Troubleshooting

1

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.

Which Firmware Version Relates to Which Ink System

A.01.XX - This firmware revision allows the Printers to **only** use Imaging Inks.

A.02.XX - This firmware revision allows the Printers to use **both** the Imaging Inks and the UV Inks.

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.

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 as well as the status of the Printer when the Error occurred (was it printing, calibrating, processing, etc...). Without this information, HP Support Personnel cannot help you.**

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).**

Performing a Service Test on a Failed Assembly

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

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

For information on the Service Tests and how to use them see 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.

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].

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 [XXXXXXX].

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:

■ Which firmware revision the Printer is using.
■ The complete error number.

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 *8-75*) 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 *8-83*.

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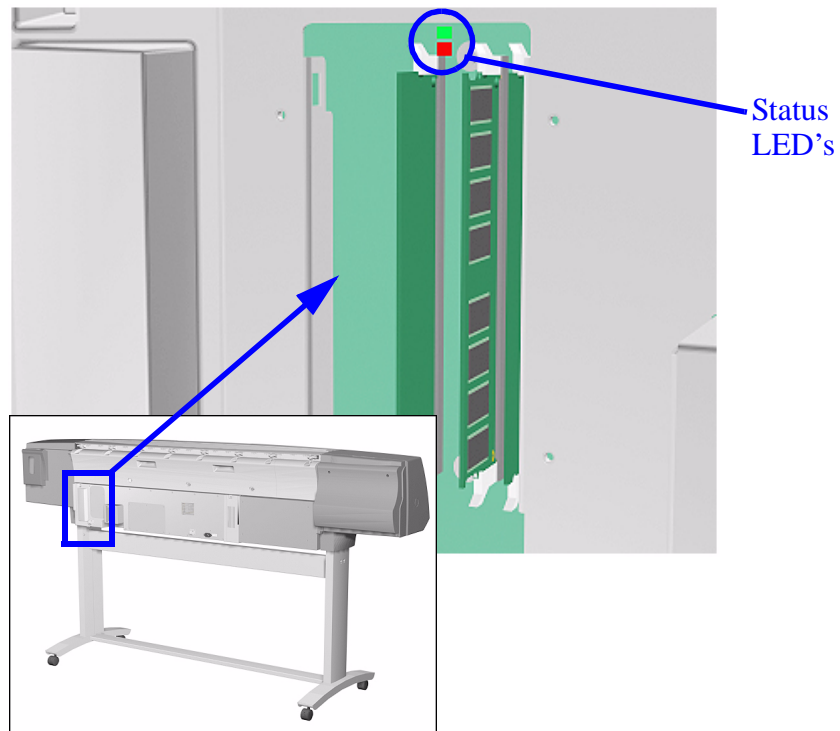
4. Check that the Front-Panel Cable is correctly connected to the Electronics Module. Also make sure that the Front-Panel Cable is not damaged.

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 *8-75*) making sure that it is installed correctly.

2. If the problem persists replace the BootROM DIMM ⇒ Page *8-75*.

NOTE **For more information, refer to "Electronics Problems" on page 1-21.**

Troubleshooting Media Jams/Printhead Crashes

NOTE **If using HP Coated Media when problem occurred, please also refer to *Page 1-11*.**

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 1-10, Problems with Vacuum* .**

Troubleshooting Shutdowns - User Message "Warning: Switch Power Off"

If a shutdown occurs, you will get the message "Warning: 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.

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

Check Printhead Cleaner Path

This message appears whenever the Service Station Carriage does not move, either because of a bad cable connection, a defective motor or because of some obstacle inside the Service Station.

- If the Printer is **new**, check that the Service Station cable (which is the grey flat cable with the grey connector) is plugged into the Main PCA. Make sure that the clips of the connector are closed completely. Check also that the Service Station cable is not damaged.

- In already used Printers, power OFF the Printer and try to move the Service Station backwards and forwards to see whether it is blocked. Possible causes are: Printhead Cleaners incorrectly positioned, damaged or, even, pieces of paper within the Service Station. Remove the Printhead Cleaners or the pieces of paper and check whether the problem persists.

- If the problem disappears without the Printhead Cleaners, reinsert them into the Service Station and see whether the problem reappears. If the problem reappears, replace the complete set of Printhead Cleaners.

- If the problem persists even without the Printhead Cleaners, then replace the Service Station ($\Rightarrow$ Page *8-67*) and recalibrate the Printer.

Check Paper Path

This warning appears whenever the friction on the Paper-Axis is too high: the electrical current needed by the Paper-Axis Motor to move the paper is too high, so before burning the motor or the Main PCA, this warning appears. The common reason for this error is an internal paper jam or at the end of a roll of media the paper is glued to the media core. It can also be due to a defective motor or Main PCA.

■ Check that there are no pieces of paper left inside the Printer, especially if it happens after a paper jam.

NOTE **One way to verify this easily is to take a rigid sheet of paper and move it along the paper path with the media load lever lifted.**

■ Also, check that the customer has inserted the spindle hubs completely, otherwise they may rub against the side plate and increase the friction.
■ If the error still persists, check that the Paper-Axis Motor cables are connected correctly and that they are not damaged.
■ If the Printer still fails, replace the Paper-Axis Motor ⇒ Page *8-100*.

NOTE **Turn the Drive Roller by hand once the motor is removed to verify that it turns smoothly. Also, after replacing the Paper-Axis Motor, perform the Media-Axis Test (⇒ Page *4-12*) and check that the values are within the given limits.**

■ If the Printer still fails, replace the Main PCA ⇒ Page *8-79*.

Check Printhead Path (1)

This warning appears whenever friction on the Scan-Axis is too high: the electrical current needed by the Scan-Axis Motor to move the Carriage is too high, so before burning the motor or the Main PCA, this warning appears. The usual reason for this error is an internal paper jam, an obstacle in the Printhead path, a broken belt, badly installed Ink Supply Tubes, etc.

■ Apply Oil along the complete axis of the Slider Rods with the User's Slider Rods Lubrification Kit ⇒ Page *9-8*.
■ Also, switch OFF the Printer and move the Carriage from side to side to verify that it moves smoothly.
■ If the Printer still fails, check that the Scan-Axis motor is connected correctly to the Main PCA and that the cable is not damaged.
■ If the error remains, replace the Belt (⇒ Page *8-46*) or the Scan-Axis Motor ⇒ Page *8-55*.

NOTE	**Also, after replacing the Scan-Axis Motor, perform the Scan-Axis Test (⇒ Page *4-10*) and check that the values are within the given limits.**

- If the Printer still fails, replace the Main PCA ⇒ Page *8-79*.

Check Printhead Path (2)

This is a safety shutdown and occurs whenever there is a discontinuity in the Printhead path, because of an obstacle, oil drops on the Encoder Strip, the Carriage cover touching the tube guides, etc.

- Switch OFF the Printer and move the Carriage from side to side to verify that it moves smoothly.
- If it still fails, check the Encoder Strip and, if necessary, clean it.

Check Printhead Path (3)

This is always caused by high friction in the Printhead path. Only in very special cases, when it happens inside the Left Hand Cover, incorrect assembly of the tube system causes it.

- Apply Oil along the complete axis of the Slider Rods with the User's Slider Rods Lubrification Kit ⇒ Page *9-8*.

Replace Message "xx15 Replace" and "xx16 Replace"

In certain circumstances (e.g. Printhead crash without Printer shutdown), the message "xx15 Replace" or "xx16 Replace" may appear on the front panel. This is due to a temporal disconnection between the Printhead and the flex circuit in the Carriage Assembly.

- Clean the Printheads and the Carriage interconnects (refer to page 9-6, *Carriage Interconnect Wiper*) and reseat the failing Printheads.

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 *8-98*.
   ■ Replace the Booster Fan ⇒ Page *8-103*.

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 *8-112*.

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:

   ■ Try using Heavy Weight Coated Media instead of Coated Media.

   ■ 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.

   ■ Use the Deflectors.

   ■ Upgrade the Firmware ⇒ Page *9-11*.

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:

   ■ Never use HP Coated Media for High Density prints. As a substitute use HP Heavy Weight Coated or Heavy Weight Coated (Economy) Media.

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) on 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.
- For Heavyweight Coated 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).

User message "Media loaded incorrectly. Remove media"

This message appears when the media sensor has detected media, but the line sensor has not detected the leading edge of the media at all or has found it in an incorrect position.

There are three possible situations when this message comes up:

1. The paper is in the incorrect position because the Printer was turned OFF in the middle of a print. It should only happen in printers without the Take-Up Reel (42" model), because with the Take-Up Reel installed the Printer will not search for the leading edge after the Printer has been powered-up or after activating the media load lever. The Printer simply continues to print wherever it stopped.

   - To verify this setting, check in "Printer Setup Menu > Device setup > TUR installed". It should be set as **No** for the 42" model Printers and **Yes** for the 60" model Printers.

2. The media sensor is defective. To verify this, remove the media and re-boot the Printer. If the message comes up during initialization, the media sensor is defective. To solve this, try the following:

    ■ Check that the media sensor cable is connected correctly

    ■ Check that the media sensor cable is **not** damaged and that the media sensor is clipped correctly.

    ■ Replace the Media Sensor ⇒ Page *8-104*.

3. The Line Sensor does not detect the leading edge of the media. To verify this, load media (ideally white media such as Coated or Photo-Gloss) into the Printer. If the message comes up during the loading process, the Lens Cover Assembly is either not installed correctly or it is dirty. In this case, replace the Lens Cover Assembly ⇒ Page *9-5*. If this fails, replace the Carriage Assembly ⇒ Page *8-46*.

User message "Warning: Incorrect type of tubes system"

This error message appears if the electrical connector of the Ink Tubes System is not connected correctly (especially after the Tubes have been replaced). Other causes are defective EEROM in the Ink Tubes System or ISS PCA.

■ Switch OFF the printer, open the rear left cover and connect or re-connect the Electrical Cable (the colored flat cable) that is connected to the rear of the Ink cartridge Tube Connector.

■ If the problem persists, check that the Electrical Cable is connected correctly to the ISS PCA.

■ Replace the ISS PCA (⇒ Page *8-86*) or the Ink Tubes system (⇒ Page *8-25*).

User message "Power Supply Error #1"

This error indicates a short in the 24V electronics circuits. Do not replace the Power Supply; This message only indicates the failure, and is not the cause. Usually this message appears after the insertion of a Trailing Cable into the connectors. This message means that the Trailing cable is incorrectly connected, and it is creating a short on the 24V circuit.

■ To isolate the problem, remove the Trailing Cable from the back of the Printer and check whether the Printers powers up correctly.

■ If the Printer powers up correctly, the problem could have been a bad

Trailing Cable connection, so just reconnect the Trailing Cable again to double-check that the Printer now works. If, after reconnecting the cable, the error appears again, either the Carriage PCA or the Trailing Cable is defective. In this case, first try replacing the Trailing Cable and then the Carriage Assembly.

■ If the Printer did not initialize correctly, even after removing the Trailing Cable, the problem is either in the Main PCA or the ISS PCA. So, once again, to isolate the failure, disconnect first the ISS cable and check whether the Printer works. If it does, reconnect the cable again to verify the failure and then, if necessary, replace either the ISS cable or the ISS PCA.

■ If the Printer still does not initialize, even after removing the Trailing Cable and the ISS cable, replace the Main PCA.

Cutter Assembly Problems

1. The Printer does not cut (even when using the Form Feed & Cut option in the Front Panel).

In this case it is very likely that the cutter is disabled in the EEROM. This can happen whenever the Diagnostic Print is cancelled in the middle of the print, or if the Printer was turned OFF in the middle of the Diagnostic Print.

■ To re-activate the Cutter, print the Diagnostic Print again and this time letting it finish to the end without any interruptions.

■ If the Cutter still doesn't cut after re-printing the Diagnostic Print, replace the Cutter Assembly ⇒ Page *8-58*.

NOTE   **This problem is solved in any A.02.xx firmware release.**

2. The Cutter does not cut thick paper (Canvas & Non-HP Media).

As in all DesignJets, the Cutter can only cut media up to a certain thickness (such as Heavy Coated or Photo paper). Thicker media or special media (such as Canvas) cannot be cut.

■ Taking this into consideration, when Canvas is selected on the front panel, the cutter is automatically disabled, but there is nothing wrong with the cutter.

3. The Printer hangs while cutting.

The Printer hangs and the Carriage stops if the window is opened during the cutting operation. In addition, when pressing any key, the Error Code ffff ffff 03450097 may appear on the front panel.

■ Re-boot the Printer and make sure the customer does not open the window while the Printer is cutting.

NOTE   **This problem is solved in any A.02.xx firmware release.**

Carriage and Scan-Axis Problems

1. Printhead continuity problems.

    When installing the Ink Tubes System, it is possible that the crane (the part of the Tubes System that is connected to the front of the Carriage) is not clipped properly. This can cause Printhead continuity problems afterwards, especially in the light cyan and light magenta Printheads (XX16 REPLACE message appears for these Printheads).

    - Whenever there is a Printhead continuity problem, always check that the crane is completely clipped to the front of the carriage.

2. Unknown Line Sensor ID.

    When performing the Scan-Axis Calibration, the Printer asks for the Line Sensor ID. But there is no label on the Line Sensor indicating it.

    - If the Line Sensor ID is not indicated on the Line Sensor, use the default value which is "0". In the future, if the LED's are modified, a sticker will be included with the new Line Sensor ID.

3. Line Sensor is shown as "Not calibrated" in the Service Configuration Print.

    This is a firmware bug. It is possible that the Line Sensor **is calibrated** even though the Service Configuration Print indicates that the Calibration has not been performed.

    - Just ignore this information about the Line Sensor calibration.
    - If there are any errors related to the Line Sensor, perform the Scan-Axis calibration to make sure that the Line Sensor calibration is completed.

Media-Axis Problems

1. Printer unloads media (it suddenly starts to rewind and unloads the media)

    If the window was raised at exactly the same moment when the Printer moved the media (e.g. during media loading) from that moment onwards the Printer will always reject the media unless the Printer is turned OFF and then back ON again.

    - Problem disappears after re-booting the Printer.

NOTE   **This problem is solved in any A.02.xx firmware release.**

Electronics Problems

1. The Printer hangs with the front panel completely blank and the three Image Quality LED's lit.

The firmware has a bug that creates this situation whenever the Printer is receiving data from an external RIP.

■ The customer should print using the HP Driver to check that the Printer is printing without any problems.

■ The only solution to this problem will be to upgrade to the firmware for the UV inks (A.02.XX) when it is available.

<div>

NOTE **This problem is solved in any A.02.xx firmware release.**

</div>

2. The Printer hangs at "Initializing Please Wait".

The Printer hangs showing the following front panel message for more than 5 minutes: "Initializing Please Wait, Code Rev. xxxx, Boot ROM. xxx, etc".

The cause for this failure could be either a print sent through the Parallel or LAN port during initialization, or a defective I/O card.

■ Power OFF the Printer, disconnect the Parallel and/or the Network cable and power ON the Printer again to see if the Printer hangs again.

■ If the Printer **did not** hang again, then the problem was due to the Printer receiving data through the ports while the Printer was initializing. Before connecting the cables again, make sure that all the pending print jobs are purged.

■ If the Printer **did** hang again, then power OFF the Printer, remove the I/O card and power ON the Printer again to see if the Printer still hangs.

– If the Printer **did not** hang again, install the I/O card in the second slot and check whether it works there. If the I/O card causes the Printer to hang again, replace the I/O card. If the Printer continues to hang, even with a new I/O card, then replace the Main PCA $\Rightarrow$ Page *8-79*.

3. The Printer is printing slower compared to another HP DesignJet 5000.

It is important first to determine whether the differences are during receiving/processing, during printing or once the print is finished.

1. The time the printer takes to start printing is longer.

■ Check that the "Start printing option" is set the same for all Printers.

NOTE **For troubleshooting purposes, set this option to "After Processing". In this way the time reported is the time needed to receive the data and to process it and the printing time is not taken into account.**

■ If there are differences still, it is probably due to the customer's network configuration.

NOTE **Make sure that the Printer is not processing or printing another job while doing this test, because this might have affect the outcome.**

■ Once finished, return the Printer to the recommended setting, which is "Optimized".

2. The actual printing time is slower.

This may be due to the Carriage stopping at the end of each swath, one Printer making more passes or the Carriage moving slower.

■ Check that the dry time is turned off.

NOTE **If the dry time is turned ON, the Carriage might stop at the end of each swath, because the Printer uses the dry time (i.e. the humidity and temperature reading) to adjust the printing speed. This is necessary to ensure that the print is completely dry before it can either touch the Media Bin or is rolled up with the Take-Up Reel.**

■ Check that the Image Quality setting on the front panel (while the Printer is printing) is the same for all Printers.

NOTE **The setting while the Printer is in the stand-by mode might be different to the actual LED that lights up during printing.**

■ Check that the Image Quality setting in the Driver is the same for all the Printers.
■ Check that the memory size, shown on the front panel, is the same for the Printers that are being compared. (Standard configuration: 192Mbyte for C6096A and 128Mbytes for C6090A/C6091A/C6095A).

3. The dry time at the end of the print is longer.

Normally the Printer uses the temperature and the humidity reading from the ISS PCA to calculate the dry time, which is required for the print to dry before being cut. The specification of these readings is +/- 15%, so a variation in the calculated dry time of up to 30% is within specification.

■ To check the correct functioning of the sensor, print the "Service Configuration Print" and check that both the temperature and humidity readings are correct (i.e. within the specification). If not, replace the ISS PCA ⟹ Page *8-86*.

■ As an alternative solution, turn OFF the dry time, and then all the Printers should finish the print at the same time.

■ Another alternative is to set the dry time manually on all the Printers.

NOTE   **This dry time will be applied to all the prints.**

Language Selection is blocked in a brand new printer

Normally the user has about 2 minutes (initialization time) to select the language in the Front Panel. If the language is not selected within this time period, the Front Panel is locked.

■ To recover from this problem, just re-boot the Printer and select the language within the specified time (2 minutes).

Firmware Upgrade Does Not Work Through the Parallel Port

With firmware revisions A.01.10, 11 & 12, the Printer will remain at 90% when doing a Firmware upgrade via the parallel port.

■ For the customer, recommend using the network to print and to perform the Firmware upgrade.

■ For Service Engineers:

– Keep the "Top Arrow" key on the Front panel pressed down when turning the Printer ON, and release it once the "Boot Menu" appears.

– Select "Upgrade Firmware" in the Boot Menu.

– Send the firmware through the parallel port.

NOTE   **This problem is solved in any A.02.xx firmware release.**

Typical Failures After Exchanging the Ink Tubes

The following table contains typical failures that could appear after changing the Ink Tubes:

Failure	Description	Solution
After completing the initialization process, the Front Panel displays: **WARNING** **Incorrect type of Tubes System** **Switch power off**	The electrical connector has **not been** correctly connected to the Ink Cartridge connector.	1 Switch OFF the Printer. 2 Connect the electrical connector into the Ink Cartridge tube connector. 3 Switch ON the Printer.
When you try to print, the Front Panel displays: **System Error** **0a0000 00000002** **Contact HP Representative**	The air tube has **not been** correctly connected to the Ink Cartridge connector.	1 Switch OFF the Printer. 2 Connect the air tube into the Ink Cartridge tube connector. 3 Switch ON the Printer.
When you try to insert an Ink Cartridge, you keep getting the following message for one or more Ink Cartridge: **XX02 Reseat**	The three latches at the rear of the Ink Cartridge tube connector have **not been** locked correctly.	1 Remove the Ink Cartridges. 2 Open the door at the back of the Left Hand Cover. 3 Correctly lock the 3 latches. 4 Close the door and insert the Ink Cartridges.
When you try to insert a Printhead, you keep getting the following message for one or more Printhead: **XX02 Reseat**	The Printhead tube connector has **not been** correctly connected to the Carriage Assembly.	1 Remove any Printhead(s). 2 Make sure the Printhead tube connector is fully connected to the Carriage Assembly. 3 Insert the Printheads.
When you try to insert a Printhead, you keep getting the following message for one or more Printhead: **XX11 Reseat**	Normal Printheads are being inserted **BUT** the Printer requires Setup Printheads to prime the Ink Tubes.	1 Insert the Setup Printheads provided with the HP Upgrade Kit that allows automatic printing.
After you have inserted the Printhead Cleaners, the Front Panel displays the following message: **XX05 Replace**	The wrong type of Printhead Cleaners have been inserted for the type of Ink System installed in the Printer.	1 Remove the Printhead Cleaners. 2 Make sure that they are of the same type as the rest of the consumables (No.81 or No.83). 3 Replace the incorrect ones.

Solving Media-Handling Problems

NOTE | **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 | **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.**

- Perform the manual alignment procedure (Refer to the User's Guide).
- Check that the paper is correctly loaded onto the spindle.

Sheet media
- 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.
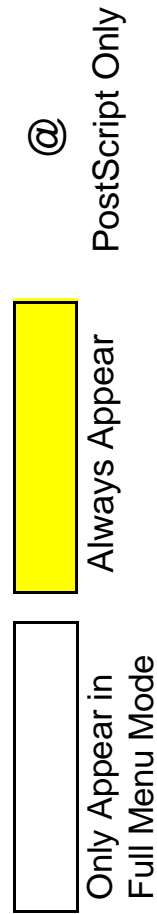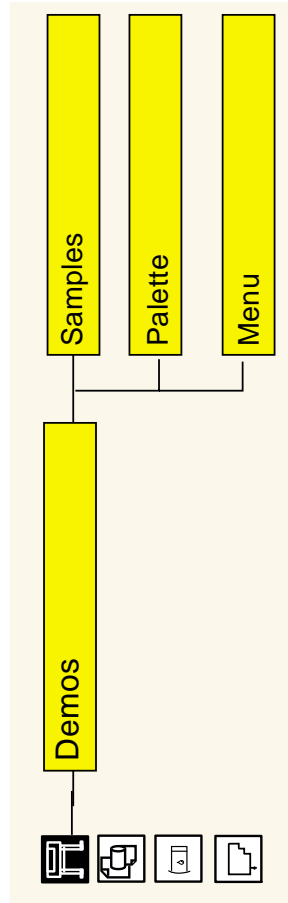
I/O Setup Menu

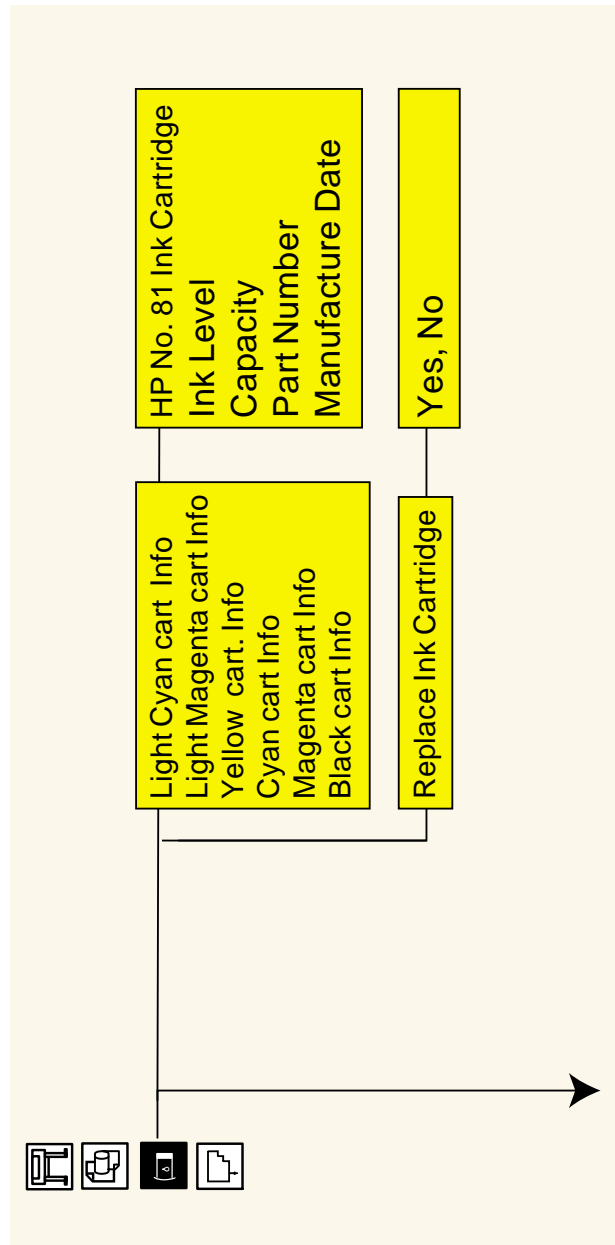|	
Only Appear in Full Menu Mode	Always Appear

@
PostScript Only

Device Setup Menu

Device Setup

TUR Installed — NO, YES

Cutter — On, Off

Reduced Margins — On, Off

Lang — HP-GL/2 / PostScript@, Automatic

Drying Time — Automatic, None / Manual — 255 .. 2, 1 min

@ PostScript Only

Only Appear if TUR is Not Loaded

Only Appear if TUR is installed and Loaded

Only Appear in Full Menu Mode

Always Appear

Utilities Menu

Utilities

Replace Ink System — No (Continue), Yes (Replace)

Track Media Length — Yes, No

Usage — Print usage, View usage

Menu Mode — Short, Full

Calibrations — Printhead alignment,
Color Calibration
Accuracy — Restore factory
Recalibrate — Create Pattern
Measure Pattern

Reset Web Svr Passwd

Test Prints — HP-GL/2 config
Service config.
Usage report
Print Quality

Statistics — Ram present, Service ID
Hard Disk, Code Rev.

Default Menu — PS Code Rev, PS Font code

Display Contrast — Up, Down

Clean Platen — Automatic clean — On, Off
Clean now … — Automatic, Manual

Lens Maintenance

Internal RIP Settings Menu

Internal RIP Settings

Start printing

Optimized, Immediately
After processing

Ink Emulation @

RGB @

CMYK @

Native, sRGB,
Apple RGB,
Adobe RGB,
ColorMatch RGB @

Native, EuroScale,
SWOP, TOYO,
DIC @

Color calibration

Off, On @

Black Replacement

Off, On

Enhanced res

Off, On

PS scale @

100% .. 419%, Fit to page @

PS encoding @

Software, Binary, ASCII @

Always Appear

Only Appear in
Full Menu Mode

@   PostScript Only

Queuing and Nesting Menu

HP-GL/2 Settings Menu

Page Format Menu

Demos Menu

Samples

Palette

Menu

Demos

@ PostScript Only

Always Appear

Only Appear in
Full Menu Mode

Media Menu

Roll/Sheet Info.	Vendor Name Type of Media Width Printable Area Profile Revision
Media Selection	HW Coated (Economy) HW Coated Coated Paper Photo Imaging Gloss Colorfast Vinyl Paper Semi-Gloss Poster Paper Studio Canvas and more.......
Delete Media	*HW Coated (Economy) *HW Coated *Coated Paper *Photo Imaging Gloss *Colorfast Vinyl *Paper Semi-Gloss *Poster Paper *Studio Canvas and more.......
Move Media	
TUR Loaded=	Yes, No
Form Feed & Cut	Yes, No

Ink Cartridge Menu

HP No. 81 Ink Cartridge
Ink Level
Capacity
Part Number
Manufacture Date

Yes, No

Light Cyan cart Info
Light Magenta cart Info
Yellow cart. Info
Cyan cart Info
Magenta cart Info
Black cart Info

Replace Ink Cartridge

Printhead Menu

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.

Ready
Roll
Hewlett Packard
Photo Imaging Gloss
Ink OK
Printheads OK

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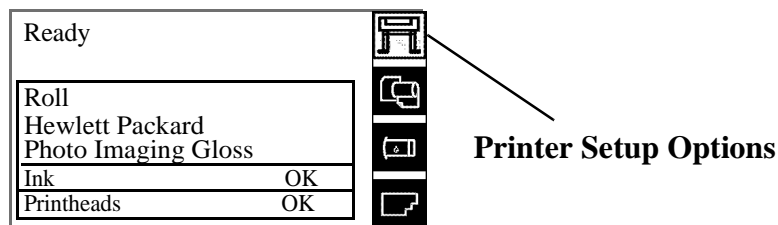
3. Once inside the "Printer Setup Options" menu, use the **Arrow** keys to scroll to the "Utilities" menu display and press the **Enter** key.

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

Top
Back
↑
↓ **Make Selection**
Enter **Press Enter**
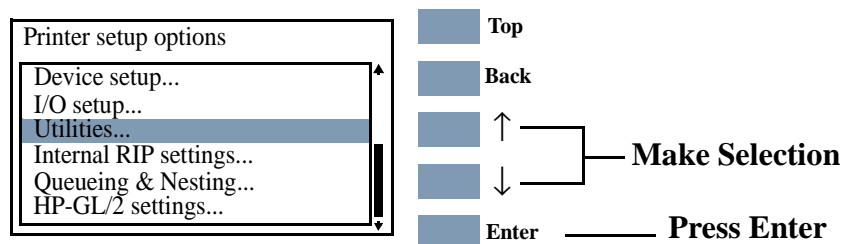
4. Once inside the "Utilities" menu, use the **Arrow** keys to scroll to the "Test prints" menu display and press the **Enter** key.

Utilities		**Top**
Calibrations ...		**Back**
Reset WebAccess paswd		
Test Prints		↑
Statistics ...		↓
Default menu		
Display contrast ...		**Enter**

Press Up and Enter
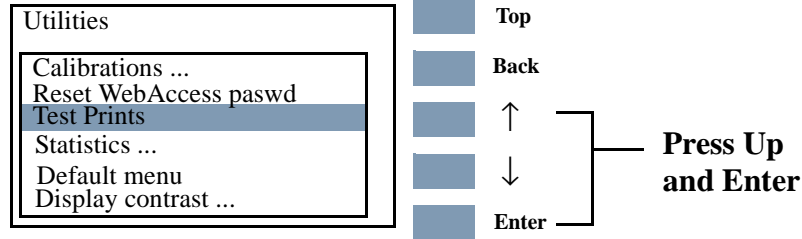
5. Use the **Arrow** keys to scroll to "Service Config." and press the **Enter** key to print the Service Configuration Print.

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.

General Printer Information

1. Interaction between start printing and nesting.

   Of the four possible combinations between "Start Printing = Optimized or After processing" and "Nesting = In order or OFF" only two are possible. For example, if you have nesting set to "In order" and you change start printing to "Optimized" the Printer will automatically change nesting to "Off". Likewise, if you have start printing set to "Optimized" and you change nesting to "In order" the Printer will automatically set start printing to "After Processing".

   ■ There is no problem. This is the way the Printer operates.

2. Printhead crashes and ink smearing with Coated Paper.

   HP Coated Paper is very prone to Printhead crashes especially in high humidity conditions and high-density prints. The HP recommendation is as follows:

   ■ **HP Coated Paper** - For presentation-quality images: For a variety of everyday uses. Produces excellent line and color quality for medium ink-density illustrations and graphics, working comps, proofs and renderings.

   ■ **HP Heavyweight Coated Paper** - For durable, presentation-quality images; Designed for high ink-density and rugged use, and for final presentations and signs that are mounted and laminated.

3. Throughput

   Maximum Throughput given in the Technical Data Sheet for HP Coated Paper is:

   ■ Print Mode Max Speed (60 inch model): 569 sqft/hour*
   ■ Print Mode Max Speed (42 inch model): 499 sqft/hour*

NOTE **These are maximum mechanical printing speeds and do not include, for example, printhead servicing at the beginning/end of the print, dry time at the end of the print, etc. So, the average throughput when you are printing a run of several plots will be lower.**

   ■ If you only want to maximize throughput, the following settings are recommended:
      – Dry time: NONE
      – Internal RIP settings > Start printing > Immediately
      – Print orientation: if possible use Landscape instead of Portrait to reduce Carriage stops.
      – Printhead status: OK to reduce servicing at the beginning/end

of the print. Perform a manual recovery if the Printhead status is (XX20) RECOVER/ (XX21) REPLACE.

■ With longer plots, average productivity will increase (i.e. same area is printed in less prints > reduction of servicing at the beginning/end of the print).

Troubleshooting Take-Up-Reel Problems

Issue	Main Reason	Action/Check
Right Hand (RH) Module LED is OFF	The Printer is not connected or switched ON	Check that the TUR power cord is connected
		Check that the switch located at the rear side of the RH Module is ON
RH Module LED is RED	The Spindle LOCK Lever is not closed	Check that the TUR Spindle is inserted on the TUR and the automatic lock is closed
		Check that the LED turns from RED to GREEN when manually closing the Spindle Lock Lever
RH Module LED is blinking RED-GREEN	Problem with the RH Module Sensor connection	Check that the sensor cable is well connected to the Sensor Assembly
		If the problem persists, call an HP representative
Media is not being rolled	TUR is ON but is not set-up correctly	Check that the RH Module LED is ON (and GREEN)
		Check that the TUR Spindle is inserted and the Spindle Lock Lever is closed
	Media is not supported or it is not set-up correctly in the TUR and the Media skew is causing problems	Check that the media weights are being used, set to the media size used and the blue flanges are inserted on the media weight
		Check that the media is stuck to the Spindle as parallel as possible to prevent skew
		Check that the Deflector Bar is correctly installed and that the Media routing is OK
		Check that the media is HP supported. Transparent media are not supported for being used with the TUR
Media is being cut after each print	The TUR is not set-up in the Front Panel Menu	Check that the TUR ON option is activated on the Front Panel (Devices Menu)

System Error Codes

2

System Error Codes

Introduction

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

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 $\Rightarrow$ Utilities $\Rightarrow$ 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 alpha numerics:

[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.

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:

- Which firmware revision the Printer is using.
- The complete error number.
- 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 **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 Groups

The System Errors are organized in groups as follows:

- Group 01 - Hardware Test Group.
- Group 04 - Intelligent I/O (Jetdirect) Errors.
- Group 06 - Line Sensor Errors.
- Group 08 - Pen Energy and Thermal Management Errors.
- Group 09 - Hard Disk Drive Errors.
- Group 0A - Ink Delivery System Errors.
- Group 0B - Hardware Initialization Errors.
- Group 0C - Drop Detection/Nozzle Recovery Related Errors.
- Group 0D - Miscellaneous Errors.
- Group 0F - Firmware/Software Errors.

System Error:	ffff ffff **xxxxxxxx** (General Firmware Error)
Problem Description:	All ffff ffff errors are general firmware errors. This **does not** mean that the firmware has failed, but that the firmware (as a piece of software) has experienced an internal crash and before doing anything incorrectly it displays this error. We can compare this to the "blue-screen" that appears in the Windows operating system when there is a software problem. These errors also mean a system crash.
	Usually, the errors are sporadic and appear very randomly. The best solution is just to switch the Printer OFF and ON and check if the problem has disappeared (as in Windows). Frequently, the problem will disappear.
	However, sometimes the same system error appears quite often or it is permanent. Its root cause (as explained above) may not necessarily be a firmware problem; it could also be related to the Ink Supplies, Electronics Module, etc.
	In this situation, please take note of the Firmware version, the situation where the problem can be reproduced and the COMPLETE system error code and report it to the division.
Corrective Action:	Try the following:

- Power-cycle the Printer and to check whether it still fails.
- If it still fails, upgrade to the latest Firmware revision (as the newer revisions are more stable and solve many of the problems) and check whether it still fails.
- If it still fails, report the error to the division. In this case, it is important to report the firmware revision the printer is using, the complete error number, which software application the customer is using (name, version, etc.) and as much information as possible about when it occurred.

System Error:	ffff ffff **02b301b0**
Problem Description:	This error usually appears at the beginning of Printhead Alignment due to a firmware bug.
Corrective Action:	If the error appears frequently, upgrade to firmware release A.02.xx.
NOTE	**This problem is solved in any A.02.xx firmware release.**

System Error:	ffff ffff **01dcxxxx**
Problem Description:	There is a problem with the I/O Card (happens during power-up).
Corrective Action:	Try the following:

- Disconnect the Network Cable and check if the error still appears during power-up.
- If the error **does not** appear again, then the problem may have been that the Printer was receiving some information through the port while powering-up.
- If the error **does** appear again, then power OFF the Printer, remove the I/O Card from the back of the Printer and power ON the Printer again. Check if the error still appears during power-up.
  - If the error **does** appear again, replace the Main PCA (⇒ Page *8-81*) or the Hard Disk Drive (⇒ Page *8-74*).
  - If the error **does not** appear again (powers-up correctly without the I/O Card), then try inserting the I/O card in the second slot to check if it works. If it doesn't work in the second slot, then replace the I/O Card. If the new I/O card also fails, replace the Main PCA (⇒ Page *8-81*) or the Hard Disk Drive (⇒ Page *8-74*).

System Error:	ffff ffff **030d0170** or ffff ffff **030d0171**
Problem Description:	At power-up, the Printer thinks it is smaller than 42 inches.
Corrective Action:	Try the following:

- Check that there are no obstacles in the Scan-Axis which stops the Carriage from reaching the end-stops on both sides.
- Check that the Carriage moves freely from side to side.
- Check that the IDS Crane is installed correctly on top of the Carriage and that the Carriage Cover is clipped on correctly.

System Error:	ffff ffff **031609xx**
Problem Description:	This error code only appears if the Main PCA was replaced without removing the media from the Printer, because the firmware tries to find the last media information in the EEROM. Since the information cannot be found, this error code is displayed.
Corrective Action:	Remove the media and re-boot the Printer. This error code should not appear again.

System Error: ffff ffff **03450097**

Problem Description: If the Window is opened during the cutting operation, the Printer hangs and the Carriage suddenly stops. Also, if you press any key on the front panel this error code (ffff ffff **03450097)** may be displayed.

Corrective Action: Re-boot the Printer and make sure that the Window is **never** opened during the cutting operation.

NOTE **This problem is solved in any A.02.xx firmware release.**

System Error: ffff ffff **036000bd**

Problem Description: This firmware error code is related to the detection of the Printhead cleaners by the line sensor. It always happens during initialization, while checking the Printhead Cleaners. In most case, it is a problem of incorrectly inserted Printhead Cleaners, but it can also be caused by an incorrectly assembled Service Station.

Corrective Action: Try the following:
- Remove the Printhead Cleaners and **reinsert** them again.
- If the error still persists, perform the Service Station Calibration ⇒ Page *5-11*.
- If the error still persists, an onsite visit is necessary to repeat the calibration or to change the Service Station assembly or the Carriage Assembly.

System Error: ffff ffff **036e0136**

Problem Description: This is an internal general error code which can appear during the Printhead Alignment process. The chance of this error appearing is less than 0.5% and there is nothing wrong with the Printer.

Corrective Action: Re-boot the Printer and the error code should not appear again.

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 $\Rightarrow$ Page *8-81*.

NOTE **After replacing the Main PCA, make sure you perform the Backup EEROM $\Rightarrow$ Page *4-30*, making sure that you select "Main PCA" when prompted.**

System Error:	010030 **034c095e**
Problem Description:	This error code appears when the power supply detects a low spike (e.g. due to a temporary loss of tension). There is nothing wrong with the Printer.
Corrective Action:	Re-boot the Printer and the error code should not appear again.

NOTE **If the error code appears again, try connecting the Printer to a different power socket.**

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 $\Rightarrow$ Page *8-105*.
- If the Error Code continues, replace the Main PCA $\Rightarrow$ Page *8-81*.

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.**

System Error:	010041
Problem Description:	Error in Scan-axis Encoder quadrature.
Corrective Action:	Try the following:

- Check that the Encoder Strip is NOT broken or damaged.
- Replace the Encoder Strip ⇒ Page *8-34*.
- Replace the Carriage Assembly ⇒ Page *8-46*.
- If the Error Code continues, replace the Main PCA ⇒ Page *8-81*.

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.**

System Error:	010042
Problem Description:	Error in Service Station-axis Encoder quadrature.
Corrective Action:	Try the following:

- Check that the Service Station Encoder-Cable is NOT broken or damaged.
- Check that the Service Station Encoder-Cable is correctly connected.
- Replace the Service Station ⇒ Page *8-69*.
- If the Error Code continues, replace the Main PCA ⇒ Page *8-81*.

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.**

System Error:	010090 (**Continuable**)
Problem Description:	Error in Paper-axis Motor Encoder
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 *8-105*.
- If the Error Code continues, replace the Main PCA ⇒ Page *8-81*.

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.**

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

System Error:	010092 (**Continuable**)
Problem Description:	Mark Encoder position not detected on Drive Roller.
Corrective Action:	Try the following:

- Replace the Lens Cover ⇒ Page *9-5*.
- Clean the Mark Encoder on the Drive Roller using the Turn DRIVE ROLLER Utility ⇒ Page *4-17*.

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

System Error: 040000 **01E603D9**

Problem Description: This is an error that is related to the Parallel Port. It happens normally in New Printers and only once (it is unlikely to appear again). Even if the error appears again, there is nothing wrong with the Printer.

Corrective Action: Try the following:

■ Recommend to the customer to print via the Network Card because the transmission time via the Parallel Port is very slow.

■ If the customer insists on printing via the Parallel Port, ask them to check the Parallel Port settings on the PC (that was used when the error occurred). The Parallel Port setting in the PC BIOS should be in the ECP mode. This configuration should decrease the frequency of the error.

System Error: 050000 (**Continuable**)

Problem Description: Lens has problems reading the Mark Encoder on the Drive Roller.

Corrective Action: Try the following:

■ Clean the Mark Encoder on the Drive Roller using the Turn DRIVE ROLLER Utility ⇒ Page *4-17*

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

System Error: 050001 (**Continuable**)

Problem Description: Lens has problems reading the Mark Encoder on the Drive Roller.

Corrective Action: Refer to System Error Code 050001.

System Error:	06030C
Problem Description:	Bad Line Sensor.
Corrective Action:	Try the following:

- Replace the Line Sensor ⇒ Page *8-53*.
- Replace the Carriage Assembly ⇒ Page *8-46*.
- Replace the Trailing Cable ⇒ Page *8-36*.
- Replace the Main PCA ⇒ Page *8-81*.

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.**

System Error:	06040C
Problem Description:	Line Sensor not connected correctly.
Corrective Action:	Try the following:

- Check/reconnect the Line Sensor.
- Replace the Line Sensor ⇒ Page *8-53*.
- Replace the Carriage Assembly ⇒ Page *8-46*.

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.**

System Error: 0A0000

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.
- Check that the Air Tube from the APS is correctly connected to the Tubes System.
- Replace ONE Ink Cartridge at a time, checking if the System Error Code disappears.
- Faulty APS. Replace the APS ⇒ Page *8-67*.

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.**

System Error: 0A0010

Problem Description: APS Failure.

Corrective Action: Refer to System Error Code 0A0000.

System Error: 0A0020

Problem Description: Error in Calibrating the APS Sensor.

Corrective Action: Try the following:
- Check the APS Sensor and the valve cables, making sure that they are NOT damaged and connected correctly.
- Replace the APS (⇒ Page *8-67*) or the ISS PCA (⇒ Page *8-91*).

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 *8-67*) 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.**

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 *8-67*.

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.**

System Error:	0A0050 **(Non-Continuable)**
Problem Description:	The Printer has detected a leak in the Tubes System - Should ONLY appear in printers with the Ink Leak Detector installed.
Corrective Action:	Try the following:

- Check for ink in the Ink Leak Detector and, if present, replace the complete Tubes System $\Rightarrow$ Page *8-25*.
- 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.
- Replace the ISS PCA $\Rightarrow$ Page *8-91*.

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.**

System Error:	0A0060 **(Non-Continuable)**
Problem Description:	The Printer has detected a leak in the Tubes System - Should ONLY appear in printers with the Ink Leak Detector installed.
Corrective Action:	Refer to System Error Code 0A0050.

System Error:	0A0070 **(Continuable)**
Problem Description:	The Backup EEROM contents stored in the Hard Disk Drive are not consistent with the ones required by the firmware.
Corrective Action:	Try the following:

- Perform Backup EEROM $\Rightarrow$ Page *4-30* and ALL calibrations. Perform EEROM Setup $\Rightarrow$ Page *4-23* to reconfigure the Printer.

System Error:	0B0000
Problem Description:	Bad Ambient Temperature measured.
Corrective Action:	Try the following:

- Make sure that the Ambient temperature is within the allowed range (between 0 and 55 Degrees Centigrade).
- Replace the Main PCA $\Rightarrow$ Page *8-81*.

System Error:	0B0001
Problem Description:	Bad Humidity Read
Corrective Action:	Try the following:

- Replace the ISS PCA $\Rightarrow$ Page *8-91*.
- Replace the Main PCA $\Rightarrow$ Page *8-81*.

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.**

System Error:	0B0002
Problem Description:	Bad IDS pressure read.
Corrective Action:	Try the following:

- Check that the cable from the Ink Supply Station (ISS) PCA to the Ink Supply Station is correctly connected.
- Check that the Air Pressurization System Sensor Cable is correctly connected and is NOT damaged.
- Check all the tubes of the APS and make sure they are NOT pinched or damaged.
- Faulty APS. Replace the APS $\Rightarrow$ Page *8-67*.
- If the error code continues, replace the Main PCA $\Rightarrow$ Page *8-81*.

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.**

System Error:	0B0003
Problem Description:	ADC0 Internal channels check Failure.
Corrective Action:	Replace the Main PCA $\Rightarrow$ Page *8-81*.

System Error:	0B0004
Problem Description:	APS Failure.
Corrective Action:	Try the following:

- Check that the cable from the Ink Supply Station (ISS) PCA to the Ink Supply Station is correctly connected.
- Faulty APS. Replace the APS ⇒ Page *8-67*.
- If the error code continues, replace the Main PCA ⇒ Page *8-81*.

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.**

System Error:	0B0005
Problem Description:	APS Failure.
Corrective Action:	Refer to System Error Code 0B0004.

System Error:	0B0006
Problem Description:	The Trailing Cable has been incorrectly connected.
Corrective Action:	Try the following:

- 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.
- If the Error Code continues, replace the Main PCA ⇒ Page *8-81* taking care when connecting the Trailing Cable.

System Error:	0B000X
Problem Description:	Unable to detect Fan (X = 7 - Vacuum, 8 - Cooling, 9 - Aerosol).
Corrective Action:	Try the following:

- Make sure that the Fan is connected correctly to the Main PCA.
- Turn the Printer OFF and disconnect the Fan from the Main PCA. Connect a **New** Fan to the Main PCA and power ON the Printer. If the **New** Fan functions correctly without any Error Codes then remove the **Old** Fan from the Printer and install the **New** one.
- If the New Fan does not function correctly either, then replace the Main PCA ⇒ Page *8-81*.

System Error:	0B0010 **xxxxxxxx (Non-Continuable)**
Problem Description:	This firmware error code is related to the detection of the Printhead cleaners by the line sensor. It always happens during initialization, while checking the Printhead Cleaners. In most case, it is a problem of incorrectly inserted Printhead Cleaners, but it can also be caused by an incorrectly assembled Service Station.
Corrective Action:	Try the following:

- Remove the Printhead Cleaners and **reinsert** them again.
- If the error still persists, perform the Service Station Calibration ⇒ Page *5-11*.
- If the error still persists, an onsite visit is necessary to repeat the calibration or to change the Service Station assembly or the Carriage Assembly.

System Error:	0B000A
Problem Description:	Primer Shutdown Error.
Corrective Action:	Try the following:

- Check that the Service Station Cable (the grey flat cable with the grey connector) is plugged into the Main PCA, and that the clips of the connector are closed. Also check that the cable is not damaged.
- Replace the Service Station ⇒ Page *8-69*.

System Error: 0B000B

Problem Description: APS Failure.

Corrective Action: Try the following:
- Check that the cable from the Ink Supply Station (ISS) PCA to the Ink Supply Station is correctly connected.
- Check that the Air Pressurization System Sensor Cable is correctly connected and is NOT damaged.
- Check all the tubes of the APS and make sure they are NOT pinched or damaged.
- Faulty APS. Replace the APS ⇒ Page *8-67*.
- If the error code continues, replace the Main PCA ⇒ Page *8-81*.

System Error: 0B000C

Problem Description: Serial Device ADC test failure.

Corrective Action: Replace the Main PCA ⇒ Page *8-81*.

System Error: 0B000D

Problem Description: 24 V source test failure.

Corrective Action: Replace the Main PCA ⇒ Page *8-81*.

System Error: 0B000E

Problem Description: At power-up, the Printer thinks it is smaller than 42 inches.

Corrective Action: Try the following:
- Check that there are no obstacles in the Scan-Axis which stops the Carriage from reaching the end-stops on both sides.
- Check that the Carriage moves freely from side to side.
- Check that the IDS Crane is installed correctly on top of the Carriage and that the Carriage Cover is clipped on correctly.

System Error:	0B000F (**Continuable**) (Only applicable to DesignJet 5500 Series)
Problem Description:	Unable to detect the Heater - If this error appears, all settings related to the heater will disappear from the front Panel.
Corrective Action:	Try the following:

- Check that the cable from the Heater to the Main PCA is correctly connected and is NOT damaged.
- Replace the Heater ⟹ Page *8-120*.

System Error:	0C0030
Problem Description:	Drop Detector Failure.
Corrective Action:	Try the following:

- Check that the Drop Detector Cable is NOT broken or damaged.
- Check that the Drop Detector cable is correctly connected to the Service Station Cable.
- Remove the Drop Detector and make sure that there are no obstacles inside which are blocking the sensor.
- Replace the Drop Detector Assembly ⟹ Page *8-72*.
- If the System Error Code continues, replace the Main PCA ⟹ Page *8-81*.

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.**

System Error:	0C0032 (**Continuable)**
Problem Description:	Drop Detector not calibrated or the calibration settings have been lost.
Corrective Action:	Try the following:

- Perform the EEROM Backup from the HDD to the Main PCA (select Main PCA replaced).
- Switch the printer Off and ON again.
- If the System Error Code continues:
  – Perform the Service Station Calibration ⇒ Page *5-11*.
  – Replace the Drop Detector Assembly ⇒ Page *8-72*.
  – Replace the Service Station Assembly ⇒ Page *8-69*.

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.**

System Error:	0C0040
Problem Description:	Error in Printhead Drop Detection. This error code appears when the Printer detects that the same area of nozzles do not work in different Printheads. The possible causes are either fibres or a piece of paper in the Drop Detector or that the Scan-Axis reference is incorrect.
Corrective Action:	Try the following:

- Manually recover the Printheads (⇒ Page *6-15*) and check whether the error still appears.
- If the error **does** appear again, then check that there no fibres or pieces of paper in the Drop Detector.
- If the error **does not** appear again, then check that the Scan-Axis stop of the Carriage is not deformed too much (some slight deformation of upto 0.5mm is normal, but if it is bigger than that, then replace the Carriage Assembly and recalibrate the Printer).
- If the Scan-Axis is OK also, then replace the Drop Detector (⇒ Page *8-72*) or the Service Station Assembly (⇒ Page *8-69*) and recalibrate the Printer.

System Error:	0C00FF
Problem Description:	Print Mask could not be generated. The mask generation algorithm could not generate the print mask. Possible causes are memory corruption, print mode definition incompatible with mask restrictions (if using an external RIP). The cause **is not** likely to be the Printhead because if it was, the Printhead would be marked as **XX21 REPLACE**.
Corrective Action:	Try the following:

- Re-boot the Printer and the error code should not appear again.
- If the problem continues to appear and the customer is using an external RIP, ask them to try one of the internal print modes by printing from the HP Driver. If the problem disappears, then the RIP print mode was causing the problem and the customer should contact the RIP vendor.
- Check whether there is a printhead in the **XX21 REPLACE** status. If there is, replace that Printhead.
- If there is no Printhead in the **XX21 REPLACE** status, print the Diagnostic Print to find the Printhead with the failing nozzles.

System Error:	0C1000
Problem Description:	Primer not calibrated or the calibration settings have been lost.
Corrective Action:	Try the following:

- Perform the Service Station Calibration ⇒ Page *5-11*.
- Replace the Service Station Assembly ⇒ Page *8-69*.

System Error:	0C1001
Problem Description:	Primer Shutdown Error.
Corrective Action:	Try the following:

- Check that the Primer Stepper-Motor Cable is NOT broken or damaged and that the Primer Arm moves freely from side to side.
- Replace the Service Station ⇒ Page *8-69*.
- If the Error Code continues, replace the Main PCA ⇒ Page *8-81*.

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.**

System Error:	0D0000 (**Continuable**)
Problem Description:	No Media Profiles Available.
Corrective Action:	Download a media profile for the ink type being used.

System Error:	0D0000 **033f019C**
Problem Description:	No Media Profiles Available.
Corrective Action:	If you upgrade the firmware while media is loaded, you will get the system error "0d0000 033f019C". In this case, press Enter and you will get the message "no media profiles available". The solution is to unload the media and switch the Printer ON and OFF again.
NOTE	**This problem only appears when you try to upgrade from Non-UV ink firmware to UV ink firmware while the media is loaded.**

System Error:	0D0002 (**Continuable**)
Problem Description:	Insufficient Memory to Initialize HPGL2/RTL.
Corrective Action:	The minimum memory required is 96 Mbytes so verify memory installed on the printer using the Statistics menu (refer to the User's Guide).

System Error:	0D0003 **xxxxxxxx (Non-Continuable)**
Problem Description:	This error usually appears at the beginning of Printhead Alignment due to a firmware bug.
Corrective Action:	If the error appears frequently, upgrade to firmware release A.02.xx.

System Error:	0D0004 **xxxxxxxx (Non-Continuable)**
Problem Description:	This is an internal general error code which can appear during the Printhead Alignment process. The chance of this error appearing is less than 0.5% and there is nothing wrong with the Printer.
Corrective Action:	Re-boot the Printer and the error code should not appear again.

System Error:	0D0005 **03180382 (Non-Continuable)**
Problem Description:	After cutting the media, the Printer cannot deactivate the Cutter.
Corrective Action:	Try the following: ■ Check the Cutter and the Carriage Assembly to make sure that they are installed correctly.

System Error:	0FXXXX **(Non-Continuable)**
Problem Description:	A Firmware Error has occurred.
Corrective Action:	Refer to System Error Code ffff ffff **xxxxxxxx**.

System Error:	0F0200 **00b007bc**
Problem Description:	This is an error related to an internal crash involving media profiles and memory.
Corrective Action:	Try the following: ■ This error is sporadic and very rare; just switching the Printer OFF and ON again will cause it to disappear. ■ If the customer has this problem frequently, recommend upgrading the firmware revision to A.02.xx in order to lower the frequency of the error.
NOTE	**This problem is solved in any A.02.xx firmware release.**

System Error:	0F0200 **00b007E5**
Problem Description:	Refer to System Error Code 0F0200 **00b007bc**.

System Error:	0F0200 **01E603d2**
Problem Description:	This is an error that is related to the Parallel Port. It happens normally in New Printers and only once (it is unlikely to appear again). Even if the error appears again, there is nothing wrong with the Printer.
Corrective Action:	Try the following:

- Recommend to the customer to print via the Network Card because the transmission time via the Parallel Port is very slow.
- If the customer insists on printing via the Parallel Port, ask them to check the Parallel Port settings on the PC (that was used when the error occurred). The Parallel Port setting in the PC BIOS should be in the ECP mode. This configuration should decrease the frequency of the error.

System Error:	0F0100 **03180382 (Non-Continuable)**
Problem Description:	After cutting the media, the Printer cannot deactivate the Cutter.
Corrective Action:	Try the following:

- Check the Cutter and the Carriage Assembly to make sure that they are installed correctly.

System Error:	1f500XX (Boot Failed)
Problem Description:	This is an error related to the Hard Disk Drive, either the connections are bad or the Hard Disk Drive or the Main PCA are defective.
Corrective Action:	Try the following:

- Unplug the Printer, remove the HDD cover and check that the two cables (a flat one and the power cable) are connected. Also check that the flat cable connector is clipped in correctly. If the problem persists, replace the Hard Disk Drive ⇒ Page *8-74*.
- If the problem continues, check that the Green and Orange LED's on the Main PCA are ON. If they are not ON, probably the PWS or its connections are defective. If the two LED's are ON and the error continues, replace the Main PCA ⇒ Page *8-81*.

System Error:	e50000
Problem Description:	This is an error that is related to the Hard Disk Drive, either the connections are bad or that the Hard Disk Drive or the Main PCA are defective.
Corrective Action:	Try the following:

- Unplug the Printer, remove the HDD cover and check that the two cables (a flat one and the power cable) are connected. Also check that the flat cable connector is clipped in correctly. If the problem persists, replace the Hard Disk Drive ⇒ Page *8-74*.
- If the problem continues, check that the Green and Orange LED's on the Main PCA are ON. If they are not ON, probably the PWS or its connections are defective. If the two LED's are ON and the error continues, replace the Main PCA ⇒ Page *8-81*.

HP Ink Supplies Troubleshooting

3

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.

■ **No.81** - HP Selection Number for Dye Ink Supplies.

■ **No.83** - HP Selection Number for UV Ink Supplies.

Ink Cartridges

The HP Ink Cartridges for the HP DesignJet 5000 and 5500 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 and 5500 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.

Ink Cartridge

Printhead

Printhead Cleaner

Printhead and Printhead Cleaner are supplied together
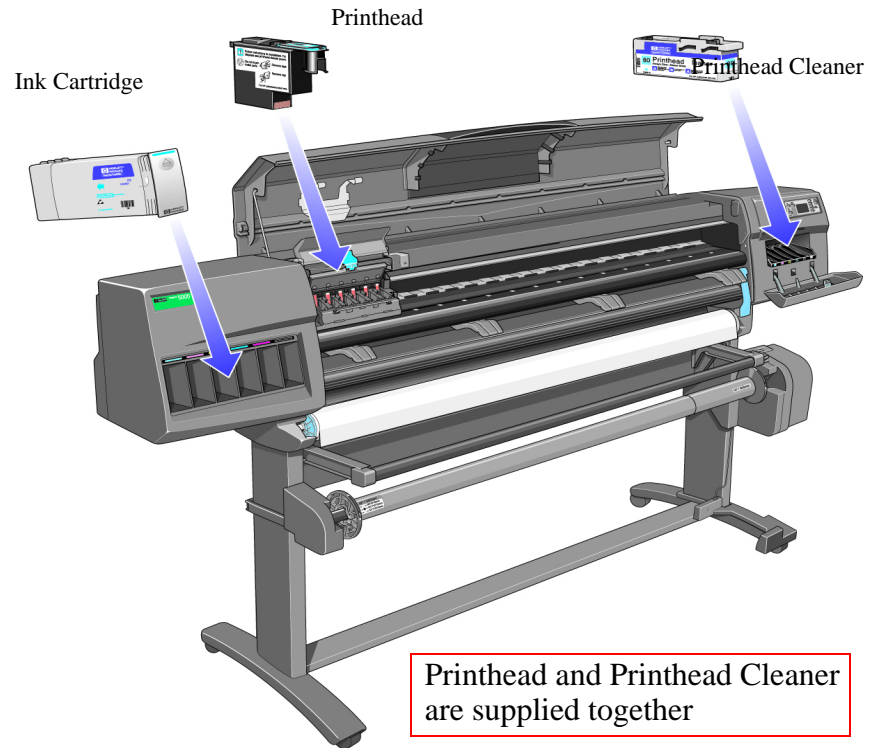
General Information About HP Ink Supplies

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 soft-power Off button on the Front Panel. The Printheads are then stored correctly which prevents them from drying out.
- The Ink Cartridges should never be removed while the Printer is printing. They should only be removed when the Printer is ready for you to replace them. The Front Panel will guide you through the removal and installation procedure. See page 3-5, *When Should You Replace the HP Ink Supplies?*

Some General Precautions When Handling HP Ink Supplies

CAUTION

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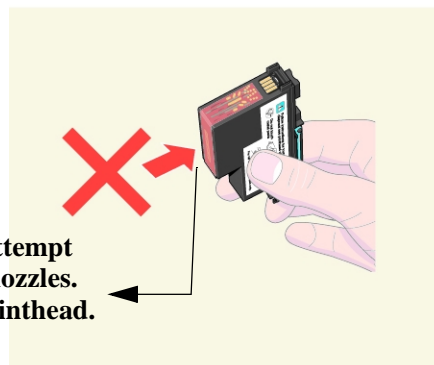
Do not touch, wipe or attempt to clean the Printhead nozzles. This can damage the Printhead.

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 a Brand New 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*).**

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

```
Ready

Roll
Hewlett Packard
Photo Imaging Gloss

Ink                        OK
Printheads    (1421) REPLACE
```

Action Message

Status Code

Printhead Status

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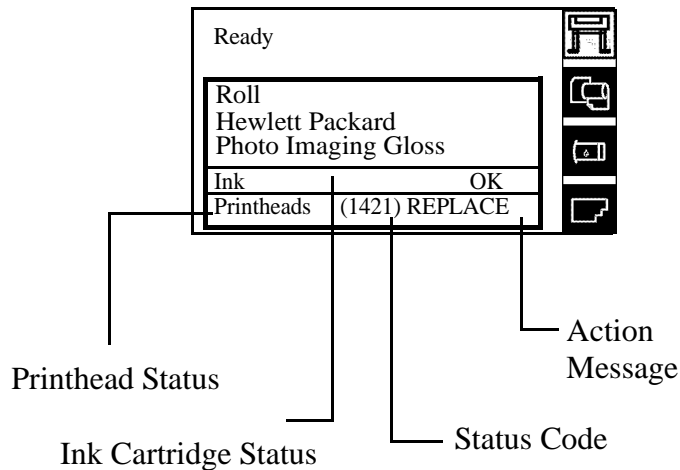
- **Ink** displays information on the Ink Cartridges.
- **Printheads** displays information on the Printheads and the Printhead Cleaners
- The **Status code** indicates the exact nature of the HP Supplies problem (see 3-10, *Status Codes and Messages*).
- The **Action Message** provides instructions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

```
Press ENTER for
cartridges menu

Ink
                   LOW
```

LIGHT CYAN
LIGHT MAGENTA
YELLOW
CYAN
MAGENTA
BLACK

overlay colors

The Ink Cartridges Menu
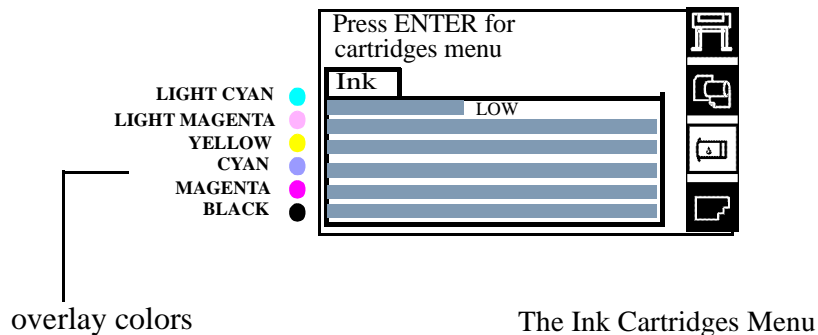
Obtaining Ink Cartridge Information

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

```
Ready

Roll
Hewlett Packard
Photo Imaging Gloss
Ink                    OK
Printheads             OK
```
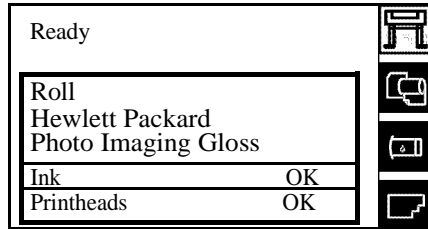
2. Press the ↑ or ↓ key to select the cartridges icon and view status bars indicating ink levels in the Ink Cartridges.

```
Press ENTER for
cartridges menu
Ink
LIGHT CYAN              LOW
LIGHT MAGENTA
YELLOW
CYAN
MAGENTA
BLACK
```

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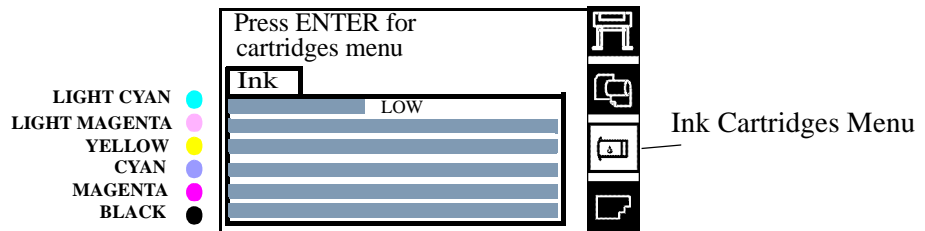
The front panel displays six horizontal bars. These bars represent how much ink is remaining in the Ink Cartridges: as ink is used up the bars get shorter in length. The Ink Cartridge color on the overlay indicates the Ink Cartridge color related to each bar.

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

3. Press the ↑ or ↓ key until the front panel highlights the color that you want to see information on. Press the **Enter** key.

```
Ink cartridge info.

    Light Magenta cart. info...
    Yellow cart. info...
    Cyan cart info...
    Magenta cart info...
    Black cart info...
    Replace ...
```
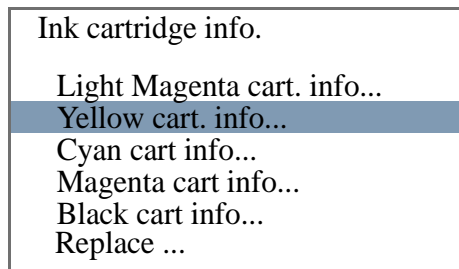
4. The front panel displays information on the selected Ink Cartridge.

```
Yellow cart. info
  HP No.81 ink cartridge
  Ink level=87%
  Capacity=680ml
  Part number=C4934A
  Mfg.month=12/1999
```
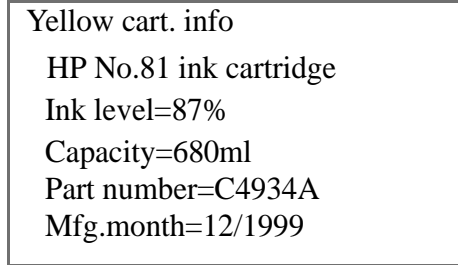
The information supplied is:

- The make of the Ink Cartridge (**No.81** for Dye and **No.83** for UV Ink). Unknown Ink Cartridge may mean the use of refilled Ink Cartridges.
- 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

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

```
Ready

Roll
Hewlett Packard
Photo Imaging Gloss
Ink                    OK
Printheads             OK
```
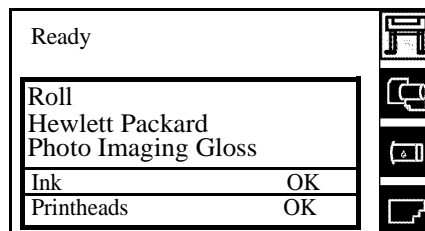
2. Press the ↑ or ↓ key to select the Printheads icon and view information on the Printheads.

```
Press ENTER for
printheads menu
                Printheads
LIGHT CYAN         OK
LIGHT MAGENTA      OK
YELLOW             OK
CYAN          (1421) REPLACE
MAGENTA            OK
BLACK              OK
```
Printhead Menu
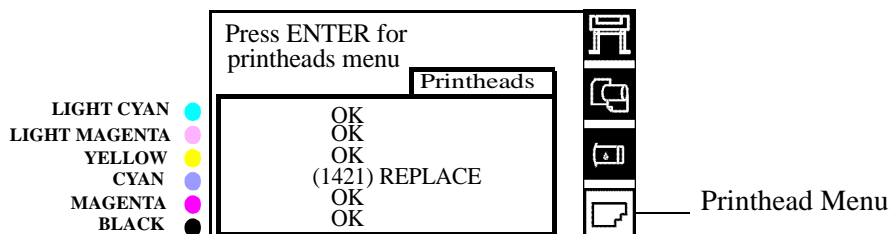
3. Press ↑ or ↓ key until the front panel highlights "Printhead info". Press **Enter** to view the Printheads information**.**
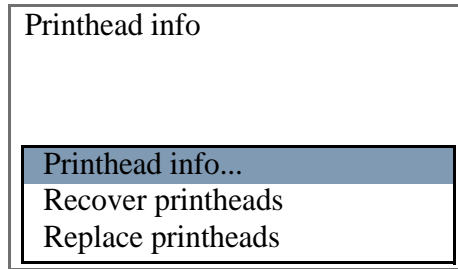
```
┌─────────────────────────────────┐
│ Printhead info                  │
│                                 │
│                                 │
│  ┌────────────────────────────┐ │
│  │ Printhead info...          │ │
│  └────────────────────────────┘ │
│    Recover printheads           │
│    Replace printheads           │
└─────────────────────────────────┘
```

4. Press the ↑ or ↓ key until the front panel highlights the color that you want to see information on. Press the **Enter** key.

```
┌─────────────────────────────────┐
│ Printhead info.                 │
│    Light Cyan cart. info...     │
│    Light Magenta cart. info...  │
│  ┌────────────────────────────┐ │
│  │ Yellow cart. info...       │ │
│  └────────────────────────────┘ │
│    Cyan cart info...            │
│    Magenta cart info...         │
│    Black cart info...           │
└─────────────────────────────────┘
```
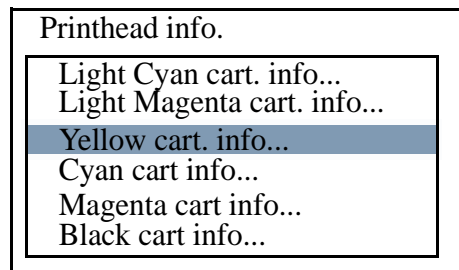
5. The front panel displays information on the selected Printhead.

```
┌─────────────────────────────────┐
│ Cyan printhead info             │
│    HP No.81 printhead           │
│  ┌────────────────────────────┐ │
│  │ Status=OK                  │ │
│  └────────────────────────────┘ │
│    IN Warranty                  │
│    Part Number=C4821A           │
│    Usage time=50h               │
│    Ink consumed=3ml             │
│    Mfg. month=5/1998            │
└─────────────────────────────────┘
```
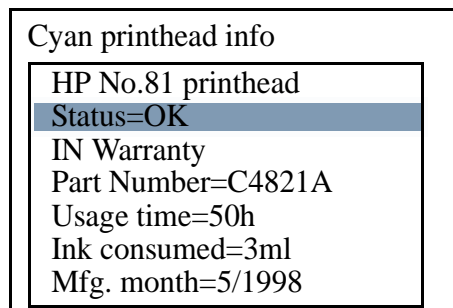
The information supplied is:

■ The make of the Printheads (**No.81** for Dye and **No.83** for UV Ink).

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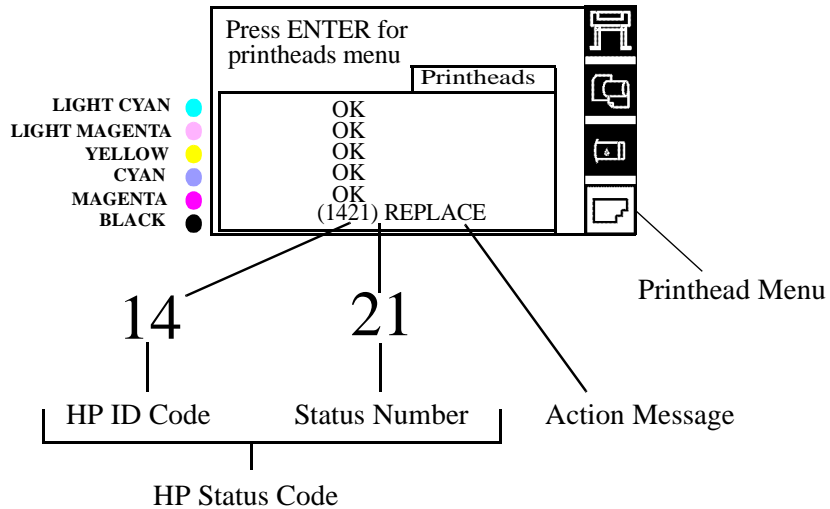
The HP Status Code is made up of 4 digits: the first two digits are the HP ID Code that identify the consumable and its color. The last two digits are the status number indicating the nature of the problem.

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
OK	The ink consumable is working correctly	None
Insert	There is no consumable installed	Insert the correct consumable. In the case of the Printhead, if the correct consumable is inserted, check the Carriage Tube Connector is correctly connected to the Carriage.
Setup	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 **(XX04)Replace** asking you to remove them and replace them with 'normal Printheads'.
Low	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
Very Low	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.
Empty	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
2	HP No.83 Printhead in warranty
3	HP No.83 Printhead out of warranty
4	Setup Printhead
5	Printhead Smartchip error
A	HP No.81 Printhead Cleaner
B	HP No.83 Printhead Cleaner
*	Printhead Cleaner Detection Error
6	HP No.81 Ink Cartridge
7	HP No.83 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

Printhead Errors

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).**

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. To clean the build-up of ink, use the User Maintenance Kit.**

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 reseat 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 *8-81*.

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 **OK** after each one). 1. Reseat the Printhead. 2. Remove the Printhead and clean the interconnect, refer to 9-6, *Carriage Interconnect Wiper* . 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 *8-81*.
XX11 Replace	Incorrect type of Printhead installed.	If Tubes system is priming: install Setup Printhead(s)
		Ensure that you have genuine HP Printheads installed.
XX12 Replace	Printhead does not match the rest of the ink consumables.	Ensure that **all** the ink consumables are HP.
XX13 Replace	Printhead smart chip failure.	Replace the Printhead(s).
XX14 Replace	The Printhead has an internal electrical failure.	1. Replace the Printhead(s). 2. Replace the Carriage Assembly ⇒ Page *8-46*.
XX15 Replace		
XX16 Replace	The Printer was printing: Printhead short	Select **YES** to replace Printheads or **NO** 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 genuine HP Printheads.
XX20 Recover	The Printhead has detected nozzle failure.	1. You can continue using the Printhead unless the **(XX21)Replace** 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 **YES** to replace Printheads or **NO** 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 Information)

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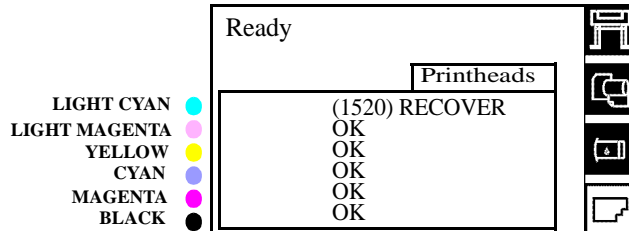
At this stage, the customer should obtain new Printheads. Depending on the print mode being used (Max. Quality, Productivity or Max. Speed) the Printer may still be able to print with an acceptable print quality. Refer to Page *6-15* for details on performing Printhead recovery.

