Supplies Best Practice Guide for
HP Indigo W7200 Digital Press and
HP Indigo WS6000 Digital Press series

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1 Introduction

As the operator of an HP Indigo digital press, you depend on the overall performance of this press; at the same time, the press is dependent upon your skilled care and expertise. This Supplies Best Practice guide provides technical recommendations for getting the best possible press performance. Just a few minutes spent following the steps outlined in the guide can prevent problems that affect productivity. Consistent implementation of these simple and time-efficient operator routines, proactive maintenance practices, and troubleshooting tips, will minimize operator time and maximize overall uptime of the press.

This document provides the following:

- Operator routines

- Proactive actions

- Troubleshooting tips

NOTE: Regulatory notice for Isopropyl Alcohol (IPA) and imaging oil: Some regions, including portions of California, prohibit the use of IPA and imaging oil as cleaning agents. Check your local air pollution control regulations to determine if IPA and imaging oil are permitted as cleaning agents. Do not use IPA and imaging oil as cleaning agents in California or other areas where the use of IPA and imaging oil as cleaning agents are prohibited. For alternative cleaning instructions, go to the My HP Indigo website.

Scope

This document is intended for press owners and operators who want to improve their productivity and increase press uptime.

- HP Indigo WS6000 Digital Press

- HP Indigo WS6000p Digital Press

- HP Indigo W7200 Digital Press

Environment

All environmental and power requirements that are described in the Site Preparation Guide are critical for the optimal operation of the press. These include; external temperature, humidity, power to the press and chiller.

- The temperature and humidity required are:

  - Temperature – 20 to 25 degrees C (68 to 77 degrees F)

  - Humidity – 50% - 70%

- The press should always be operated within its normal specification in order to ensure proper operation and maximize performance.

- Keep a well organized and clean work space with proper lighting conditions.
- Use of a room thermometer and humidity sensor is recommended.
- Excessive humidity:
  - May cause print quality artifacts.
  - Will deteriorate the ozone filter.
  - Can cause erosion of parts.
- Insufficient humidity:
  - Can cause static electricity which can result in multiple error messages and/or haze on the print.
  - Can contribute to ink adhesion failure on the substrate.
  - Can affect color consistency.
- How to identify humidity issues:
  - Does the press print better in the early morning and change behavior later in the day?
  - Does the night shift experience the same types of production problems as the day shift?
  - Is the substrate allowed to acclimate in the same environment as the press for at least 24 hours before it being used?
  - Is the humidity input system large enough to keep the room within the recommended range?
  - Do you have more problems during the winter season?
- Chiller temperature set point of water inlet to press:
  - HP Indigo press ws4500: 7 + 2 degrees C (44.6 + 2 degrees F)
  - HP Indigo WS6000 Digital Press with economizer: 1.5 + 1 degrees C (44.6 + 2 degrees F)
- For more information on this subject, refer to the Site Preparation Guide and the User Guide for the specific press.

2 General Guidelines

The following guidelines will help reduce your downtime, improve the consistency of your prints, and maximize the performance of your supplies:

- Maintain your HP Indigo press, grease and clean according to the maintenance guidelines, pay special attention to the following:

    ◦ Replace the Ozone filters every 36 million impressions.

    ◦ Replace the imaging oil filter at the recommended intervals.

- Verify that the Chiller set point is correct.

- Clean the ink pump density sensor, Conductivity sensor according to the maintenance guidelines.

- Clean the charge roller on a weekly basis.

- Verify that the cleaning station functionality and cleanness.

- Visually verify that the IMO in the reservoir is clean (drain the IMO and replace if needed).

- Wipe the wipers blade every beginning and end of shift (and when replacing a PIP).

- Verify that the BCS is defined and check functionality.

- Wipe all the BIDs every end of day.

- Verify that the substrate is defined properly in the system according to the type of substrate (see).

- It is recommended that you print and file a baseline job on a daily basis. The job should be compared to the job printed the previous day to ensure no drift in print quality. The job should be printed after performing color adjust or automatic machine LUT.

- Replace supplies when:

    ◦ There is a print quality defect caused by one of the supplies.

    ◦ Damage has occurred to the supply during press maintenance or operation.

    ◦ A press software message informs you to replace the relevant supply.

    ◦ The Remote Support Engineer or the Customer Engineer has suggested replacing it.

- Before replacing the supply item:

    ◦ Printing the Print Quality Assistant job guides the operator to the correct source of the issue and reduces wrong diagnosis.

    ◦ Before removing a supply, always verify the age of the item. It is uncommon that a new or relatively new supply item is faulty.

    ◦ If the supply replacement does not solve the problem, call the customer care center for advice.

- Work in a humidity and temperature controlled environment. This improves substrate run ability, reduces substrate jams, reduces PIP auto bias failures, and improves color consistency.

- PIP related-failures can often be distinguished from blanket-related failures by the number of separations that exhibit the failure. If four separations exhibit the failure, then it is a blanket-related issue.

3   PIP

PIP general guidelines

- Avoid replacing the PIP foil and blanket at the same time if blanket replacement is not necessary.

- Regularly clean the cleaning station blade, when the press is not in Print mode, with a wipe that is wet with imaging oil. It is recommended to do this every 10,000 impressions. A dirty blade can cause scratches seen on the prints.

- Avoid bypassing the cold start. The cold start includes a PIP conditioning process and other important processes that occur before printing. These processes are necessary for high and consistent print quality.

- Do not use the Idle or Pause modes too much. These modes age the PIP foil just as the Printing mode ages the PIP foil. Extensive use of the Idle or Pause mode shortens PIP foil life span.

- Only replace the PIP foil and the blanket at the same time if it is absolutely necessary. Unnecessary supply replacements reduce your productivity.

- Dirty imaging oil can cause scratches on the PIP foil and on the prints. Avoid bypassing the imaging oil dirtiness sensor when the *Replace the imaging oil filters* message appears. Bypassing the sensor blocks the appearance of the message.

- Every month, a Shared Maintenance operator must verify the calibration of the imaging oil flow to the cleaning station. Imaging oil flow that is too low can cause scratches on the PIP foil. Imaging oil flow that is too high can cause oil to drip on the prints.

- A defective sponge roller can cause scratches on the PIP foil and on prints. Therefore, replace the sponge roller if one of the following occurs:
  - The sponge roller is damaged.
  - Dirt does not come off when you clean the sponge roller.
  - The sponge roller has printed more than 1 million impressions.

