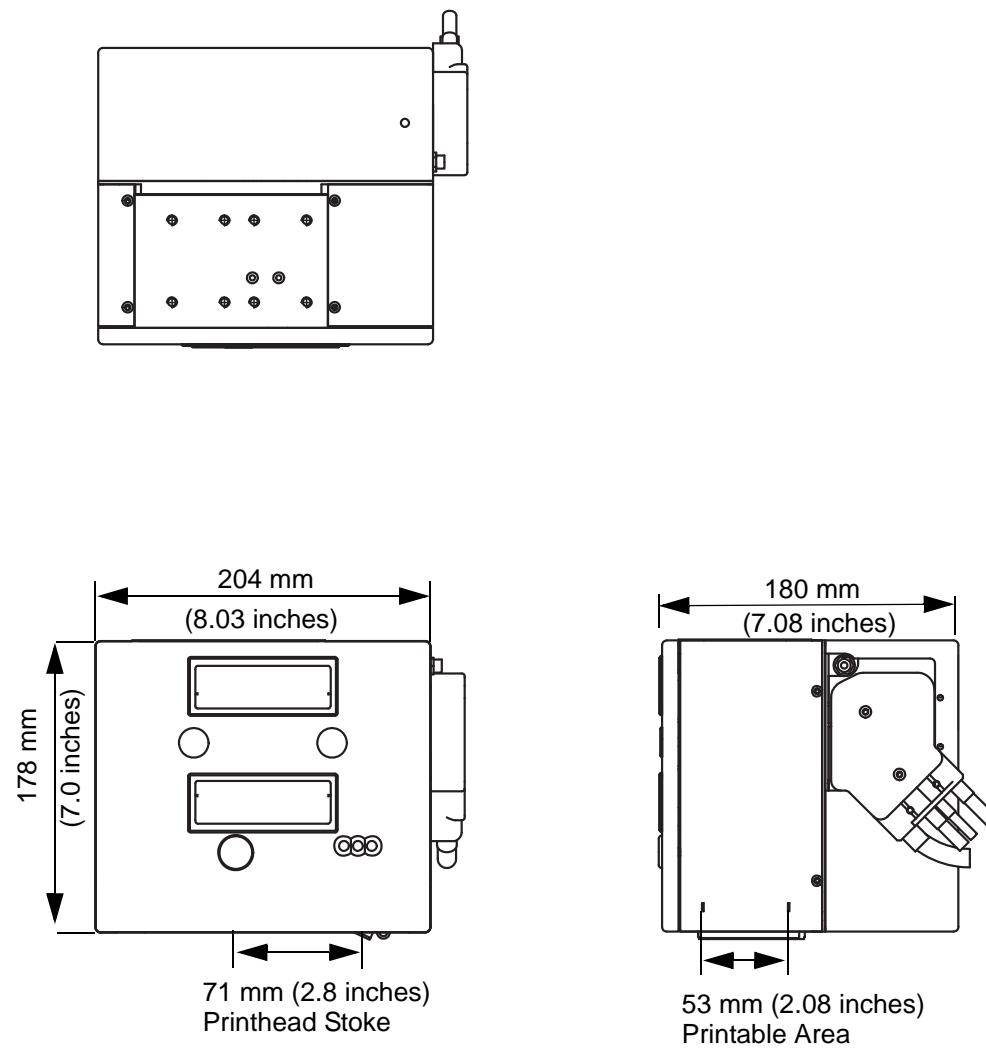


Figure 9-2: 53mm LH Printer Dimensions

Figure 9-3 shows the dimensions of the 107mm (RH) printer.

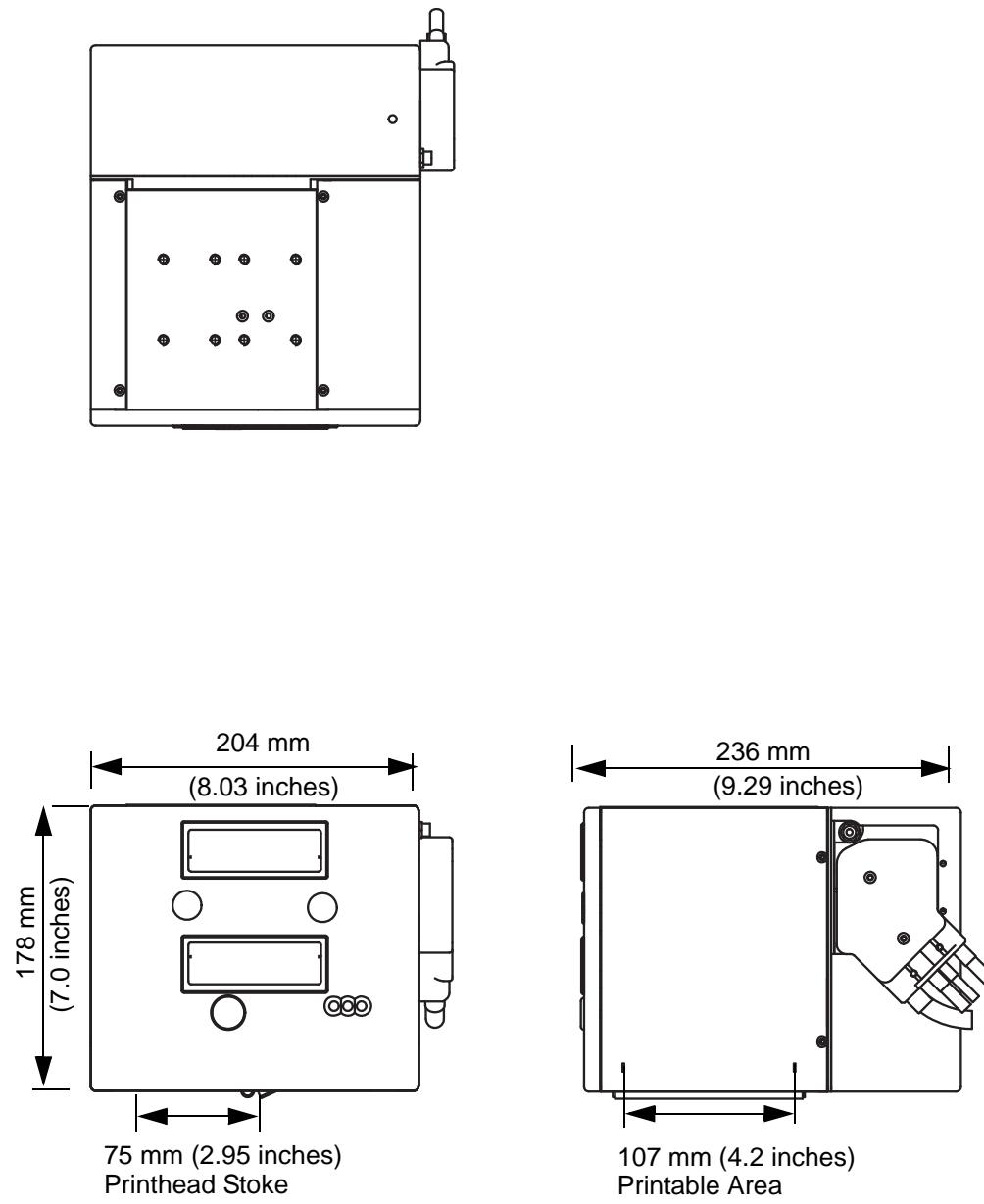


Figure 9-3: 107mm RH Printer Dimensions

Figure 9-4 shows the dimensions of the 107mm (LH) printer.

