NOTE: Select the tray you want to configure.

- Paper Type
- Select Intermediate 85–95g

- **M506 and M527**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).

  - Open the following menus:
    - Trays
    - Tray
    - Modify
    - Next
    - Select Intermediate 85–95g

- Try using a smoother paper.

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

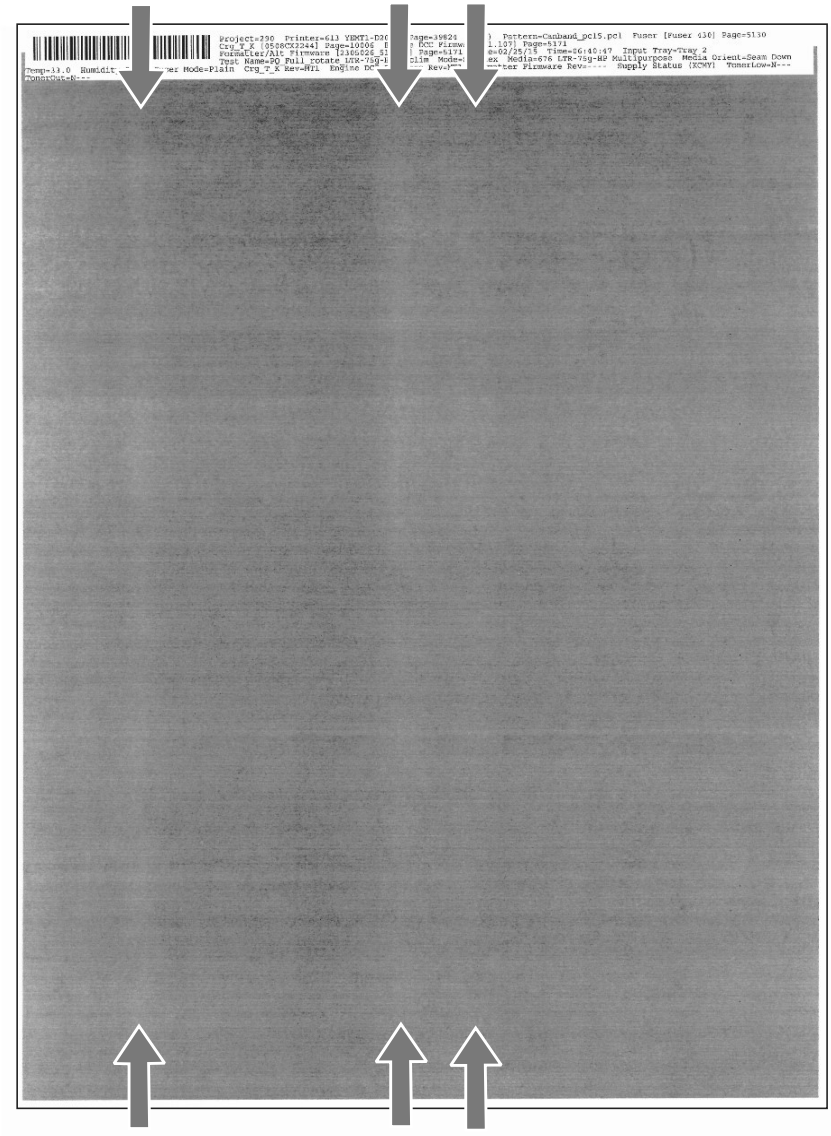
- Media
- Toner cartridge
- Fuser

Streaks

- Vertical streaks - high temperature/humidity

Vertical streaks - high temperature/humidity

Figure 2-97 Vertical streaks - high temperature/humidity



Description of the defect

Light streaks can appear and they usually span the length of the page. This problem is caused by toner clumping at the developer blade which reduces the amount of toner available for transfer at that page location. There is a stirring shaft inside the toner cartridge to reduce the severity of this defect. This defect appears in areas of fill, not in text.

Conditions that can cause the defect

This defect primarily occurs in high temperature and high humidity environments.

Solutions for the defect

- Resend the print job.
- If the defect does not improve within two to three print jobs, remove the toner cartridge and gently rock it back and forth from side to side (this distributes the toner evenly in the toner cartridge).
- If the toner cartridge has reached the **Very Low** state, replace it.
- If the defect persists, replace the toner cartridge.

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

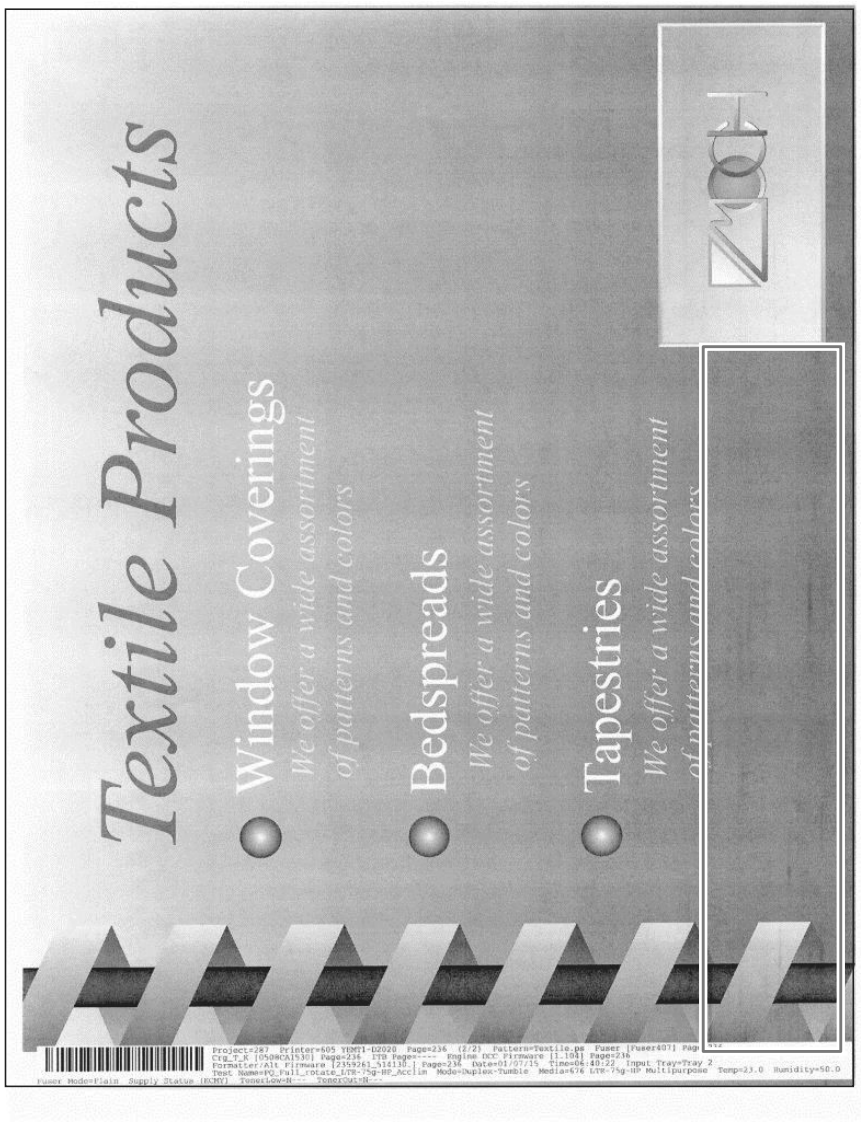
- Toner cartridge

Banding

- Dark streaks (early in toner cartridge life)
- Fine-pitch banding
- Wide-pitch banding 27.8 mm 1.09 in
- AC banding 4.6 mm 0.18 in
- OPC sharp bands at 75mm 2.95 in pitch (version 1)
- OPC sharp bands at 75 mm 2.95 in pitch (version 2)
- Impulse band 49-50 mm 1.92-1.96 in from the leading edge
- Impulse band 75-82 mm 2.95-3.22 in from the trailing edge
- Impulse band 102 mm 4.01 in from the trailing edge

Dark streaks (early in toner cartridge life)

Figure 2-98 Dark streaks (early in toner cartridge life)



Description of the defect

Smeared dark streaks come and go down the page, and are more common at the right and left edges of the page. This issue is caused by grease from toner cartridge stirring system contaminating the supply hopper which then causes the toner to cluster and results in dark streaks on the page. Countermeasures include optimizing grease: amount, position, and stickiness. This defect appears in areas of fill, not in text.

Conditions that can cause the defect

This defect occurs when using a new toner cartridge and usually decreases over toner cartridge life.

Solutions for the defect

- Resend the print job.
- If the defect does not improve within two to three print jobs, remove the toner cartridge and gently rock it back and forth from side to side (this distributes the toner evenly in the toner cartridge).
- If the defect persists, replace the toner cartridge.

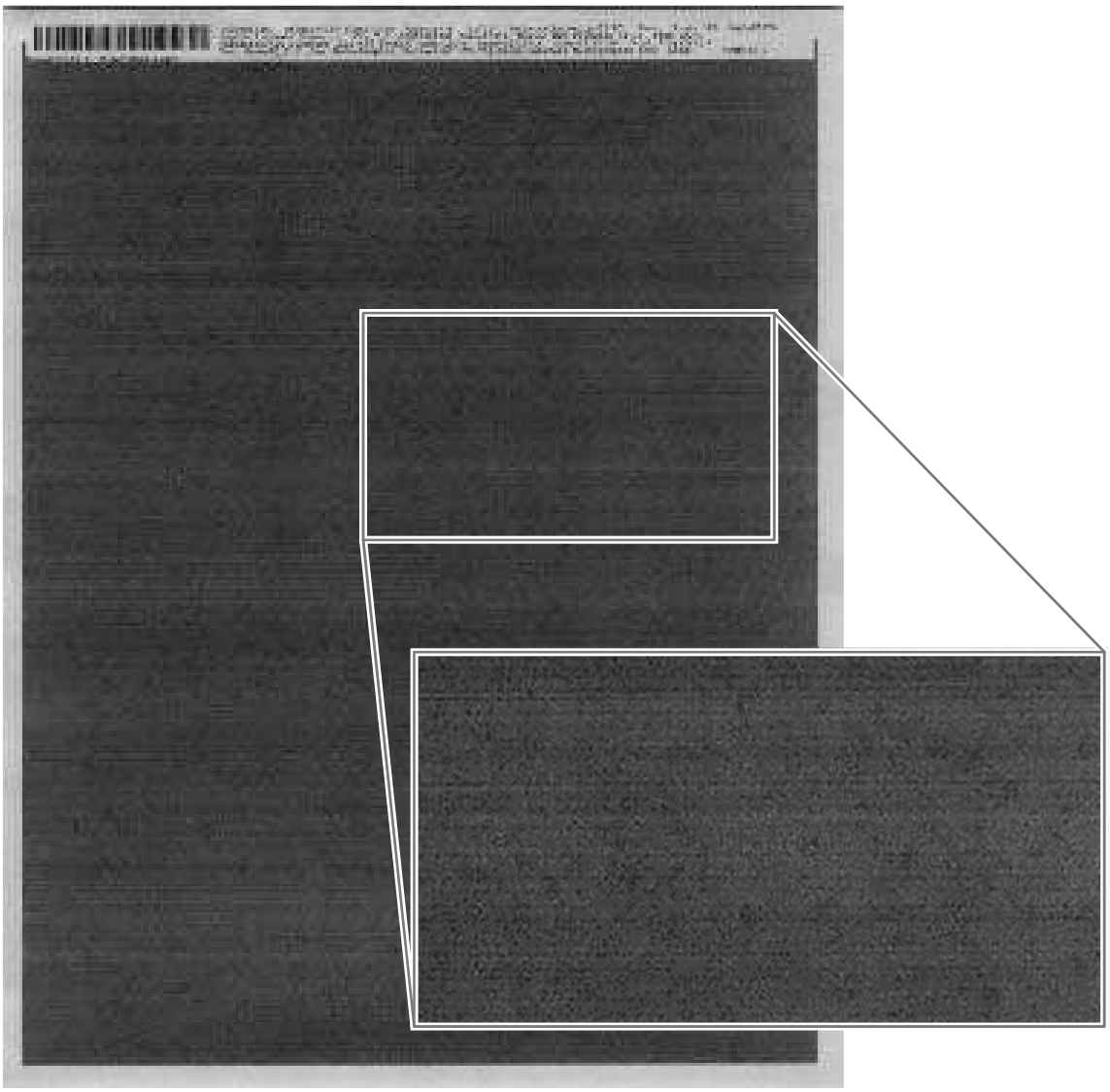
Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

Fine-pitch banding

Figure 2-99 Fine-pitch banding



Description of the defect

This defect appears as alternating light and dark (evenly spaced) repetitive horizontal lines. The 0.93 mm (0.03 in) fine-pitch banding is caused by the main drive motor gear tooth engagement. This defect appears in areas of fill, not in text.

Conditions that can cause the defect

The alignment of the motor gear and drum drive gear is the important factor for this banding and specifically the accuracy of the motor installed surface and accuracy of the bearing shaft position at the both sides of the drum drive gear shaft.

Solutions for the defect

- Try using a smoother paper.
- **M501**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Setup
    - System Setup
    - Paper Setup
    - Tray <X>

      NOTE: Select the tray you want to configure.
    - Paper Type
    - Select Intermediate 85–95g
- **M506 and M527**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Trays
    - Tray
    - Modify
    - Next
    - Select Intermediate 85–95g

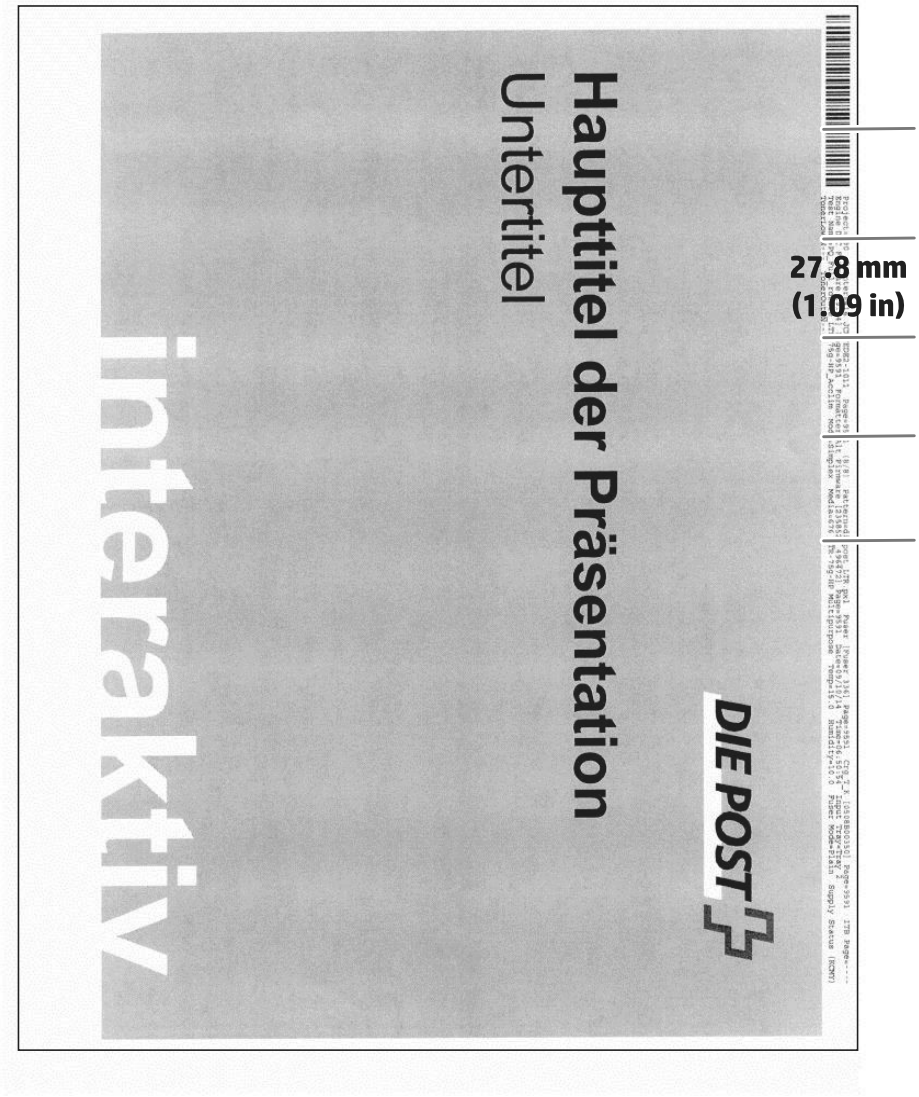
Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge
- Printer engine (whole unit replacement)

Wide-pitch banding 27.8 mm (1.09 in)

Figure 2-100 Wide-pitch banding



Description of the defect

This defect appears as soft, gradual bands can be seen over a constant density area. It appears as slight gradients which repeat at approximately a 27.8 mm (1.09 in) pitch. This defect appears in areas of fill, not in text.

Conditions that can cause the defect

This defect is a density variation which appears on the PQ due to the gap variation between the OPC and the developer sleeve. This gap varies due to the accuracy of the OPC, developer sleeve, and the spacer placed between the OPC and the developer sleeve.

Solutions for the defect

- Resend the print job.
- If the defect persists, replace the toner cartridge.

