SCITEX LX850 & LX820 Printers

Maintenance and troubleshooting guide

First edition

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Safety notice

Read and follow the operating and safety instructions before starting the printer.

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1 Safety precautions

Before using your printer, read the following safety precautions to make sure you use the equipment safely.

Users are expected to have appropriate technical training and experience necessary to be aware of hazards to which that person may be exposed to in performing a task and to take appropriate measures to minimize the risks to that person or other persons.

General safety guidelines

- Refer to installation instructions before connecting the printer to the supply.
- There are no operator-serviceable parts inside the printer. Refer servicing to qualified service personnel.
- Turn off the printer, using both Branch Circuit Breakers located in the building's Power Distribution Unit (PDU), and call your service representative in any of the following cases:
  - The power cord is damaged.
  - Liquid has entered the printer.
  - There is smoke or an unusual smell coming from the printer.
  - The printer has been dropped or the drying or curing module damaged.
  - The printer's built-in Residual Current Circuit Breaker (Ground Fault Circuit Interrupter) has been repeatedly tripped.
  - Fuses have blown.
  - The printer is not operating normally.
- Turn off the printer using both Branch Circuit Breakers in either of the following cases:
  - During a thunderstorm
  - During a power failure

Electrical shock hazard

⚠ **WARNING!** The internal circuits and drying and curing modules operate at hazardous voltages capable of causing death or serious personal injury.

Turn off the printer using both Branch Circuit Breakers located in the building's Power Distribution Unit (PDU) before servicing the printer. The printer must be connected to earthed mains outlets only.

To avoid the risk of electric shock:

- Do not attempt to dismantle the drying and curing modules or the electrical control cabinet.
- Do not remove or open any other closed system covers or plugs.
- Do not insert objects through slots in the printer.
- Test the functionality of the Residual Circuit Breaker (RCCB) every year (refer to the procedure below).

NOTE: A blown fuse may indicate malfunctioning electrical circuits within the system. Call your service representative, and do not attempt to replace the fuse yourself.

Checking the functionality of the Residual Circuit Breaker (RCCB

Following standard Residual Current Circuit Breaker (RCCB) recommendations, it is recommended that the RCCB is test on a yearly basis. The procedure is as follows:

1. Switch off the printer from the Front Panel (do not switch off the printer from the mains switch or the circuit breakers).
2. When the printer is switched off, test that the RCCB functions correctly by pressing the test button.
    - If the RCCB does not trip when the test button is pressed, this indicates that the component has failed. The device must be replaced for safety reasons, call HP Support to remove and replace the RCCB.
    - If the RCCB trips, this indicates it is working correctly, return the printer to the original status and switch the printer on.

Heat hazard

The drying and curing subsystems of the printer operate at high temperatures and can cause burns if touched. To avoid personal injury, take the following precautions.

- Do not touch the internal enclosures of the printer's drying and curing modules.
- Take special care when accessing the substrate path.

Fire hazard

The drying and curing subsystems of the printer operate at high temperatures. Call your service representative if the printer's built-in Residual Current Circuit Breaker (Ground Fault Circuit Interrupter) is repeatedly tripped.

To avoid the risk of fire, take the following precautions.

- Use the power supply voltage specified on the nameplate.
- Connect the power cords to dedicated lines, each protected by a branch circuit breaker according to the information detailed in the Site Preparations documentation.
- Do not insert objects through slots in the printer.
- Take care not to spill liquid on the printer.

- Do not use aerosol products that contain flammable gases inside or around the printer.
- Do not block or cover the openings of the printer.
- Do not attempt to dismantle the drying or curing module, or the electrical control cabinet.
- Ensure that the operating temperature of the substrate loaded recommended by the manufacturer is not exceeded. If this information is not available by the manufacturer, do not load substrates that cannot be used at an operating temperature under 125°C (257°F).
- Do not load substrates with auto-ignition temperatures below 250°C (482°F). See note below.

NOTE: Test method based on EN ISO 6942:2002; Evaluation of materials and material assemblies when exposed to a source of radiant heat, method B. The test conditions, to determine the temperature when the substrate starts ignition (either flame or glow) were: Heat flux density: 30 kW/m2, Copper calorimeter, K type thermocouple.

Mechanical hazard

The printer has moving parts that could cause injury. To avoid personal injury, take the following precautions when working close to the printer.

- Keep your clothing and all parts of your body away from the printer's moving parts.
- Avoid wearing necklaces, bracelets and other hanging objects.
- If your hair is long, try to secure it so that it will not fall into the printer.
- Take care that sleeves or gloves do not get caught in the printer's moving parts.
- Avoid standing close to the fans, which could cause injury and could also affect print quality (by obstructing the air flow).
- Do not touch gears or moving rolls during printing.

Heavy substrate hazard

Special care must be taken to avoid personal injury when handling heavy substrates.

- Handling heavy substrate rolls always requires two people. Care must be taken to avoid back strain and/or injury.
- Always use a forklift, pallet truck or other handling equipment to lift substrates.
- Always wear personal protective equipment including boots and gloves.

Ink handling

Your printer does not use solvent inks and does not have the traditional problems associated with them. However, HP recommends that you wear gloves when handling ink system components.

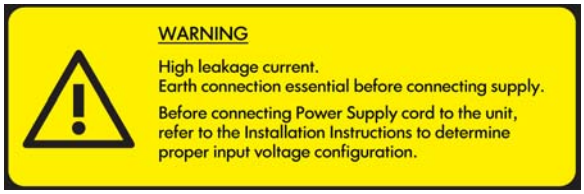
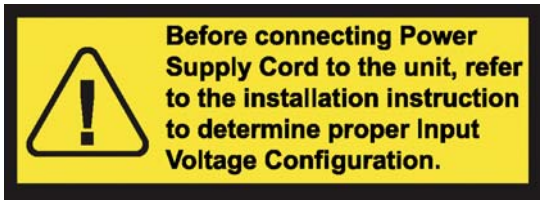
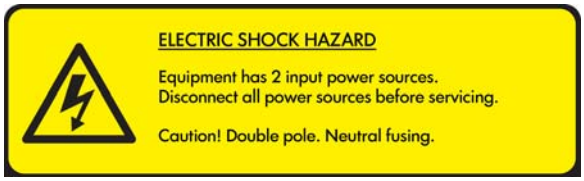
Warnings and cautions

The following symbols are used in this manual to ensure the proper use of the printer and to prevent the printer from being damaged. Follow the instructions marked with these symbols.

⚠ **WARNING!** Failure to follow the guidelines marked with this symbol could result in serious personal injury or death.

⚠ **CAUTION:** Failure to follow the guidelines marked with this symbol could result in minor personal injury or damage to the product.

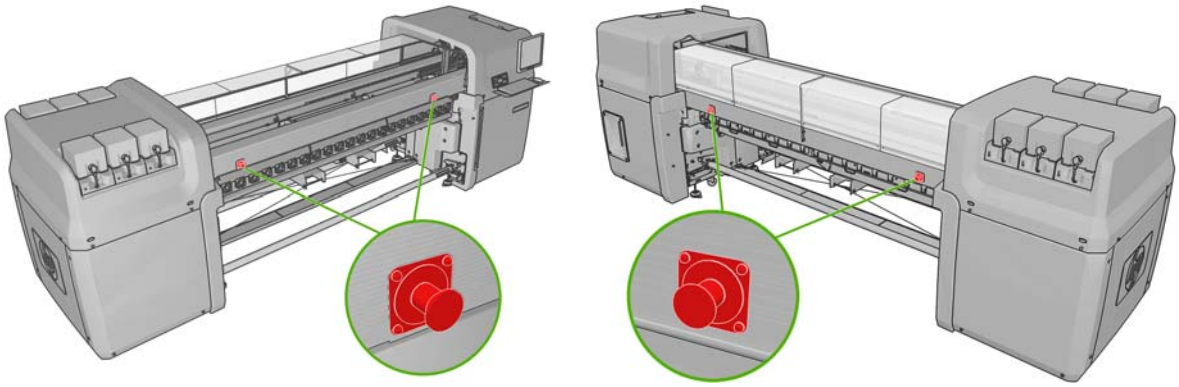
Warning labels

Label	Explanation
	Current leakage may exceed 3.5 mA.
	See installation instructions before connecting to the supply. Ensure that the input voltage is within the printer's rated voltage range. The printer requires two dedicated lines, each protected by a branch circuit breaker according to site Preparation Requirements The printer must be connected to earthed mains outlets only.
	Identifies the Protective Earth (PE) terminal. It is located inside the electrical control cabinet.
	Electric shock hazard. The printer has two mains supplies. There are no operator-serviceable parts inside the printer. In case of operation of the fuse, parts of the printer that remain energized may represent a hazard during servicing. Refer servicing to qualified service personnel. Turn off the printer using both Branch Circuit Breakers located in the building's Power Distribution Unit (PDU) before servicing. See installation instructions before connecting to the supply.
	Danger of electric shock. In case of operation of the fuse, parts of the printer that remain energized may represent a hazard during servicing. Therefore, ensure that the printer is completely turned off before servicing.

Label	Explanation
	Risk of burns. Do not touch the internal enclosures of the printer's drying and curing modules.
	You are recommended to wear gloves when handling ink cartridges, printhead cleaning cartridges and the printhead cleaning container.
	When substrate has been loaded, the carriage descends into its normal position, and could crush your hand or anything else left underneath it.
	Danger that your hands may become trapped between gearwheels
	When the printer is printing, the printhead carriage travels back and forth across the substrate.
	Beware of this moving part.

Emergency stop buttons

There are four emergency stop buttons distributed around the printer. If an emergency occurs, simply push one of the emergency stop buttons to stop all printing processes. A system error message is displayed on the front panel, and the fans turn at maximum speed. Ensure that all emergency stop buttons are released before restarting the printer.



2 Printer status

Check printer status

You can check the current status of the printer in the following ways:

- The HP Internal Print Server displays the status of the printer, the loaded substrate and the ink system. The latest alerts are summarized at the bottom of the main window (see Printer alerts on page 7).

- The front panel displays the ink levels by default; otherwise, you can see the ink levels by selecting the the Ink System icon . In addition, the most important current alert, if any, is displayed in the front panel.

Printer alerts

The printer can communicate two types of alerts:

- **Errors:** When the printer is unable to print.
- **Warnings:** When the printer needs attention for an adjustment, such as a calibration, preventive maintenance or ink cartridge replacement.

Printer alerts appear primarily at the HP Internal Print Server, but one alert at a time also appears at the front panel.

- **HP Internal Print Server:** A summary list of alerts appears at the bottom left of the main window. To display a more complete and detailed list, select **Information** > **Alerts**.
- **Front-panel display:** The front panel shows only one alert at a time, which is judged to be the most important. It generally requires the user to press the OK key for confirmation, but in the case of a warning, it disappears after a while. Some alerts reappear when the printer is idle and there is nothing more important to report.

The following alerts require a service engineer:

- Preventive maintenance #1 required
- Preventive maintenance #2 required

- Preventive maintenance #3 required
- Preventive maintenance #4 required

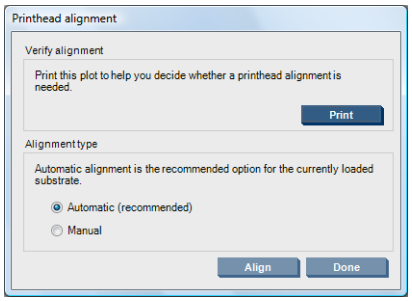
3 Printer calibration

Align the printheads

Precise alignment between printheads is essential for color accuracy, smooth color transitions and sharp edges in graphical elements.

NOTE: You are recommended to align the printheads only when using a single-roll-to-roll configuration. In particular, printhead alignment with dual rolls is not recommended.

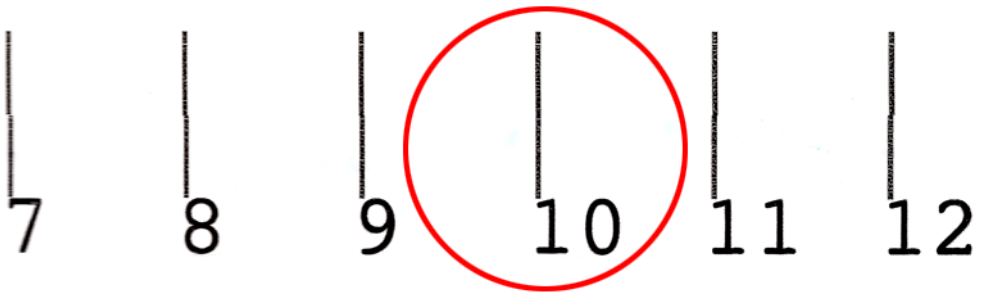
To align the printheads, go to the HP Internal Print Server and select **Printer** > **Printhead alignment**. You can select automatic or manual alignment; the HP Internal Print Server will recommend one or the other, but you can always choose.



- Automatic alignment is a fully automated procedure that ensures optimal print quality in most cases. The printer prints some patterns and scans them with the built-in line sensor. This is the recommended method for any smooth, high-quality substrates (including vinyl, banners or backlit). If the printheads have many defective nozzles, automatic alignment may not give good results.

  The procedure takes about 14 minutes and consumes 23 cm (9 in) of substrate.

- Manual alignment provides reasonable print quality when automatic alignment is not possible, typically because a highly-textured or non-white substrate is loaded (mesh, perforated, some fabrics, transparent, colored). The printer prints 8 series of patterns, and you must choose the best result from each of the series (for example, number 10 in the picture below).



The procedure takes about 15 minutes and consumes 23 cm (9 in) of substrate.

Troubleshoot printhead alignment

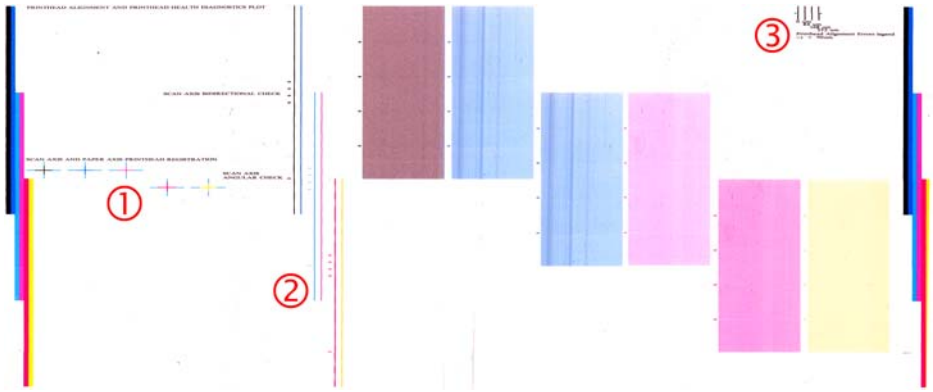
Automatic printhead alignment may fail occasionally. In some cases, you may see the front panel error message "Automatic Printhead Alignment is cancelled because of scanning errors". In other cases, there is no error message but the print quality is not satisfactory. Here are some possible explanations.

- There is some problem with substrate advance (see Substrate-advance compensation on page 11). After fixing any substrate-advance issue, retry automatic printhead alignment.
- You are using a highly-textured (some banners), non-white or very reflective (some satinated offset) substrate. Please use manual printhead alignment in these cases.
- The substrate is wrinkled. Check that the substrate is correctly loaded with uniform tension. Try using the diverter rollers to increase the tension. If necessary, try adjusting substrate parameters such as tension or drying and curing temperatures.
- The substrate is not wide enough. Repeat the alignment process using a substrate roll at least 914 mm (36 in) wide.
- The printer window was open during the printhead alignment process.
- The printheads are not clean. See Clean the printheads on page 33.

If the problem persists, please try using manual printhead alignment, or call your service representative (see HP Customer Care Centers on page 93).

Printhead alignment diagnostic plot

The printer offers a printhead alignment diagnostic plot, to assess the quality of the current printhead alignment. To print it, start the HP Internal Print Server and select **Printer** > **Printhead alignment** > **Diagnostics plot**.



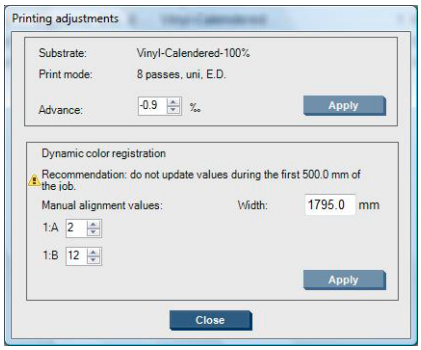
1. The colored crosses on the left side of the plot should show the lines correctly aligned with each other.
2. The vertical lines to left of center should be straight, without kinks.
3. Of the four vertical lines at the top right of the plot, the leftmost show the acceptable level of 'steps'.

Substrate-advance compensation

Accurate substrate advance is important to print quality because it is part of controlling the proper placement of dots on the substrate. If the substrate is not advanced the proper distance between printhead passes, light or dark bands appear on the print, and there may be an increase in graininess.

The printer has a substrate-advance sensor and is calibrated to advance correctly with all the substrates appearing in the front panel. When you select the type of loaded substrate, the printer adjusts the rate at which to advance the substrate while printing. However, if you are using a custom substrate or not satisfied with the default calibration of your substrate, you may wish to change the substrate-advance compensation. See Troubleshoot print-quality issues on page 61 for steps to determine whether substrate-advance compensation will solve your issue.

While printing, you can view and change the substrate-advance compensation of the currently loaded substrate at any time from the HP Internal Print Server by selecting the print job and then the **Printing Adj.** button, or by selecting **Printer** > **Printing adjustments**.



If you prefer the print quality after changing the figure in the Advance field, press the **Apply** button, and thereafter your preferred substrate-advance compensation will always be used for that particular substrate type.

The substrate-advance sensor may not work correctly if it is dirty. See Clean the substrate-advance sensor on page 33.

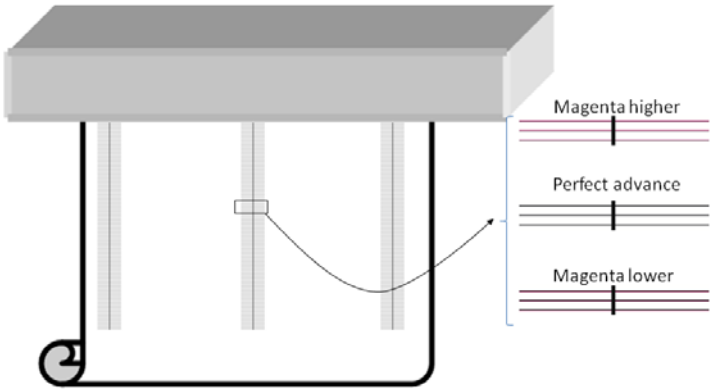
NOTE: Some substrates are invisible to the substrate-advance sensor; in which case, the sensor will not work and should be turned off. You can turn it off by using the Automatic Tracking (OMAS) field in the Loaded Substrate window of the HP Internal Print Server. An alert will advise you if necessary.

NOTE: The substrate-advance sensor scans the back side of the substrate, which it expects to be of a single color and shade. It is not guaranteed to work correctly if the back side has been printed on; in this case, there may be no alert from the printer, but the sensor should be turned off.

Substrate-advance test print

The substrate-advance test print can help you to adjust the substrate advance more accurately.

In the HP Internal Print Server, select **Printer** > **Advance calibration**, then select the print mode that you want to use. The printer prints three columns of fine lines on the substrate, which should all be black if the substrate advance is correct.



If you see some magenta slightly above or below any of the lines, modify the substrate advance as follows.

- If you see magenta above the black lines, increase the substrate-advance setting.
- If you see magenta below the black lines, decrease the substrate-advance setting.
- If you see magenta above in one column, and magenta below in another column, it is likely that the substrate is skewed. Check the distance between the substrate edge and the printer's side plate at the front and at the rear of the printer: the distances should be equal.

TIP: With some substrate presets (such as HP photorealistic, HP self Adhesive), the magenta is almost invisible under the black, making this calibration difficult to read. To solve this issue there is another ladder that can be printed from the IPS:

1. Create a new job to print, selecting a job from the following directory: C:\Users \'login'\Documents\HP IPS\Advance Calibration, ('login': the current login name on the IPS PC)
2. The file name is **substrateadvancecheck_300dpi** and is also called this when it is added to the queue.
3. Nest the ladder, adding the same ladder 2 more times.
4. Arrange the nest to place one ladder in the center, and a ladder on each side of the substrate.
5. Select the print mode and the correct preset substrate, and select print.
6. Compensate the advance using the same process described above, with one modification: The shape of the cross is like this  The magenta lines are at the side of the black lines, and always visble

Color calibration

Color calibration enables your printer to produce consistent colors with a particular substrate type, even if printheads, ink cartridges and environmental conditions change. After color calibration, you can expect to get prints with the same colors from any two LX series printers situated in different geographical locations.

The color calibration test chart is printed using the following print mode, depending on the ink density used with your substrate.

- 14 passes for 250% ink density
- 8 passes for 150% ink density
- 6 passes for 100% ink density

For this reason, you are strongly recommended to have fine-tuned the appropriate print mode before starting color calibration. To fine-tune your substrate preset for a specific print mode, see the *User's guide*.

The recommended print modes for normal printing are as follows.

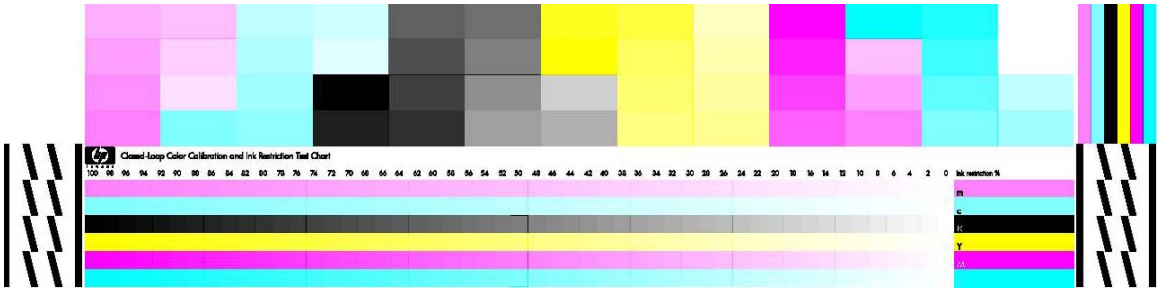
Maximum ink density	Print quality	Passes
250%	High quality plus	18
	High quality	14
	Production plus	10
150%	High quality plus	10
	High quality	8
	Production plus	6
100%	High quality plus	8
	High quality	6
	Production plus	5
85%	Production	4
70%	Billboard plus	3
	Billboard	2
50%	Draft	1

To start color calibration from the HP Internal Print Server, select **Substrate** > **Color calibration**, then click the **Calibrate** button.

NOTE: Color calibration is not recommended when the carriage beam is in a higher position than normal or when the ink collector kit has been installed.

The calibration process is fully automatic and can be performed unattended after you have loaded substrate of the type you wish to calibrate. The process takes about 18 minutes and consists of the following steps.

1. The Closed-Loop Color Calibration and Ink Restriction Test Chart is printed, which contains scales of patches of each ink used in your printer.



2. The test chart is scanned and color-measured using the HP Embedded Spectrophotometer. If the scan cannot be completed successfully, a message is displayed on the front panel; see Color calibration fails on page 87.

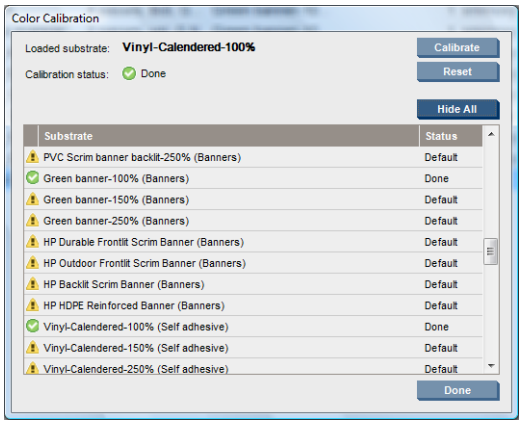
3. From the measurements made by the spectrophotometer, the printer calculates the necessary correction tables to apply to your print jobs, for consistent color printing on that substrate type.

Calibration should be done in any of the following circumstances:

- Whenever a printhead is replaced
- Whenever a new substrate type is introduced that has not yet been calibrated with the current set of printheads
- Whenever you notice excessive color differences between prints. Such color differences can be caused by aging and wear of the printheads, changes in substrate characteristics between one roll and another, changing environmental conditions and so on.

Whenever you replace a printhead, an alert will remind you to perform color calibration, unless you have disabled the alerts. If printhead alignment and/or substrate-advance compensation are also needed, color calibration should always be the last operation.

You can check the color calibration status of your substrates with the HP Internal Print Server or the front panel. In the HP Internal Print Server, select **Substrate** > **Color calibration** > **Show all**.



- **Default** status indicates that the substrate has never been calibrated. In this case, the factory default color tables will be applied to print jobs.
- **Done** status indicates that a color calibration has been performed successfully on this substrate.
- **Obsolete** status indicates that a printhead has been changed since the substrate was last calibrated, and therefore the substrate should be recalibrated.

