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HP **DesignJet 1050C/1055CM** **Large-Format Printers**



Service Manual

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WARNING

The procedures described in this manual are to be performed by HP-qualified service personnel only.

Electrical Shock Hazard

Serious shock hazard leading to death or injury may result if you do not take the following precautions:

- Ensure that the ac power outlet (mains) has a protective earth (ground) terminal.
- Disconnect the Printer from the power source prior to performing any maintenance.
- Prevent water or any other liquids from running onto electrical components or circuits, or through openings in the enclosure.

Electrostatic Discharge

Refer to the beginning of Chapter 8 of this manual, for precautions you should take to prevent damage to the Printer circuits from electrostatic discharge.

Safety Symbols

General definitions of safety symbols are given immediately after the table of contents.

WARNING

The Warning symbol calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a Warning symbol until the indicated conditions are fully understood and met.

CAUTION

The Caution symbol calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product. Do not proceed beyond a Caution symbol until the indicated conditions are fully understood and met.

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HP

DesignJet 1050C/1055CM

Large-Format Printers



Service Manual

Using this Manual

Purpose

This Service Manual contains information necessary to test, calibrate and service:

- HP DesignJet 1050C Printer (Model C6074A)
- HP DesignJet 1055CM Printer (Model C6075A)

For information about using these printers, refer to the corresponding User and Quick Reference Guides.

Readership

The procedures described in this Service Manual are to be performed by HP Certified service personnel only.

Part Numbers

Part Numbers for Printer options, accessories and service parts are located in Chapter 7.

Conventions

A small arrow \Rightarrow is used to indicate other parts of the Service Manual where you can find information related to the topic you are consulting.

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Guide to Troubleshooting the Printer

Introduction

This chapter will guide you through the relevant steps to take when troubleshooting the printer.

Troubleshooting System Error Codes

Chapter 2 - *System Error Codes* contains a list of system error codes and their respective descriptions and recommended corrective actions. Only try one recommended action at a time and check if the error code has disappeared.

If you have an error code which is not documented in this Service Manual or you have an error which you cannot resolve, then report the error to the HP Response Center or the nearest HP Support Office. When reporting the error, have the following information ready:

- Model and Serial Number of the printer.
- Which firmware revision the printer is using (See Note below).
Check firmware in *Utilities / Statistics / Code rev.*
- The complete error number (See Note below).
- The Service Configuration Print ⇒ Page 1-19
- The Current configuration sheet.
- Which software application the customer is using (name, version, etc.).

NOTE

When reporting the System Error Code, make sure that you supply the full Error Code (including the last 8 numbers where applicable) and the firmware version. Without this information, HP Support Personnel cannot help you.

Performing a Service Test on a Failed Assembly

If possible, always perform a Service Test on the component/assembly that you are about to replace, just to make sure that is the component/assembly that has failed.

NOTE

If the test on that component/assembly passes, you should NOT replace it.

For information on the Service Tests and how to use them see Chapter 4 - *Service Tests and Utilities*.

Performing the Necessary Service Calibrations

Is the printer calibrated correctly after replacing a component? Refer to the table on Page 5-2 to determine when a calibration is required.

NOTE

Remember that certain Calibrations are required even if an Assembly has been disassembled to gain access to another Assembly or Component.

For information on the Service Calibrations and how to use them see Chapter 5 - *Service Calibrations*.

Solving Image Quality Problems

Whenever an Image Quality problem appears, it is advisable to print the Image Quality Print to help diagnose the problem. The Image Quality Print will help you differentiate between possible printhead errors and other problems such as incorrect front-panel selection, driver or RIP configuration or mechanical problems. For information on solving Image Quality problems see Chapter 6 - *Print Quality*.

Front-Panel LEDs Flash Briefly at Power ON & Nothing Else Happens

The Power Supply detects a Short and shuts down the Power.

- 1 The Hard Disk Drive or the Network Card could be faulty. Troubleshoot the problem as follows:
 - a If the Printer has a Hard Disk Drive and/or a Network card installed, switch the Printer OFF from the back of the Printer, and remove them both.
 - b Switch the Printer ON again.
 - c If the Printer functions correctly now, switch the Printer OFF again and reinstall the Network Card correctly, making sure that the two installation screws are completely tightened.

NOTE

If the Printer DOES NOT function correctly with the Hard Disk Drive and the Network Card removed, then you must replace the Electronics Module.

- d Switch the Printer ON again
- e If the Printer functions correctly with the Network Card installed, switch the Printer OFF again.

NOTE

If the Printer DOES NOT function correctly with the Network Card installed, then you must replace it.

- f Reinstall the Hard Disk Drive correctly, making sure that the two installation screws are completely tightened.
- g Switch the Printer ON again
- h Check if the Printer functions correctly with the Hard Disk Drive installed.