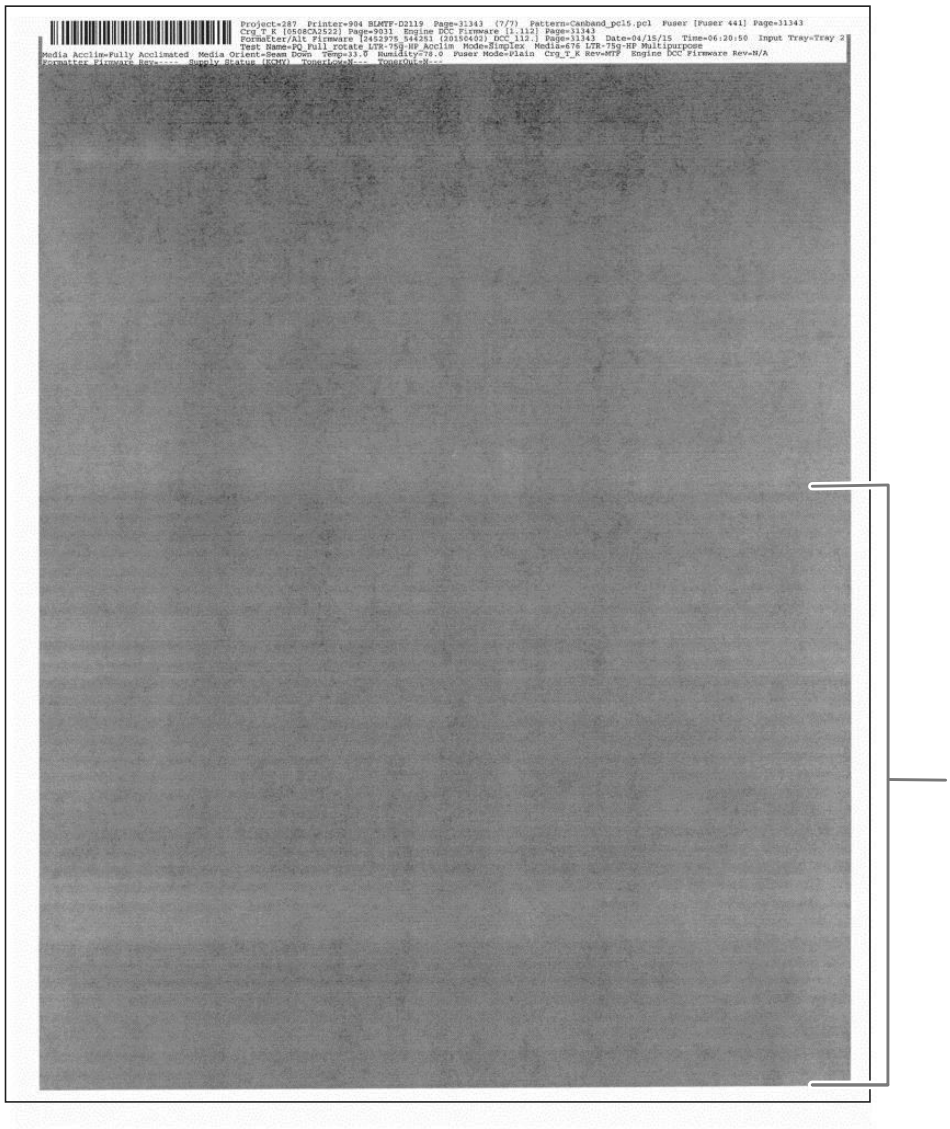
Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

AC banding 4.6 mm (0.18 in)

Figure 2-101 AC banding



Description of the defect

This defect appears as alternating light and dark bands that repeat at 4.6 mm (0.18 in) pitch might be visible starting midway down the page in high-temperature and high-humidity environments. This defect is caused by the transfer current getting pulled into the fusing area through the paper from the fuser heater voltage supply. The transfer banding occurs at the power supply voltage frequency. A capacitor was added to the transfer front guide to improve the level as a countermeasure during development.

Conditions that can cause the defect

This defect usually occurs when printing in **Plain** print mode in high-humidity environments on fully acclimated (low resistivity) paper, which makes the transfer current flow to the fusing area more easily. The defect occurs more often with 220V units, which have higher impressed voltage to the fuser heater. This defect appears in areas of fill, not in text.

Solutions for the defect

- Try printing the job on a newly opened supply of paper.
- Cool the printer environment, and then resend the print job.
- **M501**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Setup
    - System Setup
    - Paper Setup
    - Tray <X>

      NOTE: Select the tray you want to configure.
    - Paper Type
    - Select Intermediate 85–95g
- **M506 and M527**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Trays
    - Tray
    - Modify
    - Next
    - Select Intermediate 85–95g

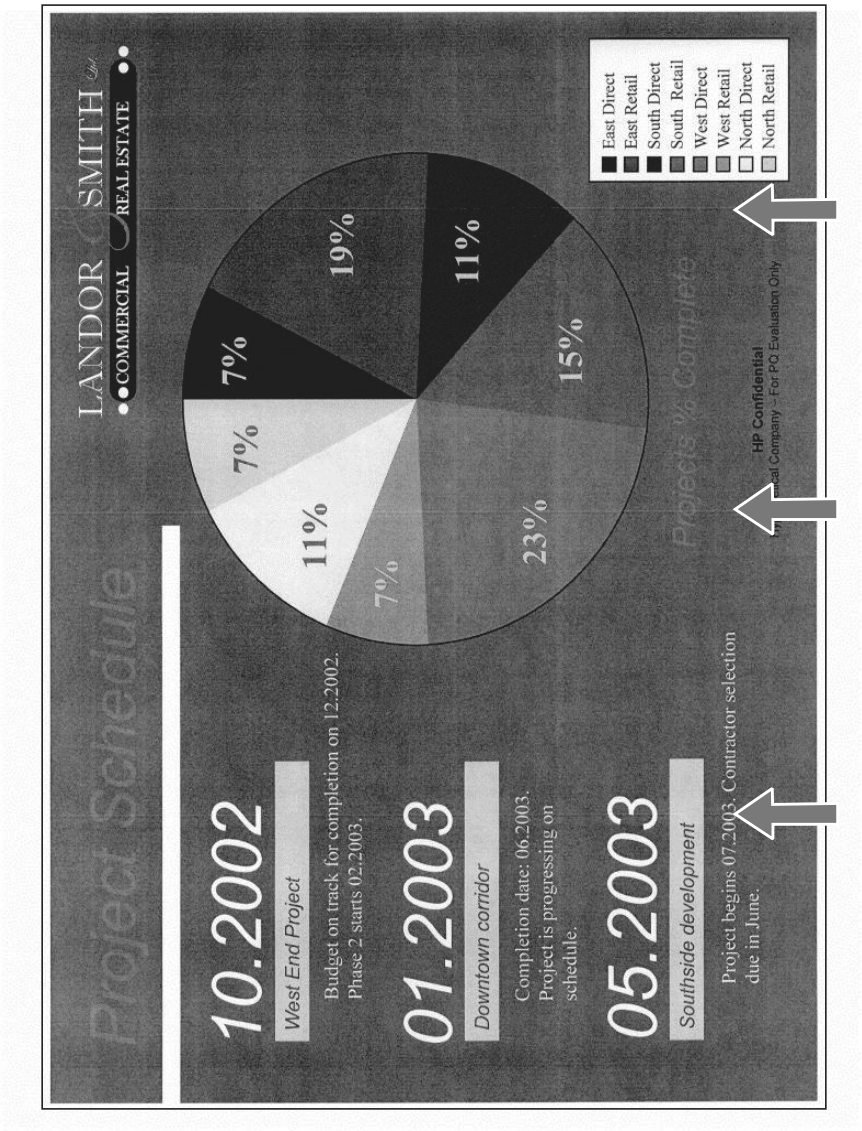
Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Fuser

OPC sharp bands at 75mm (2.95 in) pitch (version 1)

Figure 2-102 OPC sharp bands (version 1)



Description of the defect

This defect appears as sharp bands which repeat at a 75mm (2.95 in) pitch down the page as a light/dark line. Waste products (for example, toner or paper) accumulate at the contact position between the C-blade and the OPC. When the OPC stops, the waste material can form a light attachment to the OPC. When the OPC begins to turn again, the material removal can affect the OPC charge for several rotations. This defect appears in areas of fill, not in text.

NOTE: This defect is also called C-blade blur and is common to many color and mono products. This defect looks similar to OPC sharp bands version 2, but appears to be light/dark.

Conditions that can cause the defect

This defect might occur any time the toner cartridge is idle for long periods of time.

Solutions for the defect

- Resend the print job. The defect should fade with subsequent printed pages.
- If the defect persists, replace the toner cartridge

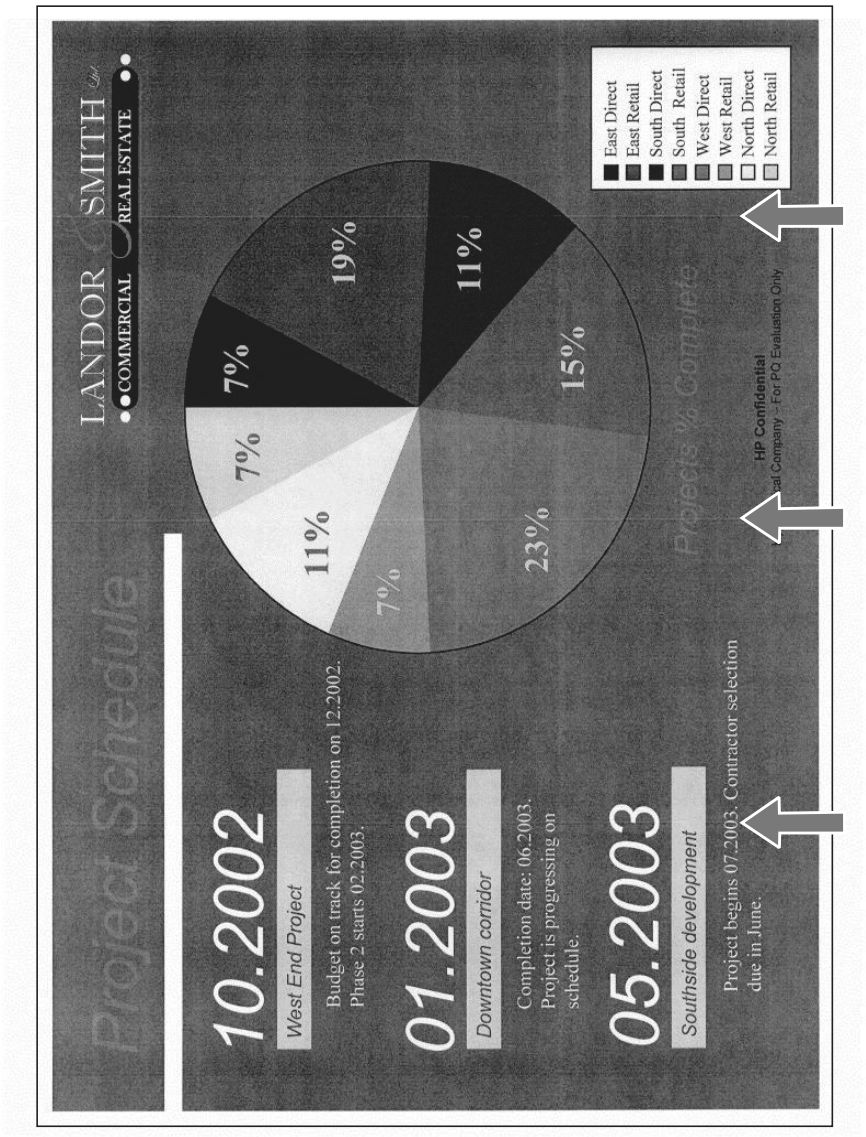
Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

OPC sharp bands at 75 mm (2.95 in) pitch (version 2)

Figure 2-103 OPC sharp bands (version 2)



Description of the defect

This defect appears as sharp bands which repeat at a 75 mm (2.95 in) pitch down the page as a dark line. The OPC drum is rubbed by the cleaning blade or charge roller due to vibration or impact. The rubbing effects the OPC charge but the defect fades with usage and time. This defect appears in areas of fill, not in text.

NOTE: This defect looks similar to OPC sharp bands version 1, but appears to be dark.

Conditions that can cause the defect

This defect can occur at the beginning of toner cartridge use, or if the cartridge is subject to vibration (for example, transportation).

Solutions for the defect

- Resend the print job. The defect should fade with subsequent printed pages.
- If the defect persists, replace the toner cartridge

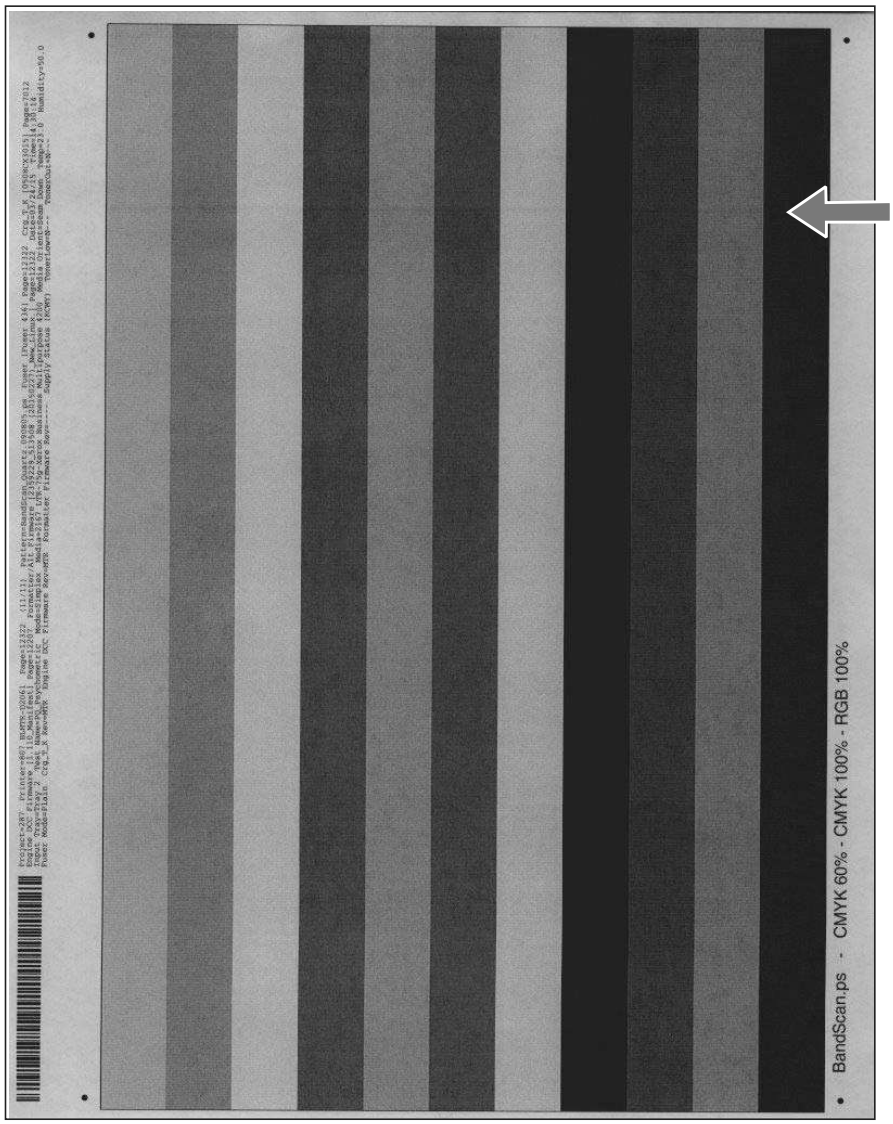
Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

Impulse band 49-50 mm (1.92-1.96 in) from the leading edge

Figure 2-104 Impulse band (leading edge)



Description of the defect

This defect appears as a dark and usually sharp band and occurs 49-50 mm (1.92-1.96 in) from the leading edge of the page. This impulse band is caused by the trailing edge of the previous page touching the OPC as it leaves the transfer area, which causes a memory charge disturbance. This defect appears in areas of fill, not in text.

Conditions that can cause the defect

This defect only occurs during continuous printing, on the second and subsequent pages of a job.

Solutions for the defect

- Resend the print job. Impulse bands can be variable.
- **M501**: If the defect appears during continuous printing, from the printer control panel enable the Less Paper Curl print mode.

NOTE: This mode adds a rotation of the OPC drum to the inter-page gap timing that conditions the drum and minimizes the defect.

- Open the following menus:
  - Setup
  - Service
  - Less Paper Curl
  - Select On

- **M506 and M527**: From the printer control panel, change the print mode to Paper Curl Mode.

NOTE: This mode adds a rotation of the OPC drum to the inter-page gap timing that conditions the drum and minimizes the defect.