Color calibration is based on the color measurement of printed color patches, using the HP Embedded Spectrophotometer. Some characteristics of substrates, such as surface roughness or transparency, may make reflective color measurement of some substrate types very inaccurate. Color calibration of these substrates will fail or produce unacceptable printing results.

The suitability of particular substrate types for color calibration can be found in the table of supported substrate types in the *User's guide*. Only substrates wider than 914 mm (36 in) can be calibrated.

It is possible to recover from a bad color calibration by restoring the factory default calibration. In the HP Internal Print Server, select **Substrate** > **Color calibration** > **Reset**.

You should calibrate a substrate type before creating its color profile; however, you can later recalibrate without needing to recreate the color profile.

Ink restrictions

Ink restrictions allow you to set the maximum amount of each primary ink (cyan, magenta, yellow, black, light cyan, light magenta) that can be laid down onto a given substrate.

To adjust ink restriction percentages from the HP Internal Print Server, select **Substrate** > **Edit** > **Color**.

Ink restriction percentages can be set from 50% to 100% for all inks by filling in the appropriate boxes. In general, a figure of about 80% is recommended.

High percentage settings (approaching 100%) use more ink and may therefore increase color gamut, at the cost of leaving less margin for the operation of the color calibration system, which may reduce color consistency.

Lower percentages use less ink, provide a smaller color gamut and a higher range of compensation for best color consistency.

NOTE: Ill-defined ink restrictions may lead to unpredictable results. You can restore the default ink restriction settings by selecting **Substrate** > **Edit** > **Color** > **Reset**.

The Closed-Loop Color Calibration and Ink Restriction Test Chart contains printed ink ramps in 2% steps, which can be useful as a visual guide for selecting the ink restriction percentages.

To print the Closed-Loop Color Calibration and Ink Restriction Test Chart, select **Substrate** > **Edit** > **Color** > **Print plot**.

Color profiles

Color calibration provides consistent colors, but consistent colors are not necessarily accurate. For instance, if your printer prints all colors as black, its colors may be consistent but they are not accurate.

In order to print accurate colors, it is necessary to convert the color values in your files to the color values that will produce the correct colors from your printer, your inks and your substrate. An ICC color profile is a description of a printer, ink and substrate combination that contains all the information needed for these color conversions.

These color conversions are performed by your Raster Image Processor (RIP), not by the printer. For further information on the use of ICC profiles, see the documentation for your application software and for your RIP.

Dynamic color registration

If your substrate expands or shrinks due to the heat applied in the printing process, you may notice some color misregistration in your prints. You can reduce this problem using dynamic color registration, as follows:

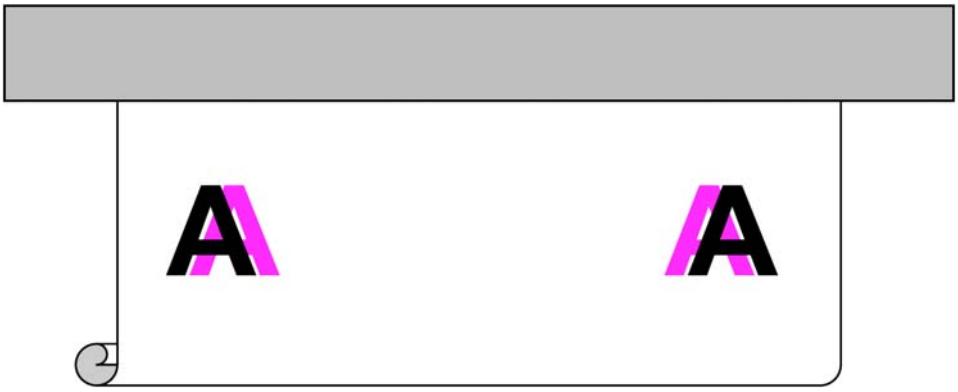
1. Print a test pattern from the HP Internal Print Server.
2. Select settings to correct the error in the HP Internal Print Server.

Consider performing dynamic color registration in the following cases:

- When you notice color misregistration in your prints
- When you use a substrate type for the first time
- When printing double-sided
- After replacing a printhead and aligning the printheads

The problem: color misregistration

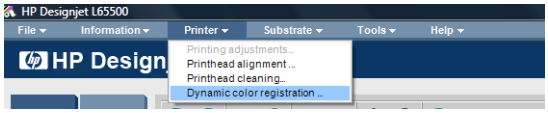
Color misregistration means that colors are horizontally misaligned, in the direction of the carriage, towards the center of the substrate. The misregistration is different on each side of the roll, and cannot be corrected by printhead alignment. The examples shown here are magenta and black, because they are the most visible, but misregistration can also occur with the other color pairs: magenta and cyan, yellow and black, yellow and cyan.



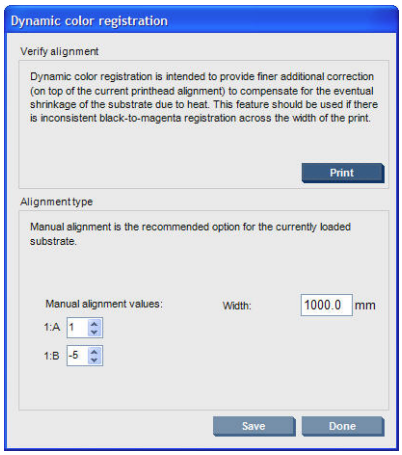
This issue does not occur with every substrate. If you see the same misregistration across the width of the roll, use printhead alignment instead.

The solution: dynamic color registration

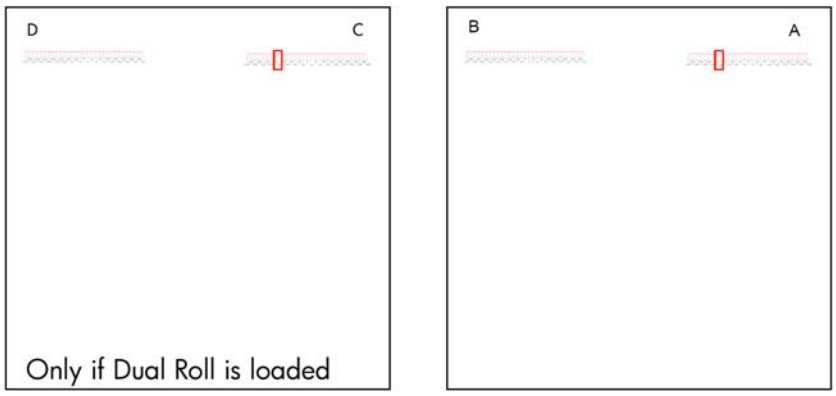
1. In the HP Internal Print Server, select the **Printer** menu and then **Dynamic color registration**.



2. Press the **Print** button.



3. The Dynamic Color Registration test pattern is printed. This consists of two separate patterns printed on the left and right sides of the substrate, and marked 'A' and 'B' (or if the Dual Roll is loaded also C & D).



NOTE: The substrate advances about 0.5 m (20 in) before the test pattern is printed.

4. For each pattern, note the number where the lines in the two colors are aligned with each other.

5. Enter both numbers (A and B) into the Dynamic color registration window still displayed by the HP Internal Print Server, under 'Manual alignment values'.

6. Select **Save** to apply the calibration and select **Done** to close the window. The calibration will be used in the next job printed.

Dynamic color registration is not saved in the substrate preset and so the printer remembers only the last dynamic color registration that you performed. You need to repeat it in any of the following cases:

- Whenever you change the type of substrate on which you are printing.
- Whenever you align the printheads.
- Whenever you change the drying temperature.

NOTE: Substrate expansion or contraction does not occur immediately at the beginning of a print. You are unlikely to see it in the first 0.5 m (20 in) of printed substrate. After dynamic color registration, you may notice overcompensation in the first 0.5 m (20 in) of each job, depending on the substrate.

NOTE: When printing in 8 pass Unidirectional with a substrate preset of 100%, the correct values A/B that are visible on the plot (where the black and magenta lines are aligned) has to be multiply by 2 and entered in the IPS within the corresponding cells on the IPS. In addition the dynamic color calibration cannot compensate for values more than 30 or less than -30.

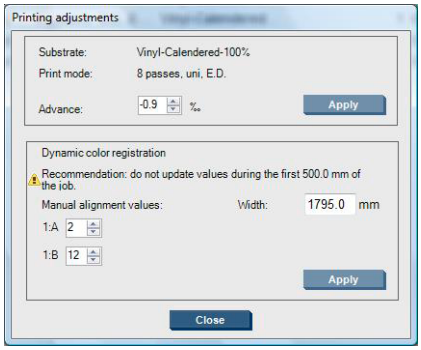
Dynamic color registration without the test pattern

You can enter the A and B values without printing the test pattern. There are two scenarios in which you may want to do this.

- You intend to find the correct A and B values by trial and error. In this case, you need to know that the A value affects printing on the right-hand side of the substrate, while the B value affects printing on the left-hand side. Increasing the value moves magenta to the left, decreasing it moves magenta to the right.
- If there is a warning message while performing the Dynamic Color Registration, that the values cannot be relied upon. This will occur if the values are off the scale.

Dynamic color registration on the fly

You can adjust the dynamic color registration while the printer is printing. In the HP Internal Print Server, select **Printer** > **Printing adjustments**.



Change the A and/or B values and click **Apply**. The A value affects printing on the right-hand side of the substrate, while the B value affects printing on the left-hand side. Increasing the value moves magenta to the left, decreasing it moves magenta to the right.

The new calibration will be visible after a certain length of substrate has been printed on. The length will depend on the print mode. Examples:

- With a 2-pass print mode, about 1 m (40 in) of substrate will be printed before the calibration takes effect.
- With a 4-pass print mode, about 0.5 m (20 in) of substrate will be printed before the calibration takes effect.
- With an 8-pass print mode, about 0.25 m (10 in) of substrate will be printed before the calibration takes effect.

For some substrates where the dynamic color registration calibration is not working as expected, the following steps should be used. Be patient, wait for the right quantity of material to be printed before making any new adjustments on the fly:

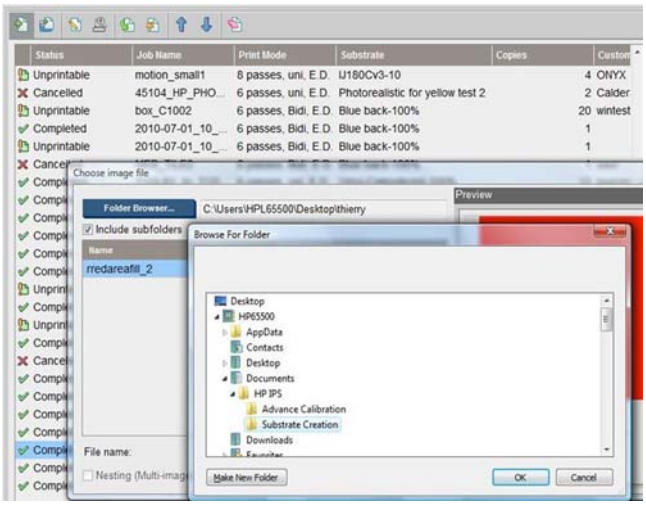
How to fine-tune and check the printer configuration:

A series of crosses can be printed on the full width of the substrate for one meter and then the calibration can be done 'on the fly' through the Print Adjustment button.

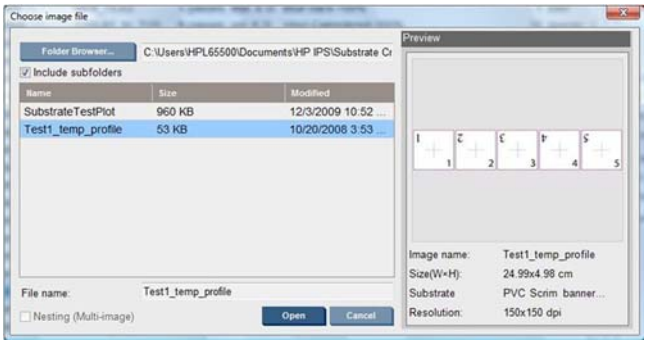
Make sure that the Printheads are aligned. To do this print the Printhead alignment check (printer -> Printhead alignment -> Verify alignment and click on print, (refer to the maintenance and

troubleshooting guide). If required, perform the Printhead alignment and recheck that the Printheads are aligned.

1. Browse to the following directory: C:/users/currentlogin/Documents/HP IPS/Substrate Creation.



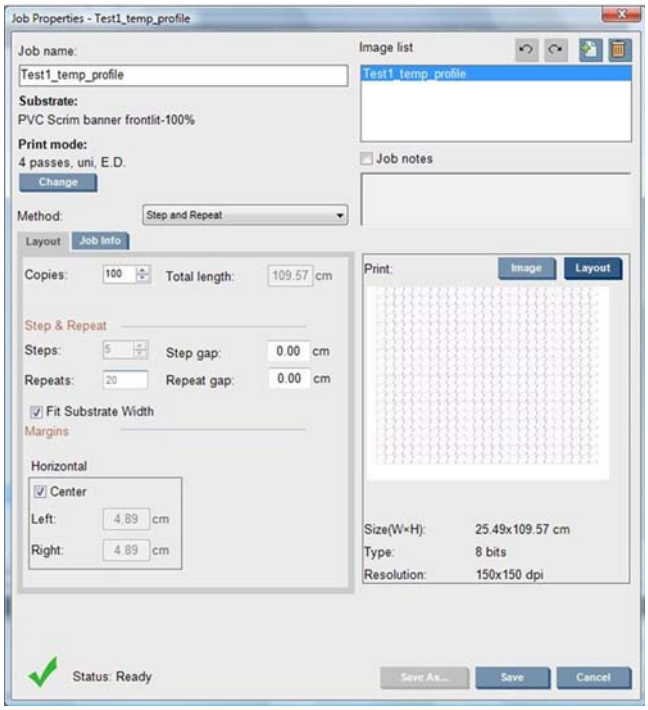
2. Select the file 'Test1_temp_profile'.



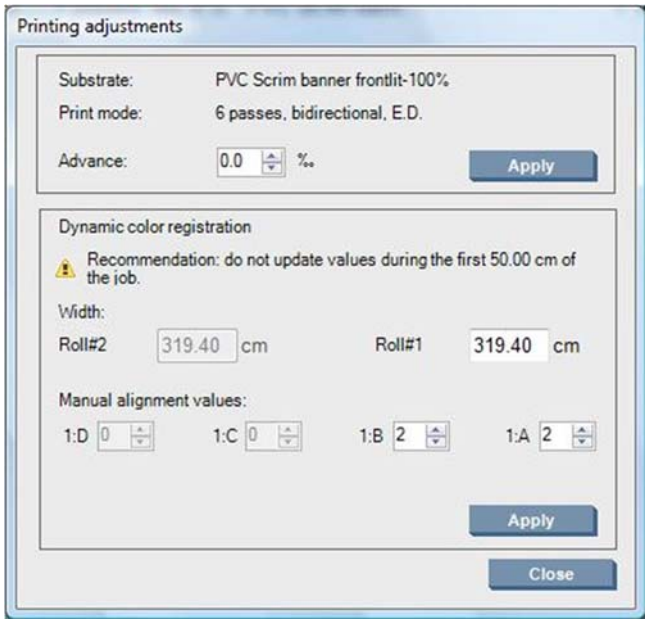
3. Click on Open and set the following settings on this job:

   - Set the printmode to the one that you plan to use, set also the correct substrate preset that you want to print on.
   - In **Method**, select **Step and Repeat**.
   - Check **Fit Substrate width**.
   - Check **Center**.
   - Increase the copies to reach a total length to print of at least 1 meters (40").

   Here is an example:



4. Select print and through the **Print Adjustment** button, change the advance and dynamic color registration while printing, wait for 50 cm to be printed to be sure the printer has reached a stable phase (the first 50 cm can still be misaligned through the substrate advance or scan axis).



5. Use the following procedure to perform the fine tune:

   a. **Advance:** By checking the horizontal lines:

      - If you see magenta above the black/cyan lines, increase the substrate-advance setting.
      - If you see magenta below the black/cyan lines, decrease the substrate-advance setting. Click on Apply.

NOTE: Important notes when using the new calibration plot:

Certain types of substrate can sometimes skew in the substrate path, which causes the calibration to drift overtime. When loading the substrate for the calibration make sure that the substrate is loaded correctly and check that there is no skew. If necessary recalibrate when needed.

Some substrate types deform under temperature more than others, with certain types of substrate the amount of deformation is too much and the calibration functionality in the printer cannot compensate (A or B over 30 or below -30).

It is important to note that when using 8 pass unidirectional printmode with the 100% density substrate category the correcting capability is half compared to any other printmode.

b. **Color Registration:** By checking the vertical lines from the output. The A value affects printing on the right-hand side of the substrate, while the B value affects printing on the left-hand side. Increasing the value moves magenta to the left, decreasing it moves magenta to the right, and click on Apply

The calibration (color registration) will be visible after a certain length of substrate has been printed. The length will depend on the print mode. Examples:

- With a 2-pass print mode, about 1 m (40 in) of substrate will be printed before the calibration takes effect.
- With a 4-pass print mode, about 0.5 m (20 in) of substrate will be printed before the calibration takes effect.
- With an 8-pass print mode, about 0.25 m (10 in) of substrate will be printed before the calibration takes effect.

Which calibrations are specific to a certain substrate preset or printmode

Some calibrations that the printer performs are specific to the substrate that was loaded at the time the calibration was performed and some are not. The calibrations that are specific to the loaded substrate must be performed again if the substrate is changed. Shown below are the calibrations showing which ones are specific to the substrate loaded and which ones are not.

- **Printhead Alignment**: This calibration is applied to all presets and printmodes. Usually, when switching from one substrate to another, there is no need to redo this calibration, however if printing in bidirectional where the variation in thickness of the substrate could impact the bidirectional alignment, then the calibration would need to be performed again.
- **Dynamic Color Registration**: This calibration is defined per substrate preset. It should also be noted that when changing from one printmode to another the printing behavior of the substrate may change, there may be increased contraction for example, also if the heating and curing temperatures, air flow are changed. In these cases it is better to create two separate substrate presets, with the different printmodes,
- **Substrate Advance Compensation**: This calibration is specific per preset substrate per printmode. When changing from one printmode to another (even from uni to bidi), the Substrate Advance Calibration must be performed again. The ED and GN share the same substrate advance calibration.
- **Color Calibration**: This calibration is per substrate preset.

4 Hardware maintenance

Maintain the ink cartridges

During the normal lifetime of a cartridge, no specific maintenance is required. However, in order to maintain the best print quality, replace a cartridge when it reaches its expiration date. An alert notifies you when any cartridge reaches its expiration date.

You can also check a cartridge's expiration date at any time: see Check printer status on page 7.

Maintain the printheads

To maintain the best print quality, replace a printhead when it reaches its expiration date. An alert notifies you when any printhead reaches its expiration date.

You can also check a printhead's expiration date at any time: see Check printer status on page 7.

Printheads should be cleaned and aligned from time to time: see Clean the printheads on page 33 and Align the printheads on page 9.

To check the printheads for blocked nozzles, see Check the printheads on page 24.

TIP: If you remove an unexpired printhead from the printer, planning to reuse it later, the best way to protect it is by replacing the protective caps that you removed before inserting it into the printer.

Maintain the substrates

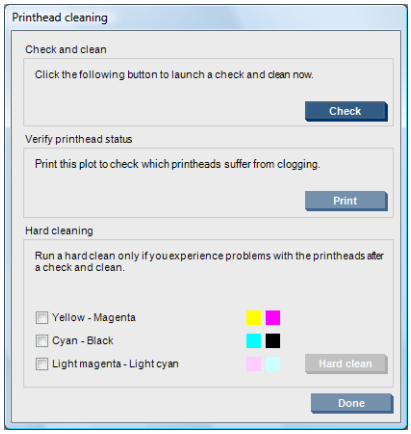
Keep substrates in their sealed wrapping material while they are in storage, and store rolls vertically to avoid the migration of plasticizers in some materials.

Move substrates from the storage area to the print production area at least 24 hours before use, so that they can adapt to its temperature and humidity.

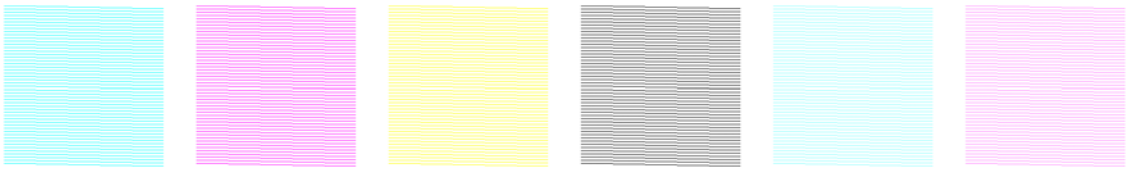
Check the printheads

If you believe that one or more of the printheads is performing poorly:

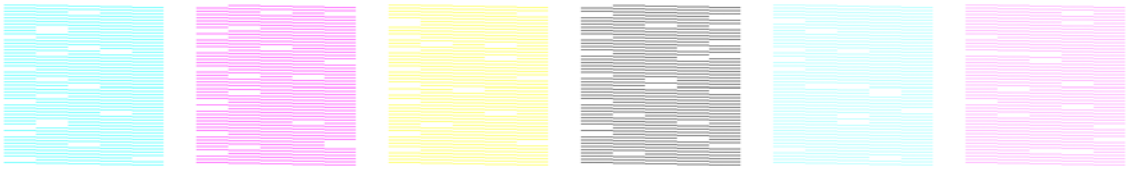
1. Go to the HP Internal Print Server and select **Printer** > **Printhead cleaning**.



2. Press the **Check** button to perform routine cleaning.
3. If the problem persists, press the **Print** button in the same window to print the following display. Each color is printed by a single printhead and shows the performance of that printhead.



If a significant number of printhead nozzles are blocked, you will see missing lines in this display, as shown below.



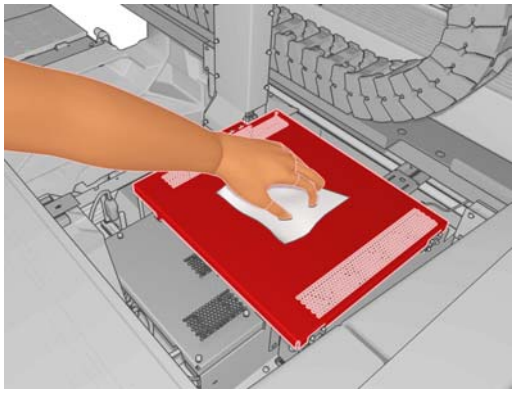
4. In the same window, select any printheads that are showing missing lines, and press the **Hard clean** button.
5. When the hard clean has finished, press the **Print** button again to see whether the printheads have improved.
6. Check that the printheads' electrical contacts are clean. See The front panel recommends replacing or reseating a printhead on page 82.
7. If you still see five or more missing lines in any one color, you are recommended to replace that printhead. With fewer missing lines, the printer can maintain good quality when printing with four or more passes.

If the above printout seems blurred or grainy, you may need to change the substrate-advance compensation (see Substrate-advance compensation on page 11).

Clean the carriage cover

The printhead carriage cover is designed to reflect the radiation of the drying lamps in order to avoid overheating the printheads. If the cover becomes dirty, it reflects less heat. To avoid possible damage to the printheads, the carriage cover may need to be cleaned about once every two months, depending on your use of the printer. An alert is displayed when the cover needs to be cleaned.

1. Go to the front panel and select **Clean carriage cover** from the Preventive Maintenance menu . The carriage moves into the electrical compartment.
2. Open the printhead access door.
3. Press the OK key on the front panel.
4. Clean the carriage cover with a lint-free cloth.



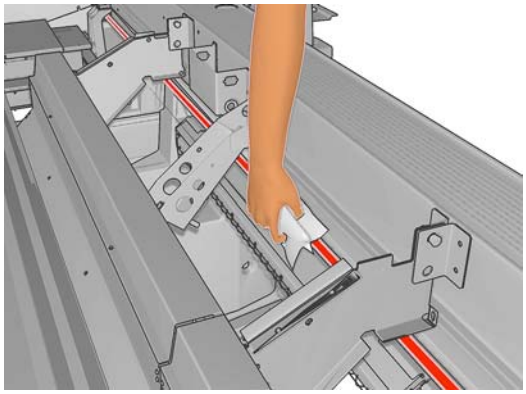
5. If you find dried ink that you cannot remove with the dry cloth, try dampening the cloth with 95% ethanol. After cleaning, wait for the cover to dry.
6. Close the door and press the OK key on the front panel.

Clean the carriage rails

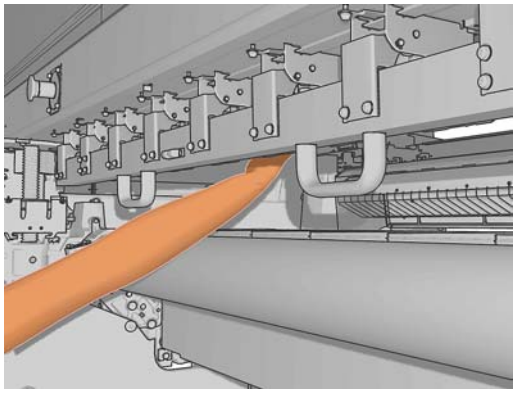
The rails along which the carriage moves may need to be cleaned about once every 2 years, depending on your use of the printer. An alert is displayed when they need to be cleaned.

