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 *5-5*

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 *5-6*

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 *5-7*

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 *5-12*

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 *5-14*

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. Carriage Setup ⇒ Page *5-17*

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

7. Color Sensor ⇒ Page *5-18*

The purpose of this Service Calibration is to calibrate the Color Sensor.

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

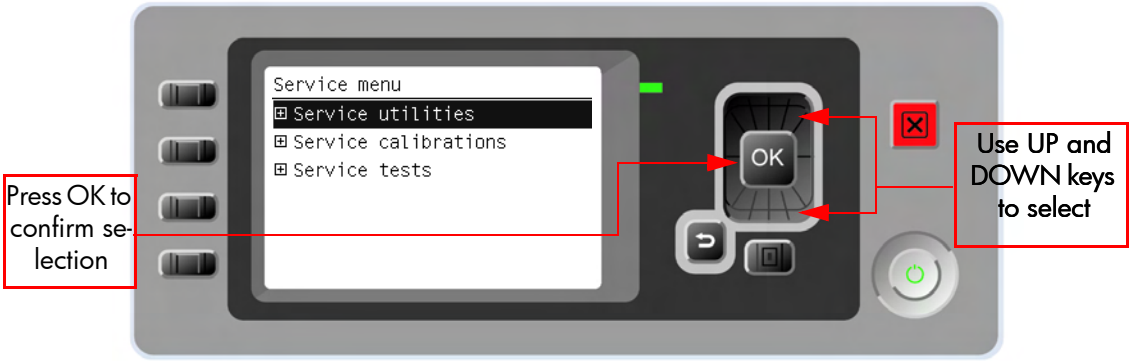
- **Drop Detector/Service Station Calibration.**
- **Line Sensor/Scan Axis Calibration.**
- **Paper Advance Calibration.**

Entering the Service Calibrations Menu

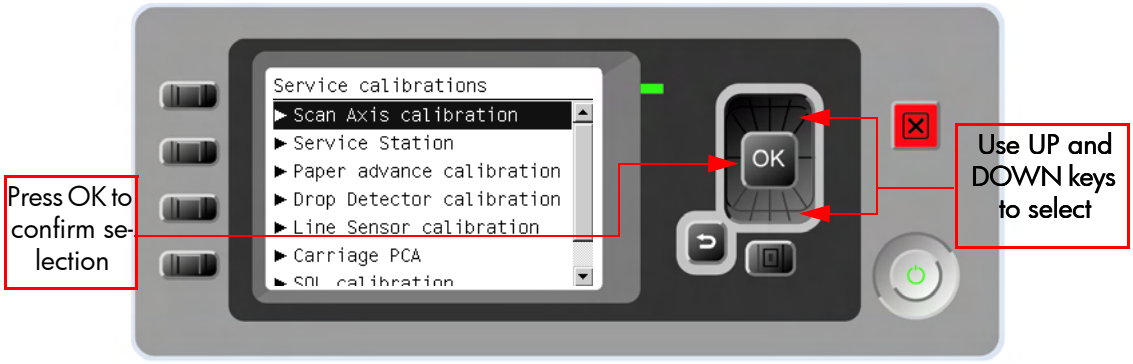
1. Once the message "Ready" or "Ready for paper" is displayed on the front-panel, press the **Menu** key.

2. For Call Agents who will request the user to perform certain Service Utilities, once inside the "Main Menu", press the **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 option and press the **OK** key.



4. Use the **Arrow** keys to scroll through the Service calibrations selections and press the **OK** key to begin a specific operation when the required Service Utility is highlighted.



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

In some cases a quick press of a button may not be recognized by the Printer. When pressing a button, be sure to press it deliberately and all the way to the bottom of its travel.

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:

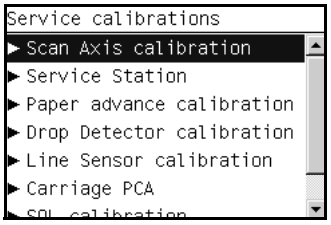
- Carriage is disassembled or replaced.
- Encoder Strip is disassembled or replaced.
- Center Platen is disassembled or replaced.

Perform the Scan Axis Calibration as follows:

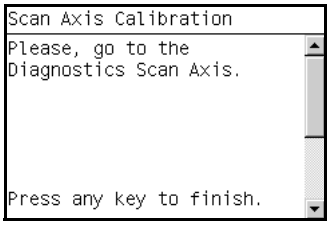
Make sure you load one of the following media into the Printer before performing this calibration:

- 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. For the current version of the printer this Service Calibration is not yet implemented.