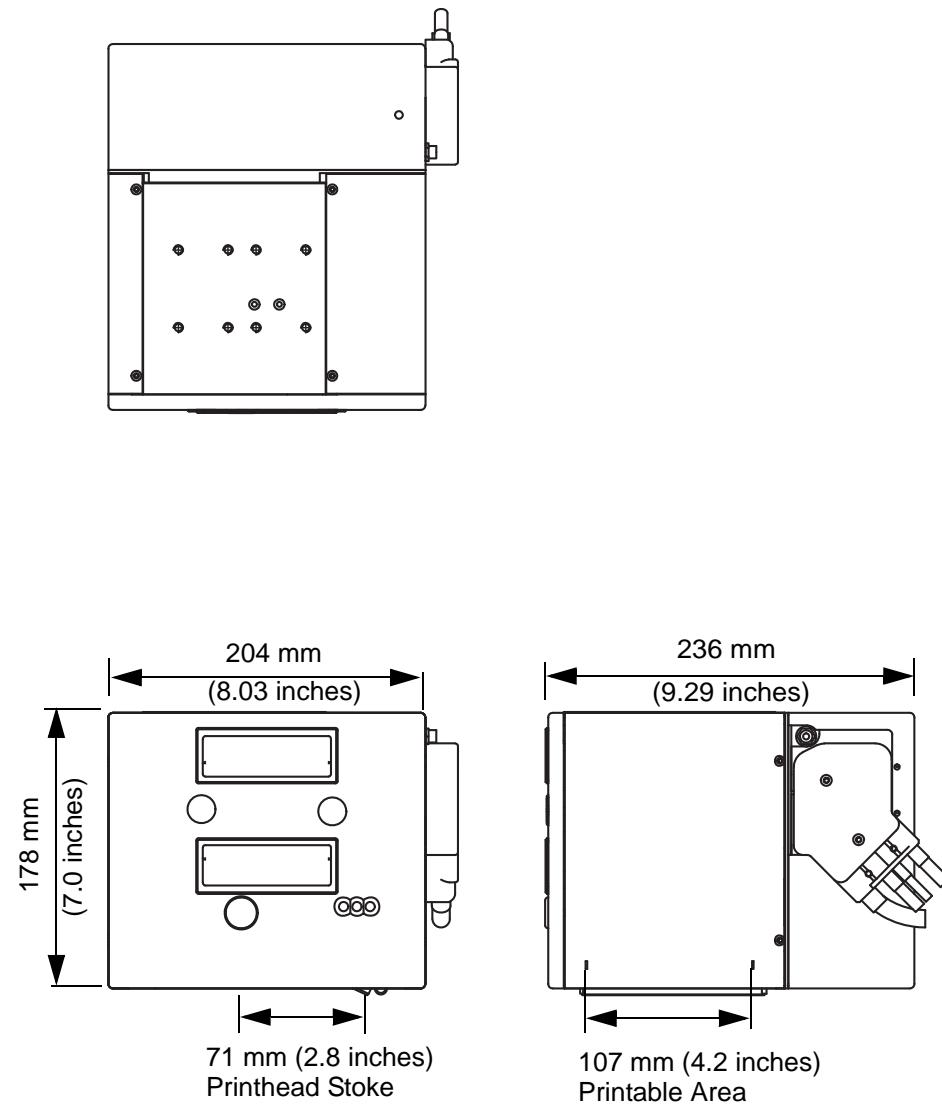


Figure 9-4: 107mm LH Printer Dimensions

Figure 9-5 shows the dimensions of the CLARiTY® controller.

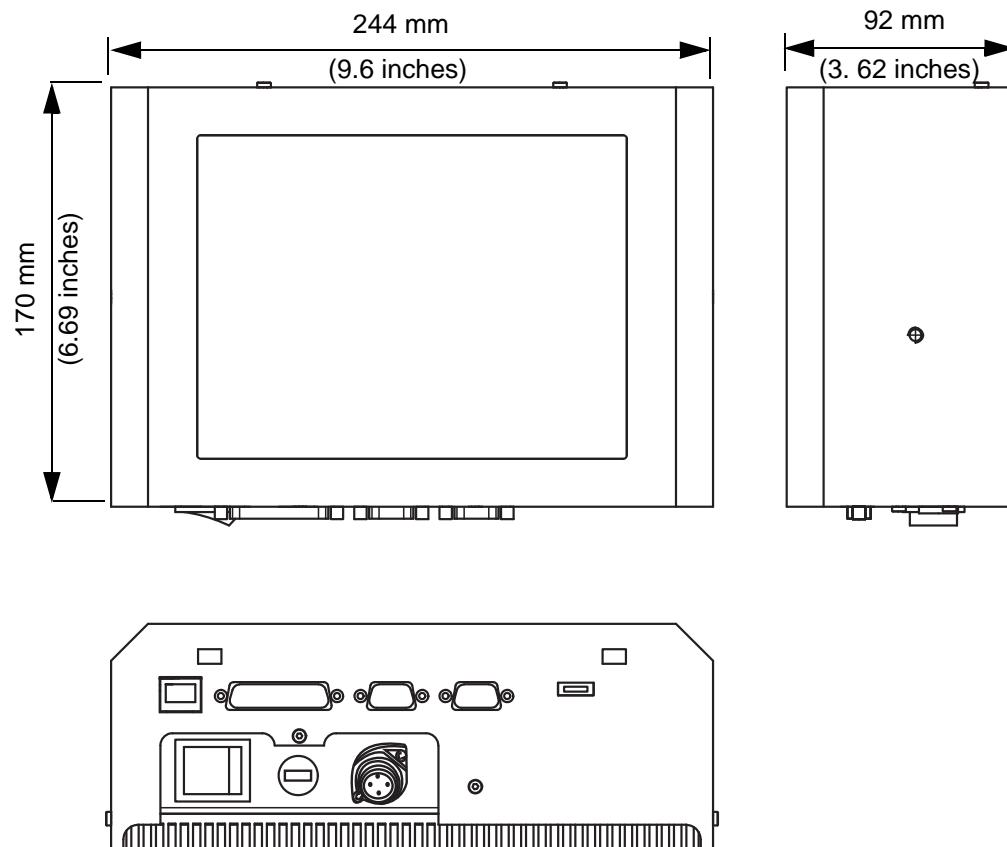


Figure 9-5: CLARiTY® Controller Dimensions

Electrical Wiring Schematics

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) Not used for single phase encoder mode	
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 DataFlex 6420 Printer Electrical Schematic

Working with Master/Slave

Master/Slave capability is an enhancement that allows you to control up to four printers from a single CLARiTY® operator interface.

A mixture of 53mm, 107mm printheads in Intermittent and Continuous printers can be used in Master/Slave network.

Master/Slave Benefits

The master/slave usage results in the following benefits:

- Simpler coding system: Simpler setup of multiple printers, easier to use coding systems
- Reduced printer setup time: A single point of setup, reduces the setup time
- Reduced human errors: Only one entry of data rather than several entries reduces the possibility of setup mistakes by human error
- Cost effective: A lower cost coding solution when multiple printers are required to fulfil a coding application through the use of the Slave printer without LCD.
- Cost reduction and effective usage of space: All these things are achieved without an additional controller or PC on the production line.

Master/Slave Applications

The master/slave network are typically used under the following circumstances:

- When two or more printheads are required to code onto the same side packaging film
- When control for multiple printers is required from a single location.

Master/Slave Terminology

The master/slave network uses the following terminology:

- Group Job Select: Allows connection of up to four standard printers (with LCD's), with Job selection available only from the printer configured as the Master. This mode greatly reduces potential Operator errors when inputting variable data.
All other functions are performed at each local printer's LCD panel.
- Group Control: Allows connection of one standard (with LCD) acting as the Master, to up to three Slave (without LCD) printers.
All Job selection, Setup, Diagnostics and Error reporting are performed at the Master printer only.

Printer Terminology

To avoid confusion to the user, the following terminology is used in this chapter:

- Standard Printer: A printer installed with CLARiTY® Operator Interface
- Slave Printer: A printer without the CLARiTY® Operator Interface
- Master or Master printer: A printer that has been designated to act as the Master member of a Master/Slave group

Printer Communications

Note: It is assumed printer parameters changed via CLARiTY® Configuration Manager during the set up of Master/Slave mode is configured via RS232 connectivity and not Ethernet.

Physical Installation

When only two printers (one Master, one Slave) are required and there is no requirement to connect the Master/Slave group to an external network, a two printer interconnection cable may be used to connect directly between the Ethernet ports of the two printers.

All other cables (e.g. I/O cable) must be connected in the same way as the standalone printers.

When more than two printers are to be connected together or connection to a network is required, a Printer Connection Box complete with ethernet patch cables is required.

The Connection Box allows up to four printers (one Master and three Slaves) to be connected together, allowing them to share common encoder and print signals as well as providing ethernet connectivity via the integral network switch (hub).

In addition to this, the connection box also allows the group of printers to be connected to a wider Ethernet network.

Figure 10-1 shows a two printer connection box, indicating the five port connections for the network switch, integral I/O cables (2 numbers) and encoder lead.