- Control the ambient relative humidity in the press room. The ambient relative humidity should be 50 - 70%. Humidity control decreases autobias issues and ensures maximum color consistency.

- Do not bypass the imaging oil temperature control.

- Replace the imaging oil filter on a regular basis, and check the oil flow rate.

- Every month, clean the PIP grounding contact brush. This prevents errors with the auto bias calibration.

- Clean the charge roller on a weekly basis.

- Perform Charge roller calibration wizard.

- Clean the BIDs, wipe the Developer using a lint-free wipe with IMO every end of day.

- Verify that the PTE is clean, using a lint-free wipe with IPA.

- Check that the PEU is defined.

- Check PEU mechanical functionality.

- Check C.S IMO flow rate is calibrated properly.

- Always monitor the IMO dirtiness sensor.

- Visually verify that the IMO in the reservoir is clean (drain the IMO and replace if needed), if the IMO was found dirty replace the IMO filters as well.

- Verify that the substrate is defined properly in the system according to the type of substrate, this can reduce the effect of image memory (see Substrate Definitions on page 26).

PIP installation guidelines

- Do not use excessive force to pull a used PIP foil out of its slot.

- Do not expose the PIP foil to direct light.

- Cool down the ITM drum to below 60° C to prevent PIP foil burn marks.

- Before you install a new PIP foil, clean the PIP under layer with a lint-free pad soaked with imaging oil. The PIP under layer can absorb small particles which can cause marks on the prints.

- Spray imaging oil under the PIP foil trailing edge to ensure that the trailing edge sticks to the PIP drum.

- Remove the protective paper by inching the PIP drum. This prevents rubbing marks on the PIP foil. Rubbing marks can cause print quality defects.

- Push the PIP foil until the marked lines on both sides are aligned and centered with the PIP drum. Incorrect PIP foil installation can cause PIP foil skew and damage the PIP foil.

- Wipe the cleaning station blade during every PIP foil replacement.

- Wipe the cleaning station sponge and vetting rollers during every PIP foil replacement.

PIP Enhancement Unit (PEU)

- Avoid bypassing the PEU. The PEU enables you to print more impressions on one PIP foil by maintaining a high level of print quality throughout the life span of the PIP foil.

- The PEU performance is affected by the press mode. It is preferable to use the Suspend mode rather than the Idle mode:

  ◦ Suspend mode - The PEU cleans the PIP foil at the end of the print queue.

  ◦ Idle mode - The PEU cleans the PIP foil at the end of the print queue. However, scratches may appear on the first few pages after the PEU stops. If this happens, clean the cleaning station blade with a wipe that is wet with imaging oil. Then print 10 - 15 pages of any job until the scratches disappear.

  ◦ In both press modes, make sure that the print queue does not exceed 8,000 impressions. If, occasionally, the print queue must exceed 8,000 impressions, manually activate the PEU through the PIP Polish wizard.

- Replace the PEU roller when the *Replace the PEU roller* message appears. Update the Replace Part screen to reset the counter. The PEU removes contaminants from the PIP foil surface that accumulate over time. For best performance, periodically change the PEU pad that collects contaminants and dirt.

PIP during printing

- If the PIP foil has slipped from its holder, contact the customer care center to arrange a customer engineer visit to correct it.

- Close the press doors when performing the Auto Bias and Color Adjustment wizards. Verify that there are no scratches mark on the prints, if scratches are found stop the press, remove the Wipe blade and wipe it using a lint-free wipe with IMO, install back the blade, resume printing and verify that the scratches are gone.

4   Blanket

Blanket general guidelines

- Avoid replacing the PIP foil and the blanket at the same time if the PIP foil replacement is not necessary.

- Substrate jams increases the risk damaging the blanket, consult with your customer care center if you are experiencing ongoing substrate jams.

- Avoid using a non-HP Indigo-approved substrate, this may reduce blanket performance.

- Avoid bypassing the cold start. The cold start calibrates the second transfer pressure after a blanket is replaced. Avoiding this calibration can cause ink transfer issues.

- Always run the Print Cleaner wizard with a substrate of same size as (or larger than) the largest substrate that you plan to use when you switch the substrate size. If you use a smaller substrate, you may encounter issues when you switch to a larger substrate because of dirt accumulation on the blanket around the substrate area. This dirt can also increase the amount of substrate jams. Run the Print Cleaner wizard before shutting down the press at the end of the day.

- Use an optimal workflow design. In general, smaller images can cause an image memory effect on larger images. Printing in the correct order minimizes image memory issues. For example, print images from largest to smallest, print substrates from largest to smallest, and print light coverage before heavy coverage.

- Long run jobs may increase the memory effect on the blanket, try to mix short runs with long runs when possible.

- Verify that the BCS is defined and check functionality.

- If running high coverage jobs, define the BCS to engage more frequently.

- If you experience mild substrate jams or loss of ink releasability, wait 3 to 5 minutes for the blanket to recover and try again. This may eliminate the need to replace the blanket.

- Always run the Print Cleaner wizard with a substrate of same size as (or larger than) the largest substrate that you plan to use when you switch the substrate size. If you use a smaller substrate, you may encounter issues when you switch to a larger substrate because of dirt accumulation on the blanket around the substrate area. This dirt can also increase the amount of substrate jams.

- Run the Print Cleaner wizard before shutting down the press at the end of the day.

- Before long breaks, it is recommended to manually clean the blanket by wiping it with a lint-free tissue that is wet with imaging oil. This can increase the blanket life span.

- Use an optimal workflow design. In general, smaller images can cause an image memory effect on larger images. Printing in the correct order minimizes image memory issues. For example, print images from largest to smallest, print substrates from largest to smallest, and print light coverage before heavy coverage.

- Every time you replace the blanket, run the First Transfer wizard. The first transfer pressure must be adjusted separately for each blanket to obtain high print quality and to minimize image memory-like issues. Calibrate the first transfer pressure according to the on-screen instructions.

- Every time you replace the blanket, run the First Transfer wizard. The first transfer pressure must be adjusted separately for each blanket to obtain high print quality and to minimize image memory-like issues. Calibrate the first transfer pressure according to the on-screen instructions.

- Clean the ITM drum shoulders and impression drum shoulders every week. This ensures accurate temperature readings. Inaccurate temperature readings impact adhesion of ink on substrate, image memories, and substrate transport.

