Print Quality 6

Print Quality

PHONE SUPPORT

Print Quality Troubleshooting Actions

For some Print Quality problems, a Call Agent can try and troubleshoot the Printer by requesting the Customer to perform certain actions. Using this process, most problems can resolved without the need of an on-site visit.

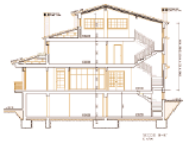
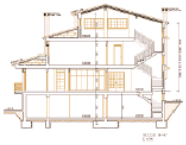
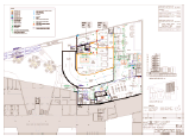
When faced with a Print Quality problem, perform the following actions in order to resolve the problem:

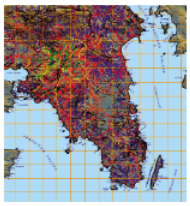
1. Printer Configuration:
   - Check that the **paper type** selected in the Front Panel is the same as the paper type loaded into the Printer.
   - Check that the correct "Optimized For" print quality setting is being used. This can be done either through the driver or through the front panel (Setup Menu/Printing Defaults Menu/Image Quality/Print Quality/ Optimized For).
   - Make sure that the correct Print Quality settings are used for different types of print content. Refer to Page *6-3* for further information.
   - Dry time should be set to "Automatic".
2. Perform Printhead recovery (Ink Menu/Printheads/Recover Printheads).
3. Media:
   - Select the correct media type through the front panel when loading it.
   - Make sure that HP or HP-approved media is being used.
4. Perform the Printhead Alignment (Ink Menu/Printheads/Align Printheads). The Printhead Alignment can take up to 15 minutes.
5. Check if the latest version of the firmware is installed. If not, install the latest firmware revision.
6. For further information, refer directly to the Troubleshooting section that covers the different Print Quality problems (refer to Page *6-13*).

Choosing the Correct Print Quality Settings

The following table shows suggested print quality settings and paper types for various different kind of prints, assuming that **roll** paper is being used. If **sheet** paper is being used, it is recommended to set print quality to **Best**.

High Density images should be printed on heavier paper (Heavyweight or Glossy).

Print content	Image quality settings			Paper types (front panel)
	Print quality	Optimized for	Maximum detail	
Lines (draft) 	Fast	Drawings/ text	On	Bright White Bond Paper Translucent materials* Coated Paper
Lines 	Normal	Drawings/ text	Off	Bright White Bond Paper Translucent materials* Coated Paper
Lines and area fills 	Best	Drawings/ text	Off	Bright White Bond Paper Translucent materials* Coated Paper Heavyweight Coated Paper Productivity Photo Gloss

Print content	Image quality settings			Paper types (front panel)
	Print quality	Optimized for	Maximum detail	
Lines and images 	Best	Drawings/ text	On	Coated Paper Heavyweight Coated Paper Productivity Photo Gloss
In-store advertising 	Normal	Images	Off	Coated Paper Heavyweight Coated Paper Productivity Photo Gloss
Renderings 	Best	Images	Off	Heavyweight Coated Paper Productivity Photo Gloss
Photographs 	Best	Images	Off	Productivity Photo Gloss

How to Use the Service Image Quality Diagnostic Print

What is the Service Image Quality Diagnostic Print?

In order to troubleshoot Print Quality problems, refer directly to the Troubleshooting section that covers the different Print Quality problems (refer to Page *6-13*). Do NOT use the Diagnostic Print on it's own to troubleshoot Print Quality Problems.

The Printer contains an internal Image Quality Test which helps you to diagnose the possible source of any image quality defects. The Service IQ Diagnostic Print is available in two options:

1. *Image Quality User plot*. This can be printed either through the normal front panel menu or through the Service Utility Menu.
   - **a** If the Image Quality Diagnostic Print is printed through the Service Utility Menu, you will **not** be prompted to select "optimized for drawings/text" or "optimized for images". The Printer will automatically take the settings that have already been selected in "Setup Menu/Printing Defaults Menu/ Image Quality/Optimized for".
   - **b** If the Image Quality Diagnostic Print is printed through the standard menu (Setup Menu/Information Menu/Internal Prints/Print Image Diagnostics) you will be prompted to select "drawings/text" or "images". It is recommended to print the Diagnostic Print using this option.

   The Image Quality User Plot print is divided in to three parts as follows:
   - Alignment Test. This test is designed to check any color-to-color and bi-directional misalignment the printer may have.
   - Printheads and Paper Advance test. This test is designed to check whether the Printheads and the Paper Advance Mechanism are working correctly.
   - Printhead Problems. The purpose of this test is to identify which Printhead is faulty.
2. *Image Quality Service Plot*. This can **only** be printed through the Service Utility Menu. This print contains the Printhead Nozzles test, which is designed to check if the printhead nozzles print correctly.

Considerations for Printing the Diagnostic Print

1. The IQ Diagnostic Print prints in A3 and B sizes 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 found the image quality problem.
3. If the customer is using non-HP media and after the Image Quality Test you still have the same image quality problems, change to genuine HP media and repeat the Image Quality Test.
4. If you do not see any problems with the Image Quality Test, then the problem may not be with the printer itself. The problem may be with the RIP or the driver for example.

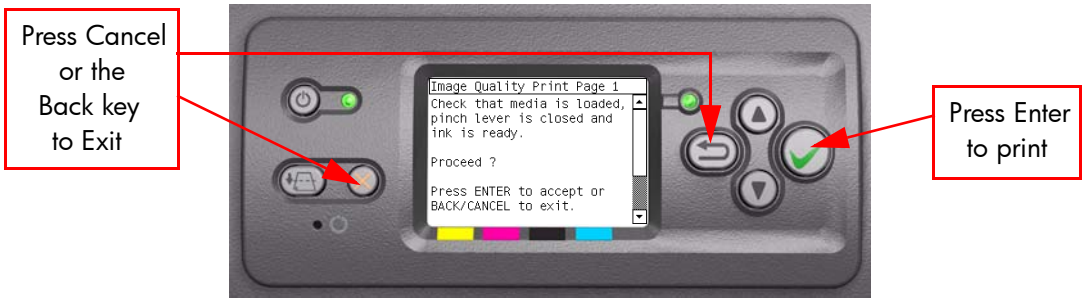
   However, if you do see problems with the Image Quality Test then continue with the following procedures which will help you to diagnose the problem.

Printing the Service Image Quality Diagnostic Print

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

2 You will be given an option to either print the "Image Quality User Plot" or the "Image Quality Service Plot". Use the **Arrow** keys to make the selection and press the **Enter** key to start printing the required Diagnostic Print.

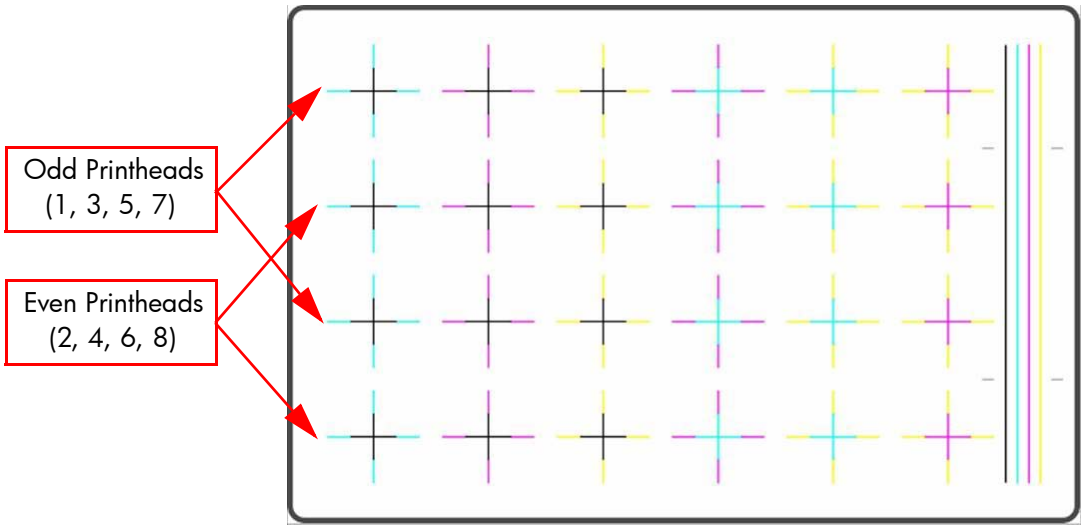
3 Make sure media is loaded, the Pinch Lever is lowered and that the Ink System is correctly installed. Press the **Enter** key to print the Diagnostic Print or press **Back**/**Cancel** to exit without printing the Diagnostic Print.



