



i n v e n t

**HP**

**DesignJet 5000 Series**

**Large-Format Printers**



# Service Manual

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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 prior to 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 8 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 5000 Series**

**Large-Format Printers**



# **Service Manual**

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## Using this Manual

### Purpose

This Service Manual contains information necessary to test, calibrate and service:

- HP DesignJet 5000 Printer - 42" Model (P/N C6090A)
- HP DesignJet 5000 Printer - 60" Model (P/N C6095A)
- HP DesignJet 5000PS Printer - 42" Model (P/N C6091A)
- HP DesignJet 5000PS Printer - 60" Model (P/N C6096A)

For information about using these printers, refer to the corresponding User and Quick Reference Guides.

### Readership

The procedures described in this Service Manual are to be performed by HP-qualified Service Personnel only.

### Part Numbers

Part Numbers for Printer options, accessories and service parts are located in Chapter 7.

### Conventions

A small arrow  $\Rightarrow$  is used to indicate other parts of the Service Manual where you can find information related to the topic you are consulting.

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# Troubleshooting

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# Guide to Troubleshooting the Printer

## Introduction

This chapter will guide you through the relevant steps to take when troubleshooting the Printer.

## Phone Support

In certain circumstances, a Call Agent can try and troubleshoot the Printer by requesting the Customer to perform a Service Calibration, Test or Utility via the phone. Using this process, it can be determined whether the Printer requires any on-site maintenance.

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## Troubleshooting System Error Codes

Chapter 2 - *System Error Codes* - contains 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 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).  
Check firmware in *Utilities / Statistics / Code rev.*
- The complete error number (See Note below).
- The Service Configuration Print ⇒ Page 1-26
- The Current configuration sheet.
- Which software application the customer is using (name, version, etc.).

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### NOTE

**When reporting the System Error Code, make sure that you supply the full Error Code (including the last 8 numbers where applicable) and the firmware version. Without this information, HP Support Personnel cannot help you.**

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## 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.

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### 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 Chapter 4, *Service Tests and Utilities*.

---

## Performing the Necessary Service Calibrations

Is the Printer calibrated correctly after replacing a component? Refer to the table on Page 5-2 to determine when a calibration is required.

---

### NOTE

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

For information on the Service Calibrations and how to use them see 5, *Service Calibrations*.

---

## Troubleshooting Calibration Error Codes

Chapter 5 - *Service Calibrations* - contains a list of Error Codes that are reported when a Calibration fails.

Calibration error codes consist of a four digit number [XXXX].

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.
- The complete error number.
- The Service Configuration Print if possible ⇒ Page 1-26.

- The Current configuration sheet.
- A Diagnostic Print.
- The Media being used when the error occurred.

---

**NOTE**

**When reporting the Error Code, make sure that you supply the full Error Code and the firmware version (displayed during the initialization process when powering ON the Printer or available in the User's Printer Setup ⇒ Utilities ⇒ Statistics menu).**

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### Troubleshooting Ink Supplies Error Codes

Chapter 3, *HP Ink Supplies Troubleshooting*, contains a list of Error Codes that are reported for Ink Supplies i.e. Ink Cartridges, Printheads and Printhead Cleaners. The error codes are described and recommended corrective actions are provided. Only try one recommended action at a time and check if the error code has disappeared.

Ink Supplies error codes consist of a four digit number [XXXX].

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### Troubleshooting Initialization - Self Diagnostic Errors

Chapter 4 - *Service Tests and Utilities* - describes the Printer initialization sequence and reports errors that may be reported when Printer initialization is performed.

Self Diagnostic error codes consist of seven alphanumeric characters [XXXXXXXX].

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.
- The complete error number.



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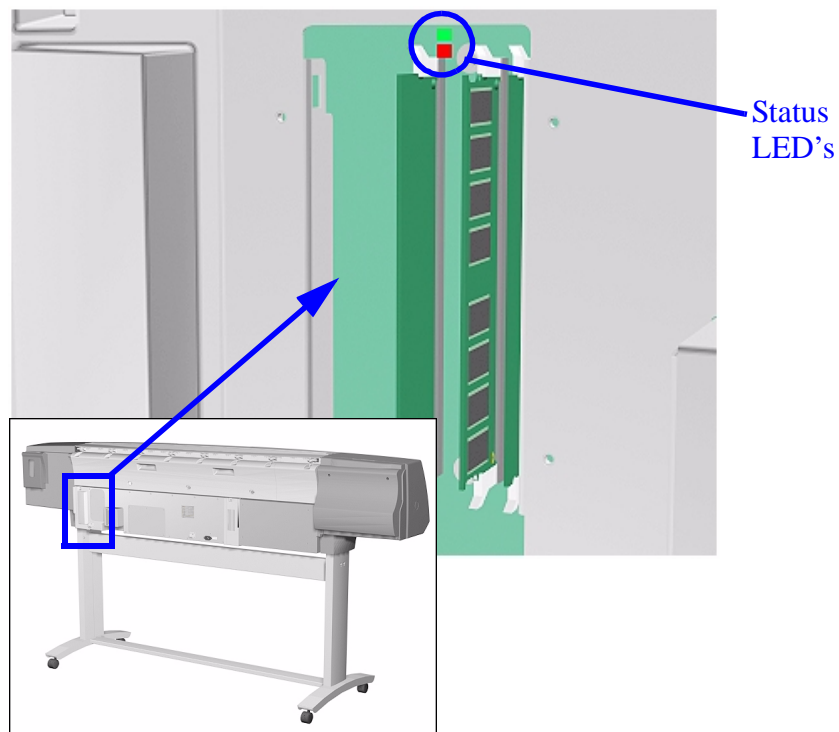
## Solving Image Quality Problems

Whenever an Image Quality problem appears, it is advisable to print the Diagnostic Print. This will help you differentiate between possible Printhead errors and other problems such as incorrect front-panel selection, driver or RIP configuration or mechanical problems. For information on solving Image Quality problems see Chapter 6, *Print Quality*.

---

## The Printer does not Power ON

1. Check that the Power Cord is connected correctly to the Printer and to the Power Socket.
2. Check that the Power Switch on the BACK of the Printer is in the ON position.
3. Remove the DIMM's Cover (See ⇒ Page 8-73) and check the green and red Status LED's on the Main PCA. If they are both NOT lit, replace the Power Supply Unit ⇒ Page 8-81.



4. Check that the Front-Panel Cable is correctly connected to the Electronics Module. Also make sure that the Front-Panel Cable is not damaged.

## **ALL the Front-Panel LEDs are Lit but Nothing Else Happens**

The BootROM DIMM is NOT correctly installed or is the wrong type.

1. Power OFF the Printer from the back and disconnect the Power Cord. Reseat the BootROM DIMM (looking from the rear of the Printer, the first slot from the left - See ⇒ Page 8-73) making sure that it is installed correctly.
2. If the problem persists replace the BootROM DIMM ⇒ Page 8-73.

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## **Troubleshooting Media Jams/Printhead Crashes**

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### **NOTE**

**If using HP Coated Media when problem occurred, please also refer to *Page 1-10*.**

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

1. Did the media jam occur when loading media?
  - If the client has had media jams, it is common for pieces of media to get stuck in the media path. Clear the media path.

---

### **NOTE**

**When clearing a media jam, sometimes media is stuck in the paper path. To clear this, you must lift the media lever and insert thicker media into the paper path to push out the media that is still stuck there.**

2. Is the customer using non-HP media?
  - The use of non-HP media can easily be the cause of media jams and head crashes (especially head crashes because HP media is specially formulated to avoid cockle, one of the primary causes of head crashes). If the media is not HP approved, advise the customer to use HP media and check to see if the problem is now solved.
3. The Carriage is at the incorrect height in relation to the Center Platen. Adjust the carriage to the correct height ⇒ Page 5-18 and try to load the media again.
4. Check that the Vacuum Fans work correctly - **Refer to *Page 1-9, Problems with Vacuum*** .

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## Troubleshooting Shutdowns

If a shutdown occurs, you will get the message “Switch Power Off” followed by:

- Check Printhead Cleaner Path.
- Check Paper Path.
- Check Printhead Path (followed by (1), (2) or (3)).

A shutdown in each path will require different steps to resolve the problem as explained as follows.

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### **WARNING**

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**In each case, make sure that you power OFF the Printer before attempting any procedures to resolve the problem.**

#### **Printhead Cleaner Path**

1. Open the right door of the Printer and check for any visible obstacles restricting the movement of Service Station. Manually move the Service Station, checking for smooth and free movement.

#### **Media Path**

When a shutdown occurs in the Media path, you will get the message “Switch Power Off / Check Media Path (\*). The (\*) will be a number, which will give an indication on where the failure occurred:

1. Open the Window and check for any visible obstacles restricting the movement of the Drive Roller. If there is a wrinkled mass of media inside the paper path, lift the Pinch wheels (using the Media Lever) and clear the obstruction. If you cannot reach the media remove the Entry Roller (⇒ Page 8-104) to gain better access.
2. If this shutdown happens at the end of a Roll of Media, it could be because the media is stuck firmly to the Roll. Lift the Pinch wheels (using the Media Lever) and pull the media clear.
3. Perform the Media Axis Test ⇒ Page 4-12.

#### **Printhead Path**

When a shutdown occurs in the Printhead path, you will get the message “Switch Power Off / Check Printhead Path (\*). The (\*) will be a number, which will give an indication on where the failure occurred:

1. Switch the Printer OFF from the rear and open the window.

2. Look in the area where the Printer was printing at the time of the jam, this is where the media is most likely to be jammed.
3. Raise the media load lever.
4. Carefully remove any of the jammed media which you can lift up and out from the top of the Printer.
5. Carefully pull the rest of the roll or sheet down and out of the Printer.
6. If you are using a roll of media, trim the media with a knife as shown in the User's Guide.
7. Reload the media.
8. Switch the Printer ON.
9. If there is some media left behind in the media path, loading paper can become difficult. This can be cleared by loading a rigid paper type through the Printer media path.
10. If you have image quality problems after a paper jam, this could indicate that the Printheads have been moved from their correct position in the Carriage. To correct this perform Printhead Alignment - Refer to the User's Guide.

### **PWM Shutdown (1) and Energy Shutdown (3)**

1. Clean Slider Rods and Apply Oil along the complete axis of the Slider Rods with the User's Slider Rods Lubrification Kit ⇒ Page 9-8. After applying the Oil, perform the Scan-Axis Test ⇒ Page 4-10 and check that the values are within the given limits.
2. Replace the Scan-Axis Motor ⇒ Page 8-53.

### **Velocity Shutdown (2)**

1. Open the Window and check for any visible obstacles restricting the movement of the Carriage Assembly. Try and move the Carriage Assembly manually, checking for smooth and free movement.
2. Check that the Encoder Strip is clean. If necessary, clean the Encoder Strip using a damp cloth.

## Problems with Vacuum

If you have problems loading either Roll or Sheet Media, then there could be a problem with the Vacuum Fan or Booster Fan. To verify if there really is a problem with Vacuum, try the following:

1. With the Printer ON, open the Window of the Printer and place a sheet of HP High Gloss Photo Paper (must be D-Size), aligned with the blue lines on the Center Platen. If the Vacuum holds the sheet in place, and then loads it correctly, then the Fans function correctly. If the Vacuum does not hold the sheet in place (no suction), then try the following:
  - Check that the holes in the Center Platen are NOT blocked.
  - Clean the Overdrive using the Platen Cleaning Utility ⇒ Page 9-9.
  - Check that the Vacuum and Booster Fans are installed correctly.
  - Replace the Vacuum Fan ⇒ Page 8-96.
  - Replace the Booster Fan ⇒ Page 8-101.
2. If the Vacuum held the sheet in place, but couldn't correctly load it, then there could be a problem with the Overdrive. In this case, replace the Center Platen Assembly ⇒ Page 8-110.

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## Vacuum suction much lower at high altitudes

At altitudes above 2,000 meters, the vacuum force holding down the media will be lower, therefore the media will not be held in place properly causing:

- Ink Smearing on the Media.
- Printhead crashes against the Media.
- Cut Sheet loading problems (high probability).
- Roll Media loading problems (low probability).

To solve the problem, try the following:

- Using the “1.3 Altitude Setup” in the Service Utilities, set the altitude to “1.3.2 2000 m or more” (see Altitude Setup 4-23).

## **Printhead Crashes/Smears on High Density Prints Using Coated Media**

High density prints can cause cockle mainly on HP Coated Media. This causes two main problems:

1. Cockling in the borders - Because the Printer places too much ink on the Coated Media, the borders of the print become raised, causing the Printhead to crash against the media. To solve the problem, try the following:
  - Check in the Front Panel if print mode is **Max. Quality**. If it is selected, then change print mode to **Productivity** to reduce ink density.
  - Change the paper margins to “Extended” in the Printer Setup menu/Page Format/Margins or in the Driver. If the customer is printing PostScript images, send them a PPD file containing the extended margins.
2. Cockling within the print - If the Printer places too much ink within the print, the media starts to ripple, causing the Printhead to smear against the media. To solve the problem, try the following:
  - Check in the Front Panel if print mode is **Max. Quality**. If it is selected, then change print mode to **Productivity** to reduce ink density.
  - Never use HP Coated Media for High Density prints. As a substitute use HP Heavy Weight Coated or Heavy Weight Coated (Economy) Media.

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## **Color differences in different HP DesignJet Printers**

Color differences between one image printed on the HP DesignJet 5000 Series and the rest of the DesignJet platforms are due to the different chemistry of the 5000 series inks compared with the rest of the inks for other printers. This color variability among different HP DesignJet Series Printers has been always present. You can try to achieve consistent colors with the following:

- Select the same color emulation settings in your Postscript Driver as the one used by the printer you want to emulate.
- Select the correct Ink Emulation from the Printer Setup Menu/Internal RIP Settings.

## **Banding at variable extreme environmental conditions**

The Accuracy Calibration has been done at normal environmental conditions, therefore printing in extreme environmental conditions will cause banding because the advance of the Drive Roller does not correspond to the same conditions that the calibration was done in. To solve the problem, try the following:

- Perform the Accuracy Calibration in the new environmental conditions (Refer to the User's Guide - Media Solutions).

---

## **Banding with unsupported Media**

The Accuracy Calibration has not been done for the Media now loaded. Banding may occur because the advance of the Drive Roller does not correspond to the same conditions that the calibration was done in. To solve the problem, try the following:

- Select the Media loaded in the "Media Options" menu and perform the Accuracy Calibration (Refer to the User's Guide - Media Solutions).

---

## **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 media 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.

### **Hue shift on HP Colorfast Adhesive Vinyl media**

Under high humidity conditions (approx. >65%) the colors tend to fade over time, particularly colors that require Magenta. To solve the problem, try the following:

- Reduce the level of humidity (<65%) that the Printer is working in. To find the humidity level, print the Service Configuration Print (*Printer Setup Menu / Utilities / Test prints / Service config*).
- Laminate the prints.

---

### **Black Smearing on HP Photo Imaging Gloss**

Narrow black lines can smear on this type of media, particularly if the lines are narrow and have white gaps in between them. Try the following:

- Increase the Dry Time using the Front Panel (Refer to the User's Guide).
- Laminate the prints.

---

### **Magenta Bleeding on HP Photo Imaging Gloss when using the Take Up Reel**

Under high humidity conditions (approx. >70%) this media reduces its capacity to absorb Magenta because of this color's particular characteristics. When an area fill with magenta is printed and then rolled onto the Take Up Reel the ink that is not completely dry moves laterally on the media. To solve the problem, try the following:

- Reduce the level of humidity (<70%) that the Printer is working in. To find the humidity level, print the Service Configuration Print (*Printer Setup Menu / Utilities / Test prints / Service config*).
- Increase the Dry Time using the Front Panel (Refer to the User's Guide).
- Do not use the Take Up Reel or Bin for this media when humidity levels are high.



## Loss of Gloss on HP Photo Imaging Gloss when using the Take Up Reel

Under high humidity conditions (approx. >70%) the polymer chain in the coating of this media relaxes and the drying rate decreases. If the printed media is rolled onto a Take Up Reel or is covered by another print, the contact between the two surfaces could cause blotches in the gloss. Try the following:

- Reduce the level of humidity (<70%) that the Printer is working in. To find the humidity level, print the Service Configuration Print (*Printer Setup Menu / Utilities / Test prints / Service config*).
- Increase the Dry Time using the Front Panel (Refer to the User's Guide).
- Do not use the Take-Up Reel or Bin for this media when humidity levels are high.

---

## Dry Cockle on High Density Prints Using Paper Based Media

High density prints can cause dry cockle mainly on Paper Based Media.

To solve the problem do the following:

- Use the Take Up Reel and Take Up Reel deflectors.
- Set the Printer to **Productivity** mode to reduce the ink density.
- Select Coated media modes.

If the problem persists, try the following:

- Laminate the prints.
- Use a heavier media that is more suitable to high ink density, such as HP Paper based Semi-Gloss or HP Poster Paper.

### **Wrinkles and scratches (cockle) when using HP Coated and Heavyweight Coated Media.**

Images may be damaged if prints are not handled with care, particularly when handling wide plots. This can happen when images are placed on top of one another and there is movement between them, causing friction and loss of ink from the surface if it is not completely attached. Also, if plots are rolled up wrinkles can occur. To avoid this problem try the following:

- Always handle plots with care.
- Use of the Take-Up Reel eliminates handling and avoids wrinkles.
- Use heavier media.
- Select faster print modes such as Heavyweight Coated (Economy) for Media selection and/or **Productivity** Print mode.
- If damage is slight, Lamination will help towhead' defects.
- Use of Fixative Sprays immediately after printing may protect the image.

---

### **Worm marks (cockle) on part of plots on paper based media**

At high temperatures and under dry conditions worm marks may occur on initial parts of plots when printing solid fill areas in medium tone colors. Try the following:

- Advance the media manually by 15 mm.
- Select Heavy Coated for Media setting.
- Select **Productivity** mode to reduce ink density.

## **Drying Time Too Long for HP Studio Canvas**

Under conditions of high humidity (> 70%) HP Studio Canvas retains a high amount of water and takes too long to dry, also creating problems in using the Take-Up Reel and Bin. To solve the problem try the following:

- Reduce the level of humidity (<70%) that the Printer is working in. To find the humidity level, print the Service Configuration Print (*Printer Setup Menu / Utilities / Test prints / Service config*).
- Increase the drying time using the Front Panel settings (Refer to the User's Guide).
- Do not use the Take-Up Reel or Bin under conditions of high humidity.

---

## **Media Skew when Printing a Banner Plot**

When printing banners, media skew occurs. This is particularly noticeable in the first plot when media is not perfectly aligned. To solve this problem do the following:

- Use extended margins for banner plots (Refer to the User's Guide).

## Solving Media-Handling Problems

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### NOTE

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**HP Designjet Printers minimum media size is A3 in portrait mode.**

### The Front Panel Keeps Indicating that Media Is Misaligned or Incorrectly Positioned

#### Roll media

- The roll may be loaded the wrong way. The paper should load over the roll toward you.
- The media may be crumpled or warped or have irregular edges.
- The paper may be loaded at an angle. The right-hand edge must be parallel to the blue line on the paper entry roller.

---

### WARNING

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**Ensure that the paper is wrapped tightly on the roll. This is a very important step to remember because if this is not done, the media may be loaded at an angle, causing the media to be rejected.**

#### Sheet media

- Perform the manual alignment procedure (Refer to the User's Guide).
- Check that the paper is correctly loaded onto the spindle.
- It must be loaded with the right-hand edge against the blue perforated line on the Printer.
- Align the media against the trailing edge coming out of the Printer.
- The media may be crumpled or warped or may have irregular edges.
- If you are using hand-cut media, the edges may not form a right-angle or they may be rough. Do not use hand-cut media. Use only purchased sheet media.
- If the media you are trying to load is very slippery, hold the media with both hands, and gently push the media into the Printer until it buckles upwards in the middle, this will help the Printer to load it.
- If the Overdrive is covered in dust, it will have problems picking up the sheet media during the load process. Clean the Overdrive using the Platen Cleaning Utility ⇒ Page 9-7.

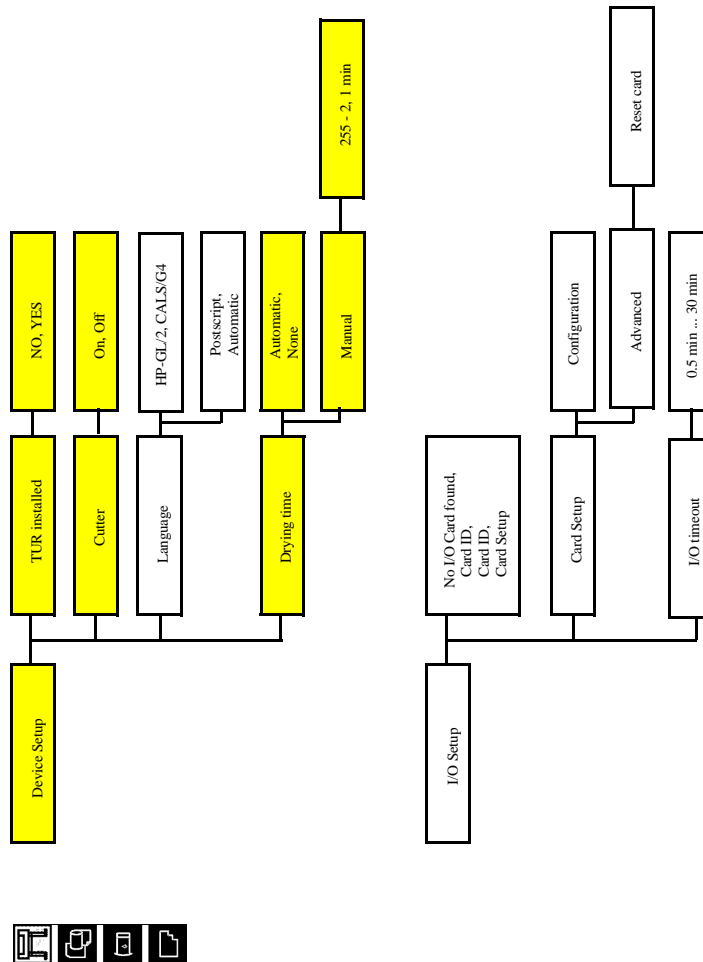
#### Prints Do Not Stack Properly in the Media Bin

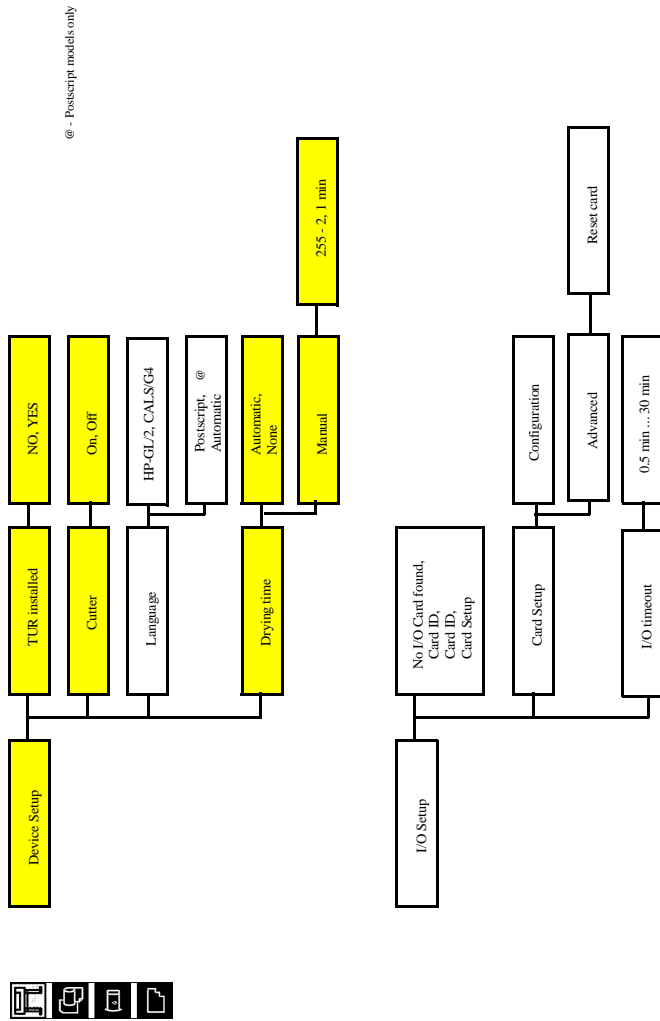
- The Printer may be too close to the end of the roll. The natural curl near the end of the roll can cause stacking problems. Load a new roll or remove prints manually as they are completed.
- If you are mixing prints or nesting sets of several different sizes, you may have stacking problems because of the different sizes of media in the bin.

## How to Navigate through the Front Panel Menus

Shaded boxes always appear in the front panel. White boxes appear only in **Full** menu mode.

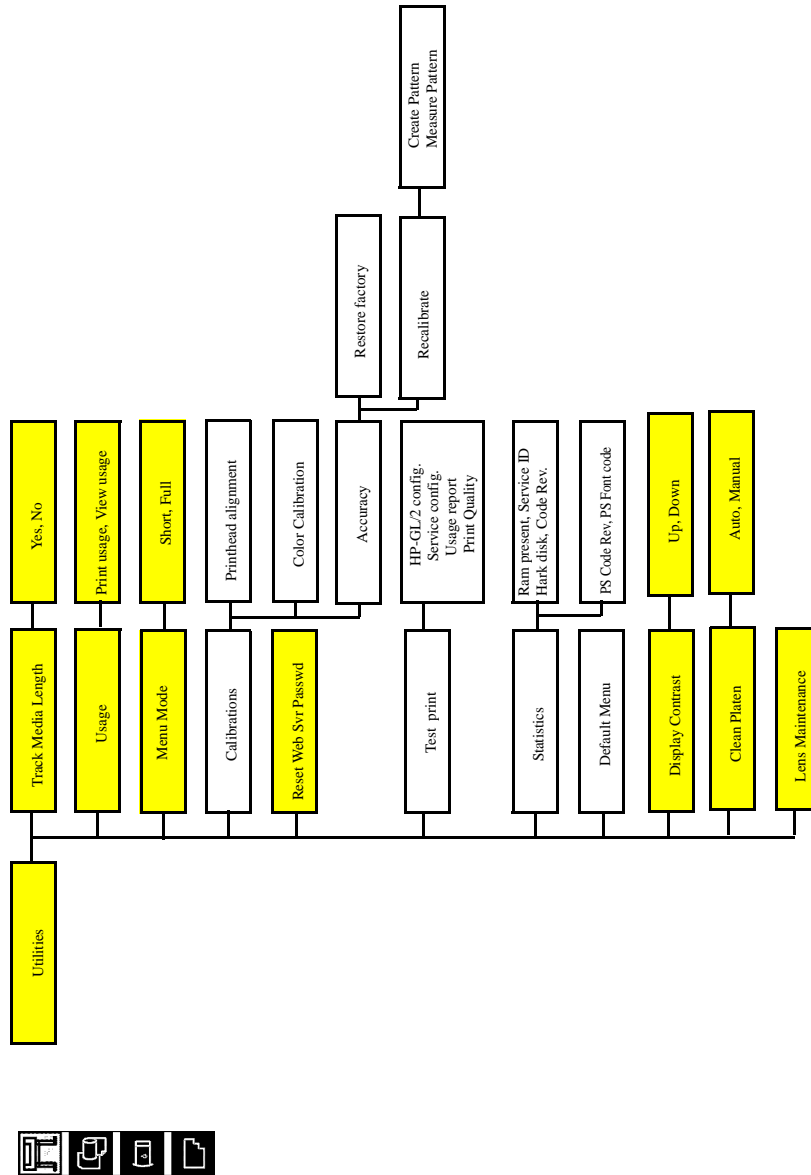
### Printer Setup Options

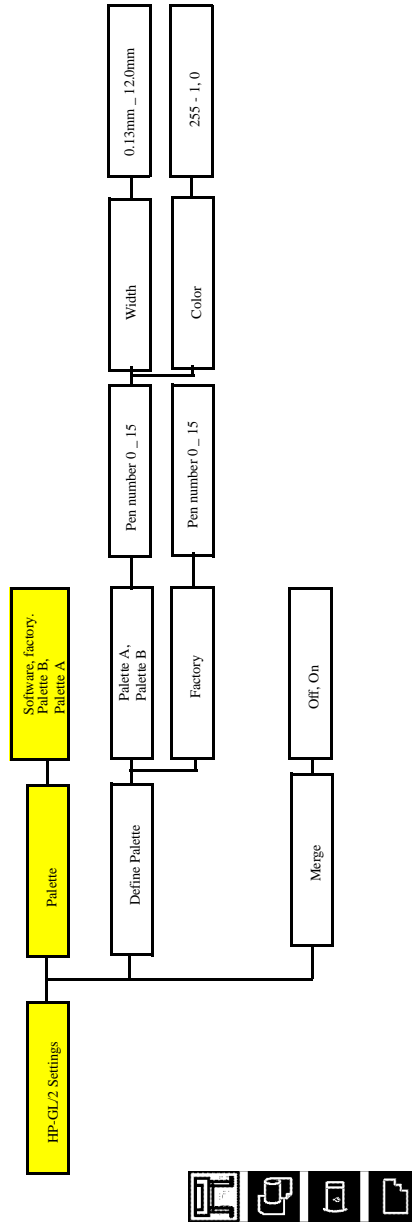




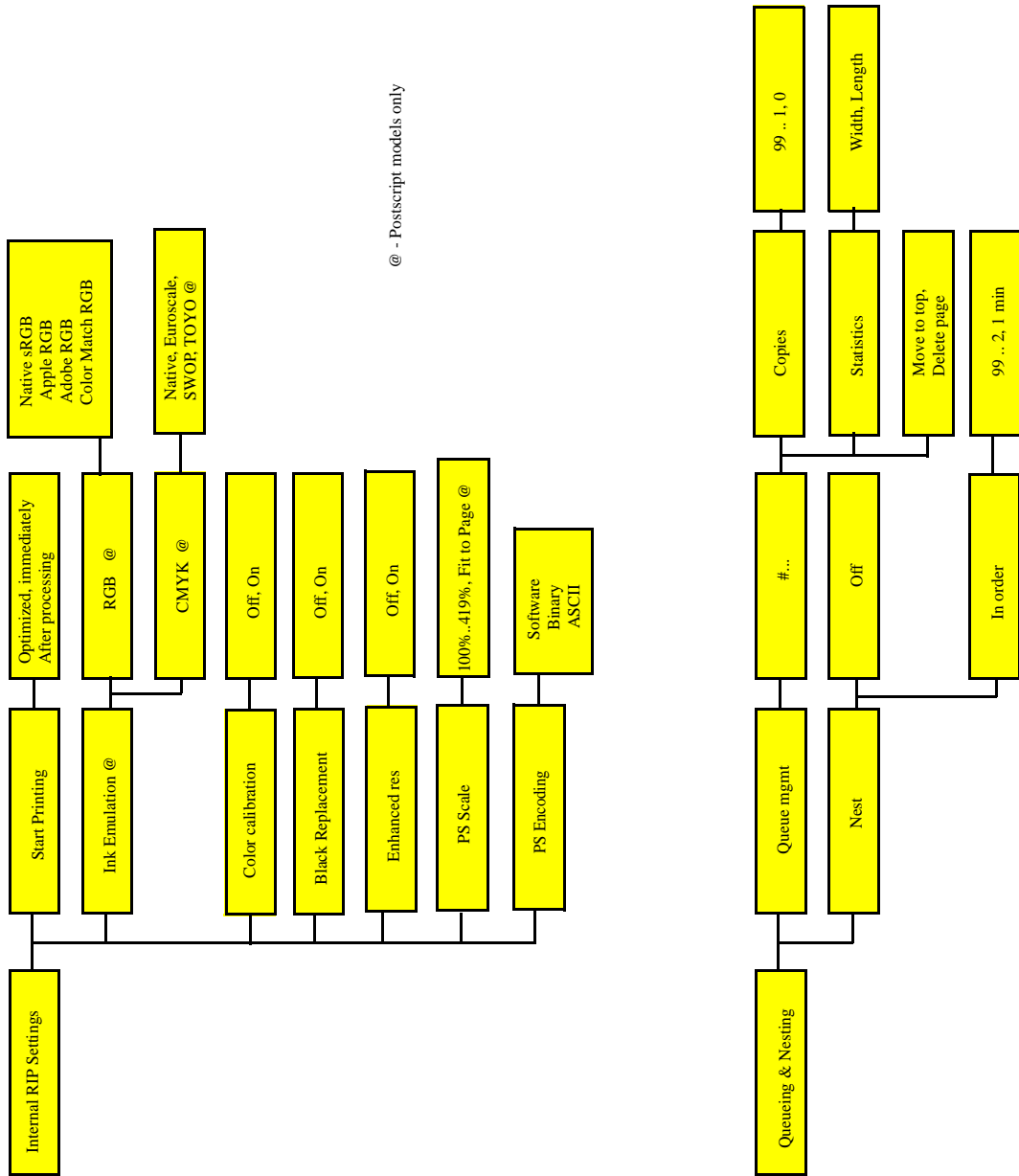
@ - Postscript models only



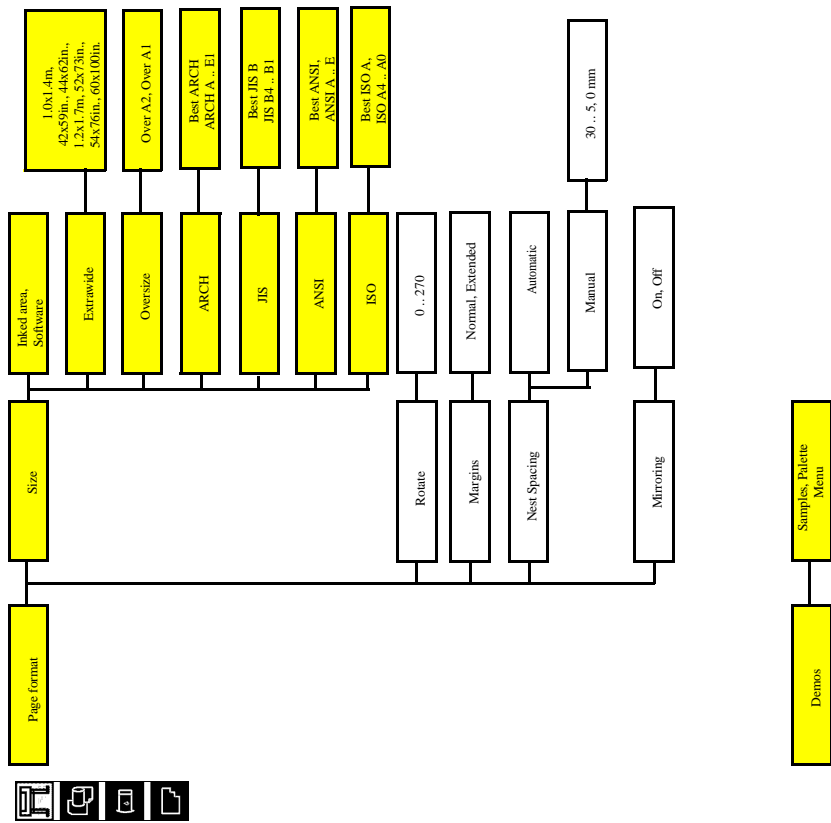




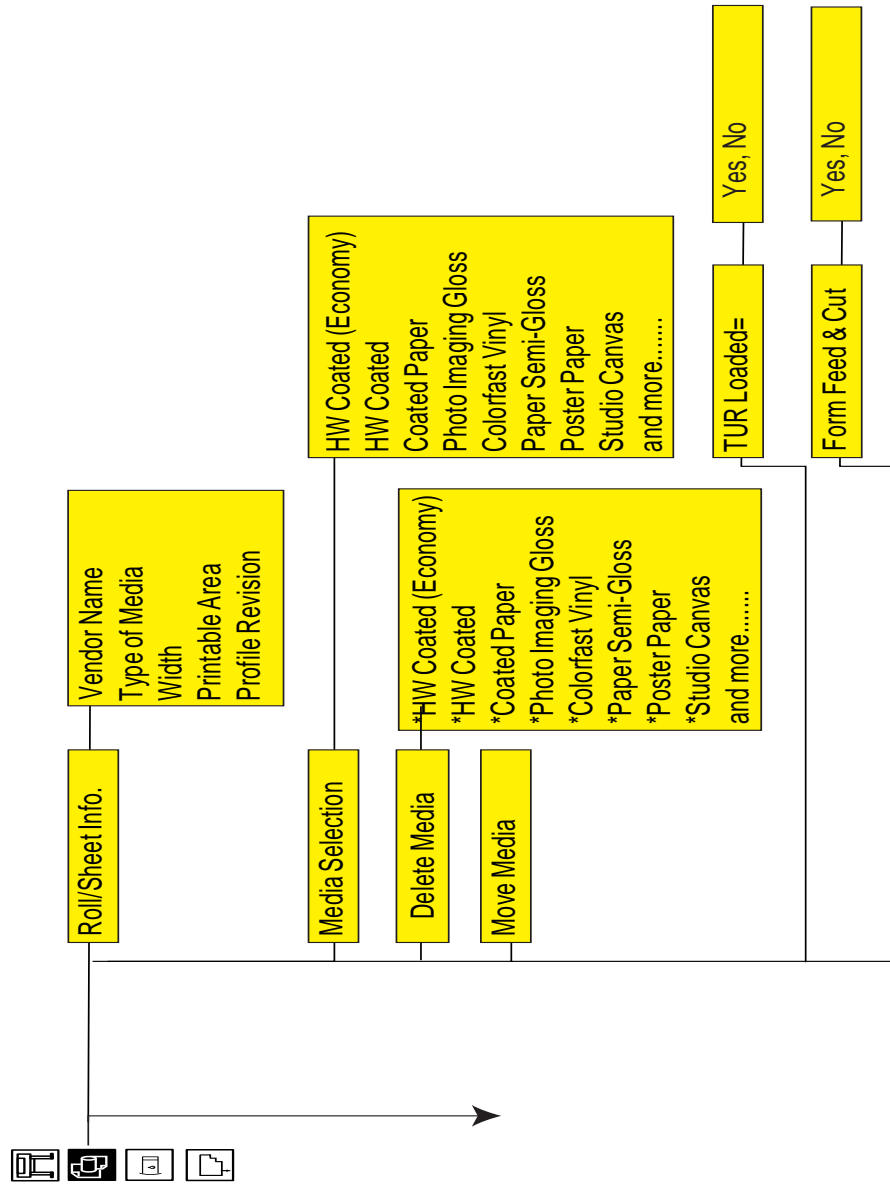




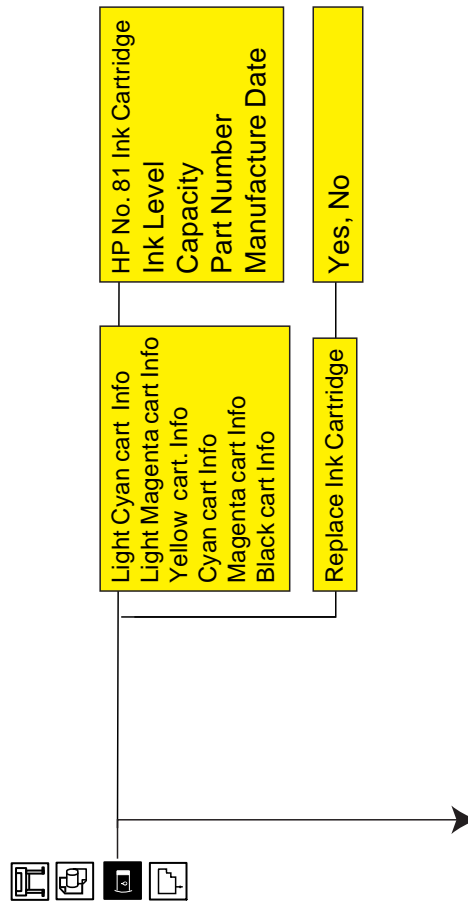
@ - Postscript models only



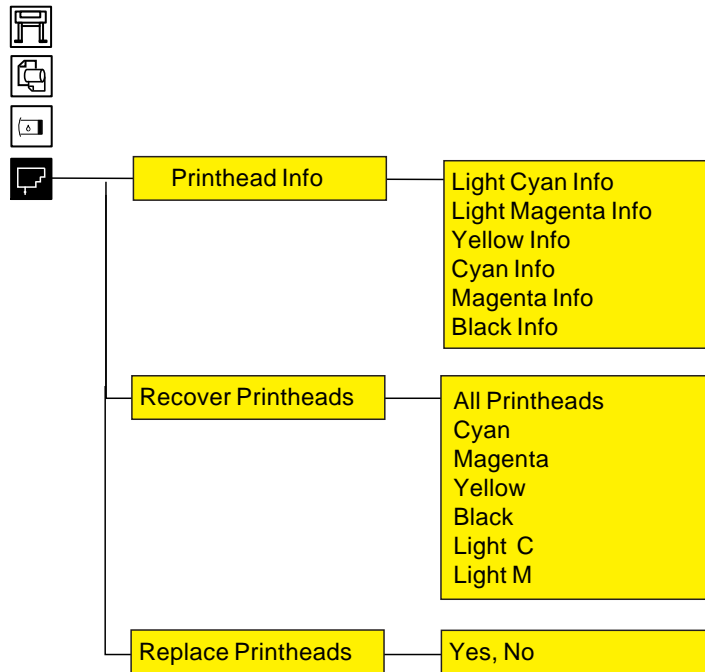
# Media Options



## Ink Cartridge Info



## Printhead Info



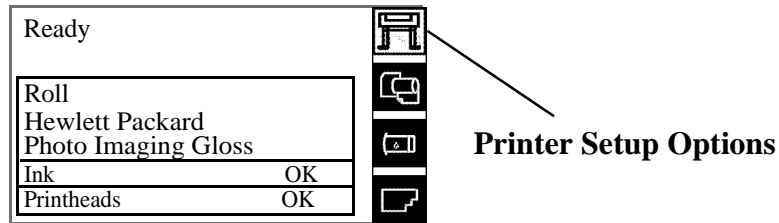
### Service Configuration Print

The Service Configuration Print is a useful tool for troubleshooting the Printer. The Service Configuration Print contains the following information about the Printer:

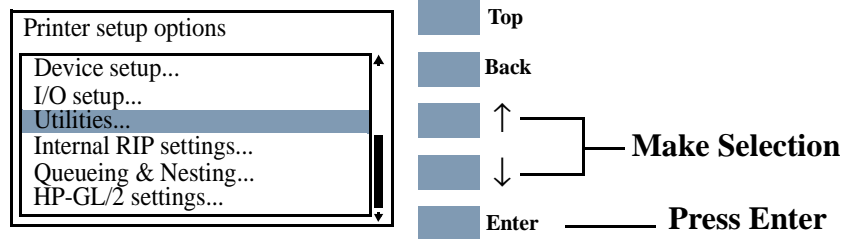
- General Configuration
- Printhead Info.
- Ink Cartridge Info.
- Operating Conditions.
- Calibrations.
- Maintenance.
- I/O Configuration.

### How to Print the Service Configuration Print

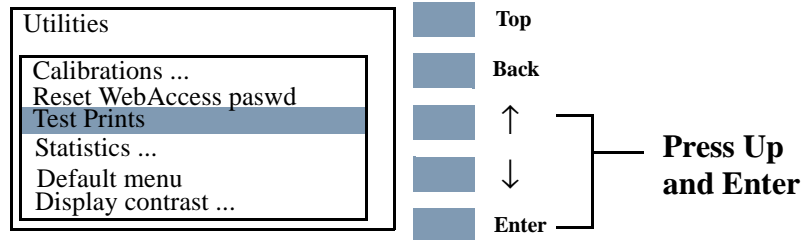
1. Load media (Roll media or at least an A0 Sheet) into the Printer.
2. Once the message “Ready” is displayed on the front-panel, scroll to the “Printer Setup Options” icon and press the **Enter** key.



3. Once inside the “Printer Setup Options” menu, use the **Arrow** keys to scroll to the “Utilities” menu display and press the **Enter** key.



- Once inside the “Utilities” menu, use the **Arrow** keys to scroll to the “Test prints” menu display and press the **Enter** key.



- Use the **Arrow** keys to scroll to “Service Config.” and press the **Enter** key to print the Service Configuration Print.

### How to Use the Service Configuration Print

The Service Configuration Print is divided into 7 different areas where you can find information to troubleshoot the Printer.

- **General Configuration** - In this area you can find information regarding the general configuration of the Printer, for example, the firmware version, amount of memory installed or the capacity of the Hard Disk Drive.
- **Printhead Info** - In this area you can find all the information regarding the Printheads, for example, the part number, the manufacturing date or the number of times a certain Printhead has been inserted in the carriage. This information is useful for troubleshooting Printhead problems and even knowing if the Printheads have been used with Non-HP Ink Cartridges.
- **Cartridge Info** - In this area you can find all the information regarding the Ink Cartridges, for example, the part number, the manufacturing date or the ink level. This area also shows you if the customer is using Non-HP Ink Cartridges.
- **Operating Conditions** - In this area you can find the level of humidity and the temperature that the Printer is working in.
- **Calibrations** - In this area you can find information on certain calibrations that have been performed on the Printer. It will also tell you if a required calibration was performed or not.
- **Maintenance** - In this area you can find information relating to maintenance, for example, the number times the Printer has been powered ON, the number of Carriage cycles or the last System Error Code that was triggered.
- **I/O Configuration** - In this area you can find information on the configuration of the JetDirect Card.





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# System Error Codes

# 2

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## System Error Codes

### Introduction

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**NOTE** Before troubleshooting System Errors, if possible, repeat the procedure performed when the error was reported.

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**NOTE** When reporting the System Error Code, make sure that you supply the full Error Code and the firmware version (displayed during the initialization process when powering ON the Printer or available in the User's Printer Setup ⇒ Utilities ⇒ Statistics menu).

---

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 Error Code has disappeared.

System Error Codes consist of two groups of alphanumeric:

[XXXXXX]-[YYYYZZZZ]

The first set of 6 alphanumeric characters consists of the System Error and the second set of 8 digits, when present, refer to the internal error data.

---

**NOTE** If the YYYY digits in the second set of 8 characters are zero [0000ZZZZ], this indicates a LAN Card System Error. The last four digits [ZZZZ] of the Error Code must be reported to the vendor support organization:

- For HP JetDirect Cards, this error code must be reported to the iIPS Division Support.
  - For 3rd party LAN Cards, the HP support organization should communicate to the customer that they should address it through the 3rd party vendor support structure.
-

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.
- The complete error number.
- The Service Configuration Print if possible ⇒ Page 1-26.
- The Current configuration sheet.
- Which software application the customer is using (name, version, etc.).

### **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 if the System Error disappears. If the Error Code reappears, then the Printer requires an on-site visit in order to resolve the problem.

---

**NOTE**

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**Even though the customer can continue working with a Continuable Error Code, an on-site visit should still be planned to troubleshoot the problem.**

---

**System Error:** 01002D (**Non-Continuable**)  
**Problem Description:** The Main PCA cannot communicate with the Carriage.  
**Corrective Action:** Try the following:

- Check the Trailing Cable is connected correctly.
- Replace the Trailing Cable ⇒ Page 8-36.
- Replace the Carriage Assembly ⇒ Page 8-46.

---

**System Error:** 010023 (**Non-Continuable**)  
**Problem Description:** EEROM Test failure.  
**Corrective Action:** ■ Replace the Main PCA ⇒ Page 8-77.

---

**NOTE** After replacing the Main PCA, make sure you perform the Backup EEROM ⇒ Page 4-31, making sure that you select "Main PCA" when prompted.

---

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**System Error:** 010040  
**Problem Description:** Error in Paper-axis Encoder quadrature.  
**Corrective Action:** Try the following:

- Check that the Paper-Axis Motor cable is NOT broken or damaged.
- Check that the Paper-Axis Motor cable is correctly connected.
- Replace the Paper-Axis Motor ⇒ Page 8-98.
- If the Error Code continues, replace the the Main PCA ⇒ Page 8-77.

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

---

---

<b>System Error:</b>	010041
<b>Problem Description:</b>	Error in Scan-axis Encoder quadrature.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check that the Encoder Strip is NOT broken or damaged.</li><li>■ Replace the Encoder Strip ⇒ Page 8-34.</li><li>■ Replace the Carriage Assembly ⇒ Page 8-46.</li><li>■ If the Error Code continues, replace the Main PCA ⇒ Page 8-77.</li></ul>

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

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---

<b>System Error:</b>	010042
<b>Problem Description:</b>	Error in Service Station-axis Encoder quadrature.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check that the Service Station Encoder-Cable is NOT broken or damaged.</li><li>■ Check that the Service Station Encoder-Cable is correctly connected.</li><li>■ Replace the Service Station ⇒ Page 8-65.</li><li>■ If the Error Code continues, replace the Main PCA ⇒ Page 8-77.</li></ul>

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

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<b>System Error:</b>	010090 ( <b>Continuable</b> )
<b>Problem Description:</b>	Error in Paper-axis Motor Encoder
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check that the Paper-Axis Motor cable is NOT broken or damaged.</li><li>■ Check that the Paper-Axis Motor cable is correctly connected.</li><li>■ Replace the Paper-Axis Motor ⇒ Page 8-98.</li><li>■ If the Error Code continues, replace the Main PCA ⇒ Page 8-77.</li></ul>

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

---

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<b>System Error:</b>	010091 ( <b>Continuable</b> )
<b>Problem Description:</b>	Error in Paper-axis Motor Encoder
<b>Corrective Action:</b>	Refer to System Error Code 010090.

---

<b>System Error:</b>	010092 ( <b>Continuable</b> )
<b>Problem Description:</b>	Mark Encoder position not detected on Drive Roller.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Replace the Lens Cover ⇒ Page 9-5.</li><li>■ Clean the Mark Encoder on the Drive Roller using the Turn DRIVE ROLLER Utility ⇒ Page 4-18.</li></ul>

---

<b>System Error:</b>	011000
<b>Problem Description:</b>	NIB Crash.
<b>Corrective Action:</b>	Power the Printer OFF and ON again using the Power Switch at the back of the Printer.

---

<b>System Error:</b>	050001 ( <b>Continuable</b> )
<b>Problem Description:</b>	Lens has problems reading the Mark Encoder on the Drive Roller.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Clean the Mark Encoder on the Drive Roller using the Turn DRIVE ROLLER Utility ⇒ Page 4-18</li><li>■ Replace the Lens Cover Assembly ⇒ Page 9-5.</li></ul>

---

<b>System Error:</b>	06030C
<b>Problem Description:</b>	Bad Line Sensor.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Replace the Carriage Assembly ⇒ Page 8-46</li><li>■ Replace the Trailing Cable ⇒ Page 8-36.</li><li>■ Replace the Main PCA ⇒ Page 8-77.</li></ul>

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

---

<b>System Error:</b>	0A0000
<b>Problem Description:</b>	APS Failure.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check all the cables of the APS and make sure they are correctly connected and are NOT damaged.</li><li>■ Check all the tubes of the APS and Tubes System and make sure they are correctly connected and are NOT pinched or damaged.</li><li>■ Check that the Air Tube from the APS is correctly connected to the Tubes System.</li><li>■ Replace ONE Ink Cartridge at a time, checking if the System Error Code disappears.</li><li>■ Faulty APS. Replace the APS ⇒ Page 8-63.</li></ul>

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

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---

**System Error:** 0A0010  
**Problem Description:** APS Failure.  
**Corrective Action:** Refer to System Error Code 0A0000.

---

**System Error:** 0A0030  
**Problem Description:** Problem in Depressurizing Air System.  
**Corrective Action:** Try the following:

- Check the APS for any signs of Ink. Also inspect ALL Ink Cartridges for any signs of leaking (the bottom valve of the Ink Cartridge will contain ink).
- If there is ink leakage, replace ALL Ink Cartridges, the APS ( ⇒ Page 8-63) and the Tubes System ( ⇒ Page 8-25).

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

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---

**System Error:** 0A0040  
**Problem Description:** APS Failure.  
**Corrective Action:** Try the following:

- Check all the cables of the APS and make sure they are correctly connected and are NOT damaged.
- Check all the tubes of the APS and Tubes System and make sure they are correctly connected and are NOT pinched or damaged.
- Replace ONE Ink Cartridge at a time, checking if the System Error Code disappears.
- Faulty APS. Replace the complete APS ⇒ Page 8-63.

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

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---

<b>System Error:</b>	0A0050 ( <b>Non-Continuable</b> )
<b>Problem Description:</b>	The Printer has detected a leak in the Tubes System before the life of the System.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check for ink in the Ink Leak Detector and, if present, replace the complete Tubes System ⇒ Page 8-25.</li><li>■ The Ink Leak Detector could have been triggered due to condensation in the Printer. Power OFF the Printer and allow the Printer to dry for 15 minutes. Power ON and check if the System Error Code has disappeared.</li><li>■ Replace the ISS PCA ⇒ Page 8-84.</li></ul>

---

**WARNING**

**Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.**

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---

<b>System Error:</b>	0A0060 ( <b>Non-Continuable</b> )
<b>Problem Description:</b>	The Printer has detected a leak in the Tubes System after the life of the System.
<b>Corrective Action:</b>	Refer to System Error Code 0A0050.

---

<b>System Error:</b>	0A0070 ( <b>Continuable</b> )
<b>Problem Description:</b>	The Backup EEROM contents stored in the Hard Disk Drive are not consistent with the ones required by the firmware.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Perform Backup EEROM ⇒ Page 4-31 and ALL calibrations. Perform EEROM Setup ⇒ Page 4-24 to reconfigure the Printer.</li></ul>

---

<b>System Error:</b>	0C0030
<b>Problem Description:</b>	Drop Detector Failure.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check that the Drop Detector Cable is NOT broken or damaged.</li><li>■ Check that the Drop Detector cable is correctly connected to the Service Station Cable.</li><li>■ Remove the Drop Detector and make sure that there are no obstacles inside which are blocking the sensor.</li><li>■ Replace the Drop Detector Assembly ⇒ Page 8-68.</li><li>■ If the System Error Code continues, replace the Main PCA ⇒ Page 8-77.</li></ul>

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

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<b>System Error:</b>	0C0032 ( <b>Continuable</b> )
<b>Problem Description:</b>	Drop Detector not Calibrated for all Printheads.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Perform the Service Station Calibration ⇒ Page 5-11.</li><li>■ Replace the Drop Detector Assembly ⇒ Page 8-68.</li><li>■ If the System Error Code continues, replace the Main PCA ⇒ Page 8-77.</li></ul>

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

---

---

<b>System Error:</b>	0C0040
<b>Problem Description:</b>	Error in Printhead Drop Detection.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Recover the Printheads ⇒ Page 6-15.</li><li>■ Replace the Drop Detector ⇒ Page 8-68.</li></ul>

---

<b>System Error:</b>	0C1001
<b>Problem Description:</b>	Primer Shutdown Error.
<b>Corrective Action:</b>	<p>Try the following:</p> <ul style="list-style-type: none"> <li>■ Check that the Primer Stepper-Motor Cable is NOT broken or damaged and that the Primer Arm moves freely from side to side.</li> <li>■ Replace the Service Station ⇒ Page 8-65.</li> <li>■ If the Error Code continues, replace the Main PCA ⇒ Page 8-77.</li> </ul>

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

---



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<b>System Error:</b>	0D0000 ( <b>Continuable</b> )
<b>Problem Description:</b>	No Media Profiles Available.
<b>Corrective Action:</b>	<ul style="list-style-type: none"> <li>■ Download a media profile for the ink type being used.</li> </ul>

---

<b>System Error:</b>	0D0002 ( <b>Continuable</b> )
<b>Problem Description:</b>	Insufficient Memory to Initialize HPGL2/RTL.
<b>Corrective Action:</b>	<ul style="list-style-type: none"> <li>■ The minimum memory required is 96 Mbytes so verify memory installed on the printer using the Statistics menu (refer to the User's Guide).</li> </ul>

---

<b>System Error:</b>	0FXXXX ( <b>Non-Continuable</b> )
<b>Problem Description:</b>	A Firmware Error has occurred.
<b>Corrective Action:</b>	<p>Try the following:</p> <ul style="list-style-type: none"> <li>■ Power OFF and ON using the Printer Power Switch.</li> <li>■ Report the error to the HP Response Center or the nearest HP Support Office. Have the following information ready: <ul style="list-style-type: none"> <li>■ Model and Serial Number of the printer.</li> <li>■ Which firmware revision the printer is using (displayed during Printer initialization when powering ON).</li> <li>■ The complete error number.</li> <li>■ The Service Configuration Print if possible ⇒ Page 1-26.</li> <li>■ The Current configuration sheet.</li> <li>■ Which software application the customer is using (name, version, etc.).</li> </ul> </li> </ul>

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## System Error Codes During Initialization

The following System Error Codes will only appear during the Initialization process when you power ON the Printer.

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<b>System Error:</b>	050000 ( <b>Continuable</b> )
<b>Problem Description:</b>	Lens has problems reading the Mark Encoder on the Drive Roller.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Clean the Mark Encoder on the Drive Roller using the Turn DRIVE ROLLER Utility ⇒ Page 4-18</li><li>■ Replace the Lens Cover Assembly ⇒ Page 9-5.</li></ul>

---

<b>System Error:</b>	0B0000
<b>Problem Description:</b>	Bad Ambient Temperature measured.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Make sure that the Ambient temperature is within the allowed range (between 0 and 55 Degrees Centigrade).</li><li>■ Replace the Main PCA ⇒ Page 8-77.</li></ul>

---

<b>System Error:</b>	0B0001
<b>Problem Description:</b>	Bad Humidity read.
<b>Corrective Action:</b>	Replace the Main PCA ⇒ Page 8-77.

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<b>System Error:</b>	0B0002
<b>Problem Description:</b>	Bad IDS pressure read.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check that the cable from the Ink Supply Station (ISS) PCA to the Ink Supply Station is correctly connected.</li><li>■ Check that the Air Pressurization System Sensor Cable is correctly connected and is NOT damaged.</li><li>■ Check all the tubes of the APS and make sure they are NOT pinched or damaged.</li><li>■ Faulty APS. Replace the APS ⇒ Page 8-63.</li><li>■ If the error code continues, replace the Main PCA ⇒ Page 8-77.</li></ul>

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

---

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<b>System Error:</b>	0B0003
<b>Problem Description:</b>	ADC0 Internal channels check Failure.
<b>Corrective Action:</b>	Replace the Main PCA ⇒ Page 8-77.

---

<b>System Error:</b>	0B0004
<b>Problem Description:</b>	APS Failure.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check that the cable from the Ink Supply Station (ISS) PCA to the Ink Supply Station is correctly connected.</li><li>■ Faulty APS. Replace the APS ⇒ Page 8-63.</li><li>■ If the error code continues, replace the Main PCA ⇒ Page 8-77.</li></ul>

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**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

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<b>System Error:</b>	0B0005
<b>Problem Description:</b>	APS Failure.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check that the cable from the Ink Supply Station (ISS) PCA to the Ink Supply Station is correctly connected.</li><li>■ Faulty APS. Replace the APS ⇒ Page 8-63.</li><li>■ If the error code continues, replace the Main PCA ⇒ Page 8-77.</li></ul>

---

**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

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<b>System Error:</b>	0B0006
<b>Problem Description:</b>	The Trailing Cable has been incorrectly connected.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Power the Printer OFF disconnect the Trailing Cable. Replace the Trailing Cable if the ends are not flat or are damaged. Reconnect the Trailing Cable correctly, making sure it is pushed in firmly (refer to the instructions on page ⇒ Page 8-36). Power ON the Printer and check if the Error Code has disappeared.</li><li>■ If the Error Code continues, replace the Main PCA ⇒ Page 8-77 taking care when connecting the Trailing Cable.</li></ul>

---

<b>System Error:</b>	0B0007
<b>Problem Description:</b>	Unable to detect Vacuum Fan.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Make sure that the Vacuum Fan is connected correctly to the Main PCA.</li><li>■ Turn the Printer OFF and disconnect the Vacuum Fan from the Main PCA. Connect a <b>New</b> Vacuum Fan to the Main PCA and power ON the Printer. If the <b>New</b> Vacuum Fan functions correctly without any Error Codes then remove the <b>Old</b> Vacuum Fan from the Printer and install the <b>New</b> one.</li><li>■ If the New Vacuum Fan does not function correctly either, then replace the Main PCA ⇒ Page 8-77.</li></ul>

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<b>System Error:</b>	0B0008
<b>Problem Description:</b>	Unable to detect Cooling Fan.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Make sure that both Cooling Fans are correctly connected to the Power Supply Unit.</li><li>■ Replace the Main PCA ⇒ Page 8-77.</li></ul>

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<b>System Error:</b>	0B0009
<b>Problem Description:</b>	Unable to detect Aerosol Fan (in the Right Cover).
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Make sure that the Aerosol Fan is connected correctly to the Main PCA.</li><li>■ Turn the Printer OFF and disconnect the Aerosol Fan from the Main PCA. Connect a <b>New</b> Aerosol Fan (comes with the new Right Cover) to the Main PCA and power ON the Printer. If the <b>New</b> Aerosol Fan functions correctly without any Error Codes then remove the <b>Old</b> Aerosol Fan from the Printer and install the <b>New</b> one.</li><li>■ If the New Aerosol Fan does not function correctly either, then replace the Main PCA ⇒ Page 8-77.</li></ul>

---

<b>System Error:</b>	0B000A
<b>Problem Description:</b>	Primer Shutdown Error.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check that the Primer Stepper-Motor Cable is NOT broken or damaged and that the Primer Arm moves freely from side to side.</li><li>■ Replace the Service Station ⇒ Page 8-65.</li><li>■ If the Error Code continues, replace the Main PCA ⇒ Page 8-77.</li></ul>

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**WARNING** Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.

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<b>System Error:</b>	0B000B
<b>Problem Description:</b>	APS Failure.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Check that the cable from the Ink Supply Station (ISS) PCA to the Ink Supply Station is correctly connected.</li><li>■ Check that the Air Pressurization System Sensor Cable is correctly connected and is NOT damaged.</li><li>■ Check all the tubes of the APS and make sure they are NOT pinched or damaged.</li><li>■ Faulty APS. Replace the APS ⇒ Page 8-63.</li><li>■ If the error code continues, replace the Main PCA ⇒ Page 8-77.</li></ul>
<b>WARNING</b>	<b>Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.</b>

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<b>System Error:</b>	0B000C
<b>Problem Description:</b>	Serial Device ADC test failure.
<b>Corrective Action:</b>	Replace the Main PCA ⇒ Page 8-77.

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<b>System Error:</b>	0B000D
<b>Problem Description:</b>	24 V source test failure.
<b>Corrective Action:</b>	Replace the Main PCA ⇒ Page 8-77.

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# HP Ink Supplies Troubleshooting

# 3

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## **What are HP Ink Supplies?**

For each of the six colors used in the Printer, there are three separate components. The Printhead and the Printhead Cleaner are supplied together, the Ink Cartridge is supplied separately. All of these components are called the HP Ink Supplies. They are coded with an HP selection number to help you re-order the correct replacement supplies. The Printhead and the Printhead Cleaner are supplied together, and the Ink Cartridge is supplied separately. These consumables are designed with a lock-out feature that will allow only one color to be inserted into a given slot.

## **Ink Cartridges**

The HP Ink Cartridges for the HP DesignJet 5000 Series Printers require no maintenance or cleaning. As long as each Ink Cartridge is inserted correctly into its slot, the ink will flow to the Printheads.

The front panel displays the status of the Ink Cartridges. With the front panel, detailed information can be checked on the Ink Cartridges.

## **Printheads and Printhead Cleaners**

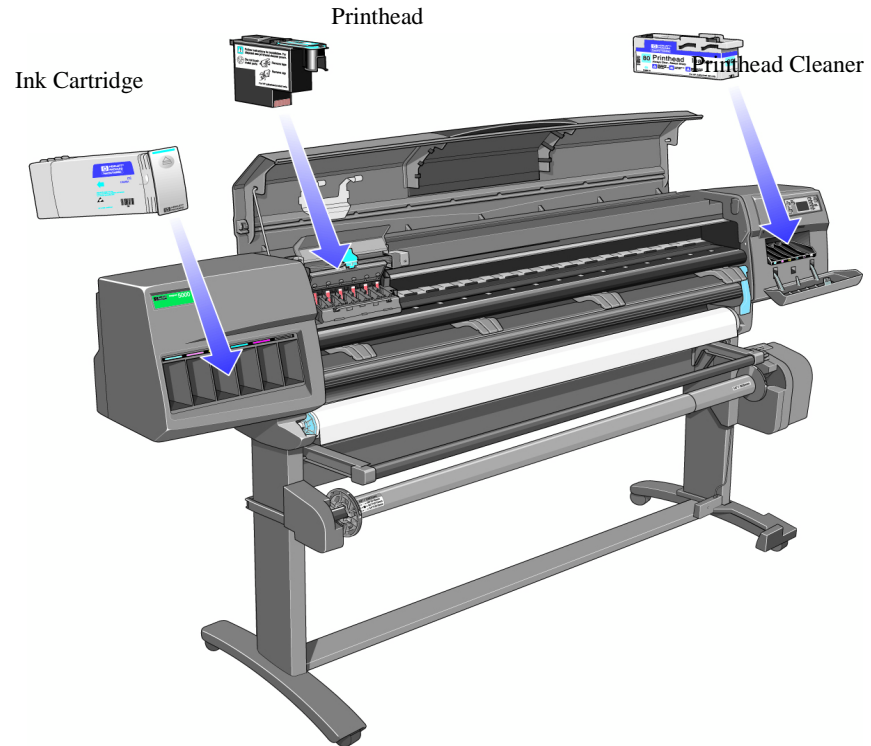
The HP Printheads for the HP DesignJet 5000 series are extremely durable and do not need to be replaced every time an Ink Cartridge is replaced. They are independent of the Ink Cartridges and will continue giving excellent image quality results even if the Ink Cartridges are low on ink. See page 3-5, *When Should You Replace the HP Ink Supplies?*

If you notice a decline in print quality such as lines or dots missing from text / graphics, go to page 6-1, *Print Quality* .

The HP Printhead Cleaners keep the Printheads in good condition and they prevent them from being damaged when the Printer is not active. They service the Printheads, making sure they are always ready to be used.

## Identifying the Components

The following illustration will help you identify the components of the HP Ink Supplies.



## General Information About HP Ink Supplies

**For optimum results from the Printer and modular ink delivery system always follow these guidelines when handling the HP Ink Supplies:**

- Always install the Ink Cartridges, Printheads and Printhead Cleaners before the expiration date, which is on the packaging.
- Install a new Printhead Cleaner every time you change a Printhead.
- Allow the Printer and Printhead Cleaners to automatically clean the Printheads.
- Ink Cartridges, Printheads and Printhead Cleaners are designed with lock-outs that only allow their installation in their color-coded slots; they must not be forced.
- 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 softpower 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. See page 3-5, *When Should You Replace the HP Ink Supplies?*

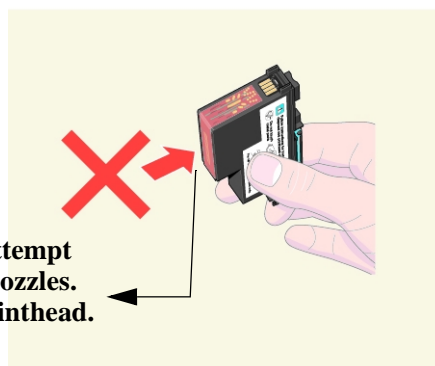
### Some General Precautions When Handling HP Ink Supplies

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#### CAUTION



**Do not touch, wipe or attempt to clean the Printhead nozzles. This can damage the Printhead.**



**Do not touch, wipe or attempt to clean the Printhead nozzles. This can damage the Printhead.**

Handle the HP 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 Printhead Cleaner 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. The customer must not remove the setup Printheads from the Carriage Assembly 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 the "(XX11)Replace" message (Refer to 3-12, *Error Status Messages* ).**

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## When Should You Replace the HP Ink Supplies?

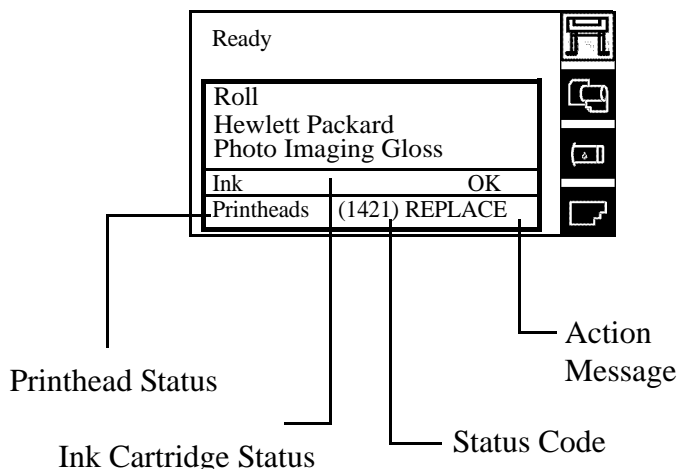
When to change the HP Ink supplies is mostly determined by you with guidance from the front panel. In conjunction with the messages displayed in the front panel and the message explanations in this chapter, you will be able to choose for yourself when is the right time to change the HP Ink supplies.

The Printer will also display the ink level and will tell you when the ink supply is low, very low or empty. This means you have constantly updated information about the HP Ink supplies.

Printhead life is anticipated to be 700ml or twelve months in the Printer, whichever occurs first, provided that the Printhead is used under normal operating conditions (using HP Ink Cartridges only) and its “install before date” has not lapsed. However results vary depending on the print quality setting being used.

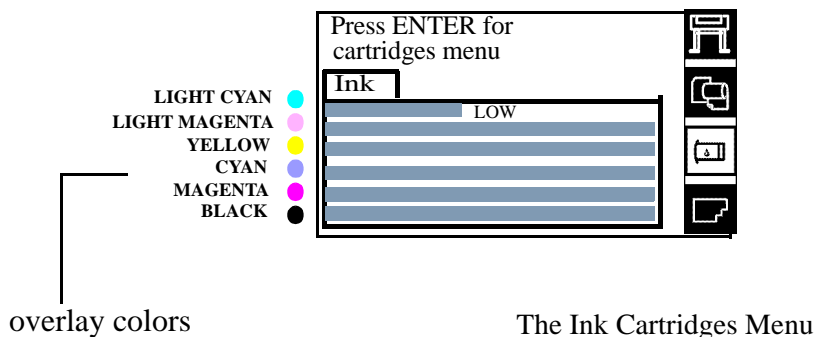
## The Front Panel Display

The front panel display has a dedicated area to report the status of your HP Ink supplies. Status messages consist of a code and an action message



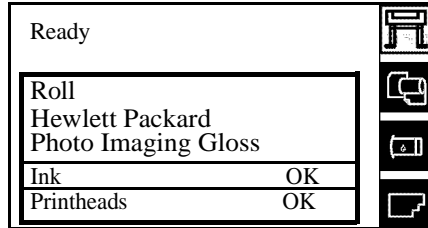
- **Ink** displays information on the Ink Cartridges.
- **Printheads** displays information on the Printheads and the Printhead Cleaners
- The **Status code** indicates the exact nature of the HP Supplies problem ( see 3-10, *Status Codes and Messages* ).
- The **Action Message** provides instructions to return to normal status i.e. OK (see 3-10, *Status Codes and Messages* ).

To view information for a specific Ink Cartridge color or Printhead you must access the cartridge and Printhead menus ( See 3-7, *Obtaining Ink Cartridge Information* and 3-8, *Obtaining Printhead Information* ). The overlay indicates the color related to the Ink Cartridge and Printhead menu information.

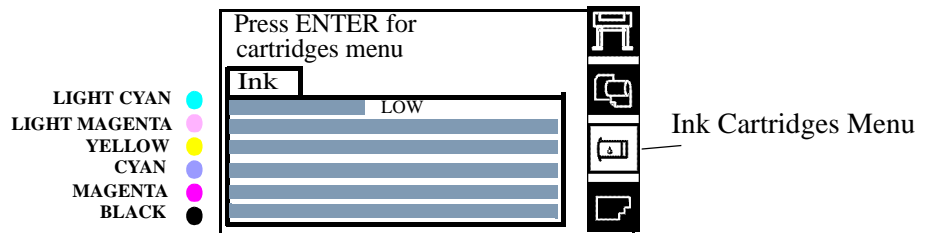


## Obtaining Ink Cartridge Information

1. To get information on the Ink Cartridges press the **Top** key on the front panel to go to the main menu.



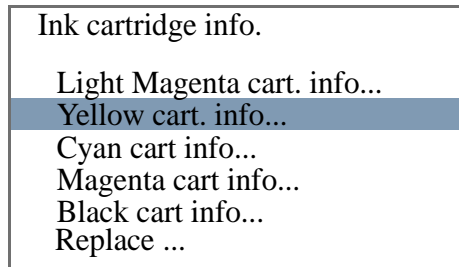
2. Press the  $\uparrow$  or  $\downarrow$  key to select the cartridges icon and view status bars indicating ink levels in the Ink Cartridges.



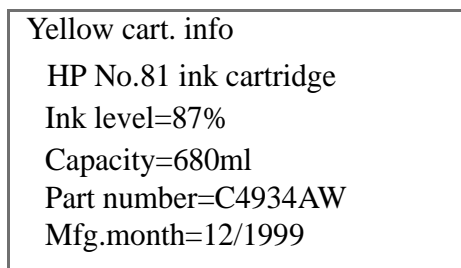
The front panel displays six horizontal bars. These bars represent how much ink is remaining in the Ink Cartridges: as ink is used up the bars get shorter in length. The Ink Cartridge color on the overlay indicates the Ink Cartridge color related to each bar.

Press the **Enter** key to view the Ink Cartridges menu.

3. Press the  $\uparrow$  or  $\downarrow$  key until the front panel highlights the color that you want to see information on. Press the **Enter** key.



- The front panel displays information on the selected Ink Cartridge.

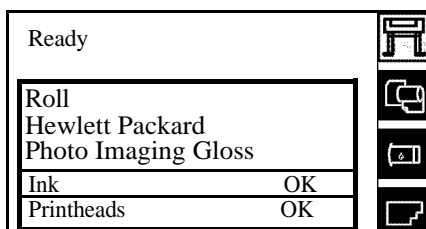


The information supplied is:

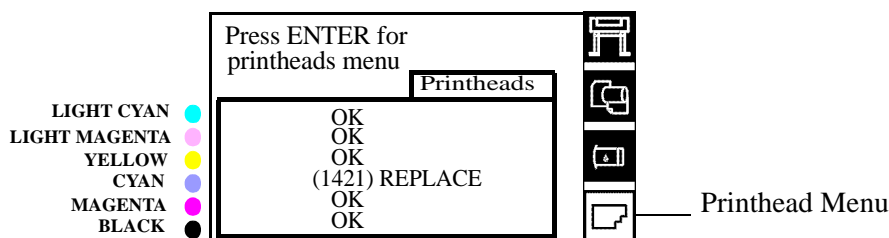
- The make of the Ink Cartridge.
- The percentage of how much ink is remaining.
- Original capacity of the Ink Cartridge in milliliters.
- Re-order part number of the Ink Cartridge.
- The month and year that the Ink Cartridge was manufactured.

### Obtaining Printhead Information

- To get information on your Printheads, press the **Top** key on the front panel to go to the main menu.

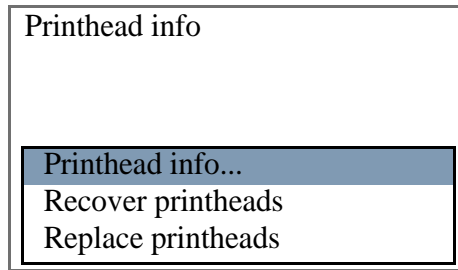


- Press the  $\uparrow$  or  $\downarrow$  key to select the Printheads icon and view information on the Printheads..

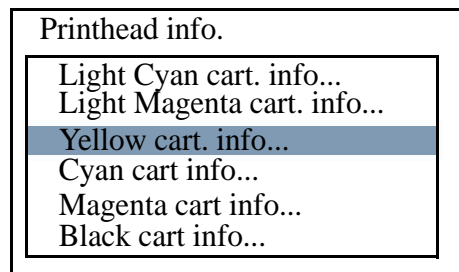




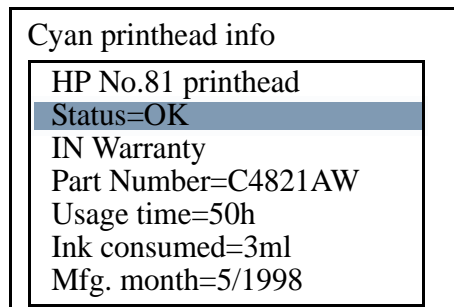
3. Press  $\uparrow$  or  $\downarrow$  key until the front panel highlights “Printhead info”. Press **Enter** to view the Printheads information.



4. Press the  $\uparrow$  or  $\downarrow$  key until the front panel highlights the color that you want to see information on. Press the **Enter** key.



5. The front panel displays information on the selected Printhead.



The information supplied is:

- The make of the Printheads.
- The current status of the Printhead.
- The Printhead warranty status.
- Re-order part number of the Printhead.
- The time (hours) the Printhead has been operating in the Printer.
- How much ink has been consumed by the Printhead. **Note:** It is possible for a Printhead to consume more than one Ink Cartridge.
- The year and the month that the Printhead was manufactured.

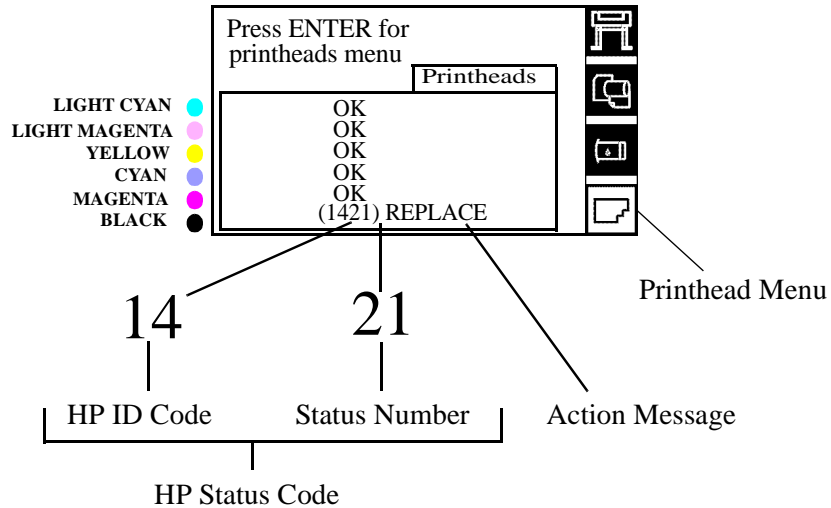
## Status Codes and Messages

**NOTE**

Most problems with Ink Supplies will be solved by the user simply following the instructions in the action message.

**PHONE SUPPORT**

If a problem persists, a Call Agent can try and troubleshoot Consumables problems by requesting the HP Status code from the Customer via the phone. Using this process, it can be determined whether the Printer requires any on-site maintenance.



The HP Status Code is made up of 4 digits: the first two digits are the HP ID Code that identify the consumable and its color. The last two digits are the status number indicating the nature of the problem.

The tables in the next few pages describe the messages and status codes for HP Ink Supplies.

## Status Messages

These messages provide only an action message for the user to perform. For information on accessing detailed information on consumables refer to 3-7, *Obtaining Ink Cartridge Information* and 3-8, *Obtaining Printhead Information* .

Status	Description	Procedure
<b>OK</b>	The ink system is working correctly	None
<b>Insert</b>	There is no consumable installed	Insert the correct consumable. If the correct consumable is inserted, check the Carriage Tube Connector is correctly connected to the Carriage.
<b>Setup</b>	The setup message is displayed when new tubes have been installed into the Printer and you have installed the correct setup Printheads.	When the setting up of the tube system is complete, the front panel will display a message <b>(XX04)Replace</b> asking you to remove them and replace them with 'normal Printheads'.
<b>Low</b>	Ink Cartridge Level has reached it's low limit (100 ml.). This is an early warning.	New supplies should be obtained ready to replace the particular color
<b>Very Low</b>	Ink Cartridge Level has reached it's very low limit (50 ml.)	Overnight printing should not be attempted. Priming of the Ink Tubes should not be attempted. A new Ink Cartridge is strongly recommended to prevent the Printer from interrupting a print.
<b>Empty</b>	Ink Cartridge is empty. The Printer stops.	A new Ink Cartridge is required. Check image quality of prints in progress.