- Only replace the blanket and the PIP foil at the same time if it is absolutely necessary. Unnecessary supply replacements reduce your productivity.

- Verify that the substrate type is defined properly in the system, this can reduce the effect of image memory (see Substrate Definitions on page 26).

- If you experience transfer issues, perform 2nd transfer calibration, followed by first transfer wizard.

Blanket installation

- Install a new blanket using only the blanket installation wizard.

  ◦ ITM drum should be clean from any dirt or imaging oil residue.

  ◦ During blanket installation, apply a slight force against the drum rotation to stretch the blanket around the drum.

  ◦ Correctly installing the blanket ensures blanket functionality and may improve the blanket life span.

- Every time you replace the blanket, run the First Transfer Calibration wizard. The first transfer pressure must be adjusted separately for each blanket to obtain high print quality and to minimize image memory-like issues. Calibrate the first transfer pressure according to the on-screen instructions.

Substrate jams and substrate stuck to blanket

- Clean the blanket as quickly as possible to remove ink residue. Use a lint-free pad and imaging oil. Wipe any oil residue with a dry pad.

- Use the rubber scraper (supplied with the press accessories) to remove any substrate residue from the hot blanket.

- Verify that the IMP drum is clean.

- Verify that the PIP wasn't damaged and that there's no paper stuck on it.

- That there are no pieces of paper stuck around the ITM (air knife, ITM suction,BID's)

- Run the Print Cleaner wizard. Repeat several times, as needed.

- Never remove the two empty sheets in the Print Cleaner wizard, as they are needed to reduce the blanket stickiness.

5 Charge roller

- Remove dirt from the charge roller surface using a wipe soaked with IPA. IPA is a better cleaner than imaging oil. Use IPA up to twice a week. If you need to clean the charge roller more often, then use imaging oil instead. Dirt affects the uniform charging of the PIP foil.

- Every week, and whenever you replace the charge roller, clean the balancing roller with IPA. Dirt on the balancing roller modifies its performances and causes an electrical stress on the charge roller.

- Replace the imaging oil filters when the *Replace the imaging oil filters* message appears. Dirty imaging oil can cause imaging oil trails (in which particles get stuck under the cleaning station blade), which affect the performance and durability of the charge roller.

- Store the charge roller in its box until it is installed on the digital press. After you open a charge roller box, store it in a humidity controlled room. The charge roller rubber is sensitive to low humidity.

- Do not use the Pause mode too much. This mode ages the charge roller just as the Printing mode ages the charge roller. Extensive use of the Pause mode shortens the charge roller life span.

- Replace the charge roller when the *Replace the charge roller* message appears. This ensures high and stable print quality. Update the Replace Part screen to reset the counter.

- To avoid a failure of the Charge Roller Calibration wizard, correctly install the PIP foil and the PIP under layer. An incorrect calibration can cause the charge roller to bounce at the PIP foil leading edge. This can disturb the electrical charging of the PIP foil, cause the charge roller to pick up imaging oil, and lead to print quality issues.

- Regularly clean the cleaning station blade, when the digital press is not in Print mode, with a wipe that is wet with imaging oil. It is recommended to do this every 10,000 impressions. Particles trapped under the blade can cause oil trails, which disturb the uniform charging of the PIP foil. Oil trails also cause long term damage to the charge roller surface.

6   HP ElectroInk

- Every month, wash the ink pump filter and the TIC board with imaging oil to remove residual ink buildups. Thoroughly clean the density and conductivity sensors. Severe ink buildup can clog the ink pump filter, cause insufficient ink to flow to the BID, and interfere with the TIC board sensors readings.

- When you rebuild the ink, always use a calibration cartridge. Rebuilding ink from a standard ink cartridge is not an accurate way of reaching the target density level. This can cause various print quality issues.

- After you rebuild the ink with a calibration cartridge, make sure that no ink remains in the calibration cartridge. Then run the Ink Density Calibration wizard using 1.70 for the density values. This re-calibrates the density sensor and removes the old density sensor calibration values.

7 BID (Binary ink developer)

General BID guidelines

- Before shutting down the digital press, and before a break of over two hours, run the Dry BID wizard for all BIDs that are configured on the digital press. This prevents dry ink residue from accumulating on the roller surfaces, which can cause print quality issues (such as stains).

- Only remove BIDs from the digital press when necessary. Install BIDs smoothly and keep the BID as horizontal as possible during the installation. Installing BIDs can damage the developer roller surface and the PIP foil.

- Do not bypass the ink parameters (level, conductivity, density) or the BID diagnostics. It is essential that BIDs work with inks at nominal conditions to ensure BID durability and ensure best print quality. Bypassing BID diagnostics can cause print quality issues.

- Avoid unnecessary BID removal from the HP Indigo press, since the BID roller is sensitive to mechanical damage.

- The BID unit is carefully monitored by the software, and automatic recovery is assumed when needed. When an error occurs, it is important to follow the guidelines suggested to recover the fault.

- If the BID is replaced as part of a troubleshooting process and found to be OK, it is important to store it properly for later reuse.

- An unused BID should always be stored in its original styrofoam box for up to a year, and reused with the same print quality. Before storing the BID, it is important to clean it in the BID washer, if available, or clean any ink residue from the developer using a lint free wipe soaked with Imaging Oil. Follow the directions in the *BID Reuse Guide*.

- Clean the ink pump density sensor, Conductivity sensor and charge roller on a weekly basis.

- Check the BID's electrode and developer voltage and current during print, this will give you an indication that the Ink Density and conductivity are ok. (the electrode and developer voltage and current during print should be in the green zone)

Weekly BID guidelines

- While manually rotating the BID, clean the rubber developer roller and the metallic squeegee roller with a lint-free wipe soaked with imaging oil. Clean the rollers until no ink residue remains. This prevents dry ink residue from accumulating on the roller surfaces, which can cause print quality issues (such as stains).

- Make sure that the BID draining hoses are not bent. This prevents BID draining issues and leaks from the BID tray.

- Every two weeks, run the Full BID Engage wizard. This prevents the BID from bouncing at the PIP foil leading edge, which results in poor ink transfer.

- Make sure that the BID cooling fans work. This ensures the reliability of the BID motor.

BID installation guidelines

- Do not use any sharp tools to remove the BID packing and wrapping material.

BID printing guidelines

- Perform a BID drying procedure before a long break, do not wait for the 20 minute timeout.

- Clean the BID on a weekly basis using the BID washer if available.