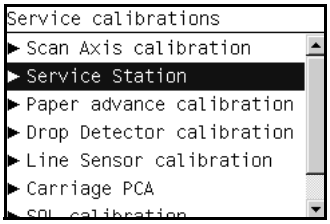
Service Station Calibration

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

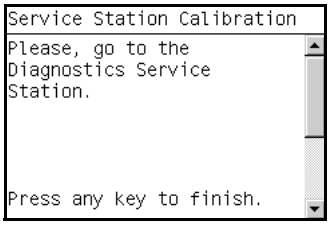
Perform the Service Station Calibration whenever:

- Carriage Assembly is disassembled or replaced.
- Service Station is disassembled or replaced.
- Primer replaced.
- Drop Detector replaced.
- Aerosol Fan replaced.

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



2. For the current version of the printer this Service Calibration is not yet implemented.



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.

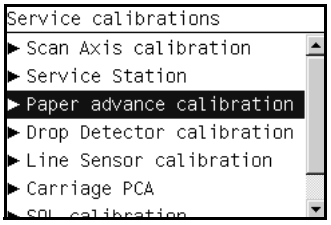
Only scan the Calibration Pattern in the Printer that was used to actually print it. Using the Calibration in a different Printer could cause it to experience media advance problems. After scanning the Calibration Pattern, it should be discarded.

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

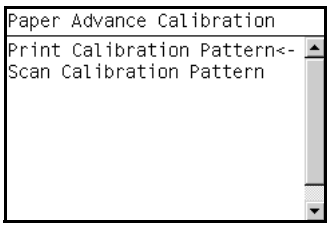
Perform the Paper Advance Calibration as follows:

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

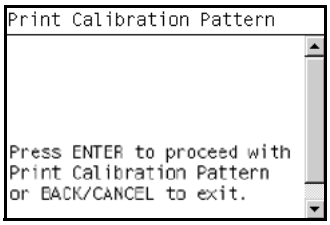
4. In the Service Calibrations submenu, scroll to "Paper Advance Calibration" and press **OK**.



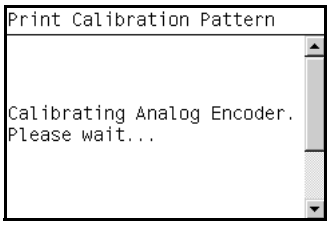
5. In the Paper Advance Calibration submenu, scroll to **Print Calibration Pattern** and press **OK**.



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



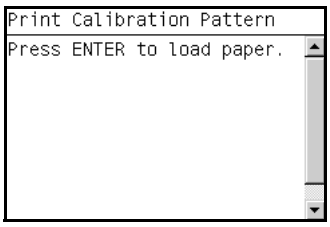
7. The Printer will start to calibrate the Analog Encoder and the following message will be displayed on the Front Panel.



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.

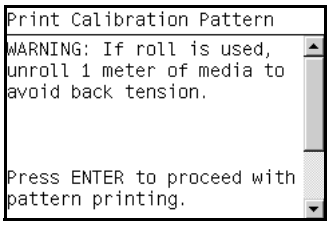
8. Once the Analog Encoder has been calibrated correctly, the following message will appear on the Front Panel. Press the **OK** key in order to start the media load process.



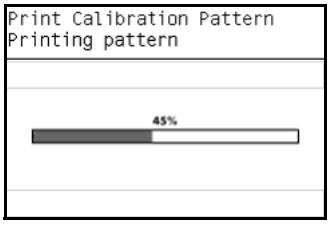
9. Load a sheet of HP Productivity Gloss Media that was included in the Paper Advance Calibration Kit (Part Number Q1273-60125) following the instructions on the Front Panel. If the kit is not available, then cut a

piece of HP Productivity Gloss Media that is 36 inches wide and at least 45 inches long.

10. 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 **OK** key to continue.



11. 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.



12. Once the Accuracy Calibration Pattern has been printed successfully, the Front panel will prompt you to continue.

13. Press the **Enter** key to continue.

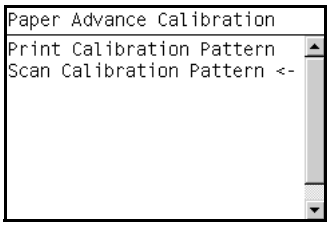
If the Paper Advance Calibration fails for any reason, a warning message will appear on the Front Panel. In this case, try the following:

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

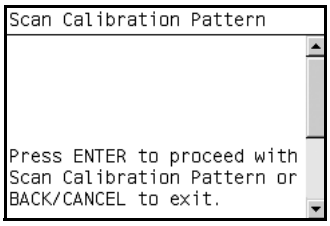
Remove the pattern from the printer and leave it to dry for a few minutes before continuing with the Calibration.