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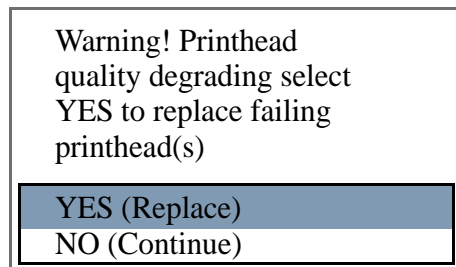
Press the ↓ or ↑ down key to select **YES** or **NO** and press the **Enter** key. If you select **YES** the print job will be cancelled and Printhead replacement will be started. If you select **NO**, the Printer will finish the current print job.

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

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.**

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 reseat 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 Backplate and check that the connections on the floaters are clean and check that the floaters move freely.
  3 Replace the Ink Tubes System ⇒ Page *8-64*.
  4 Replace the ISS PCA ⇒ Page *8-91*.

	Status Numbers	Error Description	Procedure
Ink Cartridge Information	**XX03 Replace**	The Ink Cartridge has a leak which prevents the ink pumping to the Printer. **WARNING: If the Ink Bag in the Ink Cartridge is leaking, the Tubes may be damaged.**	1. Remove the Ink Cartridge immediately. 2. Open the Door at the rear of the Left Cover and check the Air Tubes for Ink and do the following: 3. If there is no ink in the Air Tubes: a) Replace the Ink Cartridge and, if the **XX03Replace** error reappears for any Ink Cartridge, go to step 5. 4. If there is ink in the Air Tubes: a) Remove all the Ink Cartridges to allow the ink to drain from the Tubes. b) Replace the faulty Ink Cartridge and reinsert the other Ink Cartridges. If the **XX03Replace** error reappears for any Ink Cartridge, do the following: 5. Remove the Ink Cartridge and check for ink on the Air Connector on the rear of the Ink Cartridge. 6. If there is ink present, do the following: 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. b) If the Ink Cartridge is not faulty, replace the Ink Tubes System ⇒ Page *8-64*. 7. If there is no ink present, do the following: a) Verify ISS cable connections. b) Remove the Backplate and check that the slots and connections on the floaters are clean. c) Replace the Ink Tubes System ⇒ Page *8-64*. d) Replace the ISS PCA ⇒ Page *8-91*.
	XX04 Replace	Smart chip error. You can not continue to use this Ink Cartridge.	1. Remove the Ink Cartridge and reinstall. 2. Replace the Ink Cartridge
	XX05 Replace	Incorrect Ink Cartridge	Check correct Ink Cartridge is installed. Replace with approved Ink Cartridge.
	XX06 Replace	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 genuine HP.
	XX08 Unknown	The Ink Cartridge smart chip indicates that the Ink Cartridge installed is not supported by HP.	1. Press **Enter** to continue or: 2. Replace with a genuine HP Ink Cartridge. *This error only appears in Refill situations.*
	XX02 Reseat	Continuity problem between Ink Cartridge and Ink Supply Station.	1. Remove the Ink Cartridge and reinsert. 2. Replace the Ink Cartridge. 3. Remove the Ink Supply Station and check contacts on floaters.

Printhead Cleaner Errors (First Digit = A, B 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
Printhead Cleaner Information	***X03 Replace**	There is a Printhead Cleaner detection failure (you may continue to use the Printhead Cleaner)	Try the following: 1. Ensure that genuine HP 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.
	XX05 Replace	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. Ensure that genuine HP Printhead Cleaners are installed.
	XX06 Replace	The Printer detects an incorrect Printhead Cleaner	

Replace Message "xx15 Replace" and "xx16 Replace"

In certain circumstances (e.g. Printhead crash without Printer shutdown), the message "xx15 Replace" or "xx16 Replace" may appear on the front panel. This is due to a temporal disconnection between the Printhead and the flex circuit in the Carriage Assembly.

- Clean the Printheads and the Carriage interconnects (refer to page 9-6, *Carriage Interconnect Wiper*) and reseat the failing Printheads.
- Check that the crane (the part of the Tubes System that is connected to the front of the Carriage) is completely clipped to the front of the Carriage.

Replace Message "xx16 Replace" for ALL Printheads During Replacement

During Printhead replacement, the message "xx16 Replace" can appear for ALL the Printheads due to a firmware bug.

■ Clean the Printheads and the Carriage interconnects (refer to page 9-6, *Carriage Interconnect Wiper*) and reseat the failing Printheads.

Refill Information (DesignJet 5500 Series Only)

Ink-Level Sensing (ILS) Out of Control

Two situations exist that could trigger an ILS Out of Control:

■ HP Ink Cartridges deliver more ink than the expected 680cc
 – Ink Cartridges refilled with non-hp ink.
 – ILS coils become stuck (rare).
■ Non-hp hardware detected in the Ink Delivery System.

Each one of these situations could potentially damage the printer's Ink-Tube System and Printheads. However, since we cannot tell for sure if damage to the printer will occur we cannot prevent a customer from printing. What we can do is warn the customer of possible damage, but not stop the printing altogether.

Ink Cartridge Delivers Too Much Ink

The following information explains the front panel message flow:

After printer detects ILS out of control situation

Warning! Supply n Ink Level ?
Error code 8n09.
See user manual
Select YES to replace (Y/N)

NO

Ink Cartridge marked **empty** before removal

YES

HP is not responsible for damage from use of non-HP ink.
Select YES to replace (Y/N)

NO

1. Enable "Out of Control" bit in the PH, IC, and ink-tube smart chips
2. Update Service Config print (Ink level sense and non-hp-ink field on tubes, printhead and ink cartridge)
3. Ink cartridge bar for that specific color replaced by the error "? 8X09"

Ink

? 8309

4. Ink cartridge info menu will show "Unknown Ink Cartridge"
5. Webaccess will show "Ink supply info not available"

Error Message	Warning!... supply ink level? (Error code 8x09) See user manual

Description	If you choose to continue printing with this ink supply you will not have an ink level indicator. You may not know when the ink supply is running low or empty. Printing with an empty ink supply may seriously damage your printhead, ink tubes, and printer. See below for a complete listing of features that will not be available with continued use of this ink supply. Any damage resulting from use of this supply or non-Hewlett-Packard ink is not covered under your printer warranty.
	
	The following features will not be available as a result of using this supply.
	■ In the Ink Cartridge menu:
	  – Ink level indicator
	  – Percentage of ink remaining
	■ In WebAccess:
	  – Ink Cartridges status
	  – Ink Level

Recovery Action	Select "Yes" to replace the Ink Cartridge with a genuine HP No. 81/83 Ink Cartridge, or "No" to continue.

Risks with the Ink Cartridge Delivering Too Much Ink

■ Meeting Point Refills: If the customer refills within the ink meeting point zone, then the ink cartridge will operate "normally." If the customer refills after the meeting point, then an ink cartridge error will appear. Therefore, no major issues in regards to printer damage are anticipated.

■ Frozen Coils Refills: The major risk of hardware failure in these kind of systems is printhead dry fire and probable empty ink tubes. Since the coil signal is blocked, the ILS will never detect an out of ink situation which could allow the printer to print without ink.

■ In either case customers loose the unattendedness of the printer since they have to perform frequent ink cartridges refills to avoid the previously mentioned issues.

■ Image quality, printhead performance, ink/media compatibility cannot be guaranteed with the use of non-hp ink. Customer acceptance depends on their preferences.

Non-HP Hardware Detected in the Ink Delivery System

The following information explains the front panel message flow:

Non-HP hardware is detected

HP is not responsible for damage from use of non-HP ink. Select YES to replace (Y/N)

NO

YES

Stays in the status it was prior to the non-hp hardware

1. Enable "Out of Control" bit in the PH and ink tubes smart chips.
2. Update Service Config print (non-hp-ink field on tubes, PH and IC)
3. Ink cartridge bars for all colors will continue working but they will be semi-transparent (not solid)

Ink

4. When there is any action on the ink cartridges, the FP will show:

Ink

(6508) UNKNOWN
(6408) UNKNOWN
(6308) UNKNOWN
(6208) UNKNOWN
(6108) UNKNOWN
(6008) UNKNOWN

5. Webserver will show gray IC bars.

Error Message	XX08 Unknown
Description	Use genuine HP components for excellent image quality from your printer. If you choose to continue printing with this ink supply you may not have a properly functioning or reliable ink level indicator. The solid bar showing the ink level will be replaced by a patterned bar. You may not know when the ink supply is running low or empty. Printing with an empty ink supply may seriously damage your printhead, ink tubes, and printer. Any damage resulting from use of this supply or non-HP ink is not covered under your printer warranty.
Recovery Action	Select "Yes" to replace the Ink Cartridge with a genuine HP No. 81/83 Ink Cartridge, or "No" to continue.

Risks with Using Non-HP Hardware

The risks in using non-hp hardware refill systems are:

- Printhead dry fire.
- Probable empty ink tubes.

These issues can be caused by:

- Cartridge not refilled to 100%. A customer could perform a counter reset when the cartridge was not refilled to 100%. If so, the printer thinks the IC is 100% full when, in fact, it could be 80% full. When the ink is depleted, the printer may continue printing without ink.

- Uninstalling non-hp hardware. While the non-hp hardware is installed, the ink cartridge smartchip is not updated. Therefore, an IC can be marked at 80% full when, in fact, it's only 70% full. If the non-hp hardware is uninstalled the printer thinks there is more ink available than there really is. Thus, the printer may continue to print without ink.

- Not performing the reset process. If customer is not performing the reset, the initial status of the quantity of ink will not be 100% when it really is 100%.

ILS Out of Control Detection

- Current Printhead kit info

	Cyan (IN WTY)
Printhead status:	OK
Cleaner status:	OK
Cleaner replaced:	YES
Product number:	C4951A-HP No 81
Serial number:	31589
Used with non HP ink:	NO
Ink used (wty spent):	219 ml (31.29 %)
Usage time (h):	6166
Number of primes:	0

Changes to YES

The printhead loaded in the printer is or was using non-hp ink

- Current Ink cartridge info

	Cyan (IN WTY)
Status:	OK
Product number:	C4931A-HP No 81
Serial number:	2804892
Expiration date:	11/2003
Manufacturer:	Genuine HP
Number of insertions:	20
Used with non HP ink:	NO

Changes to YES

The ink cartridge loaded in the printer is using non-hp ink

- Printer History

	Cyan
DYE PH/IC consumed:	0 PH / 0 IC
UV PH/IC consumed:	0 PH / 0 IC
DYE ink consumed:	22.79 ml
UV ink consumed:	16.97 ml
Non HP ink tubes:	NO

Changes to YES

Not on the case of non-hp hw installed

The ink-tube system loaded in the printer is or was using non-hp ink

ILS Out of Control Warranty Statement

- Printhead and cleaner warranty: Until the "end of warranty" date printed on the product is reached, or 700 cc of HP ink is delivered through the printhead, whichever occurs first.

- Ink Cartridge warranty: Until the genuine HP ink is depleted as indicated by the printer, or the "end of warranty" date printed on the product is reached, whichever occurs first.

- For HP printer products, the use of a refilled or non-original HP consumable product (ink, printhead or ink cartridge) does not affect either the warranty to the customer or any HP support contract with the customer. However, if printer failure or damage is attributable to the use of a non-HP or refilled ink cartridge, HP will charge its standard time and materials charges to service the printer for the particular failure or damage.

Service Tests and Utilities

4

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 intialization 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 *8-77*.
	Self Test Please Wait	Error Memory Config:X (sometimes only the error code is displayed)	If X = 7 reseat the DRAM DIMM's, otherwise replace the DRAM DIMM's ⇒ Page *8-77*.
○ Max. Quality ○ Productivity ● Max. Speed		Error Memory Test	Replace the DRAM DIMM's ⇒ Page *8-77*.
● 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 *8-77*.

Self Diagnostics - Initialization Sequence

LED's	Front Panel Message	Printer Error - Error Message/Code	Corrective Action
○ Max. Quality ● Productivity ● Max. Speed	Spinning up disk	Boot Failed:1f500XX This is an error related to the Hard Disk Drive, either the connections are bad or the Hard Disk Drive or the Main PCA are defective.	■ Unplug the Printer, remove the HDD cover and check that the two cables (a flat one and the power cable) are connected. Also check that the flat cable connector is clipped in correctly. If the problem persists, replace the Hard Disk Drive ⇒ Page *8-74*. ■ If the problem continues, check that the Green and Orange LED's on the Main PCA are ON. If they are not ON, probably the PWS or its connections are defective. If the two LED's are ON and the error continues, replace the Main PCA ⇒ Page *8-81*.
	Spinning up disk...OK		
○ Max. Quality ● Productivity ● Max. Speed	Loading firmware.fmw	Boot FAILED	Download the Firmware file to the Printer ⇒ Page *9-13*.
	Initializing		
● Max. Quality ○ Productivity ● Max. Speed	Initializing L2C		
	Initializing CLK		
	Initializing IO		
		BOOTROM ERROR: Current Version:XXX Necessary Version:XXX Replace and Restart	The BootROM version does not support the firmware installed on the HDD. Replace the BootROM.
		COMPONENT MISMATCH: You are running a XXX printer with a XXX disk Insert XXX disk and restart.	The firmware installed on the HDD and the BootROM personality does not match. Make sure both parts are either RTL or PS and make sure you do NOT mix them (See Parts List for Part Numbers).
● Max. Quality ○ Productivity ○ Max. Speed	Initializing Please Wait Code rev:XXXXXX BootROM:XXXXX RAM present:XXX MB Hard Disk:XXXX MB PS Code rev:XXXXX (**Only in PS Unit**)		
	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 *4-6*.

1. Scan Axis Test ⇒ Page *4-9*

    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 *4-11*

    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.

```
Ready

Roll
Hewlett Packard
Photo Imaging Gloss
Ink                    OK
Printheads             OK
```

Top

Back

↑
↓ —— Make Selection

Enter —— Press Enter

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.

```
Printer setup options

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

Top

Back

↑
↓ —— Make Selection

Enter —— Press Enter

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

```
Utilities

Usage ...
Menu Mode = Full
Calibrations ...
Reset WebAccess paswd
Test Prints ...
Statistics ...
```

Top

Back

↑
↓ —— Press Up and Enter Together

Enter

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:

```
Printer setup options

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

Top

Back

↑

↓ **Press Down and Enter**

Enter **Together**

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 "3 Service Tests" menu and press the **Enter** key.

```
Service Menu


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

Top

Back

↑
——— **Make Selection**
↓

Enter ——— **Press Enter**

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

```
3 Service Tests



3.1 Scan Axis
3.2 Media Axis
```

Top

Back

↑
——— **Make Selection**
↓

Enter ——— **Press Enter**

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.

```
3.  Service Tests

Error!!

Svs Test not available.

Upgrade Firmware rev.

Press Enter to continue
```

Top

Back

↑

↓

Enter ———— **Press Enter**

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**.
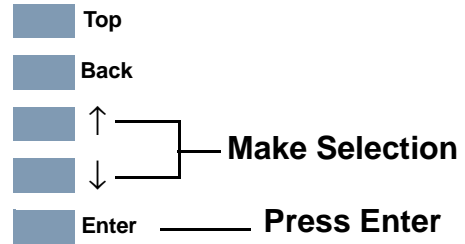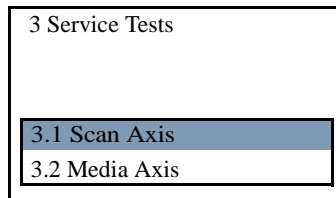
```
3 Service Tests




3.1 Scan Axis
3.2 Media Axis
```

Top
Back
↑
↓ ⎯ **Make Selection**
Enter ⎯⎯ **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
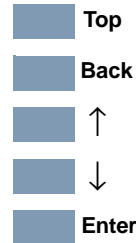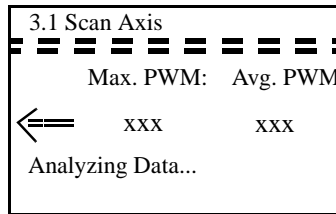
3. When the test has completed, the Maximum and Average Pulse Modulation Values are displayed for each direction (left and right). Press **Enter** to return to the Service Tests menu.
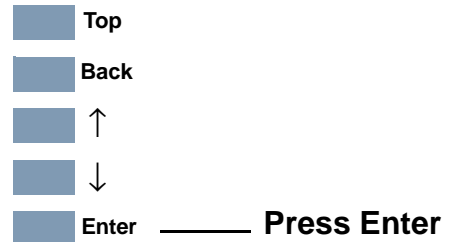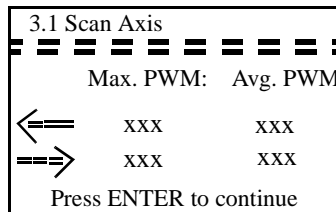
```
3.1 Scan Axis
= = = = = = = =
      Max. PWM:    Avg. PWM:

⇐==    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** *1-37.*

To check if the values displayed after the test are within the limits, refer to the following table:

	Forwards (<==)	**Backwards (==>)**
Maximum PWM	225	230
Average PWM	205	200

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 the Slider Rods and Apply Oil along the complete axis of the Slider Rods using the content of the Users Maintenance Kit.
2. Check the Encoder Strip and clean it if it is dirty.
3. Replace the Scan-Axis Motor ⟹ Page *8-57.*
4. Replace the Tensioner Assembly ⟹ Page *8-42.*
5. 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**.
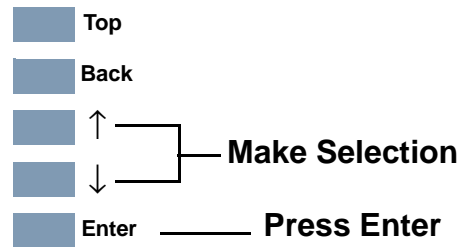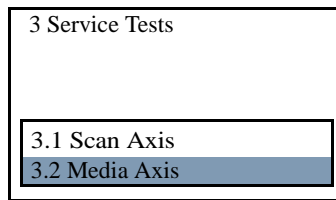
```
3 Service Tests




3.1 Scan Axis
3.2 Media Axis
```

Top
Back
↑
↓ — **Make Selection**
Enter ——— **Press Enter**

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

```
3.2 Paper Axis
= = = = = = = = =
      Max. PWM:    Avg. PWM:
 ↓      xx          xx
Analyzing Data...
```

Top
Back
↑
↓
Enter
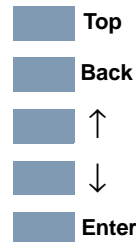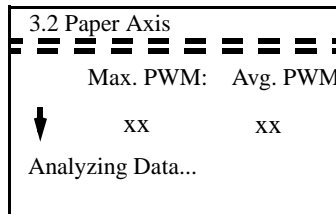
3. When the test has completed the Maximum and the Average Pulse Modulation Values are displayed for each direction (down and up). Press **Enter** to return to the Service Tests menu.
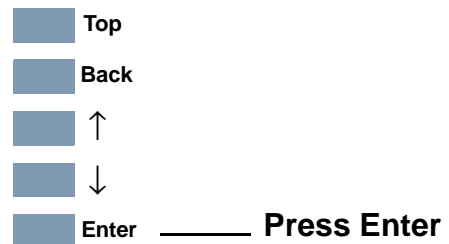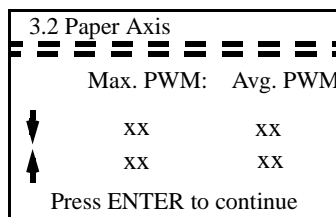
```
3.2 Paper Axis
= = = = = = = = =
    Max. PWM:    Avg. PWM:
 ↓    xx          xx
 ↑    xx          xx
  Press ENTER to continue
```

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 *1-37*.

To check if the values displayed after the test are within the limits, refer to the following table:

	Without Media	**With Media**
Maximum PWM	Between 66 and 93	Between 65 and 100
Average PWM	Between 67 and 85	Between 70 and 90

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 *8-111* to gain better access.

3. Remove the Paper-Axis Motor (⇒ Page *8-105*) and check the Drive Roller movement is smooth and if it is not, remove the Center Platen (⇒ Page *8-117*) to check for any obstructions.

4. Replace the Paper-Axis Motor ⇒ Page *8-105*.

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 *4-14*.

1. Turn DRIVE ROLLER $\Rightarrow$ Page *4-17*

The purpose of this Service Utility is to facilitate the cleaning of the Drive Roller and the Overdrive.

2. Prime TUBES $\Rightarrow$ Page *4-18*

The purpose of this Service Utility is to prime the Tubes when the tubes are NOT new and they need to be reprimed or automatic priming was not completed.

3. Altitude Setup $\Rightarrow$ Page *4-22*

This Service Utility allows the operating altitude to be set for the Printer.

4. EEROM Setup $\Rightarrow$ Page *4-23*

The purpose of this Service Utility is to set the Printer Model, the Serial Number and Japanese Fonts.

5. Reset Life Counters $\Rightarrow$ Page *4-28*

The purpose of this Service Utility is to reset the preventive maintenance counters when parts have been replaced.

6. Backup EEROM $\Rightarrow$ Page *4-30*

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 $\Rightarrow$ Page *4-32*

This Service Utility allows you to turn the Image Quality Warning message On or Off.

8. Diagnostic Print $\Rightarrow$ Page *4-33*

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.
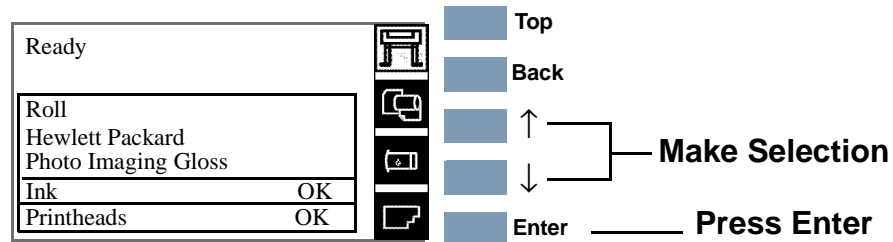
ON-SITE REPAIR

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 SUUPORT

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.

```
┌─────────────────────────────┐      ┌──┐
│ Printer setup options       │      │  │ Top
│                             │      └──┘
│ Device setup...          ▲  │      ┌──┐
│ I/O setup...                │      │  │ Back
│ Utilities...                │      └──┘
│ Internal RIP settings...    │      ┌──┐
│ Queueing & Nesting...       │      │  │ ↑
│ HP-GL/2 settings...      ▼  │      └──┘
└─────────────────────────────┘      ┌──┐        Press Down
                                      │  │ ↓      and Enter
                                      └──┘
                                      ┌──┐
                                      │  │ Enter
                                      └──┘
```

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

```
┌─────────────────────────────┐      ┌──┐
│ Warning!                    │      │  │ Top
│ This mode should NOT be     │      └──┘
│ used without having the     │      ┌──┐
│ guidance of a HP            │      │  │ Back
│ representative person       │      └──┘
│ Yes...                      │      ┌──┐
│ No                          │      │  │ ↑
└─────────────────────────────┘      └──┘
                                      ┌──┐
                                      │  │ ↓
                                      └──┘
                                      ┌──┐
                                      │  │ 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                │      │  │ Top
│                             │      └──┘
│                             │      ┌──┐
│                             │      │  │ Back
│ 1 Service Utilities...      │      └──┘
│ 2 Service Calibrations...   │      ┌──┐
│ 3 Service Tests...          │      │  │ ↑
└─────────────────────────────┘      └──┘      Make Selection
                                      ┌──┐
                                      │  │ ↓
                                      └──┘
                                      ┌──┐
                                      │  │ Enter   Press Enter
                                      └──┘
```

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

```
┌─────────────────────────────┐      ┌──┐
│ 1. Service Utilities        │      │  │ Top
│ 1.1 Turn DRIVE ROLLER    ▲  │      └──┘
│ 1.2 Prime TUBES             │      ┌──┐
│ 1.3 Altitude Setup          │      │  │ Back
│ 1.4 EEROM Setup             │      └──┘
│ 1.5 Reset Life Counters     │      ┌──┐
│ 1.6 Backup EEROM         ▼  │      │  │ ↑
└─────────────────────────────┘      └──┘      Make Selection
                                      ┌──┐
                                      │  │ ↓
                                      └──┘
                                      ┌──┐
                                      │  │ Enter   Press Enter
                                      └──┘
```

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.

Turn DRIVE ROLLER

PHONE SUPPORT

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
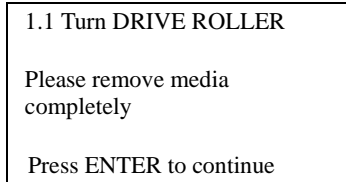
Perform the Turn DRIVE ROLLER utility as follows:

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**.

> 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

↑
↓　　**Make Selection**

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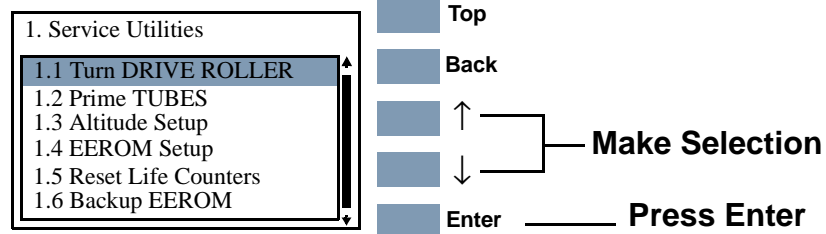
3. Once the utility starts, the Drive Roller will begin to turn slowly and
the following message will be displayed. Everytime the Drive
Roller completes a turn, the counter will increase by one.

Cancel

Press Cancel

> 1.1 Turn DRIVE ROLLER
>
> 1 turn (s)
>
> Press CANCEL to stop
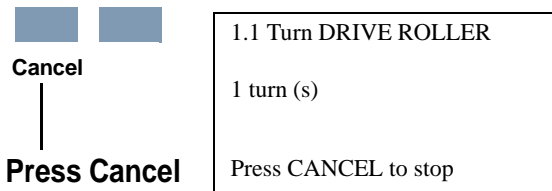
4. If you want to stop the Drive Roller from turning, press **Cancel** and
the following message will appear on the front panel. Press **Enter** if
you want to return to the Service Utility menu or press **Back** if you
want to continue turning the Drive Roller.

> 1.1 Turn DRIVE ROLLER
>
> Stopped!
>
> Press ENTER to exit
> or BACK to resume

Top

Back ┐
↑　　│**Make Selection**
↓　　│
Enter ┘
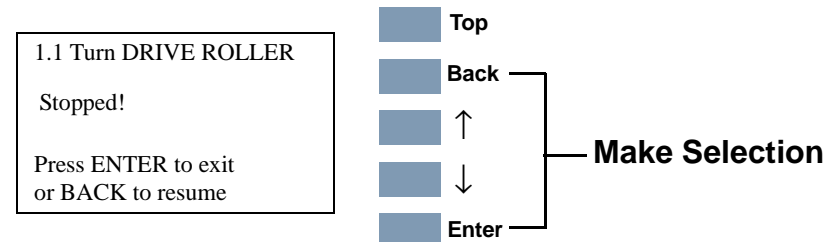
PHONE SUPPORT

Prime TUBES

The purpose of this Service Utility is to prime the Tubes when the tubes are NOT new and they need to be reprimed or automatic priming was not completed.

NOTE **Remember that the priming process is automatically performed when NEW tubes are installed.**

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
↑
↓ — **Make Selection**
Enter — **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**
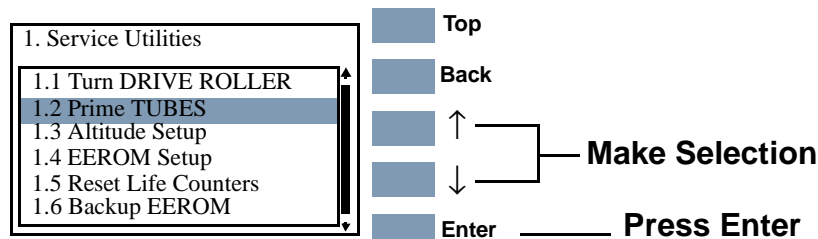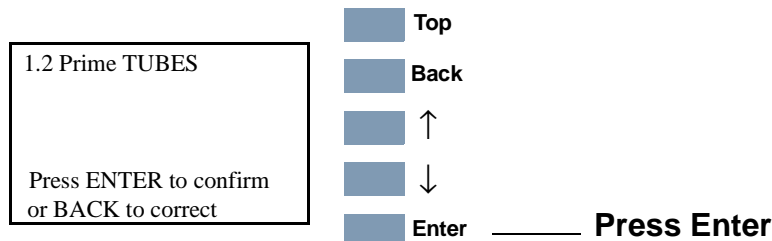
3. The Printer will begin to startup and in order to continue, press **Enter**.

INK STARTUP
Printer startup
Press ENTER to Continue

Top
Back
↑
↓
Enter — **Press Enter**
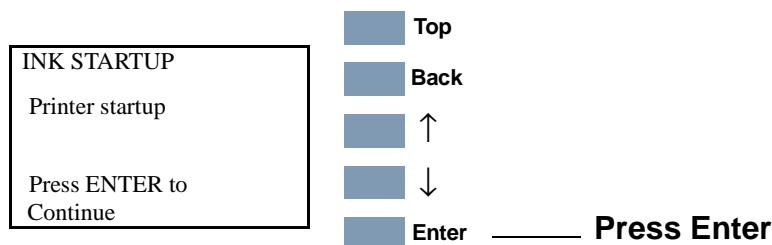
4. The following message will be displayed on the front panel while the printer verifies the Ink Cartridges:.

```
Ready

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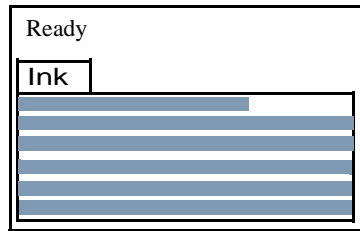
5. When the following message is displayed, lift the Window and remove ALL the Printheads from the Carriage. Install the Setup Printheads into the Carriage.

```
INK STARTUP

Lift window to
install SETUP
printheads
```
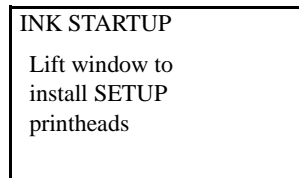
6. Once all the Setup Printheads are installed, the following message will appear on the front panel. Close the Carriage Cover and close the Window.

```
INK STARTUP

All SETUP printheads
are OK. Close cover
and window to
continue
```
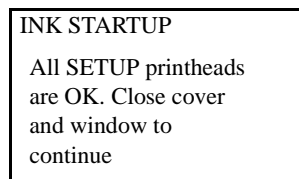
7. The following messages will be displayed on the front panel while the Printer accesses and then stores the Printheads.

```
INK STARTUP

 Accessing Printheads
```

```
INK STARTUP

 Storing 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**.

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

    ↑
    ↓   ──── **Make Selection**
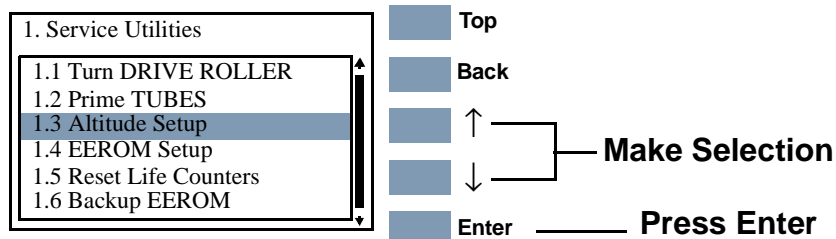
    Enter ──── **Press Enter**

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

1.3 Altitude Setup
Select an altitude
1.3.1 0-2000m
1.3.2 2000m or more

    Top

    Back

    ↑
    ↓   ──── **Make Selection**
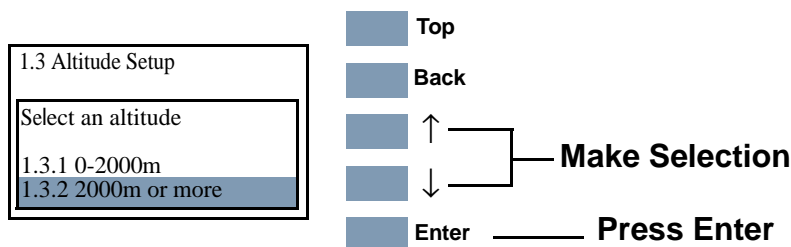
    Enter ──── **Press Enter**

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

1.3 Altitude Setup
You have selected the following altitude:
1.3.2 2000m or more
Press ENTER to confirm
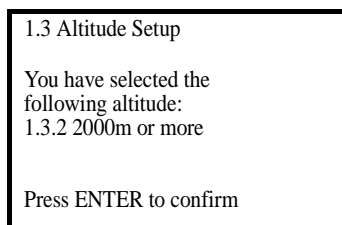
4. Press **Enter** to confirm and exit this utility or press **Back** to return to the altitude settings menu.

EEROM Setup

NOTE   **This test is only necessary in a situation where you have NOT
            been able to perform the EEROM backup test and you have lost
            all the EEROM parameters.**

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 *4-30*).

■ 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**.
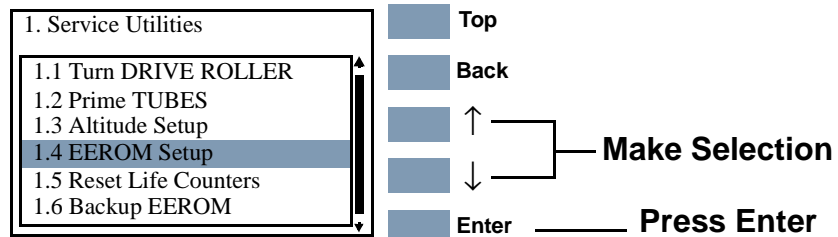
2. The following options are displayed for EEROM setup. Press **Enter**
once you have made your selection:
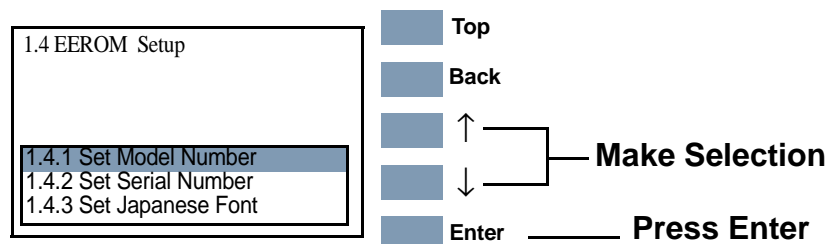
If you want to set the Model Number

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**.

1.4.1 Set Model Number	Top
	Back
1.4.1.1 C6095A	↑
1.4.1.2 C6096A	**Make Selection**
1.4.1.3 Q1251A	↓
1.4.1.4 Q1253A	
	Enter — **Press Enter**
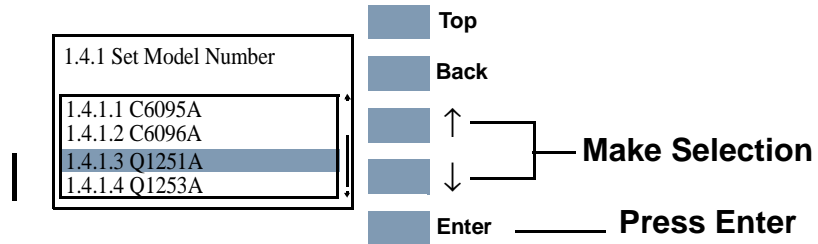
b The following message is displayed. Press **Enter** to confirm and return to the EEROM Setup menu or **Back** to select another Model Number.

1.4.1 Set Model Number	Top
Model number selected:	Back
Q1251A	↑
Press ENTER to confirm or BACK to correct	↓ **Make Selection**
	Enter
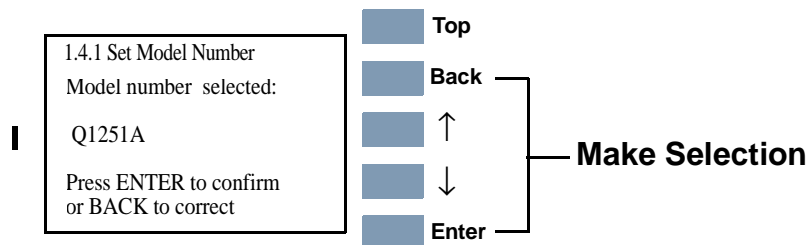
If you want to set the Serial Number

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.

```
1.4.2 Set Serial Number
Current : ESA80035674
New: ES_

Use Up/Down buttons
to scroll
```

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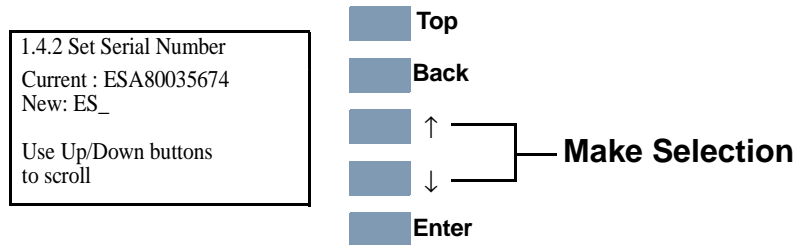
b When the last digit has been entered, the message below is displayed. Press **Enter** to confirm the number and return to the EEROM Setup utility or **Back** to modify the number.

```
1.4.2 Set Serial Number

Serial number selected:
ESB7531008

Press ENTER  to confirm
or BACK to correct
```

Top
Back ──
↑
↓ ── **Make Selection**
Enter ──
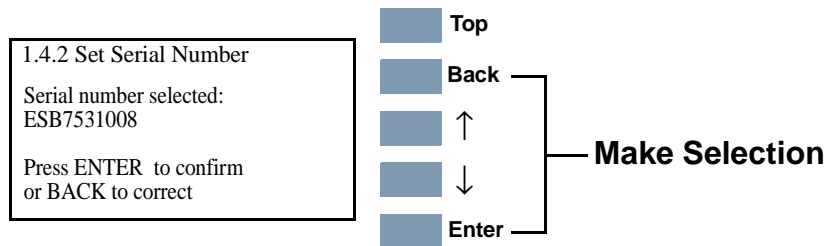
c If you decided to press **Back**, the utility will return to the Serial Number selection menu and the last digit of the Serial Number will be automatically deleted.

```
1.4.2 Set Serial Number

Serial number selected:

ESB7531008

Press ENTER to confirm
or BACK to correct
```

Top
Back ──
↑
↓ ── **Make Selection**
Enter ──
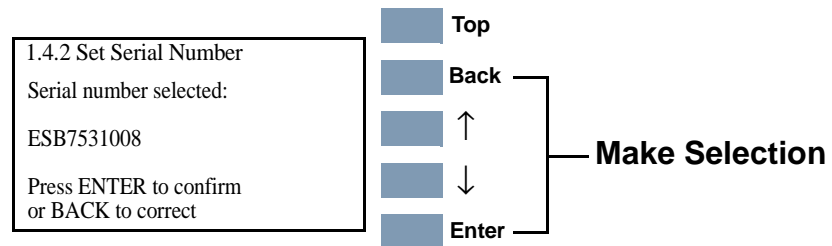
If you want to set the Japanese Fonts

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 an HP DesignJet 5000PS or 5500PS, 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
```

Top

Back ———— **Press Back**

↑

↓

Enter

NOTE   **If the printer is an HP DesignJet 5000PS or 5500PS, 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
```

Top

Back ———— **Press Back**

↑

↓

Enter

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?

Yes
No (Cancel)
```

Top

Back

↑

↓

Enter ———— **Press Enter**

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.

```
┌─────────────────────┐          ▢ Top
│ 1.4.2 Set Japanese Fonts│
│ You have set the    │          ▢ Back ─┐
│ default font type to│                  │
│ Japanese            │          ▢ ↑      ├── Make Selection
│                     │          ▢ ↓      │
│ Press ENTER to confirm or│                 │
│ BACK to correct     │          ▢ Enter ─┘
└─────────────────────┘
```
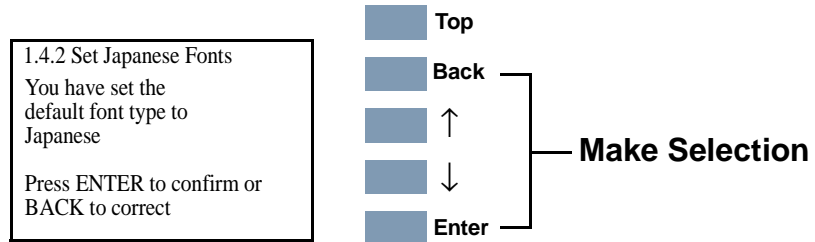
Reset Life Counters

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**.

```
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
↑ ↓ ——— Make Selection
Enter ——— Press Enter
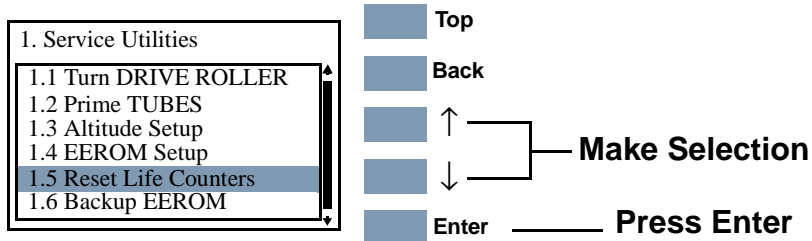
2. The following options are displayed for Reset Life Counters. Press **Enter** once you have made your selection.

```
1.5 Reset Life Counters



  1.5.1 Scan Axis
  1.5.2 Cuts
  1.5.3 Printh. Insertions
```

Top
Back
↑ ↓ ——— Make Selection
Enter ——— Press Enter
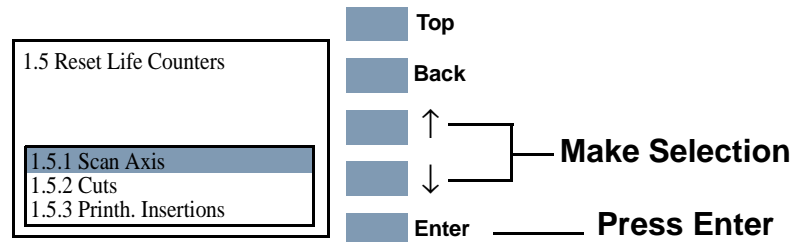
3. A message confirming the selection is displayed. Press **Enter** to confirm the reset of the life counter or **Back** to cancel.

```
1.5.1 Scan Axis

Limit: 11000000
Current: 11005000
Reset this life counter?

Press ENTER to accept
or BACK to exit
```

Top
Back
↑ ↓ ——— Make Selection
Enter
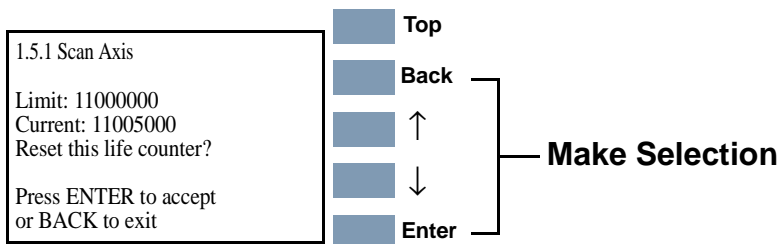
The front panel message displays the following information:

- 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:

1.5.1 Scan Axis Life Counter has been reset correctly Press BACK to return to previous menu	Top
	Back ——— **Press Back**
	↑
	↓
	Enter
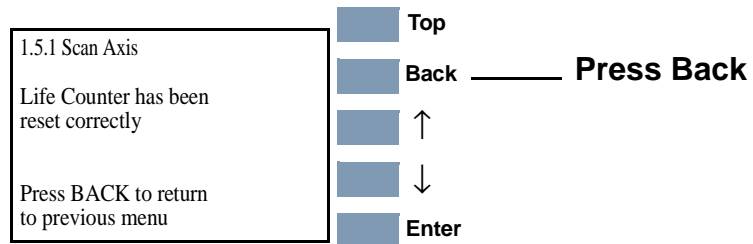
Backup EEROM

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.

WARNING
5000 Series Only

Before using this utility, make sure that you are using Firmware version A.02.xx. If NOT, make sure that you upgrade the Firmware version to A.02.xx BEFORE using this utility.

NOTE

If both the Hard Disk Drive and the Main PCA are replaced, on Printer start-up a continuable system error is displayed and you must perform all ALL the Calibrations as well as the EEROM Setup Service Utility (See Page *4-23*).

1. In the Service Utilities submenu, scroll to "1.6 Backup EEROM" 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
↑
↓ ── Make Selection
Enter ── Press Enter
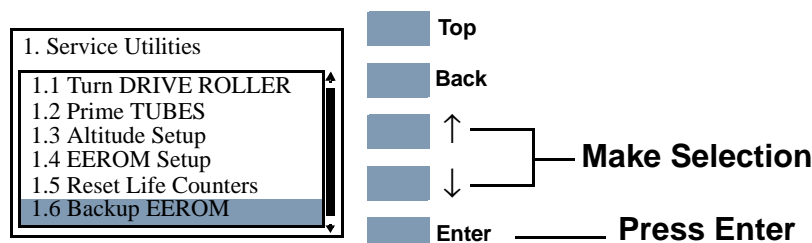
2. Select the part that has been replaced and press **Enter**:

```
1.6 Backup EEROM

  ┌─────────────────────────┐
  │ Main PCA                │
  │ Hard Disk Drive (HDD)   │
  └─────────────────────────┘
```

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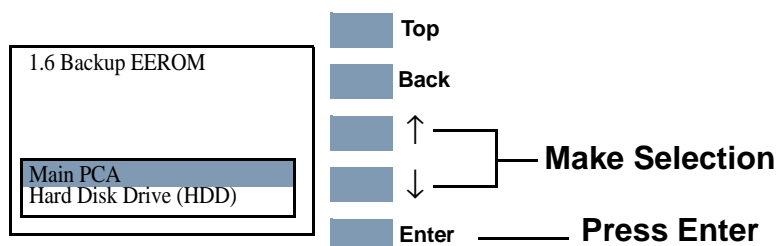
3. If you select "Main PCA" a message confirming the selection is displayed. Press **Enter** to confirm and exit this utility or press **Back** to cancel.

```
┌─────────────────────────┐      ┌──┐
│ 1.6.1 Backup EEROM       │      │  │ Top
│                          │      └──┘
│ You have REPLACED the    │      ┌──┐
│ Main PCA                 │      │  │ Back ─┐
│                          │      └──┘       │
│ Press ENTER to confirm   │      ┌──┐       │
│ or BACK to cancel        │      │  │ ↑     ├── Make Selection
│                          │      └──┘       │
└─────────────────────────┘      ┌──┐       │
                                 │  │ ↓     │
                                 └──┘       │
                                 ┌──┐       │
                                 │  │ Enter ┘
                                 └──┘
```
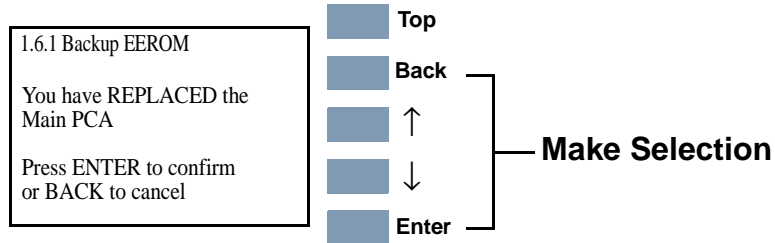
4. If you select "Hard Disk Drive (HDD)" a message confirming selection is displayed. Press **Enter** to confirm and exit this utility or press **Back** to cancel.

```
┌─────────────────────────┐      ┌──┐
│ 1.6.1 Backup EEROM       │      │  │ Top
│                          │      └──┘
│ You have REPLACED the    │      ┌──┐
│ Hard Disk Drive (HDD)    │      │  │ Back ─┐
│                          │      └──┘       │
│ Press ENTER to confirm   │      ┌──┐       │
│ or BACK to cancel        │      │  │ ↑     ├── Make Selection
│                          │      └──┘       │
└─────────────────────────┘      ┌──┐       │
                                 │  │ ↓     │
                                 └──┘       │
                                 ┌──┐       │
                                 │  │ Enter ┘
                                 └──┘
```

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

```
┌─────────────────────────┐      ┌──┐
│ 1.6.1 Backup EEROM       │      │  │ Top
│                          │      └──┘
│ Backup performed         │      ┌──┐
│ correctly                │      │  │ Back ── Press Back
│                          │      └──┘
│ Press BACK to return     │      ┌──┐
│ to previous menu         │      │  │ ↑
│                          │      └──┘
└─────────────────────────┘      ┌──┐
                                 │  │ ↓
                                 └──┘
                                 ┌──┐
                                 │  │ Enter
                                 └──┘
```
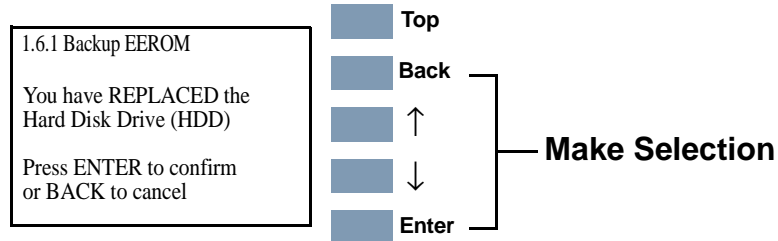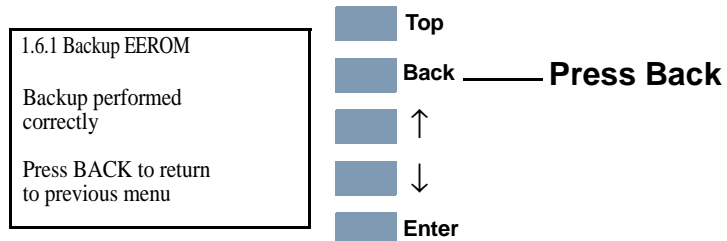
PHONE SUPPORT

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:

```
Warning! Printhead
quality degrading select
YES to replace failing
printhead(s)

YES (Replace)
NO (Continue)
```
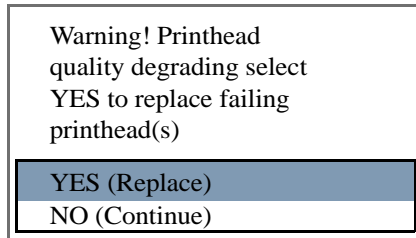
You can still print without the failed Printhead but each time you send a print job to the Printer, this warning is displayed. If you set the Image Quality Warning to **Off,** this message will not be displayed.

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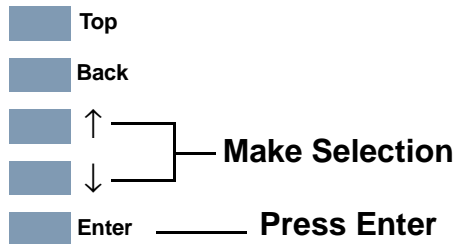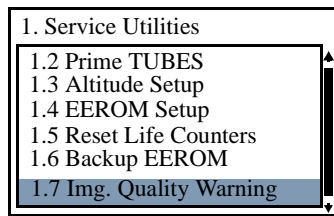
2. The following message is displayed. Select **Yes** or **No** and press **Enter** to confirm.
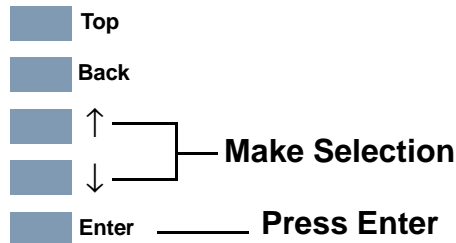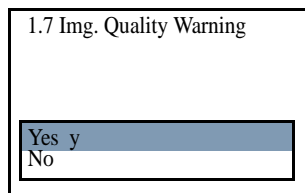
Diagnostic Print

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**.
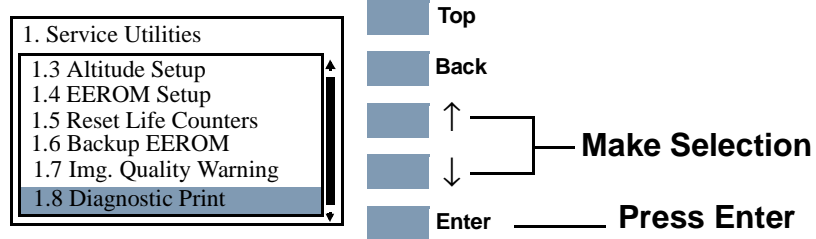
1. Service Utilities		Top
1.3 Altitude Setup		Back
1.4 EEROM Setup		
1.5 Reset Life Counters		↑ — Make Selection
1.6 Backup EEROM		↓
1.7 Img. Quality Warning		
1.8 Diagnostic Print		Enter — Press Enter

NOTE **For Firmware Versions earlier than A.02.xx, the Printer will start to print the Diagnostic Print immediately after selecting.**

NOTE **For Firmware Version A.02.xx and for the DesignJet 5500 Series, the Printer DOES NOT print the complete Diagnostic Print. Instead you must select which part of the Diagnostic Print that you need.**

2 Use the **Arrow** keys to select the page that you need and press **Enter** to print it.

1.8 Diagnostic Print		Top
		Back
Page 1		
Page 2		↑
Page 3		Make Selection
Page 4		↓
Page 5		Enter — Press Enter
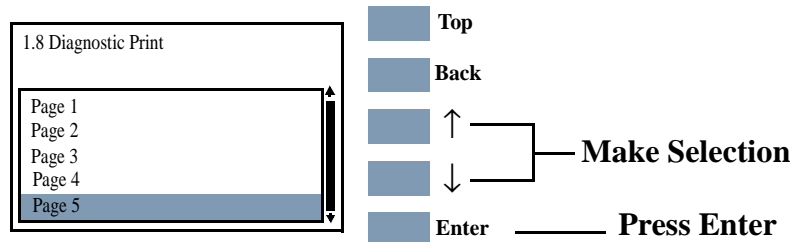
- ■ **Page 1** - Checks for banding in the Primary Colors.
- ■ **Page 2** - Checks the Color to Color Alignment.
- ■ **Page 3** - Check the Bidirectional Alignment.
- ■ **Page 4** - Check for Vertical Line Straightness.
- ■ **Page 5** - Performs the Nozzle Test.

For information on how to use the Diagnostic Print, refer to "How to Use the Diagnostic Print" on page 6-4.

Sleep Mode (DesignJet 5500 Series Only)

The purpose of this Service Utility is to disable the Sleep Mode so that the Printer is never switched OFF automatically if not used after a certain period.

1. In the Service Utilities submenu, scroll to "1.9 Sleep Mode " and press **Enter**.

2. Select either **yes** or **no** in order to enable/disable the Sleep Mode and press **Enter**.

Service Calibrations

5

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.**

Which Calibrations Need To Be Done				
When Required	**Scan Axis**	**Service Station**	**Accuracy**	**Carriage Height**
Carriage is disassembled or replaced	Yes	Yes	No	Yes
Paper-Axis Motor is disassembled or replaced	No	No	Yes	No
Platen Assembly is disassembled or replaced	Yes	No	No	Yes
Service Station is disassembled or replaced	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. This Calibration also allows you to calibrate the Line Sensor and define the Line Sensor ID.

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.

```
Ready

Roll
Hewlett Packard
Photo Imaging Gloss
Ink                    OK
Printheads             OK
```

Top

Back

↑ ───┐
      ├── **Make Selection**
↓ ───┘

Enter ─────── **Press Enter**

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.

```
Printer setup options

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

Top

Back

↑ ───┐
      ├── **Make Selection**
↓ ───┘

Enter ─────── **Press Enter**

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

```
Utilities

Usage ...
Menu Mode = Full
Calibrations ...
Reset WebAccess paswd
Image quality print ...
Statistics ...
```

Top

Back

↑ ───┐
      ├── **Press Up**
↓ ───┤   **and Enter**
      │   **Together**
Enter ┘

PHONE SUUPORT
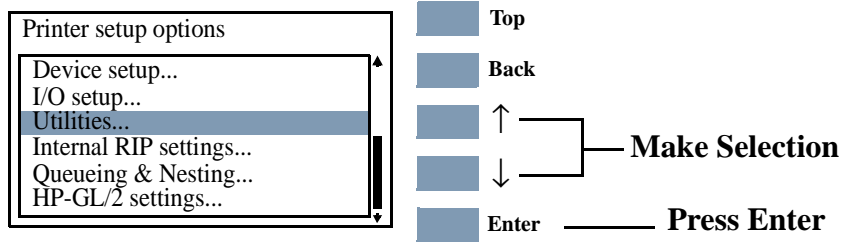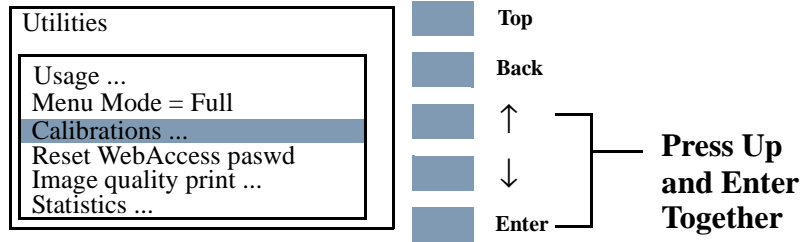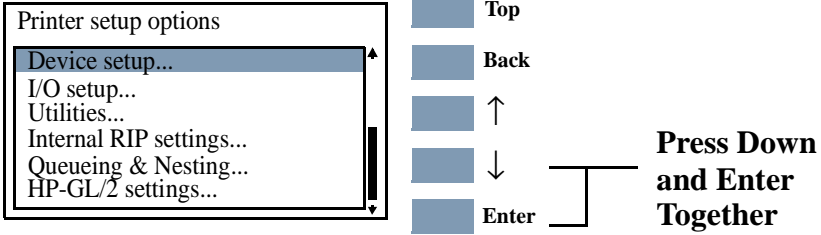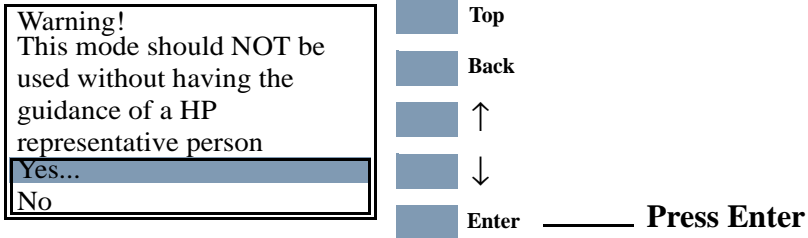
For Call Agents requesting the User to access a limited number of Service Calibrations
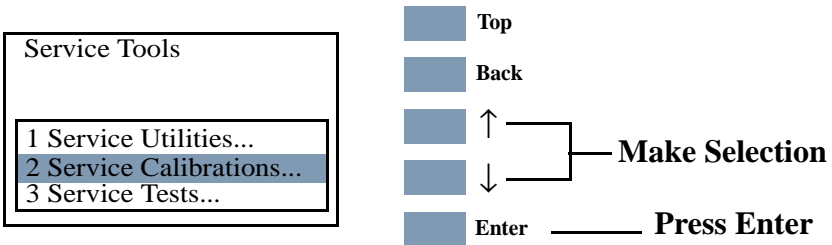
a Once inside the "Printer Setup Options" menu and the "Device setup" menu is highlighted, press the following key combination:

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

Top
Back
↑
↓   — **Press Down and Enter Together**
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
↑
↓   —— **Make Selection**
Enter   —— **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
↑
↓   —— **Make Selection**
Enter   —— **Press Enter**

* This appears in the On-Site Repair Menu only.

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. This Calibration also allows you to calibrate the Line Sensor and define the Line Sensor ID.

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 (ID) 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. For the 5000 Series use the ID: 00 and for the 5500 Series use the ID: 20.**

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**.
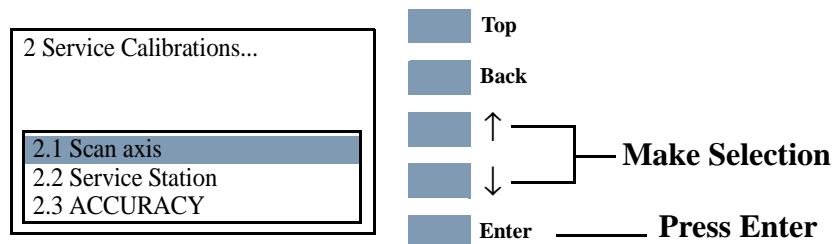
```
2 Service Calibrations...


  2.1 Scan axis
  2.2 Service Station
  2.3 ACCURACY
```

| Top |
| Back |
| ↑ | — **Make Selection** |
| ↓ |
| Enter | — **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.

```
┌─────────────────────────┐      ▢ Top
│ 2.1 Scan Axis           │
│                         │      ▢ Back
│ Media too small.        │
│ Remove Media.           │      ▢ ↑
│                         │
│                         │      ▢ ↓
│ Press ENTER to continue │
└─────────────────────────┘      ▢ Enter ———— **Press Enter**
```

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.

```
┌─────────────────────────┐      ▢ Top
│ 2.1 Scan Axis           │
│                         │      ▢ Back ┐
│                         │      ▢ ↑    │
│                         │             ├ **Make Selection**
│ Press ENTER to confirm or│      ▢ ↓    │
│ BACK to correct         │      ▢ Enter ┘
└─────────────────────────┘
```
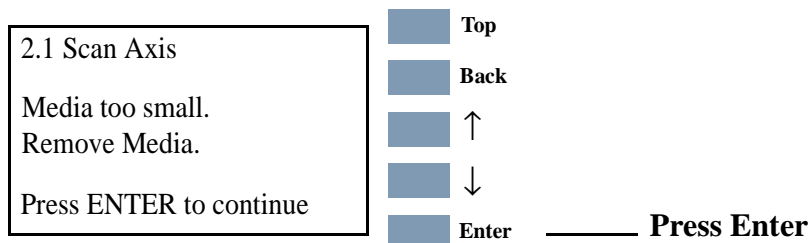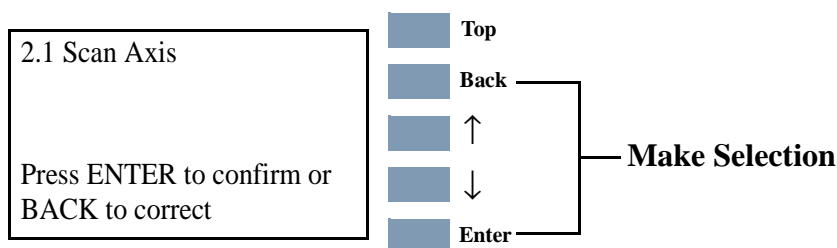
3. When the following message is displayed, you will need to enter the Line Sensor id.

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. For the 5000 Series use the ID: 00 and for the 5500 Series use the ID: 20.**

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.
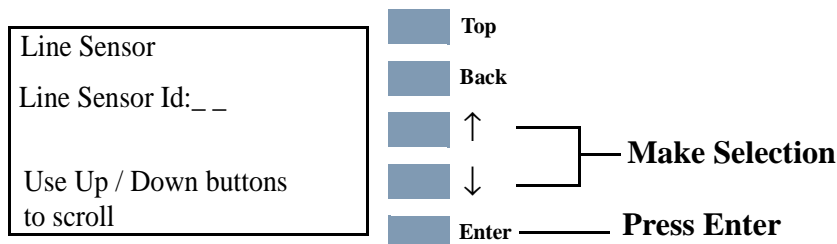
```
┌─────────────────────────┐      ▢ Top
│ Line Sensor             │
│                         │      ▢ Back
│ Line Sensor Id:_ _      │
│                         │      ▢ ↑ ┐
│                         │          ├ **Make Selection**
│ Use Up / Down buttons   │      ▢ ↓ ┘
│ to scroll               │      ▢ Enter ———— **Press Enter**
└─────────────────────────┘
```

■ If the Line Sensor ID is not indicated on the Line Sensor, use the default value which is "0".

4. 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.

```
┌─────────────────────────┐      ▢ Top
│                         │
│  Line Sensor Id:        │      ▢ Back ──────┐
│      20                 │                   │
│                         │      ▢ ↑          │
│  Press ENTER to confirm │                   ├── **Make Selection**
│  or BACK to correct     │      ▢ ↓          │
│                         │                   │
└─────────────────────────┘      ▢ Enter ─────┘
```
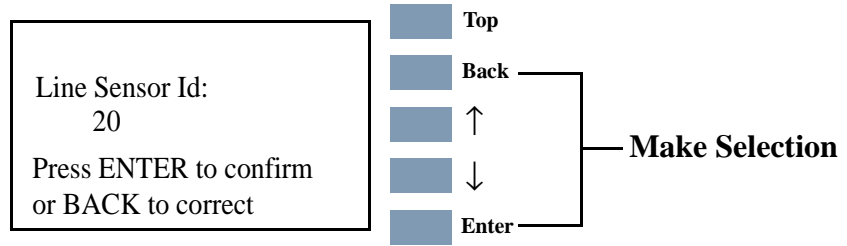
5. If you do not insert correct values the message below is displayed. Press **Enter** to continue the calibration using default values.

<table>
<tr><td>NOTE</td><td>**If Scan Axis Calibration is performed without inserting the correct Line Sensor Id., each time the user performs a Color Calibration, a continuable System Error will be reported - See Chapter 2, *System Error Codes*.**</td></tr>
</table>
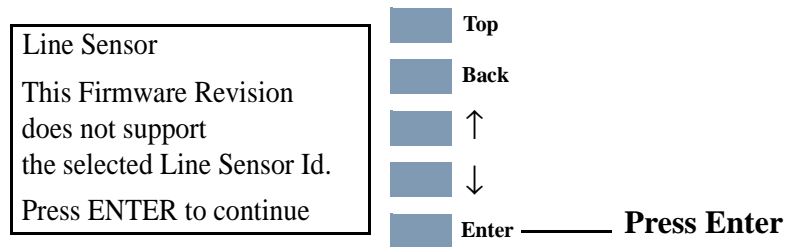
```
┌─────────────────────────┐      ▢ Top
│  Line Sensor            │
│                         │      ▢ Back
│  This Firmware Revision │
│  does not support       │      ▢ ↑
│  the selected Line Sensor Id. │
│                         │      ▢ ↓
│  Press ENTER to continue│
│                         │      ▢ Enter ──────── **Press Enter**
└─────────────────────────┘
```

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

```
┌─────────────────────────┐
│  Line Sensor            │
│                         │
│  Calibrating...         │
│                         │
│                         │
│                         │
└─────────────────────────┘
```
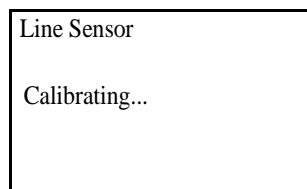
During this stage the Printer will print the following pattern.

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

```
Printhead to media
spacing

Calibrating...
```
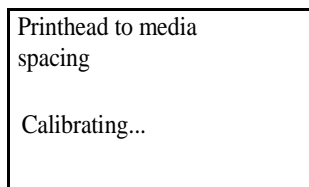
During this stage the Printer will print the following pattern.

■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■
■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■
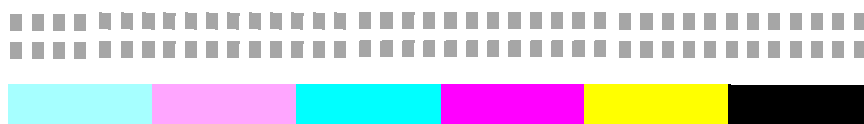
8. On successfully completing the Calibration, the following message is displayed:
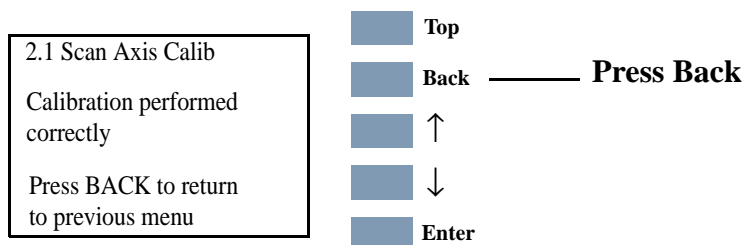
```
2.1 Scan Axis Calib

Calibration performed
correctly

Press BACK to return
to previous menu
```

Top	
Back	—— **Press Back**
↑	
↓	
Enter	

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

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

```
2.1 Scan Axis Calib

Calibration Error
(xxxx)

Press ENTER to continue
```

Top	
Back	
↑	
↓	
Enter	—— **Press Enter**
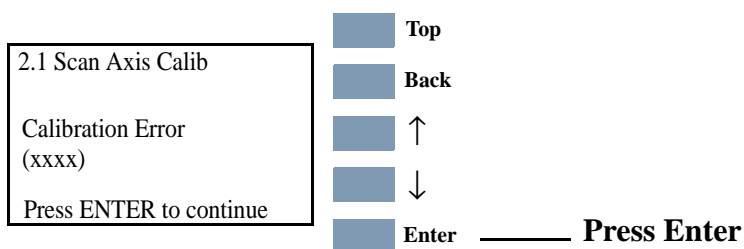
NOTE **Refer to page 5-26,** *Calibration Error Codes* **to troubleshoot error codes.**

NOTE **After the Calibration has been performed, print the Service Configuration print to be sure that it has correctly been stored in the EEROM. For information on the Service Config Print ⇒ Page** *1-37***.**

2. Service Station Calibration

PHONE SUPPORT

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 minimum A3/B size.**

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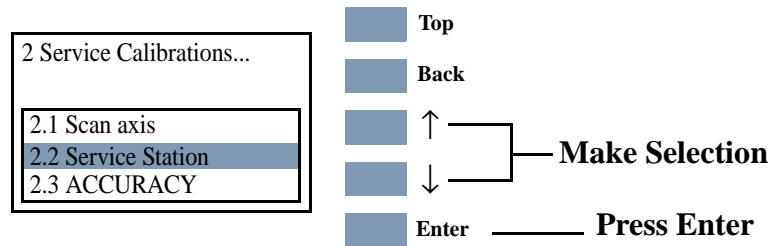
```
2 Service Calibrations...

2.1 Scan axis
2.2 Service Station
2.3 ACCURACY
```

Top
Back
↑
↓ — Make Selection
Enter —— 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.

```
2.2 Service Station

Media too small.
Remove Media.

Press ENTER to continue
```

Top
Back
↑
↓
Enter —— Press Enter

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.

