Service Calibrations 5

Service Calibrations

The Printer has several calibration procedures that must be performed under certain conditions.

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

The following is a list of all internal service calibrations available in the Printers. Instructions for entering the service calibrations menu are given on Page *5-3*.

1. Scan Axis Calibration ⇒ Page *5-4*
   The purpose of this Service Calibration is to carry out a PWM check, and calibrate the intensity of the Line Sensor.
2. Service Station Calibration ⇒ Page *5-8*
   The purpose of this Service Calibration is to calibrate the Drop Detector (located in the Service Station) in relation to the Carriage Assembly.
3. Paper Advance Calibration ⇒ Page *5-9*
   The purpose of this Service Calibration is to calibrate the nominal advance of the media. This calibration is necessary to control the exact movement of the media in order to avoid print quality problems like banding.
4. Drop Detector Calibration ⇒ Page *5-15*
   The purpose of this Service Calibration is to calibrate the Drop Detector (located in the Service Station) in relation to the Carriage Assembly.
5. Line Sensor Calibration ⇒ Page *5-16*
   The purpose of this Service Calibration is to calibrate the intensity of the Line Sensor. An incorrect calibration can result in edge-detection failures during media loading and incorrect reading of prints that are used for alignment or calibration.
6. Platen Blue Line Calibration ⇒ Page *5-20*
   The purpose of this Service Calibration is to calibrate the blue line which is marked on the Print Platen.
7. Vacuum Calibration ⇒ Page *5-22*
   The purpose of this Service Calibration is to set the default nominal and real values of the Vacuum Fan.
8. Carriage Setup ⇒ Page *5-23*
   The purpose of this Service Calibration is to reset the ink short thresholds after replacing the Carriage PCA.

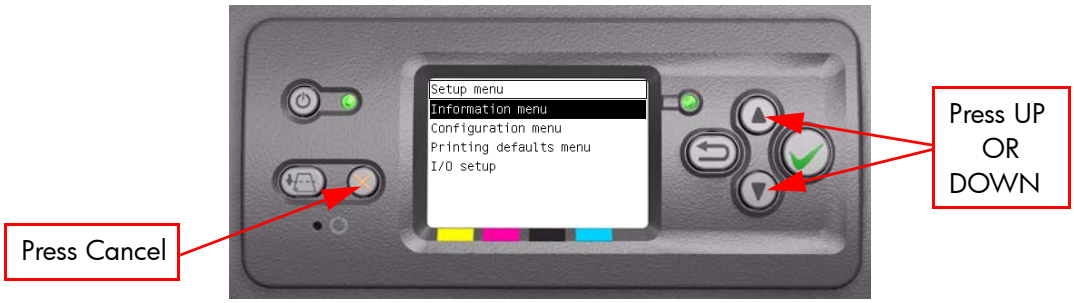
If ALL the Calibrations need to be performed (for example, when both the HDD and the ISS PCA have been replaced), you must perform them in the following order:

- **Vacuum Calibration.**
- **Drop Detector/Service Station Calibration.**
- **Line Sensor/Scan Axis Calibration.**
- **Paper Advance Calibration.**
- **Platen Blue Line Calibration.**

Entering the Service Calibrations Menu

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

2 Once inside the "Printer Setup Menus" menu, press the **UP or Down** arrow key and the **Cancel** key together. You are now in the **Service Tools** Menu.



3 Use the **Arrow** keys to scroll to the "Service Calibrations" menu and press the **Enter** key.

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

If the printer is not used for 135 seconds, the printer exits out of the Service Calibrations Menu and you must repeat the above steps to enter Service Calibrations again.

1. Scan Axis Calibration

The purpose of this Service Calibration is to carry out a PWM check, calibrate the intensity of the Line Sensor and calibrate the Line Sensor position to the Black Printhead.

Perform the Scan Axis Calibration whenever:

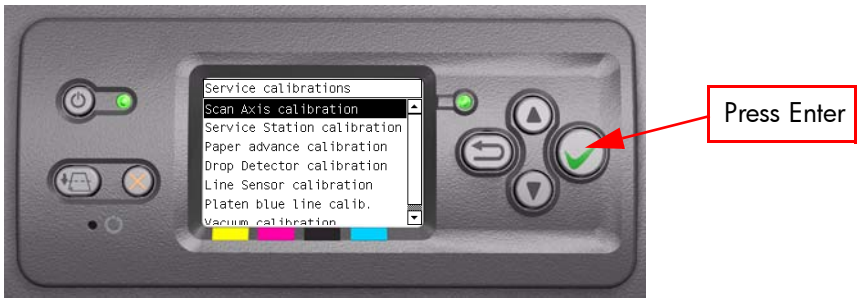
- Carriage is disassembled or replaced.
- Encoder Strip is disassembled or replaced.
- Center Platen is disassembled or replaced.

Perform the Scan Axis Calibration as follows:

Make sure you load one of the following media into the Printer before performing this calibration:

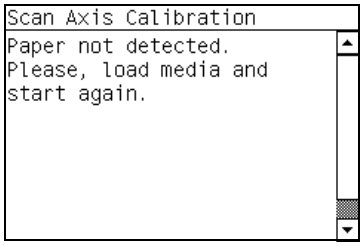
- **HP Bond Paper.**
- **HP Glossy Media.**
- **HP Coated Paper.**
- **HP Productivity Photo Gloss.**
- **HP Heavyweight Coated Paper.**
- **HP Super Heavyweight Coated Paper.**
- **HP Bright White Inkjet Paper.**

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



2 When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.

3 If media is not loaded, the following message appears on the front panel. Load media in to the Printer and start again from **step 1**.



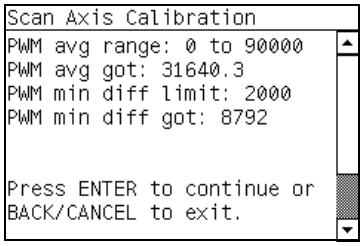
Before continuing, the Printer will check the following:

- The Media Lever is in the lowered position.
- The correct paper type is loaded (check list on previous page).
- The correct paper size (minimum paper size 24 inches).