- Some missing ink coverage caused by BID pressure may be resolved by using the BID Engage/Disengage wizard - especially for leading edge issues.

- Check that the BID cooling fan is working properly on a weekly basis.

- Drain the water from the solid add compressor on a regular basis to avoid water leakage into the ink system.

BID leak prevention

- Run the Ink Flow Calibration wizard. Set the flow to the minimum value allowed by the wizard. Increasing time (in seconds) reduces the ink flow.

- Check the foam level in the ink tank, if it exceeds more than 80 mm during printing, rebuild the ink.

- If the BID return pipe is blocked or kinked, it can result in BID leaking.

- Check if the fluid interface (FI) is blocked or kinked, it can result in BID leaking.

- Verify that the BID hose adapter carriage is clean from any sludge build-up. Use imaging oil and a lint-free wipe (or a brush if available).

BID troubleshooting

- Some printing problems that appear to be caused by BID defects may actually be caused by other press components.

- Do not replace a BID unless it is absolutely necessary to do so.

- The BID Replacement wizard scans and analyzes a special test job, and suggests the root cause for the printing problem. Use this wizard to troubleshoot printing problems and to determine whether they are caused by BIDs or other press components.

8   Imaging oil filter

- Replace the imaging oil filters when the *Replace the imaging oil filters* message appears. Imaging oil filters remove particles from the cleaning station imaging oil. This prevents scratches from appearing on the PIP foil and on the prints. Particles can also clog the heat exchanger, which reduces its cooling efficiency and the imaging oil flow to the cleaning station. Heat exchanger clogs eventually lead to PIP foil overheating and scratches. Do not bypass the imaging oil dirtiness sensor because bypassing this sensor prevents the appearance of the *Replace the imaging oil filters* message.

- Once a month, clean the imaging oil dirtiness sensor. This ensures consistent readings. Large particles can block the optical sensor and cause incorrect readings.

9 Cleaning Station blade

- Clean the cleaning station blade regularly, when the press is not in Print mode, with a wipe that is wet with imaging oil. It is recommended to do this every 10,000 impressions. If necessary, change the blade edge. If you have already used all four blade edges, replace the blade. When the digital press is operating, dirt particles can get stuck between the cleaning station blade and the PIP foil. The particles can make scratches on the PIP foil and on the prints.

- Replace the imaging oil filters when the *Replace the imaging oil filters* message appears. Imaging oil filters remove particles from the imaging oil.

10 Media and Substrates

General media and substrate guidelines

- The HP Indigo press optimizes itself for each substrate according to the substrate definitions. To avoid ink adhesion, ink transfer, color plane registration issues, and substrate jams, enter the exact substrate definitions for each substrate:

    ◦ Width: accuracy of 0.1 mm

    ◦ Thickness: accuracy of 10 microns

    ◦ Optimized transfer parameters (Standard, Coated Gloss, Coated Matte, or Uncoated)

- To reduce substrate transport issues, do the following:

    ◦ Several hours (**preferably 24 hours**) before printing, acclimate substrates to the printing conditions in a humidity-controlled environment.

    The optimal ambient temperature is 20 - 25° C.

    The optimal ambient relative humidity (RH) is 50 - 70%.

    ◦ Store the substrate in its original moisture-barrier wrapper.

- Check and update the gloss level parameter of the substrate. Note that uncoated substrates can have a high gloss level that is similar to coated gloss substrates. Updating the gloss level parameter of the substrate ensures consistent colors and maximum print quality.

- For substrates that are coated on only one side verify that the substrate is threaded at the correct direction (coated side facing up). Verify that you are working with an HP approved substrate .

- If the substrate is coated/treated in house, verify that the coating/treating of the substrate was done properly and that the coating/treating is in good quality, you can apply checking methods for verifying the quality of the coating/treating. It is very important not to load poor quality coated/treated substrate on to the press, it can cause image transfer issues, ink would not be transferred properly onto the substrate causing the ink to stick to the blanket.

- Avoid using offset powder in the same room as or near an HP Indigo press. Avoid using offset powder on any substrate that will run through an HP Indigo press. Offset powder can contaminate the blanket and appear on prints.

HP approved media

- The HP Indigo Media Partners program ensures customer access to a wide variety of qualitative substrates.

- HP Indigo approves substrates according to:

    ◦ Run ability

    ◦ Ink-substrate interaction

- ◦ Ink transferability
- ◦ Blanket-substrate compatibility
- ◦ Blanket temperature operating window

Substrate storage

- Keep wrapped and labeled.
- Rewrap unneeded substrate.
- Store substrate in a way that you can easily see the label.
- Store in a clean, temperature and humidity controlled environment with these recommended ranges:
  - ◦ Temperature: 20 - 26° C
  - ◦ Relative humidity (RH): 50 - 70%
- Storage temperature should be the same as print room temperature.

11 Recycling System in the HP Indigo Digital Press

- The oil recycling system in the HP Indigo Digital Press reduces imaging oil consumption.

Figure 11-1 Recycling system in the HP Indigo Digital Press
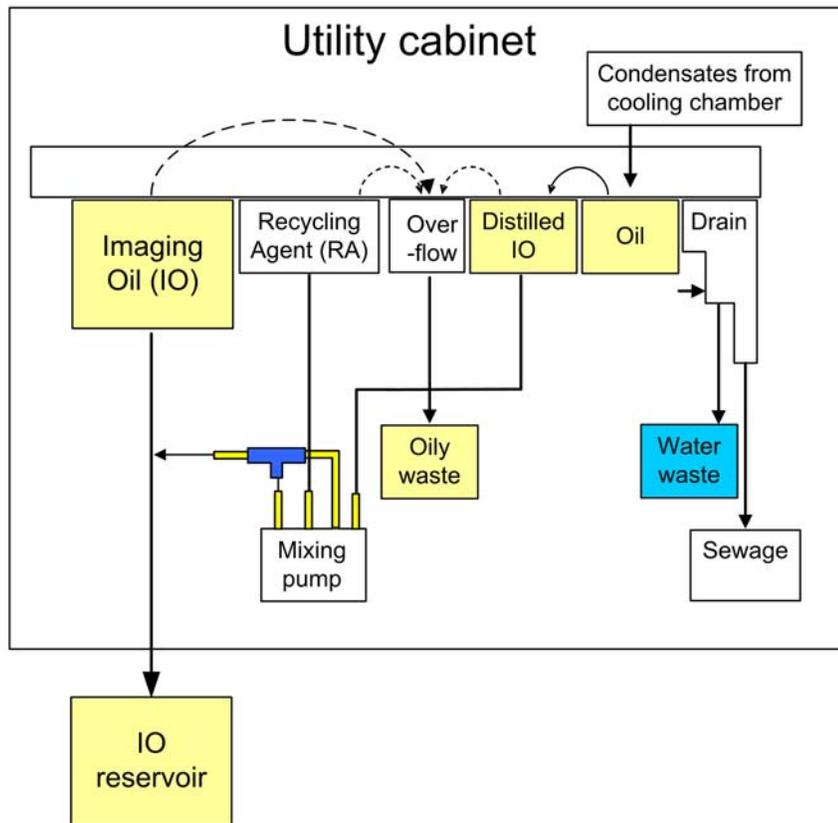
- During the printing process, oil used as an Electroink carrier is separated from the image by evaporation.