1. Go to the front panel and select **Clean carriage rails** from the Preventive Maintenance menu . Press OK to continue.
2. The carriage beam is automatically raised, as when loading substrate.
3. When the carriage beam has stopped rising, turn off the printer.
4. If you are not already wearing them, put on a pair of gloves.

5. Standing at the front of the printer, clean the front rail using a lint-free cloth dampened with 95% ethanol. You can access the rail from above.

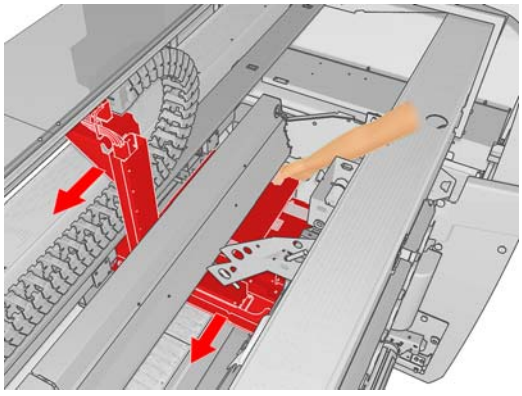


6. Standing at the rear of the printer, clean the rear rail in the same way. You can access the rail from below, through the gap between the platen and the pinches.



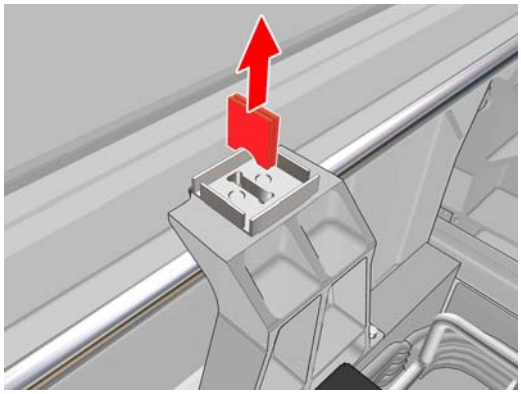
7. Wait until the rails are dry.

8. Move the carriage manually into the electrical compartment.

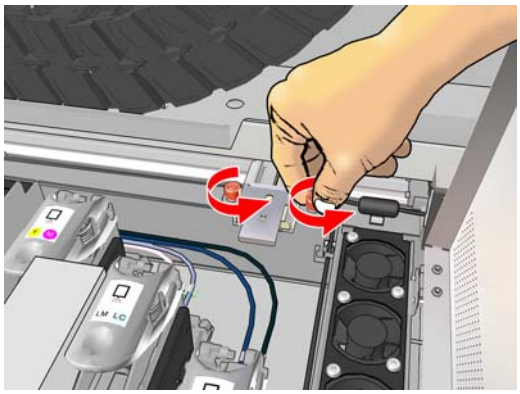


9. Replace the carriage oiler foams (see Replace the carriage oiler foams on page 37).

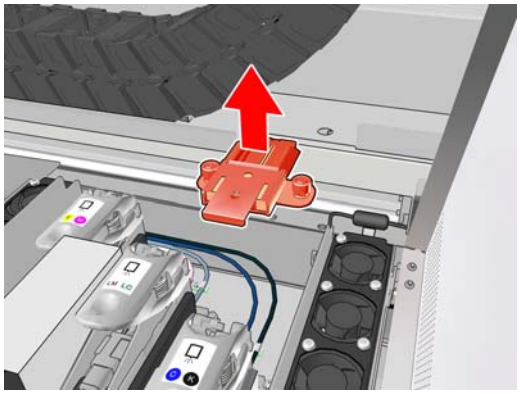
10. Replace the oil wicks, which are orange-colored and located under the oiler foams. The two front oil wicks are easy to remove once you have removed the oiler foam.



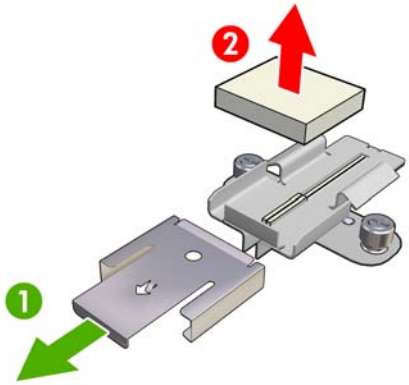
11. To replace the rear oil wicks, first loosen the two screws.



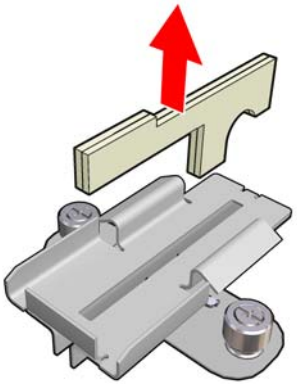
12. Remove the rear oiler assembly.



13. Slide the cover out and remove the oiler foam.



14. Remove the two oil wicks.



15. Insert the new oil wicks, replace the foam and the cover, and reattach the oiler assembly to the printer.
16. Lubricate the two carriage rails using a lint-free cloth impregnated with the oil provided in the cleaning kit.
17. Turn the printer back on.
18. Select **Carriage beam position** > **Move to printing (normal)** from the front panel's Substrate menu to lower the carriage beam into its normal position, close to the substrate. This process takes about 2 minutes to complete.

Clean the curing plates

The curing plates should be cleaned whenever you see dirt or condensation on them. Before cleaning, either lower the curing plates or raise the carriage beam to its highest position. Clean them with a clean cloth dampened with water.

Clean the diverter rollers

The diverter rollers are included in the ink collector kit, they can be used with porous substrates and to help solve wrinkle issues with the substrate. They could become dirty whenever a print is not properly cured.

Clean the diverter rollers with a clean cloth dampened with water, and make sure they are dry before printing.

Clean the exterior of the printer

Clean the outside of the printer and all other parts of the printer that you regularly touch as part of normal operation with a damp sponge or a soft cloth and a mild household cleaner such as non-abrasive liquid soap.

If you see condensation on the inside of the transparent cover over the middle of the printer, wipe it with a dry cloth.

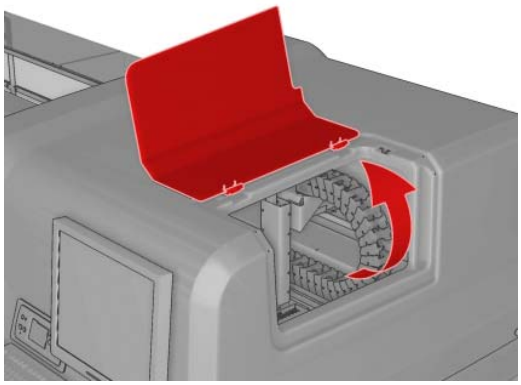
⚠ **WARNING!** To avoid an electric shock, make sure that the printer is turned off and unplugged before you clean it. Do not let water get inside the printer.

⚠ **CAUTION:** Do not use abrasive cleaners on the printer.

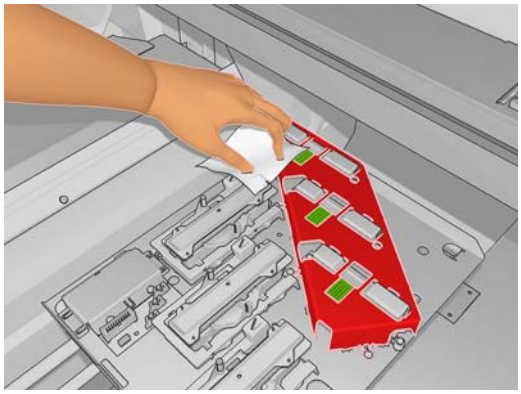
Clean the ink deposits

There are three ink deposits, one for each printhead. They may need to be cleaned every three or four months, depending on your use of the printer. An alert is displayed when the ink deposits are 85% full, and again when they are full and need to be cleaned.

1. Go to the front panel and select **Clean ink deposits** from the Preventive Maintenance menu  .
2. Wait until the printhead carriage has stopped moving, then unlock and open the printhead access door in the side of the printer.



3. Clean the interior of each ink deposit with a cotton swab or cloth dampened with distilled water. If you cannot remove the dried ink this way, try using 95% ethanol instead of distilled water.

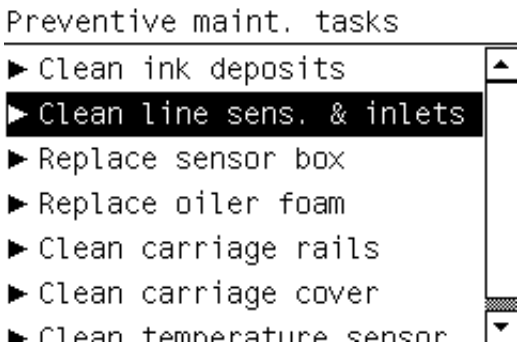


4. Also clean the area around the ink deposits; but do not try to clean the printhead area.
5. Close the printhead access door.

Clean the line sensor and aerosol inlets

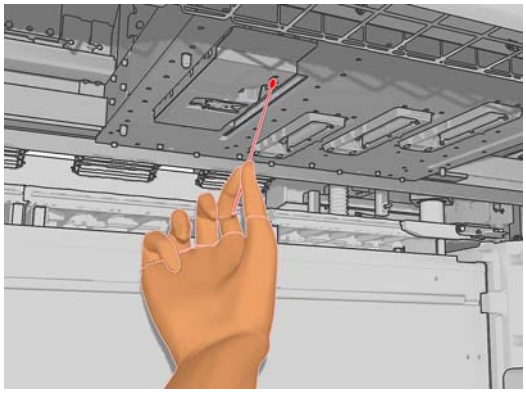
In the course of normal use, the line sensor becomes gradually blinded by light deposits of dried ink. An alert is displayed when the line sensor needs to be cleaned, which may be about every 2 months, depending on your use of the printer. When you see the alert, follow this procedure to clean the sensor.

1. Go to the front panel and select **Clean line sens. & inlets** from the Preventive Maintenance menu .

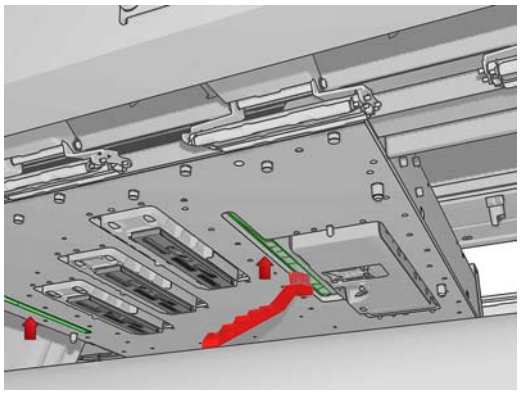


2. The printer raises the carriage beam so that you can access the sensor.
3. Wait for the front panel to announce that the sensor is ready for cleaning.
4. Dampen a cotton swab with 95% ethanol. Swabs are provided in the cleaning kit.

5. Reach underneath the line sensor and clean it with the cotton swab as shown.



6. Use a brush to clean accumulated dust from the aerosol inlets. Do not use the brush on any other parts.



7. Look for condensation under the carriage, and remove it with a clean lint-free cloth if necessary.

CAUTION: Do not touch the printhead nozzles, which could damage them.

8. Press the OK button on the front panel. The printer lowers the carriage beam to its normal position.

WARNING! Do not insert your hands or anything else into the printer while the carriage is descending.

Clean the main roller

The main roller should be cleaned whenever it is visibly dirty, or when you notice that substrate advance is no longer smooth and regular.

- Unload the substrate.
- Go to the front panel and select **Clean main roller** from the Preventive Maintenance menu . The main roller will start moving slowly.
- Clean the roller with a clean cloth dampened with water; do not use petroleum-based cleaning liquids.
- The roller will continue turning until you press the Cancel key. You can also stop it temporarily with your finger.
- Ensure that the roller is dry before reloading the substrate.

Clean the pinch wheels

If the pinch wheels are dirty, they can be cleaned by advancing the substrate (less than a meter). Cleaning the wheels manually could damage them, and is not recommended.

Clean the platen

You should clean your printer's platen every few months, or when necessary.

NOTE: If you print on a porous substrate, you should clean your printer's platen immediately after printing.

NOTE: If you print on a wide substrate after having printed on a narrower substrate, you might find that the left side of the platen has become dirty. If this contaminated section of the platen is not cleaned, it might leave marks on the back of the substrate.

CAUTION: Be careful not to damage the substrate-advance sensor when cleaning the platen. The sensor is the very small rectangular window (less than 1 cm^2) found close to the third pinchwheel from the right. See Clean the substrate-advance sensor on page 33.

Follow these instructions to clean the platen.

1. Unload all substrate from the printer. See the *User's guide*.
2. Turn off the printer and wait until it has cooled down, then unlock and open the printer window.
3. Use a clean, absorbent lint-free cloth to thoroughly wipe any wet ink from the cutter groove, cutter ramp and platen.
4. With a dry brush, remove dry loosened ink deposits from the cutter groove and cutter ramp. A brush is available in the Maintenance Kit.
5. With the same dry brush, remove dry loosened ink deposits from the platen surface.
6. With the used cloth, slightly dampen with 95% ethanol to wipe the remaining dry ink deposits from the platen.

   NOTE: 95% ethanol is not provided in the Maintenance Kit.

   CAUTION: Do not use commercial cleaners or abrasive cleaners. Do not wet the platen directly, because you will leave too much moisture behind.

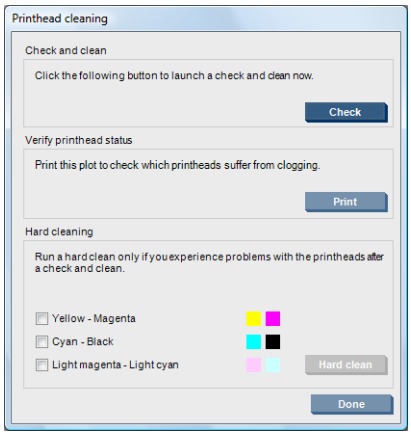
   CAUTION: Ethanol is highly flammable. Observe all manufacturers' safety precautions when using it.
7. Use the damp cloth to remove remaining dry ink deposits from the cutter ramp.
8. Use a dry cloth to clean the exposed part of the wheels. Ideally, you should clean the entire circumference of these wheels.
9. Remove the 95% ethanol and the cloth from the vicinity of the printer.
10. Wait three or four minutes to let the ethanol evaporate, before turning on the printer and reloading the substrate.

Clean the printheads

The printheads should all be cleaned regularly, once a week. In addition, it is worth cleaning the printheads if you are experiencing poor print quality and cannot resolve the issue by other methods. Cleaning ensures that there is fresh ink in the nozzles and helps to prevents clogged nozzles.

If you have printed the printhead status plot, you know which colors are failing. Clean the printheads that are not performing adequately. If you are not sure which printheads to clean, clean all of the printheads.

To clean the printheads, go to the HP Internal Print Server and select **Printer** > **Printhead cleaning**. HP recommends the Check and Clean option.



If you decide on a hard clean, you can select which printheads to clean.

Clean the substrate-advance sensor

The substrate-advance sensor should be cleaned periodically (every 1 to 3 months, depending on the printer usage and substrate type—see note below), whenever you clean the platen, and whenever you have printed by accident directly onto the platen. See Clean the platen on page 32. The printer displays no periodic alert to remind you, but it will notify you if the sensor becomes unusable.

NOTE: Porous substrates or liners can allow small amounts of ink to pass through to the platen and sensor window, to the extent that a clean sensor can become dirty before finishing a single roll. For this reason, it is best to disable the sensor when loading a porous substrate, and to clean the platen and sensor before loading another substrate.

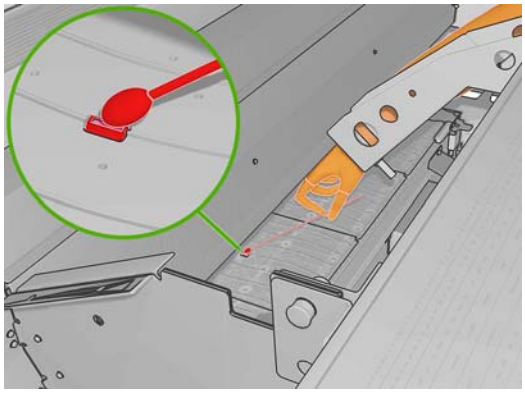
The sensor is located between the second and third group of three pinches, in the middle of the platen.

TIP: You may need a ladder to reach the sensor.

TIP: Cleaning is easily done by reaching over the carriage beam in its low position. If you try to do it by putting your arms below the beam in its high position, you will find it more difficult to access the sensor and to check that it is clean.

1. Unload the substrate.

2. Wipe the sensor with one of the cotton swabs provided in the cleaning kit, slightly dampened with 95% ethanol, to remove dried ink. If the sensor window is heavily coated with dried ink, you may need to apply some pressure while wiping, helping the cotton to absorb the ink. Continue cleaning with fresh swabs until the cotton stays clean and the sensor window looks clean.



When reflecting ambient light, a clean sensor shows a blue-colored reflection that should extend uniformly across its whole surface. You can see this reflection by moving closer and slightly changing your angle of view.

3. Wait 3 or 4 minutes before reloading the substrate, so that the alcohol can evaporate completely.

Clean the substrate edge holders

If you sometimes print with very small side margins, ink may accumulate on the substrate edge holders, which can cause smears on your prints and blocked nozzles in the printheads.

Check the substrate edge holders monthly for dried ink. If necessary, clean them with a lint-free cloth dampened with 95% ethanol.

TIP: It is not normally necessary to remove the edge holders from the printer, and doing so may damage them. When not required, they can simply be pushed to the side, away from the substrate.

Clean the temperature sensors

An alert is displayed when the temperature sensors need to be cleaned, which may be about every 2 months, depending on your use of the printer. When you see the alert, follow this procedure to clean the sensors.

1. Go to the front panel and select **Clean temperature sensors** from the Preventive Maintenance menu . Press OK to continue.

2. Unload the substrate.

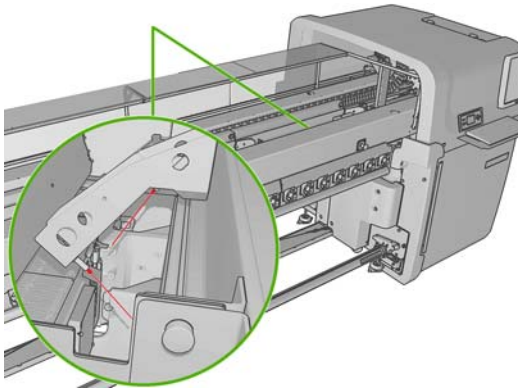
3. When the substrate has finished unloading, press an emergency stop button to turn off the mechanical and drying components of the printer. This is advisable for your own safety.

4. Wait until the dryers cool down.

CAUTION: In the following procedure you will be working close to surfaces that are hot during normal printer operation. Check that they are cool before proceeding.

5. Dampen a cotton swab with distilled water. Swabs are provided in the cleaning kit.

6. Use the swab to clean the lenses of both temperature sensors (drying and curing).



7. Check that the lenses are clean by looking directly at them from underneath the printer.

   Alternatively, continue cleaning until the cotton swab remains clean after cleaning.

8. Press OK at the front panel to tell the printer that the sensors have been cleaned.
9. Ensure that the emergency stop buttons are released, then restart the printer.

Clean the tension roller (LX850 only)

The tension roller should be cleaned whenever it is visibly dirty, or when you notice that substrate advance is no longer smooth and regular.

- Unload the substrate.
- Go to the front panel and select **Clean tension roller** from the Preventive Maintenance menu . The tension roller will start moving slowly.
- Clean the roller with a clean cloth dampened with water; do not use petroleum-based cleaning liquids.

CAUTION: Take care not to allow the roller to trap your hands while cleaning.

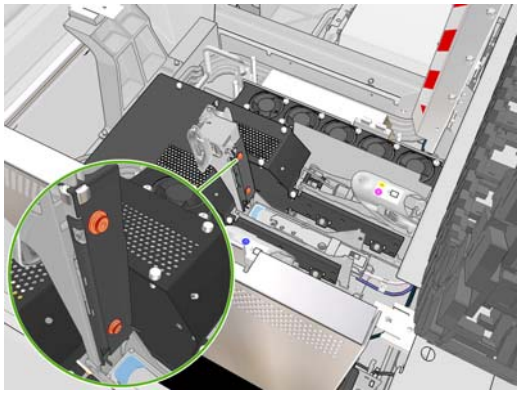
- The roller will continue turning until you press the Cancel key. You can also stop it temporarily with your finger.
- Ensure that the roller is dry before reloading the substrate.

Maintain the printhead primers

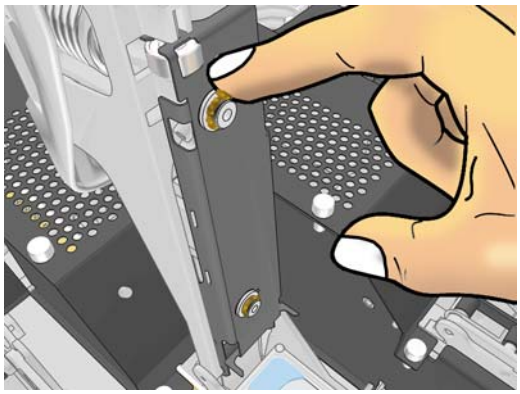
Try this procedure if hard cleaning of a printhead has no effect.

1. Go to the front panel and start the process to replace the printhead in question (see the *User's guide*).

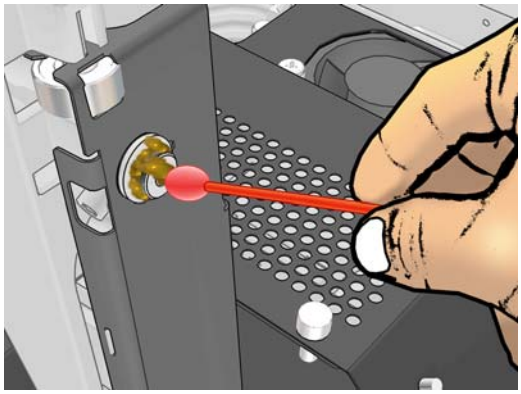
2. After lifting the printhead cover, you will see two 'O' rings that seal the joints between the printhead cover and the printhead.



3. With your finger, apply a little grease to the 'O' rings to improve their performance. A suitable grease is available in a syringe in the cleaning kit.



The grease should be applied to the black rubber part only. If you get grease in the central hole, remove it with a toothpick or similar tool.

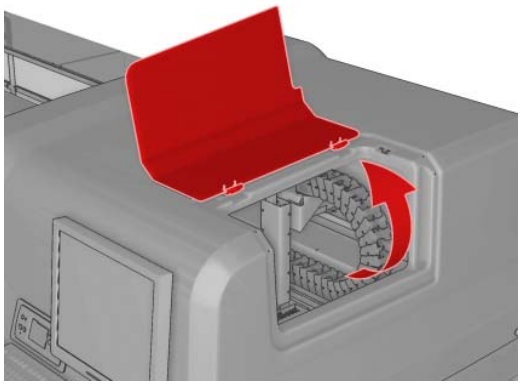


4. Close the printhead cover, the carriage cover and the printhead access door.
5. Request a hard clean of the printhead (see Check the printheads on page 24).
6. If the error persists, call your service representative (see HP Customer Care Centers on page 93).

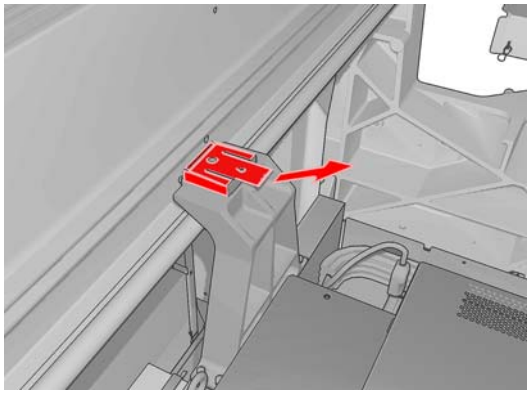
Replace the carriage oiler foams

The printhead carriage contains two chunks of foam impregnated with oil that continuously lubricate the carriage rails. They may need to be replaced about every 2 or 3 months, depending on your use of the printer. Replacement foams are available in the cleaning kit.

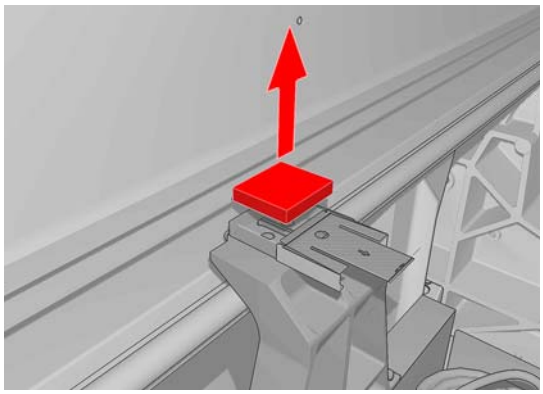
1. Go to the front panel and select **Replace oiler foam** from the Preventive Maintenance menu  . The carriage moves into the electrical compartment and heating is turned off.
2. Unlock and open the printhead access door.