## Error Status Messages

Error status messages consist of the HP Status Code and the action message. The following tables group error messages according to the consumable, the action message (i.e. all **Replace** errors are grouped together), and then the status number i.e. last two digits.

The first digit in the HP ID code (see table below), identifies the consumable and/or provides specific consumables information.

Status Code First Digit	Part / Information
0	HP No.81 Printhead in warranty
1	HP No.81 Printhead out of warranty
4	Setup Printhead
5	Printhead Smartchip error
A	HP No.81 Printhead Cleaner
*	Printhead Cleaner Detection Error
6	HP No.81 Ink Cartridge
8	Ink Cartridge Unknown

The second digit identifies the color (see table below), for the Printhead, Printhead Cleaner or cartridge.

Status Code Second Digit	Color
5	Light Cyan
4	Light Magenta
3	Yellow
2	Cyan
1	Magenta
0	Black

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## Printhead Errors (First Digit = 0, 1, 4, 5)

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**NOTE**

If you think your Printer is requesting you to replace your Printheads too frequently you can check Printhead nozzle status by printing the Diagnostic Print ⇒ Refer to 6, *Print Quality*.

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**NOTE**

Do not touch, wipe or attempt to clean the Printhead nozzles. This can damage the Printhead and reduce print quality (See Page 9-6 for Maintenance Procedures).

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**NOTE**

When replacing Printheads:

- Ensure that you have the correct Printhead.
- Ensure that the Printhead is the correct color for that slot.
- Ensure that the protective cap is removed from the Printhead.
- Check the empty slots to see if they need cleaning. In extreme circumstances, when a Printhead is inserted, it is possible that the Printer will not recognize it due to the build-up of ink on the electrical connection between the Printhead and the Printhead carriage.

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**NOTE**

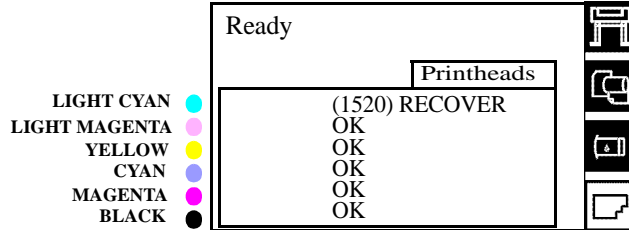
If all 6 Printheads present the same error message, check the following:

- All Printheads installed are NOT wrong type i.e. wrong model, Setup Printheads instead of normal etc.
- If you replace or reseal Printheads one at a time and the error persists for all Printheads, this indicates a hardware failure. Do the following:
  - 1 Check that the Carriage Tube Connector is correctly connected to the Carriage.
  - 2 Check that the Trailing Cable connections between the Carriage Assembly and the Main PCA and if the cable is damaged, replace it ⇒ Page 8-36.
  - 3 Replace the Carriage Assembly ⇒ Page 8-46.
  - 4 Replace the Main PCA ⇒ Page 8-77.

Printhead Information	Status Numbers	Error Description	Procedure
	XX02 Reseat XX06 Reseat XX08 Reseat	Continuity problem between the Printhead and the Carriage Assembly.	Try the following (verify if the message returns to <b>OK</b> after each one). 1. Reseat the Printhead. 2. Remove the Printhead and clean the interconnect, refer to 9-6, <i>Carriage Interconnect Wiper</i> . 3. Replace the failing Printhead. 4. Check the Carriage Tube Connector is correctly connected to the Carriage. 5. Check Trailing Cable connections between the Carriage Assembly and the Main PCA and replace the Trailing Cable if damaged ⇒ Page 8-36. 6. Replace the Carriage Assembly ⇒ Page 8-46.
	XX10 Reseat	Electrical failure.	
	XX03 Replace	Printhead smartchip failure.	Replace Printheads.
	XX04 Replace	Setup Printhead installed.	Install normal Printheads.
	XX05 Replace	Used setup Printheads installed.	If priming Tubes install new Setup Printheads otherwise install normal Printheads.
	XX09 Replace	Electrical failure.	1. Replace the Printhead(s). 2. Check Trailing Cable connections between the Carriage Assembly and the Main PCA and replace the Trailing Cable if damaged ⇒ Page 8-36. 3. Replace the Carriage Assembly ⇒ Page 8-46. 4. Replace the Main PCA ⇒ Page 8-77.
	XX11 Replace	Incorrect type of Printhead installed.	If Tubes system is priming: install Setup Printhead(s) Ensure that you have HP No. 81 Printheads installed.
	XX12 Replace	Printhead does not match the rest of the ink consumables.	Ensure that <b>all</b> the ink consumables are HP No. 81
	XX13 Replace	Printhead smart chip failure.	Replace the Printhead(s).
	XX14 Replace	The Printhead has an internal electrical failure.	1. Replace the Printhead(s).
	XX15 Replace		2. Replace the Carriage Assembly ⇒ Page 8-46.
	XX16 Replace	The Printer was printing: Printhead short	Select <b>YES</b> to replace Printheads or <b>NO</b> to finish print job without the failed Printhead (print quality is affected). You must replace the Printhead after the print job.
	XX17 Replace		
	XX18 Replace	The Printhead smartchip detects an unapproved manufacturer.	Install HP No. 81 Printheads.
	XX20 Recover	The Printhead has detected nozzle failure.	1. You can continue using the Printhead unless the <b>(XX21)Replace</b> message is displayed (the affect on print quality depends on the print mode). 2. Perform the Recovery procedure ⇒ Page 6-15.
	XX21 Replace	The Printhead has detected a significant number of bad nozzles that affects print quality.	Select <b>YES</b> to replace Printheads or <b>NO</b> to finish the print job without the failed Printhead (print quality may be affected). The message will be displayed for every print job until you replace the Printhead. 1. Attempt the Recovery procedure ⇒ Page 6-15. 2. If the message persists replace the Printhead(s).

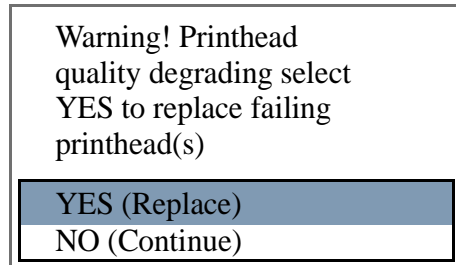
### Printhead Recovery Procedure

The Printer regularly performs a series of controls on the health of the Printheads and when they start to degrade the Printer will prompt the user to recover the Printhead [(XX20)Recover].



At this stage, the customer should obtain new Printheads. Depending on the print mode being used (Max. Quality, Productivity or Max. Speed) the Printer may still be able to print with an acceptable print quality. Refer to Page 6-15 for details on performing Printhead recovery.

If the Printer is printing a job and the Printhead health degrades to a significant degree [(XX16) and (XX17)REPLACE], the front panel will display a warning.



Press the ↓ or ↑ down key to select **YES** or **NO** and press the **Enter** key. If you select **YES** the print job will be cancelled and Printhead replacement will be started. If you select **NO**, the Printer will finish the current print job.

**NOTE**

**This message will be displayed each time you send a print job to the Printer until you replace the failing Printhead(s).**

**WARNING**

**If you select NO the Printer finishes the current print job WITHOUT using the failed Printhead i.e. without using that color.**

## **Ink Cartridge Errors (First Digit = 6, 8)**

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### **NOTE**

#### **When replacing Ink Cartridges:**

- **Use the Replace item in the Ink Cartridges menu. This will release all air from the Ink Cartridge and avoid problems in its removal.**
- **Ensure that you have the correct Ink Cartridge.**
- **Ensure that the Ink Cartridge is the correct color for that slot.**
- **Ensure that the Ink Cartridge is the correct orientation, with the color coded label at the top.**

---

### **NOTE**

#### **If all 6 Ink Cartridges present the same error message, check the following:**

- **All Ink Cartridges installed are NOT of the wrong type i.e. wrong model.**
- **If you replace or reseal Ink Cartridges one at a time and the error persists for all cartridges, this indicates a hardware problem. Do the following:**
  - 1 Check ISS cable connections on the rear of the Ink Supply Station and the ISS PCA.
  - 2 Remove the Service Station and check that the connections on the floaters are clean.
  - 3 Replace the Ink Tubes System ⇒ Page 8-60.
  - 4 Replace the ISS PCA ⇒ Page 8-84.



	Status Numbers	Error Description	Procedure
Ink Cartridge Information	<b>XX03 Replace</b>	The Ink Cartridge has a leak which prevents the ink pumping to the Printer. <b>WARNING: If the Ink Bag in the Ink Cartridge is leaking, the Tubes may be damaged.</b>	<ol style="list-style-type: none"> <li>1. Remove the Ink Cartridge immediately.</li> <li>2. Open the Door at the rear of the Left Cover and check the Air Tubes for Ink and do the following:               <ol style="list-style-type: none"> <li>3. If there is no ink in the Air Tubes:                   <ol style="list-style-type: none"> <li>a) Replace the Ink Cartridge and, if the <b>XX03Replace</b> error reappears for any Ink Cartridge, go to step 5.</li> <li>4. If there is ink in the Air Tubes:                       <ol style="list-style-type: none"> <li>a) Remove all the Ink Cartridges to allow the ink to drain from the Tubes.</li> <li>b) Replace the faulty Ink Cartridge and reinsert the other Ink Cartridges.</li> </ol> </li> </ol> </li> </ol> <p>If the <b>XX03Replace</b> error reappears for any Ink Cartridge, do the following:</p> <ol style="list-style-type: none"> <li>5. Remove the Ink Cartridge and check for ink on the Air Connector on the rear of the Ink Cartridge.</li> <li>6. If there is ink present, do the following:               <ol style="list-style-type: none"> <li>a) Press the sides of the Ink Cartridge to see if ink is leaking from the Air Connector and replace the Ink Cartridge if it is faulty.</li> <li>b) If the Ink Cartridge is not faulty, replace the Ink Tubes System ⇒ Page 8-60.</li> </ol> </li> <li>7. If there is no ink present, do the following:               <ol style="list-style-type: none"> <li>a) Verify ISS cable connections.</li> <li>b) Remove the ISS Station and check that the slots and connections on the floaters are clean.</li> <li>c) Replace the Ink Tubes System ⇒ Page 8-60.</li> <li>d) Replace the ISS PCA ⇒ Page 8-84.</li> </ol> </li> </ol> </li></ol>
	<b>XX04 Replace</b>	Smart chip error. You can not continue to use this Ink Cartridge.	<ol style="list-style-type: none"> <li>1. Remove the Ink Cartridge and reinstall.</li> <li>2. Replace the Ink Cartridge</li> </ol>
	<b>XX05 Replace</b>	Incorrect Ink Cartridge	Check correct Ink Cartridge is installed. Replace with approved Ink Cartridge.
	<b>XX06 Replace</b>	The Printer detects that the Ink Cartridge does not match the rest of the Ink System already installed.	Ensure that the Printheads and the Ink Cartridges are HP No. 81.
	<b>XX08 Unknown</b>	The Ink Cartridge smart chip indicates that the Ink Cartridge installed is not supported by HP.	<ol style="list-style-type: none"> <li>1. Press <b>Enter</b> to continue or:</li> <li>2. Replace with a genuine HP No. 81 Ink Cartridge.</li> </ol>
	<b>XX02 Reseat</b>	Continuity problem between Ink Cartridge and Ink Supply Station.	<ol style="list-style-type: none"> <li>1. Remove the Ink Cartridge and reinsert.</li> <li>2. Replace the Ink Cartridge.</li> <li>3. Remove the Ink Supply Station and check contacts on floaters.</li> </ol>

### Printhead Cleaner Errors (First Digit = A or \*)

**NOTE**

**When replacing Printhead Cleaners:**

- Ensure that you have the correct Printhead Cleaner.
- Ensure that the Printhead Cleaner is the correct color for that slot.
- Ensure that the Printhead Cleaner is the correct orientation.

**NOTE**

**If all 6 Printhead Cleaners present the same error message, check the following:**

- All Printhead Cleaners installed are **NOT** wrong type i.e. wrong model, unapproved etc.
- Replace Printhead Cleaners when Printheads are replaced.

**NOTE**

**The message status for Printhead Cleaners will not change until the door is closed; there is no sensor detecting removal and insertion.**

	Status Numbers	Printhead Cleaner Error Description	Procedure
<b>Printhead Cleaner Information</b>	<b>*X03 Replace</b>	There is a Printhead Cleaner detection failure (you may continue to use the Printhead Cleaner)	Try the following: 1. Ensure that genuine HP No. 81 Printhead Cleaners are installed. 2. Reseat the Printhead Cleaner. 3. Check the lens is clean and perform Lens Maintenance if required ⇒ Page 9-5. 4. Replace the Printhead Cleaner.
	<b>XX05 Replace</b>	The Printhead detects that the Printhead Cleaner does not match the rest of the ink system already installed.	Ensure that you have replaced the Printhead Cleaner together with the Printhead.
	<b>XX06 Replace</b>	The Printer detects an incorrect Printhead Cleaner	Ensure that genuine HP No. 81 Printhead Cleaners are installed.

---

# Service Tests and Utilities

# 4

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## Introduction

This chapter explains how to use the built-in Service Tests and Service Utilities and what to do if any of the Service Tests fail. If possible, always perform a Service Test on the component that you are about to replace, just to make sure that is the component that has failed. If the test on that component passes, there is no need to replace it.

### Phone Support

**PHONE SUPPORT**

In certain circumstances, a Call Agent can try and troubleshoot the Printer by requesting the Customer to perform a Service Test or Utility via the phone. Using this process, it can be determined whether the Printer requires any on-site maintenance. In Phone Support the user will have access to a limited number of Service Tests or Utilities.

### Diagnostics - Self Test

#### Initialization Sequences

Whenever the Printer is switched ON, it automatically performs a series of internal self tests and mechanical initialization sequences. If any of the parts fail, an error code will appear. Below is a description of the initialization sequence, describing front panel messages and the sequence of the Print Quality LEDs, the error messages and error codes that may appear, and the corrective action.

---

#### NOTE

**Because of the speed at which the initialization sequence is performed, some of the steps described in the initialization process may not be visible unless they are interrupted by an error code.**

---

#### NOTE

**Before troubleshooting error codes try the following:**

- **Check that the BootROM DIMM, the DRAM DIMM's and the Hard Disk Drive are correctly installed.**
  - **Try powering the Printer Off and On to see if the error code disappears.**
-

**WARNING**

**Only replace one component at a time and check if the error has gone before replacing another component. If the error is still present after replacing a component, remember to REINSTALL the component that was first removed before replacing another component.**

**Self Diagnostics - Initialization Sequence**

LED's	Front Panel Message	Printer Error - Error Message/Code	Corrective Action
● Max. Quality ● Productivity ● Max. Speed		The Printer hangs and nothing else happens	Install the BootROM or replace it if already installed ⇒ Page 8-73.
● Max. Quality ● Productivity ● Max. Speed	Self Test Please Wait	Error Memory Config:X (sometimes only the error code is displayed)	If X = 7 reseal the DRAM DIMM's, otherwise replace the DRAM DIMM's ⇒ Page 8-73.
○ Max. Quality ○ Productivity ● Max. Speed		Error Memory Test	Replace the DRAM DIMM's ⇒ Page 8-73.
● Max. Quality ● Productivity ● Max. Speed	End Self Test		
○ Max. Quality ● Productivity ● Max. Speed	Initializing	Power Supply Error #1 Contact HP Representative	The Trailing Cable is not connected correctly. Reconnect the Trailing Cable ⇒ Page 8-36.
	Initializing IO devs	BootROM checksum failed	Replace the BootROM ⇒ Page 8-73.

### Self Diagnostics - Initialization Sequence

LED's	Front Panel Message	Printer Error - Error Message/Code	Corrective Action
<ul style="list-style-type: none"> <li><span style="color: green;">○</span> Max. Quality</li> <li><span style="color: green;">●</span> Productivity</li> <li><span style="color: green;">●</span> Max. Speed</li> </ul>	Spinning up disk	Boot Failed::1f500XX	<p>Depending on the last two digits, do the following:  <b>NOTE: If the error is still present after replacing a component, remember to REINSTALL the component that was first removed before replacing another component.</b></p> <p>01 - Replace the Hard Disk Drive ⇒ Page 8-70. Replace the Main PCA ⇒ Page 8-77.</p> <p>07 - Replace the Hard Disk Drive ⇒ Page 8-70. Replace the Main PCA ⇒ Page 8-77.</p> <p>0E - Replace the Hard Disk Drive ⇒ Page 8-70. Replace the Main PCA ⇒ Page 8-77.</p> <p>02 - Install the Hard Disk Drive ⇒ Page 8-70. Replace the Main PCA ⇒ Page 8-77.</p> <p>03 - Replace the Hard Disk Drive ⇒ Page 8-70. Replace the BootROM DIMM ⇒ Page 8-73. Replace the Main PCA ⇒ Page 8-77.</p> <p>04 - Replace the Hard Disk Drive ⇒ Page 8-70. Replace the BootROM DIMM ⇒ Page 8-73. Replace the Main PCA ⇒ Page 8-77.</p> <p>05 - Replace the DRAM DIMM's ⇒ Page 8-73. Replace the BootROM DIMM ⇒ Page 8-73. Replace the Main PCA ⇒ Page 8-77.</p> <p>06 - Replace the BootROM ⇒ Page 8-73. Replace the Main PCA ⇒ Page 8-77.</p> <p>09 - Replace the BootROM DIMM ⇒ Page 8-73. Replace the Main PCA ⇒ Page 8-77.</p> <p>0A - Replace the BootROM DIMM ⇒ Page 8-73. Replace the Main PCA ⇒ Page 8-77.</p> <p>0B - Replace the Hard Disk Drive ⇒ Page 8-70. Replace the BootROM DIMM ⇒ Page 8-73. Replace the Main PCA ⇒ Page 8-77.</p> <p>0C - Replace the BootROM DIMM ⇒ Page 8-73. Replace the Main PCA ⇒ Page 8-77.</p> <p>0D - Replace the Hard Disk Drive ⇒ Page 8-70. Replace the BootROM DIMM ⇒ Page 8-73.</p> <p>0F - Replace the Main PCA ⇒ Page 8-77.</p> <p>10 - Replace the Main PCA ⇒ Page 8-77.</p> <p>11 - Replace the Main PCA ⇒ Page 8-77.</p>
	Spinning up disk...OK		

### Self Diagnostics - Initialization Sequence

LED's	Front Panel Message	Printer Error - Error Message/Code	Corrective Action
<ul style="list-style-type: none"> <li>○ Max. Quality</li> <li>● Productivity</li> <li>● Max. Speed</li> </ul>	Loading firmware.fmw	Boot FAILED	Download the Firmware file to the Printer ⇒ Page 9-12.
	Initializing		
<ul style="list-style-type: none"> <li>● Max. Quality</li> <li>○ Productivity</li> <li>● Max. Speed</li> </ul>	Initializing L2C		
	Initializing CLK		
	Initializing IO		
		BOOTROM ERROR: Current Version:XXX Necessary Version:XXX Replace and Restart	The BootROM version and the Firmware version do not match. Download the BootROM version indicated by the "Necessary Version" message.
		COMPONENT MISMATCH: You are running a XXX printer with a XXX disk Insert XXX disk and restart.	The Hard Disk Drive, or the Firmware on the Hard Disk Drive, does not match the BootROM Printer Model. For RTL Printers (Part No. C6090A and C6095A - see label on the Back Cover): Make sure RTL Hard Disk Drives and Firmware are used. For Part Numbers see Page 7-1. For Postscript Printers (Part No. C6091A and C6096A - see label on the Back Cover): Make sure Postscript Hard Disk Drives and Firmware are used. For Part Numbers see Page 7-1.
<ul style="list-style-type: none"> <li>● Max. Quality</li> <li>○ Productivity</li> <li>○ Max. Speed</li> </ul>	Initializing Please Wait Code rev:XXXXXX BootROM:XXXXX RAM present:XXX MB Hard Disk:XXXX MB PS Code rev:XXXXX		
	Ready or Ready for Media		

## Service Tests (Diagnostics)

The following is a list of all internal Service Tests available in the Printer. Instructions for entering the Service Tests menu are given on Page 4-7.

**1. Scan Axis Test** ⇒ Page 4-10

The purpose of this Service Test is to verify the correct functioning of parts relating to Carriage movement along the Printer axis.

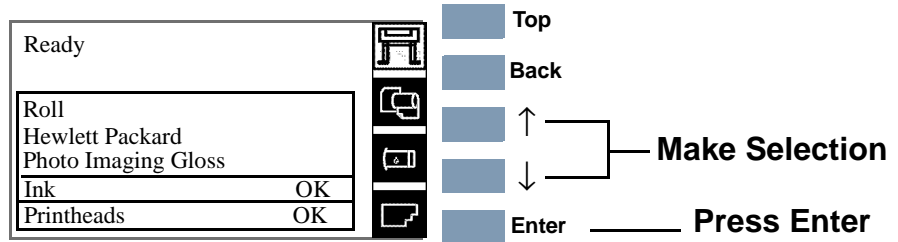
**2. Media Axis Test** ⇒ Page 4-12

The purpose of this Service Test is to verify the correct functioning of parts relating to Media movement through the Printer.



## Entering the Service Tests Menu

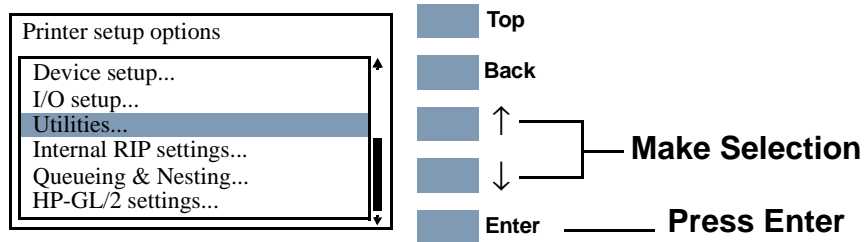
1. Once the message "Ready" is displayed on the front-panel, scroll to the "Printer Setup Options" icon and press the **Enter** key.



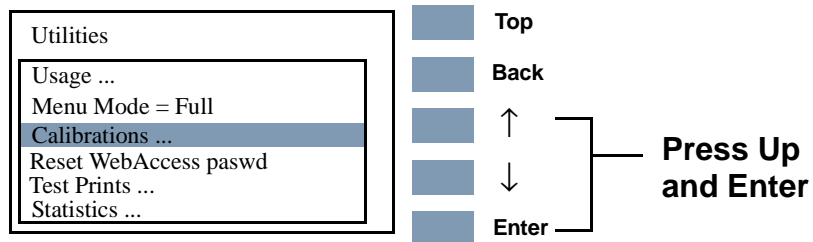
**ON-SITE REPAIR**

### For On-Site Engineers accessing the complete list of Service Tests

- a. Once inside the "Printer Setup Options" menu, use the **Arrow** keys to scroll to the "Utilities" menu and press the **Enter** key.



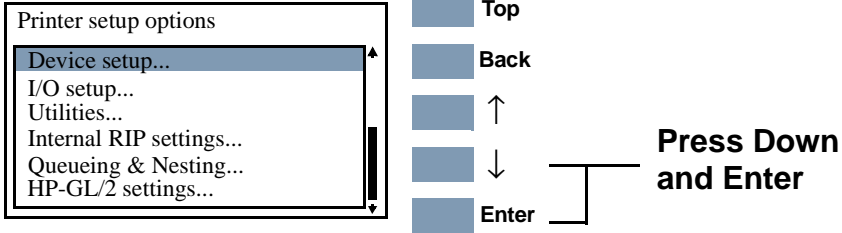
- b. Once inside the "Utilities" Menu, press the following key combination to access the complete list of Service Test menus.



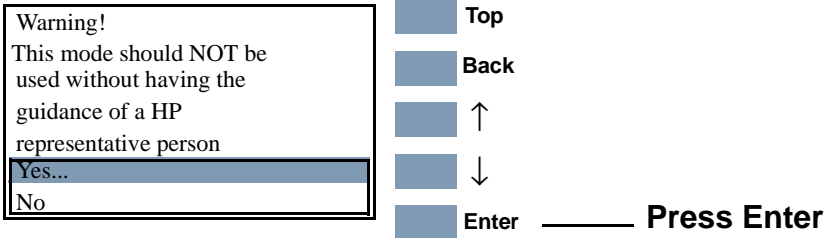
**PHONE SUPPORT**

**For Call Agents requesting the User to access a limited number of Service Tests**

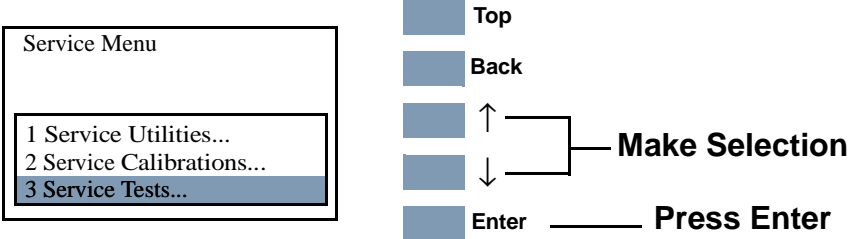
a Once inside the "Printer Setup Options" menu and the "Device setup" menu is highlighted, press the following key combination:



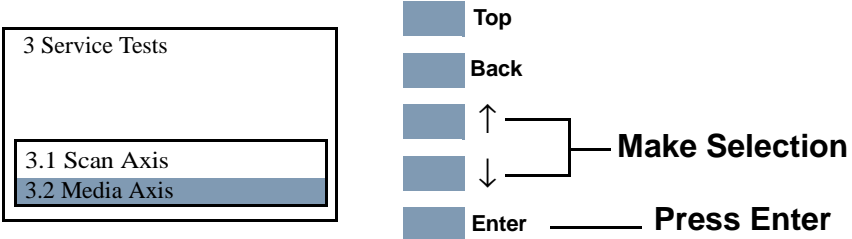
2 The message below is displayed. Select **Yes** to continue.



3. You are now in the Service Menu. Use the **Arrow** keys to scroll to the "3 Service Tests" menu and press the **Enter** key.

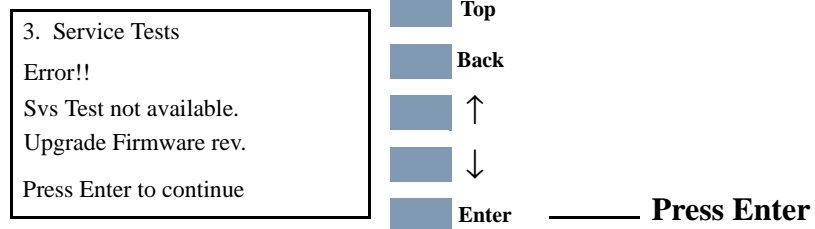


4. Use the **Arrow** keys to scroll through the "Service Tests" selections.



5. Press the **Enter** key to begin a specific operation when the required Service Test is highlighted.

If your Firmware does not support Service Tests, the following message is displayed. You should press **Enter** to exit. If you need the Service Tests, download the latest Firmware and repeat the whole procedure to enter the Service Tests menu.

**NOTE**

**If the Printer is not used for 3 minutes, the Printer exits the Service Tests Menu and you must repeat the above steps to enter Service Tests again.**

**NOTE**

**In some cases a quick press of a button may not be recognized by the Printer. When pressing a button, be sure to press it deliberately and all the way to the bottom of its travel.**

**NOTE**

**If the Printer hangs up during an operation, switch the Printer OFF and restart from step 1.**

PHONE SUPPORT

## Scan Axis Test

The purpose of this test is to verify:

- Carriage movement along the Printer axis.
- Scan-Axis motor.

This test measures the maximum and the average current required to move the Scan Axis parts in order to verify if parts are moving freely or not.

Perform the Scan Axis Test as follows:

1. In the "3 Service Tests" menu, scroll to "3.1 Scan Axis" and press **Enter**.

3 Service Tests

3.1 Scan Axis

3.2 Media Axis

Top

Back

↑

↓

Enter

Make Selection

Press Enter

2. The test will start and the following message will appear on the front panel as the test is performed.

3.1 Scan Axis

Max. PWM: Avg. PWM

← xxx xxx

Analyzing Data...

Top

Back

↑

↓

Enter

3. When the test has completed, the Maximum and Average Pulse Modulation Values are displayed for each direction (left and right). Press **Enter** to return to the Service Tests menu.

3.1 Scan Axis

Max. PWM: Avg. PWM

← xxx xxx

→ xxx xxx

Press ENTER to continue

Top

Back

↑

↓

Enter

Press Enter

**NOTE**

**Report the values to the nearest HP Response Center or HP Support Office to determine whether values are within the accepted range.**

**When reporting the values, have the following information ready:**

- **Model and Serial Number of the Printer.**
- **All values reported in the test.**
- **The Service Configuration Print ⇒ Page 1-26.**

---

If values are not within the accepted ranges, turn the Printer OFF and perform the following steps and repeat the test after each one:

1. Clean Slider Rods and Apply Oil along the complete axis of the Slider Rods with the User's Slider Rods Lubrification Kit ⇒ Page 9-8.
2. Check the Encoder Strip and clean it if it is dirty.
3. Replace the Scan-Axis Motor ⇒ Page 8-53.
4. Check the Carriage Belt for excessive wear. If necessary, replace the Carriage Belt ⇒ Page 8-46.

PHONE SUPPORT

## Media Axis Test

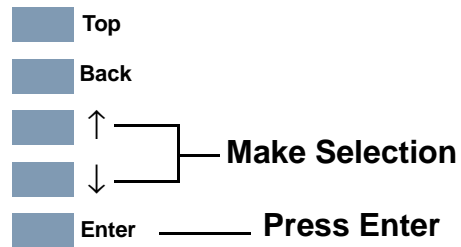
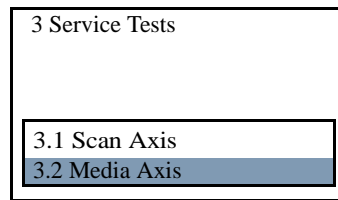
The purpose of this test is to verify:

- Overdrive Roller movement.
- Paper-Axis motor.

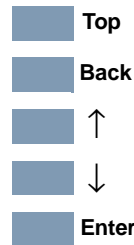
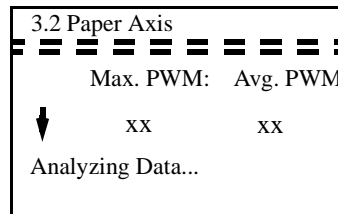
This test measures the current required to move the Media Axis parts in order to verify if parts are moving freely or not.

Perform the Media Axis Test as follows:

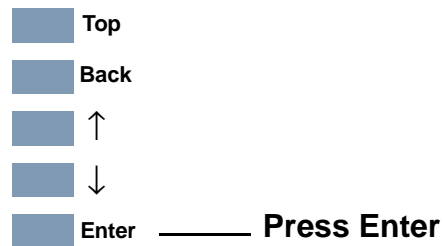
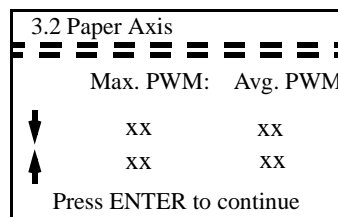
1. In the "3 Service Tests" menu, scroll to "3.2 Media Axis" and press **Enter**.



2. The test will start and the following message will appear on the front panel as the test is performed.



3. When the test has completed the Maximum and the Average Pulse Modulation Values are displayed for each direction (down and up). Press **Enter** to return to the Service Tests menu.



**NOTE**

**Report the values to the nearest HP Response Center or HP Support Office to determine whether values are within the accepted range.**

**When reporting the values, have the following information ready:**

- **Model and Serial Number of the Printer.**
- **All values reported in the test.**
- **The Service Configuration Print ⇒ Page 1-26.**

---

If values are not within the accepted ranges, power the Printer OFF and perform the following steps and repeat the test after each one:

1. Lift the Media Lever and insert thick media into the paper path to push out any media that may be stuck there.
2. Open the Window and check for any visible obstacles restricting the movement of the Drive Roller. If there is a wrinkled mass of media inside the paper path, lift the Pinch Wheels (using the Media Lever) and clear the obstruction. If you cannot reach the media, remove the Entry Roller ⇒ Page 8-104 to gain better access.
3. Remove the Paper-Axis Motor (⇒ Page 8-98) and check the Drive Roller movement is smooth and if it is not, remove the Center Platen (⇒ Page 8-110) to check for any obstructions.
4. Replace the Paper-Axis Motor ⇒ Page 8-98.

## Service Utilities

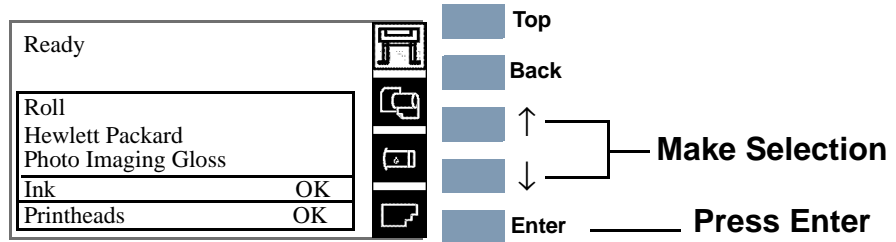
The following is a list of all internal Service Utilities available in the Printers. Instructions for entering the Service Utilities menu are given on Page 4-15.

- 1. Turn DRIVE ROLLER ⇒ Page 4-18**  
The purpose of this Service Utility is to facilitate the cleaning of the Drive Roller and the Overdrive.
- 2. Prime TUBES ⇒ Page 4-19**  
The purpose of this Service Utility is to prime the Tubes when a new Tubes System has been installed or automatic priming was not completed.
- 3. Altitude Setup ⇒ Page 4-23**  
This Service Utility allows the operating altitude to be set for the Printer.
- 4. EEROM Setup ⇒ Page 4-24**  
The purpose of this Service Utility is to set the Printer Model, the Serial Number and Japanese Fonts.
- 5. Reset Life Counters ⇒ Page 4-29**  
The purpose of this Service Utility is to reset the preventive maintenance counters when parts have been replaced.
- 6. Backup EEROM ⇒ Page 4-31**  
The purpose of this Service Utility is to restore the EEROM content when the Main PCA or Hard Disk Drive are replaced.
- 7. Image Quality Warning ⇒ Page 4-33**  
This Service Utility allows you to turn the Image Quality Warning message On or Off.
- 8. Diagnostic Print ⇒ Page 4-34**  
This Service Utility allows you to print a Diagnostic print that will help you to troubleshoot image quality problems and verify printhead nozzle status.



## Entering the Service Utilities Menu

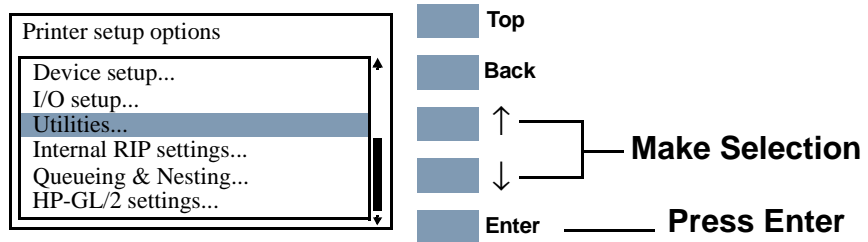
1. Once the message "Ready" is displayed on the front-panel, scroll to the "Printer Setup Options" icon and press the **Enter** key.



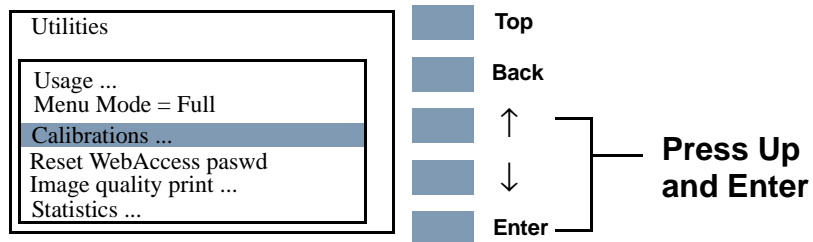
**ON-SITE REPAIR**

### For On-Site Engineers accessing the complete list of Service Utilities

- a. Once inside the "Printer Setup Options" menu, use the **Arrow** keys to scroll to the "Utilities" menu and press the **Enter** key.



- b. Once inside the "Utilities" Menu, press the following key combination to access the complete list of Service Utilities.



**PHONE SUPPORT**

**For Call Agents requesting the User to access a limited number of Service Utilities**

a Once inside the "Printer Setup Options" menu and the "Device setup" menu is highlighted, press the following key combination.

2 The message below is displayed. Select **Yes** to continue.

3. You are now in the **Service Menu**. Use the **Arrow** keys to scroll to the "Service Utilities" menu and press the **Enter** key.

4. Use the **Arrow** keys to scroll through the "Service Utilities" selections.

5. Press the **Enter** key to begin a specific operation when the required Service Utility is highlighted.

**NOTE** If the Printer is not used for 3 minutes, the Printer exits the Service Utilities Menu and you must repeat the above steps to enter Service Utilities again.

---

**NOTE** In some cases a quick press of a button may not be recognized by the Printer. When pressing a button, be sure to press it deliberately and all the way to the bottom of its travel.

---

**NOTE** If the Printer hangs up during an operation, switch the Printer OFF and restart from step 1.

---

**PHONE SUPPORT**

## Turn DRIVE ROLLER

The purpose of this Service Utility is to rotate the Overdrive, Drive Roller and Roller Mark in order to clean them.

**NOTE**

**Remove the media before performing this operation. If media is detected, the message below is displayed.**

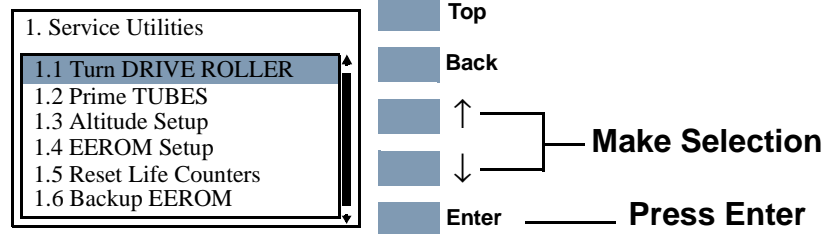
1.1 Turn DRIVE ROLLER

Please remove media completely

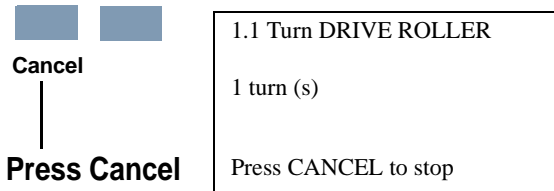
Press ENTER to continue

Perform the Turn DRIVE ROLLER utility as follows:

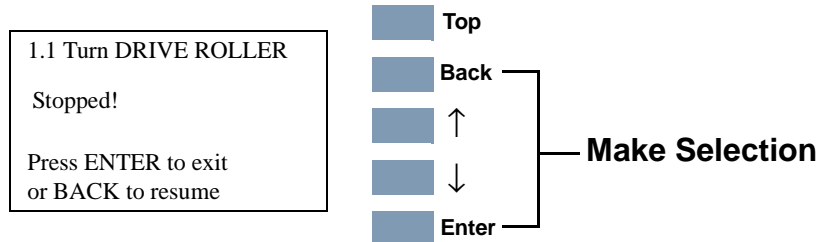
1. Lift the Window on the printer and deactivate the Window Sensor by inserting a pencil in the Sensor slot on the top of the Right Trim.
2. In the Service Utilities submenu, scroll to "Turn DRIVE ROLLER" and press **Enter**.



3. Once the utility starts, the Drive Roller will begin to turn slowly and the following message will be displayed. Everytime the Drive Roller completes a turn, the counter will increase by one.



4. If you want to stop the Drive Roller from turning, press **Cancel** and the following message will appear on the front panel. Press **Enter** if you want to return to the Service Utility menu or press **Back** if you want to continue turning the Drive Roller.



**PHONE SUPPORT**

## Prime TUBES

The purpose of this Service Utility is to prime the Tubes when a new Tubes System has been installed or automatic priming was not completed.

**NOTE**

**If you are using this Service Utility because automatic priming has failed, you will need to remove the Setup Printheads used and insert new Setup Printheads.**

**NOTE**

**Check there is enough ink remaining in the Ink Cartridges before starting to prime the tubes; if the ink level is LOW or VERY LOW, replace the Ink Cartridges.**

Prime the TUBES as follows:

1. In the Service Utilities submenu, scroll to "1.2 Prime TUBES" and press **Enter**.

1. Service Utilities

- 1.1 Turn DRIVE ROLLER
- 1.2 Prime TUBES**
- 1.3 Altitude Setup
- 1.4 EEROM Setup
- 1.5 Reset Life Counters
- 1.6 Backup EEROM

Top

Back

↑

↓

Enter

**Make Selection**

**Press Enter**

2. The following message will be displayed. Press **Enter** to confirm.

1.2 Prime TUBES

Press ENTER to confirm  
or BACK to correct

Top

Back

↑

↓

Enter

**Press Enter**

3. The Printer will begin to startup and in order to continue, press **Enter**.

INK STARTUP

Printer startup

Press ENTER to  
Continue

Top

Back

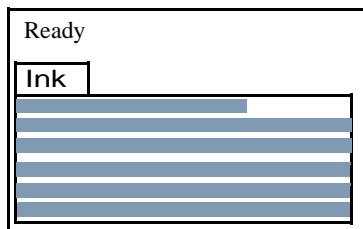
↑

↓

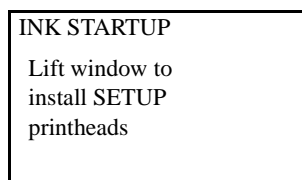
Enter

**Press Enter**

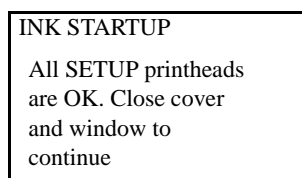
- The following message will be displayed on the front panel while the printer verifies the Ink Cartridges:.



- When the following message is displayed, lift the Window and remove ALL the Printheads from the Carriage. Install the Setup Printheads into the Carriage.



- Once all the Setup Printheads are installed, the following message will appear on the front panel. Close the Carriage Cover and close the Window.



- The following messages will be displayed on the front panel while the Printer accesses and then stores the Printheads.



8. The Printer will then begin to prime the Tubes System.

INK STARTUP  
Initializing printer  
Please wait. xx sec

9. Once the Tubes System is purged, the following message will be displayed. Lift the Window and remove ALL the Setup Printheads from the Carriage and install the previously removed printing Printheads into the Carriage.

INK STARTUP  
Lift window to  
replace SETUP  
printheads

10. Once all the Printheads are installed, the following message will appear on the front panel. Close the carriage cover and close the window.

INK STARTUP  
All printheads  
are OK. Close cover  
and window to  
continue

11. Open the Right Door and make sure the Printhead Cleaners are installed in the Service Station.

INK STARTUP  
Open right cover  
and install printhead  
cleaners

12. If media is not loaded, the following message appears on the front panel and you must load media into the Printer.

INK STARTUP  
Load paper for  
calibration

13. The Printer will start to print the Printhead Alignment Pattern and the following message will be displayed on the front panel:

INK STARTUP  
Aligning printheads  
Approximate  
time remaining  
x min xx sec

14. Once the Printhead Alignment is completed, the following message will be displayed on the front panel. Press **Enter** to continue:

INK STARTUP  
Printer startup  
has finished  
Press ENTER to  
Continue

■  
■ **Back**  
■ ↑  
■ ↓  
■ **Enter** ——— **Press Enter**



**PHONE SUPPORT**

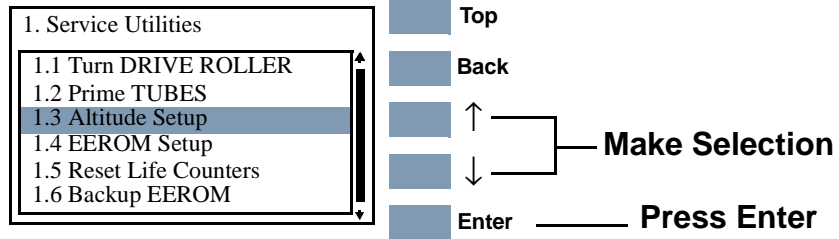
## Altitude Setup

This Service Utility allows the operating altitude to be set for the Printer for particular operating conditions when media load problems occur.

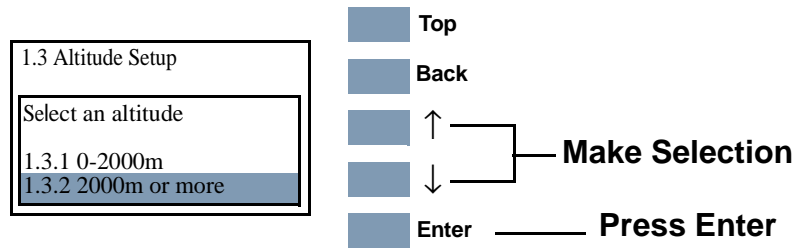
**NOTE**

**This utility is required exclusively for Printer operating altitudes over 2000 m.**

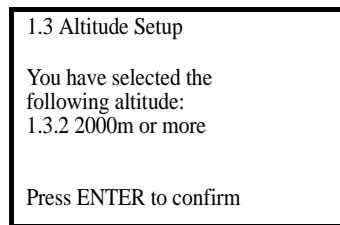
1. In the Service Utilities submenu, scroll to "1.3 Altitude Setup " and press **Enter**.



2. The following options are displayed Use the Arrow keys to make the selection and then press **Enter**:



3. Once the option has been selected, the following confirmation screen is displayed:

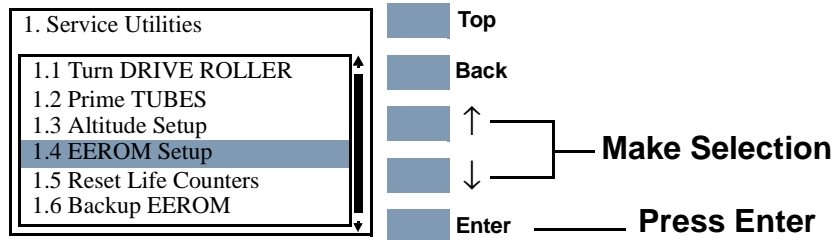


4. Press **Enter** to confirm and exit this utility or press **Back** to return to the altitude settings menu.

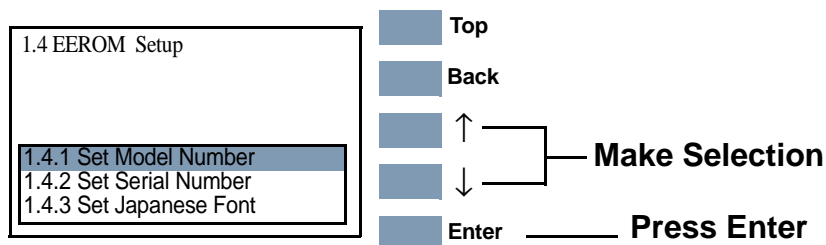
## EEROM Setup

The purpose of this Service Utility is to set the Printer Model, the Serial Number and Japanese Fonts. This is required in the following situations:

- The Main PCA and Hard Disk Drive are replaced at the same time (EEROM empty).
  - The Hard Disk Drive and Main PCA are replaced at the same time and the Main PCA has already been used (valid EEROM content); the Printer backs up the data to the Hard Disk Drive storing wrong values for the current Printer.
  - The main PCA EEROM and the Hard Disk Drive EEROM backup are valid at initialization but data is conflicting because they do not come from the same Printer (they have a different Model Number or Serial Number), and the user has performed the Backup EEROM Utility incorrectly (See Page 4-31).
  - Both the Main PCA EEROM and the Hard Disk Drive EEROM backup are corrupt or fail during Printer initialization.
1. In the Service Utilities submenu, scroll to "1.4 EEROM Setup " and press **Enter**.

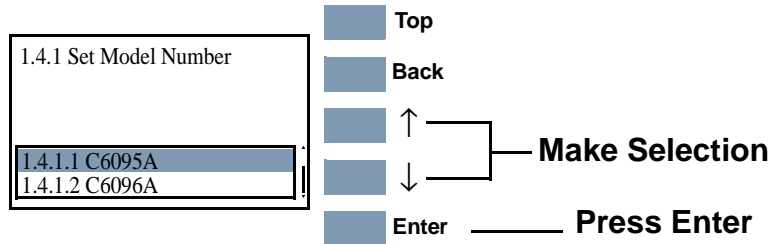


2. The following options are displayed for EEROM setup. Press **Enter** once you have made your selection:

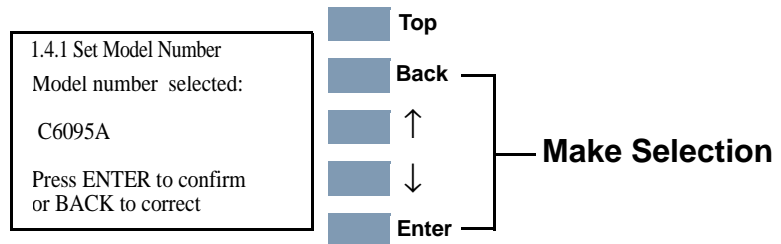


### If you want to set the Model Number

- a** If you want to set the Model Number select "1.4.1 Set Model Number" and press the **Enter** key to access the list of possible Model Numbers for the Printer. Select the Model Number using the **Up** and **Down** keys and then press **Enter**.



- b** The following message is displayed. Press **Enter** to confirm and return to the EEROM Setup menu or **Back** to select another Model Number.

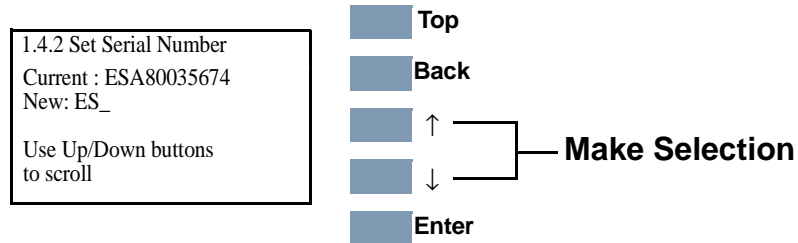


## If you want to set the Serial Number

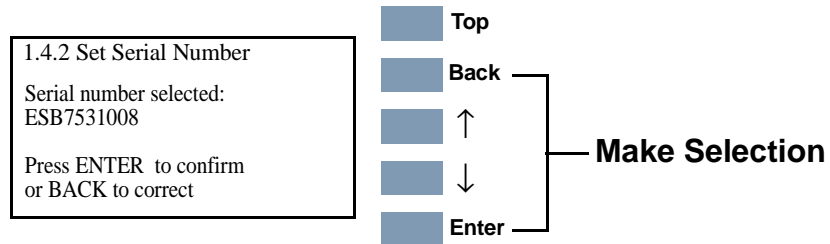
**NOTE**

The Serial Number in the Current field is only displayed if it is encoded in the EEROM.

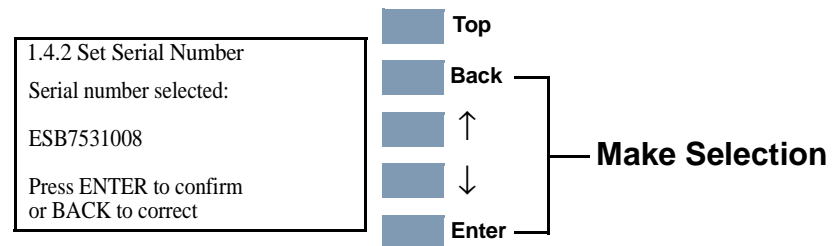
- a Select "1.4.2 Set Serial Number" and press the **Enter** key to view the message below. To define a new serial number use the **Up** and **Down** keys to scroll through a list of characters in the following ranges: **1...10**, **A...F** (hexadecimal format), **ES** or **SG** (site of manufacture), **←** (Backspace). The current parameter is displayed in the New field. To select the current parameter press the **Enter** key. To delete a character previously confirmed using the **Enter** key, select the **←** (Backspace character) from the list.



- b When the last digit has been entered, the message below is displayed. Press **Enter** to confirm the number and return to the EEROM Setup utility or **Back** to modify the number.



- c If you decided to press **Back**, the utility will return to the Serial Number selection menu and the last digit of the Serial Number will be automatically deleted.



### If you want to set the Japanese Fonts

**NOTE**

If the customer is not using any internal Japanese PS Fonts, then this Service Utility is not necessary.

**NOTE**

If the Printer is not a Stork PS (model no. C6091A or C6096A), this utility is not available and the message below will be displayed. Press Back to return to the EEROM menu.

1.4.2 Set Japanese Fonts Font type not available for this model of printer  Press BACK to return to menu	<div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> Top                 </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> Back                 <div style="margin-left: 20px;">_____ Press Back</div> </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> ↑                 </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> ↓                 </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> Enter                 </div> </div>
---	---

**NOTE**

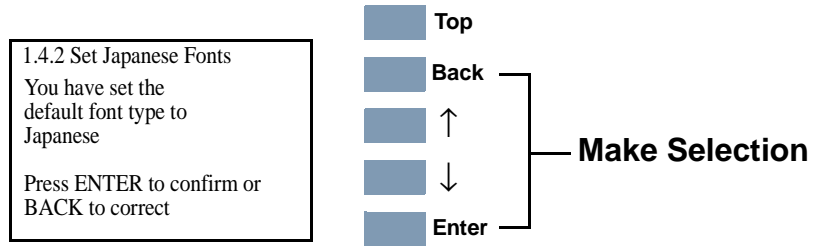
If the printer is a Stork PS, but the Hard Disk Drive does not contain any Japanese Fonts, then the message below will be displayed. Press Back to return to the EEROM menu.

1.4.2 Set Japanese Fonts Only Roman fonts available. Font type can NOT be changed  Press BACK to return to menu	<div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> Top                 </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> Back                 <div style="margin-left: 20px;">_____ Press Back</div> </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> ↑                 </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> ↓                 </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> Enter                 </div> </div>
--	---

- a Select "1.4.3 Set Japanese Font" and press the **Enter** key. The message below will be displayed. Select **Yes** to load the Japanese fonts to the hard disk. Select **No (Cancel)** to return to the EEROM Setup utility.

1.4.2 Set Japanese Fonts Set default font type to Japanese?  <div style="border: 1px solid black; padding: 2px;">                     Yes                 </div> <div style="border: 1px solid black; padding: 2px;">                     No (Cancel)                 </div>	<div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> Top                 </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> Back                 </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> ↑                 </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> ↓                 </div> <div style="display: flex; align-items: center;"> <span style="width: 20px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></span> Enter                 <div style="margin-left: 20px;">_____ Press Enter</div> </div> </div>
---	--

- b** If you select **Yes** the message below will be displayed. Press **Enter** to complete loading and return to the EEROM Setup utility or press **Back** to return to the previous message.



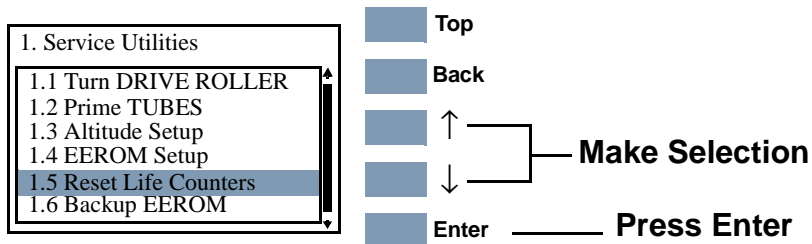
## Reset Life Counters

The purpose of this Service Utility is to reset the preventive maintenance counters when parts have been replaced. When you reset a preventive maintenance counter for a part, the Printer will stop displaying the maintenance warning or stop message for the part.

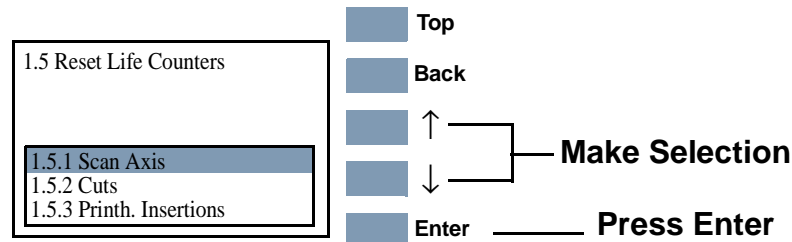
### NOTE

**You should only reset the life counter for a certain component when it has been replaced by a new one. Never reset the life counter for a component when it has not been replaced.**

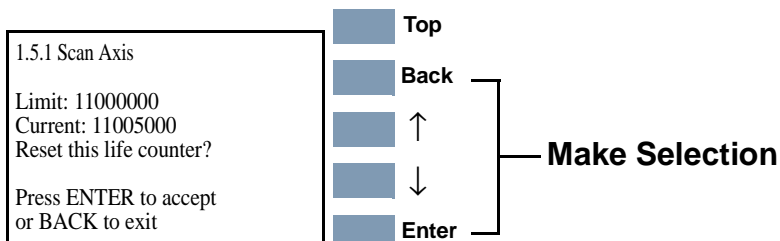
1. In the Service Utilities submenu, scroll to "1.5 Reset Life Counters " and press **Enter**.



2. The following options are displayed for Reset Life Counters. Press **Enter** once you have made your selection.

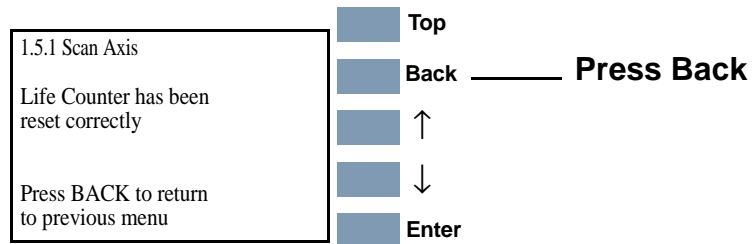


3. A message confirming the selection is displayed. Press **Enter** to confirm the reset of the life counter or **Back** to cancel.



The front panel message displays the following information:

- Color (Printhead Insertions only); the Printhead color for which the counter is being reset.
  - Limit; the number of cycles when the part requires replacing.
  - Current; the current number of usage cycles for the part.
4. When you reset the Life Counter, the following message is displayed:





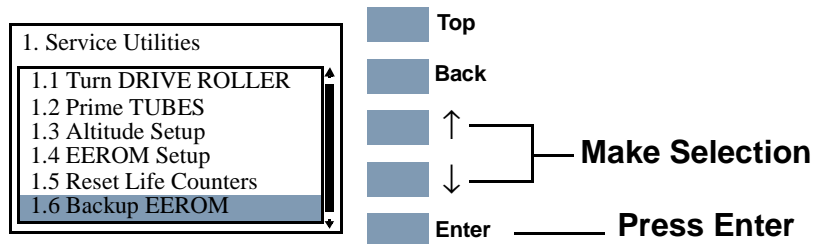
## Backup EEROM

This Service Utility is used to restore the contents of the EEROM when a service engineer has replaced the Main PCA or the Hard Disk Drive. If the Main PCA is replaced the EEROM content, backed up on the hard disk, is restored to the Main PCA and if the Hard Disk Drive is replaced the EEROM content is saved to the new Hard Disk Drive.

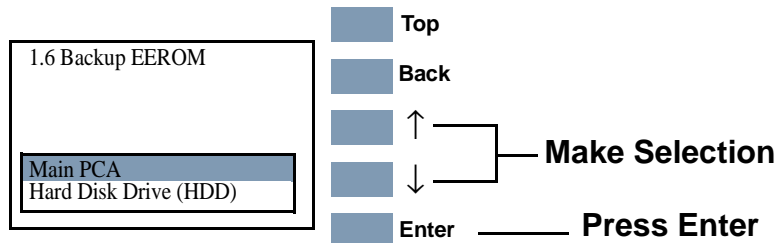
### NOTE

**If both the Hard Disk Drive and the Main PCA are replaced, on Printer start-up a continuable system error is displayed and the EEROM Setup Service Utility must be performed (See Page 4-24).**

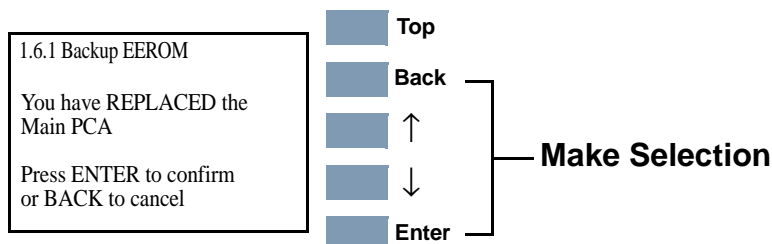
1. In the Service Utilities submenu, scroll to "1.6 Backup EEROM" and press **Enter**.



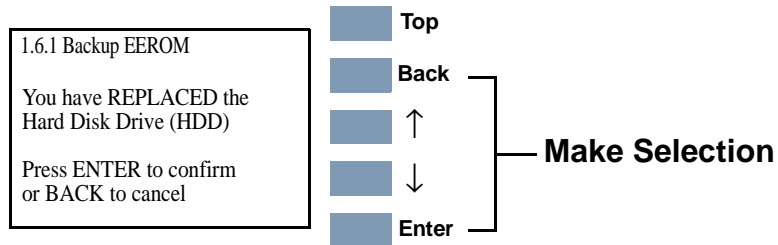
2. Select the part that has been replaced and press **Enter**:



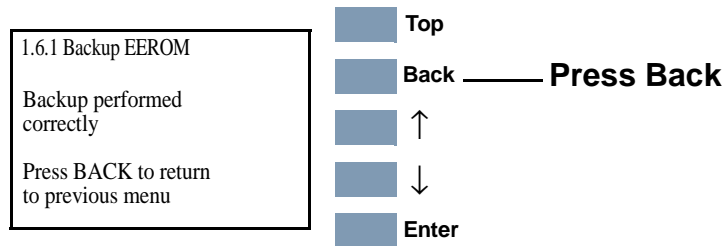
3. If you select "Main PCA" a message confirming the selection is displayed. Press **Enter** to confirm and exit this utility or press **Back** to cancel.



4. If you select "Hard Disk Drive (HDD)" a message confirming selection is displayed. Press **Enter** to confirm and exit this utility or press **Back** to cancel.



5. Press **Back** to return to the Service Utilities menu.

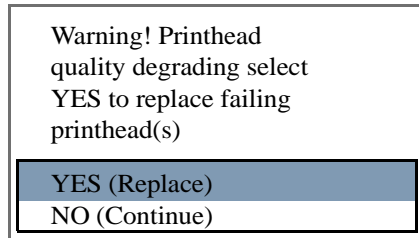


**PHONE SUPPORT**

## Image Quality Warning

This Service Utility is used to turn the Image Quality Warning On or Off.

If the printer is about to print a job and Printhead health status means that a Printhead is not usable, the front panel will display a warning:



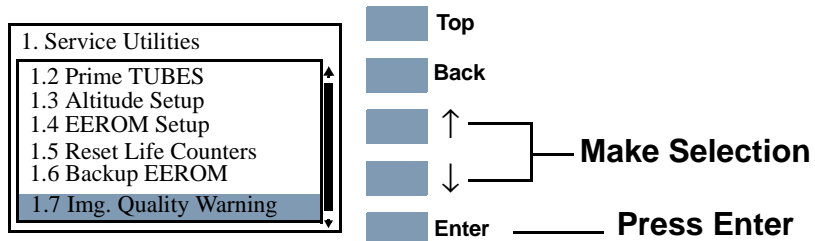
You can still print without the failed Printhead but each time you send a print job to the Printer, this warning is displayed. If you set the Image Quality Warning to **Off**, this message will not be displayed.

### **WARNING**

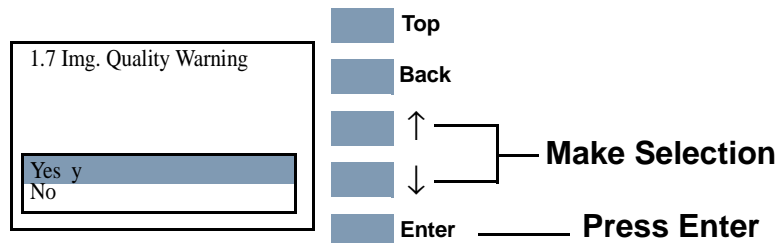
**If you use degraded Printheads, the print quality may be affected, particularly in Max. Quality print mode. The image is printed WITHOUT using the failed Printhead i.e. without using that color.**

To change the Image Quality Warning setting:

1. In the Service Utilities submenu, scroll to "1.7 Img. Quality Warning" and press **Enter**.



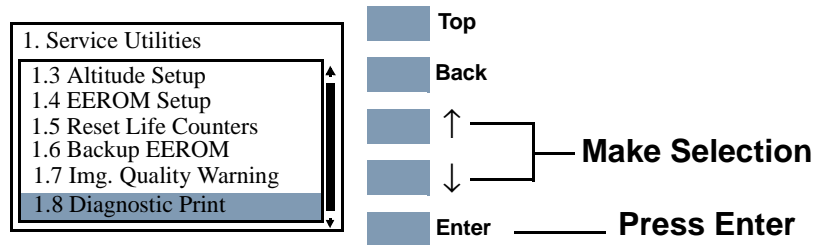
2. The following message is displayed. Select **Yes** or **No** and press **Enter** to confirm.



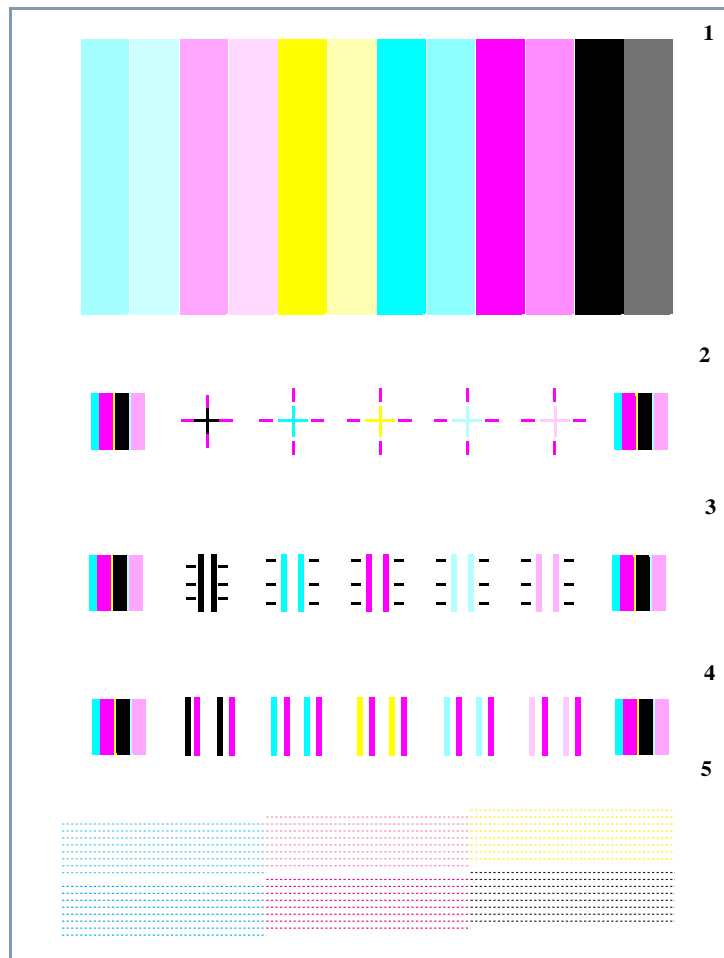
## Diagnostic Print

This Service Utility allows you to print a Diagnostic print that will help you to troubleshoot image quality problems and verify printhead nozzle status.

1. In the Service Utilities submenu, scroll to "1.8 Diagnostic Print" and press **Enter**.



The following patterns are printed. For information on each pattern refer to 6, *Print Quality*.



---

# Service Calibrations

# 5

---

Service Calibrations	5-3
Entering the Service Calibrations Menu	5-4
1. Scan-Axis Calibration	5-7
2. Service Station Calibration	5-11
3. Accuracy Calibration	5-14
Carriage Height Calibration	5-18
Calibration Error Codes	5-26

## Introduction

The Printer has several calibration procedures that must be performed under certain conditions. Refer to the table on the next page to determine when calibrations are required.

**PHONE SUPPORT**

### Phone Support

In certain circumstances, a Call Agent can try and troubleshoot the Printer by requesting the Customer to perform a Service Calibration via the phone. In Phone Support the user will have access to a limited number of Calibrations (on-site repair calibrations are excluded).

If a Service Calibration fails, a four digit (xxxx) calibration error code is reported which can be used to determine whether the Printer requires any on-site maintenance. Up to three error codes can be reported for each Calibration. To troubleshoot Service Calibration Error Codes refer to the Page 5-26.

---

**NOTE**

**If a calibration fails, the Printer will use the previous successful calibration. If you have a Print Quality problem you must troubleshoot the error to restore quality.**

---

**WARNING**

**REMEMBER THAT CERTAIN CALIBRATIONS ARE REQUIRED EVEN IF AN ASSEMBLY HAS BEEN DISASSEMBLED TO GAIN ACCESS TO ANOTHER ASSEMBLY OR COMPONENT.**

<b>Which Calibrations Need To Be Done</b>				
<b>When Required</b>	<b>Scan Axis</b>	<b>Service Station</b>	<b>Accuracy</b>	<b>Carriage Height</b>
<b>Carriage is disassembled or replaced</b>	Yes	Yes	No	Yes
<b>Paper-Axis Motor is disassembled or replaced</b>	No	No	Yes	No
<b>Platen Assembly is disassembled or replaced</b>	Yes	No	No	Yes
<b>Service Station is disassembled or replaced</b>	No	Yes	No	No

---

**NOTE**

**Refer to the following page for the relevant Calibration.**

## Service Calibrations

The following is a list of all internal Service Calibrations available in the Printers. Instructions for entering the Service Calibrations menu are given on Page 5-4.

**1.** Scan Axis Calibration ⇒ Page 5-7

The purpose of this Service Calibration is to calibrate the Printhead in relation to the media and the Platen Assembly.

**2.** Service Station ⇒ Page 5-11

The purpose of this Service Calibration is to calibrate the Service Station in relation to the Carriage Assembly.

**3.** Accuracy Calibration ⇒ Page 5-14

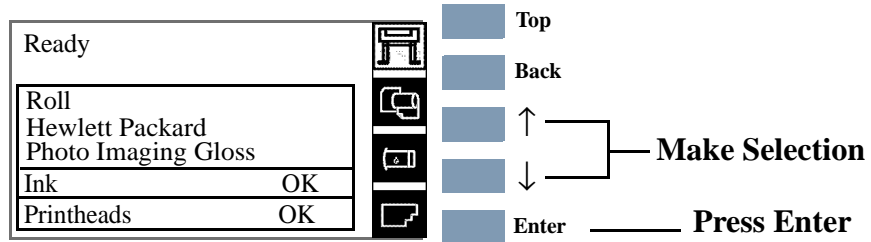
The purpose of this Service Calibration is to calibrate the nominal advance of the Paper-Axis Motor, changing the factory default values stored on the EEROM. This calibration is necessary to control the exact movement of the media in order to avoid print quality problems like banding.

◆ Carriage Height Calibration ⇒ Page 5-18

The purpose of this Service Calibration is to adjust the distance between the Carriage and the Center Platen. This calibration is necessary in order to prevent problems like Printhead crashes.

## Entering the Service Calibrations Menu

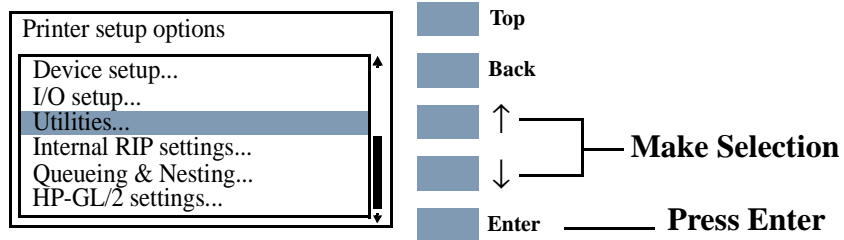
1. Once the message "Ready" is displayed on the front-panel, scroll to "Printer Setup Options" icon and press the **Enter** key.



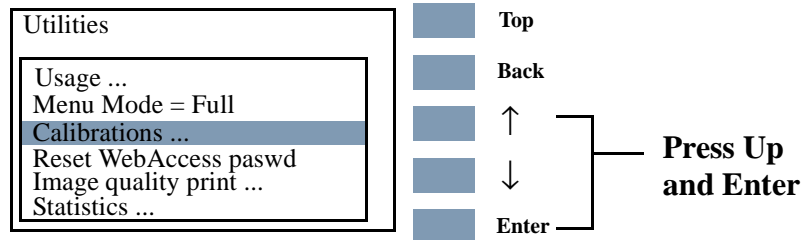
**ON-SITE REPAIR**

### For On-Site Engineers accessing the complete list of Service Calibrations

- a. Once inside the "Printer Setup Options" menu, use the **Arrow** keys to scroll to the "Utilities" menu and press the **Enter** key.



- b. Once inside the "Utilities" Menu, press the following key combination to access the complete list of Service Calibrations.





**PHONE SUPPORT**

**For Call Agents requesting the User to access a limited number of Service Calibrations**

- a Once inside the "Printer Setup Options" menu and the "Device setup" menu is highlighted, press the following key combination:

Printer setup options

- Device setup...
- I/O setup...
- Utilities...
- Internal RIP settings...
- Queueing & Nesting...
- HP-GL/2 settings...

Top  
Back  
↑  
↓  
Enter

**Press Down and Enter**

- 2 The message below is displayed. Select **Yes** to continue.

Warning!  
This mode should NOT be used without having the guidance of a HP representative person

- Yes...
- No

Top  
Back  
↑  
↓  
Enter

**Press Enter**

3. You are now in the **Service Menu**. Use the **Arrow** keys to scroll to the "Service Calibrations" menu and press the **Enter** key.

Service Tools

- 1 Service Utilities...
- 2 Service Calibrations...
- 3 Service Tests...

Top  
Back  
↑  
↓  
Enter

**Make Selection**

**Press Enter**

4. Use the **Arrow** keys to scroll through the "Service Calibrations" selections. Press the **Enter** key to begin a specific operation when the Service Calibration required is highlighted.

2 Service Calibrations...

- 2.1 Scan axis
- 2.2 Service Station
- 2.3 ACCURACY

Top  
Back  
↑  
↓  
Enter

**Make Selection**

**Press Enter**

**NOTE** If the Printer is not used for 3 minutes, the Printer exits out of the Service Calibrations Menu and you must repeat the above steps to enter Service Calibrations again.

---

**NOTE** In some cases a quick press of a button may not be recognized by the Printer. When pressing a button, be sure to press it deliberately and all the way to the bottom of its travel.

---

**NOTE** If the Printer hangs up during an operation, switch the Printer OFF and restart from step 1.

---

**PHONE SUPPORT**

## 1. Scan-Axis Calibration

The purpose of this Service Calibration is to calibrate the Printhead in relation to the media and the Platen Assembly. The Scan-Axis Calibration performs the following:

- Line Sensor to calibrate the intensity of the Line Sensor in the Carriage PCA.
- Printhead to Media Spacing.

**NOTE**

**If you get an error code, refer to Page 5-26, *Calibration Error Codes* for its description and resolution.**

**NOTE**

**To perform this Service Calibration for a specific LED in the Line Sensor, the Line Sensor identifier is required. The Line Sensor identifier is indicated on the label on the side of the Line Sensor Assembly on the right side of the Carriage. If you do not specify a correct value, the Printer will use default values for the calibration.**

Perform Scan-Axis Calibration whenever:

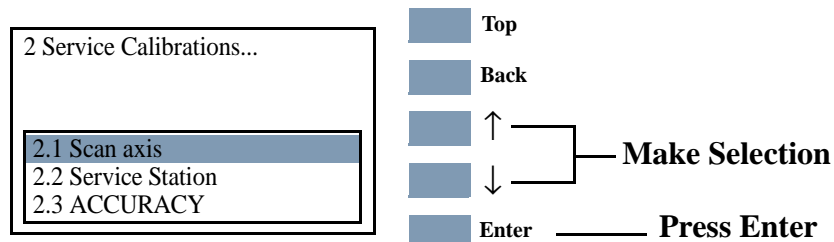
- Carriage is disassembled or replaced.
- Encoder strip is disassembled or replaced.
- Center platen is disassembled or replaced.

Perform the Scan-Axis Calibration as follows:

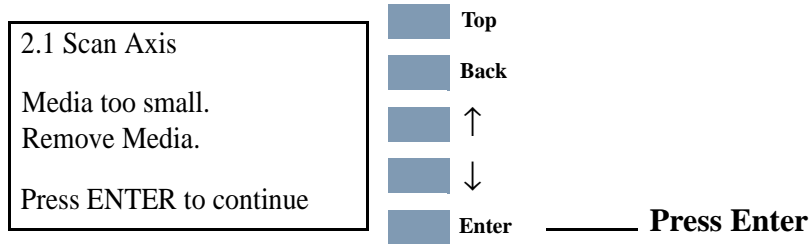
**NOTE**

**To perform this Calibration, make sure you load white medium that is the full width of the Printer.**

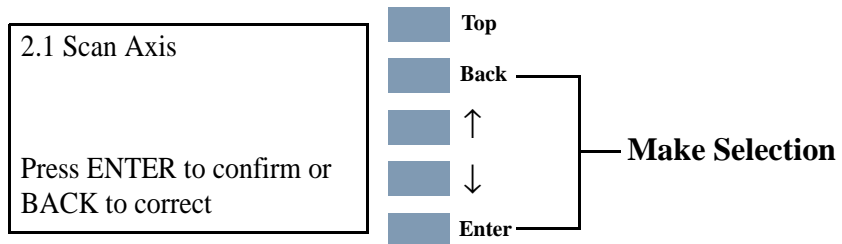
1. In the Service Calibrations submenu, scroll to "2.1 Scan axis" and press **Enter**.



If the Media loaded is not the right size, the following message is displayed. Press **Enter** to exit. Load the correct media and repeat the procedure.



2. If the correct media is loaded, the following message is displayed. Press **Enter** to confirm or **Back** to return to the Service Calibrations menu.



3. When the following message is displayed, you will need to enter the Line Sensor id.

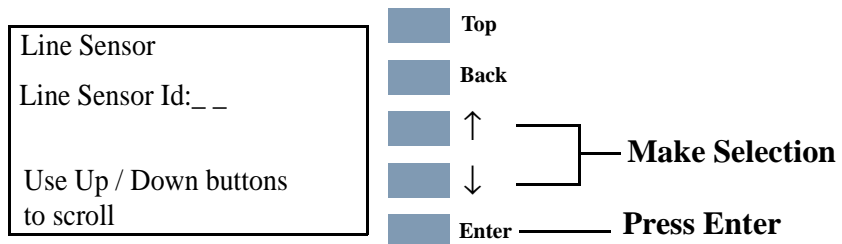
---

**NOTE**

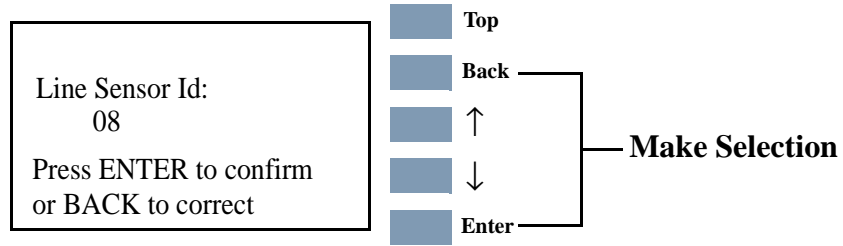
---

**The Line Sensor Id. is a two digit figure in a 01 - 99 range which can be located on the label on the side of the Line Sensor Assembly on the right side of the Carriage.**

To insert a number use the **UP** and **DOWN** keys to scroll through a list of characters in the following ranges: **1...9** and **←** (Backspace) to delete a character previously confirmed using the **Enter** key. After selecting the first digit, press **Enter** to insert the second digit. Press **Enter** to continue when both digits have been entered.