- Open the following menus:
  - Administration
  - General Settings
  - Print Quality
  - Adjust Paper Types
  - Select Paper Curl Mode

    Paper Curl Mode

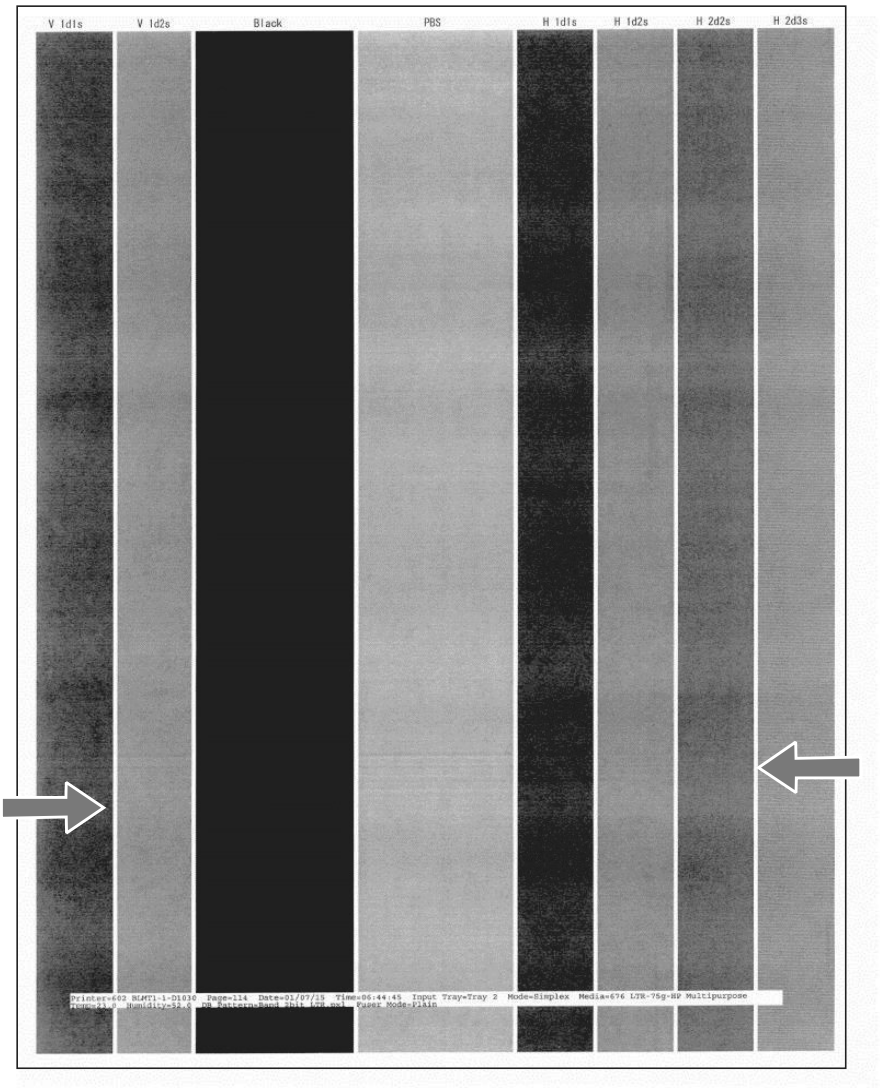
Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Toner cartridge

Impulse band 75-82 mm (2.95-3.22 in) from the trailing edge

Figure 2-105 Impulse band (trailing edge)



Description of the defect

This defect appears as a dark band and occurs 75-82 mm (2.95-3.22 in) from the trailing edge of the page. This impulse band is a development blur which occurs when the paper trailing edge goes through the registration roller. This defect appears in areas of fill, not in text.

Conditions that can cause the defect

During the print job, the transfer top guide might be vibrating.

Solutions for the defect

- Resend the print job. Impulse bands can be variable.
- **M501**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
    - Open the following menus:

- Setup
- System Setup
- Paper Setup
- Tray <X>

NOTE: Select the tray you want to configure.

- Paper Type
- Select Intermediate 85–95g

- **M506 and M527**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Trays
    - Tray
    - Modify
    - Next
    - Select Intermediate 85–95g

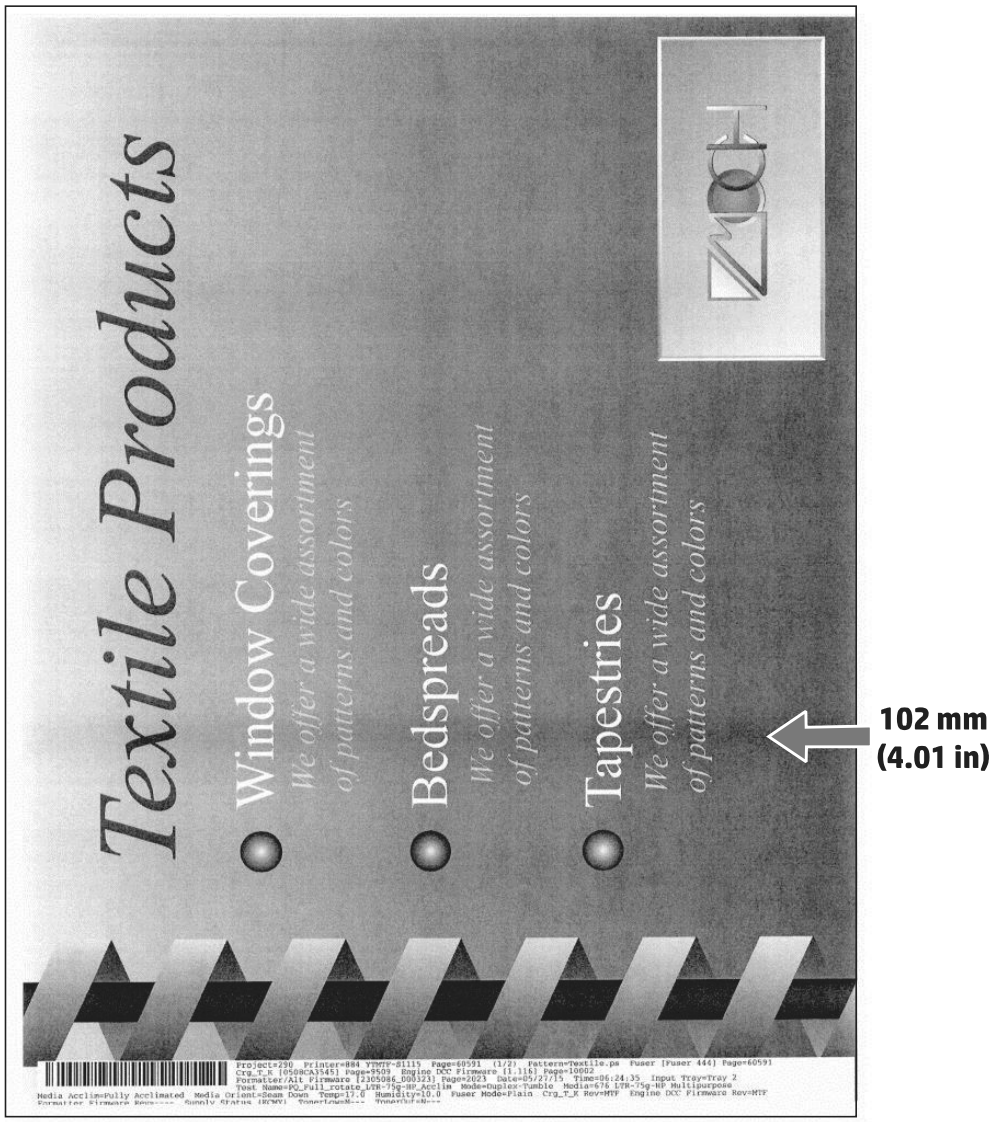
Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Registration assembly

Impulse band 102 mm (4.01 in) from the trailing edge

Figure 2-106 Impulse band (trailing edge)



Description of the defect

This defect appears as a soft dark band and occurs 102 mm (4.01 in) from the trailing edge of the page. The cause of this defect is poor sliding performance of the transfer bearing (TR bearing) and transfer roller shaft.

Conditions that can cause the defect

This defect is more likely to occur in low temperature/low humidity environments and at cold start conditions.

Solutions for the defect

- Resend the print job. Impulse bands can be variable.
- Try using a different media type.
- **M501**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).

- Open the following menus:
  - Setup
  - System Setup
  - Paper Setup
  - Tray <X>

    NOTE: Select the tray you want to configure.
  - Paper Type
  - Select Intermediate 85–95g

- **M506 and M527**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Trays
    - Tray
    - Modify
    - Next
    - Select Intermediate 85–95g

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Transfer roller

Image defect (developmental) events

NOTE: The image defects described in this section are defects that occurred during printer development, and HP implemented a solution to eliminate them. Customers should not observe these defects. These defects are included for the unlikely event that they reoccur.

- Cleaning defect events
- Part/assembly defect events
- Transfer bias defect events
- Toner leak defect events
- Paper path impulse defect events
- Fuser/fixing defect events
- Miscellaneous defect events

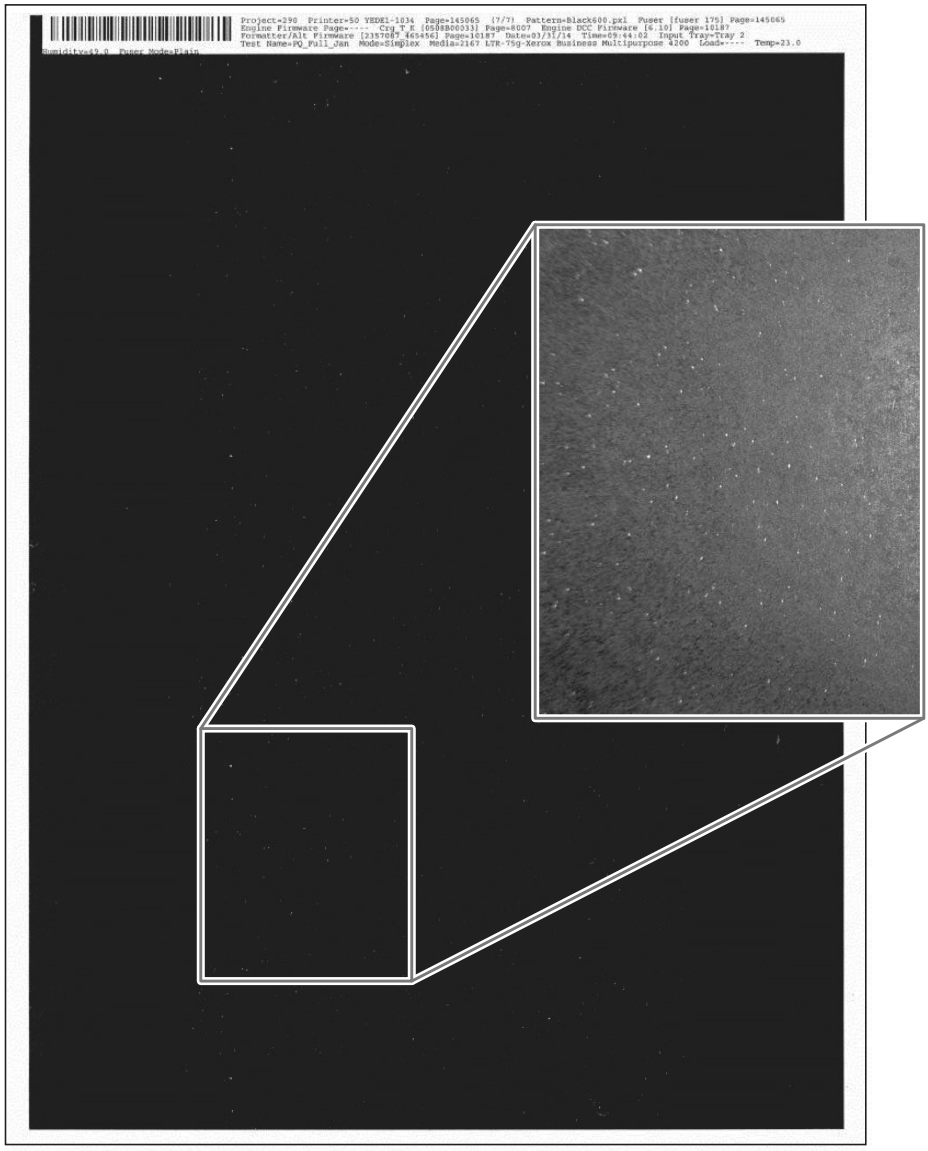
Cleaning defect events

- Rain-toner attached to the OPC
- Developer defect repeats at 27.8 mm 1.09 in pitch
- Random missing toner

Rain-toner attached to the OPC

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-107 Rain-toner attached to the OPC



Description of the defect

This defect appears as very small white voids which appear in solid black areas. This issue occurs when toner attached to the OPC cannot be removed by the cleaning blade. This defect appears in areas of solid fill, not in text.

Conditions that can cause the defect

This defect is likely to occur in the later stages of toner cartridge life.

Solutions for the defect

- Verify that the toner is within the expected life, if not replace the toner cartridge.

Parts related to the defect

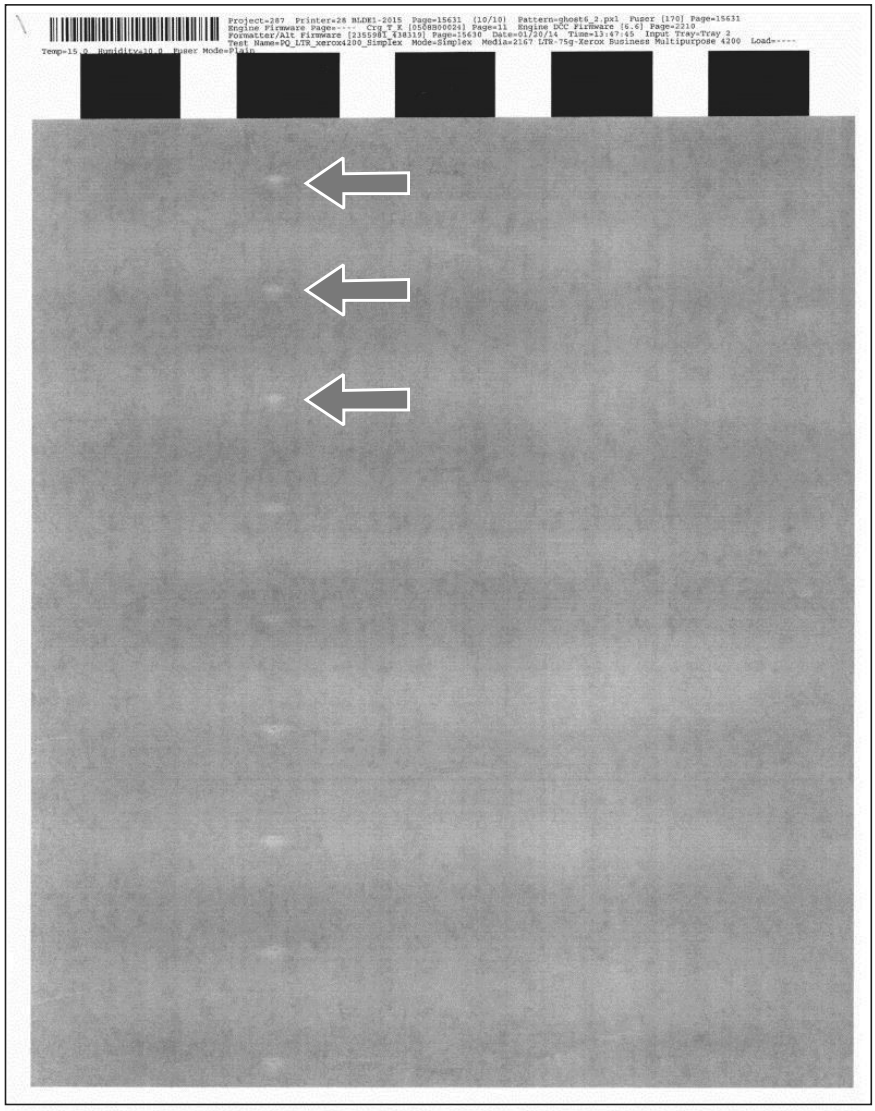
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

Developer defect repeats at 27.8 mm (1.09 in) pitch

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-108 Developer defect



Description of the defect

This defect appears as a soft white spot which repeats at 27.8 mm (1.09 in) (developer roller) pitch. This defect appears in areas of solid fill, not in text.

Conditions that can cause the defect

This defect is caused by a cartridge cleaning performance issue caused by contamination.

Solutions for the defect

- Resend the print job (the defect should fade with subsequent printed pages).
- If the defect persists, replace the toner cartridge.

Parts related to the defect

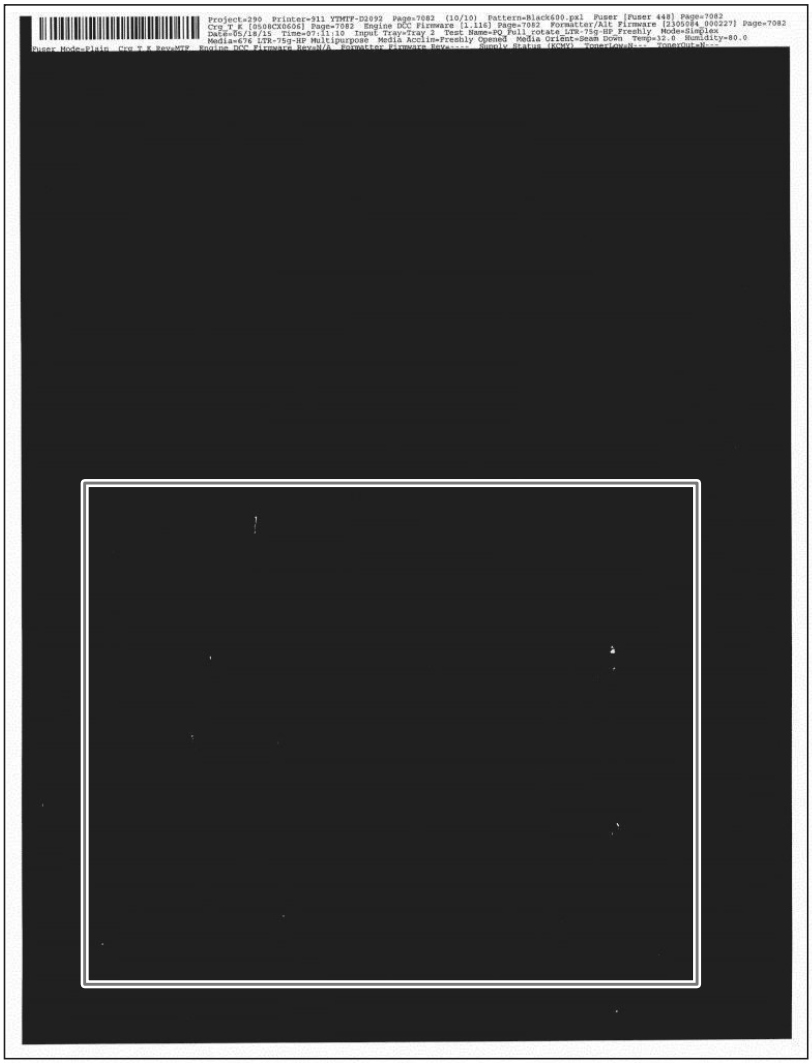
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

Random missing toner

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-109 Random missing toner



Description of the defect

This defect appears as white spots which appear in solid black areas (sometimes with a tail). This defect appears in areas of solid fill, not in text.