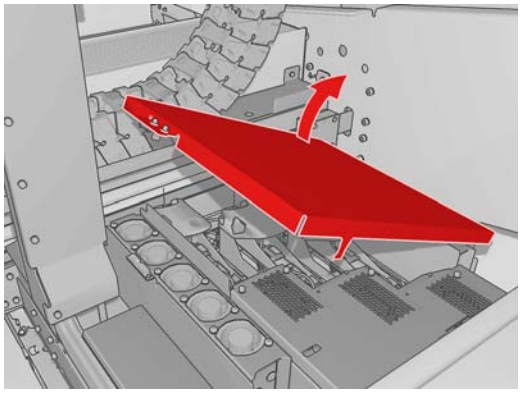
3. Slide off the cover of the front oiler foam.



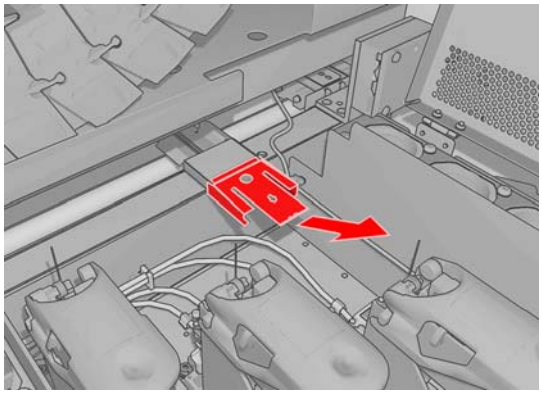
4. Remove the old foam, insert the new foam, and replace the cover.



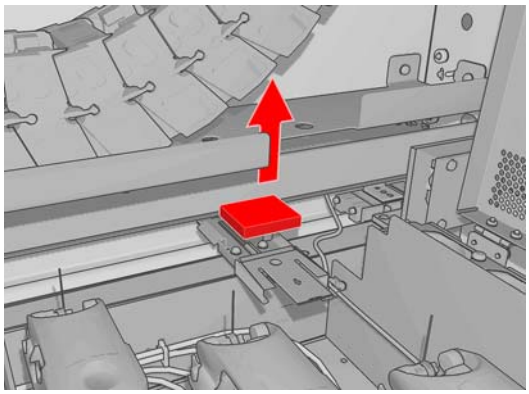
5. Open the carriage cover to access the rear oiler foam.



6. Slide off the cover of the rear oiler foam.



7. Remove the old foam, insert the new foam, and replace the cover.



8. Close the carriage cover and the printhead access door.

9. Press the OK key when finished.

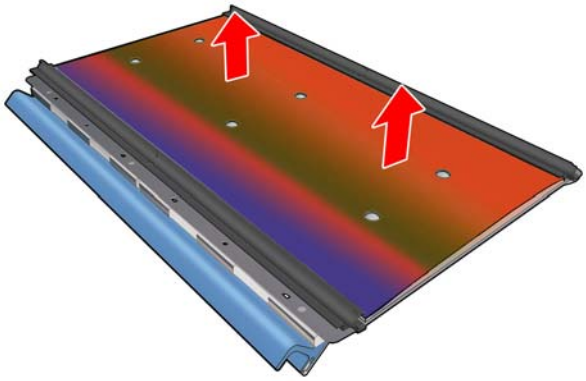
Replace the ink collector foams (LX850 only)

There is a single piece of foam in each ink collector. The foam gradually absorbs more and more ink. When the ink reaches the level of the ink collector ribs, it may begin to touch the bottom of the substrate and leave marks on it. At this point, you should replace the foams with new ones. Replacement of these foams is, in normal usage conditions, after 2500 linear meters, which given most substrate rolls are 50 m long, means after 50 rolls, provided Flag material is above 100gsm and has less than 20% porosity.

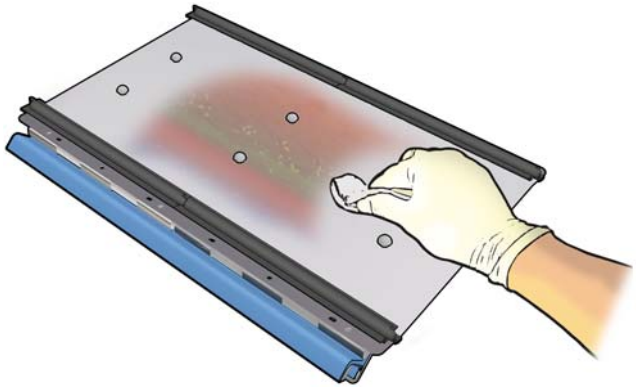
The Absorber Foam Kit (part number CR774-67003) can be ordered from your service representative. You can minimize delay by ordering it in advance, before you need it

NOTE: This kit is not covered by the printer's warranty as it is considered as a routine printer maintenance operations, to be done only when using highly porous substrate which lets through an significant quantity of ink, Please see your HP Scitex LX Printer family Legal information documentation for further information.

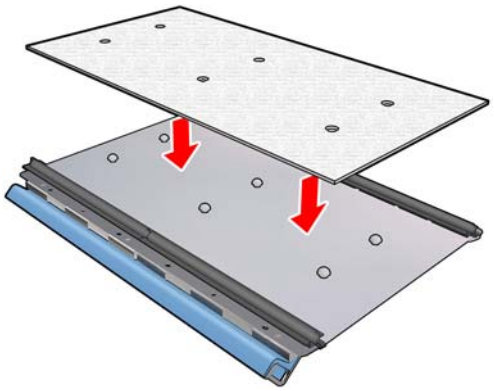
1. Remove the ink collectors from the printer (see the *User's Guide*).
2. Remove the ink-saturated foams.



3. Clean the plates and ribs with an all-purpose cleaner. Make sure the ribs are clean.



4. Remove the pre-perforated holes to match up with the nips on the plate. Insert the new foams. The recommended way is to insert the right edge of the foam first, into the right rib; then engage the right row of holes; then insert the left edge of the foam into the left rib; then engage the left row of holes.

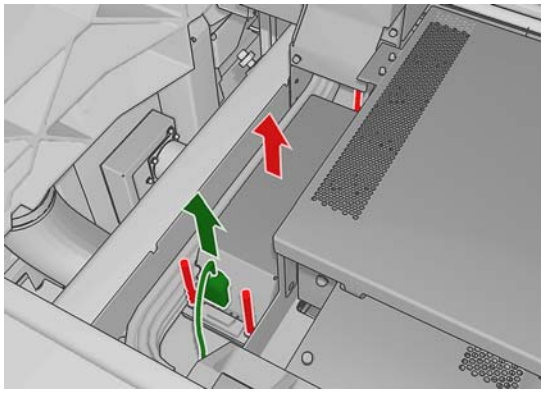


5. Replace the ink collectors in the printer.

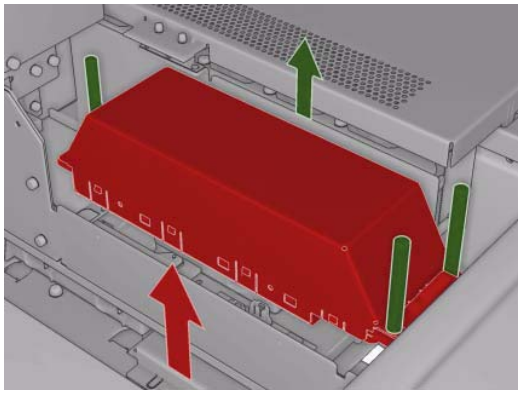
Replace the line sensor box

An alert is displayed when the line sensor box needs to be replaced. The printer moves the carriage to the right so that the box is easily accessible, and turns off power to the carriage. When you see the alert, follow this procedure to replace the box.

1. Go to the front panel and select **Replace sensor box** from the Preventive Maintenance menu  .
2. The carriage moves out from the right cover.
3. Unscrew the three screws of the line sensor box and disconnect the connecting cable.



4. Remove the line sensor box.



5. Connect the cable to the new line sensor box.
6. Place the new box into the printer and fix it in place with the screws. No tool is needed.
7. Press OK at the front panel.
8. The printer turns on power to the carriage and checks the sensor.

Replace the printhead cleaning roll and aerosol filters

The printhead cleaning roll is used to clean the printheads between printing passes. It must be replaced periodically in order to maintain print quality. The frequency of replacement depends on your use of the printer: approximately monthly with average use.

An alert is displayed when 75% of the roll has been used, and again when 95% of it has been used. You can choose to replace the roll at any time.

If there is not enough of the roll to start a new job, the printer cancels the job.

Whenever you replace the printhead cleaning roll, you should also replace the aerosol filters. The roll and the aerosol filters are supplied together in the Maintenance Kit (see 'How to order supplies' in the *User's Guide*).

TIP: You are recommended to wear gloves during these operations.

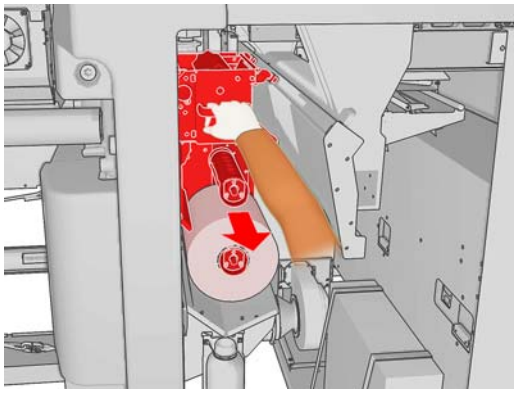
Replace the printhead cleaning roll

1. Go to the front panel and select **Replace cleaner roll** from the Ink System menu . Any unused portion of the roll is wound on to the takeup roll at this time. You will be warned if the unused portion is more than 5% of the whole roll.

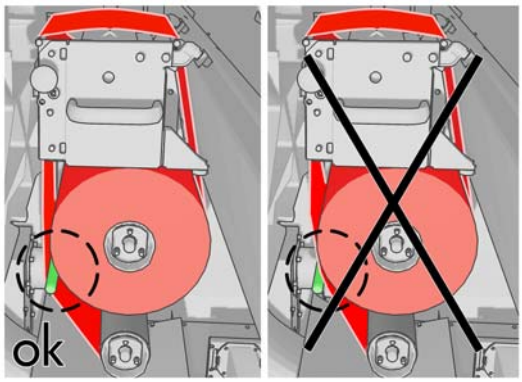
TIP: If you forget to select **Replace cleaner roll** at the start of this procedure, do not attempt to select it later. Instead, wait until you have replaced the aerosol filters and the cleaning roll, and then select **Check cleaner roll** from the Ink System menu.

2. In order to replace the printhead cleaning roll, open the door on the front right of the printer.

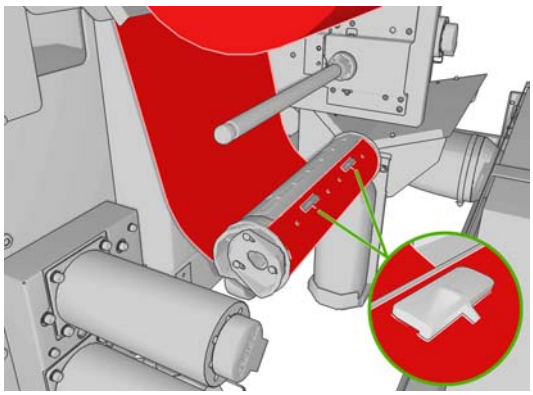
3. Grip the handle and pull the whole printhead cleaning roll assembly out through the door.



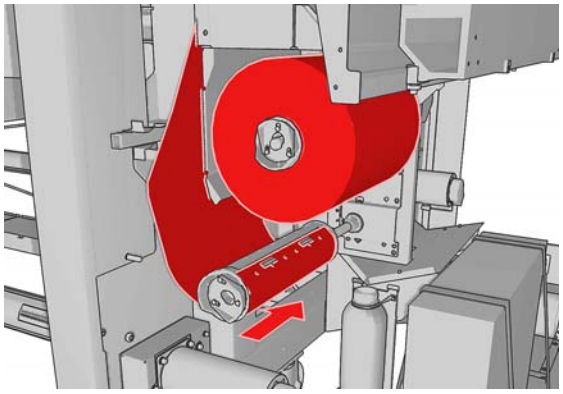
4. Slide both rolls off their axles and dispose of the roll with the used cleaning material according to the instructions provided with the new roll. Keep the empty core to use as a takeup core.
5. Slide the new roll onto the upper axle. It clicks into place.
6. Pull the black knob on the upper left and move the pinch system aside.
7. Pass the leading edge of the roll over the upper rollers, and thread the cleaning material through the rollers on the left.



8. There is a strip of polyester film on the leading edge of the cleaning material. Insert it into the hole in the takeup core, which takes hold of it.



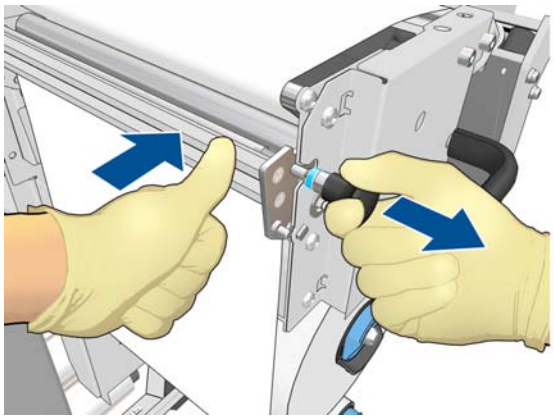
9. Slide the takeup core onto the lower axle. It clicks into place.

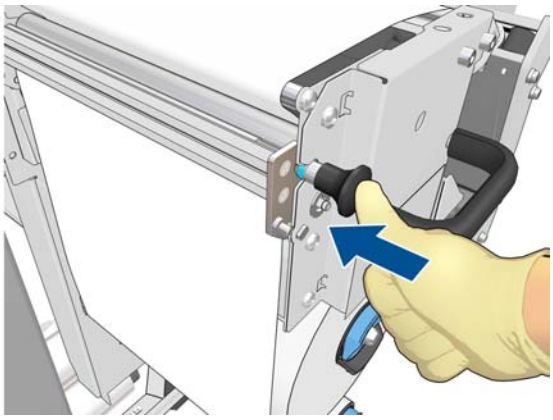


NOTE: If the cleaner roll has not been properly installed, you may see a message about clearing a printhead cleaning roll jam. Pull the whole assembly out, wind a little of the roll forward, then slide it back in again. The printer will check the roll again

10. Restore the pinch system by moving the black knob back into place. If you feel resistance because the cleaning roll is too tight, turn the roll slightly counter-clockwise.

TIP: There is a green ring on the far side of the black knob, which should not be visible if the knob has been correctly placed. If it is visible, try again.

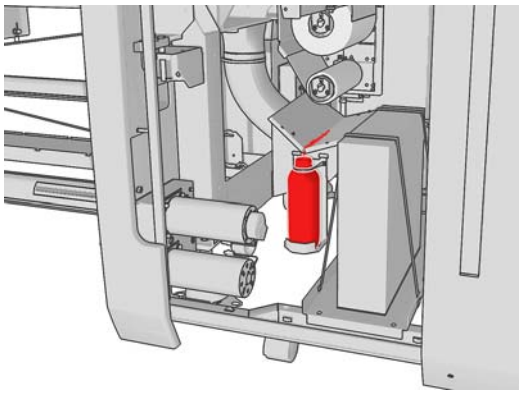




11. Grip the handle and push the whole printhead cleaning roll assembly back into the printer.

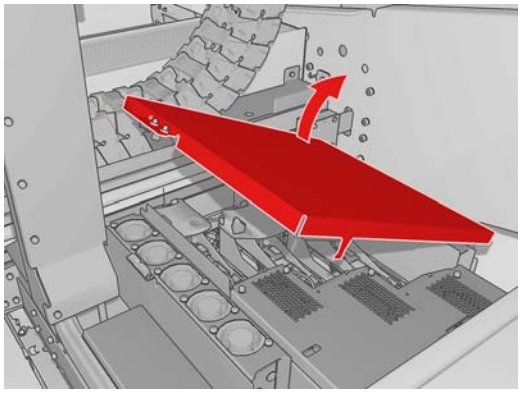
12. Close the door.

Do not empty the drain container: this is done by a service engineer during preventive maintenance.

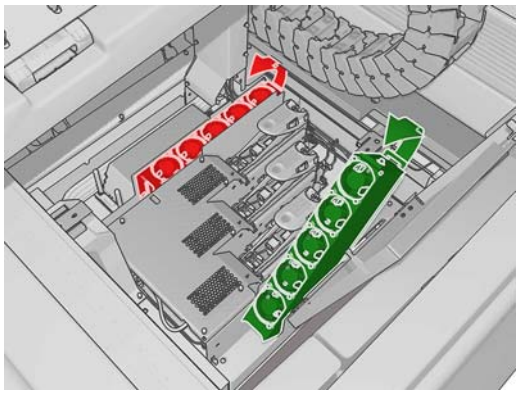


Replace the aerosol filters

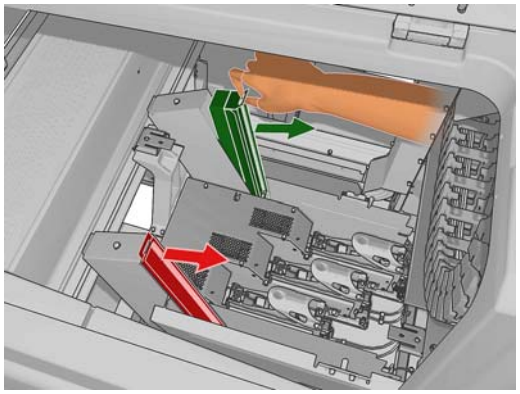
1. Open the printhead access door in the side of the printer, and lift the carriage cover.



2. The aerosol filter containers are on the near and the far sides of the printheads.
3. Lift up the right-hand side of the filter container; it pivots on the left.



4. Pull the old filter out of the bottom of its container and dispose of it according to the instructions provided with the new filter.



5. Unpack the new filters and ensure that the blue tabs at each end of each filter are at right angles to the filter.
6. Insert the new filter into the container.
7. Ensure that the blue tabs on the filters are correctly engaged with the hooks on the containers, otherwise the containers may not close completely.
8. Lower the container into position.

9. Lower the carriage cover and close the door. Press the OK key on the front panel.
10. If you forgot to select **Replace cleaner roll** before replacing the printhead cleaning roll, you should now go to the front panel and select **Check cleaner roll** from the Ink System menu .

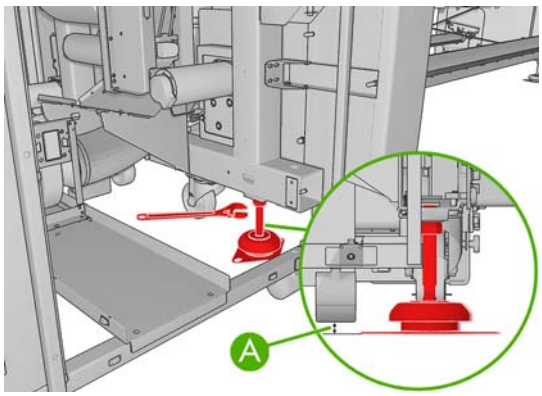
Move the printer

If you wish to move the printer a short distance on the same site, across a horizontal floor with no steps and no slopes of more than 5% inclination, see the following instructions. For more difficult movement operations, please call your service representative (see HP Customer Care Centers on page 93).

CAUTION: Slopes steeper than 5% may cause serious damage to the printer.

1. Turn off the printer.
2. Disconnect all power and network cables from the printer.
3. Disconnect all ink cartridges and remove them from the printer. Hold the cartridge connectors in position with adhesive tape.
4. Raise the feet so that the wheels (A) touch the ground. To raise a foot:
   a. Use a 30 mm (1.18 in) wrench to unlock the nut at the top of the foot.
   b. Rotate the nut manually down the bolt. Leave about 2 cm (0.8 in) clearance at the bottom between nut and foot.
   c. Use a 15 mm (0.59 in) wrench to rotate the foot upwards. Use the flat faces at the bottom of the bolt to fit the wrench.
   d. Raise the foot as far as the bolt allows.
   e. Use the 30 mm (1.18 in) wrench to relock the nut.

CAUTION: Take care to raise the feet as high as you can. They may break if they touch the ground while the printer is in motion.



5. Push the printer from the outside corners of the top covers.

After moving the printer, you may in some cases need an electrician to reconnect the power cables. You may also need to reconfigure the network: from the front panel, from the HP Internal Print Server computer, and from the RIP computer. See the *Installation guide* for more details.

Preventive maintenance kits

Preventive maintenance kits contain printer components that may need to be replaced after long use. When one of them is needed, an alert (such as “Preventive maintenance #2”) is displayed by the HP Internal Print Server.

When you see the message, you should call your service representative (see HP Customer Care Centers on page 93) and request the preventive maintenance kit. The kits are installed by service engineers only.

You can see how close you are to needing preventive maintenance by selecting **Information** > **Maintenance** in the HP Internal Print Server.

Cleaning kit

A cleaning kit is provided with the printer; it is intended to provide cleaning materials for about one year of normal use. It contains oil for the carriage rails, replacement oiling foams, gloves, sponges and cotton swabs.

5 Software maintenance

Maintain the HP Internal Print Server

The HP Internal Print Server runs under Microsoft Windows on the computer supplied with the printer. In that operating environment, there are various things you can check in order to maintain optimum performance. You can make these checks after restarting the computer and before starting the HP Internal Print Server.

- The user account should be a Standard account and not an Administrator account.
- No software should be installed on the computer except the software initially provided by HP.
- If an antivirus program is installed, it should not be allowed to check the file system constantly.
- In the **Performance** tab of the Task Manager, CPU usage should be below 5% (preferably below 3%).
- Memory usage should be below 1GB (preferably below 850MB).
- Free space on the hard disk should be at least 10GB.
- In the Control Panel, **Hardware and Sound** > **Power Options**, the high-performance power plan should be selected and sleep mode disabled.
- A blank screen saver should be used.
- Press the **start** button and right-click **Computer**. Select **Manage** > **Device Manager** > **Disk drives**. Right-click the hard disk, and select **Properties** > **Policies**. Ensure that **Optimize for performance**, **Enable write caching on the disk** and **Enable advanced performance** are all enabled.
- Ensure that scheduled defragmentation is enabled. Press the **start** button and right-click **Computer**. Select **Manage** > **Disk Management**. Right-click the hard disk, and select **Properties** > **Tools** > **Defragment Now**, and ensure that **Run on a schedule** is enabled.
- In the Control Panel, select **System** > **Advanced system settings** > **Advanced** > **Performance** > **Visual Effects** > **Custom**. Ensure that all effects are disabled except **Enable Desktop composition**, **Enable transparent glass**, **Smooth edges of screen fonts** and **Use visual styles on windows and buttons**.
- Open Internet Explorer and select **Tools** > **Internet options** > **Connections** > **LAN settings**. If a proxy server is used, ensure that **Bypass proxy server for local addresses** is enabled.

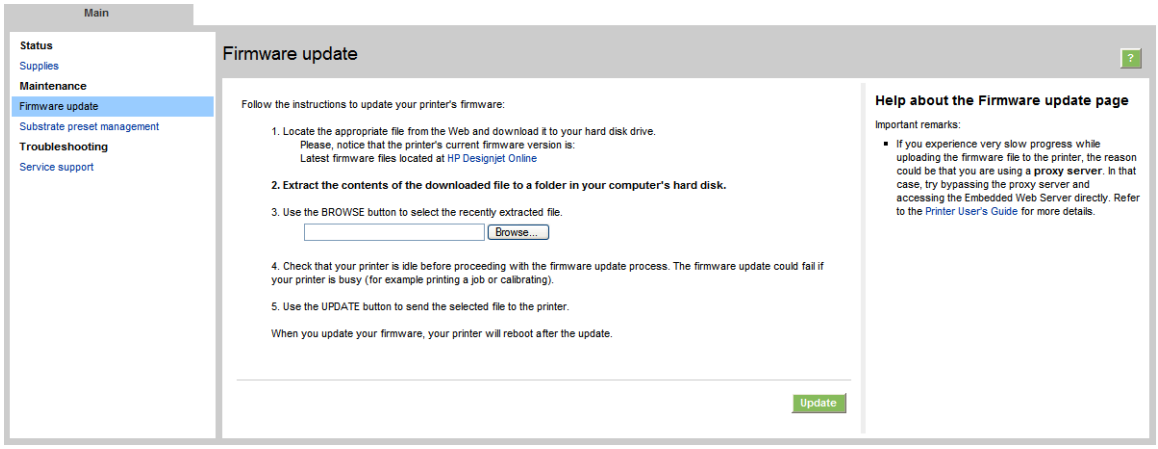
- Ensure that the computer is connected to the Internet and use Windows Update to ensure that all available updates (including Windows Service Packs) have been installed successfully.
- Start the HP Internal Print Server, and use **File** > **Delete job** to delete any jobs for which there is no further use.

