



# DESIGNJET L28500 Printer Series

## January 2012

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## WARNING

The procedures described in this manual are to be performed by HP-qualified service personnel only.

### Electrical Shock Hazard

Serious shock hazard leading to death or injury may result if you do not take the following precautions:

- Ensure that the ac power outlet (mains) has a protective earth (ground) terminal.
- Disconnect the printer from the power source before performing any maintenance.
- Prevent water or any other liquids from running onto electrical components or circuits, or through openings in the enclosure.

### Electrostatic Discharge

Refer to the beginning of Chapter 4 of this manual, for precautions you should take to prevent damage to the printer circuits from electrostatic discharge.

### Safety Symbols

General definitions of safety symbols are given immediately after the table of contents.

## WARNING

The Warning symbol calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a Warning symbol until the indicated conditions are fully understood and met.

### CAUTION

The Caution symbol calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product. Do not proceed beyond a Caution symbol until the indicated conditions are fully understood and met.

# HP Designjet L28500 Printer Series



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Service Manual

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# Using this manual

## Purpose

This Service Manual contains information necessary to test, calibrate, and service the HP Designjet L28500 104-inch Printer (Model CQ871A).

For information about using the printer, see the *User's Guide*.

## Chapters

### 1 Printer systems

Use this chapter as a reference for technical information about the subsystems, components, and how they work together.

Of particular importance are the diagrams included for each subsystem of the printer. They can be useful for both troubleshooting and disassembly.

### 2 Troubleshooting

Whenever a printer is not functioning correctly due to a fault, use this chapter for step-by-step diagnosis until you arrive at the solution, which may include replacing a part.

Troubleshooting always begins with a problem; so, when you enter the chapter, navigate to the proper section and find the troubleshooting steps for your problem.

This chapter does not cover the procedures for the diagnostic tests you must perform while troubleshooting, nor the replacement procedures you must complete to fix the problem.

### 3 System error codes

This chapter contains the system error codes which are displayed on the Front Panel and by the Embedded Web Server. Each system error code shown in the chapter has a brief description and the steps required to solve the error.

Most of the troubleshooting steps involve performing a test or a calibration, which can be found in the following chapter. Before replacing any part that you suspect of causing the system error code, always perform the test or calibration.

### 4 Tests, utilities, and calibrations

Use this chapter whenever you need to perform a diagnostic test, service utility, or service calibration. This chapter is meant to provide procedures and relevant information, not troubleshooting information. For troubleshooting information, see the Troubleshooting chapter.

These procedures are described in full, so that you know any relevant values for the test, as well as information about what the printer is actually doing during the test.

The goal of diagnostic tests is to locate the root cause of the problem and the corresponding system error code or message that will provide you with logical steps to resolution.

Some diagnostic tests or calibrations must be performed after removing a component.

### 5 Print quality

This chapter describes the print-quality diagnostic procedures. Further troubleshooting advice can be found in the *User's Guide*.

## 6 Ink supplies

This chapter describes and discusses the components of the ink supply system.

## 7 Parts and diagrams

The purpose of this chapter is to detail all of the available service parts of the printer. This information is presented in tables, organized by subsystem, and includes the following:

- Official service part names
- Part numbers
- Illustrations of the service parts

Use this chapter whenever you need to order a service part.

## 8 Removal and installation

The purpose of this chapter is to provide procedures for removing and installing service parts. Each service part has a removal procedure detailed in this chapter, and installation procedures and notes are included as needed.

Useful information such as access notes and screw types (head sizes) are provided to help you work efficiently.

## 9 Preventive maintenance

Maintenance alerts are displayed on the Front Panel and Embedded Web Server whenever maintenance is required. While most of these alerts can be resolved by the customer, some require a service engineer.

Use the preventive maintenance chapter whenever you need to perform a preventive maintenance procedure due to an alert the customer receives from the Front Panel or Embedded Web Server, or to get reference information on life counters and maintenance that must be performed by the customer.

## 10 Move, store, or repack the printer

This chapter gives advice on moving, storing, and repacking the printer.

## 11 Safety precautions

This is an industrial printer that uses high voltages: service operations can be hazardous. The safety chapter covers all the guidelines and checks you need to perform in order to service the printer.

You are expected to have appropriate technical training and experience necessary to be aware of hazards to which you may be exposed in performing a task, and take appropriate measures to minimize the risks to yourself and to other people.

## Readership

The primary readers of this service manual are HP Service Engineers, although secondary readership may include resellers. All procedures must be performed by HP Service Engineers or Authorized Service Delivery Partners, except for those procedures clearly marked otherwise.

# 1 Printer systems

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# Electrical system

## Description

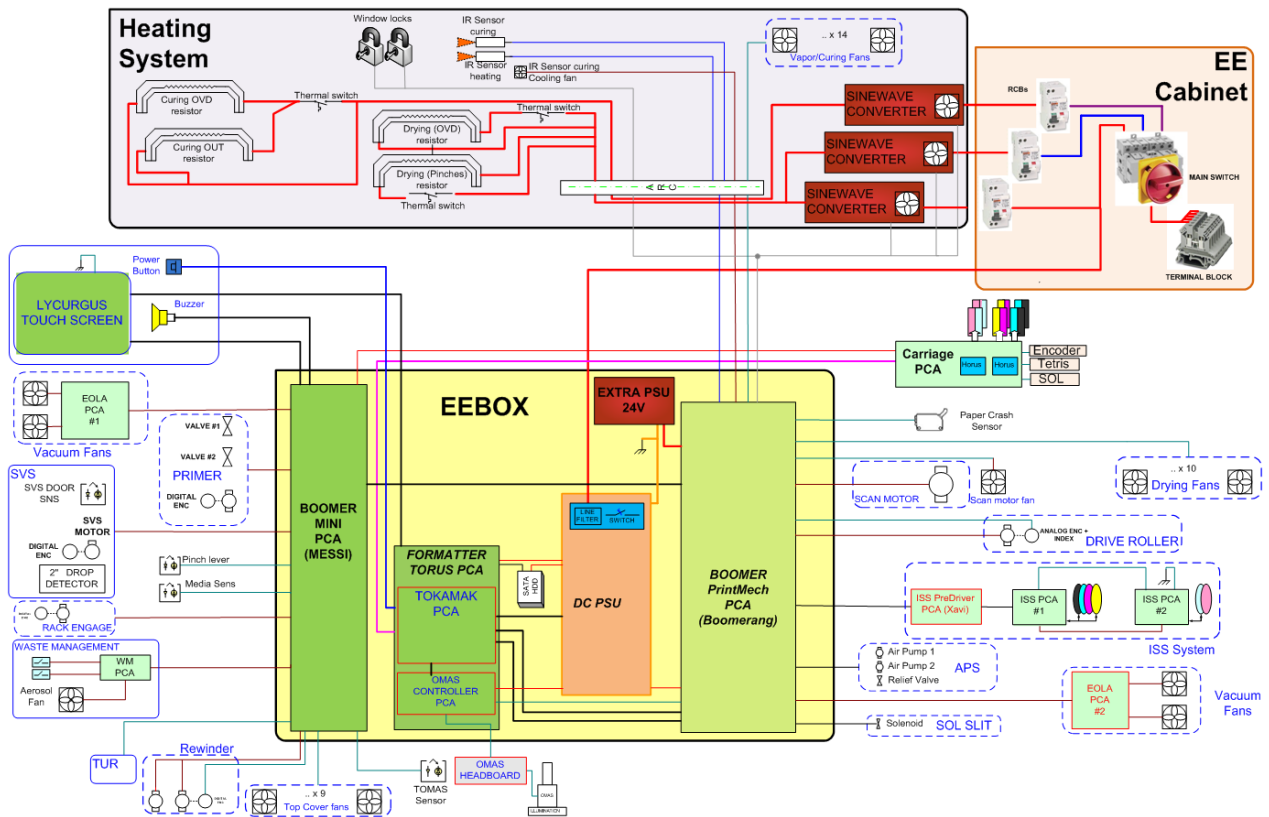
The electrical system controls all the printing systems and the heating systems inside the printer. Most parts of the control electronics are placed inside the 'E-box'.

## Components

The electronics can be divided into different functional subsystems and will be described accordingly. There are 7 functional subsystems within the electronics, as shown below.

- **Front Panel:** The Front Panel in this printer includes a touchscreen, a power button, and a buzzer. It is connected to three different boards on the EEbox: Formatter PCA (control), Engine PCA (power button signal), and Mini Interconnect PCA (buzzer and power control).
- **Substrate Path:** Controls the substrate movement: Drive Roller and Rewinder motors, Take-Up Reel, OMAS sensor, four Vacuum Fans (controlled by two Eola PCAs), pinch lever, and Media Sensors.
- **Scan Axis:** Printhead firing control and sensors for color and substrate detection (Carriage PCA, encoder, Tetris and SOL sensors, substrate crash sensor, and movement control using the scan motor and its fan).
- **Service Station:** Printhead maintenance. It controls a motor, a drop detector, and some sensors, including primer.
- **Waste Management:** Management of the waste ink and aerosol coming from the Service Station.
- **Ink Supply:** Control of ink through two ISS PCAs and an intermediate PreDriver board as a buffer.
- **Heating System:** Dryer and Curing Resistor heater elements controlled by three sinewave converters plus some Infrared (IR) sensors for Latex ink. The power input lines for the heating are distributed to the rest of the printer through the EE Cabinet module.

## Circuit diagram

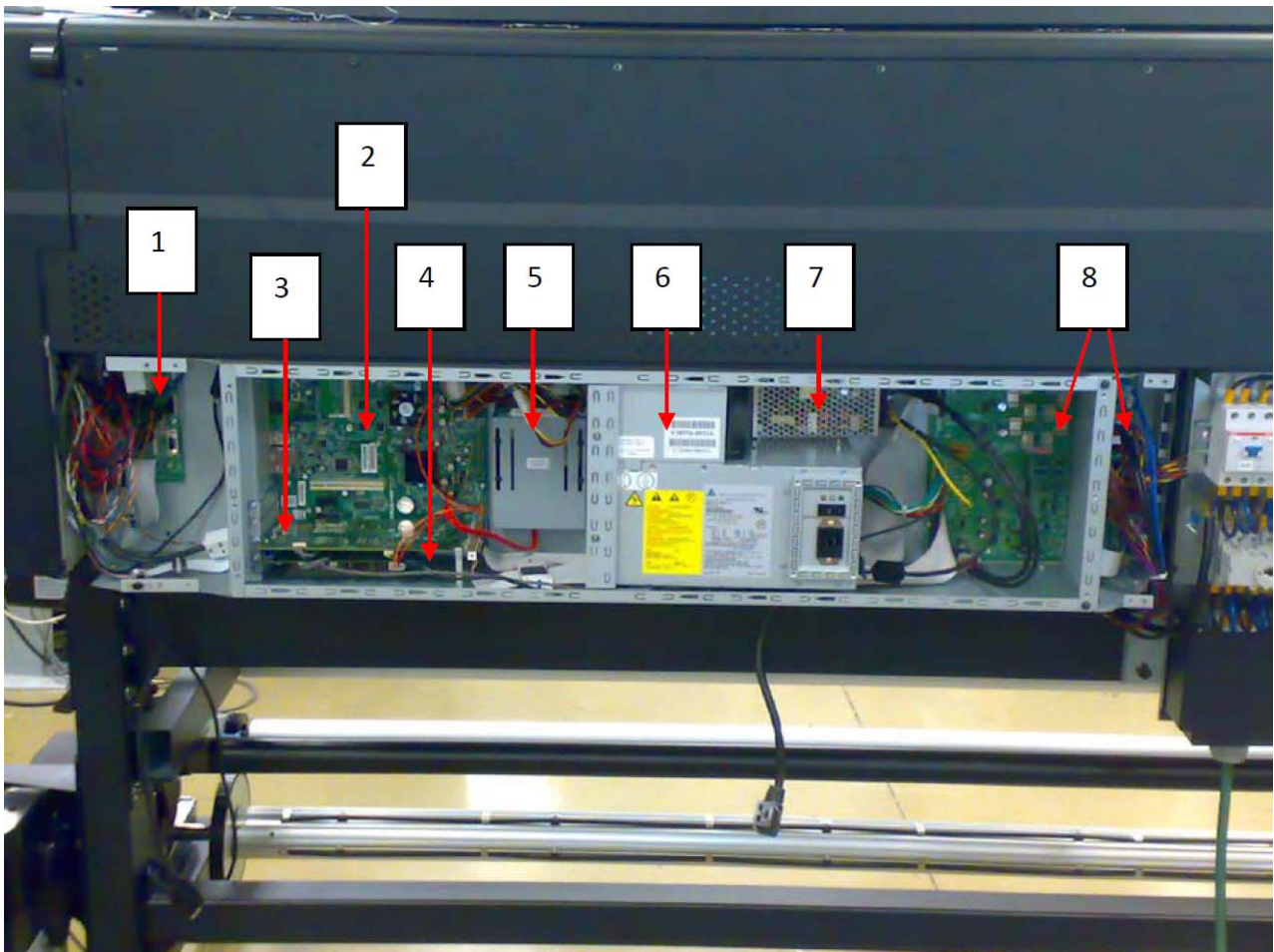


## E-box components

## Description

The E-box contains most of the electronics of the printer.

## Components



1. Mini interconnect PCA [Messi]
2. Formatter PCA [Torus]
3. Engine PCA [Tokamak] (similar to what was known as Sausalito)
4. OMAS PCA
5. Hard Disk Drive (HDD)
6. Power Supply Unit (PSU)
7. Extra Power Supply 24 V
8. Printmech PCA [Boomerang]

## Functionality

### Mini interconnect PCA

The Mini PCA is just a interconnect board with only connectors that helps distribute the power and control signals from the Printmech board to all the elements connected to the right side of the machine, including the following:

- Take-Up Reel
- Vacuum Fans (passes through, the actual control is inside Printmech)
- Front Panel
- TOMAS (temperature sensor for the OMAS sensor)

- Valves and motors for primer, rack engage, SVS, and Waste Management
- Top fans
- Rewinder motor

### Formatter Main PCA

The formatter is the motherboard of the printer, referred to as the Main Board, and is the same type as for a standard PC.

### Engine PCA

This board is the main controller of the printer. It is responsible for all the processes performed in real-time and is the ultimate controller of all electromechanical systems. The Engine PCA controls all substrate path components (Drive Roller, Spindle Motors, OMAS, etc.) and all non-substrate path components (Carriage, Scan Axis Motor, Dryer and Curing Heaters, Print Head Cleaning Assembly, Service Station, etc).

### OMAS PCA

This board controls the Optical Media Advance Sensor used to measure the substrate advance.

### Hard Disk Drive (HDD)

The HDD contains the firmware of the printer.

- The operating system.
- All calibration values, product number, serial number etc, are stored on the Hard Disk Drive. In order to make sure that this information is not lost in the case of a failure of the HDD, a backup is made in the ISS top board



**NOTE:** In order to prevent any loss of calibration values, do not replace the following at the same time:

- The Hard Disk Drive and the ISS Top Board

### Power Supply Unit (PSU)

This PSU delivers power to all the parts of the printer but the heater elements. The internal rails are: 5V\_sb; 3V3, 5V, 12V, 24V, and 42V.

### Extra Power Supply Unit (24 V)

This extra PSU supplies 24 V for some extra components such as drying fans and scan motor fan.

### Printmech PCA [Boomerang]

The Printmech PCA is mainly used to control all the mechatronics of the printer. For routing reasons, only the parts connected to the left side of the printer are connected to this board:

- Scan-Axis Motor
- Media-Axis Motor
- Ink valves
- Ink pressurizing pumps
- Dryer fans
- Curing fan
- Vacuum fans
- IR sensor
- IR Fan
- Sinewave converter control
- Media Jam Sensor

The remaining functionality implemented in the printmech PCA is sent to the right side of the printer through the Mini Interconnect PCA and its 3 cables (power + data).

## Carriage Electronics

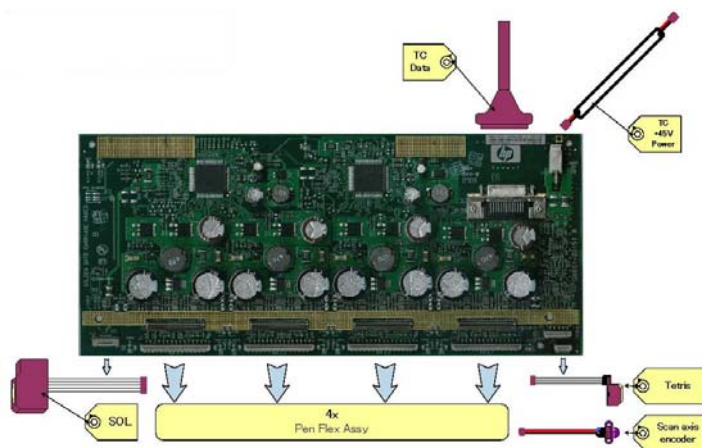
The Carriage contains the electronics for controlling and firing the Printheads. It also contains electronics for controlling the external sensors (SOL and Tetrís) as well as the Scan Axis Encoder.

The electronics of the Carriage receives power and data from the Trailing cables, which conveys both Power (+45V) and Data (LVDS) cables. The Power cable connects the Carriage with the Printmech board and Data cable connects Carriage with the Main (Engine) board)

## Components

### Carriage PCA

The Carriage PCA contains the electronics to control how and when the ink is dropped from every Printhead, and receives information from the sensors.



### SOL Spectrophotometer

The SOL is a color sensor located on the left side of the Carriage. A metal sheet protects the SOL from the high temperatures produced by the Dryer Assembly. The main function of the SOL is to measure color samples that have been printed on the loaded substrate and then are placed in the print platen zone.

Before taking any color measurement, the SOL must be initialized. The SOL initialization process takes approximately 7 minutes. This process consists of three steps:

- Sensor switch on
- Sensor warm up
- Sensor calibration

When the initialization process has finished, the shutter opens automatically and the Carriage is moved along the Scan Axis to place the SOL on top of each sample to take a color measurement. After the measurements, the shutter is closed again and the sensor is switched off.

### Tetrís

Tetrís is used to align the Printheads as well as to locate the substrate edges and measure its size. The alignment procedure consists of a series of patterns first being printed, then scanned using the Tetrís, and finally an internal process is used to correct the timing of when and where the nozzles of the Printheads fire, and detect any possible nozzle-out issues.

### Scan axis encoder



The line encoder is located on the Carriage; it measures and counts the movements of the Scan Axis. An optical, infrared wavelength encoder is used: the same type of encoder used in most of the HP large-format printers. The Encoder signal is converted to LVDS logic levels and directly routed through the Data TC.

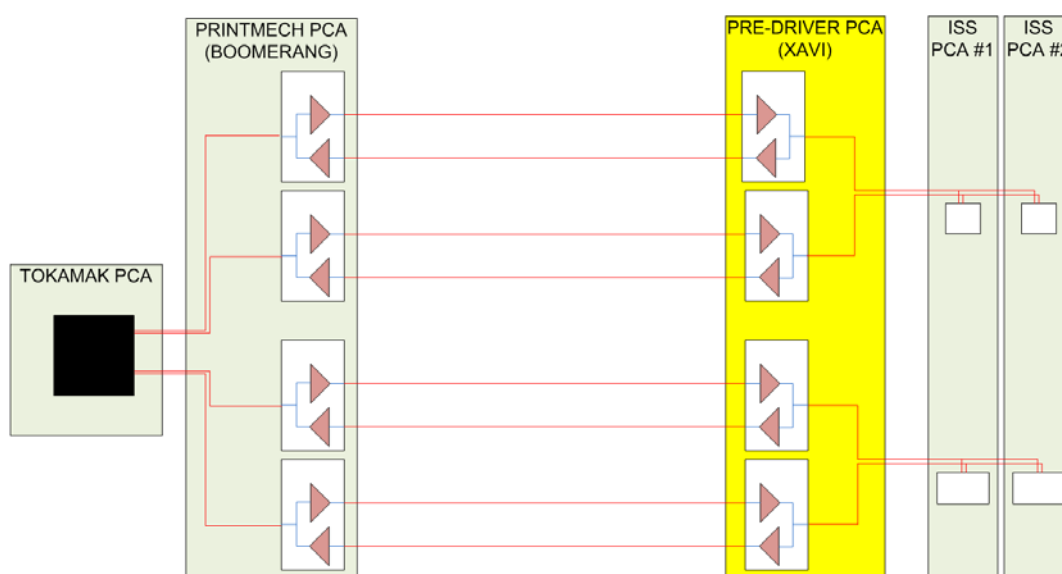
#### Printhead Flex

To connect the Carriage to the Printheads, a delicate flexible circuit with small golden dimples is used. Printheads are inserted into unique slots and a spring-loaded mechanism pushes the electrical contacts of the Printheads into the Printhead flex, which subsequently connects the Printhead to the Carriage electronics. Printhead Flexes are the most delicate and sensitive part of the Carriage. If the Printheads are inserted with too much force or they are misaligned, the insertion can easily damage them.

## Ink Supply Station (ISS) Electronics

### Description

There are two ISS PCAs (as in the DJ L25500/L26500 printers) plus a new extra board in between the ISS PCAs and the PrintMech PCA, called the Pre-Driver PCA.



## Components

### PreDriver PCA

This board receives signals from the PrintMech PCA in differential mode and translates them to single-ended ones.

It has two LEDs:

- Green LED: 5 V present coming from the PrintMech board (cable connected)
- Red LED: Overpressure or disconnected cable to the ISS PCA



See the Troubleshooting chapter (page 50) for more details, such as the location of the LEDs.

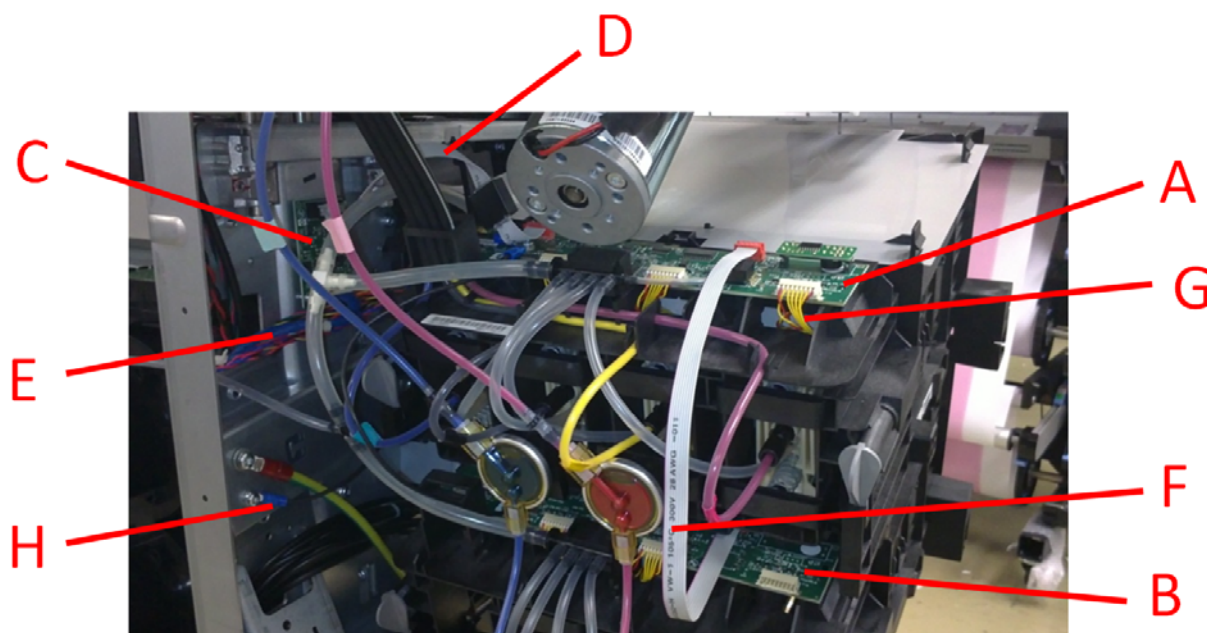
### Top and Lower ISS PCAs

The ISS electronics are powered from a +12 V line coming from the PrintMech, and a linear regulator on the ISS PCAs generates the +5 V used to power all the devices on the board.

The ISS PCAs are two electronic PCAs located at the rear of the Ink Supply Station. The ISS PCAs provide the following:

- Pressure Ink Level Sense (PILS) measurement
- Ink supply presence detection
- Ink Cartridge broken bag detection
- Ink supply smart chip interface
- Air pressure measurement and air pump shutdown
- Humidity and temperature measurements
- System back-up EEPROM

Below is a picture showing the connections and components located at the rear of the ISS.



Marking	Description
A	ISS Top PCA
B	ISS Lower PCA
C	Pre-Driver PCA
D	Cable: ISS Top PCA to Pre-Driver PCA
E	Cable: Pre-Driver PCA to PrintMech PCA (blue)
F	Cable: ISS Top PCA to ISS Lower PCA
G	Cables (6): ISS PCAs (Top and Lower) to Ink Cartridges
H	ISS grounding cable

Both top and lower ISS PCAs share the same PCB, the only difference between them is that the lower PCA is a simplification of the top PCA: the top PCA contains these additional parts:

- EEPROM
- Connection from the PrintMech PCA
- Air pressure sensor
- Temperature and Humidity sensors

Both PCAs are connected through an 8-pin connector. The 2nd ISS connector is connected to the PrintMech PCA in a daisy-chained connection, the 1st ISS board by means of this 8-pin connector.

## Vacuum Fan electronics

### Description

There are two Eola PCAs to control 4 different brushless blowers in order to generate the required vacuum to hold the substrate. One of the Eola PCAs is connected to the Printmech PCA (left side of the printer) and the other one to the Mini Interconnect PCA (right side).

## Waste Management Electronics

### Description

There is a small interconnect board (WM PCA) to connect the aerosol fan and two switches used in the waste management system (as in the DJ L26500). This board is connected to the EEbox through the Mini Interconnect PCA. There is an intermediate connector in the Ebox chassis to allow customers to connect the cable during installation.

## Heating System Electronics

### Description

The heating system provides the power to the heater elements in order to dry and cure the jobs.

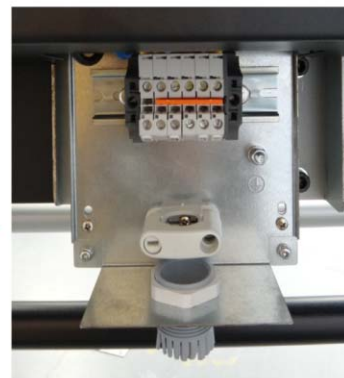
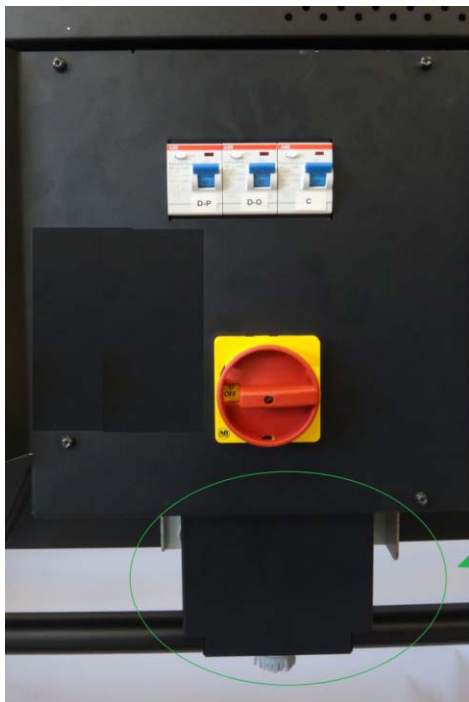
The amount of power used for heating requires a three-phase power system.

### Components

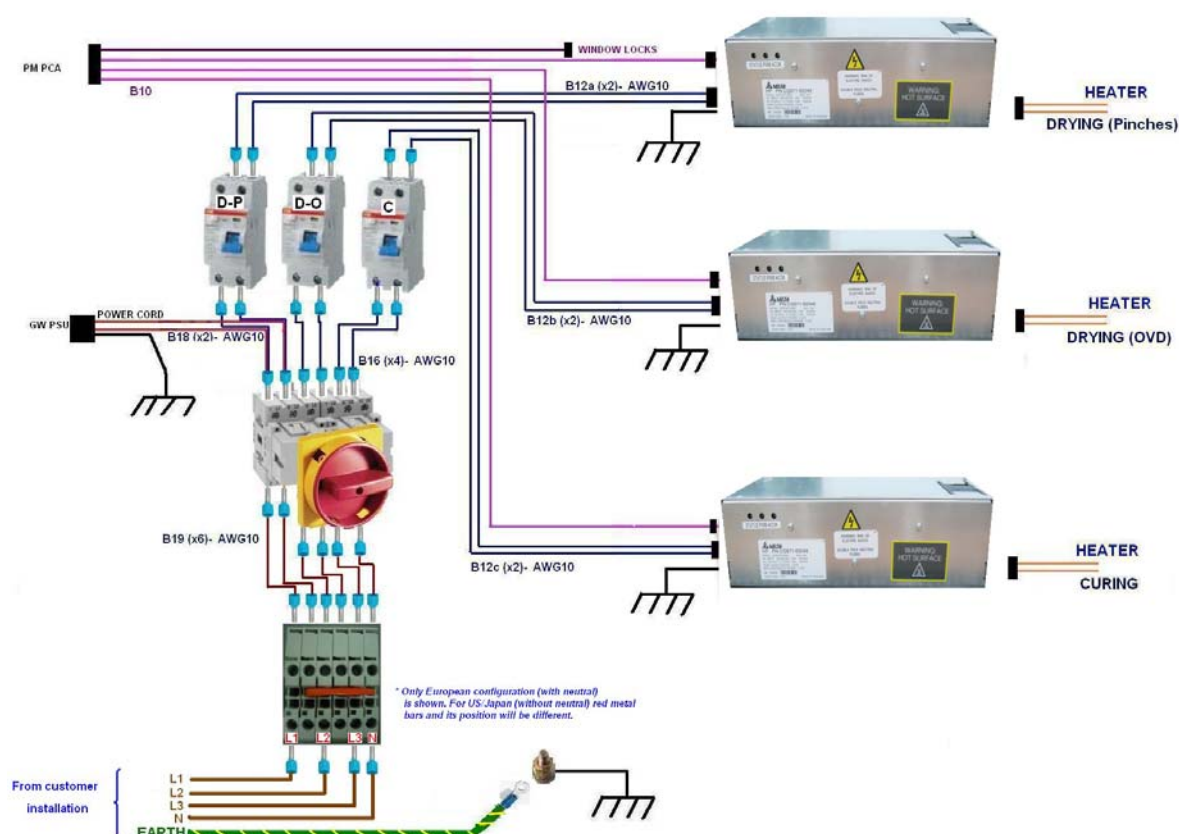
- Terminal block
- Main Switch
- 3 x RCBs
- 3 x Sine wave converters
- Drying & curing resistors
- Thermal switches
- IR sensors (for curing and heating)
- IR sensor curing cooling fan
- 2 x Window switches x Sine wave converters
- Curing and Drying fans

### INPUT Circuit diagrams

The heating components form a high voltage system, so they are protected by their own enclosure (EE cabinet) for safety.



A simplified block diagram of the input stage of the heater system (EE cabinet) is shown in the following picture:



## Terminal block

The terminal block is used to configure the printer depending on the customer's mains configuration. It has some jumpers used to perform the configuration. The input power cables from the customer's installation (not provided with the printer) are connected within this terminal block.



**NOTE:** An electrician is required for the setup and configuration of the building's electrical system used to power the printer and also for printer installation. Make sure that your electrician is appropriately certified according to local regulations and supplied with all the information regarding the electrical configuration.

Remember that you are required to follow the local laws, regulations and standards that pertain to the electrical installation of your printer.

## Electrical power system

The printer requires three-phase power, which provides a more efficient means of supplying large electrical loads than single-phase power. There are two possible configurations depending on input voltage range, as described below.

## 380–415 V three-phase line-to-line configuration

### Three-phase line specifications

Number of power wires	5 (3 lines + 1 neutral + 1 PE)
Input voltage (line-to-line)	380–415 V (–10%+6%)
Input frequency	50/60 Hz
Power consumption	8 kW
Maximum load current (per phase)	24 A

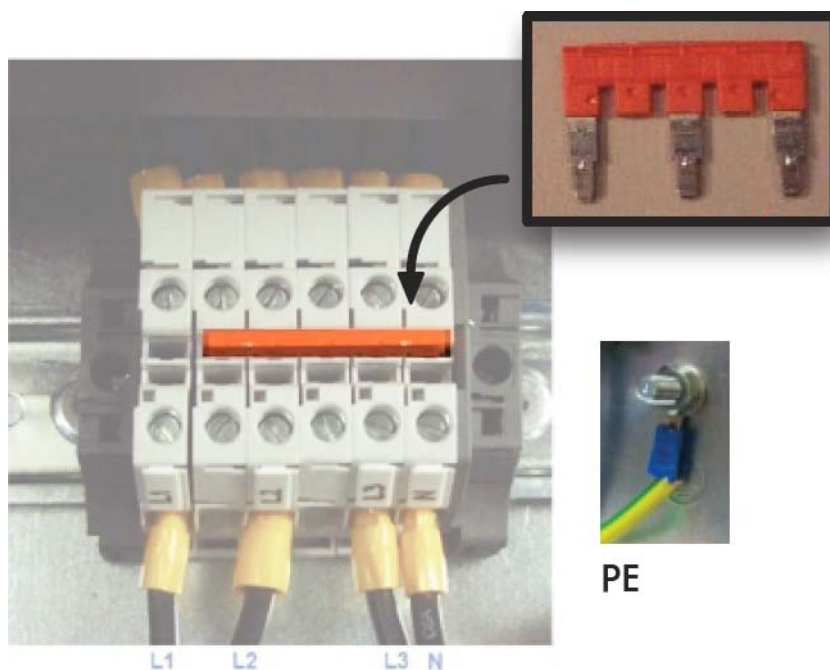
### Circuit-breaker specifications

	Branch circuit-breaker
Three-phase	4 poles, 30–32 A

### AC power cable specifications

	Three-phase line
Configuration	5 wires, L1/L2/L3/N/PE
Wire	Strained Cu, minimum 4 mm <sup>2</sup> or 10 AWG
Terminals	Lines: ferrule terminals, PE: M6 ring terminal
External diameter range	15–25 mm

### Jumper configuration



## 200–240 V three-phase line-to-line configuration

### Three-phase line specifications

Number of power wires	4 (3 lines + 1 PE)
Input voltage (line-to-line)	200–240 V ( $\pm 10\%$ )
Input frequency	50/60 Hz
Power consumption	8 kW
Maximum load current (per phase)	40 A

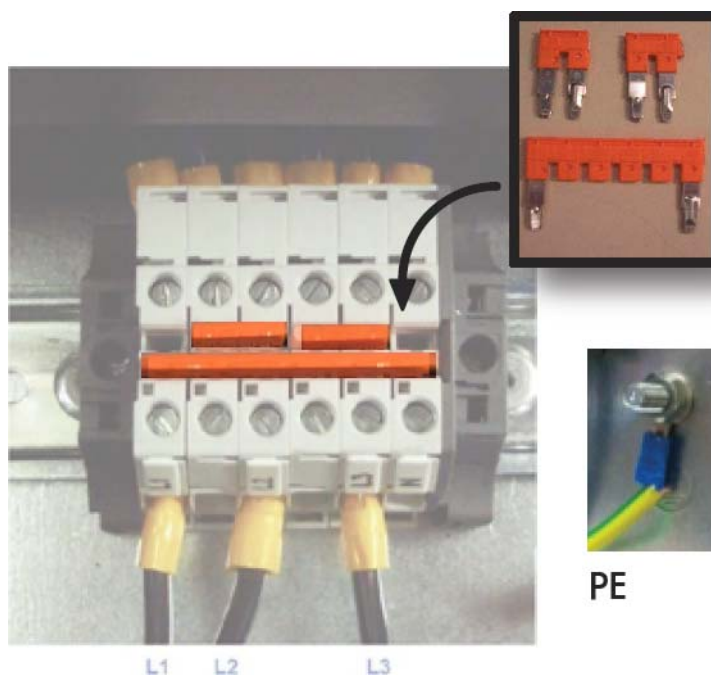
### Circuit-breaker specifications

	Branch circuit-breaker
Three-phase	3 poles, 50 A

### AC power cable specifications

	Three-phase line
Configuration	4 wires, L1/L2/L3/PE
Wire	Strained Cu, minimum 6 mm <sup>2</sup> or 8 AWG
Terminals	Lines: ferrule terminals, PE: M6 ring terminal
External diameter range	15–25 mm

### Jumper configuration





## 200–240 V single-phase or bi-phase line-to-line configuration

If the customer cannot connect to a three-phase system, it is still possible to connect to a bi-phase or single-phase installation if the following requirements of current rating are met (approved by electrician).

### Single- or bi-phase line specifications

Number of power wires	3 (2 lines + 1 PE)
Input voltage (line-to-line)	200–240 V~ ( $\pm 10\%$ )
Input frequency	50/60 Hz
Power consumption	8 kW
Maximum load current (per phase)	48 A

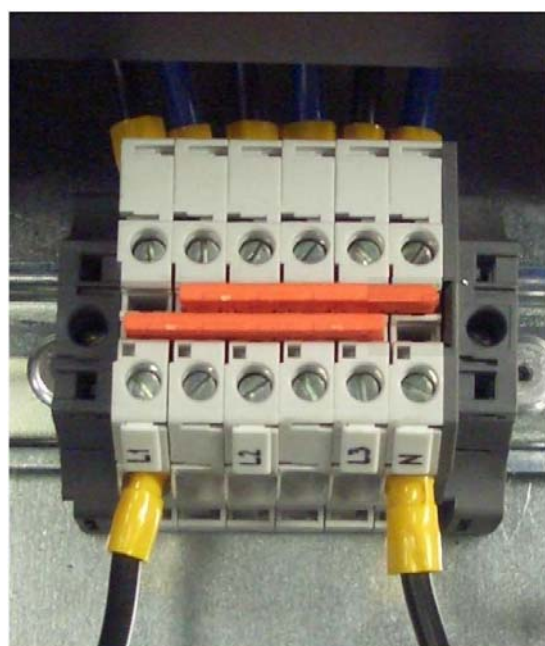
### Circuit-breaker specifications

	Branch circuit-breaker
Single- or bi-phase	2 poles, 60/63 A

### AC power cable specifications

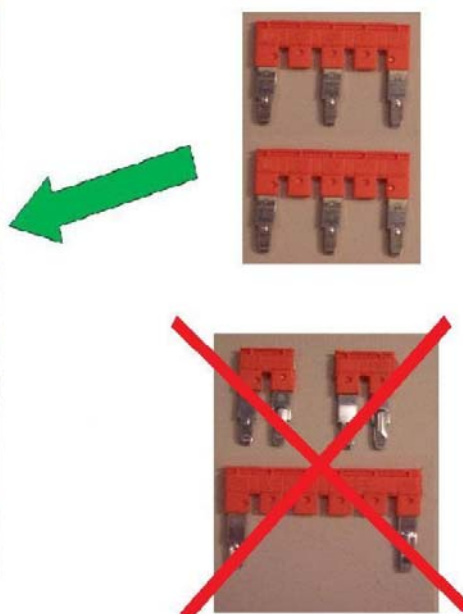
	Single- or bi-phase line
Configuration	3 wires, L1/N/PE or L1/L2/PE
Wire	Strained Cu, minimum 10 mm <sup>2</sup> or 6 AWG
Terminals	Lines: ferrule terminals, PE: M6 ring terminal
External diameter range	14–25 mm

### Jumper configuration



L1

L2/N





## Main Switch

The Main Switch is used to switch the whole printer on or off, including all the printer electronics.

## Residual Circuit Current Breaker (RCCB)

To protect the printer and the users, there are three Residual Circuit Current Breakers (RCCB), which are connected between two power inputs and the Sine Wave Converter module. They detect a current leak greater than 30mA. Customers can reset the RCCB if a circuit blows, but a frequent reoccurrence indicates an electrical failure in one or more of the heaters.

## Sinewave converters

These three modules convert the input voltage from the mains to a voltage in the output that is controlled by the EEbox depending the quantity of power required to each of the resistors connected to them.

Each converter has three cables: One power cable for the input, another one for the output power, and finally the control cable. The control part of the converter that interfaces with the Printmech is powered at 24 V from the printmech PCA through the control cable and through both switches placed in the window cover of the printer. This cover has to be closed to allow the converters to work.

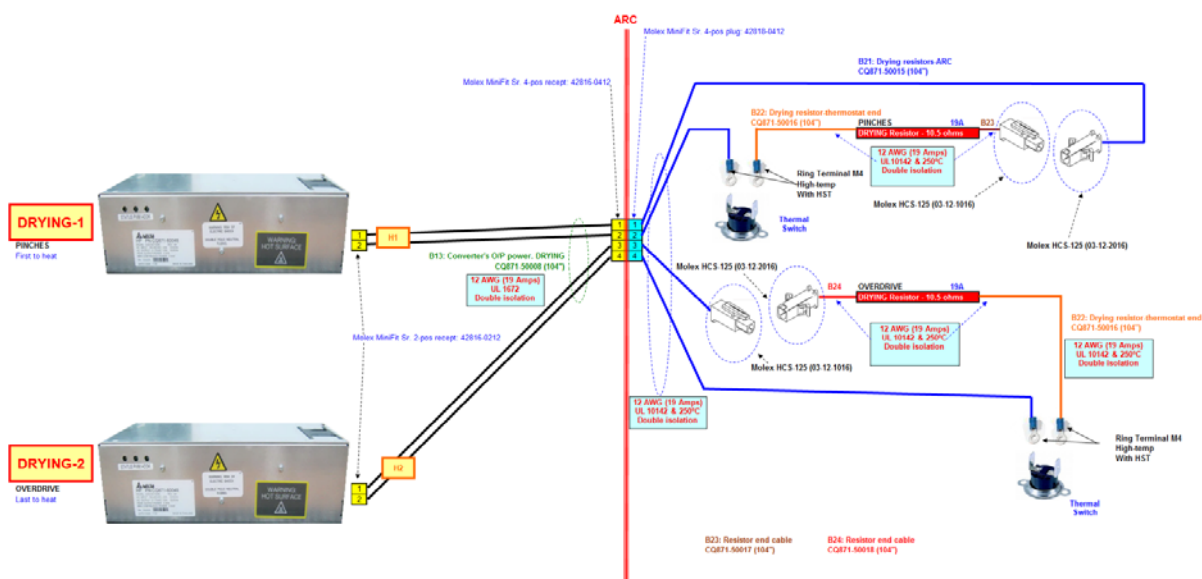
Each converter has 3 LEDs: Status (off or fault), PWM (if power is being delivered to the output) and ACOK (if Vin is in range).

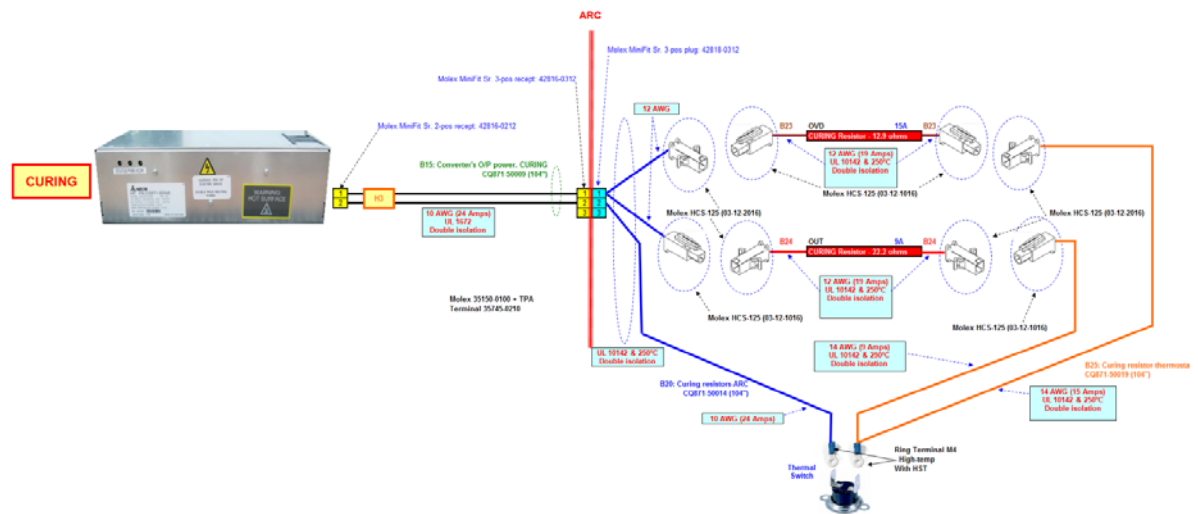


## Output circuit diagrams

The following diagrams show the connections between the converters and the heating elements.

### Drying





# Substrate path

## Description

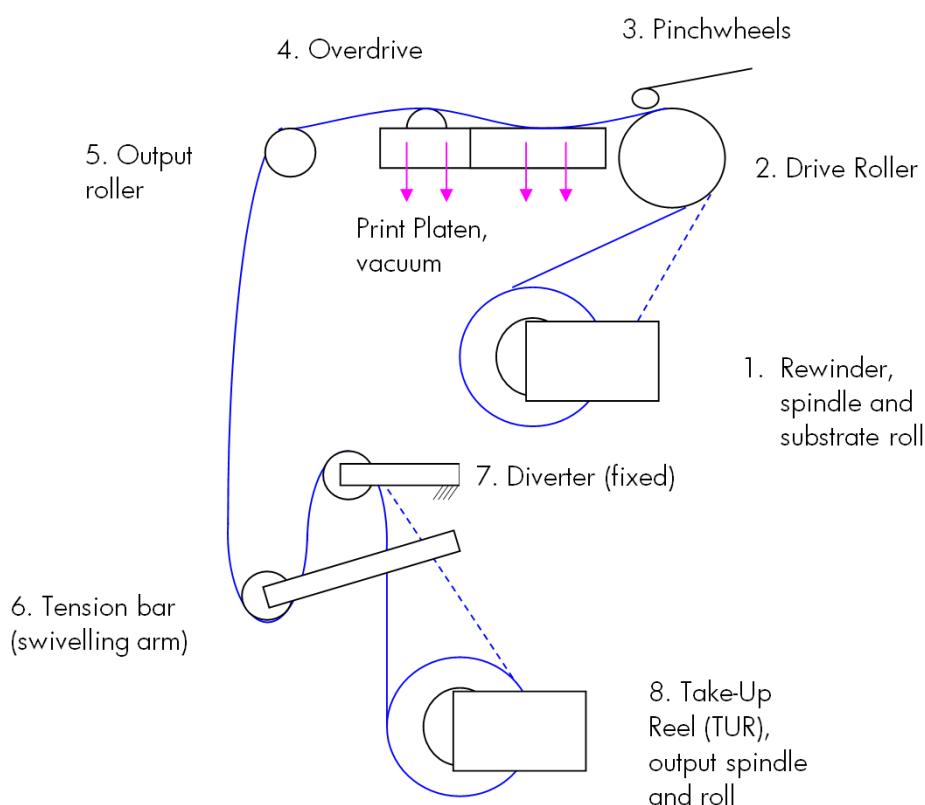
The substrate path moves the substrate from the input spindle to the take-up reel, through the print path, while the Carriage prints on the substrate. The objectives of the substrate path while advancing the substrate are:

- Maintain an accurate advance
- Maintain a constant advance
- Keep the substrate flat
- Advance the substrate straight along the substrate axis

## Substrate path workflow overview

The following steps describes the substrate path workflow.

1. The substrate is loaded onto the **Input Spindle** (1), which is driven by the rewinder mechanism to provide back tension to the substrate. The substrate is fed through the Input Platen, around the **Drive Roller** (2), under the **Pinchwheels** (3), over the printzone and **Overdrive** (4), and finally it is either left free or looped through the **Tension Bar** (6) and the **Diverter** (7) to be collected on the **Take-Up Reel** (8).



2. The Rewinder has a motor that primarily acts as a brake to maintain tension on the substrate. The Rewinder may turn in either direction, depending on which is the printable side of the input substrate roll and its winding direction.
3. The Drive Roller also has a motor, and is the primary component that advances the substrate. The substrate is pressed to the drive roller by the pinchwheels, ensuring a smooth substrate advance. The motor receives feedback from an encoder located at the left side of the roller, inside a protected enclosure on the left of the left sideplate.
4. The surface of the substrate path where the substrate is printed is called the Print Platen. The Print Platen is designed to give minimal resistance to the substrate advance, and includes suction holes that apply vacuum to the substrate.

5. The printer detects and controls the substrate advance. The OMAS sensor, located on a special cut-out section of the Print Platen, is a sensor that is able to detect very small errors in the advance of the substrate. These errors are communicated to the motors on the Drive Roller, and small correctional adjustments are applied to the movement of the substrate.

In the same area, but not visible from outside the printer, is the TOMAS sensor that measures the temperature in the area and helps OMAS to provide the drive motors with a high degree of accuracy.




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**NOTE:** The OMAS sensor cannot see the fibers on some substrates, such as transparent substrate or very dark or very reflective substrates. In these cases, the OMAS sensor can be disabled. To disable the OMAS sensor ⇒ See page 176.

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6. The vacuum is calibrated according to the substrate type and print options used. It draws the substrate to the Print Platen, making sure that the substrate is flat. The substrate is also under the dryer when it is in the print zone.
7. The area of the platen in front of the print zone holds the Overdrive wheels. This area also has vacuum to ensure traction over the wheels, which are connected to the Drive Roller through a set of gears. The Overdrive wheels help to remove the substrate from the print zone during substrate advance.
8. After the platen, the substrate goes through the curing zone and finally leaves the printer, either to be collected on the Take-Up Reel or to be cut.
9. When the Take-Up Reel is in use, the substrate must be threaded first under the swiveling Tension Bar and rerouted to the output roll around the fixed Diverter roller. This system creates tension on the outgoing substrate for proper winding. The Take-Up Reel can operate in both directions with the Rewinder, winding with the printed face outside or inside. Weights on the Tension Bar arms may be slid forward in order to create higher tension for textile substrates.

#### Startup, substrate load, substrate selection

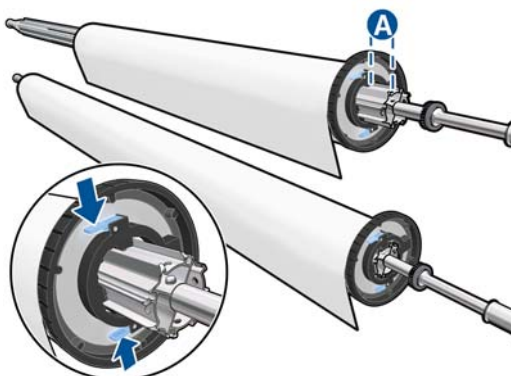
During startup, the printer checks that the substrate path components are functioning correctly. When shutting down, if a substrate is loaded, the printer remembers the substrate definition. This may be modified through the front panel with the option 'Change loaded substrate' from the substrate menu list.

During substrate loading the printer may ask the user two interactions:

1. To rewind manually the substrate: The printer automatically checks the direction of the loaded substrate (printed face outwards or printed face inwards). If the 'curve' of substrate is too large the printer cannot detect it and the printer asks the user to rewind manually. Once the substrate is rewound the printer can detect automatically
2. To align the substrate in order to avoid skew: the printer measures skew. If the skew is too large the printer will ask the user to lift the pinchwheels (big blue lever on right hand side) and align the substrate. The substrate must be aligned against itself (substrate edge must be aligned with input roll edge).

## Components

### Spindle



The spindle can load 3" core rolls. It holds the core of the roll when its rubber bands are nipped between the core of the roll and the aluminum extrusion.

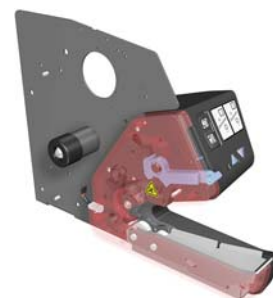
The hub on the left side has two possible fixed positions: the end position allows loading maximum width rolls, but there is a second position at 2.6 inches (65 mm) from the end that can be selected.

The right hub can be set along any length of the spindle so any length of roll can be loaded.

The right end of the spindle contains a gear which is used to transmit the movement from the rewinder to the roll.

### Spindle latch

The spindle latch prevents the substrate roll from slipping from its position when printing. It is not necessary to close it when inserting the spindle, it closes automatically. But the user must lift the small blue lever in order to release the spindle and extract the roll of substrate.



### Rewinder

The rewinder motor keeps a constant tension on the input substrate to prevent skew problems. There is a motor and a transmission that gives torque to the spindle in order to provide the necessary back tension.



### Media sensor

The Input Platen has a lever that activates the media sensor whenever substrate is present. When the substrate is inserted into the entry area, the sensor is activated and the drive roller starts turning to help the loading process. The substrate load process has been triggered and the printer will provide instructions through the front panel.

### OMAS sensor (media advance sensor)

OMAS is located under the third platen slab from the right, only the top window can be seen:

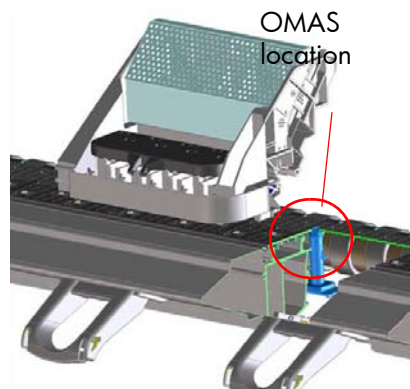
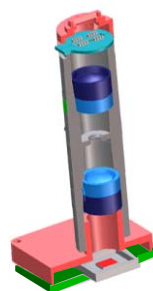
OMAS is composed of two parts: the sensor and its optics located under the platen and a PCI control board on the main electronics box. Both are connected through a ribbon cable that runs through the vacuum beam, by the right sideplate and into the electronics box.

The optical sensor detects the surface of the back of the substrate as it moves across the platen. The sensor is able to evaluate the exact movement of the substrate, and communicate any small adjustments required by the system to move the substrate accurately.

The window of the OMAS sensor must be cleaned of dust and ink to work correctly. The cleaning procedure is described in the *User's Guide*, in the section 'Clean the substrate-advance sensor window'.

During the substrate load, the printer detects that the substrate has reached the print platen when the OMAS captures its image.

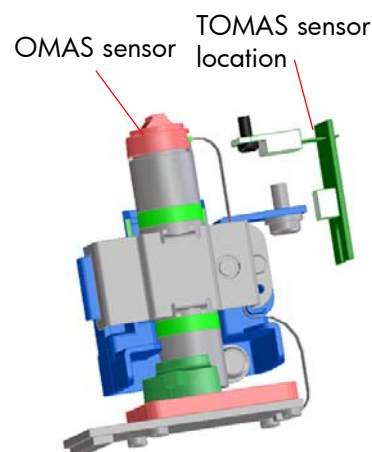
OMAS



**NOTE:** The OMAS sensor cannot detect the surface of some substrates, such as plastic or very dark ones. In these cases, the OMAS sensor must be disabled, and instead the printer uses feedback from the Driver Roller encoder to calculate the substrate advance. To disable the OMAS sensor, locate the OMAS Sensor selector from the print options menu of the RIP and set it to OFF. This can also be done from the Service menu ⇒ page 176.

### TOMAS

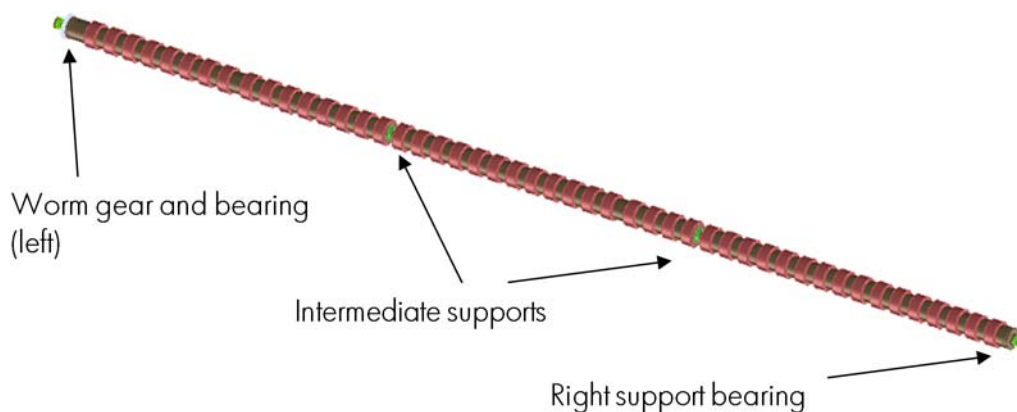
To compensate for temperature changes and mechanical expansion, OMAS receives a temperature reading from TOMAS sensor.



### Drive roller and motor

The drive roller and motor advance the substrate through the substrate path. The motor requires 42 V, and is controlled by the Printmech PCA.

The drive roller receives the torque from the motor through a worm as in the Z6100 and other Designjets. Because of the extension to 104 inches, the roller now has two intermediate supports.



### Drive Roller Encoder Disc and Encoder PCA

The Drive Roller Encoder Disc and Encoder PCA provide the feedback system for the Drive Roller.

- The Encoder disc is a round disc mounted to the left end of the Drive Roller.
- The Encoder PCA is mounted with a sensor that reads the encoder movements of the disc (the disc turns with the drive roller).

### Pinchwheels

The pinchwheels press the substrate against the Drive Roller to make sure that the Drive Roller can advance the substrate correctly.

- The pinchwheels are activated with the blue lever at the right side of the substrate roll and usually do not have to be lifted unless to correct skew during substrate load or to clear jams.
- The pinchwheel system has a sensor that detects if the system is up or down.

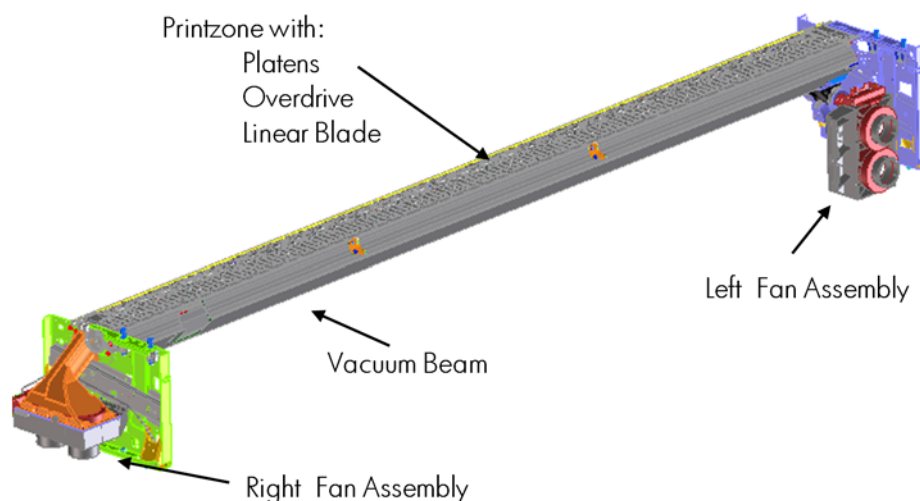
### Vacuum Pump, Vacuum Tube Assembly, Vacuum Beam

The print zone is the area of the substrate path where the transmission of ink to the substrate occurs. The main function of the system can be defined as providing the surface where the substrate is printed, keeping it controlled during the process, playing a main roll on the final IQ of the plots and on the operational reliability of the printer. The subsystem is composed of the print platen assembly (including the overdrive wheels), which is the physical interface with the substrate, and the vacuum system which is the mechanical system where the vacuum pressure used to control the substrate is generated and conducted.

The HP Designjet L28500 printer requires a hot print zone (with additional airflow) to allow the evaporation of the majority of the water in the latex inks. This feature, plus the new substrates supported, changes a little the main contributors of the cockle control and substrate expansion from former products and also adds new issues such as the thermal marks. The platen gives a convenient shape to the heated substrate, avoiding differential temperatures due to platen conductivity.

The main components are:

- OVD & Platen Assembly 104" including:
  - 12 DJ L26500 printer platen + 1 OMAS platen + 2 interplaten 60 + 1 platen right end + 1 platen left end
  - Linear blade 104" + springs (same as DJ Z6100 or L26500)
  - OVD shafts and wheels (same as DJ Z6100, with some new segments)
  - Foams, foam fillings, and foam wall
  - Magnets under the platen to hold Media Edge Holders
  - ESD brushes
- OVD gears in brass
- Right Vacuum Fan Assembly with Eola Control Board (same as DJ Z6200 or T7100)
- Left Vacuum Fan Assembly with Eola Control Board (new)



## Related tests, utilities, and calibrations

- Rewinder test ⇒ page 148
- Drive Roller test ⇒ page 149
- Substrate Path sensor test ⇒ page 150
- Vacuum Test
- OMAS Test ⇒ page 152
- Rewinder Motor polarity test
- Substrate path menu ⇒ page 176
- Substrate advance adjustment⇒ page 184

## Service parts

- Drive Roller ⇒ page 257.
- Media Path Assemblies ⇒ page 258.
- Center guide Pinchwheels Assemblies⇒ page 259.
- Media Entry Assemblies ⇒ page 260.
- Take-up reel Assemblies ⇒ page 261.

## Removal and installation

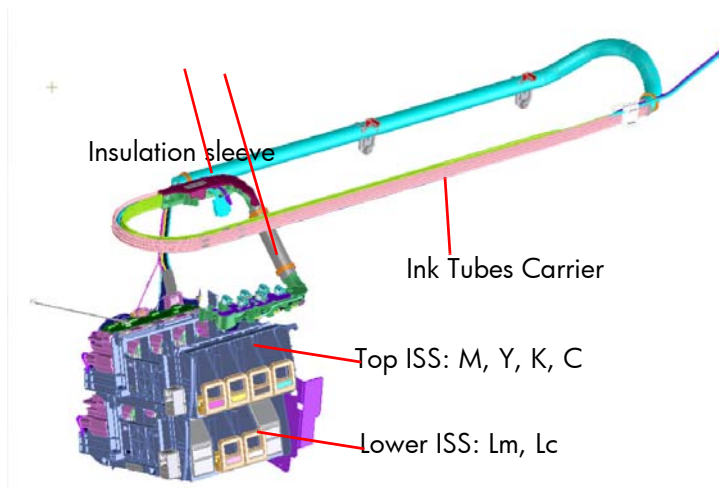
- Rewinder ⇒page 341.
- Vacuum Fan ⇒page 346.
- OMAS ⇒page 422.
- TOMAS ⇒page 428.
- Output Platen ⇒page 514.
- Print Platen ⇒page 520.
- Input Roller ⇒page 532.
- Output Roller ⇒page 544.
- Media Sensor ⇒page 547.
- Pinchwheel Assembly⇒page 554.
- Center Guide⇒page 560.
- Driver Roller⇒page 560.
- Rollfeed Modules ⇒page 567.
- Take-up reel ⇒page 567.



# Ink Delivery System (IDS)

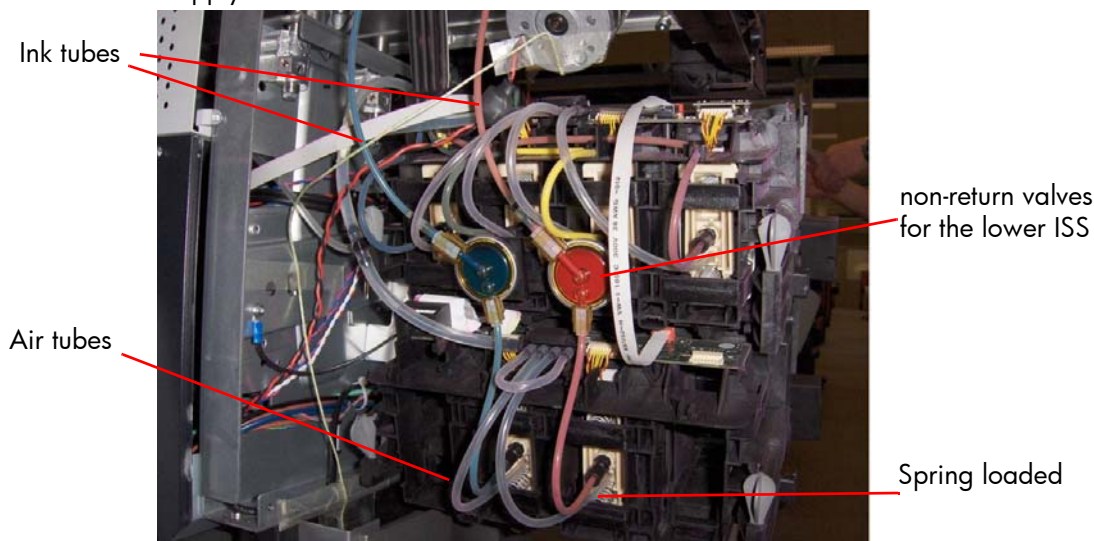
## Ink Delivery System

The ink delivery system (IDS) is located in the left enclosure of the printer (inside the left covers) and delivers a continuous supply of ink to the printheads. It can detect an ink leakage anywhere in the system, including inside an Ink Cartridge. It also tracks and determines when an Ink cartridge needs replacing.



On top of the ISS there is a thin plastic sleeve to avoid the substrate falling into the Ink Supply Station when a substrate crash occurs and also to avoid the direct heat radiation from the dryer

Rear of the Ink Supply Station



### Ink Tubes

There are 6 ink tubes that deliver the inks to the printheads in the carriage and two additional tubes which are used as a support structure. They are bundled together in a carrier and held on a shelf on the inside of the top cover with clips.

### Insulation Sleeve

The ink tubes are protected from the high temperatures of the Dryer Assembly by a heat resistant insulation sleeve, which protects the main body of the tubes, that are static.

### Upper and Lower Ink Supply Station (ISS)

The Ink Supply Station (ISS) is divided into the upper and lower sections. They have six slots for holding the ink cartridges. Each slot has a unique shape (or lock out) which matches with an equal shape at the end of the applicable ink cartridge. This arrangement avoids the incorrect insertion of an ink cartridge, which would cause major damage to the ink system.

There are two places for additional slots but these are covered over.

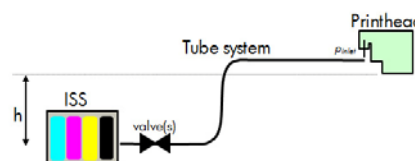
The upper and lower ISS both contain PCAs, although the top PCA contains more functionality, such as the pressure sensor, see  $\Rightarrow$  page 13.

### Non-return valves

The two non-return valves are only for the inks on the lower IDS. This is to ensure that when the pump stops and the cartridges are nearly empty, that the ink does not flow back to the cartridge.

If a cartridge is nearly empty, with no pressure from the pump, the cartridge bag might increase, and air might enter the printhead.

With a valve, the ink can go only from the cartridge to the printhead, and not the reverse!



### Air Pressure System (APS)

The APS contains two air pumps which are used to force the ink through the tubes to the carriage assembly. In the event of a broken bag in one of the Ink Cartridges, these tubes must be checked in case any of the leaked ink has been forced into the air tubes.

## Related tests, utilities, and calibrations

- Ink Delivery System tests:  $\Rightarrow$  page 153.

## Service parts

- Left hand assembly:  $\Rightarrow$  page 249

## Removal and installation

- Ink supply tubes and trailing cable:  $\Rightarrow$  page 371
- ISS to Cartridge Cables:  $\Rightarrow$  page 381
- Ink Supply Station:  $\Rightarrow$  page 384
- Ink Supply Station PCAs:  $\Rightarrow$  page 388
- APS Assembly:  $\Rightarrow$  page 392.
- APS Assembly:  $\Rightarrow$  page 392.

# Scan Axis and Carriage

## Scan Axis

The Scan Axis System is the part of the Scan Axis subsystem designed to move the carriage backwards and forwards for printing and servicing. This subsystem moves the carriage with a motor, belt, and pulley system. Furthermore the scan axis has features to open and close the Spectrophotometer shutter (SOL) and to enable/disable the cutter.

## Scan Axis Components

### Scan Beam:

It is an extruded aluminum part. Its main function is to guide the carriage along the scan axis via two rods, and it sets its limits of movement. Apart from this it positions and holds the Service Station, the Scan Axis motor, the two brackets and the pinch wheels assembly. It also works as an air container to be blown to the print zone coming from the rear and leaving through several pipes located over the substrate and holds the rear fans.

### PPS system

The PPS consists of some screws and pockets, it locates the scan beam in reference to the side plates in order to have a correct distance between the printheads and the substrate. This distance is supposed to be constant during the life of the machine and it is set to be as small as possible without taking the risk of having the printheads touching the substrate.

### Left Bracket

Left Bracket is an injected plastic part, and its main function is to set an end for the carriage movement. It also closes the scan beam to avoid the air blown to the print zone leaking. It has several features to enable/disable the cutter and the SOL shutter. The left bracket also houses the Substrate Jam Sensor, which works with the reflector panel on the carriage assembly to detect substrate crashes. It also has some parts to ensure that the encoder strip is held with tension.

### Encoder Strip

The Encoder Strip contains positional data that the encoder sensor (located in the carriage) can read and detect the position of the carriage. Since it is made of thin metal it is sharp and extreme caution is needed when handling it. Unlike previous versions, do not clean the encoder strip as this will damage it.

### Right Bracket

This part is the same in the left bracket, this metallic part closes the right hole of the scan beam extrusion. It also holds the pulley assembly and the encoder strip.

### Motor, pulley assembly and belt.

Their function is to transmit the position/speed to the carriage assembly.

### Flat right bump

This plastic part defines the right end of the carriage movement. It is positioned and held by the scan beam.

## Carriage

The carriage is the subsystem of the printer that performs the printing on the substrate. It is moved across the print path by the scan axis impelling system and with it the 6 printheads and several sensors, the Spectrophotometer (SOL), the line sensor (Tetris), the scan axis sensor. The carriage houses an on-board electronics system to send information to the 6 printheads through each of the interconnects, and it receives information from the sensors. Some parts aid the ink to arrive at the printheads. It also holds in position the cutter, used to cut some types of substrate.

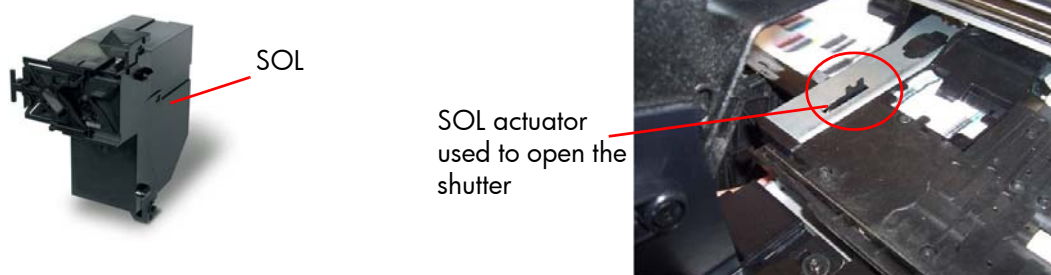
## Carriage Components

### SOL Spectrophotometer

SOL is a color sensor and it is placed in the left side of the carriage, covered by a metal sheet that protects it from the heater's high temperatures. The main function of SOL is to measure color samples that have been printed on the loaded substrate and are placed on the print platen zone.

Before taking any color measurement, SOL must be initialized. The SOL initialization process lasts for about 7min. This process consists on 3 steps: sensor switch on, sensor warm up and sensor calibration. When the initialization has been completed, the shutter is opened automatically and the carriage is moved along the scan axis to place SOL on top of each sample to take a color measurement. After the measurements, the shutter is closed again and the sensor is switched off.

SOL is used to make the linearization from the RIP.



### Carriage base

The main function of this plastic part is to located the printheads. Its position is enforced by the two rods and the belt. It serves as a base where other parts are attached and it has some features to located other components (capping station and all the next parts).

### Latch assembly

This assembly holds down the printheads and helps to ensure that they do not move during operation. Once the handle is opened it can rotate to allow the user to remove the printheads. It has some features (holes) to allow the primer to pass though it and make contact with the printheads. Some parts help to transmit force to the printheads to hold them in position and to transmit information of when the ink should be dropped.

### Sensors

The SOL, the Tetris and the encoder sensor sends information to the PCA board and is passed to the printmech though the trailing cable. The SOL performs a color calibration, the line sensor calibrates the printhead alignment and detects other features (e.g. the substrate) and the encoder sensor detects the movement of the carriage in relation to the Encoder strip.

### Carriage PCA,

This part contains the electronics to control how and when the ink is dropped in every printhead and receives the information from the sensors.

### PCA Cover

This part covers the PCA to avoid aerosol contamination and acts as an electronic enclosure.

### X-bias springs

The X-bias springs are sheet metal parts that hold the printhead in position in the X axis.

### Covering sheet and metal parts

These parts reflect part of the radiation that is received from the heater to avoid excess overheating and problems with the sensors and the printheads. Bushings, are bronze parts that are attached to the carriage base and slide over the rod

Felts, these parts help to lubricate the rod and they also avoid dirt going in between the carriage. They block four degrees of freedom (Z and Y translation and rotation over the primary rod)

SOL protectors, these parts help to avoid the SOL shutter breaking after a substrate jam.

Plastic rear bushing: this blocks one degree of freedom (the X rotation over the primary rod). The dam protector, are Mylar and stainless steel, and they stop the aerosol.

The plastic non-functioning printhead, is a plastic part which helps keep the carriage's integrity when the latch is applied over them. Also from a usability point of view, they avoid possible mistakes when inserting the printheads and have a cosmetic function too.

The airflow deflector is a part that partially stops the air entering into the print zone, it is used to avoid vapor concentration over the substrate that also causes "dpe" (drop placement error).

#### Media Jam reflector

This part is secured to the left side of the carriage assembly and works with the Media Jam sensor which is located on the Left end bracket. This is used to detect substrate jams.

### Related tests, utilities, and calibrations

- Scan Axis Menu service tests ⇒ page 159.
- Carriage service tests ⇒ page 163.
- Open/close SOL ⇒ page 200.
- Scan Axis Calibrations ⇒ page 193.
- Carriage Calibrations ⇒ page 195

### Service parts

- Right hand Assemblies ⇒ page 247
- Left hand Assemblies ⇒ page 249
- Carriage Assembly ⇒ page 250.
- Scan Axis Assemblies ⇒ page 254.
- 

### Removal and installation

- Cutter Assembly ⇒ page 382.
- Encoder Strip and Encoder sensor ⇒ page 395.
- Carriage Assembly ⇒ page 406.
- Belt Assembly ⇒ page 415.
- Scan Axis Motor ⇒ page 416.
- Line Sensor ⇒ page 463.
- Color Sensor Assembly (SOL) ⇒ page 467.
- Color Sensor Actuator ⇒ page 471.

## Service Station and Waste management

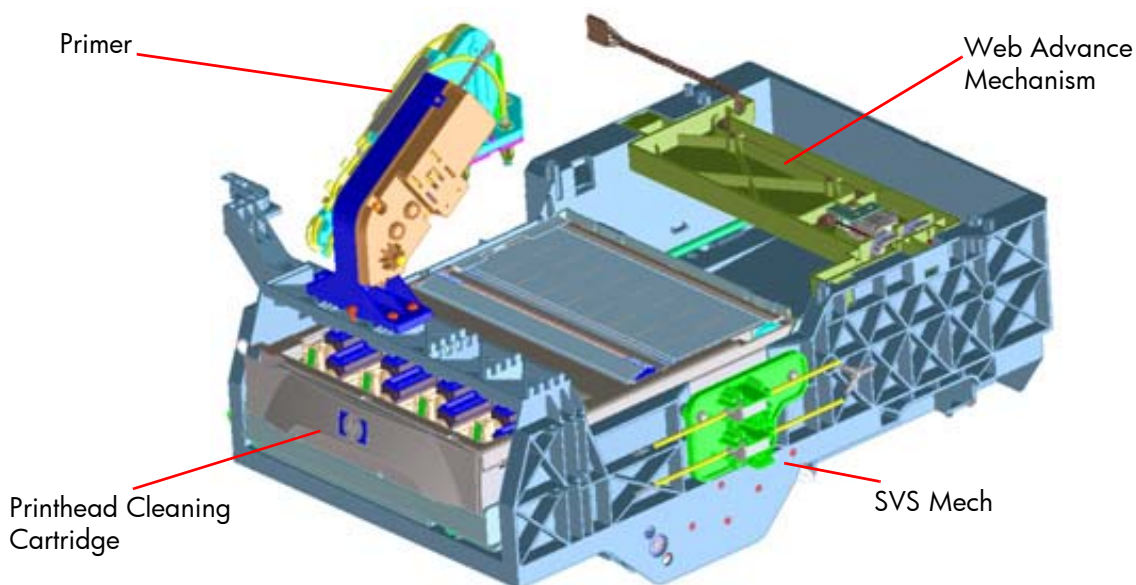
The main function of the Service Station is to maintain the Printheads of the Carriage assembly and to manage the Waste Ink. The Service Station and Waste Management can be split into three subsystems:

- **PHC servicing:** Comprising Cap, wiping and priming functions
- **Waste Management:** Contains ink spit/aerosol ink collection and the aerosol filter.

### Components

#### SVS Mech

The SVS mechanics provides the movement for the Printhead cleaning Maintenance Cartridge, which integrates the capping and wiping functions and the Web Wipe assembly, which provides the means in which to advance the Web Wipe accurately.



#### Primer

The Primer executes the blow primer functionality to the Printheads. Air pressure to perform the prime operation is drawn from the Ink Supplies, and prime pulse is controlled by solenoid valves.

#### Printhead Cleaning Cartridge

The Printhead Cleaning Cartridge is a customer consumable that holds the main components for wiping and capping. It also contains some ink priming functionality.

#### Drop detector

The drop detector is a sensor that analyzes the nozzle health of all the printheads. The drop detector has a window where it is placed with the ink funnel. The ink funnel divides the window in two different parts, the flying spittoon and the drop detector spittoon where nozzles are fired to check their status. The nozzles out that are detected are compensated for by using other nozzles to keep a good print quality.

The drop detector has an infrared LED and a photodiode aligned in a beam light. This beam light can be blocked by the ink funnel if it is not placed correctly.



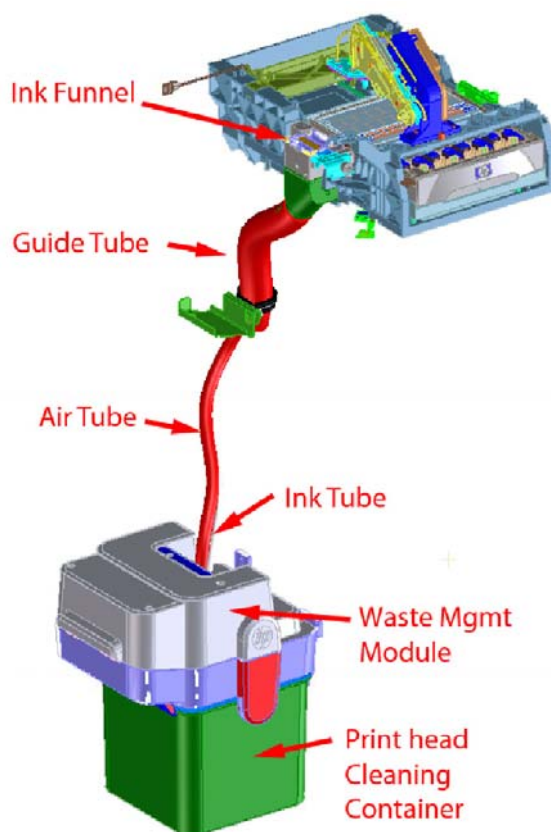


### Web Wipe

The Web Wipe Advance mechanism engages/disengages the advance gear of the Printhead Cleaning Cartridge. The actual advance is achieved by moving the Printhead Cleaning Cartridge once the gear has been engaged by this mechanism.

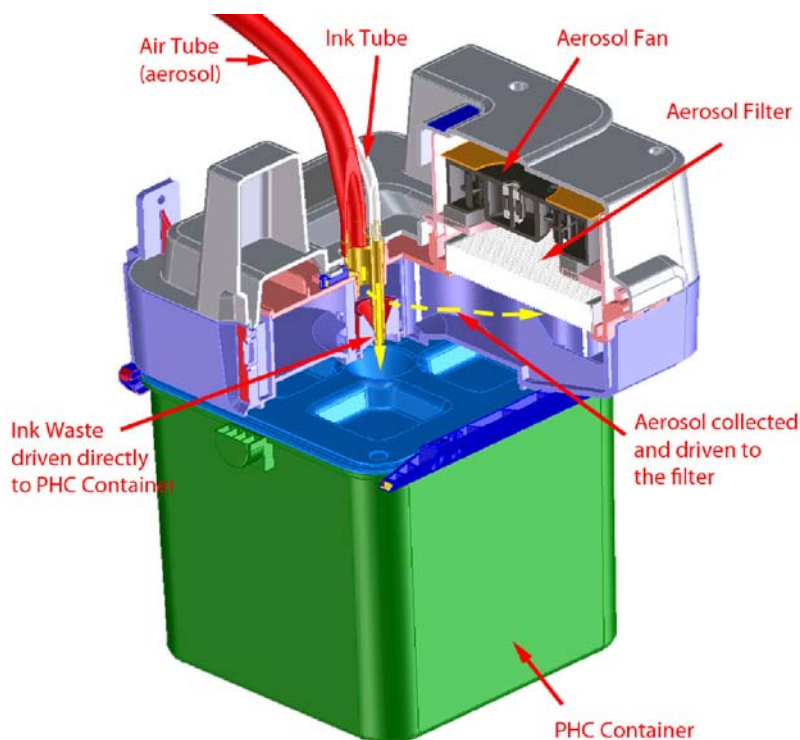
### Waste Collection Subsystem

As the Printhead Cleaning Cartridge does not have sufficient space to contain the amount of waste ink that the printer generates, a separate subsystem provides the collection and storage for it.



The main components of this subsystem are:

- **Ink Funnel:** It collects both the ink and aerosol waste during the spitting printhead servicing operation.
- **Tubes:** Each type of waste (ink and aerosol) is driven downwards through its own tube, before being processed in the Waste Management module. The tubes are fitted inside a guiding tube that provides the proper routing.
- **Waste Management Module:** This external subsystem collects both types of waste coming from the upper part of the system and stores each of them in its consumable. The liquid waste is collected into a Container (the same container used in the L26500), while the aerosol is collected in a filter. The ink waste falls down by gravity while the aerosol is sucked down by a centrifugal fan.



### Related tests, utilities, and calibrations

- Service Station service tests ⇒ page 164.
- Drop detector test ⇒ page 164
- Force Drop Detector ⇒ page 178
- Drop detection calibration ⇒ page 195
- Service Station calibration ⇒ page 181

### Service parts

- Right Hand Assemblies⇒page 247.

### Removal and installation

- Primer Assembly: ⇒page 335.
- Primer Valves: ⇒page 337.
- Service Station: ⇒page 341.
- Web Wipe Motor Assembly: ⇒page 344.
- Vacuum Fan: ⇒page 346.



- Aerosol Fan and Filter: ⇒ page 364.
- Drop Detector: ⇒ page 366.
- Primer Assembly: ⇒ page 335.

## Heating system

The type of ink used in this printer (latex) requires heating in order for the ink to be cured. The heating system applies this heat through a Dryer Assembly and a larger Curing Assembly. Temperatures are kept at a target level depending on the type of substrate and amount of ink fired via a temperature sensor, which feeds back information to the Heater Control assembly (Petisa) located at the rear of the printer.

### Components

#### Heater Control

See Heating System Electronics for details ⇒ page 16.

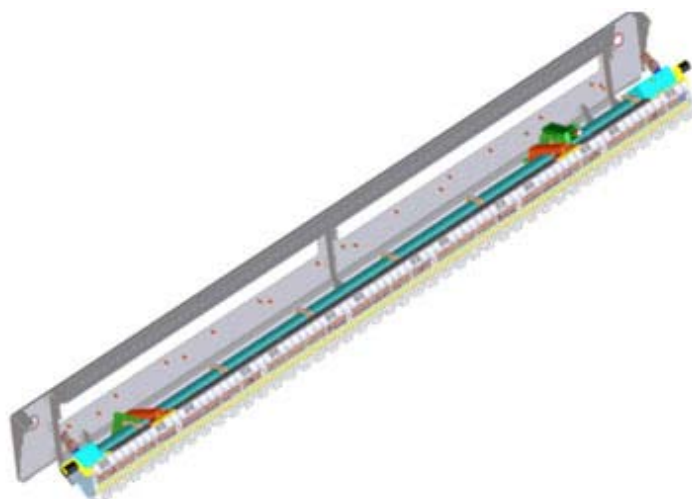
#### Dryer Module:

The Dryer module heats up the print zone to 40–55°C while printing. The main objective is to evaporate most of the water content of the ink and to provide the correct temperature for satisfactory print quality.

The two resistors in the dryer provide up to 6640 W during warm-up, reaching a working temperature of 650–700°C while printing.

#### Dryer Enclosure System

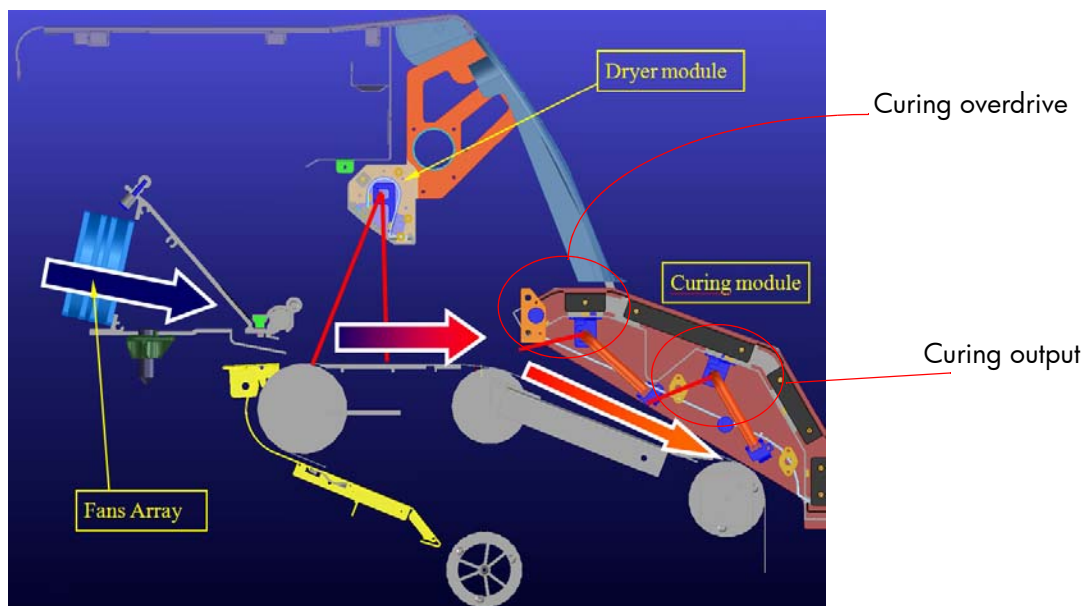
The main function of the dryer enclosure subsystem is to provide a thermal protection to the user when accessing the dryer/printing area. The dryer enclosure subsystem includes all the parts and assemblies that protect the user against the dryer, they are either attached to the dryer module, or attached to the structure.



### Curing Module

The Curing Module fixes the latex ink (cures) at typically around 80–120°C, depending on the substrate for satisfactory durability.

The two independent resistors provide a total 4250 W. The following cross section shows the heating subsystems:



### Dryer Fans and Curing Fans

The Dryer fans and Curing fans provide an airflow parallel to the substrate to reach a higher evaporation rate at the print zone. The airflow wipes away the vapors from the substrate surface, improving radiation efficiency.

The Top Cover fans blow air coming from outside of the printer to the ink tubes. This is because during printing the heat coming from the dryer to keep the substrate warm also goes to the ink tubes causing an increase of the ink temperature leading to short-term damage to the printheads.

The pipes that drive the air to the ink tubes are injected plastic parts. Three assemblies blow to the front and rear and two to the rear.

Cables are formed by 4 wires, two supplying the voltage (12 V), one providing the PWM (5 V = 100% of the voltage) and one containing a fault signal.

### Metal Finger Guard

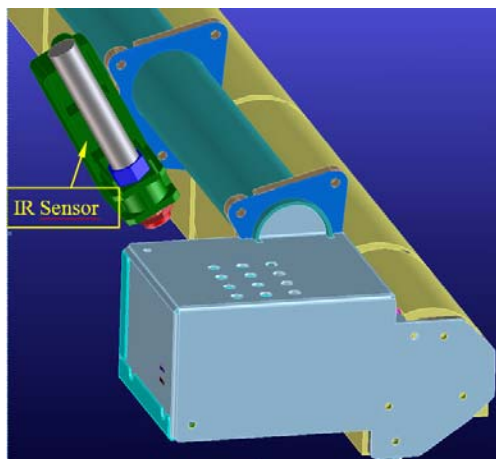
This is a metal guard designed to protect any fingers that may inadvertently enter the assembly.

### Dryer IR Sensor & Curing IR Sensor

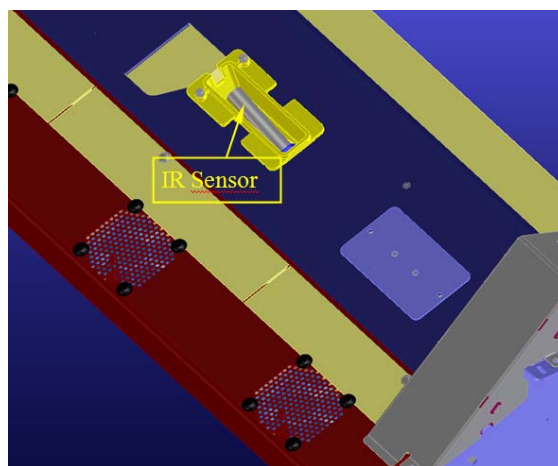
There are two infrared sensors, one for each module, these sensors detect the temperature and feedback the information to the Heater Control Assembly (Petisa), the power supplied to each module is then adjusted according to target levels.

In the following picture a closer view of both sensors can be seen.

Dryer Module:



Curing Module:



### Thermal Switches

Each module has thermal switches, two in the drying module and one in the curing module. In the event of too high a temperature, these will physically disconnect the current from the heaters.

### Related tests, utilities, and calibrations

- Heating and Curing service tests ⇒ page 165.
- Heating and Curing Temperature ⇒ page 181.

### Service parts

- Front Covers ⇒ page 241.
- Dryer and Curing Modules ⇒ page 253.

### Removal and installation

- Heating Control Assembly ⇒ page 453.
- Dryer (IR) Heater Sensor ⇒ page 476.
- Dryer Heater Assembly ⇒ page 484.
- Curing Temperature Sensor ⇒ page 486.
- Curing Fans ⇒ page 486.
- Curing Heaters ⇒ page 502.
- Curing Module ⇒ page 502.

## Front Panel



See the *User's Guide* for a description of the Front Panel and how to use it.



## 2 Troubleshooting

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# Troubleshooting the printer

To troubleshoot print-quality issues, please turn to the Print Quality chapter ⇒ page 201.

## Printer education and training

Before any attempt is made to troubleshoot the printer, it is critical that you have the relevant training on the HP Designjet L28500 Printer series. If you are not trained on this printer, please contact HP Education or HP Training to enquire about becoming 'HP Service Qualified' for this printer.

## Firmware update

The first step to take when trying to clear an error with the printer is to check that the firmware installed in the printer is the latest available. Firmware updates often include fixes for common problems, and simply updating the firmware can often resolve the problem. New firmware can be downloaded here: <http://www.hp.com/go/L28500/support/>.

### USB firmware update

If it is not possible to perform a firmware update using the Embedded Web Server (for instance, if the printer has a System Error and the Embedded Web Server is inaccessible), it is still possible to do it using a USB flash drive.

1. Turn off the printer.
2. Ensure that your USB flash drive contains a valid FMW firmware file and no other files.
3. Connect the USB flash drive to the USB host port on the Formatter.
4. Turn on the printer and follow the instructions on the front panel.

## Troubleshooting system error codes

The System Error Codes chapter contains a list of system error codes and their respective descriptions and recommended corrective actions ⇒ page 83. Try one recommended action at a time and check whether the error code has disappeared.

If you have an error code which is not documented in this Service Manual or you have an error which you cannot resolve, then report the error to the HP Response Center or the nearest HP Support Office. When reporting the error, have the following information ready:

- Model and Serial Number of the printer.
- Which firmware revision the printer is using (see note below).
- The complete error number.



**NOTE:** When reporting the System Error Code, make sure that you supply the full Error Code and the firmware version. Without this information, HP Support Personnel cannot help you.

- The Service Configuration Print.
- Which RIP the customer is using (name, version, driver version, etc).
- Which software application the customer is using (name, version, etc.).



## Performing a service test on a failed assembly

If possible, always perform a Service Test on the component/assembly that you are about to replace, just to make sure that is the component/assembly that has failed.



**NOTE:** If the test on that component/assembly passes, you should NOT replace it.

For information on the Service Tests and how to use them see the Service Tests, Utilities & Calibrations chapter ⇒ page 139.

## Performing the necessary service calibrations

Is the printer calibrated correctly after replacing a component? For information on the Service Calibrations and how to use them refer to the Service Tests, Utilities & Calibrations chapter ⇒ page 139.



**NOTE:** Remember that certain Calibrations are required even if an Assembly has been disassembled to gain access to another Assembly or Component.

## The printer does not power on

To resolve printer power-up problems, try the following:

1. Check that power is reaching the printer. An easy first check is to press the "Test" button in the three Ground Fault Interrupters: if they switch to the lower position (green) then power is reaching them but is not necessarily reaching the printer.
2. Check that the Power Switch on the BACK of the printer is in the ON position.
3. Check to see if any of the LEDs on the Power Switch are On. If any of the LEDs are On, then see "How to read the power switch LEDs" (page 46) for more information. If none of the LEDs are on, check that the hidden plug is well connected and the hidden switch is in the on (I) position.

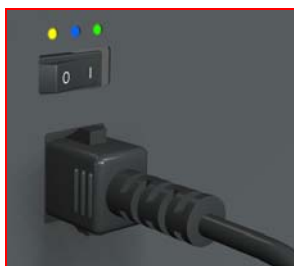


1. Hidden switch and switch pusher
2. PSU LEDs
3. Hidden power plug
4. Check the Circuit Breaker (Ground fault Interrupter) of the customer has not blown.
5. Check the Main PCA Formatter troubleshooting LEDs status. See "How to read the Formatter LEDs" (page 46) for more information

6. Check that the Front-Panel Cable is correctly connected to the Electronics Module. Also make sure that the Front-Panel cable is not damaged.
7. Replace the Power Supply Unit ⇒ page 447.

## How to read the power switch LEDs

The LEDs located above the power switch (at the rear of the printer) indicate the status of power supply to the printer.



Amber is on the Left  
Blue is in the center  
Green is on the Right

Make sure you look directly at the LEDs and not at an angle.

1. When only the **Amber LED** is On:
  - The printer has been switched off using the Power button beside the Front Panel.
  - The Power Supply Unit delivers only 5 V standby power, which is needed to restart the printer after the Power button is pressed (the Formatter starts the printer).
2. When the **Blue LED** is On: The Power Supply Unit delivers standard “ATX” power for the Electronics Module PCAs (+12 V, +5 V, -5 V, -12 V, and so on). All the functions of the Electronics Module, such as the Embedded Web Server, are fully operational.
3. When the **Green LED** is On: The Power Supply Unit delivers “analog” 24 V and 42 V power to enable printing.

If you turn on the printer at the Front Panel, and the Blue LED does not come on, there is a problem. Turn off the printer using the switch at the rear, then turn it on again using the same switch. If the Blue LED still does not come on, replace the Power Supply Unit.

If the Blue LED comes on this time, you will probably see an error reported on the Front Panel as the printer starts up. If no error is reported, but you continue to have problems when turning on the printer from the front panel, see ‘How to read the Formatter LEDs’ below.

## How to read the Formatter LEDs

The LEDs located on the Formatter can help to troubleshoot the printer. The LEDs can either be on or off; different combinations can indicate different problems.

The following image shows the three Formatter LEDs, which are numbered from the top down: number I at the top, number II in the middle, number III at the bottom.



Use the following table to interpret the LEDs and find the source of the problem. Remember that you should read these LEDs when you press the Power button.

Some combinations may require you to replace two or more components. In this case, always replace one component at a time. Test the printer to see if the problem has disappeared (check the LEDs again). If the same LED sequence continues, replace the next component indicated in the table.

Power amber LED	Power blue LED	Power green LED	Format- ter I LED	Format- ter II LED	Format- ter III LED	Front panel status	Problem and recommendations
Off	Off	Off	Off	Off	Off	Off	The printer is not receiving electrical power. See "The printer does not power on" on page 45.
On	Off	Off	Off	Off	Off	Off	<p>The Power key fails to turn on the printer.</p> <ol style="list-style-type: none"> <li>1. Turn off the printer using the power switch at the back of the printer. Wait for 5 seconds and turn the printer back on using the same switch.</li> <li>2. If the problem persists, replace the Front Panel.</li> </ol>
Off	On	Off	Off	Off	Off	Off	<p>There is a power failure in the Formatter.</p> <ol style="list-style-type: none"> <li>1. Reseat the power connector in the Formatter.</li> <li>2. Turn the printer on again.</li> <li>3. If the problem persists, replace the PSU.</li> <li>4. If the problem persists, or if the boot process starts, replace the Formatter.</li> </ol>

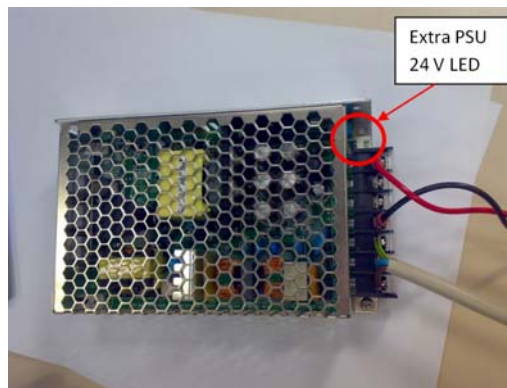
Power amber LED	Power blue LED	Power green LED	Format- ter I LED	Format- ter II LED	Format- ter III LED	Front panel status	Problem and recommendations
Off	On	Off	On	Off	Off	Off	<p>The Formatter BIOS is unable to start. If an external Memory Module is installed:</p> <ol style="list-style-type: none"> <li>1. Reseat the Memory Module.</li> <li>2. Remove the Memory Module and restart the printer.</li> <li>3. If the printer is able to start normally, replace the Memory Module. If not, replace the Formatter.</li> </ol> <p>If an external Memory Module is not installed, replace the Formatter.</p>
Off	On	Off	Flashing	Off	Off	Off	<p>The Formatter BIOS cannot detect the Hard Disk Drive.</p> <ol style="list-style-type: none"> <li>1. Reseat the Hard Disk Drive connectors.</li> <li>2. Replace the Hard Disk Drive.</li> </ol>
Off	On	Off	On	Flashing	Off	Off	<p>The operating system has experienced a fatal error. Replace the Hard Disk Drive.</p>
Off	On	Off	On	On	Off	Off	<p>There is a communication failure in the Formatter.</p> <ol style="list-style-type: none"> <li>1. Reseat the Formatter connections to all other components.</li> <li>2. Replace the Formatter.</li> </ol>
Off	On	Off	On	On	Flashing	Off	<p>There is an initialization failure in the Formatter. Replace the Formatter.</p>
Off	On	Off	On	On	On	Off	<p>There is an initialization failure in the Front Panel.</p> <ol style="list-style-type: none"> <li>1. Reseat the Front Panel cable.</li> <li>2. Replace the Front Panel.</li> </ol>

## How to read other LEDs

The printer electronics allow for many self-checks that will result in a definite system error when something goes wrong. Therefore, it is not so important to know what the LEDs in other parts of the electronics mean. However, they are explained here for reference.

## Extra PSU 24 V

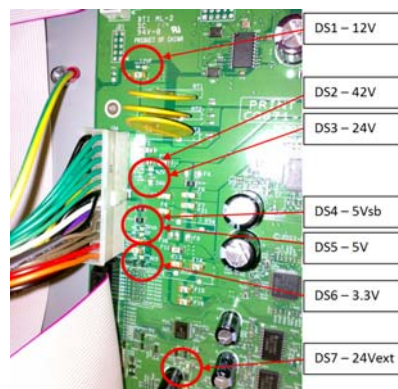
There is only one LED in the extra PSU. This LED indicates that the output 24 V voltage is being delivered and it is on in normal operation.



If the LED is OFF, there could be a problem in the connections with the Power Supply Unit, in the Extra PSU 24 V itself or in the Power Supply Unit.

## PrintMech PCA

The LEDs in the PrintMech PCA are the following.

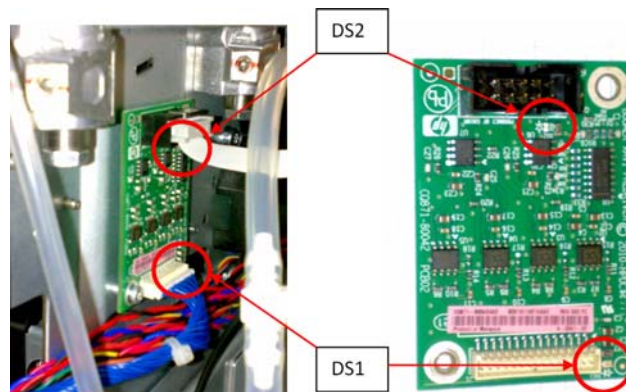


In normal operation all LEDs will be on.

If any of them are off, power from the corresponding voltage line is not reaching the PrintMech PCA. There could be a problem with the cable connections from the other electronic boards to the PrintMech PCA, in the Power Supply Unit, or in the PrintMech PCA itself. If none of these resolves the problem, you can also replace the cables.

## Pre-Driver ISS PCA

The Pre-Driver ISS PCA is a new PCA connecting the PrintMech PCA to the Top ISS PCA. It has two LEDs.

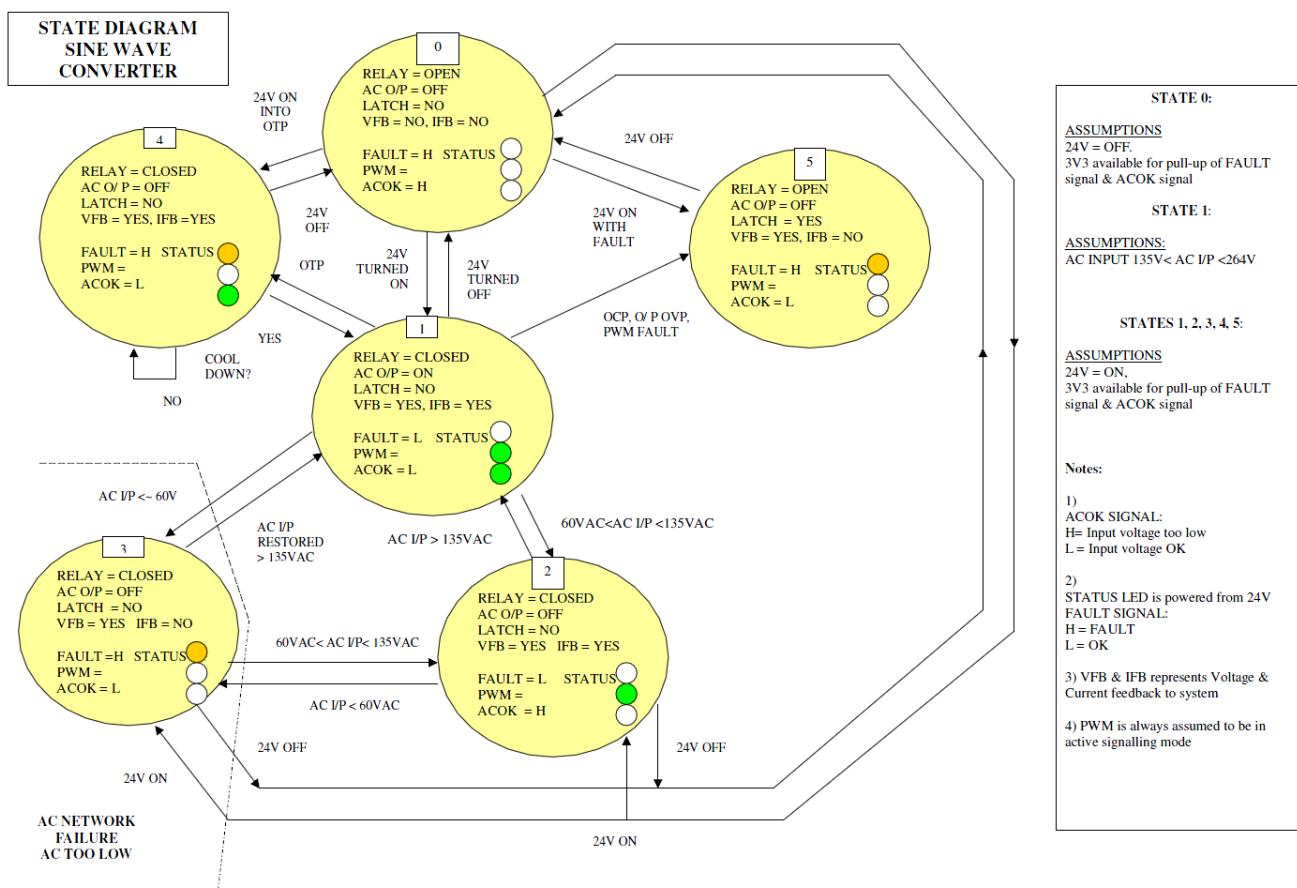


DS1 (Green) – ON = OK. Pre-Driver and PrintMech are connected and 5 V are present.

DS1 (Green) – OFF = FAILURE. Pre-Driver and PrintMech are not connected and 5 V are present. The problem could be in the connections to the PrintMech PCA, in the PrintMech PCA, or in the Pre-Driver PCA. If none of these resolves the problem, you can also replace the cables from PrintMech PCA to Pre-Driver PCA.

DS2 (Red) – ON = FAILURE. Top ISS PCA is not connected to Pre-driver PCA or an overpressure is detected in the ISS PCA. There could be a problem with the connection from the Pre-Driver PCA to the ISS PCA, in the Pre-Driver PCA, or in the ISS PCA. If none of these resolves the problem, you can also replace the cables from Pre-Driver PCA to ISS PCA.

# Heater control modules (sine-wave converters)



## State explanation

0 = OFF state

- Fault LED = Off
- PWM LED = Off
- AC OK LED = Off

1 = ON state: input voltage within range

- Fault LED = Off
- PWM LED = On
- AC OK LED = On

2 = Input voltage > 60 V AC and < 135 V AC (approximately)

- Fault LED = Off
- PWM LED = On
- AC OK LED = Off

3 = Input voltage < 60 V AC (approximately)

- Fault LED = On
- PWM LED = Off

- AC OK LED = Off
- 4 = Over Temperature Protection (OTP) state
- Fault LED = On
  - PWM LED = Off
  - AC OK LED = On
- 5 = Latched protection state
- Fault LED = On
  - PWM LED = Off
  - AC OK LED = Off

## Troubleshooting substrate jams or printhead crashes

The failure modes “substrate jam” and “head crash” are grouped together because in many cases a substrate jam causes the substrate to lift up into the Carriage path and cause a Printhead crash, thus causing many substrate jam failures to be detected as head crashes.

See the *User’s Guide* for instructions on how to respond to a substrate jam. Here are some additional tips.

- Always clear substrate jams from the front of the printer.
- Before loading, check the leading edge of the substrate for damage or excessive curling.
- If the substrate is self-adhesive, check that the backing (the liner) has not become detached. This is quite common in Cast Self-Adhesive Vinyl printing materials.
- Check that the Add New Substrate procedure in the *User’s Guide* has been correctly followed for the loaded substrate.
- Try loading the substrate manually.
- Try using the edge holders provided with the printer.

## The printer continuously rejects printheads

To resolve printhead rejection problems, do the following:

1. Clean the flex contacts on the Printhead and in the Carriage Assembly using the Carriage Interconnect Wiper (see the *User’s Guide*) and try again.
2. Swap the failed Printhead with a Printhead that is known to be working, and check if the error follows the printhead:
  - If the error follows the Printhead try to recover the Printhead by cleaning the contact again, if that failed, replace the Printhead.
  - If the error does not follow the Printhead, clean again the Carriage Interconnect and check for damage, check the Carriage Interconnect if appropriate.
3. If all the Printheads are rejected (the status message on the Front Panel does not show “OK” for all the Printheads), perform the Electronic Systems Test ⇒ page 143.



## The cutter does not function

Under certain circumstances the cutter will not cut the substrate. This is mainly when the take-up reel is enabled, but there are other circumstances when the cutter will not cut.

- If the settings for the RIP have disabled the Cutter, but the customer has set the Front Panel settings to cut, the customer could expect it to cut at the end of the job.
- If the customer presses the 'Form Feed and Cut' option, but the Cutter is disabled on the Front Panel.
- If the substrate being printed on cannot be physically cut because it is too thick.

The customer can enable and disable the cutter from the Front Panel (but remember this will be overridden by the RIP). To enable the cutter from the Front Panel; select the substrate icon, then Substrate handling options > Enable/Disable.

## Troubleshooting Carriage shutdowns

### Substrate path

To resolve substrate path problems, proceed as follows:

1. Open the Window and check for any visible obstacles restricting the movement of the Drive Roller. Make sure that the mylar is not damaged. If there is a substrate jam, see the instructions in the *User's Guide*; remember to clear substrate jams from the front of the printer. The Solve Substrate Jam service test may help you ⇒ page 152.
2. If this shutdown happens at the end of a roll of substrate, it could be because the substrate is stuck firmly to the roll. Lift the Pinchwheels (using the Media Load Handles) and pull the substrate clear.
3. Replace spindle if broken.
4. Replace the Media-Axis Motor ⇒ page 420.

## How to troubleshoot the 86:01 system error

### Possible causes of a system error 86:01

The HP Designjet L28500 will display a System Error 86:01 when there is a shutdown of the scan axis motor (the carriage movement motor). A shutdown will occur when the motor cannot move the carriage or there is no feedback from the encoder sensor by the time it has reached its maximum PWM (and shuts down to prevent further issues).

There are several different reasons that could lead to a shutdown:

- There is a physical obstruction in the path of the carriage (such as a substrate jam).
- Carriage stopper is not installed or is damaged.
- The friction between the carriage and the slider rod is too high and the carriage cannot begin moving before the motor reaches its maximum PWM.
- The belt is not correctly transmitting motion to the carriage, which requires a higher motor PWM to start it moving. This may occur if the belt is damaged, not correctly positioned or there is insufficient tension.
- The ink tubes and trailing cable are not in the correct position. If this happens the tubes could increase friction with the shelf during the carriage motion.
- The encoder strip or encoder sensor have failed, so the actual movement of the carriage is not detected by the printer, causing an 86:01.

- The motor is defective and cannot generate enough motion or shuts down too early.
- One of the electronic boards or connections processing the carriage movement signal is defective, so the printer cannot detect the actual movement, and causing an 86:01.

From the list above, it is possible to establish two main groups of causes for a system error 86:01:

- Mechanical: When the motors and electronics are working as expected, but still the carriage does not move due to an obstacle or too high a friction.
- Electrical (or electromechanical): When the error is caused by one of the motors or electronic components of the scan axis not working correctly (the scan axis motor, the encoder sensor, the carriage PCA, etc.).

The first step in troubleshooting a 86:01 system error is to determine to which of these two groups it belongs to, since the troubleshooting process for both groups is significantly different.

### Determining the type of system error 86:01

The following symptoms usually indicate that the system error 86:01 is caused by mechanical reasons:

- The system error is intermittent and occurs during printing.
- The performance of the printer is degrading (i.e. the system error is displayed increasingly frequent).
- The system error is preceded by a mechanical noise.

If any of the previous conditions are occurring in the printer, apply the troubleshooting steps for mechanical 86:01 system errors.

### Scan axis test

In case none of the above symptoms is occurring in the printer, perform the Scan axis test, refer to page 159.

Use the scan axis test to determine if the root cause of the system error 86:01 is mechanical or electrical. Once you determine the type of 86:01, apply the troubleshooting steps described on page 55 (mechanical) or page 56 (electrical).

Following you have a summary of the steps of the Scan Axis test on how to interpret the results:

- Steps 1-4. Check the carriage PCA.
  - If the results are correct continue the Scan axis test.
  - If the results are not correct (the printer hangs, or the green LED is not ON or a system error is displayed), the error is electrical, refer to page 56.
- Steps 5-8. Initialize scan axis, prepare PWM test, short carriage movements.
  - If the results are correct continue the Scan axis test
  - If the results are not correct (the printer hangs or a system error is displayed) the error is electrical, refer to page 56.
- Steps 9-13. Short carriage movements, PWM test.
  - If the carriage physically moves but the printer does not detect it, the error is Electrical, refer to page 56.
  - If the carriage does not physically move: check if the motor can move when not attached to the carriage (to do so, you can reboot the printer in diagnostics boot mode, loosen the tensioner and remove the belt from the motor pulley; repeat the Scan Axis test once more and check if the pulley rotates or not):
    - If the motor does not move, the error is electrical, refer to page 56.

- If the motor moves when not attached to the carriage the error is Mechanical, refer to page 55.
- If the carriage moves the error is mechanical, refer to page 55. Take note of the values of the PWM test. After performing the actions described below, the average PWM should show a lower value .

## How to troubleshoot mechanical 86:01 system errors

When the printer displays a system error 86:01 due to mechanical reasons, it is typically due to the belt not correctly transmitting the movement of the motor to the carriage or the carriage having too high a friction with the slider rod (which can be due to aerosol or dust accumulation). The procedure to troubleshoot and fix this type of issues includes increasing the working margin in those areas that could be contributing to high friction or loss of belt traction. Perform the following troubleshooting steps:

### 1. Check for mechanical interferences or encoder strip defects

Check that the error is not caused by a mechanical interference:

- The carriage stoppers not correctly positioned
- A broken carriage datum
- An object in the carriage path

If you find any of these issues, correct it by correctly installing the stopper, removing the obstacle or replacing the carriage.

The error can also be caused by a damaged or dirty encoder strip:

- Damaged: the small windows are broken. Replace the encoder strip.
- Dirty: ink/oil stains that block these small windows. *Gently* clean the ink/oil stains with a lint-free cloth damped with a solvent.



**NOTE:** Do not use Ethanol in California or other areas that restrict the volatile organic compound (VOC) content of cleaning solvents. A regulatory compliant alternate should be used.

- The cleansing must be very gentle in order not to break these small windows.

Remember that the metallic encoder strip is not affected by aerosol. If none of these issues is detected, proceed to Procedure 2.

### 2. Correct potential causes of high friction or loss of belt traction

1. Clean the slider rod as described in the *User's Guide* in order to remove remains of dust or aerosol.
2. Lubricate the scan axis as described in the *User's Guide*.
3. Replace the oiler (CQ871-67086 Front Rod Oiler Right Assembly 104 SERV).
4. Check the belt, and replace belt and tensioner if worn or torn.

If these steps correct the issue, stop troubleshooting here. Only if the printer continues showing issues, move to Procedure 3.

### 3. Clean or replace the carriage

If the printer is still showing issues at this point, it is possible that the carriage bushings are dirty or that they are worn out, affecting the friction between the carriage and the rod. Disassemble the carriage and check the bushings. If they are dirty, try to clean them and lubricate them. If the problem persists, replace the carriage (CQ871-67085 Carriage w/o PCA, SOL, LS-104 SERV).

### 4. Increase cleaning and lubrication frequency

For heavy users (> 1500 m<sup>2</sup>/month) or in dusty or dirty environments, frequent cleaning and lubrication are needed. Advise the customer to clean and lubricate, following the instructions in the *User's Guide*, at least once a week even if the printer does not ask for it.

## How to troubleshoot electrical 86:01 system errors

If the root cause of the system error 86:01 is electrical, the troubleshooting process consists of determining and replacing which electronic component is failing.

The "Scan axis test" described in the text above will point the following steps or the service part to be replaced at each step of the diagnosis. Please follow the guidelines for part replacement.

Here is a list of the most important electrical systems involved in the Scan Axis movement:

- **Scan Axis motor:** Provides the movement (CQ871-67071 Scan Axis Motor 104 SERV).
- **PrintMech PCA:** Provides the power to the motor, following instructions from the Engine PCA (CQ871-67030 Printmech PCA 104 SERV).
- **Encoder Strip and Sensor:** Acquires the signal that provides the position and speed of the carriage (CQ871-67012 Encoder strip and sensor 104 SERV). Sometimes the Encoder strip sensor is not working due to a defective line sensor, if the problem is not fixed by replacing the encoder strip and sensor, then change also the line sensor.
- **Carriage PCA:** Provides power to the sensor, processes and passes the encoder signal to the trailing cable (CQ109-67034 Carriage PCA SERV).
- **Trailing Cable:** Transfers the processed encoder signal to the Engine PCA (CQ871-67044 SRK and TC 104 SERV).
- **Engine PCA:** Processes the encoder signal (servo), takes decisions, and sends instructions to the Printmech PCA (CQ871-67002 Engine PCA 104 SERV).

All connections among these systems should be checked by disconnecting and reconnecting them to make sure they are good, especially the Trailing Cable connections.

## Troubleshooting the drying and curing heaters

Use this procedure if the resistors have failed. For this procedure you need a voltage-current tester like the one shown in the pictures to measure resistances. If the printer has been printing, allow enough time (about an hour) to cool down so that the resistance values will be correct when they are measured.

**Important safety notice:** Disconnect the printer from any electrical power source before opening the electronics cover and checking these circuits.

### Troubleshooting the drying heaters

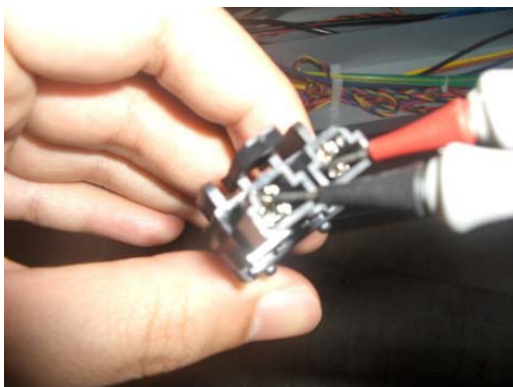
1. The first check consists of running the Monitoring Sine-waves and Resistances diagnostic test ⇒ page 167. For this purpose input voltage is needed.
2. If any resistor is defective (current too high/low or resistance too low/high, respectively), exchange dryer power connectors between upper and middle converters (cables labeled H1 and H2).  
  
Run the Monitoring Sine-waves and Resistances diagnostic test again and check whether the defect has moved to the other converter. If so, it means there is a problem from the connector onwards, towards the resistor. Otherwise, it means there is a problem in the converter itself.
3. If the problem is not in the converter, remove the Back Cover to gain access to the heaters' connectors ⇒ page 302.

4. Disconnect both dryer power connectors, which are the upper (labeled H1) and the middle (labeled H2) ones.

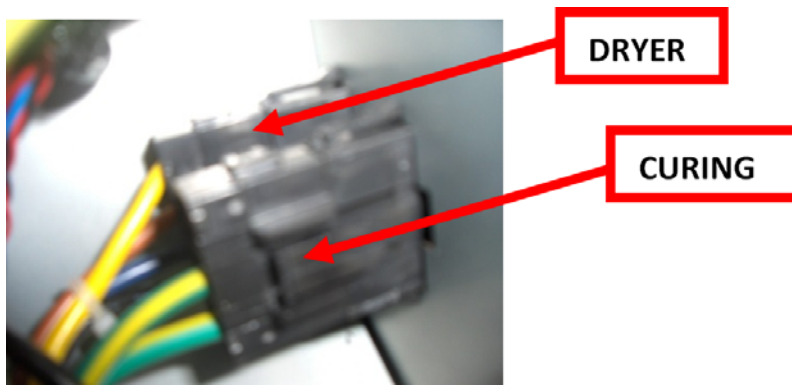


**NOTE:** The colors and labels of the cables may be slightly different in the final product.

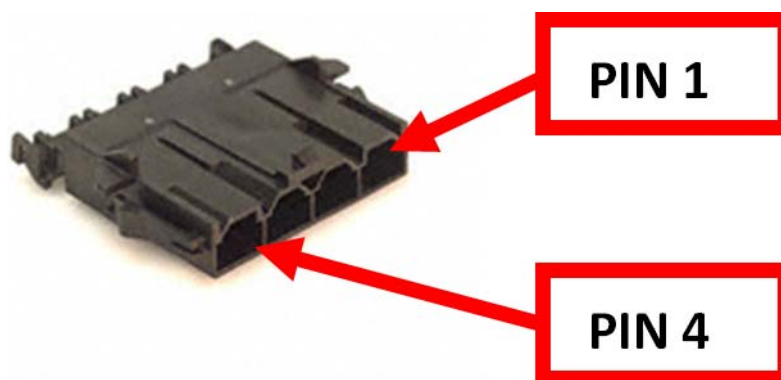
5. Use a voltage current tester to measure between pins 1 and 2 on both connectors. As dryer resistors are physically the same, expected resistance values are the same.



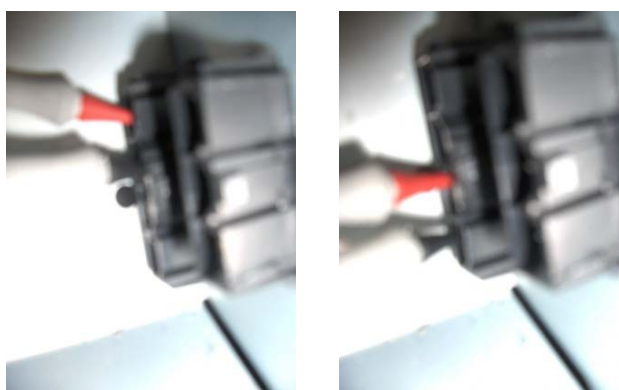
6. Check that the values are within specification:  $10.5 \text{ ohm} \pm 0.5 \text{ ohm}$ .
7. Remove the Left Cover to gain access to the cable plate  $\Rightarrow$  page 293. Then disconnect the dryer power cables.



8. The dryer connector has 4 female pins. The illustration below shows the numbering of the connector pins looking from the connection side and holding the clip down.



9. Use a voltage tester to measure between pins 1 and 2 and between pins 3 and 4. As dryer resistors are physically the same, expected resistance values are the same.



10. Check that the values are within specification:  $10.5 \text{ ohm} \pm 0.5 \text{ ohm}$ .

If all the resistances are within specification, the fault is in the path from the Heater Controllers to the connectors in the arc. It could be due to a failed cable or a wrong contact between pins 1-2 or 3-4 when measuring.

1. Check the connectors and cables are not damaged, disconnect and reconnect them, test the pins again.
2. Replace the Dryer Heater  $\Rightarrow$  page 484.
3. Replace the left-side cabling (Cable Plate Bundle).

## Troubleshooting the curing heaters

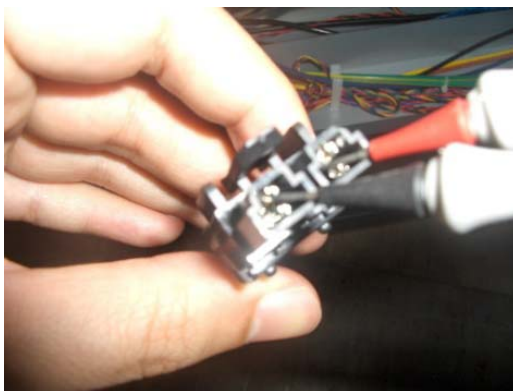
1. The first check consists of running the Monitoring Sine-waves and Resistances diagnostic test  $\Rightarrow$  page 167. For this purpose input voltage is needed.
2. If any resistor is defective (current too high/low or resistance too low/high, respectively), exchange the curing power connector (labeled H3) with any other converter.  
  
Run the Monitoring Sine-waves and Resistances diagnostic test again and check whether the defect has moved to the other converter. If so, it means there is a problem from the connector onwards, towards the resistor. Otherwise, it means there is a problem in the converter itself.
3. If the problem is not in the converter, remove the Back Cover to gain access to the heaters' connectors  $\Rightarrow$  page 302.

4. Disconnect the curing power connector, which is the bottom one (labeled H3).

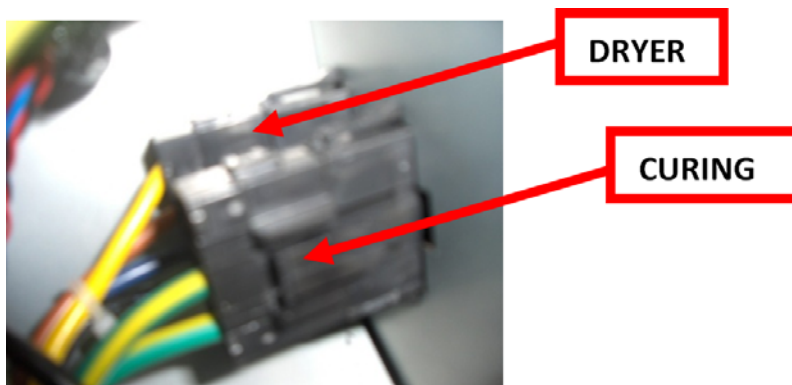


**NOTE:** The colors and labels of the cables may be slightly different in the final product.

5. Use a voltage tester to measure between pins 1 and 2. Curing resistances are connected in parallel, so the failing resistor can be identified from the value read.

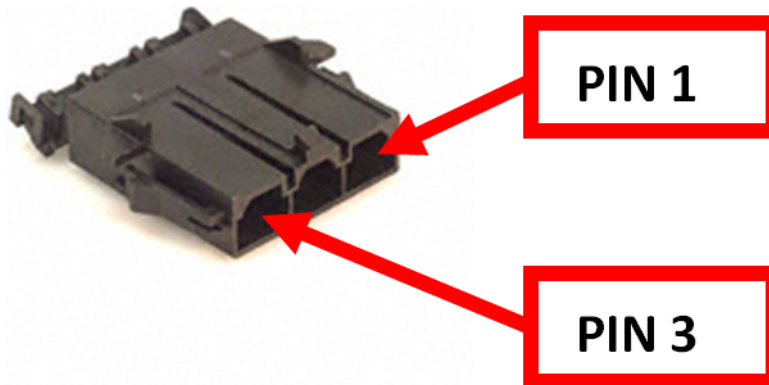


6. Check that the values are within specification. Both resistors should measure  $8.2 \text{ ohm} \pm 0.4 \text{ ohm}$ ; the overdrive (front) resistor should be  $12.9 \text{ ohm} \pm 0.6 \text{ ohm}$ , and the output (rear) resistor  $22.2 \text{ ohm} \pm 1.1 \text{ ohm}$ .
7. Remove the Left Cover to gain access to the cable plate  $\Rightarrow$  page 293. Then disconnect the curing power cables.





8. The curing connector has 3 female pins. The illustration below shows the numbering of the connector pins looking from the connection side and holding the clip down.



9. Use a voltage tester to measure between the pins 1 and 2.



10. Check that the values are within specification. Both resistors should measure  $8.2 \text{ ohm} \pm 0.4 \text{ ohm}$ ; the overdrive (front) resistor should be  $12.9 \text{ ohm} \pm 0.6 \text{ ohm}$ , and the output (rear) resistor  $22.2 \text{ ohm} \pm 1.1 \text{ ohm}$ .

If all the resistances are within specification, the fault is in the path from the Heater Controllers to the connectors in the arc. It could be due to a failed cable or a wrong contact between pins 1-2 when measuring.

1. Check that the connectors and cables are not damaged, disconnect and reconnect them, test the pins again.
2. Replace the defective curing resistor.
3. Replace the left-side cabling (Cable Plate Bundle).

## Troubleshooting sensors

### Cover Sensors

To resolve cover sensor problems, try the following:

1. Perform the Sensors Test  $\Rightarrow$  page 168.
2. Check if the cable for the faulty sensor is not damaged and is connected correctly.
3. Replace the faulty Sensor.



## The Line Sensor

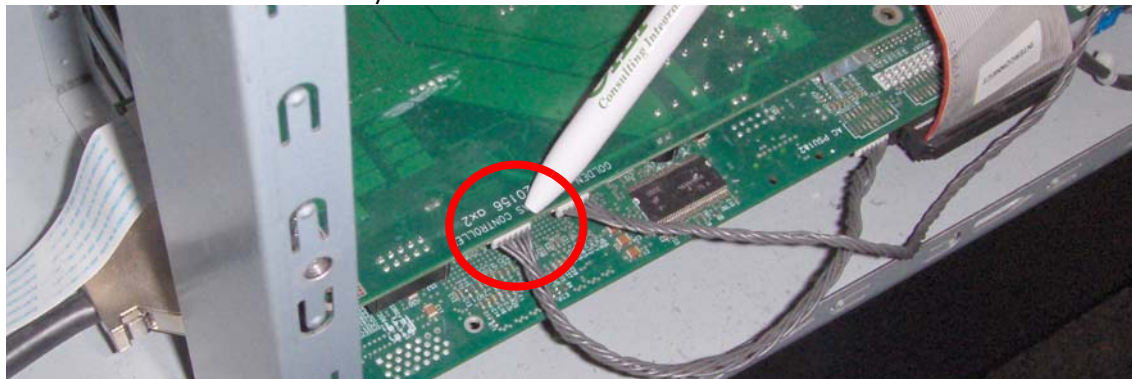
If the line sensor cannot detect the substrate, try the following:

1. Check the type of substrate that is being used since the Line sensor may have problems detecting transparent substrate or some types of Non-HP substrate. Try loading white HP substrate in to the printer and check if the Line sensor detects it.
2. Excessive ink deposits on the Platen surface can fool the sensor by reflecting the light. Clean the Print Platen.
3. The Line Sensor is not calibrated correctly. Perform the Line Sensor Calibration ⇒ page 164.
4. The Line Sensor is damaged or faulty. Replace the Line Sensor ⇒ page 463.

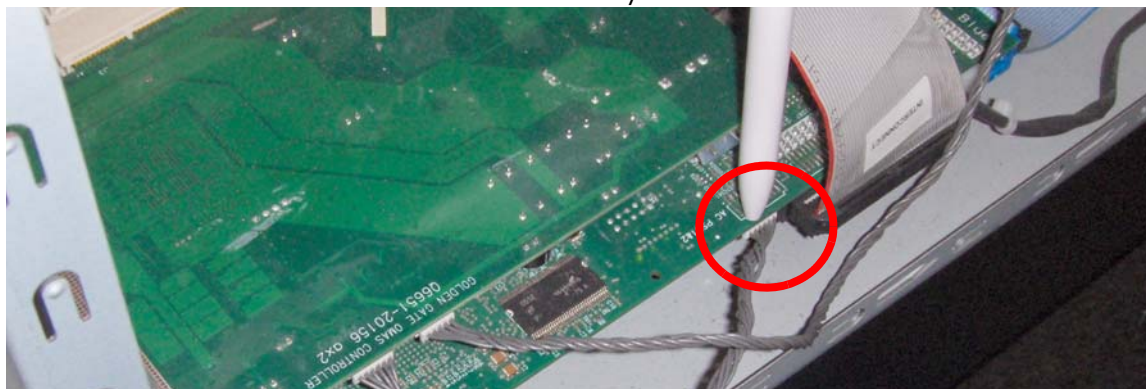
## OMAS

A problem with the OMAS board may cause the printer to display a **50.2:10 service error**, this can be fixed by checking the following connections:

1. Check the CAN Cable is correctly connected.

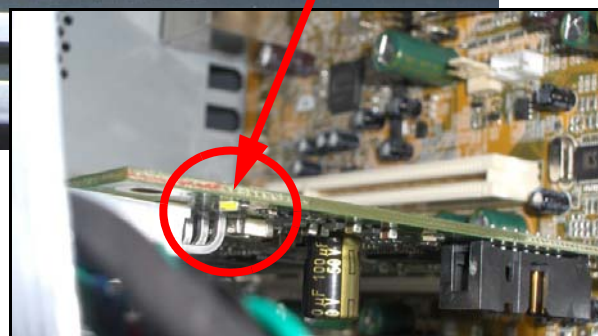
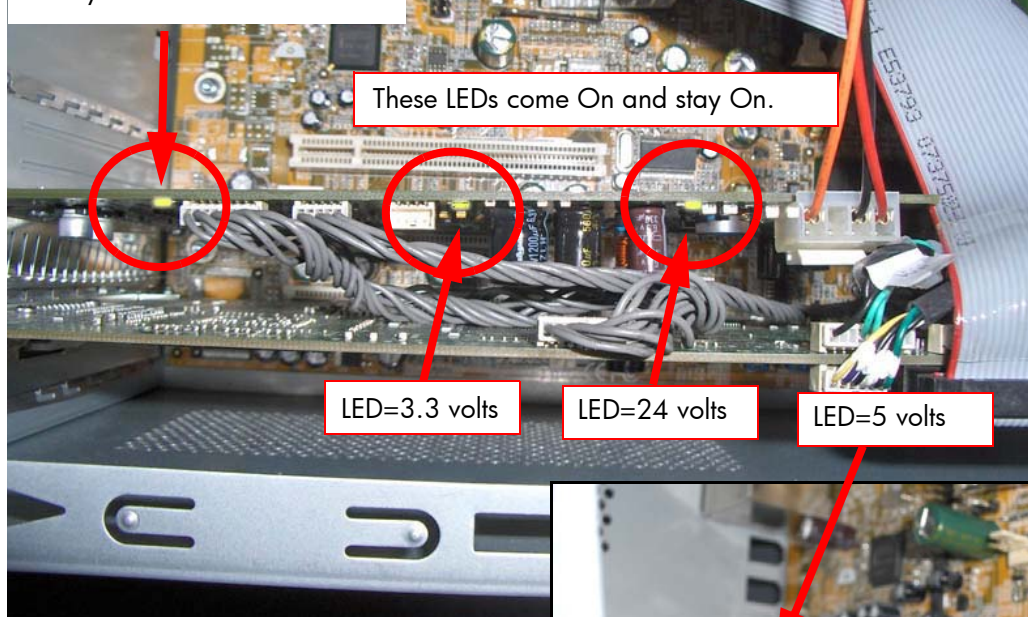


2. Check the other end of the CAN cable is also correctly connected



### 3. Check the LEDs under the OMAS board.

This LED only comes on for the first 20 seconds after the printer is turned On. When the firmware has successfully loaded into the memory the LED will switch OFF.



## How to troubleshoot the 79:04 system error

### Introduction

The system error 79:04 is a generic firmware error, equivalent to a blue screen in Windows. It's the system error that the printer will display when an unknown exception occurs that cannot be linked to any specific printer subsystem.

Since this is a generic error, it has many possible causes. This section covers the most likely causes of a system error 79:04 and recommends the most efficient troubleshooting steps to resolve customer issues.

One important point to mention is that, although 79:04 system errors can be caused by a hardware malfunction, the vast majority of 79:04 system errors caused by software or firmware issues. In these cases the issue can be solved only by determining the root cause and implementing a solution. The solution can usually be applied by correctly configuring a selection, updating the printer's firmware or software, or by fixing an error in the code.

### Possible causes

Since the 79:04 system error is a generic error, it has many possible causes. The majority can be grouped, however, into the following groups.

## Job-related SE 79:04

A specific print job that is not correctly formatted for the printer or that is not correctly processed by it can trigger a 79:04 system error.

The incorrect format or processing can come from two sources:

- Incorrect commands in the job itself
- Incorrect job settings

## Possible symptoms

A 79:04 error caused by a print job always has the same symptoms:

1. The job is received by the printer and starts to process.
2. In the middle of the processing, the printer stops and displays 79:04.
3. The printer restarts normally.
4. If the same job is sent again, it always produces a 79:04 system error.

This type of 79:04 system error is normally caused by jobs that have been generated by third-party applications (RIPs, third-party drivers, files exported by an application to PS, PDF, HP-GL/2, RTL, ... or any other format supported by the printer). The HP Designjet L28500 processes only halftone PCL3GUI files. Thus, there is little chance that this type of 79:04 system error will appear.

## Solutions and workarounds

When a job consistently generates a 79:04 system error, it is either because of an issue in the printer's firmware or because of a defect in the job itself. In order to identify the cause and find out a solution, these issues should always be immediately escalated to the GBU through the GCC.

However, there are some workarounds and short-term solutions that can be tested in order to get the customer up and running in the shortest possible time:

1. Send the job using a variety of different settings, or maybe using a different media preset, in case the original preset that generated the job is corrupted. The issue is often caused by a combination of the job contents combined with some specific setting(s).
2. If step 1 did not resolve the issue, try updating the firmware, using a USB flash disk if the printer does not start up, or the Embedded Web Server if it does.

## Data-related SE 79:04

HP Designjet printers have hard disks and non-volatile memories that contain databases and files that can be modified with user data. Some examples include:

- The database that stores the printer settings
- The database that stores accounting information

Some of this information is accessed by the printer at start-up, and some accessed as needed. If any of it contains characters or values that cannot be correctly processed by the printer, a 79:04 system error may occur.

## Possible symptoms

There are two different types of symptoms for data-related 79:04 system errors:

1. When corrupt data are accessed during start-up:
  - a. The printer displays a 79:04 error during the start-up process.
  - b. Switching the printer off and on again will not solve the issue. The printer continues displaying the 79:04 error until the corrupt data have been cleared through a service procedure.

2. When corrupt data are accessed during normal printer operation:
  - a. The printer starts up normally.
  - b. When the data are accessed (for example while printing, or when changing some settings), the printer displays a 79:04 system error.
  - c. The printer can restart normally.
  - d. When the data are accessed again (typically, under the same conditions as in step “b”), the 79:04 system error is displayed again.

### Solutions and workarounds

Many times, data-related 79:04 errors are resolved by means of hardware intervention. Since data are stored in physical components (RAM, EEROM and Hard Disk), replacing these components with new ones that are empty usually solves the problem. However, there are quicker and more effective solutions to this type of error:

1. Clear all information that has been introduced by the user using the standard tools available in the printer:
  - a. Reset to factory defaults to clear the user’s configurations and calibrations.
  - b. Delete any non-standard substrate family in the printer, and any that have been installed as OMES profiles through the EWS.
2. If step 1 did not resolve the issue, try updating the firmware, using a USB flash disk if the printer does not start up, or the Embedded Web Server if it does.
3. If step 2 did not resolve the issue, you can use Service Tools to clear additional information that could be causing the issue:
  - a. Start the printer in Diagnostics Boot Mode.
  - b. Perform an EEROM reset.
4. If step 3 did not resolve the issue, it is possible to clear the information on the Hard Disk and the different EEROMs completely, leaving them in an equivalent state to a new part:
  - a. Access the Service Utilities Menu.
  - b. Select Disk Recovery.
  - c. Update the firmware in the printer to the latest official version as soon as the printer has restarted.

### Important note:

It is possible that the corrupt data came to be in the printer as a consequence of some activity in the customer’s workflow; in which case, it is possible that the issue will recur. In this situation, it is very important to understand the sequence of events in the customer’s workflow that led to the error occurring. Once the error can be traced in the customer’s workflow, escalate the issue to the GBU through the GCC. It may be possible to modify the printer’s firmware to avoid the issue in future.

### Network-related SE 79:04

Most HP Designjet printers have built-in networking capabilities. Network settings can be made manually, but in the majority of cases they are obtained automatically from the printer. These settings include many different fields, such as IP address and subnet mask, available gateways, and host and domain names.

Issues in the firmware can cause a value in one of these fields to be interpreted incorrectly, and this can lead to a 79:04 system error.

### Symptoms

There is no single set of symptoms that can absolutely pinpoint a network-related 79:04 system error. However, the following guidelines can be applied:

- It can happen at start-up or when accessing the Network Configuration section of the Front Panel.
- In both cases, repeating the action with the LAN cable disconnected does not cause the 79:04 to occur.

### Solutions and workarounds

In most cases, this type of error is caused by an issue in the printer's firmware. As soon as the conditions in which the issue happens are understood, it should be escalated to the GBU through the GCC.

At the same time, the following short-term solutions and workarounds can help the customer to get up and running in the shortest possible time:

1. Disconnect the network cable so that you can start the printer and change network settings.
2. In the Network Configuration menu in the Front Panel, disable any protocols that you are not using, including IPv6, SNMP, and WebServices.
3. If step 2 does not work, try manual configuration:
  - a. Enter the correct subnet mask and an IP address in the valid range.
  - b. In the GateWay field, set the same value as in the IP address field.
  - c. Do not set a host name or a domain name.
4. If step 3 did not resolve the issue, try updating the firmware, using a USB flash disk if the printer does not start up, or the Embedded Web Server if it does.

### User-interaction-related SE 79:04

In some cases the printer may not react as expected when a certain set of conditions coincide. In these cases, if the printer doesn't know how to react, it may simply display a 79:04 system error and force a restart. Some examples (not real) may help to illustrate this:

- A job is cancelled at the "Finishing print" stage.
- The Window is opened while the printer is checking the printheads.

These errors are likely to happen only in very specific corner cases that have not been identified during the development or the qualification of the printer, so they do not usually impact the customer severely, as they do not affect normal workflows.

### Symptoms

The symptoms here are as numerous as the number of possible interactions between the user and the printer. In any case, it's possible to identify the steps that caused the error to occur and avoid them, as the steps will always be the same with no variance.

**Important:** A major element in determining the error is what state the printer was in at the time the error was displayed. For example, a user action while the printer is drying may produce an error, whereas the same action while the printer is doing something else (or is idle) may not produce any error.

### Solutions and workarounds

First identify the steps that caused the error. Then proceed as follows:

1. Escalate the issue to the GBU through the GCC in order to have it corrected in the firmware.
2. Recommend to customers that they try to avoid those steps in order to avoid the error.
3. If the conditions that cause the error are in the customer's regular workflow, try to identify a different way of achieving the same result.



## Random SE 79:04: Concurrency issues and memory leaks

Some 79:04 errors can happen randomly when the printer is being heavily used. However, it's impossible to find a single set of conditions that reproduce the problem. It just happens from time to time, without a defined pattern.

These random 79:04 errors can have two different types of root causes:

- **Memory leaks:** Before a program is executed, it allocates the memory it will need. After the execution is complete, the allocated memory is freed to be used by other programs. If the allocation or the release of the memory are not correctly programmed, every time the program is executed some memory will be incorrectly labeled (either as used or as free). This is known as a memory leak. When a program with a memory leak is executed repeatedly, more and more memory becomes unavailable to other programs (since it is not properly freed). When the leak becomes too big, the printer is left out of memory to execute new processes and a 79:04 is triggered.
- **Concurrency issues:** There are certain resources that can be accessed by multiple programs or by multiple executions of the same program (known as multiple threads). Access to these resources must be correctly controlled to prevent unexpected behavior. Issues caused by an incorrect control of these resources are concurrency issues.

### Symptoms

This type of 79:04 error always occurs in heavy load conditions, so the symptoms will always follow this pattern:

- A printer that is being heavily used (printing a project or in a reprographics environment) produces 79:04 errors randomly, forcing the user to restart.
- After restarting, the printer can be used without any issues for an extended period of time; but, if the workload is consistently high, a random error will occur again.
- The error can never be associated with a specific file. The file that was being printed when the error occurred the last time can be printed without issues after restart. And a file that has been printed without issues several times can trigger the error in the future.
- The error is very dependant on the customer's workflow. The most common user workflows have been extensively tested both by HP and by our beta sites, so random 79:04 issues are highly unlikely in these cases. These random issues tend to occur in very specific corner cases, and cannot be reproduced unless the exact conditions of the workflow are replicated.

### Workarounds and solutions

Random 79:04 errors are, by far, the most complex ones to diagnose and to fix. The only solutions available in these cases are:

1. Identify the root cause (either in the files or in the firmware) and fix it in the code, which requires the intervention of the GBU.
2. Test any options available to modify the customer's workflow and see if any combination of them solves the issue.

In both cases, a profound understanding of the customer's workflow is necessary. In particular, the information that is needed is:

- Printer front-panel settings
- The RIP and its version number, the driver and its version number
- The media preset
- The application program, if any
- Some sample files that are representative of what the customer is using
- The operating system

- The method of connection to the printer
- A description of the normal flow when the issue occurs and the typical frequency of occurrence: for example, once every hour when sending multiple several files without a pause, each of them with multiple copies

With this information, the environment can be replicated in order to try to find workarounds. This is also the information that will be needed at the GBU to investigate and fix the root cause of this issue once it is escalated.

## Hardware-related SE 79:04

Hardware is, by far, the least likely cause of a 79:04 system error. Replacing hardware components does not normally fix the issue and increases the total time spent in finding a workable solution.

In some cases, a failure in a component in the printer's electronics may cause a 79:04 system error, since the printer's electronics are involved in the execution of the firmware and the processing of jobs. It should be noted, however, that hardware failures in the electronics tend to produce specific system errors that point directly to the component that is failing.

Here are some specific hardware failures that could cause a 79:04 error.

- Defective clusters in the Hard Disk Drive. If these clusters are used to execute the firmware or to process a job, they may produce a 79:04 error. It should be noted, however, that most 79:04 errors that are resolved by a Hard Disk Drive replacement are, in fact, data-related 79:04 errors that could have been solved more efficiently and quickly by following the steps in Section 3.
- Defective memory segments. If the RAM memory has some defective segments, a 79:04 may occur when these segments are used.
- Intermittent defects in the electronic components that are involved in the processing of a job: Carriage PCA, Trailing Cable, Formatter, and PrintMech. This is a highly unlikely cause, since defects in these components will produce subsystem-specific errors.

## Symptoms

There is no single set of symptoms behind hardware-related 79:04 system errors. These are the most usual ones:

- 79:04 error during start up. Restarting the printer may or may not solve the problem.
- 79:04 error while processing or printing a job. Restarting the printer and printing the same job does not always produce the error.

## Solutions and workarounds

In the following procedure, perform each step as it appears in the list, and move on to the next step only once you are sure the 79:04 error has not been cleared.

1. Restart the printer in Diagnostics Boot mode and execute the service tests to validate the functionality of all the electronics components.
2. Perform the troubleshooting procedure for data-related system errors, as already described.
3. Replace the memory.
4. Replace the Hard Disk Drive.
5. Escalate the issue before replacing any additional parts.

## Troubleshooting based on symptoms

This section will describe which troubleshooting steps to perform for a 79:04 system error based on the symptoms of the issue. Perform each step as it appears in the list and move on to the next step only once you are sure the 79:04 error has not been cleared.

## Front panel displays 79:04 at start-up

- Restart the printer. If the system error has been caused by a job in an incorrect format, restarting will clear the error. If restarting the printer solves the issue, see job-related SE 79:04 ⇒ page 63.
  - Update the printer's firmware. If the installed firmware is the latest version, re-install it. Since the printer cannot start normally, you will need to update the firmware using a USB flash drive.
  - Disconnect the network cable and restart the printer. If this solves the problem, see network-related 79:04 ⇒ page 64.
1. Remove all cartridges, printheads, and printhead cleaning cartridge. Unload the substrate. Restart the printer. If the printer can start normally, insert the consumables one by one until you isolate the one that is causing the error. Do not insert any of the replaced consumables in another printer.
  2. Restart the printer in Diagnostics Boot Mode and perform the electronics test. If an electronic component is identified as faulty, replace it.
  3. Restart the printer in Diagnostics Boot Mode and reset the EEROM. If this solves the issue, see data-related 79:04 ⇒ page 63.
  4. If the printer has been used for some time and has suddenly started to show this behavior, replace the Hard Disk Drive.
  5. If the printer is new and the issue has been happening since it was first started, do not replace the Hard Disk Drive.
  6. If none of the previous steps solved the issue, escalate the issue with the following information:
    - Printer information: serial number, part number, accessories
    - Conditions in which the problem occurs and conditions prior to the first occurrence of the problem
    - The results of the above troubleshooting steps
    - The system error detailed information (this can be obtained by pressing CANCEL + Down)
    - The printer logs

## Front panel displays 79:04 during printer operation – not while sending jobs

1. Restart the printer.
2. Update the printer's firmware. If the installed firmware is the latest version, re-install it.
3. Reset the printer to factory defaults.
4. In order to narrow the scope of the issue, try the following:
  - a. Disable any unused network protocols.
  - b. Disable SNMP and WebServices.
  - c. Disable "Sleep mode" from the Service Utilities menu.
  - d. Delete any substrate families that you may have added to the printer.
5. Restart the printer in Diagnostics Boot Mode and perform the electronics test. If an electronic component is identified as faulty, replace it.
6. Restart the printer in Diagnostics Boot Mode and reset the EEROM. If this solves the issue, see data-related 79:04 ⇒ page 63.
7. Run the HDD Recovery service utility. If this solves the issue, see data-related 79:04 ⇒ page 63.
8. Try to identify the combination of settings or actions that led to the system error and try to reach the same result with a different combination. Escalate the issue to fix the original problem.



9. If none of the previous steps solved the issue, escalate it with the following information:
  - Printer information: serial number, part number, accessories
  - Conditions in which the problem occurs and conditions prior to the first occurrence of the problem
  - The result of the above troubleshooting steps
  - The printer information pages (either printed and faxed or obtained through the Embedded Web Server)
  - The system error detailed information (it can be obtained by pressing CANCEL + Down)
  - The printer logs

## Front panel displays 79:04 while printing

### A. While printing a single job

The error happens after a single job is sent. It's easy to identify which job has produced the error, since every time this same job is sent, the error is repeated.

1. Restart the printer.
2. Update the printer's firmware. If the installed firmware is the latest version, re-install it. Send the job using different print settings. The following ones can be helpful:
  - a. Try using a different media preset.
  - b. Try changing the print mode, or at least the number of passes.
3. Escalate the issue, providing the following information:
  - Printer information: serial number, part number, accessories
  - Conditions in which the problem occurs and conditions prior to the first occurrence of the problem
  - The result of the above troubleshooting steps
  - The printer information pages (either printed and faxed or obtained through the Embedded Web Server)
  - The system error detailed information (it can be obtained by pressing CANCEL while the error is being displayed)
  - Workflow information:
    - Operating system
    - Application
    - RIP and RIP version, driver and driver version
    - Substrate family and media preset
    - Printer settings
    - Connection method and settings
  - The original file along with information on how to reproduce the issue
  - A print to file that can reproduce the issue
  - The printer logs

### B. Random 79:04 during continuous printing

The error does not happen with a single job. It happens randomly during continuous printing, normally while the printer is managing a heavy load (printing a project or in a reprographics environment).

This type of error is caused either by memory leaks or by concurrence issues in the printer's firmware. They normally happen in unusual environments in which memory leaks or concurrence issues may occur without having been detected during qualification. These issues cause the printer to crash at a completely random moment during printing, and are not associated with a specific job.

Troubleshooting these issues is normally quite complex.

1. Restart the printer. If the issue continues occurring randomly, continue troubleshooting.
2. Update the printer's firmware. If the installed firmware is the latest version, re-install it.
3. Escalate the issue, providing the following information:
  - Printer information: serial number, part number, accessories
  - The printer information pages (either printed and faxed or obtained through the Embedded Web Server)
  - The system error detailed information (it can be obtained by pressing CANCEL while the error is being displayed)
  - Workflow information:
    - Operating system
    - Application
    - RIP and RIP version, driver and driver version
    - Substrate family and media preset
    - Printer settings
    - Connection method and settings
  - Exact information on how to replicate the environment that reproduces the issue, including some example files that can be sent to the printer to replicate a heavy load environment. These files will need to be:
    - Original application files, if the error occurs when printing from an application
    - A print to file
  - The printer logs

## Vacuum suction much lower at high altitudes

At altitudes above 1,000 meters, the vacuum force holding down the substrate will be lower, therefore the substrate will not be held in place sufficiently, causing:

- Ink smearing on the substrate
- Printhead crashes against the substrate
- Roll loading problems (low probability)

The altitude range must be selected in the Front Panel for altitudes higher than 1,000 m.

At altitudes above 3,000 m the printer may not work correctly.

The level of suction applied to the substrate can be adjusted from the RIP.

## Banding due to ink cartridge replacement while printing

A user has removed the Ink Cartridge while the printer was printing, which has caused the printer to stop. If the user does not replace the Ink Cartridge immediately, when the printer starts to print again, a band will appear in the position where the printing restarted. This is because the wet ink interacts with the dried ink on the substrate causing the band to appear. To solve the problem, try the following:

- Do not remove the Ink Cartridge while the printer is Printing. Only replace/remove Ink Cartridges in between prints.
- If the Ink Cartridge was replaced due to the "Empty" status on the Front Panel, then advise the customer to replace the Ink Cartridge when the "Very Low" status is showing on the Front Panel.

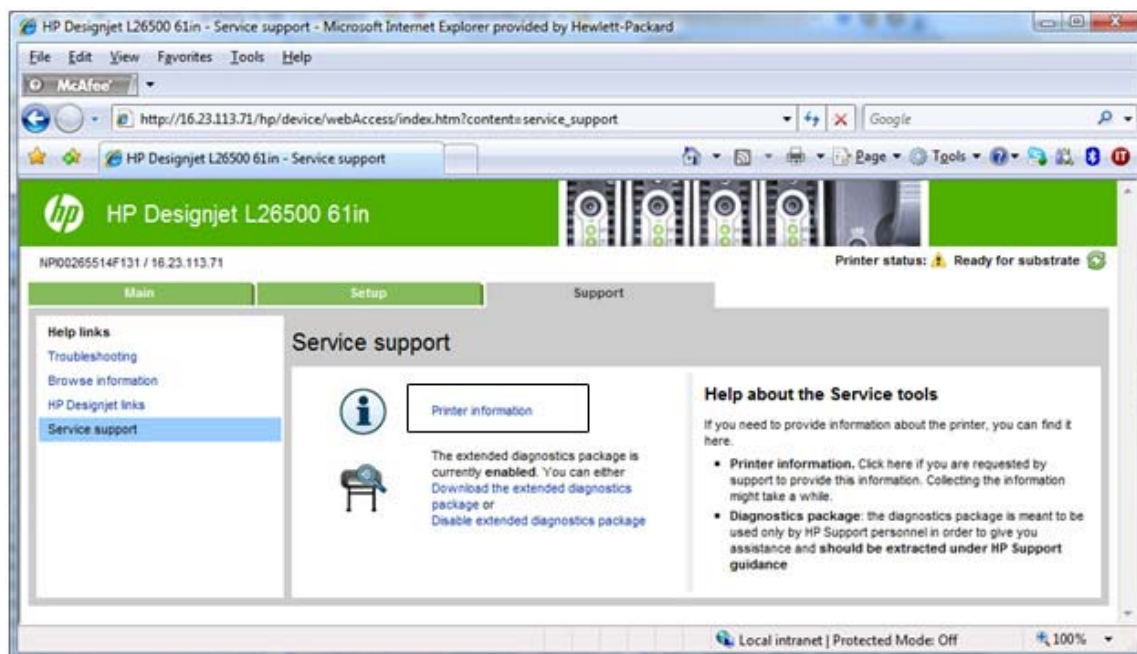
# How to interpret the Service Information Pages

The Service Information Pages contain the following information:

- Current Information
- Usage Information
- Event Logs
- Calibration Status
- Connectivity Configuration
- All Pages

It is possible to print the Service Information Pages either through the Front Panel or through the Embedded Web Server:

- Front Panel: Setup menu ⇒ Internal Prints ⇒ Service Information Prints.
- Embedded Web Server: Support tab ⇒ Service Support ⇒ Printer Information.



Even if the printer cannot print, the Information Pages are still accessible through the Embedded Web Server.

## Main characteristics

- Only available in English (except the current information page).
- From the Front Panel, you can choose to print ALL pages or just select the specific pages that are needed. If ALL pages are printed, nesting is turned ON automatically (and turned OFF once all the pages have been printed).
- Each page can be printed from the Web browser when using the Embedded Web Server.
- Each page can be sent by e-mail from the Web Browser when using the Embedded Web Server (File ⇒ Send ⇒ Page by E-mail).
- You can see the same information through the Front Panel or the Embedded Web Server.

## Current information (1 of 2)

The first section, is generic information and is available in every tab, it displays information such as the current level of firmware installed, the serial number of the printer etc.

This page is in two parts: The first part displays information on the following:

- Current Printer Configuration.
- Substrate Loaded Information.
- Current Printhead Kit Information.

Current Substrate, Printhead and Ink Information (1 of 2)					
Date:	Aug 29, 2011 10:58:00 AM	Product:	HP Designjet L26500 61in Printer	Serial Number:	MY15B19005
Firmware:	SP-SP_0.0.15.1	Product number:	CQ869A	Service ID:	21177
Printer status:	Preparing to print				
Current Printer Configuration					
Language:	English	Memory:	512 MB		
Disk capacity:	31.8 GB				
Current Temperature:	23.4°C ±2°C	Current Humidity:	53% ±15%		
Substrate Loaded Information					
Substrate Path:	Roll	Substrate Loaded Status:	OK		
Substrate Type:	Self-Adhesive				
Substrate Width:	763 mm / 30.0 inches	Substrate Length:	not available		
Current Printhead Kit Info (I)					
	Warranty status	Status	Error ID Code	Product Number	
1 - Cyan-Light cyan	In warranty	OK	0	CN703A	
2 - Cyan-Light cyan	In warranty	OK	0	CN703A	
3 - Yellow-Black	Out of warranty	OK	0	CN702A	
4 - Yellow-Black	Out of warranty	OK	0	CN702A	
5 - Magenta-Light magenta	In warranty	OK	0	CN704A	
6 - Magenta-Light magenta	Out of warranty	OK	0	CN704A	
Current Printhead Kit Info (II)					
	Product Name	Serial Number	Warranty Date		
1 - Cyan-Light cyan	HP 792	4-1-5415595-4-2011	20130128		
2 - Cyan-Light cyan	HP 792	4-2-4175566-47-2010	20121125		
3 - Yellow-Black	HP 792	4-2-4171652-47-2010	20121125		
4 - Yellow-Black	HP 792	4-2-4172087-47-2010	20121125		
5 - Magenta-Light magenta	HP 792	4-2-4172545-47-2010	20121125		
6 - Magenta-Light magenta	HP 792	4-2-4172603-47-2010	20121125		
Current Printhead Kit Info (III)					
	Used non-HP ink	Used expired ink	Ink Used	% warranty used (ml)	
1 - Cyan-Light cyan	false	false	230 ml	25%	
2 - Cyan-Light cyan	false	false	240 ml	25%	
3 - Yellow-Black	false	false	2150 ml	215%	
4 - Yellow-Black	false	false	2180 ml	220%	
5 - Magenta-Light magenta	false	false	700 ml	70%	
6 - Magenta-Light magenta	false	false	1400 ml	140%	
Current Printhead Kit Info (IV)					
	Usage Time		Scan Axis Shutdown		
1 - Cyan-Light cyan	0 h		0		
2 - Cyan-Light cyan	0 h		0		
3 - Yellow-Black	104 h		0		

## Current information (2 of 2)

The second part displays information on the following:

- Current Ink Cartridge Information
- Printhead Cleaning Kit.

- Ink Maintenance

Current Substrate, Printhead and Ink Information (2 of 2)							
Date:	Aug 29, 2011 10:58:00 AM		Product:	HP Designjet L26500 61in Printer		Serial Number:	MY15B19005
Firmware:	SP-SP_0.0.15.1		Product number:	CQ869A		Service ID:	21177
Printer status:							Preparing to print
Current Ink Cartridge Info (I)							
	Status	Product Name	Product Number	Serial Number	Install Date	Warranty Status	
Magenta	OK	HP 792	CN707A	1293152-25-15	20110818	In warranty	
Yellow	OK	HP 792	CN708A	2796924-6-15	20110816	In warranty	
Black	OK	HP 792	CN705A	2872464-9-15	20110817	In warranty	
Cyan	OK	HP 792	CN706A	1741280-8-15	20110814	In warranty	
Light magenta	OK	HP 792	CN710A	135536-9-15	20110626	In warranty	
Light cyan	OK	HP 792	CN709A	2798724-8-15	20110626	In warranty	
Current Ink Cartridge Info (II)							
	Expiration Date	Manufacturer	Capacity	Level	Used non-HP Ink		
Magenta	20131227	HP	775 ml	65 %	false		
Yellow	20130817	HP	775 ml	25 %	false		
Black	20130910	HP	775 ml	60 %	false		
Cyan	20130901	HP	775 ml	40 %	false		
Light magenta	20130905	HP	775 ml	15 %	false		
Light cyan	20130903	HP	775 ml	20 %	false		
Printhead Cleaning Kit							
Status:	OK	Level:	66 %	Product Number:	CR278A,CH622B		
Ink funnel status:	OK	Ink funnel level:	23 %				
Ink Maintenance Kit							
Status:	OK	Level:	25 %	Product Number:	CR279A		

## Printer usage information (1 of 3)

This page contains the following information:

- Printer Usage
- Usage per Printhead Slot
- Usage per Cartridge Slot
- Media Usage per Media Type

### Printer Usage Information (1 of 3)

Date: Aug 29, 2011 10:58:00 AM    Product: HP Designjet L26500 61in Printer    Serial Number: MY15B19005  
 Firmware: SP-SP\_0.0.15.1    Product number: CQ869A    Service ID: 21177  
 Printer status: Preparing to print

**Printer Usage:** The total amount of substrate used in the printer

Printer Usage			
	1060.87 m <sup>2</sup> / 11419.1 ft <sup>2</sup>	Total number of prints:	243

**Usage per Printhead Slot**

Slot	Color	Product Number	Printheads Used	Total Insertions
Slot 1	Light cyan-Cyan	CN703A	6	2
Slot 2	Light cyan-Cyan	CN703A	5	2
	Black-Yellow	CN702A	1	1
	Black-Yellow	CN702A	1	1
	Magenta-Light magenta	CN704A	2	1
	Magenta-Light magenta	CN704A	1	1

**Total Insertions:** This is linked to the current printhead installed. When the printhead is replaced, it is reset to 1 (the initial insertion of the current printhead).

**Usage per Cartridge Slot**

Product Number	Usage
CN707A	4 Cartridges / 2170 cc
CN708A	5 Cartridges / 2620 cc
CN705A	3 Cartridges / 1760 cc
CN706A	3 Cartridges / 1790 cc
CN710A	1 Cartridges / 660 cc
CN709A	1 Cartridges / 630 cc

**The Ink Cartridges** This section displays the ink usage per cartridge.

**Media Usage per Media Type**

Media Type	Usage
Film	976.41 m <sup>2</sup> / 10510.0 ft <sup>2</sup> Textile    16.92 m <sup>2</sup> / 182.1 ft <sup>2</sup>
Low Temperature Substrate (incl. HP Photor ...)	58.55 m <sup>2</sup> / 630.2 ft <sup>2</sup> Mesh    4.17 m <sup>2</sup> / 44.9 ft <sup>2</sup>
	1.24 m <sup>2</sup> / 13.4 ft <sup>2</sup> Banner    3.57 m <sup>2</sup> / 38.4 ft <sup>2</sup>

**Media Usage per Media Type:** It is possible that the sum of the media used for each media type is lower than the total amount of media used in the printer. This is because only the total media used in the printer is saved in the backup EEROM which is located in the ISS PCA. When the Hard Disk Drive is replaced, the total media used per media type is reset to zero (0), but the total media used is recovered from the backup EEROM.

## Printer usage information (2 of 3)

- Component Usage
- Preventive Maintenance Usage
- Job Accounting I
- Job Accounting II



**Component Usage:** A cycle is counted when the Carriage makes one movement to the left of the printer and then returns to the right will be reset to zero (0).

**Maintenance Usage:** Once the value reaches 100%, the corresponding Preventive Maintenance Kit should be used. For further details, refer to Chapter 9 - Preventive Maintenance

The history data is the information of the last 10 consumables. In the case of the example, the customer already changed: one "Print Head Cleaning kit" at 114% of usage one "Ink Maintenance Kit" at 8% of usage This history information may help to understand the type of use the customer has with the consumables.