Conditions that can cause the defect

This defect is caused by contaminants attaching to the OPC. If the contaminant is large, the size of missing toner will be large.

Solutions for the defect

- Resend the print job. This defect is highly variable.

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

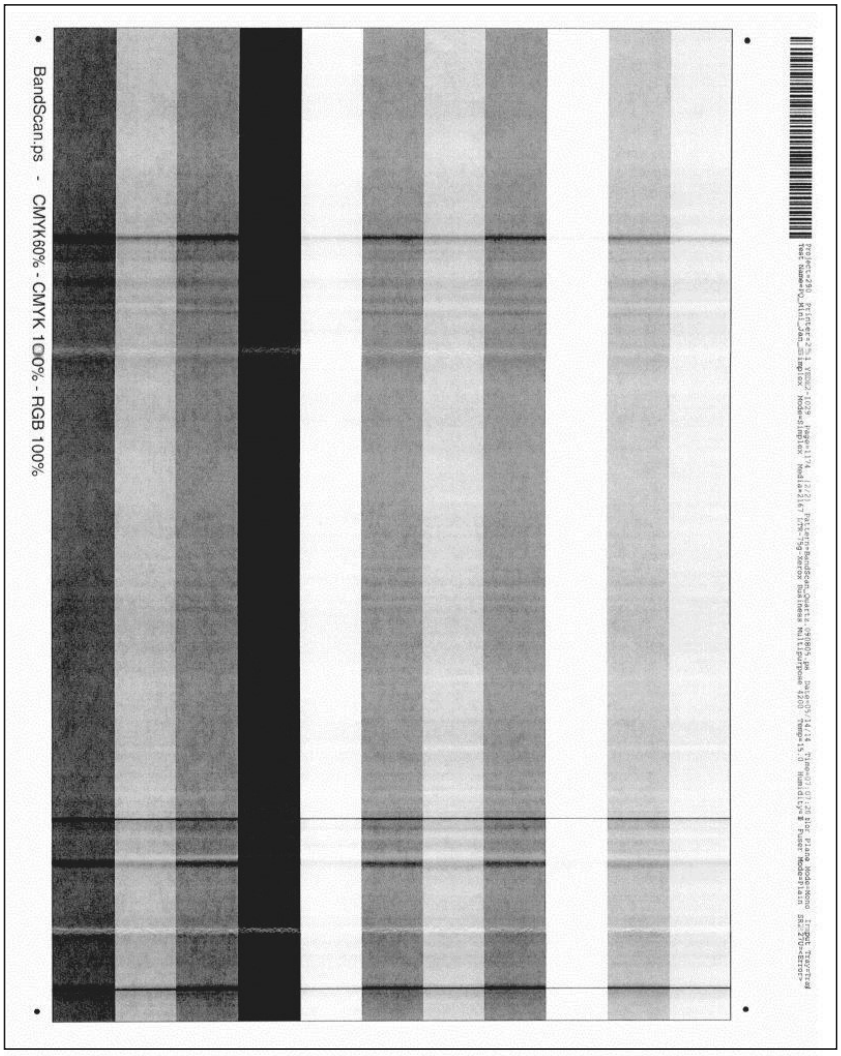
Part/assembly defect events

- OPC gear slip
- OPC wide-pitch banding

OPC gear slip

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-110 OPC gear slip



Description of the defect

This defect appears as severe banding. This defect is caused by OPC gear slip (a failed connection between the OPC gear and the drum).

Conditions that can cause the defect

This defect is not dependent on environmental conditions.

Solutions for the defect

- Resend the print job.
- If the defect persists, replace the toner cartridge.

Parts related to the defect

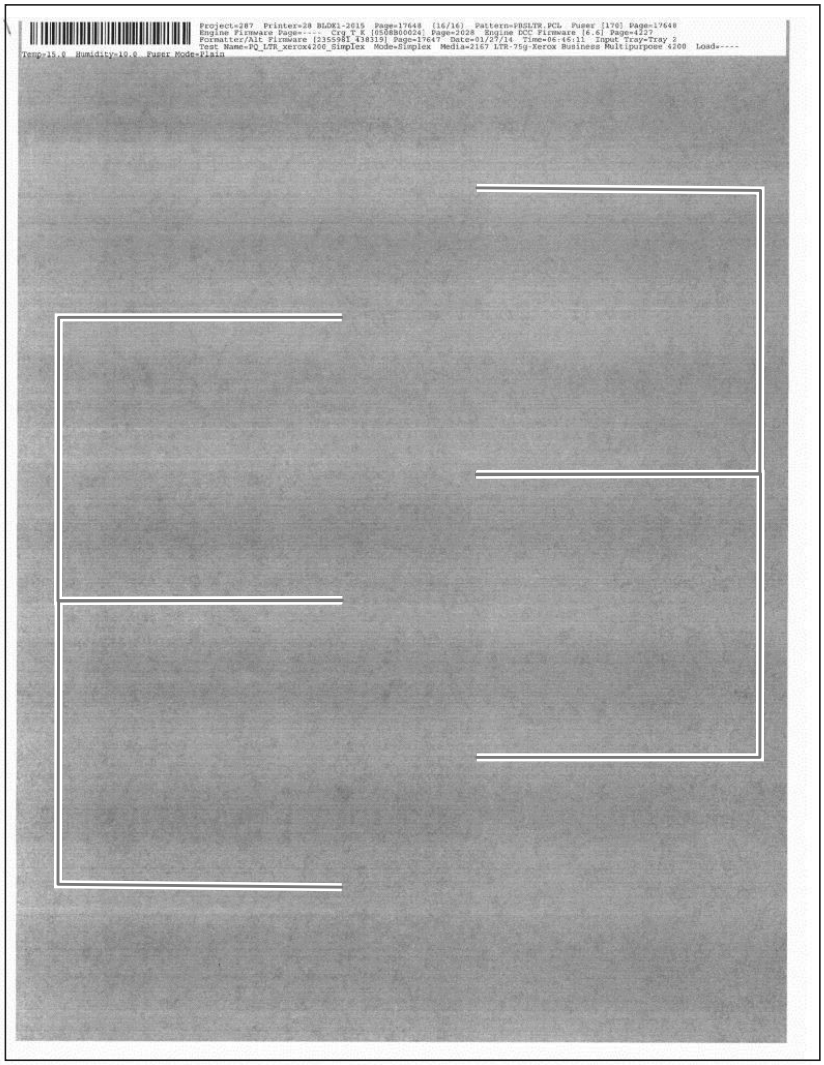
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

OPC wide-pitch banding

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-111 OPC wide-pitch banding



Description of the defect

This defect appears as overlapping sets of wide-pitch bands (repeating at 75 mm (2.95 in)).

Conditions that can cause the defect

This defect is caused by OPC deformation during the assembly process.

Solutions for the defect

- Resend the print job (the defect should fade with subsequent printed pages).
- If the defect persists, replace the toner cartridge.

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

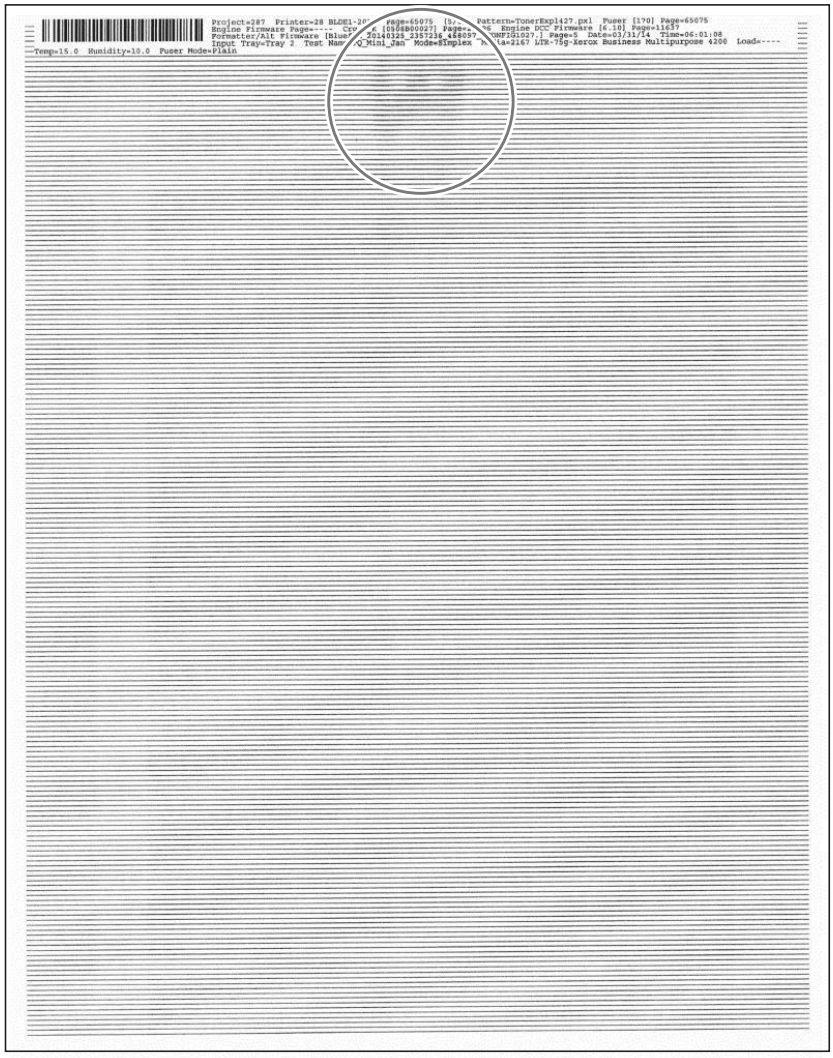
Transfer bias defect events

- Leading edge - mid-page toner scatter
- Density change at 75 mm 2.95 in from the leading edge
- Transfer issue - random voids

Leading edge - mid-page toner scatter

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-112 Leading edge - mid-page toner scatter



Description of the defect

This defect appears as a non-uniform or smear that might appear in the middle of the page at the top of a page. This occurs when the toner scatters at transfer in the area where the media rubs the pick roller and the middle roller. This defect is more likely to occur when media with high resistivity is used. The static charge eliminator (metal brush) on the transfer guide keeps this defect from occurring.

Conditions that can cause the defect

This defect might occur in low temperature/low humidity environments and in cold start conditions.

Solutions for the defect

- Resend the print job (the defect should fade with subsequent printed pages as the printer warms up).
- Try using a different media type.

Parts related to the defect

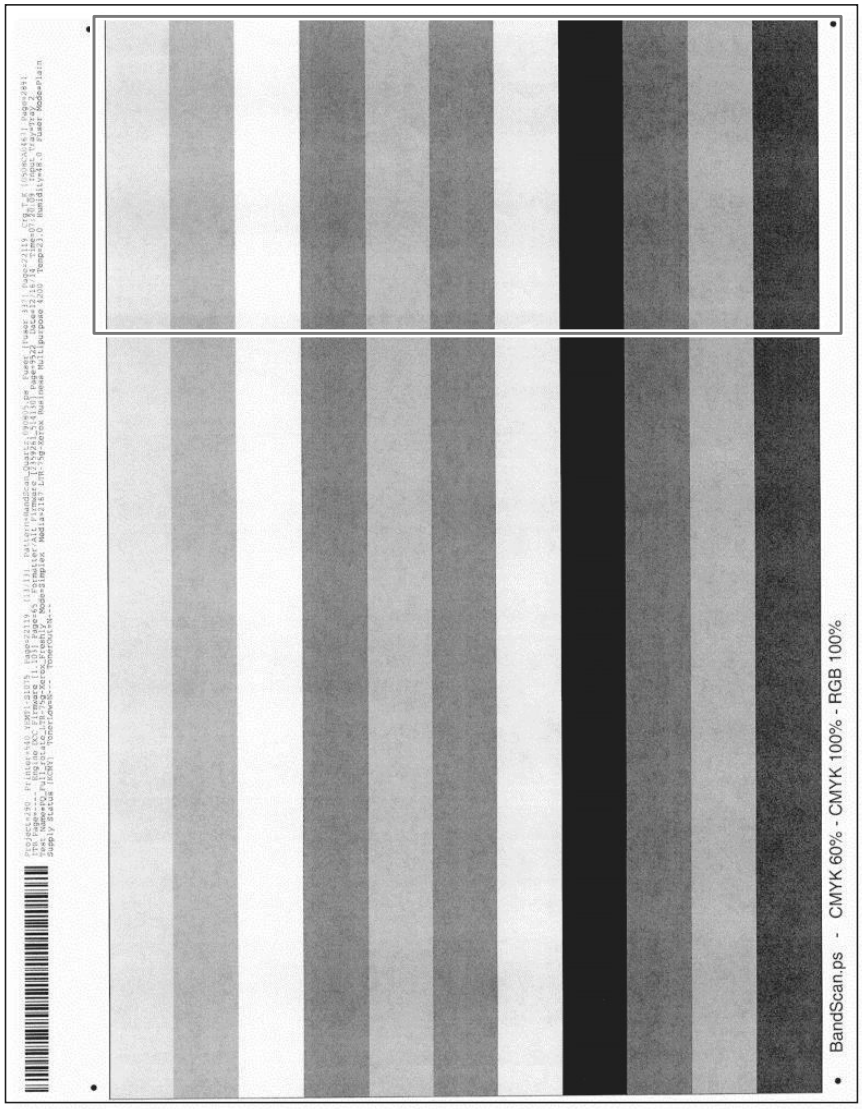
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Printer engine (whole unit replacement)

Density change at 75 mm (2.95 in) from the leading edge

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-113 Density change



Description of the defect

This defect appears as a light image in the first 75 mm (2.95 in) of the page. This defect is created by a charge ghost due to the lack of charge current.

Conditions that can cause the defect

This defect happens when there is high print coverage across the longitudinal direction and charging is not able to reach the target potential due to the lack of current that charges OPC in the area and the density becomes high at the next OPC rotation. This shows up in areas of fill, not in text.

Solutions for the defect

- Resend the print job.

Parts related to the defect

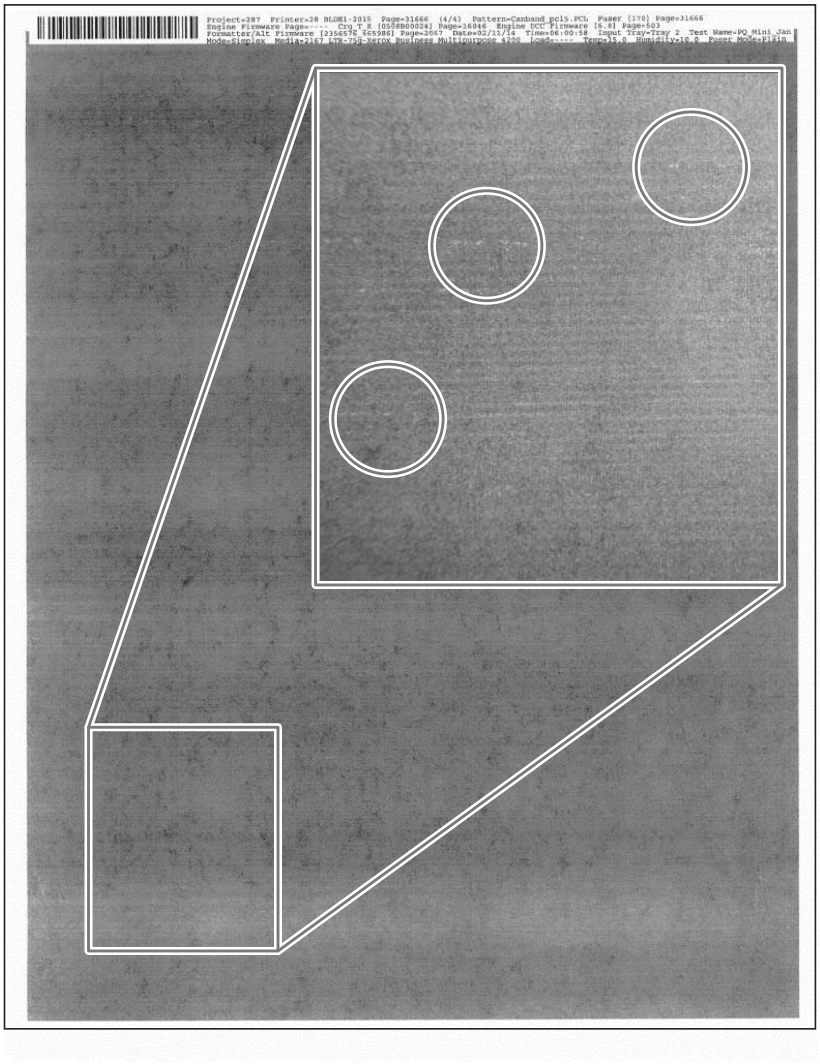
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- No parts are related to this defect.

Transfer issue - random voids

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-114 Transfer issue - random voids



Description of the defect

This defect appears as very small sections of missing toner in random locations on the page. The transfer bias was too strong and caused the missing toner.