```
2.2 Service Station



Press ENTER to confirm or
BACK to correct
```

Top

Back

↑

↓

Enter

Make Selection

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

```
Line Sensor to Black Pen

Calibrating
```
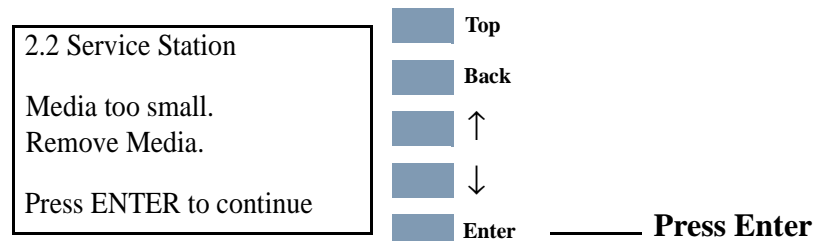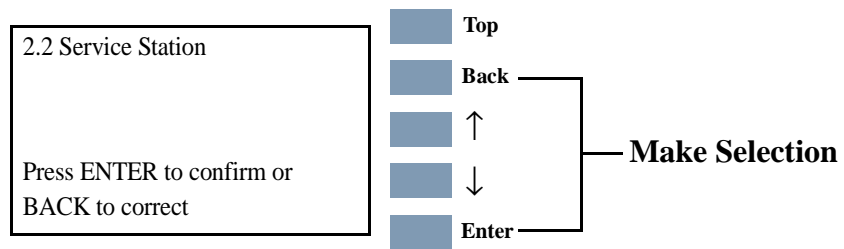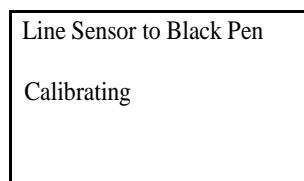
During this stage the Printer will print the following pattern.
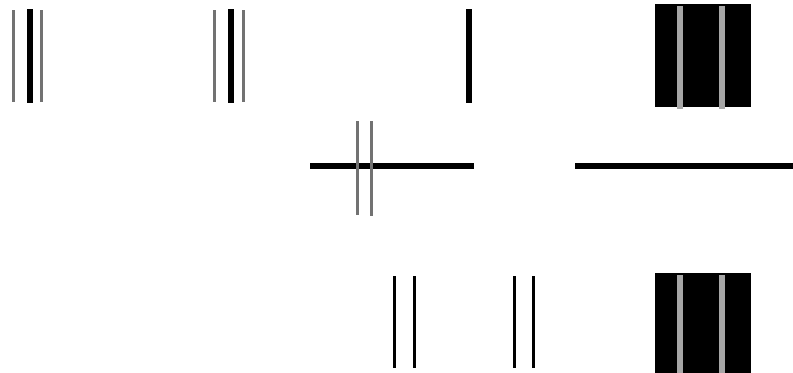
4. On completing the Line Sensor to Black Printhead calibration, the following message is displayed:

```
Drop Detector

Calibrating...
```
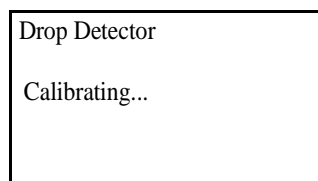
5. On completing the Drop Detector calibration, the following message is displayed:

```
Primer

Calibrating...
```

6. 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**

7. 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**

Error 0000 means OK

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

NOTE After the Calibration has been performed, print the Service Configuration print to be sure that it has correctly been stored in the EEROM. For information on the Service Config Print ⇒ Page *1-37*.

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   **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   **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 Service Calibrations...



2.1 Scan axis
2.2 Service Station
2.3 ACCURACY
```

Top
Back
↑
↓ ——— **Make Selection**
Enter ——— **Press Enter**
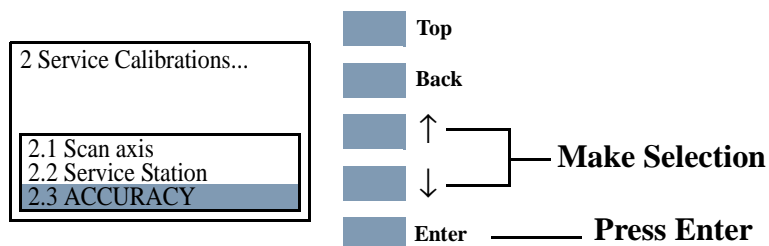
2. When the following message appears on the front panel, select "Create Pattern" and press **Enter**.
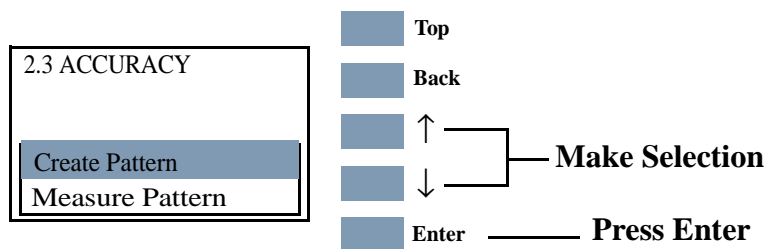
```
2.3 ACCURACY


Create Pattern
Measure Pattern
```

Top
Back
↑
↓ ——— **Make Selection**
Enter ——— **Press Enter**

3. 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.**

```
ACCURACY
 Load media for
 calibration
```
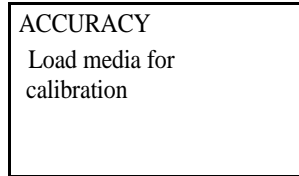
4. The Printer will start to print the Accuracy Calibration Pattern and the following message will be displayed on the front panel:

```
ACCURACY
 Calibrating
```
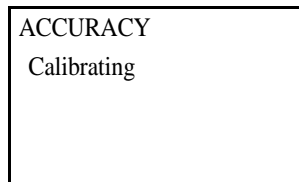
Below is a sample of the pattern printed.
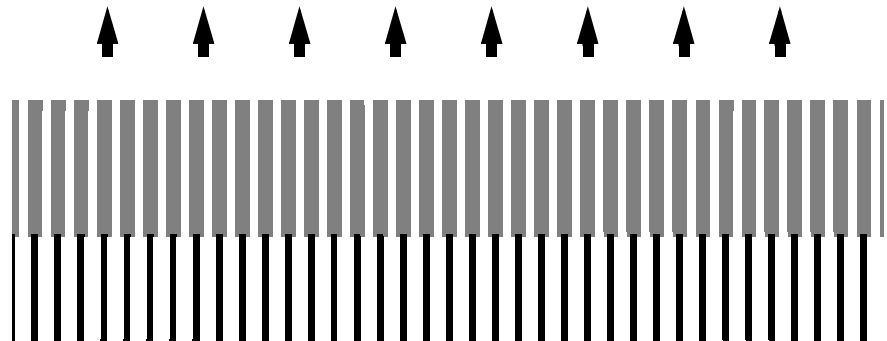
5. Once the Accuracy Calibration Pattern is completed, the following message will be displayed. Select "Measure Pattern" and press **Enter** to automatically start the Load/Unload Media procedure.
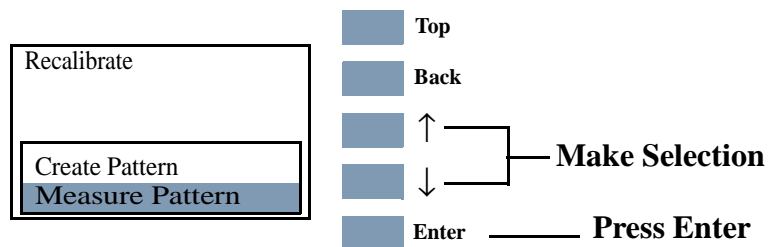
6. The Printer will unload the media and request you to remove it from the Printer. Press **Enter** to continue.

```
Roll Unloaded.
Remove Media.



Press Enter to continue
```

Top
Back
↑
↓
Enter —— **Press Enter**
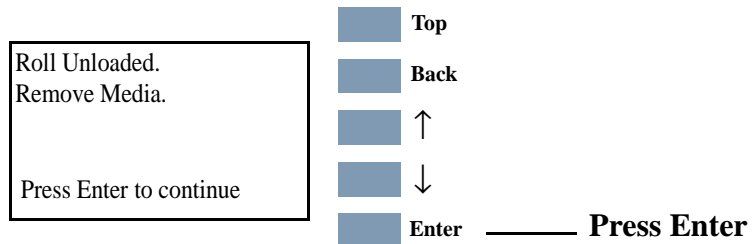
7. The following message is displayed. Press **Load/Unload Media** to start the load procedure for the printed sheet.

Load/Unload Media

```
ACCURACY

Press Load/Unload
key to load
printed sheet
```

Press Load/Unload Media

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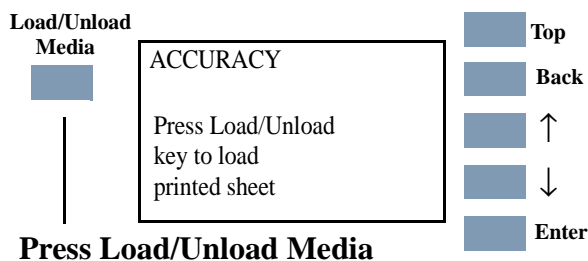
8. When loading, rotate the pattern so that the edge with the arrows points to the leading edge, and then reload the pattern with the arrow edge print facing down. The Printer will load the pattern and then measure the alignment marks using the Line Sensor on the Carriage Assembly. The following message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

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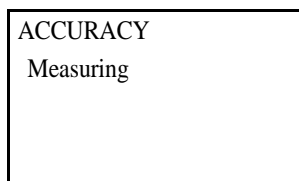
9. Once the calibration is completed, the following message will be displayed. Press **Enter** to return to the Accuracy Calibration menu.

```
Calibration done



Press Enter to continue
```

Top
Back
↑
↓
Enter —— **Press Enter**

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

	Top
ACCURACY	Back
	↑
Calibration Error (xxxx)	↓
Press ENTER to continue	Enter ——— **Press Enter**

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

NOTE **After the Calibration has been performed, print the Service Configuration print to be sure that it has correctly been stored in the EEROM. For information on the Service Config Print ⇒ Page *1-37*.**

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

Perform the Carriage Height Calibration as follows:

NOTE   **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.**

Carriage
Height
Tool
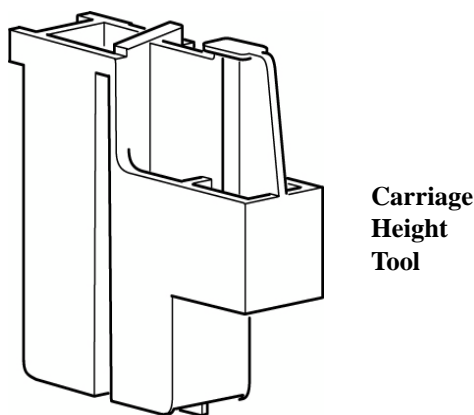
Figure 1:

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.
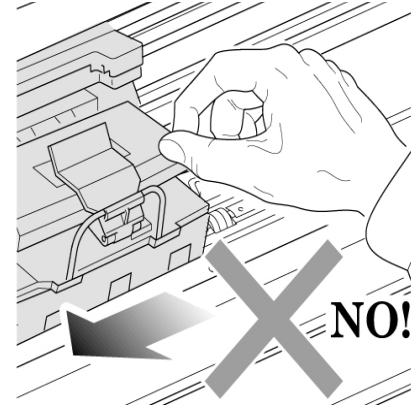
Incorrect:
never move using Carriage Assembly.

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.
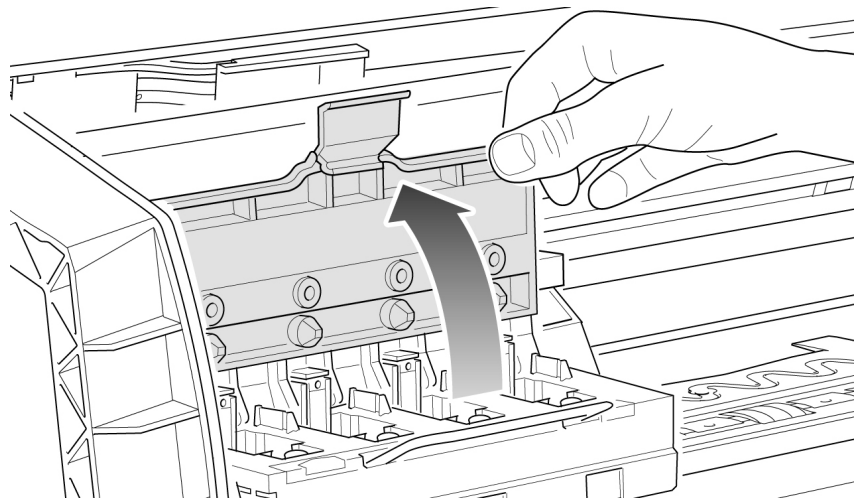
5. Insert the Carriage Height Tool into the black Printhead slot.
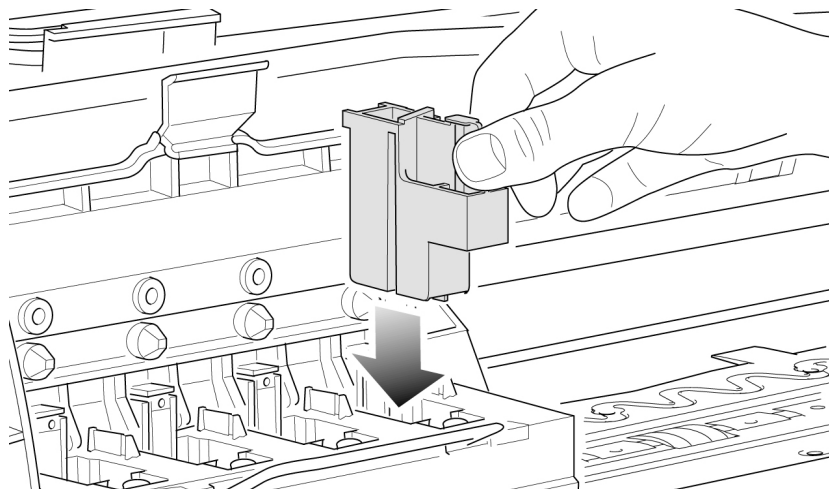
6. Close the Carriage Cover

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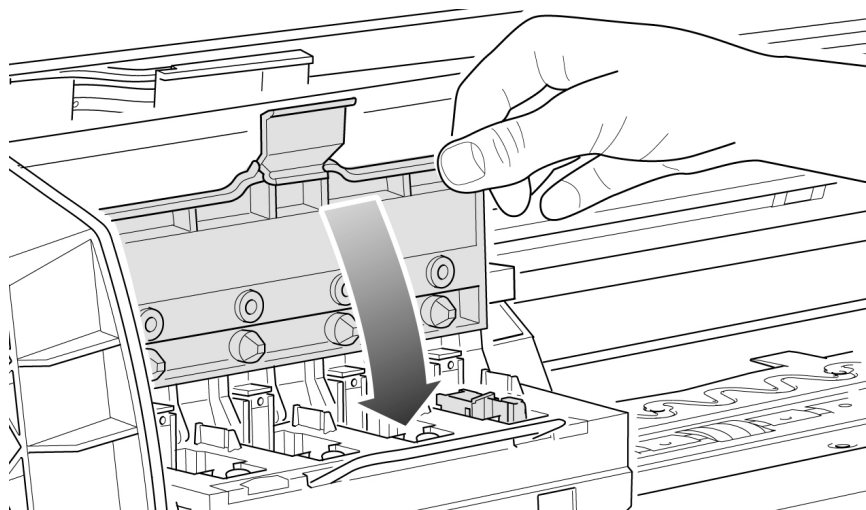
7. Loosen the two T10 screws at the back of the Carriage Assembly.

NOTE   The screws should not be removed.
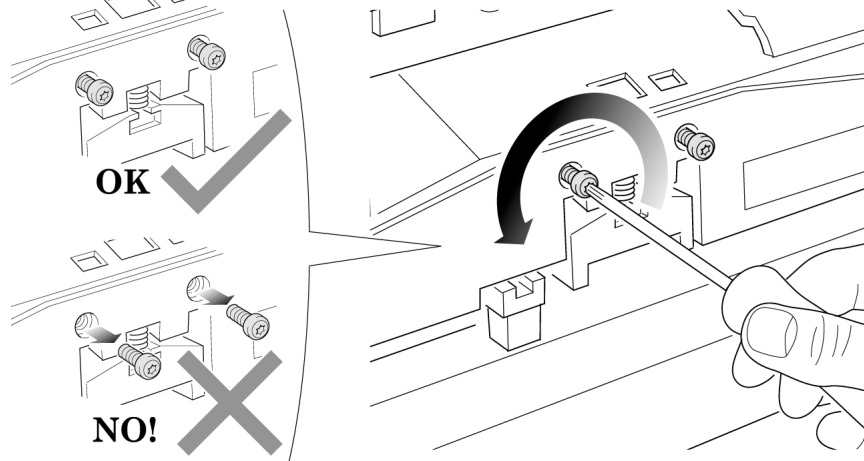
8. Using the Belt, and beginning on the left hand side of the starting position (where the left hand edge of the paper is positioned when printing), move the Carriage Assembly back and forth along the length of the Printer. Listen for a scraping sound: if you hear a sound already you may proceed directly with step 9, if not you must lower the Carriage Assembly (step 8), and try again until a scraping sound is heard.
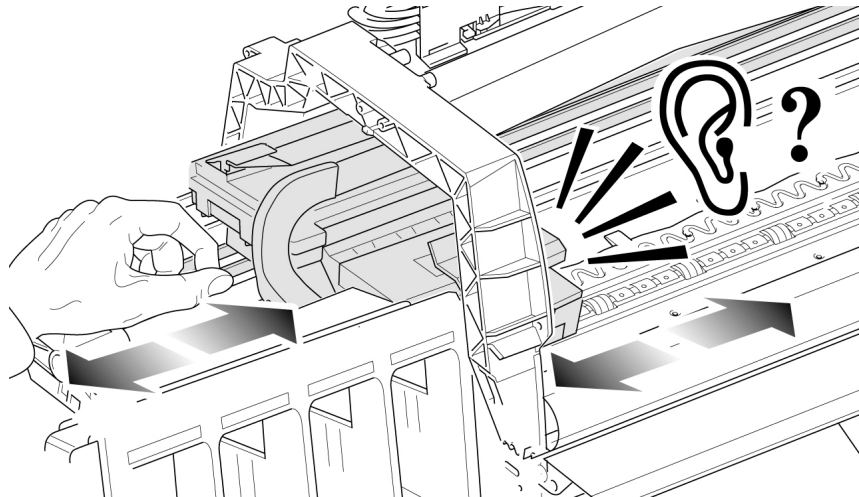
9. Lower the Carriage Assembly slightly, by turning the T9 screw shown below anti-clockwise and then check for a scraping sound again as shown previously in step 7.
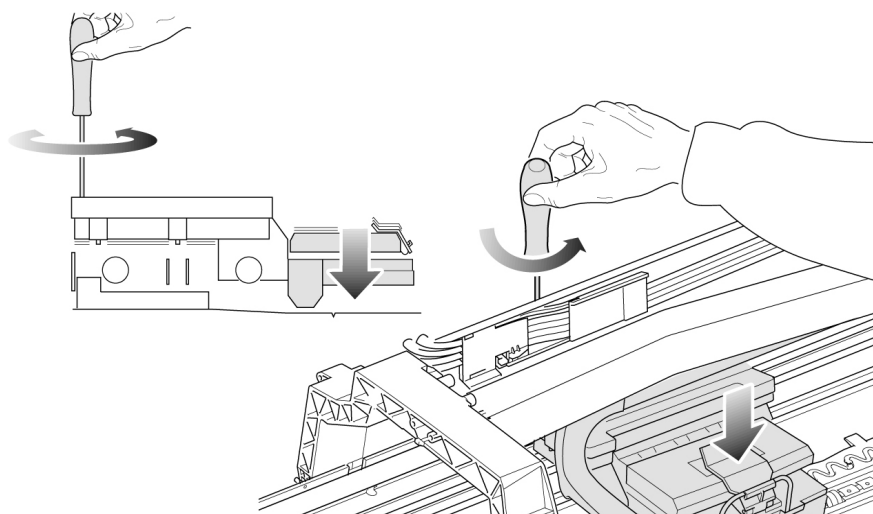
10. On moving the Carriage Assembly along the length of the Printer you should now hear a scraping sound: this sound indicates that you need to raise the Carriage Assembly (if there is no sound repeat step 8).
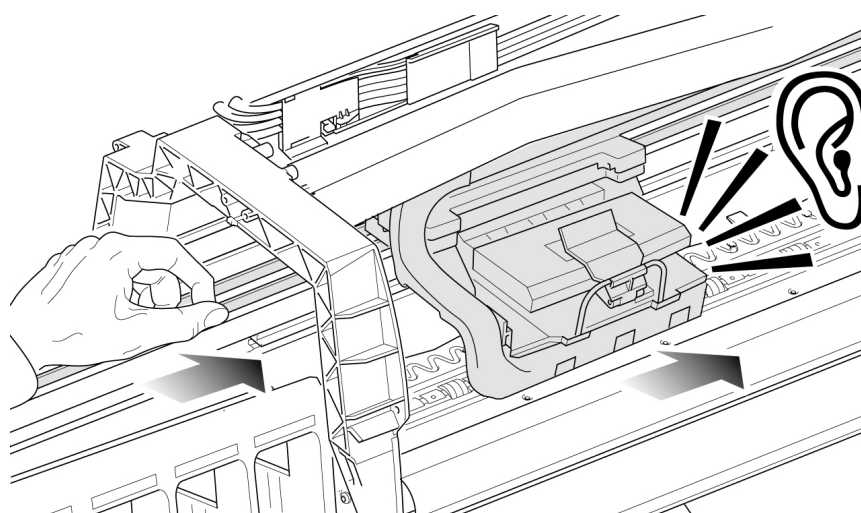
11. Raise the Carriage Assembly slightly, by turning the T9 screw (shown below) clockwise

.
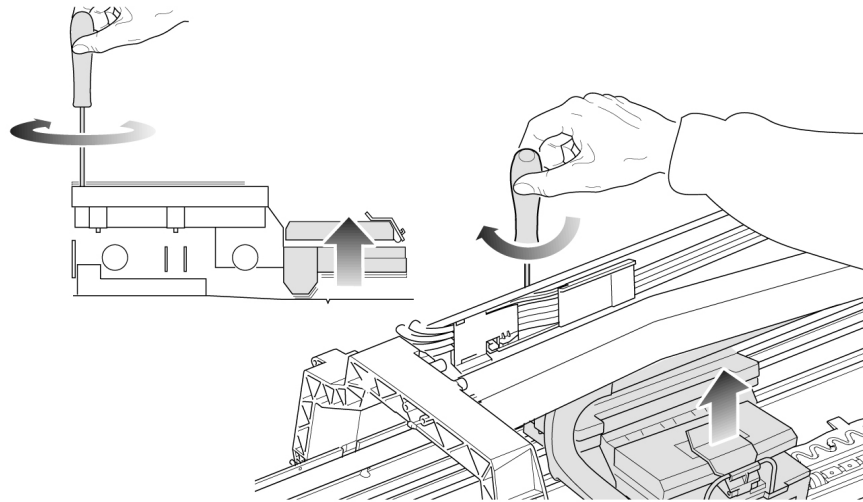
12. Check that there is no longer a scraping sound.
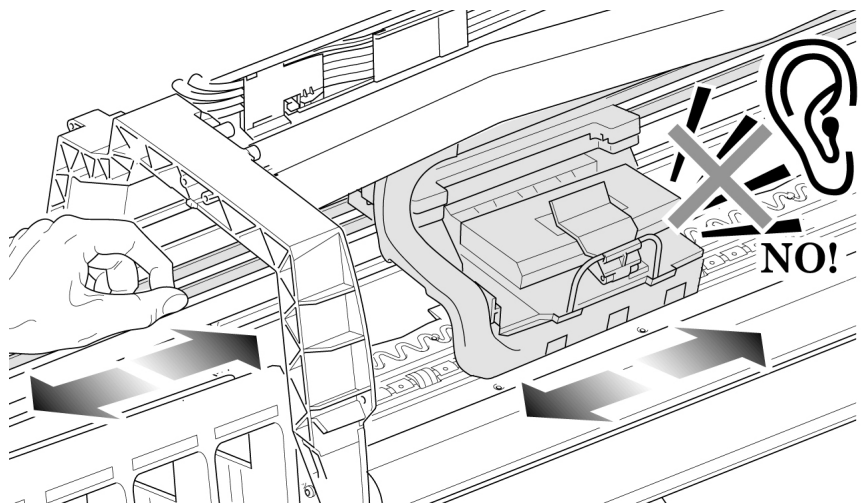
13. When the scraping has been eliminated it is important to leave the Carriage Assembly as close as possible to the Center Platen: move the Carriage Assembly back and forth across the area where the scraping sound was, gently lowering and raising the Carriage Assembly until you are sure that it is as close as it possibly can be to the Center Platen without touching.
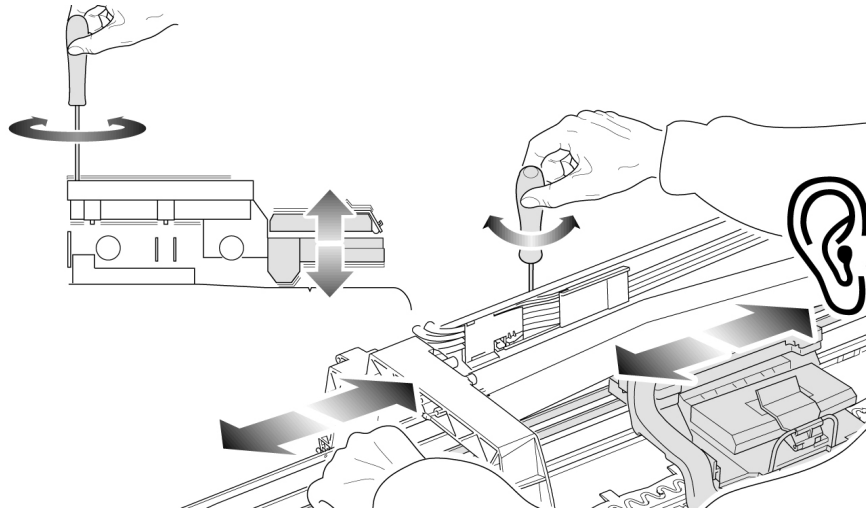
14. Continue checking the full length of the Printer until you arrive at the blue line used to load the cut sheet paper, repeating steps 10, 11 and 12 whenever a scraping sound is heard.
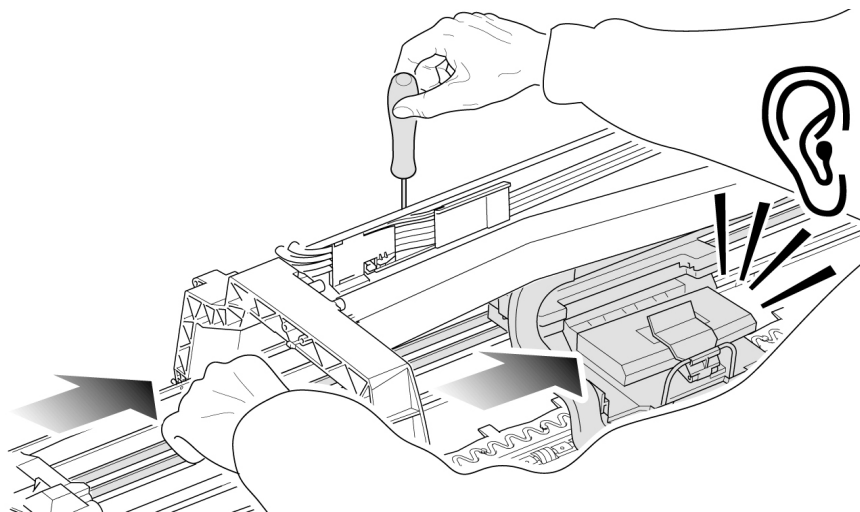
15. When the complete length of the Printer is calibrated (clear of any scraping sound), tighten the two T10 screws at the back of the Carriage Assembly to secure the current position.
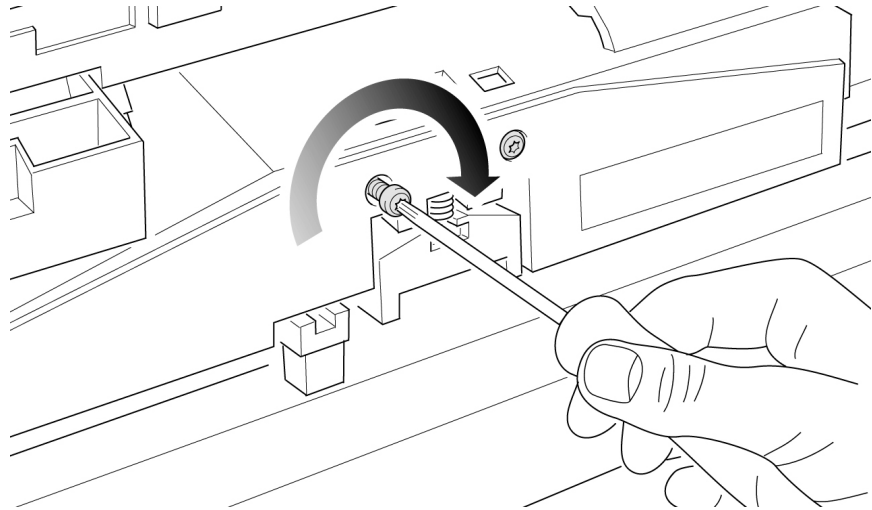
16. Remove the Carriage Height Tool.
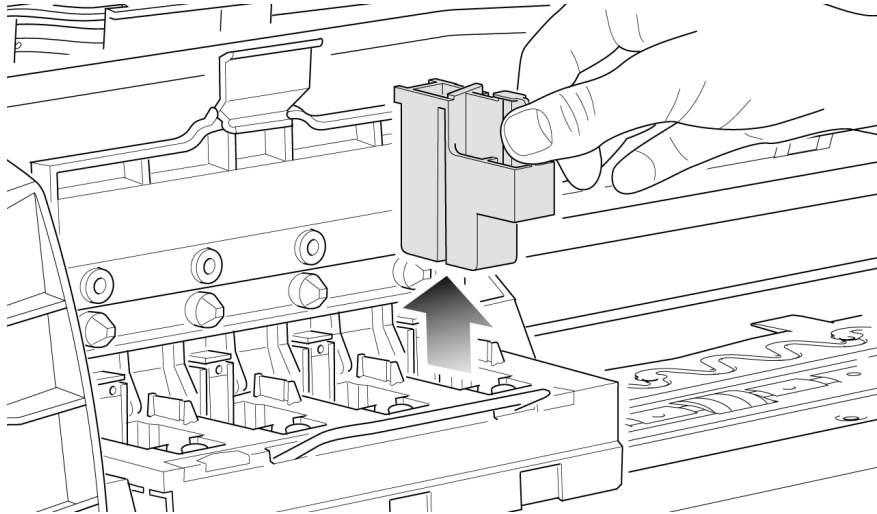
Calibration Error Codes

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.

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.

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 and 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 *9-13*.

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 $\Rightarrow$ 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 $\Rightarrow$ Page *9-5*.
- Clean the Mark Encoder on the Overdrive $\Rightarrow$ Page *9-9*.
- Replace the Carriage Assembly $\Rightarrow$ Page *8-46*.

Calibration Error:	0100
Problem Description:	Printhead error.
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 ($\Rightarrow$ Page *6-15*) for the Printhead and repeat the calibration.
- If the error persists for that color, replace the Printhead.

Calibration Error:	1001 **(User)**
Problem Description:	Line Sensor Error.
Corrective Action:	■ Replace the Carriage Assembly $\Rightarrow$ Page *8-46*.

Calibration Error:	1002 **(User)**
Problem Description:	The Line Sensor pattern is not printed. Firmware error.
Corrective Action:	Try the following:

- Power the Printer OFF and ON (using the power switch at the back of the printer) to reset the memory.
- Upgrade the Firmware ⇒ Page *9-13*.

Calibration Error:	1003 **(User)**
Problem Description:	Firmware Error.
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 (using the power switch at the back of the printer) to reset the memory.
- Upgrade the Firmware ⇒ Page *9-13*.

Calibration Error:	1004 **(User)**
Problem Description:	The Line Sensor cannot detect all the lines in the printed pattern.
Corrective Action:	Try the following:

- Perform Printhead Recovery (⇒ Page *6-15*).
- 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 Description:	Paper Axis Error.
Corrective Action:	Try the following:

- Perform Printhead Recovery ($\Rightarrow$ Page *6-15*).
- Reseat ALL the Printheads and repeat the Printhead Alignment ($\Rightarrow$ See the User's Guide).
- Replace the Carriage Assembly $\Rightarrow$ 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 Printhead Recovery ($\Rightarrow$ Page *6-15*).
- Perform the Service Scan-Axis Calibration $\Rightarrow$ Page *5-7*.
- Replace the Black and Magenta Printheads and repeat Printhead Alignment ($\Rightarrow$ 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 $\Rightarrow$ Page *9-5*.
- Replace the Carriage Assembly $\Rightarrow$ 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 Printhead Recovery ($\Rightarrow$ Page *6-15*).
- Perform the Service Scan-Axis Calibration $\Rightarrow$ Page *5-7*.
- Replace the Cyan and Yellow Printheads and repeat the Printhead Alignment ($\Rightarrow$ 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 $\Rightarrow$ Page *9-5*.
- Replace the Carriage Assembly ($\Rightarrow$ 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:

- Perform Printhead Recovery ($\Rightarrow$ Page *6-15*).
- Perform the Service Scan-Axis Calibration ($\Rightarrow$ Page *5-7*).
- 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 $\Rightarrow$ Page *9-5*.
- Replace the Carriage Assembly $\Rightarrow$ 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)** and 2002 **(User)**
Problem Description:	Closed Loop Color plot file is not available or is in the wrong format.
Corrective Action:	■ Download a Firmware Upgrade $\Rightarrow$ Page *9-13*.

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 *9-13*.

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 *9-13*.

Calibration Error:	2006 **(User)** and 2007 **(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 *9-13*.

Calibration Error:	2008 **(User)**
Problem Description:	Firmware Error.
Corrective Action:	■ Download the latest Firmware ⇒ Page *9-13*.

Calibration Error:	2101 (through to 2607) **(User)**
Problem Description:	Firmware Error.
Corrective Action:	Try the following:

- Repeat the Closed Loop Color calibration ($\Rightarrow$ See the User's Guide).
- Download the latest Firmware $\Rightarrow$ Page *9-13*.

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 $\Rightarrow$ Page *9-13*.

Calibration Error:	3110
Problem Description:	Black Printhead does not allow paper advance calibration.
Corrective Action:	Try the following:

- Recover the Black Printhead $\Rightarrow$ 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 $\Rightarrow$ Page *9-13*.

Calibration Error:	3130
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 *9-13*.

Calibration Error:	3200
Problem Description:	Error while scanning calibration pattern. It is also possible that when it calibrates the Line Sensor, the Carriage positions itself directly over one of the black arrows of the calibration pattern. If this happens, the Printer thinks it has black or colored media loaded and the calibration fails.
Corrective Action:	Try the following:

- Check that the media used for the calibration is white.
- If the media used is too dark, try the calibration with white media. If the error persists, replace Lens Cover Assembly ⇒ Page *9-5*.
- If the Carriage positions itself directly over the black arrow, try loading the media a few millimeters to the right or left of the blue line on the Platen - this should be enough to prevent the error. Alternatively, paint the black arrows with white correction fluid or stick a white label on top of the arrows.
- Replace the Carriage Assembly ⇒ Page *8-46*.

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

Calibration Error:	4001 **(Service)** and 4002 **(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 *9-13*.

Calibration Error: 4003 (**Service**)

Problem Description: Line Detection Error.

Corrective Action: Try the following:
- Check that the Lens Cover is clean.
- Replace the Lens Cover Assembly ⇒ Page *9-5*.
- Download the Firmware ⇒ Page *9-13*.

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 *9-13*.

Calibration Error: 4005 (**Service**), 4006 (**Service**) and 4007 (**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 *9-13*.

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 *8-57*. ■ Replace the Carriage Assembly ⇒ Page *8-46*. ■ If the Error Code continues, replace the Main PCA ⇒ Page *8-81*

Calibration Error:	5005 **(Service)**, 5006 **(Service)** and 5007 **(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:	5010 **(Service)**
Problem Description:	Too many Black Printhead nozzles not working.
Corrective Action:	Try the following: ■ Recover the Black Printhead ($\Rightarrow$ Page *6-15*) and if the problem persists replace the Black Printhead.

Calibration Error:	5011 **(Service)** and 5012 **(Service)**
Problem Description:	Printhead Cleaner detection error.
Corrective Action:	Try the following: ■ Verify Printhead Cleaners are correct type. ■ Replace the Lens Cover Assembly $\Rightarrow$ Page *9-5*. ■ Replace the Carriage Assembly $\Rightarrow$ Page *8-46*.

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 $\Rightarrow$ Page *9-5*. ■ Replace the Carriage Assembly $\Rightarrow$ 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: ■ Check that the Printhead Cleaner type matches the ink set installed (Dye or UV).

Calibration Error: 6000 (**Service**)

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 *8-72*.
- If the Error Code continues, replace the Main PCA ⇒ Page *8-81*.

Calibration Error: 6003 (**Service**)

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

Corrective Action: Refer to Error Code 6001.

Calibration Error: 6004 (**Service**)

Problem Description: More than one Printhead not calibrated.

Corrective Action: Refer to Error Code 6001.

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 *8-57*.
- Replace the Carriage Assembly ⇒ Page *8-46*.
- If the Error Code continues, replace the Main PCA ⇒ Page *8-81*

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 *8-72*.

Calibration Error:	6015 **(Service)**
Problem Description:	Calibration position out of range for Magenta Printhead.
Corrective Action:	Replace the Drop Detector Assembly ⇒ Page *8-72*.

Calibration Error:	6016 **(Service)**
Problem Description:	Calibration position out of range for Yellow Printhead.
Corrective Action:	Replace the Drop Detector Assembly ⇒ Page *8-72*.

Calibration Error:	6017 **(Service)**
Problem Description:	Calibration position out of range for Black Printhead.
Corrective Action:	Replace the Drop Detector Assembly ⇒ Page *8-72*.

Calibration Error: 6018 **(Service)**

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

Corrective Action: Replace the Drop Detector Assembly ⇒ Page *8-72*.

Calibration Error: 6019 **(Service)**

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

Corrective Action: Replace the Drop Detector Assembly ⇒ Page *8-72*.

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.

User Calibrations

The following is a list of internal User Calibrations available in the Printers.

1. Printhead Alignment $\Rightarrow$ Page *5-43*

2. Close-Loop-Color Calibration $\Rightarrow$ Page *5-43*

3. Banding Calibration $\Rightarrow$ Page *5-44*

4. Accuracy Calibration $\Rightarrow$ Page *5-45*

Printhead Alignment

The printer will normally perform an alignment automatically whenever any printhead is replaced. However, you can turn Off this automatic alignment by choosing the **printer icon**, then Internal RIP Setting > Align Calibration > Off.

You can also request a Printhead Alignment from the front panel at any time by choosing the **printer icon**, then Utilities > Calibrations > Printhead Alignment. In this case the printer will align the printheads immediately; or, if an image is being printed, as soon as the current print job is finished. The alignment procedure requires a minimum paper size of A1/D-size (24 inches).

You should also perform the Printhead Alignment if the Image Quality Print indicates an alignment error.

Close-Loop-Color (CLC) Calibration

CLC Calibration improves color consistency between prints, and from one printer to another. The printer calibrates the color by printing a "calibration strip" and then scanning the strip with a built-in optical sensor. The printer will then calculate the color correction required, which is then applied to all the subsequent prints.

CLC Calibration can be performed automatically or manually. To turn the automatic calibration On or Off, choose the **printer icon**, then Internal RIP Settings > Color Calibration.

ON - An Automatic calibration is performed whenever the current set of printheads and the current printing material have not previously been calibrated together.

OFF - The printer uses a default color correction, different for each printing material and print quality setting.

A CLC calibration can be started manually at any time: choose the **printer icon**, then Utilities > Calibrations > Color Calibration.

Banding Calibration

The banding calibration is intended to eliminate the problem of banding, by optimizing the media advance settings to suit the printing material, and the environmental conditions such as humidity and temperature.

It is available only for paper types with short drying times; all HP coated papers, plus HP Bright White InkJet paper, HP Productivity Photo Gloss, and HP Productivity Photo Semi-Gloss.

The Banding Calibration is most likely to be useful in the fastest print modes (Max Speed and Production).

To perform the Banding Calibration:

1. At the printer's front panel, choose the **printer icon**, then Utilities > Calibrations > Banding > Recalibrate. The printer will print the calibration print nice times using nine different media advance settings, in the print mode currently selected in the front panel. This takes about seven minutes, depending on the print mode and the printing material.

2. When prompted to select a print in the front panel, choose the print that shows the best image quality in your opinion; or select **Cancel** to cancel the calibration.

The Banding Calibration has now been completed for the selected printing material. Whenever the same printing material is used in the future, the media advance settings chosen will be used.

If required, the process can be repeated for another printing material.

If the Image Quality is worse after the Banding Calibration, the original settings can be returned: choose Utilities > Banding > Restore Factory.

Accuracy Calibration

The printer is calibrated at the factory to ensure that it operates with the greatest accuracy in normal environmental conditions. If the printer is operated under significantly different conditions, it should be recalibrated as explained here. The printer should also be recalibrated if non-HP printing material is being used or if Image Quality problems are being experienced for some other reason. Before recalibrating the printer, the Image Quality print should always be used to verify the appearance of any Image Quality problems caused by media advance problems.

NOTE **The Accuracy Calibration applies only to the media type currently selected in the front panel. Other media types will keep their original media advance settings.**

To perform the Accuracy Calibration:

1. At the printer's front panel, choose the **printer icon**, then Utilities > Calibrations > Accuracy > Recalibrate > Create Pattern.

2. Once the Accuracy Calibration print is completed, choose the **printer icon**, then Utilities > Calibrations > Accuracy > Recalibrate > Measure Pattern. Then reload the print back into the printer.

For more information and detail about the Accuracy Calibration, refer to the Accuracy calibration (for service) ⇒ Page *5-14*.

Print Quality

6

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. You can use the Demo Print in order to do it.

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 *9-11*.

4 Printheads

   Printhead Troubleshooting Process:
   - Check the Printhead status in the front-panel.
   - If **(xxxx)REPLACE** is displayed, the faulty Printhead may be replaced ⇒ Page *3-13*.
   - 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 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.**

8 If the problem is in Production Mode, perform the Banding Calibration on the media and Printmode in which the problem appears ⇒ Page *5-44*.

9 If the customer is using HP media which is not present in the front panel menu, advise him to download the appropriate media profile.

10 There are two production limitations which affects both the 5000 and 5500 Series printers:

- Enrichment Issue ⇒ Page *6-24*.
- Ink Marks on Printouts ⇒ Page *6-27*.

These problems cannot be solved but they can be reduced.

How to Use the Diagnostic Print

What is the Diagnostic Print?

The Printer contains internal Diagnostic Prints to help you diagnose the possible source of some 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 - Refer to Page *6-3* (Step 6).

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.

```
Ready

Roll
Hewlett Packard
Photo Imaging Gloss
Ink                    OK
Printheads             OK
```

Top
Back
↑
↓
Enter ——— **Press Enter**

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

```
Printer setup options

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

Top
Back
↑
↓   ——— **Make Selection**
Enter ——— **Press Enter**

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

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

```
Utilities

Usage ...
Menu Mode = Full
Calibrations ...
Reset WebAccess paswd
Image quality print ...
Statistics ...
```

Top
Back
↑
↓   ——— **Press Up
and Enter
Together**
Enter
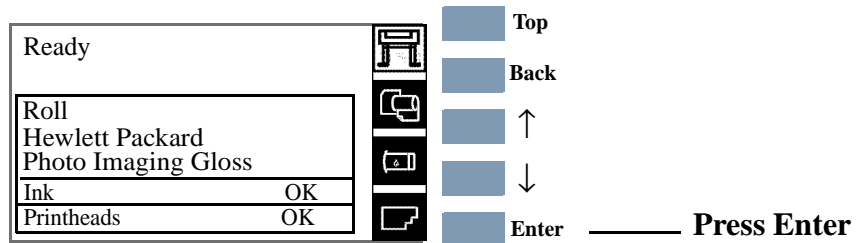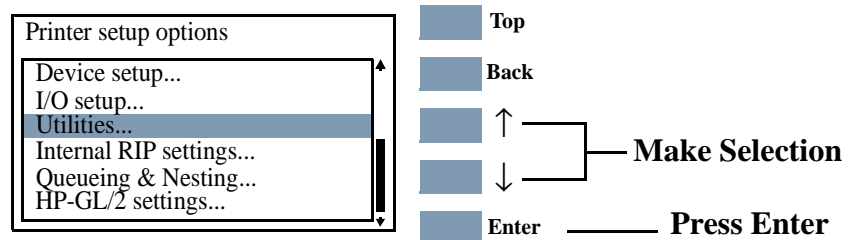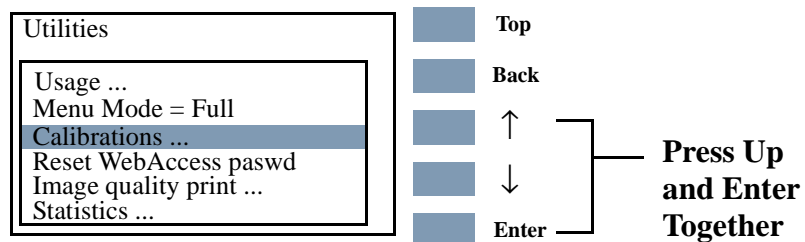
The option selected in the menu does not matter

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
↑
↓

Make Selection

Enter

Press Enter

4 Use the **Arrow** keys to select "1.8 Diagnostic Print" and press **Enter**.

```
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
↑
↓

Make Selection

Enter

Press Enter

NOTE
5000 Series Only

For Firmware Versions earlier than A.02.xx, the Printer will start to print the Diagnostic Print immediately after selecting.

For Firmware Version A.02.xx in the 5000 Series and on the 5500 Series, the Printer DOES NOT print the complete Diagnostic Print. Instead you must select which part of the Diagnostic Print that you need.

5 Use the **Arrow** keys to select the page that you need and press **Enter** to print it.
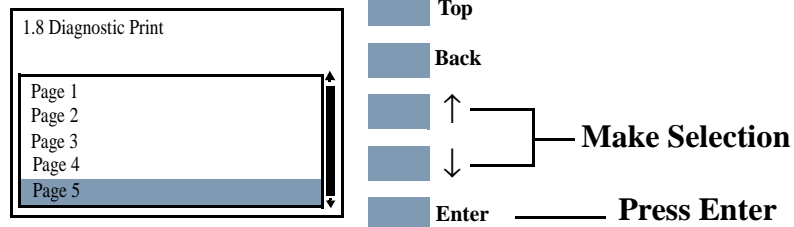
- ■ **Page 1** - Checks for banding in the Primary Colors ⇒ Page *6-8*.
- ■ **Page 2** - Checks the Color to Color Alignment ⇒ Page *6-11*.
- ■ **Page 3** - Check the Bidirectional Alignment ⇒ Page *6-12*.
- ■ **Page 4** - Check for Vertical Line Straightness ⇒ Page *6-13*.
- ■ **Page 5** - Performs the Nozzle Test ⇒ Page *6-14*.

Overall Print Quality Test - Page 1

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

1

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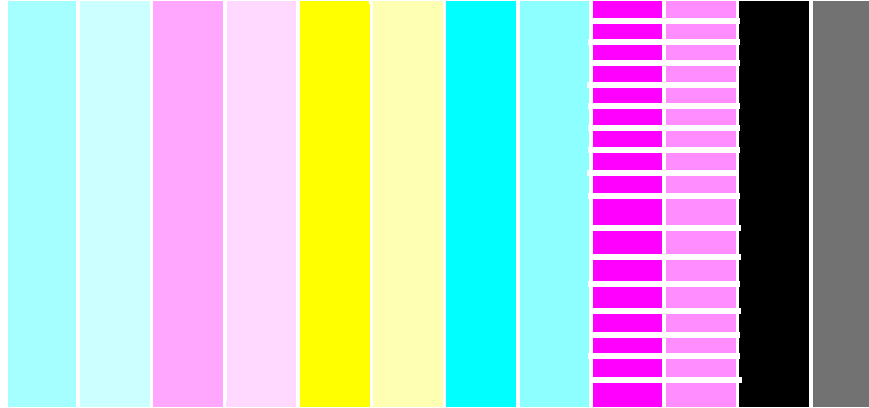
NOTE   **The Printer has automatic procedures to hide many Printhead defects. This type of problem affects print quality mostly in Productivity and Max. Speed modes. If you use Max. Quality print mode, banding caused by a malfunctioning Printhead may be "hidden" and image quality may not be affected.**

1 Perform Printhead Recovery $\Rightarrow$ 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.
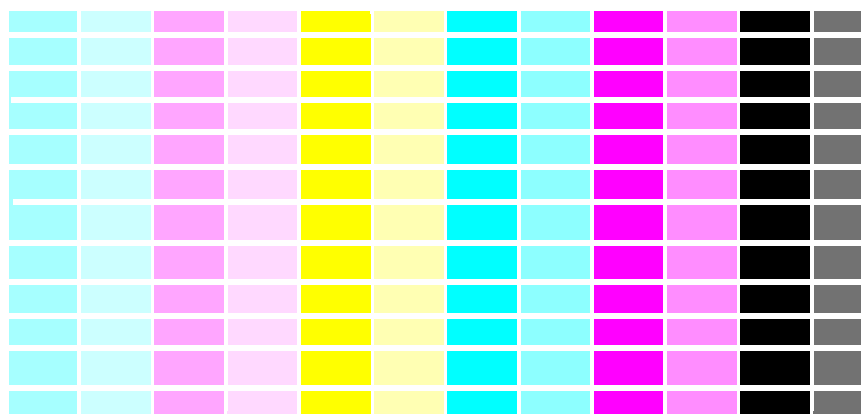
Banding in all of the colors

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).

NOTE
5500 Series Only   **For high production modes, use the Banding Calibration ⇒ Page *5-44*.**

Color Alignment Print Test - Page 2

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:

2

correct   Incorrect
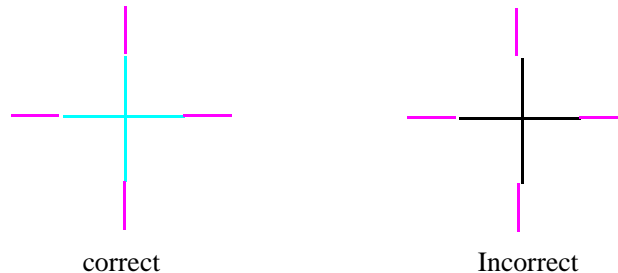
Solving the Color Alignment Problem

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.**

Ready   Printer submenu

Roll
Hewlett Packard
Photo Imaging Gloss
Ink   OK
Printheads   OK
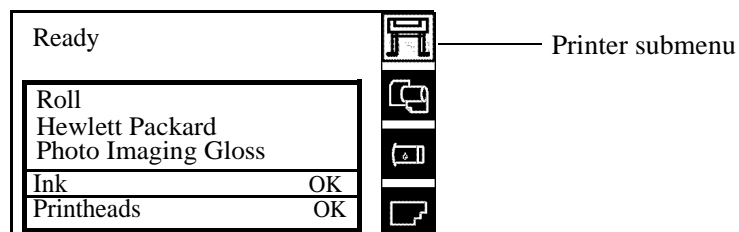
3 Go to Utilities/Calibrations/Printhead Alignment. Please wait as the process of aligning the Printheads takes a few minutes.

4 Reprint the image you were attempting to print before (in the same mode) to see if the problem still exists.

Bidirectional Alignment - Page 3

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.

3

Arrows indicate direction of printing for each section of the line
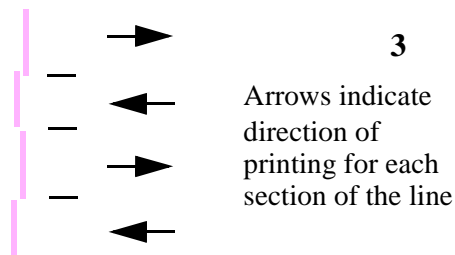
Solving Bidirectional Alignment Problems

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 - Page 4

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.

4

Direction of printing
for each pair of lines
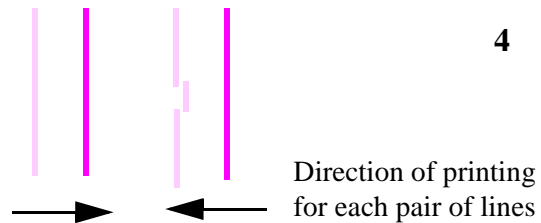
Solving Vertical Line Straightness

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 - Page 5

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.

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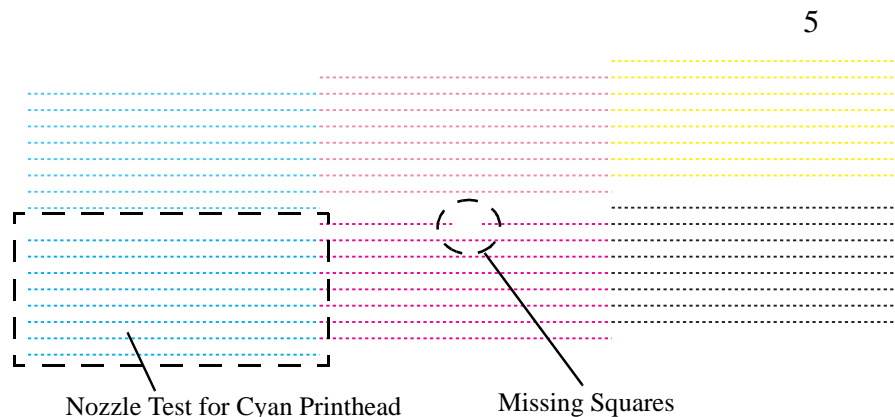
Each nozzle on each Printhead prints a series of very close lines that can be seen as small squares in the Diagnostic Print. You can see whether a nozzle is not working if squares are missing or if a nozzle is malfunctioning, the color fill is less dense.

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.**

Press ENTER for printheads menu

Printheads

LIGHT CYAN — OK
LIGHT MAGENTA — OK
YELLOW — OK
CYAN — (1420) RECOVER
MAGENTA — OK
BLACK — OK
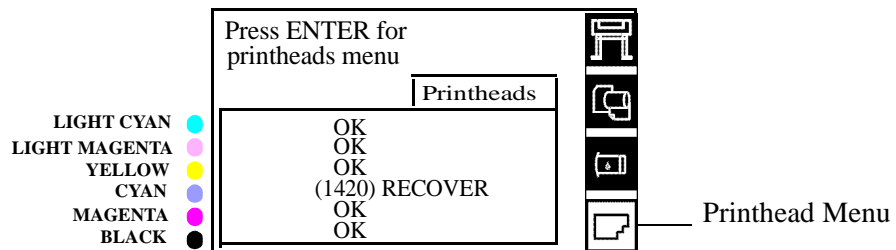
Printhead Menu

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: ■ Print Quality Settings ■ Half Tone ■ Media selection See the user's guide for your application for more information about its print quality settings.	In the software application: ■ Set Print Quality to Max. Quality. ■ Use no Half Tone (or Printer default). ■ Make sure that the media setting matches the media loaded in the Printer.

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 (⇒ Page *9-5*) and repeat the calibrations.
- Perform the Printhead Alignment ⇒ Page *5-43*.
- Perform the Banding Calibration ⇒ Page *5-44*.

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 5X00PS only)	Set the type of inks that your software generates.
	Color Calibration (both PS and RTL)	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.
   - The printer is laying too much ink for the media type. Check that HP media is being used.

The Prints are Too Short (DesignJet 5000 Series Only)

There are several situations where the print length can be too short:
- Improper use of crop marks.
- Use of Coated Media when trying to get precise output.

However, in the last case, the length difference is a maximum of 4 to 6mm per meter, whereas the first two cases can affect the print

length by several centimeters. Depending on the type of problem, the troubleshooting sequence is different.

1 Improper use of crop marks.

If the customer is using crop marks, this can be the cause of the length difference because the way the margins and the crop marks are implemented in the DJ5000 is very different from the way it is done in other Designjet products, e.g. DJ2000, 2500, 3000 & 3500.

2 Use of Coated Media when trying to get precise output.

If the customer is using any type of Coated Media, Bond, etc. advise them to use glossy or polyester based films when the print accuracy is important.

Colors are not as Expected

If the Application or Driver settings are not correct, this could result in colors which are different than the one that were expected.

- To have full control of the colors that are printed, use the CMYK option and no emulation (in Driver). Sending a file in RGB even with no color emulation could end up in undesirable results. If a Postscript file is not sent from a DesignJet 5X00 PS driver, make sure you have the following settings in the Front Panel: Printer Setup Menu > Internal RIP settings > Ink Emulation > CMYK= Native.

- As a special case, Adobe PhotoShop sends Pantone Colors as CMYK (no Pantone name). Therefore, Pantone Calibration does not make any difference. The file should be created as CMYK to prevent unexpected color changes.

Banding at the Top of the Page

Some prints may have banding in the first 2-3 centimeters or swaths. This kind of problem normally happens at the top of the page (the rest of the print is not affected), because the error-hiding algorithm cannot be applied at the beginning of the print in certain circumstances. This depends on the Take-Up Reel installation settings, the media used and the plot margins selected.

To prevent banding at the top of the page, the Printer should be configured as follows:

1 Take-Up reel installed and loaded (only for customers that have a Take-Up Reel, if not got to the following step).

2 Select the paper margins as normal (only for customers which use the extended margin PPD in the driver, if not go to the following step).

3 If Heavy Coated media is being used, use the Front Panel to select Heavy Coated Economy with Normal paper margins. Other alternatives are either to add a 2.5 cm margin at the beginning of the print or switch to any other type of media.

Vertical Banding

Some prints with uniform area fills (ink density between 30 and 70%) show vertical banding when printed on High-Gloss Photo Paper.

■ The problem can be minimized by printing with Composite Black when the problem appears in Black areas or by printing in RGB mode instead of CMYK when the effect appears in Color area fills.

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 (DesignJet 5000 Series Only)

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 (Refer to the User's Guide).

2   Store all Media according to Environmental Specifications (Refer to the User's Guide).

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.

Using the Color Print

Objective and Description

The objective of the Color Print is to determine whether the printer hardware has any color reproduction problems. Before starting, load a roll of HP High-Gloss Photo Paper or HP Heavyweight Coated Paper.

To start the Color Print, choose the **printer icon** on the printer's front panel, then Utilities > Test prints > Color print. The printer will then print a page consisting of three color scales as follows.

1 Yellow shading into blue.

2 Magenta shading into green.

3 Cyan shading into red.

Color lightness and density have been tuned to maximize the effectiveness of the print.
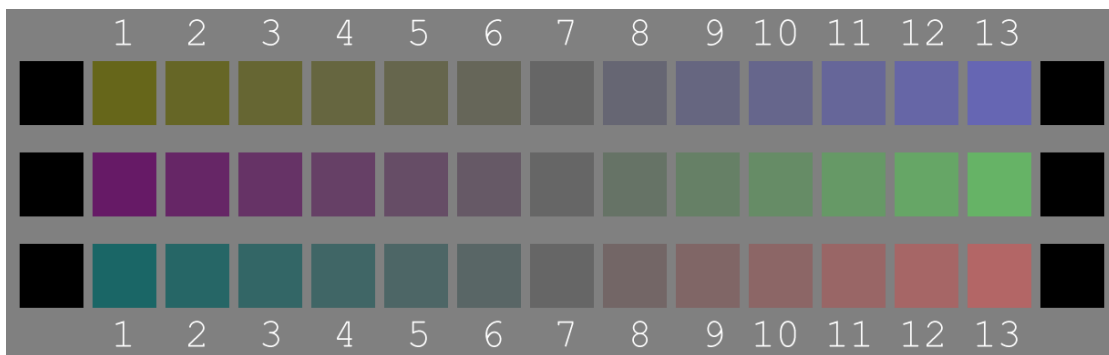
How to Evaluate the Print

Place the print under a source of white light. For each of the color scales in the print, select the square (or between two of them if in any doubt) where the color transition happens. The three following rules (a, b, c) show visually how to perform this evaluation.

Looks yellowish ── ── Looks bluish

(b)

▲
4.5

Can't decide ── ── Can't decide

(c)

▲
5.5
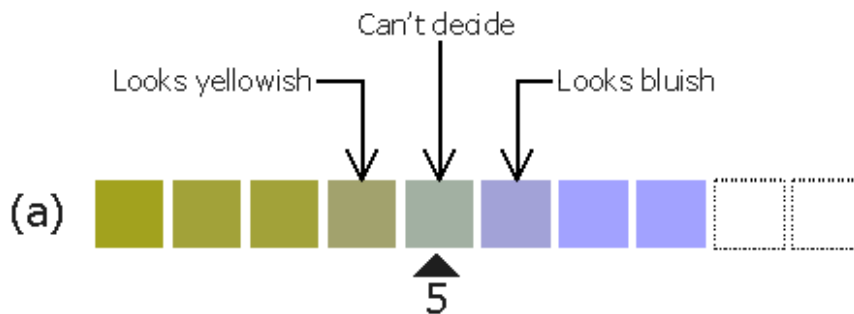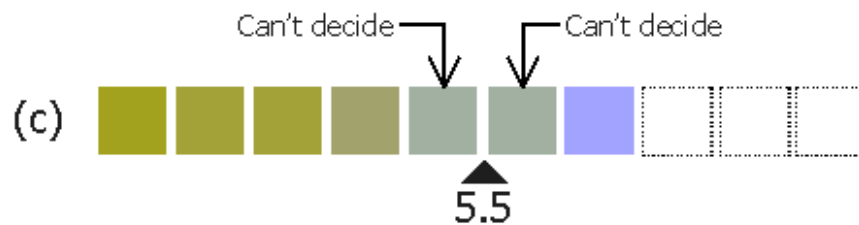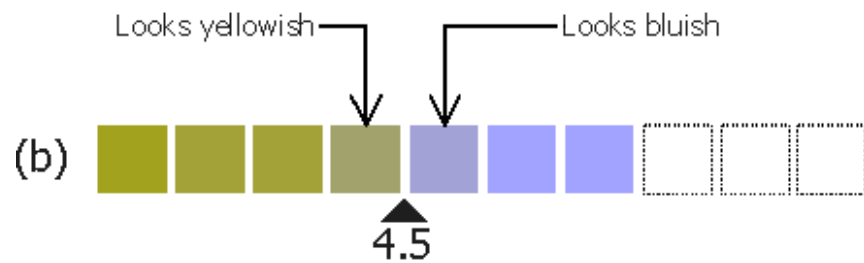
Bear in mind that the transition could happen anywhere along the line. Trust your perception!

How to Interpret the Result

If you get a number in the range 4.5 to 9.5, your printer is within the expected color reproduction accuracy.

If you get a number lower than 4.5 or higher than 9.5, try the following:

1 Make sure that the Color Calibration is ON.

2 Perform Color Calibration on that paper.

3 Replace the lens on the Line Sensor and repeat the color calibration.

4 Replace the Line Sensor ⇒ Page *8-53*.

Enrichment Issue

Issues Description

There can be some light color area fills that have two different (but related) image quality issues at the border:

1 The initial part of the area fill has a grading from white to the regular color of the area fill (~ 2-4mm high x 0-10mm long)

2 After this first grading, it may show a border darker than the rest of the area fill, creating another type of grading, which is shorter, but can appear along the entire border.

See the following image to better understand the explanation:

1. Initial Grading

2. Darker Border
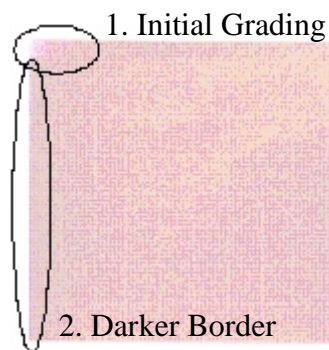
As it will be explained, both issues are related and have similarities:

■ The appearance of the issue depends highly on the selected printmode (MaxQuality, Productivity or MaxSpeed) and the medium and ink type loaded into the printer.

■ The darker border issue may show along the entire border, or appear in some determined locations and disappear in others.

■ The direction of this grading is always in the printing direction.

■ This problem shows up much more in composite light colors and unidirectional printmodes (when the printer lays ink only when the carriage moves in one direction).

See the following image:
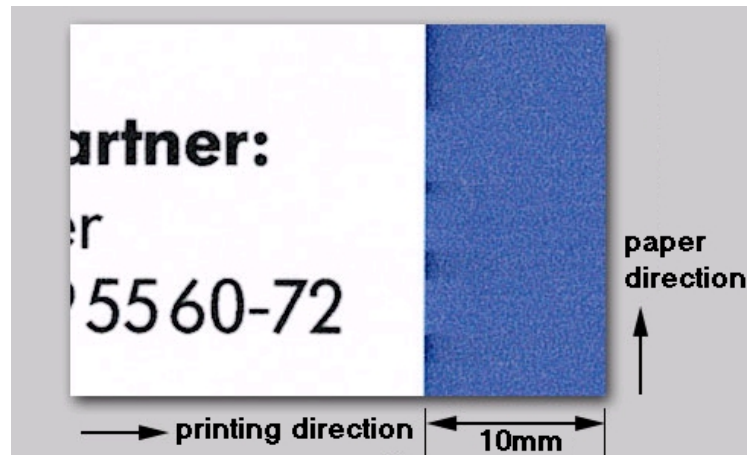
Cause:

Before going to the root cause, we have to understand two main concepts of the inkjet technology:

1 The dye ink is made by a liquid and pigments (which, in fact, delivers the color to the ink).

2 This ink is contained on the printhead nozzles.

3 An internal heating process eject the drops of ink that are delivered though these nozzles.

Therefore, during the normal printing process, the printer is firing the drops of ink over the media by heating the ink that is contained on the nozzles.
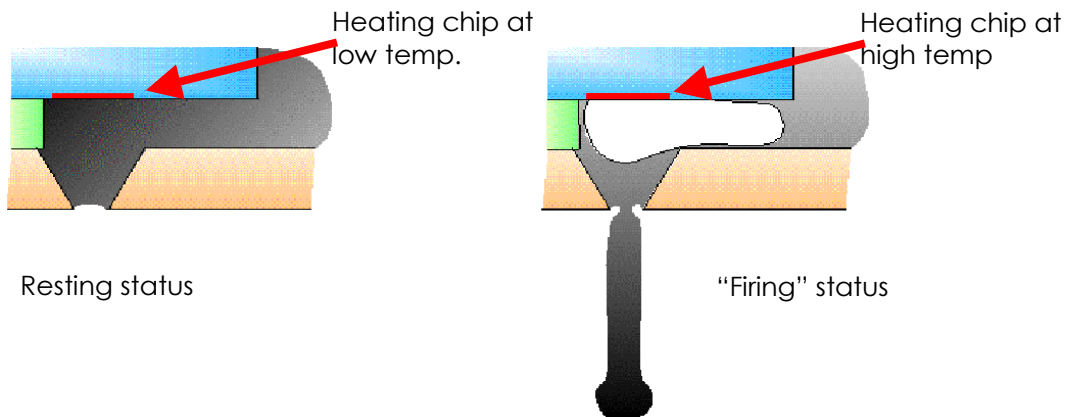
The cause of the issues is that, when the nozzles are on the resting state for some time, the liquid of the ink evaporates. We have two different cases:

1 If the resting state is not very long, the water of the ink only

evaporates partially, which leaves the ink on the nozzle with more pigments. Therefore, the initial drops ejected from those nozzles will be darker (they have more pigment) than the following ones. This leads to the second issue (darker border). If we take the previous example, we will observe that the parts of the border which are darker corresponds to the parts which have not printed for some time.
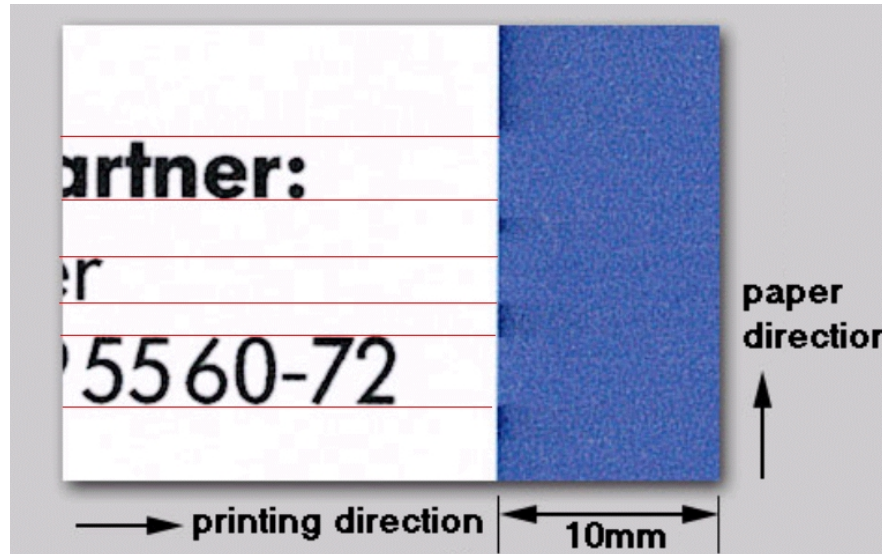
If we magnify the error you will see that the darker part (which is not printing) has darker drops, because of the initial excess of pigments.
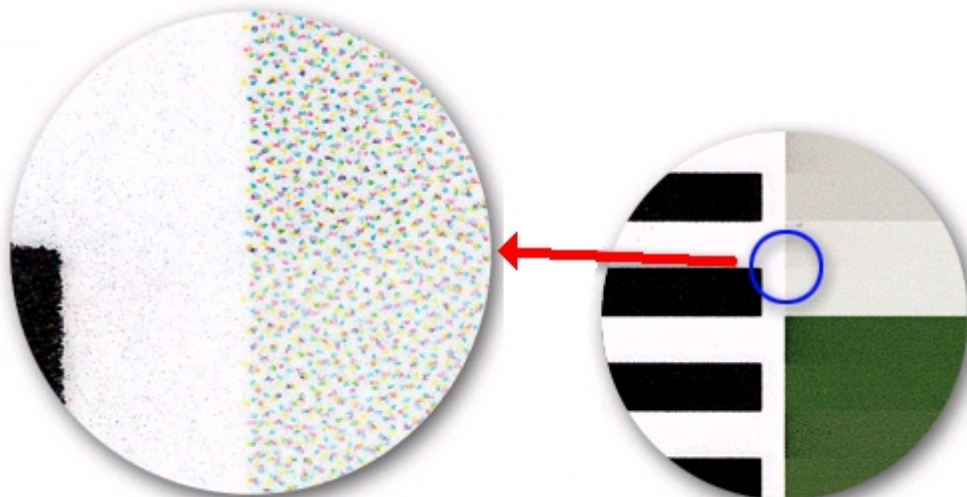
2 If the resting state is maintained longer, the water of the ink evaporates almost completely, which blocks the nozzle from a small amount of time while it is refilled with fresh ink.

Workarounds

This image quality problem is a product limitation. So, it has NO solution. Anyway, due to the limited cases where the problem could appear, large amounts of complaints are not expected.

If any customer complains about this problem, provide the following workarounds:

- Rotate the image. Remember that this problem only appears on the scan-axis direction when there are light colors are fills in the borders. By rotating the image, you may avoid this type of colors in the scan-axis direction.
- If using a RIP, print in bi-directional print-mode.
- Circle the print with a black frame that will stabilize the printheads before doing the print.

Ink Marks on Printouts

Problem statement:

Customers usually describe the issue as "Ink marks on printouts" or "Ink smearing".

These marks are not located everywhere, but at very distinct places on the printout. Depending on their location, we have identified **two different problems** that can create these marks.

As a summary:

Position of Marks	Root Cause Problem
Marks on the back side of the media	Aerosol Problem
Marks on the lateral sides of the media	
Marks on the leading edge of the media	
"Shadows in the print"	Static Problem
Non repetitive marks in the print area of the media while printing or inserting printheads	

It is very important to identify the problem very clear, because their work-arounds are different.

It is important that you thoroughly follow the qualification steps explained in this document in order to solve correctly the customer's problem.

You will see that **replacing any printer's hardware part can not solve these problems**. Let's go problem by problem…

Problem description:

As we have already explained before, ink marks on printouts is caused by two different issues each with a different resolution: Cause 1: Aerosol and Cause 2: Static. Let's describe both problems:

Cause 1: Aerosol

Aerosol: Background

Through its normal operation the DesignJet 5000 printer fires drops of liquid ink from a printhead on to a media surface. As the ink is fired from the printhead, minute droplets of the ink often break away from the main drop. Because of their small size and weight, these droplets can form a fine mist inside the printer. The mist settles on the printer components and, after a while, visible ink deposits form inside the printer. The term we use to describe the mist is "aerosol".
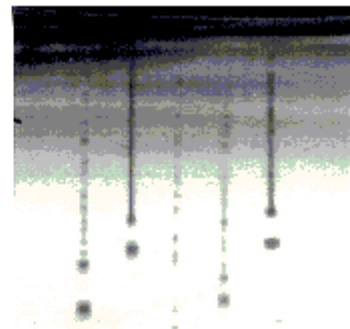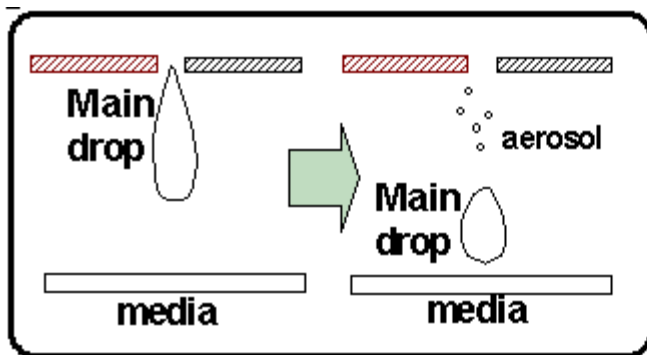
We have seen in the DesignJet 5X00 printers that the majority of the aerosol is attracted to where the airflow is strongest; this is at the lateral sides of the media at any given width and inside the linear blade. We have also seen aerosol build-up on the pinch-wheels and cutter.

Given that the DesignJet 5X00 series printer is a production speed printer and customer usage was expected to be at high volume; aerosol affects were an expected occurrence that customers would see. Because of this occurrence HP included cleaning and maintenance instructions with the printer. HP provided a clear message that the DesignJet 5X00 series printer is a production printer that would have to be cleaned from time to time.

Aerosol ink accumulation will grow with time and usage. This accumulation is not a big problem if the usage of the customer allows the ink to dry. The issue is more severe under HEAVY USAGE (more than 30 high-density prints a day). This usage profile does not allow the ink on the platen (or other places) to dry and thus causes marks on the printouts.

Aerosol ink accumulation is a result of the printhead architecture and the way the printer manages it (the writing systems). **DO NOT REPLACE** any internal hardware component because of this issue.

Aerosol: What customers see.

1 Presence of marks on the backside of the media. This is the first manifestation of aerosol.

Remember that the media "drags" along the platen while printing. If there is aerosol ink accumulation on the platen, the backside of the media will collect some of that ink. The following figure shows the typical marks you can get:
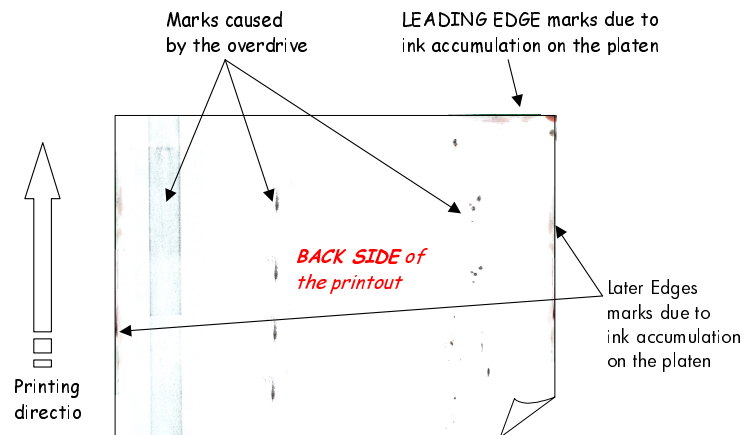
2 Presence of marks on the front side of the media.