NOTE

If the Printer DOES NOT function correctly with the Hard Disk Drive installed, then you must replace it.

- 2 Make sure that **none** of the cables connected to the Electronics Module have been pinched between the cover and the sideplate.

The Printer does not Power ON

- 1 Check that the power cord is connected correctly to the Printer and to the Power Socket.
- 2 Check that the Firmware DIMM is installed correctly in the correct slot (the first slot from the right) at the back of the Printer.
- 3 Check that the Power Switch on the BACK of the Printer is in the ON position.
- 4 Check that the Front-Panel Cable is correctly connected to the Electronics Module. Also make sure that the Front-Panel cable is not damaged.

ALL the Front-Panel LEDs are Lit but Nothing Else Happens

The Firmware DIMM is NOT correctly installed.

- 1 Power OFF the Printer from the back and disconnect the power cord. Reseat the Firmware DIMM (the first slot from the right) making sure that it is installed correctly.

One of the Print Quality LEDs on the Front Panel is Lit (and nothing else) and the "SELF TEST.." Message Remains on the Front Panel

One of the DRAM DIMMs is NOT correctly installed or Faulty.

- 1 Power OFF the Printer from the back and disconnect the power cord. Reseat both Firmware DIMMs (the first two slots from the left) making sure that they are installed correctly. If reseating the DRAM DIMMs does not solve the problem, replace them instead.

The Printer Continuously Rejects Printheads

- 1 Clean the flex contacts on the Printhead and in the Carriage Assembly using the Carriage Interconnect Wiper (Refer to Chapter 3) and try again.
- 2 If ALL the Printheads are rejected (the status message on the Front Panel does NOT show "OK" for all the Printheads) then perform the Electronic Systems Test ⇒ Page 4-5.

Cover Sensors are not Working

- 1 Check if the faulty sensor is installed correctly.
- 2 Check if the cable for the faulty sensor is connected correctly.
- 3 Replace the faulty Sensor.

The Line Sensor has Problems Detecting Media

- 1 Check the type of media that is being used since the Line sensor may have problems detecting transparent media or some types of Non-HP media. Try loading white HP media in to the Printer and check if the Line sensor detects it.
- 2 Excessive ink deposits on the Platen surface can fool the sensor by reflecting the light. Clean the Platen.
- 3 The Line Sensor is not calibrated correctly. Perform the Line Sensor calibration ⇒ Page 5-9.
- 4 The Line Sensor is damaged or faulty. Replace the Carriage Assembly ⇒ Page 8-44.

Troubleshooting Media Jams/Printhead Crashes

NOTE

If using HP Coated Media when problem occurred, please also refer to *Page 1-10, Printhead Crashes/Smears on High Density Prints Using Coated Media.*

The failure modes "media jam" and "head crash" are grouped together because in many cases a media jam causes the media to lift up into the carriage path and cause a head crash, thus causing many media jam failures to be reported as head crashes.

- 1 Did the media jam occur when loading media?
 - If the client has had media jams, it is common for pieces of media to get stuck in the media path. Clear the media path.

NOTE

When clearing a media jam, sometimes media is stuck in the paper path. To clear this, you must lift the media load handles and insert thicker media into the paper path to push out the media that is still stuck there.

- 2 Is the customer using non-HP media?
 - The use of non-HP media can easily be the cause of media jams and head crashes (especially head crashes because HP media is specially formulated to avoid cockle, one of the primary causes of head crashes). If the media is not HP approved, advise the customer to use HP media and check to see if the problem is now solved.
- 3 The Carriage is at the incorrect height in relation to the Center Platen. Adjust the carriage to the correct height ⇒ Page 5-24 and try to load the media again.
- 4 Check that the Vacuum Fan works correctly - **Refer to *Page 1-9, Problems with the Vacuum Fan.***

Troubleshooting Shutdowns

If a shutdown occurs, you will get the message "Switch Power Off" followed by:

- Check Printhead Cleaner Path.
- Check Paper Path.
- Check Printhead Path (followed by (1), (2) or (3)).

A shutdown in each path will require different steps to resolve the

problem as explained as follows.

WARNING

In each case, make sure that you power OFF the printer before attempting any procedures to resolve the problem.

Printhead Cleaner Path

- 1 Open the right door of the printer and check for any visible obstacles restricting the movement of the Service Station. Manually move the Service Station, checking for smooth and free movement.

Paper Path

- 1 Open the Window and check for any visible obstacles restricting the movement of the Drive Roller. If there is a wrinkled mass of media inside the paper path, lift the Pinch wheels (using the Media Load Handles) and clear the obstruction. If you cannot reach the media, remove the Electronics Module (⇒ Page 8-25) and the Roller Guide (⇒ Page 8-66) from the Rear of the Printer to gain better access.
- 2 If this shutdown happens at the end of a Roll of Media, it could be because the media is stuck firmly to the Roll. Lift the Pinch wheels (using the Media Load Handles) and pull the media clear.
- 3 Replace media spindle if broken.
- 4 Replace the Paper-Axis Motor ⇒ Page 8-12.