**Job Accounting:** Tracks the usage information for the purposes of accountability

Printer Usage Information (2 of 3)					
Date:	Aug 29, 2011 10:58:00 AM	Product:	HP DesignJet L26500 61in Printer	Serial Number:	MY15B19005
Firmware:	SP-SP_0.0.15.1	Product number:	CQ869A	Service ID:	21177
Printer status:					Preparing to print
Component Usage					
Carriage (#cycles)	154603	Carriage lubrication(#cycles)	2342	Trailing cable (#cycles)	154603
Ink tubes (#cycles)	154603	Belt (#cycles)	154603	Scan motor (#cycles)	154603
Substrate cuts (#events)	113	Carriage axis Distance (m)	304014	Subst motor(m of subst length)	5733
Raw motor(hrs)	0	Vacuum fans (hrs)	158	OMAS (m. media length)	831
OMAS nav. success (count)	564	OMAS nav. failures (count)	177	Subst length total (m)	1066
PH cleaning cig (liters)	0	PH cleaning cig(m)	3	PH cleaning cont(liters)	0
SVS motor (#cycles)	43739	Rack motor(#cycles)	4367	Printer (#primes)	35
Drop detector (hrs)	0	Split plate DD(liters)	0	Split plate spittoon (liters)	0
Aerosol fan (hrs)	163	Aerosol filters (liters)	0	Line sensor (hrs)	0
SOL (hrs)	0	SOL shutter (#cycles)	1	APS pump (hrs)	2
APS pump (#cycles)	2297	Heater resistor(hrs)	183	Heater fans(hrs)	199
Curing resistors(hrs)	182	Curing fans(hrs)	189	Top cooling fans(hrs)	194
Heating IR sensor(ul)	9496298	Curing IR sensor(ul)	9496298	Printing time (hrs)	128
Power-on time (hrs)	794	Soft On/Off (#cycles)	50	Hard On/Off (#cycles)	63
Prints (count)	243	Ink consumed total (ul)	9373499	Aerosol filter version	0
TOTAL # Scan axis (cycles)	154603	INK Tube Ink Amount	2245		
Maintenance Usage					
Name	Current	History			
Service Maintenance Kit #1	2 %	-			
Service Maintenance Kit #2	2 %	-			
Service Maintenance Kit #3	13 %	-			
Printhead Cleaning Kit	66 %	114,0,0			
Ink Maintenance Kit	4 %	8,0,0,0,0			
Carriage Roller Lubrication	1 %	0			
Job Accounting(I)					
Date	Print mode	Job name			
2011-08-29 10:24:19	600dpi-10P-8id-ink-L	7005564_3			
2011-08-29 09:54:44	600dpi-10P-8id-ink-L	7015140_04			
2011-08-28 20:30:28	600dpi-10P-8id-ink-L	12_SQ			
2011-08-28 18:40:17	600dpi-10P-8id-ink-L	7013062			
2011-08-26 16:42:14	600dpi-10P-8id-ink-L	7010589_03_			
2011-08-26 12:39:49	600dpi-10P-8id-ink-L	7015140_04			
2011-08-26 14:55:46	600dpi-10P-8id-ink-L	TENNIS_COURTS			
2011-08-26 14:19:32	600dpi-10P-8id-ink-L	BROWN_TEST			
2011-08-26 14:08:35	600dpi-10P-8id-ink-L	7003217_02_			
2011-08-26 13:18:57	600dpi-10P-8id-ink-L	G-111R_8			
Job Accounting(II)					
Date	RIP and Driver details	Substrate Name (RIP)			
2011-08-29 10:24:19	PIDCONY1670aPIDHFDRL000 - ONYX 10.0.0.89	HP_L26500_HP_Air_Release_Adhesive_Gloss_Cast_Vinyl_ONYXa10 [HP_L26500]			
2011-08-29 09:54:44	PIDCONY1670aPIDHFDRL000 - ONYX 10.0.0.89	HP_L26500_HP_Air_Release_Adhesive_Gloss_Cast_Vinyl_ONYXa10 [HP_L26500]			
2011-08-28 20:30:28	PIDCONY1670aPIDHFDRL000 - ONYX 10.0.0.89	HP_L26500_HP_Air_Release_Adhesive_Gloss_Cast_Vinyl_ONYXa10 [HP_L26500]			
2011-08-28 18:40:17	PIDCONY1670aPIDHFDRL000 - ONYX 10.0.0.89	HP_L26500_HP_Air_Release_Adhesive_Gloss_Cast_Vinyl_ONYXa10 [HP_L26500]			
2011-08-26 16:42:14	PIDCONY1670aPIDHFDRL000 - ONYX 10.0.0.89	HP_L26500_HP_Air_Release_Adhesive_Gloss_Cast_Vinyl_ONYXa10 [HP_L26500]			
2011-08-26 12:39:49	PIDCONY1670aPIDHFDRL000 - ONYX 10.0.0.89	HP_L26500_HP_Air_Release_Adhesive_Gloss_Cast_Vinyl_ONYXa10 [HP_L26500]			
2011-08-26 14:55:46	PIDCONY1670aPIDHFDRL000 - ONYX 10.0.0.89	HP_L26500_HP_Air_Release_Adhesive_Gloss_Cast_Vinyl_ONYXa10 [HP_L26500]			
2011-08-26 14:19:32	PIDCONY1670aPIDHFDRL000 - ONYX 10.0.0.89	HP_L26500_HP_Air_Release_Adhesive_Gloss_Cast_Vinyl_ONYXa10 [HP_L26500]			
2011-08-26 14:08:35	PIDCONY1670aPIDHFDRL000 - ONYX 10.0.0.89	HP_L26500_HP_Air_Release_Adhesive_Gloss_Cast_Vinyl_ONYXa10 [HP_L26500]			
2011-08-26 13:18:57	PIDCONY1670aPIDHFDRL000 - ONYX 10.0.0.89	HP_L26500_HP_Air_Release_Adhesive_Gloss_Cast_Vinyl_ONYXa10 [HP_L26500]			

## Printer usage information (3 of 3)

- Job Accounting III
- Job Accounting IV
- Job Accounting V



Printer Usage Information (3 of 3)

Date:Aug 29, 2011 10:58:00 AM

Firmware:SP-EP\_0.0.15.1

Printer status:

Product:

Product number:

HP DesignJet L24500 61in Printer

OQ869A

Serial Number: MV15B19005

Service ID: 21177

Preparing to print

Job Accounting(III)

Date	Result	Print time	Drying/Curing Temp.	Advance Factor	Input Tension	Printzone Vacuum
2011-08-29 10:24:19	PRINTED	1531.5 s	55 °C / 116 °C	0.0 mm/m	15 Nm	25 mmH2O
2011-08-29 09:54:44	PRINTED	826.2 s	55 °C / 116 °C	0.0 mm/m	15 Nm	25 mmH2O
2011-08-28 20:50:28	PRINTED	2685.8 s	55 °C / 116 °C	0.0 mm/m	15 Nm	25 mmH2O
2011-08-28 18:40:17	PRINTED	2811.2 s	55 °C / 116 °C	0.0 mm/m	15 Nm	25 mmH2O
2011-08-26 16:42:14	CANCELED	1852.4 s	55 °C / 105 °C	0.0 mm/m	15 Nm	25 mmH2O
2011-08-26 15:39:49	PRINTED	2272.4 s	55 °C / 116 °C	0.0 mm/m	15 Nm	25 mmH2O
2011-08-26 14:55:46	PRINTED	1444.8 s	55 °C / 116 °C	0.0 mm/m	15 Nm	25 mmH2O
2011-08-26 14:19:32	PRINTED	285.0 s	55 °C / 116 °C	0.0 mm/m	15 Nm	25 mmH2O
2011-08-26 14:08:35	PRINTED	1819.9 s	55 °C / 116 °C	0.0 mm/m	15 Nm	25 mmH2O
2011-08-26 13:18:57	CANCELED	6557.0 s	55 °C / 105 °C	0.0 mm/m	15 Nm	25 mmH2O

Job Accounting(IV)

Date	Sheet ID	Substrate Name	Drying airflow	OMAS Navigation	Double-sided	Auto Speed/Seg	Cutter Used
2011-08-29 10:24:19	10010	Self-Adhesive	30 %	Yes	Off	No / No	No
2011-08-29 09:54:44	10010	Self-Adhesive	30 %	Yes	Off	No / No	No
2011-08-28 20:50:28	10010	Self-Adhesive	30 %	Yes	Off	No / No	No
2011-08-28 18:40:17	10010	Self-Adhesive	30 %	Yes	Off	No / No	No
2011-08-26 16:42:14	10010	Self-Adhesive	30 %	Yes	Off	No / No	No
2011-08-26 15:39:49	10010	Self-Adhesive	30 %	Yes	Off	No / No	No
2011-08-26 14:55:46	10010	Self-Adhesive	30 %	Yes	Off	No / No	No
2011-08-26 14:19:32	10010	Self-Adhesive	30 %	Yes	Off	No / No	No
2011-08-26 14:08:35	10010	Self-Adhesive	30 %	Yes	Off	No / No	No
2011-08-26 13:18:57	10010	Self-Adhesive	30 %	Yes	Off	No / No	No

Job Accounting(V)

Date	Straightness optimization
2011-08-29 10:24:19	0.0 mm
2011-08-29 09:54:44	0.0 mm
2011-08-28 20:50:28	0.0 mm
2011-08-28 18:40:17	0.0 mm
2011-08-26 16:42:14	0.0 mm
2011-08-26 15:39:49	0.0 mm
2011-08-26 14:55:46	0.0 mm
2011-08-26 14:19:32	0.0 mm
2011-08-26 14:08:35	0.0 mm
2011-08-26 13:18:57	0.0 mm

## Event logs

This page contains the following information:

- Last 20 System Error Codes (which prevented the printer from booting).
- Last 20 System Warnings (which did not prevent the printer from booting, but which required the user to acknowledge the problem).
- Printhead Error log.
- GPIO Sensor Status.

In this section the printer is reporting the status of all the sensors. In that way we will know a lot about the status of the printer at that moment (is the window open?, are all the printheads installed?, etc...)

This may help also to understand if the sensors are working. For example, you could get the information with loaded substrate, check the status of the "MediaPresenceSensor", remove the substrate from the substrate path, get again the service plot information and check if the status has changed.

This may help in several circumstances for an advanced troubleshooting. For example:

We can know the milivolts of the pressure sensor at the moment of getting the service plot (without measuring it directly). This may help to the R&D engineers to understand the real status of the pressurization system.

Same for the sensors inside the ink cartridges.

Event Logs (1 of 2)

Date:  
Firmware:  
Printer status:

Aug 29, 2011 10:58:00 AM  
SP-SP\_0.0.15.1

Product:  
Product number:

HP DesignJet L26500 61in Printer  
CQ869A

Serial Number:  
Service ID:

NY15B19005  
2117

Preparing to print

System Errors

Event #	Severity	Error Code	Internal Code	F/W Version	Media Usage	Line	Date
1	severe	86.01	275779585	SP-SP_0.0.15.1	1007.105042	CarriageServoMotor.cpp:1628	20110824
2	severe	81.01	272633857	SP-SP_0.0.15.1	795.499695	OMDTURSpiderActions.cpp:283	20110817
3	severe	14.10.00	271622124	SP-SP_0.0.15.1	629.518738	ACModulatorElectra.cpp:2170	20110810
4	severe	81.01	272633857	SP-SP_0.0.15.1	609.671692	TextileRollerActions.cpp:1857	20110809
5	severe	81.01	272633857	SP-SP_0.0.15.1	588.131042	TextileRollerActions.cpp:1857	20110808
6	severe	81.01	276828161	SP-SP_0.0.15.1	493.731903	MediaPathSpider.cpp:1164	20110801
7	severe	81.01	272633857	SP-SP_0.0.15.1	437.470062	MediaPathSpider.cpp:1164	20110727
8	severe	81.03	272633860	SP-SP_0.0.15.1	264.378174	MediaServoMotor.cpp:1947	20110721
9	severe	81.01	272633857	SP-SP_0.0.15.1	260.114919	MediaPathSpider.cpp:1164	20110721
10	severe	81.01	272633857	SP-SP_0.0.15.1	162.445480	MediaPathSpider.cpp:1164	20110718
11	severe	81.01	272633857	SP-SP_0.0.15.1	162.445480	MediaPathSpider.cpp:1164	20110718
12	severe	81.01	272633857	SP-SP_0.0.15.1	162.445480	MediaPathSpider.cpp:1164	20110718
13	severe	82.01	276832257	SP-SP_0.0.15.1	114.673317	MediaTapeSensorCalico.cpp:568	20110706
14	severe	81.01	276828161	SP-SP_0.0.15.1	100.333344	MechanicalInitiatorGoldenGate.cpp:168	20110705
15	severe	81.01	272633857	SP-SP_0.0.15.1	15.142250	TextileRollerActions.cpp:1735	20110629
16	severe	81.01	272633857	SP-SP_0.0.15.1	15.142250	MediaPathSpider.cpp:1164	20110629

System Warnings

Event #	Severity	Error Code	Internal Code	F/W Version	Media Usage	Line	Date
1	advisory	69.05	274747993	SP-SP_0.0.15.1	1022.447571	WCoordinateCalico.cpp:1379	20110826
2	advisory	81.01	272633857	SP-SP_0.0.15.1	1018.089539	MediaPathSpider.cpp:1164	20110825
3	advisory	81.01	272633857	SP-SP_0.0.15.1	1018.089539	MediaPathSpider.cpp:1164	20110825
4	advisory	81.01	272633857	SP-SP_0.0.15.1	1018.089539	MediaPathSpider.cpp:1164	20110825
5	advisory	32.01.2	283123713	SP-SP_0.0.15.1	1018.089539	OMDTURSpiderStatusMachine.cpp:772	20110825
6	advisory	61.09	537923597	SP-SP_0.0.15.1	1018.089539	gslUtils.c:337	20110825
7	advisory	78.2.01	277899025	SP-SP_0.0.15.1	1018.089539	MediaPathSpider.cpp:12425	20110825

## System/Warning error

- The **Line** and **Internal Code** do not provide much information, but are useful in the case of escalating a problem to the division (different internal error codes can point to the same error code (e.g. 01.10:10)).
- Media Usage** (in square meters) and **Date** (from the printer's Internal Clock (RTC)) help you to understand if the printer has been used (media usage) and how much time has passed since the last error.

System Warnings							
Event #	Severity	Error Code	Internal Code	F/W Version	Media Usage	Line	Date
1	advisory	26.5.01	281026567	GG-CAL_0.0.22.4	480.128333	/vobs/ptatum/gg/TARGETS/mv140-x86-opt/elektra/pen/ink/InkSupply/Nan/whal/inkSupply/Nan/whal.cpp:6477	20141006
2	advisory	26.5.01	281026567	GG-CAL_0.0.22.4	480.128333	/vobs/ptatum/gg/TARGETS/mv140-x86-opt/elektra/pen/ink/InkSupply/Nan/whal/inkSupply/Nan/whal.cpp:6477	20141006
3	advisory	52.01	273690628	GG-CAL_1.0.0.7	492.768036	/vobs/ptatum/gg/TARGETS/arm-threadx-opt/elektra/hal/sensors/DropDetector/Level/GoldenGate/DropDetector/Level/GoldenGate.cpp:247	20091116
4	advisory	52.01	273690628	GG-CAL_1.0.0.7	492.768036	/vobs/ptatum/gg/TARGETS/arm-threadx-opt/elektra/hal/sensors/DropDetector/Level/GoldenGate/DropDetector/Level/GoldenGate.cpp:247	20091116
5	advisory	50.1.10	273711107	GG-CAL_1.0.0.7	491.422211	/vobs/ptatum/gg/TARGETS/arm-threadx-opt/elektra/hal/sensors/MediaAdvanceSensor/GoldenGate/MediaAdvanceSensor/GoldenGate.cpp:3532	20091112
6	advisory	50.1.10	273711107	GG-CAL_1.0.0.7	491.422211	/vobs/ptatum/gg/TARGETS/arm-threadx-opt/elektra/hal/sensors/MediaAdvanceSensor/GoldenGate/MediaAdvanceSensor/GoldenGate.cpp:3532	20091112
7	advisory	50.1.10	273711107	GG-CAL_1.0.0.5	492.108955	/vobs/ptatum/gg/TARGETS/arm-threadx-opt/elektra/hal/sensors/MediaAdvanceSensor/GoldenGate/MediaAdvanceSensor/GoldenGate.cpp:3532	20091111

## Printhead error log

- Printheads ago: History of the last three Printheads used ('0' represents the current Printhead used).
- Status:** '0' = Working, '1' = No Printhead Detected, '2' = Replace, '4' = Reseat, '8' = Remove.
- % Ink Used:** Percentage of the Warranty life (1000cc).
- Error Code:** Specific error code generated by the printer when the Printhead has been replaced.
- Max Recovery:**
  - 0: No manual Printhead recovery has been performed on the Printhead.

- 1 or higher: At least one Printhead recovery has been performed.

Printhead Error Log						
Printheads name	Serial Number	Status	Usage time	% Ink Used	Max Recovery Level	Error Code
1 - Cyan-Light cyan	4-1-3480030-2-2009	0	1 h	62	2	0
	4-1-3480133-2-2009	0	16 h	29	1	0
2 - Cyan-Light cyan	4-1-3480133-2-2009	0	1 h	62	2	0
	4-1-3480030-2-2009	0	16 h	29	1	0
3 - Yellow-Black	4-1-3479788-2-2009	0	1 h	125	2	80000
	4-1-3479797-2-2009	0	16 h	80	1	0
4 - Yellow-Black	4-1-3479797-2-2009	0	1 h	123	2	80000
	4-1-3479788-2-2009	0	16 h	81	1	0
5 - Magenta-Light magenta	4-1-3717974-9-2009	0	16 h	79	2	0
	4-1-3480456-2-2009	0	0 h	39	1	0
6 - Magenta-Light magenta	4-1-3480456-2-2009	0	16 h	81	2	0
	4-1-3717974-9-2009	4	0 h	38	1	20

## GPIO log

GPIO Sensors					
Name	Value	Units	Name	Value	Units
PauTensionState	true	binary	PauAbtFanState	false	binary
PauAnalogFanState	false	binary	HumiditySensor	55430	mV
PresenceSensorPen0	true	binary	PresenceSensorPen1	true	binary
PresenceSensorPen2	true	binary	PresenceSensorPen3	true	binary
PresenceSensorPen4	true	binary	PresenceSensorPen5	true	binary
AppPressureSensor	82	mV	TemperatureSensor	20320	mV
PresenceSensor0	false	binary	BrokenBagSensor0	false	binary
IlsSensor0	256	mV	IlsTempSensor	-2147483648	mV
IlsOffset0	1940	mV	PresenceSensor1	false	binary
BrokenBagSensor1	false	binary	IlsSensor1	382	mV
PresenceSensor2	false	binary	BrokenBagSensor2	false	binary
IlsSensor2	350	mV	PresenceSensor3	false	binary

## Calibrations status

This page contains the following information:

- General Calibrations (performed by Service Engineers)
- Diagnostic Log
- Information about the internal NVM values
- For advanced troubleshooting (with the help of an R&D engineer), you can see whether if the line sensor has “normal” calibration values or something is abnormal

### General calibrations

- **Printhead Alignment** relates to the Printhead Alignment which changes to ‘pending’ when a Printhead is replaced and the Printhead Alignment has not been performed.



**NOTE:** When a component is replaced, the corresponding calibration is NOT automatically set to ‘NOT DONE’. This is because the printer does not know that there is a new part installed.

- **Drop Detector** relates to the Drop Detector or Service Station calibration.
- **Line Sensor** relates to the Line Sensor Calibration.

### Diagnostic log

This section displays the details of the Calibrations that have been performed on the printer, it also contains useful information, such as if the particular calibration was successful or not.

# Connectivity configuration

This page contains full details of the current configuration of the printer.

Connectivity Configuration					
Date:	Aug 29, 2011 10:58:00 AM	Product:	HP DesignJet L26500 61in Printer	Serial Number:	MY15B19005
Firmware:	SP-SP_0.0.15.1	Product number:	CQ869A	Service ID:	21177
Printer status:					Preparing to print
===== IO DIAGNOSTIC PAGE =====					
----- Gigabit Ethernet -----					
Installed:	yes				
IP enabled:	yes				
Printing enabled:	yes				
Firewall enabled:	yes				
===== Gigabit Ethernet =====					
----- General Information -----			----- IPv4 -----		
Status:	I/O Card Ready		Status:	Ready	
Model Number:	CQ869A		IP Address:	192.168.3.224	
Hardware Address:	00265515DE97		Subnet Mask:	255.255.255.0	
Firmware Version:	SP-SP_0.0.15.1		Default Gateway:	192.168.3.1	
Port Config:	100TX FULL		Config By:	Manual	
Auto Negotiation:	On		BOOTP/DHCP Server:	Not Specified	
----- Security Settings -----			Bonjour Service Name:	Not Specified	
SNMP Set Cmty Name:	Not Specified				
SNMP Get Cmty Name:	Not Specified				
			----- IPv6 -----		
			Status:	Disabled	
----- Network Statistics -----					
Total Packets Received:	443471				
Unicast Packets Received:	443353				
Bad Packets Received:	0				
Framing Errors Received:	0				
Total Packets Transmitted:	202177				
Unsendable Packets:	0				
Transmit Collisions:	0				
Transmit Late Collisions:	0				
----- TCP/IP -----					
IPv4:	Enabled				
IPv6:	Disabled				
Host Name:	NPI00265515DE97				
IPv4 Domain Name:	grimco				
IPv6 Domain Name:	Not Specified				
Primary DNS Server:	192.168.0.20				
Secondary DNS Server:	192.168.0.113				
DNS(IPv6):	Not Specified				
WINS Server:	Not Specified				
Idle Timeout:	280 sec				

## How to obtain the printer log and the diagnostics package

The printer keeps an internal log of its own actions. When a system error occurs, the product log may help you to find the cause and the solution. By default, whenever it restarts, the printer deletes the current log and starts a new one, to avoid using a lot of hard disk space.

You can obtain the printer log through the diagnostics package. There are two types of diagnostic package:

- Diagnostic package (reduced level)
- Extended diagnostic package (full level)

And there are two ways of retrieving the information:

- From the Front Panel with a USB flash drive (reduced level only)

- From the Embedded Web Server (reduced or full level)



**NOTE:** If the extended diagnostic package is available, it will be the only one visible from the Embedded Web Server. In order to use the reduced diagnostic package from the Embedded Web Server, you must disable the extended diagnostic package.

When you have obtained the information, it should be attached to the customer case.

## Front Panel method

This method works only if you have a standard USB flash drive. If you do not have a flash drive, use the Embedded Web Server method. You are also recommended to use the Embedded Web Server if you need the extended diagnostics package to solve a particularly difficult problem.

1. Take a standard USB flash drive, formatted as FAT32.
2. Create an empty file in the USB flash drive (right-click, New > Text Document) and name it **pdipu\_enable.log**. Then insert the USB flash drive into the printer.
3. The printer starts to copy the diagnostic package to the USB flash drive. Wait for one or two minutes. You may hear several short beeps for each file copied to the USB flash drive.
4. When you hear one long beep, that means the entire diagnostics package and the printer log have been copied to the USB flash drive. You can now remove the drive.
5. It will have created a folder with the name *part number\_serial number\_time stamp*, and in this folder you'll find one or more files with the extension **trb**. As the name of the folder contains the serial number, you can reuse the flash drive for different products and the information will not be lost.

## Embedded Web server method

1. You can access the Embedded Web Server by typing the IP address of the product in a Web browser. In the **Support** tab, click **Service support**.
2. If the problem persists and is difficult to debug, try the extended diagnostics package. To enable the extended diagnostics package, click **Enable the extended diagnostics package**. The printer should be restarted after enabling or disabling the extended diagnostics package.
3. At any time after enabling the extended diagnostics package, you can download the package and the printer log by clicking **Download the extended diagnostics package**.
4. When you have finishing using the extended diagnostics package, remember to disable it; otherwise it could affect product performance or even cause undesirable side-effects.

## Retrieving logs without the diagnostic package

This method is recommended only if you are unable to use the diagnostic package for some reason.

1. Enable the printer log by using the Enable/Disable Logs service test ⇒ page 170.
2. After DO NOT REBOOT is displayed, retrieve at least the current printer log from the following URL: <http://<IP>/hp/device/3432/8828/tmp/>, where <IP> is the IP address of the product. Click the file once to select it, then right-click and select **Save target as**.
3. The **printer.log** file contains a log of printer activity since it was last restarted. Previous logs are compressed and stored in **.gz** files whose names contain the date and time of the restart. You may wish to download some of these files as well.

When you do not require permanent logging any more, remember to turn it off, to avoid filling up the hard disk and degrading product performance. To disable permanent logging, use the Enable/Disable Logs service test ⇒ page 170.



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# Introduction

## Firmware upgrade

The first step to take when trying to clear an error with the printer is to check that the firmware installed in the printer is the latest available. Firmware updates often include fixes for some of the problems that are found in the following pages, simply updating the firmware can often resolve the problem. The latest firmware can be downloaded from the following url: [www.hp.com/go/L28500/support](http://www.hp.com/go/L28500/support)

If the error with the printer does not allow you to upgrade the firmware using the normal process, try upgrading the firmware using the emergency .plt file procedure.

## What are system error codes?

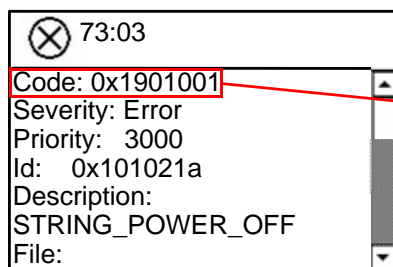
System error codes are hexa-decimal based numbers generally caused by internal system errors. The following pages contain a list of system error codes and their respective descriptions and recommended corrective actions. Only try one recommended action at a time and check if the issue causing the error code has been solved.

If you have an error code which is not documented in this Service Manual or you have an error which you cannot resolve, then report the error to the HP Response Center or the nearest HP Support Office. When reporting the error, have the following information ready:

- Model and serial number of the printer.
- Which firmware revision the printer is using (see note below). Check firmware in *Setup Menu / Information Menu / Show Printer Information*.
- The complete error number (see note below).
- The Service Configuration Print.
- The Current configuration sheet.
- Which software application the customer is using (name, version, etc).



**NOTE:** When reporting the System Error Code, make sure that you supply the full Internal Error Code and the firmware version. Without this information, HP Support Personnel cannot help you. To view the Internal Error Code, hold the DOWN key and press the CANCEL key at the same when the System Error Code is displayed on the Front Panel.



This is the Code that is required when escalating a problem

## System error codes and warnings—explanation

System Error Codes explain which component/system is failing and what action should be taken to resolve the problem.

**System Error Codes** are displayed directly on the front panel (but can also be seen on the Information Page) and have been defined in the format **XX.YZ**. or **XX.n:YZ.m**.

- **XX**: Service Part (2 digits).
- **n**: Service Part Index (if more than one used in the product) – Optional.
  - e.g. Identify the Ink Supply (color and number).
- **Y**: Who should perform the action (1 digit) – (User or Service Engineer).
- **Z**: Action to perform (1 digit).
- **m**: additional actions/information to consider (1 digit) – Optional.
  - e.g. Non-authorized ink was detected, PM was triggered or printhead in/out of Warranty.

The following table explains the **XX** part of the System Error Code or Warning:

Code	Component/System
01.0	Main PCA
01.1	PrintMech PCA
01.2	ISS Top PCA
01.3	ISS Bottom PCA
01.10	PrintMech PCA sine-wave management
01.11	PrintMech PCA sine-wave management
02.1	Carriage PCA
03	Power Supply Unit
03.10	Extra 24 V PSU
05	Formatter
05.1	Formatter Fan
05.3	Formatter Memory
06	Hard Disk Drive
08	Front Panel
09	Vacuum
11	Trailing Cable
14.3, 14.4	Heater Control Dryer Pinches
14.5, 14.6	Heater Control Dryer Overdrive
14.7, 14.8	Heater Control Curing
15	Drying System
16	Curing System
17	Other cables
21	Service Station
23	Pressure System (APS)
24	Ink Delivery Tubes
26.n	Ink cartridge (color n)
27.n	Printhead (color n)
29	Printhead Cleaning Cartridge
31	Cutter

Code	Component/System
32	Take-Up Reel
41	Media-Axis Motor
42	Scan-Axis Motor
43	Vacuum Fan
44	Aerosol Fan
45	Rewinder
46	Primer
50	OMAS
51	Window Sensor
51.1	PHC Access Door Sensor
52	Drop Detector
53	Media Sensor
54	Media Lever Sensor
55	Line Sensor
56	Drive Roller Encoder Sensor
58	Color Sensor
61	Language Interpreting
63	Input/Output through LAN Card
65	Input/Output (port unknown)
66	Print Job Configuration
71	Memory Management
74	Firmware Upgrade
77	Embedded Web Server
78	Media Settings
79	Assertion (Uncontrollable Firmware Error)
81	Media Advance
82	Media Jam Sensor
85	Media-Axis Encoder Reading
86	Carriage Movement
93	Ink Pumping
97	Automatic Media Advance Calibration

The following table explains the **YZ** part of the System Error Code or Warning:

Code	Recovery action	Response
00	Replace	Possible for customer to perform action
01	Reseat/Reconnect/Clean/Adjust (manually)	
02	Calibrate/Adjust (using automatic process)	
03	Power off and restart the printer	
04	Upgrade system firmware	
05	Upgrade driver or computer software	
06	Add accessory	
07	Escalate	
08	Send plot again	
09	Wrong part installed	

Code	Recovery action	Response
10	Replace	HP qualified personnel assistance required
11	Reseat/Reconnect/Clean/Adjust (manually)	
12	Calibrate/Adjust (using automatic process)	
13	Power off	
14	Upgrade system firmware	
15	Upgrade driver or computer software	
16	Add accessory	
17	Escalate	
18	Send plot again	
19	Wrong part installed	

## Continuable and non-continuable error codes

Some of the error codes are continuable, which means you can press **Enter** on the front panel and continue working with the printer. Non-continuable error codes do not allow you to continue working with the printer, in this case power the printer off and on again and see whether the system error disappears. If the error code reappears, then the printer requires an on-site visit in order to resolve the problem.

**Important note:** If the solution calls for a replacement part, replace one component at a time and check if the error has been cleared before replacing another component. Using this procedure you will be able to determine exactly which component has failed.

### SE Code: 01.0:03 – Main PCA electronics error

#### Problem description:

The Main PCA has failed to respond.

#### Corrective action:

Switch the power off at the rear of the printer, wait briefly, then switch it back on again.

### SE Code: 01.0:10 – Main PCA hardware failure

#### Problem description:

Main PCA hardware failure.

#### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Main PCA ⇒ Page 442.

### SE Code: 01.1.03 – PrintMech PCA electronics error

#### Problem description:

The PrintMech PCA has failed to respond.

#### Corrective action:

Switch the power off at the rear of the printer, wait briefly, then switch it back on again.

### SE Code: 01.1.10 – PrintMech PCA hardware failure

#### Problem description:

PrintMech PCA hardware failure.

#### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the PrintMech PCA ⇒ Page 457.

### SE Code: 01.2:10 – ISS Pre-Driver PCA communication failure

#### Problem description:

The ISS Pre-Driver PCA has failed to respond.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the connections of the ISS Pre-Driver PCA (Upper, Lower, and Adaptor) are correctly connected and not damaged.
3. Check with another set of ink cartridges, to ensure the error is not with the ink cartridges.
4. Replace the ISS Pre-Driver PCA (Upper, Lower, and Adaptor) --> Page 388.

**SE Code: 01.3:10 – ISS Pre-Driver PCA communication failure****Problem description:**

The ISS Pre-Driver PCA has failed to respond.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the connections of the ISS Pre-Driver PCA (Upper, Lower, and Adaptor) are correctly connected and not damaged.
3. Check with another set of ink cartridges, to ensure the error is not with the ink cartridges.
4. Replace the ISS Pre-Driver PCA (Upper, Lower, and Adaptor) --> Page 388.

**SE Code: 01.10:10 – PrintMech PCA is faulty****Problem description:**

The PrintMech PCA is not disabling sine-wave converters when requested.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the PrintMech PCA ⇒ Page 457.

**SE Code: 01.11:10 – PrintMech PCA is faulty****Problem description:**

The PrintMech PCA is not enabling sine-wave converters when requested.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the PrintMech PCA ⇒ Page 457.

**SE Code: 02:10 – Mechanical Carriage error****Problem description:**

Mechanical Carriage error.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Carriage Assembly ⇒ Page 406.

## SE Code: 02.1:10 – Problem with the Carriage PCA

### Problem description:

The Carriage PCA has failed to respond.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the Trailing Cable is not damaged.
3. Check that the Trailing Cable is correctly connected to the Carriage PCA, Interconnect PCA, and Main PCA.
4. Replace the Carriage PCA ⇒ Page 398.

## SE Code: 03:10 – Power distribution failure

### Problem description:

The Power Supply Unit (PSU) may have failed.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. If the Power Supply Unit's blue LED is on, replace the PrintMech PCA ⇒ Page 457.
3. Otherwise, replace the Power Supply Unit ⇒ Page 447.

## SE Code: 03.10:10 – Extra 24 V PSU failure

### Problem description:

Extra 24 V PSU failure.

### Corrective action:

1. Switch the power off at the rear of the printer.
2. Disconnect all drying fans (not the array, the fans one by one).
3. Switch the printer on.
4. If the error persists, check that Secondary PSU cables are properly connected to PrintMech PCA and Main PSU.
5. If the error persists, replace the Extra 24 V PSU ⇒ Page 313.
6. Connect the fans one by one until the error returns. Use the diagnostic test for the fans; it should switch them all on.
7. Replace the drying fan that caused the error.
8. Make sure that you test all of them: more than one may be faulty.

## SE Code: 05:10 – Formatter communication failure with ISS

### Problem description:

The Formatter is not communicating with the Ink Supply Station.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.



2. Check that the Formatter to PrintMech PCA cable is correctly connected.
3. Replace the Formatter ⇒ Page 442.

## **SE Code: 05.01:10 – Formatter CPU fan stopped or burnt out**

### **Problem description:**

Formatter CPU fan stopped or burnt out.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Formatter ⇒ Page 442.

## **SE Code: 06.03 – Main NVM communication failure**

### **Problem description:**

The Main NVM is not responding.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Hard Disk Drive ⇒ Page 444.

## **SE Code: 06.10 – Main NVM communication failure**

### **Problem description:**

The Main NVM is not responding.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Hard Disk Drive ⇒ Page 444.

## **SE Code: 08.04 – The Front Panel watchdog timer has expired**

### **Problem description:**

The Front Panel watchdog timer has expired.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Upgrade the firmware.

## **SE Code: 08:04.1 – ASSERT in Front Panel code**

### **Problem description:**

ASSERT in Front Panel code.

### **Corrective action:**

1. Press Enter and continue.
2. Update the firmware.

## SE Code: 08:08 – ASSERT in Front Panel code

### Problem description:

ASSERT in Front Panel code.

### Corrective action:

Switch the power off at the rear of the printer, wait briefly, then switch it back on again.

## SE Code: 08:11 – A Front Panel application has died

### Problem description:

A Front Panel application has died.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Front Panel ⇒ Page 332.

## SE Code: 11:10 – Connection problem with the Trailing Cable

### Problem description:

The Trailing Cable does not seem to be connected.

### Corrective action:

1. Check that the Trailing Cable is not damaged.
2. Check that the Trailing Cable is correctly connected to the Carriage PCA, Interconnect PCA, and Main PCA.
3. Replace the Ink Supply Tubes and Trailing Cable ⇒ Page 371.



**NOTE:** If the Ink Supply Tubes are to be replaced, the ink cartridges need to be checked beforehand to see if they are capable of purging the new tubes. If they are not, new ink cartridges must also be sent with the parts to be replaced. To check the ink cartridges ⇒ Page 153.

## SE Code: 14.31:10 – Pinch Power regulator V null and no fault

### Problem description:

Pinch Power regulator V null and no fault.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Replace the control cables to the sine-wave converter.

## SE Code: 14.32:01 – Pinch Power regulator V null and faulty

### Problem description:

Pinch Power regulator V null and faulty.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check the Residual Current Circuit Breakers.
4. Check the input voltage.

**SE Code: 14.33:01 – Pinch Power regulator V lower than 140****Problem description:**

Pinch Power regulator V lower than 140.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check the input voltage.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

**SE Code: 14.34:01 – Pinch Power regulator V lower than 180****Problem description:**

Pinch Power regulator V lower than 180.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check the input voltage.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

**SE Code: 14.35:01 – Pinch Power regulator V higher than Vmax****Problem description:**

Pinch Power regulator V higher than Vmax.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check the input voltage.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

**SE Code: 14.36:11 – Pinch Power regulator V could not be read****Problem description:**

Pinch Power regulator V could not be read.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check the input cables.
3. Replace the control cables to the sine-wave converters.

**SE Code: 14.40:10 – Pinch Power regulator current not null****Problem description:**

Pinch Power regulator current not null.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the sine-wave converter.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

**SE Code: 14.41:10 – Pinch Power regulator current too high****Problem description:**

Pinch Power regulator current too high.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check heaters with a tester and replace heaters if necessary (short-circuit).
4. Replace the sine-wave converter.

**SE Code: 14.42:10 – Pinch Power regulator short-circuit****Problem description:**

Pinch Power regulator short-circuit.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check heaters with a tester and replace heaters if necessary.
4. Replace the sine-wave converter.

**SE Code: 14.43:11 – Pinch Power Regulator open circuit****Problem description:**

Pinch Power Regulator open circuit.

If the error appears in the middle of a print and recovers after cooling down, it could be caused by an abnormal increase in the drying module temperature leading one of the thermal switches to open. See System Errors 15.03:00 and 15.20:01 for more information.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check cable connections and heaters with a tester.
4. Check the drying module:

- Ensure that the heaters do not touch the metal covers at the sides, close to the thermal switches.
- Remove the side covers. Ensure that the connections to the thermal switches are strong; tighten the nuts if necessary. In addition, ensure the cables are not peeled or in bad condition.

5. Replace the drying heaters if any of the above applies.

Other possible causes:

- The room temperature is too high or is outside the operational specification of the printer. Make sure there are no external sources of heat, such as strong lights, direct sunlight, or heaters.
- This system error may be caused by a setting in the RIP being used by the customer. If the 'Minimum Drying Power' setting in the RIP is too high, this can cause the system error to be triggered. Set the Minimum Drying Power to 0, and check whether the error remains.
- Check that there are no obstructions on any of the cooling fans: Dryer, Curing, Top Cover Fans, Rear Fans.
- Check that all the fans are functioning correctly. Check that the cables of the fans are not damaged and are connected. Replace any fans if required: Top cover fans ⇒ Page 327. Drying Fans ⇒ Page 330. Curing Fans ⇒ Page 486.

See System Errors 15.03:00 and 15.20:01 for more information.

## SE Code: 14.46:11 – Pinch Power regulator R out of range

### Problem description:

Pinch Power regulator R out of range.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check cable connections.
4. Check heaters with a tester and replace heaters if necessary.
5. Replace the sine-wave converter.

## SE Code: 14.47:10 – Pinch Power regulator OverTemp

### Problem description:

Pinch Power regulator OverTemp.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check cable connections.
4. Check that the input voltage is within specifications.
5. Replace the sine-wave converter.

## SE Code: 14.48:10 – Pinch Power regulator overvoltage or short-circuit

### Problem description:

Pinch Power regulator overvoltage or short-circuit.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check cable connections.
4. Check that the input voltage is within specifications.
5. Replace the sine-wave converter.

**SE Code: 14.49:10 – Pinch sine-wave converter failure****Problem description:**

Pinch sine-wave converter failure.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the sine-wave converter.

**SE Code: 14.51:10 – Overdrive power regulator V null and no fault****Problem description:**

Overdrive power regulator V null and no fault.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Replace the control cables to the sine-wave converter.

**SE Code: 14.52:01 – Overdrive power regulator V null and fault****Problem description:**

Overdrive power regulator V null and fault.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check the Residual Current Circuit Breakers.
4. Check the input voltage.

**SE Code: 14.53:01 – Overdrive power regulator V lower than 140****Problem description:**

Overdrive power regulator V lower than 140.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check the input voltage.

3. Run the Monitoring Sine-waves and Resistances diagnostic test.

### **SE Code: 14.54:01 – Overdrive power regulator V lower than 180**

#### **Problem description:**

Overdrive power regulator V lower than 180.

#### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check the input voltage.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

### **SE Code: 14.55:01 – Overdrive power regulator V higher than Vmax**

#### **Problem description:**

Overdrive power regulator V higher than Vmax.

#### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check the input voltage.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

### **SE Code: 14.56:11 – Overdrive power regulator V could not be read**

#### **Problem description:**

Overdrive power regulator V could not be read.

#### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check cable connections.
3. Replace the control cables to the sine-wave converter.

### **SE Code: 14.60:10 – Overdrive power regulator current not null**

#### **Problem description:**

Overdrive power regulator current not null.

#### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the sine-wave converter.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

### **SE Code: 14.61:10 – Overdrive power regulator current too high**

#### **Problem description:**

Overdrive power regulator current too high.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check heaters with tester and replace heaters if necessary (short-circuit).
4. Replace the sine-wave converter.

**SE Code: 14.62:10 – Overdrive power regulator short-circuit****Problem description:**

Overdrive power regulator short-circuit.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check heaters with tester and replace heaters if necessary.
4. Replace the sine-wave converter.

**SE Code: 14.63:11 – Overdrive power regulator open circuit****Problem description:**

Overdrive power regulator open circuit.

If the error appears in the middle of a print and recovers after cooling down, it could be caused by an abnormal increase in the drying module temperature leading one of the thermal switches to open. See System Errors 15.03:00 and 15.20:01 for more information.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check cable connections and heaters with a tester.
4. Check the drying module:
  - Ensure that the heaters do not touch the metal covers at the sides, close to the thermal switches.
  - Remove the side covers. Ensure that the connections to the thermal switches are strong; tighten the nuts if necessary. In addition, ensure the cables are not peeled or in bad condition.
5. Replace the drying heaters if any of the above applies.

Other possible causes:

- The room temperature is too high or is outside the operational specification of the printer. Make sure there are no external sources of heat, such as strong lights, direct sunlight, or heaters.
- This system error may be caused by a setting in the RIP being used by the customer. If the 'Minimum Drying Power' setting in the RIP is too high, this can cause the system error to be triggered. Set the Minimum Drying Power to 0, and check whether the error remains.
- Check that there are no obstructions on any of the cooling fans: Dryer, Curing, Top Cover Fans, Rear Fans.



- Check that all the fans are functioning correctly. Check that the cables of the fans are undamaged and connected. Replace any fans if required: Top Cover Fans ⇒ Page 327. Drying Fans ⇒ Page 330. Curing Fans ⇒ Page 486.

See System Errors 15.03:00 and 15.20:01 for more information.

## **SE Code: 14.66:11 – Overdrive power regulator R out of range**

### **Problem description:**

Overdrive power regulator R out of range.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check cable connections.
4. Check heaters with tester and replace heaters if necessary.
5. Replace the sine-wave converter.

## **SE Code: 14.67:10 – Overdrive power regulator OverTemp**

### **Problem description:**

Overdrive power regulator OverTemp.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check cable connections.
4. Check that the input voltage is within specifications.
5. Replace the sine-wave converter.

## **SE Code: 14.68:10 – Overdrive power regulator overvoltage or short-circuit**

### **Problem description:**

Overdrive power regulator overvoltage or short-circuit.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check cable connections.
4. Check that the input voltage is within specifications.
5. Replace the sine-wave converter.

## **SE Code: 14.69:10 – Overdrive sine-wave error**

### **Problem description:**

Overdrive power sine-wave error.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the sine-wave converter.

**SE Code: 14.71:10 – Curing power regulator V null and no fault****Problem description:**

Curing power regulator V null and no fault.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Replace the control cables to the sine-wave converter.

**SE Code: 14.72:01 – Curing power regulator V null and fault****Problem description:**

Curing power regulator V null and fault.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check the Resident Current Circuit Breakers.
4. Check the input voltage.

**SE Code: 14.73:01 – Curing power regulator V lower than 140****Problem description:**

Curing power regulator V lower than 140.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check the input voltage.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

**SE Code: 14.74:01 – Curing power regulator V lower than 180****Problem description:**

Curing power regulator V lower than 180.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check the input voltage.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

## **SE Code: 14.75:01 – Curing power regulator V higher than Vmax**

### **Problem description:**

Curing power regulator V higher than Vmax.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check the input voltage.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

## **SE Code: 14.76:11 – Curing power regulator V could not be read**

### **Problem description:**

Curing power regulator V could not be read.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check cable connections.
3. Replace the control cables to the sine-wave converter.

## **SE Code: 14.80:10 – Curing power regulator current not null**

### **Problem description:**

Curing power regulator current not null.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the sine-wave converter.
3. Run the Monitoring Sine-waves and Resistances diagnostic test.

## **SE Code: 14.81:10 – Curing power regulator current too high**

### **Problem description:**

Curing power regulator current too high.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check heaters with tester and replace heaters if necessary (short-circuit).
4. Replace the sine-wave converter.

## **SE Code: 14.82:10 – Curing power regulator short-circuit**

### **Problem description:**

Curing power regulator short-circuit.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check heaters with tester and replace heaters if necessary.
4. Replace the sine-wave converter.

**SE Code: 14.83:11 – Curing power regulator open circuit****Problem description:**

Curing power regulator open circuit.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run Monitoring Sine-waves and Resistances diagnostic test.
3. Check the cable connections and heaters with a tester.
4. Check the curing module:
  - Ensure that the heaters do not touch the metal covers at the sides, close to the thermal switches
  - Remove the side covers. Ensure that the connections to the thermal switches are strong; tighten the nuts if necessary. In addition, ensure the cables are not peeled or in bad condition.
5. Replace the curing heaters if any of the above applies.

Other possible causes:

- The room temperature is too high or is outside the operational specification of the printer. Make sure there are no external sources of heat, such as strong lights, direct sunlight, or heaters.
- This system error may be caused by a setting in the RIP being used by the customer. If the 'Minimum Curing Power' setting in the RIP is too high, this can cause the system error to be triggered. Set the Minimum Curing Power to 0, and check whether the error remains.
- Check there are no obstructions on any of the cooling fans: Dryer, Curing, Top Cover Fans, Rear Fans.
- Check that all the fans are functioning correctly. Check that the cables of the fans are undamaged and connected. Replace any fans if required: Top Cover Fans ⇒ Page 327. Drying Fans ⇒ Page 330. Curing Fans ⇒ Page 486.

See System Errors 15.03:00 and 15.20:01 for more information.

**SE Code: 14.84:11 – Curing power regulator Rtotal is nominal1****Problem description:**

Curing power regulator Rtotal is nominal1.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check intermediate heater connections to see if one of the resistors is disconnected.
3. Replace the curing heaters.

## SE Code: 14.85:11 – Curing power regulator Rtotal is nominal2

### Problem description:

Curing power regulator Rtotal is nominal2.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check intermediate heater connections to see if one of the resistors is disconnected.
3. Replace the curing heaters.

## SE Code: 14.86:11 – Curing power regulator R out of range

### Problem description:

Curing power regulator R out of range.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run Monitoring Sine-waves and Resistances diagnostic test.
3. Check cable connections.
4. Check heaters with tester and replace heaters if necessary.
5. Replace the sine-wave converter.

## SE Code: 14.87:10 – Curing power regulator OverTemp

### Problem description:

Curing power regulator OverTemp.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check the cable connections.
4. Check that the input voltage is within specifications.
5. Replace the sine-wave converter.

## SE Code: 14.88:10 – Curing power regulator overvoltage or short-circuit

### Problem description:

Curing power regulator overvoltage or short-circuit.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Monitoring Sine-waves and Resistances diagnostic test.
3. Check the cable connections.
4. Check that the input voltage is within specifications.

5. Replace the sine-wave converter.

## SE Code: 14.89:10 – Curing sine-wave converter failure

### Problem description:

Curing sine-wave converter failure.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the sine-wave converter.

## SE Code: 15.01:00 – Drying system warm-up timed out

### Problem description:

The drying system is unable to warm up in the pre-defined amount of time (to 45°C for standby and normally 55°C or 60°C for printing).

### Corrective action:

1. Check that the room temperature is within the printer's operating specifications; it should be higher than 15°C for printer operation. If it is too low, increase the room temperature.
2. Check that the input voltage is within the printer's operating specifications: see the *Site Preparation Guide*.
3. Check whether the substrate loaded on the printer is too transparent or reflective for the IR sensor to detect the surface temperature. You can check this by loading another type of substrate.
4. Check whether the Dryer IR sensor is dirty and requires cleaning. Observe all safety precautions while working in the area of the heaters.
5. Check that the position of the IR sensor is correct. If it is pointing to a position other than the substrate this will cause an error.
6. Perform the Heating IR sensor diagnostic check ⇒ Page 166, to check the values being detected by the IR sensor. Replace the Dryer IR sensor if required ⇒ Page 476.
7. Replace the cables from the PrintMech PCA to the connection box.
8. Replace the PrintMech PCA ⇒ Page 457.

## SE Code: 15.02:00 – Drying system cool-down timed out

### Problem description:

The drying system is unable to cool down in the pre-defined amount of time.

### Corrective action:

1. Check that the room temperature is within the printer's operating specifications. If necessary, remove external sources of heat, such as strong lights, direct sunlight, or heaters.
2. This system error can occur if the 'Minimum Drying Power' setting in the RIP is too high. Set the Minimum Drying Power to 0, and check whether the error repeats.
3. Check there are no obstructions on any of the cooling fans: Dryer, Curing, Top Cover Fans, Rear Fans.
4. Check that all the fans are functioning correctly. Check that the cables of the fans are undamaged and connected. Replace any fans if required: Top Cover Fans ⇒ Page 327. Drying Fans ⇒ Page 330. Curing Fans ⇒ Page 486.

## SE Code: 15.03:00 – Drying system temperature too high

### Problem description:

The drying system has exceeded the upper temperature limit.

### Corrective action:

1. Check that the room temperature is within the printer's operating specifications. If necessary, remove external sources of heat, such as strong lights, direct sunlight, or heaters.
2. This system error can occur if the 'Minimum Drying Power' setting in the RIP is too high. Set the Minimum Drying Power to 0, and check whether the error repeats.
3. Check there are no obstructions on any of the cooling fans: Dryer, Curing, Top Cover Fans, Rear Fans.
4. Check that all the fans are functioning correctly. Check that the cables of the fans are undamaged and connected. Replace any fans if required: Top Cover Fans ⇒ Page 327. Drying Fans ⇒ Page 330. Curing Fans ⇒ Page 486.

## SE Code: 15.04:00 – Drying system temperature too low

### Problem description:

The drying system has fallen below the lower temperature limit (below 15°C).

### Corrective action:

1. Check that the room temperature is within the printer's operating specifications; it should be higher than 15°C for printer operation. If it is too low, increase the room temperature.
2. Check whether the Dryer IR sensor is dirty and requires cleaning. Observe all safety precautions while working in the area of the heaters.
3. Check that the position of the IR sensor is correct. If it is pointing to a position other than the substrate this will cause an error.
4. Perform the Heating IR sensor diagnostic check ⇒ Page 166, to check the values being detected by the IR sensor. Replace the Dryer IR sensor if required ⇒ Page 476.
5. Replace the cables from the PrintMech PCA to the connection box.
6. Replace the PrintMech PCA ⇒ Page 457.

## SE Code: 15.05:00 – Problem with the drying system Temperature Sensor

### Problem description:

Signal error detected with the drying system Temperature Sensor.

### Corrective action:

1. Check that the room temperature is within the printer's operating specifications. If necessary, remove external sources of heat, such as strong lights, direct sunlight, or heaters.
2. This system error can occur if the 'Minimum Drying Power' setting in the RIP is too high. Set the Minimum Drying Power to 0, and check whether the error repeats.
3. Check there are no obstructions on any of the cooling fans: Dryer, Curing, Top Cover Fans, Rear Fans.
4. Check that all the fans are functioning correctly. Check that the cables of the fans are undamaged and connected. Replace any fans if required: Top Cover Fans ⇒ Page 327. Drying Fans ⇒ Page 330. Curing Fans ⇒ Page 486.

5. Check whether the Dryer IR sensor is dirty and requires cleaning. Observe all safety precautions while working in the area of the heaters.
6. Check that the position of the IR sensor is correct. If it is pointing to a position other than the substrate this will cause an error.
7. Perform the Heating IR sensor diagnostic check ⇒ Page 166, to check the values being detected by the IR sensor. Replace the Dryer IR sensor if required ⇒ Page 476.
8. Replace the cables from the PrintMech PCA to the connection box.
9. Replace the PrintMech PCA ⇒ Page 457.

## SE Code: 15.06:00 – Temperature error detected

### Problem description:

There is a mismatch between the temperature detected by the Drying IR Sensor and the amount of electrical power the drying system is receiving.

### Corrective action:

1. The ink density may be too high, check the *User's Guide* for the recommended ink density levels.
2. Check that the input voltage is within the printer's operating specifications: see the *Site Preparation Guide*.
3. Check whether the substrate loaded on the printer is too transparent or reflective for the IR sensor to detect the surface temperature. You can check this by loading another type of substrate.
4. Check whether the Dryer IR sensor is dirty and requires cleaning. Observe all safety precautions while working in the area of the heaters.
5. Check that the position of the IR sensor is correct. If it is pointing to a position other than the substrate this will cause an error.
6. Perform the Heating IR sensor diagnostic check ⇒ Page 166, to check the values being detected by the IR sensor. Replace the Dryer IR sensor if required ⇒ Page 476.
7. Replace the cables from the PrintMech PCA to the connection box.
8. Replace the PrintMech PCA ⇒ Page 457.

## SE Code: 15.08:00 – Heating fans array not connected

### Problem description:

Heating fans array not connected.

### Corrective action:

Check the cable connections to the heating fans.

## SE Code: 15.09:11 – Heating fan fault

### Problem description:

Heating fan fault.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the Diagnostic test and confirm which fans are rotating.



3. If none of the fans is working, replace the PrintMech PCA ⇒ Page 457.
4. Replace the cable from the PrintMech PCA to the fans.
5. If at least one of the fans is working, ensure it is connected to the array cable.
6. Replace the non-rotating fans ⇒ Page 330.

## SE Code: 15.15:11 – Drying fan short-circuit

### Problem description:

One or more drying fans have been short-circuited.

### Corrective action:

1. Disconnect all drying fans except one from their own connectors.
2. Run the Fans diagnostic test ⇒ Page 145.
3. If the error appears, the short-circuited fan is probably the connected one. Disconnect, connect another one and continue to next step.
4. If the error does not appear, connect the fans one by one until it does. The failing fan is the last one connected. Disconnect the failing fan and finish the test with all the fans in the array, just in case there is more than one with the problem.
5. Replace the failing fans ⇒ Page 330.
6. Replace the drying fans cable.

## SE Code: 15.20:01 – Minimum drying power has been automatically adjusted

### Problem description:

This error will appear only in the Service Plot. When the drying zone temperature increases in an uncontrolled manner and for no apparent reason, the firmware will automatically adjust the minimum drying power. When this happens, this error will be logged and visible in the Service Plot.

### Corrective action:

1. Check that the room temperature is within the printer's operating specifications. If necessary, remove external sources of heat, such as strong lights, direct sunlight, or heaters.
2. This system error can occur if the 'Minimum Drying Power' setting in the RIP is too high. Set the Minimum Drying Power to 0, and check whether the error repeats.
3. Check there are no obstructions on any of the cooling fans: Dryer, Curing, Top Cover Fans, Rear Fans.
4. Check that all the fans are functioning correctly. Check that the cables of the fans are undamaged and connected. Replace any fans if required: Top Cover Fans ⇒ Page 327. Drying Fans ⇒ Page 330. Curing Fans ⇒ Page 486.

## SE Code: 16.01:00 – Curing system warm-up timed out

### Problem description:

The curing system is unable to warm up in the pre-defined amount of time (to 45°C for standby and 95°C to 115°C for printing).

### Corrective action:

1. Check that the room temperature is within the printer's operating specifications; it should be higher than 15°C for printer operation. If it is too low, increase the room temperature.

2. Check that the input voltage is within the printer's operating specifications: see the *Site Preparation Guide*.
3. Check whether the substrate loaded on the printer is too transparent or reflective for the IR sensor to detect the surface temperature. You can check this by loading another type of substrate.
4. Check whether the Curing IR sensor is dirty and requires cleaning. Observe all safety precautions while working in the area of the heaters.
5. Check for an obstacle blocking the IR sensor's view. Ensure that the IR sensor is correctly installed on the printer, with no interference in the infrared light path, and that it is pointing to the substrate.
6. Perform the Curing IR sensor diagnostic check ⇒ Page 167, to check the values being detected by the IR sensor. Replace the Curing IR sensor if required ⇒ Page 496.
7. Replace the cables from the PrintMech PCA to the connection box.
8. Replace the PrintMech PCA ⇒ Page 457.

## SE Code: 16.02:00 – Curing system cool-down timed out

### Problem description:

The curing system is unable to cool down in the pre-defined amount of time.

### Corrective action:

1. Check that the room temperature is within the printer's operating specifications. If necessary, remove external sources of heat, such as strong lights, direct sunlight, or heaters.
2. Check there are no obstructions on any of the cooling fans: Dryer, Curing, Top Cover Fans, Rear Fans.
3. Check that all the fans are functioning correctly. Check that the cables of the fans are undamaged and connected. Replace any fans if required: Top Cover Fans ⇒ Page 327. Drying Fans ⇒ Page 330. Curing Fans ⇒ Page 486.

## SE Code: 16.03:00 – Curing system temperature too high

### Problem description:

The curing system has exceeded the upper temperature limit (150°C).

### Corrective action:

1. Check that the room temperature is within the printer's operating specifications. If necessary, remove external sources of heat, such as strong lights, direct sunlight, or heaters.
2. Check that the Curing IR Sensor Fan is turning and is correctly installed with the fan in the correct orientation.
3. Check that the cables are connected and undamaged.
4. Perform the Curing IR sensor diagnostic check ⇒ Page 167, to check the values being detected by the IR sensor. Replace the Curing IR sensor if required ⇒ Page 496.
5. Replace the cables from the PrintMech PCA to the connection box.
6. Replace the PrintMech PCA ⇒ Page 457.
7. Check there are no obstructions on any of the cooling fans: Dryer, Curing, Top Cover Fans, Rear Fans.

8. Check that all the fans are functioning correctly. Check that the cables of the fans are undamaged and connected. Replace any fans if required: Top Cover Fans ⇒ Page 327. Drying Fans ⇒ Page 330. Curing Fans ⇒ Page 486.

## **SE Code: 16.04:00 – Curing system temperature too low**

### **Problem description:**

The curing system has fallen below the lower temperature limit (below 5°C).

### **Corrective action:**

1. Check that the room temperature is within the printer's operating specifications; it should be higher than 15°C for printer operation. If it is too low, increase the room temperature.
2. Check whether the Curing IR sensor is dirty and requires cleaning. Observe all safety precautions while working in the area of the heaters.
3. Check for an obstacle blocking the IR sensor's view. Ensure that the IR sensor is correctly installed on the printer, with no interference in the infrared light path, and that it is pointing to the substrate.
4. Perform the Curing IR sensor diagnostic check ⇒ Page 167, to check the values being detected by the IR sensor. Replace the Curing IR sensor if required ⇒ Page 496.
5. Replace the cables from the PrintMech PCA to the connection box.
6. Replace the PrintMech PCA ⇒ Page 457.

## **SE Code: 16.05:00 – Problem with the curing system Temperature Sensor**

### **Problem description:**

Signal error detected with the curing system Temperature Sensor.

### **Corrective action:**

1. Check that the room temperature is within the printer's operating specifications. If necessary, remove external sources of heat, such as strong lights, direct sunlight, or heaters.
2. Check that the Curing IR Sensor Fan is turning and is correctly installed with the fan in the correct orientation.
3. Check whether the Curing IR sensor is dirty and requires cleaning. Observe all safety precautions while working in the area of the heaters.
4. Check that the cables are connected and undamaged.
5. Perform the Curing IR sensor diagnostic check ⇒ Page 167, to check the values being detected by the IR sensor. Replace the Curing IR sensor if required ⇒ Page 496.
6. Replace the cables from the PrintMech PCA to the connection box.
7. Replace the PrintMech PCA ⇒ Page 457.
8. Check there are no obstructions on any of the cooling fans: Dryer, Curing, Top Cover Fans, Rear Fans.
9. Check that all the fans are functioning correctly. Check that the cables of the fans are undamaged and connected. Replace any fans if required: Top Cover Fans ⇒ Page 327. Drying Fans ⇒ Page 330. Curing Fans ⇒ Page 486.

## SE Code: 16.06:00 – Temperature error detected

### Problem description:

There is a mismatch between the temperature detected by the Curing IR Sensor and the amount of electrical power the curing system is receiving.

### Corrective action:

1. The ink density may be too high, check the *User's Guide* for the recommended ink density levels.
2. Check that the input voltage is within the printer's operating specifications: see the *Site Preparation Guide*.
3. Check whether the substrate loaded on the printer is too transparent or reflective for the IR sensor to detect the surface temperature. You can check this by loading another type of substrate.
4. Check whether the Curing IR sensor is dirty and requires cleaning. Observe all safety precautions while working in the area of the heaters.
5. Check for an obstacle blocking the IR sensor's view. Ensure that the IR sensor is correctly installed on the printer, with no interference in the infrared light path, and that it is pointing to the substrate.
6. Perform the Curing IR sensor diagnostic check ⇒ Page 167, to check the values being detected by the IR sensor. Replace the Curing IR sensor if required ⇒ Page 496.
7. Replace the cables from the PrintMech PCA to the connection box.
8. Replace the PrintMech PCA ⇒ Page 457.

## SE Code: 16.08:00 – Curing fans array 1 not connected

### Problem description:

The array 1 of curing system fans is not connected.

### Corrective action:

Check the cable connections to the curing fans.

## SE Code: 16.09:00 – Curing fan array 1 fault

### Problem description:

Curing fan array 1 fault.

### Corrective action:

1. Run the Diagnostic test and confirm which fans are rotating.
2. If none of the fans is working, replace the PrintMech PCA ⇒ Page 457.
3. Replace the cable from the PrintMech to the fans.
4. If at least one of the fans is working, ensure it is connected to the array 1 cable.
5. Replace the non-rotating fans ⇒ Page 486.

## SE Code: 16.11:00 – Curing fans array 2 not connected

### Problem description:

Curing fans array 2 not connected.

**Corrective action:**

Check the cable connections to the curing fans array 2.

**SE Code: 16.20:11 – IR sensor curing fan not connected****Problem description:**

IR sensor curing fan not connected.

**Corrective action:**

Check the cable connections to the IR sensor.

**SE Code: 16.21:10 – Curing fan array 2 fault****Problem description:**

Curing fan array 2 fault.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Run the diagnostic test and confirm which fans are rotating.
3. If none of the fans is working, replace the PrintMech PCA ⇒ Page 457.
4. Replace the cable from the PrintMech PCA to the fans.
5. If at least one of the fans is working, ensure that it is connected to the array 2 cable.
6. Replace the non-rotating fans ⇒ Page 486.

**SE Code: 17.0:11 – PrintMech to Interconnect power cable disconnected****Problem description:**

The PrintMech to Interconnect power cable does not seem to be connected.

**Corrective action:**

1. Check that the PrintMech to Interconnect power cable is not damaged.
2. Check that the PrintMech to Interconnect power cable is correctly connected to the PrintMech PCA and the Interconnect PCA.
3. Replace the PrintMech to Interconnect power cable (which is included in the Electronics Module Cable Kit).

**SE Code: 17.1:11 – PrintMech to Interconnect data 1 cable disconnected****Problem description:**

The PrintMech to Interconnect data 1 cable does not seem to be connected.

**Corrective action:**

1. Check that the PrintMech to Interconnect data 1 cable is not damaged.
2. Check that the PrintMech to Interconnect data 1 cable is correctly connected to the PrintMech PCA and the Interconnect PCA.
3. Replace the PrintMech to Interconnect data 1 cable.

## SE Code: 17.2:11 – PrintMech to Interconnect data 2 cable disconnected

### Problem description:

The PrintMech to Interconnect data 2 cable does not seem to be connected.

### Corrective action:

1. Check that the PrintMech to Interconnect data 2 cable is not damaged.
2. Check that the PrintMech to Interconnect data 2 cable is correctly connected to the PrintMech PCA and the Interconnect PCA.
3. Replace the PrintMech to Interconnect data 2 cable.

## SE Code: 17.3:11 – Main PCA to PrintMech black 1 cable disconnected

### Problem description:

The Main PCA to PrintMech black 1 cable does not seem to be connected.

### Corrective action:

1. Check that the Main PCA to PrintMech black 1 cable is not damaged.
2. Check that the Main PCA to PrintMech black 1 cable is correctly connected to the Main PCA and the PrintMech PCA.
3. Replace the Main PCA to PrintMech black 1 cable.

## SE Code: 17.4:11 – Main PCA to PrintMech blue 2 cable disconnected

### Problem description:

The Main PCA to PrintMech blue 2 cable does not seem to be connected.

### Corrective action:

1. Check that the Main PCA to PrintMech blue 2 cable is not damaged.
2. Check that the Main PCA to PrintMech blue 2 cable is correctly connected to the Main PCA and the PrintMech PCA.
3. Replace the Main PCA to PrintMech blue 2 cable.

## SE Code: 21:03 – Service Station electrical current limit

### Problem description:

Service Station electrical current limit.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Make sure that the Service Station path is clear. Remove any visible obstacles restricting the movement of the Service Station.
3. Replace the Service Station ⇒ Page 341.

## SE Code: 21:13 – Problem with the Service Station

### Problem description:

Problem with the Service Station.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Make sure that the Service Station path is clear. Remove any visible obstacles (such as screws or plastic parts) restricting the movement of the Service Station.
3. Switch the power off at the rear of the printer, remove the Printhead Maintenance Cartridge, and switch the printer on again.
4. If the error happens after printing for several hours and is cleared after power cycling, some small damage to the Encoder can cause the print carriage to lose its position little by little. The same effect could be produced by an ink or oil stain on the Encoder. Replace the Encoder Strip if it is damaged ⇒ Page 395.
5. Replace the Service Station ⇒ Page 341.

## SE Code: 21.2:10 – Problem with the Web Wipe motor

### Problem description:

Web Wipe Motor servo shut down.

### Corrective action:

1. Switch the power off at the rear of the printer, manually pull the Printhead Maintenance Cartridge to the front position and switch the printer on again.
2. Switch the power off at the rear of the printer and remove the Printhead Maintenance Cartridge. Switch the printer on again. If the error is cleared, replace the Printhead Maintenance Cartridge.
3. Replace the Web Wipe Motor ⇒ Page 344.

## SE Code: 21.3:10 – Electrical problem in the Web Wipe Motor

### Problem description:

Error detected in the area of the Web Wipe Assembly (Rack engage motor electrical).

### Corrective action:

1. Switch the power off at the rear of the printer, manually pull the Printhead Maintenance Cartridge to the front position and switch the printer on again.
2. Switch the power off at the rear of the printer and remove the Printhead Maintenance Cartridge. Switch the printer on again. If the error is cleared, replace the Printhead Maintenance Cartridge.
3. Replace the Web Wipe Motor ⇒ Page 344.
4. Replace the PrintMech PCA ⇒ Page 457.

## SE Code: 21.4:03 – Electrical problem in the Web Wipe Motor

### Problem description:

Error detected in the area of the Web Wipe Assembly (Rack engage motor electrical).

**Corrective action:**

1. Switch the power off at the rear of the printer, manually pull the Printhead Maintenance Cartridge to the front position and switch the printer on again.
2. Switch the power off at the rear of the printer and remove the Printhead Maintenance Cartridge. Switch the printer on again. If the error is cleared, replace the Printhead Maintenance Cartridge.
3. Replace the Web Wipe Motor ⇒ Page 344.
4. Replace the PrintMech PCA ⇒ Page 457.

**SE Code: 21.5:03 – Web Wipe Assembly Drifting****Problem description:**

Error detected in the area of the Web Wipe Assembly (Rack engage drifting).

**Corrective action:**

1. Switch the power off at the rear of the printer, manually pull the Printhead Maintenance Cartridge to the front position and switch the printer on again.
2. Switch the power off at the rear of the printer and remove the Printhead Maintenance Cartridge. Switch the printer on again. If the error is cleared, replace the Printhead Maintenance Cartridge.
3. Replace the Web Wipe Motor ⇒ Page 344.

**SE Code: 23:10 – Air Pressure System failure****Problem description:**

The APS has received a request to depressurize, but the system has not depressurized within the expected time (120 s).

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the APS cable is not damaged and is correctly connected to the PrintMech PCA.
3. Check that the air tubes are properly connected and are not kinked or pinched.
4. Replace the APS Assembly ⇒ Page 392.

**SE Code: 24:03 – Ink Supply Tubes purge failure****Problem description:**

The Ink Supply Tubes purge process has failed or has been canceled by the customer.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Ensure that the dummy printheads are correctly installed and purge the Ink Supply Tubes again.
3. Replace the Setup Printhead Kit.

**SE Code: 24:10 – Ink cartridge broken bag****Problem description:**

A broken bag has been detected in one of the ink cartridges. This error must be solved and the printer checked and cleared of this error code before the printer can resume printing.



**Corrective action:**

1. The front panel message will indicate which ink cartridge has a broken bag. Remove the ink cartridge and check for any ink leaking from the cartridge. In some extreme cases:
  - Ink can leak from the damaged ink cartridge and contaminate the pressurized air system or
  - Air can get inside the Ink System causing bubbles in the Ink Tubes, which can damage the printheads.
2. For this issue there is a specific menu selection to recover from the broken bag error. Perform the "Bag Broken Recovery" Diagnostic procedure (⇒ Page 154).
3. If the ISS Bottom PCA has been damaged by ink this must be replaced if it cannot be repaired ⇒ Page 388.

**SE Code: 24:11 – PrintMech PCA to ISS Top cable disconnected****Problem description:**

The PrintMech PCA to ISS Top cable does not seem to be connected.

**Corrective action:**

1. Check that the PrintMech PCA to Pre-Driver PCA cable is not damaged.
2. Check the Pre-Driver PCA LEDs.
3. Check that the Pre-Driver PCA to IIS Top cable is correctly connected.
4. Replace the ISS Top PCA ⇒ Page 388.
5. Replace the Pre-Driver PCA ⇒ Page 317.

**SE Code: 24.1:11 – ISS Top PCA to ISS Bottom PCA cable disconnected****Problem description:**

The ISS Top PCA to ISS Bottom PCA cable does not seem to be connected.

**Corrective action:**

1. Check that the PrintMech PCA to Pre-Driver PCA cable is not damaged.
2. Check the Pre-Driver PCA LEDs.
3. Check that the Pre-Driver PCA to ISS Bottom PCA cable is correctly connected.
4. Replace the ISS Bottom PCA ⇒ Page 388.
5. Replace the Pre-Driver PCA ⇒ Page 317.

**SE Code: 24.02:00 – Top Cover fans disconnected****Problem description:**

The firmware has detected that there is no connection to the array of Top Cover fans.

**Corrective action:**

1. Perform the All Fans service test (Page 145) to confirm that none of the Top Cover fans is working.
2. Check the Top Cover fan cable, by the left arch, is connected to the PrintMech PCA at both ends, and that it is not damaged.

3. If all the cables from the PrintMech PCA to the fans are connected, replace the PrintMech PCA ⇒ Page 457.

## **SE Code: 24.03:00 – Top Cover fans not working**

### **Problem description:**

The firmware has detected that one or more of the Top Cover fans are not working.

### **Corrective action:**

1. Perform the All Fans service test (Page 145) to confirm that none of the Top Cover fans is working.
2. If none of the fans is working, this indicates a failure of the PrintMech PCA, or the cables from the PrintMech PCA.
  - Check the cables from the PrintMech PCA.
  - If all the cables from the PrintMech PCA to the fans are connected, replace the PrintMech PCA ⇒ Page 457.
3. If at least one of the fans is working, check whether the failed fans are connected to the array. If they are connected, replace the failed fans ⇒ Page 327.
4. If the error is not cleared, check all the cables from the failed fan to the PrintMech PCA.

## **SE Code: 26:14 – A wrong ink cartridge has been detected**

### **Problem description:**

A wrong ink cartridge has been detected.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Remove the ink cartridges and check that they are the correct ones for this printer.
3. Check that the printer has the latest firmware version; if not, update the firmware to the latest version.
4. Replace the ink cartridges.

## **SE Code: 26.0:01 – Contact failure with magenta ink cartridge**

### **Problem description:**

Bad contact detected in ISS slot 0 floater.

### **Corrective action:**

1. Remove the magenta ink cartridge and reinstall it into the printer.
2. Replace the magenta ink cartridge.
3. Check that the ISS to magenta ink cartridge cable is not damaged and is correctly connected to the Ink Supply Tubes PCA.
4. Replace the ISS to magenta ink cartridge cable ⇒ Page 381.

## **SE Code: 26.1:01 – Contact failure with yellow ink cartridge**

### **Problem description:**

Bad contact detected in ISS slot 1 floater.

**Corrective action:**

1. Remove the yellow ink cartridge and reinstall it into the printer.
2. Replace the yellow ink cartridge.
3. Check that the ISS to yellow ink cartridge cable is not damaged and is correctly connected to the Ink Supply Tubes PCA.
4. Replace the ISS to yellow ink cartridge cable ⇒ Page 381.

**SE Code: 26.2:01 – Contact failure with black ink cartridge****Problem description:**

Bad contact detected in ISS slot 2 floater.

**Corrective action:**

1. Remove the black ink cartridge and reinstall it into the printer.
2. Replace the black ink cartridge.
3. Check that the ISS to black ink cartridge cable is not damaged and is correctly connected to the Ink Supply Tubes PCA.
4. Replace the ISS to black ink cartridge cable ⇒ Page 381.

**SE Code: 26.3:01 – Contact failure with cyan ink cartridge****Problem description:**

Bad contact detected in ISS slot 3 floater.

**Corrective action:**

1. Remove the cyan ink cartridge and reinstall it into the printer.
2. Replace the cyan ink cartridge.
3. Check that the ISS to cyan ink cartridge cable is not damaged and is correctly connected to the Ink Supply Tubes PCA.
4. Replace the ISS to cyan ink cartridge cable ⇒ Page 381.

**SE Code: 26.4:01 – Contact failure with light magenta ink cartridge****Problem description:**

Bad contact detected in ISS slot 4 floater.

**Corrective action:**

1. Remove the light magenta ink cartridge and reinstall it into the printer.
2. Replace the light magenta ink cartridge.
3. Check that the ISS to light magenta ink cartridge cable is not damaged and is correctly connected to the Ink Supply Tubes PCA.
4. Replace the ISS to light magenta ink cartridge cable ⇒ Page 381.

## SE Code: 26.5:01 – Contact failure with light cyan ink cartridge

### Problem description:

Bad contact detected in ISS slot 5 floater.

### Corrective action:

1. Remove the light cyan ink cartridge and reinstall it into the printer.
2. Replace the light cyan ink cartridge.
3. Check that the ISS to light cyan ink cartridge cable is not damaged and is correctly connected to the Ink Supply Tubes PCA.
4. Replace the ISS to light cyan ink cartridge cable ⇒ Page 381.

## SE Code: 27:01 – Calibration failed due to a printhead

### Problem description:

Calibration may have failed due to a high number of blocked nozzles in a printhead.

### Corrective action:

Clean all printheads and check their status.

## SE Code: 27:14 – A wrong printhead has been detected

### Problem description:

A wrong printhead has been detected.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Remove the printheads and check that they are the correct ones for this printer.
3. Check that the printer has the latest firmware version; if not, update the firmware to the latest version.
4. Replace the printheads.

## SE Code: 27.1:01 – Calibration failed due to printhead in slot 1

### Problem description:

Calibration failed to due to poor performance of the cyan/light cyan printhead in slot 1.

### Corrective action:

This may impact your print quality. If it becomes unacceptable in the future, clean all printheads and check their status.

## SE Code: 27.2:01 – Calibration failed due to printhead in slot 2

### Problem description:

Calibration failed to due to poor performance of the cyan/light cyan printhead in slot 2.

### Corrective action:

This may impact your print quality. If it becomes unacceptable in the future, clean all printheads and check their status.

## SE Code: 27.3:01 – Calibration failed due to printhead in slot 3

### Problem description:

Calibration failed to due to poor performance of the yellow/black printhead in slot 3.

### Corrective action:

This may impact your print quality. If it becomes unacceptable in the future, clean all printheads and check their status.

## SE Code: 27.4:01 – Calibration failed due to printhead in slot 4

### Problem description:

Calibration failed to due to poor performance of the yellow/black printhead in slot 4.

### Corrective action:

This may impact your print quality. If it becomes unacceptable in the future, clean all printheads and check their status.

## SE Code: 27.5:01 – Calibration failed due to printhead in slot 5

### Problem description:

Calibration failed to due to poor performance of the light magenta/magenta printhead in slot 5.

### Corrective action:

This may impact your print quality. If it becomes unacceptable in the future, clean all printheads and check their status.

## SE Code: 27.6:01 – Calibration failed due to printhead in slot 6

### Problem description:

Calibration failed to due to poor performance of the light magenta/magenta printhead in slot 6.

### Corrective action:

This may impact your print quality. If it becomes unacceptable in the future, clean all printheads and check their status.

## SE Code: 29:01 – Printhead Cleaning Cartridge incorrectly inserted

### Problem description:

The Printhead Cleaning Cartridge is incorrectly installed.

### Corrective action:

1. Reseat the Printhead Cleaning Cartridge.
2. Replace the Printhead Cleaning Cartridge if the error continues.

## SE Code: 32:01 – Take-Up Reel disconnected

### Problem description:

There is a cable connection problem with the Take-Up Reel.

**Corrective action:**

1. If you want to continue using the Take-Up Reel, you must turn off the printer and check that all Take-Up Reel cables are connected (sensor cables, printer cable).
2. If not, cut the substrate and then manually unload it from the Take-Up Reel.

**SE Code: 32:01.1 – Early Take-Up Reel substrate jam****Problem description:**

This system error happens when there is a small amount of substrate printed (less than 79 inches long), and the Take Up Reel sensor detects that the tension bar is (incorrectly) at the bottom of its path, even though the spindle motor has been rotating for more than 3 seconds.

The most likely cause of this error is that the user has forgotten to set the switch direction or tape the substrate to the spindle core.

**Corrective action:**

1. Check that the substrate is attached to the Take-Up Reel.
2. Check that the winding direction switch is in the correct position.
3. If needed, use the Take-Up Reel arrow keys to wind the substrate before resuming printing.
4. To resume printing, press OK.

**SE Code: 32:01.2 – Take-Up Reel substrate jam****Problem description:**

The tension bar has stayed in one of its sensor trigger positions for more than 8 seconds.

**Corrective action**

1. Check that the substrate is attached to the Take-Up Reel.
2. Check that the winding direction switch is in the correct position.
3. Check that nothing is blocking the movement of the tension bar.
4. Ensure that the substrate is following the correct path along the tension bar and diverter bar.

**SE Code: 32:01.9 – Take-Up Reel substrate unexpectedly removed****Problem description:**

The Take-Up Reel has been disabled because the substrate was unexpectedly removed from it.

**Corrective action**

Remove all substrate from the printer and reinstall the Take-Up Reel.

**SE Code: 32:02 – Take-Up Reel disconnected at initialization****Problem Description**

This message is shown during initialization of the printer; it warns that the Take-Up Reel has been disconnected while the printer was off. This error is also shown if the user tries to enable the Take-Up Reel but it is not connected to the printer.

**Corrective action:**

Connect the Take-Up Reel to the printer and press OK to continue.

## SE Code: 41:03 – Media-Axis Motor electrical current limit

### Problem description:

Electrical current limit in the Media-Axis Motor.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Open the Window and check for any visible obstacles restricting the movement of the Drive Roller. If there is a wrinkled mass of substrate inside the substrate path, lift the Pinchwheels (using the Media Lever) and clear the obstruction.
3. Replace the Media-Axis Motor ⇒ Page 420.

## SE Code: 42:03 – Scan-Axis Motor electrical current limit

### Problem description:

Electrical current limit in the Scan-Axis Motor.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Open the Window and check for any visible obstacles restricting the movement of the Carriage. If there is a wrinkled mass of substrate inside the printer, clear the substrate jam by following the instructions in the *User's Guide*.
3. Replace the Scan Axis Motor ⇒ Page 416.

## SE Code: 42:10 – Electrical fault in the Scan Axis area

### Problem description:

Electrical fault in Carriage Motor or starting the Scan Axis or Homing Scan Axis.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Scan Axis Motor ⇒ Page 416.

## SE Code: 42.10:11 – Scan-Axis Motor cooling fan not connected

### Problem description:

The Scan-Axis Motor cooling fan is not connected.

### Corrective action:

1. Perform the Scan Axis Service test.
2. Check that the Scan-Axis Motor fan cable is not damaged and is correctly connected to the PrintMech PCA.
3. Replace the Scan-Axis Motor fan ⇒ Page 419.
4. Replace the PrintMech PCA ⇒ Page 457.

## SE Code: 42.11:10 – Scan-Axis Motor cooling fan fault

### Problem description:

Scan-Axis Motor cooling fan fault. It is connected, but when applying PWM it does not turn.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Scan-Axis Motor Fan ⇒ Page 419.

## SE Code: 43:11 – Vacuum Fan not connected

### Problem description:

A Vacuum Fan does not seem to be connected.

### Corrective action:

1. Check the cable connections between the Mini Interconnect PCA and Eolas SVS side.
2. Replace Eolas.
3. Replace the Mini Interconnect PCA.

## SE Code: 43.2:11 – Vacuum Fan stopped

### Problem description:

A Vacuum Fan has stopped.

### Corrective action:

1. Check the cable connections between SVS side fans.
2. Replace the Vacuum Fan SVS side ⇒ Page 346.

## SE Code: 43.3:10 – Vacuum Fan overcurrent

### Problem description:

Vacuum Fan overcurrent.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Vacuum Fan SVS side ⇒ Page 346.

## SE Code: 43.4:10 – Vacuum Fan low performance

### Problem description:

Vacuum Fan low performance.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Vacuum Fan SVS side ⇒ Page 346.



## SE Code: 43.11:11 – Vacuum Fan 2 or 3 not connected

### Problem description:

Vacuum Fan 2 or 3 is not connected.

### Corrective action:

1. Check cable connections between the PrintMech PCA and Eolas IDS side.
2. Replace Eolas.
3. Replace the PrintMech PCA ⇒ Page 457.

## SE Code: 43.12:11 – Vacuum Fan 2 or 3 stopped

### Problem description:

Vacuum Fan 2 or 3 has stopped.

### Corrective action:

1. Check the cable connections between Eolas and Vacuum Fans IDS side.
2. Replace the Vacuum Fans ⇒ Page 346.

## SE Code: 43.13:10 – Vacuum Fan 2 or 3 overcurrent

### Problem description:

Vacuum Fan 2 or 3 overcurrent.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Vacuum Fans IDS side ⇒ Page 346.

## SE Code: 43.14:10 – Vacuum Fan 2 or 3 low performance

### Problem description:

Vacuum Fan 2 or 3 is not performing adequately.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Vacuum Fans IDS side ⇒ Page 346.

## SE Code: 44:10 – There is a problem with the Aerosol Fan

### Problem description:

There is no feedback signal from the Waste Management Aerosol Fan.

### Corrective action:

1. Replace the Waste Management module (which can be done by the customer). This is the most probable failure.
2. Check that the cable of the waste management system is correctly connected to the connector at the EBOX (which can be done by the customer).
3. Check that the cable from the EBOX to the Interconnect PCA is correctly connected.

4. Check that the cables going from the Interconnect PCA to the PrintMech PCA are correctly connected.
5. Replace the Interconnect PCA ⇒ Page 431.
6. Replace the PrintMech PCA ⇒ Page 457.

## **SE Code: 44:11 – Aerosol Fan not connected**

### **Problem description:**

The Aerosol Fan is disconnected.

### **Corrective action:**

Check the connections to the Aerosol Fan.

## **SE Code: 44.1:01 – Waste Management cable not connected**

### **Problem description:**

The waste management system cable is disconnected.

### **Corrective action:**

1. Check the connections between the Waste Management PCA and the printer.
2. Check the connections to the Interconnect PCA.
3. Check that the cable of the waste management system is correctly connected to the connector at the EBOX (this check can be done by the customer). This is the most probable cause.
4. Replace the Waste Management module (this part can be changed by the customer).
5. Check that the cable from the EBOX to the Interconnect PCA is correctly connected.
6. Check that the cables going from the Interconnect PCA to the PrintMech PCA are correctly connected.
7. Replace the Interconnect PCA ⇒ Page 431.
8. Replace the PrintMech PCA ⇒ Page 457.

## **SE Code: 44.2:01 – Waste management switch open**

### **Problem description:**

At least one of the switches of the waste management sub-assembly is in open status.

### **Corrective action:**

1. Check that the aerosol filter door is correctly closed (this can be done by the customer).
2. Check that the waste management ink tube is correctly inserted in the waste management sub-assembly (this can be done by the customer).
3. Replace the Waste Management module (this part can be changed by the customer). This is the most likely solution.
4. Check that the cable of the waste management system is correctly connected to the connector at the EBOX (this check can be done by the customer).
5. Check that the cable from the EBOX to the Interconnect PCA is correctly connected.
6. Check that the cables going from the Interconnect PCA to the PrintMech PCA are correctly connected.

7. Replace the Interconnect PCA ⇒ Page 431.
8. Replace the PrintMech PCA ⇒ Page 457.

## **SE Code: 44.3:01 – Waste management cable short-circuited**

### **Problem description:**

There is a short-circuit in the waste management system cable, and maybe also in the Interconnect PCA.

### **Corrective action:**

1. Replace the Waste Management module (this part can be changed by the customer). This is the most likely solution.
2. Check that the cable of the waste management system is correctly connected to the connector at the EBOX (this check can be done by the customer).
3. Check that the cable from the EBOX to the Interconnect PCA is correctly connected.
4. Check that the cables going from the Interconnect PCA to the PrintMech PCA are correctly connected.
5. Replace the Interconnect PCA ⇒ Page 431.
6. Replace the PrintMech PCA ⇒ Page 457.

## **SE Code: 44.4:01 – Problem in the waste management feedback signal**

### **Problem description:**

There is a problem with the feedback signal from the waste management system.

### **Corrective action:**

1. Check that the cable of the waste management system is correctly connected to the connector at the EBOX (which can be done by the customer). This is the most probable failure.
2. Replace the Waste Management module (which can be done by the customer).
3. Check that the cable from the EBOX to the Interconnect PCA is correctly connected.
4. Check that the cables going from the Interconnect PCA to the PrintMech PCA are correctly connected.
5. Replace the Interconnect PCA ⇒ Page 431.
6. Replace the PrintMech PCA ⇒ Page 457.

## **SE Code: 45:03 – Rewinder servo shutdown**

### **Problem description:**

The Rewinder servo has shut down.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Open the Window and check for any visible obstacles restricting the movement of the Drive Roller. If there is a wrinkled mass of substrate inside the substrate path, lift the Pinch Wheels and clear the obstruction.
3. Replace the Rewinder Motor Module ⇒ Page 341.

**SE Code: 45:10 – Rewinder fault****Problem description:**

Rewinder fault.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Rewinder Motor Module ⇒ Page 341.

**SE Code: 46:03 – Primer servo shutdown****Problem description:**

The Primer servo has shut down.

**Corrective action:**

1. Check that the Primer Arm is not damaged and that there are no obstacles in its way.
2. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
3. Replace the Primer Assembly ⇒ Page 335.

**SE Code: 46:10 – Primer test distance failed****Problem description:**

Primer test distance failed.

**Corrective action:**

1. Check that the Primer arm is not damaged and that there are no obstructions in the way.
2. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
3. Replace the Primer Assembly ⇒ Page 335.

**SE Code: 50:14 – Firmware version mismatch****Problem description:**

Firmware version mismatch between the OMAS Controller Card and the Hard Disk Drive.

**Corrective action:**

1. Check that the printer has the latest Firmware version. If not, update the firmware to the latest version.
2. Replace the OMAS Controller Card ⇒ Page 432.

**SE Code: 50.1:10 – OMAS communication failure****Problem description:**

There has been a communication error with the Optical Media Advance Sensor (OMAS).

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the printer has the latest firmware version. If not, update the firmware to the latest version.

3. Check that the OMAS Controller to OMAS Sensor cable is not damaged and is correctly connected to the OMAS Controller Card and the OMAS Module.
4. Replace the OMAS Module ⇒ Page 422.

## **SE Code: 50.2:10 – OMAS Controller Card communication failure**

### **Problem description:**

There has been a communication error with the OMAS Controller Card.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the printer has the latest firmware version. If not, update the firmware to the latest version.
3. Replace the OMAS Controller Card ⇒ Page 432.

## **SE Code: 50.3:11 – Main PCA to OMAS Controller cable not connected**

### **Problem description:**

The Main PCA to OMAS Controller cable does not seem to be connected.

### **Corrective action:**

1. Check that the Main PCA to OMAS Controller cable is not damaged.
2. Check that the Main PCA to OMAS Controller cable is correctly connected to the Main PCA and to the OMAS Controller Card.

## **SE Code: 50.10:11 – TOMAS error**

### **Problem description:**

The TOMAS measurements are unstable.

### **Corrective action:**

1. Check that TOMAS is correctly connected.
2. Replace TOMAS ⇒ Page 428.

## **SE Code: 52:01 – A problem with the Drop Detector**

### **Problem description:**

Drop Detector fiber detected.

### **Corrective action:**

1. Check that the Ink Funnel is correctly installed. Use the 'Replace Ink Funnel' process to access the funnel.
2. Check that there are no obstructions in the funnel, such as substrate, which would block the detector signal.
3. Replace the Drop Detector ⇒ Page 366.

## SE Code: 52:10 – A problem with the On/Off switch in the Drop Detector

### Problem description:

Drop Detector switch On/Off failure.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the Drop Detector cable is not damaged and is correctly connected to the Service Station cable.
3. Check that the Service Station cable is not damaged and is correctly connected to the Interconnect PCA.
4. Replace the Drop Detector ⇒ Page 366.
5. Replace the Interconnect PCA ⇒ Page 431.
6. Replace the Engine PCA ⇒ Page 439.

## SE Code: 53.1:10 – Media Sensor error

### Problem description:

An error has been detected in the Media Sensor.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the Media Sensor cable is not damaged and is connected correctly to the Interconnect PCA.
3. Replace the Media Sensor ⇒ Page 547.

## SE Code: 53.1:11 – Media Sensor cable not connected

### Problem description:

The Media Sensor cable does not seem to be connected.

### Corrective action:

Ensure that the Media Sensor cable is not damaged and is connected correctly to the Interconnect PCA.

## SE Code: 54:10 – Media Lever Sensor error

### Problem description:

An error has been detected in the Media Lever Sensor.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the Media Lever Sensor cable is not damaged and is correctly connected to the Interconnect PCA.
3. Replace the Media Lever Sensor ⇒ Page 289.

## SE Code: 55:10 – Line Sensor communication failure

### Problem description:

The printer cannot communicate with the Line Sensor.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Replace the Line Sensor ⇒ Page 463.

## SE Code: 56:01 – Incorrect readings from Substrate Encoder

### Problem description:

Incorrect readings from Substrate Encoder.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Perform Substrate Drive diagnostics.
3. Replace the Encoder Disc and Sensor ⇒ Page 549.

## SE Code: 56:10 – Substrate Encoder calibration failed

### Problem description:

Substrate Encoder calibration has failed.

### Corrective action:

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Perform Substrate Drive diagnostics.
3. Replace the Encoder Disc and Sensor ⇒ Page 549.

## SE Code: 58:01 – Color Sensor shutter error

### Problem description:

Color Sensor shutter error.

### Corrective action:

Execute the Color Sensor Shutter Diagnostic Test.

## SE Code: 58:10 – Color Sensor failure

### Problem description:

Color Sensor failure.

### Corrective action:

1. Check that the Color Sensor is installed in the Carriage.
2. Check that the Color Sensor is correctly installed and screwed into place.
3. Check that the Color Sensor cable is not damaged.
4. Check that the Color Sensor cable is correctly connected to the Carriage PCA.

5. If the system error persists, replace the Color Sensor.
6. Perform a Color Sensor basic test (CLC) to ensure that the replaced part is working correctly.

## **SE Code: 58.1:10 – Color Sensor Shutter Actuator failure**

### **Problem description:**

Color Sensor Shutter Actuator failure.

### **Corrective action:**

1. Replace the Color Sensor Shutter Actuator Assembly.
2. Perform the Color Sensor Shutter Diagnostic Test to ensure that there is no other problem preventing shutter operation.
3. Perform a Color Sensor basic test (CLC) to ensure that the replaced part is working correctly.

## **SE Code: 58.2:10 – Color Sensor Shutter Deactivator failure**

### **Problem description:**

Color Sensor Shutter Deactivator failure.

### **Corrective action:**

1. Check that the Shutter Deactivator is correctly screwed into place.
2. Perform the Color Sensor Shutter Diagnostic Test to ensure that there is no other problem preventing shutter operation.
3. Perform a Color Sensor basic test (CLC) to ensure that the replaced part is working correctly.

## **SE Code: 59.1:09 – Two electrical parts have been replaced at the same time**

### **Problem description:**

Two electrical parts have been replaced at the same time.

### **Corrective action:**

Replace one part at a time, and restart the printer before replacing another.

## **SE Code: 59.2:00 – An unsupported or reused part has been installed**

### **Problem description:**

An unsupported or reused part has been installed.

### **Corrective action:**

Install only new parts recommended by HP for this printer.

## **SE Code: 61:10 – Data lost due to I/O timeout**

### **Problem description:**

A slow computer processing complex files can pause for longer than the default printer timeout, which can be interpreted by the printer as an End Of Job, in which case some elements of the job may be lost.



**Corrective action:**

1. Increase the I/O timeout using the printer's front panel (see 'Communication failures between computer and printer' in the *User's guide*).
2. Send the job from a faster computer.

**SE Code: 63:05 – The job is reaching the printer too slowly****Problem description:**

The job is reaching the printer too slowly. The printer cancels the job if there are long pauses of more than 20 s.

**Corrective action:**

1. Make sure that a 1 Gigabit Ethernet card is correctly installed in the computer with the RIP.
2. Check the RIP for any error messages. Check that the computer with the RIP is working correctly and has the minimum specification required by the RIP. Check that the hard disk is neither full nor excessively fragmented.
3. Check whether the option RIP while printing is enabled. This option can cause slow printing if the computer is not sufficiently powerful.
4. Try reducing the resolution of the job or increasing the number of passes.

**SE Code: 65:04 – I/O problem through an unknown port****Problem description:**

Input/Output problem through an unknown port.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the LAN cable is connected.
3. Check that the printer has the latest firmware. If not, upgrade to the latest firmware.
4. Replace the Formatter PCA ⇒ Page 442.

**SE Code: 74:01 – Error uploading firmware update file****Problem description:**

Error uploading firmware update file.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Resend the firmware update file to the printer.

**SE Code: 77:04 – Embedded Web Server internal software error****Problem description:**

Embedded Web Server internal software error.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.

2. Check that the printer has the latest firmware version. If not, update the firmware to the latest version.

## **SE Code: 78.1:04 – Substrate settings error**

### **Problem description:**

The printer has no media preset for this substrate.

### **Corrective action:**

Check that the printer has the latest firmware version. If not, update the firmware to the latest version.

## **SE Code: 78.2:01 – The back tension has been lost**

### **Problem description:**

The printer has reached an end-of-roll condition: substrate moving, but input spindle not rotating.

### **Corrective action:**

1. If the roll is not finished, unload and reload the substrate.
2. Load a new roll.
3. Check that the substrate is not slipping on the spindle.

## **SE Code: 79:03 – Generic firmware error I**

### **Problem description:**

Generic Firmware error.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the printer has the latest firmware version. If not, update the firmware to the latest version.
3. Perform Hard Disk Recovery.

## **SE Code: 79:04 – Generic firmware error II**

### **Problem description:**

Generic Firmware error.

### **Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.
2. Check that the printer has the latest firmware version. If not, update the firmware to the latest version.
3. Try using different selections in the RIP to print the image.
4. Perform Hard Disk Recovery.
5. For more detailed information on troubleshooting the 79:04 system error ⇒ Page 80.

## **SE Code: 81:01 – Possible substrate jam**

### **Problem description:**

Media servo shutdown; possible substrate jam.

**Corrective action:**

1. If the substrate is nearing the end of the roll, check that the remaining substrate is firmly attached to the core.
2. Open the Window, observing all safety precautions, and check for any visible obstacles restricting the movement of the Drive Roller. If there is a wrinkled mass of substrate inside the substrate path, lift the Pinchwheels (using the Media Lever) and clear the obstruction.
3. Check the performance of the Rewinder system as it may also cause a servo shutdown.
4. Check that the OMAS Controller Card to PrintMech PCA cable is not damaged.
5. Check that the OMAS Controller Card to PrintMech PCA cable is correctly connected to the OMAS Controller Card and the PrintMech PCA.
6. Perform the Drive Roller service test ⇒ Page 149.
7. Check whether the 5 V LED (D55) on the PrintMech PCA is off; this could be caused by a short-circuit in the Curing IR Sensor Fan cable, usually due to being pinched by metallic parts. Check the cable; if it is damaged, replace it.
8. Replace the Media Axis Motor ⇒ Page 420.

**SE Code: 81:03 – Problem with setting the encoder position****Problem description:**

It was impossible to stop the servo correctly before setting the encoder position.

**Corrective action:**

1. Open the Window observing all safety procedures and check for any visible obstacles restricting the movement of the Drive Roller. If there is a wrinkled mass of substrate inside the substrate path, lift the Pinchwheels (using the Media Lever) and clear the obstruction.
2. Perform the Substrate Path service test ⇒ Page 148.
3. Replace the Media-Axis Motor ⇒ Page 420.

**SE Code: 82:01 – Substrate jam in the platen area****Problem description:**

Substrate jam detected by the Media Jam Sensor in the Print Platen area.

**Corrective action:**

1. Open the window, observing all safety procedures, and clear the Print Platen of any obstruction. Check especially around the area of the Media Jam Sensor, at the left end of the platen.
2. Check that the cable from the Media Jam Sensor is connected and undamaged.
3. Check that the reflector assembly on the side of the Carriage is not dirty or damaged. If it is dirty, clean it; if it is damaged, replace the Media Jam Sensor and reflector.

**SE Code: 85:03 – Drive Roller encoder problem****Problem description:**

Problem finding the Drive Roller zero.

**Corrective action:**

1. Switch the power off at the rear of the printer, wait briefly, then switch it back on again.

2. Perform the Media Drive Diagnostic.

## **SE Code: 86:01 – Possible substrate jam**

### **Problem description:**

The Carriage servo has shut down; possible substrate jam.

### **Corrective action:**

See Page 80.

## **SE Code: 87:01 – Problem with the Scan Axis encoder sensor readings**

### **Problem description:**

Problem with the Scan Axis encoder sensor readings.

### **Corrective action:**

1. Check whether the Encoder Strip is dirty. If necessary, clean it. Pay special attention to the area near the Service Station. Follow the instructions on the front panel after selecting the Ink menu and then Clean Encoder Strip.
2. Check whether the Encoder Strip is broken or damaged. If necessary, replace it.
3. Clean the Encoder Sensor.
4. Replace the Encoder Sensor.
5. Perform the Scan Axis diagnostic test to troubleshoot the problem further.

## **SE Code: 94:01 – Substrate unsuitable for color calibration**

### **Problem description:**

The substrate is not suitable for color calibration, being too dark, too colored, or transparent.

### **Corrective action:**

- If accurate color is important, change to a different substrate type (preferably an HP substrate) that satisfies the conditions for color calibration.
- If accurate color is not important, print without color calibration.

## **SE Code: 94:02 – Color calibration error: inconsistent colors**

### **Problem description:**

Color calibration error: some of the consistency checks on the Color Sensor measurements failed.

### **Corrective action:**

1. Ensure that the substrate type selected corresponded to the substrate actually loaded.
2. Inspect the CLC printed target to detect any printing defect: banding, missing colors, etc. If an issue is detected, run the Printing IQ Full Calibration procedure to fix any printing problems.
3. Check that color calibration is supported for this substrate type: translucent, plain, and heavily colored substrates cannot be color-calibrated.
4. If the problem persists, try calibrating an HP Coated Paper (if available). If this calibration fails, replace the Color Sensor.

**SE Code: 94:10 – Color Sensor contaminated by aerosol****Problem description:**

Color Sensor contaminated by aerosol.

**Corrective action:**

1. Replace the Color Sensor.
2. Perform the Color Sensor basic test (CLC) to ensure that the replaced part is working correctly.

**SE Code: 98:03 – Printhead nozzles out****Problem description:**

One or more printheads are malfunctioning.

**Corrective action:**

Use the printhead status plot to find out which printheads are malfunctioning, and replace them.



## 4 Service Tests, Utilities & Calibrations

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# Introduction

This chapter explains how to use the Service Tests, Utilities and Calibration. Each part is shown step by step in order that it is displayed on the Front Panel. If the Test, Utility or Calibration should fail and display a system error, we explain where to go in the Service Manual to either troubleshoot the error or fix it directly.



**NOTE:** If possible, always perform the related Service Test on a component that you are about to replace, to confirm it has failed.

## Diagnostics - Self Test

Whenever the printer is switched on, it automatically performs a series of internal self-tests and mechanical initialization sequences. If any part fails during these tests, a system error is displayed and you should consult "System error codes and warnings—explanation" on page 87.

## Service Tests

### Entering the Diagnostics Menu

1. Make sure the printer is switched off with the Power key beside the Front Panel, and not with the power switch at the rear of the printer.
2. Press and release the Power key to switch on the printer.
3. Wait for about 10 seconds until the icons on the Front Panel appear, then press and release the Cancel, Home, and Help icons one after another.



**NOTE:** Do not press the icons all at the same time: press each one in the order shown above and release each icon before pressing the next one.

4. The icons on the Front Panel blink four times. Wait until the printer completes the initialization sequence and shows the Diagnostics menu.



5. In the Diagnostics menu, you can scroll up and down by sliding your finger vertically. Select an option by pressing it. In some cases a quick press may not be recognized by the printer; to select an option, press it deliberately for about one second.

The Diagnostic Tests and Utilities work in a special mode that does not require full initialization of the printer. Therefore, whenever you have finished a test, you must turn off the printer and turn it on again before trying to print or before executing another test. Also turn off the printer if it hangs up during a test.

# 1. Electrical System

## 1.1 Electronics Control

### Description

The purpose of this test is to diagnose a failure in the operation of the:

- Components of the Electronics Module.
- Electronics Module to Carriage and ISS Communication.



**NOTE:** This test does not test the Hard Disk Drive.

### Procedure

1. Go to Diagnostic test > 1. Electrical System > 1.1 Electronics Control, and press **OK**.
2. A message will display on the Front Panel asking whether you would like to check the Formatter. Select **Yes**, and press **OK** to confirm your selection.
3. The printer will get the CPU information and display the information on the Front Panel. Press any key to continue the test.
4. The printer will now get the CPU Fan Speed and display the information on the Front Panel. Press any key to continue the test.  
  
If the CPU Fan Speed is less than 2500, the Front Panel will display system error code **05.1:10** ⇒ page 92.
5. The printer will now calculate the amount of memory installed and display the information on the Front Panel. Press any key to continue the test.  
  
A minimum of 256 megabytes of memory must be installed in the printer. If not, the Front Panel will display system error code **05.3:10**.
6. A message will display on the Front Panel asking whether you would like to check the printer Configuration. Select **Yes** and press **OK** to confirm your selection.
7. The Printer will start the CDS and the following information will be displayed on the Front Panel:
  - Starting CDS.If there is a failure at this point, the Front Panel will display system error code **79:03** ⇒ page 134.
8. The printer will then check the Serial Number and Part Number and display the information on the Front Panel. Press any key to continue the test.  
  
If the Serial Number does not have assigned a correct 10 character format or the Part number does not have assigned a correct 6 character format, a fail message will display on the Front Panel. In this case, re-enter the Service Tests submenu and use the diagnostic 'Error 71:19 Recovery' to set the correct Serial Number (see page 147).
9. A message will display on the Front Panel asking whether you want to check the Engine PCA. Select **Yes** and press **OK**. This action could take up to 10 minutes.
10. The Printer checks the Engine PCA and the following messages will be displayed on the Front Panel:
  - Starting CDS
  - Checking Engine PCA
  - Starting Engine PCA
  - Checking Impact memory

- Checking Gauntlet memory

If there is a failure at this point, the Front Panel will display system error code **01.0:10** ⇒ page 90.

11. A message will display on the Front Panel asking whether you would like to check the Power Supply. Select **Yes** and press **OK** to confirm your selection.
12. The Printer will check various electrical subsystem, if there is an error at any time, use the information on chapter 3 ⇒ page 83, to solve the issue.
13. A message will display on the Front Panel asking whether you would like to check the PrintMech. Select **Yes** and press **OK** to confirm your selection.
14. The Printer will check various electrical subsystem, if there is an error at any time, use the information on chapter 3 ⇒ page 83, to solve the issue.
15. A message will display on the Front Panel stating that the delSol has been detected and asking whether you would like to Continue. Press any key to continue.
16. A message will display on the Front Panel asking whether you would like to check the Interconnect. Select **Yes** and press **OK** to confirm your selection.
17. The Printer will check the Interconnect PCA and the following messages will be displayed on the Front Panel:

- Starting CDS

If there is a failure at this point, the Front Panel will display system error code **79:03** ⇒ page 134.

- Getting unit config.

If the current Part Number is not in the correct 6 character format, the Front Panel will display a fail message. In this case, re-enter in to the Service Tests submenu and use the diagnostic "14.2 Error 71:19 Recovery" to set the correct Serial Number (refer to page 147).

- Starting Tests GPIO

If there is a failure at this point, the Front Panel will display system error code **01.0:10** ⇒ page 90.

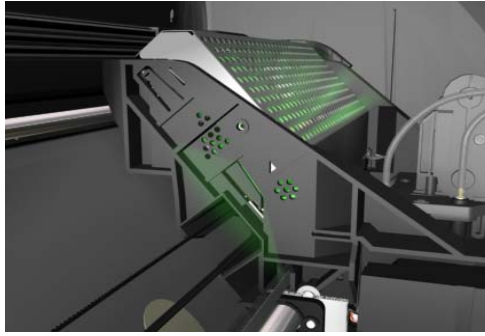
- Checking GPIO channels

At this stage, the printer reads and checks the default GPIO values in the Interconnect PCA when all the cables are connected and all the sensors give the default value or the current state. The results will be displayed on the Front Panel and you can press any key to scroll through the information.

If any of the channels cannot be read, the Front Panel will display system error code **01.0:10** ⇒ page 90.

18. A message will display on the Front Panel asking whether you would like to check the Carriage Communication. Select **Yes** and press **OK** to confirm your selection.
19. If you select **Yes**, the Front Panel asks whether the carriage supply LED has been switched on.

20. Open the Window, move the carriage to the center and place your head as close as possible to the platen in order to check if the Carriage power light is ON (a faint green light on the carriage PCA). Select **Yes** or **No** by using the **Up** and **Down** keys and press **OK** to confirm your selection.



**NOTE:** The LED is very faint and it may not be obvious in a room with strong lighting.

If you select **Yes**, then the Front Panel will display:

- Starting Carriage

If there is a failure at this point, the Front Panel will display system error code **02.1:10** ⇒ see page 91. Check also system error code **11:10** ⇒ see page 94 or system error code **01.0:10** (refer to page 90).

- Checking Carriage rev.

If there is a failure at this point, the Front Panel will display system error code **02.1:10** ⇒ see page 91. Check also system error code **11:10** ⇒ see page 94.

21. A message will display on the Front Panel asking whether you would like to check the ISS Communication. Select **Yes** and press **OK** to confirm your selection.
22. If you select **Yes**, the printer will check the ISS Communication and the following information will be displayed on the Front Panel:
- Starting Engine PCA.
- If there is a failure at this point, the Front Panel will display system error code **01.0:10** ⇒ page 90.
- Checking ISS PCA rev.
- At this stage, the Front Panel displays the value for the ISS PCA revision and asking whether you would like to continue. Press any key to continue.

## 1.2 All Fans

### Description

This test checks the printer's cooling fans.

- Curing Fans
- Dryer Fans (Top Cover Fans)
- Cover Fans

The test will switch on all the fans of the selected array, so a visual check can be made to verify if they are working or not.

### Procedure

1. Go to Diagnostic test > 1. Electrical System > 1.2 All fans, and press **OK**.
2. The printer initializes various subsystems required to perform the test and displays calibration values.
3. The printer that tests all fans are functioning correctly and displays results.
4. Check the fans are all rotating, if there are any that are not, stop the test, by pressing the Cancel key, and perform the appropriate troubleshooting procedure.

## 1.3 Hard Disk Drive

### Description

The hard disk drive service test checks the following:

- Protection status test (protected/not protected)
- Partition configuration test
- System file contents (sanity check for critical files)

### Procedure

1. Go to Diagnostic test > 1. Electrical System > 1.3 Hard Disk Drive, and press **OK**.
2. The printer asks you if you want to perform this test, select **Yes**. Press **OK** to confirm your selection.
3. The printer checks the hard disk drive partitions for faults. The printer asks you if you want to perform this test, select **Yes**.
4. The printer reads the current partition configuration of the hard disk drive and displays it on the Front Panel.
5. Press any key to continue.
6. The printer performs a sanity check to verify hard disk consistency. The printer asks you if you want to perform this test, select **Yes**.
7. The printer reads and displays the current file system contents of the formatted partitions of the hard disk drive.
8. Press any key to shut down the system.

## 1.4 Hard Disk Recovery

## 1.5 File System Check

## 1.6 IO Information

### Description

The IO information diagnostic test retrieves and displays information you may need when troubleshooting a network problem. The following information is displayed:

- IP address
- Gateway address
- Subnet mask

### Procedure

1. Go to Diagnostic test > 1. Electrical System > 1.6 IO Information, and press **OK**.
2. The printer will initialize and the Front Panel will display the following messages:

- Getting IO Interface
- Getting Interface info

If there is a failure at this point, the Front Panel will display an error.

If no active interface is found, the Front Panel will display “No active interface found. Press any key to finish”.

3. Once the IO information is obtained, it is displayed on the Front Panel. Press any key to exit.
4. Once the process is completed, OK will be displayed on the Front Panel.

## 1.7 Enable I/O Interfaces

The purpose of this test is to enable the printer's I/O interfaces (USB, Ethernet, Jetdirect) after they have been disabled from the Embedded Web Server.

1. In the Diagnostics menu, scroll to Enable I/O interfaces and press **OK**.
2. Use the arrow keys if necessary to enable the I/O interfaces.
3. The front panel confirms the result of the operation. Press **OK** to restart the printer.

## 1.8 Unit information

### Description

This option allows you to view the following Printer information:

- Firmware version.
- Serial Number.
- Part Number.

### Procedure

1. Go to Diagnostic test > 1. Electrical System > 1.8 Unit Information, and press **OK**.
2. The Front Panel will display the various electrical subsystems being initialized in order to perform the test, if there is a failure at this point the Front Panel will display a system error, troubleshoot the system error using Chapter 3: System Error codes.  
  
If the Serial Number does not have a correct 10 character format assigned or the Part number does not have a correct 6 character format assigned, a fail message will display on the Front Panel. In this case perform the diagnostic '71:19 Recovery' to set the correct Serial Number (refer to page 147).  
  
If there is a failure at this point, the Front Panel will display an error.
3. Once the Unit information is obtained, it is displayed on the Front Panel. Press any key to exit.
4. Once the process is completed, OK will be displayed on the Front Panel.

## 1.9 SE 59.2:00 Recovery: Set SN and PN

### Description

The SE 59.2:00 Recovery diagnostic test is intended to be used to set the printer's serial number and part number in case both the Hard Disk Drive and the Ink Supply Tubes are replaced at the same time.

### Procedure

1. Go to Diagnostic test > 1. Electrical System > 1.9 Set SN and PN, and press **OK**.
2. The front panel displays the printer's serial number and part number, as stored in the Hard Disk Drive and in the EEPROM. You can press UP or DOWN to change the values, OK to go to the next number, or CANCEL to exit with no changes.

3. When you have finished, the front panel displays the new serial number and part numbers for confirmation. At this point, they are not saved. Double-check that the values displayed are what you wanted to enter. If the values are not correct, press CANCEL to try again. If the values are correct, press OK to confirm.

## 1.10 EEROM reset

### Description

This procedure can be used to restore the EEROM to the default manufacturing settings. This can under certain circumstances correct the printer if there is a software conflict.

### Procedure

1. Go to Diagnostic test > 1. Electrical System Menu > 1.10 EEROM reset, and press **OK**.
2. The front panel asks for confirmation. Use the **Up** and **Down** keys to select Yes, and press **OK**.
3. Press any key to finish the procedure.

## 1.11 EEROM restore

# 2. Substrate Path

## 2.1 Rewinder System

### Description

The Rewinder System diagnostic test checks the following components and processes, any failures will be displayed as a system error, which can then be used to troubleshoot and solve the problem.

- Rewinder Motor without substrate loaded (motors, encoder)
- Rewinder Motor with substrate loaded (friction)

### Procedure

1. Go to Diagnostic test>2. Substrate path>3.1 Rewinder System.
2. The Front Panel will display the various electrical subsystems being initialized in order to perform the test, if there is a failure at this point the Front Panel will display a system error, troubleshoot the system error using Chapter 3: System Error codes.
3. When prompted by the Front Panel, remove the substrate and spindle from the printer.
4. Press any key to continue.
5. The printer will now test the Rewinder without the Spindle, moving in an open loop in one direction. After the test, the Front Panel displays the amount of movement made.
6. Press any key to continue.
7. The printer will now test the Rewinder without the Spindle moving in a open loop in the opposite direction.
8. The Front Panel displays an informative message. Press any key to continue.
9. The Front Panel asks you to feed substrate into the Rewinder.  
  
Use tape to secure the lead edge of the substrate to the roll to stop the substrate from unwinding during the test. Install the spindle into the printer. Press any key to continue.
10. The printer will now test the Rewinder with the Spindle, moving in an open loop in one direction. After the test, the Front Panel displays the amount of movement made.
11. Press any key to continue.



12. The printer will now test the Rewinder with the Spindle moving in a open loop in the opposite direction. After the test, the Front Panel displays the amount of movement made.
13. Press the cancel key to repeat the test, or press OK to continue the test.
14. Press OK to continue. The printer now tests the friction in the Rewinder with substrate loaded.



**NOTE:** This part of the procedure may take a while to complete.

15. The results of the test are displayed on the front panel., press any key to finish the test.

## 2.2 Drive Roller

### Description

The purpose of this test is to diagnose a failure in the operation of components related to the Drive Roller.

You must perform the Drive Roller test after:

- System Error Code 81:YX
- System Error Code 41:YX
- System Error Code 73:YX



**NOTE:** If possible, always perform this test before replacing any component of the Media Axis.

### Procedure

1. Go to Diagnostic test > 2. Substrate Path > 2.2 Drive Roller.
2. The Front Panel will display the various electrical subsystems being initialized in order to perform the test, if there is a failure at this point the Front Panel will display a system error, troubleshoot the system error using Chapter 3: System Error codes.

If there is no system error code displayed on the Front Panel but the printer hangs up and the last message on the Front Panel is "Booting up the Carriage" this would indicate that the Carriage ASIC could not be detected. Troubleshoot this problem using the system error **02.1:10** ⇒ see page 90.

3. The printer will now check for the presence of the Color Meter (delSol) and report results.
4. The printer will program the duty cycle for the PWM test for the Paper Drive Movement and leave it disabled and the following message will be displayed on the Front Panel:

- Prog slow PWM paper

If there is a failure at this point, the Front Panel will display system error code **01.0:10** ⇒ page 90.

5. Before continuing, the Front Panel asks you to remove the substrate if it is still loaded. Make sure you stay out of the Print Platen area if the Window is open.
6. The Printer will now test the Paper Drive moving in an open loop in one direction, and report the amount of movement made. Press any key to continue the test.

Check that the movement made is more than 100 encoder units (in absolute value). If the movement made is less than 100 encoder units, open the Window and check for any visible obstacles restricting the movement of the Drive Roller or the Overdrive Assembly. In this case, press any key to finish the test.

7. The printer will now test the Paper Drive moving in an open loop in the opposite direction and report the amount of movement made. Press any key to continue the test.

Check that the movement made is **more** than 100 encoder units (in absolute value). If the movement made is **less** than 100 encoder units then open the Window and check for any visible obstacles restricting the movement of the Drive Roller or the Overdrive Assembly.

If the Encoder Units are **less** than 100, the printer will request you to follow these instructions:

- a. Manually load a sheet of substrate into the printer (an A4 sheet).
- b. The printer will test the Media Drive moving in an open loop.
- c. Perform a visual check during the test. The Front Panel will ask you if the substrate moved or not:
  - If the substrate moved, the Front Panel will display system error code **56:10** ⇒ page 131.
  - If the substrate **did not** move, the Front Panel will display system error code **41:10** ⇒ page 123.

8. The Printer will now check the Paper Drive servo system and the following messages will be displayed on the Front Panel:

- Starting Media Motor
- Starting Media Axis
- Calib. Analog Encoder

If there is a failure at this point, the Front Panel will display a system error code; for more information on troubleshooting this error code, refer to page 83.

Once the Analog Encoder calibration is completed, the Front Panel will display the results.

Acceptable values are:

- Gain: between 0 and 5
- DGain between 0 and 15
- Offset: between -80 and 80

If the results are acceptable, press **OK**. If the results are unacceptable, then press the **Back/Cancel** key and the Front Panel will display system error code **56:10** ⇒ page 131.

- Starting Substrate Path.
- Homing and repeat. test.

If there is a failure at this point, the Front Panel will display a system error code, for more information on troubleshooting this error code, refer to page 83.

9. The printer will now check the Substrate Drive PWM. Load substrate in to the printer and press any key to continue the test.
10. When the PWM check is being performed, the following message will be displayed on the Front Panel:
  - PWM test with paper
11. Once the PWM check is done, the results will be displayed on the Front Panel. Press any key to finish the test.

If there is a failure at this point, the Front Panel will display details of the problem.
12. Once the test is completed, OK will be displayed on the Front Panel and then you will be prompted to press any key to shut down the printer.
13. Press any key to finish the test.

## 2.3 Substrate Path Sensors

### Description

The purpose of this test is to verify the operation of the following Sensors:

- Left and Right Window lock sensors.
- Media Lever.
- Maintenance Cartridge Door Sensor.
- Media Sensor.
- Media Jam Sensor

#### Procedure

1. Before starting, first make sure that:
  - The Window is closed.
  - The Maintenance Cartridge Door is closed.
  - The Media Lever is in the lowered position.
  - Paper is unloaded.
2. Go to Diagnostic test > 2. Substrate Path > 3.3 Substrate Path Sensors.
3. The printer will initialize the sensors.
4. The Front Panel will display the various electrical subsystems being initialized in order to perform the test, if there is a failure at this point the Front Panel will display a system error, troubleshoot the system error using Chapter 3: System Error codes.
5. Before starting to test the sensors, the Front Panel prompts the user to set the sensors to the test default positions. Press any key to continue.
6. The Window Sensor will be tested first. When prompted by the Front Panel, open the Window and press any key to continue.
7. The Front Panel reports the result of the test. Close the Window and press any key to continue.  
If the Window Sensor fails the test, the Front Panel will display system error code **51:10** ⇒ page 129.
8. The Maintenance Cartridge Door Sensor will be tested next. When prompted by the Front Panel, open the Maintenance Cartridge Door Sensor and press any key to continue.
9. The Front Panel reports the result of the test. Press any key to continue.  
If the Maintenance Cartridge Door Sensor fails the test, the Front Panel will display system error code **51.1:10** ⇒ page 129.
10. The Media Lever Sensor will be tested next. When prompted by the Front Panel, raise the Paper Lever and press any key to continue.
11. The Front Panel reports the result of the test. Lower the Paper Lever and press any key to continue.  
If the Paper Lever Sensor fails the test, the Front Panel will display system error code **54:10** ⇒ page 130.
12. The Media Sensor will be tested next. When prompted by the Front Panel, raise the Media Lever, load substrate, lower the Media Lever, and press any key to continue.
13. The Front Panel reports the result of the test. Raise the Media Lever, unload substrate, lower the Media Lever, and press any key to continue.  
If the Paper Lever Sensor fails the test, the system error **53:10** is displayed ⇒ page 130
14. If there is an error with the Media Jam sensor, the system error **82:01** is displayed ⇒ page 135.
15. The Front Panel reports the result of the test. Press any key to continue.

16. The Front Panel asks you to cover the Media Jam reflector with your hand. Make sure the parts inside the printer are not too hot. Cover the reflector on the left side of the carriage and at the same time press any key to continue. This verifies that the light going to the sensor is from the reflector and not from another light source.

If there is an error with the Media Jam sensor, the system error **82:01** is displayed ⇒ page 135.

17. The Front Panel reports the result of the test. Press any key to continue.
18. The carriage assembly moves along the Carriage path testing the Media Jam Sensor as it goes along the scan axis. The Front Panel reports the result of the second test. Press any key to continue.

If there is an error with the Media Jam sensor, the system error **82:01** is display ⇒ page 135.

19. The Front Panel reports the overall result of the tests. Press any key to finish.

## 2.4 OMAS Module

### Description

The objective of this test is to check the communication of the OMAS system: OMAS controller PCA, the CAN BUS, the OMAS flat cable, and the OMAS sensor.

### Procedure

1. Go to Diagnostic test > 2. Substrate Path > 2.4 OMAS Module.
2. The Front Panel displays the OMAS firmware version located in the OMAS Controller PCA.  
  
If the OMAS is unable to retrieve the firmware version, this would indicate an error with the OMAS system, and system error **50.02:10** would be displayed ⇒ page 129.
3. Press any key to continue.  
  
The printer displays the OMAS sensor version number, which should be in the format YYWWDDDD (year, week, day).  
  
If the OMAS is not correctly connected the format of the version number will not be correct.
4. Press any key to finish the test.

## 2.5 Solve Substrate Jam

### Description

We recommend using this test in case you cannot remove the substrate from the substrate path after a substrate jam. This test allows you to move the media motor in both directions. It may help to “push” the substrate in the direction you want while you are pulling the substrate to remove it.

### Procedure

1. Go to Diagnostic test > 2. Substrate Path > 2.5 Solve Substrate Jam.
2. The front panel invites you to move the Drive Roller backwards and forwards to enable you to free the jammed substrate.

## 3. Ink System

### 3.1 Air Pressure System

#### Description

The purpose of this test is to verify the operation of the Air Pressure System (APS).



**NOTE:** Perform this test before replacing the APS (if possible), if this test passes, do not replace the APS.

#### Procedure

1. Go to Diagnostic test > 3. Ink System > 3.1 Air Pressure System.
2. The Front Panel asks whether you want to perform the Air Pressure System diagnostic test, select **Yes** and press **OK**.
3. The Front Panel asks you to insert all the Ink Cartridges. Insert all the Ink Cartridges and press any key to continue.
4. The Front Panel displays the various electrical subsystems being initialized in order to perform the procedure. If there is a failure at this point the Front Panel displays a system error; troubleshoot the system error using Chapter 3: System Error codes ⇒ page 83.
5. The printer pressurizes and then depressurizes the APS.
6. If there is a failure starting the Pump, the Front Panel displays a system error code. For more information on troubleshooting this error code, see the System Errors chapter ⇒ page 83.
7. Once the test is completed, OK is displayed on the Front Panel.

### 3.2 Check Ink Supplies

#### Description

The purpose of this test is to verify which Ink Cartridges are valid for the purge process and their current available ink level. Some Ink Cartridges may not be able to be accessed (unable to read the Acumen) if previously there had been a failure (faulty, broken bag, etc...).

#### Procedure

1. Go to Diagnostic test > 3. Ink System > 3.2 Check Ink Supplies.
2. The printer will start to initialize and the Front Panel will display the following messages:
  - Starting Engine PCA.  
If there is a failure at this point, the Front Panel will display system error code **01.0:10** ⇒ page 90.
  - Starting AcumenSupplies.  
If there is a problem while reading the Acumen, the Front Panel will display one of the system error codes:
    - **26.n:10** ⇒ page 118
    - **01.2:10** ⇒ page 90
    - **01.0:10** ⇒ page 90If there is a failure at this point, the Front Panel will display the message "Replace failing ink supplies after running this utility".
3. Once the Ink Supplies information is obtained, it is displayed. Press any key to exit.  
If any part of the Acumen information is invalid, the Front Panel will display an error.

4. Once the process is completed, OK will be displayed on the Front Panel.

### 3.3 Broken Bag Recovery Menu

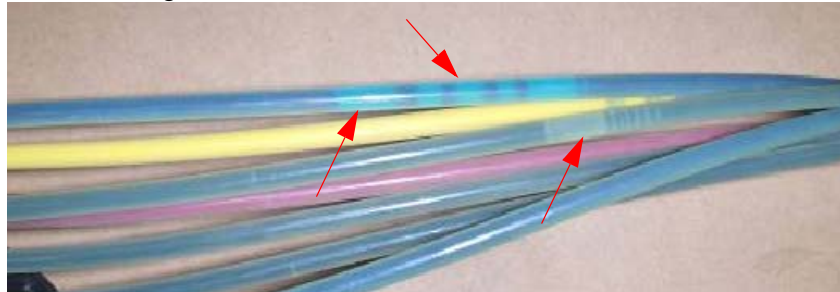
#### Description

The purpose of the menu here is to recover the printer if a broken bag in an Ink Cartridge is detected. A broken bag will stop the printer from functioning and will need to be fixed and cleared of the error before the printer can continue printing normally. If ink leaks from the broken bag and leaves the confines of the ink cartridge, this error is potentially damaging to various parts of the printer.

In order to remove the printer from this system error status and recover the printer to working order the test must be performed in the following order:

- 3.3.1 Clean Air Tubes
- 3.3.2 Recover Broken bag
- 3.3.3 Refill Ink Tubes

The following procedures and menu selections enable the engineer to clear leaked ink from the pressurized air system in the ISS and to remove air bubbles (caused by the broken bag) from the Ink Tubes which can damage the Printheads.



To perform the following procedures the Broken Bag Fixing Tools kit is required (part number CH955-67111).

#### 3.3.1 Clean Air Tubes

##### Procedure

The procedures and menu selections must be performed if there is ink visible in the air tubes of the APS.

1. Remove the Left Cover and check if the tubes from the APS to the ISS are clean. If the tubes are clean of ink this procedure does not need to be performed, go to page 156 and perform the Refill Ink Tubes to clear any air bubbles from the ink tubes.

However if there are sections of tubing that have ink in them, like the examples indicated below with the red arrows.



2. Remove all the Ink Cartridges and install the dummy Ink Cartridges from the Broken Bag Fixing Tools kit.

3. One of the dummy Ink Cartridges has two holes at the top, this dummy Ink Cartridge must be inserted into the color slot with the Broken Bag error.



4. Go to Diagnostic test > 3. Ink System Menu > 3.3 Broken Bag Recovery Menu > 3.3.1 Clean Air Tubes, and press **OK**.
5. The Front Panel asks for confirmation. Select **Yes** and press **OK**.
6. The Front Panel asks whether the dummy cartridge is installed. Press **OK** to continue.
7. The Front Panel reports on the pumping of air through the tubes.

Air is now pumping through the air tubes system, pushing any ink that may be there from the Air tubes into the Dummy Ink Cartridge with the two holes at the top. When this is finished, press any key to continue.

8. The Front Panel asks whether you want to repeat the test with another cartridge.
9. Remove the dummy ink cartridge with the two holes and insert it into the other slots that may also have ink in their air tubes, press **OK** to continue removing ink from the other air tubes.

When you are sure there is no more ink from the broken bag blocking any of the air tubes, select **Cancel**.

### 3.3.2 Recover Broken Bag

#### Description

This option recovers the printer to a ready status after a broken bag has been detected in one of the Ink Cartridges.



**NOTE:** This option should only be selected if the following has been performed:

- The Ink Cartridge with the broken bag has been replaced with a new Ink Cartridge.
- The Air Tubes have been cleaned of any ink.

#### Procedure

1. Go to Diagnostic test > 3. Ink System Menu > 3.3 Broken Bag Recovery Menu > 3.3.2 Recover Broken Bag, and press **OK**.
2. The Front Panel asks whether the tubes are clean. If the Air Tubes are clean of ink, select **Yes** and press **OK**.
3. The Front Panel asks whether you want to remove the broken-bag condition. Select **Yes** and press **OK**.
4. The Printer will now scan for a broken bag in the Ink Cartridges, and the Front Panel will display the following messages:

- Starting Gamut
- Starting TestGPIO
- Detecting Bag Broken
- Starting Acumen Supplies
- Getting ISS data
- Starting SuppliesCon....

5. When prompted by the Front Panel, press any key to finish the recovery procedure.

### 3.3.3 Refill Ink Tubes



**CAUTION:** This procedure must only be performed after performing the Recover Broken Bag procedure.

#### Description

The procedures and menu selections must always be performed if a broken bag has been detected by the printer. In this procedure the printer forces ink from the ink tube that had the broken bag, removing air bubbles, into a syringe.

#### Procedure

1. Remove all the dummy Ink Cartridges and install the normal Ink Cartridges.



**NOTE:** It is important that the Ink Cartridge with the broken bag, is discarded and replaced with a new Ink Cartridge. **DO NOT** reinstall the Ink Cartridge with the broken bag.

2. Go to Diagnostic test > 3. Ink System Menu > 3.3 Broken Bag Recovery Menu > 3.3.3 Refill Ink Tubes, and press **OK**.
3. The Front Panel will display the various electrical subsystems being initialized in order to perform the procedure. If there is a failure at this point the Front Panel will display a system error; troubleshoot the system error using Chapter 3: System Error codes.
4. The Front Panel asks you to select the color of the Ink Cartridge that had the broken bag, and press **OK**.
5. The Front Panel asks whether there is air in the ink tubes.
6. The Front Panel asks whether the new cartridges are installed.
7. When prompted by the Front Panel, open the Front Cover and Carriage Cover and press any key to continue.



8. When prompted by the Front Panel, remove the two Printheads of the color affected by the broken bag error, in the example shown below it is Magenta. Press any key on the Front Panel to continue.



9. When prompted by the Front Panel, insert the needle connected to the syringe into the FI tower of the color affected. Use the FI of the color which is to the rear of the Carriage, as shown. Press **OK** to continue.



10. The Front Panel reports that the printer is pumping air.

Ink is now pumping through the ink tube, pushing any air bubbles from the Ink Tubes into the syringe. The amount of ink pumped through the Ink Tube into the syringe is 33 cc + air.



11. After 2 minutes, the Front Panel asks whether the syringe has been filled. Press **OK** to continue.
12. The Front Panel displays several informational messages, press any key to continue.

13. The Front Panel may ask whether you want to repeat the test with another cartridge. Press the **OK** key to repeat the test, or the **Cancel** key to finish.



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**NOTE:** If you cannot clear the bubbles from the ink tubes, replace the complete SRK tubes assembly ⇒ page 371.

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14. When prompted by the Front Panel, remove the needle from the FI tower, and press any key to continue.



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**TIP:** Ink from the syringe can be emptied into the Printhead Cleaning Container.

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15. When prompted by the Front Panel, reinstall the Printheads into the Carriage.
16. When prompted by the Front Panel, close the Carriage and close the Front Window.

## 4. Scan Axis

### 4.1 Scan Axis Test

#### Description

The purpose of this test is to diagnose a failure in the operation of components related to the Scan Axis.

Perform the Scan-Axis Test after:

- System Error Code 86:YX
- System Error Code 42:YX
- System Error Code 73:YX
- System Error Codes related to Scan-Axis shutdown or Carriage jam.



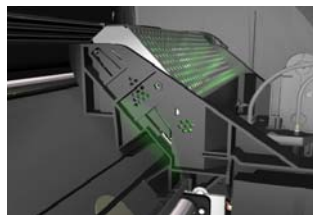
**WARNING!:** All the cover sensors are disabled when in the service tests menu. If the carriage is moving it will not stop if the window is opened, so be very careful not to put your hands inside.

#### Procedure



**NOTE:** Perform this test with the Printheads and the Tubes System installed so that the values can be compared correctly.

1. Go to Diagnostic test > 5. Scan Axis Menu > 5.1 Scan Axis Test.
2. The Front Panel will display the various electrical subsystems being initialized in order to perform the test. If there is a failure at this point the Front Panel will display a system error; troubleshoot the system error using Chapter 3: System Error codes.
3. After initializing, the Front Panel asks whether the carriage supply LED has been switched on.
4. Open the Window, move the Carriage to the center of the platen, position your head as close as possible to the platen in order to check if the Carriage power light is ON (a very dim green light on the carriage PCA). Select **Yes** or **No** by using the **Up** and **Down** keys and press **OK** to confirm your selection.



**NOTE:** To be able to see the LED, you have to place your head very close to the Platen but if you are not comfortable doing that you should remove the Right Cover before starting the test.

If you select **No** at this point, the Front Panel will display system error code **02.1:10** ⇒ page 91. Check also system error code **11:10** ⇒ page 94.

If you select **Yes**, then the Front Panel will display:

- Booting up the Carriage

If there is a failure at this point, the Front Panel will display system error code **02.1:10** ⇒ page 91. Check also system error code **11:10** ⇒ page 94, or system error code **01.1:10** ⇒ page 90.

**Unit Hangs Up** - If no system error code is displayed on the Front Panel, but the printer hangs up and the last message on the Front Panel is "Booting up the Carriage", it means that the Carriage ASIC could not be detected. Troubleshoot this problem in the same way as if system error code **02.1:10** had displayed ⇒ page 91.

5. Once the Carriage is booted up, the Service Station will be prepared so that the Carriage can be moved to a safe position. During this process, the following information will be displayed on the Front Panel:

- Starting SVS Motor

If there is a failure at this point, the Front Panel will display system error code, for more information on troubleshooting this error code, see page 83. In addition the Service Station Test can be performed to try clear the SE, see page 164.

**Unit Hangs Up** - If no system error code is displayed on the Front Panel but the printer hangs up and the last message on the Front Panel is "Starting SVS Motor" it means that the SVS Motor could not be initialized. Troubleshoot this problem in the same way as if system error code **21:12** had displayed.

6. The Printer will program the duty cycle for the PWM test for the Scan-Axis Movement and leave it disabled and the following information will be displayed on the Front Panel:

- Preparing SVS
- Prog slow PWM scan
- Moving carriage middle
- Prog fast PWM scan

If there is a failure at this point, the Front Panel will display system error code **01.0:10** ⇒ page 90.

7. The Carriage will be moved to the middle of the Print Platen. If there is a failure in moving the Carriage, the Front Panel will display system error code **01.0:10** ⇒ page 90.

8. The printer will now check that it can read the Encoder Strip. When prompted by the Front Panel, open the Window and press the **Up** key to move the Carriage to the left and the **Down** key to move the Carriage to the right. Make sure that you move the Carriage in both directions and check that the Carriage actually moves when a key is pressed.

If there is a failure at this point, the Front Panel will display system error code **01.0:10** ⇒ page 90. If the Carriage only moves in one direction, troubleshoot the problem as system error code **01.1:10** ⇒ page 90.

9. At the end of 10 Carriage movements, the Front Panel will display the maximum and minimum length (in encoder units) of the 10 movements and the overall average.

If Carriage movement has not been detected or if Carriage movement was very short, the Front Panel will ask you "Did the motor move?". If the answer is **Yes** (the Carriage had moved) press **OK**. If the answer is No (the Carriage had not moved) press the **Back** key.

If you select **No** (the Carriage had not moved), the Front Panel will display system error code **42:10** ⇒ page 123. Check also system error code **01.1:10** ⇒ page 90 or system error code **01.0:10** ⇒ page 90.

If you select **Yes** (the Carriage had moved), the Front Panel will display a system error code. Check also system error code **11:10** ⇒ page 94 or system error code **01.0:10** ⇒ page 90.

If any max. or min. movement length is outside  $\pm 20\%$  of the average, then this warning message will be displayed on the Front Panel "Some movements out of avg.  $\pm 20\%$  range: Intermittent movements. PWM test needed". This warning means that there is a mechanical problem in the printer (Encoder Strip, friction, Carriage Belt, Slider Rod, etc...). Press any key to continue with the PWM test.

10. The Printer will now start to initialize the Scan-Axis servo and the Front Panel will display the following information:
  - Starting Carriage Motor
  - Off/On Carriage Motor
  - Doing a right side bump
  - Doing a left side bump
  - Exit bump position

If there is a failure at this point, the Front Panel will display system error code **86:01** ⇒ see page 136.
11. The Printer checks the complete length of the Scan Axis and displays the result on the Front Panel. The length should be between 2570774 and 2580980.
 

If it is shorter, it means that there is an obstacle blocking the Scan-Axis path and the Front Panel will display a system error code.

If the length is longer, it means that the carriage has a datum broken or the Carriage Stopper is not installed.
12. The Printer will now check the Scan-Axis PWM and the following information will be displayed on the Front Panel:
  - Starting Scan Axis
  - PWM test

If there is a failure at this point, the Front Panel will display a system error code.
13. The Printer will test the PWM and display the results on the Front Panel.
 

If some of the results are incorrect, the Front Panel will show "High Friction". Depending on the results received, proceed as follows.

  - If **PWM avg got** is more than 32557 and **PWM min diff got** is less than 3100 then there is high friction along the Scan Axis. In this case you should:
    - Clean the Slider Rods and apply oil along the complete axis of the Slider Rods. After applying the oil, perform the test again.
    - Check that the Carriage Belt is installed correctly.
  - If **PWM min diff got** is less than 3100 but **PWM avg got** is less than 32557 then there is a problem in the Scan Axis. In this case you should:
    - Check that the Encoder Strip has not been damaged and is clean ⇒ page 55.
    - Check that the Ink Supply Tubes and Trailing Cable are installed correctly.

If there is a failure processing the PWM results, the Front Panel will display system error code **86:01**. In this case try repeating the test again.
14. Once the test is completed, OK will be displayed on the Front Panel and then you will be prompted to press any key to shut down the printer.

## 4.2 Scan Axis Cycles

### Description

The Scan-Axis Cycles diagnostic test checks the following components and processes:

- Scan axis life status

### Procedure

1. Go to Diagnostic tests > 4. Scan axis > 4.2 Scan axis cycles, and press OK.

2. The printer retrieves scan-axis information and reports on the front panel the number of cycles completed so far, the estimated lifespan of the scan axis in terms of cycles, and the percentage of total lifespan completed.

## 5. Carriage

### 5.1 Carriage PCA

#### Description

This test performs specific routines on the Carriage PCA to check for any problems. If a failure is detected, the printer will display a system error code which can be used to troubleshoot the problem.

#### Procedure

1. Go to Diagnostic test > 5. Carriage > 5.1 Carriage PCA.
2. The Front Panel message is displayed.

### 5.2 Color Sensor

#### Description

The purpose of this test is to troubleshoot an error with the Color Sensor Test. The test checks the values measured by the sensor and compares them to what is expected, if the values are different the test has failed.



**NOTE:** We do not recommend using this test to measure the paper white, as there is a high risk of a jam occurring due to the vacuum being turned off, use the Color Sensor test shown on page 178.

#### Procedure

1. Go to Diagnostic test > 5. Carriage > 5.2 Color Sensor Test.
2. The Front Panel will display the various electrical subsystems being initialized in order to perform the test, if there is a failure at this point the Front Panel will display a system error, troubleshoot the system error using Chapter 3: System Error codes.  
  
If the SOL is disabled, the Front Panel will ask you if you want to enable the SOL, select **Yes**.
3. The Color Sensor information is read and the information is displayed on the Front Panel; press any key to continue.
4. The printer will read the Red Reference and the Front Panel will display the following messages:
  - Starting ColorSensor...
  - Starting ColorSensing
  - Reading SOL Status
  - Reading Registers
  - Performing Calibration...
  - Reading Red Reference
5. When prompted by the Front Panel, raise the Media Lever, load substrate, lower the Media Lever, and press any key to continue.  
  
Be careful with the higher risk of a substrate jam during this procedure.
6. The Front Panel then displays the deltaE value, press any key to continue.
7. Once the test is completed, OK is displayed on the Front Panel.



**NOTE:** If the customer reports color issues even though the test has passed, perform the Color Spectrophotometer test on page 178.

## 5.3 Line Sensor Check

### Description

The test checks the communication between the Line sensor and the Line sensor NVM.

### Procedure

1. Go to Diagnostic test>5. Carriage>5.3 Line Sensor Check.
2. The printer retrieves the Carriage Sensors PCA revision and displays it on the Front Panel. Press any key to continue.
3. The printer checks that the Line Sensor NVM reads and writes correctly. To do this, the printer temporarily writes a new serial number on the line sensor NVM then reads the new serial number to verify that the change was made. The printer retrieves the line sensor serial and part numbers and displays them on the Front Panel.
4. Press any key to finish the test.

## 6. Service Station

### 6.1 Shuttle Close Loop

#### Description

This test checks the connection and functionality of the shuttle and the Service station motor. The Service Station shuttle is the moving tray on which the Printhead Cleaning Cartridge is held.

#### Procedure

1. Go to Diagnostic tests > 6. Service Station > 6.1 Shuttle Close Loop.
2. When prompted by the Front Panel, manually move the Service Station to the front.
3. The Front Panel asks you to confirm that you have moved the Service Station, press OK.
4. Push the Service Station back a little to the rear, but not all the way, press OK.
5. Pull the Service Station a little to towards the front of the printer, but not all the way, and press OK.
6. Move the Carriage Assembly to the middle of the Scan axis, and press OK.
7. If the Service Station has moved automatically to the front of the printer press OK.
8. The Front Panel displays the results of the test in encoder units.
9. When prompted by the Front Panel, close the Window and press any key to finish the test.

### 6.2 Web Wipe Motor

#### Description

The purpose of this test is to check the functionality of the Web Wipe Motor and the connection with the PrintMech PCA. If a failure is found the appropriate system error is displayed, which can be used to troubleshoot the issue.

#### Procedure

1. Go to Diagnostic tests > 7. Service station > 7.3 Web Wipe Motor.
2. The printer will now start to initialize the Web Wipe Motor test and the Front Panel will display the following information:
  - Starting Subsystems....
3. The following message is displayed, press **OK** to continue.



- Checking the WebWipeMotor....
4. At the end of the test press **OK** to end the test and shut down the printer.

## 6.3 Primer

### Description

The purpose of this test is to check the connection and functionality of the Primer assembly. The test involves selecting a Printhead to prime a specified Printhead.

### Procedure

1. Go to Diagnostic tests > 6. Service station > 6.3 Primer Test.
2. The Front Panel will display the various electrical subsystems being initialized in order to perform the test, if there is a failure at this point the Front Panel will display a system error, troubleshoot the system error using Chapter 3: System Error codes.
3. The Front Panel asks you to select the printhead number (0 to 5) by using the **Up** and **Down** keys and press **OK** to confirm your selection.
  - 0: C-Lc
  - 1: C-Lc
  - 2: Y-B
  - 3: Y-B
  - 4: M- Lm
  - 5: m-Lm
4. The printer will prime the selected printhead and the Front Panel will display the following messages:
  - Setting pens operational
  - Preparing fluid manager
  - Priming...
  - Terminating fluid manager
  - Allowing pens not operational

If there is a failure at this point, the Front Panel will display the corresponding error message (**Error: Setting Pens operational** or **Error: Allowing pens not operational**).
5. Once the test is completed, **OK** will be displayed on the Front Panel.

## 7. Heating and Curing

### 7.1 Heating

#### Description

The Heating diagnostic test checks the following components and processes:

- The heating portion of the PrintMech PCA
- The drying heater controllers
- The connection between the drying heater controllers and the drying resistors connection
- The drying resistors

#### Procedure

1. Go to Diagnostic tests > 7. Heating and curing > 7.1 Heating, and press **OK**.
2. The printer initializes subsystems and checks whether substrate is loaded, which is needed to ensure a proper temperature closed loop. Press **OK** when substrate is loaded.

3. The printer checks that the temperature is stable. Then the front panel asks you to open the window. Press **OK** to continue.
4. The front panel asks you to put your hand underneath the heating IR sensor to check that the temperature reading shown on the front panel changes appropriately. Press **OK** to continue.
5. Close and lock the window.
6. The heating subsystem powers up the resistors for half an hour so that they can reach the target temperature. To stop the process early, press **Cancel**.
7. When the half hour has passed, the test finishes.

## 7.2 Curing

### Description

The Curing diagnostic test checks the following components and processes:

- The curing portion of the PrintMech PCA
- The curing heater controller
- The connection between the curing heater controller and the curing resistors
- The curing resistors

### Procedure

1. Go to Diagnostic tests > 7. Heating and curing > 7.2 Curing, and press OK.
2. The printer initializes subsystems and checks whether substrate is loaded, which is needed to ensure a proper temperature closed loop. Press OK when substrate is loaded.
3. The printer checks that the temperature is stable. Then the front panel asks you to open the window. Press OK to continue.
4. The front panel asks you to put your hand underneath the curing IR sensor to check that the temperature reading shown on the front panel changes appropriately. Press OK to continue.
5. Close and lock the window.
6. The curing subsystem powers up the resistors for half an hour so that they can reach the target temperature. To stop the process early, press CANCEL.
7. When the half hour has passed, the test finishes.

## 7.3 Heating IR Sensor

### Description

This test checks the connection and functionality of the Dryer IR Temperature Sensor.

### Procedure

1. Go to Diagnostic tests > 7. Heating and curing > 7.3 Heating IR Sensor.
2. When prompted by the Front Panel, confirm that there is substrate loaded.
3. The printer displays the current temperature detected by the temperature sensor and checks that the temperature is stable. If the readings are not immediately stable, the printer turns on the vacuum and the fans and checks again for one minute (up to 4 times) before displaying a failure.
4. When prompted by the Front Panel, open the window and press **OK**.
5. When prompted by the Front Panel, place your hand under the temperature sensor and check that the temperature detected and displayed on the front panel changes appropriately.

If the display does not react to the change in temperature, press **Cancel** and check the connections and cables of the Dryer IR sensor, if everything is connected correctly replace the Dryer IR sensor ⇒ page 476.

6. If the temperature changes correctly, press **OK** to continue.
7. After the Front Panel displays the results of the test, close the Window and press **OK** to finish the test.

## 7.4 Curing IR Sensor

### Description

This test checks the connection and functionality of the Curing IR Temperature Sensor.

### Procedure

1. Go to Diagnostic tests > 7. Heating and Curing > 7.4 Curing IR Sensor.
2. When prompted by the Front Panel, confirm that there is substrate loaded.
3. The temperature is detected and checked that it is stable.
4. When prompted by the Front Panel, remove the Curing IR Sensor from its place in the printer, but do not disconnect it. Press **OK**.
5. When prompted by the Front Panel, point the Curing IR temperature sensor at your hand and check that the temperature changes.
6. Press **OK** to continue to finish the test or **Cancel** if the value did not change or is not as expected.

## 7.5 Monitoring sine-waves and resistances

### Description

The Monitoring Sine-waves and Resistances diagnostic test checks the following components and processes:

- The heating and curing portion of the PrintMech PCA
- All heater controllers
- All connections between heater controllers and resistors
- All resistors

### Procedure

1. Go to Diagnostic test > 7. Heating and curing > 7.5 Monitoring sinewaves and resistances, and press **OK**.
2. The printer initializes the subsystems. Then the Front Panel shows all the information about heater controllers and resistors, including input voltage, output current, calculated resistance, and faults signalled for each heater controller.

The controllers are shown in the following order:

- a. Upper controller (drying resistor, pinch zone)
- b. Middle controller (drying resistor, overdrive zone)
- c. Lower controller (curing resistor)

Expected returned values are:

- Input voltages: 200–240 V  $\pm 10\%$  = 180–264 V
- Output currents: maximum 18.2 A (drying) and 23.4 A (curing)
- Resistances: 10–11 ohms (drying) and 7.8–8.6 ohms (curing)

## 8. Covers

### 8.1 Cover/Switch Sensor

#### Description

The printer checks the functionality of the sensors of the covers.

#### Procedure

1. Go to Diagnostic tests > 8. Covers > 8.1 Cover/Switch Sensor.
2. The printer will initialize the sensors
3. The Front Panel will display the various electrical subsystems being initialized in order to perform the test. If there is a failure at this point the Front Panel will display a system error; troubleshoot the system error using Chapter 3: System Error codes.
4. The Front Panel prompts you to set the sensors to the test default positions. Press any key to continue.
5. The Window Sensor is tested first. When prompted by the Front Panel, open the Window and press any key to continue.
6. The Front Panel displays the result of the test. Close the Window and press any key to continue.  
If the Window Sensor fails the test, the Front Panel will display system error code **51:10** ⇒ page 129.
7. The Maintenance Cartridge Door Sensor is tested next. When prompted by the Front Panel, open the Maintenance Cartridge Door Sensor and press any key to continue.
8. The Front Panel displays the result of the test. Press any key to continue.  
If the Maintenance Cartridge Door Sensor fails the test, the Front Panel will display system error code **51.1:10** ⇒ page 129.
9. The Media Lever Sensor is tested next. When prompted by the Front Panel, raise the Media Lever and press any key to continue.
10. The Front Panel displays the result of the test. Lower the Paper Lever and press any key to continue.  
If the Paper Lever Sensor fails the test, the Front Panel will display system error code **54:10** ⇒ page 130.
11. The Media Sensor will be tested next. When prompted by the Front Panel, raise the Media Lever, load substrate, lower the Media Lever, and press any key to continue.
12. The Front Panel reports the result of the test. Raise the Media Lever, unload substrate, lower the Media Lever, and press any key to continue.  
If the Paper Lever Sensor fails the test, the system error **53:10** is displayed ⇒ page 130
13. The Media Jam Sensor will be tested next. When prompted by the Front Panel, check that there is nothing in the Carriage path and press any key.  
If there is an error with the Media Jam sensor, the system error **82:01** is displayed ⇒ page 135.
14. The Front Panel reports the rest of the first test. Press any key to continue.
15. The Front Panel asks you to cover the Media Jam Reflector with your hand. Make sure the parts inside the printer are not too hot. Cover the reflector on the left side of the carriage and at the same time press any key to continue. This verifies that the light going to the sensor is from the reflector and not from another light source.  
If there is an error with the Media Jam sensor, the system error **82:01** is displayed ⇒ page 135.

16. The carriage assembly moves along the Carriage path testing the Media Jam Sensor as it goes along the scan axis.
17. The Front Panel reports the result of the second test. Close the Window and press any key to continue.  
  
If there is an error with the Media Jam sensor, the system error **82:01** is displayed ⇒ page 135.
18. The Front Panel reports the result of the test. Press any key to finish.

## 9. Diagnostic Utilities

### 9.1 Force Normal Boot

#### Description

This selection must be made after you no longer want the printer to start up in diagnostic mode. After this selection is made the printer will start up as normal.

This feature is also included in the Service Menu.

#### Procedure

1. Go to Diagnostic tests > 9. Diagnostic Utilities > 9.1 Force Normal Boot.
2. The printer changes the configuration.
3. Press any key to finish.

### 9.2 Force Diagnostic Boot

#### Description

The Force Diagnostic Mode diagnostic utility allows you to tell the printer to start up every time in diagnostic mode. This is useful if you will be performing multiple tests running from diagnostic mode.



**NOTE:** Once you force the printer to start up in diagnostic mode, in order to change back again, you must perform the Force Normal Boot diagnostic utility, see previous utility.

This feature is also included in the Service Menu.

#### Procedure

1. Go to Diagnostic tests > 9. Diagnostic Utilities > 9.2 Force Diagnostic Boot.
2. The printer changes the configuration.
3. Press any key to finish.

### 9.3 Report Tests Version

#### Description

The Report Tests Version displays which version of the Diagnostic tests is installed in the printer. This feature is also included in the Service Menu.

#### Procedure

1. Go to Diagnostic tests > 9. Diagnostic Utilities > 9.3 Report Tests Version.
2. The Front Panel displays the diagnostic menu version.
3. Press any key to finish the test.

### 9.4 Enable/Disable Logs

#### Description

Enabling logs is a useful tool when troubleshooting any error with the printer when the cause of the error is not obvious, the printer can log all printer activity up until the error occurred, this can give clues as to the cause and solution to the error. Logs can also be sent via email if the problem must be escalated for further analysis. This feature is also available in the Service Menu.

#### Procedure

1. Go to Diagnostic tests > 9. Diagnostic Utilities > 9.4 Enable/Disable Logs.

2. There is an option to enable/disable all of the traces or selected traces.
3. If 'enable' is selected, select the traces that you want enabled using the up and down arrows.
4. When the trace is enabled, a message is displayed confirming the trace. Press any key.
5. When prompted by the Front Panel, press any key to finish.

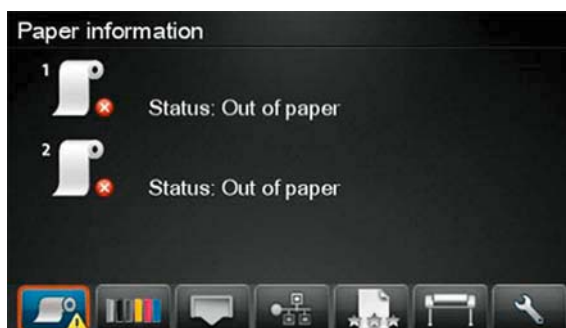
## Service Menu

1. Service Test and Utilities Menu ⇒ page 173
2. Image Quality Plots⇒ page 182
3. Inks On Substrate Test ⇒ page 186
4. Reset Life Counters ⇒ page 186
5. Service Calibration menu ⇒ page 189

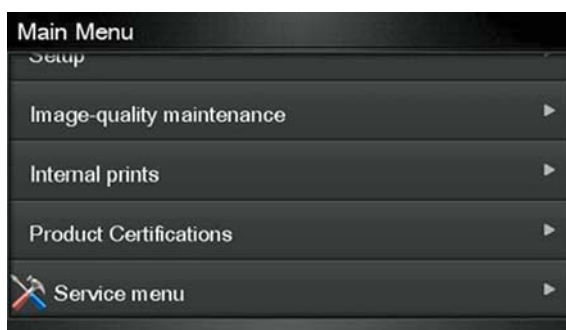
These service utilities help you to service, maintain, and clean the printer. This section guides you through the service utility procedures and provides information about each utility.

## Entering the Service Utilities Menu

1. On the Front Panel's home screen, press the Information icon.
2. In the product information area, press the tool icon in the bottom right corner of the screen.



3. Scroll down to the bottom of the Main Menu and press **Service menu**.

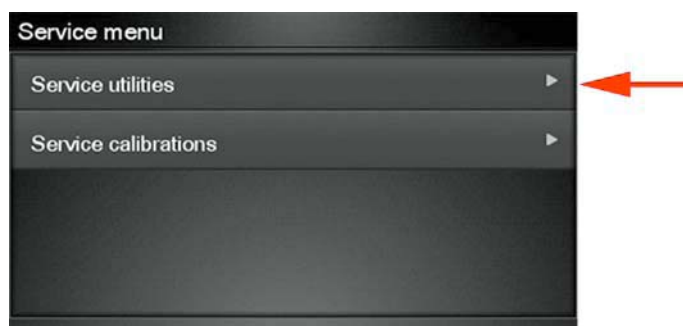


4. Enter the 4-digit access code "3174" and press **OK**.





5. Press **Service utilities**.



6. In the Service utilities menu you can scroll up and down the available utilities. Press the name of whichever utility you want to use.



## 1. Service Tests and Utilities Menu

### 1.1 Boot Mode

#### 1.1.1 Force Diagnostic Mode

##### Description

- a. The Force Diagnostic Mode diagnostic utility allows you to tell the printer to start every time in diagnostic mode. This is useful if you will be performing multiple tests running from diagnostic mode. This feature is also included in the Diagnostic Menu.



**NOTE:** Once you force the printer to start in diagnostic mode, in order to change back again, you must perform the Force Normal Boot diagnostic utility from the Diagnostic menu; or, if the printer is still in normal mode, from the Service menu.

##### Procedure

1. Go to Service Test Menu > 1.1 Boot Mode > 1.1.1 Force Diagnostic Mode.
2. The printer asks you to confirm that you want to the printer to start in diagnostic mode.
3. Press **OK** to confirm, or **Cancel** to make no changes and exit.

#### 1.1.2 Force Normal Mode

##### Description

This selection must be made after you no longer want the printer to start in diagnostic mode. After this selection is made the printer will start as normal. This feature is also included in the Diagnostic Menu.

##### Procedure

1. Go to Service Test Menu > 1.1 Boot Mode Menu > 1.1.2 Force Normal Mode.

2. The Front Panel asks you to confirm.

## 1.2 Electrical System

### 1.2.1 Set Date and Time

#### Description

The purpose of this Service Utility is to set the printer date and time and the Real Time Clock of the printer.

#### Procedure

1. Go to Service Test Menu > 1.2.1 Set Date and Time.
2. The Front Panel displays the current time (HH:MM:SS) and date (MM:DD:20YY) and a space for you to enter the new time and date.
3. Use the **Up** and **Down** keys to go through the digits and press the **OK** key to go to the next digit. You can press the **Cancel** key at any time to exit the utility without making any changes.

Once the new time has been entered, the Front Panel displays the time that you have entered.

4. Press the **OK** key to confirm the time, or the **Cancel** key to exit the utility without making any changes, or the **Back** key to modify again.



**NOTE:** If the current RTC Clock cannot be set, it could indicate a possible firmware error.

5. Once the new time has been set, the Front Panel asks you to restart the printer after exiting. Press any key to exit.

### 1.2.2 Enable/Disable Firewall

#### Description

The purpose of this Service Utility is to enable or disable the printer's firewall.

#### Procedure

1. Go to Service Test Menu > 1.2.2 Enable/Disable Firewall.
2. The utility checks to see if the firewall is enabled or disabled, and then prompts you to enable or disable the firewall.
3. Use the **Up** and **Down** keys to choose to enable/disable and press the **OK** key to confirm your selection. If the utility exits correctly, OK is displayed on the Front Panel.

### 1.2.3. Enable/Disable Logs

#### Description

Enabling logs is a useful tool when troubleshooting any error with the printer when the cause of the error is not obvious, the printer can log all printer activity up until the error occurred, this can give clues as to the cause and solution to the error. Logs can also be sent via email if the problem must be escalated for further analysis. This feature is also available in the Diagnostics Menu.

#### Procedure

1. Go to Service Test Menu > 1.2.3 Enable/Disable Logs.
2. The Front Panel asks whether you want to enable or disable logs. Select **Enable logs** or **Disable logs** and press **OK** to confirm.
3. If you are enabling logs, the printer asks you to select the component or subsystem you want to apply the changes to.

4. Select the component or subsystem and press **OK** to confirm.
5. If the utility exits correctly, OK is displayed on the Front Panel. You must restart the printer to apply the change you have requested.

### 1.2.4 Input/Output

#### Description

This test is checking the performance of the LAN chip in the Formatter PCA.

It does not check the external LAN components, in fact you could run this test even with the LAN cable not connected and the results will be exactly the same. If the test fails you must change the Formatter PCA.

#### Procedure

1. Go to Service Test Menu > 1.2.4 Input/Output.
2. The Front Panel displays various informational messages and the results of the test.
3. The front panel displays the following message.

### 1.2.5 Set Serial Number

#### Description

The purpose of this Service Utility is to set the Serial Number and Part Number of the printer.

#### Procedure

1. Go to Service Test Menu > 1.2.5 Set Serial Number.
2. The Front Panel displays the current Serial Number and the new Serial Number of the printer. Use the **Up** and **Down** keys to go through the digits and press the **OK** key to go to the next digit. You can press the **Cancel** key at any time to exit the utility without making any changes.
3. Once the new Serial Number has been entered, the Front Panel displays the Serial Number and Model Number of the printer. Press the **OK** key to confirm the Serial Number, or the **Cancel** key to exit the utility without making any changes, or the **Back** key to modify again.
4. If the utility exits correctly, OK is displayed on the Front Panel.

### 1.2.6 Sleep Mode

#### Description

The purpose of this Service Utility is to enable/disable the sleep mode when the printer is not used for a certain period of time (one hour by default).

#### Procedure

1. Go to Service Test Menu > 1.2.6 Sleep Mode.
2. When prompted by the Front Panel, use the **Up** and **Down** arrow keys to either disable or enable the sleep mode. Press the **OK** or **Cancel** key to confirm the selection.  
  
If the current sleep mode cannot be read, it could point to a possible firmware error.
3. Once the selection is confirmed, the Front Panel displays the new sleep mode state.  
  
If the current sleep mode cannot be set, it could indicate a possible firmware error.
4. If the utility exits correctly, OK is displayed on the Front Panel.

### 1.2.7 Report Test Version

#### Description

Some parts of the firmware can be upgraded independently from the rest.

For example, if we consider that a service test must be changed but the firmware of the printer (for regular customer work) is stable and does not need any change, it is possible to release a new firmware file that contains only a new version of the test files. In that case the version of the service tests will be changed for tracking purposes.

Report Test Version displays the firmware and service menu version on the Front Panel. The format of this version number is GF\_03\_01\_01\_XX where XX = service menu version.

#### Procedure

1. Go to Service Test Menu > 1.2.7 Report Test Version.
2. The Front Panel displays the service menu version.
3. Press any key to finish.

## 1.3 Substrate Path

### 1.3.1 Turn Drive Roller

#### Description

The purpose of this Service Utility is to rotate the Drive Roller in order to test it and perform maintenance cleaning.

#### Procedure



**NOTE:** Remove substrate before performing this operation.

**NOTE:** Open the Window and activate the Window Sensor (using a piece of substrate) before performing this service utility.

1. Go to Service Test Menu > 1.3 Substrate Path > 1.3.1 Turn Drive Roller.
2. The printer checks whether substrate is loaded. If substrate is loaded, the Front Panel asks you to unload the substrate and start again.
3. The Drive Roller begins to turn slowly.
4. Refer to the Cleaning Instructions on page 592.
5. Once you have finished cleaning the Drive Roller and the Overdrive, press the **Cancel** key to exit.



**NOTE:** Please remember to remove the piece of substrate from the Window Sensor before closing the Window, as this could damage the Window and the sensor.

### 1.3.2. Enable/Disable OMAS

#### Description

The purpose of this Service Utility is to enable or disable the OMAS sensor to be able to measure and troubleshoot the influence of the OMAS sensor on print-quality problems. Sometimes, disabling the OMAS sensor is recommended when the OMAS cannot detect the surface of the substrate. This could happen if the substrate is highly reflective or the substrate is very transparent. When the OMAS is disabled the substrate advance is controlled by the analog encoder on the main drive roller.

#### Procedure

1. Go to Service Test Menu > 1.3 Substrate Path > 1.3.2 Enable/Disable OMAS.
2. The Front Panel asks whether you want to perform this utility, select **Yes** and press **OK** to confirm your selection.

The printer displays the current OMAS state (enabled/disabled) on the Front Panel and asks you to select the new state for the OMAS sensor.

3. Select enable or disable and press **OK** to confirm your selection.

### 1.3.3 OMAS Sensor Check

#### Description

The first step of the test shows the temperature of the TOMAS sensor on the screen.

Later, it runs the standard OMAS calibration (the same calibration run every time that a new substrate is loaded to the printer) determining the level of illumination needed to navigate the substrate.

After that, the test makes a photo of the substrate and analyzes it, returning the “contrast” levels of the image.

If the test passes, that means the illumination (internal OMAS module red LEDs arrays) can be calibrated and that the OMAS is in focus. Under those circumstances, the OMAS should be able to navigate.

#### Procedure

1. Go to Service Test Menu > 1.3 Substrate Path > 1.3.3 OMAS Sensor Check.
2. The Front Panel displays the temperature measured by the TOMAS sensor.
3. The Front Panel asks you to place a standard substrate sheet over the OMAS window.
4. The printer tries to calibrate the level of illumination needed to navigate the substrate. At this point, if it is not able to find the correct illumination the test will display the FAIL message and will finish. In that case, it could be that the OMAS module is defective or that the power from the OMAS controller PCA is not reaching the OMAS module.
5. If the calibration of the illumination succeeds, the printer takes a photo and analyzes it.
6. The Front Panel displays the results of the analysis.
7. If the contrast levels of the image are not as expected, a system error will be displayed. In this case, if the substrate you have used is a standard blank paper for photocopiers, that means that the OMAS is not working as expected (maybe it is out of focus, dirty, not correctly installed, etc.).

## 1.4 Ink System

### 1.4.1 Purge Tubes

#### Description

The purpose of this is to prime the Ink Tubes when they are not new and they need to be re-primed or automatic priming was not completed correctly.

#### Procedure

1. Go to Service Menu > 1.4 Ink System > 1.4.1 Purge Tubes.
2. The Front Panel warns you if the Ink Cartridges are not suitable for priming. Replace the installed Ink Cartridges with Ink Cartridges that are new or at least 88% full. Press any key to finish the utility.
3. The Front Panel asks for confirmation; press **OK** to proceed.
4. Once the printer has restarted, the Front Panel asks you to open the Window and remove all the Printheads installed in the Carriage.
5. Once all the Printheads have been removed, the Front Panel asks you to install the Setup Printheads into the Carriage.

6. Once all the Setup Printheads are installed, the Front Panel prompts you to close the Carriage Cover and the Window.
7. The printer will begin to purge the tubes system.
8. Once the tubes system has been purged, the Front Panel asks you to open the Window.
9. The Front Panel asks you to check that the Setup Printheads are full of ink.
10. The Front Panel asks you to change the ink funnel and waste bottle. Disregard this instruction, do not change any parts. Continue with the purge procedure, pressing **OK** to advance through the procedure, but without changing anything.
11. At the end of the procedure the printer will perform the Printhead Alignment procedure.

## 1.5 Scan Axis

### 1.5.1 Force Drop Detection

#### Description

The purpose of this is to reset the nozzle health database so that all nozzles are assumed to be correct.

#### Procedure

1. Go to Service Menu > 1.5 Scan Axis > 1.5.1 Force Drop Detection.
2. The printer asks you if you want to perform this utility. Use the **Up** and **Down** keys to select **Yes** or **No**. Press **OK** to confirm your selection. If you select **No**, the printer exits the utility.
3. The printer asks you to check that the ink is ready and all the pinch lever is closed.
4. Check that the ink is ready, and the pinch lever is in the closed position. Press any key to continue.

The printer performs a drop detection and displays the drop detector values on the Front Panel.



**NOTE:** The drop detector values for nozzles out should be below 150 nozzles per Printhead. If they are not, print the test plot and verify that this Printhead has so many nozzles out. If the Printhead has many nozzles out, and it is causing banding, change the Printhead. If the Printhead is OK, this would indicate an error with the drop detector. Perform the Drop Detector Calibration and the Force Drop Detection procedures.

5. Press **OK** to accept the values and pass the test or **Cancel** to reject the values and fail the test.

## 1.6 Carriage

### 1.6.1 Color Sensor Shutter Diagnostic

#### Description

This Service Utility checks that the Embedded SpectroPhotometer (ESP) shutter is working correctly.

#### Procedure

1. Go to Service Menu > 1.6 Carriage > 1.6.1 Color Sensor Shutter Diagnostic.
2. Press **OK** to proceed with the test.

The Carriage moves to the Shutter Actuator in order to open the ESP shutter, then moves to the right-hand side of the scan axis and stops.

3. Open the window when prompted by the front panel.
4. Look at the ESP Sensor as directed by the front panel, and press **OK** if it is emitting light downwards onto the platen (as it should be); press **Cancel** if you see no light.

5. Close the window when prompted by the front panel.

The Carriage moves to the left bump of the printer in order to close the ESP shutter, then moves back to the same location to the right of the scan axis.

6. Open the window again when prompted by the front panel, and check again for light from the ESP Sensor.

This time, you should see no light, because the shutter should be closed. Any light indicates a problem with the shutter mechanism: either something is broken in the shutter itself, or the shutting mechanism does not work.

7. If you saw the light the first time and not the second time, the shutter is working correctly, and the test ends.

8. If you found a shutter problem, first locate the Shutter Actuator.

9. When you can see the Shutter Actuator, press **OK**. The Shutter Actuator should move up for one second and then move back down. If nothing moves up and down, the actuator may be faulty. The following screen appears:

If you press **OK**, the Shutter Actuator should move up and down again. You can repeat this operation as many times as you like, until you feel sure about the result.

A delay of about 10 seconds is necessary between activations of the Shutter Actuator. This means that, if you press **OK** again within 10 seconds, the Shutter Actuator will not move immediately. This is completely normal and does not indicate any malfunction.

10. After you press **Cancel** to stop the shutter test, the front panel asks whether the Shutter Actuator moved correctly and looked undamaged. Press **OK** if all is well, or **Cancel** if you saw some problem.

11. If you press **Cancel**, the appropriate system error message is shown:

If the shutter actuator appears undamaged, the problem could be electrical. Check that the Shutter Actuator cables are properly connected. If not, connect them.

If the connections are good, replace the Shutter Actuator, because the problem could be the motor.

If the shutter actuator looks broken, replace it.

In each of these cases, stop the test at this point and start it again from the beginning.

12. If you press **OK** (the Shutter Actuator is OK), the front panel asks you to locate the Shutter Lid and check it for damage.

13. If you press **Cancel** (the Shutter Lid is broken), the appropriate system error message is shown:

14. If you confirm that the Shutter Lid is not broken, the Carriage moves to the left to reach the Shutter Deactivator, a metal piece inside the printer used to close the shutter. Then the Carriage moves back to the right of the platen and the front panel asks you to check again for light.

15. If you see light, then the shutter has not closed correctly and the test tries to determine whether the problem is in the shutter itself or in the metal piece that the carriage bumps in order to close the shutter. The Shutter Deactivator is located inside the printer and can be seen only with the help of a torch. With the window open, look inside the left of the printer with the torch. The Shutter Deactivator is at the bottom of the left side and protrudes over the platen as shown in the front panel. The dotted lines indicate that it is inside the printer.

16. Check that the Shutter Deactivator is present (it could be completely missing). Touch it with a finger to check that it is not loose. Check that it is vertical. Check that it is not broken. It is normal for the Shutter Deactivator to flex a little when pressed. If you find anything wrong with the Shutter Deactivator, press **Cancel**, and the appropriate system error message is shown.

17. If you confirm that the Shutter Deactivator is OK, you may see a message saying that the ESP should be replaced because the problem is in the Shutter Lid.

### 1.6.2 Color Sensor Measurement Test

#### Description

This Service Utility checks that the Embedded Spectrophotometer (ESP) is functioning within predefined color specifications. The test involves measuring the lightness of the white of the substrate.

To perform this test correctly the printer must have the latest firmware available.

#### Procedure

1. Make sure that the substrate loaded is suitable for the test: there are certain substrate types that cannot be used for this type of test. The best results can be achieved by using HP Universal Instant-dry Gloss Paper (part number Q1273-60232). There are some other substrate types that can be used:
  - HP Bright White Paper
  - HP Premium Instant Dry Gloss Paper
  - HP Premium Instant Dry Photo Satin Paper
  - HP Universal Coated Paper
  - HP Universal Heavyweight Coated Paper
2. Go to Service Menu > 1.6 Carriage > 1.6.2 Color Sensor Measurement Test.
3. The front panel displays information about the Spectrophotometer installed in the printer.

The manufacturing date is shown in YYWW format, where YY is the year and WW is the week of manufacturing.
4. The substrate is advanced 4 inches to cover the platen, and then the Spectrophotometer is used to measure paper white at five different positions along the scan axis. The measured Lab values are averaged and displayed.
5. Compare the values from the front panel with the expected results for the loaded substrate type.

If, for example, the value seen for L is 93 when HP Bright White Paper is loaded, this would indicate that the Spectrophotometer is functioning correctly. The test itself does not detect whether the values are within the expected range.

### 1.6.3 Color Sensor Check

### 1.6.4 Test Cutter

#### Description

The purpose of this service utility is to check that the Cutter works properly.