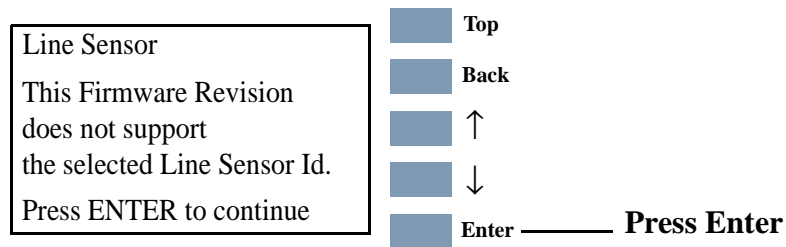
- When you have inserted the Line Sensor Id. the message below is displayed. Press **Enter** to confirm the number and continue the calibration or **Back** to modify the number.



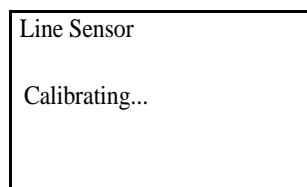
- If you do not insert correct values the message below is displayed. Press **Enter** to continue the calibration using default values.

**NOTE**

**If Scan Axis Calibration is performed without inserting the correct Line Sensor Id., each time the user performs a Color Calibration, a continuable Sytem Error will be reported - See Chapter 2, System Error Codes.**



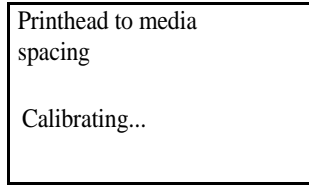
- Once the media is detected, the Calibration starts and the following message is displayed:



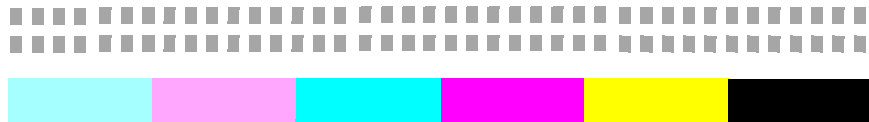
During this stage the Printer will print the following pattern.



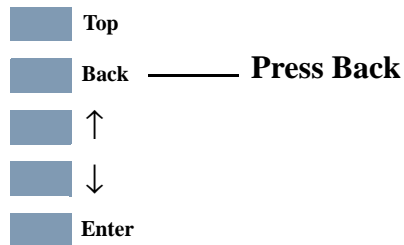
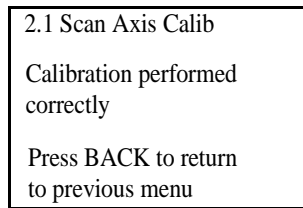
7. The Printer then performs the Printhead to media spacing calibration and displays the following message:



During this stage the Printer will print the following pattern.

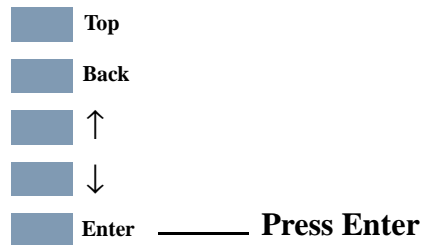
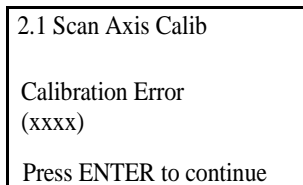


8. On successfully completing the Calibration, the following message is displayed:



9. Press **Back** to return to the Service Calibrations menu.

If the Calibration fails the following message is displayed. Press **Enter** to continue.



---

**NOTE**

---

Refer to page 5-26, *Calibration Error Codes* to troubleshoot error codes.

**PHONE SUPPORT**

## 2. Service Station Calibration

The purpose of this Service Calibration is to calibrate the Service Station in relation to the Carriage Assembly. The Service Station Calibration performs the following calibrations:

- Line Sensor to Black Pen.
- Drop Detector.
- Primer.

Perform the Service Station Calibration whenever:

- Carriage Assembly is disassembled or replaced.
- Service Station is disassembled or replaced.

**NOTE**

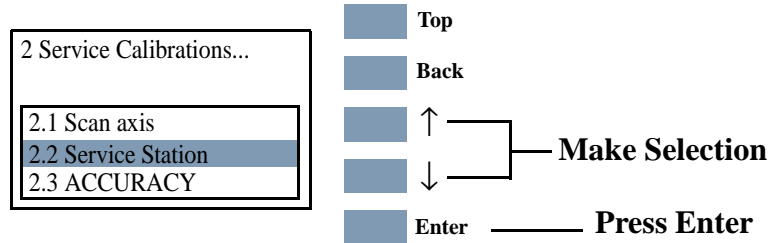
**If you get an error code, refer to Page 5-26, *Calibration Error Codes* for its description and resolution.**

Perform the Service Station Calibration as follows:

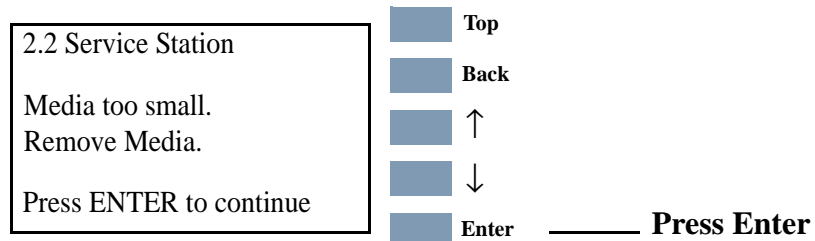
**NOTE**

**To perform this Calibration, make sure you load white medium that is the full width of the Printer.**

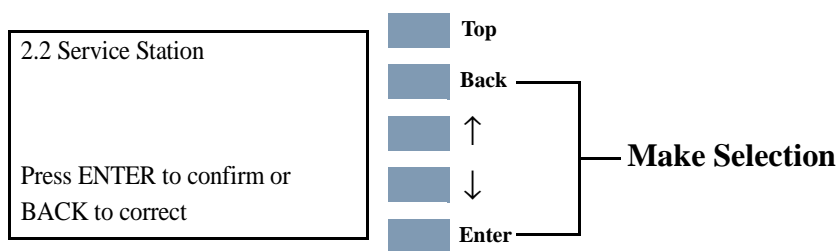
1. In the Service Calibrations submenu, scroll to "2.2 Service Station" and press **Enter**.



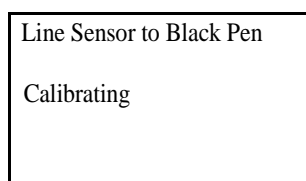
If the Media loaded is not the right size, the following message is displayed. Press **Enter** to exit. Load the correct media and repeat the procedure.



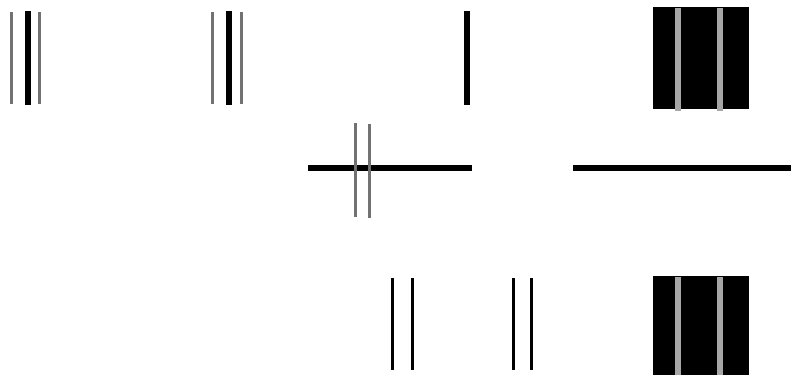
2. If the correct media is loaded, the following message is displayed. Press **Enter** to confirm or **Back** to return to the Service Calibrations menu.



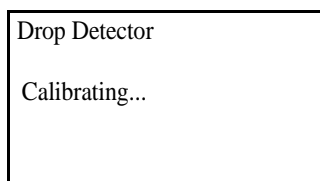
3. Once the media is detected, the calibration starts and the following message is displayed:



During this stage the Printer will print the following pattern.



4. On completing the Line Sensor to Black Printhead calibration, the following message is displayed:







- On completing the Drop Detector calibration, the following message is displayed:


Primer  
Calibrating...


- On completing the calibration successfully, the following message is displayed.


2.2 Service Station  
Calibration performed correctly  
Press BACK to return to previous menu

 **Top**

 **Back**    **Press Back**

 ↑


 ↓


 **Enter**


- Press **Back** to return to the Service Calibrations menu.


If the Calibration fails, the following message is displayed. Error codes are displayed for L2K (Line Sensor to black Printhead), DD (Drop Detection) and Prim (Primer). Press **Enter** to continue.


2.2 Service Station Calib  
Calibration Error  
L2K: xxxx  
DD: xxxx  
Prim:xxxx  
Press ENTER to continue

 **Top**

 **Back**

 ↑

 ↓

 **Enter**    **Press Enter**

**NOTE**

Refer to **5-26, Calibration Error Codes** to troubleshoot error codes.

### 3. Accuracy Calibration

The purpose of this Accuracy Calibration is to set the nominal advance of the media, changing the factory default values stored on the EEROM. This calibration is necessary to control the exact movement of the media in order to avoid print quality problems like banding.

---

**NOTE**

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**This changes the factory default value for the nominal advance of the media.**

Perform the Service Accuracy Calibration whenever:

- Paper-axis Assembly is disassembled or replaced.

---

**NOTE**

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**If you get an error code, refer to Page 5-26, Calibration Error Codes for its description and resolution.**

Perform the Accuracy Calibration as follows:

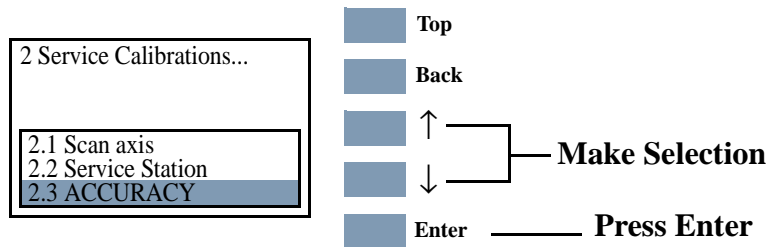
---

**WARNING**

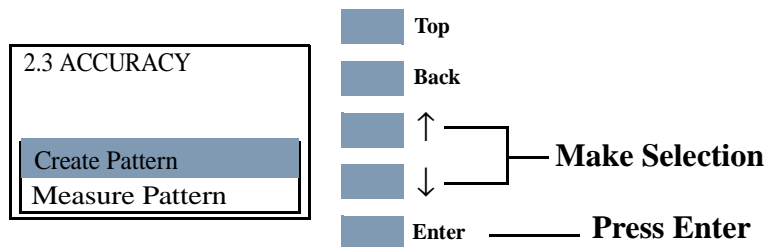
---

**Make sure you load HP High Gloss Photo Paper into the Printer before performing this calibration. Do NOT use any other type of media apart from HP High Gloss Photo Paper.**

1. In the Service Calibrations submenu, select "2.3 Accuracy" and press **Enter**.



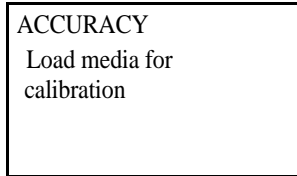
2. When the following message appears on the front panel, select "Create Pattern" and press **Enter**.



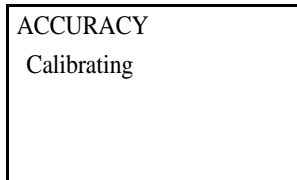
- If media is not loaded, the following message appears on the front panel and you must load media into the Printer. Press the **Load/Unload Media** button (see the User's Guide for detailed information on loading media).

**NOTE**

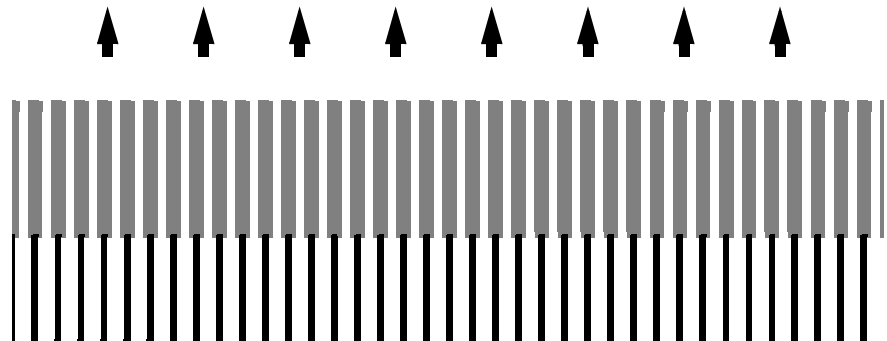
**Do NOT use any other type of media apart from HP High Gloss Photo Paper.**



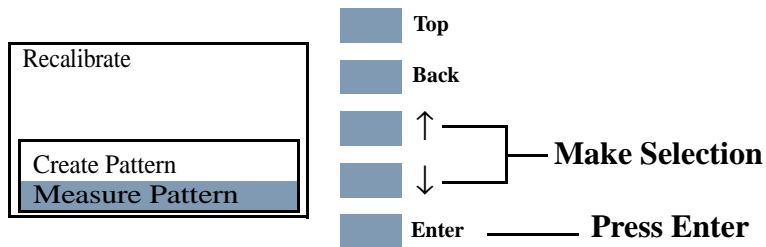
- The Printer will start to print the Accuracy Calibration Pattern and the following message will be displayed on the front panel:



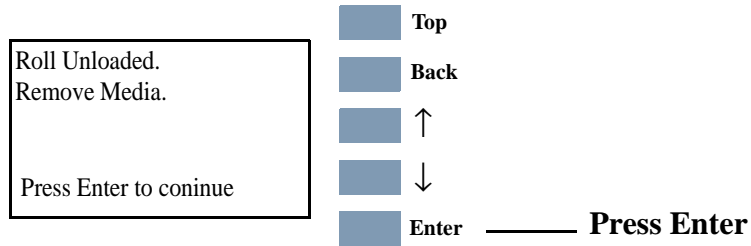
Below is a sample of the pattern printed.



- Once the Accuracy Calibration Pattern is completed, the following message will be displayed. Select "Measure Pattern" and press **Enter** to automatically start the Load/Unload Media procedure.

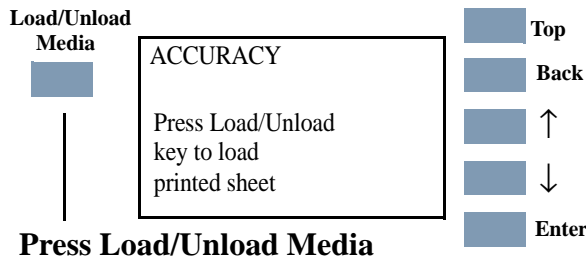


6. The Printer will unload the media and request you to remove it from the Printer. Press **Enter** to continue.



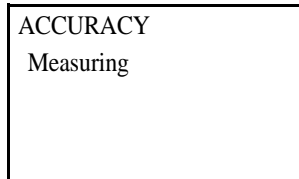
A screenshot of a printer's LCD display. The screen shows the text: "Roll Unloaded. Remove Media." followed by "Press Enter to continue" at the bottom. To the right of the screen are five blue rectangular buttons labeled: "Top", "Back", an upward arrow, a downward arrow, and "Enter". A horizontal line points from the "Enter" button to the text "Press Enter" on the right.

7. The following message is displayed. Press **Load/Unload Media** to start the load procedure for the printed sheet.



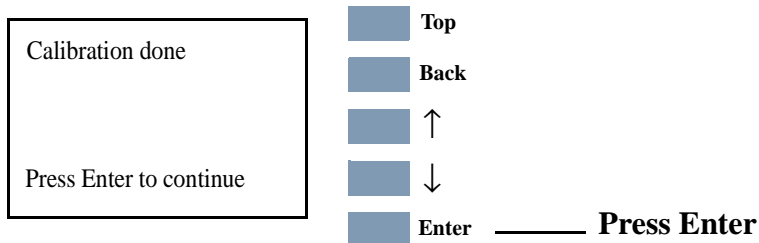
A screenshot of a printer's LCD display. On the left, a blue button labeled "Load/Unload Media" is shown with a vertical line pointing down to the text "Press Load/Unload Media" below it. The main screen area shows "ACCURACY" at the top, followed by "Press Load/Unload key to load printed sheet". To the right are five blue rectangular buttons labeled: "Top", "Back", an upward arrow, a downward arrow, and "Enter".

8. When loading, rotate the pattern so that the edge with the arrows points to the leading edge, and then reload the pattern with the arrow edge print facing down. The Printer will load the pattern and then measure the alignment marks using the Line Sensor on the Carriage Assembly. The following message will be displayed while the Printer measures the pattern:



A screenshot of a printer's LCD display showing the text "ACCURACY" at the top and "Measuring" below it.

9. Once the calibration is completed, the following message will be displayed. Press **Enter** to return to the Accuracy Calibration menu.



A screenshot of a printer's LCD display. The screen shows the text: "Calibration done" followed by "Press Enter to continue" at the bottom. To the right of the screen are five blue rectangular buttons labeled: "Top", "Back", an upward arrow, a downward arrow, and "Enter". A horizontal line points from the "Enter" button to the text "Press Enter" on the right.

If the Calibration fails the following message is displayed. Press **Enter** to continue.

ACCURACY	■ Top
Calibration Error (xxxx)	■ Back
Press ENTER to continue	■ ↑
	■ ↓
	■ Enter <b>Press Enter</b>

---

**NOTE**

---

**Refer to 5-26, *Calibration Error Codes* to troubleshoot error codes.**

## Carriage Height Calibration

The purpose of this Service Calibration is to adjust the distance between the Carriage Assembly and the Center Platen. This calibration is necessary in order to prevent problems like Printhead crashes.

Perform the Carriage Height Calibration whenever:

- Carriage Assembly is disassembled or replaced.
- Center Platen is disassembled or replaced.
- Continuous Printhead Crashes.

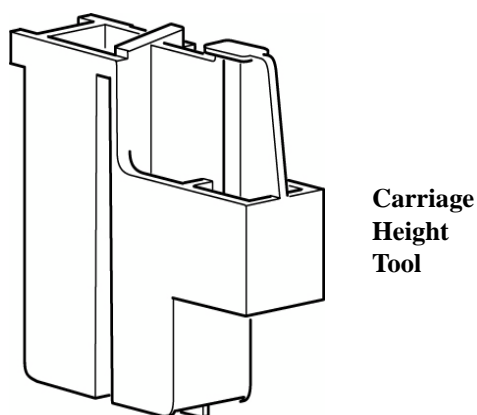
Perform the Carriage Height Calibration as follows:

---

**NOTE**

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**The procedure should be carried out using the Carriage Height Tool (See Figure 1 below) that came with the new Carriage Assembly or Center Platen Assembly.**



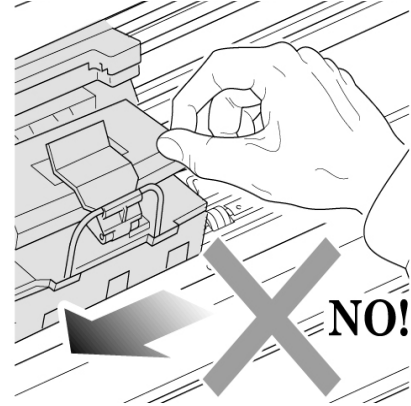
**Figure 1:**

**NOTE**

During the Carriage Height Calibration procedure the Carriage Assembly has to be moved along the length of the Printer for correct calibration. Make sure that the Carriage Assembly is only ever moved by pulling the Belt and never by direct contact with the Carriage itself (See Figure 2 below).



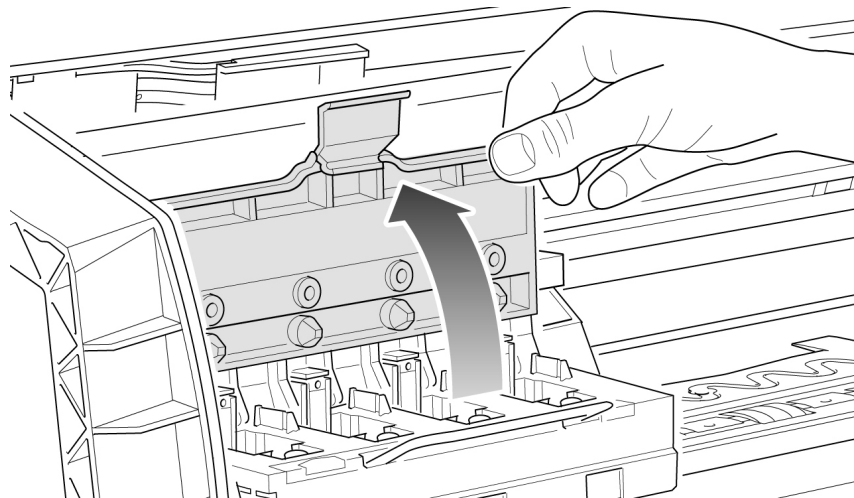
**Correct:**  
move using the Belt.



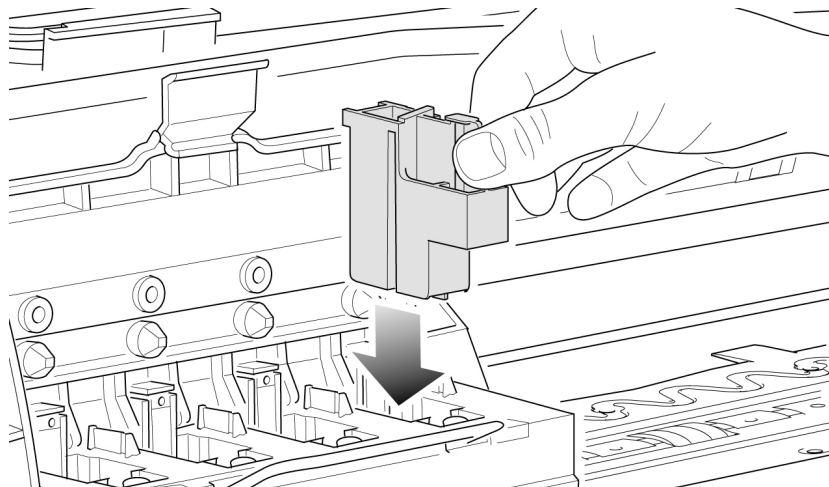
**Incorrect:**  
never move using Carriage Assembly.

**Figure 2:**

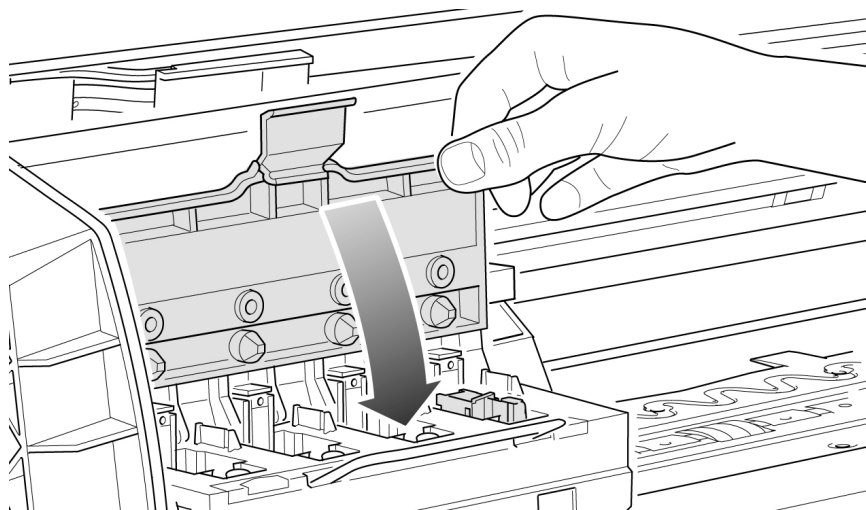
1. Remove the Top Cover - Refer to Page 8-5.
2. Remove the Back Cover - Refer to Page 8-23.
3. Remove the Top EMC Cover - Refer to Page 8-32.
4. Open the Carriage Cover on the left hand side of the printing area.



5. Insert the Carriage Height Tool into the black Printhead slot.



6. Close the Carriage Cover

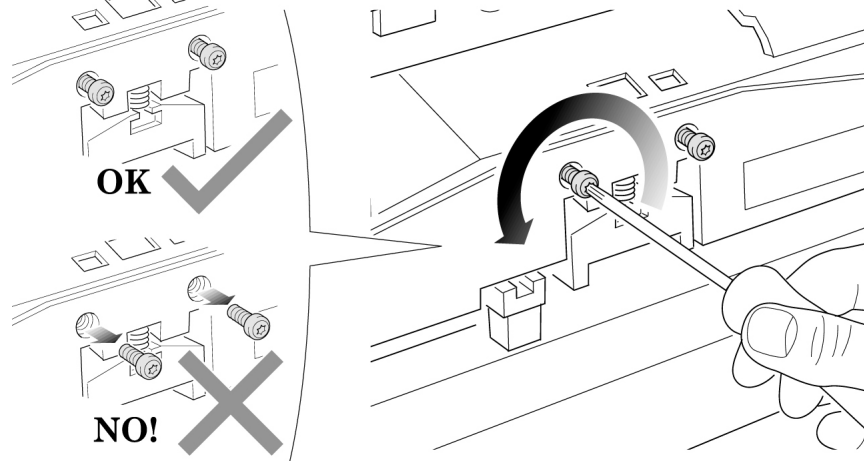




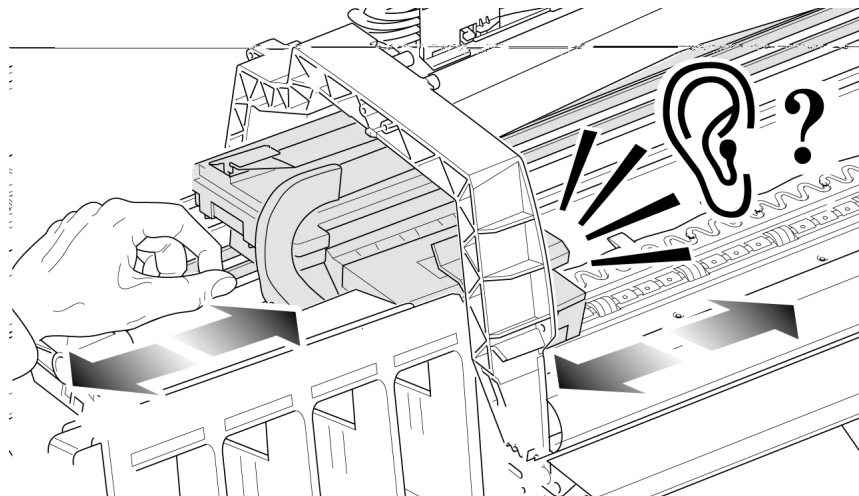
7. Loosen the two T10 screws at the back of the Carriage Assembly.

**NOTE**

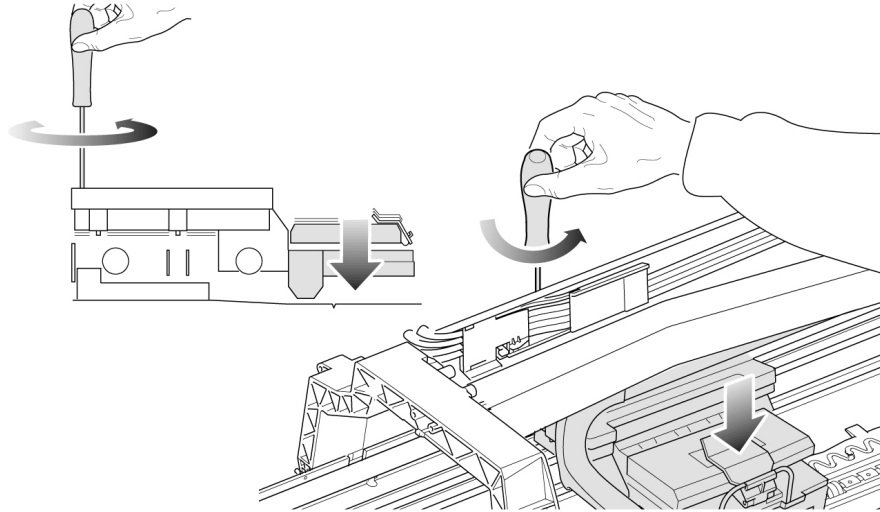
The screws should not be removed.



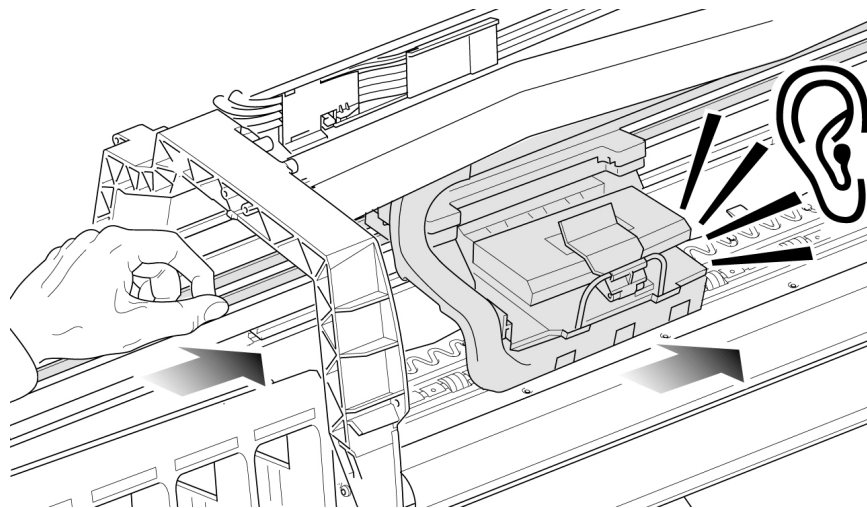
8. Using the Belt, and beginning on the left hand side of the starting position (where the left hand edge of the paper is positioned when printing), move the Carriage Assembly back and forth along the length of the Printer. Listen for a scraping sound: if you hear a sound already you may proceed directly with step 9, if not you must lower the Carriage Assembly (step 8), and try again until a scraping sound is heard.



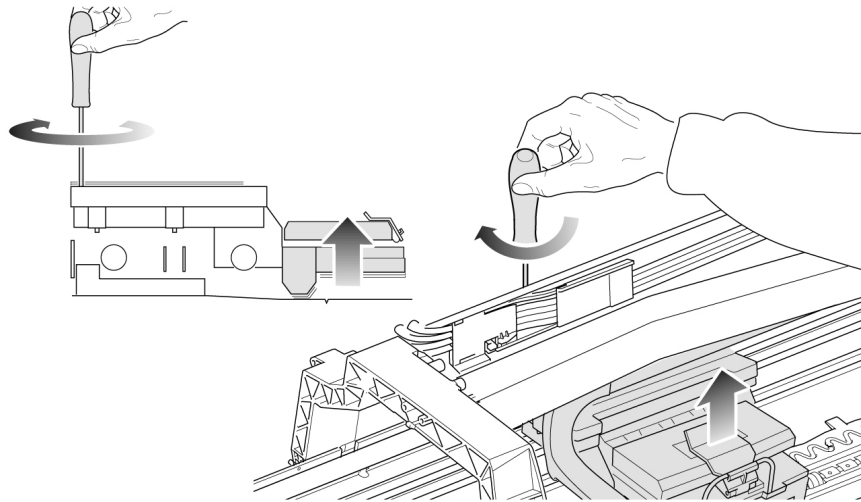
9. Lower the Carriage Assembly slightly, by turning the T9 screw shown below anti-clockwise and then check for a scraping sound again as shown previously in step 7.



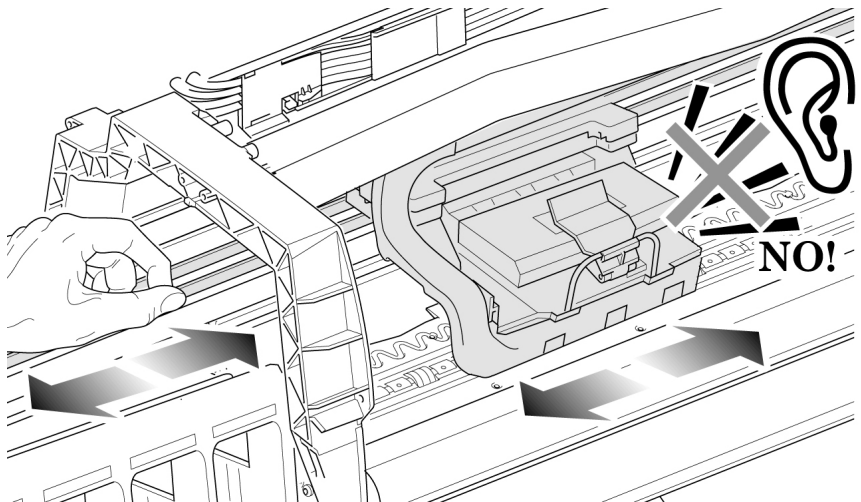
10. On moving the Carriage Assembly along the length of the Printer you should now hear a scraping sound: this sound indicates that you need to raise the Carriage Assembly (if there is no sound repeat step 8).



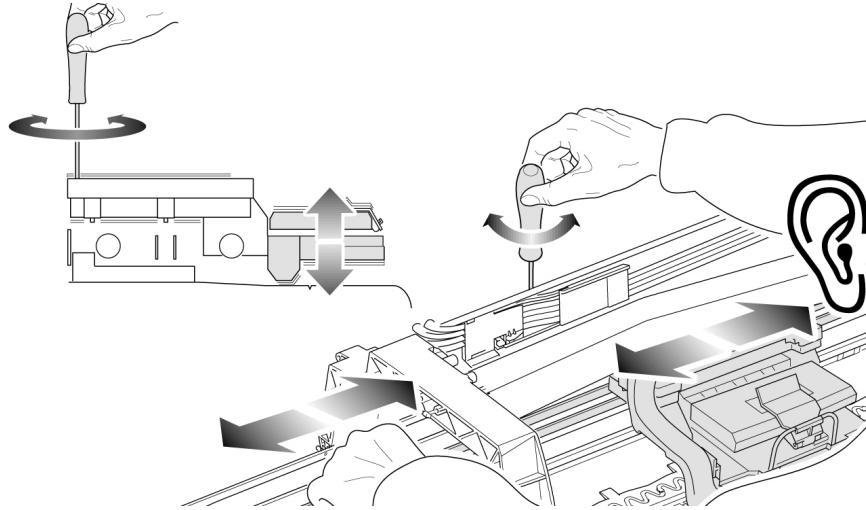
11. Raise the Carriage Assembly slightly, by turning the T9 screw (shown below) clockwise



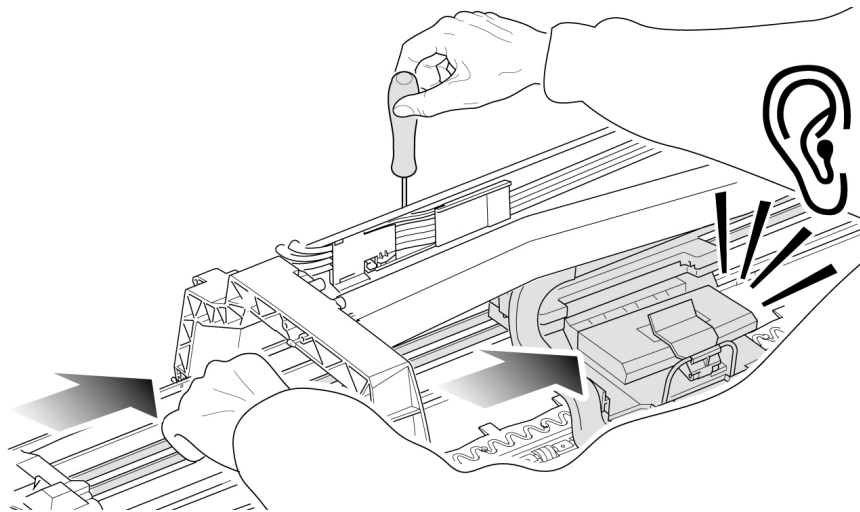
12. Check that there is no longer a scraping sound.



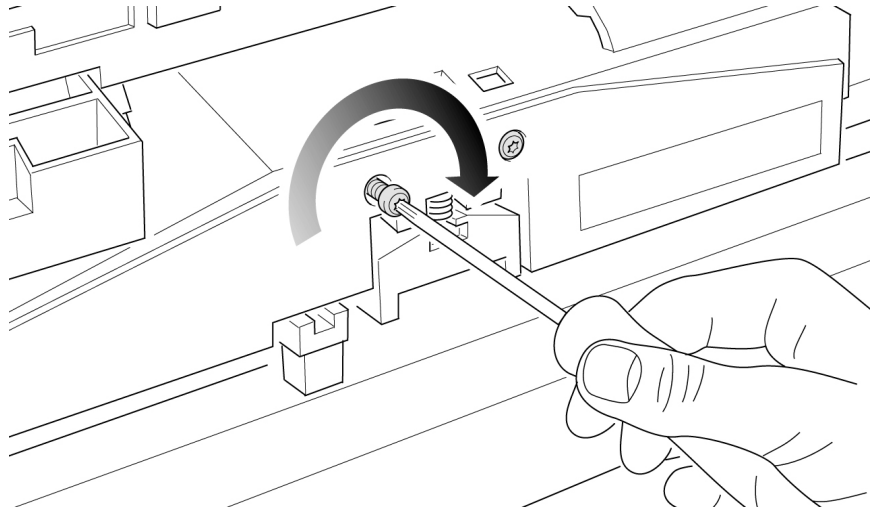
13. When the scraping has been eliminated it is important to leave the Carriage Assembly as close as possible to the Center Platen: move the Carriage Assembly back and forth across the area where the scraping sound was, gently lowering and raising the Carriage Assembly until you are sure that it is as close as it possibly can be to the Center Platen without touching.



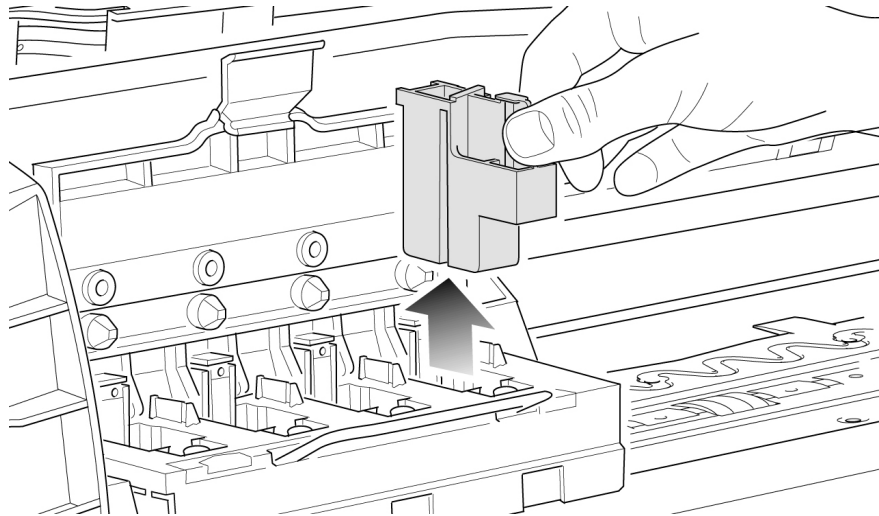
14. Continue checking the full length of the Printer until you arrive at the blue line used to load the cut sheet paper, repeating steps 10, 11 and 12 whenever a scraping sound is heard.



15. When the complete length of the Printer is calibrated (clear of any scraping sound), tighten the two T10 screws at the back of the Carriage Assembly to secure the current position.



16. Remove the Carriage Height Tool.



## Calibration Error Codes

### Introduction

---

**NOTE**

Calibration Error Codes are **continuable**, which means you can press **Enter** on the **Front Panel** to continue working with the **Printer**. If you have a **Print Quality** problem you must **troubleshoot** the error to restore quality.

---

**NOTE**

The **Printer** will use the **previous successful calibrations** if a **calibration is cancelled (User Calibrations only)**, or if it is **not successful**.

Calibration Error Codes refer to both **User** and **Service Calibrations** and include their descriptions and recommended corrective actions. If a code can only be obtained for either **Service** or **User Calibrations**, the code will be followed by **(User)** or **(Service)**.

Calibration error codes consist of a four digit number [XXXX].

You may get up to a maximum of three error codes for a single calibration. Only try one recommended corrective action at a time and retry the Calibration to check if the error code has disappeared.

**PHONE SUPPORT**

If a problem persists, a **Call Agent** can try and **troubleshoot** the problem by requesting the **Calibration Error Code** from the **Customer** via the phone. Using this process, it can be determined whether the **Printer** requires any **on-site maintenance**.

---

**NOTE**

**When reporting the Error Code, supply the firmware version (displayed when powering ON the printer or available in the User's Printer Setup ⇒ Utilities ⇒ Statistics menu).**

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.
- The complete error number.
- The **Service Configuration Print** if possible ⇒ *Page 1-26*.
- A **Diagnostic Print** ⇒ *Page 4-34*.
- The **Media** being used when the error occurred.

---

**Calibration Error:** 0000

---

**NOTE**

**This code is not an error. See the other codes reported.**

---

**Calibration Error:** 0001

**Problem Description:** Pen voltage error.

**Corrective Action:** Try the following:

- Power the Printer OFF and ON again using the Power Switch at the back of the Printer and if a **(XXXX)Replace** message for a particular Printhead is displayed, replace that Printhead.
  - If the **(XXXX)Replace** message is for all Printheads, replace the Carriage Assembly ⇒ Page 8-46.
- 

**Calibration Error:** 0002

**Problem Description:** Line sensor could not calibrate.

**Corrective Action:** Check the media used for the Calibration is WHITE.

Try the following:

- Replace the Lens Cover Assembly ⇒ Page 9-5.
  - Replace the Carriage Assembly ⇒ Page 8-46.
- 

**Calibration Error:** 0003

**Problem Description:** Line sensor could not calibrate.

**Corrective Action:** Check the media used for the Calibration is WHITE.

Try the following:

- Replace the Lens Cover Assembly ⇒ Page 9-5.
- Replace the Carriage Assembly ⇒ Page 8-46.

**Calibration Error:** 0004

**Problem Description:** The Line Sensor pattern is not printed. Firmware error.

**Corrective Action:** Try the following:

- Power the Printer OFF and ON again using the Power Switch at the back of the Printer to reset the memory.
  - Upgrade the Firmware ⇒ Page 9-12.
- 

**Calibration Error:** 0005

**Problem Description:** Line Sensor error.

**Corrective Action:** Try the following:

- Replace the Carriage Assembly ⇒ Page 8-46.
- 

**Calibration Error:** 0020

**Problem Description:** Line Sensor error.

**Corrective Action:** Check the media used for the Calibration is WHITE.

- Replace the Lens Cover Assembly ⇒ Page 9-5.
- 

**Calibration Error:** 0021

**Problem Description:** Line Sensor error.

**Corrective Action:** Check the colors in the calibration pattern. If a color is absent the Printhead has failed for that color:

- Replace the Printhead for that color.
- 

**Calibration Error:** 0022

**Problem Description:** Line Sensor error.

**Corrective Action:** Try the following:

- Replace the Lens Cover Assembly ⇒ Page 9-5.
  - Clean the Mark Encoder on the Overdrive ⇒ Page 9-9.
  - Replace the Carriage Assembly ⇒ Page 8-46.
-



**Calibration Error:** 0100

**Problem** Printhead error.

**Description:**

**Corrective Action:** Try the following:

- Check the colors in the calibration pattern. If the quality of a color is not acceptable the Printhead has failed for that color. Perform Recovery (⇒ Page 6-15) for the Printhead and repeat the calibration.
  - If the error persists for that color, replace the Printhead.
- 

**Calibration Error:** 0100

**Problem** Printhead error.

**Description:**

**Corrective Action:** Try the following:

- Check the colors in the calibration pattern. If the quality of a color is not acceptable the Printhead has failed for that color. Perform Recovery (⇒ Page 6-15) for the Printhead and repeat the calibration.
  - If the error persists for a particular color, replace the Printhead.
- 

**Calibration Error:** 1001 (User)

**Problem** Line Sensor Error.

**Description:**

**Corrective Action:** ■ Replace the Carriage Assembly ⇒ Page 8-46.

---

**Calibration Error:** 1002 (User)

**Problem** The Line Sensor pattern is not printed. Firmware error.

**Description:**

**Corrective Action:** Try the following:

- Power the Printer OFF and ON to reset the memory.
- Upgrade the Firmware ⇒ Page 9-12.

**Calibration Error:** 1003 (User)

**Problem** Firmware Error.

**Description:**

**Corrective Action:** Try the following:

- Perform Printhead Recovery (⇒ Page 6-15) and repeat the Printhead Alignment (⇒ See the User's Guide).
  - Power the Printer OFF and ON to reset the memory.
  - Upgrade the Firmware ⇒ Page 9-12.
- 

**Calibration Error:** 1004 (User)

**Problem** The Line Sensor cannot detect all the lines in the printed pattern.

**Description:**

**Corrective Action:** Try the following:

- Perform the Service Scan-Axis Calibration ⇒ Page 5-7.
  - Check the pattern to see if a Printhead is not printing correctly and, if there are defects in the pattern, recover the failing Printhead(s) ⇒ Page 6-15.
  - If Printhead recovery does not solve the problem, replace the failing Printhead(s) and repeat the Printhead Alignment (⇒ See the User's Guide).
  - If the media used is a color media try the Printhead Alignment with opaque media with no patterns and if the error persists, replace the Lens Cover ⇒ Page 9-5.
  - Replace the Carriage Assembly ⇒ Page 8-46.
- 

**Calibration Error:** 1005 (User)

**Problem** Paper Axis Error.

**Description:**

**Corrective Action:** Try the following:

- Reseat ALL the Printheads and repeat the Printhead Alignment (⇒ See the User's Guide).
- Replace the Carriage Assembly ⇒ Page 8-46.

- 
- Calibration Error:** 1040 (User)
- Problem Description:** Scan-Axis Alignment Error in "slow" speed section in Black and Magenta Pattern.
- Corrective Action:** Try the following:
- Perform the Service Scan-Axis Calibration ⇒ Page 5-7.
  - Recover the Printheads ⇒ Page 6-15.
  - Replace the Black and Magenta Printheads and repeat Printhead Alignment (⇒ See the User's Guide).
  - If the media used is a color media try the Printhead Alignment with white media and if the error persists replace the Lens Cover ⇒ Page 9-5.
  - Replace the Carriage Assembly ⇒ Page 8-46.
- 
- Calibration Error:** 1041 (User)
- Problem Description:** Scan-Axis Alignment Error in "slow" speed section in Cyan and Yellow Pattern.
- Corrective Action:** Try the following:
- Perform the Service Scan-Axis Calibration ⇒ Page 5-7.
  - Recover the Printheads ⇒ Page 6-15.
  - Replace the Cyan and Yellow Printheads and repeat the Printhead Alignment (⇒ See the User's Guide).
  - If the media used is a color media try the calibration with white media and if the error persists replace the Lens Cover ⇒ Page 9-5.
  - Replace the Carriage Assembly (⇒ Page 8-46).
- 
- Calibration Error:** 1042 (User)
- Problem Description:** Scan-Axis Alignment Error in "slow" speed section in Light Cyan and Light Magenta Pattern.
- Corrective Action:** Try the following:
- Do the Service Scan-Axis Calibration (⇒ Page 5-7).
  - Recover the Printheads ⇒ Page 6-15.
  - Replace both Printheads and repeat Printhead Alignment.
  - If the media used is a color media try the calibration with white media. If the error persists replace the Lens Cover ⇒ Page 9-5.
  - Replace the Carriage Assembly ⇒ Page 8-46.
-

**Calibration Error:** 1060 (User)

**Problem Description:** Scan-Axis Alignment Error in "fast" speed section in Black and Magenta Pattern.

**Corrective Action:** Refer to Calibration Error Code 1040.

---

**Calibration Error:** 1061 (User)

**Problem Description:** Scan-Axis Alignment Error in "fast" speed section in Cyan and Yellow Pattern.

**Corrective Action:** Refer to Calibration Error Code 1041.

---

**Calibration Error:** 1062 (User)

**Problem Description:** Scan-Axis Alignment Error in "fast" speed section in Light Cyan and Light Magenta Pattern.

**Corrective Action:** Refer to Calibration Error Code 1042.

---

**Calibration Error:** 2001 (User)

**Problem Description:** Closed Loop Color plot file is not available.

**Corrective Action:** ■ Download a Firmware Upgrade ⇒ Page 9-12.

---

**Calibration Error:** 2002 (User)

**Problem Description:** Closed Loop Color plot file is in the wrong format.

**Corrective Action:** ■ Download a Firmware Upgrade ⇒ Page 9-12.

---

**Calibration Error:** 2003 (User)

**Problem Description:** The Printer has used all its SWAP memory and does not have sufficient memory to read the plot.

**Corrective Action:** ■ Power the Printer OFF and ON from the back of the Printer.

---

**Calibration Error:** 2004 (User)

**Problem Description:** Media Profile Error.

**Corrective Action:** Try the following:

- Download a Media Profile for the current medium.
  - Power the Printer OFF and ON from the rear of the Printer.
  - Download a Firmware Upgrade ⇒ Page 9-12.
- 

**Calibration Error:** 2005 (User)

**Problem Description:** Closed Loop Color Pattern Error.

**Corrective Action:** Try the following:

- Turn the Printer OFF and ON from the rear of the Printer to reset the memory.
  - Download a Firmware Upgrade ⇒ Page 9-12.
- 

**Calibration Error:** 2006 (User)

**Problem Description:** Media Profile Corrupted.

**Corrective Action:** Try the following:

- Download Media Profile.
  - Power the Printer OFF and ON from the back of the Printer.
  - Download a Firmware Upgrade ⇒ Page 9-12.
- 

**Calibration Error:** 2007 (User)

**Problem Description:** Media Profile Error.

**Corrective Action:** Refer to Calibration Error Code 2006

---

**Calibration Error:** 2008 (User)

**Problem Description:** Firmware Error.

**Corrective Action:** ■ Download the latest Firmware ⇒ Page 9-12.

---

**Calibration Error:** 2101 (through to 2607) (User)

**Problem Description:** Firmware Error.

**Corrective Action:**

Try the following:

- Repeat the Closed Loop Color calibration (⇒ See the User's Guide).
- Download the latest Firmware ⇒ Page 9-12.

---

**NOTE**

**System Errors from 2101 to 2607 indicate the same type of error and the Corrective Action is identical. It is important to report the exact error code as this will help in identifying and resolving any errors that occur.**

---

---

**Calibration Error:** 3100

**Problem Description:** Firmware Error.

**Corrective Action:**

Try the following:

- Power the Printer OFF and ON again using the Power Switch at the back of the Printer to reset the memory.
- Upgrade the Firmware ⇒ Page 9-12.

---

**Calibration Error:** 3110

**Problem Description:** Black Printhead does not allow paper advance calibration.

**Corrective Action:** Try the following:

- Recover the Black Printhead ⇒ Page 6-15.
- Replace the Black Printhead.

---

**Calibration Error:** 3120

**Problem Description:** Firmware Error.

**Corrective Action:**

Try the following:

- Power the Printer OFF and ON again using the Power Switch at the back of the Printer to reset the memory.
- Upgrade the Firmware ⇒ Page 9-12.

---

<b>Calibration Error:</b>	3130
<b>Problem Description:</b>	Firmware Error.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Power the Printer OFF and ON again using the Power Switch at the back of the Printer to reset the memory.</li><li>■ Upgrade the Firmware ⇒ Page 9-12.</li></ul>

---

<b>Calibration Error:</b>	3200
<b>Problem Description:</b>	Error while scanning calibration pattern.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ If the media used is too dark, try the calibration with white media. If the error persists, replace Lens Cover Assembly ⇒ Page 9-5.</li><li>■ Replace Carriage Assembly (⇒ Page 8-46).</li></ul>

---

<b>Calibration Error:</b>	4000 (Service)
<b>NOTE</b>	<b>This code is not an error. See the other codes reported.</b>

---

<b>Calibration Error:</b>	4001 (Service)
<b>Problem Description:</b>	Firmware error.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Power the Printer OFF and ON again using the Power Switch at the back of the Printer and retry the calibration.</li><li>■ Download the latest Firmware ⇒ Page 9-12.</li></ul>

---

<b>Calibration Error:</b>	4002 (Service)
<b>Problem Description:</b>	Firmware error.
<b>Corrective Action:</b>	Try the following: <ul style="list-style-type: none"><li>■ Power the Printer OFF and ON again using the Power Switch at the back of the Printer and retry the calibration.</li><li>■ Download the latest Firmware ⇒ Page 9-12.</li></ul>

---

**Calibration Error:** 4003 (**Service**)

**Problem Description:** Line Detection Error.

- Corrective Action:** Try the following:
- Check the Lens is clean.
  - Replace the Lens Cover Assembly ⇒ Page 9-5.
  - Download the Firmware ⇒ Page 9-12.
- 

**Calibration Error:** 4004 (**Service**)

**Problem Description:** Firmware Error.

- Corrective Action:** Use full Printer width media.
- Try the following:
- Verify the Black Printhead status and perform Recovery ⇒ Page 6-15.
  - Replace Black Printhead.
  - Download the Firmware ⇒ Page 9-12.
- 

**Calibration Error:** 4005 (**Service**)

**Problem Description:** Firmware error.

- Corrective Action:** Try the following:
- Power the Printer OFF and ON again using the Power Switch at the back of the Printer and retry the calibration.
  - Download the latest Firmware ⇒ Page 9-12.
- 

**Calibration Error:** 4006 (**Service**)

**Problem Description:** Firmware error.

- Corrective Action:** Try the following:
- Power the Printer OFF and ON again using the Power Switch at the back of the Printer and retry the calibration.
  - Download the latest Firmware ⇒ Page 9-12.
-



---

**Calibration Error:** 4007 (**Service**)

**Problem Description:** Firmware error.

**Corrective Action:** Try the following:

- Turn the Printer OFF and ON and retry the calibration.
- Download the latest Firmware ⇒ Page 9-12.

---

**Calibration Error:** 5000 (**Service**)

**NOTE**

**This code is not an error. See the other codes reported.**

---

**Calibration Error:** 5001 (**Service**)

**Problem Description:** Out of memory.

**Corrective Action:** Try the following:

- Reset the memory by Powering the Printer OFF and ON again using the Power Switch at the back of the Printer.

---

**Calibration Error:** 5002 (**Service**)

**Problem Description:** Black Printhead failure.

**Corrective Action:** Try the following:

- Perform Recovery for Black Printhead ⇒ Page 6-15.
- Replace the Black Printhead.

---

**Calibration Error:** 5003 (**Service**)

**Problem Description:** Wrong media type or no media.

**Corrective Action:** Try the following:

- Make sure you load white medium that is the full width of the Printer.

**Calibration Error:** 5004 (**Service**)

**Problem Description:** Mechanical error.

**Corrective Action:** Try the following:

- Check the path and remove any obstructions e.g. media.
- Check all the cables of the Scan-Axis Motor and make sure they are correctly connected and are NOT damaged.
- Replace the Scan-Axis Motor ⇒ Page 8-53.
- Replace the Carriage Assembly ⇒ Page 8-46.
- If the Error Code continues, replace the Main PCA ⇒ Page 8-77

---

**Calibration Error:** 5005 (**Service**)

**Problem Description:** Could not detect pattern.

**Corrective Action:** Try the following:

- Make sure you load white medium that is the full width of the Printer (the Printer may have problems calibrating with non-white media).
- Replace the Lens Cover Assembly ⇒ Page 9-5.
- Replace the Carriage Assembly ⇒ Page 8-46.

---

**Calibration Error:** 5006 (**Service**)

**Problem Description:** Could not detect pattern.

**Corrective Action:** Refer to Error Code 5005.

---

**Calibration Error:** 5007 (**Service**)

**Problem Description:** Could not detect pattern.

**Corrective Action:** Refer to Error Code 5005.

**Calibration Error:** 5010 (**Service**)

**Problem Description:** Too many Black Printhead nozzles not working.

**Corrective Action:** Try the following:

- Recover the Black Printhead (⇒ Page 6-15) and if the problem persists replace the Black Printhead.
- 

**Calibration Error:** 5011 (**Service**)

**Problem Description:** Printhead Cleaner detection error.

**Corrective Action:** Try the following:

- Verify Printhead Cleaners are correct type.
  - Replace the Lens Cover Assembly ⇒ Page 9-5.
  - Replace the Carriage Assembly ⇒ Page 8-46.
- 

**Calibration Error:** 5012 (**Service**)

**Problem Description:** Printhead Cleaner detection error.

**Corrective Action:** Refer to Error Code 5011 above.

---

**Calibration Error:** 5013 (**Service**)

**Problem Description:** Two scans of the pattern do not match each other.

**Corrective Action:** Try the following:

- Replace the Lens Cover Assembly ⇒ Page 9-5.
  - Replace the Carriage Assembly ⇒ Page 8-46.
- 

**Calibration Error:** 5014 (**Service**)

**Problem Description:** Could not detect Printhead Cleaner.

**Corrective Action:** Try the following:

- Insert a Printhead Cleaner.
-

**Calibration Error:** 5015 (Service)

**Problem Description:** Printhead Cleaner is not correct type.

**Corrective Action:** Try the following:

- Insert a HP. 81 Printhead Cleaner.

---

**Calibration Error:** 6000 (Service)

**NOTE** This code is not an error. See the other codes reported.

---

**Calibration Error:** 6001 (Service)

**Problem Description:** Drop Detector not working.

**Corrective Action:** Try the following:

- Turn the Printer OFF and ON and repeat the Service Station Calibration ⇒ Page 5-11.
- Replace the Drop Detector Assembly ⇒ Page 8-68.
- If the Error Code continues, replace the Main PCA ⇒ Page 8-77.

---

**Calibration Error:** 6003 (Service)

**Problem Description:** Drop Detector did not calibrate for Black Printhead.

**Corrective Action:** Try the following:

- Turn the Printer OFF and ON and repeat the Service Station Calibration ⇒ Page 5-11.
- Replace the Drop Detector Assembly ⇒ Page 8-68.
- If the Error Code continues, replace the Main PCA ⇒ Page 8-77.

---

**Calibration Error:** 6004 (Service)

**Problem Description:** More than one Printhead not calibrated.

**Corrective Action:** Try the following:

- Turn the Printer OFF and ON and repeat the Service Station Calibration ⇒ Page 5-11.
- Replace the Drop Detector Assembly ⇒ Page 8-68.
- If the Error Code continues, replace the Main PCA ⇒ Page 8-77.

---

**Calibration Error:** 6005 (**Service**)

**Problem Description:** Drop Detector did not detect Printhead nozzles spitting.

**Corrective Action:** Try the following:

- Check the path and remove any obstructions e.g. media.
  - Check all the cables of the Scan-Axis Motor and make sure they are correctly connected and are NOT damaged.
  - Replace the Scan-Axis Motor ⇒ Page 8-53.
  - Replace the Carriage Assembly ⇒ Page 8-46.
  - If the Error Code continues, replace the Main PCA ⇒ Page 8-77
- 

**Calibration Error:** 6006 (**Service**)

**Problem Description:** Drop Detector failed to reach position for calibration.

**Corrective Action:** Refer to Error Code 6005.

---

**Calibration Error:** 6007 (**Service**)

**Problem Description:** Drop Detector failed to uncap pens.

**Corrective Action:** Refer to Error Code 6005.

---

**Calibration Error:** 6008 (**Service**)

**Problem Description:** Calibration failed for Cyan Printhead.

**Corrective Action:** Try the following:

- Recover the Cyan Printhead ⇒ Page 6-15.
  - Replace the Cyan Printhead.
- 

**Calibration Error:** 6009 (**Service**)

**Problem Description:** Calibration failed for Magenta Printhead.

**Corrective Action:** Try the following:

- Recover the Magenta Printhead ⇒ Page 6-15.
  - Replace the Magenta Printhead.
-

**Calibration Error:** 6010 (**Service**)

**Problem Description:** Calibration failed for Yellow Printhead.

**Corrective Action:** Try the following:

- Recover the Yellow Printhead ⇒ Page 6-15.
- Replace the Yellow Printhead.

---

**Calibration Error:** 6011 (**Service**)

**Problem Description:** Calibration failed for Black Printhead.

**Corrective Action:** ■ Recover the Black Printhead ⇒ Page 6-15.  
■ Replace the Black Printhead.

---

**Calibration Error:** 6012 (**Service**)

**Problem Description:** Calibration failed for Light Cyan Printhead.

**Corrective Action:** ■ Recover the Light Cyan Printhead ⇒ Page 6-15.  
■ Replace the Light Cyan Printhead.

---

**Calibration Error:** 6013 (**Service**)

**Problem Description:** Calibration failed for Light Magenta Printhead.

**Corrective Action:** ■ Recover the Light Magenta Printhead ⇒ Page 6-15.  
■ Replace the Light Magenta Printhead.

---

**Calibration Error:** 6014 (**Service**)

**Problem Description:** Calibration position out of range for Cyan Printhead.

**Corrective Action:** Replace the Drop Detector Assembly ⇒ Page 8-68.

---

**Calibration Error:** 6015 (**Service**)

**Problem Description:** Calibration position out of range for Magenta Printhead.

**Corrective Action:** Replace the Drop Detector Assembly ⇒ Page 8-68.

---

---

**Calibration Error:** 6016 (**Service**)

**Problem Description:** Calibration position out of range for Yellow Printhead.

**Corrective Action:** Replace the Drop Detector Assembly ⇒ Page 8-68.

---

**Calibration Error:** 6017 (**Service**)

**Problem Description:** Calibration position out of range for Black Printhead.

**Corrective Action:** Replace the Drop Detector Assembly ⇒ Page 8-68.

---

**Calibration Error:** 6018 (**Service**)

**Problem Description:** Calibration position out of range for Light Cyan Printhead.

**Corrective Action:** Replace the Drop Detector Assembly ⇒ Page 8-68.

---

**Calibration Error:** 6019 (**Service**)

**Problem Description:** Calibration position out of range for Light Magenta Printhead.

**Corrective Action:** Replace the Drop Detector Assembly ⇒ Page 8-68.

---

**Calibration Error:** 7000 (**Service**)

**NOTE** **This code is not an error. See the other codes reported.**

---

**Calibration Error:** 7006 (**Service**)

**Problem Description:** Firmware error.

**Corrective Action:** Try the following:

- Power the Printer OFF and ON again using the Power Switch at the back of the Printer to reset the memory.





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## Print Quality

### Print Quality Troubleshooting Checklist

When faced with a Print Quality problem, use the following checklist as a guide in troubleshooting the problem:

- 1 Problem reproduction
  - Reproduce the problem that the customer is seeing using their original settings.
- 2 Printer configuration:
  - Print Mode: Set to "Max. Quality" (in the Printer and in the driver).
  - Dry time: Set to "Automatic".
  - Select the correct media setting when loading the media.
- 3 Hardware check list
  - Firmware Revision
    - Check if the latest version of the Firmware is installed. If not Install the latest Firmware revision ⇒ Page 9-12.
- 4 Printheads
  - Printhead Troubleshooting Process:
    - Check the Printhead status in the front-panel.
    - If (xxxx)REPLACE is displayed, the faulty Printhead must be replaced.
    - If the (xxxx)RECOVER is displayed recover the Printhead ⇒ Page 6-15.
    - If you don't have any samples yet, reproduce the original problem with the correct Printer settings.
    - Print the Diagnostic Print (See Page 6-5) using the exact settings and Media that the Customer used when faced with the Print Quality problem.
  - Printhead Alignment and Check:
    - Perform the "Printhead Alignment" from the Printer Setup menu / Utilities/Calibrations/Printhead Alignment, using the same media with which you were experiencing problems.
- 5 Media
  - Make sure that you use HP or HP-approved media.
  - Store media according to its Environmental Specifications.
  - Select the correct media type through the Front Panel when loading it.

## 6 Driver print quality configuration:

To clarify if the reason of the problem is related with the print mode defined with the Non-HP Driver try the following:

- Print the same sample using the Non-HP driver and their normal media.
- Print one of the internal demos or Diagnostic Print using HP Media and configuring the Printer as indicated previously.
- If the output obtained using the HP Solution is good and the one obtained through the 3rd party solution is bad, HP support organization should communicate to the customer that the problem is not in the Printer and that they should address it through the 3rd party vendor support structure.

## 7 Service Accuracy Calibration

- Perform the “Service Accuracy calibration” using HP High-Gloss Photo Paper ⇒ Page 5-14.

---

**WARNING**

**Do NOT use any other type of media apart from HP High Gloss Photo Paper when performing the Service Accuracy Calibration.**

---

## Print Modes

The Printers have a large number of print modes. A print mode specifies how to interpret and put on media a set of bitmap planes, each of which consists of a sequence of rows. Each mode corresponds to a unique combination of the following parameters:

- Print resolution (300 dpi, 600 dpi, 1200 x 600 with Enhanced Resolution on Glossy Media).
- Number of passes per advance.
- Number of advances per swath.
- Print direction.
- Carriage speed.
- Print masks.
- Servicing states.

User input to print mode selection consists of the following:

- Choice of media type.
- Choice of print mode setting (Max. Speed, Productivity, Max. Quality).
- Enhanced resolution On or Off.
- The language in which the file is received.
- The model of Printer used.
- The type of driver (HP or Non-HP).

## How to Use the Diagnostic Print

### What is the Diagnostic Print?

The Printer contains an internal Diagnostic Print to help you diagnose the possible source of any print quality defects. The Diagnostic Print is divided into five numbered parts:

- 1 Primary colors specifically designed to diagnose banding problems.
- 2 Color to color alignment.
- 3 Bidirectional alignment to check alignment when printing bidirectionally.
- 4 Vertical line straightness.
- 5 Nozzle print test to check each Printhead nozzle in a Printhead.

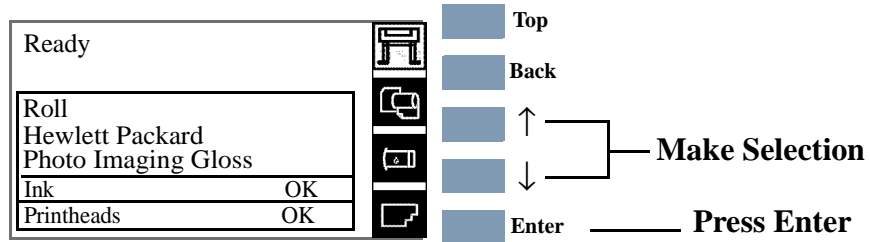
### Considerations for Printing the Diagnostic Print.

- 1 The Diagnostic Print requires A2 or C size media so you must have media loaded (roll or sheet) that is this size or larger.
- 2 Use the same type of media that the customer was using when they experienced the print quality problem.
- 3 Use the same print mode the customer was using when they experienced the print quality problem.
- 4 If the customer is using non-HP media and after the Diagnostic Print you still have the same print quality problems, change to genuine HP media and repeat the Diagnostic Print.
- 5 Study each of the test patterns in the order that they are shown i.e. 1 through 5.
- 6 If you do not see any problems with the Diagnostic Print, then the problem may not be with the Printer itself. The problem may be with the RIP or the driver for example.

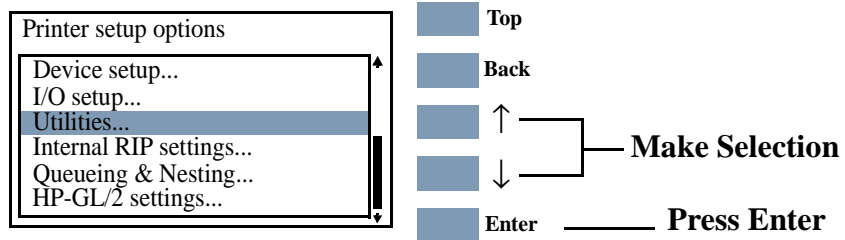
However if you do see problems with the Diagnostic Print then continue with the following procedures which will help you to diagnose the problem.

## Printing the Diagnostic Print

- 1 Once the message “Ready” is displayed on the Front Panel, scroll to the “Printer Setup Options” icon and press the **Enter** key.

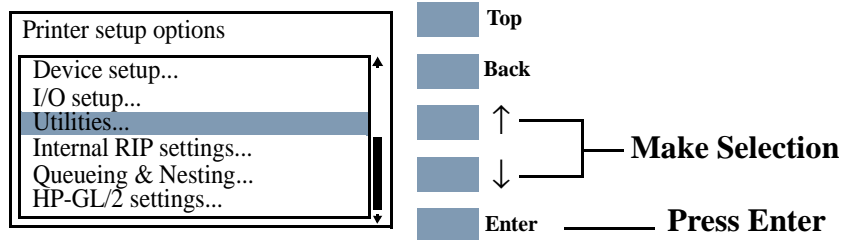


- 2 Once inside the “Printer Setup Options” menu, use the **Arrow** keys to scroll to the “Utilities” menu and press the **Enter** key.

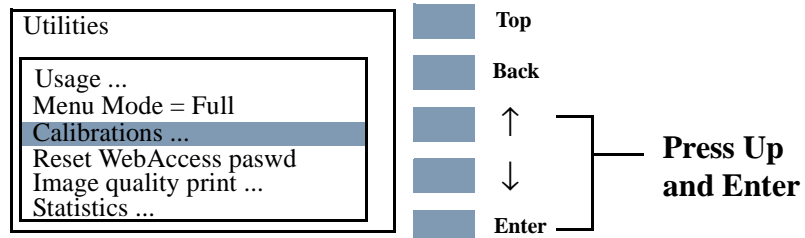


### For On-Site Engineers accessing the complete list of Service Utilities

- a Once inside the “Printer Setup Options” menu, use the **Arrow** keys to scroll to the “Utilities” menu and press the **Enter** key.



- b Once inside the “Utilities” Menu, press the following key combination to access the complete list of Service Utilities..



**PHONE SUPPORT**

**For Call Agents requesting the User to print the Service Diagnostic print**

- a Once inside the “Printer Setup Options” menu and the “Device setup” menu is highlighted, press the following key combination.

Printer setup options

- Device setup...
- I/O setup...
- Utilities...
- Internal RIP settings...
- Queueing & Nesting...
- HP-GL/2 settings...

Top  
Back  
↑  
↓  
Enter

**Press Down and Enter**

- 2 The message below is displayed. Select **Yes** to continue.

Warning!  
This mode should NOT be used without having the guidance of a HP representative person

- Yes...
- No

Top  
Back  
↑  
↓  
Enter

**Press Enter**

- 3 You are now in the **Service Menu**. Use the **Arrow** keys to scroll to the “Service Utilities” menu and press the **Enter** key.

Service Menu

- 1 Service Utilities...
- 2 Service Calibrations...
- 3 Service Tests...

Top  
Back  
↑  
↓  
Enter

**Make Selection**

**Press Enter**

- 4 Use the **Arrow** keys to select “1.8 Diagnostic Print” and press **Enter** to print it.

1. Service Utilities

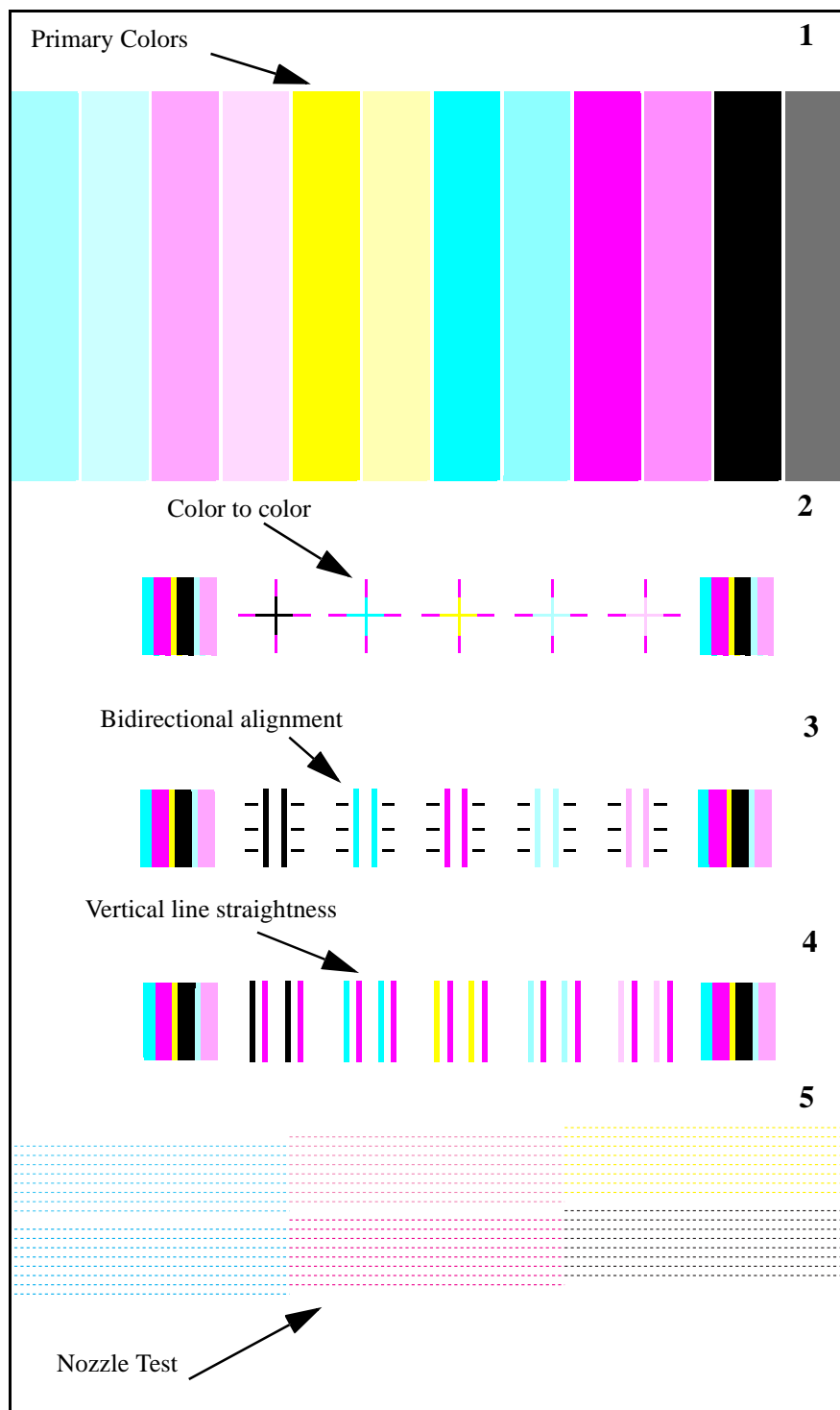
- 1.3 Altitude Setup
- 1.4 EEROM Setup
- 1.5 Reset Life Counters
- 1.6 Backup EEROM
- 1.7 Img. Quality Warning
- 1.8 Diagnostic Print

Top  
Back  
↑  
↓  
Enter

**Make Selection**

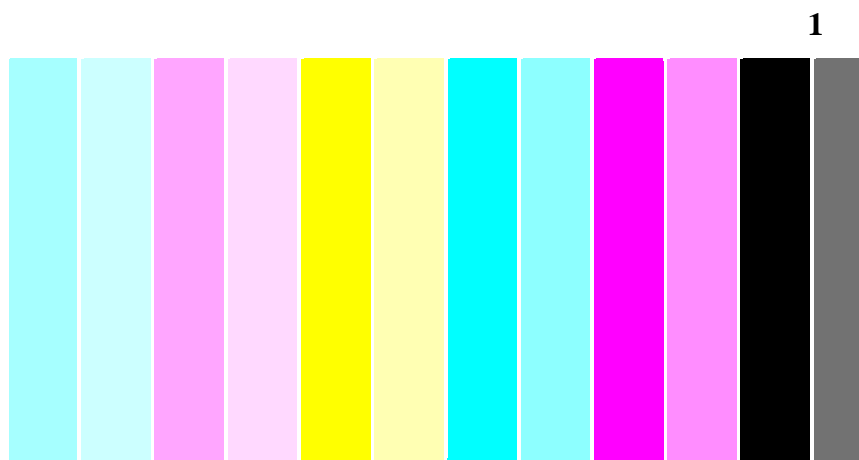
**Press Enter**

The Printer will print out a series of patterns as shown below:



## Overall Print Quality Test

This test pattern checks for banding in the print mode and media that is being used.



### What is Banding?

Banding is when you see repetitive horizontal bands within the printed image (these may appear as light or dark bands).

This array of colored stripes is designed to check for certain defects with the Printer. It should not be used to check for color consistency or accuracy. The test pattern is printed with the six Printhead colors; Light Cyan, Light Magenta, Yellow, Cyan, Magenta and Black. Each pair of colors is printed by only one Printhead; one is the full color and the other is a lighter shade to help you detect any banding.

### Solving the Banding Problem

The main causes of banding are:

- Printhead problems.
- Use of Non-HP media.
- Incorrect media type selected in the front panel.
- Media advance problems.

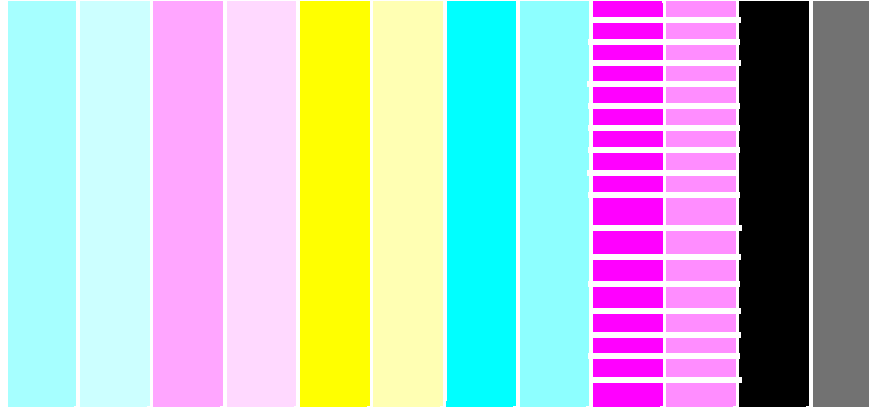
#### Banding Caused by Printhead Problems

Banding caused by problems with the Printhead(s) will be highlighted in the Diagnostic Print because the banding is not in all of the colors, the colored strip that has banding was caused by the same colored Printhead.



---

In the following example, there is a problem in the Magenta Printhead. There will be clear repetitive bands (perhaps white) in the magenta column.

**1**

---

**NOTE**

**The Printer has automatic procedures to hide many Printhead defects. This type of problem affects print quality mostly in Productivity and Max. Speed modes. If you use Max. Quality print mode, banding caused by a malfunctioning Printhead may be “hidden” and image quality may not be affected.**

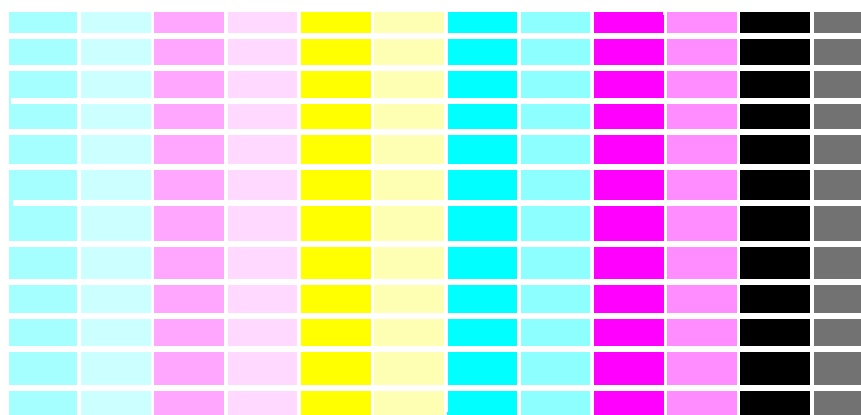
---

- 1** Perform Printhead Recovery ⇒ Page 6-15.
- 2** If there is no improvement after Printhead Recovery, replace the failing Printhead.

**Banding Caused by Media Advance Problems**

Another type of banding is caused by an inaccurate media advance. In this case there will be banding (horizontal repetitive bands along the test pattern) in **all** the color columns.

