
Calibrations

Adjustments

There are no electrical or mechanical adjustments required on DesignJet 700, 750C, 750C Plus plotters and DesignJet 755CM printers.

Calibrations

The plotters/printers have several calibration procedures that must be performed under certain conditions. Refer to the table below to determine when calibrations are required.

When Required	Calibration		
	Drop Detect	Line Sensor	Accuracy
Carriage is replaced or disassembled	Yes	Yes	Yes
Cartridge checking constantly rejects pens	Yes	No	No
Drive roller assembly is replaced	Yes	No	Yes
Edge-detect failures occur	No	Yes	No
EEROM is cleared (Calibrations to be done in this order)	Yes	Yes	Yes
Length of lines drawn by the plotter is not as specified by the software	No	Yes	No
Main PCA is replaced without restoring the EEROM values	Yes	Yes	Yes
Mark Encoder is replaced	No	No	Yes
Media is not detected by the line sensor	No	Yes	No
Plots have consistent banding due to paper advance error	No	No	Yes
Service Config Plot X-mark distance is not 500mm (\pm 1mm.); mono on inkjet film	No	No	Yes
Service station is replaced or disassembled	Yes	No	Yes
X-axis motor/encoder is replaced	No	No	Yes

Menu Path

All calibration procedures are accessible through the front-panel menu structure. The **accuracy calibration** is available through the Utilities main menu. The **service configuration plot** function, also located in the “*Utilities*” menu, is used in conjunction with the accuracy calibration procedures for comparison purposes. Procedures reserved for service use are available through the “*Service Tests*” menu, which is a subset of the “*Utilities*” menu.

Entering the Service Tests Menu System

- 1 Switch the plotter **ON**.

Certain plotter failures that can occur will prevent the plotter from reaching the “STATUS / Ready for Media” state. If one of these problems occurs, switch the plotter OFF. Press and hold down the ENTER and the UP ARROW buttons while switching the plotter ON. This will allow access to the service tests.

- 2 Press the **Enter** button.
- 3 Use the **Arrow** buttons to scroll to the “Utilities” menu display. Either the Short or Full menu mode will access the “Service Tests” submenu.
- 4 Press the **Enter** button.
- 5 Simultaneously press the **Enter** and the **Up Arrow** buttons to access the “Service Tests” submenu.
- 6 Use the **Arrow** buttons to scroll through the test selections.
- 7 Press the **Enter** button to begin a specific test when the required test is displayed.

If no button is pressed for 1.5 minutes, the front panel will return to the “Status” menu.

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

If the plotter hangs up during a test, switch the plotter OFF and restart at step 1 again.

In some cases the plotter may revert to the “STATUS” message upon exiting a test. To return to the service menu, perform the above steps.

1C. Drop Detect Calibration

In this procedure the position of the drop detect sensor relative to the four print cartridges is calibrated. Four values are calculated and stored in the EEROM.

Perform the drop detect calibration whenever the:

- EEROM is cleared.
- Main PCA is replaced without restoring the EEROM values.
- Cartridge checking algorithm continues to reject pens.
- Service station is replaced or disassembled.
- Drive roller assembly is replaced.
- Carriage is replaced.

You will also need to perform the drop detect calibration whenever these system errors appear on the front-panel display (details on error codes ♦ page 8-9):

- 070000H
- 070005, 6, 7 or 8
- 070010
- 070020
- 070030

The drop detect calibration is accessible through the “Service Tests” submenu. Perform the drop detect calibration as follows:

- 1 In the Service Tests submenu, scroll to “1C Drop Detect Cal” and press **Enter**.
- 2 The display shows the message “Calibrating” indicating that the calibration is in progress.
- 3 If the calibration passes, the “Success Calibration / Press Enter” message is displayed on the front-panel. Press **Enter** to return to the Service Tests submenu.
- 4 If the calibration fails, an Error Code is displayed on the front-panel.

If the calibration fails the test:

- 1 Perform the drop detector test ♦ page 8-37.
- 2 Replace the cartridges.
- 3 Perform the Y-static friction test ♦ page 8-46.

2C. Line Sensor Calibration

The line sensor calibration is used to calibrate the intensity of the line sensor in the carriage PCA. A flag is cleared and set in the EEROM after the calibration and is used until it is recalculated. An incorrect calibration can result in edge-detection failures during media loading. The cartridge alignment procedure is also performed as part of this calibration.

Perform the line sensor calibration whenever the:

- Calibration in the EEROM is cleared.
- Edge detect procedure failures occur during media loading.
- Carriage is replaced.
- Main PCA is replaced without restoring the EEROM values.
- Length of lines drawn by the plotter is not as specified by the software.
- Media is not detected by the line sensor.

The line-sensor calibration is accessible through the “Service Tests” submenu. Perform the line-sensor calibration as follows:

Make sure that bond or coated media is loaded before performing the line sensor calibration.

- 1 In the Service Tests submenu, scroll to “2C Line sensor cal” and press **Enter**.
- 2 The display shows the message “Calibrating Green LED Light” indicating that the calibration is in progress.
- 3 When the calibration is completed, the display shows the message “*Green LED Light # / Press enter*”.