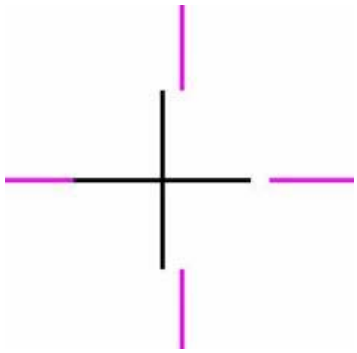
4 The selected Diagnostic Print will now be printed.

Diagnostic Part 1: Alignment Test

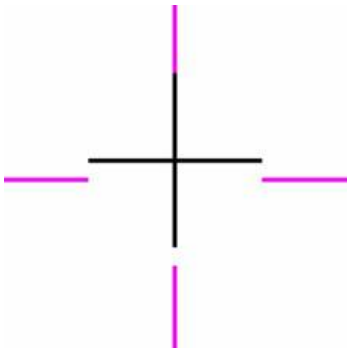
This test is designed to check any color-to-color and bi-directional misalignment the printer may have.



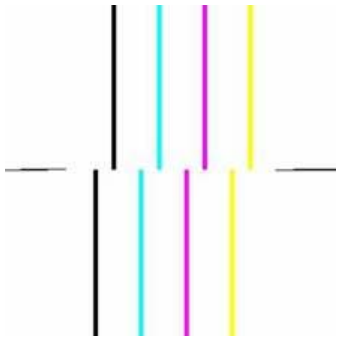
1 If the Printer is experiencing **horizontal** misalignment problems, the Alignment Test will show something like this:



2 If the Printer is experiencing **vertical** misalignment problems, the Alignment Test will show something like this:



3 If the Printer is experiencing **bi-directional** misalignment problems, the Alignment Test will show something like this:



Corrective Action

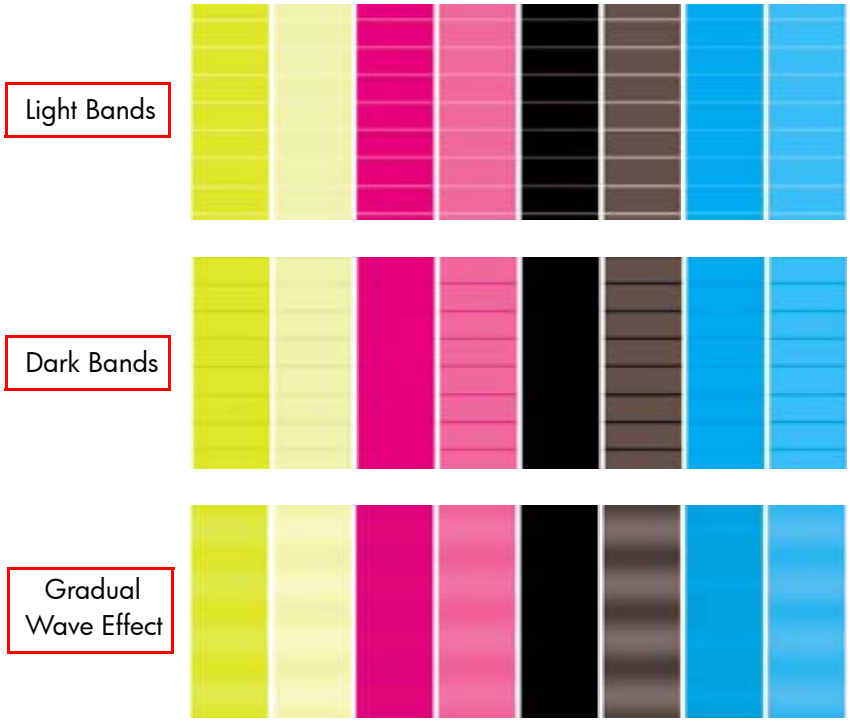
1 Perform a Printhead Alignment, using the same paper type with which you were experiencing unacceptable image quality, if feasible (some paper types are not suitable for Printhead Alignment).

Diagnostic Part 2: Printheads & Paper Advance Test

This test is designed to check whether the Printheads and the Paper Advance Mechanism are working correctly. This part of the Image Quality Test should **not** be used to check for color consistency or accuracy.

Banding

If the Printer is experiencing a banding problem, you will see repetitive horizontal bands within the printed image. Banding can appear as follows:



Troubleshooting Banding Problems

If banding **does not** occur in ALL the colors, then it is more than likely a Printhead problem. In this case, try the following:

1. Check that the appropriate print quality settings are being used. Refer to Page *6-3* for further information on choosing the correct Print Quality settings.
2. Recover the printheads using the option through the Front Panel (Ink Menu/ Printheads/Recover Printheads). Reprint the Diagnostic Print or the print file and if the problem persists:
   - As there are two Printheads for each color, check exactly which Printhead is causing the problem ? Page *6-9*.
   - If the problem continues, replace the faulty Printhead.

If banding **does** occur in ALL the colors, then it is more than likely a Paper Advance problem:

- If the bands are light, it means that the paper has advanced too much.
- If the bands are dark, it means that the paper hasn't advanced enough.
- In high quality modes, graininess in ALL colors can indicate problems either with alignment or Paper Advance.

There is a high chance of seeing dark banding in the black bars of the Diagnostic Print when printing with optimized for drawings/text. This is NOT caused by a black Printhead issue as we described previously.

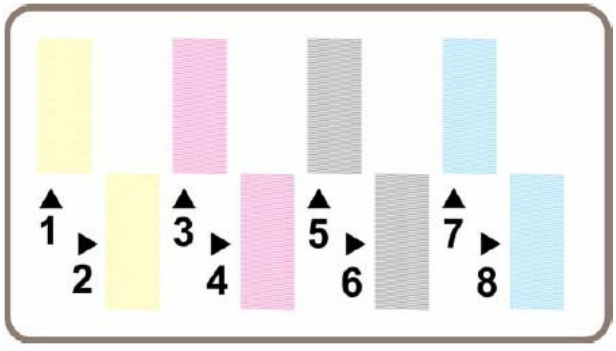
In order to solve any of these problems, try the following:

1. Check that the appropriate print quality settings are being used.
2. If the customer is using low quality paper, try recommending better quality paper (preferable HP paper). Printer performance can only be guaranteed by using recommended papers.
3. Perform the Paper Advance Calibration using the same type of paper that will be used for the final print.

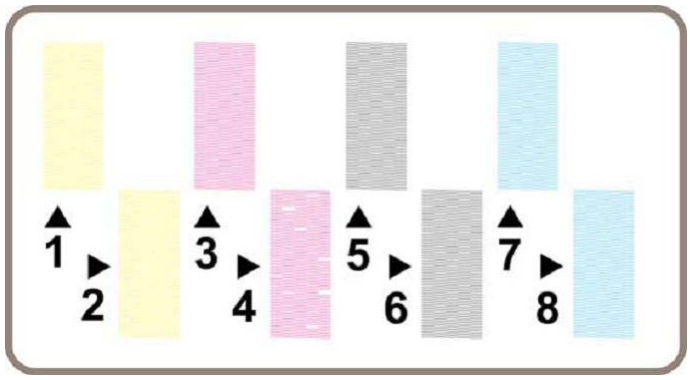
Diagnostic Part 3: Printhead Problems

If part 2 revealed a Printhead problem, then the purpose of part 3 is to identify exactly which Printhead is faulty. Each rectangle in this part is identified with the number of the Printhead that produced it.

If ALL the Printheads are printing perfectly, part 3 of the Diagnostic print will look like this:

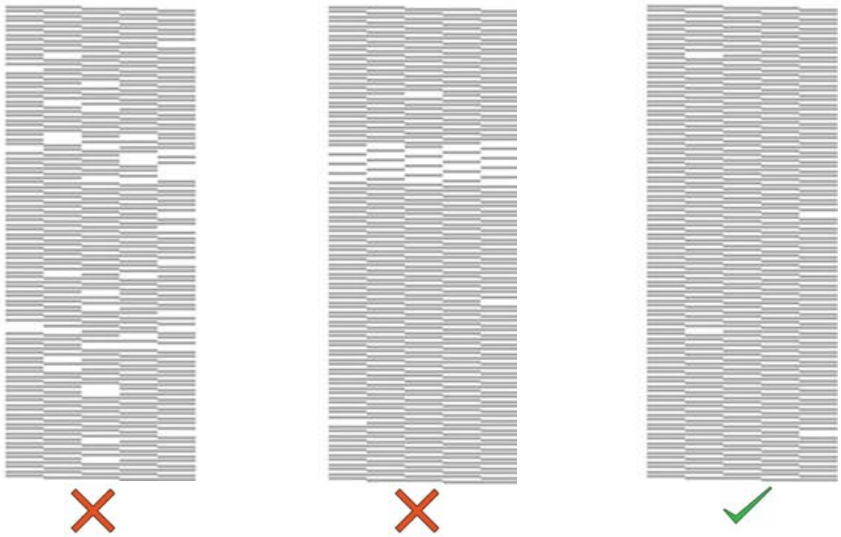


The following example shows an imperfect Printhead (number 4) that is still suitable for printing. It is not damaged enough to warrant a replacement because the Printer can compensate for a number of faulty nozzles.