Conditions that can cause the defect

This defect is not dependent on environmental conditions.

Solutions for the defect

- **M506 and M527**: If the defect is persistent, reprint your document with a lower transfer bias setting.
    - Open the following menus:

- Administration
- General Settings
- Print Quality
- Adjust Paper Types
- Select Resistance Mode

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- No parts are related to this defect.

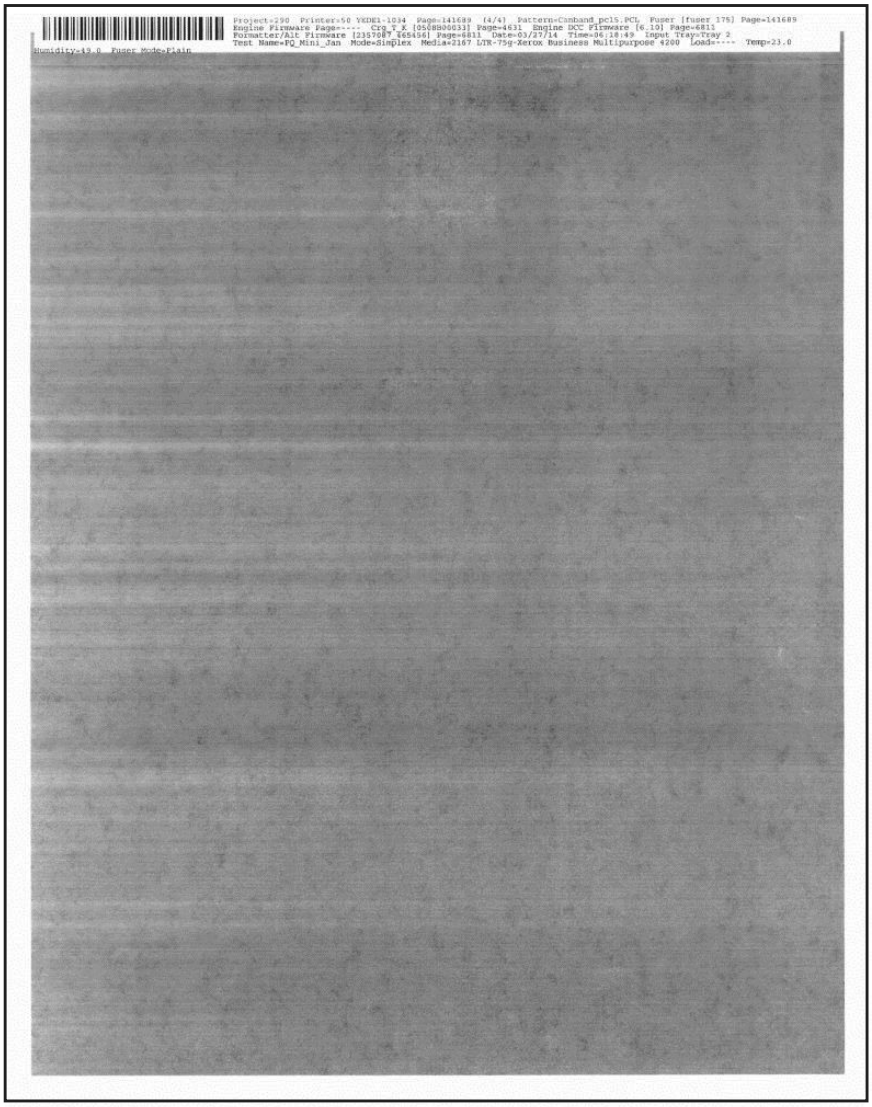
Toner leak defect events

- Right to left fade and banding
- Cartridge fine pitch (1.5 mm 0.05 in) banding
- 382 mm 15.03 in + IPG repeating defect

Right to left fade and banding

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-115 Right to left fade and banding



Description of the defect

This defect appears as fading and banding at an edge and occurs when the cartridge seals leak allowing toner into the gap between the OPC drum and the SD roller/sleeve. This appears in areas of fill, not in text

Conditions that can cause the defect

This defect is likely to occur in the later stages of toner cartridge life.

Solutions for the defect

- Resend the print job.
- Verify that the toner is within the expected life, if not replace the toner cartridge.
- If the defect persists, replace the toner cartridge.

Parts related to the defect

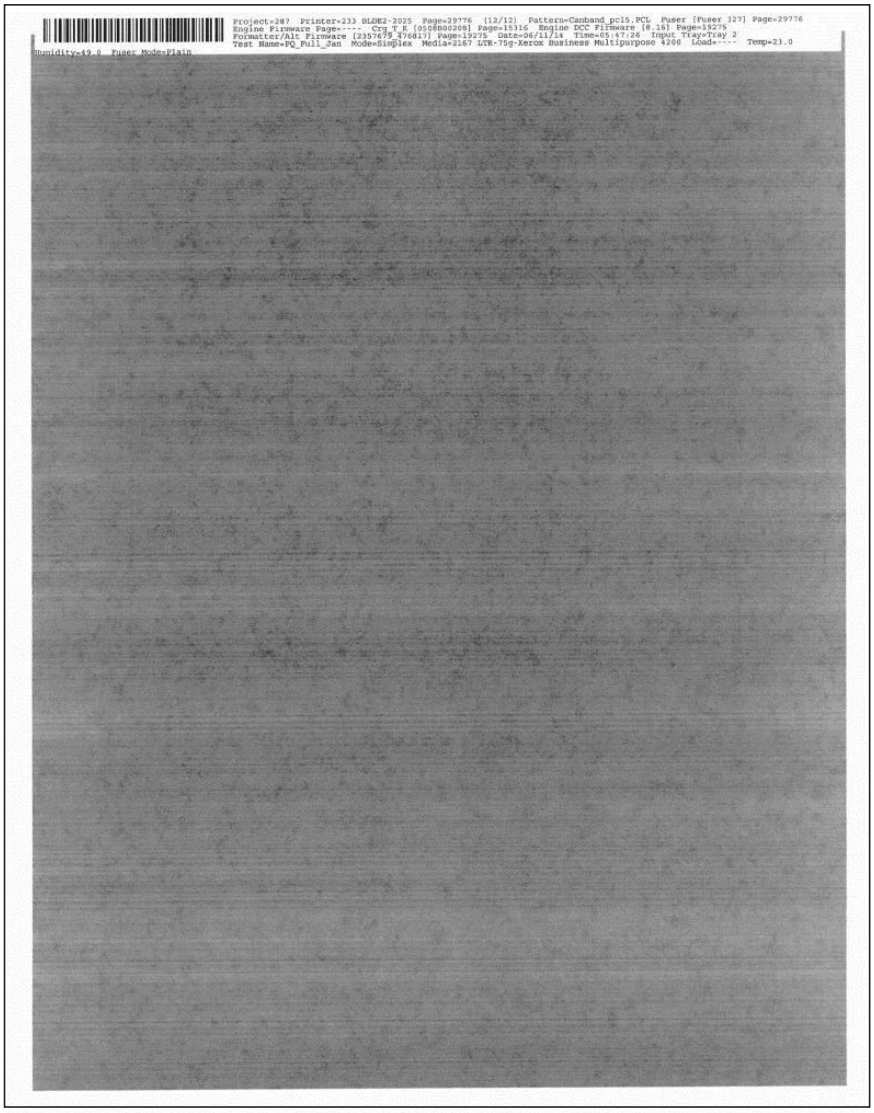
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

Cartridge fine pitch (1.5 mm (0.05 in)) banding

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-116 Cartridge fine pitch banding



Description of the defect

This defect appears as alternating light and dark, evenly spaced, repetitive horizontal lines at a 1.5 mm (0.05 in) pitch. This defect is caused by toner leaking in the drive gear area of the toner cartridge. This appears in areas of fill, not in text.

Conditions that can cause the defect

This defect is likely to occur in the later stages of toner cartridge life.

Solutions for the defect

- Resend the print job.
- Verify that the toner is within the expected life, if not replace the toner cartridge.
- If the defect persists, replace the toner cartridge.

Parts related to the defect

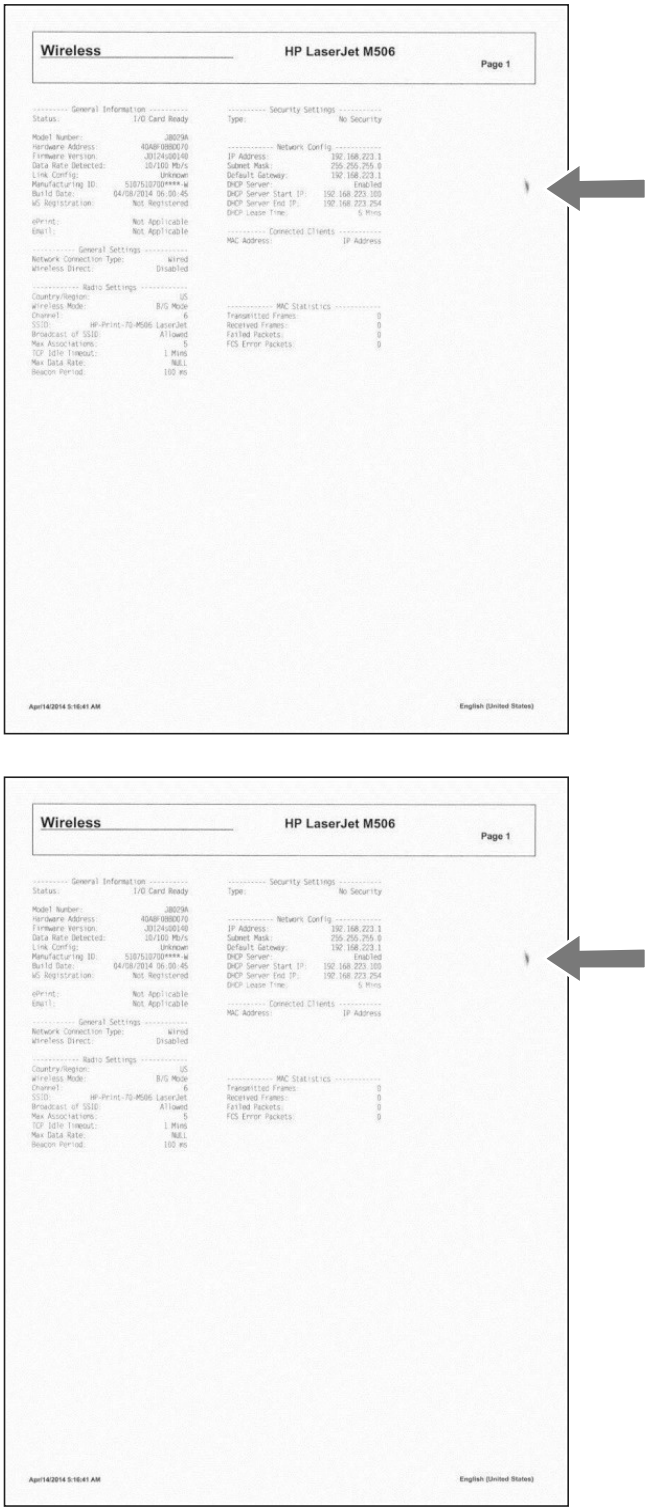
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

382 mm (15.03 in) + IPG repeating defect

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-117 IPG repeating defect



Description of the defect

This defect appears as a dark crescent moon shape defect and it appears in non-print areas of the page. The defect occurs when the toner is thrown outside the toner cartridge at the stirring pitch due to the waviness of the blow out seal. The waviness creates a gap between sleeve and blow out seal. The cause of the blow out seal waviness is that the edge of blow out seal contacts with the edge of the sleeve/drum spacer.

Conditions that can cause the defect

This defect is not dependent on environmental conditions.

Solutions for the defect

- Resend the print job.
- If the defect does not improve within two to three print jobs, remove the toner cartridge and gently rock it back and forth from side to side (this distributes the toner evenly in the toner cartridge).
- If the defect persists, replace the toner cartridge.

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

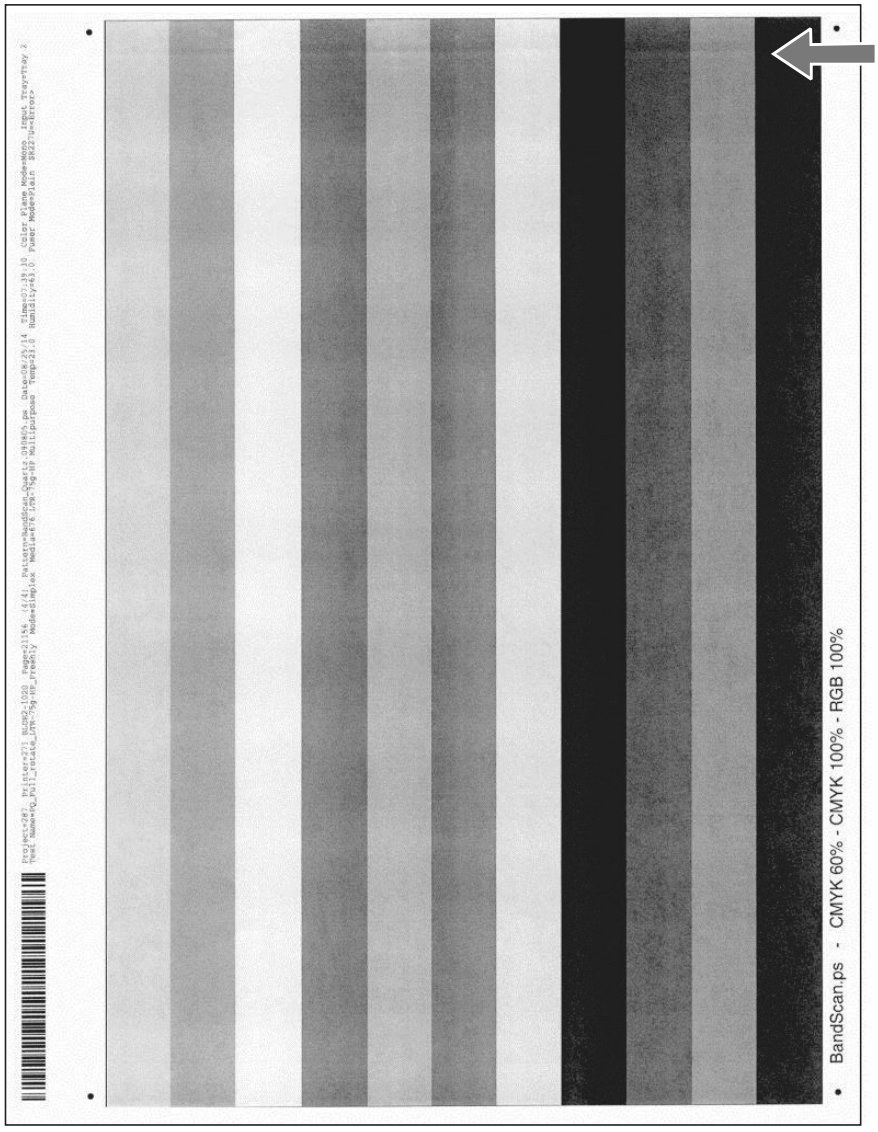
Paper path impulse defect events

- Impulse band 15 mm 0.59 in from the leading edge
- Toner in the leading edge margin (fuser slap)
- 6-7 mm 0.23- 0.27 in wide-pitch banding

Impulse band 15 mm (0.59 in) from the leading edge

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-118 Impulse band leading edge



Description of the defect

This defect appears as a dark and usually sharp band occurs 15 mm (0.59 in) from the leading edge of the page. This band shows up in areas of fill, not in text.

Conditions that can cause the defect

The defect occurs when the paper leading edge goes into the transfer area.

Solutions for the defect

- Resend the print job. Impulse bands can be variable.
- **M501**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Setup
    - System Setup
    - Paper Setup
    - Tray <X>

      NOTE: Select the tray you want to configure.
    - Paper Type
    - Select Intermediate 85–95g
- Try using a different media type.
- **M506 and M527**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Trays
    - Tray
    - Modify
    - Next
    - Select Intermediate 85–95g

Parts related to the defect

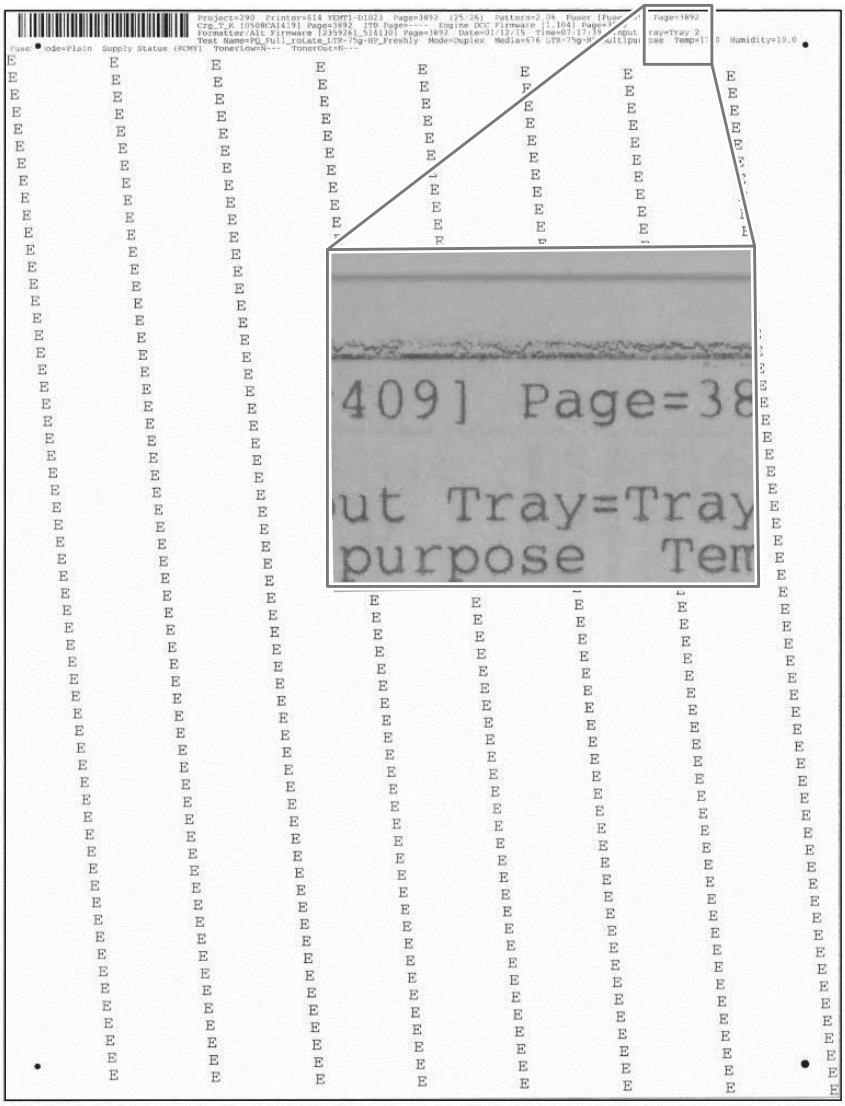
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Registration assembly

Toner in the leading edge margin (fuser slap)

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-119 Toner in the leading edge margin (fuser slap)



Description of the defect

This defect appears as scattered toner which occurs at the leading edge of the page. This defect occurs when the page enters the fuser and the page touches the fuser film which rubs the image on the page.