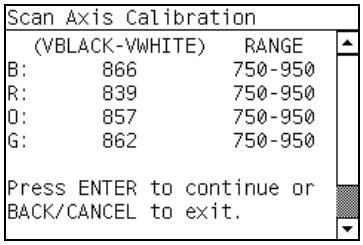
If these conditions are **not** met, a warning will be displayed on the Front Panel and you will need to restart the Calibration from **step 1**.

Make sure you keep your hands away from the Print Platen as the Carriage will be moving at high speed and you could injure yourself or damage the Carriage Assembly.

4 The Printer will start to check the PWM. Once the PWM has been checked, the results will be displayed on the Front Panel. Press **Enter** to continue or press **Back** or **Cancel** to exit the calibration.



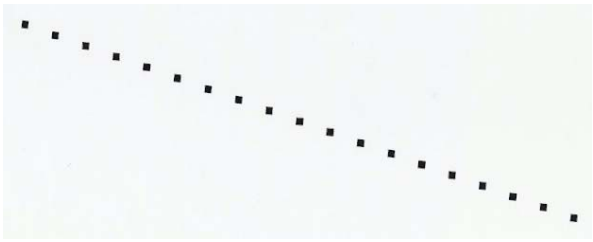
5 The Printer will start to calibrate the Line Sensor. Once the Line Sensor has been calibrated, the results will be displayed on the Front Panel. Press Enter to continue or press **Back** or **Cancel** to exit the calibration.



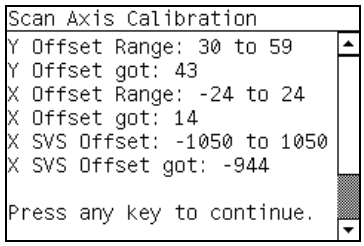
If the values are not within the range specified, an error will appear on the Front Panel. In this case, try the following:

- Try the Scan-Axis Calibration again.
- Replace the Line Sensor ⇒ Page *8-31*.

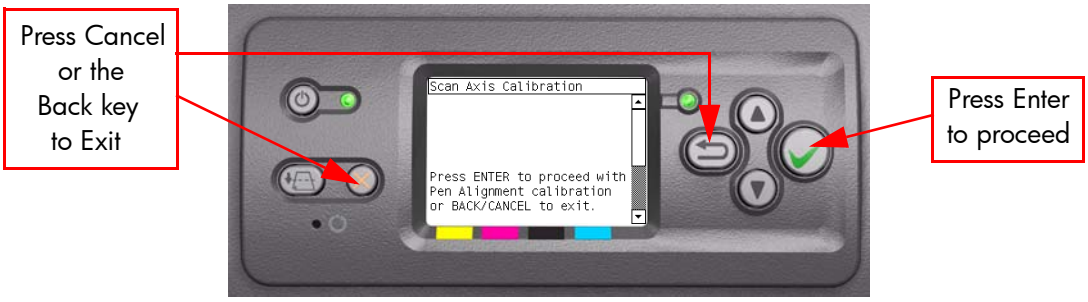
6 The Printer will start to calibrate the Line Sensor position to the Black Printhead. It will print a line of black dots and then scan them:



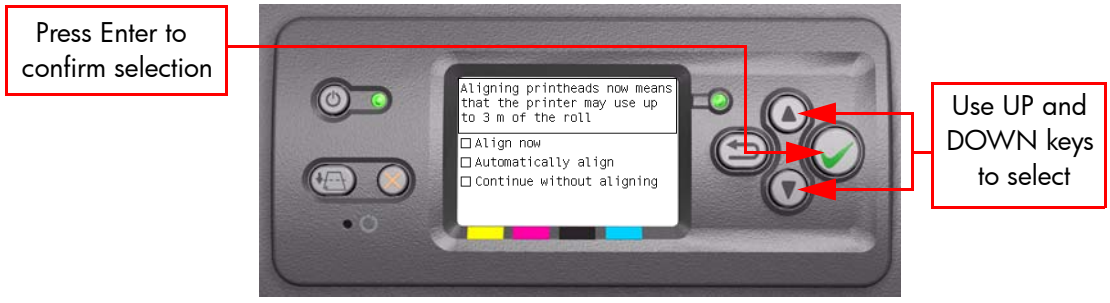
7 Once the Line Sensor has been calibrated, the results will be displayed on the Front Panel. Press **Enter** to finish the calibration or press **Back** or **Cancel** to exit the calibration.



8 The Printer will now perform the Printhead Alignment. When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.



9 Before continuing with the Printhead Alignment, the following message will be displayed on the Front Panel. To continue with the Printhead Alignment, select "Align now" and press the **Enter** key.



10 Once the Printhead Alignment is completed, the following message will be displayed on the Front Panel. Press the **Enter** key to continue.

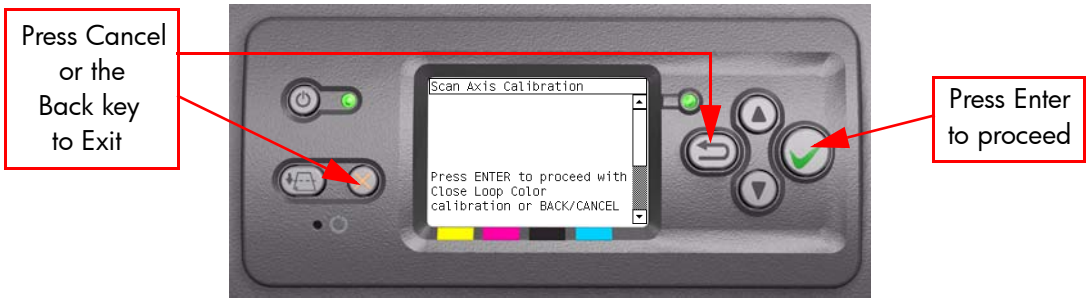
```
Printhead alignment
Calibration successfully
completed.

Press ✓ to continue
```

If the Printhead Alignment fails for any reason, a warning message will appear on the Front Panel. In this case, try the following:

- Enter the Front Panel menu and retry the Printhead Alignment. If the Alignment completes successfully, then perform the Color Calibration.
- If the Alignment fails again, check the Alignment pattern to see if any of the Printheads are printing incorrectly. If necessary, perform a Printhead Recovery through the Front Panel and retry the Printhead Alignment.