Analyzing Printhead Nozzles

Do not expect perfection, because even if there are only a few missing lines, the Printer can compensate for this so there is no need to replace the Printhead. Up close, the rectangle printed by a faulty Printhead in part 3 of the Diagnostic Print may look like some of these examples.

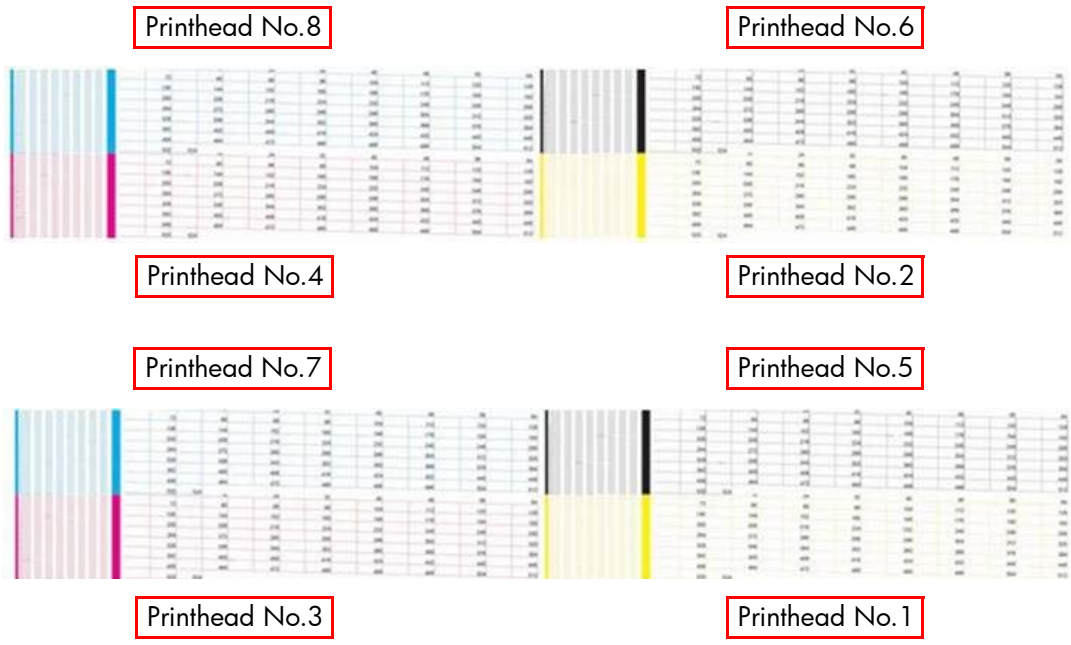


Troubleshooting a Faulty Printhead

1. If part 3 of the Diagnostic Print shows a problem with one Printhead, but part 2 of the Diagnostic Print shows no problem, then:
   - No immediate corrective action is required.
   - The printer will compensate for the problem and maintain Image Quality.
2. If both parts 2 and 3 of the Diagnostic Print show a problem, then:
   - Recover the printheads using the option through the Front Panel (Ink Menu/Printheads/Recover Printheads).
   - If the problem continues, replace the faulty Printhead.

Nozzle Print Test

The Nozzle Print Test is part of the Image Quality Service Plot. This can **only** be printed through the Service Utility Menu. This test is designed to check if the printhead nozzles print correctly. The test prints out every single nozzle of each Printhead. No error hiding or Printhead Alignment algorithm is applied. For each Printhead, you can see both the adjacent and the consecutive nozzles.



This is what you would see if there are nozzles not printing correctly:

1. On the right of each Printhead Nozzle test, there is a series of numbered stepped diagonal lines. If one or more of the nozzles are malfunctioning or mis-positioned, you will see that the stepped lines are broken or misdirected in one or more places.
2. On the left of each Printhead Nozzle test, there is a series of horizontal straight lines. If one or more nozzles are misdirected there will be unequal spaces between the corresponding lines.

How to fix the Nozzle Defects

If the 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.

1. Recover the printheads using the option through the Front Panel (Ink Menu/ Printheads/Recover Printheads).
2. Reprint the Nozzle Print test to check that the defective nozzles have been corrected.
3. If the problem continues, replace the faulty Printhead.

No Printing Defects Found in the Diagnostic Print

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

- The print mode used in your printer is not right for the image you are printing (this is defined by the printer's front-panel menu selections).
- Make sure that the **paper type** selected in the Front Panel is the same as the paper type loaded into the Printer.
- Non-HP driver.
- The RIP (If you are using one).
- The software applications you are using.

Print Quality General Advice

1. To achieve the best performance from the printer, only genuine HP accessories and supplies should be used.
2. Make sure that the **paper type** selected in the Front Panel is the same as the paper type loaded into the Printer.
3. Roll paper usually gives better Print Quality than a single sheet of the same type of paper.
4. When single sheets are being used, it is recommended to use the **Best** print quality setting.
5. The most appropriate print quality settings must be used for the current purpose. You are most likely to see print quality problems while using the **Fast** print quality setting.
6. In order to achieve the best print quality, at the expense of speed, always set "Printhead Monitoring" to "Intensive".
7. Check that the environmental conditions (temperature, humidity) are within the temperature/humidity range as specified for the Printer (refer to the User's Guide for further information).
8. Remember that certain print quality problems can be solved by:
   - Recovering the Printheads (Ink Menu/Printheads/Recover Printheads).
   - Aligning the Printheads (Ink Menu/Printheads/Align Printheads).
   - Performing the Paper Advance Calibration (Paper Menu/Paper Advance Calibration).

Troubleshooting Print Quality Problems

Horizontal Lines Across the Image (Banding)

Description of problem

When you look at the image you have printed, there are horizontal lines across the image. Shown below is an example of what you might see if you have this problem:

Corrective Action

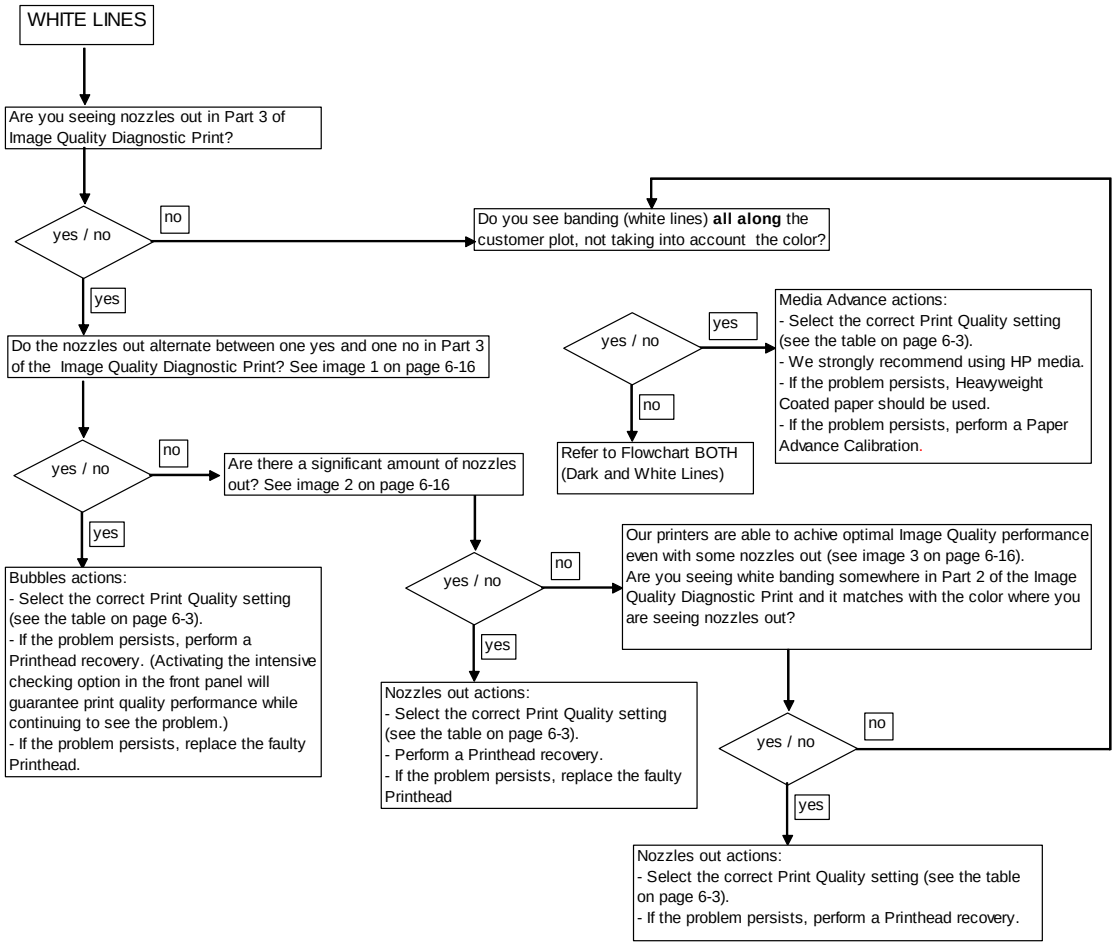
1. Check that the appropriate print quality settings are being used and reprint the image. Refer to Page *6-3* for further information on choosing the correct Print Quality settings.
2. If not already done so, recover the Printheads (Ink Menu/Printheads/ Recover Printheads) and reprint the image with the same settings as before.
3. Try using a heavier paper type. When printing dense colors, it is recommended to use HP Heavyweight Coated Paper or HP Productivity Gloss.
4. If the problem continues, Refer to the "Advanced Banding Troubleshooting for Experts" section on Page *6-14* to troubleshoot the problem further.