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

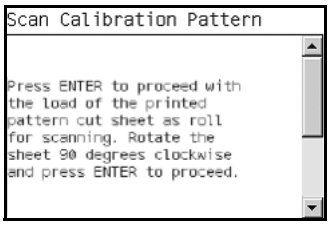
14. You will need to re-enter the Paper Advance Calibration submenu and scroll to Scan Calibration Pattern and press **OK**.



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



16. 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 **OK** key to continue.

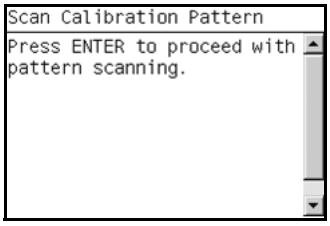


Take note that the Calibration Pattern will be loaded as a Roll and NOT as a Sheet.

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.

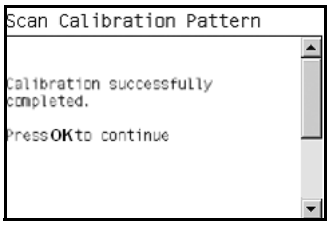
After scanning the Calibration Pattern, it should be discarded.When Loading the Calibration Pattern, use the Cutter blade on the Print Platen to align the edge of the sheet. If you follow this advise, you will prevent the cutter from cutting a section of the Calibration Pattern, which could cause the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

17. 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 **OK** key to continue.



18. 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 **OK** 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 *5-14*) and then rescan the Calibration pattern.
- Replace the Line Sensor ⇒ Page *8-109*.
- If the problem continues, replace the Media Advance Driver ⇒ Page *8-155*.

Drop Detector Calibration

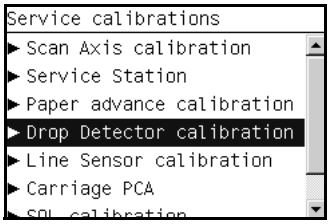
The purpose of this Service Calibration is to calibrate the Drop Detector (located in the Service Station) in relation to the Carriage Assembly.

Perform the Drop Detector Calibration whenever:

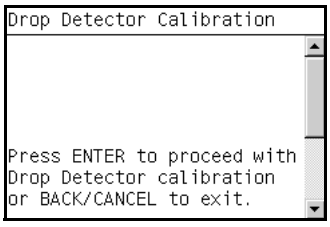
- Drop Detector is disassembled or replaced.
- Carriage Assembly is disassembled or replaced.
- Service Station is disassembled or replaced.

Perform the Drop Detector Calibration as follows:

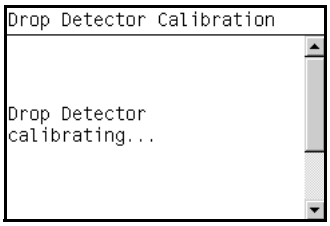
1. In the Service Calibrations submenu, scroll to **Drop Detector Calibration** and press **OK**.



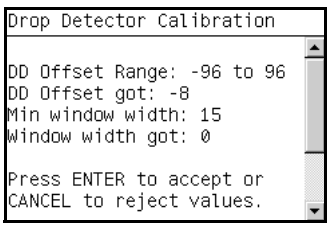
2. When the following message appears on the front panel, you must select whether you would like to continue with the calibration by pressing the **OK** key. Press **Back** or **Cancel** to exit the calibration.



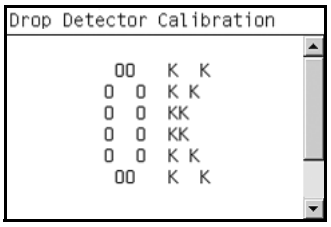
3. The Printer will start to calibrate the Drop Detector.



4. Once the Drop Detector has been calibrated, the results will be displayed on the Front Panel. Press **OK** to finish the calibration.



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



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:

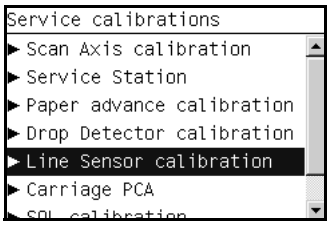
- Edge detect procedure fails during media loading.
- Carriage is disassembled or replaced.
- Line Sensor is disassembled or replaced.
- Banding is detected in prints.
- Misalignment between colors is detected.

Perform the Line Sensor Calibration as follows:

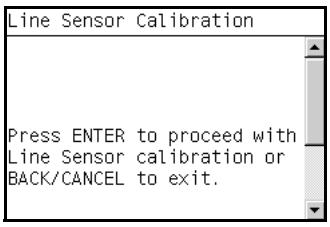
Make sure you load one of the following media into the Printer before performing this calibration:

- 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.