11 The Printer will now perform the Color Calibration. When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.



12 Once the Color Calibration is completed, the following message will be displayed on the Front Panel. Press the **Enter** key to continue.

```
Color calibration
Calibration successfully
completed.

Press ✓ to continue
```

All CLC profiles are deleted so you will need to perform Color Calibration again for every new media that is loaded in to the Printer.

If the Color Calibration fails for any reason, a warning message will appear on the Front Panel. In this case, try the following:

- Enter the Front Panel menu and retry the Color calibration.
- If the Calibration fails again, check the Calibration pattern to see if any of the Printheads are printing incorrectly. If necessary, perform a Printhead Recovery through the Front Panel and retry the Calibration.

13 Once the complete Scan Axis calibration is completed successfully, OK will be displayed on the Front Panel.

2. Service Station Calibration

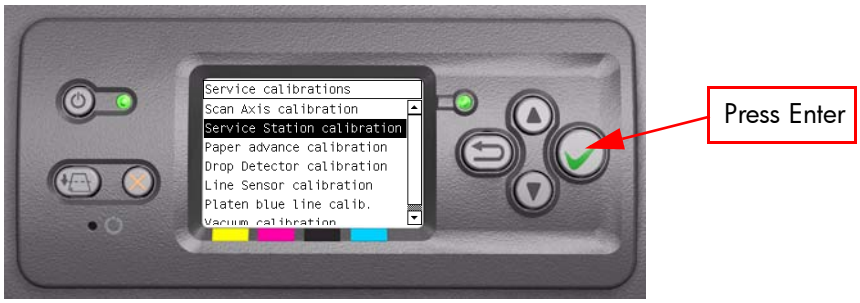
The purpose of this Service Calibration is to calibrate the Service Station in relation to the Carriage Assembly.

Perform the Service Station Calibration whenever:

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

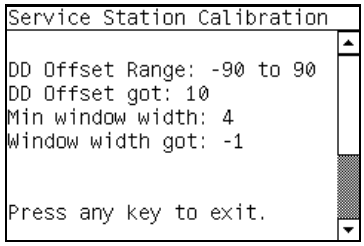
Perform the Service Station Calibration as follows:

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



2 When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.

3 The Printer will start to calibrate the Service Station. Once the Service Station has been calibrated, the results will be displayed on the Front Panel. Press any key on the Front Panel to finish the calibration.



4 Once the calibration is completed, OK will be displayed on the Front Panel.

This Calibration will be available from FW Version 3.x.x.x

3. Paper Advance Calibration

The purpose of this Service Calibration is to calibrate the nominal advance of the media. This calibration is necessary to control the exact movement of the media in order to avoid print quality problems like banding.

In order to perform this Calibration, you should order the Paper Advance Calibration Kit (Part Number Q1273-60125) which contains two sheets of HP Productivity Gloss Media.

Perform the Service Accuracy Calibration whenever:

- Banding is detected in prints.
- Drive Roller is disassembled or replaced.
- Paper-axis Assembly is disassembled or replaced.

The Paper Advance Calibration is split into three parts and should **always** be done in this order:

1. Print Calibration Pattern - The Printer first calibrates the Analog Encoder and then prints the Paper Advance Calibration pattern.
2. Scan Calibration Pattern - The Printer scans the Paper Advance Calibration pattern in order to calibrate the nominal advance of the media.

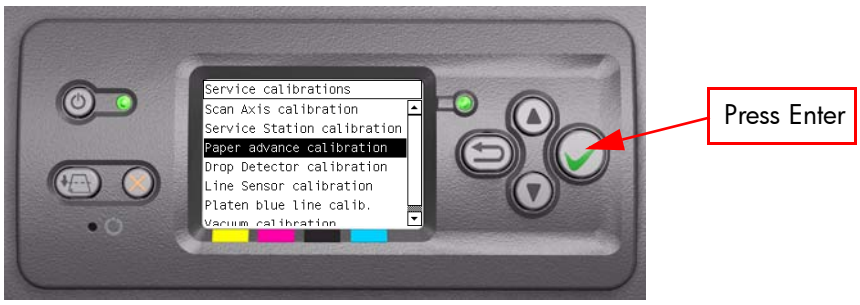
Only scan the Calibration Pattern in the Printer that was used to actually print it. Using the Calibration in a different Printer could cause it to experience media advance problems. After scanning the Calibration Pattern, it should be discarded.

3. Clean Drive Roller - After loading media that the customer will use, the Printer "prepares" the media path to prevent any future advance problems.

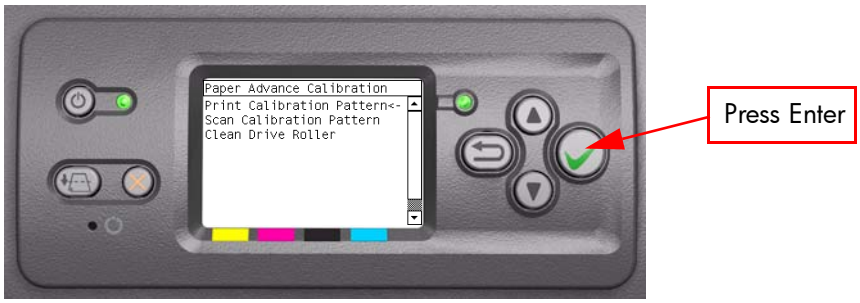
Perform the Paper Advance Calibration as follows:

Make sure that you unload media from the Printer before performing the Paper Advance Calibration.

1. In the Service Calibrations submenu, scroll to "Paper Advance Calibration" and press **Enter**.

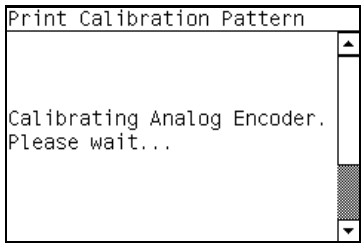


2 In the Paper Advance Calibration submenu, scroll to "Print Calibration Pattern" and press **Enter**.



3 When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.

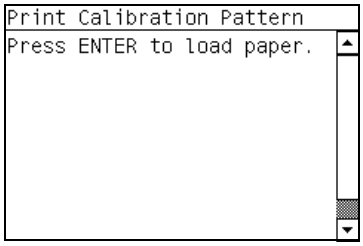
4 The Printer will start to calibrate the Analog Encoder and the following message will be displayed on the Front Panel.