Advanced Banding Troubleshooting for Experts

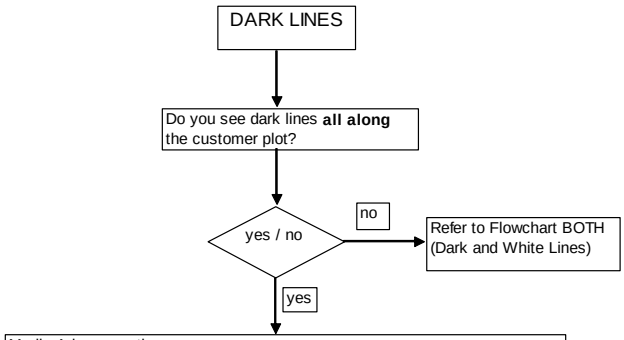
The flowchart on the following pages will help you troubleshoot some of the different banding issues the Print may have. If you have a banding issue, the main question you should ask is "What do you see?":

- If you see "White Lines", refer to this page.
- If you see "Dark Lines" refer to Page *6-15*.
- If you see "Both White and Dark Lines", refer to Page *6-15*.

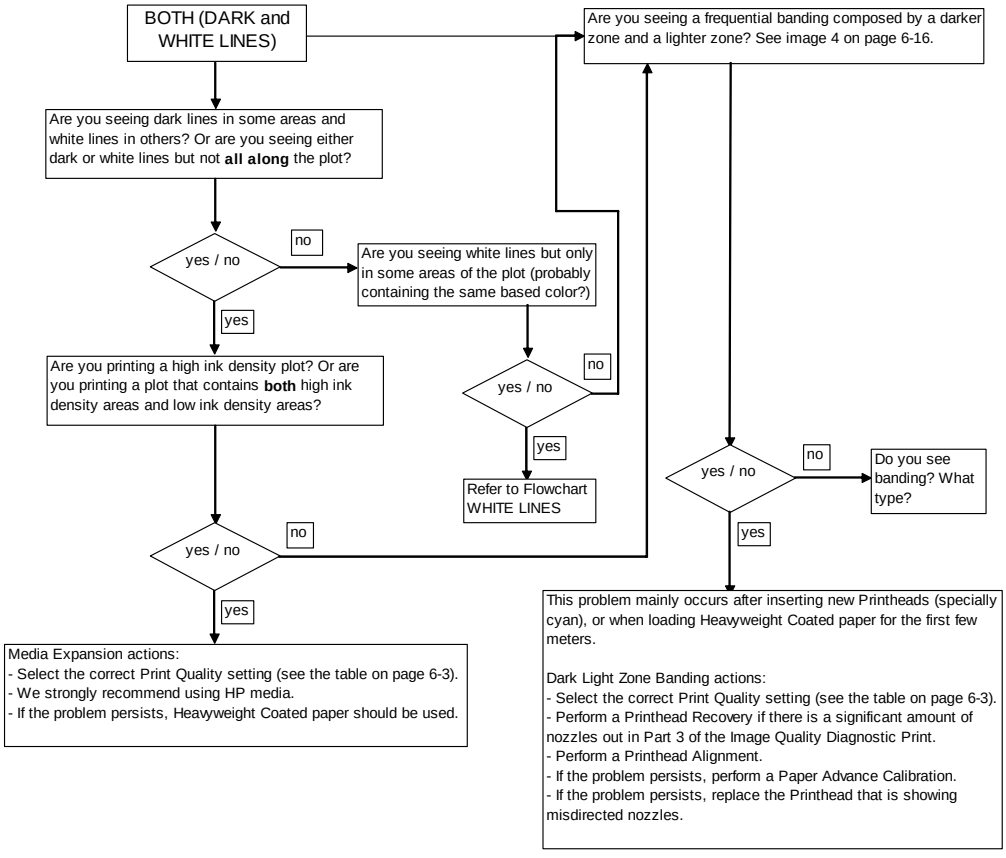
If you see "White Lines"



If you see "Dark Lines"



If you see "Both White and Dark Lines"



Reference Images for Banding Flowcharts

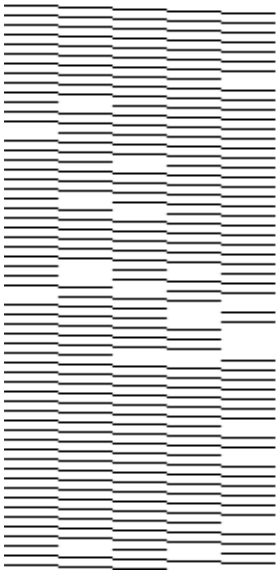


Image 1

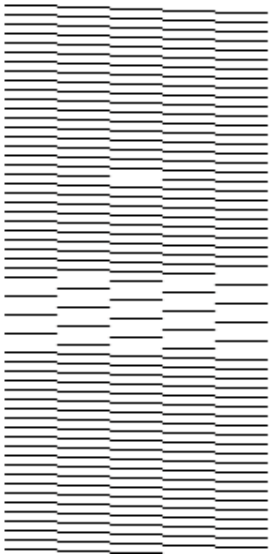


Image 2

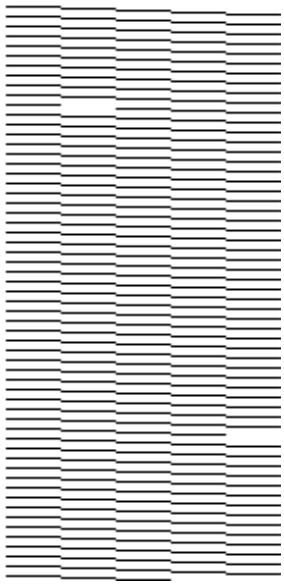


Image 3

Image 4

Dark Light Zone Banding (DLZB)

Description of problem

Shown below is an example of what you might see if you have this problem. It is often easier to see the issue at a distance of 50cm than at 10cm:

Corrective Action

1. Using the Image Quality Diagnostic Print, check if there is a significant amount of nozzles out. If there is a significant amount of nozzles out (refer to image 1 on Page *6-16*), then recover the Printheads (Ink Menu/Printheads/Recover Printheads) and reprint the image.
2. If the problem persists, align the Printheads (Ink Menu/Printheads/Align Printheads) and reprint the image.
3. If the problem persists, perform the Paper Advance Calibration (Paper Menu/Paper Advance Calibration).

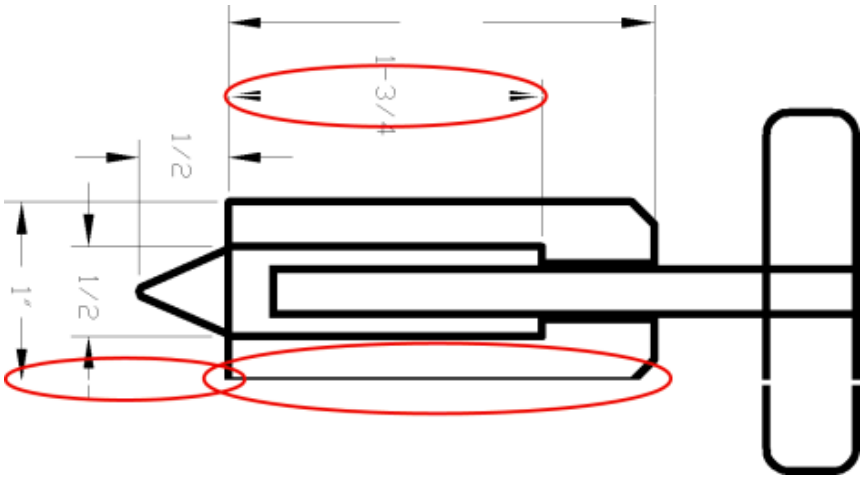
Only change the paper advance patch if a clear difference in terms of media advance is seen.