- A blower draws the vapor and ambient air into the cooler which condenses the oil and water vapor.

- The oil recycling system separates the oil from the water. Ink additives are added to the recycled imaging oil as needed, and the recycled oil is then fed back into the press for use in the printing process.

- The water generated during the separation process is clean enough to qualify for disposal in the municipal drainage system.

- The Oil recycling system requires minor maintenance, as described in the *HP Indigo WS6000 Digital Press User Guide* (CA394-00810) or *HP Indigo W7200 Digital Press User Guide* (CA394-02371).

12 Maintenance

Long term shutdown of the press

Preparing the HP Indigo press for a long-term shutdown If the HP Indigo press will be inactive for four days or more, follow these steps to prepare the HP Indigo press for the long shutdown:

- Dry the BID units.
- Drain ink from the ink tanks into a clean container - Store this container for after shutdown.
- Remove the ink tank assembly.
- Refill the ink tanks with 3.8 liters of imaging oil. Do not rebuild ink.
- Remove the BID units from the HP Indigo press to avoid BID deterioration when the BIDs are not in use.
- Clean the developer and squeegee rollers. Perform the procedure on all BID units.
- Store the BID in its original styrofoam container.
- Shut down the system.

Initializing the HP Indigo Digital Press after long term shutdown

- Replace the ink stored before shutdown or rebuild a new ink.
- Unpack the BID units, and clean them with clean, lint-free wipes dampened with imaging oil.
- Remove the imaging oil from the ink tanks.
- Imaging oil in the tank can be reused.
- Rebuild the ink in the ink tanks using calibration cartridges.
- If the ink stored before shutdown is still usable (free of particulate matter), fill the tank with it.
- Rebuild the ink in the ink tanks with clean imaging oil and new ink concentrate cartridges.
- Wipe the cleaning station blade with a lint-free wipe and imaging oil.
- Initialize the press system.

Preventive Maintenance

- HP Indigo Digital Press preventive maintenance (PM) procedures must be adhered to in order to ensure proper operation of the press.

- These PM procedures are described in the user guide provided to the customer with each press and are included in the PM wizard on the press.

- In addition to the daily, weekly and monthly preventive maintenance procedures, there are impression-based preventive maintenance procedures that include replacement of parts because of normal wear.

- It is essential that all preventive maintenance procedures be done in order to ensure the optimal operation of the press.

- Team leaders or Shared-Maintenance-trained operators should trigger the PM activity.

- PM procedures should be scheduled included in the production schedule.

- PM kit orders should be scheduled in advance to better control shipping costs.

The recommended preventive maintenance procedures are shown in the table below:

Frequency	Duration	Maintenance Description	Reference
Daily	~10 min	Start-of-Day	User Guide
Daily	~15 min	End-of-Day	User Guide
6M Impressions	~ 3 hrs	6M	6/12 Million Impression-Preventive Maintenance guide
12M Impressions	~ 4 hrs	12M	6/12 Million Impression-Preventive Maintenance guide

Recommended maintenance routines for the HP Indigo Digital Press

Start of the shift – (~10 min)

- Clean the cleaning station wiper with imaging oil and wipe.

- Remove any existing bypass to cleaner page or BCS.

- Verify that the substrate definition matches the installed substrate.

- Clean the charge roller with imaging oil, and clean the balancing roller with IPA.

End of shift – (~15 min)

- Clean the blanket using the Print Cleaner wizard.

- Check the imaging oil level, if necessary, add imaging oil to the tanks.

- Empty two waste tanks.
- Dry the BIDs.

Weekly routines – (~30-60 min)

- Clean WHS rollers with IPA and clean rubber nip rollers with a cloth soaked with hot water.
- Clean PTE lamp.
- Clean ITM drum, remove sticky parts.
- Clean external heating lamps.

Monthly routines – (~20-40 min)

- Change ozone filters–pop up in the maintenance screen every 36M impressions.
- Activate greasing system on ITM, PIP, impression drum – pop up automatically in software version 8.1.2 and above (if Night mode is not used).
- Clean carbon brushes slip ring, clean the sensor.
- Check/clean the cleaning station if needed.

Supplies replacement policy

- Change wiper side after 20 K impressions.
- Replace PIP only as a result of a print quality issue.
- Replace blanket only as a result of a print quality issue.
- Change imaging oil and imaging oil filter - only when receiving a dirty imaging oil error message.
- Replace charge roller – according to pop up message every 500 K impressions, or as a result of a print quality issue.

13 Color Management

Introduction to Color management

- A digital press operator has 2 methods for controlling job color. These tools should be used by the operator only for small color corrections and for a very short time. Any other color changes or corrections should be made in prepress.

  ◦ Digital change through the job look-up-tables (LUT), this should be the first option used.

  ◦ Color Match tab controls, should be used only as a second option.

- Keeping your digital press at calibration values can ensure color consistency (over time, and between digital presses). If an accuracy issue arises for any reason (e.g. unacceptable Pantone match), additional matching must be done at the pre-press stage.

- HP Indigo provides a number of color profiles in the DFE that can be used for different application in the press (e.g. Pantone matching, photo applications, etc.). If the embedded color profile is not suitable for customer needs, a new color profile can be defined and used according to customer preferences.

- Make sure that your substrate type definition is correct (gloss, semi-matte, matte).

- Design a print quality (PQ) master file (house job) that will be printed and used as a reference to check that your digital press performance is within PQ specifications. This file will serve as a reference within and between sites, and help distinguish between prepress and press issues.