The following figure shows the typical marks on the front side of the printout due to aerosol:
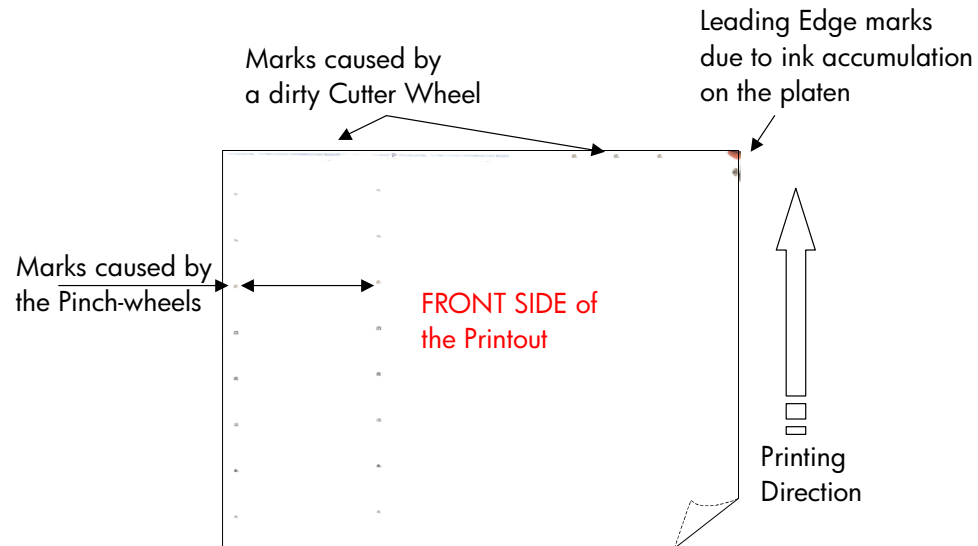
So, as you have seen, we can have marks caused by the ink accumulation on:

■ The center platen (and overdrive).

■ The pinch-wheels.

■ The cutter wheel.

Our recommendation is to clean the printer once per roll.

Cause 2: Static

Static: Background

Over the past few years, HP has been improving image quality by using smaller and smaller drops of inks. Without this it would have been impossible to achieve a level of photo quality unmatched by any other printer in its class. For example, the DesignJet 5X00 fires 12 pl drops when using dye-based ink and 18 pl drops with the UV inks, compared to the 24 or 40 pl used in previous DesignJet printers.

However, reducing the size of the drops has made them more susceptible to:

■ Airflow and/or

■ Static charges.

Any of these two effects may force the ink drops to deviate from its trajectory causing them to position at the wrong place of the media.

The HP DesignJet 5X00 series is already optimized to minimize the static build up within the printer, i.e. the spindle is connected to ground, the print zone is made out of carbon filled plastic to make it conductive, there is an antistatic brush in front of the printer, etc.

Another of the measures we took to reduce the static charges was to place an anti-static back coating to the HP plastic media type. Without this backcoating, the media charges itself.

So, despite the *printer* antistatic features, we have discovered that the anti-static backcoating of the *media* is a MUST for the 5X00 Series in order to avoid the image quality and ink accumulation issues we will describe later on.

Which printers are affected by this?

- Customers who print on a 3rd party polyester-based film without anti-static back coating are more susceptible to static related issues. If they do not see any of the below mentioned symptoms, the media probably has an anti-static back coating, thus they are not affected.

- Printers are not affected if they print using:
  – HP media approved for HP DesignJet 5000 Series or
  – Any paper-based media.

- Customers use only photo-based media are probably not affected. Most photo-based media work fine. However, there are some photo-based media with a plastic back coating that is conducive to static-build up. These media could be affected too.

What can you see?

1 Presence of "shadows" on the printout.

See the following image to see an example. These "shadows" are particularly visible next to black areas or at the border of the print.

This is because the media is statically charged and misdirects the smallest drop.

2 Presence of ink smears or even drops on the printout.

See the following image to see an example.
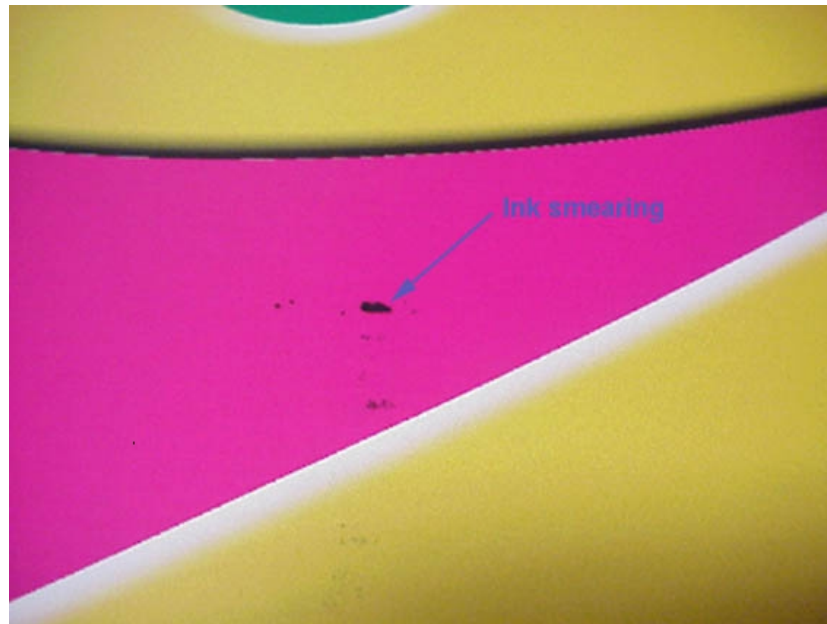
These marks are caused due by the fact that the static charge of the media forces the aerosol to accumulate at the edges of the printheads and at the bottom of the carriage.

When there is too much ink accumulated, it may:

- Fall onto the media
- Smear the media

Causing the problem.

See the following images:
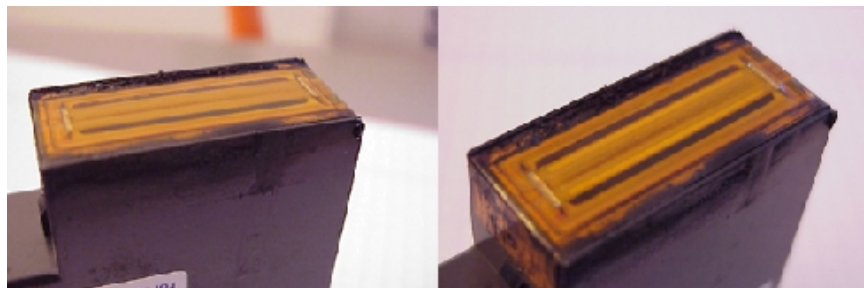
Ink accumulation at the bottom edges of the Printheads.
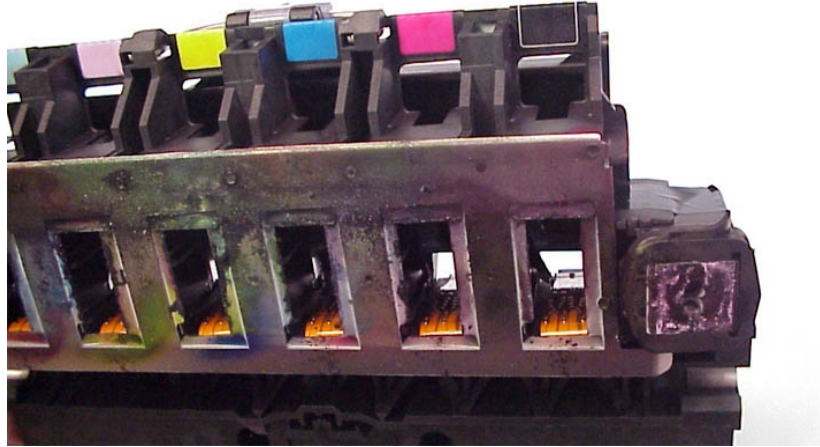
Ink accumulation at the bottom of the Carriage Assembly.

3 Ink stains on the media after changing/reseating the printheads

NOTE   **This is a secondary effect of the ink accumulation.**

See the following image to for an example.

Static: Solutions and Workarounds

The following options resolve the issue:
- Use HP DesignJet 5X00 Series approved media
- Use 3rd party media types with ANTI-STATIC BACK COATING

If these options are not possible, and they still want to continue printing with the current non-supported media, you can use the following workarounds:
- Clean the sides of the printheads, the bottom of the carriage and the electrical contacts regularly.
- Increase the relative humidity to 30% or more for films with anti-static coating or 60 – 70% for films without anti-static coating, but there might be some films where this is still not sufficient.
- Change to UV inks, which are not as susceptible to static.

DO NOT REPLACE ANY PRINTER HARDWARE PART OR PRINTHEADS. THEY PROVIDE NO RESOLUTION FOR THIS ISSUE.

Parts and Diagrams

7

Printer Support

Printer Support				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
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 Screws and Screw Drivers)
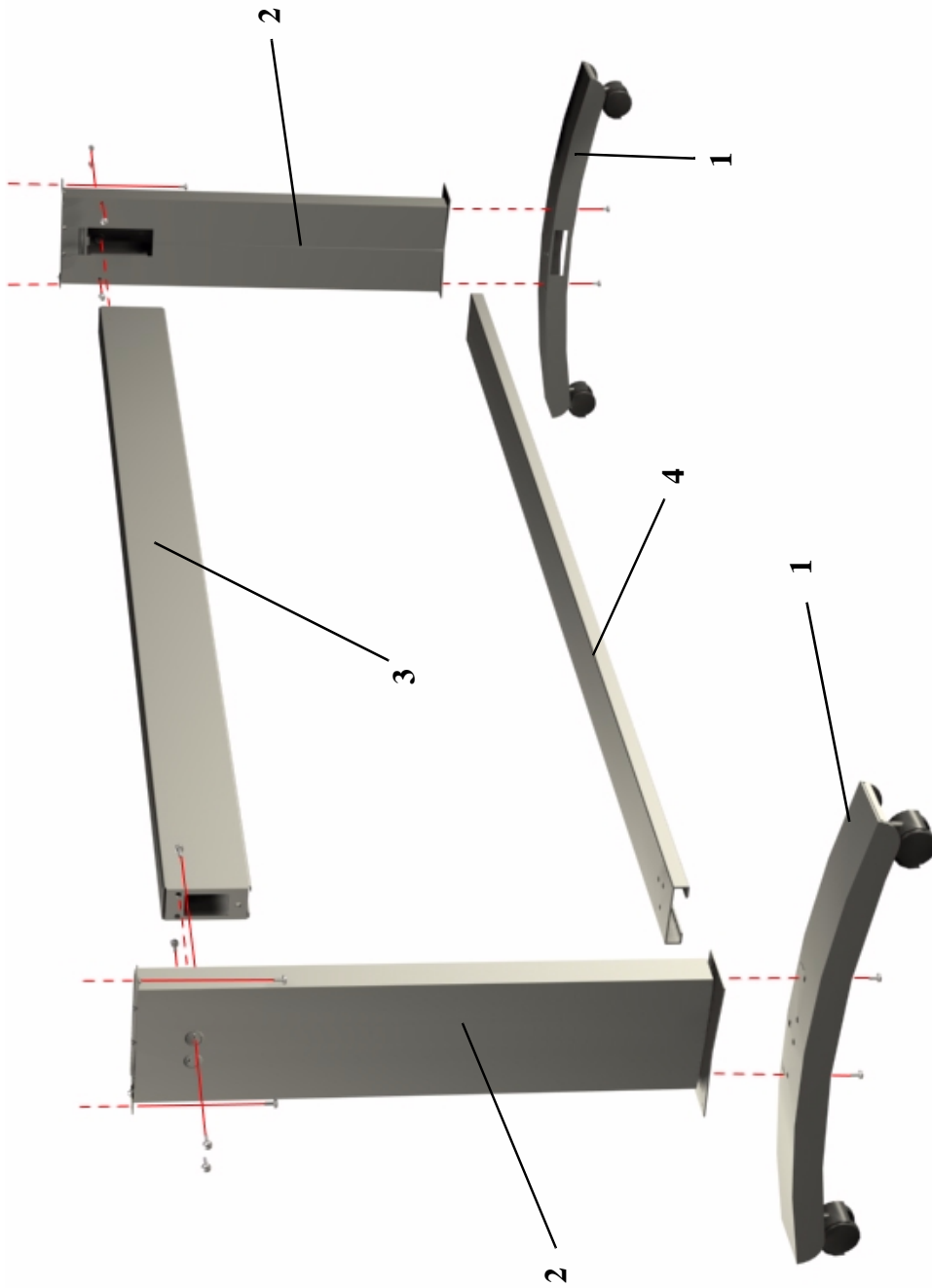
Figure 3: Printer Support

Bin and Take-Up Reel

Bin and Take-Up Reel				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
1	C7770-60148		1	42" Bin (includes the Bin Support)
2	C6095-60282		1	Take-Up Reel Spindle (**60" Model**)
	C6090-60310		1	Take-Up Reel Spindle (**42" Model**)
3	C6090-60183		1	Left Take-Up Reel Holder
4	C6090-60182		1	Right Take-Up Reel Holder
5	C6095-60189		1	Take-Up Reel Tubes (**60" Model**)
	C6090-60177		1	Take-Up Reel Tubes (**42" Model**)
6	Q1253-60017		1	Take-up Reel Deflector (**60" Model**)
	Q1251-60076		1	Take-up Reel Deflector (**42" Model**)
7	C6090-60184		1	Take-Up Reel Sensor
8	C6090-60309		1	Left Hand Take-Up Reel Spindle Guide
9	C6090-60112		2	3" Adaptors

Bin Support
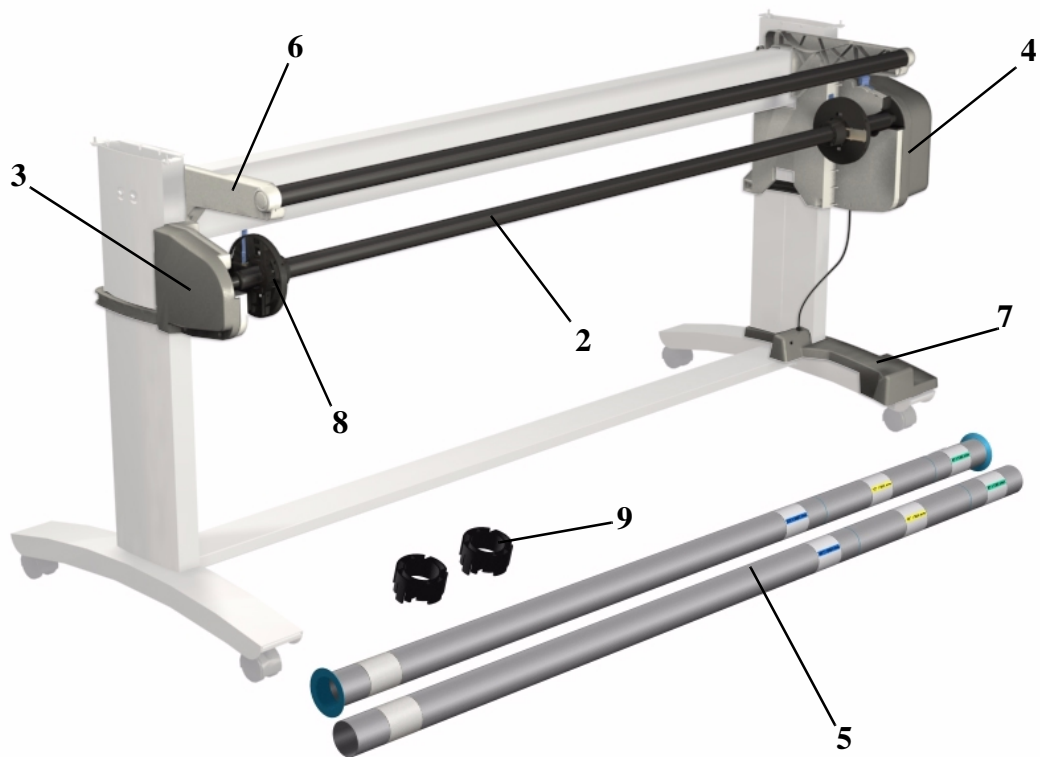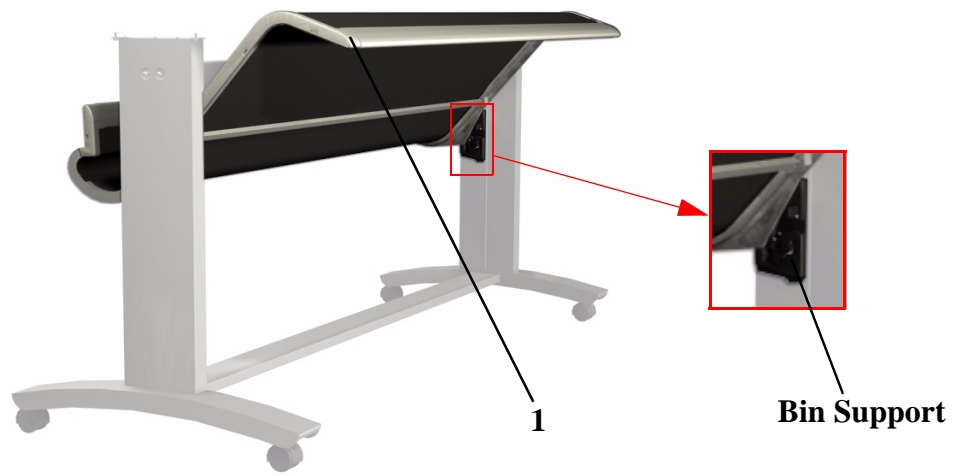
Figure 4: Bin and Take-Up Reel

Right Hand Cover

Right Hand Cover				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
1	C6090-60038		1	Right Hand Cover (Includes Front Panel Cable)
2	0624-0771		4	Screw
3	0515-4268		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	C6095-90021	Q1251-90011	1	Overlay (English)
	C6095-90022	Q1251-90012	1	Overlay (Korean)
	C6095-90023	Q1251-90013	1	Overlay (Taiwanese)
	C6095-90024	Q1251-90014	1	Overlay (German)
	C6095-90025	Q1251-90015	1	Overlay (French)
	C6095-90026	Q1251-90016	1	Overlay (Spanish)
	C6095-90027	Q1251-90017	1	Overlay (Italian)
	C6095-90028	Q1251-90018	1	Overlay (Japanese)
	C6095-90029	Q1251-90019	1	Overlay (Portuguese)
	C6095-90030	Q1251-90020	1	Overlay (Chinese)
9	C6095-40065		1	Quick Reference Guide Holder
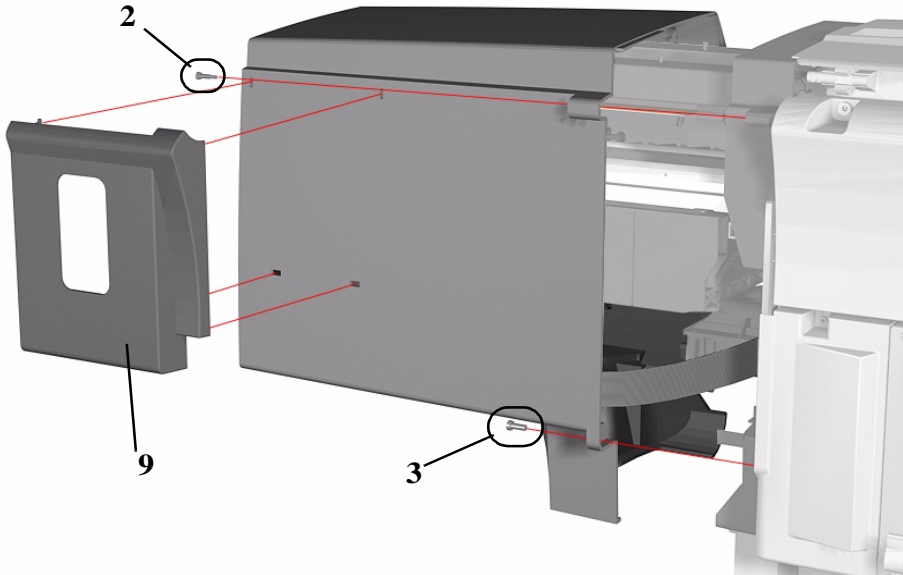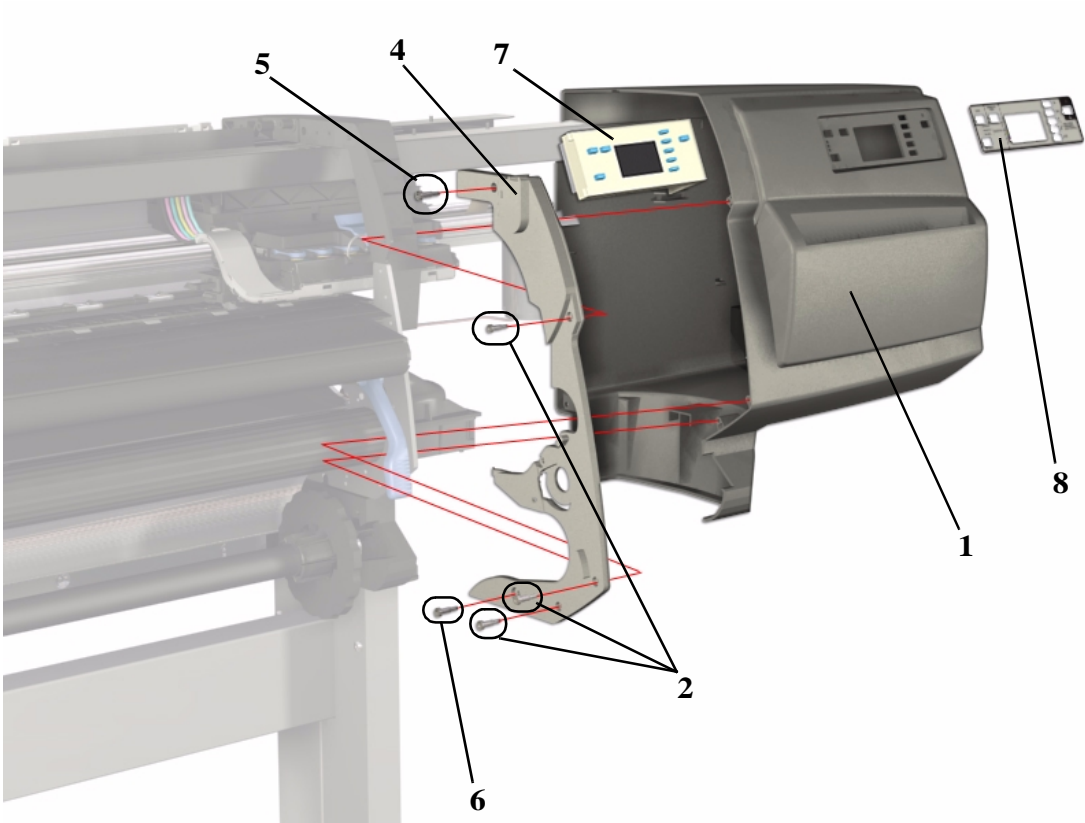
Figure 5: Right Hand Cover

Left Hand Cover and Rear Door

Left Hand Cover and Rear Door				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
1	C6090-60039		1	Left Hand Cover (includes door)
2	0624-0771		4	Screw
3	0515-4268		1	Screw
4	C6090-60042		1	Left Hand Trim
5	0624-0771		1	Screw
6	0515-2248		1	Screw
7	C6090-60040		1	Rear Door
8	C6091-00139	Q1252-00003	1	Nameplate PS
	C6095-00116	Q1251-00017	1	Nameplate RTL
9	C6090-60040		1	Left Hand Back Door
10	-		1	Adobe PS3 Logo
11	-		1	Pantone Certified Logo

OEM Logos				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
8	C6090-00235	-	1	Matchprint InkJet Proofer 5042 Nameplate
	C6090-00220	-	1	Matchprint InkJet Proofer 5060 Nameplate
	-	-	1	Matchprint InkJet Proofer 5542 Nameplate
	-	-	1	Matchprint InkJet Proofer 5560 Nameplate
	-	-	1	EagleJet
12	C6090-00244		1	HP Technology Logo
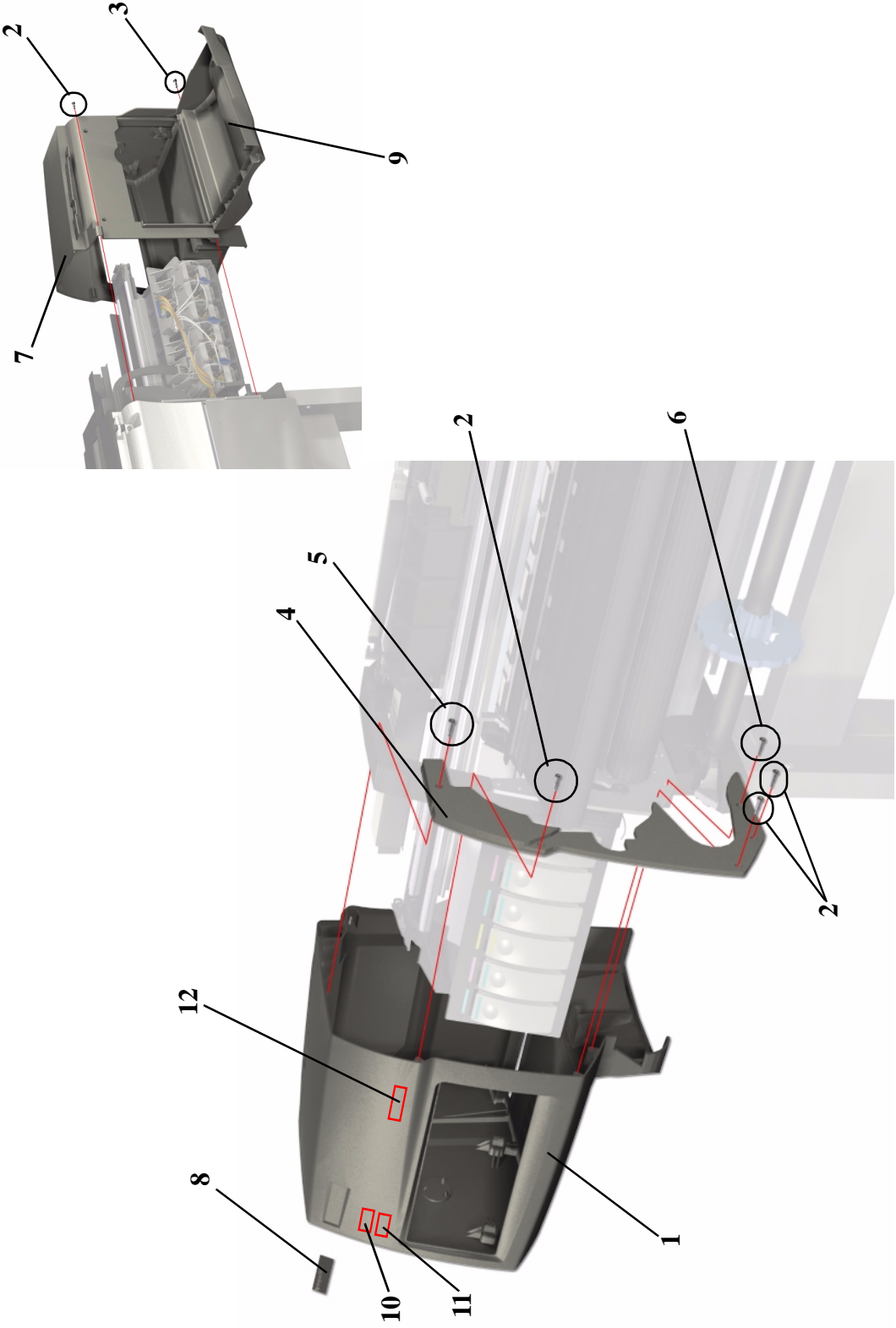
Figure 6: Left Hand Cover and Rear Door

Top and Back Covers

	Top and Back Covers			
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
1	C6095-60278	-	1	Top Cover (**60" Model**)
	C6090-60291	-	1	Top Cover (**42" Model**)
	-	Q1253-60012	1	Black Top Cover (**60" Model**)
	-	Q1251-60032	1	Black Top Cover (**42" Model**)
2	C6095-60141		1	Back Cover (**60" Model**)
	C6090-60037		1	Back Cover (**42" Model**)
3	0515-0382		8 (60")/6 (42")	Screw
4	C6071-20026		3	Screw
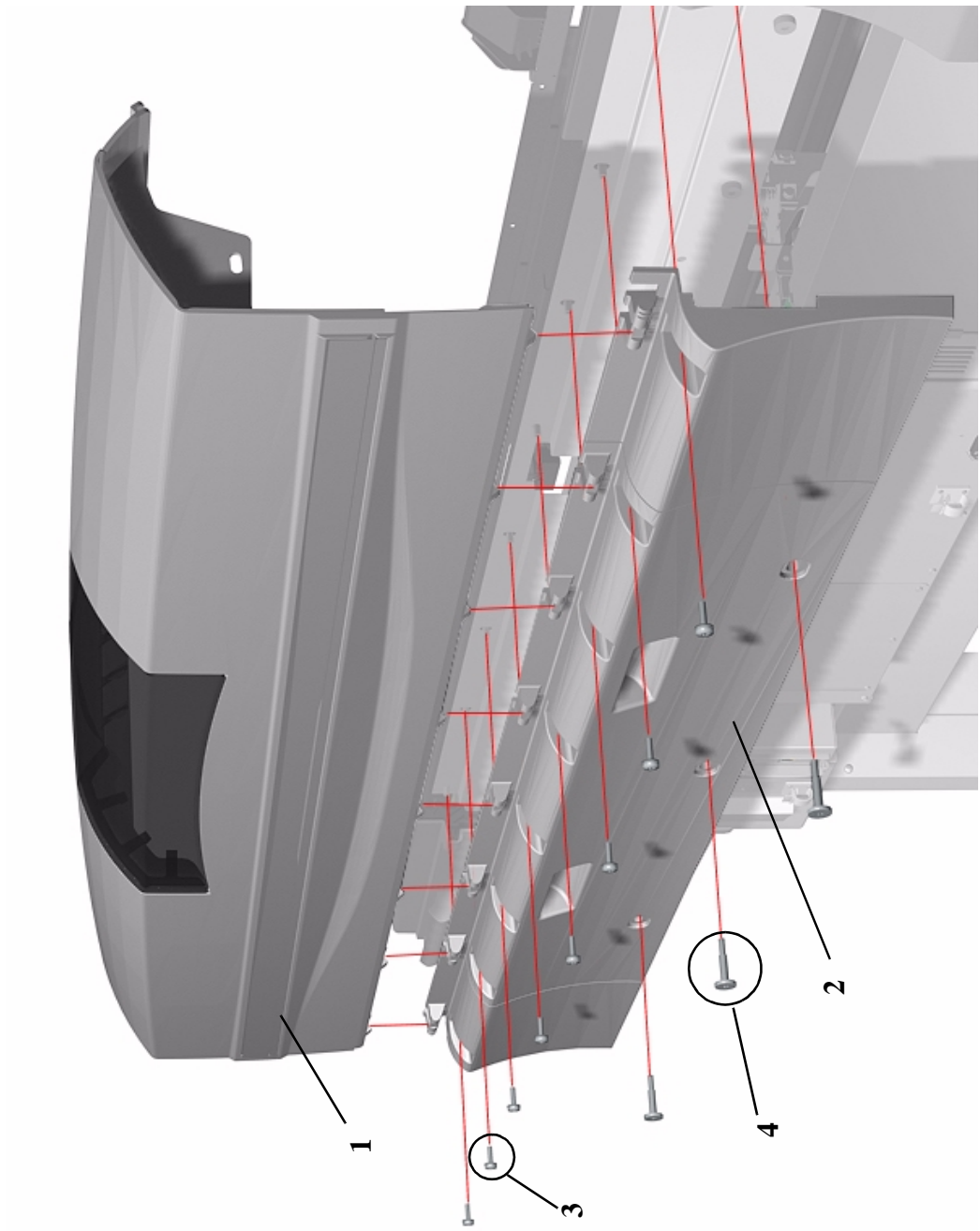
Figure 7: Top and Back Covers

Service Station

Service Station				
Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
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
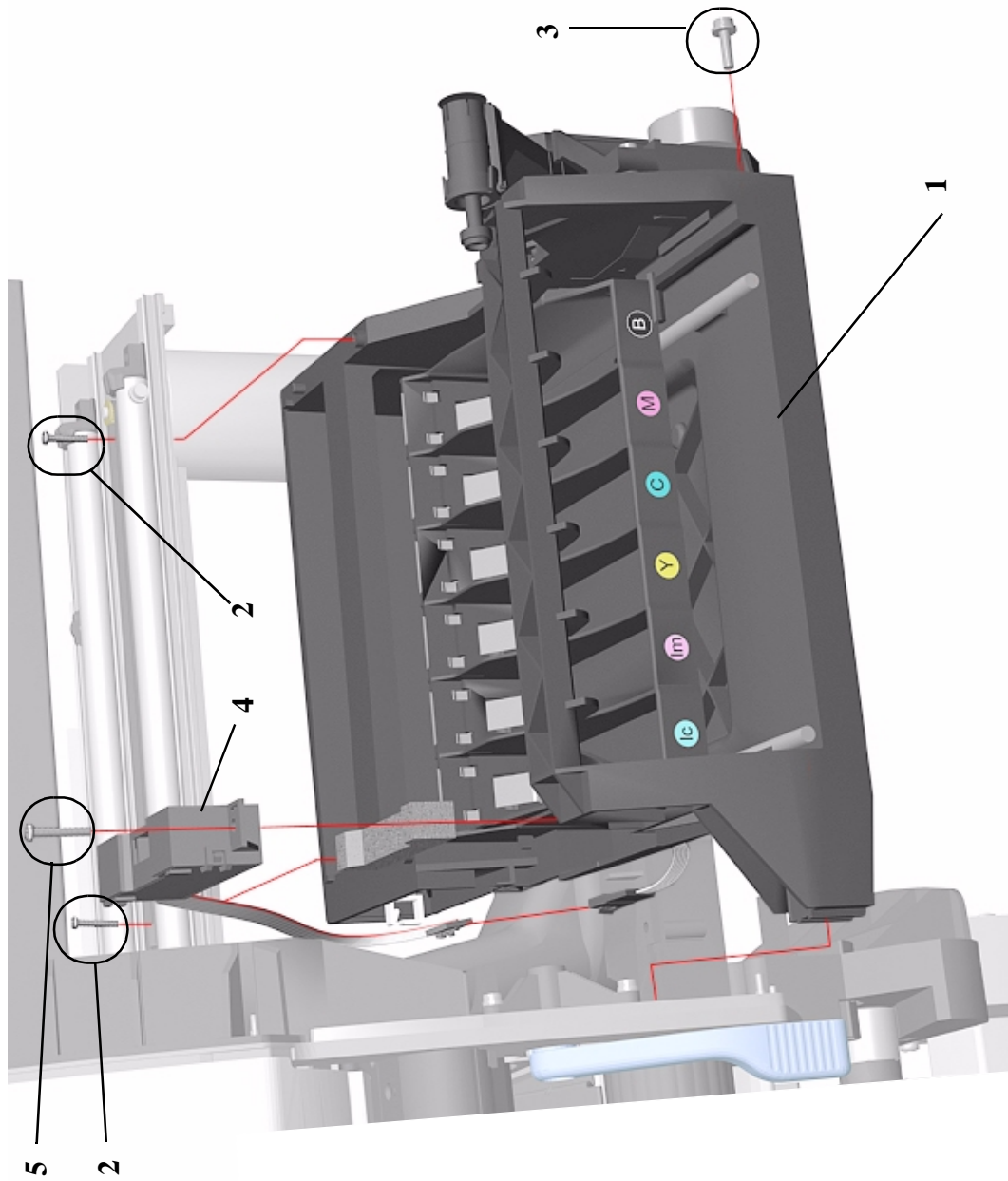
Figure 8: Service Station

Vacuum Fan

Vacuum Fan				
Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
1	C6090-60095		1	Vacuum Fan
2	0515-2248		4	Screw
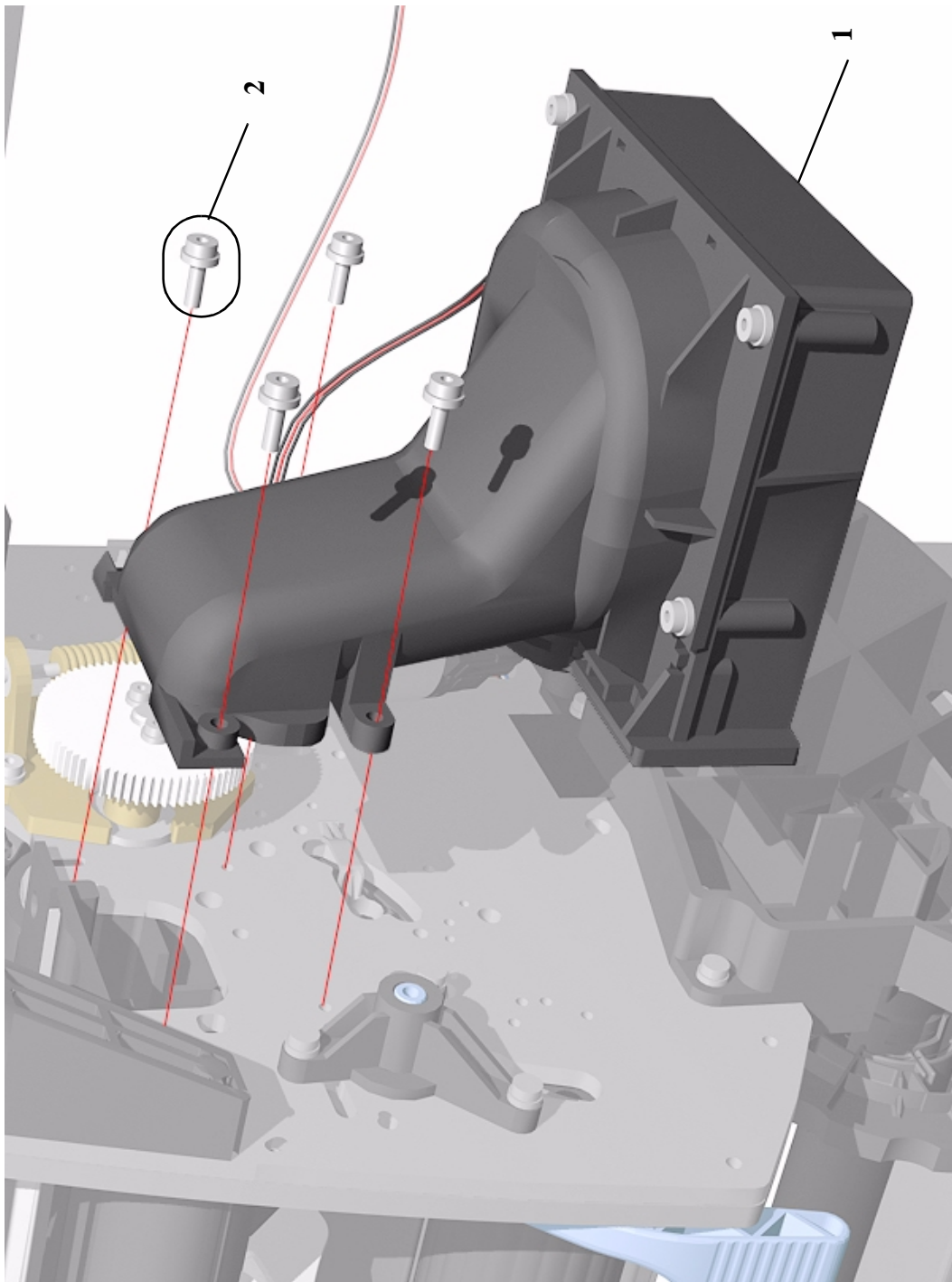
Figure 9: Vacuum Fan

Booster Fan and Media Sensor

Booster Fan and Media Sensor				
Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
1	C6090-60093		1	Booster Fan
2	0515-2248		2	Screw
3	C6090-60103		1	Media Sensor
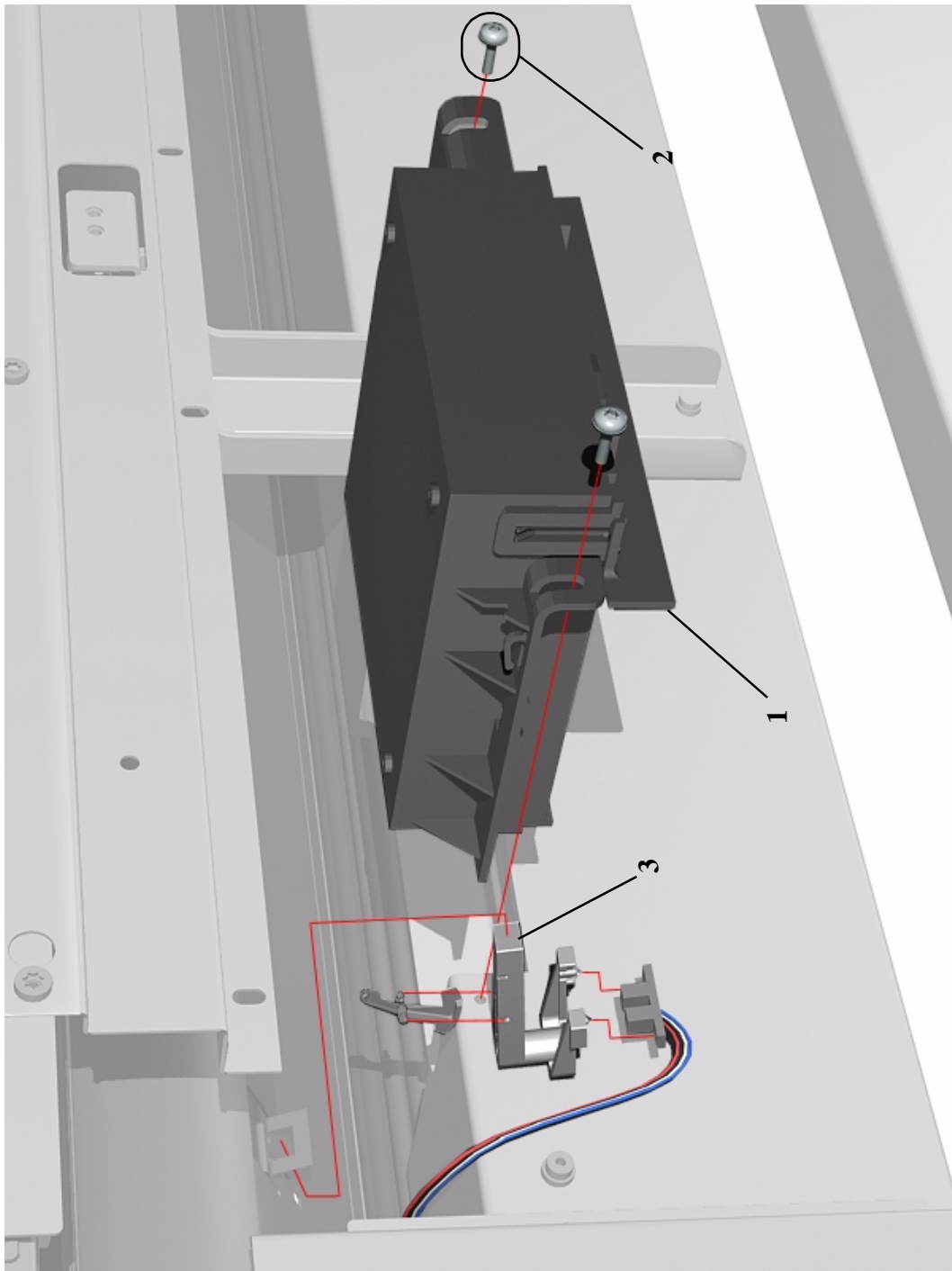
Figure 10: Booster Fan and Media Sensor

Paper-Axis Motor

Paper-Axis Motor				
Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
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)
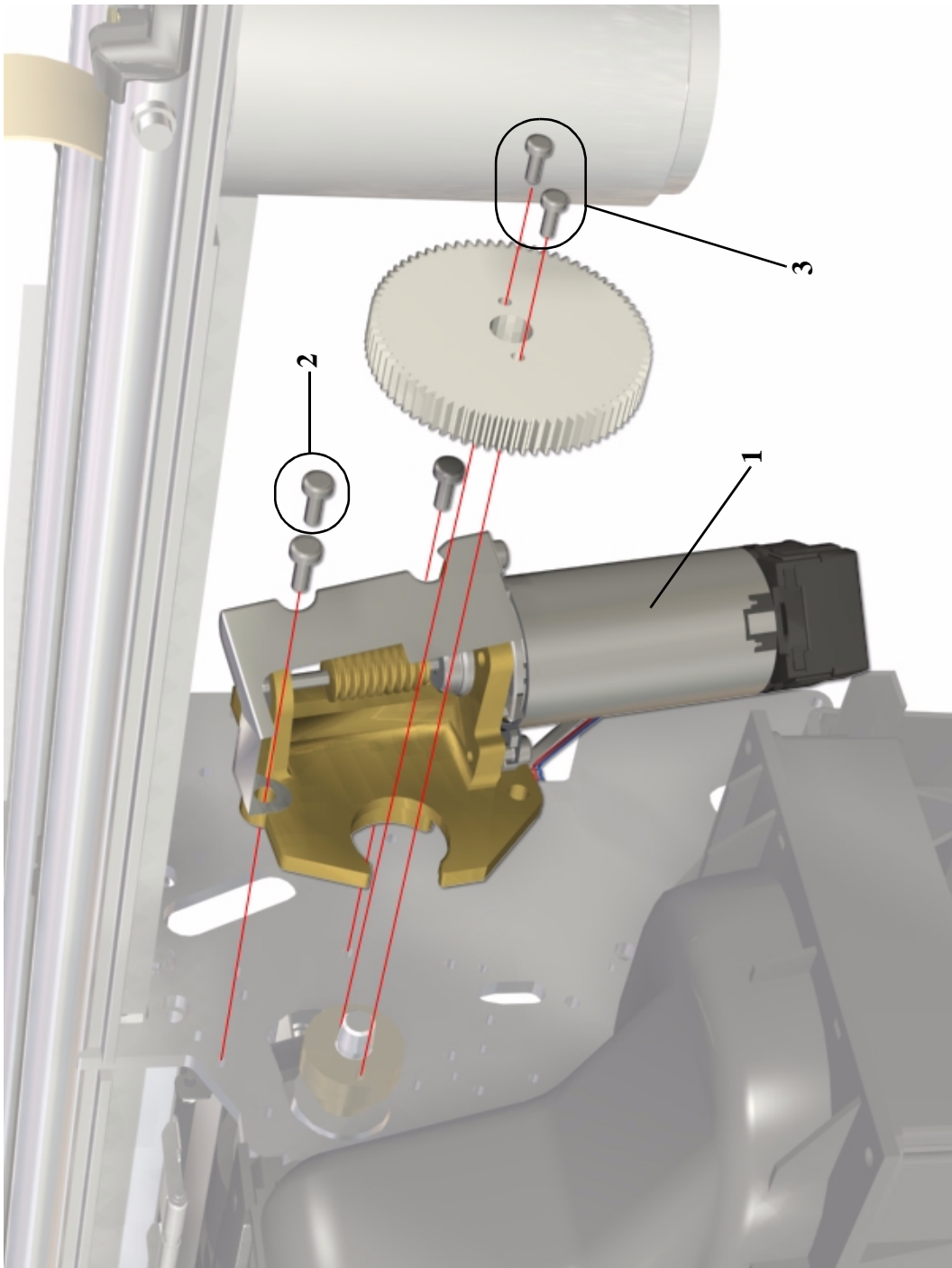
Figure 11: Paper-Axis Motor

Scan-Axis Motor

Scan-Axis Motor			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
1	C6090-60092		1	Scan-Axis Motor Assembly
2	0515-0382		2	Screw
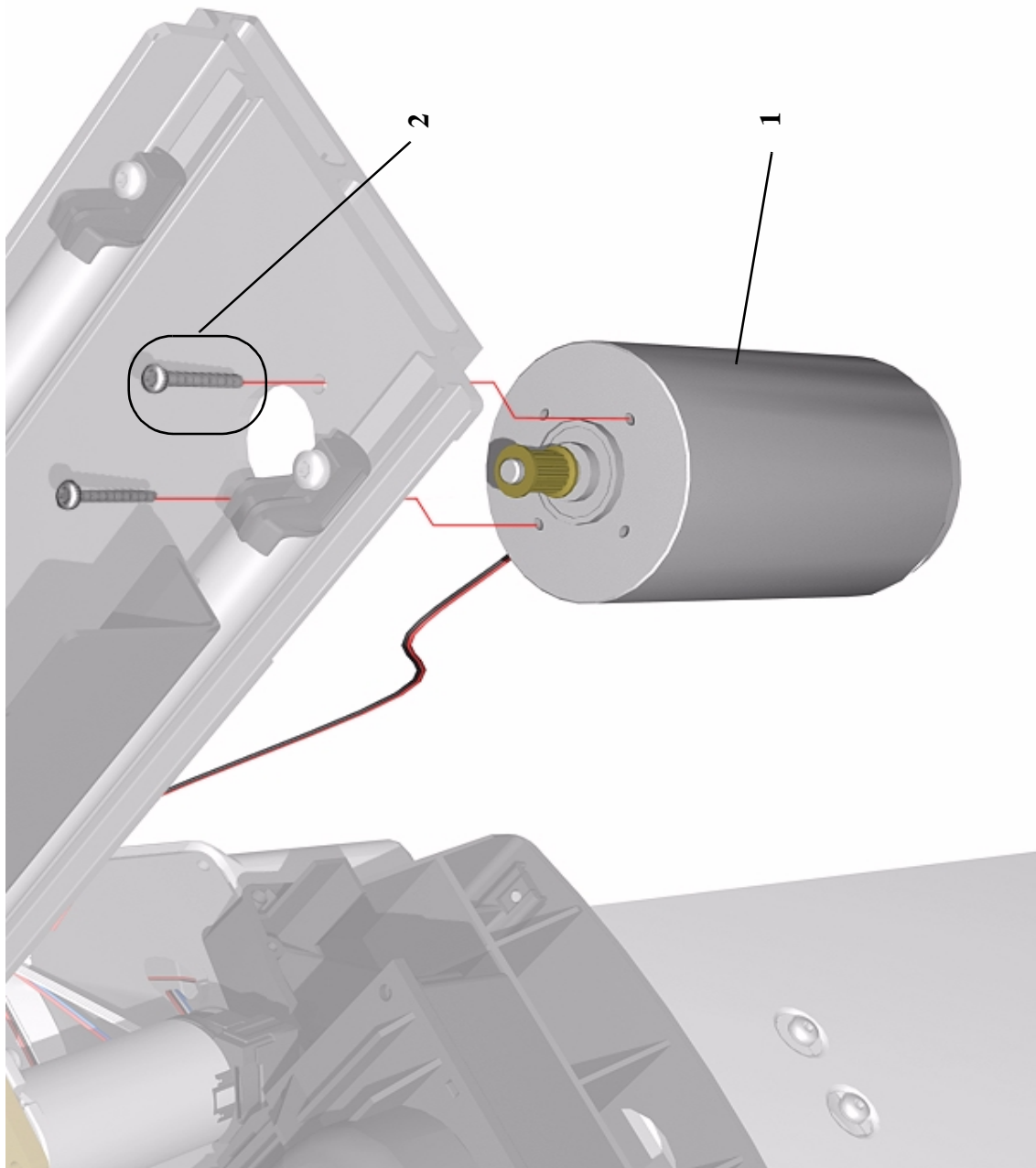
Figure 12: Scan-Axis Motor

ISS and APS Assembly

ISS and APS Assembly			
Reference on Drawing	HP Part Number	Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series	
1	C6090-60085		1	Ink Supply Station (ISS) (Includes Grounding Strip)
2	C6090-60084		1	Air Pressurization System (APS)
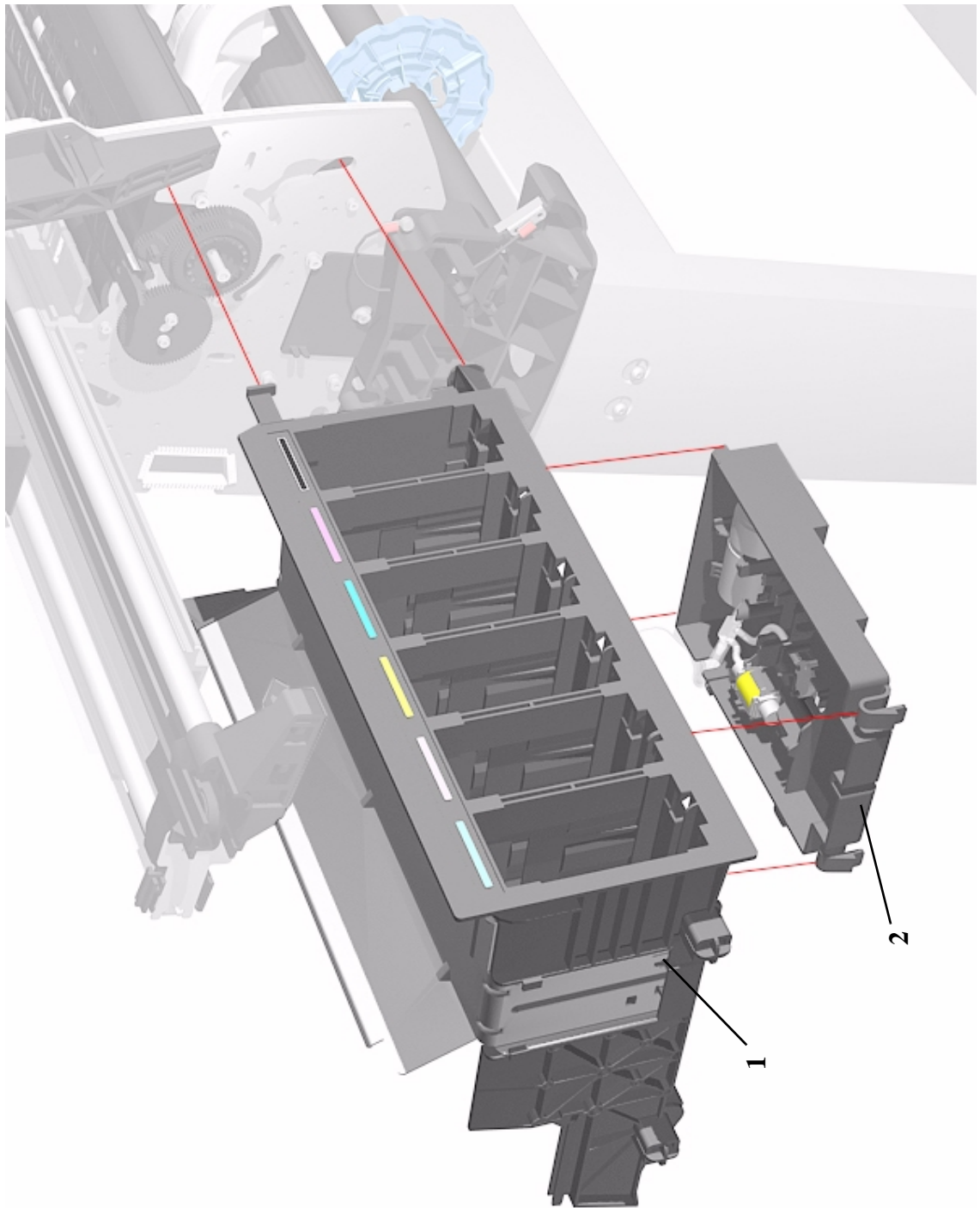
Figure 13: ISS and APS Assembly

Ink Tubes System

Ink Tubes System				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
1	C6095-60186		1	**Dye** Ink Tubes System (**60"** **Model**) (Includes Setup Printheads and Carrier Clip)
	C6090-60058		1	**Dye** Ink Tubes System (**42"** **Model**) (Includes Setup Printheads and Carrier Clip)
	C6090-60231		1	**UV** Ink Tubes System (**60"** **Model**) (Includes Setup Printheads and Carrier Clip)
	C6090-60232		1	**UV** Ink Tubes System (**42"** **Model**) (Includes Setup Printheads and Carrier Clip)
-	C6090-60106		6	Setup Printheads (Also included in Ink Tubes System)
2	C6090-60235		1	Printhead Storage Container

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
	DJ 5000 Series	DJ 5500 Series		
1	J6057-61001		1	EIO Card (615N)
2	-		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
	-	Q1252-60003	1	PS Boot ROM DIMM 05.00.01
	-	Q1251-60066	1	RTL Boot ROM DIMM 05.00.01

OEM Boot ROM DIMM				
Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
6	-	Q1252-60006	1	OEM PS Boot ROM DIMM 06.00.01
	-	Q1251-60089	1	OEM RTL Boot ROM DIMM 06.00.01
	C6090-60299	-	1	OEM RTL Boot ROM DIMM 02.01.02
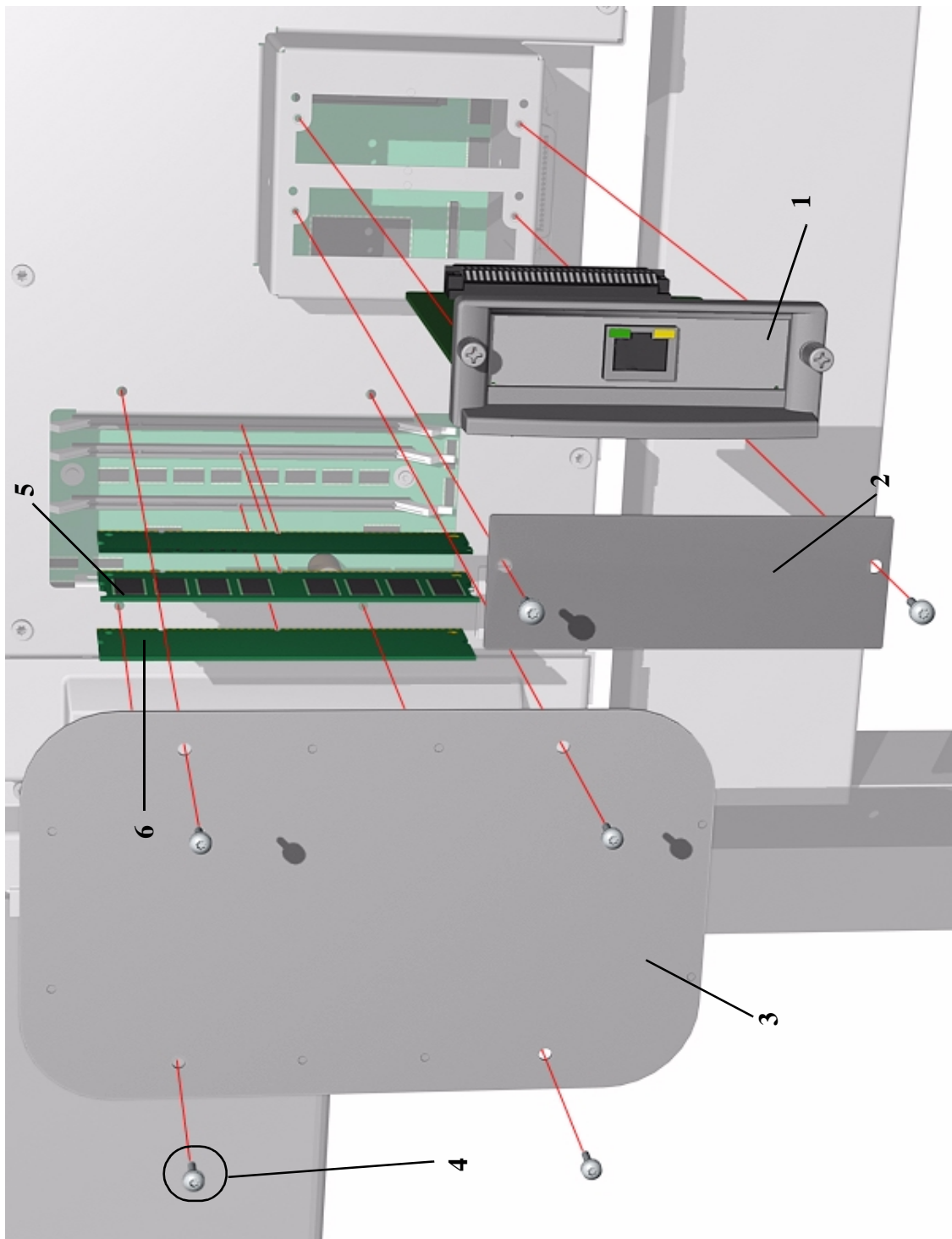
Figure 15: BootROM, Memory and Covers

Rear Electronics Access Covers

Rear Electronics Access Covers				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
1	Q1251-60085		1	Right Rear Cover
2	0515-0382		1	Screw
3	Q1251-60086		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
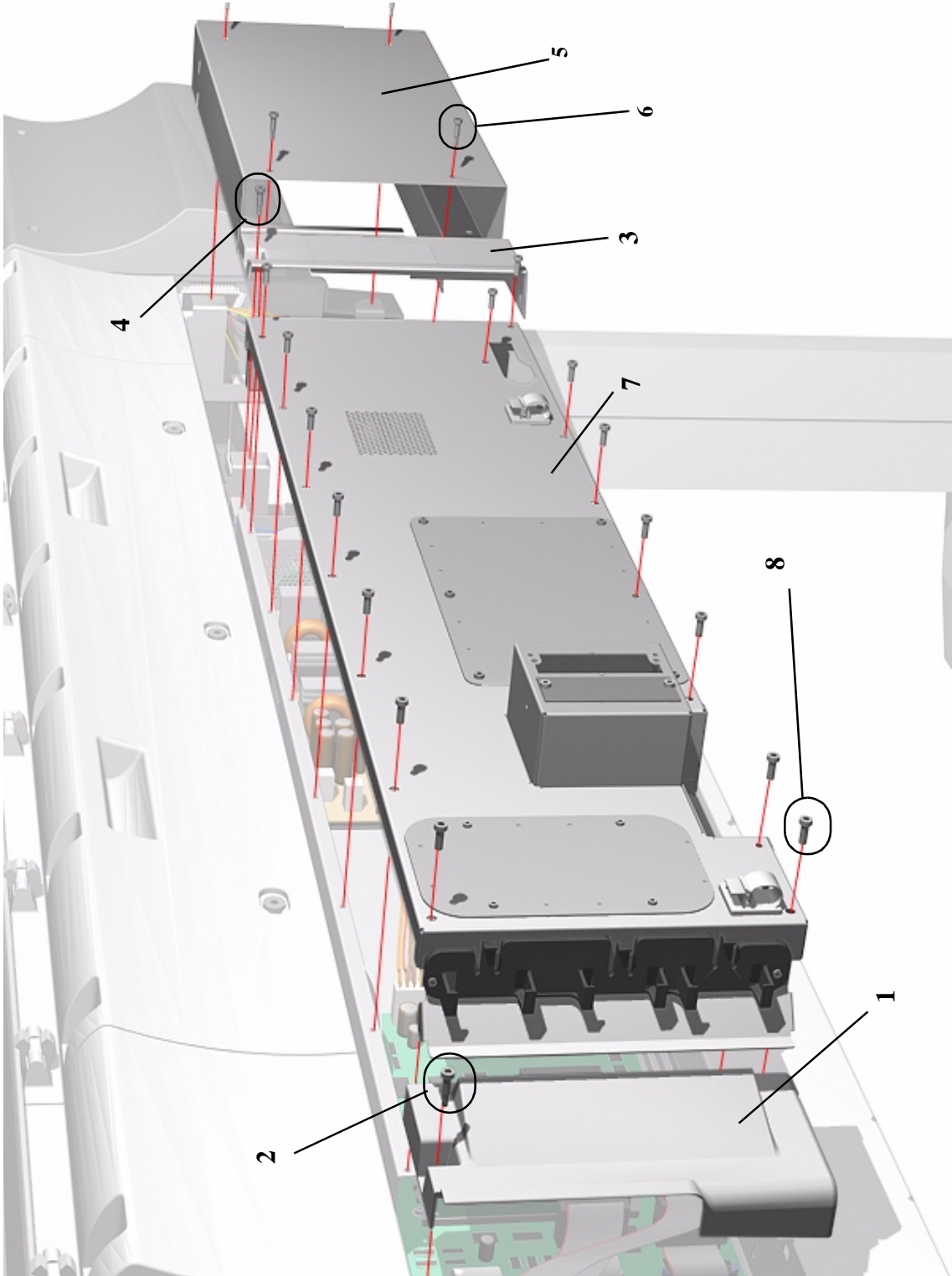
Figure 16: Rear Electronics Access Covers

Hard Disk Drive and Cover

Hard Disk Drive and Cover				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
1	C6091-60255	-	1	Hard Disk Drive PS A.02.12 (includes data cable and power cable)
	C6090-60303	-	1	Hard Disk Drive RTL A.02.12 (includes data cable and power cable)
	-	Q1252-60004	1	Hard Disk Drive PS S.03.11 (includes data cable and power cable)
	-	Q1251-60067	1	Hard Disk Drive RTL S.03.11 (includes data cable and power cable)
2	C6095-00031		1	HDD Cover
3	0515-0382		6	Screw

OEM Hard Disk Drive				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
1	-	Q1252-60004	1	OEM Hard Disk Drive PS O.03.10 (includes data cable and power cable)
	-	Q1251-60067	1	OEM Hard Disk Drive RTL O.03.10 (includes data cable and power cable)
	C6090-60300	-	1	OEM Hard Disk Drive RTL O.02.11+ (includes data cable and power cable)
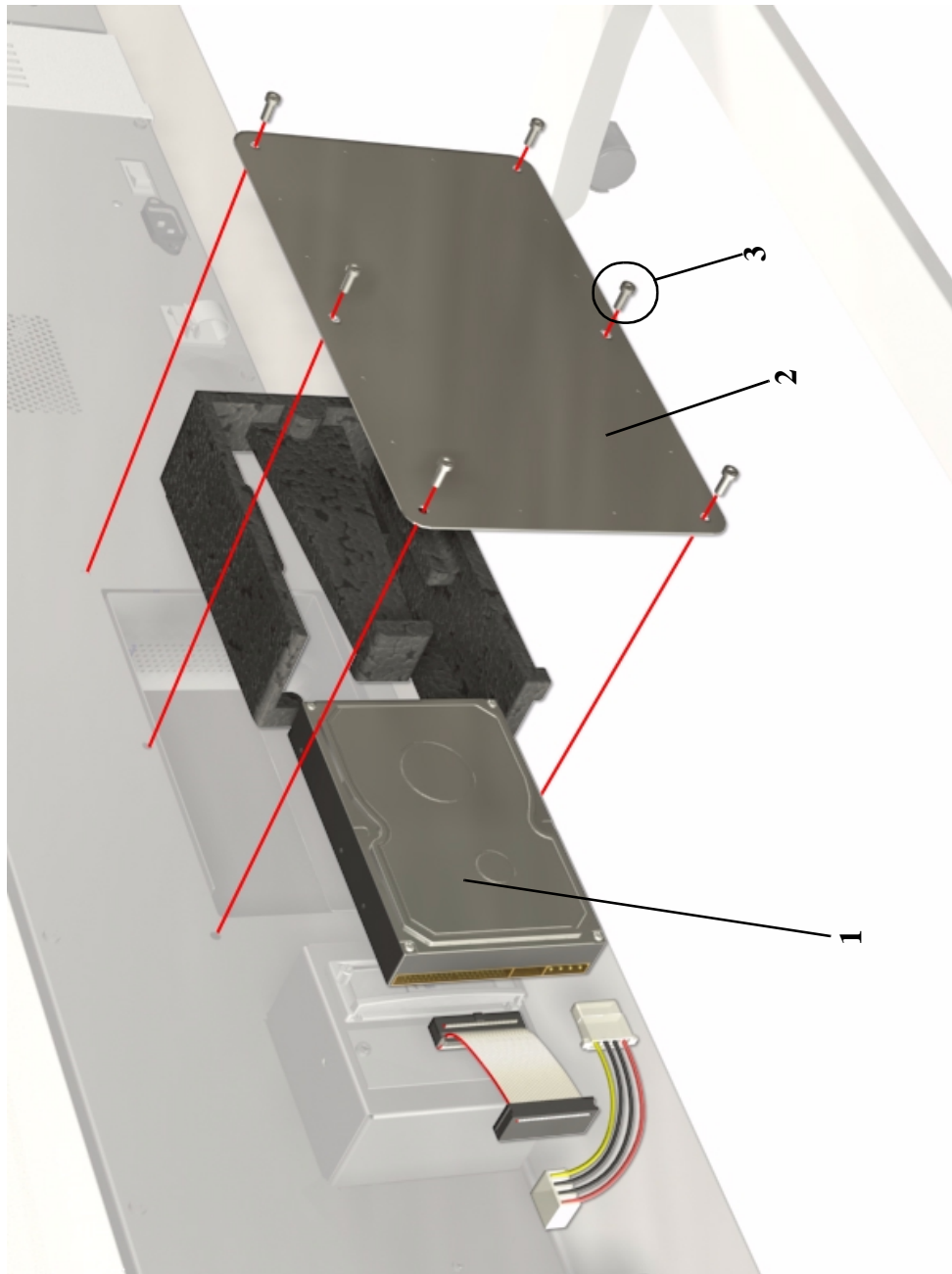
Figure 17: Hard Disk Drive and Cover

ISS PCA and Main PCA

ISS PCA and Main PCA				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
1	C6090-60012	Q1251-60030	1	Main PCA
2	0515-2200		11	Screw
3	C6090-60041		1	ISS PCA (Includes ISS PCA cable)
4	0515-2200		5	Screw
5	C6090-60318		1	PCI-to-IDE PCA
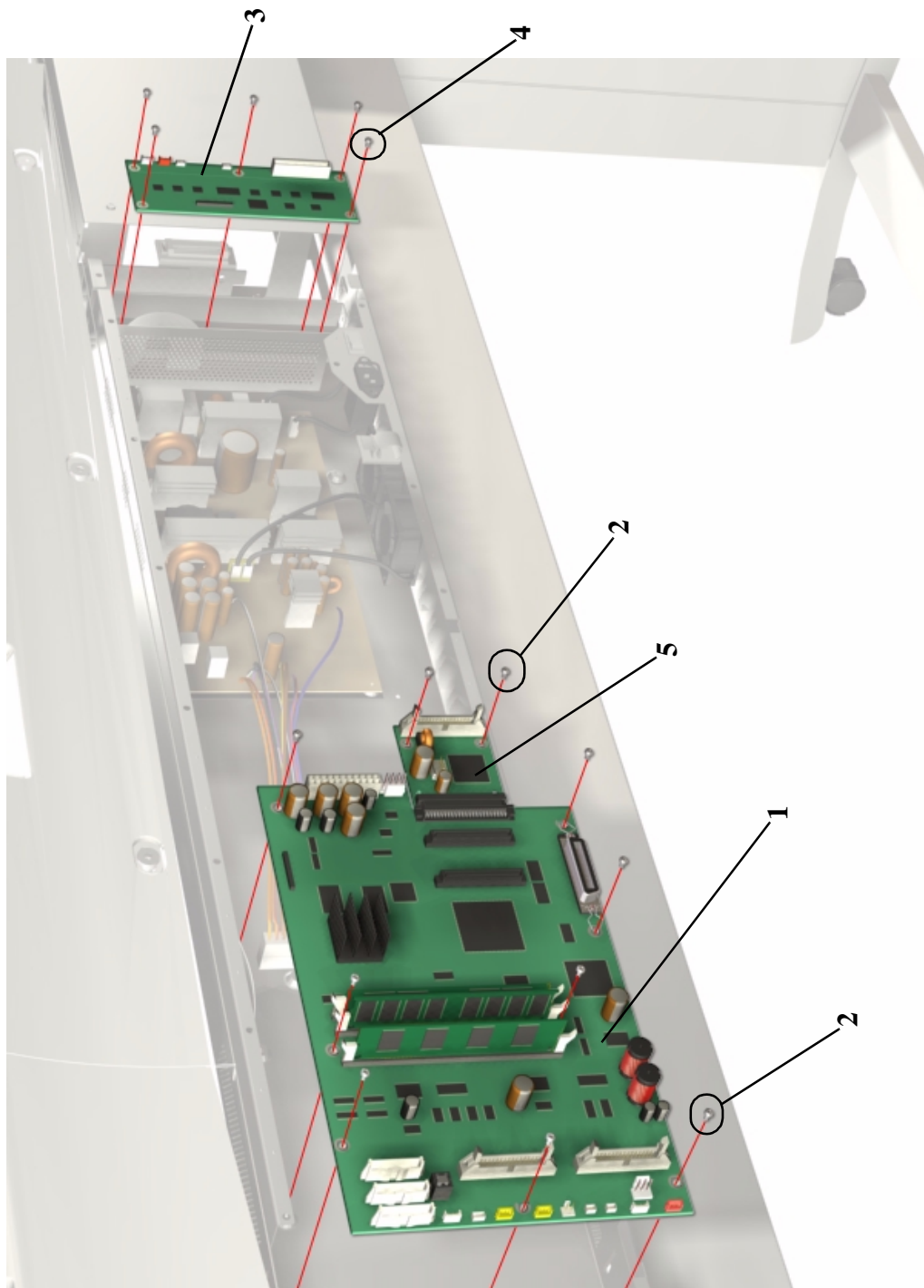
Figure 18: ISS PCA and Main PCA