#### Procedure

1. Go to Service Menu > 1.6 Carriage > 1.6.4 Test Cutter.
2. Make sure that substrate is loaded, then press **OK** to proceed with the test.
3. The printer advances the substrate, prepares the Cutter, and tries to cut the substrate.
4. When it has finished cutting, the printer disengages the Cutter.
5. The front panel asks you to confirm that the Cutter has cut the substrate.



## 1.7 Service Station

### 1.7.1. Prime Pen X

#### Description

The purpose of this Service Utility is to prime a specific Printhead.

#### Procedure

1. Go to Service Menu > 1.7 Service Station > 1.7.1 Prime Pen X.
2. The Front Panel asks you to select the Printhead. Use the **Arrow** keys to select the Printhead (0 to 5) that you want to prime and press the **OK** key.
3. The printer primes the selected Printhead and the Front Panel displays the following messages:
  - Setting pens operational
  - Preparing fluid manager
  - Priming...
  - Terminating fluid manager
  - Allowing pens not operational

If there is a failure at this point, the Front Panel displays an error code; troubleshoot the error using the procedures in Chapter 3 System Error Codes.
4. If the utility exits correctly, OK is displayed on the Front Panel.

## 1.8 Heating and Curing

### 1.8.1 Heating and Curing Temperature

#### Description

The Heating and Curing Temperature utility displays the target temperature, current temperature detected by the temperature sensors, and the power currently applied.

#### Procedure

1. Go to Service Menu > 1.8 Heating and Curing > 1.8.1 Heating and Curing Temperature.
2. The printer displays the current values read by the Temperature Sensors (heating/curing). Press any key to finish the test.

### 1.8.2 Enable Heating and Curing

#### Description

This setting enables you to disable the heating system of the printer. This setting is useful for example if you want to print a quick print to test the printer's functionality, but do not want to wait for the printer to heat up to the target temperature.

#### Procedure

1. Go to Service Menu > 1.8 Heating and Curing > 1.8.2 Enable Heating and Curing.
2. To disable the Heating and Curing, select 'disable' using the up and down arrows and press **OK**.

## 1.9 Show Test Messages

#### Description

Explains how to enter the diagnostics TLC mode.

#### Procedure

1. Go to Service Menu > 1.9 Show Test Messages.
2. Press the OK key to exit.

## 1.10 Force FW Upgrade

#### Description

With this option selected the firmware of the printer must first be updated before it will initialize.

#### Procedure

1. Go to Service Menu > 1.10 Force FW upgrade.
2. The Front Panel asks for confirmation. Press OK to accept the mandatory firmware upgrade mode.

## 1.11 Hard Disk Recovery

#### Description

Use this test to reinstall the firmware in the HDD of the printer.

It may be useful when the printer cannot initialize, or hangs up from time to time without any clear cause. This will fix all the possible issues related to data/file corruption.

It formats the HDD partition used while the printer works in normal condition (detecting the possible bad sectors of the HDD and marking them as not usable) and, after that, it installs the firmware.

The firmware package that will be used is the one stored in a partition of the HDD that is not used when the printer is working in normal conditions. If the stored firmware file is also corrupted, the test will not work correctly and it may happen that you need to change the HDD to “recover” the printer (very low chances).

The final status, after running the test, is similar to the status of the printer after changing, physically, the HDD. The advantage is that it can be done remotely and/or without the need for a spare part.

#### Procedure

1. Go to Service Menu > 1.11 Hard Disk Recovery.
2. When prompted by the Front Panel, remove the substrate from the printer and the procedure will begin.
3. The Front Panel asks for confirmation, twice; press **OK** each time to proceed.

## 2. Image Quality Plots

### 2.1 Print ALL Plots

#### Description

The Print ALL Plots allows you to print at once all three basic diagnostic prints in order to diagnose an image quality defect. These are Printhead Alignment, Printhead Health, and Substrate Advance. Refer to chapter 5 for more details.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.1 Print ALL Plots.

## 2.2 Printhead Alignment

### 2.2.1 Test Plot

#### Description

The Printhead Alignment Test Plot allows you to check the accuracy of the current printhead alignment ⇒ page 203.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.2 Printhead Alignment > 2.2.1 Test Plot.

### 2.2.2 Advanced Test Plot

#### Description

The purpose of the Advanced Test Plot is to help you to visually check for any alignment problem in the printer ⇒ page 212.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.2 Printhead Alignment > 2.2.2 Advanced Test Plot.

### 2.2.3 Automatic Printhead Alignment

#### Description

This Service Utility triggers an Automatic Printhead Alignment.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.2 Printhead Alignment > 2.2.3 Automatic Printhead Alignment.

### 2.2.4 Manual PH Alignment

#### Description

Automatic printhead alignment may not produce optimal registration under certain conditions. Substrate texturing, elasticity, and the behavior of the substrate under different temperatures may lead to some imperfections with regard to printhead registration. In these circumstances, select the Manual Printhead Alignment instead.

#### 2.2.4.1 Print Pattern

##### Description

The printer prints 17 rows labelled from A to Q. Inspect the print and write down the number of the straightest line in each row (for example, A:9).

##### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.2 Printhead Alignment > 2.2.4 Manual PH Alignment > 2.2.4.1 Print Pattern.

#### 2.2.4.2 Manual Alignment Settings

##### Description

This is where the correction settings can be entered from the Manual Printhead Alignment.

##### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.2 Printhead Alignment > 2.2.4 Manual PH Alignment > 2.2.4.2 Manual Alignment Settings.

## 2.3 Substrate Advance

### 2.3.1 Print Adjustment Plot

#### Description

The purpose of the Print Adjustment Plot is to help you in determining the advance offset in the printer with the current substrate loaded. This value has to be introduced to the RIP for adjusting the substrate advance ⇒ page 208.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.3 Substrate Advance > 2.3.1 Print Adjustment Plot.

### 2.3.2 Reset Substrate Advance

#### Description

Resets the substrate advance settings in the printer.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.3 Substrate Advance > 2.3.2 Reset Substrate Advance.

## 2.4 Printhead Health

### 2.4.1 Print Test Plot

#### Description

The purpose of this Service plot is to show the overall health of the printhead nozzles by visual inspection. Refer to Chapter 5 for detailed information.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.4 Printhead Health > 2.4.1 Print Test Plot.

### 2.4.2 Advanced Test Plot

#### Description

The purpose of this Service plot is to help in identifying which of the printhead nozzles are failing. Refer to Chapter 5 for detailed information.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.4 Printhead Health > 2.4.2 Advanced Test Plot.

### 2.4.3 Only for Escalations

#### Description

Service plot for escalations to HP Division upon request ⇒ page 214.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.4 Printhead Health > 2.4.3 Only for Escalations.

### 2.4.4 Clean All Printheads

#### Description

Launch the automatic procedures for cleaning all the printheads.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.4 Printhead Health > 2.4.4 Clean All Printheads.

### 2.4.5 Clean LC-C Printheads

#### Description

Launch the automatic procedures for cleaning the LC-C printheads.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.4 Printhead Health > 2.4.5 Clean LC-C Printheads.

### 2.4.6 Clean Y-MK Printheads

#### Description

Launch the automatic procedures for cleaning the Y-MK printheads.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.4 Printhead Health > 2.4.6 Clean Y-MK Printheads.

### 2.4.7 Clean LM-M Printheads

#### Description

Launch the automatic procedures for cleaning the LM-M Printheads.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.4 Printhead Health > 2.4.7 Clean LM-M Printheads.

## 2.5 Geometry Check

#### Description

The purpose of this Service plot is to provide a template for checking the printer's length accuracy and figure distortion ⇒ page 214.

#### Procedure

1. Go to Service Menu > 2. Image Quality Plots > 2.5 Geometry Check.

## 2.6 Scan Axis Check

#### Description

The purpose of this Service plot is to help in diagnose any defect in the Scan Axis ⇒ page 215.

1. Go to Service Menu > 2. Image Quality Plots > 2.6 Scan Axis Check.

## 2.7 Vacuum Check

#### Description

The purpose of this service plot is to help diagnosing problems that could be related to vacuum adjustment such as substrate crashes, substrate advance, and differential substrate advance (different length side to side).

#### Procedure

1. Load the substrate at the rightmost position of the Scan Axis (do not center it), no matter the width of the roll.
2. Go to Service Menu > 2. Image Quality Plots > 2.7 Vacuum Check.
3. For proper usage of this plot, the vacuum level needs to be changed while the plot is being printed (in between patterns) ⇒ page 215.

## 2.8 Side Registration Check

### Description

This plot helps you to visually check any alignment problems of the printer caused by substrate expansion. You can use it to precisely measure the substrate expansion error with 2 dots row accuracy.

### Procedure

1. Load the substrate.
2. Go to Service Menu > 2. Image Quality Plots > 2.8 Side Registration Check ⇒ page 222.

## 2.11 Others

## 3. Ink On Substrate Test

### 3.1 Print Test Plot at 6 passes

#### Description

The purpose of this Service plot is for determining the level of performance of the Drying and Curing modules ⇒ page 223.

#### Procedure

1. Go to Service Menu > 3. Ink On Substrate > 3.1 Print Test Plot at 6 passes.

### 3.2 Print Test Plot at 8 passes

#### Description

The purpose of this Service plot is for determining the level of performance of the Drying and Curing modules ⇒ page 223.

#### Procedure

1. Go to Service Menu > 3. Ink On Substrate > 3.1 Print Test Plot at 8 passes.

### 3.3 Print Test Plot at 10 passes

#### Description

The purpose of this Service plot is for determining the level of performance of the Drying and Curing modules ⇒ page 223.

#### Procedure

1. Go to Service Menu > 3. Ink On Substrate > 3.1 Print Test Plot at 10 passes.

### 3.4 Print Test Plot at 12 passes

#### Description

The purpose of this Service plot is for determining the level of performance of the Drying and Curing modules ⇒ page 223.

#### Procedure

1. Go to Service Menu > 3. Ink On Substrate > 3.1 Print Test Plot at 12 passes.

## 4. Reset Life Counters (NEVER DONE BY CUSTOMER)

After replacing a part of the printer, you should always reset the life counter of that part.

To reset the printer's internal life counters, select **Reset life counters** from the Service utilities menu.



In order to continue, you must enter the 4-digit access code "5494" and press OK.



You can now choose to reset the counters related to one of the three Service Maintenance Kits, or to a specific printer part.

## 4.1 Reset Maint. Kit Usage

### Description

The purpose of this Service Utility is to check the maintenance kit usage and/or reset the life counter of all the components included in the maintenance kit.

### Procedure

1. Go to Service Menu > 4. Reset Life Counters > 4.1 Reset Maint. Kit Usage.
2. Select the Service Maintenance Kit for which you want to reset the life counters.
  - 4.1.1 Reset SMK1 = Resets the life cycles of the following: Carriage Assembly, Trailing cable, Ink Tubes, Belt, Scan Motor, Heating (Dryer) IR Sensor, Curing IR Sensor, Carriage lubrication, Line sensor (hours)
  - 4.1.2 Reset SMK2 = Resets the life cycles of the following: Service Station Motor, Heating IR Sensor, Carriage lubrication, Rack Motor, Curing IR Sensor, Printhead Cleaning Counters, Spit Plate spittoon (liters), Line sensor (hours)
  - 4.1.3 Reset SMK3 = Resets the life cycles of the following: Aerosol filters, Heating IR Sensor, Carriage lubrication, Curing IR Sensor, Line sensor (hours)

The printer displays the usage percentage and asks you if you want to reset the life counter.

3. Press **OK** if you want to reset the life counter or **Back** if you do not want to reset the life counter. If you choose not to reset the life counter, the printer exits the utility.

## 4.2 Reset Substrate Path

### Description

The purpose of this Service Utility is to check the service part usage and/or reset the life counter for the Substrate Path.

- 4.2.1 Drive Roller Motor > Resets the media motor.
- 4.2.2 Reset OMAS Sensor > Resets OMAS (M of substrate length, navigable success, navigable failures).
- 4.2.3 Reset Vacuum Fan > Resets Vacuum Fans (hours).

### 4.3 Reset ISS

#### Description

The purpose of this Service Utility is to check the service part usage and/or reset the life counter for the ISS.

- 4.3.1 APS Pumps > Resets the APS Pump in cycles and hours.

### 4.4 Reset Scan Axis

#### Description

The purpose of this Service Utility is to check the service part usage and/or reset the life counter for the Scan Axis:

- 4.4.1 Reset Belt Cycles: Resets the Belt cycles.
- 4.4.2 Tubes/Trailing Cables: Resets the cycles of the Trailing Cable and Ink Tubes.
- 4.4.3 SAX Motor Cycles: Resets the Scan Motor.
- 4.4.4 Encoder Strip: Resets the Encoder Strip.

### 4.5 Reset Carriage

#### Description

The purpose of this Service Utility is to check the service part usage and/or reset the life counter for the Carriage:

- 4.5.1 Carriage Cycles: Reset the cycles of the Carriage.
- 4.5.2 New Line Sensor: Reset the Line Sensor (hours).
- 4.5.3 Cutter Cycles: Reset the cutter cycles (number of times substrate has been cut).
- 4.5.4 Color Sensor: Reset the SOL (hours).
- 4.5.5 Replace Oiler Foam: Resets the Carriage lubricant.

### 4.6 Reset Service Station

#### Description

The purpose of this Service Utility is to check the service part usage and/or reset the life counter for the Service Station:

- 4.6.1 SS Rack Cycles: Resets rack motor.
- 4.6.2 Spit Plate Replacement.
- 4.6.3 Drop Detector: Resets Drop Detector (hours).
- 4.6.4 Complete Service Station: Resets the Service Station motor (cycles), Aerosol Fan (hours), Rack Motor (Cycles), Split plate spittoon (liters), Aerosol Filters (liters), Spit plate DD (liters), Drop Detector (hours).
- 4.6.5 Maintenance Cartridge.
- 4.6.6 Primer Cycles: Resets the Primer.



## 4.7 Reset Heating & Curing

### Description

The purpose of this Service Utility is to check the service part usage and/or reset the life counter for the Heating and Curing:

- 4.7.1 Curing Lamps: Resets the Curing Resistors (hours).
- 4.7.2 Reset Curing Sensor: Resets Curing IR Sensor.
- 4.7.3 Heating Lamps: Resets the Heating Resistors (hours).
- 4.7.4 Reset Heating Sensor: Resets the Heating IR Sensor.
- 4.7.5 IR Sensors Cleaning: Resets the Curing IR Sensor and Heating IR Sensor.

## 5. Service Calibrations

Service calibrations allow you to calibrate printer components and settings to ensure optimal performance. This section guides you through the calibration procedures and provides information about each calibration.

### 5.1 Substrate Path

#### 5.1.1 Substrate Advance Calibration

### Description

The purpose of this Service Calibration is to calibrate the nominal advance of the substrate. This calibration is necessary to control the exact movement of the substrate in order to avoid print-quality problems such as banding. Perform the Service Accuracy Calibration whenever:

- Banding is detected in prints.
- Drive Roller is disassembled or replaced.
- Media-axis Assembly is disassembled or replaced.



**NOTE:** Before starting the process, make sure that HP Coated Paper is loaded and ready to print. You could use the service part CQ869-67069 that contains 5 sheets of HP Coated Paper.

The first two options of the test (Print Calibration Pattern and Scan Calibration Pattern) are obsolete and should not be used. They are in the test for historical reasons but now are not working properly.

The Substrate Advance Calibration performs a calibration in order to obtain a new set of calibration values. The printer makes a series of substrate advances, and the OMAS sensor registers the distance covered in each advance.

When all the substrate advances have been performed, the calibration values are calculated based on the data obtained.

The Substrate Advance Calibration is split into three parts and should always be done in this order:

1. Perform Advance Calibration
2. Check Advance Calibration
3. Clean Drive Roller

### Procedure

1. Go to Service Menu > 5. Service Calibrations > 5.1.1 Substrate Advance Calibration.
2. Select Perform Advance Calibration.

3. If there is substrate ready, the printer performs the zero search for the Media Motor.
4. When the Media Motor has been initialized, the printer starts to perform the series of substrate advances. During this process, the front panel displays the current iteration number and the total number of iterations.

You can cancel the calibration process at any time by pressing **Cancel**. In this case, the previous calibration values are restored and the cancelled process has no effect on the printer.

5. If the calibration process finishes without errors, the new calibration values are checked. If the values are considered valid, they are displayed and saved for use in future. Press OK to return to the main screen.




---

**NOTE:** Both the Automatic and the Manual Substrate Advance Calibration (which can be launched from the user menu), if they exist, are automatically set to zero for each type of substrate.

---

6. If the calibration values are not valid, the front panel displays the reason (for example, the percentage of good navigations is less than 90%). In this case the calibration process has no effect on the printer. Press OK to return to the main screen.

#### Check Calibration Status

This option tests whether the current calibration values are valid. The process is very similar to the calibration process. The printer makes a series of substrate advances, and the OMAS sensor registers the distance covered in each advance.




---

**NOTE:** Before starting the process, make sure that HP Coated Paper is loaded and ready to print.

---

#### Procedure

1. Go to Service Menu > 5. Service Calibrations > 5.1.1 Substrate Advance Calibration.
2. Select Check Advance Calibration.
3. The printer checks whether the current calibration values are valid, using the data obtained during the substrate advances.
4. If they are not valid, the front panel displays the reason (for example, the AMP1 parameter value is greater than the maximum allowed).
5. Press **OK** to return to the main screen.
6. You will need to re-enter the Substrate Advance Calibration submenu and scroll to “Clean Drive Roller” and press **OK**.
7. You must select whether you would like to continue with the cleaning of the Drive Roller by pressing the **OK** key. Press **Back** or **Cancel** to exit the calibration.
8. The printer begins the Drive Roller Cleaning procedure. This could take several minutes.
9. Restart the printer after performing the tests.

#### 5.1.2 OMAS calibration

##### Description

The purpose of this Service Calibration is to calibrate the OMAS Module. The calibration process consists of printing a special calibration plot and then scanning it with the printer. The scanned result values are compared with the actual printed values to obtain a PASS/FAIL result.

In the first step, the test prints a pattern navigating (measuring the movements) with the OMAS and creates in the hard disk a file with the navigation information from the OMAS system.

In the second step, the test scans the printed pattern with the line sensor measuring the distance between the lines of the pattern, and stores in the hard disk a file with the information from the line sensor.

Finally the test compares the information from the OMAS and the information from the line sensor scan, if the comparison is meaningful (there is no problem with the files stored in the hard disk) the firmware calculates what is the necessary compensation to be applied to the measurements of the OMAS to match the values measured by the line sensor.

Then, the firmware saves the OMAS compensation value in the NVM.

From this moment on, the measurements of the OMAS system will be compensated, providing better accuracy.

Perform the OMAS Module Calibration as follows:



**NOTE:** Before starting the process, make sure that HP Coated Paper is loaded and ready to print. You could use the service part CQ869-67069 that contains 5 sheets of HP Coated Paper.

**NOTE:** Disabling the Heaters will significantly speed up this procedure.

#### Procedure

1. Go to Service Menu > 5. Service Calibrations > 5.1 Substrate Path > 5.1.2 OMAS Calibration.
2. The Front Panel asks for confirmation; press **OK**.
3. If substrate is already loaded, it is unloaded. If it cannot be unloaded automatically, the Front Panel asks you to unload it manually.
4. The Front Panel prompts you to load substrate.



**NOTE:** During this calibration process you have to load the substrate with the Carriage positioned in the print path.

- Raise the Media Lever.
  - Load the substrate.
  - Lower the Media Lever.
5. Select the substrate type (HP Paper Aqueous).
  6. The substrate calibration process starts and the Front Panel shows the following messages:
    - Calibrating paper advance.
    - Trimming roll edge. Please wait.
  7. The Front Panel then prompts you to unroll 1 meter of substrate to avoid back tension. Unroll 1 meter of substrate and press **OK**.
  8. The printer starts to print the OMAS Calibration Pattern. This could take several minutes.
  9. The Front Panel announces when the OMAS Calibration Pattern has been printed successfully. Press **OK** to continue.

If the OMAS Calibration fails for any reason, a warning message will display on the Front Panel. In this case, try the following:

- Retry the Paper Advance Calibration.

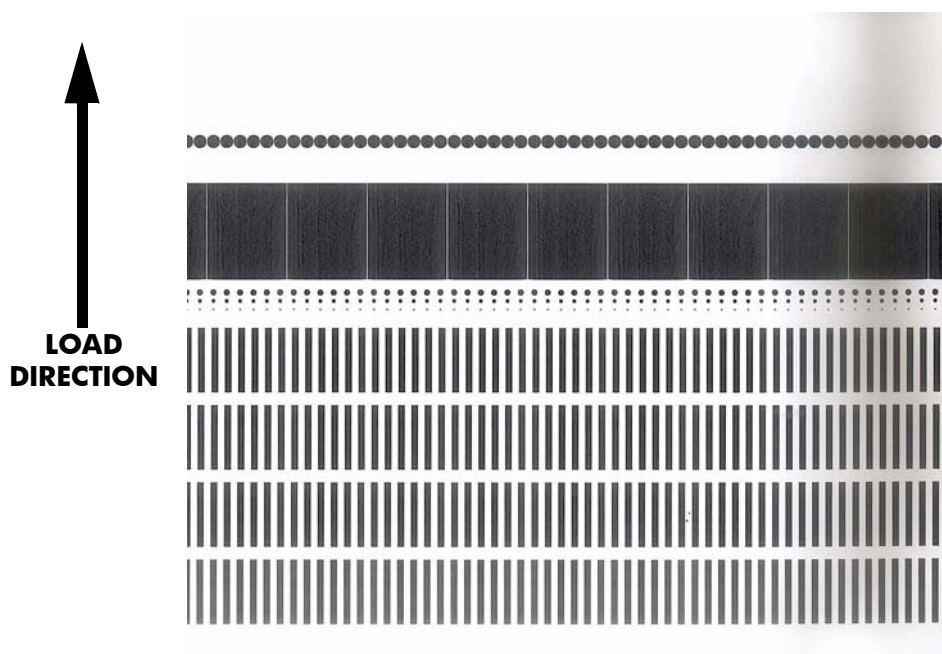


**NOTE:** Remove the pattern from the printer and leave it to dry for a few minutes before continuing with the Calibration.

**NOTE:** Make sure substrate is not loaded into the printer before starting to scan the OMAS calibration pattern.

#### Scan OMAS Calibration Pattern

1. Re-enter the OMAS Calibration submenu, scroll to **Scan Calibration Pattern**, and press **OK**.
2. The Front Panel asks for confirmation. Press the **OK** key to proceed, or press **Back** or **Cancel** to exit.
3. The Front Panel asks you to load the OMAS Calibration Pattern in to the printer. Make sure that you rotate the printed pattern 90° clockwise and reload it printed-side down. Press the **OK** key to continue.
4. Load the OMAS Calibration Pattern following the instructions on the Front Panel.



5. The Front Panel tells you when the OMAS Calibration Pattern is loaded correctly. Press **OK** to continue.
6. The printer scans the OMAS Calibration Pattern, which could take several minutes. The Front Panel tells you when it is complete. Press **OK** to continue.

If the OMAS Calibration fails for any reason, a warning message will display on the Front Panel. In this case, try the following:

- Check that the OMAS Calibration Pattern was not incorrectly cut (trimming the actual pattern) during the substrate load process. If this is the case, perform the OMAS Calibration again from the beginning.
- Replace the OMAS Sensor ⇒ page 422.
- Replace the OMAS Controller Card ⇒ page 432.
- If the problem continues, replace the Media-Axis Motor ⇒ page 420.

### 5.1.3 Reset Vacuum Calibration

#### Description

The purpose of this test is to set the default nominal and real values of the Vacuum Fan Assembly.



**NOTE:** This Service Calibration should ONLY be performed when the Vacuum Fan Assembly has been replaced.

#### Procedure

1. Go to Service Menu > 5. Service Calibration Menu > 5.1 Substrate Path > 5.1.3 Reset Vacuum Calibration.
2. The Front Panel asks for confirmation; press **OK**.
3. The printer sets the default nominal and real values of the Vacuum Fan.
4. Once the calibration is completed, OK will be displayed on the Front Panel.

### 5.1.4 Rewinder Calibration

#### Description

This test must be performed whenever the Rewinder Assembly has been replaced or one of the rewinder gears have been replaced. The test calculates the optimum power required to move the rewinder system.

#### Procedure

1. Go to Service Menu > 5. Service Calibration Menu > 5.1 Substrate Path Menu > 5.1.4 Rewinder Calibration.
2. The Front Panel asks you to remove the substrate, leaving the spindle in the printer. Press **OK** to continue.

## 5.2 Scan Axis

### 5.2.1 Scan Axis Calibration

#### Description

The purpose of this Service Calibration is to carry out a PWM check, calibrate the intensity of the Line Sensor and calibrate the Line Sensor position to the Black Printhead.

Perform the Scan Axis Calibration whenever:

- The Carriage is disassembled or replaced.
- The Encoder Strip is disassembled or replaced.

- The Print Platen is disassembled or replaced.



**NOTE:** Make sure you load one of the following substrates into the printer before performing this calibration. If none of them are available, use the service part Q1273-60296.

- HP Bond Paper
- HP Glossy Paper
- HP Coated Paper
- HP Productivity Photo Gloss
- HP Heavyweight Coated Paper
- HP Super Heavyweight Coated Paper
- HP Bright White Inkjet Paper

**NOTE:** Disabling the Heaters will significantly speed up this procedure.

#### Procedure

1. Go to Service Menu > 5. Service Calibration Menu > 5.2 Scan Axis > 5.2.1 Scan Axis Calibration.
2. The Front Panel asks for confirmation; press **OK**.
3. Before continuing, the printer will check the following:
  - The Media Lever is in the lowered position.
  - The correct substrate type is loaded (check list on previous page).
  - The substrate is of the correct size (minimum substrate width 24 inches).

If these conditions are **not** met, a warning will be displayed on the Front Panel and you will need to restart the calibration from the beginning.



**NOTE:** In order to perform this Calibration, you should order the Media Advance Calibration Kit (Part Number Q1273-60296) which contains two sheets of HP Productivity Gloss Paper.



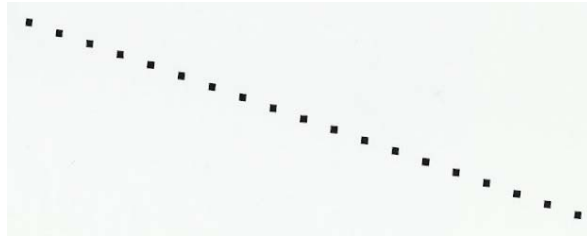
**WARNING!:** Make sure you keep your hands away from the Print Platen as the Carriage will be moving at high speed and you could injure yourself or damage the Carriage Assembly.

4. The printer will start to check the PWM. Once the PWM has been checked, the results are displayed on the Front Panel. Press **OK** to continue or press **Back** or **Cancel** to exit the calibration.
5. The printer will start to calibrate the Line Sensor. Once the Line Sensor has been calibrated, the results are displayed on the Front Panel. Press **OK** to continue or press **Back** or **Cancel** to exit the calibration.

If the values are not within the range specified, the Front Panel displays the error. In this case, try the following:

- Try the Scan-Axis Calibration again.
- Replace the Line Sensor ⇒ page 463.

6. The printer starts to calibrate the Line Sensor position to the Black Printhead. It will print a line of black dots and then scan them:



7. Once the Line Sensor has been calibrated, the results are displayed on the Front Panel. Press **OK** to finish the calibration or press **Back** or **Cancel** to exit the calibration.
8. The printer performs the Printhead Alignment.
9. The Front Panel asks for confirmation. Press **OK** to continue. Press **Back** or **Cancel** to exit.
10. The Front Panel tells you when the Printhead Alignment is completed. Press **OK** to continue.  
If the Printhead Alignment fails for any reason, a warning message is displayed on the Front Panel. In this case, try the following:
  - Go to the Front Panel menu and retry the Printhead Alignment. If the Alignment completes successfully, perform the Color Calibration.
  - If the Alignment fails again, check the Alignment pattern to see if any of the Printheads are printing incorrectly. If necessary, perform a Printhead Recovery through the Front Panel and retry the Printhead Alignment.
11. Once the complete Scan Axis calibration is completed successfully, OK is displayed on the Front Panel.

### 5.2.2 Drop Detector Calibration

#### Description

The purpose of this Service Calibration is to calibrate the Drop Detector in relation to the Carriage Assembly.

Perform the Drop Detector Calibration whenever:

- Drop Detector is removed or replaced.

#### Procedure

1. Go to Service Menu > 5. Service Calibration Menu > 5.2 Scan Axis > 5.2.2 Drop Detector Calibration.
2. The Front Panel asks for confirmation. Press **OK** to continue, or press **Back** or **Cancel** to exit.
3. The printer starts to calibrate the Drop Detector. Once the Drop Detector has been calibrated, the results are displayed on the Front Panel. Press any key on the Front Panel to finish the calibration.
4. Once the calibration is completed, OK is displayed on the Front Panel.

## 5.3 Carriage

### 5.3.1 Line Sensor Calib.

#### Description

The purpose of this service calibration is to calibrate the intensity of the Line Sensor in the Carriage PCA. An incorrect calibration can result in edge-detection failures during substrate loading and incorrect reading of prints that are used for alignment or calibration.

Perform the Line Sensor Calibration whenever:

- The edge-detect procedure fails during substrate loading.
- The Carriage is disassembled or replaced.
- The Line Sensor is disassembled or replaced.
- Banding is detected in prints.
- Misalignment between colors is detected.



**NOTE:** Make sure you load one of the following substrates into the printer before performing this calibration. If none of them are available, use the service part Q1273-60296.

- HP Bond Paper
- HP Glossy Paper
- HP Coated Paper
- HP Productivity Photo Gloss
- HP Heavyweight Coated Paper
- HP Super Heavyweight Coated Paper
- HP Bright White Inkjet Paper

**NOTE:** Disabling the Heaters will significantly speed up this procedure.

#### Procedure

1. Go to Service Menu > 5. Service Calibration Menu > 5.3 Carriage > 5.3.1 Line Sensor Calib.
2. The Front Panel asks for confirmation. Press **OK**, or press **Back** or **Cancel** to exit.
3. Before continuing, the printer will check the following:
  - The Media Lever is in the lowered position.
  - The correct substrate type is loaded (check list on previous page).
  - The substrate is of the correct size (minimum substrate width 24 inches).

If these conditions are **not** met, a warning will be displayed on the Front Panel and you will need to restart the calibration from the beginning.



**NOTE:** Make sure you keep your hands away from the Print Platen as the Carriage will be moving at high speed and you could injure yourself or damage the Carriage Assembly.

4. The printer starts to calibrate the Line Sensor. Once the Line Sensor has been calibrated, the results are displayed on the Front Panel. Press **OK** to continue or press **Back** or **Cancel** to exit the calibration.

If the values are not within the range specified, the Front Panel displays the error. In this case, try the following:

- Try the Scan-Axis Calibration again.
- Replace the Line Sensor ⇒ page 463.



5. The printer starts to calibrate the Line Sensor position to the Black Printhead. It prints a line of black dots and then scans them:



6. Once the Line Sensor has been calibrated, the results are displayed on the Front Panel. Press **OK** to finish the calibration or press **Back** or **Cancel** to exit the calibration.
7. The printer will now perform the Printhead Alignment. When the Front Panel asks for confirmation, press **OK**.
8. The Front Panel tells you when the Printhead Alignment is complete. Press **OK** to continue.
  - If the Printhead Alignment fails for any reason, a warning message is displayed on the Front Panel. In this case, try the following.
  - Enter the Front Panel menu and retry the Printhead Alignment. If the Alignment completes successfully, then perform the Color Calibration.
  - If the Alignment fails again, check the Alignment pattern to see if any of the Printheads are printing incorrectly. If necessary, perform a Printhead Recovery through the Front Panel and retry the Printhead Alignment.
9. Once the complete Line Sensor calibration is completed successfully, OK is displayed on the Front Panel.

### 5.3.2 Primer Calibration

#### Description

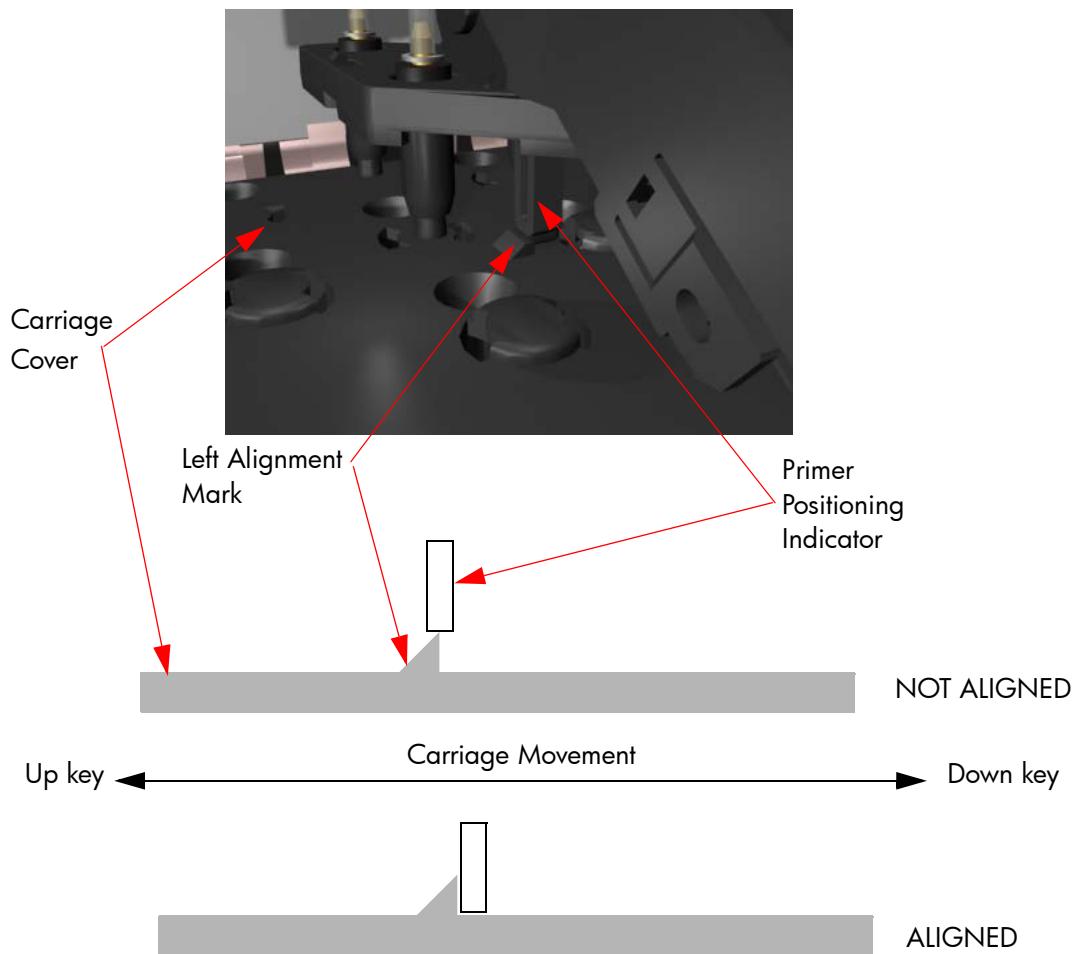
The purpose of this Service Calibration is to find the optimum position of the Primer Assembly with respect to the Carriage.

The calibration is a visual procedure so you will have to remove the Right Cover before starting.

#### Procedure

1. Go to Service Menu > 5. Service Calibration Menu > 5.3 Carriage > 5.3.2 Primer Calibration.
2. Remove the Right Cover ⇒ page 286.
3. Block the Printhead Cleaning Cartridge door switch in the closed position.
4. The Front Panel asks for confirmation. Press any key to continue.
5. Follow the instructions on the Front Panel.
6. The calibration process starts and the Front Panel shows the following messages:
  - Homing Primer
  - Uncapping SVS
  - Homing Carriage
  - Computing the Left Scan-Axis Offset

7. Once the Left Scan-Axis Offset has been calculated the Front Panel prompts you to use the **Up/Down** keys to move the carriage until the right edge of the Left Alignment Mark on the Carriage Cover is perfectly aligned with the Primer positioning indicator.

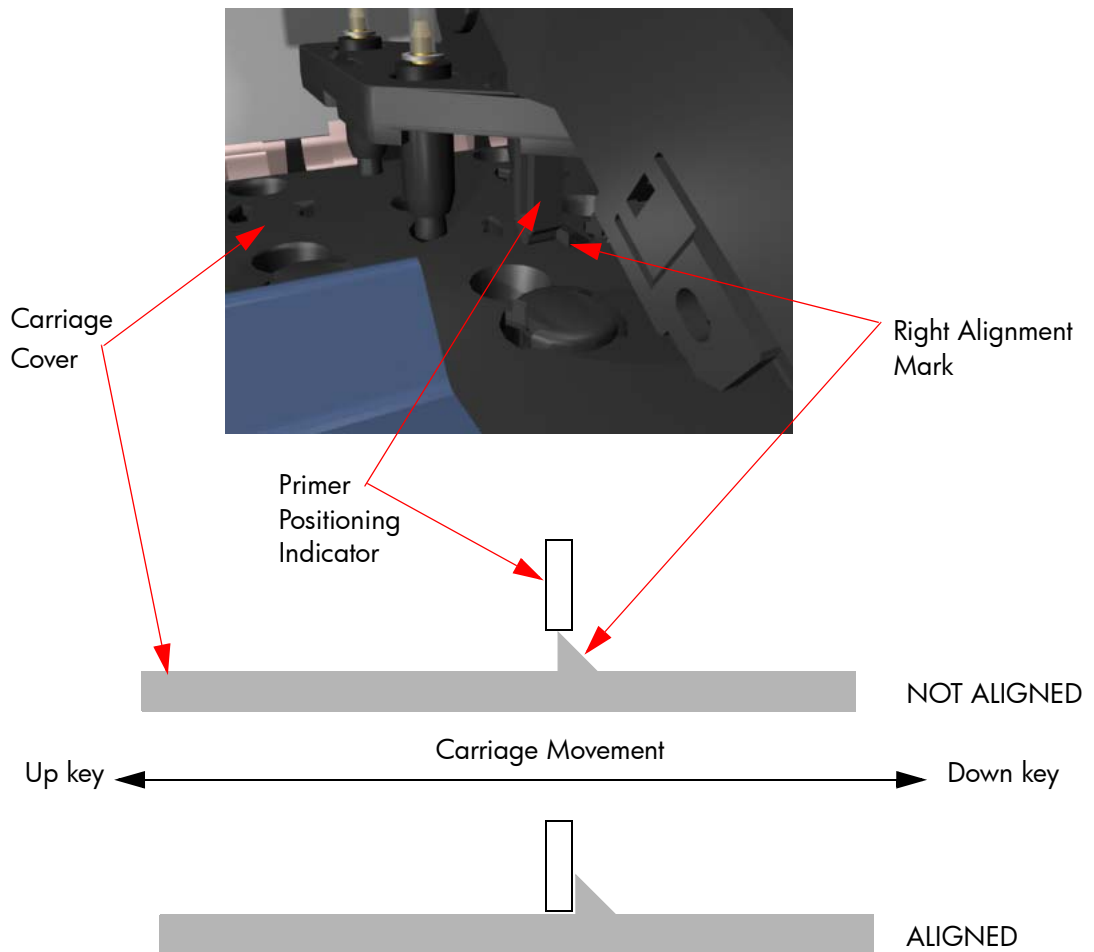


**NOTE:** To detect the exact position more easily while aligning the Carriage to the Primer it is a good idea to press down lightly on the Primer while you are moving the Carriage.

While the Carriage is moving, the Front Panel shows the actual position and the direction of movement and prompts you to press **OK** when done.

8. The Front Panel shows the actual Left Offset value and the system calculates the Right Scan-Axis Offset.
9. Once the Right Scan-Axis Offset has been calculated, the Front Panel prompts you to use the **Up/Down** keys to move the carriage until the left edge of the Right Alignment Mark is correctly aligned with the Primer Positioning Indicator.

10. Use the **Up** and **Down** keys to move the Carriage until the left edge of the Right Alignment Mark is correctly aligned with the Primer Positioning Indicator.



**NOTE:** To detect the exact position more easily while aligning the Carriage to the Primer it is a good idea to press down lightly on the Primer while you are moving the Carriage.

- While the Carriage is moving, the Front Panel shows the actual position and the direction of movement and prompts you to press **OK** when done.
11. The Front Panel shows the actual Right Offset value.
12. The calibration process continues and the Front Panel shows the following messages as the new nominal offset value is read and saved to NVM:
- Reading Nominal Offset
  - New Nominal Offset is [ActualValue]
  - Saving to nvm
  - Saved
13. Once the calibration is completed, OK is displayed on the Front Panel.
14. Replace the Right Cover (page 286).

### 5.3.3 Color Sensor Shutter Calibration

#### Description

This Service Calibration tries to open and close the Embedded SpectroPhotometer (ESP) shutter, and checks optically, using the ESP light, that it opens and closes. If it cannot open the shutter with the default values, it tries to fine-tune the location where the carriage stops so that the Shutter Actuator can hook the shutter lid and open it successfully. It will try over a range of  $\pm 1$  cm around the nominal position, moving by 1 mm after each attempt, starting at the rightmost position (nominal +1 cm), until the actuator hooks the shutter. If, by nominal  $-1$  cm, the shutter has not been successfully opened, the test fails. If a successful position is found, it is stored in the NVM as the new position to be used in future.

#### Procedure

1. Go to Service Menu > 5. Service Calibration Menu > 5.3 Carriage Menu > 5.3.3 Color Sensor Shutter Calibration.
2. During calibration, the Carriage moves back and forth and the front panel displays a brief description of what is happening. When calibration is complete, the following message is displayed.
3. Press **OK** to return to the menu.

If the calibration fails, you can use the ESP Shutter Diagnostic in the Service Utilities submenu to identify which failed part is preventing the shutter from working correctly.

### 5.3.4 Color Sensor Calibration

#### Description

The purpose of this Service Calibration is to perform the internal calibration of the Embedded SpectroPhotometer (ESP). This requires the shutter lid to be closed. An open shutter lid will cause an error message. You can perform the ESP Shutter Test to check the shutter mechanism.

#### Procedure

1. Go to Service Menu > 5. Service Calibration Menu > 5.3 Carriage > 5.3.4 Color Sensor Calibration.
2. Press **OK** to start the test.
3. When the test is complete, press **OK** to return to the menu.

# 5 Print Quality

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# Initial Print Quality Troubleshooting Actions

For the vast majority of print-quality problems, a Call Agent should request that the customer performs the troubleshooting actions in the *User's Guide* in the chapter 'Troubleshoot print-quality issues'. Most problems can be resolved using these procedures without the need for an on-site visit.

## RIP and Front Panel Settings

It should be noted that this section describes the troubleshooting procedures for use with the printer's internal diagnostic plot. It does not describe the various settings in the printer's RIP or Front Panel that can cause changes in the image quality achieved by the printer. Before proceeding with the following troubleshooting sections, check that none of the setting in the Front Panel or RIP regarding Vertical Correction, XY Correction or Bow Correction have been set at extreme levels, which the troubleshooting here would not be able to correct.

## How to Use the Image Quality Plots

The Printer contains a series of basic image quality tests which help you to diagnose image quality defects. There is an option to print all three diagnostic prints at once or print them individually.

The three Image Quality plots test the printer in different ways, but can be split into the following sections:

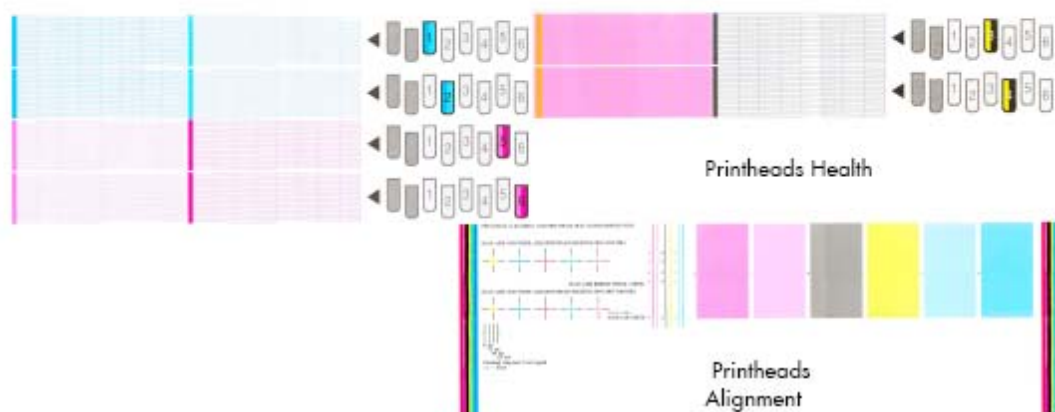
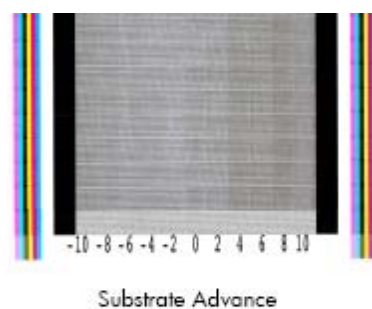
- **Printhead Alignment:** The purpose of this test is to test the accuracy of the current printhead alignment.
- **Printheads Health:** This test is designed to check if the printhead nozzles print correctly.
- **Substrate Advance:** This test enables you to visually check if there are any substrate advance issues with the printer.

To print all the test diagnostic prints shown here go to the Service Menu List>2. Image Quality Plots> 2.1 Print ALL plots.

## Considerations for Printing the Diagnostic Print

1. Use the same type of substrate that the customer was using when they experienced the image quality problem.

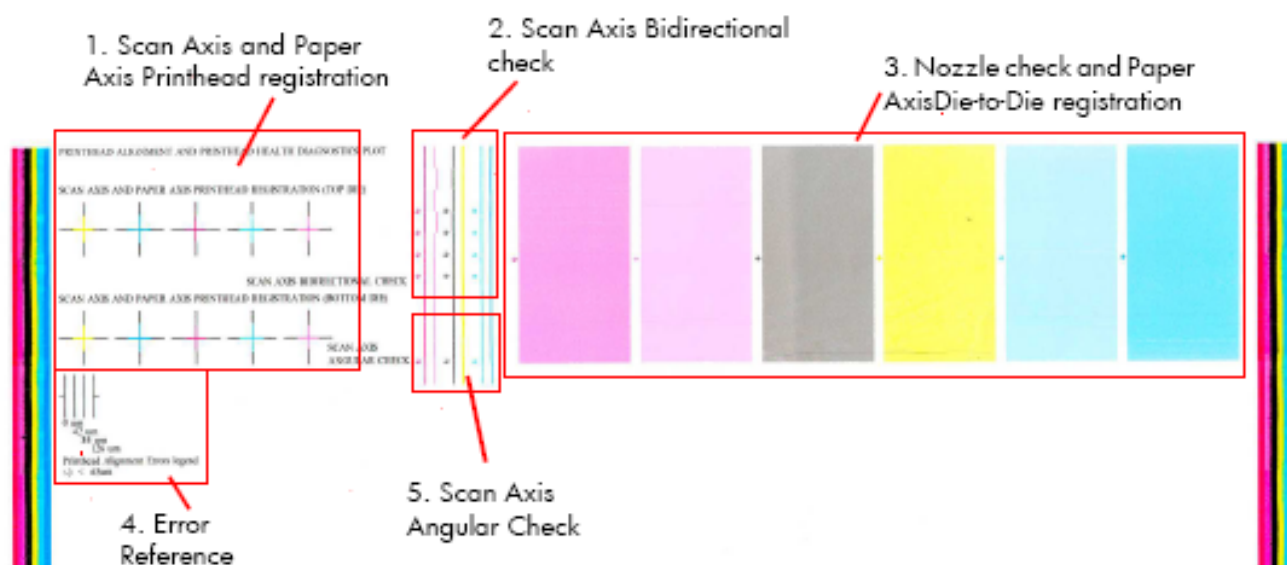
- If you do not see any problems with the Image Quality Test, then the problem may not be with the printer itself. The problem may be with the RIP. The following is printed when 'Print all plots' is selected.



## 2.2.1 Printhead Alignment Test Plot

To print this test plot go to Menu List>2. Image Quality Plots>2.2 PH Alignment Menu>2.2.1 Test Plot.

This test is designed to check the accuracy of the current printhead alignment. The plot consists of five different areas:

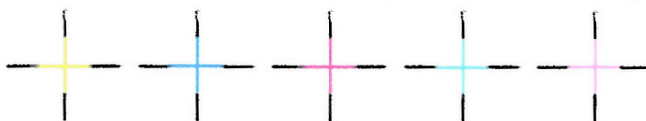


### 1. Scan Axis and Substrate Axis Printhead registration

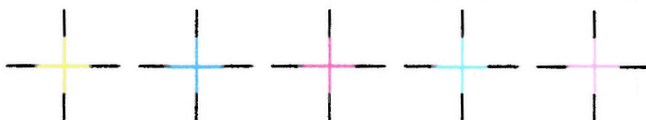
The colored crosses of the plot should show lines perfectly aligned with each other, as shown below.

The die 1 and die 2 of the black printhead is used as a reference to which the rest of the printheads are compared. The substrate does not move while the pattern is being printed.

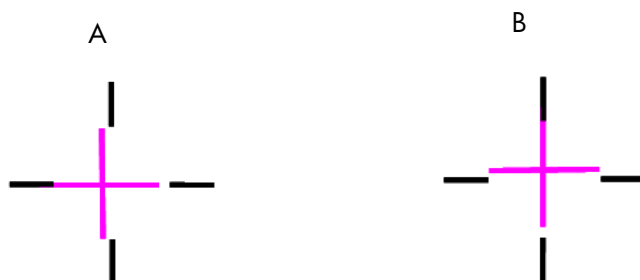
SCAN AXIS AND PAPER AXIS PRINthead REGISTRATION (DIE 1)



SCAN AXIS AND PAPER AXIS PRINthead REGISTRATION (DIE 2)



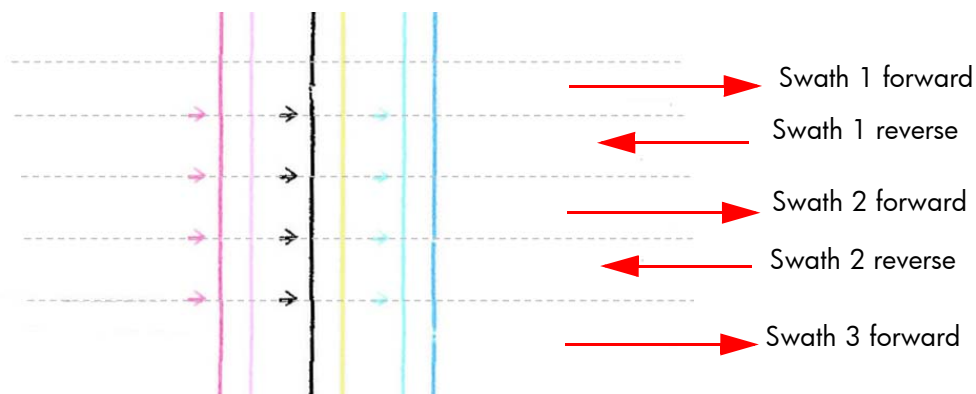
If the printer is experiencing **horizontal** misalignment problems, the Alignment Test will print the lines in the orientation shown below (A). If the printer is experiencing **vertical** misalignment problems, the Alignment Test will print the lines in the orientation shown below (B):



## 2. Scan Axis Bidirectional check

The small arrows point to the place where lines printed in forward and reverse directions meet. It is at this point that the registration accuracy must be checked.

The check should be done for the M-Lm, KY and C-Lc printheads. The bidirectional alignment can change slightly as the substrate thickness varies.



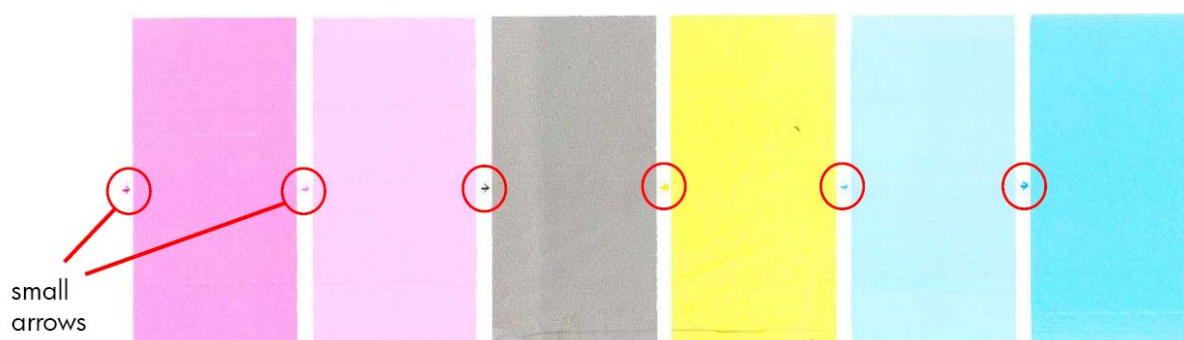


The plot should show lines perfectly aligned with each other, a straight vertical line indicates correct bidirectional alignment (A). If any of the printheads are experiencing bidirectional misalignment issues, the alignment test will print the lines as show below (B).



### 3. Nozzle check and Substrate Axis Die to Die Registration

The colors are printed with a halftone, low-ink area fill, in a one pass printmode.



The small arrows point to the place where two different printhead dies meet. No significant light or dark lines should be seen at this point. Manual Alignment reset the alignment back to factory defaults.

The patches also provide a basic judgment about the printhead nozzle status. Horizontal bands indicate weak or missing nozzles.



**NOTE:** If there are many horizontal bands indicating weak or missing nozzles, the die to die registration test will be a poor indicator of the status of the die to die registration. If this occurs clean the printheads and reprint the test.

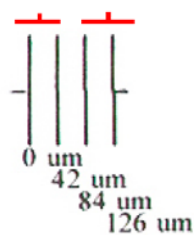
### 4. Error reference

The plot contains a reference marked 'Legend', this is a guide to deciding if any of the printhead registrations are correct or incorrect.

- The correct/incorrect criteria shown here corresponds to a plot with a maximum IQ (usually printed on high quality substrate such as vinyl). Other substrates and usage may accept significantly worse registrations while stilling producing an acceptable level of image quality.
- Automatic printhead alignment may not produce optimal registration under certain conditions. Substrate texturing, elasticity and the behavior of the substrate under different temperatures may lead

to some imperfections with regards to printhead registration. In these circumstances the user may choose to use the **Manual Printhead Alignment instead**, refer to page 183.

Correct Incorrect



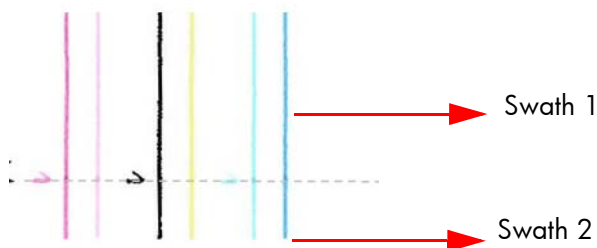
Printhead Alignment Errors legend  
:-) < 65um

## 5. Scan Axis Angular Check

The small arrow point to the place where the lines printed in subsequent passes meet using unidirectional printmode. The registration must be checked at that point. The check should be done for the MLm, KY and CLc printheads. Note that the substrate advances between the upper and lower parts of the plot.

This test mainly relies on the changing surface of the substrate. Problems in the angular alignment lead to printhead to printhead misregistration. This is because of the staggered orientation of the printheads.

The angular alignment can differ slightly when the type of substrate varies, or when the substrate has recently been loaded.



## Corrective Action

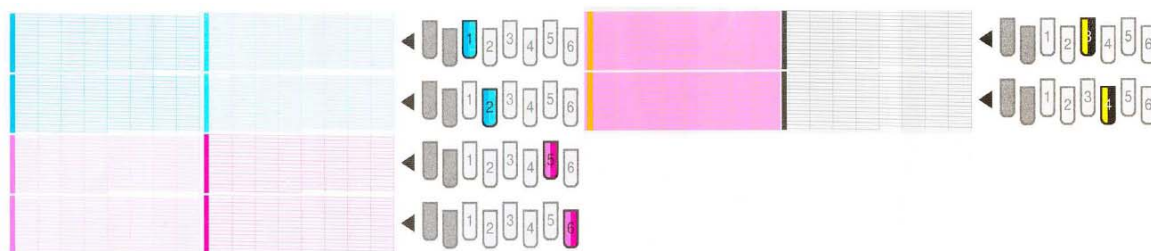
1. Perform a Printhead Alignment. Use the same type of substrate that the customer was using when there were image quality printing issues. However it should be noted that some substrate types are not suitable for the Printhead Alignment.

## 2.4.1 Printheads Health Test Plot

To print this test plot go to Menu List>2. Image Quality Plots>2.4 Printheads Health>2.4.1 Print Test Plot. The printhead health test plot is designed to enable you to see the overall health of the printhead nozzles.

The nozzles check (bottom of the plot) is printed in a one-pass full swath mode. The diagnostics test prints out every single nozzle of each Printhead without applying an error hiding or alignment algorithm.

For each Printhead, you can see both the adjacent and the consecutive nozzles. For every Printhead there is a different horizontal band that can be identified with the help of the template marked with the colors of the Printhead used at the right of every band.



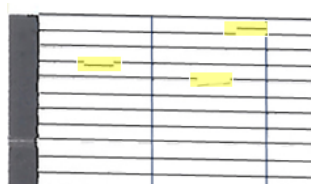
There are a series of numbered stepped diagonal lines. If one or more of the nozzles are malfunctioning or mis-positioned, you will see that the stepped lines are broken or misdirected in one or more places.



In this example of the plot the print shows a nozzles health pattern without any failing nozzles. In this case, the case shown corresponds to the black color.



This is an example of nozzles out. You can see the broken or the skewed line, in this case marked in yellow to help you to understand the issue. In the service plot there are no yellow marks.



This is an example of nozzles mis-positioned or malfunctioning. You can see the broken or the skewed line, in this case marked in yellow to help you to understand the issue. In the service plot there are no yellow marks.

For a more in-depth view of the health of the nozzles you can print the Advance Nozzles Health test plot.

## Corrective Action

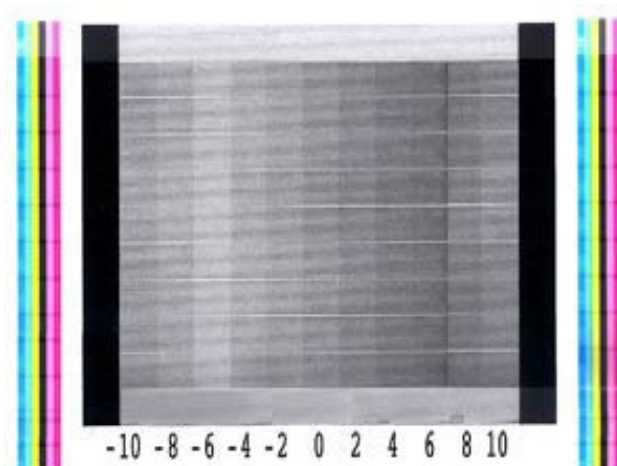
If the printer has nozzle defects, acceptable print quality results can still be achieved because the printer can automatically compensate for this, there is no need to replace the Printhead because of nozzles out.

The method of improving Nozzle Defects is to:

1. To clean the printheads, go to the printer's front panel and select the ink menu, then Image quality maintenance > Clean printheads. Select which printheads you need to clean. You can clean all of the printheads or only some of them. The selections available are:
  - Clean all
  - Clean M-LM
  - Clean C-LC
  - Clean K-Y
2. Reprint the Printhead Nozzles Test Plot to verify that the defective nozzles have been corrected.
3. If the problem persists, replace the defective Printhead.

## 2.3.2 Print Adjustment Plot

Printing direction  
(substrate axis)

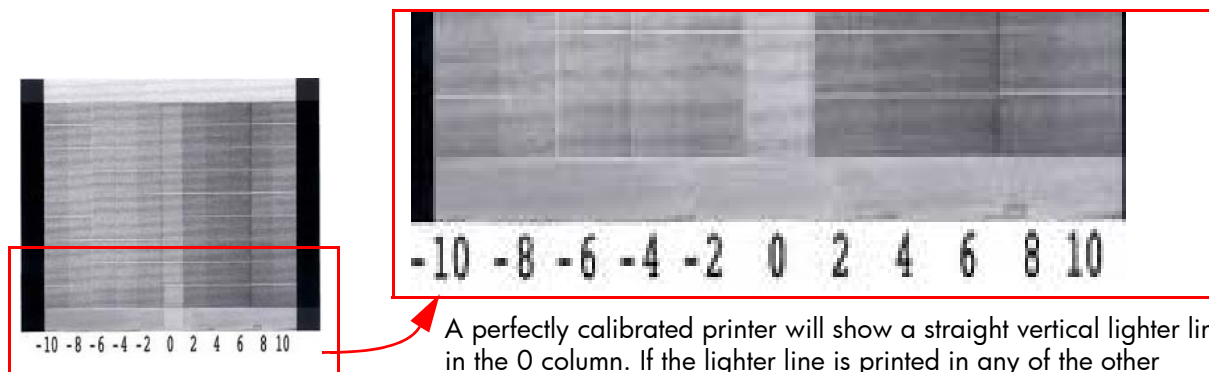


To print this test plot go to Menu List>2. Image Quality Plots>2.3 Substrate Advance>2.3.2 Print Adjustment Plot.

This plot enables you to visually determine the accuracy of the substrate advance, if there are any advancement issues they will appear in this diagnostic plot.

The plot can be used to precisely measure the substrate advance error with a one dot row accuracy to verify the stability of the substrate advance.

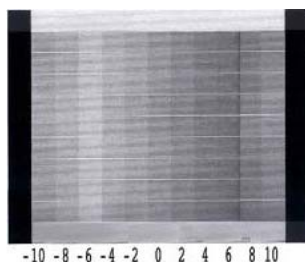
The sample is composed of 11 vertical columns named -10 to 10. Each single column represents an advance deviation, so column -10 corresponds to a minus deviation and 10 corresponds to a plus deviation. The advance obtained along the scan axis direction corresponds with the position of the lighter portion of the pattern in each advance, as shown on the next page.



A perfectly calibrated printer will show a straight vertical lighter line in the 0 column. If the lighter line is printed in any of the other columns, this would indicate there is a constant advance offset along the entire plot. If the offset is bigger than  $\pm 2.95\text{mm per meter}$  (the lighter column is not the center one), this can be adjusted by using the button on the front panel to change the compensation of the substrate advance as the printer prints.

It is very important to verify that the substrate selected on the front panel, is the same as the actual substrate loaded on the printer. You can verify the substrate type selected through the Front Panel (Main Menu>Substrate Menu>View Loaded substrate). If an incorrect substrate is selected, this will produce an offset error in the Substrate Advance.

### Corrective Action



The figure shown here (left) shows a vertical lighter shaded line placed at column -6, which indicates an offset of 8.57mm per meter.

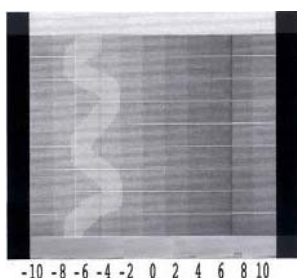
This can be adjusted by using the button on the front panel to change the parameters as the printer prints.

- If the lighter line is in the negative column, increase the compensation of the substrate advance.
- If the lighter line is in the positive column, decrease the compensation of the substrate advance.

When the lighter shaded line is in position 0, the process is complete.

If the advance is not a straight line, this would indicate that the printer has a variable advance error.

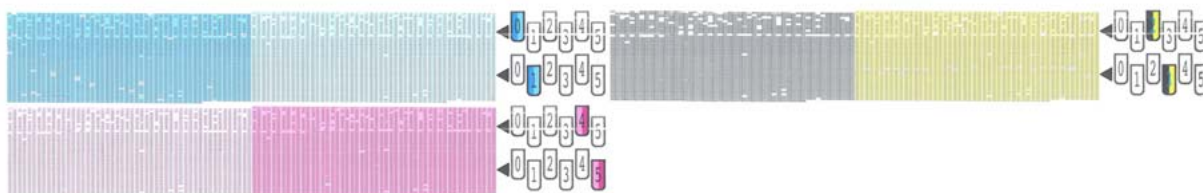
If this is the case verify the following:



- Check to see if the OMAS is clean, if it is not clean the OMAS and reload the substrate and repeat the diagnostic plot.
- Check that the OMAS is functioning correctly. Check the light in the OMAS blinks while the substrate moves while an image is being printed.
- Check that the OMAS can function correctly with the type of substrate loaded. If it cannot, for example with high gloss substrate, disable the OMAS from the RIP and reprint the diagnostic plot.
- Perform the Scan Axis Calibration  $\Rightarrow$  page 193

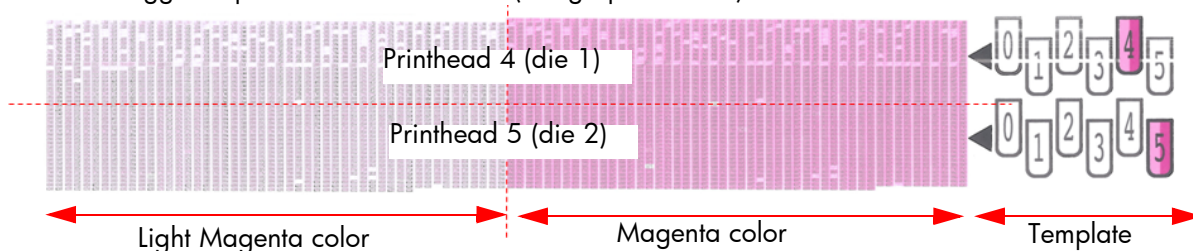
## 2.4.2 Advanced Printhead Health Test Plot

The Advanced Printhead Health Test Plot is not part of the large diagnostic print, but it is similar to the Printhead Health Test Plot described previously. With this plot however you will be able to identify which of the Printhead Nozzles is actually failing. To print this test plot go to Menu List>2. Image Quality Plots>2.4 Printheads Health>2.4.2 Advanced Test Plot.



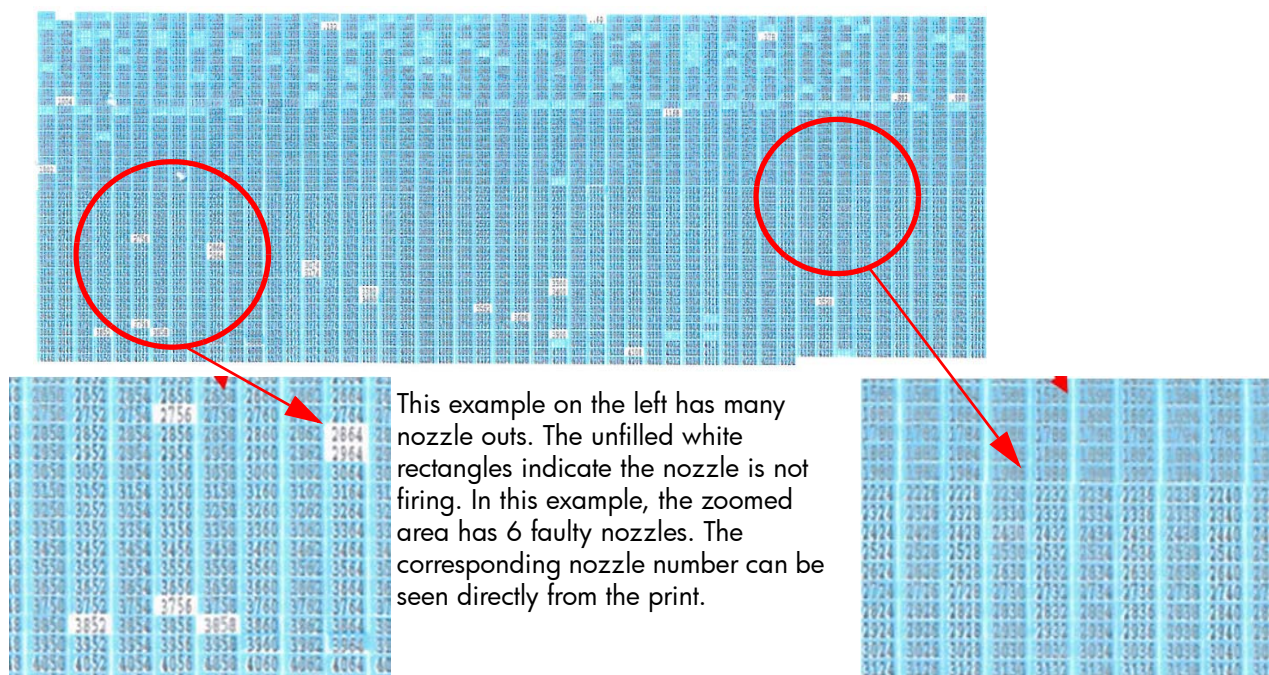
This plot, like the normal nozzles health test, prints in a special one-pass full swath mode, but unlike the normal nozzle health test, only a few of the nozzles are printed at once and with small incremental substrate advances. Eventually all the nozzles of all the printheads are printed, this means printing the plot can take longer than the normal health test.

The plot is intended for visual inspection only. The plot consists of three blocks. For each printhead, there is a different block, which can be easily identified by the colors of the printhead used inside and/or the template located on the right side. Each block is split horizontally into two areas that correspond to the colors in the printhead. Vertically, the block is split into sections that correspond to two dies combining the two staggered printhead of each color (see graphic below).





Each single region is composed of a series of numbered triangles. Each triangle is related to a single nozzle in the printhead. If one or more of the nozzles are malfunctioning or mispositioned, you will see that the rectangles are not filled. The corresponding color and the number printed inside can be read.



## Corrective action

If the printer has nozzle defects, the level of image quality achieved can still be considered acceptable because the printer can automatically compensate for this, there is no need to replace the Printhead because of nozzles out.

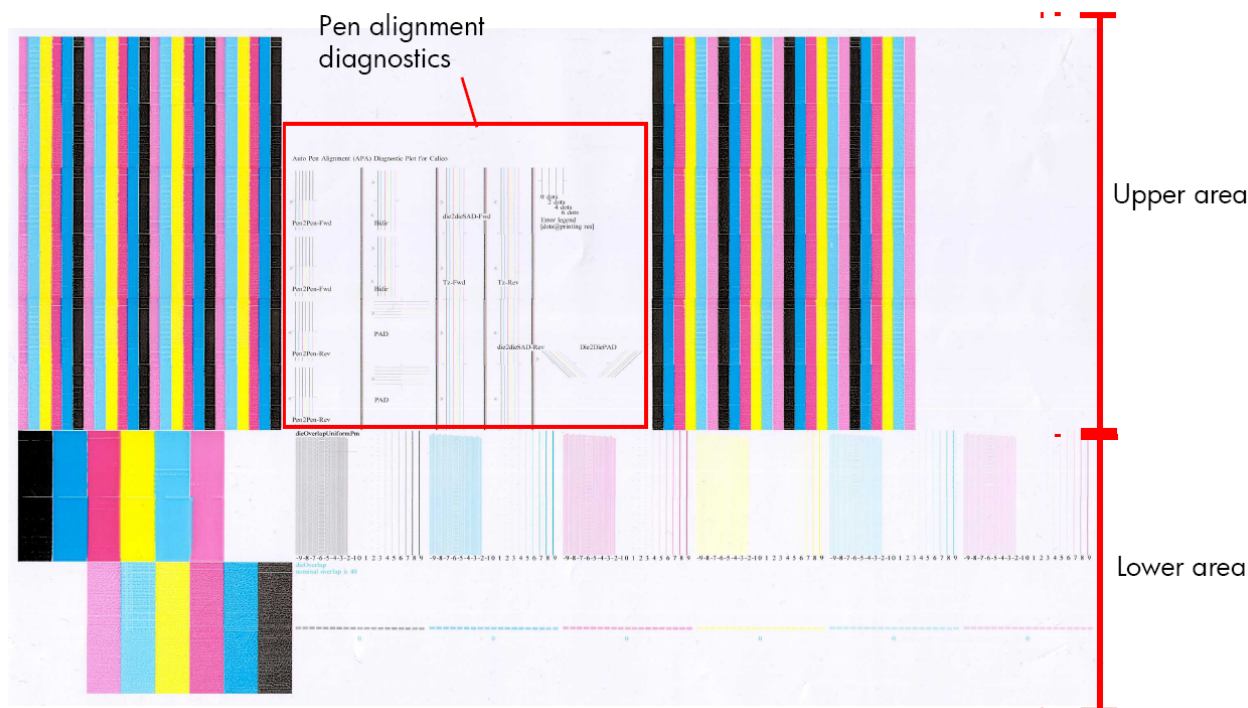
A single die for a single color can contain up to 70 nozzles out and still the print quality will not be significant degraded.

1. Perform a clean of the printheads
2. If there is still any die above the threshold level (70 nozzles out), perform a hard clean process.
3. If the hard clean has not improved the number of nozzle that have been recovered, perform the hard clean again.
4. If there are any dies that have more than 70 nozzles out per die, replace the printhead.

## 2.2.2 Advanced Alignment Diagnostic Print

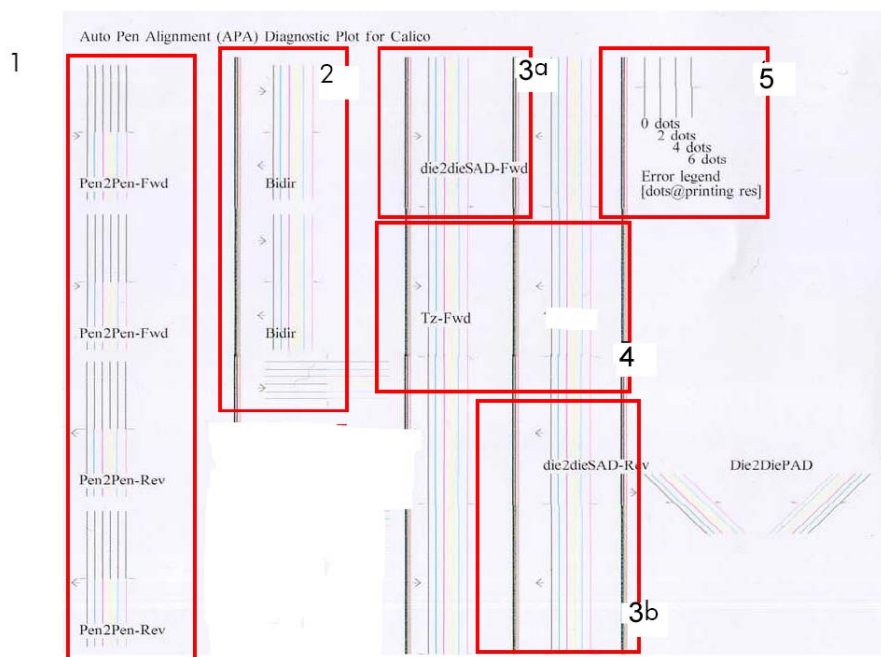
This plot helps you to visually check any alignment problems of the printer, it is similar to the process already described on ⇒ Page203, but in more detail. You use it to precisely measure the alignment error with a one dot row accuracy. To print this test plot go to Menu List>2. Image Quality Plots>2.2 PH Alignment Menu>2.2.2 Advanced Test Plot

The plot is split into two main areas. The upper area contains the area which checks the printhead alignment, while the bottom area checks the same color staggered printhead overlap.



### Printhead Alignment Diagnostics

The Printhead alignment Diagnostics, shown in the red box above, consists of various areas to check the alignment:





1. In this area there are four checks for the printhead to printhead alignment in the scan axis direction (Pen2Pen-Fwd or Pen2Pen-Rev). It is forward and reverse.
  - The top pattern is related to the front printhead (nearest to the user when doing the printhead replacement).
  - The bottom pattern is related to the rear printhead (furthest from the user when doing the printhead replacement).

The area to check is the junction (marked with a "-") of the black with the rest of colors.

2. The bidirectional check is at the top, marked as Bidir.
  - a. The top pattern is related to the front printhead (nearest to the user when doing the printhead replacement).
  - b. The bottom pattern is related to the rear printhead (furthest from the user when doing the printhead replacement).

Check that the lines are continuous without a gap. The junction is marked with a "-"

3. The alignment in the scan axis direction between both printheads of the same color is marked as 3a (in forward direction die2dieSAD-Fwd) and 3b (in reverse direction die2dieSAD-Rev).

The area to check is the junction (marked with a "-"). The lines have to be continuous.

4. The ThetaZ of the printheads are checked in the area marked as 4.

The area to check is the junction (marked with a "-"). The lines have to be continuous.

5. The area marked as number 5 is a reference legend that shows junction misalignments of 2, 4 and 6 dots. The junction to check has to be below 4 in all the cases. If the error seems to be above 4 dots, then realign the printheads again.

### Die Overlap Alignment.

The Die Overlap alignment is at the bottom of the plot. The area to check is only the bottom junction pattern for all the colors. The clearest band must be around the 0 ( $\pm 3$  dots). Every band is equal to a one dot error.



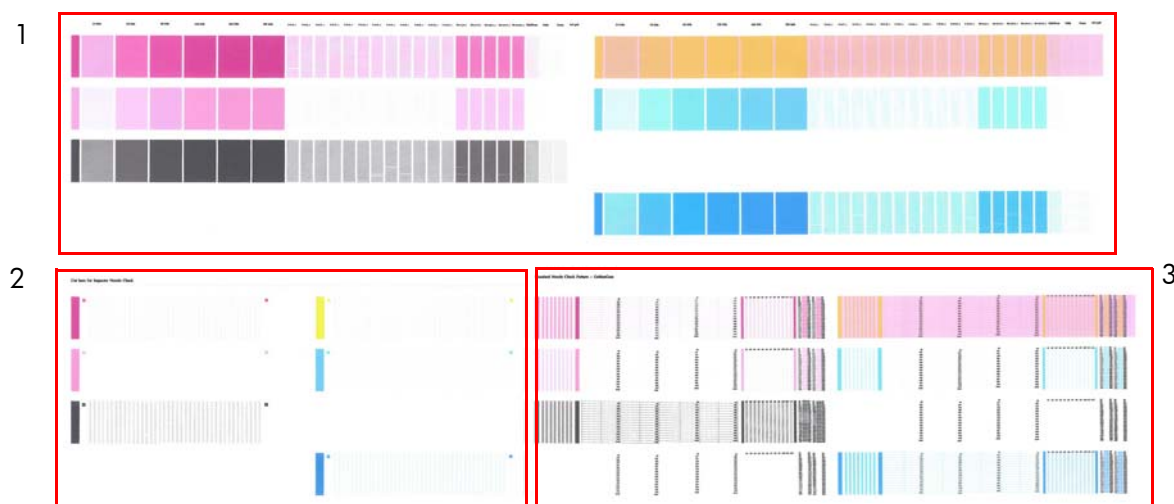
### Corrective action

In order to solve any problem in the alignment, perform the following:

- Repeat the printhead alignment. Most recommended substrates are glossy papers where printhead alignment accuracy is best. There are some substrate types that are not suitable for Printhead Alignment (transparent, translucent)
- Try cleaning the Printheads if the error continues.
- If the error persists, replace the affected printhead.
- If there is an issue in the ThetaZ and it cannot be fixed, check if the substrate is working with the OMAS sensor, and that the substrate is not loaded with excessive skew. There are some substrates that cannot be controlled by the OMAS sensor. If the substrate is a type that should work with the OMAS sensor, check the functionality of the sensor.

## 2.4.3 Plot for escalation only

To print this test plot go to Menu List>2. Image Quality Plots>2.4 Printheads Health>2.4.3 Only For Escalations. There are two identical plots to this test and each plot has three parts to it. The first plot refers to the rear printheads (number 1, 3, 5), while the second plot refers to the front printheads (2, 4, 6).



This plot is only printed at the request of the HP Division, or in case further help is required and there is need to escalate an image quality issue to HP Division.

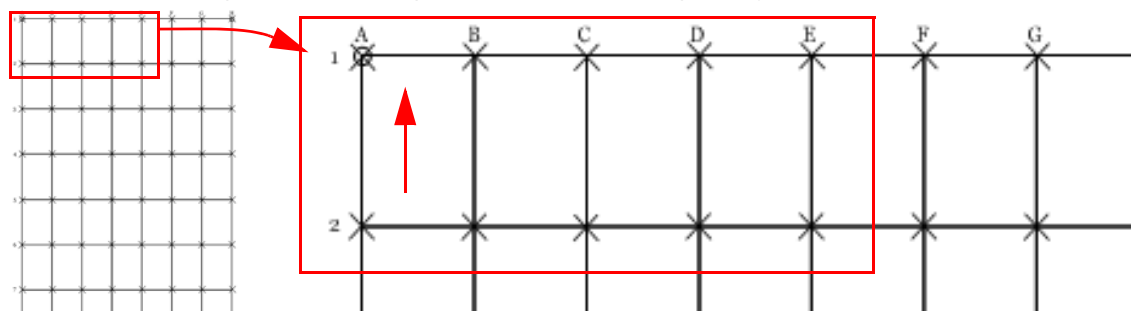
## 2.5 Geometry Check

The Geometry check print test is a simple template designed to check the printer's length accuracy and figure distortion performance. To print this test plot go to Menu List>2. Image Quality Plots>2.5 Geometry Check.

If a customer complains that there is an issue with a plot they are printing, this standard template can be printed and referred to by both the customer and HP as a single point of reference.

The plot consists of a 7x7 matrix of rectangular boxes. By default, each single rectangle corresponds to a DIN A4 sheet size (210mm x 297). Based on this, the total printed plot length should be about 2.07 meter (approx. 82") and 1.47 meters (approx. 58"). However the actual dimensions will highly depend on what settings have been defined for the Substrate Advance.

Each point in the matrix can be identified by means of a letter in the X axis and number in the Y axis. There is an arrow in the plot close to the point 'A1' to show the printing direction.



The method of evaluating the geometric performance is the following:

1. Select an area on the matrix to evaluate for accuracy and dimensional integrity. The template is designed so you can measure anything from an A4 sheet upwards to any probable dimension.
2. Place the printed plot on a flat surface. This will minimize any wrinkles before proceeding with the process.

- Find the vector length accuracy by selecting parallel vectors and/or figure distortion by measuring the diagonals in the selected area.
- Note the measurements to assess the printer's performance. It will help to keep the measured vectors identified by using the name convention marked on the plot i.e. A1, A3. This makes it easier to identify exactly the areas of the plot where the measurements were taken.



**NOTE:** To check if a printer complies with the technical specifications, please refer to 'Line accuracy' section in the printer's data sheet.

**NOTE:** After loading substrate, allow the substrate to stabilize before printing the plot. Some types of substrate require up to 3 meters before they are stabilized.

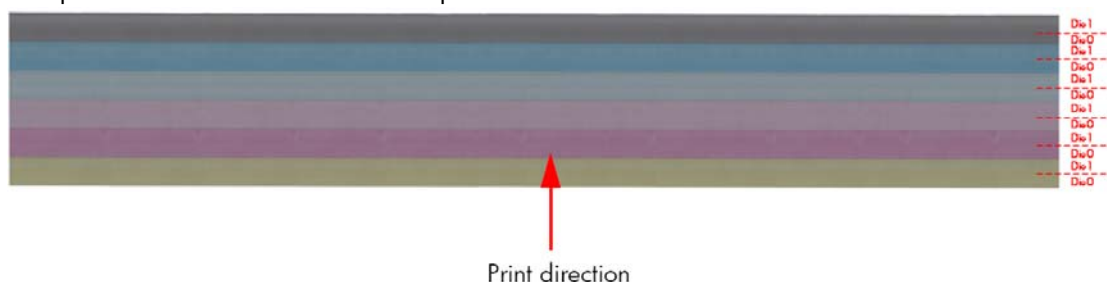
### Corrective Action

- Reload the substrate following the exact steps from the User's Guide.
- In some cases, differences in the substrate advance along the scan axis could cause geometric defects. Try adjusting the settings in the RIP. Adjust Vacuum level and Backtension levels. Be careful when adjusting these settings, refer to the RIP supporting documentation for further details of this type of adjustment.

## 2.6 Scan Axis check

This plot shows any defect in the Encoder Strip along the Scan Axis. To print this test plot go to Menu List>2. Image Quality Plot>2.6 Scan Axis Check.

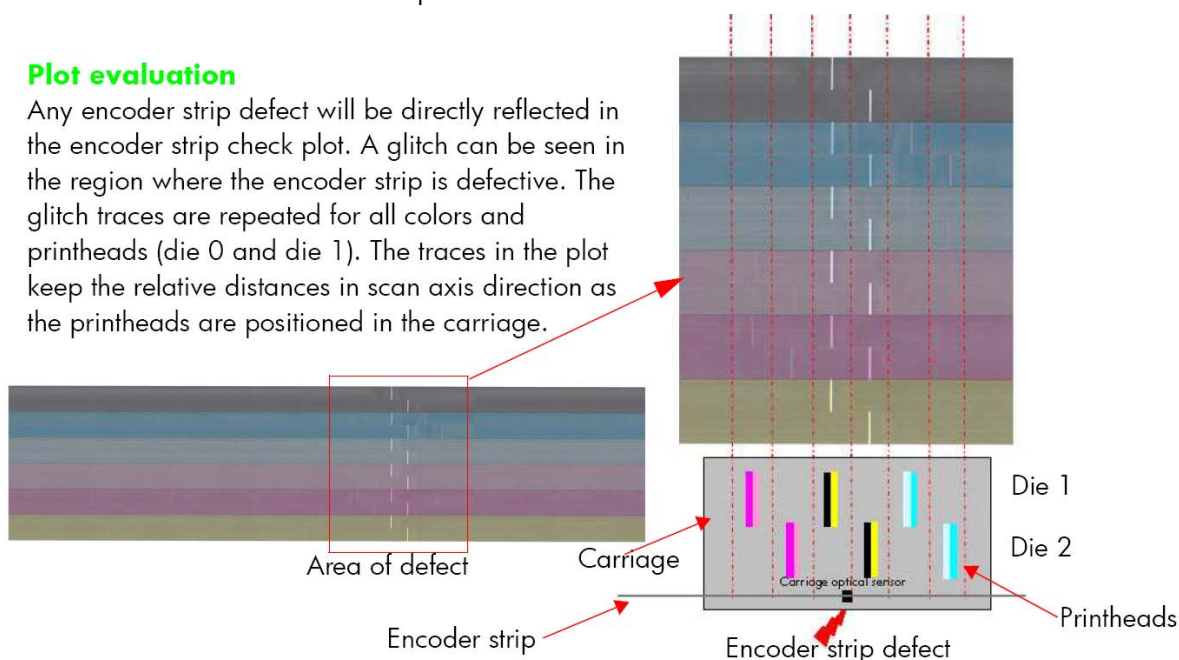
Any defects in the encoder strip can decrease the level of image quality of the printer, specifically in the area where the encoder is defective. The defect is revealed by means of an interference or Vernier pattern that spans the whole Scan Axis of the printer.



The test plot consists of six horizontal color bands with a black pattern mask on top of them. Each band is split in to two horizontal areas corresponding to the die 0 and die 1 for the specific color. The plot is printed in unidirectional mode at 40ips.

### Plot evaluation

Any encoder strip defect will be directly reflected in the encoder strip check plot. A glitch can be seen in the region where the encoder strip is defective. The glitch traces are repeated for all colors and printheads (die 0 and die 1). The traces in the plot keep the relative distances in scan axis direction as the printheads are positioned in the carriage.



### Corrective action

If an fault is found with the encoder strip, replace the Encoder Strip⇒ page 395.

## 2.7 Vacuum Check

This service plot helps diagnosing problems that could be related to vacuum adjustment such as substrate crashes, substrate advance, and differential substrate advance (different length side to side). It can also be used to adjust properly the substrate advance. To print this test plot:

1. Load the substrate at the rightmost position of the scan axis (do not center it), no matter the width of the roll.
2. Go to Service Menu >2. Image Quality Plots >2.7 Vacuum Check.
3. For proper usage of this plot, the vacuum level needs to be changed while the plot is being printed (in between patterns).

**IMPORTANT NOTE:** This plot must be printed with heating and curing enabled. Disabling heating and curing can change the result.

### Printing plot

1. Once the menu 2.7 Vacuum Check is selected, the printer prompts for details of your profile and your substrate roll width.

Vacuum Check Print			
Low Ink	30-50in		
Low Ink	50-60in<-		
High Ink	30-50in		
High Ink	50-60in		

2. Select the appropriate one according to the following table.

Selection	When to select
Low Ink 30-50 inches	RIP profile 'Low Ink', roll width between 30-50 inches.
Low Ink 50-60 inches	RIP profile 'Low Ink', roll width between 50-60 inches.
High Ink 30-50 inches	RIP profile 'Low Ink', roll width between 30-50 inches.
High Ink 50-60 inches	RIP profile 'Low Ink', roll width between 50-60 inches.

3. At the next screen select confirm to print.

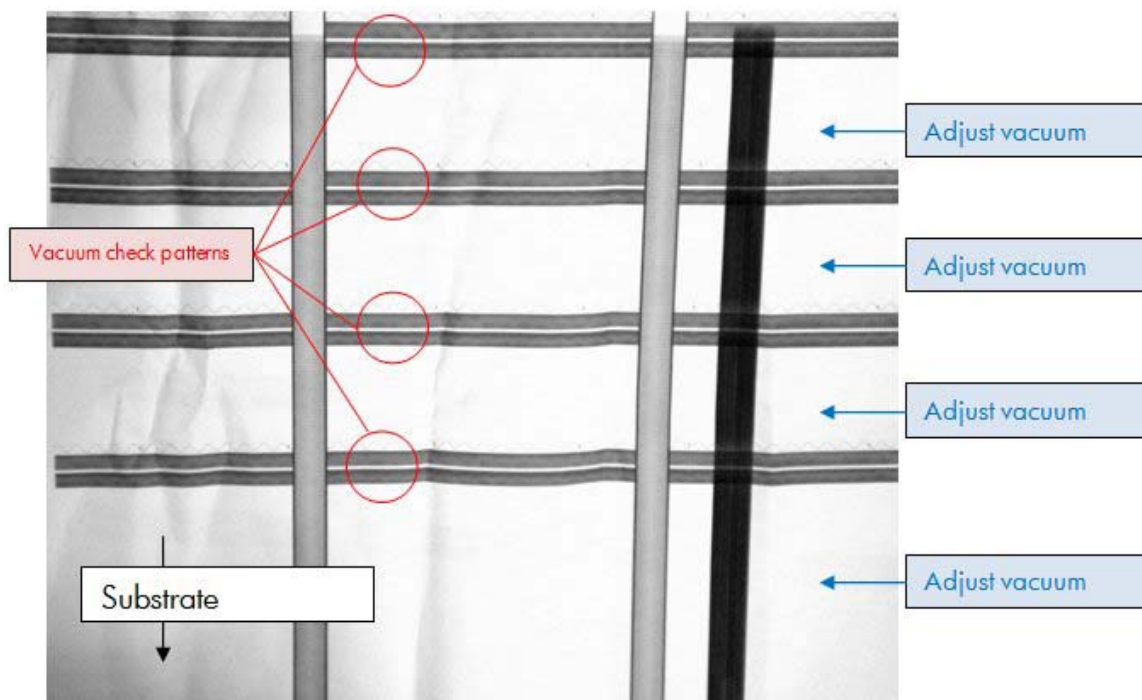
### Modifying the vacuum level during plot printing

If nothing is done, the whole plot will be printed with the default vacuum level of the substrate family selected in the Front Panel. The table below shows these default values.

Substrate family	Vacuum (mm of H <sub>2</sub> O)
Self-Adhesive	25
Banner	5
Film	25
Fabric	20
Mesh	30
Paper-Aqueous	20
Paper-Solvent	25
Low Temperature Substrate	40
Synthetic Paper	40

To check other vacuum levels, the vacuum parameters need to be modified during the printing of the plot according the recommendations below. To do so, in the User Menu, go to Ink menu >Image quality maintenance> Adjust printing params > Adjust vacuum.

Find below an image of the plot and when during the printing the vacuum levels can be checked (red) and when during the printing they should be changed (blue).



### Recommendations to modify the vacuum level during the plot

Print the first pattern with the default vacuum level for the Front Panel family. This way you can know if the default value is good.

IMPORTANT NOTE: The default family vacuum level is not necessarily the one selected in the RIP profile.

For the second pattern, there are two options:

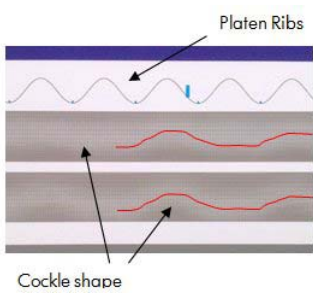
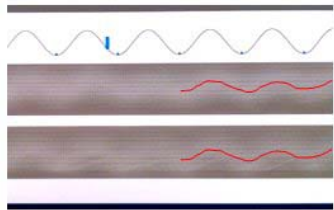
- Change the vacuum level to the one selected in the RIP profile.
- Follow the instructions below to increase or decrease the vacuum level.

For the rest of the patterns, increase or decrease the vacuum level according to the instructions below.

The vacuum should be changed at least in 20 mm of H<sub>2</sub>O steps, to be able to notice changes.

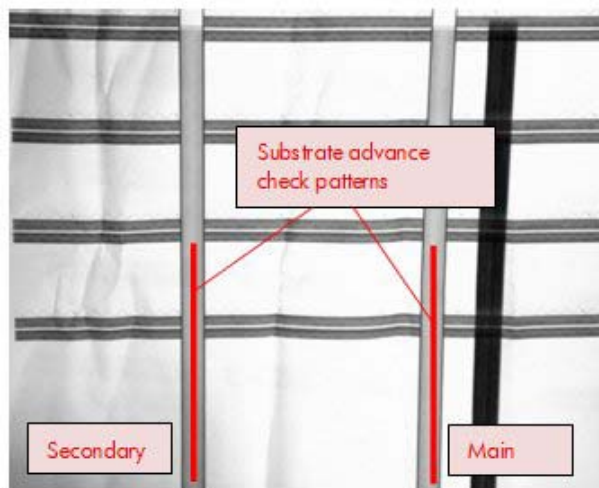
### Instructions to increase or decrease the vacuum level

Look at the vacuum check pattern and compare it with the following pictures to decide increasing or decreasing the vacuum.

Pattern	Corrective Action
	<ul style="list-style-type: none"> <li>• Vacuum is TOO LOW.</li> <li>• Substrate cockle-like shape does NOT follow the same shape as the platen ribs.</li> <li>• This may produce Vertical Banding with a similar shape as the cockle.</li> <li>• Increase the vacuum +20 mm H<sub>2</sub>O.</li> </ul>
	<ul style="list-style-type: none"> <li>• Vacuum is OK – it could also be too high.</li> <li>• Substrate cockle-like shape follows the same shape as the platen ribs.</li> <li>• The vacuum level should be set at the minimum vacuum level that shows this shape.</li> <li>• If vacuum level is excessive the shape is the same. In this case, differential substrate advance could appear. See below for more details.</li> <li>• There can be some “lateral shift” between the platen ribs shape and the cockle waves and this is OK.</li> <li>• It is also OK that shapes are “almost-flat” provided all “peaks” follow the platen ribs shape.</li> </ul>

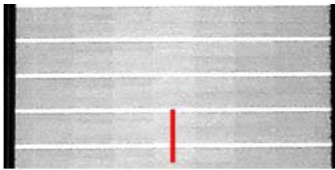
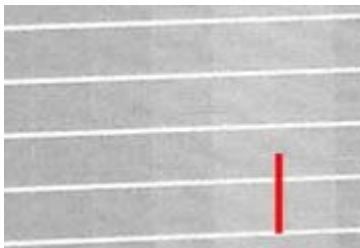
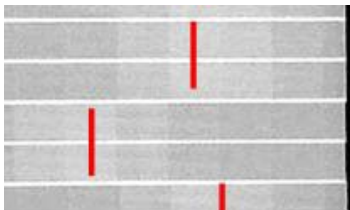
### The substrate advance patterns

Looking again at the plot, we can see two vertical patterns at each side of it.



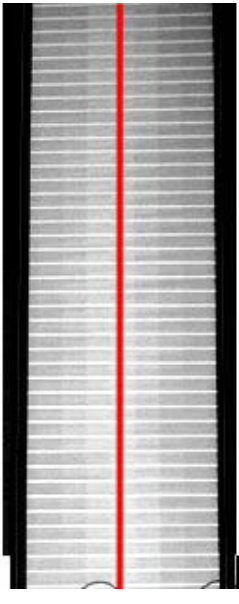

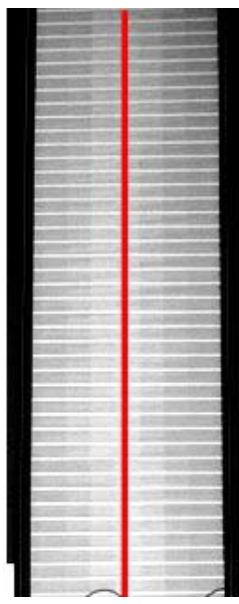
These two patterns are intended to check that the substrate is advancing correctly.

## Checking the Main substrate advance pattern

Pattern	Corrective Action
	<ul style="list-style-type: none"> <li>Substrate advance is OK.</li> <li>Light band is uniformly centered on the pattern.</li> <li>Max deviation acceptable is <math>\pm 1</math> band.</li> </ul>
	<ul style="list-style-type: none"> <li>Substrate advance is NOT OK.</li> <li>Light band is uniform but not centered on the pattern.</li> <li>The printer can provide good Image Quality but the substrate advance setting needs to be adjusted.</li> <li>This parameter can be adjusted on the fly during plot printing by going to Ink menu &gt;Image Quality Maintenance ? Substrate advance calib &gt;Adjust &gt;advance.</li> <li>Afterwards, the right value needs to be input in the RIP profile.</li> </ul>
	<ul style="list-style-type: none"> <li>Substrate advance is NOT OK.</li> <li>Light band is not uniform.</li> <li>Try decreasing the vacuum and/or playing with the input tension until it gets uniform.</li> </ul>

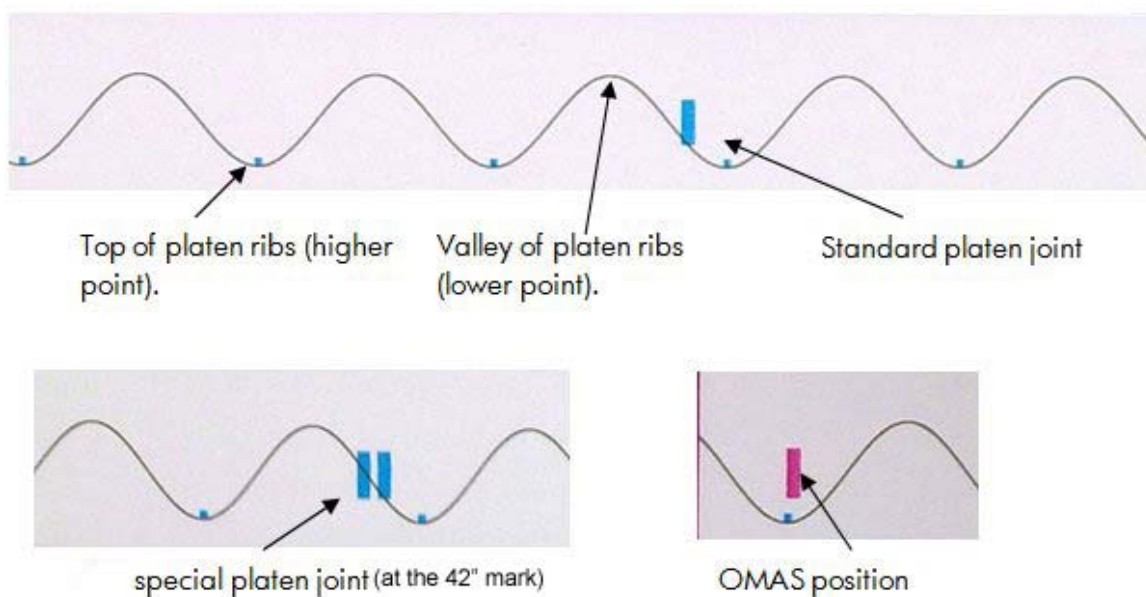


## Comparing the Secondary substrate advance pattern with the Main one

Secondary		Main
		
<p>Both vacuum level and substrate advance are OK.</p> <p>Secondary pattern looks similar to main pattern: uniform and centered.</p>	<ul style="list-style-type: none"> <li>• Substrate advance is OK</li> <li>• Vacuum level is NOT OK</li> <li>• This is named differential substrate advance.</li> <li>• Secondary pattern is different than the main pattern, typically non-uniform, with a smooth oscillation, while the main pattern should be uniform and centered.</li> <li>• Vacuum level is too high or substrate was loaded with too much skew. Reduce vacuum level and ensure substrate was loaded without skew.</li> </ul>	

## Other plot information

The pictures below show some other features of this plot that can be useful for diagnostic.

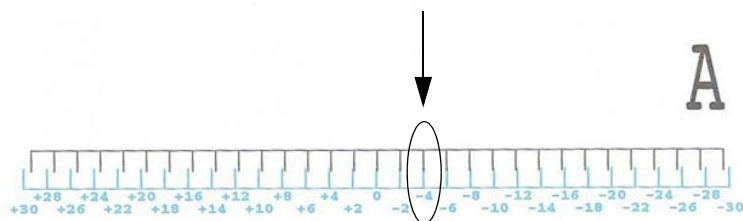


## 2.8 Misregistration Check

This plot helps you to visually check any alignment problems of the printer caused by substrate expansion. You use it to precisely measure the substrate expansion error with 2 dots row accuracy. To print this test plot go to Menu List>2. Image Quality Plots>2.8 Misregistration Check. The plot is split into two main areas, the left (B) and the right (A) areas. Each area is made of a basic substrate expansion pattern, which allows the measurement of the misregistration produced by the substrate expansion.



The error is measured on the pattern where the vertical black line is aligned with the Cyan vertical line. At this point, the misregistration error can be measured by reading the corresponding number in the right vertical alignment.



Each side of the plot gives a different error. Usually the error on each side is symmetric to zero (Eg: A=-4, B=+4). To evaluate the error, compute the difference between B-A.

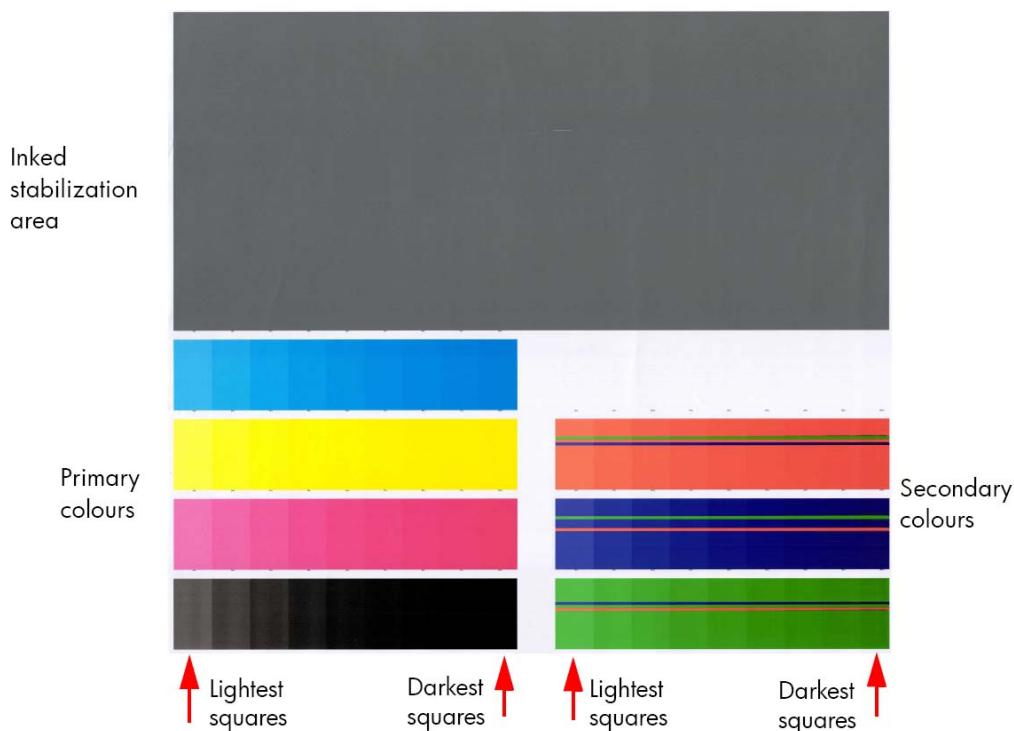
- If B-A is less than 7, then no expected IQ defects.
- If B-A is more than 7, then there could be grain and less line quality at plot sides.

Where  $|A-B|$  is the absolute value (without sign) of  $A-B$ . An acceptable error should be comprised below ( $\pm 4$  dots)

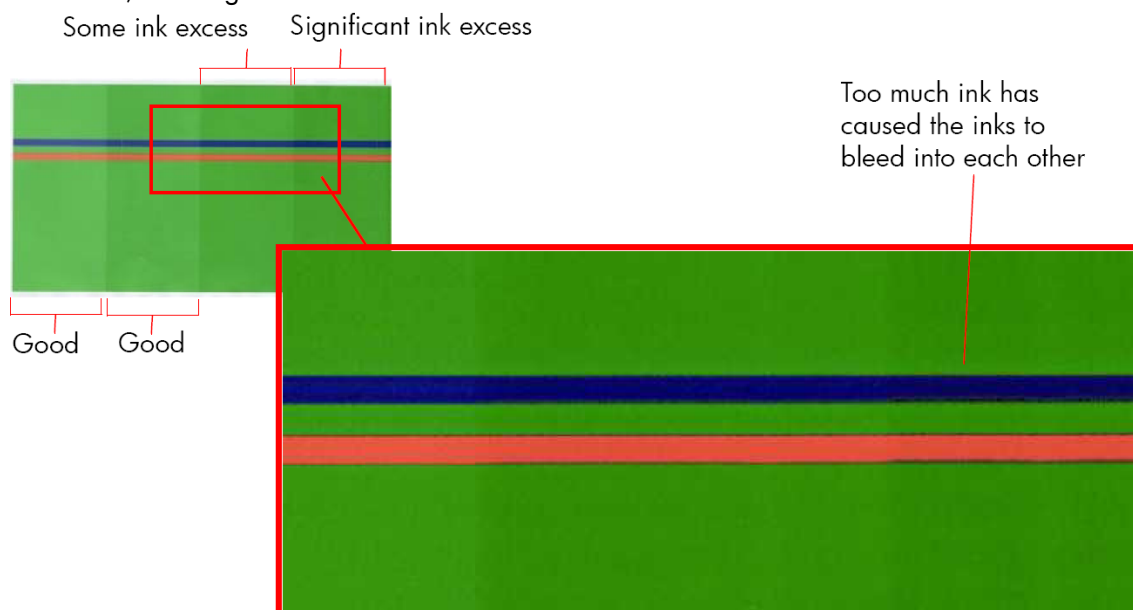
### 3.1 Inks on Substrate Test

The Inks on Substrate Test plot is used to determine the level of performance of the Drying and Curing Assemblies and to determine if they are performing as expected. To print this test plot go to Menu List>3. Inks On Substrate Test. A submenu allows you to print the plot with 6, 8, 10, or 12 passes.

At the beginning of the plot is an area used to stabilize the printing system before the diagnostic print is printed, this area can be ignored. The diagnostic area of the print contains colored blocks representing each of the primary and secondary colors, the plot shows a scale from lighter to darker intensity (amount of ink).



To evaluate the **Drying** test plot look at the last square (in order of increasing ink quantity) that shows no coalescence, banding or bleed effects.



To evaluate the **Curing** test plot look at the squares that show ink smudge when touched (see picture) or that show an 'oily finish' (which is more likely).

The following table shows the maximum quantity of ink (the darkest patch) that can be printed using **HP Permanent Gloss Adhesive Vinyl** without producing any of the issues previously stated. The evaluation is performed in the secondary colors only:

Color	Coalescence	Bleed	Curing defects
R	200%	116%	200%
G	100%	116%	200%
B	100%	116%	200%

### Corrective Action

At the bottom of edge of each block of primary color, and at the top of each secondary color, there is a percentage scale which indicates the level of ink used to print that portion of the diagnostic print. This information can be used to adjust the ink saturation levels in the RIP used by the customer.

### Force Drop Detection

If the Printhead Health test plot (⇒ page 206) has persistent white point banding in only one color that cannot be fixed with a recovery, you can use this option to resolve the problem by resetting the nozzle health data base so that all nozzles are assumed to be correct. After the nozzle health data base has been reset, the drop detection procedure is started ⇒ page 178.

The normal cause of this white point banding in a single color is the failure of the drop detector to correctly detect nozzles pot on the printhead.

This tool is also helpful to diagnose a potential failure of the drop detector. The 'force drop detector tool' displays the number of nozzles out per printhead. If you print the diagnostic plot image, afterwards you will be able to compare this number detected by the drop detector with the real number of nozzles out that you see on the printout.

If there is a mismatch on all the colors, this would probably indicate that the drop detector is not working correctly or is mispositioned. Before replacing the drop detector, perform a 'drop detector calibration' ⇒ (page 195) to correctly position it. If the failure (miss-match) is still there after the calibration, replace the drop detector.

### Troubleshooting Non-uniform Curing

Typically most of the non-uniform drying/curing can be corrected by applying the correct profile setting. In those cases that the profile adjustment does not improve the uniformity of the curing perform the following troubleshooting procedure.

1. Set up the printer with the recommended profile for the type of substrate used, setting up the curing temperature at 100°C through the RIP.
2. Send the job "CuringTest.tif" to the printer, which is considered a worst case to analyze the ink curing uniformity. (attached to this pdf document).



3. Allow the printer to warm up, and start the printing process.

4. Upon approximately 60cm of the job done, increase Curing Temperature +5°C (105°C) through the Front Panel, mark the 105°C step on the job. To do this go to Ink Menu> Image quality Maintenance> Adjust Curing Temperature.
5. Wait for 40cm more of the job done and then increase Curing Temperature +5°C (110°C), mark the 110°C on the job.
6. Wait for 40cm more of the job done and then increase Curing Temperature +5°C (115°C), mark the 115°C on the job.
7. Wait for 40cm more of the job done and then increase Curing Temperature +5°C (120°C), mark the 120°C on the job.
8. Wait for 40cm more of the job done and then increase Curing Temperature +5°C (125°C), mark the 125°C on the job.



This troubleshooting test indicates:

On Printed area:

- Initial temperature 100°C is unlikely to cure (which will be the uniform behavior along the printer).
- Upon increasing the temperature the ink will have an improves curing performance (around 110°C)

On the Substrate back liner area:

- Initial temperatures 100°C back liner performs correctly.
- Upon increasing the temperature for some specific types of substrate, shiny spots could appear at a certain temperature (from 115°C - 120°C)

There will be a temperature where curing is correct and the backliner of substrate is damaged.

If this temperature is found, set up your job at this temperature on the RIP and recheck printing performance.

If at any temperature tested it is found:

- No curing and correct backliner, or
- Curing but damaged backliner

Then recommend to:

1. Change the Curing IR sensor and repeat the test, if the previous behavior persists.
2. Replace the Curing heaters and repeat the test to recheck correction.

## Substrate advance issues

The vast majority of issues concerning the substrate advance can be solved by asking the customer to clean the substrate-advance sensor window. This procedure is described in the *User's Guide*.

If, after doing this, the customer is still experiencing image quality issues related to the substrate advance, use the following procedure.

1. Make sure the window of the OMAS sensor located in the Platen has been completely cleaned of all ink, the cleaning swabs provided to perform this procedure must be used.
2. Some types of substrate cannot be used with the OMAS sensor, because they are too smooth or there is too much light reflected from the substrate surface to be able to be read by the OMAS, examples of these types of substrate are: Clear Film, Backlit, types of Matte film, types of Polypropylene. Check the troubleshooting procedure on the next page to determine if the error is with the OMAS or the substrate being used. If the error is with the substrate, there are two options:
  - Change the type of substrate to a type that can be used with the OMAS, ideally it will be a substrate with a readable surface, such as a self-adhesive substrate, the type with a removal backing.
  - Disable the OMAS, and use the analog device to control the substrate advance.
    - To disable OMAS, go to Service Test Menu > 1.3 Substrate Path Menu > 1.3.3 Enable/Disable OMAS. Refer ⇒ Page 176
    - Perform the Substrate Advance Calibration select the (ink) icon on the Front Panel, and then select 'Image quality maintenance > Substrate Advance calibration > Print adjustment plot (see the *User's Guide*).
3. Perform the 'OMAS Sensor Check' to check the electrical functionality of the OMAS ⇒ Page 177.  
If the OMAS Sensor fails the check, replace the OMAS Sensor ⇒ Page 422.
4. Perform the 'TOMAS Sensor Check' to check the electrical functionality of the TOMAS ⇒ Page 177.  
If the TOMAS Sensor fails the check, replace the TOMAS Sensor ⇒ Page 422.

## Advance error with the Substrate or with OMAS?

<sup>a</sup> List of types of substrate which are NOT used (non navigable) by the OMAS:

HP or HP Approved Clear Film

HP or HP Approved Backlit

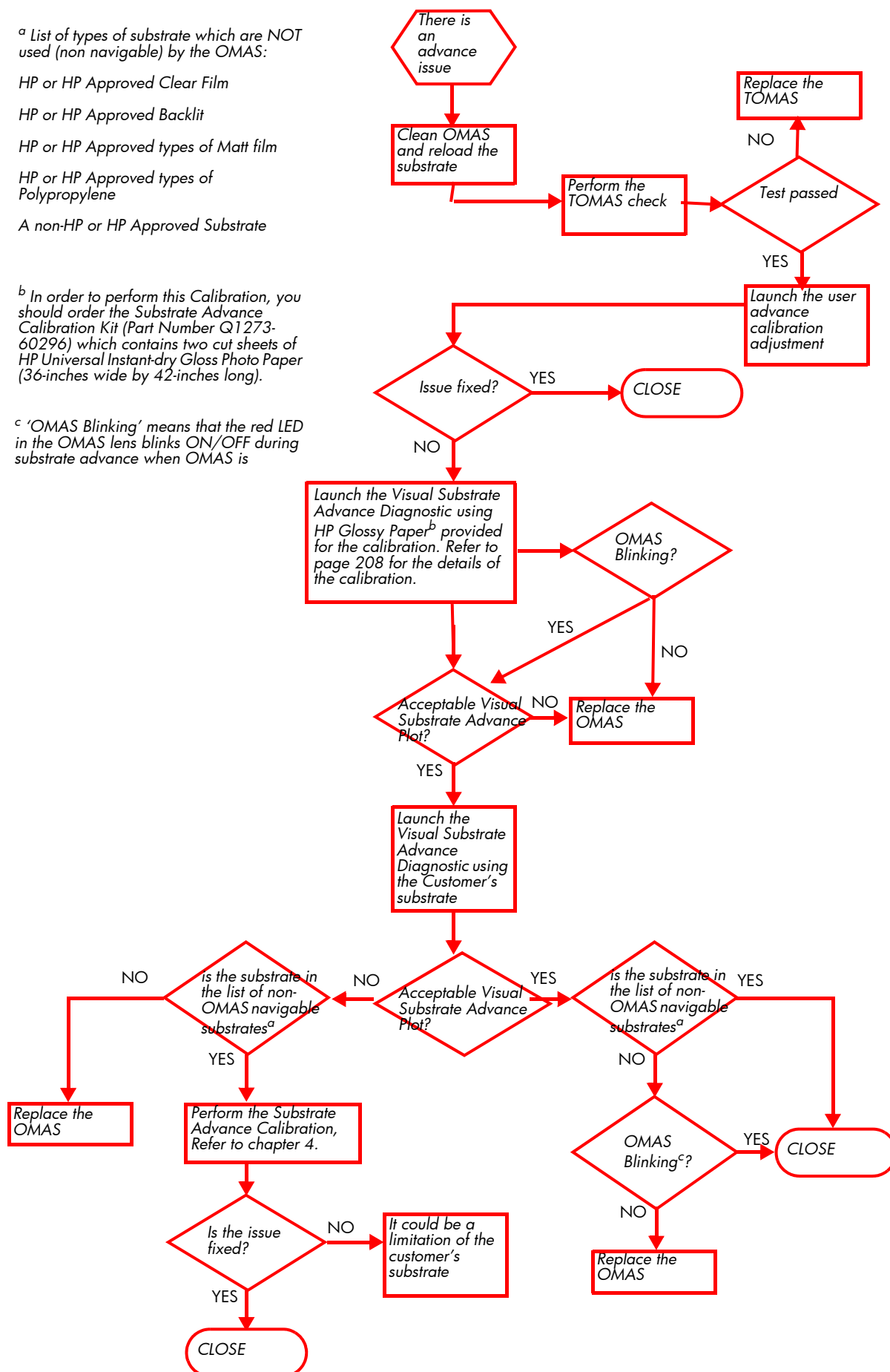
HP or HP Approved types of Matt film

HP or HP Approved types of Polypropylene

A non-HP or HP Approved Substrate

<sup>b</sup> In order to perform this Calibration, you should order the Substrate Advance Calibration Kit (Part Number Q1273-60296) which contains two cut sheets of HP Universal Instant-dry Gloss Photo Paper (36-inches wide by 42-inches long).

<sup>c</sup> 'OMAS Blinking' means that the red LED in the OMAS lens blinks ON/OFF during substrate advance when OMAS is







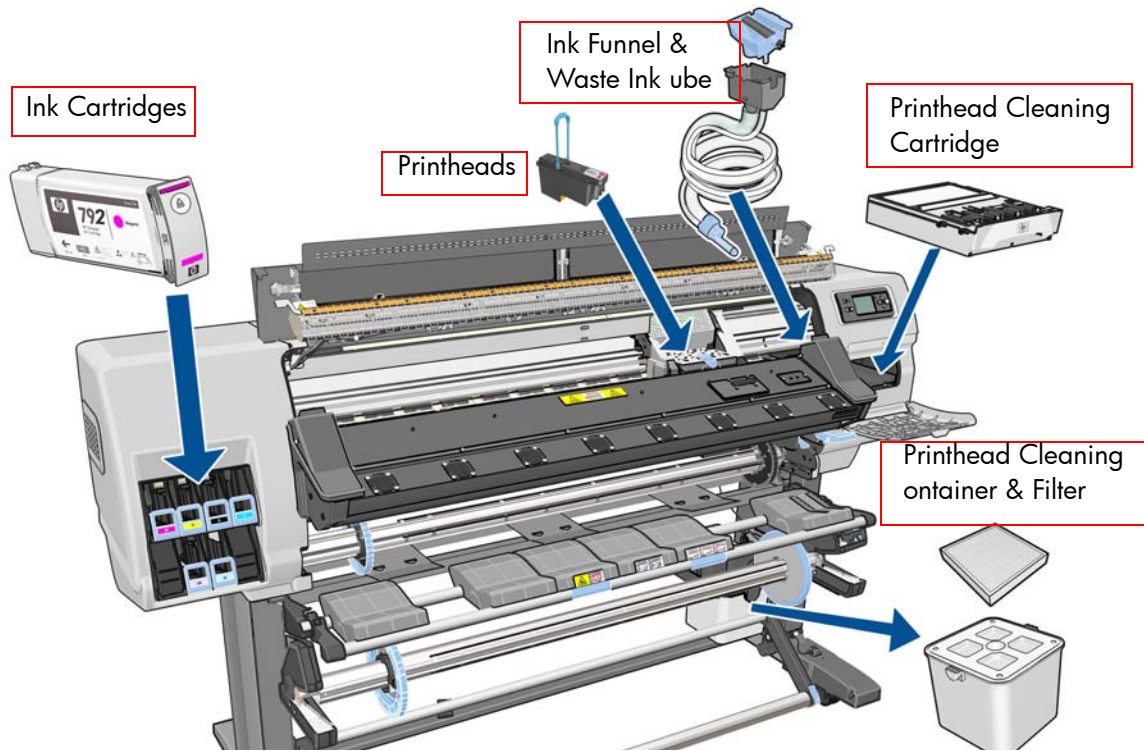
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## 6 Ink Supplies

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# What are Ink Supplies?

For each of the six ink colors used in the printer, there are three separate components, the Printhead, the Maintenance Cartridge, and the Ink Cartridge. All of these components are called Ink Supplies.



Printheads	CPL Description	Full Description
CN702A	HP 792 Yellow/Black PH	HP 792 Yellow/Black Designjet Printhead
CN703A	HP 792 Cyan/Light Cyan PH	HP 792 Cyan/Light Cyan Designjet Printhead
CN704A	HP 792 Lt Magenta/Magenta PH	HP 792 Light Magenta/Magenta Designjet Printhead
<b>Ink Cartridges</b>		
CN705A	HP 792 775ml Blk Ltx Designjet Ink Crtg	HP 792 775ml Black Latex Designjet Ink Cartridge
CN706A	HP 792 775ml Cyn Ltx Designjet Ink Crtg	HP 792 775ml Cyan Latex Designjet Ink Cartridge
CN707A	HP 792 775ml Mag Ltx Designjet Ink Crtg	HP 792 775ml Magenta Latex Designjet Ink Cartridge
CN708A	HP 792 775ml Yelw Ltx Designjet Ink Crtg	HP 792 775ml Yellow Latex Designjet Ink Cartridge
CN709A	HP 792 775ml LtCn Ltx Designjet Ink Crtg	HP 792 775ml Light Cyan Latex Designjet Ink Cartridge
CN710A	HP 792 775ml LtMg Ltx Designjet Ink Crtg	HP 792 775ml Light Magenta Latex Designjet Ink Cartridge
<b>Maintenance Materials</b>		
CR278A	HP 792 Designjet Printhead Cleaning Kit	
CR279A	HP 792 Designjet Ink Maintenance Kit	
CH622A	HP 789 Designjet Printhead Cleaning Container	

## Ink Cartridges

The printer's six Ink Cartridges provide yellow, magenta, light magenta, light cyan, cyan, and black ink to the Printheads. There's NO Introductory Ink Cartridges supplied with the printer. The 'Host' Ink Cartridges which are purchased hold approximately 775ml.

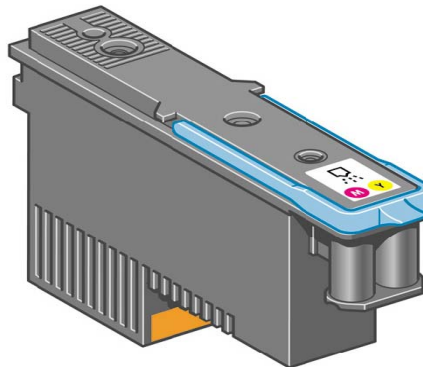


The Ink Cartridges for the HP Designjet Printer series require no maintenance or cleaning. As long as each Ink Cartridge is inserted correctly into its slot, the ink will flow to the Printheads. Because the Printheads control the amount of ink transferred to the page, you will continue to see high-quality printing results even when the ink levels are getting low.

The front panel displays the status of the Ink Cartridge. Using the front panel, detailed information can be checked on the Ink Cartridges menu.

## Printheads

The printheads are connected to the ink cartridges. They use jet action to put ink on the substrate. Each printhead has two ink cartridge connection points and two jet nozzles, which means that each printhead accommodates two ink cartridges. For example, the following printhead image indicates a printhead that draws and jets ink from the magenta and yellow cartridges.



The Printheads are extremely durable and do not need to be replaced every time an Ink Cartridge is replaced. They are independent of the Ink Cartridges and will continue giving excellent image quality results even if the Ink Cartridges are low on ink.

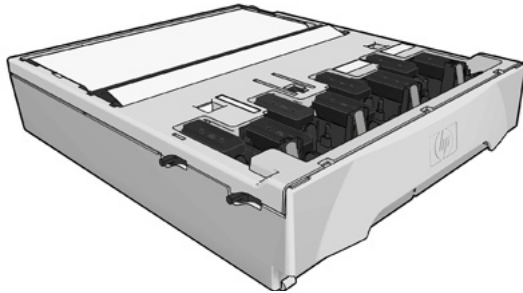
# Waste Management System

## Printhead Cleaning kit

The Printhead cleaning kit for the HP Designjet L28500 Printer series is the HP 792 Printhead cleaning kit P/N CR278A. It consists of three main items: Printhead Cleaning Cartridge, Ink Funnel and the Ink Filter.

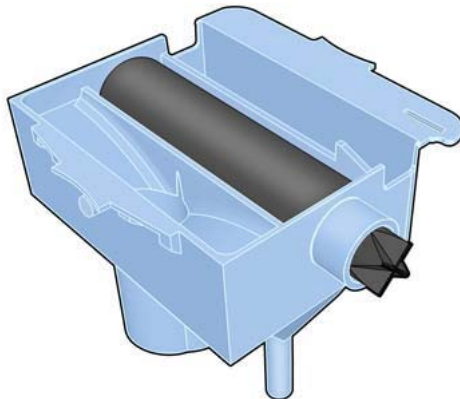
### Printhead Cleaning Cartridge

Use the Printhead cleaning kit to clean and maintain the Printheads, ensuring the best possible print quality, and to seal the Printheads when they are not in use, preventing them from drying out.



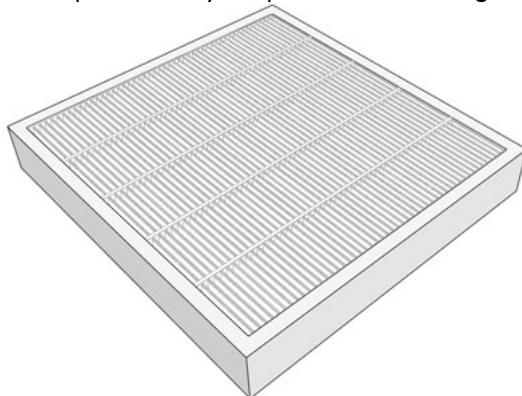
### Ink funnel

The ink funnel collects waste ink produced during printhead servicing. It is important that this funnel is installed, as it prevents significant deposits of ink over various other printer parts. From the ink funnel, the waste ink passes through the ink tube assembly into the printhead cleaning container.



### Ink Filter

The ink filter prevents tiny droplets of waste ink going to the fan of the aerosol extraction system.



## Ink Maintenance Kit

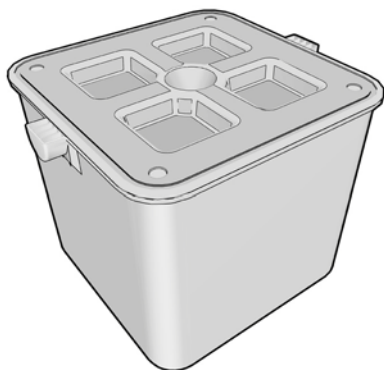
To maintain the status of the printhead nozzles, the printer expels a few drops of ink from each nozzle of each printhead into the Waste Ink Collection System. This is done at the start of each print job, during printing, whenever a printhead is replaced, and whenever you request a printhead check. It consists of three main items: Ink Funnel and the Ink Filter (shown above). In addition the Ink Maintenance Kit also contains the ink tube assembly, which passes tiny droplets of waste ink collected by the ink funnel to the printhead cleaning container.



If the printer asks you to replace the ink tube assembly, you should replace the ink funnel and the ink filter at the same time. These components are designed to keep the printer's waste ink from damaging the printer and dirtying the environment.

### Printhead Cleaning Container

The Printhead Cleaning Container for this system is a separate part: HP 792 Ink Maintenance kit P/N CH622A.



## General Information About the Ink Supplies

For optimum results from the printer and modular ink delivery system always follow these guidelines when handling the ink supplies:

- Install the Ink Cartridges, Printheads, and Maintenance Cartridge before the install-by date, which is printed on the packaging. The expiration for the Ink Cartridges is the manufacturing date marked on the cartridge plus 30 months.
- Allow the printer and the Maintenance Cartridge to automatically clean the Printheads.
- Follow the instructions on the front panel of the printer during installation.
- Avoid unnecessary removal of the Ink Cartridges and Printheads.
- When turning off the printer always use the power Off button on the front panel. The Printheads are then stored correctly which prevents them from drying out.

- The Ink Cartridges should never be removed while the printer is printing. They should only be removed when the printer is ready for you to replace them. The front panel will guide you through the removal and installation procedure.

## General Precautions When Handling Ink Supplies



**CAUTION:** Do not touch, wipe or attempt to clean the printhead nozzles. This can damage the printhead.

- Handle the ink supplies with care. In particular the Printhead, which is a high precision device and must be handled carefully.
- Do not touch the Printhead nozzles.
- Do not put the Printhead down on the nozzles.
- Do not be rough when handling the Printheads. Always set them down gently.
- Do not drop the Printheads.
- Proper handling will assure optimum performance throughout the Printhead life.
- The Maintenance Cartridge should always be handled and stored upright to avoid a potential spillage of ink.
- Do not touch the end of the Ink Cartridge which is inserted into the printer as there may be a small amount of ink on the connection.
- Avoid storing partially used Ink Cartridges on their ends.

## Priming the Ink System

When the customer first receives the printer, it is supplied with a set of six Setup Printheads pre-installed in the Carriage Assembly. These Setup Printheads are used for the priming of the tubes in the modular ink delivery system. Do not remove the Setup Printheads from the Carriage without following the procedures in the *Setup Guide*.

When the printer is powered ON for the first time, the printer will automatically perform the priming process. Without the priming process, the customer will NOT be able to use the printer.

Why does the printer require priming:

- The Tubes System is empty when the customer receives the printer.
- The Tubes System has to be pressurized and filled with ink, ejecting any air bubbles.



**CAUTION:** If the Printing Printheads are installed in the carriage during the priming process, they will be rejected and the front panel will show a warning message.

## When Should You Replace the Ink Supplies?

When to change the ink supplies is mostly determined by you with guidance from the front panel. In conjunction with the messages displayed in the front panel and the message explanations in this chapter, you will be able to choose for yourself when is the right time to change the ink supplies.

The Printer will also display the ink level and will tell you when the ink supply is low on ink. This means you have constantly updated information about the ink supplies.

Printhead guaranteed life is 1000 ml although the printheads usually last much longer. See the section about the 'Warranty Information for Ink Supplies' page 237.

## Obtaining Ink Cartridge and Printhead information

Please refer to the Printer Status chapter of the *User's Guide*.

## Troubleshoot Ink Cartridge and Printhead issues

Most of the problems that you could encounter when working with the ink supplies are solved with guidance from the front panel. A full list of front panel messages is supplied in the *User's Guide*.

### Cannot insert an Ink Cartridge

1. Use the correct procedure to change Ink Cartridges, through the Front Panel. Refer to the *User's Guide* for further details.
2. Check that there is no obstruction in the Ink Cartridge connector.
3. Check that the Ink Cartridge is the correct color. A connector of an Ink Cartridge will refuse to connect to a cartridge of an incorrect color
4. Ensure that the Ink Cartridge is correctly orientated (compare it with the others).

### Cannot insert a Printhead

1. Use the correct procedure to change printheads, through the Front Panel. Refer to the *User's Guide* for further details.
2. Check there is no obstruction in the Printhead slot.
3. Check the printhead is correctly orientated.
4. Check that the Printhead latch and Printhead cover is closed and secured.

### The Front Panel recommends replacing or reseating an Ink Cartridge

1. Disconnect the Ink Cartridge
2. Reconnect the Ink Cartridge and check the Front Panel message.
3. If the problem persists, insert a new Ink Cartridge.
4. If the problem continues, escalate the issue to division level.

### The Front Panel recommends replacing or reseating a Printhead

If there is an error with one of the Printheads, the printer will display an error message on the Front Panel. However more information about the specific error can be found by looking at the error code in service

information. In the Embedded Web Server, go to Support Menu > Service support > Printer information > Events logs > Printhead Error Log > Error Code.

Event Logs (2 of 2)

Date

Aug 29, 2011 10:58:00 AM

Product:

HP DesignJet L26500 61in Printer

Serial Number:

MY15B19005

Firmware:

SP-SP\_0.0.15.1

Product number:

CQ669A

Service ID:

21177

Printer status:

Preparing to print

Printhead Error Log

Printhead name	Serial Number	Status	Usage time	% Ink Used	Max Recover Level	Error Code
1 - Cyan-Light cyan	4-1-5415595-4-2011	0	0 h	22	0	0
	4-2-4175566-47-2010	2	17 h	23	0	10
	4-2-4175465-47-2010	0	29 h	94	2	0
2 - Cyan-Light cyan	4-2-4175566-47-2010	0	0 h	23	0	0
	4-1-5415595-4-2011	0	17 h	22	0	0
	4-2-4175682-47-2010	2	23 h	30	2	10
3 - Yellow-Black	4-2-4171652-47-2010	0	104 h	214	2	80000
4 - Yellow-Black	4-2-4172087-47-2010	0	104 h	218	2	80000
5 - Magenta-Light magenta	4-2-4172545-47-2010	0	52 h	69	2	0
	4-2-4172607-47-2010	2	51 h	68	2	10
6 - Magenta-Light magenta	4-2-4172603-47-2010	0	104 h	139	2	80000

The error code is ALREADY CONVERTED TO HEXADECIMAL and you could go directly to the table below. In the example we can see several printheads rejected reporting error code (0x00010 TEMP EXTREMELY HIGH).

The following table explains the meaning of the different hexadecimal values:

- In the Error Code you may see some “combined” numbers, like for example (80010). In that case you have 2 combined in one number 80000 means Expired and 10 means Temp extremely high.
- When the value of the error code is displayed as 0, it means that the Printhead is working correctly.

Error code	Meaning	Corrective action
0x0000	WORKING	
0x00001	FAILS LOGICAL V	Clean the electrical connections between the Printhead and the Carriage. Refer to the customer's Maintenance Guide.
0x00002	FAILS CONTINUITY	
0x00004	SHUTDOWN	
0x00008	FAILS VPP	Clean the electrical connections between the Printhead and the Carriage. Refer to the customer's Maintenance Guide.
0x00010	TEMP EXTREMELY HIGH	Refer to the 'Temperature too high procedure' below
0x00020	TEMP EXTREMELY LOW	Clean the electrical connections between the Printhead and the Carriage. Refer to the customer's Maintenance Guide.
0x00040	TEMP TOO HIGH	Refer to the 'Temperature too high procedure' below
0x00080	TEMP TOO LOW	
0x00100	BAD ACUMEN INFO	Clean the electrical connections between the Printhead and the Carriage. Refer to the customer's Maintenance Guide.
0x00200	NO PRINthead	
0x00400	BAD ACUMEN ACCESS	
0x00800	WRONG MODEL	Replace the Printhead, as the type of Printhead inserted it not supported by the printer
0x01000	MISMATCH	



Error code	Meaning	Corrective action
0x02000	CSDATA NOT RESPONDING	Clean the electrical connections between the Printhead and the Carriage. Refer to the customer's Maintenance Guide.
0x04000	CSDATA TRANSMIT ERROR	
0x08000	FAILS ENERGY CALIBRATION	
0x40000	END OF LIFE	Replace the 'Out of Warranty' Printhead
0x80000	EXPIRED	

## A Printhead has damaged the substrate

When a Printhead touches the substrate, the most probable cause is excessive drying temperature. Reduce the heating and curing temperature.

## Incorrect error messages displayed about the Cleaning Cartridge roller

The printer doesn't detect that a new cleaning cartridge has been installed. We have found several possible causes:

- Most probable cause the line sensor is dirty and cannot read the white label on the cleaning cartridge. In that case the solution is to change/clean the line sensor. Review that the aerosol extraction system is working, if it does not work the aerosol will go again on to the line sensor and the customer will have the same problem sooner or later.
- In some extreme cases even after changing the line sensor, the counter of the Cleaning Cartridge was not reset. The issue was fixed by running the "EEROM reset" test.

The Cleaning Cartridge is finished before the level reported reaches the 100%:

- The most probable cause is that the "white label" on the Cleaning Cartridge (used to detect if it is new or used one) is detached from the Cleaning Cartridge. This will provoke a "reset" of the counter in the middle of the life of the Cleaning Cartridge.

## Warranty Information for Ink Supplies

### Ink Cartridge

The warranty for the Ink Cartridges will end when one of the following occurs (whichever occurs first):

- When the end-of-warranty date on the box and the cartridge label arrives (see illustrations)
- When the advertised volume of ink has been delivered: 775 ml/26.2 floz
- When the customer confirms having used non-HP ink in empty over-ride mode

The end-of-warranty date is also recorded in the smart chip.

**Box sample:**  
20 AUG 11



**Cartridge sample:**  
2011 0820xx

## Printheads

The warranty for the Printheads will end when one of the following occurs (whichever occurs first):

- When the end-of-warranty date on the box, the plastic pocket, and the printhead label arrives
- When 1000 cc of ink has been consumed by the Printhead (aggregated consumption of both colors)
- When the customer confirms having used non-HP ink in empty over-ride mode

The end-of-warranty date is also recorded in the smart chip.

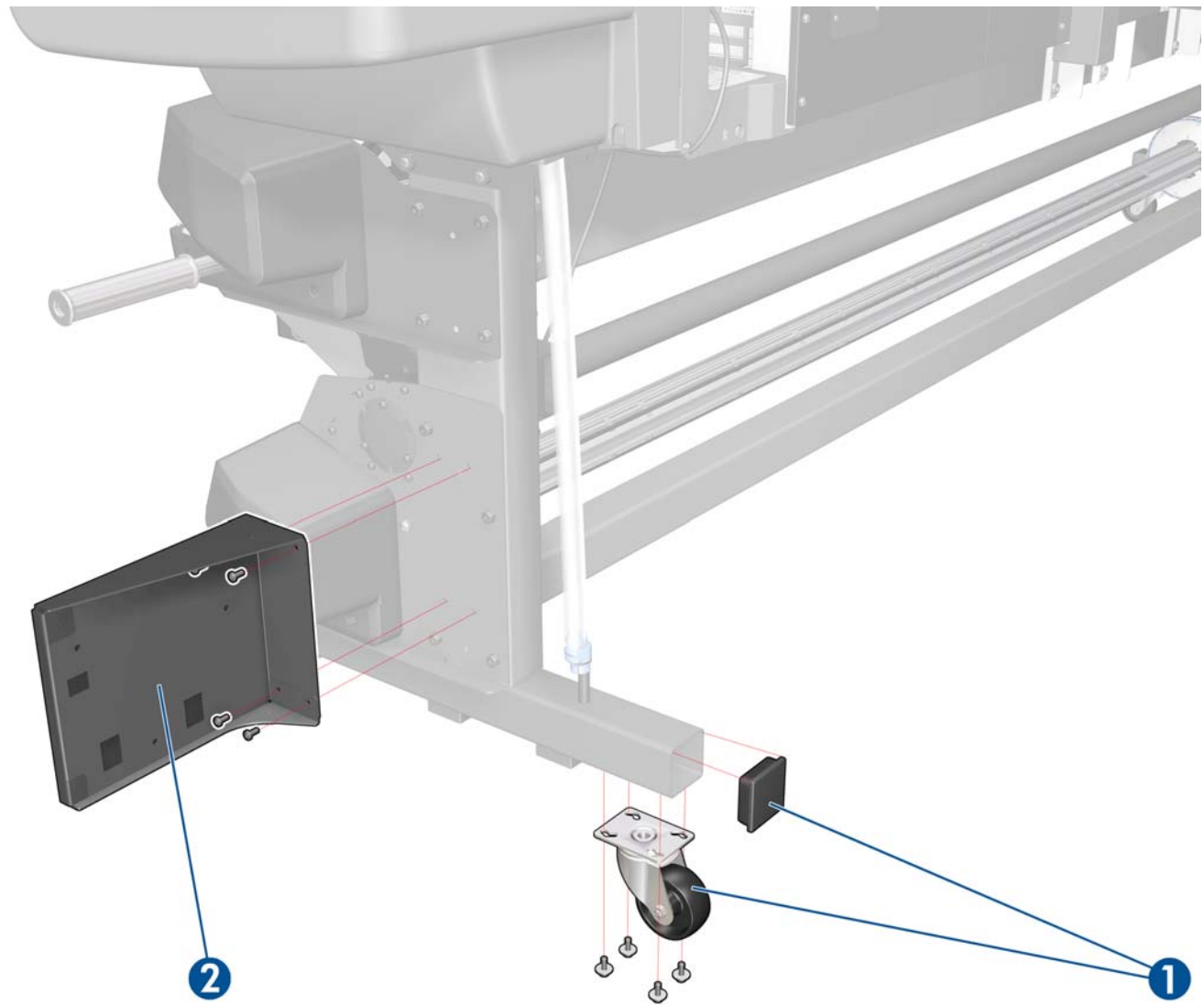


## 7 Parts and Diagrams

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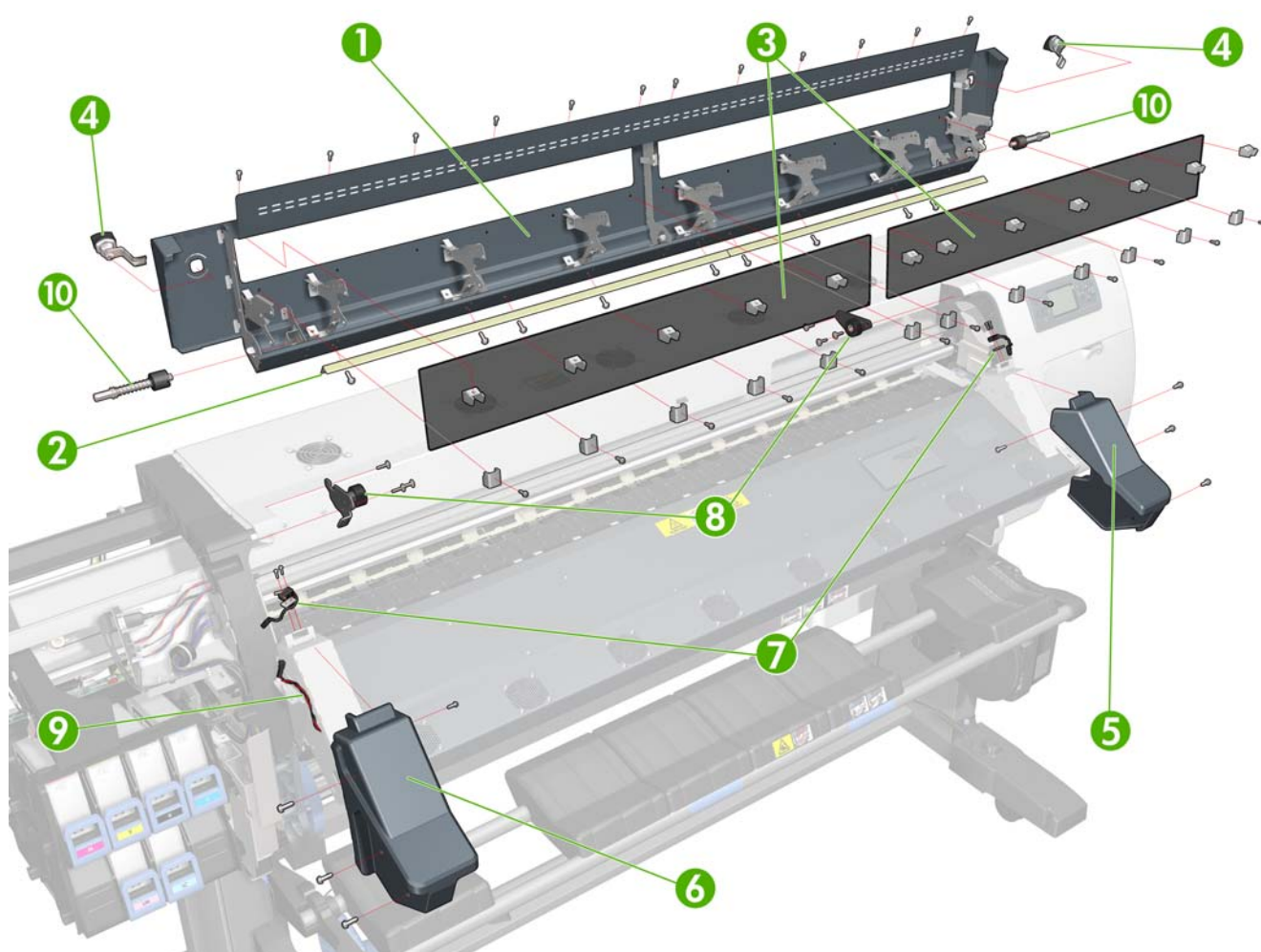
# Printer Support

	Part Number	Part Description	Page
1	CQ871-67065	Stand Hardware Kit 104 SERV	
2	CQ871-67097	Waste Management Support 104 SERV	



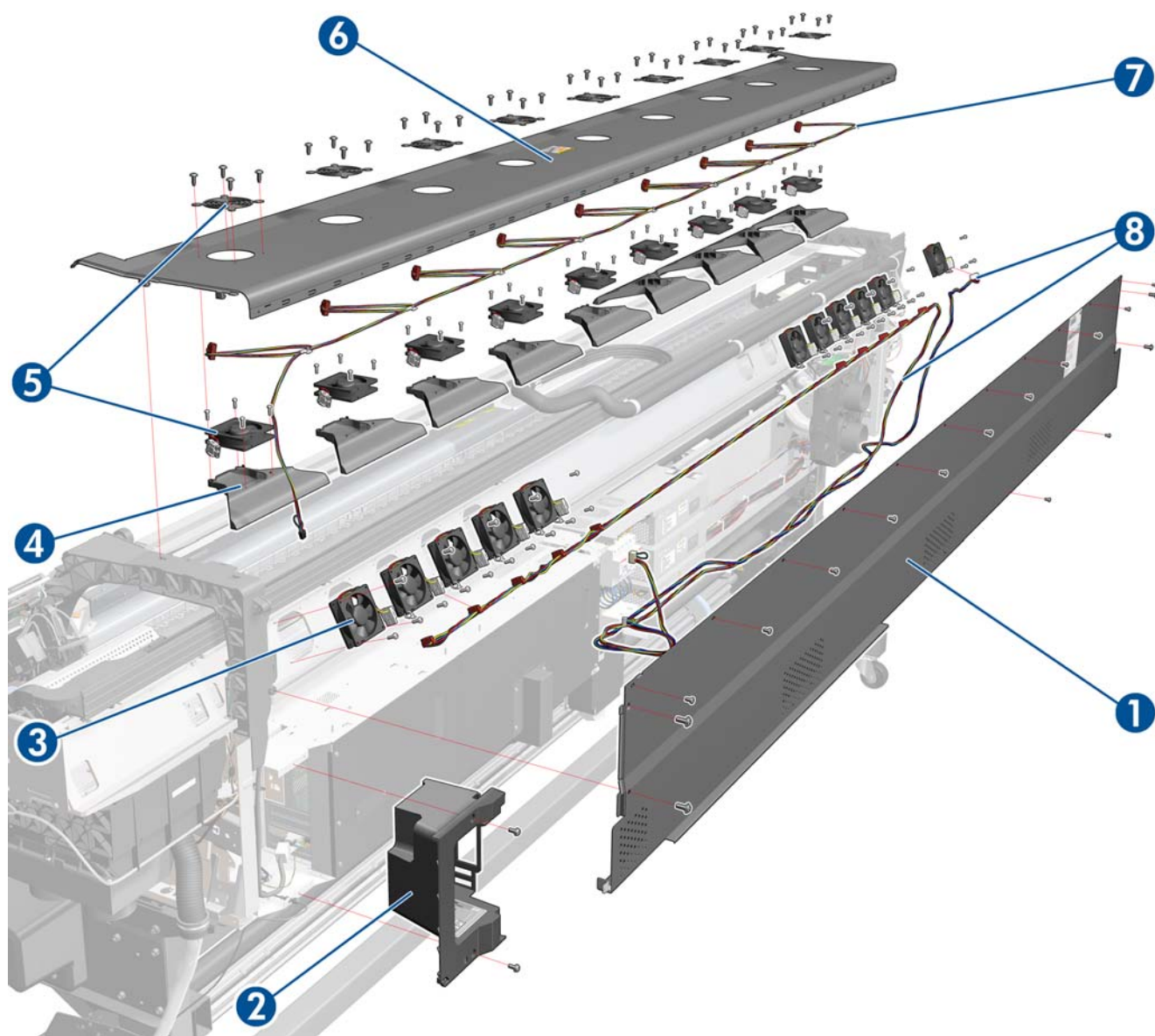
## Front Covers

	Part Number	Part Description	Page
1	CQ871-67039	Window w/o Dryer 104 SERV	273
3	CH955-67055	Transparent Window SERV 42	
4	CH955-67047	Window Locks	
5	CQ871-67031	Curing Cover 104 SERV	300/ 298
6	CQ871-67005	Window Lock Sensor	323
7	CQ871-67007	Window Hinges (arc side) 104	283
8	CQ871-67021	Window Lock Sensor Cable 104	



## Top & Back Covers

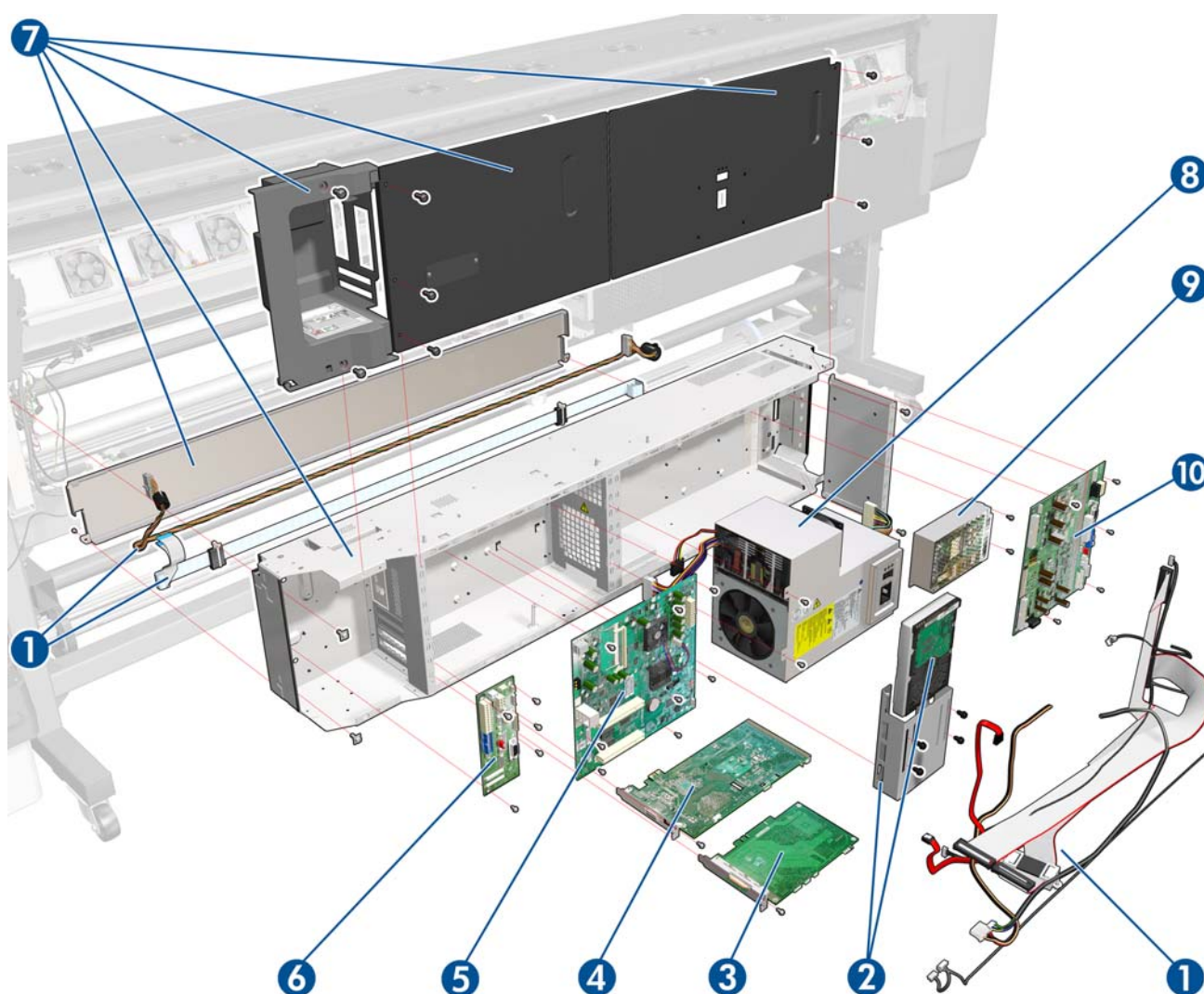
	Part Number	Part Description	Page
1	CQ871-67069	Back Covers 104	
2	CQ871-67046	Connector Cover Right 104 SERV	
3	CH955-67088	Rear Dryer Fan (contains 1 fan)	
4	CH955-67050	Top Cover Fan Diffusors (all fan diffusors are included)	
5	CH955-67048	CAL Top Cover Fan and Grille S	
6	CQ871-67038	Top Cover 104 SERV	
7	CQ871-67013	Top Cover Fans Cable 104 SERV	
8	CQ871-67020	Drying Fans Cable 104 SERV	





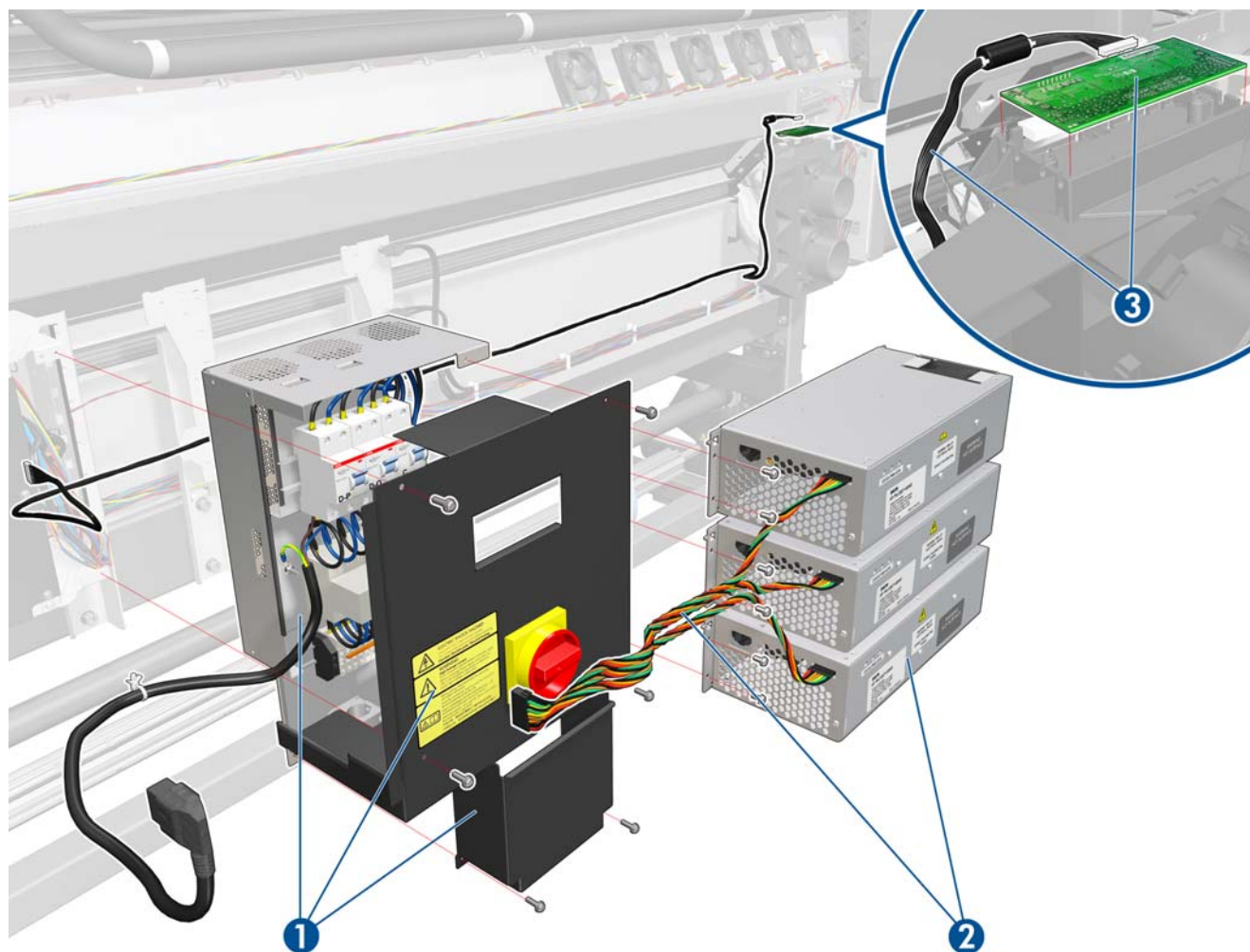
# Electronics Module

	Part Number	Part Description	Page
1	CQ871-67003	Ebox Cables 104 SERV	N/A
2	CQ871-67036	HDD 104 SERV	444
3	CQ109-67014	OMAS Controller PCA SERV	432
4	CQ871-67002	Engine PCA 104 SERV	439
5	CQ109-67020	Formatter PCA and Proc and HS	442
6	CQ871-67001	Interconnect PCA 104 SERV	431
7	CQ871-67028	EEBox Base and Cover 104 SERV	N/A
8	CH955-67006	PSU MR SERV	447
9	CQ871-67074	Extra PSU 24 V SERV	
10	CQ871-67030	PrintMech PCA 104 SERV	457



# Power Cabinet

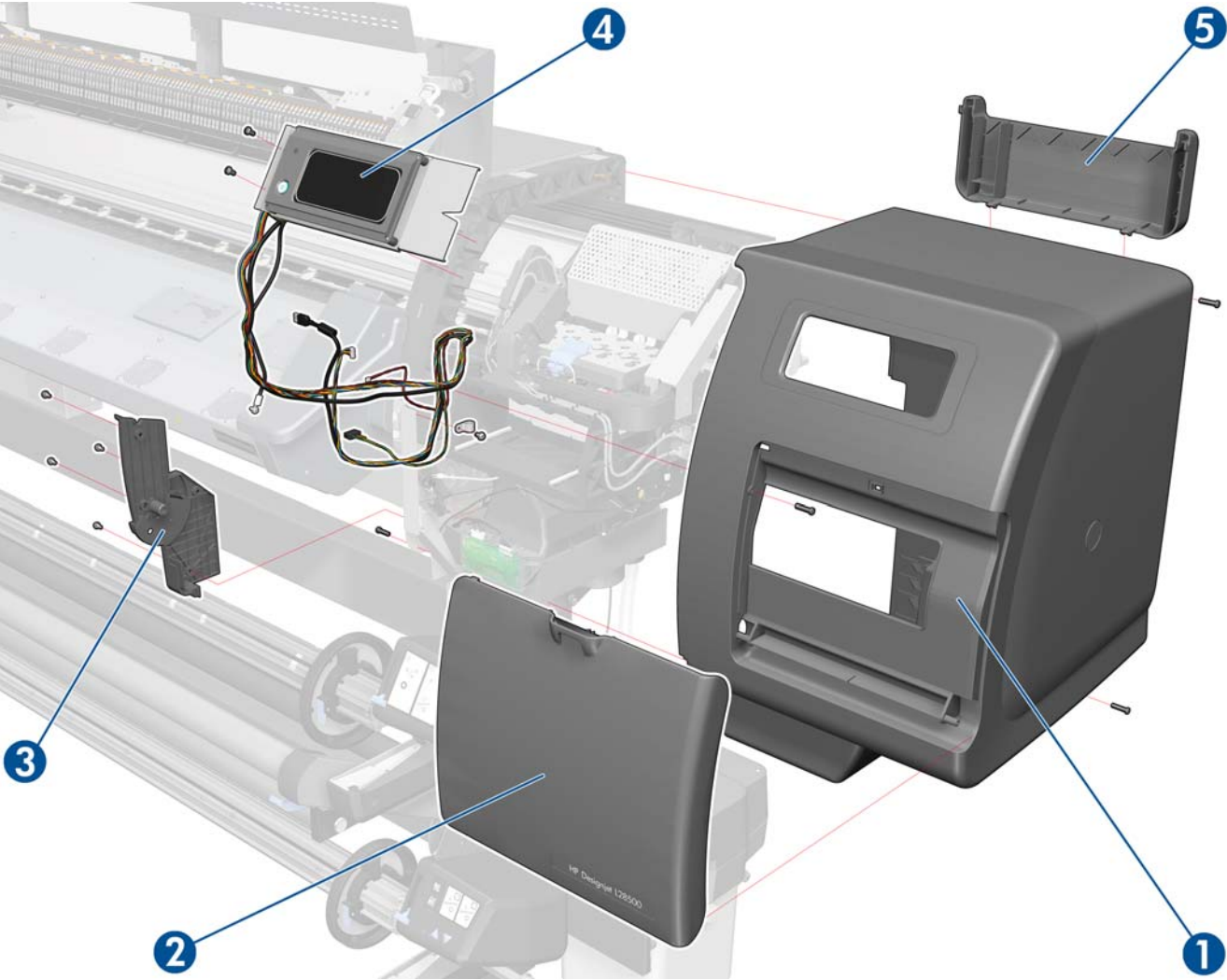
	Part Number	Part Description	Page
1	CQ871-67008	Power Cabinet 104	
2	CQ871-67006	Heaters Control 104 SERV	453
3	CQ105-67061	EOLA PCA Service Kit	





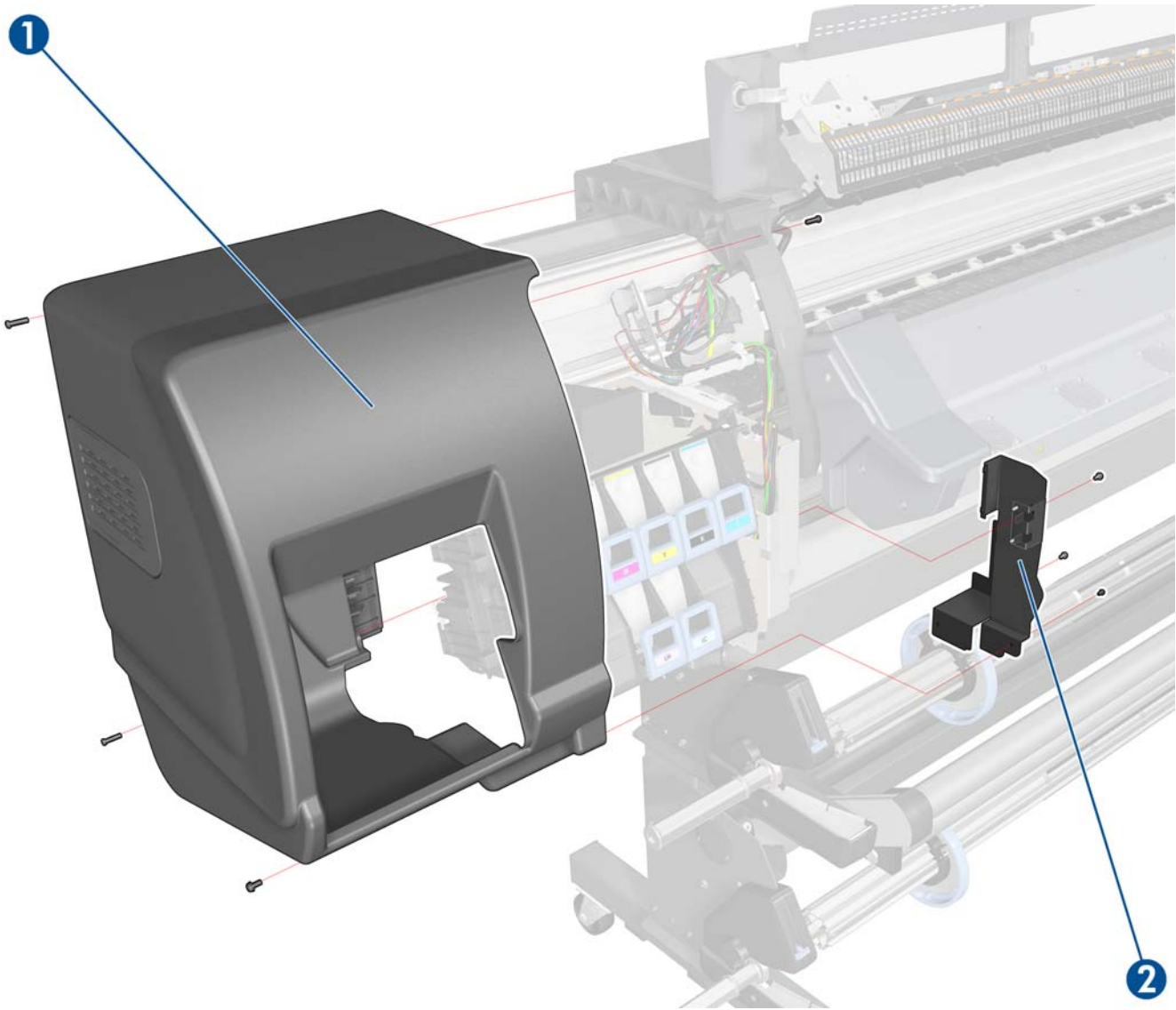
# Right Cover

	Part Number	Part Description	Page
1	CQ871-67063	Right Cover w/o DOOR 104 SERV	286
2	CQ871-67064	Right Door SERV v2	545
3	CQ871-67084	Right Trim 104 SERV	289
4	CQ871-67054	FP Assembly 104 SERV	332
5	Q6651-60343	QRG Holder SERV	



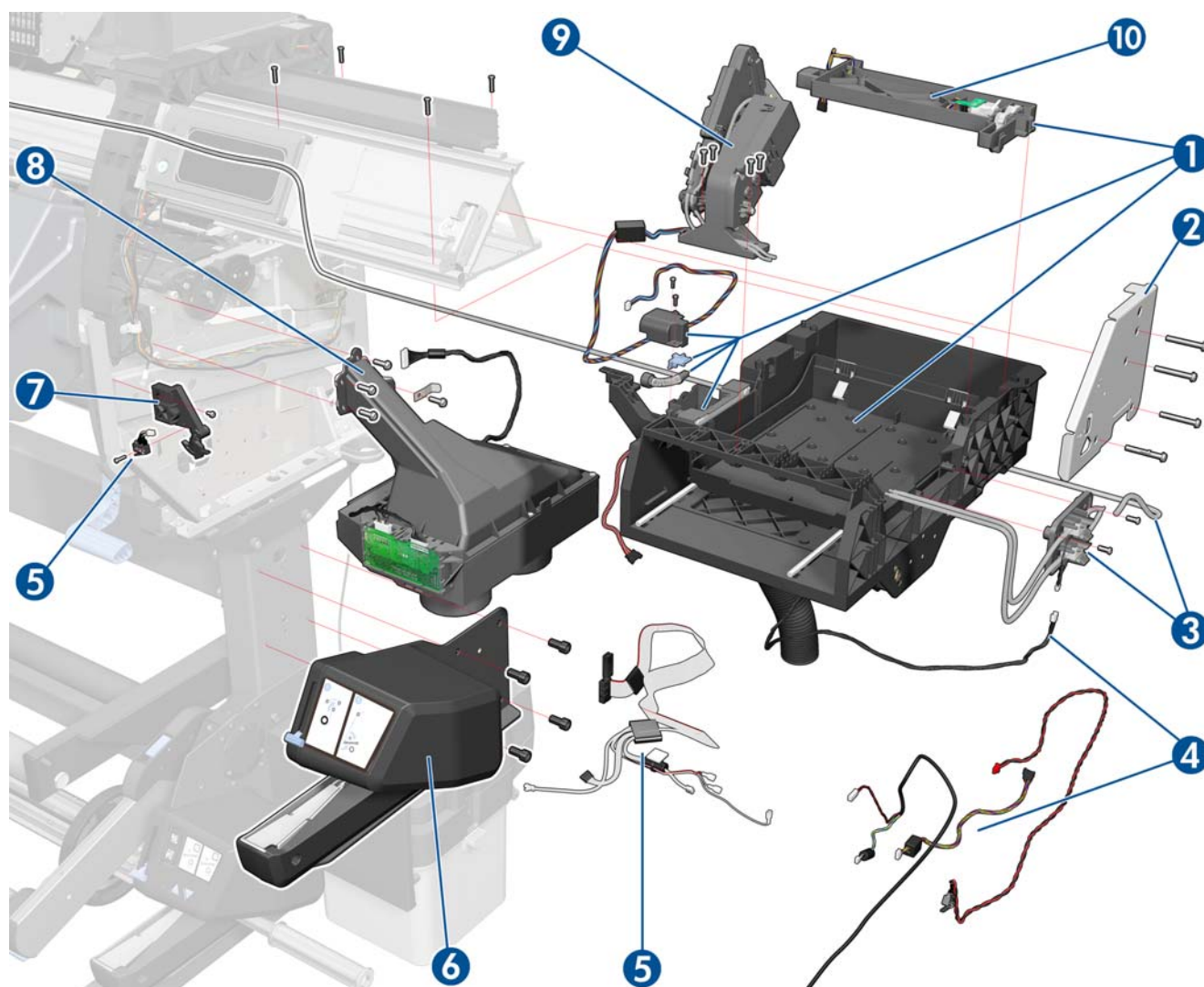
# Left Cover

	Part Number	Part Description	Page
1	CQ871-67027	Left Cover 104 SERV	293
2	CQ871-67029	Left Trim 104 SERV	296