4. If the problem persists, replace the Printhead that is showing misdirected nozzles.

Lines are Missing or Thinner than Expected

Description of problem

Shown below is an example of what you might see if you have this problem:



Corrective Action

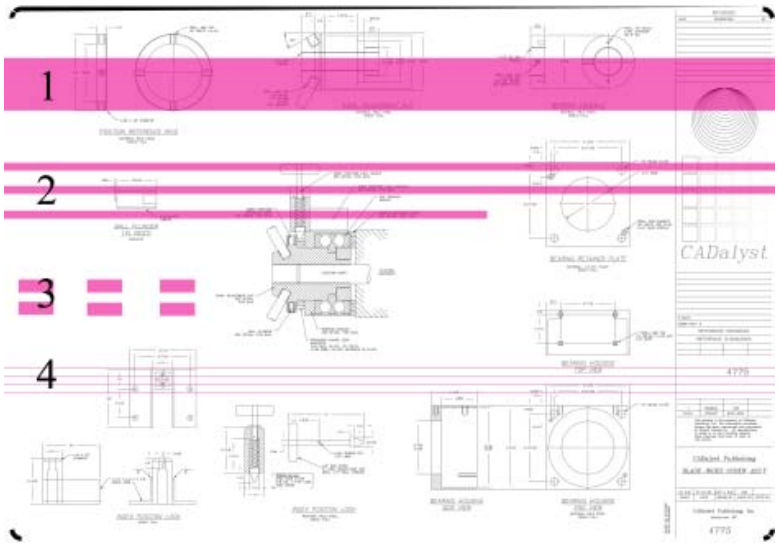
1. Check that the line thickness and color settings are correct in the application that was used to generate the image.
2. Check that the appropriate print quality settings are being used and reprint the image. Refer to Page *6-3* for further information on choosing the correct Print Quality settings.
3. Recover the Printheads (Ink Menu/Printheads/Recover Printheads) and reprint the image.
4. Try using a heavier paper type. When printing dense colors, it is recommended to use HP Heavyweight Coated Paper or HP Productivity Gloss.
5. Using Part 3 of the Image Quality Diagnostic Print, check if there is a significant amount of nozzles out in the color that is **actually causing** the problem (if see you a problem with the Black color in the customer print, then only check the Black printhead in the Image Quality Diagnostic Print). If there is a significant amount of nozzles out (refer to image 1 on Page *6-16*) then replace the faulty Printhead.

Solid Bands or Lines Printed Over the Image

Description of problem

This kind of problem can show itself in several different ways:

1. A thick colored band.
2. Thinner colored bands.
3. Discontinued colored blocks.
4. Thin lines.



Corrective Action

1. Clean the electrical connections of the Printhead that seems to be responsible for the problem (in this example, the Magenta Printhead is responsible).
2. Recover the Printheads (Ink Menu/Printheads/Recover Printheads).
3. Reprint the image with the same settings as before.
4. If the problem continues, replace the Printhead that seems to be causing the problem. If you are not sure which Printhead is responsible, use the Image Quality Diagnostic Print to identify it.

Problems with Graininess

Description of problem

Shown below is an example of what you might see if you have problems with graininess:

Corrective Action

1. Follow the general advice given on Page *6-12*.
2. Align the Printheads (Ink Menu/Printheads/Align Printheads).
3. If the image has been printed using the Normal or Fast print quality setting and it is not acceptable to the customer, then reprint it using the **Best** print quality setting.
4. If the problem continues, perform the Paper Advance Calibration.

Print Smudges when Touched

Description of problem

The black ink pigment can smudge when touched by a finger or a pen. This is particularly noticeable on the following materials:

- Vellum.
- Translucent Bond.
- Films.
- Productivity Photo Paper.
- Natural Tracing Paper.

To reduce the smudging, try the following:

1. Make sure the environment is not too humid for the Printer.
2. Change pure black objects in the image to a dark color (e.g. dark brown) so that they will be printed with the colored inks instead of the Black ink.
3. HP Heavyweight Coated Paper should be used instead.
4. Increase the drying time through the Front Panel (Ink Menu/Drying Options/Drying Time).

Paper is not Flat

Description of problem

If the paper does not lie flat when it comes out of the Printer, but has shallow waves in it, you are likely to see visible defects in the printed image, such as vertical stripes. This can happen when you use thin paper that becomes saturated with ink.

Shown below is an example of what you might see if you have problems with the paper not being flat:

Corrective Action

1. Try using a heavier paper type. When printing dense colors, it is recommended to use HP Heavyweight Coated Paper or HP Productivity Gloss.
2. Make sure that only genuine HP paper is being used.
3. Check that the appropriate print quality settings are being used. Refer to Page *6-3* for further information on choosing the correct Print Quality settings.
4. Check that the environmental conditions (temperature, humidity) are within the temperature/humidity range as specified for the Printer (refer to the User's Guide for further information).

Defect Near the Top of the Print

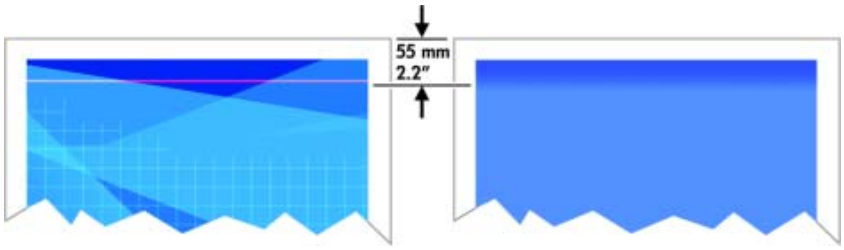
There are two types of defects which affect the top of the Print:

- Soft Landing.
- Avioneta.

Soft Landing: Description of problem

There is a type of defect that affects only the top of the print, within 5.5 cm (2.17 inches) of the leading edge of the paper. You may see a thin or thick band of inconsistent color. This problem is caused because of the different grains that each Printhead has.

Shown below is an example of what you might see if you have this problem:



Corrective Action

1. The easiest solution is to select the **Extended Margins** option in the driver, the Embedded Web Server or the Front Panel. This means that the area of the paper affected by the problem (at the top of the page) will no longer be used. If using the **Extended Margins** option is not possible, the try the following:
   - Recover the Printheads (Ink Menu/Printheads/Recover Printheads).
   - Align the Printheads (Ink Menu/Printheads/Align Printheads).
   - Perform the Paper Advance Calibration (Paper Menu/Paper Advance Calibration).
2. Check that the appropriate print quality settings are being used. Refer to Page *6-3* for further information on choosing the correct Print Quality settings.

Avioneta: Description of problem

The Vacuum suction varies depending on the amount of media covering the printzone. The Vacuum suction increases as the beginning of the media advances over the printzone and this causes the Avioneta defect. This defect mainly affects CAD plots during the first swath and is seen as roughness or even as double lines.

Corrective Action

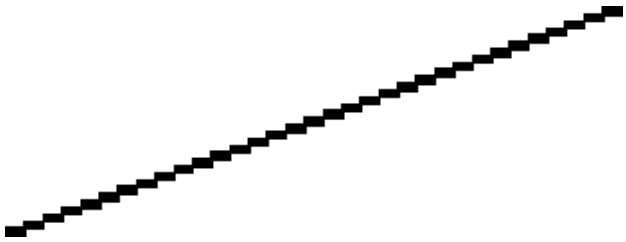
1. The easiest solution is to select the **Extended Margins** option in the driver, the Embedded Web Server or the Front Panel. This means that the area of the paper affected by the problem (at the top of the page) will no longer be used.

Problems with Stepped Lines

Description of problem

When you look at the image you have printed there are **'stepped lines'** in the borders of arrows and diagonal lines. The lines should be straight with no stepping.

Shown below is an example of what you might see if you have problems with Stepped Lines:



Corrective Action

1. If the image has been printed using the Normal or Fast print quality setting and it is not acceptable to the customer, then reprint it using the **Best** print quality setting.
2. Turn On the "Maximum Detail" option in the Driver.
3. The problems may be inherent in the image that you are trying to print. Try to improve the image with the **application** that generated the file.