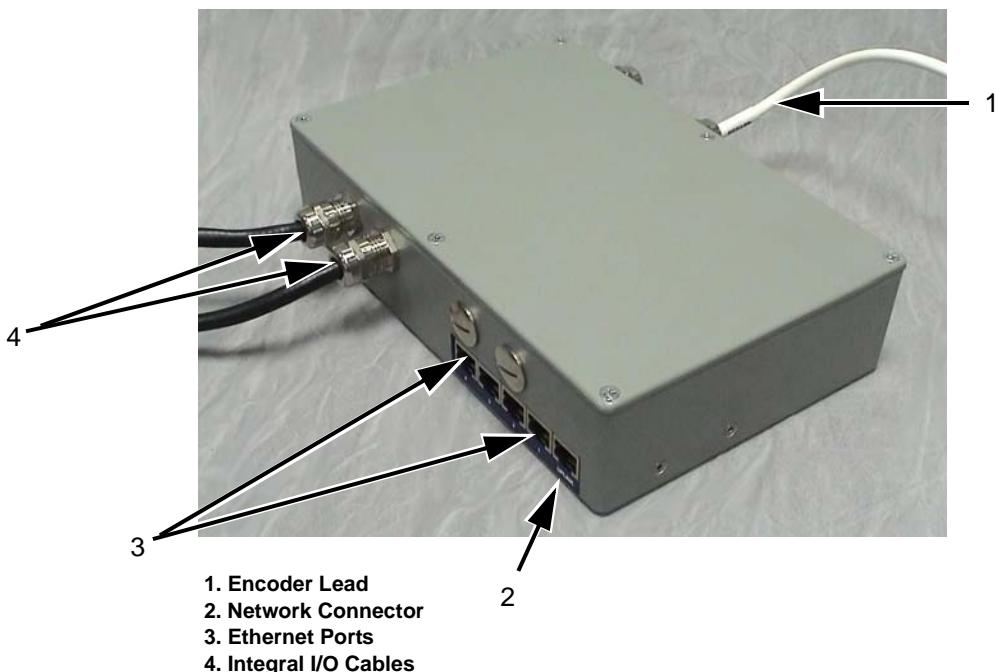


Figure 10-1: Printer Connection Box

Software Configuration

To configure Master/Slave mode, CLARiTY® Configuration Manager (part number - 361725) is required.

The printers may be configured using a serial cable or a network connection. However, this manual assumes that a standard Null Modem cable (part number - 400720) is being used.

Master/Slave Basic and Advanced Configuration

The following section describes two modes of operation for a Master/Slave group of printers.

- Basic Configuration: This configuration is used if the group is to be used as a 'standalone group'.
- Advanced Configuration: This configuration is used if the group is to be connected to a wider area network.

Note: If a printer has previously been configured to Advanced Configuration mode, this setting is saved as the standard default configuration for the printer.

Basic Configuration - Configuring the Slave Printers

To configure the slave printer proceed as follows:

- 1 Establish communications between CLARiTY® Configuration Manager and the first Slave printer ("Connecting CLARiTY® Configuration Manager to the Printer using an RS 232 connection" on page 3-19).
- 2 Right click on the 'New Printer' icon when the icon turns 'green' and Select 'Set as Slave', from the list as shown in Figure 10-2.

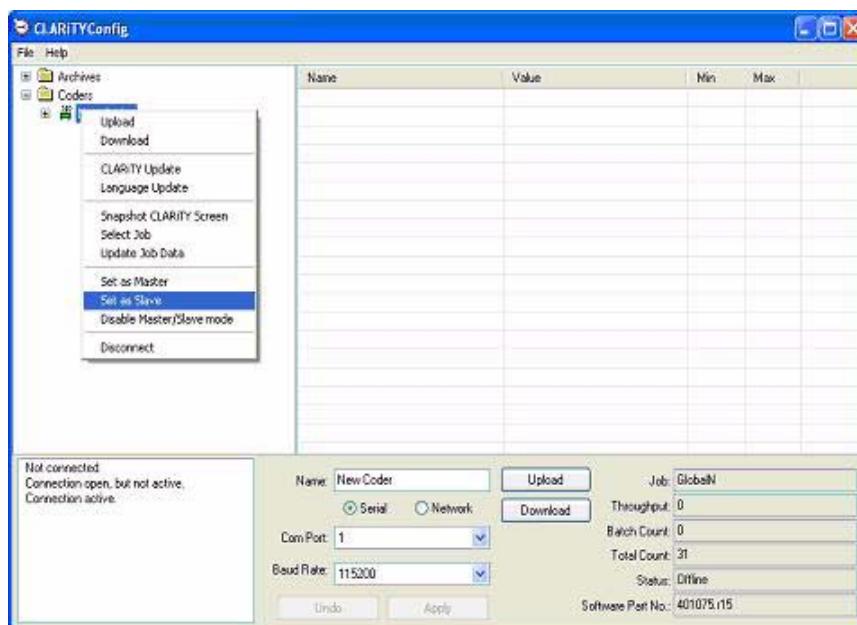


Figure 10-2: CLARiTY Config - Slave Setup

A configure slave printer dialog box appears (Figure 10-3).

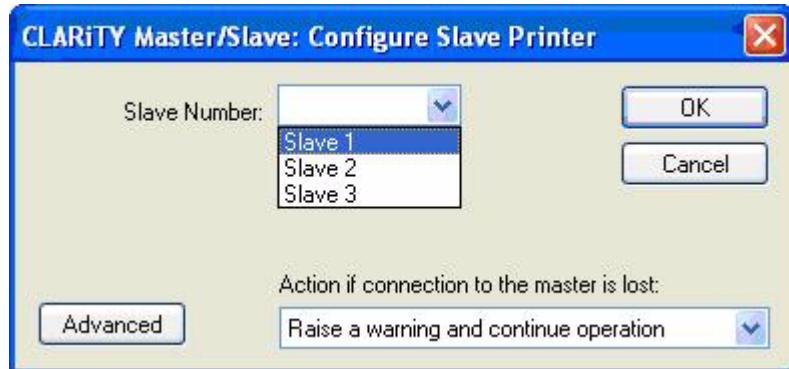


Figure 10-3: Configure Slave Printer

- 3 Select the Slave number (One, Two or Three) from the drop-down list (Figure 10-3).

Note: If less than three Slaves are to be used, they must be numbered consecutively starting with 'One' (it is not permissible to have two Slave printers numbered One and Three).

Slave printers connected to the same network require individual Slave numbers.

- 4 Select the option to be taken in the event of communication failure between the Master printer and Slave printer from the drop-down list.

The three options available are:

- No Action (ignore the condition)
- Raise a Warning message and continue operation
- Raise a Fault message and suspend operation (stop printing)

- 5 Touch OK to configure the Slave printer.

Once the slave printer is configured, on a Standard Printer, the 'JOB' button on the screen of CLARiTY® is disabled (greyed out) as shown in Figure 10-4.



Figure 10-4: CLarity Home page

After a short period of time the Slave printer may raise a Warning or Fault message (depending on the setting you chosen in 'Action if connection to the Master is lost') to indicate that the Master printer is absent, as shown in Figure 10-5 and Figure 10-6.



Figure 10-5: Warning Message

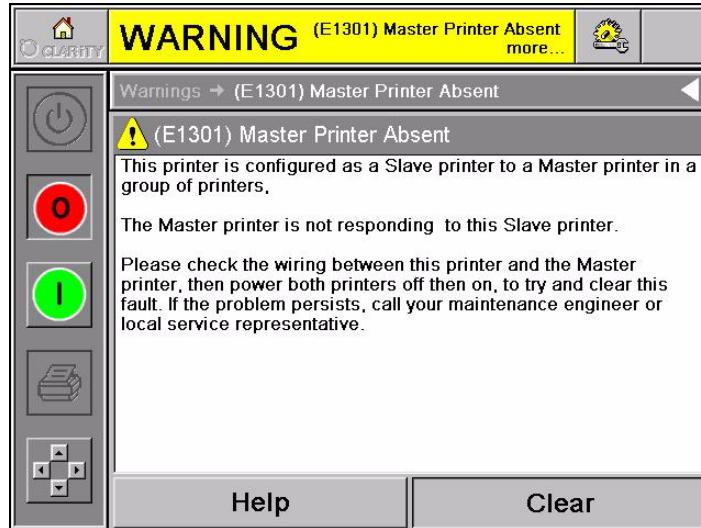


Figure 10-6: Warning Message

Once the Master has been configured and communication established between printers, the warning message can be cleared from the Slave printer screen.

Repeat the above steps to install the remaining Slave printers in the group.

Basic Configuration - Configuring the Master Printer

To configure the master printer proceed as follows:

- 1 Establish communications between CLARiTY® Configuration Manager and the master printer ("Connecting CLARiTY® Configuration Manager to the Printer using an RS 232 connection" on page 3-19).

- 2 Right click on the 'New Printer' icon when the icon turns 'green' and Select 'Set as Master', from the list as shown in Figure 10-7.