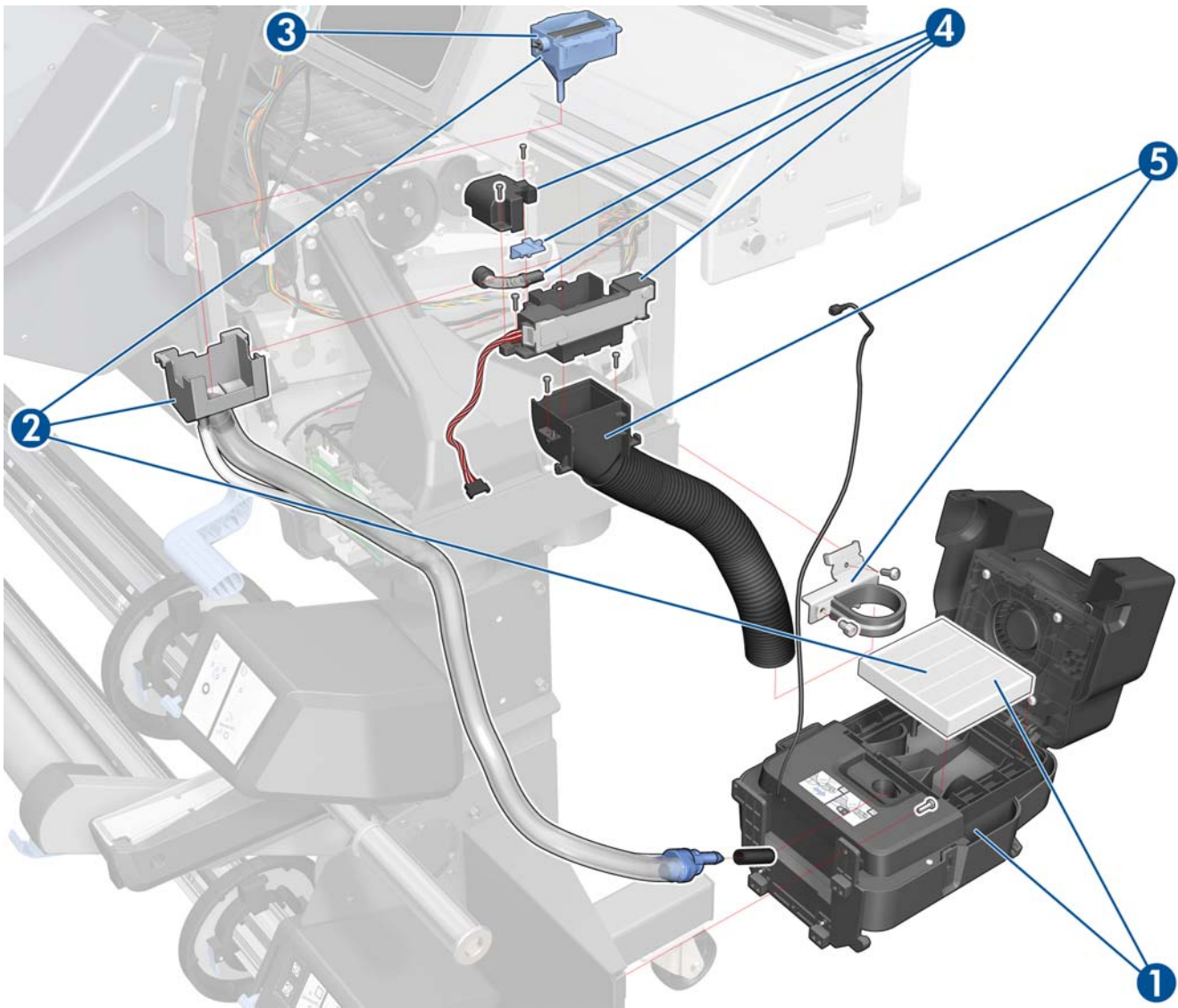
## Right Hand Assemblies

	Part Number	Part Description	Page
1	CQ869-67026	SPI Service Station SERV	341
2	Q1273-60086	Bracket Right SERV	-
3	CQ871-67055	Primer Valve and Tubes Assembly 10	337
4	CQ871-67081	Cables to SVS Side 104	
5	Q1273-60273	SVC Cable + Right Switch serv	341
6	CQ871-67004	Rewinder RH Module 104 SERV	341
7	CM765-67001	SVS Door Sensor Assembly with Screws	
8	CQ109-67022	Vacuum Fan Assembly SERV	346
9	Q6651-60265	Primer Assembly SERV	335
10	CH955-67053	Wiper Motor and Plate SERV	344



# Waste Management System

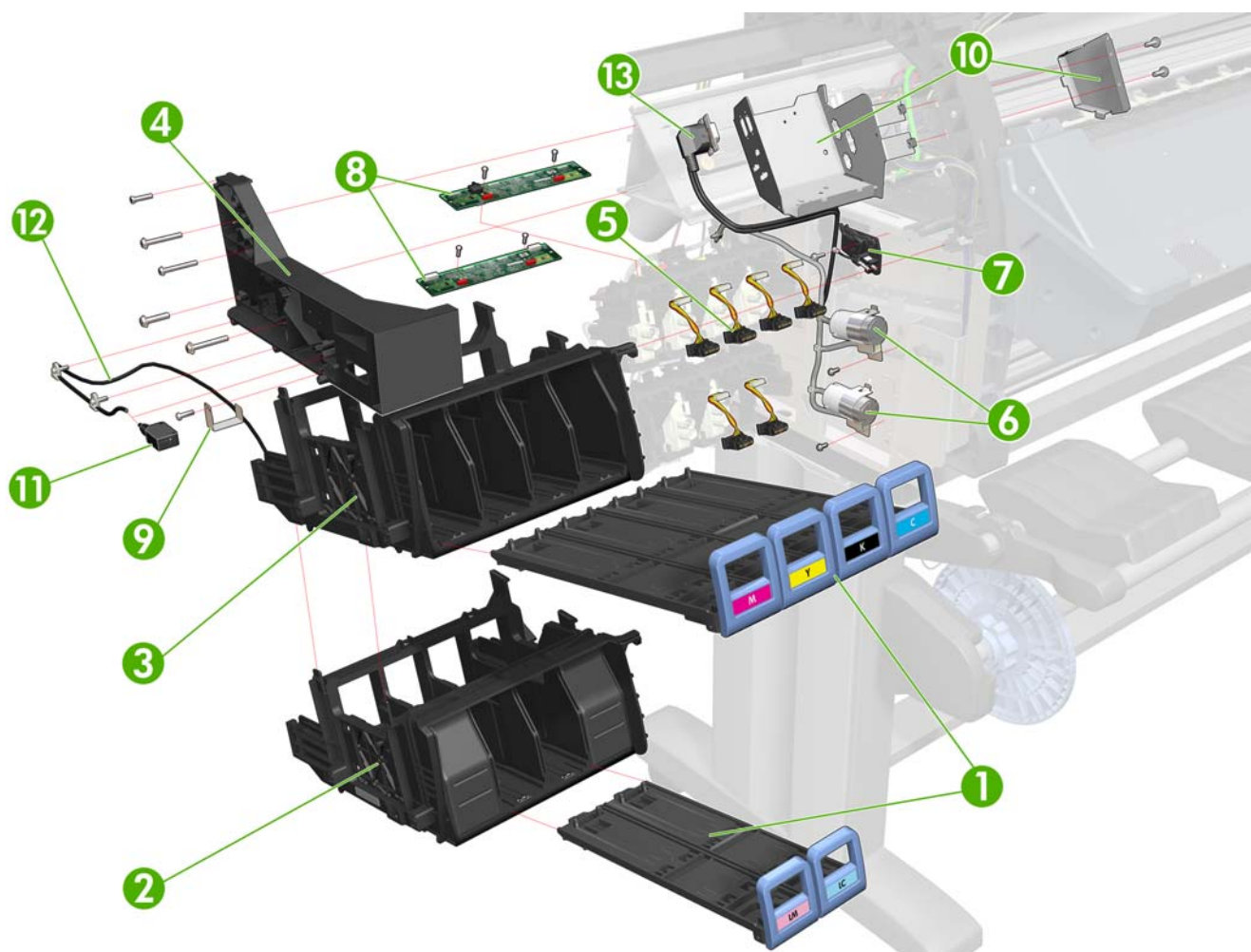
	Part Number	Part Description	Page
1	CQ871-67045	Ink Waste Management 104 SERV	366
3	CQ869-67053	SPI Ink Funnels SERV	366
4	CQ869-67060	SPI Drop Detector and Funnel Trans SERV	366
5	CQ869-67052	SPI Drain Tube Guide SERV	364





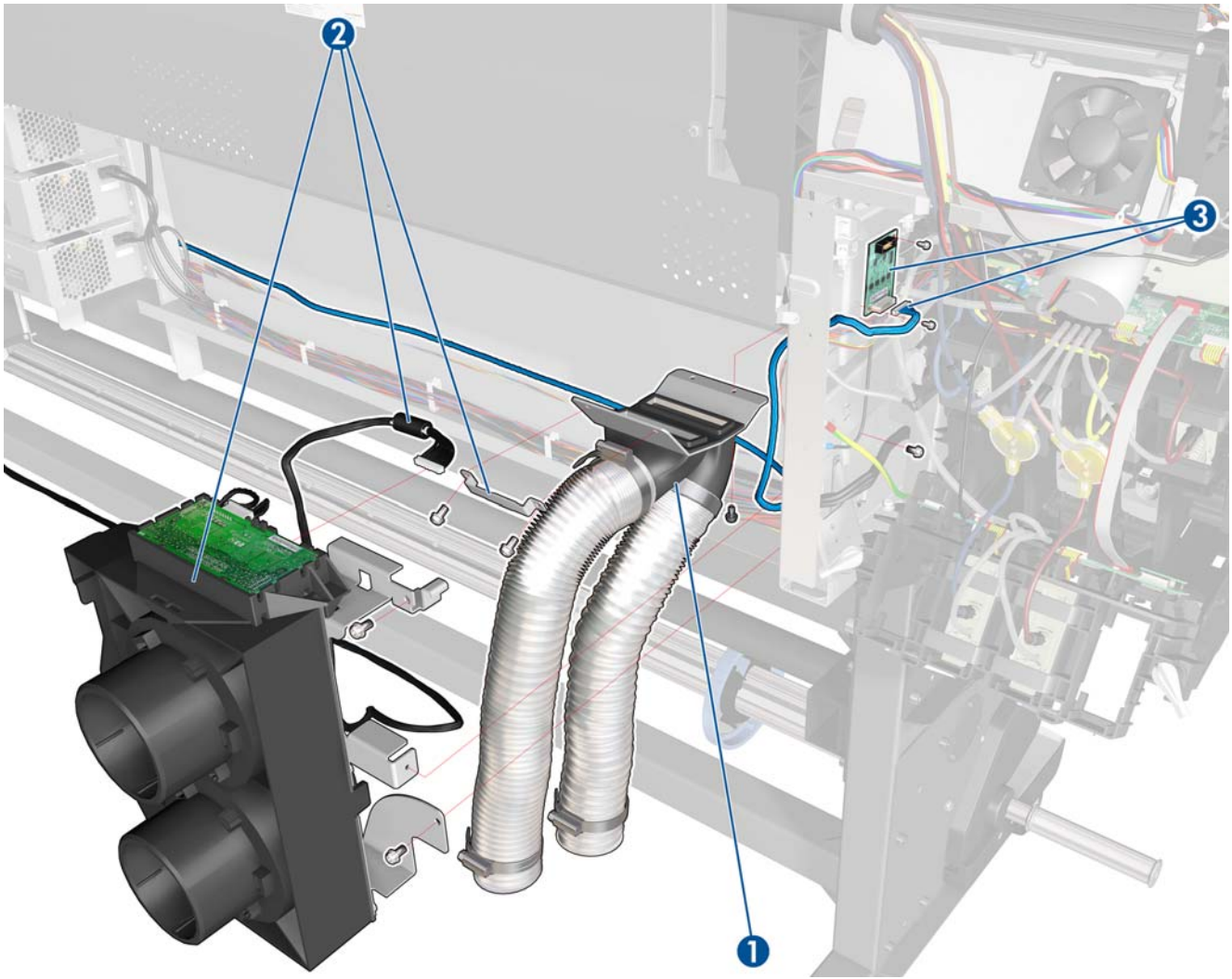
## Left Hand Assemblies

	Part Number	Part Description	Page
1	CH955-67028	Cartridge Trays SERV	530
2	CH955-67014	ISS Down Row SERV	384
3	CH955-67013	ISS Up Row SERV	384
4	CQ869-67009	SPI Left Bracket SERV	N/A
5	Q1273-60245	ISS to Cartridge Cable MR SERV	N/A
6	CQ871-67090	APS Assembly SERV 104	392
7	CQ871-67056	SOL Actuator Assembly 104 SERV	471
8	CH955-67054	ISS PCAs SERV	
9	CH955-67084	SOL Shutter Bump SERV	
10	CQ871-67009	Cable Plate and Cover 104 SERV	
11	CQ871-67033	Paper Jam Sensor 104 SERV	



# Vacuum Extra

	Part Number	Part Description	Page
1	CQ871-67060	Vac Extra—Frame, Tubes, Pipes	
2	CQ871-67061	Vac Extra (Vacuum Mod with EOLA PCA)	
3	CQ871-67082	ISS PCA SERV	
	CQ871-67079	Grounding Cables 104 SERV	
	CQ871-67080	Cables to ISS Side 104	



Grounding Cables include:

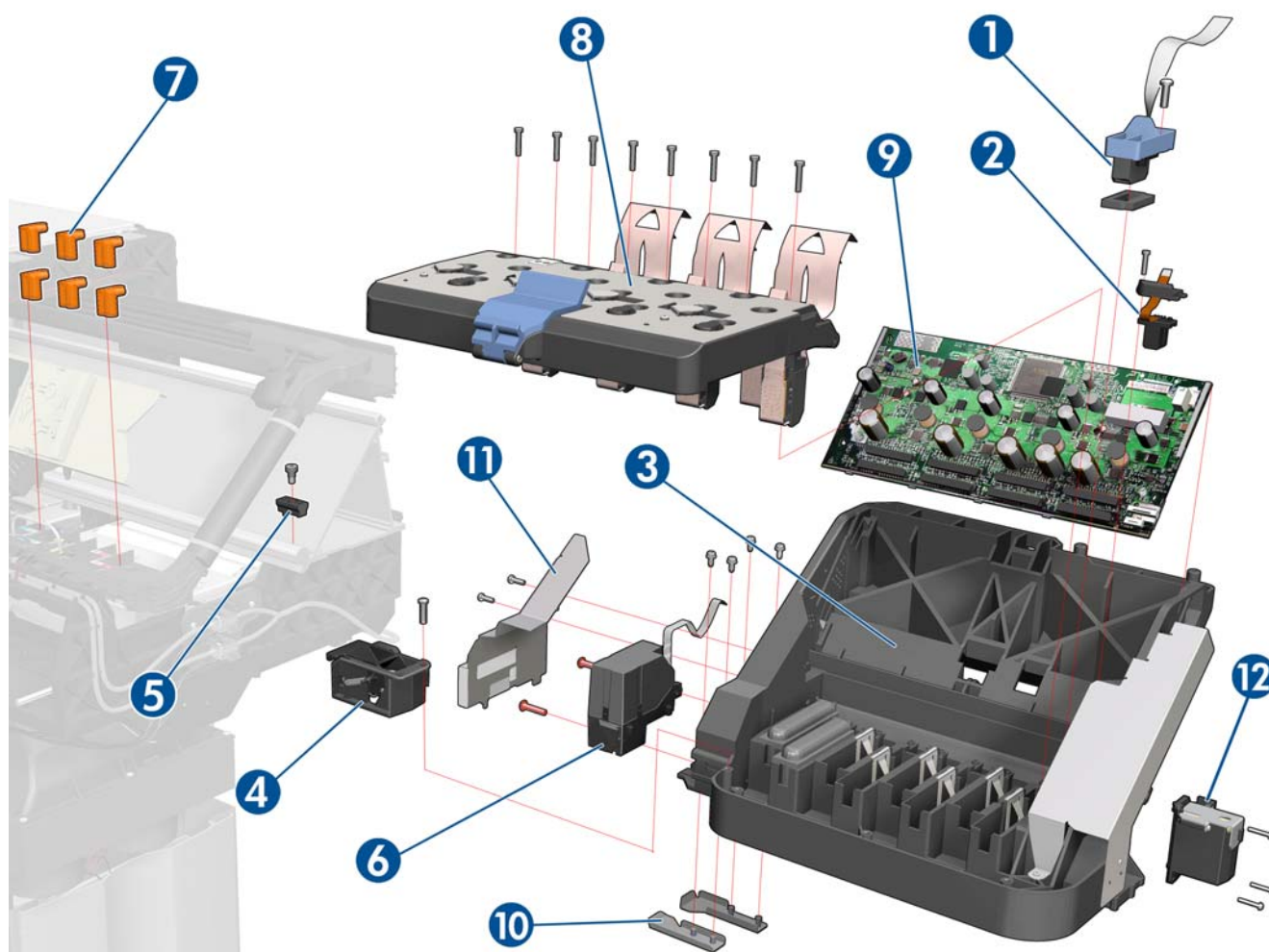
- ISS Grounding Cable (CH956-60223)
- Arc Safety Ground (CQ871-50069)
- Drying Safety Ground Cable (CQ871-50071)

Cables to ISS Side include:

- Cover Switch Extension Cable (CQ871-50004)
- Converter's O/P Power Drying (CQ871-50008)
- Converter's O/P Power Curing (CQ871-50009)
- Vapor/Curing Fans (PM-ARC) Cables (2) (CQ871-50020)
- IR SNS Cooling Fan Cable (CQ871-50025)
- Substrate Crash Cable (CQ871-50033)
- PM-Differential PCA Cable (CQ871-50037)
- Analog Encoder Cable (CQ871-50053)
- Drying Fans Cable (CQ871-50056)
- IR Sensors Cable (CQ871-50057)
- Scan Motor Fan Cable (CQ871-50076)
- PrintMech to EOLA Cable, Boome (CQ871-50086)

# Carriage Assembly

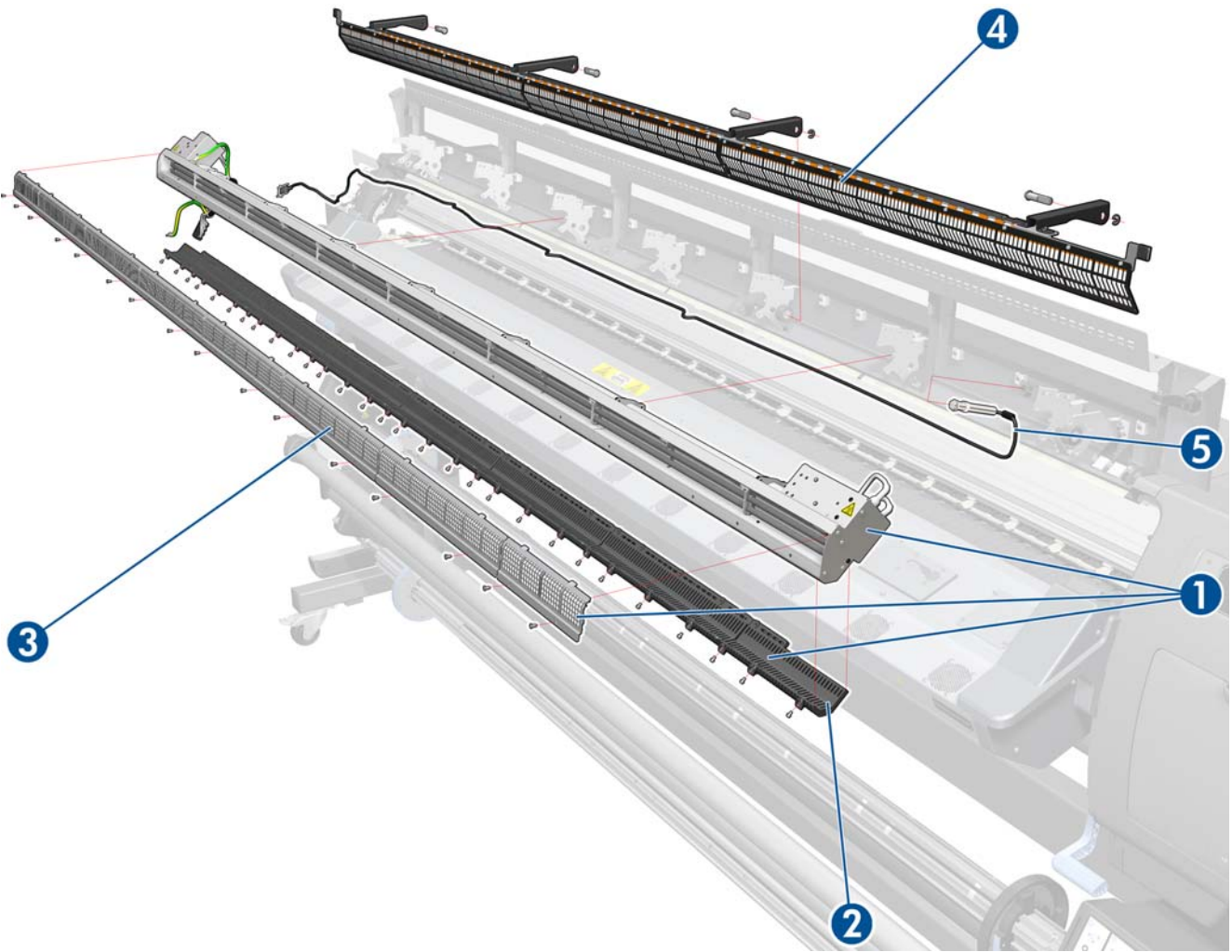
	Part Number	Part Description	Page
1	CQ869-67062	SPI Line Sensor SERV	463
2	CQ871-67012	Encoder Strip and Sensor 104 S	395
3	CQ871-67085	Carriage w/o PCA,SOL,LS 104 S	406
4	CH955-67007	Cutter Assembly SERV RoHS	382
5	Q6651-60341	Right Carriage Bump + Others S	406
6	CH955-67101	CAL SOL Assembly SERV	467
7	Q6651-60335	Setup Printhead Kit SERV	N/A
8	CH955-67099	Carriage Flex Cables SERV	401
9	CQ109-67034	Carriage PCA SERV	398
10	CH955-67083	CSOL Shutter Protector SERV	
11	CQ871-67033	Media Jam Sensor 104 SERV	412
12	CQ871-60297	Oiler U-loaded Assembly	
	CQ869-67077	100 ml Synthetic Oil for Carriage	
	Q6651-60081	Lubrication Felts Kit SERV	





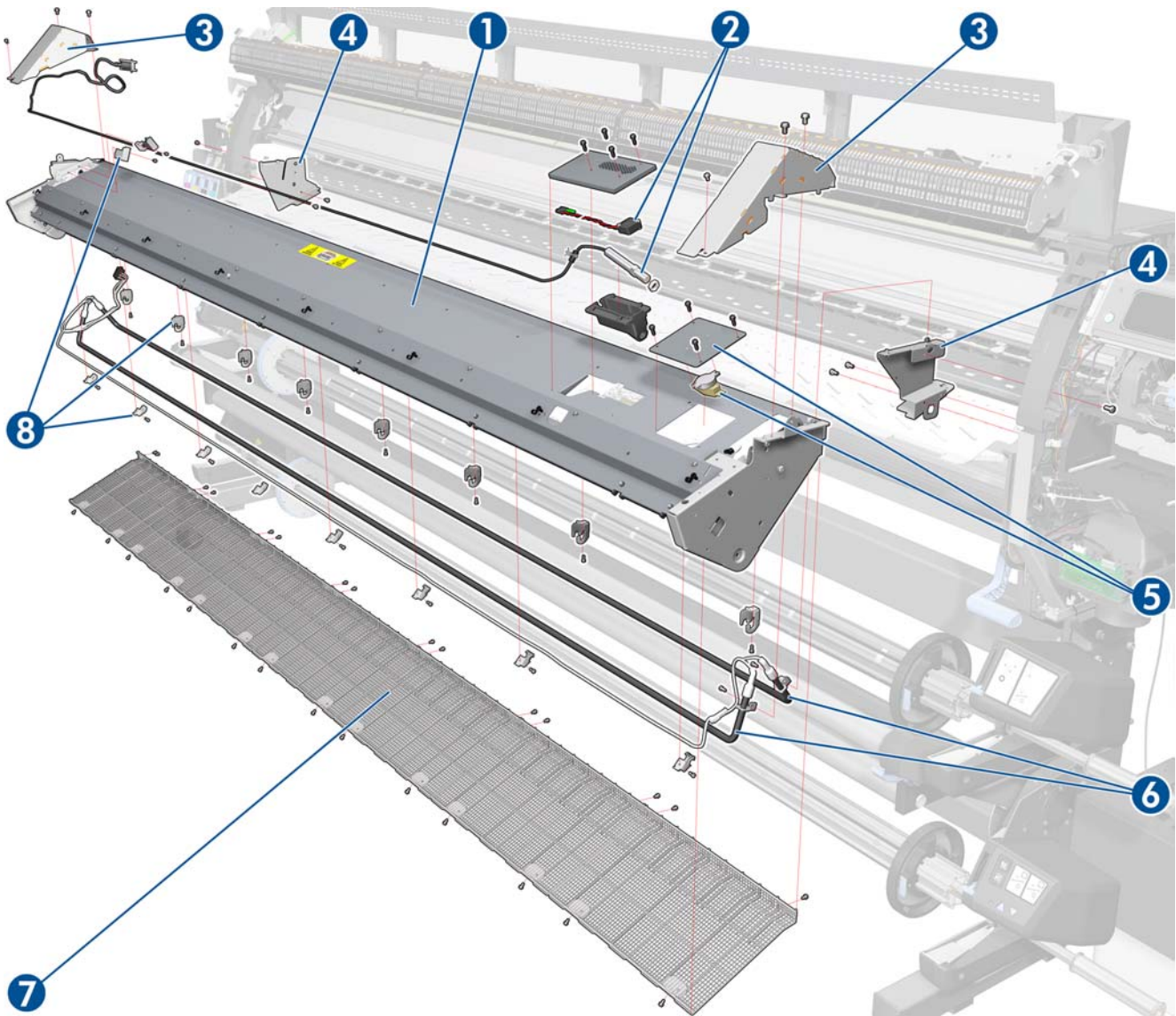
# Dryer Assembly

	Part Number	Part Description	Page
1	CQ871-67043	Dryer Module 104 SERV	484
2	CQ871-67052	Dryer Plastic Isolators 104 SE	
3	CQ871-67017	Dryer Grilles 104 SERV	473
4	CQ871-67051	Dryer Protection 104 SERV	
5	CQ871-67014	Drying IR Sensor 104 SERV	476



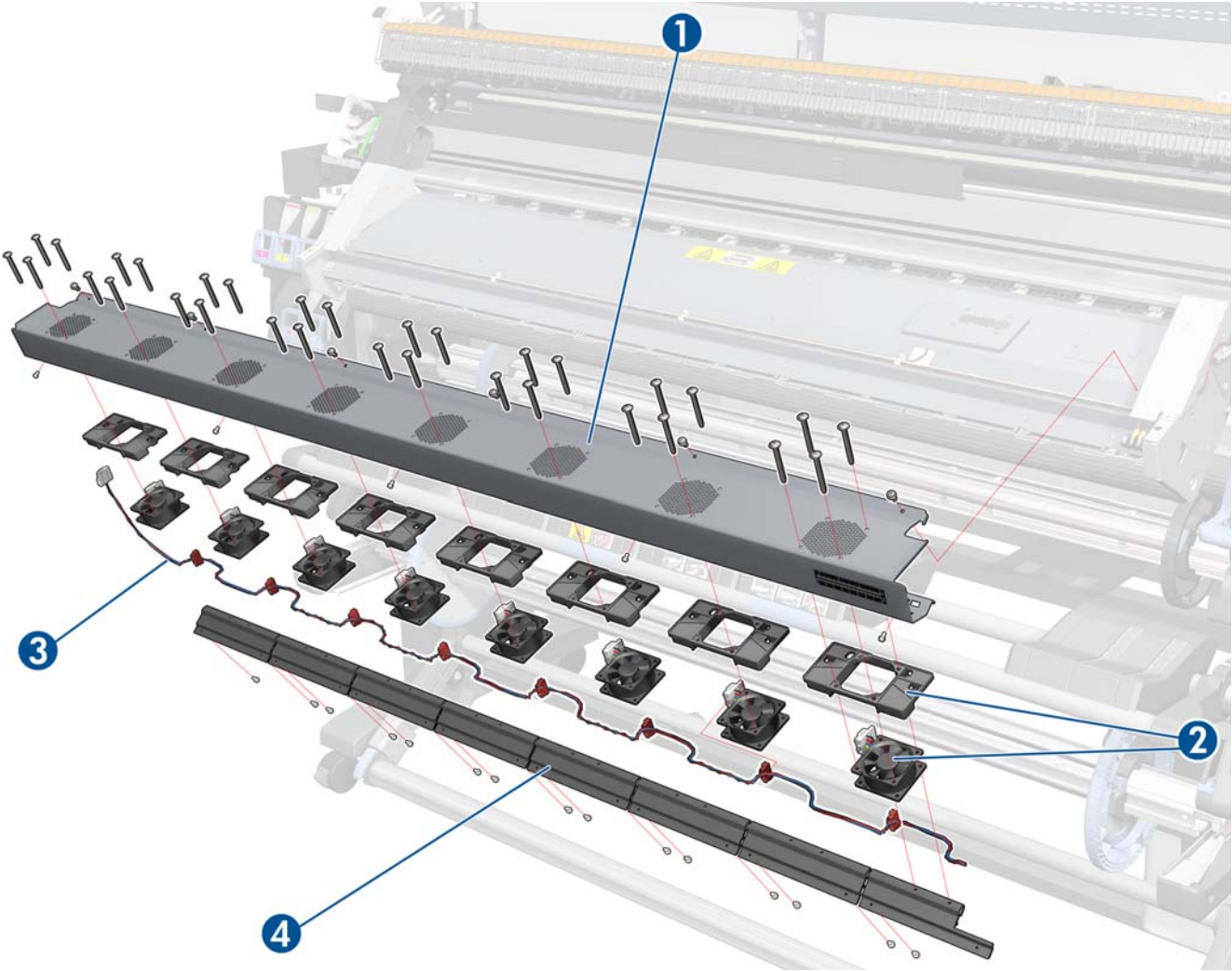
# Curing Assemblies

	Part Number	Part Description	Page
1	CQ871-67041	Curing without Fans, Resist, IR	502
2	CQ871-67015	Curing IR Sensor and Fan 104 S	496
3	CQ871-67032	Curing Trims 104 SERV	502
4	CH955-67089	Curing Bracket SERV	517
5	CQ871-67010	Curing Thermal Switch Assembly 104	502
6	CQ871-67022	Curing Resistors 104 SERV	502
7	CQ871-67018	Curing Grilles 104 SERV	502
8	CQ871-67062	Curing Resistors Holders SERV	502



# Curing Fans Assembly

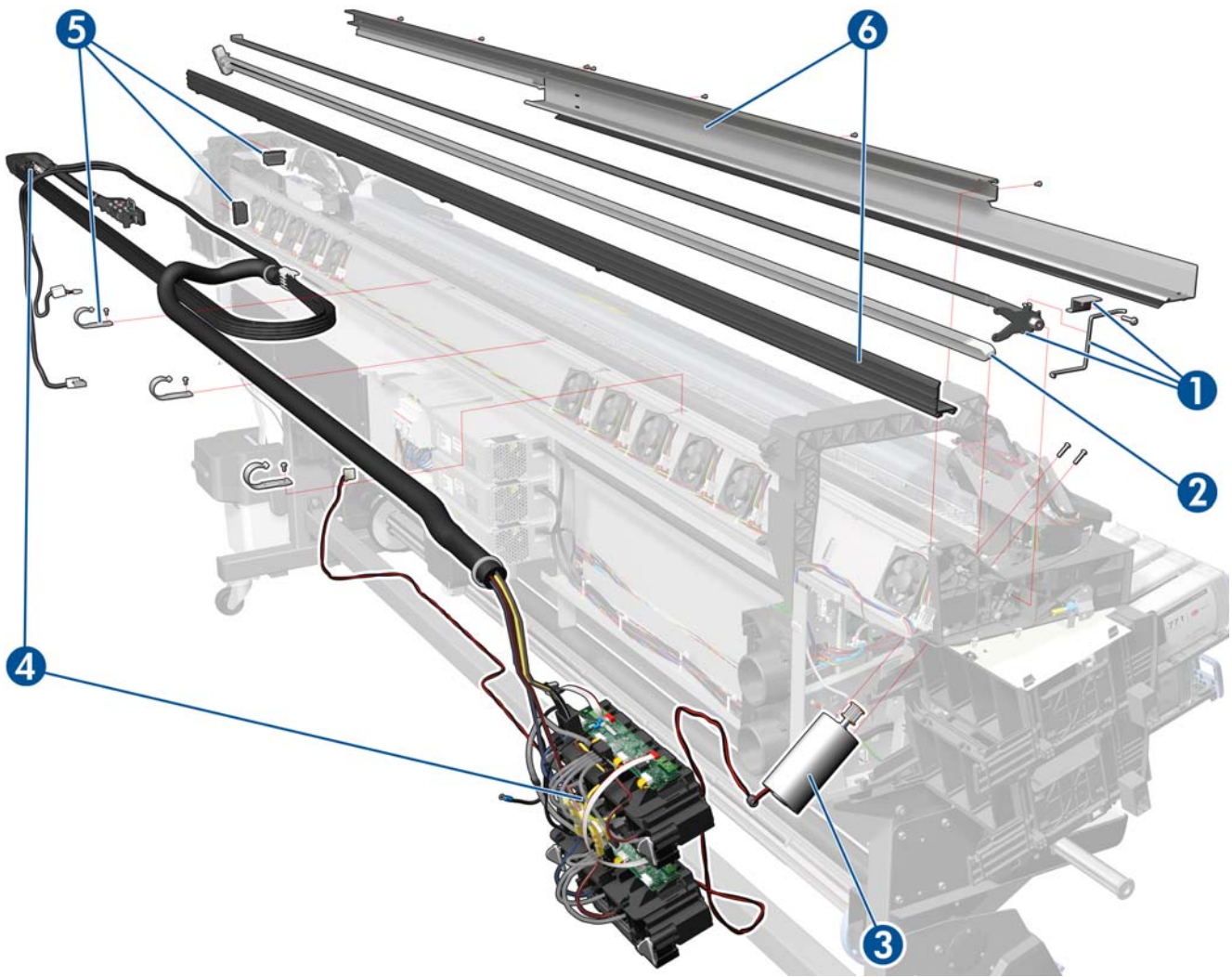
	Part Number	Part Description	Page
1	CQ871-67042	Curing Fans Cover without Fans 104	502
2	CH955-67062	Curing Fan SERV	502
3	CQ871-67016	Curing Fans Cable 104 SERV	
4	CQ869-67064	SPI Air Curtain Deflector SERV (contains 7 deflectors; 14 are needed for complete replacement)	





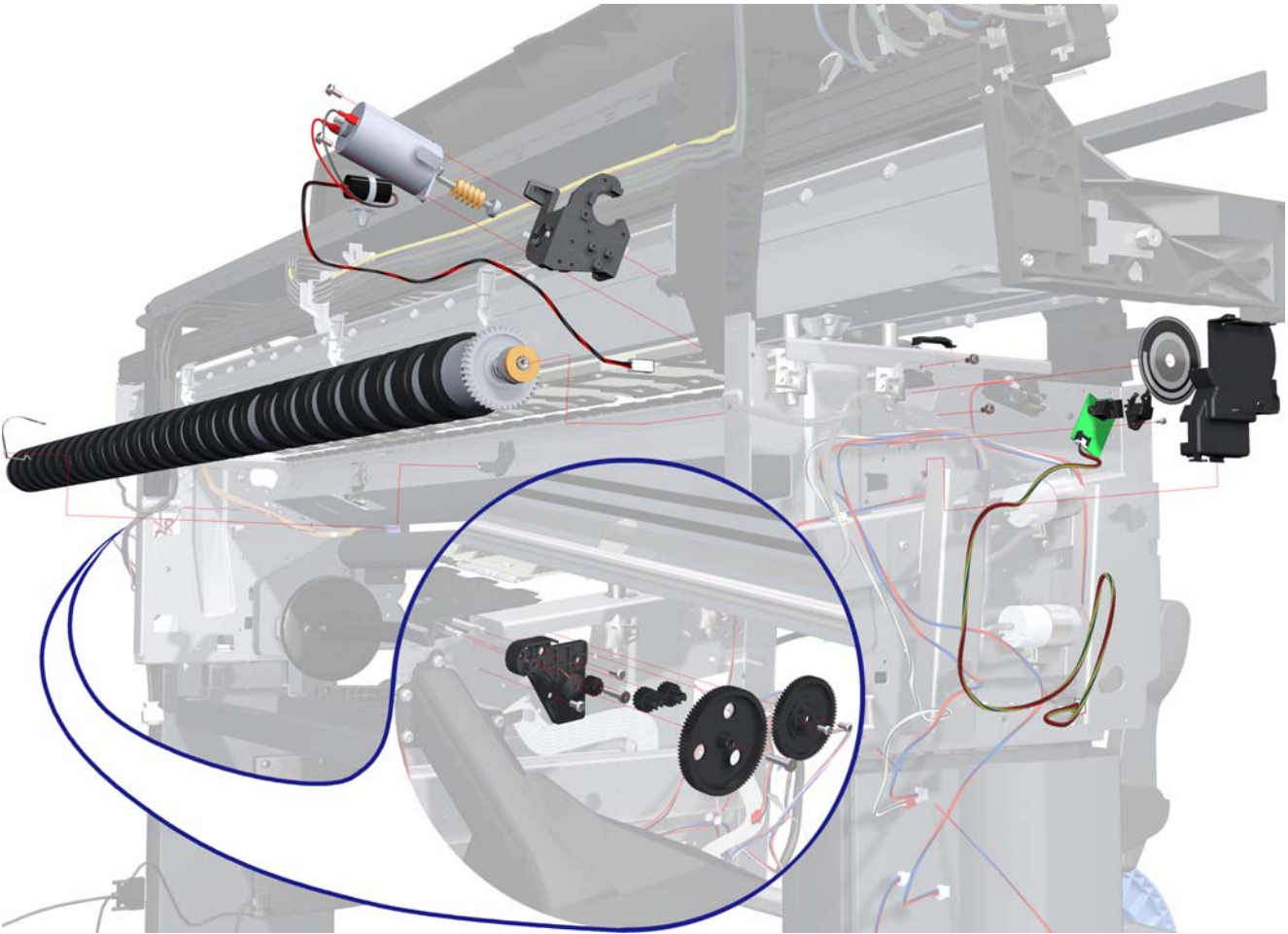
# Scan-Axis Assemblies

	Part Number	Part Description	Page
1	CQ871-67012	Encoder Strip and Sensor 104 S	395
2	CQ871-67024	Belt and Tensioner 104 SERV	406
3	CQ871-67071	Scan Axis Motor 104 SERV	416
4	CQ871-67044	SRK and TC 104 SERV	371
5	CQ871-67096	SRK and Tube Clips 104	371
6	CQ871-67078	Rear and Front Tube Shelf 104	371
	CH955-67111	V2 Broken Bag Fixing Tools SER	155



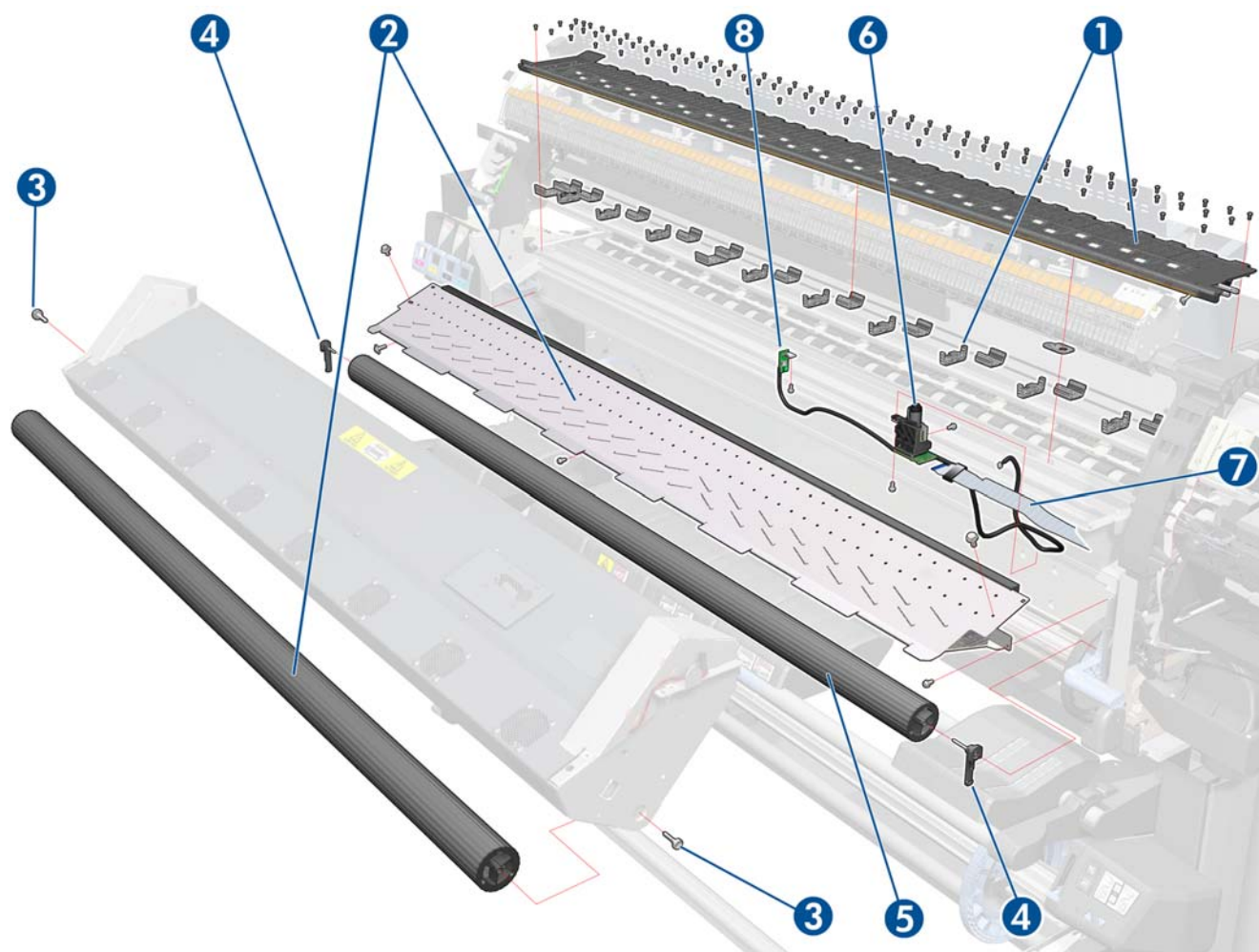
# Drive Roller and Media-Axis Motor

	Part Number	Part Description	Page
1	CQ871-67068	Drive Roller Encoder 104 SERV	416
2	CQ871-67066	Gears Kit and Roller Brake RM	560
3	CQ871-67059	Drive Roller 104 SERV	560
4	CQ871-67058	Media Motor 104 SERV	420



## Substrate Path Assemblies

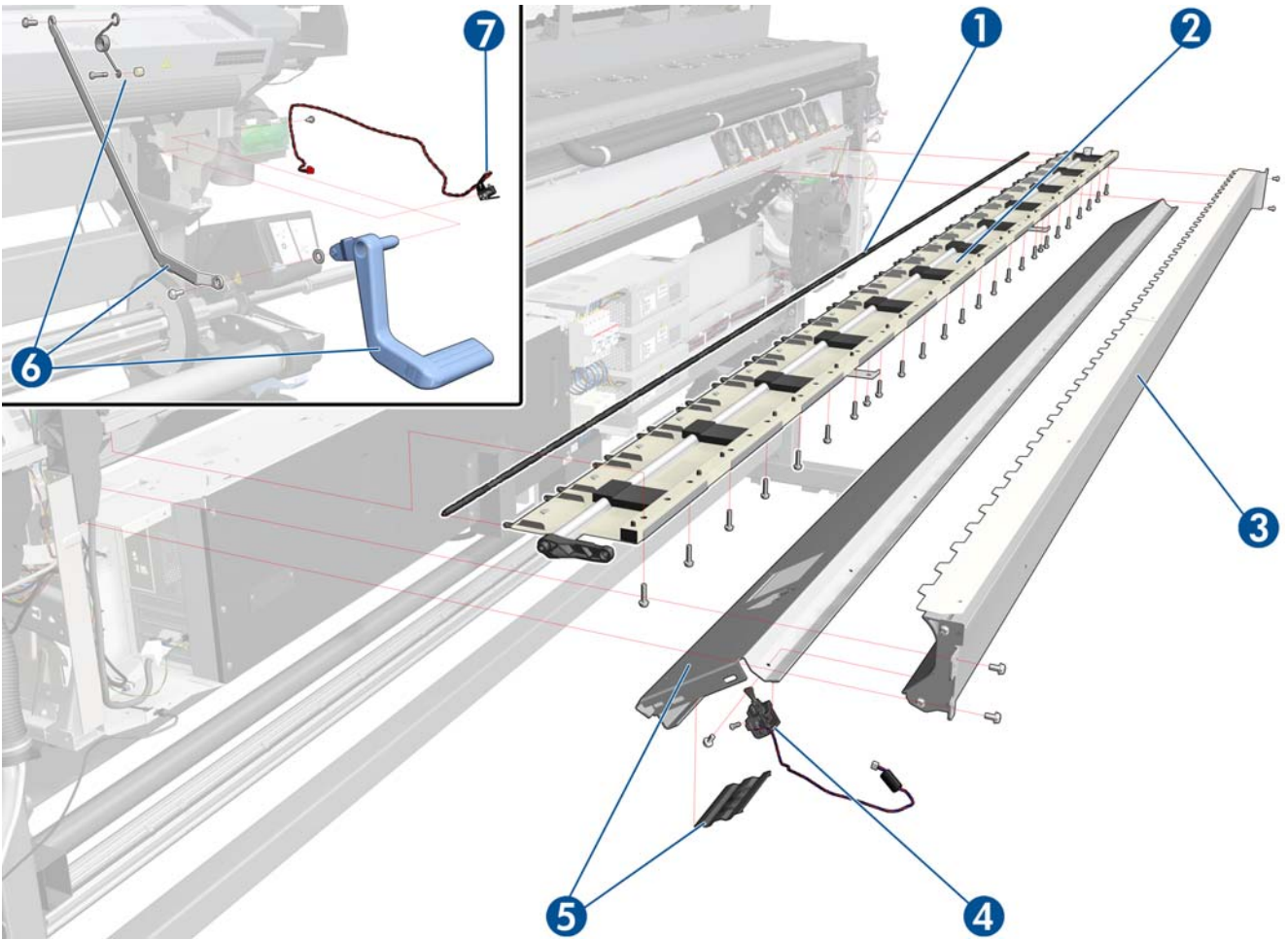
	Part Number	Part Description	Page
1	CQ871-67037	Print Platen Assembly 104 SERV	520
2	CQ871-67011	Output Platen 104 SERV	514
3	CH955-67065	Output Roller Support and Pins	
4	Q1273-60103	Input Roll Support SERV	532
5	CQ871-67047	Entry Roller 104 SERV	532
6	Q6651-60270	OMAS Module SERV	422
7	CQ871-67067	OMAS Cable 104	434
8	CH955-67066	TOMAS Assembly SERV	428
9	CQ871-67073	MI Profile and Mylar 104	





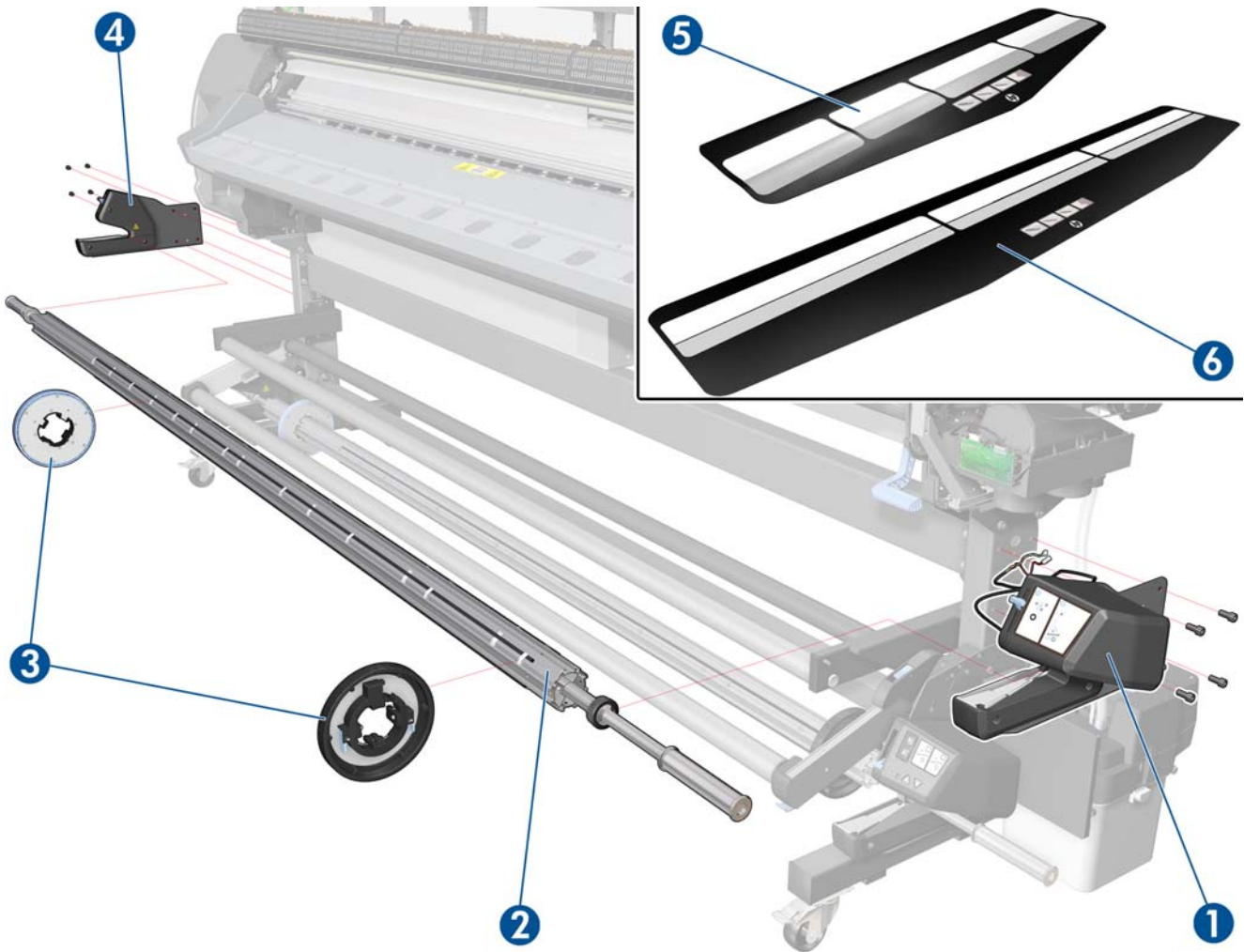
# Center Guide and Pinchwheel Assembly

	Part Number	Part Description	Page
1	Q6651-60066	Pinchwheels Kit SERV	554
2	CQ871-67023	Complete Pinchwheels 104 SERV	554
3	CQ871-67073	MI Profile and Mylar 104	
4	CQ869-67021	SPI Media Presence Sensor SERV	547
5	CQ871-67072	MI Platen 104 SERV	
6	CQ871-67057	Pinchwheel Lever Assembly 104 SERV	551
7	CQ871-67053	Media Lever Sensor 104 SERV	289



# Media Entry Assemblies

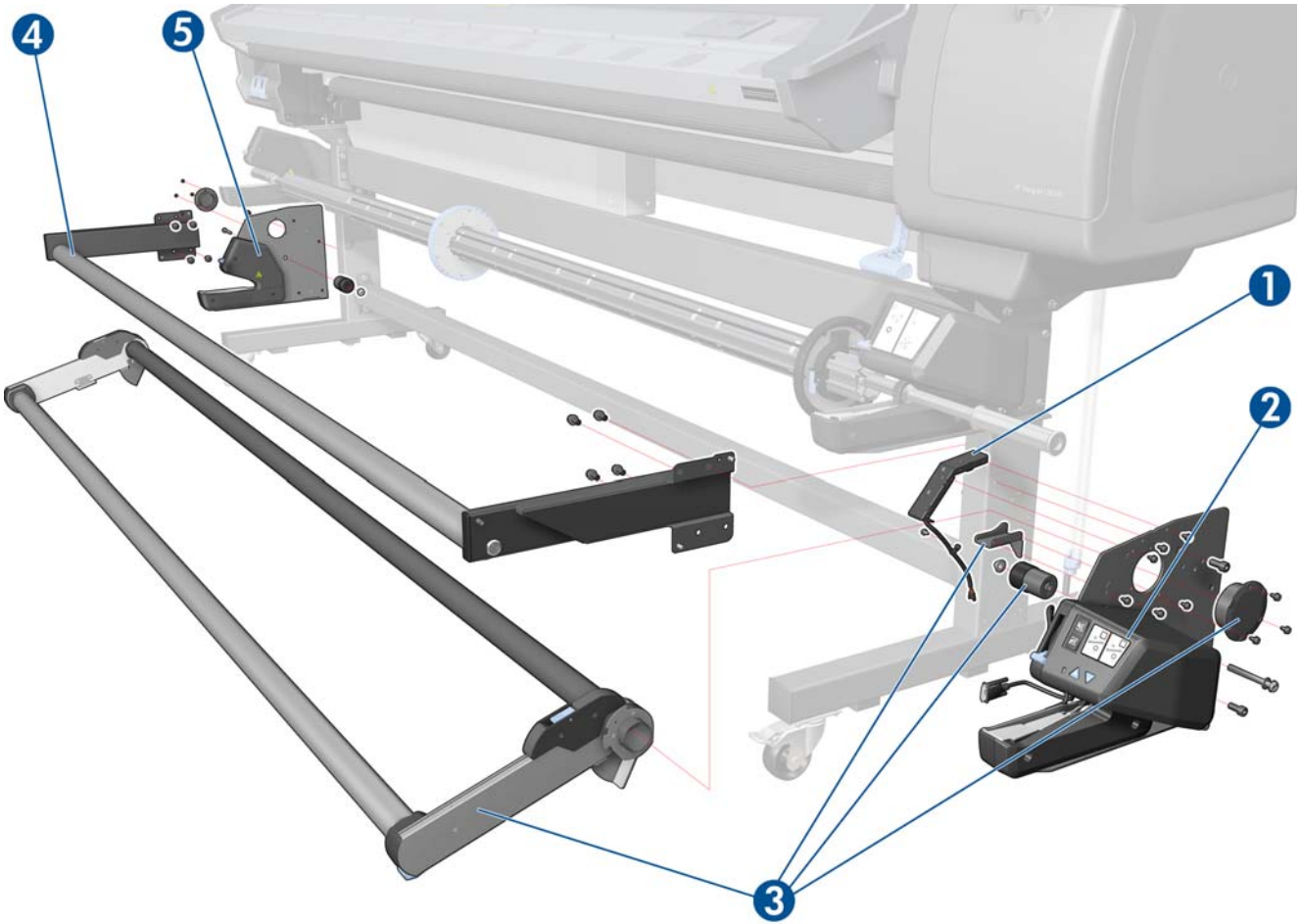
	Part Number	Part Description	Page
1	CQ871-67004	Rewinder Right Module	
2	CQ871-67040	3-inch Spindle 104 SERV	
3	CH955-67037	Spindle Hub SERV	N/A
4	CQ871-67026	Rewinder Left Module 104 SERV	
5	CQ869-67048	SPI Loading Accessory SERV	
6	CQ871-67049	SPI Loading Accessory SERV	





# Take-Up Reel Assembly

	Part Number	Part Description	Page
1	CQ871-67035	TUR Sensor Module 104 SERV	584
2	CQ871-67034	TUR RH Module 104 SERV	
3	CQ871-67050	TUR Tension Bar	567
4	CQ871-67019	TUR Diverter 104	
5	CQ871-67048	TUR LH Module 104 SERV	



## Miscellaneous Parts

Part Number	Part Description	Page
CH955-67114	Right Arc	567
CH955-67115	Left Arc	567
CQ871-67025	Labels 104 SERV	N/A
CH955-67108	CAL HP Perm. Gloss Adhesive Vinyl	223
Q1273-60296	Inst Dry Photo Gloss Calibrat	N/A
CQ871-67077	Screw Ser 104	N/A
CH955-67070	User's Maintenance/Cleaning Kit	
CQ871-67092	SMK-1 104 SERV <ul style="list-style-type: none"> <li>• Scan-Axis Motor (see page 416)</li> <li>• Encoder Strip &amp; Sensor (see page 395)</li> <li>• Ink Tubes Assembly &amp; Trailing Cable (see page 371)</li> <li>• Belt &amp; Tension Kit Assembly (see page 415).</li> <li>• Carriage Assembly without PCA, Cutter, and Color Sensor (see page 406)</li> <li>• Line Sensor (see page 463)</li> <li>• Carriage PCA Cover (see page 406)</li> <li>• Media Jam Sensor (see page 412)</li> </ul>	N/A
CQ871-67093	SMK-2 104 SERV <ul style="list-style-type: none"> <li>• Service Station (see page 341)</li> <li>• Line Sensor (see page 463)</li> <li>• Media Jam Sensor (see page 412)</li> <li>• Ink Maintenance Kit and Lubrication Felts</li> </ul>	N/A
CQ871-67094	SMK-3 104 SERV <ul style="list-style-type: none"> <li>• Drop Detector, Ink Funnel, Roller Transmission, Ink Maintenance Kit, and Lubrication Felts</li> <li>• Line Sensor (see page 463)</li> </ul>	N/A

## 8 Removal & Installation

Two contents lists are provided for this chapter to help you to quickly find the service part you want to replace. The first list is provided in *Service part order* and the second in *Disassembly order*.

### Service part order

• Introduction .....	269
• Opening the Window .....	271
• APS Assembly .....	392
• Back Cover .....	302
• Belt Assembly .....	415
• Carriage Assembly with Belt, Pulley, and Tensioner .....	406
• Carriage Flex Cables.....	401
• Carriage PCA.....	398
• Cartridge Tray .....	530
• Circuit Breakers.....	454
• Color Sensor Actuator Assembly .....	471
• Color Sensor Assembly .....	467
• Curing Fans and Cover .....	486
• Curing Heaters .....	511
• Curing Holders .....	517
• Curing IR Temperature Sensor & Fan.....	496
• Curing Module .....	502
• Cutter Assembly .....	382
• Drive Roller .....	560
• Drop Detector, Funnel Transmission, Waste Ink Tube .....	366
• Dryer Grill.....	473
• Dryer Heater .....	484
• Dryer IR Temperature Sensor.....	476
• Dryer Protector.....	481
• Electronics Enclosure.....	460
• Electronics Enclosure Extension Cover .....	319
• Encoder Disc and Sensor .....	549
• Encoder Strip.....	395
• Engine PCA .....	439
• Extra PSU 24 V .....	313
• Formatter Battery.....	453
• Formatter PCA .....	442

## Service part order

• Front Panel .....	332
• Front Tube Shelf Beam .....	279
• Hard Disk Drive .....	444
• Heater Controller Box .....	321
• Hinge Brakes .....	283
• Individual Pinchwheel Rollers .....	557
• Ink Supply Station (ISS) .....	384
• Ink Supply Station PCAs (Top and Bottom) .....	388
• Ink Supply Tubes and Trailing Cable .....	371
• Input Platen .....	540
• Input Roller .....	532
• Interconnect PCA .....	431
• ISS to Cartridge Cables .....	381
• Left Cover .....	293
• Left Curing Cover .....	298
• Left Trim .....	296
• Line Sensor Assembly .....	463
• Media-Axis Motor .....	420
• Media Input Profile .....	534
• Media Jam Sensor and Carriage Reflector Assembly .....	412
• Media Lever Linkage .....	551
• Media Sensor .....	547
• Oiler and Felt Pads .....	404
• OMAS Cable .....	434
• OMAS Controller Card .....	432
• OMAS: Optical Media Advance Sensor .....	422
• Output Platen .....	514
• Output Roller .....	544
• Pinchwheel Assembly .....	554
• Power Box Cover .....	311
• Power Supply Unit (PSU) .....	447
• Pre-Driver PCA .....	317
• Primer Assembly .....	335
• Primer Valve Cable .....	339
• Primer Valves .....	337
• Print Platen .....	520
• Printhead Cleaning Cartridge Door .....	545
• Printhead Cleaning Cartridge Door Sensor .....	546
• PrintMech PCA .....	457
• Rear Fans .....	330
• Rewinder Left-Hand Module .....	567

## Service part order

• Rewinder Right-Hand Module .....	570
• Right Connector Cover .....	308
• Right Cover .....	286
• Right Curing Cover .....	300
• Right Trim, Media Lever, and Media Lever Sensor .....	289
• Scan-Axis Motor .....	416
• Scan-Axis Motor Fan .....	419
• Service Station .....	341
• Take-Up Reel Diverter .....	580
• Take-Up Reel Left-Hand Module .....	568
• Take-Up Reel Right-Hand Module .....	573
• Take-Up Reel Sensor Module .....	584
• Tension Bar .....	587
• TOMAS Cable .....	430
• TOMAS: Temperature Optical Media Advance Sensor .....	428
• Top Cover .....	304
• Top Cover Fans .....	327
• Vacuum Fan .....	346
• Vacuum Fan Cable .....	348
• Vacuum Fans Extra .....	350
• Waste Ink System .....	359
• Waste Ink System Support .....	363
• Waste Ink Tube Guide .....	364
• Web Wipe Assembly .....	344
• Window .....	273
• Window Lock Sensor Left .....	323
• Window Lock Sensor Right .....	325

## Disassembly order

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• Window .....	273
• Front Tube Shelf Beam .....	279
• Hinge Brakes .....	283
• Right Cover .....	286
• Right Trim, Media Lever, and Media Lever Sensor .....	289
• Left Cover.....	293
• Left Trim .....	296
• Left Curing Cover .....	298
• Right Curing Cover .....	300
• Back Cover .....	302
• Top Cover .....	304
• Right Connector Cover .....	308
• Power Box Cover.....	311
• Extra PSU 24 V .....	313
• Pre-Driver PCA .....	317
• Electronics Enclosure Extension Cover .....	319
• Heater Controller Box .....	321
• Window Lock Sensor Left .....	323
• Window Lock Sensor Right .....	325
• Top Cover Fans .....	327
• Rear Fans .....	330
• Front Panel .....	332
• Primer Assembly.....	335
• Primer Valves .....	337
• Primer Valve Cable.....	339
• Service Station .....	341
• Web Wipe Assembly .....	344
• Vacuum Fan .....	346
• Vacuum Fan Cable .....	348
• Vacuum Fans Extra .....	350
• Waste Ink System .....	359
• Waste Ink System Support .....	363
• Waste Ink Tube Guide .....	364
• Drop Detector, Funnel Transmission, Waste Ink Tube .....	366
• Ink Supply Tubes and Trailing Cable .....	371
• ISS to Cartridge Cables .....	381
• Cutter Assembly .....	382
• Ink Supply Station (ISS) .....	384

## Disassembly order (Continued)

• Ink Supply Station PCAs (Top and Bottom) .....	388
• APS Assembly .....	392
• Encoder Strip .....	395
• Carriage PCA .....	398
• Carriage Flex Cables .....	401
• Oiler and Felt Pads .....	404
• Carriage Assembly with Belt, Pulley, and Tensioner .....	406
• Media Jam Sensor and Carriage Reflector Assembly .....	412
• Belt Assembly .....	415
• Scan-Axis Motor .....	416
• Scan-Axis Motor Fan .....	419
• Media-Axis Motor .....	420
• OMAS: Optical Media Advance Sensor .....	422
• TOMAS: Temperature Optical Media Advance Sensor .....	428
• TOMAS Cable .....	430
• Interconnect PCA .....	431
• OMAS Controller Card .....	432
• OMAS Cable .....	434
• Engine PCA .....	439
• Formatter PCA .....	442
• Hard Disk Drive .....	444
• Power Supply Unit (PSU) .....	447
• Formatter Battery .....	453
• Circuit Breakers .....	454
• PrintMech PCA .....	457
• Electronics Enclosure .....	460
• Line Sensor Assembly .....	463
• Color Sensor Assembly .....	467
• Color Sensor Actuator Assembly .....	471
• Dryer Grill .....	473
• Dryer IR Temperature Sensor .....	476
• Dryer Protector .....	481
• Dryer Heater .....	484
• Curing Fans and Cover .....	486
• Curing IR Temperature Sensor & Fan .....	496
• Curing Module .....	502
• Curing Heaters .....	511
• Output Platen .....	514
• Curing Holders .....	517
• Print Platen .....	520
• Cartridge Tray .....	530

## Disassembly order (Continued)

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• Media Input Profile .....	534
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• Printhead Cleaning Cartridge Door .....	545
• Printhead Cleaning Cartridge Door Sensor .....	546
• Media Sensor .....	547
• Encoder Disc and Sensor .....	549
• Media Lever Linkage .....	551
• Pinchwheel Assembly .....	554
• Individual Pinchwheel Rollers .....	557
• Drive Roller .....	560
• Rewinder Left-Hand Module .....	567
• Take-Up Reel Left-Hand Module .....	568
• Rewinder Right-Hand Module .....	570
• Take-Up Reel Right-Hand Module .....	573
• Take-Up Reel Diverter .....	580
• Take-Up Reel Sensor Module .....	584
• Tension Bar .....	587



# Introduction

This chapter is a step-by-step guide to the removal and installation of the key components of the printer. You may find it useful to tick off the steps as they are performed. Use the illustrations for each procedure to identify the parts referred to in the text.

The procedures appear in order of removal. So the whole machine can be stripped down by starting at the beginning of this chapter and working through the subsequent procedures.



**NOTE:** Before using this chapter to remove and install a new component, always make sure that you have performed the relevant service test from Chapter 4. If the test passes you will not need to replace the component.

## Safety precautions

Review the instructions identified by WARNING and CAUTION symbols before you service the printer. Follow these warnings and cautions for your protection and to avoid damaging the printer.



**WARNING!** Serious shock hazard leading to death or injury may result if you do not take the following precautions:

- Ensure that the AC power outlet (mains) has a protective earth (ground) terminal.
- Switch the plotter off, and disconnect it from the power source prior to performing any maintenance.
- Prevent water or other liquids from running onto electrical components or circuits, or through openings in the module.

## Electrostatic Discharge (ESD) precautions

To prevent damage to the printer circuits from high-voltage electrostatic discharge (ESD):

1. Do not wear clothing that is subject to static build-up.
2. Do not handle integrated circuits (ICs) in carpeted areas.
3. Do not remove an IC or a printed circuit assembly (PCA) from its conductive foam pad or conductive packaging until you are ready to install it.
4. Ground (earth) your body while disassembling and working on the printer.
5. After removing a cover from the printer, attach an earthing (ground) lead between the PCA common and earth ground. Touch all tools to earth ground to remove static charges before using them on the printer.
6. After removing any PCA from the printer, place it on a conductive foam pad or into its conductive packaging to prevent ESD damage to any ICs on the PCA.

## Required tools

The following tools are required to disassemble and repair the printer:

- A magnetic screwdriver with short and long Torx bits, Phillips bits, and flat bits
- A set of L-shaped Torx keys
- A set of Allen keys
- A set of spanners
- Pliers with short and long tips, and cutting pliers
- A multimeter/multitester, for troubleshooting heaters
- Plastic cable ties, short and long

- Scissors

The following additional tools are recommended:

- Latex medical-type gloves
- Lint-free cloths, for cleaning and lubrication
- Lubricant oil, part number 6040-0855 or CQ869-67077
- Ethanol 95 or isopropyl alcohol, for cleaning
- De-ionized water, for cleaning
- Tweezers
- Isolation tape (plastic tape)
- Masking tape
- Small hand-held flashlight

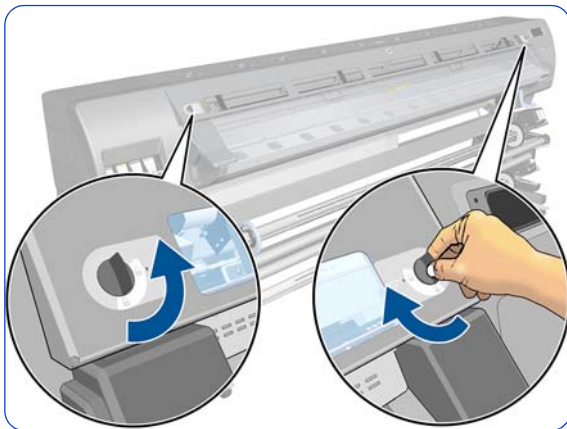
# Opening the Window



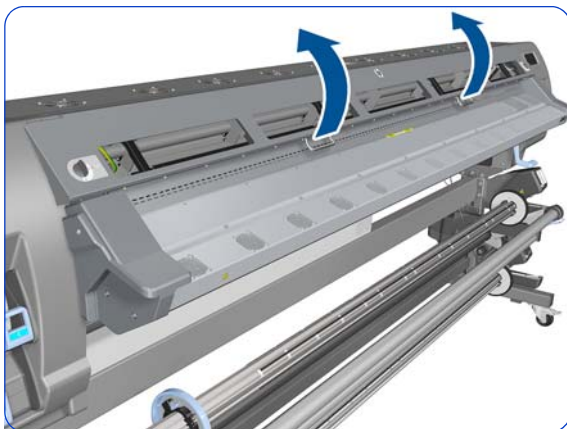
**WARNING!** Before opening the Window, observe all safety precautions when working in the area of the Dryer Assembly. Make sure that the temperature of the print zone has sufficiently cooled down.



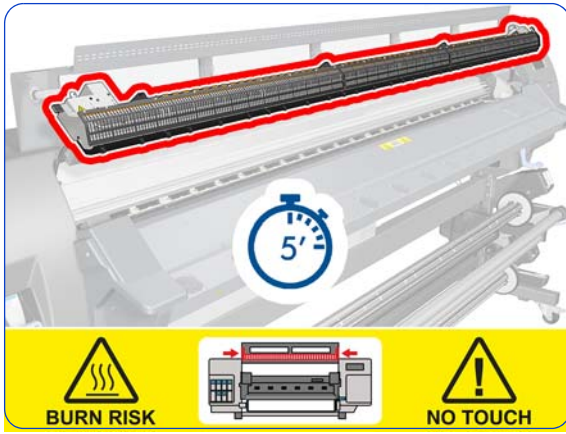
1. Turn off the printer.



2. Unlock the two Window Locks



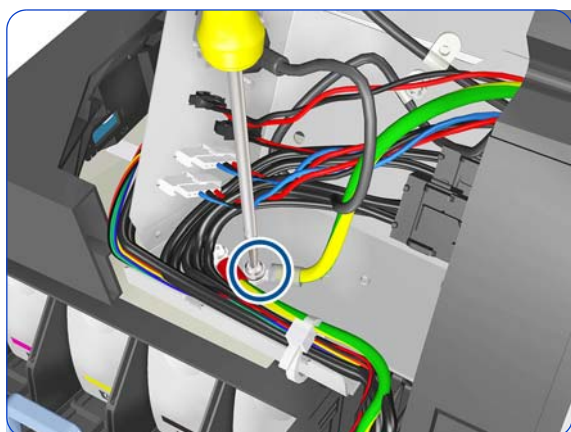
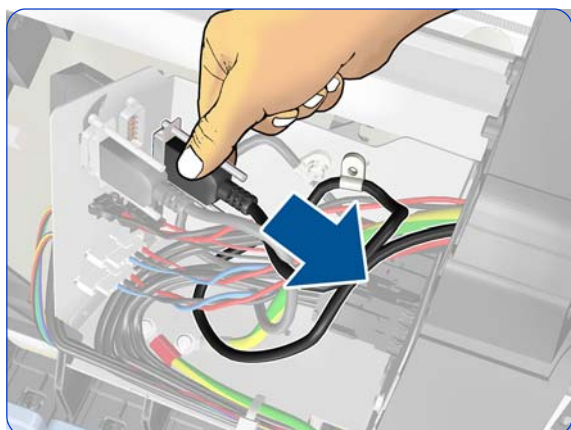
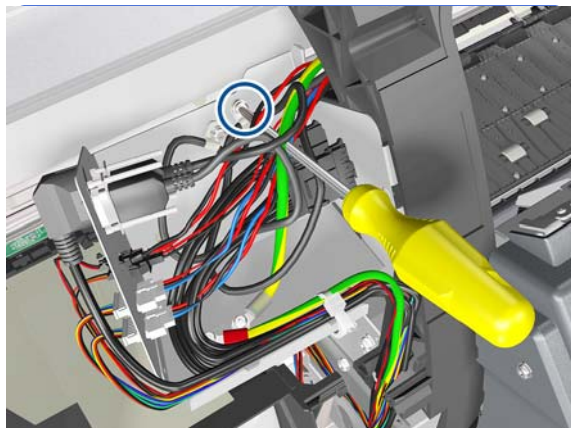
3. Open the Window.



4. Wait five minutes for the printer to cool down.

# Window

## Removal (requires two people)



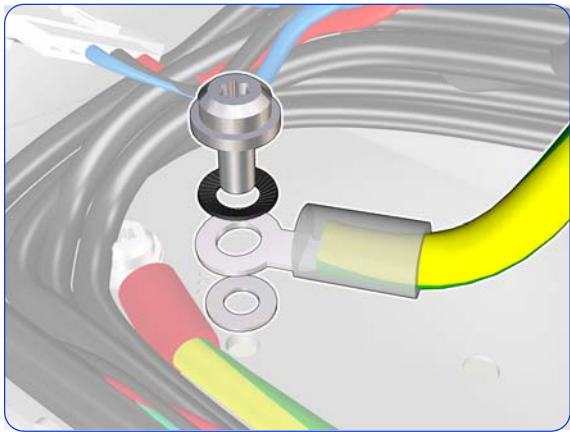
1. Open the Window ⇒ page 271.
2. Remove the Left Cover ⇒ page 293.
3. Remove one T20 screw from the Dryer IR Sensor cable clamp.

4. Loosen two screws on the connector of the Dryer IR Temperature Sensor cable, by hand or with a flat screwdriver, and disconnect.

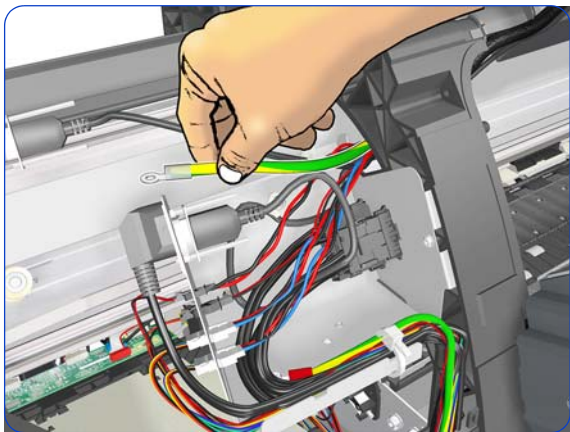
5. Remove one T25 screw, one lock washer, and one normal washer that secure the dryer grounding cable.



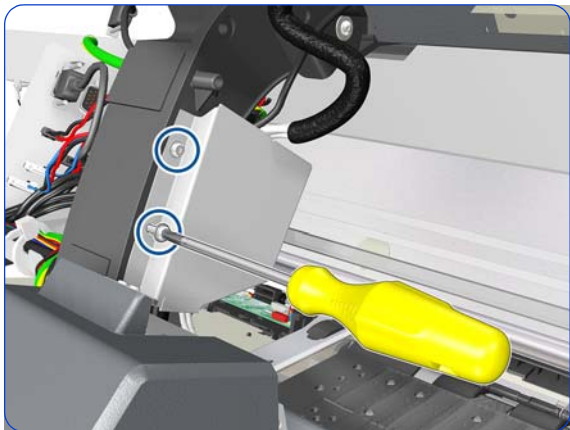
**WARNING!:** To ensure the electrical safety of the printer, it is very important that this grounding cable is reinstalled after the new part has been installed.



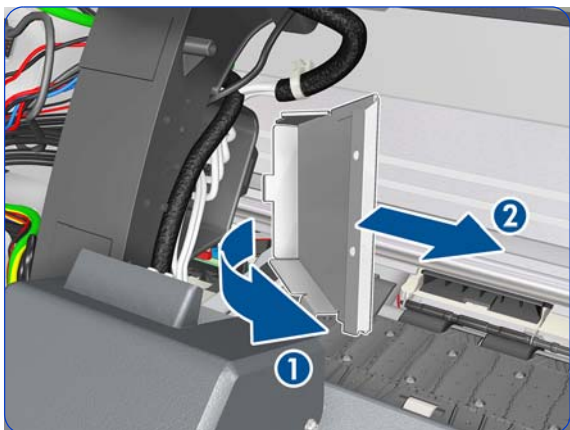
**WARNING!:** When reinstalling the grounding cable, it is an important safety point that the washer is installed between the printer and the grounding cable.



6. Push the grounding cable to one side.

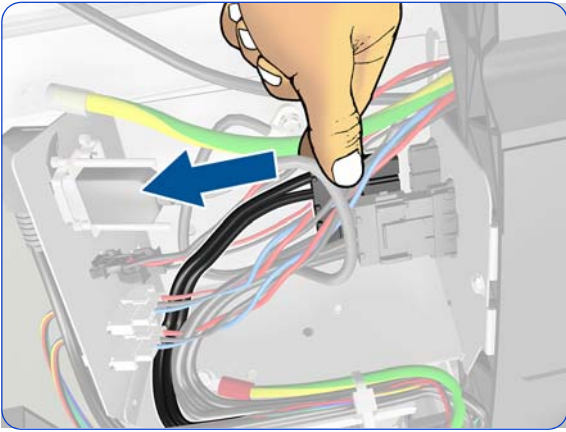


7. Remove two T-20 screws that secure the Left Cable Plate to the printer.

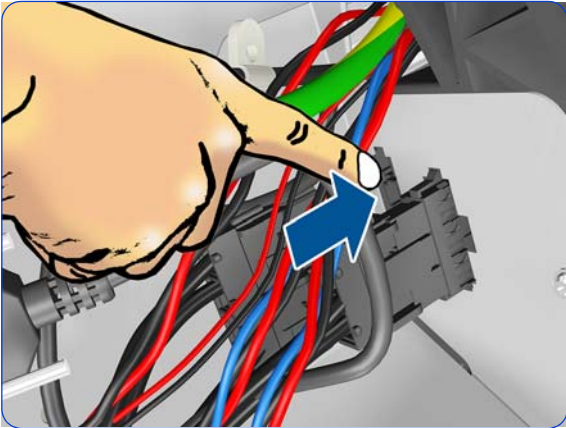


8. Rotate (1) and remove (2) the Left Cable Plate.

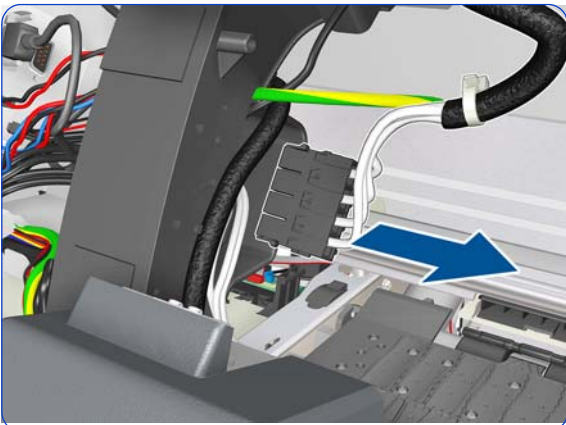




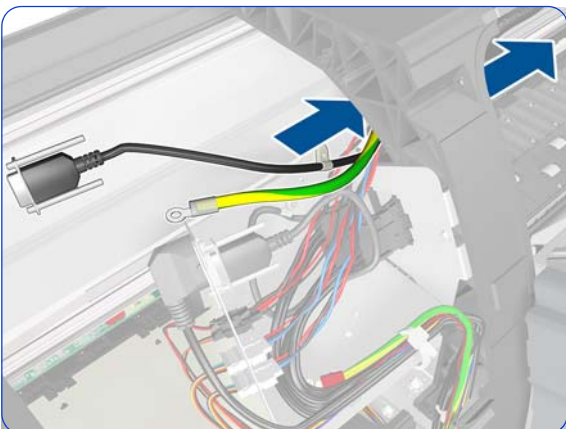
9. Disconnect the dryer power cable.



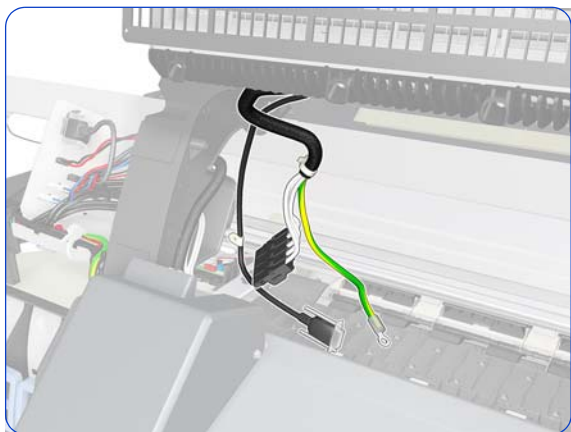
10. Unclip the connector and push it aside.



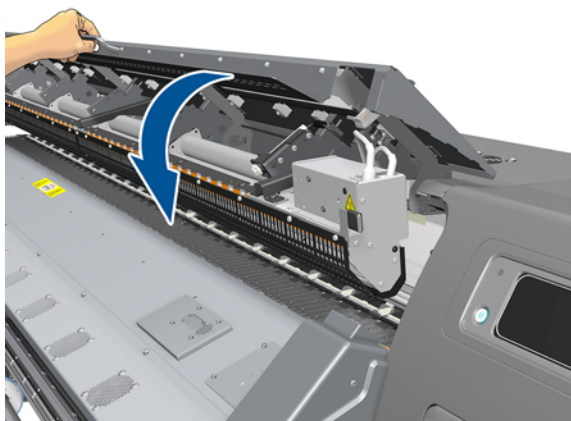
11. Pull the dryer power cable to the right.



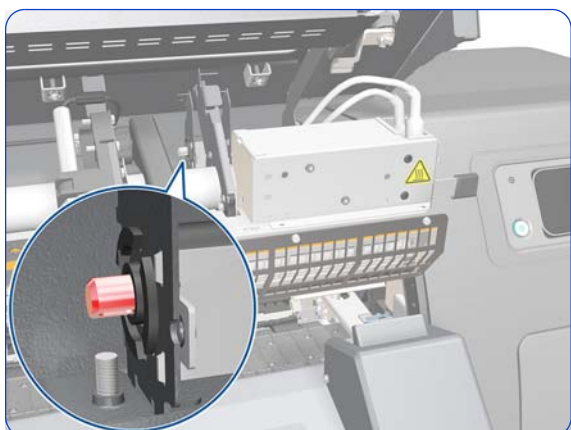
12. Continue pulling the dryer power cable to the right.



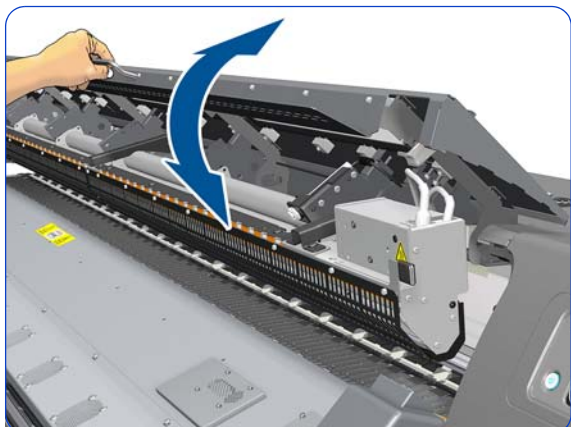
13. Leave the dryer power cable in this position.



14. Close the Window slightly.

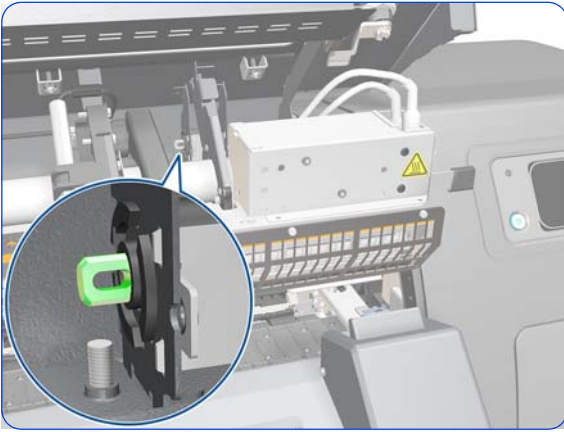


15. Look for the hole at the end of the hinge shaft at the right-hand side of the Window.

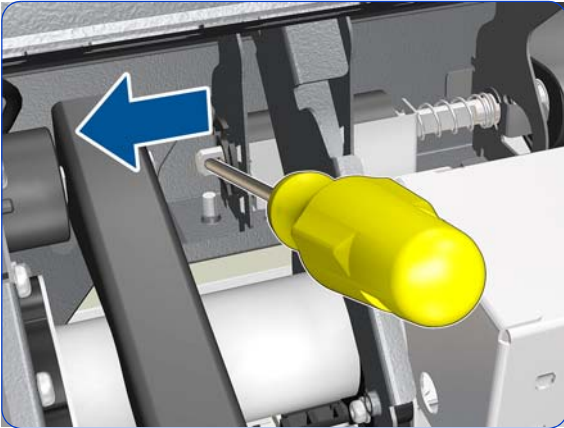


16. If you don't see the hole, continue closing and opening the Window slightly until you can see it.



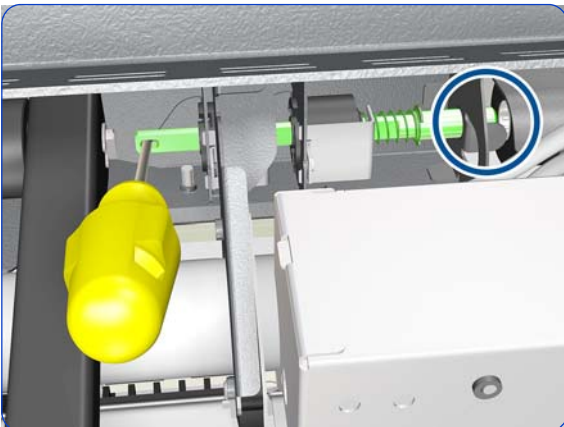


17. Now you can see the hole.

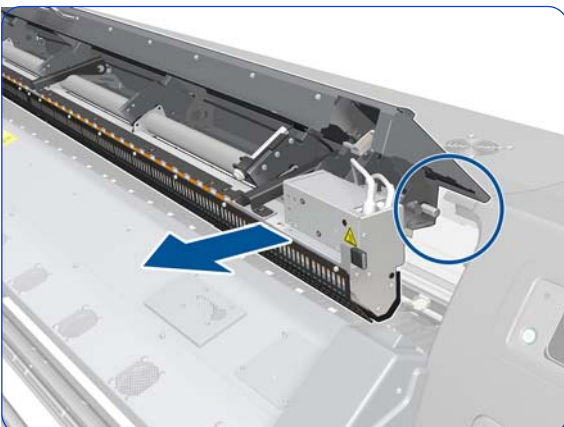


18. To disengage the hinge brake, insert a small screwdriver or similar tool into a hole in the hinge shaft and slide it to the left.

Tip: Rotating the window upwards while sliding the shaft helps to reducing the necessary sliding force.



19. Slide the shaft all the way to the left until it is disengaged.



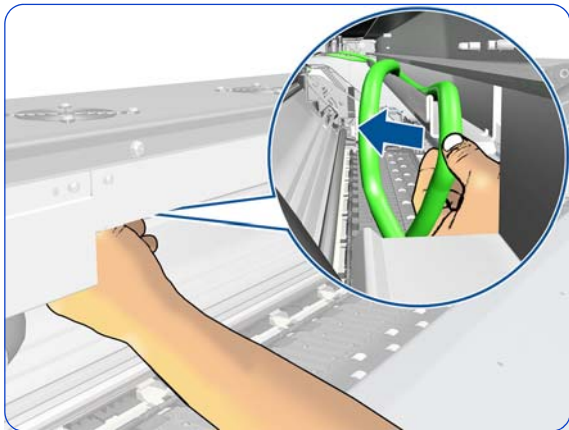
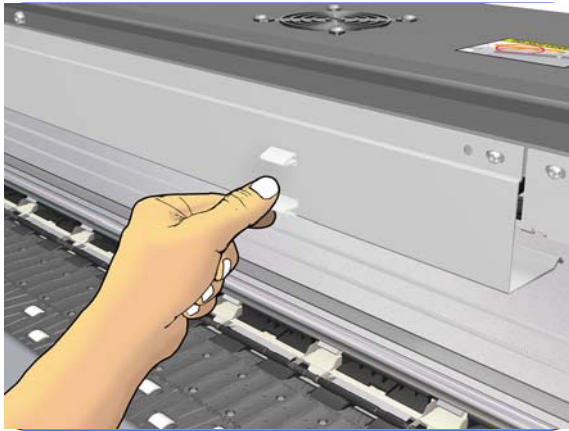
20. The right-hand side of the Window is now loose.



21. Slide the Window to the right, carefully, because at the same time you are disengaging the shaft from the left.

## Front Tube Shelf Beam

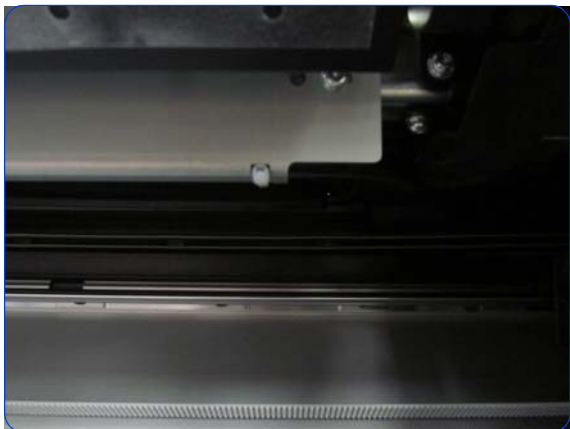
### Removal (requires two people)



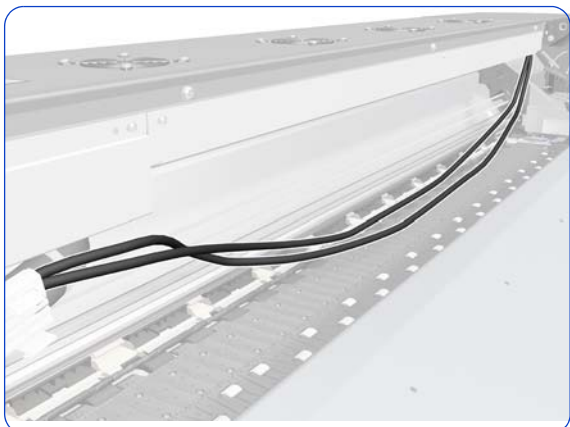
1. Remove the Window ⇒ page 273.
2. Lift the tab on the Front Tube Shelf Beam.
3. Let the Trailing Cable and Ink Supply Tubes hang down.
4. Unroute the Trailing Cable from the Front Tube Shelf Beam.



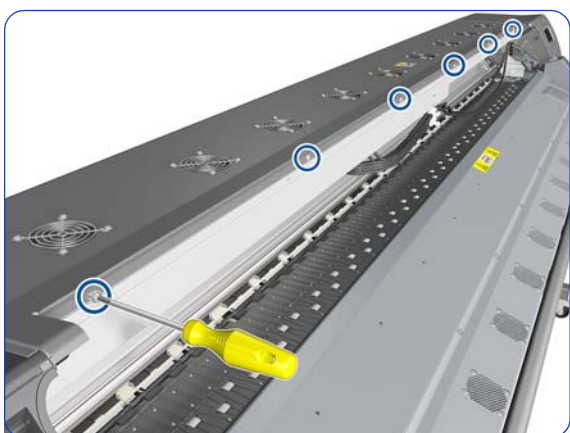
5. Cut the left-hand cable tie.



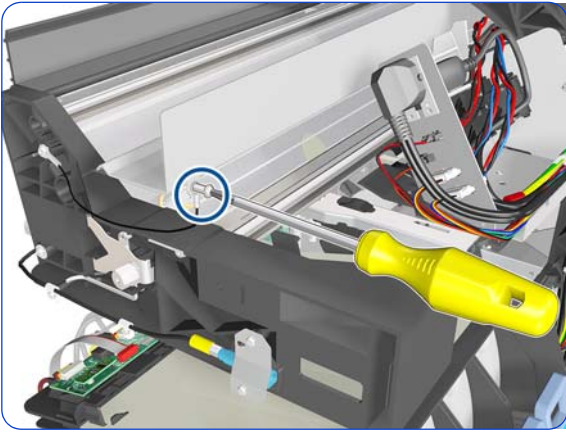
6. Cut the right-hand cable tie.



7. The Trailing Cable must be unlinked from the Front Tube Shelf Beam.



8. Remove six T-20 screws from the Front Tube Shelf Beam.



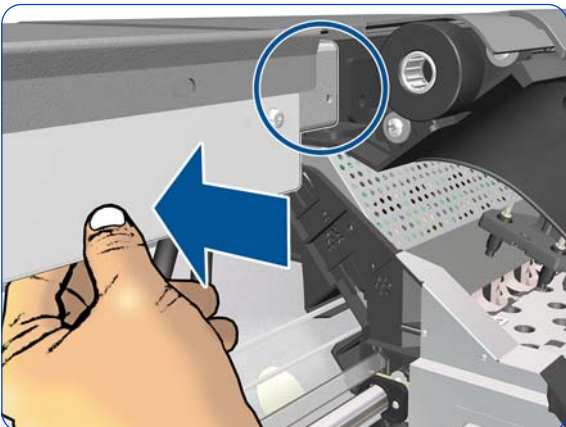
9. Remove a T-20 screw.



10. Remove a T-20 screw.

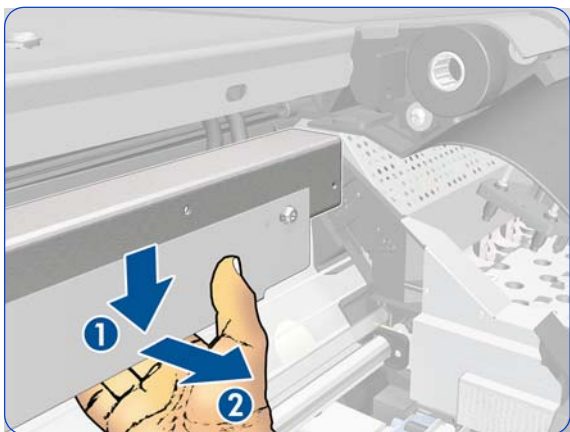


11. Remove a T-20 screw with a Torx T-20 L-shaped screwdriver.

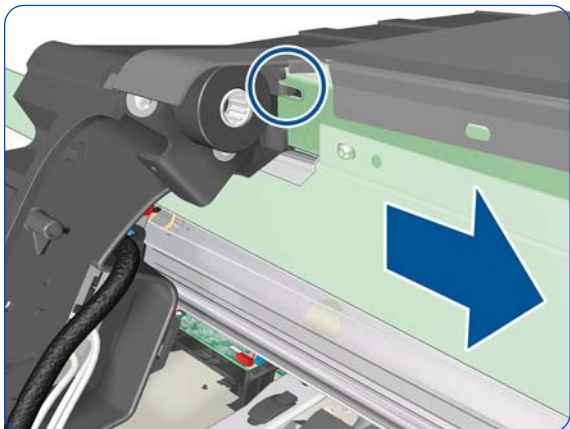


12. Push in the Front Tube Shelf Beam until it starts to drop.

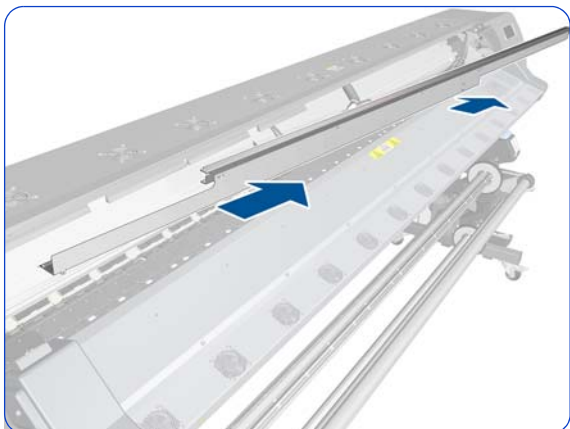




13. Pull the Front Tube Shelf Beam downwards and then outwards.



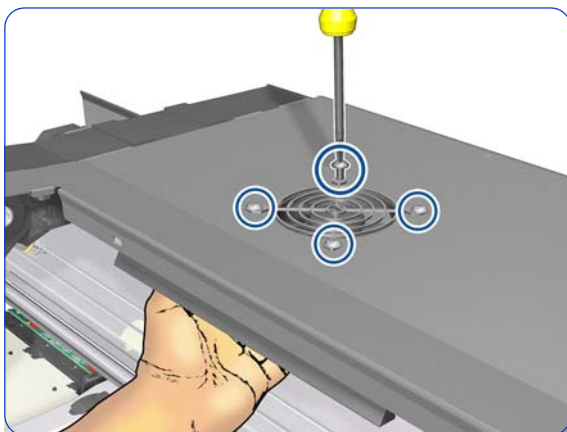
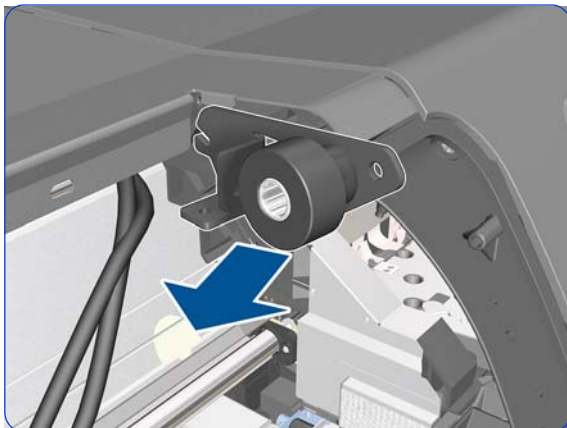
14. Pull the Front Tube Shelf Beam to the right to detach it from the printer.



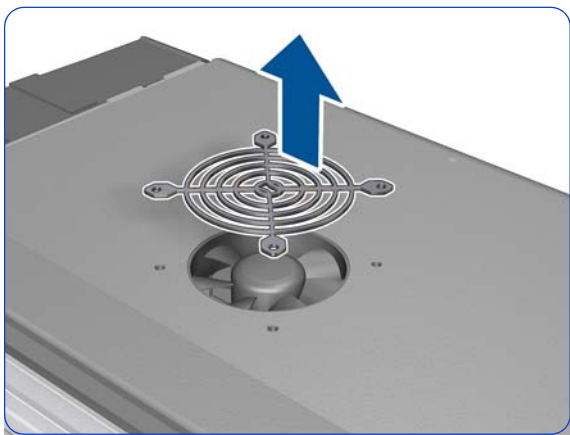
15. Remove the Front Tube Shelf Beam from the printer.

# Hinge Brakes

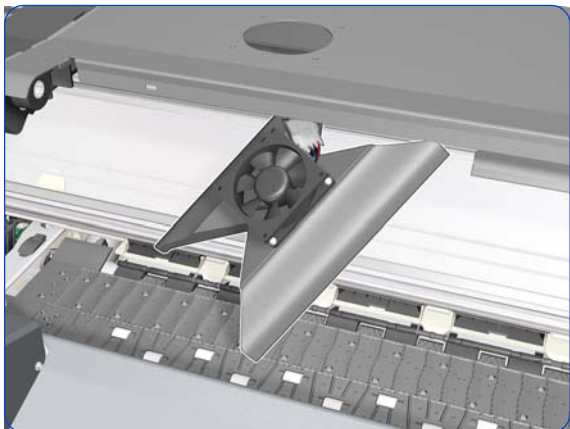
## Removal (requires two people)



1. Remove the Window ⇒ page 273.
2. Remove the Front Tube Shelf Beam ⇒ page 279.
3. Remove three T-15 screws from the Right Hinge Brake.
4. Remove the Right Hinge Brake.
5. Remove four T-20 screws from the grill of the Top Cover Left Fan. When you remove the last screw, hold the Left Fan and Diffuser with one hand to prevent it from falling.



6. Remove the grill of the Top Cover Left Fan.



7. Leave the Top Cover Left Fan and Diffuser on the platen.

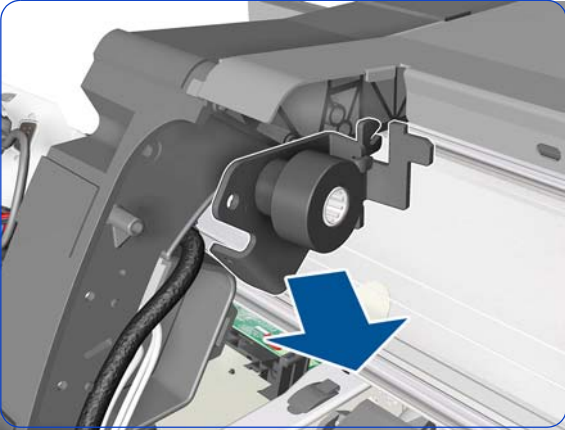


8. Remove a T-15 screw from the Left Hinge Brake.



9. Remove two T-15 screws from the Left hinge Brake.

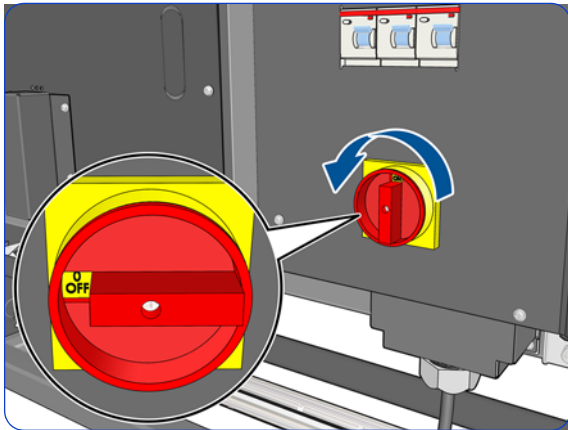




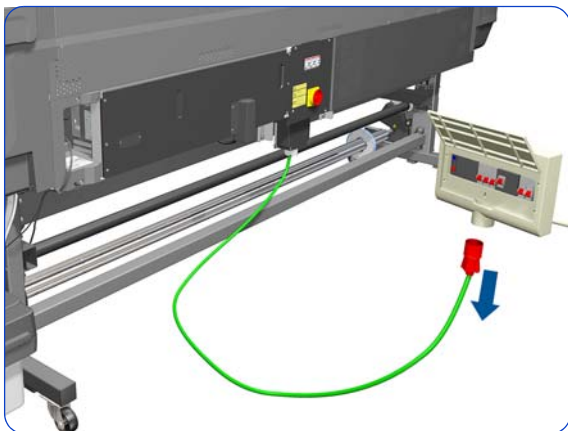
10. Remove the Left Hinge Brake.

# Right Cover

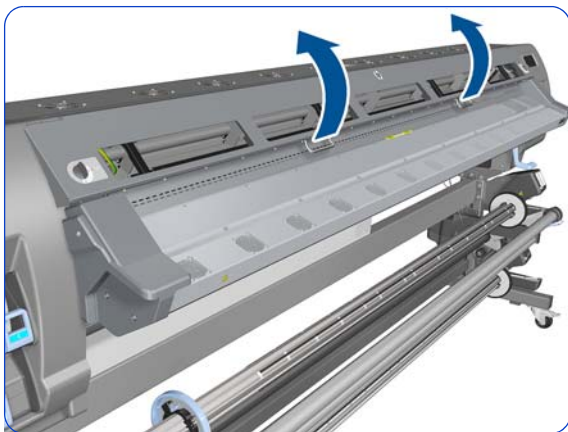
## Removal



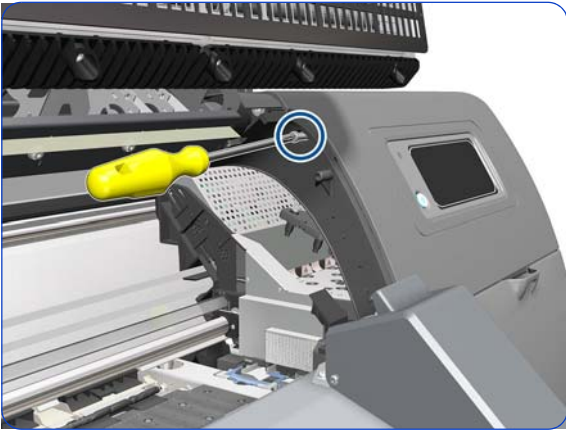
1. Turn off the printer.



2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).



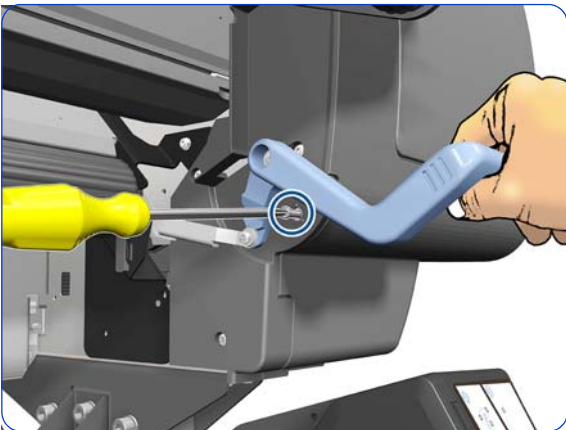
3. Open the Window ⇒ page 271.



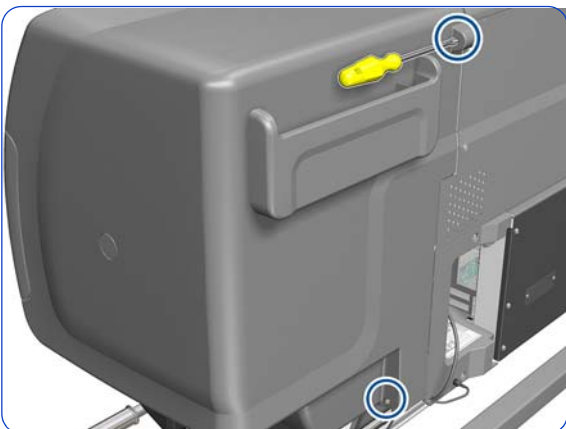
4. Remove one T-15 screw that secures the Right Cover.



5. Raise the Media Lever about 45°.



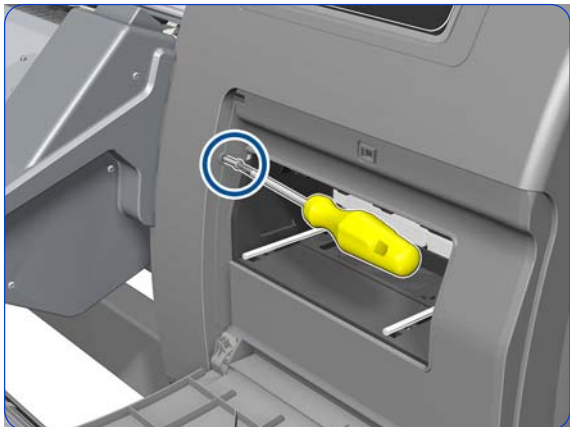
6. Keeping the Media Lever raised by 45°, remove the T-15 screw underneath it.



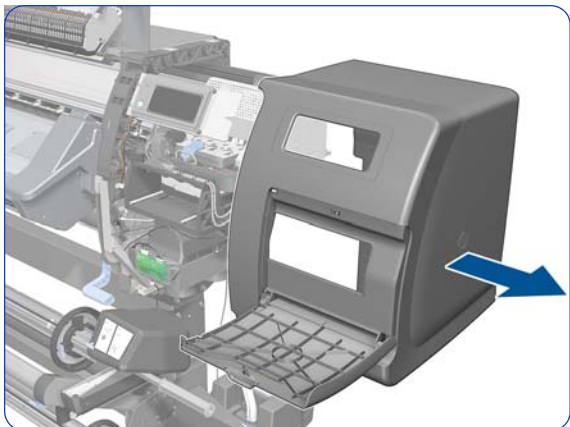
7. Remove one T-15 screw and one T-20 screw that secure the Right Cover from the rear of the printer.



8. Open the Printhead Cleaning Cartridge Door.



9. Remove one T-15 screw that secures the Right Cover.



10. Remove the Right Cover from the printer.

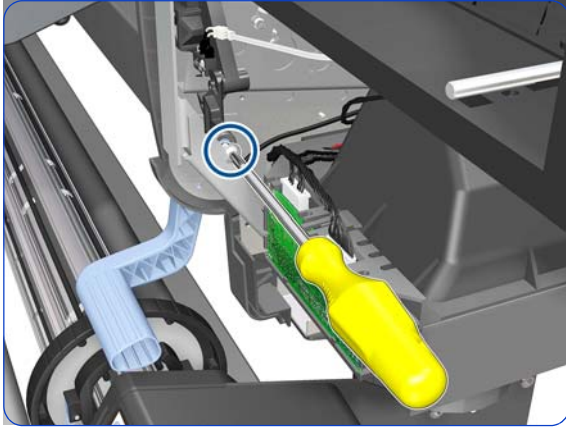


**CAUTION:** When installing the Right Cover, make sure you leave the Printhead Cleaning Cartridge Door open, otherwise you could damage the sensor of the door.

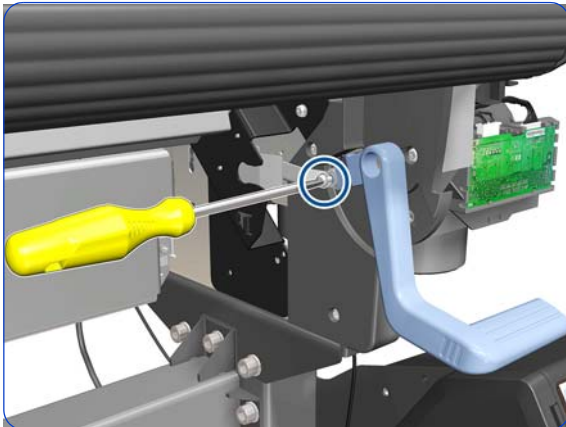
# Right Trim, Media Lever, and Media Lever Sensor

## Removal

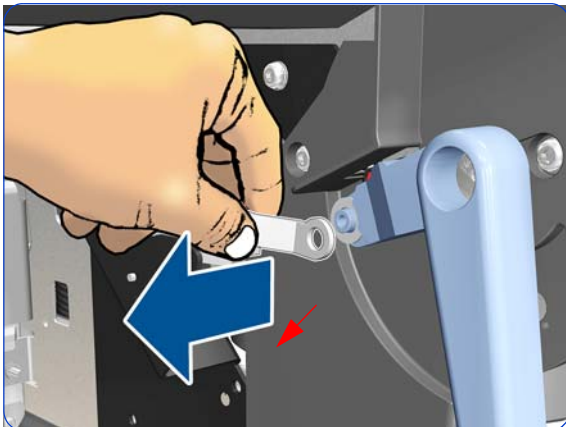
1. Remove the Right Cover ⇒ page 286.
2. Remove the Input Roller ⇒ page 532.
3. Remove the Right Connector Cover ⇒ page 308.
4. Remove a T-20 screw that secures the Media Lever.

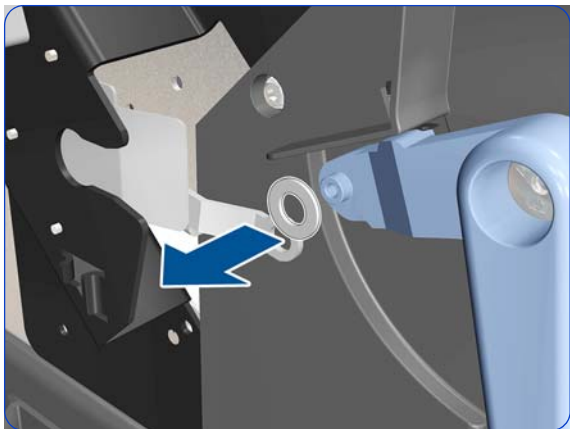


5. Remove a T-15 screw that secures the Media Lever.

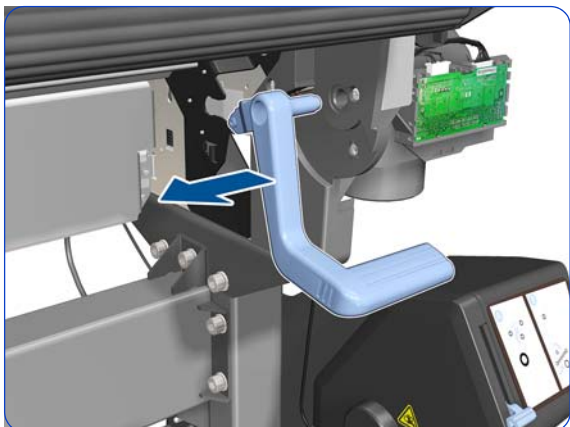


6. Detach the linking piece from the Media Lever.

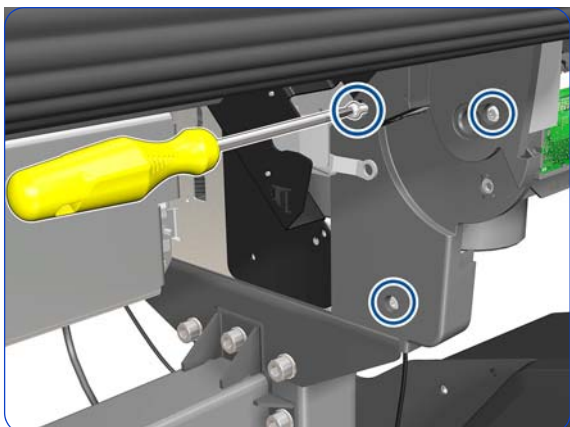




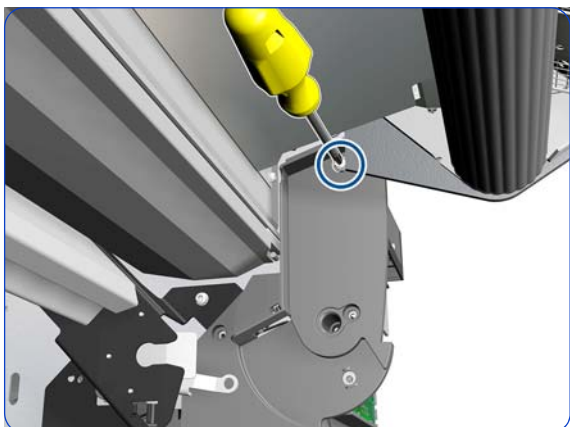
7. Remove the plastic washer.



8. Remove the Media Lever from the printer.

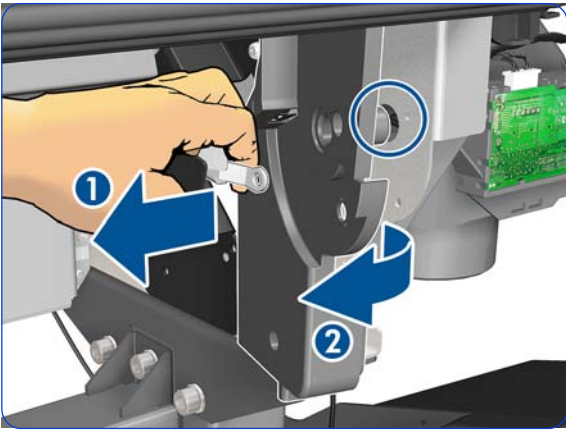


9. Remove three T-20 screws.

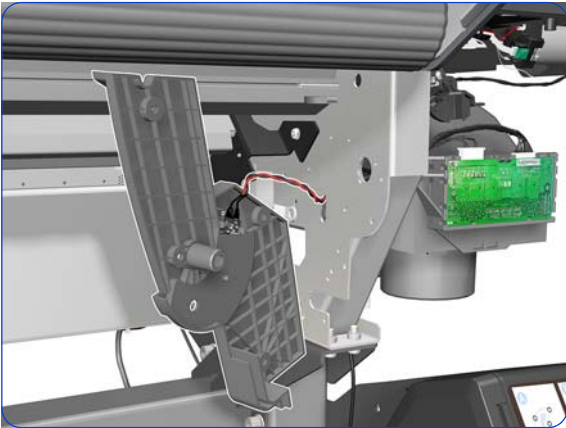


10. Remove a T-20 screw.

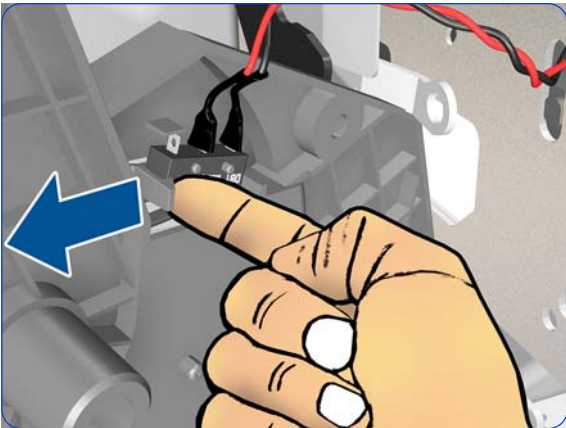




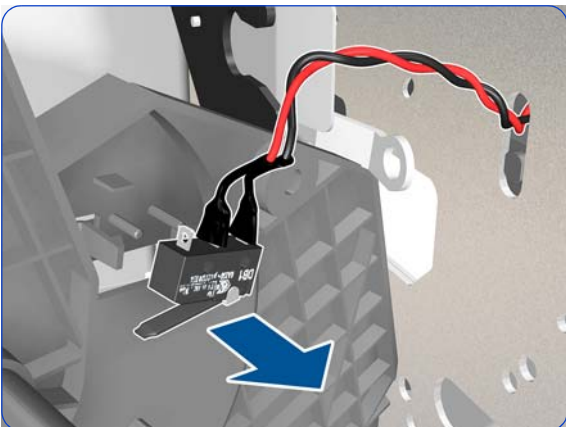
11. Pull the linking piece and rotate the Right Trim to disengage it from the hole in the side plate. Be careful not to scratch the Right Trim with the linking piece.



12. This is the best position in which to remove the sensor from the Right Trim. Be careful not to pull it any further, because you could damage the cable, which is short.

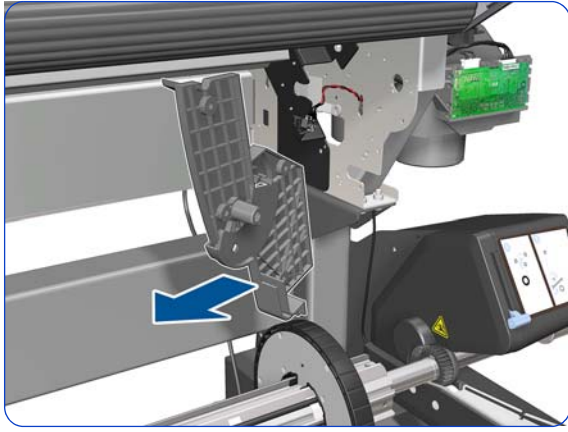


13. Remove the sensor from the Right Trim.



14. Move the sensor out of the way.

To disassemble the sensor, disconnect the sensor from the Mini Interconnect PCA and unrout the cable below the Service Station.

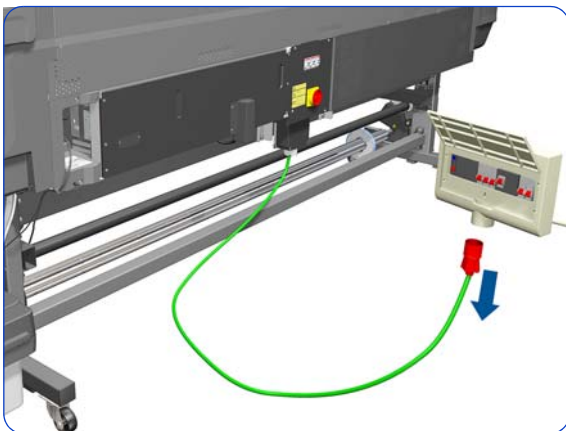
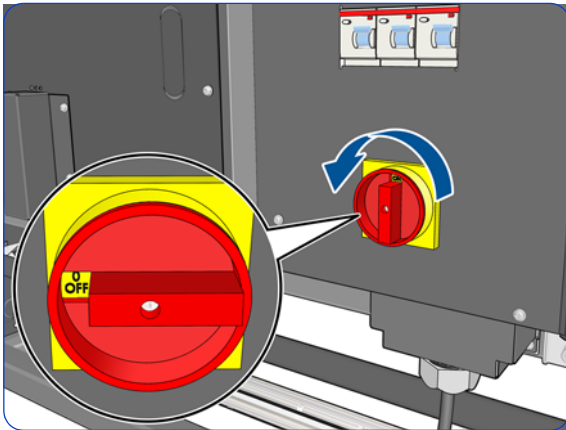


15. Remove the Right Trim from the printer.



# Left Cover

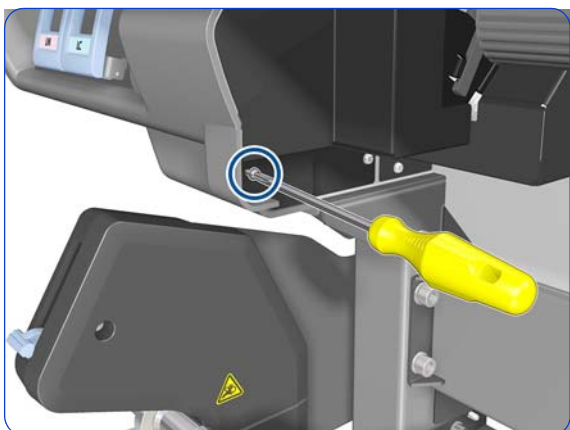
## Removal



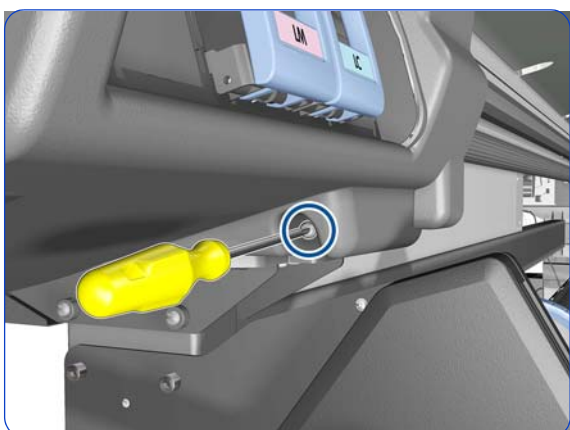
1. Turn off the printer.
2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).
3. Open the Window ⇒ page 271.



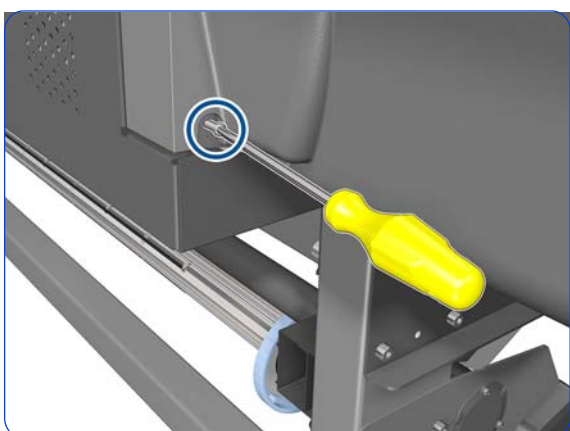
4. Remove one T-15 screw that secures the Left Cover at the top.



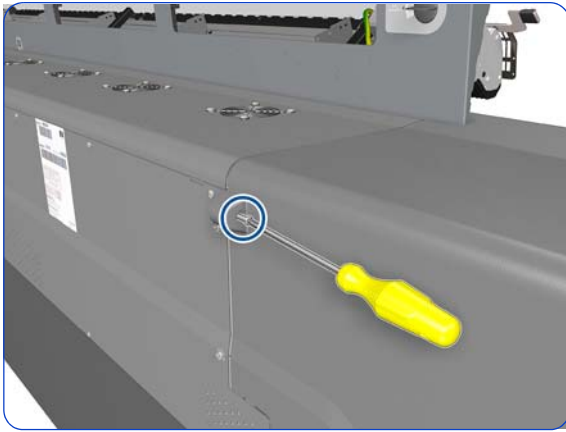
5. Remove one T-15 screw that secures the Left Cover at the bottom.



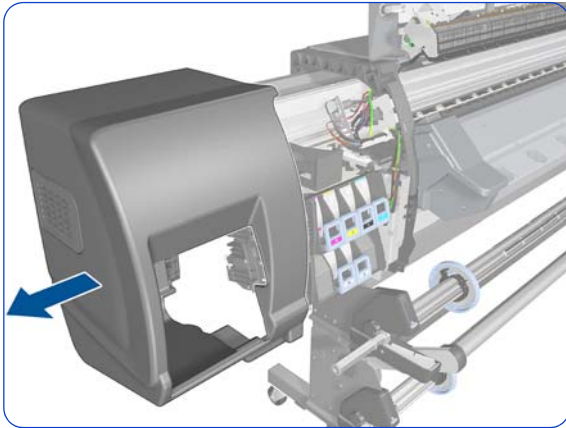
6. Remove one T-20 screw that secures the Left Cover.



7. Remove one T-20 screw that secures the Left Cover.



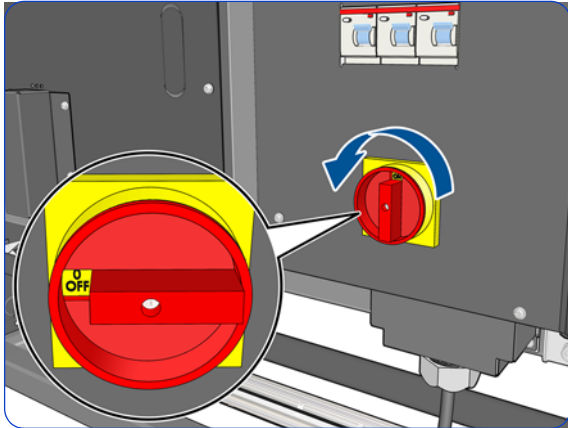
8. Remove one T-15 screw that secures the Left Cover.



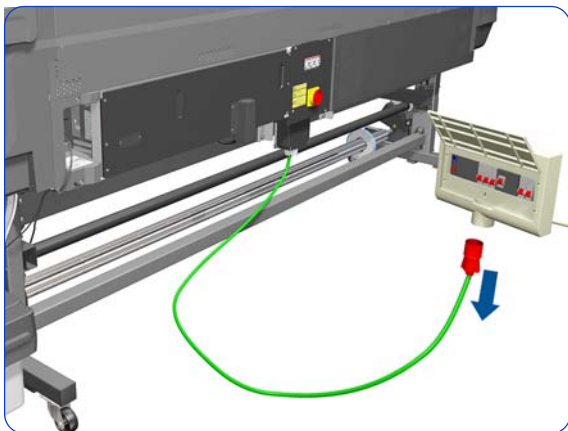
9. Remove the Left Cover from the printer.

# Left Trim

## Removal



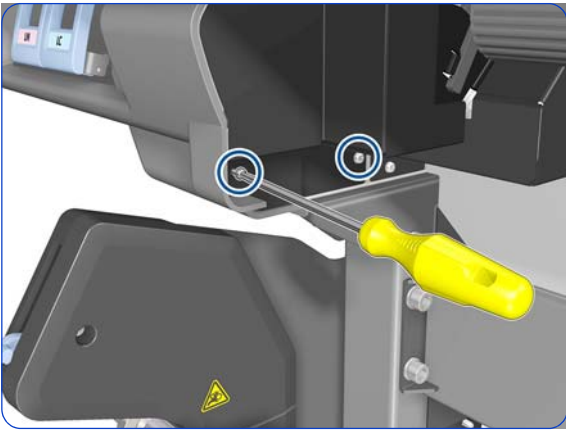
1. Turn off the printer.



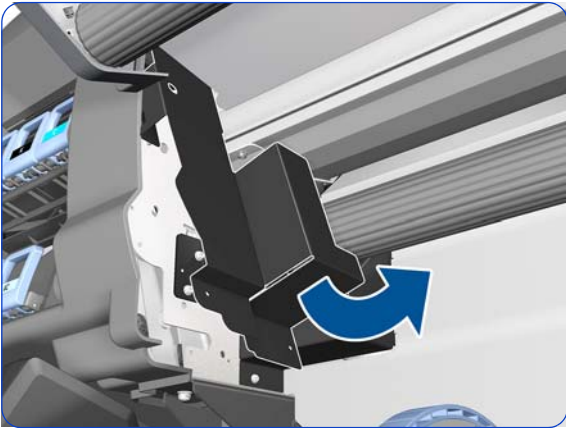
2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).



3. Remove a T-20 screw that secures the Left Trim.

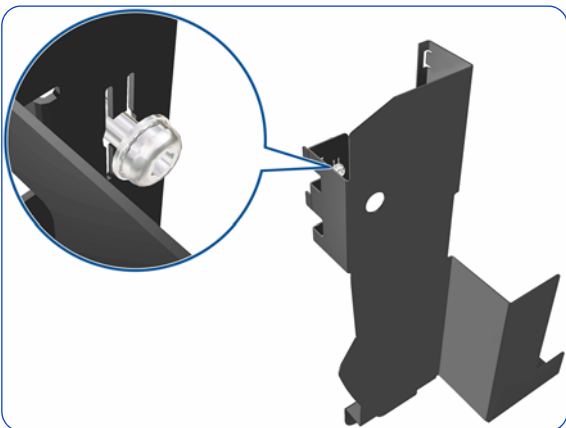


4. Remove a T-15 screw (left) and a T-20 screw (right).

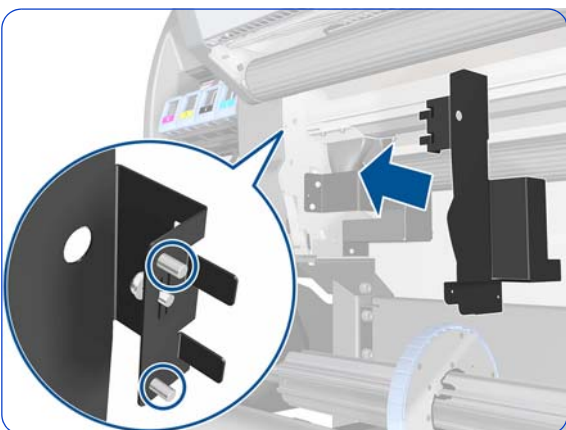


5. Carefully remove the Left Trim from the printer.

## Installation



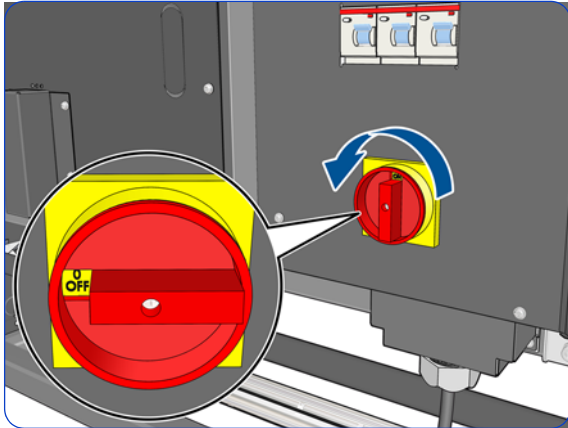
1. When mounting the Left Trim, make sure to leave the T-20 screw attached.



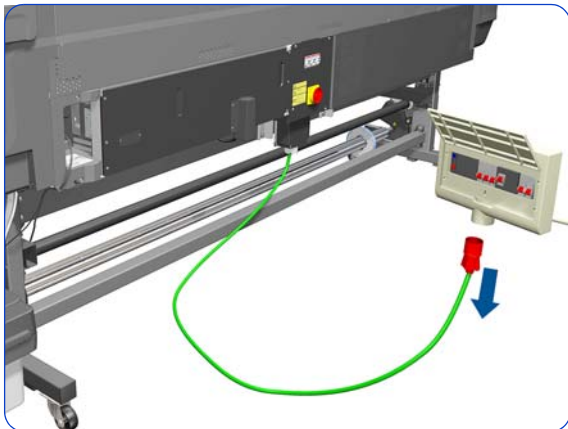
2. The Left Trim has two pins. Insert them into the side plate.

# Left Curing Cover

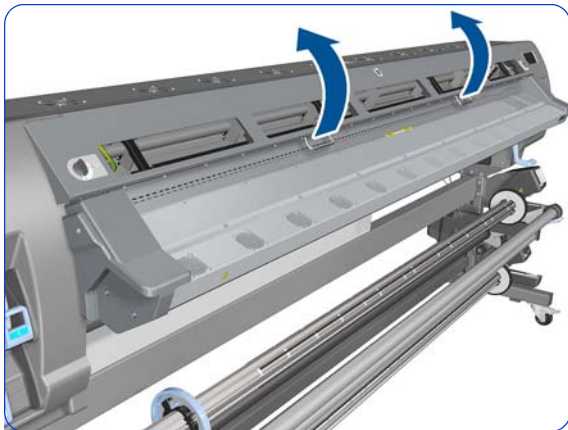
## Removal



1. Turn off the printer.



2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).



3. Open the Window ⇒ page 271.





4. Remove three T-20 screws from the Left Curing Cover.



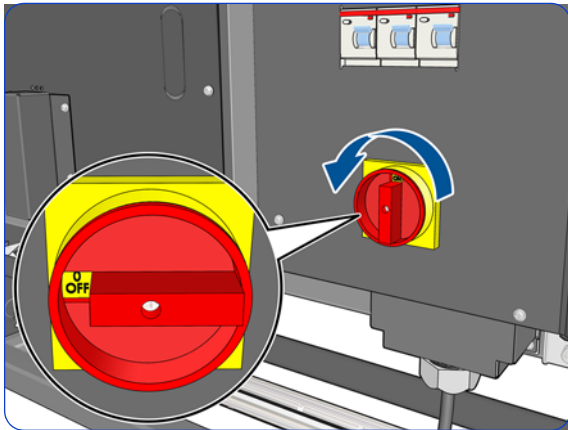
5. Remove one T-10 screw from the Left Curing Cover.



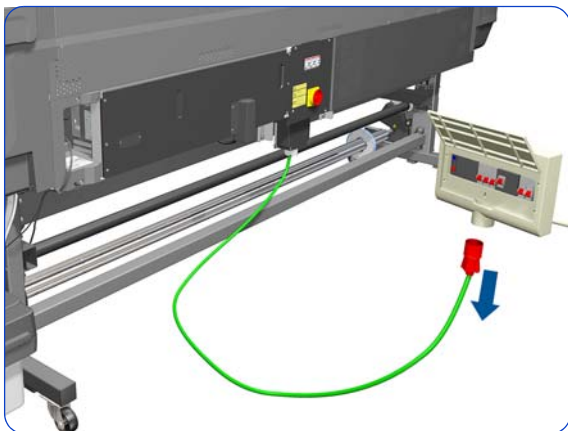
6. Remove Left Curing Cover by sliding it off.

# Right Curing Cover

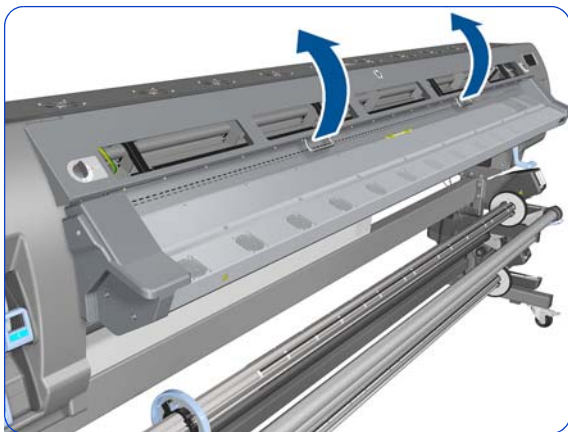
## Removal



1. Turn off the printer.

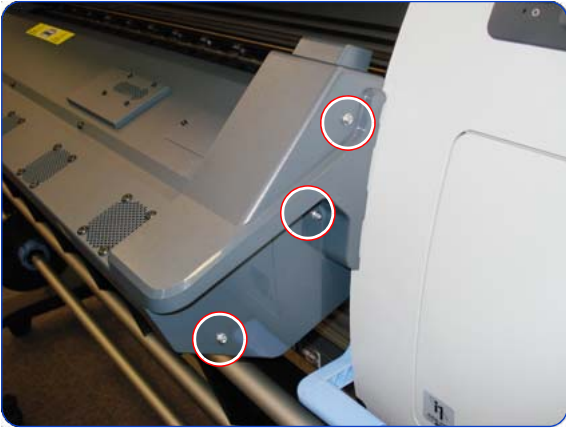


2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).

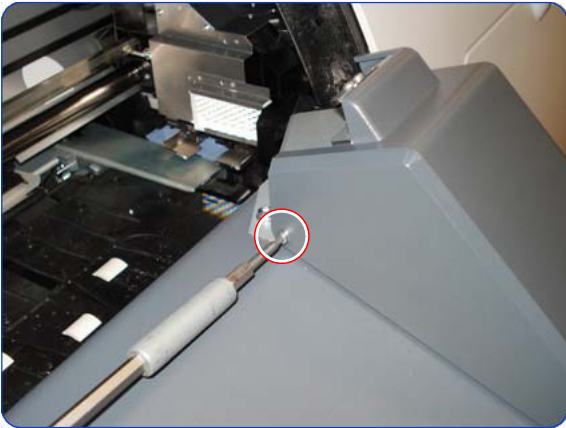


3. Open the Window ⇒ page 271.





4. Remove three T-20 screws from the Right Curing Cover.



5. Remove one T-10 screw from the Right Curing Cover.

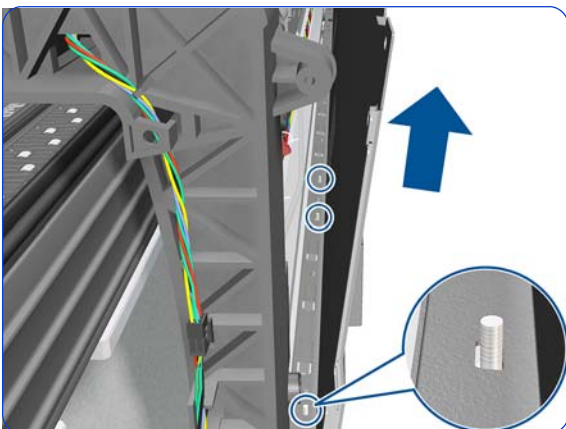
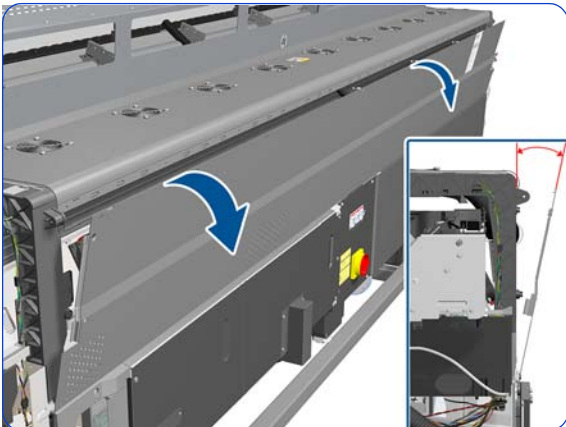
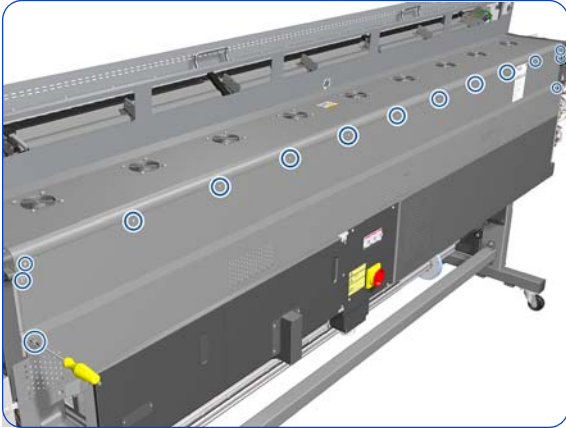


6. Remove Right Curing Cover.

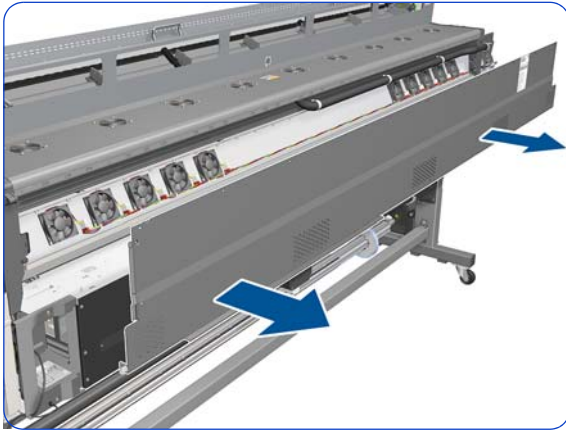
# Back Cover

## Removal

1. Remove the Right Cover ⇒ page 302.
2. Remove the Left Cover ⇒ page 293.
3. Remove the Electronics Enclosure Extension Cover ⇒ page 319.
4. Remove eleven T-20 and four T-15 screws from the Back Cover.

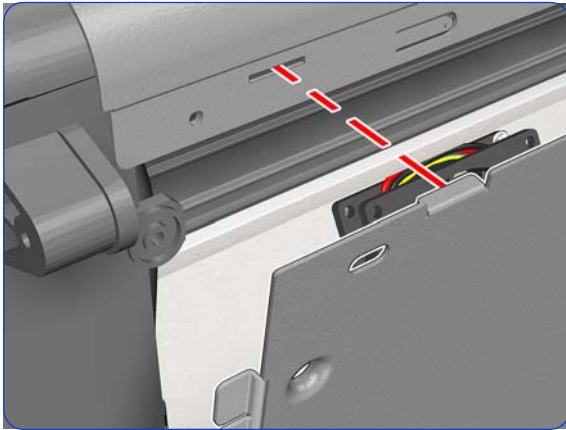


5. Open the Back Cover slightly, approximately 10 degrees.
6. Lift the Back Cover slightly to disengage it from the pins at the top of the Electronics Enclosure.



7. Remove the Back Cover from the printer.

## Installation



1. When refitting the Back Cover, be careful to fit the tabs into the matching holes, and make sure the pins on top of the Electronics Enclosure are in position.

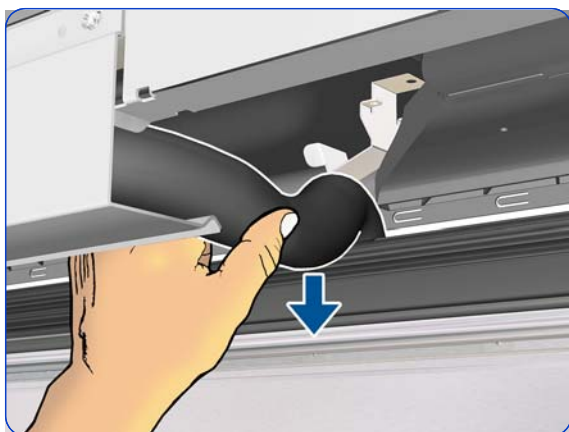
## Top Cover

### Removal (requires two people)

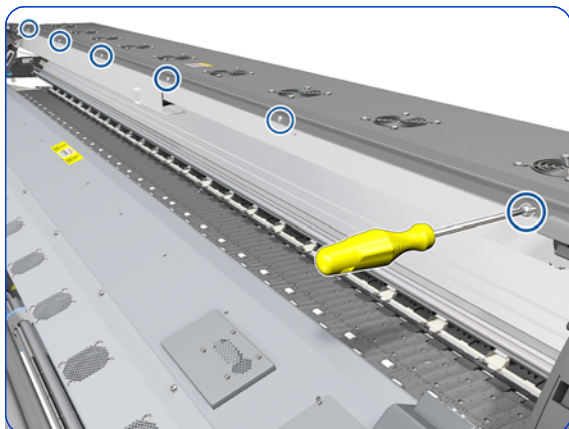
1. Remove the Window ⇒ page 273.
2. Remove the Right Cover ⇒ page 286.
3. Remove the Back Cover ⇒ page 302.
4. Bend the metal holder to disengage the Ink Supply Tubes.

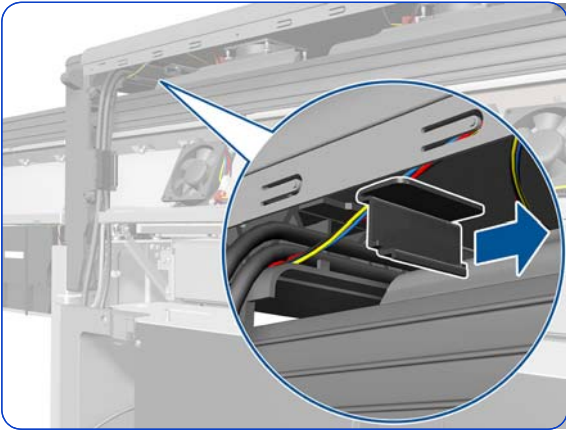


5. Disengage the Ink Supply Tubes from the holder.

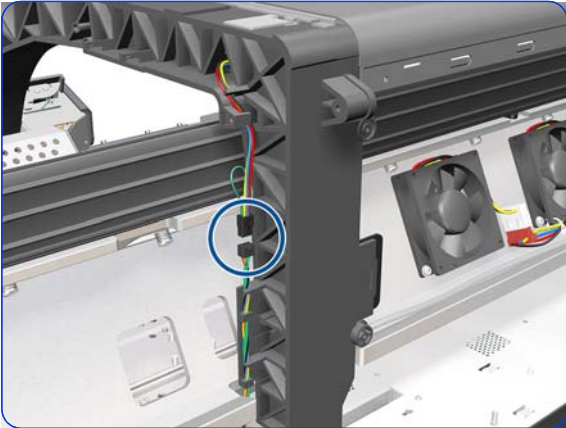


6. Remove six T-20 screws.

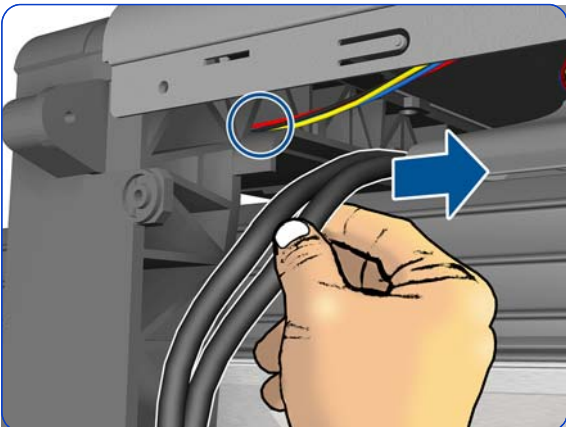




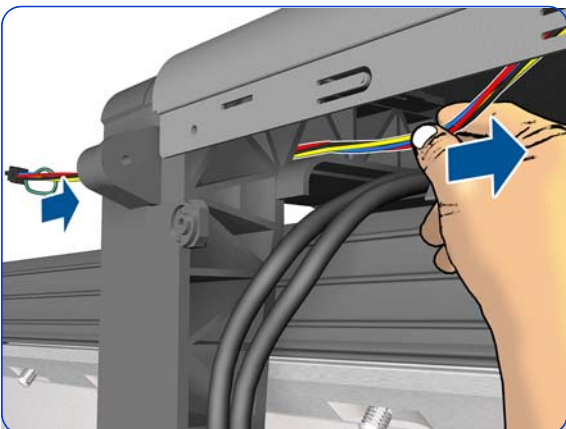
7. Release the arc clip.



8. Disconnect the Top Fans cable and disengage it from the Right Arc.

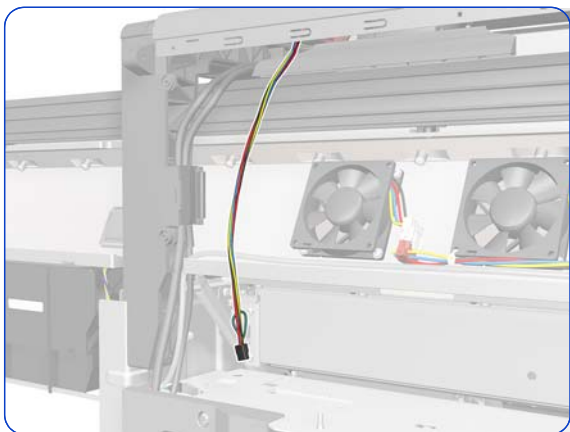


9. Move the Trailing Cables out of the way so that they don't obstruct the area indicated with a circle.

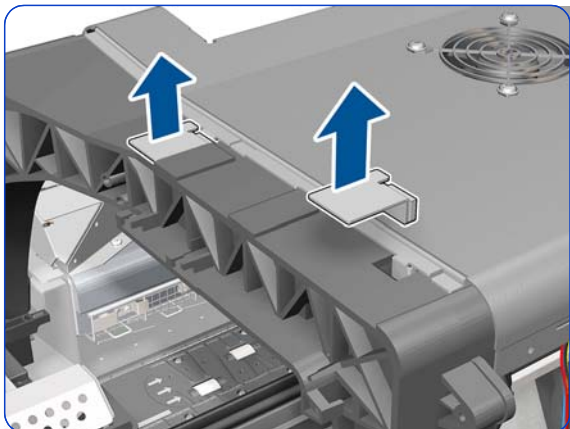


10. Pass the cable through the Right Arc. Be careful not to damage the connector.

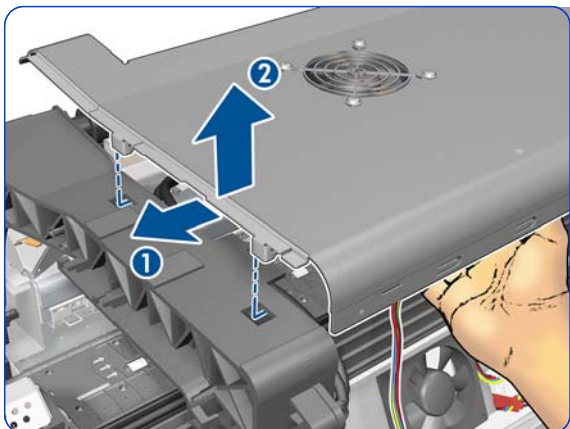




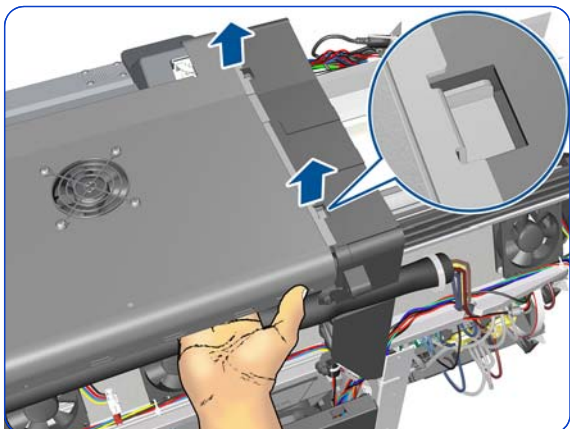
11. Leave the cable hanging as shown.



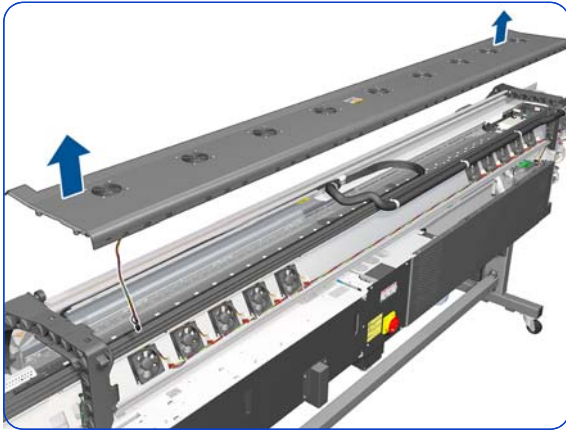
12. Remove the two locking plates.



13. Move the Top Cover slightly sideways and then upwards to disengage it from the printer.



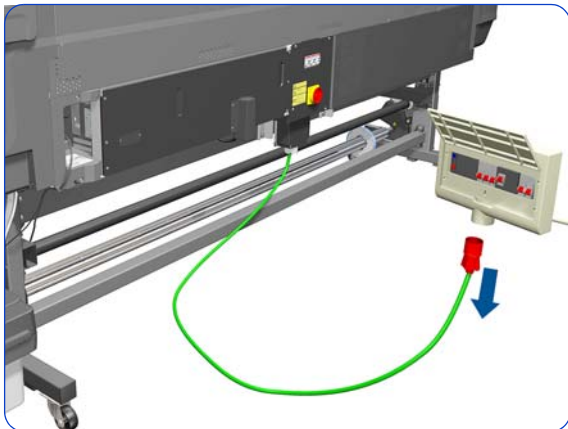
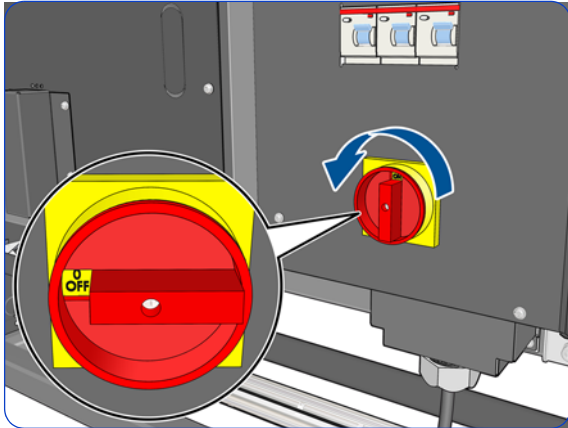
14. Lift the other end of the Top Cover, and make sure that both locking pins are free (as shown in the detail).



15. Remove the Top Cover.

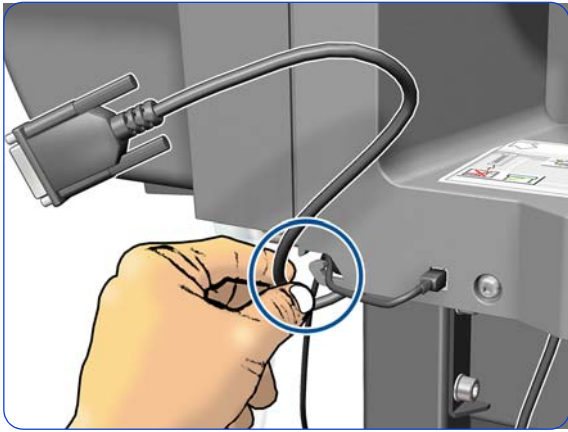
# Right Connector Cover

## Removal

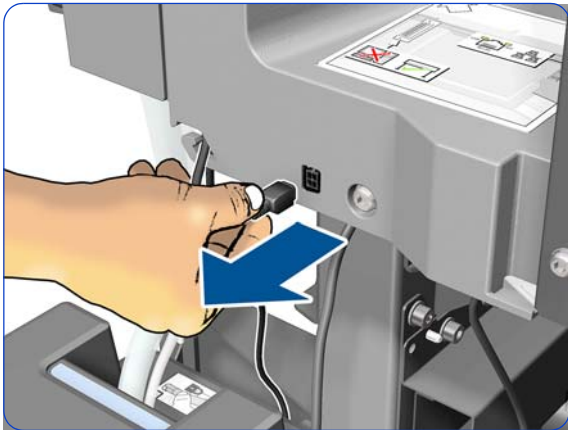


1. Turn off the printer.
2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).
3. Disconnect the Take-Up Reel Connector.

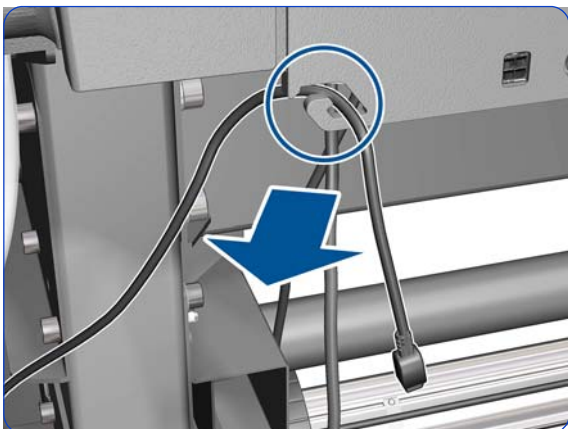




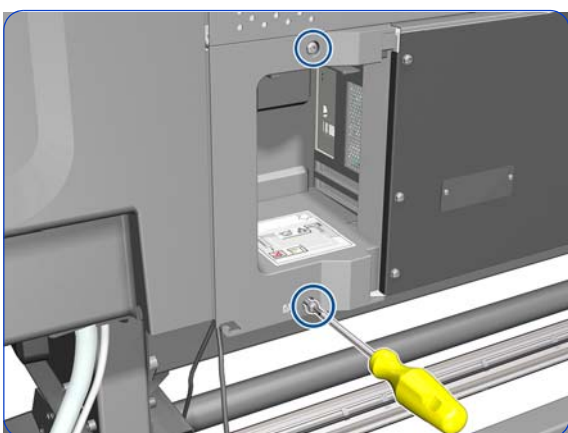
4. Unroute the Take-Up Reel cable from the Right Connector Cover.



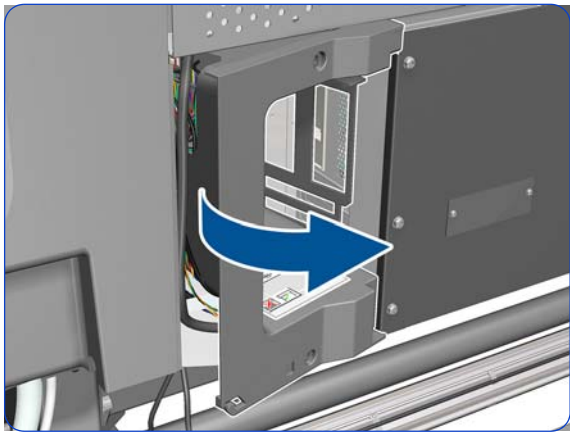
5. Disconnect the Waste Ink System cable.



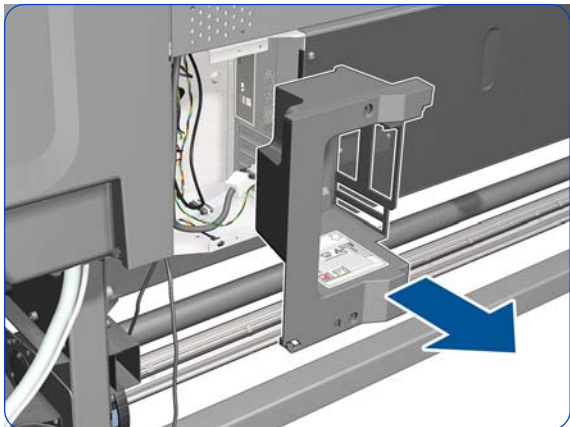
6. Disengage the Waste Ink System cable from the clip.



7. Remove two T-20 screws from the Right Connector Cover.



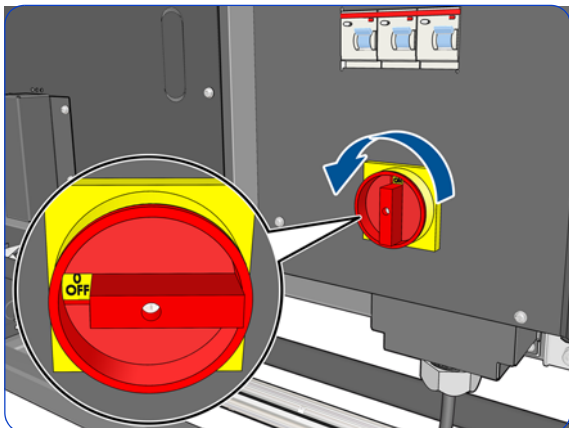
8. Rotate the Right Connector Cover a few degrees counter-clockwise so it can be removed completely.



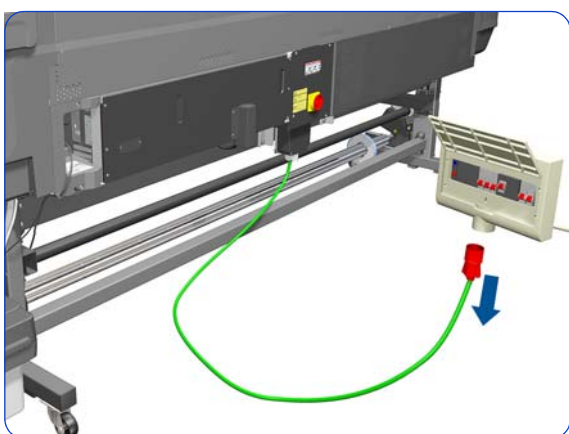
9. Remove the Right Connector Cover from the printer.

# Power Box Cover

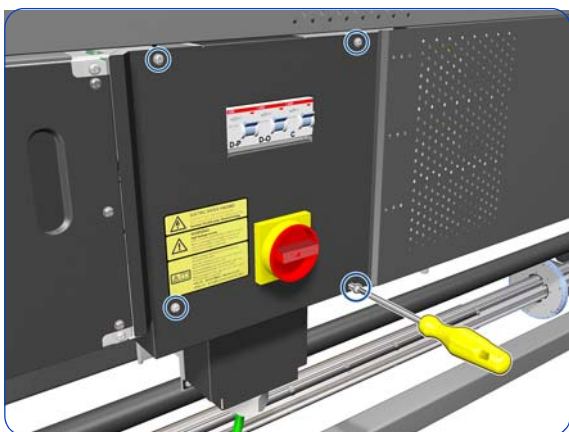
## Removal



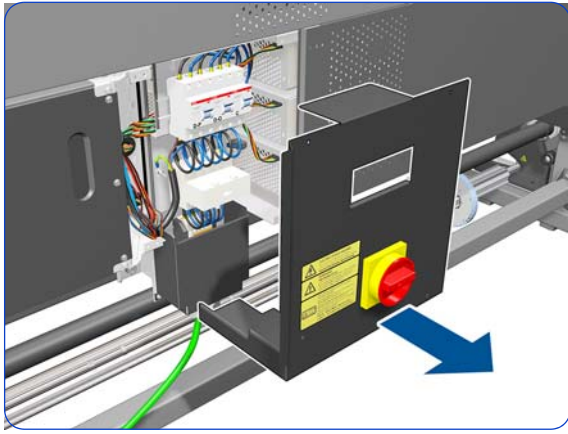
1. Turn off the printer.



2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).



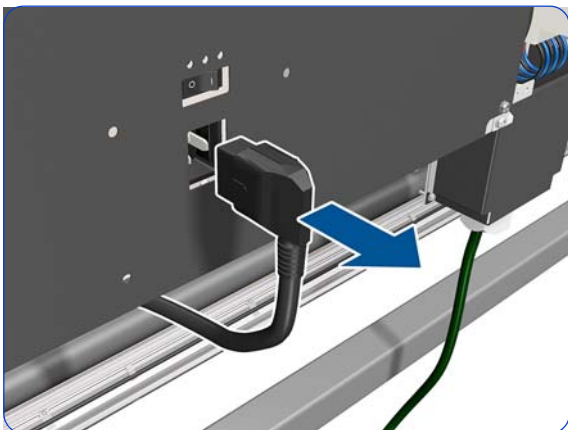
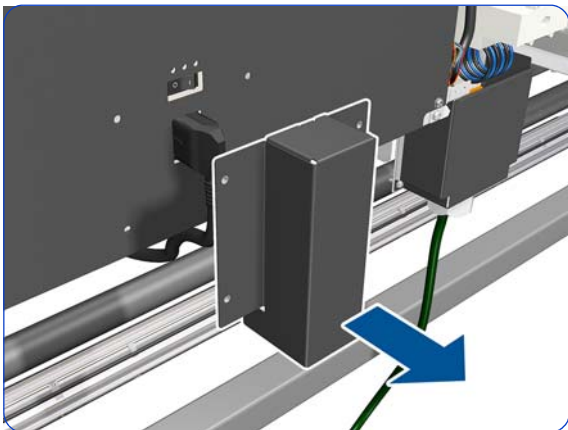
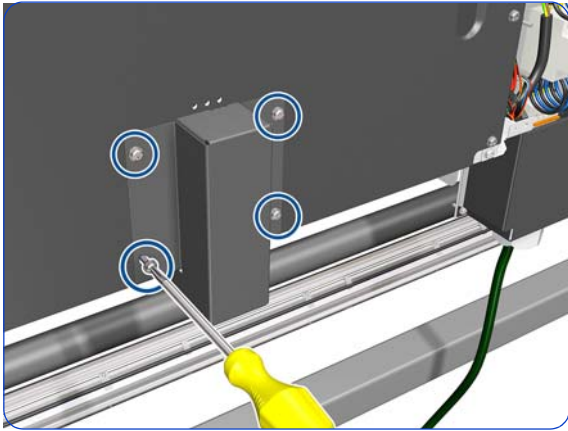
3. Remove four T-20 screws.



4. Remove the Power Box Cover.

# Extra PSU 24 V

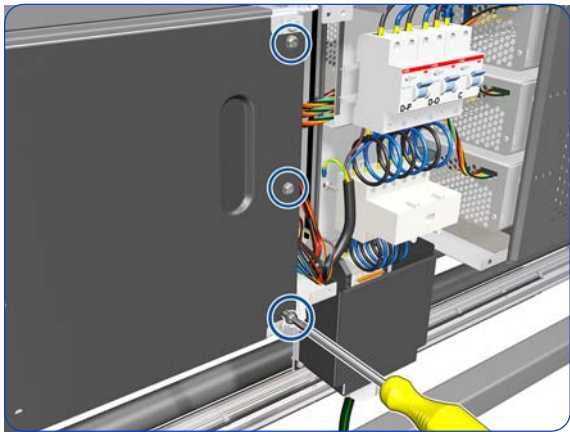
## Removal



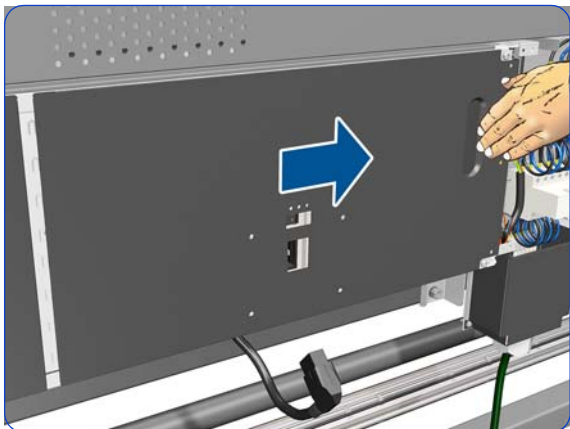
1. Remove the Power Box Cover⇒ page 311.
2. Remove four T-20 screws.