- You can optionally print your own Pantone swatch book using your most commonly used substrate, and provide it to customers for reference.

- You can expand your color space/gamut by using additional HP IndiChrome colors on your digital press.

Maintaining color quality and consistency in color critical applications

Most of the color matching issues seen in the field are due to press calibration issues or the use of different RIPs and different color profiles on the presses. As customers try to match their different presses by manipulating color profiles, the issue of color matching between presses becomes critical. Customers use different color profiles for a number of reasons - availability of various color kits, image enhancement tools, profiling tools, the existence of different RIPs at the same site, etc.

Refer to *Color Matching for HP Indigo Digital Presses How-to Guide* (CA394-03840), which covers the following subjects:

- The general concept of color matching used to achieve the best color matching results between all the HP-Indigo presses.

- How to achieve and maintain color matching between different presses on the same site and between different sites.

- Issues associated with using different Digital Front End (DFE) / RIP configurations with dedicated color profiles and Pantone tables for each printed job. Color calibration procedures should be carried out based on color accuracy level required by the customer. The guidelines provided in *Color-Related Guide for HP Indigo WS6000 Digital Press* (CA393–04630) should be used to determine when and which calibration procedures to perform.

14 Working with White Ink

White ink is used in variety of applications, such as labels, shrink sleeves, and food packaging (with no food contact). In most of the applications, white is used as a solid background for other colors. As a result, there is a demand for white ink to have high opacity.

To achieve the required white ink opacity and style, operators should refer to *Working with White Ink on the HP Indigo WS6000 Digital Press How-to Guide* (CA394-04320).

Download the document from the HP Indigo portal: go to My HP Indigo, and select **Technical Support > Labels and Packaging Presses > HP Indigo WS6000 Digital Press**.

A   Substrate Definitions

1. In the **Main Menu**, select **Substrate > Substrate List**.

2. Select **Properties > Edit**.

3. In the **General** tab, verify that the following settings are correct:

    •   Type of substrate (for example, Labels)

    •   Substrate width (measure the substrate width)

    •   Substrate thickness (measure substrate thickness with a micrometer)

   •   Material type (coated, uncoated, Wine rough texture, etc.)

    •   Core size
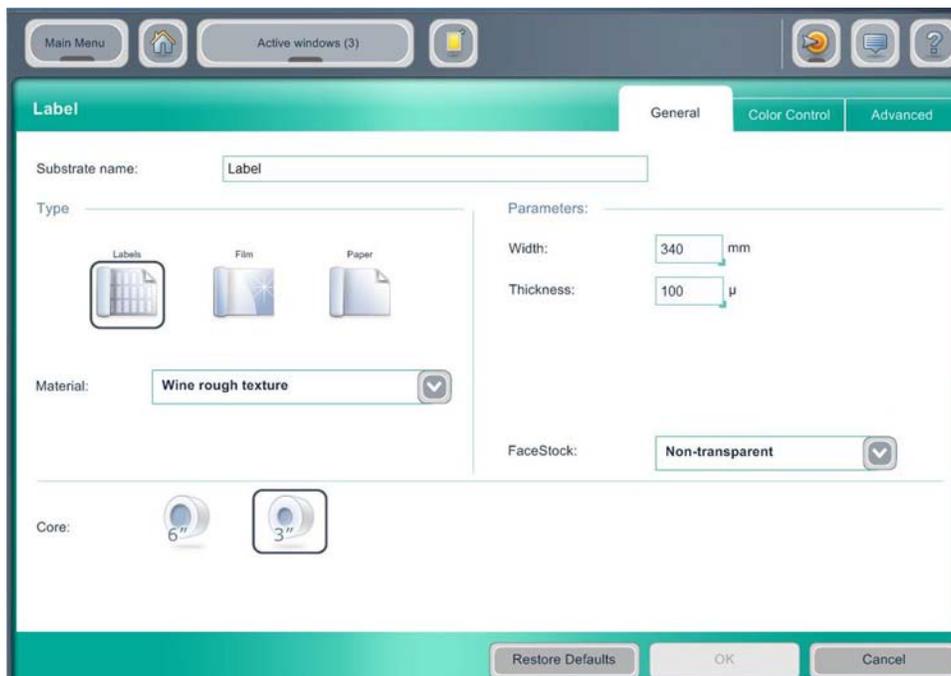
4. In the **Color Control** tab, verify that the following settings are correct:

- If the substrate is not white, colored, or metalized, select the **NON White Substrate** option.

- For White substrate, select the correct Gloss Level (Glossy, Semi matte, Matte).

  NOTE: It is very important to set the correct Gloss Level for each substrate.

- Verify that **Inherit color calibration from** is NOT selected, and Label is selected (Label is the default calibration substrate).

- **Calibration substrate — used in color calibration process** is selected.

- Measure the Optical Density (OD) of the substrate using X-rite and G mode. Enter the values in the **Optical Density** boxes for each of the CMYK colors (OD differs for each substrate, and for each Gloss Level).

  NOTE: It is very important to set the correct OD values for each substrate.
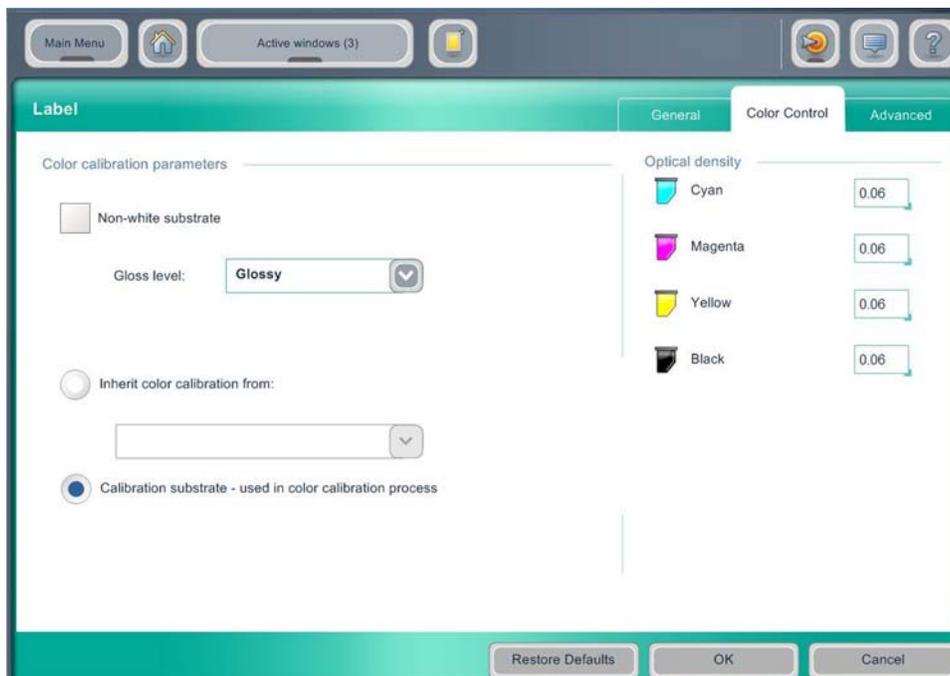
5. In the **Advanced** tab, verify that the following settings are correct:

- Substrate tension (incorrect tension settings may cause scaling issues).