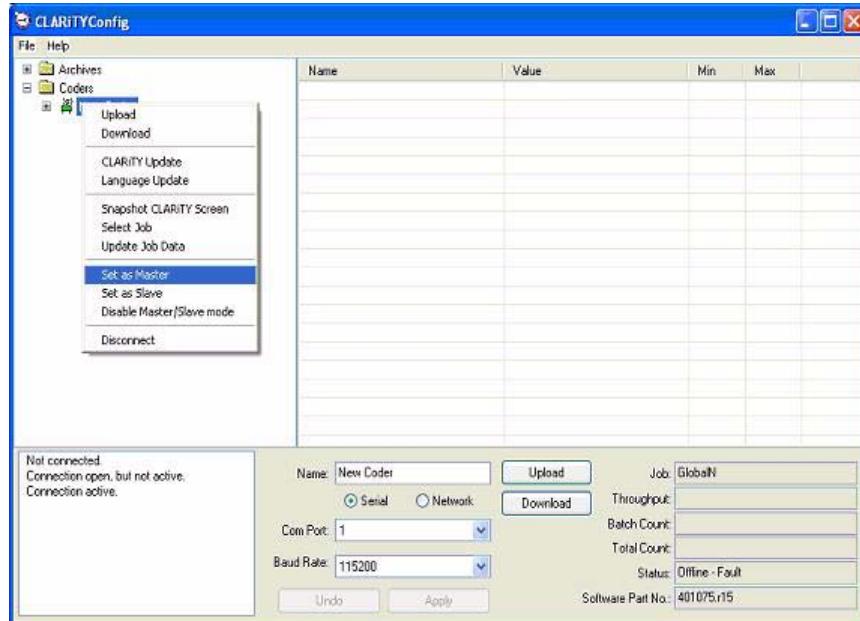


Figure 10-7: CLARiTY® Config - Master Setup

A configure master printer dialog box appears (Figure 10-8).

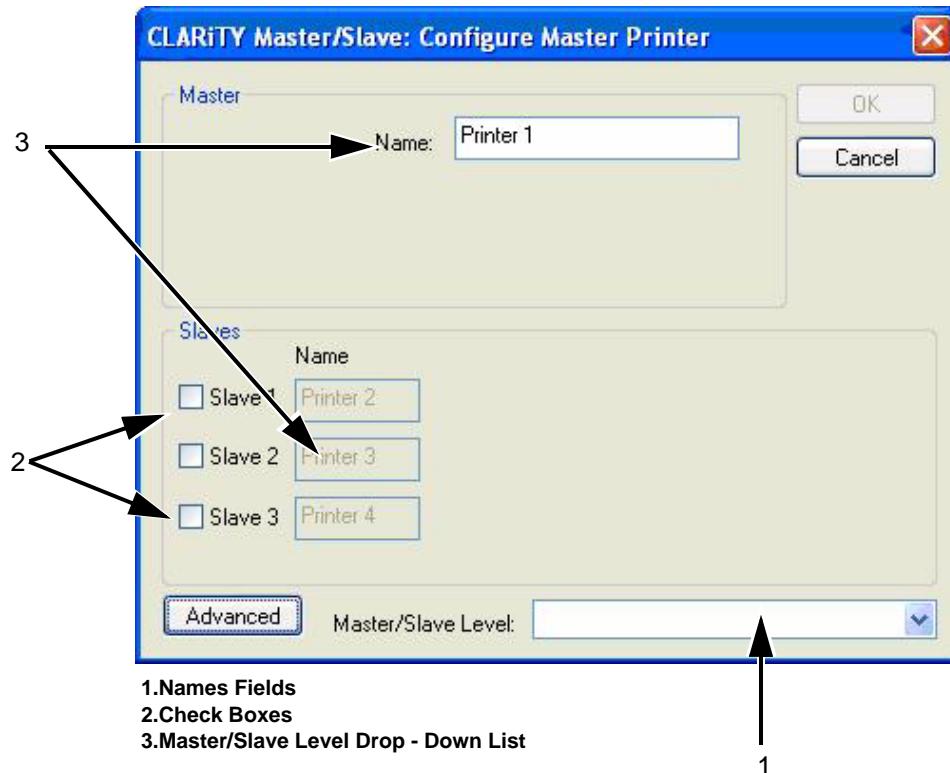


Figure 10-8: Configure Master Printer Dialog Box

3 Enter an identification name for the printer in the name field.

These names can be viewed on the screen of the Master printer user interface and are useful for identification purposes. Names can be edited from the default values of 'Printer 1... Printer 4', if required e.g. 'Master.... Slave 1'

Note: The 'Check boxes' on the left hand side of the dialog box indicate how many Slaves are to be connected.

- 4** Click on the check boxes to select the slave printers. The dialog box allows only the selection of consecutively-numbered Slaves starting with Slave 1.
- 5** Select either Group Job Select or Group Control from the Master/Slave level drop -down box (refer "Master/Slave Terminology" on page 10-2).

When at least one Slave is enabled and a Master/Slave level has been selected, the 'OK' button becomes available.

- 6** Click OK button, to program the printer with the selected configuration.

Connecting the Printers Together

To connect the printers proceed as follows:

- 1** If the printers are not already connected, they may be connected together as described "Physical Installation" on page 10-2.
After a few seconds any Faults and/or Warnings messages on the Master and Slave printers becomes 'clearable' indicating that all connections have been successfully made.
- 2** If any Faults/Warnings can not be cleared, switch off and on the slave printer concerned.
- 3** If a problem persists, repeat the previous configuration steps to ensure the master has been configured with the correct number of slaves and that no slaves have been assigned with the same printer number.
- 4** If operating under 'Group Control' mode, any Faults and/or Warnings present on the Slave printers is reported on the Master printer user interface screen, then they must be cleared at the Master printer.

Advanced Configuration

Advanced configuration is designed for situations where the group is to be connected to a wider area TCP/IP network and allows the use of IP addresses instead of simple numbers to identify the printers.

In order to configure the printers correctly you must obtain one IP address from the IT department for each printer. These must be static IP addresses, not dynamically-assigned addresses. The 'Subnet Mask' used on the network and port number for Master/Slave communications is also required.

The default port number is 3002 and in most situations it is not necessary to change this number.

Change it only if you are instructed to do so by the IT department.

To avoid confusion, the same port number should be used for all Slave printers.

Configuring the Slave Printers

To configure the slave printer, proceed as follows:

- 1 Establish communications between CLARiTY® Configuration Manager and the first Slave printer ("Connecting CLARiTY® Configuration Manager to the Printer using an RS 232 connection" on page 3-19).
- 2 Right click on the 'New Printer' icon when the icon turns 'green' and Select 'Set as Slave', from the list as shown in Figure 10-9.

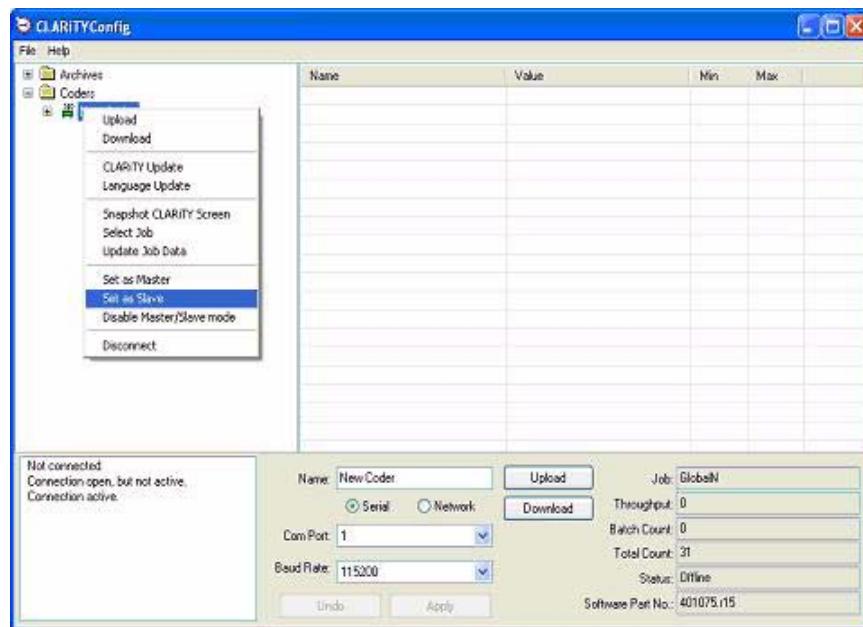


Figure 10-9: CLARiTY® Config - Slave Setup

If the printer has not been assigned an IP address or configured in advanced mode previously, a configure slave printer dialog box appears (Figure 10-10).

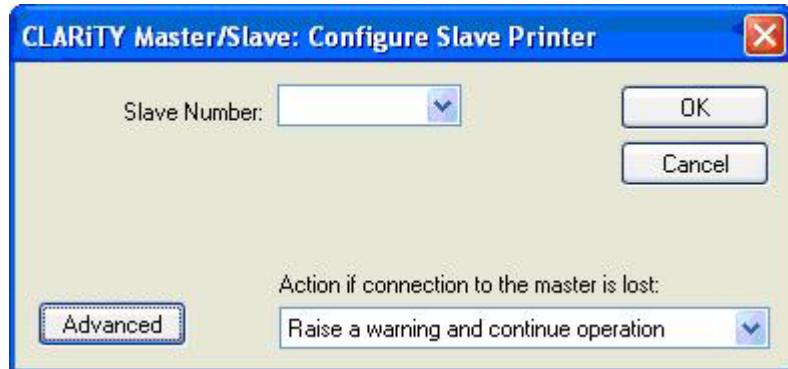


Figure 10-10: Configure Slave Printer Dialog Box

- 3 Click on the Advanced button, to change to advanced configuration. The advance configure slave printer dialog box appears (Figure 10-11).