Printhead Path

When a shutdown occurs in the Printhead path, you will get the message "Switch Power Off / Check Printhead Path (*). The (*) will be a number, which will give an indication on where the failure occurred:

PWM Shutdown (1) and Energy Shutdown (3)

- 1 Clean Slider Rods and Apply Oil along the complete axis of the Slider Rods. After applying the Oil, perform the Scan-Axis Test ⇒ Page 4-17 and check that the values are within the given limits.
- 2 Replace the Scan-Axis Motor ⇒ Page 8-33.

Velocity Shutdown (2)

- 1 Open the Window and check for any visible obstacles restricting the movement of the Carriage Assembly. Try and move the Carriage Assembly manually, checking for smooth and free movement.
- 2 Check that the Encoder Strip is clean. If necessary, clean Encoder Strip using a damp cloth.

Problems with the Vacuum Fan

If you have problems loading either Roll or Sheet Media, then there could be a problem with the Vacuum Fan. To verify if there really is a problem with the Vacuum Fan, try the following:

- 1 With the Printer ON, open the Window of the Printer and place a sheet of HP High Gloss Photo Paper (must be D-Size), aligned with the blue lines on the Center Platen. If the Vacuum Fan holds the sheet in place, and then loads it correctly, then the Vacuum Fan functions correctly. If the Vacuum Fan does not hold the sheet in place (no suction), then try the following:
 - Check that the holes in the Center Platen are NOT blocked.
 - Check that the Vacuum Fan is installed correctly.
 - Replace the Vacuum Fan ⇒ Page 8-11.
- 2 If the Vacuum Fan held the sheet in place, but couldn't correctly load it, then there could be a problem with the Overdrive. In this case, replace the Platen Assembly ⇒ Page 8-63.

Vacuum suction much lower at high altitudes

At altitudes above 3,000 meters, the vacuum force holding down the media will be lower, therefore the media will not be held in place properly causing:

- Ink Smearing on the Media.
- Printhead crashes against the Media.
- Cut Sheet loading problems (high probability).
- Roll Media loading problems (low probability).

PRINTER LIMITATION - NO SOLUTION AVAILABLE.

Bin marks on prints done on HP High Gloss media

Prints done on HP High Gloss media are sensitive to scratches when they fall into the media bin. To solve the problem, try the following:

- Advise the customer to install the Media Bin cover, that was included with the Printer, to avoid this problem.
- If possible, advise the customer to hold the prints and prevent them from falling in to the bin.

Printhead Crashes/Smears on High Density Prints Using Coated Media

High density prints can cause cockle mainly on HP Coated Media. This causes two main problems:

1. Cockling in the borders - Because the printer places too much ink on the Coated Media, the borders of the print become raised, causing the Printhead to crash against the media. To solve the problem, try the following:
 - Check in the Front Panel if **Ink Limiting** is ON or OFF. If Ink Limiting is OFF, turn it ON.
 - Change the paper margins to 15mm, either in the Front Panel or in the Driver. If the customer is printing PostScript images, send them a PPD file containing the extended margins of 15mm.
2. Cockling within the print - If the Printer places too much ink within the print, the media starts to ripple, causing the Printhead to smear against the media. To solve the problem, try the following:
 - Check in the Front Panel if **Ink Limiting** is ON or OFF. If Ink Limiting is OFF, turn it ON.
 - Never use HP Coated Media for High Density prints. As a substitute use HP Heavy Coated Media.

Color changes when stacking prints done on HP High Gloss Media

Color differences can be seen between the covered and uncovered part of a print done on HP High Gloss Media. This is because the part of the print exposed to the air is always lighter than the covered one. The ink on the covered part of the print cannot evaporate therefore the ink continues to diffuse creating larger ink dots. To solve the problem, try the following:

- Allow the print to absolute drying completion before stacking. Depending on the ink percentage, this can take from 10 minutes up to 3 hours.
- Creating dryer environmental conditions helps reduce the problem. To find the environmental conditions, print the Service Configuration Print (*Printer Setup Menu / Utilities / Test prints / Service config*)

HP-GL/2 color differences in different HP DesignJet Printers

Color differences between one image printed on the HP DesignJet 1000 Series and the rest of the DesignJet platforms are due to the different chemistry of the 1000 series inks compared with the rest of the inks for other printers. This color variability among different HP DesignJet Series Printers has been always present. To solve the problem, try the following:

- Perform the color calibration from the driver at the time of printing. However, that calibration is not very accurate but it may help in the most severe cases.
- Some applications have color controls for the user to modify the image in order to obtain the desired colors.
- Printing with PostScript reduces the problem significantly.
- Avoid very long exposures to extreme environmental conditions after printing with glossy media (more than 12 hours at 80% humidity may result in severe changes in color).