Lines are Printed Double or in Wrong Colors

Description of problem

This problem can have various visible symptoms, as shown below:

Colored lines are printed double, in different colors

Borders of colored blocks are wrongly colored

Vertical lines are wavy or blurred

Corrective Action

1. Align the Printheads (Ink Menu/Printheads/Align Printheads).
2. If the image has been printed using the Normal or Fast print quality setting and it is not acceptable to the customer, then reprint it using the **Best** print quality setting.

Lines are Blurred (Ink Bleeds from Lines)

Description of problem

This problem is often caused by the ink soaking into the paper, making the lines blurred and fuzzy. This could be because of the humidity in the air.

Corrective Action

1. Print in a less humid environment.
2. Try using a heavier paper type, such as HP Heavyweight Coated Paper.

   Glossy Photo Paper types are especially difficult to dry. Take extra care with them.

3. Make sure that the **paper type** selected in the Front Panel is the same as the paper type loaded into the Printer.
4. Increase the drying time through the Front Panel (Ink Menu/Drying Options/ Drying Time).
5. Allow the prints time to dry separately; do NOT cover or stack them.

Problems with Color Accuracy

There are two basic requirements for color accuracy:

1. Ensure that the paper type being used has been color calibrated, which will give color consistency from print to print, and from Printer to Printer.
2. Select suitable options in the application (refer to the User's Guide for more information).

If PostScript is not being used, remember that the printer may be configured to use one of its internal pen palettes instead of the software's palette (which is the default).

Color accuracy using EPS or PDF images in page layout applications

Page layout applications such as Adobe InDesign and QuarkXPress do not support color management of EPS, PDF, or grayscale files.

If these types of files have to be used, try to ensure that the EPS, PDF, or grayscale images are already in the same color space that is intended to be used later on in Adobe InDesign or QuarkXPress. For instance, if the final objective is to print the job in a press that follows the SWOP standard, at the time of creating the EPS, PDF or grayscale the image should be converted into SWOP.

Problems with PANTONE Color Accuracy

Spot colors are special premixed inks to be used directly in the press, and the best–known spot colors are PANTONE colors.

The PostScript Printer contains an option called Automatic PANTONE Calibration, which can easily match most of the PANTONE Solid Coated spot colors. When an application sends a PANTONE color to print, it sends the PANTONE name together with its own estimate of equivalent CMYK values. The Automatic PANTONE Calibration facility recognizes the PANTONE name and converts it to CMYK in a way that depends on the printer model and the selected paper type, enabling the color to be rendered with greater precision than is possible with the generic CMYK values sent by the application.

Even when using Automatic PANTONE Calibration, it cannot be expected that the printer matches the PANTONE colors exactly. The printer is certified by Pantone for some papers, but this does not mean that it can reproduce 100% of the PANTONE colors.

Using Automatic PANTONE Calibration (the best choice)

In order to use Automatic PANTONE Calibration, an application that recognizes the PANTONE colors, and a calibrated PostScript Printer is needed.

The Automatic PANTONE Calibration facility emulates PANTONE Solid Coated colors only (suffix C). Other PANTONE colors will be printed using the CMYK values sent by the application.

Converting PANTONE colors manually

If a non–PostScript Printer is being used, or if an application (such as Adobe Photoshop) is being used that does not send the name of the PANTONE color to the Printer, then the Automatic PANTONE Calibration will not be available. Instead, if required, each PANTONE color has to be manually converted to CMYK values in the application, using tables produced especially for the printer and paper type.

If the application has a facility to convert PANTONE colors to CMYK values automatically, it probably does not take into account the type of Printer or paper type, so better results will be achieved with a manual conversion using the tables.

A PANTONE calibrated color chart in EPS, TIFF, and PDF format can also be obtained, which can be convenient if the application being used has an eyedropper tool with which colors can be picked up from an imported graphic.

Tips

- Automatic PANTONE Calibration works with PostScript printers only.
- Ensure that Automatic PANTONE Calibration is turned on in the driver.
- Some applications may not support PANTONE colors fully; for example, Photoshop 7.0 does not send the PANTONE Color with its name, it sends only the CMYK values from its standard table.
- Some colors may be out of gamut and impossible to match precisely with your Printer and paper type.

Color Matching Between Different HP Designjet Printers

If an image is printed on two different Printer models (for instance, on an HP Designjet 4000 Printer series and an HP Designjet 1000 Printer series), you may find that the colors of the two prints do not match well.

Matching two printing devices that use different ink chemistry, paper chemistry, and Printheads is unlikely to be completely successful. The information provided here is the best way to emulate one Printer with another. Even so, the end result may not be a perfect match.

Printing via separate PostScript drivers

The situation is that you are printing on each printer using the PostScript driver installed for that printer. In this example, we are using an HP Designjet 4000 Printer series and an HP Designjet 1000 Printer series.

1. Ensure that both printers have been updated with the latest firmware version.
2. Ensure that you have the latest printer driver for both printers. The latest versions can be downloaded from http://www.hp.com/go/designjet.
3. Ensure that Color Calibration is turned on (Setup Menu/Configuration Menu/Color calibration/On).
4. Load both Printers with similar paper types.
5. Ensure that the Paper Type setting on the front panel corresponds to the paper that is loaded.
6. Print the image on the HP Designjet 1000 Printer series using the normal settings.
7. Now prepare to print the same image on the HP Designjet 4000 Printer series.
8. In the application, set the color space of the image to emulate the HP Designjet 1000 Printer series and the specific paper type that you used in that printer. The data sent to the driver must be already converted to this emulation color space, which is a CMYK color space. refer to the application's online help for information on how to do this. In this way, the 4000 series will emulate the colors that the 1000 series can produce when printing on that paper type.
9. In the PostScript driver for the HP Designjet 4000 Printer series, go to the Color Management section and set the CMYK input profile to the same HP Designjet 1000 Printer series color space that was selected in the application (the emulation color space).

When trying to emulate another printer, CMYK colors should always be used, not RGB.

10. Set the rendering intent to Relative Colorimetric, or to Absolute Colorimetric if the whiteness of the paper needs to be emulated.
11. Print the image on the HP Designjet 4000 Printer series.

Printing via separate HP-GL/2 drivers

The situation is that you are printing on each printer using the HP-GL/2 driver installed for that printer.

1. Ensure that both printers have been updated with the latest firmware version.
2. Ensure that you have the latest printer driver for both printers. The latest versions can be downloaded from http://www.hp.com/go/designjet.
3. Ensure that Color Calibration is turned on (Setup Menu/Configuration Menu/Color calibration/On).
4. Load both Printers with similar paper types.
5. Ensure that the Paper Type setting on the front panel corresponds to the paper that is loaded.
6. With the HP-GL/2 driver for the HP Designjet 4000 Printer series, select the Color tab, and set the **Color Matching Method** to **sRGB**.
7. With the HP-GL/2 driver for the HP Designjet 1000 series, select the Options tab, then **Manual Color** > **Color Control** > **Match Screen**. You should also select the Paper Size tab, then **Paper Type**, and select an Enhanced Colors paper type.

Printing the same HP-GL/2 file

The situation is that you have produced an HP-GL/2 file (also known as a PLT file) using the HP-GL/2 driver installed for one printer, and you intend to send the same file to both printers.

1. Ensure that both printers have been updated with the latest firmware version.
2. Ensure that Color Calibration is turned on (Setup Menu/Configuration Menu/Color calibration/On).
3. Load both Printers with similar paper types.
4. Ensure that the Paper Type setting on the front panel corresponds to the paper that is loaded.
5. If you have an HP-GL/2 file produced for an HP Designjet 1000 Printer series and you want to print it on an HP Designjet 4000 Printer series, proceed as follows using the Embedded Web Server or the front panel:
   - Using the Embedded Web Server: in the Color Management section of the Submit Job page, set the **Input Profiles: RGB** to **None (Native)**.
   - Using the front panel: Enter the **Setup Menu**, then **Printing defaults menu** > **Color Options** > **RGB Input Profile: None (Native)**.

   For other HP Designjet Printers, set both printers to match the screen colors (**sRGB** if selectable), as when printing with separate HP-GL/2 drivers.

Problems with Image Clipping

This normally indicates a discrepancy between the actual printable area on the loaded paper and the printable area as understood by the software.