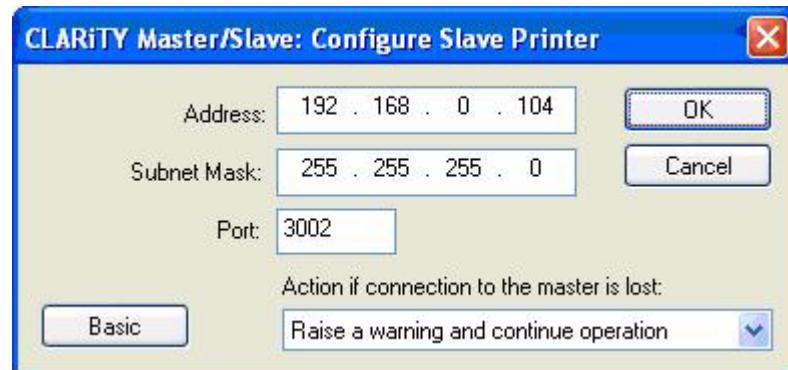


Figure 10-11: Advanced Configure Slave Printer Dialog Box

- 4 Enter the IP address, network subnet mask, and the port number of the slave printer in the Address field, Subnet Mask field, and Port field respectively.
- 5 Select the option to be taken in the event of communication failure between the Master printer and Slave printer from the drop-down list. The three options available are:
 - No Action (ignore the condition)
 - Raise a Warning message and continue operation
 - Raise a Fault message and suspend operation (stop printing)
- 6 Touch OK to configure the Slave printer.

Once the slave printer is configured, on a Standard Printer, the 'JOB' button on the screen of CLARiTY® is disabled (greyed out) as shown in Figure 10-4 on page 10-6.

After a short period of time the Slave printer may raise a Warning or Fault message (depending on the setting you chosen in 'Action if connection to the Master is lost') to indicate that the Master printer is absent, as shown in Figure 10-5 on page 10-6 and Figure 10-6 on page 10-7.

Once the Master has been configured and communication established between printers, the warning message can be cleared from the Slave printer screen.

Repeat the above steps to install the remaining Slave printers in the group.

Configuring the Master printer

To configure the master printer proceed as follows:

- 1 Establish communications between CLARiTY® Configuration Manager and the master printer ("Connecting CLARiTY® Configuration Manager to the Printer using an RS 232 connection" on page 3-19).

- 2 Right click on the 'New Printer' icon when the icon turns 'green' and Select 'Set as Master', from the list as shown in Figure 10-12.

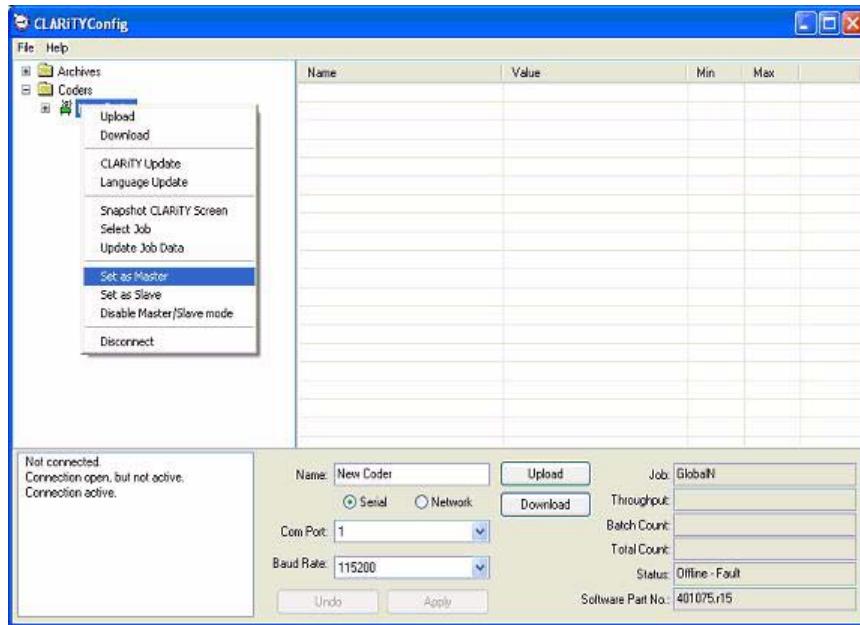


Figure 10-12: CLARiTY® Config - Master Setup

A configure master printer dialog box appears (Figure 10-13).

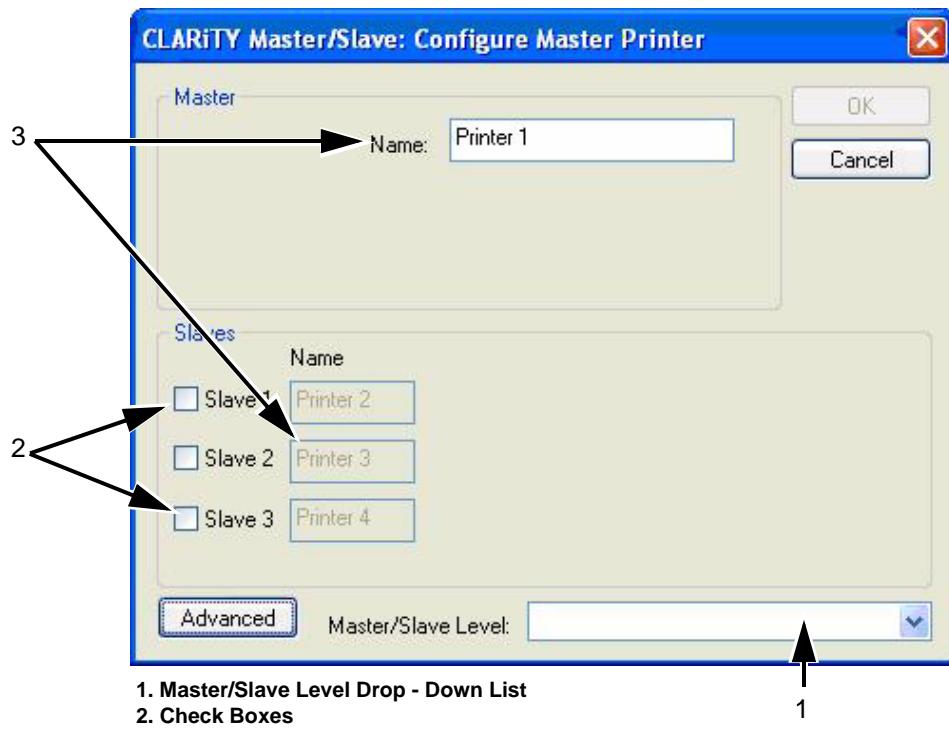


Figure 10-13: Configure Master Printer Dialog Box

- 3 Click on the Advanced button, to change to advanced configuration.

The advance configure master printer dialog box appears (Figure 10-11).

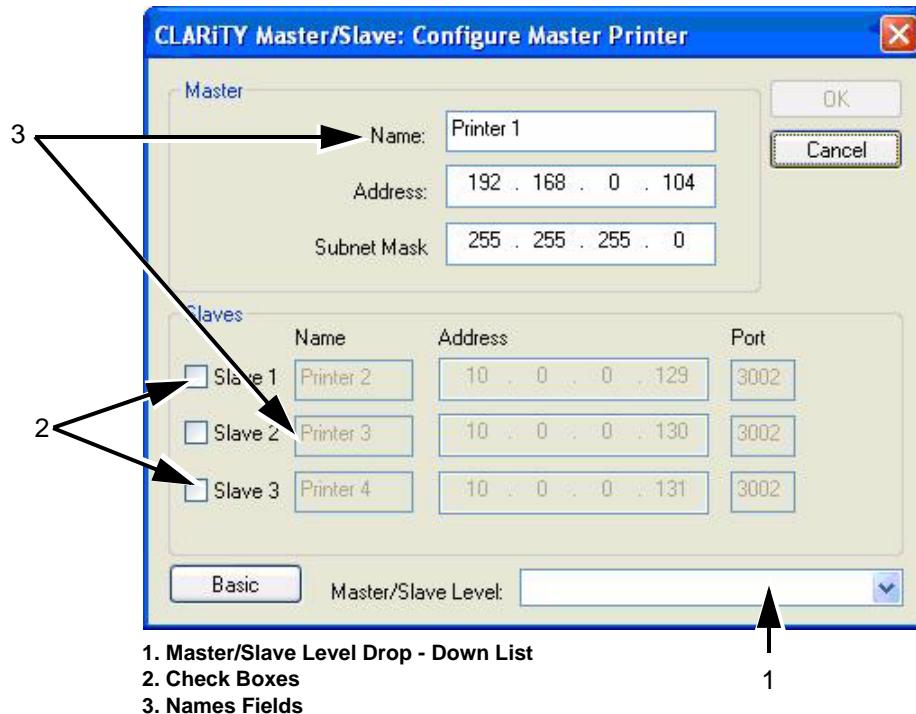


Figure 10-14: Advanced Configure Master Printer Dialog Box

- 4 Enter a identification name for the printer in the name field.

