HP Hybrid Printer II

User Guide

About This Guide

This guide provides information on setting up and using the HP Hybrid Printer II.

⚠ WARNING!   Indicates a hazardous situation that, if not avoided, **could** result in death or serious injury.

⚠ CAUTION: Indicates a hazardous situation that, if not avoided, **could** result in minor or moderate injury.

🖎 IMPORTANT: Indicates information considered important but not hazard-related (for example, messages related to property damage). A notice alerts the user that failure to follow a procedure exactly as described could result in loss of data or in damage to hardware or software. Also contains essential information to explain a concept or to complete a task.

🖎 NOTE: Contains additional information to emphasize or supplement important points of the main text.

☼ TIP: Provides helpful hints for completing a task.

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1 Product features

The HP Hybrid Printer II is a small, efficient point of sale printer for retailers. It features fast black-and-white or ColorPOS® receipt printing. The printer also features an impact printer that prints checks or multipart forms that you insert manually. These forms can have up to four parts and can be in a variety of sizes. Built-in Magnetic Ink Character Recognition (MICR) check validation is an optional feature of the printer.

The printer fits easily in spaces where no other hybrid printer can and connects to computers or hubs that support a 24 V powered USB connection. The printer's standard command set allows it to work with software written for the printer or other compliant printers. A variety of sensors enables the printer to communicate its status to the host computer. The printer also has an electronic journal feature.

The easy-to-use thermal printer requires no ribbon or ink cartridge. Load new paper by simply opening the clamshell receipt cover and dropping in a new roll.

The printer's features include the following:

- Monochrome or two-color receipt printing plus a drop-in validation print station

- Two printers in one: a two-color thermal printer on top that prints receipts and an impact slip printer to print on inserted forms and checks

- Built-in MICR for check reading and validating

- Powered USB interface

- Standard command set to allow the printer to work with software written for most printers

- Sensors that enable the printer to communicate status to the POS computer

- Flexibility to print on checks or multipart forms of up to four plies in a wide variety of sizes and orientations

- Drop-in paper loading

- Software-generated indicator beeps

- LED status indicator

- 8 MB flash memory, 8 K buffer
- 8 dots/mm print resolution with up to 350 mm/second throughput speed
- Selectable 44 (standard) or 56 (compressed) columns of print on 72 mm wide thermal paper

NOTE: For safety and regulatory information, refer to the *Product Notices* provided in your documentation kit. To locate updates to the user guide for your product, go to http://www.hp.com/support. Select **Find your product**, and then follow the on-screen instructions.

Identifying user controls
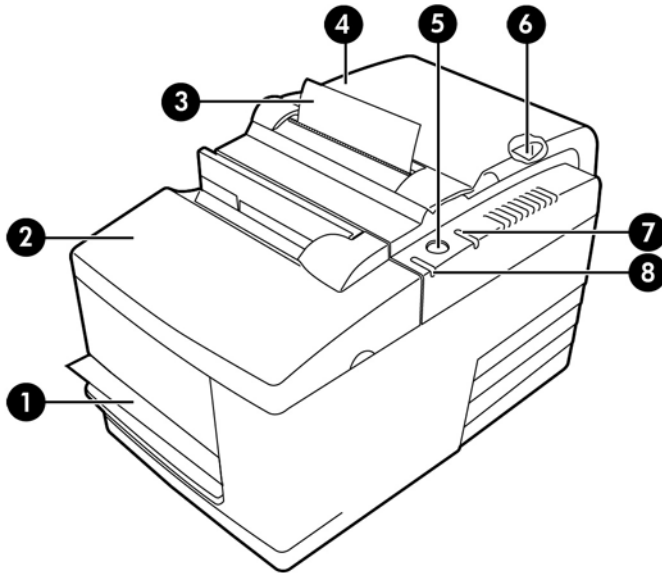
User controls

1	Slip station—Prints on inserted slips, forms, or checks
2	Front cover—Opens for installation of a ribbon cassette
3	Receipt—Top receipt output
4	Receipt cover—Opens for installation of the paper roll
5	Paper feed button—Advances the receipt paper and is used in navigating the configuration menu
6	Reset button—Clears the printer's memory and resets the printer
7	Online, Paper Status, Error light—Indicates the printer's status by glowing or flashing
8	Slip-in light—Indicates that a form or check is properly inserted in the slip station

Audible status indicators

After power is applied or after reset, the printer normally emits a single beep. This indicates that the printer has successfully completed its startup and self-test routine.

If the printer keeps beeping, something is wrong with the printer. Refer to Status indicators on page 32 or contact your HP authorized service provider for HP Point of Sale System products.

Identifying rear components
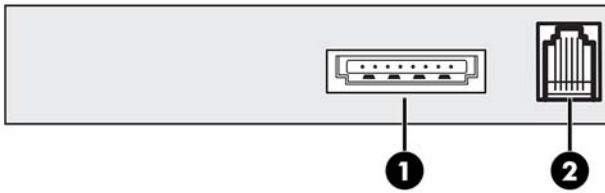
Rear components

1	USB power port—Connects the printer to the POS computer and provides power to the printer
2	Cash drawer port—Connects the printer to the cash drawer

2   Setting up the printer

Choosing a location for the printer

The printer requires minimum counter space and may be set on or near the POS computer.

Do not place the printer in any dusty environment or anywhere that spillage of drinks or other liquids can occur. Place the printer on a level surface, and make sure there is enough room to open the receipt cover to change the paper and to open the front cover to change the printer's ribbon cassette.

Be sure to leave adequate space at the rear of the printer for connecting and accessing the cables. For models with the built in MICR check reader, you may need to make additional adjustments to the printer's location.

IMPORTANT: Devices such as computer monitors or large metal surfaces can affect the printer's magnetic field and cause intermittent check reading errors. Be sure to place the printer away from sources of interference.

Checking the packing list

Before installation, check that the following items have been shipped:

- Printer
- Test printout protecting the print head (inside receipt bucket)
- Cardboard support for cantilever (on slip table)
- USB power cable
- Ribbon cassette

Report any missing items or shipping related problems to your regional HP authorized service provider for Point of Sale System products, or go to http://www.hp.com/support.

Removing the packing materials

The packing materials protect the printer and help prevent damage during shipment.

1. Remove the cardboard supports only after placing the printer in its user position.
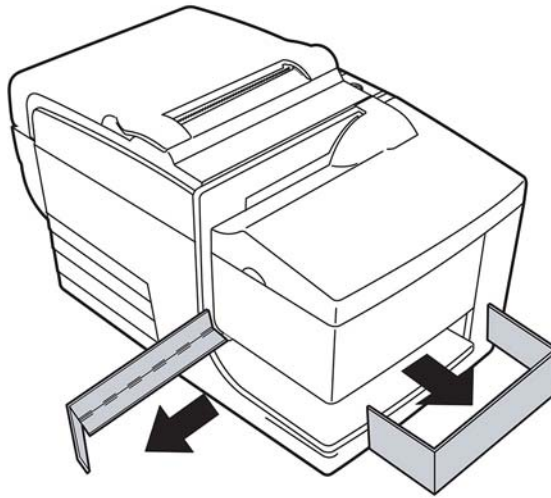
2. Save the cardboard supports and all other restraints and packaging materials for future use.

Having these packing materials on hand simplifies preparation of the printer for shipping or for long-term storage.

Installing new receipt paper

If the online paper status error light blinks, change the paper as soon as convenient to avoid running out of paper part way through a transaction.

If the status/error light blinks rapidly, the paper has run out. Change the paper immediately or data may be lost. The printer can accept and store only a limited amount of data without paper. Memory overload can occur in the buffer, leading to a total loss of data.

If you are changing the type of paper (monochrome vs. two-color ColorPOS®) send the "Set paper type" (1D 81 m n) command (description found in the *Programming Guide*). Refer to the "Set paper type" selection in the configuration menu. See the section on for instructions on how to enter the configuration menu.

1. Open the receipt cover and remove the used roll and core (if present).

2. Tear off the end of the new roll so that the edge is loose.

3. Place the roll into the paper bucket with the paper unrolling from the bottom of the roll, and with a few inches of paper extending over the cabinet front.