- Check the actual printable area for the paper size that is loaded. printable area = paper size – margins

  The Windows HP-GL/2 driver displays the printable area in the Paper/ Quality tab.
- Check what the software understands to be the printable area (which it may call "printing area" or "imageable area"). For example, some software applications assume standard printable areas that are larger than those used in this Printer.
- If a very long image needs to be printed on a roll, check that the software is capable of printing an image of that size.
- Check that the orientation of the paper is the same as that assumed by the software. The front-panel **Printing defaults menu** > **Paper options** > **Rotate** option changes both the orientation of a print and the orientation of the page. It is possible that a rotated image on a roll may be slightly clipped in order to retain the correct page size.
- The page may have been rotated from portrait to landscape on a paper size that is not wide enough.
- If necessary, change the printable area in the software.

Other Possible Explanation

Some applications, such as Adobe Photoshop, Adobe Illustrator, and CorelDRAW, use an internal 16–bit coordinate system which means that they cannot handle an image of more than 32,768 pixels. If you try to print an image larger than this from these applications, the bottom of the image will be clipped. In this case, the only way to print the whole image is to reduce the resolution so that the whole image requires fewer than 32,768 pixels. The HP-GL/2 printer driver contains an option called **Compatibility with 16–bit applications**, which can be used to reduce the resolution of such images automatically. This option can be found by clicking the Troubleshooting button in the driver's Services tab.

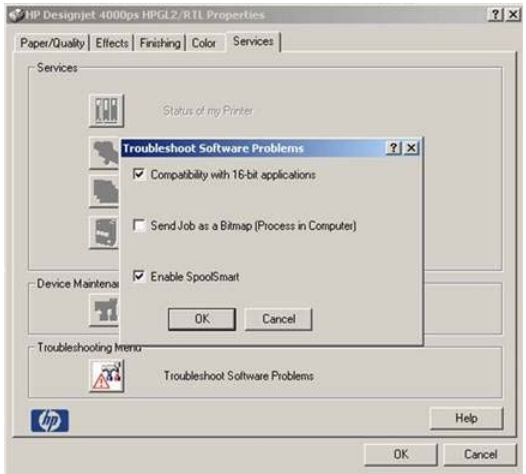


Image is Completely Blank

If a file is sent to the Printer and the image comes out completely blank, this is probably because the incorrect Graphic Language has been selected. Try the following to resolve the problem:

1. If the Front Panel **graphic language** setting is set to **Automatic**, try choosing a setting specific to the current requirement (e.g. Select **PostScript** for a PostScript file).
2. Send the file again to see if the problem is now resolved.

Once the file has been printed, make sure you reset the graphic language back to Automatic (Setup Menu/Printing Defaults Menu/Graphic Language).

If the problem continues, then try the following:

1. If the Front Panel **graphic language** setting is **not** set to **Automatic**, then set it to Automatic so that the Printer can determine which type file it is receiving.
2. Select **HP-GL/2** if PostScript files are not being used and if image position problems or timing problems have been experienced in the past.
3. Select TIFF, JPEG, PDF or CALS G4 only if the file of the appropriate type is sent directly to the Printer without going through a Printer driver. This is normally done only from the Embedded Web Server (EWS), in which case the language setting is done by the EWS and does not need to be done manually.

The PS and PDF options are available in the HP Designjet 4000ps but not in the HP Designjet 4000.

Output Only Contains a Partial Print

If the output that was expected only contains a partial image, then try the following to resolve the problem:

1. Was the **Cancel** key pressed before all the data was received by the Printer? If so, send the file again and make sure that the **Cancel** key is not pressed.
2. The **I/O Timeout** setting may be too short. Increase the I/O timeout setting (Setup Menu/I/O Setup/IO Timeout) and then send the file again.
3. There might be a problem between the Printer and Computer. Check the cable between the computer and the Printer to make sure it is not damaged and is connected correctly.
4. Make sure that the software settings are correct for the current page size (e.g. long-axis prints).
5. If network software is being used, make sure it has not timed out.

Image is in One Portion of the Printing Area

If the output that was expected only contains an image in one portion of the Print Area, then try the following to resolve the problem:

1. Check to see if a too small a page size has been selected in the application.
2. Check to see if the application is set to print the image in only one portion of the page.
3. If the problem continues, then the cause could be software-printer incompatibility:
   - Check to see if the software is configured correctly for the Printer.
   - Try changing the Graphic Language through the Front Panel (Setup Menu/Printing Defaults Menu/Graphic Language).
   - Refer to the Assembly and Setup Poster and the driver documentation.

Image is Unexpectedly Rotated (PostScript Driver)

If the output that was expected contains an image that was unexpectedly rotated, then try the following to resolve the problem:

1. Check the **rotate** option through the Front Panel (Setup Menu/Printing Defaults Menu/Paper Options/Rotate) to make sure the rotate option has not been selected.
2. For non-PostScript files, if **Nesting** is **On**, the pages might be automatically rotated in order to save paper.
3. Check also the following options to see if the rotate option has been activated by mistake:
   - Windows Driver - **Finishing** tab ? **Rotate by 90 degrees**.
   - Mac OS Driver - **Finishing** panel ? **Rotate by 90 degrees**.
   - Embedded Web Server - Select **Submit Job** ? **Rotate**.

Print is Distorted or Unintelligible

If the output that was expected is distorted or unintelligible, then try the following to resolve the problem:

1. There might be a problem between the Printer and Computer. Check the cable between the computer and the Printer to make sure it is not damaged and is connected correctly.
2. If the Front Panel **graphic language** setting is set to **Automatic**, try choosing a setting specific to the current requirement (e.g. Select **PostScript** for a PostScript file).
3. Depending on the software, drivers and RIPs that are being used, there are different ways of solving this problem - refer to the relevant Vendor's User Documentation for further information.

Print is a Mirror Image of the Original

If the output that was expected is a mirror image of the original image, then try the following to resolve the problem:

1. Check the **mirror** option through the Front Panel (Setup Menu/Printing Defaults Menu/Paper Options/Mirror) to make sure the rotate option has not been selected.
2. Check also the following options to see if the mirror option has been activated by mistake:
   - Windows Driver - **Finishing** tab ? **Mirror Image**.
   - Mac OS Driver - **Finishing** panel ? **Mirror Image**.
   - Embedded Web Server - Select **Submit Job** ? **Mirror**.

One Image Overlaps Another on the Same Sheet

If the output that was expected contains an image that overlaps another on the same sheet, then try the following to resolve the problem:

1. The **I/O Timeout** setting may be too long. Decrease the I/O timeout setting (Setup Menu/I/O Setup/IO Timeout) and then send the file again.

No Output from the Printer

If a file is sent to the Printer but no output is printed, then try the following to resolve the problem:

1. Check that the power cable is correctly connected and that the Printer is switched On. Check that all communication cables are correctly connected.
2. Strong Electromagnetic fields or electrical disturbances may be affecting the Printer. In this case, power Off the Printer and wait until the electromagnetic environment has returned to normal before powering On the Printer again.
3. Incorrect Graphic Language has been set through the Front Panel. Make sure that if a MAC OS is being used to print, the **graphic language** setting should be set to **Automatic** or **PostScript**.
4. Make sure the correct driver has been installed. The correct driver can be downloaded from http://www.hp.com/go/designjet.
5. If a Mac OS is being used with either FireWire or USB, the data encoding option may need to be changed.
   a. Change the data encoding setting through the Front Panel (Setup Menu/ Printing Defaults Menu/PS Options/Encoding/ASCII).
   b. Then configure the application to send ASCII data.
6. The print job could be waiting for a timeout:
   - Check that the file has a proper file terminator. If not, then wait the specified I/O timeout period.
   - If Nesting is turned ON, the Printer may be waiting for the specified timeout before printing.
   - If using the Embedded Web Server, a print preview may have been requested. In this case, initiate the print through the Embedded Web Server.

Pinchwheel Marks when using Glossy Media

Description of problem

The Pinchwheels mark the glossy media and some waves can be seen in the printed images that have high density area fills. This happens when using HP Productivity Photo Gloss media and it can be seen especially at the beginning of the first print job after loading the media (the skew check routine moves the media backwards and forwards several times).

Corrective Action

1. If an image is to be printed that has high density area fills, advance the media so that the problem is greatly reduced.
2. Reprint the image (the problem will be reduced).

VLS in 1 Pass Printmodes

Description of problem

In certain circumstances the lines are not straight when using 1 pass printmodes. There are several factors that explain why vertical line straightness (VLS) in 1 pass printmodes are above acceptability threshold:

- Printhead Alignment residual error.
- Printing on paper type different from the one used to perform the Printhead Alignment.
- Some level of theta Z coming from the stabilization area after a media load (approximately 3 meters of paper).