These names can be viewed on the screen of the Master printer CLARI^TY® and are useful for identification purposes. Names can be edited from the default values of 'Printer 1... Printer 4', if required e.g. 'Master.... Slave 1'

Note: The 'Check boxes' on the left hand side of the dialog box indicate how many Slaves are to be connected.

- 5 Click on the check boxes to select the slave printers. The dialog box allows only the selection of consecutively-numbered Slaves starting with Slave 1.
- 6 Enter the IP address, network subnet mask, and the port number of the slave printer and the master in their Address field, Subnet Mask field, and Port field respectively.
- 7 Select either Group Job Select or Group Control from the Master/Slave level drop -down box (refer "Master/Slave Terminology" on page 10-2). When at least one Slave is enabled and a Master/Slave level has been selected, the 'OK' button is become available.

- 8 Click OK button, to program the printer with the selected configuration.

Connecting the Printers Together

To connect the printers proceed as follows:

- 1 If the printers are not already connected, they may be connected together as described "Physical Installation" on page 10-2.
After a few seconds any Faults and/or Warnings messages on the Master and Slave printers becomes 'clearable' indicating that all connections have been successfully made.
- 2 If any Faults/Warnings can not be cleared, switch off and on the slave printer concerned.
- 3 If the problem persists, repeat the configuration steps to ensure that the Master and Slaves printers have been configured with the correct IP addresses, subnet masks and port numbers.
- 4 If operating under 'Group Control' mode, any Faults and/or Warnings present on the Slave printers is reported on the Master printer CLARiTY® screen, then they must be cleared at the Master printer.

Using Master/Slave Mode - Group Job Select Mode

The primary function of this mode is to ensure that all printers in the group are printing the same (image) 'Job'.

Jobs are selected from the Master printer only and automatically sent to the Slave printers connected.

The Master Printer

In 'Group Job Select' mode, the CLARiTY® Operator interface acts differently to that of a standalone printer.

If a Slave printer enters a Fault state, the error is reported on the Master printer's CLARiTY®, as shown in Figure 10-15 and Figure 10-16.

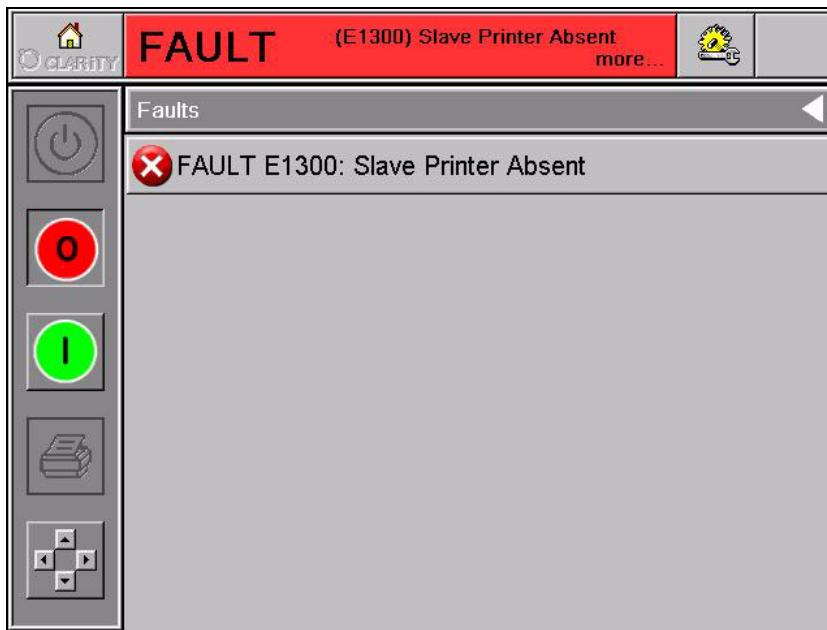


Figure 10-15: Fault State

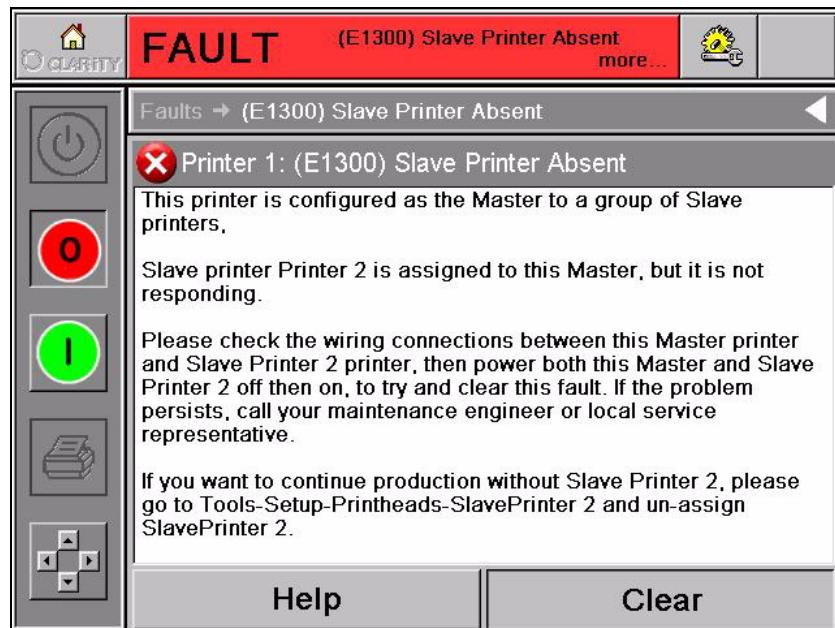


Figure 10-16: Fault State - Details

In the example shown (Figure 10-15 and Figure 10-16), communication has been lost between the Master and Slave printer.

This fault can be cleared, when the communications are re-established or when the Slave printer is 'unassigned'.

Touch *Tools > Set Up > Printhead*, or via *Tools > Diagnostics > Printhead*, to access the printhead page.

You can see the list of printers connected to the Master, as shown in Figure 10-17.

Note: The Master printer is always listed first, followed by the Slaves.

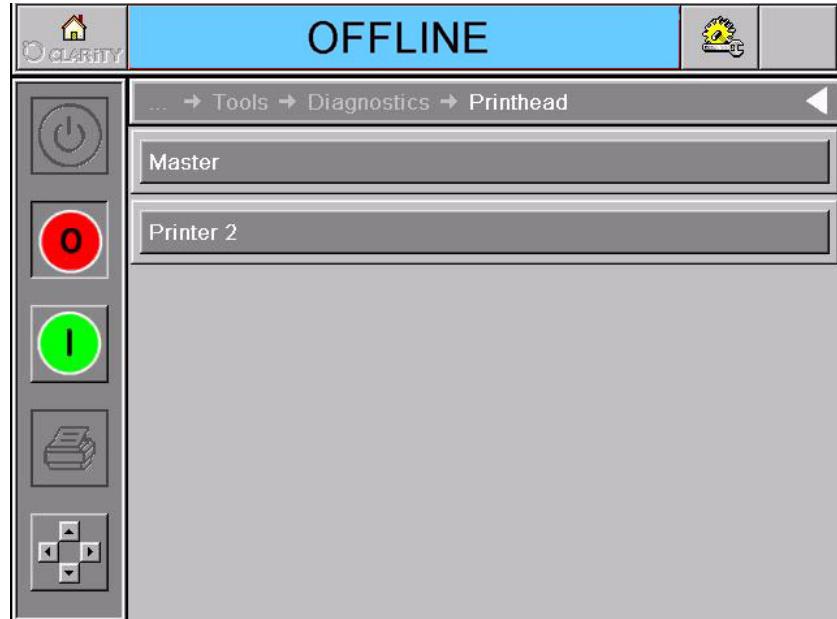


Figure 10-17: Printhead Diagnostics

Note: If the Master and Slave printers have been given a Name, as described in 'Configure the Master Printer', CLARiTY® reflects these changes as in Figure 10-17.