> **NOTE:** Paper must unroll from the bottom of the roll to insure that the image prints.
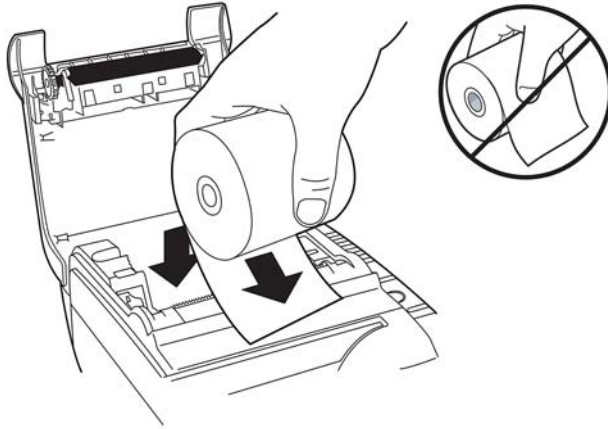
4. Close the receipt cover while holding the paper over the front of the cabinet.
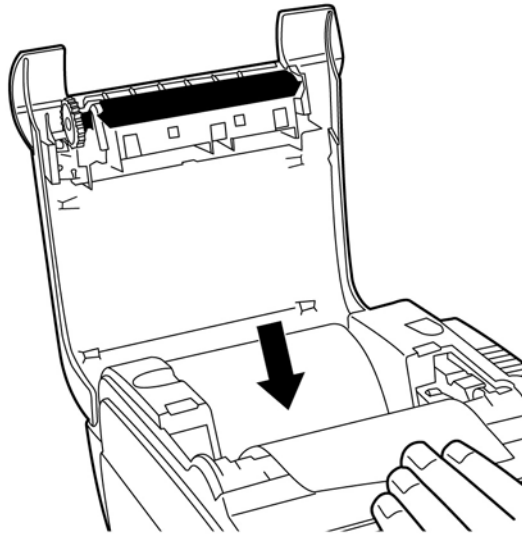
5. Remove the excess paper by tearing it against the tear-off blade.
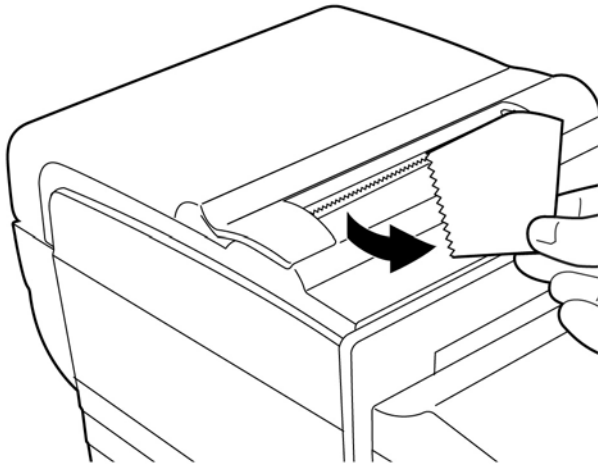
6. Press the paper feed button to advance the paper if necessary.

Removing and installing a ribbon cassette

Change the printer's ribbon cassette if it is printing lightly or produces marks, lines, or other inconsistent printing on the slip.

IMPORTANT: Use of other than an approved ribbon cassette can void all warranties and cause damage from jamming and other ribbon problems.

Removing a used ribbon cassette

1. Open the front cover (1) by grasping the cover on each side near the top and swinging it toward you.

2. Pinch in the tabs on the old ribbon cassette and pull the cassette straight up (2) to remove it.
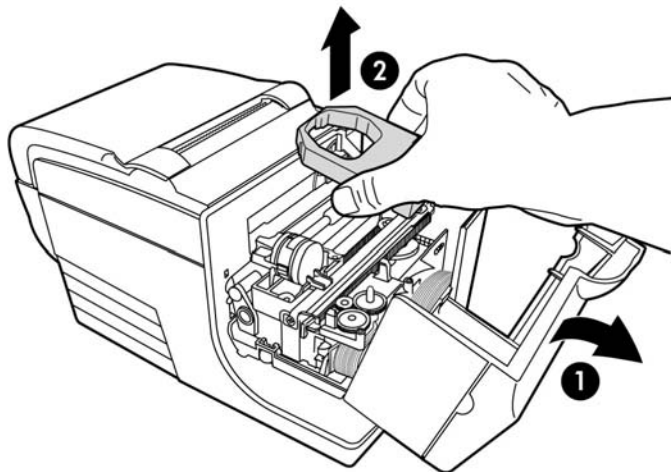
Installing a new ribbon cassette

1. Open the front cover (1) by grasping the cover on each side near the top and swinging it toward you.

2. Unwrap the new ribbon cassette and tighten the ribbon by turning the knob (2) on the cassette in the direction of the arrow.

   IMPORTANT: Do not remove the transparent mylar shield that protects the exposed ribbon.

3. Position the ribbon cassette on the carriage, as shown, making sure the ribbon is not caught on the print head.

4. Snap the cassette into place (3) and close the cover.
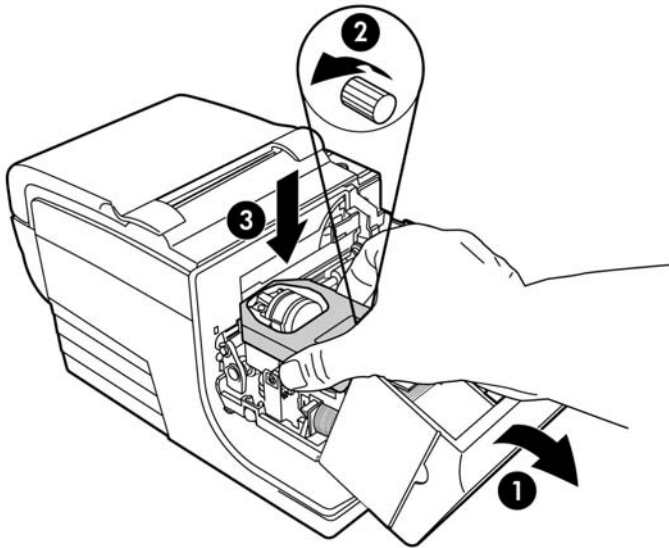
Connecting the cables

NOTE: Place the printer on a level surface and position it in a location that allows access to cables and provides ample room to open the cover. Locate the printer away from traffic areas to limit its chance of being bumped or damaged.

IMPORTANT: Connect cables to the printer before turning on power to the POS computer. The POS computer should always be turned off before connecting the communication cable.

1. Turn off the POS computer.

2. Open the connector cover on the rear of the printer and locate the USB power port (1).

3. Plug the printer end of the USB power cable (3) into the USB power port on the printer.

4. Plug the other end of the USB power cable (4) into the USB power port on the POS computer.

5. Plug one end of the cash drawer cable into the cash drawer port on the printer (2) and plug the other end of the cash drawer cable into the port on the cash drawer.

   NOTE: The cash drawer cable is not included with the printer.
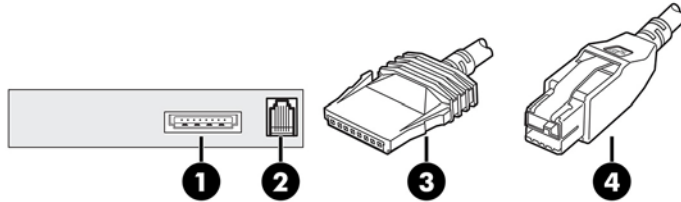
6. Close the connector cover on the rear of the printer, ensuring that the USB and cash drawer cables are aligned with the slots provided for each connector.

Installing the driver

Go to http://www.hp.com to download and install the driver for your POS computer's operating system.