If the Calibration is not done or if the values are out of the limits, a warning message will appear on the Front Panel. In this case, try the following:

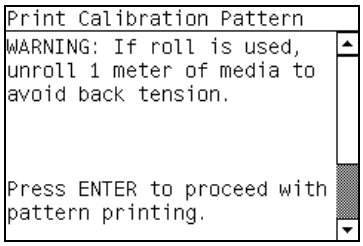
- Check that the Printer has the latest Firmware version. If not, update the Firmware to the latest version.
- Retry the Paper Advance Calibration.
- If the problem continues, replace the Encoder Strip and Encoder Sensor ⇒ Page *8-45*.

5 Once the Analog Encoder has been calibrated correctly, the following message will appear on the Front Panel. Press the **Enter** key in order to start the media load process.

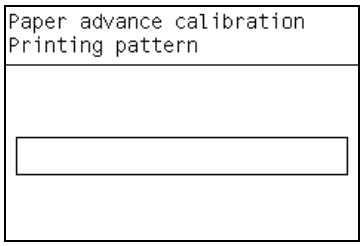


6 Load a sheet of HP Productivity Gloss Media that was included in the Paper Advance Calibration Kit (Part Number Q1273-60125) following the instructions on the Front Panel. If the kit is not available, then cut a piece of HP Productivity Gloss Media that is 36 inches wide and at least 45 inches long.

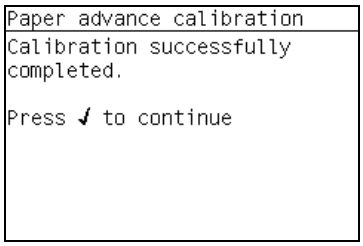
7 Once the media is loaded into the Printer, the following message will appear on the Front Panel. If roll media has been used instead of cut sheet media, then you will need to unroll a minimum of 1 meter of media in order to prevent any back tension which could cause any media advance problems. Press the **Enter** key to continue.



8 The Printer will start to print the Paper Advance Calibration Pattern. This could take several minutes during which the following message will be displayed on the Front Panel.



9 Once the Accuracy Calibration Pattern has been printed successfully, the following message will be displayed on the Front panel. Press the **Enter** key to continue.



If the Paper Advance Calibration fails for any reason, a warning message will appear on the Front Panel. In this case, try the following:

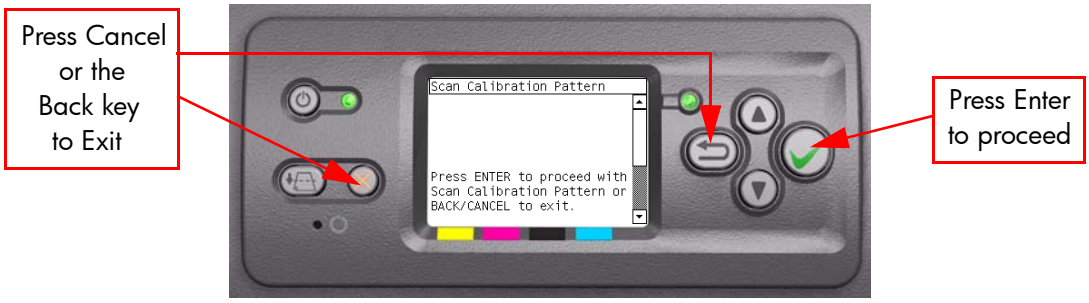
- Retry the Paper Advance Calibration.
- If necessary, perform a Printhead Recovery through the Front Panel and retry the Calibration.

Remove the pattern from the printer and leave it to dry for a few minutes before continuing with the Calibration.

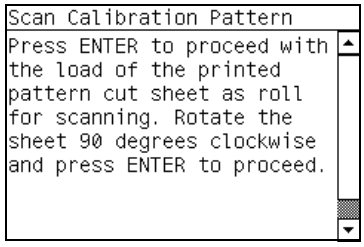
MAKE SURE NO MEDIA IS LOADED INTO THE PRINTER BEFORE STARTING TO SCAN THE CALIBRATION PATTERN.

10 You will need to re-enter the Paper Advance Calibration submenu and scroll to "Scan Calibration Pattern" and press **Enter**.

11 When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.



12 A message will appear advising you that you will need to load the Calibration Pattern in to the Printer. Make sure that you rotate the printed pattern 90° clockwise and reload it printed-side down, so that the black arrows go into the printer first. Press the **Enter** key to continue.

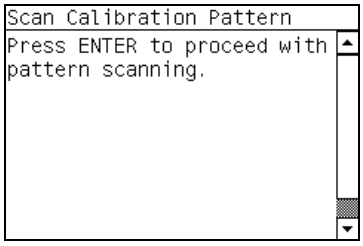


Take note that the Calibration Pattern will be loaded as a Roll and NOT as a Sheet.

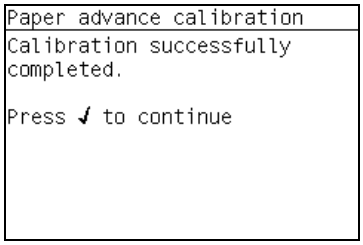
Only scan the Calibration Pattern in the Printer that was used to actually print it. Using the Calibration in a different Printer could cause it to experience media advance problems. After scanning the Calibration Pattern, it should be discarded.

When Loading the Calibration Pattern, use the Cutter blade on the Print Platen to align the edge of the sheet. If you follow this advise, you will prevent the cutter from cutting a section of the Calibration Pattern, which could cause the Calibration to fail.

13 Load the Calibration Pattern following the instructions on the Front Panel. Once the Calibration Pattern is loaded correctly, the following message will be displayed on the Front Panel. Press the **Enter** key to continue.



14 The Printer will scan the Calibration Pattern which could take several minutes. Once the calibration is completed successfully, the following message will be displayed on the Front Panel. Press the **Enter** key to continue.