Power Supply Unit

Power Supply Unit				
Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
1	C6090-60028	C6090-60315	1	Power Supply Unit
2	0515-2200		7	Screw
3	C6090-60029		2	Cooling Fans
4	0515-2278		4	Screw
5	C6090-60033	C6090-60316	1	Electronics Module Base (includes Power Supply Unit and cooling fans)
6	0515-0382		4	Screw
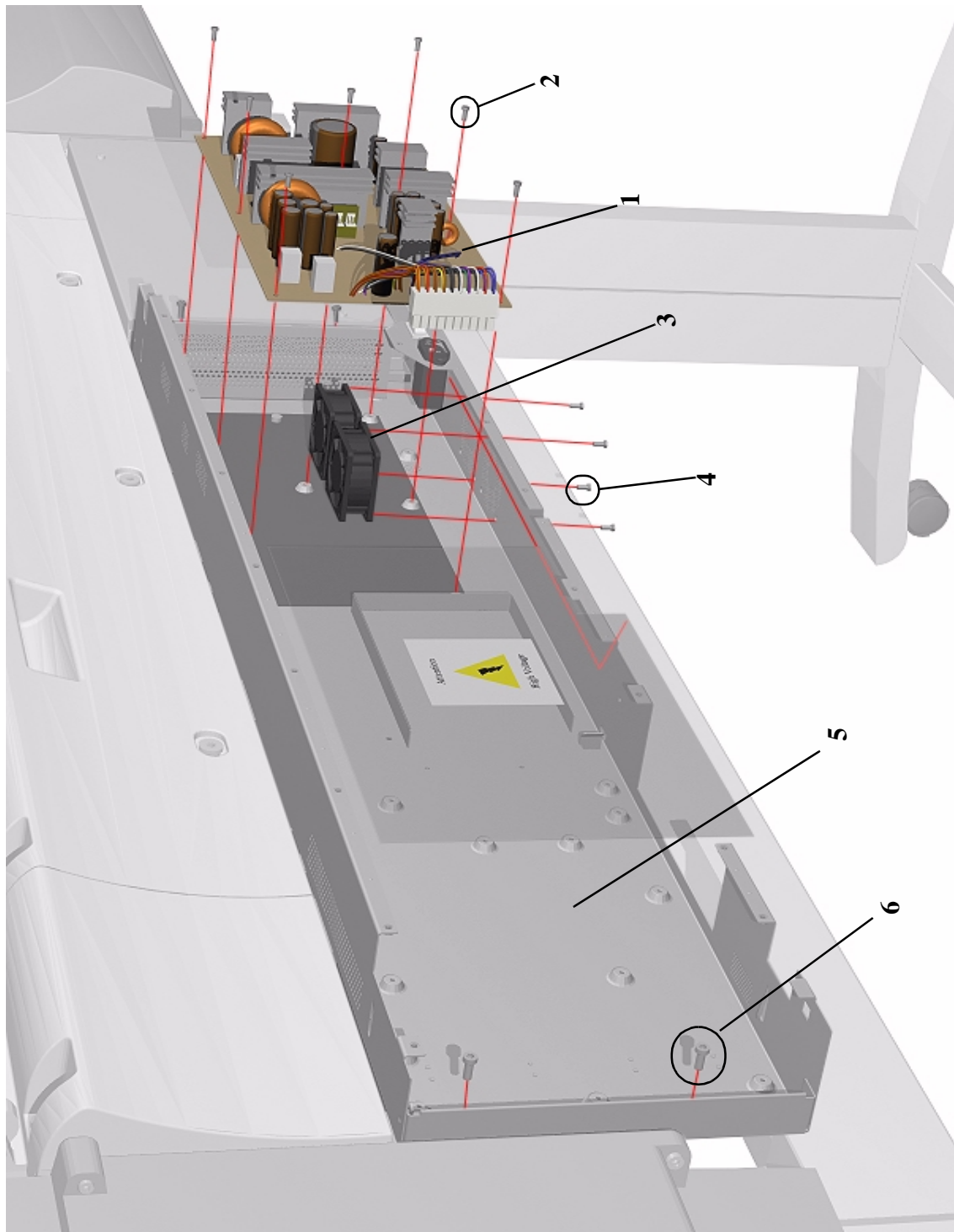
Figure 19: Power Supply Unit

Carriage Assembly

Carriage Assembly				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
1	C6090-60236	Q1251-60070	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 (42" Model) (Includes Trailing Cable Clip and screws, Cover Cap, Trailing Ferrite)
5	C6090-60285	Q1251-60074	1	Line Sensor
-	C6071-60166		1	Carriage Height Tool (Also Included with the Carriage Assembly)
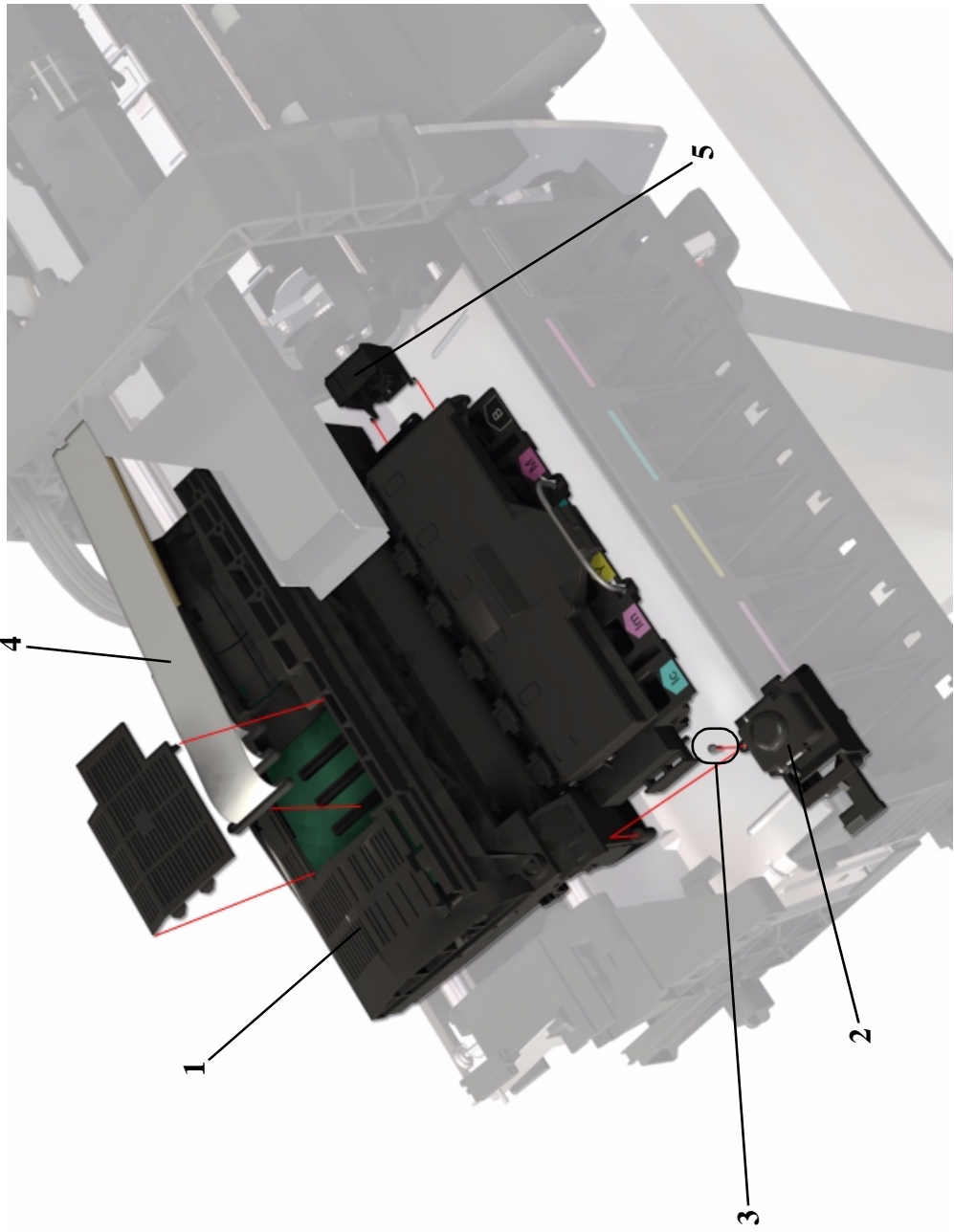
Figure 20: Carriage Assembly

Tensioner Assembly and Encoder Strip

Tensioner Assembly and Encoder Strip				
Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
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	C6095-60265		1	Encoder Strip (60" Model)
	C6090-60267		1	Encoder Strip (42" Model)
5	0535-0031		2	Nut
-	3050-0026		2	Washer
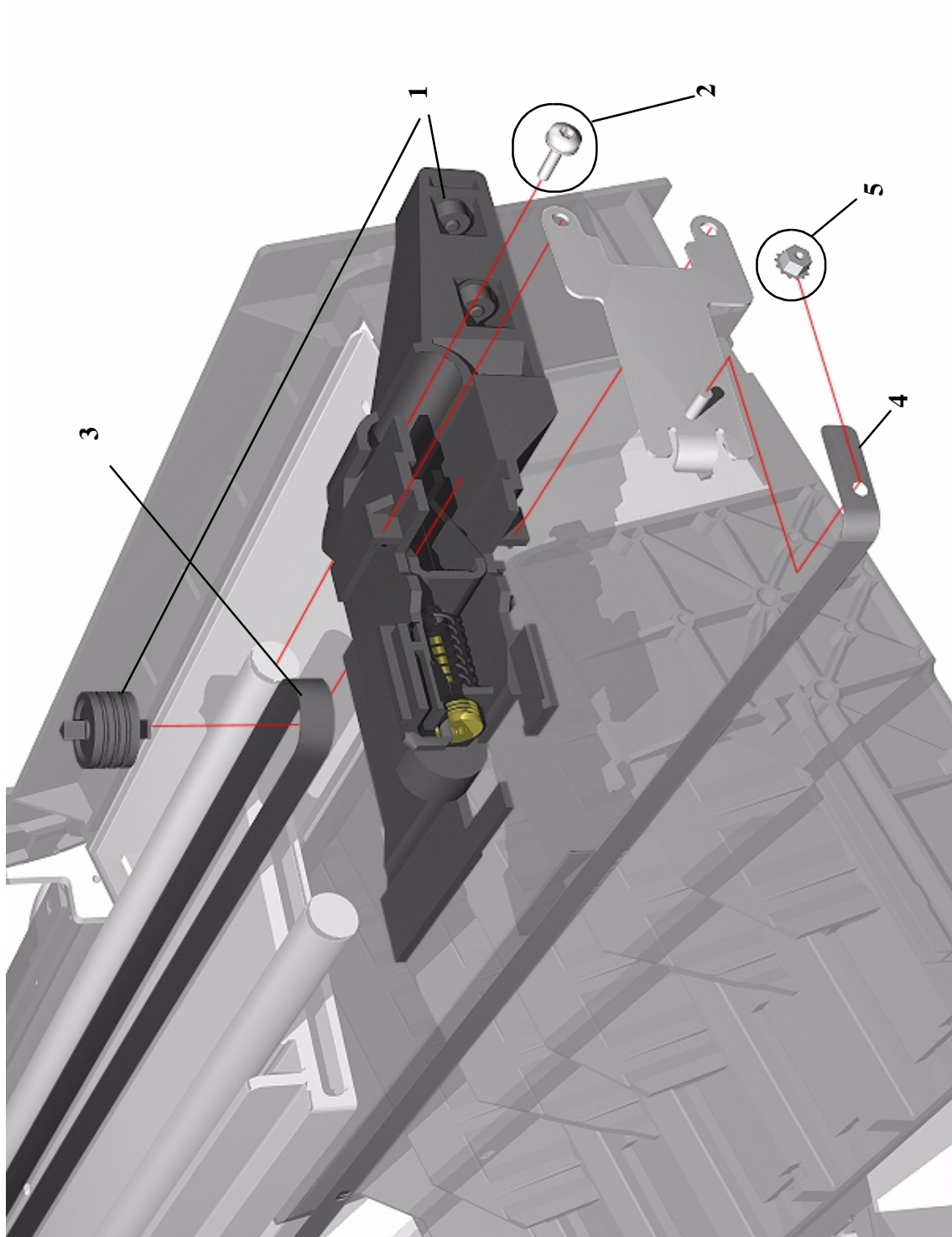
Figure 21: Tensioner Assembly and Encoder Strip

Platen Assemblies - DesignJet 5000 Series

Reference on Drawing	HP Part Number	Quantity	Description/Comments
**Platen Assemblies - DesignJet 5000 Series**			
1	C6095-60174	1	Front Platen Assembly (including screws) (60" Model)
	C6090-60079	1	Front Platen Assembly (including screws) (42" Model)
2	C6095-60284	1	Center Platen Assembly (including screws and Carriage Height Tool) (60" Model)
	C6090-60311	1	Center Platen Assembly (including screws and Carriage Height Tool) (42" Model)
3	C6090-60096	1	Drive Roller Gear
4	C6071-20005	1	Screw

5000 Series Only

Figure 22: Platen Assemblies - DesignJet 5000 Series

Platen Assemblies - DesignJet 5500 Series

Platen Assemblies - DesignJet 5500 Series			
Reference on Drawing	**HP Part Number**	**Quantity**	**Description/Comments**
1	Q1253-60011	1	Heater Assembly (including screws) (60" Model)
	Q1251-60031	1	Heater Assembly (including screws) (42" Model)
2	C6095-60284	1	Center Platen Assembly (including screws and Carriage Height Tool) (60" Model)
	C6090-60311	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 23: Platen Assemblies - DesignJet 5500 Series

Pinch-Wheels Assembly and Lever

Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
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

Title row: **Pinch-Wheels Assembly and Lever**
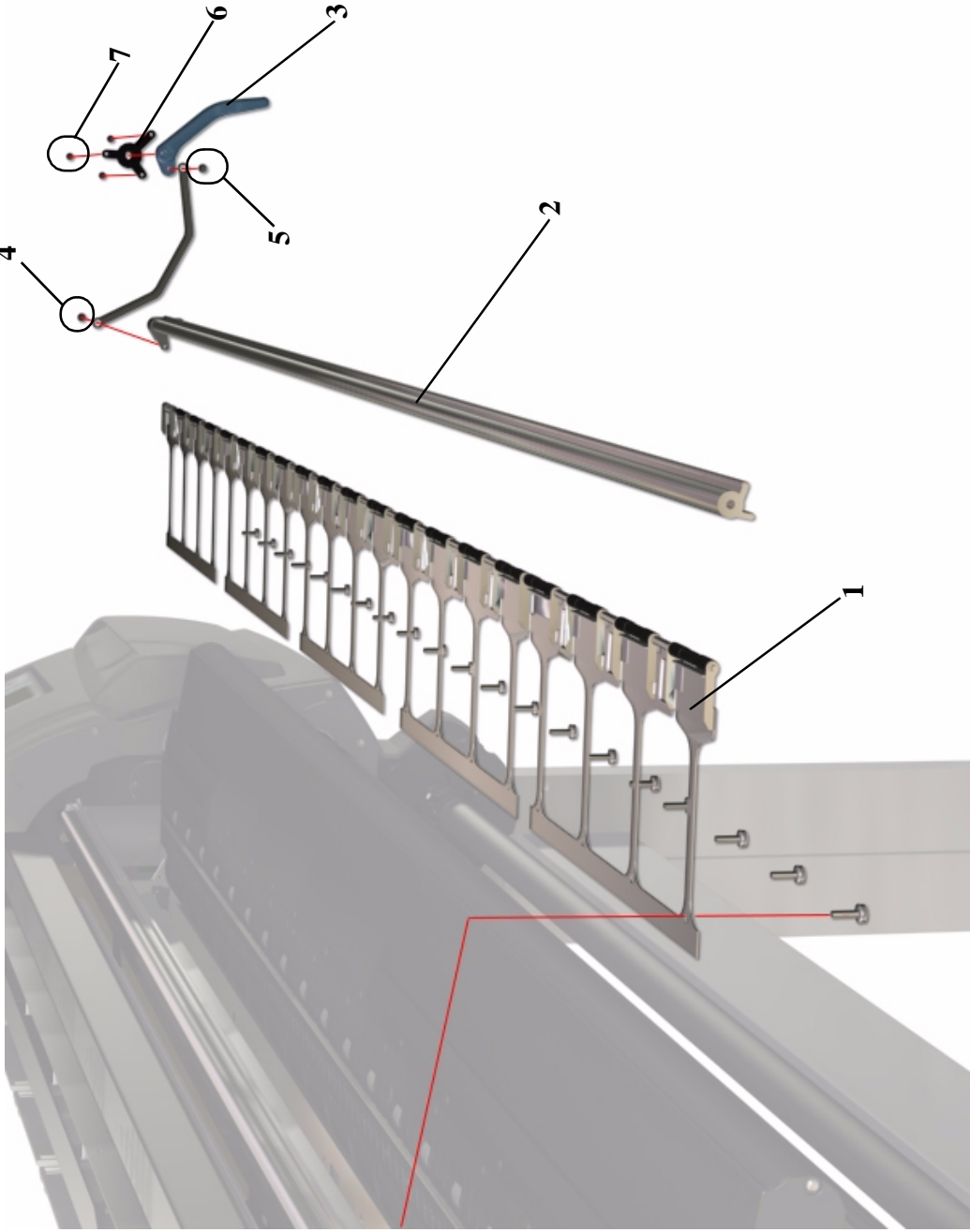
Figure 24: Pinch-Wheels Assembly and Lever

Center Guide, Deflectors and Entry Roller - DesignJet 5000 Series

Center Guide, Deflectors and Entry Roller - DesignJet 5000 Series			
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	Media Deflectors
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
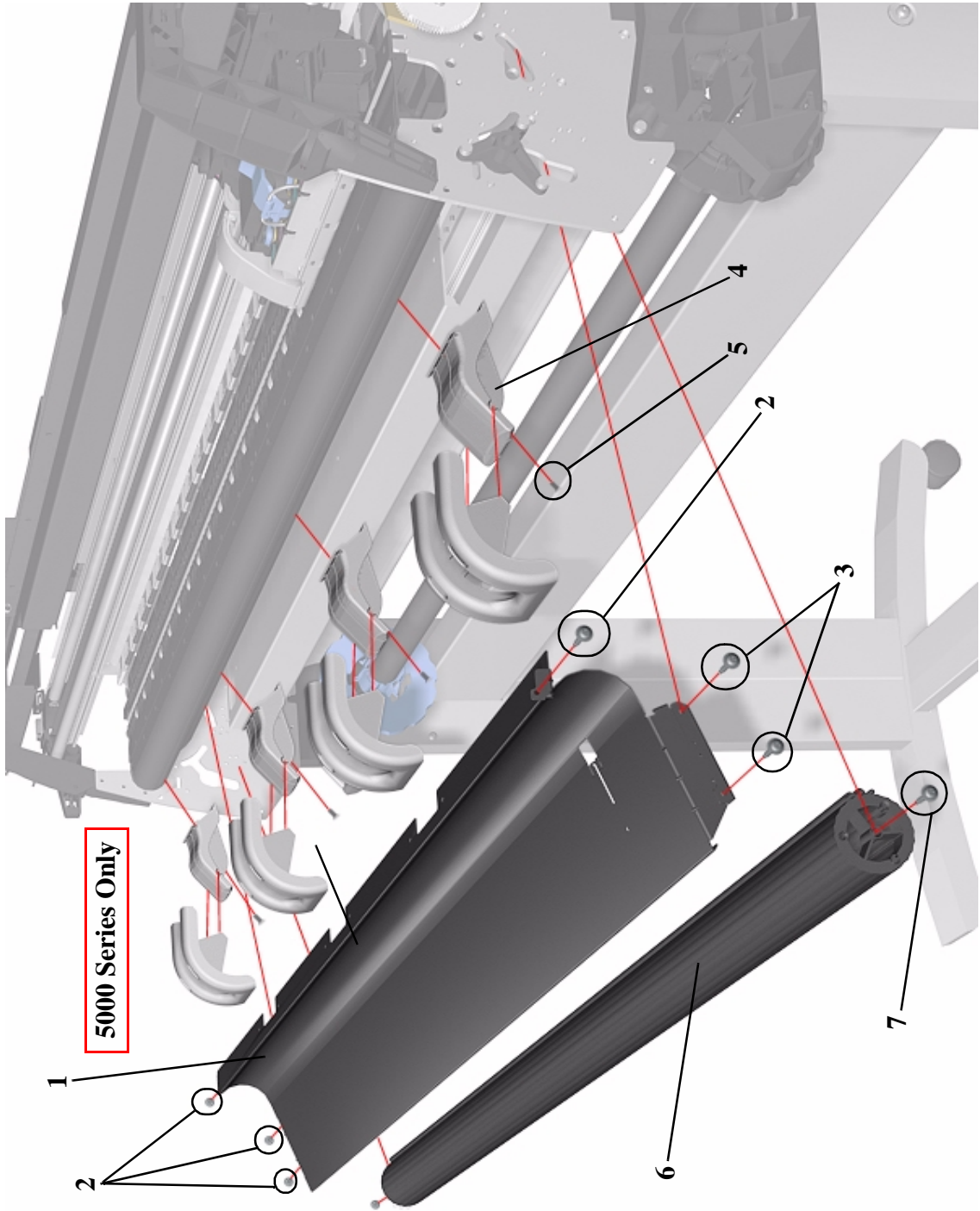
Figure 25: Center Guide, Deflectors and Entry Roller - DesignJet 5000 Series

Center Guide and Entry Roller - DesignJet 5500 Series

Center Guide and Entry Roller - DesignJet 5500 Series			
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	C6095-60178	1	Entry Roller (60" Model)
	C6090-60077	1	Entry Roller (42" Model)
5	0515-2986	2	Screw
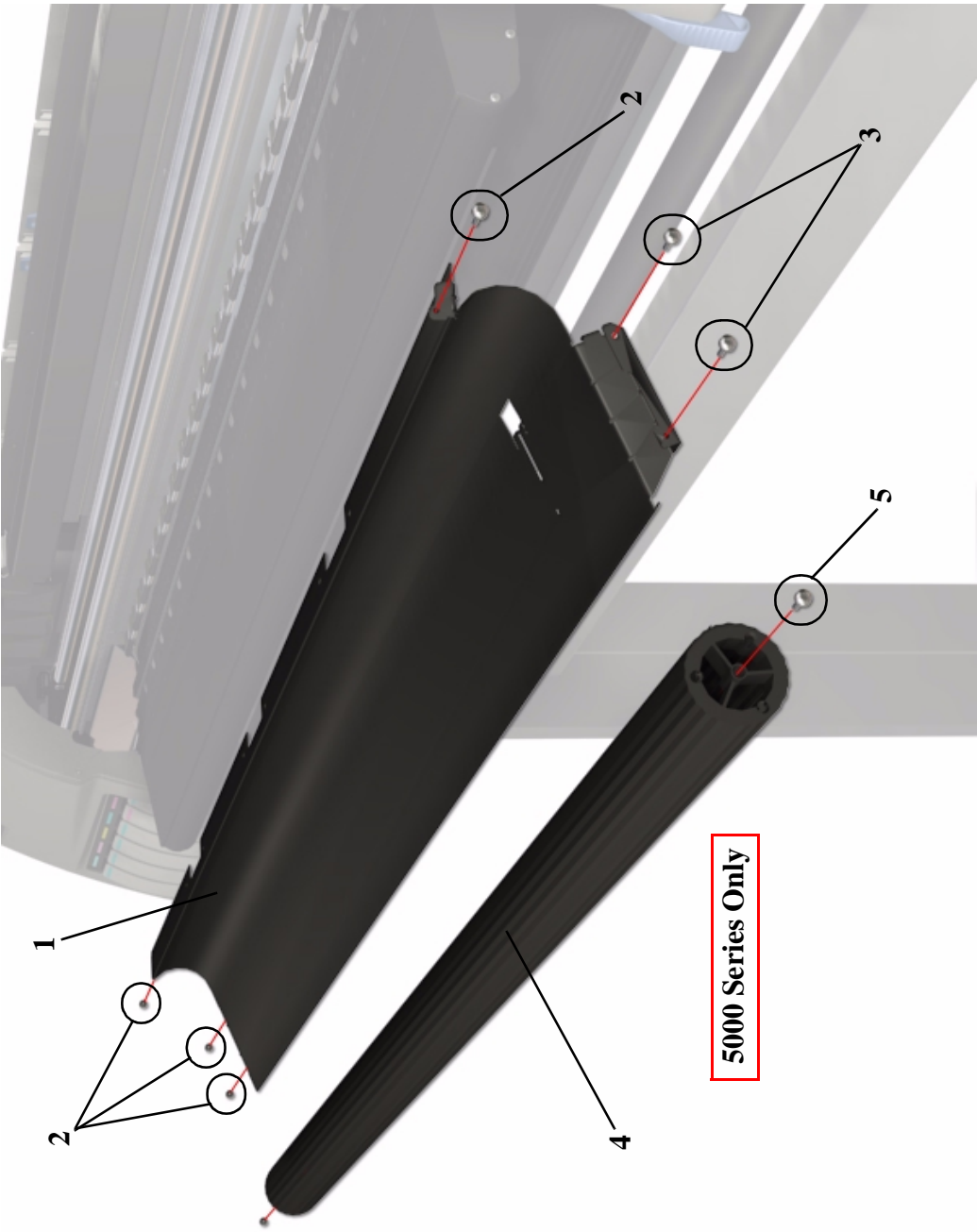
Figure 26: Center Guide and Entry Roller - DesignJet 5500 Series

Tubes Guide Assemblies

Tubes Guide Assemblies				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
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	C6095-60269		1	Front Tube Guide Assembly (60" Model) (Includes Tube Guide Door and spring)
	C6090-60271		1	Front Tube Guide Assembly (42" Model) (Includes Tube Guide Door and spring)
3	0624-0771		8	Screw
4	C6090-60272		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
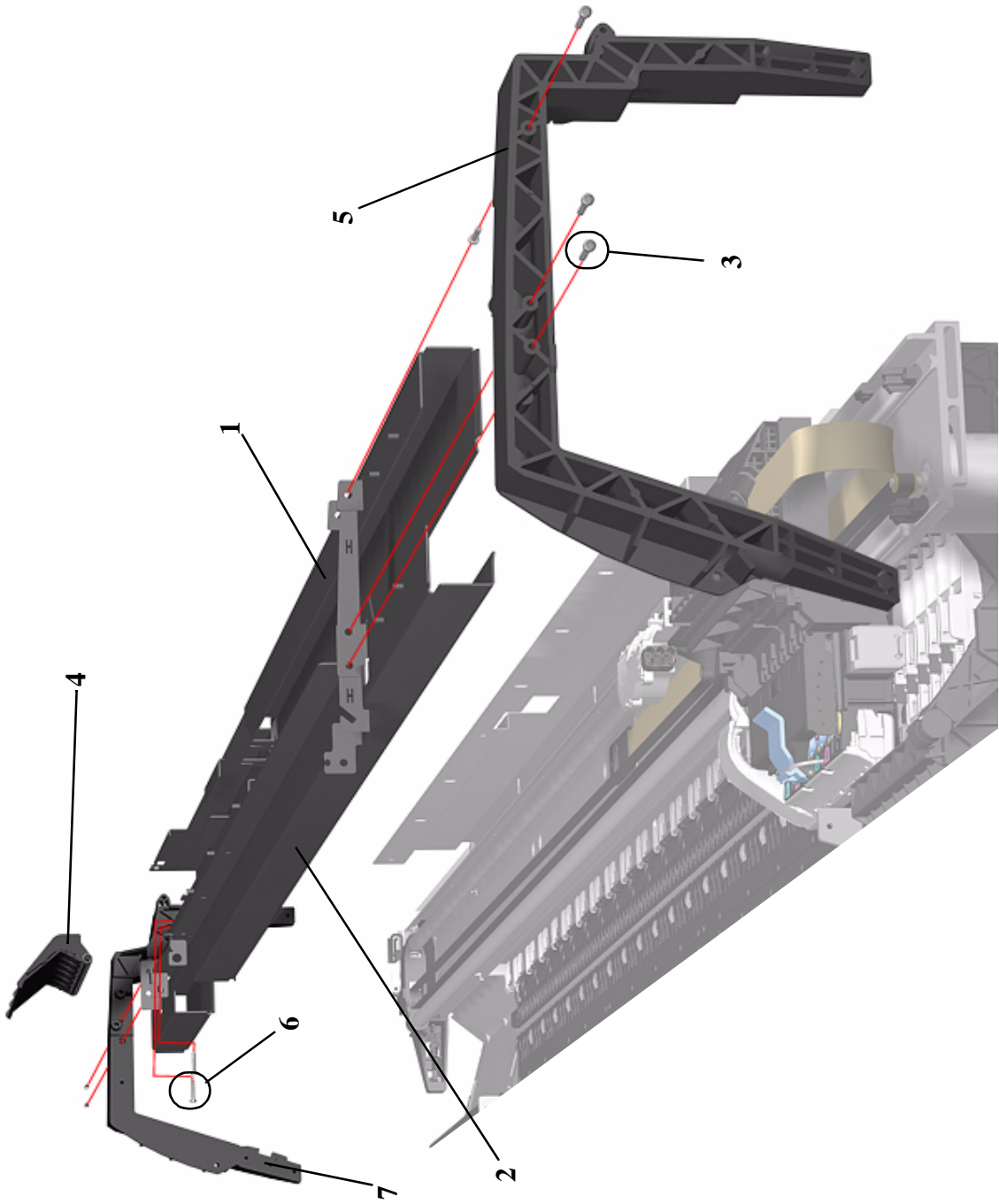
Figure 27: Tubes Guide Assemblies

EMC Covers

Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
1	C6095-60190		1	EMC Covers (60" Model only)
	C6090-60180		1	EMC Covers (42" Model only)
2	0515-0382		9	Screw (center to bottom and top)
-	C6071-20026		8 (60")/6 (42")	Screw (top to chassis)
3	0515-2248		4	Screw (bottom to chassis)
-	C6090-60107		1	Mount Bracket (includes right, left and center)
-	0515-2248		6	Screw (for each bracket)

Table title: EMC Covers
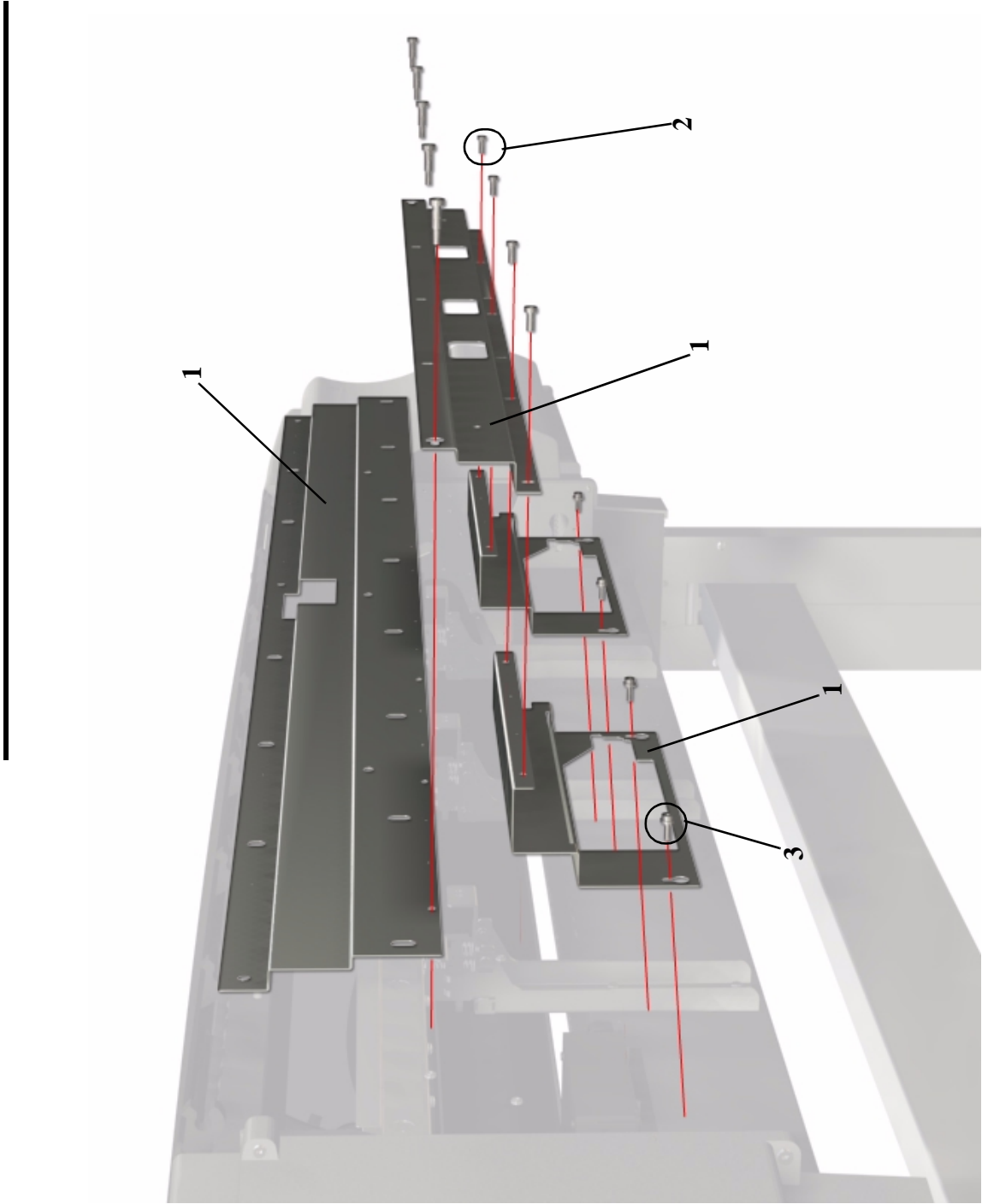
Figure 28: EMC Covers

Spindle and Hub

Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
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

HP DesignJet 5000 and 5500 Series Printers Service Manual
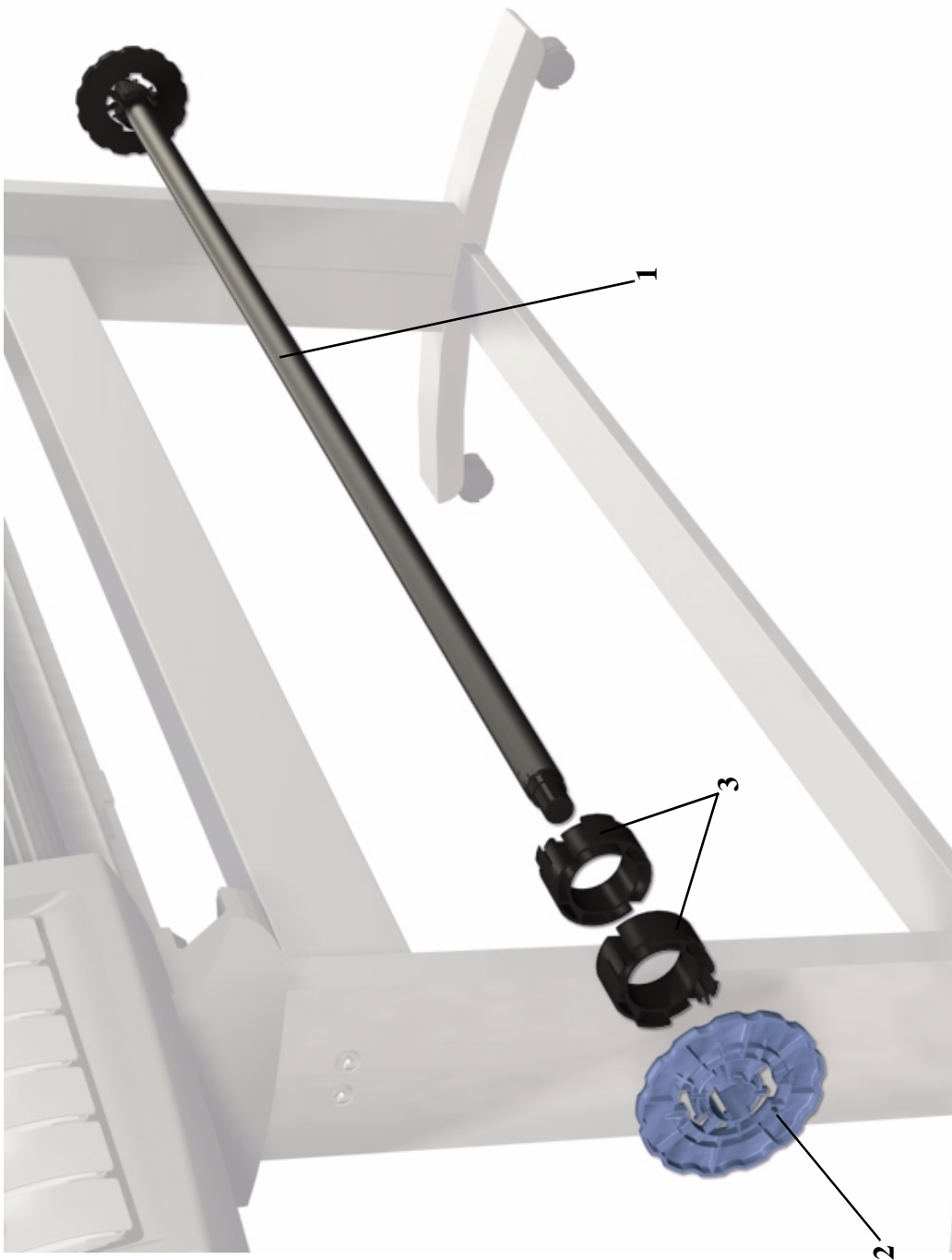
Figure 29: Spindle and Hub

Rollfeed Brakes

Rollfeed Brakes				
Reference on Drawing	HP Part Number		Quantity	Description/Comments
	DJ 5000 Series	DJ 5500 Series		
1	C6072-60158		1	Left Rollfeed Module
2	C6072-60155		1	Right Rollfeed Module
3	C6072-60156		1	Right Rollfeed Brake
4	0624-0704		1	Screw
5	C6072-60157		1	Left Rollfeed Brake
6	0624-0704		1	Screw

2

3 and 4

Right Hand Side

1

5 and 6

Left Hand Side
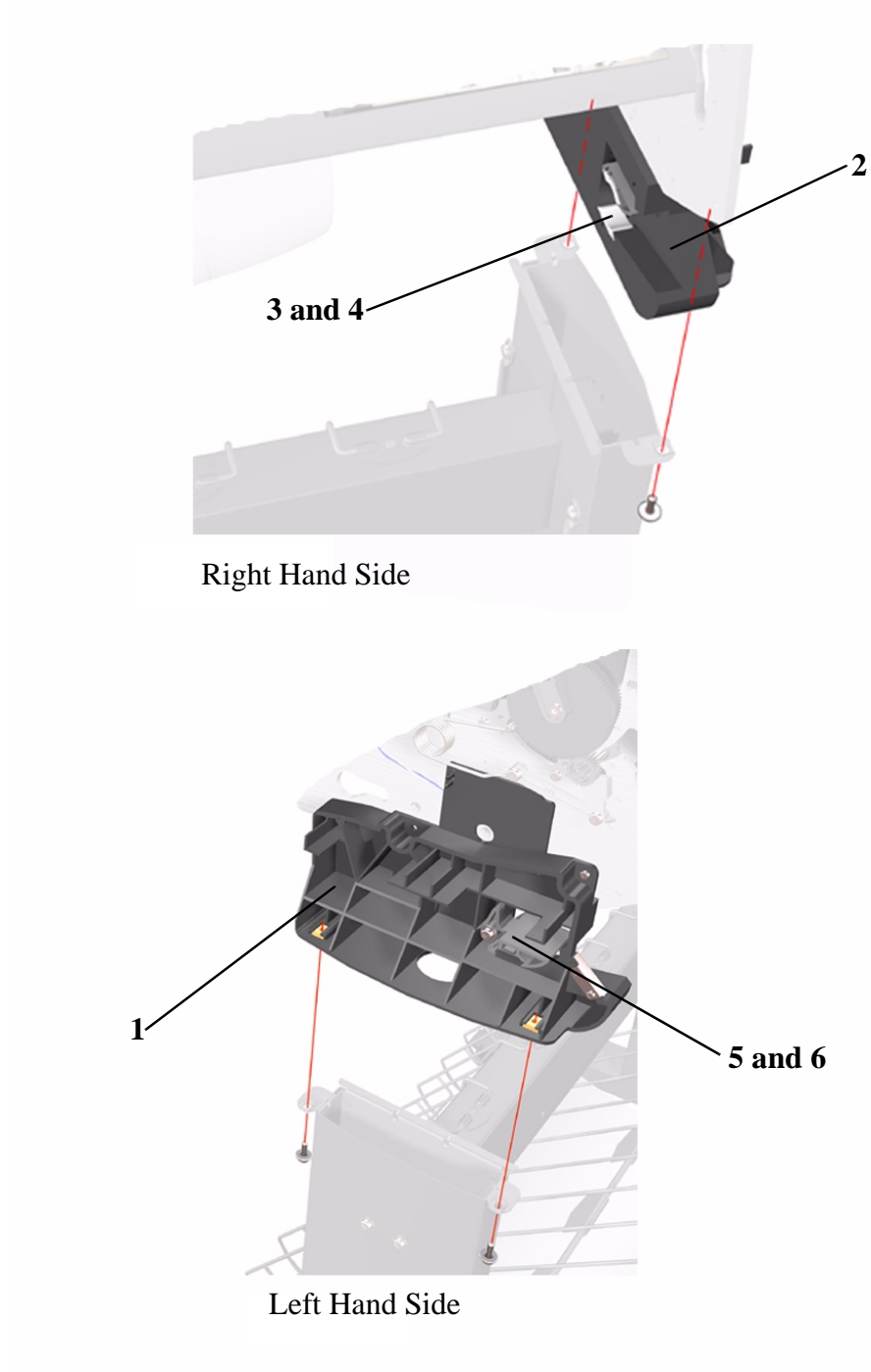
Figure 30: Rollfeed Brakes

Miscellaneous Items

Miscellaneous Items				
Reference on Drawing	**HP Part Number**		**Quantity**	**Description/Comments**
	DJ 5000 Series	**DJ 5500 Series**		
-	C6090-60081	Q1251-60073	1	Service Preventive Maintenance Kit (for both 42" and 60" Models)
-	C6090-60314		1	User Maintenance Kit
-	C6090-60304	-	1	5000 FW Upgrade CD (A.02.12)
-	-	Q1251-60068	1	5500 FW Upgrade CD (S.03.11)

Media Types

	Dye	UV	24 in. 610mm	36 in. 914mm	42 in. 1067mm	54 in. 1372mm	60 in. 1524mm
HP Durable Image Gloss UV		●		C6794A		C6795A	C6796A
HP Coated Paper 26 lb. (98g/m2) • 150 ft. (45m)	●		C6019B	C6020B	C6559B* C6567B**	C6560B* C6568B**	
26 lb. (98g/m2) • 300 ft. (91m)	●			C6980A			
HP Heavyweight Coated Paper (for 5000, 800 & 500 Series printers) 35 lb. (130g/m2) • 100 ft. (30m)	●	●	C6029C	C6030C	C6569C	C6570C	C977CC
HP Photo Imaging Gloss 7 mil (178g/m^2) • 100 ft. (30m)	●			C6963A	C6964A		C6965A
HP Photo Imaging Satin 7 mil (178g/m^2) • 100 ft. (30m)	●			C6959A	C6960A		C6961A
HP Paper-Based Semi-Gloss 6 mil (160g/m2) • 100 ft. (30m)	●		C6782A	C6783A		C6785A	
HP Colorlucent Backlit UV 6 mil (200g/m2) • 100 ft. (30m)		●		C6778A		C6779A	C6780A
HP Studio Canvas 20 mil (368g/m2) • 35 ft. (10m)	●	●		C6771A		C6773A	
HP Banners with Tyvek® 10 mil (140g/m2) • 50 ft. (15m)		●	C6786A	C6787A		C6789A	
HP Colorfast Adhesive Vinyl 6 mil (328g/m2) • 40 ft. (12m)	●	●		C6775A		C6777A	
HP Satin Poster Paper 43 lb. Text (162g/m^2) • 100 ft. (30m)	●			C7011A			
3M® Changeable Opaque Imaging Media 7 mil (178 microns) • 45 ft. (13m)		●		C6760A		C1882A	
3M® Lustre Overlaminate 2 mil (51 microns) • 75 ft. (23m)		●		C6761A		C1884A	
3M® Matte Overlaminate 2 mil (51 microns) • 75 ft. (23m)		●		C6762A		C1886A	

HP DesignJet 5000 and 5500 Series Printers Service Manual

Removal and Installation

8

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   **THE INSTRUCTIONS IN THIS CHAPTER APPLY BOTH TO THE DESIGNJET 5000 AND 5500 SERIES UNLESS OTHERWISE NOTED. EVEN THOUGH THE ILLUSTRATIONS ARE SHOWN USING THE DESIGNJET 5000 SERIES, THESE ARE ALSO APPLICABLE TO THE DESIGNJET 5500 SERIES.**

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 (Chapter 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 printer 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.

Long Torx Screwdriver with the indicated attachments

T8   T10   T15   T20   T25

Nut driver with the indicated attachments

5.5 mm
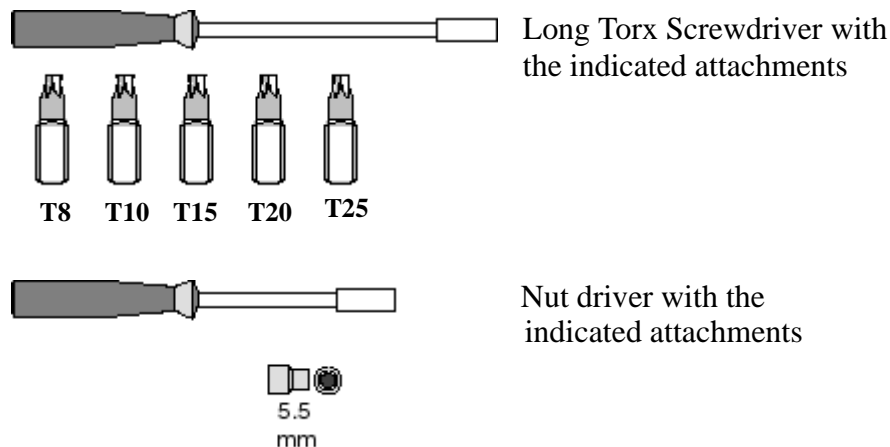
Screw Types

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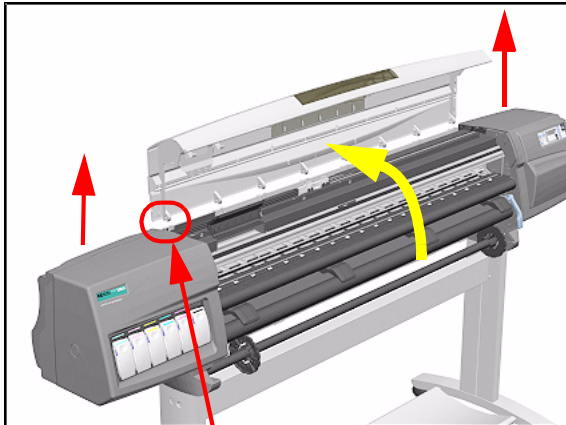
1. Open the Top Cover and lift UP and remove from Printer (see detail of hinge mechanism below).
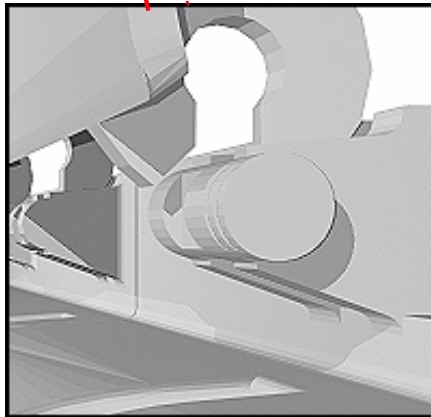
NOTE   **Detail of hinge mechanism.**

Left Hand Cover

Removal

WARNING	**Switch off the Printer and remove the power cable.**

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

1. Remove ALL the Ink Cartridges from the Printer.
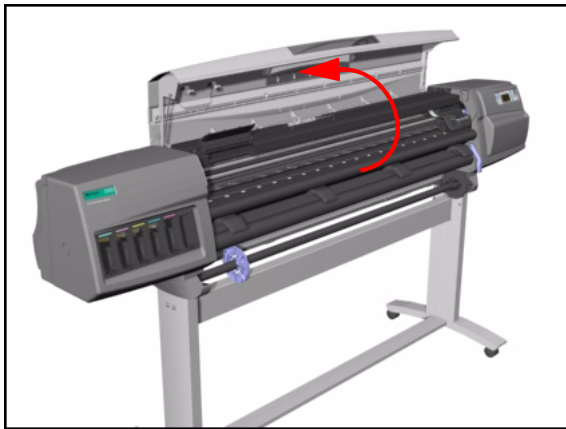
2. Open the Top Cover.
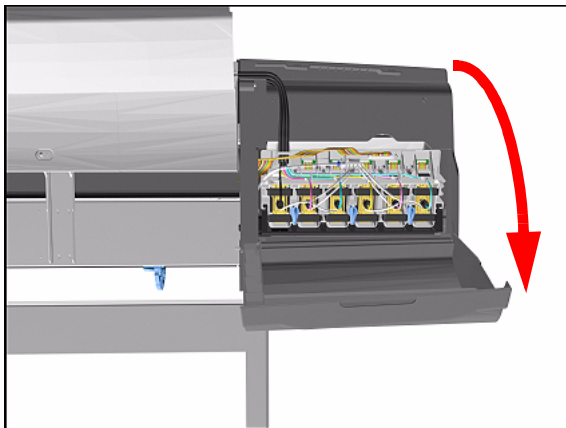
3. Open the door at the back of the Left Hand Cover.
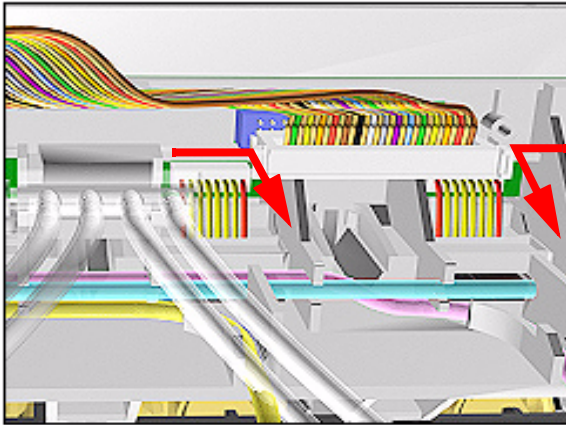
4. Disconnect the Electrical Cable from the rear of the Ink Cartridge Tube Connector.
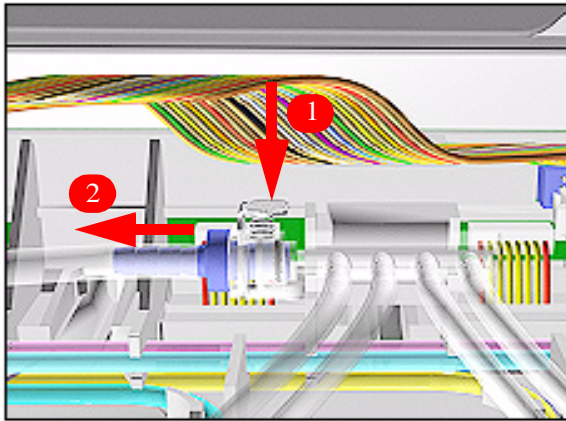
5. Disconnect the Air Tube.
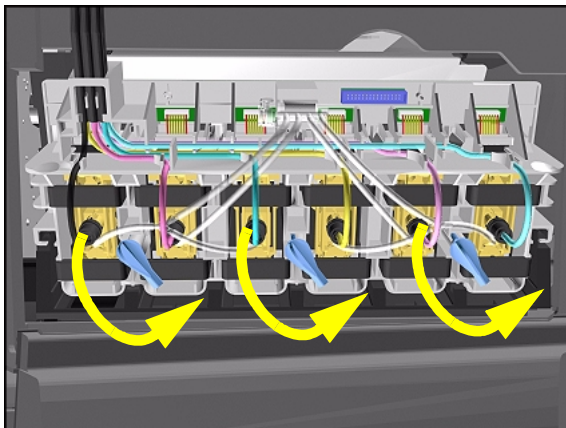
6. Twist the 3 latches at the rear of the Ink Cartridge Tube Connector and release the complete Assembly.
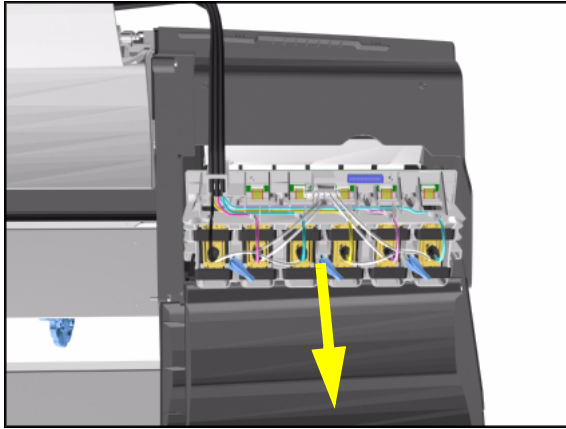
7. Remove the Ink Cartridge Tube Connector and place safely on the window.

8. Remove 1 T-15 screw (**Type F**) from the Left Hand Cover (rear).
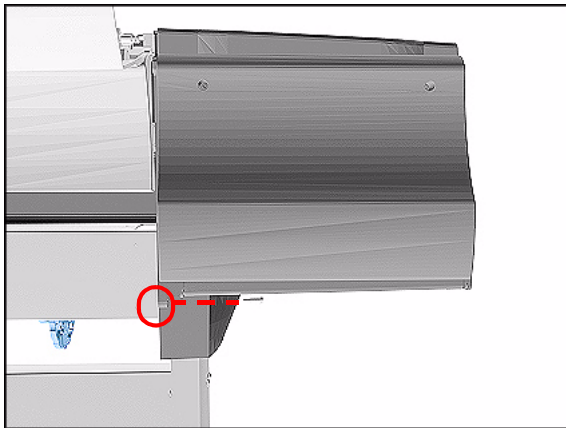
9. Close the Left Back door and remove 1 T- 25 screw (**Type U**) from bottom side (rear) of Left Hand Cover.

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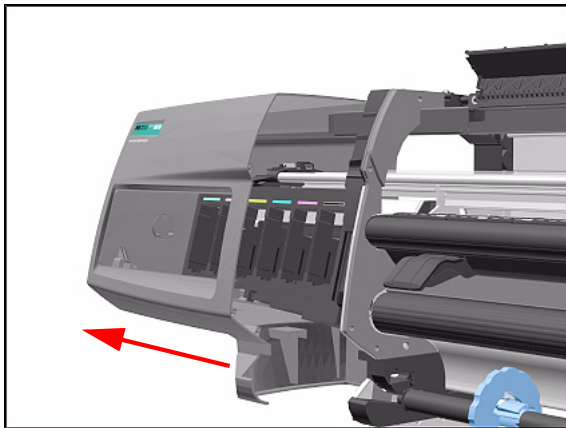
11. Remove the Left Hand Cover from the Printer.

Installation of Left Hand Cover

WARNING	**When handling the Tubes make sure you do not damage them by twisting.**
WARNING	**When inserting the Left Hand Cover, be careful not to pinch/ twist the air tube or the electrical cable.**

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 (if present) 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.
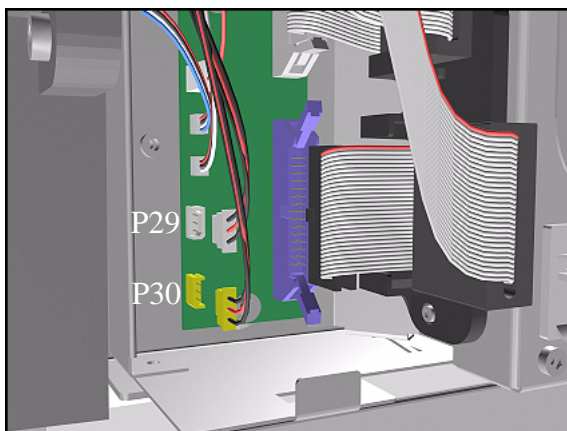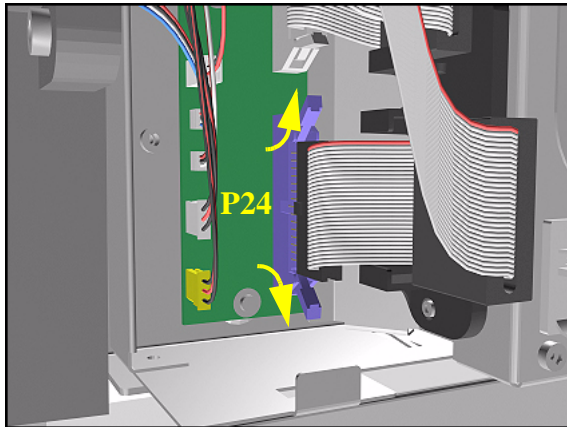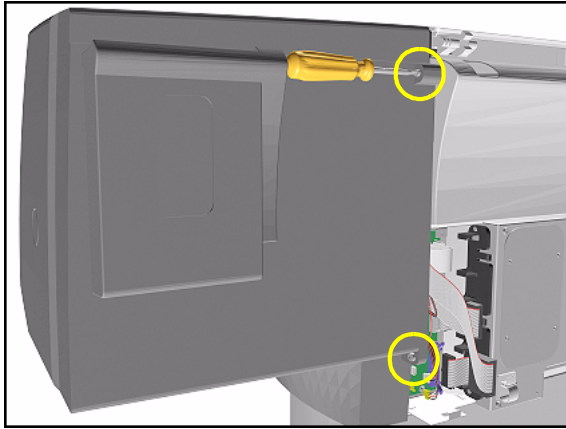
4. Remove 1 T-15 screw (**Type F**) and 1 T-25 screw (**Type U**) (bottom) from the rear of the Right Hand Cover.
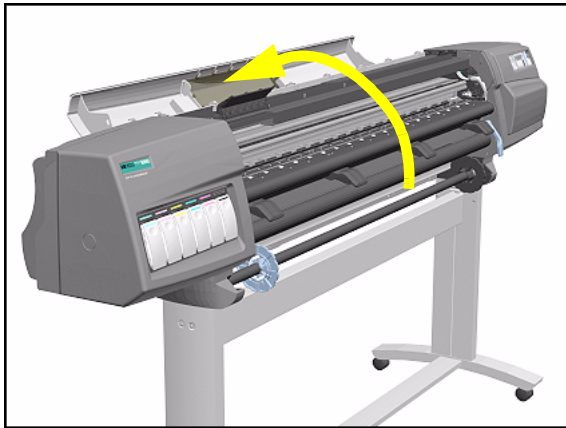
5. Open the Top Cover.
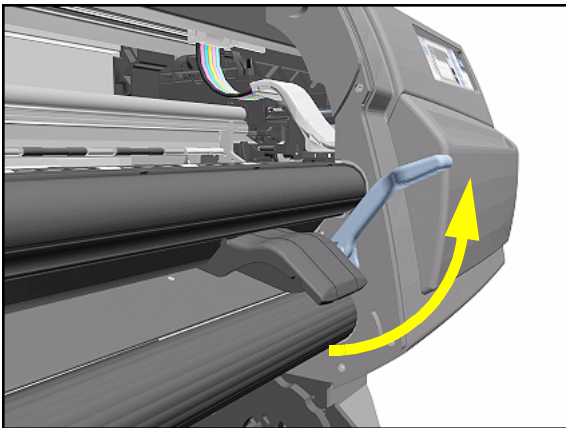
6. Raise the Media Lever.

NOTE   **Take care not to drop the Cover when removing the screws. Support the Cover throughout the next step.**
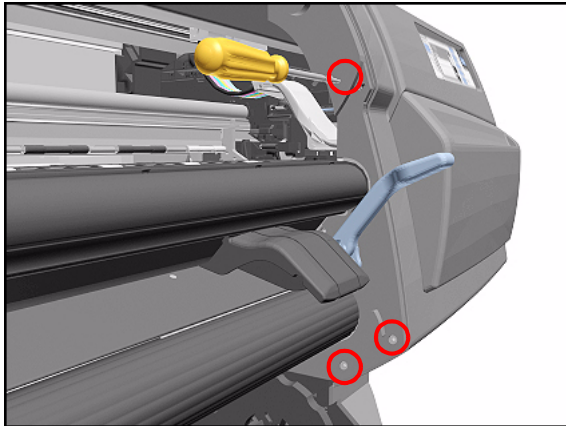
7. Remove 3 T-15 (**Type F**) screws from the front of the Right Hand Cover.
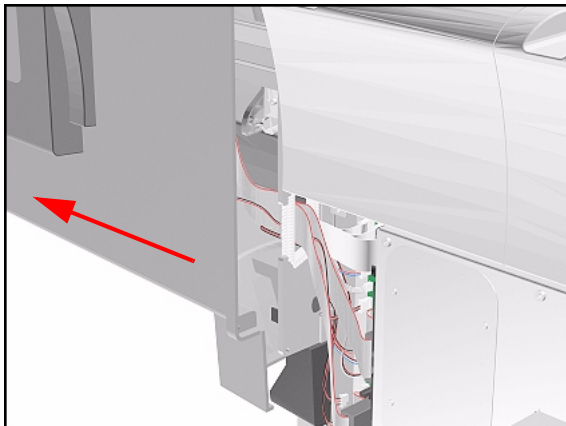
8. To release the cables, **carefully** pull out the Right Hand Cover until the cables can be accessed.
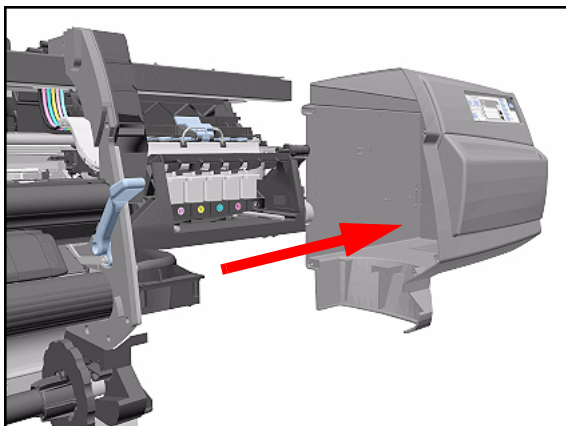
9. Remove the Right Hand Cover.
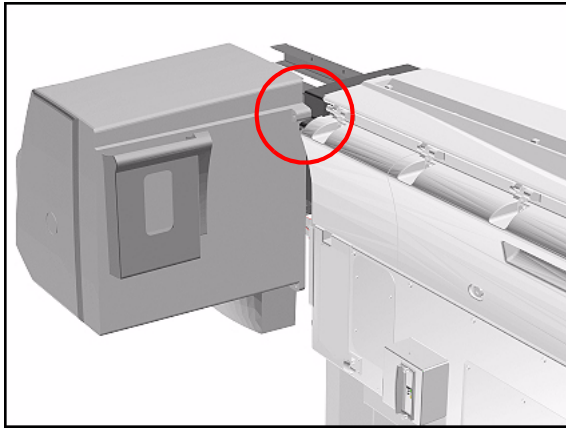
TIP   **To check correct functioning of serviced parts on the Printer axis you can do the following:**

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

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.
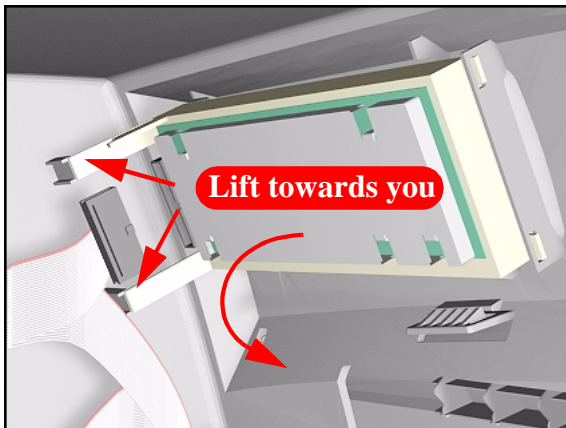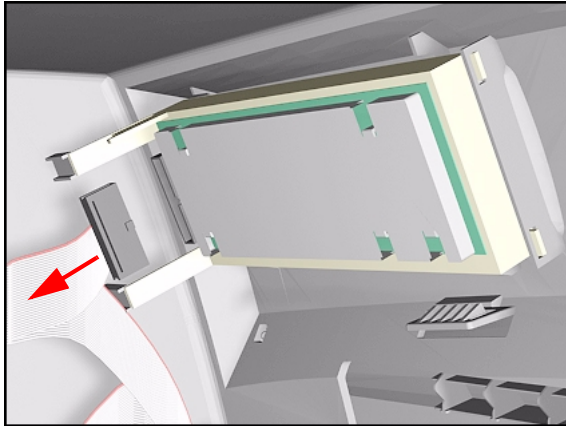
4. Unclip Front Panel supports inside the Right Hand Cover and remove.

Lift towards you

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.**
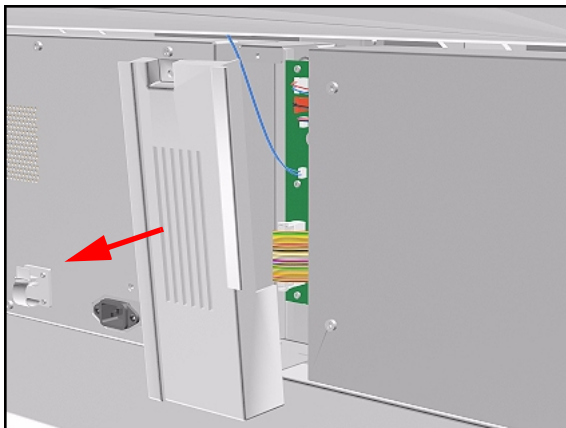
2. Remove the Left Rear Cover.

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.**
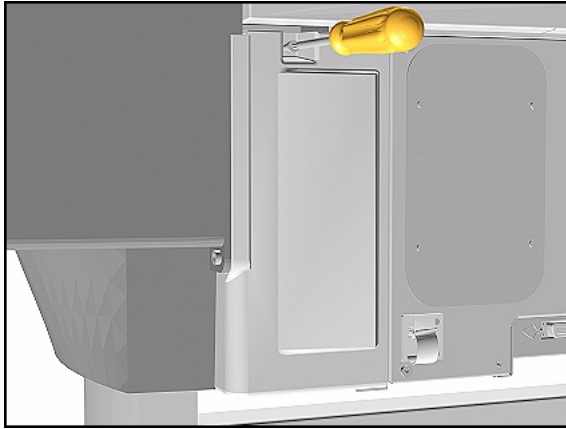
1. Remove one T-15 screw (**Type B**) from the Right Rear Cover.

    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.
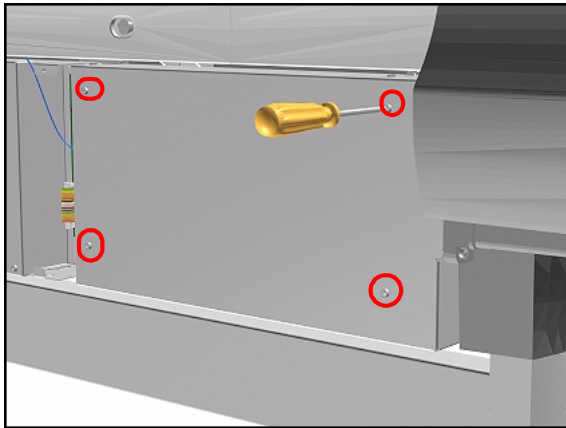
3. Lift the Cover and remove from the Printer.
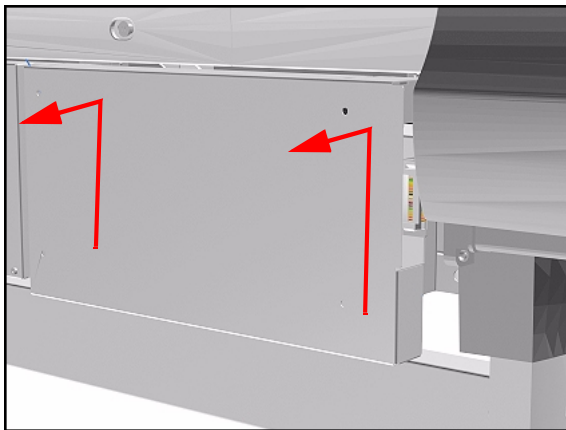
Media Lever Assembly

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. **Only applicable to the DesignJet 5000 Series** - Remove the Deflector closest to the Right Cover - Refer to Page _8-119_.

2. Remove the Right Hand Cover - Refer to Page _8-10_.

3. Raise the Media Lever.
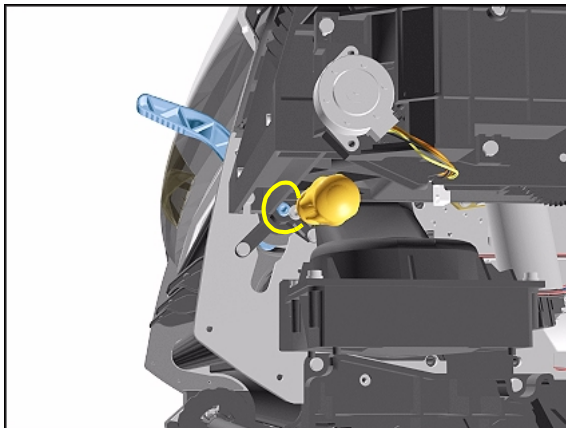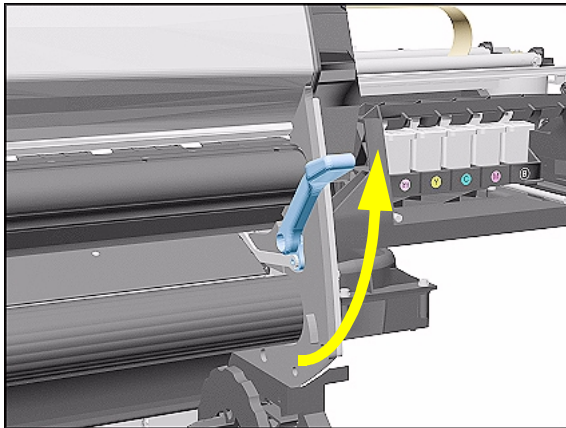
4. Remove 1 T-15 screw (**Type D**) from the support that attaches the Media Lever to the Sideplate.
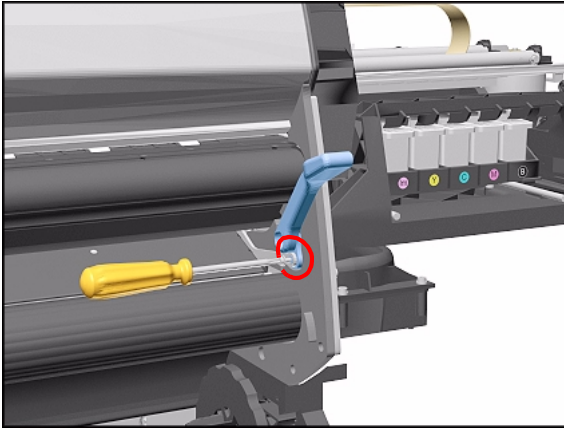
5. Remove 1 T-15 screw (**Type H**) that attaches the Lever Arm to the Lever.
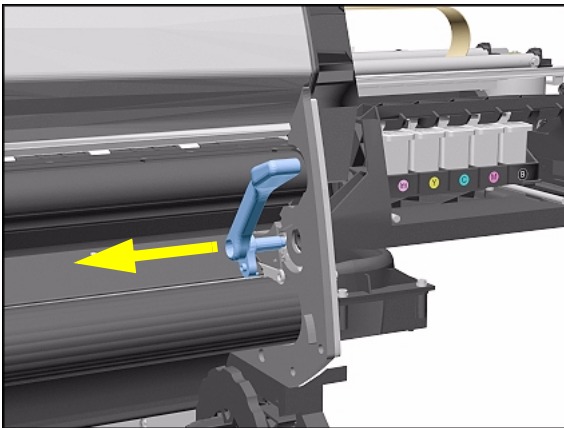
6. Remove the Media Lever.