3. Remove the power plug cover.

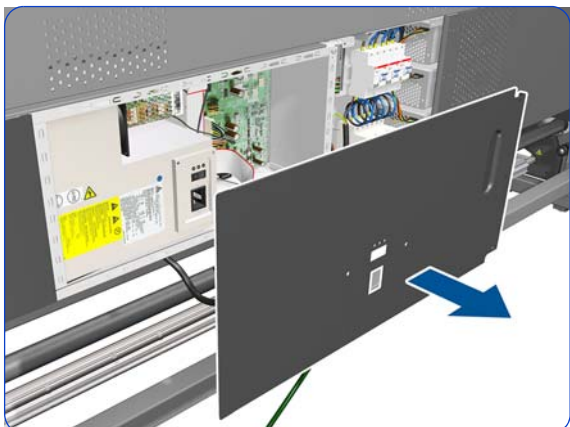
4. Unplug the power plug.



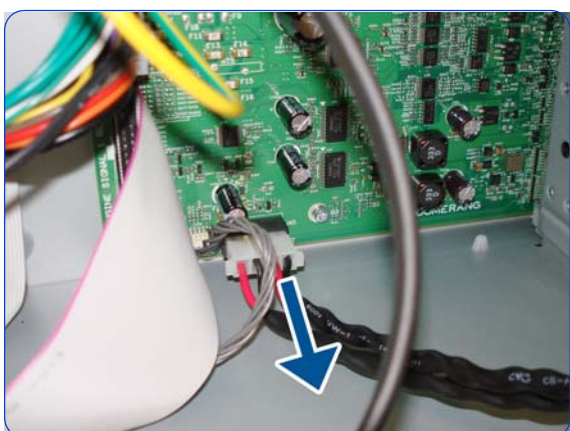
5. Remove three T-20 screws.



6. Slide the cover to the right.

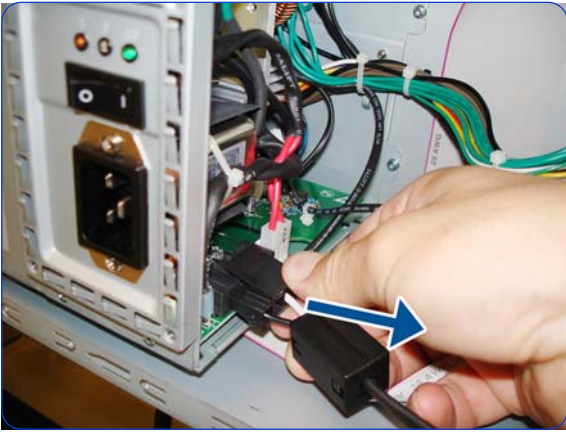


7. Remove the cover.

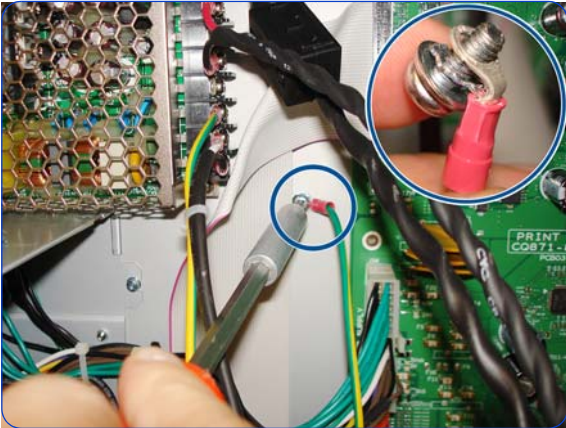


8. Disconnect the cable.

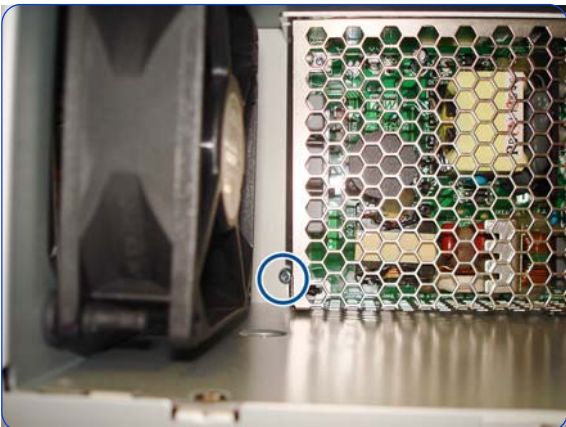




9. Disconnect the cable.



10. Remove the screw; be careful not to lose it.

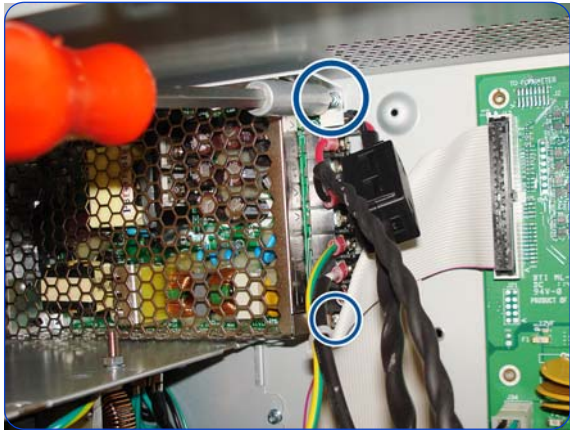


11. Remove a T-10 screw.

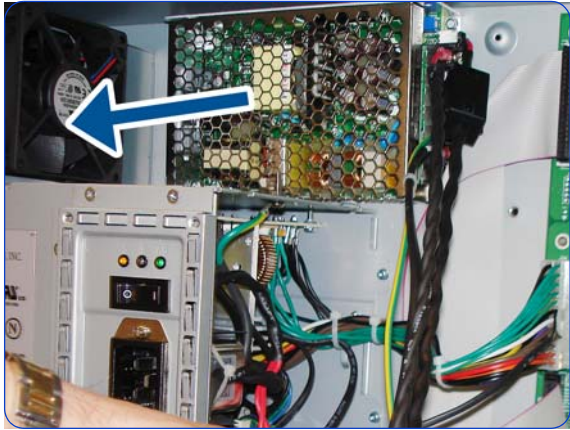


12. Remove the matching washer and nut from the other side of the printer.





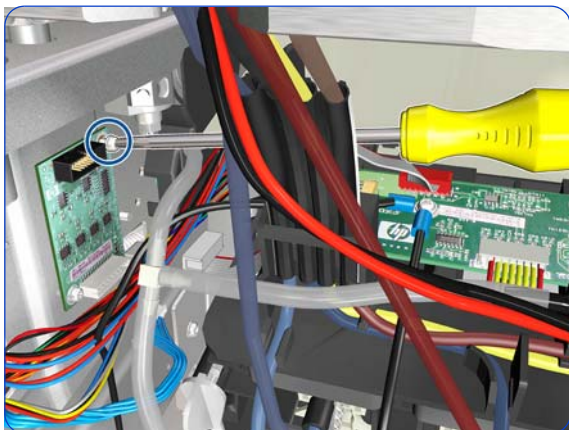
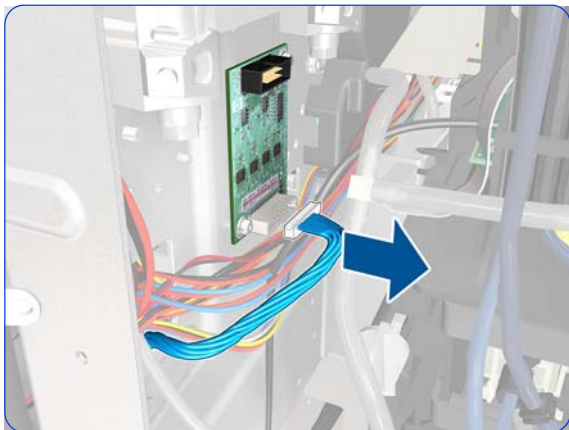
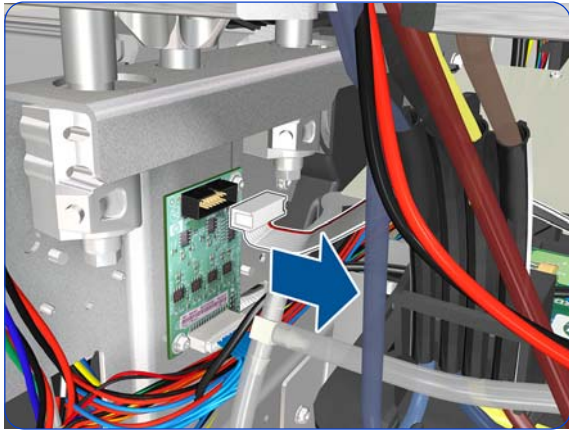
13. Remove two T-10 screws.



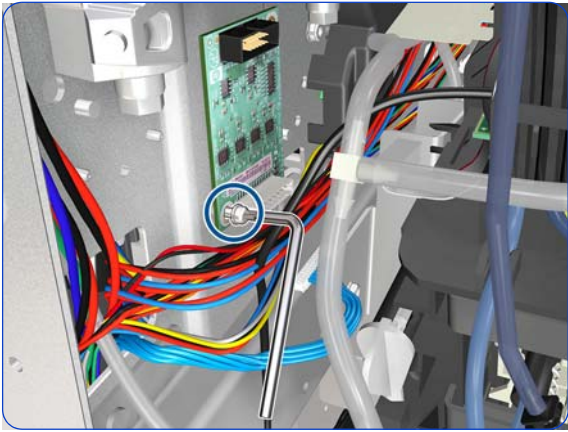
14. Remove the Extra PSU 24 V.

# Pre-Driver PCA

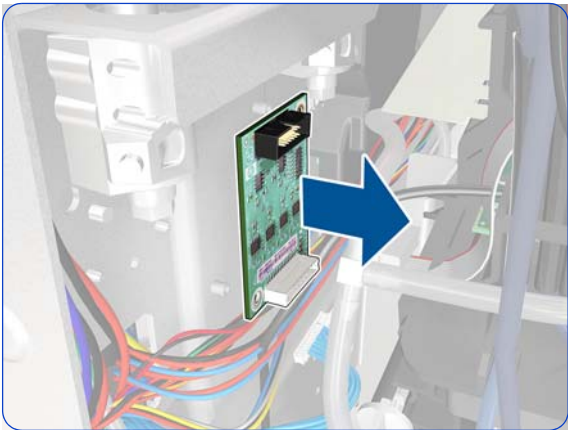
## Removal



1. Remove the Left Cover⇒ page 293.
2. Remove the upper cable.
3. Remove the lower cable.
4. Remove a T-10 screw.



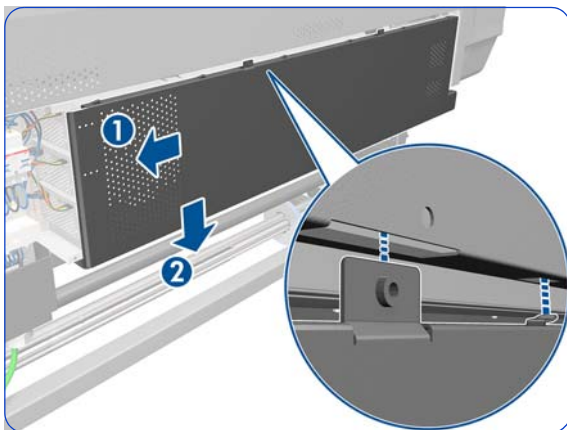
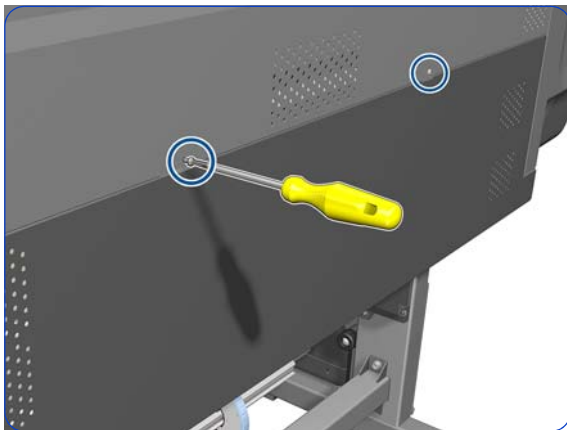
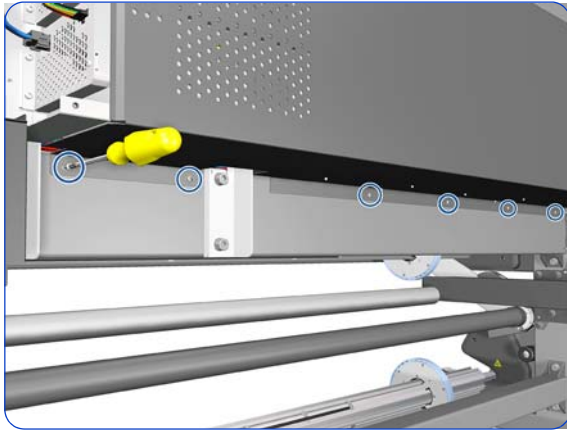
5. Remove a T-10 screw with an L-shaped Torx screwdriver.



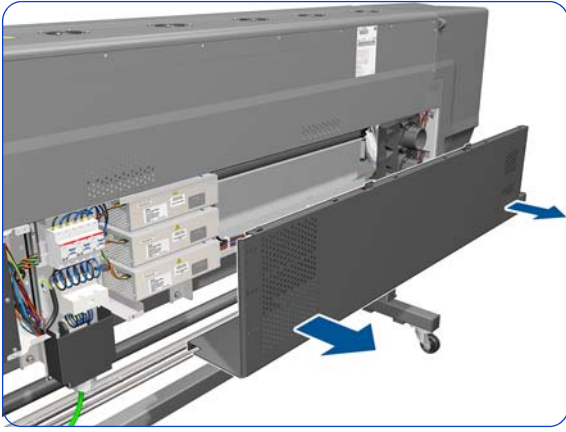
6. Remove the Pre-Driver PCA.

# Electronics Enclosure Extension Cover

## Removal



1. Remove the Power Box Cover ⇒ page 311.
2. Remove six T-20 screws.
3. Remove two T-20 screws.
4. Slide the Electronics Enclosure Extension Cover to the left to release the five hooks, then lower it.

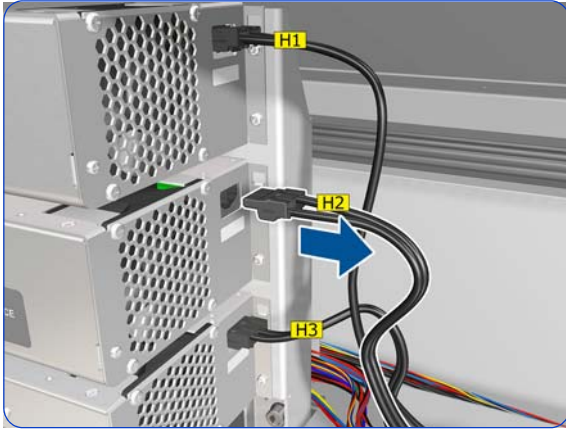


5. Remove the Electronics Enclosure Extension Cover.

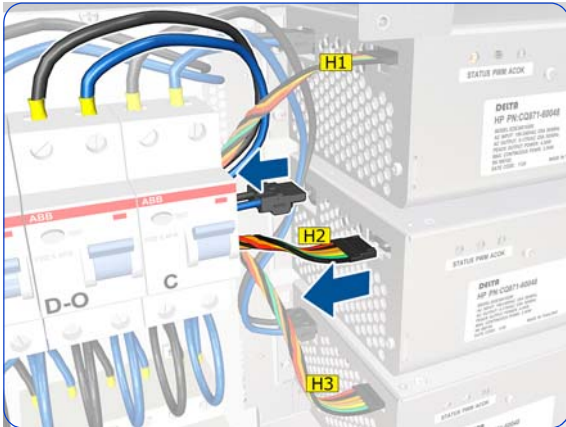
# Heater Controller Box

## Removal

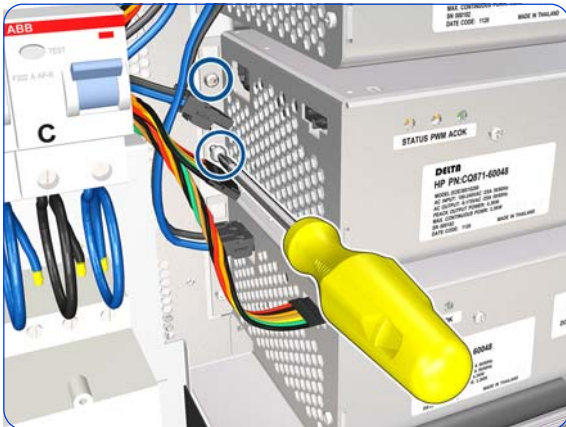
1. Remove the Power Box Cover ⇒ page 311.
2. Remove the Electronics Enclosure Extension ⇒ page 319.
3. Disconnect the AC Output cable H2.



4. Disconnect two H2 cables.



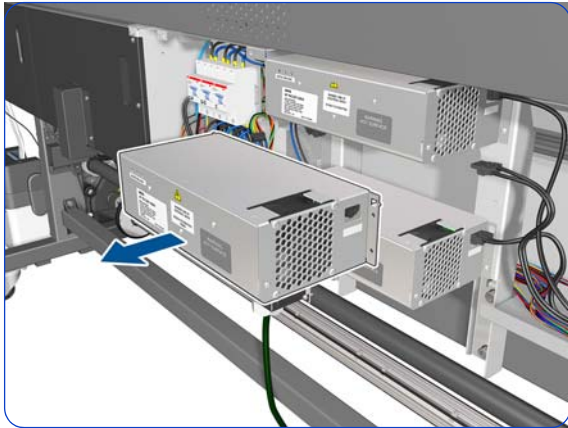
5. Remove two T-20 screws.







6. Remove two T-20 screws.



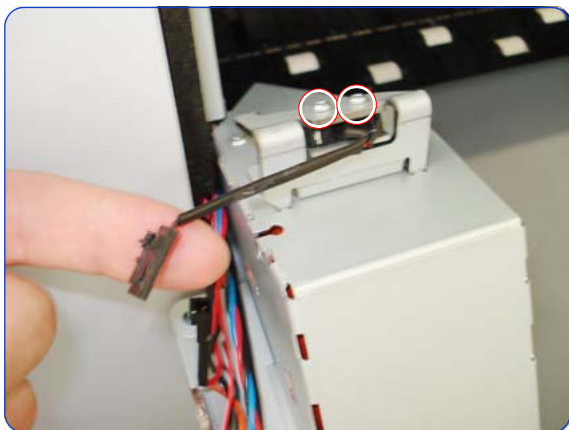
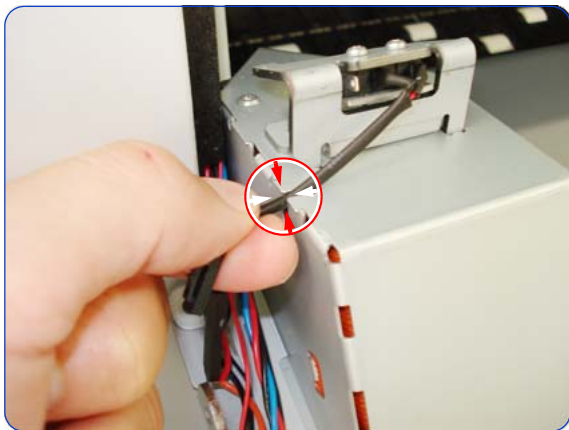
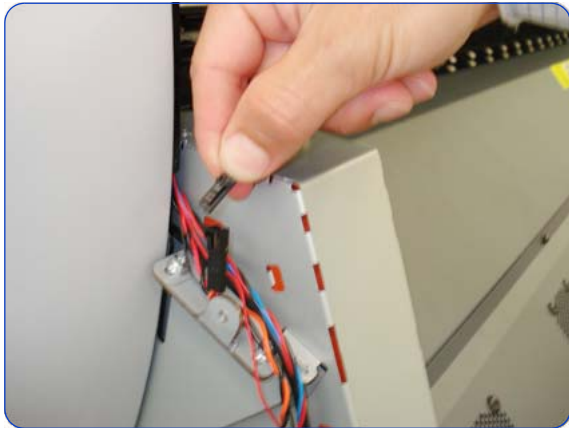
7. Remove the H2 Heater Controller Box.

The H1 and H3 Heater Controller Boxes can be removed by following the equivalent procedure in each case.



# Window Lock Sensor Left

## Removal



1. Remove the Left Curing Cover ⇒ page 298.
2. Disconnect the Left Window Lock Sensor.
3. Remove the cable of the Left Window Lock Sensor from a holding point on the Left Curing Cover.
4. Remove two T-8 screws that secure the Left Curing Sensor.



5. Remove a metal plate from the Left Curing Sensor.



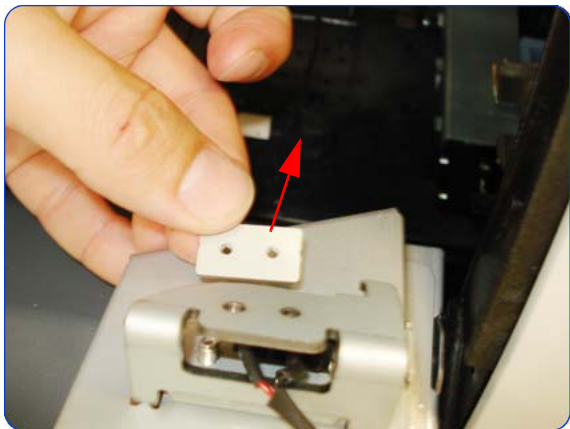
6. Remove the Left Window Lock Sensor.

# Window Lock Sensor Right

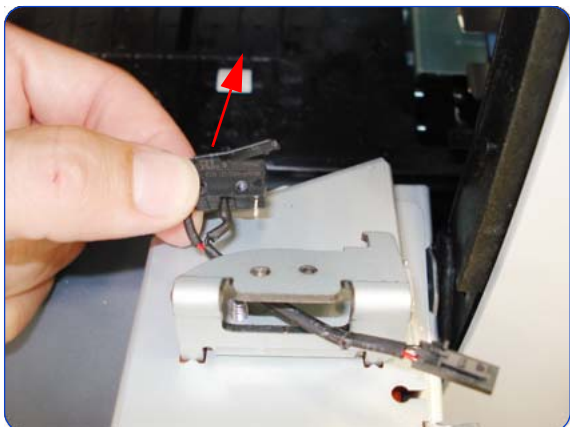
## Removal



1. Remove the Right Curing Cover⇒ page 300.
2. Disconnect the Right Curing Sensor.
3. Remove the cable of the Right Window Lock Sensor from a holding point on the Right Curing Cover.
4. Remove two T-8 screws that secure the Right Curing Sensor.



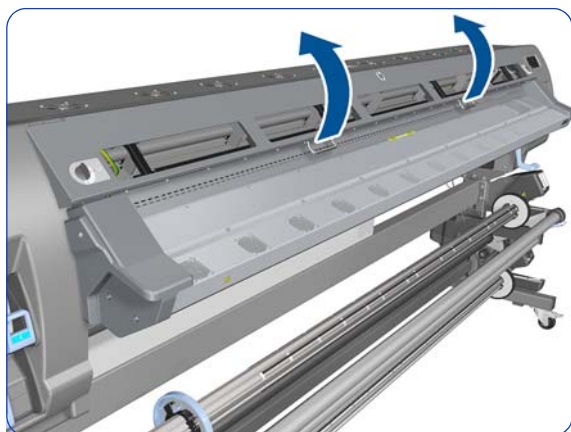
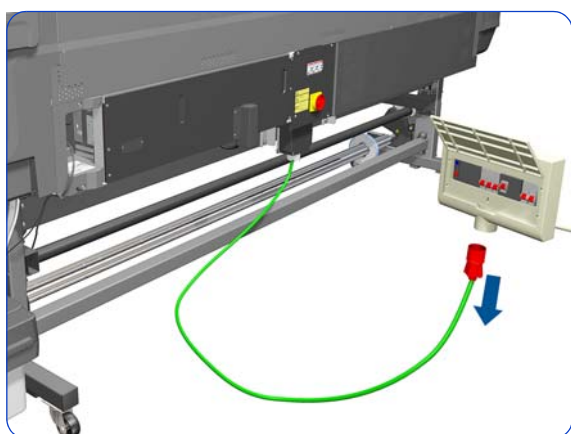
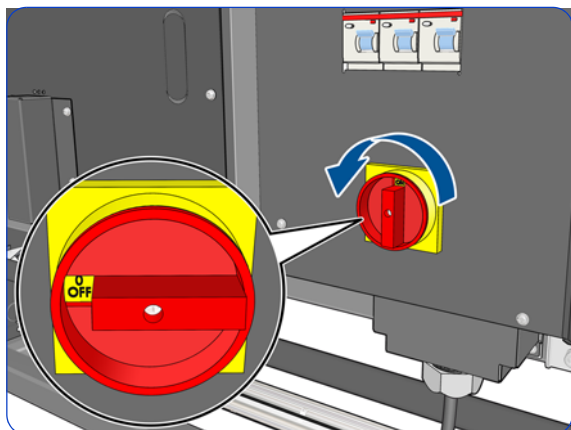
5. Remove a metal plate from the Right Curing Sensor.



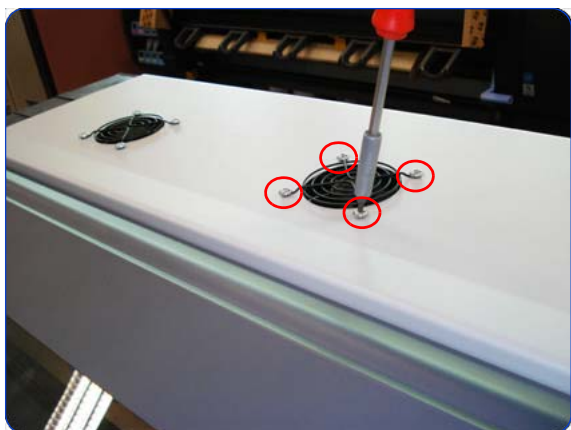
6. Remove the Right Window Lock Sensor.

# Top Cover Fans

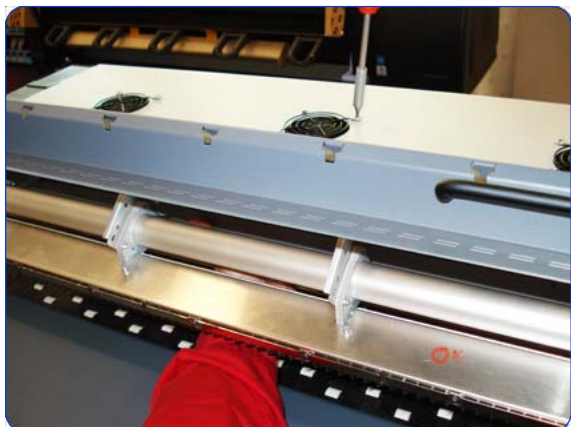
## Removal



1. Turn off the printer.
2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).
3. Open the Window ⇒ page 271.



4. Remove four T-20 screws that secure the Top Cover Fan to the Top Cover,



5. When the last T-20 screw is being removed, support the Fan Assembly underneath with your hand to catch it.

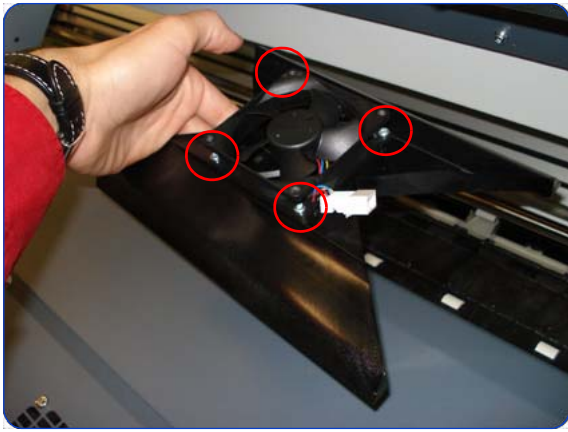


6. Slide the Fan and Diffuser assembly towards you.



7. Disconnect the cable from Fan and Diffuser Assembly.



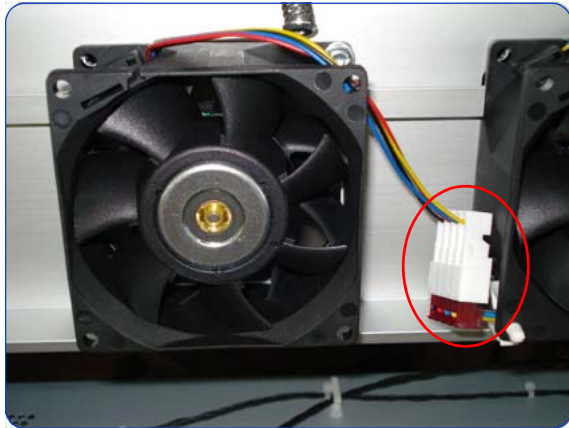


8. Remove the four T-15 screws that secure the Fan to the Diffuser Assembly.

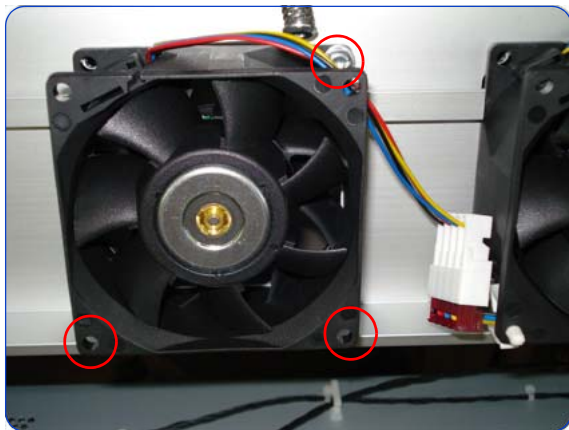


# Rear Fans

## Removal



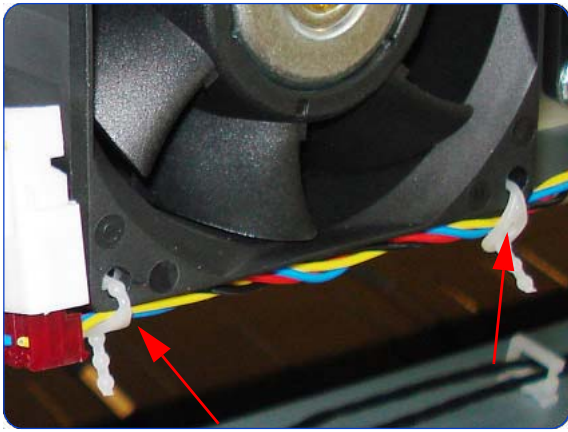
1. Remove the Back Cover ⇒ page 302.
2. Disconnect Rear Fan Cable.



3. Remove three T-20 screws that secure the Rear Fan.



4. Remove the Rear Fan.

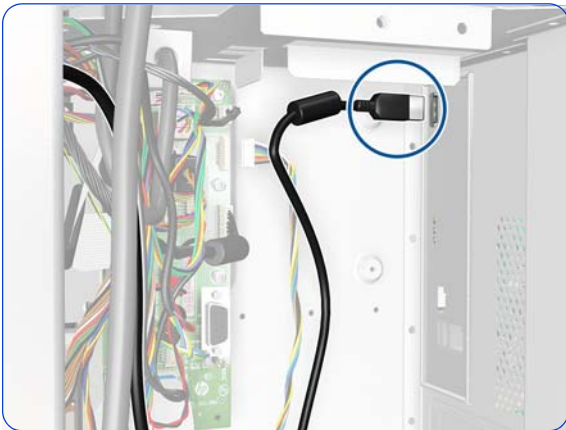


5. To remove the Rear Fan Array Cable, remove two plastic clamps to release the cable from the array of Fans.

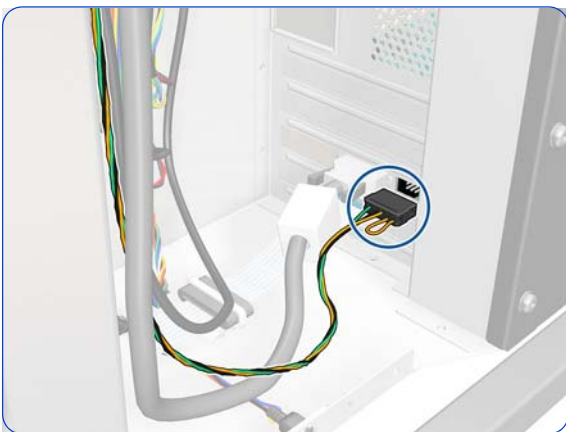
# Front Panel

## Removal

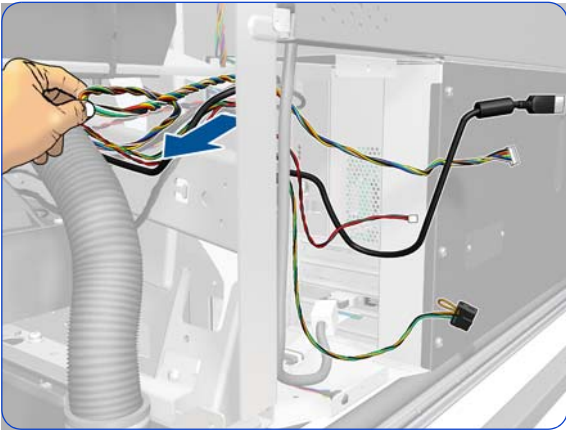
1. Remove the Right Cover ⇒ page 286.
2. Remove the Right Connector Cover ⇒ page 308.
3. Disconnect the Front Panel and Buzzer cables.



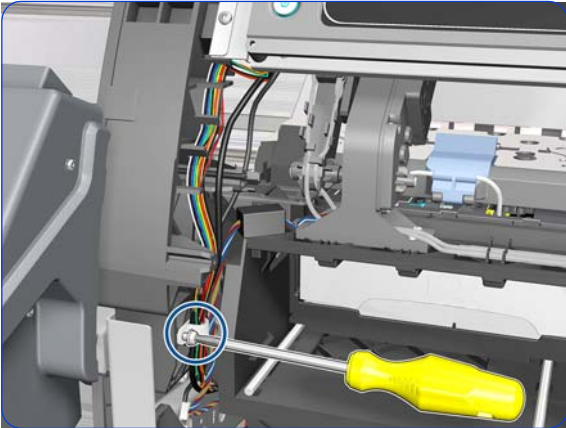
4. Disconnect the USB F52 cable.



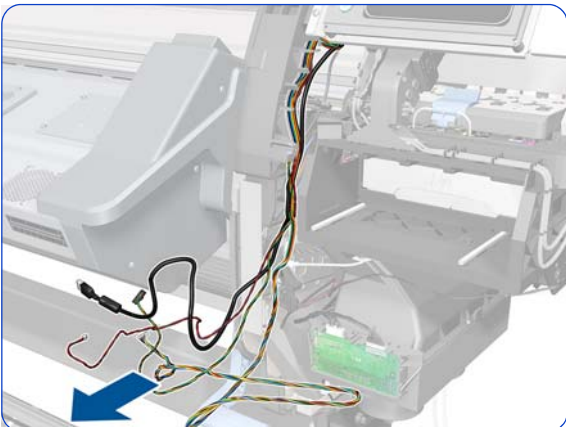
5. Disconnect the cable as shown.



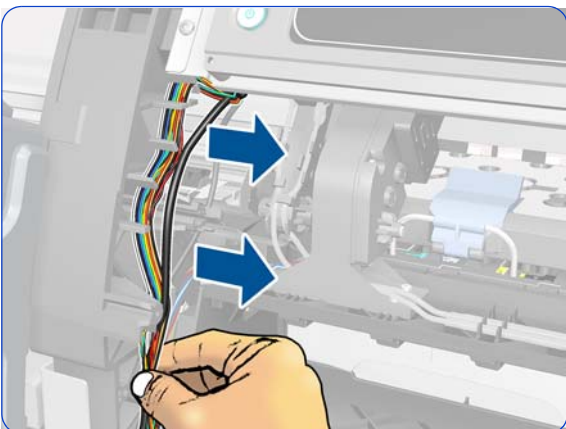
6. Pass the four disconnected cables through the upper hole of the side plate.



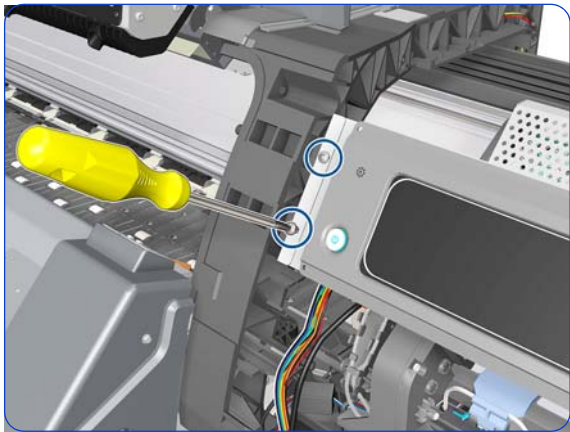
7. Remove a T-20 screw and then remove the clamp.



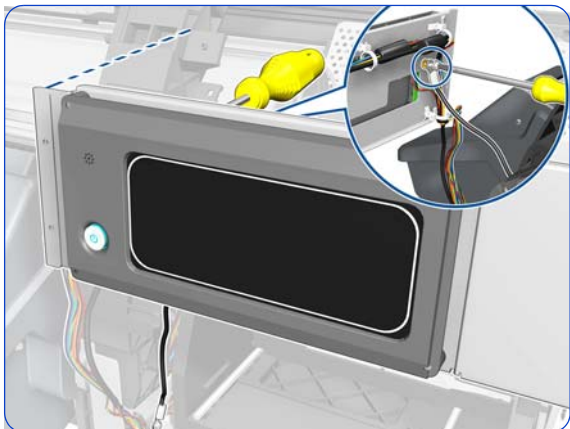
8. Move the ends of the four cables out of the front of the printer.



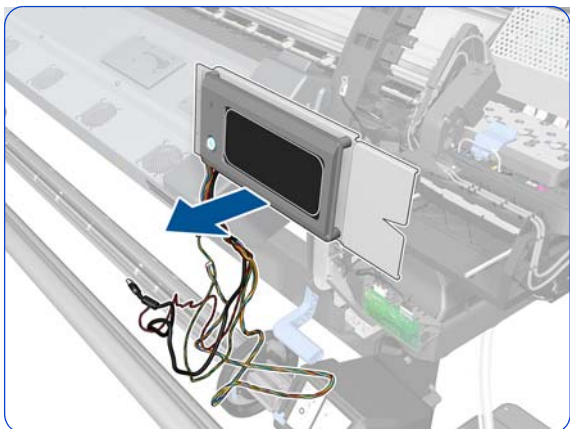
9. Release the cables from the Right Arc.



10. Remove two T-15 screws.



11. Remove a T-20 screw and a washer from the rear of the Front Panel. This screw attaches the grounding cable that connects the Front Panel with the side plate.

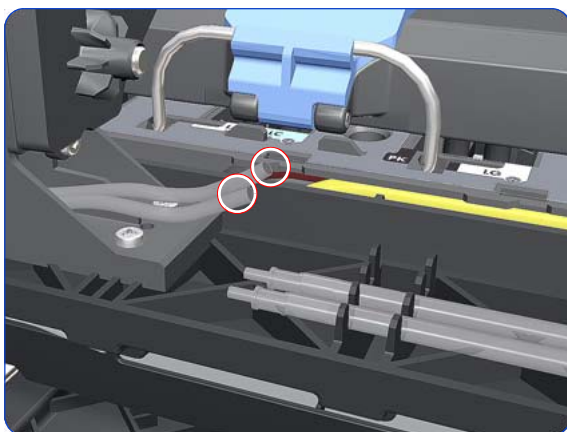
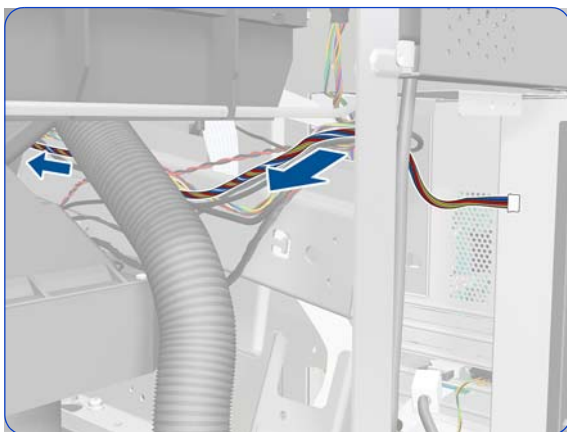
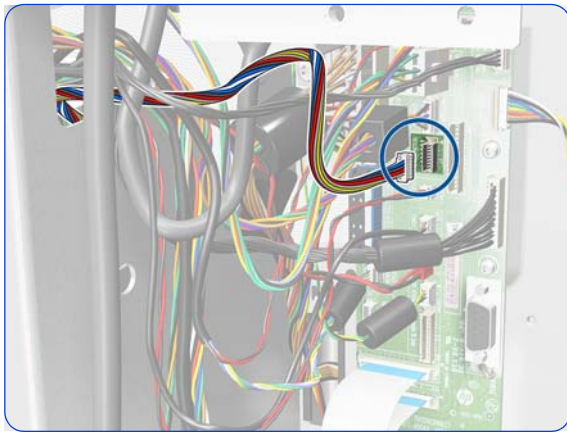


12. Remove the Front Panel and the cables connected to it.

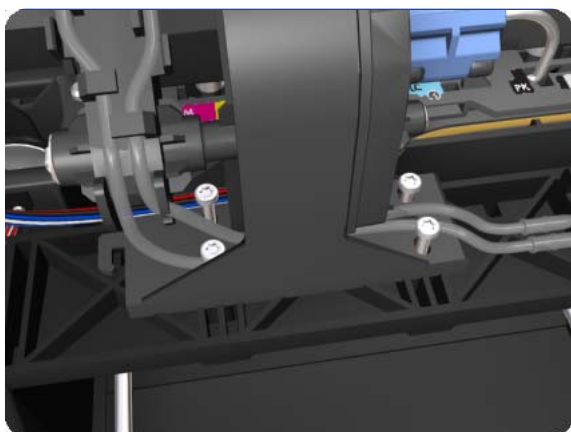


# Primer Assembly

## Removal



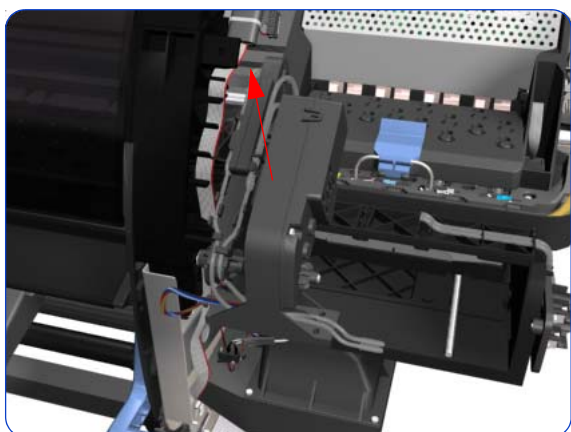
1. Remove the Right Cover ⇒ page 286.
2. Remove the Right Connector Cover ⇒ page 308.
3. Remove the Front Panel ⇒ page 332.
4. Disconnect the Primer Assembly cable from the Interconnect PCA.
5. Unroute the Primer Assembly cable from the cable clamp.
6. Disconnect the two Primer Assembly tubes.



7. Remove four T-10 screws that secure the Primer Assembly to the Service Station.



**NOTE:** Use a short screw driver, less than 10 cm in length.

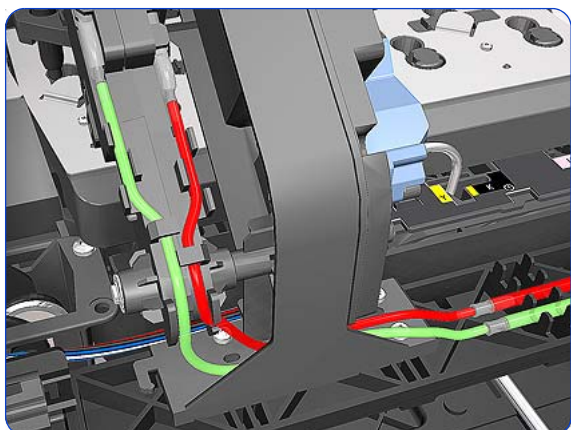


8. Remove the Primer Assembly from the Service Station.



**NOTE:** When installing the Primer Assembly, use the identification marks on the Primer Assembly Tubes to ensure they are correctly connected.

## Installation of the Primer Assembly

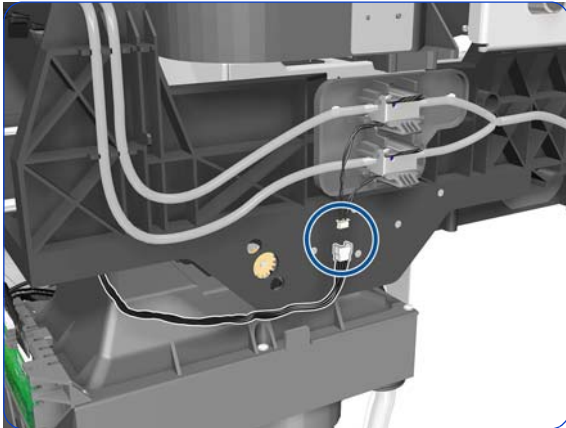


1. When installing the new Primer Assembly, it is important to note that the internal tube (red) is shorter than the external tube (green).
2. Reset the Primer Cycles ⇒ page 188.
3. Perform the Primer Calibration ⇒ page 197.

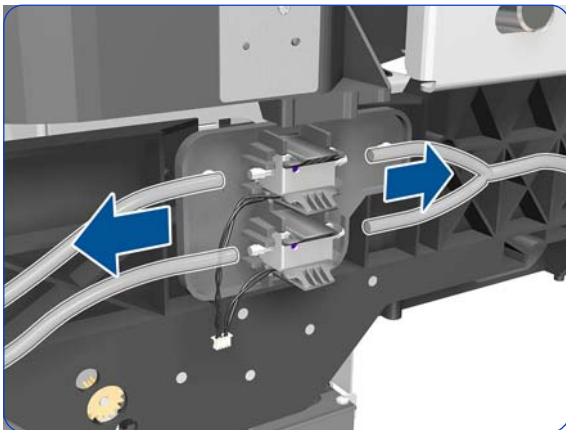


# Primer Valves

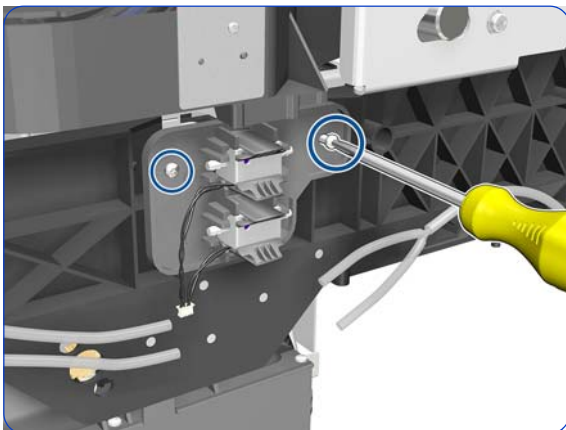
## Removal



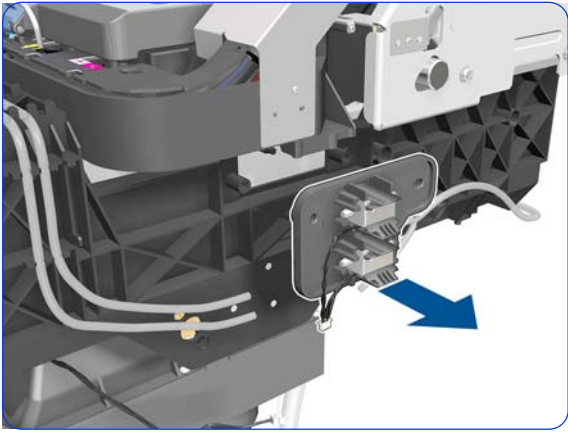
1. Remove the Right Cover ⇒ page 286.
2. Disconnect the Primer Valve cables.



3. Disconnect the Primer Valve tubes.



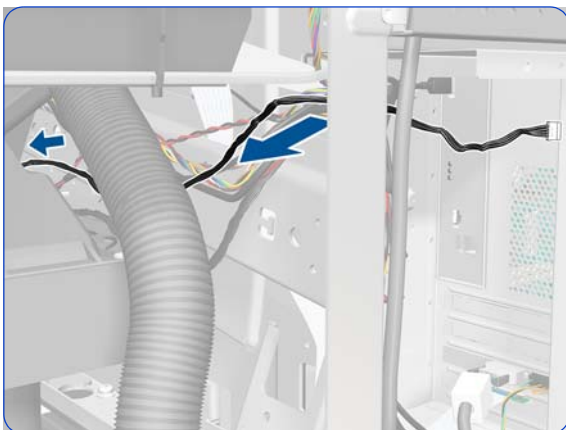
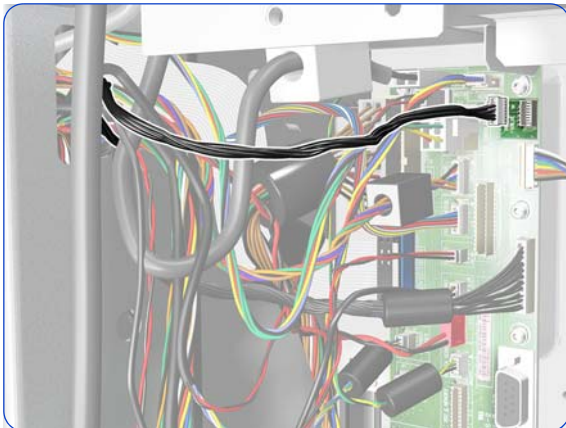
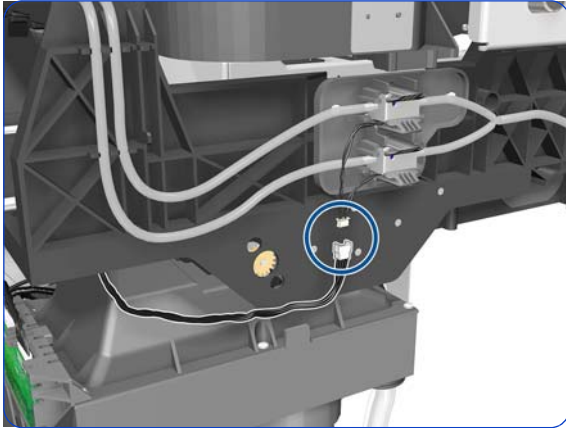
4. Remove two T-15 screws.



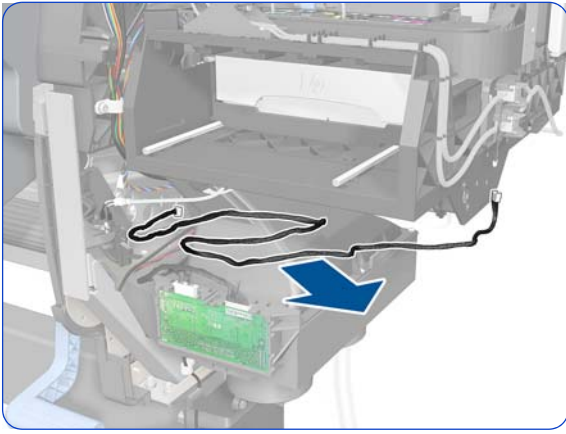
5. Remove the Primer Valves.

# Primer Valve Cable

## Removal



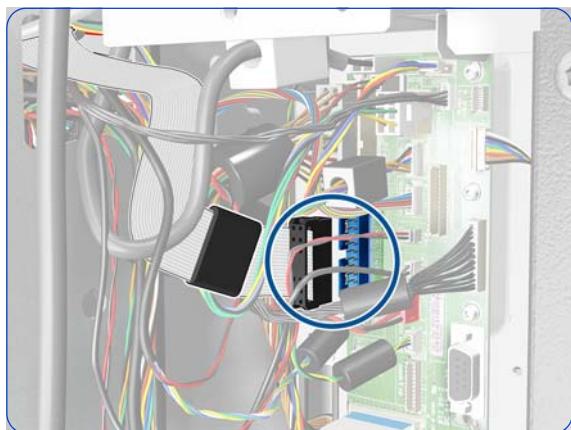
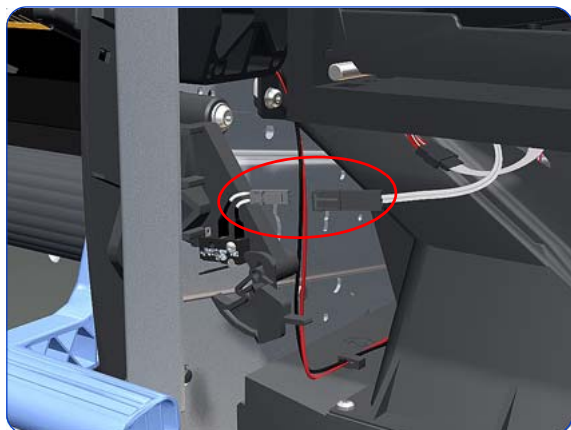
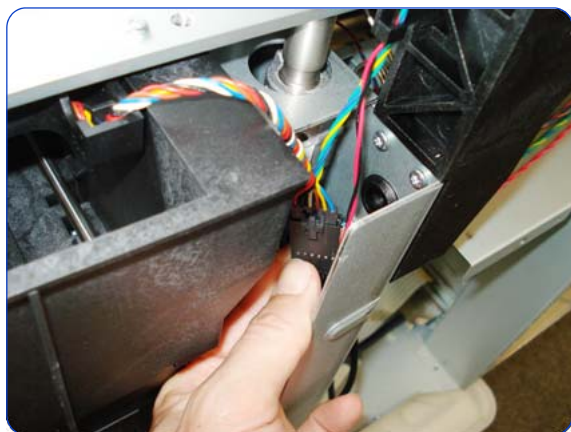
1. Remove the Right Cover ⇒ page 286.
2. Remove the Right Connector Cover ⇒ page 308.
3. Disconnect the Primer Valve Cable.
4. Disconnect the Primer Valve Cable from the Interconnect PCA.
5. Pass the Primer Valve Cable through the upper hole of the side plate.



6. Remove the Primer Valve Cable.

# Service Station

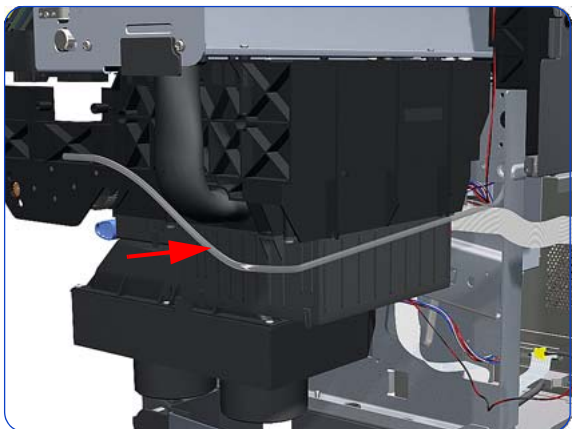
## Removal



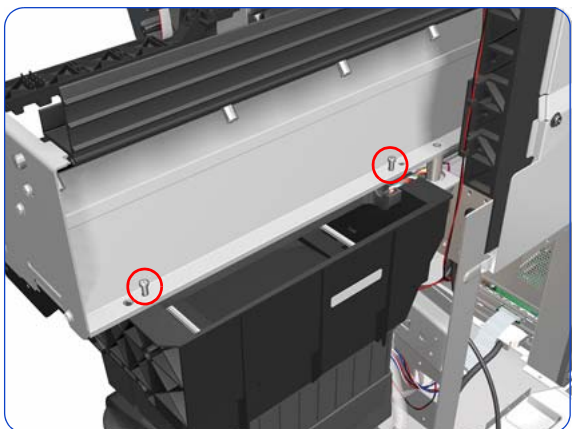
1. Remove the Right Cover ⇒ page 286.
2. Remove the Primer Assembly ⇒ page 335.
3. Remove the Primer Valves ⇒ page 337.
4. Remove the Drop Detector, Funnel Transmission, and Waste Ink Tube ⇒ page 366.
5. Remove the Printhead Cleaning Cartridge and the Ink Maintenance Kit. See the *User's Guide*.
6. Disconnect the Web Wipe Motor cable.
7. Disconnect the cable from the Printhead Cleaning Cartridge Door Switch.
8. Disconnect the Service Station cable from the Interconnect PCA.



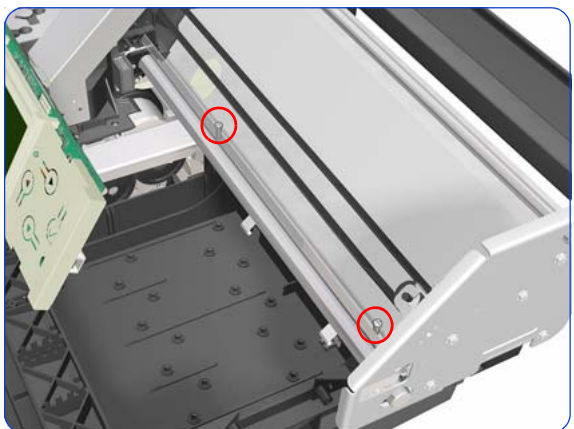
9. Unroute the Service Station.



10. Unroute the Primer Assembly Valves tube from the Service Station.



11. Remove two T-15 screws that secure the rear of the Service Station to the Chassis.

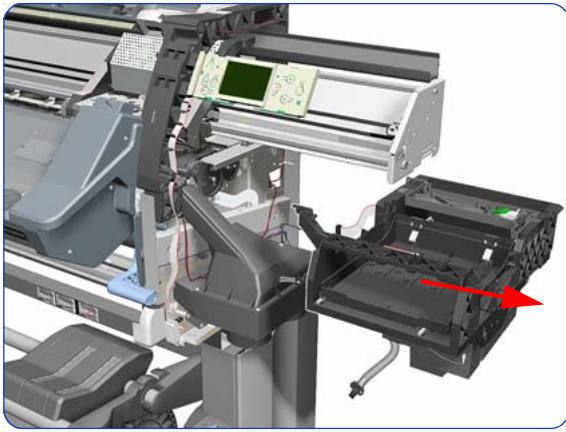


12. Remove two T-15 screws that secure the Service Station to the Chassis.



**CAUTION:** When removing the screws, be very careful NOT to damage the Encoder Strip.

**CAUTION:** When removing the screws that secure the Service Station to the X-Axis, hold the Service station as it could fall when the screws are removed.



13. Remove the Service Station from the printer.



**NOTE:** After installing the NEW Service Station, make sure you perform the following Service Utility:

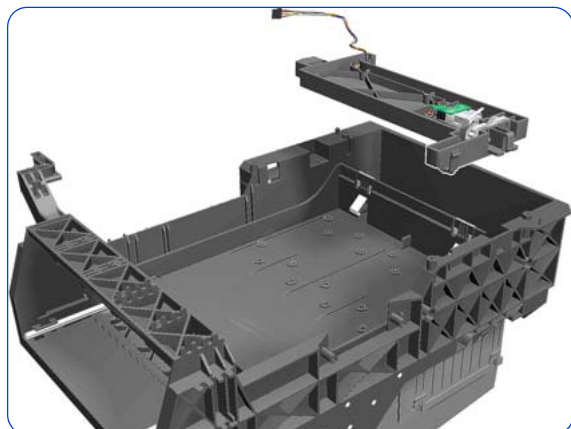
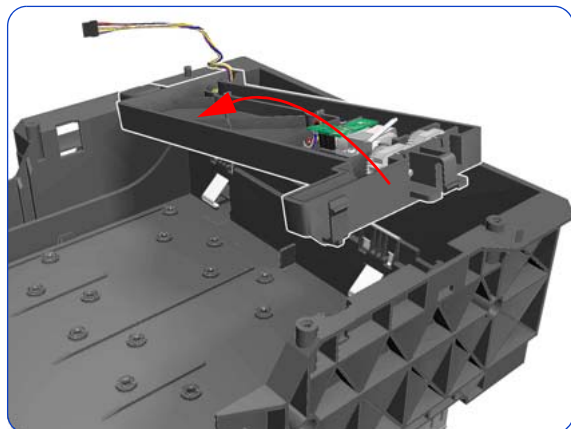
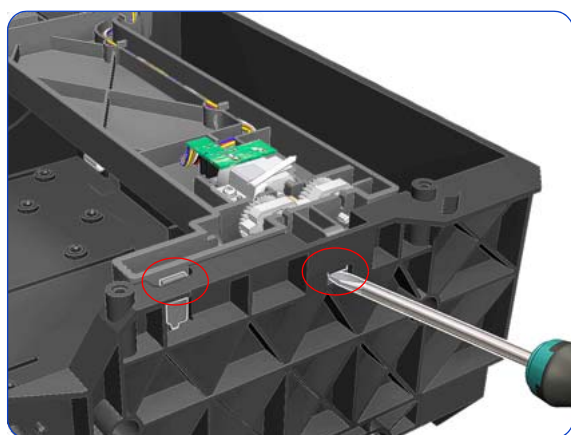
- Reset the Service Station cycle counter ⇒ page 188.



# Web Wipe Assembly

## Removal

1. Remove the Right Cover ⇒ page 286.
2. Remove the Right Connector Cover ⇒ page 308.
3. Remove the Primer Assembly ⇒ page 335.
4. Remove the Primer Valves ⇒ page 337.
5. Remove the Printhead Cleaning Cartridge and Ink Maintenance Kit. See the *User's Guide*.
6. Remove the Drop Detector, Funnel Transmission, and Waste Ink Tube ⇒ page 366.
7. Remove the Service Station ⇒ page 341.
8. Release two clips on the right side of the Service Station.



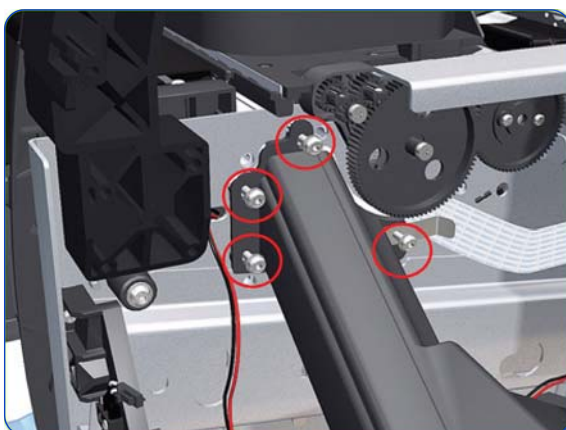
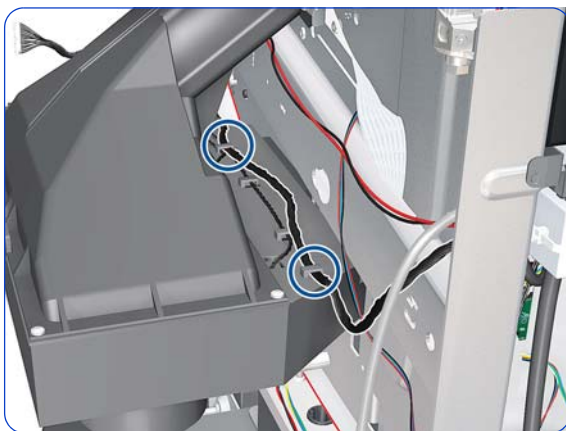
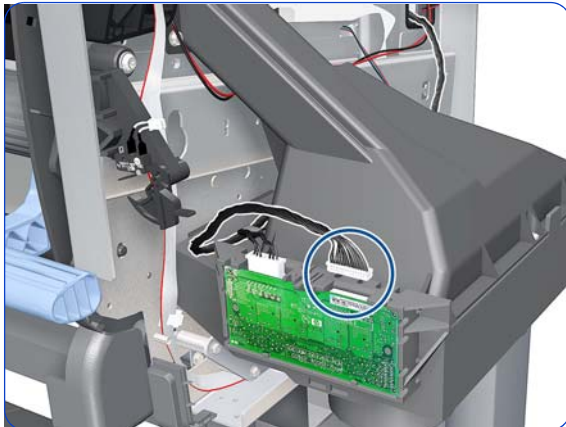
9. To release the assembly, rotate a little.
10. Remove the Web Wipe Assembly.
11. Reset the Service Station cycle counter ⇒ page 188.



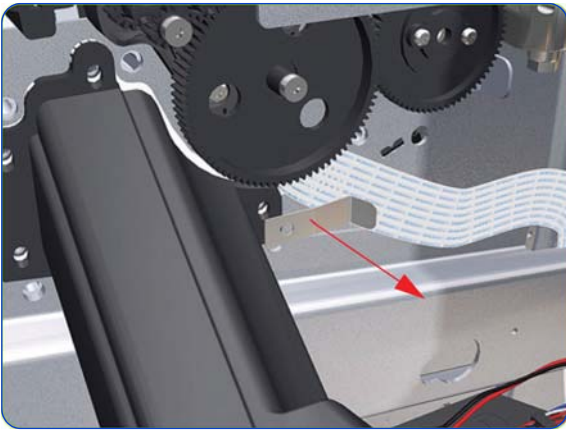
# Vacuum Fan

## Removal

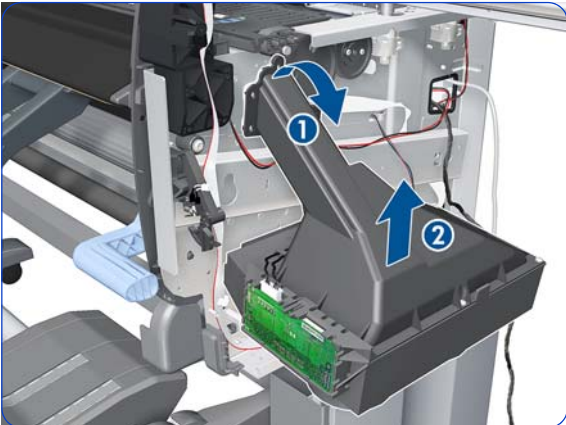
1. Remove the Right Cover ⇒ page 286.
2. Remove the Primer Assembly ⇒ page 335.
3. Remove the Primer Valves ⇒ page 337.
4. Remove the Printhead Cleaning Cartridge and Ink Funnel. See the *User's Guide*.
5. Remove the Drop Detector, Funnel Transmission, and Waste Ink Tube ⇒ page 366.
6. Remove the Service Station ⇒ page 341.
7. Disconnect the cable labelled on the Vacuum Fan PCA as "Interconnect Cable".



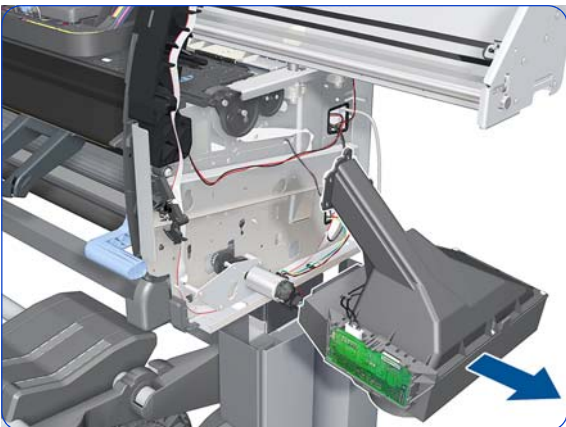
8. Unroute the cable.
9. Remove four T-20 screws that secure the Vacuum Fan to the printer.



10. Remove the OMAS cable clamp from the printer.



11. Lower then lift the Vacuum Fan out of its attachment.



12. Remove the Vacuum Fan from the printer.

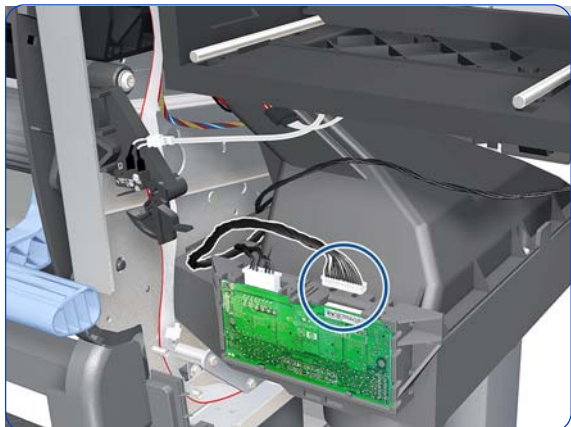
## Installation

After installing a new Vacuum Fan, you should perform substrate-advance calibration ⇒ page 189.

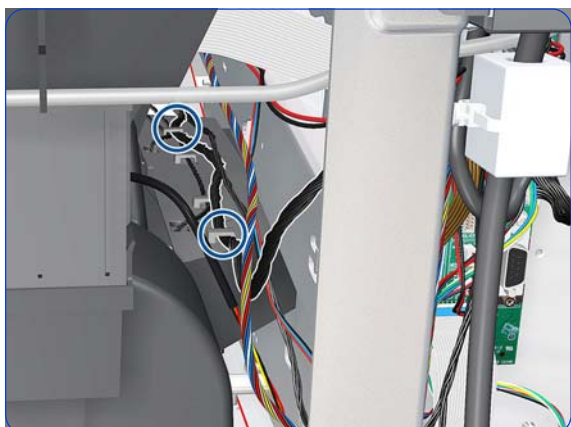
# Vacuum Fan Cable

## Removal

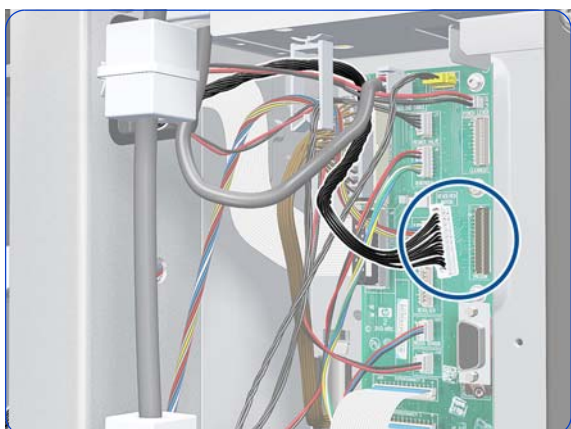
1. Remove the Right Cover ⇒ page 286.
2. Remove the Right Connector Cover ⇒ page 308.
3. Disconnect the cable labelled on the Vacuum Fan PCA as "Interconnect Cable".



4. Unroute the cable.



5. Disconnect the cable.





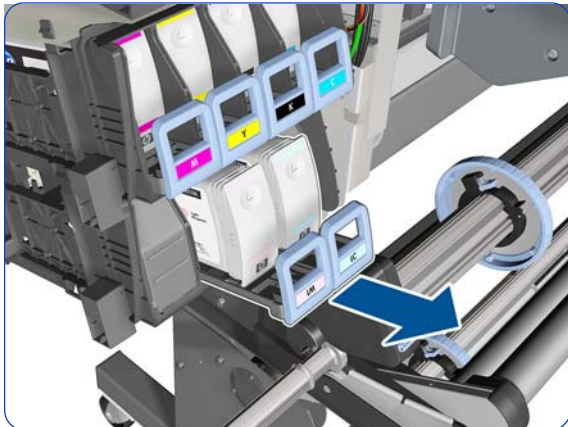
6. Remove the cable.



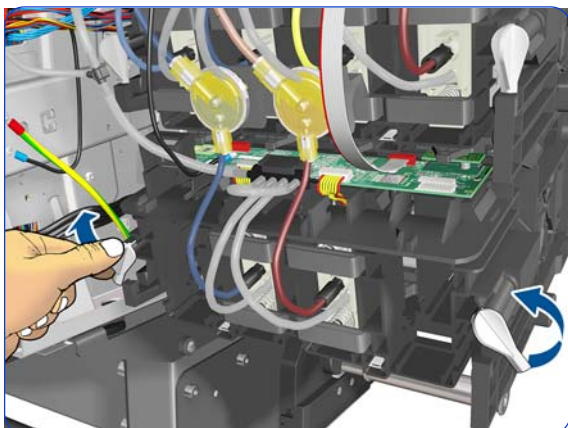
# Vacuum Fans Extra

## Removal

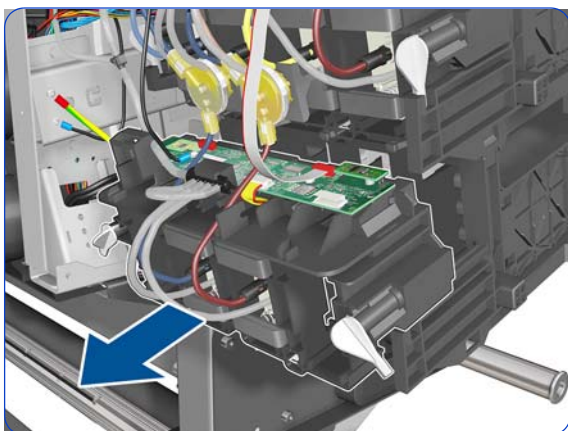
1. Remove the Left Cover ⇒ page 293.
2. Remove the Left Trim ⇒ page 296.
3. Remove the Input Roller ⇒ page 532.
4. Remove the Power Box Cover ⇒ page 311.
5. Remove the Electronics Enclosure Extension ⇒ page 319.
6. Pull out the bottom row of Ink Cartridge trays (LM and LC only), but don't remove the Ink Cartridges.



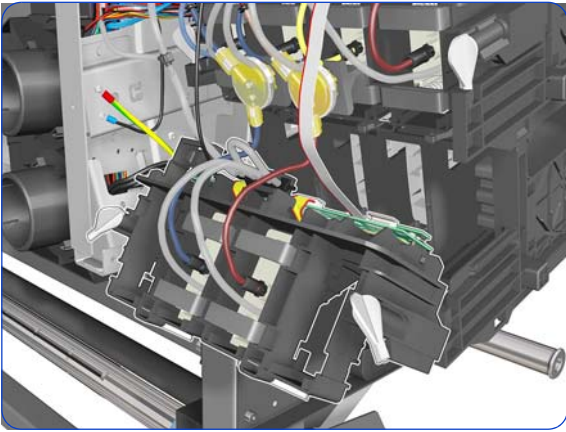
7. Rotate the two latches.



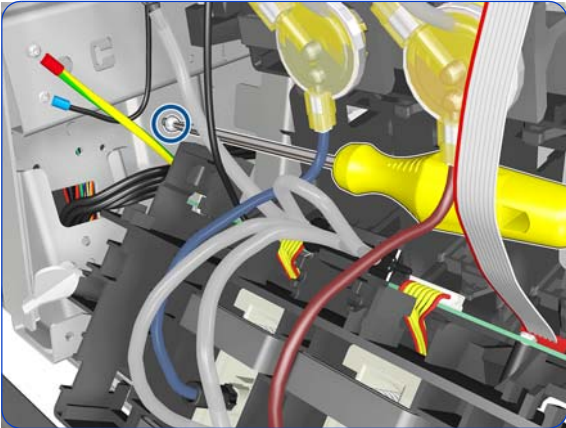
8. Remove the Cartridge Tube Connector.



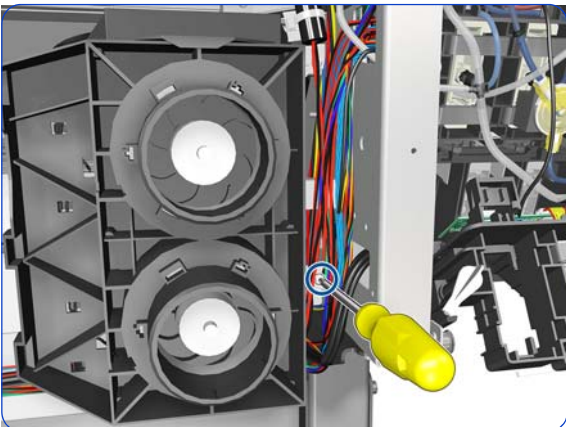




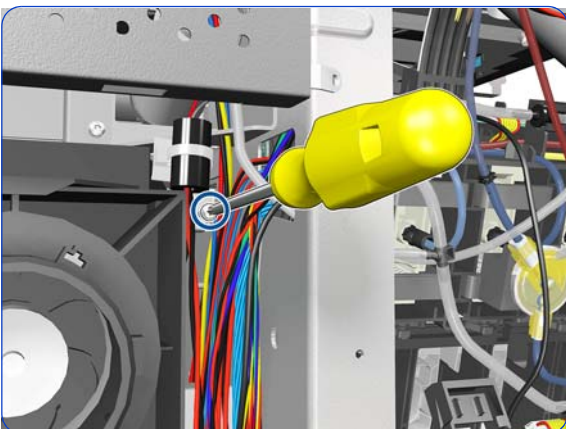
9. Carefully leave the Cartridge Tube Connector as shown.



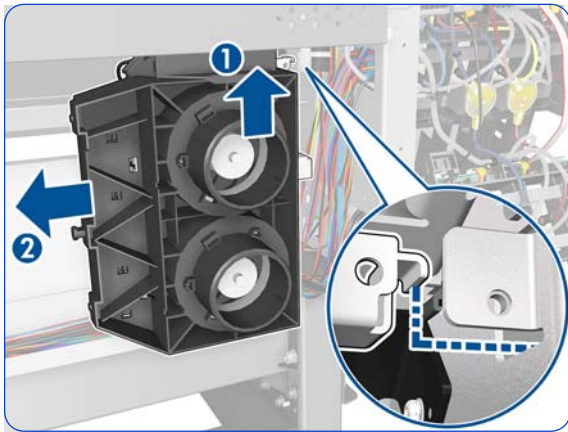
10. Remove a T-20 screw.



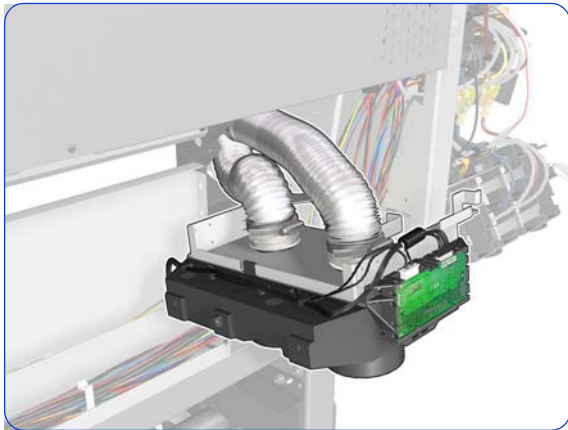
11. Remove a T-20 screw.



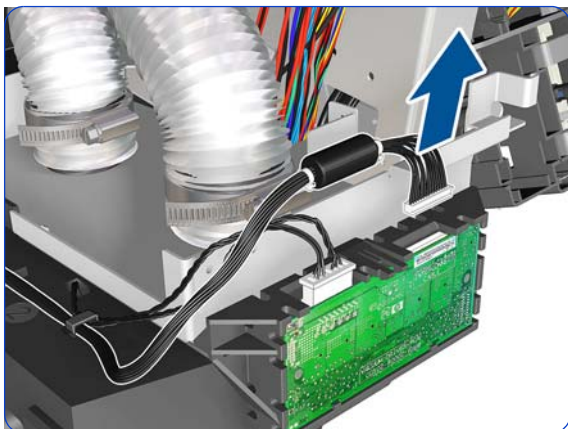
12. Remove a T-20 screw.



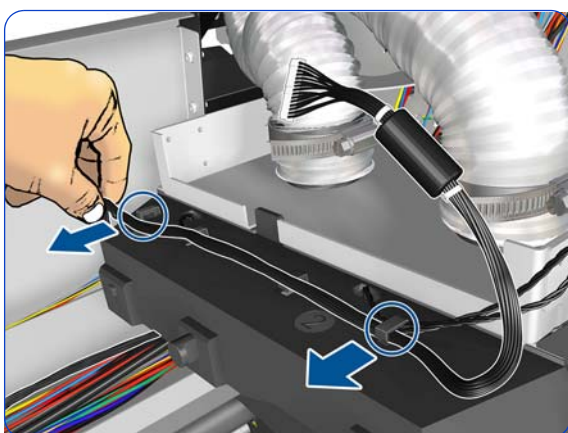
13. Disengage and remove the Vacuum Fans. The detail shows the hole in the side plate where the Vacuum Fans hang.



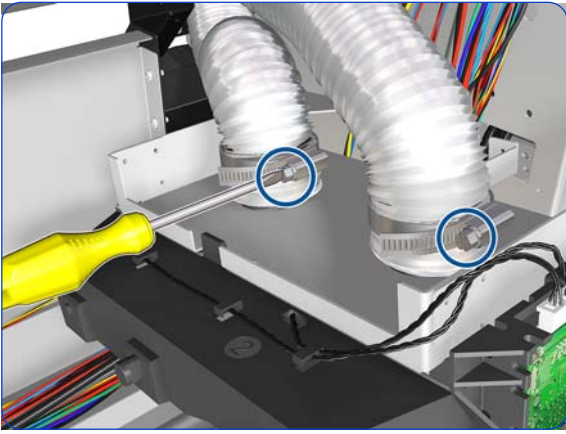
14. Carefully leave the Vacuum Fans hanging as shown.



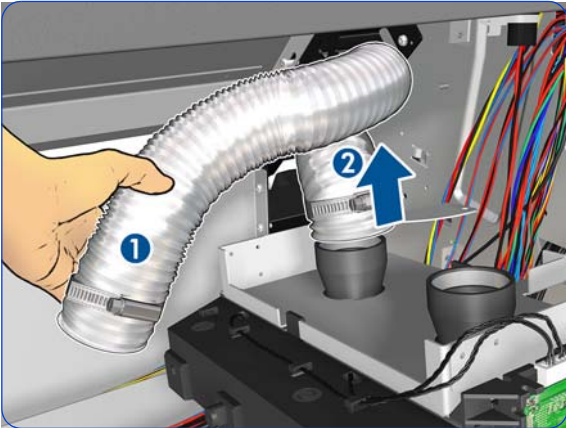
15. Disconnect the Interconnect cable.



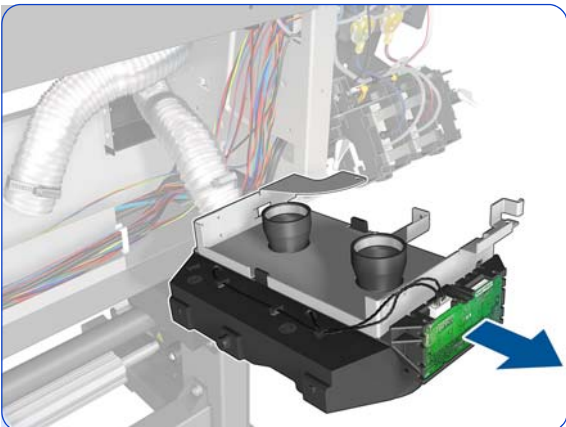
16. Release the Interconnect cable from both clips.



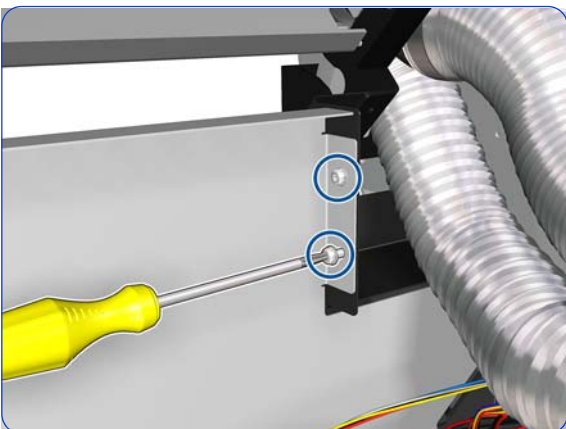
17. Loosen both metal clamps with a flat-bladed screwdriver.



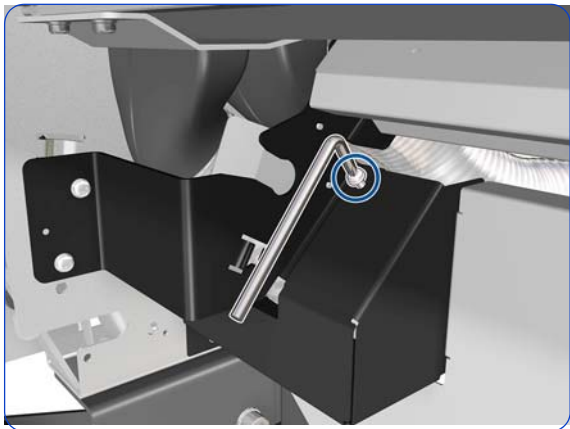
18. Carefully disconnect both tubes.



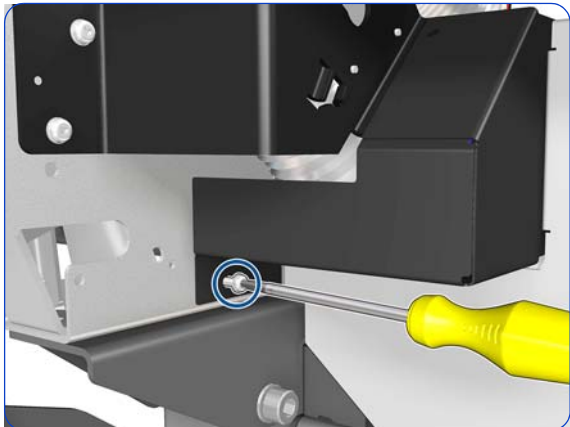
19. Remove the Vacuum Fans assembly.



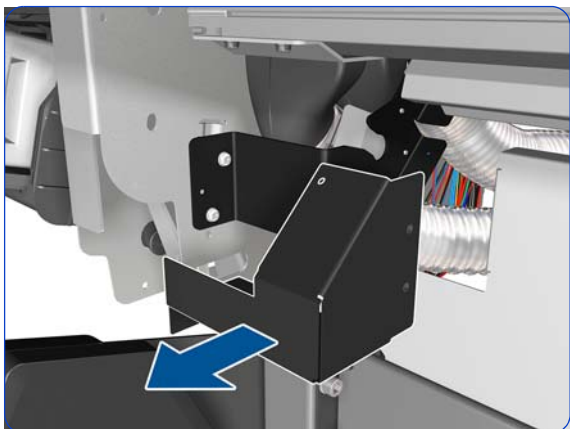
20. Remove two T-20 screws.



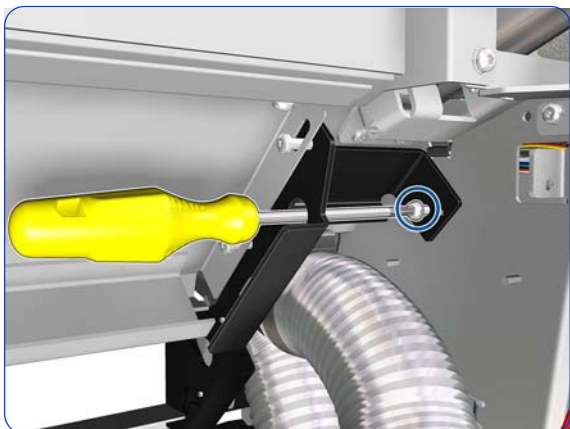
21. Remove a T-20 screw with an L-shaped Torx screwdriver.



22. Remove a T-20 screw.

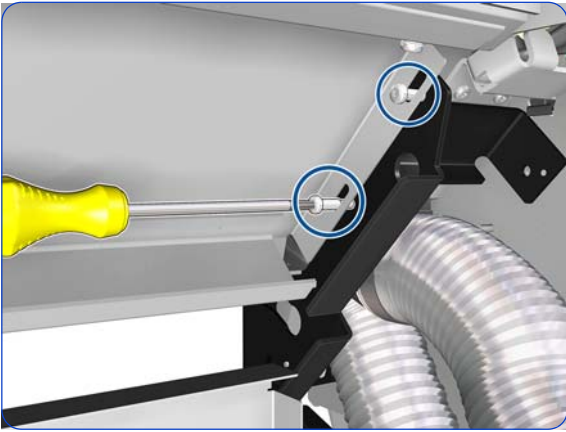


23. Remove the Left Vacuum Trim.

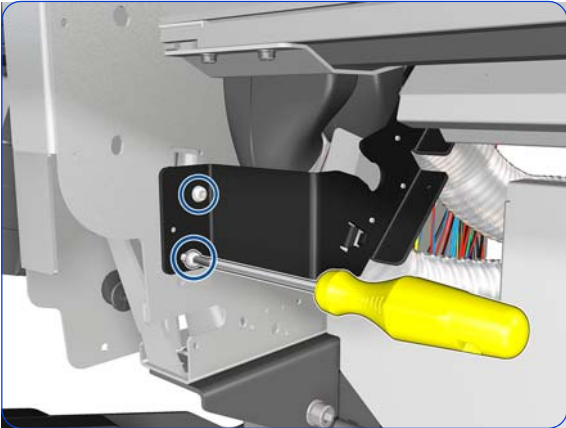


24. Remove a T-20 screw.

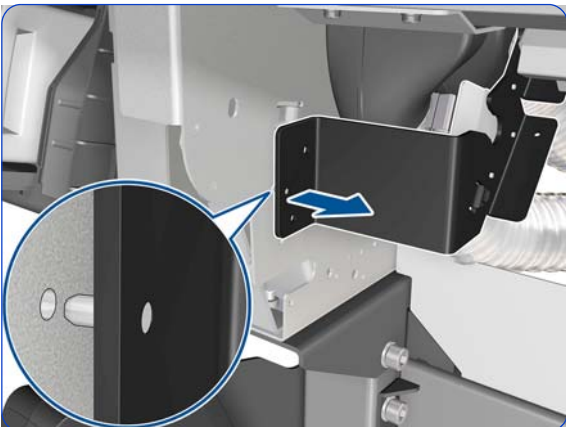




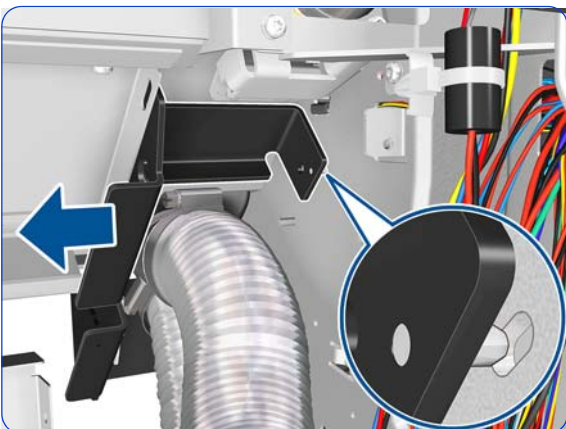
25. Remove two T-15 screws.



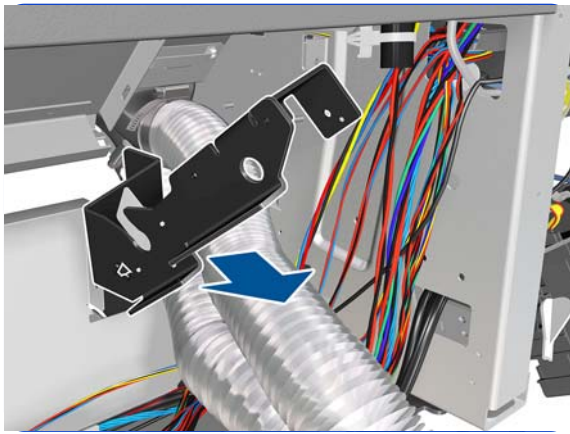
26. Remove two T-20 screws.



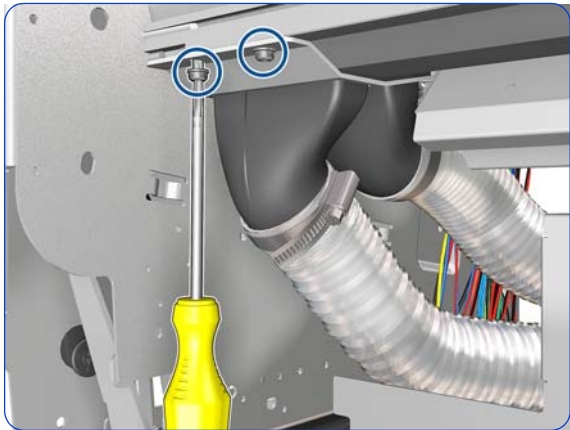
27. Disengage the pin of the Left Entry Roller Support from the left side plate. Be careful not to scratch the side plate with the pin.



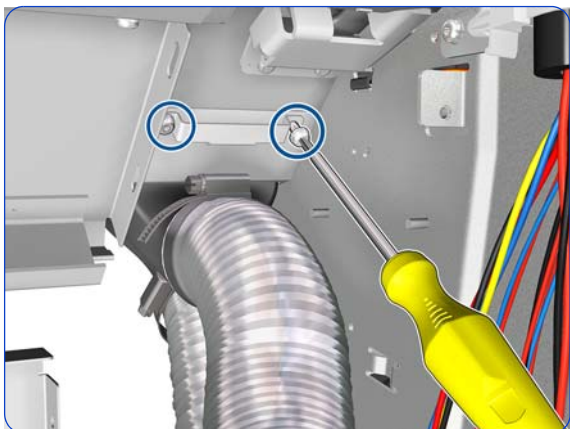
28. Disengage the rear pin of the Left Entry Roller Support from the left side plate. You can move it only a few millimeters to the left because of the Input Platen. Be careful not to scratch the side plate with the pin.



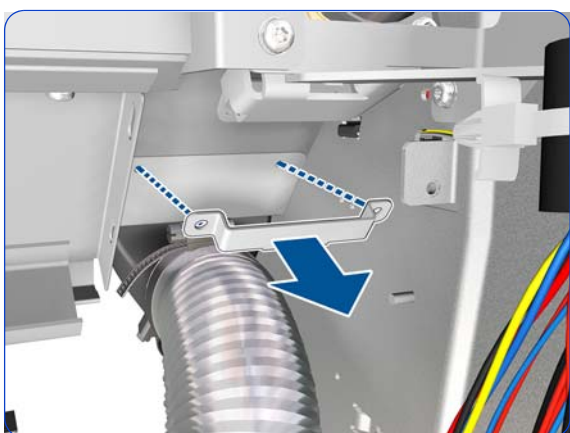
29. Remove the Left Entry Roller Support from the rear of the printer.



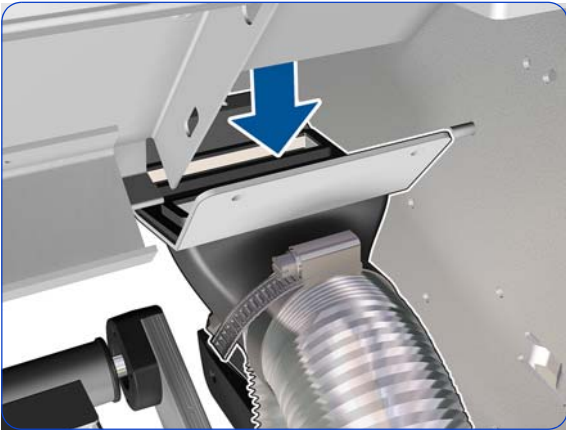
30. Remove two T-20 screws.



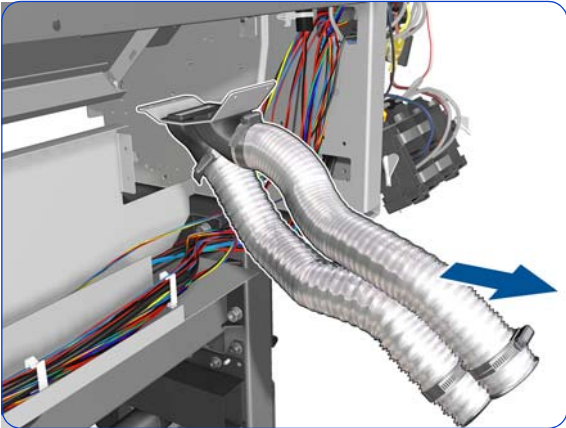
31. Remove two T-20 screws.



32. Remove the Frame Hook.

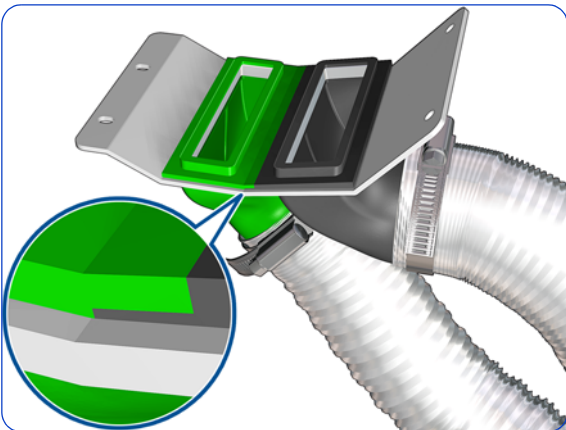


33. Pull down the tubes assembly to disengage the tubes from the holes in the Vacuum Beam.

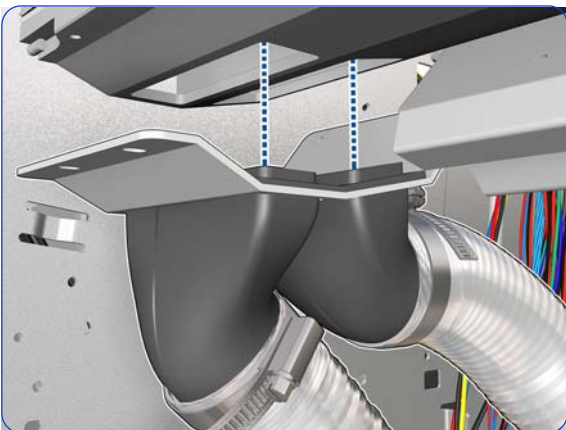


34. Remove the tubes.

## Installation

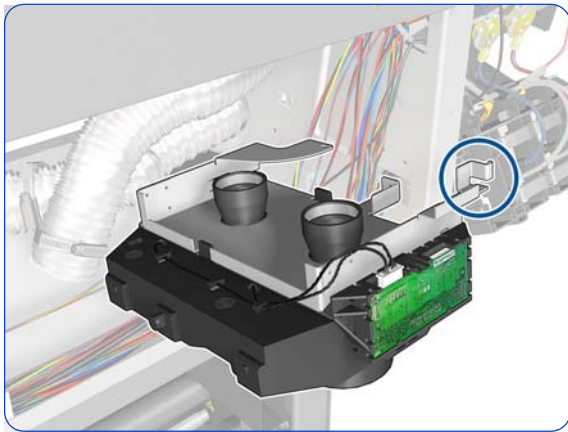


1. Make sure that the two tubes are correctly attached to the support, as shown.

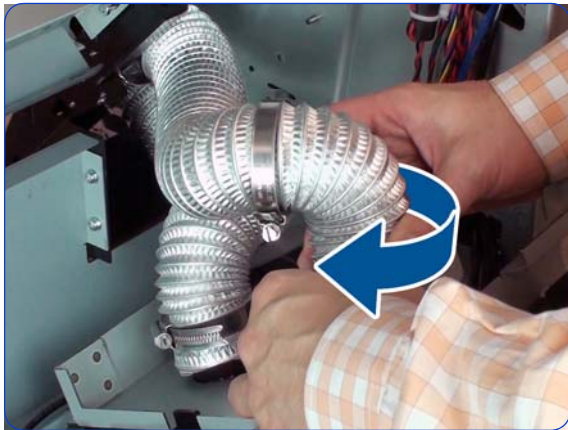


2. Make sure the tubes are correctly inserted into the holes in the Vacuum Beam.





3. Make sure the bracket is on the right, as shown.

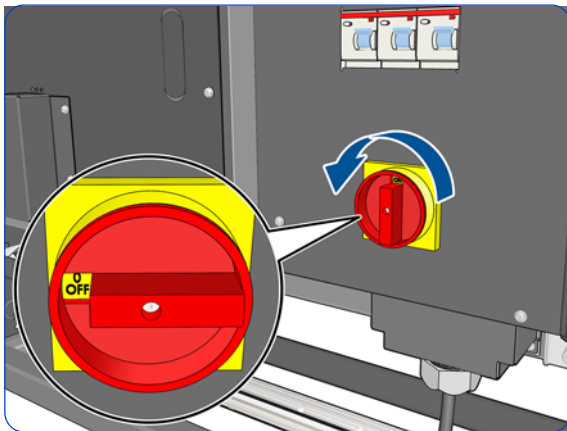


4. Mount the inner tube first, then the outer tube. To mount each tube correctly, you must first twist the tube opposite to the direction of the arrow, and then attach it carefully to the Vacuum Fan, rotating it in the direction of the arrow.

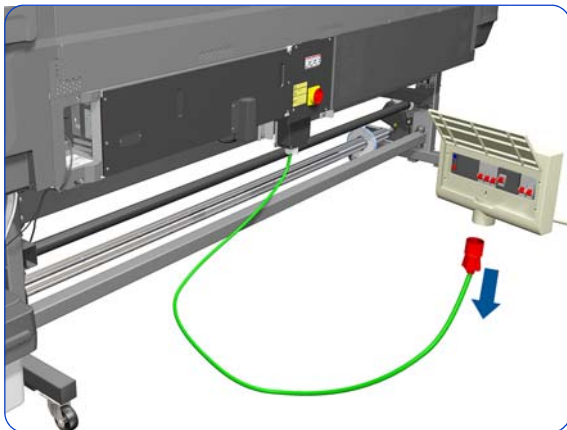
# Waste Ink System

This part is Customer Self-Replaceable (CSR).

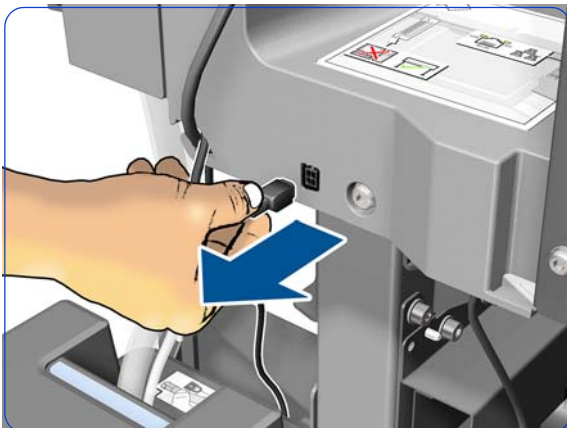
## Removal



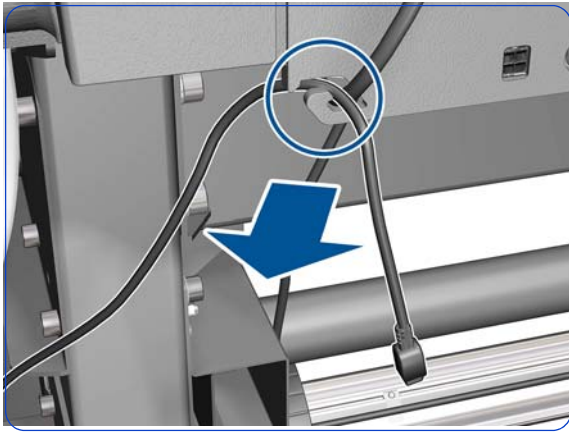
1. Turn off the printer.



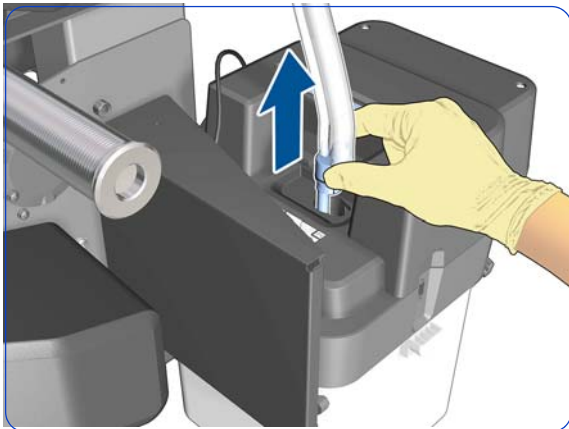
2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).



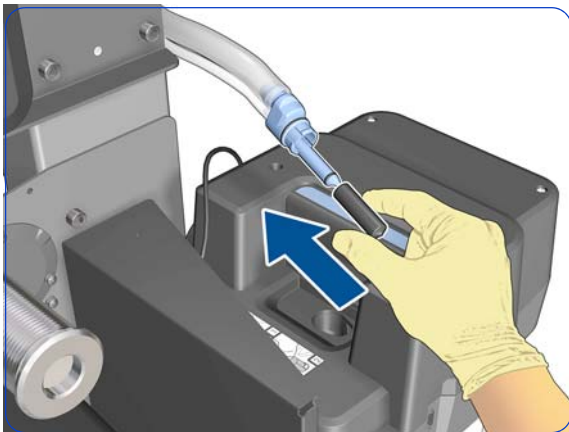
3. Disconnect the Waste Ink System cable.



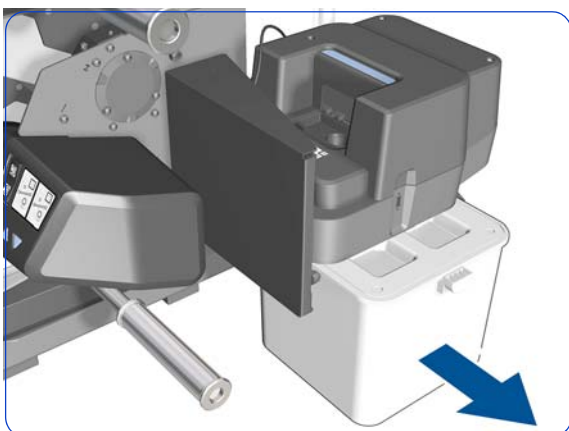
4. Disengage the Waste Ink System cable from the clip.



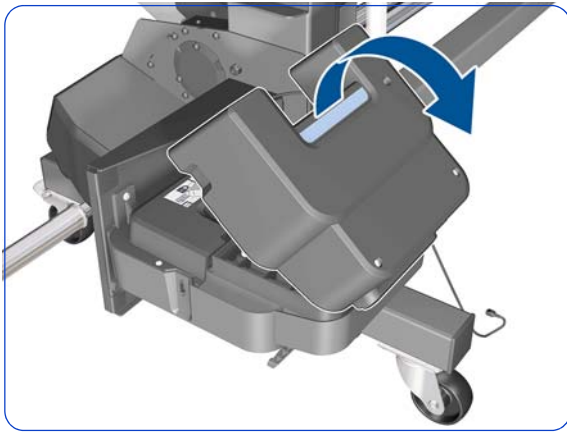
5. Pull the bottom of the Ink Tube Assembly out of the Printhead Cleaning Container. You are recommended to wear gloves.



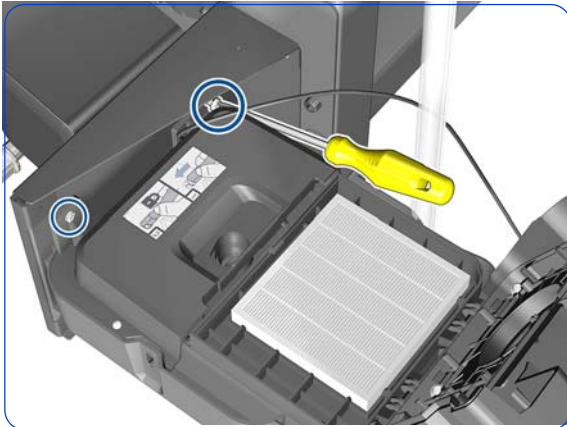
6. Cover the end of the Ink Tube with the spare cap from the Ink Maintenance Kit, to prevent ink from falling out of the tube.



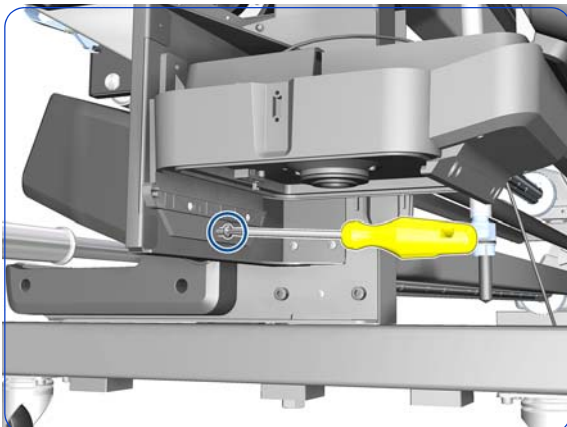
7. Remove the Printhead Cleaning Container.



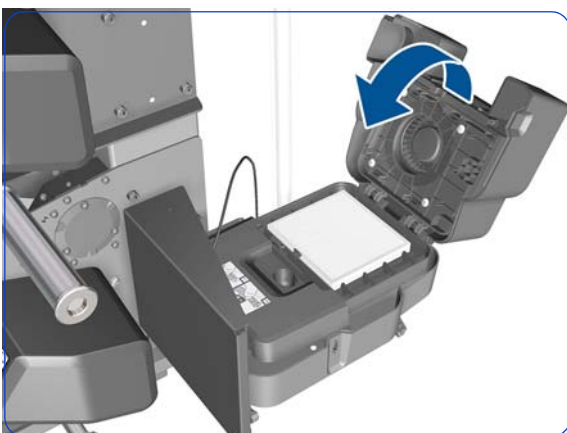
8. Open the Ink Filter Cover.



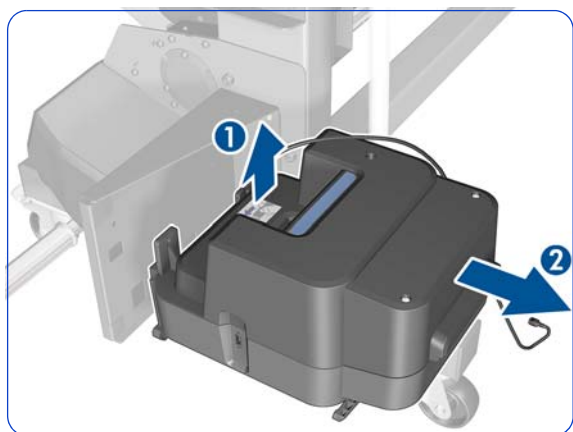
9. Remove two T-25 screws.



10. Remove one T-25 screw.



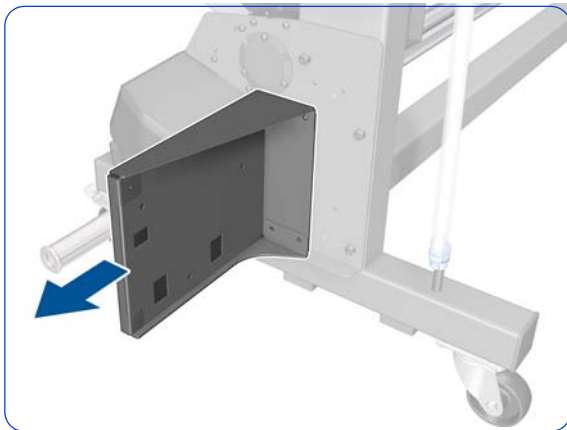
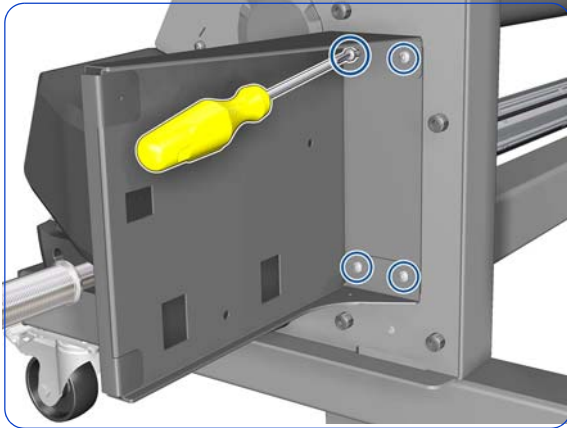
11. Close the Ink Filter Cover.



12. Lift and then pull the Ink Filter Enclosure to remove it from the printer.

# Waste Ink System Support

## Removal

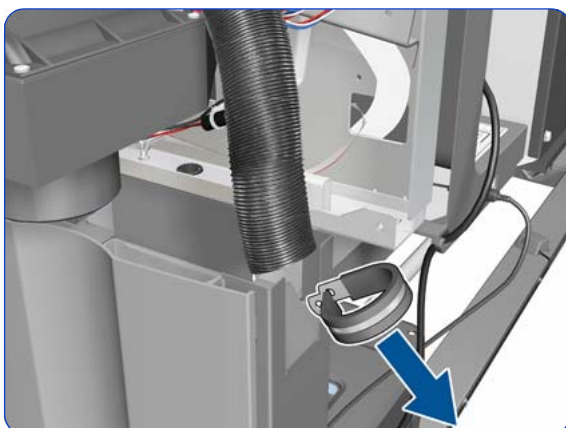
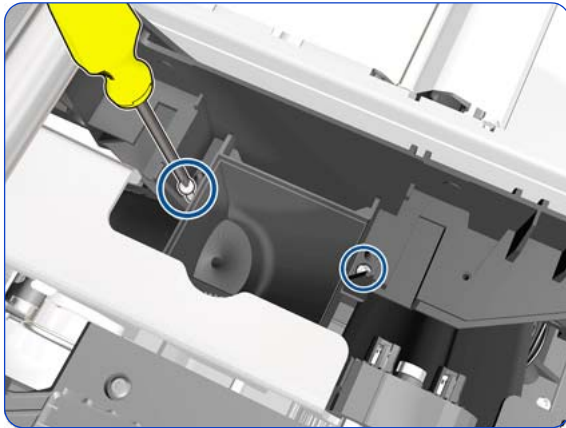


1. Remove the Waste Ink System ⇒ page 359.
2. Remove four T-25 screws.
3. Remove the support.

# Waste Ink Tube Guide

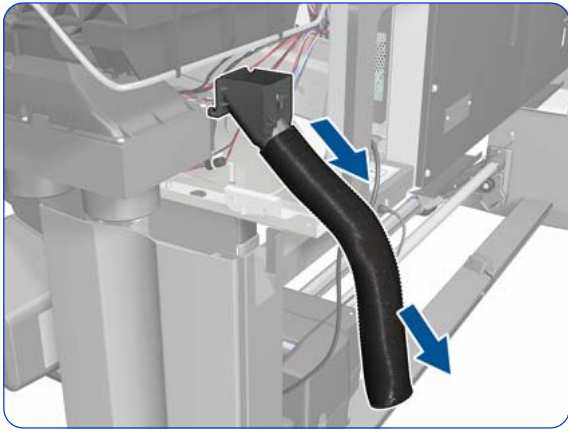
## Removal

1. Open the Window ⇒ page 271.
2. Remove the Right Cover ⇒ page 286.
3. Remove the Ink Maintenance Kit. See the *User's Guide*.
4. Remove the Drop Detector, Funnel Transmission, and Waste Ink Tube ⇒ page 366.
5. Remove two T-8 screws that secure the top of the Drain Tube to the Service Station (long screw driver or wrench key required).



6. Remove one T-10 screw that secures the Waste Ink Tube Guide.
7. Slide off the retaining ring from the Waste Ink Tube Guide.



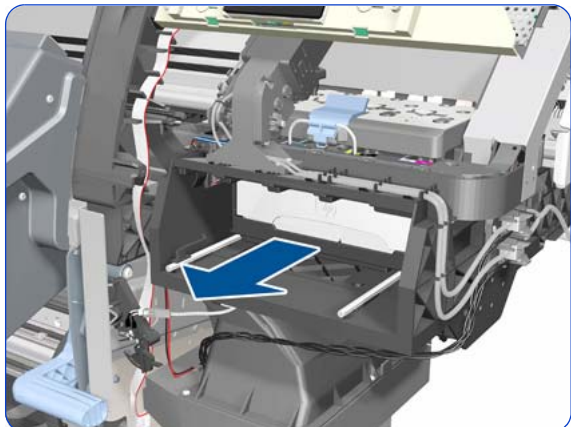


8. Slide off the assembly from the Service Station.

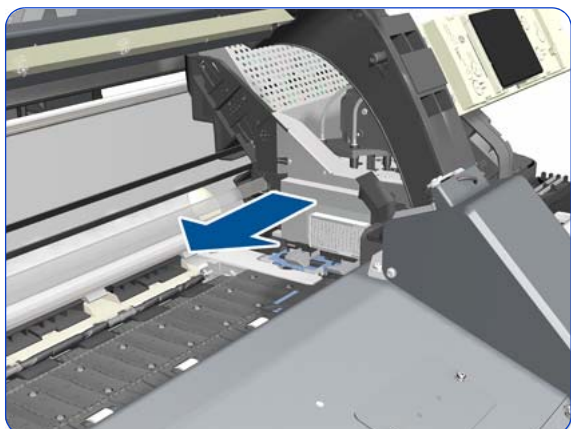
# Drop Detector, Funnel Transmission, Waste Ink Tube

## Removal

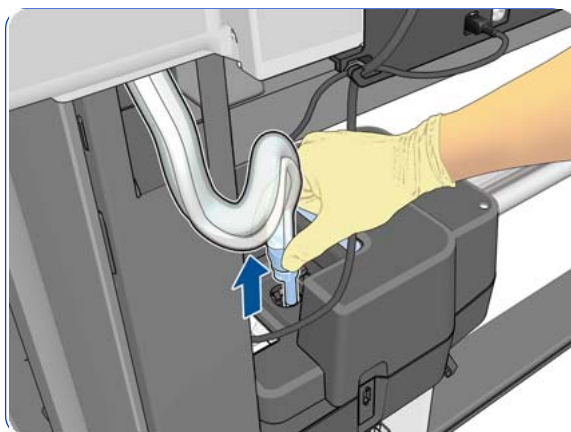
1. Remove the Right Cover ⇒ page 286.
2. Open the Window ⇒ page 271.
3. Pull out the Printhead Cleaning Cartridge fully from the Service Station to release the Carriage Assembly.



4. Slide the Carriage Assembly into the print path so you access the Drop Detector.

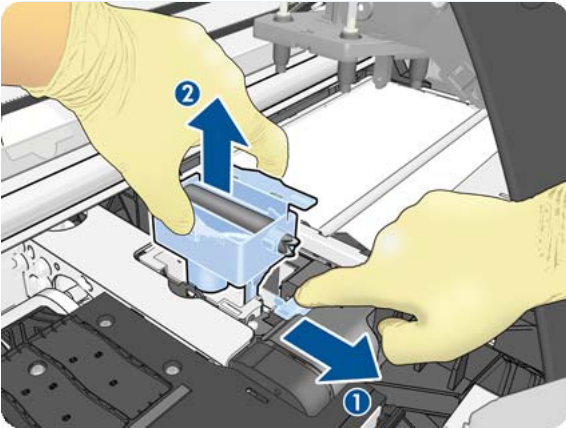


5. Pull the bottom of the Waste Ink Tube assembly from the Printhead Cleaning Container.

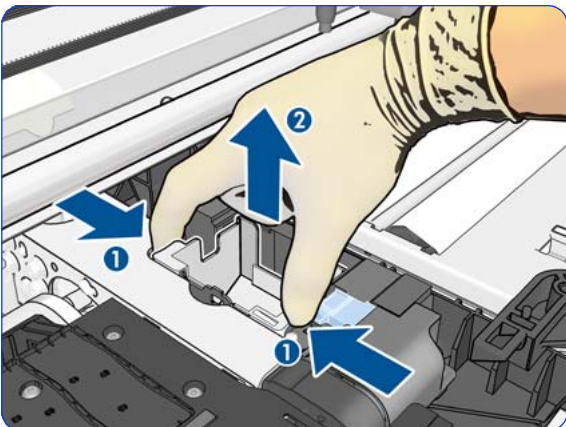




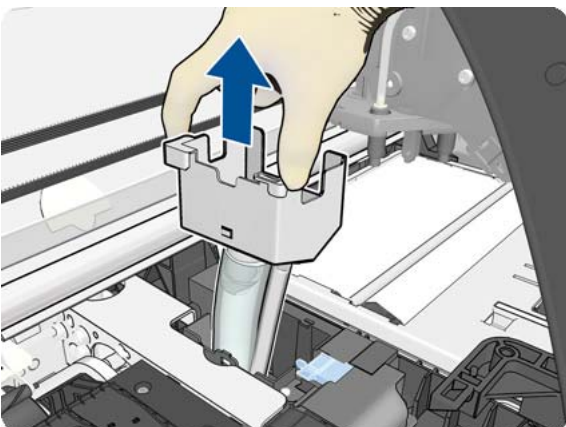
6. Cover the end of the old ink tube with the cap or a cloth to stop ink leaking out.



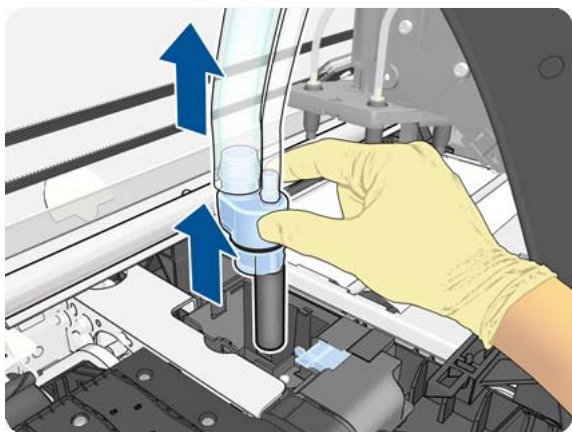
7. Pull the slider with one finger (1) while removing the Ink Funnel with the other hand (2).



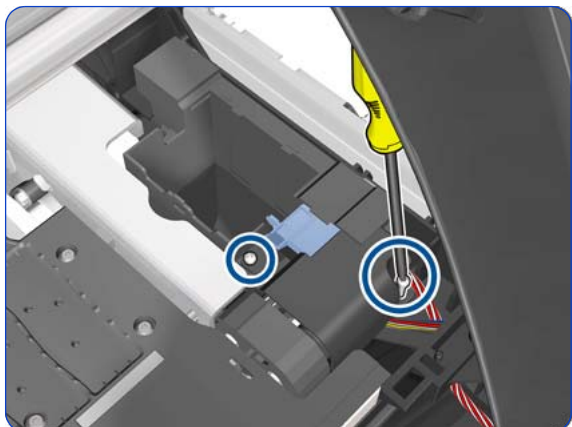
8. Pinch the sides of the Funnel Transmission (1) and lift up the assembly (2).



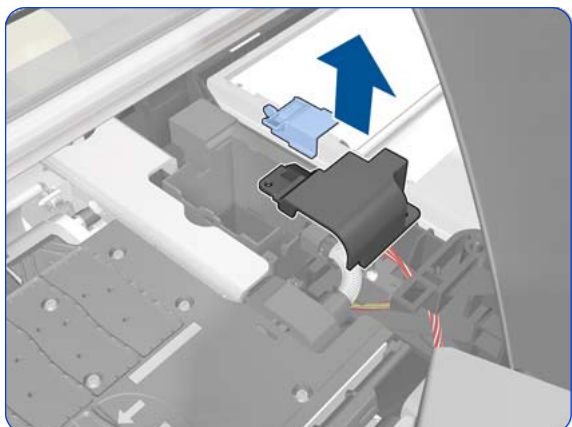
9. Lift up the Waste Ink Tube Assembly.



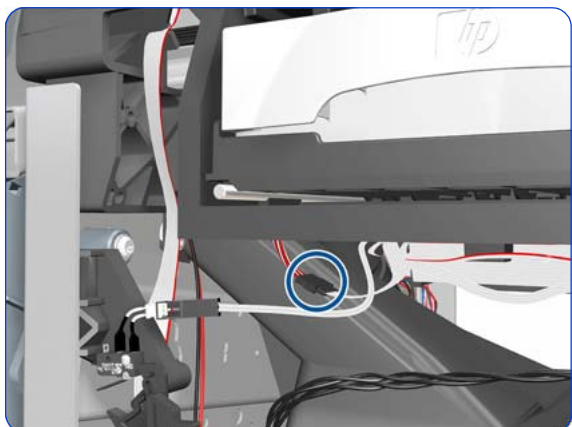
10. Remove the Waste Ink Tube Assembly.



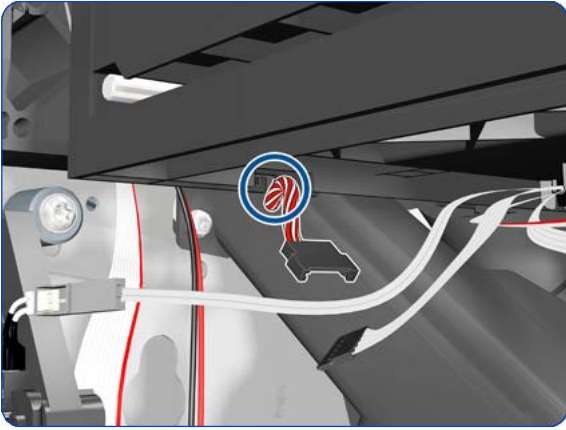
11. Remove two T-6 screws.



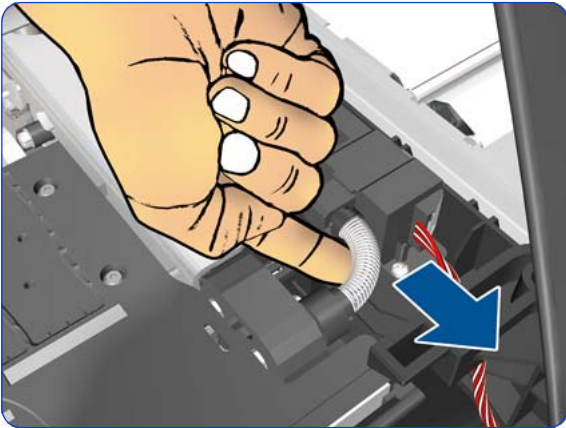
12. Remove the blue slider and Drop Detector Cover.



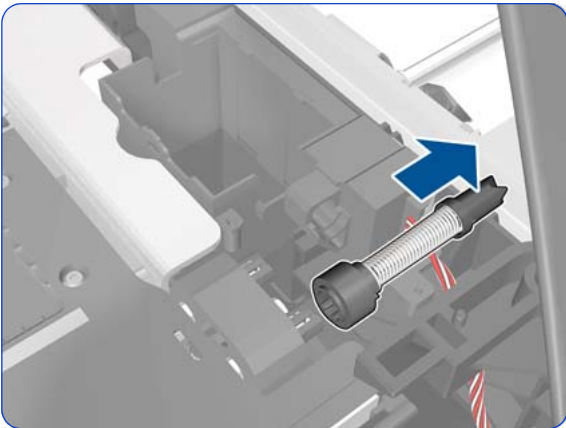
13. Disconnect the Drop Detector Cable from the Service Station Cable.



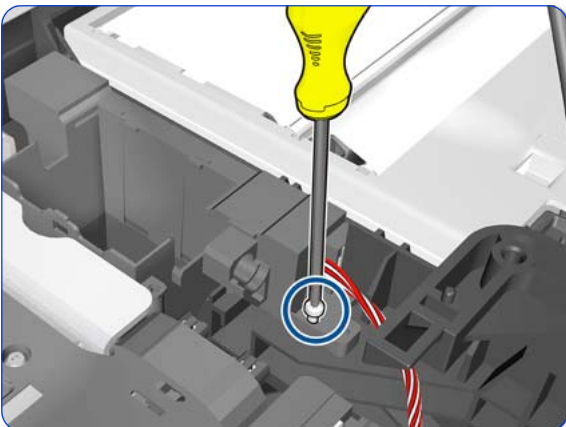
14. Release the Drop Detector Cable from the Service Station.



15. Disconnect the spring.

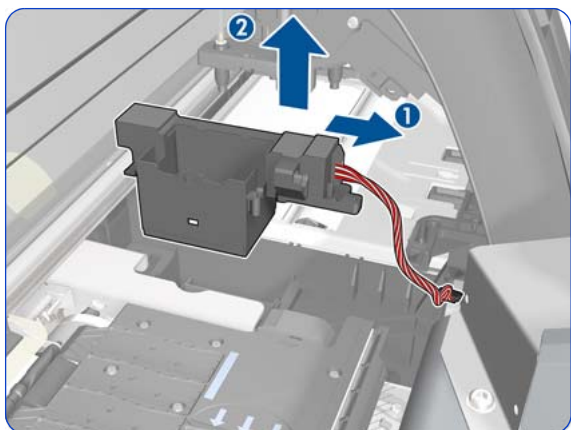


16. Remove the spring.



17. Remove one T-8 screw





18. Remove the Drop Detector from the printer.



**NOTE:** After installing a new Drop Detector, perform the following:

- Drop Detector Calibration ⇒ page 195.
- Reset Drop Detector ⇒ page 188.

# Ink Supply Tubes and Trailing Cable

## Removal (requires two people)



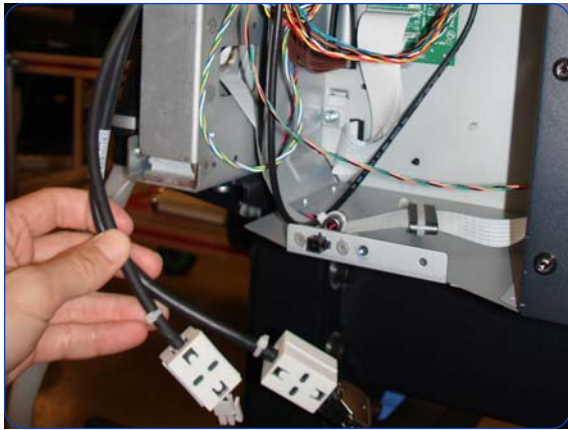
**CAUTION:** You must never replace both the Hard Disk Drive and the Ink Supply Tubes and Trailing Cable at the same time. If these parts need to be replaced, you must first replace one part and then turn on the printer until it completely initializes. Then turn off the printer and replace the other part.

1. Remove the Left Cover ⇒ page 293.
2. Remove the Right Cover ⇒ page 286.
3. Remove the Window ⇒ page 273.
4. Remove the Electronics Enclosure Extension ⇒ page 319.
5. Remove the Back Cover ⇒ page 302.
6. Remove the Top Cover ⇒ page 304.
7. Disconnect the Trailing Cable from the Interconnect PCA.



8. Disconnect the Trailing Cable from the Engine PCA.

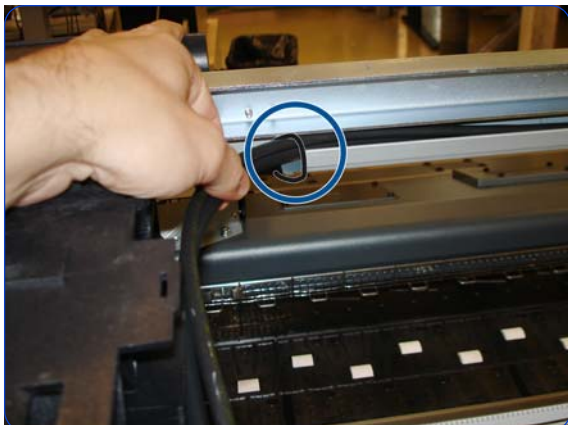




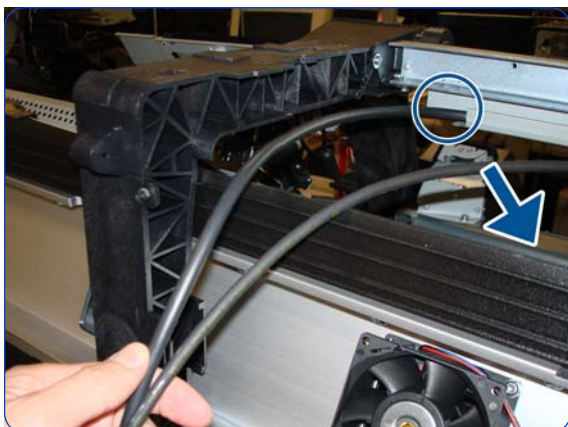
9. Pull the cables out of the Electronics Enclosure.



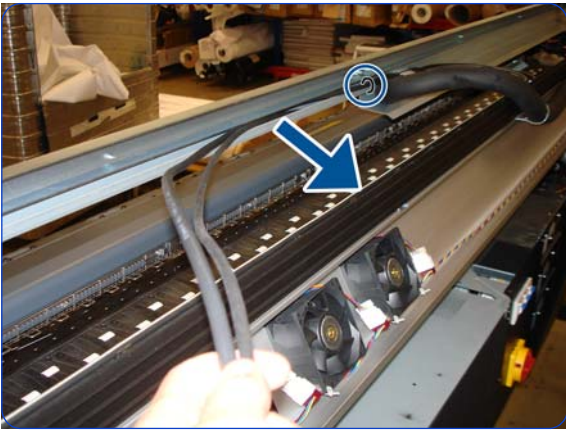
10. Release the arc clip.



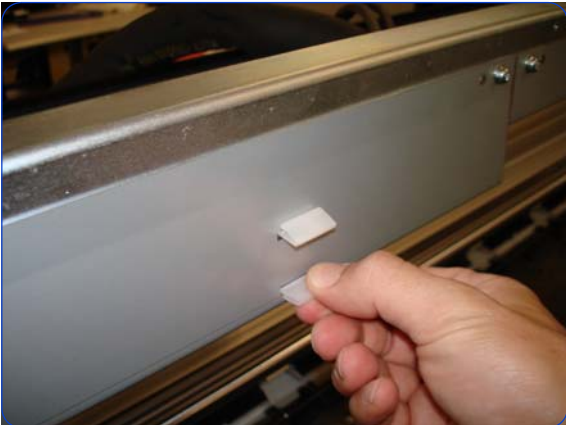
11. Cut the cable tie that attaches the Trailing Cables to the Tube Guides.



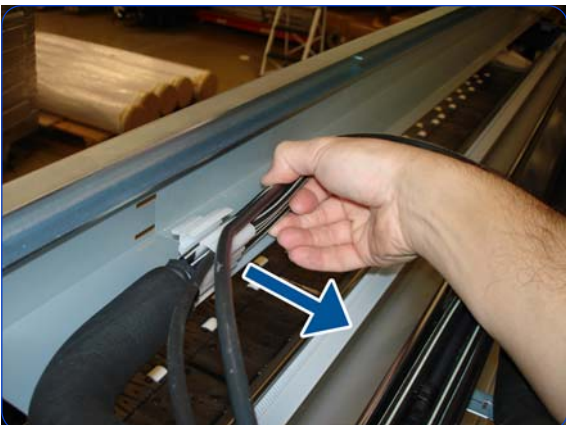
12. Unroute the Trailing Cables.



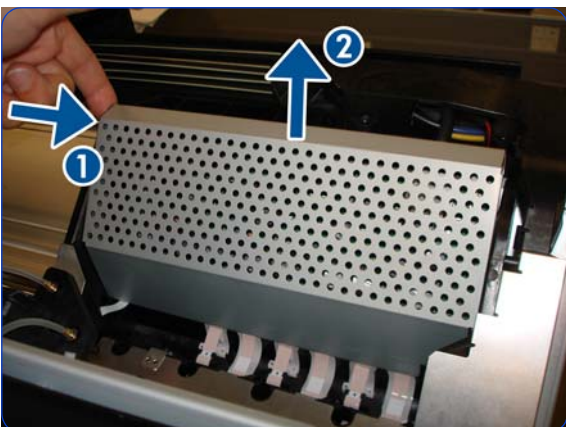
13. Cut the cable tie and continue unrouting the Trailing Cables.



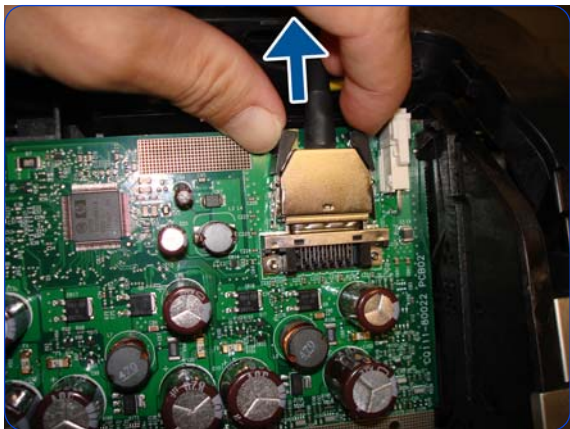
14. Lift the tab on the Front Tube Shelf Beam.



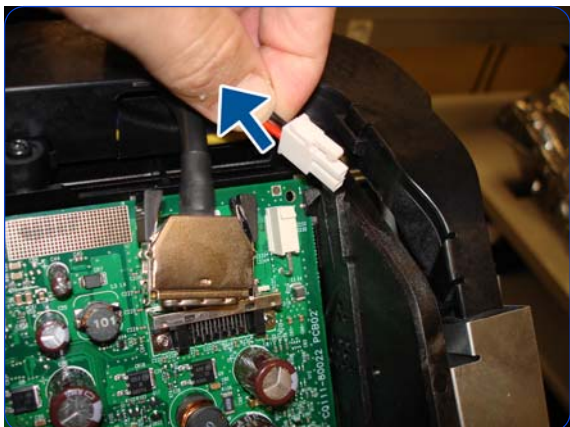
15. Release the Tubes and Trailing Cables from the Tube Guides.



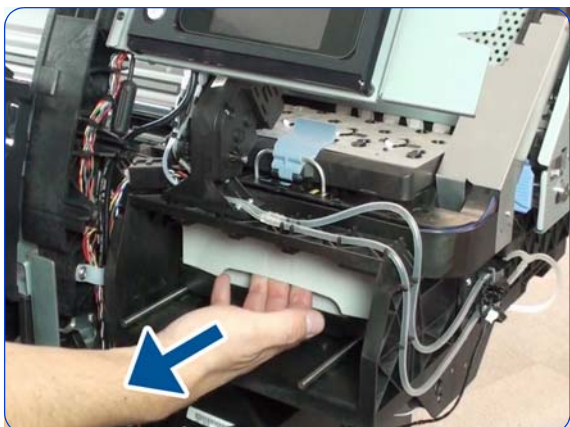
16. Press both sides of the Carriage PCA Cover and unclip it from the Carriage Assembly.



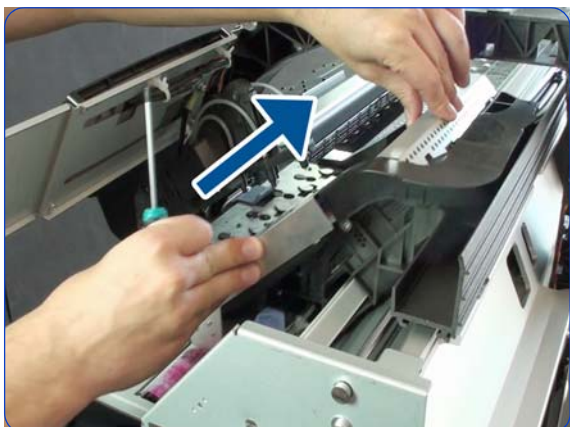
17. Press inwards on both sides of the data Trailing Cable connector, and pull to disconnect the cable.



18. Disconnect the power Trailing Cable connector.

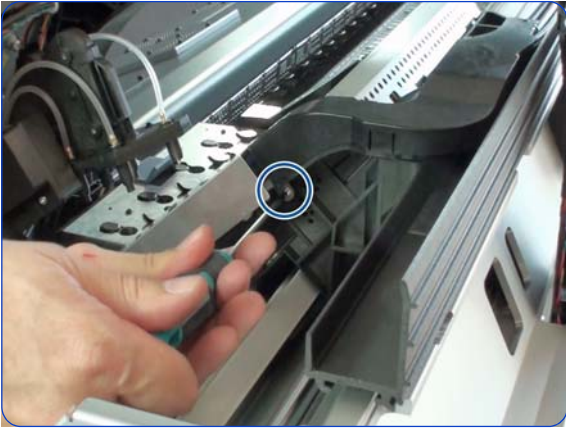


19. Pull the Printhead Cleaning Cartridge forward to freeze the carriage.

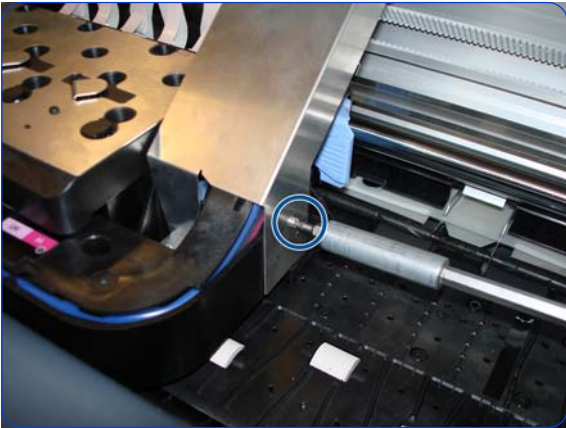


20. Move the carriage in order to get access to the Carriage Protector screws.

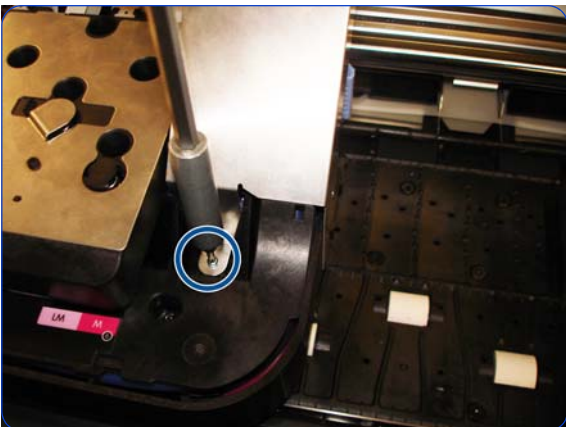




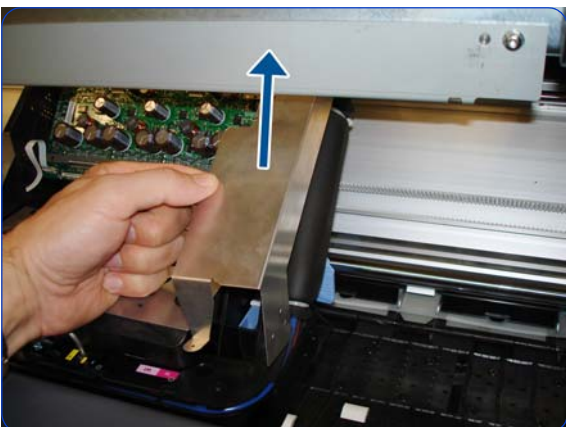
21. Remove a T-8 screw.



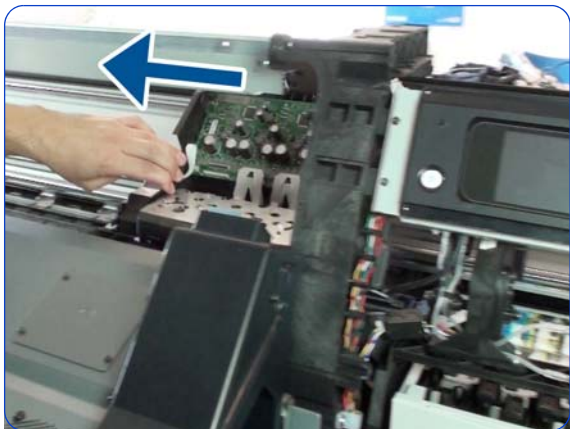
22. Remove a T-8 screw.



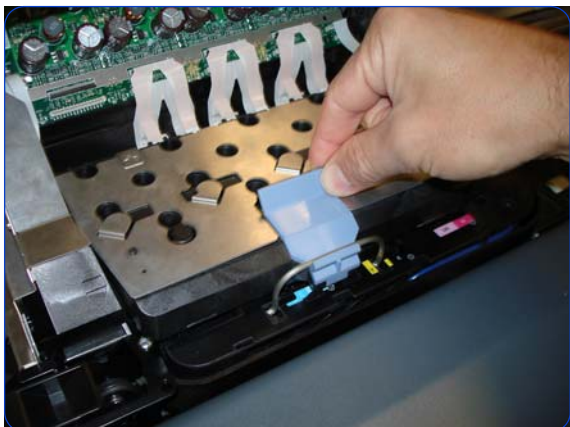
23. Remove a T-8 screw.



24. Remove the Carriage Protector.



25. Move the Carriage to the center of the Platen.



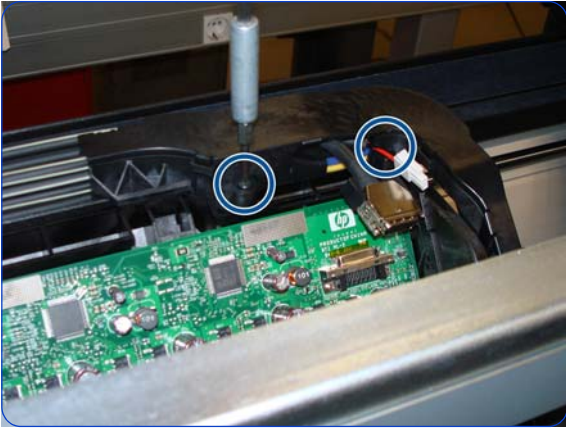
26. Open the Carriage Latch.



27. Remove the Printheads.



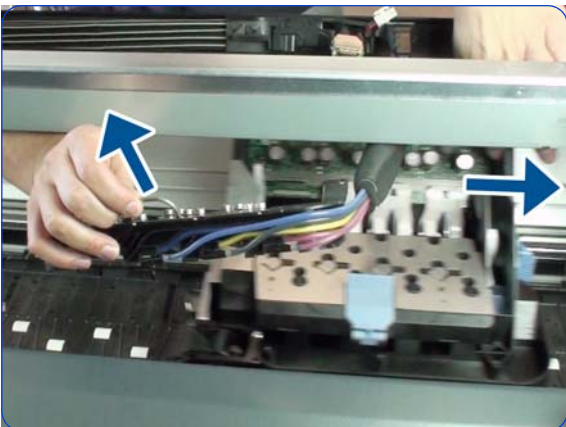
28. Remove three T-15 screws to freeze the Tubes Crane.



29. Remove two T-15 screws to free the Tubes Crane.



30. Remove the Tubes Crane.



31. Pull out the Tubes Crane and move the Carriage to the right to get it out of the way.

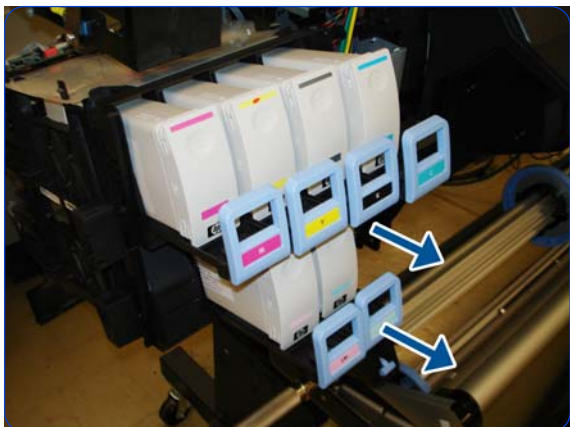


32. Disengage the three hooks that hold the Tubes along their fixed part.

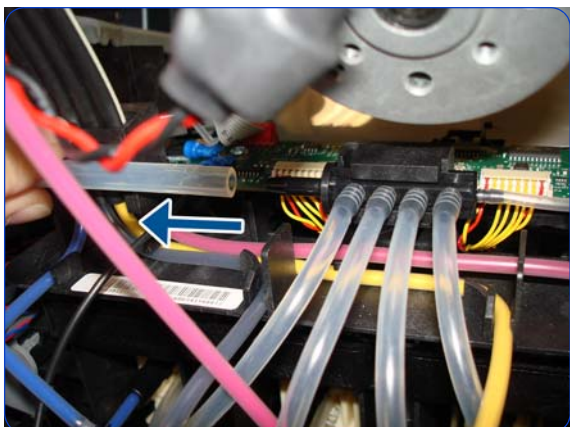




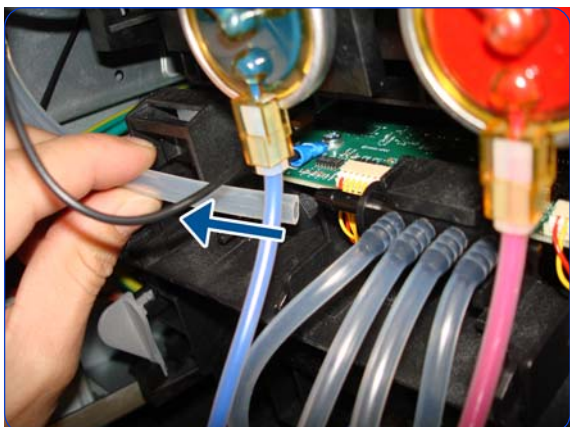
33. Disengage the Tubes from the Left Arc.



34. Pull out all the Ink Cartridge Trays.

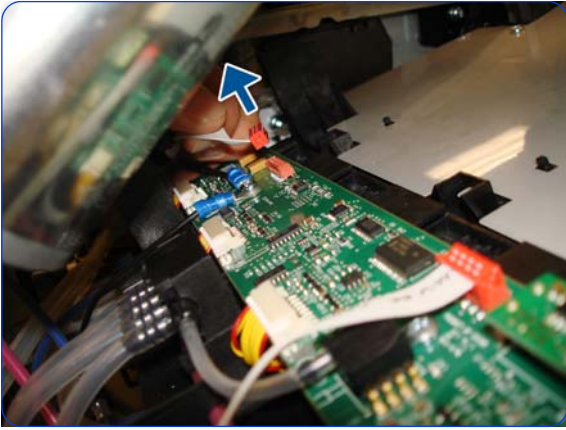


35. Disconnect the top Air Tubes from the Ink Supply Tubes.

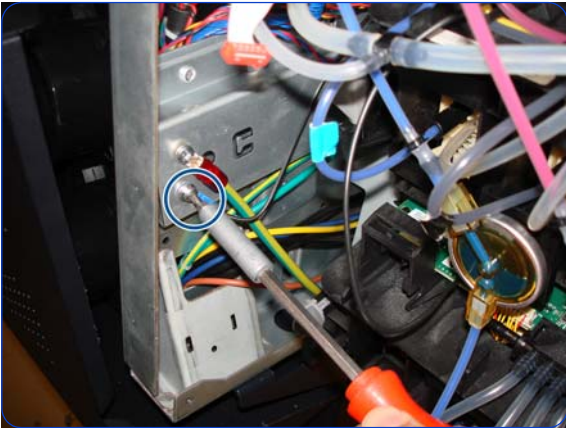


36. Disconnect the bottom Air Tubes from the Ink Supply Tubes.

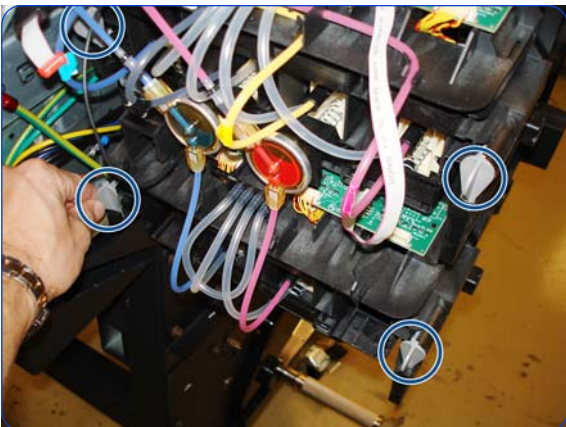




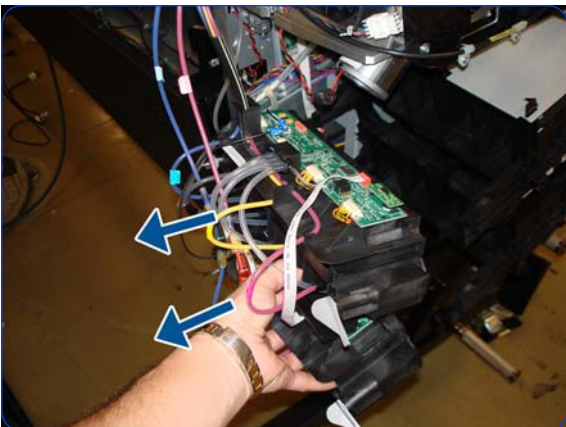
37. Disconnect the electrical cable from the ISS Top PCA.



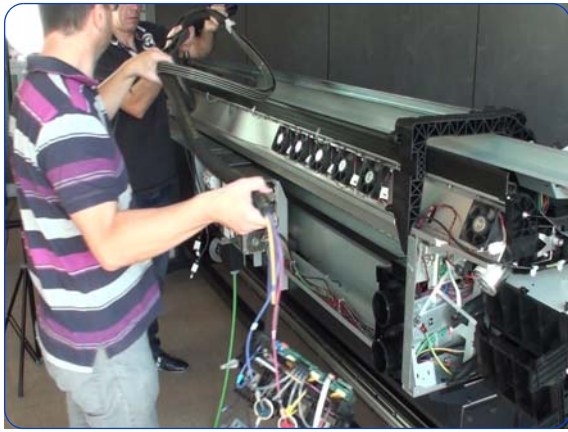
38. Remove the T-20 screw from the ISS grounding cable.



39. Unlock the Ink Supply Tubes.



40. Pull out the Ink Supply Tubes.



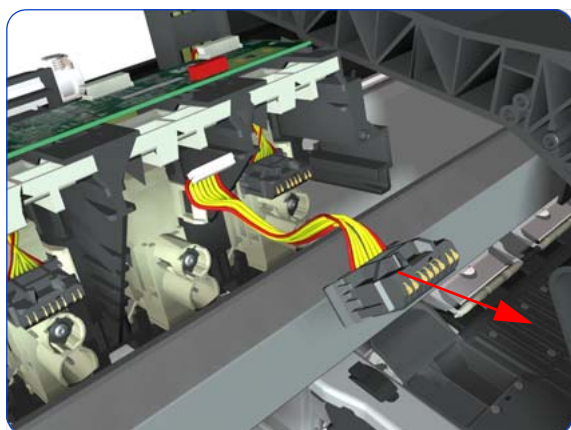
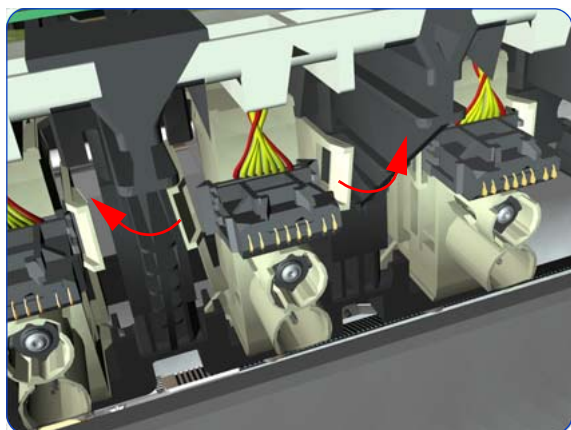
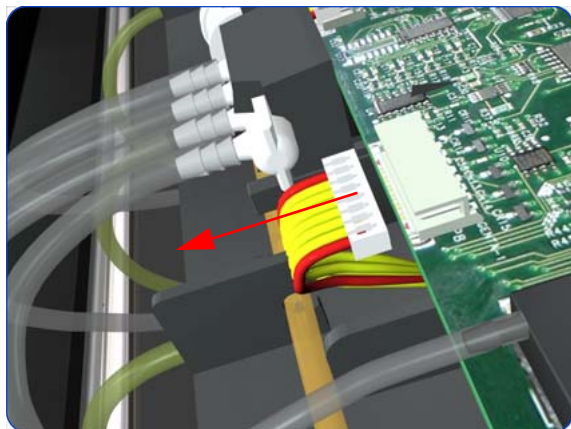
41. Two people are needed to remove the Ink Supply Tubes and the Trailing Cable.

## Installation

After installing the new Tubes, reset the Tubes/Trailing Cables life counter ⇒ page 188.

# ISS to Cartridge Cables

## Removal

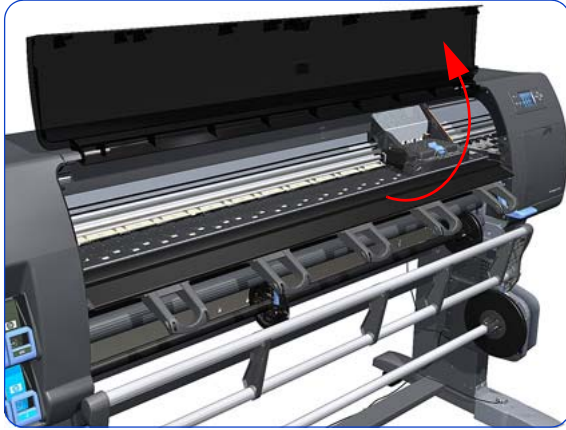


1. Remove the Left Cover ⇒ page 293.
2. Disconnect the ISS to Cartridge Cable from the ISS PCA.
3. Release the clips securing the ISS to Cartridge Cable.
4. Remove the ISS to Cartridge Cable from the printer.

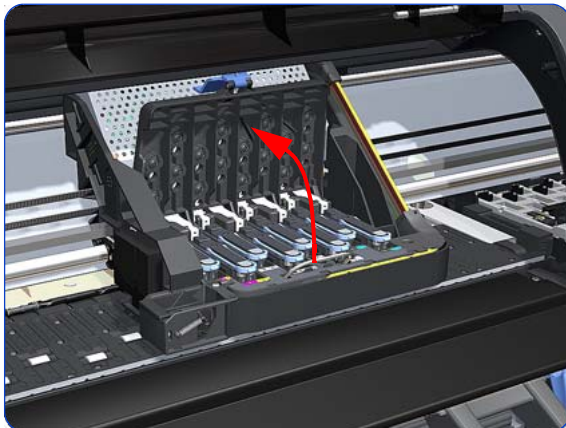
# Cutter Assembly

## Removal

1. Select "Replace Cutter" from Service Menu (refer to Chapter 4) and follow the instructions on the Front Panel.
2. Open the Window.

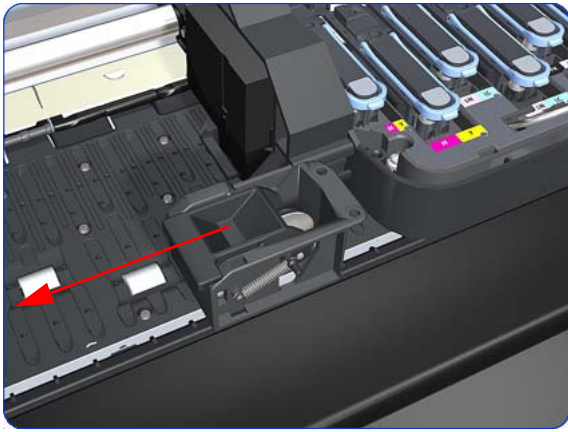


3. Open the Carriage Cover.



4. Remove one T-15 screw that secures the Cutter Assembly to the Carriage Assembly.





5. Slide the Cutter Assembly to the left and remove from the printer.

## Installation

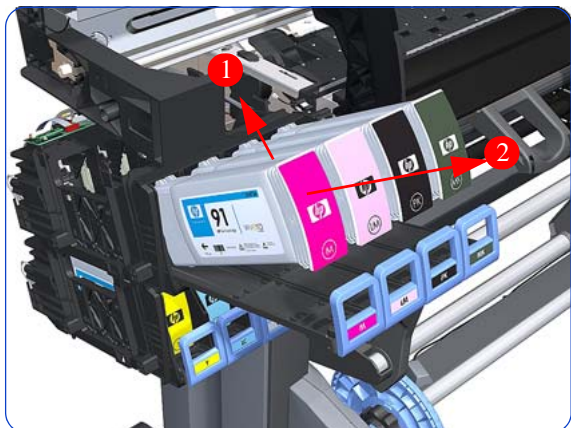
After installing the new cutter, reset the Cutter Cycles ⇒ page 188.



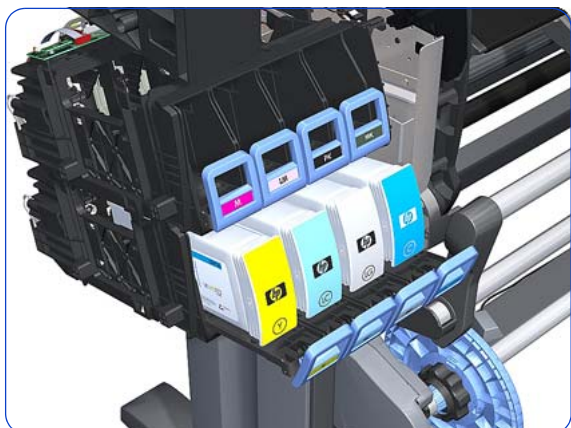
# Ink Supply Station (ISS)

## Removal

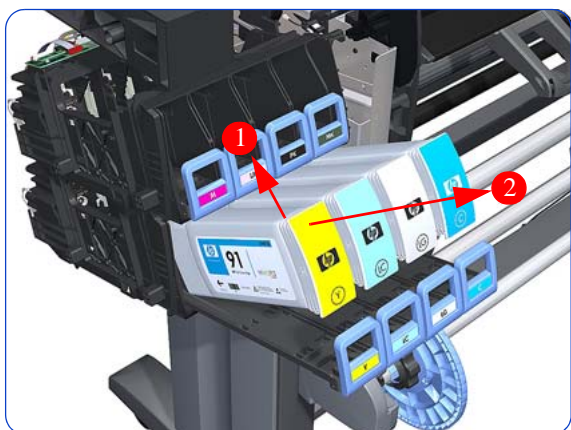
1. Remove the Left Cover ⇒ page 293.
2. Remove the Scan-Axis Motor ⇒ page 416.
3. Pull out the top row of Cartridge Trays and remove the Ink Cartridges.

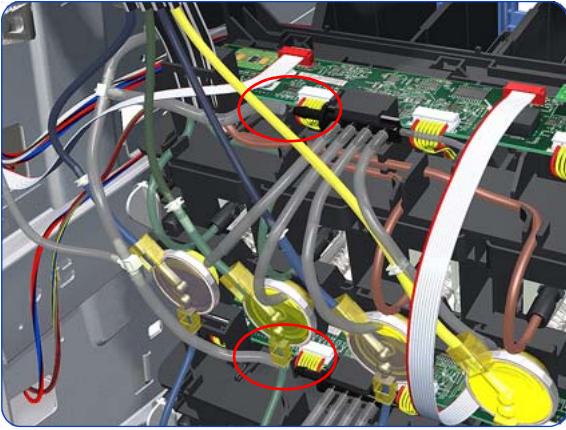


4. Close the top row of Cartridge Trays and pull out the bottom row.

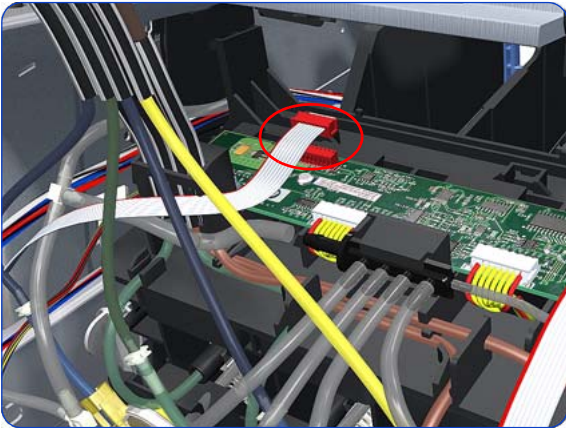


5. Pull out the bottom row of Cartridge Trays and remove the Ink Cartridges.

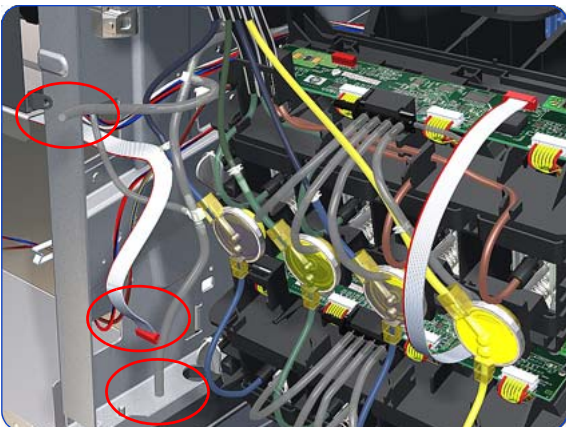




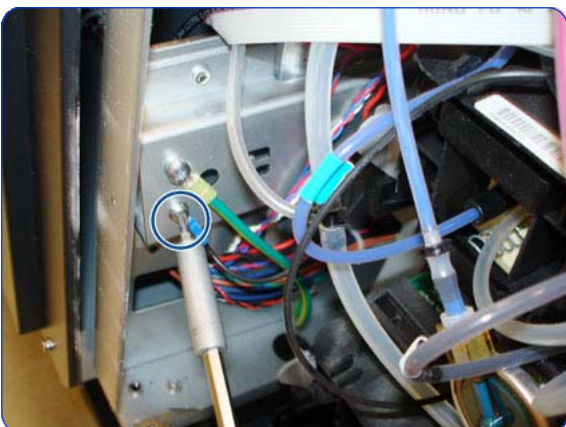
6. Disconnect the top and bottom Air Tubes from the Ink Supply Tubes.



7. Disconnect the Electrical Cable from the rear of the Ink Cartridge Tube Connector.

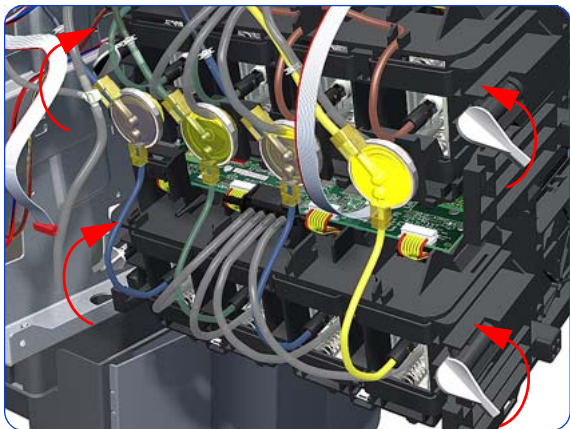


8. Put away the tubes and the cable.

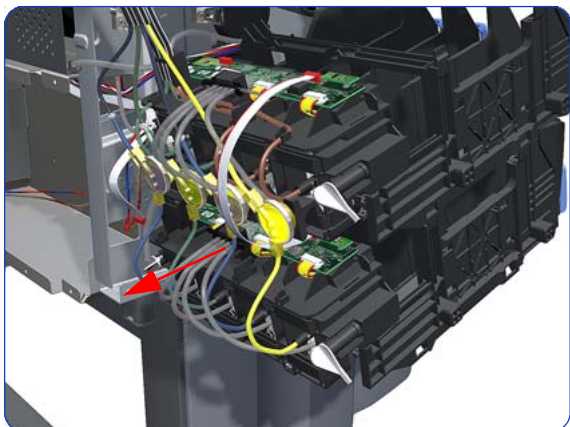


9. Remove one T-20 Screw from the Sideplate (grounding cable).

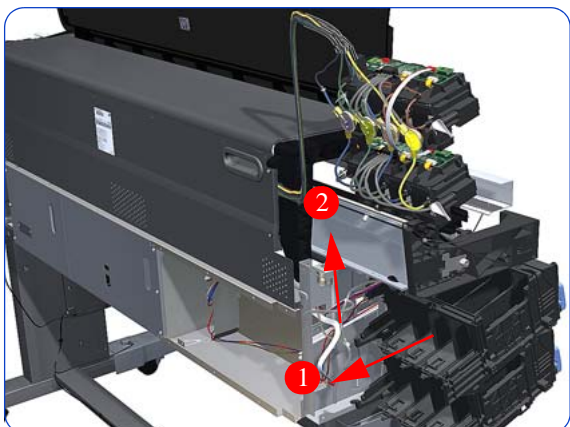




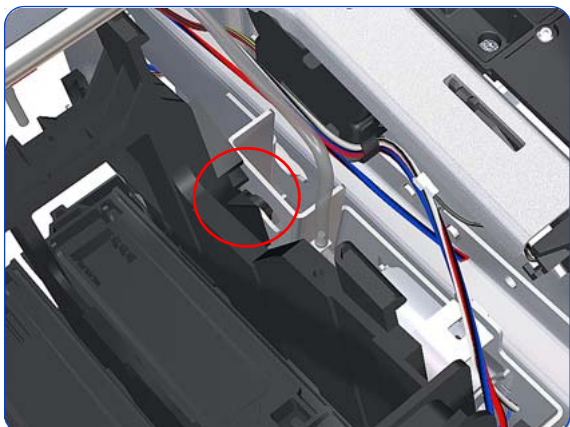
10. Twist the four latches at the rear of the lower Ink Cartridge Tube Connector and release the complete assembly.