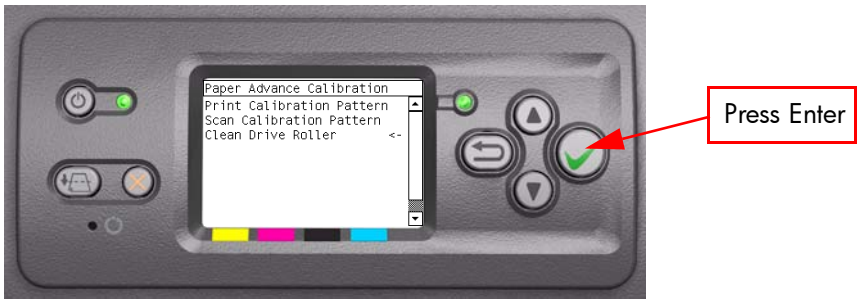
If the Paper Advance Calibration fails for any reason, a warning message will appear on the Front Panel. In this case, try the following:

- Check that the Calibration Pattern was not incorrectly cut (trimming the actual pattern) during the media load process. If this is the case, perform the Paper Advance Calibration again from **step 1**.
- Perform a Line Sensor Calibration (⇒ Page *5-16*) and then rescan the Calibration pattern.
- Replace the Line Sensor ⇒ Page *8-31*.
- If the problem continues, replace the Media-Axis Motor ⇒ Page *8-62*.

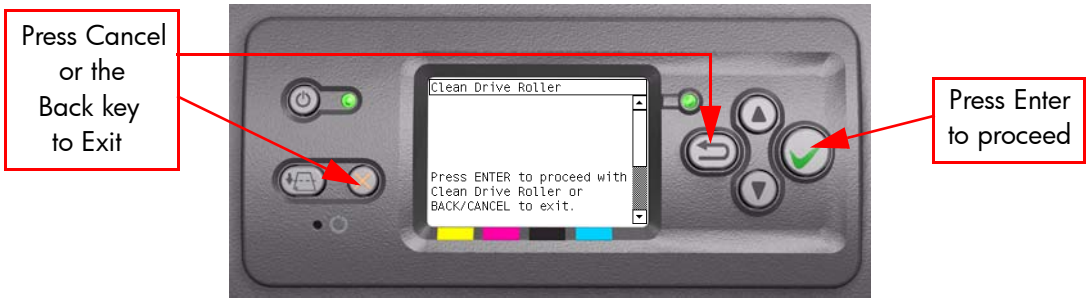
After the Paper Advance Calibration has been performed correctly, you MUST perform the Clean Drive Roller procedure. If this is NOT done, the Printer will not perform correctly and could cause Print Quality problems.

Before starting the Clean Drive Roller procedure, make sure you first load media into the Printer that the customer will normally use to print.

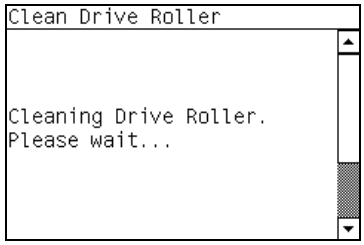
15 You will need to re-enter the Paper Advance Calibration submenu and scroll to "Clean Drive Roller" and press **Enter**.



16 When the following message appears on the front panel, you must select whether you would like to continue with the cleaning of the Drive Roller by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.



17 The Printer will begin the Drive Roller Cleaning procedure. This could take several minutes during which the following message will be displayed on the Front Panel.



4. Drop Detector Calibration

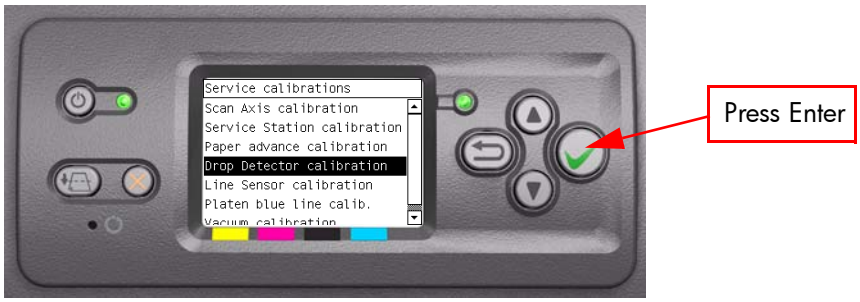
The purpose of this Service Calibration is to calibrate the Drop Detector (located in the Service Station) in relation to the Carriage Assembly.

Perform the Drop Detector Calibration whenever:

- Drop Detector is disassembled or replaced.

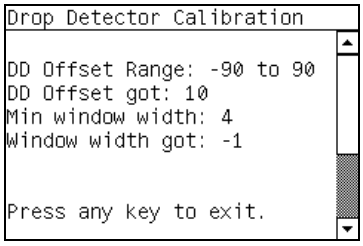
Perform the Drop Detector Calibration as follows:

1 In the Service Calibrations submenu, scroll to "Drop Detector Calibration" and press **Enter**.



2 When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.

3 The Printer will start to calibrate the Drop Detector. Once the Drop Detector has been calibrated, the results will be displayed on the Front Panel. Press any key on the Front Panel to finish the calibration.



4 Once the calibration is completed, OK will be displayed on the Front Panel.

5. Line Sensor Calibration

The purpose of this Service Calibration is to calibrate the intensity of the line sensor in the Carriage PCA. An incorrect calibration can result in edge-detection failures during media loading and incorrect reading of prints that are used for alignment or calibration.

Perform the Line Sensor Calibration whenever:

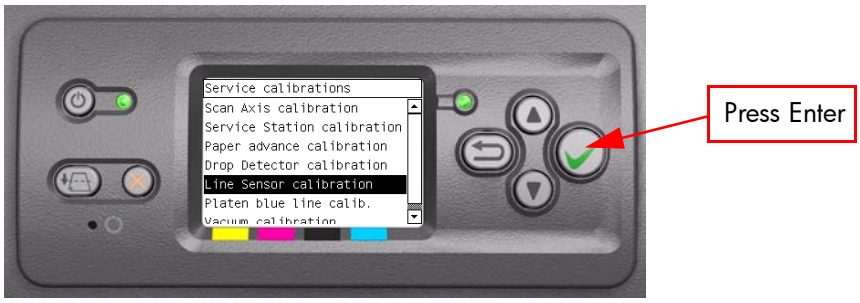
- Edge detect procedure fails during media loading.
- Carriage is disassembled or replaced.
- Line Sensor is disassembled or replaced.
- Banding is detected in prints.
- Misalignment between colors is detected.