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.**
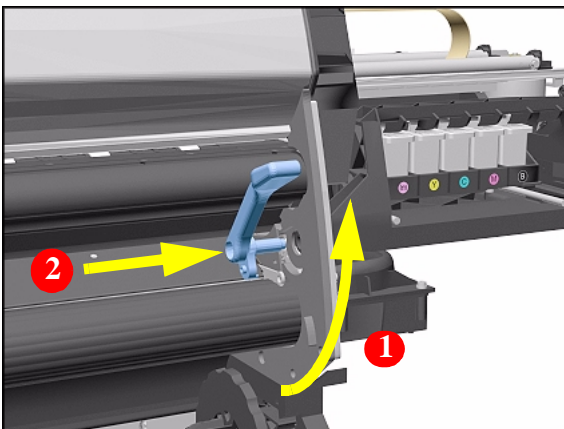
Right Hand Trim

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.
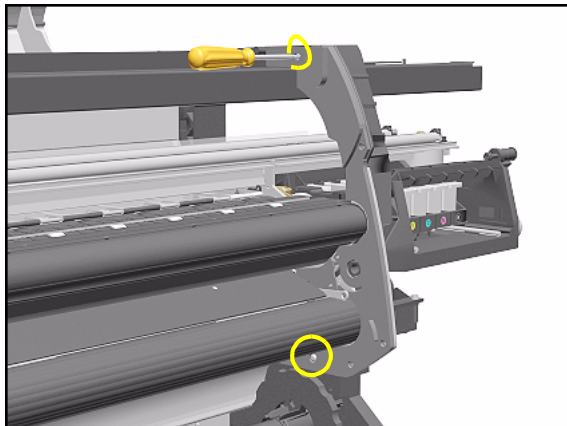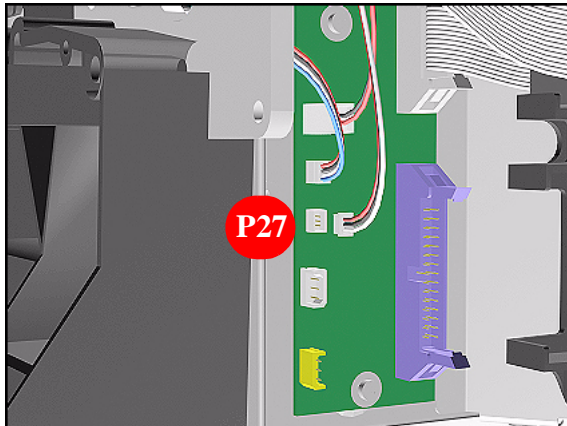
5. Remove 1 T-15 screws (**Type F**) and 1 T-20 (**Type L**) from the Right Hand Trim.
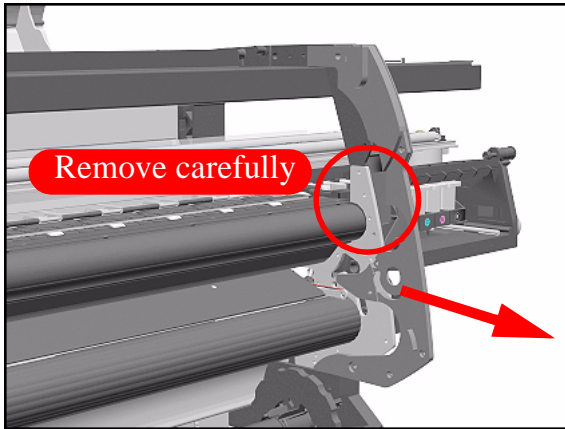
6. Carefully remove the Right Hand Trim.

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.**
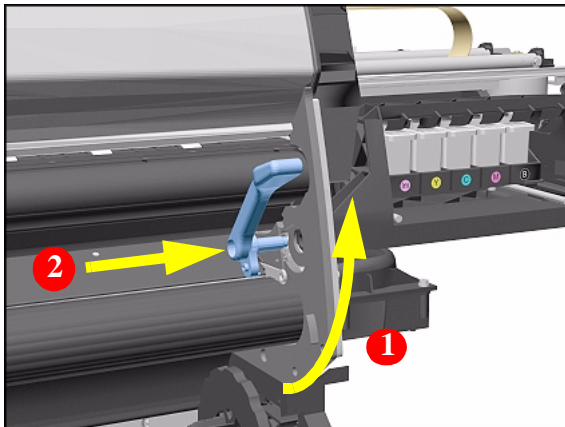
Left Hand Trim

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.**
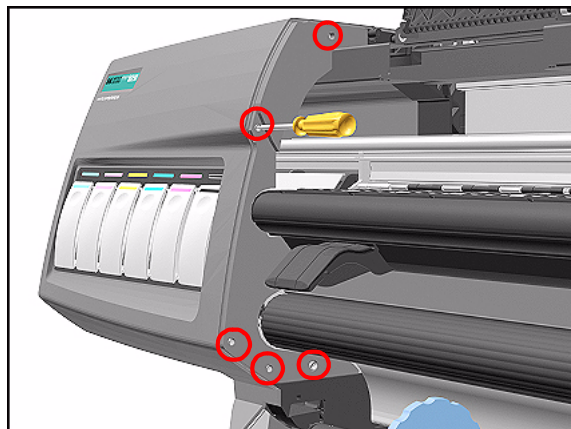
1. Remove 4 T-15 screws (**Type F**) and 1 T-20 screw (**Type L**) from the Left Hand Trim.

2. Carefully remove the Left Hand Trim.

Remove carefully

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*.

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.
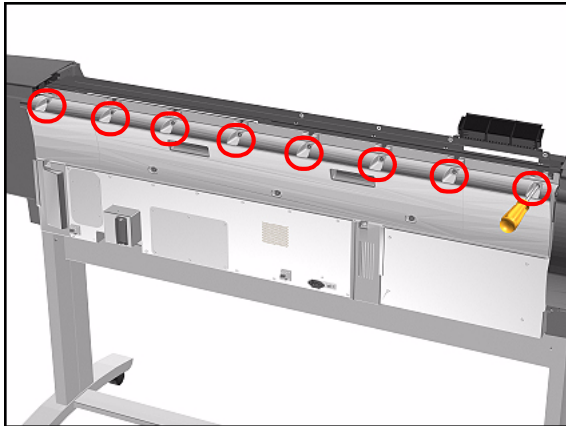
NOTE   **Support the Back Cover as it is released.**

3. Remove 3 T-15 screws (**Type N**) from the lower part of the Back Cover.
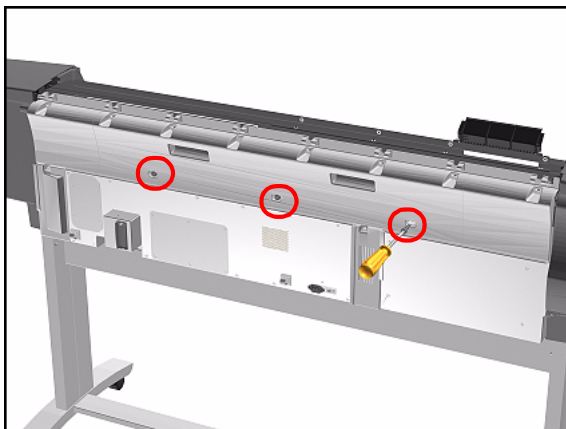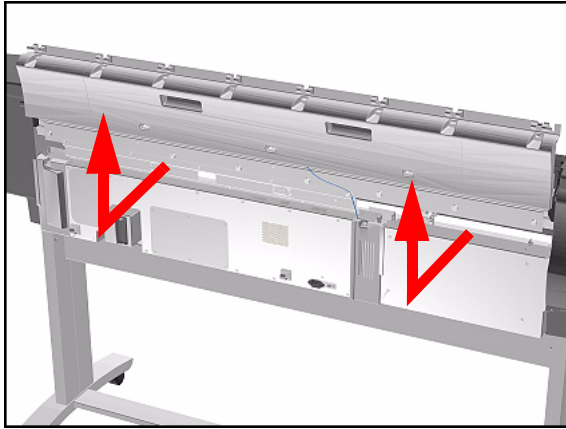
4. Remove the Back Cover.

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. Once the new label has been applied, copy the product number and serial number onto it.**

Ink Tubes System

Removal

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

1. Open the Right Cover door and pull out the Printhead Cleaner Carriage.
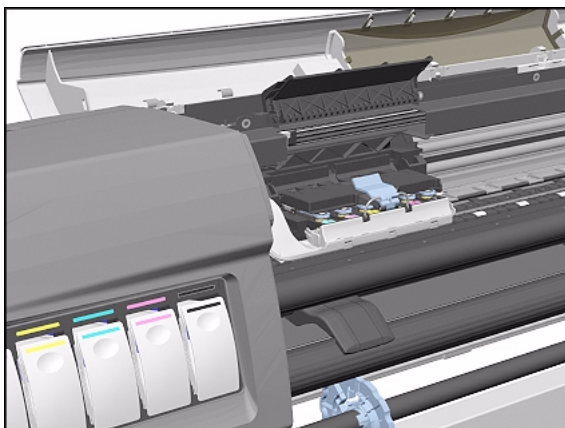
2. Open the Top Cover and pull the Carriage out along the Printer to the position shown.
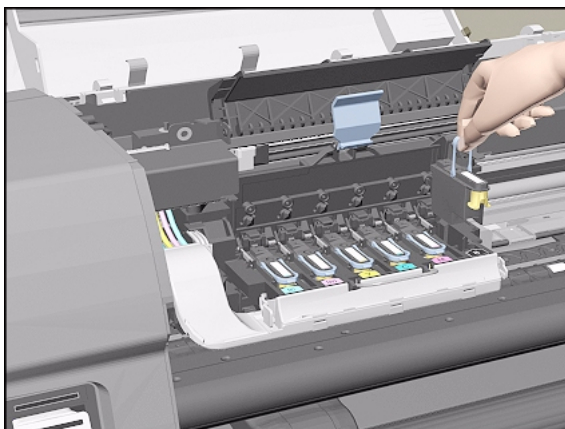
3. Lift up the Carriage Cover and remove ALL the Printheads and close the Carriage Cover.
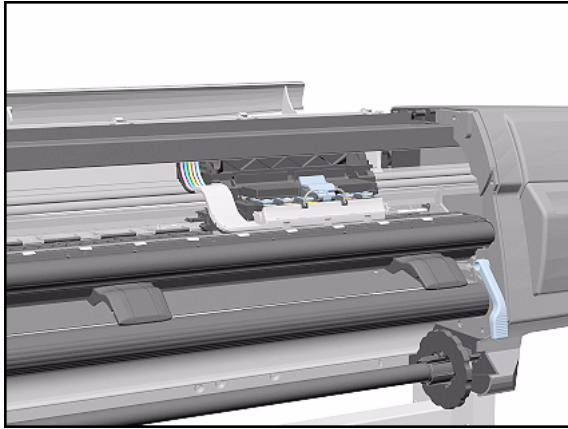
4. Slide the Carriage to the position shown.
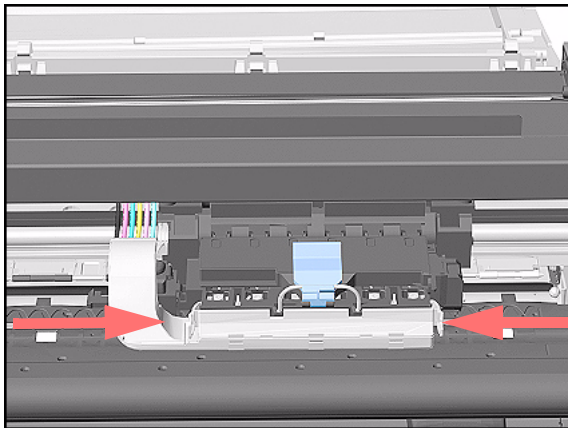
5. Push in the 2 retaining clips either side of the Printhead Tube Connector.
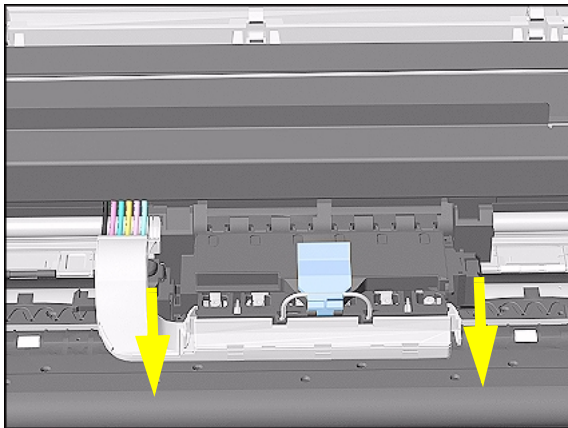
6. Pull the Printhead Tube Connector towards you.
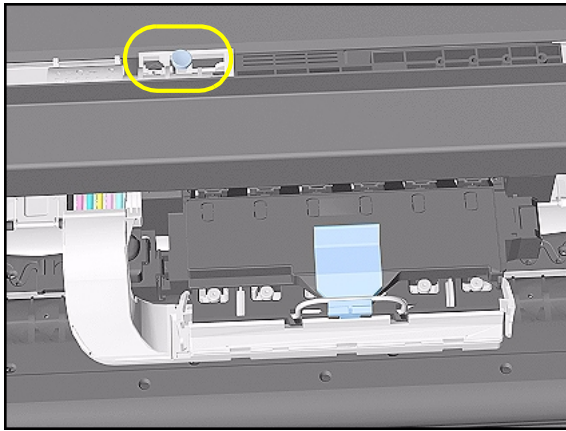
7. Push the button to release the Printhead Tubes in the Carriage.
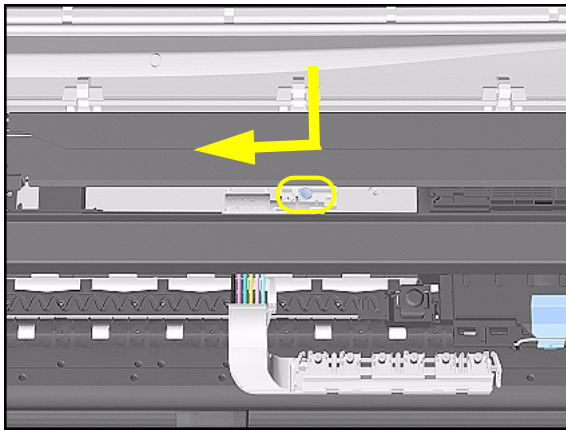
8. Release the Retaining Clip by pulling it away from the holding brackets.
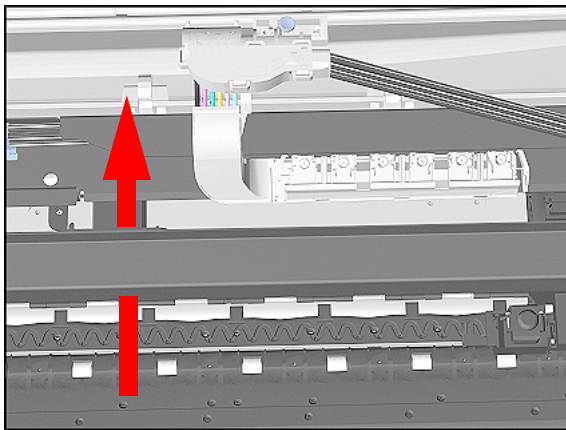
9. Pull the Printhead Tube Connector up between the two Tube Guides.
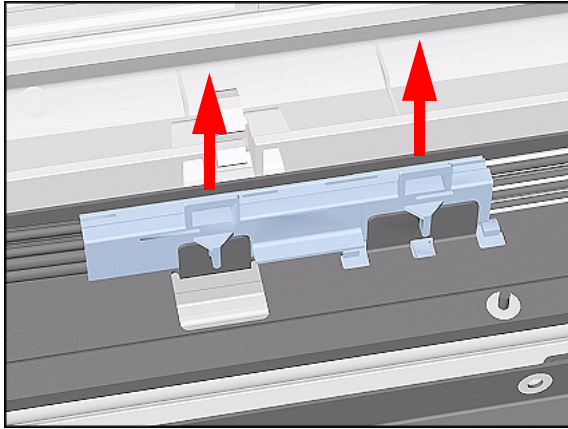
10. Lift out the blue Retaining Clip.

11. Remove ALL the Ink Cartridges from the Printer.
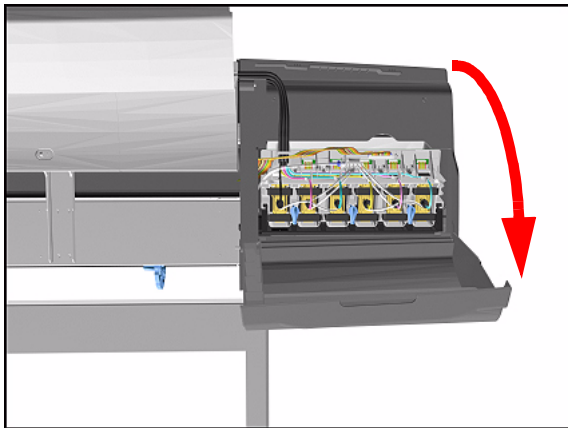
12. Open the door at the back of the Left Cover.
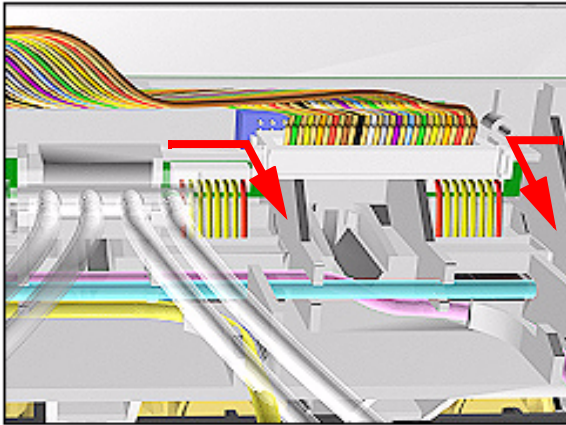
13. Disconnect the Electrical Cable from the rear of the Ink Cartridge Tube Connector.
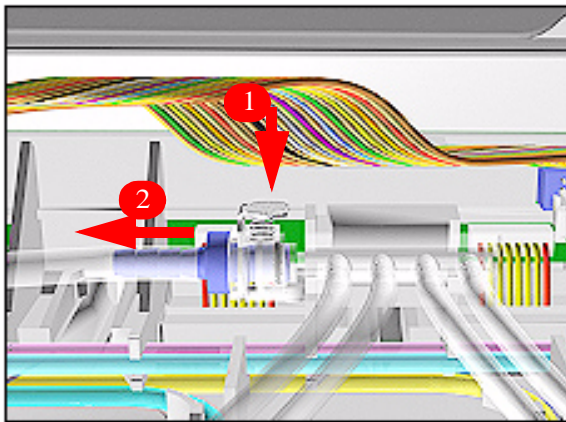
14. Disconnect the Air Tube.
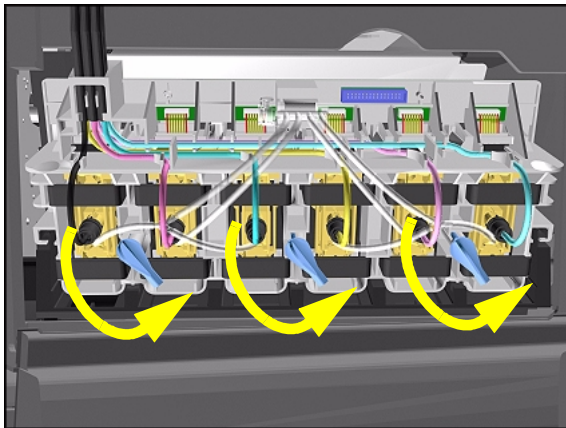
15. Twist the 3 latches at the rear of the Ink Cartridge Tube Connector and release the complete Assembly.
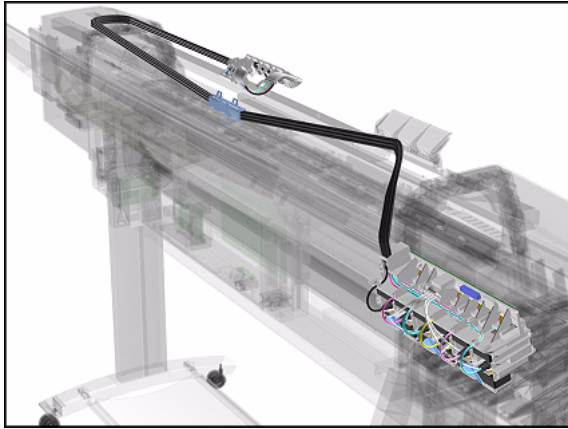
16. The complete assembly can now be removed by sliding the Ink Cartridge Connector out from the rear of the Left Hand Cover.

Installation of Ink Tubes System

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.**

NOTE	**Do not install NEW Ink Tubes System with Ink Cartridges that indicate Low or Very Low ink levels.**

NOTE	**Before installing the new Ink Tubes System, make sure that the Ink Type (Dye or UV) of the Tubes is the same as the ones that you are replacing.**
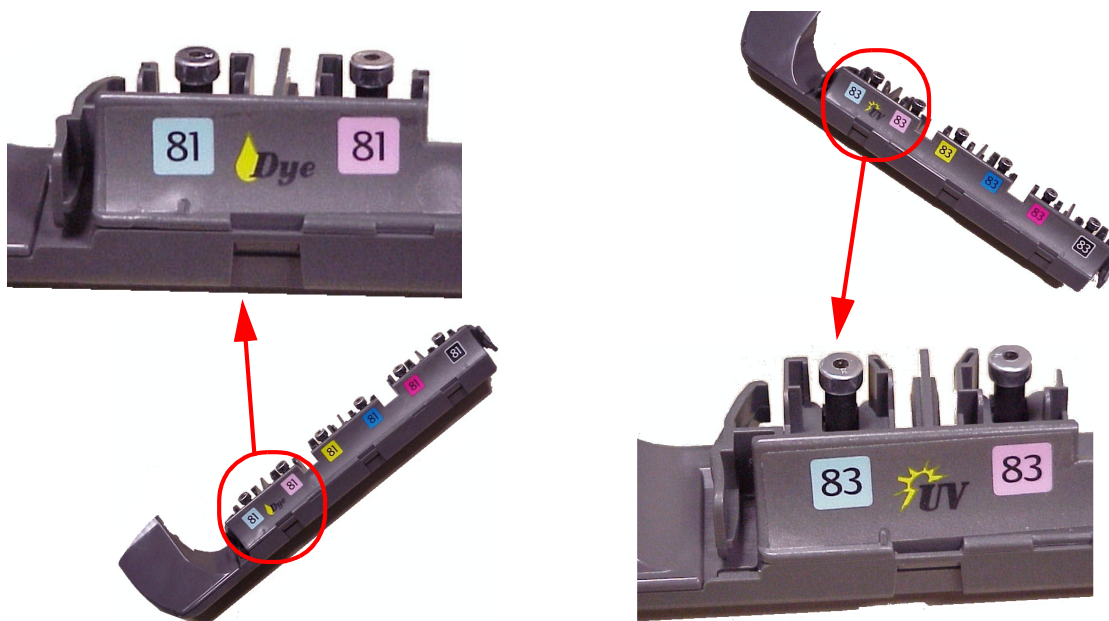
When the Ink Tubes System is replaced, to restart the Printer perform the following procedures.
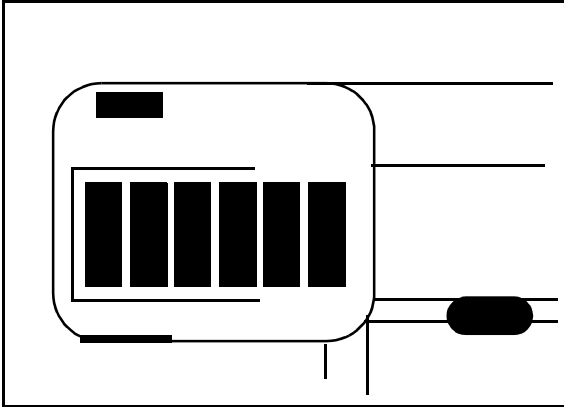
1. Install the Setup Printheads (refer to the User's Guide).

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.

4. Install the Ink Cartridges (refer to the User's Guide for details).

5. The Front Panel displays the message shown.

INK STARTUP

Initializing Printer

Please wait 60 sec

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 *8-97*.

6. Disconnect connector from Ink Leak Detector and remove 1 T-15 screw (**Type B**) to remove Ink Leak Detector cable clamp.
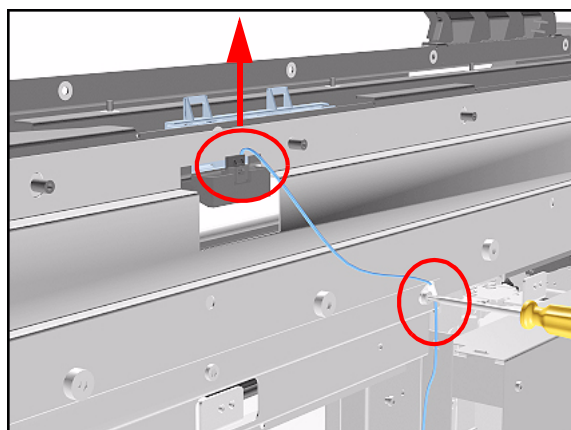
NOTE	**The Ink Leak Detector is NOT present in the DesignJet 5500 Series and in some DesignJet 5000 Series printers.**
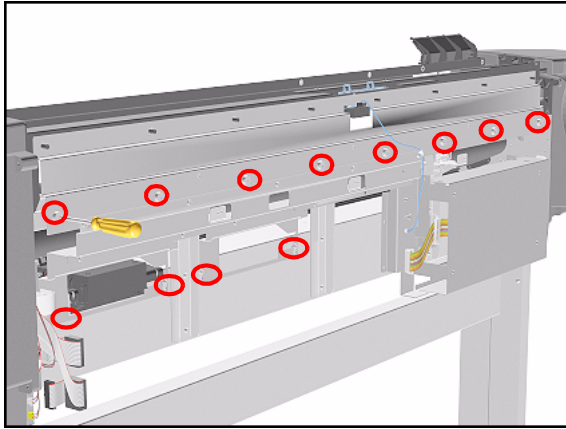
7. Remove the following screws (**Type N**) from the Top EMC Cover.

- 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.
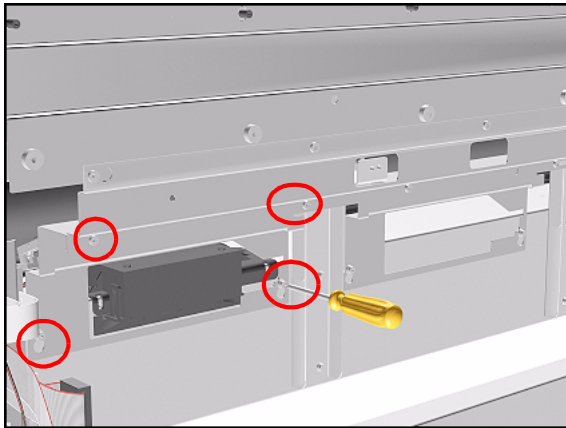
Top EMC Cover

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.
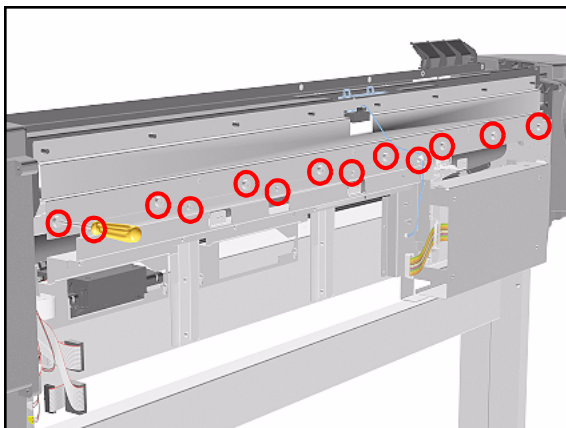
Encoder Strip

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.
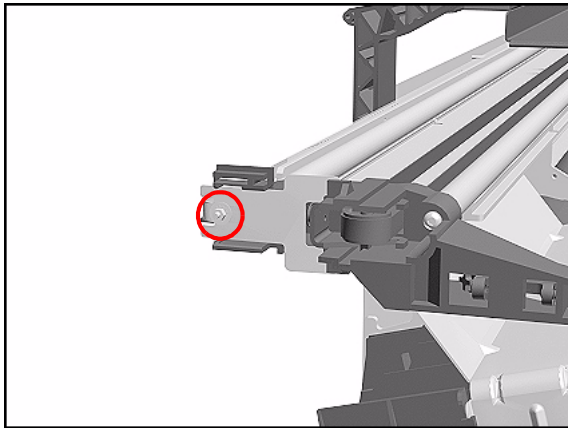
TIP   **The next step is performed by putting pressure on the Spring Clip as shown.**

7. Release the Encoder strip from the Spring Clip.

1. Apply Pressure
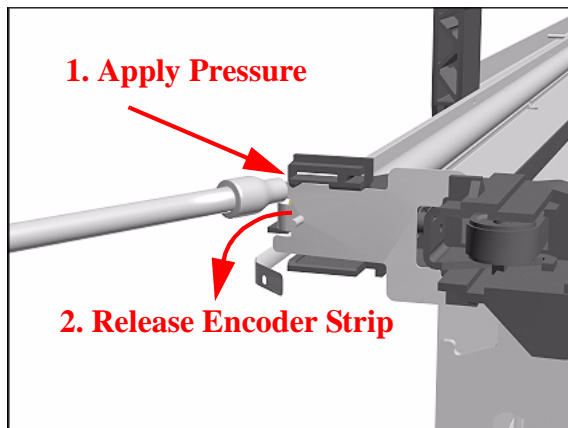
2. Release Encoder Strip
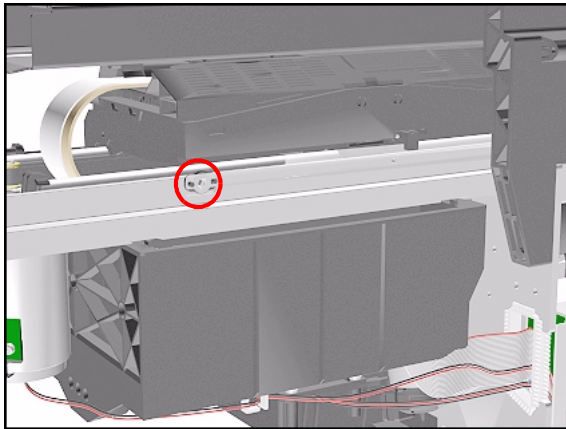
8. Remove the 5.5 mm nut from the right hand side of the Printer.
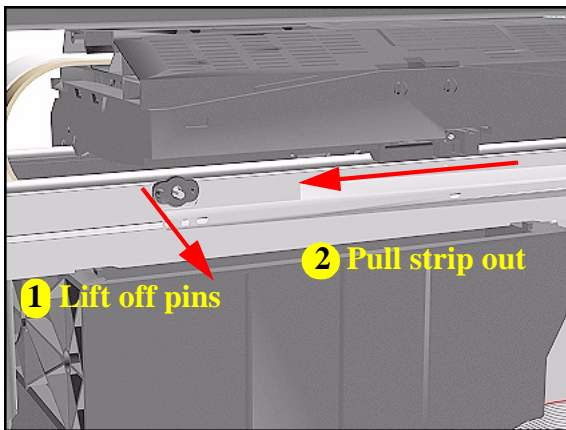
9. Remove the Encoder Strip from the Printer.

1 Lift off pins

2 Pull strip out

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.**

Insert Encoder Strip   Encoder Sensor
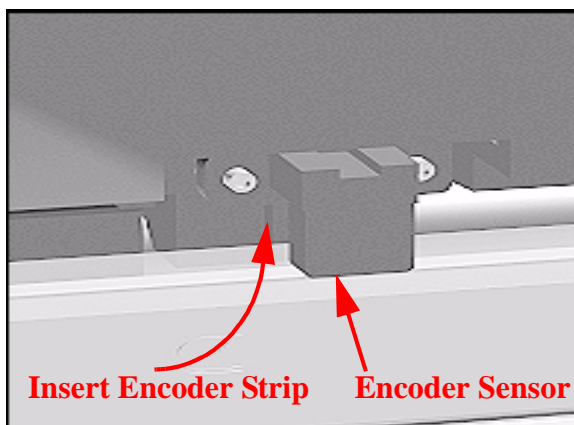
Trailing Cable

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.
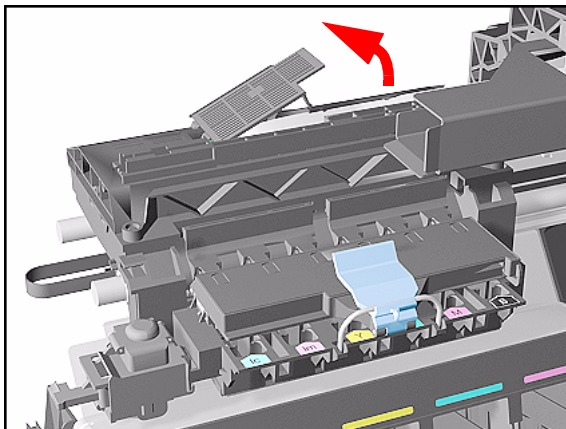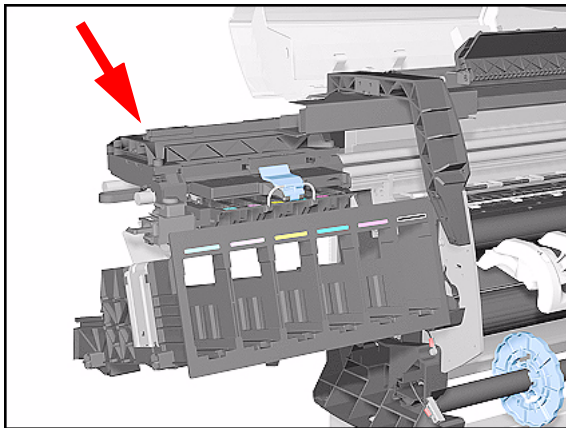
6. Unclip and remove the Carriage Cover to access the Trailing Cable in the Carriage.
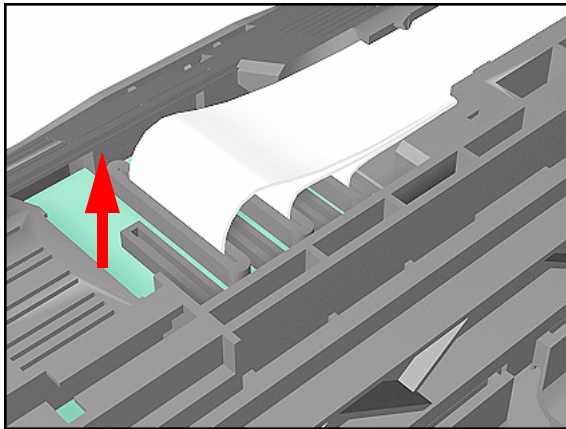
7. Carefully disconnect the Trailing Cables (3) from the connectors in the Carriage PCA.

NOTE   **Remove Trailing Cable Ferrites if they fall into the Carriage**

- 3 for 60" Model
- 1 for 42" Model

Press down in center to release
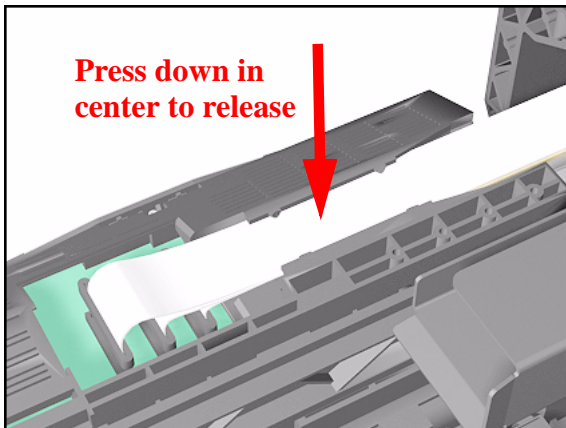
8. Remove the Trailing Cables from the Trailing Cable Holder.

TIP   **Press the Trailing Cables firmly in the center to release.**
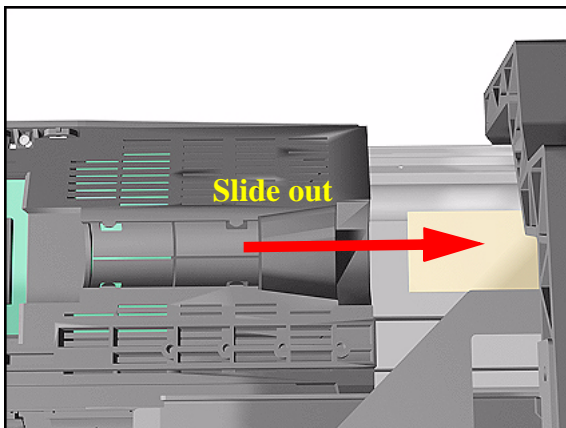
Slide out

9. Slide the Trailing Cable Guide out of the Carriage.
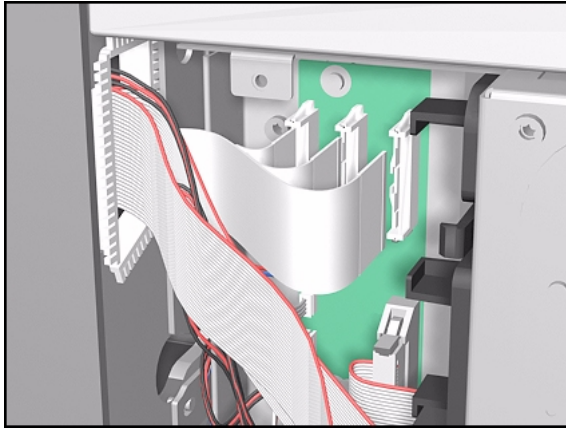
10. Carefully disconnect the Trailing Cable from the Main PCA.

NOTE **Unclip the Trailing Cable when disconnecting from the Main PCA.**
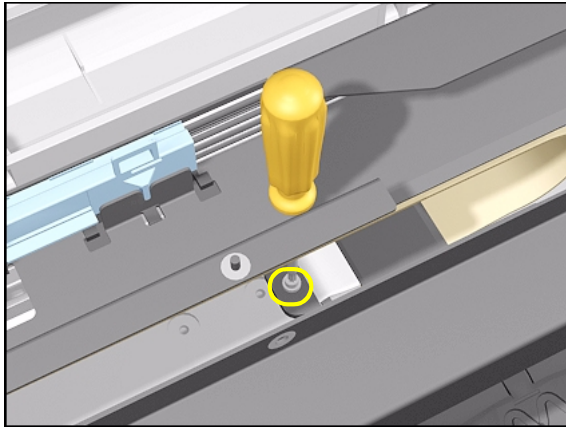
11. Remove the T-20 screw (**Type C**) from the Trailing Cable Clip on the left.

NOTE **There is a hole in the Tube Guide to access the screw.**
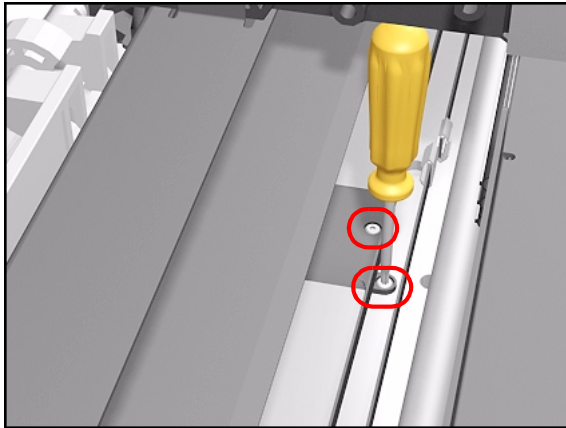
12. Remove 2 T-10 screws (**Type I**) from the Trailing Cable Clip on the right.

NOTE **Take care when removing and inserting these screws as they are easily damaged and not easy to access.**
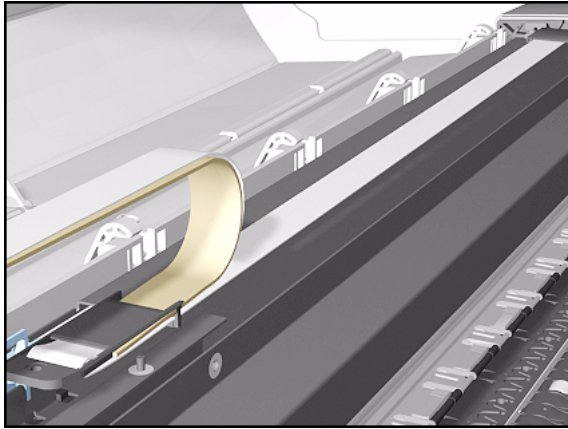
13. Carefully lift the Clips and the Trailing Cable from the Printer.

Installation of Trailing Cable

WARNING **Do not install damaged Trailing Cables. If the Trailing Cable is incorrectly installed or it is damaged, a "Power Supply Error #1" message will appear on the Front Panel during initialization.**

Check edge for damage
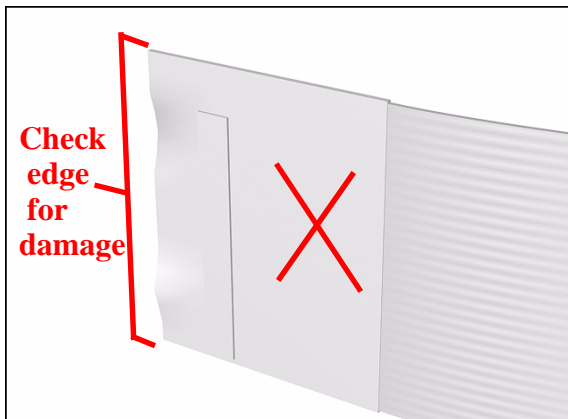
WARNING **When Installing the Trailing Cable, make sure you install it as follows:**

Left Clip locating pin
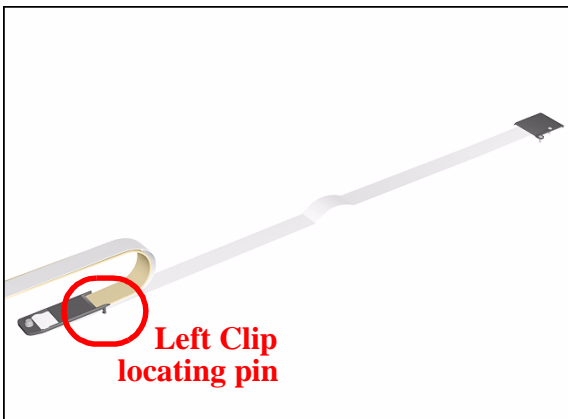
1. Install the Trailing Cable starting from the Clip on the left as this will provide a reference point for adjusting the length of the Trailing Cable.
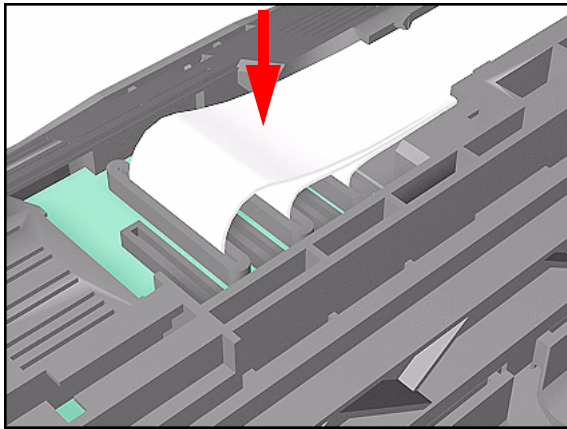
2. Insert the Trailing Cable Guide into the Carriage and connect the Trailing Cables.

NOTE   **Remember to pass the Trailing Cables through the Ferrite(s).**

■ 3 for 60" Model.
■ 1 for 42" Model.
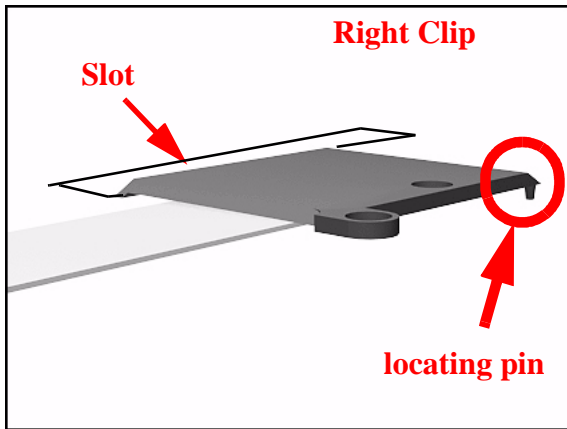
3. Insert the Trailing Cable through the Chassis slot next to the Trailing Cable Clip on the right (see diagram in step 4).

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.**

NO BUBBLES

Right Clip

Left Clip locating pin
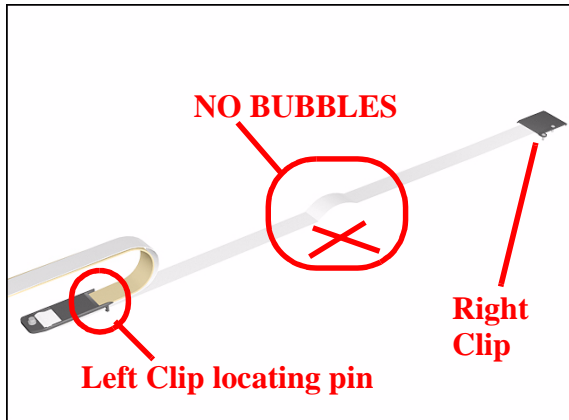
TIP **Make sure the Trailing Cable is flat on the chassis without bubbles.**

NOTE **Check the cable and clips are correctly installed by sliding the carriage along the Printer to see if it moves freely.**
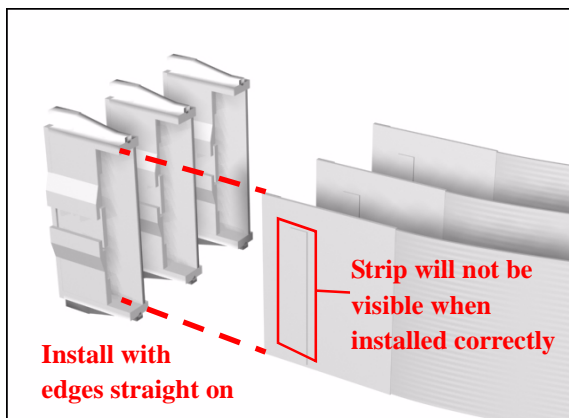
5. Connect the Trailing Cables to the Main PCA.

Strip will not be visible when installed correctly

Install with edges straight on

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.
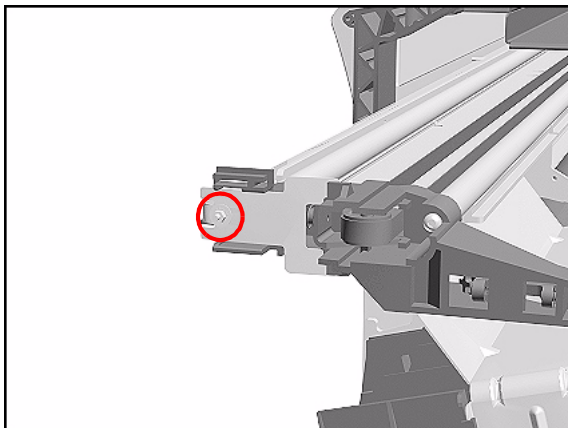
TIP   **The next step is performed by putting pressure on the Spring Clip as shown.**
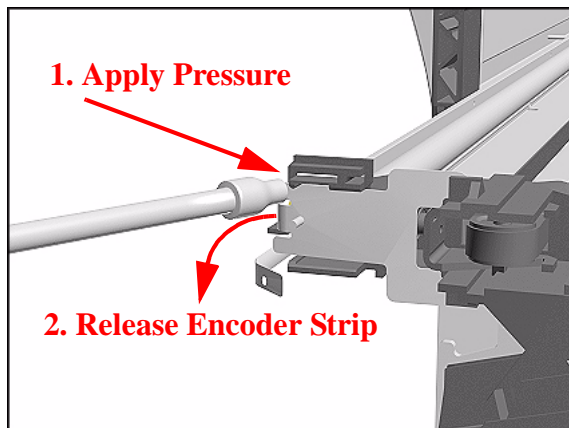
4. Release the Encoder Strip from the retaining pin on the Spring Clip.

1. Apply Pressure

2. Release Encoder Strip
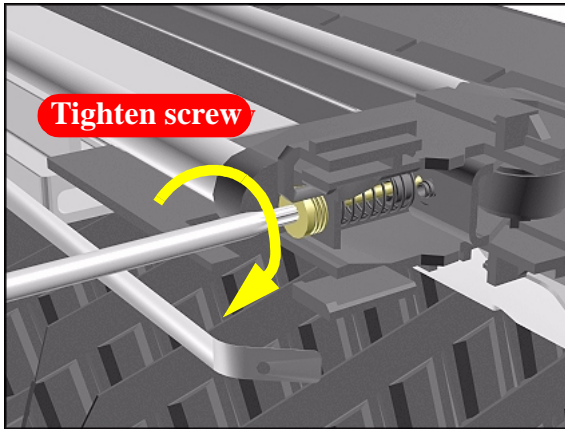
5. Using a screwdriver, fully tighten the Spring Release Screw to release the tension on the Belt.
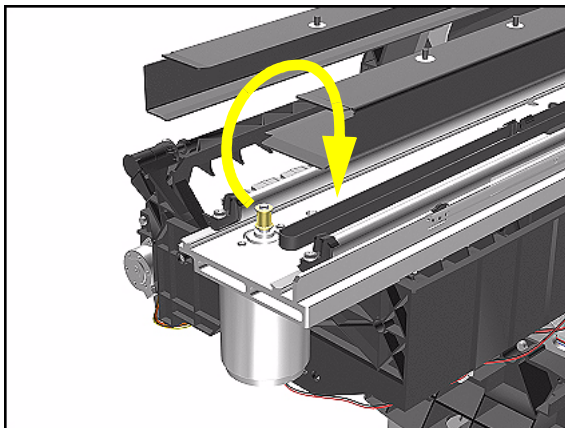
6. From the right-hand side, lift the Tensioner Belt off the Scan-Axis Motor.
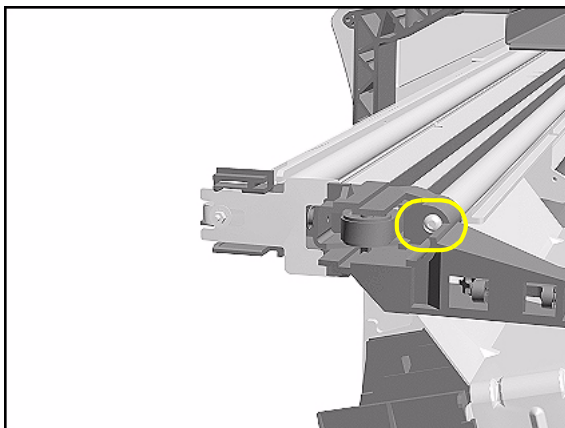
7. Remove 1 T-15 screw (**Type L**) from the Tensioner Assembly.
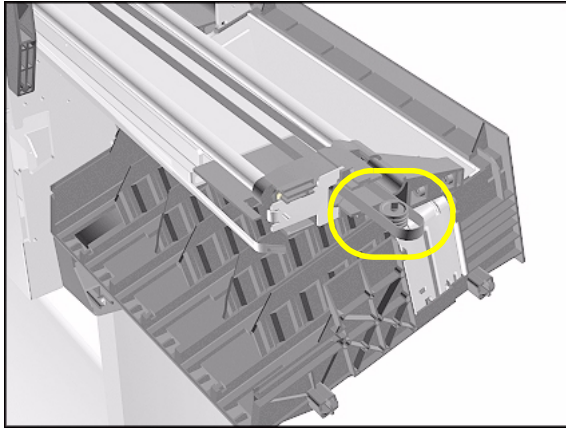
8. Remove the Belt Wheel on the left side.
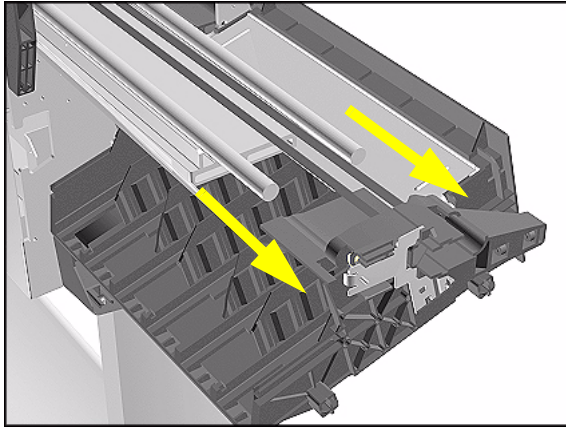
9. Remove the Tensioner Assembly from the left-hand side.

Installation of Tensioner Assembly

NOTE   Before installation, clean and oil the Slider Rods using the User's Slider Rods Lubrification 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.

Insert Encoder Strip   Encoder Sensor
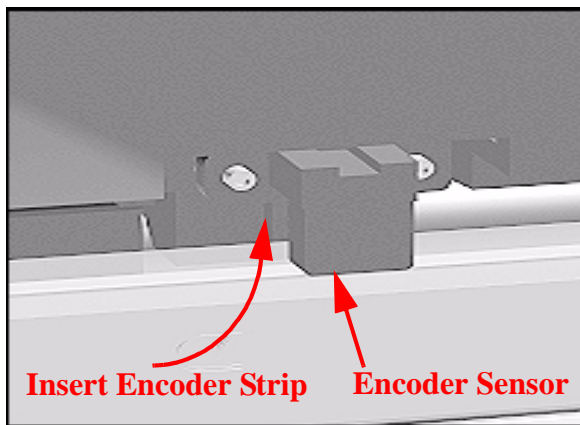
Carriage Assembly and Belt

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.
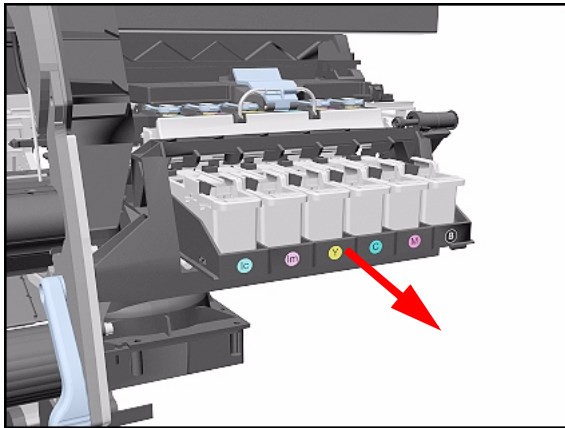
6. Slide Carriage Assembly to position shown.
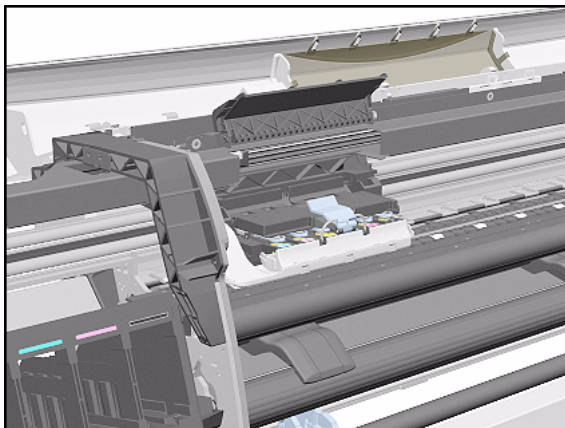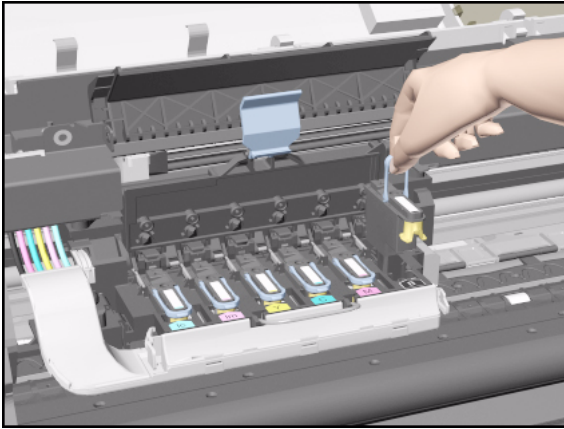
7. Lift up the Carriage Cover and remove ALL the Printheads and close the Carriage Cover.
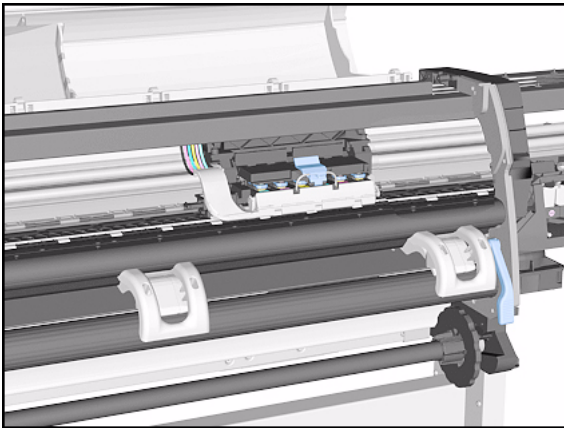
8. Slide the Carriage along the Printer to the position shown.
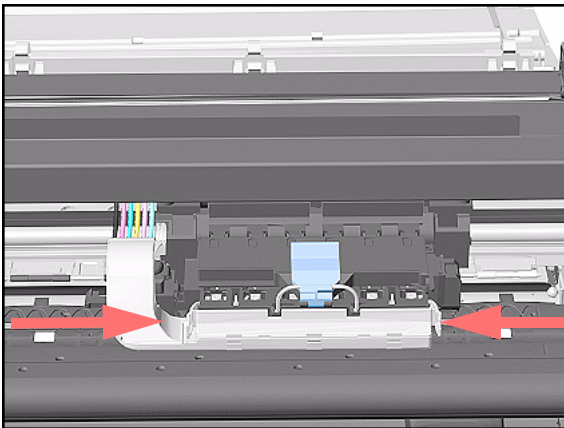
9. Push in the 2 retaining clips either side of the Printhead Tube Connector.
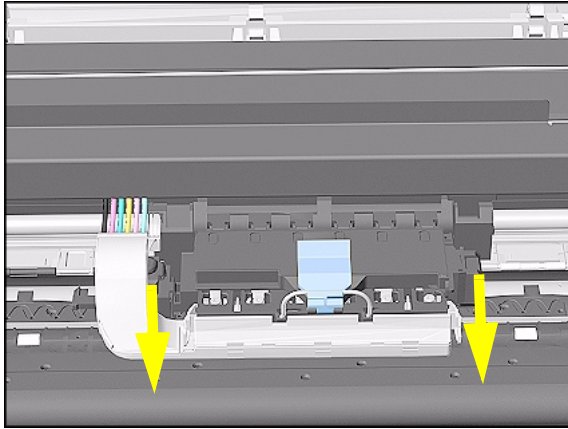
10. Pull the Printhead Tube Connector towards you.
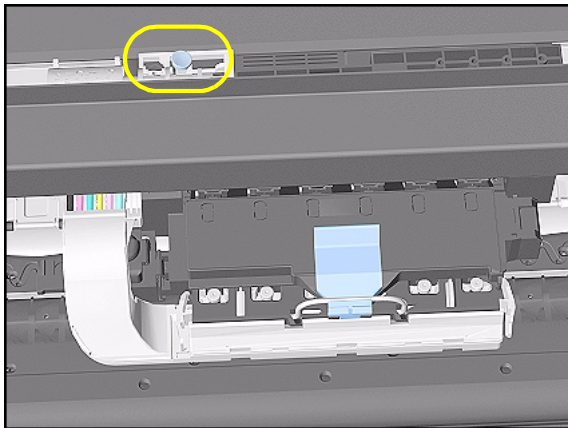
11. Push the button to release the Printhead Tubes in the Carriage.
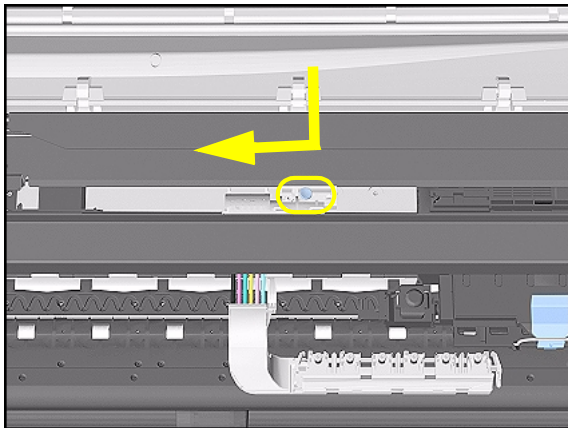
12. Release the retaining clip by pulling it away from the holding brackets.
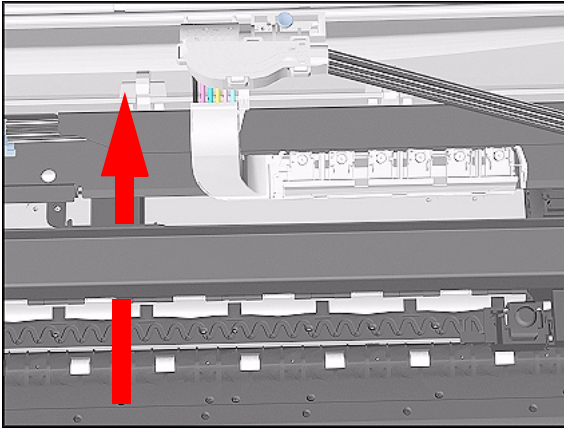
13. Pull the Printhead Tube Connector up between the two Tube Guides.
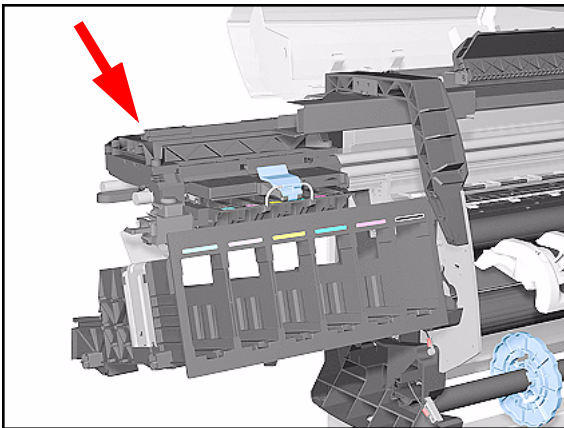
14. Slide the Carriage to the left side of the Printer.
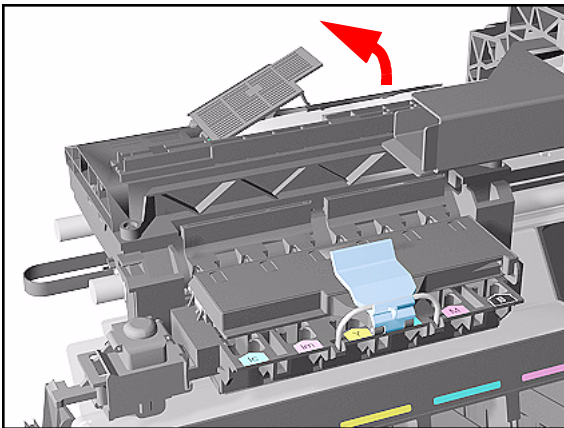
15. Unclip and remove the Carriage Cover to access the Trailing Cable in the Carriage.
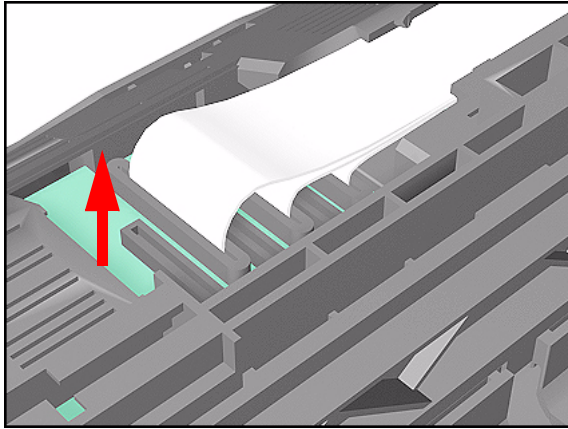
16. Carefully disconnect the Trailing Cables (3) from the connectors in the Carriage PCA.

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.
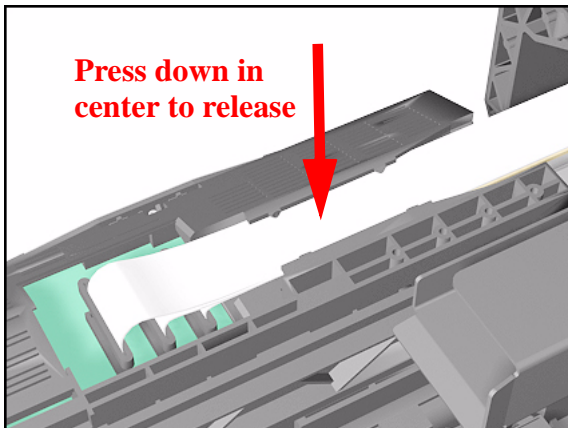
TIP   **Press the Trailing Cables firmly in the center to release.**

Press down in center to release
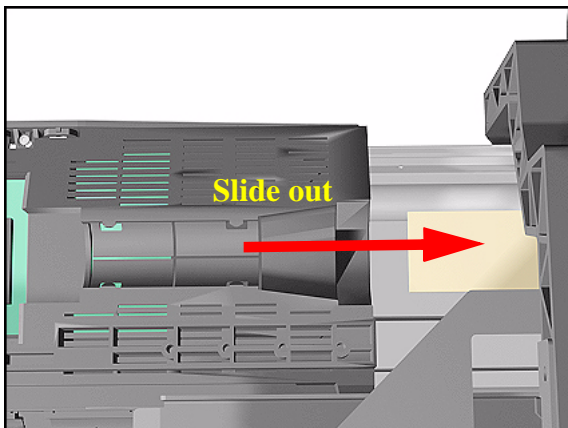
18. Slide the Trailing Cable Guide out of the Carriage.

Slide out
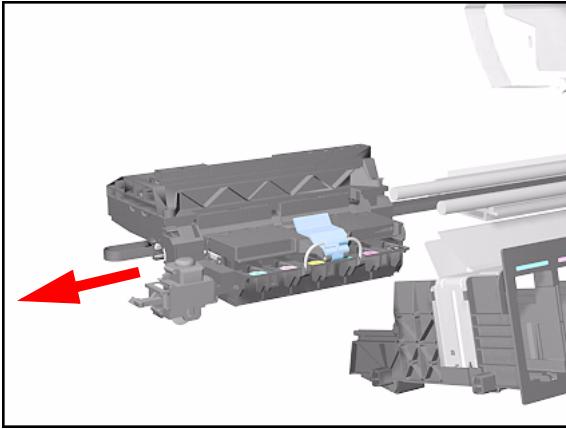
19. Slide the Carriage (including the Belt) to the left and out of the Printer.
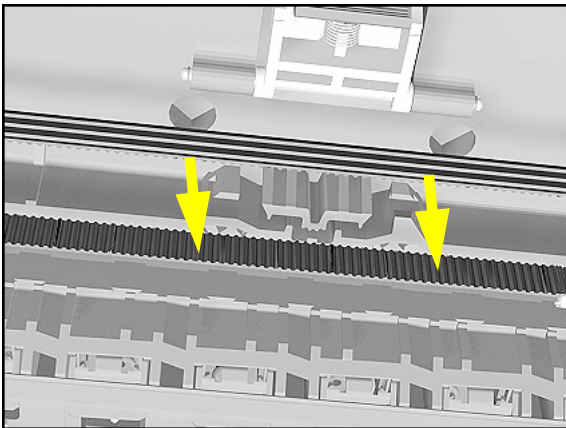
20. Remove the Belt from the Carriage by releasing it from the retaining clips underneath the Carriage.

Installation of Carriage and Belt

NOTE   **Before installation, clean and oil the Slider Rods using the User's Slider Rods Lubrification Kit (Refer to the User's Guide).**

WARNING   **Make sure you install the Carriage Assembly and Belt as follows:**
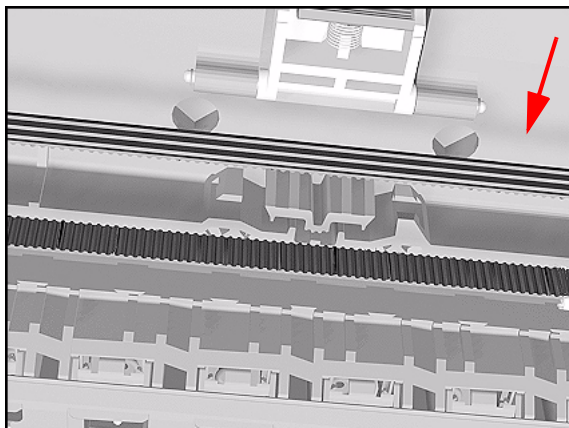
1. Insert belt as indicated on the underside of Carriage.

TIP   **An arrow on the bottom of the Carriage indicates position and direction.**
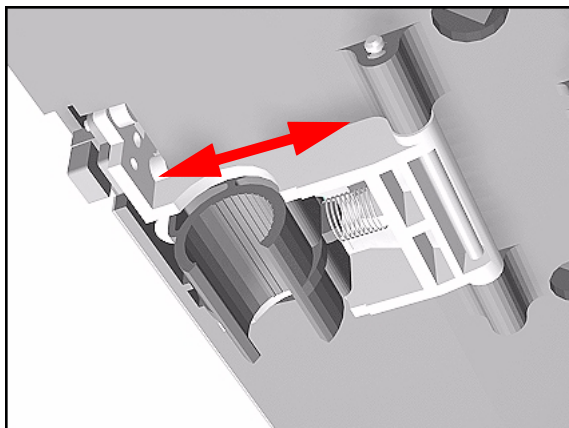
2. Line up the Carriage Guide, on the underside of the carriage, with the Slider Rods on the Printer.

NOTE   **Perform the following Service Calibrations after the installation of the Carriage Assembly:**

- Carriage Height ⇒ Page *5-18*.
- Service Station ⇒ Page *5-11*.
- Scan Axis ⇒ Page *5-7*.
- Printhead Alignment ⇒ User Guide.
- Color Calibration ⇒ User Guide.

Line Sensor

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.**
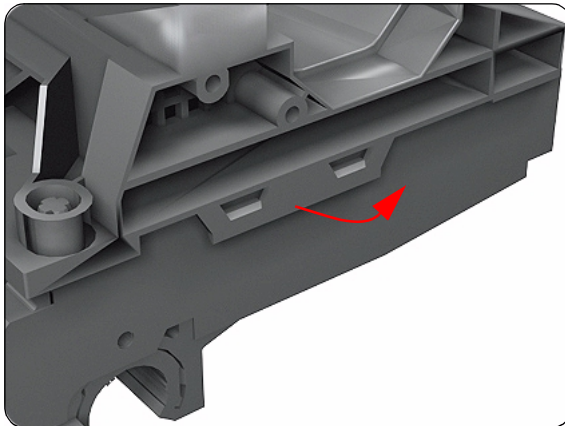
1. Remove the Carriage Assembly - Refer to Page *8-46*.

2. Unclip the Carriage Cover from **both** sides of the Carriage Assembly.
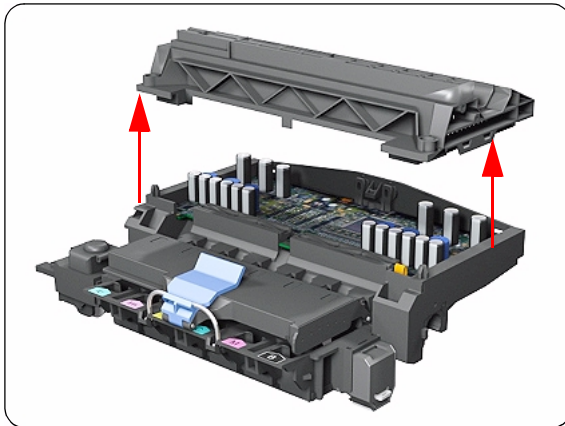
3. Remove the Carriage Cover.

NOTE	**Make sure both sides of the cover are unclipped before removing. Also make sure the cover is removed vertically, if not the Cover Retaining Pins can be broken.**
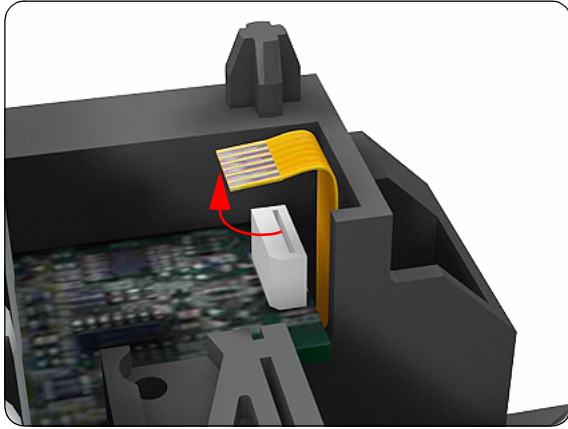
4. Disconnect the Line Sensor Connector from the Carriage PCA.
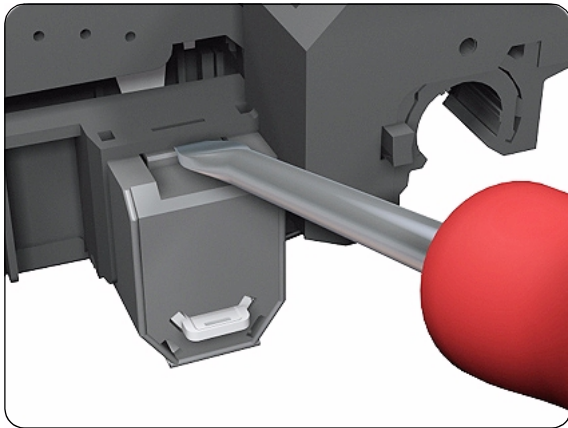
5. Insert a flat screwdriver inside the Line Sensor clip in order to release it.
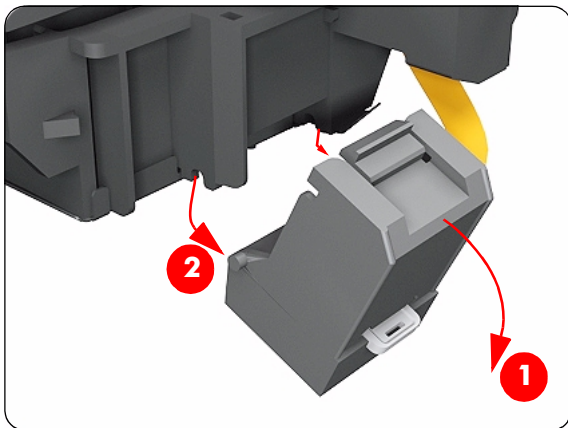
6. Once the clip is released, rotate the Line Sensor downwards so that the locating pins on **both** sides are also released.