Testing the printer

This test prints a complete list of printer settings on a diagnostic form and partially cuts the paper. Instructions at the end of the test printout describe how to enter the configuration menu. The configuration menu allows you to change the current settings of the printer.

```
*** A776II - Diagnostics Form ***

Model number           : A776-0000-0000
Serial number          : 0000000000

Loader Firmware
    P/N                : PN#: 189-776L116
    Date               : Jul  6 2016
Flash Firmware
    Revision           : V1.42
    CRC                : C0F4
    P/N                : 189-776A142A

H/W parameters
    Flash Memory Size  : 8 Mbytes
    Flash Logos/Fonts  : 1600 kbytes
    Flash User Storage : 576 kbytes
    Flash Perm'nt Fonts: 2240 kbytes
    Flash Journal Size : 640 kbytes
    SRAM Size          : 512 kbytes
    Head settting      : H
    Motor ID           : 1
    Paper Type Setting : Type 0, Monochrome
    Color Density Adj  : n/a
    Print Density, Mono: 100%
    Max Speed          : 300 mm/sec
    Paper Width        : 80 mm
    Max Power          : Level 1
    Knife              : Enabled
    Partial Cut        : 135 steps
    Paper Low Sensor   : Enabled
    No Paper Low Extension

Comm. Interface
    Interface          : USB
        RX Buffer Size : 4096
        USB Driver Type: Printer Class
    Interface          : RS232
        RX Buffer Size : 4096
        Parameters
        Baud Rate      : 115200
        Data Bits      : 8
        Stop Bit       : 1
        Parity         : NONE
        Flow Control   : DTR/DSR
        Reception Errors : Ignore

    Resident Code Pages : 437, 720, 737, 775, 850
                          852, 857, 858, 860, 862...


        ***To Enter Printer Config Menu***
            Press Feed Button Within the
            Next Two Seconds
```

This printout is useful to a service representative when there is a problem. If the test printout has missing or faded text, refer to Troubleshooting on page 32.

Test procedure

1. To run the test, open the receipt cover (1); then, while holding down the paper feed button (2), close the receipt cover (3).
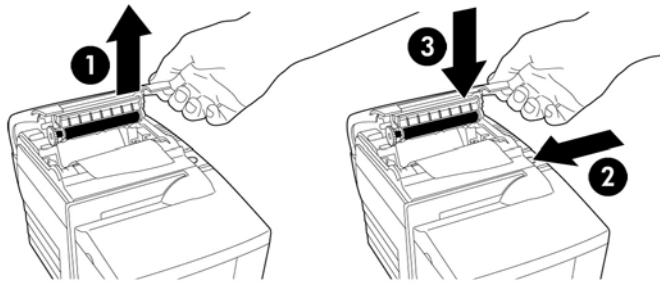
2. When the printer begins printing let go of the paper feed button. The diagnostic printout will print.

3. Review this printout for printer settings. If you want to change any of these settings, go to the configuration menu as instructed at the bottom of the printout.

4. Make selections as instructed on the printout.

IMPORTANT: When changing any of the printer settings, be extremely careful to avoid inadvertently changing other settings that might affect the performance of the printer.

Test printout

Paper type can be changed in the configuration menu. Available paper types and grades are shown in following table.

Paper types and grades	
Type 0	Monochrome grades
Type 4	Two-color grades
Type 5	Two-color grades

Refer to Paper requirements on page 27 for more information.

Printer configurations

Printers are shipped with preset functions and parameters, but you can change these settings manually. The instructions for accessing the menu appear on the bottom of the test printout receipt.

IMPORTANT: When changing any of the printer settings, be extremely careful to avoid inadvertently changing other settings that might affect the performance of the printer.

The following functions and parameters can be changed in the scrolling configuration menu:

● Communication interface

Universal Serial Bus (USB)

● Diagnostic modes

- Normal
    - Data scope
    - Receipt test
    - Slip test
    - MICR test
    - Check flip test
- Emulation/software options
    - Printer emulations
        - A776II native
        - A756 emulation
    - Print ID
    - Receipt options
        - Default lines per inch
        - Carriage return usage
        - Default font
        - Font size
    - Slip options
- Hardware options
    - Print head setting
    - Paper type
    - Color density
    - Print density (mono)
    - Alternate reset feature
    - MICR
    - MICR dual-pass option
- Paper type
- Firmware features
    - Paper selection lockout
    - Beep after knife cut
    - Cash drawer open after knife cut

Configuring the printer

IMPORTANT: When changing any of the printer settings, be extremely careful to avoid inadvertently changing other settings that might affect the performance of the printer.

1. Open the receipt cover. If no paper is in the printer, follow the instructions for loading paper.

2. Turn the printer so the back is facing you.

3. Open the receipt cover. Place the eraser end of a pencil on the reset button and then press down on the button while holding the paper feed button.
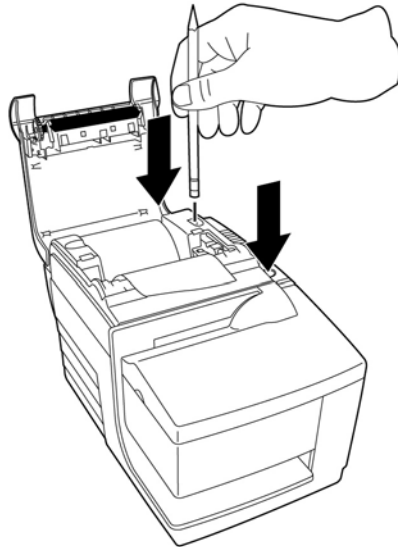
The printer beeps and prints the diagnostic form and the configuration main menu.

The printer pauses and waits for a main menu selection to be made (see the following sample printout).


```
*********  MAIN MENU  **********
*******************************

Select a sub-menu :
  - EXIT                            -> 1 click
  - Print Current Configuration     -> 2 clicks
  - Set Communication Interface     -> 3 clicks
  - Set Diagnostics Modes           -> 4 clicks
  - Set Emulation/Software Options -> 5 clicks
  - Set Hardware Options            -> 6 clicks
  - Set Paper Type                  -> 7 clicks
  - Set Firmware Features           -> 8 clicks


Enter code, then hold Button DOWN
at least 1 second to validate
```

4. Follow the printed instructions on the scrolling menu by pressing the paper feed button as indicated in the following illustration to make selections.
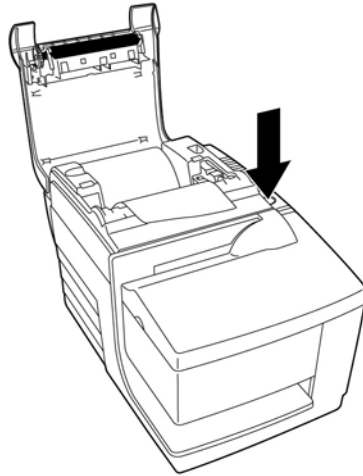
- Indicate **Yes** with a long click. (Press and hold the paper feed button for more than one second.)

- Indicate **No** with a short click. (Press the paper feed button quickly.)

5. Continue through your menu selections until you are prompted, **Save New Parameters?**.

   If you want to save, select **Yes**. Then press the reset button. The printer resets with the new selections. You can verify the setting by pressing the paper feed button to print out a diagnostics form or by holding the paper feed button and opening and closing the receipt cover.

   –or–

   If you want to continue configuring the printer, select **No**. The printer returns to the configuration menu where you can set parameters again.

Changing diagnostic modes

To change the diagnostic modes, enter the configuration menu. Refer to Configuring the printer on page 13 for instructions on how to enter the configuration menu. Select **Set Diagnostic Modes** from the main menu and select one of the following modes:

- **Normal**—Normal operating mode of the printer.

- **Data scope**—The receipt printer prints incoming commands and data in hexadecimal format to help troubleshoot communication problems.

- **Receipt test**—The receipt printer prints two code pages to verify proper printing of the receipt.

- **Slip test**—The slip printer prints two code pages to verify the slip printer is operating properly.

- **MICR test mode**—The receipt printer prints all characters recognized by the check reader to verify that the printer is properly reading a check inserted in the slip.

Enabling or disabling data scope mode

The data scope mode test prints a hexadecimal dump of all data sent to the printer. Hexadecimal code is a base 16 numeric system used in computing, where the letters A through F are used for numbers 10 through 15. Your technical staff can use hex code to troubleshoot communication problems.

You can enable and disable data scope mode by selecting the **Diagnostic Modes** submenu of the configuration menu.

Press the paper feed button as instructed on the **Diagnostic Modes Menu** to enable or disable the data scope mode test.