Perform the Line Sensor Calibration as follows:

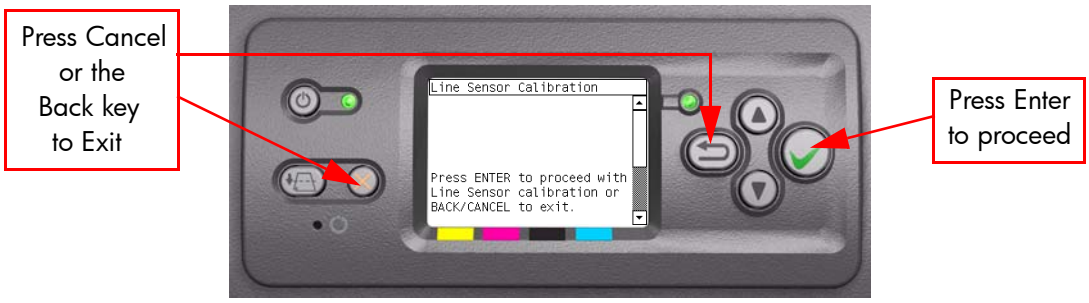
Make sure you load one of the following media into the Printer before performing this calibration:

- **HP Bond Paper.**
- **HP Glossy Media.**
- **HP Coated Paper.**
- **HP Productivity Photo Gloss.**
- **HP Heavyweight Coated Paper.**
- **HP Super Heavyweight Coated Paper.**
- **HP Bright White Inkjet Paper.**

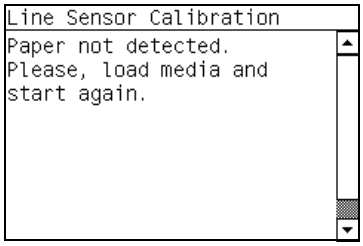
1 In the Service Calibrations submenu, scroll to "Line Sensor Calibration" and press **Enter**.



2 When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.



3 If media is not loaded, the following message appears on the front panel. Load media in to the Printer and start again from **step 1**.



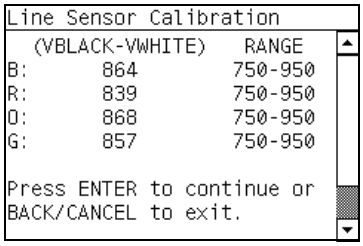
Before continuing, the Printer will check the following:

- The Media Lever is in the lowered position.
- The correct paper type is loaded (check list on previous page).
- The correct paper size (minimum paper size 24 inches).

If these conditions are **not** met, a warning will be displayed on the Front Panel and you will need to restart the Calibration from **step 1**.

Make sure you keep your hands away from the Print Platen as the Carriage will be moving at high speed and you could injure yourself or damage the Carriage Assembly.

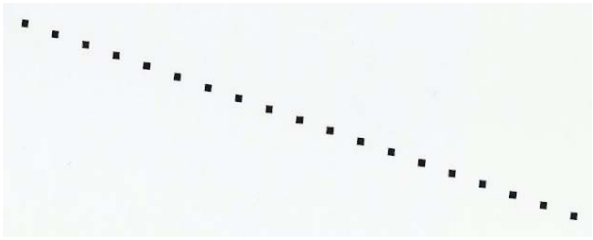
4 The Printer will start to calibrate the Line Sensor. Once the Line Sensor has been calibrated, the results will be displayed on the Front Panel. Press Enter to continue or press **Back** or **Cancel** to exit the calibration.



If the values are not within the range specified, an error will appear on the Front Panel. In this case, try the following:

- Try the Scan-Axis Calibration again.
- Replace the Line Sensor ⇒ Page *8-31*.

5 The Printer will start to calibrate the Line Sensor position to the Black Printhead. It will print a line of black dots and then scan them:

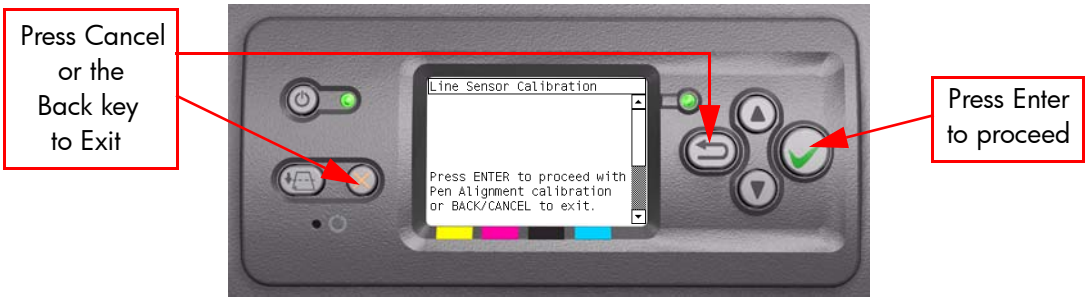


6 Once the Line Sensor has been calibrated, the results will be displayed on the Front Panel. Press **Enter** to finish the calibration or press **Back** or **Cancel** to exit the calibration.

```
Line Sensor Calibration
Y Offset Range: 30 to 59
Y Offset got: 43
X Offset Range: -24 to 24
X Offset got: 14
X SVS Offset: -1050 to 1050
X SVS Offset got: -944

Press any key to exit.
```

7 The Printer will now perform the Printhead Alignment. When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.



8 Once the Printhead Alignment is completed, the following message will be displayed on the Front Panel. Press the **Enter** key to continue.