Scratches on prints done on NTP, Vellum and HP High Gloss media

Normally at the end of a roll, the curl on the media is high and the printed area can touch the media load handles or the media roll, transferring ink to the "still-not-printed" media or damaging the actual print. This problem mainly affects Natural Tracing Paper (NTP), Vellum and HP High Gloss Media. To solve the problem, try the following:

- Increase the Dry Time using the Front Panel (Refer to the User's Guide - **Chapter 3 Working with Paper**).
- Install a new roll of media.

Banding at variable extreme environmental conditions

Since the Accuracy Calibration has been done at normal environmental conditions, printing in extreme environmental conditions will cause banding because the advance of the Drive Roller does not correspond to the same conditions that the calibration was done in. To solve the problem, try the following:

- Perform the Accuracy Calibration in the new environmental conditions (Refer to the User's Guide - **Chapter 8 Reconfiguring your Printer**).

Banding due to Ink Cartridge replacement while printing

A user has removed the Ink Cartridge while the printer was printing, which has caused the printer to stop. If the user does not replace the Ink Cartridge immediately, when the printer starts to print again, a band will appear in the position where the printing restarted. This is because the wet ink interacts with the dried ink on the media causing the band to appear. To solve the problem, try the following:

- Do NOT remove the Ink Cartridge while the Printer is Printing. Only replace/remove Ink Cartridges in between Prints.
- If the Ink Cartridge was replaced due to the "Empty" status on the Front Panel, then advise the customer to replace the Ink Cartridge when the "Very Low" status is showing on the Front Panel.

Long term bleed and hue shift on HP High Gloss media

Under high humidity conditions (approx. >65%) the water trapped in the air can easily be absorbed by the highly hydrophilic media coating polymers. That allows the dye to migrate through the coating and causes bleeding. This problem is especially noticeable with the colors that require Magenta. To solve the problem, try the following:

- Reduce the level of humidity (<65%) that the Printer is working in. To find the humidity level, print the Service Configuration Print (*Printer Setup Menu / Utilities / Test prints / Service config*).

Lower image gloss directly after printing on HP High Gloss Photo Paper

Lower gloss appearance of the print when the media is drying which gradually disappears to get the final gloss level (between 10 and 60 minutes depending on the ink density). Try the following:

- Wait at least 60 minutes to achieve the high gloss appearance.

34" Rice Paper not supported

Roll length is 34" (Non-standard) and the pinch wheels can't control edge of media causing ink smears and Printhead crashes in middle of prints with or without area fills.

PRINTER LIMITATION - NO SOLUTION AVAILABLE.

Cut Sheet rice paper loading failure

Thin rice paper is sucked into the Center Platen grooves and Linear Blade Ridge. This implies that the friction between the Center Platen and the rice paper becomes higher than between the Overdrive wheels and the paper. This effect make it almost impossible to load the rice paper correctly because the Vacuum is too high.

PRINTER LIMITATION - NO SOLUTION AVAILABLE.

Worm marks on HP Coated media with light area fills

Light bands (S-shaped) in Paper axis direction where light area fills are printed, causing unacceptable Image Quality defect.

- Print the Service Configuration Print (⇒ Page 1-19) and check if the level of Humidity is very low (below 30%). Increasing humidity may help in reducing the severity of the problem.

NOTE

The media is causing the problem and NOT the Printer. Do not attempt to try and replace Printer parts to solve this problem.

Solving Media-Handling Problems

The Front Panel Keeps Indicating that Media Is Misaligned or Incorrectly Positioned

Roll media

- The roll may be loaded the wrong way. The paper should load over the roll toward you.
- The paper may be loaded at an angle. The right-hand edge must be parallel to the white line on the paper entry roller.

WARNING

Ensure that the paper is wrapped tightly on the roll. This is a very important step to remember because if this is not done, the media may be loaded at an angle, causing the media to be rejected.

- Perform the manual alignment procedure (Refer to the User's Guide).
- Check that the paper is correctly loaded onto the spindle.

Sheet media

- It must be loaded with the right-hand edge against the blue perforated line on the printer.
- The media may be crumpled or warped or may have irregular edges.
- If you are using hand-cut media, the edges may not form a right-angle or they may be rough. Do not use hand-cut media. Use only purchased sheet media.
- If the media you are trying to load is very slippery, hold the media with both hands, and gently push the media into the printer until it buckles upwards in the middle, this will help the printer to load it.
- If the overdrive is covered in dust, it will have problems picking up the sheet media during the load process. Clean the Overdrive using the Overdrive Cleaning Service Utility ⇒ Page 4-37.

How to Navigate through the Front-Panel Menu