The bands can appear as dark bands, due to a shorter advance of the roller which causes an overlap, or lighter bands due to a longer advance causing spaces.



**Banding in all of the colors**

---

**NOTE**

---

**In high quality modes media advance problems may not appear as lines of banding, they may appear grainy instead. The banding or graininess will appear in all the colors.**

- 1 If the image is grainy, this could also be a symptom of problems with the bidirectional alignment (See Solving Bidirectional Alignment Problems 6-12). If the Bidirectional Alignment pattern has no problems go to step two.
- 2 Make sure that the media selection made in the front panel is the same as the media that you have loaded.
- 3 It is possible that the banding was caused because the customer was using non-HP media. If the customer still wants to use non-HP media, recalibrate the paper accuracy by performing the User's Accuracy calibration and **NOT** the Service Accuracy Calibration (Refer to the User's Guide). Performing this will overwrite the default setting for **only** the paper that you have selected.
- 4 Perform the Printheads alignment procedure (Refer to the User's Guide).

## Color Alignment Print Test

This part of the Diagnostic Print Test is designed to check the color alignment.

It produces five crosses: one for each color compared to magenta. All lines are printed in one direction. If there is misalignment between Magenta and another color, the lines in the cross will not be aligned.

There are two types of misalignment:

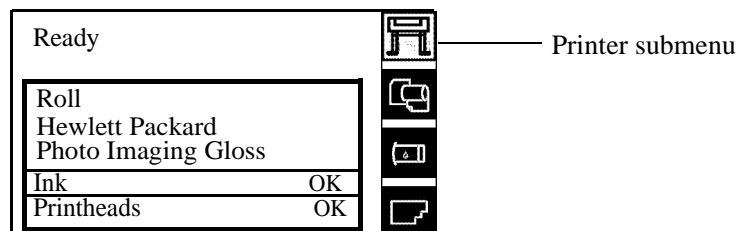
- Horizontal - when the misalignment is in the horizontal axis.
- Vertical - when the misalignment is in the vertical axis.

Below are shown an example of alignment and misalignment:



## Solving the Color Alignment Problem

- 1 Make sure you have A1/D-size (24inches) media loaded (not clear film, vellum or tracing paper).
- 2 Go to the Printer submenu and press **Enter**.

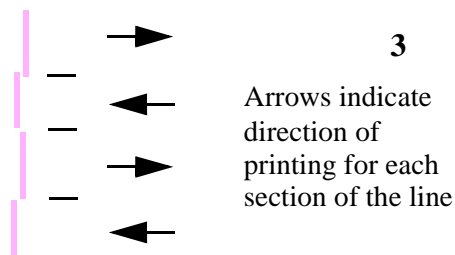


- 3 Go to Utilities/Calibrations/Printhead Alignment. Please wait as the process of aligning the Printheads takes a few minutes.
- 4 Reprint the image you were attempting to print before (in the same mode) to see if the problem still exists.

## Bidirectional Alignment

If a Printer has Bidirectional alignment problems, lines are not straight. The pattern shown below is designed to highlight this kind of problem.

A pair of vertical lines is printed with each Printhead color except yellow. Each section of the vertical line is printed by a different group of Printhead nozzles (one quarter), in one pass. Check the lines on this test pattern, if they have any defects like the ones described above, perform the corrective action.



## Solving Bidirectional Alignment Problems

- 1 Using the same media with which you were experiencing problems, perform Printhead Alignment from the Printer Setup menu by selecting Utilities/Calibration/Printhead Alignment. Please wait as the process of aligning the Printheads takes a few minutes.

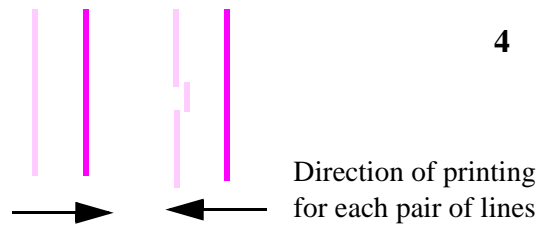
---

## Vertical Line Straightness

If a Printer has Vertical Line Straightness problems, lines are not straight. The pattern seen below is designed to highlight this kind of problem.

A pair of vertical lines is printed in each direction, comparing line straightness for each Printhead color compared to Magenta.

Check the lines on this test pattern, if they have any defects like the ones described above perform the corrective action.



## Solving Vertical Line Straightness

- 1 Using the same media with which you were experiencing problems, perform Printhead Alignment from the Printer Setup menu by selecting Utilities/Calibration/Printhead Alignment. Please wait as the process of aligning the Printheads takes a few minutes.

## Nozzle Print Test

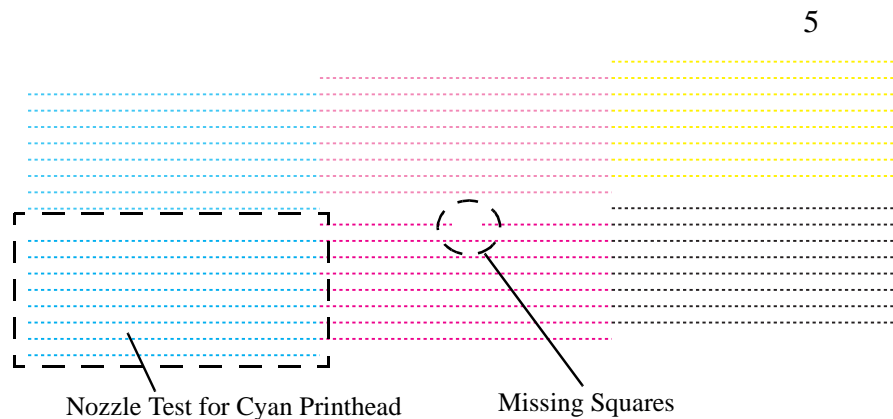
---

**NOTE**

If your Printer has nozzle defects, it does not mean that you will not get perfect print quality results. The Printer has automatic procedures to hide many nozzle defects. This type of problem affects print quality mostly in Productivity and Max. Speed modes.

---

The nozzle print test is number 5 in the Diagnostic Print. In this test the 512 nozzles that each Printhead uses to print with are tested.



Each nozzle on each Printhead prints a series of very close lines that can be seen as small squares in the Diagnostic Print. You can see whether a nozzle is not working if squares are missing or if a nozzle is malfunctioning, the color fill is less dense.

If you have more than 30 defective nozzles, the Printer will automatically request you to recover the Printhead(s) **((XX20)RECOVER)**, or to replace the Printhead(s) **((XX21)REPLACE)** if the defect cannot be recovered.

This test also allows you to check the condition of the Printhead if your Printer displays a **(XXXX)REPLACE** or **(XXXX)RECOVER** message for a Printhead that has recently been changed or recovered successfully. If there are not a large number of squares missing, and so the nozzles are firing correctly, you may have a drop detector problem.

## How to fix the Nozzle Defects

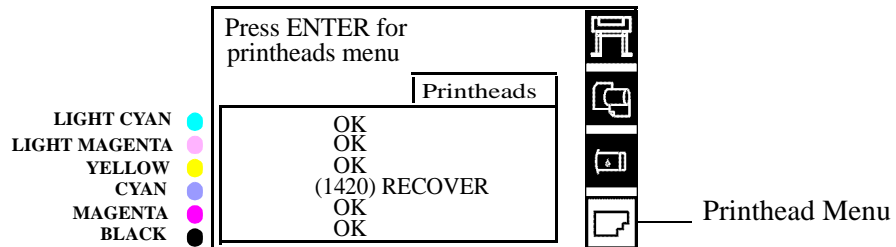
### NOTE

The Printer will automatically request you to recover Printheads with a number of defective nozzles that may affect print quality, or replace them if the Printhead defect cannot be recovered.

### NOTE

If your Printer has nozzle defects, it does not mean that you will not get perfect print quality results.

- 1 Go to the Printheads submenu and press **Enter**.



- 2 Go to Recover Printheads.
- 3 Select the Printhead color that is responsible for the problem. The Printer will try to 'Recover' the defective Printhead. Please wait as the process of recovery takes a few minutes.
- 4 Reprint the Diagnostic Print to check that the defective nozzles have been corrected.

If the error is still present, replace the worst Printheads.

If your Printer displays a **(XXXX)REPLACE** or **(XXXX)RECOVER** message for a Printhead that has recently been changed or recovered successfully:

- 1 Perform Service Station Calibration to verify the correct functioning of the Drop Detector ⇒ Page 5-11.

## No Printing Defects Found in the Diagnostic Print

If all the test patterns from the Diagnostic Print are correct and you still experience print quality problems, here are some of the more likely causes to check:

- The print mode used in the Printer is not right for the image that is being printed (this is defined by the Printer’s Front Panel menu selections).
- Non-HP driver.
- The RIP.
- The software applications you are using.

Use the following table to configure your system correctly.

What to Configure	Configuration Setting	Optimal Setting
Printer Front-Panel Menu	Media	Set to match the media type loaded in the Printer
	Dry time	Set to Automatic.
HP driver (Windows, AutoCAD or Mac)	Print mode setting	Set to Max. Quality
Non-HP drivers (Software RIPs)	The settings available depend on the driver. The most typical settings are: <ul style="list-style-type: none"> <li>■ Print Quality Settings</li> <li>■ Half Tone</li> <li>■ Media selection</li> </ul> See the user’s guide for your application for more information about its print quality settings.	In the software application: <ul style="list-style-type: none"> <li>■ Set Print Quality to Max. Quality.</li> <li>■ Use no Half Tone (or Printer default).</li> <li>■ Make sure that the media setting matches the media loaded in the Printer.</li> </ul>

## Print Quality Problems

For Color Accuracy and Consistency problems do the following:

- Set the Color Calibration in Printer Setup/Internal RIP Settings/ Color Calibration to ON or turn it ON.
- Perform a color calibration and print the plot again (any plots that have already been processed by the Printer will not benefit from the Calibration unless they are sent to the Printer again).
- If the problem persists check the lens and if it is dirty replace the Lens Cover Assembly (See ⇒ Page 9-5) and repeat the calibrations.



## **Solving Color Accuracy problems**

These are two areas you should review when troubleshooting a color accuracy problem:

### **Configuration (PostScript option only)**

Check that you are using the correct driver setting for the software. Check which ink emulation mode has been selected in the front panel.

### **Media**

Make sure that the media loaded is genuine HP media and that the correct media type has been selected on the front panel.

## **Solving Color Consistency problems**

- If color consistency is important for the customer, it is recommended that they do not use HP-GL/2 to print with.
- Some media may discolor or change with age. Check that the media is fresh and has been stored correctly.
- If the environmental conditions that the customer is printing in change rapidly, you may see changes in the color consistency. By reducing the time the print stays in extreme environmental conditions after being printed (especially very high humidity) you can reduce the color consistency problems.
- There will be color differences between HP DesignJet Printers because the other Printers use a different type of ink.

---

## Color Accuracy Configuration

The configurations of the Printer, the driver, and the software RIPs define how ink is applied to each type of media. Use the information in the following table to configure the Printer and software for best color accuracy.

Location of Setting	Setting Description	Selection
Printer Front-Panel Menu	Media	Set to match the media type loaded in the Printer.
Internal RIP settings	Ink Emulation RGB CMYK (PS 5000PS only)	Set the type of inks that your software generates.
	Color Calibration (PS only)	Set to ON.
Non-HP drivers (Software RIPS)	Media or equivalent setting	Set to match the media type loaded in the Printer. See the documentation that came with your software for information.
	Color correction option or equivalent	Do the color correction calibration if one is available.

### Blurred Lines (Ink “Bleeds” from Lines)

Perhaps you have adjusted the drying time in the Front Panel menu to speed up the Printer output.

- 1 Set “Drying time” to “Automatic”.
  - For details of drying time adjustments, see the User’s Reference Guide.

## Media

Always make sure that the customer is using the appropriate media for the required image and that it is consistent with the software application being used. To ensure color accuracy and print-quality performance of the Printer, only media types that have been certified for the Printer should be used. Use of non-HP media or HP media not certified for the Printer may significantly reduce the color and print quality of the required images. For details of HP media, refer to the **User's Guide** or the **Media Guide for the HP Designjet Printers**.

---

### NOTE

**To have accurate colors, the media settings must match the type of media loaded in the Printer.**

**If the customer is using non-HP media with HP drivers, the colors in the required print may not be accurate. Advise the customer to use HP media to improve the accuracy of the colors.**

---

## Printed surface smearing roll

As the media is printed and the image is coming out from the Printer, the natural curl of the media causes it to rub against the roll of media installed in the Printer. This causes image smearing. In addition to this, if the exiting media sticks against the roll, because the ink is not dry or because of static (some Polyester films get electrostatically charged) it could cause the media to reenter into the Printer.

- 1 Make sure that the media deflectors are installed onto the Printer. The increased distance between the roll and the exiting media reduces the probability of having both surfaces being attracted (and smears).

## Warped Lines on Media

The media itself may be warped. This can happen if it has been used or stored in an extreme environment.

- 1 Make sure the Environmental Conditions your Printer is operating in are within specifications (See ⇒ Page 10-11).
- 2 Store all Media according to Environmental Specifications (See ⇒ Page 10-11).

## **Marks and/or scratches on double-sided media**

If you are using double-sided media and there are marks and scratches evident on the media, the platen may need cleaning ((See ⇒ Page 9-9).

## **There are Smears or Scratching on the Printed Media**

This problem can appear on paper-based coated media if a lot of ink printed quickly. The media cannot absorb the ink quickly enough and becomes distorted. As the Printheads move over the media, the Printheads and the media come into contact with each other and the printed image is smeared.

- 1 Press the **Cancel** key on the front panel; if you continue to print, the paper may damage the Printheads.
- 2 Cancel the print job from your computer application.

In order to obtain better results perform the following:

- Use HP recommended media. If the image you are printing has intense color, use HP Heavy Weight Coated (Economy) Paper.
- Use extended margins, or try to increase the print margins by relocating the image on the page from the software application.
- Ensure the Deflectors are installed on your Printer.
- If the customer is using 'Media Saving Options' from the advanced section of the HP- GL/2 Driver, try disabling one or both of the options 'auto rotate' and 'inked area'.
- Use the Take Up Reel if you have one installed.

If the above fails to solve the problem of smears and scratching, change the media that the customer is using to a non-paper based media such as HP High Gloss Photo Paper.

## **Long Term Color Bleeding (Glossy Papers)**

If you see the colors are bleeding into the paper i.e. the color is soaking into the paper making the lines fuzzy and bleary. This will be because of the humidity conditions that the Printer is working under:

- Ask the customer to change the paper that they are printing with  
or
- Remove the Printer from the high humidity conditions.

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# Parts and Diagrams

# 7

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## Printer Support

<b>Printer Support</b>			
<b>Reference on Drawing</b>	<b>HP Part Number</b>	<b>Quantity</b>	<b>Description/Comments</b>
1	C6090-60049	2	Foot Assembly
2	C6090-60047	2	Legs Assembly
3	C6095-60167	1	Top X-Brace Assembly (60" Model)
	C6090-60055	1	Top X-Brace Assembly (42" Model)
4	C6095-60166	1	Bottom X-Brace Assembly (60" Model)
	C6090-60056	1	Bottom X-Brace Assembly (42" Model)
-	C6090-60046	1	Hardware Kit (Includes Screw Drivers)
-	C6095-60173	1	Maintenance Kit (60" Model)
-	C6090-60081	1	Maintenance Kit (42" Model)

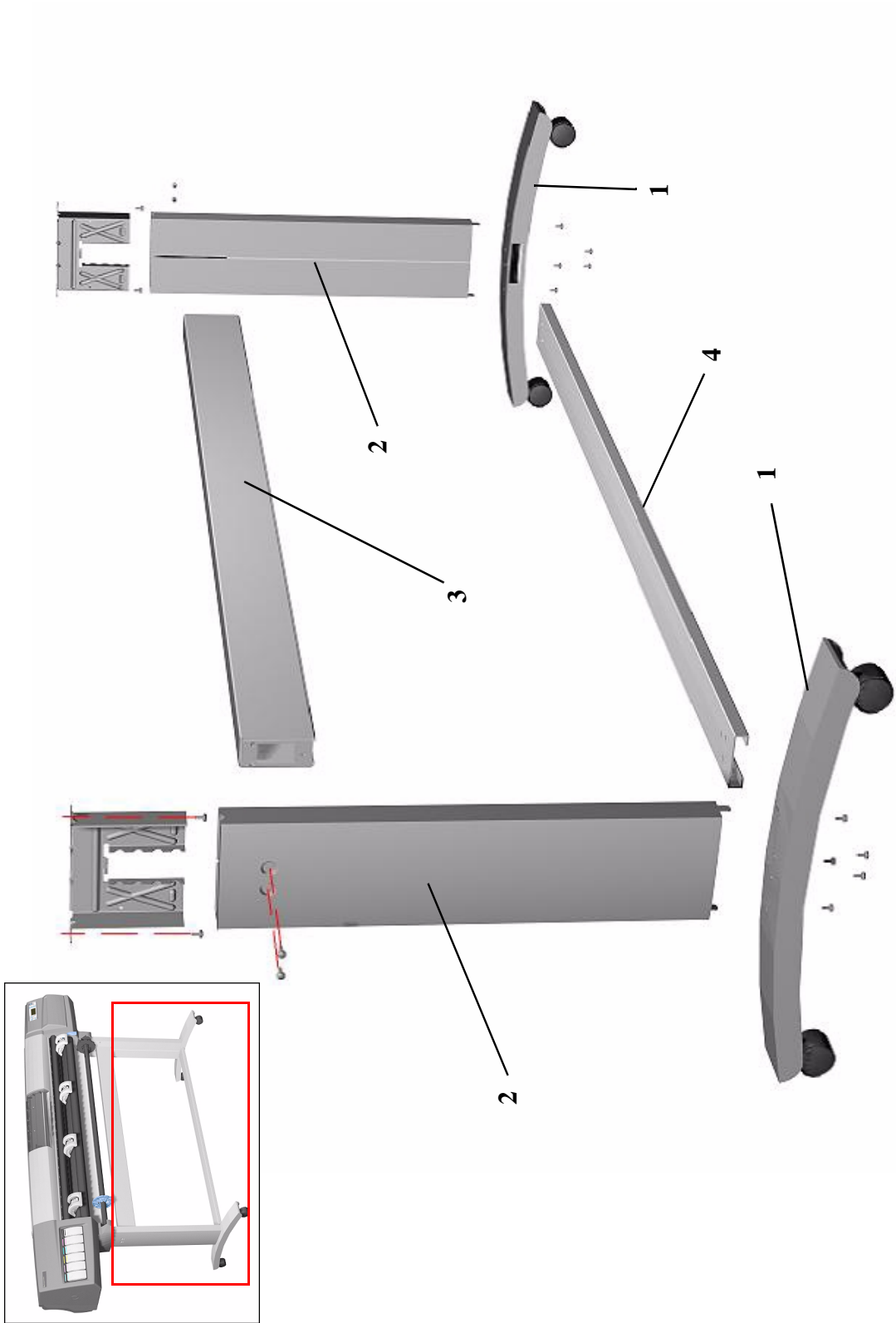


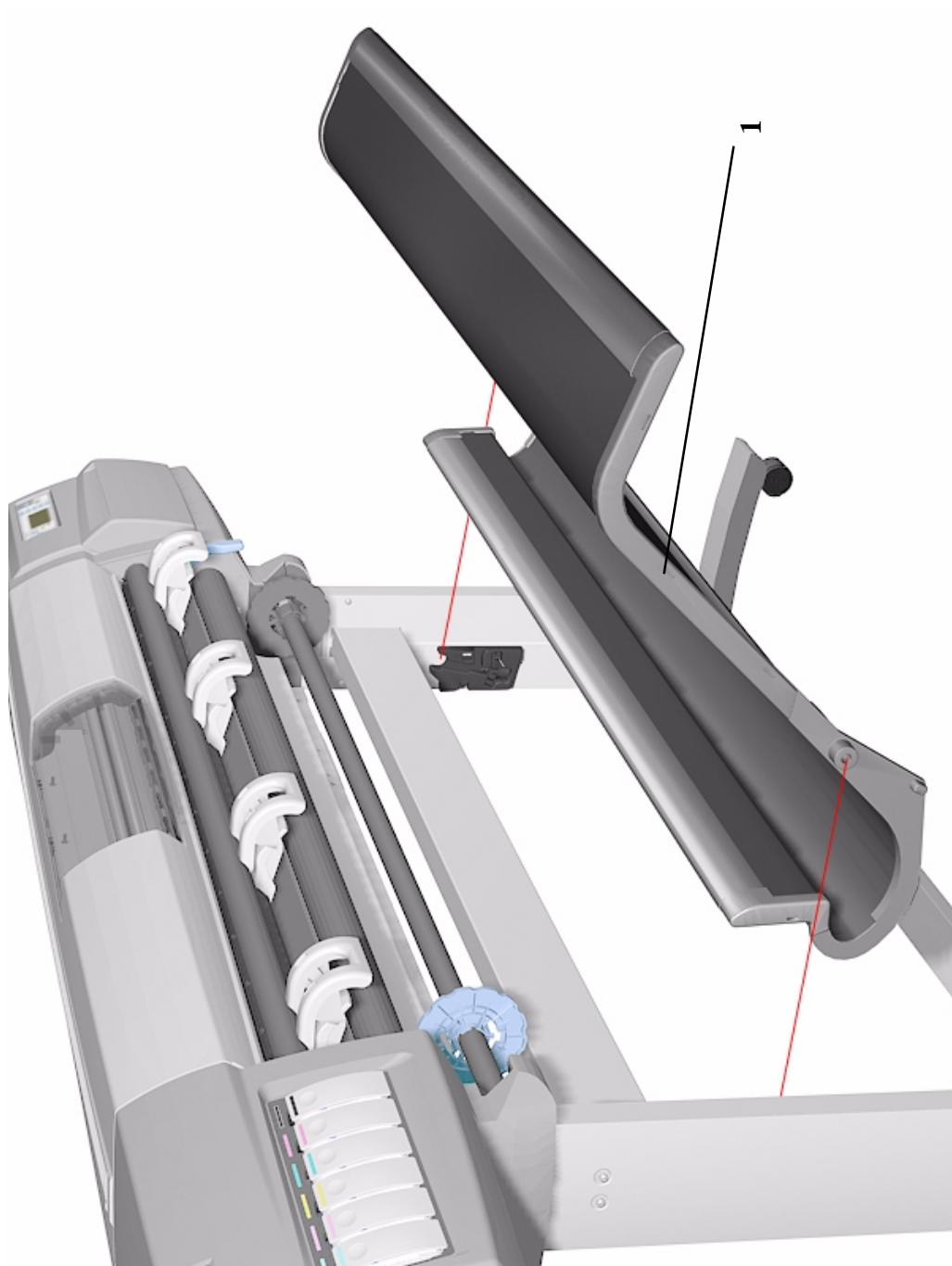
Figure 3: Printer Support

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## Bin and Take-Up Reel

Bin and Take-Up Reel			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
-	C6095-60188	1	Take-Up Reel Spindle (60" Model)
-	C6090-60178	1	Take-Up Reel Spindle (42" Model)
-	C6090-60183	1	Left Take-Up Reel Holder
-	C6090-60182	1	Right Take-Up Reel Holder
-	C6095-60189	1	Take-Up Reel Core (60" Model)
-	C6090-60177	1	Take-Up Reel Core (42" Model)
-	C6095-60187	1	Take-up Reel Deflector (60" Model)
-	C6090-60179	1	Take-up Reel Deflector (42" Model)
-	C6090-60184	1	Take-Up Reel Sensor
-	C6090-60175	1	Spindle Guide
1	C6090-60057	1	42" Bin
-	C6090-60112	2	3" Adaptors





**Figure 4: Bin and Take-Up Reel**

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## Right Hand Cover

Right Hand Cover			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60038	1	Right Hand Cover (Includes Front Panel Cable)
2	0624-0771	4	Screw
3		1	Screw
4	C6090-60043	1	Right Hand Trim (Includes Window and Lever Sensors)
5	0624-0771	1	Screw
6	0515-2248	1	Screw
7	C6090-60111	1	Front Panel Assembly (Includes Front Panel Cable)
8	C6060-60061	1	Overlay (English)
9	C6095-40065	1	Quick Reference Guide Holder

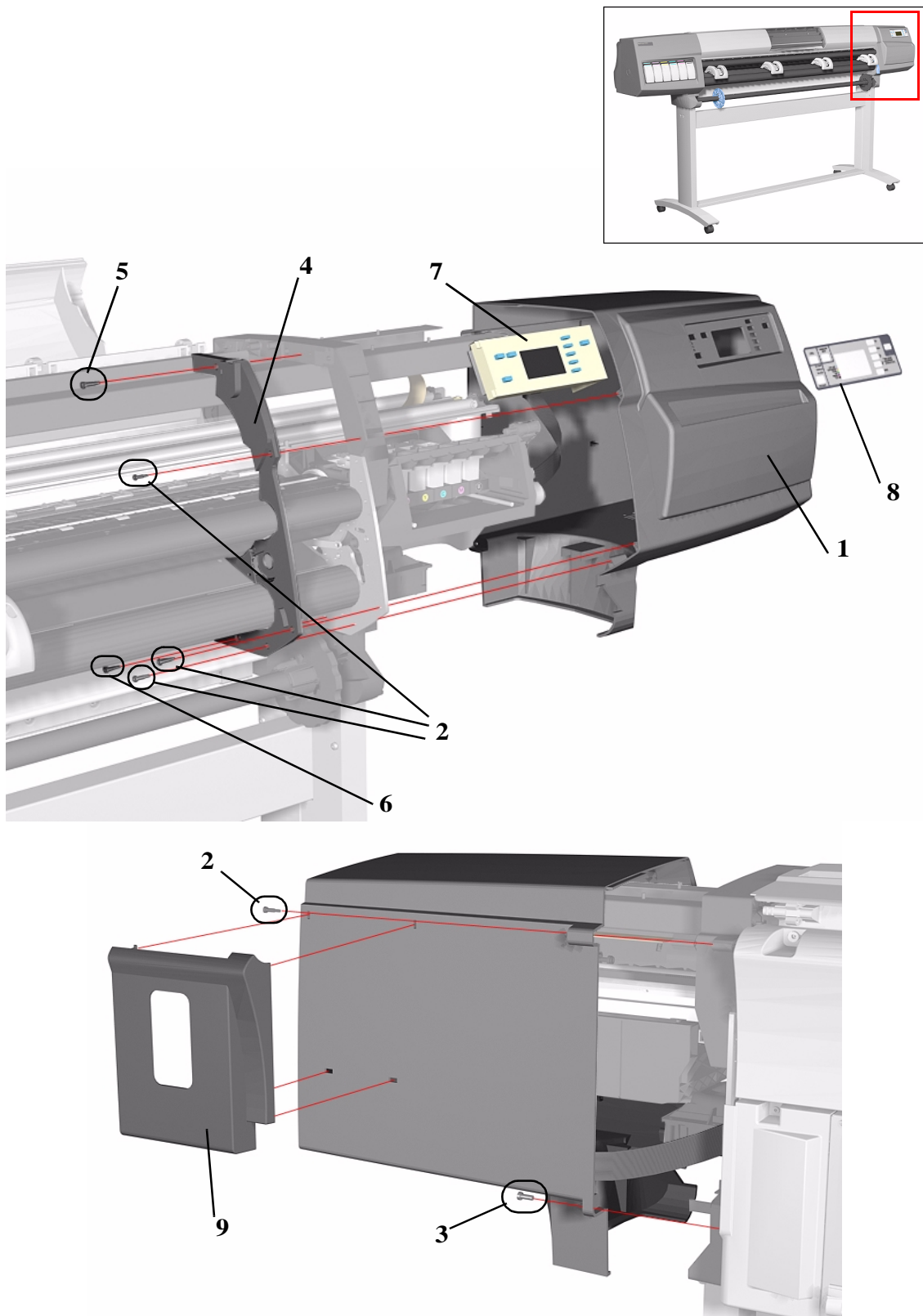


Figure 5: Right Hand Cover

## Left Hand Cover and Rear Door

Left Hand Cover and Rear Door			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60039	1	Left Hand Cover (includes door)
2	0624-0771	4	Screw
3		1	Screw
4	C6090-60042	1	Left Hand Trim
5	0624-0771	1	Screw
6	0515-2248	1	Screw
	C6090-60040	1	Rear Door
7	C6096-00049	1	Nameplate PS (HP DesignJet 5000PS)
	C6095-00116	1	Nameplate RTL (HP DesignJet 5000)

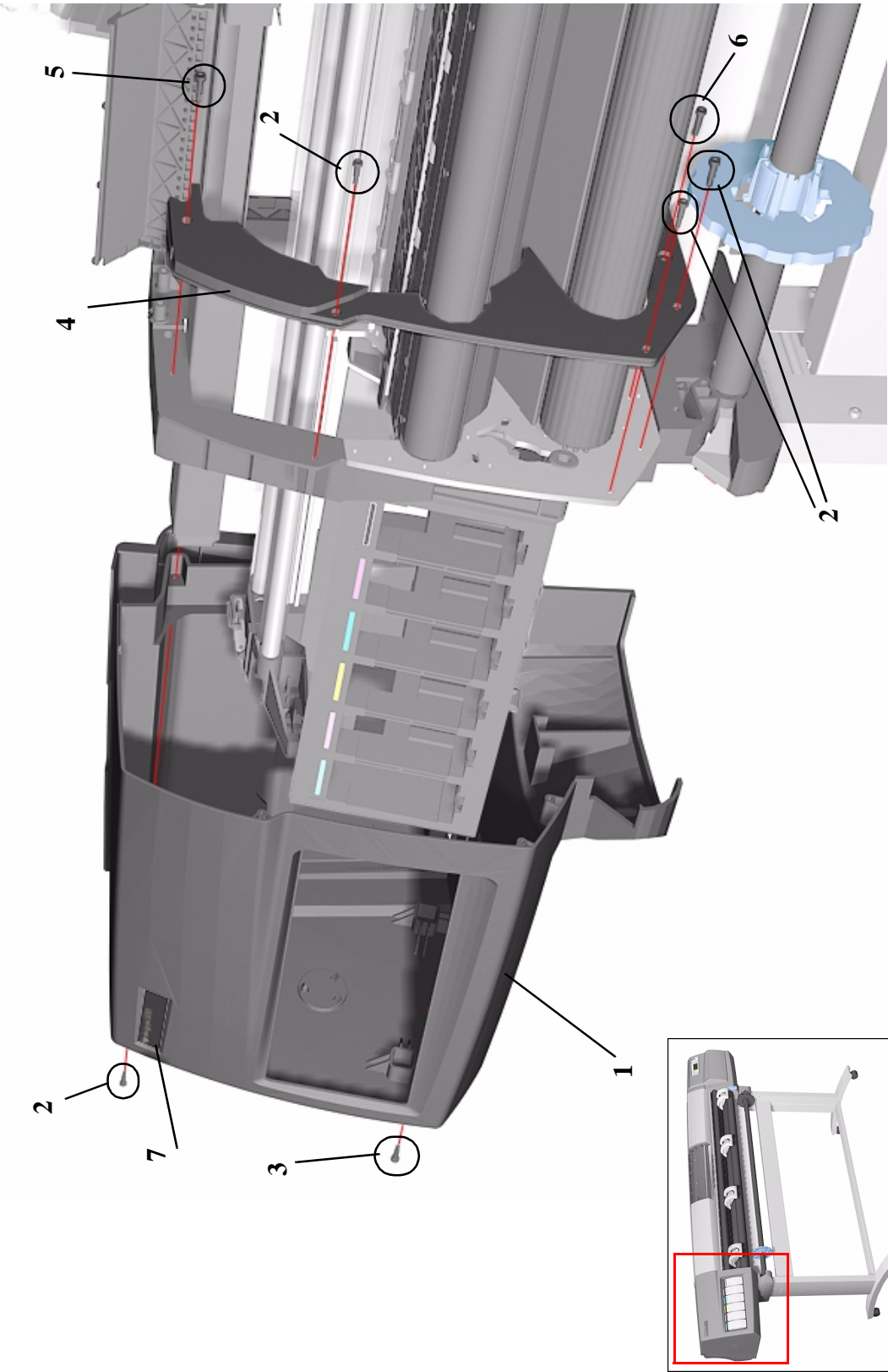
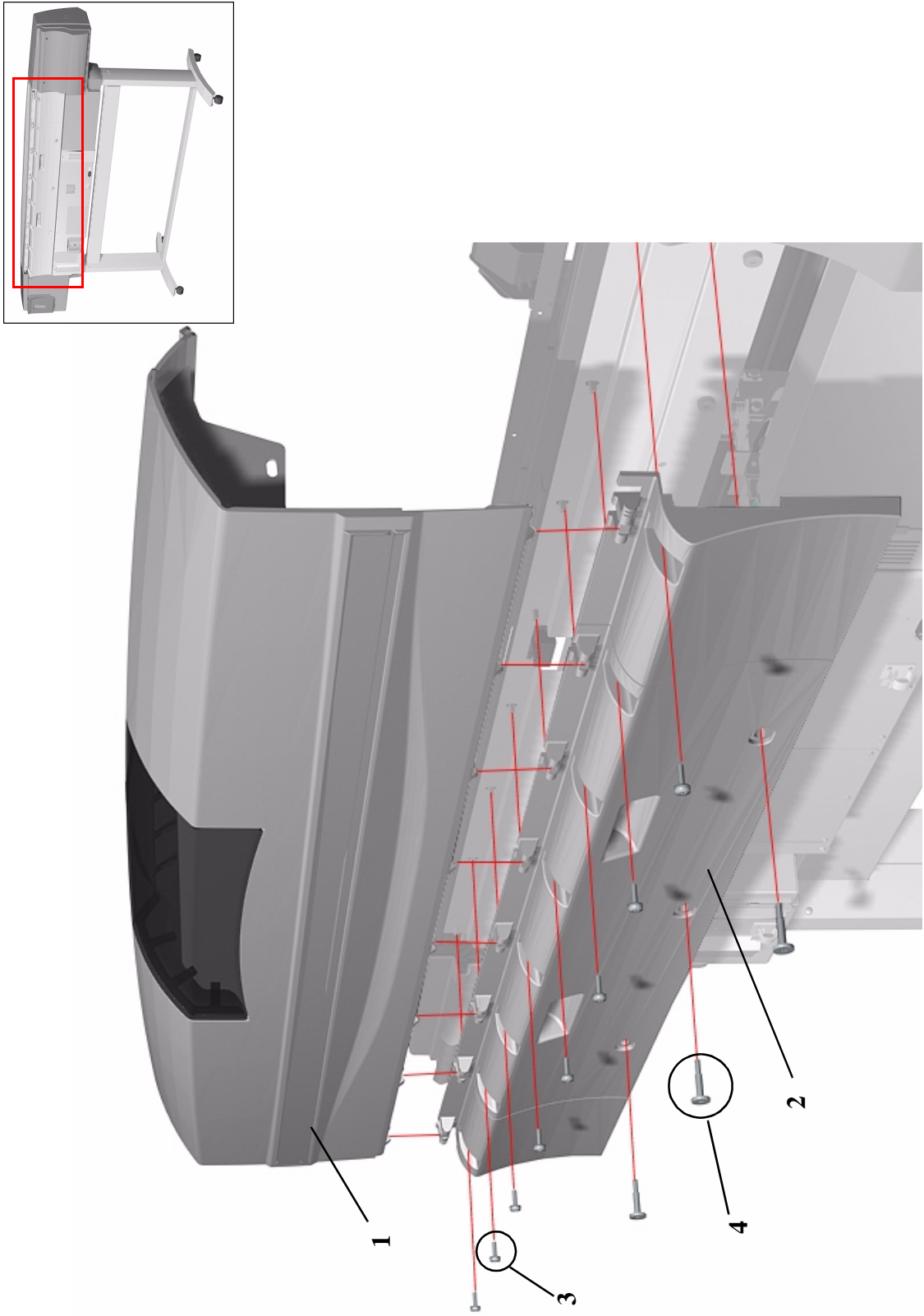


Figure 6: Left Hand Cover and Rear Door

## Top and Back Covers

Top and Back Covers				
Reference on Drawing	HP Part Number	Quantity		Description/Comments
		60"	42"	
1	C6095-60147	1		Top Cover (60" Model)
	C6090-60035		1	Top Cover (42" Model)
2	C6095-60141	1		Back Cover (60" Model)
	C6090-60037		1	Back Cover (42" Model)
3	0515-0382	8	6	Screw
4	C6071-20026	3	3	Screw

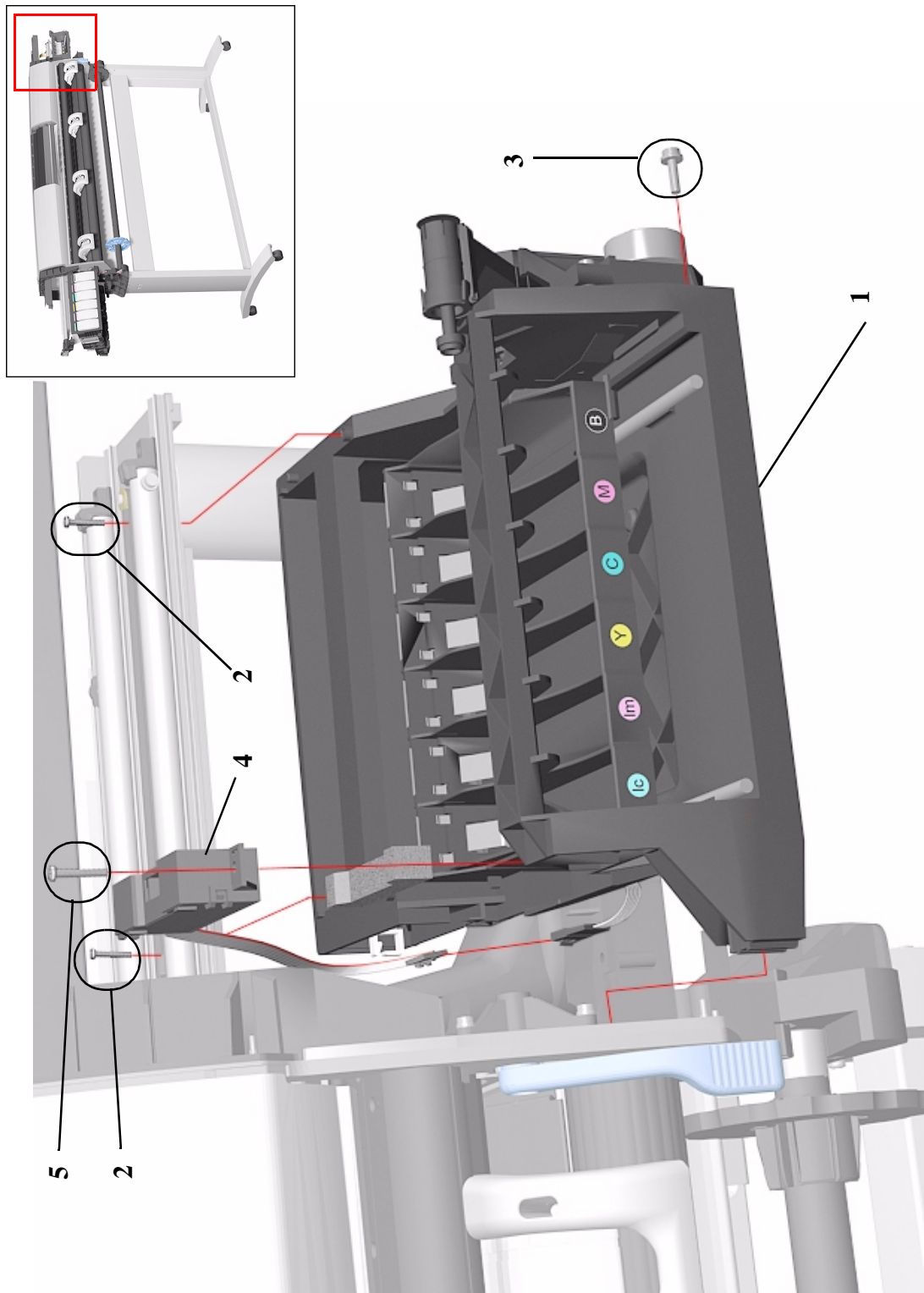


**Figure 7: Top and Back Covers**

## Service Station

Service Station			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60083	1	Service Station Assembly (Includes Drop Detector and Primer Assembly)
2	0624-0771	2	Screw
3	0515-1743	1	Screw
4	C6072-60179	1	Drop Detector Assembly (Includes Spittoon Foam and screw)
5	0624-0771	1	Drop Detector Screw

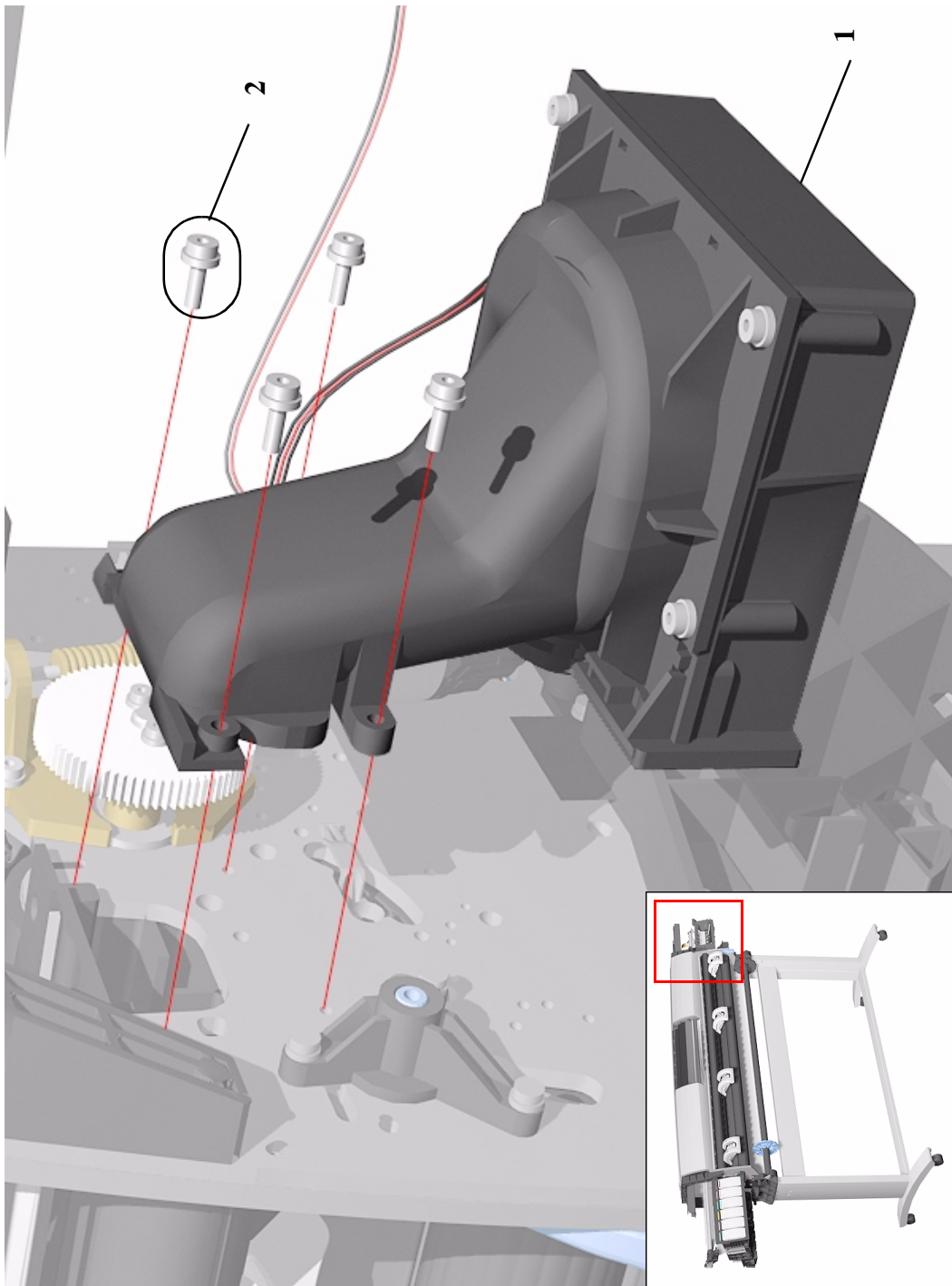




**Figure 8: Service Station**

## Vacuum Fan

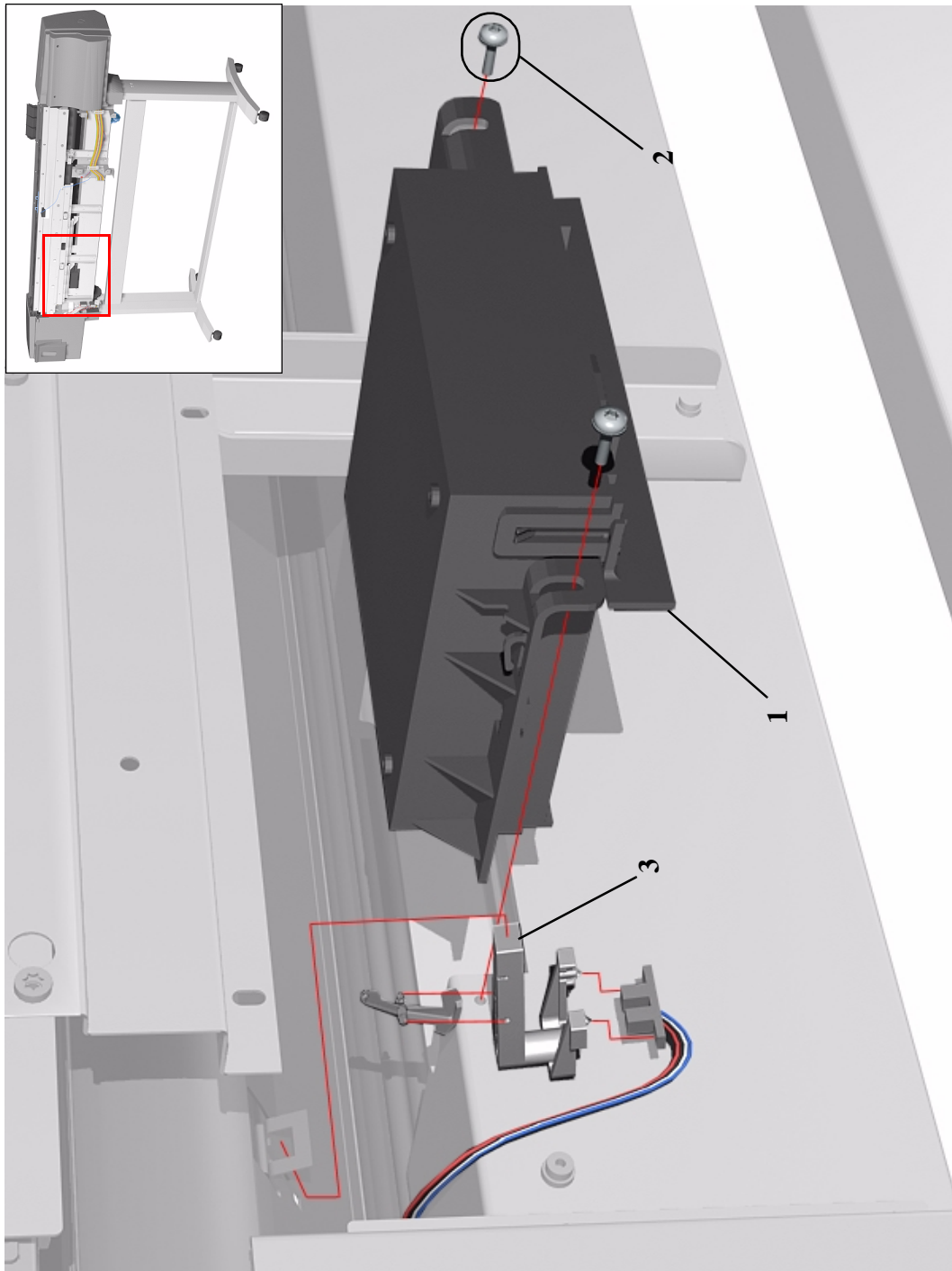
Vacuum Fan			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60095	1	Vacuum Fan
2	0515-2248	4	Screw



**Figure 9: Vacuum Fan**

## Booster Fan and Media Sensor

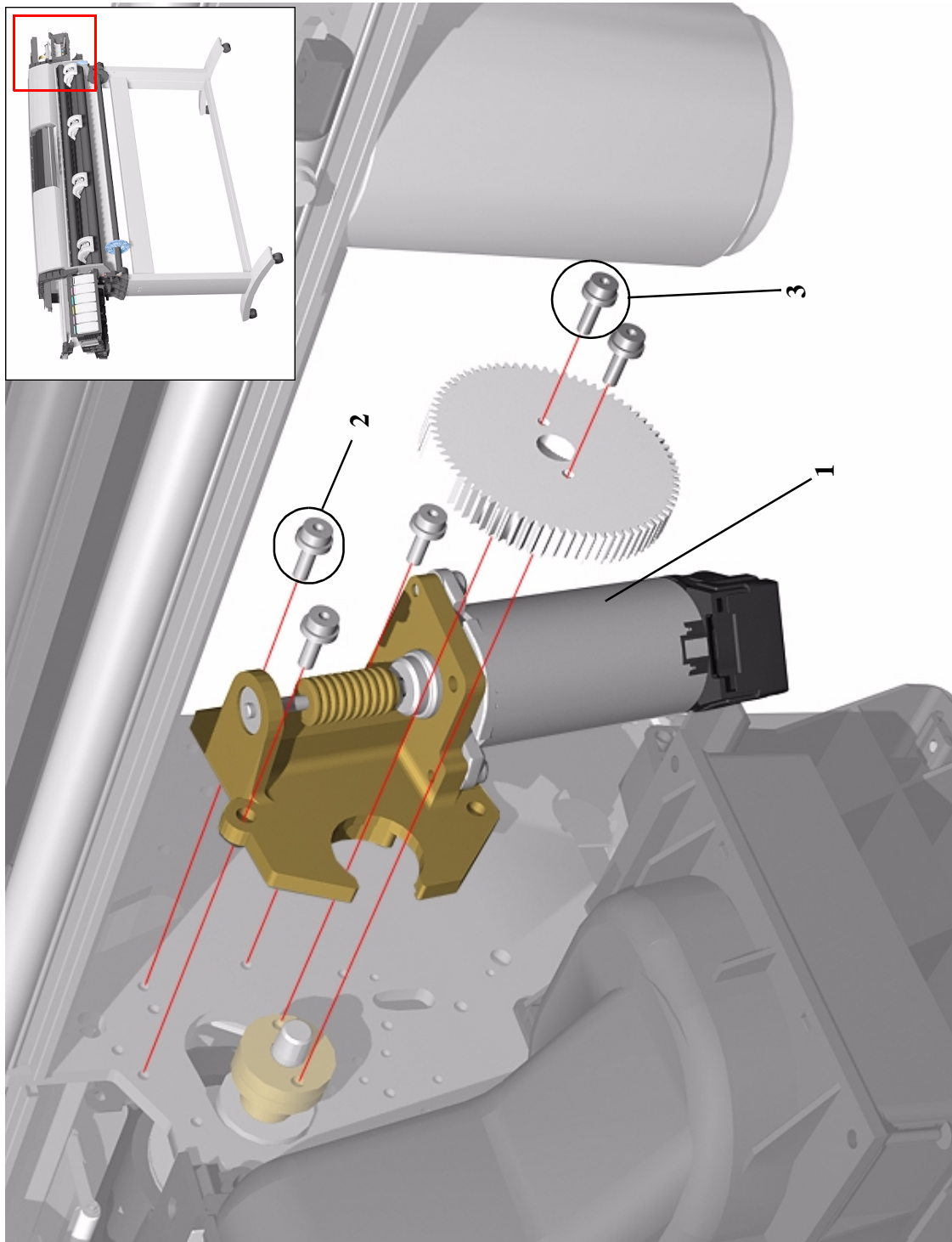
<b>Booster Fan and Media Sensor</b>			
<b>Reference on Drawing</b>	<b>HP Part Number</b>	<b>Quantity</b>	<b>Description/Comments</b>
1	C6090-60093	1	Booster Fan
2	0515-2248	2	Screw
3	C6090-60103	1	Media Sensor



**Figure 10: Booster Fan and Media Sensor**

## Paper-Axis Motor

<b>Paper-Axis Motor</b>			
<b>Reference on Drawing</b>	<b>HP Part Number</b>	<b>Quantity</b>	<b>Description/Comments</b>
1	C6072-60160	1	Paper-Axis Motor Assembly (includes Helical Gear and Grease)
2	0515-2248	3	Screw
3	0515-1743	2	Screw (Helical gear)

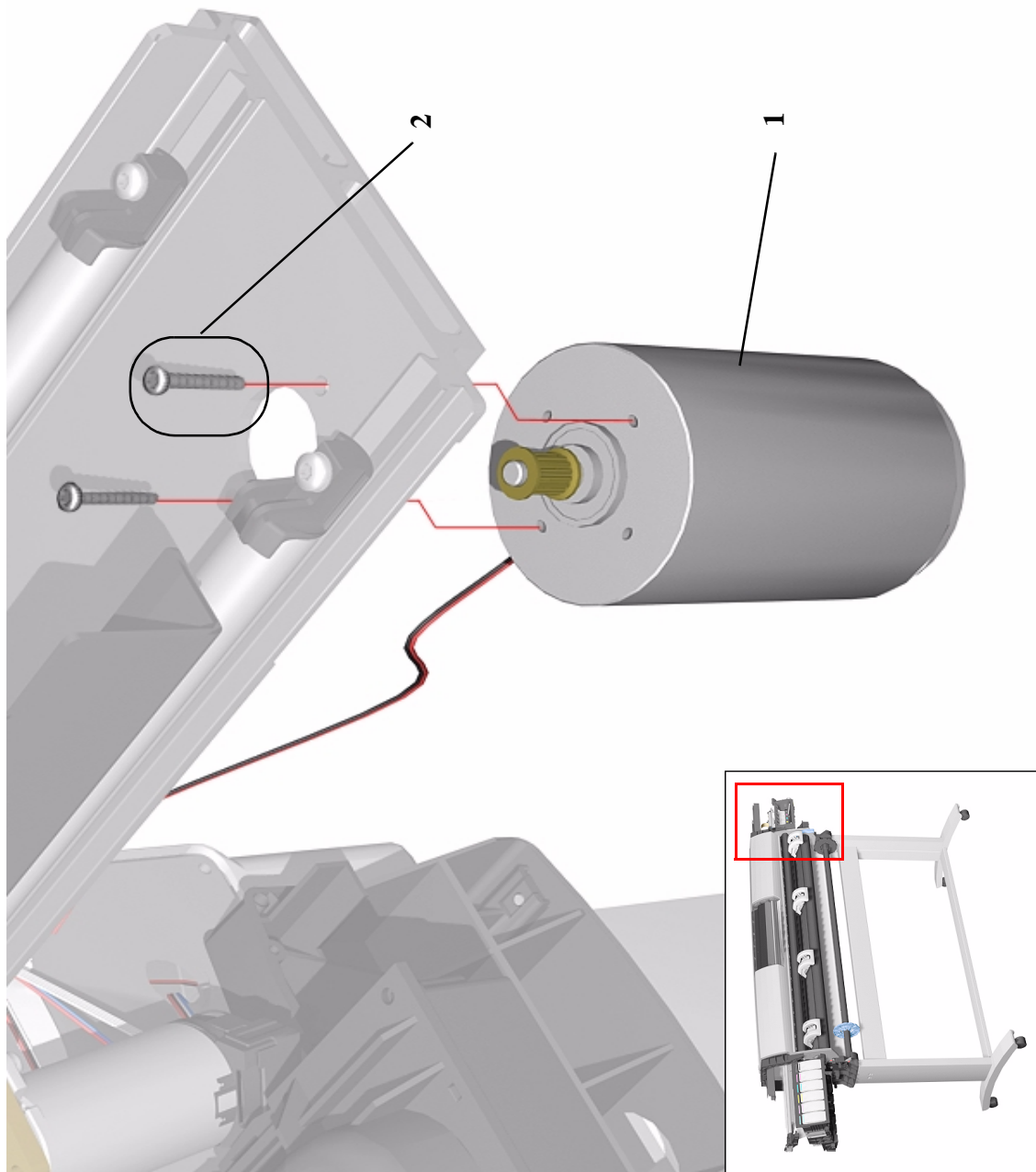


**Figure 11: Paper-Axis Motor**

## Scan-Axis Motor

Scan-Axis Motor			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60092	1	Scan-Axis Motor Assembly
2	0515-0382	2	Screw

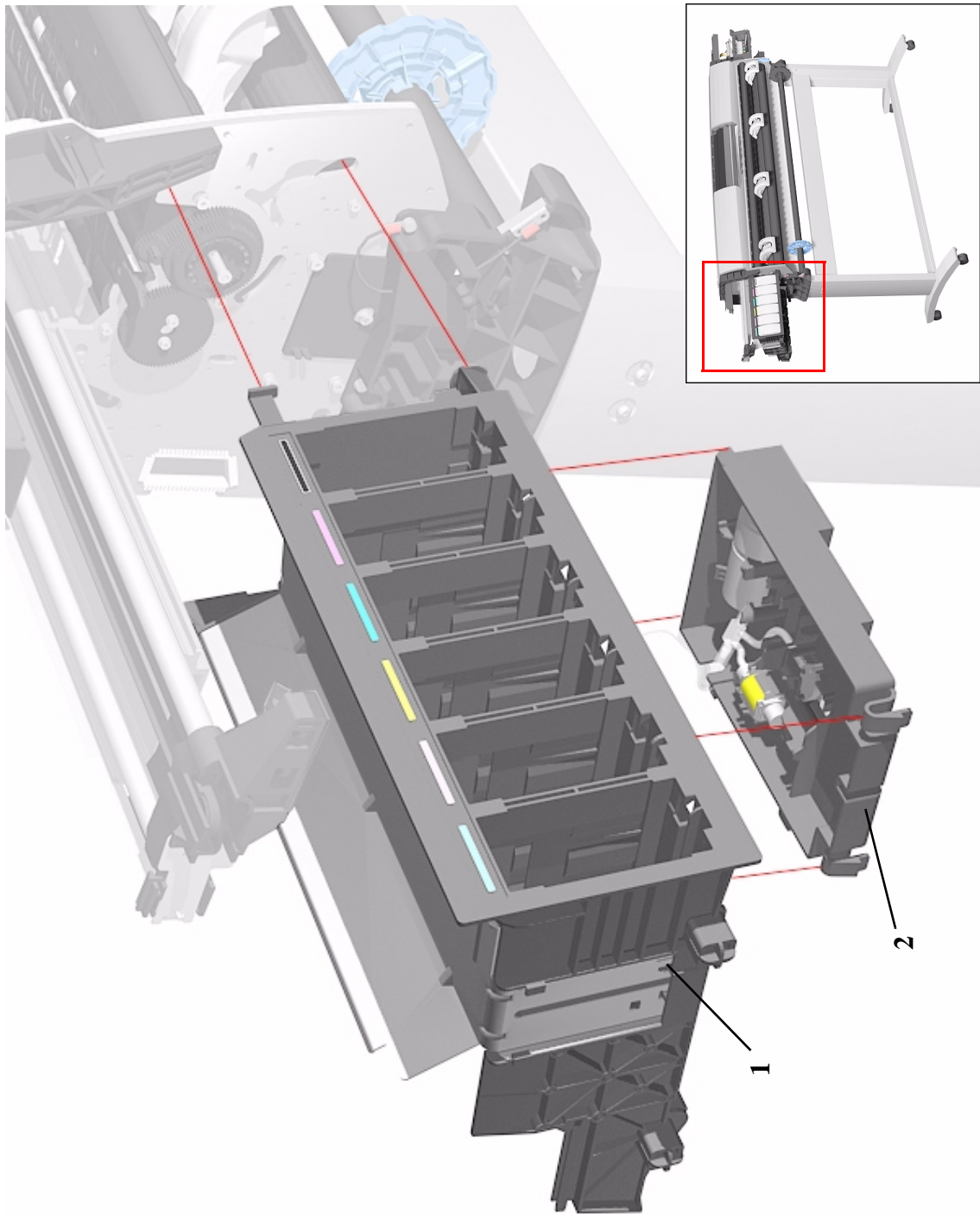




**Figure 12: Scan-Axis Motor**

## ISS and APS Assembly

ISS and APS Assembly			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60085	1	Ink Supply Station (ISS) (Includes Grounding Strip)
2	C6090-60084	1	Air Pressurization System (APS)

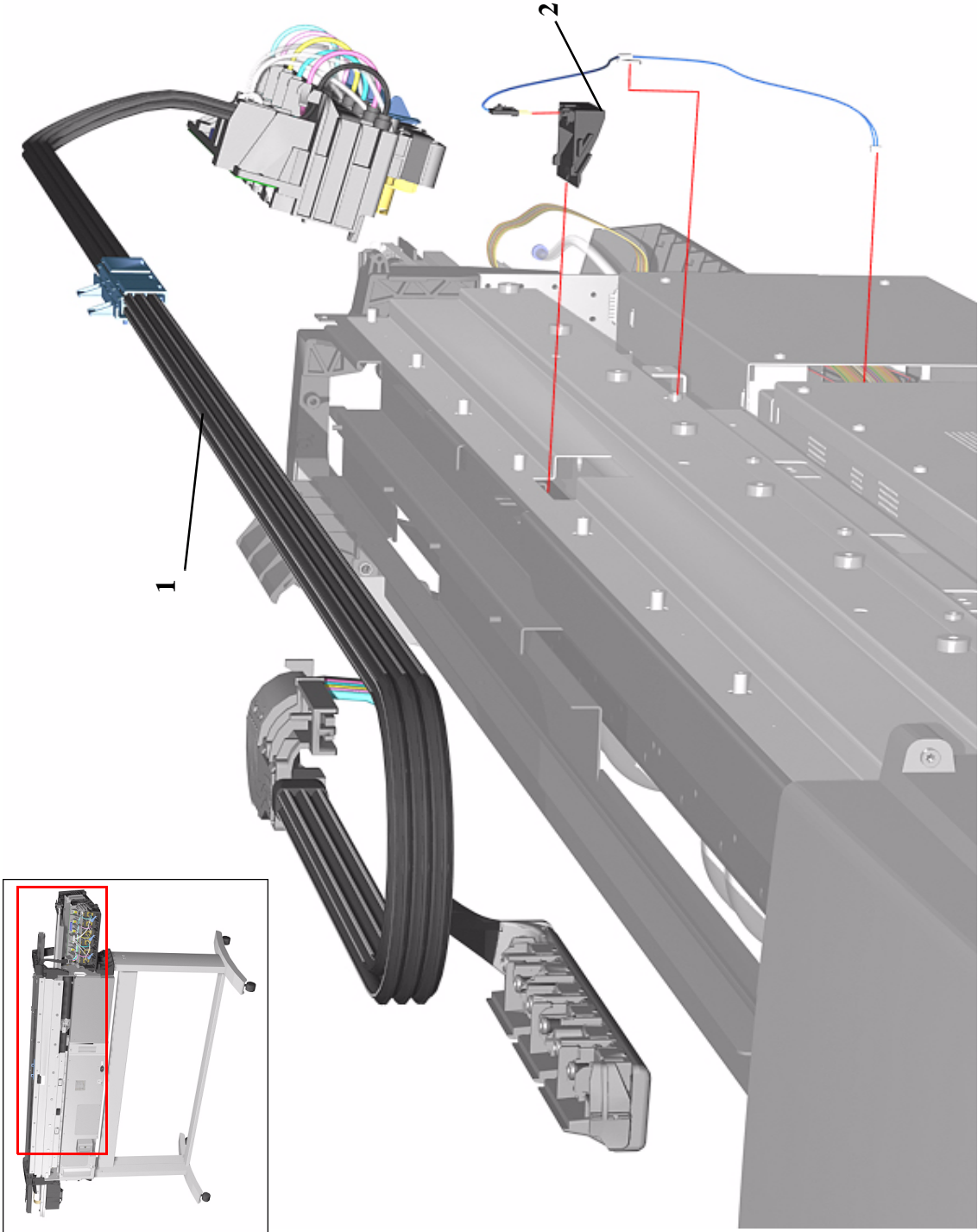


**Figure 13: ISS and APS Assembly**

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## Ink Tubes System

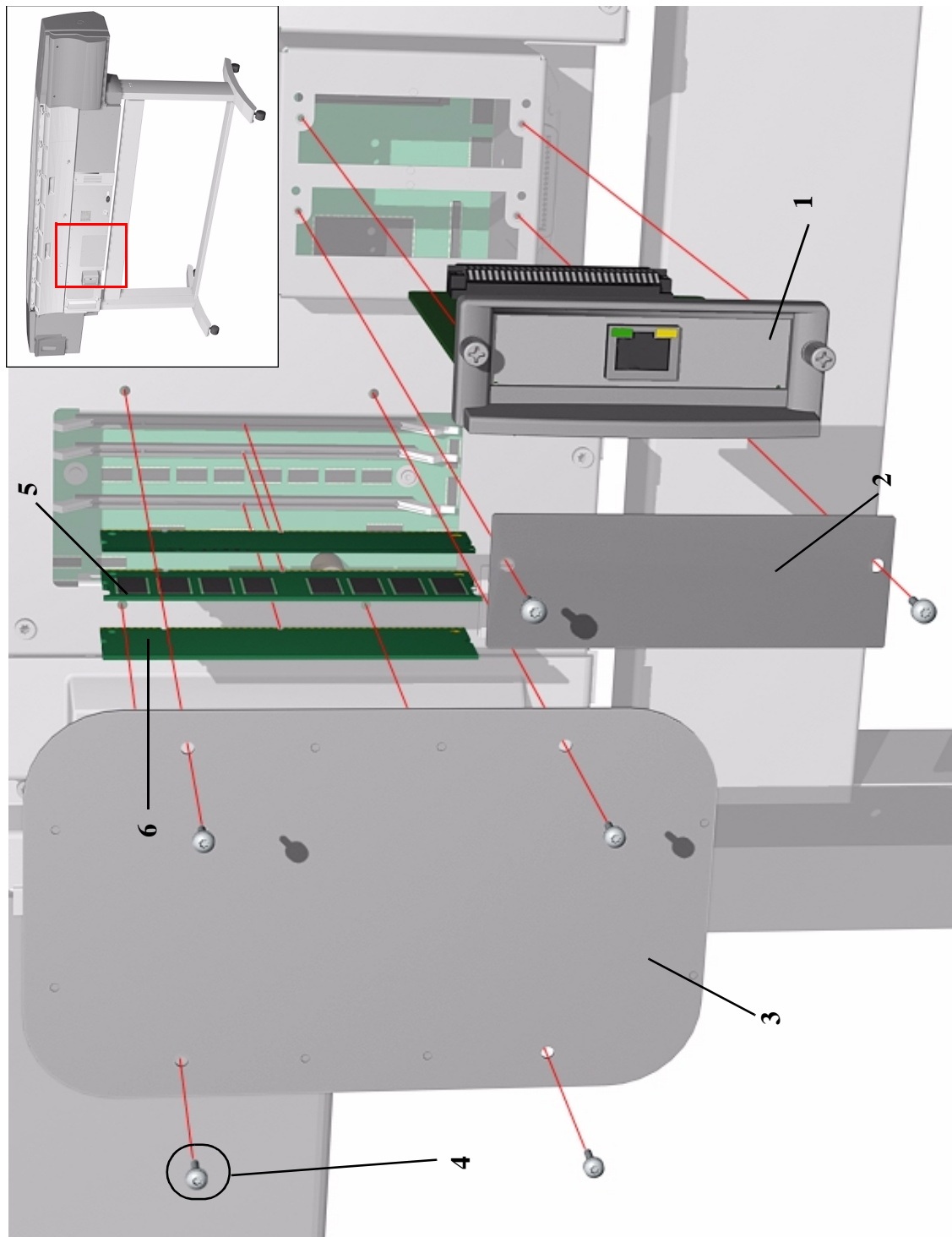
Ink Tubes System			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6095-60186	1	Ink Tubes System (60" Model) (Includes Setup Printheads, Ink Collector, Carrier Clip and ISS Housing Foam)
	C6090-60058	1	Ink Tubes System (42" Model) (Includes Setup Printheads, Ink Collector, Carrier Clip and ISS Housing Foam)
-	C6090-60106	1	Setup Printheads (Also included in Ink Tubes System)
2	C60090-60087	1	Ink Leak Detector (Also included with Ink Tubes System) (Includes Ink Collector, Leak Sense Cable and Leak Sense Cable Clip)



**Figure 14: Ink Tubes System**

## Boot ROM DIMM, DRAM Memory and Covers

Boot ROM DIMM, DRAM Memory and Covers			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	J3113-61001	1	EIO Card
2	C6095-00129	1	EIO Card Cover
3	C6072-60176	1	DIMM Cover
4	0515-2246	4	Screw
5	C6090-60187	1	SDRAM DIMM 64MB
	C6090-60185	1	SDRAM DIMM 128MB
6	C6091-60008	1	PS Boot ROM DIMM A.01.01
	C6090-60027	1	RTL Boot ROM DIMM A.01.01



**Figure 15: BootROM, Memory and Covers**

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## Rear Electronics Access Covers

Rear Electronics Access Covers			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60044	1	Right Rear Cover
2	0515-0382	1	Screw
3	C6090-40045	1	Left Rear Cover
4	0515-0382	1	Screw
5	C6095-60140	1	Extension Cover (60" Model only)
6	0515-0382	4	Screw
7	C6090-60032	1	Electronics Module Cover (Includes EIO Cover and Hard Disk Cover)
8	0515-0382	15	Electronics Module Cover Screw
-	C6090-60109	1	Electronics Cable Retainer



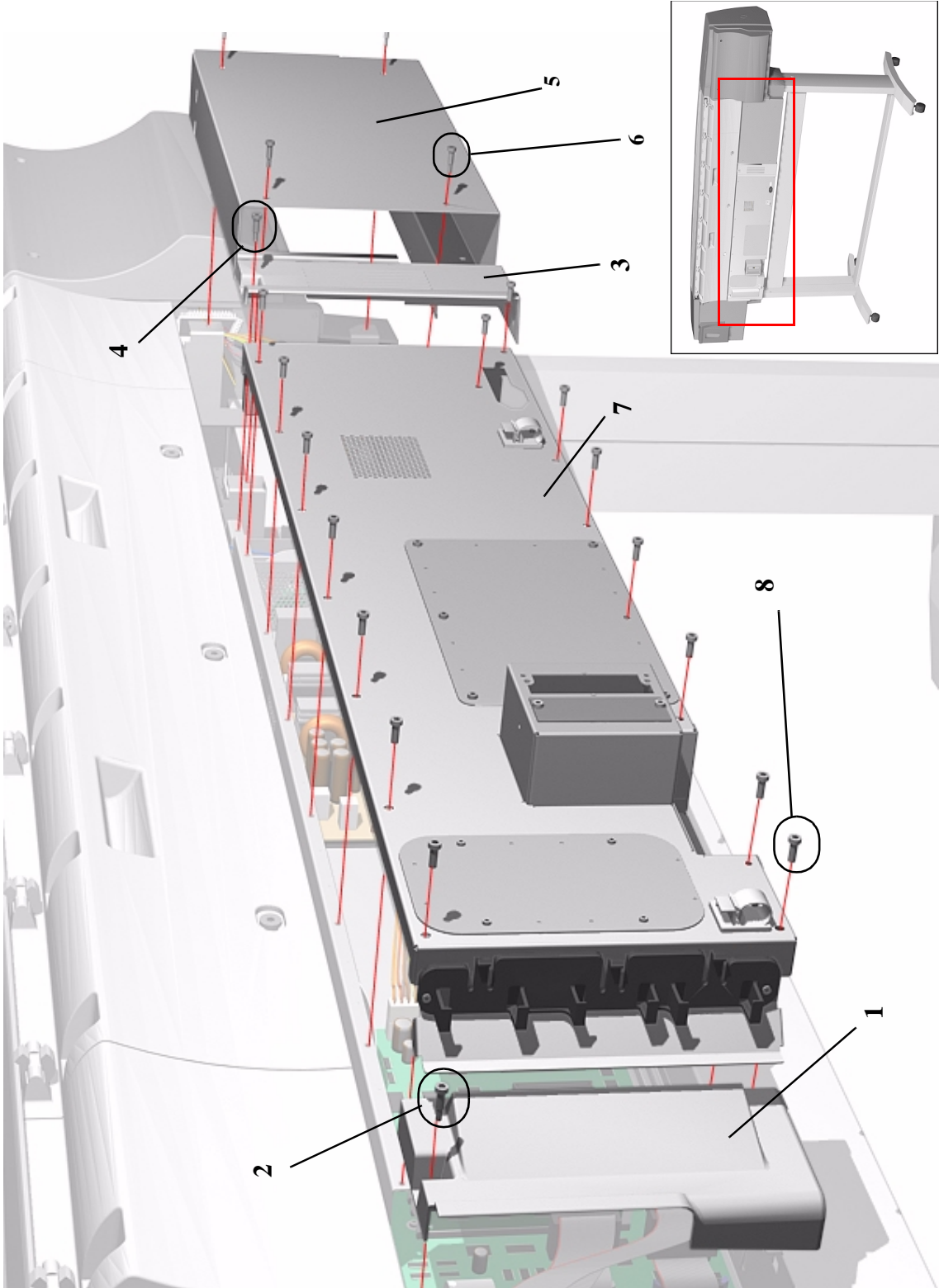
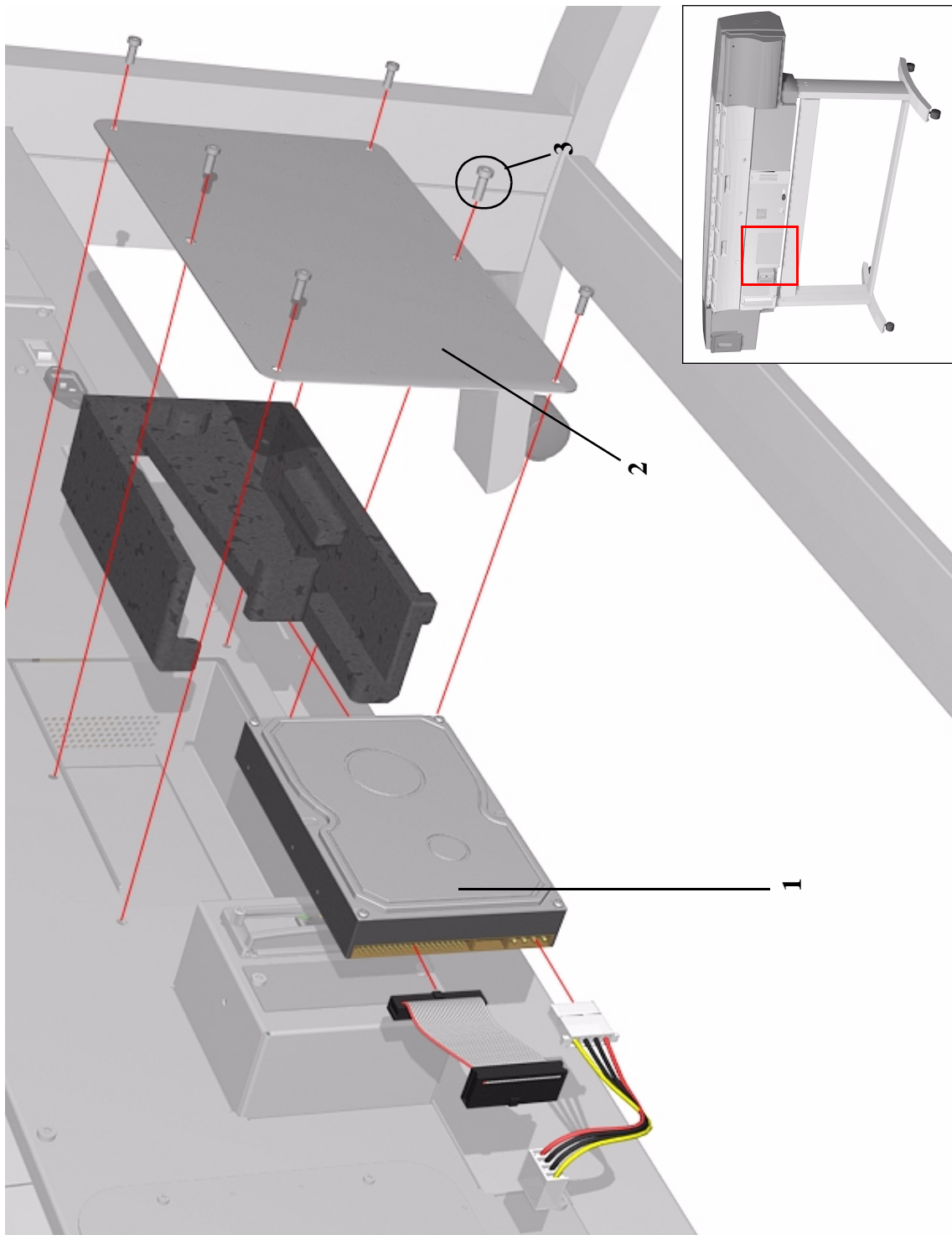


Figure 16: Rear Electronics Access Covers

---

## Hard Disk Drive and Cover

Hard Disk Drive and Cover			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6091-60005	1	Hard Disk Drive PS A.01.01 (includes data cable and PS cable)
	C6090-60015	1	Hard Disk Drive RTL A.01.01(includes data cable and PS cable)
2	C6095-00031	1	HDD Cover
3	0515-0382	6	Screw



**Figure 17: Hard Disk Drive and Cover**

## ISS PCA and Main PCA

ISS PCA and Main PCA			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60012	1	Main PCA (Includes HDD Controller and ISS PCA cable)
2	0515-2200	11	Screw
3	C6090-60041	1	ISS PCA (Includes ISS PCA cable)
4	0515-2200	5	Screw