Assigned Printer Parameter

You can view the assigned printers to the master printer in this parameter.

Touch *Tools > Diagnostics > Printhead* and select the required printer to view this parameter.

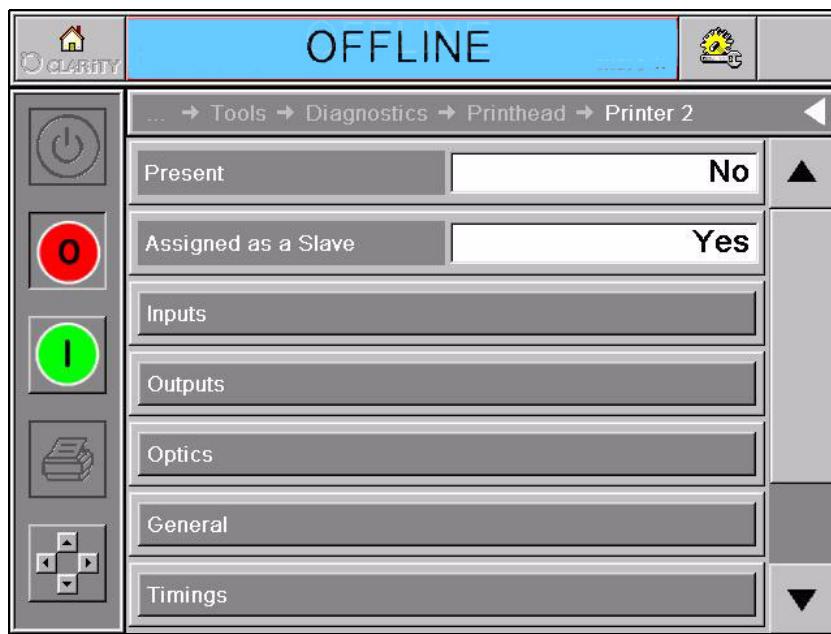


Figure 10-18: Assign Parameter

This printer can be disabled (unassigned) via the software. Touch the parameter and set the value to No on the chosen printer.

This allows a Slave Absent fault to be cleared at the Master CLARiTY®, so that the Master and other Slave printers can continue operation.

Note: When a Slave printer is unassigned, the Master is unable to send commands to the Slave printer and ignores any information sent from the Slave printer.

Un-assigning a Slave printer is a useful when a printer is removed from the production line for maintenance and the rest of the printers in the group needs to continue operation.

If a printer is to be permanently removed, reconfigure all printer numbers affected, as described previously in the Configuration of Master/Slave printers.

The Slave Printers

In Group Job Select mode only the JOB button on the home screen of CLARiTY® is disabled, as job selection can only be initiated from the Master printer, as shown in Figure 10-19.

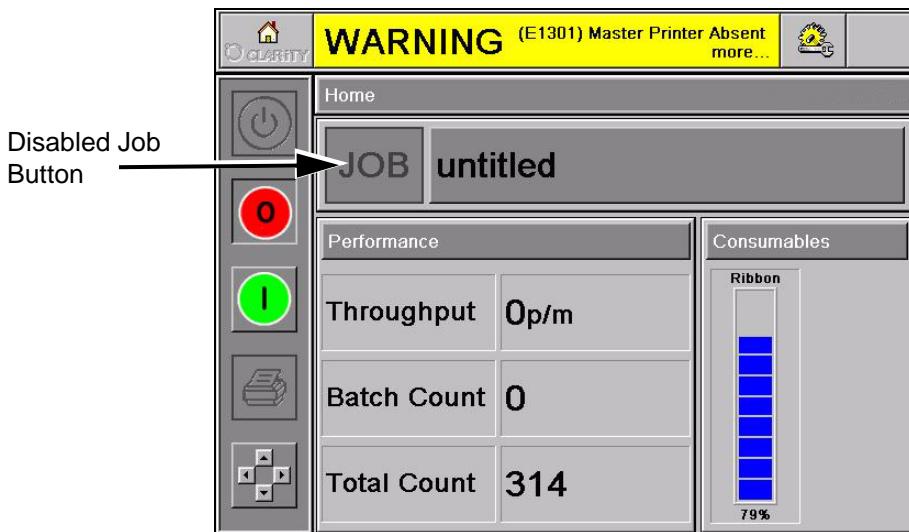


Figure 10-19: CLARiTY® Home page

Note: Standard printers in Slave mode and Slave printers (No CLARiTY® LCD) accepts communications from CLARiTY® Configuration Manager and other software packages, e.g. CLARiSOFT®.

Using Master/Slave Mode - Group Control Mode

Group Control mode allows Slave printers to be controlled from the Master printer CLARiTY® interface.

In addition to the parameters available in Group Job Select mode, additional Setup and Diagnostics CLARiTY® pages are available for setup and diagnostics information.

The Master Printer

In Group Control mode, the CLARiTY® Operator interface acts differently to that of a standalone printer.

Using only the screen of the Master printer it is possible to view Diagnostic and edit Set Up information on the Master and any chosen Slave printer, as shown in the example below.

Touch Tools > Diagnostics > Printhead > Printer 1 > Inputs, there is a short delay whilst the Master printer retrieves the parameters from the Slave 1

printer. These parameters are displayed on the CLARiTY® screen of the Master, as shown in Figure 10-20.

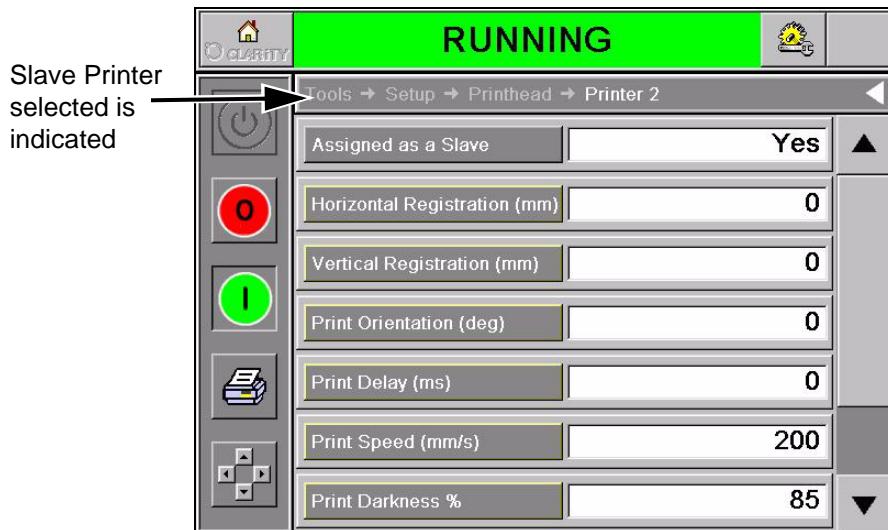


Figure 10-20: Slave Parameters

If Set up information is selected, any parameters edited would be saved in the selected Slave printer.

If a Slave printer raises a Fault or Warning, the message is displayed on the Master printer CLARiTY®, as shown in Figure 10-21.

The Fault is also displayed on the Slave CLARiTY®, if it is a Standard Printer.

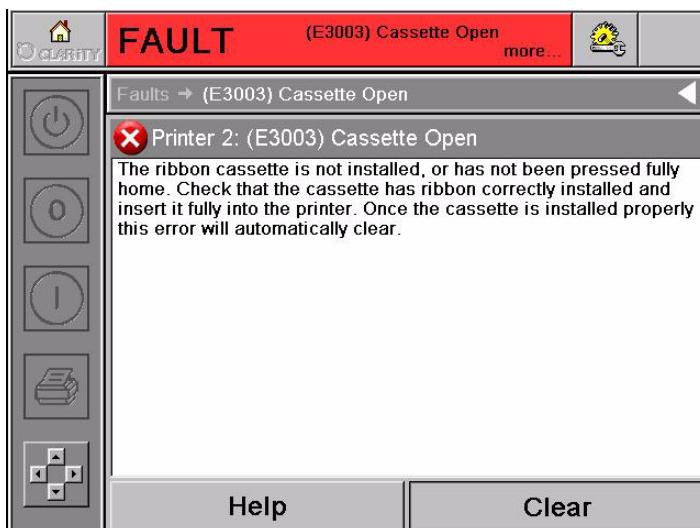


Figure 10-21: Slave Parameters

When viewing the details of the error screen on the Master CLARiTY®, the name of the Slave printer raising the error is displayed, e.g. Printer 2.

Error messages may be cleared in the normal way or, if desired, the printer may be unassigned to ignore the error (see “Assigned Printer Parameter” on page 10-18).

Figure 10-22 shows a Master printer has been assigned a single Slave printer. The Consumables bar for each printer assigned is displayed on the screen of the Master printer.