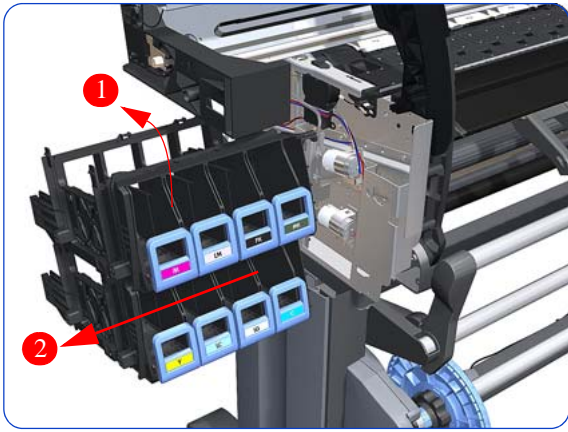
11. Lift the Cartridge Tube Connector off the Ink Supply Station.



12. Remove the Cartridge Tube Connector from the Ink Supply Station.



13. Unhook the Ink Supply Station from the printer.



14. Remove the complete Ink Supply Station (upper and lower assemblies) from the printer.

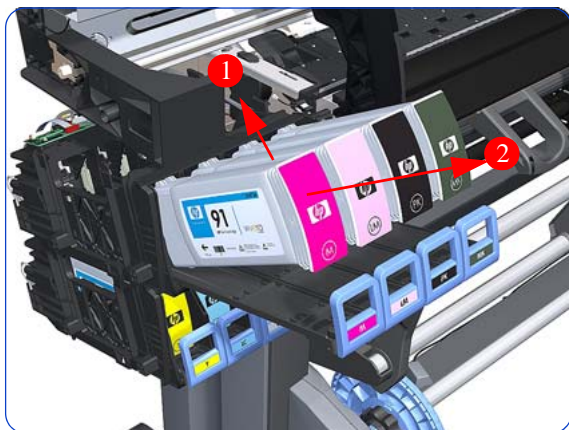
# Ink Supply Station PCAs (Top and Bottom)

## Removal

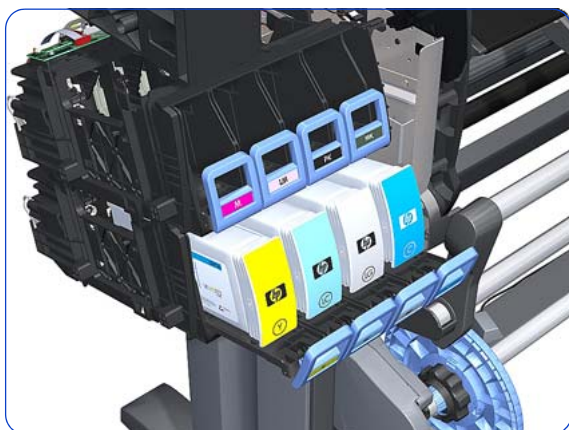


**NOTE:** You MUST NEVER replace both the Hard Disk Drive and the ISS PCAs (or the Ink Supply Tubes and Trailing Cable) at the same time. If these parts need to be replaced, you MUST first replace one part and then power ON the printer until it completely initializes. Then power OFF the printer and replace the other part.

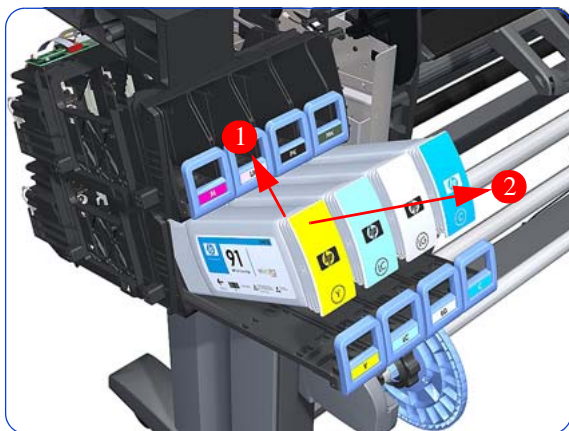
1. Remove the Left Cover ⇒ page 293.
2. Pull out the top row of Cartridge Trays and remove the Ink Cartridges.



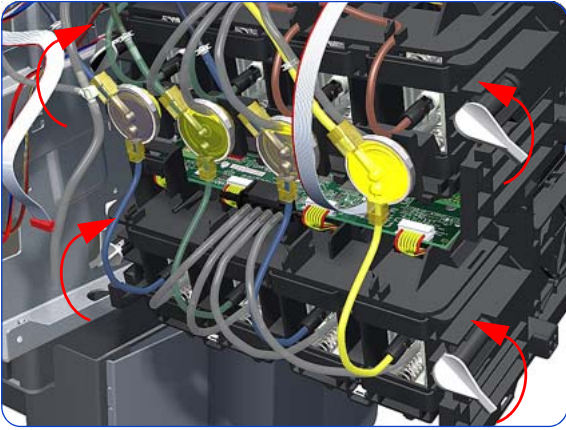
3. Close the top row of Cartridge Trays and pull out the bottom row.



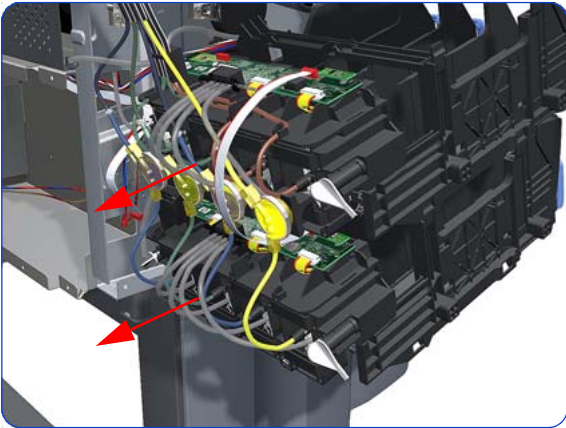
4. Pull out the bottom row of Cartridge Trays and remove the Ink Cartridges.



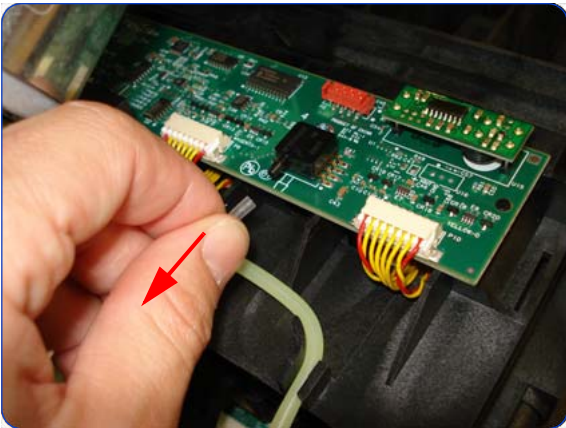




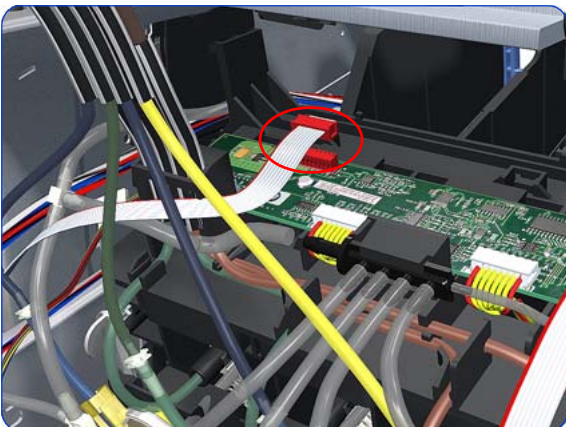
5. Twist the four latches at the rear of the lower Ink Cartridge Tube Connector and release the complete assembly.



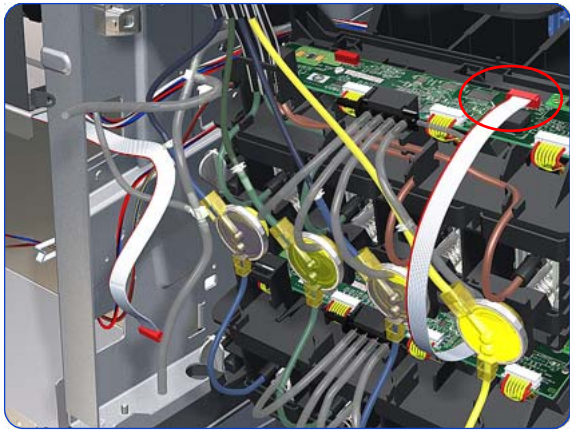
6. Slide the Upper and Lower Cartridge Tube Connectors out of the ISS Assembly (but do not remove) to gain access to the ISS Top PCAs.



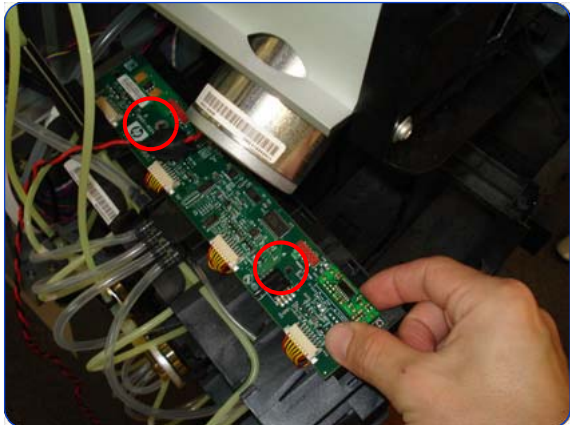
7. Disconnect the Air Tube from the ISS Top PCA.



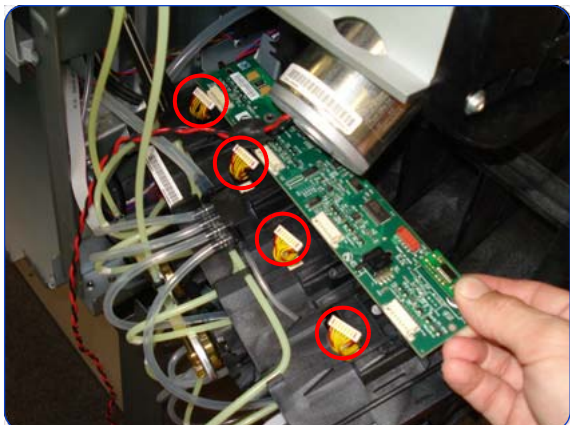
8. Disconnect the Electrical Cable from the ISS Top PCA.



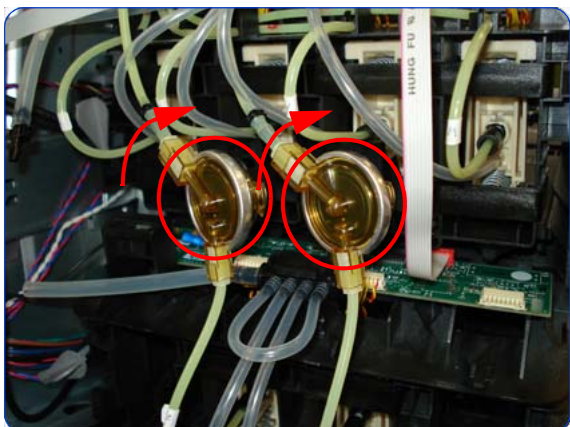
9. Disconnect the Electrical Cable from the ISS Top PCA.



10. Remove two T-10 screws from the ISS Top PCA.

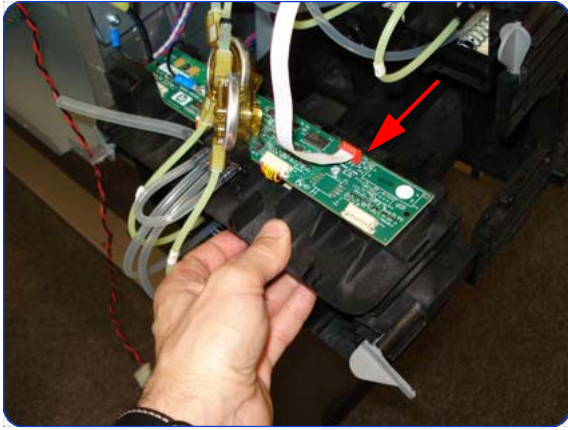


11. Disconnect four connectors from the ISS Top PCA.

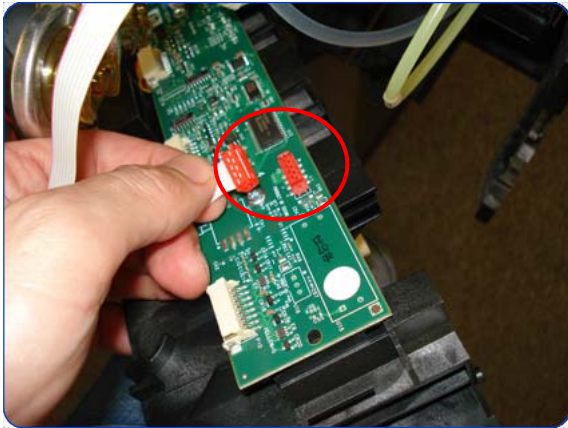


12. Tip: To make the removal easier you can remove the two Ink Valves located at the rear of the Upper Cartridge Tube Connector from holders, by turning them in a clockwise direction.

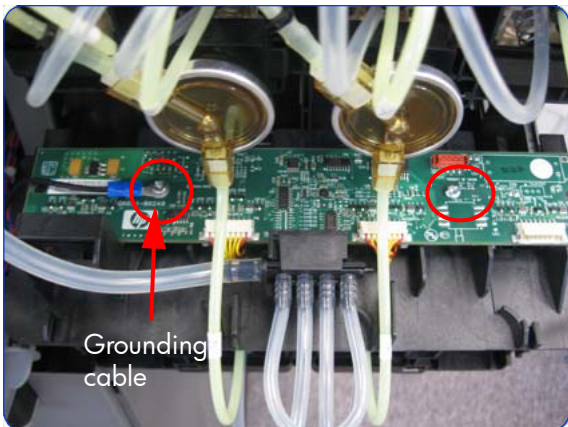




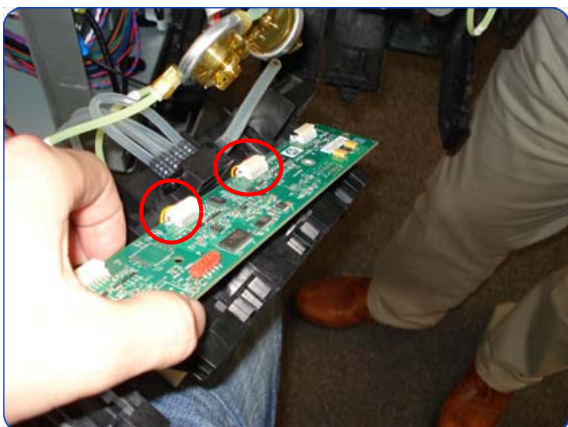
13. Slide out the Lower Carriage Tube Connector to gain access to the ISS Bottom PCA (but do not remove). You may need to slide in the Upper Carriage Tube Connector.



14. Disconnect the Electrical Cable from the ISS Bottom PCA.



15. Remove two T-10 screws from the ISS Bottom PCA (one screw also secures a grounding cable).

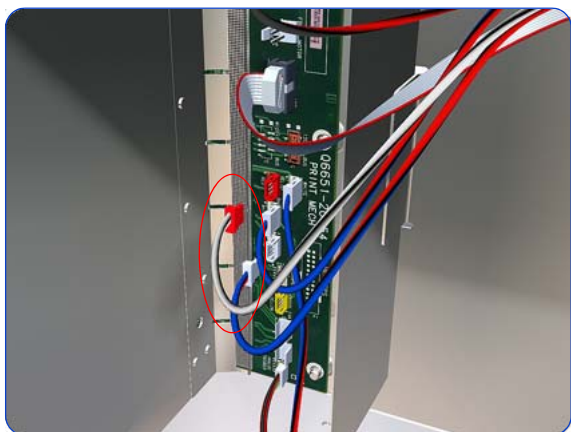


16. Disconnect the two Electrical Cables from the ISS Bottom PCA.

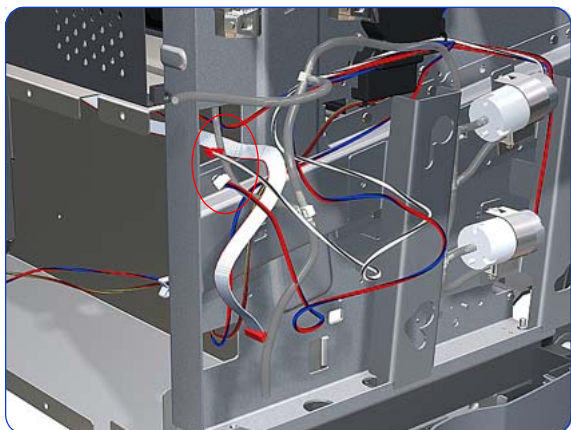
# APS Assembly

## Removal

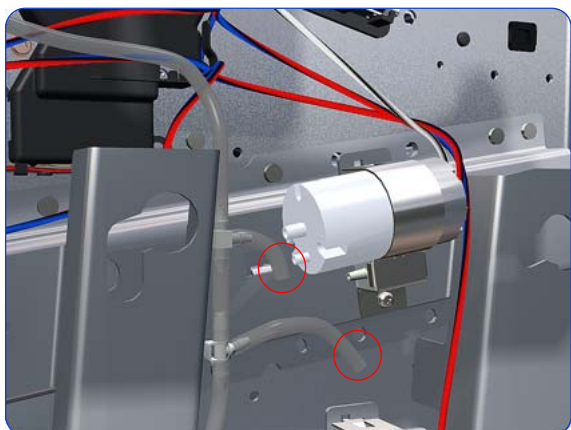
1. Remove the Left Cover ⇒ page 286.
2. Remove the Electronics Enclosure Extension ⇒ page 319.
3. Remove the Scan-Axis Motor ⇒ page 416.
4. Remove the ISS ⇒ page 384.
5. Disconnect the APS 1 (Top unit) valve electrical connectors from the PrintMech PCA.



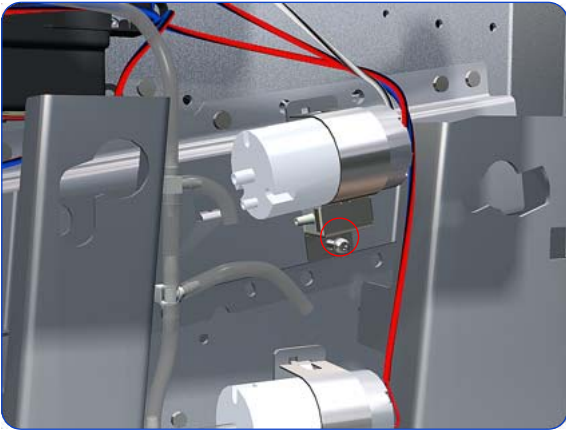
6. Unroute the APS 1 electrical connections.



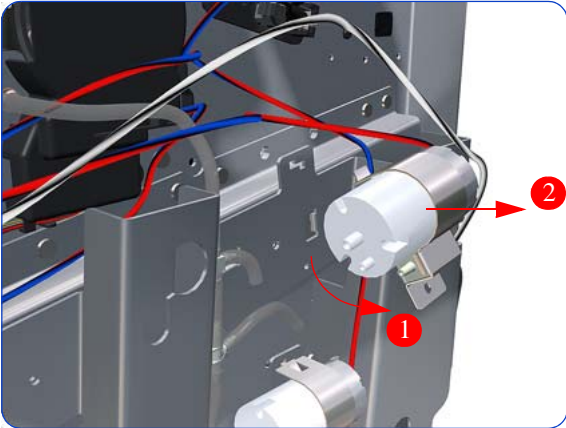
7. Disconnect both air tubes from APS 1.



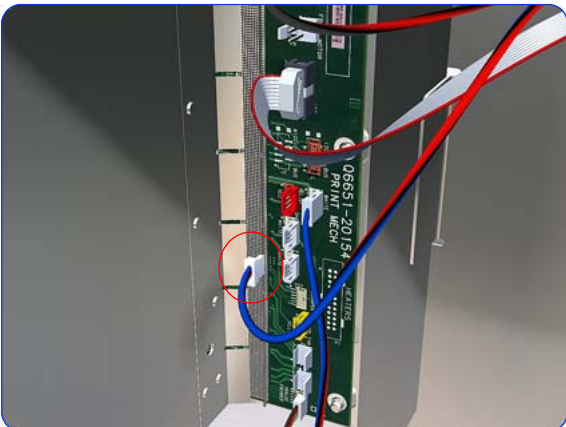




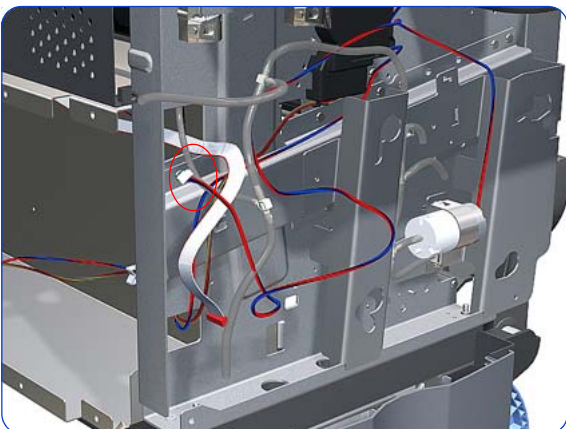
8. Remove one T-20 attachment screw from APS 1 (Top unit).



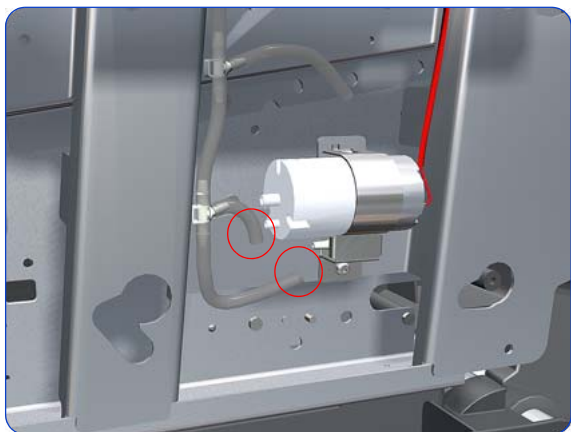
9. Remove APS 1 (Top unit) from the printer.



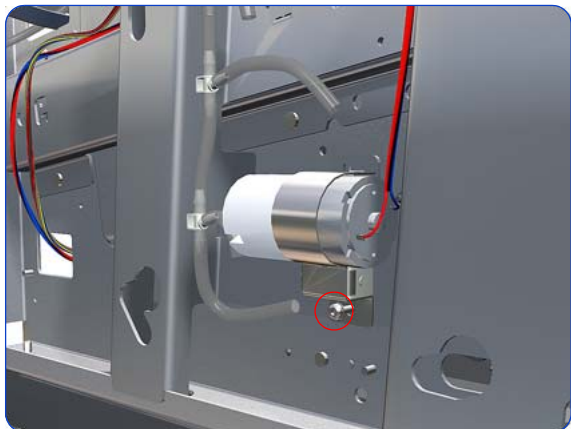
10. Disconnect the APS 2 (Top unit) valve electrical connectors from the PrintMech PCA.



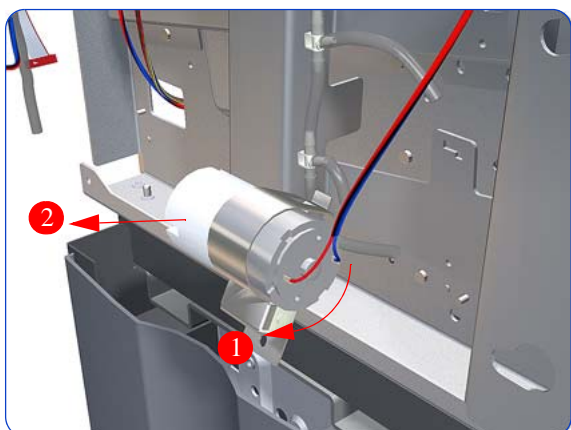
11. Unroute the APS 2 electrical connection.



12. Disconnect both air tubes from APS 2.



13. Remove one T-20 attachment screw from APS 2 (Bottom unit).



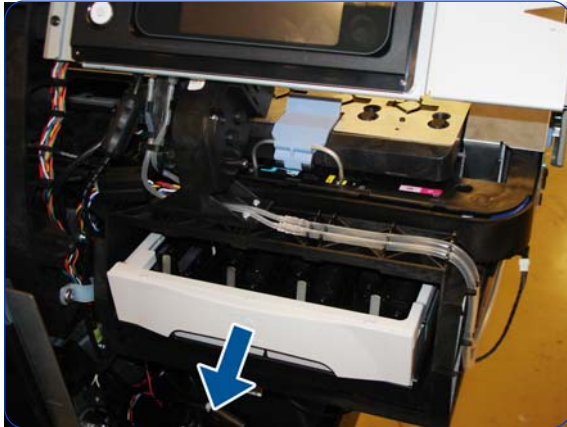
14. Remove APS 2 (Bottom unit) from the printer.

## Installation

After installing the new APS Pumps, reset the APS Pumps life counter ⇒ page 188.

# Encoder Strip

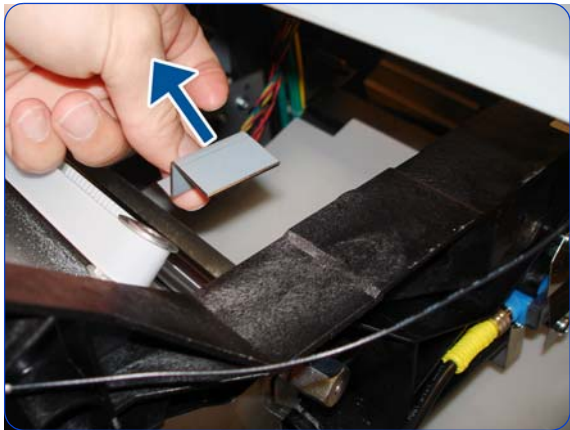
## Removal



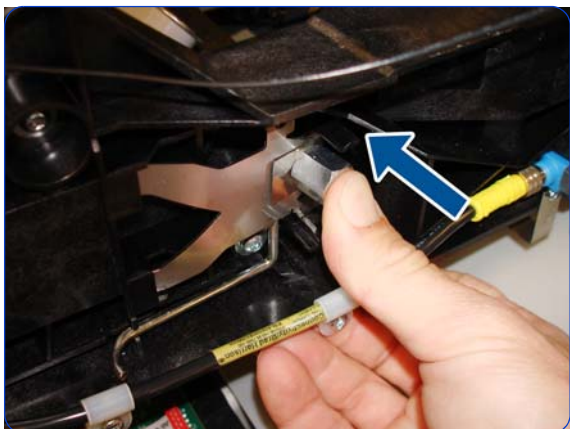
1. Remove the Right Cover ⇒ page 286.
2. Remove the Left Cover ⇒ page 293.
3. Uncap the Carriage Assembly by manually pulling out the Printhead Cleaning Cartridge tray.
4. Move the Carriage Assembly out of the Service Station.
5. Remove one T-10 screw.



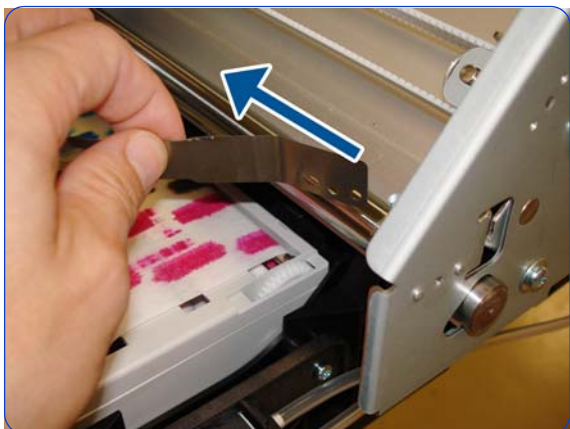
6. Remove one T-15 screw.



7. Remove the metal tensioner.



8. Push the spring clip to disengage the Encoder Strip from the right bracket.

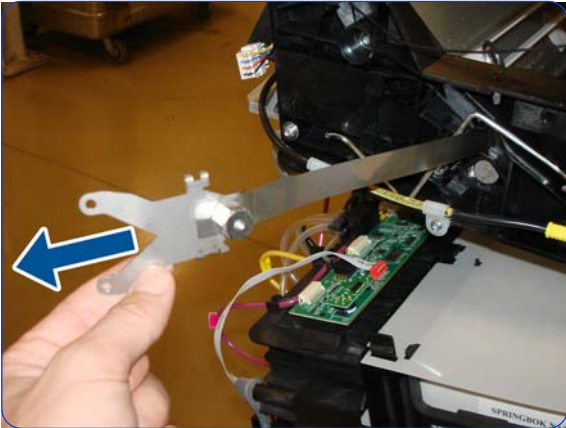


9. Release the Encoder Strip from the right bracket.





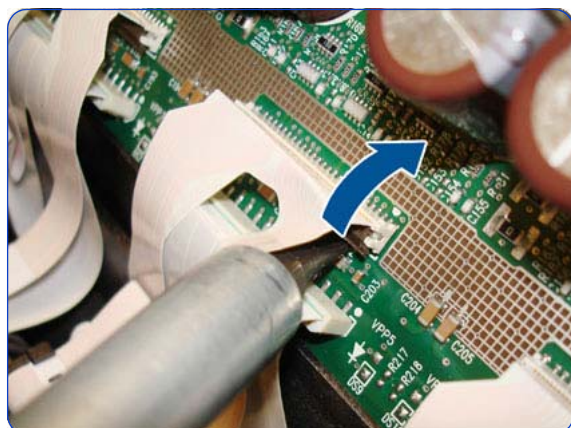
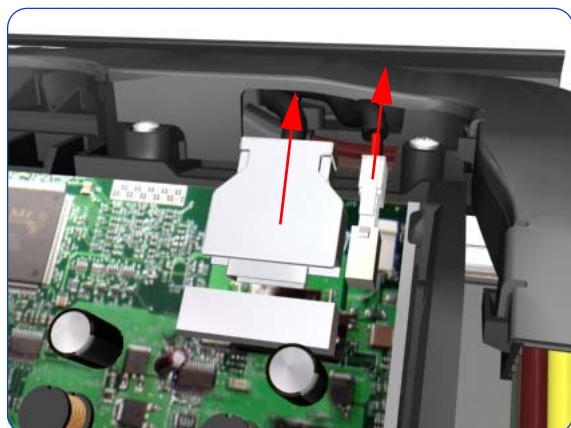
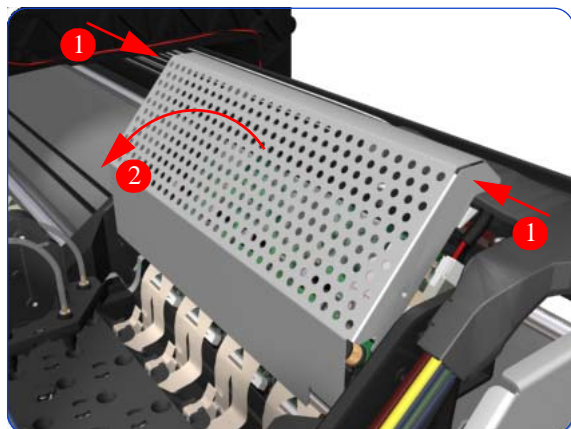
10. Rotate as shown.



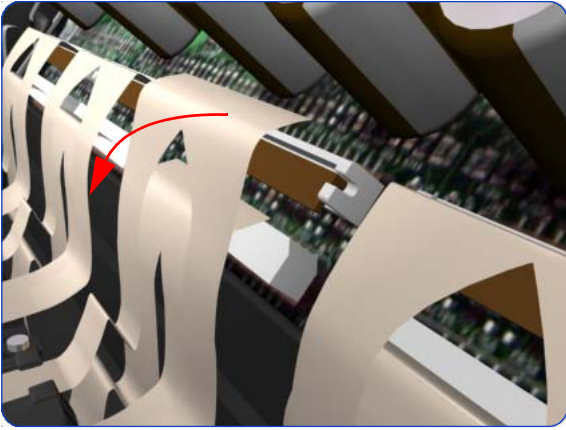
11. Remove the Encoder Strip.

# Carriage PCA

## Removal



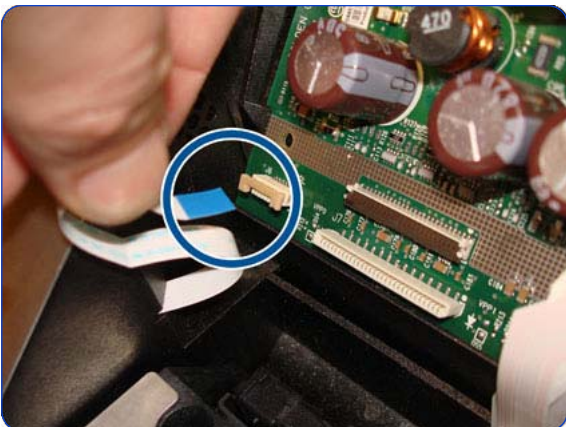
1. Remove the Right Cover ⇒ page 286.
2. Press the two side of the Carriage PCA Cover and unclip from the Carriage Assembly.
3. Disconnect the Trailing Cables from the Carriage PCA.
4. Use a flat bladed screwdriver to release ALL the clips, securing the Carriage Flex Cables to the Carriage Assembly, by pulling upwards.



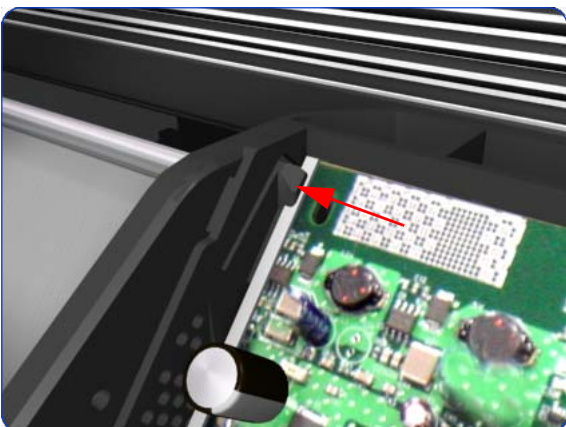
5. Disconnect the Flex Cables from the Carriage PCA.



6. Disconnect the Line Sensor Cable and the Encoder Sensor Cable from the Carriage PCA.

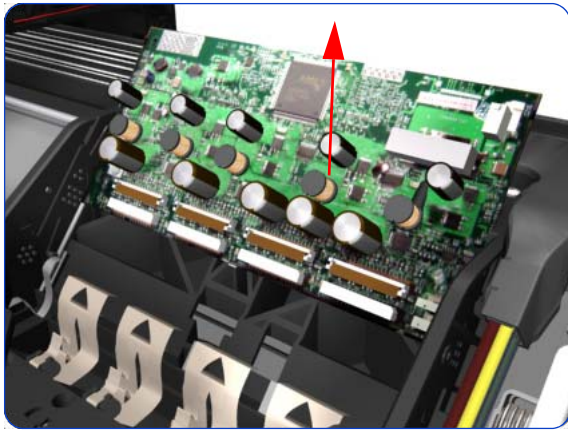


7. Unlock the connector and disconnect the Color Sensor Cable from the Carriage PCA.



8. Push inwards the four clips that secure the Carriage PCA.

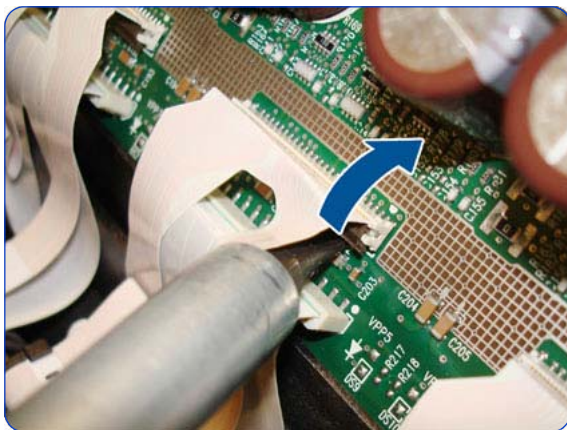
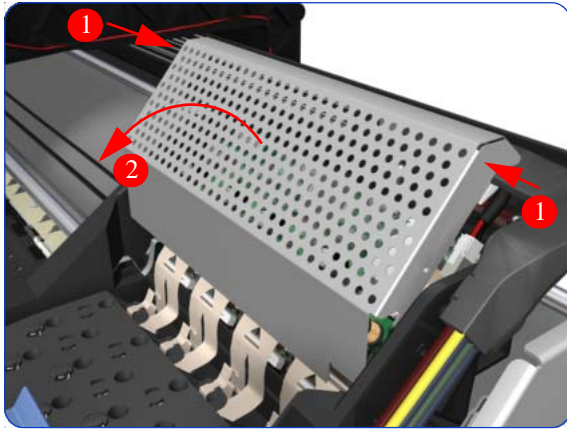




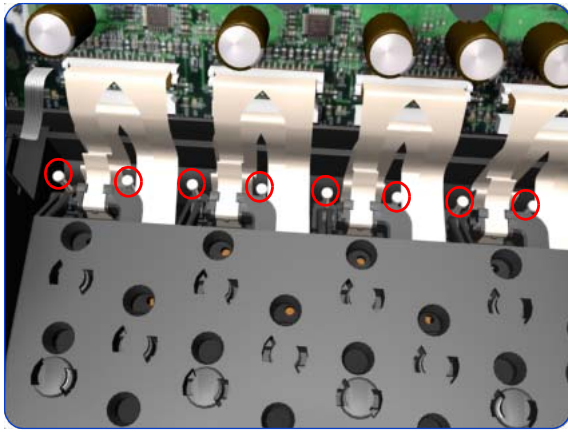
9. Remove the Carriage PCA from the printer.

# Carriage Flex Cables

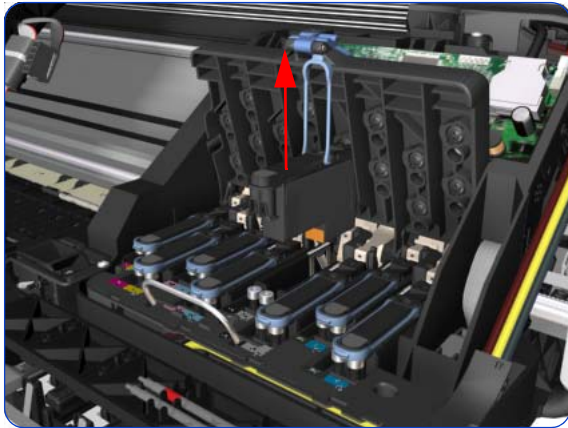
## Removal



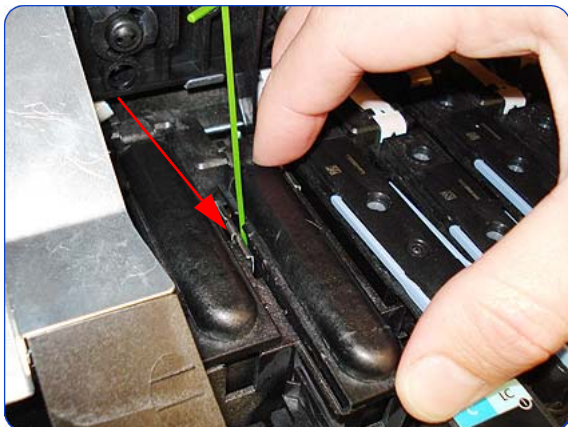
1. Remove the Right Cover ⇒ page 286.
2. Remove the Front Panel ⇒ page 332.
3. Remove the Primer Assembly ⇒ page 335.
4. Press the two side of the Carriage PCA Cover and unclip from the Carriage Assembly.
5. Use a flat bladed screwdriver to release ALL the clips, securing the Carriage Flex Cables to the Carriage Assembly, by pulling upwards.
6. Disconnect the ALL the Flex Cables from the Carriage PCA.



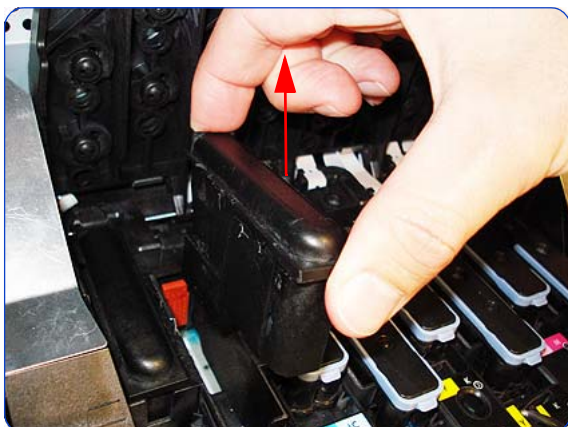
7. Remove eight T-8 screws that secure the Carriage Flex Cables to the Carriage Assembly.



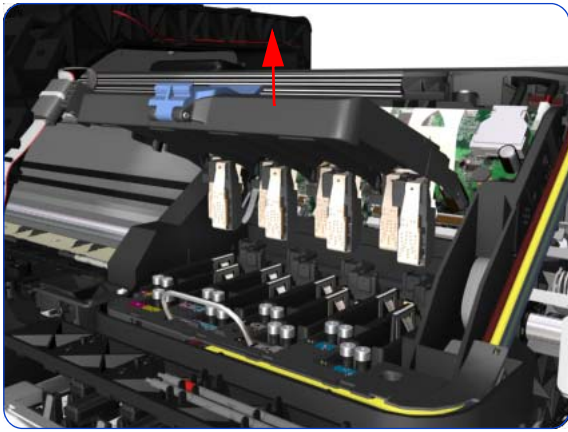
8. Open the Carriage Cover and remove ALL the Printheads from the Carriage Assembly.



9. The two unused spaces of the Carriage Assembly have dummy printheads installed. To remove them, insert a thin bladed tool into a small hole on the left to release them from a latch located underneath.



10. Remove the dummy Printheads.



11. Remove the Carriage Flex Cable from the printer.

# Oiler and Felt Pads

## Removal



1. Remove the Right Cover ⇒ page 286.
2. Remove the Printhead Cleaning Cartridge.
3. Move the Carriage to the center of the platen.
4. On the right side of the carriage, locate the 3 screws (highlighted in red in the picture) attaching the oiler to the carriage.

Remove these 3 screws (T8 SLOT), starting from the bottom ones, with a T8 screwdriver or a small flat screwdriver.



5. Remove the Oiler Assembly. Be extremely careful not to damage the metal Encoder Strip.
6. Remove the 5 Felt Pads from the Carriage cavities. You are recommended to wear gloves.
7. With a cloth, clean any oil residue from the Carriage, especially if you see it around the Line Sensor.
8. Follow the same procedure on the left side of the Carriage.



## Installation



To improve the effectiveness of the Felt Pads, use care when inserting them back into the Carriage. Place them as shown in the following picture, with the top pads in a horizontal position and the bottom pads popping out of their holes.



Do not insert them as shown in the following picture.



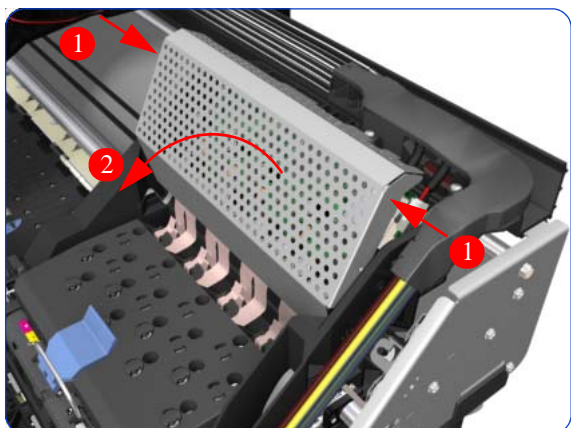
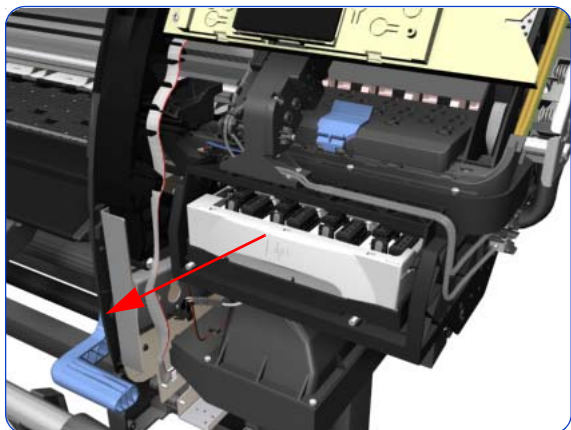
After installing the new Oiler and Felt Pads, perform the following operations:

- Carriage Rail cleaning and lubrication. See the *User's Guide*.
- Reset the Replace Oiler Foam life counter ⇒ page 188.

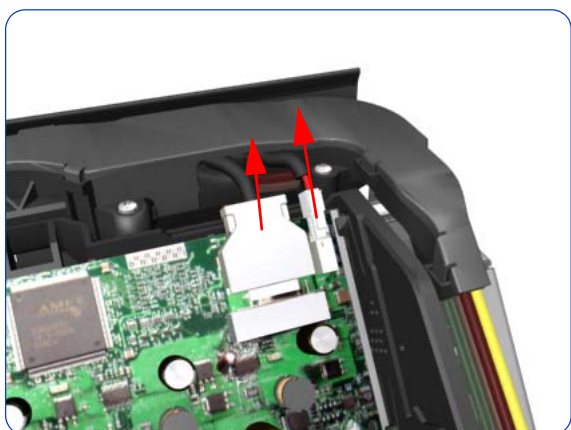
# Carriage Assembly with Belt, Pulley, and Tensioner

## Removal

1. Remove the Right Cover ⇒ page 286.
2. Remove the Front Panel ⇒ page 332.
3. Remove the Left Cover ⇒ page 293.
4. Remove the Encoder Strip ⇒ page 395.
5. Pull out the Printhead Cleaning Cartridge tray.

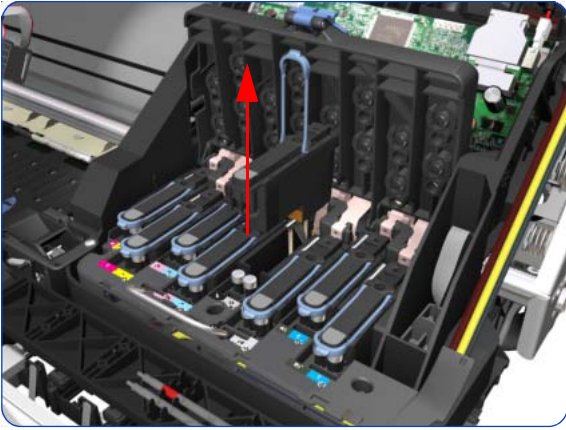


6. Press the two side of the Carriage PCA Cover and unclip from the Carriage Assembly.

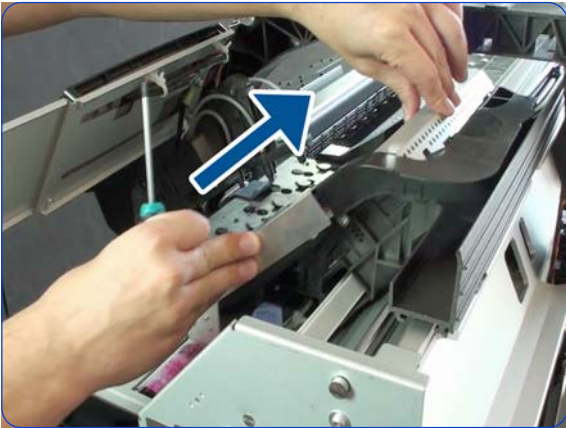


7. Disconnect the Trailing Cable from the Carriage PCA.

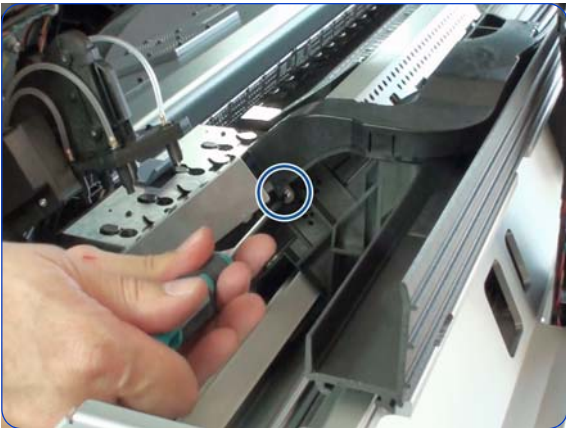




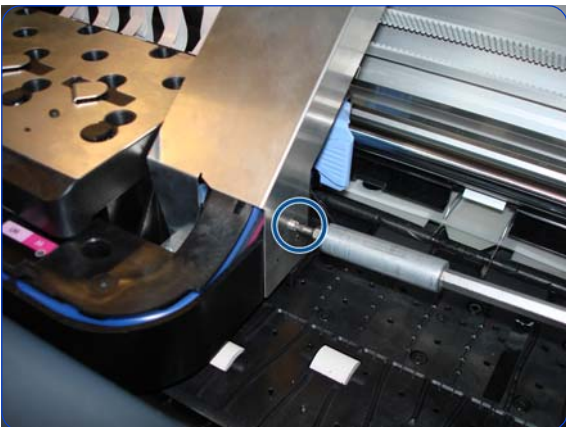
8. Open the Carriage Cover and remove ALL the Printheads from the Carriage Assembly.



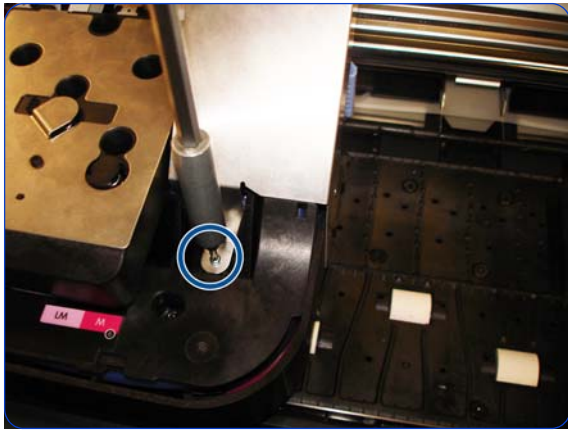
9. Move the carriage in order to get access to the Carriage Protector screws.



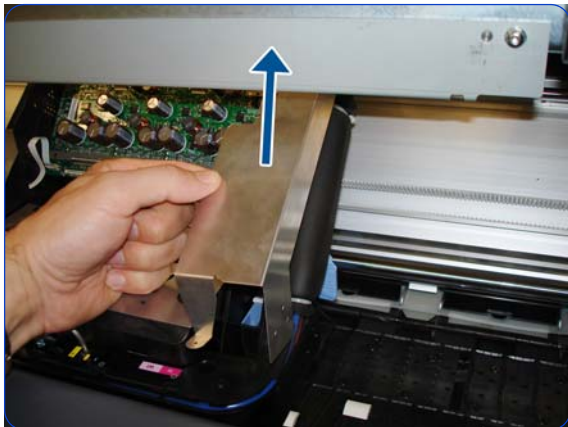
10. Remove a T-8 screw.



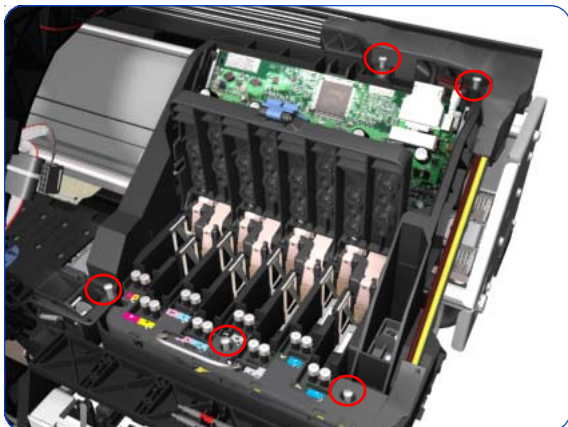
11. Remove a T-8 screw.



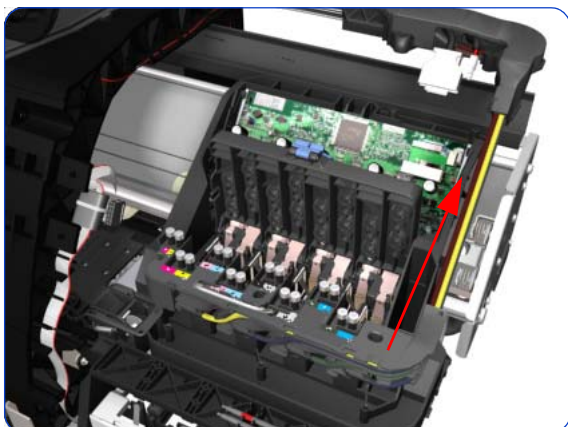
12. Remove a T-8 screw.



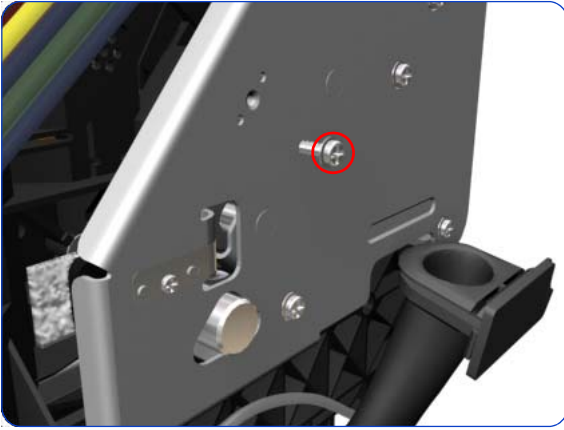
13. Remove the Carriage Protector.



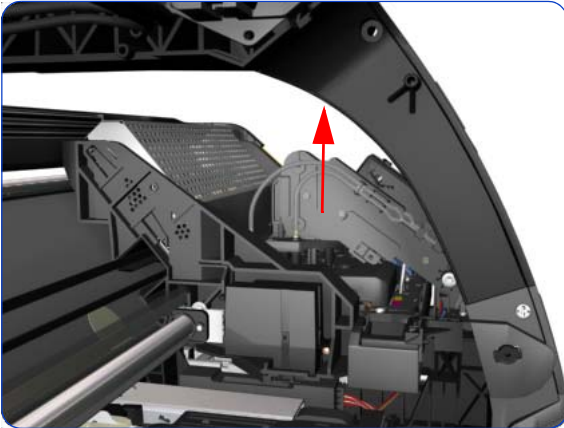
14. Remove five T-15 screws that secure the Ink Supply Tubes to the Carriage Assembly.



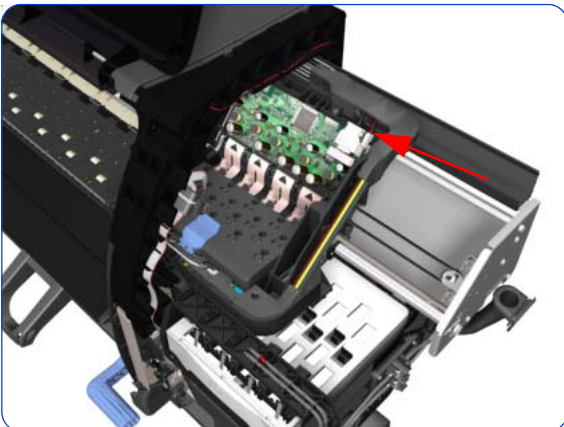
15. Remove the Ink Supply Tubes from the Carriage Assembly and safely place to one side of the printer.



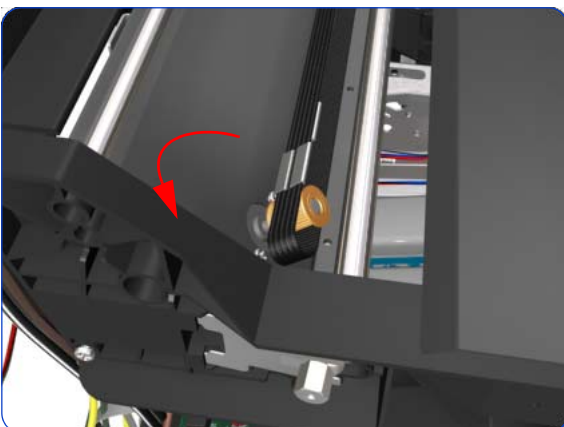
16. Remove one T-20 screw that secures the Belt Tensioner to the Chassis.



17. Lift the Primer and hold the Primer to its maximum position to avoid damaging it when you move the Carriage Assembly in the next step.

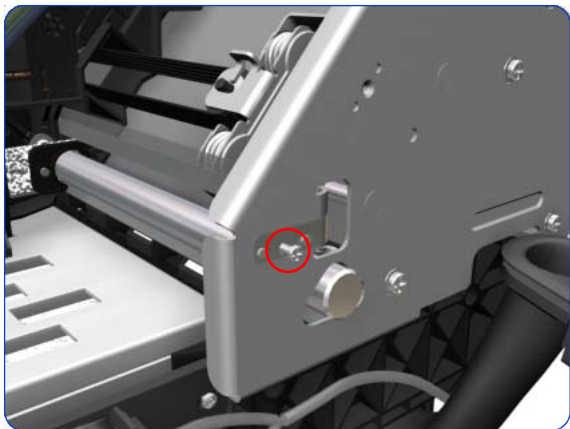


18. Move the Carriage Assembly slightly away from the right Scan-Axis Bracket.



19. Release the Carriage Belt from the Scan-Axis Motor on the left hand side of the printer.





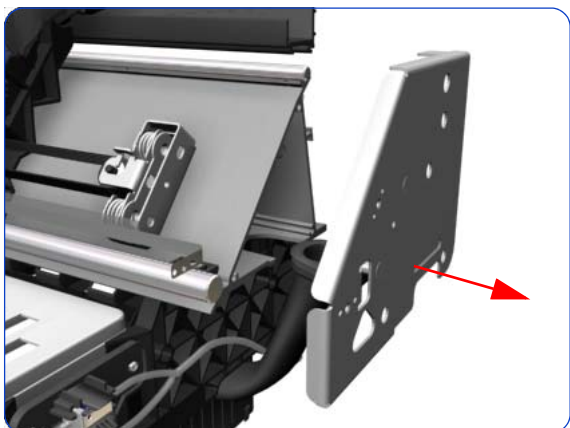
20. Remove one T-10 screw that secure the Encoder Strip.



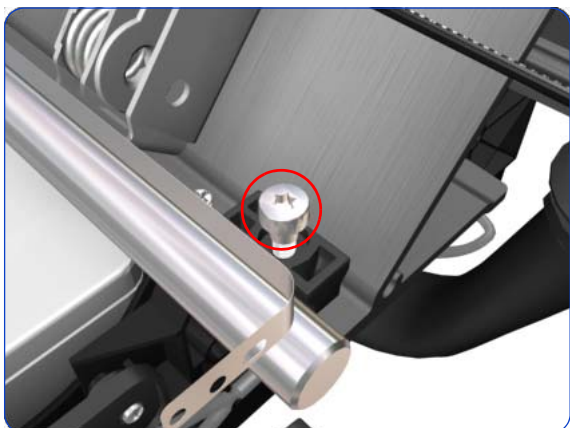
21. Remove four T-20 screws that secure the right Scan-Axis Bracket.



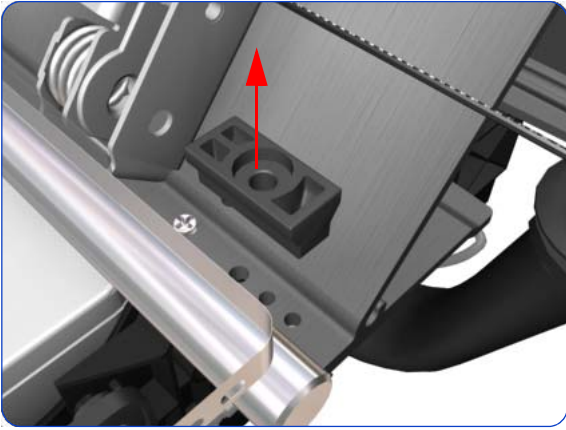
**NOTE:** Note that these are Chassis screws and in normal circumstances should NEVER be removed, but in this case we need to remove them in order to remove the Carriage Assembly.



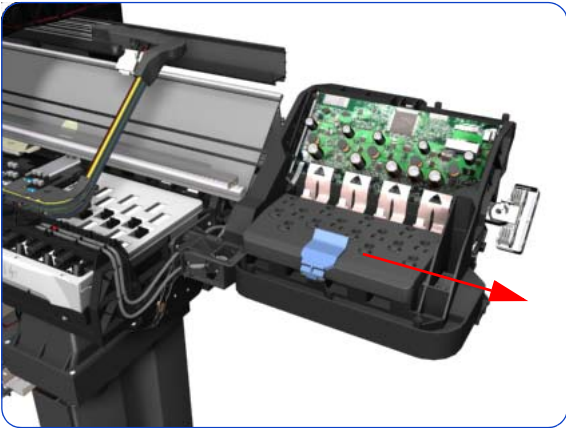
22. Remove the right Scan-Axis Bracket from the printer.



23. Remove the Carriage Stopper Screw (T-20) from the Chassis.



24. Remove the Carriage Stopper from the printer.



25. Slide the Carriage Assembly (including the belt) to the right and out of the printer.

26. If the Carriage Assembly is to be replaced, make sure that you remove the Belt, the Carriage PCA, Color Sensor, Encoder and Line Sensors and the Cutter Assembly (in order to install them on the new Carriage Assembly).

## Installation

After installing the new Carriage Assembly, perform the following operations:

- Scan-Axis Calibration ⇒ page 193.
- Line Sensor Calibration ⇒ page 195.
- Primer Calibration ⇒ page 197.

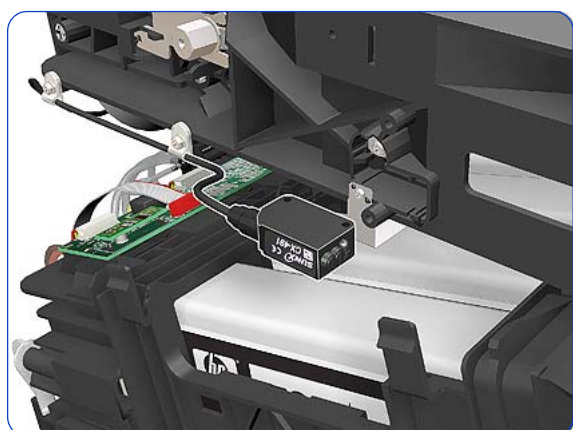
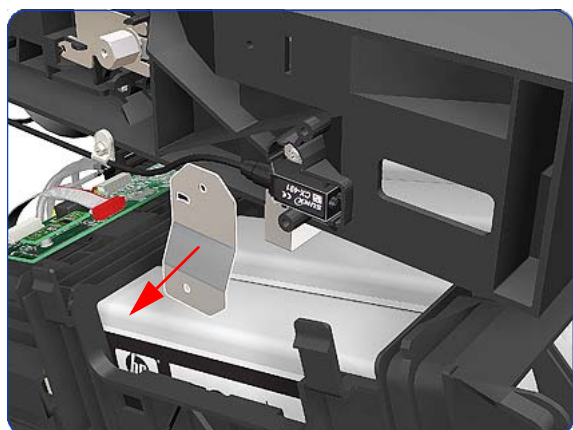
And reset the following life counters:

- Carriage cycles ⇒ page 188.
- Cutter cycles ⇒ page 188.
- Replace Oiler Foam ⇒ page 188.

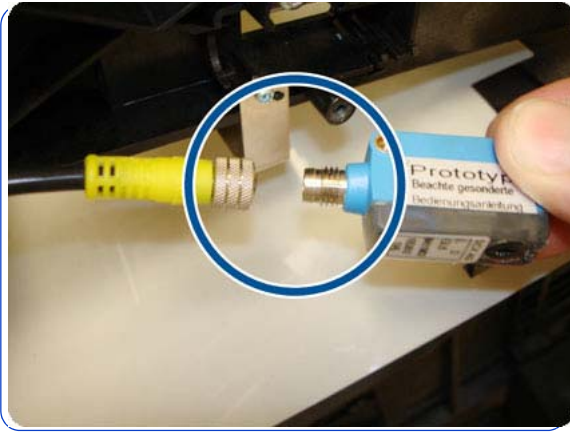
# Media Jam Sensor and Carriage Reflector Assembly

## Removal

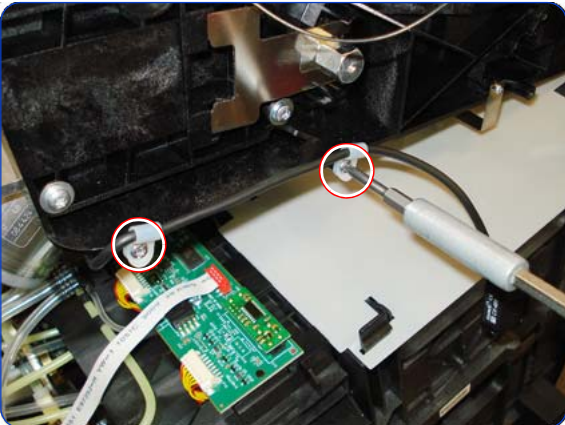
1. Remove the Left Cover ⇒ page 293.
2. Remove the Power Box Cover ⇒ page 311.
3. Remove the Electronics Enclosure Extension Cover ⇒ page 319.
4. Remove the Back Cover ⇒ page 302.
5. Remove two T-15 screws from the Media Jam Sensor.



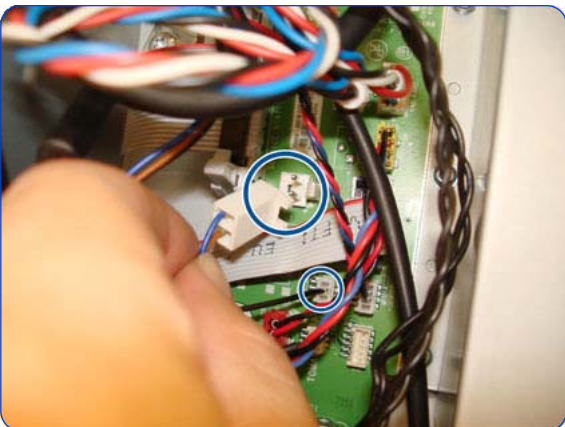
6. Remove the Media Jam Sensor Plate.
7. Remove the Media Jam Sensor from the clip on the Left Scan-Axis Bracket.



8. Disconnect the Media Jam Sensor from the cable by unscrewing.



9. Remove two T-15 screws from cable clamps securing the cable of the Media Jam Sensor to the Left Scan-Axis bracket, and unroute the cable all the way to the Printmech PCA.

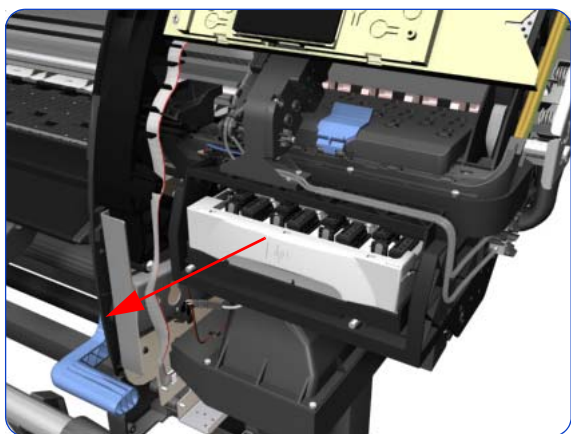


10. Disconnect the cable of the Media Jam Sensor from the cable from the PrintMech PCA.

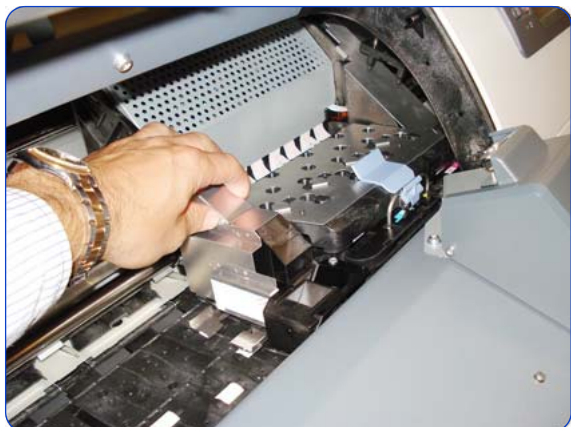


11. Open the Printhead Cleaning Cartridge Door.

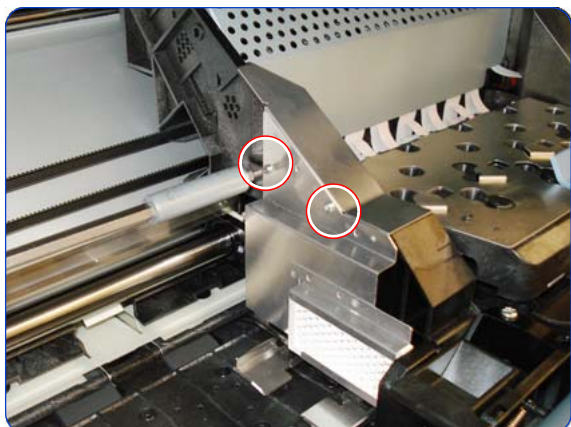




12. Pull out the Printhead Cleaning Cartridge tray.



13. Slide the Carriage to the center of the platen.



14. Remove two T-8 screws from the side of the Reflector Assembly.



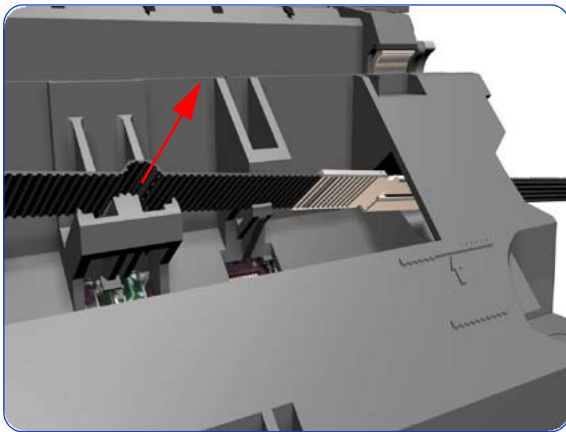
15. Remove the Carriage Reflector Assembly.

# Belt Assembly

## Removal

This procedure is the extra step required to replace the Belt and Tensioner Assembly, once the Carriage has been disassembled from the printer.

1. Remove the Right Cover ⇒ page 286.
2. Remove the Left Cover ⇒ page 293.
3. Remove the Top Cover ⇒ page 304.
4. Remove the Encoder Strip ⇒ page 395.
5. Remove the Carriage Assembly ⇒ page 406.
6. Release the Belt from the bottom of the Carriage Assembly.



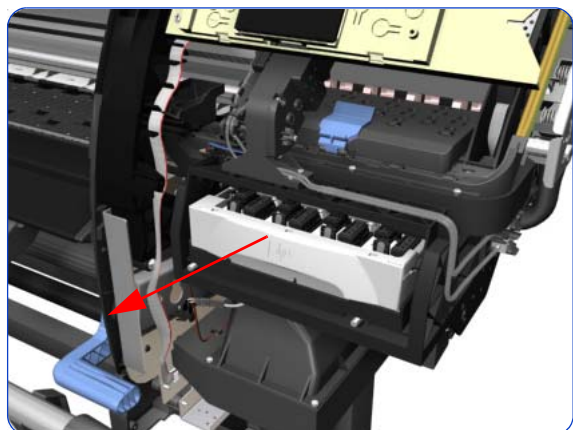
## Installation

After installing the new Belt Assembly, reset the Belt Cycles ⇒ page 188.

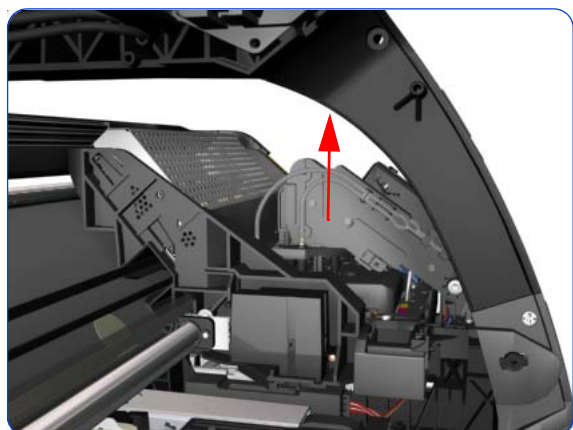
# Scan-Axis Motor

## Removal

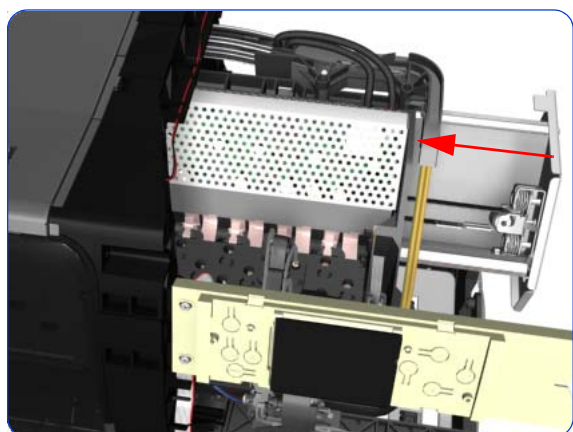
1. Remove the Right Cover ⇒ page 286.
2. Remove the Left Cover ⇒ page 293.
3. Remove the Electronics Enclosure Extension⇒ page 319.
4. Uncap the Carriage Assembly by manually pulling out the Printhead Cleaning Cartridge tray.



5. Lift the Primer and hold the Primer to its maximum position to avoid damaging it when you move the Carriage Assembly in the next step.

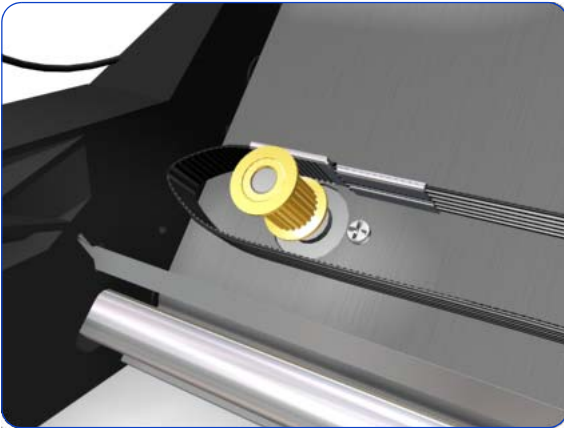


6. Move the Carriage Assembly slightly away from the right Scan-Axis Bracket.





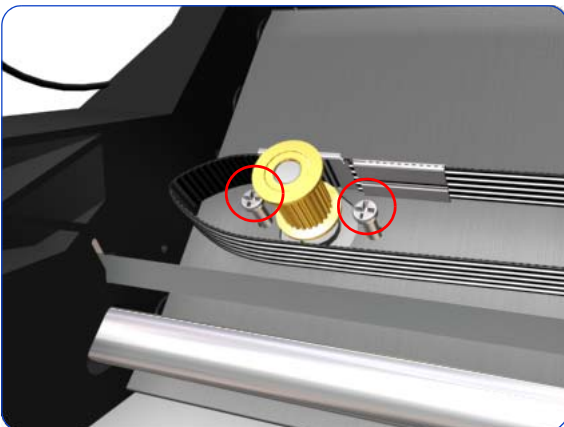
7. Remove one T-15 screw that secures the Belt Tensioner to the Chassis.



8. Release the Carriage Belt from the Scan-Axis Motor on the left hand side of the printer.



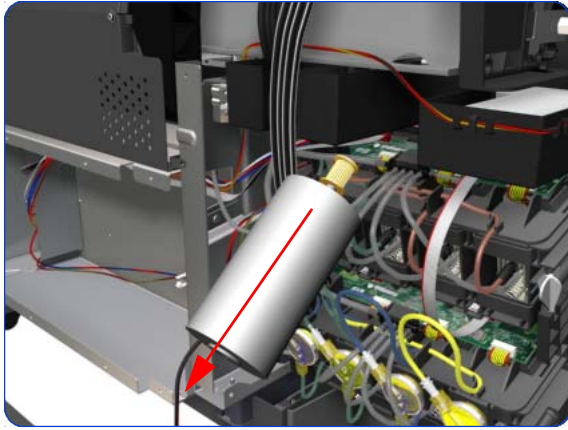
9. Disconnect the Scan-Axis Motor cable from the PrintMech PCA, and unrout the cable along its whole length.



10. Remove two T-20 screws that secure the Scan-Axis Motor.



**NOTE:** Make sure you hold the Scan-Axis Motor securely when removing the screws.



11. Remove the Scan-Axis Motor from the printer.

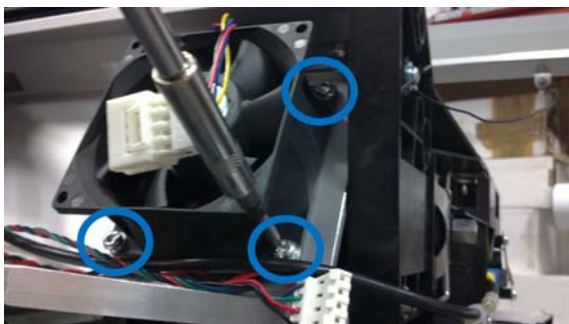
## Installation

After installing the new Scan-Axis Motor, reset the Scan-Axis Motor life counter ⇒ page 188.



# Scan-Axis Motor Fan

## Removal



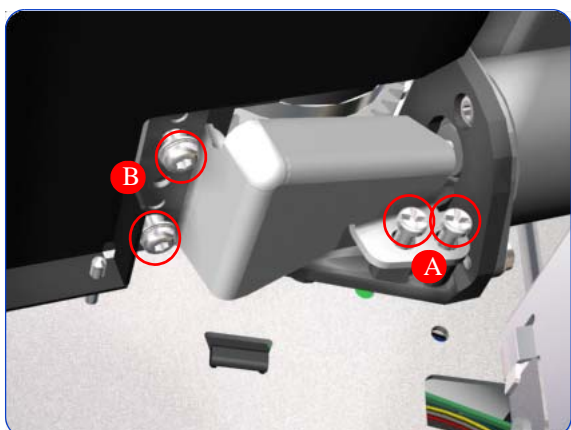
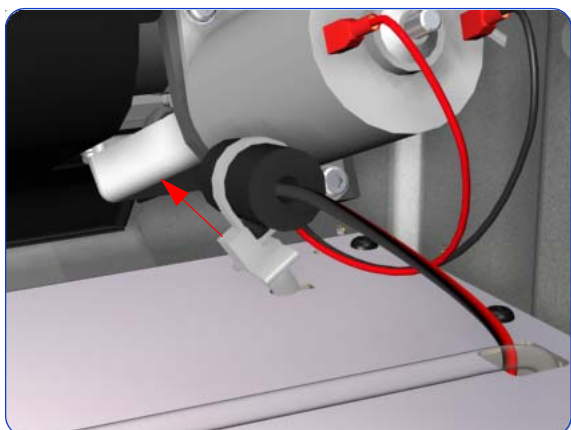
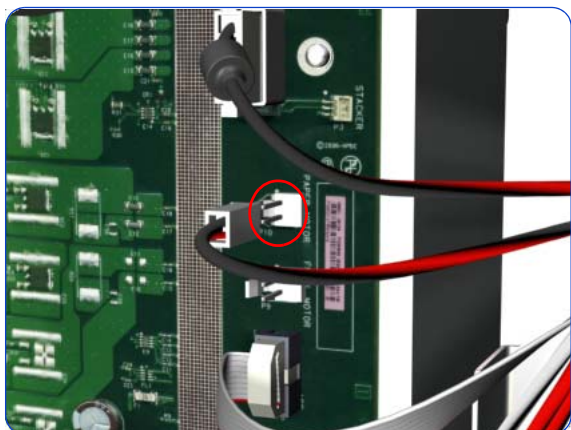
1. Remove the Right Cover ⇒ page 286.
2. Disconnect the Scan-Axis Motor Fan connector.
3. Untie the Scan-Axis Motor Fan cable.
4. Remove three T-20 screws and pull out the Scan-Axis Motor Fan.

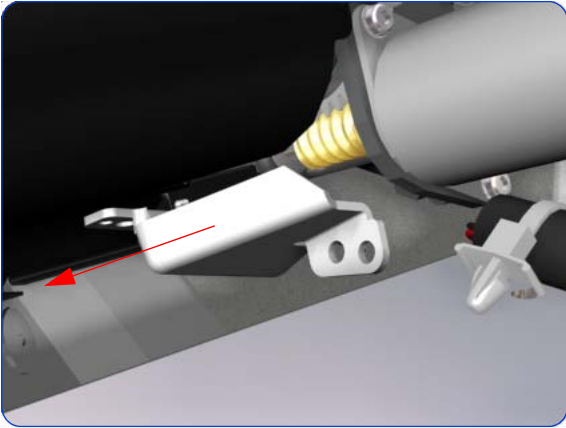


# Media-Axis Motor

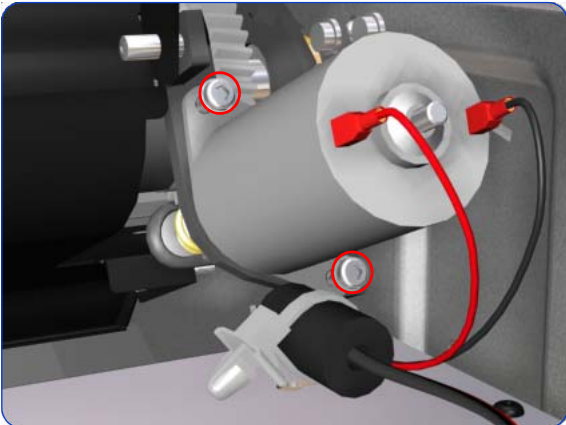
## Removal

1. Remove the Left Cover ⇒ page 293.
2. Remove the Electronics Enclosure Extension Cover ⇒ page 319.
3. Remove the Back Cover ⇒ page 302.
4. Disconnect the Media-Axis Motor cable from the PrintMech PCA.
5. Detach the clamp of the ferrite core of the Media-Axis Motor cable from the printer chassis.
6. Remove the T-15 screws identified (A) and loosen the T-15 screws identified (B) that secure the Media-Axis Motor.

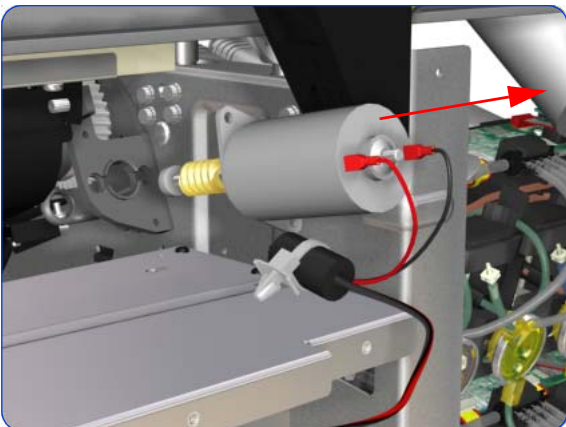




7. Remove the Media-Axis Motor Bracket.



8. Remove two T-20 screws that secure the Media-Axis Motor Bracket.



9. Remove the Media-Axis Motor from the printer.

## Installation

Make sure that you apply the grease (included with the support part) to the gears.

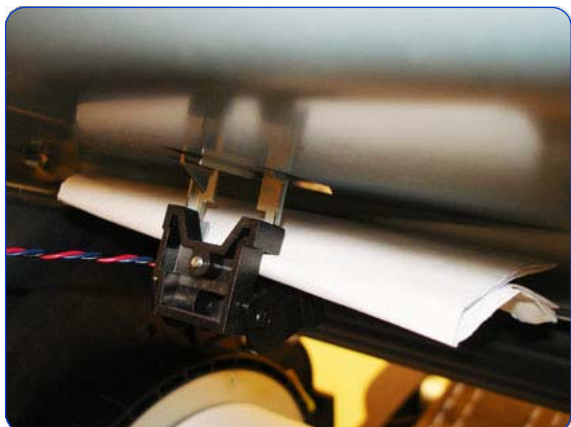
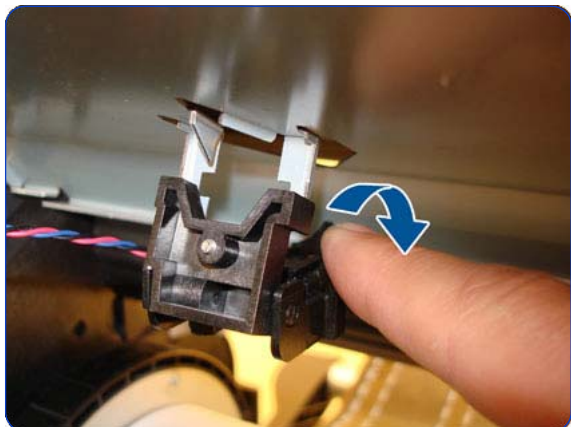
After installing the new Media-Axis Motor, make sure you perform the following operations:

- Substrate Advance Calibration ⇒ page 189.
- Reset the Drive Roller Motor life counter ⇒ page 187.

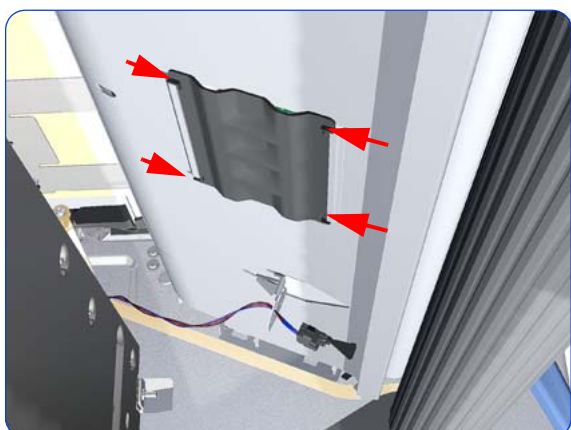
# OMAS: Optical Media Advance Sensor

## Removal

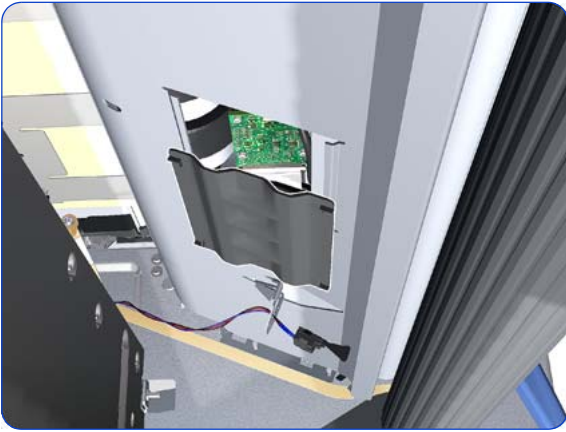
1. Remove the Left Cover ⇒ page 293.
2. Remove the Right Cover ⇒ page 286.
3. Remove the Back Cover ⇒ page 302.
4. Remove substrate if installed.
5. Remove the Media Sensor screw and unclip the Media Sensor from the underside of the Input Platen.



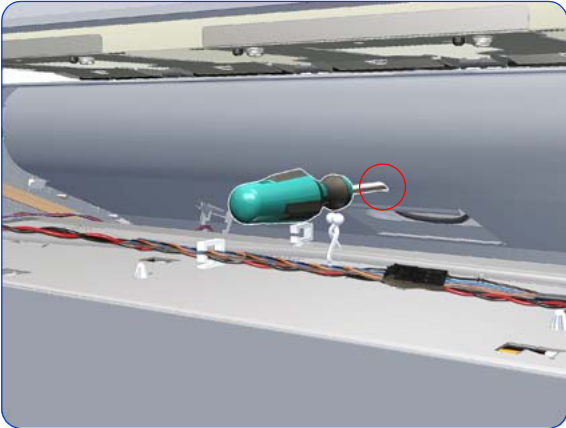
6. Let the Media Sensor hang below the Input Platen. This is to ensure the OMAS ribbon cable does not get damaged by the sensor flag during the removal procedure.



7. Squeeze the corners of the OMAS Access Cover to release it from the bottom of the printer.



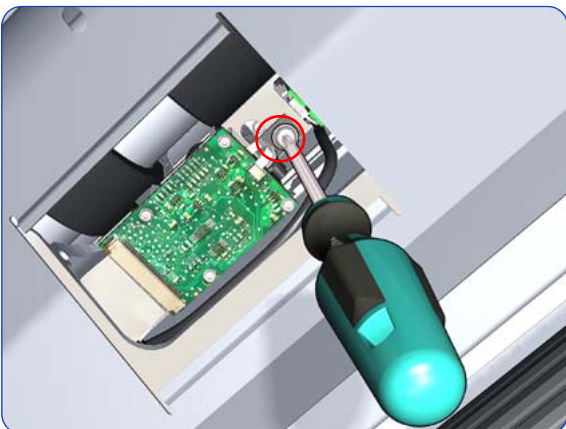
8. Remove the OMAS Access Cover from the printer.



9. Insert the T-20 thin bladed torx screwdriver (supplied with the replacement OMAS) into the access hole at the rear of the printer.



10. Remove and discard one T-20 screw which secures the OMAS horizontally to the printer.

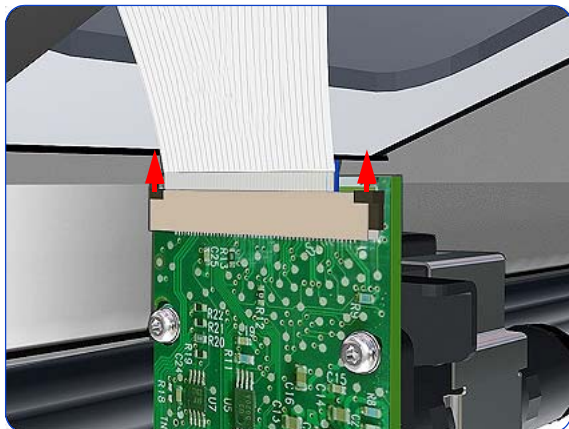


11. From the bottom of the printer, remove and discard one T-20 screw which secures the OMAS vertically to the printer.

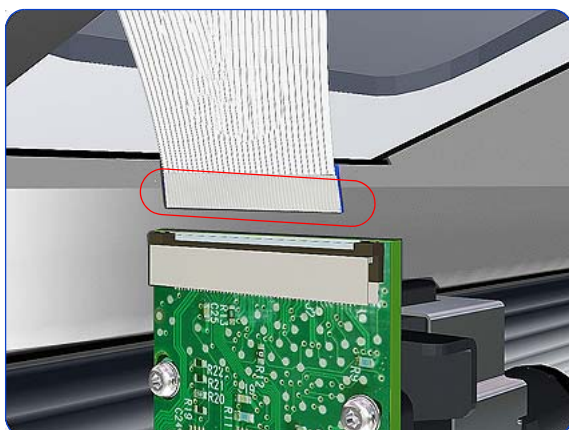




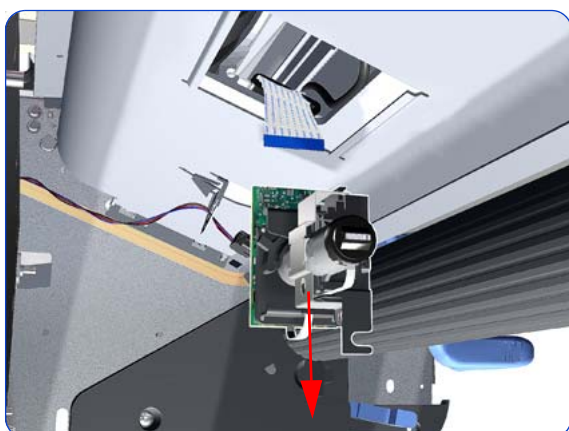
12. Carefully lower the OMAS from the printer as far as you can with the large ribbon cable still connected.



13. Release the two locking clips of the large ribbon cable connector.



14. Disconnect the large ribbon cable from the OMAS.

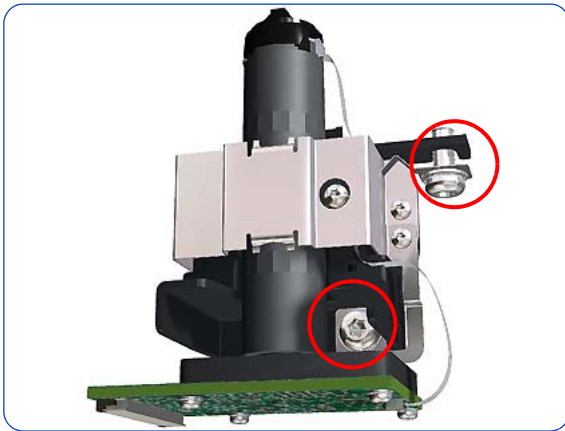


15. Remove the OMAS Sensor from the printer.

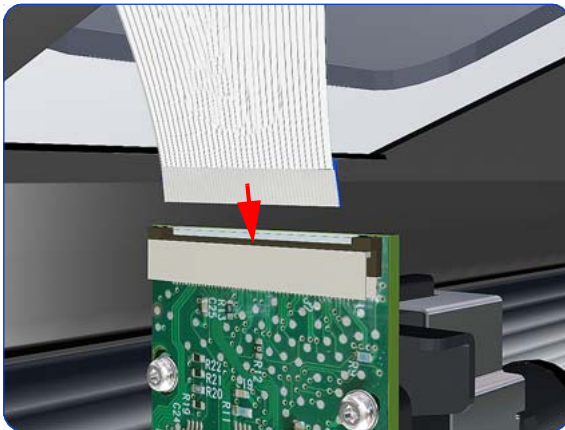
## Installation



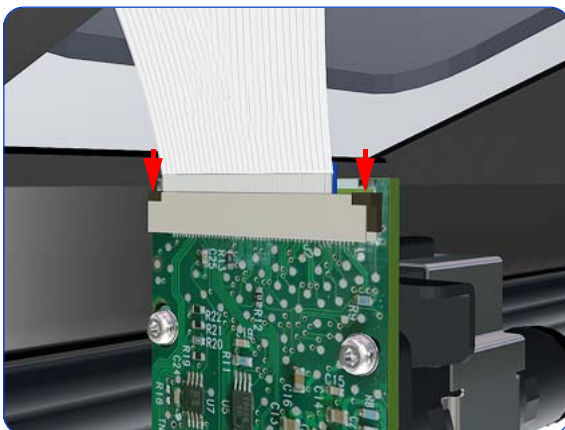
**NOTE:** To simplify the installation of the OMAS an Attachment Screw Retainer has been added to hold the two T-20 attachment screws. This part is delivered attached to the replacement OMAS unit with the two attachment screws.



1. Verify that the two T-20 attachment screws are correctly positioned in the Attachment Screw Retainer.

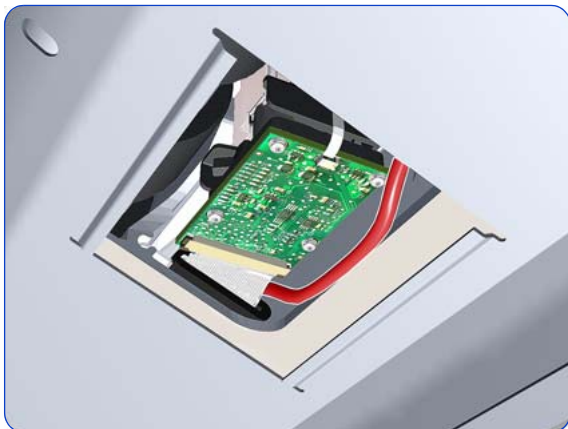
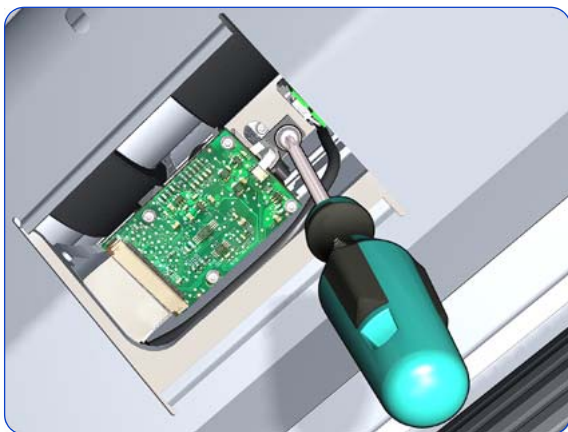


2. Position the OMAS under the printer and connect the large ribbon.



3. Lock the clips of the large ribbon cable connector.





4. **FULLY** tighten the T-20 vertical attachment screw.

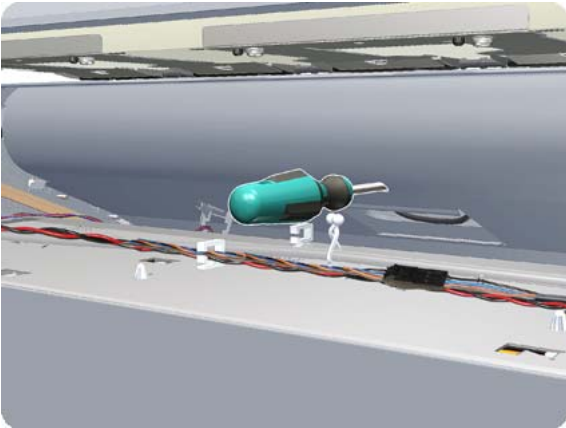
5. While installing the OMAS, take care not to trap the cable of the TOMAS.

6. Carefully push the OMAS fully up into its mounting so that the OMAS window protrudes slightly **ABOVE** the Print Platen (approximately 0–2 mm). To ensure the OMAS is correctly positioned, slide a sheet of substrate over the Platen Ribs until it is stopped by the OMAS. This ensures the OMAS is protruding slightly above the platen.



**CAUTION:** Make sure the OMAS is pushed completely up into its mounting or you will encounter an error during the OMAS calibration because it will not be able to focus on the substrate.

7. Slide a sheet of substrate over the OMAS window, if the substrate is not stopped by the OMAS, repeat previous steps to ensure the OMAS is pushed fully up into its the mounting.



8. Insert the T-20 thin bladed torx screwdriver into the access hole at the rear of the printer.



9. Fully tighten the T-20 horizontal attachment screw which secures the OMAS to the printer.



10. Clip the OMAS access cover back into place by sliding one edge of the cover into the slot and then applying enough pressure to it so you can clip it into the other slot.

## Installation

After installing the new OMAS, perform the following operations:

- OMAS Calibration ⇒ page 190.
- Reset the OMAS Sensor life counter ⇒ page 187.

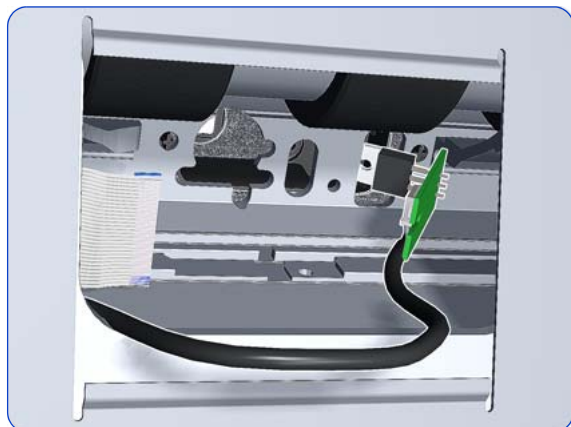
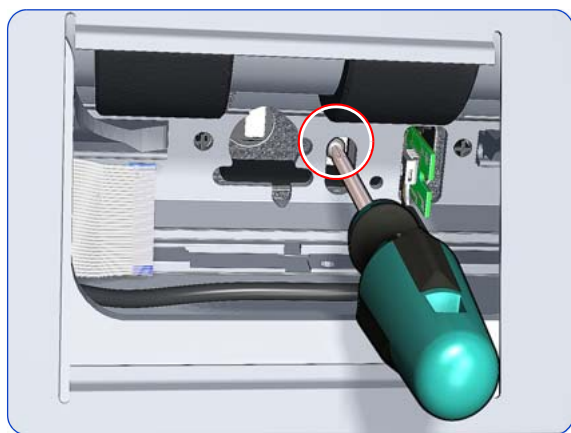
# TOMAS: Temperature Optical Media Advance Sensor

## Removal

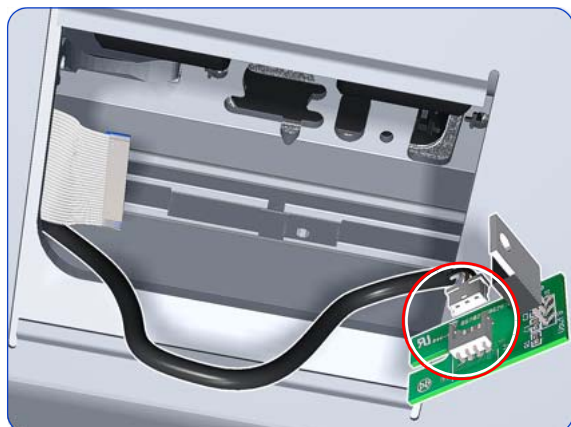


**NOTE:** To simplify the installation of the TOMAS an Attachment Screw Retainer has been added to hold the two T-20 attachment screws. This part is delivered attached to the replacement TOMAS unit with the two attachment screws. It is also delivered as a separate part with the Print Platen in case the TOMAS is completely removed during its replacement.

1. Remove the Right Cover ⇒ page 286.
2. Remove the Back Cover ⇒ page 302.
3. Remove substrate if installed.
4. Remove OMAS ⇒ page 422.
5. Remove one T10 screw that secures the TOMAS to the under side of the platen.



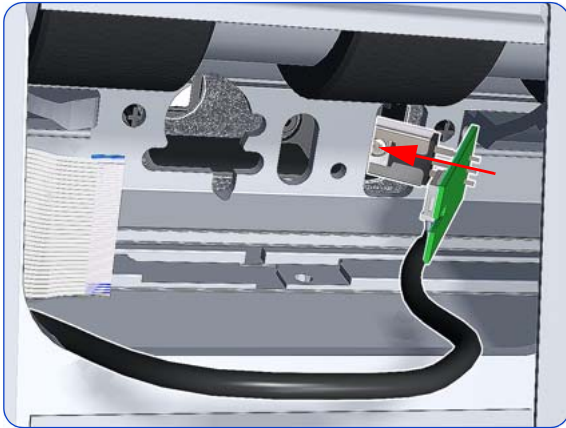
6. Release TOMAS from the holder in the plate.



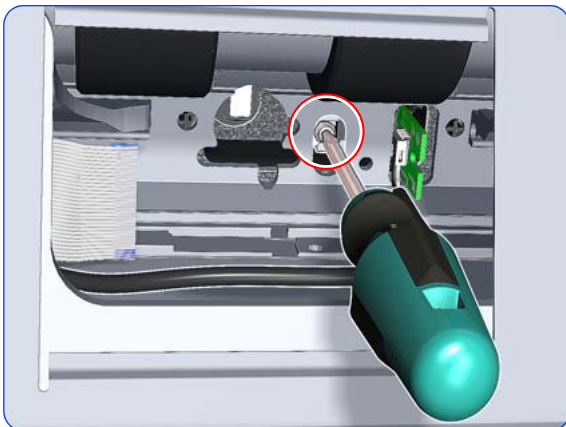
7. Pull out the TOMAS and cable from the underside of the platen, and disconnect the cable.



8. For installing the new TOMAS a screw is held in the bracket for easier installation.



9. Insert the new TOMAS into the hole underneath the platen.

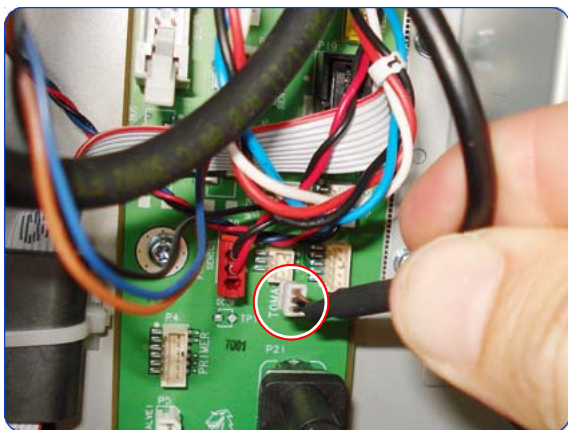
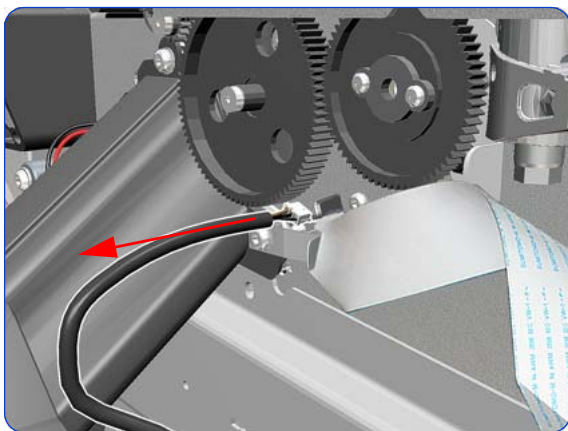
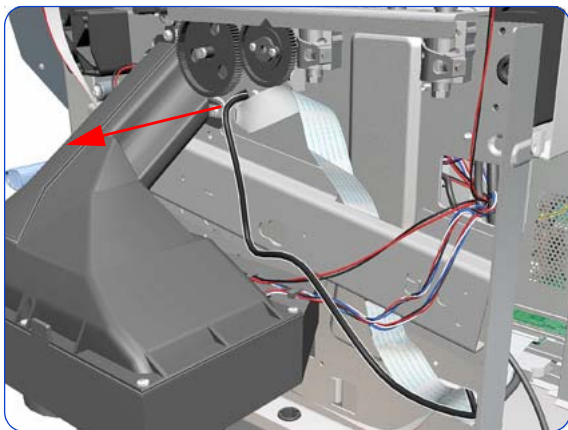


10. Tighten the screw held by the bracket into the platen.
11. There are some important notes on installing the OMAS if it has been removed while removing the TOMAS ⇒ page 425.
12. Install the screw holder onto the OMAS and reinstall it.

# TOMAS Cable

## Removal

1. Remove the Right Cover ⇒ page 286.
2. Primer Assembly ⇒ page 335.
3. Primer Valves ⇒ page 337.
4. Remove the Drop Detector ⇒ page 366.
5. Remove the Service Station ⇒ page 341.
6. Remove OMAS ⇒ page 422.
7. Remove TOMAS ⇒ page 428.
8. Unroute the TOMAS Cable from the right side of the chassis.

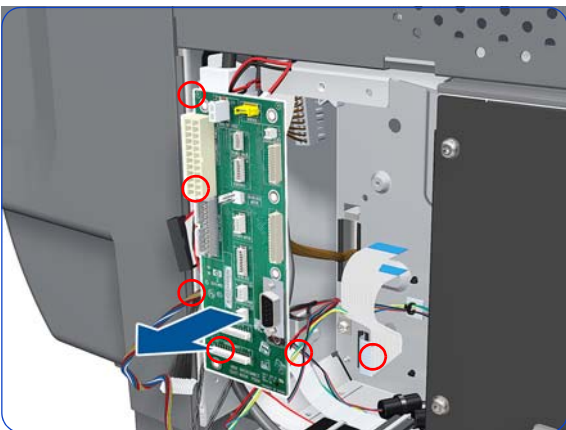
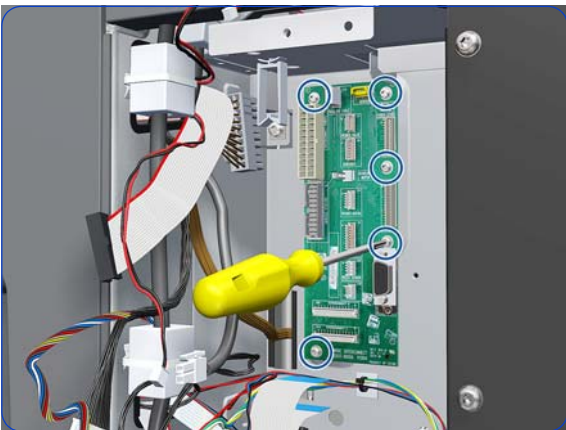


9. Remove the TOMAS cable from the hole in the chassis.
10. Disconnect the TOMAS cable from the Interconnect board.



# Interconnect PCA

## Removal



1. Remove the Right Connector Cover ⇒ page 308.
2. Disconnect all cables from the Interconnect PCA.
3. Remove five T-10 screws that secure the Interconnect PCA.
4. Remove the Interconnect PCA.



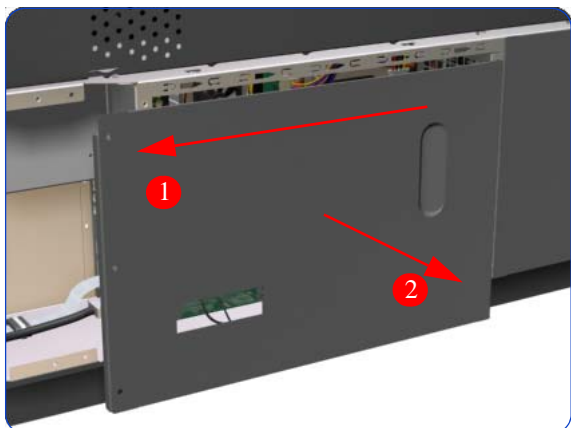
# OMAS Controller Card

## Removal

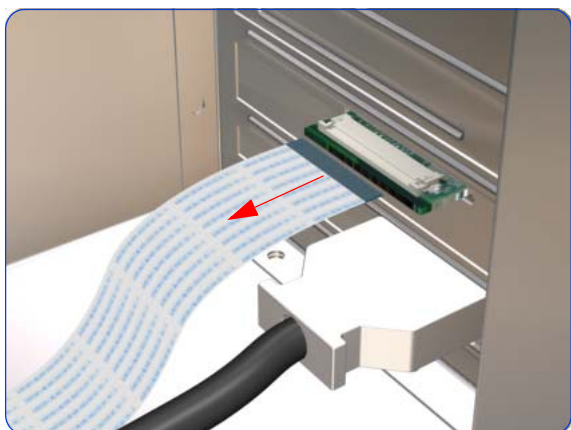
1. Remove the Right Connector Cover ⇒ page 308.
2. Remove three T-20 screws that secure the Main PCA cover.



3. Remove the Main PCA Cover from the printer.

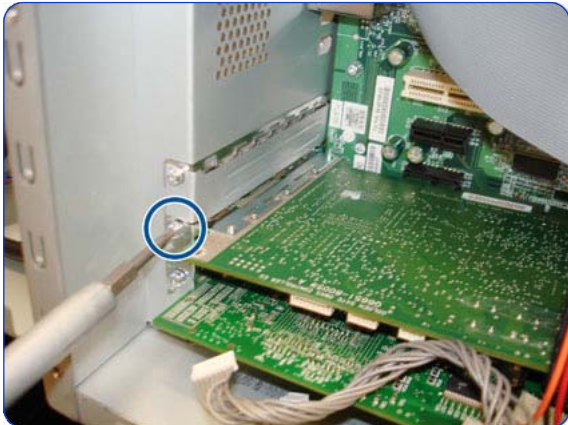


4. Disconnect the OMAS Controller Card to OMAS ribbon cable.

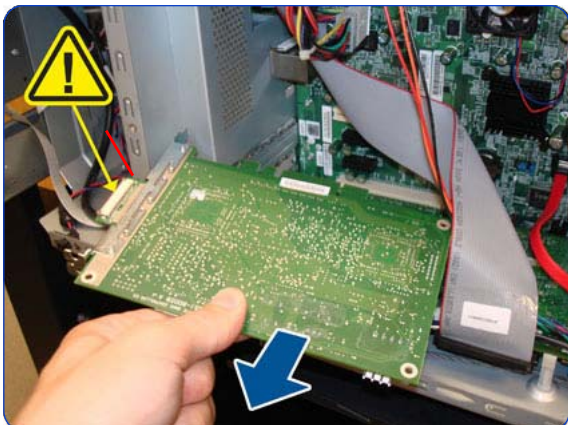




5. Disconnect the PrintMech and Engine PCA connection cables (three connectors) from the OMAS Controller Card.



6. Remove one T-10 screw that secures the OMAS Controller Card.



7. Disconnect the OMAS Controller Card from the Main PCA and remove from the printer.



**CAUTION:** To remove the OMAS Controller Card without damaging it on the Emodule cover, you will need disconnect it first and then rotate it slightly in the direction indicated.



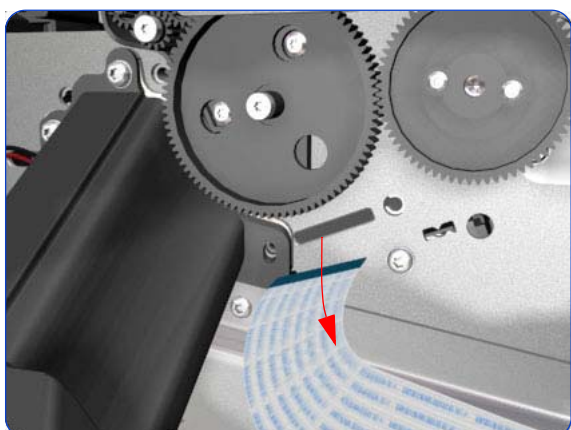
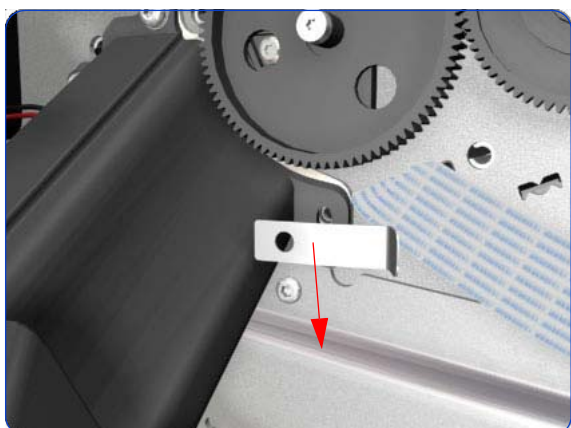
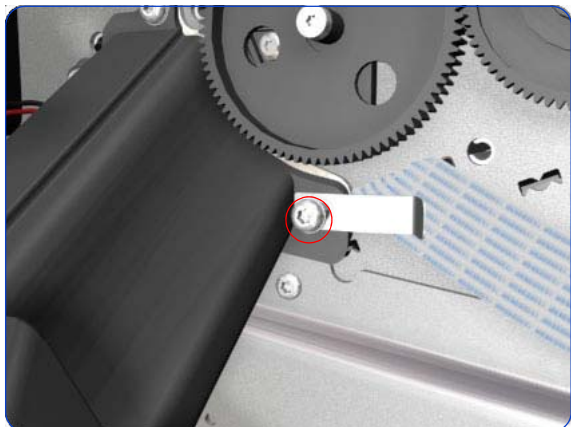
**NOTE:** After installing a new OMAS Controller Card, perform the following:

- "1.3.3 OMAS Temperature Calibration" ⇒ page 177.

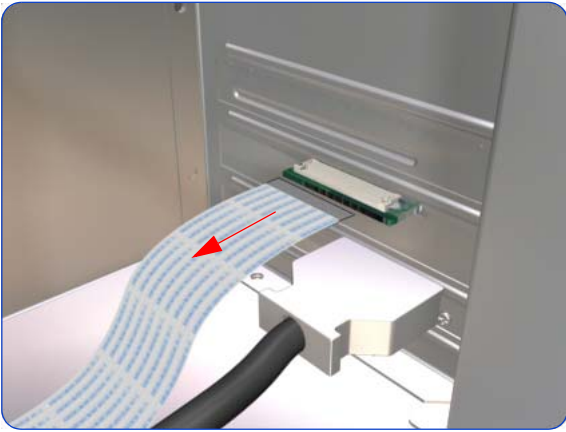
# OMAS Cable

## Removal

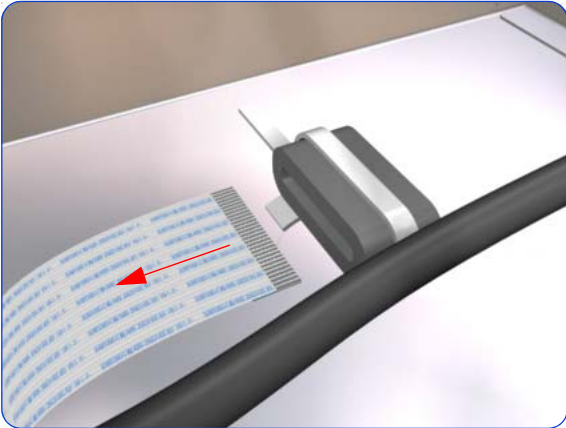
1. Remove the Right Cover ⇒ page 286.
2. Remove the Right Connector Cover ⇒ page 308.
3. Remove the Service Station ⇒ page 341.
4. Remove the OMAS ⇒ page 422.
5. Remove one T-15 screw that secures the OMAS Cable clamp from the printer.



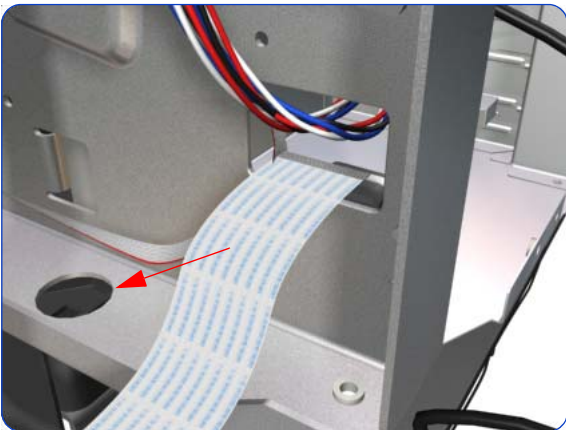
6. Remove the OMAS Cable clamp from the printer.
7. Carefully Pull the OMAS Cable out of the Vacuum Beam.



8. Disconnect the OMAS Cable from the OMAS Controller Card.



9. Unroute the OMAS Cable from the Ferrite Core.



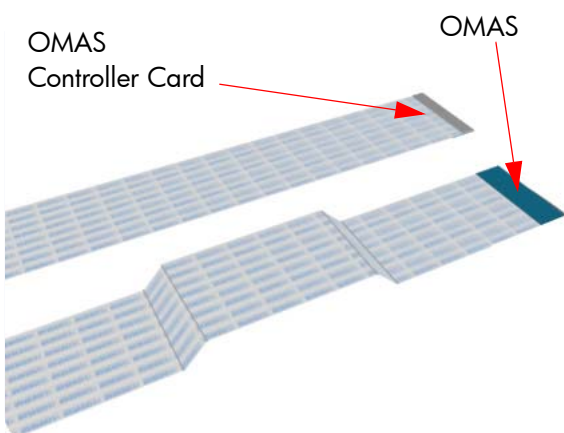
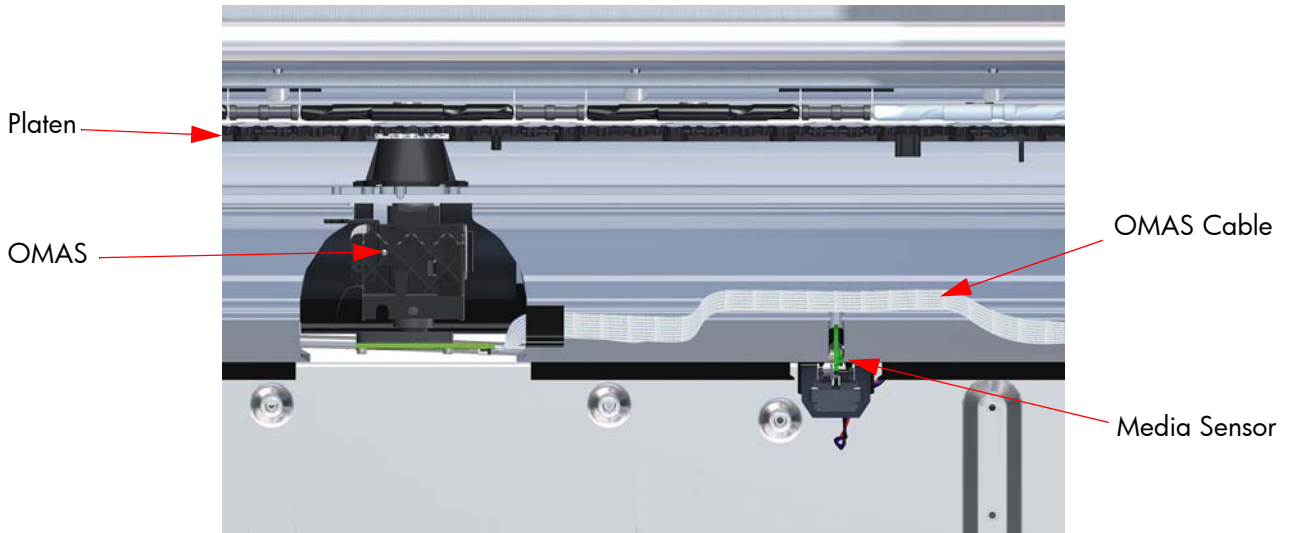
10. Unroute and remove the OMAS Cable from the printer.

## Installation

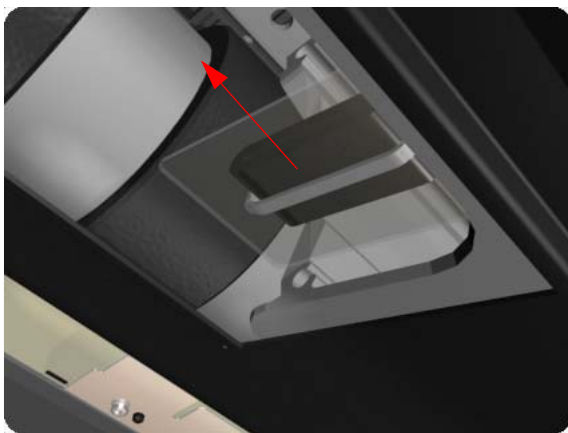


**CAUTION:** It is critical that the OMAS Cable is correctly positioned in the Vacuum Beam so that it does not cause physical interference to the Media Sensor.

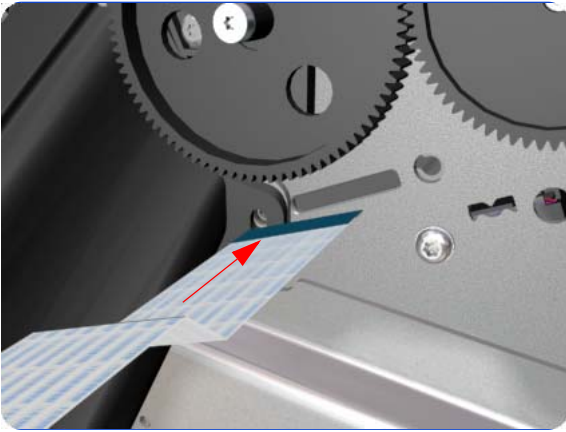
The following illustration shows a cross-section of the Vacuum Beam with the OMAS Cable correctly routed to avoid interference to the Media Sensor.



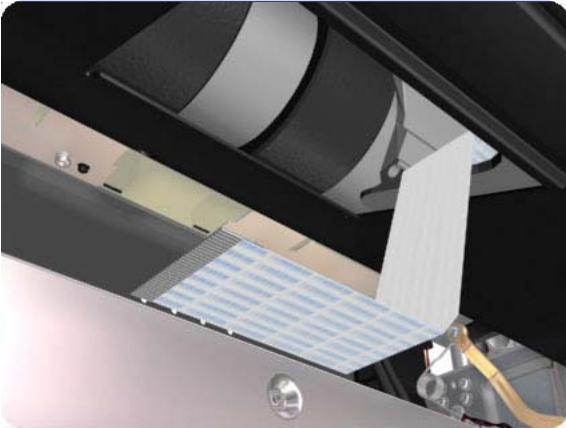
1. Before you can start to install the OMAS Cable you must first identify which end connects to which component. The end of the cable that has the most perpendicular and diagonal folds is the end that connects to the OMAS with the blue reinforcing on the top. The other end must be connected to the OMAS Controller Card with the blue reinforcing on the bottom.
2. Carefully slide the Ferrite Core and its associated attachment plate out of the vacuum beam.



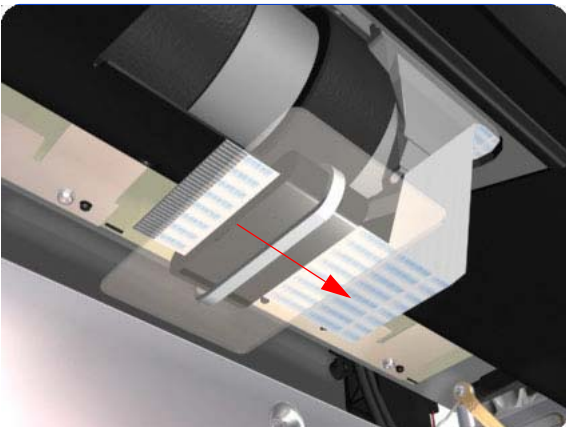




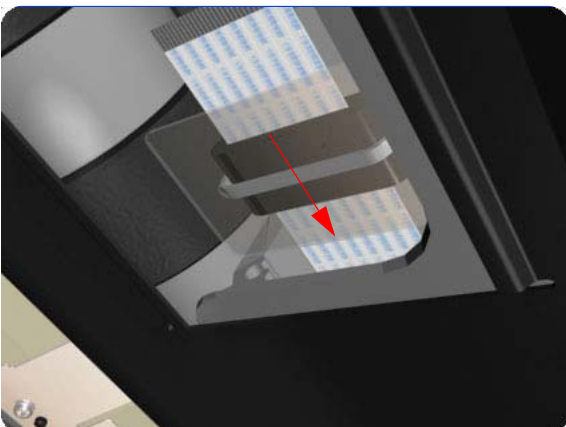
3. Position the OMAS Cable in the Vacuum Beam slot so that the blue reinforcement enters first.



4. Carefully feed the OMAS cable through the Vacuum Beam sufficiently to have approximately 20 cm hanging from the OMAS installation position.

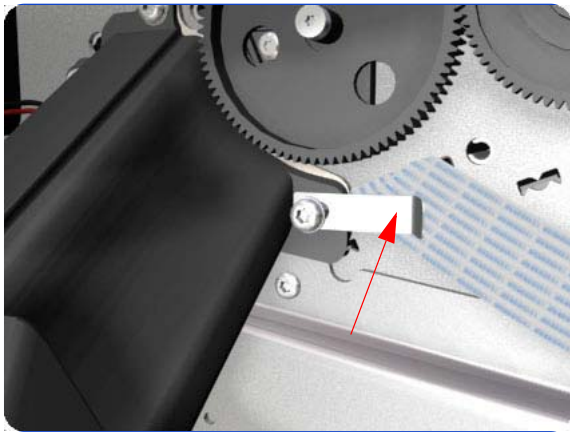


5. Slide the Ferrite Core and its associated Attachment Plate (on the top) onto the OMAS Cable.

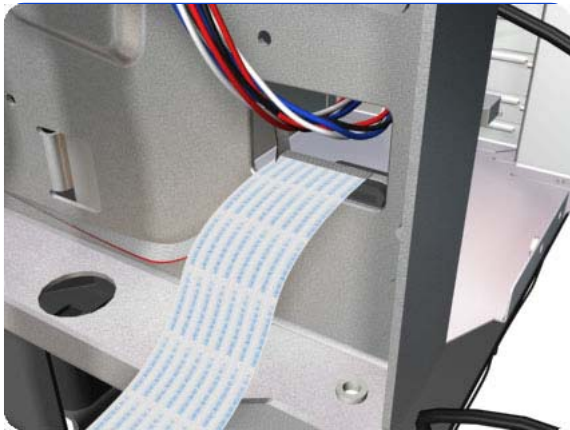


6. Push the Attachment Plate into its slot in the Vacuum beam until it is level with the edge of OMAS installation position.

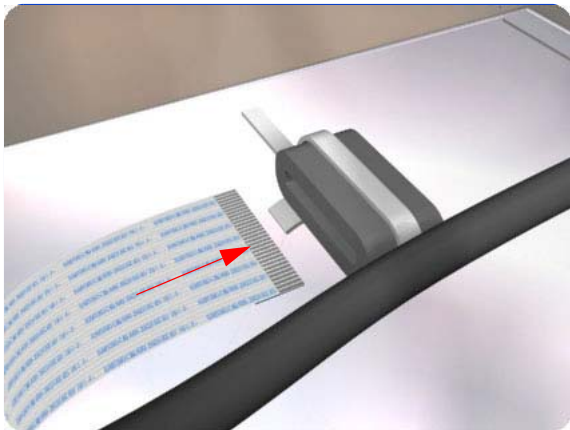




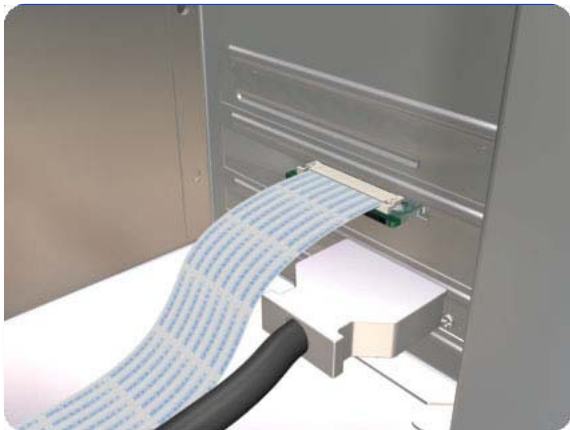
7. Carefully pull the OMAS Cable back into the Vacuum Beam (from the Service Station end) until the straight fold immediately before the first diagonal fold (from the OMAS sensor end) is aligned with the slot, fold the OMAS Cable across the diagonal fold, and install the cable clamp to lock the OMAS Cable in the correct position.



8. Route the OMAS Cable to the Ferrite Core in the Right Interconnect panel.



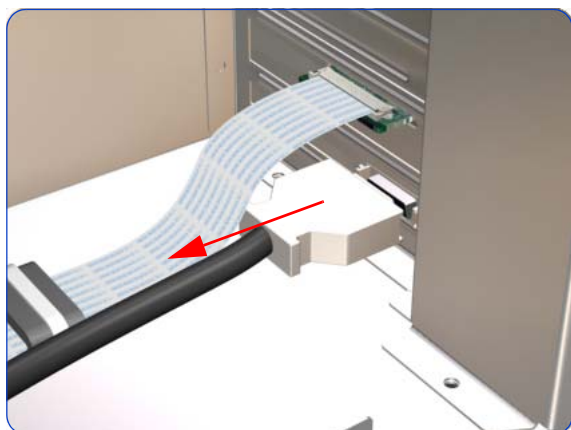
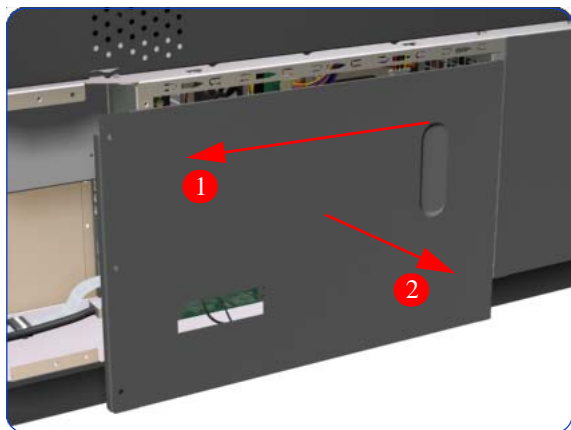
9. Feed the OMAS Cable through Ferrite Core.



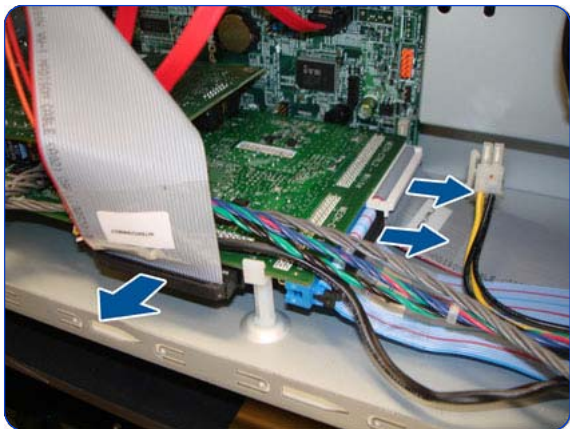
10. Connect the OMAS Cable to the OMAS Controller Card with the connections on the top.

# Engine PCA

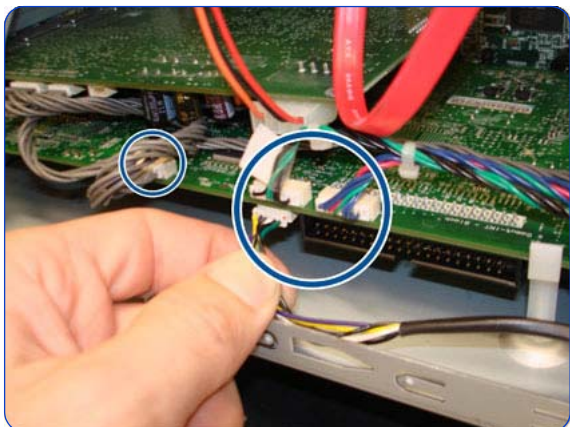
## Removal



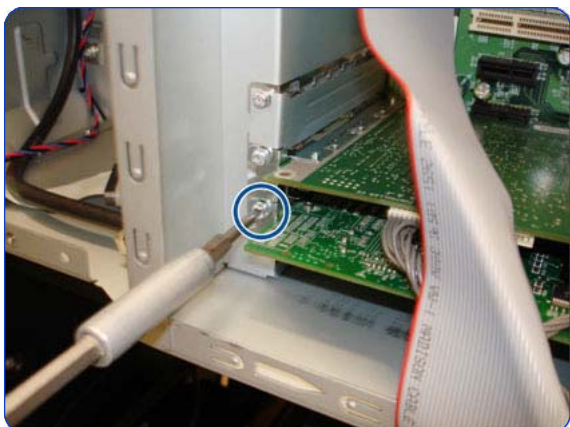
1. Remove the Right Connector Cover ⇒ page 308.
2. Remove three T-20 screws that secure the Main PCA cover.
3. Remove the Main PCA Cover from the printer.
4. Disconnect the Trailing Cable from the Engine PCA.



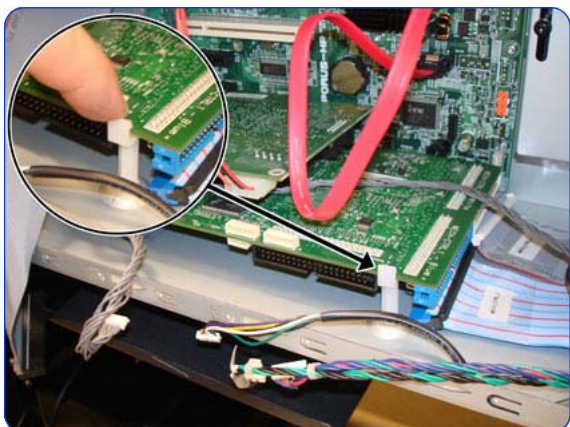
5a. Disconnect ALL cables connected to the Engine PCA.



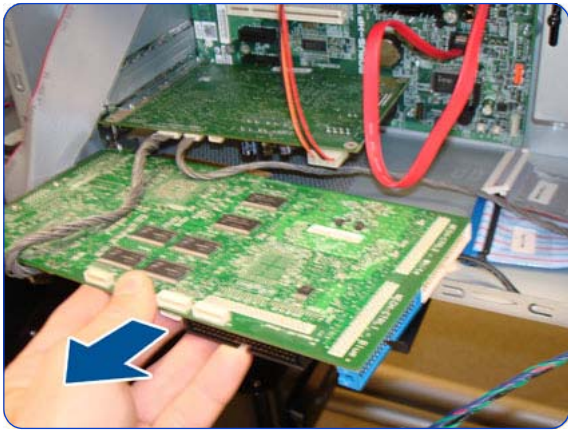
5b. Disconnect ALL cables connected to the Engine PCA



6. Remove one T-10 screw that secures the Engine PCA.



7. Unclip the PCA from white plastic clip



8. Remove the Engine PCA from the Main PCA.



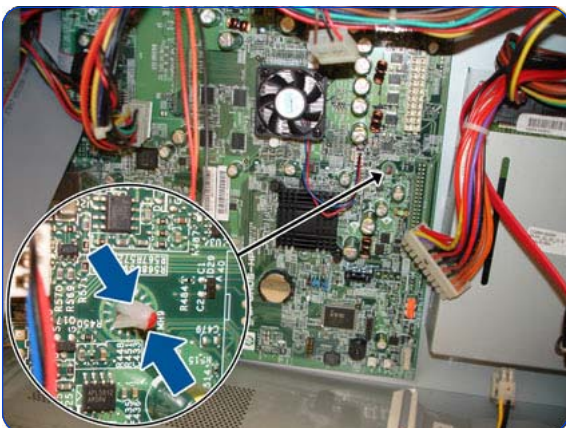
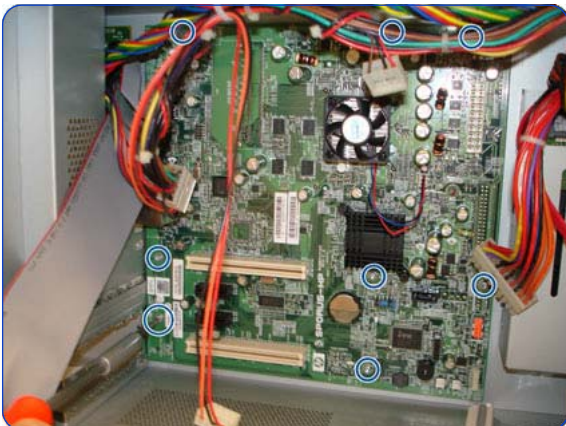
# Formatter PCA

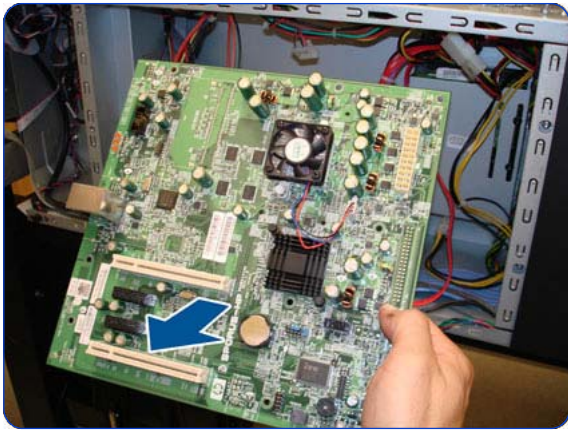
## Removal



**CAUTION:** Do not remove the Fan or the Processor (located under the Fan) from the Formatter PCA. The Fan and the Processor are part of the Formatter PCA support part and should be replaced as one assembly.

1. Remove the Engine PCA ⇒ page 439.
2. Remove the OMAS Controller Card ⇒ page 432.
3. Disconnect all cables connected to the Formatter PCA, including the Front Panel USB cable.
4. Remove eight T-10 screws that secure the Formatter PCA.
5. Release the plastic locating pin that secures the Formatter PCA.





6. Remove the Formatter PCA from the printer.



**NOTE:** When installing the Formatter PCA, make sure that you first locate it on the plastic locating pin and then install the screws.



# Hard Disk Drive

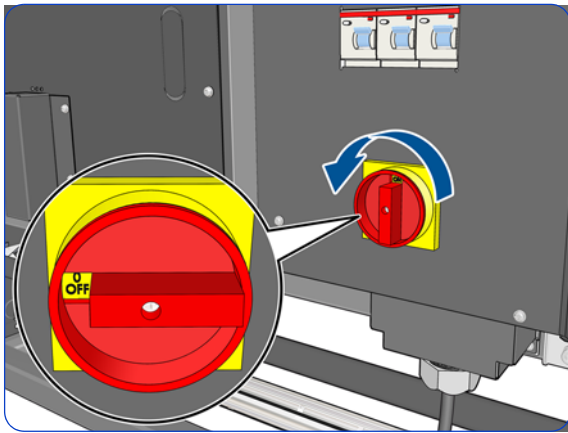
## Removal



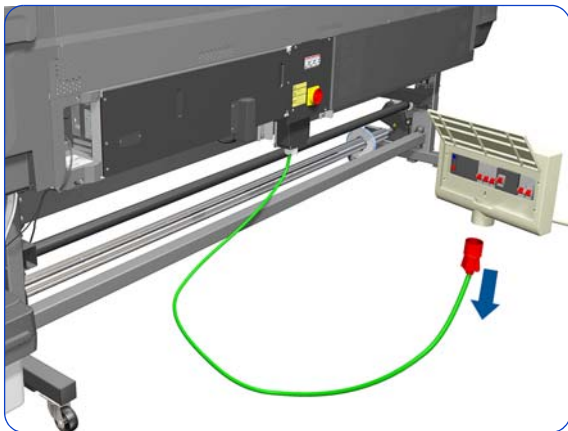
Before removing the Hard Disk Drive, download the latest firmware version from the HP website: [www.hp.com/go/L28500/support](http://www.hp.com/go/L28500/support). Copy it to a portable device such as a USB flash drive or a CD and take it to the repair site.



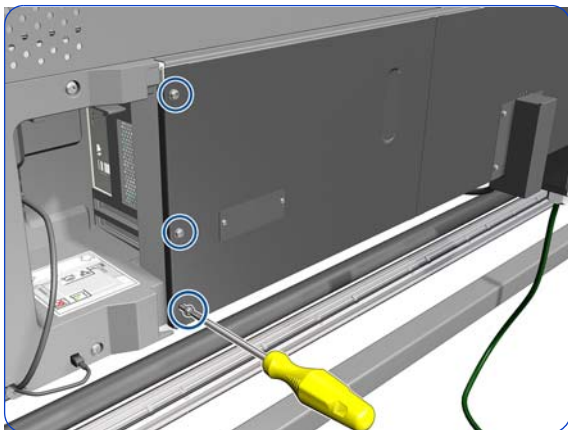
**NOTE:** You must never replace both the Hard Disk Drive and the ISS PCAs (or the Ink Supply Tubes and Trailing Cable) at the same time. If these parts need to be replaced, you must first replace one part and then turn on the printer until it completely initializes. Then turn off the printer and replace the other part.



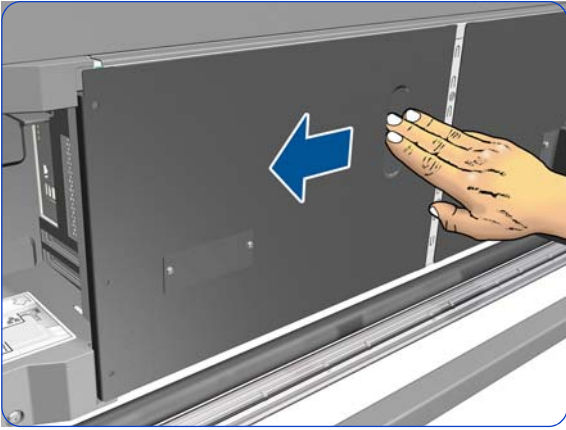
1. Turn off the printer.



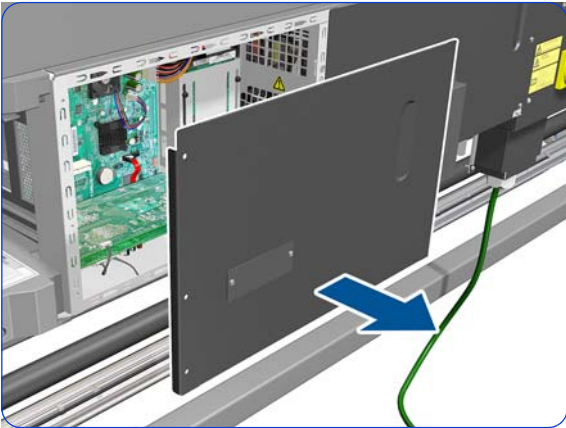
2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).



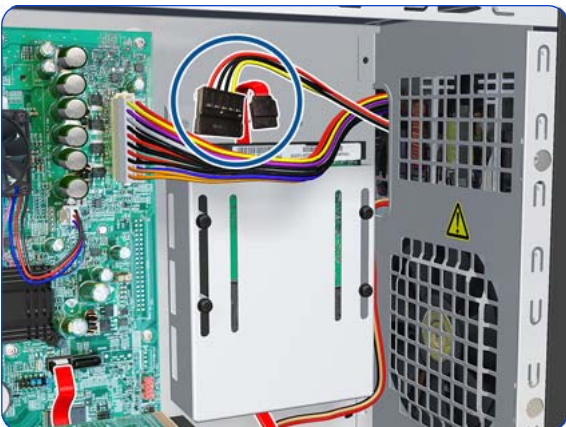
3. Remove three T-20 screws that secure the Main PCA Cover.



4. Slide the Main PCA Cover to the left.



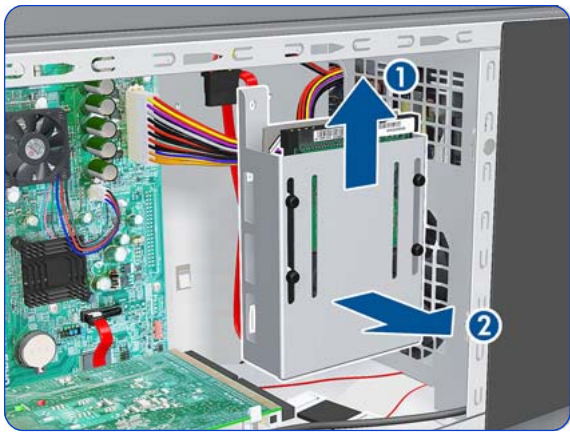
5. Remove the Main PCA Cover from the printer.



6. Disconnect two cables from the Hard Disk Drive.



7. Remove one T-10 screw from the Hard Disk Drive Holder.



8. Slide the Hard Disk Drive upwards and remove from the printer.

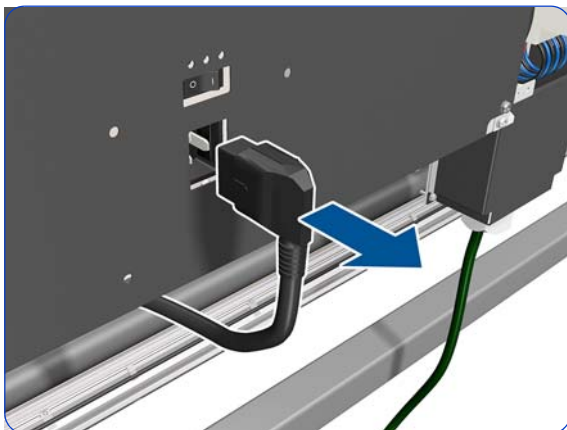
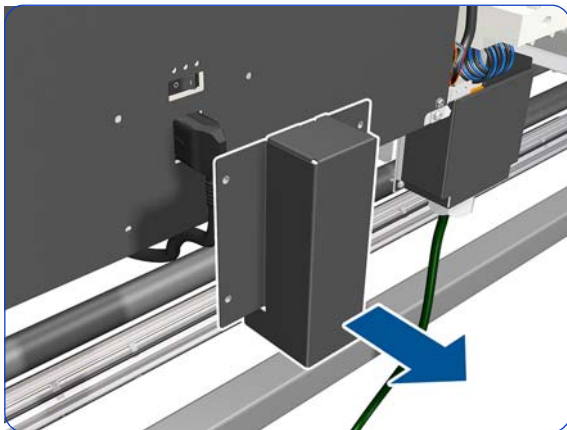
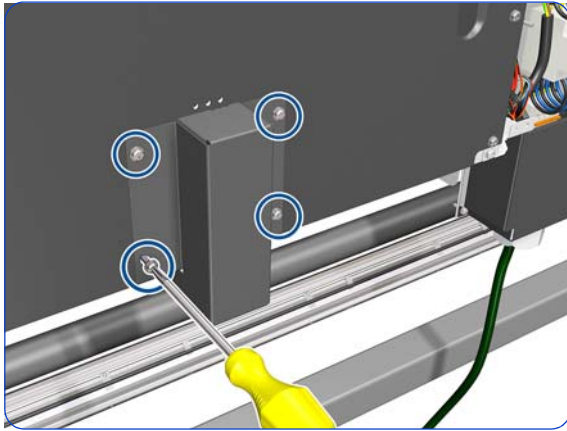


**NOTE:** It is not necessary to remove the screws securing the Hard Disk Drive inside the metal casing.

9. Switch on the printer and the printer will initialize normally. The printer will not request the new firmware.
10. Connect the printer to the customer's network, retrieve the IP address.
11. Install the new firmware using the Embedded Web Server. See the *User's Guide*.
12. Perform the following:
  - Printhead Alignment.
  - Substrate Advance Calibration.

# Power Supply Unit (PSU)

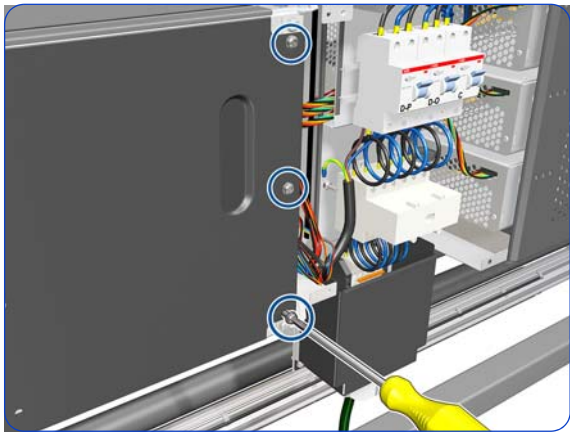
## Removal



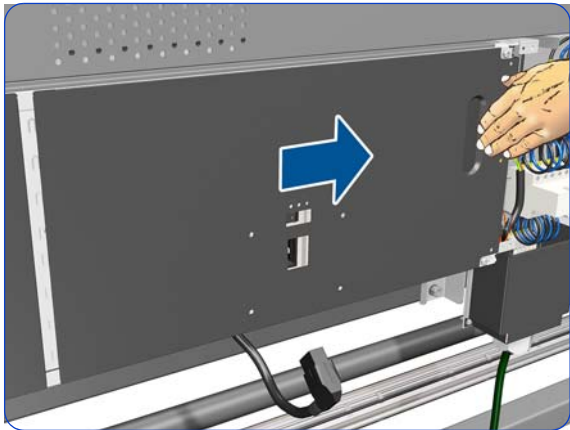
1. Remove the Power Box Cover ⇒ page 311.
2. Remove four T-20 screws.

3. Remove the power plug cover.

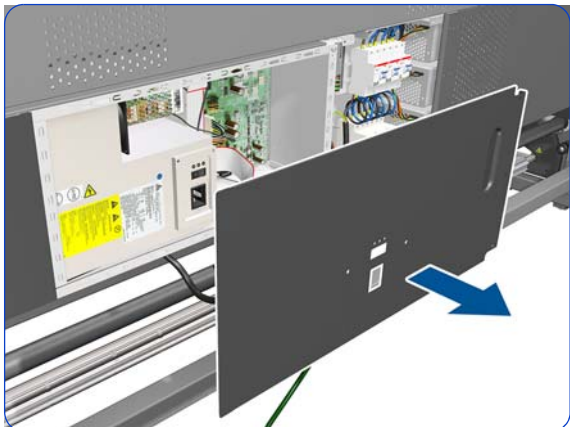
4. Unplug the power plug.



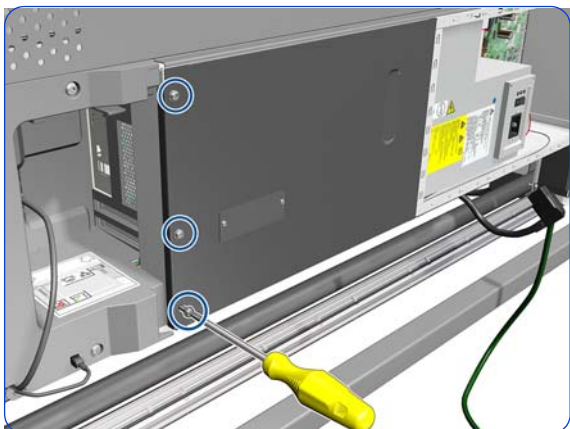
5. Remove three T-20 screws.



6. Slide the cover to the right.

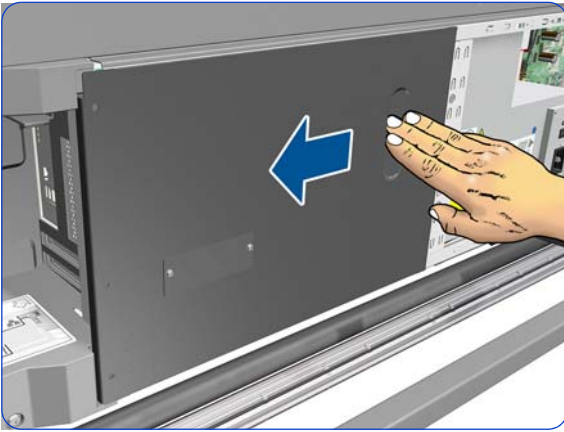


7. Remove the cover.

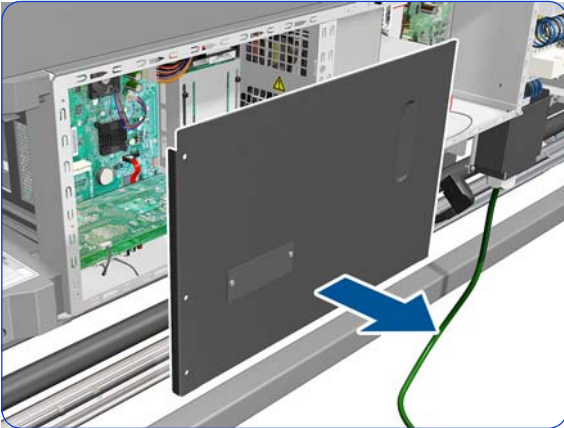


8. Remove three screws.





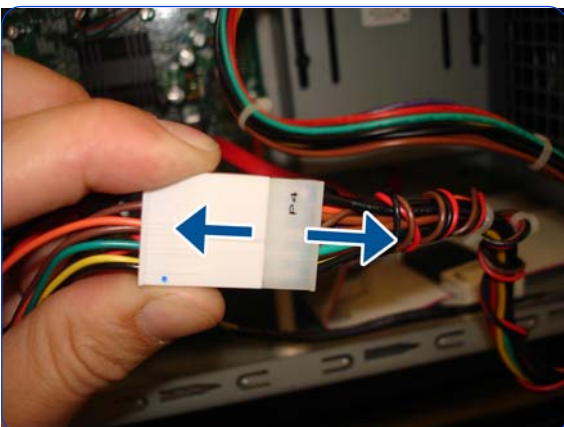
9. Slide the cover to the left.



10. Remove the cover.

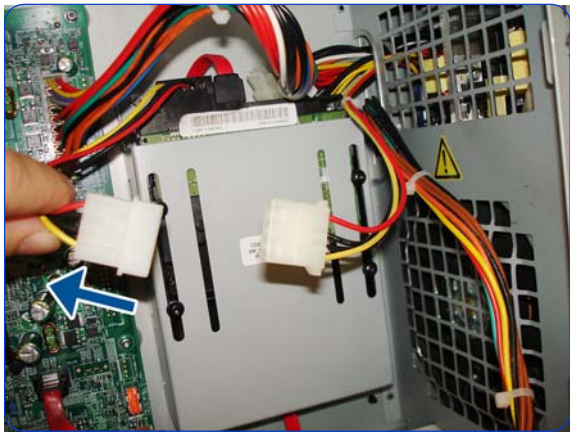


11. Untie the cables from the PSU to the Hard Disk Drive and Formatter PCA.

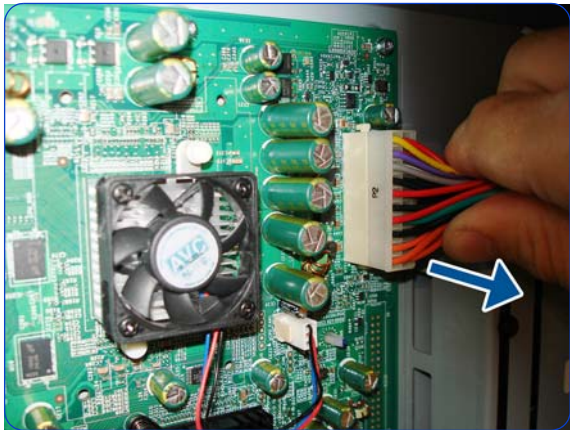


12. Disconnect all cables.

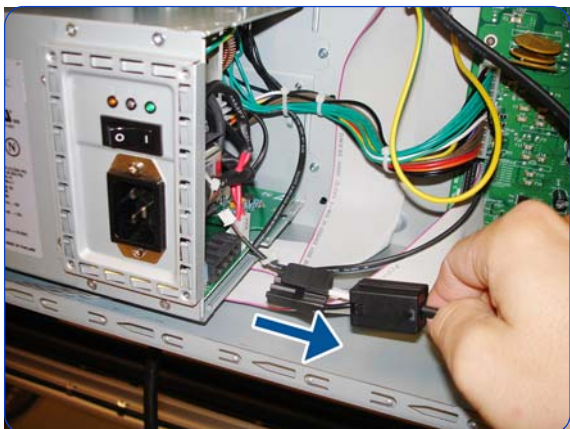




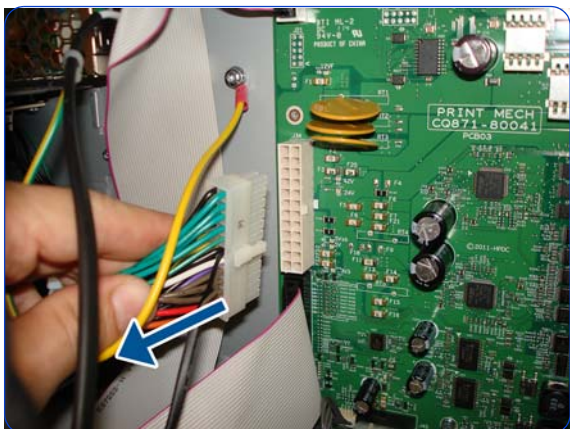
13. Disconnect all cables.



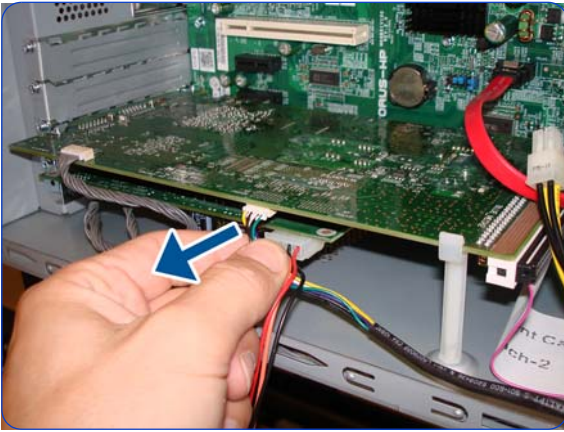
14. Disconnect all cables.



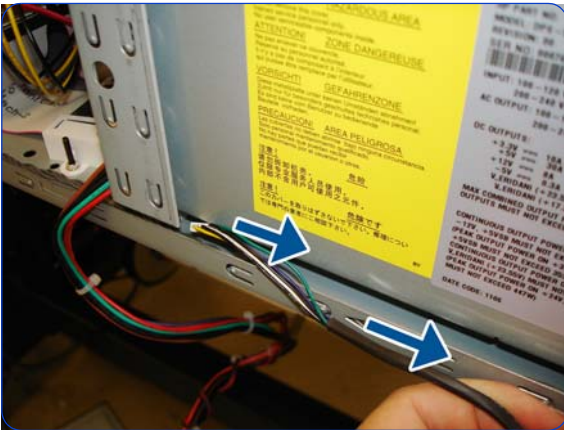
15. Disconnect the Extra PSU 24 V cable.



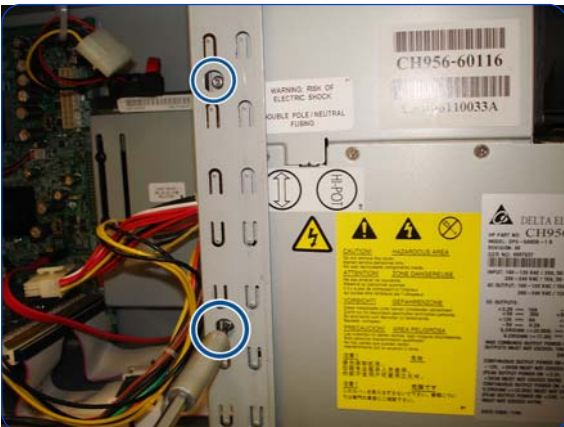
16. Disconnect the PrintMech PCA cable.



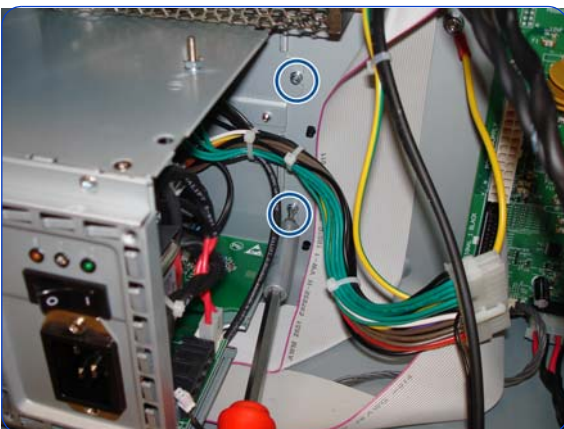
17. Disconnect the OMAS Controller PCA cable.



18. Pull the cable out to the right.



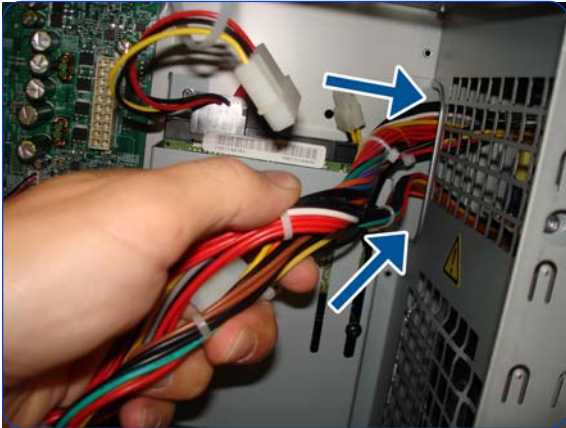
19. Remove two T-10 screws.



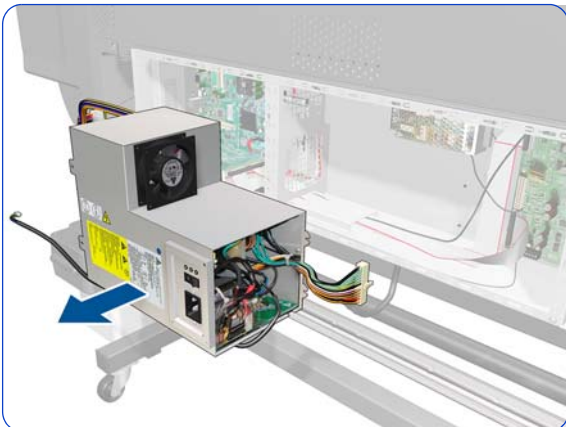
20. Remove two T-10 screws.



21. Pull the Power Supply Unit out slightly, but don't try to remove it yet.



22. Pass the cables through the hole.



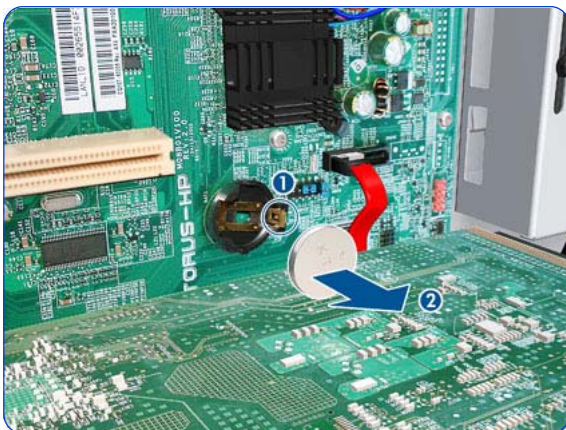
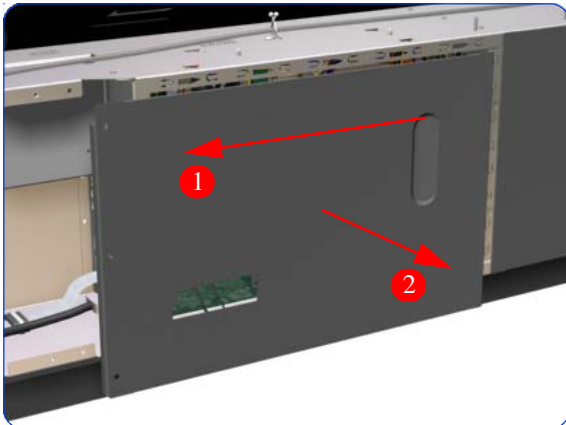
23. Remove the Power Supply Unit.



# Formatter Battery

## Removal

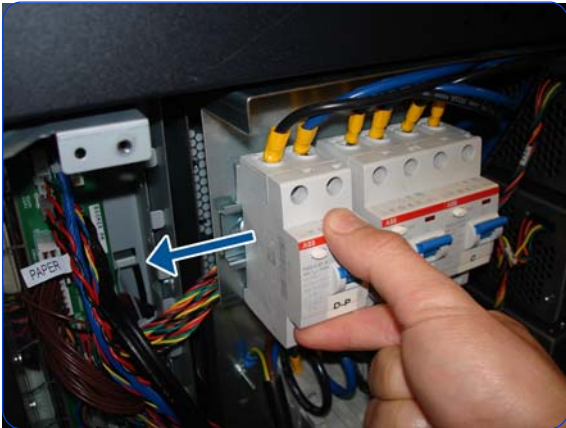
1. Remove the Right Connector Cover ⇒ page 308.
2. Remove three T-20 screws that secure the Main PCA cover.
3. Remove the Main PCA Cover from the printer.
4. Push the clip down (1) and release the battery (2) from the Main PCA.