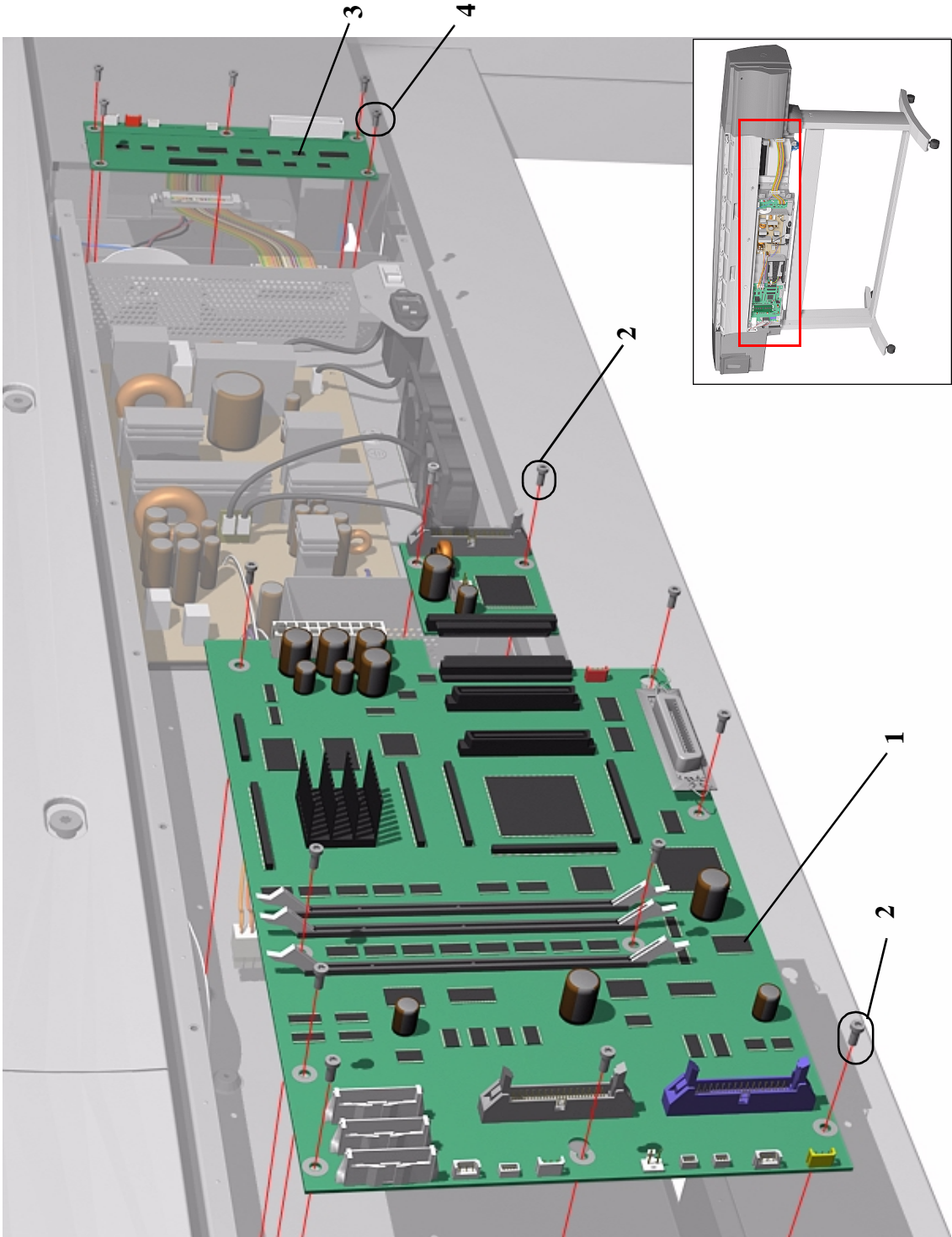
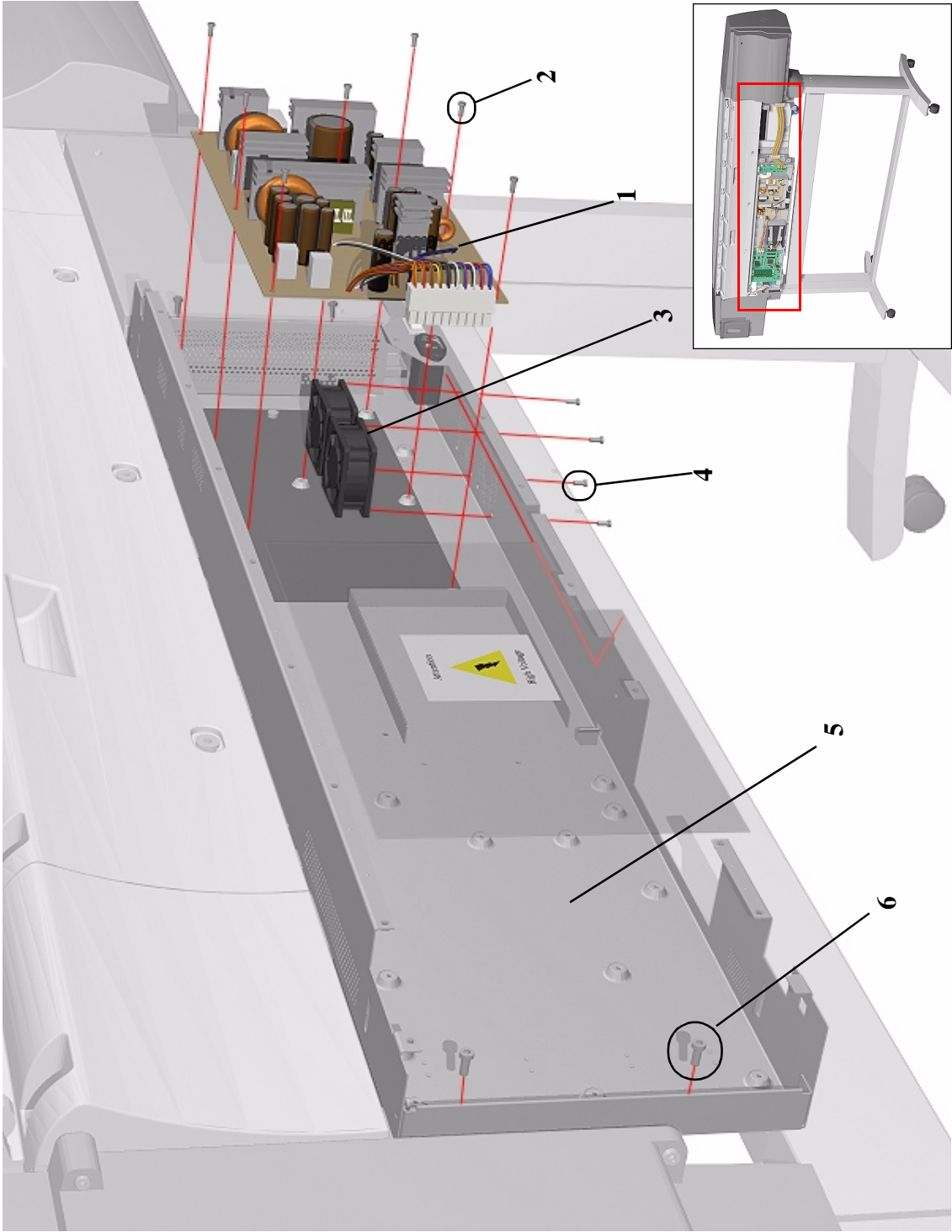


Figure 18: ISS PCA and Main PCA

## Power Supply Unit

Power Supply Unit			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60028	1	Power Supply Unit
2	0515-2200	7	Screw
3	C6090-60029	2	Cooling Fans
4	0515-2278	4	Screw
5	C6090-60033	1	Electronics Module Base (includes Power Supply Unit and cooling fans)
6	0515-0382	4	Screw

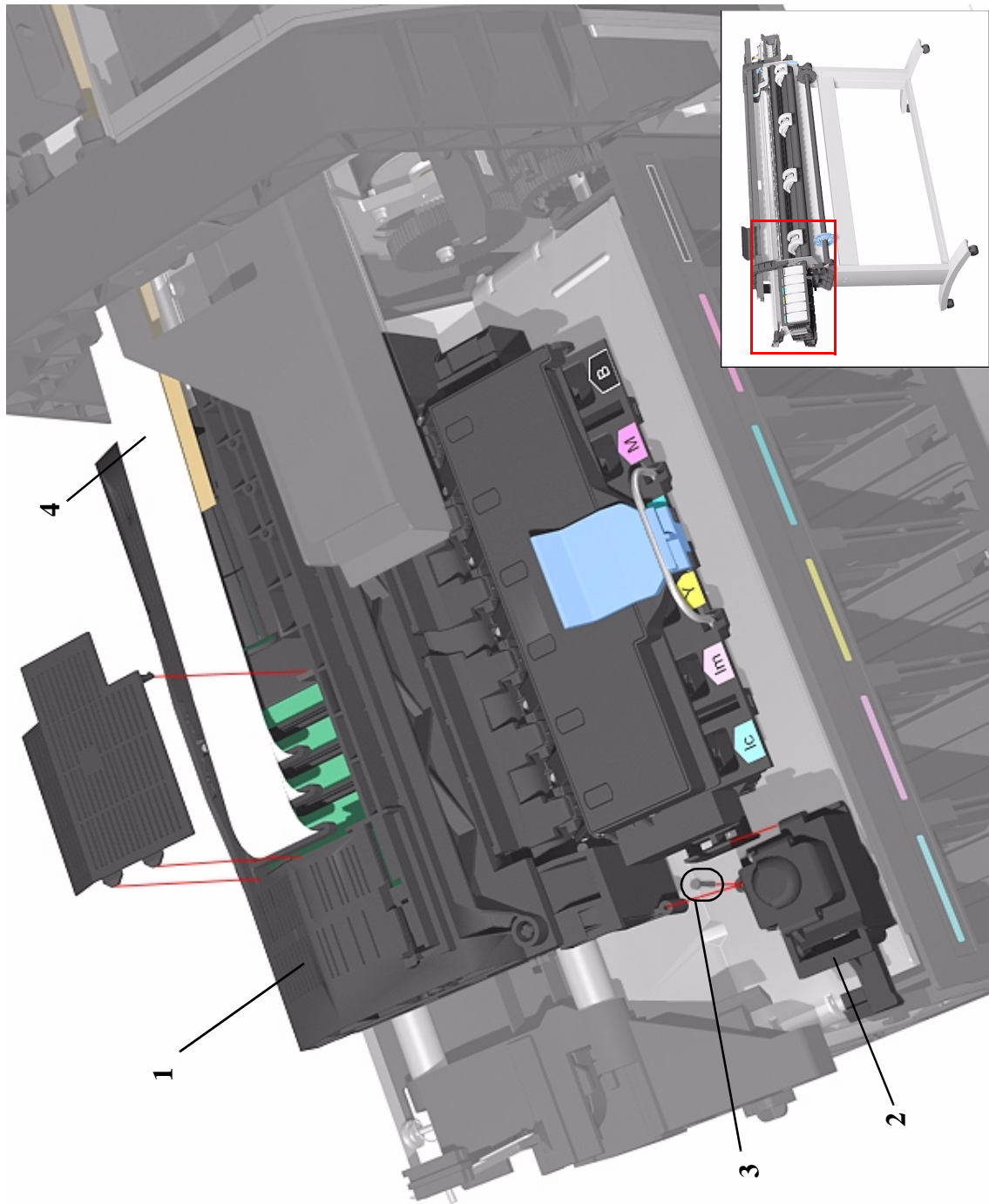


**Figure 19: Power Supply Unit**

## Carriage Assembly

Carriage Assembly			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60090	1	Carriage Assembly (Includes Carriage Height Tool, Cutter Assembly and Line Sensor)
2	C6090-60094	1	Cutter Assembly (Includes Screw and Washer)
3	0624-0737	1	Screw
	3050-1982	1	Washer for cutter screw
4	C6095-60184	1	Trailing Cable (60" Model) (Includes Trailing Cable Clip and screws, Cover Cap, Trailing Ferrite)
	C6090-60060	1	Trailing Cable (40" Model) (Includes Trailing Cable Clip and screws, Cover Cap, Trailing Ferrite)
-	C6090-60108		Lens Cover Assembly
-	C6072-60008	1	Carriage Height Tool (Also Included with the Carriage Assembly)



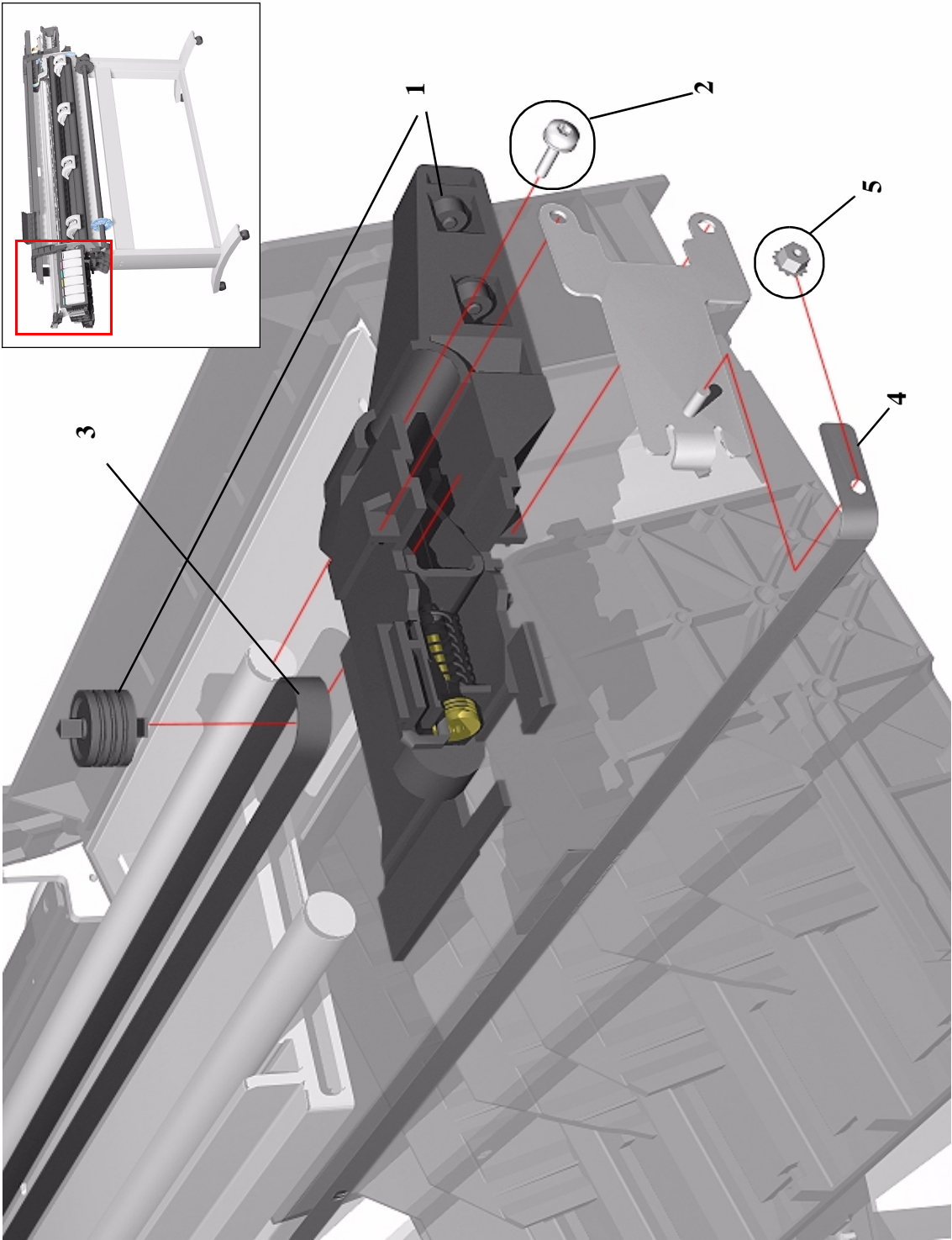


**Figure 20: Carriage Assembly**

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## Tensioner Assembly and Encoder Strip

Tensioner Assembly and Encoder Strip			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6090-60088	1	Tensioner Assembly (Includes Pulley Assembly, Pulley Spring, Wedge and Actuator Arm)
2	0515-2248	1	Screw
3	C6095-60183	1	Belt (60" Model)
	C6090-60072	1	Belt (42" Model)
4	C6095-60185	1	Encoder Strip (60" Model)
	C6090-60059	1	Encoder Strip (42" Model)
5	0535-0031	2	Nut
-	3050-0026	2	Washer



**Figure 21: Tensioner Assembly and Encoder Strip**

---

## Platen Assemblies

Platen Assemblies			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6095-60174	1	Front Platen Assembly (including screws) (60" Model)
	C6090-60079	1	Front Platen Assembly (including screws) (42" Model)
2	C6095-60175	1	Center Platen Assembly (including screws and Carriage Height Tool) (60" Model)
	C6090-60080	1	Center Platen Assembly (including screws and Carriage Height Tool) (42" Model)
3	C6090-60096	1	Drive Roller Gear
4	C6071-20005	1	Screw

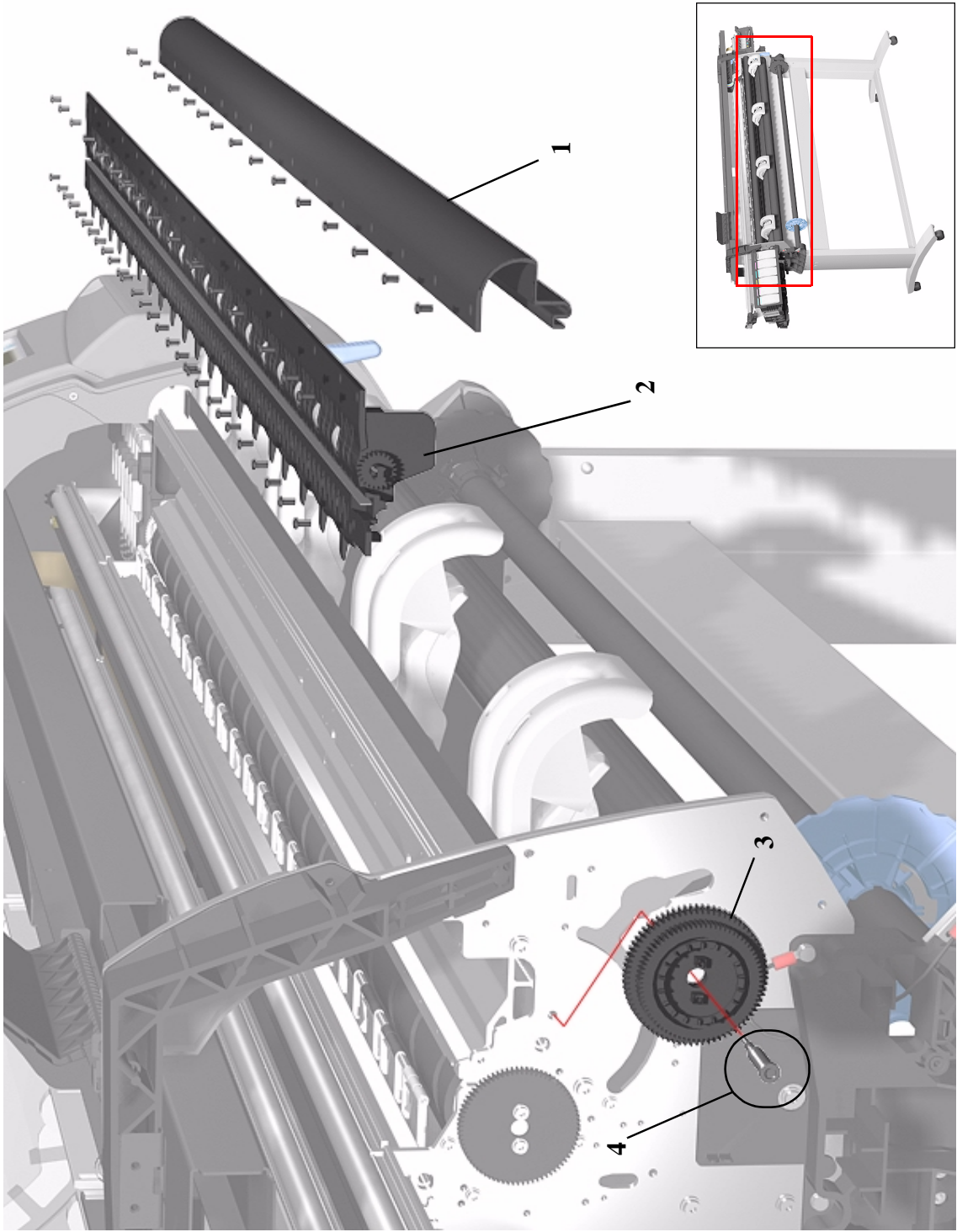
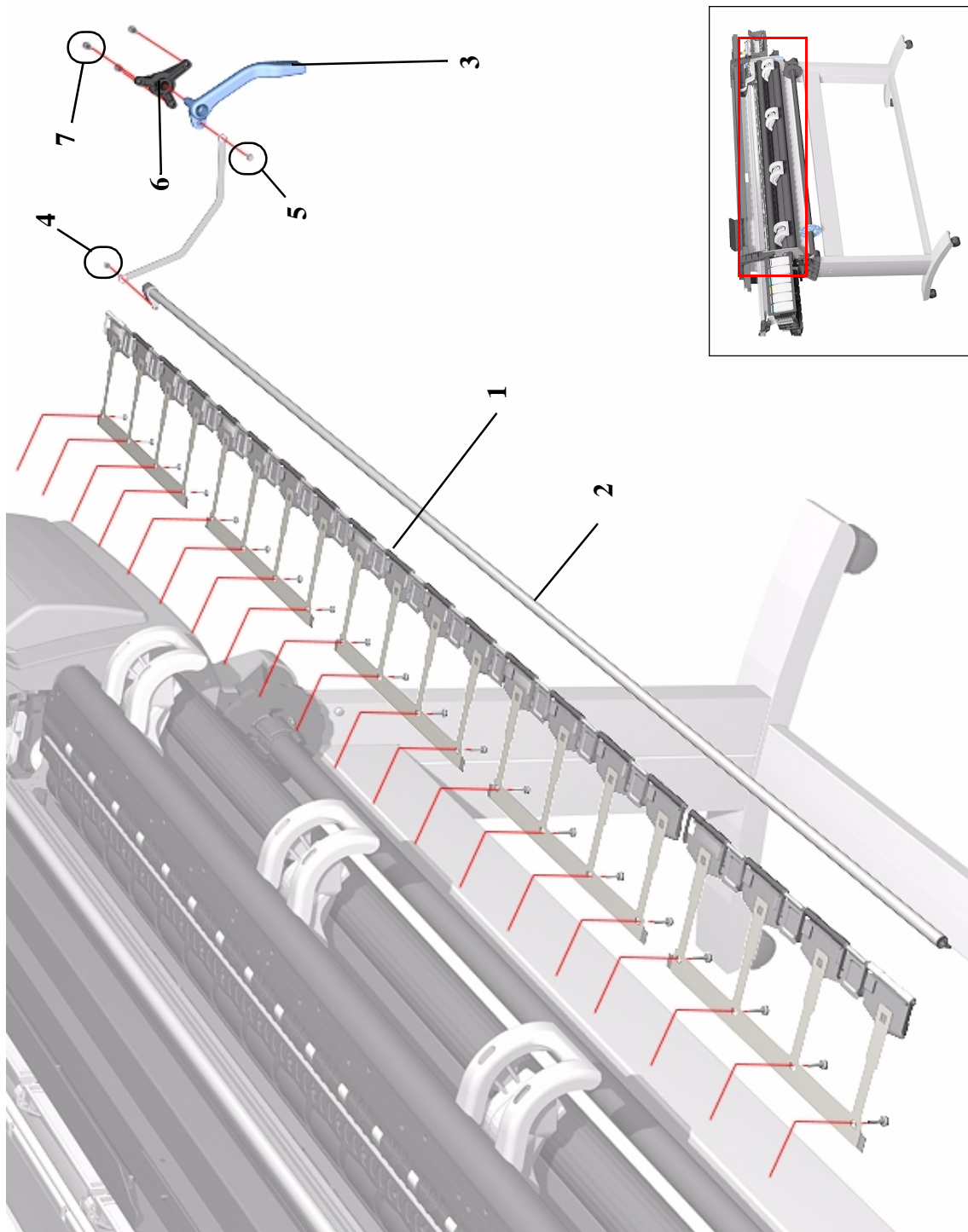


Figure 22: Platen Assemblies

---

## Pinch-Wheels Assembly and Lever

Pinch-Wheels Assembly and Lever			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6095-60181	1	Pinch Assembly (60" Model)
	C6090-60073	1	Pinch Assembly (42" Model)
2	C6095-60179	1	Cam Lever Shaft (60" Model) (Includes Cam Linkage, Linkage Screw, Cam Lever Arm and Cam Lever Arm Screw)
	C6090-60076	1	Cam Lever Shaft (42" Model) (Includes Cam Linkage, Linkage Screw, Cam Lever Arm and Cam Lev. Arm Screw )
3	C6090-60102	1	Lever
4	0515-2981	1	Screw (Lever Arm to Cam Linkage)
5	0515-2981	1	Screw (Lever to Lever Arm)
6	C6090-60097	1	Lever Support
7	0515-2981	3	Screw



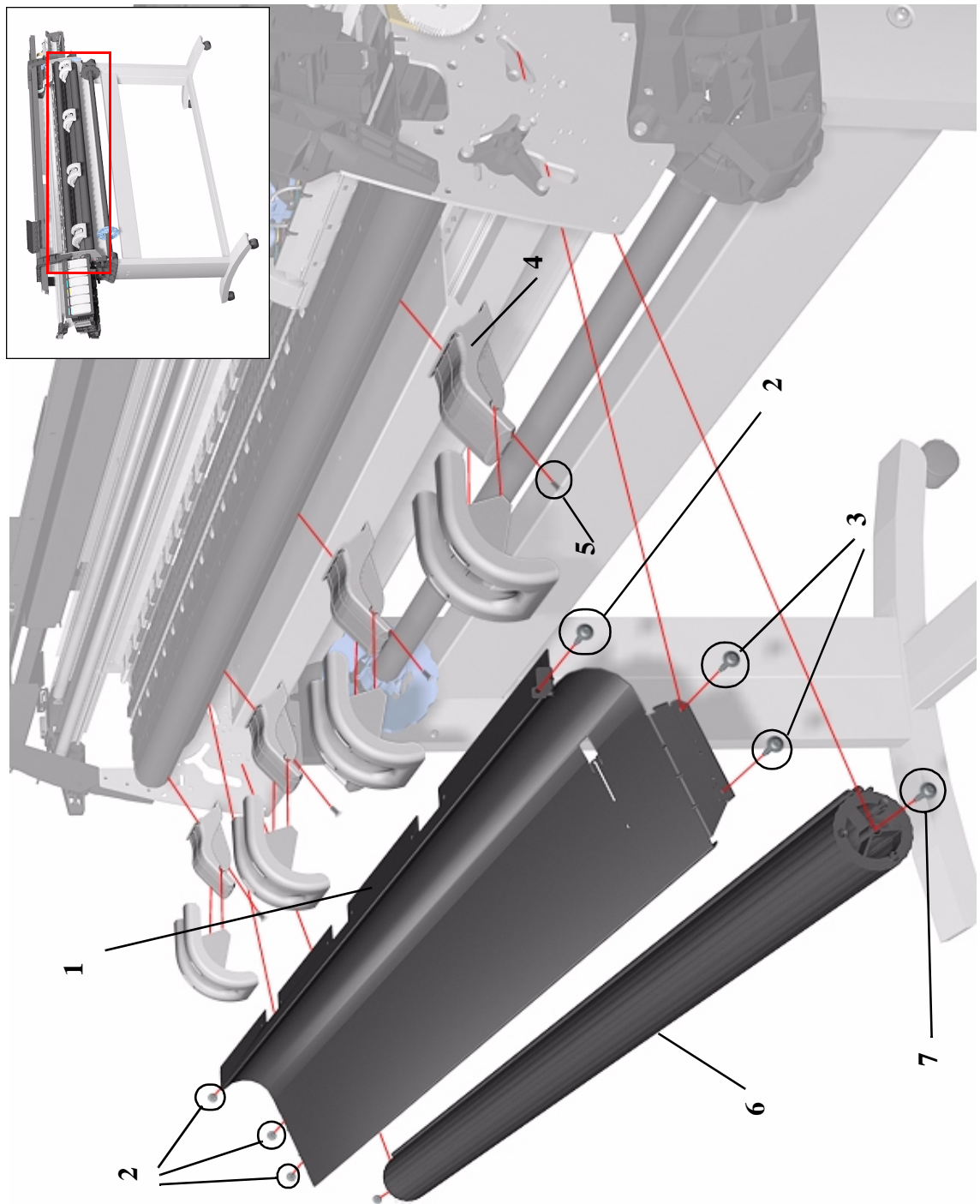
**Figure 23: Pinch-Wheels Assembly and Lever**

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## Center Guide, Deflector and Entry Roller

Center Guide, Deflector and Entry Roller			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6095-60180	1	Center Guide (60" Model)
	C6090-60075	1	Center Guide (42" Model)
2	0515-2986	4	Screw
3	C3180-20001	2	Screw
4	C6090-60104	1	Deflector
5	0515-2250	1	Screw
6	C6095-60178	1	Entry Roller (60" Model)
	C6090-60077	1	Entry Roller (42" Model)
7	0515-2986	2	Screw





**Figure 24: Center Guide, Deflector and Entry Roller**

## Tubes Guide Assemblies

Tubes Guide Assemblies			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
1	C6095-60176	1	Back Tube Guide Assembly (60" Model) (Includes Safety Arm for Top Cover)
	C6095-60078	1	Back Tube Guide Assembly (42" Model) (Includes Safety Arm for Top Cover)
2	C6095-60177	1	Front Tube Guide Assembly (60" Model) (Includes Tube Guide Door and spring)
	C6090-60181	1	Front Tube Guide Assembly (42" Model) (Includes Tube Guide Door and spring)
3	0624-0771	8	Screw
4	C6090-60110	1	Tube Guide Door (includes spring)
5	C6072-60193	1	Right Arc Assembly
6	0624-0771	8	Screw
7	C6072-60192	1	Left Arc Assembly

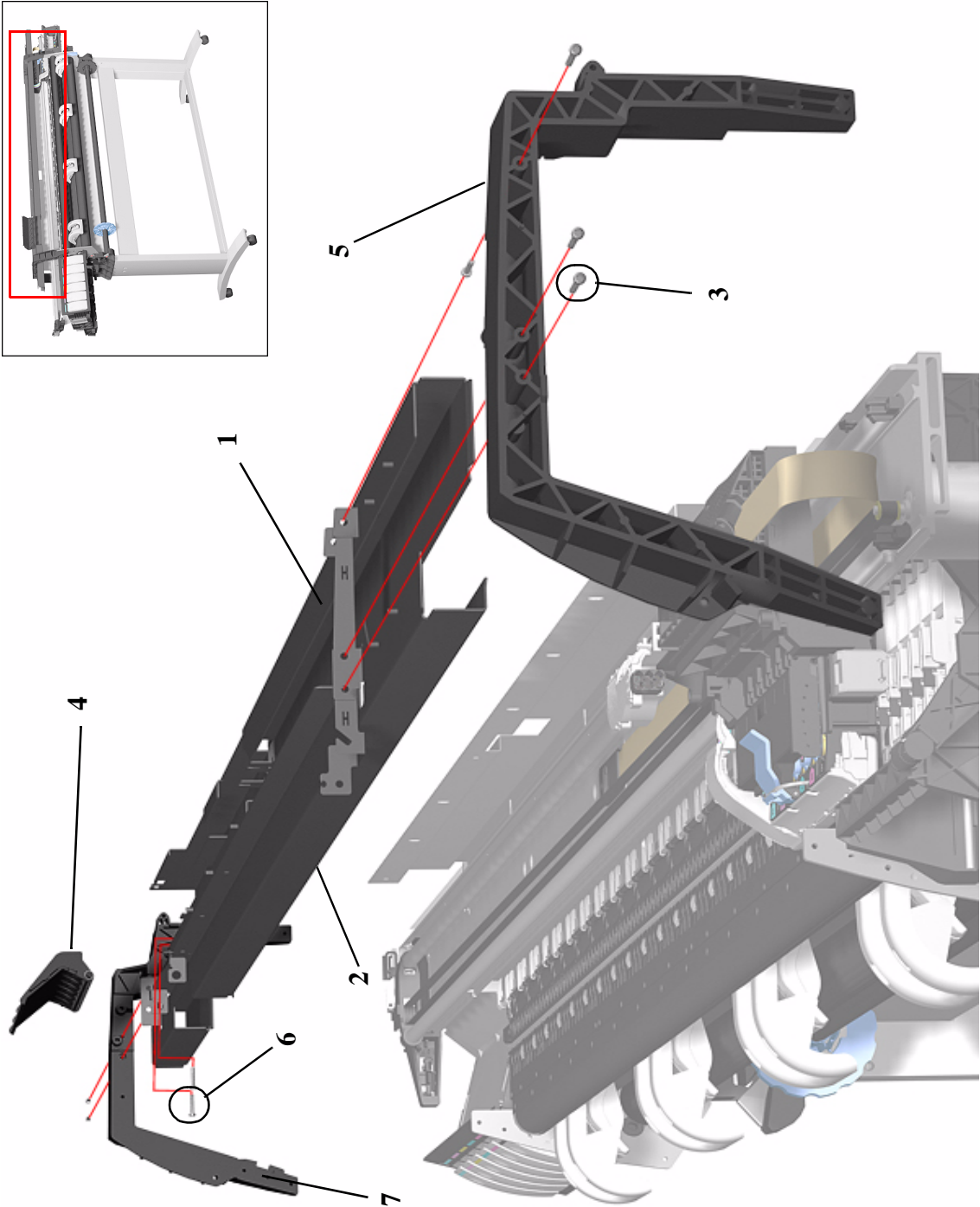


Figure 25: Tubes Guide Assemblies

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## EMC Covers

EMC Covers				
Reference on Drawing	HP Part Number	Quantity		Description/Comments
		60"	42"	
1	C6095-60190	1	-	EMC Covers (60" Model only)
	C6090-60180	-	1	EMC Covers (42" Model only)
2	0515-0382	9	9	Screw (center to bottom and top)
-	C6071-20026	8	6	Screw (top to chassis)
3	0515-2248	4	4	Screw (bottom to chassis)
4	C6090-60107	1	1	Mount Bracket (includes right, left and center)
5	0515-2248	6	6	Screw (for each bracket)

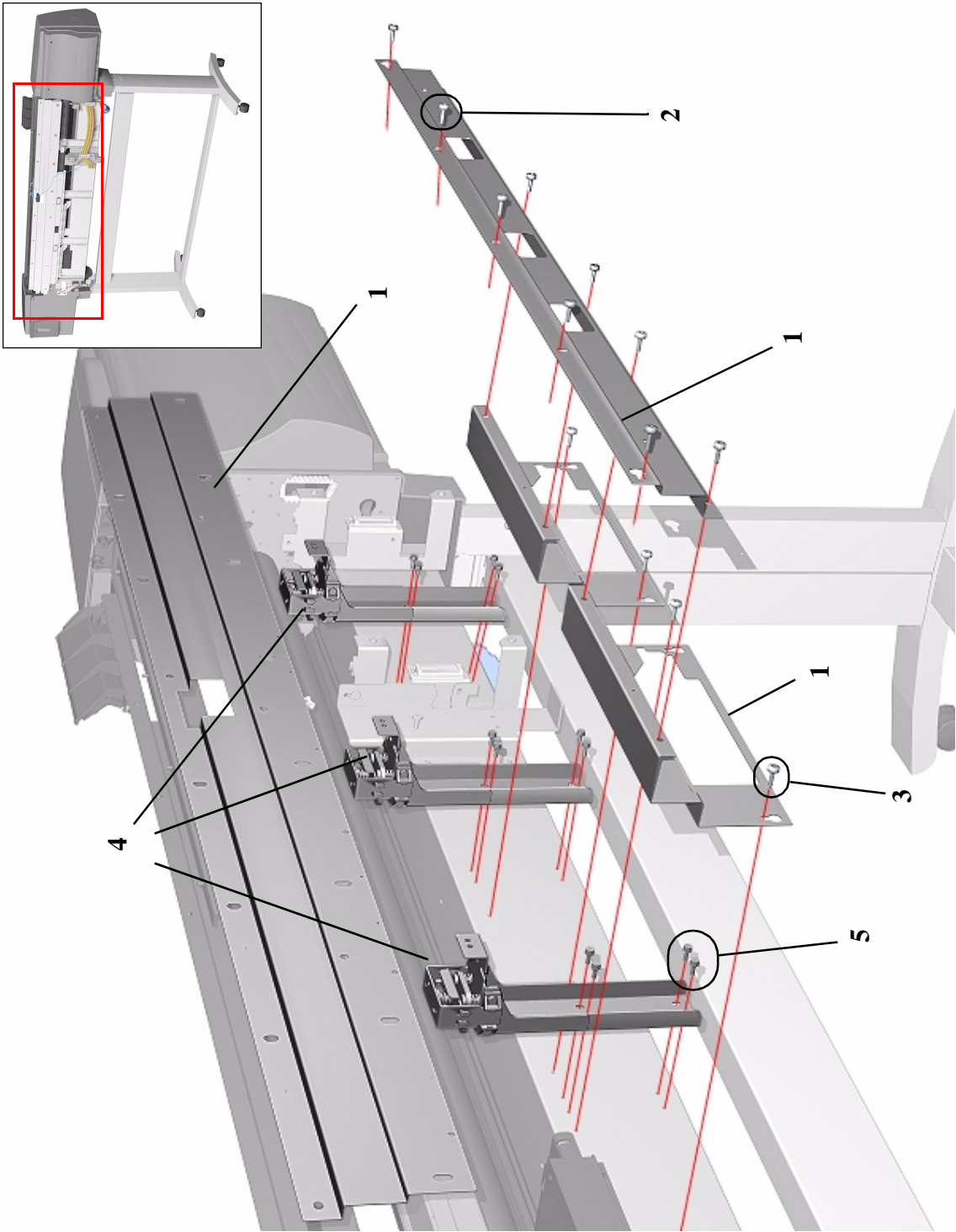
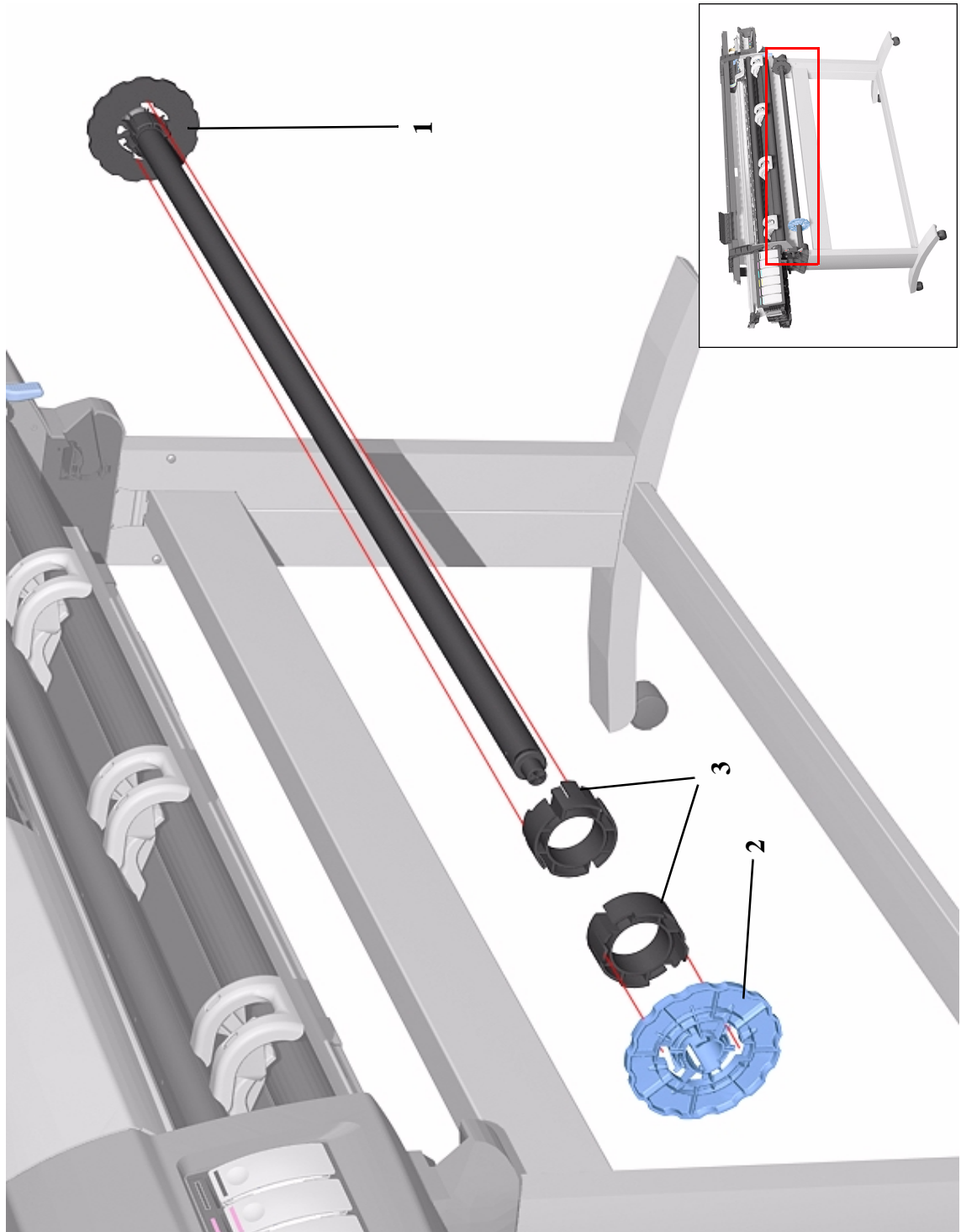


Figure 26: EMC Covers

## Spindle and Hub

<b>Spindle and Hub</b>			
<b>Reference on Drawing</b>	<b>HP Part Number</b>	<b>Quantity</b>	<b>Description/Comments</b>
1	C6095-60182	1	Spindle (60" Model)
	C6090-60074	1	Spindle (42" Model)
2	C6090-60105	1	Blue Hub
3	C6090-60112	2	3" Spindle Adaptors



**Figure 27: Spindle and Hub**





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# Removal and Installation

# 8

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## Introduction

*This chapter is a step by step guide to the removal and installation of the key components in the Printer. You may find it useful to tick off the steps as they are performed. Use the illustration at 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/or replace a component or assembly, always make sure that you have performed the relevant service test for each component as described in 4, *Service Tests and Utilities*. If the test passes you will not need to replace the component.**

---

---

### NOTE

**To install a component perform the removal procedures in reverse order unless a specific installation procedure is provided.**

---

---

### NOTE

**After removing and/or replacing a component, the relative procedure will state whether any calibrations and/or tests are required (5, *Service Calibrations*).**

---

## Safety Precautions

*(Safety symbols - Immediately after the table of contents.)*

*Review WARNING and CAUTION symbols and instructions 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.**

---

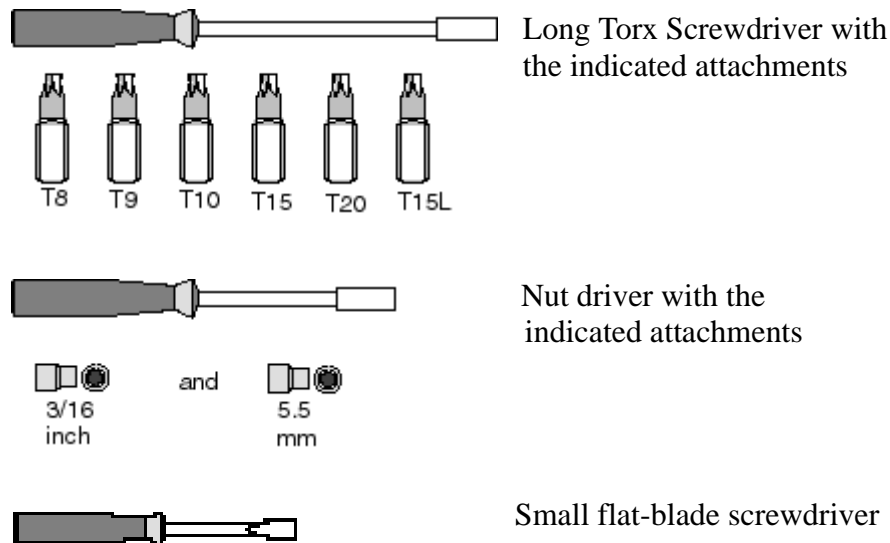
## Electrostatic Discharge (ESD) Precautions

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.



## Screw Types

**WARNING** Chassis screws have a copper washer and should never be removed.

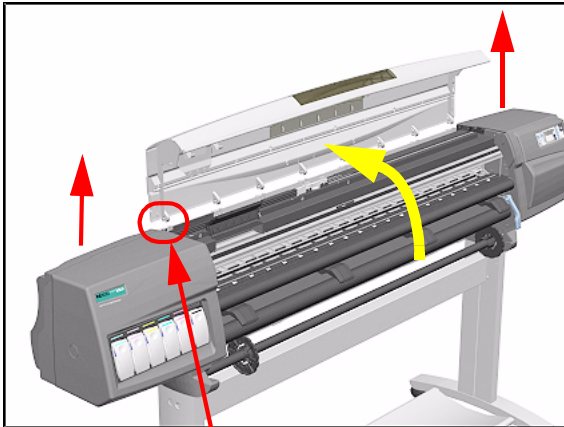
Type	Torx	Length (mm)	Head Type	Thread Type	Part Number
A	T-20	17	Pan	Taptite	0515-1743
B	T-15	12	Pan	Machined	0515-0382
C	T-20	10	Pan	Taptite	0515-2282
D	T-15	12.5	Pan Washer	Plastite	0515-3040
E	T-15	12.7	Pan	Plastite	0624-0769
F	T-15	20	Pan	Plastite	0624-0771
G	T-8	12.7	Pan	Plastite	0624-0768
H	T-15	9.5	Pan	Plastite	0515-2981
I	T-10	7.5	Flat	Taptite	0515-2984
J	T-15	27.4	Pan	Machined	0515-2986
K	T-10	8	Pan	Taptite	0515-2200
L	T-20	14	Pan	Taptite	0515-2248
M	T-15	-	Flat	Taptite	0515-2250
N	T-15	24	Flat	Machined	C6071-20026
O	T-15	10	Pan Washer	Machined	0515-0380
P	T-10	8	Pan	Machined	0515-2246
Q	T-20	10	Pan Washer	Taptite	0515-2278
R	T-10	8	Flat	Countersunk	2200-1294
S	T-25	54	Pan	Machined	C6071-20005
T	T-20	20	Pan	Machined	C3180-20001
U	T-25	10	Pan	Taptite	0515-4268
V	T-8	14	Pan	Machined	0624-0737

## Top Cover Assembly

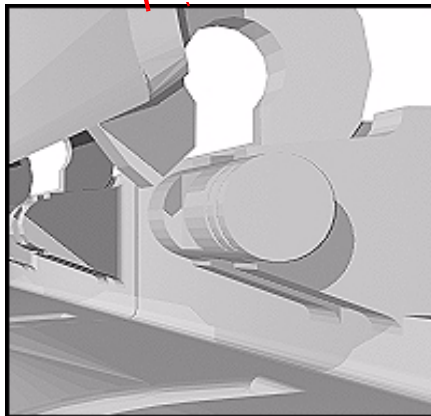
### Removal

**WARNING**

Switch off the Printer and remove the power cable.



1. Open the Top Cover and lift UP and remove from Printer (see detail of hinge mechanism below).



**NOTE**

Detail of hinge mechanism.

## Left Hand Cover

### Removal

---

**WARNING**

---

Switch off the Printer and remove the power cable.

---

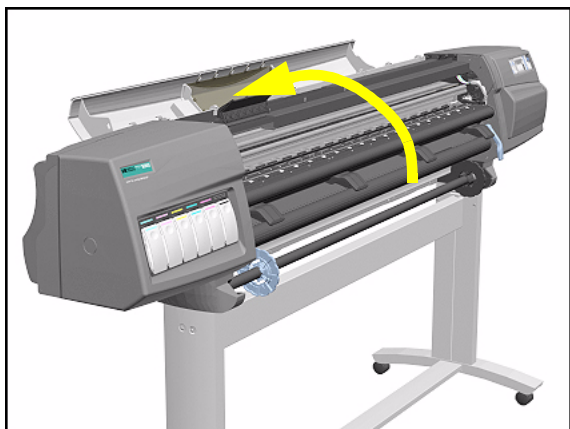
**NOTE**

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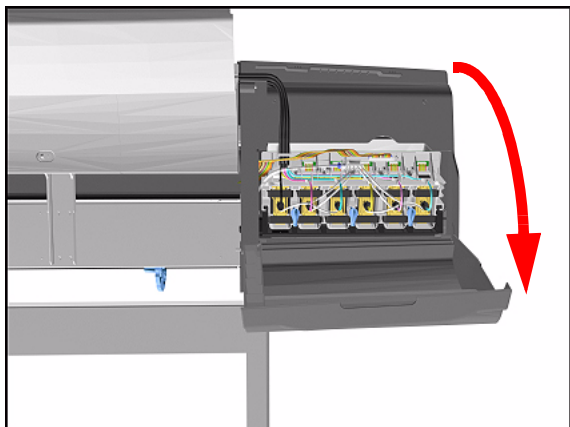
Refer to the table on Page 8-4 for information on screw types.



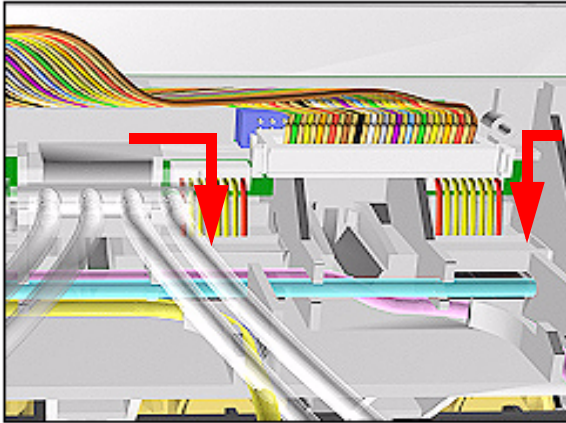
1. Remove ALL the Ink Cartridges from the Printer.



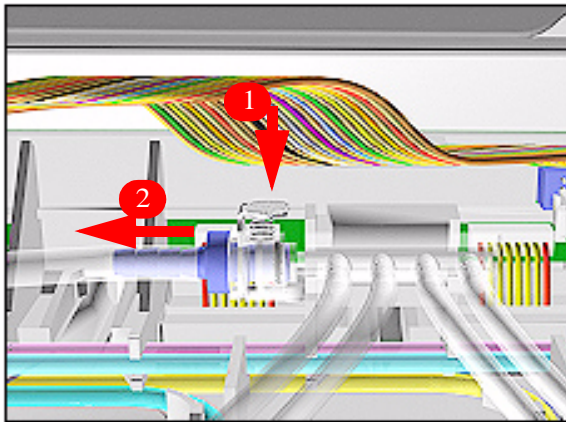
2. Open the Top Cover.



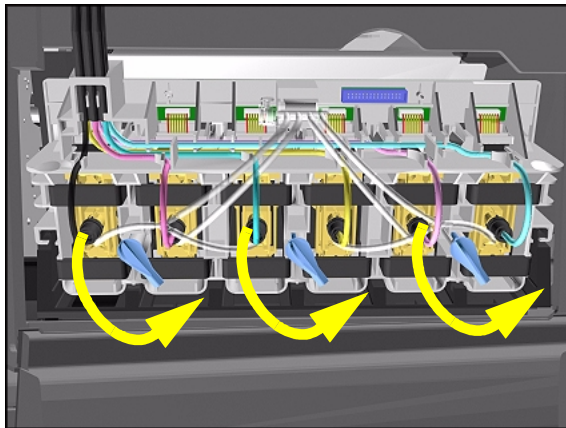
3. Open the door at the back of the Left Hand Cover.



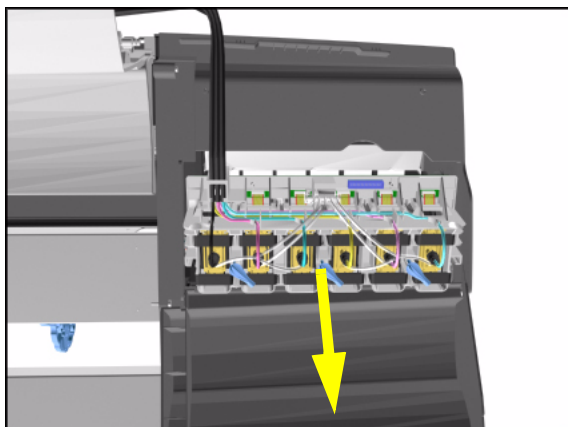
4. Disconnect the Electrical Cable from the rear of the Ink Cartridge Tube Connector.



5. Disconnect the Air Tube.



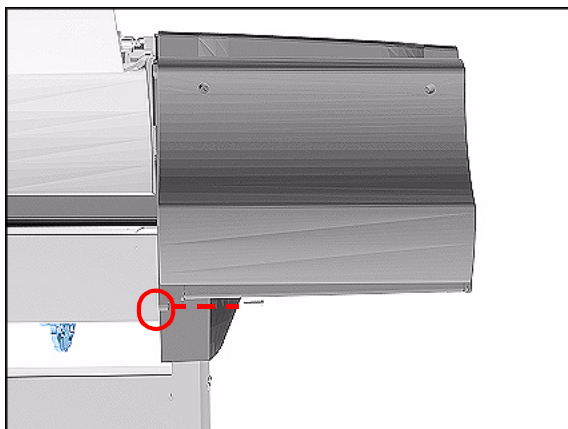
6. Twist the 3 latches at the rear of the Ink Cartridge Tube Connector and release the complete Assembly.



7. Remove the Ink Cartridge Tube Connector and place safely on the window.



8. Remove 1 T-15 screw (**Type F**) from the Left Hand Cover (rear).

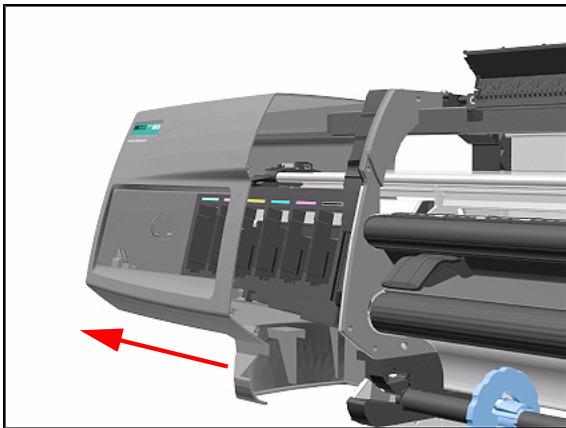


9. Close the Left Back door and remove 1 T- 25 screw (**Type U**) from bottom side (rear) of Left Hand Cover.





**10.** Remove 3 T-15 screws (**Type F**) from the Left Hand Cover (front).



**11.** Remove the Left Hand Cover from the Printer.

### Installation of Left Hand Cover

**WARNING**

When handling the Tubes make sure you do not damage them by twisting.

## Right Hand Cover

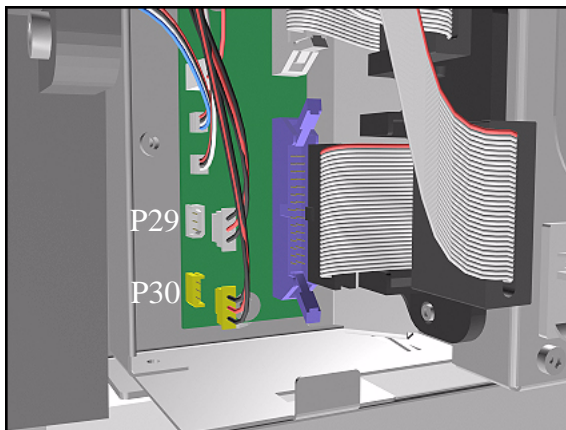
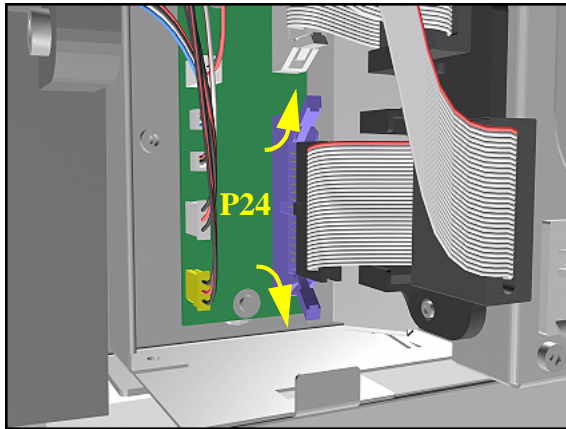
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

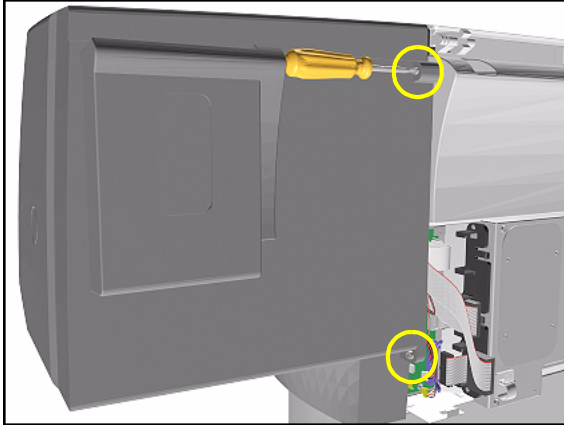
**WARNING** To remove the Right Hand Cover you must open the Right Cover door and push in the Printhead Cleaner Carriage.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

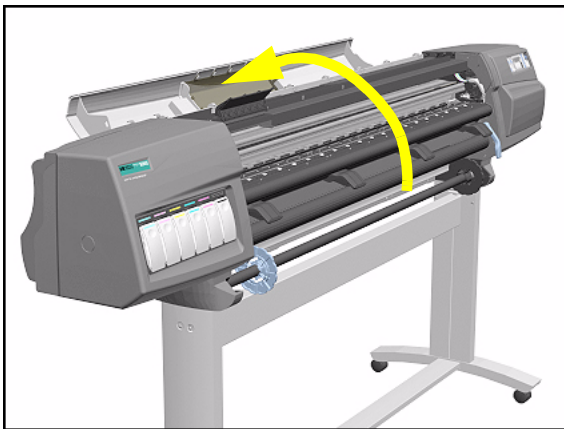
1. Remove the Right Rear Cover - Refer to Page 8-16.
2. Remove the Ferrite and disconnect the Front Panel cable from the Main PCA (P24) from the left side of the Electronics Module.
3. On the Main PCA, disconnect the Aerosol Fan cable from position P30 and the service station door from position P29.



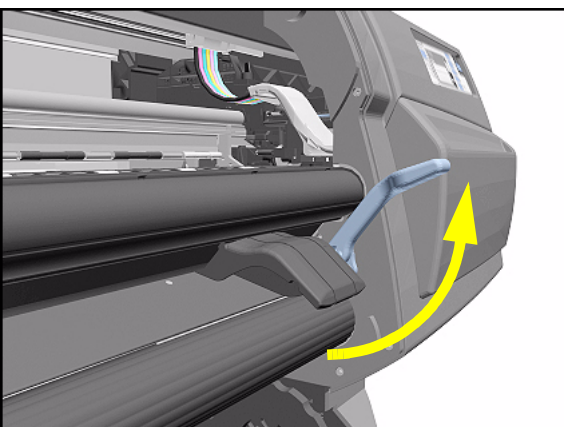
**NOTE** Take care not to drop the Cover when removing the screws. Support the Cover throughout the next step.



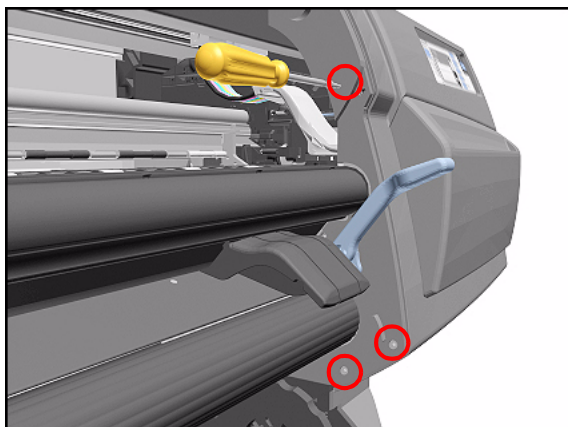
4. Remove 1 T-15 screw (**Type F**) and 1 T-25 screw (**Type U**) (bottom) from the rear of the Right Hand Cover.



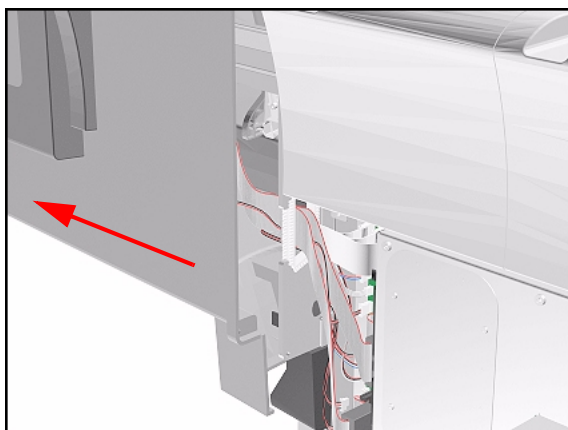
5. Open the Top Cover.



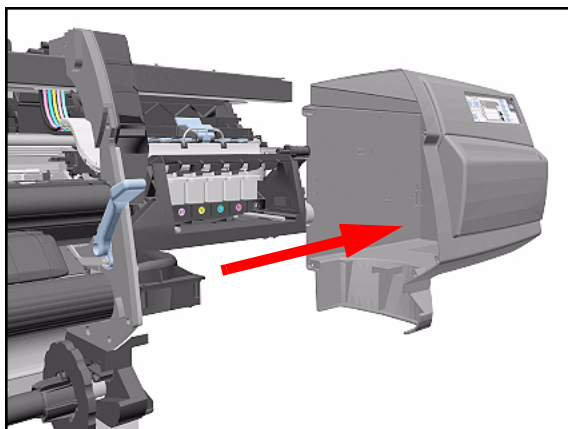
6. Raise the Media Lever.



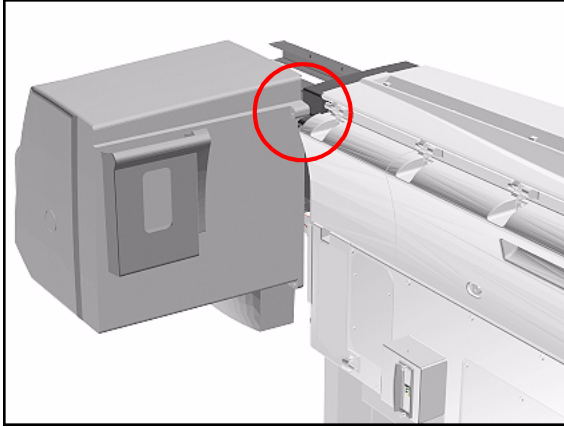
7. Remove 3 T-15 (**Type F**) screws from the front of the Right Hand Cover.



8. To release the cables, pull out the Right Hand Cover until the cables can be accessed.



9. Remove the Right Hand Cover.



**TIP** To check correct functioning of serviced parts on the Printer axis you can do the following:

- a Reinsert the top T-15 screw (**Type F**) at the rear of the Printer.
- b Hang the Cover on the screw.
- c Connect all cables at the Rear of the Right Cover and turn on the Printer.

### Installation of Right Hand Cover

**NOTE** Make sure the Front Panel cable and the Aerosol Fan cables are secured inside the Right Hand Cover with cable clamps and retaining pins.

**WARNING** Make sure cables pass through slot at rear of chassis on the right hand side otherwise the Cover cannot be properly installed and cables may be damaged.

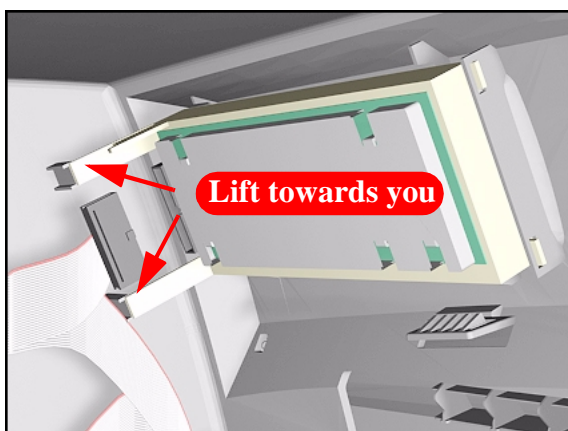
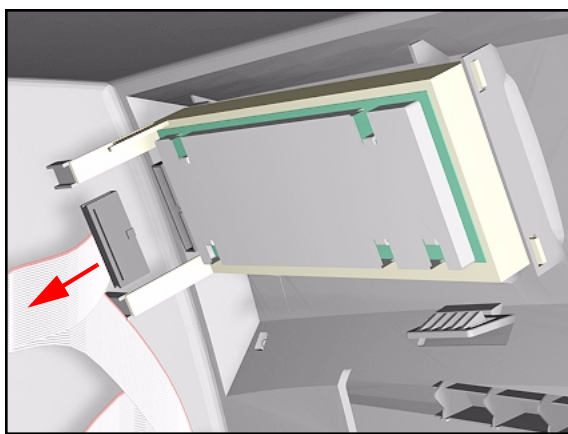
## Front Panel Assembly

### Removal

**WARNING**

Switch off the Printer and remove the Power Cord.

1. Remove Right Rear Cover - Refer to Page 8-15.
2. Remove Right Hand Cover - Refer to Page 8-10.
3. Disconnect the cable from Front Panel.



4. Unclip Front Panel supports inside the Right Hand Cover and remove.

---

## Left Rear Cover

### Removal

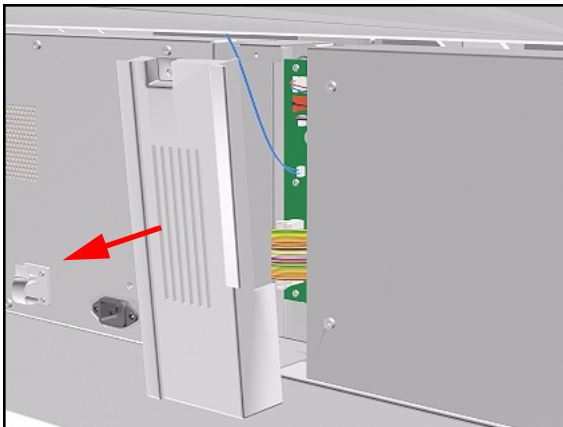
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.



1. Remove one T-15 screw (**Type B**) from the Left Rear Cover.

**NOTE** Support the Cover as it is released.



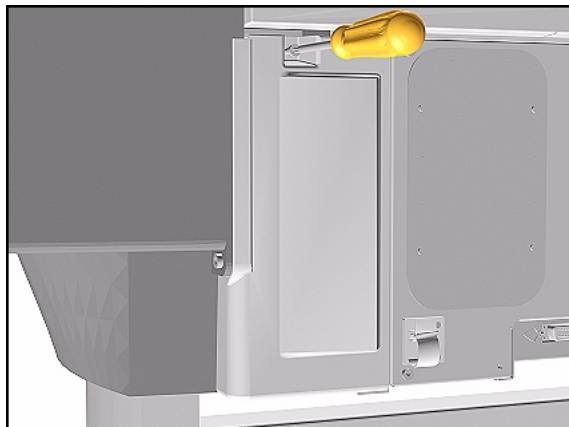
2. Remove the Left Rear Cover.

## Right Rear Cover

### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.



1. Remove one T-15 screw (**Type B**) from the Right Rear Cover.

**NOTE** Support the Cover as it is released.

2. Remove the Right Rear Cover.



---

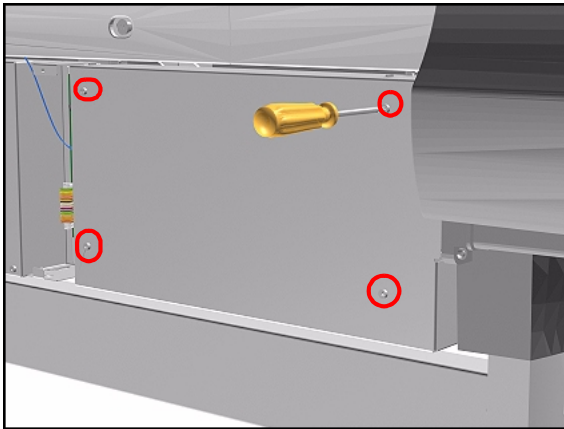
## Extension Cover (60" Model only)

### Removal

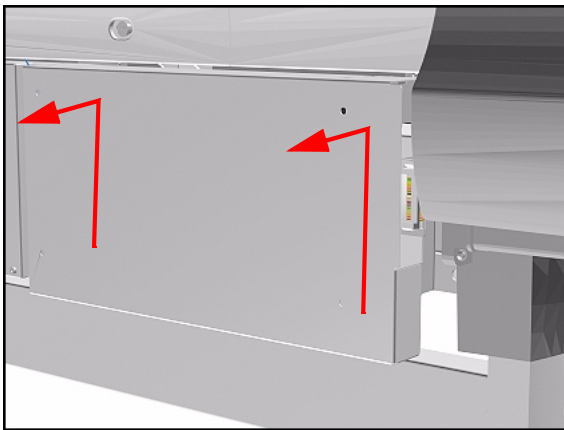
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the Left Rear Cover - Refer to Page 8-15.
2. Remove 4 T-15 screws (**Type B**) from the Extension Cover.



3. Lift the Cover and remove from the Printer.



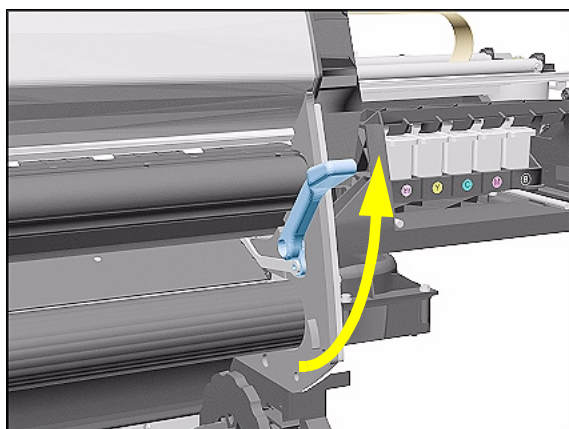
## Media Lever Assembly

### Removal

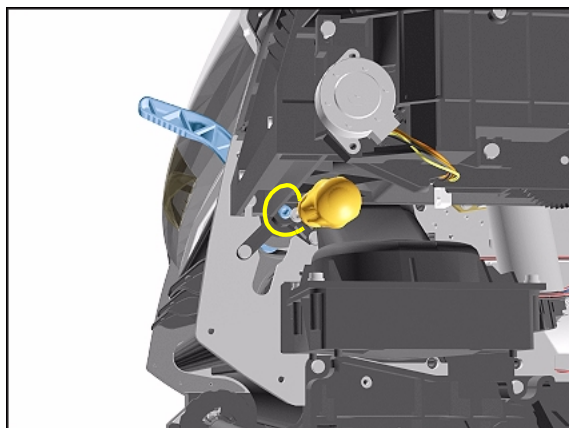
**WARNING** Switch off the Printer and remove the Power Cord.

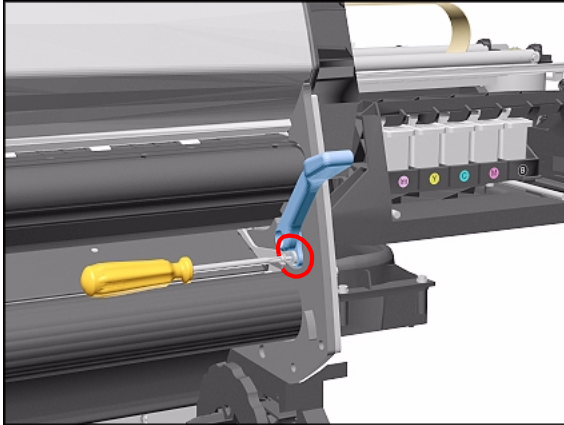
**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the Deflector closest to the Right Cover - Refer to Page 8-112.
2. Remove the Right Hand Cover - Refer to Page 8-10.
3. Raise the Media Lever.

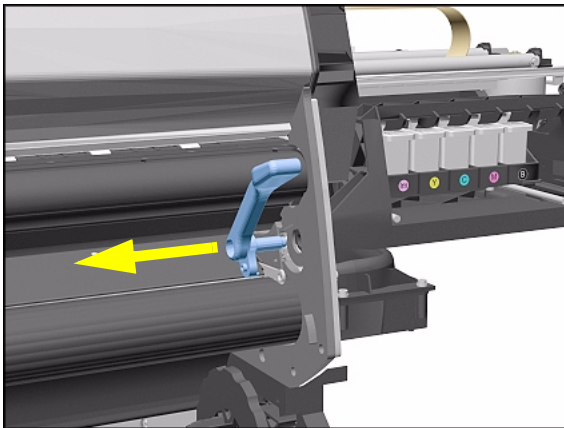


4. Remove 1 T-15 screw (**Type D**) from the support that attaches the Media Lever to the Sideplate.





5. Remove 1 T-15 screw (**Type H**) that attaches the Lever Arm to the Lever.

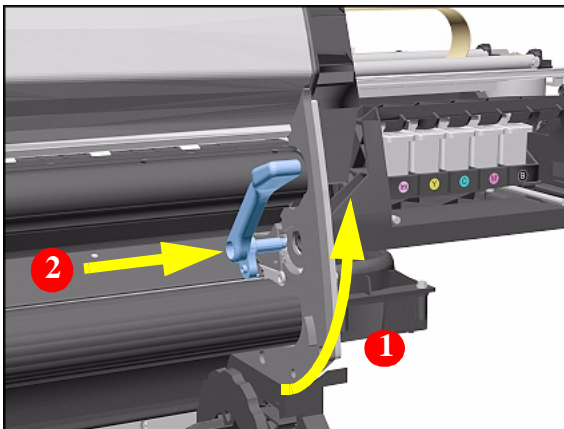


6. Remove the Media Lever.

### Installation of the Media Lever Assembly

**WARNING**

When installing the Media Lever, you must insert it in the Trim and Sideplate in the UP position to avoid damaging the Lever Spring in the Trim.



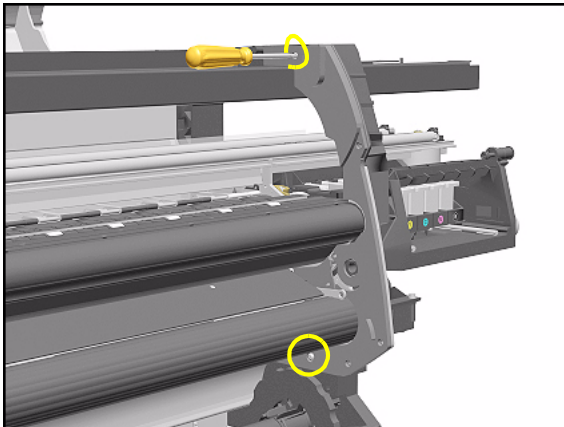
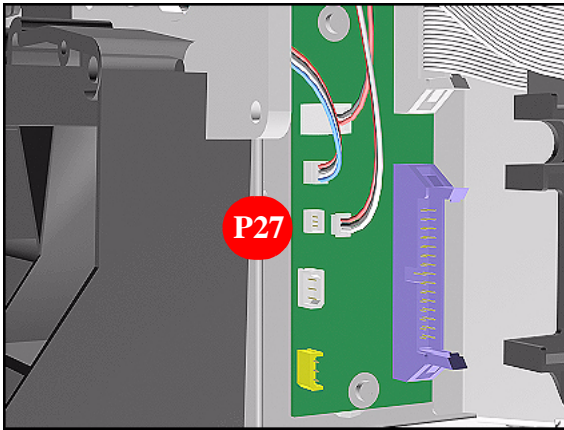
## Right Hand Trim

### Removal

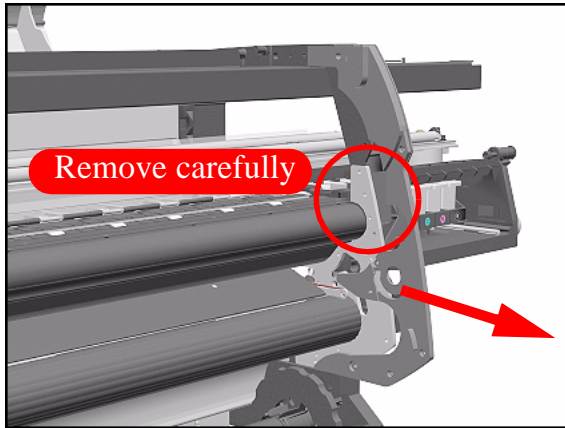
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove Right Rear Cover - Refer to Page 8-16.
2. Remove Right Hand Cover - Refer to Page 8-10.
3. Remove Media Lever Assembly - Refer to Page 8-18.
4. Disconnect the Sensors cable from position P27 on the Main PCA.



5. Remove 1 T-15 screws (**Type F**) and 1 T-20 (**Type L**) from the Right Hand Trim.

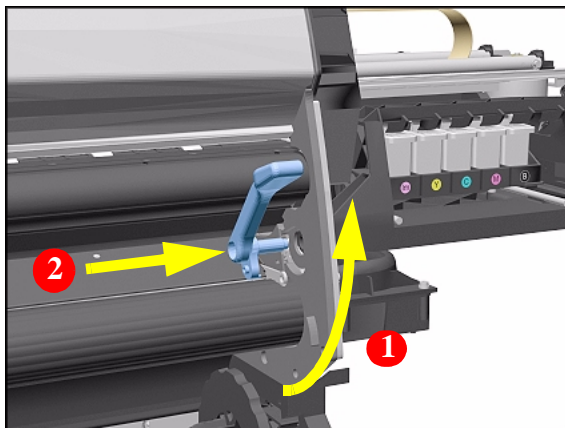


6. Carefully remove the Right Hand Trim.

### Installation of Right Hand Trim

**WARNING**

When installing the Media Lever in the Trim, install with the Lever in the UP position to avoid damaging the Lever spring in the Trim.

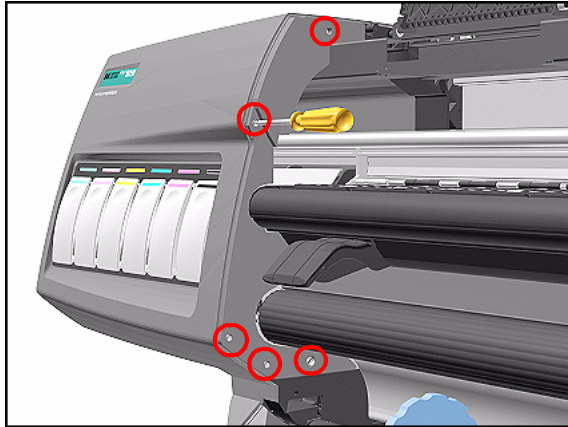


## Left Hand Trim

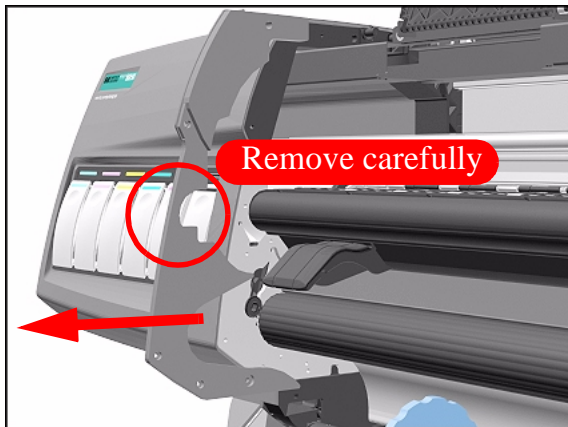
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.



1. Remove 4 T-15 screws (**Type F**) and 1 T-20 screw (**Type L**) from the Left Hand Trim.



2. Carefully remove the Left Hand Trim.

## Back Cover

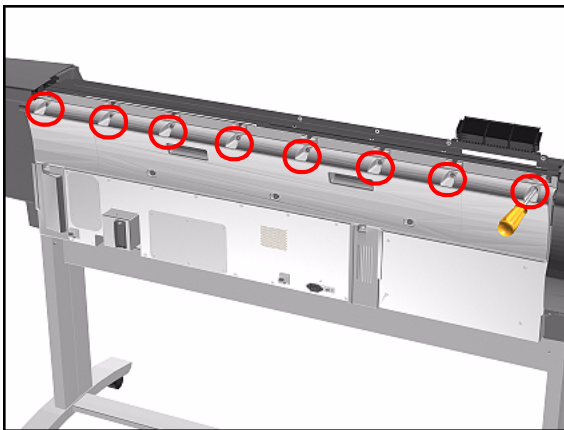
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

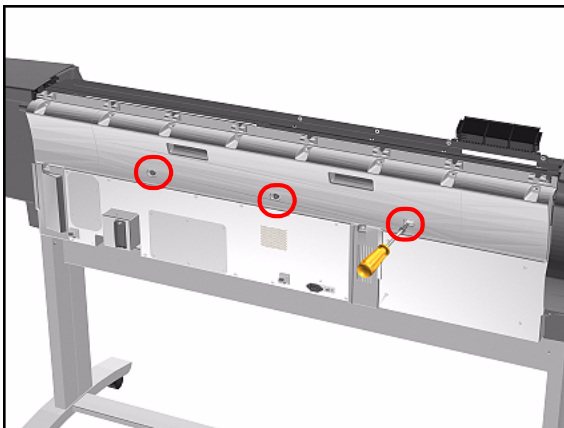
**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the Top Cover - Refer to Page 8-5.