- Off, normal mode (data scope mode disabled)

- Data scope mode (enabled)

NOTE: Press the paper feed button for at least one second to validate the selection.

To run the data scope mode:

1. After you have enabled the data scope mode, exit the configuration menu.

2. Run a transaction from the POS computer.

All commands and data sent from the POS computer will be printed as hexadecimal characters as shown in the following illustration.

```
10                              :
1B 76                           :    v
1C 12 20 20 20 20 20 20 20 20 20 :
20 20 2A 20 20 43 4F 4E 54 49 4E 55 :   *  CONTINU
4F 55 53 20 52 4F 4C 4C 20 20 2A 20 : OUS ROLL  *
20 20 17 1C 20 20 20 20 20 20 20 20 :
20 20 20 20 20 20 20 20 20 20 20 20 :
20 20 20 20 20 20 51 75 61 6E 74 69 :         Quanti
74 79 20 20 34 35 20 20 20 20 20 20 : ty  45
20 20 20 20 20 20 20 20 20 24 31 36 :              $16
2E 36 35 17 1C 20 20 20 20 20 20 20 : .65
```

To exit the data scope mode:

1. Enter the configuration menu again.

2. Disable the data scope mode.

3. Exit the configuration menu.

The printer is once again online and can communicate normally with the POS computer.

Enabling or disabling receipt test mode

The receipt test mode verifies proper receipt printing. Receipt test is enabled and disabled by selecting the **Diagnostic Modes** sub-menu of the configuration menu. See Configuring the printer on page 13 for instructions on how to enter the configuration menu.

To run the receipt test mode:

1. Enable the receipt test mode in the configuration menu.

2. Exit the configuration menu.

3. Press the paper feed button. The receipt station prints two code pages and cuts the receipt.

4. To repeat this test, press the paper feed button again.

To exit the receipt test mode:

1. Enter the configuration menu again.

2. Disable the receipt test mode.

3. Exit the configuration menu.

The printer is online and can again communicate normally with the POS computer.

Enabling or disabling slip test mode

The slip test mode verifies proper printing on a slip. Slip test is enabled or disabled by selecting the **Diagnostic Modes** sub-menu of the configuration menu. See Configuring the printer on page 13 for instructions on how to enter the configuration menu.

To run the slip test mode:

1. Enable the slip test mode in the configuration menu.

2. Exit the configuration menu.

3. Insert a slip into the slip station.

4. Press the paper feed button. Two code pages will be printed.

5. To repeat this test, perform steps 3 and 4 again.

To exit the slip test mode:

1. Enter the configuration menu again.

2. Disable the slip test mode.

3. Exit the configuration menu.

The printer is online and can again communicate normally with the POS computer.

Enabling and disabling MICR test mode

In the MICR test mode, the check reader reads the characters on a check, but instead of transmitting the values to the software, it prints them out. MICR test is enabled or disabled by selecting the **Diagnostic Modes** sub-menu of the configuration menu. See Configuring the printer on page 13 for instructions on how to enter the configuration menu.

To run the MICR test mode:

1. Enable the MICR test mode through the configuration menu. Then exit the configuration menu.

2. Insert a check into the slip station. (See Verifying and validating checks on page 22.)

3. After the printer detects the check, the platen closes and the characters are read by the check reader. The decoded data is printed as characters on receipt paper. The platen then opens, and the test is restarted.

4. The printed characters should match the characters on the check. If the check reader misreads a character, a question mark **?** is printed. If no characters can be read, **NO MICR CHARACTERS** is printed.

```
MICR Data :
)123456789)12345677(     010925
```

To exit the MICR test mode:

1. Enter the configuration menu again.

2. Disable the MICR test mode.

3. Exit the configuration menu.

The printer returns to normal mode and can again communicate with the POS computer.

Setting the printer emulations and software options

Printer emulations determine what commands are available to the printer. To change the printer emulations settings, select the **Emulations/Software Options** sub-menu of the main menu and answer **Yes** to **Set the Printer Emulations?** printed on the receipt. This takes you to the instructions for setting the printer emulation.

IMPORTANT: When changing any of the printer settings, be extremely careful to avoid inadvertently changing other settings that might affect the performance of the printer.

Press the paper feed button as instructed to select the printer emulation you want.

- Printer emulation

    – A776II native mode

    – A756 emulation

- Printer ID mode

    This function determines the ID value returned by the printer in response to a Transmit printer ID command (1D 49 n). The printer can be configured to send back the ID of the B780 or A721.

- Carriage return usage

    This function allows the printer to use the carriage return (hexadecimal 0D) command as a print command or to ignore it, depending on the application.

NOTE: The A756 emulation does not recognize the ColorPOS® commands.

NOTE: Press the paper feed button for a least one second to validate the selection.

Receipt options

- Default lines per inch

    This function allows you to set the receipt default for lines per inch to any of the following:

    8.13 lines per inch

    7.52 lines per inch

    6.77 lines per inch

    6.00 lines per inch

- Default font

    Sets the default receipt font for monochrome, two-color, and user-defined fonts.

- Font size

    Allows the user to set the font size for the emulation being used.

Slip options

- Slip eject at receipt select

    When enabled, the printer ejects the slip when receipt is selected.

- Delete lead spaces: N Standard Columns

    Sets the print to delete number (N) of leading spaces in the slip format for standard print.

- Delete lead spaces: N Compressed Columns

Sets the printer to delete number (N) of leading spaces in the slip format for compressed print.

- Compressed mode: Disabled/Enabled

  Turns on compressed print for all slip printing.

- Delete trailing spaces: Disabled/Enabled

  Removes all trailing spaces for slip printing.

- Max Lines Rotated: N lines

  Varies the spacing between the rotated print formats to allow printing of more lines. The setting (N) is changeable from 21 to 25 lines.

- A760 Slip Stop: Disabled/Enabled

  Causes the slip form to be printed at the same spot as in the A758 or A760 printer.

Select the hardware options to set

- Print head setting

  This is the print head energy rating. It must match the rating marked on the front right of the thermal mechanism in the printer.

  IMPORTANT: Do not change the print head setting unless the print head is replaced.

  When a new thermal mechanism is installed, be sure this setting matches the indicated energy rating on the mechanism.

- Color density

  The color density setting adjusts the energy level at the print head to change color printing or to adjust to paper variations. The factory setting is 100%.

  IMPORTANT: Choose an energy level no higher than necessary to achieve a dark printout. Failure to observe this caution may result in a printer service call or voiding the printer warranty. Running a high energy level reduces the life of the print head. Consult your HP authorized service provider for HP Point of Sale System products if you have questions.

- Print density (monochrome papers only)

  Adjusts the print head energy level to darken the printout or adjust for paper variations. When the printer prints high-density color print lines (text or graphics), it automatically slows down. The factory setting is 100%.

  IMPORTANT: Choose a print density setting no higher than necessary to achieve acceptable print density. Failure to observe this rule may result in a printer service call and may void the printer warranty. Running at a higher energy level reduces the print head life. Consult your HP authorized service provider for HP Point of Sale System products if you have questions.

- Alternate reset feature

  This feature allows you to reset the printer by opening and closing the front cover instead of using the reset button.

- Paper low sensor

  Allows the user to enable or disable the paper low sensor.

- MICR

Allows the user to enable or disable the check reader.

- MICR dual pass option

  This feature allows the printer to attempt a second reading of the check MICR number, if the first attempt was unsuccessful.

3 Operating the printer

Printing on forms or checks

Several types of transactions may require the insertion of a check or other form into the printer:

- Credit card transactions (requiring a merchant verification or authorization slip)
- Multiple-part forms such as credit transactions or merchandise returns
- Electronic funds transfers
- Electronic checks
- Check printing (printing the date, payee, and amount on the check face)
- Check endorsements

The printer can also print on multipart forms up to four parts thick. Use either the front insertion or drop-in method.

Front-insertion printing method

1. Insert the form or check from the front and place it on the slip table with the print side up. If the form is extra long, you may need to insert it from the side. You may feel a slight resistance when the form contacts the form stop.