Shown below is an example of what you might see if you have this problem:

Corrective Action

1. Check that the appropriate print quality settings are being used. Refer to Page *6-3* for further information on choosing the correct Print Quality settings.
2. Roll paper usually gives better vertical lines than a single sheet of the same type of paper. If sheet paper must be used, then it is recommended to use the **Best** print quality setting.
3. Try using a heavier paper type, such as HP Heavyweight Coated Paper or HP Productivity Gloss.
4. Align the Printheads (Ink Menu/Printheads/Align Printheads).

VLS in First 3 Meters after a Media Load

Description of problem

In order to ensure that the user can load the media into the Printer with an acceptable success rate, the Printer allows the media to be loaded with a certain level of skew. This initial skew gets automatically corrected as the media is advanced: there is a transition area where the media rotates until the skew gets corrected and the paper stabilizes. The media rotation in the transition zone is what actually creates the vertical line straightness problem.

Corrective Action

1. Make sure that the media is loaded as straight as possible. Use the blue line of the Print Platen to align the edge of the media correctly.

   An alternative way of loading media is to align the media with the end of the overdrive. This way media waste will be minimized and it will also reduce media load problems.

2. Check that the appropriate print quality settings are being used. Refer to Page *6-3* for further information on choosing the correct Print Quality settings.
3. Roll paper usually gives better vertical lines than a single sheet of the same type of paper. If sheet paper must be used, then it is recommended to use the **Best** print quality setting.
4. Try using a heavier paper type, such as HP Heavyweight Coated Paper or HP Productivity Gloss.
5. Align the Printheads (Ink Menu/Printheads/Align Printheads).

Bubbles (Only occurs in Cyan, Magenta and Yellow)

Description of problem

The bubbles problem is normally seen as banding (white lines) and the severity is quite different depending on the amount of nozzles out.

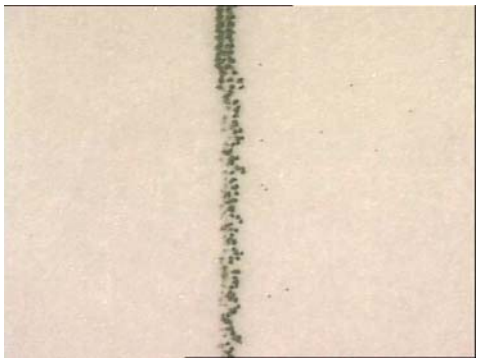
Corrective Action

1. Check that the appropriate print quality settings are being used. Refer to Page *6-3* for further information on choosing the correct Print Quality settings.
2. Recover the Printheads (Ink Menu/Printheads/Recover Printheads).
3. Turn "Printhead Monitoring" to "Intensive" to guarantee consistent quality while using the **Best** print quality setting.
4. Replace the faulty Printhead.

Black Printhead: Decap Problem

Description of problem

When the Black Printhead does not fire any ink during one swath, but only prints at the end of the swath, a thin vertical line (a defect) can be seen:



Some information to take into consideration:

- The part of the thin line which is before the black box is of much better quality compared to the part which has not been printed for at least the last 37.5 inches (95.3 cm).
- The longer the Black Printhead is not printing, the more visible the defect will be.
- The defect is not seen with thicker lines.
- If the Black Printhead is not printing at the beginning of the print (e.g. no black frame around the print), the defect can be worse. This specific defect is called "Inter Swath Decap".
- When the Black Printhead is printing at the beginning of the swath (e.g. when there is a black frame around the print), the specific decap defect is called "Intra Swath Decap".

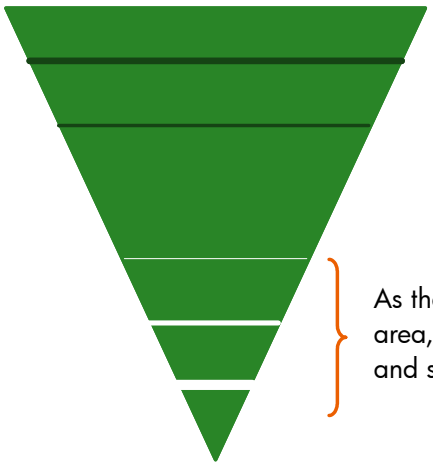
Corrective Action

1. Check that the Printer has the latest Firmware version. If not, update the Firmware to the latest version.
2. Try rotating the print by 90, 180 or 270 degrees.
3. Since this problem is only seen when printing thin lines, try to avoid printing thin lines whenever possible.
4. To decrease the probability of having the "Inter Swath Decap" issue, a black frame around the print should be added.
5. Switch to the **Best** print quality setting and turn Off the "Maximum Detail" option in the Driver.

Paper Expansion - Paper Advance (PEPA)

Description of problem

When printing high density area fills on a paper-based media, the media will expand. As the media expands, it can create "bandings" between each swath. The "banding" is mainly noticeable when printing high density area fills while using the **Fast** print quality setting and with the **optimized for drawings/text** setting activated.



Corrective Action

1. If the image has been printed using the **Fast** print quality setting, then reprint it using the **Normal** or **Best** print quality setting and activate the **optimized for images** option.
2. Try using a heavier paper type, such as HP Heavyweight Coated Paper or HP Productivity Gloss.
3. Check that the environmental conditions (temperature, humidity) are within the temperature/humidity range as specified for the Printer (refer to the User's Guide for further information).

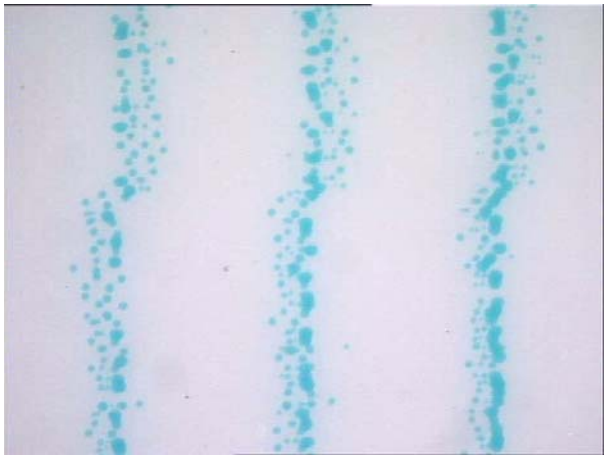
Do NOT perform the Paper Advance Calibration as this will recenter the actual advance factor BUT won't prevent the differential banding due to paper expansion.

Bidirectional Offset in Light Color Density Areas

Description of problem

There seems to be a slight Bidirectional offset when printing light color density areas in lines or drawings. This happens when printing on Plain Paper using the **Fast** print quality setting with the "Maximum Detail" option switched Off.

Shown below is an example of what you might see if you have this problem:



Corrective Action

1. If the image has been printed using the **Fast** print quality setting, then reprint it using the **Normal** or **Best** print quality setting.
2. Avoid printing light density areas/lines, especially grays.
3. Turn On the "Maximum Detail" option in the Driver.

Ink Contamination on Yellow Printhead

Description of problem

In certain circumstances, the Yellow Printhead is cross-contaminated by aerosol coming from the Black Printhead. This occurs when the aerosol removal system in the Service Station ceases to work.

When this problem occurs you will actually see nozzles out and misdirected. In this situation Printhead Recovery will not help to resolve the problem since this is a permanent problem and eventually degrades the life of the Printhead.

Corrective Action

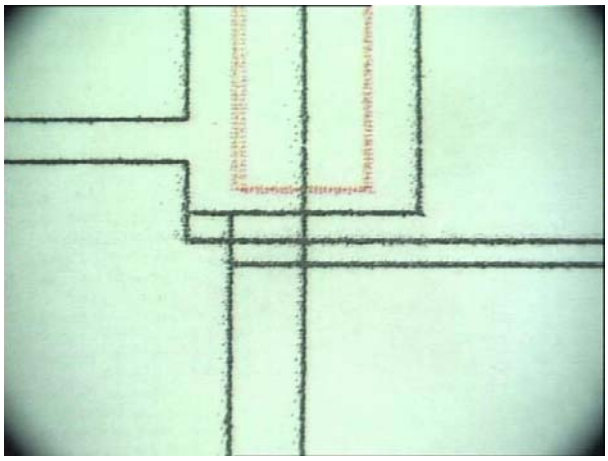
1. Replace the Yellow Printhead and the Black Printhead Cleaner.

Satellites in Black Lines

Description of problem

In certain prints, black text and lines have a fuzzy or shadow effect. This problem is more likely to be seen when printing CAD data at high Carriage Speeds (when printing on **Plain** Paper using the fast print quality setting).

Shown below is an example of what you might see if you have this problem:



Corrective Action

1. If the image has been printed using the **Fast** print quality setting, then reprint it using the **Normal** or **Best** print quality setting.
2. If the image needs to be printed using the **Fast** print quality setting, then try turning On the "Maximum Detail" option in the Driver.