# Circuit Breakers

## Removal

1. Remove the Power Box Cover ⇒ page 311 .
2. Slide the leftmost Circuit Breaker to the left.



3. Move the Circuit Breaker away from the printer.



4. Loosen two screws in the Circuit Breaker.

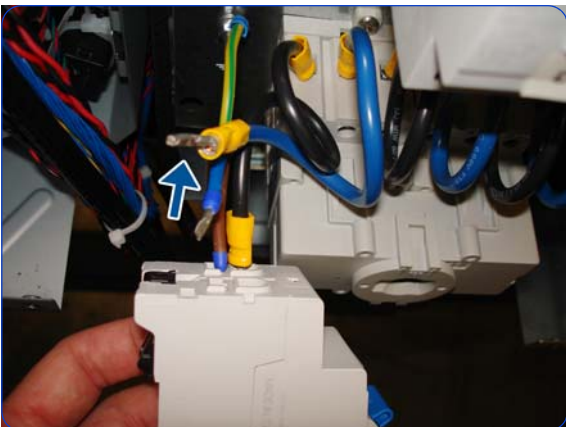




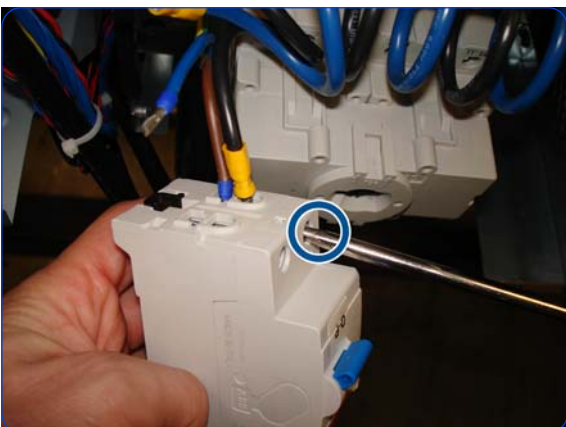
5. Remove the cables from the top of the Circuit Breaker.



6. Turn the Circuit Breaker upside down and loosen a screw.

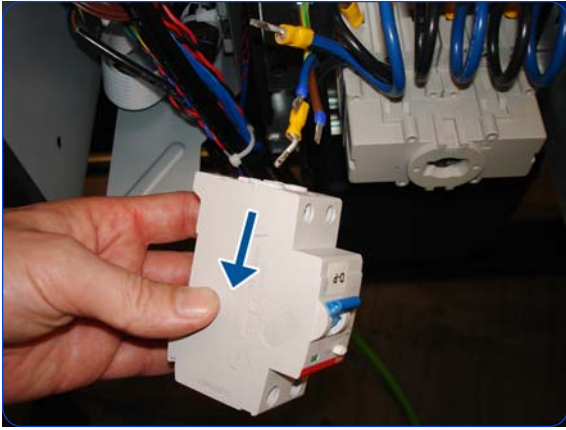


7. Remove the cables.



8. Loosen the other screw.



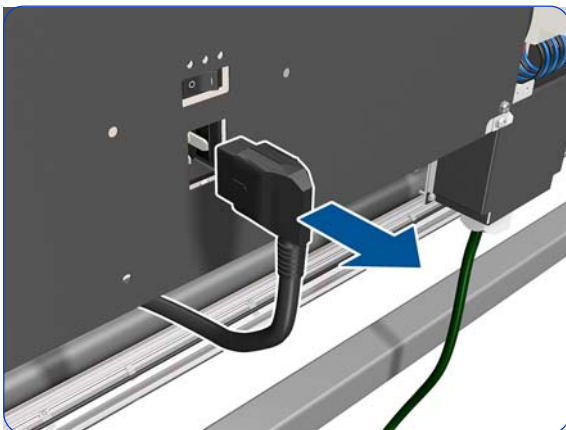
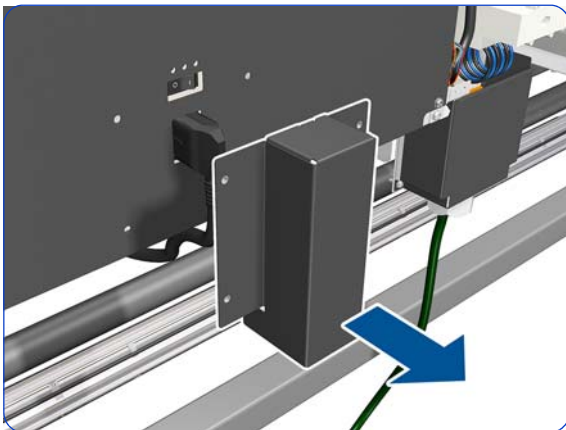
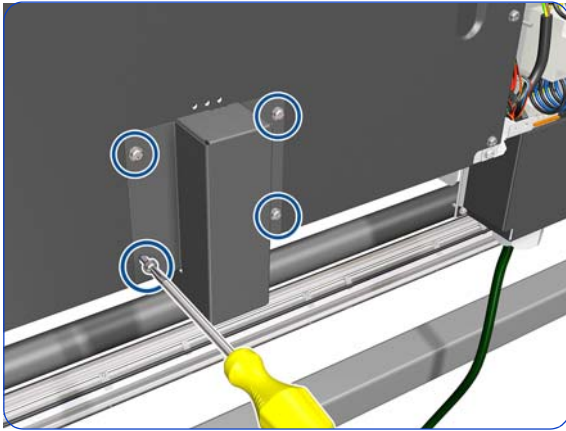


9. Remove the cables.

The same procedure can be used to remove the other Circuit Breakers.

# PrintMech PCA

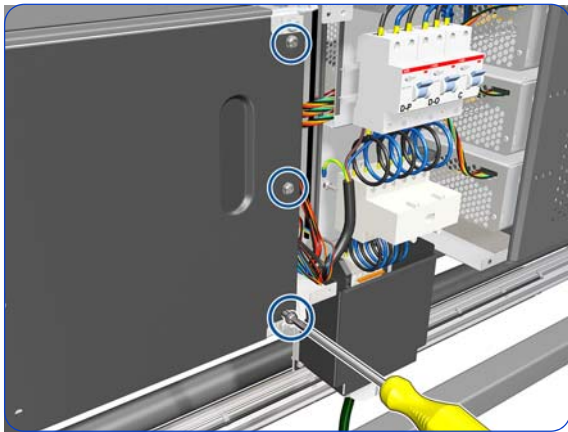
## Removal



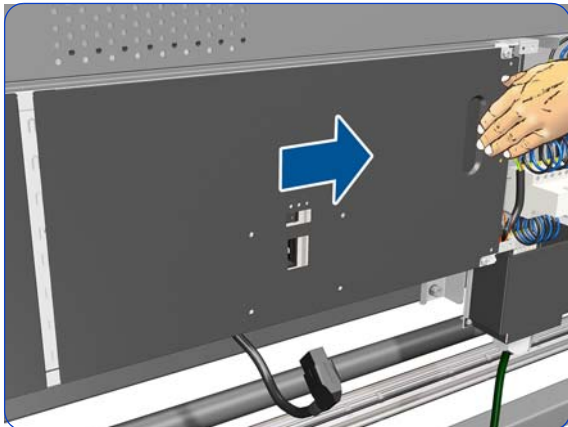
1. Remove the Power Box Cover ⇒ page 311.
2. Remove four T-20 screws.

3. Remove the power plug cover.

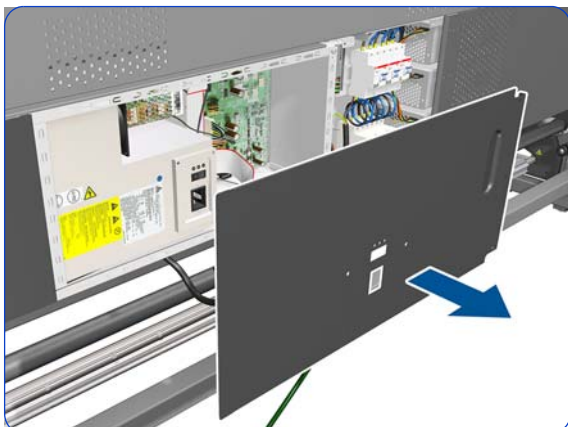
4. Unplug the power plug.



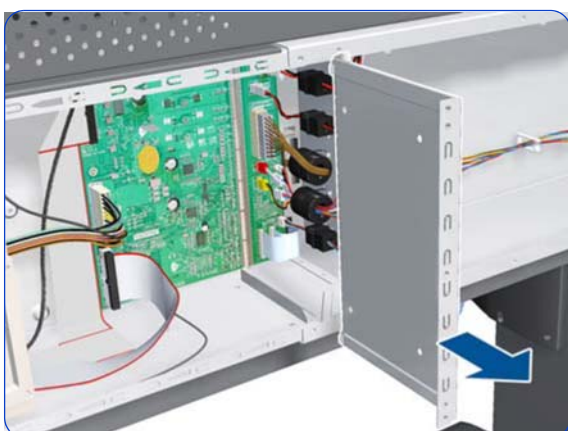
5. Remove three T-20 screws.



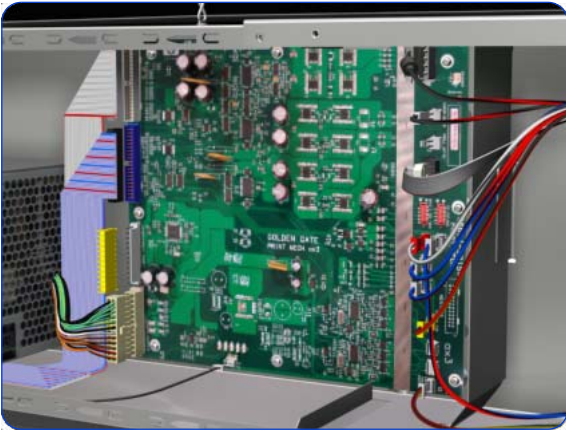
6. Slide the cover to the right.



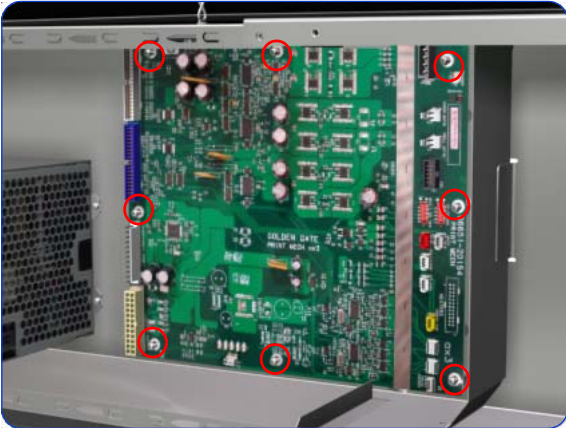
7. Remove the cover.



8. Remove the PrintMech PCA Separator.



9. Disconnect all cables from the PrintMech PCA.



10. Remove eight T-10 screws that secure the PrintMech PCA.

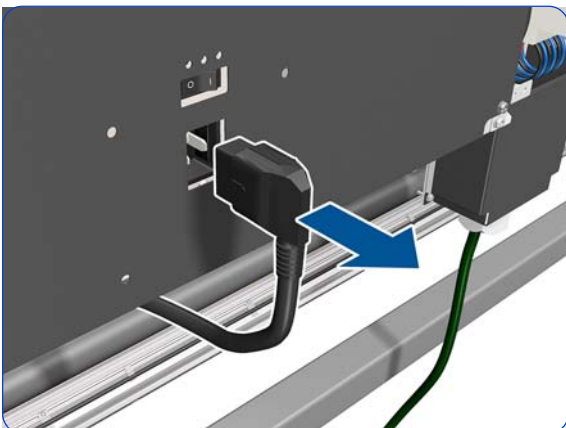
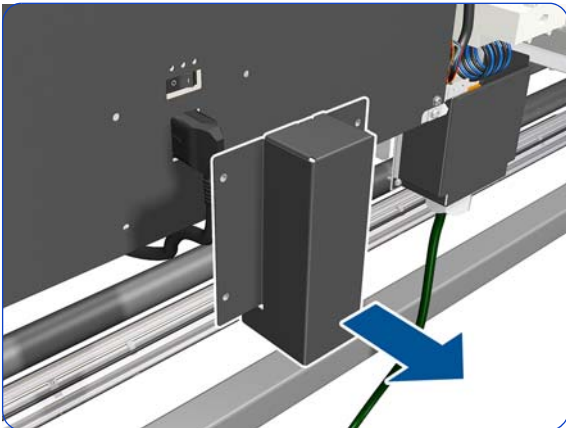
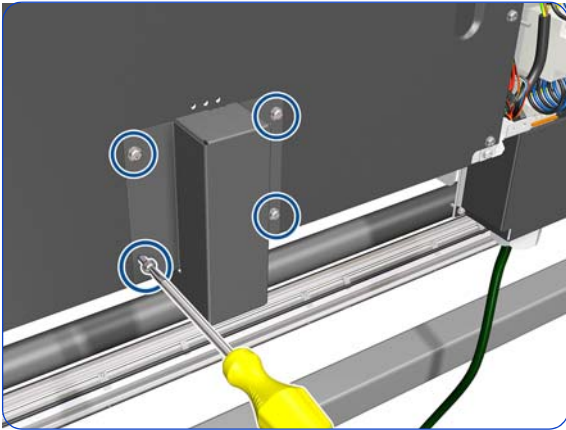


11. Remove the PrintMech PCA from the printer.

# Electronics Enclosure

## Removal

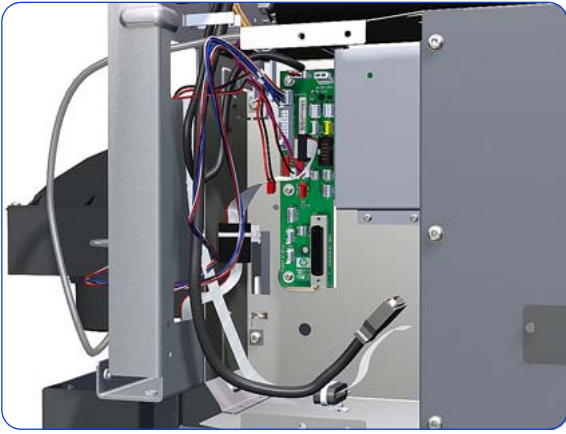
1. Remove the Power Box Cover ⇒ page 311.
2. Remove the Electronics Enclosure Extension Cover ⇒ page 319.
3. Remove the Back Cover ⇒ page 302.
4. Remove the Right Connector Cover ⇒ page 308.
5. Remove four T-20 screws.



6. Remove the power plug cover.

7. Unplug the power plug.

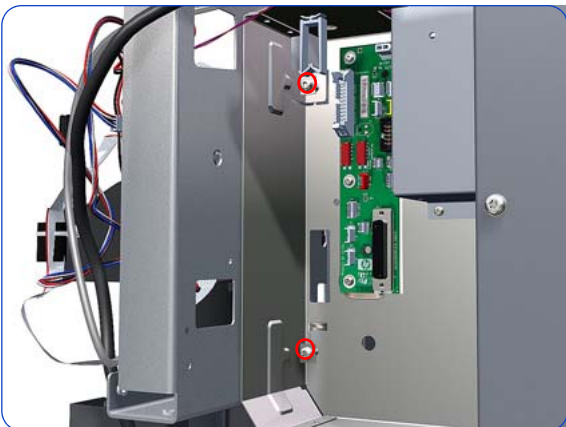




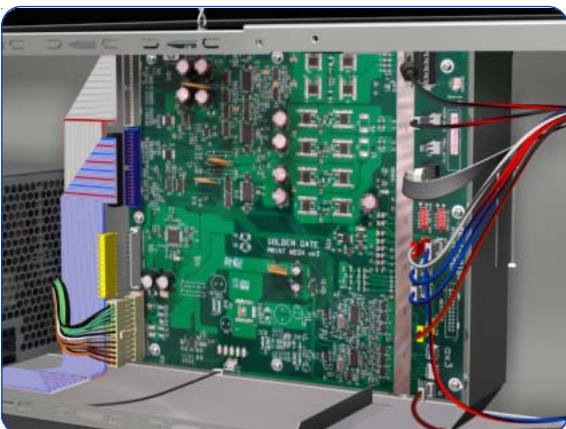
8. Disconnect all the cables connected to the PCAs on the right-hand side: the Interconnect PCA, OMAS Controller PCA, Formatter PCA, and Engine PCA.



9. Unroute all the disconnected cables so they are clear of the Electronics Enclosure.



10. Remove two T-20 screws that secure the right-hand side of the Electronics Enclosure.

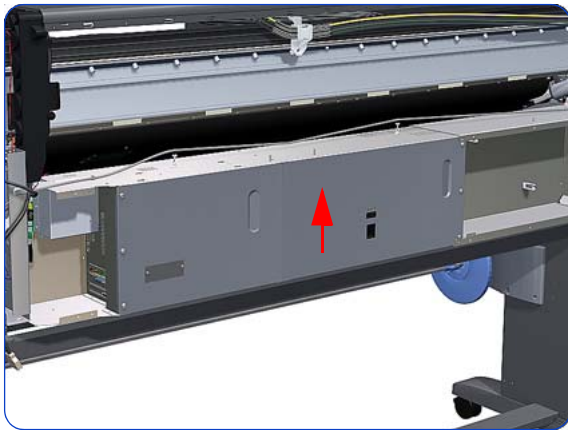


11. Disconnect all cables from the PrintMech PCA.





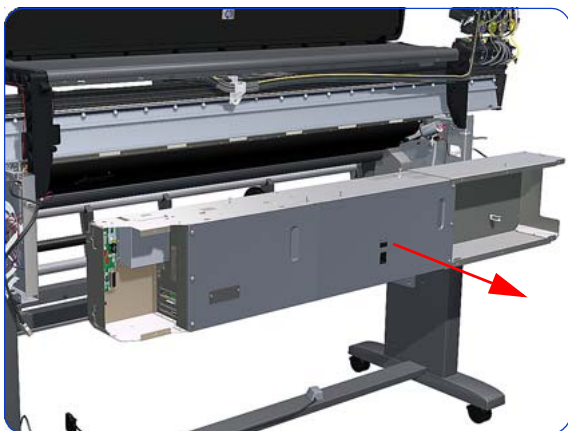
12. Remove two T-20 screws that secure the left-hand side of the Electronics Enclosure.



13. Lift the Electronics Enclosure sufficiently (approximately 2 cm) to release it from the attachments.



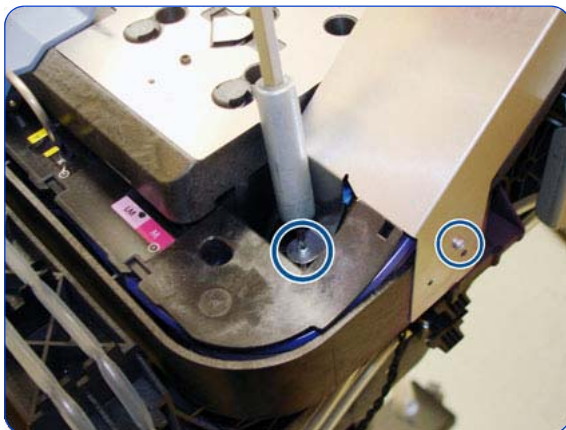
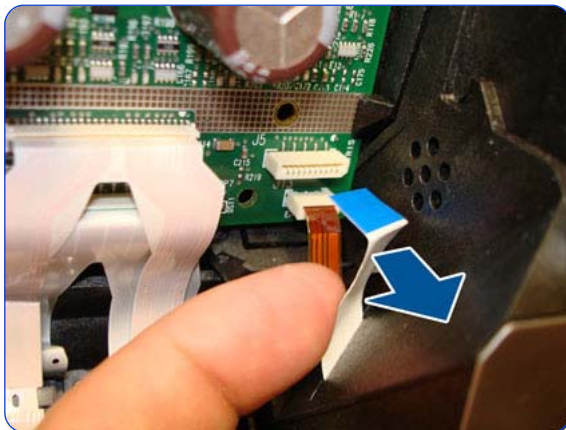
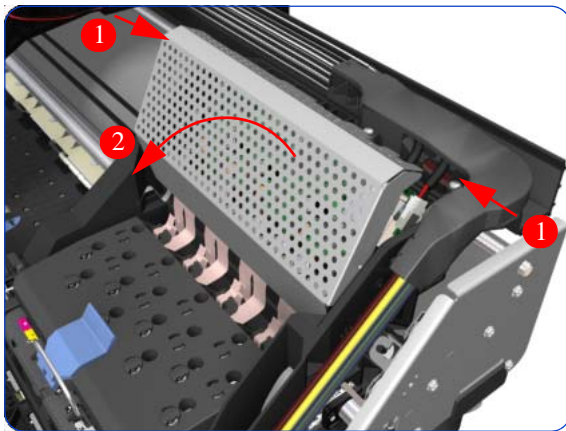
**CAUTION:** Be careful not to damage the cables on top of the Electronics Enclosure as you remove it.



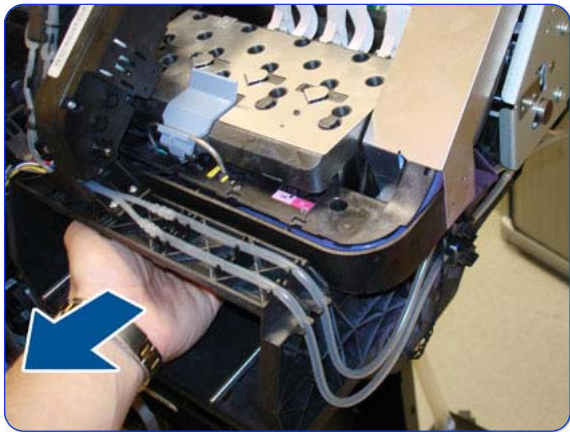
14. Remove the Electronics Enclosure from the printer.

# Line Sensor Assembly

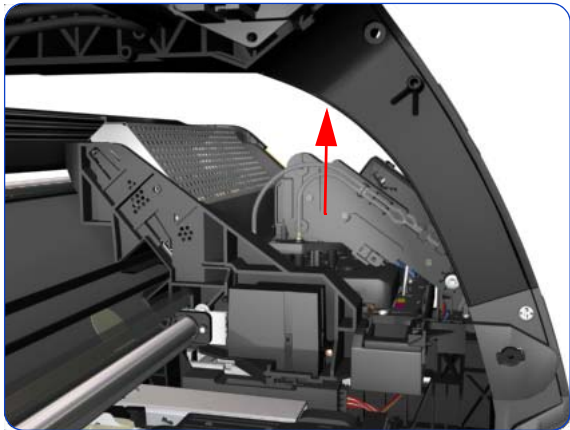
## Removal



1. Remove the Right Cover ⇒ page 286.
2. Press the two side of the Carriage PCA Cover and unclip from the Carriage Assembly.
3. Release the clip and disconnect the Line Sensor cable from the Carriage PCA.
4. Remove two T-8 screws from the metal part.



5. Uncap the Carriage by manually pulling out the Printhead Cleaning Cartridge



6. Lift the Primer and hold the Primer to its maximum position to avoid damaging it when you



7. Move the Carriage away from the Service Station.

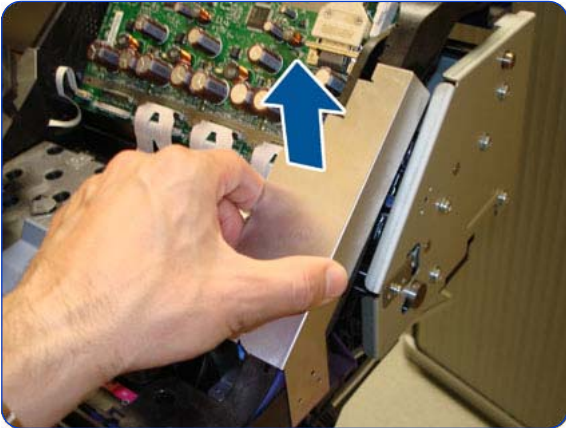


8. Remove one T-8 screw from the metal Carriage Cover.





9. Move the Carriage into the Service Station.



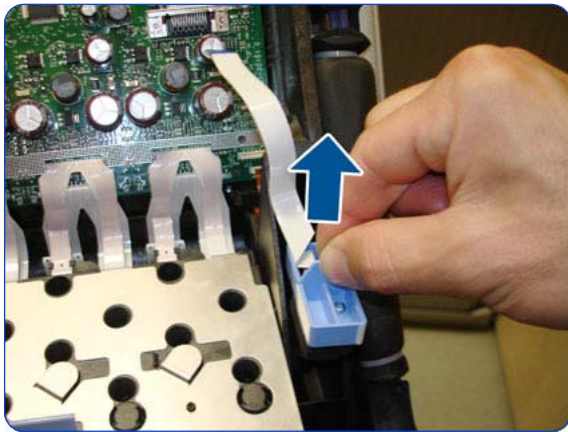
10. Remove the Metal Carriage Cover.



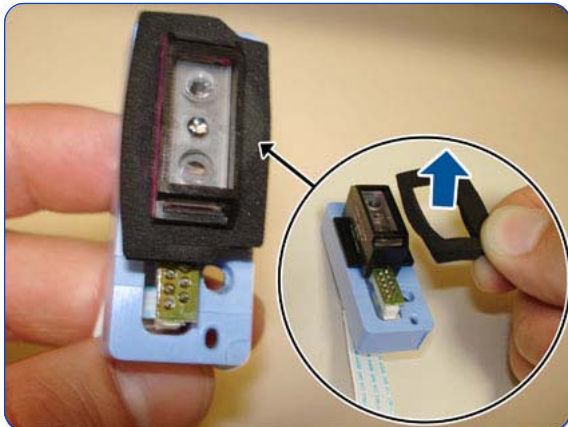
11. Pass the Line Sensor Cable through the hole.



12. Remove one T-15 screw that secures the Line Sensor to the carriage Assembly.



13. Remove the Line Sensor from the Carriage Assembly.



14. Remove the protective foam from around the sensor.

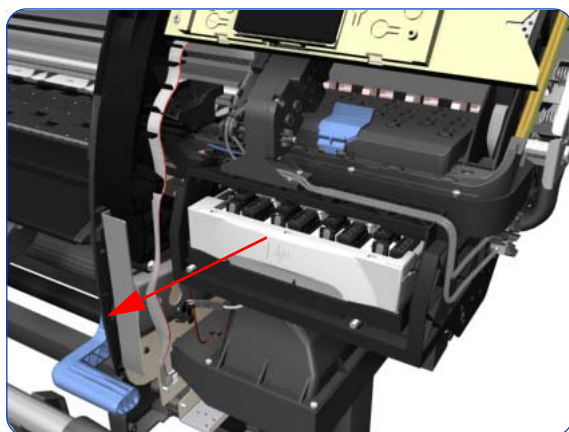
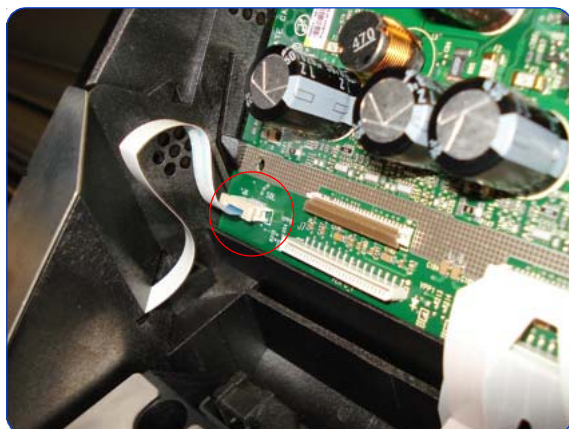
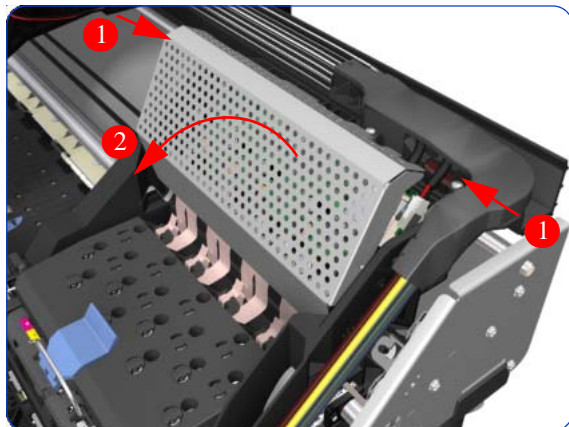


**NOTE:** After installing the NEW Line Sensor, perform the following Service Calibrations:

- "5.6.1 Line Sensor Calibration" ⇒ page 195.
- Reset the life counter "4.6.2 Line Sensor cycle" ⇒ page 188.

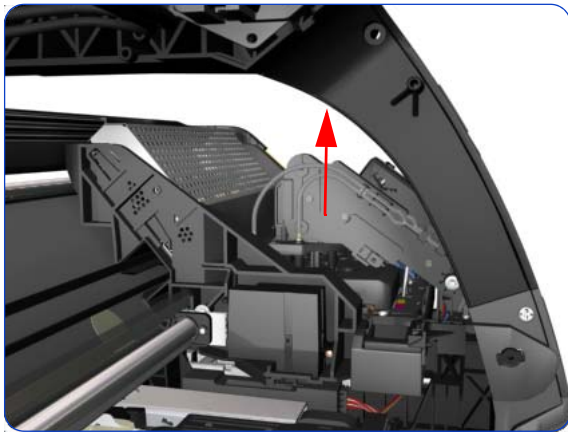
# Color Sensor Assembly

## Removal



1. Open the Window.
2. Remove the Right Cover ⇒ page 286.
3. Press the two side of the Carriage PCA Cover and unclip from the Carriage Assembly.
4. Release the clip and disconnect the Color Sensor cable from the Carriage PCA.
5. Uncap the Carriage Assembly by manually pulling out the Printhead Cleaning Cartridge tray.

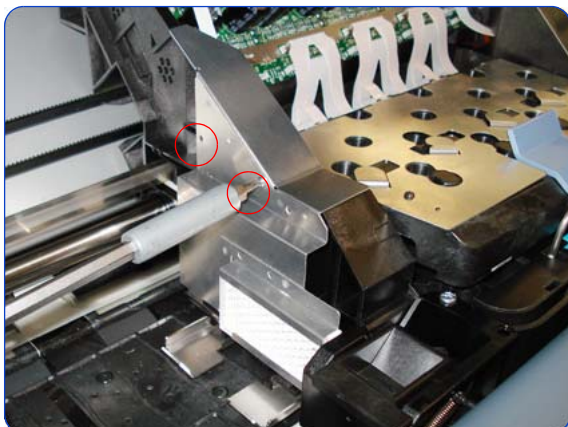




6. Lift the Primer and hold the Primer to its maximum position to avoid damaging it when you move the Carriage Assembly in the next step.



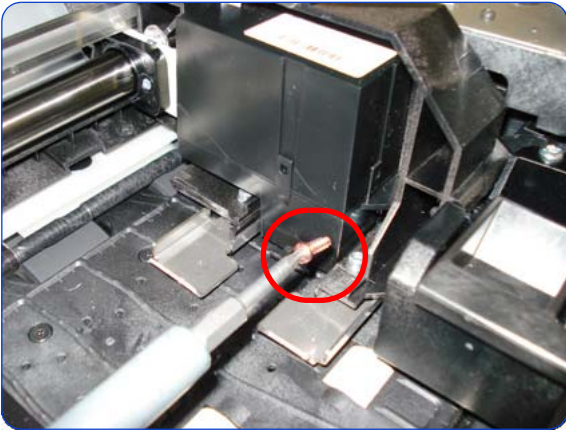
7. Move the Carriage away from the Service Station, into the center of the platen.



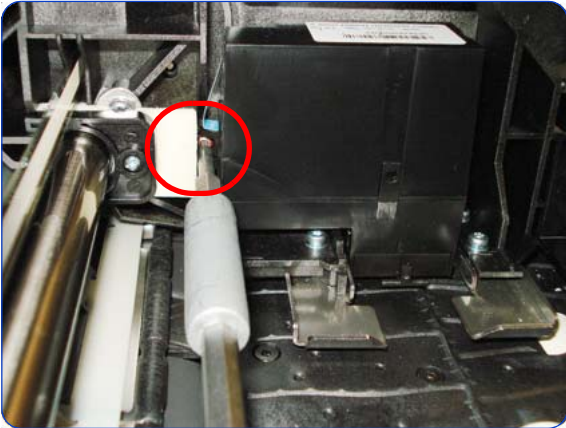
8. Remove two T-8 screws that secure the Reflector Assembly to the side of the Carriage Assembly.



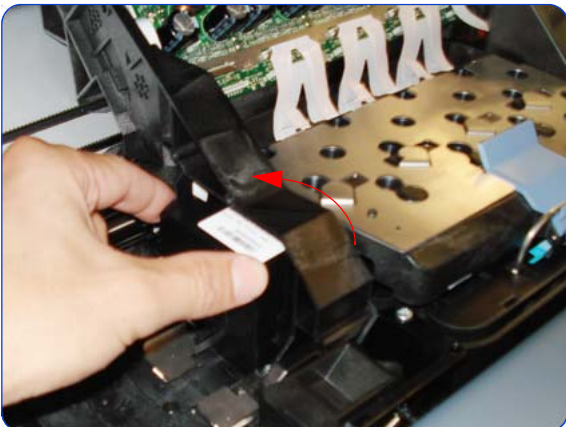
9. Remove the Reflector Assembly.



10. Remove one T-10 screw from the front of the Color Sensor.



11. Remove one T-10 screw from the Rear of the Color Sensor.



12. Tilt the Color Sensor so it can be removed.



13. Remove the Color Sensor from the Carriage Assembly.



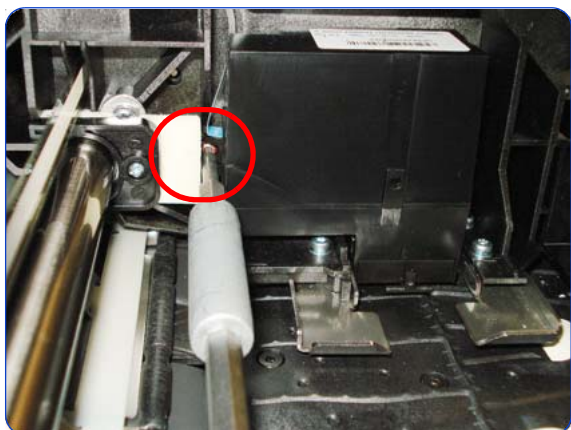
**NOTE:** After installing the NEW Color Sensor, perform the following Service Calibrations:

- "5.6.3 Open Close SOL" ⇒ page 200.
- Perform the safety test "3.3 Substrate Path Sensor" ⇒ page 150.
- Reset the life counter "4.6.5 Color sensor" ⇒ page 188.

## Installation



1. When installing the T-10 screw to the front of the Color Sensor, make sure you do not over-tighten the screw.

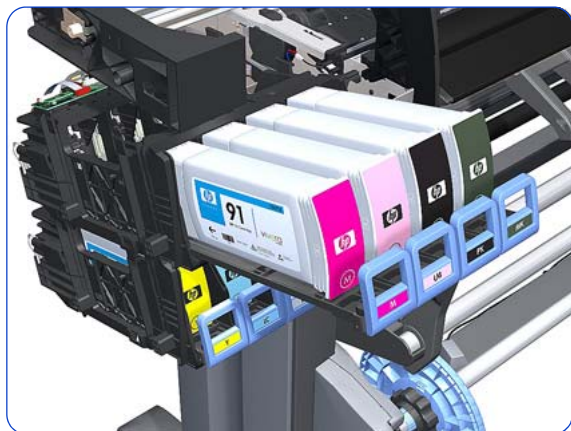


2. When installing the T-10 screw to the Rear of the Color Sensor, make sure you do not over-tighten the screw.

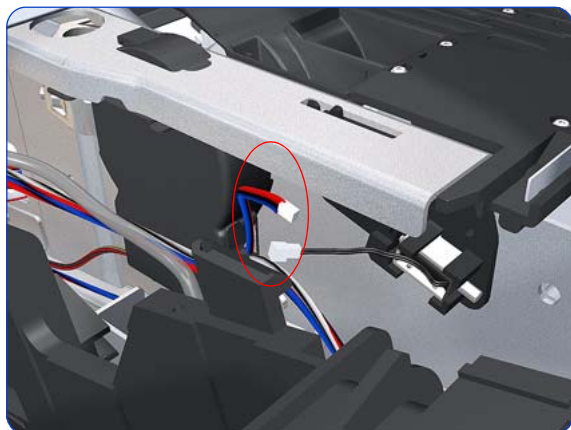


# Color Sensor Actuator Assembly

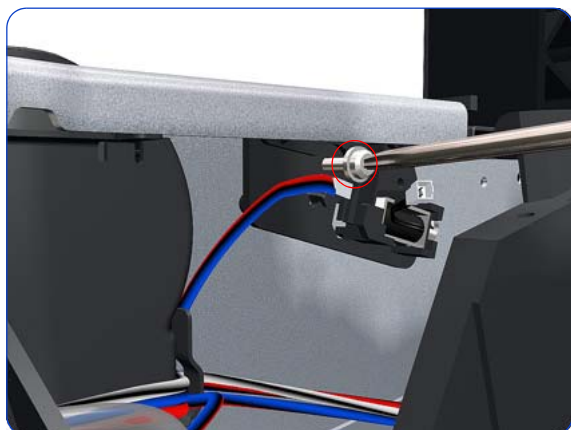
## Removal



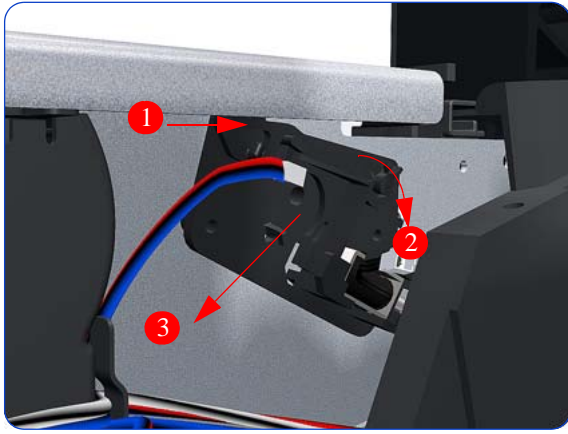
1. Remove the Left Cover ⇒ page 293.
2. Slide out the top row of Ink Cartridges from the Ink Supply Station



3. Disconnect the Color Sensor Actuator Assembly.



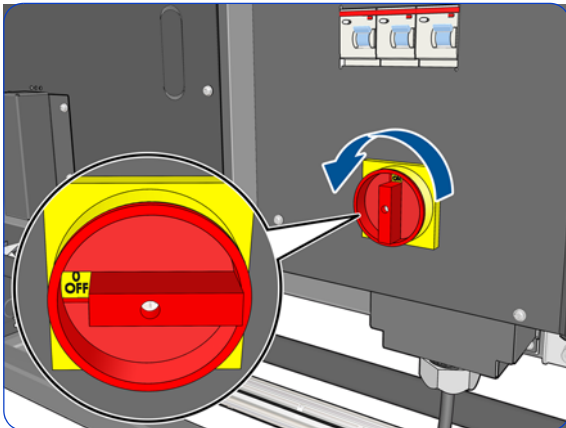
4. Remove one T-15 screw that secures the Color Sensor Actuator Assembly to the printer.



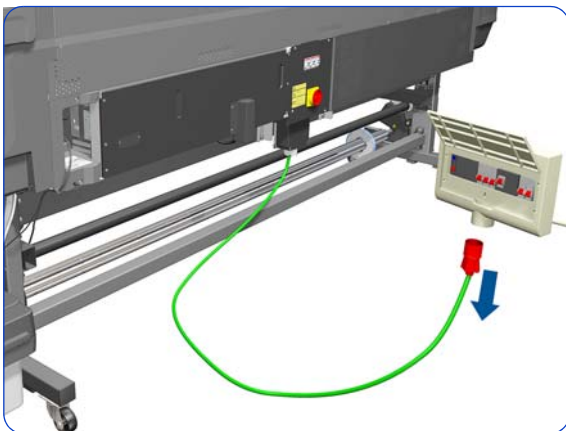
5. Remove the Color Sensor Actuator Assembly to the printer.

# Dryer Grill

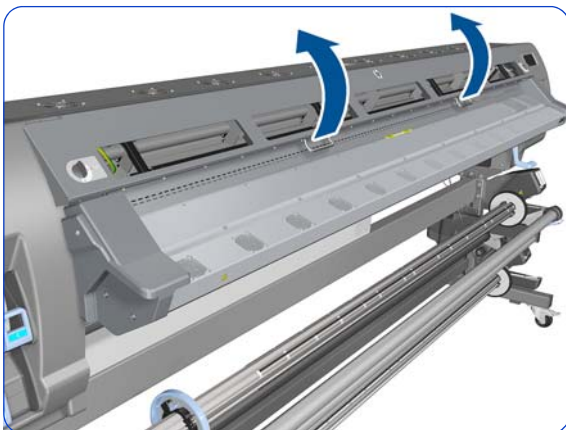
## Removal



1. Turn off the printer.



2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).

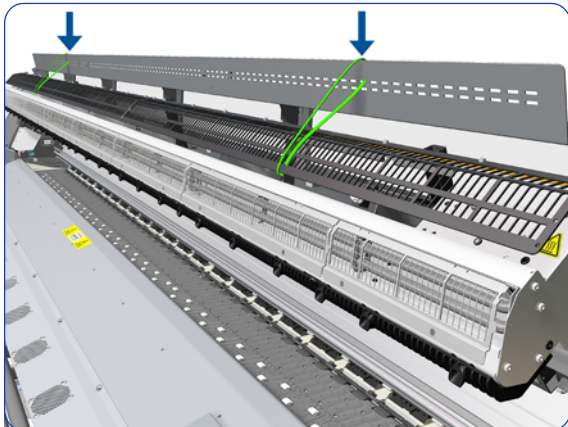


3. Open the Window.

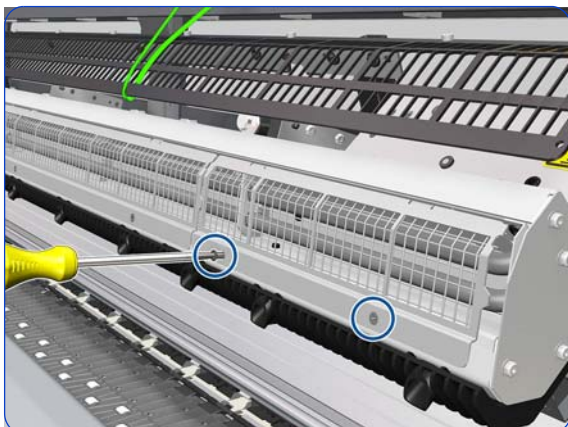




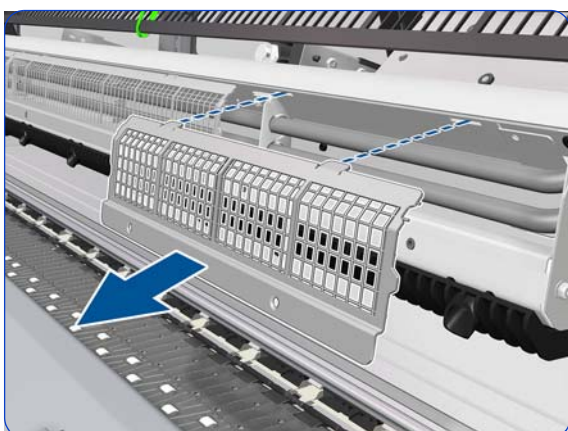
4. Open the Dryer Grill Protection.



5. Tie the Dryer Grill Protection to the Window at both ends as shown.



6. Remove two T-10 screws.



7. Remove the Dryer Grill.

## Installation

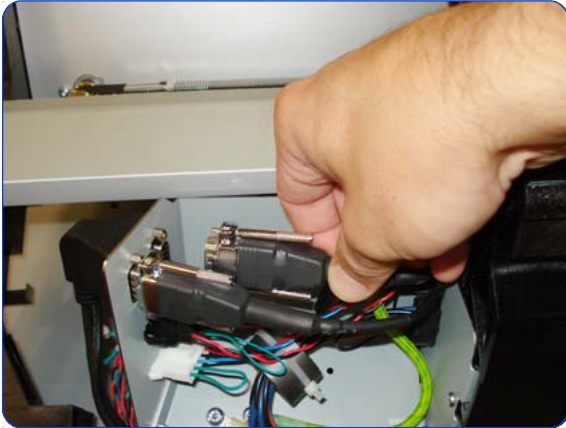


8. Insert both tabs of the Dryer Grill in the holes.

# Dryer IR Temperature Sensor

## Removal

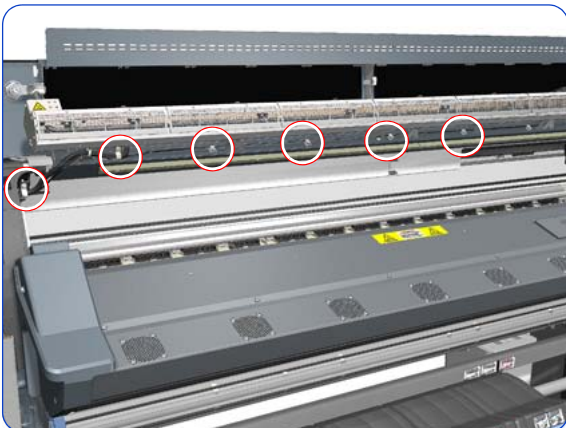
1. Twist the Window Locks and open the Dryer Window.
2. Remove the Left Cover ⇒ page 293.
3. Disconnect the Dryer Temperature Sensor cable from the left side of the printer.

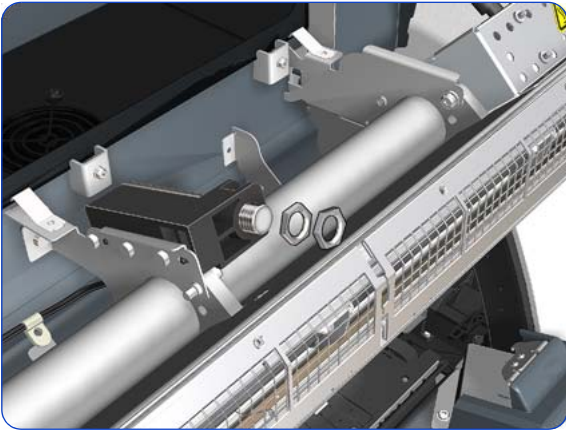


4. Remove one T20 screw from the cable clamp.



5. Remove all the T20 screws from cable clamps that secure the Temperature Sensor Cable to the inside of the Dryer Window Assembly.

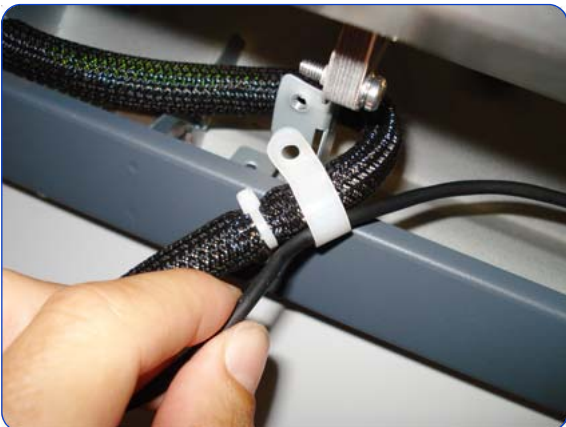




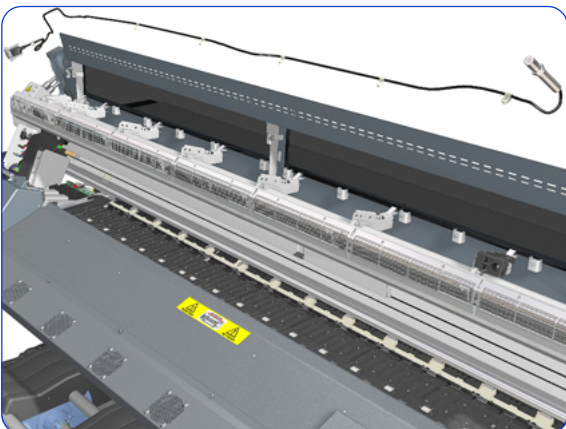
6. Remove two thin nuts from the Dryer Temperature Sensor.



7. Remove the Dryer Temperature Sensor from the holder.



8. Remove the Dryer Temperature Sensor Cable from the cable clamps.

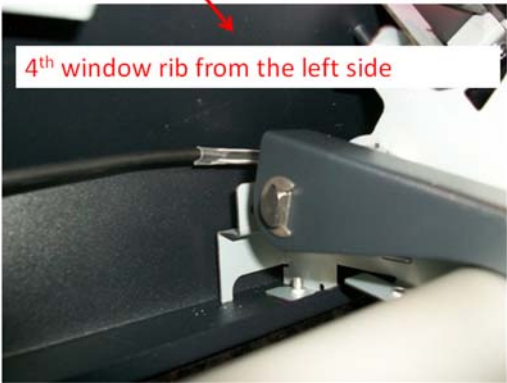
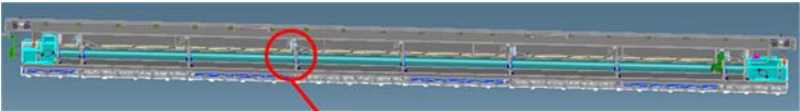
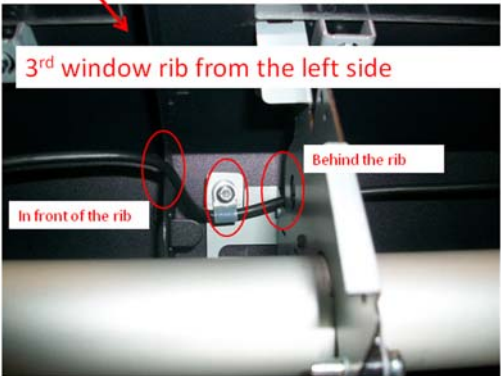
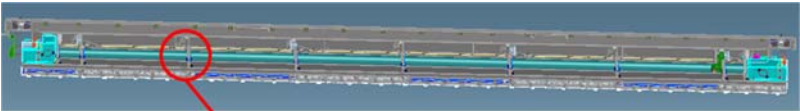
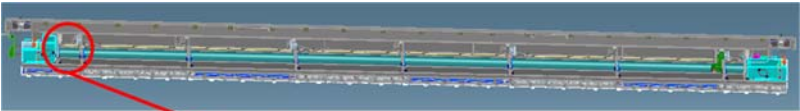


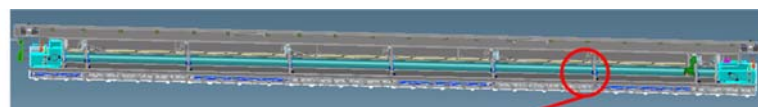
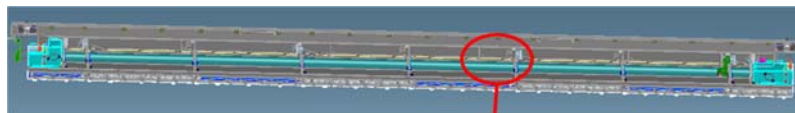
9. Remove the Dryer Temperature Sensor and cable from the printer.



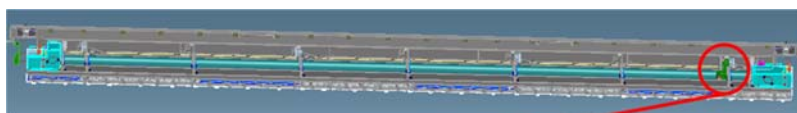
# Installation

Cable routing should be done as shown below.





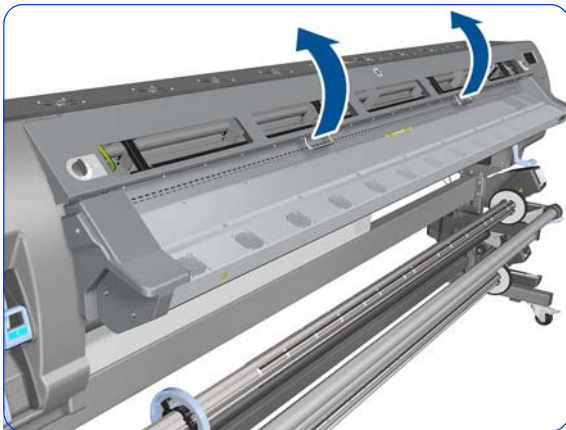
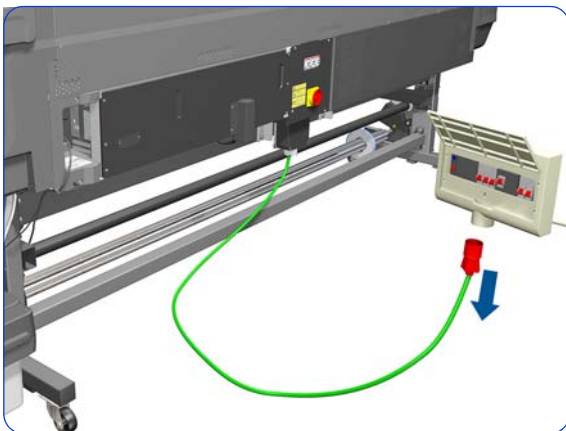
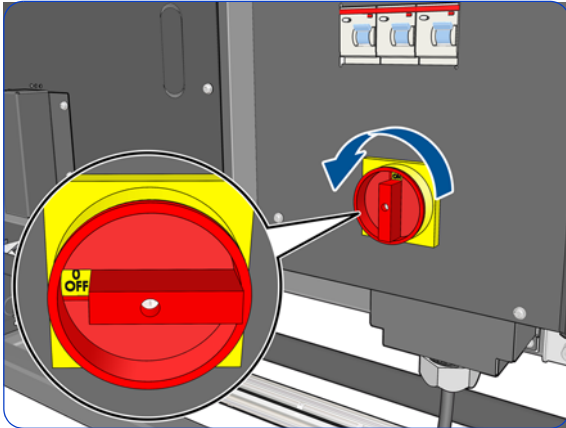




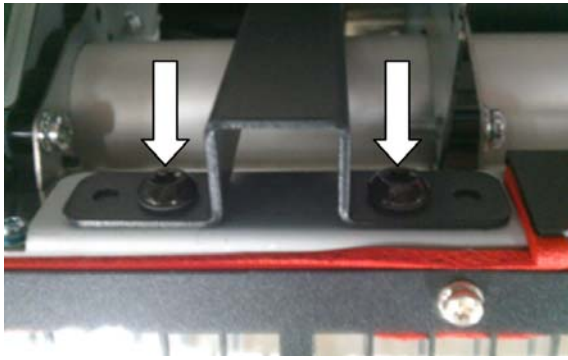
After installing the new Dryer IR Temperature Sensor, reset the Heating Sensor life counter ⇒ page 189.

# Dryer Protector

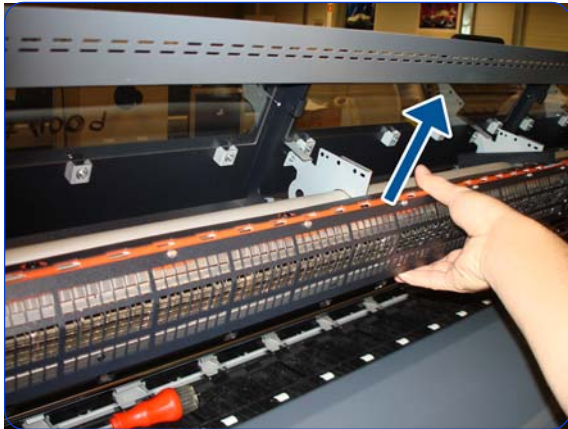
## Removal



1. Turn off the printer.
2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).
3. Open the Window.
4. Locate the four arms by which the dryer protector is attached to the window.

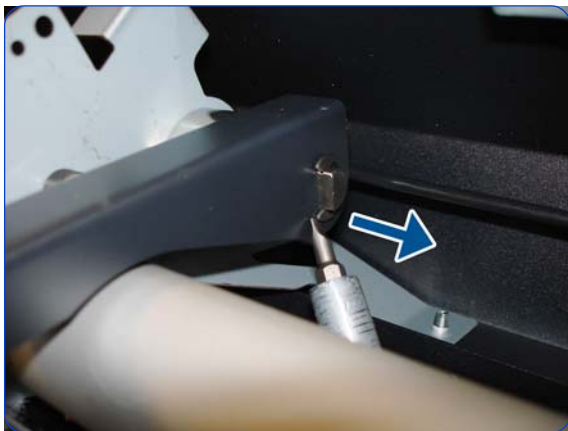


5. Remove the eight T-20 screws (two in each arm) that attach the arms to the isolator grid. Take care not to lose the lock washers, as they will be needed for installation.



6. Remove the Dryer Protector.

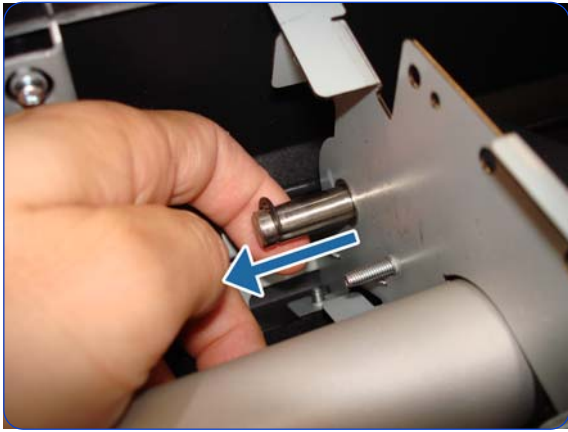
If you need to remove the dryer protector arms, continue with the following steps.



7. Unlock the clip at the side of the arm.



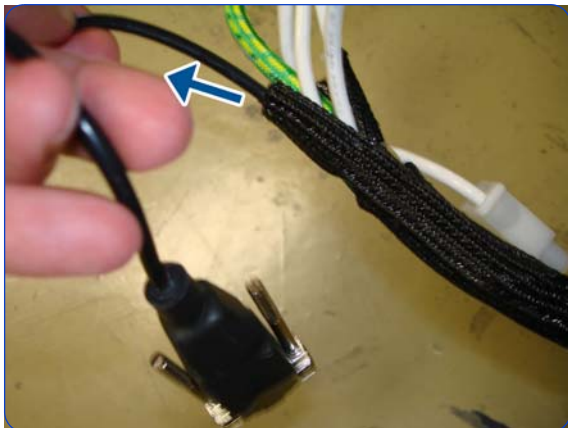
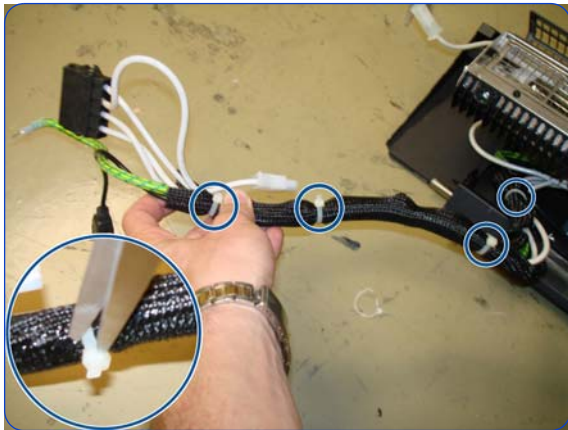
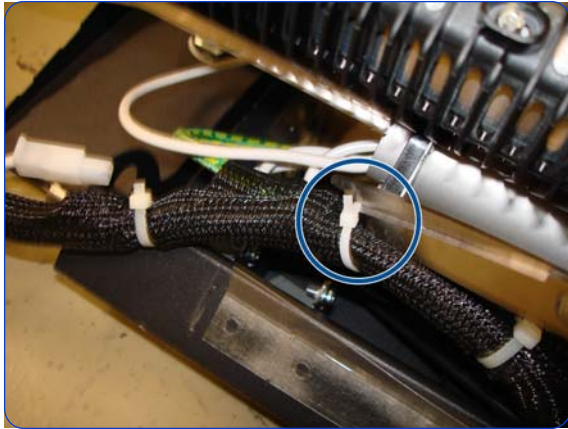
8. Push the arm rod.



9. From the other side of the bracket, pull the arm rod to freeze the arm.

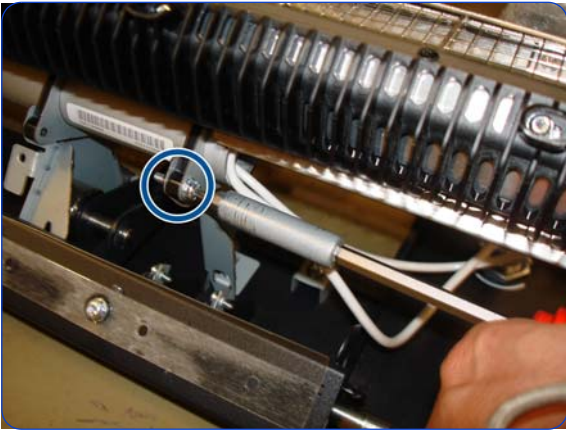
# Dryer Heater

## Removal

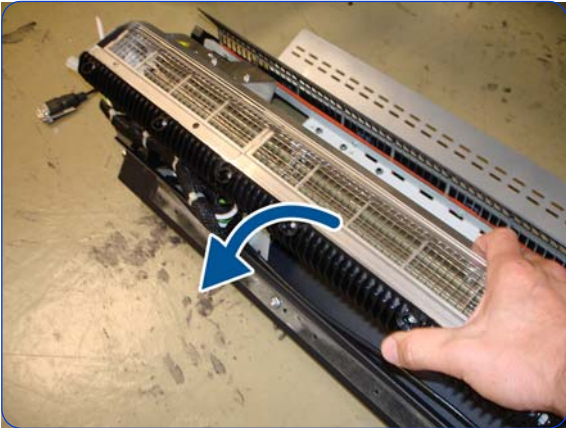


1. Remove the Window ⇒ page 273.
2. Cut the tie that attaches the Dryer Temperature Cable to the Window bracket.
3. Cut four more ties.
4. Unroute the Dryer Temperature Sensor cable.

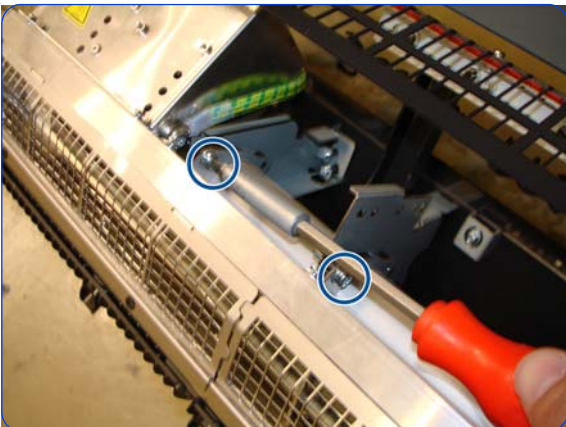




5. Remove eight T-20 screws from this side.



6. Rotate the Dryer Heater to reach the screws on the other side.



7. Remove seven T-20 screws.



8. Remove the Dryer Heater.



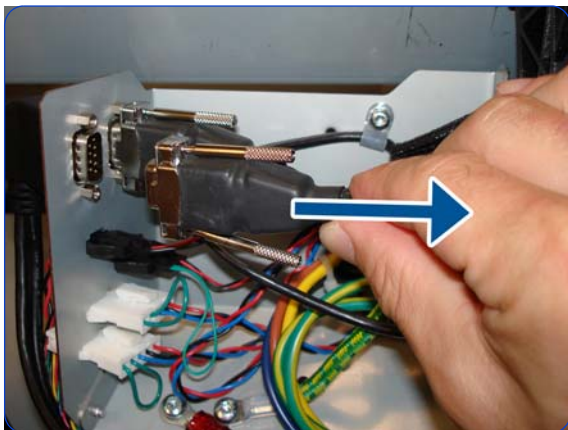
# Curing Fans and Cover

## Removal

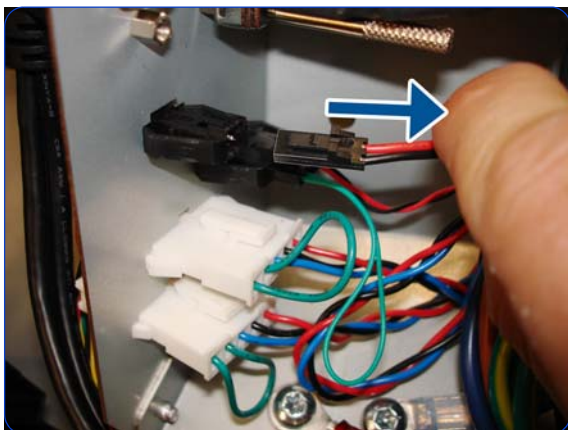
1. Remove the Left Cover ⇒ page 293.
2. Remove the Left Curing Cover ⇒ page 298.
3. Remove the Right Curing Cover ⇒ page 300.
4. Loosen two screws on the connector of the Curing IR Temperature Sensor cable, by hand or with a flat screwdriver.

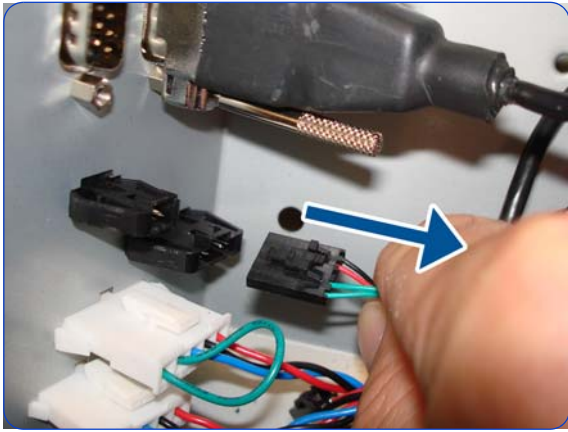


5. Disconnect the Curing Temperature Sensor Cable.

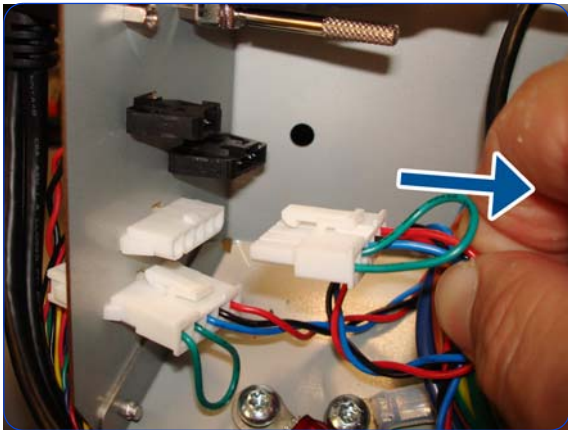


6. Disconnect the cable of the Left Windows Lock Sensor.

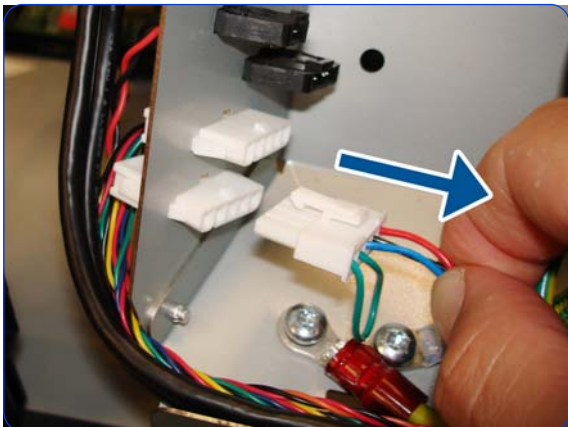




7. Disconnect the cable of the Curing Fans.



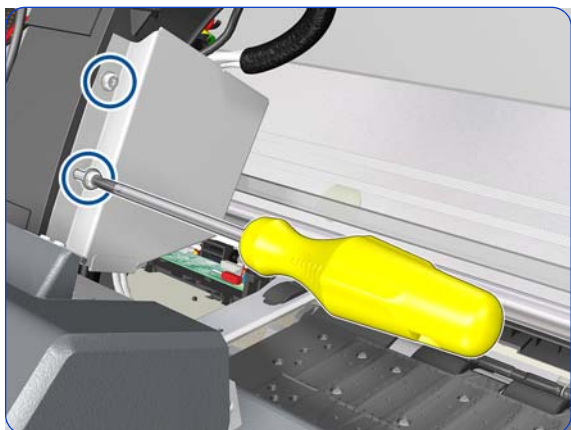
8. Disconnect the cable of the Curing Temperature Sensor Fan.



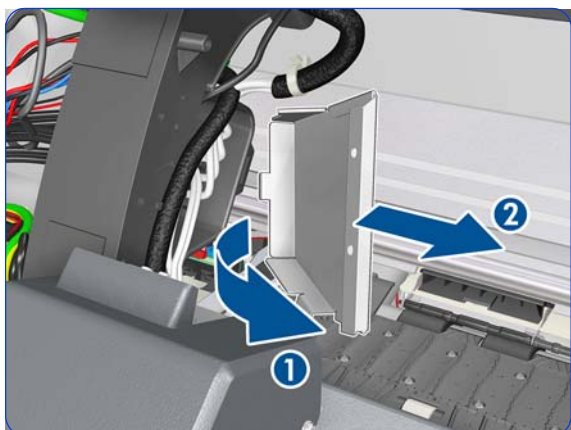
9. Disconnect the other cable as shown.



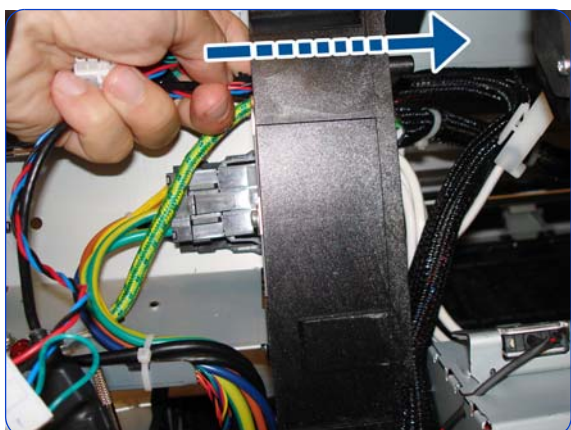
10. Remove a screw as shown.



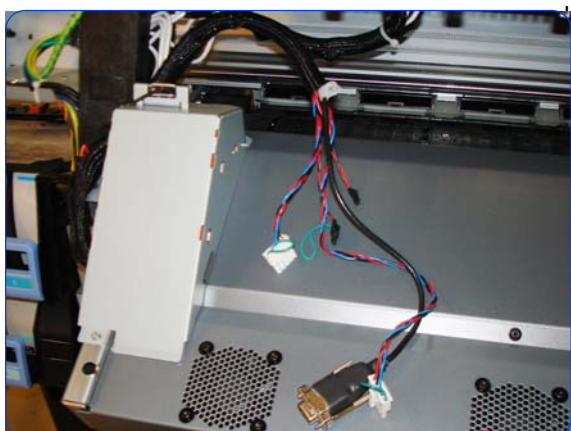
11. Remove two T-20 screws that secure the Left Cable Plate to the printer.



12. Rotate (1) and remove (2) the Left Cable Plate.

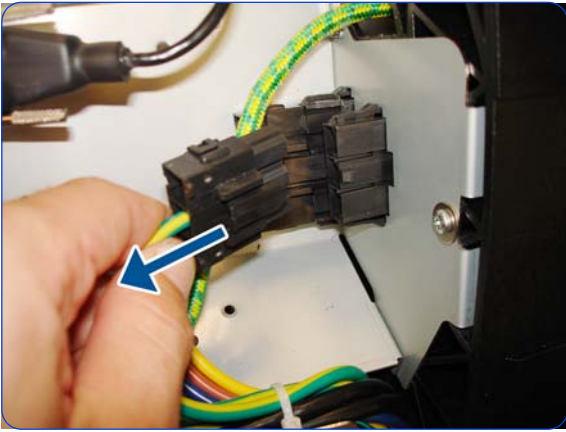


13. Unroute the cables from the Cable Protector.

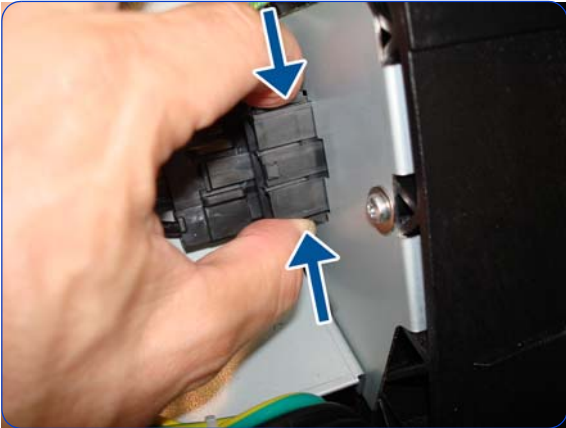


14. Push all the cables through the left arch and out the other side.

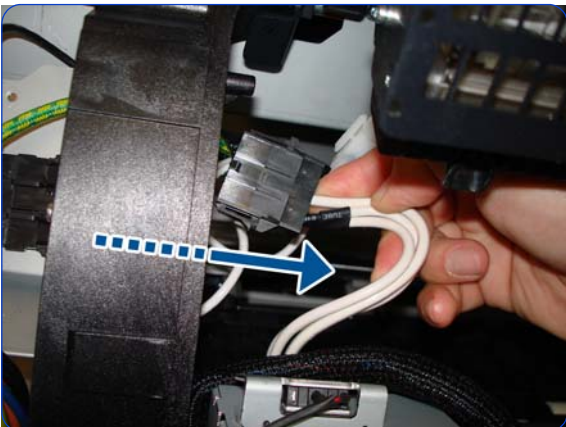




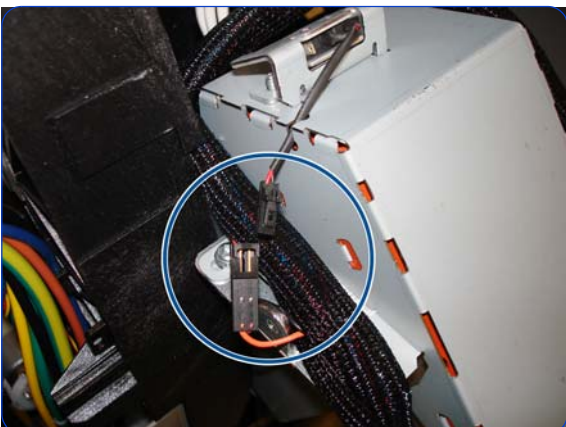
15. Disconnect the Curing Heater Cables from the left side (upper and lower connectors).



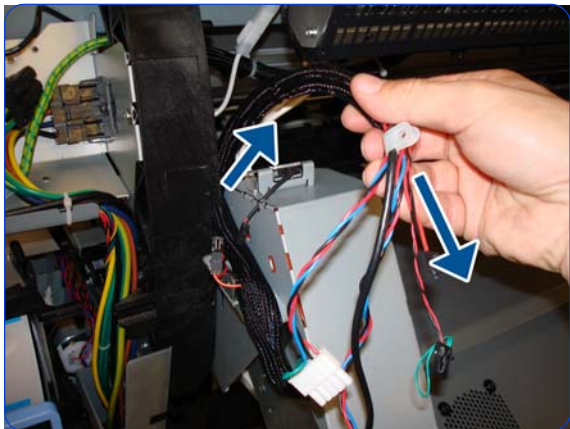
16. Squeeze as shown.



17. Disconnect the Left Window Sensor Cable.



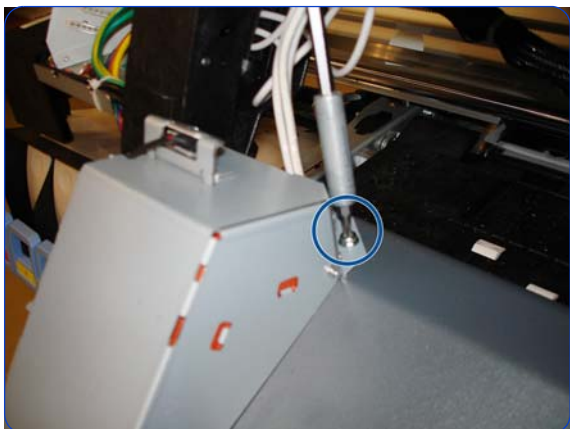
18. Disconnect as shown.



19. Collect the cables as shown.



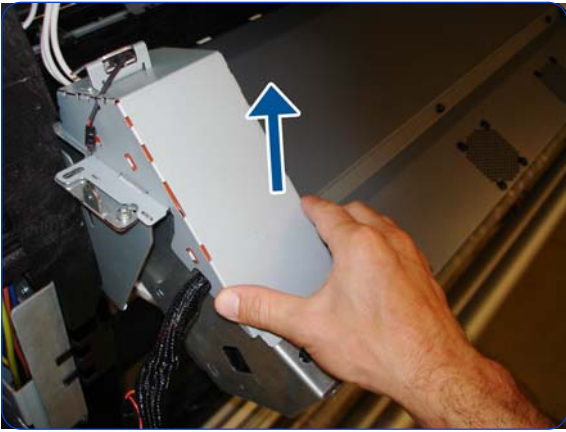
20. Remove one T-20 screw from the left side of the Curing Module (screw closest to the printer).



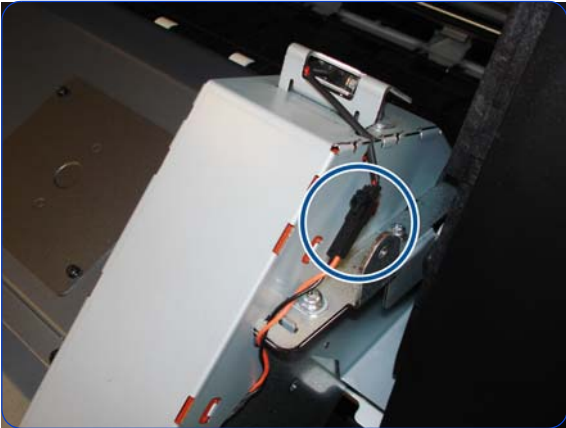
21. Remove one T-20 screw from the top of the Left Curing Trim.



22. Remove one T-10 screw from the bottom of the Left Curing Trim.



23. Remove the Left Curing Trim.



24. Disconnect the Right Window Sensor Cable.

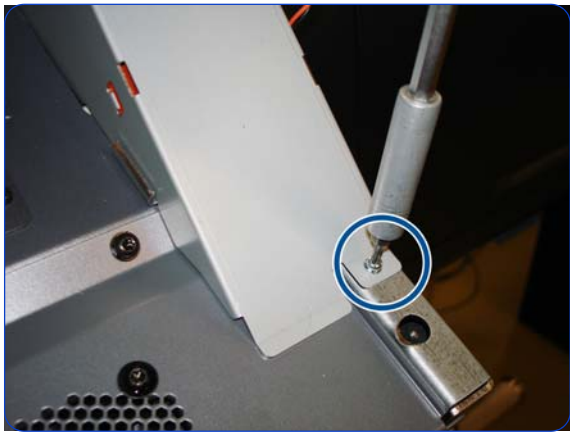


25. Remove one T-20 screw from the Right Curing Trim (screw furthest from the printer).

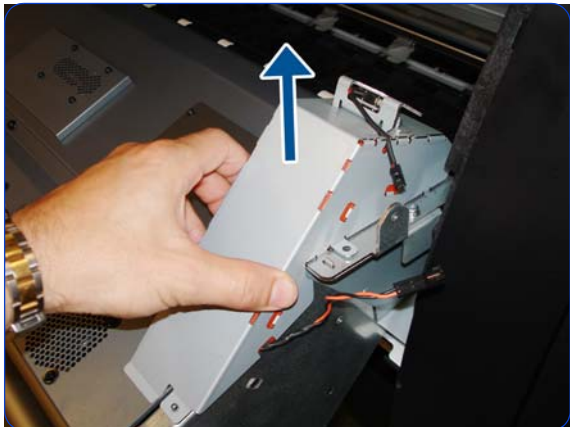


26. Remove one T-20 screw from the top of the Right Curing Trim.

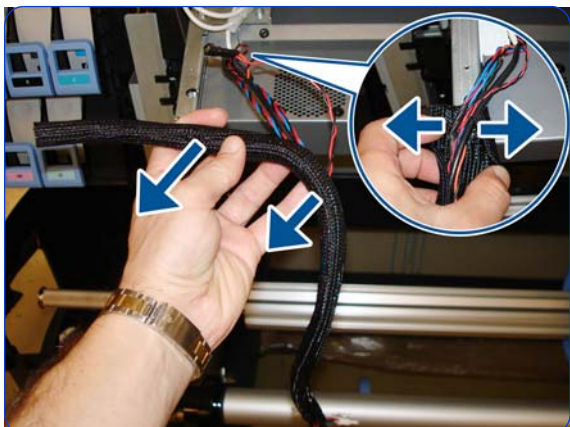




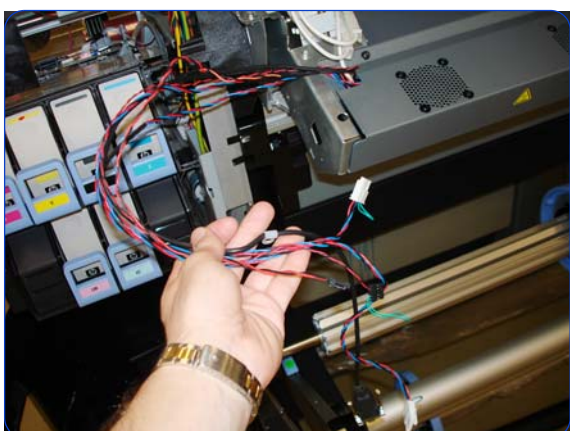
27. Remove one T-10 screw from the bottom of the Right Curing Trim.



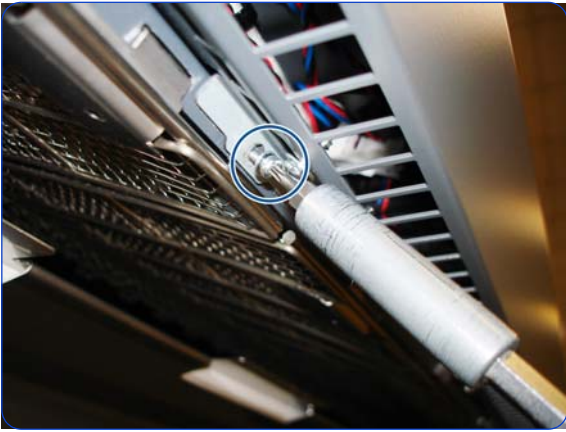
28. Remove the Right Curing Trim.



29.



30.



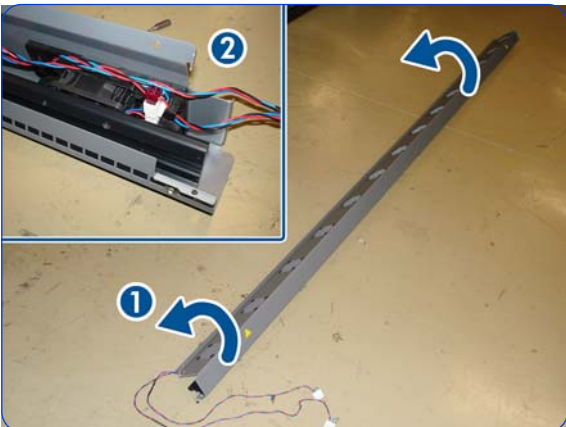
31. Remove eight T10 screws.



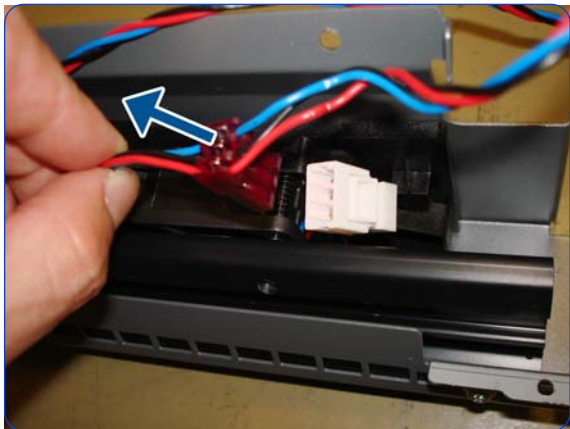
32. Remove ten T-20 screws.



33. Remove the Curing Fans Cover.



34. Place the Curing Fans Cover on the floor or some other flat surface.



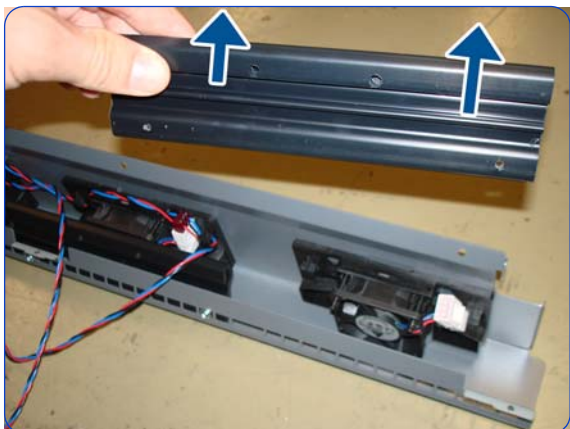
35. Disconnect the Curing Fans cable.



36. Move the cable out of the way.

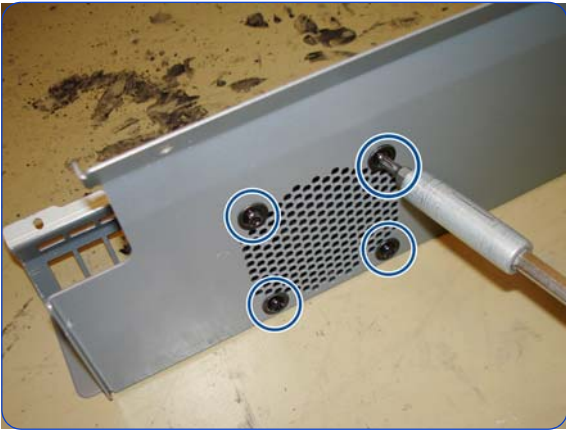


37. Remove two T-15 screws.

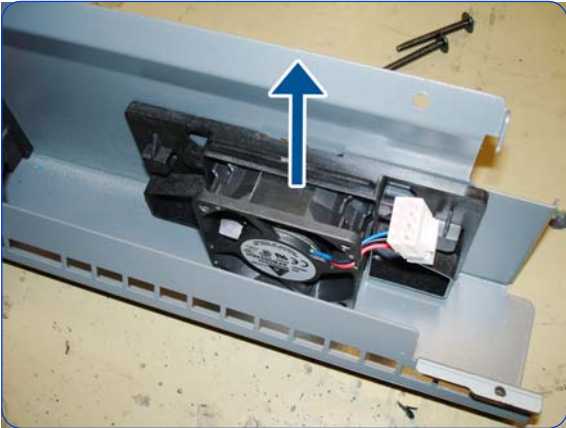


38. Remove the Fan Deflector.

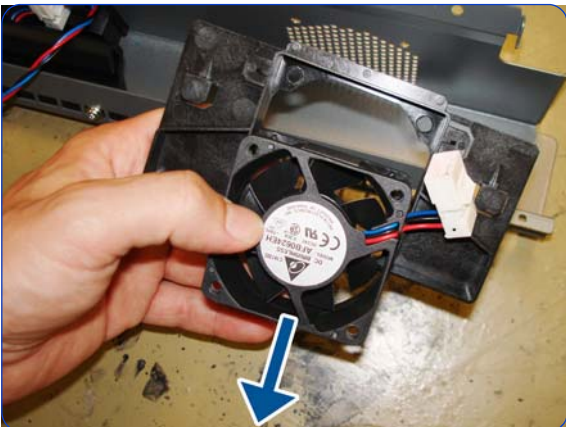




39. Remove four T-20 screws.



40. Lift the Fan.

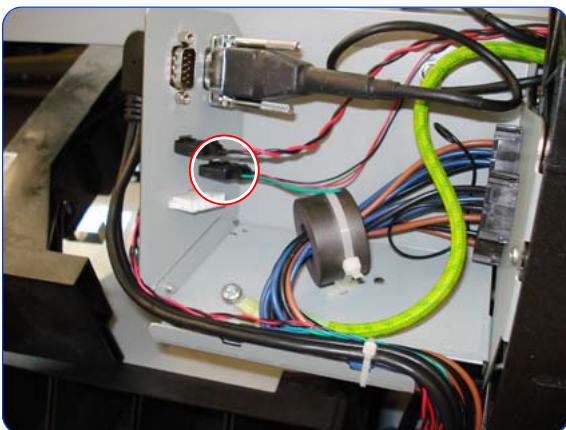
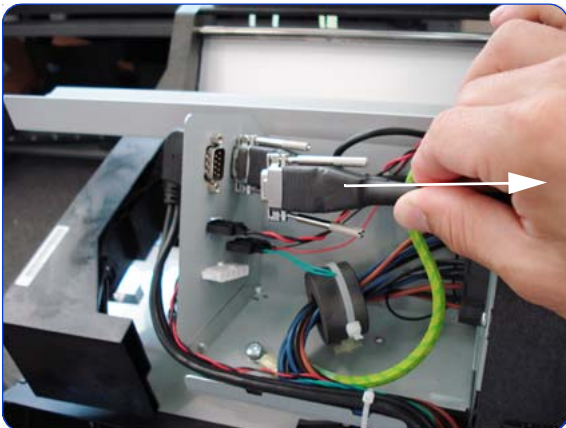
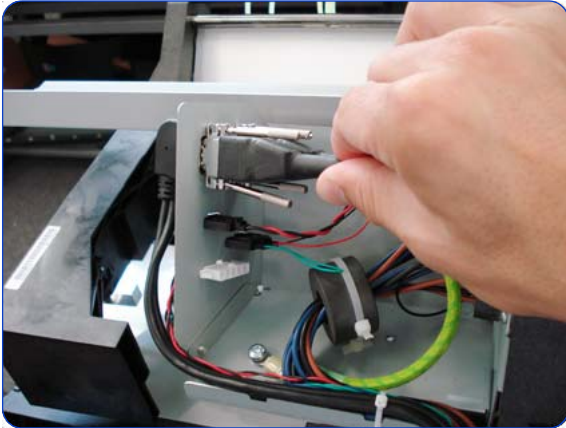


41. Remove the Fan.

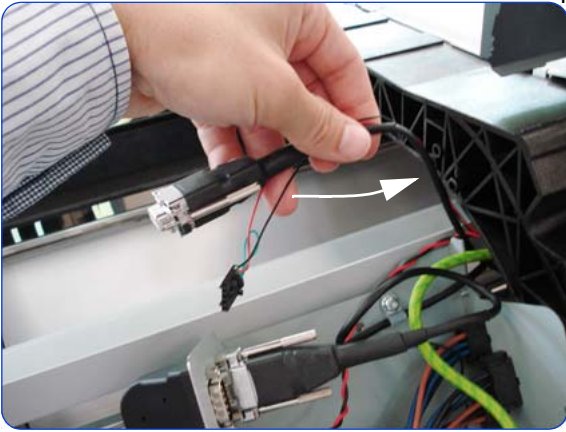
# Curing IR Temperature Sensor & Fan

## Removal

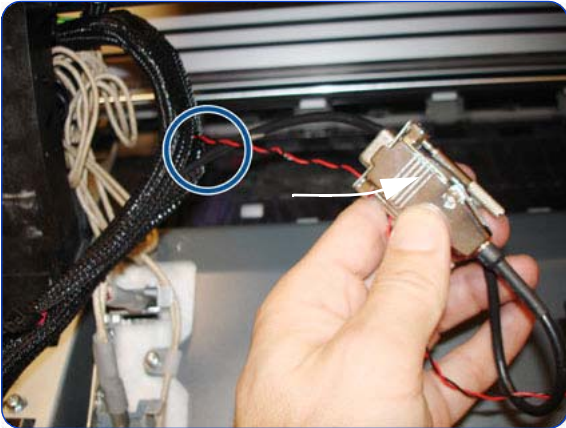
1. Remove the Left Cover ⇒ page 293.
2. Remove the Left Curing Cover ⇒ page 298.
3. Remove the Right Curing Cover ⇒ page 300.
4. Remove the Curing Fans Cover ⇒ page 486.
5. Loosen two screws on the connector of the Curing IR Temperature Sensor cable, by hand or with a flat screwdriver.



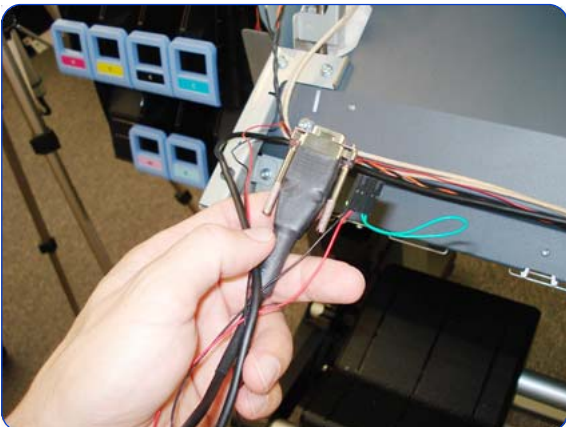
6. Disconnect the Curing Temperature Sensor Cable.
7. Disconnect the cable of the Curing Temperature Sensor Fan.



8. Push the cables of the Curing Temperature Sensor and Fan back through underneath the left arch.



9. Unroute the cables from the cable protector.



10. Leave to one side the cables of the Curing Temperature Sensor and Fan.

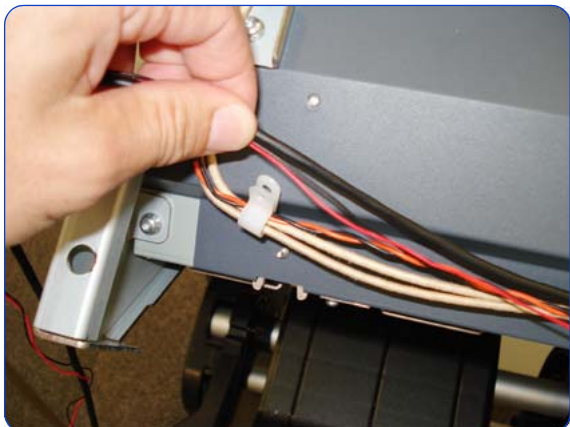


11. Unlock the cable clamps that secure the cables of the Curing Temperature Sensor and Fan to the front of the curing Module.

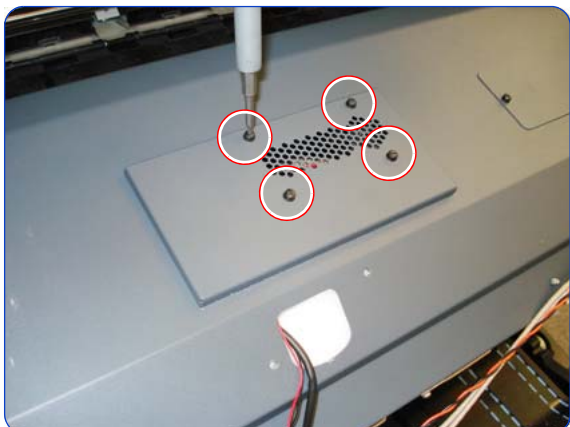




**Tip:** Not all of the cable clamps need to be removed, only those that hold the cables of the Curing Temperature Sensor and the Fan.



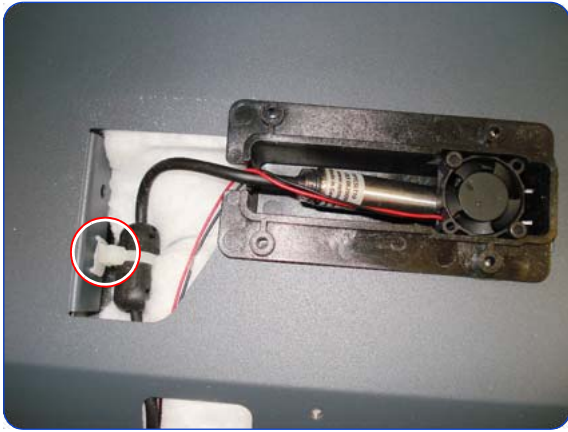
12. Remove only the cables of the Curing Temperature Sensor and the Fan from the cable clamps. The cables of the curing heater and right window sensor can stay in the cable clamps.



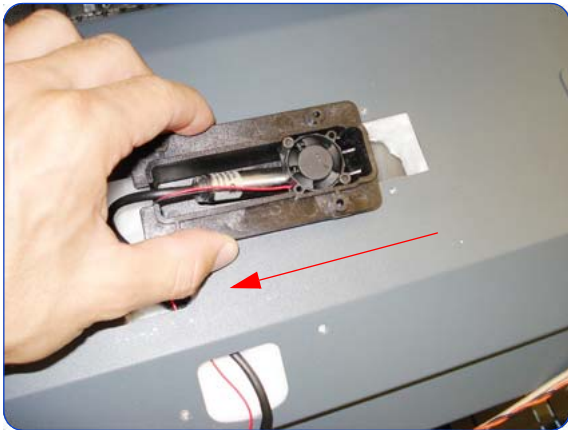
13. Remove four T-10 screws securing the cover of the Curing Temperature Sensor.



14. Remove the cover.



15. Pull off the ferrite clamp from the Curing Cover.



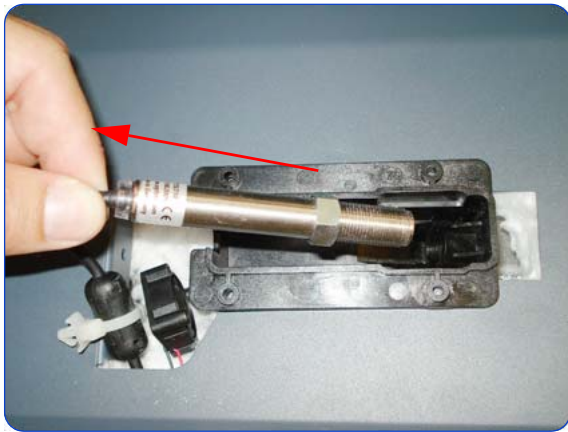
16. Slide the black plastic holder to the left.



17. Remove the Curing Temperature Sensor Fan from the black plastic holder.



18. Remove two thin nuts securing the Curing Temperature Sensor to the black plastic bracket.



19. Slide out the Curing IR Temperature sensor.

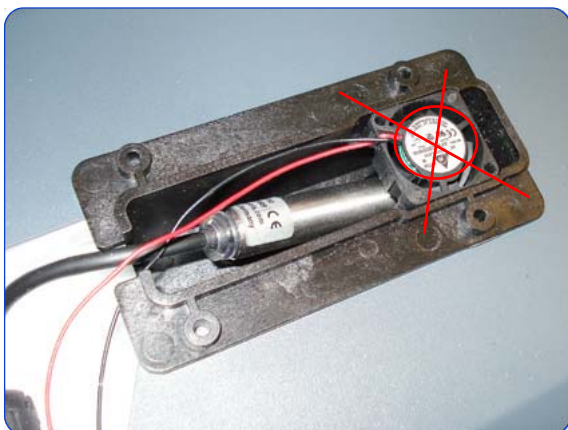


20. Remove the Curing Temperature Sensor Fan through the hole in the Curing cover.

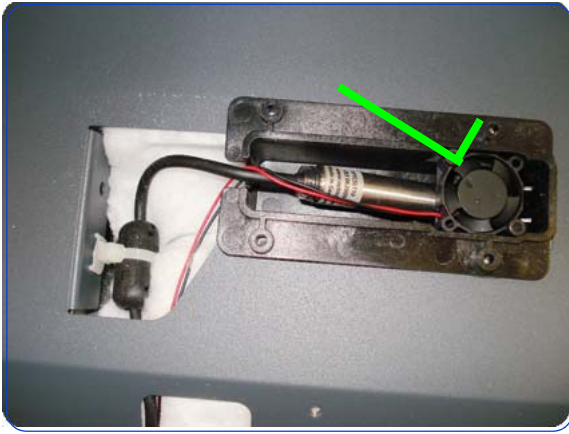


21. Remove the Curing Temperature Sensor through the hole in the Curing cover.

## Installation



1. When installing the Curing Temperature Sensor fan, it is important that the label of the fan is not visible.



2. In this example the fan is correctly installed.

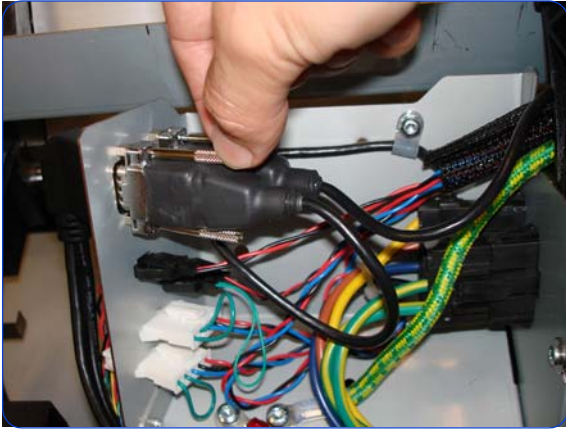
After installing the new Curing IR Temperature Sensor and Fan, reset the Curing Sensor life counter ⇒ page 189.



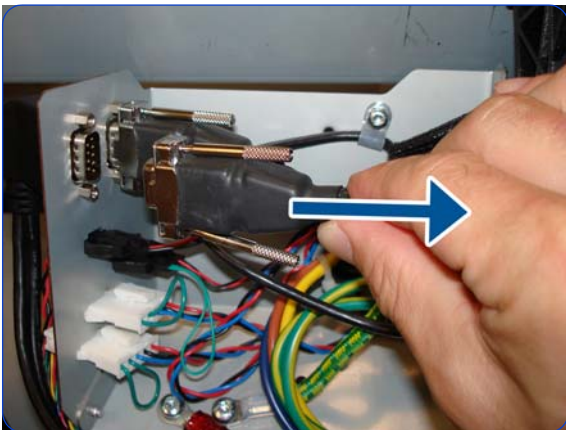
# Curing Module

## Removal (requires two people)

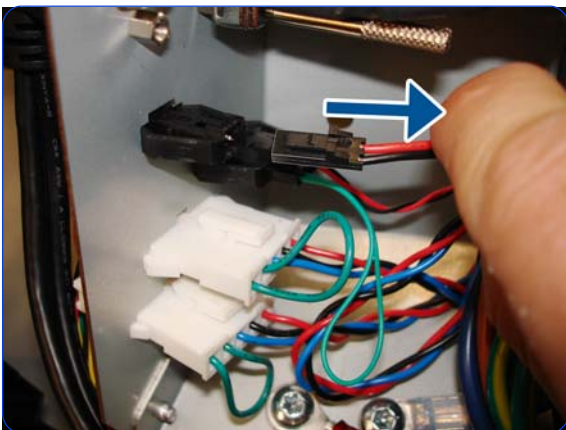
1. Remove the Left Cover ⇒ page 293.
2. Remove the Left Curing Cover ⇒ page 298.
3. Remove the Right Curing Cover ⇒ page 300.
4. Loosen two screws on the connector of the Curing IR Temperature Sensor cable, by hand or with a flat screwdriver.

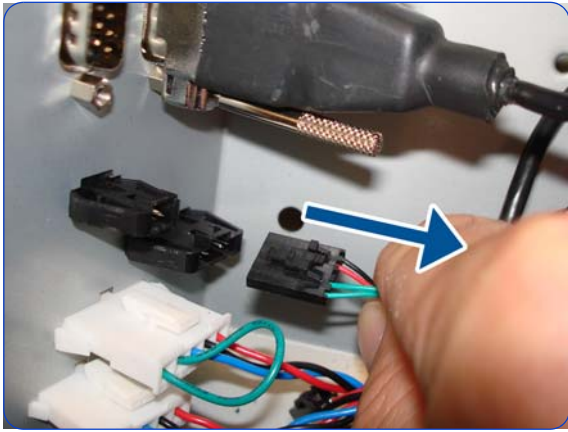


5. Disconnect the Curing Temperature Sensor Cable.

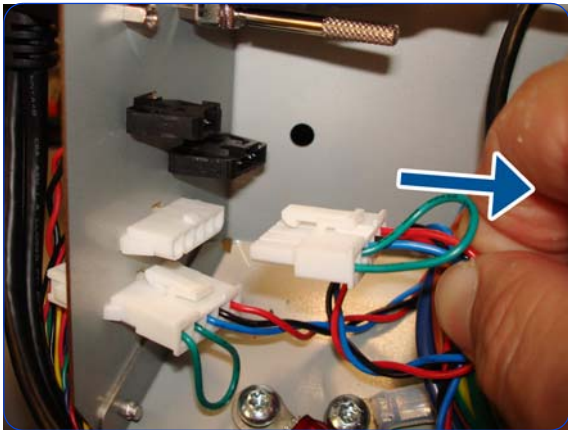


6. Disconnect the cable of the Left Windows Lock Sensor.

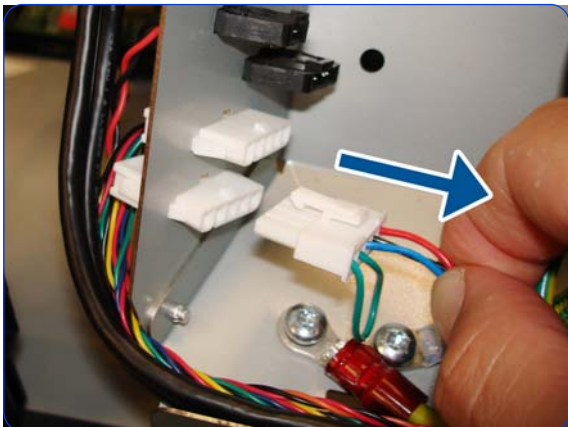




7. Disconnect the cable of the Curing Fans.



8. Disconnect the cable of the Curing Temperature Sensor Fan.

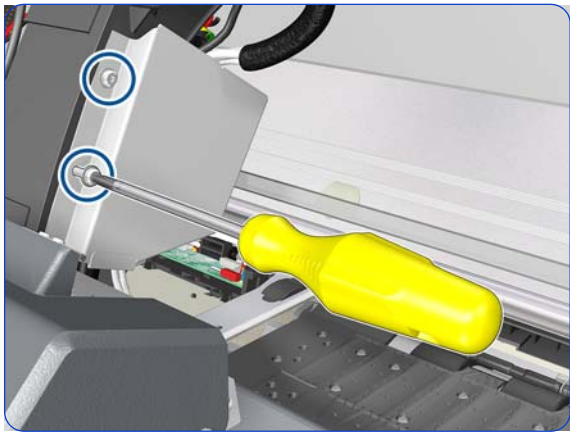


9. Disconnect the other cable as shown.

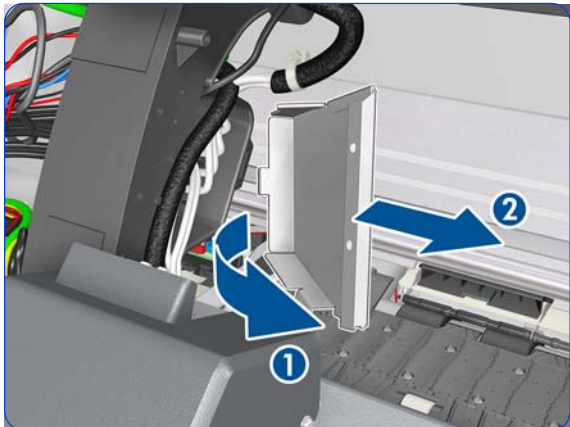


10. Remove a screw as shown.

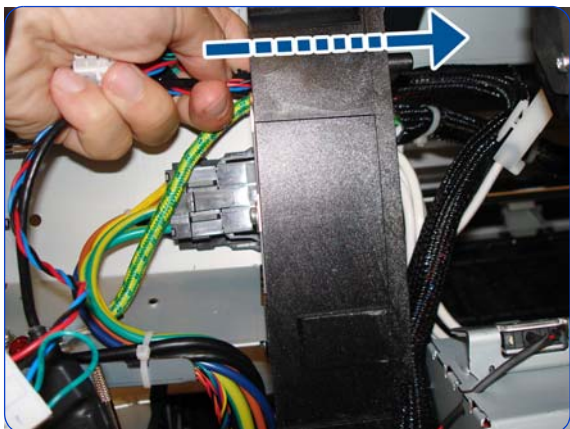




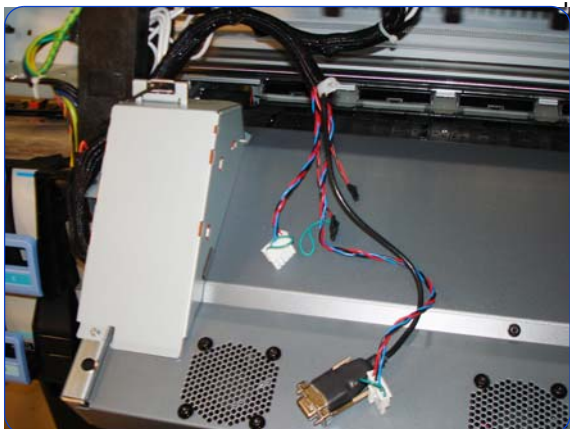
11. Remove two T-20 screws that secure the Left Cable Plate to the printer.



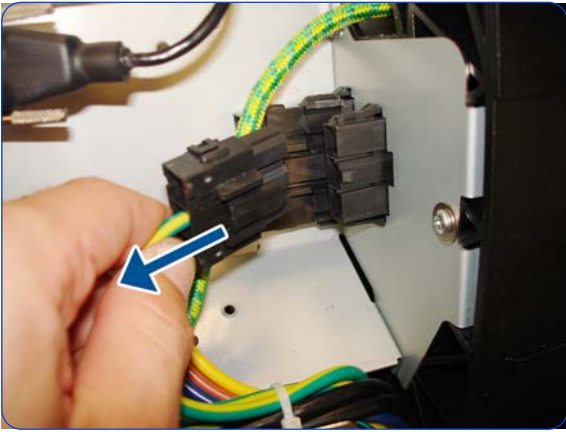
12. Rotate (1) and remove (2) the Left Cable Plate.



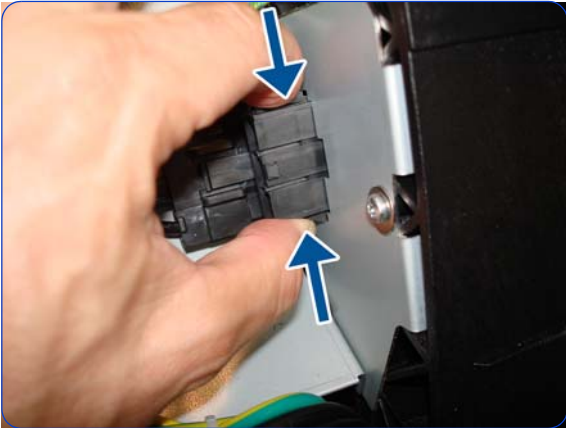
13. Unroute the cables from the Cable Protector.



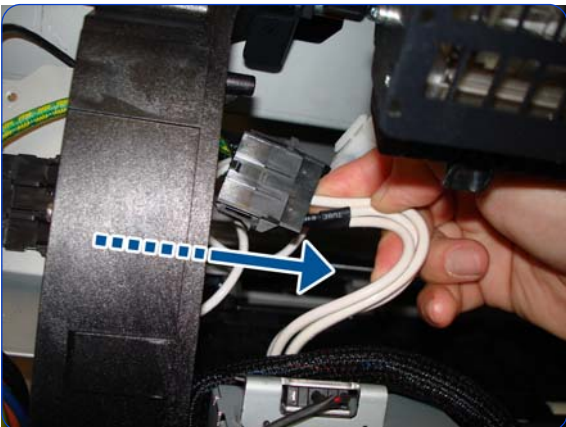
14. Push all the cables through the left arch and out the other side.



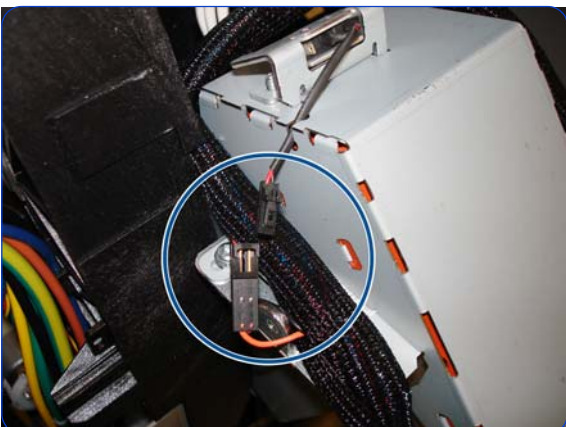
15. Disconnect the Curing Heater Cables from the left side (upper and lower connectors).



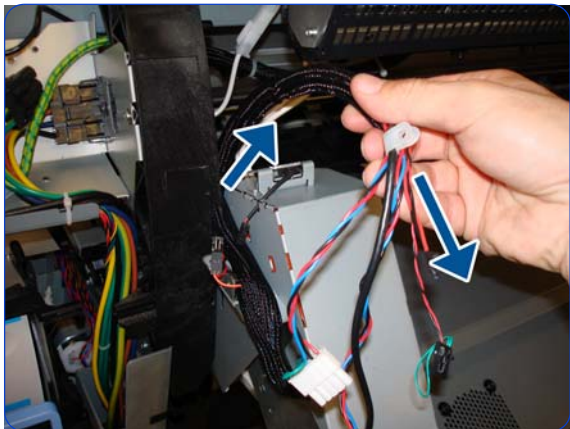
16. Squeeze as shown.



17. Disconnect the Left Window Sensor Cable.



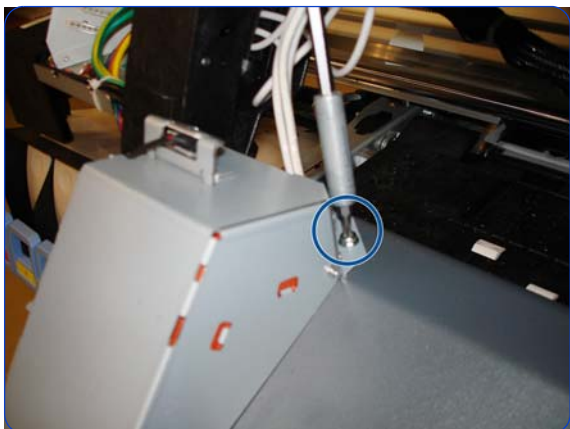
18. Disconnect as shown.



19. Collect the cables as shown.



20. Remove one T-20 screw from the left side of the Curing Module (screw closest to the printer).

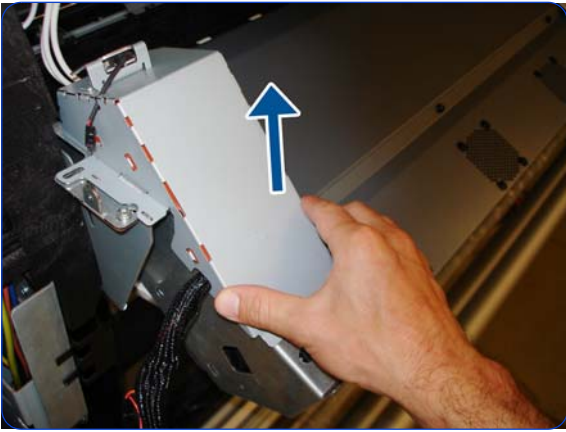


21. Remove one T-20 screw from the top of the Left Curing Trim.

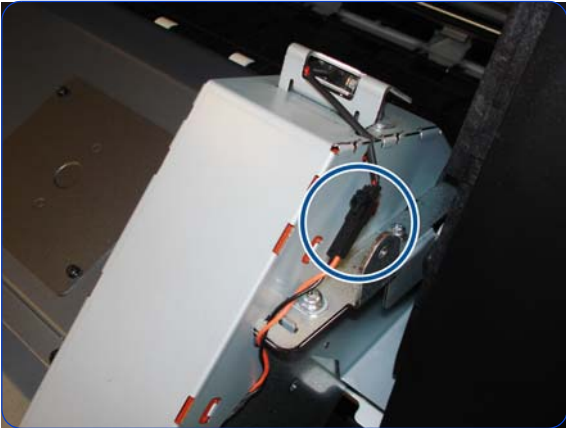


22. Remove one T-10 screw from the bottom of the Left Curing Trim.





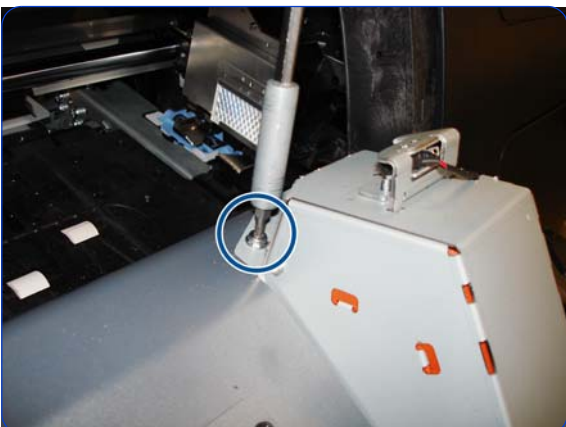
23. Remove the Left Curing Trim.



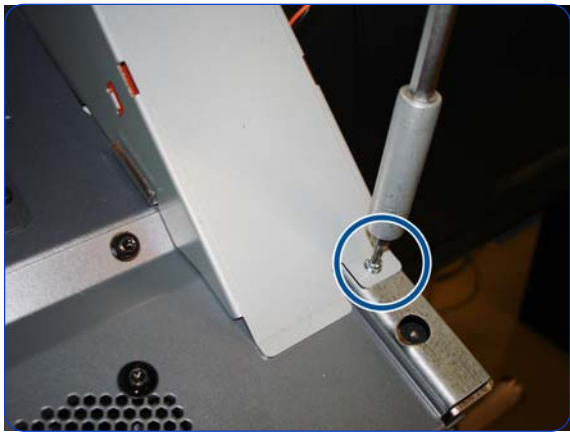
24. Disconnect the Right Window Sensor Cable.



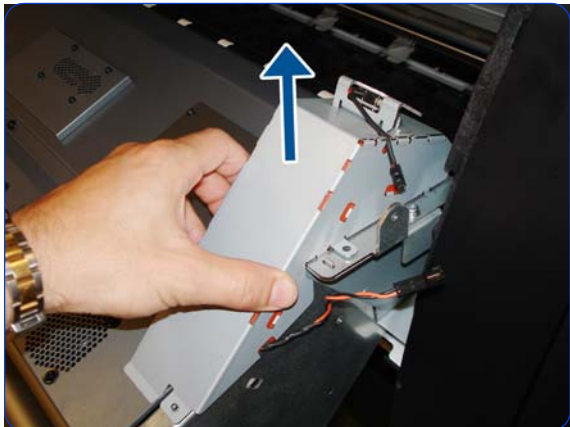
25. Remove one T-20 screw from the Right Curing Trim (screw furthest from the printer).



26. Remove one T-20 screw from the top of the Right Curing Trim.



27. Remove one T-10 screw from the bottom of the Right Curing Trim.



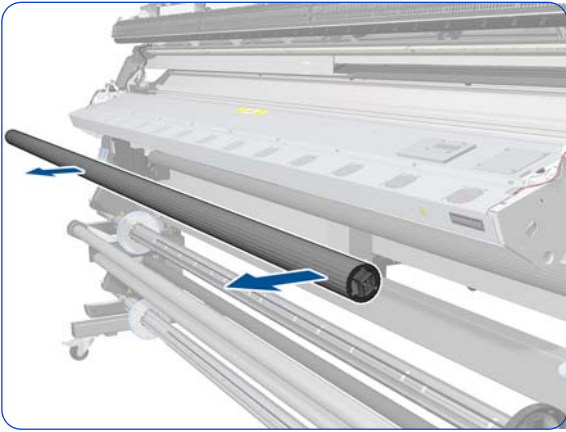
28. Remove the Right Curing Trim.



29. Remove one T-15 screw that secures the Output Roller to the right side of the Curing module, and remove the roller.



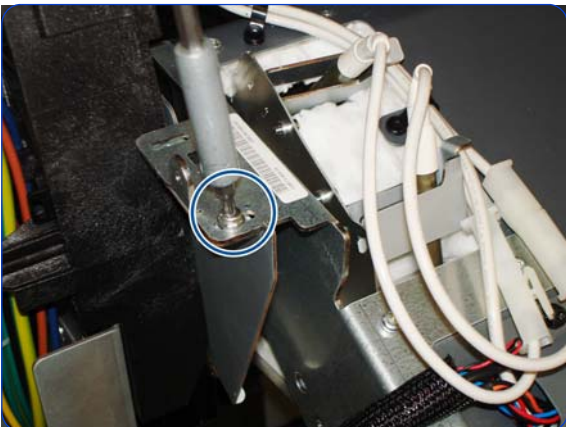
30. Slide the Output roller from the pin located on the left side of the curing Module.



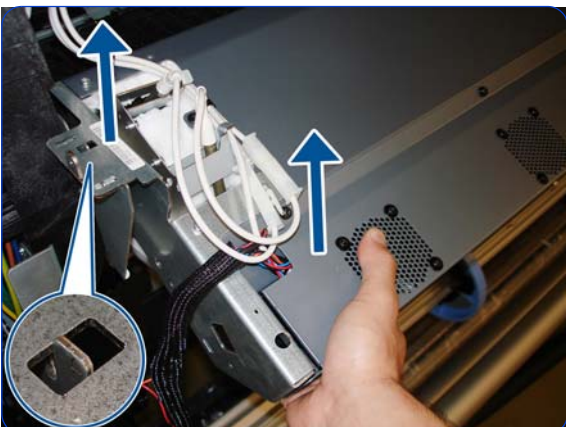
31. Remove the Output roller.



32. Remove one T-20 screw from the top right of the Curing module.

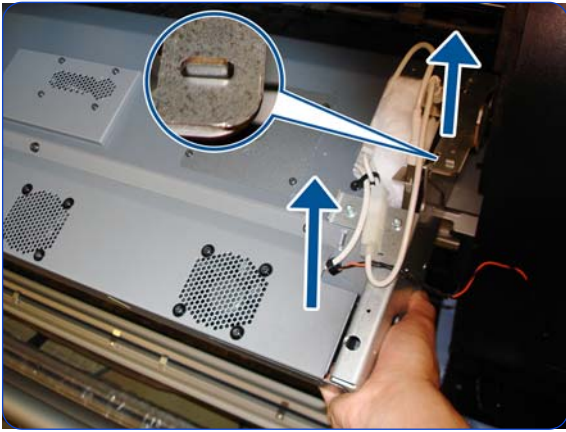


33. Remove one T-20 screw from the left of the Curing module.

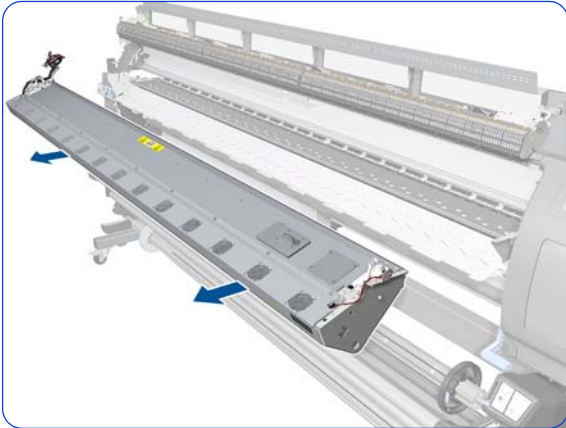


34. Lift the left side of the Curing Module.





35. Lift the right side of the Curing Module.



36. Remove the Curing Module.

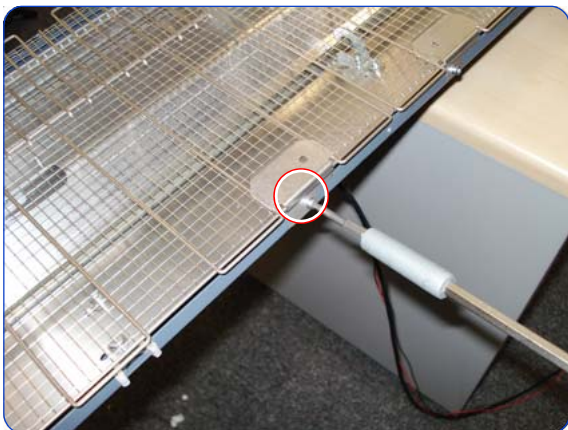
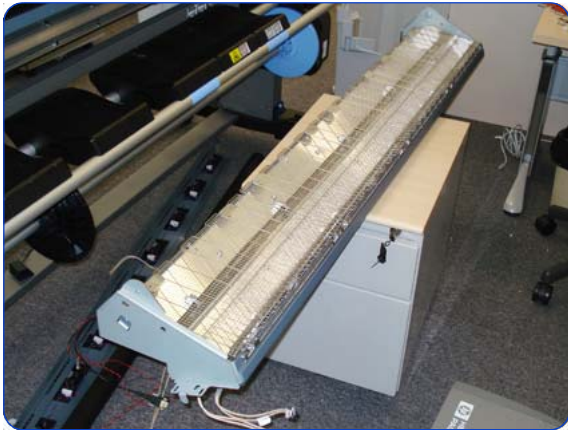
# Curing Heaters

## Removal (requires two people)

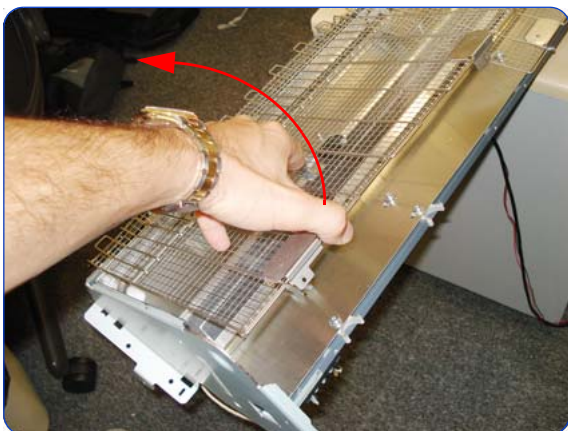
1. Remove the Left Cover ⇒ page 293.
2. Remove the Left Curing Cover ⇒ page 298.
3. Remove the Right Curing Cover ⇒ page 300.
4. Remove the Curing Fans Cover ⇒ page 486.
5. Remove the Curing Module ⇒ page 502.
6. Turn the Curing Module upside down and place it on a flat, even surface.



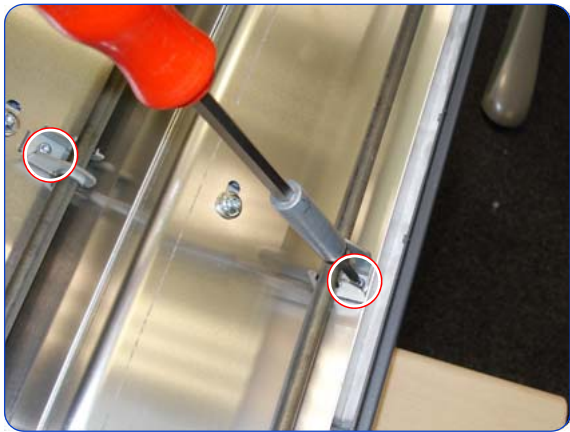
**NOTE:** When placing it on the flat surface, take care not to damage the terminals of the Heaters.



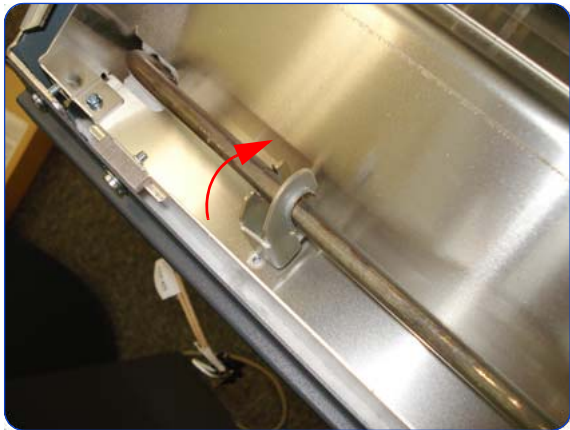
7. Remove all the T-10 screws that secure the sections of Curing Heater Grills to the Curing Module.



8. Remove the Heater Grills by lifting up the free end and removing.



9. Remove all T-15 screws that secure the heater holders to the Curing Module.



10. Twist the heater holders to remove them all.



**NOTE:** The Output Heater Holders are different from the Overdrive Heater Holders.

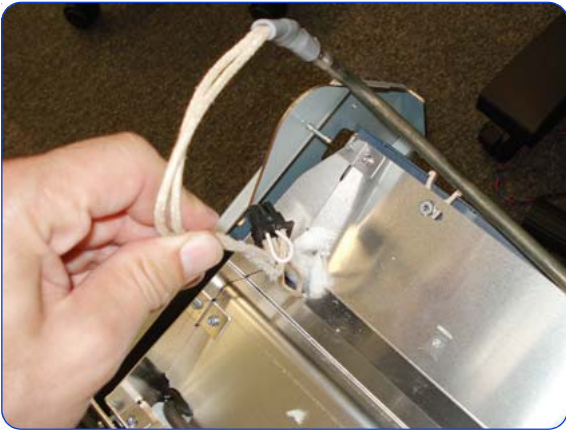


11. Remove the left end of the Output Heater taking care not to damage the Isolation fiber.

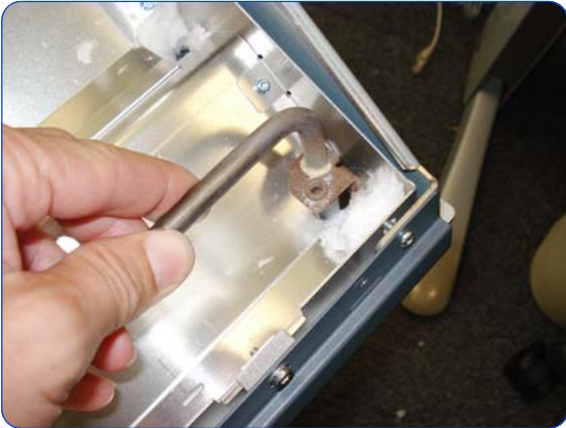


12. Remove the right end of the Output Heater taking care not to damage the Isolation fiber.





13. Be careful when removing the end of the Output heater cable, as there is a connector on the end, and this could damage the isolation fiber.

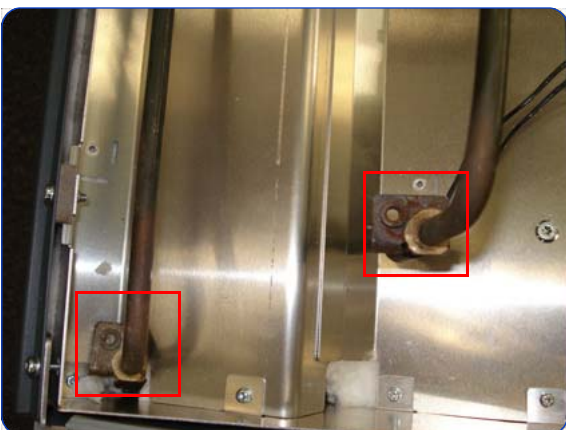


14. Remove the Overdrive Heater, taking care not to damage the Isolation fiber.



15. Remove the other end of the Overdrive Heater.

## Installation



1. The ends of the two types of Curing Heaters are different to avoid installing them incorrectly.

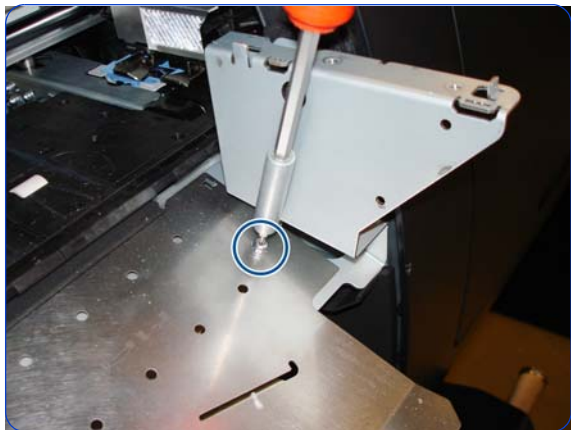


**NOTE:** After installing the new Curing Heaters, reset the Curing Lamps life counter ⇒ page 189.

# Output Platen

## Removal (requires two people)

1. Remove the Left Cover ⇒ page 293.
2. Remove the Left Curing Cover ⇒ page 298.
3. Remove the Right Curing Cover ⇒ page 300.
4. Remove the Curing Module ⇒ page 502.
5. Remove a T-20 screw from the right side of the Output Platen.



6. Remove a T-20 screw and a washer from the left side of the Output Platen.



7. Remove a T-20 screw.

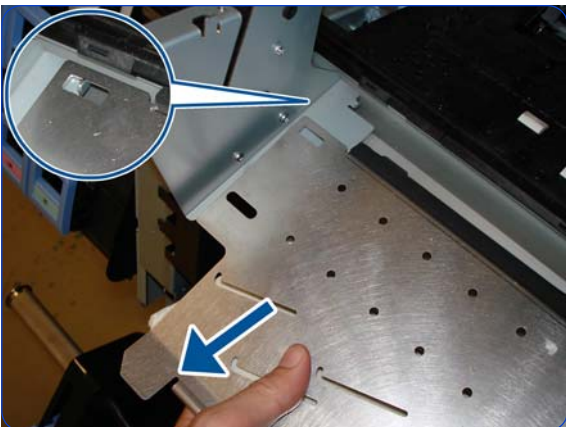




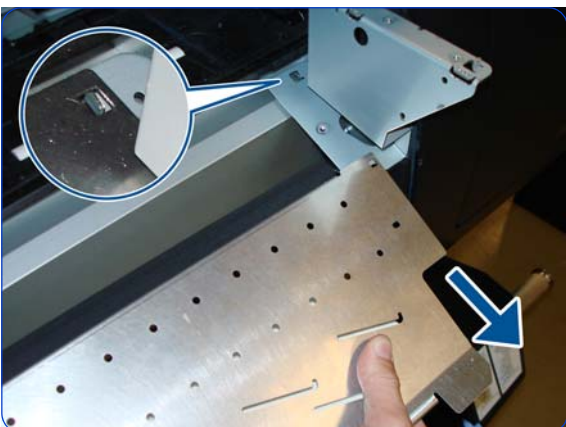
8. Remove a T-20 screw.



9. Remove three T-20 screws.

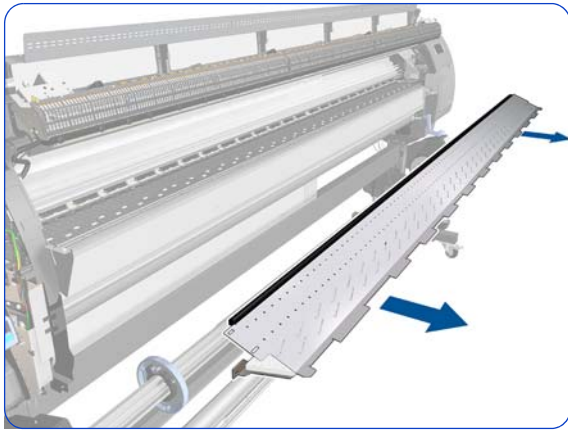


10. Detach the left corner of the Output Platen.



11. Detach the right corner of the Output Platen.

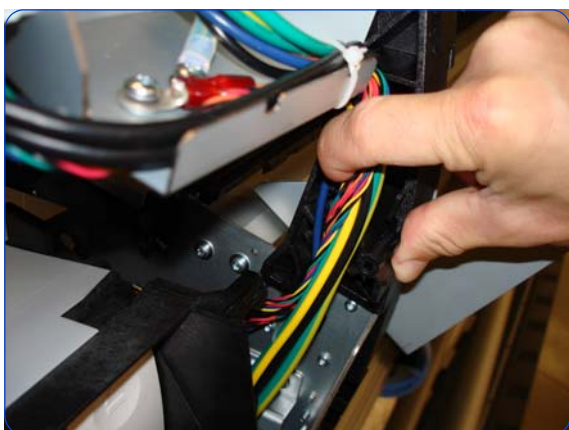
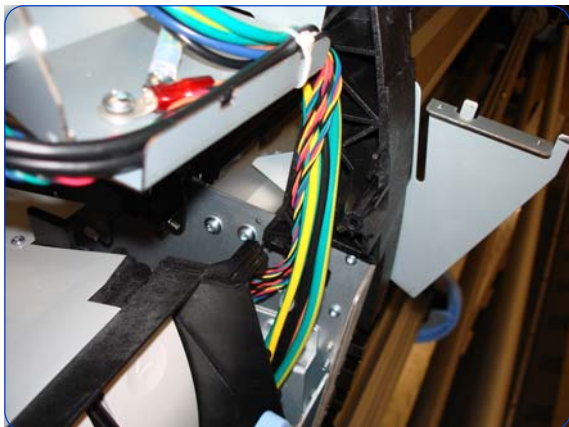




12. Remove the Output Platen.

# Curing Holders

## Removal (requires two people)



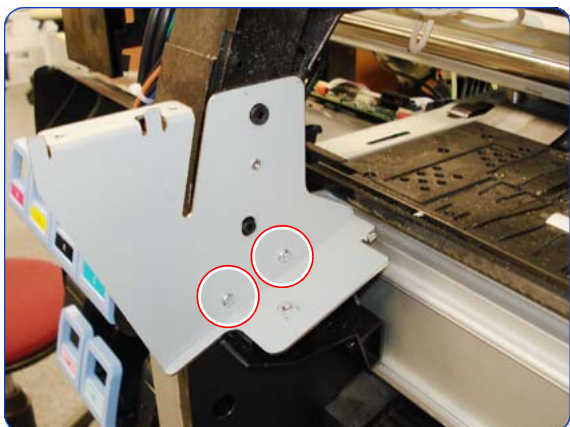
1. Remove the Right Cover ⇒ page 286.
2. Remove the Curing Module ⇒ page 502.
3. Remove the Output Platen ⇒ page 514.
4. Locate the bundle of cables on the front of the left arch.
5. Pull the cables away from the arch.
6. Put the cables out of the way so that you can reach the screw that secures the Left Curing Holder to the left arch.



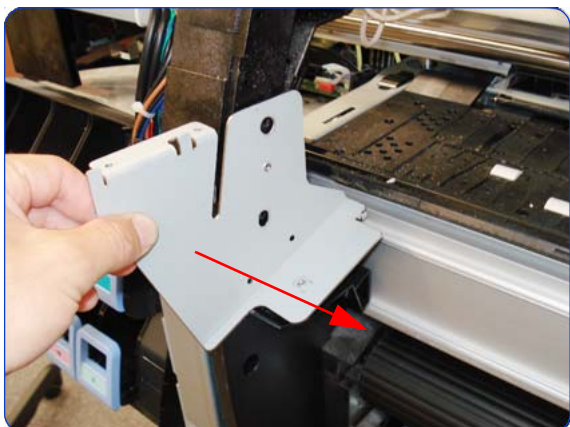
7. Locate the T-20 screw that secures the Left Curing Holder to the left arch.



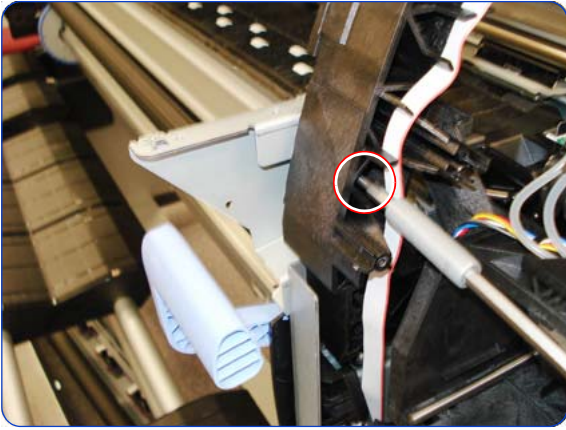
8. Remove the screw.



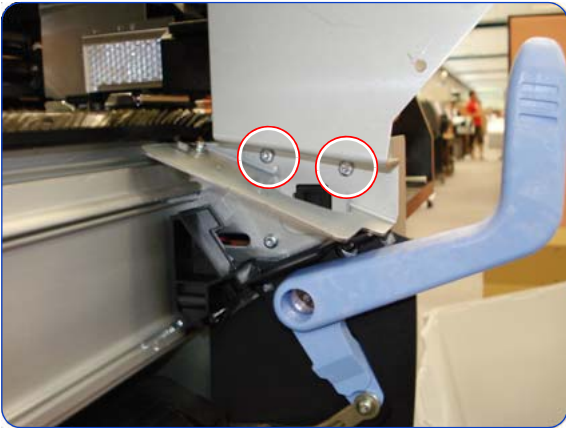
9. Remove two T-15 screws from the Left Curing Holder.



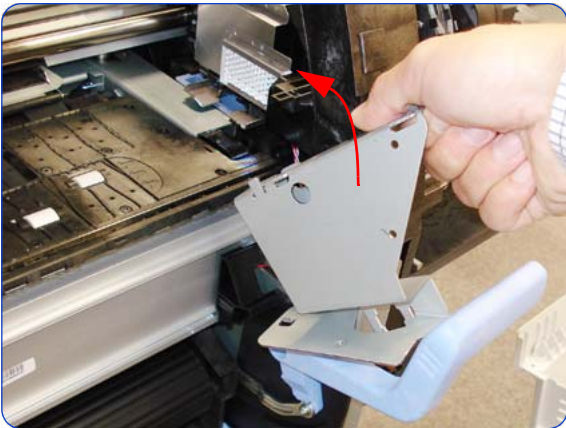
10. Remove the Left Curing Holder.



11. Remove one T-20 screw that secures the right Curing Holder to the right arch.



12. Remove two T-15 screws from the Right Curing Holder.



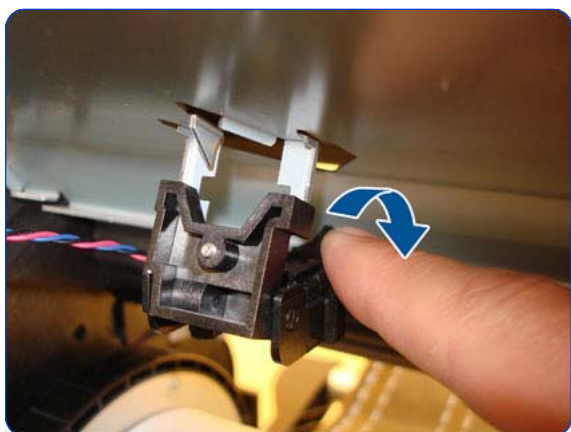
13. Remove the Right Curing Holder



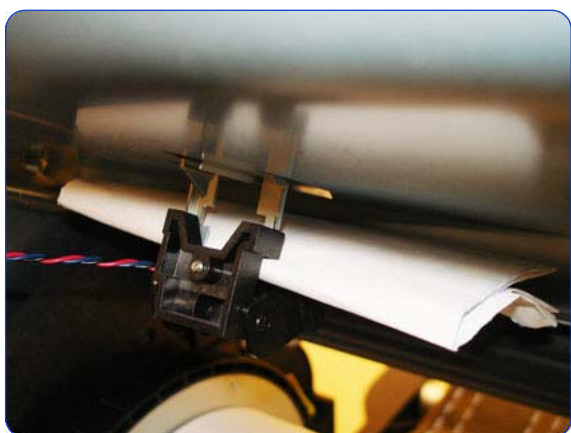
# Print Platen

## Removal

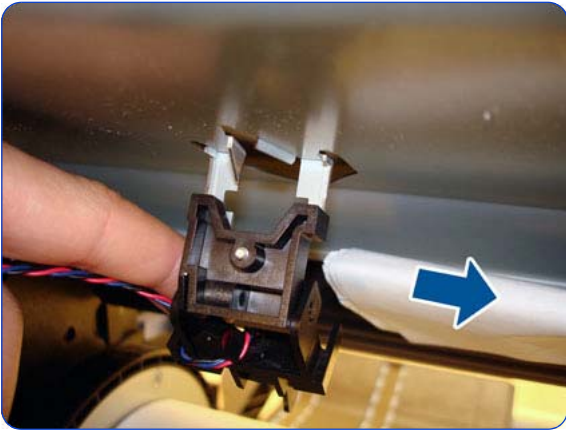
1. Remove the Right Cover ⇒ page 286.
2. Remove the Left Cover ⇒ page 293.
3. Remove the Top Cover ⇒ page 304.
4. Remove the Service Station ⇒ page 341.
5. Remove the Back Cover ⇒ page 302.
6. Remove three or one T-25 screws from the Media Loading Tool holder.



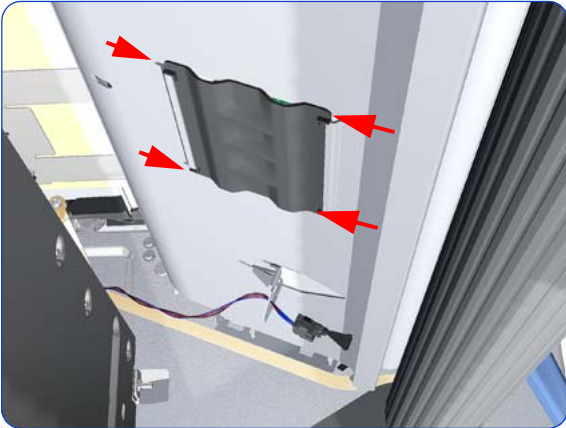
7. Unclip the Media sensor.



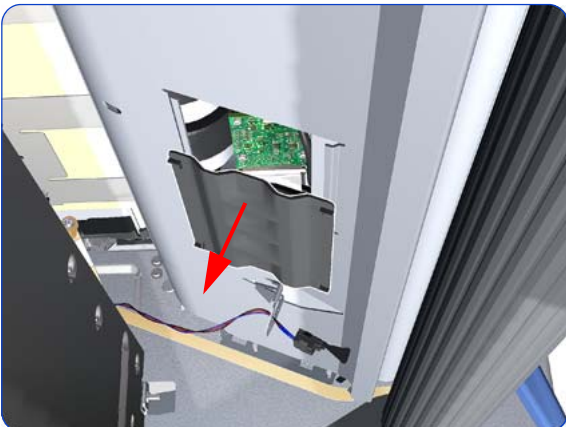
- 8.



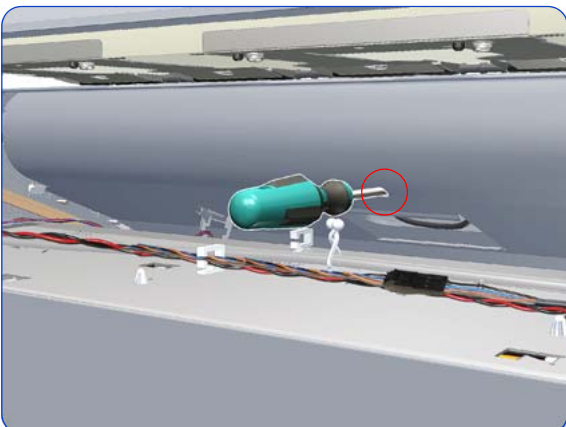
9.



10. Squeeze the corners of the OMAS Access Cover release it from the bottom of the printer.



11. Remove the OMAS Access Cover from the printer.

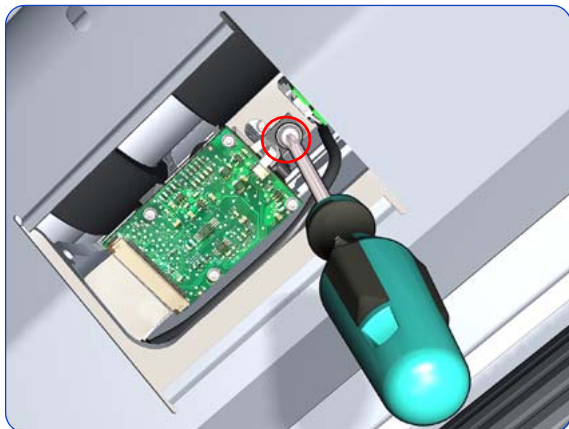


12. Insert the T-20 thin bladed torx screwdriver (supplied with the replacement OMAS) into the access hole at the rear of the printer.





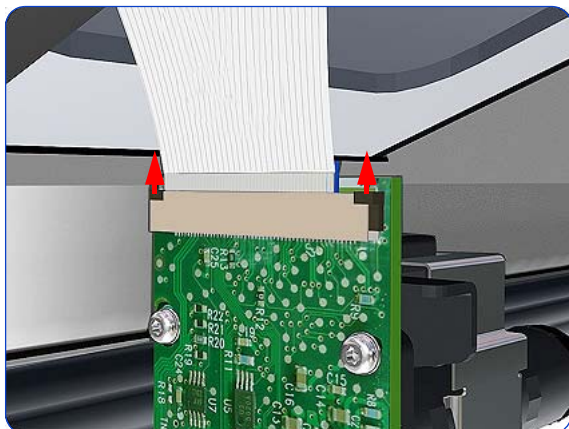
13. Loosen approximately two turns the T-20 screw which secures the OMAS horizontally to the printer.



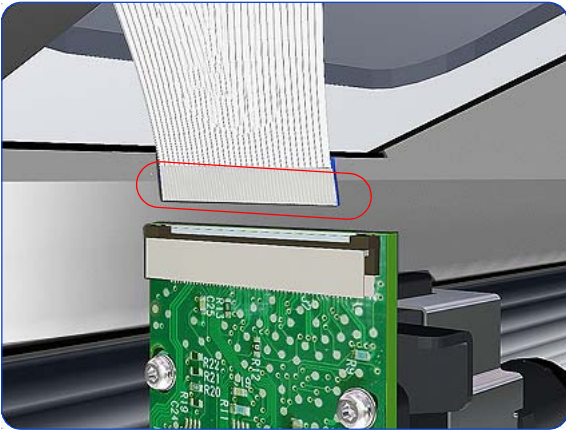
14. From the bottom of the printer, loosen approximately two turns the T-20 screw which secures the OMAS vertically to the printer.



15. Carefully lower the OMAS from the printer as far as you can with the large ribbon cable still connected.



16. Release the two locking clips of the large ribbon cable connector.



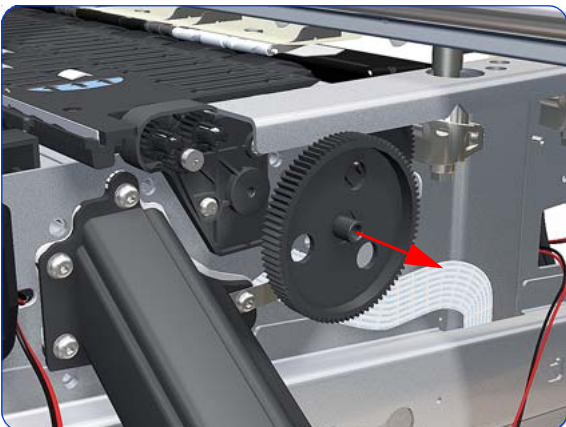
17. Disconnect the large ribbon cable from the OMAS.



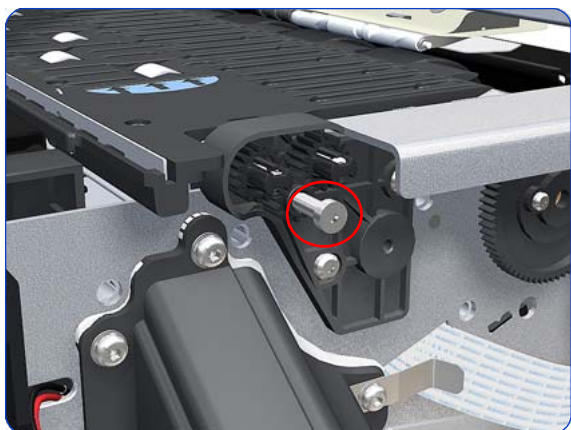
18. Remove the OMAS Sensor from the printer.



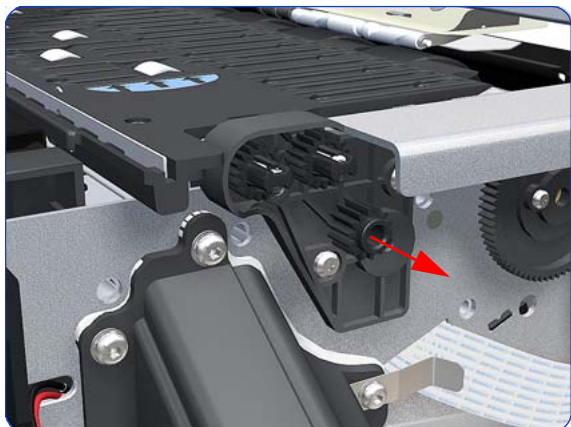
19. Remove one T-15 screw that secures the Print Platen Gear.



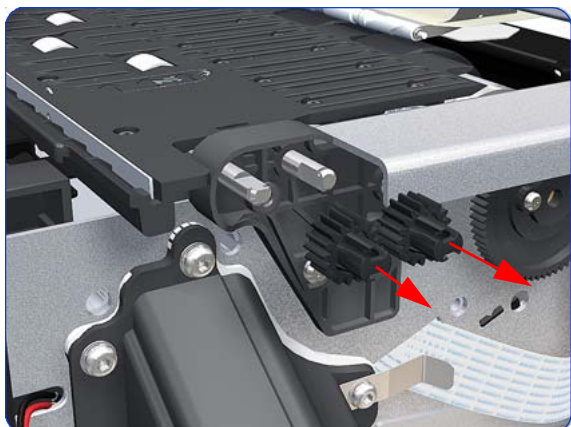
20. Remove the Print Platen Gear from the printer.



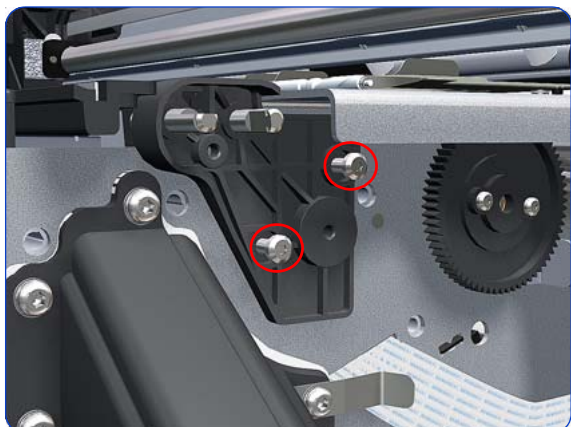
21. Remove one T-15 screw that secures the small Gear.



22. Remove the small Gear from the printer.

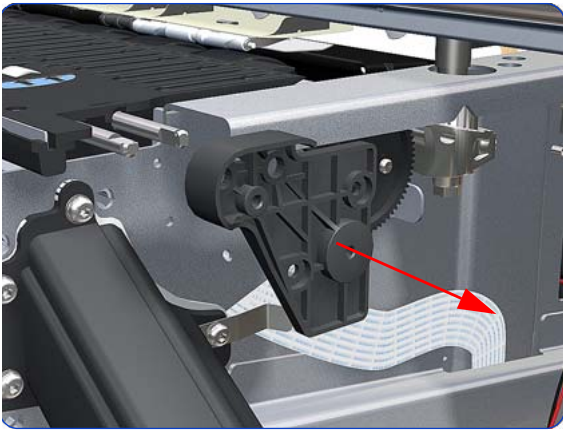


23. Remove the two small Platen Gears by releasing the clips.



24. Remove two T-20 screws that secure the Gear Bracket.

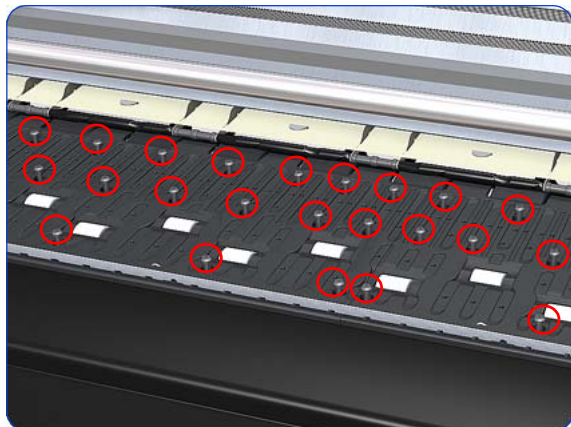




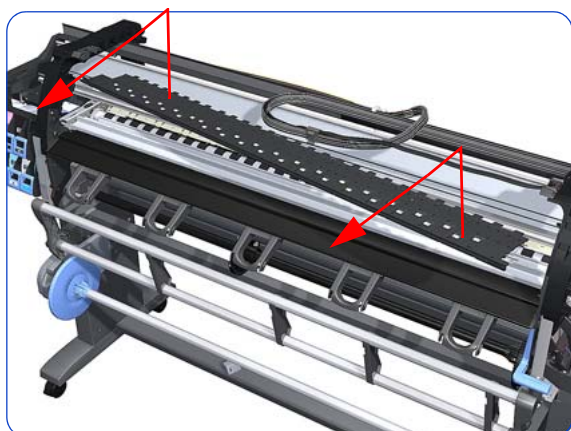
25. Remove the Gear Bracket from the printer.



26. Move the Carriage Assembly fully to the right.



27. Remove 116 T-10 screws that secure the Print Platen:

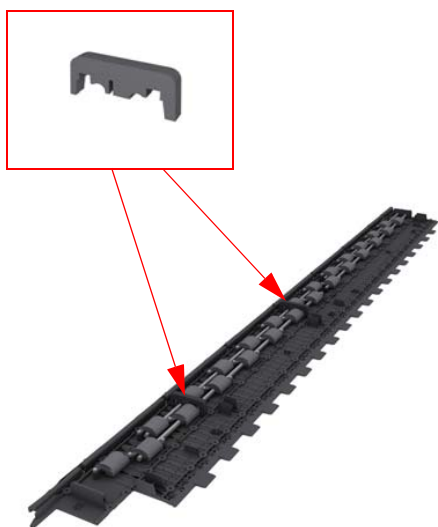


28. Remove the Print Platen from the printer.

The OMAS attachment screws have been completely removed during Print Platen removal.

29. Completely remove OMAS from the printer ⇒ page 422.

## Installation of the Foam



1. Make sure you take note of the positions of the Foams located underneath the Print Platen.



**NOTE:** When reinstalling the parts, make sure you apply the grease (included with the support part) to the gears.

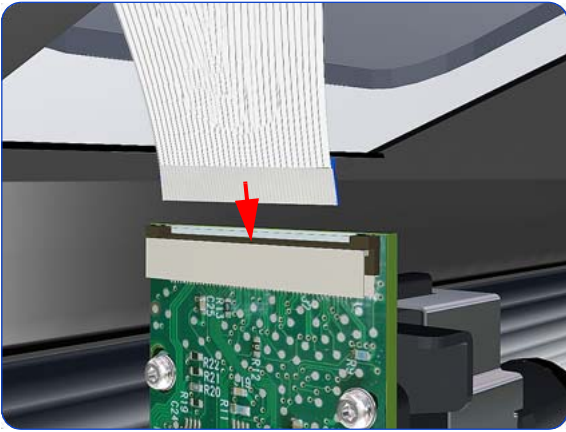
**NOTE:** After installing the new Print Platen, perform Substrate Advance Calibration ⇒ Chapter 5.



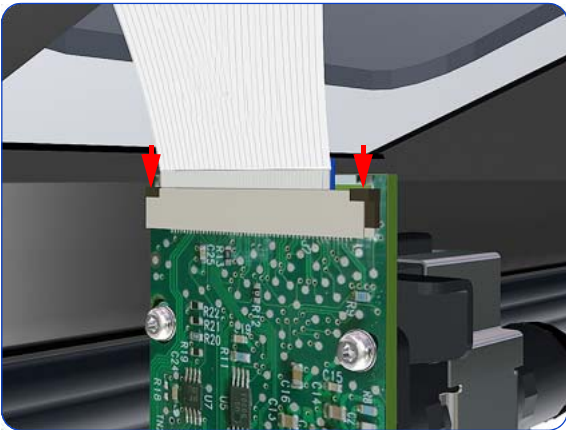
1. Install the Print Platen.
2. Position the Attachment Screw Retainer on the OMAS and secure it with the T-8 attachment screw provided with Print Platen.



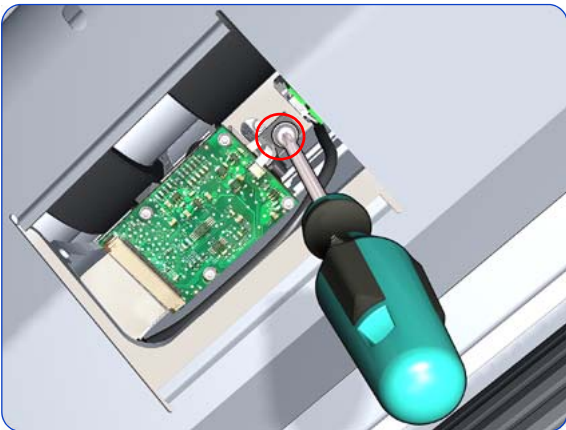
3. Verify that the two T-20 attachment screws are correctly positioned in the Attachment Screw Retainer.



4. Position the OMAS under the printer and connect the large ribbon.



5. Lock the clips of the large ribbon cable connector.

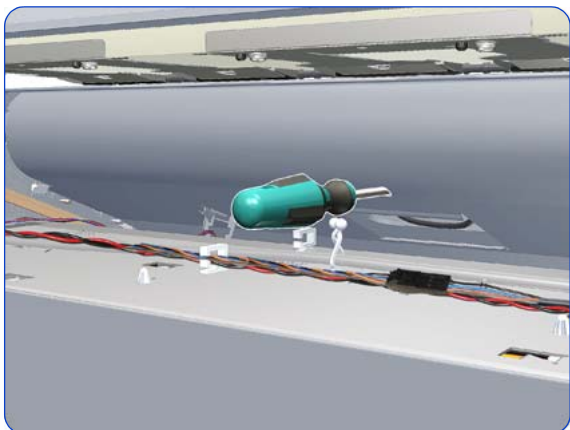


6. Fully tighten the T-20 vertical attachment screw.



7. While installing the OMAS, take care not to trap the cable of the TOMAS.



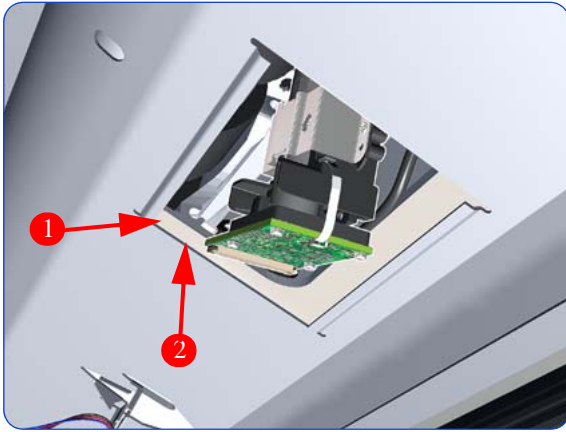


8. Carefully push the OMAS fully up into its mounting so it protrudes slightly (approximately 0.1 mm) above the Print Platen. To ensure the OMAS is correctly positioned, slide a sheet of substrate over the Platen Ribs until it is stopped by the OMAS. This ensures the OMAS is protruding slightly above the platen.



**CAUTION:** Make sure the OMAS is pushed completely up into its mounting, or you will encounter an error during the OMAS calibration, because it will not be able to focus on the substrate.

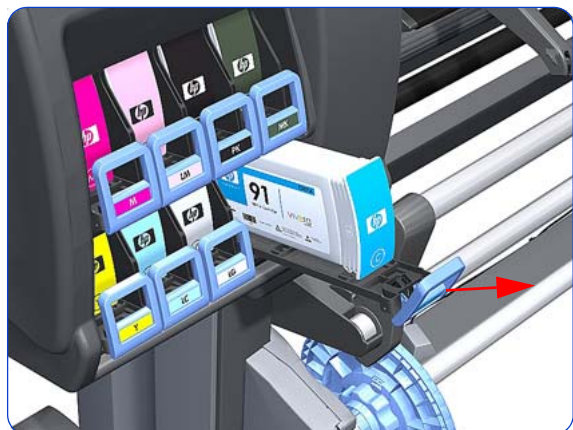
9. If the substrate is not stopped by the OMAS, repeat the previous steps to ensure the OMAS is pushed fully up into its the mounting.
10. Insert the T-20 thin bladed Torx screwdriver into the access hole at the rear of the printer.
11. Fully tighten the T-20 horizontal attachment screw which secures the OMAS to the printer.



12. Clip the OMAS access cover back into place by sliding one edge of the cover into the slot and then applying enough pressure to it so you can clip it into the other slot.
13. Perform the following operations:
  - OMAS Calibration ⇒ page 177.
  - Substrate Advance Calibration ⇒ page 189.

# Cartridge Tray

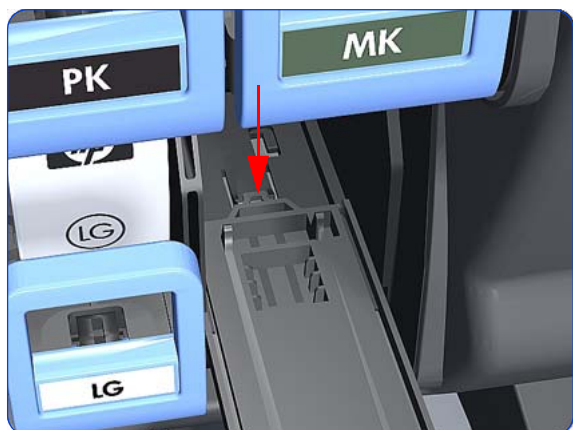
## Removal



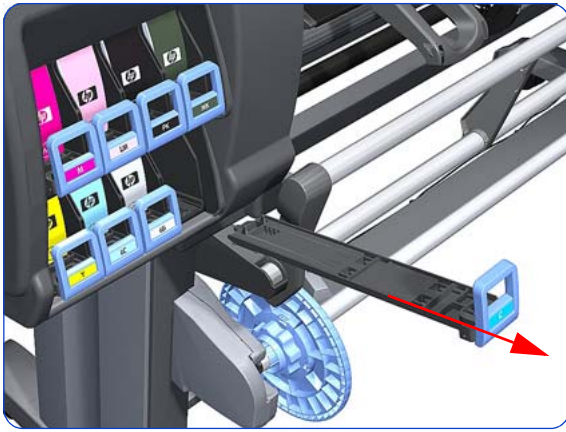
1. Release the Tray Lever of the required color and pull out the Tray.



2. Remove the Ink Cartridge if installed.



3. Press down on the Tray clip.



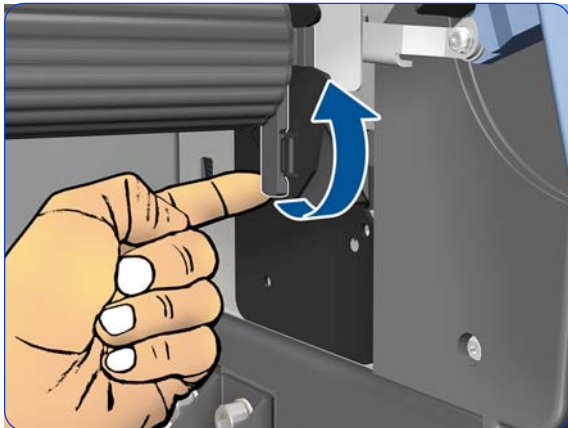
4. Pull the Tray completely out of the printer.

## Installation

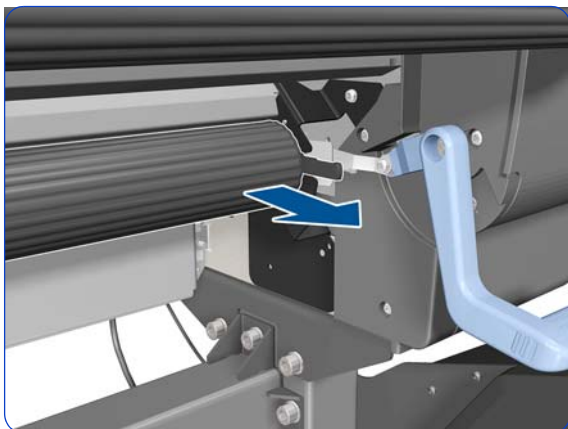
Each Cartridge Tray is different, even though they look very similar. When selecting the Cartridge Tray from the Support Part (it contains eight Cartridge Trays), choose the Tray that exactly matches the one that you have just removed.