2. Slide the form or check to the right (1) until it aligns against the check guide.

3. Slide the form or check toward the top (2) of the printer until the green slip-in light on the top cover turns on. This indicates that both sensors are covered.
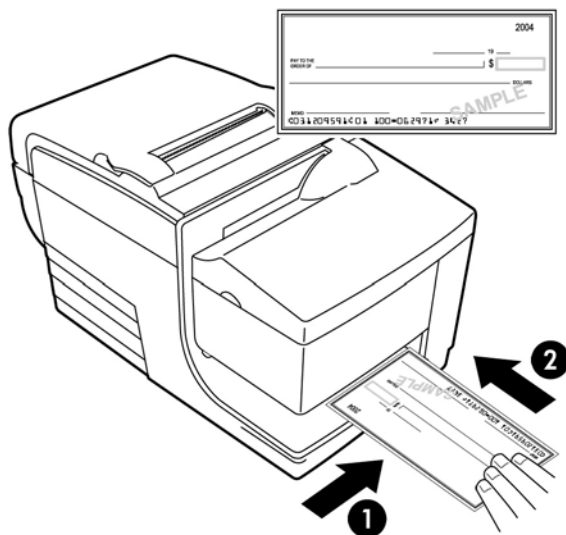
4. Follow the instructions from the POS computer. The printer begins printing.

5. Remove the form or check after it has been ejected.

6. Follow the instructions from the POS computer to finish the transaction.

Drop-in printing method

1. Insert the form or check into the slot from the top or side with the print side toward you. You may feel a slight resistance when the form contacts the form stop.

2. Move the form or check to the right (1) until it is aligned against the right edge of the slot.

3. Slide the form or check downward (2) until the green slip-in light on the top cover turns on. This indicates that both sensors are covered.
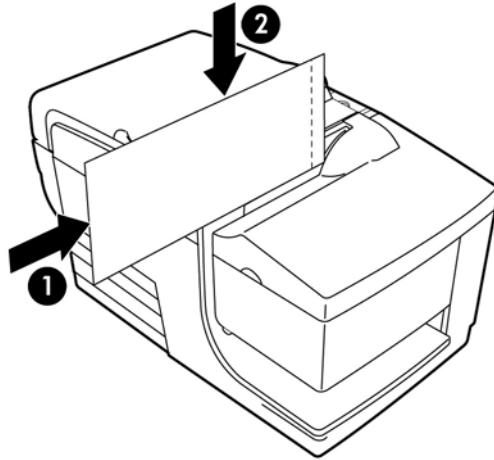
4. Follow the instructions from the POS computer. The printer begins printing.

5. Remove the form or check after it has been fed back out.

6. Follow the instructions from the POS computer to finish the transaction.

Inserting multipart forms

Be sure to insert multipart forms glued-edge-first as shown in the following illustrations, whether inserting the form from the front, top, or side.

IMPORTANT: Failure to insert multipart forms properly can result in costly paper jams and damage to the form.

Front-insertion printing - glued edge leading:
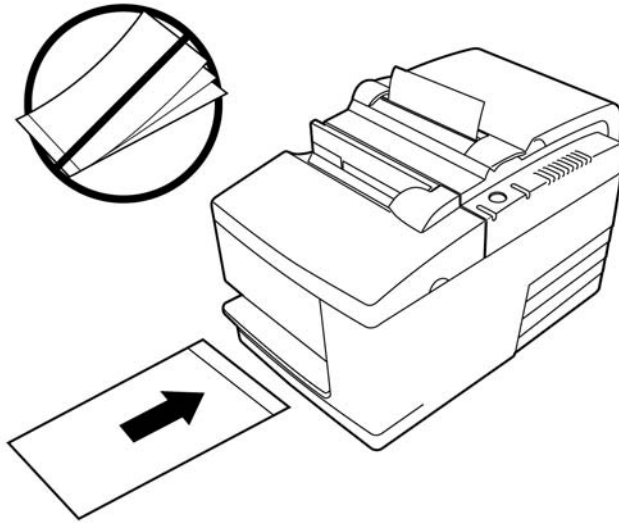
Top or side slip-in printing - no perforation holes to right side:
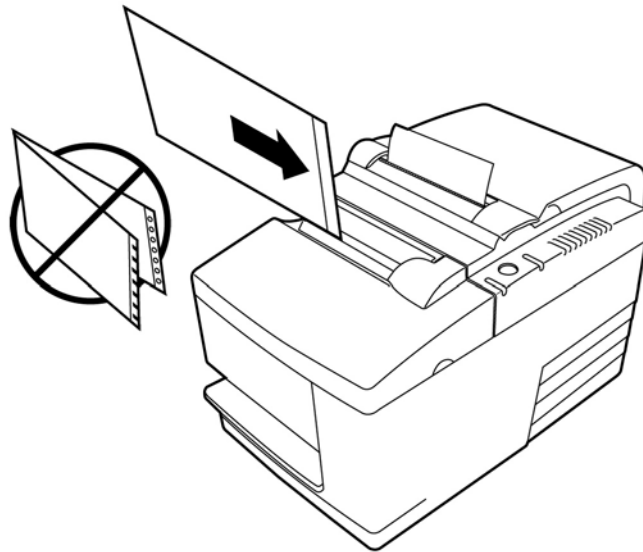
Verifying and validating checks

The printer's MICR check reader enables check verification and validation by inserting the check in either the front or top of the printer.

NOTE: To make sure that the printer properly verifies and validates a check, make sure that you smooth out any folds and wrinkles and insert the check correctly into the MICR printer.

Inserting a check

1. Place the check face down on the slip table, with the bottom edge of the check to the right (1). Move the check to the right so it aligns along the check guide.

2. Slide the check straight forward (2) into the printer until the green slip-in light on the top right edge of the printer comes on, indicating both sensors are covered.

NOTE: Hold the check to the right, against the check guide, and release it as soon as the printer begins to run. Do not fold the check.
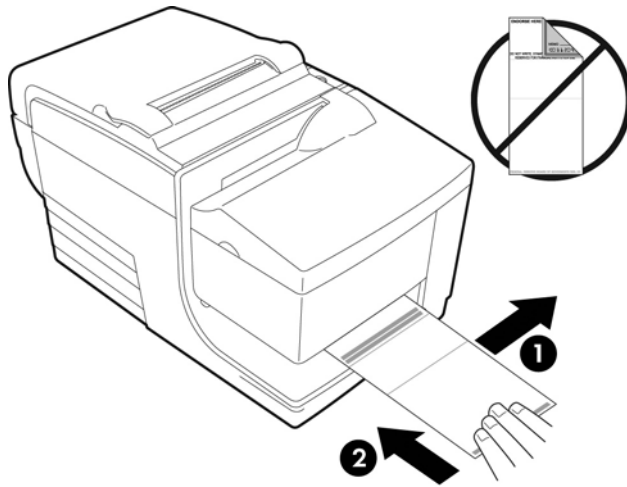
3. Follow the instructions on the POS computer to complete the MICR process.

   The computer tells the printer to feed the check into the printer, read it, and then back it out again.

   If the terminal indicates an incorrect MICR read:

   ● Remove the check.

   ● Reinsert the check following steps 1, 2, and 3 above.

4. Remove the check only when it is fully released by the printer.

5. Continue to follow the instructions from the POS computer to finish the transaction.

Avoiding printer problems

Preventing print head overheating

Overheating of the thermal print head is one of the most common causes of printer problems. To avoid overheating, do one or more of the following:

1. Reduce the amount of solid coverage when printing receipts.

2. Reduce the time of continuous printing, or the "duty cycle." The duty cycle is the percentage of time that the printer can be actively printing in any sixty-second period of time. The duty cycle will vary for your printer depending on the temperature of the room where you have set it up and the amount of print coverage, and it is expressed as a percentage in the table below. For example, if the duty cycle is 50 percent, it means that the printer should only print for 30 seconds out of every minute. If the duty cycle is 25 percent, the printer should print for 15 seconds and then be idle for another 45 seconds.

3. Reduce the temperature of the room where you put the printer. Keep in mind that the temperature may also be affected if the printer is exposed to direct sunlight, or near a space heater, heat lamp, or other heat source.