Figure 10-22: Master and Slave Consumables

Consumables information on an individual printer can be viewed further by pressing the chosen printers consumable bar.

In the same manner, all diagnostic information can also be viewed on the Master printers operator interface, as shown in Figure 10-23 and Figure 10-24 on page 10-22.



Figure 10-23: Master and Slave Diagnostics

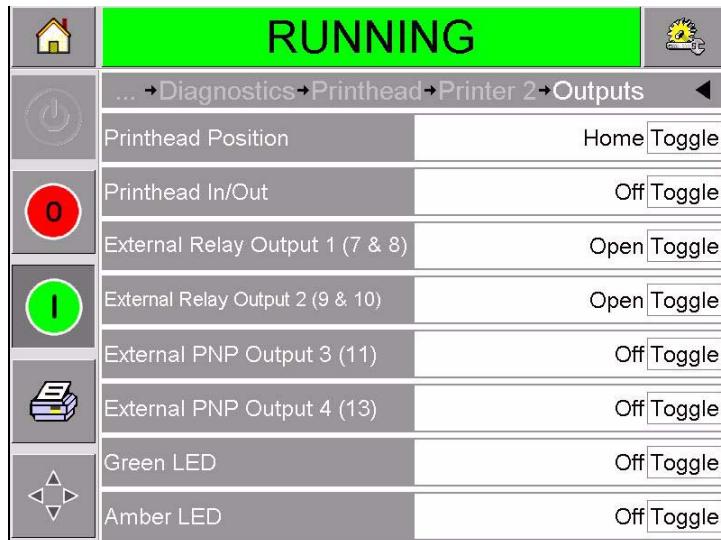


Figure 10-24: Slave Output Diagnostics

The Slave Printers

Slave printers in Group Control mode are typically Slave Printers (no CLARiTY® Operator Interface) and therefore have no direct interaction with the user.

However, if a Standard Printer is used as a Slave in Group Control mode, the JOB, Online/Offline and Print Position buttons are disabled.

Job selection and Online/Offline changes may only be initiated at the Master printer.

Standard printers in Slave mode accept communications from CLARiTY® Configuration Manager and other packages, e.g. CLARiSOFT®. All other operations are initiated from the Master printer.

Slave printers (no CLARiTY®) accept communications from CLARiTY® Configuration Manager and other packages, e.g. CLARiSOFT®.

Disabling Master/Slave Mode

If a Slave printer has to be temporarily removed from a Master/Slave group, the printer can be unassigned from the Master (Refer "Assigned Printer Parameter" on page 10-18).

If a printer is to be permanently removed from a Master/Slave group, proceed as follows:

Disabling a Slave Printer

- 1 Establish communications between CLARiTY® Configuration Manager and the first Slave printer ("Connecting CLARiTY® Configuration Manager to the Printer using an RS 232 connection" on page 3-19).
- 2 Right click on the 'New Printer' icon when the icon turns 'green' and Select 'Disable Master/Slave mode', from the list as shown in Figure 10-25.

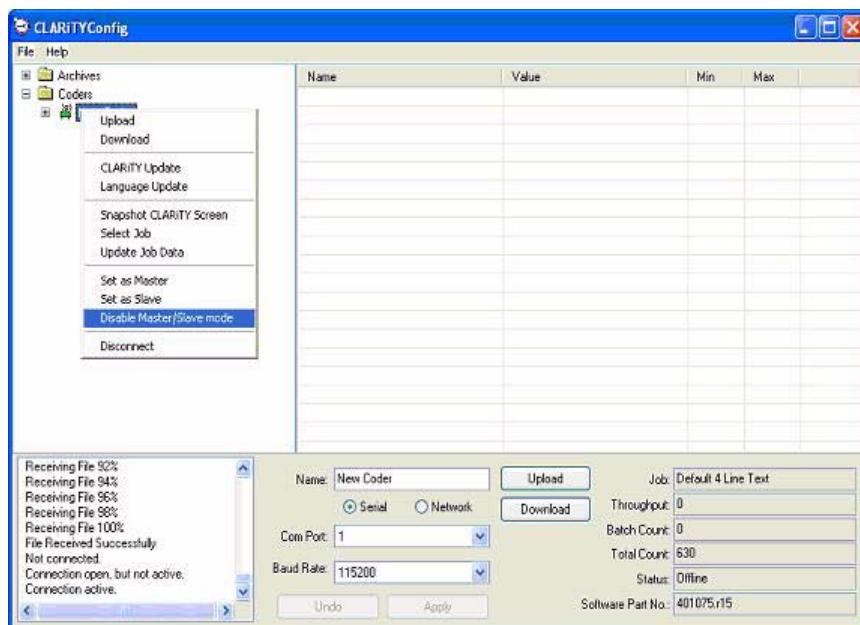


Figure 10-25: CLARiTY Config - Slave Disabling

A confirmation box appears asking you to confirm this action.

- 3 Click Yes and the Slave printer is deleted from the Master/Slave group and begins to function as a standalone printer.

Note: If the Slave printers are Standard printers, the 'JOB' button is enabled and the Slave's 'Job' database is empty or contains only the last Job selected.

The Master/Slave group database is held by the Master printer. Therefore, if a printer is disabled from the Master/Slave network and

becomes a stand alone unit, any additional Jobs required have to be downloaded from CLARiSOFT®.

Note: If you are intending to replace the Slave, it is advisable to configure the new Slave printer, before disabling the currently activated Slave.

If using basic configuration, ensure the old Slave has been disconnected from the network and configure the new Slave with the previous Slave network number.

If using advanced configuration you need to configure the new Slave with a fresh IP address and configure the Master to communicate with this new address.

If the Slave is not being replaced, configure the Master to only connect to the remaining Slaves.

Disabling the Master Printer

- 1 Establish communications between CLARiTY® Configuration Manager and the Master printer ("Connecting CLARiTY® Configuration Manager to the Printer using an RS 232 connection" on page 3-19).
- 2 Right click on the 'New Printer' icon when the icon turns 'green' and Select 'Disable Master/Slave mode', from the list as shown in Figure 10-25.

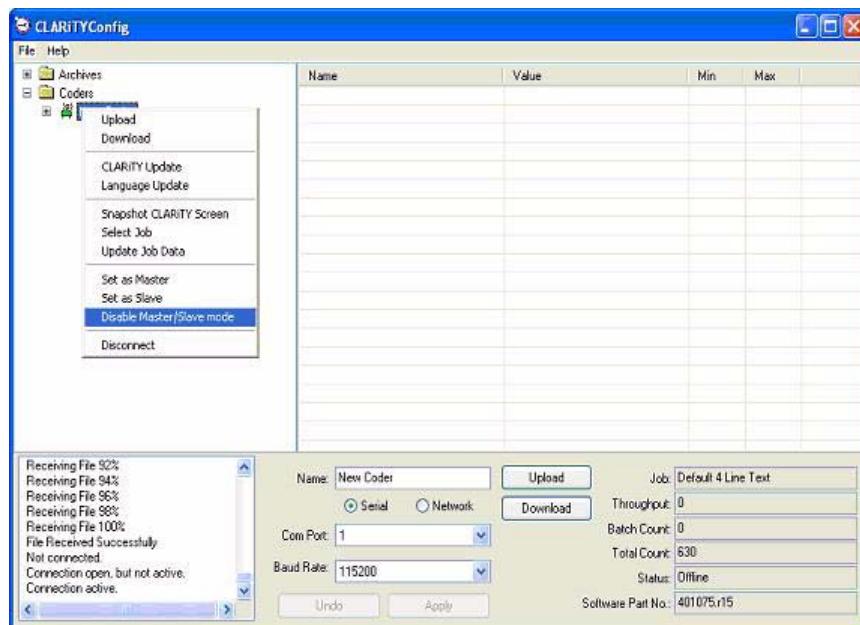


Figure 10-26: CLARiTY® Config - Slave Disabling

A confirmation box appears asking you to confirm this action.

- 3 Click Yes do one of the following:

- Replace the Master printer with a new printer containing identical configuration parameters and ensure the old Master printer has been removed from the network.
- If using advanced configuration, replace the Master printer with a new printer containing identical configuration parameters, but with a new IP address.
- Disable Master/Slave mode for one Slave printer, then configure it to be the new Master and connect the remaining Slaves.
- Disable Master/Slave mode for all Slaves and use as standalone printers only.

External Serial Interfaces

A

Working with the External Serial Interface

The communications protocol that can be used to communicate with the printer, works over RS232 and TCP/IP connections. The protocol is master-slave with the host machine considered as the master, and responsible for initiating any communications.

If you have any questions or need assistance, please contact Videojet Technologies Inc. at 1-800-843-3610 (for all customers within the United States). Outside the U.S., customers should contact their Videojet Technologies Inc. distributor or subsidiary.