# Input Roller

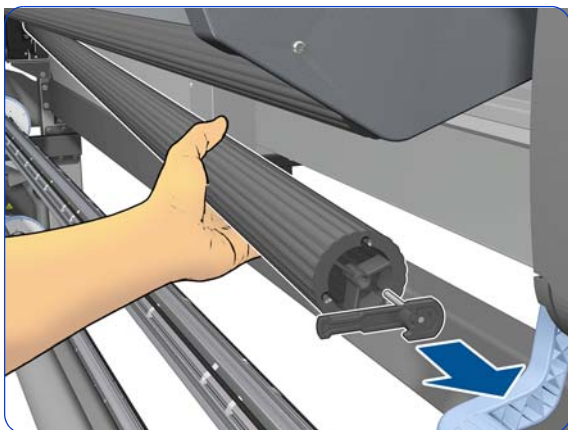
## Removal



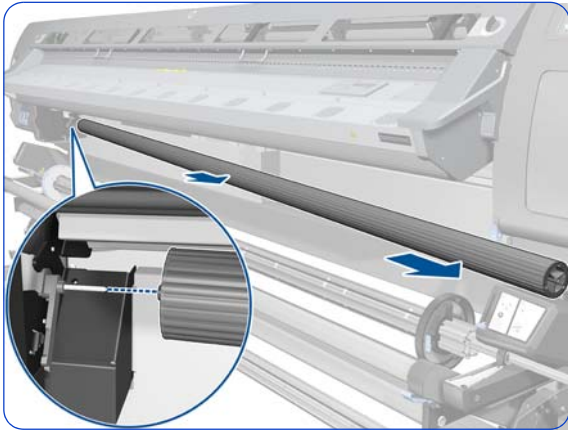
1. Raise the right lever to release the right-hand end of the Input Roller.



2. Pull out the right-hand end of the Input Roller from the printer.



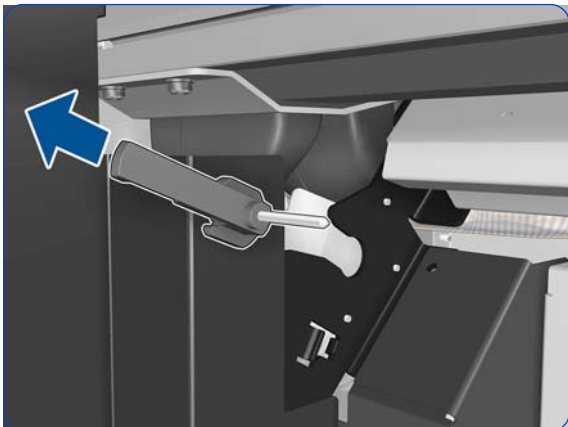
3. Remove the right lever, but hold the Input Roller firmly to prevent the left end from falling out.



4. Move the Input Roller to the right and remove it from the printer. The detail shows how the Input Roller disengages from the left lever.



5. Raise the left lever.



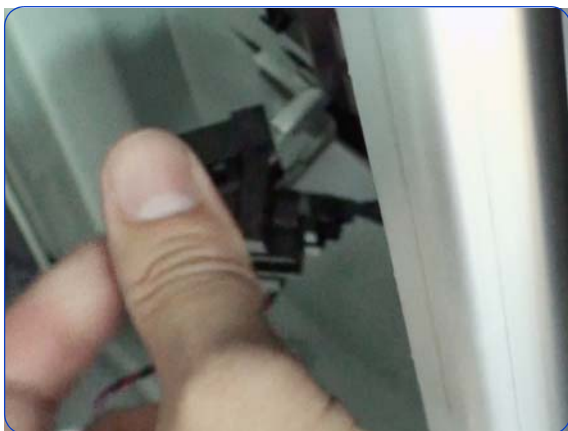
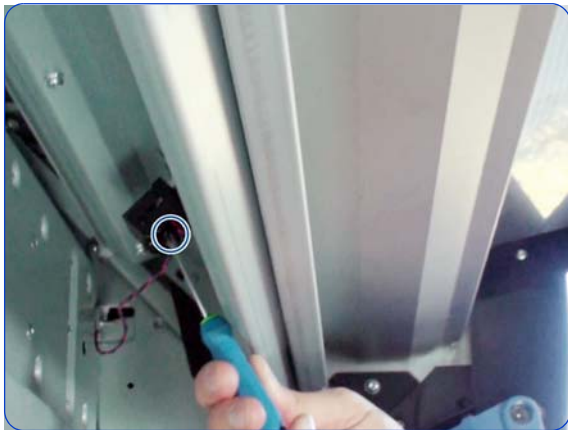
6. Remove the left lever.



# Media Input Profile

## Removal (requires two people)

1. Remove the Power Box Cover ⇒ page 311.
2. Remove the Electronics Enclosure Extension ⇒ page 319.
3. Remove the Left Cover ⇒ page 293.
4. Remove the Right Cover ⇒ page 286.
5. Remove the Back Cover ⇒ page 302.
6. Remove the Input Roller ⇒ page 532.
7. Remove one T-10 screw.



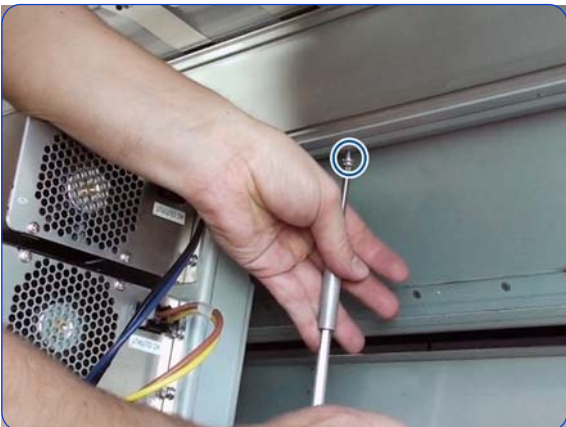
8. Remove the Media Sensor Holder.
9. Leave the sensor hanging.



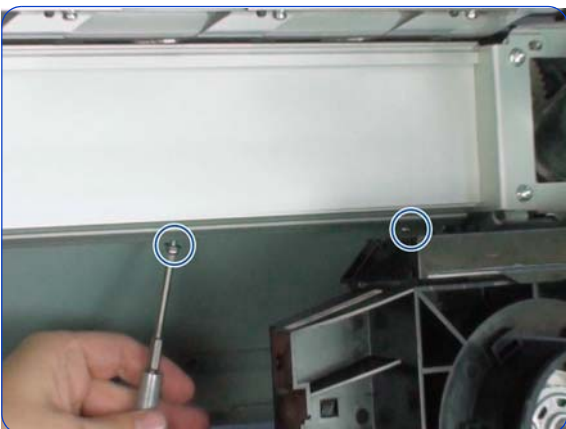
10. Remove twelve T-20 screws.



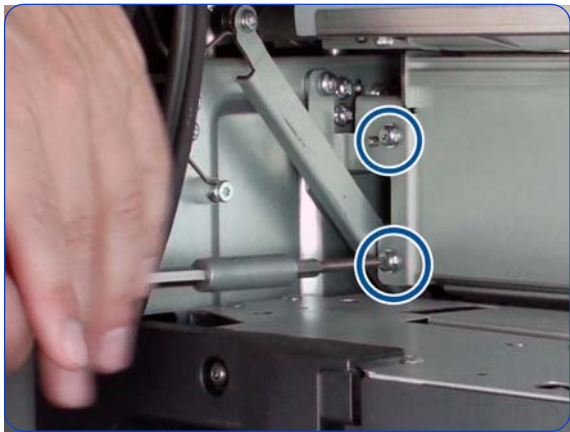
11. (Continue removing the 12 screws.)



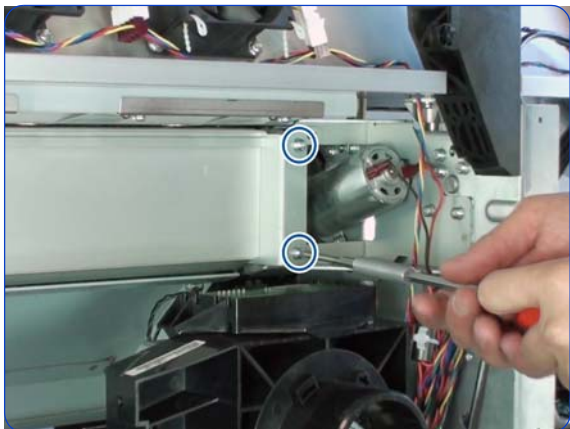
12. (Continue removing the 12 screws.)



13. (Continue removing the 12 screws.)



14. Remove two T-20 screws.



15. Remove two T-20 screws.



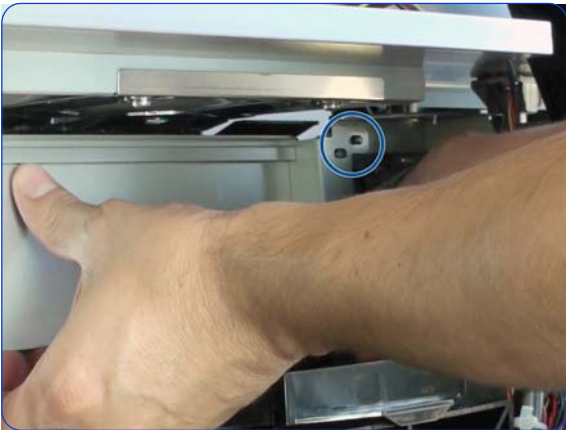
16. Press the plastic clip that holds the left-side EOLA PCA and remove it. This operation is needed to avoid damage to the PCA.



17. Leave the left-side EOLA PCA hanging on the cable tray.



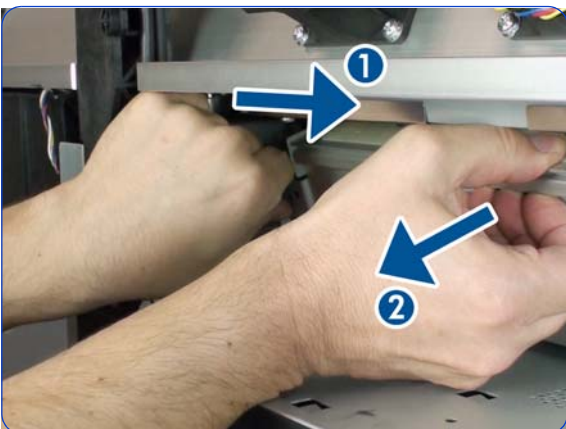
18. Raise the Media Lever.



19. Detach the right side of the Media Input Profile.

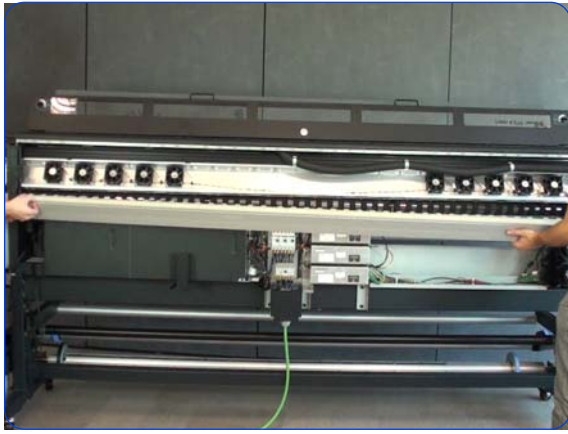


20. Pull the Media Lever to facilitate the removal of the Media Input Profile.



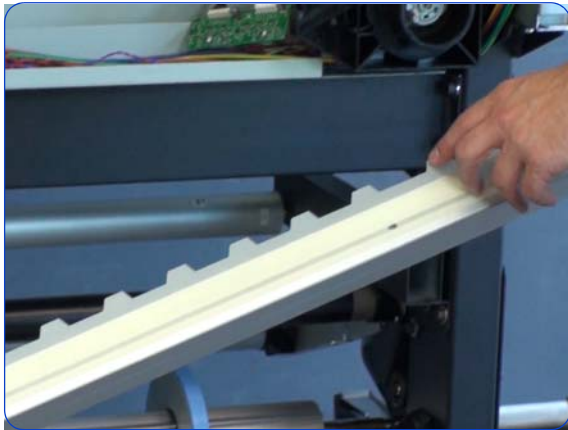
21. Push the Media Input Profile sideways, and then pull it out of the printer.



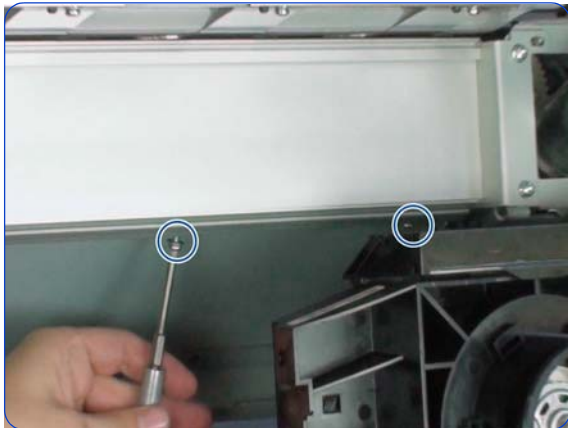


22. Remove the Media Input Profile.

## Installation



1. Be careful not to damage the mylar when mounting it.



2. Be careful not to strip the threads of the screws between Media Input Platen and Media Input Profile.

After installation, check the gap between the mylar and the Drive Roller in the following way.

3. Remove 3 inter-pinchwheels, one on the right, one in the middle, and one on the left.
4. Manually load a piece of HP Permanent Self-Adhesive Vinyl at the right. There is a small roll provided with the printer or as Service Part: CH955-67108 – CAL HP Perm. Gloss Adhesive Vinyl.



5. Pull the Self-Adhesive material tight from both ends and check visually that there is a gap between the mylar and the material.

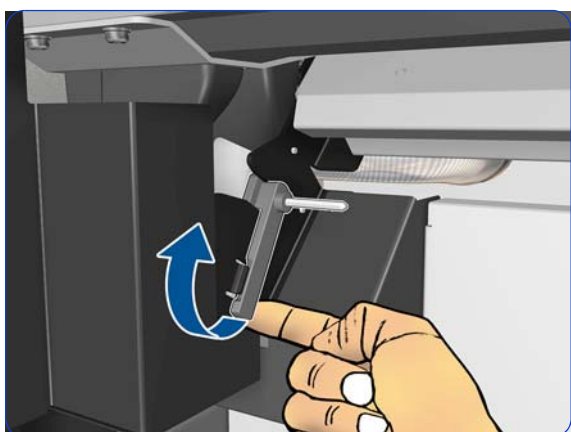
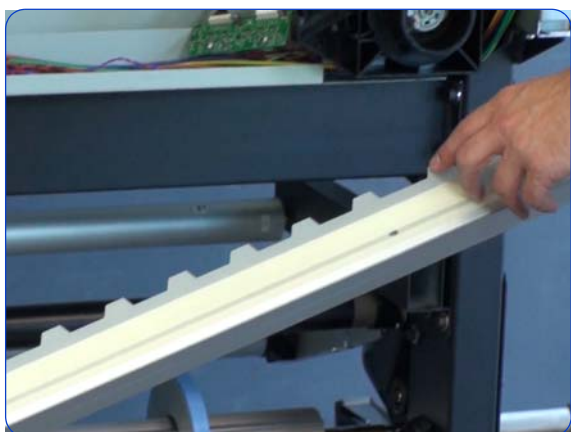
In this picture, a gauge is used to measure the gap. However, it is enough to confirm visually that there is a gap. For reference only, 0.3 mm is the minimum gap, 1 mm is the nominal gap, and 3 mm is the maximum gap.



# Input Platen

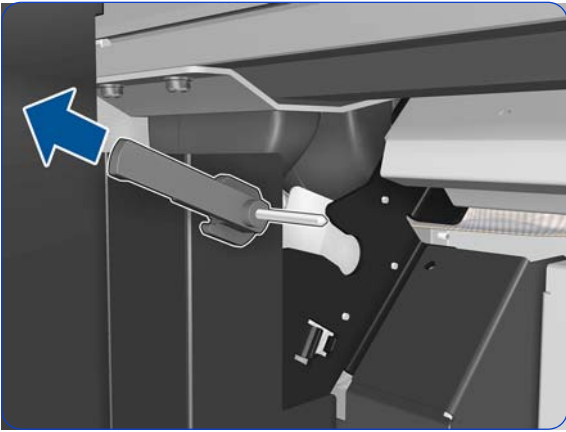
## Removal (requires two people)

1. Remove the Power Box Cover ⇒ page 311.
2. Remove the Electronics Enclosure Extension ⇒ page 319.
3. Remove the Left Cover ⇒ page 293.
4. Remove the Right Cover ⇒ page 286.
5. Remove the Back Cover ⇒ page 302.
6. Remove the Input Roller ⇒ page 532.
7. Remove the Media Input Profile ⇒ page 534.
8. Be careful not to damage the mylar when removing the Media Input Profile.



9. Remove two T-15 screws.

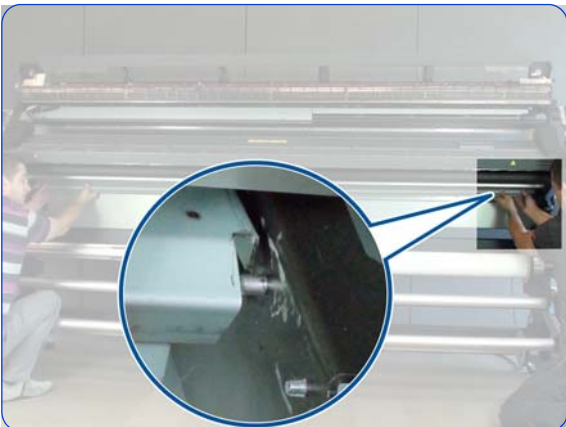
10. Raise the Left Lever.



11. Remove the Left Lever.



12. Remove two T-20 screws.

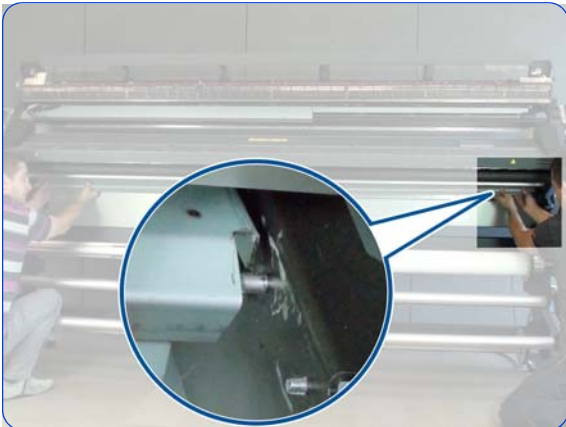


13. Unhook the right side of the Input Platen.

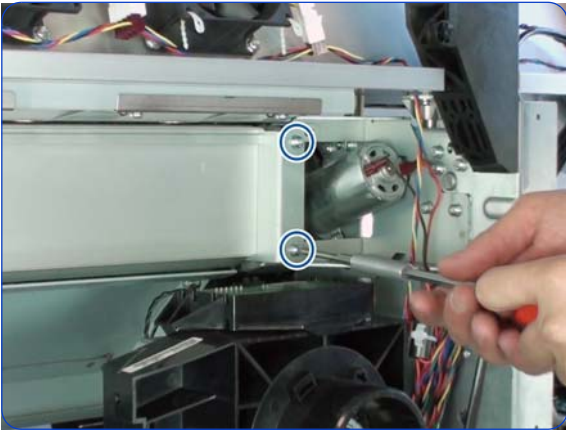


14. Remove the Input Platen.

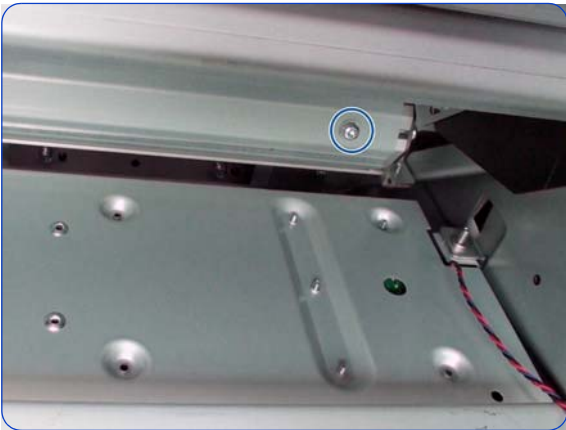
## Installation



1. Insert the Input Platen.
2. Hook it into position on the right.
3. Insert two T-15 screws on the left, and tighten them. These are locating screws and allow the platen to move.
4. Insert only the inner T-20 screw on the right. Tighten the screw until the Platen is pressing against the right side. Loosen it to allow some sliding movement in the Platen but without separating it from the right side.



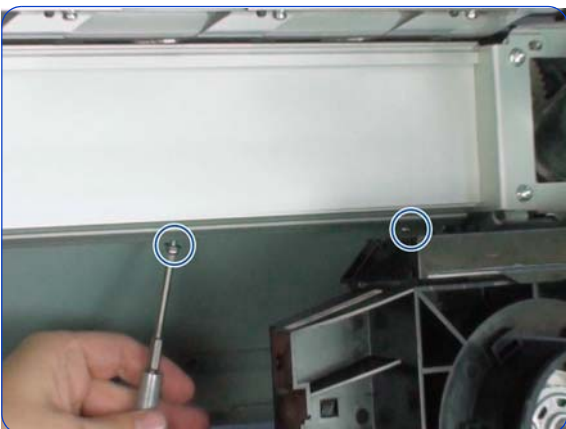
5. Assemble the Media Input Profile and Mylar and tighten it into position. Perform the gap check as described for Media Input Profile installation.



6. With the small freedom in the Media Input Platen, move it until the platen and the profile are correctly adjusted. Tighten the rightmost screw between Input Platen and Media Input Profile. Be careful not to strip the screw thread.



7. Insert the outer T-20 screw on the right, and tighten both of them.



8. From right to left, insert and tighten the rest of the screws between Input Platen and Media Input Profile. Adjust the Input Platen in position against the Media Input Profile before inserting every screw. Be careful not to strip the screw threads.

# Output Roller

## Removal



1. Remove the Right Curing Cover ⇒ page 298.
2. Remove one T-15 screw from the left side of the Output Roller, and remove the Roller.



# Printhead Cleaning Cartridge Door

## Removal



1. Open the Printhead Cleaning Cartridge Door.

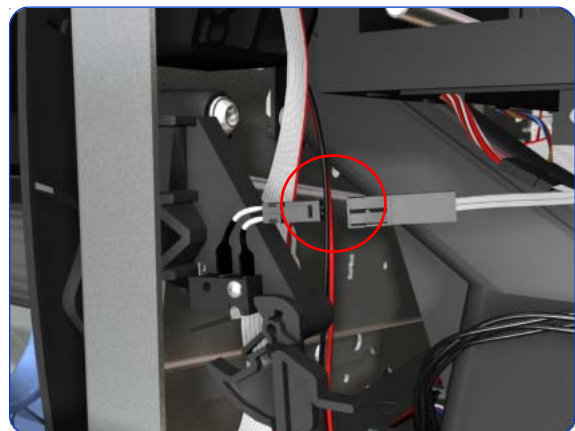


2. Unclip and remove the Printhead Cleaning Cartridge Door from Right Cover.

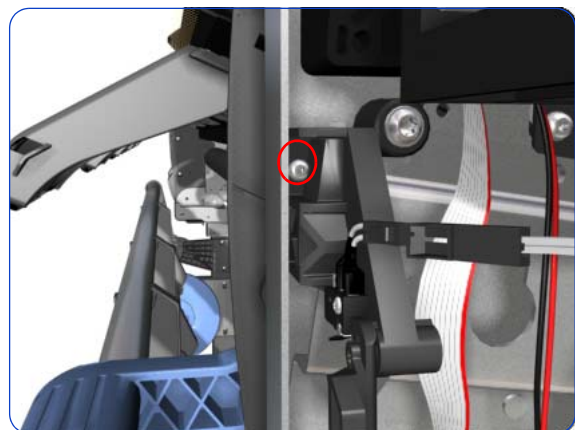


# Printhead Cleaning Cartridge Door Sensor

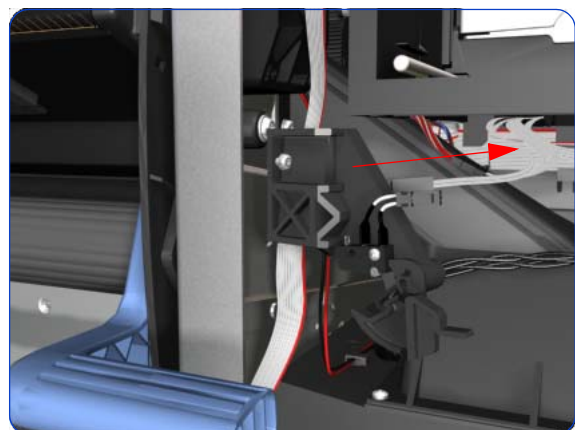
## Removal



1. Remove the Right Cover ⇒ page 286.
2. Disconnect the Printhead Cleaning Cartridge Door Sensor cable.



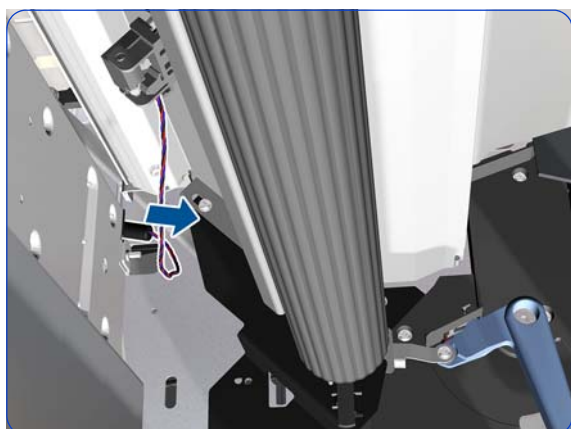
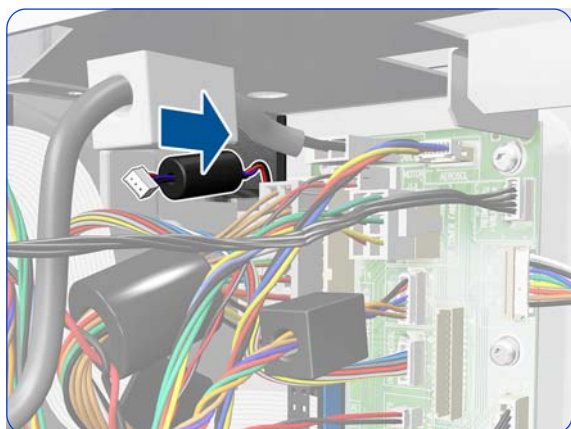
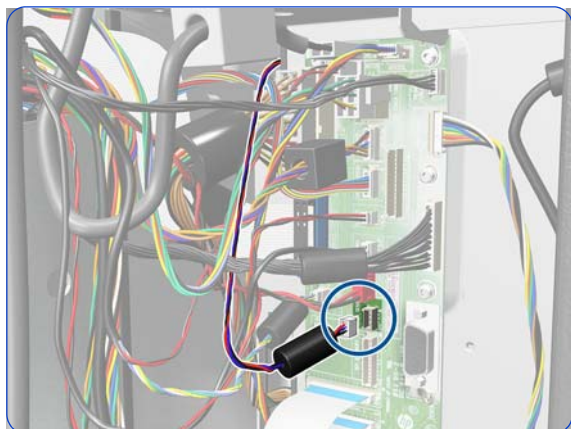
3. Release one T-10 screw that attaches the Printhead Cleaning Cartridge Door Sensor assembly to the printer.



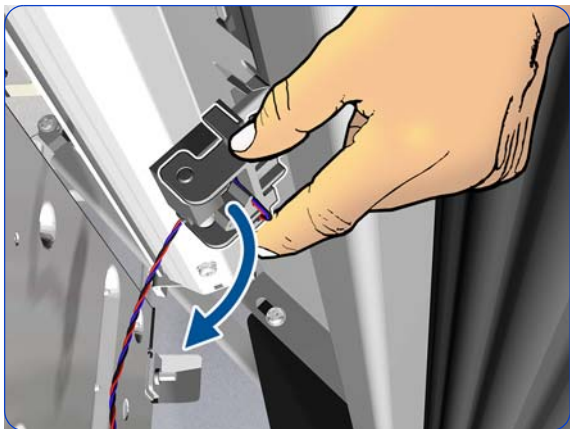
4. Remove the Printhead Cleaning Cartridge Door Sensor assembly from the printer.

# Media Sensor

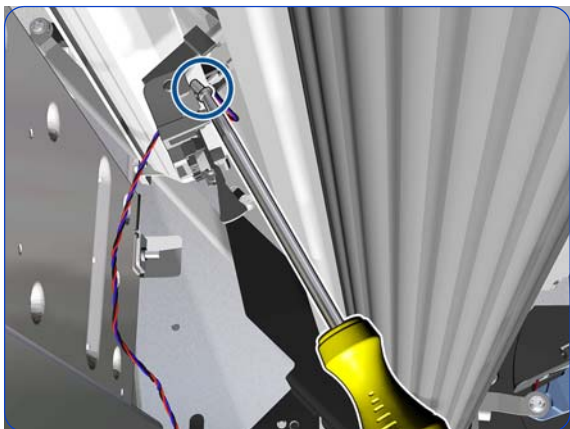
## Removal



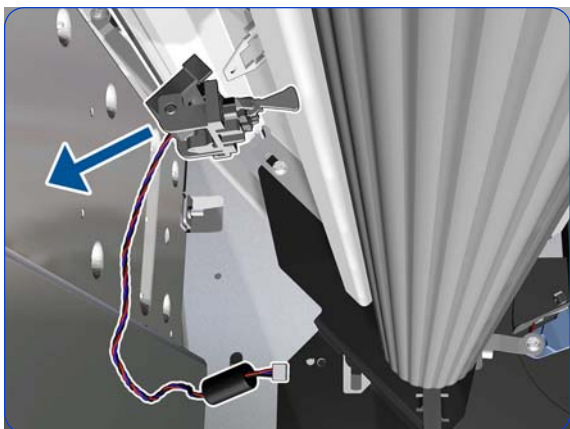
1. Remove the Right Cover ⇒ page 286.
2. Remove the Right Connector Cover ⇒ page 308.
3. Disconnect the Media Sensor cable from the Interconnect PCA.
4. Pass the Media Sensor Cable and ferrite through the hole.
5. Take the Media Sensor Cable and ferrite from the front of the printer and leave it hanging from the Sensor.



6. Rotate the Media Sensor Cover.



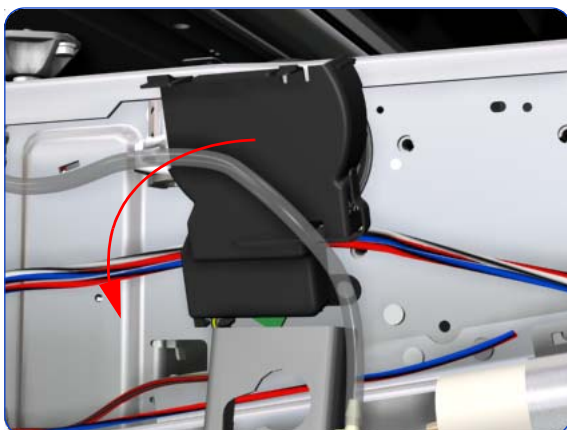
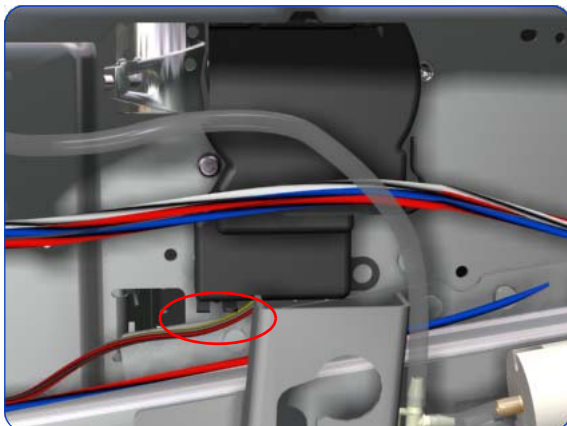
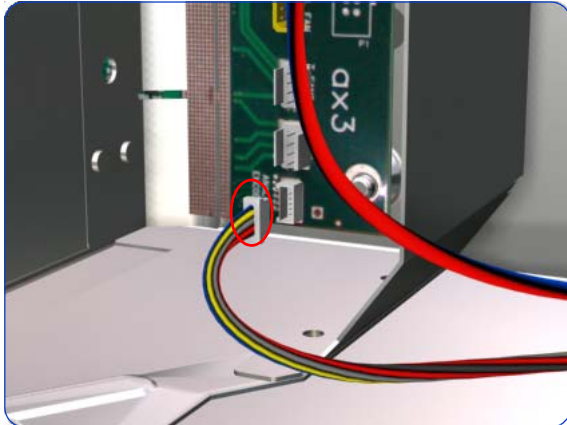
7. Remove a T-10 screw.



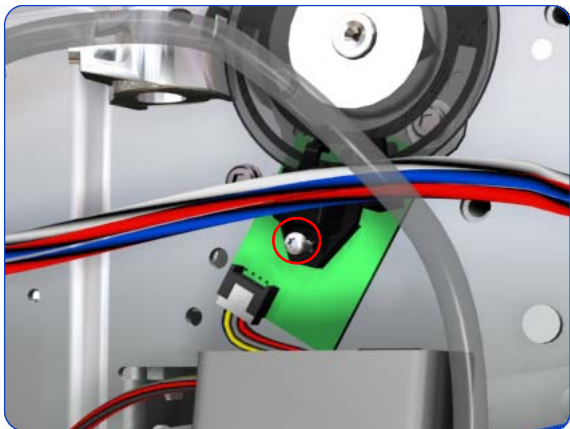
8. Remove the Media Sensor and cable.

# Encoder Disc and Sensor

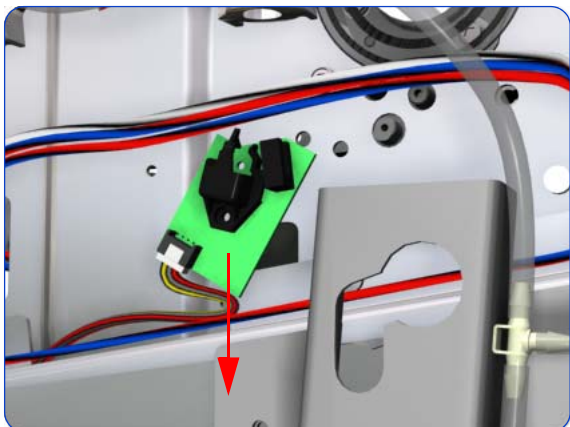
## Removal



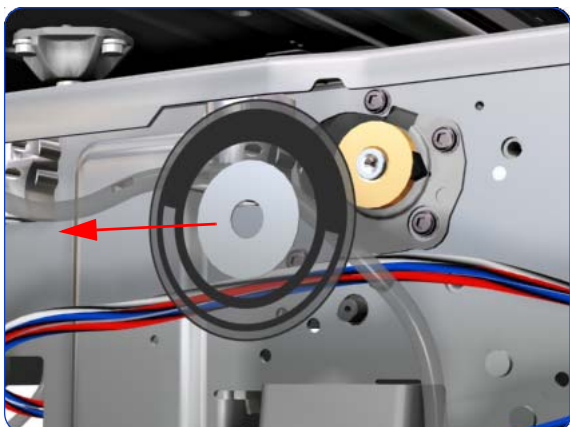
1. Remove the Left Cover ⇒ page 293.
2. Remove the Electronics Enclosure Extension Cover ⇒ page 319.
3. Remove the Ink Supply Station ⇒ page 384.
4. Disconnect the Encoder Sensor cable from the PrintMech PCA, and unroute it along its whole length.
5. Release the Encoder Sensor cable from the clip located on the Encoder Disc Cover.
6. Unclip the Encoder Disc Cover and remove from the printer.



7. Remove one T-8 screw that secures the Encoder Sensor to the Chassis.



8. Remove the Encoder Sensor from the printer.



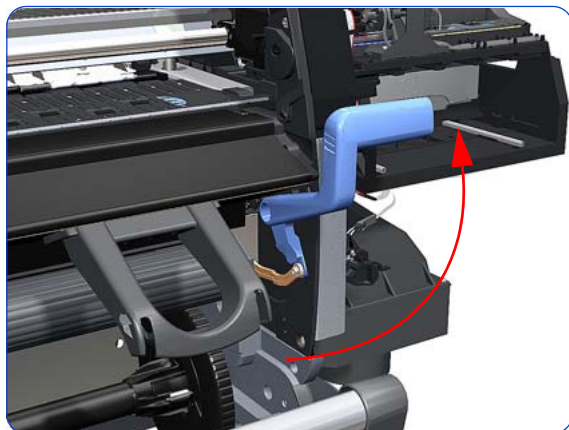
9. Carefully peel the Encoder Disc from the Drive Roller.



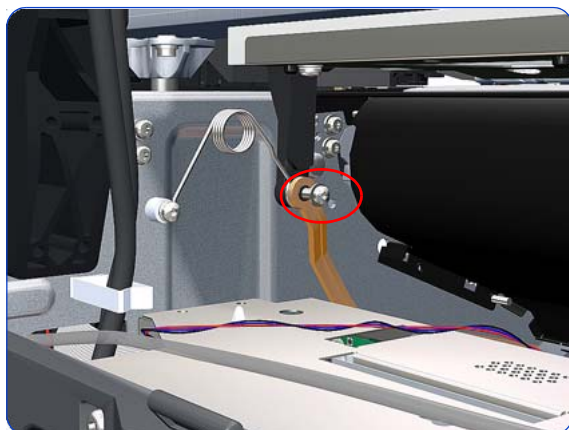
# Media Lever Linkage

See also Right Trim, Media Lever, and Media Lever Sensor ⇒ page 289.

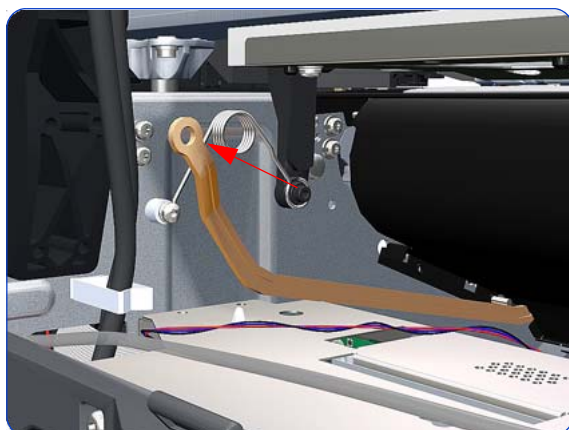
## Removal



1. Remove the Right Cover ⇒ page 286.
2. Remove the Back Cover ⇒ page 302.
3. Raise the Media Lever.

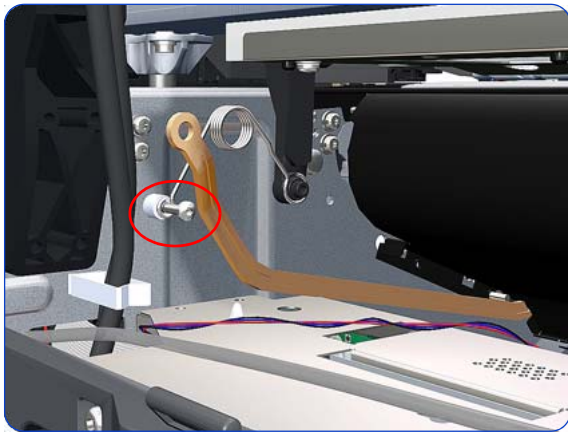


4. Remove one T-15 screw that secures the Linkage to the Spring.

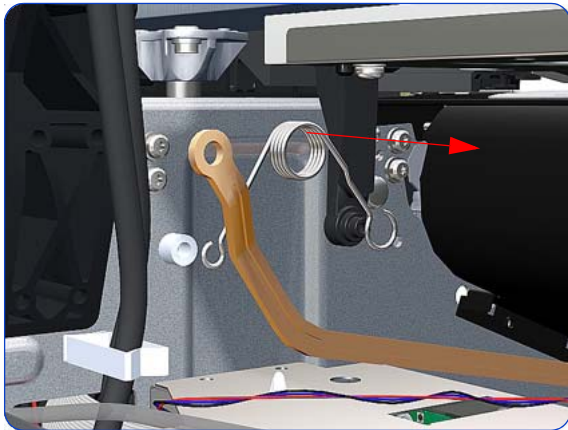


5. Remove the Linkage from the Spring.

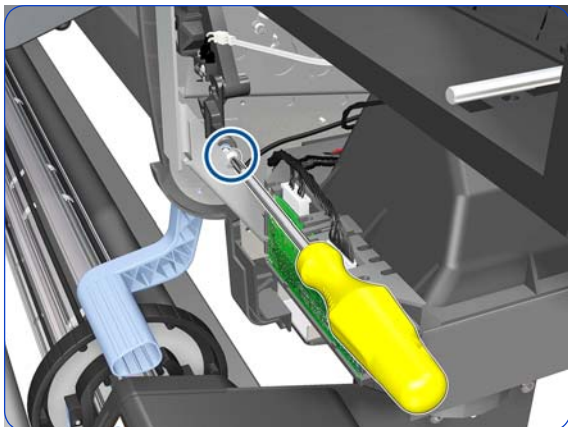




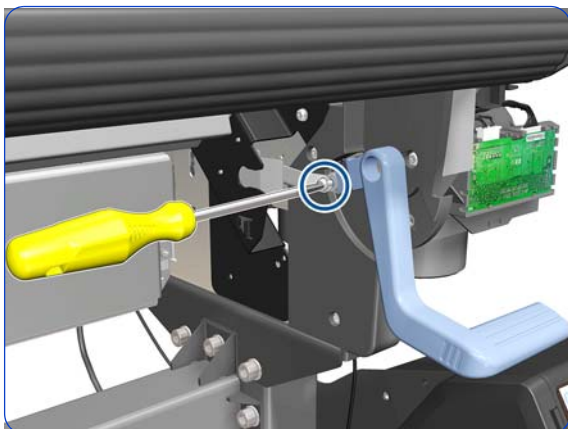
6. Remove one T-20 screw that secures the Spring to the Spacer.



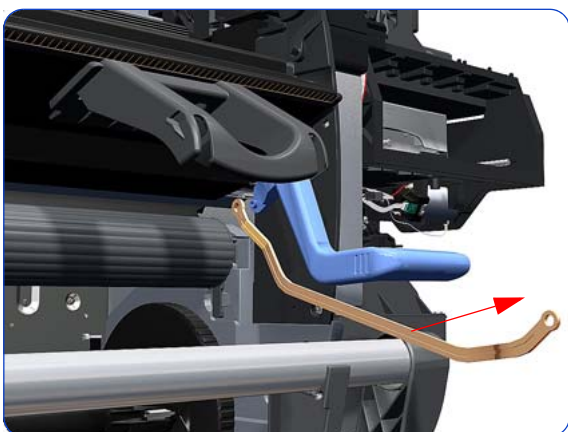
7. Remove the Spring and plastic washer.



8. Remove a T-20 screw that secures the Media Lever.



9. Remove a T-15 screw that secures the Media Lever.

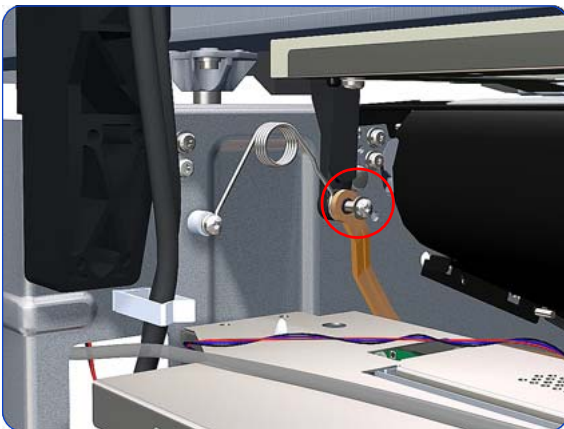
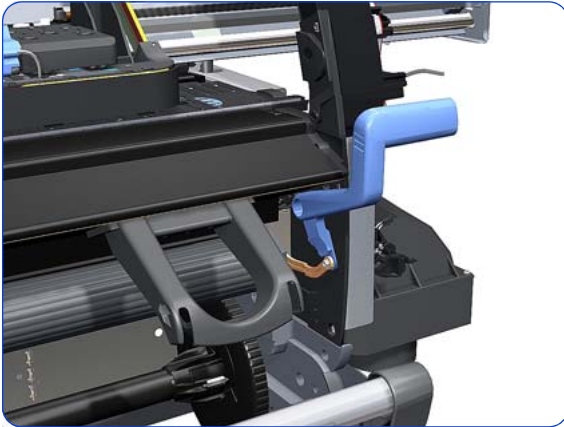


10. Remove the Media Lever Linkage from the printer.

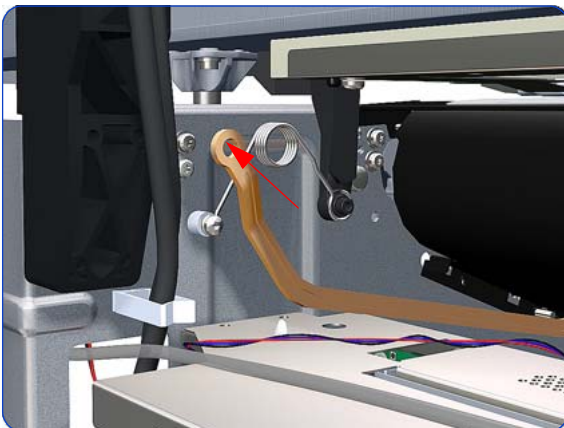
# Pinchwheel Assembly

## Removal (requires two people)

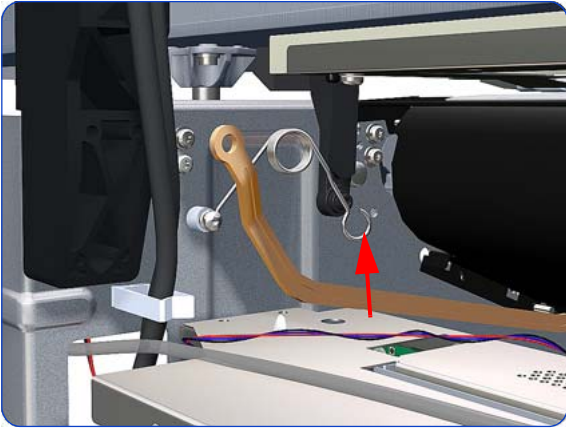
1. Remove the Right Cover ⇒ page 286.
2. Remove the Power Box Cover ⇒ page 311.
3. Remove the Electronics Enclosure Extension Cover ⇒ page 319.
4. Remove the Back Cover ⇒ page 302.
5. Remove the Service Station ⇒ page 341.
6. Remove the Media Input Profile ⇒ page 534.
7. Raise the Media Lever.



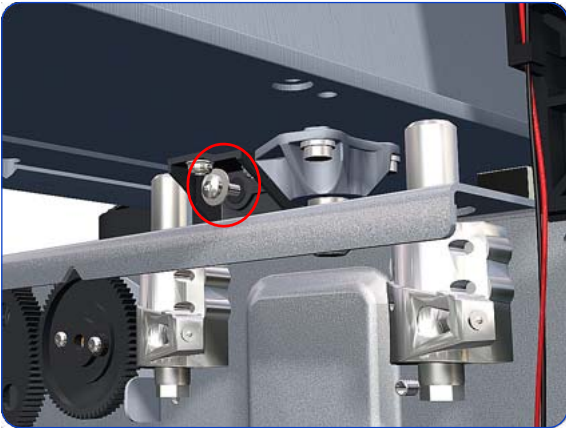
8. Remove one T-20 screw that secures the Linkage to the Spring.



9. Disconnect the linkage from the Pinchwheel cam-arm.



10. Disconnect the spring from the Pinchwheel cam-arm.



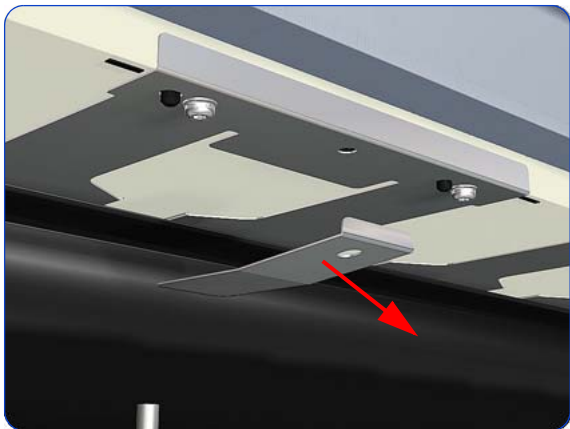
11. Remove one T-20 screw that secures the Cam to the Cam Lever.



12. Insert a plastic stud in to each Pinchwheel Subassembly (the Plastic Studs can be found in the replacement Pinchwheel Assembly kit).



13. Remove one T-20 screw that secures the attachment plate to the center Pinchwheel Subassembly.



14. Remove the attachment plate from the center Pinchwheel Subassembly.



15. Remove two T-20 screws from each Pinchwheel Subassembly (a 90 degree angle screwdriver is included with the replacement Pinchwheel Assembly).



16. Remove the complete Pinchwheel Assembly (including the Cam and Cam Lever) from the printer.



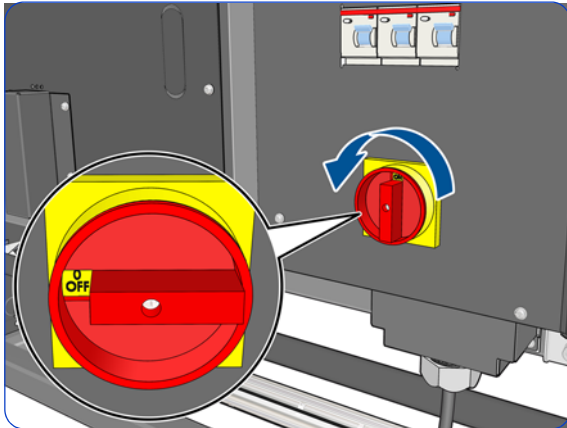
**NOTE:** Before installing the NEW Pinchwheel Assembly, insert the plastic studs in to each Pinchwheel subassembly. This will make it easier to install the complete Pinchwheel Assembly.



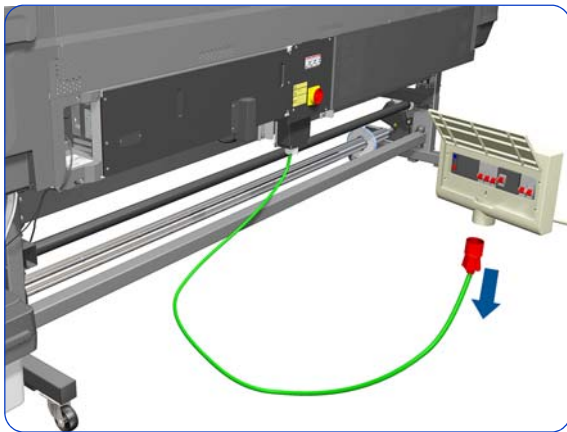
# Individual Pinchwheel Rollers

These are Customer Self-Replaceable (CSR) parts. The User Maintenance Kit provided with the printer contains spare Pinchwheels and Inter-Pinchwheels.

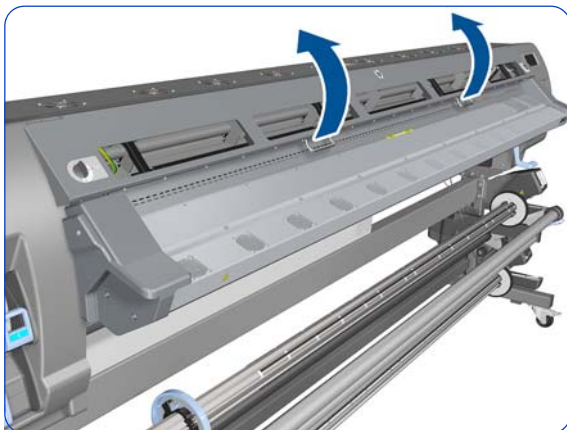
## Removal



1. Turn off the printer.

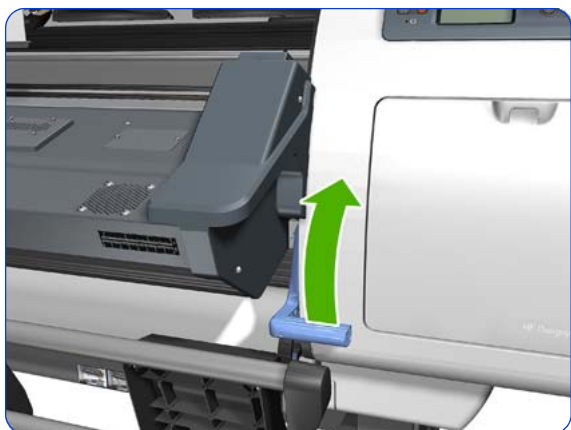


2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).

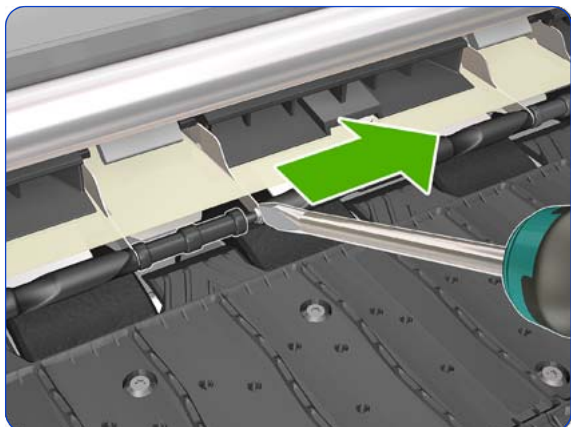


3. Open the Window ⇒ page 293.

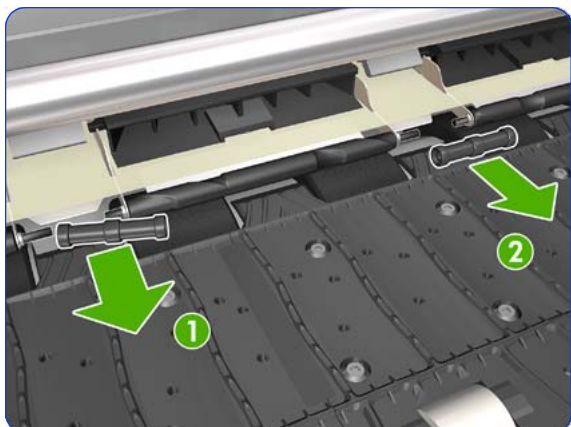




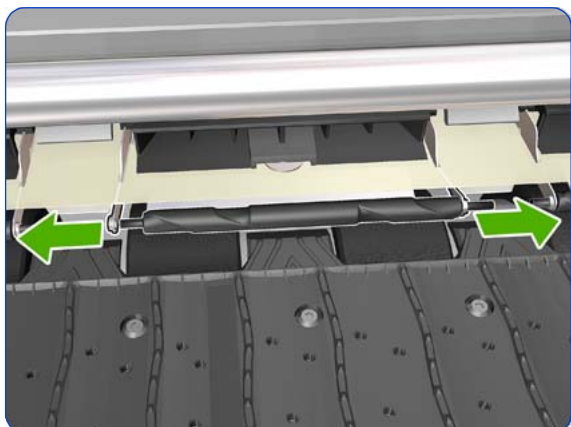
4. Raise the Media Lever.



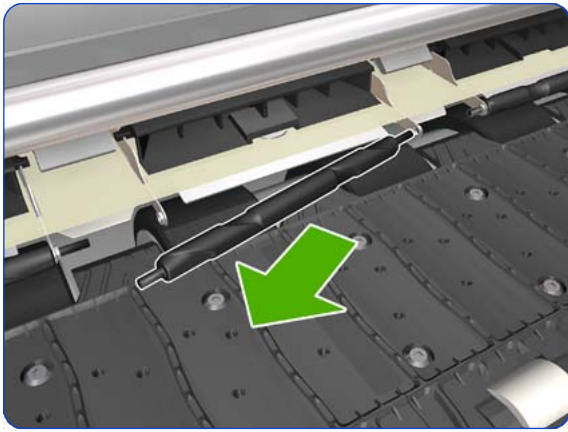
5. Going from right to left use a screw driver to push apart all the pins that secures the Inter-Pinchwheel roller.



6. Remove the two inter-Pinchwheel rollers from both sides of the Pinchwheel. Remove first the left one (1) and then the right one(2). You need to go from right to left, doing this until you reach the individual Pinchwheel that you need to remove

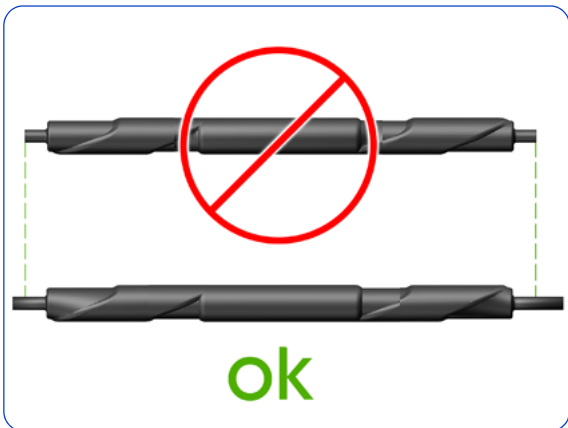


7. When you have reached the individual Pinchwheel roller, push apart the metal part that secures the Pinchwheel roller.

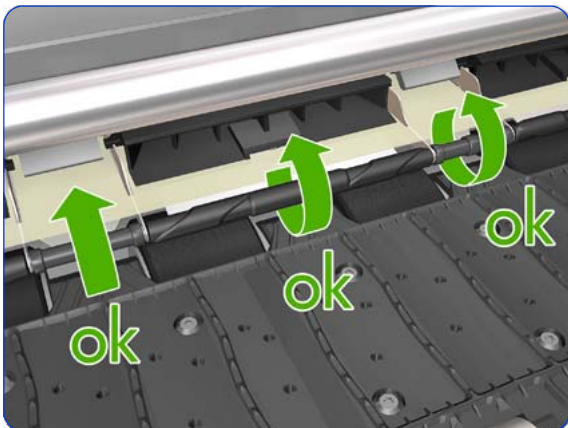


8. Pull out the individual Pinchwheel roller.

## Installation of the Drive Roller



1. When installing the new Pinchwheel rollers, make sure they are the new type.

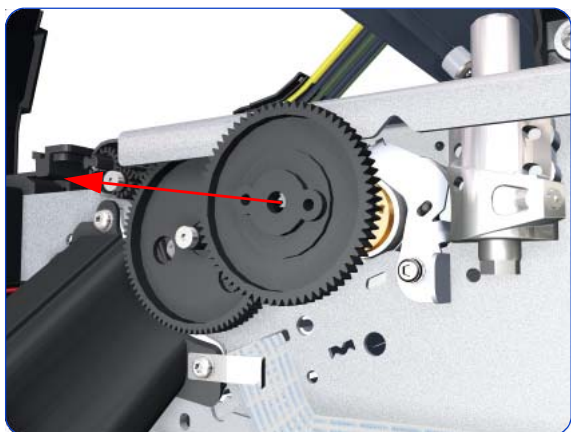
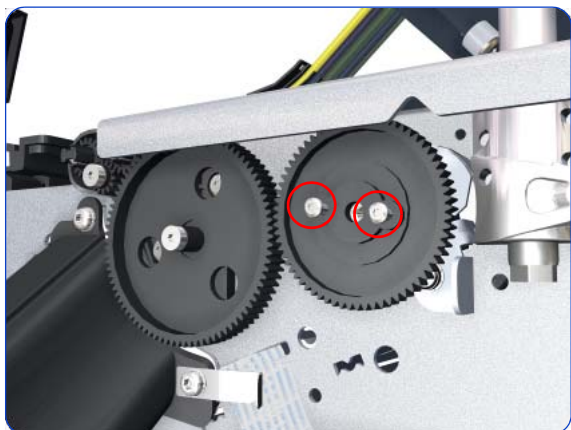


2. When the new Pinchwheel roller has been installed, check that the rollers move freely.

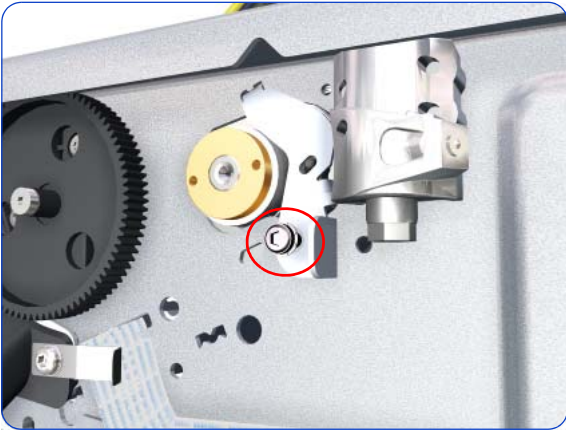
## Drive Roller

### Removal (requires two people)

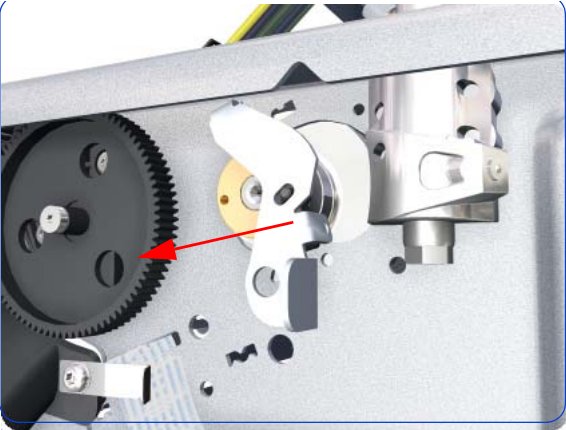
1. Remove the Right Cover ⇒ page 286.
2. Remove the Left Cover ⇒ page 293.
3. Remove the Right Connector Cover ⇒ page 308.
4. Remove the Electronics Enclosure Extension Cover ⇒ page 319.
5. Remove the Service Station ⇒ page 341.
6. Remove the Ink Supply Station ⇒ page 384.
7. Remove the Media-Axis Motor ⇒ page 420.
8. Remove the Encoder Disc and Sensor ⇒ page 549.
9. Remove the Media Lever Linkage ⇒ page 551.
10. Remove the Media Sensor ⇒ page 547.
11. Remove the Media Input Profile ⇒ page 534.
12. Remove the Input Platen ⇒ page 540.
13. Remove two T-10 screws that secure the Drive Roller Gear.



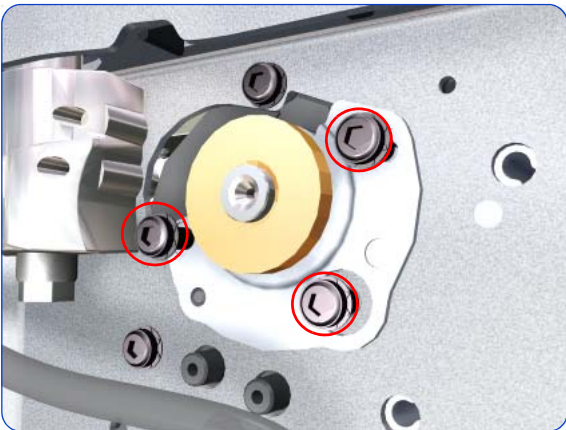
14. Remove the Drive Roller Gear from the printer.



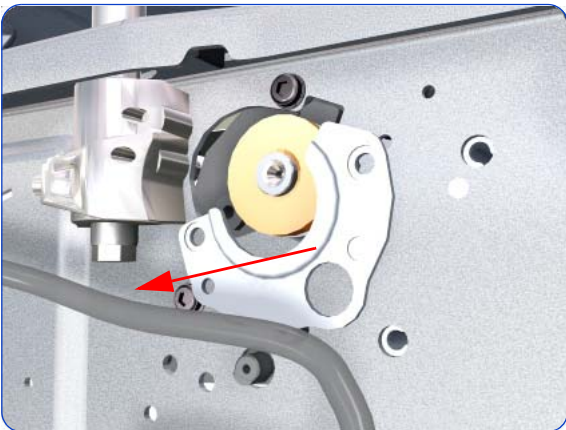
15. Remove one T-20 screw that secures the cover on the right hand side of the printer.



16. Remove the Cover.

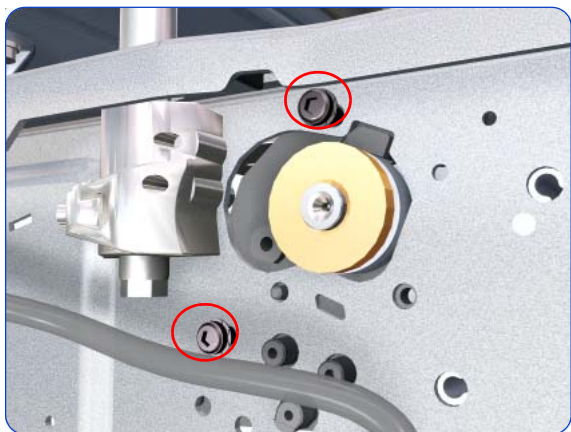


17. Remove three T-20 screws that secure the cover on the left hand side of the printer.

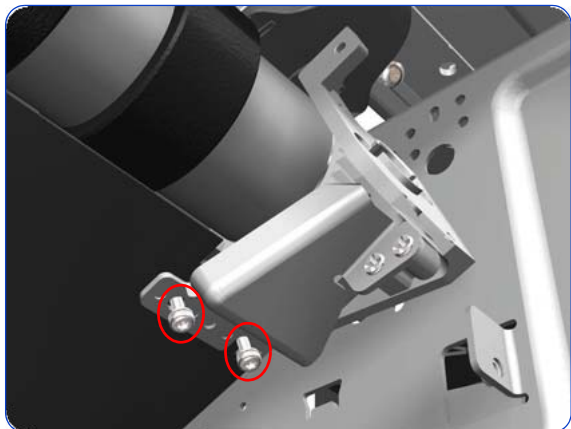


18. Remove the Cover.

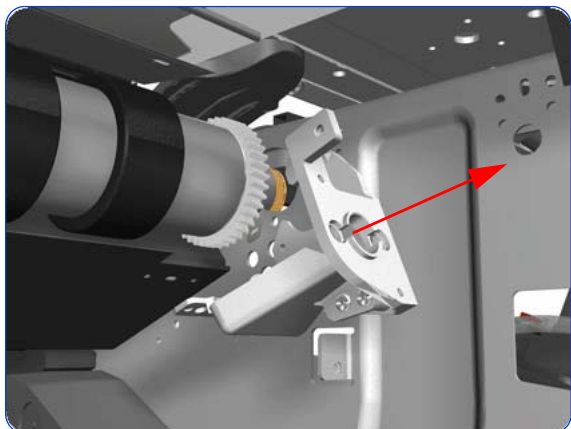




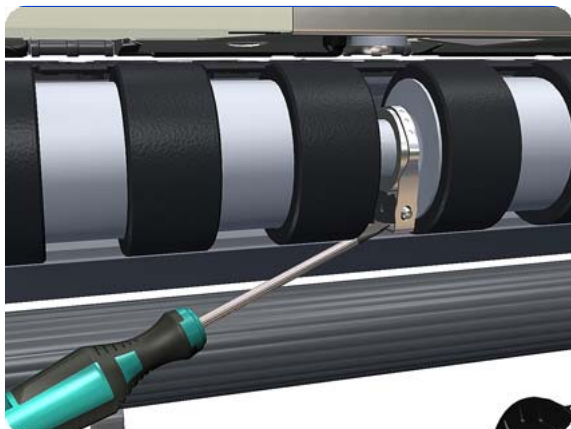
19. Remove T-20 screws that secure the Media-Axis Motor Bracket to the side-plate.



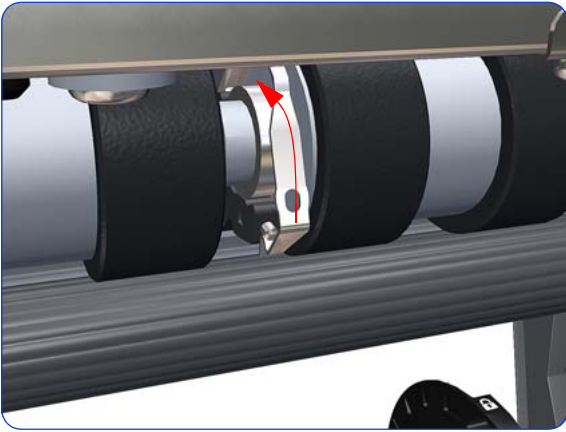
20. Remove two T-20 screws that secure the Media-Axis Motor Bracket to the Chassis.



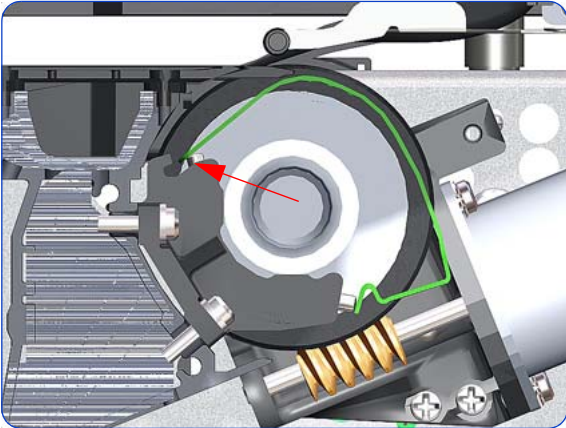
21. Remove the Media-Axis Motor Bracket from the printer.



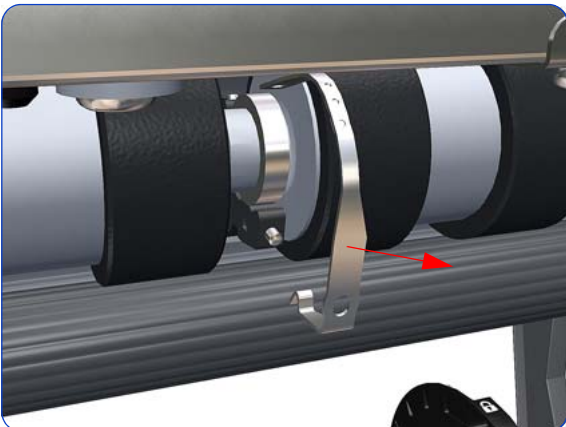
22. Use a flat bladed screwdriver to unclip the Roller Middle Support Covers.



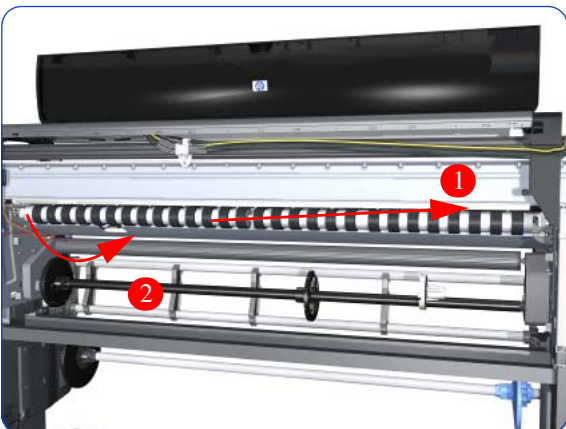
23. Rotate the Roller Middle Support Cover vertically.



24. Release the Roller Middle Support Cover from its attachment point.



25. Remove the Roller Middle Support Cover.

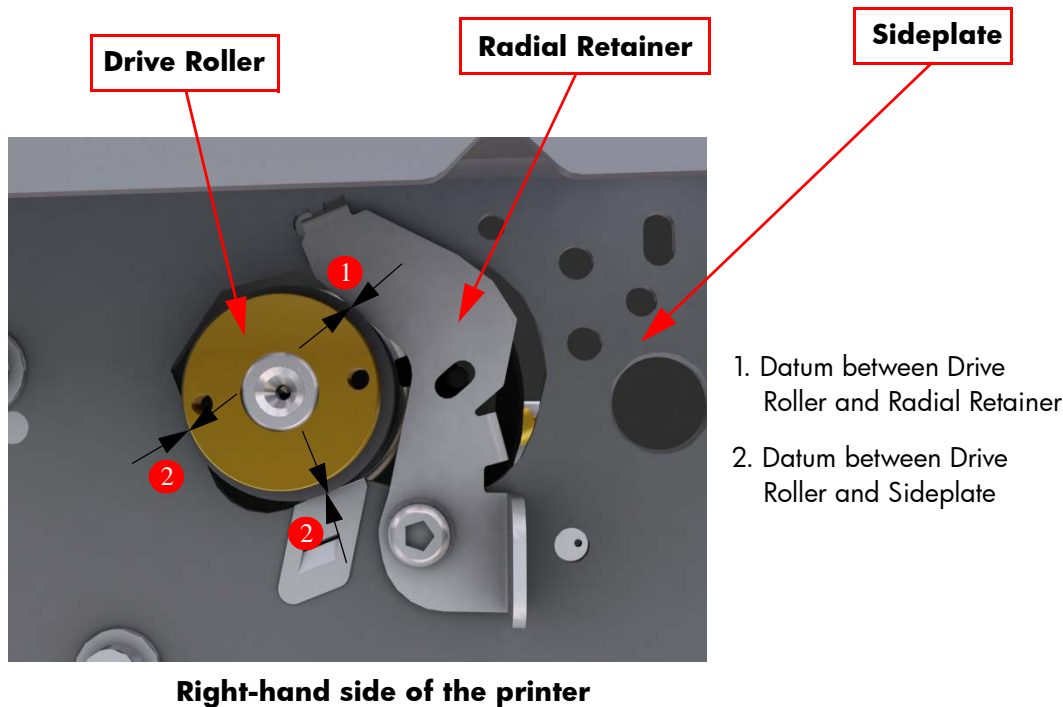
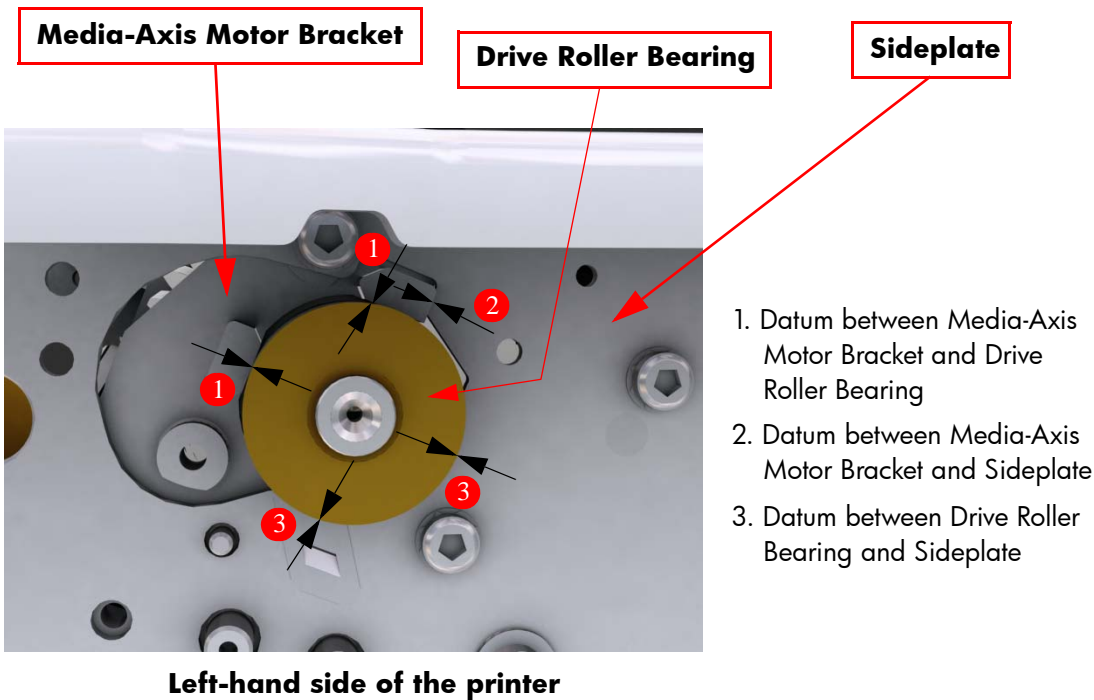


26. Remove the Drive Roller by sliding it to the right, then downwards and then out of the printer.



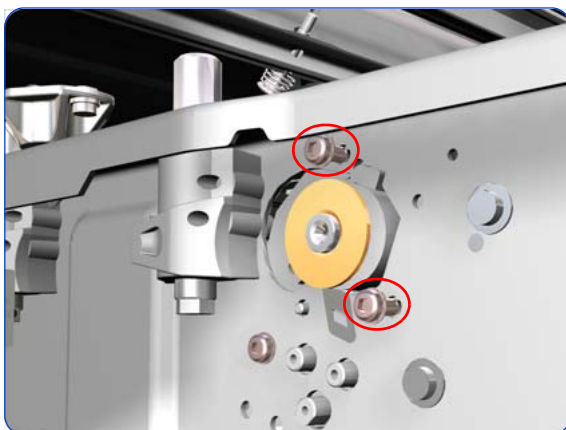
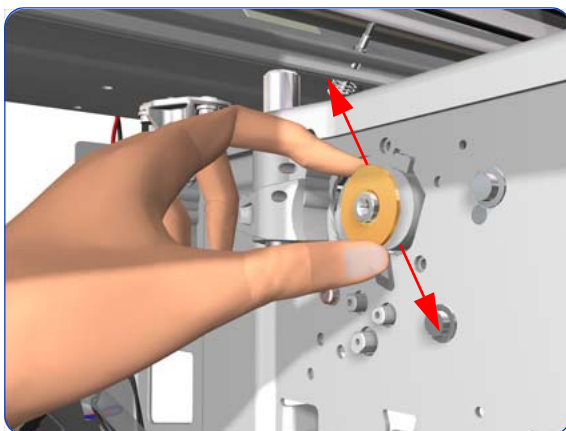
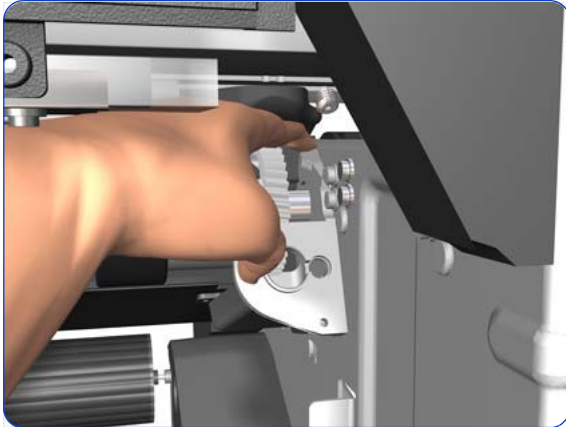
## Installation of the Drive Roller

When installing the Drive Roller, several different datums have to be met in order to ensure that the Drive Roller has no axial play. Use the following illustrations to ensure that all the datums are met:



To make sure that all the datums are met when installing the Media-Axis Motor Bracket, make sure you follow these

instructions:



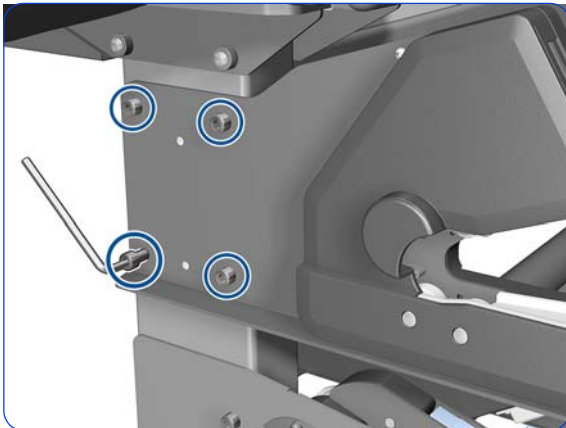
1. Place the Media-Axis Motor Bracket in the correct position on the printer. Make sure you keep it pushed down (as shown in the illustration) until the first screw has been installed and fully tightened.
2. Install the first screw (T-15) in the position shown. Make sure you tighten the screw fully so that the Media-Axis Motor Bracket cannot be moved.
3. Check that there is no play (movement) between the Media-Axis Motor Bracket and the Drive Roller. If there is play, then check that the screw installed in the previous step is fully tightened.
4. Install the remaining two screws (T-15) that secure the Media-Axis Motor Bracket.

When reinstalling the parts, make sure you apply the grease (included with the support part) to the gears.

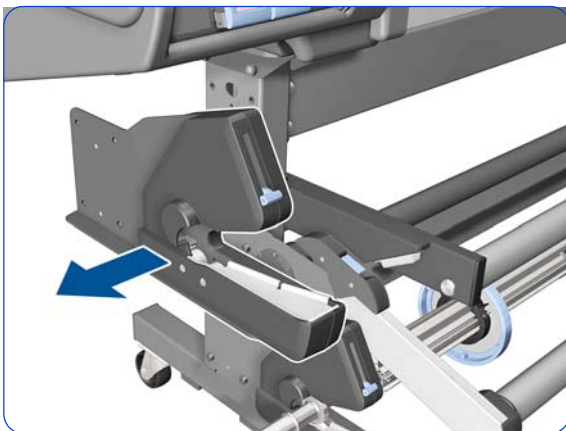
After installing the new Drive Roller, perform Substrate Advance Calibration ⇒ Chapter 5.

# Rewinder Left-Hand Module

## Removal

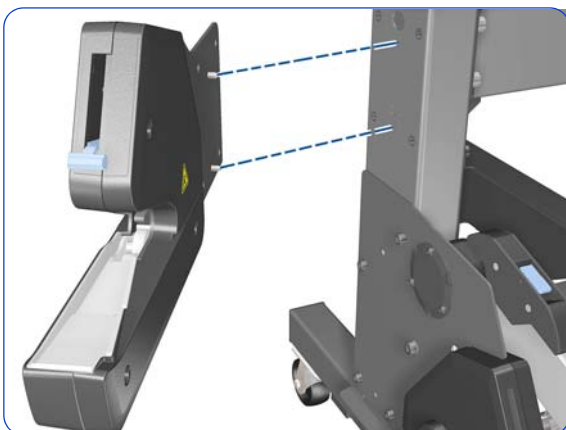


1. Remove four T-40 screws with an Allen key.



2. Remove the Rewinder Left-Hand Module.

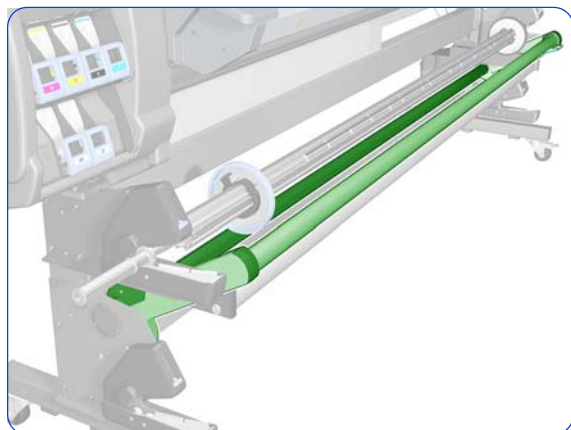
## Installation



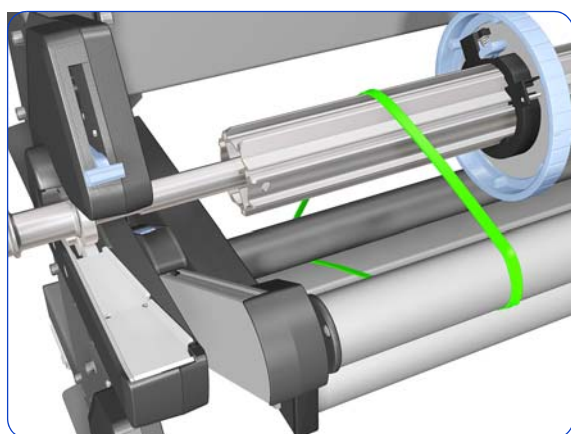
1. Insert the two pins into the matching holes in the leg.

# Take-Up Reel Left-Hand Module

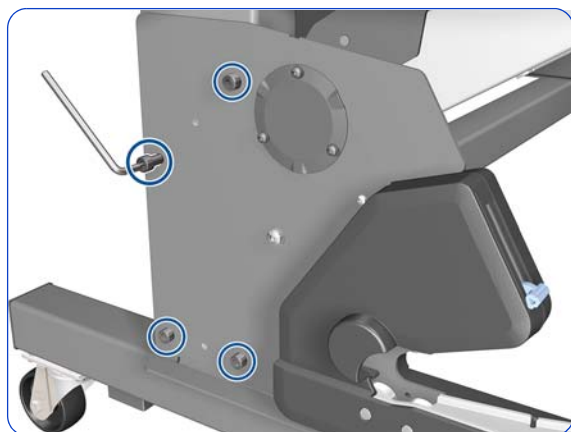
## Removal



1. Make sure that the Tension Bar is raised.

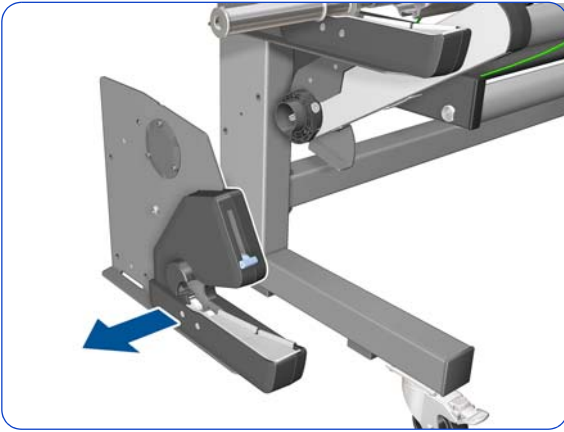


2. Tie the Take-Up Reel to both sides of the Tension Bar.



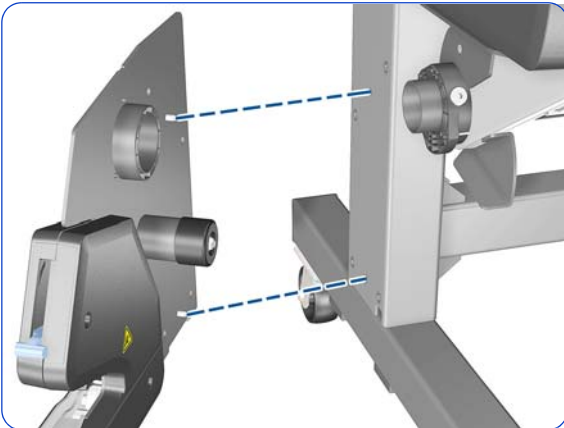
3. Remove four T-40 screws with an Allen key.

4. Remove the Take-Up Reel Left-Hand Module.

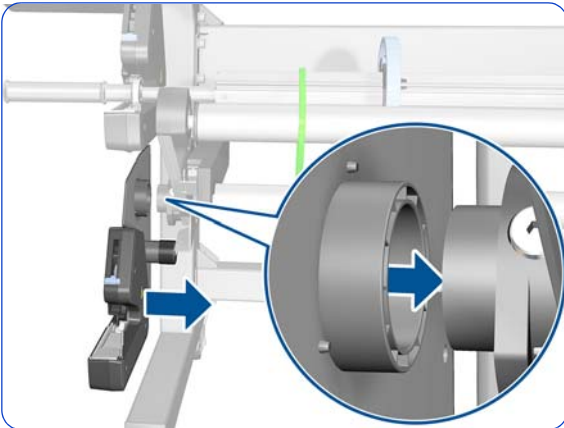


## Installation

1. Align the two pins with the matching holes in the leg.



2. Insert the Take-Up Reel Left-Hand Module carefully.

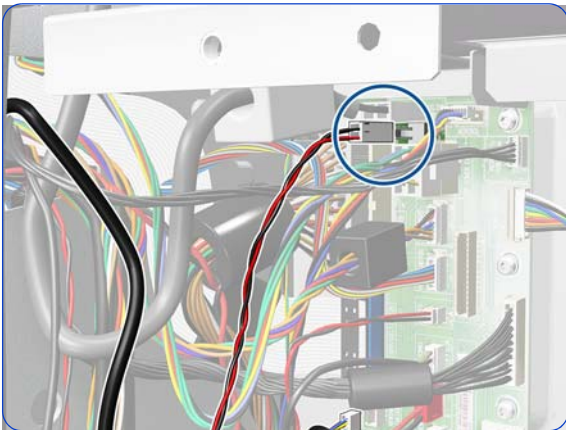




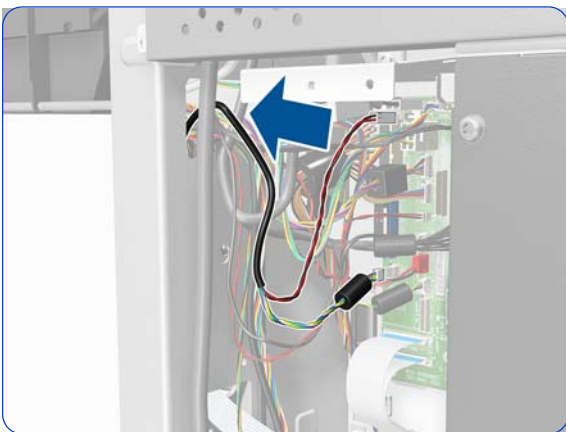
# Rewinder Right-Hand Module

## Removal

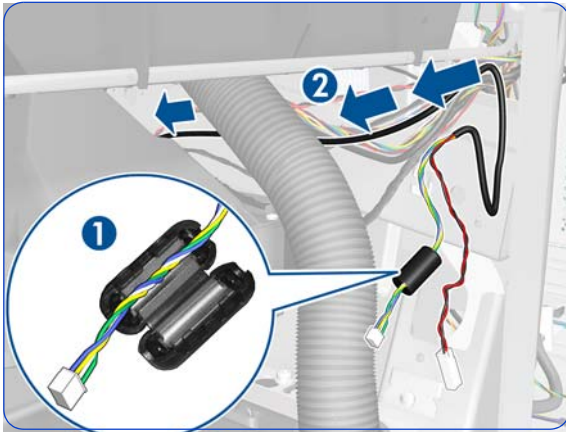
1. Remove the Right Cover ⇒ page 286.
2. Remove the Right Connector Cover ⇒ page 308.
3. Disconnect the Rewinder Encoder connector.



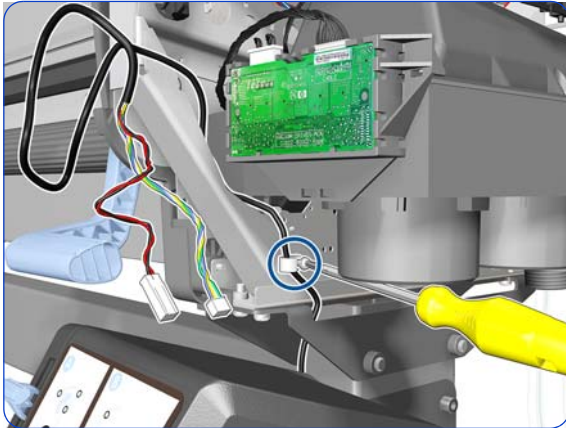
4. Disconnect the Rewinder Motor connector.



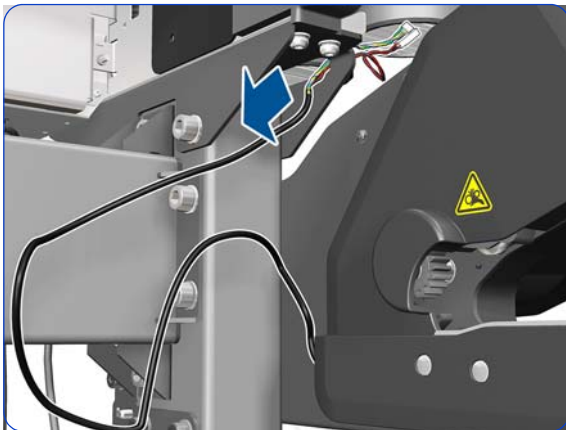
5. Pass the cable through the upper hole in the side plate.



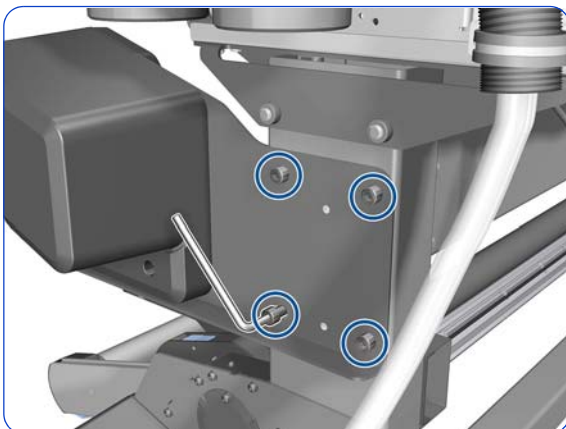
6. (1) Remove the ferrite from the cable.  
(2) Unroute the cable.



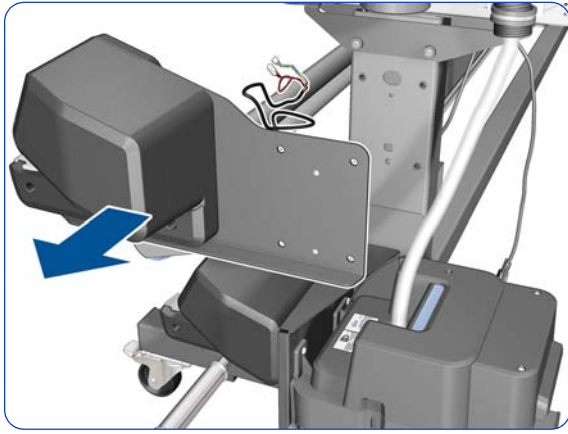
7. Remove one T-20 screw.



8. Pass the cable through the hole in the stand.

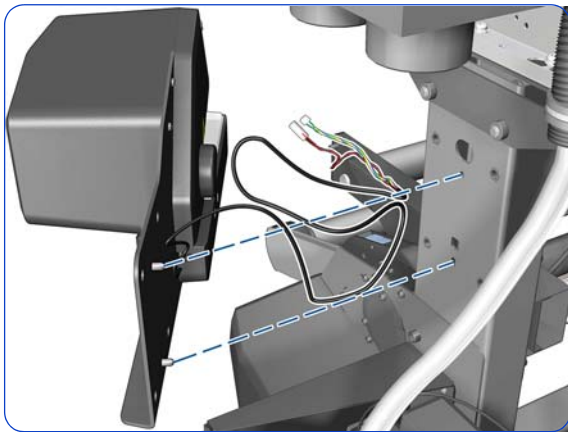


9. Remove four T-40 screws with an Allen key.



10. Remove the Rewinder Right-Hand Module.

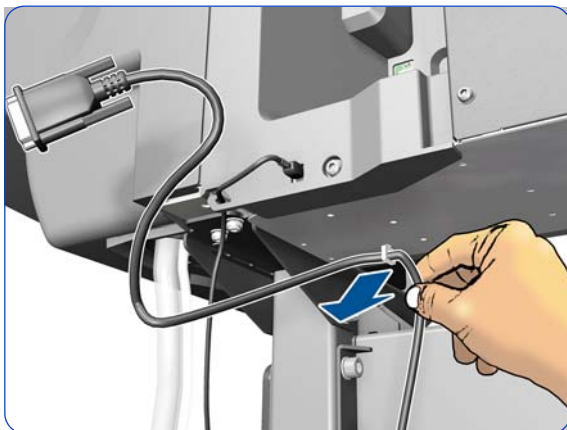
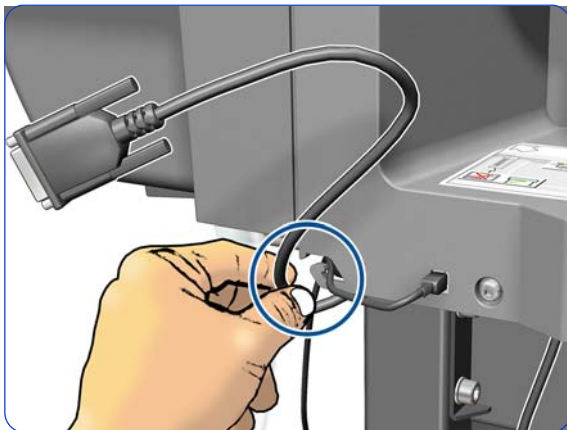
## Installation



1. Insert the two pins into the matching holes in the leg.

# Take-Up Reel Right-Hand Module

## Removal



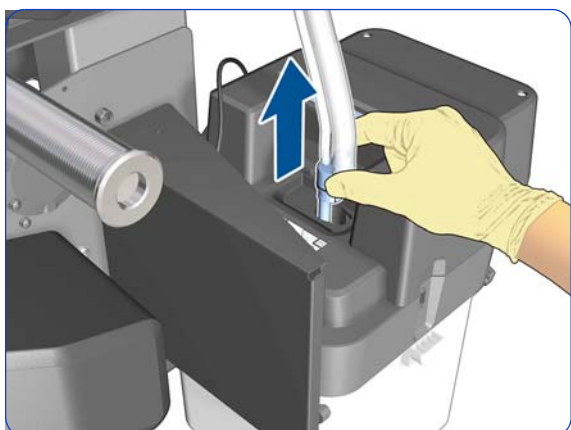
1. Remove the Take-Up Reel Sensor Module ⇒ page 584.
2. Disconnect the Take-Up Reel Connector.
3. Unroute the Take-Up Reel cable from the Right Connector Cover.
4. Release the Take-Up Reel cable from the clamp underneath the E-Box.



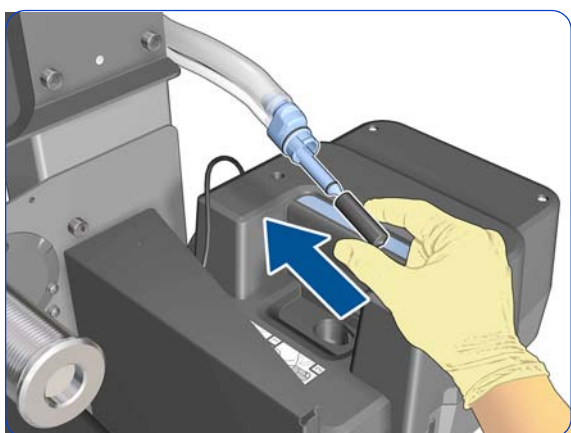
5. Disconnect the Waste Ink System cable.



6. Disengage the Waste Ink System cable from the clip.

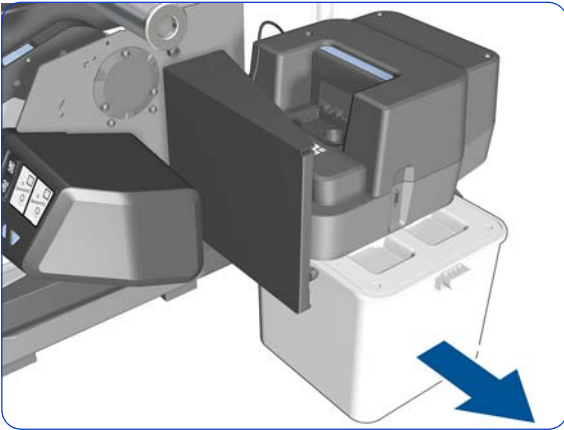


7. Pull the bottom of the Ink Tube Assembly out of the Printhead Cleaning Container. You are recommended to wear gloves.

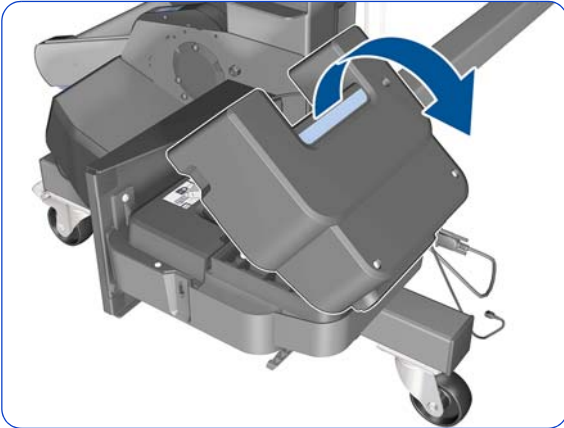


8. Cover the end of the Ink Tube with the spare cap from the Ink Maintenance Kit, to prevent ink from falling out of the tube.

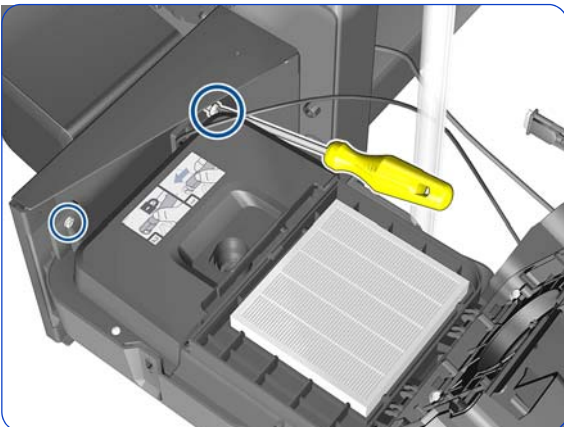




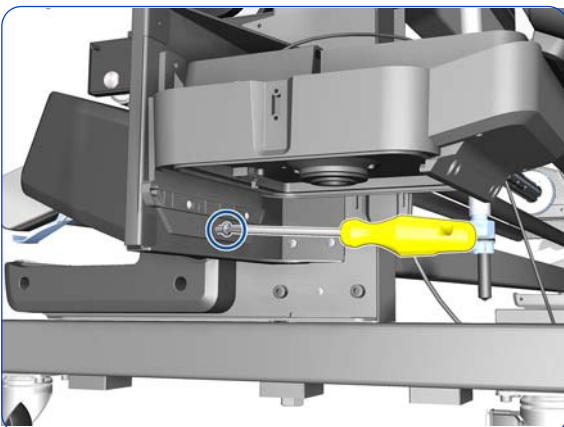
9. Remove the Printhead Cleaning Container.



10. Open the Ink Filter Cover.

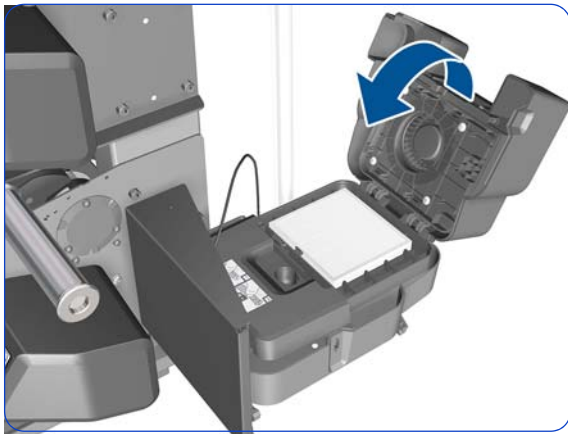


11. Remove two T-25 screws.

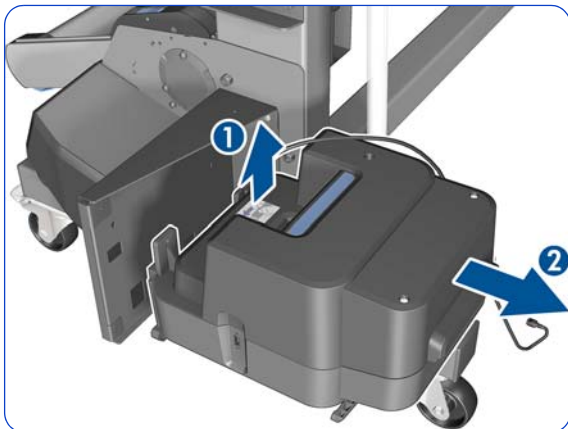


12. Remove a T-25 screw.

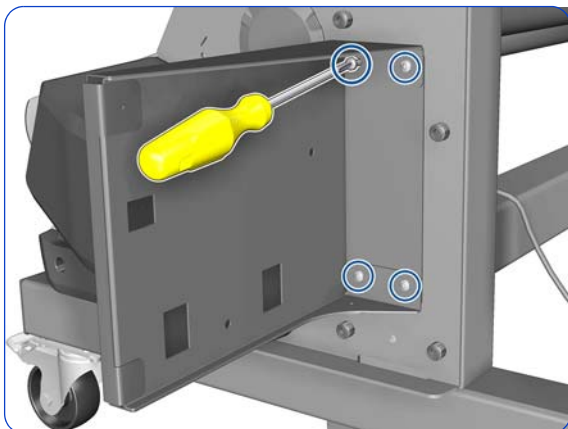




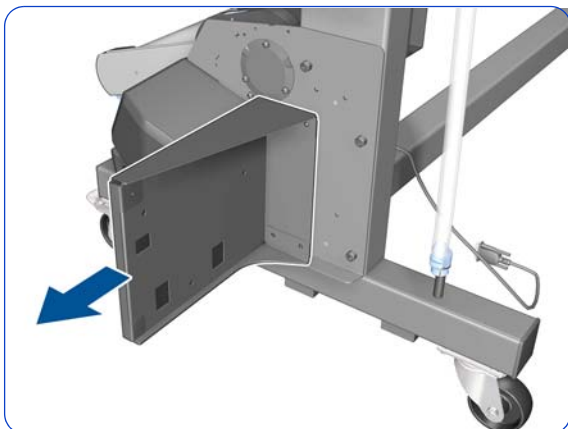
13. Close the Ink Filter Cover.



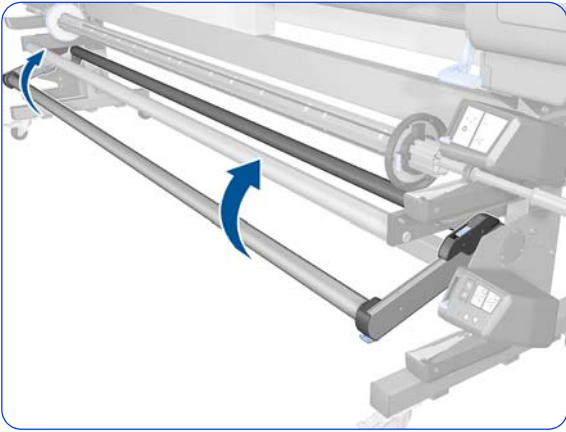
14. Lift and then pull the Ink Filter Enclosure to remove it from the printer.



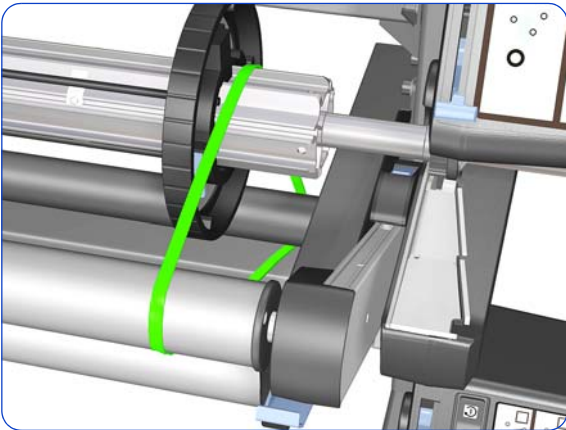
15. Remove four T-25 screws.



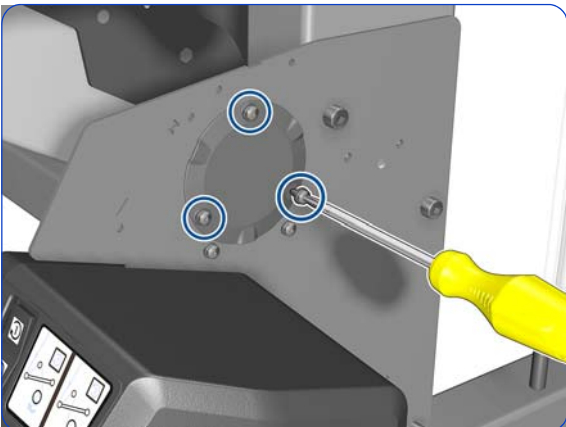
16. Remove the support.



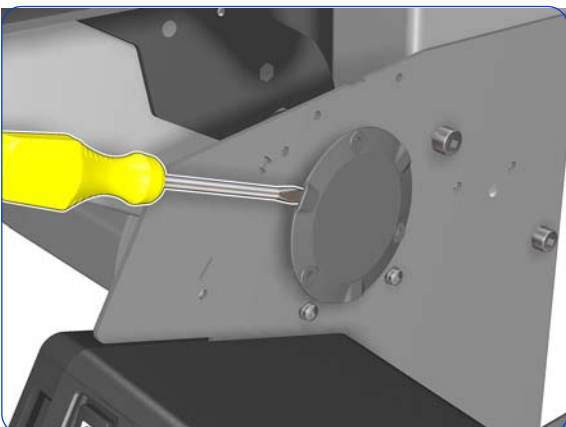
17. Raise the Tension Bar.



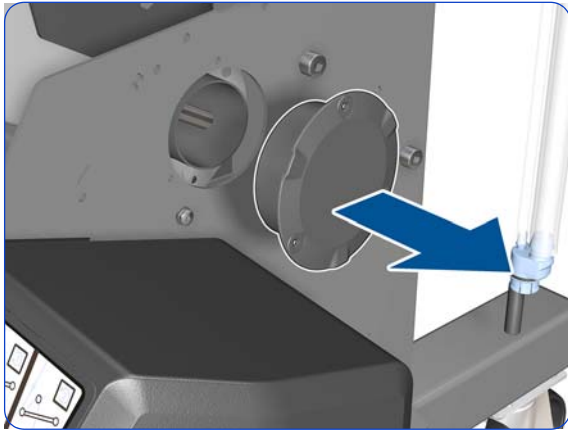
18. Tie the Tension Bar to the Take-Up Reel.



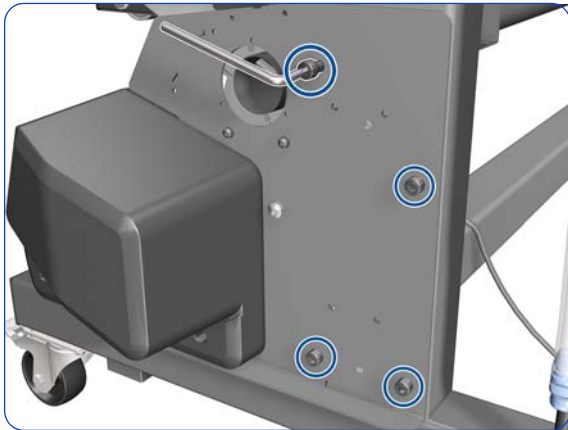
19. Remove three T-20 screws.



20. Slide out the end cap using a flat-bladed screwdriver. Three slots are provided in which to introduce the screwdriver. Be careful not to scratch the Take-Up-Reel Right Bracket.



21. Remove the end cap.

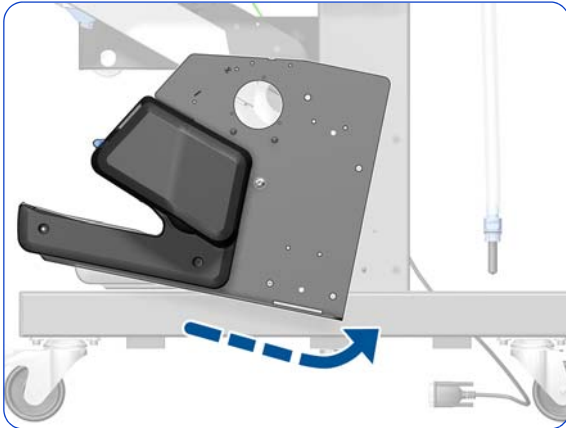


22. Remove four T-40 screws with an Allen key.

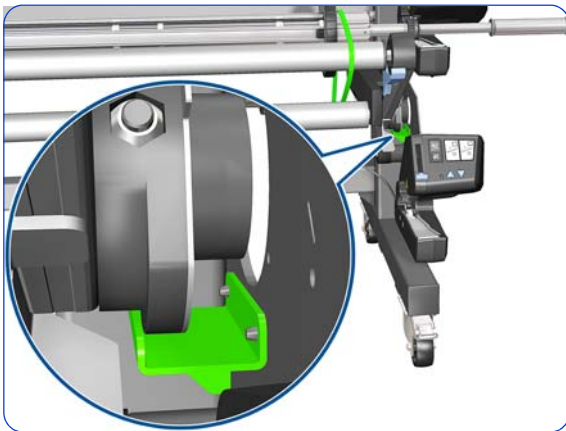


23. Remove the Take-Up Reel Right-Hand Module.

## Installation



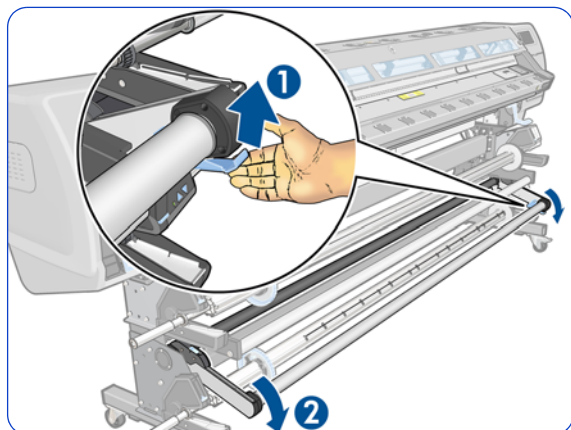
1. Rotate the Take-Up Reel Right-Hand Module slightly, then insert the two pins on the module into the right leg of the stand.



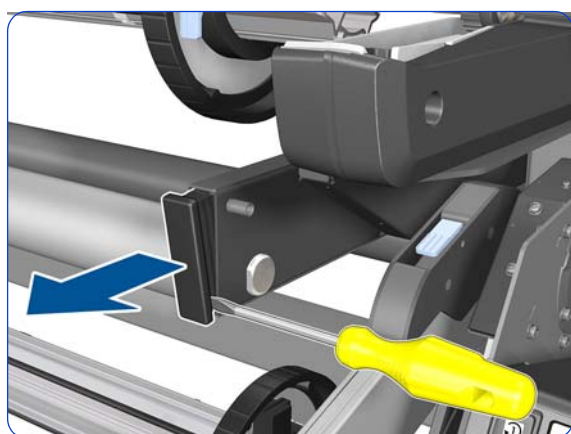
2. Make sure that the Tension Bar Arm Rear Bushing is over the Axial Stop (indicated in green).

# Take-Up Reel Diverter

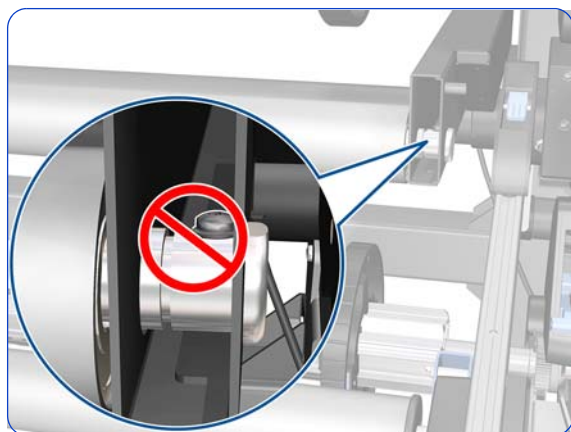
## Removal



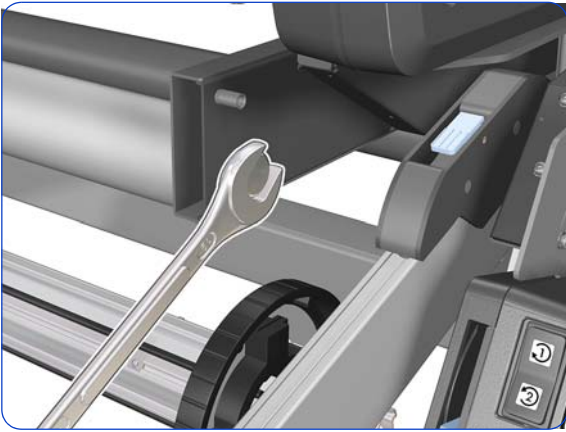
1. Lift the blue lever to lower the Tension Bar.



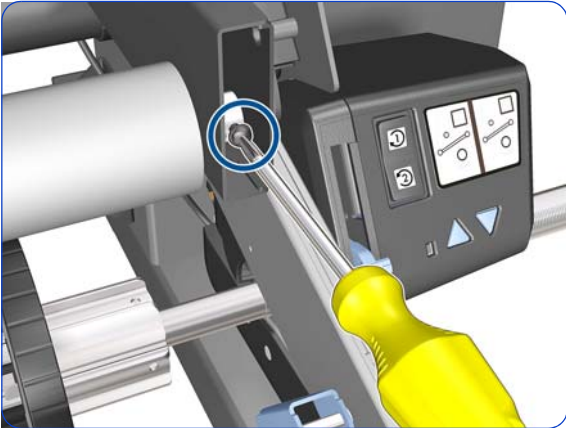
2. Remove the plastic cap using a flat-bladed screwdriver.



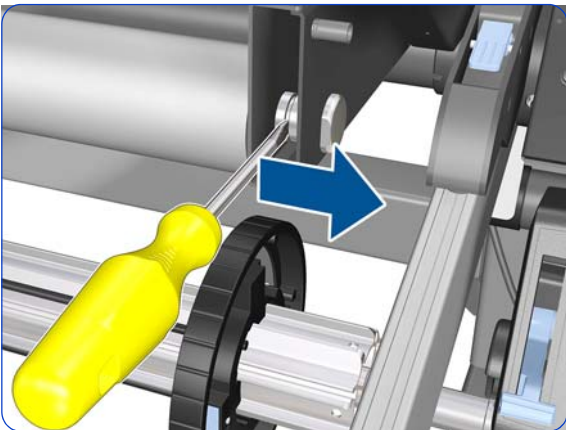
3. If the screw is positioned so that you can't remove it (as shown), then follow the next step.



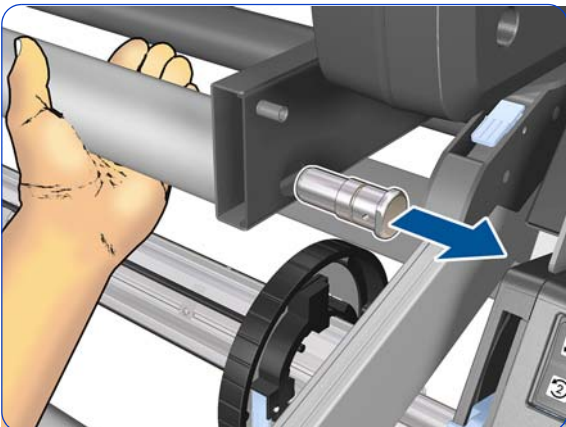
4. If necessary, use a spanner to rotate the bolt until you can reach the screw with a screwdriver.



5. Remove the T-20 screw using a Phillips screwdriver.

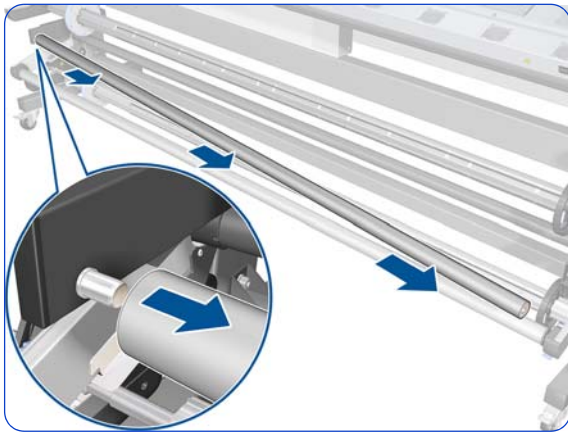


6. Slide out the bolt using a flat-bladed screwdriver.

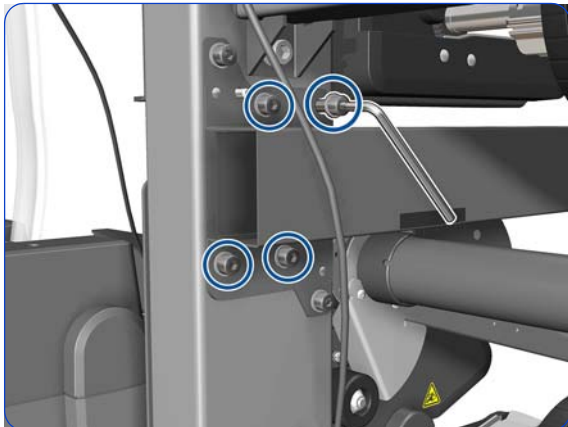


7. Hold the Diverter with one hand while removing the bolt.

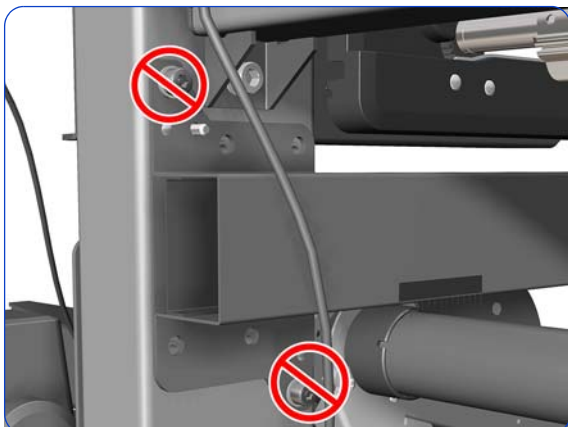




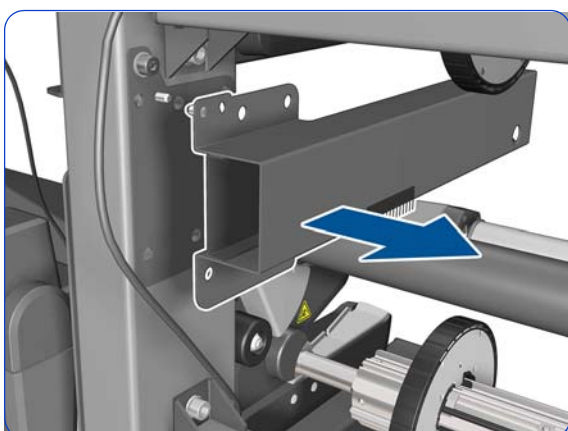
8. Move the Diverter to the right to disengage the left-hand end, then remove the Diverter.



9. Remove four T-40 screws with an Allen key.

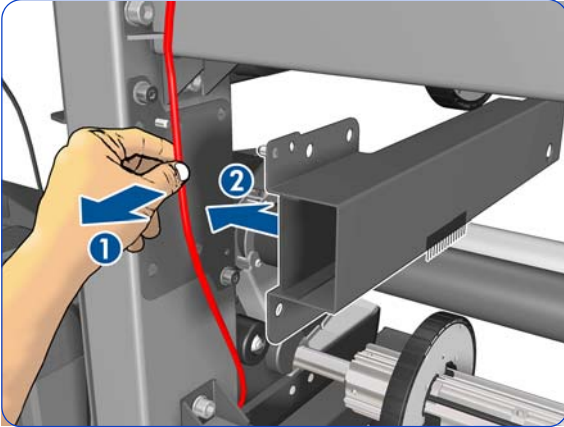


10. **IMPORTANT:** Never remove the screws indicated here: they have to be calibrated in the factory.

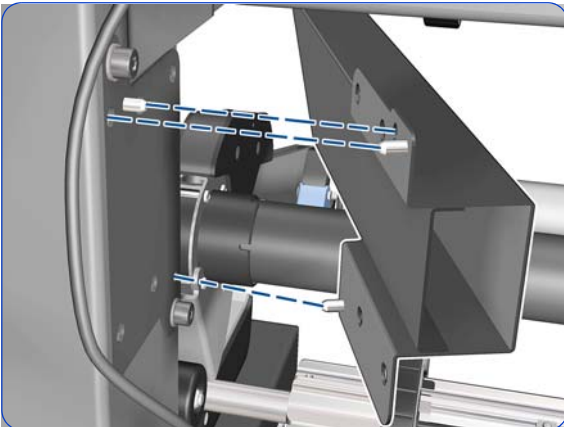


11. Remove the Inner Right Arm. Then follow the same process to remove the Inner Left Arm.

## Installation



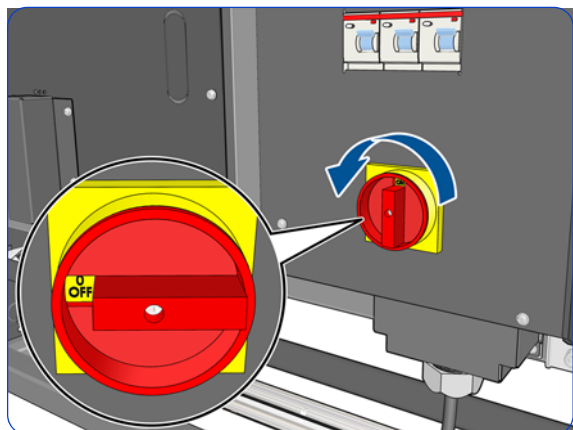
1. (1) Move the cable out of the way.  
(2) Fit the Inner Right Arm to the printer leg.



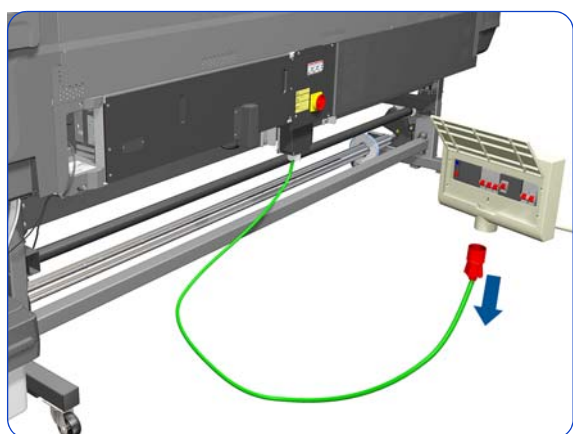
2. Fit the Inner Right Arm to the printer leg so that the three pins go into the matching holes.

# Take-Up Reel Sensor Module

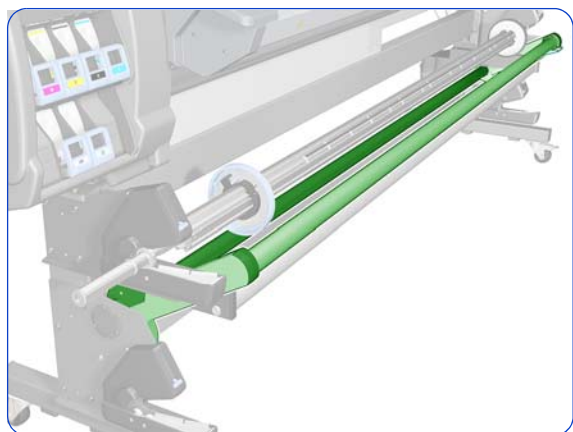
## Removal



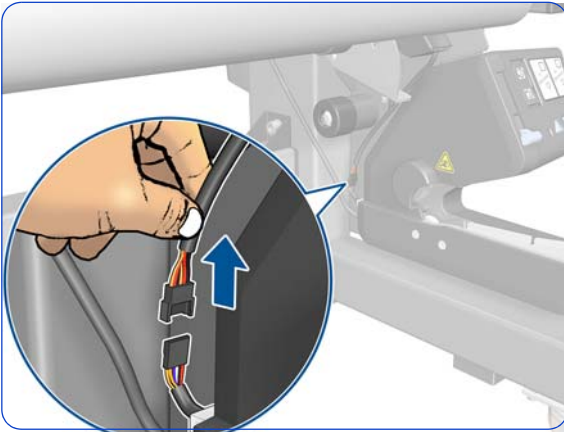
1. Turn off the printer.



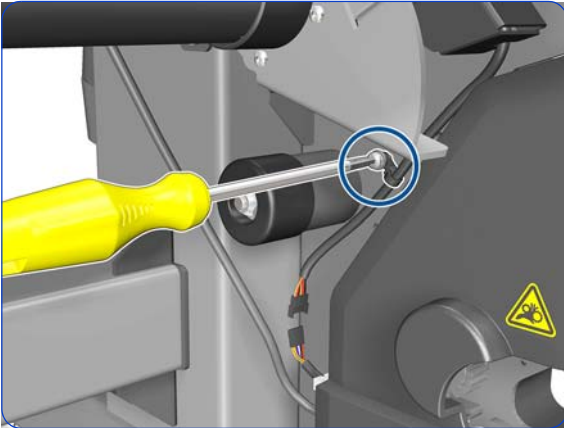
2. Disconnect the power cord and/or disconnect the branch circuit breaker (depending on customer setup).



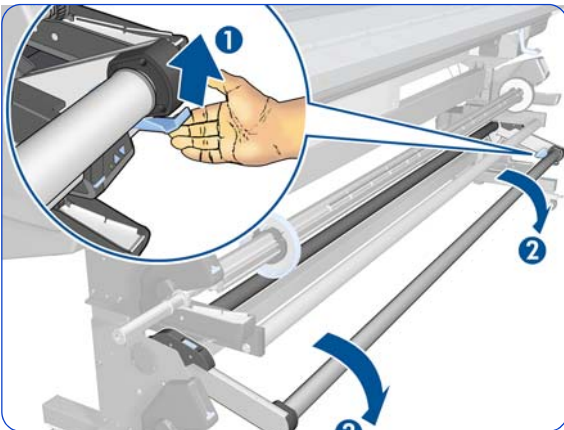
3. Make sure that the Tension Bar is in the upper position.



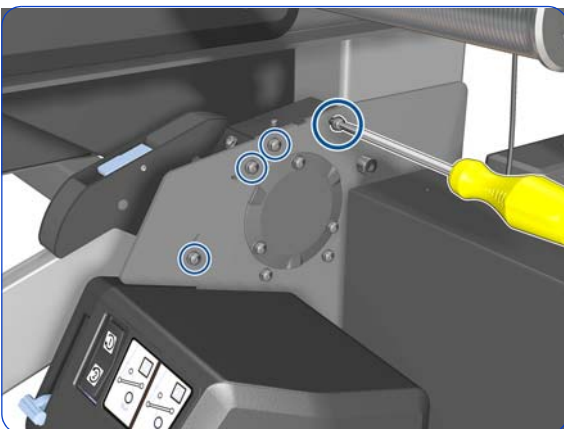
4. Disconnect the Tension Bar Sensors.



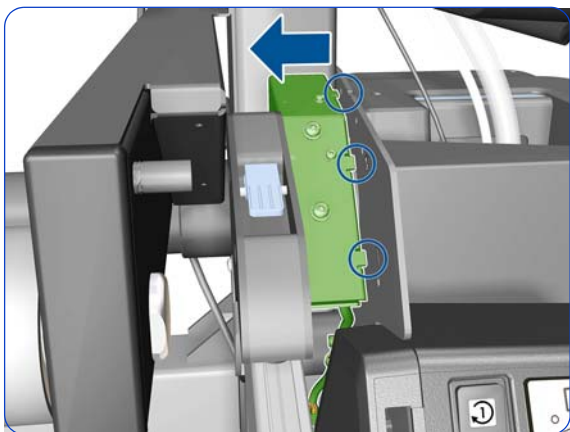
5. Remove one T-20 screw.



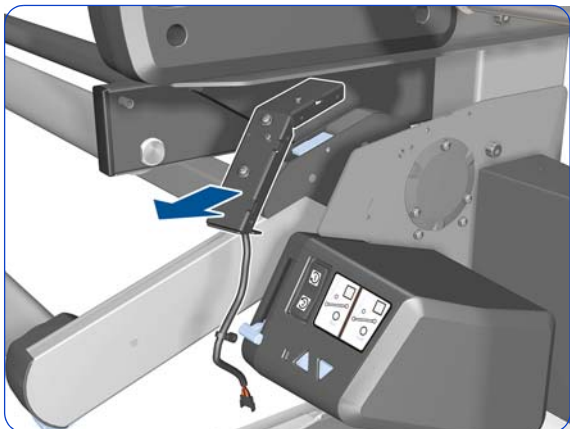
6. Lift the blue lever to lower the Tension Bar.



7. Remove four T-20 screws.



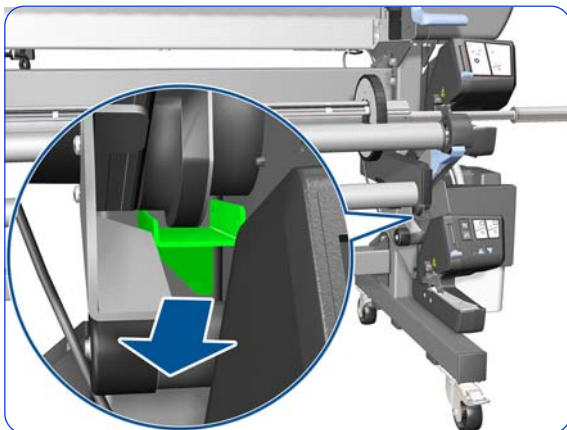
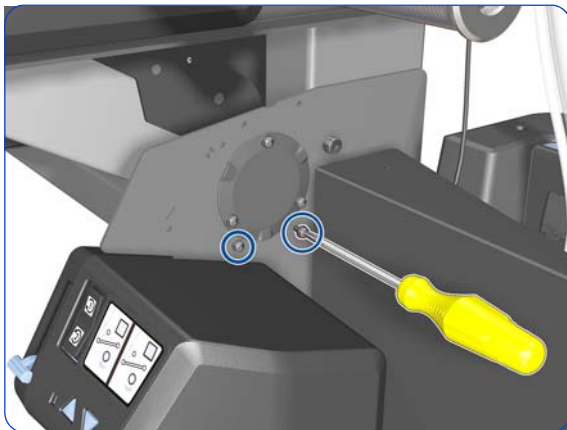
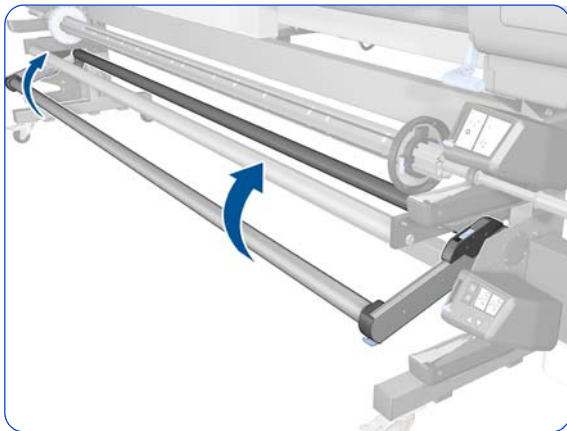
8. Move the Sensor Support to the left to disengage it from the printer.



9. Remove the Sensor Support.

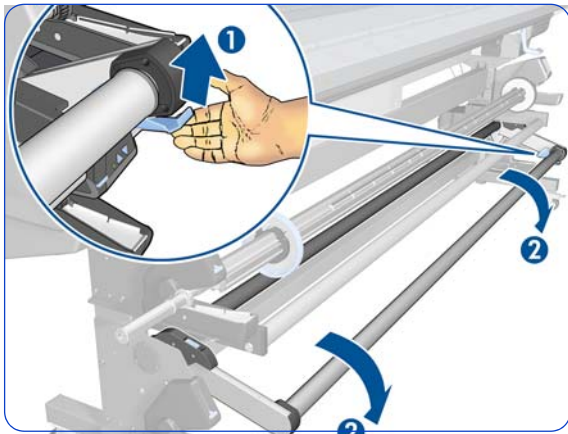
# Tension Bar

## Removal

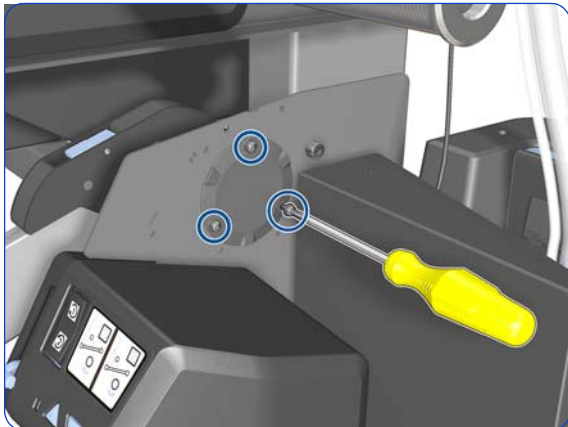


1. Remove the Take-Up Reel Sensor Module ⇒ page 584.
2. Make sure that the Tension Bar is in the upper position.
3. Remove two T-20 screws.
4. Remove the Axial Stop, indicated in green.

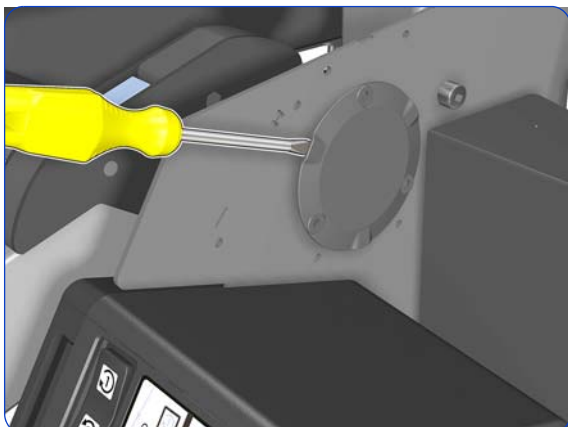




5. Lift the blue lever to lower the Tension Bar.



6. Remove three T-20 screws.



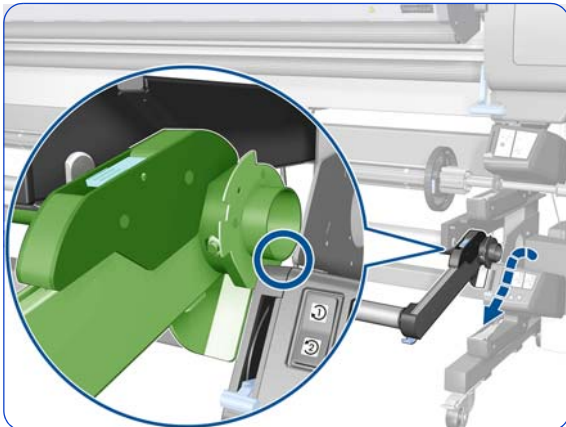
7. Slide out the end cap only slightly (do not remove it), using a flat-bladed screwdriver. Three slots are provided in which to introduce the screwdriver. Be careful not to scratch the Take-Up-Reel Right Bracket.



8. The end cap (1) should still be in place. Hold the Tension Bar with your left hand (2) so that it will not fall down when you remove the end cap.



9. Remove the end cap with your right hand while holding the Tension Bar with your left hand.



10. Move the right-hand side of the Tension Bar over the Rewinder, following the path shown by the blue arrow.

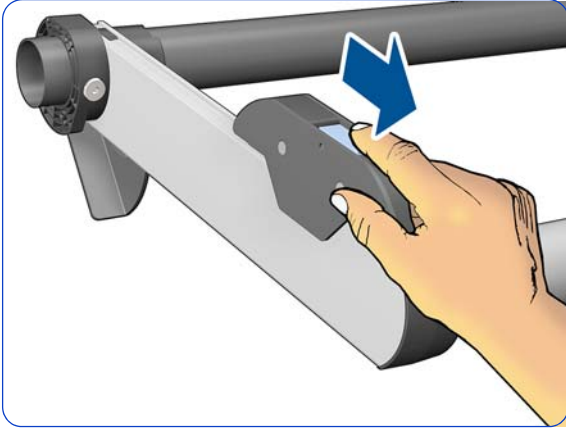


11. Disengage the left-hand side of the Tension Bar.

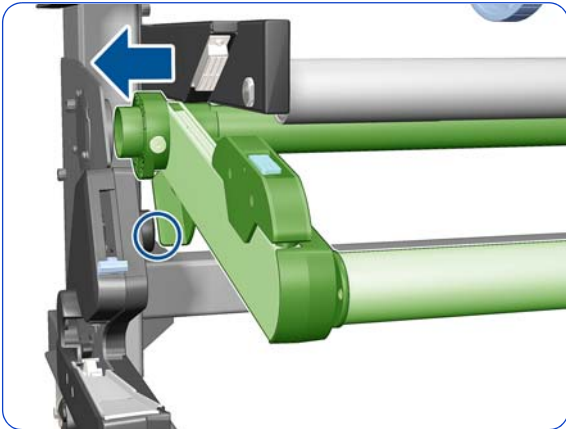


12. Remove the Tension Bar.

## Installation



1. Slide the counterweight forwards to make the installation of the Tension Bar easier.



2. Insert the Tension Bar as shown to avoid bumping into the part indicated with a circle.

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## 9 Preventive Maintenance

• Preventive Maintenance .....	592
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• Cleaning the printer .....	592
• Clean the exterior of the printer .....	592
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# Preventive Maintenance

## Moisture on the printer

Users should use the printer in an environment between 20% and 80% relative humidity. To recover from moisture condensation, turn the printer Off, and, using the main roller as a reference, wait until the printer is completely dry before using it again.

## Belt Swelling

To prevent new belts from swelling incorrectly, keep them in their bags with desiccant until you need to install them.

## Cleaning the printer

To maintain the printer in good operating condition, keep it free of dust accumulation, ink, and other contamination. Cleaning intervals are determined by the printer environment and by the types of Printer supplies used.



**CAUTION:** The encoder strip used in this printer must never be cleaned, as cleaning it will cause irreparable damage, and will need to be replaced.

## Clean the exterior of the printer

Please refer to the *User's Guide*.

## Cleaning the Drive Roller and Platen Rollers



**CAUTION:** If ink is spilled on the Platen rollers, remove the ink immediately. Due to the ink's reflecting properties, ink on the Platen rollers can disrupt the ability of the sensor that detects the edge of the substrate. To remove ink from the Platen Rollers, perform the following procedure.

**CAUTION:** Prevent water or other liquids from running onto electrical components or circuits, or through openings in the Electronics Module.

1. Perform the Turn Drive Roller Utility (Refer to page 176).
2. Open the window and apply any common household cleaning solution (water based only) to a soft, lint-free rag and apply it to the Drive Roller and Overdrive surface while it is rotating. Make sure that you thoroughly clean the Drive Roller and Overdrive surface.
3. Press **Enter** when you have completed the cleaning procedure.
4. Allow the Drive Roller to dry before loading substrate in to the printer.

## Clean the Platen

Please refer to the *User's Guide*.

## Clean the Substrate-Advance Sensor window

Please refer to the *User's Guide*.

## Lubricate the Platen Rollers

Please refer to the *User's Guide*.

## Clean and lubricate the Carriage Rail

Please refer to the *User's Guide*.

## Scheduled Maintenance

In some segments of the printer market, the customer tends to print more than the maximum number of prints that the throughput allows, exceeding by far the limit of the design. When this happens the customer runs into print quality problems and continuous Printer failures.

The purpose of scheduled preventive maintenance is to avoid these failures - ensuring a good performance during all the product life.

## Level of Printer Usage

EEROM counters are assigned to counting the number of carriage cycles, carriage distance, service station cycles, and ink in the waste management module. When certain components of the printer exceed preset amounts of any of these counters, the front panel displays the following messages:

- “Service Maintenance #1 required” (related to Carriage cycles and distance)
- “Service Maintenance #2 required” (related to Service Station cycles)
- “Service Maintenance #3 required” (related to Carriage distance and ink into the Waste Management Module)

Once one of the maintenance advised messages is displayed, the appropriate service maintenance kit must be used to replace the most worn parts of the printer. Use the Removal and Installation Chapter of this Service Manual as a guide to replace the necessary parts.

### Service Maintenance Kit 1

This Service Maintenance Kit #1 includes the following parts (the list of parts may vary slightly):

- Encoder Strip and Sensor
- Ink Supply Tubes and Trailing Cable
- Carriage Assembly, without the PCA, SOL, Line Sensor, and metal parts, but including the Oiler
- Carriage PCA Cover
- Line Sensor
- Scan Axis Motor Assembly
- Belt and Tension Kit
- Media Jam Sensor
- Ink Funnel Roller Transmission
- Ink Maintenance Kit
- Two bottles of lubricant oil

Reset the SMK1 life counter, see page 187. Perform all user maintenance procedures after the replacement: cleaning and lubrication.

### Service Maintenance Kit 2

This Service Maintenance Kit #2 includes the following parts (the list of parts may vary slightly):

- Service Station, including the Service Station Motor, Drop Detector, Ink Funnel Roller Transmission, and Web Wipe Advance Assembly
- Ink Maintenance Kit
- Line Sensor
- Media Jam Sensor
- Belt and Tension Kit
- Carriage Oiler



- Two bottles of lubricant oil

Clean the IR sensors with a lint free cloth with solvent. Reset the SMK2 life counter, see page 187. Perform all user maintenance procedures after the replacement: cleaning and lubrication.

### **Service Maintenance Kit 3**

This Service Maintenance Kit #3 contains the following components:

- Ink Maintenance Kit
- Drop Detector and Ink Funnel Roller Transmission
- Line Sensor
- Platen Label
- Belt and Tension Kit
- Carriage Oiler
- Two bottles of lubricant oil

Clean the IR sensors with a lint-free cloth and solvent. Reset the SMK3 life counter, see page 187. Perform all user maintenance procedures after the replacement: cleaning and lubrication.

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# 10 Move, store, or repack the printer

- Move or store the printer .....596
- Repack the printer .....597

## Move or store the printer

If you need to move the printer or store it for an extended period of time, prepare it correctly to avoid possible damage.

1. Do not remove the ink cartridges, printheads, or printhead cleaning cartridge.
2. Make sure that no substrate is loaded.
3. Make sure that the printhead carriage is located in the service station (at the right-hand side of the printer).
4. Make sure that the Ready message appears on the front panel.
5. Turn off the power by using the Power button on the front panel.
6. Also switch off the power switch at the rear of the printer.
7. Disconnect any cables that connect the printer to a network, a computer, or a scanner.
8. If you have a take-up reel installed, remove the take-up reel sensor and cable-housing unit from the foot of the printer stand. When reinstalling the housing unit, make sure that the wheel on the foot of the printer stand is pointing forward.
9. If you intend to turn the printer upside down or on its side, first remove the waste management system (see the *User's Guide*).
10. Check the correct environmental storage conditions in the *User's Guide*.



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**NOTE:** If the printer or ink cartridges are moved from a cold location to a warm and humid location, water from the atmosphere can condensate on the printer parts and cartridges and can result in ink leaks and printer errors. In this case, wait at least 3 hours before turning on the printer or installing the ink cartridges, to allow the condensate to evaporate.

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## Repack the printer

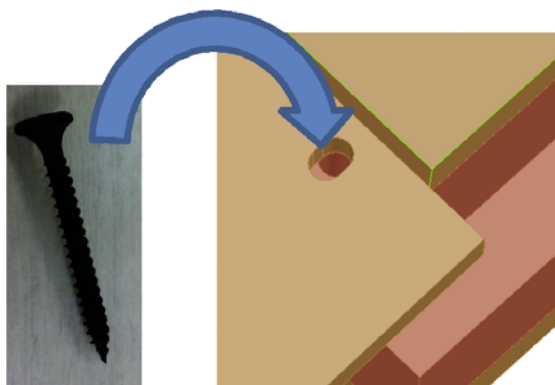
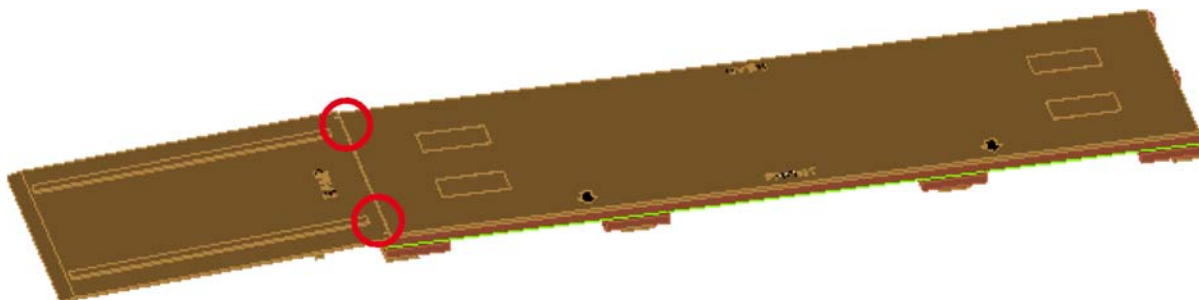
1. Follow the instructions for moving or storing the printer ⇒ page 596.



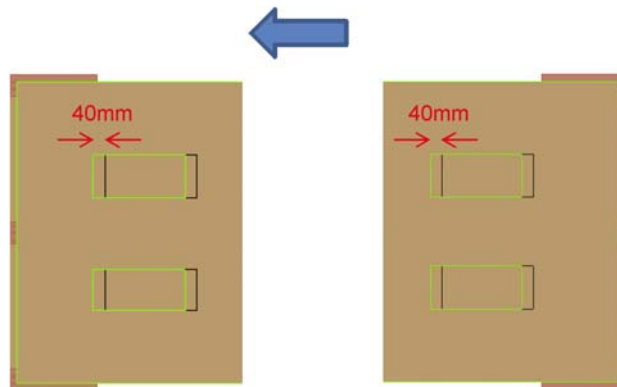
2. Ensure that the substrate edge holders are inside their bag.
3. Check that the pallet is not damaged, especially the runners below. Add the polyethylene sheet.



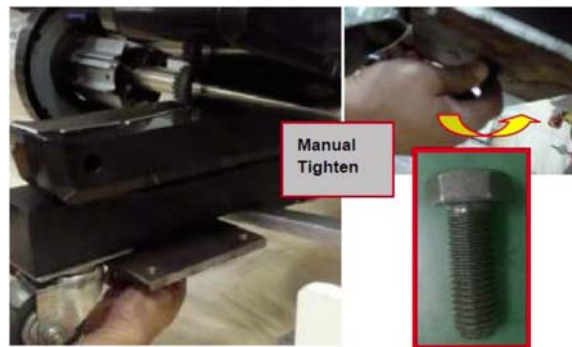
4. Use two of the screws normally used to attach the side panels to lock the ramp to the pallet.



5. Ensure that the ramp is securely attached before pushing the printer up the ramp onto the pallet. At least three people are needed for this operation.
6. Move each of the four cushion stands 40 mm as shown, parallel to the length of the printer. To move a cushion stand, lift one side of the printer at a time. Make sure you are not using the same fixing holes as the bolt bay slip by using the same holes in the pallet.



7. Insert 4 screws into the metal plate from below. You can use a spanner for this operation. Ensure that each screw is fully inserted and not slanting.



8. Lower the center bolt until it touches the pallet. Loosen further until the printer is lifted up about 15 mm. Add two cushion stands on each side. To add a cushion stand, lift one side of the printer at

a time. Once the cushion stand is added, tighten the bolt until it is completely inside the leg. You can use a spanner for this operation. Ensure that the screw is fully inserted and not slanting.



9. Insert 4 screws into the metal plate. Use a pneumatic gun or #17 spanner to tighten each screw at the rear of the leg.

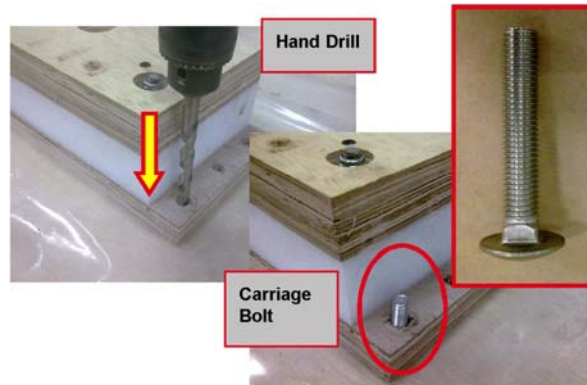


10. Use a #17 spanner to tighten the screws at the front of each leg. Ensure that each screw is fully inserted and not slanting; take care not to strip the threads.

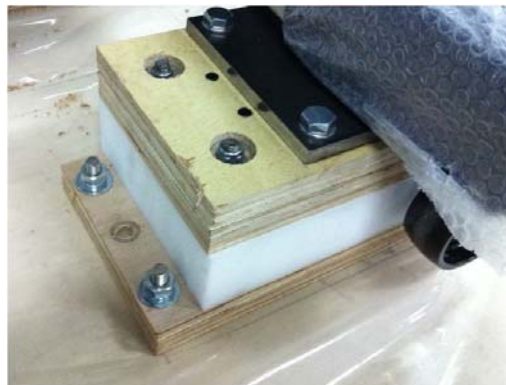




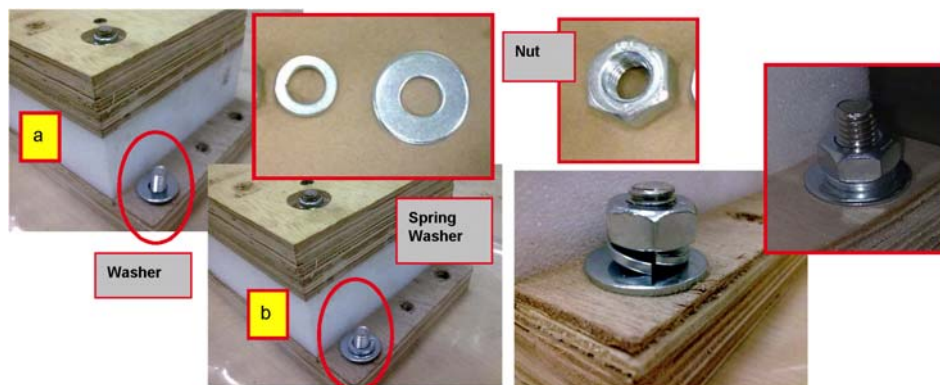
11. Use a hand drill with an 11 mm drill bit to drill a hole as shown below. Then insert a carriage bolt from the bottom of the pallet through the plywood.



12. Use 4 bolts per stand as shown: in total, 16 per printer.



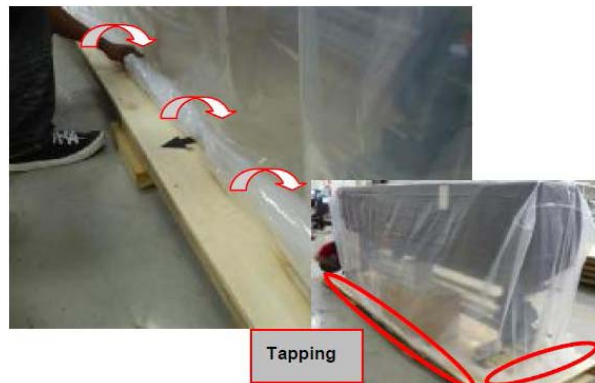
13. Insert a flat washer (a) and then a spring washer (b) to the carriage bolt that sticks out as shown. Add a nut on top of both. You can use a pneumatic gun or #17 spanner for this operation. Ensure that the nut is fully tightened and not slanting; take care not to strip the threads. This process is similar for all four cushion stands.



14. Cover the printer with the polyethylene bag.



15. The open ends of the cover and the sheet on the pallet should be sealed to prevent air leaks that could lead to rust. You can use clear plastic 2-inch tape for this purpose.



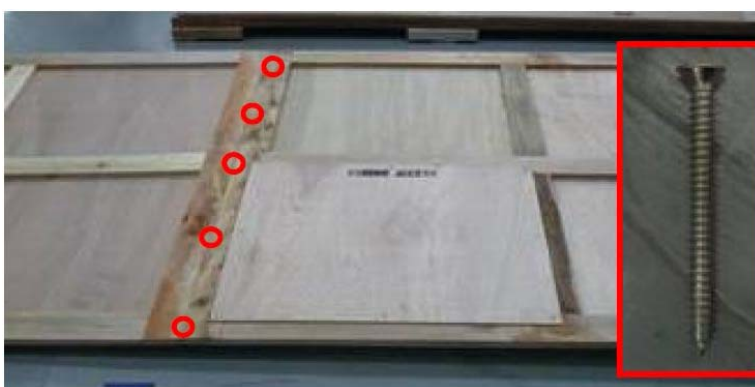
16. Put the Horizontal Beam (CQ871-00176) on the floor. Then put the Front Left/Rear Right Panel (CQ871-00172) on the Horizontal Beam. Ensure that the Panel is clean and undamaged, with no fungus growing on it.



17. Put the Rear PP Window Panel (CQ871-00204) together with the Front Left/Rear Right Panel as shown below. Ensure that the Panel is clean and undamaged, with no fungus growing on it.



18. Use a Torx screwdriver to put 5 screws (CQ871-20117) into the Rear PP Window Panel as shown below. Ensure that the screws are fully inserted and that there is no gap between panels.



19. Put the Front Right/Rear Left Panel (CQ871-00171) together with the Front Left/Rear Right Panel as shown below. Ensure that the Panel is clean and undamaged, with no fungus growing on it.



20. Use a Torx screwdriver to put 5 screws (CQ871-20117) into the Front Right/Rear Left Panel as shown below. Ensure that the screws are fully inserted and that there is no gap between panels.



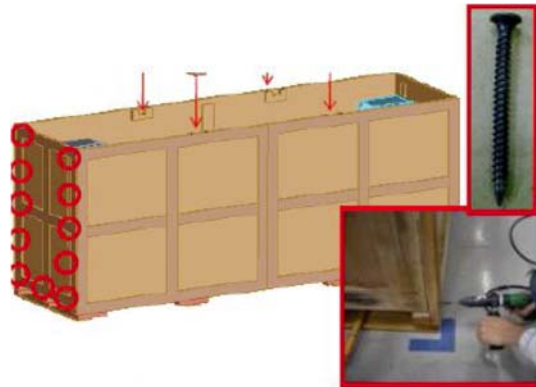
21. Move the panels into place around the printer.



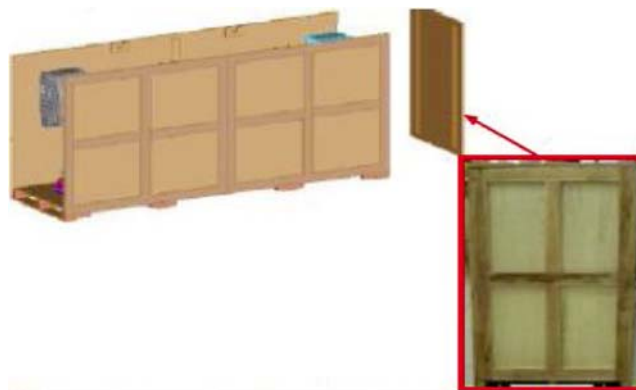
22. Attach the panels to the pallet with 6 lag bolts on each side. You are recommended to add a 5 mm drill hole before adding each bolt. Attach the right and left panels with screws to the front and the rear panel.



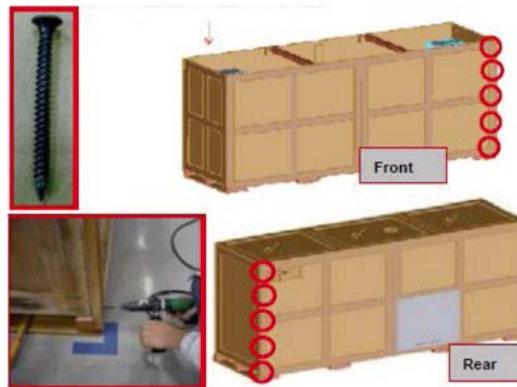
23. Use a pneumatic gun to screw the Ramp Panel to the Front and Rear Panels as shown below. Ensure that the screws are fully inserted.



24. Place the Left/Right Panel (CQ871-00174) at the opposite end from the Ramp Panel. Ensure that the Left/Right Panel is properly inserted into the Front and Rear Panels.

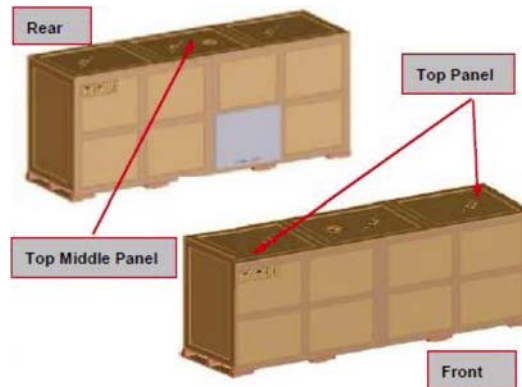


25. Use a pneumatic gun to screw the Left/Right Panel to the Front and Rear Panels as shown below. Ensure that the screws are fully inserted.

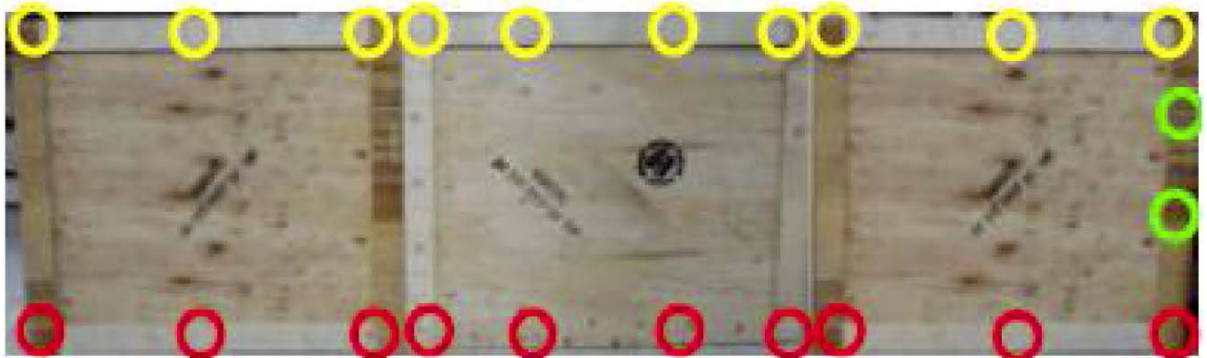
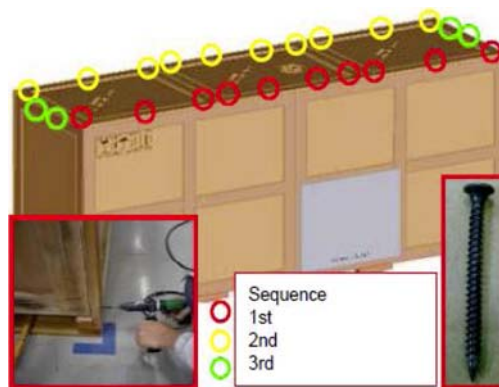




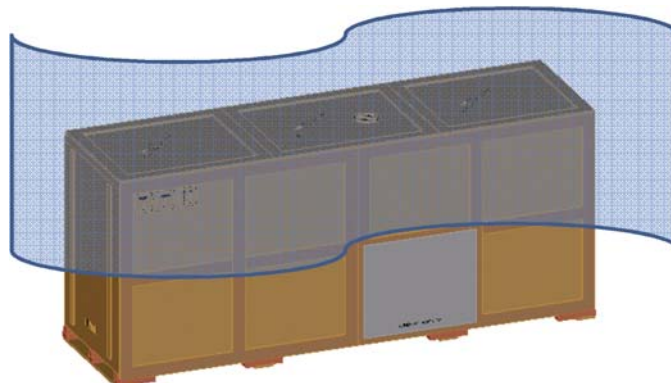
26. Place the two Top Panels (CQ871-00203) and the Top Middle Panel (CQ871-00251) on the Horizontal Beam as shown below. Ensure that the Foot Mark and Warning messages are displayed.



27. Use a pneumatic gun to screw the top panels to the other panels as shown below. Ensure that all the screws are fully inserted.



28. Add a polyethylene sheet as a cover.





29. Use packaging tape to secure the open ends as shown below.



# 11 Safety precautions

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• Heat hazard .....	608
• Fire hazard.....	608
• Mechanical hazard .....	609
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• Lifting and handling .....	609
• Warning labels.....	610

## General safety guidelines

Before servicing the printer, read the following safety precautions to make sure that you work on the printer safely.

- Refer to installation instructions removing and replacing parts.
- Whenever servicing the printer, turn off the printer, disconnect **both** power cords from the power sockets.

Service personnel are expected to have appropriate technical training and experience necessary to be aware of hazards to which that person may be exposed in performing a task and takes appropriate measures to minimize the risks to that person or other persons.

## Electrical shock hazard



**WARNING!:** The drying and curing modules operate at hazardous voltages capable of causing death or serious personal injury.

The printer uses two power cords. Disconnect both power cords before servicing the printer.

- To avoid the risk of electric shock do not attempt to dismantle any of the components of the printer with the two power cords connected to the printer.

## Heat hazard

The drying and curing subsystems of the printer operate at high temperatures and can cause burns if touched. To avoid personal injury, take the following precautions.

- Do not touch the internal enclosures of the printer's drying and curing modules when they are hot. Even after opening the window lock which disconnects drying and curing power, the internal surfaces could be hot.
- Take special care when accessing the substrate path.

## Fire hazard

The Dryer Assembly and Curing Module operate at high temperatures.

To avoid the risk of fire, take the following precautions.

- Check that the power supply voltage specified on the nameplate is the one being used by the customer.
- Make sure the power cords use are from dedicated power lines, each protected by a branch circuit breaker according to the rating of the wall socket. Do not use a power strip (relocatable power tap) to connect both power cords.
- Check that the power cords are supplied by HP with the printer. Do not use a damaged power cord. Do not use the power cords with other products.
- Do not use aerosol products that contain flammable gases inside or around the printer.
- Do not block or cover the openings of the printer.
- Ensure that the operating temperature of the substrate loaded recommended by the manufacturer is not exceeded. If this information is not available from the manufacturer, do not load substrates that cannot be used at an operating temperature under 125°C (257°F).

- Do not load substrates with auto-ignition temperatures below 300°C (572°F). See note below



Test method based on EN ISO 6942:2002; Evaluation of materials and material assemblies when exposed to a source of radiant heat, method B. The test conditions, to determine the temperature when the substrate starts ignition (either flame or glow) were: Heat flux density: 30 kW/m<sup>2</sup>, copper calorimeter, K type thermocouple.

## Mechanical hazard

When the carriage moves, it can crush or cut body parts if they are in the way.

### Best practice

- Keep your clothing or body parts safe from moving parts of the printer.
- Avoid wearing loose clothing, jewelry like necklaces or bracelets, or any kind of hanging objects.
- If you have long hair, make sure that it is restrained.
- Take care that sleeves and gloves do not get caught in the mechanical parts of the printer.
- Stay clear of the print path when the carriage is moving.
- Also make sure that there are no tools obstructing the operation of the printer.

## Scan Axis Encoder Strip hazard

The Scan Axis Encoder Strip is very sharp, and can easily cut your hands when you must work near it.

### Best practice

- Wear protective gloves if you must touch the Scan Axis Encoder Strip.
- Do not wear loose clothing or jewelry.

## Burn hazard (heating and curing)

The components of the heating and curing systems get very hot and can seriously burn you.

### Best practice

- Be careful when you work near the print path.
- Before working on the heating and curing modules, make sure that they are completely cooled off.


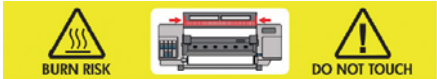






## Lifting and handling

Improper handling of heavy materials can lead to serious bodily injury.

### Best practice

- When handling substrate rolls, care must be taken to avoid back strain and/or injury.
- Always use a forklift, pallet truck, or other handling equipment to lift substrates.
- Always wear personal protective equipment like safety boots and gloves.
- Follow any manpower instructions included in this service manual when you replace components. Many components, require at least two people for removal.

## Warning labels

Label	Description
	Risk of burns. Do not touch the internal enclosures of the drying and curing modules.
	Risk of burns. Do not touch the drying enclosure of the printer. Even after opening the window latch, which disconnects the power to the drying and curing modules, the internal surfaces could be hot.
	Electric shock hazard. The printer has two input power cords. A voltage is still present in the drying and curing modules after the main switch is turned off. Disconnect all power cords before servicing.
	See installation instructions before connecting to the supply. Ensure that the input voltage is within the printer's rated voltage range. The printer requires two dedicated lines, each protected by a branch circuit breaker according to the rating of the wall socket outlet. Use only earthed mains outlets and the power cords supplied by HP with the printer.
	Risk of trapped fingers. Do not touch spindle gears while moving.
	Risk of trapped hands. Do not push the roll while loading.
	Do not put objects on top of the printer. Do not cover the fans.
	You are recommended to wear gloves when handling ink cartridges, printhead cleaning cartridges and the printhead cleaning container.