Installation
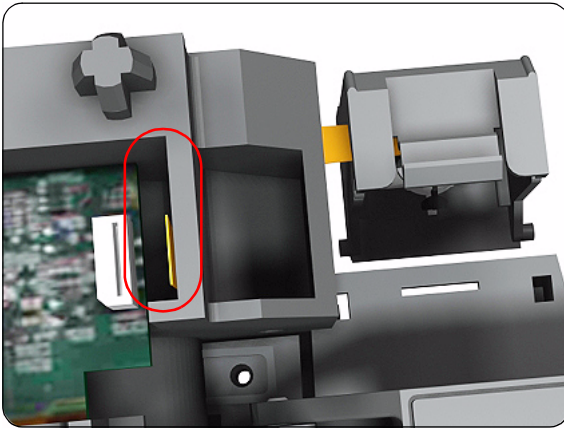
1. When installing the new Line Sensor, make sure you insert the Line Sensor Cable through the correct hole (as highlighted).
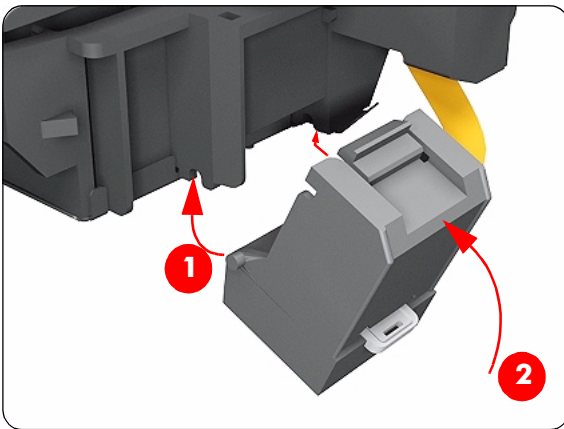
2. Install the Line Sensor by first inserting the 2 locating pins and then rotating upwards so that the clip locks into place.

NOTE   **Make sure the Line Sensor is clipped correctly and securely, if not the Line Sensor will malfunction.**
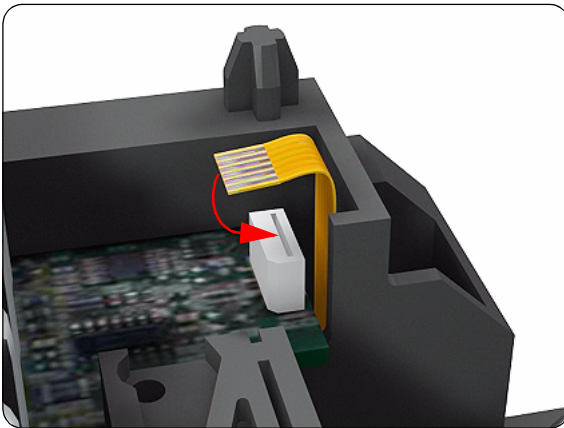
3. Connect the Line Sensor Connector to the Carriage PCA.
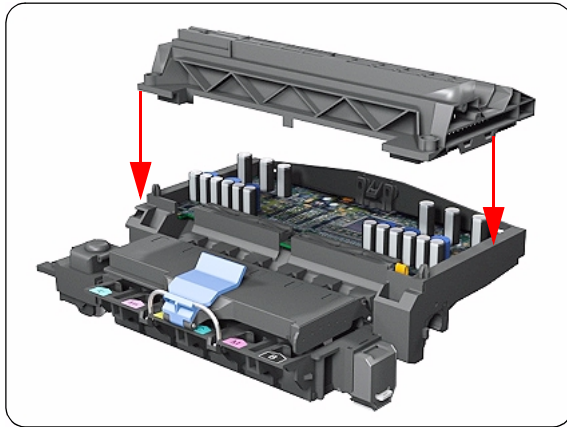
4. Install the Carriage Cover.

NOTE   **Make sure the cover is installed vertically, if not the Cover Retaining Pins can be broken.**
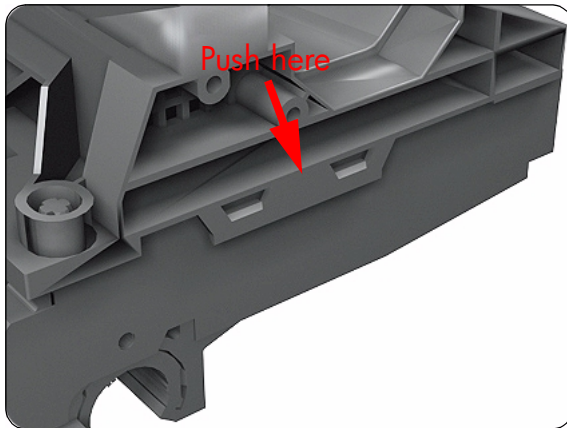
5. Clip the Carriage Cover on **both** sides of the Carriage Assembly by pushing the clip downwards (with force if necessary).

NOTE   **Make sure the clips are locked correctly, if not the Carriage Cover could become loose and cause major damage to the printer.**

NOTE   **You must perform the following Calibration when the Line Sensor is replaced:**

■ Scan Axis Calibration ⇒ Page *5-7*.

Scan-Axis Motor
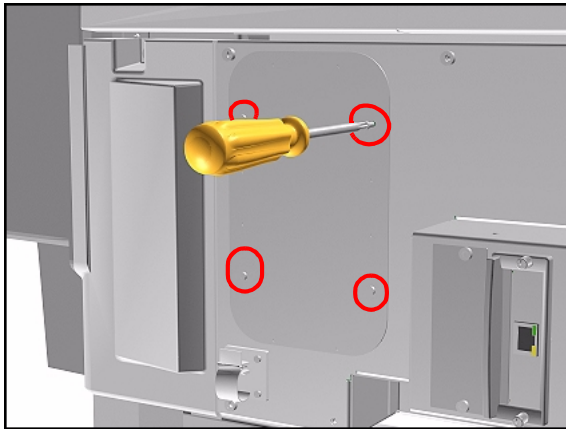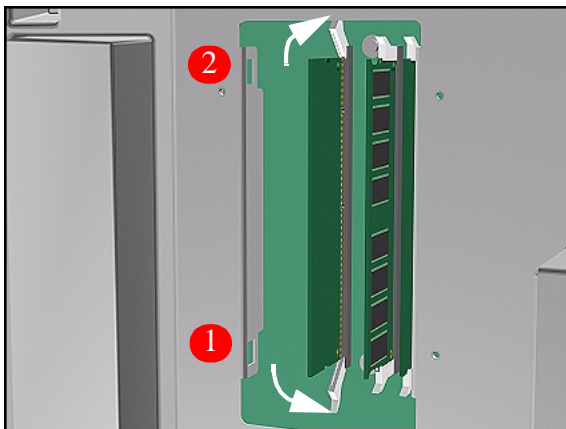
Removal

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.
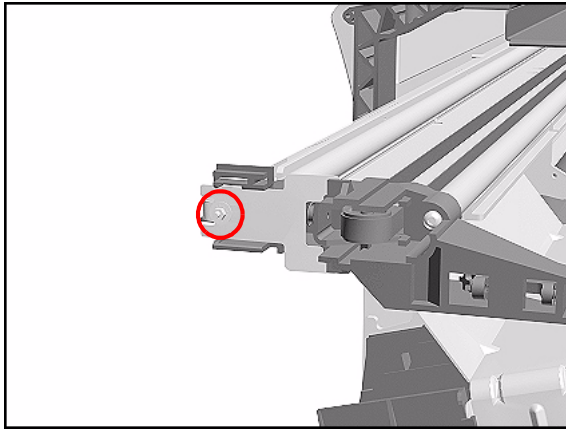
TIP   **The next step is performed by putting pressure on the Spring Clip as shown.**

5. Release the Encoder strip from the Spring Clip.

1. Apply Pressure
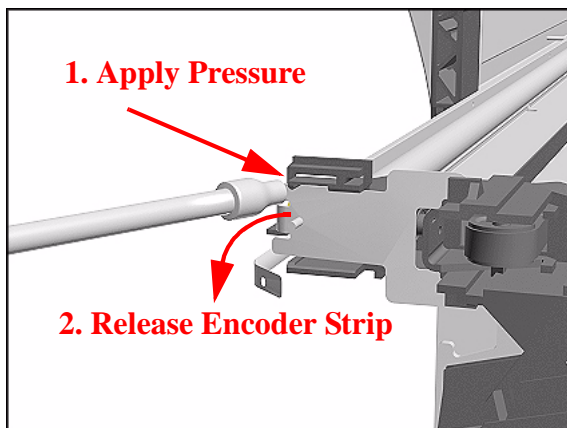
2. Release Encoder Strip
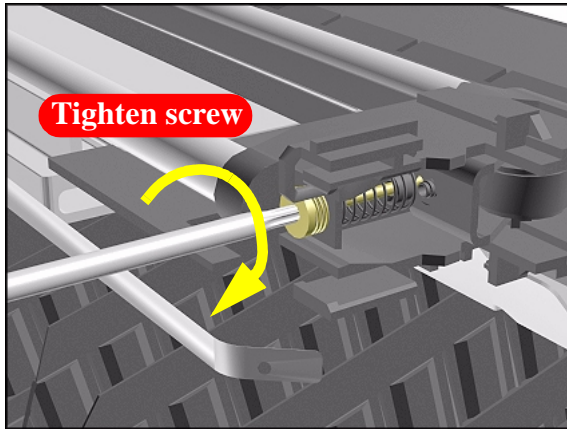
6. Using a screwdriver, fully tighten the Spring Release Screw to release the tension on the Belt.
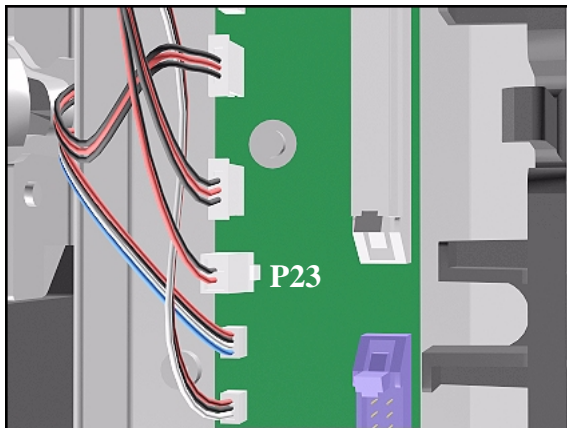
7. Disconnect the Scan-Axis Motor Cable from position P23 on the Main PCA.
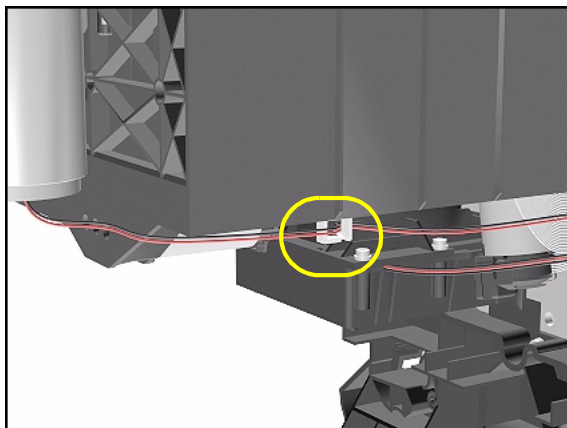
8. Unclip the Scan-Axis Motor Cable from underneath the Service Station.
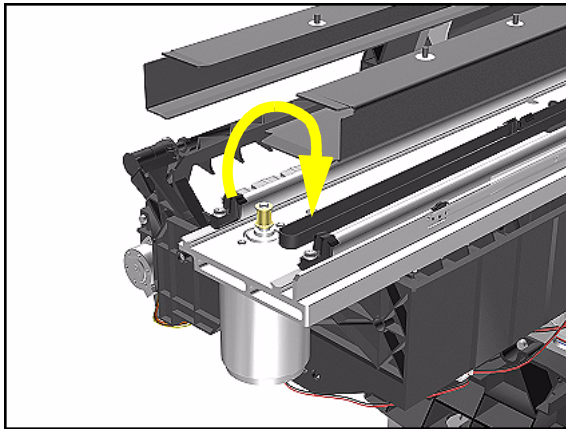
9. From the right-hand side, lift the Tensioner Belt off the Scan-Axis Motor.
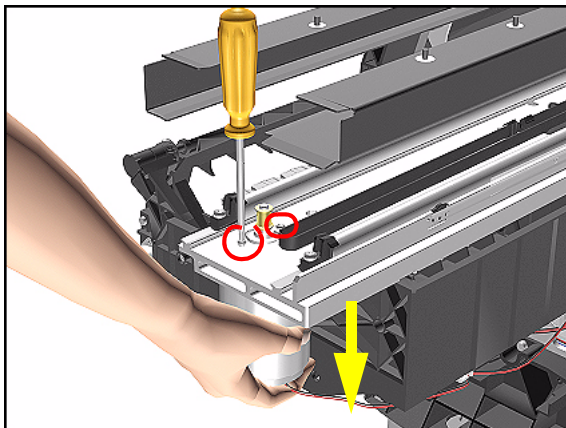
10. While supporting the Scan-Axis Motor, remove 2 T-15 screws (**Type B**).

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.**
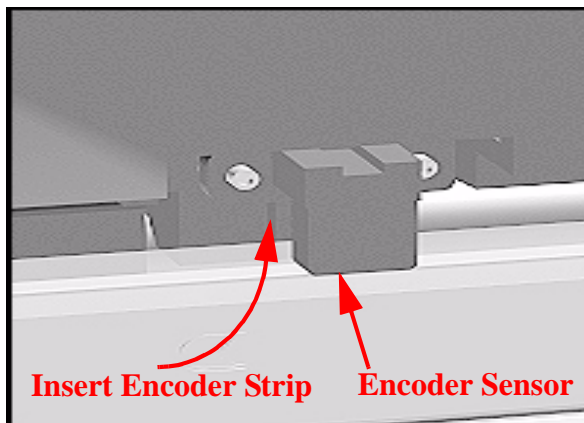
Note: When installing the Belt, make sure that it is not twisted.

Insert Encoder Strip   **Encoder Sensor**

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.**
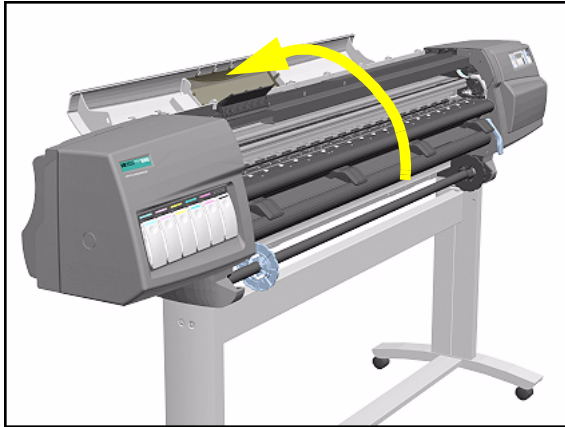
1. Open the Top Cover.
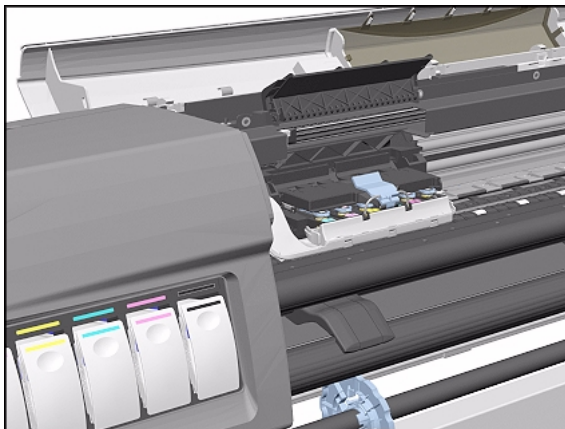
2. Pull the Carriage out along the Printer to the position shown.
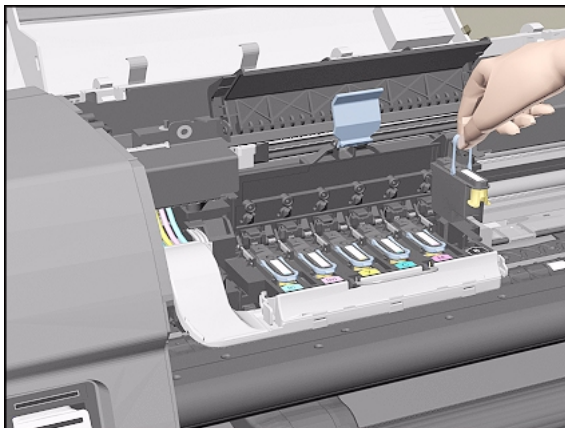
3. Lift up the Carriage Cover and remove ALL the Printheads and close the Carriage Cover.
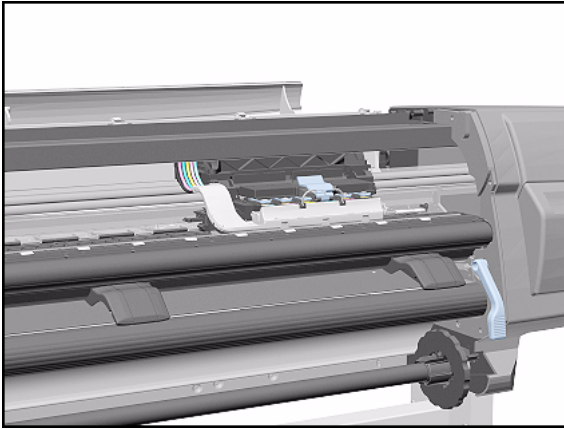
4. Slide the Carriage to the position shown.
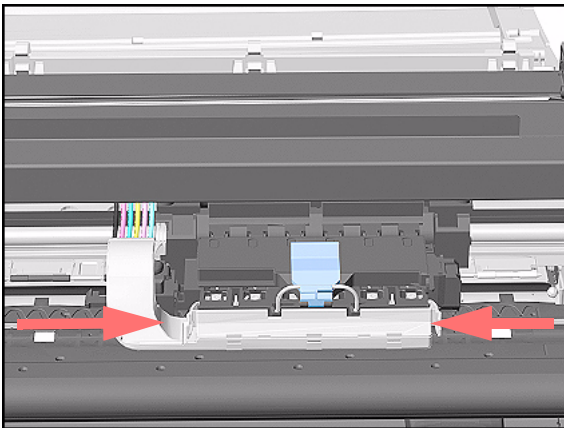
5. Push in the 2 retaining clips either side of the Printhead Tube Connector.
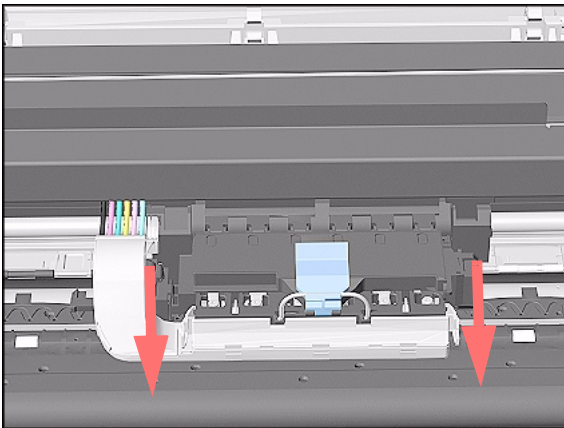
6. Pull the Printhead Tube Connector towards you.
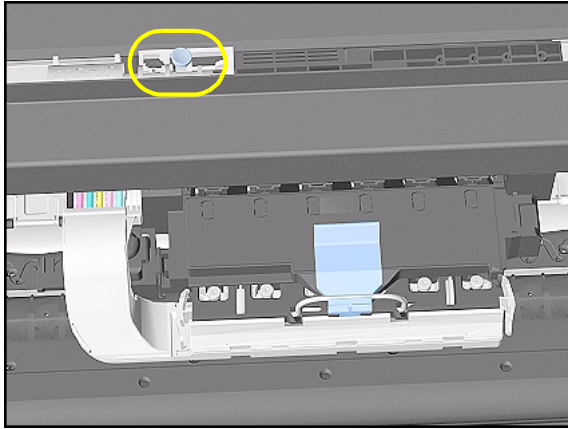
7. Push the button to release the Printhead Tubes from the Carriage.
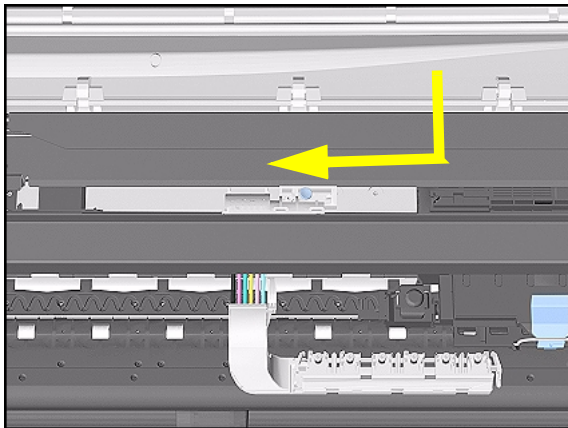
8. Release the retaining clip by pulling it away from the holding brackets.
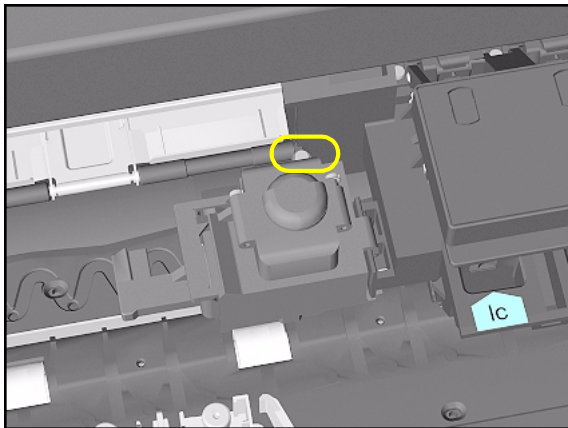
9. Remove 1 T-8 screw (**Type V**) and washer that attaches the Cutter to the Carriage.
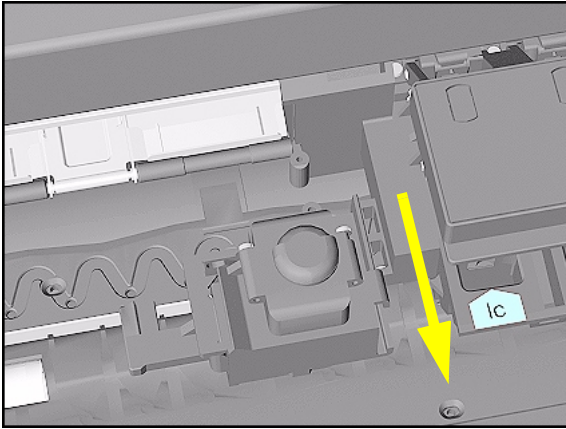
10. Slide the Cutter towards you and remove from the Printer.

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.
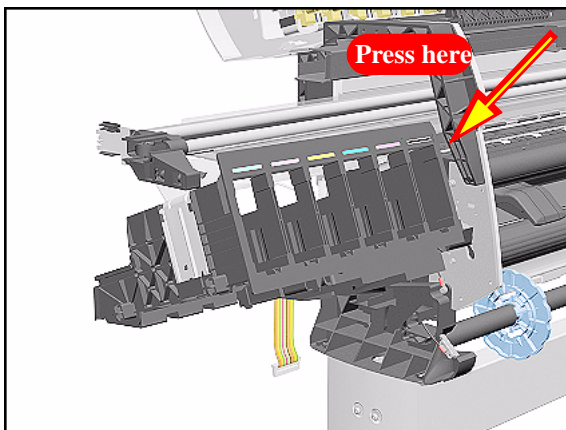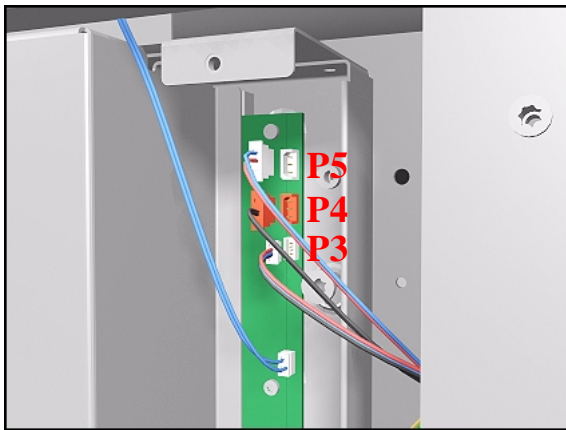
5. To remove the ISS, stand at the end of the Printer and press in the retaining clip on the ISS.
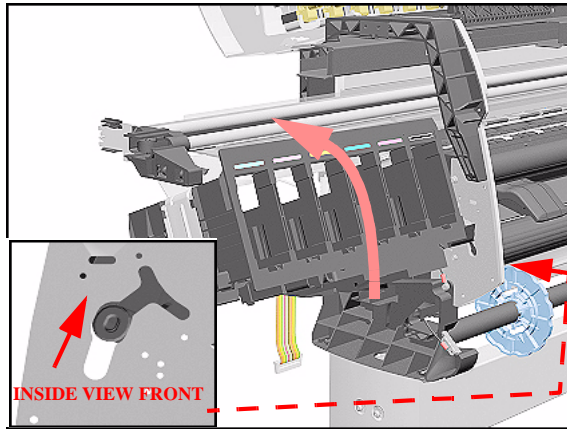
6. While pressing in the retaining clip (step 5), rotate the right side of the ISS up and left.
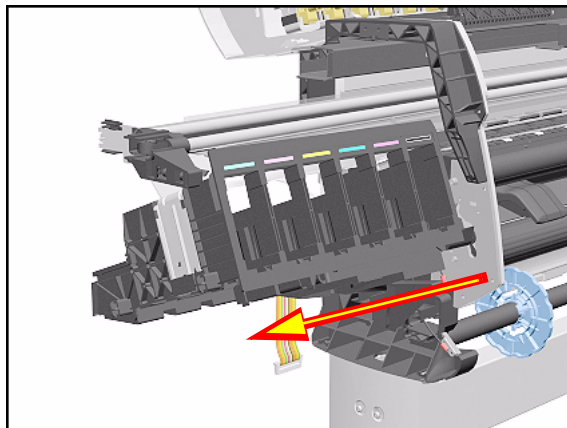
7. Pull out the right side of the ISS.
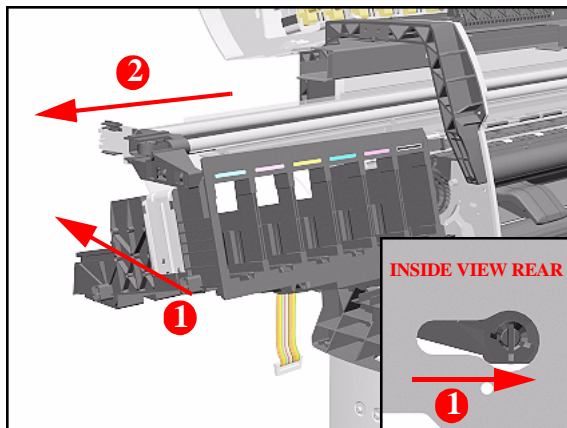
8. Slide the ISS to the left and pull out the left side to remove from the Printer.

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).**
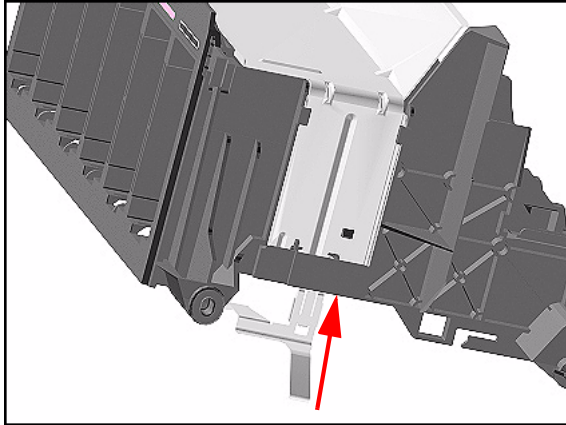
Air Pressurization System (APS)

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 *8-64*.

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.
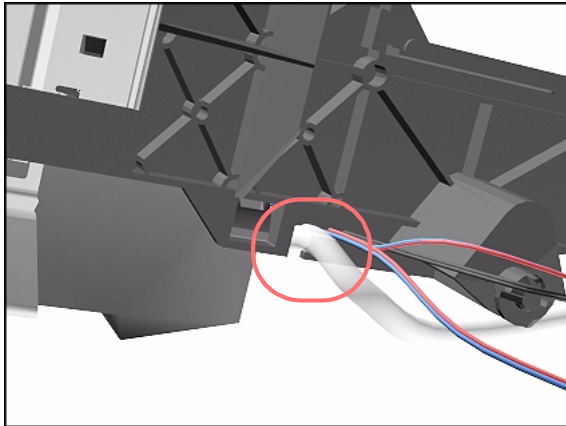
NOTE   **When removing the APS from the ISS, take care with the tube and cables attached to the ISS.**
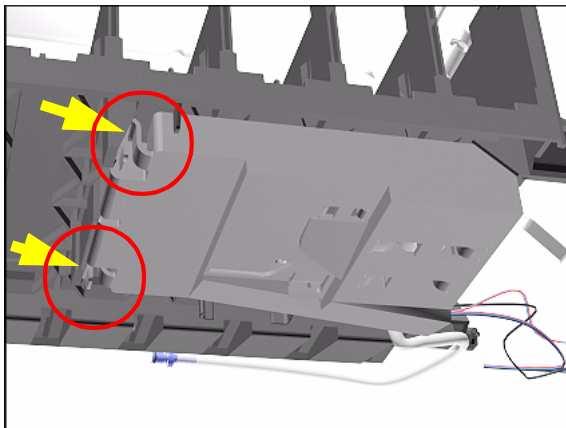
6. Push the retaining clips on the left side of the APS to release it from the ISS.

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:**
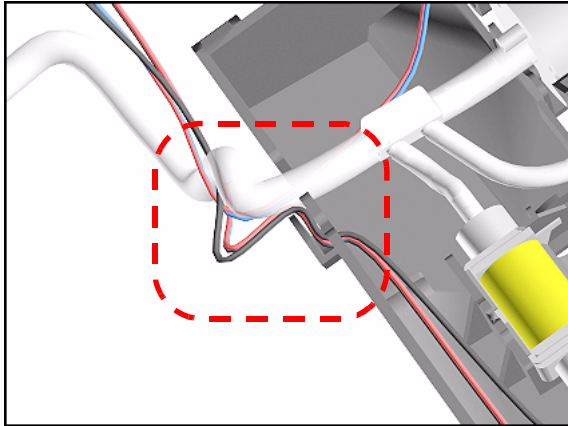
1. Before installing the APS on the ISS, insert first the 3 cables and then the tube in the dedicated slot.

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.
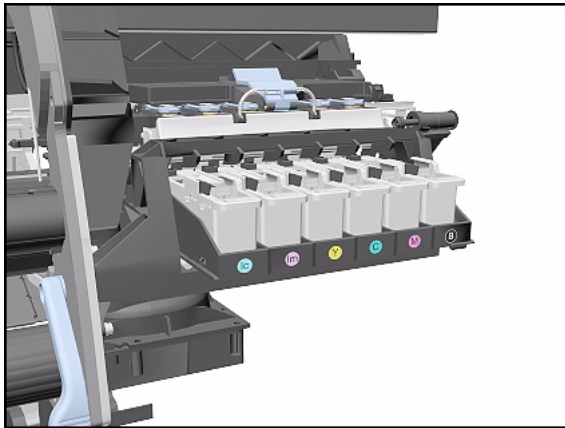
4. Manually slide the Carriage out of the Service Station.
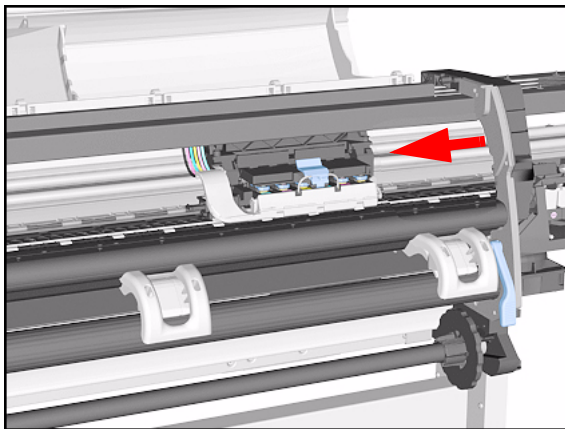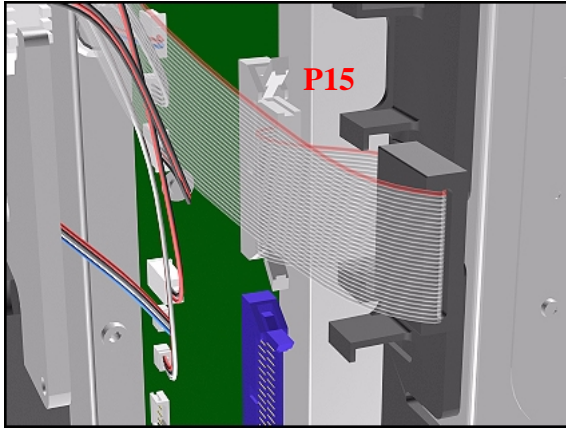
5. Disconnect the Service Station Cable from the Main PCA (P15).
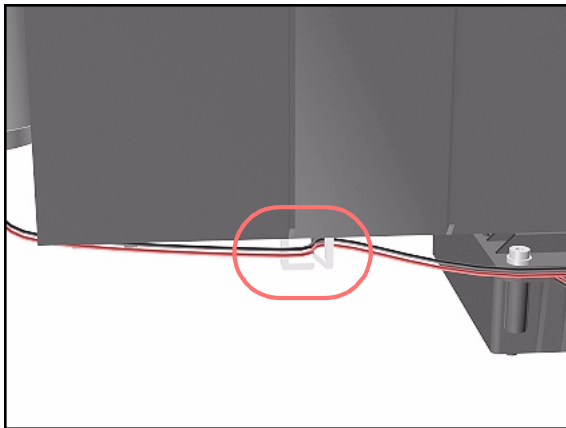
6. Unclip the Scan-Axis Motor Cable from the Service Station.

NOTE   **Follow the instructions in step 7 carefully; LOOSEN the screw and DO NOT remove.**
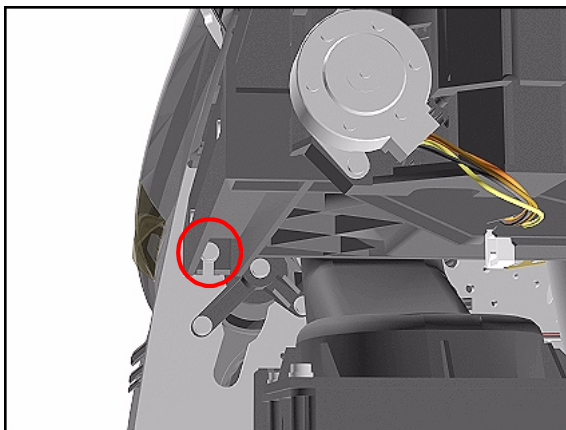
7. Loosen the T-20 screw (**Type A**) securing the Service Station to the side plate.
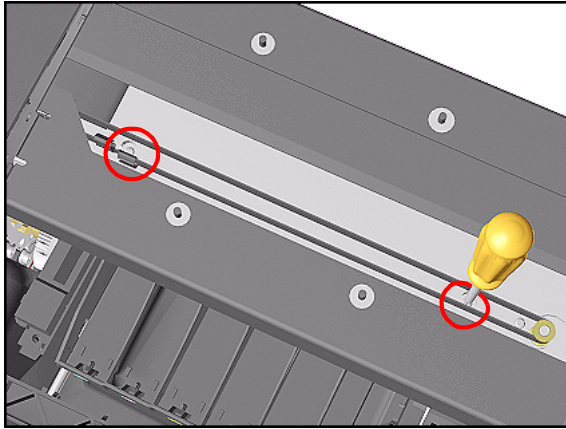
8. Remove 2 T-15 screws (**Type F**) between the two slider rods that attach the Service Station to the Chassis.
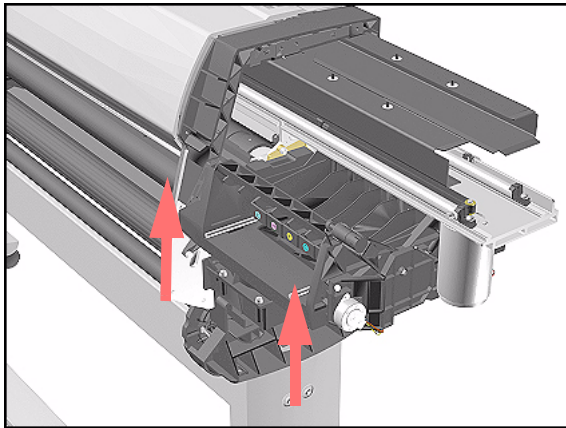
9. Standing in front of the Service Station, lift it off the loosened screw.
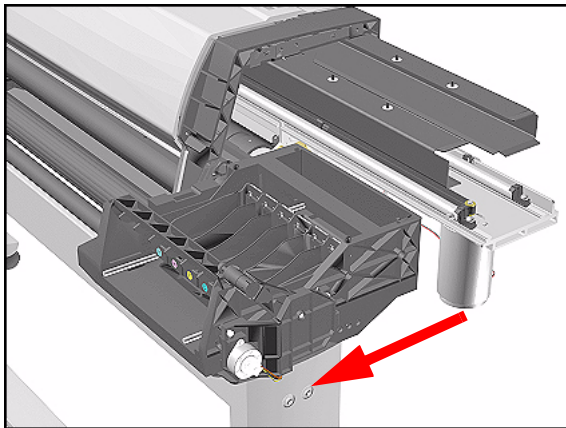
10. Pull the assembly out towards you and remove from the Printer.

NOTE   **Perform   the   following Service Calibration if the Service Station Assembly is replaced:**

■ Service Station ⇒ Page *5-11*.

Drop Detector Assembly

Removal

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 *8-69*.

4. Disconnect the Drop Detector cable from the Service Station Cable.

Press clip to disconnect
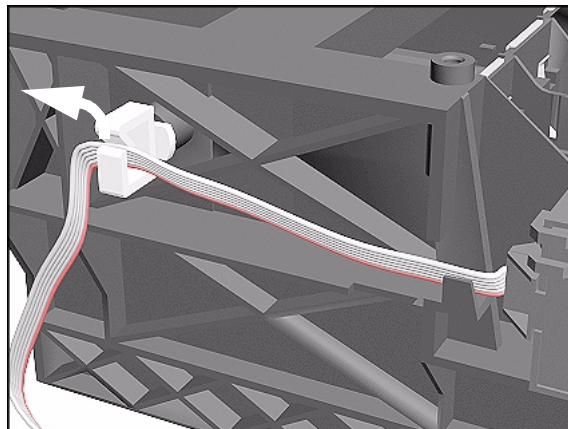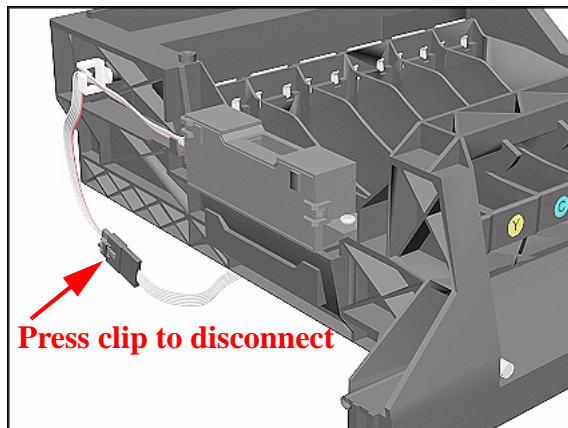
5. Release the cable from the Service Station.
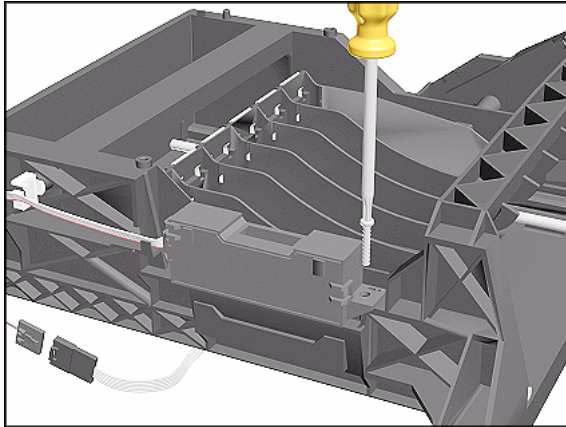
6. Remove the T-15 screw (**Type F**) that attaches the Drop Detector Assembly to the Service Station.
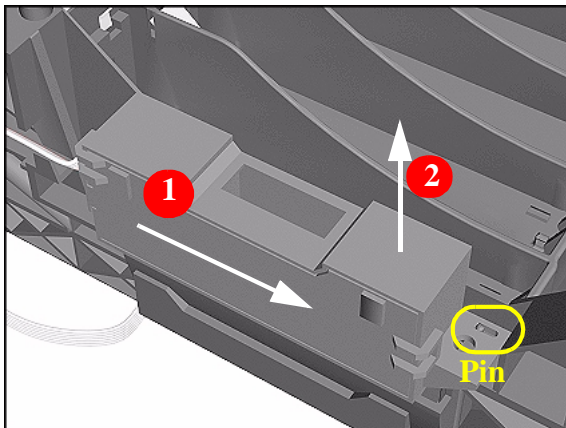
7. Remove the Drop Detector from the Service Station.

NOTE   **Move the Drop Detector towards the front of the Service Station until the locating pin reaches the end.**
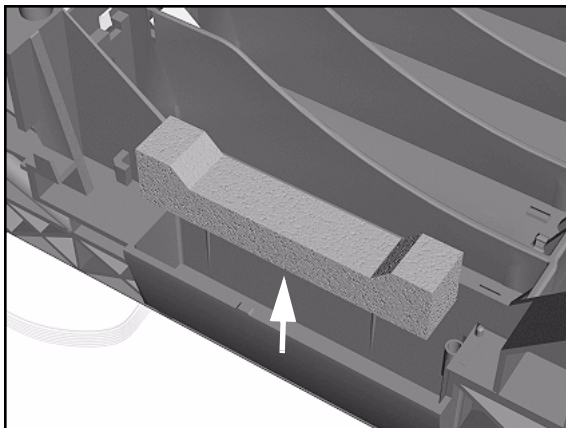
8. Lift the Foam from the Service Station.

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.**
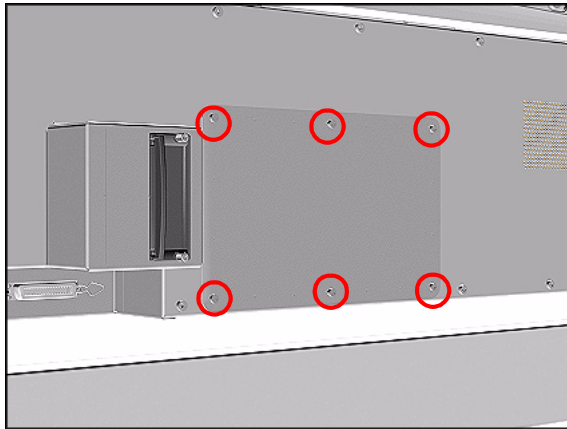
1. Remove 6 T-15 screws (**Type B**) from the HDD Access Cover. Remove the HDD Access Cover.
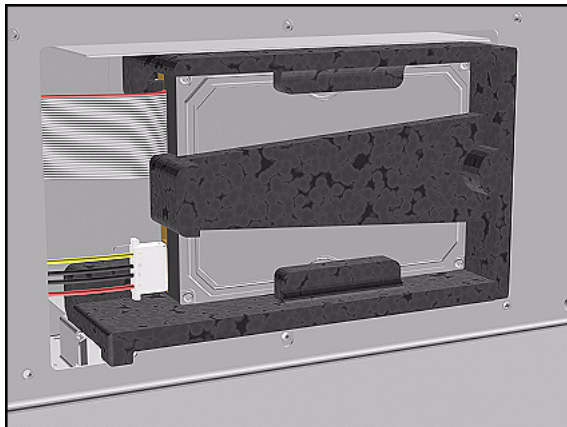

2. Remove the HDD with its foam holder.
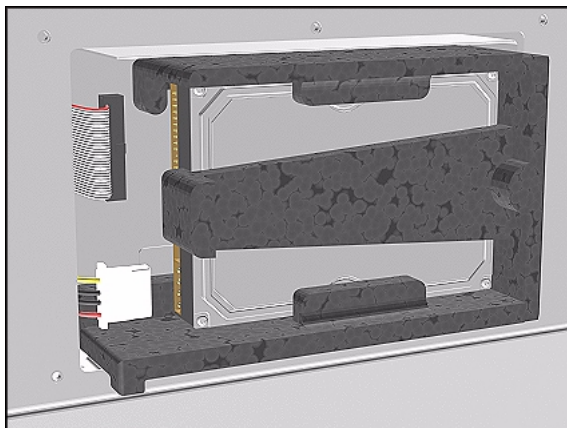
3. Disconnect the HDD Cable and Power Supply Cable from the HDD.

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 *4-23*).**

WARNING   **When Installing the Hard Disk Drive make sure the holder is placed in the right position so that it cannot move.**
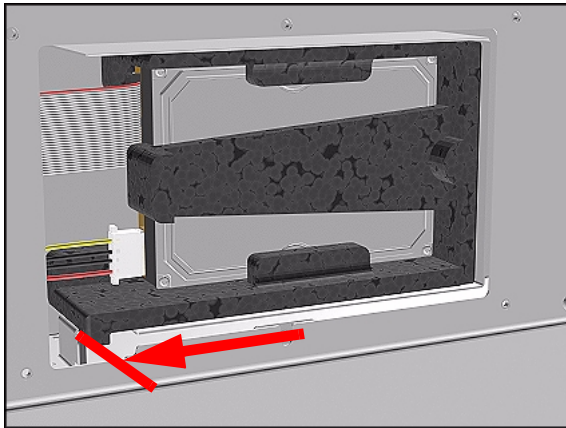
NOTE   **When the Hard Disk Drive is replaced perform the following Service Utility:**

■ Backup EEROM (select HDD replaced) ⇒ Page *4-30*.

NOTE   **If you have to replace the HDD Cable, refer to the following drawing:**

Short Connector connects to the PCI-to-IDE PCA

Looped-End connects to the Hard Disk Drive
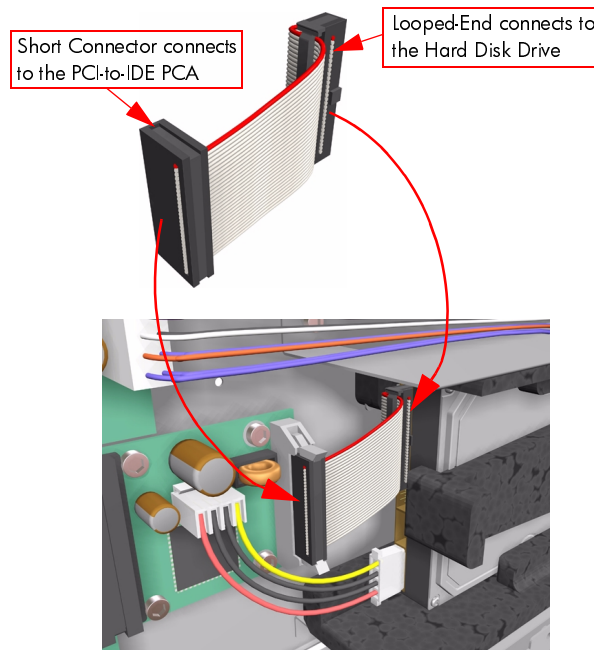
IF THE HDD CABLE IS NOT CONNECTED CORRECTLY, IT MAY CAUSE SOME INTERMITTENT PROBLEMS.

LAN Card

Removal

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.
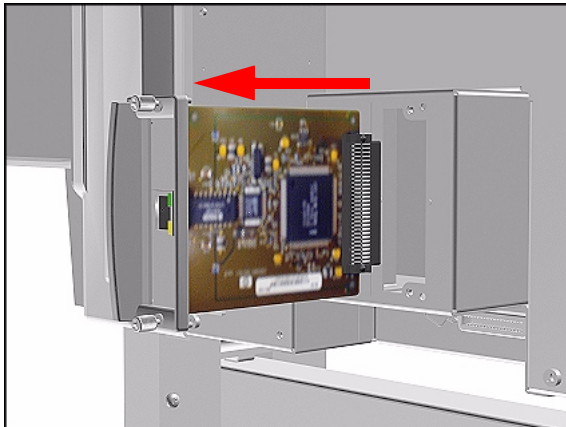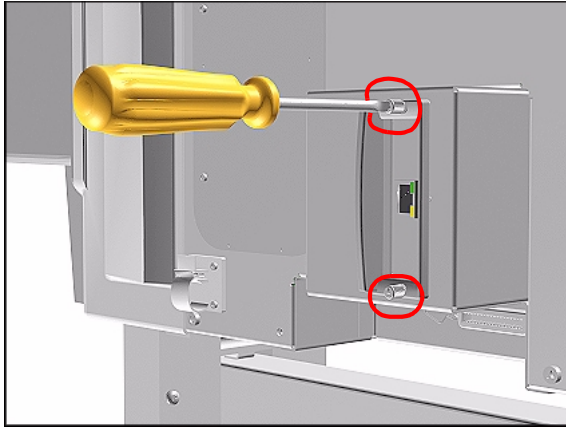
Memory and BootROM DIMM's

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.
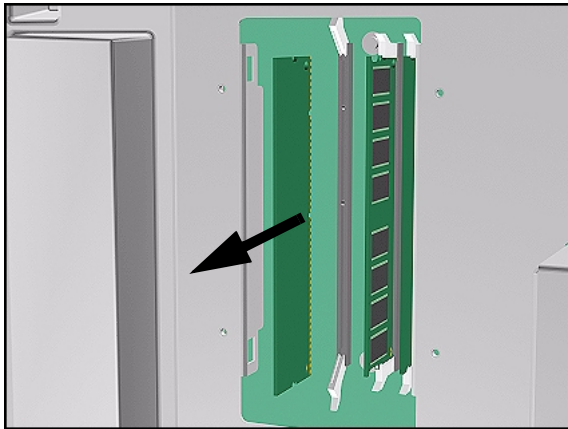
3. Pull out the DIMM. Take care that it does not fall out.

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.**
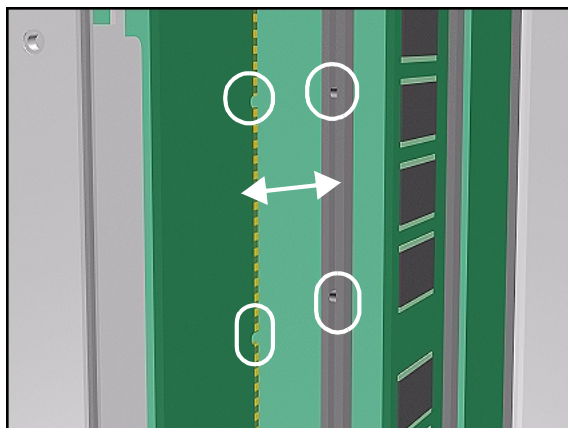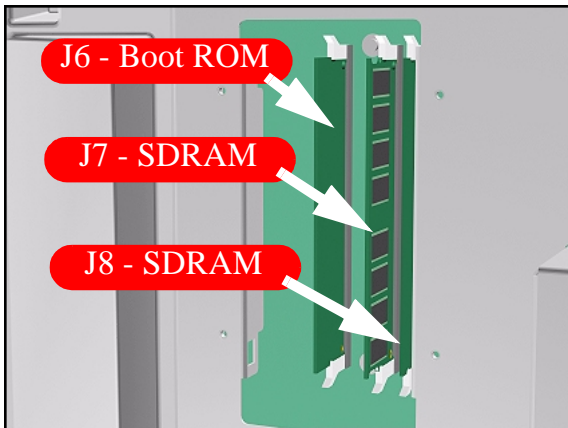
Electronics Module Cover

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 *8-76*.

2. Remove Left Rear Cover - Refer to Page *8-15*.

3. Remove Right Rear Cover - Refer to Page *8-16*.

4. If present, remove the Ferrites from the Ferrite Holder on the right side.

Push clip to release Ferrite (if present)
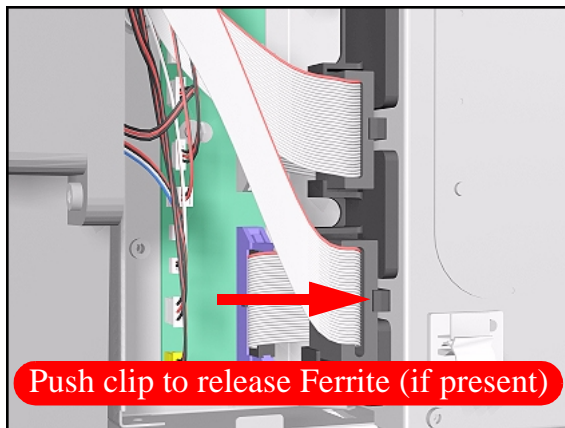
5. Remove 15 T-15 screws (**Type B**) from the Electronics Module Cover.
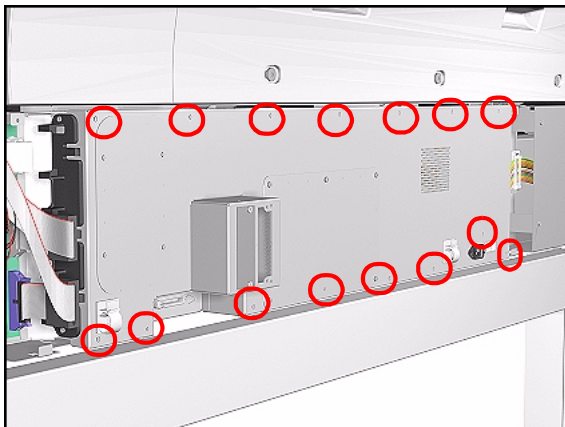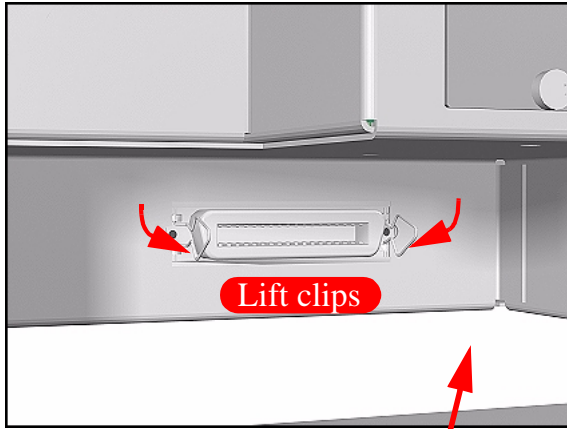
Lift clips

NOTE   **Lift the Parallel Port Clips before removing the Cover.**
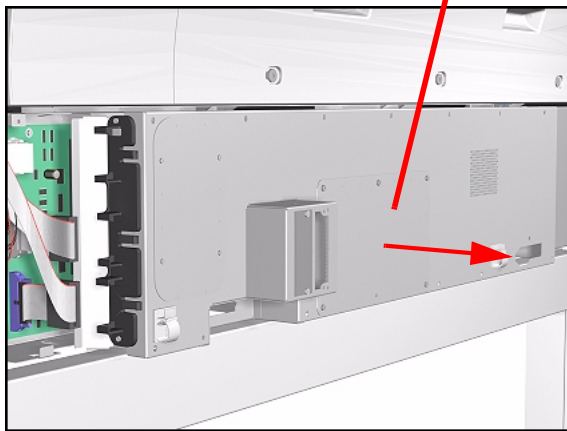
6. Remove the Electronics Module Cover.

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.**

Lift clips
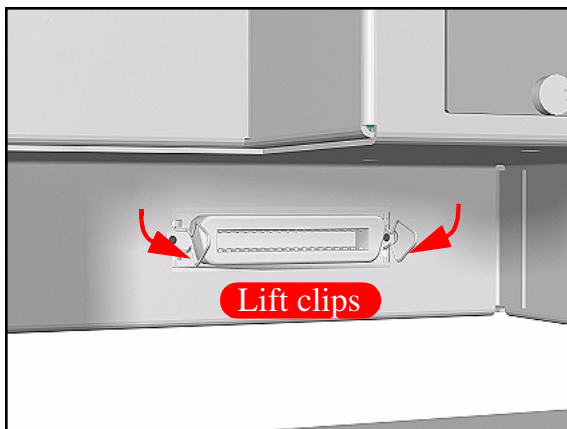
Main PCA

WARNING This assembly does NOT include the PCI-to-IDE PCA (the small PCA that connects the Main PCA to the Hard Disk Drive) as it used to in the past. When installing the new Main PCA, make sure that you reuse the PCI-to-IDE PCA that was disassembled previously.

PCI-to-IDE PCA
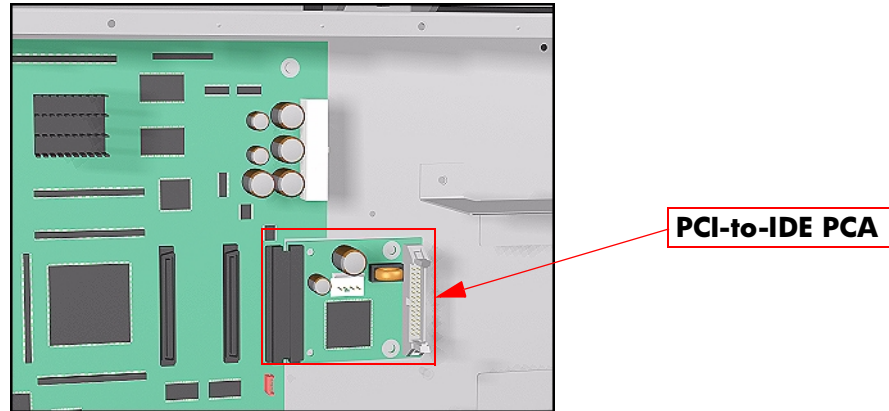
WARNING If you are working with an hp designjet 5000 (C6090A/V/I, C6091A/V, C6095A/V/I, C6096A/V) and the new Main PCA has the following connectors, you do NOT need to use them (they can be ignored):
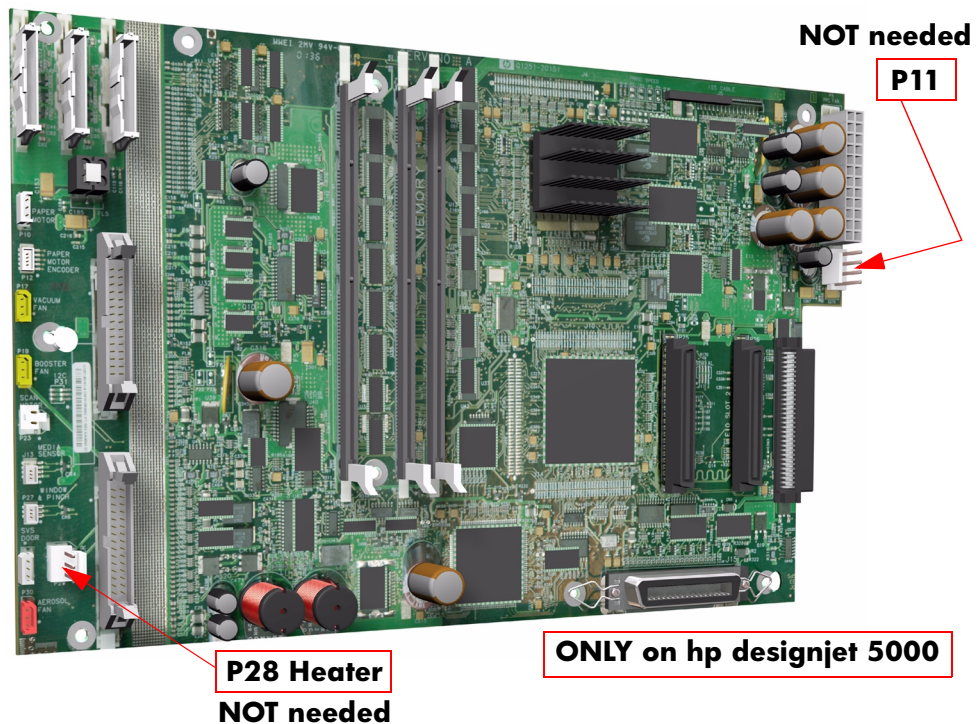
NOT needed

P11

P28 Heater
NOT needed

ONLY on hp designjet 5000
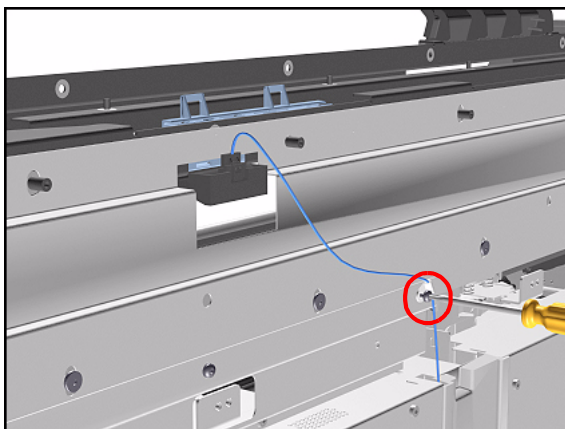
Removal

WARNING   **Switch off the Printer and remove the Power Cord.**
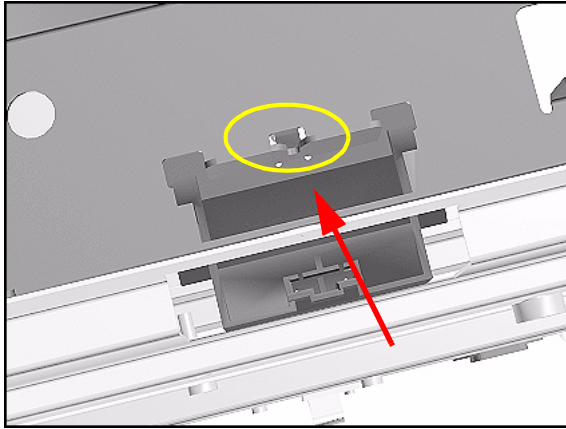
NOTE   **Refer to the table on Page *8-4* for information on screw types.**

1. Remove the LAN Card - Refer to Page *8-76*.

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 *8-79*.

5. Disconnect and remove the Hard Disk Drive for safety reasons - Refer to Page *8-74*.

6. Remove ALL Firmware/Memory DIMMs - Refer to Page *8-77*.

NOTE   **Make sure you reinstall the Firmware/Memory DIMMs on the new Main PCA.**

7. Disconnect ALL Cables from the Electronics Module.

8. Remove 2 T-10 screws (**Type K**) to remove the PCI-to-IDE PCA.
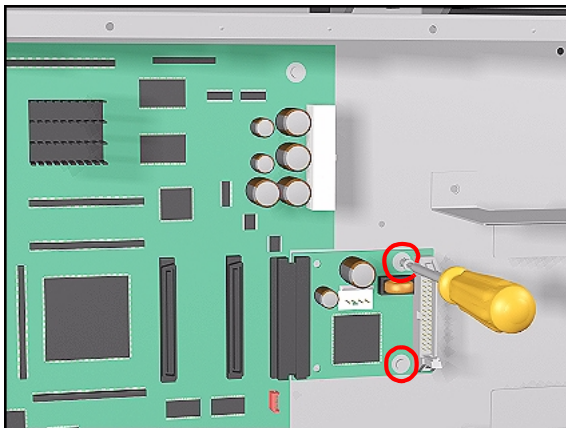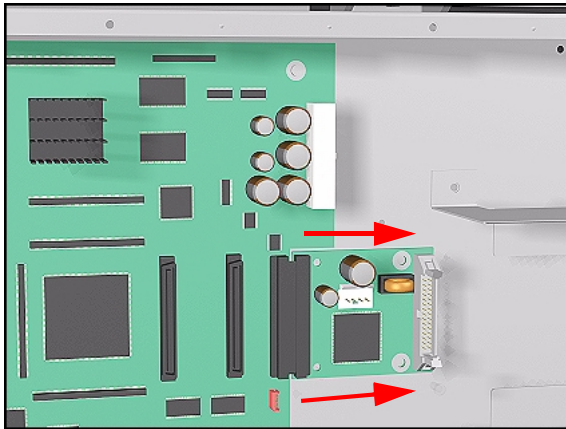
9. Disconnect the PCI-to-IDE PCA and remove from the Printer.

NOTE **Make sure you reuse the PCI-to-IDE PCA when reassembling.**
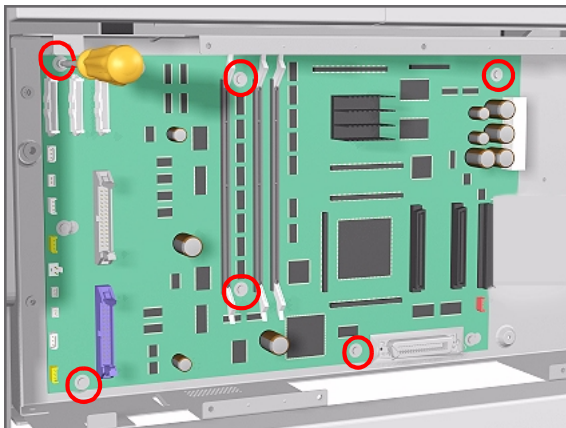
10. Remove 6 T-10 screws (**Type K**) from the Main PCA.
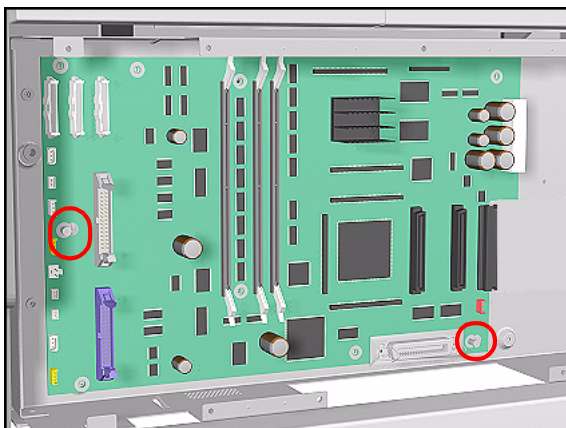
11. Loosen 2 T-10 screws on the Main PCA.
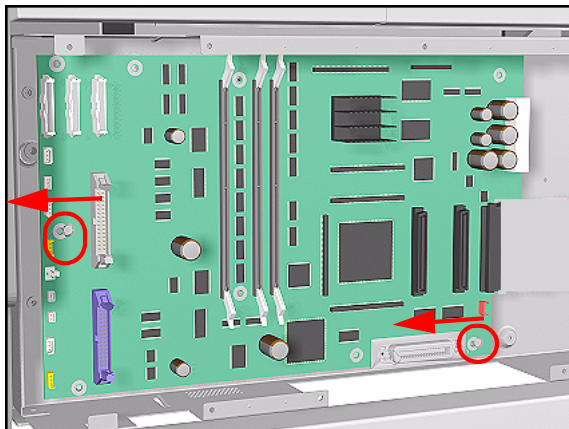
12. Remove by sliding the Main PCA to the left and lifting out (see detail below).
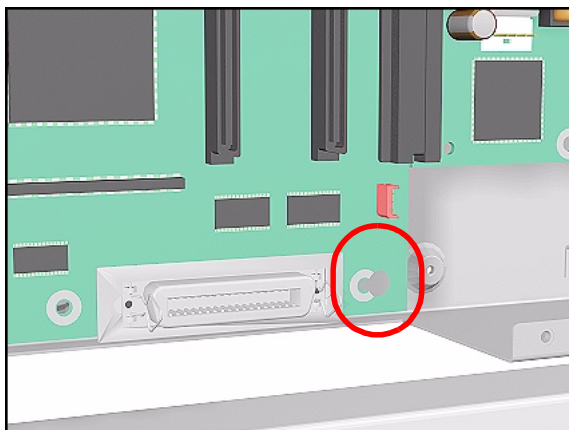
NOTE   **Detail of Main PCA removal.**

Installation of Main PCA

NOTE   **When the Main PCA has been replaced, perform the Backup EEROM ⇒ Page *4-30*.**

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 *4-23*).**

NOTE   **If you are not sure how the cables are connected on the Main PCA, each connector is labelled with the name of the assembly to which it is connected.**

NOTE   **When installing the Hard Disk Drive, please refer to the instructions for the installation of the PCI-to-IDE PCA (Refer to Page *8-86*) and the installation of the HDD Cable (Refer to Page *8-87*).**

PCI-to-IDE PCA

Removal

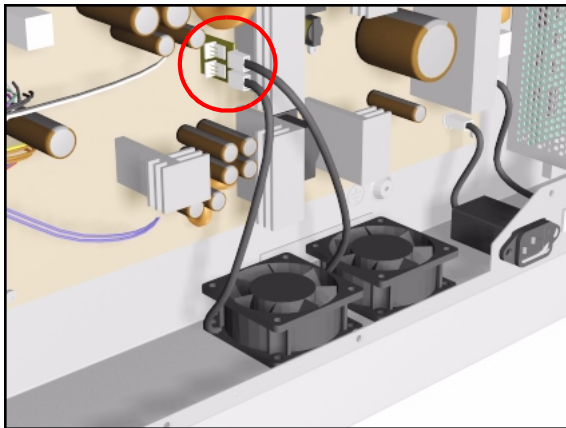|	
WARNING	**Switch off the Printer and remove the Power Cord.**

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

1. Remove the LAN Card - Refer to Page *8-76*.

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 *8-79*.

5. Disconnect and remove the HDD for safety reasons - Refer to Page *8-74*.

6. Remove 2 T-10 screws that secure the PCI-to-IDE PCA.
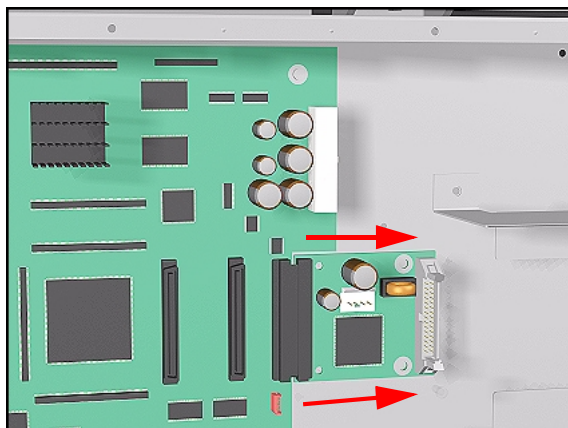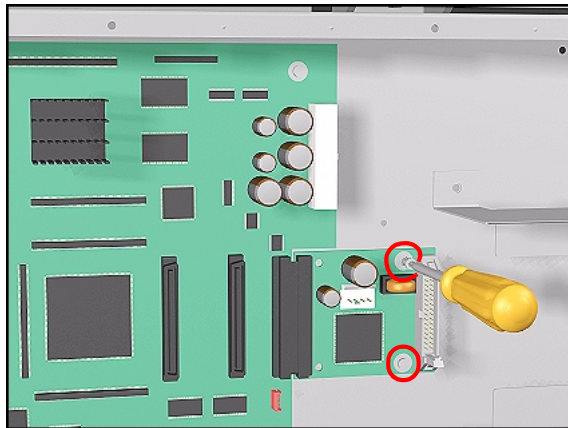
7. Disconnect the PCI-to-IDE PCA and remove from the Printer.