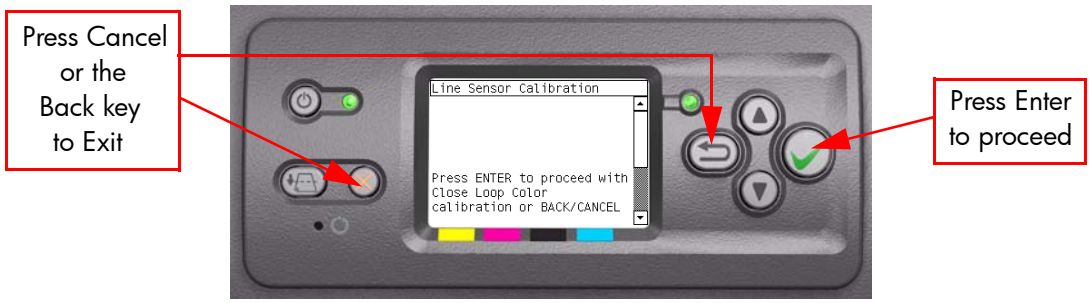
```
Printhead alignment
Calibration successfully
completed.

Press ✓ to continue
```

If the Printhead Alignment fails for any reason, a warning message will appear on the Front Panel. In this case, try the following:

- Enter the Front Panel menu and retry the Printhead Alignment. If the Alignment completes successfully, then perform the Color Calibration.
- If the Alignment fails again, check the Alignment pattern to see if any of the Printheads are printing incorrectly. If necessary, perform a Printhead Recovery through the Front Panel and retry the Printhead Alignment.

9 The Printer will now perform the Color Calibration. When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.



10 Once the Color Calibration is completed, the following message will be displayed on the Front Panel. Press the **Enter** key to continue.

```
Color calibration
Calibration successfully
completed.

Press ✓ to continue
```

All CLC profiles are deleted so you will need to perform Color Calibration again for every new media that is loaded in to the Printer.

If the Color Calibration fails for any reason, a warning message will appear on the Front Panel. In this case, try the following:

- Enter the Front Panel menu and retry the Color calibration.
- If the Calibration fails again, check the Calibration pattern to see if any of the Printheads are printing incorrectly. If necessary, perform a Printhead Recovery through the Front Panel and retry the Calibration.

11 Once the complete Line Sensor calibration is completed successfully, OK will be displayed on the Front Panel.

```
Line Sensor Calibration

     OO   K  K
   O  O   K K
   O  O   KK
   O  O   KK
   O  O   K K
     OO   K  K
```

This Calibration will be available from FW Version 3.x.x.x

6. Platen Blue Line Calibration

The purpose of this Service Calibration is to calibrate the blue line which is marked on the Print Platen.

Make sure you unload media before performing this calibration.

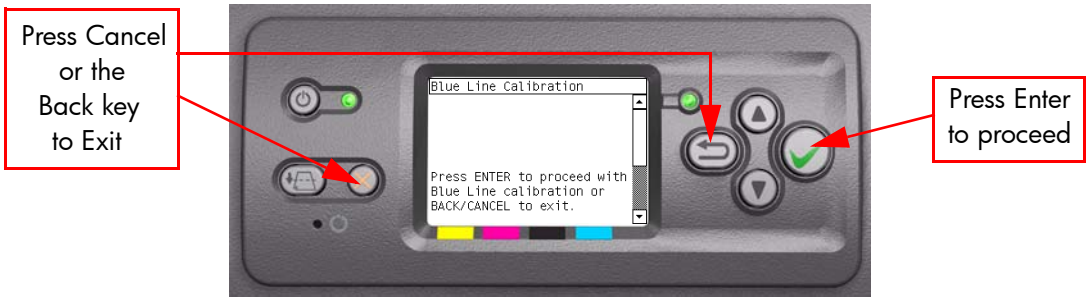
Perform the Platen Blue Line Calibration whenever:

- Center Platen is disassembled or replaced.

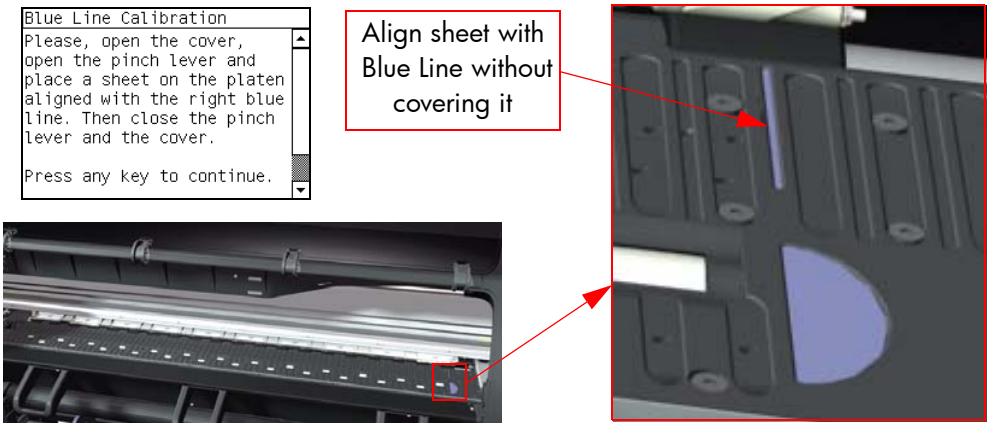
Perform the Platen Blue Line Calibration as follows:

1 In the Service Calibrations submenu, scroll to "Platen blue line calib." and press **Enter**.

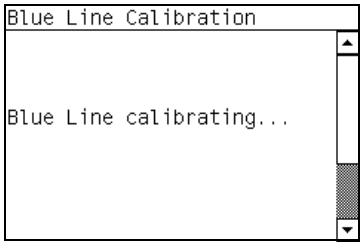
2 When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.



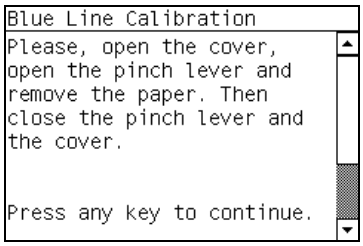
3 A message will appear on the Front Panel requesting you to raise the Media Lever and to place a sheet of white media on the Print Platen aligned with the Blue Line. Press the **Enter** key to continue once the sheet is in placed.



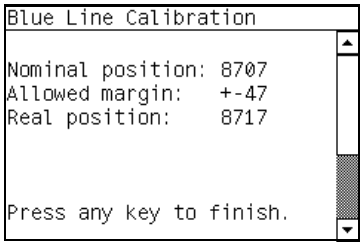
4 The Printer will start to calibrate the Blue Line and the following message will be displayed on the Front Panel.