Update the firmware

The printer's various functions are controlled by software that resides in the printer, otherwise known as firmware.

From time to time firmware updates will be available from Hewlett-Packard. These updates increase the printer's functionality and enhance its features.

Firmware updates can be downloaded from the Internet and installed in your printer using the HP Internal Print Server: select **Firmware update** from the **Main** tab.



Follow the instructions on your screen to download the firmware file and store it on your hard disk. Then select the downloaded file and click **Update**.

The firmware includes a set of the most commonly used substrate presets. Extra substrate presets can be downloaded separately; see the *User's guide*.

Update the IPS

It is important that the previous version of the IPS in the Printers PC is first removed before installing the new version. If you select to upgrade, this procedure will fail the installation.

TIP: When upgrading the firmware and the HP Internal Print Server, first upgrade the firmware and then the HP Internal Print Server.

1. Remove the current version of the IPS through the control panel. Select Uninstall Internal Print Server Application (this will delete any current job in the queue, but NOT ripped files).
2. Download the two files to a location of the IPS PC (but not to the desktop).
3. Unzip/extract the two files: HPIPS.msi and Setup.exe
4. Run the file Setup.exe and follow the on screen instructions until the new software is installed.
5. Once installed, open the HP Internal Print Server, and select **Tools** > **Preferences**, then enter the printer's IP address.

6 Troubleshoot substrate issues

The substrate cannot be loaded successfully

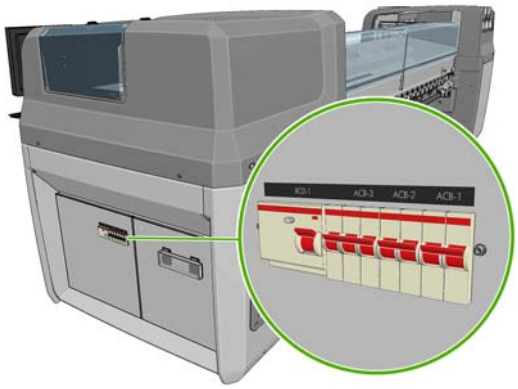
- A substrate cannot be loaded unless all printer subsystems (e.g. the ink system) are ready.
- If the printer is unaware of the carriage beam position (after a printer recovery or shutdown), go to the front panel and select the Substrate Management icon, then **Carriage beam position** > **Carriage system recovery**.
- Check that the spindle is correctly inflated.
- Try using the front panel to advance the substrate at least 3 m (10 ft), then move it back and try to load it again. If it will not load, perhaps the substrate is not attached to the input core: try a different roll.
- **(LX850):** If the IPS displays a message 'The Carriage Beam height is not suitable for loading substrate', this is most probably because the Ink Collector is selected, from the front panel select the carriage beam height to **Normal**, and then from the HP Internal Print Server (IPS) select **Load**.

The substrate has jammed

If the printer reports a substrate jam, follow these steps.

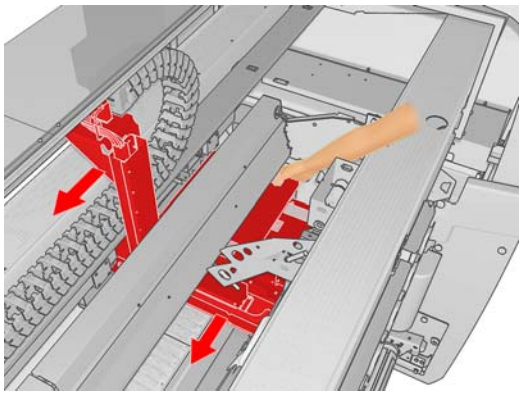
1. If the carriage is still moving or trying to move, press an emergency stop button as quickly as possible to minimize damage to the printheads.

   If the printer shuts itself down automatically before you reach an emergency stop button, turn off circuit breaker ACB-1.



2. Wait about 10 minutes for the printer to cool down.

3. If feasible, manually move the carriage slowly and carefully to the side, away from the substrate. If this is not feasible because of the severity of the jam, try raising the carriage beam to its maximum height.



4. Remove all substrate and pieces of substrate from the printing zone and from any other parts of the printer into which they may have fallen. Check the curing zone in particular. If you are unable to remove them all, please call your service representative (see HP Customer Care Centers on page 93).

5. Before restarting the printer and reloading the substrate, check that all circuit breakers are on and all emergency stop buttons released.

The substrate is not attached to the input core

If the printer detects a lack of tension during the substrate check after loading, it will ask you to confirm the winding direction.

If the roll is not firmly attached to the input core during printing, you may see banding on your prints.

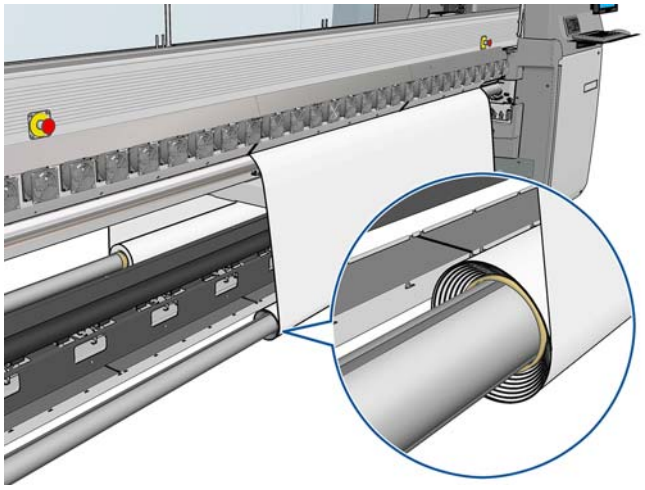
If you see an error message numbered 78.2:01 while printing, it means that the substrate may have become detached from the rear spindle, or the core is slipping on the spindle. This could mean that you have reached the end of the roll, or the spindle is not correctly inflated, or the dual-roll differential hub is locked. The substrate is automatically unloaded when this error occurs.

You should respond to this error in the following ways.

- Check whether you have reached the end of a roll.
- For single-roll printing, check that the spindle is correctly inflated.
- For dual-roll printing, check that the differential hub is unlocked.
- Check that the hubs are tightly secured to the spindle.
- Check that the diameter of each substrate core is not too large for the spindle.
- Check that each substrate core is tightly connected to the hubs on each side of it.

If the roll is not firmly attached to the input core, proceed as follows.

1. Unload the roll from the input spindle and load it onto the output spindle. Take care to avoid telescoping.



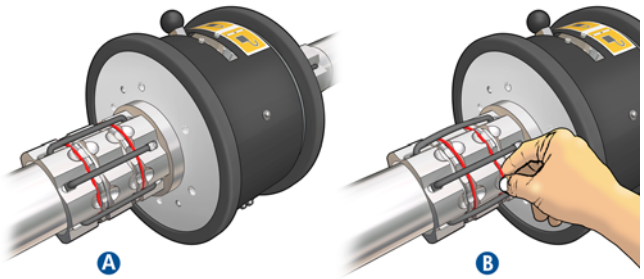
2. Raise the pinches and, in the front panel's Substrate Management menu, raise the carriage beam to its maximum height.
3. Unload substrate from the roll and pass it backwards through the printer towards the input spindle. Attach it to the empty core on the input spindle, securing it with adhesive tape. Wrap a couple of turns of substrate around the input core. Take care to align the substrate with the output roll.
4. Lower the pinches.
5. Go to the HP Internal Print Server and select **Substrate** > **Load/Unload**, then select the printer configuration and press **Load**.

NOTE: If the substrate check fails, return the roll to the input side and attach it to an empty core on the output side. Raise the pinches and use the front panel's Substrate Management menu to move all the substrate onto the output core.

6. Select the correct substrate in the HP Internal Print Server.
7. Press the Move substrate key on the front panel, then the Back key, and wait until all the roll has been wound onto the input spindle.
8. You may decide to cancel rewinding when the substrate is detached from the output roll. Then attach it to the output core to print immediately, or rewind it completely onto the input core if you want to remove the roll.

The core slips on the Spindle (Dual Roll)

If the core slips on the Dual Roll, you can adjust the rubber rings (A) on the Spindle holders to a larger diameter (B), so that the core is held more firmly onto the spindle. Do not forget to place them back afterwards as this may cause an issue when installing another core later.



The collector stops winding prematurely (LX850 only)

The collector has a safety mechanism that will stop rewinding substrate if it is not fully collected after a couple of seconds. If you have a lot of substrate to be collected, you will have to restart the collector manually after it stops.

The collector occasionally fails to work correctly (LX850 only)

The collector may fail to work correctly if its optical sensors are dirty or blocked by some obstacle.

The collector winds in the wrong direction (LX850 only)

1. Check that the winding direction is set correctly in the HP Internal Print Server.
2. Check that there is no obstacle blocking the collector's two optical sensors.

The collector detaches the substrate from the spindle (LX850 only)

Here are some possible explanations.

- The winding direction has been set wrongly.
- The collector has been loaded wrongly.
- The loop shaper is missing and there is too much tension.

There is skew or telescoping on the collector (LX850 only)

This may happen if the substrate is misaligned or if the loop shaper is of the wrong length.

The substrate has jammed on the collector (LX850 only)

Here are some possible explanations.

- Too much substrate on the collector. The maximum diameter of the output roll is 230 mm (9 in) for outwards winding, or 150 mm (5.9 in) for inwards winding.
- The substrate is misaligned.
- The loop shaper is of the wrong length.

The substrate sticks to the platen

When the substrate sticks to the platen, the most likely causes are excessive heat and excessive vacuum. Therefore, try decreasing the drying temperature or the vacuum.

For information on how to adjust printer settings, see the *User's guide*.

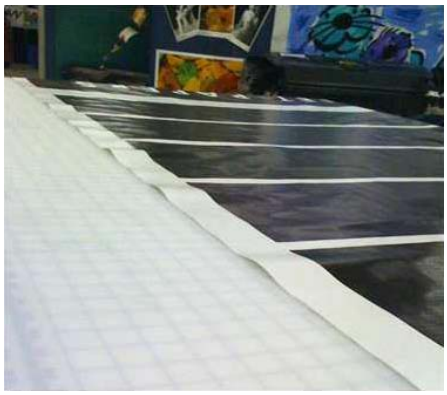
The ink is still wet when the substrate emerges

1. Check that the substrate you have loaded is the same type that you have selected in the HP Internal Print Server.
2. Reduce the ink limits.
3. Increase temperature settings for drying and curing.
4. Check that the curing plates are in the correct position for the current substrate.
5. If you find that some areas on the left side (LX850) or between the curing lamps will not dry after the above steps, try decreasing the airflow.

For information on how to adjust printer settings, see the *User's guide*.

The substrate is not flat

If the substrate does not lie flat when it comes out of the printer, but has shallow waves in it, you are likely to see defects in the printed image, such as vertical stripes. This can happen when you use thin substrate that becomes saturated with ink; it can also be caused by the combination of heat and vacuum pressure that is applied to the substrate.



1. Check that the substrate type you have loaded corresponds to the substrate type selected in the front panel and in your software.
2. If you are using a paper-based substrate, try changing to a thicker substrate.

There are wrinkles in the substrate

Wrinkles in the substrate indicate that the substrate settings that control the substrate shape are not optimized. This can cause various printing defects.

- Colored bands in area fills in the vicinity of the wrinkles
- Ink smears if the printhead touches the substrate
- A substrate crash if the printhead's movement over the substrate is impeded

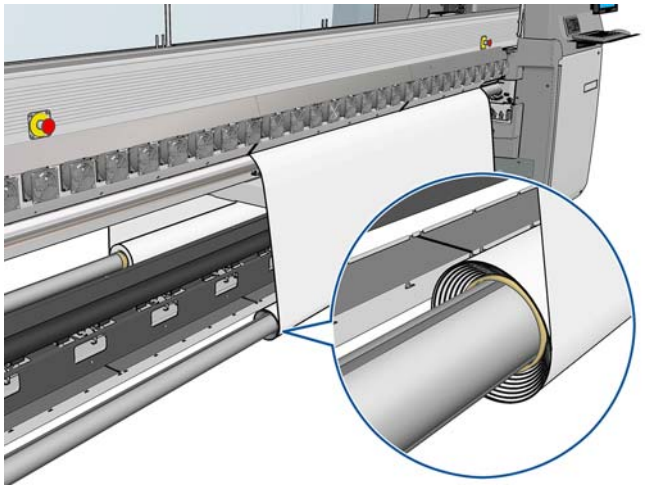
There are various reasons why wrinkles could appear while printing:

- Incorrect loading of the substrate
- Incorrect routing of the substrate through the printer
- Incorrectly positioned edge holders
- Drying and curing temperatures too high for the substrate
- Differential expansion of the substrate due to variations in temperature, perhaps caused by a large difference between drying and curing temperatures
- Insufficient tension or non-uniform tension across the substrate

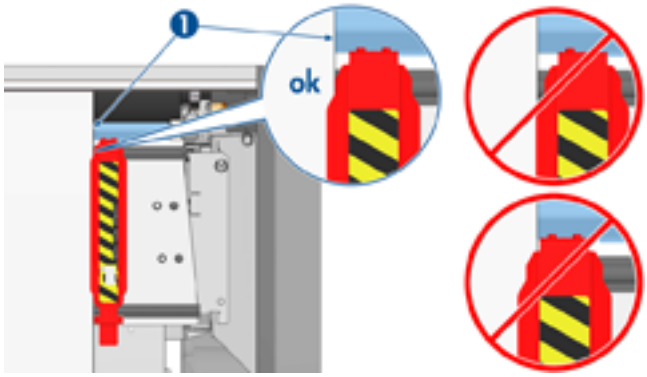
If your prints suffer from wrinkles, here are some suggestions.

1. Check that the substrate you are using is the same type that you have selected in the HP Internal Print Server.
2. Try to minimize skew while loading the substrate. Double check that you are loading the substrate using the correct process.

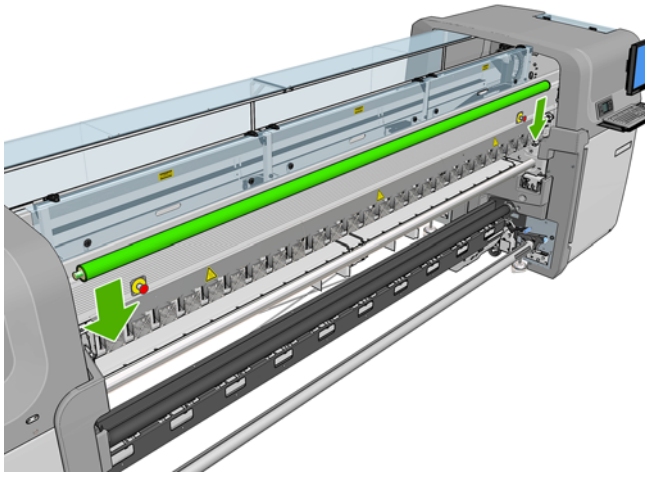
3. Check that there is no telescoping of the input roll.



4. Check that the substrate edge holders are correctly positioned (1).



5. Try using the Diverter rollers. You are recommended to use both diverters when printing on self-adhesive substrates, and the output diverter (only) when printing on fabrics.



6. Try increasing the substrate tension.
7. Increase the vacuum.
8. Try reducing the drying and curing temperatures, and minimize the difference between the two temperatures.

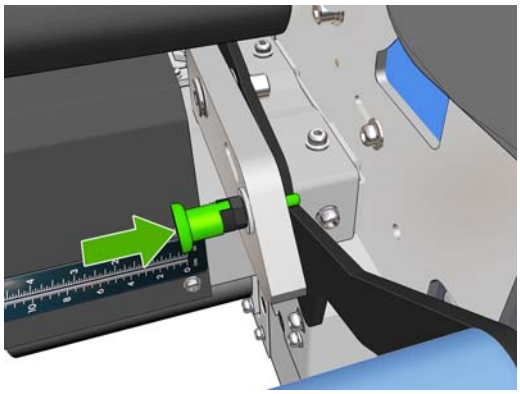
9. Consider changing the printer configuration. For the **LX850** use the roll-to-free-fall configuration as it is least prone to wrinkles.
10. If you cannot get rid of the wrinkles, try raising the carriage beam slightly, so that the printhead is not so close to the substrate.

For information on how to adjust printer settings, see the *User's Guide*.

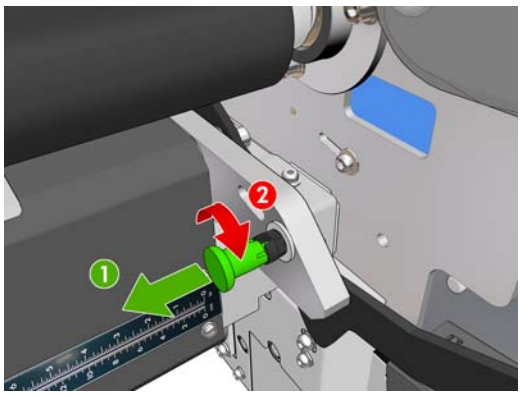
There are ink marks on the substrate

This problem can be caused by the carriage touching the substrate and smearing the ink.

1. If the ink marks occur at the sides of the substrate and not in the center, check that the substrate edge holders are correctly placed and clean. See Clean the substrate edge holders on page 34.
2. Check that the vacuum and tension levels are correct (see the *User's guide*).
3. **LX850 only:** If printing on porous substrates, using the ink collector kit, check that the ink collector foams are not full of ink. If the substrate is not kept under sufficient tension, it may touch the foams.
4. **LX850 only:** If you are printing in the roll-to-free-fall configuration and you see diagonal smears of ink, the substrate may have been badly loaded; or the tension roller may be causing wrinkles in the substrate. In the latter case, you can try using the tension roller knob to reduce the pressure that the roller exerts on the substrate, as shown below.



To restore the tension roller pressure to normal, pull the knob and turn it as shown below.



There are drops of ink on the substrate

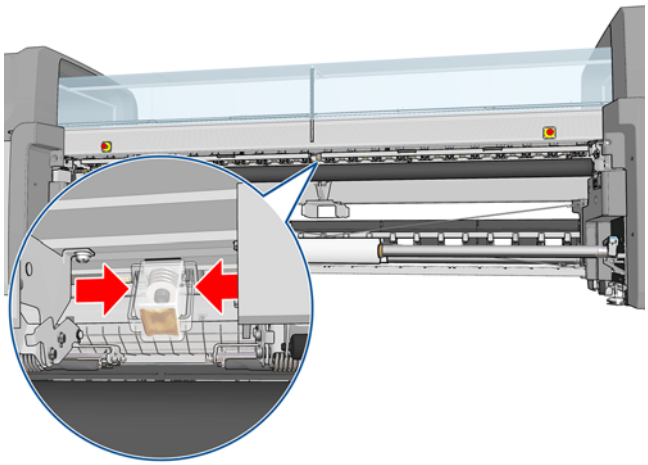
NOTE: In the above example, the distance between the drops is about 1 cm (0.4 in).

1. Clean the substrate edge holders. See Clean the substrate edge holders on page 34.
2. Clean the line sensor and aerosol inlets. In some cases, fibers may accumulate around the inlets. See Clean the line sensor and aerosol inlets on page 30.
3. Clean the electrical connections to the printheads. See The front panel recommends replacing or reseating a printhead on page 82.

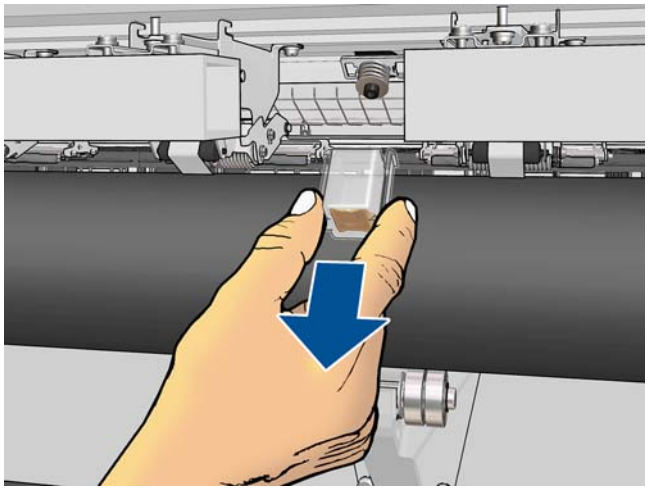
There are drops of oil on the substrate

Within a few days or weeks of replacing the printer's oiling foams, it is possible in a few cases that you may see drops of oil on the substrate or on the main roller. If this happens, proceed as follows.

1. Turn off the printer.
2. Leave the printer to cool down for an hour or two.
3. Locate the rear springs that support the carriage rail, check the plastic oil reservoirs designed to capture excess ink.

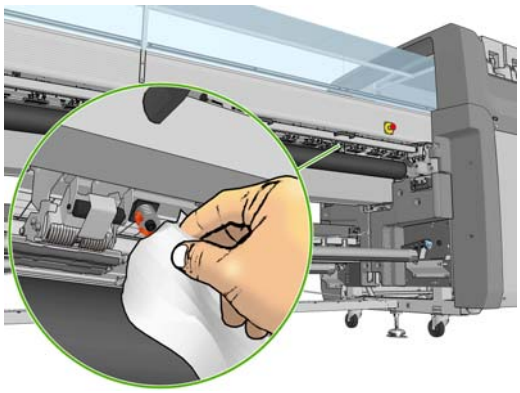


4. If they are full, empty them by unclipping them and discarding the excess ink.

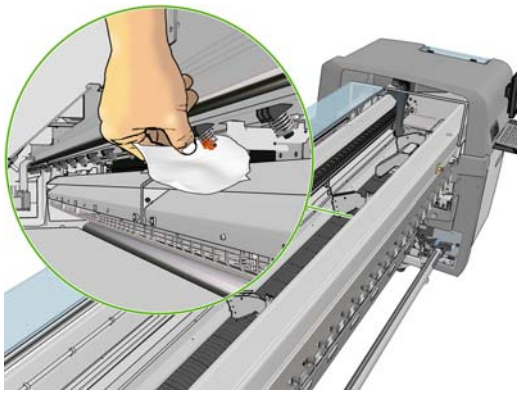


CAUTION: If the oil reservoir is full, be careful when removing it, as oil can drip from the Carriage Rod screw.

5. Wipe the rear springs and clean with a lint-free cloth.



6. At the front of the printer, open the Officeability covers and look down into the chassis. Locate the lip designed to catch excess oil and clean the length of this with a lint free cloth.



7. Clean the front springs (there are no oil reservoirs on the front springs).

You may need to repeat this treatment daily for a few days or weeks until the oil ceases to flow.

TIP: Do not add extra oil to the oiling foams, which may cause the above problem.

The printed plot is shorter than expected

Some substrates naturally contract when they are printed on and cured, this can mean the total length of the job is shorter than expected. If this is the case you can expand the length of the plot from the RIP, which will compensate for the contraction of the substrate.

How to achieve better consistency between jobs of the same length

How to reduce as much as possible the length variability between jobs of the same length.

1. Select a substrate which is less susceptible to expansion when being printed on. Most paper-based substrates, such as the HP photorealistic or offset substrates, have a tendency to expand.
   - In case you still have to print on substrate susceptible to expansion:
     - Ensure that the density of ink is similar between each tile (if not, the tile with less ink might be shorter).
     - If possible increase the heating temperature.
     - Reduce as much as possible the ink restrictions.
   - Make sure that the roll is left within the room where the printer is located for at least 24h, this is to ensure the complete roll is has the same temperature as the printer.
2. DO NOT TOUCH the Print Adjustments (no change of substrate advance compensation).
3. Print all the tiles at once.
   - Do not split the jobs at different times (1 tile one day, and the 2nd tile the 2nd day)
   - Do NOT change the printmode or the substrate width between tiles.

   To print the tiles all at once, we recommend the following:

   a. Create the tiles from the HP Internal Printer Server (IPS).

   b. If you are creating the tiles from the RIP, ensure that you send all the tiles within the same jobs sent to the printer/HP Internal Printer Server.

   The objective is to make sure that there is no pause between the tiles. When using the Queue mode in the HP Internal Printer Server, there is still a small time between the jobs, which could add more variability between the lengths of the tiles.
4. In order to make sure that even the first tile has the less difference of length versus the other ones, add a top margin of 50 cm.

   In case you have to reprint one tile, in order to ensure the length will be as close as the previous jobs:
   - Make sure that the substrate and also the ambient temperature of the printer are the same as when the previous job was printed
   - Add a top margin of 50 cm

But in any case, when having to reprint a tile later, there is a higher probability that the length will be different compared to the other tile length. The total length repeatability depends on the substrate, and the contents of each job (mainly when the substrate is reacting differently depending of the ink density).

7 Troubleshoot print-quality issues

General advice

When you have any print-quality problem:

- To achieve the best performance from your printer, use only genuine HP supplies and accessories, whose reliability and performance have been thoroughly tested to give trouble-free performance and best-quality prints. For details of recommended substrates, see the *User's guide*.
- Check that the substrate type selected in the HP Internal Print Server is the same as the substrate type loaded into the printer.