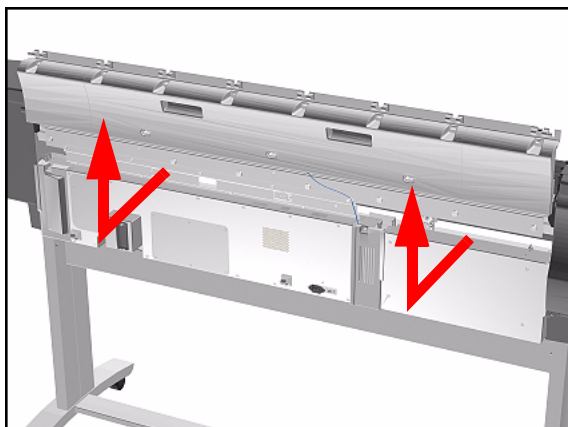
**NOTE** Support the Back Cover as it is released.



2. Remove the following (**Type B**) screws from the upper part of the Back Cover:
  - 8 Screws (T-15) for the 60" Model.
  - 6 Screws (T-15) for the 42" Model.



3. Remove 3 T-15 screws (**Type N**) from the lower part of the Back Cover.



4. Remove the Back Cover.

### Installation of the Back Cover

---

#### NOTE

If the Back Cover is replaced, remember to apply a new Printer Label to the new Back Cover before it is installed.

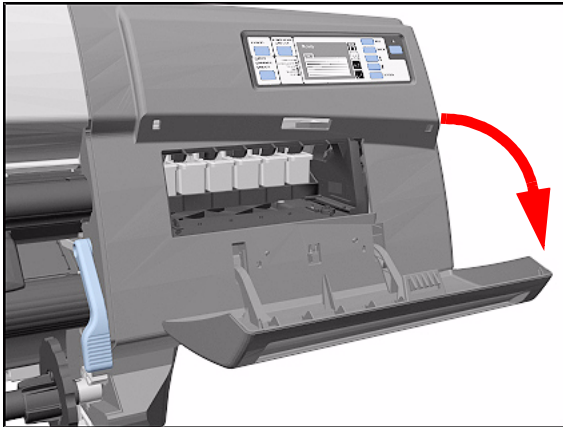
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## Ink Tubes System

### Removal

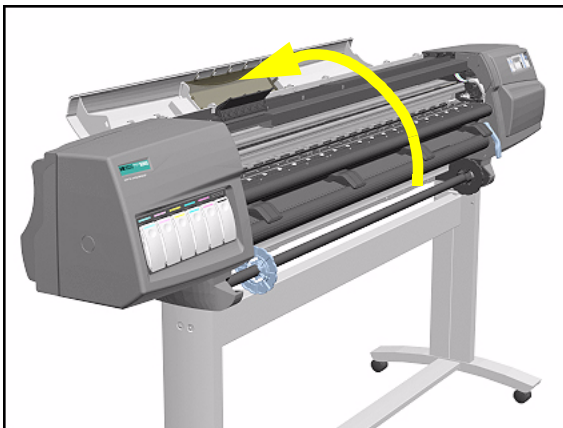
**WARNING** Switch off the Printer and remove the Power Cord.



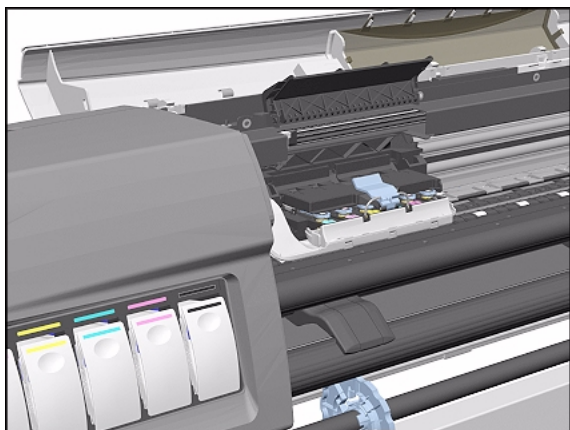
1. Open the Right Cover door.



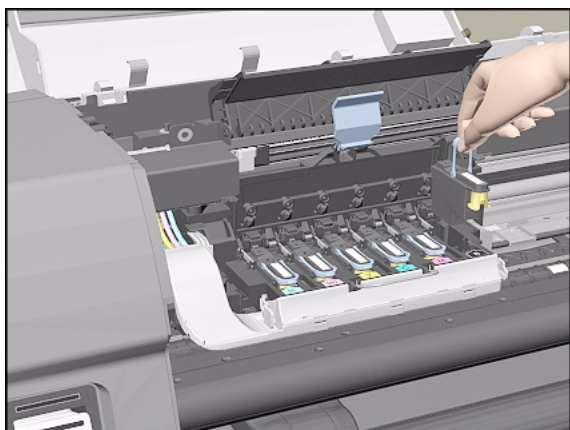
2. Pull out the Printhead Cleaner Carriage.



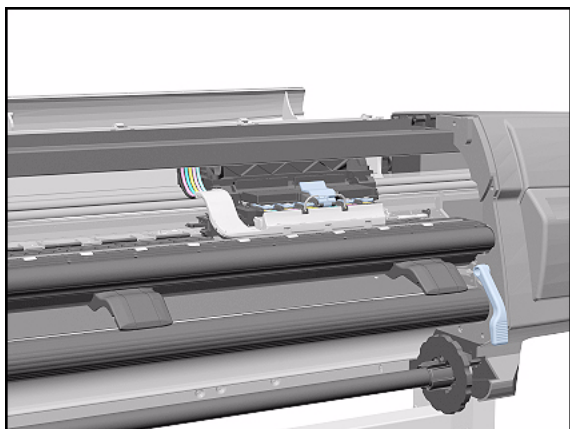
3. Open the Top Cover.



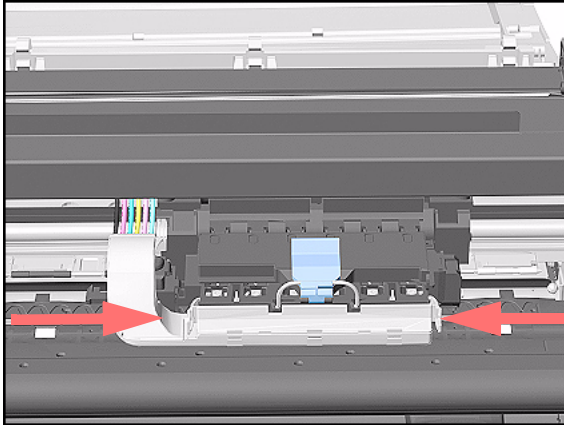
- 4.** Pull the Carriage out along the Printer to the position shown.



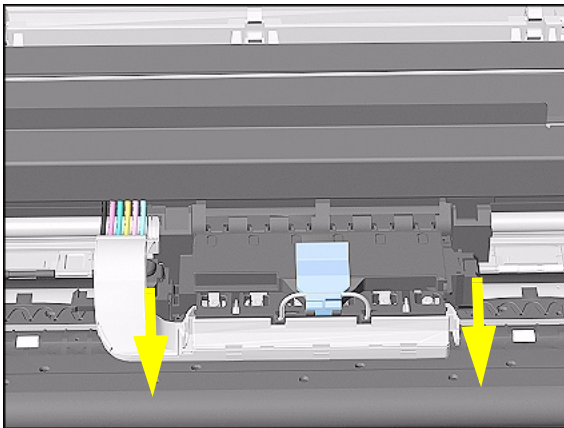
- 5.** Lift up the Carriage Cover and remove ALL the Printheads and close the Carriage Cover.



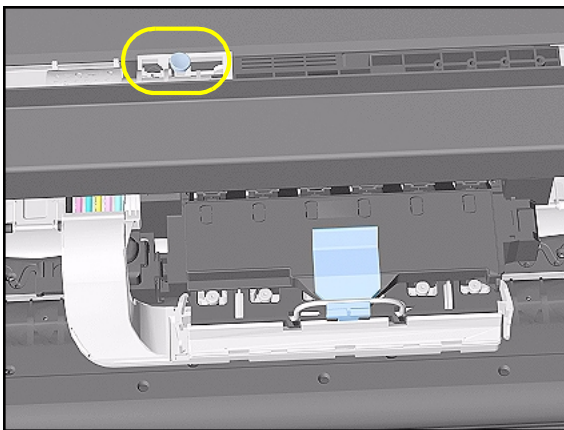
- 6.** Slide the Carriage to the position shown.



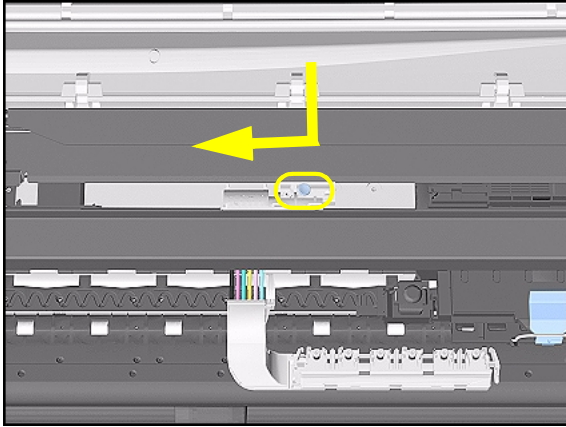
7. Push in the 2 retaining clips either side of the Printhead Tube Connector.



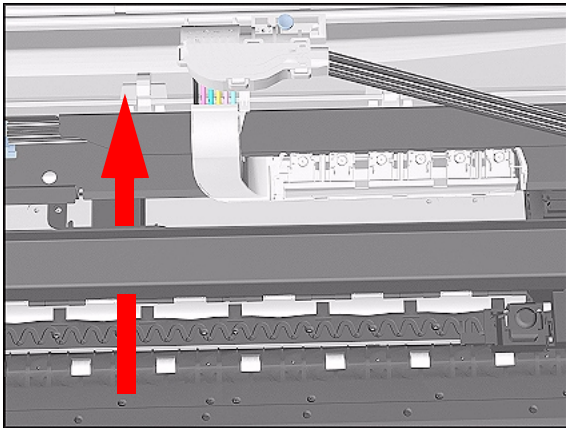
8. Pull the Printhead Tube Connector towards you.



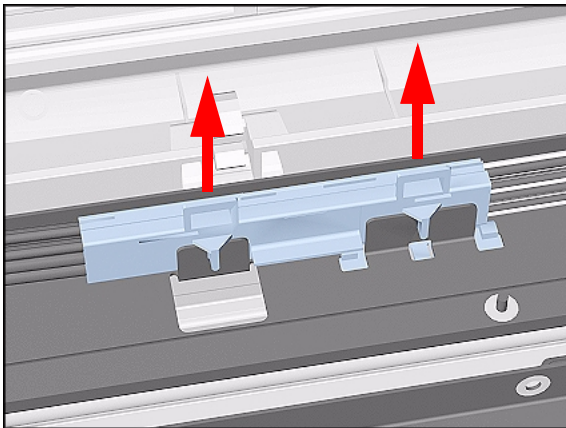
9. Push the button to release the Printhead Tubes in the Carriage.



**10.** Release the Retaining Clip by pulling it away from the holding brackets.



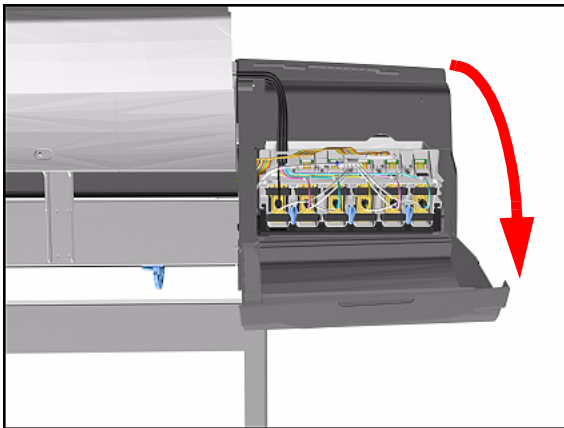
**11.** Pull the Printhead Tube Connector up between the two Tube Guides.



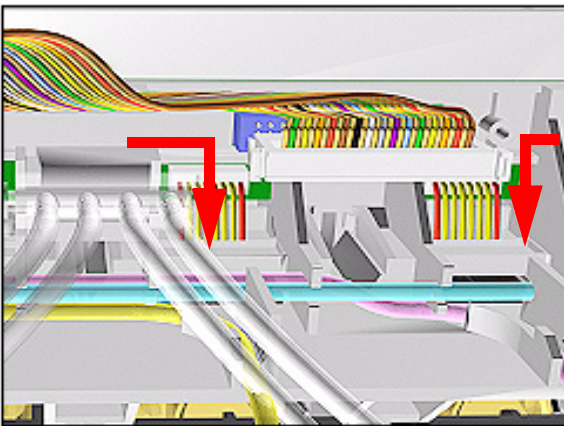
**12.** Lift out the blue Retaining Clip.



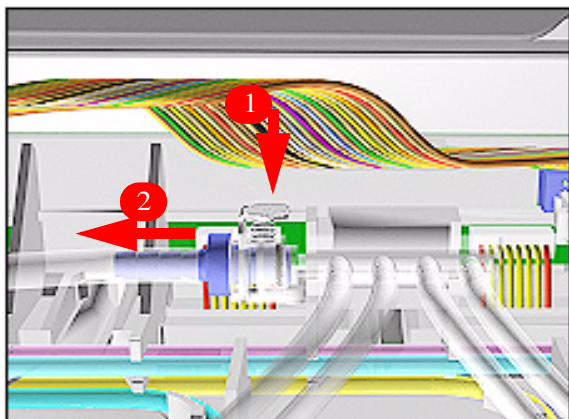
**13.** Remove ALL the Ink Cartridges from the Printer.



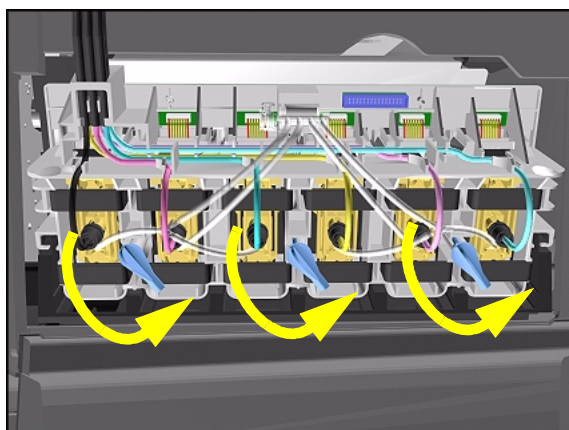
**14.** Open the door at the back of the Left Cover.



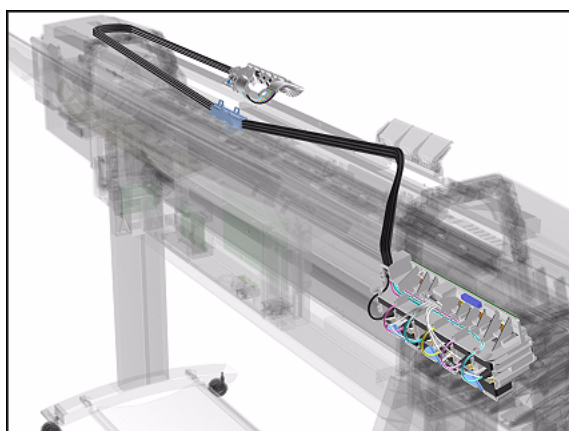
**15.** Disconnect the Electrical Cable from the rear of the Ink Cartridge Tube Connector.



**16.** Disconnect the Air Tube.



**17.** Twist the 3 latches at the rear of the Ink Cartridge Tube Connector and release the complete Assembly.



**18.** The complete assembly can now be removed by sliding the Ink Cartridge Connector out from the rear of the Left Hand Cover.

---

## Installation of Ink Tubes System

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**WARNING**

When installing the Ink Tubes System it is very important that the Tubes are **NOT TWISTED**. Make sure that the Tubes are correctly routed at the rear of the Left Cover and before powering On the printer, check again that they are **NOT TWISTED**.

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**NOTE**

Do not install the Ink Tubes System with Ink Cartridges that indicate Low or Very Low ink levels.

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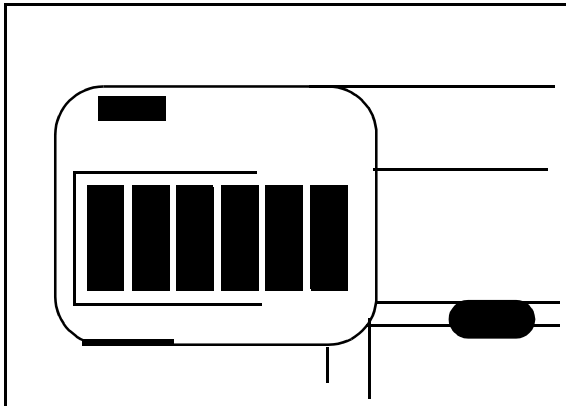
---

**NOTE**

When the Ink Tubes System is replaced, to restart the Printer perform the following procedures.

---

1. Install the Setup Printheads (refer to the User's Guide).
2. Connect the Power Cable and turn on the main Power Switch at the rear of the Printer.
3. The Front Panel warns that there are no Ink Cartridges installed.



**INK STARTUP**  
Initializing Printer  
Please wait 60 sec

4. Install the Ink Cartridges (refer to the User's Guide for details).
5. The Front Panel displays the message shown.
6. Wait about 60 seconds for the next instruction.
7. Remove the Setup Printheads from the Printhead Carriage.
8. Install the Printheads and the Printhead Cleaners (refer to the User's Guide for details).

## EMC Covers

### Removal

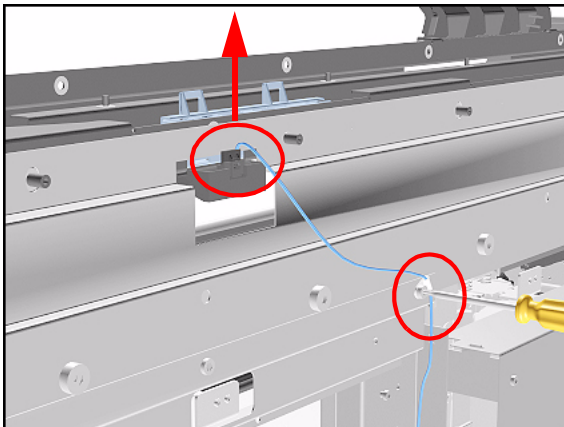
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

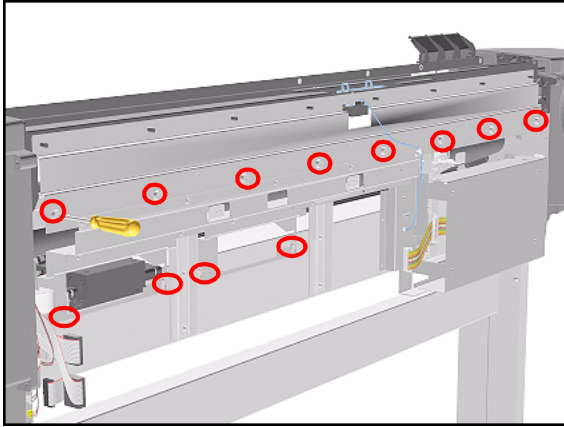
**NOTE** The EMC Cover is composed of three parts; Top, Lower Left and Lower Right. Procedures below describe removal of the EMC Covers as; one assembly, the Top only, the Lower Right only. The procedure you select depends on the part you want to access.

#### EMC Covers as one assembly

1. Remove the Top Cover - Refer to Page 8-5.
2. Remove the Back Cover - Refer to Page 8-23.
3. Remove Right Rear Cover - Refer to Page 8-16.
4. Remove Left Rear Cover - Refer to Page 8-15.
5. Remove Electronics Module - Refer to Page 8-90.
6. Disconnect connector from Ink Leak Detector and remove 1 T-15 screw (**Type B**) to remove Ink Leak Detector cable clamp.



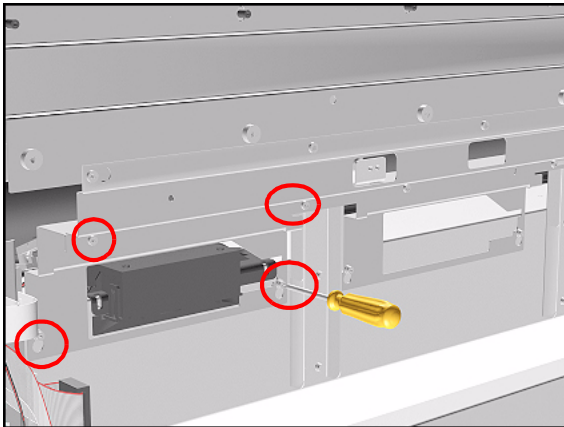




7. Remove the following screws (**Type N**) from the Top EMC Cover.
  - 8 T-15 screws for the 60" Model.
  - 6 T-15 screws for the 42" Model.
8. Loosen 4 T-15 screws (**Type L**) on Lower Covers and remove all Covers as one assembly.

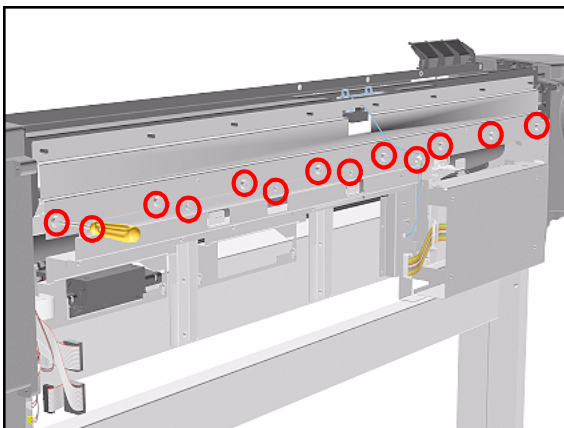
#### Lower Right Cover

1. Do steps 1 to 5 of the **EMC Covers as one assembly** procedure.
2. Remove 2 T-15 screws (**Type B**) and loosen 2 T-15 bottom screws (**Type L**) to remove cover.



#### Top EMC Cover

1. Do steps 1, 2 and 6 of the **EMC Covers as one assembly** procedure.
2. Remove the following screws (**Type B** and **N**) screws from the Top EMC Cover.
  - 13 T-15 screws for 60" Model.
  - 11 T-15 screws for 42" Model.
3. Lift the Top EMC Cover off Printer.

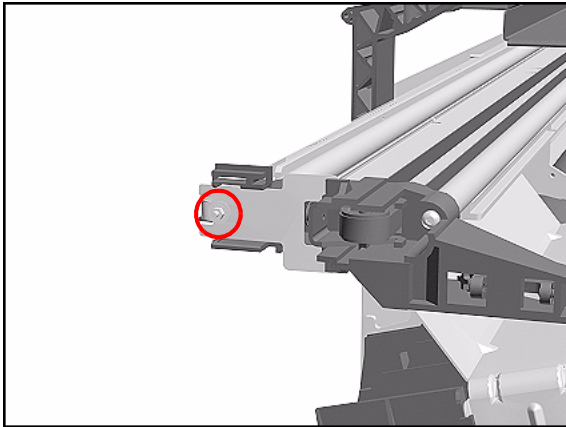


## Encoder Strip

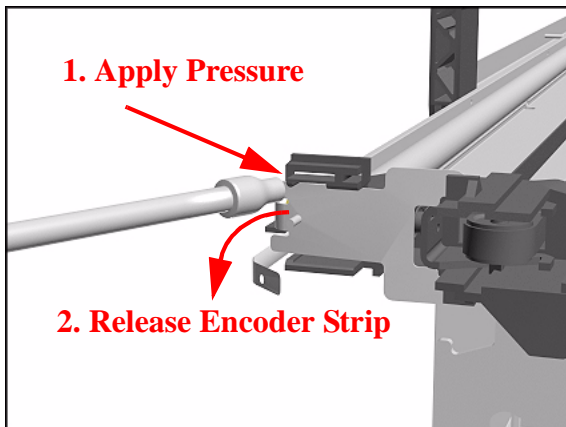
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

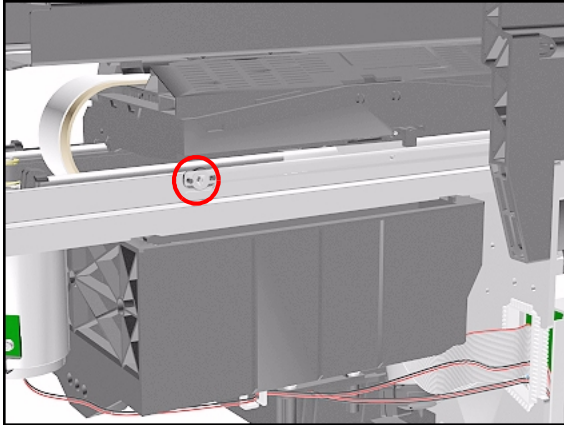
1. Remove the Left Hand Cover - Refer to Page 8-6.
2. Remove the Right Hand Cover - Refer to Page 8-10.
3. Remove the Top Cover - Refer to Page 8-5.
4. Remove the Back Cover - Refer to Page 8-23.
5. Remove the Top EMC Cover - Refer to Page 8-32.
6. Remove the 5.5 mm nut from the left hand side of the Printer that attaches the Encoder Strip to the Spring Clip.



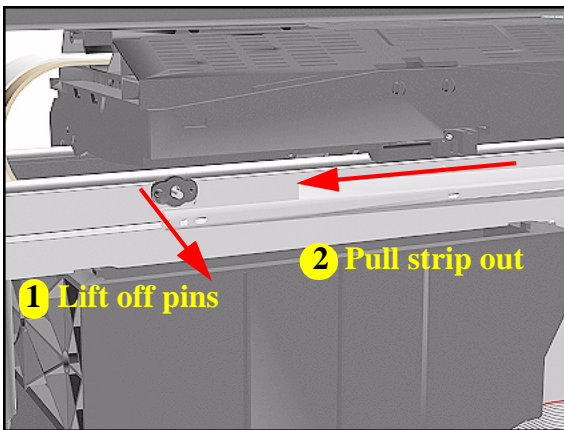
**TIP** The next step is performed by putting pressure on the Spring Clip as shown.



7. Release the Encoder strip from the Spring Clip.



8. Remove the 5.5 mm nut from the right hand side of the Printer.

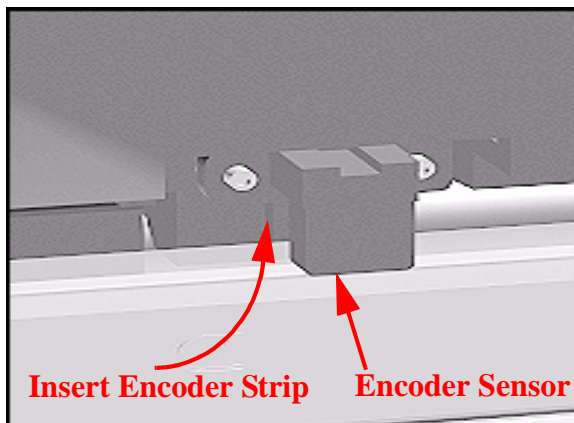


9. Remove the Encoder Strip from the Printer.

### Installation of Encoder Strip

**WARNING**

When Installing the Encoder Strip, make sure it is placed in the Encoder Sensor on the rear of the Carriage Assembly as shown below.



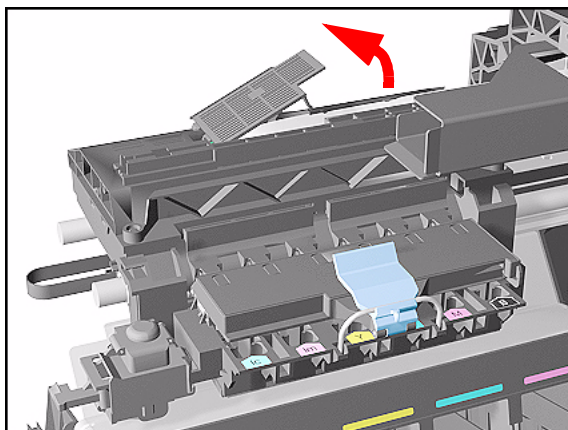
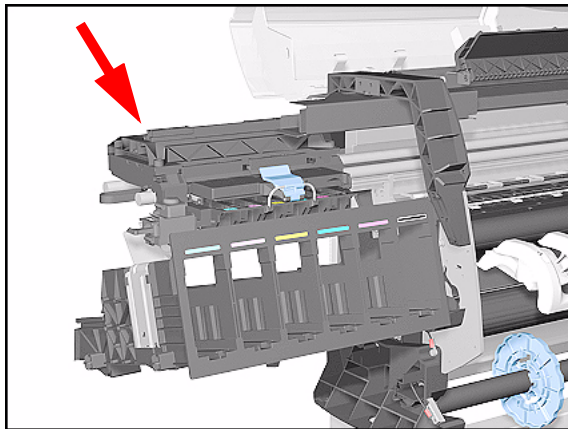
## Trailing Cable

### Removal

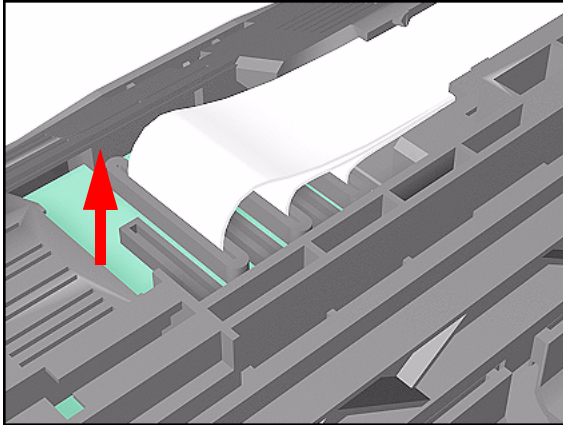
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the Top Cover - Refer to Page 8-5.
2. Remove the Right Rear Cover - Refer to Page 8-16.
3. Remove the Right Hand Cover - Refer to Page 8-10.
4. Remove the Left Hand Cover - Refer to Page 8-6.
5. Slide the Carriage to the left side of the Printer.



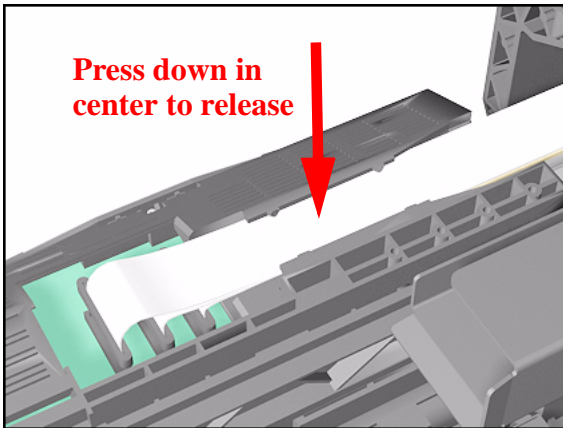
6. Unclip and remove the Carriage Cover to access the Trailing Cable in the Carriage.



7. Carefully disconnect the Trailing Cables (3) from the connectors in the Carriage PCA.

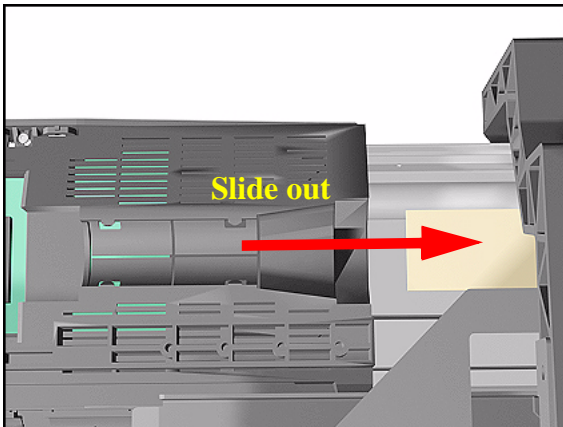
**NOTE** Remove Trailing Cable Ferrites if they fall into the Carriage

- 3 for 60" Model
- 1 for 42" Model

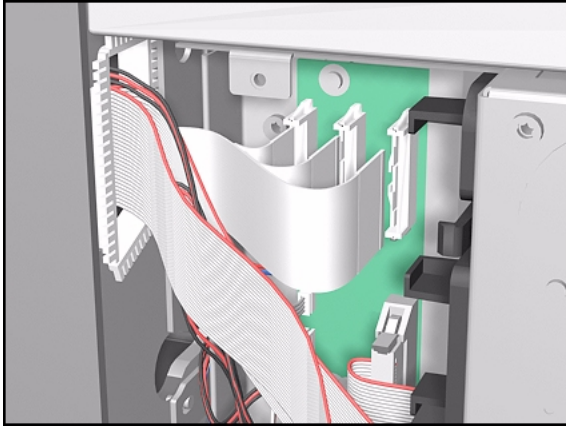


8. Remove the Trailing Cables from the Trailing Cable Holder.

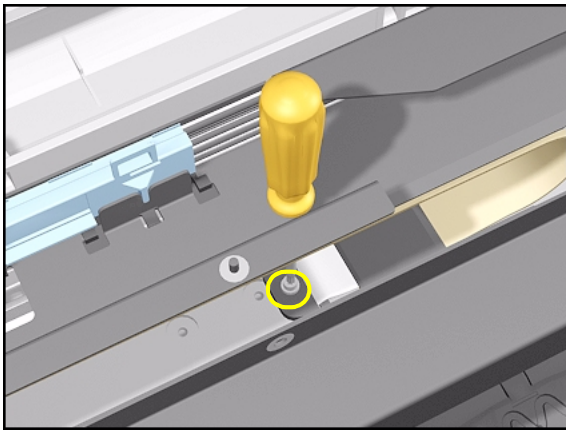
**TIP** Press the Trailing Cables firmly in the center to release.



9. Slide the Trailing Cable Guide out of the Carriage.

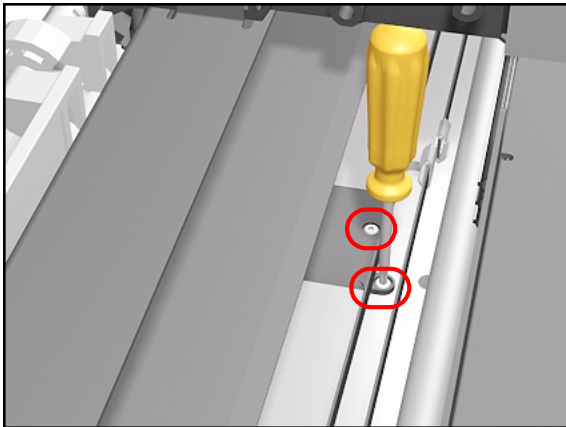


**10.** Carefully disconnect the Trailing Cable from the Main PCA.



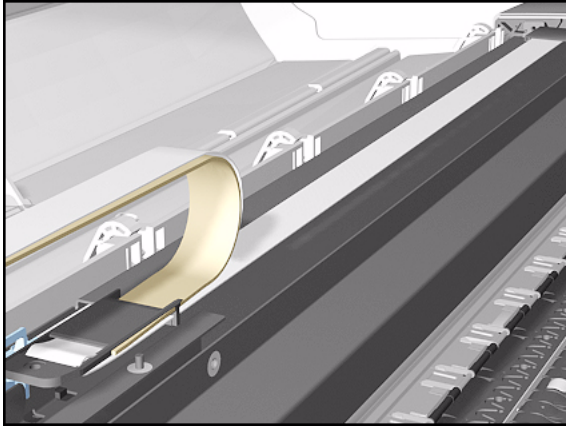
**11.** Remove the T-20 screw (**Type C**) from the Trailing Cable Clip on the left.

**NOTE** There is a hole in the Tube Guide to access the screw.



**12.** Remove 2 T-10 screws (**Type I**) from the Trailing Cable Clip on the right.

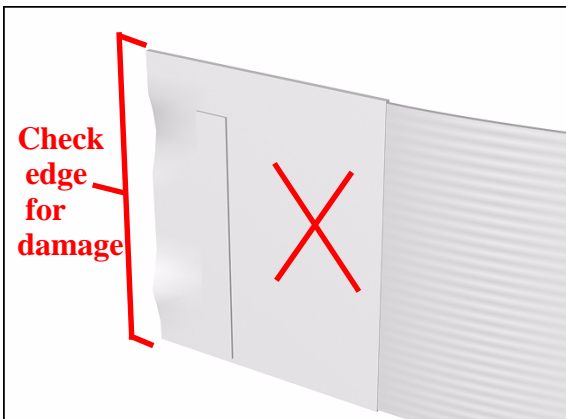
**NOTE** Take care when removing and inserting these screws as they are easily damaged and not easy to access.



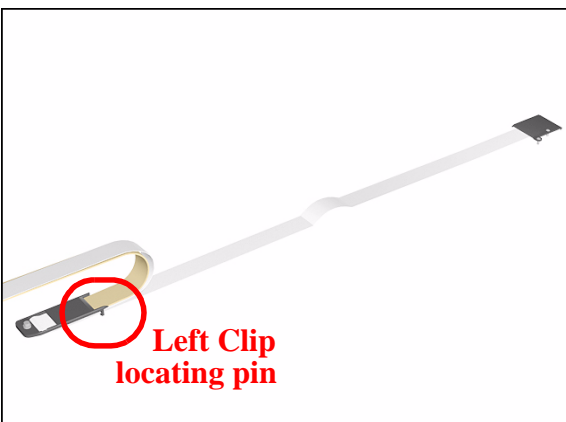
13. Carefully lift the Clips and the Trailing Cable from the Printer.

### Installation of Trailing Cable

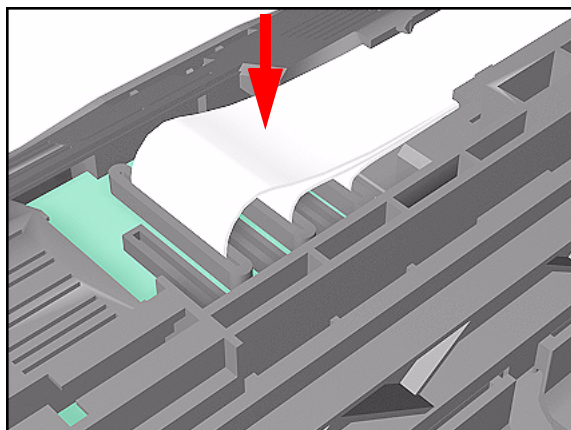
**WARNING** Do not install damaged Trailing Cables.



**WARNING** When Installing the Trailing Cable, make sure you install it as follows:



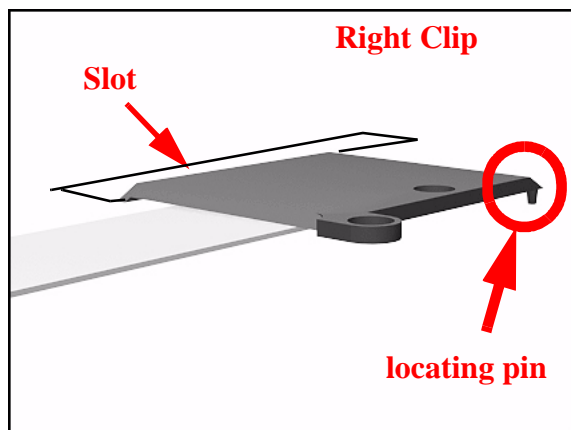
1. Install the Trailing Cable starting from the Clip on the left as this will provide a reference point for adjusting the length of the Trailing Cable.



2. Insert the Trailing Cable Guide into the Carriage and connect the Trailing Cables.

**NOTE** Remember to pass the Trailing Cables through the Ferrite(s).

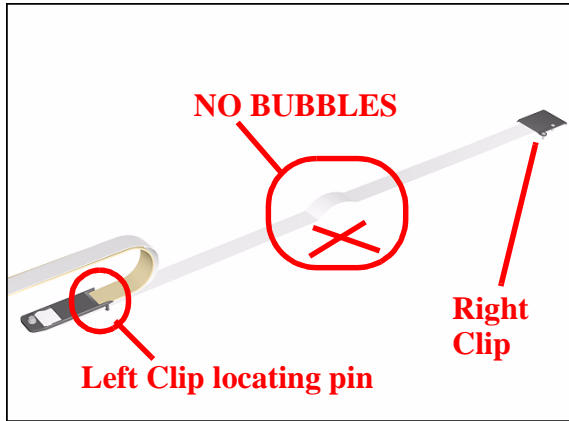
- 3 for 60" Model.
- 1 for 42" Model.



3. Insert the Trailing Cable through the Chassis slot next to the Trailing Cable Clip on the right (see diagram in step 4).
4. Place the Right Trailing Cable Clip in position and adjust the length of the Trailing Cable.

**NOTE** This clip has a locating pin so make sure this is in position and the Trailing Cable is the right length before installing the screw.

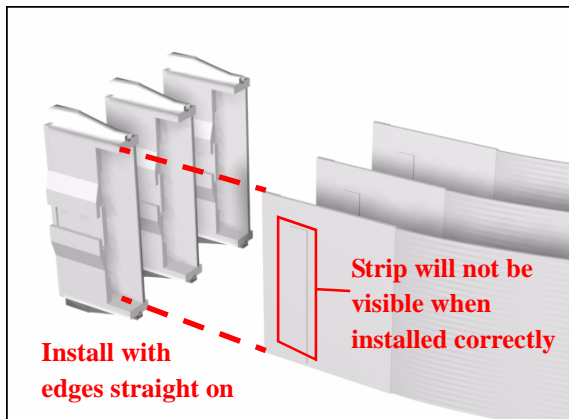




**TIP** Make sure the Trailing Cable is flat on the chassis without bubbles.

**NOTE** Check the cable and clips are correctly installed by sliding the carriage along the Printer to see if it moves freely.

5. Connect the Trailing Cables to the Main PCA.



**NOTE** Make sure the vertical strips on Trailing Cable ends are fully inserted inside the connectors. The strip should not be visible when inserted correctly.

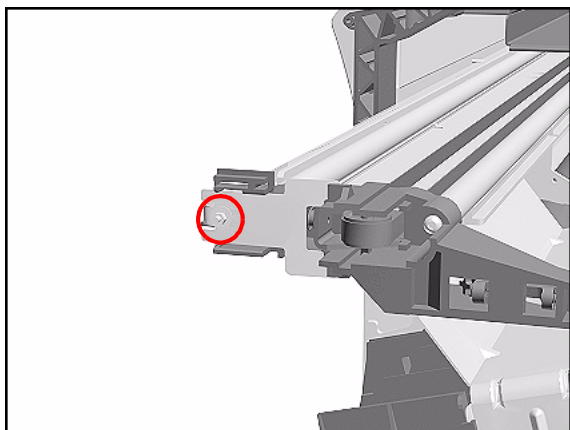
## Tensioner Assembly

### Removal

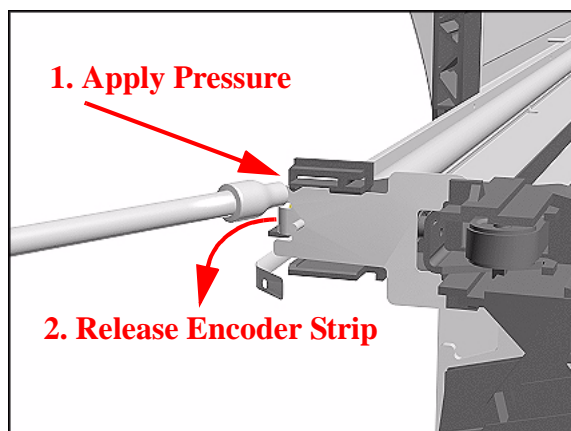
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

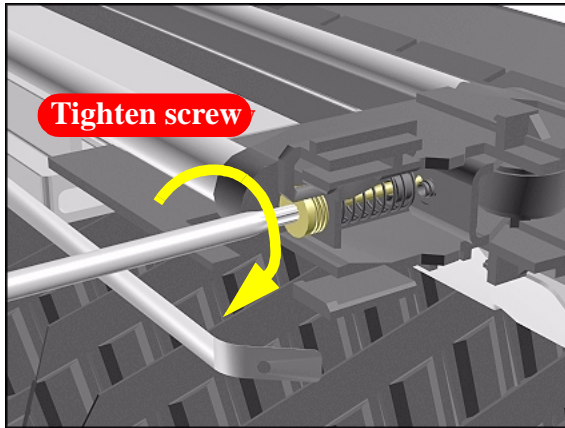
1. Remove the Left Hand Cover - Refer to Page 8-6.
2. Remove the Right Hand Cover - Refer to Page 8-10.
3. Remove the 5.5 mm nut from the left hand side of the Printer that attaches the Encoder Strip to the Spring Clip.



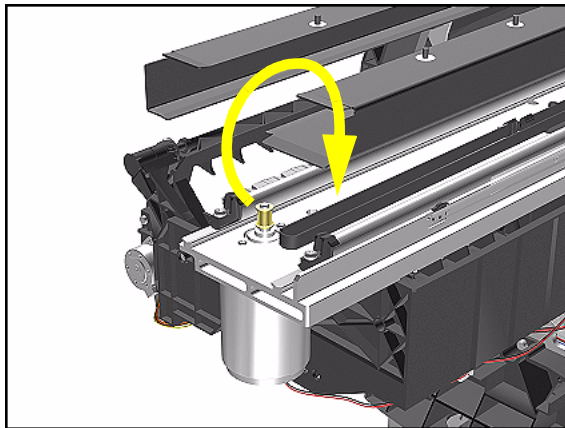
**TIP** The next step is performed by putting pressure on the Spring Clip as shown.



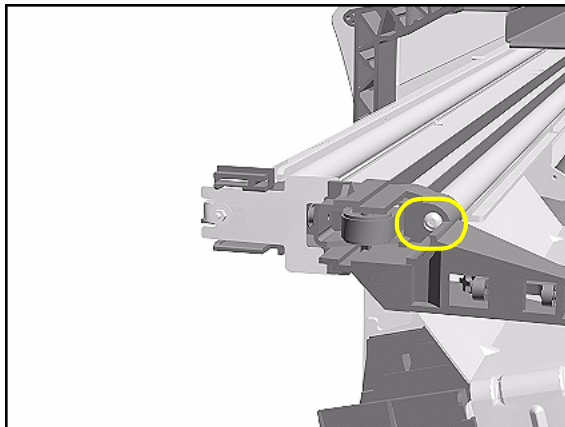
4. Release the Encoder Strip from the retaining pin on the Spring Clip.



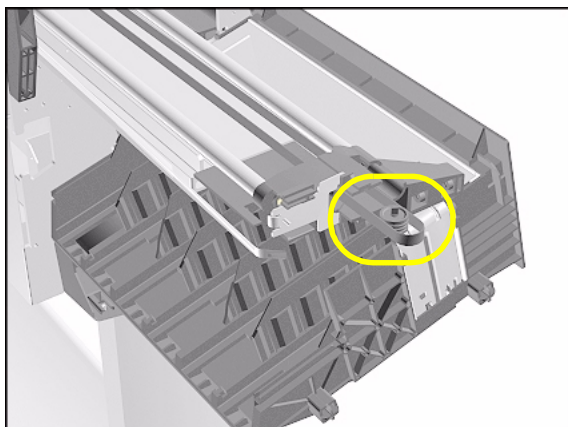
5. Using a screwdriver, fully tighten the Spring Release Screw to release the tension on the Belt.



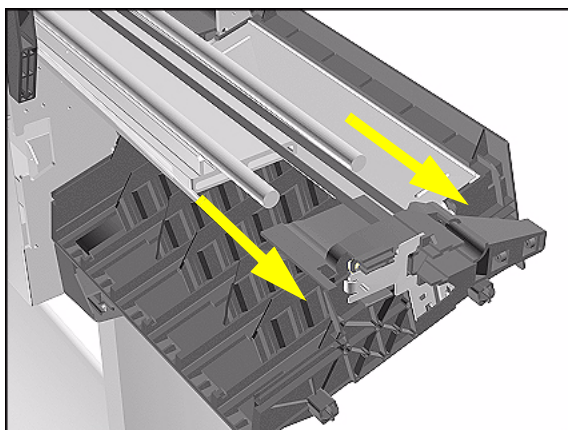
6. From the right-hand side, lift the Tensioner Belt off the Scan-Axis Motor.



7. Remove 1 T-15 screw (**Type L**) from the Tensioner Assembly.



8. Remove the Belt Wheel on the left side.



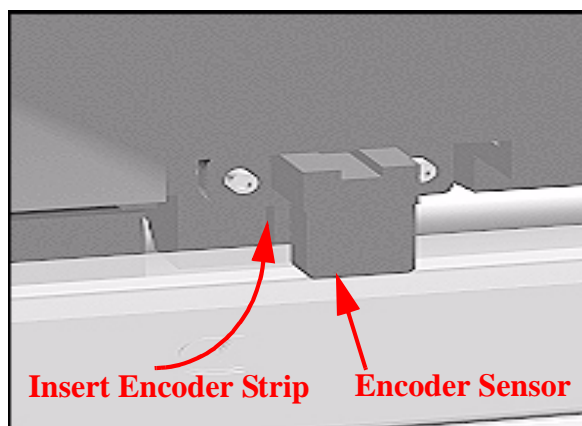
9. Remove the Tensioner Assembly from the left-hand side.

## Installation of Tensioner Assembly

**NOTE** Before installation, clean and oil the Slider Rods using the User's Slider Rods Lubrication Kit (Refer to Page 9-8).

**WARNING** Be careful not to twist the Belt when installing the Tensioner Assembly.

**WARNING** When installing the Encoder Strip, make sure it is inserted in the Encoder Sensor on the rear of the Carriage Assembly as shown below.



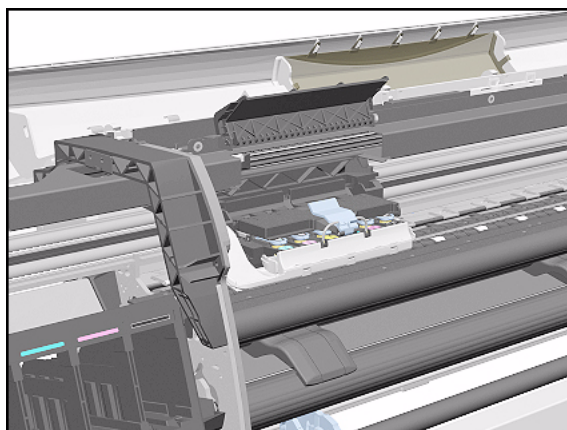
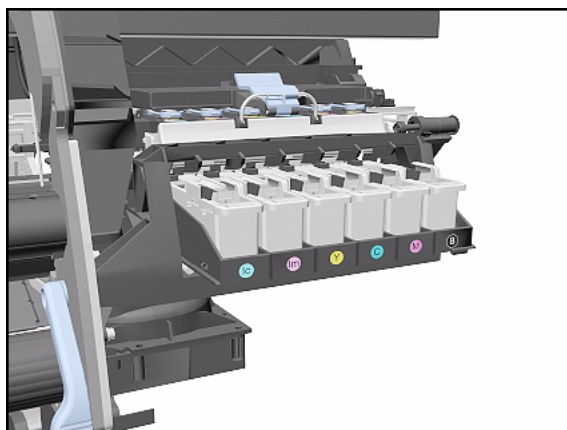
## Carriage Assembly and Belt

### Removal

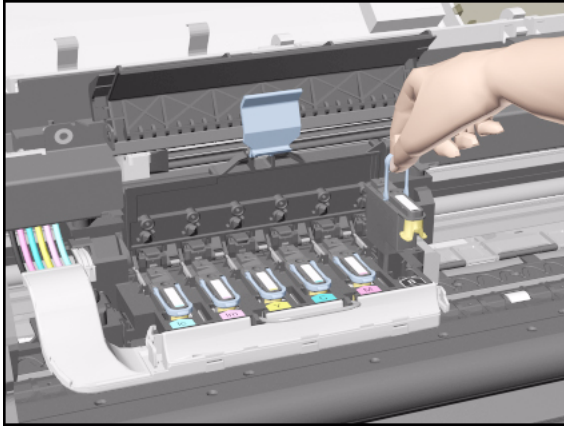
**WARNING**

Switch off the Printer and remove the Power Cord.

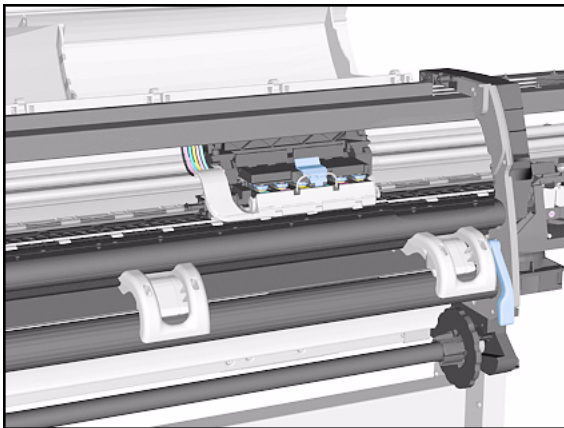
1. Remove the Left Hand Cover - Refer to Page 8-6.
2. Remove the Right Rear Cover - Refer to Page 8-16.
3. Remove the Right Hand Cover - Refer to Page 8-10.
4. Remove the Tensioner Assembly - Refer to Page 8-42.
5. Pull out Printhead Cleaner Carriage.



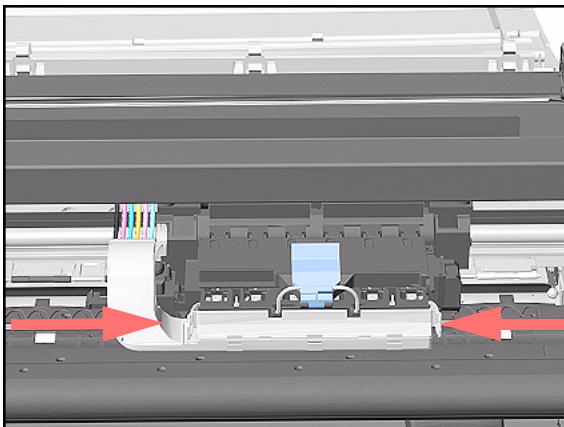
6. Slide Carriage Assembly to position shown.



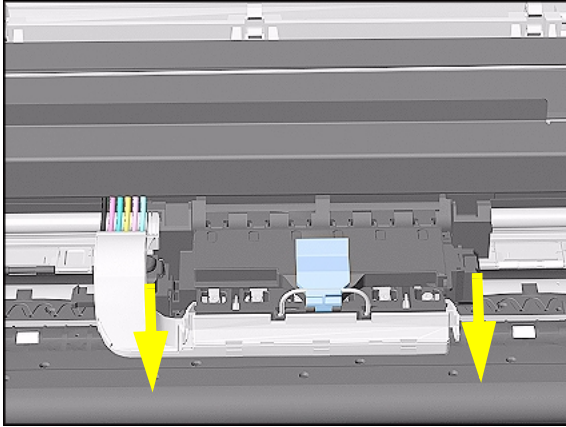
7. Lift up the Carriage Cover and remove ALL the Printheads and close the Carriage Cover.



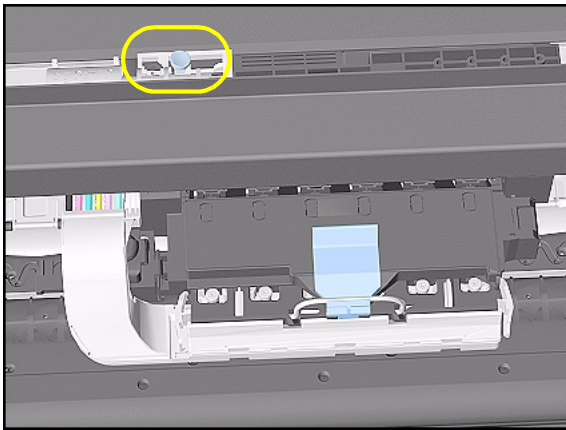
8. Slide the Carriage along the Printer to the position shown.



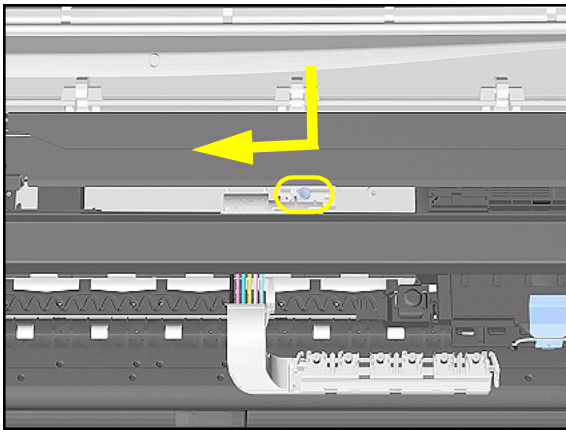
9. Push in the 2 retaining clips either side of the Printhead Tube Connector.



**10.** Pull the Printhead Tube Connector towards you.

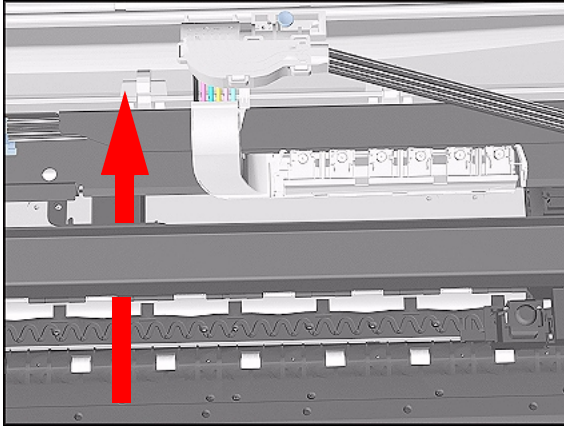


**11.** Push the button to release the Printhead Tubes in the Carriage.

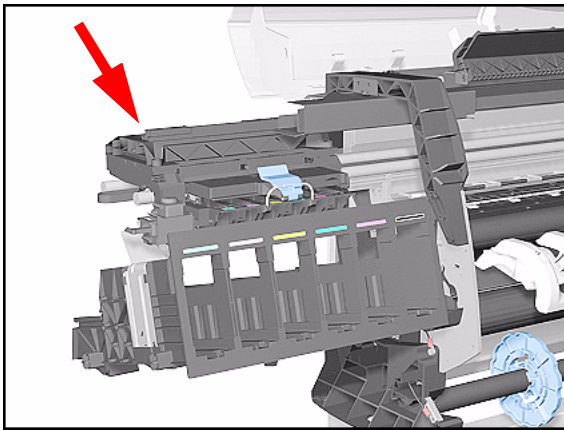


**12.** Release the retaining clip by pulling it away from the holding brackets.

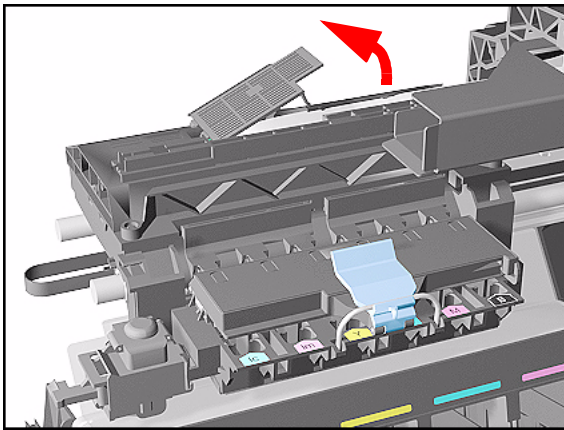




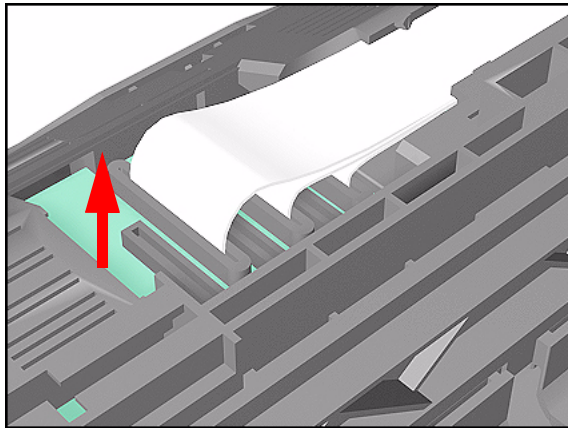
**13.** Pull the Printhead Tube Connector up between the two Tube Guides.



**14.** Slide the Carriage to the left side of the Printer.



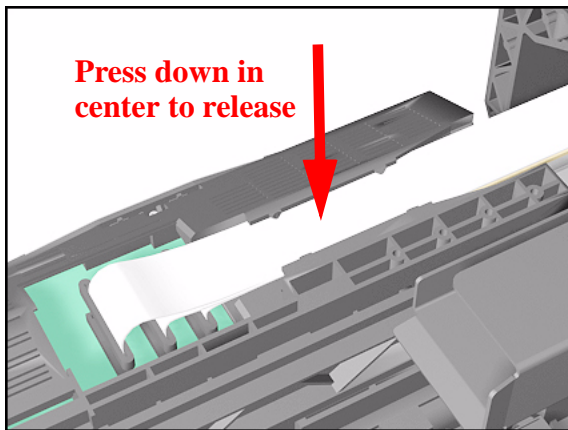
**15.** Unclip and remove the Carriage Cover to access the Trailing Cable in the Carriage.



**16.** Carefully disconnect the Trailing Cables (3) from the connectors in the Carriage PCA.

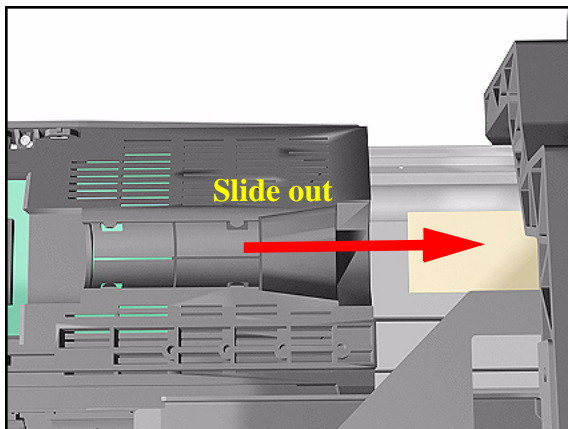
**NOTE** Remove Trailing Cable Ferrites if they fall into the Carriage

- 3 for 60" Model.
- 1 for 42" Model.

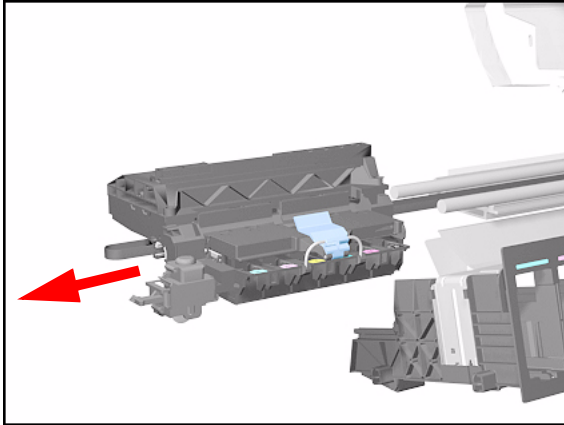


**17.** Remove the Trailing Cables from the Trailing Cable Holder.

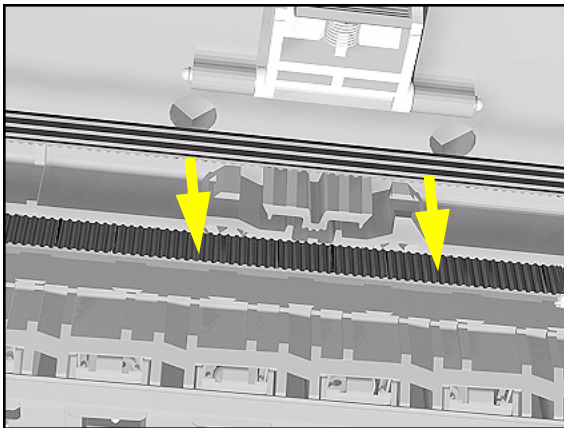
**TIP** Press the Trailing Cables firmly in the center to release.



**18.** Slide the Trailing Cable Guide out of the Carriage.



**19.** Slide the Carriage (including the Belt) to the left and out of the Printer.



**20.** Remove the Belt from the Carriage by releasing it from the retaining clips underneath the Carriage.

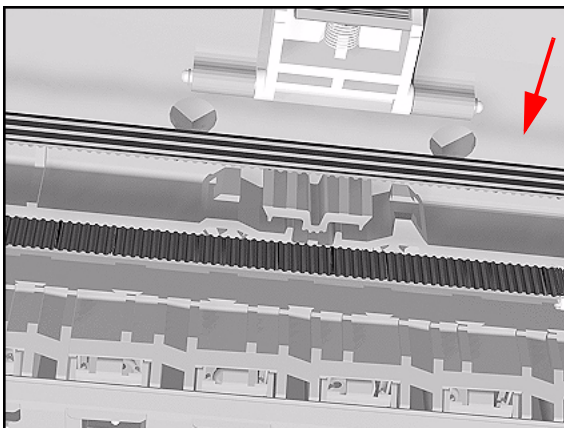
## Installation of Carriage and Belt

### NOTE

Before installation, clean and oil the Slider Rods using the User's Slider Rods Lubrication Kit (Refer to Page 9-8).

### WARNING

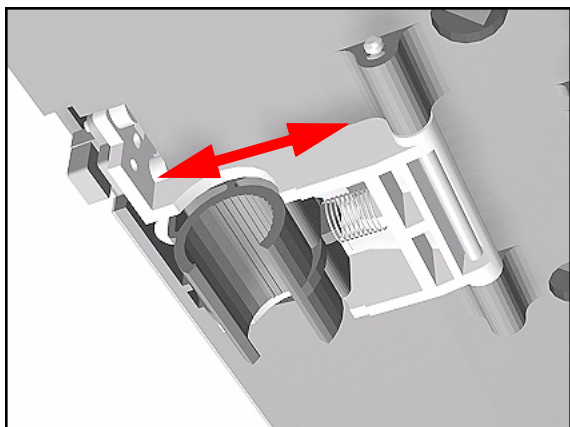
When installing the Carriage Assembly and Belt, make sure you install it as follows:



**1.** Insert belt as indicated on the underside of Carriage.

### TIP

An arrow on the bottom of the Carriage indicates position and direction.



2. Line up the Carriage Guide, on the underside of the Carriage, with the Slider Rods on the Printer.

---

**NOTE** Perform the following Service Calibrations after the installation of the Carriage Assembly:

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- Scan Axis ⇒ Page 5-7.
- Service Station ⇒ Page 5-11.
- Carriage Height ⇒ Page 5-18.
- Printhead Alignment ⇒ User Guide.

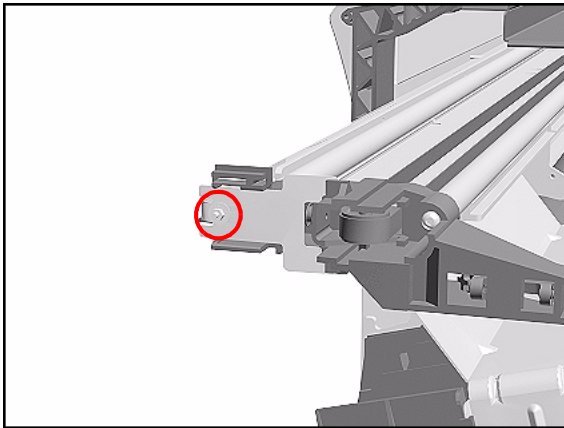
## Scan-Axis Motor

### Removal

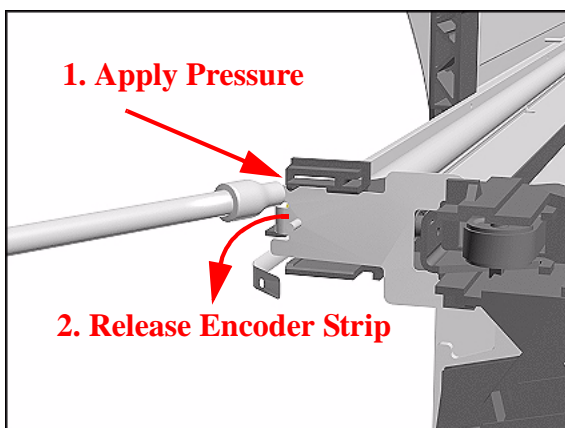
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

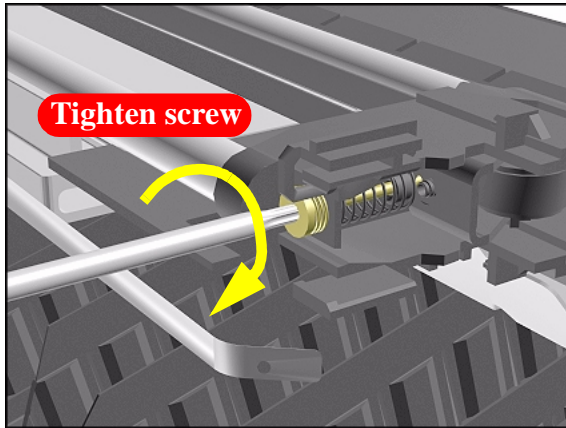
1. Remove the Right Rear Cover - Refer to Page 8-16.
2. Remove the Left Hand Cover - Refer to Page 8-6.
3. Remove the Right Hand Cover - Refer to Page 8-10.
4. Remove the 5.5 mm nut from the left hand side of the Printer that attaches the Encoder Strip to the Spring Clip.



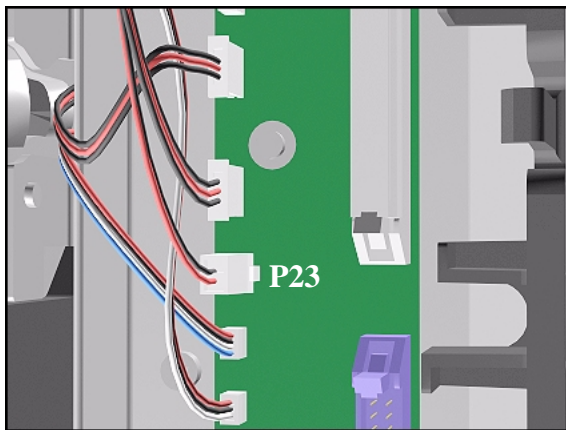
**TIP** The next step is performed by putting pressure on the Spring Clip as shown.



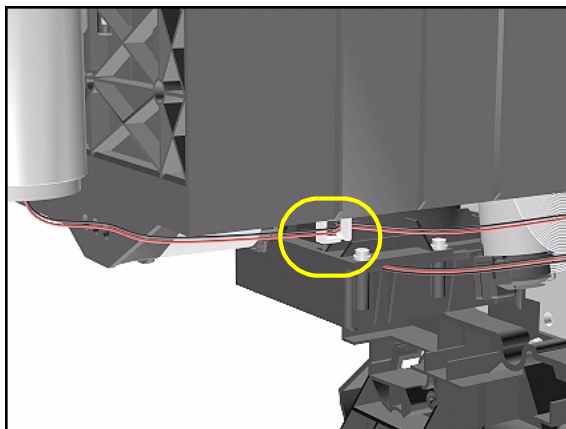
5. Release the Encoder strip from the Spring Clip.



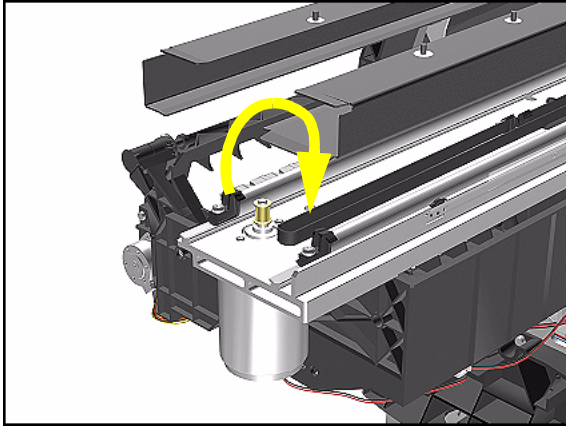
6. Using a screwdriver, fully tighten the Spring Release Screw to release the tension on the Belt.



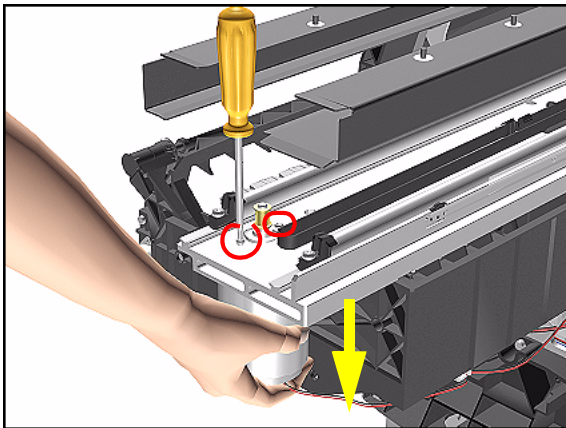
7. Disconnect the Scan-Axis Motor Cable from position P23 on the Main PCA.



8. Unclip the Scan-Axis Motor Cable from underneath the Service Station.



9. From the right-hand side, lift the Tensioner Belt off the Scan-Axis Motor.



10. While supporting the Scan-Axis Motor, remove 2 T-15 screws (**Type B**).

11. Lower the Scan-Axis Motor and remove from the Printer.

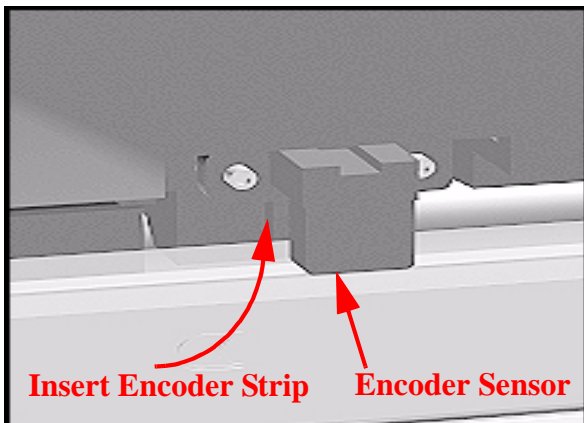
### Installation of the Scan-Axis Motor

**NOTE**

Before installation, clean and oil the Slider Rods using the User's Slider Rods Lubrification Kit (Refer to Page 9-8).

**WARNING**

When installing the Encoder Strip, make sure it is inserted in the Encoder Sensor on the rear of the Carriage Assembly.

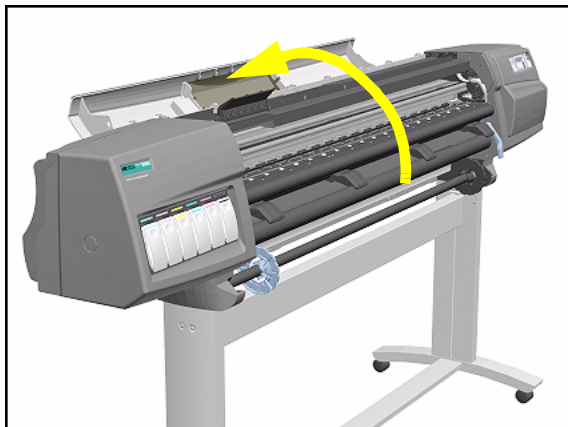


## Cutter Assembly

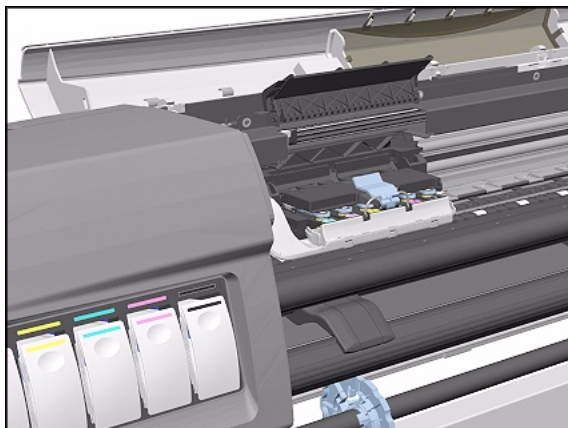
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

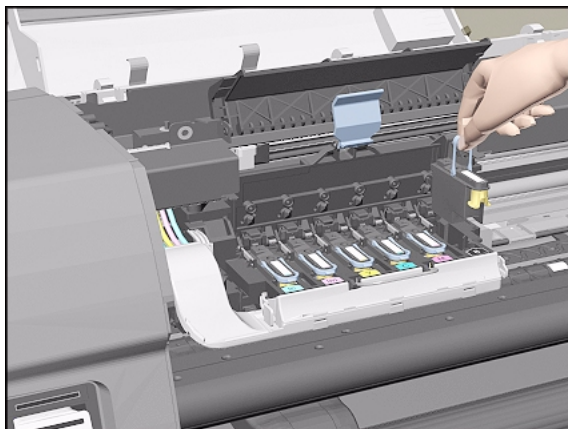
**NOTE** Refer to the table on Page 8-4 for information on screw types.



1. Open the Top Cover.

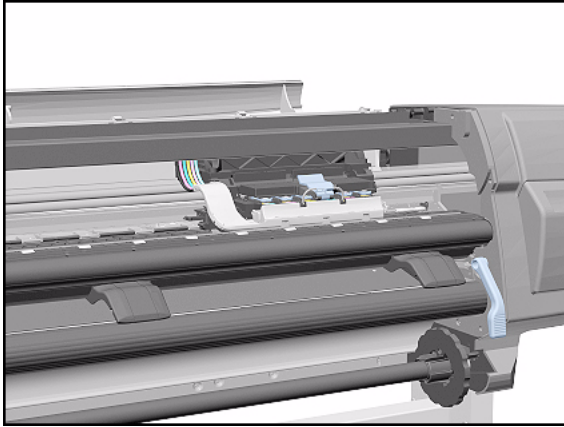


2. Pull the Carriage out along the Printer to the position shown.

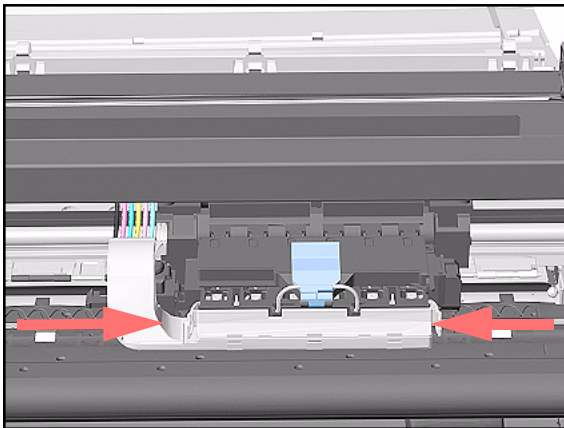


3. Lift up the Carriage Cover and remove ALL the Printheads and close the Carriage Cover.

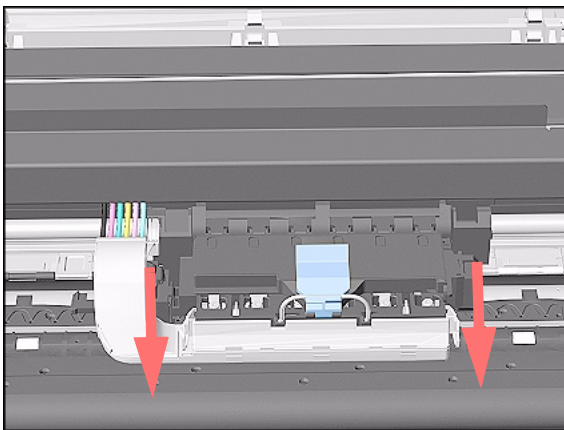




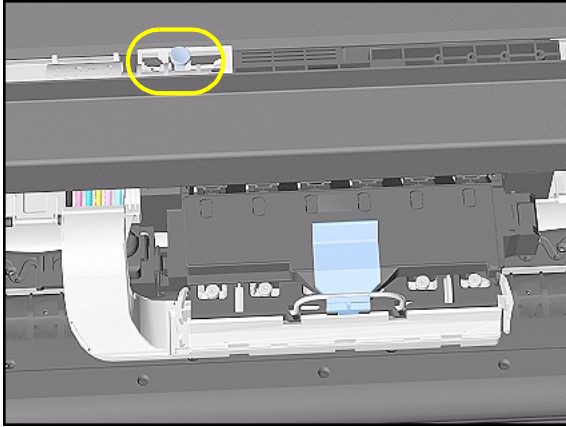
4. Slide the Carriage to the position shown.