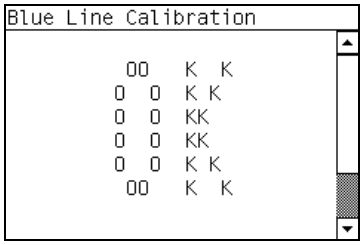
5 Once the Blue Line has been calibrated, the following message will be displayed on the Front Panel. Open the Window and remove the sheet of media that you had placed on the Print Platen. Press any key on the Front Panel to continue once the sheet of media has been removed.



6 The results of the calibration will be displayed on the Front Panel. Press any key on the Front Panel to finish the calibration.



7 Once the calibration is completed, OK will be displayed on the Front Panel.



This Calibration will be available from FW Version 3.x.x.x

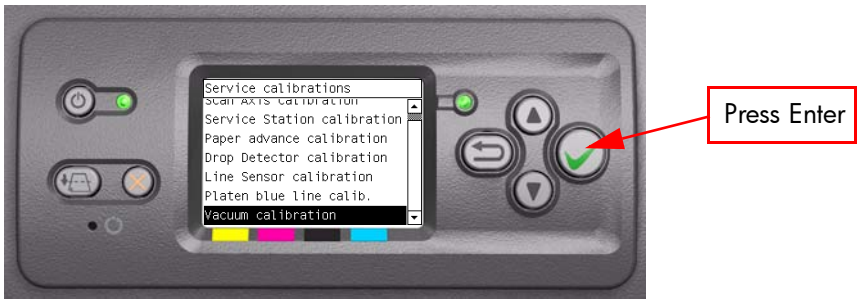
7. Vacuum Calibration

The purpose of this Service Calibration is to set the default nominal and real values of the Vacuum Fan Assembly.

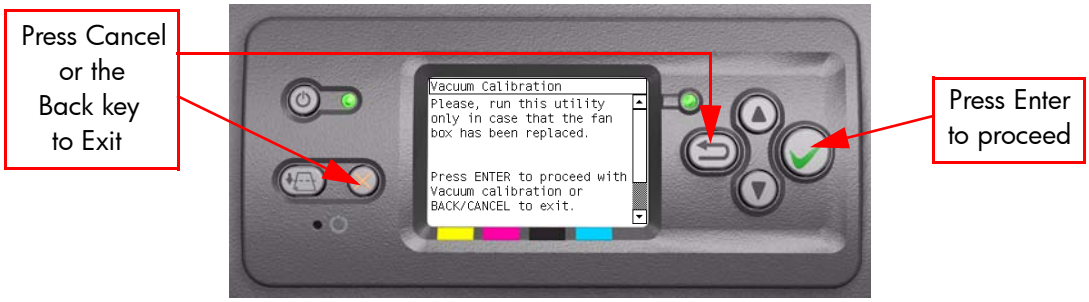
This Service Calibration should ONLY be performed when the Vacuum Fan Assembly has been replaced.

Perform the Vacuum Calibration as follows:

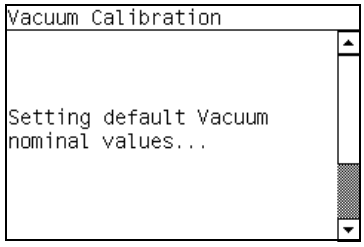
1 In the Service Calibrations submenu, scroll to "Vacuum Calibration" and press **Enter**.



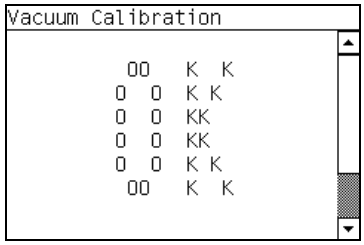
2 When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **Enter** key. Press **Back** or **Cancel** to exit the calibration.



3 The Printer will set the default nominal and real values of the Vacuum Fan.



4 Once the calibration is completed, OK will be displayed on the Front Panel.



PHONE SUPPORT

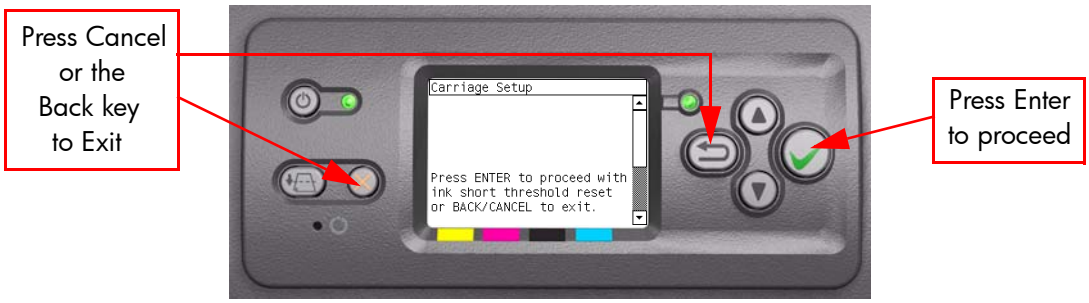
8. Carriage Setup

The purpose of this Service Calibration is to reset the ink short thresholds after replacing the Carriage PCA.

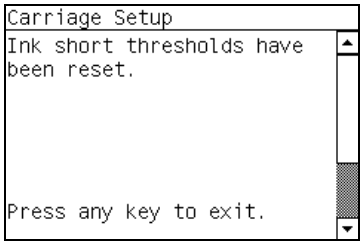
From Firmware Version 4.x.x.x, "Carriage Setup" has been renamed "Carrige PCA Calibration" and has been moved from Service Utilities to the Service Calibrations section.

Perform the Carriage Setup as follows:

1. In the Service Calibrations submenu, scroll to "Carriage Setup" and press **Enter**.
2. When the following message appears on the front panel, you must select whether you would like to continue with the Carriage Setup by pressing **Enter**. Press **Back** or **Cancel** to exit the utility.



3. If the Ink Short Thresholds have been reset correctly, the following message will be displayed on the Front Panel. Press any key to exit:



If any of the Printhead ink short thresholds cannot be reset or if the Printheads info cannot be accessed, it could point to a possible Firmware error.

4. If the utility exits correctly, OK will be displayed on the Front Panel.