  ⚠ **CAUTION:** If you have the wrong substrate type selected, you could experience poor print quality and incorrect colors, and perhaps even damage to the printheads.

- Check that the substrate is flat and has no wrinkles. If necessary, advance some substrate until the wrinkles move out of the printing area, or reload the substrate.
- Check that your substrate has been color-calibrated.
- Check that you are using the correct ICC profile for your substrate and print mode, and the correct input profile.
- Check that you are using the most appropriate print-quality settings for your purposes (see the *User's guide*).
- Check that the environmental conditions (temperature, humidity) are in the recommended range (see the *User's guide*).
- Check whether there are any outstanding printer alerts.
- Avoid touching the substrate while printing is in progress.
- Do not try to judge the print quality until the print has completely emerged from the printer.
- Check the printhead alignment and realign the printheads if necessary. See Align the printheads on page 9.
- Check the substrate-advance compensation and adjust it if necessary. See Substrate-advance compensation on page 11.
- Check the dynamic color registration and adjust it if necessary. See Dynamic color registration on page 16.

Banding

Banding means that your printed image suffers from added horizontal lines as shown (the color of the lines may vary).

If there are thin white lines across the width of the substrate:

1. From the HP Internal Print Server, check the printheads for blocked nozzles and clean them if necessary. See Check the printheads on page 24.
2. If you find no blocked nozzles, check that the electrical connections are clean. See The front panel recommends replacing or reseating a printhead on page 82.
3. If the electrical connections are clean, decrease the substrate-advance setting.
4. If the problem persists, increase the number of passes.

If there are thin dark lines across the width of the substrate:

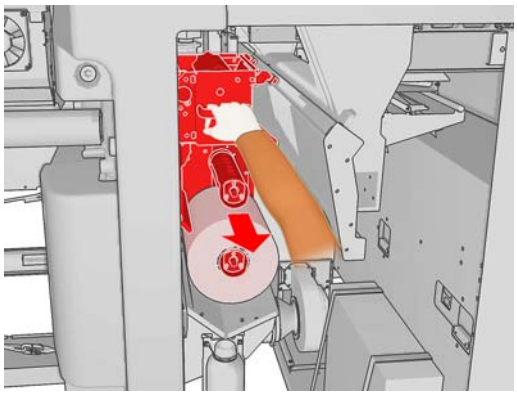
1. Increase the substrate-advance setting in the HP Internal Print Server.
2. If the lines are visible only in dark or saturated colors, try the following remedies in this order:
   a. Increase the number of passes.
   b. Lower the ink limit for the selected print mode.
   c. Increase the drying temperature.

If you have adjusted the substrate-advance setting but there are still white and dark lines distributed randomly across the same print:

1. Check the substrate-advance status in the HP Internal Print Server. If there is a warning message about substrate advance:
   a. Unload the substrate and clean the substrate-advance sensor. See Clean the substrate-advance sensor on page 33.
   b. Reload the substrate and check it as usual.
   c. If the warning message persists, probably the substrate type is invisible to the substrate-advance sensor, so you should turn off the sensor (in the Loaded Substrate window in the HP Internal Print Server) and adjust the substrate advance manually. See Substrate-advance compensation on page 11.
2. If the problem persists, increase the number of passes.

If there are one or more thick lines across the width of the substrate, where one color seems to be missing:

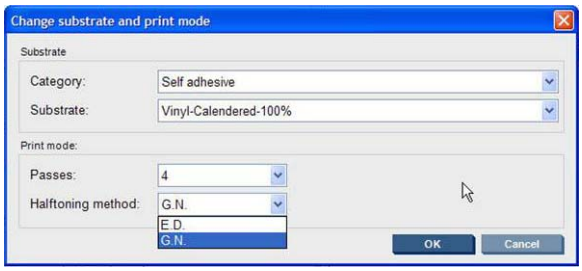
1. From the HP Internal Print Server, check the printheads for blocked nozzles and clean them if necessary. See Check the printheads on page 24.
2. Open the door on the front right of the printer and pull out the printhead cleaning roll assembly.



3. You should see ink on the upper, horizontal part of the roll and also on the vertical part of the roll. If you see no ink on the vertical part of the roll, there may be a fault in the primer pump. In this case, please call your service representative (see HP Customer Care Centers on page 93).

If the back side of the substrate varies in color or shade (for instance, if something has been printed on it), you may see banding in parts of your print because the substrate-advance sensor has become confused. In this case, turn off the sensor (in the Loaded Substrate window in the HP Internal Print Server) and adjust the substrate advance manually.

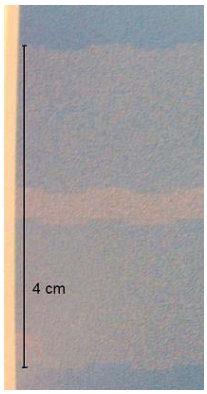
If you are printing with at least six passes, and you see a kind of wavy horizontal banding, try increasing the number of passes, and/or press the **Change** button in the Job Properties window, and change the halftoning method to **G.N.**



TIP: When using the **G.N.** setting, it is important to have the substrate advance well calibrated. See Substrate-advance compensation on page 11, and use the Substrate-advance test print on page 11.

TIP: If you are willing to print more than 8 passes on a substrate with ink density of 100%, you can create a new substrate with the same settings as the current one that you are using, but based on Vinyl High-Pass 100%, and resubmit the job with this newly created substrate. You can then print with 10, 14 or 18 passes, which may help when you want to print a large area with a single color, and achieve the best print quality.

If you see intermittent horizontal banding as shown below:



1. Clean the substrate edge holders. See Clean the substrate edge holders on page 34.
2. Clean the line sensor and aerosol inlets. In some cases, fibers may accumulate around the inlets. See Clean the line sensor and aerosol inlets on page 30.
3. Clean the electrical connections to the printheads. See The front panel recommends replacing or reseating a printhead on page 82.

If you see Vertical Bands in the printed area fills.

This issue is caused because the substrate is not flat or because of wrinkles on the substrate, refer to The substrate is not flat on page 53 and There are wrinkles in the substrate on page 54

For information on how to adjust printer settings, see the *User's guide*.

Vertical Banding in the printed area fills

This issue is mostly caused because the substrate is not flat or because of wrinkles on the substrate, refer to The substrate is not flat on page 53 and There are wrinkles in the substrate on page 54

For information on how to adjust printer settings, see the *User's guide*.

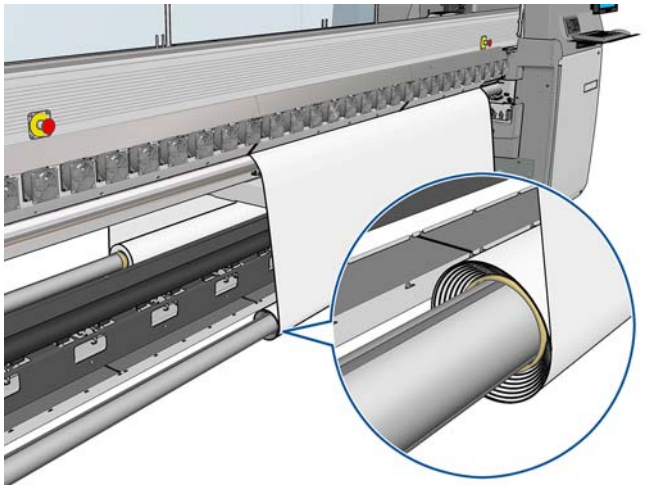
For more specific types of vertical banding in printed area fills refer to the following troubleshooting.

Vertical Banding printing in the same color (gray, brown, green)

A small amount of vertical banding (like waves) can be seen, with a frequency equal to or higher than 2.6cm (1”), up to approximately 5-10cm (2”-4”) when printing a few specific large area fills of the same color (gray, brown, green)

1. Check that the substrate is correctly loaded , this is the most important cause of this type of vertical banding.
2. Reduce the heating temperature of the print as much as possible, without impacting the image quality (without increasing the coalescence issue).

3. Check that there is no telescoping of the input roll.



4. Reduce the level of vacuum (via the add a new substrates process) as much as possible.
5. Reduce the ink limit (through the add a new substrates process or in the RIP), this can help to reduce this issue on some substrates.
6. Use the diverter rollers. You are recommended to use both diverters when printing on self-adhesive substrates, and the output diverter (only) when printing on fabrics.
7. Consider changing the printer's configuration. For the **LX850** use the roll-to-free-fall configuration as it is least prone to wrinkles..
8. Increase the vacuum, to make sure that the wrinkles are not forming in the print zone.
9. If using a unidirectional printmode, try print in bidirectional printmode.
10. Make sure that the scan beam height (through the front panel), is set to normal (and not in a custom position).
11. Use a substrate which is less sensitive to ribs marks (slightly more rigid).
12. In case of heavy and narrow rolls (with diameter > 25cm (10")) generating a bow on the spindle (mainly the input), use a roll which is less than 25 cm diameter.

Straight white lines in one color

If you see light-colored lines on the print, each possibly followed by a drop of ink, this may be caused by a fiber stuck to a printhead.

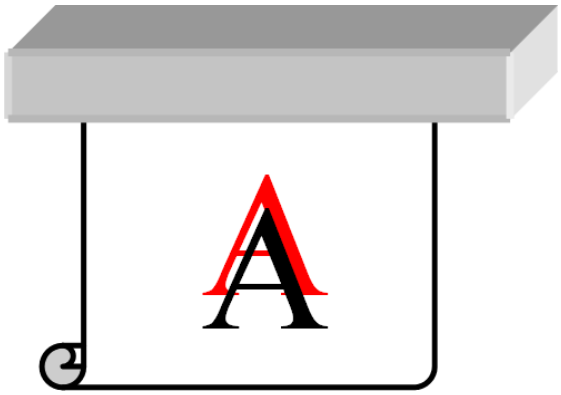
1. Clean the printheads and check that they are free from fibers. See Check the printheads on page 24.
2. Clean the substrate edge holders. See Clean the substrate edge holders on page 34.
3. Clean the line sensor and aerosol inlets. In some cases, fibers may accumulate around the inlets. See Clean the line sensor and aerosol inlets on page 30.
4. Clean the electrical connections to the printheads. See The front panel recommends replacing or reseating a printhead on page 82.

Colors are misaligned

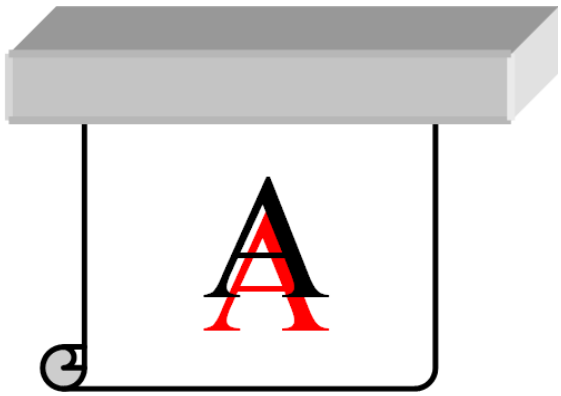
This problem can have various slightly different visible symptoms.

Colors are misaligned vertically

1. Check printhead alignment and correct it if necessary. See Align the printheads on page 9.
2. If magenta prints higher on the substrate than the other colors, increase the substrate-advance setting in the HP Internal Print Server.



If magenta prints lower on the substrate than the other colors, decrease the substrate-advance setting in the HP Internal Print Server.



If the misalignment appears to be random, try the solutions recommended for banding (see Banding on page 62).

Colors are misaligned horizontally

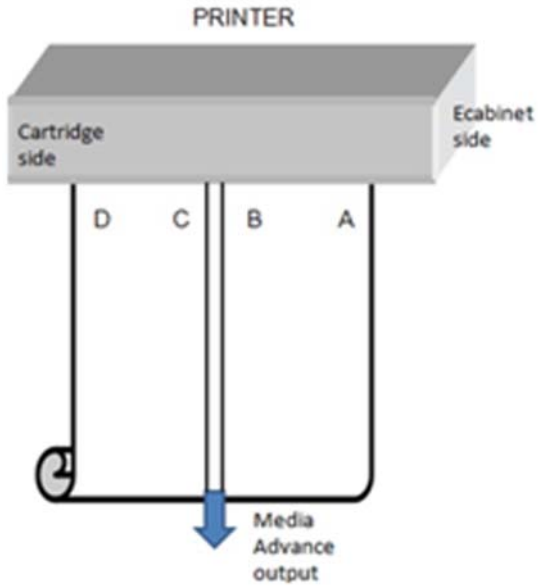
1. Check printhead alignment and correct it if necessary. See Align the printheads on page 9.
2. If the problem persists despite automatic printhead alignment, try manual printhead alignment.
3. Ensure that the substrate is not skewed. If there is any skew, reload the substrate to correct it.
4. Check the carriage beam position. If it is high and the substrate type doesn't require a high position, lower it.
5. If the misalignment appears at the sides of the substrate but not in the center, you have a problem of substrate expansion.
6. If you see the problem in printed black text, check in your application or in the RIP that the text color is pure black and does not contain other colors.

Correcting misregistration

Here we explain the procedure for correcting misregistration

1. Check the printhead alignment and correct if it is necessary (if lines of a single color are blurry or doubled, the chances are that printhead alignment is not good). See Align the printheads on page 9, if the problem persists after automatic printhead alignment, try the manual printhead alignment.
2. Check carriage beam position. If it is in a higher position than the substrate type (normal printing position), move it to a lower position (if the beam is in a high position, edges, text and lines will be surrounded by a significant amount of spray).
3. Check whether the substrate suffers from skew when advancing. Check for movements of the substrate edges (look for telescoping on the roll in the substrate output roller). Reload the substrate if necessary to correct it. If the substrate does still not stabilize change the appropriate parameters in the substrate settings (i.e. vacuum and tensions).

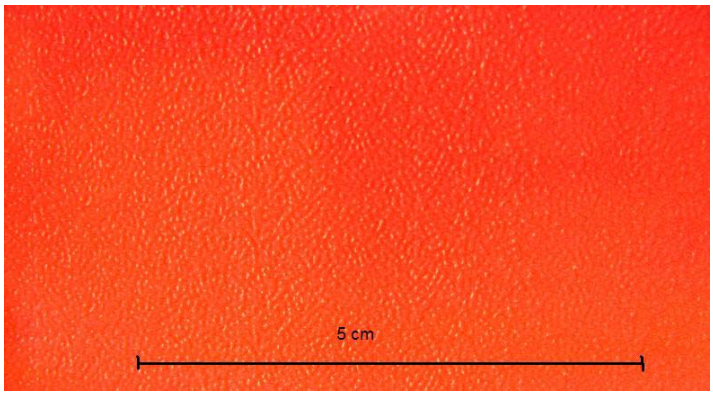
4. Misregistration is very visible at the sides but not in the center. Substrate contraction/expansion or other horizontal deformation can be addressed by the Dynamic Color registration. The process is launched through the Dynamic color registration under the printer menu and prints two scales for each roll one per side (B A for first roll and D C for second roll, when dual roll is loaded, if only one roll is loaded just use B and A values) Dynamic color registration on page 16.



5. Problem specific to printed black text. Check in your application or in the RIP that text color is set to pure black and does not contain other colors.

The print is grainy

1. Check that you are printing on the correct side of the substrate.
2. Readjust the substrate-advance setting.
3. If the problem persists, check printhead alignment and correct it if necessary. See Align the printheads on page 9.
4. If the graininess is more visible in dark or saturated colors (coalescence):



a. Increase the number of passes or try unidirectional printing, if available.

b. Increase the drying temperature.

c. Decrease the ink limit.

For information on how to adjust printer settings, see the *User's guide*.

The print is smudged

This indicates that the ink is not dry. Smudging or oily marks may occur all over the print, or only in certain areas (most likely at the edges of the print). This may happen for various reasons:

- The drying and curing temperatures are too low.
- The ink density is too high.
- The ambient humidity has increased.
- The ambient temperature has decreased.

Here are some suggestions.

1. Check that the substrate you have loaded is the same type that you have selected in the HP Internal Print Server.
2. Check the ambient temperature and humidity and try to change them if necessary.
3. Check that there is no air conditioner blowing cold air onto the printer.
4. Keep the substrate in the printing room for some time before printing on it, if it was stored in cooler or damper conditions.
5. Increase the drying and curing temperatures.
6. Reduce the airflow within the printer.
7. If the problem occurs only in certain areas (such as the edges of the print), turn off the airflow in those areas.
8. If the problem persists after you have tried the above suggestions, increase the number of passes.

For information on how to adjust printer settings, see the *User's guide*.

Edges of objects are rough or blurred

1. Check that the carriage beam position is not high. If it is high, the printheads have to be aligned manually.
2. Align the printheads.
3. Recreate the substrate preset.

For information on how to adjust printer settings, see the *User's guide*.

Colors look washed out

1. If you are using fewer than four passes, increase the number of passes.
2. Increase the ink density.
3. Check that you are using the correct ICC profile for your substrate and print mode.
4. In textiles make sure that you use the maximum ink density allowed by the substrate, most fabrics require 250% ink density. The profile provided in the RIP is a generic one, some substrates might require a specific profile to boost color saturation.

For information on how to adjust printer settings, see the *User's guide*.

Colors are inaccurate

1. Check that the substrate has been correctly loaded.
2. Check that the loaded substrate is the same as the substrate selected in the HP Internal Print Server.
3. Check that the ICC profile used by the RIP is correct for the loaded substrate.
4. Ensure that you are printing bidirectionally.
5. Consider creating an ICC profile specific to the substrate you are using.

Colors shift unexpectedly

In certain colors and applications a certain amount of color shift can be observed especially between the right and left edge of an image. To prevent this use the following options:

How to avoid Color Inconsistency

In order to ensure overall Print Quality and in particular Color Consistency, is at an acceptable level check the following:

1. Make sure that all the calibrations below have been performed with good results:
   a. **Printhead Alignment:** Ensures color to color alignment and bidirectional alignment within a color.
   b. **Substrate Advance Calibration:** Check and corrects potential color plane misregistrations in the substrate axis.
   c. **Color Calibration (CLC):** Ensures linear tonal response as well as consistency between different printheads and printers. A separate Color Calibration is advised for each substrate but also when any given printhead is changed. To get an even better performance we recommend performing the Color Calibration frequently, depending on the printer's usage it can be scheduled weekly, every two weeks or longer according to your work flow.
   d. **Dynamic Color Correction:** Corrects the color plane misregistration that can be caused by the substrate deforming under heat.
2. Use of Bidirectional printmodes to minimize the tonal differences between the end and beginning of a swath.

3. Higher pass printmodes, cause lower stress to the printhead and thus less related tonal differences.
4. Use of Spitbars: Usage of spitbars at plot sides. Spitbars are provided within IPS, they help with startup problems by preparing the printhead for printing a job. It should be noted the Spit bars available within some RIP application do not include bars of light colors.

   The Spit bars have to be added at the side of the plot vertically, parallel with the edge of the substrate, towards the cartridge side (they can also be added on the other side, but this reduces the impact they make). To add Spit Bars use the following procedure:

   a. Select nesting from the IPS PC.
   b. Add the following file situated in the IPS PC in Documents\HP IPS\Spit Bars .
   c. Select the Spit Bar at the same resolution as the job to print, and place the Spit Bar on the right of the image on the IPS (this will then be printed on the left part, towards the cartridge).

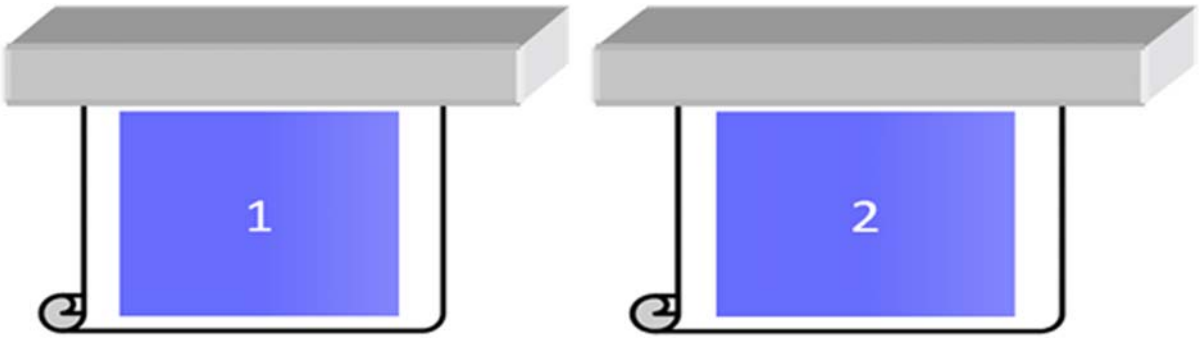
   Another method is to Adding the spit bars within the RIP application, nesting them with the plot to print. The spit bar file to take is available on the IPS PC, under: Documents\HP IPS\Spit Bars, take the file 'spitBars_300_HR_1.TIFF'. Do NOT use the default spit bars from the RIP (accessible usually by just checking a box 'spit bars' as it will not print any Light Cyan, or Light magenta.

NOTE: The recommended width of the Spit Bars is 3.5 cm (approximately 1.4").

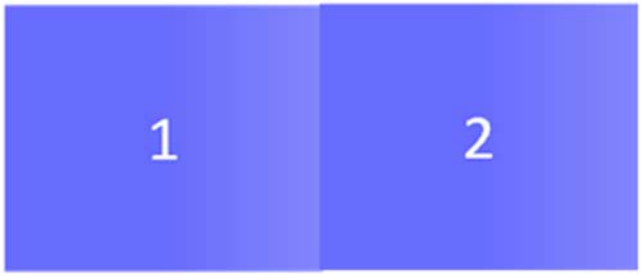
	Recommended course of action (In all cases a Printhead Alignment and Substrate Advance Calibration are recommended)				
Issue	**Bidirectional**	**Plot rotation/ Smart nesting**	**Spitbars**	**Color Calibration**	**Dynamic Color Correction**
Color Misregistration					**X**
Left-Right Difference	**X**	**X**	**X**		
Neighboring area fill dependence	**X**				
Plot to Plot		**X**		**X**	
Printer to printer				**X**	
Startup			**X**		

When printing using the tiling option

When printing a job which consists of a solid color area fill (no gradient) and using the tiling feature to print the job as two or more tiles. The diagrams below show the appearance of the two printed tiles, with the color shift greatly exaggerated to better illustrate the problem.



When looking at each individual tile, the eye doesn't see anything. However when the two tiles are joined, the eye can see a difference in the colors:

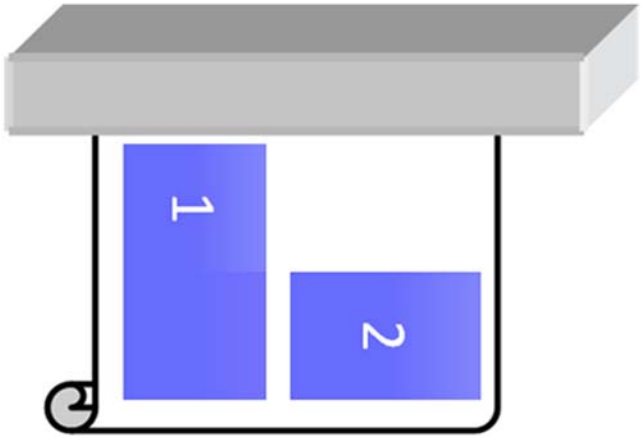


If the second tile is rotated, the eye does not see the color difference anymore. Refer to the User's Guide for the details on how to rotate an image using the HP Internal Printer Server.

When performing 'Nesting'

In some very extreme and specific cases, depending on how the plots are organized, you might see a color difference within one area fill, while there is no color difference within the original job.

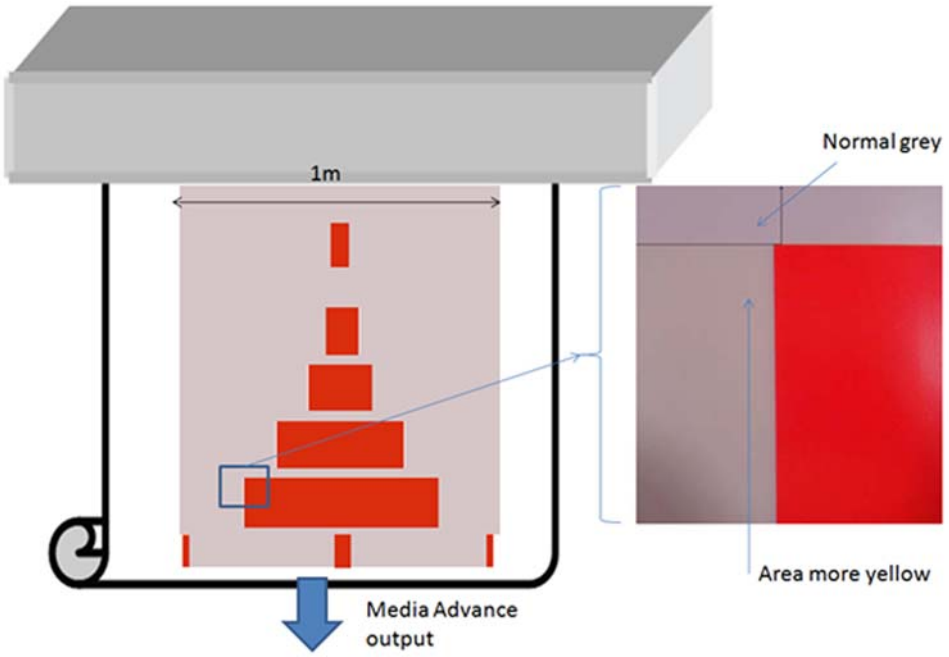
Here is an example of two plots nested:



To solve the issue so that you cannot see the color shift in the middle of the job 1, you can reorganize the nesting (or do not do nesting).