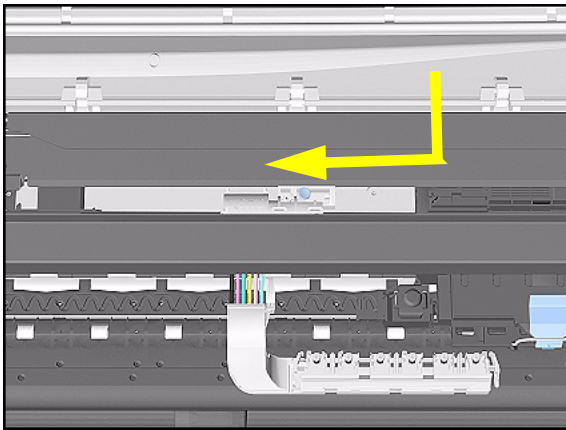
5. Push in the 2 retaining clips either side of the Printhead Tube Connector.



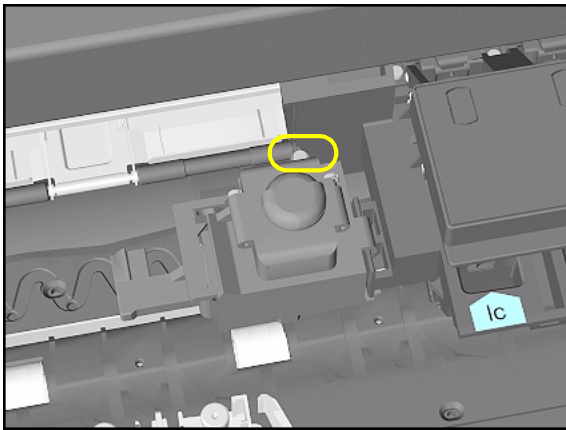
6. Pull the Printhead Tube Connector towards you.



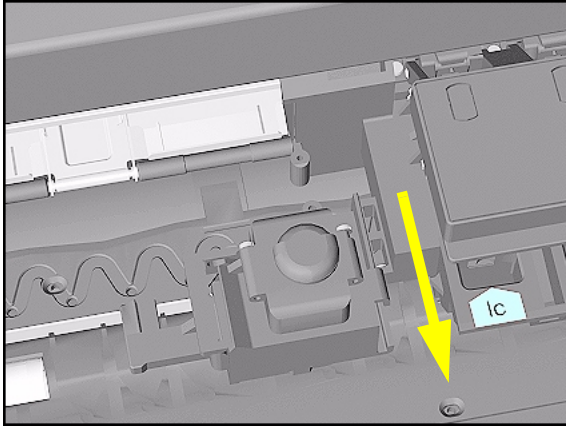
7. Push the button to release the Printhead Tubes from the Carriage.



8. Release the retaining clip by pulling it away from the holding brackets.



9. Remove 1 T-8 screw (**Type V**) and washer that attaches the Cutter to the Carriage.



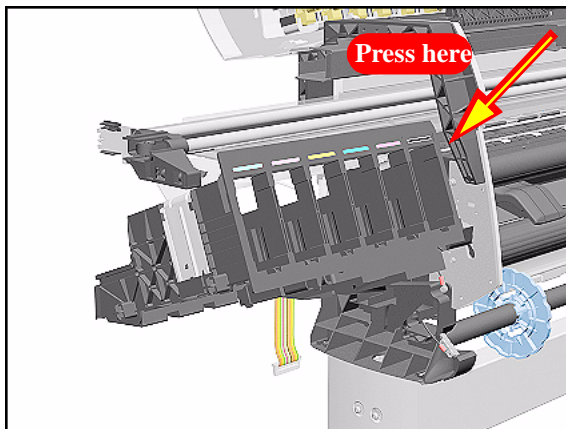
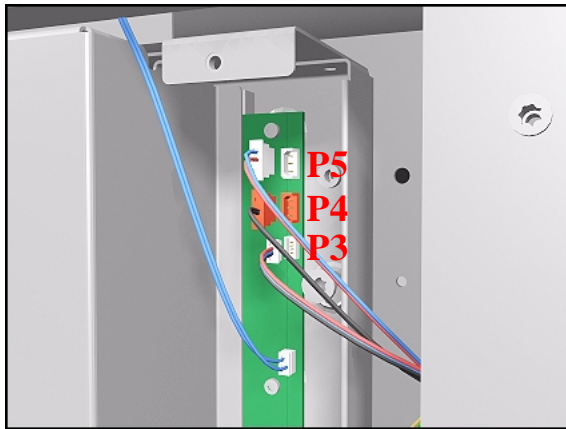
10. Slide the Cutter towards you and remove from the Printer.

## Ink Supply Station (ISS)

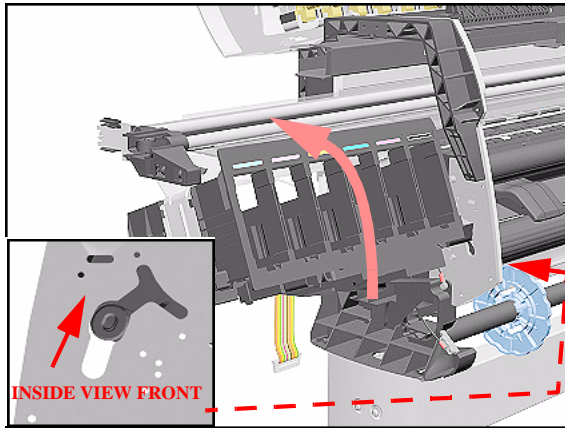
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

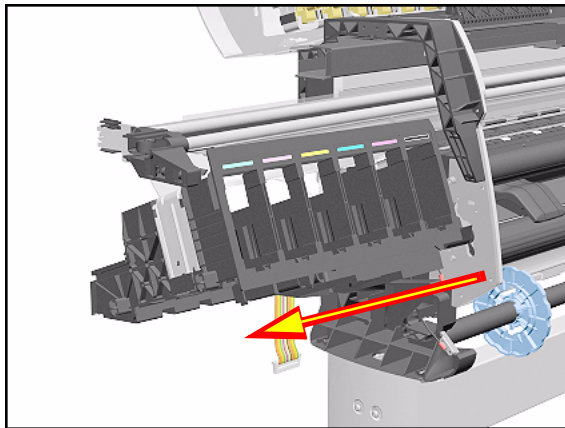
1. Remove the Left Hand Cover - Refer to Page 8-6.
2. Remove the Left Rear Cover - Refer to Page 8-15.
3. Remove the Back Extension Cover (Only for the 60" Model) - Refer to Page 8-17.
4. Disconnect APS Cables (P5, P4 and P3) from the ISS PCA.



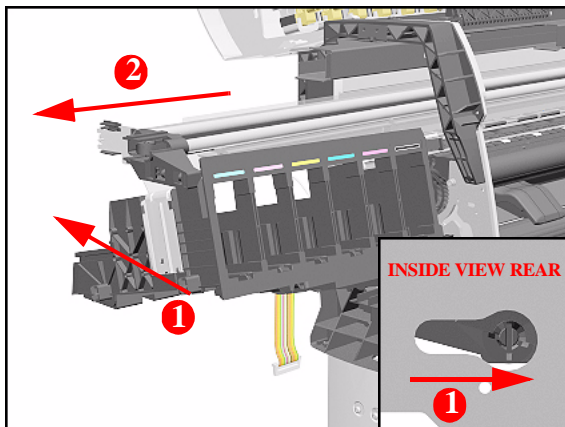
5. To remove the ISS, stand at the end of the Printer and press in the retaining clip on the ISS.



6. While pressing in the retaining clip (step 5), rotate the right side of the ISS up and left.



7. Pull out the right side of the ISS.



8. Slide the ISS to the left and pull out the left side to remove from the Printer.

## Installation of ISS

---

### NOTE

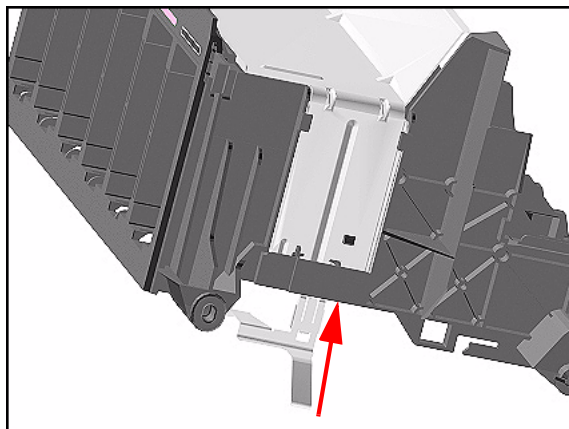
If the ISS is to be replaced, make sure you remove the APS from the old ISS and, after installing the Grounding Plate, reinstall it on the new ISS.

---

### WARNING

When replacing the ISS remember to insert the Grounding Plate into the slot as shown (before reinstalling the APS).

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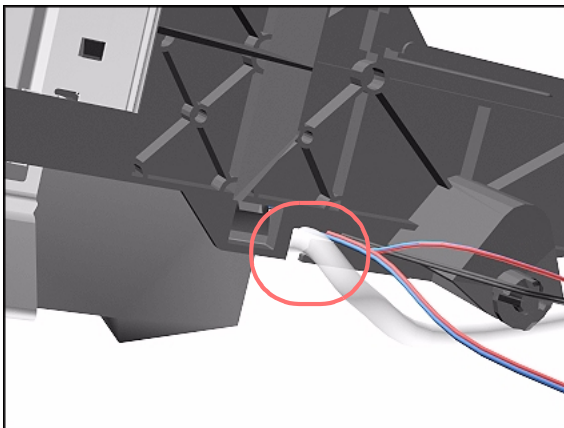


## Air Pressurization System (APS)

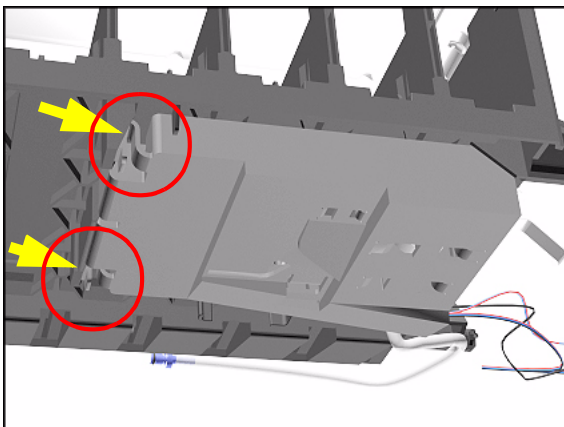
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

1. Remove the Left Hand Cover - Refer to Page 8-6.
2. Remove the Left Rear Cover - Refer to Page 8-15.
3. Remove the Back Extension Cover (Only for the 60" Model) - Refer to Page 8-17.
4. Remove the ISS - Refer to Page 8-60.
5. Remove the cables and tube from the slot on the ISS.
  - For the 42" Model, open the Cable Clip under the ISS holding the APS Cables to the ISS.



**NOTE** When removing the APS from the ISS, take care with the tube and cables attached to the ISS.

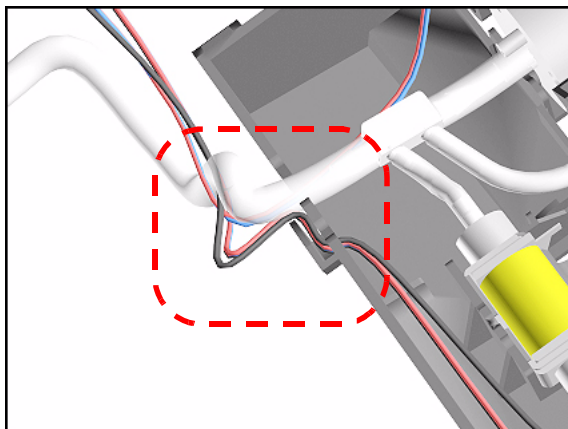


6. Push the retaining clips on the left side of the APS to release it from the ISS.

## Installation of APS

### **WARNING**

When Installing the Air Pressurization System make sure the tube and wires are placed in the dedicated slots and perform the following steps:



1. Before installing the APS on the ISS, insert first the 3 cables and then the tube in the dedicated slot.
2. Install the APS on the ISS.
3. For the 42" Model, secure the APS Cables to the ISS using the Cable Clip under the ISS.

### **NOTE**

Before installing the ISS on the Printer, make sure the cable and tube are inserted in the ISS slot.



---

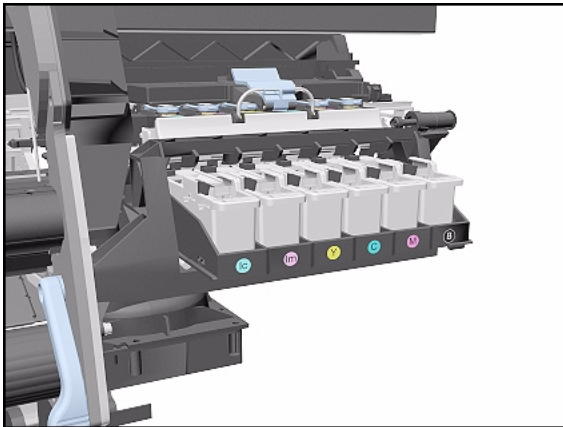
## Service Station Assembly

### Removal

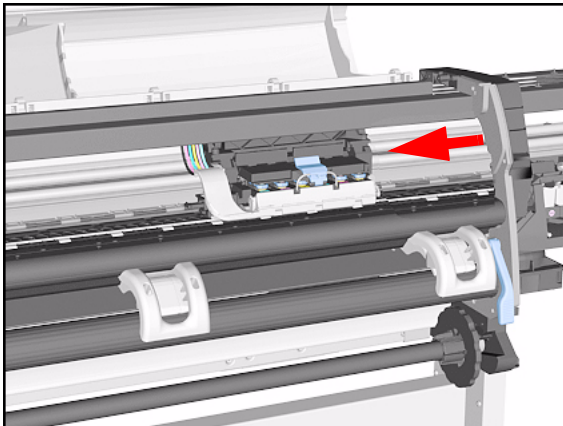
**WARNING** Switch off the Printer and remove the Power Cord.

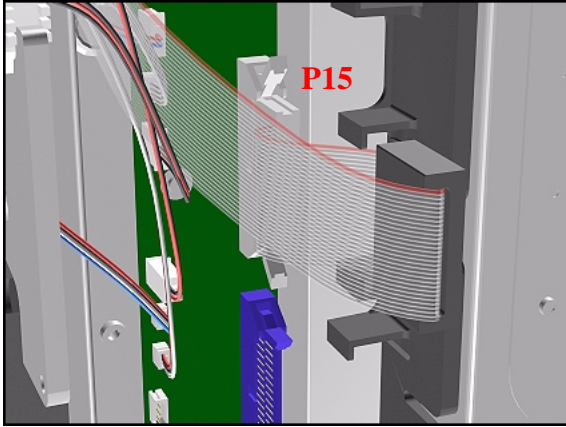
**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the Right Rear Cover - Refer to Page 8-16.
2. Remove the Right Hand Cover - Refer to Page 8-10.
3. Remove the Printhead Cleaners.

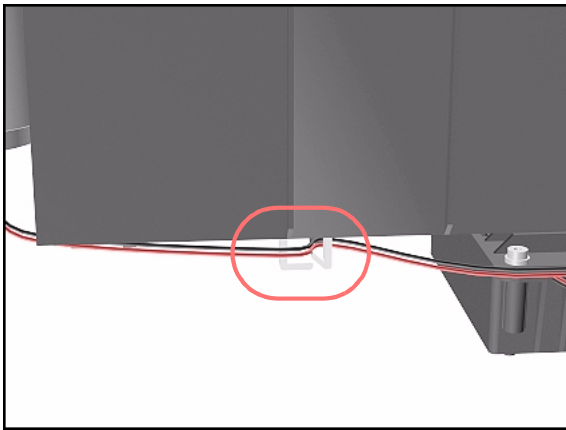


4. Manually slide the Carriage out of the Service Station.





5. Disconnect the Service Station Cable from the Main PCA (P15).

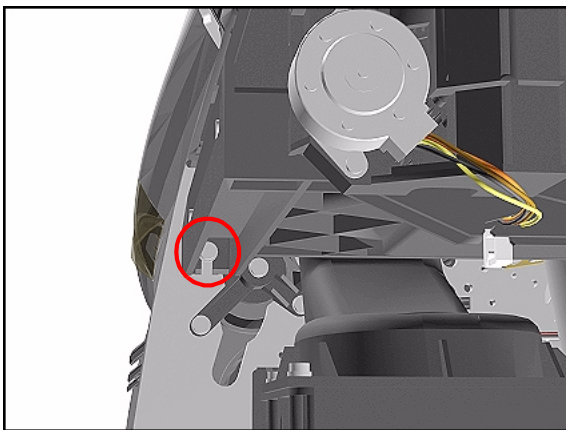


6. Unclip the Scan-Axis Motor Cable from the Service Station.

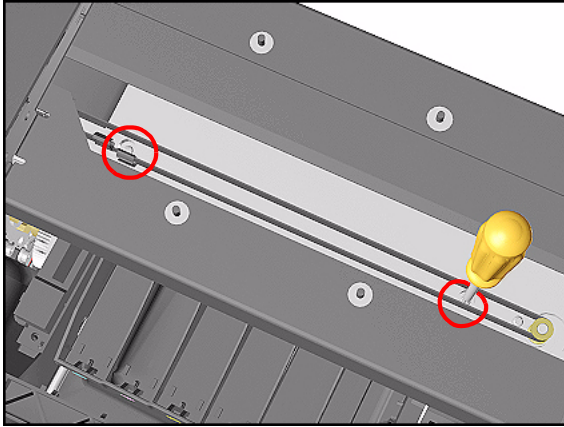
---

**NOTE** Follow the instructions in step 7 carefully; **LOOSEN** the screw and **DO NOT** remove.

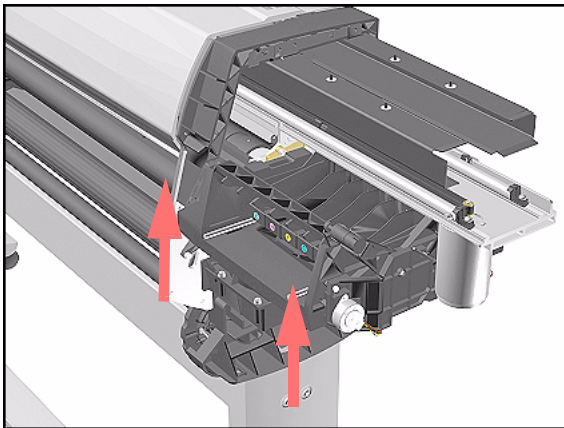
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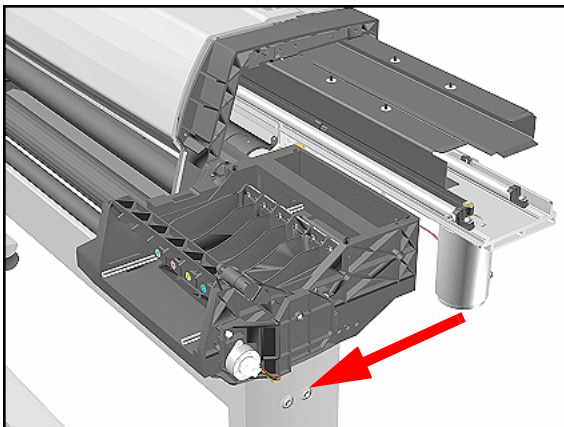
7. Loosen the T-20 screw (**Type A**) securing the Service Station to the side plate.



8. Remove 2 T-15 screws (**Type F**) between the two slider rods that attach the Service Station to the Chassis.



9. Standing in front of the Service Station, lift it off the loosened screw.



10. Pull the assembly out towards you and remove from the Printer.

**NOTE** Perform the following Service Calibration if the Service Station Assembly is replaced:

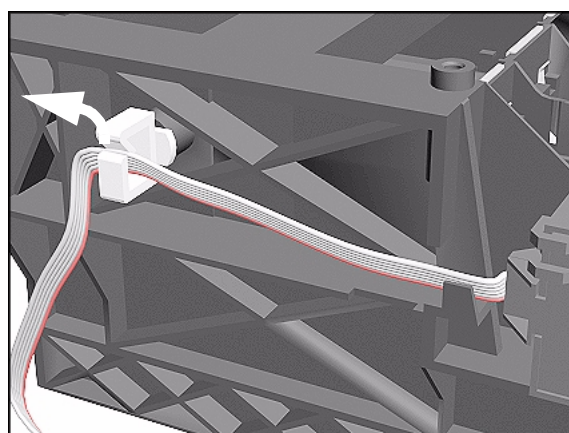
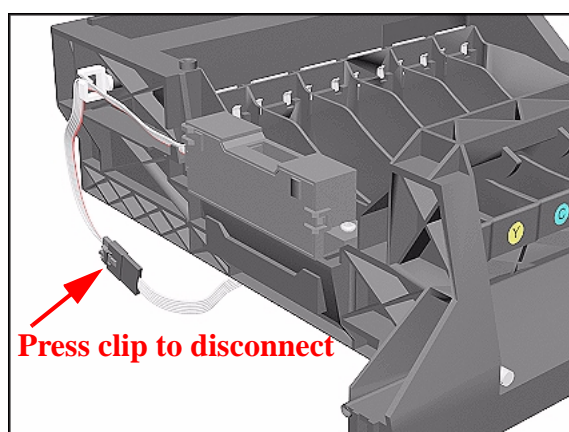
- Service Station ⇒ Page 5-11.

## Drop Detector Assembly

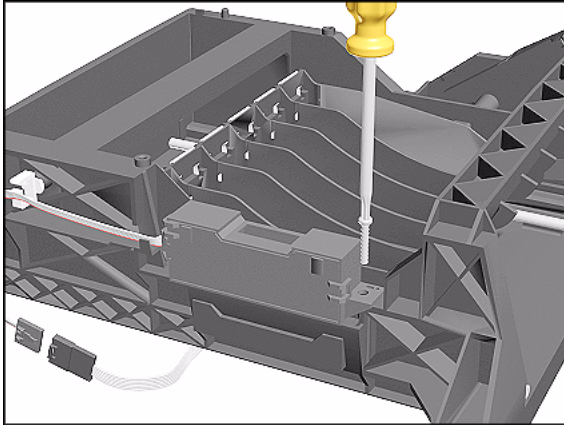
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

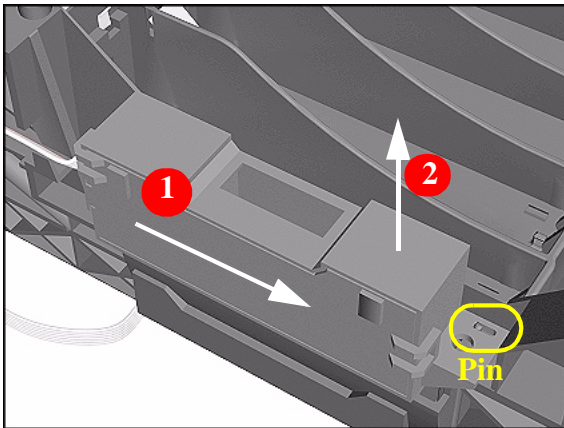
1. Remove the Right Rear Cover - Refer to Page 8-16.
2. Remove the Right Hand Cover - Refer to Page 8-10.
3. Remove the Service Station Assembly - Refer to Page 8-65.
4. Disconnect the Drop Detector cable from the Service Station Cable.



5. Release the cable from the Service Station.

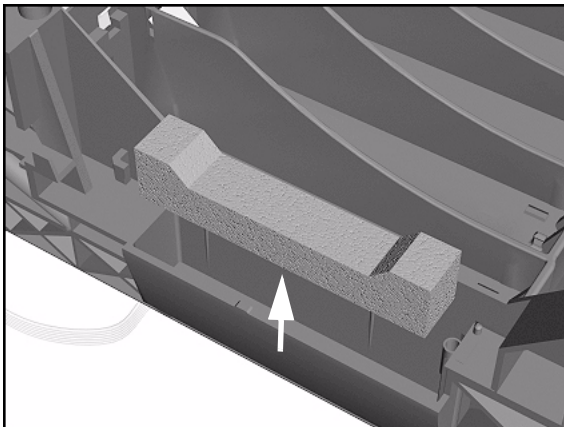


6. Remove the T-15 screw (**Type F**) that attaches the Drop Detector Assembly to the Service Station.



7. Remove the Drop Detector from the Service Station.

**NOTE** Move the Drop Detector towards the front of the Service Station until the locating pin reaches the end.



8. Lift the Foam from the Service Station.

**NOTE** The Foam may be full of ink so be careful when handling it.

**NOTE** If you replace the Drop Detector you must perform the following Service Calibration:

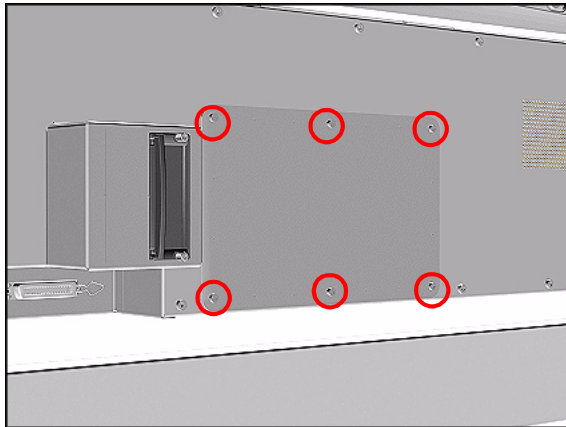
- Service Station ⇒ Page 5-11.

## Hard Disk Drive (HDD)

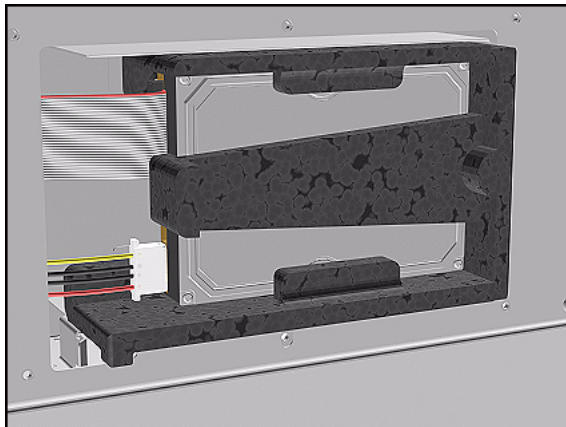
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

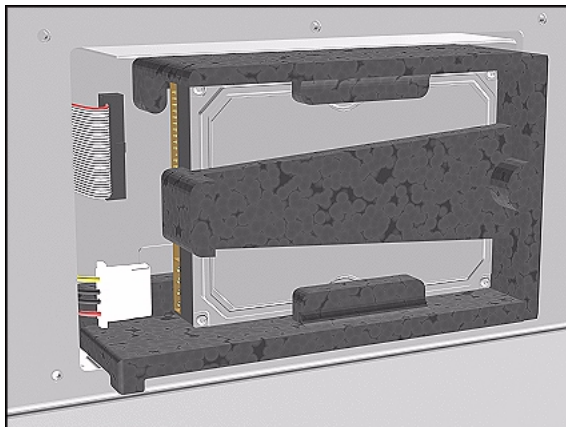
**NOTE** Refer to the table on Page 8-4 for information on screw types.



1. Remove 6 T-15 screws (**Type B**) from the HDD Access Cover. Remove the HDD Access Cover.



2. Remove the HDD with its foam holder.



3. Disconnect the HDD Cable and Power Supply Cable from the HDD.

---

## Installation of Hard Disk Drive

---

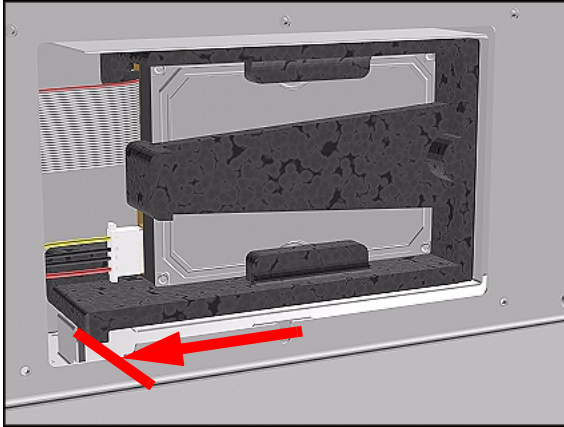
### NOTE

If you replace the Main PCA and the HDD at the same time you must perform ALL Service Calibrations (⇒ Page 5-3) and the EEROM Setup Service Utility (⇒ Page 4-24).

---

### WARNING

When Installing the Hard Disk Drive make sure the holder is placed in the right position so that it cannot move.



---

### NOTE

When the Hard Disk Drive is replaced perform the following Service Utility:

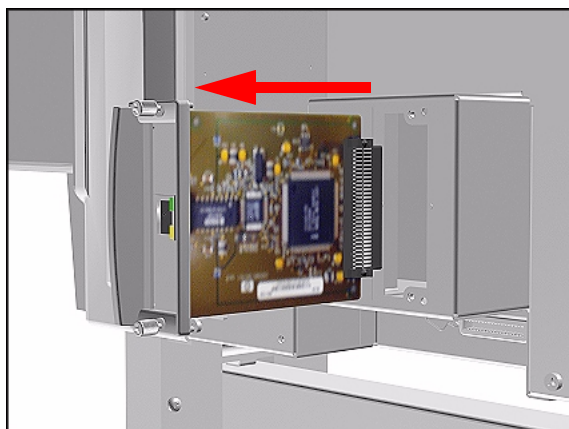
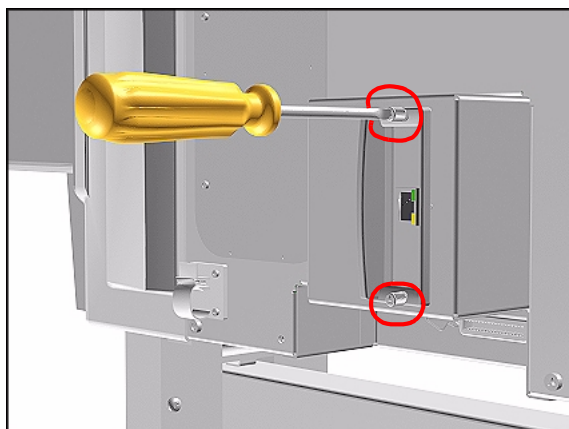
- Backup EEROM ⇒ Page 4-31.

## LAN Card

### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

1. Disconnect the LAN cable from the LAN Card at the rear of the Printer.
2. Using a flat end screwdriver, unscrew the two screws that attach the LAN Card to the Printer.
3. Remove the LAN Card and store in a safe place.





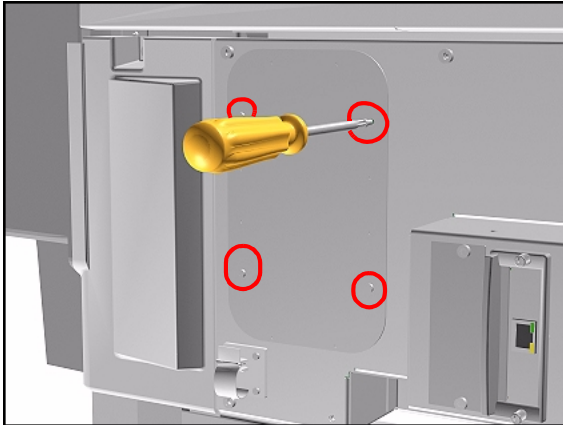
---

## Memory and BootROM DIMM's

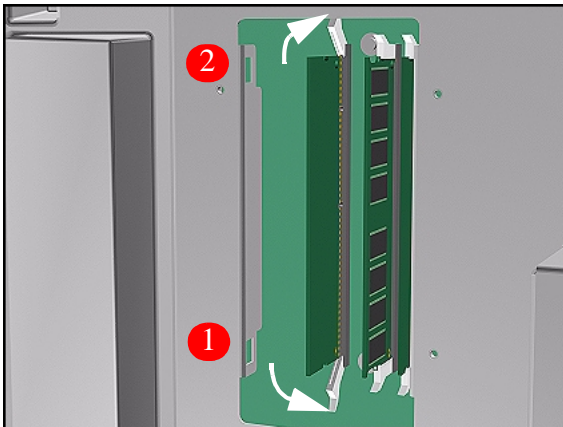
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

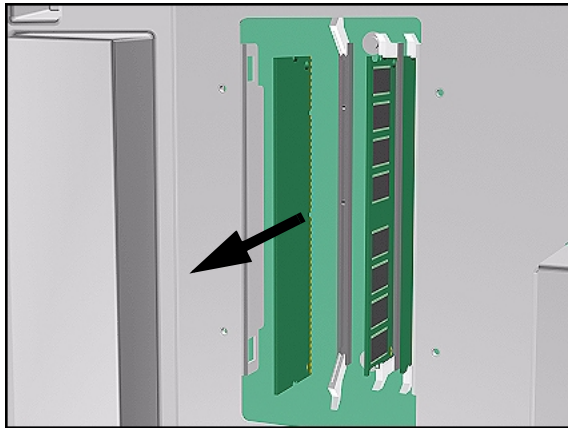
**NOTE** Refer to the table on Page 8-4 for information on screw types.



1. Remove 4 T-10 screws (**Type P**) from the DIMM Access Cover. Remove the DIMM Access Cover.



2. To remove a DIMM, first push down the lower locking tab and then push up the upper locking tab to release the DIMM.



3. Pull out the DIMM. Take care that it does not fall out.

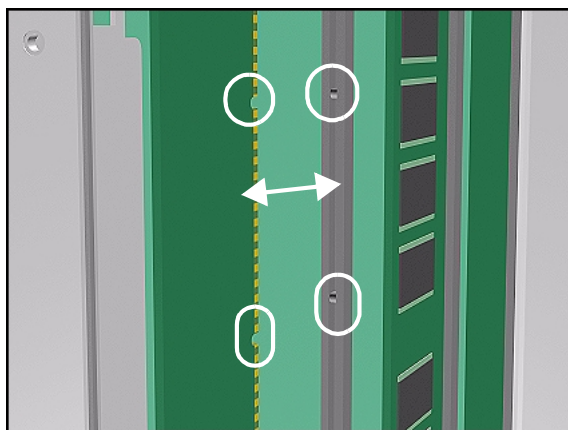
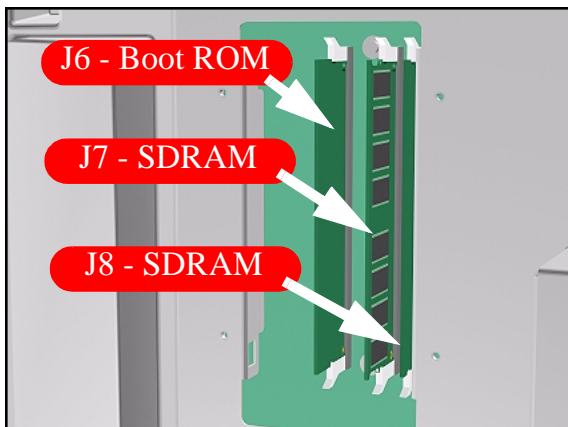
### Installation of DIMM's

**WARNING**

When installing the DIMM's make sure they are in the correct position as shown in the diagram.

**NOTE**

Note the position of the BootROM and the SDRAM (memory) modules.



---

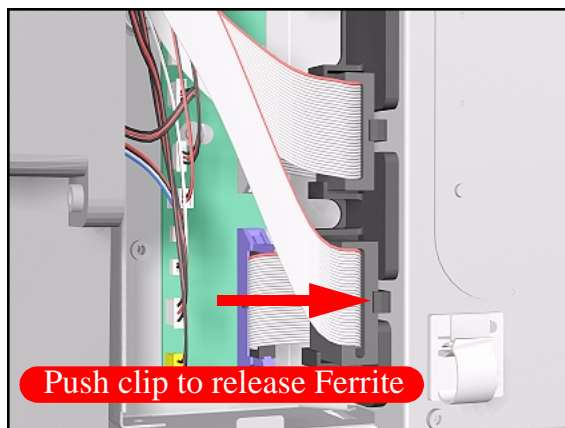
## Electronics Module Cover

### Removal

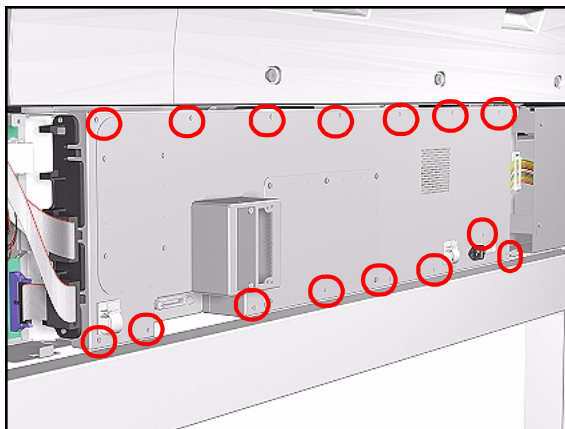
**WARNING** Switch off the Printer and remove the Power Cord.

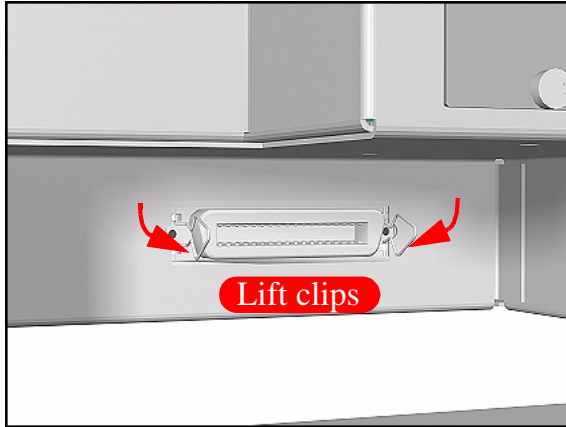
**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the LAN Card - Refer to Page 8-72.
2. Remove Left Rear Cover - Refer to Page 8-15.
3. Remove Right Rear Cover - Refer to Page 8-16.
4. Remove the Ferrites from the Ferrite Holder on the right side.

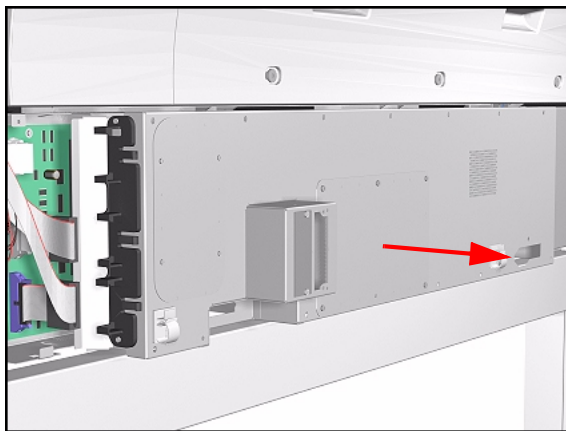


5. Remove 15 T-15 screws (**Type B**) from the Electronics Module Cover.





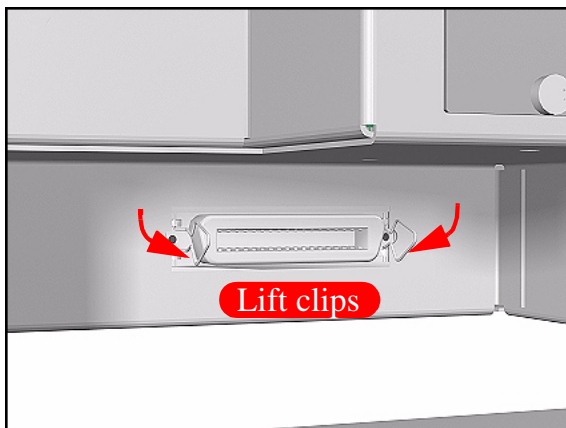
**NOTE** Lift the Parallel Port Clips before removing the Cover.



**6.** Remove the Electronics Module Cover.

### Installation of the Electronics Module Cover

**NOTE** When Installing the Electronics Module Cover make sure the parallel port connector clips are in closed position i.e. UP, so that they pass through the slot in the Cover.



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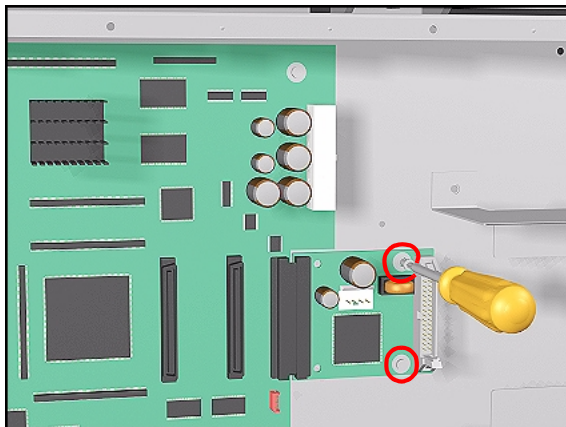
## Main PCA

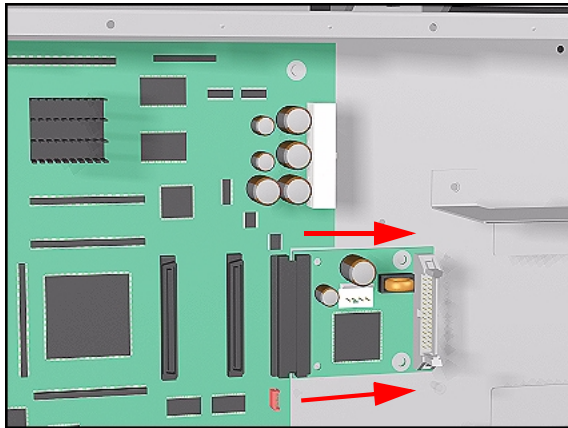
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

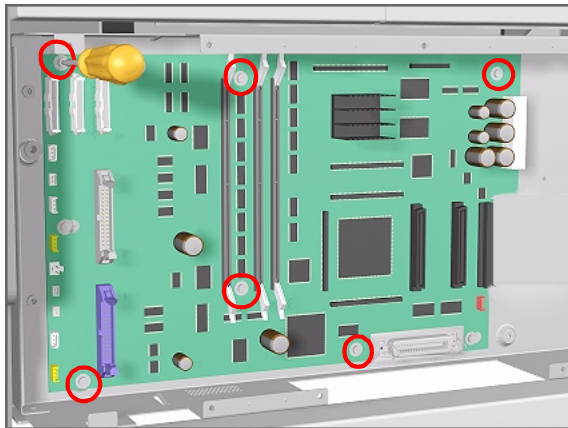
**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the LAN Card - Refer to Page 8-72.
2. Remove the Left Rear Cover - Refer to Page 8-15.
3. Remove the Right Rear Cover - Refer to Page 8-16.
4. Remove the Electronics Module Cover - Refer to Page 8-75.
5. Disconnect and remove the Hard Disk Drive for safety reasons - Refer to Page 8-70.
6. Remove ALL BootROM/Memory DIMM's - Refer to Page 8-73.
7. Disconnect ALL Cables from the Electronics Module (see Installation of Main PCA for connections).
8. Remove 2 T-10 screws (**Type K**) to remove the HDD controller.

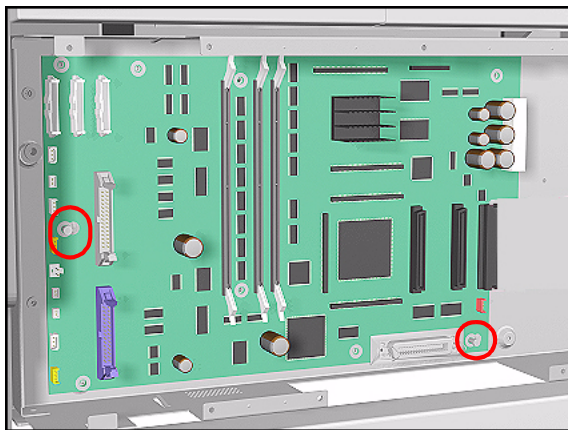




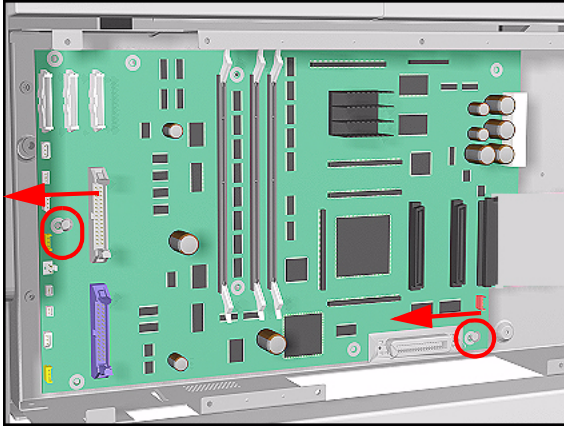
9. Disconnect the HDD Controller and remove from the Printer.



10. Remove 6 T-10 screws (**Type K**) from the Main PCA.

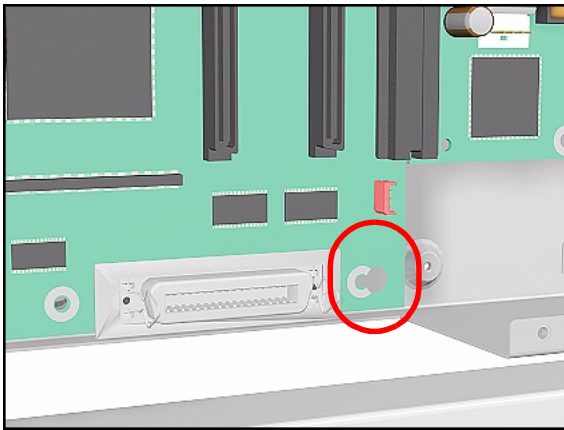


11. Loosen 2 T-10 screws on the Main PCA.



12. Remove by sliding the Main PCA to the left and lifting out (see detail below).

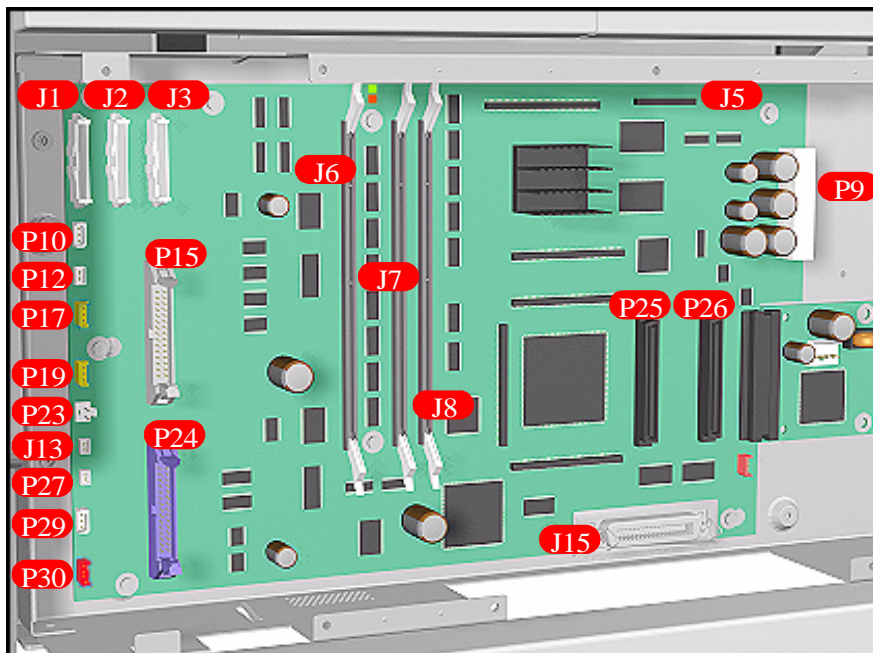
**NOTE** Detail of Main PCA removal.



## Installation of Main PCA

**NOTE**

If you replace the Main PCA and the HDD at the same time you must perform ALL Service Calibrations (⇒ Page 5-3) and the EEROM Setup Service Utility (⇒ Page 4-24).



J Position	Connection	Connector Color	P Position	Connection	Connector Color
J1	Trailing Cable 3	white	P9	Power Supply	white
J2	Trailing Cable 2	white	P10	Paper Motor	white
J3	Trailing Cable 1	white	P12	Paper Motor Enc.	white
J5	ISS PCA Cable	black	P17	Booster Fan	yellow
J6	BootROM	-	P19	Vacuum Fan	yellow
J7	RAM	-	P23	Scan Motor	white
J8	RAM	-	P24	Front Panel	blue
J13	Media Sensor	white	P25	Lan Card	-
J15	Parallel Port	-	P26	Lan Card	-
			P27	Window & Pinch	white
			P29	SVS Door	white
			P30	Aerosol Fan	red

**NOTE**

When the Main PCA has been reinstalled or replaced, perform the following Service Utility procedure:

- Backup EEROM ⇒ Page 4-31.



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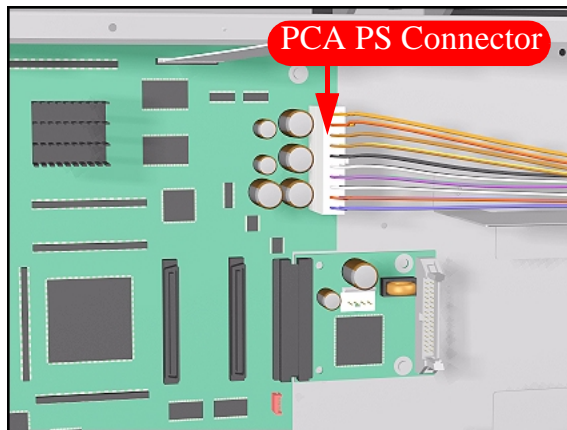
## Power Supply Unit (PSU)

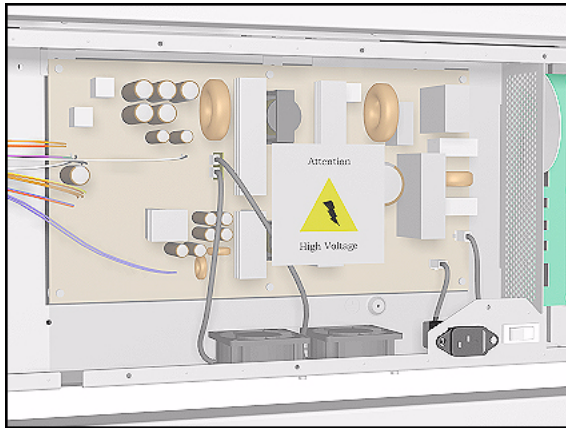
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

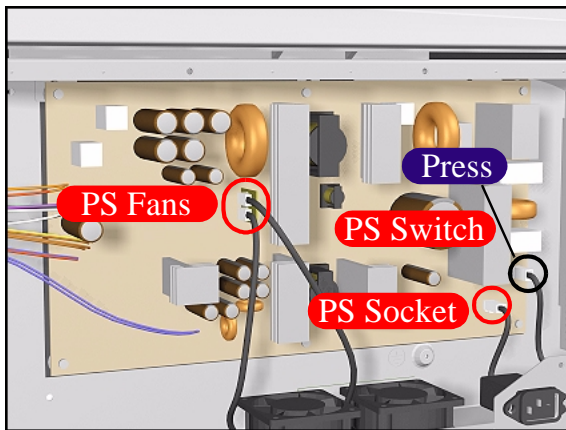
**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the LAN Card - Refer to Page 8-72.
2. Remove the Left Rear Cover - Refer to Page 8-15.
3. Remove the Right Rear Cover - Refer to Page 8-16.
4. Remove the Electronics Module Cover - Refer to Page 8-75.
5. Disconnect and remove the Hard Disk Drive for safety reasons - Refer to Page 8-70.
6. Disconnect the PCA Power Supply connector from the Main PCA.

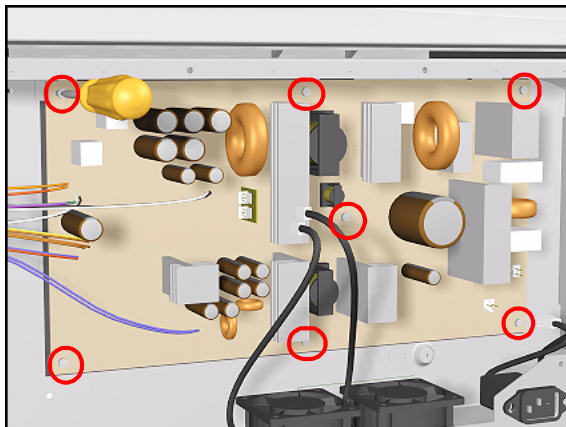




7. Remove the plastic protective cover from the Power Supply Unit.



8. Disconnect ALL Cables from the PSU (see Installation of PSU for connections).

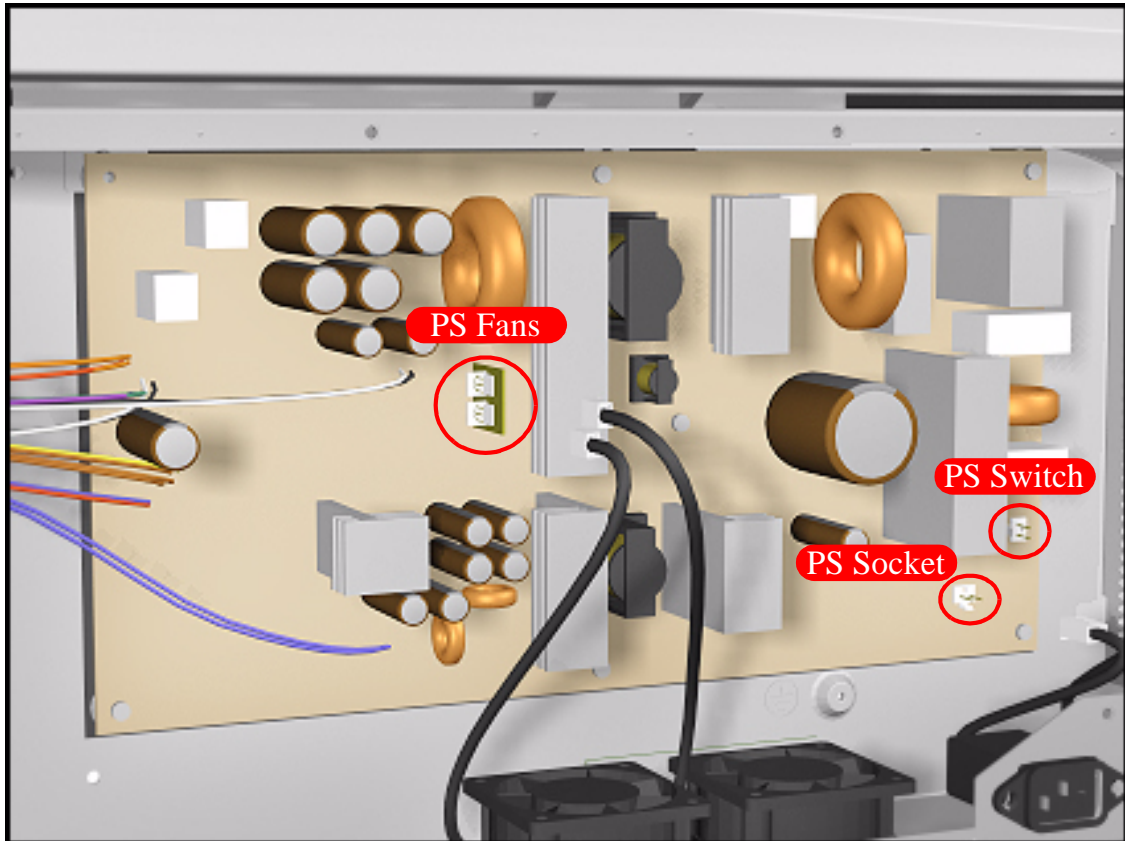


9. Remove 7 T-10 screws (**Type K**) and remove the PSU.

## Installation of the Power Supply Unit (PSU)

**WARNING** After installing the Power Supply Unit, remember to place the plastic protective cover over the unit.

**NOTE** The Power Supply Unit connections are illustrated below.



---

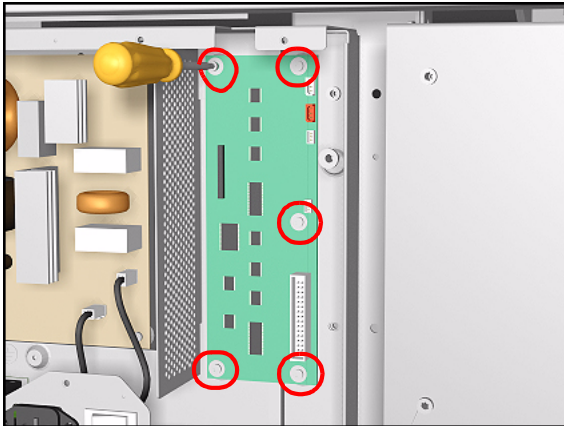
## Ink Supply Station (ISS) PCA

### Removal

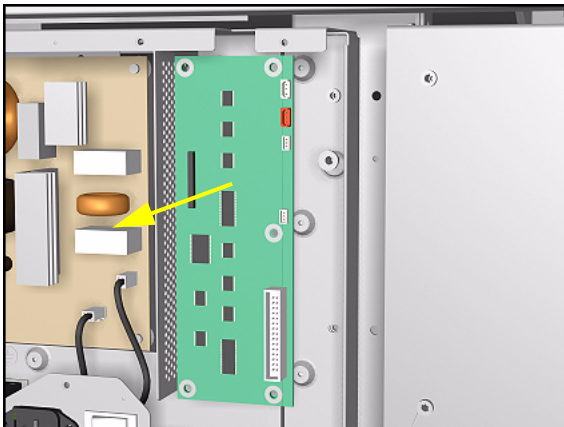
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the LAN Card - Refer to Page 8-72.
2. Remove the Left Rear Cover - Refer to Page 8-15
3. Remove the Right Rear Cover - Refer to Page 8-16.
4. Remove the Electronics Module Cover - Refer to Page 8-75.
5. Disconnect ALL Cables from the ISS PCA (see installation of ISS PCA for connections).
6. Remove 5 T-10 screws (**Type K**) from the ISS PCA.

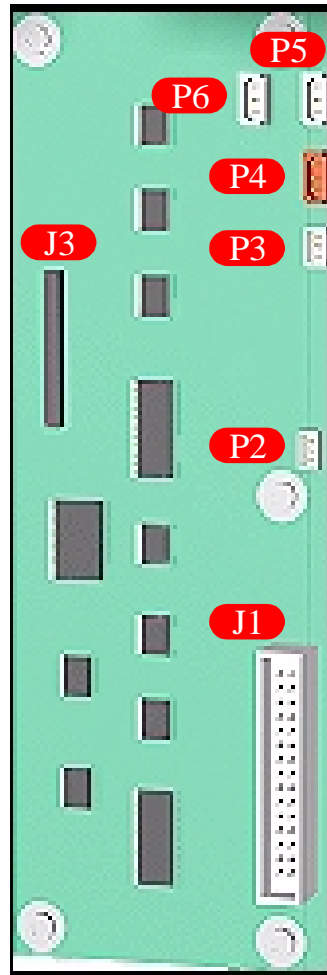


7. Remove the ISS PCA.



## Installation of the ISS PCA

**NOTE** The ISS PCA connections are illustrated below.



J Position	Connection	Connector Color	P Position	Connection	Connector Color
J1	ISS Cable	white	P2	Ink Leak Detector	white
J3	Main PCA	white	P3	APS Temperature	white
			P4	APS Valve	red
			P5	APS Pump	white
			P6	APS Pump (Spare)	white

## Ink Leak Detector

### Removal

---

**WARNING**

---

Switch off the Printer and remove the Power Cord.

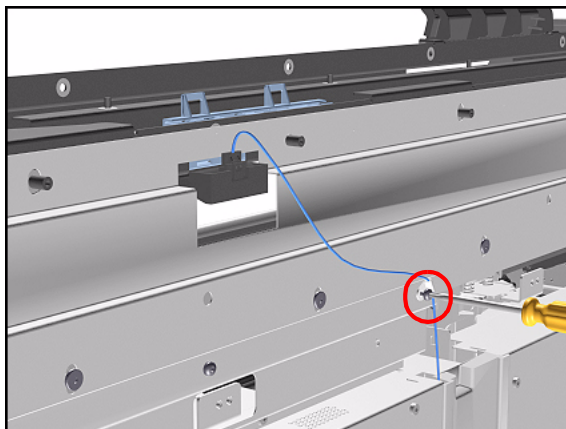
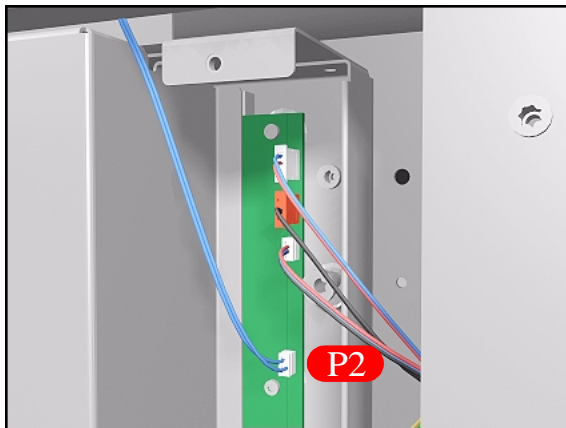
---

**NOTE**

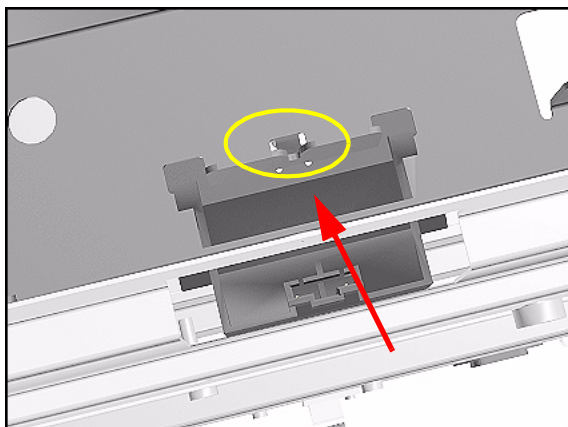
---

Refer to the table on Page 8-4 for information on screw types.

1. Remove the Left Rear Cover - Refer to Page 8-15.
2. Remove the Top Cover - Refer to Page 8-5.
3. Remove the Back Cover - Refer to Page 8-23.
4. Disconnect the Ink Leak Detector cable at position P2 from the ISS PCA.

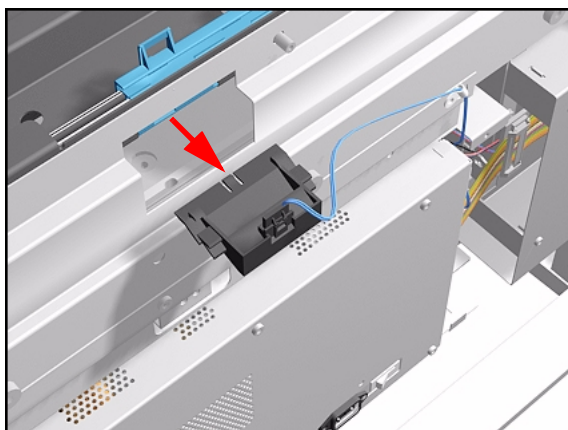


5. Remove one T-15 screw (**Type B**) to release the cable clip on the Top EMC cover.



6. Press the retaining clip on the Ink Leak Detector and release it.

**TIP** A screwdriver can be used to press the retaining clip down.



7. Remove the Ink Leak Detector from the Printer.

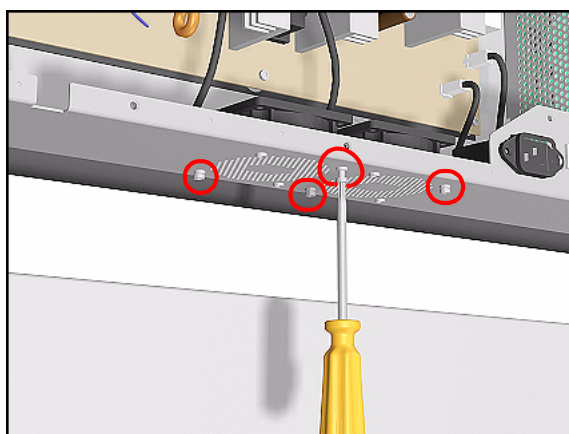
## Cooling Fans

### Removal

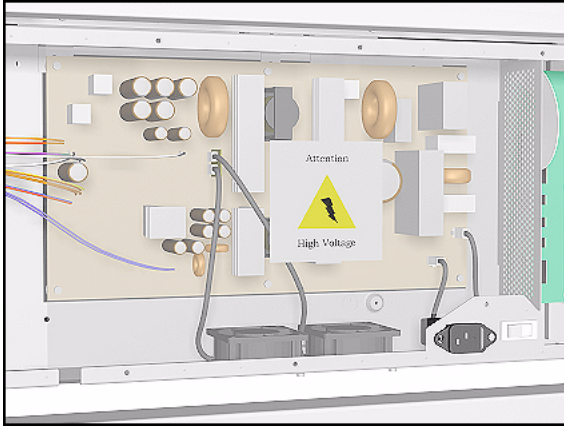
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

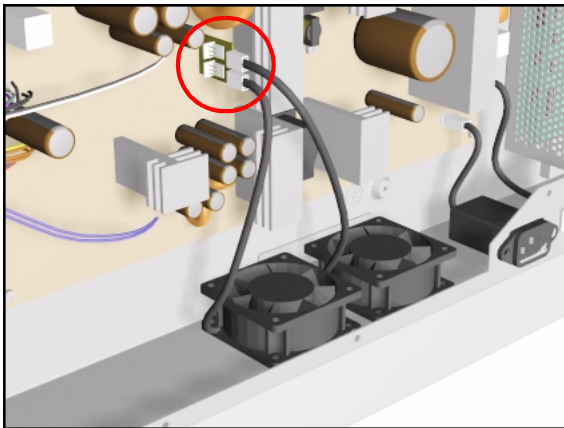
1. Remove the LAN Card - Refer to Page 8-72.
2. Remove the Left Rear Cover - Refer to Page 8-15.
3. Remove the Right Rear Cover - Refer to Page 8-16.
4. Remove the Electronics Module Cover - Refer to Page 8-75.
5. Disconnect and remove the Hard Disk Drive for safety reasons - Refer to Page 8-70.
6. Remove 2 screws for each Cooling Fan from underneath the Electronics Module.



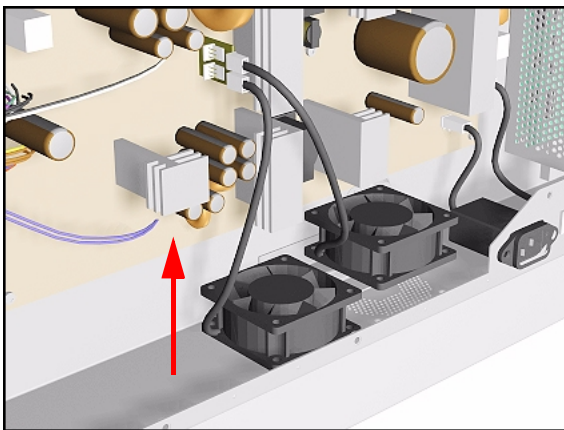




7. Remove the plastic Protective Cover from the Power Supply Unit.



8. Disconnect the Cooling Fan Cables from the Power Supply Unit.



9. Remove the Cooling Fans from the Printer.

---

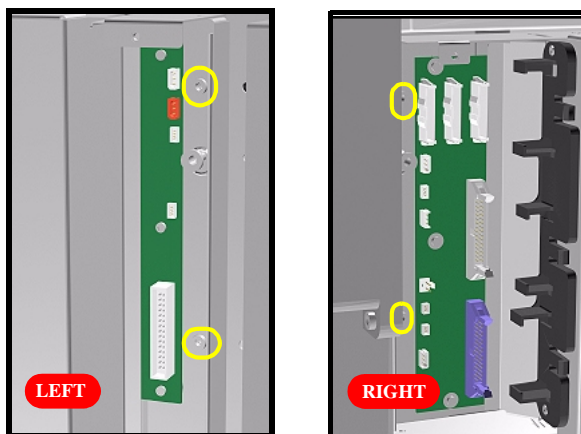
## Electronics Module (as one complete Assembly)

### Removal

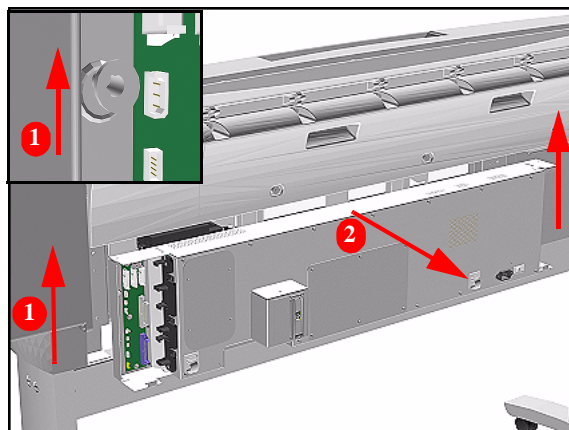
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the Left Rear Cover - Refer to Page 8-15.
2. Remove the Right Rear Cover - Refer to Page 8-16.
3. Disconnect ALL Cables from the Main PCA (Right Rear Cover) and ISS PCA (Left Rear Cover) and remove the Ferrites from the left side.
4. Remove 2 T-15 screws (**Type B**) from the both sides of the Electronics Module.



5. Lift the Electronics Module up (to clear it from the shoulder screws) and remove from the Printer.



---

## Pinch-Wheels

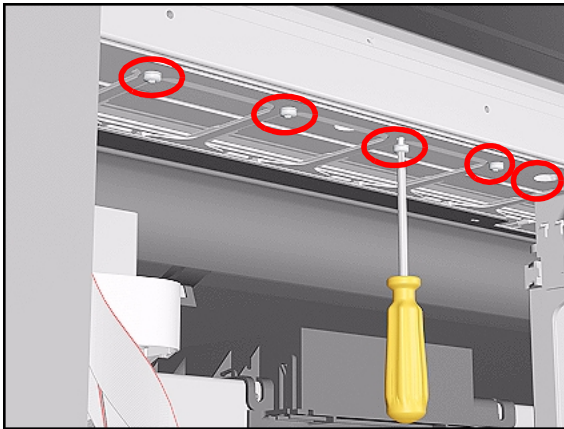
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

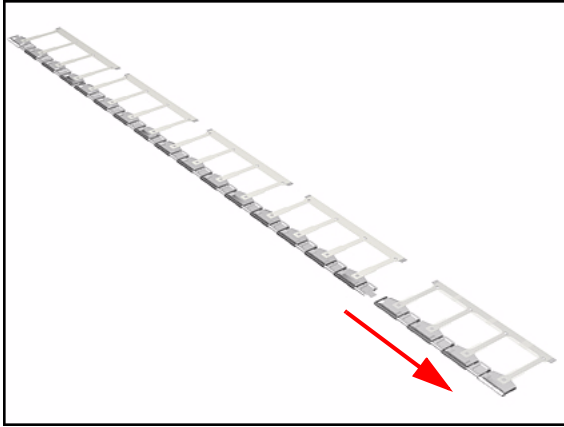
**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the Top Cover - Refer to Page 8-5.
2. Remove the Back Cover - Refer to Page 8-23.
3. Remove the Electronics Module - Refer to Page 8-90.
4. Remove EMC Covers as one assembly - Refer to Page 8-32.

**NOTE** For the next steps place the Media Lever in the UP position.

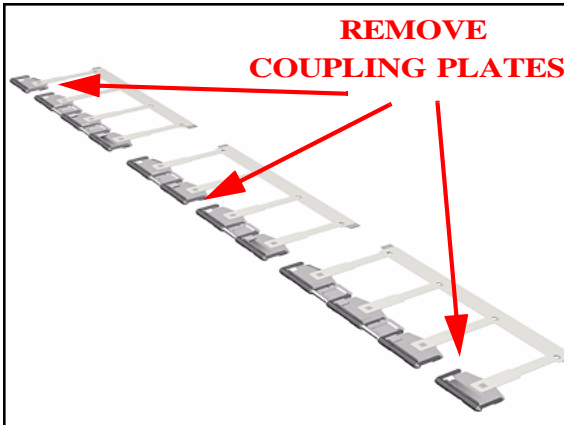


5. Remove the following T-20 screws (Type Q):
  - For the 60" Model remove 4 screws from each group of 4 Pinch-Wheels (5 groups in total).
  - For the 42" Model remove 4 screws from each group of 4 Pinch-Wheels (3 groups in total) and 2 screws from the one group with 2 Pinch-Wheels.

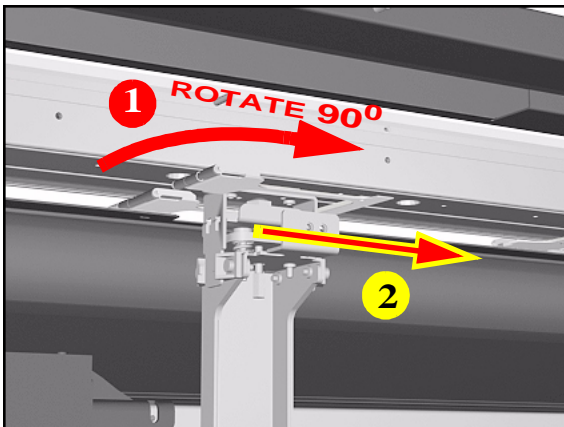


6. First remove lateral Pinch-Wheels with their Coupling Plates.

**NOTE** For Pinch-Wheel groups installed around the Mount Brackets do the following:



7. From the front of the Printer, remove the Coupling Plate corresponding to the position of the Mount Bracket.
  - 3 Mount Brackets in the 60" Model.
  - 1 Mount Bracket in the 42" Model.



8. From the rear of the Printer, rotate the group (90 degrees) and pull it through the gap left by the Coupling Plate.

### Installation of Pinch-Wheels

**NOTE** During installation, make sure you install the White Pinch-Wheels at each end of the Printer axis.

## Pinch-Wheel Cam

### Removal

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**WARNING**

---

Switch off the Printer and remove the Power Cord.

---

**NOTE**

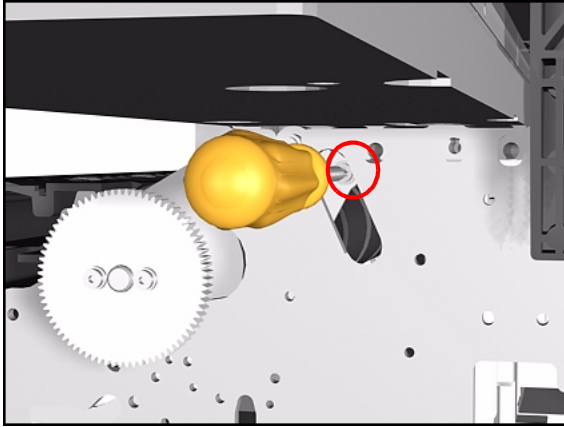
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Refer to the table on Page 8-4 for information on screw types.

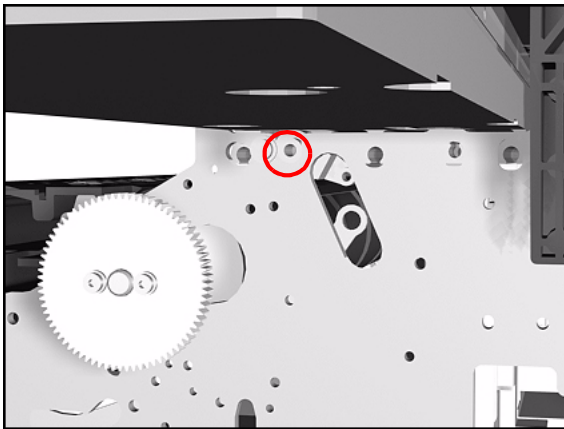
1. Remove Right Rear Cover - Refer to Page 8-16.
2. Remove Left Rear Cover - Refer to Page 8-15.
3. Remove the Deflectors - Refer to Page 8-112.
4. Remove the Left Hand Cover - Refer to Page 8-6.
5. Remove the Right Hand Cover - Refer to Page 8-10.
6. Remove the Left Hand Trim - Refer to Page 8-22.
7. Remove the Right Hand Trim - Refer to Page 8-20.
8. Remove the Media Lever Assembly - Refer to Page 8-18.
9. Remove the ISS - Refer to Page 8-60.
10. Remove the Service Station - Refer to Page 8-65.
11. Remove the Vacuum Fan - Refer to Page 8-96.
12. Remove the Electronics Module - Refer to Page 8-90.
13. Remove the Booster Fan - Refer to Page 8-101.
14. Remove the Media Sensor - Refer to Page 8-102.
15. Remove the Entry Roller - Refer to Page 8-104.

**16.** Remove the Center Guide - Refer to Page 8-105.

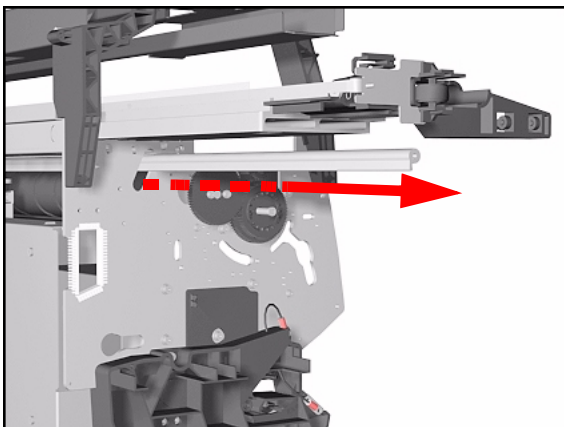
**17.** Remove the Pinch-Wheels - Refer to Page 8-90.