- Substrate Heat Resistance (automatically set according to the defined substrate type).

- Set point (automatically set according to the defined substrate type. Second transfer force can be adjusted if scaling or transfer issues occur).

- Select the Conductive option ONLY if the substrate is conductive.

- End of roll diameter — use the default value, can be modified if needed.
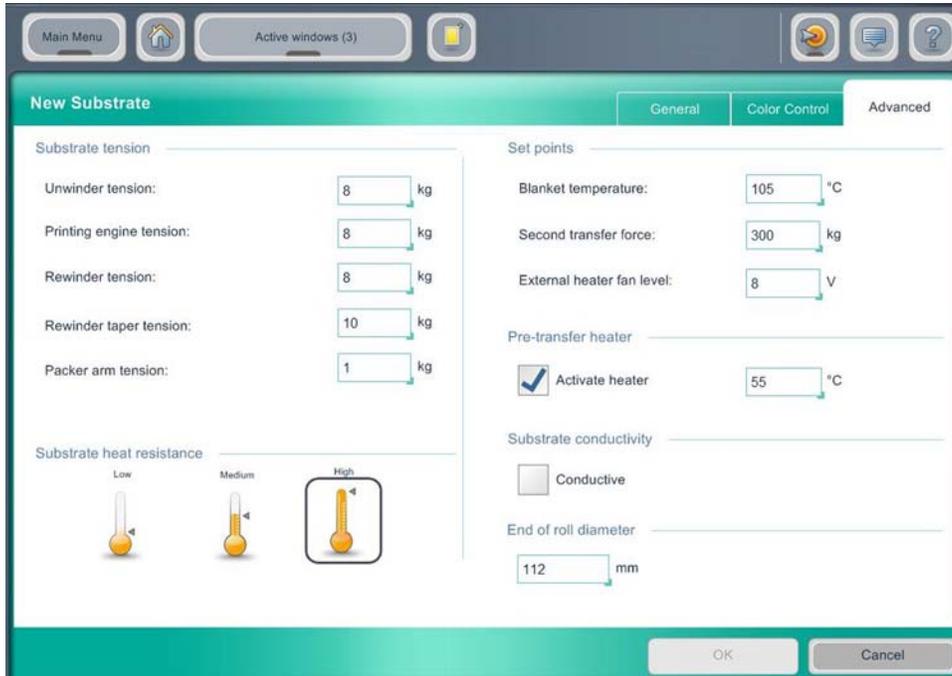
6. Click **OK** to save all the changes in the settings.

7. In the Substrate list screen, click **Install** to load the settings.

NOTE: If defining or determining the substrate type is not clear, follow the *Color Matching for HP Indigo Press How To Guide* (CA394–03840)

B Color calibration guide

NOTE: The following tables are based on *Color-Related Guide for HP Indigo WS6000 Digital Press* (CA393–04630).

Table B-1 Recommended frequency of color calibration related features for HP Indigo WS6000 Digital Press

Color calibration related features	Accuracy requirement		
	Very high	High	Normal (press default)
Short color calibration	Not needed Only use Full color calibration	Not needed Only use Full color calibration	Only use automatic calibrations (every 10,000 impressions)
Full color calibration	Every 6,000 impressions Before every color-critical job	Every 8,000 impressions	Only use automatic calibrations (every 20,000 impressions)
Quick ILD calibration This feature is replaced by Inline Densitometer Calibration if ILD Ceramic Tiles are implemented	Every week	Every 2 weeks	Every 2 weeks
Full ILD calibration This feature is replaced by Inline Densitometer Calibration if ILD Ceramic Tiles are implemented	Every month	Every 2 months	Every 4 months
Inline Densitometer Calibration Use this feature if ILD Ceramic Tiles are implemented	Every month	Every 2 months	Every 4 months
Ceramic Tiles Cleaning wizard Use this feature if ILD Ceramic Tiles are implemented	Every week	Every week	Every week
Substrate color hierarchy	Perform the color calibration on each substrate. Select the **Calibration substrate - used in color calibration process** option. Select the level of gloss for each substrate.	Perform the color calibration on the most commonly used substrates per each group of type and material (such as Labels/PE, Films/PET, and Paper/Coated). Ensure that the other substrates inherit color calibration parameters from each group. Select the **Inherit color calibration from** option. Select the level of gloss for each substrate.	Perform the color calibration on the highest gloss substrate that is commonly used. Other substrates should inherit color calibration parameters from this specific substrate. Select the **Inherit color calibration from** option. Select the level of gloss for each substrate.

Table B-1 Recommended frequency of color calibration related features for HP Indigo WS6000 Digital Press (continued)

Color calibration related features	Accuracy requirement		
	Very high	**High**	**Normal (press default)**
Ignore history	Always activate the check box	Before every color-critical job Before every repeated job	Not needed
CCC Continuous Color Calibration	Always activate CCC	Before every color-critical job	Before every long run job Customers can choose to use the CCC for long run jobs as needed
Auto Bias during a job run If CCC is activated, ignore this feature	Always during color-critical long run jobs Every 1,000 impressions	Customers can choose to use the auto-bias procedure every 3,000 impressions during long run jobs	Not needed
V-electrode calibration	After replacing a BID	After replacing a BID	After replacing a BID

Table B-2 Remarks and explanations of color calibration related features for HP Indigo WS6000 Digital Press

Color Calibration related features	Remarks and explanations

Short color calibration
 	
This is automatically done during a cold start. Measures and calibrates the solids optical density. Measures the dot gain of the HP Indigo Digital Press in three gray levels.
 	