Neighboring area fill dependence

Here is an example of job where a slight variation of color is visible:



Mainly when printing in Unidirectional, the light gray area on the left of the bigger red rectangle is showing a little more yellow. When the red rectangle is smaller, this effect is no longer visible. When printing in bidirectional, the effect is also less visible.

When printing area fills on some substrates

The following issue can be seen when printing some specific area fills on some substrates which are prone to a higher level of shrinkage (or when the dynamic color registration calibration is not optimized).

In this case, the relative positions of the dots of inks, between Yellow/magenta and Cyan/black can be completely different towards the edge of the substrate compared to the middle of the substrate. When this occurs and when printing a large area fill of mainly a single color, a color shift can be seen between the middle of the substrate and the side of the substrate. This could also happen when the advance is not perfect, but in this case, horizontal banding should be visible.

To solve this, perform the best Dynamic Color Registration you can achieve Dynamic color registration on page 16.

Blurred or defective areas on edges or lines

When printing in bidirectional, in some cases, the beginning of the text and the area fills could be lacking in sharpness on the edge area of the substrate on the cartridges side, not as sharp as the sections on the side of the ecabinet/HP Internal Printer Server PC. In order to reduce this effect, some ‘spit bars’ can be added on the edge, towards the cartridge side. There are two ways to add them:

- Select nesting from the HP Internal Printer Server, adding the following file located under: C:\Users\windows Login\Documents\HP IPS\Spit Bars, select the spit bar of the same resolution as the job to print, and place the spit bar on the right of the image on the IPS (this will then be printed on the left part, towards the cartridge)
- Adding it on the RIP, take from the HP Internal Printer Server, the right spit bars to print, available under: C:\Users\windows Login\Documents\HP IPS\Spit Bars, take a file ending by ‘HR_1.tif’ Do NOT use the default spit bars from the RIP as it will not print any bars with Light Cyan, or Light magenta.

NOTE: Width of the recommended spit bars is 3.5 cm (1.4″)

8 Troubleshoot double-sided printing

The printer will not let me print double-sided

Check the configuration and settings of the printer are correct for printing double-sided:

1. Check that all the images for Side A are the same image.
2. The images for Side B can be different from the images of Side A, but the all images selected for side B must be the same.
3. The physical dimensions of all the Side A and Side B images must be approximately the same: a difference of up to 10% is acceptable.
4. Double-sided printing is available only with HP LX610 inks.
5. Double-sided printing is available only with non-porous substrates: the ink collector should not be used.
6. Double-sided printing is available only in single-roll and roll-to-roll configurations, not in dual-roll configurations.

Print-quality defects

This describes how to solve general print-quality problems when using double-sided printing.

1. Any print-quality defects seen while printing Side A can be solved using standard procedures: see Troubleshoot print-quality issues on page 61.
2. When printing side B, even though the substrate is the same as the Side A print, its properties change because of the heat already applied to the substrate. This is why it is important to select **Side B calibration space** when defining the job (refer to the *User's guide* for details). Performing the calibrations (Dynamic Color Registration and Substrate Advance Compensation) prior to printing will ensure a correct print.

NOTE: Do not use the **Move Substrate** option to make space for the calibration, as this will not heat the substrate, select **Side B calibration space** instead.

3. Check that the substrate you are using is capable of printing on both sides, as not all substrates are designed for this process.
4. For some substrates, Side A and Side B could require different print settings to optimize print quality.

Marks on the substrate

In some cases, the already-printed Side A could be marked while printing Side B, mostly due to friction between the printed substrate side and the print platen. The severity of the marks depends on the substrate and on the print settings. You are recommended to proceed as follows to avoid marking Side A in this way.

1. Reduce the vacuum level when printing Side B to reduce friction between the platen and the substrate.
2. Reduce the substrate tension when printing Side B.
3. You could try increasing the curing/drying time when printing Side A to improve ink adherence.

Substrate jams

1. Any substrate jams experienced seen while printing Side A can be solved using the standard procedures described in the Handling Substrate chapter see The substrate has jammed on page 49
2. The thermal heat applied to the substrate while printing the side A, could generate plastic deformations, that remain will printing Side B. Those deformations, and depending on the substrate used, could generate substrate jams while printing the side B. To avoid Substrate Jams while printing double-sided:
   a. If you can reduce the curing and heating temperature while printing Side A and B.
   b. Increase the Pen to paper space while printing Side B.
   c. Increase substrate tension while printing Side B.
   d. Use substrate diverters in Side B.
   e. If you can use another substrate less sensitive to thermal heat.

The printer cannot detect the Image Registration Line

In some cases the detection of the Image Registration Line (dotted or continuous) could cause the system error 78.7:01, use the following procedure to troubleshoot the issue.

1. Check that the registration line is positioned as described in the *User's Guide* at the beginning of the platen.
2. Check that Side A of the substrate is clean.
3. Check that the substrate-advance sensor is clean: see Clean the substrate-advance sensor on page 33.
4. Check that you are printing in single-job mode, as this option is not enabled for queue mode.
5. Check that the substrate is capable of being detected. If it is translucent, or not white enough, the sensor cannot detect it.
6. **LX850 only:** Ensure that the ink collector kit is not installed.

If you are willing to print without using the registration lines, you can set 'Rows to Register=0' within the job properties. The printer will then print without checking the position of the registration lines, which means that you may see misregistration between sides A and B.

The printer cannot detect the left edge of the substrate

In some cases the printer may not be able to detect the left edge of the substrate.

1. Translucent types of substrate such as backlit cannot be detected. For those types of substrate it is recommended to deselect **Side Edge Detection** option, refer to the *User's Guide*.
2. Side A of the substrate is dirty and the printer cannot detect the registration line.
3. Check the Substrate Edge Holders are correctly positioned.

Excessive registration error along substrate movement direction

Registration errors along the substrate movement direction could occur for the following reasons.

1. The Substrate Advance Calibration has not been performed. Perform the Substrate Advance Calibration before printing Side A and before printing Side B, see the *User's Guide* for details.
2. There is a big difference between the substrate advance correction applied to Side A and that applied to Side B.
3. When performing the Substrate Advance Calibration it is important to select **Side B Calibration space** when defining the job, as performing the calibrations (Dynamic Color Registration and Substrate Advance Compensation) on substrate which has been heated will ensure a correct calibration.

NOTE: Do not use the **Move Substrate** option to make space for the calibration, as this will not heat the substrate (as the **Side B calibration space** option does), and the printer will not calibrate correctly.

4. The distance scanned between the Image Registration Line is too large and is affecting the registration. For the best image registration select 1 in the options **Rows to register**, this will ensure each registration line is scanned.
5. The Substrate-Advance Sensor is dirty; see Clean the substrate-advance sensor on page 33.
6. See The two sides of a double-sided job are not the same size on page 80.

Excessive registration error along carriage movement direction

Registration errors along the carriage movement direction could occur for the following reasons.

1. Side edge detection is not enabled.
2. The images are not centered.

3. The substrate edge holders are not correctly positioned.
4. The substrate has not been correctly loaded; it may be skewed.
5. See The two sides of a double-sided job are not the same size on page 80.

The relative position between side A and B was not as expected

There are 3 different layouts to preview and ensure that the double-sided job will be printed as required.

- **Preview:** Shows the relative position of sides A and B.
- **Layout for side A:** shows how side A will be printed.
- **Layout for side B:** shows how side B will be printed.

NOTE: Side B will be printed with a 180° rotation.

See the *User's Guide* for more detail.

Printing a queue using the double-sided functionality

Double-sided functionality was designed as a guide to achieve a double-sided print of the same job (side A + side B) in an easy way.

- Depending on your configuration, the IPS splits the side B job in a set of jobs containing just 1 row. For this reason you may see that the job that is being printed has only 1 row of plots.
- To be able to print the jobs consecutively, the registration line must be aligned each time for a new job.

NOTE: Queue printing is not supported for roll-to roll double-sided printing.

The Internal Print Server shows only one row of jobs

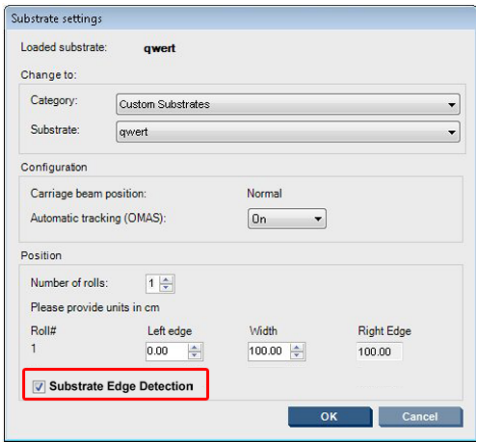
Depending on your configuration, the IPS splits the side B job in a set of jobs containing just 1 row. For this reason you may see that the job that is being printed has only 1 row of plots.

The number of copies do not match between Side A and B

The numbers printed on the output indicating the number of copies printed so far (circled below) will not match with Side B numbers. This is normal procedure and should not be considered as an error.

Printing double-sided does not respect the left edge position selected

When defining the double-sided printing job, an option called **Substrate edge detection** option is selected. With this option, the printer will automatically read the right edge position and will correct the position of the plot to minimize registration errors.



The two sides of a double-sided job are not the same size

The high temperatures used to cure the latex ink could produce thermal contraction in some substrates, resulting in size mismatches between side A and side B of a double-sided print job.

To solve this issue we suggest the following procedure:

1. Print side A, then measure the print dimensions and calculate the proportional correction to be applied to compensate for the substrate contraction.

   Length correction = (expected length – measured length) / expected length

   Width correction = (expected width – measured width) / expected width

   NOTE: Be careful not to confuse side A with side B, and not to apply the width correction to the length or the length correction to the width.

2. Reprint side A with length and width corrections; the printer will accept differences up to 10% between sides A and B.

3. When side A has been reprinted, print side B with its original dimensions, and using the same printing parameters that were used for side A (print mode, temperatures, airflow, and so on).

With this procedure, the size differences between side A and side B should be minimal.

NOTE: If any substrate advance correction factor is applied, it could affect the length along the substrate axis, so we recommend including the substrate advance correction in your analysis.

9 Troubleshoot ink cartridge and printhead issues

Cannot insert an ink cartridge

1. Use the correct procedure to change ink cartridges, through the front panel. See the *User's guide*.
2. Check that there is no obstruction in the ink cartridge connector.
3. Check that the ink cartridge is of the correct color. A connector will refuse to connect to a cartridge of the wrong color.
4. Check that the ink cartridge is correctly oriented (compare with the others).

Cannot insert a printhead

1. Use the correct procedure to change printheads, through the front panel. See the *User's guide*.
2. Check that there is no obstruction in the printhead slot.
3. Check that the printhead is correctly oriented (compare with the others).
4. Check that you have closed and latched the printhead cover.

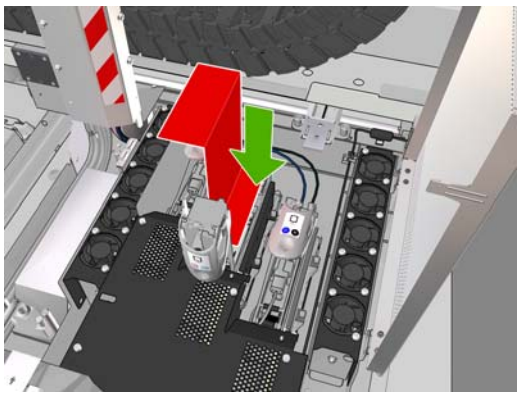
The front panel recommends replacing or reseating an ink cartridge

1. Disconnect the ink cartridge.
2. Reconnect the ink cartridge and check the front panel message.
3. If the problem persists, insert a new ink cartridge.
4. If the problem still persists, call your service representative (see HP Customer Care Centers on page 93).

The front panel recommends replacing or reseating a printhead

1. Remove the printhead.
2. Reinsert the printhead into the carriage and check the front panel message.
3. If the problem persists, remove the printhead again. Illuminate the printhead slot in the carriage and check the electrical connections to the printhead for dirt.

   Placing some white paper behind the electrical connections will improve contrast and may help you to check for dirt.

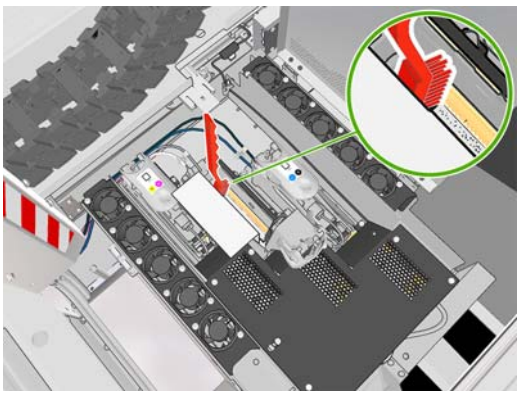


If the connections look dirty, clean them as follows.

a. Turn off the printer.

b. Place a piece of paper underneath the carriage to collect any dirt that falls through.

c. Use the brush from the cleaning kit to clean the electrical connections gently but thoroughly.



d. Use the pneumatic air gun (provided for inflating the spindles) to dislodge any remaining dirt. You can use paper or cloth to prevent the spread of dirt.

e. Remove any paper or cloth you have used to prevent the spread of dirt.

f. Again illuminate the electrical connections and check that they are clean and undamaged.

4. Reinsert the printhead into the carriage and check the front panel message.
5. If the problem persists, insert a new printhead.
6. If the problem still persists, call your service representative (see HP Customer Care Centers on page 93).

A printhead has overheated

A printhead may overheat for several reasons.

- The room temperature may be too high.
- The printhead may be suffering from blocked nozzles. You may be able to cure this problem by cleaning the printheads (see Clean the printheads on page 33).
- The printhead may be suffering from an internal failure, in which case it must be replaced.

A printhead has damaged the substrate

When a printhead touches and damages the substrate, the most likely cause is excessive heat. Therefore, try decreasing the drying temperature.

For information on how to adjust printer settings, see the *User's guide*.

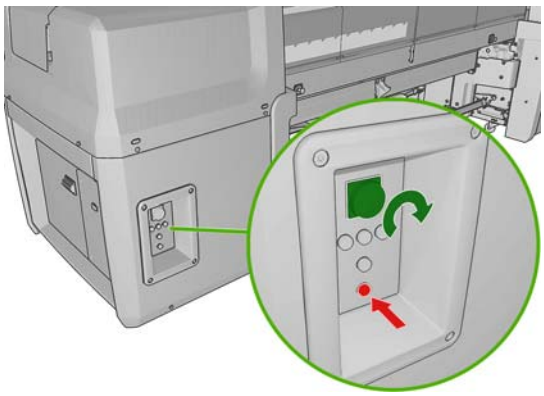
Incorrect printhead cleaning roll errors

You should not touch the printhead cleaner roll except when you need to replace it. Any interference with the roll may prevent the printer from keeping track of roll usage, in which case you may see spurious error messages, and a printing job may be cancelled unnecessarily.

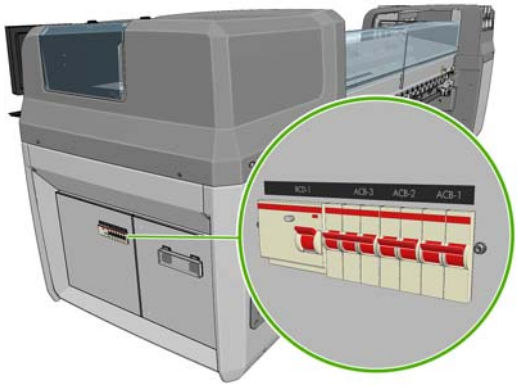
10 Troubleshoot other issues

The printer does not start

1. Check that the power switch is in the On position.



2. Check that the four red power lights are on and the circuit breakers are all up.



3. If any of the circuit breakers trip (from up to down) while the printer is operating, switch off the printer and call your service representative (see HP Customer Care Centers on page 93).

The printer does not print

If all is in order (substrate loaded, all ink components installed and no file errors), there are still reasons why a file you have sent from your computer may not start printing when expected:

- You may have an electrical power problem. If there is no activity at all from the printer, and the front panel does not respond, check that the power cables are connected correctly and that there is power available at the source.
- You may be experiencing unusual electromagnetic phenomena, such as strong electromagnetic fields or severe electrical disturbances, which can cause the printer to behave strangely or even stop working. In this case, turn off the printer, wait until the electromagnetic environment has returned to normal, then turn it on again. If you still experience problems, please call your service representative (see HP Customer Care Centers on page 93).

The printer seems slow

You may experience a temporary delay while the printer's drying and curing modules are warming up.

In some circumstances, the printer will deliberately print more slowly than usual to prevent the printheads from overheating. There are several possible reasons why a printhead may start to overheat.

- The room temperature is too high.
- The printhead is suffering from blocked nozzles (see Clean the printheads on page 33).
- The printhead is faulty and should be replaced.

The HP Internal Print Server cannot retrieve an IP address

If you do not have DHCP, the printer and the HP Internal Print Server cannot automatically retrieve an IP address. In this case, you must set the IP address manually, as follows.

1. Select the Setup menu icon  .
2. Select **Connectivity**.
3. Select **Gigabit Ethernet**.
4. Select **View Information**.
5. Select **TCP/IP**.
6. Select **IPV4 Settings**.
7. Select **Config Method**.
8. Select **Manual** to change the configuration so that the printer uses the manual settings.
9. From the **IPV4 Settings** menu, select **Manual Settings**.
10. Select **IP Address** to edit the settings.
11. Edit the IP address settings and press OK when you are finished.

The HP Internal Print Server (IPS) cannot detect the printer

If the HP Internal Print Server cannot detect the printer, probably either the printer or the HP Internal Print Server is wrongly configured.

1. Select **Tools** > **Preferences**, check the printer's IP address has been added and is correct.
2. Check the network configuration of the HP Internal Print Server computer, the IP address of the printer (visible on the front panel by selecting the Setup icon ), also has to be added in the HP Internal Printer Server in the menu **Tools**>**Preferences**>**Printer IP Address** (see the *Installation guide* for details).
3. Connect the printer to a network that is known to be working correctly for other purposes. Alternatively, connect the printer to the HP Internal Print Server only.
4. At the front panel, select the Setup icon  , then **Connectivity** > **Advanced** > **Restore factory settings**.
5. Turn the printer and the HP Internal Print Server off, then turn them on again.
6. Wait for the front panel to show an IP address.
7. Check the printer's network configuration from the HP Internal Print Server, by opening a browser in the IPS and going to **Tools**>**Internet Options**> **Connections** (see the *Installation guide* for more details).

Print job files have not been properly deleted

See the *User's guide* to find out how to delete a job completely.

Color calibration fails

Automatic color calibration may fail occasionally. You may see the front panel error message **Color calibration cancelled because of scanning errors**, which can be caused by various different problems.

- Reflective color measurements of the printed target cannot be performed reliably on the current substrate. Reflective color measurement can be unreliable or impossible on substrates that are non-white, transparent or translucent, very glossy, or have a very rough or punched surface. For these substrates, automated color calibration using the HP Embedded Spectrophotometer may not be possible; see the table of supported substrate types in the *User's guide*. Adjustment of ink restrictions is still possible using the HP Internal Print Server.
- Some of the color measurements of the Closed-Loop Color Calibration and Ink Restriction Test Chart are defective, or the scanning of the fiducial marks (the big black **|\\|** marks) has failed. These problems can be caused by:
    - Unwanted stains or printhead crash marks on the substrate, that can be easily seen by visual inspection of the printed chart. Make sure the substrate has no stains before running color calibration. Printhead crash marks may occur when the substrate is wrinkled. Try to solve the problem by adjusting substrate parameters such as tension or drying and curing temperatures. See A printhead has damaged the substrate on page 83 and There are ink marks on the substrate on page 56.
    - Wrinkles or bubbles in the substrate, even when there has been no printhead crash.
    - Generally poor print quality (such as banding). See Troubleshoot print-quality issues on page 61.
- Either the HP Embedded Spectrophotometer or the line sensor is not working properly. See Clean the line sensor and aerosol inlets on page 30. If the problem persists, call your service representative (see HP Customer Care Centers on page 93).

11 Front-panel error messages

Occasionally you may see one of the following messages appear on the front-panel display. If so, please follow the advice in the Recommendation column.

If you see an error message that does not appear here, and you feel in doubt about the correct response, or if you have followed the recommendation but the problem persists, call your service representative. See HP Customer Care Centers on page 93.

Table 11-1 Text messages

Message	Recommendation
{Color} cartridge is altered	You are advised to replace the ink cartridge. See the *User's guide*.
{Color} cartridge is low on ink	Be ready to replace the ink cartridge soon.
{Color} cartridge is missing	Install the correct ink cartridge. See the *User's guide*.
{Color} cartridge is out of ink	Replace the ink cartridge. See the *User's guide*.
{Color} cartridge has expired	You are advised to replace the ink cartridge. See the *User's* .
{Color} printhead is missing	Install the correct printhead. See the *User's guide*.
Alignment pending	You are advised to perform printhead alignment. See Align the printheads on page 9.
A wrong printhead has been detected	Check that the correct printheads and the latest firmware release have been installed.
An error has occurred in printhead detection	Remove the printhead, clean any ink from the electrical connectors on the printhead (do not try to clean the nozzles), and reinsert the printhead. See the *User's guide*.
Clean drop detector spittoon	You are advised to clean the ink deposits. See Clean the ink deposits on page 29.
Cleaner roll jam. Check cleaner roll module.	Go to the front panel and select the Ink System menu, then **Check cleaner roll**. Pull out the printhead cleaning roll assembly, raise the pinchwheels, wind the roll forward manually, then lower the pinchwheels and push the assembly back into the printer.
Color calibration cancelled because of scanning errors	The color calibration chart could not be scanned successfully with the current substrate. See Color calibration fails on page 87.
Disconnected	Check the connection to the printer.
Ink system not ready to print	Please wait a while. If the printer does not recover, restart it.
Job canceled due to lack of data received from the IPS	If the problem persists, check the configuration of the HP Internal Print Server computer.

Table 11-1 Text messages (continued)

Message	Recommendation
Line sensor calib. error: substrate too small	Load a larger substrate.
Low cleaner roll	Be ready to replace the printhead cleaning roll soon.
Lower lever	Lower the substrate pressure handles. See the *User's guide*.
Maintenance #N advised. Please contact HP	You are advised to contact your service representative. See HP Customer Care Centers on page 93.
No substrate loaded	Load substrate.
Out of cleaner roll	Replace the printhead cleaning roll. See Replace the printhead cleaning roll and aerosol filters on page 41.
Printer cannot carry on printing	Check that three-phase power supply is working and the ambient temperature is within the normal range. This problem can also be caused by holes in the substrate, by reflective or transparent substrates or by a dirty or faulty temperature sensor.
Printer cannot cool down	If the ambient temperature is within the normal range, this problem may be caused by removing the substrate too quickly after printing. Try leaving the substrate in the printer until temperatures settle down after printing.
Printer cannot warm up	Check that the three-phase power supply is working. This problem can also be caused by holes in the substrate, by reflective or transparent substrates or by a dirty or faulty temperature sensor.
Printer waiting for rearm. Press the power button	Press the Power Enable button on the lower left of the printer. See the *User's guide*.
Remove {color} printhead	Remove the printhead. See the *User's guide*.
Replace {color} cartridge	Replace the ink cartridge. See The front panel recommends replacing or reseating an ink cartridge on page 81.
Replace {color} printhead	Replace the printhead. See The front panel recommends replacing or reseating a printhead on page 82.
Replace aerosol filter	You are advised to replace both aerosol filters. See Replace the printhead cleaning roll and aerosol filters on page 41.
Reseat {color} cartridge	Reseat the ink cartridge. See The front panel recommends replacing or reseating an ink cartridge on page 81.
Reseat {color} printhead	Reseat the printhead. See The front panel recommends replacing or reseating a printhead on page 82..
Select substrate name in the IPS	Select the name of the loaded substrate in the HP Internal Print Server.
Subs. advance cannot be tracked automatically	The substrate-advance sensor cannot track the substrate, and should be turned off. See Substrate-advance compensation on page 11.
Substrate jam: remove substrate	See The substrate has jammed on page 49.
Substrate may be detached from the rear spindle or slippage detected. Substrate will be unloaded.	See The substrate is not attached to the input core on page 50.
Very low cleaner roll	Be ready to replace the printhead cleaning roll very soon.