**18.** Through the slot in the right Sideplate, remove the T-15 screw (**Type H**) retaining the cam lever arm.

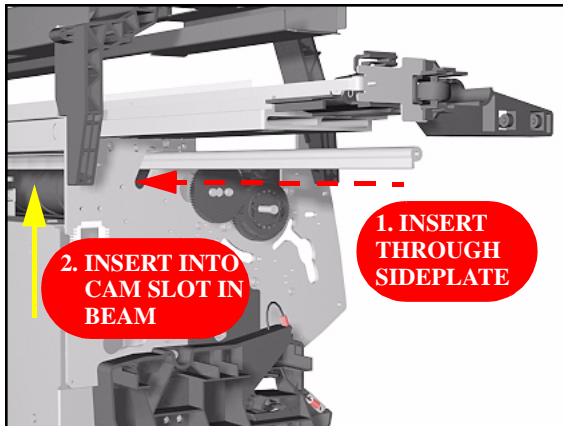


**19.** Remove the T-15 Cam screw (**Type F**).

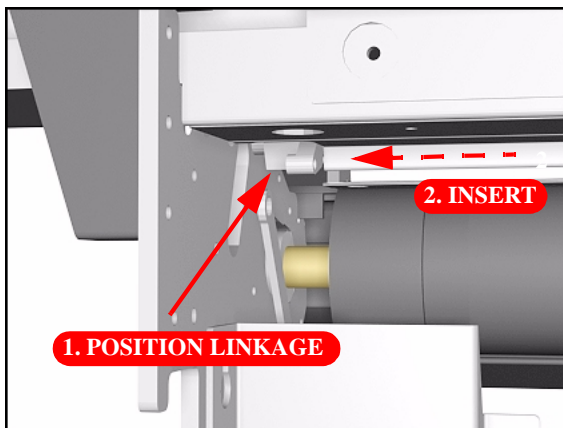


**20.** Remove the Cam by sliding it through the slot in the left Sideplate.

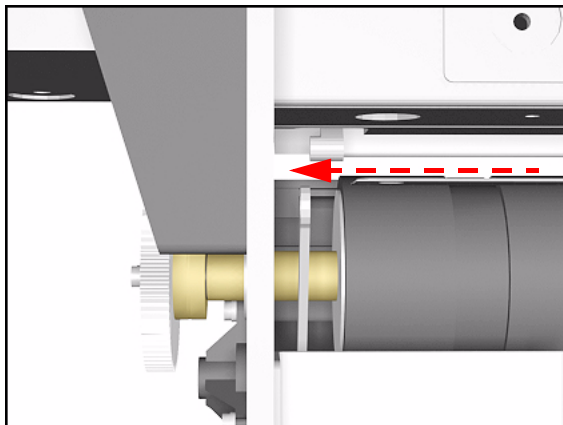
## Installation of Cam



1. To install the Cam slide it through the left Sideplate and place it in the cam slot in the beam.



2. Hold the Cam Lever Linkage over its slot in the Sideplate and insert the Cam into it.



3. Push the Cam with the Cam Lever Linkage into the Sideplate.

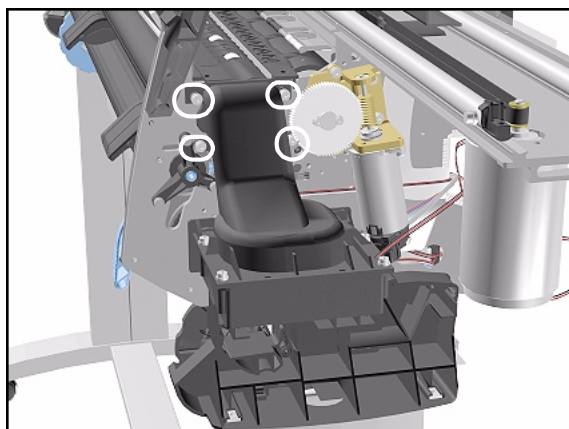
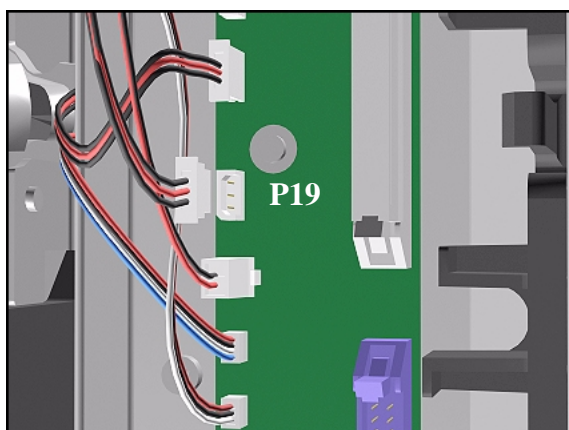
## Vacuum Fan

### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

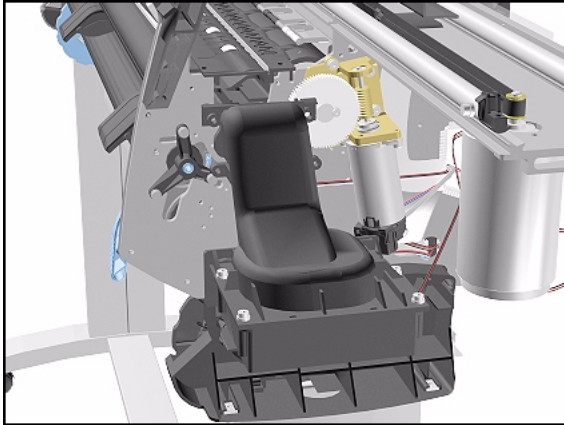
1. Remove the Right Rear Cover - Refer to Page 8-16.
2. Remove the Right Hand Cover - Refer to Page 8-10.
3. Remove the Service Station Assembly - Refer to Page 8-65.
4. Disconnect the Vacuum Fan Cable at position P19 on the Main PCA.



5. Remove the 4 T-20 screws (**Type L**) that secure the Vacuum Fan to the Sideplate.



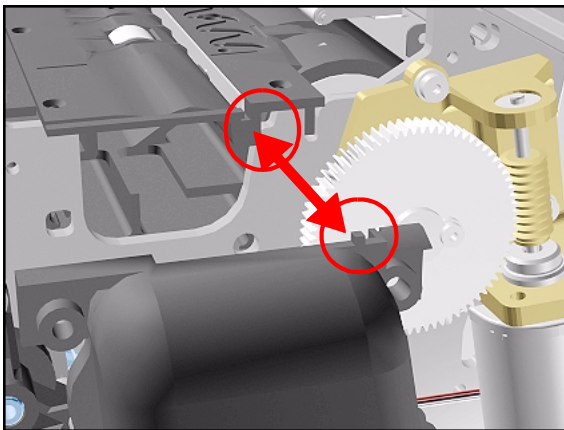
6. Remove the Vacuum Fan.



### Installation of Vacuum Fan

**WARNING**

When installing the Vacuum Fan make sure that it fits tightly to the Guides in the Sideplate.



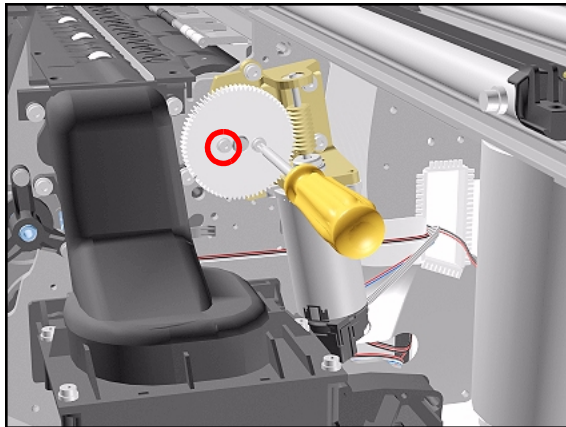
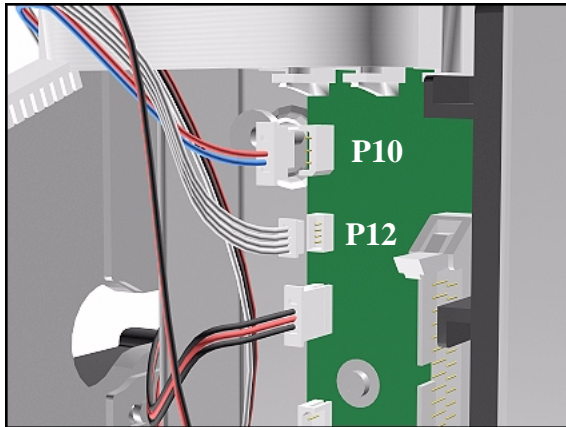
## Paper-Axis Motor Assembly

### Removal

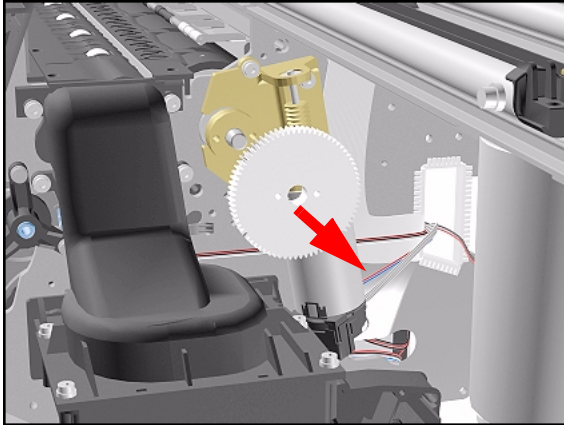
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

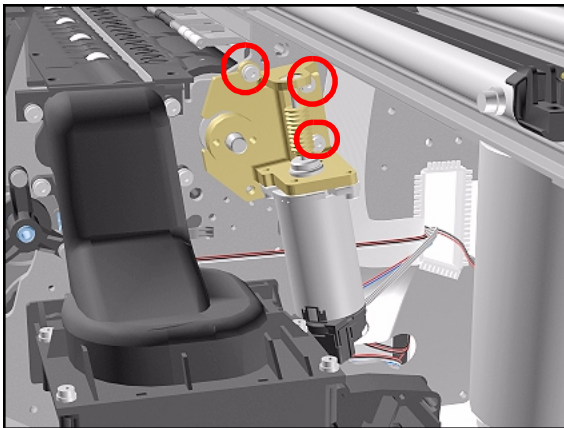
1. Remove the Right Rear Cover - Refer to Page 8-16.
2. Remove the Right Hand Cover - Refer to Page 8-10.
3. Remove the Service Station Assembly - Refer to Page 8-65.
4. Disconnect the Paper-Axis Motor Cable at P10 and the Encoder Cable at P12 from the Main PCA (and NOT from Motor).



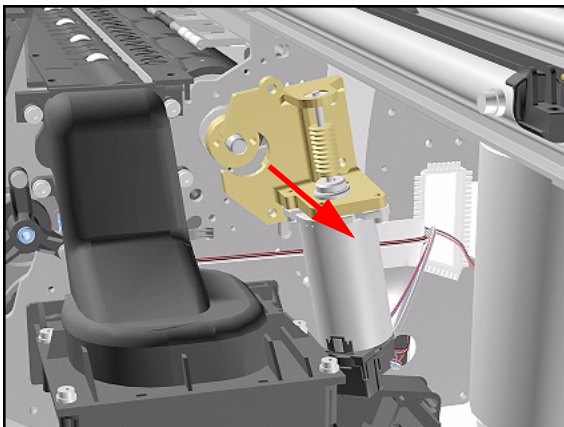
5. Remove the 2 T-20 screws (**Type A**) that secure the Helical Gear to the right-hand side of the Drive Roller.



6. Remove the Helical Gear.



7. Remove the 3 T-20 screws (**Type L**) that secure the Paper-Axis Motor Assembly to the Sideplate.



8. Remove the Paper-Axis Motor Assembly.

**NOTE** When you replace the Paper-Axis Motor Assembly you must perform the following Service Calibrations:

- Service Station ⇒ Page 5-11.
- Accuracy ⇒ Page 5-14.
- Printhead Alignment ⇒ User's Guide.

## **Installation of Paper-Axis Motor Assembly**

**WARNING** When reinstalling parts make sure that they fit tightly and that screws are tight.

**NOTE** Apply grease to the Helical Gear.

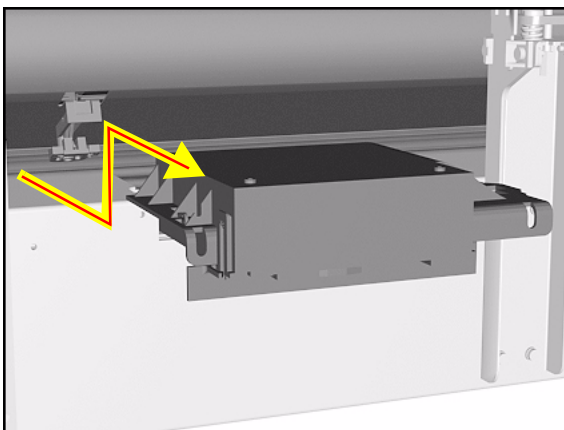
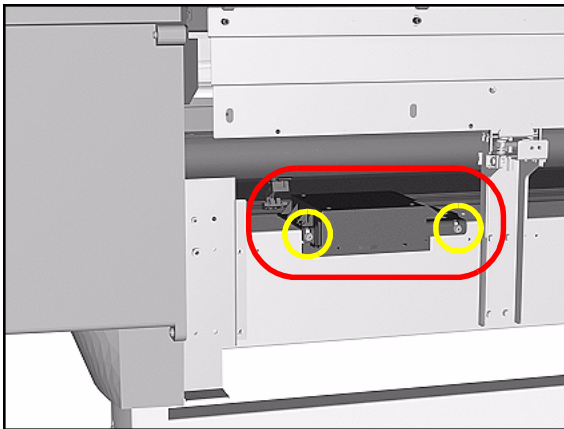
## Booster Fan

### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove Right Rear Cover - Refer to Page 8-16.
2. Remove Left Rear Cover - Refer to Page 8-15.
3. Remove the Electronics Module - Refer to Page 8-90.
4. Remove the Lower Right EMC Cover - Refer to Page 8-32.
5. Remove the 2 T-20 screws (**Type L**) from the Booster Fan.



6. To remove the Booster Fan, first slide it out, then lift and pull out.

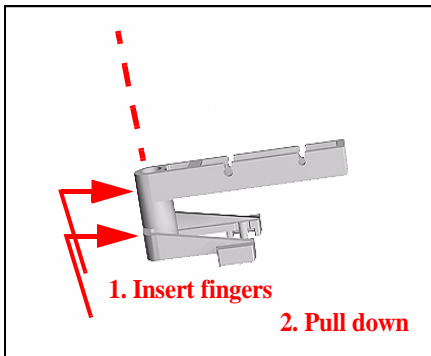
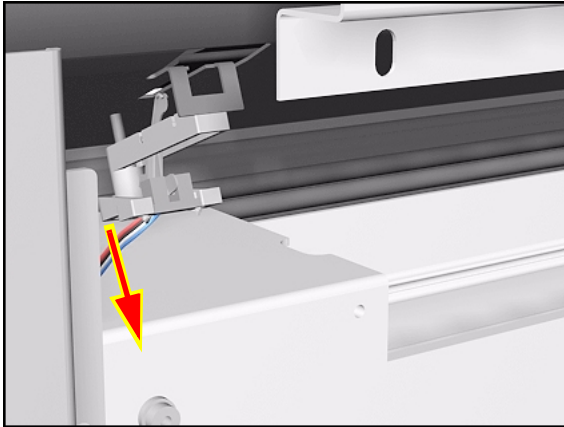
## Media Sensor

### Removal

**WARNING**

**Switch off the Printer and remove the Power Cord.**

1. Remove the Top Cover - Refer to Page 8-5.
2. Remove the Right Rear Cover - Refer to Page 8-16.
3. Remove the Left Rear Cover - Refer to Page 8-15.
4. Remove the Back Cover - Refer to Page 8-23.
5. Remove the Electronics Module - Refer to Page 8-90.
6. Remove the Lower Right EMC Cover - Refer to Page 8-32.
7. Remove the Booster Fan for better access - Refer to Page 8-101.
8. Reach under the Center Guide and carefully remove the Media Sensor mount by pulling it down gently (as shown below).



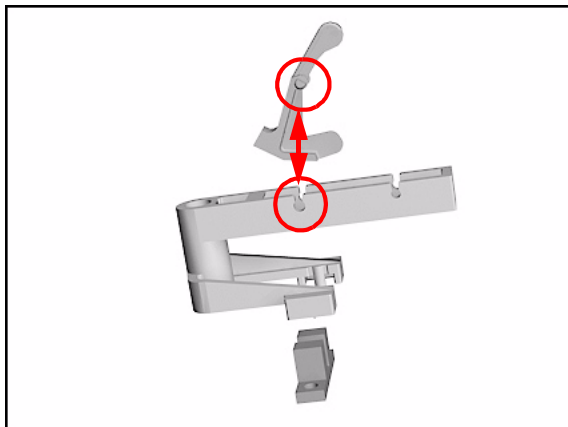
**TIP**

**Pull down the Media Sensor by inserting a finger on each side of the sensor and pulling down.**

## Installation of Media Sensor

**WARNING** When installing the Media Sensor, insert the moving part as shown in the diagram.

---



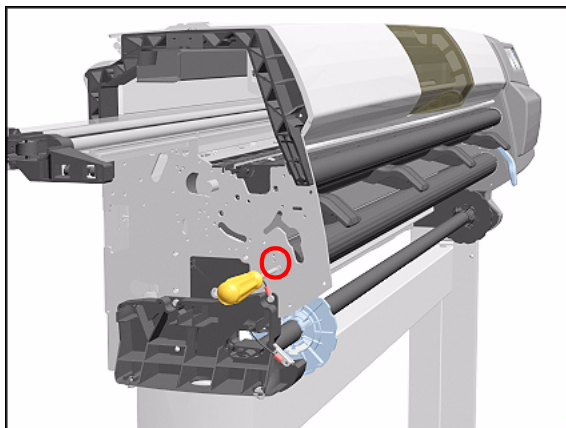
## Entry Roller

### Removal

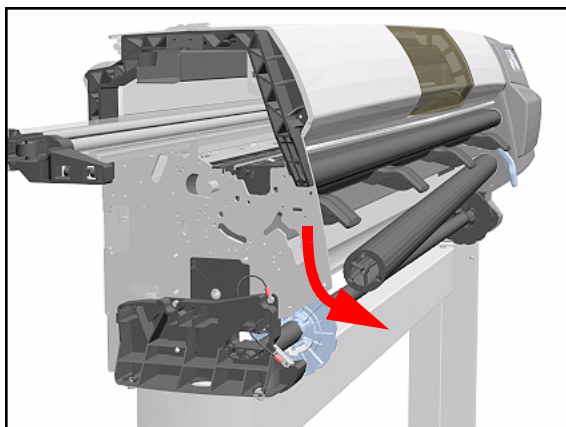
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove Left Hand Trim - Refer to Page 8-22.
2. Remove the Left Hand Cover - Refer to Page 8-6.
3. Remove Left Rear Cover - Refer to Page 8-15.
4. Remove the ISS - Refer to Page 8-60.
5. Remove one T-15 screw (**Type J**) that secures the Entry Roller to the left Sideplate.



6. Pull out the left side of the Entry Roller first and then remove completely.





## Center Guide Assembly

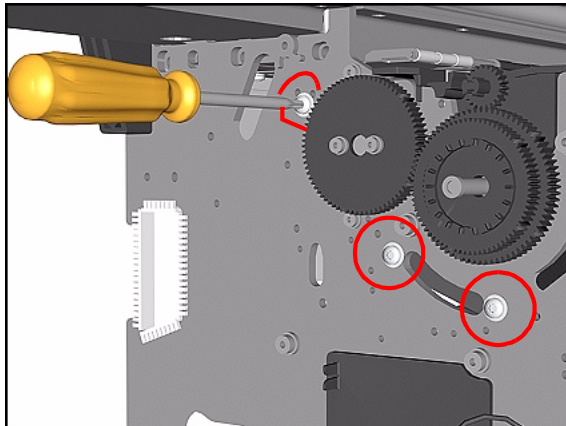
### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

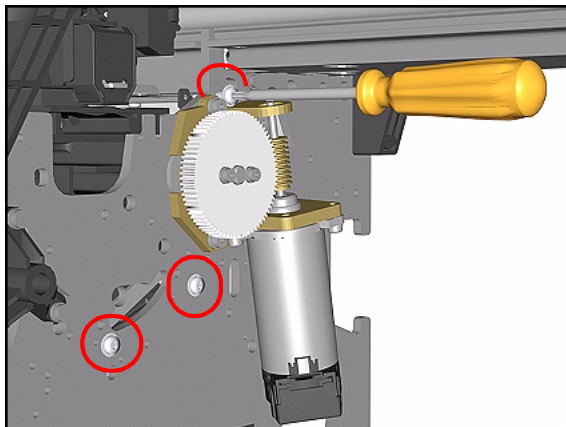
**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the Top Cover - Refer to Page 8-5.
2. Remove the Back Cover - Refer to Page 8-23.
3. Remove the Lower Right EMC Cover - Refer to Page 8-32.
4. Remove Right Rear Cover - Refer to Page 8-16.
5. Remove Left Rear Cover - Refer to Page 8-15.
6. Remove the Deflectors - Refer to Page 8-112.
7. Remove the Left Hand Cover - Refer to Page 8-6.
8. Remove the Right Hand Cover - Refer to Page 8-10.
9. Remove the Left Hand Trim - Refer to Page 8-22.
10. Remove the Right Hand Trim - Refer to Page 8-20.
11. Remove the Media Lever Assembly - Refer to Page 8-18.
12. Remove the ISS - Refer to Page 8-60.
13. Remove the Service Station - Refer to Page 8-65.
14. Remove the Vacuum Fan - Refer to Page 8-96.
15. Remove the Electronics Module - Refer to Page 8-90.

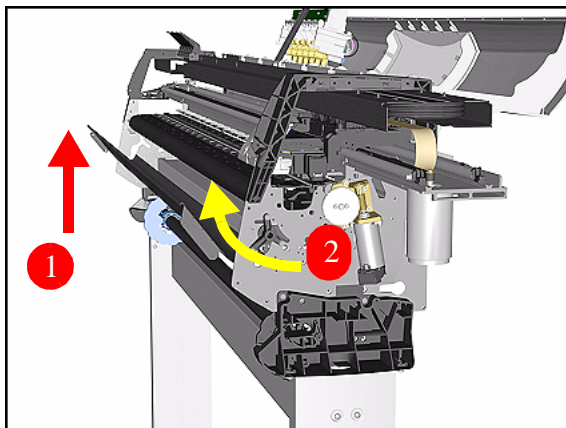
16. Remove the Booster Fan - Refer to Page 8-101.
17. Remove the Media Sensor - Refer to Page 8-102.
18. Remove the Entry Roller - Refer to Page 8-104.
19. Remove 3 T-15 screws (**Type J**) that secure the Center Guide to the left Sideplate.



20. Remove 1 T-15 screw (**Type J**) and 2 T-20 screws (**Type T**) that secure the Center Guide to the right Sideplate.



21. Remove the Center Guide as follows:
  - Lift it from the front to release it.
  - Pull it out in a rotating movement.



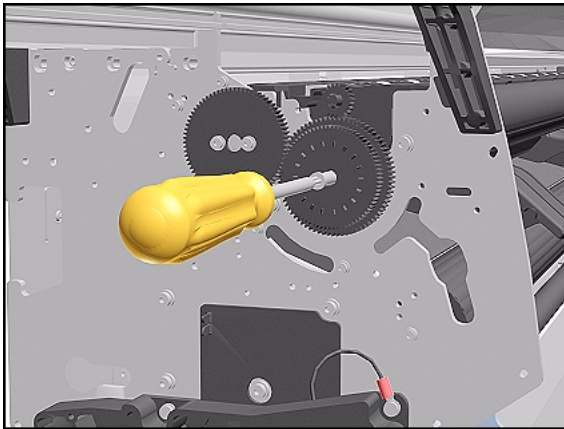
## Drive Roller Gear

### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

1. Remove the Left Hand Cover - Refer to Page 8-6.
2. Remove the Left Rear Cover - Refer to Page 8-15.
3. Remove the ISS - Refer to Page 8-60.
4. Remove 1 T-25 screw (**Type S**) from the Drive Roller Gear



5. Remove the Drive Roller Gear.

### Installation of Gear

**WARNING** When installing the Drive Roller Gear make sure the screw is fully tightened.

## Front Platen Assembly

### Removal

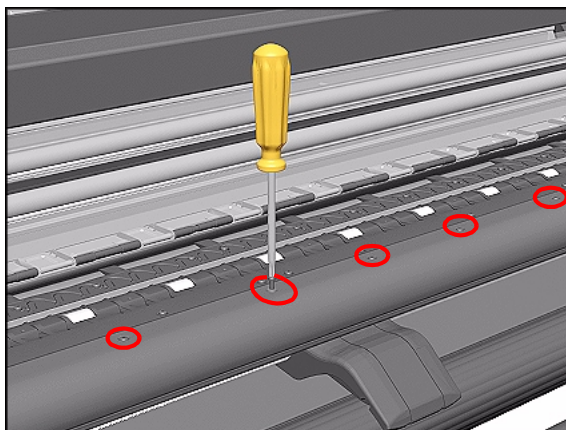
**WARNING** Switch off the Printer and remove the Power Cord.

**NOTE** Refer to the table on Page 8-4 for information on screw types.

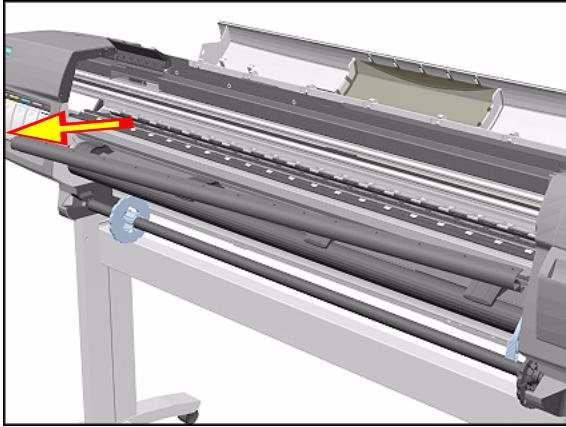
1. Remove the Left Hand Trim - Refer to Page 8-22.
2. Open the Top Cover.



**NOTE** Make sure the Carriage is not in the print Platen area.



3. Remove the following screws (**Type R**) from the Front Platen Assembly:
  - 15 T-10 screws in the 60" Model.
  - 11 T-10 screws in the 42" Model.



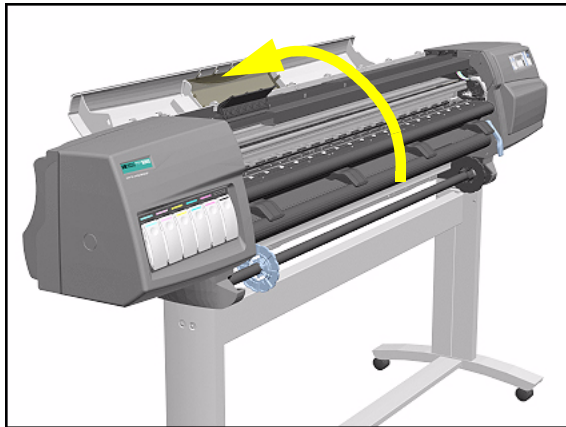
4. Remove the Platen starting from the left side.

## Center Platen Assembly

### Removal

**WARNING** Switch off the Printer and remove the Power Cord.

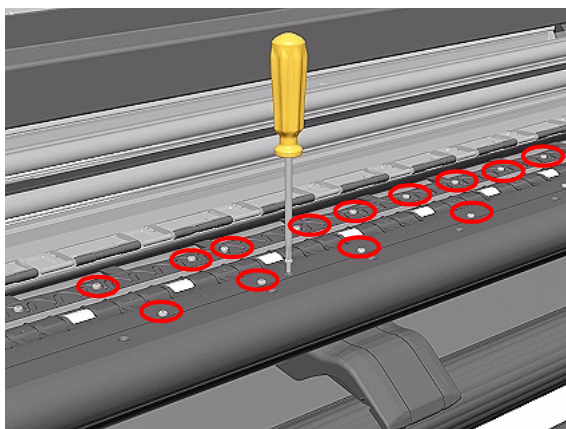
**NOTE** Refer to the table on Page 8-4 for information on screw types.



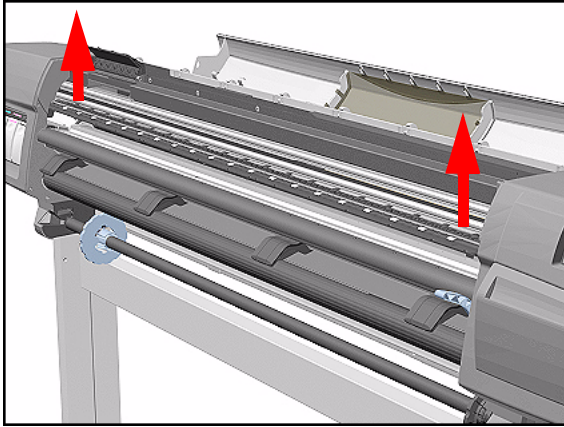
1. Open the Top Cover.

**NOTE** Make sure the Carriage is not in the print Platen area.

**NOTE** Make sure the Media Lever is in the UP position before removing the Platen Assembly.



2. Remove the following screws (Type R) from the Center Platen Assembly:
  - 39 T-10 screws in the 60" Model.
  - 35 T-10 screws in the 42" Model.



3. Remove the complete Center Platen Assembly (includes the Overdrive Assembly and the Cutter guide).

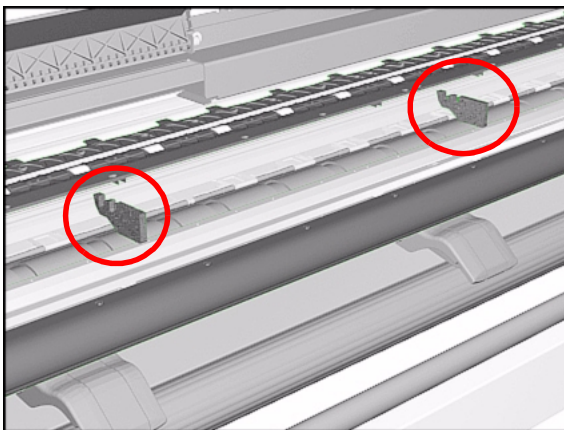
**NOTE** You must perform the following Calibrations when the Center Platen Assembly is replaced:

- Scan Axis Calibration ⇒ Page 5-7.
- Carriage Height Calibration ⇒ Page 5-18.

## Installation of the Center Platen Assembly

**NOTE** When installing the Center Platen, apply grease to the Overdrive Wheels.

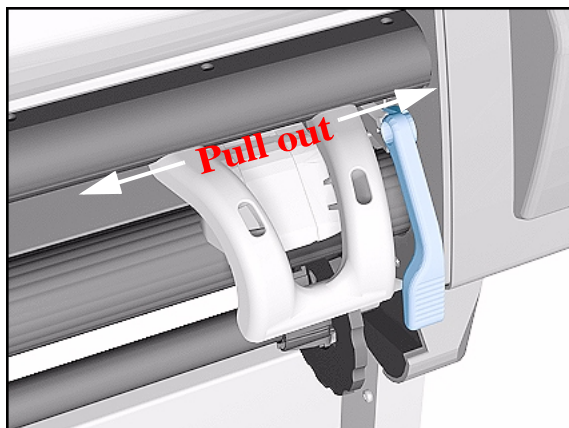
**WARNING** When installing the Center Platen Assembly, make sure the foam guides under the Platen are placed in their slots as shown below.



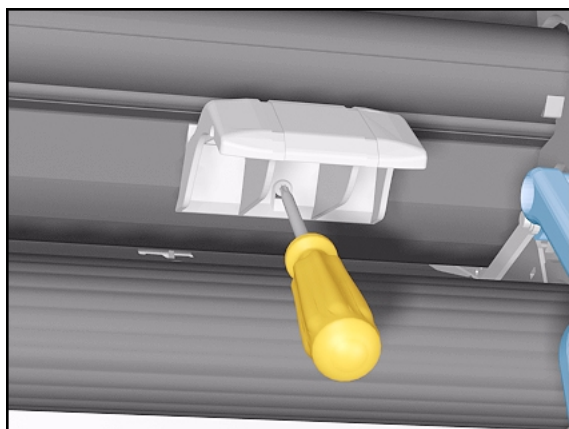
## Deflectors

### Removal

**NOTE** Refer to the table on Page 8-4 for information on screw types.



1. Unclip the Deflector Extension.



2. Remove 1 T-15 (**Type M**) screw from each Deflector.
  - 4 Deflectors in the 60" Model.
  - 3 Deflectors in the 42" Model.

3. Remove the Deflectors from the Printer.



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# Preventive Maintenance

# 9

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## Introduction

This chapter explains how to perform service preventive maintenance procedures when they are required, and routine maintenance procedures that are recommended when Service Engineers perform Removal and Installation procedures.

### Service Preventive Maintenance

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**NOTE**

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**Maintenance information can be obtained from Printer Setup/Utilities/Service Configuration Print.**

As the frequency of service maintenance depends on how the Printer is used, there are no specific preventive maintenance intervals. For Service Maintenance purposes, Printer usage is defined by the number of cycles performed by the following components:

- Carriage - movement and flex circuit Printhead insertions.
- Tubes - movement and Tubes septum Printhead insertions.

The number of cycles performed by a part depends on the print mode and the total length of prints performed by the Printer. For example, if Max. Quality print mode is used on Glossy media, the Printer performs 10 passes per inch, whereas Max. Speed on Coated media only requires 1 pass per inch.

There are two different EEROM counters for the number of Carriage cycles and Tubes cycles. For information on Carriage and Tubes usage limits see *Warning/Stop Triggers* on Page 9-3.

There is also an EEROM counter for the number of Printhead insertions in the Carriage. If there are Printhead insertion problems, or Ink Supplies Error Codes occur frequently (see Page 3-12), the Service Configuration Print (available in Printer Setup/Utilities/Test Prints), indicates usage limits to see whether excessive wear is the likely cause of the problem. Printhead insertion limits are:

- 600 Carriage flex circuit insertions.
- 350 Tubes septum insertions.

There are no warning triggers when the Printhead insertion limits are reached.

## Warning/Stop Triggers

---

**NOTE**

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**If the Tubes System needs to be replaced, this can be performed by the User; it is delivered as a User Replaceable Kit.**

The Printer will advise the User when the Carriage and/or Tubes need to be replaced by displaying a Warning message. The Warning message is triggered by the following number of cycles:

- 6.5 million for the Carriage.
- 6.5 million for the Tubes.

The Warning message is followed by a digit **1**, **2** or **3**, indicating the type of maintenance required.

---

**NOTE**

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**Remember to perform the Reset Life Counters Service Utility (Refer to ⇒ Page 4-29), to set the usage cycles to zero for the worn parts replaced with parts from the Maintenance Kit. Service preventive maintenance messages will not disappear until the counter is reset for the part replaced.**

### **"Printer Maintenance Advised (X)"**

- **1** - Replace parts with the parts provided in the Maintenance Kit and replace the Dye Tubes System ⇒ Page 8-25.
- **2** - Replace parts with the parts provided in the Maintenance Kit and replace the UV Tubes System (currently not available).
- **3** - Replace parts with the parts provided in the Maintenance Kit.

### **"Ink Tube Maintenance Advised (X)"**

- **1** - Replace the Dye Tubes System ⇒ Page 8-25.
- **2** - Replace the UV Tubes System (currently not available).

If the Tubes reach 7 million cycles, they risk breakage. The Printer is stopped and the following message is displayed:

**"Ink Tube Maintenance Required Now"**

If the Tubes are not replaced the following message is displayed each time a job is sent to the Printer. To continue without replacing the Tubes, press **Enter**:

**"Have Ink Tube Replaced or Risk Printer Damage  
Contact HP**

**Press ENTER to continue"**

- Replace the Dye Tubes System ⇒ Page 8-25.

---

**WARNING**

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**If Printing is continued, the Tubes can break causing a significant ink spillage.**

Parts required for Service Maintenance of the 60" Model are:

- Maintenance Kit - Part Number C6095-60173.
- Dye Ink Tubes System - Part Number C6095-60186.

Parts required for Service Maintenance of the 42" Model are:

- Maintenance Kit - Part Number C6090-60081.
- Dye Ink Tubes System - Part Number C6090-60058.

Refer to Chapter 8, *Removal and Installation* of this Service Manual as a guide to replace the necessary parts.

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## Routine Maintenance

User's receive a User Maintenance Kit when they purchase the Printer. The Kit provides the User with all the tools and instructions required to perform routine maintenance procedures. This Kit consists of the following:

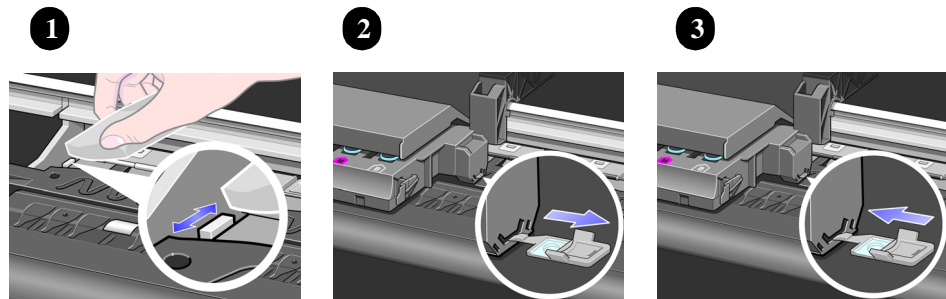
- Lens Maintenance Kit.
- Carriage Interconnect Wiper Kit.
- Roller Lubrification Kit.
- Slider Rods Lubrification Kit.
- Platen cleaning instructions.

Service Engineers should perform these procedures only when troubleshooting Printer problems.

## Lens Maintenance

To perform Lens Maintenance, select Printer Setup/Utilities/Lens Maintenance:

- 1 Clean the Mark Encoder.
- 2 Remove the Lens Cover and clean it.
- 3 Reinsert the Lens Cover or replace it.



## Carriage Interconnect Wiper

### NOTE

The Carriage Interconnect Wiper also comes with the Carriage.

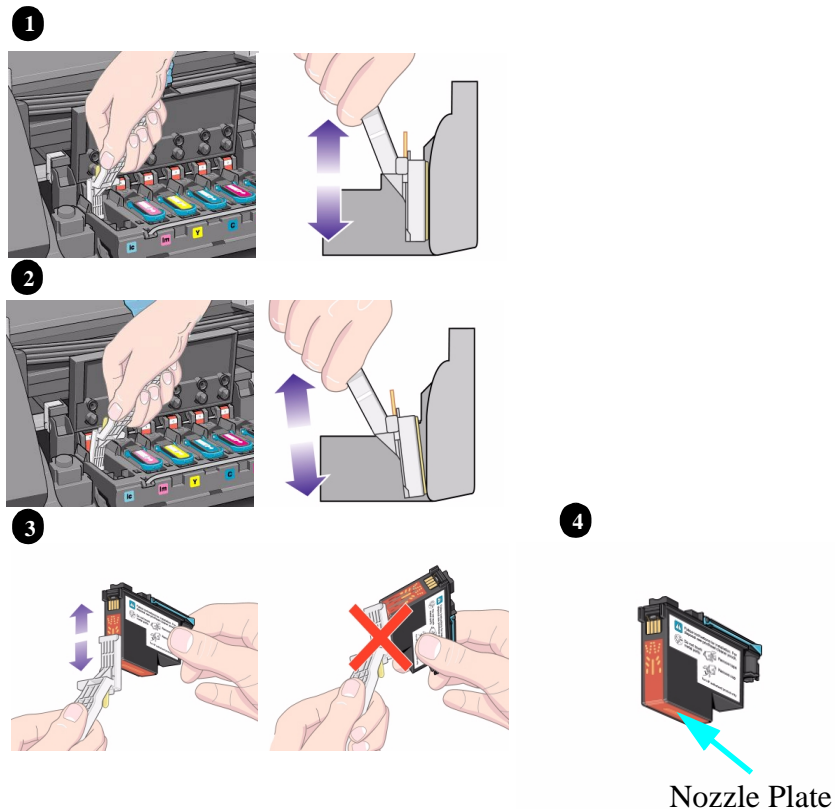
To clean the Printheads and Printhead connects select Replace Printheads in the Printhead menu to remove the Printheads from the Carriage Assembly:

- 1 Insert the Carriage Interconnect Wiper into the Printhead slot and move it up and down to clean the connections.
- 2 Change the angle of wipe as shown in 2 below, to properly clean all the connections.
- 3 Clean the Printhead connections on the Printhead.

### WARNING

Do not handle or attempt to clean the Nozzles on the bottom of the Printhead.

- 4 Carefully avoiding contact with the Nozzles, remove any dirt or fibers close to the edges of the Nozzle Plate using a clean wipe.



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## Roller Lubrication Kit

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**WARNING**

This procedure is for Service Engineers only. Users should perform the procedure described in the User's Guide.

---

**WARNING**

Prevent water or other liquids from running onto electrical components or circuits, or through openings in the module.

- 1 Open the window and apply 10 drops of oil to each hole in the Platen.

---

**NOTE**

Avoid oil spills and make sure you remove any excess oil.

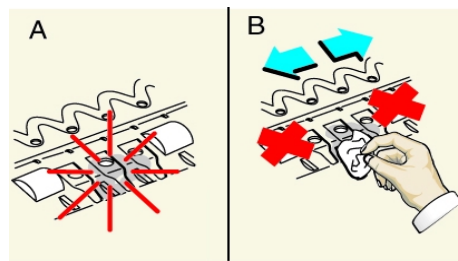
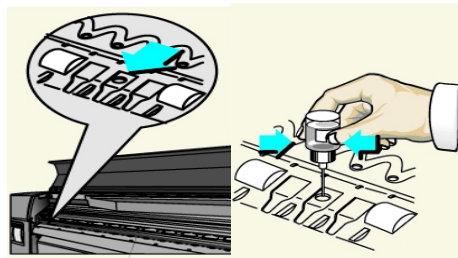
- 2 To clean the Roller Wheels, close the window and perform the Turn Drive Roller Utility (see Page 4-18). Use the cloth provided.

---

**WARNING**

Do not touch the rotating Wheels with your hands.

- 3 Press **Cancel** when you have completed the cleaning procedure.

**1****2**

## Slider Rods Lubrification Kit

In addition to the wearing of the Scan-Axis Motor, the friction in this area can increase due to the accumulation of ink particles and dust from the media or the atmosphere in the vicinity of the Slider Rods.

Scan-Axis maintenance requires the cleaning of the Slider Rods properly, and a lubricant to apply onto the Rods. Use the User's Slider Rods Lubrification Kit to do this.

---

### NOTE

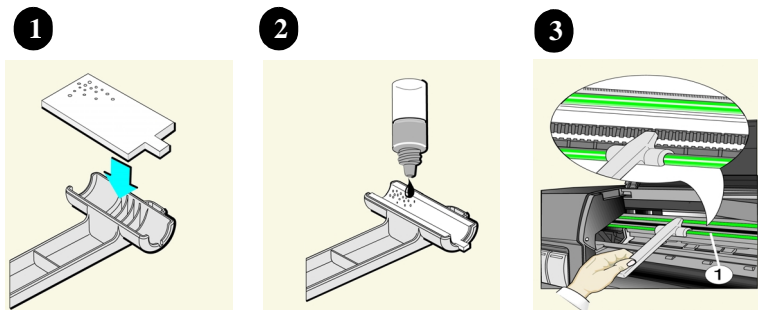
**The most important parts to keep clean are the upper and internal sides of the Rods.**

---

### NOTE

**Power Off the Printer and remove the Power Cord.**

- 1 Insert a new cleaning pad in the cleaning tool.
- 2 Apply 50 drops of the oil supplied to the pad.
- 3 Slide the cleaning tool along the Slider Rod until it is well oiled.
- 4 Replace the cleaning pad and repeat steps 2 and 3 for the second Slider Rod.





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## Cleaning the Platen

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**WARNING**

This procedure is for Service Engineers only. Users should perform the procedure described in the User's Guide.

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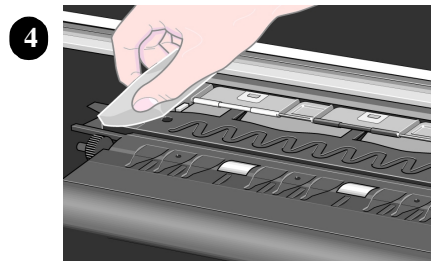
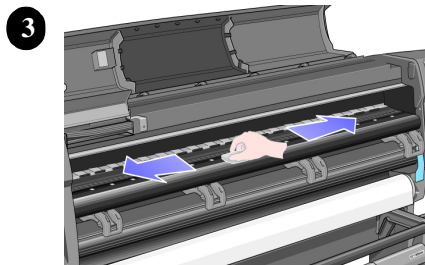
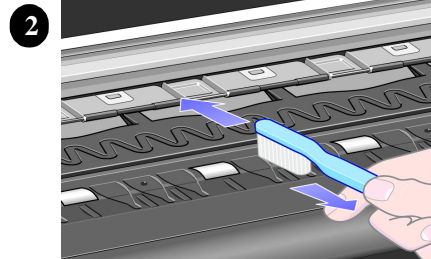
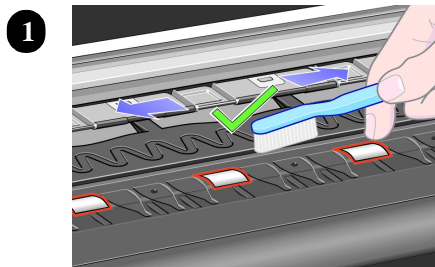
**WARNING**

Prevent water or other liquids from running onto electrical components or circuits, or through openings in the module.

---

To clean the Platen, perform the following procedure:

- 1 Open the window and using a dry brush, remove the ink deposits from the cutter groove.
- 2 With the dry brush remove the ink deposits from the Platen surface. Using a vacuum cleaner with a brush attachment will make this process easier.
- 3 Use a clean slightly damp cloth to wipe off the loosened ink deposits from the Platen. Do not wipe the Rollers with this cloth. Using a vacuum cleaner will make this part easier.
- 4 Perform the Turn Drive Roller Utility (see Page 4-18) to clean the exposed part of the Roller, while it is rotating, with another slightly damp cloth. It is important that the cloth is not too damp, otherwise you will leave too much moisture behind and the Roller will not work well when it is wet. Also make sure that you clean the Mark Encoder on the left side of the Driver Roller.
- 5 Press **Cancel** when you have completed the cleaning procedure.



## **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.

## **Noisy Carriage Bushing**

To prevent noisy movement of the Carriage, remove aluminum or dust particles from the bushing at the back of the Carriage, and from the Slider Rods along which the bushing moves. Use the User's Slider Rods Lubrication Kit to do this - see the User's Guide.

## **Belt Swelling**

To prevent new Belts from swelling incorrectly, keep them in their bags with desiccant until you need to install them.

## **General Cleaning**

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. Proper general cleaning should include the following:

- 1** Blow away dust accumulation with compressed air if available.
- 2** Clean the outer surface of the Printer with a damp sponge or cloth. Use a mild soap and water solution if necessary. Do not use abrasive cleaners.
- 3** Wipe the Printer dry with a soft lint-free cloth.

## System Maintenance

System Maintenance explains how to perform Service Firmware Upgrades and User Firmware Upgrades when they are required. You can check for newer releases of firmware at the Hewlett-Packard DesignJet Online Web site at <http://www.designjet-online.hp.com>.

When you download Firmware from this site, it is supplied with a utility called "DesignJet System Maintenance", to simplify the process of upgrading Printer Firmware and media profiles. For a detailed description of the Utility, refer to the System Maintenance Utility documentation.

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**NOTE**

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**To troubleshoot Firmware Upgrade problems, refer to the DesignJet System Maintenance Utility documentation or, for I/O Card configuration problems, the LAN Card documentation.**

### User Upgrade

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**WARNING**

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**The Firmware Upgrade process will delete all pending print jobs.**

---

**NOTE**

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**Ensure that the Printer is powered ON.**

**If you are running the utility from Windows or Mac OS, do the following:**

- 1 Download and save the installation application to the Computer hard disk and check that the size is exactly the same as the original file at the download site (RTL - 59MB and PS 74MB). If it is not the same repeat the download procedure.
- 2 Start the installation application. It will install all necessary files first. The application will then analyze each of the Printers configured for the computer and report on their current state.
- 3 If the Firmware for the Printer is out of date, the application will prompt you to update it. The update process sends a special file to the Printer. Once the update is complete, the Printer may restart.

The upgrade process may take several minutes.

---

**NOTE**

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**Do not Power OFF the Printer during this process.**

**If you want to upgrade your printer from another operating system (such as Unix), do the following:**

- 1 Download the "Unix or other operating systems" gzipped tar file containing the system software upgrade (the \*.fmw file).
- 2 Send the file directly to the Printer either via the parallel port or over the network to the printers IP address at port 9100.

## Service Upgrade

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### NOTE

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**The Service Upgrade procedure should only be used when the Printer's firmware is not functioning correctly.**

To upgrade the Printer in Service mode do the following:

- 1 Connect a Parallel Cable between a Computer and the Printer.
- 2 Configure the Printer for the Computer using the Windows Start/Settings/Printers menu.
- 1 Download and save the installation application to the Computer hard disk and check that the size is exactly the same as the original file at the download site (RTL - 59MB and PS 74MB). If it is not the same repeat the download procedure.
- 2 Start the installation application. It will install all necessary files first. The application will then analyze each of the Printers configured for the computer and report on their current state.

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### NOTE

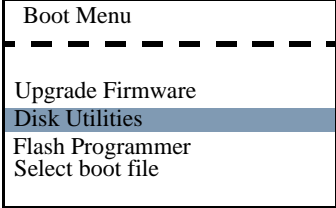
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**If the Utility does not locate the Printer, select File/New and enter the TCP/IP or IPX address and click Add (the IP address is reported on the Printer in I/O Setup/Card ID menu in the Printer Setup options).**

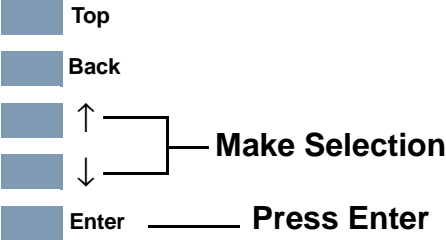
3 Power ON the Printer while pressing the **Top** key on the Front Panel.

The Printer will do the selftest, initialize the HDD and then the "Boot Menu" will be displayed.

4 Scroll to the "Disk Utilities" option using the **Up** and **Down** arrow keys and press **Enter**.

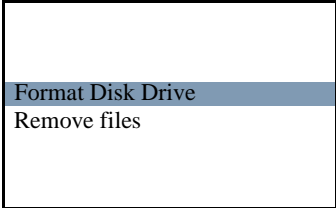


The screenshot shows a 'Boot Menu' with a dashed line at the top. The menu items are: Upgrade Firmware, Disk Utilities (highlighted with a blue bar), Flash Programmer, and Select boot file.

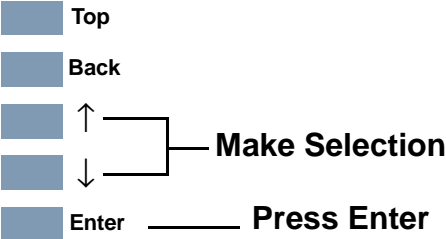


The diagram shows a vertical list of keys: Top, Back, an Up arrow, a Down arrow, and Enter. A bracket groups the Up and Down arrows, with a line pointing to the text 'Make Selection'. A line points from the Enter key to the text 'Press Enter'.

5 Scroll to the "Format Disk Drive" option using the **Up** and **Down** arrow keys and press **Enter** to confirm.

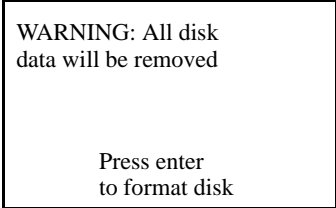


The screenshot shows a menu with two options: Format Disk Drive (highlighted with a blue bar) and Remove files.

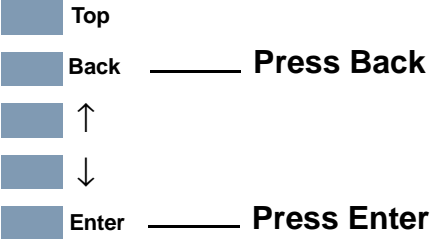


The diagram shows a vertical list of keys: Top, Back, an Up arrow, a Down arrow, and Enter. A bracket groups the Up and Down arrows, with a line pointing to the text 'Make Selection'. A line points from the Enter key to the text 'Press Enter'.

6 A warning message is displayed. Press **Enter** to format the Hard Disk or press **Back** to return to the previous menu. To format the Hard Disk will only take about 15 seconds. When the Hard Disk has been formatted, press **Back** to return to the "Boot Menu".

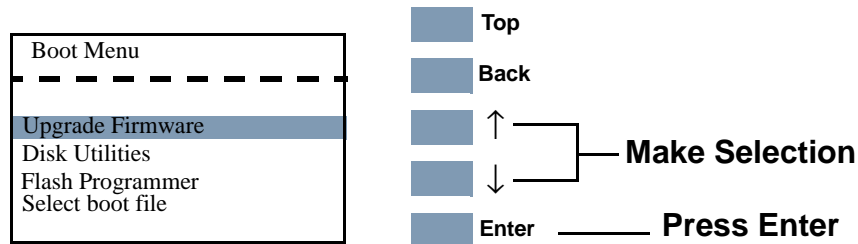


The screenshot shows a warning message: 'WARNING: All disk data will be removed' followed by 'Press enter to format disk'.



The diagram shows a vertical list of keys: Top, Back, an Up arrow, a Down arrow, and Enter. A line points from the Back key to the text 'Press Back'. A line points from the Enter key to the text 'Press Enter'.

- 7 Scroll to the "Upgrade Firmware" option using the **Up** and **Down** arrow keys and press **Enter**.



- 8 The following message is displayed.

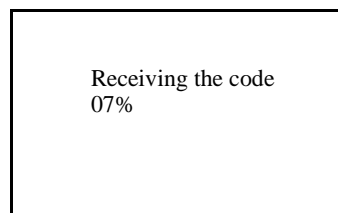


- 9 In the DesignJet System Maintenance Utility, select "Emergency" from the "System" menu.
- 10 A warning is displayed. Select **Next** to choose the file containing the Firmware or **Cancel** to return to the Main Screen.
- 11 Select the Firmware file and **Open** to start the upgrade.

**NOTE**

**Do NOT power off the Printer while receiving the code.**

When the Printer starts receiving the Firmware Upgrade file, the following message is displayed on the Front Panel, indicating the percentage progress of the download. On completion the Printer will reboot and start the initialization process.



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# Functional Overview

# 10

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## Introduction

This Chapter contains a simplified description of the HP DesignJet 5000/5000PS Printer.

In total there are 4 Models with the following Part Numbers:

<b>Model</b>	<b>HP DesignJet 5000</b>		<b>HP DesignJet 5000PS</b>	
<b>Size</b>	42"	60"	42"	60"
<b>Part No.</b>	C6090A	C6095A	C6091A	C6096A

## Electrical System

The electrical system of the Printer consists of six major blocks and their associated cabling:

- **Power Supply Unit:** Connected to the mains supply of whichever country this block provides 24V, 5V, 3.3V and -15V to the rest of the electrical system. It has a soft power switching feature allowing the firmware to control when power is removed from the system, and eliminates the need for high tension cables to the front panel.
- **Main Electronics:** This block contains the I/O, central processing units and controls most of the motors and sensors in the printer. The motors and sensors themselves are located throughout the printer and are connected to the main electronics via cables.
- **Carriage:** Connected to the Printheads, this block supplies power to them, as well as monitoring and protecting them from damage. It also has the ability to control warming and to perform continuity checking, as well as controlling the Line Sensor. The Carriage Encoder is also located in this block.
- **Ink Supply Station:** The Ink Supply Station is connected to the Ink Cartridge supplies, and controls air pressure (pump, sensor and valve), as well as monitoring ink levels and the supply latch sensor.
- **Service Station:** Contains the electronics needed to perform drop detection, a DC motor/encoder for capping, wiping and spitting and a stepper motor for priming.
- **Front Panel:** is the user interface. It consists of an LCD display, a key panel and four LEDs.



## Front Panel

The Front Panel is used to display messages, configure the Printer and send commands to the Printer via the keys.

The display is a 128 x 64 pixel graphic LCD and can display both text and graphics at the same time. The display has an LED backlight to improve its viewing characteristics. The contrast of the LCD can also be adjusted.

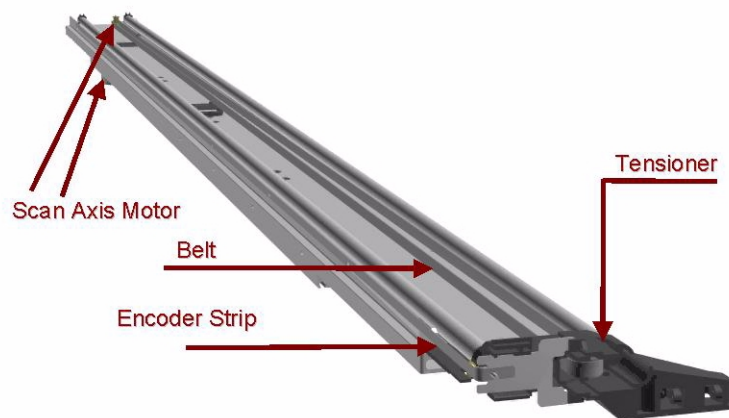
The navigation and command keys are distributed in three groups:

- 1 key at the bottom left corner is used to select the **Print Quality** (**Max. Quality**, **Productivity** or **Max. Speed**). The LEDs on top of the key show the selected option.
- 2 keys at the top left part are used to send commands directly to the printer: **Cancel** and **Load/Unload Media**.
- 5 keys to the right of the display are used to navigate through the menus: **Back**, **Enter**, **Up**, **Down** and **Menu**. (You can print a demo plot called Menu to get the complete menu tree).
- 1 key on the upper right corner is used to set the Printer to Standby mode.

## Scan Axis

The Scan Axis determines the Carriage's motion and its position with respect to the media. Its main parts are:

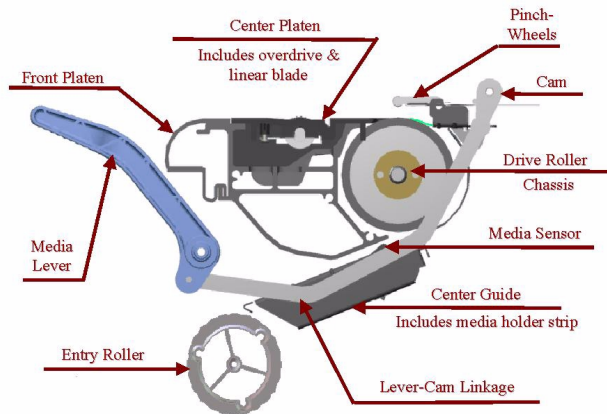
- Scan-Axis Motor - drives the Carriage using the Belt.
- Tensioner - maintains the tension of the Belt.
- Encoder Strip - determines the position of the Carriage using the LED Sensor on the Carriage PCA.



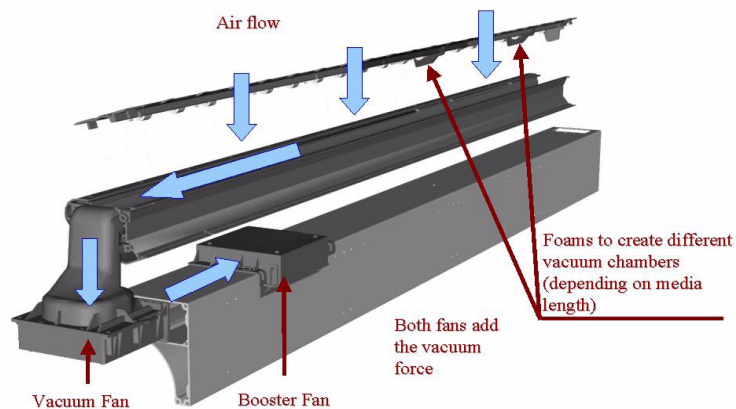
## Paper Axis

The Paper Axis determines the motion of the media through the printer. Its main parts are:

- Paper-Axis Motor - provides traction to the Overdrive.
- Center Platen and Overdrive - controls the printing path and expansion of the media.
- Pinch-wheels and Lever - “captures” the media and provides added friction.
- Center Guide and Entry Roller - feeds media through the paper path.
- Vacuum Fans - provides the required vacuum to maintain the media flat over the Center Platen.



The diagram below illustrates the air flow created by the Vacuum Fans.



## Ink Delivery System (IDS)

The Ink Delivery System (IDS) delivers ink under pressure from the large capacity off-axis Ink Cartridges via permanently connected tubes to the high throughput Printheads.

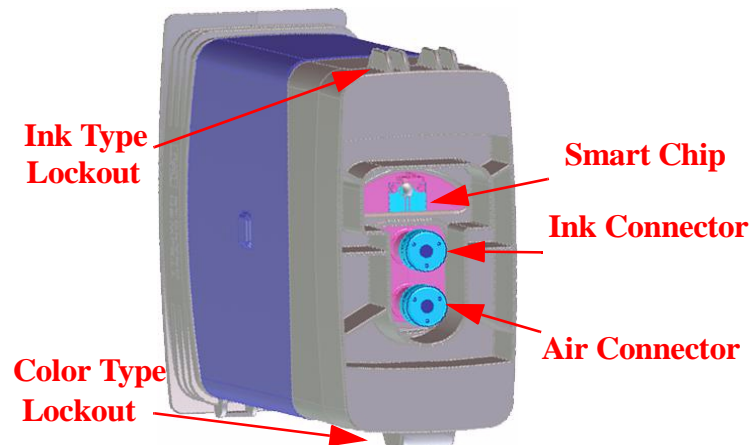
The IDS consists of six major subsystems:

- The Ink Cartridges.
- The Ink Supply Station (ISS).
- The Tubes System.
- The Printheads.
- The Air Pressurization System (APS).
- The Leak Detect System (LDS).

## Ink Cartridge

The HP No.81 Ink Cartridges for the HP DesignJet 5000 Series deliver 680 cc of ink. Residual ink in the Ink Cartridge is required to avoid starvation in the Ink System, that could cause damage to components. Ink Cartridges are designed with:

- Smart chip storing Ink Cartridge information.
- Ink connector to deliver ink to the Ink Tubes.
- Air connector that forces ink out of the Ink Cartridge.
- Ink Type lockouts that avoid Ink Cartridges with the wrong type of ink being installed in the Ink Supply Station.
- Color lockouts allowing insertion of only one color in a given slot.



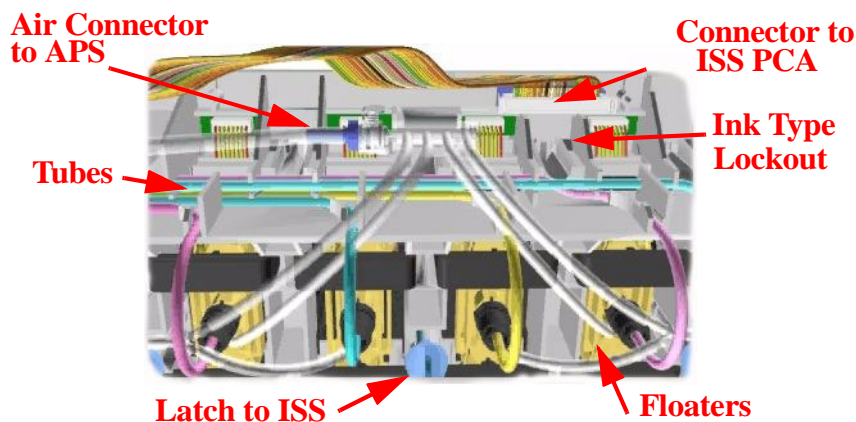
## Ink Supply Station (ISS)

In the Printer, the Ink Cartridges reside inside the Ink Supply Station (ISS). This module is situated on the left side of the machine.

The ISS includes the plastic housing that surrounds the supplies, the latch mechanism, and the fluid and electrical connections to the Ink Cartridges. It also supports the Air Pressure System (APS) that forms a replaceable module clipped under the ISS.

These are the key functions of the ISS:

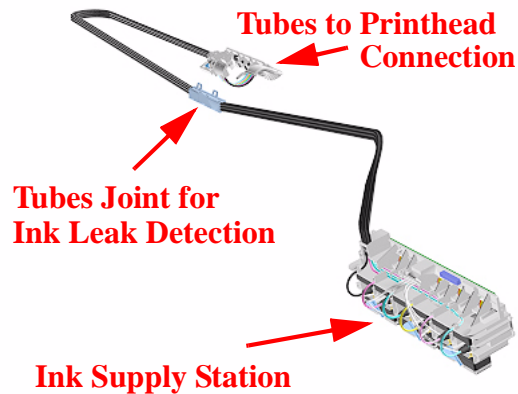
- Ink Cartridges support and location.
- Limit creep of cartridge side walls.
- Avoid incorrect insertion of colors and inks.
- Contain ink from leaks.
- Support the Air Pressurization System (APS).



## Tubes System

The Tubes System is the assembly that performs these functions:

- Conduct the ink pumped from the Ink Cartridge to the Printhead.
- Conduct the air from the pump into the Ink Cartridge.
- Keep the ink in good condition until it is delivered to the Printhead.
- Avoid leaks and minimize ink on customer.



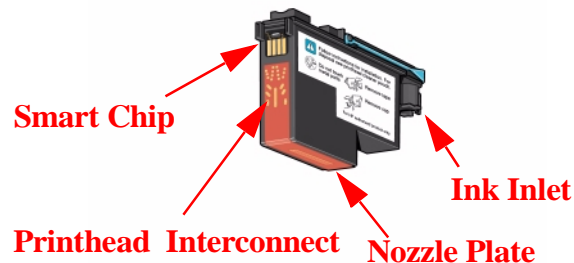
The Tubes move back and forth inside the volume defined by the Tube Guides. The Tube Guides are a pair of sheet metal parts with opposing U-shaped profiles.

The Tubes are threaded inside a protective extrusion called the Tube Carrier which consists of a base material that provides the structure of the part, and a resistant outer part protecting the structure.

## Printheads

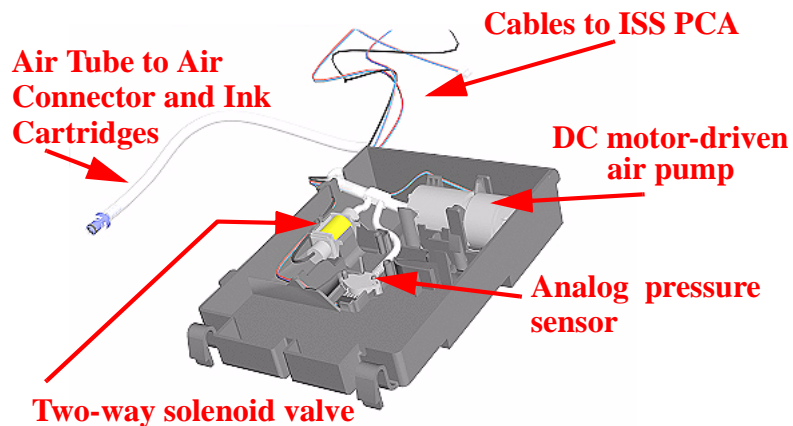
The Printheads are high precision devices that place the ink on the media. The Printheads are designed with:

- Smart chip storing Printhead information.
- Ink inlet to receive ink from the Tubes.
- Nozzle plate with 512 Nozzles to deliver ink on to the media.
- Ink Type lockouts that avoid Printheads of the wrong type (Setup Printheads or Ink type) being installed in the Carriage.
- Color lockouts that will allow only one color to be inserted into a given slot.



## Air Pressurization System (APS)

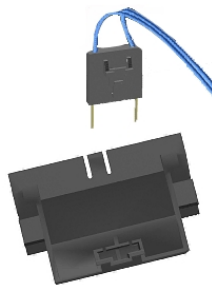
The APS is the system that provides and controls the pressurization of the ink in the Ink Cartridges and is located under the ISS. The key purpose of this system is to ensure the minimum required ink pressure at the inlet to each Printhead respectively at the required print rates. The APS is also used to provide pressure for tube purge and as part of the blow prime system operation.



The APS pressurizes the ink in the Ink Cartridge bags by pressurizing the air around them. The Printer controls the air pressure using the pump with feedback from the sensor; when required the valve is opened to depressurize the air circuit. This allows control of the ink pressure at the inlet to the Printheads.

## Leak Detect System (LDS)

The purpose of the Leak Detect System (LDS) is to detect the breakage of any of the Tubes that deliver ink from the Ink Cartridges to the Printheads.



If a Tube breaks, as the system is pressurized, the ink flows through the breakage and gets between the Tube and the Tube Carrier, and is forced to go to the Ink Leak Detector where the leaking ink is collected. There will be a potential short circuit between the two metallic pins, and the ink leak will be detected.

## Service Station

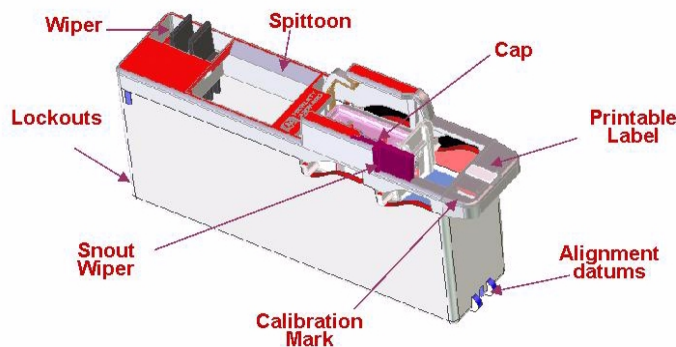
The Service Station consists of a linear motion mechanism with a chassis containing one PrintHead Cleaner (PHC) for each printhead. Attached to the Service Station chassis, one optical drop detector provides nozzle check functionality.

## Print Head Cleaner (PHC)

The PHC case is the main structural part of the replacement module. It is the part that the customer handles and contains the other sub-components:

- Wiper to remove ink residue and external debris from the Printhead.
- Spittoon to receive ink from the firing Printheads when the nozzles are cleared of viscous plugs and any loose debris.
- Cap to prevent the Printhead nozzles from drying out while the Printer is idle.
- Handle and Printable Label to remove and install the PHC. Also, the printer uses the handle top surface to recognize if the PHC is present or not.

In addition, there is a built-in mark on the handle (a vertical hole) to calibrate the Service Station (Scan-axis) if there is a problem and the EEROM is erased.



## Printer Specifications

Functional Specifications				
HP No.81 Supplies	Six colors: cyan, light cyan, magenta, light magenta yellow and black.			
	Printheads: 15.0 kHz	Cyan, light cyan, magenta, light magenta, yellow and black.		
	Printhead Cleaners:	Cyan, light cyan, magenta, light magenta, yellow and black.		
	Ink Cartridges:	Cyan, light cyan, magenta, light magenta, yellow and black each delivering 680cc of ink		
Media sizes	Width (carriage axis)		Length (paper axis)	
	Minimum	Maximum	Minimum	Maximum
Roll	610mm	60 inch/1.52m 42 inch 1.07m	N/A	300ft with light coated media
Sheet	210 mm	E/A0	594mm/22in	1.6m
HP Supported Medias				
HP Coated Paper HP Coated Paper, 300ft HP Heavyweight Coated Paper HP Photo Imaging Gloss HP Photo Imaging Satin HP Paper Based Semi-Gloss HP Studio Canvas HP Colorfast Adhesive Vinyl HP Banners with Tyvek™ HP Colorlucent Backlit UV HP Satin Poster Paper From time to time, new paper types may become available. For up-to-date information, please contact our web site <a href="http://www.hp.com/go/designjet">www.hp.com/go/designjet</a>				
	Print Mode	Default	Enhanced Resolution	
Print resolution	Max. Speed	300 x 300dpi.	600 x 600	
	Productivity	300 x 300 dpi.	600 x 600	
	Max. Quality	600 x 600 dpi	1200 x 600 dpi (Glossy media)	
	Roll (normal)	Sheet (normal)	Roll (Extended)	Sheet (Extended)
Margins	Side Margins 7mm	Side Margins 7mm	Side Margins 15mm	Side Margins 15mm
	Leading edge Margin 35mm	Leading edge Margin 35mm	Leading edge Margin 15mm	Leading edge Margin 35mm
	Trailing Edge Margin 7mm	Trailing Edge Margin 17mm	Trailing Edge Margin 35mm	Trailing Edge Margin 17mm
Programming languages supported	HP-GL/2 (with kanji level 1 and 2 character sets) HP-RTL PJJ, PML Adobe PostScript 3 (supports Asian fonts)			
Accuracy	0.2% of the specified vector length at 23°C (73°F), 50-60% Relative Humidity, on A0 media in Max. Quality or Productivity with HP special polyester film.			



Physical Specifications (with Ink installed or Media loaded)				
Type	Weight	Length	Depth	Height
RTL 42inch /1.07m size printer	100kg	1975mm	675mm	1280mm
60 inch/1.52m size printer	120kg	2433mm	675mm	1280mm

Memory Specifications			
Model	5000	5000PS	
42 inch	128 Mbyte	128 Mbyte	5 Gb Hard Disk
60 inch	128 Mbyte	192 Mbyte	20 Gb Hard Disk

Printer Power Specifications	
Source	100-240 V ac $\pm$ 10% autoranging
Frequency	50-60 Hz
Current	3 amp maximum.
Consumption	350 watts maximum.

Ecological Specifications	
Energy efficiency	Compliant with Energy Star Program EPA (US).
Manufacturing process	Free of ozone-depleting chemicals (Montreal Protocol).
Plastics	Free of brominated flame retardants (PBB and PBDE). All housing parts made of the same material: ABS. Parts marked according to ISO 11469 standard.
Metals	Enclosures made of electro-galvanized steel sheet.
Packaging	Cardboard (non-chlorine-bleached) and foam are 100% recyclable. Inks used for printing do not contain heavy metals.
Batteries	Not used.
Recyclability	Modular construction screws easy to find and disassembly done using universal tools.

Environmental Specifications		
Printer Operating Ranges	Printing:	15°C to 35°C (59° F to 95° F) RH 20% to 80%.
Media Operating Ranges	Optimal print quality with HP Glossy Media	15°C to 30°C (59° F to 86° F) RH 20% to 70%.
	Optimal print quality for other HP Media	15°C to 30°C (59° F to 86° F) RH 20% to 80%.
Non Operating Ranges	-20°C to 55°C (-4° F to 131° F)	

**NOTE** If the printer temperature falls below its minimum operating temperature it may stop to protect its ink systems.

**NOTE** At 3000m altitude the printer may have operational problems.

<b>Acoustic Specifications</b>	
<b>Operating sound pressure</b>	<b>55 dB (A) (From a one-meter bystander position)</b>
<b>Idle sound pressure</b>	<b>&lt;35dB (A) (From a one-meter bystander position)</b>
<b>Operating sound power</b>	<b>70 dB(A)</b>
<b>Idle sound power</b>	<b>&lt;48dB (A)</b>

<b>EMC (ElectroMagnetic Compatibility) Specifications</b>	
<b>Canada</b>	Canadian Department of Communications, Radio Interference Regulations Class B <sup>1</sup> compliant.
<b>European Union</b>	89/336/EEC EMC Directive compliant. Meets EN 55022 Class B <sup>1</sup> emission limits, prEN 55024-2 ESD, prEN55024-3 Radiated Immunity, prEN 55024-4 Fast Transients.
<b>Japan</b>	Registered VCCI Class B <sup>1</sup> .
<b>Korea</b>	RRL certified.
<b>South Africa</b>	SABS licensed.
<b>USA</b>	Federal Communications Commission Rules. Class B <sup>1</sup> computing device. CFR 47 Part 15
<b>Australia New Zealand</b>	Meets AS/NZS 3548
<b>Taiwan</b>	BCIQ certified

<sup>1</sup> Product exhibits Class A operation when connected to LAN cables using Print Server accessories

<b>Printer Safety Specifications</b>	
Information Technology Equipment (ITE), Movable, Class I, Plugable Type A, Installation Category II, Pollution Degree 2, For indoor controlled office environments use.	
<b>Canada &amp; USA</b>	Canadian Standards Association “Certified” for USA & Canada
<b>European Union</b>	Low Voltage Directive compliant.
<b>Mexico</b>	NOM-1-NYCE
<b>Argentina</b>	IRAM
<b>China</b>	CCIB and CCEE certified
<b>Singapore</b>	PSB, SS337 certified.
<b>Poland</b>	PCBC certified.
<b>Russia</b>	GOST certified.

## Printable Area

Printable area=media size minus normal margins		Printing Area (Width x Height) by Orientation of Image			
Media Size		landscape (inches)	portrait (inches)	landscape (mm)	portrait (mm)
ANSI media	C	21.46 x 15.36	16.46 x 20.36	545 x 390	241 x 517
	D	33.46 x 20.36	21.46 x 32.36	845 x 517	545 x 821
	E	43.46 x 32.36	33.46 x 42.36	1100 x 821	850 x 517
ISO media	A2	22.86 x 14.86	15.96 x 21.76	580 x 377	405 x 553
	A1	32.56 x 21.76	22.86 x 31.46	827 x 552	580 x 799
	A0	46.26 x 31.46	32.56 x 45.16	1175 x 799	827 x 1147

## Interface Specifications

For specifications of the HP JetDirect Print Server (Network Interface), see the JetDirect Print Server documentation supplied with the Print Server Interface or consult your dealer.

Parallel (IEEE-1284 compatible/Centronics) Interface			
<p>The connector on the printer is 36-pin female.</p> <p>Most existing parallel cables support IEEE-1284 compatible communication, but for use with this printer, the cable must meet the specification in this table.</p>	Pin	Wire/Signal Name	Source
	1	Strobe	computer
	2 ... 9	D0 ... D7 (data lines)	both
	10	Ack	printer
	11	Busy	printer
	12	PError	printer
	13	Select (SelectOut)	printer
	14	AutoFd	computer
	16	GND	
	19 ... 30	GND	
	31	Init	computer
	32	Fault	printer
	36	SelectIn	computer

The following cable is recommended for optimum performance and electromagnetic compatibility:

Recommended Cable for PCs and Unix Systems			
Interface type (Computer)	HP part number	Cable length	Connector type at computer end of cable
IEEE compatible/Centronics Interface (All)	C2951A	3.0 m	25-pin male



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# Glossary

**ac**

Alternating current.

**ANSI size**

An American standard media size; e.g. D, E

**application**

The software you use to create your drawings.

**APS**

Air Pressurization System

**Centronics**

A standard for the parallel interface between computer and device.

**clipping**

Losing part of a drawing at the edges.

**CMYK**

Cyan, magenta, yellow and black. The colors of the printer's four inks, and also a standard color model.

**coated paper**

Paper coated on one side for inkjet printing.

**default**

A value or condition that is assumed if no other value or condition is specified.

**device**

An external item connected to the computer: printer, plotter, tape drive, etc. Your HP DesignJet is a device.

**dpi**

Dots per inch, a measure of print resolution.

**driver**

The software that controls the communication between a computer and a device.

**front panel**

The control panel on the right of the printer.

**front-panel menus**

The structure of options in the front-panel display.

**graphics language**

A programming language telling a print device how to output graphic data.

**grayscale**

Shades of gray to represent colors.

**high-gloss film**

A glossy, opaque, polyester media type.

**high-gloss photo**

A glossy, opaque photographic paper.

**HP-GL/2**

One of Hewlett-Packard's standard graphics languages for plotters and printers. Produces vector data. Newer than HP-GL.

**IDS**

Ink Delivery System.

**I/O Input/output**

The transmission of data between a computer and a device.

**inked area**

The smallest rectangle that contains all the content of the drawing, while maintaining its relative dimensions.

**ISO size**

An international standard media size; e.g. A1, A2, etc.

**ISS**

Ink Supply Station

**JIS size**

A Japanese standard media size.

**LAN**

Local area network.

**LDS**

Leak Detect System

**long-axis printing**

Printing a page whose X-axis (the axis vertical to the printer as you look at it from the front) is longer than a standard page size.

**margin**

The space around the page added by the printer to separate one page from another and to avoid printing right to the edge of the media.

**matte**

Not glossy.

**media**

The material, usually paper, onto which the

printer prints.

**nesting**

Placing two or more pages side-by-side on roll media to avoid waste.

**palette**

A set of logical pens defined by color and width.

**Paper-axis**

The vertical axis, as you look at the printer from the front.

**PJL**

Printer Job Language. A programming language that controls jobs going to a printer.

**PML**

Printer Management Language.

**parallel interface**

A type of interface between computer and device. Generally faster than a serial interface.

**PANTONE**

The PANTONE MATCHING SYSTEM® is an international standard for color communication in the graphics art industry.

**pen**

Even though the plotter has no physical pens, the lines it draws match the attributes of a pen.

**platen**

The exterior part of the printer on which the media rests before going into the media-entry slot.

**printing area**

Page size minus margins.

**PostScript**

A standard page-markup language, commonly used by graphics and desktop publishing software applications.

**PSU**

Power Supply Unit.

**queueing**

Placing each print received by the device into memory for processing with other prints.

**raster**

A method for defining an image, in terms of dots rather than lines. Raster data typically needs more memory than vector data.

**RGB**

Red, green and blue. A standard color model.

**RIP**

Raster Image Processor.

**RTL (Raster Transfer Language)**

One of Hewlett-Packard's standard graphics languages for plotters and printers. Produces raster data.

**ROM DIMM**

A physical module containing read-only data, that can be installed in the back of the printer to provide upgrades.

**Scan-axis**

The horizontal axis, as you look at the printer from the front.

**semi-gloss photo**

A semi glossy, opaque photographic paper.

**spindle**

The rod which holds the roll of media.





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## **About this Edition**

This is the 1st edition of this Service Manual  
1st edition, titled  
HP DesignJet 5000 and 5000PS Service Manual



## **What's in this Service Manual**

This manual contains information necessary to test, calibrate and service:

- HP DesignJet 5000 Printer - 42" Model (P/N C6090A)
- HP DesignJet 5000 Printer - 60" Model (P/N C6095A)
- HP DesignJet 5000PS Printer - 42" Model (P/N C6091A)
- HP DesignJet 5000PS Printer - 60" Model (P/N C6096A)

For information about using these printers, refer to the corresponding User and Quick Reference Guides.

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