Conditions that can cause the defect

This defect is not dependent on environmental conditions, but is more likely to occur on pages with small top margins or when using curled media.

Solutions for the defect

- Resend the print job. This defect can be variable.
- Try using a different media type.
- **M501**: From the printer control panel, increase the leading edge margin.
  - Open the following menus:

    Before beginning, use the Print Test Page option to print a registration test page. This page provides alignment guides in the X and Y directions.

    - Setup
    - System Setup
    - Print Quality
    - Adjust Alignment
    - Adjust Tray <X>

      NOTE: Select the tray you want to configure.

    - Y Shift

      NOTE: Adjust the “Y” values in .25 mm increments.
- **M506 and M527**: From the printer control panel, increase the leading edge margin.

  Before beginning, use the Print Test Page option to print a registration test page. This page provides alignment guides in the X and Y directions.

  - Open the following menus:
    - Administration
    - General Settings
    - Print Quality
    - Image Registration
    - Adjust Tray <X>

      NOTE: Select the tray you want to configure.

    - Y1 Shift (simplex pages) and/or Y2 Shift (duplex pages)

      NOTE: Adjust the “Y” values in .25 mm increments.

Parts related to the defect

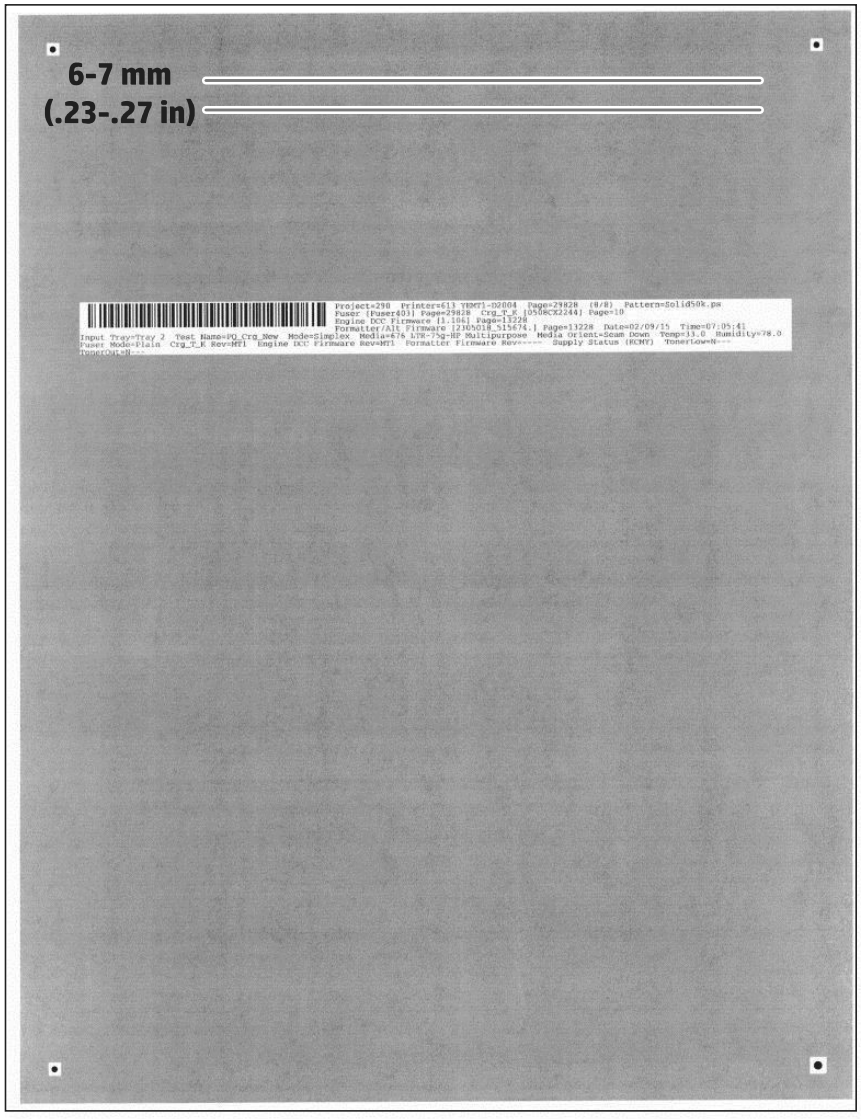
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Fuser

6-7 mm (0.23- 0.27 in) wide-pitch banding

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-120 Wide-pitch banding



Description of the defect

This defect appears as soft bands that repeat at 6-7 mm (0.23- 0.27 in). This banding occurs when the transfer top guide vibrates, which is conveyed to the page as well as the page at the transfer area, causing the uneven density. The left and right edges of the back side of transfer top guide contact with the positioning guide at the transfer frame by the spring at the right edge of the pivot shaft. Since the spring is used only at the right edge, the left side of the alignment feature receives smaller pressing force. When the pressing force is small, the sheet metal vibrates easily. This band shows up in areas of fill, not in text.

Conditions that can cause the defect

During the print job, the transfer top guide might be vibrating.

Solutions for the defect

- Try using a different media type.
- **M501**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Setup
    - System Setup
    - Paper Setup
    - Tray <X>

      NOTE: Select the tray you want to configure.
    - Paper Type
    - Select Intermediate 85–95g
- **M506 and M527**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Trays
    - Tray
    - Modify
    - Next
    - Select Intermediate 85–95g

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Transfer assembly

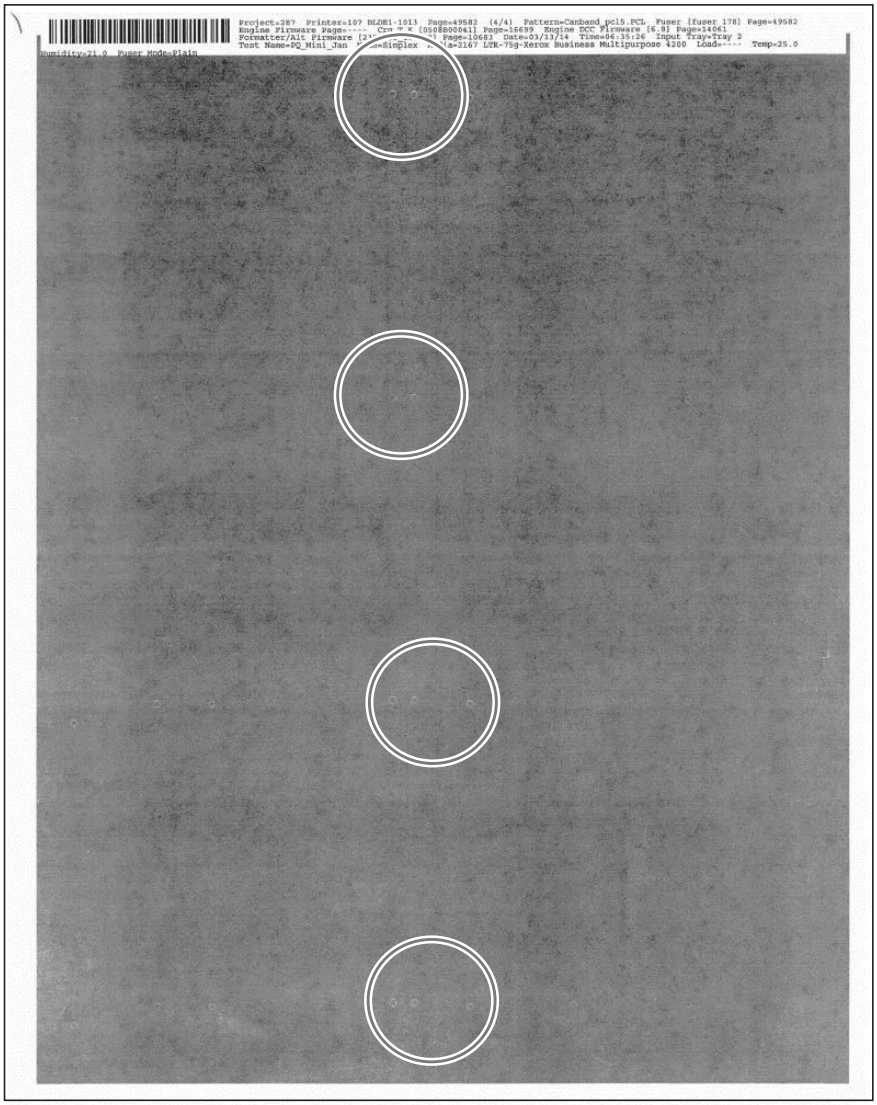
Fuser/fixing defect events

- Fuser blisters
- Hot fuser offset
- Poor edge fixing - within the image assurance area
- Poor edge fixing - outside the image assurance area

Fuser blisters

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

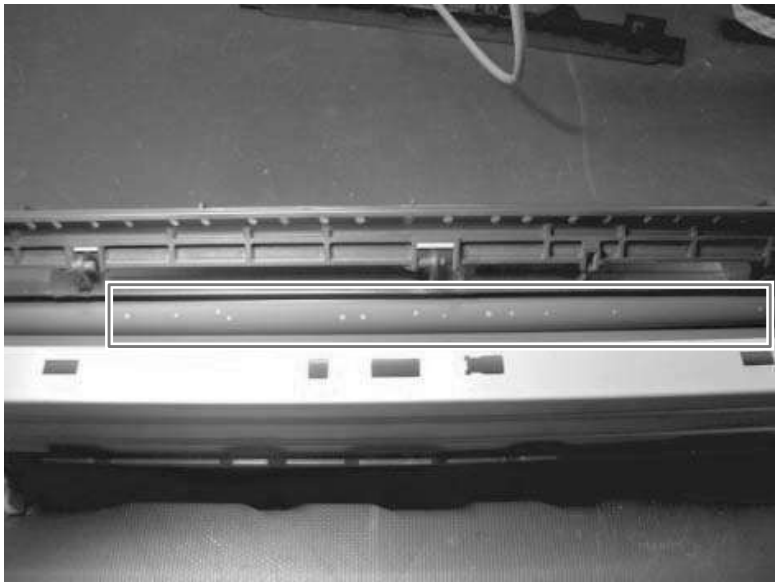
Figure 2-121 Fuser blisters



Description of the defect

This defect appears as repeating print defects visible in the image at the fuser pitch of 75.4 mm (2.96 in). These defects were caused by contamination between the films on the fuser.

Figure 2-122 Contaminated fuser film



Conditions that can cause the defect

A defect similar in appearance could occur if a page with sharp objects (for example, staples) is put through the printer.

Solutions for the defect

- Resend the print job.
- If the defect persists, replace the fuser.

Parts related to the defect

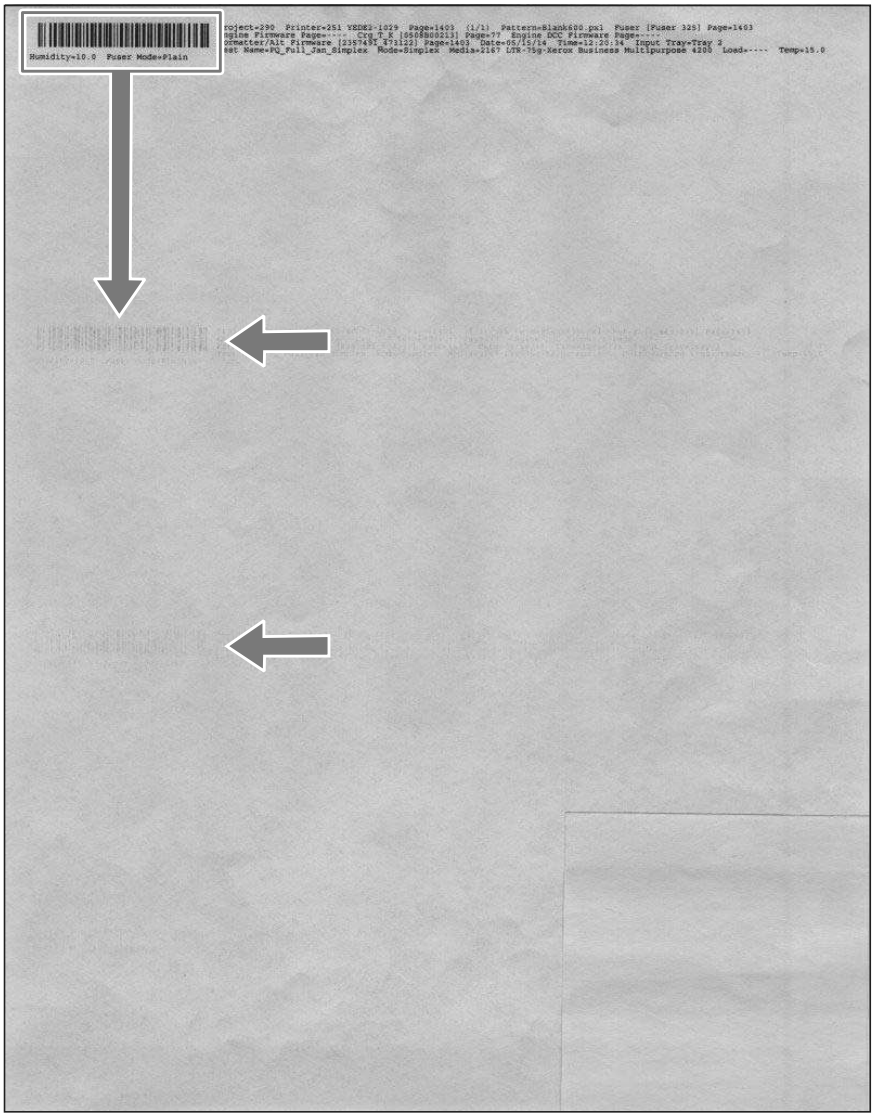
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Fuser

Hot fuser offset

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-123 Hot fuser offset



Description of the defect

This defect appears as slight offset of the image that repeats down the page spaced approximately 75.0 mm (2.95 in) apart. this defect occurred when the fuser thermistor detection temperature did not follow the target temperature.

Conditions that can cause the defect

This defect is likely to occur in the later stages of fuser life.

Solutions for the defect

- Resend the print job and use a lighter fuser mode.
- If the defect persists, replace the fuser.

Parts related to the defect

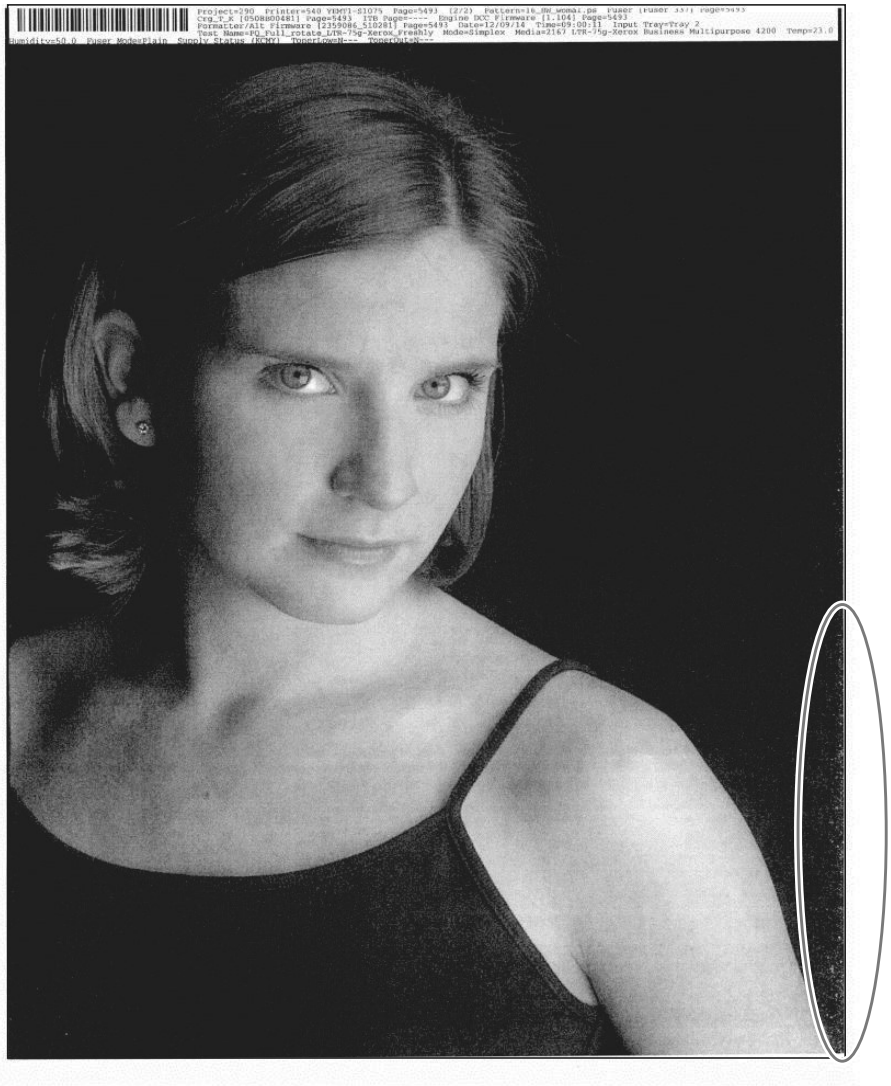
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Fuser

Poor edge fixing - within the image assurance area

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-124 Poor edge fixing - within the image assurance area



Description of the defect

This defect appears as missing toner inside the 6 mm (0.23 in) image assurance area. Toner rubs off the page. The fuser temperature is too cold.