Installation of the PCI-to-IDE PCA

NOTE   When installing the new PCI-to-IDE PCA, CONNECT THE
                HDD POWER CABLE TO THE P36 CONNECTOR (IF
                PRESENT) ON THE PCI-TO-IDE PCA AND NOT TO THE
                P11 CONNECTOR ON THE MAIN PCA (even if the P11
                connector is present and the HDD Power Cable was connected
                there previously).
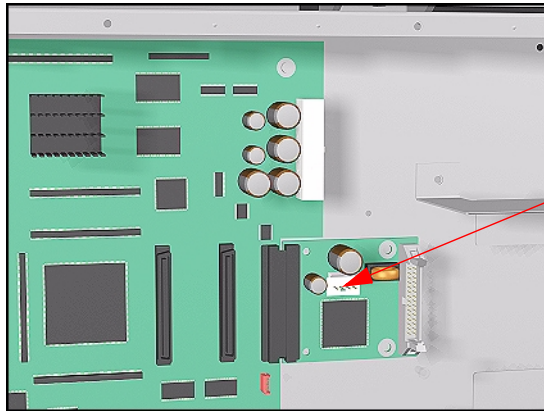
✓ OK

P36 Connector
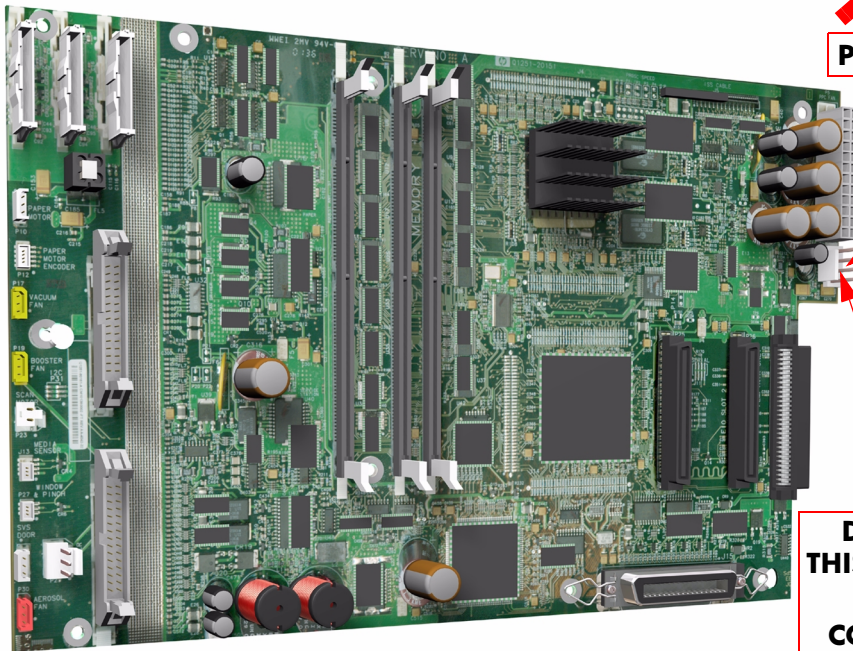
✗ NO

P11 Connector

DO NOT USE
THIS CONNECTOR
IF THE P36
CONNECTOR IS
PRESENT ON THE
PCI-to-IDE PCA

Installing the HDD Cable

When installing the HDD Cable between the HDD and the PCI-to-IDE PCA, make sure you connect the correct ends as follows:

Short Connector connects to the PCI-to-IDE PCA

Looped-End connects to the Hard Disk Drive
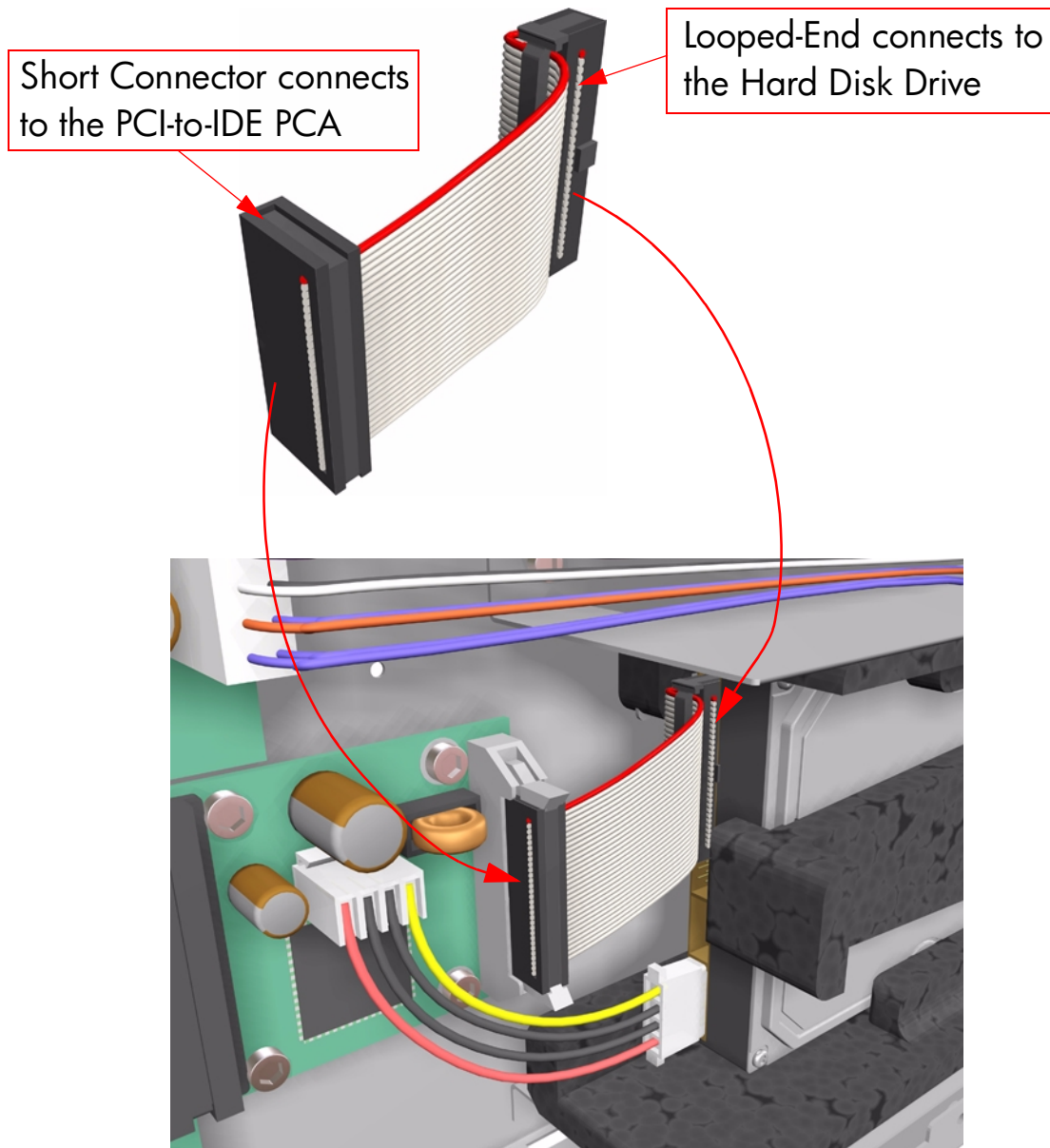
IF THE HDD CABLE IS NOT CONNECTED CORRECTLY, IT MAY CAUSE SOME INTERMITTENT PROBLEMS.

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 *8-76*.

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 *8-79*.

5. Disconnect and remove the Hard Disk Drive for safety reasons - Refer to Page *8-74*.

6. Disconnect the PCA Power Supply connector from the Main PCA.

PCA PS Connector
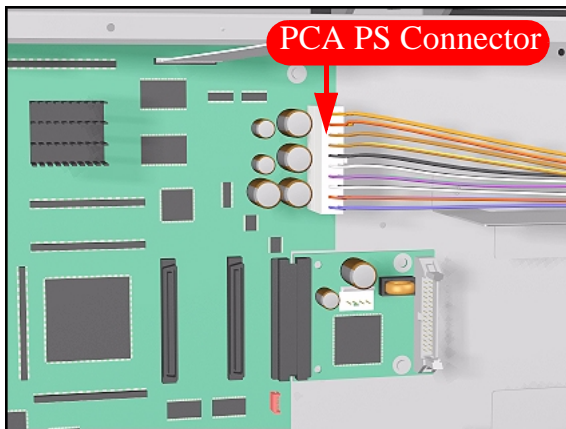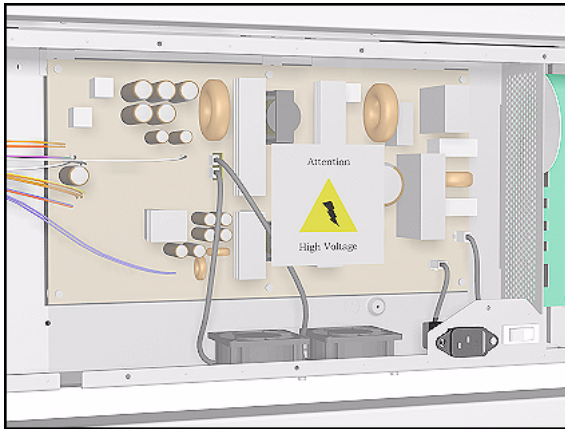
7. Remove the plastic protective cover from the Power Supply Unit.
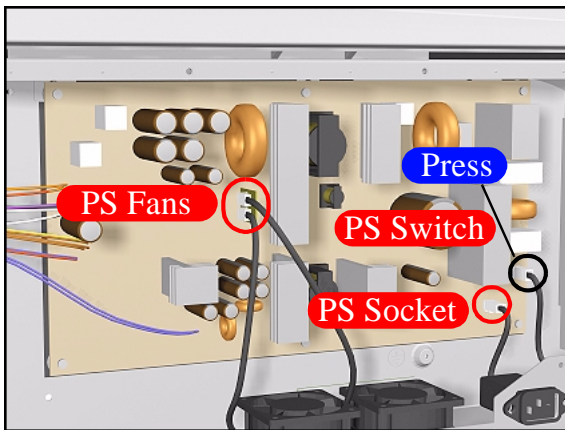
8. Disconnect ALL Cables from the PSU (see Installation of PSU for connections).
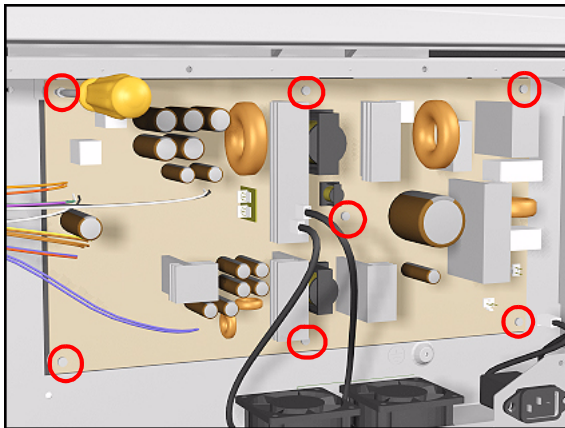
9. Remove 7 T-10 screws (**Type K**) and remove the PSU.

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.**
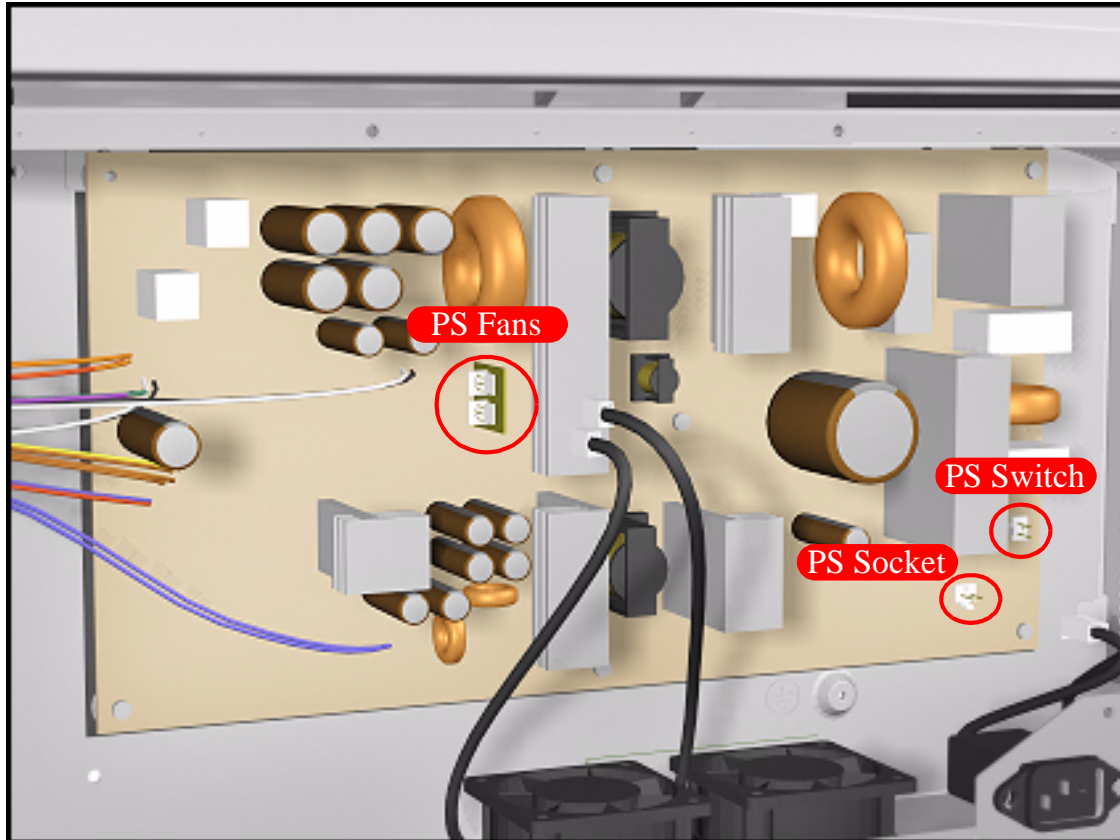
Ink Supply Station (ISS) PCA

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 *8-76*.

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 *8-79*.

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.
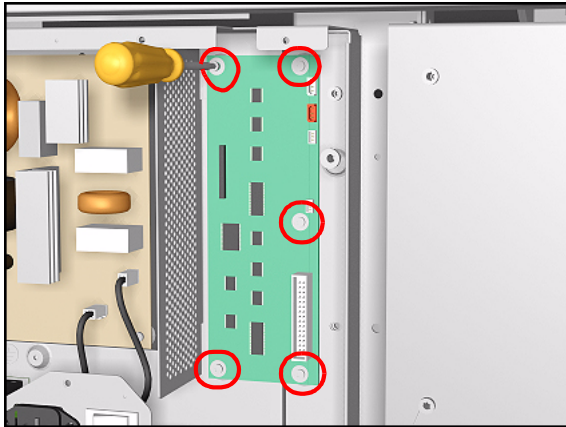
7. Remove the ISS PCA.
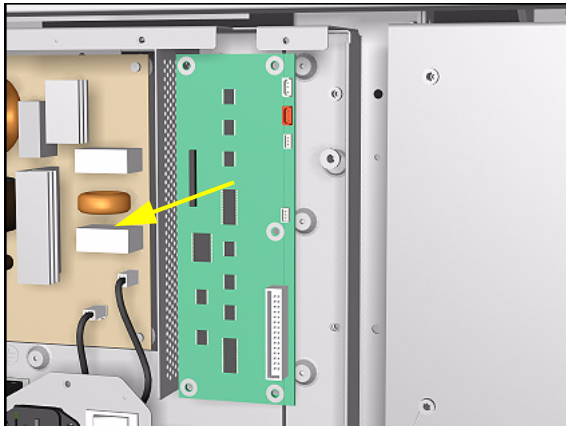
Installation of the ISS PCA

NOTE   The ISS PCA connections are illustrated below.
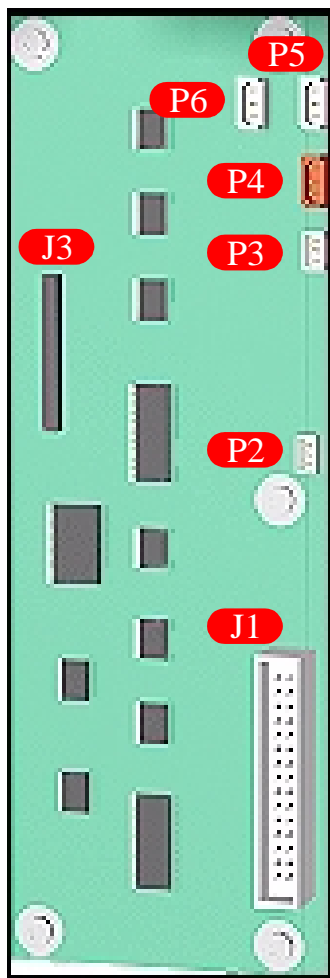
J Position	Connection	Connector Color		P Position	Connection	Connector Color
J1	ISS Cable	white		P2*	Ink Leak Detector	white
J3	Main PCA	white		P3	APS Temperature	white
				P4	APS Valve	red
				P5**	APS Pump	white
				P6**	APS Pump (Spare)	white

* The Ink LeakDetector has been discontinued so this connector is no longer used.

** There are 2 connectors available for the APS Pump and any one of them can be used.

Ink Leak Detector - If Present (Only Applicable to the 5000 Series)

Removal

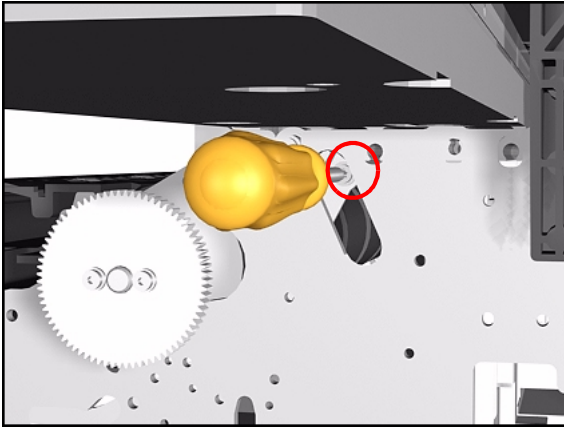|	
WARNING	**Switch off the Printer and remove the Power Cord.**

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.
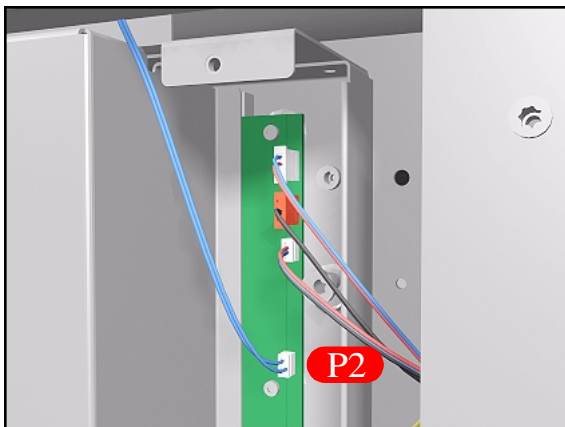
5. Remove one T-15 screw (**Type B**) to release the cable clip on the Top EMC cover.

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.**
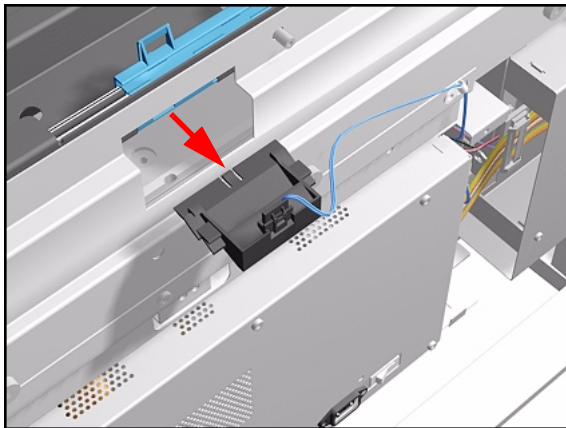
7. Remove the Ink Leak Detector from the Printer.

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 *8-76*.

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 *8-79*.

5. Disconnect and remove the Hard Disk Drive for safety reasons - Refer to Page *8-74*.

6. Remove 2 screws for each Cooling Fan from underneath the Electronics Module.
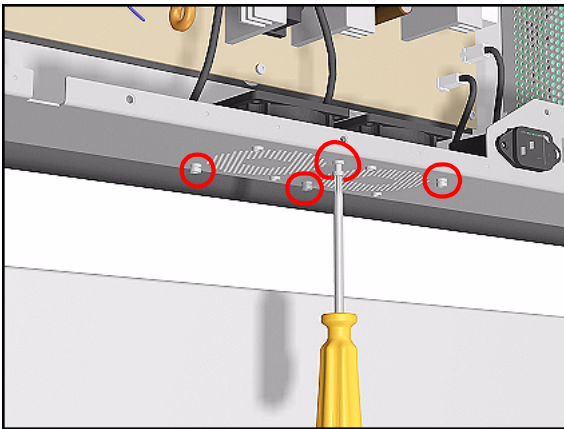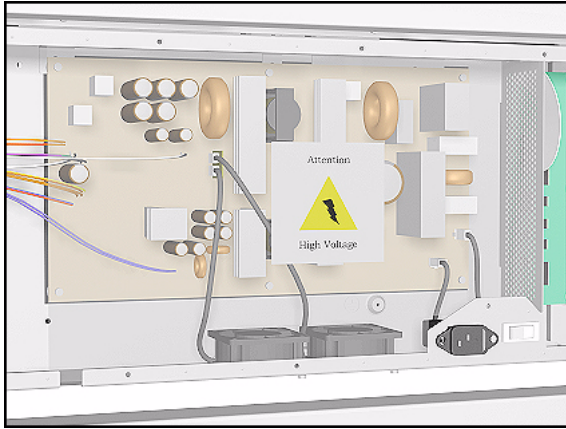
7. Remove the plastic Protective Cover from the Power Supply Unit.

8. Disconnect the Cooling Fan Cables from the Power Supply Unit.
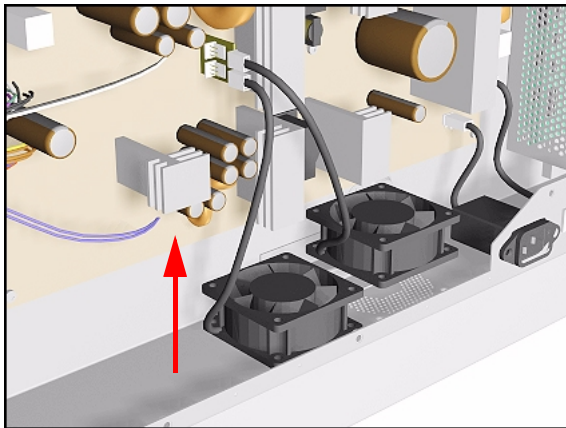
9. Remove the Cooling Fans from the Printer.

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.
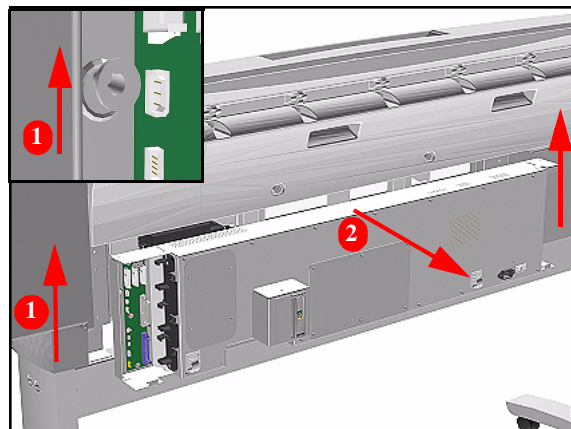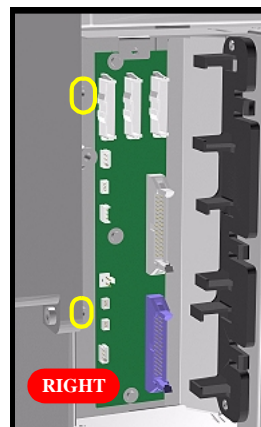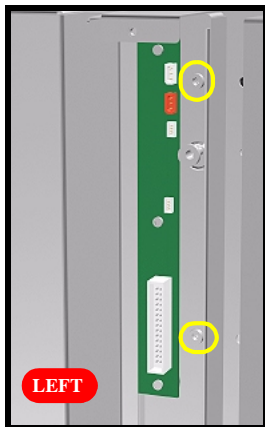
5. Lift the Electronics Module up (to clear it from the shoulder screws) and remove from the Printer.
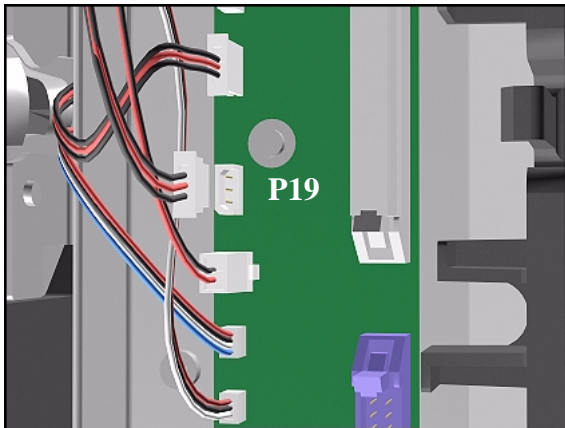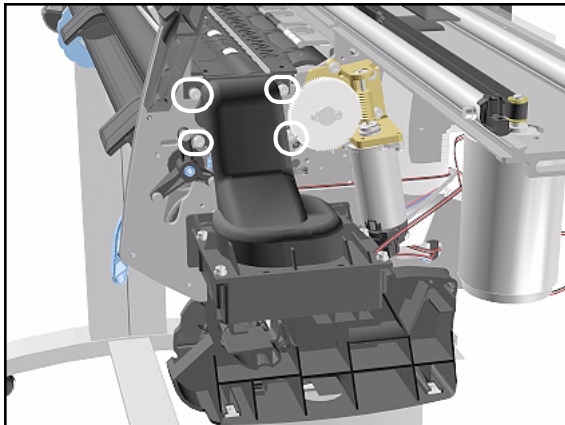
Pinch-Wheels

Removal

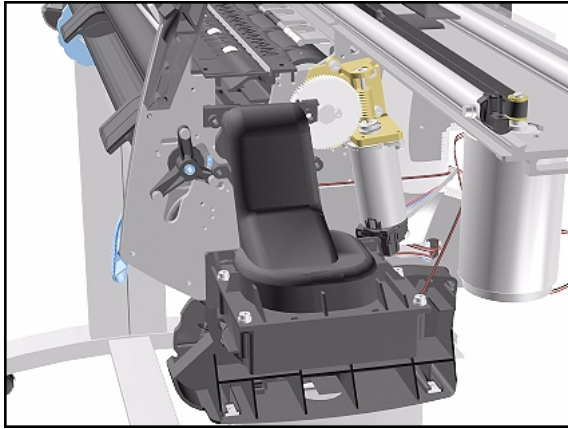**WARNING**   **Switch off the Printer and remove the Power Cord.**

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 *8-97*.

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.**
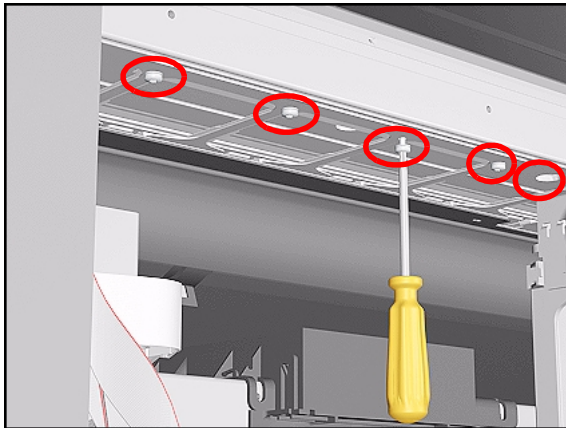
5. Remove the following T-20 screws (**Type Q**):
   - For the 60" Model remove 4 screws from each group of 4 Pinch-Wheels (5 groups in total).
   - For the 42" Model remove 4 screws from each group of 4 Pinch-Wheels (3 groups in total) and 2 screws from the one group with 2 Pinch-Wheels.
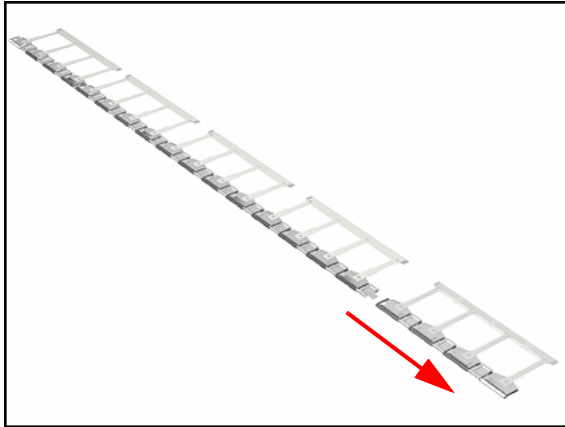
6. First remove lateral Pinch-Wheels with their Coupling Plates.

NOTE   **For Pinch-Wheel groups installed around the Mount Brackets do the following:**

REMOVE
COUPLING PLATES
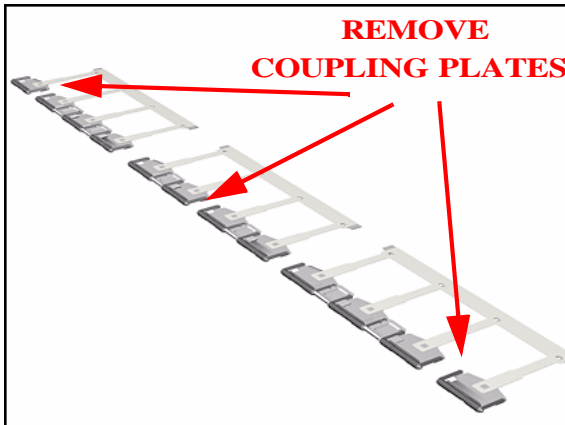
7. From the front of the Printer, remove the Coupling Plate corresponding to the position of the Mount Bracket.

- 3 Mount Brackets in the 60" Model.
- 1 Mount Bracket in the 42" Model.

1 ROTATE 90⁰

2
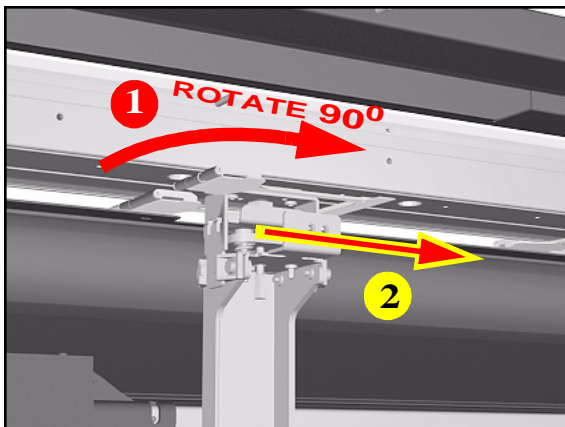
8. From the rear of the Printer, rotate the group (90 degrees) and pull it through the gap left by the Coupling Plate.

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
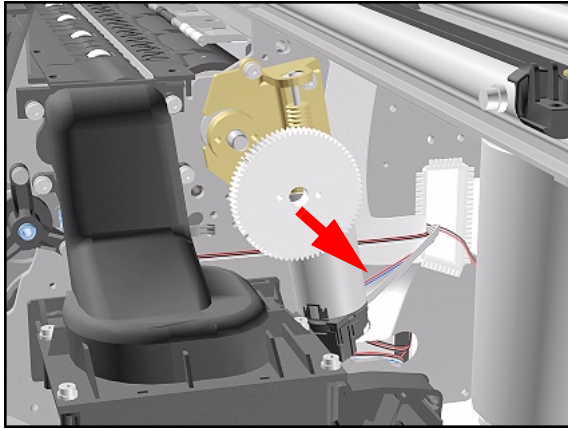
Removal

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 Deflectors - Refer to Page *8-119*.

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 *8-64*.

10. Remove the Service Station - Refer to Page *8-69*.

11. Remove the Vacuum Fan - Refer to Page *8-103*.

12. Remove the Electronics Module - Refer to Page *8-97*.

13. Remove the Booster Fan - Refer to Page *8-108*.

14. Remove the Media Sensor - Refer to Page *8-109*.

15. Remove the Entry Roller - Refer to Page *8-111*.

16. Remove the Center Guide - Refer to Page *8-112*.

17. Remove the Pinch-Wheels - Refer to Page *8-97*.

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**).
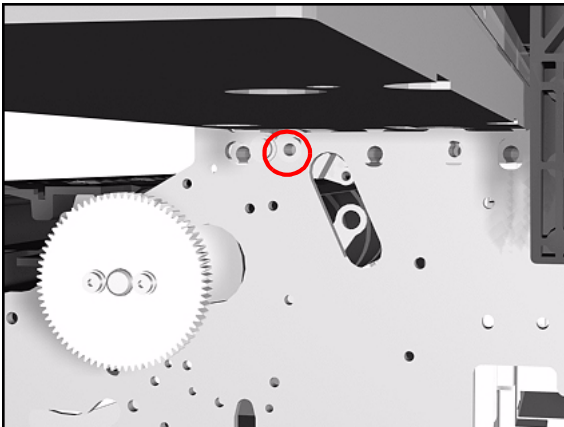
20. Remove the Cam by sliding it through the slot in the left Sideplate.
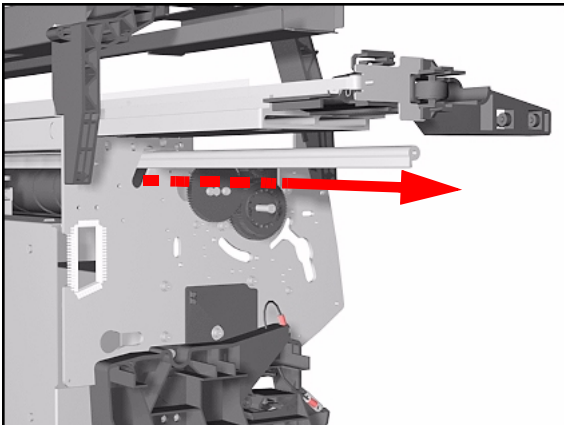
Installation of Cam
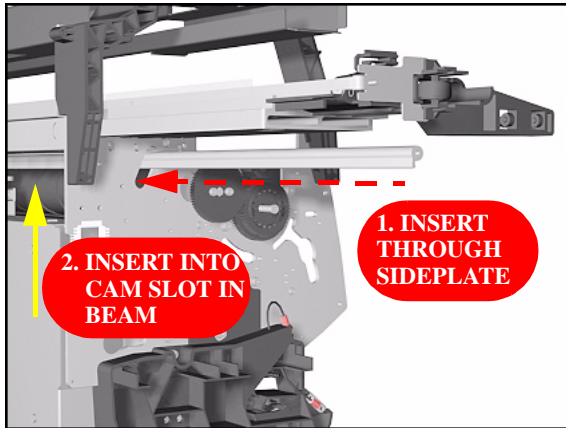
1. To install the Cam slide it through the left Sideplate and place it in the cam slot in the beam.
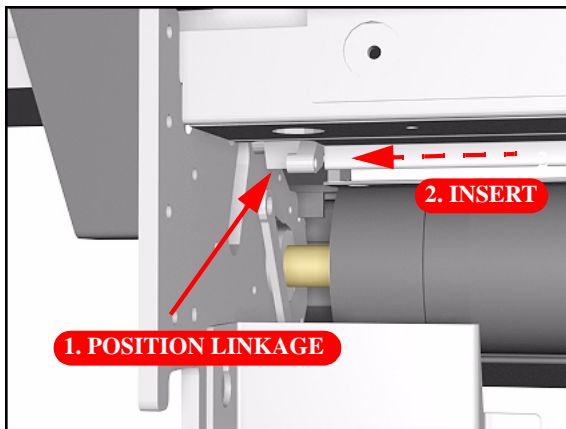
2. Hold the Cam Lever Linkage over its slot in the Sideplate and insert the Cam into it.
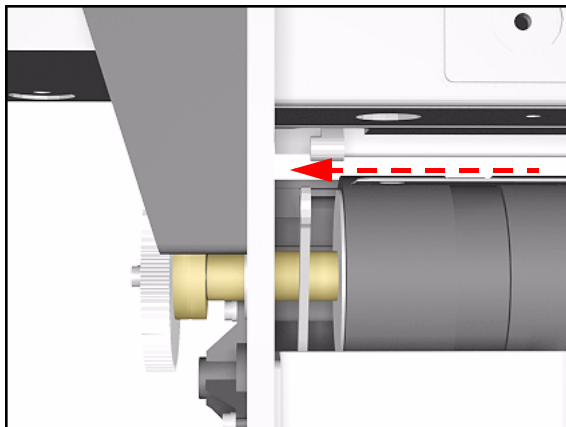
3. Push the Cam with the Cam Lever Linkage into the Sideplate.

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 *8-69*.

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.**
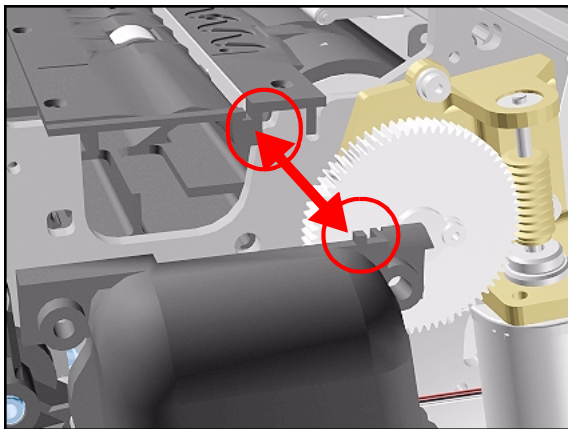
Paper-Axis Motor Assembly

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.**
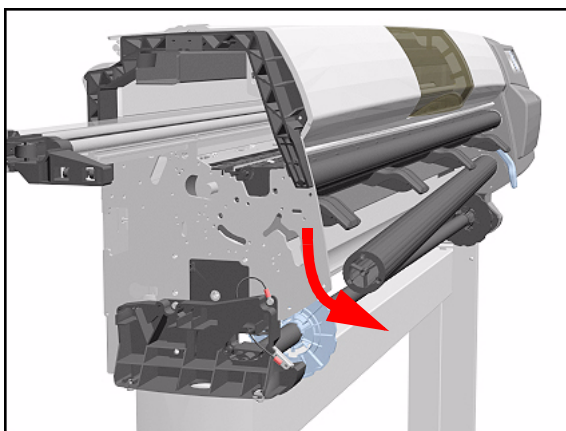
1. Remove the Right Rear Cover - Refer to Page *8-16*.

2. Remove the Right Hand Cover - Refer to Page *8-10*.

3. Remove the Service Station Assembly - Refer to Page *8-69*.

4. Disconnect the Paper-Axis Motor Cable at P10 and the Encoder Cable at P12 from the Main PCA (and NOT from Motor).
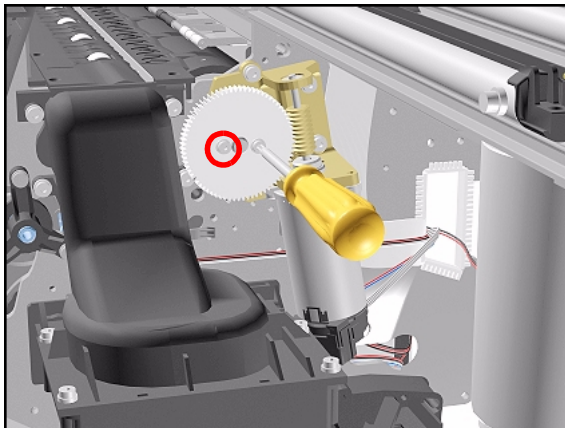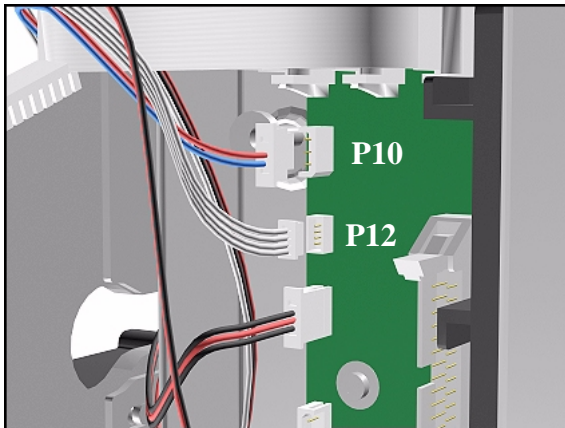
5. Remove the 2 T-20 screws (**Type A**) that secure the Helical Gear to the right-hand side of the Drive Roller.

6. Remove the Helical Gear.
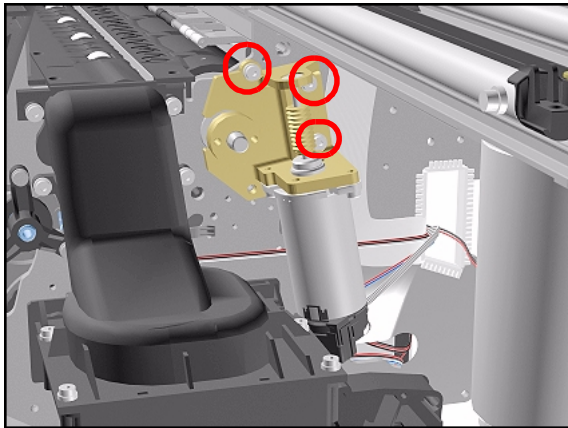
7. Remove the 3 T-20 screws (**Type L**) that secure the Paper-Axis Motor Assembly to the Sideplate.
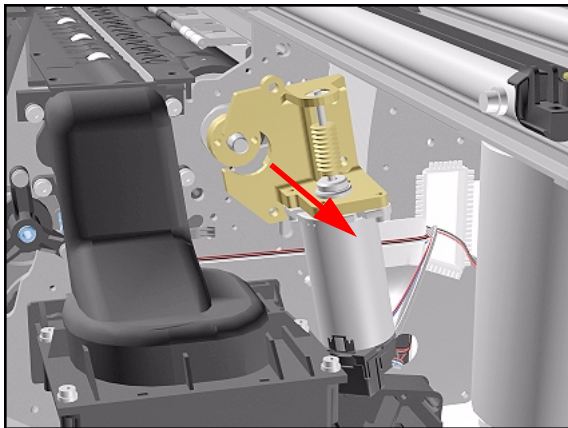
8. Remove the Paper-Axis Motor Assembly.

NOTE   **When you replace the Paper-Axis Motor Assembly you must perform the following Service Calibrations:**

■ 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
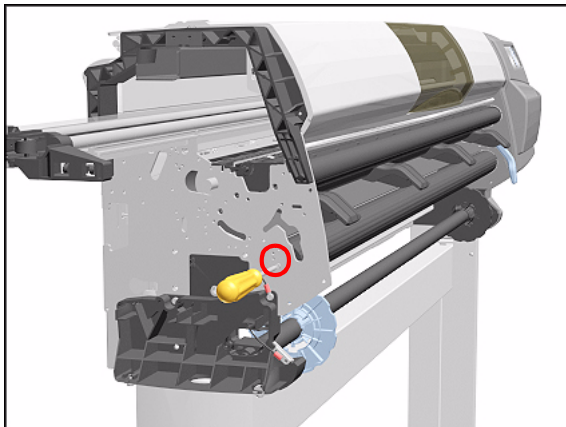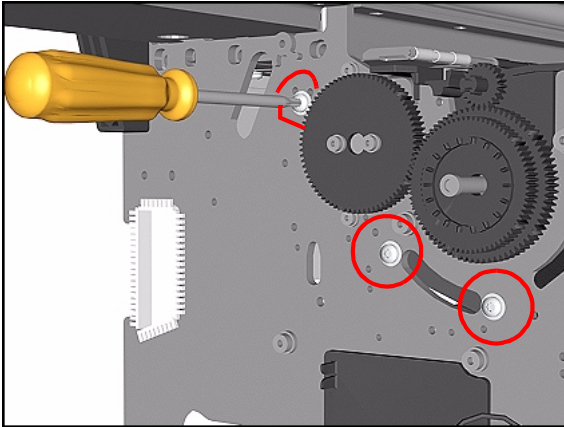
Removal

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

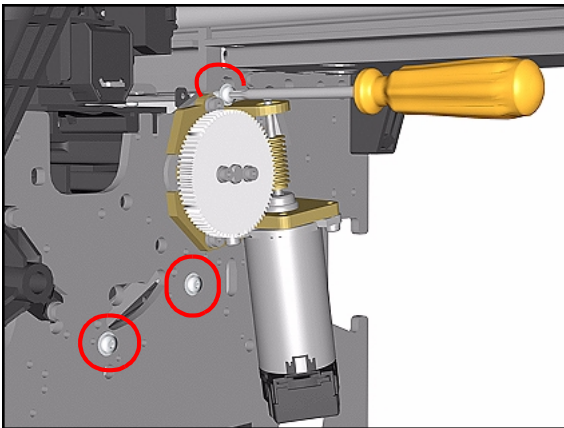**NOTE**   **Refer to the table on Page *8-4* for information on screw types.**

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 *8-97*.

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.
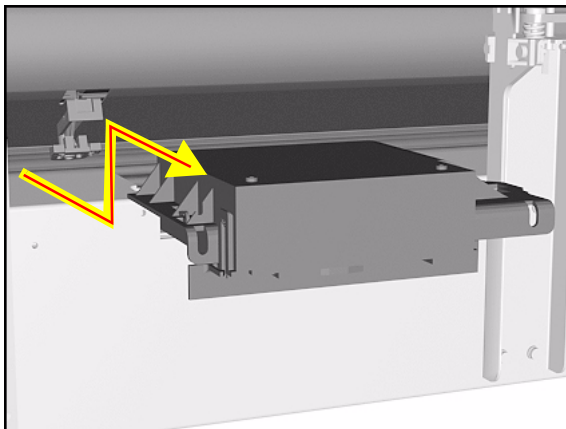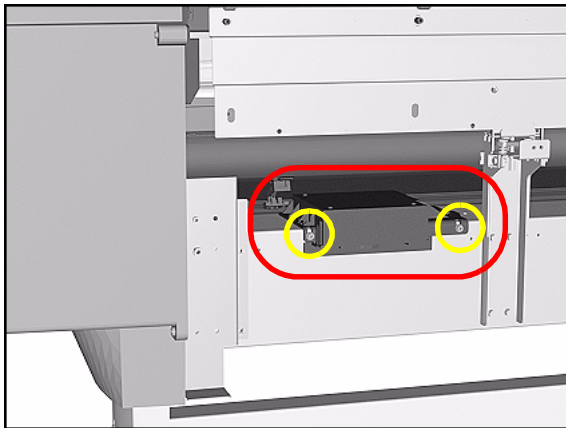
6. To remove the Booster Fan, first slide it out, then lift and pull out.

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 *8-97*.

6. Remove the Lower Right EMC Cover - Refer to Page *8-32*.

7. Remove the Booster Fan for better access - Refer to Page *8-108*.

8. Reach under the Center Guide and carefully remove the Media Sensor mount by pulling it down gently (as shown below).

1. Insert fingers
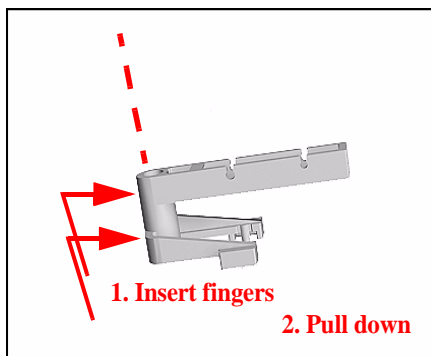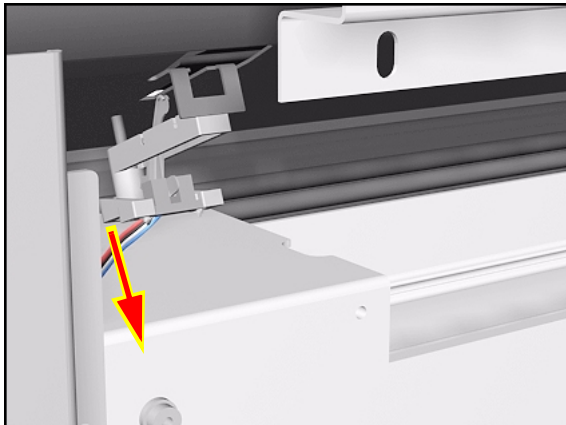
2. Pull down

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.**

HP DesignJet 5000 and 5500 Series Printers Service Manual
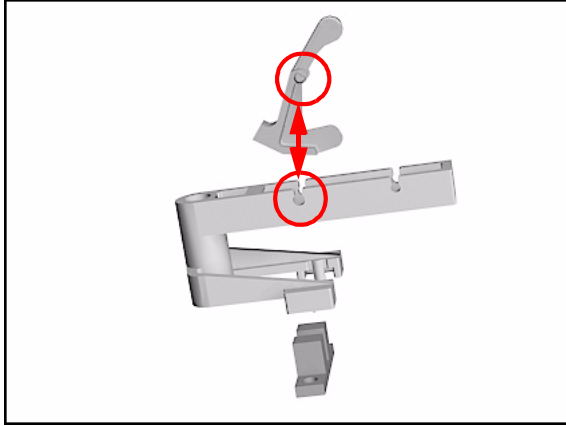
Entry Roller

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 *8-64*.

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.
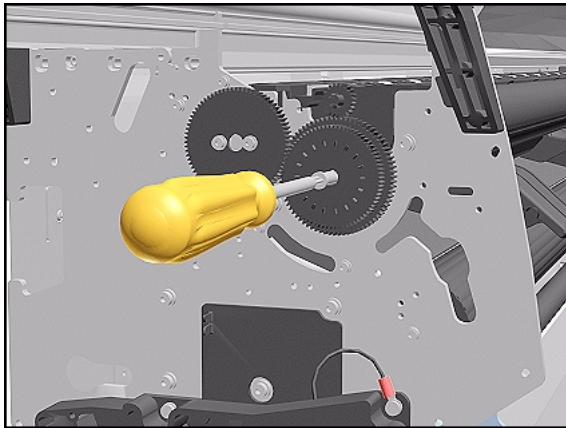
Center Guide Assembly

Removal

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

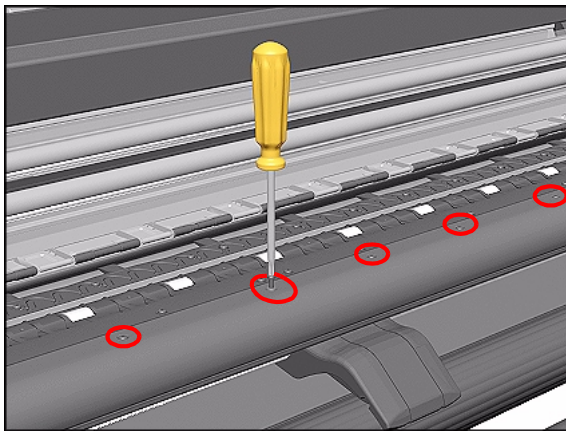**NOTE**   **Refer to the table on Page *8-4* for information on screw types.**

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 *8-119*.

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 *8-64*.

13. Remove the Service Station - Refer to Page *8-69*.

14. Remove the Vacuum Fan - Refer to Page *8-103*.

15. Remove the Electronics Module - Refer to Page *8-97*.

16. Remove the Booster Fan - Refer to Page *8-108*.

17. Remove the Media Sensor - Refer to Page *8-109*.

18. Remove the Entry Roller - Refer to Page *8-111*.

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.
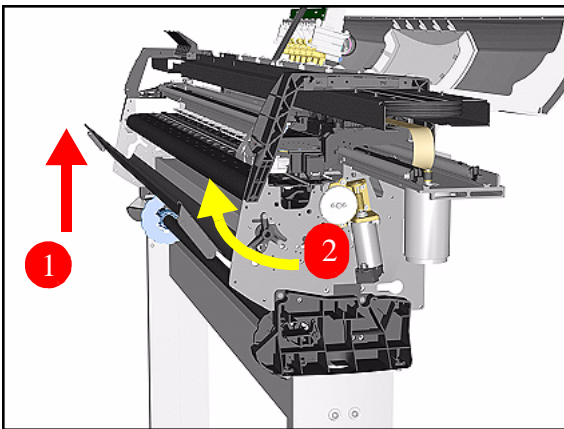
Drive Roller Gear

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 *8-64*.

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 (Only Applicable to the 5000 Series)

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.

NOTE	**Be very careful with these screws. If they break you will not be able to remove them.**
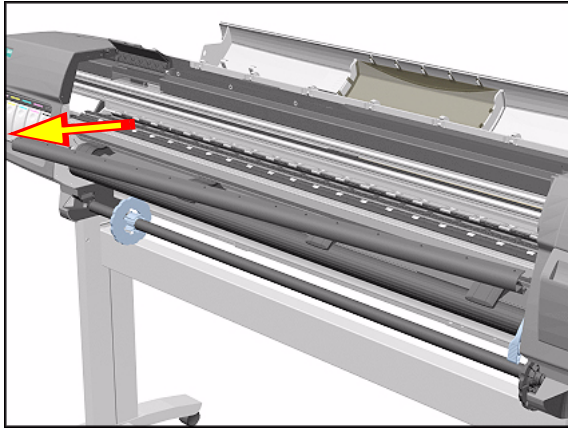
4. Remove the Platen starting from the left side.

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 (to raise the pinch-wheels) before removing the Platen Assembly.**
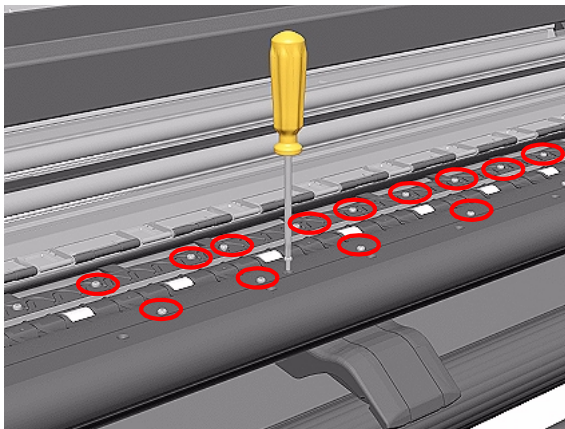
2. Remove the following screws (**Type R**) from the Center Platen Assembly:

- 39 T-10 screws in the 60" Model.
- 35 T-10 screws in the 42" Model.

NOTE	**Be very careful when removing the screws because they can easily get damaged.**
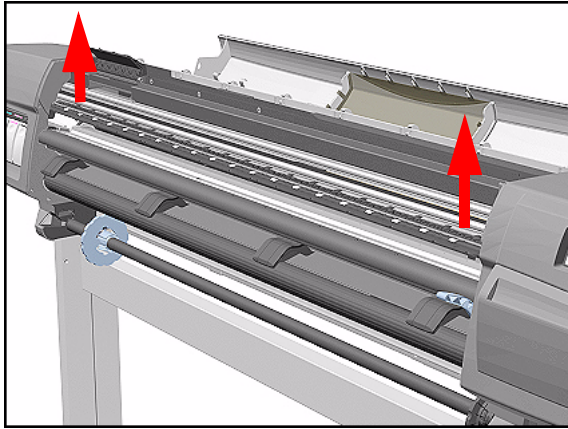
3. Remove the complete Center Platen Assembly (includes the Overdrive Assembly and the Cutter guide).

| 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

| WARNING | **When installing the Center Platen Assembly, make sure the foam guides under the Platen are placed in their slots as shown below.** |
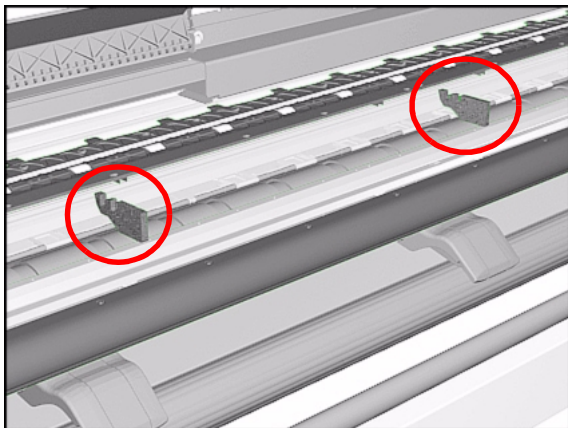
Deflectors (Only Applicable to the 5000 Series)
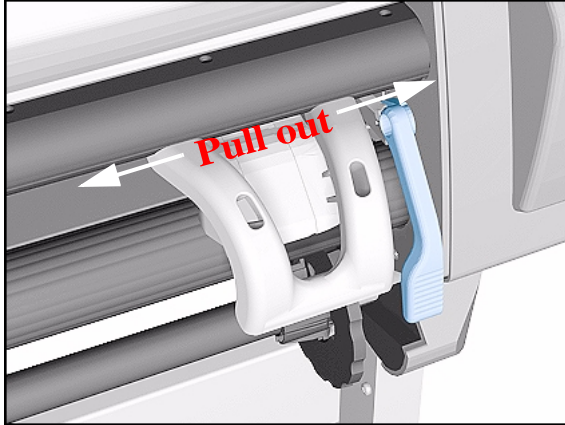
Removal

1. Unclip the Deflector Extension.
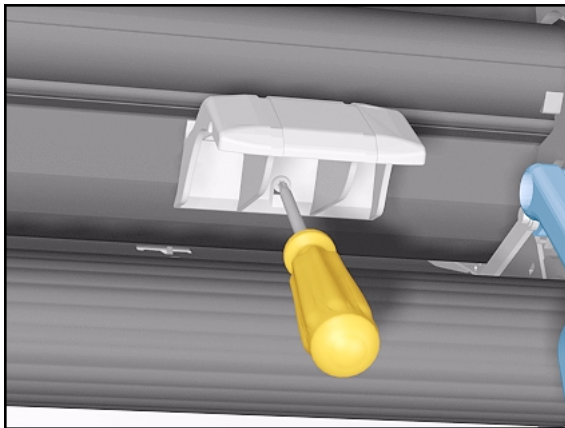
2. Remove 1 T-15 (**Type M**) screw from each Deflector.
   - 4 Deflectors in the 60" Model.
   - 3 Deflectors in the 42" Model.

3. Remove the Deflectors from the Printer.

Heater Assembly (Only Applicable to the 5500 Series)

Removal

1. Remove the Right Rear Cover - Refer to Page *8-16*.

2. Remove the Right Cover - Refer to Page *8-10*.

3. Disconnect the Heater Cable from the Main PCA.
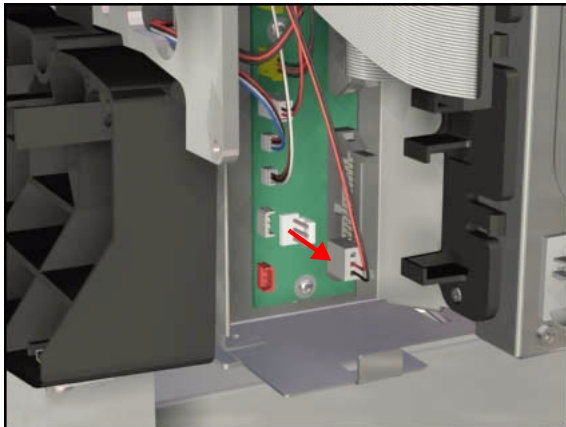
4. Release the Heater Cable from the plastic clip.
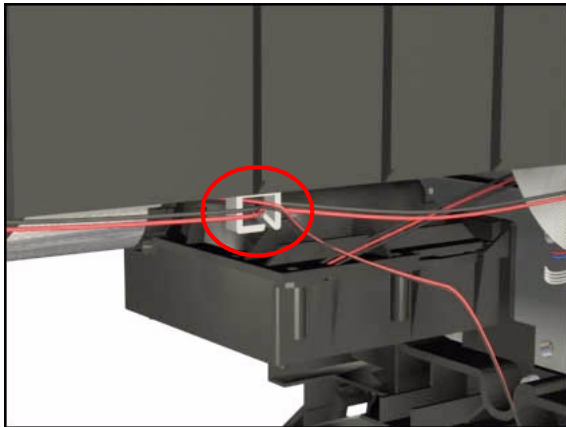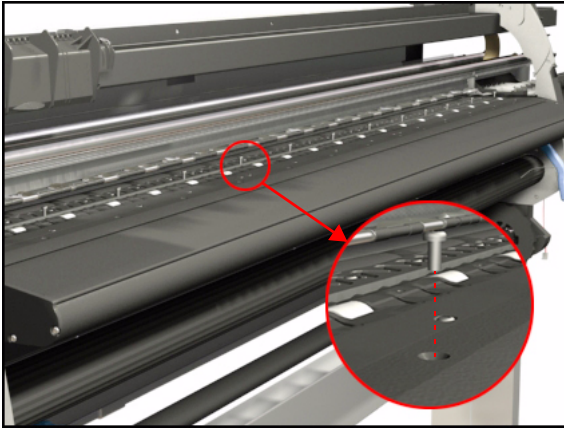
5. Remove 15 screws that secure the Heater from the top of the Printer.
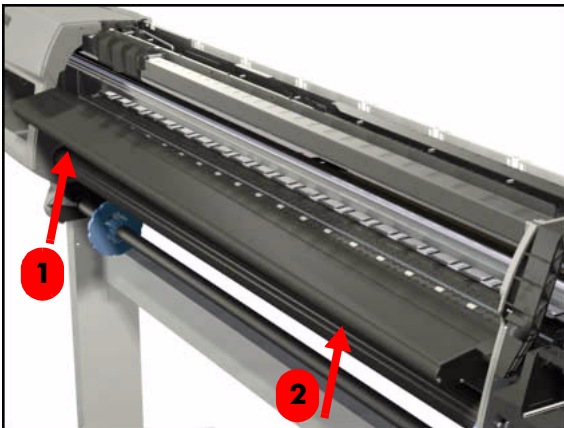
NOTE   **The 42" Printer only has 11 screws securing the Heater from the top.**

NOTE   **Be very careful not to force the screws as they are screwed directly to the Printer Chassis.**
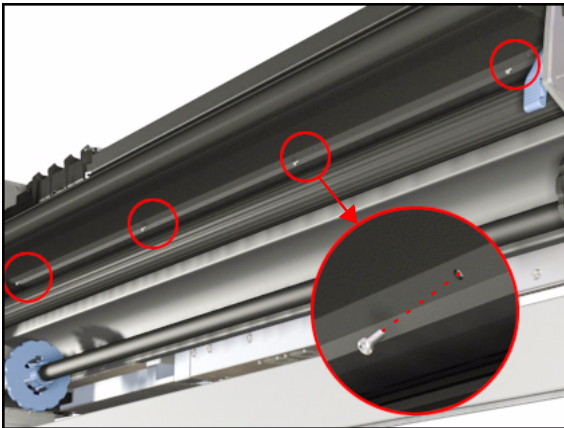
6. Remove 4 screws that secure the heater from the bottom of the Printer.

NOTE   **The 42" Printer only has 3 screws securing the Heater from the bottom.**

7. Gently tap one side of the Heater from underneath to release it. Then gently tap the other side of the Heater from underneath until it can be removed.
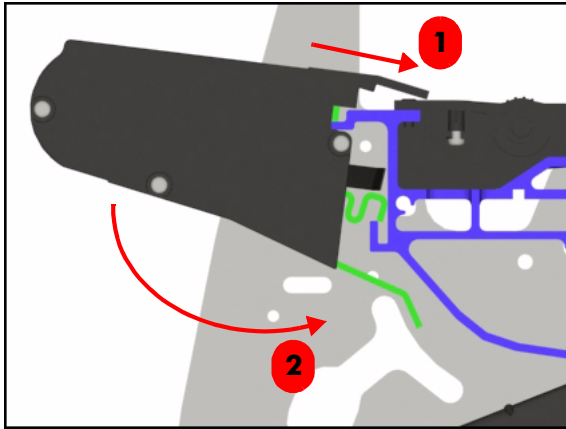
8. Before removing the Heather completely, pull out the Heater Cable from the access hole in the sideplate.
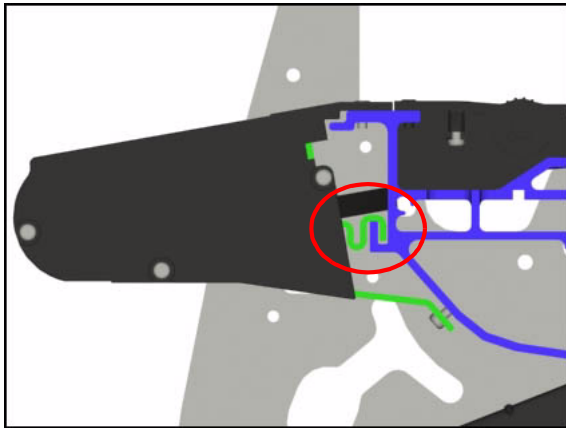

9. Remove the Heater from the Printer.

Installing the Heater

To install the Heater, follow the removal procedures in reverse order, taking care of the following information:


1. When installing the Heater, place the top lip of the Heater over the Center Platen Assembly and then push the Heater downwards.


2. Make sure that the inner lip of the Heater is linked with the lip on the Chassis frame.

Tube Guide Door

The Tube Guide Door kit contains 2 different types of springs which need to be installed depending on the design of the Tube Guide. Refer to the drawing below to determine which spring needs to be installed.
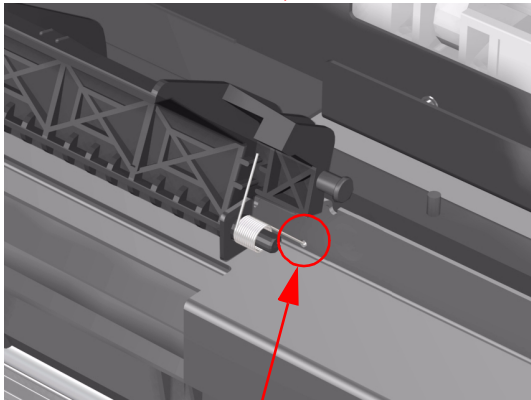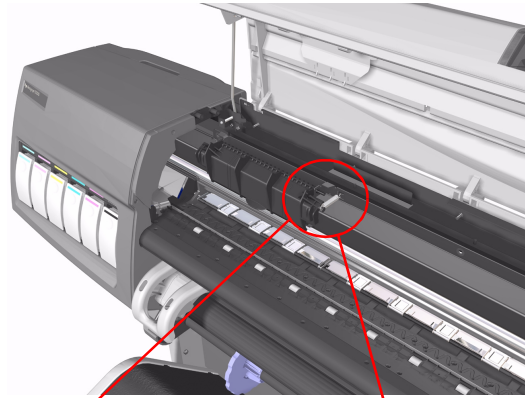
If the Tube Guide DOES NOT have a C-shaped hook (i.e. only has a small hole in the Tube Guide) then install this type of spring.
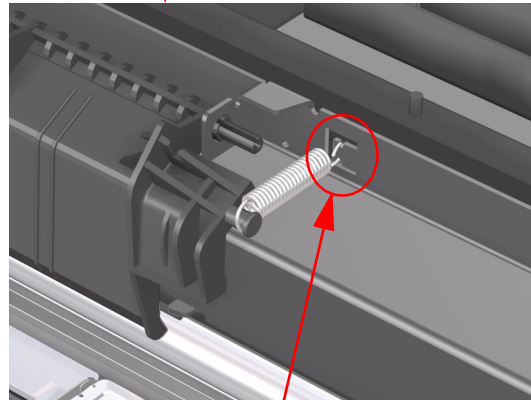
If the Tube Guide DOES have a C-shaped hook, then install this type of spring.

Functional Overview

10

Introduction

This Chapter contains a simplified description of the HP DesignJet 5000 and 5500 Series Printers.

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.
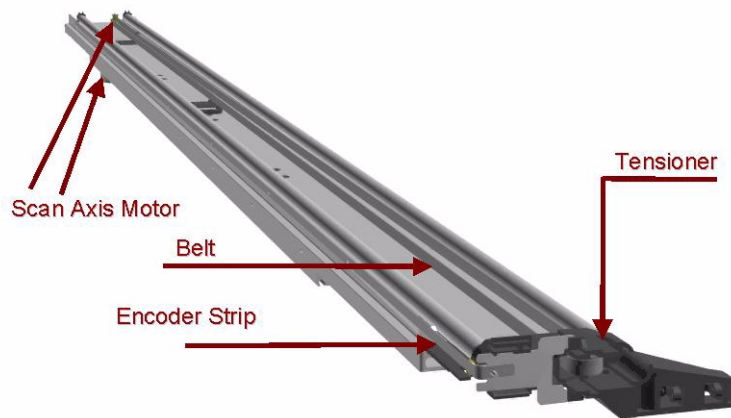
Paper Axis

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.
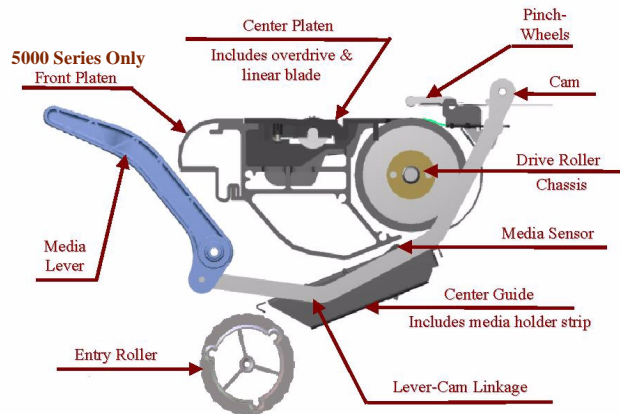
The diagram below illustrates the air flow created by the Vacuum Fans.
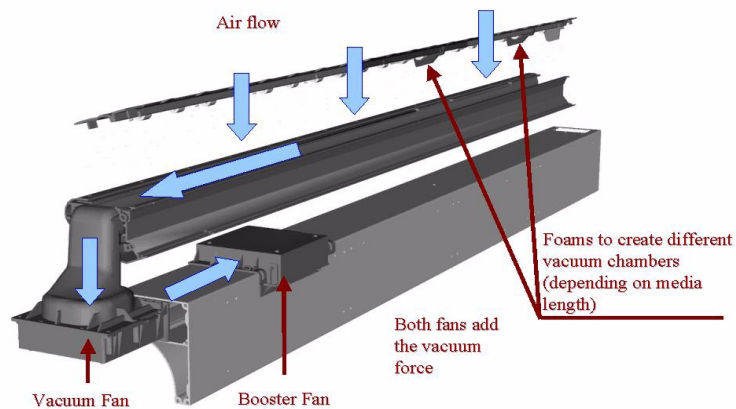
Ink Delivery System (IDS)

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.
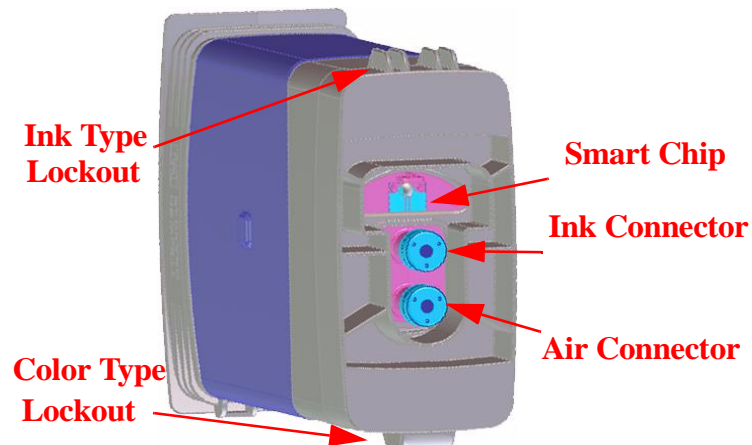
Ink Supply Station (ISS)

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).
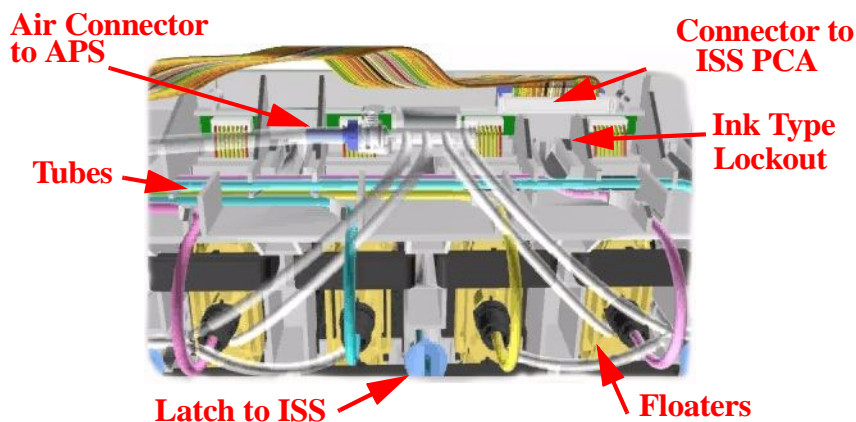
Tubes System

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.

Tubes to Printhead Connection

**Tubes Joint for Ink Leak Detection**

Ink Supply Station
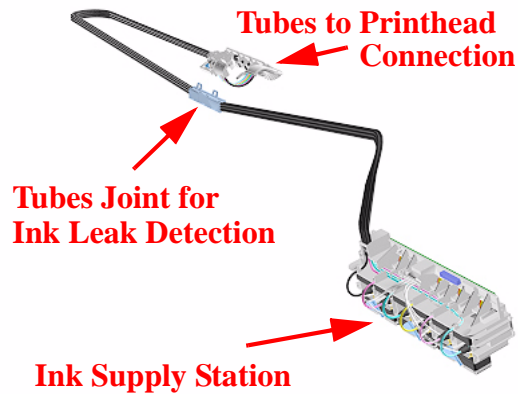
The Tubes move back and forth inside the volume defined by the Tube Guides. The Tube Guides are a pair of sheet metal parts with opposing U-shaped profiles.

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.
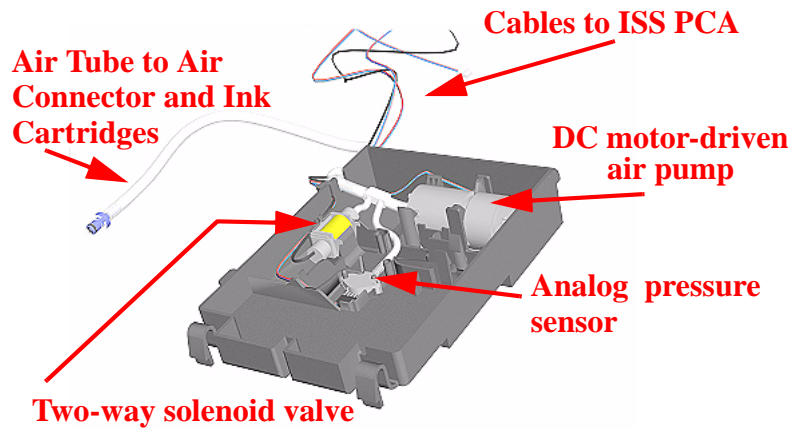
Printheads

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.

Smart Chip

Printhead Interconnect

Ink Inlet

Nozzle Plate
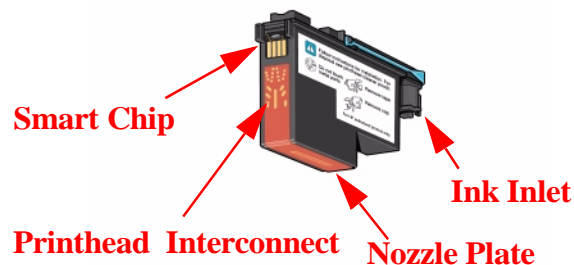
Air Pressurization System (APS)

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.

Air Tube to Air Connector and Ink Cartridges

Cables to ISS PCA

DC motor-driven air pump

Analog pressure sensor

Two-way solenoid valve

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.

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.

HP DesignJet 5000 Series Printers Service Manual