Full color calibration
 	
Measures and calibrates the solids optical density. Measures the dot gain of the HP Indigo Digital Press in fifteen gray levels.
	• Make sure that you select all used screens.
	• Perform these calibrations after:
	   ○ Replacing a blanket (perform the First Transfer Calibration before the Color Calibration)
	   ○ Replacing a PIP foil
	   ○ Replacing a BID
	   ○ Rebuilding an ink tank
	   ○ Replacing substrate type
	   ○ When prompted by the press software
	• It is recommended to perform a Full Color Calibration at the beginning of each working shift.

Quick ILD calibration
 	
This feature is replaced by Inline Densitometer Calibration if ILD Ceramic Tiles are implemented.
	• This feature only calibrates the substrate optical density.
	• Measure the substrate OD with an external X-Rite Densitometer.
	• Perform the Quick ILD calibration only on a glossy substrate.
	• This calibration can be performed via Print Care:
	ILD Full Calibration Procedure
	   ○ Select "ILD without Ceramic Tile".
	   ○ Perform the wizard, and verify successful converge.

Table B-2 Remarks and explanations of color calibration related features for HP Indigo WS6000 Digital Press (continued)

Color Calibration related features	Remarks and explanations

Full ILD calibration
 	
This feature is replaced by Inline Densitometer Calibration if ILD Ceramic Tiles are implemented.
	• This calibration should be performed:
	  ◦ When color difference problems occur
	  ◦ When prompted by the press software
	  ◦ When the inline densitometer (ILD) is replaced
	  ◦ When the ILD ceramic tiles are replaced
	• Verify that the external X-Rite densitometer (508 or 518 model is recommended) is:
	  ◦ Calibrated using its own white ceramic patch
	  ◦ In operating status "G"
	  ◦ Set to "Absolute" mode
	  ◦ Within the manufacturer's certification date
	  ◦ Used over a white opaque substrate
	• Verify that the white ILD shaft assembly roller (located under the ILD) is kept clean.
	• Perform the Full ILD calibration only on a glossy substrate.
	• Use a blanket and a PIP foil that do not have severe image memories.
	• This calibration can be performed via Print Care:
	ILD Full Calibration Procedure
	  ◦ Select "ILD with Ceramic Tile".
	  ◦ Perform the Ceramic Tile Calibration wizard as the last stage of the ILD Full Calibration procedure and verify successful converge.

Inline Densitometer Calibration Use this feature if ILD Ceramic Tiles are implemented.	• This feature is automatically performed after every 2,000 ILD measurements. • The ILD moves to the front of the HP Indigo Digital Press and reads the ceramic tiles. • During this process, the ILD is calibrated by two ceramic tiles (black and white), instead of the four printed solid process colors.
Ceramic Tiles Cleaning wizard Use this feature if ILD Ceramic Tiles are implemented.	• This feature allows the operator to manually clean the ceramic tiles.

Table B-2 Remarks and explanations of color calibration related features for HP Indigo WS6000 Digital Press (continued)

Color Calibration related features	Remarks and explanations
Substrate color hierarchy	- Measure the substrate optical density for cyan, magenta, yellow, and black and insert the values at the Substrate screen, Color Control tab. - Make sure to insert a white opaque paper beneath the substrate during the measurements. - Select the substrate gloss level (glossy, semi matte, or matte). - For colored and metallized substrates, select Non-White. - Define transparent films as semi-matte. - Select other substrate-related parameters (such as thickness, pressure, etc.). - If the substrate type is unknown, follow the instructions in *Color Matching for HP Indigo Digital Presses How-to Guide* (CA394-03840).
Start with default parameters	If color calibration fails, use this feature to troubleshoot the issue.
Ignore history	- If "Ignore history" is selected, the measured LUT values are not averaged with the previous LUT values. The HP Indigo Digital Press uses only the current color calibration results. - Do not select the "Ignore history" when color calibration is done in a middle of a job session. - Select "Ignore history" based on: - Recent press maintenance or baseline - Type of printed job - Customer experience

Table B-2 Remarks and explanations of color calibration related features for HP Indigo WS6000 Digital Press (continued)

Color Calibration related features	Remarks and explanations
CCC Continuous Color Calibration During a job run	• The goal of CCC is to improve color consistency. • Calibration patterns are printed on the edge of the format during the whole job's run. • CCC uses a 9 mm wide X 860 mm length printed strip. • CCC contains solids and fifteen gray levels per separation. • CCC does not replace the Periodic Full Color Calibration, because CCC does not include auto-bias, V-electrode, single dot, or line-work calibrations. • CCC analyzes target values when the algorithm starts. During the run, CCC matches the target values by changing the BID voltage and updating the machine LUT. • CCC maintains color within a single job, but not between repeated jobs that are printed at different times. • The operator has the option whether or not to enable CCC via job properties.
Auto Bias during a job run	• Auto-bias compensates for PIP foil aging. • The auto-bias algorithm is performed as part of the morning cold start, Short Color Calibration, and Full Color Calibration. • The auto-bias can also be manually initiated by the Auto Bias wizard (when the press status is Ready or Print). • To avoid color changes after auto-bias, it is recommended to perform the auto-bias at suitable frequencies per job.
V-electrode calibration	• This is automatically done during a cold start. • If automatic color calibration is bypassed, make sure to include the V-electrode calibration during the first daily color calibration.

C   Service and support

To obtain service, please contact the customer care center within your country/region:

Europe:		
Belgium:	+32 (0)2 626 4803	
France:	+33 (0)1 57 32 41 07	
Germany:	+49 (0)69 38 07 89 193	
Ireland:	+353 (0)1 659 9760	
Italy:	+39 02 69430637	
Luxembourg:	+352 (0)24 87 13 98	
Netherlands:	+31 (0)20 547 6870	
Spain:	+34 9 12757781	
UK:	+44 (0)84 5604 7435	
APJ:		
Japan:	+81 (0)3 3335 8440	
Singapore:	+65 6376 2941	
Distribution Channels (DC):	+31 (0)20 654 5543	
North America:	1-800-204-6344	
Israel:	+972 (0)8 938 1818	

North America	**International**	**Israel**	**APJ**
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Indigo Division	Indigo Division	Indigo Division	Asia Pacific Pte Ltd
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Andover, MA 01810-5897	6221 SH Maastricht	P.O. Box 150	# 04-01 Harbour Side 2
USA	The Netherlands	Rehovot 76101	Singapore 119844
		Israel	