NOTE: The image assurance area is 5 mm (0.19 in) from the top and bottom edge of the page and 5 mm (0.19 in) from the edge on each side of the page.

Conditions that can cause the defect

This defect is not dependent on environmental conditions, but is more common at the edges of high-coverage print jobs.

Solutions for the defect

- **M501**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Setup
    - System Setup
    - Paper Setup
    - Tray <X>

      NOTE: Select the tray you want to configure.
    - Paper Type
    - Select Intermediate 85–95g
- **M506 and M527**: Confirm that the correct print mode is selected for the media being used. Use a print mode for a heavier media type.
- **M506 and M527**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Trays
    - Tray
    - Modify
    - Next
    - Select Intermediate 85–95g

Parts related to the defect

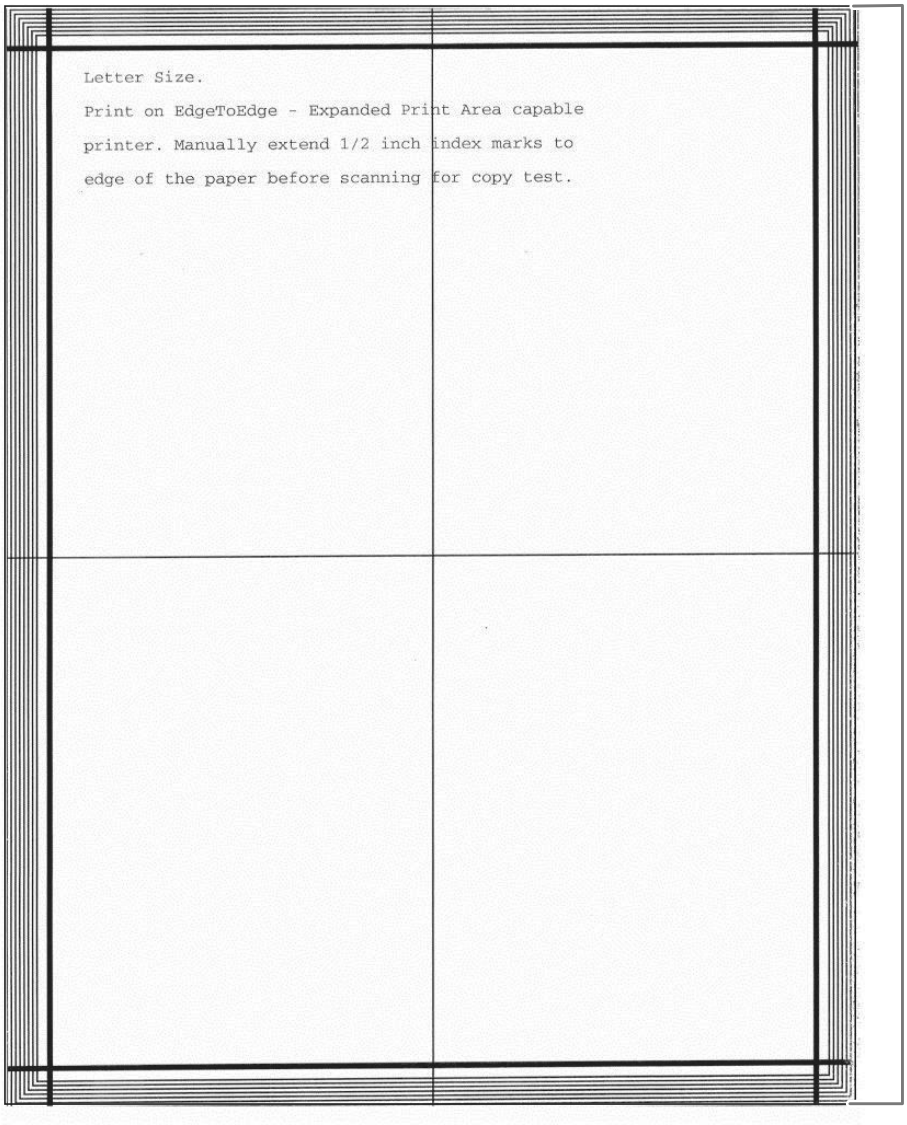
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Fuser

Poor edge fixing - outside the image assurance area

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-125 Poor edge fixing - outside the image assurance area



Description of the defect

This defect appears as missing toner outside the 6 mm (0.23 in) image assurance area. Toner rubs off the page. Poor edge fixing might occur when the printer is using Edge to Edge print mode and the image extends past the 5 mm (0.19 in) image assurance area.

NOTE: The image assurance area is 5 mm (0.19 in) from the top and bottom edge of the page and 5 mm (0.19 in) from the edge on each side of the page.

Conditions that can cause the defect

This defect is not dependent on environmental conditions, but is more common at the edges of high-coverage print jobs.

Solutions for the defect

- **M506 and M527**: Resend the print job with Edge to Edge mode set to Normal. From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Administration
    - Default print options
    - Edge to Edge
    - Select Normal
- **M501**: Resend the print job with increased side margins. From the printer control panel, adjust the page margins.
  - Open the following menus:

    Before beginning, use the Print Test Page option to print a registration test page. This page provides alignment guides in the X and Y directions.
    - Setup
    - System Setup
    - Print Quality
    - Adjust Alignment
    - Adjust Tray <X>

      NOTE: Select the tray you want to configure.
    - X1 Shift and X2 Shift

      NOTE: Adjust the “X” values in .25 mm increments.
- **M506 and M527**: Resend the print job with increased side margins. From the printer control panel, adjust the page margins.

  Before beginning, use the Print Test Page option to print a registration test page. This page provides alignment guides in the X and Y directions.
  - Open the following menus:
    - Administration
    - General Settings
    - Print Quality
    - Image Registration
    - Adjust Tray <X>

      NOTE: Select the tray you want to configure.
    - Adjust the X1 Shift (simplex pages) and/or X2 Shift duplex pages

NOTE: Adjust the “X” values in .25 mm increments.

- **M501**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Setup
    - System Setup
    - Paper Setup
    - Tray <X>

      NOTE: Select the tray you want to configure.
    - Paper Type
    - Select Intermediate 85–95g
- **M506 and M527**: From the printer control panel, change the print mode from plain to intermediate (this slows the print speed).
  - Open the following menus:
    - Trays
    - Tray
    - Modify
    - Next
    - Select Intermediate 85–95g

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Fuser

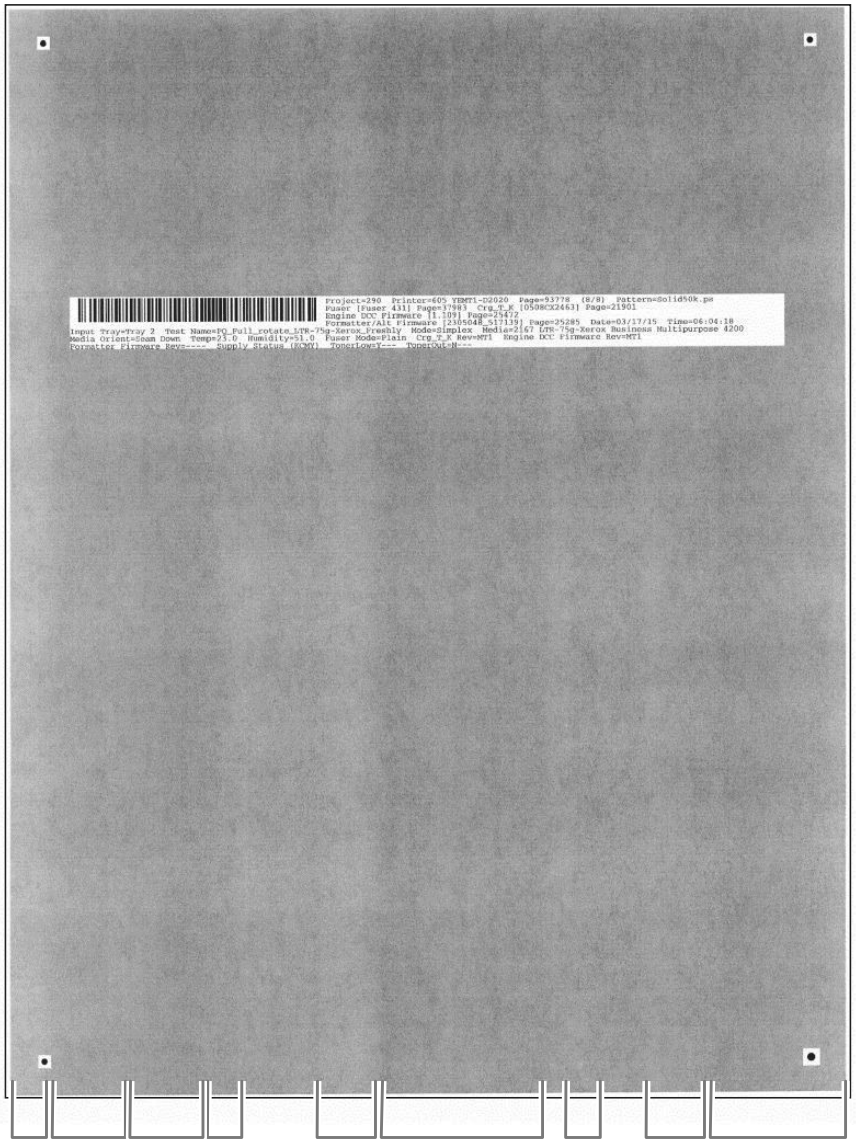
Miscellaneous defect events

- Uneven density - across the page
- Water drop (condensation)

Uneven density - across the page

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-126 Uneven Density - across the page



Description of the defect

This defect appears as areas of varying (light/dark) density across the page. This is caused by variation in the position of the stirring system at initial cartridge assembly resulting in toner material attached to the D-blade. Uneven attachment of toner component to D-blade is caused by uneven toner coating on the sleeve during initial sequence. This banding shows up in areas of fill, not in text.

Conditions that can cause the defect

This defect is likely to occur in the later stages of toner cartridge life.

Solutions for the defect

- Resend the print job.
- If the defect does not improve within two to three print jobs, remove the toner cartridge and gently rock it back and forth from side to side (this distributes the toner evenly in the toner cartridge).
- If the defect persists, replace the toner cartridge.

Parts related to the defect

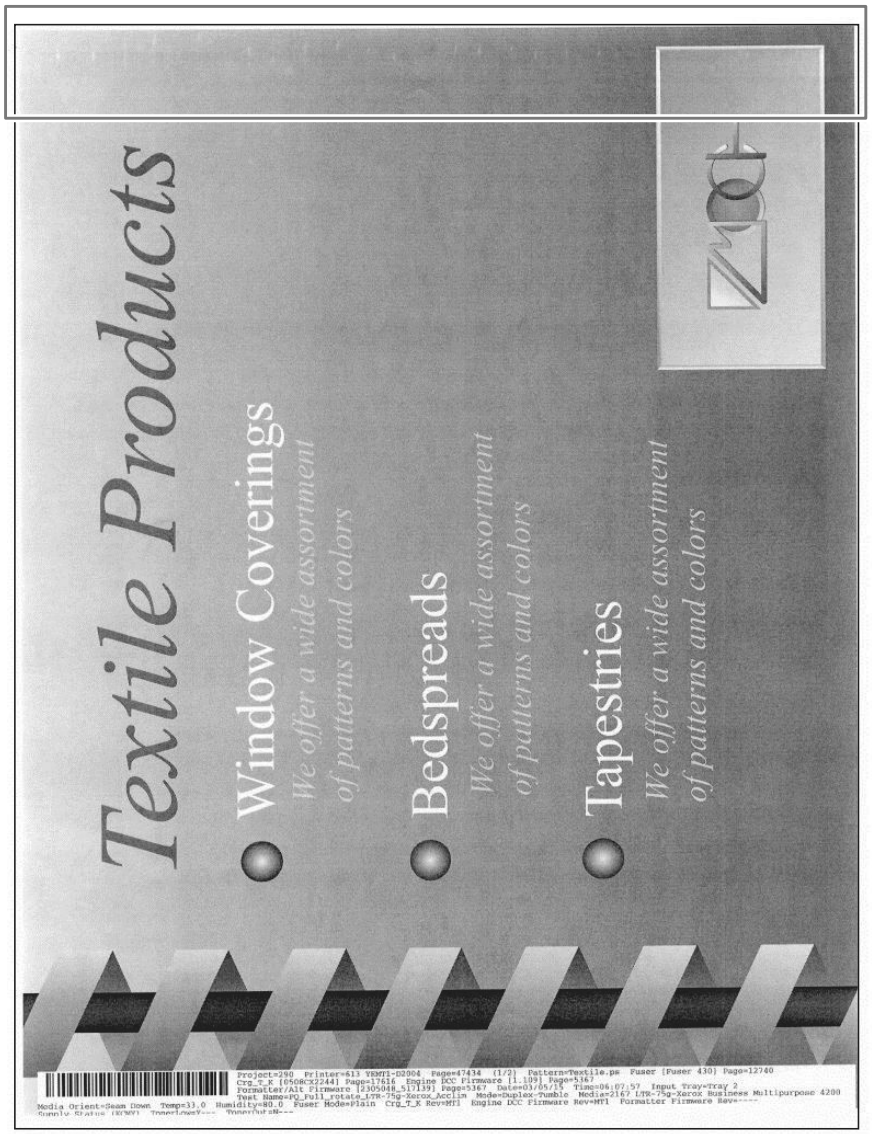
NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Toner cartridge

Water drop (condensation)

NOTE: This defect occurred at some point during printer development. HP has implemented a solution to the problem. This defect is included in the image defects section for the unlikely event that it reoccurs.

Figure 2-127 Water drop (condensation)



Description of the defect

This defect appears as short, soft, light streaks at the top of a page. Condensation collects on the fuser exit guide ribs and transfers to the trailing (unprinted side) of the first pass page of a duplex job. When the duplexed page is printed, the condensation affects the transfer of the toner and causes the defect.

Conditions that can cause the defect

This defect might occur in low temperature high humidity environments and in cold start conditions.

Solutions for the defect

- Resend the print job. This defect can be variable.
- **M506 and M527**: If the defect does not improve within two to three print jobs, change the print mode Moisture Control from Normal to Alternate.
    - Open the following menus:
        - Administration
        - General Settings
        - Print Quality
        - Optimize
        - Moisture Control
        - Select Alternate

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Fuser

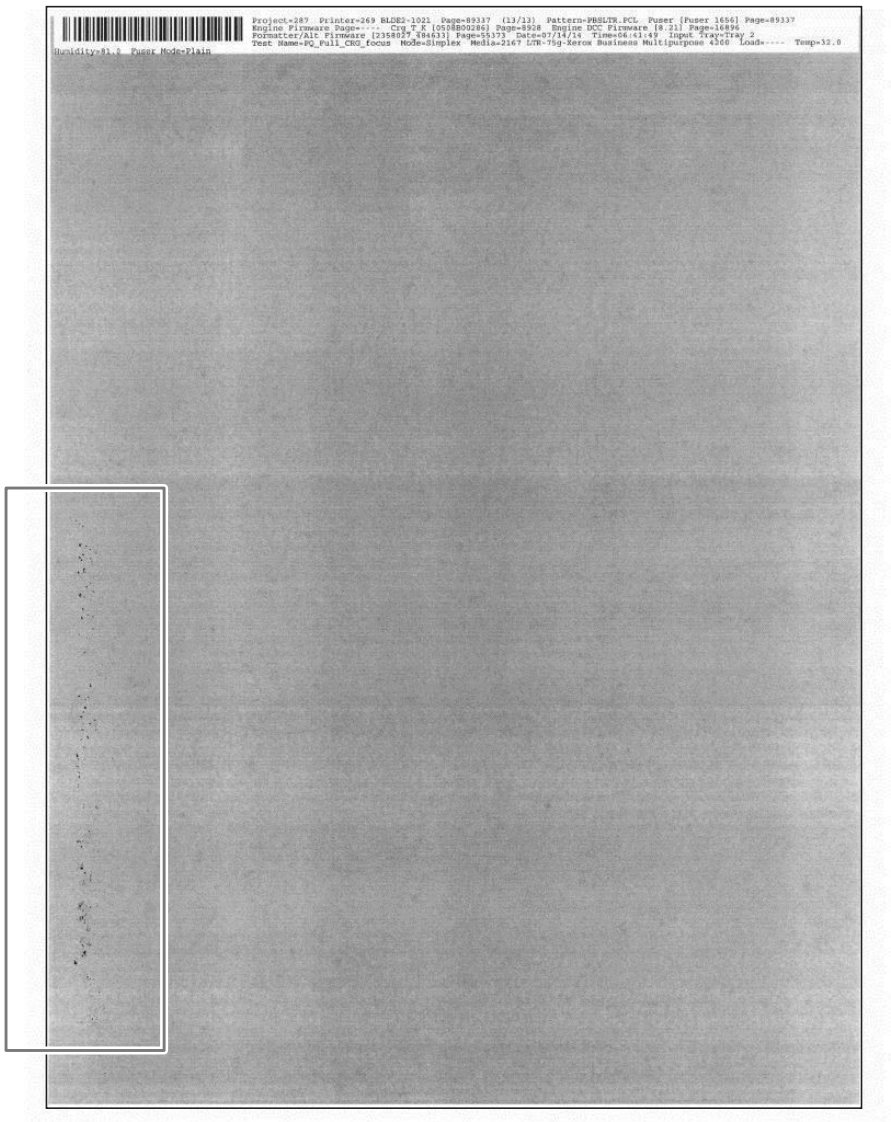
Other events

NOTE: The examples in this section describe other printer events that can occur. Customers might observe these problems.