IMPORTANT: If the duty cycle exceeds the limits shown in the table below, the receipt print head will heat up and shut down. This may damage the print head.

Allowable duty cycle (measured over one minute of continuous printing)

Amount of solid coverage	Ambient temperature		
	25℃ (77°F)	35℃ (95°F)	50℃ (122°F)
20%	100%	50%	20%
40%	50%	25%	10%
100%	20%	10%	4%

For reference:

- A typical receipt with text (contains some blank spaces) is approximately 12% dot coverage.

- A full line of text characters (every cell on the line has a character in it) is approximately 25% dot coverage.

- Graphics are approximately 40% dot coverage.

- Barcodes are approximately 50% dot coverage.

- A solid black line is 100% dot coverage.

- "Duty cycle " is the percentage of time that the specified "Amount of solid coverage" can be printed during a one minute period of time. Example: at 20% solid coverage and 35℃ (95°F) temperature, a 50% duty cycle is to be used, resulting in 30 seconds of printing and 30 seconds without printing.

Avoiding harsh environments

The printer is a durable piece of equipment and can withstand a range of physical environments. However, the printer's internal mechanical components are vulnerable to dust and airborne chemicals, particularly in places like home improvement stores, garden shops, and warehouses. In these kinds of environments you will need to make sure that your printer is cleaned regularly so that it keeps working properly. HP recommends regular periodic inspection and general cleaning of the MICR read head, sensors, carriage shaft, and both printer mechanisms.

Paper

IMPORTANT: Use of paper that is not approved for the printer can damage the printer and void all warranties. See Paper requirements on page 27 for more information.

MICR heads

IMPORTANT: Make sure you don't insert a check into a printer with a paperclip or staple attached.

Cleaning the printer

Cleaning the printer cabinet

Clean the outside cabinet as needed, using any household cleaner made for plastics. You may want to test a small unseen area first. Wipe the paper compartment with a clean, damp cloth. The cabinet materials and finish are durable and can tolerate cleaning solutions, lubricants, fuels, cooking oils, and ultraviolet light.

Cleaning the thermal print head

CAUTION: Don't touch the thermal print head, as this can cause burns.

IMPORTANT: Do not attempt to clean the inside of the printer with any spray cleaner. Do not try to clean the thermal print head (except as recommended) or allow any spray to come in contact with it. This may damage the internal electronics or thermal print head. If the print head appears dirty, wipe it with isopropyl (rubbing) alcohol on a cotton swab or alcohol pen. Do not use the rubbing alcohol to clean any other parts of the printer because it may cause damage to the printer.

NOTE: The thermal print head does not normally require cleaning when recommended paper grades are used. If nonrecommended paper is used over an extended period, attempting to clean the print head will have little effect on the print quality and could cause jamming and other damage to the printer, voiding the warranty.

If spotty or light printing problems persist after cleaning the thermal print head, the thermal print mechanism may need to be replaced.

Cleaning out paper dust

HP recommends that you remove paper dust from your printer approximately every six months, using canned air or some other kind of fan to blow the dust out of the printer.

Cleaning the MICR

HP recommends that you clean the contact image sensor approximately every six months, using a cotton swab and rubbing alcohol.

Clearing paper jams

Clearing a receipt paper jam

To clear a receipt paper jam:

1. There is a lip on each side of the receipt cover, near where the receipt emerges. Using one finger from each hand, firmly raise the receipt cover.

2. Draw the crumpled portion of the paper out of the printer until the smooth portion extends a few inches over the cabinet front.

3. When there is paper jammed into the roller in the receipt cover, draw the paper out from the roller.

   NOTE: The paper must unroll from the bottom of the roll to ensure that the image prints.

4. While holding the smooth paper over the front of the cabinet, firmly press the receipt cover closed.

5. Remove the excess paper by tearing it against the tear-off blade.

6. Press the paper feed button to advance the paper, if necessary.

7. Run a diagnostics test to assure the printer is communicating with the POS computer.

Clearing a paper jam in the slip path

To clear a paper jam in the slip path:

1. Open the front cover by grasping the cover on each side near the top and swinging the cover up and towards you.

2. Grasp the jammed paper and draw it out.

3. Close the receipt cover.

4. Close the front cover.

4   Paper requirements

Thermal paper

The printer requires qualified paper with the following dimensions:

- Width: 80 ± 5 mm (3.15 ± 0.2 in)
- Diameter: 83 mm (3.27 in) max
- Length: 98 meters (321 feet)
- Thickness: 2.4 mil

The paper must not be attached at the core. Use paper with a colored stripe at the end to indicate that the paper is running low.

The above lengths are based on a core diameter of 22 ± 0.5 mm (0.87 in) outside, 11.5 ± 0.5 mm (0.45 in) inside.

Manufacturers

Contact the converter of your choice to order paper. HP recommends the following paper grades produced by their respective manufacturers. There are a number of paper converters qualified to provide this paper, provided the POS rolls are from these recommended grades.

NOTE: When changing paper type, you need to set the printer to that paper type by sending the **Set paper type** command (1D 81 m n) or by changing the paper type setting in the configuration menu.

To order paper rolls, contact your converter of choice.

Monochrome (black ink) paper

Qualified manufacturer	Paper grade
Appvion, Inc. (USA)	Alpha 400-2.3 (was T1030)
825 E. Wisconsin Avenue	Alpha 800-2.4 (was T1012A)
Appleton, WI 54912	POS-Plus 600-2.4
Voice: (800) 922–1729	Alpha 900-3.4 (was Superior)
Fax: (800) 922–1712	All current Appvion papers are BPA-free
http://www.appvion.com	
Jujo Thermal LTD.	AF50KS–E3
P.O. Box 92 FI–27501	AP62KS–E3
Kauttua, Finland	
Voice: 358 (0) 10 303 200	
Fax: 358 (0) 10 303 2419	
http://www.jujothermal.com/	
Kanzaki Specialty Papers (USA)	P30023 (was P–300)

Qualified manufacturer	Paper grade
20 Cummings St. Ware, MA 01082–2002 Voice: (888) 526–9254 Fax: (413) 731–8864 http://www.kanzakiusa.com/	P31023 (was P–310) P35024 (was P–350) P35032 (was P–354) P39023 (BPA free, was P–390) P30521 (BPA free) P30523 (BPA free) P31523 (BPA free) P35532 (BPA free)
Koehler UK Ltd. (Great Britain) 2 White Oak Square London Road Swanley, Kent BR8 7AG, U.K. http://www.koehlerpaper.com/en/ Voice: (44) 1322 661010 Fax: (44) 1322 614656 –or– Koehler AG Hauptstr. 2-4 D-77704 Oberkirch, Germany Voice: (49) 7802 81-0 Fax: (49) 7802 81-4330	KT55-F20 (WN-T55)
Mitsubishi Int'l Corp (USA) 655 Third Ave. New York, New York 10017 Voice: (212) 605–2000 Fax: (212) 605–2597 http://www.mitsubishicorp.com/us/en/	P–5035 T–8051 TP–8065 PP-5051
OJI Paper Company Ltd. Ginza 4-chome Tokyo 104, Japan Voice: (81)3–3563-1111 Fax: (81)3–3563-1135 http://www.ojispecialtypaper.com.cn/en/product.htm	KF–60 PD–170R PD–160R
Thermal Solutions Intl, Inc. 6740 Broadview Ave, Suite D Jacksonville, FL 32254 Voice: (800) 479-6070, (904) 860-1966	19018RDT Features: 30% post-consumer waste, recycled/BPA free

Qualified manufacturer	Paper grade
Fax: (904) 646-4530	
http://thermalsolutionsinternational.com	

Two-color paper

Qualified manufacturer	Paper grade
Mitsubishi Int'l Corp. (USA)	PB–770 (Blue and Black)
655 Third Ave.	
New York, New York 10017	
Voice: (212) 605–2000	
Fax: (212) 605–2597	
http://www.mitsubishicorp.com/us/en/	

Forms specifications

The printer prints on single-ply or multiple-part forms in the slip station (up to four-part forms). Forms and slips must meet the following requirements:

- Front insertion (minimum)

    51 mm (2.00 in) wide

    68 mm (2.68 in) long

- Side insertion (minimum)

    51 mm (2.0 in) wide

    203 mm (8.0 in) long

- Single-ply forms should be on paper that is greater than 15 pounds.