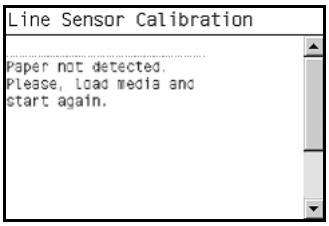
1. In the Service Calibrations submenu, scroll to Line Sensor Calibration and press **OK**.



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 **OK** 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**.



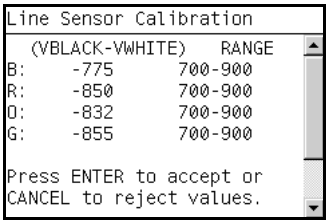
Before continuing, the Printer will check the following:

- 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 **OK** to continue or press **Back** or **Cancel** to exit the calibration.

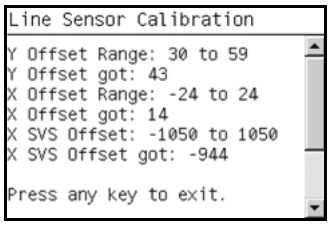


If the values are not within the range specified, an error will appear on the Front Panel. In this case, try the following:

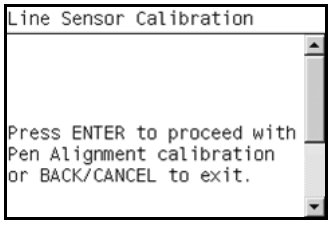
- Try the Scan-Axis Calibration again.
- Replace the Line Sensor

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:

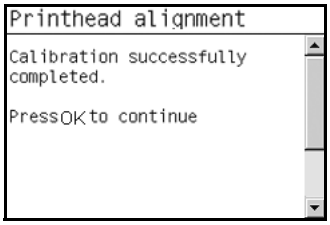
6. Once the Line Sensor has been calibrated, the results will be displayed on the Front Panel. Press **OK** to finish the calibration or press **Back** or **Cancel** to exit the calibration.



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 **OK** key. Press **Back** or **Cancel** to exit the calibration.



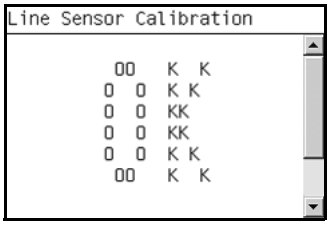
8. Once the Printhead Alignment is completed, the following message will be displayed on the Front Panel. Press the **OK** key to continue.



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

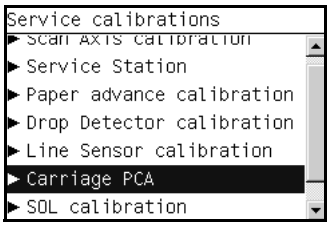


Carriage PCA

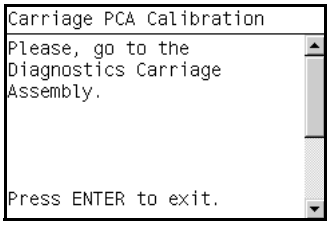
The purpose of this Service Calibration is to reset the ink short thresholds after replacing the Carriage PCA.

Perform the Carriage Setup as follows:

1. In the Service Calibrations submenu, scroll to Carriage PCA and press **OK**.



2. For the current version of the printer this Service Calibration is not yet implemented.

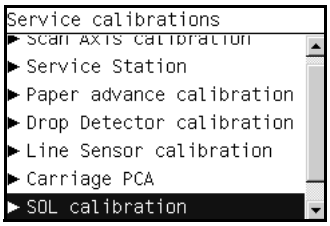


Color Sensor (ESP) Calibration

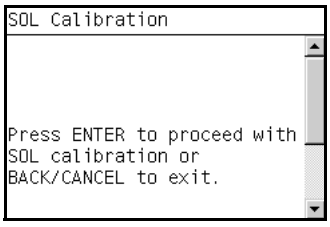
The purpose of this Service Calibration is to calibrate the Color Sensor (Color Sensor (ESP)).

Perform the Color Sensor (ESP) Calibration as follows:

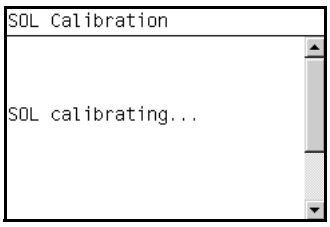
1. In the Service Calibrations submenu, scroll to Color Sensor (ESP) **Calibration** and press **OK**.



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 **OK**. Press **Back** or **Cancel** to exit the utility.



3. The printer will start to calibrate the Color Sensor:



4. Once the Color Sensor calibration has completed successfully, OK will be displayed on the Front Panel.