The # sign will be a number which corresponds to the intensity of the LED light which will vary for different types of media. The normal range of this number should be between 0 and 56.

- 4 If the calibration fails, an Error Code is displayed on the front-panel.

If the calibration fails the test:

- 1 Replace the carriage ♦ page 6-34.

3C. Accuracy Calibration

By performing the accuracy calibration procedures the plotter can be restored to its factory settings accuracy, or it can be calibrated to allow for the current environment. Accuracy calibrations are stored in the plotter EEROM. When performing the accuracy calibration from the “*Service Test*” submenu, the factory correction values are recalculated. The calibration performed from the “*Utilities*” menu calculates a new user calibration test. This value overrides the factory value until the plotter is reset from the “*Resets*” menu. Once the plotter is reset, it uses the default values until another user calibration is done.

Perform the accuracy calibration whenever the:

- EEROM is cleared.
- Main PCA is replaced without restoring the EEROM values.
- Drive roller assembly is replaced.
- X-axis motor-encoder is replaced.
- Service Station is replaced or disassembled.
- Carriage is replaced or disassembled.
- Mark Encoder is replaced.

Before performing the accuracy calibration, print a service configuration plot (details ▶ page 8-56) on D or E-size media. The accuracy calibration is needed if the distance between the centers of the “X” marks on the service configuration plot is not 500 mm (20 in.) \pm 1 mm (0.04 in.) under normal environmental conditions. Media expansion can affect endpoint accuracy. The plotter endpoint accuracy is specified on inkjet polyester film only at 0.2% of the specified vector length.

Recalibration is also required when there is a banding problem due to a paper advance error

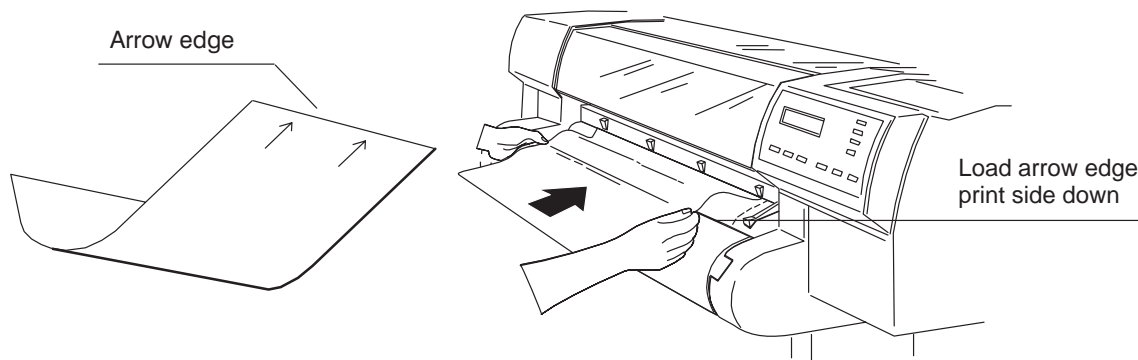
If the measured accuracy, media thickness, or environmental conditions vary greatly from the factory standards, recalibrate the plotter using the following procedure:

Remove any media already loaded into the plotter before performing the calibration.

Place a sheet of polyester film over the top of the plotter for approximately 10 minutes to let it stabilize to the environmental conditions. Use a sheet approximately 24 x 36 inches (61 x 91 cms). Roll media may also be used. When using polyester film, load it with the matte(dull) side down.

- 1 In the Service Tests submenu, scroll to “3C Accuracy cal” and press **Enter**.
- 2 The “Create pattern / Measure pattern” message is displayed.
- 3 Press the **Up Arrow** button to select “Create pattern”.
- 4 The “*Status / Calibrating*” message is displayed while the plotter is calibrating.
- 5 When the plotter has finished calibrating, the “*Load media for calibration*” message is displayed.
- 6 Load the media. If using D-size media, load the short edge as the leading edge in D-size plotters and the long edge as the leading edge in E-size plotters.
- 7 When the media is loaded, the plotter will automatically begin to plot the pattern.

- 8 A “*Status / Printing*” message is displayed while plotting.
- 9 Remove the media when the plotter has finished plotting.
- 10 The “*Create pattern / Measure pattern*” message is displayed.
- 11 Press the **Down Arrow** button to select “*Measure pattern*”.
- 12 Rotate the plot so that the edge with the arrows points to the leading edge, then reload the plot with the arrow edge print side down.



- 13 The plotter will load the plot and then measure the alignment marks using the line sensor on the pen carriage.
- 14 If the calibration passes, the “*Success Calibration / Press Enter*” message is displayed on the front-panel. Press **Enter** to return to the Service Tests submenu.
- 15 If the calibration fails, the “*Calibration Error / Continue*” message is displayed on the front-panel.

If the calibration fails the test:

- 1 Replace the cartridges.
- 2 Perform the line sensor calibration ♦ page 7-5.
- 3 Perform the mark position test ♦ page 8-44.

Notes