- Multiple-part forms (up to four-part forms) should be no thicker than 0.40 mm (0.014 in) and a minimum thickness of 0.08 mm (0.003 in).

  NOTE: Do not use forms containing holes along the top or right edge.

- Forms for use with flip check (minimum)

    70 mm (2.75 in) wide

    152 mm (6.00 in) long

- The slip form should be flat and without curls or wrinkles, especially at the top.

- Considerations for glued edges on slip paper:

    - No glue on bottom edge.

    - Right or top edge: Paper feeding and insertion are affected by gluing method, length of edge, and quality of glue used.

    - Left edge or wide slip paper: skewing may occur.

The slip sensors that activate the slip-in light use a reflective photo sensor.

- Do not use paper that has holes or dark areas with low reflection (less than 60% reflection) at the slip sensor location. (Area "2" in the following illustration.)

- Thin paper should be used between the top and bottom sheets of multiply paper. Thick paper reduces the copy capability.

- For best print quality on the bottom sheets of multipart forms, use the double-strike mode.

- If any ply in a multipart form exceeds .003 inches in thickness, the remaining plies may be unreadable.
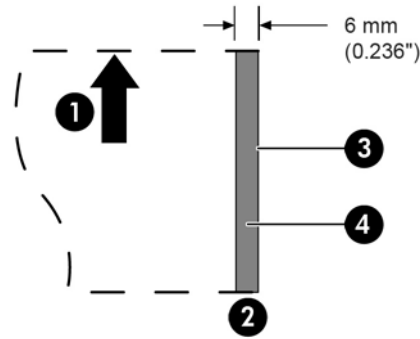
Inserting slip forms

1	Paper feed direction
2	Slip sensor location
3	Slip edge
4	Paper holes and low reflection prohibited areas

Check specifications

Check specifications for paper are defined by American Standards ANSI X9.13 and ANSI X9.18, and International Standard ISO 1004.

- Minimum check size: 70 mm (2.75 in) wide x 152 mm (6.00 in) long

- Maximum check size: 95 mm (3.75 in) wide x 222 mm (8.75 in) long

MICR reader – additional information

- For best results the check should be flat and free of curls, folds, or wrinkles (especially at the edges). Wrinkled checks may rub against the ribbon, causing them to become ink-stained.

- Checks must be void of clips or staples that could cause paper jams, MICR read errors, and/or MICR head damage.

- Immediately release the check once the printer starts to feed it. Failure to release the check could skew it, causing paper jams and MICR read errors.

Ordering ribbon cassettes

To order ribbon cassettes, contact your sales representative.

IMPORTANT: Use of other than an approved ribbon cassette can void all warranties and cause damage from jamming and other ribbon problems.

The printer uses the following TPG brand or comparable ribbon cassettes:

A152–0041 (purple long-life ribbon cassette—5 million character life) – Qty. 6

A152–0042 (black long-life ribbon cassette—5 million character life) – Qty. 6

A152-0043 (purple long-life ribbon cassette—7 million character life) – Qty. 6

A   Troubleshooting

Because of the design of the printer, it requires virtually no periodic servicing. However, if problems do occur, they can usually be diagnosed readily by checking the light status indicators, below, then referring to appropriate sections in this appendix.

Status indicators

The online paper status error light is the light to the rear, on the top edge of the printer. It may be the first indication that something is wrong.

The light closer to the front on the right edge of the printer indicates that a form is inserted properly. It does not indicate an error.

For some unexpected conditions, the printer communicates the information to the POS computer and relies on the application to tell the user that the printer has a problem.

Online light indications	Printer status
Off	No power
Fast blink	Firmware download
Fast blink	Level 0 diagnostics (occurs at power on and on reset)
Fast blink	Cover open (receipt or slip)
	Paper out
	Carriage jam
	Slip jam
	Knife jam
Slow blink	Paper low
	Temperature error
	Voltage error

The information on the following pages describes common conditions that you could encounter and easily fix yourself. A few may require that you contact a regional HP authorized service provider for HP Point of Sale System products. You should be able to correct many of the conditions locally without calling for service. However, if a condition persists, contact your regional HP authorized service provider.

Typical remedy procedure

If an unexpected condition has occurred, take the following general steps:

1. Cycle the power of the printer and note its behavior.

2. Check the online paper status error light and compare the indications to the table above.

3. Test the receipt printer or slip printer by performing a sample test print. See <u>Testing the printer on page 10</u>.

4. Determine if the condition is with the thermal receipt printer or the impact slip printer and refer to the troubleshooting tables on the following pages.

Solving common problems

The following tables list possible problems, the possible cause of each problem, and the recommended solutions.

Printer beeps

Problem	Possible cause	Solution
Printer beeps in a single, double, or triple pattern at first power on. The online paper status error light blinks in the same pattern, and the printer won't power up.	The printer has problems with its electronics.	Contact a regional HP authorized service provider for HP Point of Sale System products.
Printer beeps during normal operation.	The printer may be programmed to beep during normal operation by the software application used on the POS computer.	Consult your application software manual.

Printer will not print

Problem	Possible cause	Solution
The online paper status error light blinks and the printer won't print.	The receipt paper may be out, the cover open, the knife jammed, the supply voltage is out of range, or the print head temperature is out of range.	Check that the receipt paper is properly loaded and the covers are closed. Refer to the status indicators table at the beginning of this appendix. If problem continues, contact your regional HP authorized service provider for HP Point of Sale System products.
Printer has no power (light not on).	Power supply may be defective.	If the power supply is plugged in but does not come on, you need to order a new power supply. Contact a service representative.
Printer has power but doesn't print properly.	Cable may not be connected properly.	Check all cable connections. Check that the host computer and power supply are both on (the power supply is turned on by plugging it into a live outlet). Look for the green power light to show that the printer has power.
	Solutions to other causes do not solve the problem.	Contact your regional HP authorized service provider for HP Point of Sale System products.

Online paper status error light flashes

Problem	Possible cause	Solution
Online paper status error light is blinking.	Receipt paper has run out.	Replace the paper immediately. Do not try to complete a transaction without paper, or you may lose data.

Online paper status error light flashes

Problem	Possible cause	Solution
	Receipt or front cover is open.	Close the receipt cover or front cover. The printer will not operate with any of the covers open.
	The knife is jammed.	Open the receipt cover and check the knife. Do not force the cover if it will not open. Clean any jammed paper you can see. Tear off any excess paper against the tear-off blade.
	The slip is jammed.	Open the front cover and clear paper from the path.
	The carriage is jammed.	Open the front cover and clear paper from the path.
	Receipt paper is low.	The printer has 5 to 10 meters (15 to 30 feet) of paper left. Change the paper soon to avoid running out of paper part way through the transaction. Refer to Installing new receipt paper on page 5.
	Thermal print head temperature is out of range.	The print head may overheat when printing in a room where the temperature is above the recommended operating temperature or when printing high-density graphics continuously, regardless of the room temperature. In either case, the printer will shut off. If the temperature of the print head is too hot, adjust the room temperature or move the printer to a cooler location. If the print head is overheating because of printing high density graphics continuously, reduce the demand on the printer.
	DC supply voltage is out of range.	If paper is not low and no conditions indicate that the thermal print head is too hot, the power supply voltage is out of range. Contact your regional HP authorized service provider for HP Point of Sale System products.

Slip-in light does not come on

Problem	Possible cause	Solution
Light does not turn on.	No check or form is inserted into printer. Check or form is incorrectly inserted.	Be sure that the check or form is aligned properly. Refer to Printing on forms or checks on page 20.

Check print quality poor

Problem	Possible cause	Solution
Printer starts to print but stops while the form is being printed.	Communication error or software error.	Check the interface cable. Check that the software is working properly.