Table 11-2 Numerical error codes

Error code	Recommendation
14.2	Three-phase power is unexpectedly off. Call your service representative, and be prepared to answer questions about indicator lights and fuses. See HP Customer Care Centers on page 93.
14.3	The three-phase voltage is not set. Set it using the front panel.
14.5:12	Restart the printer.
14.8	Emergency stop button pushed. Release all four emergency stop buttons. Turn circuit breaker ACB-1 off and then on.
14.9	Fuse error. Turn off the printer (see the *User's guide*). Open the FH11 fuse holders and check the fuses. Replace any fuse if necessary.
15.1	The printer is unable to warm up to its working temperature. Check that the three-phase power supply is working. Check that the curing plates are horizontal. This problem can also be caused by holes in the substrate, by reflective or transparent substrates or by a dirty or faulty infrared sensor.
15.2	The printer is unable to cool down to its working temperature. Call your service representative. See HP Customer Care Centers on page 93.
16.1	The printer is unable to warm up to its working temperature. Check that the three-phase power supply is working. LX850 only: If the curing plates are horizontal, lower them.
16.2	The printer is unable to cool down to its working temperature. If the ambient temperature is within the normal range, this problem may be caused by removing the substrate too quickly after printing. Try leaving the substrate in the printer until temperatures settle down after printing.
41.1:03, 41.3:10, 41.4:03	Restart the printer.
44.1:03	Possible substrate jam. If there is really a substrate jam, see The substrate has jammed on page 49. Otherwise, restart the printer.
44.2:10, 44.3:10, 44.4:03	Restart the printer.
45.1:03	Possible substrate jam. If there is really a substrate jam, see The substrate has jammed on page 49. Otherwise, restart the printer.
45.2:10, 45.3:10, 45.4:03	Restart the printer.
46.1:01	There is a problem with the yellow/magenta printhead primer. See Maintain the printhead primers on page 35.
46.2:01	There is a problem with the light cyan/light magenta printhead primer. See Maintain the printhead primers on page 35.
46.3:01	There is a problem with the cyan/black printhead primer. See Maintain the printhead primers on page 35.
47.1:03	The printhead cleaning advance motor has failed to perfom the wiper advance movement as expected. The pinch module is not properly closed or the roll path is stuck, the roller can not move the substrate.
48.1.1	Carriage beam error. Restart the printer, then go to the front panel and select the Substrate Management icon, then **Carriage beam position** > **Carriage system recovery**.
48.1.3	Carriage beam error. Restart the printer. If the error persists, call your service representative (see HP Customer Care Centers on page 93). If no error is reported but there is still some problem with substrate advance, go to the front panel and select the Substrate Management icon, then **Carriage beam position** > **Carriage system recovery**.

Table 11-2 Numerical error codes (continued)

Error code	Recommendation
48.1.4	Carriage beam error. Restart the printer. If the error persists, call your service representative (see HP Customer Care Centers on page 93). If no error is reported but there is still some problem with substrate advance, go to the front panel and select the Substrate Management icon, then **Carriage beam position** > **Carriage system recovery**.
48.1.5	Carriage beam error. Restart the printer.
50:01	The substrate-advance sensor cannot track the substrate, either because the sensor is dirty or faulty, or because the substrate type is incompatible with the sensor. Clean the substrate-advance sensor (see Clean the substrate-advance sensor on page 33). If the error persists, turn off the substrate-advance sensor for the current substrate type. If the error occurs with all substrates, call your service representative. See HP Customer Care Centers on page 93.
50:03, 50.1:10, 50.2:10	The substrate-advance sensor is not working. Restart the printer. If the error persists, call your service representative. See HP Customer Care Centers on page 93. You can print without the substrate-advance sensor, but print quality may be affected.
65.04	Restart the printer.
68	This warning message indicates that the printer's internal counters are not functioning correctly. You are recommended to restart the printer in the near future.
78.1:04	The substrate preset is damaged or missing. Import or create a new preset for the loaded substrate. See the *User's guide*.
78.2:01	The substrate may have become detached from the rear spindle, or the core is slipping on the spindle. This could mean that you have reached the end of the roll, or the spindle is not correctly inflated, or the dual-roll differential hub is locked. The substrate will be unloaded.
78.3:01, 78.4:01	Substrate may be detached from the rear spindle or slippage detected after forward movement, or the substrate has finished on the input spindle. Check that the input spindle is correctly inflated.
78.5:01, 78.6:01	Substrate may be detached from the front spindle or slippage detected after forward movement. Check that the input spindle is correctly inflated.
78.7:01	This is displayed when printing double-sided, and trying to print side B, the printer cannot detect the Image Registration Line and the job will **not** be printed: **1.** Recheck the position of the substrate, ensure the last Image Registration Line is aligned with the beginning of the platen. **2.** Clean the Substrate Advance Sensor, refer to the *Maintenance & Troubleshooting Guide* for details of the procedure.
81:01	There is a possible substrate jam, see The substrate has jammed on page 49. If you check the printer and see there is no actual jam, restart the printer.
81.02:01, 81.02:03	The tension roller in the Roll to Free Fall System has been raised while printing. As the Printer is unable to control the substrate tension the system cannot operate any longer. The system error is severe and a restart of the printer will be required. Check the Tension Roller Lever is closed.

12 When you need help

Documentation

The following documents are provided with your printer, and can also be downloaded from http://www.hp.com/go/LX820/manuals/ or http://www.hp.com/go/LX850/manuals/.

- *Site preparation guide*
- *Site preparation checklist*
- *User's guide*
- *Maintenance and troubleshooting guide*
- *Legal information*
- *Warranty information*

HP Proactive Support

HP Proactive Support helps reduce costly printer downtime by preemptively identifying, diagnosing and resolving printer issues before they become problems for you. HP's Proactive Support tool is designed to help businesses of all sizes reduce support costs and maximize productivity—all with the click of a mouse.

A component of the HP Imaging and Printing suite of services, Proactive Support helps you gain control of your printing environment—with a clear focus on maximizing the value of your investment, increasing printer uptime and reducing printer management costs.

HP recommends that you enable Proactive Support right away to save you time and prevent problems before they occur, reducing costly downtime. Proactive Support runs diagnostics and checks for software and firmware updates.

You can enable Proactive Support in the HP Internal Print Server by selecting **Tools** > **Proactive Support**, where you can specify the frequency of connections between your computer and HP's Web server, and the frequency of diagnostic checks. You can also choose to run the diagnostic checks at any time.

If Proactive Support finds any potential problem, it notifies you with an alert, which will explain the problem and recommend a solution. In some cases, the solution may be applied automatically; in other cases, you may be asked to perform some procedure to solve the problem.

HP Customer Care

HP Customer Care offers award-winning support to ensure you get the most from your printer, providing comprehensive, proven support expertise and new technologies to give you unique end-to-end support. Services include setup and installation, troubleshooting tools, warranty upgrades, repair and exchange services, phone and Web support, software updates and self-maintenance services. To find out more about HP Customer Care, please visit us at:

http://www.hp.com/go/graphic-arts/

or call us on the telephone (see HP Customer Care Centers on page 93). To register your warranty:

http://register.hp.com/

HP Customer Care Centers

Help is available to you by telephone. What to do before you call:

- Review the troubleshooting suggestions in this guide.
- Review your RIP's documentation, if relevant.
- Please have the following information available:
  - The printer you are using: the product number and the serial number, found on the label on the door of the electrical compartment
  - If there is an error code on the front panel, note it down; see Front-panel error messages on page 88
  - The printer's Service ID
  - The RIP you are using, and its version number
  - The software application you are using, and its version number
  - If you have a problem directly related to an ink supply component (printhead, ink cartridge), please have at hand the product part number and warranty end date.
  - The text displayed by the HP Internal Print Server when you select **Help** > **About**

North America

Tel: 850 925 0563

Fax: 952 943 3695

E-mail: cs.custsup@hp.com

Europe, Middle East and Africa

Tel: +32 2 7283444

Fax: +31 207157536

E-mail: LF.MV.Support@hp.com

Asia and Pacific

Tel: +852 8103 2666

Tel: 00 801 85 5945 (Taiwan only, toll-free)

Fax: +852 2187 2218

E-mail: hsap.carecenter@hp.com

Latin America

Please dial Option 2/Option 6 from the selection menu.

Argentina: 5411 470 816 00

Brasil: 52 55 5258-9922

Chile: 562 436-2610 / 850 360 999

Colombia: 571 602 9191 / 01 8500 51 4746 8368

Costa Rica: 0 850 011 0524

Dominican Republic: 1 850 711 2884

Guatemala: 1 850 999 5105

Honduras: 850 0 123 / 1 850 711 2884

Mexico: 52 55 5258-9922

Nicaragua: 1 850 0164 / 850 711 2884

Panama: 001 850 711 2884

Peru: 511 411 2443 / 0 850 10111

El Salvador: 850 6160

Venezuela: 58 212 278 8666 / 0 850 474 68368

CC LAR Nextel: (5255) 1088 0884; ID 52*20115*51

CC LAR e-Mail: carecenter.ipglf.lar@hp.com

CC LAR Fax: +52 55 5258 6377

Service information

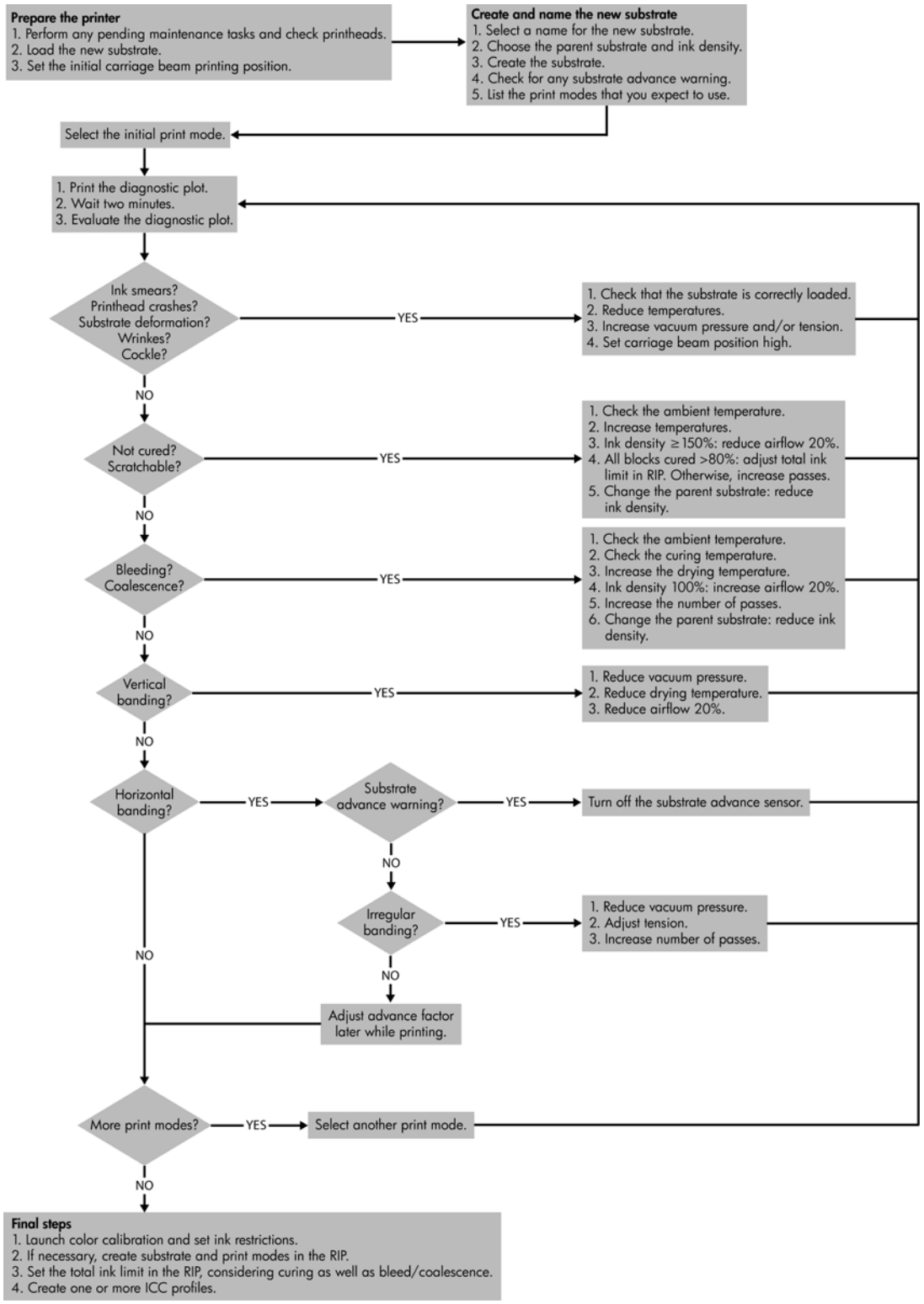
The printer can produce on request a list of many aspects of its current status, some of which may be useful to a service engineer trying to fix a problem. There are two different ways to request this list:

- In the HP Internal Print Server, select **Information** > **Service information**.
- From any computer with Internet access, enter the URL of your printer into a Web browser, followed by `/hp/device/webAccess/allServicePlot.htm`. For instance, if the URL of your printer is **http://123.123.123.123**, enter `http://123.123.123.123/hp/device/webAccess/allServicePlot.htm`.

You can request the whole list, which takes a significant time to generate; or you can request specific parts of it. If in doubt, you are recommended to request the whole list (select **All pages**).

If you need to send the list by e-mail, you can save the page as a file from your Web browser, and later send the file. Alternatively, from Internet Explorer you can send the page directly: select **File** > **Send** > **Page by E-mail**.

A Preset creation flowchart



B How to adapt your previously developed ‘substrate presets’ and ‘media profiles’ to the new LX610 Inks

This section is applicable to customers that have upgraded their HP Scitex LX600/LX800/L65500 Printer to the new LX610 Inks but still want to use the previous customized media profile and customized substrate presets that were based on the previous inks. For more information about the LX610 Inks refer to the following link www.hp.com/go/LX610inkupgrade

LX610 Inks

The new LX610 Inks (available as standard with the HP Scitex LX820/LX850) give the following benefits:

- Increased optical density
- Increased glossiness
- Increased waterfastness in Cyan and Black
- Can use the same Substrates as the LX600 Inks
- The same printing parameters are applied as the LX600 Ink (temperature, tension, airflow, vacuum).

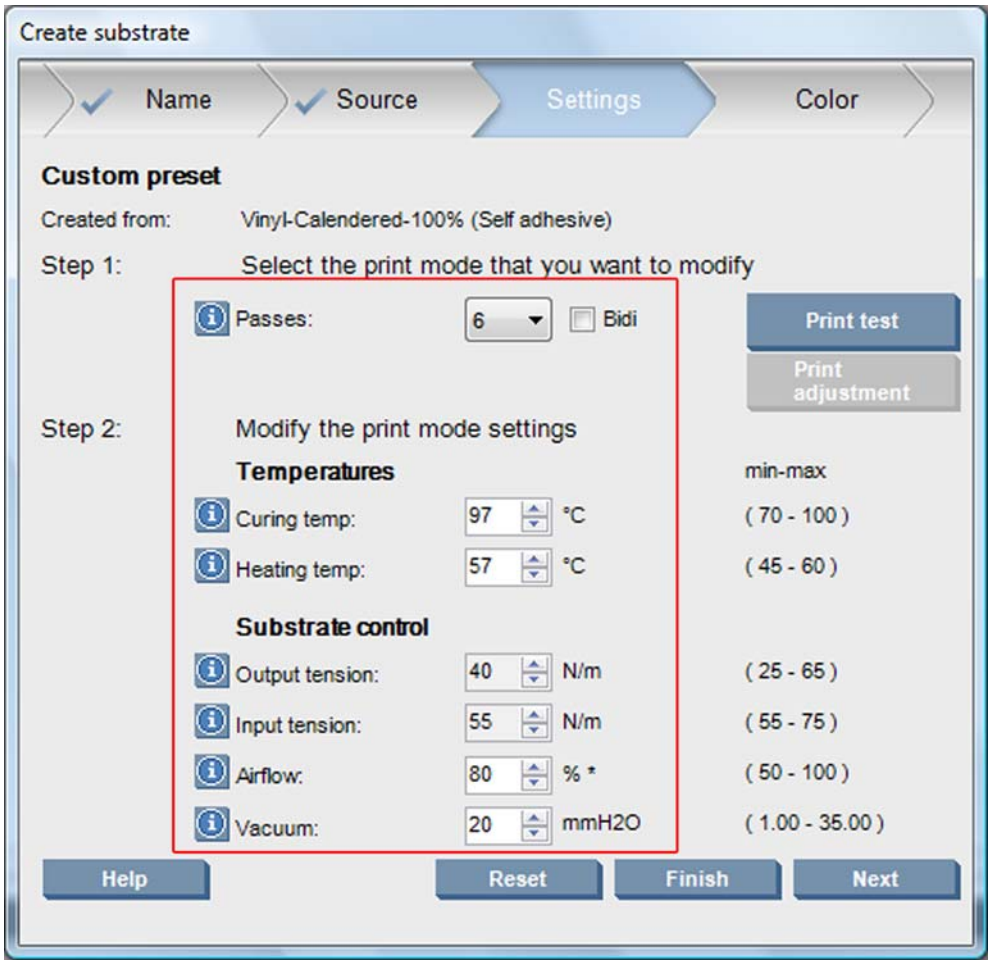
1. HP recommends using specific LX610 media profiles (Substrate presets and icc profiles) for the LX610 Inks in order to optimize the results. However, if you have developed a large number of customized media profiles which were based on the LX600 Inks for your specific substrate, **first try using your existing customized color profiles and substrate presets with the LX610 Inks and check the results.**
2. In most cases, the differences obtained will be small enough to be acceptable. However in some cases you might seek a closer match of a particular color. For those cases the following describes potential workarounds, although final results may still not match expectations.

NOTE: It should also be noted that HP also has a large selection of Color Profiles available to download, check the website www.hp.com/go/latexmediafinder or check the website of the vendor for your particular RIP, to see if there is a color profile available for your specific type of substrate.

Customized substrate preset conversion to using LX610 Inks

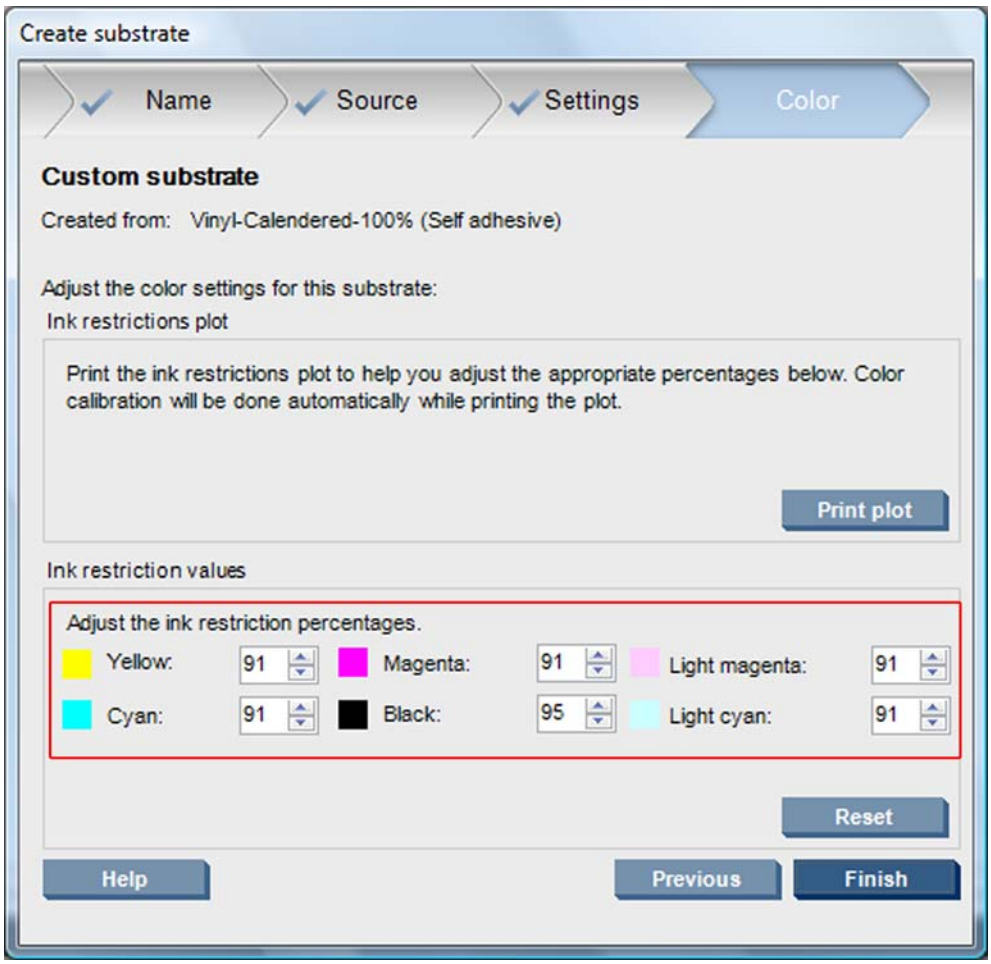
Only use the following procedure if you have updated your HP Scitex LX600/LX800/L65500 Printer to the new LX610 Inks, and you are not satisfied with the results when printing on specific substrates with your previously existing customized media profiles.

1. Note the values of the settings from the screen shown here. Refer to the User's Guide for more details on these settings.

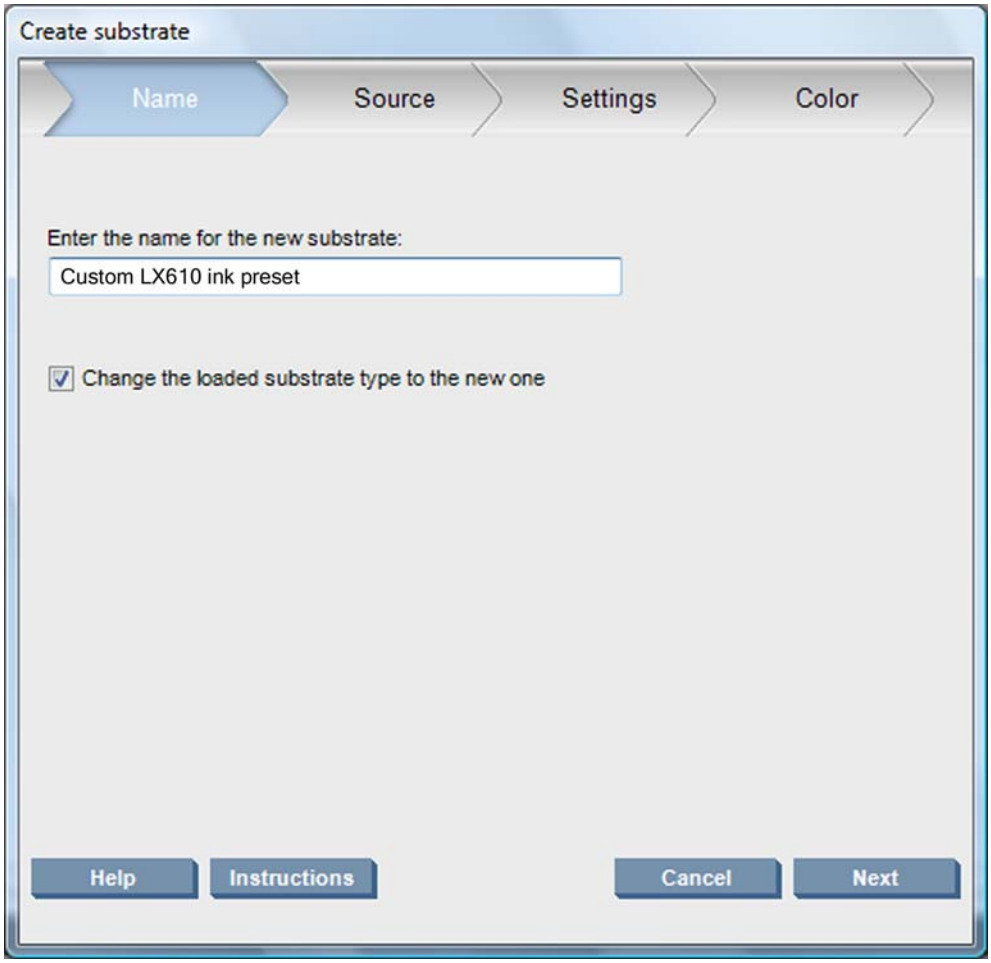


2. Note the values of the ink restriction percentages from the color settings screen shown here, refer to Ink restrictions on page 15.

Please be aware that in order to achieve the correct results, the new source substrate must match the source of the original customized substrate (banner, self-adhesive vinyl etc).



3. Create a new Substrate Preset (refer to the User's Guide for details) and use the same values that were used for the previous Customized Substrate Preset.



4. Press the **Print** test button (refer to the User's Guide) and check to see if the results are satisfactory, if they are go to the HP Internal Print Server and select **Substrate** > **Remove** and delete the old Substrate Preset.

5. If the results are not satisfactory, create a new icc profile for the new LX610 Inks using the procedures documented in the your RIP. The new icc profiles must be generated based on the new customized substrate preset created in step 3, and not the original previous one.

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