Check print quality poor

Problem	Possible cause	Solution
Forms print is light or spotty.	Form is not inserted correctly.	Refer to Printing on forms or checks on page 20.
	Impact print head is dirty or defective.	Contact a regional HP authorized service provider for HP Point of Sale System products.
	Improper platen gap.	Contact a regional HP authorized service provider for HP Point of Sale System products.
	Ribbon cassette is defective.	Replace the cassette ribbon. Refer to Removing and installing a ribbon cassette on page 7.
Ribbon cassette is worn.	Ribbon cassette needs to be replaced.	Replace the cassette ribbon. Refer to Removing and installing a ribbon cassette on page 7.
Print is light or smudged, or slip skews.	Platen gap needs adjustment.	Contact a regional HP authorized service provider for HP Point of Sale System products.

Receipt print quality poor

Problem	Possible cause	Solution
Colored stripe on receipt.	Paper is low.	Change the paper.
Receipt does not come out all the way.	Paper is jammed.	Open the receipt cover, inspect the knife, and clear any jammed paper.
Printer starts to print, but stops.	Paper is jammed while the receipt is being printed.	Open the receipt cover, inspect the knife, and clear any jammed paper.
Print is light or spotty.	Paper roll is loaded incorrectly.	Confirm that the paper is loaded properly.
	Thermal print head is dirty.	Use recommended thermal receipt paper. Clean the thermal print head with an alcohol pen prior to going back to an approved paper.
		Do not spray the thermal print head with household cleaner; this may damage the print head and the electronics. The thermal print head does not normally require cleaning if the recommended paper grades are used. If you have used nonrecommended paper for an extended period of time, cleaning the print head with an alcohol pen will not help.
	Print head is defective.	Contact a regional HP authorized service provider for HP Point of Sale System products.
Color print is light.	Various paper types are being used.	Increase the energy level of the print head in "Color Density Adj" of the printer configuration menu. See Configuring the printer on page 13.

Receipt print quality poor

Problem	Possible cause	Solution
	Paper setting is incorrect.	Check diagnostics setting.
Printer will not perform two-color printing.	Paper type used and paper type setting do not match.	Print diagnostic form and verify paper type setting to type 0, 1, 4, or 5. Refer to Configuring the printer on page 13 and paper types specified in Paper requirements on page 27.
Vertical column of print is missing, one side of receipt is missing, or top or bottom half of characters are missing.	Print head is defective.	Contact a regional HP authorized service provider for HP Point of Sale System products.
	Print head setting is incorrect.	Check diagnostics setting.

Slip station and MICR problems

Problem	Possible cause	Solution
Slip-in light does not come on.	Form or check is not inserted properly.	Line up the form or check against the check guide (wall) and slide it toward the front of the printer until it is visible from the top (the light should come on). Extra-long forms may need to be inserted from the side to disengage the Form Stop. Refer to Printing on forms or checks on page 20 or Verifying and validating checks on page 22.
Forms or checks skew or catch in the slip station.	There is an obstruction or paper jam in the slip station.	Open the front cover and check for paper jams or other obstruction in the slip station. Clear the jammed paper or obstruction.
The MICR check reader does not read or misreads checks.	The check is not properly inserted.	Make sure the check is inserted properly with the MICR characters down. Refer to Verifying and validating checks on page 22.
	The check is fraudulent.	Make sure that the check is not fraudulent. On fraudulent checks, the characters the printer reads may be different from those that are visible on the check face.
	A nearby magnetic source is interfering with the check reader.	Devices such as computer monitors, security devices, or large metal surfaces near the printer can affect the printer's magnetic field, causing intermittent errors when the MICR check reader is operating. Move the printer away from such items.

Knife

Problem	Possible cause	Solution
Receipt is not cut.	Paper is jammed.	Open the receipt cover, inspect the knife, and clear any jammed paper.
All other problems.	Unknown cause.	Contact a regional HP authorized service provider for HP Point of Sale System products.

Other conditions

The following problems all need to be corrected by a regional HP authorized service provider for HP Point of Sale System products.

- MICR check reader not operating properly
- Forms not feeding into the slip/forms area properly
- Missing dots in slip or forms printing
- Printer will not cycle or stop when required
- Illegible characters
- Paper will not feed
- Knife will not cycle or cut
- Platen will not open or close
- Printer will not communicate with the POS computer

Contacting support

To resolve a hardware or software problem, go to http://www.hp.com/support. Use this site to get more information about your product, including links to discussion forums and instructions on troubleshooting. You can also find information on how to contact HP and open a support case.

Preparing to call technical support

If you cannot solve a problem, you may need to call technical support. Have the following information available when you call:

- Printer model number and serial number
- If the product is connected to an HP POS computer, provide the serial number of the POS computer
- Purchase date on invoice
- The spare part number located on the product
- Condition under which the problem occurred
- Error messages received
- Hardware configuration
- Name and version of the hardware and software you are using

B Technical specifications

HP Hybrid Printer II

Printer specifications	
Receipt station	
Print method	Direct thermal, 203 DPI
Character cell size	13 x 24, 10 x 24 (compressed)
Other font options	Tall: 13 x 27, 10 x 27 (compressed)
	Color: 13 x 27, 10 x 27 (compressed)
	Paper-saving: 13 x 18, 10 x 18 (compressed)
CPI	15.6, 20.3
Print columns	44 & 56
Print line width	72 mm/2.8 in
Printing speed	Monochrome 89.0 LPS (300 mm/sec)
	Color 40.0 LPS (150 mm/sec)
Character sets	437, 720 (receipt station only), 737, 775, 850, 852, 857, 858 (with Eurosymbol), 860, 862, 863, 864 (receipt station only), 865, 866, 874 (receipt station only), 1250, 1251, 1252 (with Indian rupee), 1254, 1255, 1256 (receipt station only), 1257, 28591, 28592, 28594, 28596 (receipt station only), 28599, 28605, Katakana (receipt station only), and KZ_1048 (Kazakh)
Downloadable fonts	932 (receipt station only), 949 (receipt station only), 936 (receipt station only), and 950 (receipt station only)
Bar codes	UPC-A, UPC-E, Code 39, Code 93, Code 128, Code 128 extended, JAN8 and JAN13 (EAN), Interleaved 2 of 5, Codabar, EAN 128, GS1 Databar (receipt station only), PDF 417 (receipt station only), QR Code (receipt station only), and Datamatrix (receipt station only)
Auto cutter	Partial cut
Slip station	
Print method	9-pin impact
Character cell size	7 x 7, 12 x 7, 5 x 9
CPI	13.9 & 16.8
Print columns	42 & 51
Print line width	76.8 mm/3.02 in
Printing speed	4.8 LPS (16 mm/sec)
MICR reader	
Character sets/fonts	E-13B and CMC-7, auto discriminate (integrated in slip station)

Printer specifications

Check read rate	99% minimum
Parsing formats	E-13B only. Programmable to any format

Dimensions and weight

Height	167.64 mm/6.6 in
Width	165.10 mm/6.5 in
Depth	289.56 mm/11.4 in
Weight	Approximately 3.62 kg/8 lbs

Interface	Powered USB

Power requirements	24 VDC, 2.5 Amps

Software and firmware capability

Emulations available	Application Compatible Escape Commands (ACEC), CognitiveTPG A756, ColorPOS®, Receiptware ready
Data buffer	8 K
User memory	8 MB
	Shared for graphics, logos, user defined characters, user data storage, and electronic journal
Communication	Board architecture supports powered USB
Printer drivers	OPOS for Windows, Java POS for Windows & Linux, Windows Mini Drivers for Windows

Thermal paper requirements

Paper type	Direct thermal, POS grade(s), special requirements for color printing
Paper roll (W x D)	80 mm x 83 mm/3.15 in x 3.27 in

Impact slip forms

Size	69.85 mm x 127.00 mm /2.75 in x 5.00 in minimum front & side
Maximum length	279.4 mm/11.00 in
Number of plies	One-to-four–ply multipart
Paper thickness	0.35 mm/0.014 in maximum

Miscellaneous

Energy savings	Option to configure printer to enter low-power (1 watt) idle state if no data is received after user-specified number of minutes
Printer reliability	Thermal print mechanism: 242 KM paper (72 M lines) monochrome and two-color (64.5 M lines)
	Auto knife cutter: 2 M cuts
	Impact print mechanism: 15 M lines
	Impact print head: 200 M characters
	MICR reader: 200,000 reads