- Fuser contamination
- Image placement - margins and skew
- Output curl
- Sticky output
- Output stacking
- Paper handling - misprints
- Paper handling - multifeeds
- Paper handling - jams

Fuser contamination

Figure 2-128 Fuser contamination



Description of the defect

This defect appears as dark globs of toner observed on the front or back of the page. Toner builds up on the fuser sleeve and pressure roller and comes off on subsequent pages. This defect can be either repeating at 75 mm (2.95 in) or does not repeat.

Conditions that can cause the defect

This defect might occur in the following conditions:

- Inappropriate media type print mode is selected (fuser too cold)
- Fuser jams were observed on the previous jobs
- Narrow media was printed for extended periods of time

Solutions for the defect

- **M501**: From the printer control panel, process a cleaning page to remove the contamination in the fuser.

NOTE: If a repeating defect does not disappear after processing multiple cleaning pages, a permanent defect might be present on the fuser sleeve.

  - Open the following menus:
    - Setup
    - Service
    - Cleaning Page

NOTE: Touch the OK button to begin the cleaning process. Wait until the process completes. Discard the page that prints.

- **M506 and M527**: From the printer control panel, process a cleaning page to remove the contamination in the fuser.

NOTE: If a repeating defect does not disappear after processing multiple cleaning pages, a permanent defect might be present on the fuser sleeve.

  - Open the following menus:
    - Device Maintenance
    - Calibration/Cleaning
    - Cleaning Page
    - Select Print

NOTE: The process takes up to 1.5 minutes.

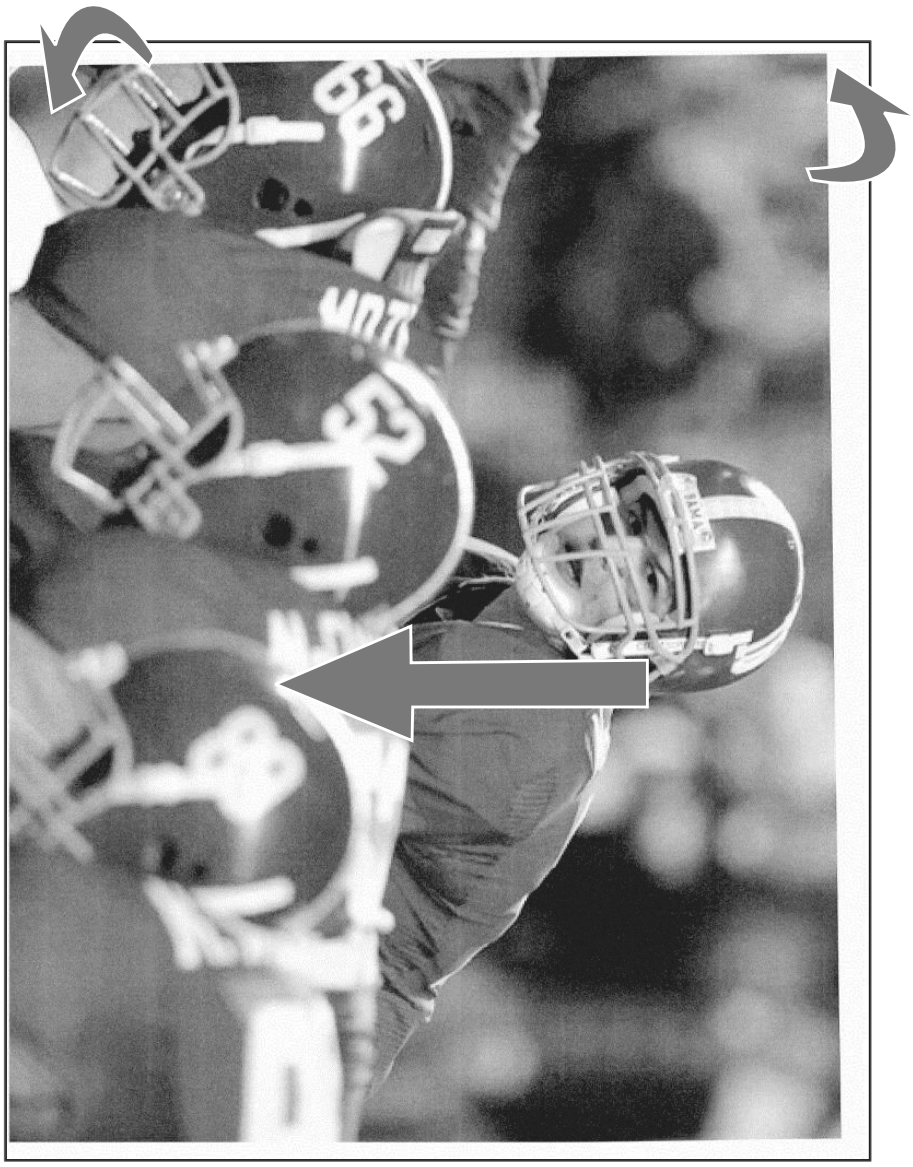
Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Fuser

Image placement - margins and skew

Figure 2-129 Image placement - margins and skew



Description of the defect

This defect appears as image that is not centered or skewed on the page. The media is not positioned properly as it is pulled from the tray and goes through the paper path.

Conditions that can cause the defect

This defect might occur if the IPA is off in any environment and from any tray.

Solutions for the defect

- Before loading paper in the tray, hold the stack of paper, and then tap the bottom edge on a flat surface so that the stack is even on all sides.
- Make sure that the paper guides are adjusted to the correct size for the selected paper and do not overfill the tray. Verify that the top of the stack is below the tray full indicator.
- Do not adjust the paper guides tightly against the paper stack. Adjust them to the indentations or markings in the tray.
- Open the following menus:

  Before beginning, use the Print Test Page option to print a registration test page. This page provides alignment guides in the X and Y directions.

  - Setup
  - System Setup
  - Print Quality
  - Adjust Alignment
  - Adjust Tray <X>

  NOTE: Select the tray you want to configure.

  Adjust the appropriate margin settings

  NOTE: Adjust the “X” and “Y” values in .25 mm increments.

  - X1 Shift

    NOTE: Registration of the image on the paper from side to side, as the paper lies in the tray. For duplex models, this side is the second side (back) of the paper.

  - X2 Shift

    NOTE: Registration of the image on the paper from side to side, as the paper lies in the tray, for the first side (front) of a duplexed page. This item appears only on duplex models.

  - Y Shift

    NOTE: Registration of the image on the paper from top to bottom as the paper lies in the tray.

- **M506 and M527**: For image placement defects do the following. Resend the print job. If the error persists, change the image placement settings for the tray that the defect occurs. From the printer control panel, process a cleaning page to remove the contamination in the fuser.

  Before beginning, use the Print Test Page option to print a registration test page. This page provides alignment guides in the X and Y directions.

  - Open the following menus:
    - Administration
    - General Settings

- Print Quality
- Registration
- Adjust Tray <X>

NOTE: Select the tray you want to configure.

Adjust the appropriate margin settings

NOTE: Adjust the “X” and “Y” values in .25 mm increments.

- X1 (horizontal; simplex)
- X2 (vertical; simplex)
- Y1 (horizontal; duplex)
- Y2 (vertical; duplex)

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Tray guides
- Registration assembly
- Feed rollers

Output curl

Figure 2-130 Output curl

Description of the defect

This defect appears as printed pages are curled. Two types of curl are possible:

- Positive curl: paper curls toward the printed side
- Negative curl: paper curls away from printed side

This defect is caused by uneven drying conditions for the two sides of the paper and fuser location close to the paper output.

Conditions that can cause the defect

Positive curl occurs in dry environments or when printing high coverage pages.

Negative curl occurs in high humidity environments when printing low coverage pages.

Solutions for the defect

General curl defect solutions

- Resend the print job. Use the duplex option in the printer driver.
- Do not adjust the paper guides tightly against the paper stack. Adjust them to the indentations or markings in the tray.
- **M501**: From the printer control panel, enable the Paper Curl print mode option.
  - Open the following menus:
    - Setup
    - Service
    - Less Paper Curl
    - Select On
- **M506 and M527**: From the printer control panel, change the print mode Paper Curl from Normal to Reduced.
  - Open the following menus:
    - Administration
    - General Settings
    - Print Quality
    - Optimize
    - Paper Curl
    - Select Reduced

Specific curl defect solutions

- Positive curl: Use a higher temperature media type (heavier weight) mode which will increase the negative curl tendency reducing the positive curl. Also, more fusing could be selected in the extended print modes for the selected paper type.
- Negative curl: Use a lower temperature media type (lighter weight) mode or select a reduced paper curl or lower fusing temperature setting in extended print modes. If possible, try storing media in a dry environment prior to printing or use freshly opened paper (non-acclimated).

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Fuser

Sticky output

Figure 2-131 Sticky output

Description of the defect

This defect appears as output pages that stick together when printing heavy coverage images in duplex mode. When printing large jobs the output stack retains enough heat that the toner on the top page does not cool sufficiently and can be tacky in heavy coverage areas. When the next page is output if there is heavy coverage that lands on the top page in the stack, the toner-to-toner contact might stick.

Conditions that can cause the defect

- Large jobs greater than 25 pages (50 Images)
- Plain fuser mode
- Back-to-back images with heavy (greater than 80% density) coverage
- More severe on smooth heavy media

Solutions for the defect

- Confirm that the correct print mode is selected for the paper being used.
- Flex the output stack before separating pages.
- Print smaller jobs and remove the output before sending the next job.
- Use the Intermediate Fuser mode which slows the printing and allows more time for cooling.
- Try printing in Quiet mode which lowers the fuser temperature and slows the output.

  M501: From the printer control panel, enable the Quite Print Mode option.

  - Open the following menus:

- Setup
- System Setup
- Quite Print Mode
- Select On

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Fuser

Output stacking

Figure 2-132 Output stacking

Description of the defect

This defect appears as output pages that do not stack properly in the output bin. The stack may be uneven or skewed or pages could be pushed out of the tray and onto the floor.

Conditions that can cause the defect

Poor stacking can occur when there is significant paper curl present, if the paper being used is wrinkled or deformed, if using non-standard media types such as envelopes, or if the output bin gets too full. Causes for this defect vary depending on the type of media being used. If paper curl is present, the cause can be attributed to uneven drying of the media in the fuser.

Solutions for the defect

- Use the output bin extension.
- If applicable, use the solutions in Output curl on page 491.
- Use different paper that meets HP specifications for this printer.

- Use freshly opened paper (non-acclimated).
- Remove paper from the output tray before the stack becomes too large.

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Fuser

Paper handling - misprints

Description of the defect

This defect appears as media in the paper path that does not behave as the printer user expects. The control panel displays a **41.XX.XX** error. A sensor is triggered at an unexpected timing and displays an error message.

Conditions that can cause the defect

Misprints occur in any environment.

Solutions for the defect

- Make sure that the size of the paper loaded in a specified tray matches the control panel setting.
- Make sure that the paper guides in the tray are adjusted correctly for the size of paper and the rear door is fully closed.
- Make sure that the input tray and output bin are not overfilled.
- Try using a new supply of paper or a different type of paper.

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Tray guides
- Registration assembly
- Feed rollers

Paper handling - multifeeds

Description of the defect

This defect appears as one (or many) pages feed through the paper path together. Sheets of paper stick together (physically or statically) and the separation pressure from the pick roller is unable to separate the sheets.

Conditions that can cause the defect

The multifeed defect can occur in any environment, but occurs more frequently in HH and NN (as opposed to LL), on glossy media (as opposed to plain media) and with freshly opened (as opposed to fully acclimated) paper.

Solutions for the defect

- Make sure that the input tray is not overfilled.
- Make sure that the paper guides in the tray are adjusted correctly for the size of paper.
- Remove the stack of paper from the tray, flex it, rotate it 180 degrees and then flip it over. Insert the media in a new orientation.
- Load a smaller stack of media in the input tray.
- Fan the media.
- Try a new supply of paper or a different type of paper.

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Tray guides
- Registration assembly
- Feed rollers

Paper handling - jams

Description of the defect

This defect appears as media stuck in the paper path. The control panel displays a **13.XX.XX** error. Media does not enter, pass through, or exit the paper path correctly.

Conditions that can cause the defect

Jams occur in any environment.

Solutions for the defect

- Clear the jam (input tray, rear door, bottom duplex tray, or output bin).
- Make sure that the paper guides in the tray are adjusted correctly for the size of paper and the rear door is fully closed.
- Make sure that the input tray and output bin are not overfilled.
- Load a smaller stack of media in the input tray.
- Try a new supply of paper or a different type of paper.

Parts related to the defect

NOTE: The following item(s) might need to be repaired or replaced to prevent this defect form occurring.

- Media
- Tray guides
- Registration assembly
- Feed rollers

Clean the printer

NOTE: To clean the printer exterior, use a soft, water-moistened cloth.

- Clean the paper path
- Print a cleaning page
- Check the scanner glass for dirt and smudges (M527)
- Clean the pickup rollers and separation pad in the document feeder (M527)
- Clean the Tray 1 roller and separation pad
- Clean the Tray 2-X rollers

Clean the paper path

Over time, particles of toner and paper accumulate inside the printer. This can cause print-quality problems during printing. Cleaning the paper path eliminates or reduces these problems.

Clean the paper path and toner-cartridge areas every time that the toner cartridge is changed or whenever print-quality problems occur. As much as possible, keep the printer free from dust and debris.

Print a cleaning page

Print the cleaning page from an LCD control panel (M501)

1. From the printer control panel, press the OK button.
2. Open the **Service** menu.
3. Use the arrow keys to select the **Cleaning mode** option, and then press the OK button.

   The printer prints the first side and then prompts you to remove the page from the output bin and reload it in Tray 1, keeping the same orientation. Wait until the process is complete. Discard the page that prints.

Print the cleaning page from an LCD control panel (M506)

1. From the Home screen on the printer control panel, use the down arrow ▼ button to scroll to Device Maintenance, and then press the OK button.
2. Use the down arrow ▼ button to scroll to Calibration/Cleaning, and then press the OK button.
3. If necessary, use the down arrow ▼ button to scroll to Cleaning, and then press the OK button to print the page.
4. Follow the instruction on the printed cleaning page to finish the cleaning page process.

Print the cleaning from a touchscreen control panel (M527)

1. From the Home screen on the printer control panel, scroll to and touch the Device Maintenance button.
2. Open the following menus:
   - Calibration/Cleaning

3. Touch Cleaning Page, and then press the OK button to print the page.
4. The cleaning process can take several minutes. When it is finished, discard the printed page.

Enable and configure auto cleaning (M527)

Use the procedure in this section to enable and configure the automatic cleaning function.

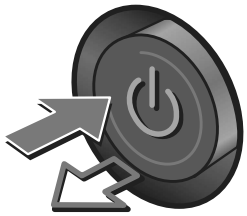
To enable the auto cleaning function from a touchscreen control panel

1. From the Home screen on the printer control panel, scroll to and touch the Device Maintenance button.
2. Open the following menus:
   - Calibration/Cleaning
   - Auto Cleaning
3. Select the Enable item, and then touch the Save button.

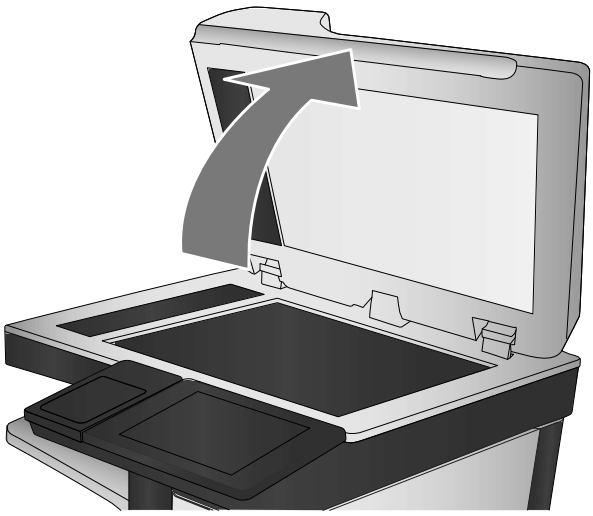
Check the scanner glass for dirt and smudges (M527)

Over time, specks of debris might collect on the scanner glass and white plastic backing, which can affect performance. Use the following procedure to clean the scanner if the printed pages have streaks, unwanted lines, black dots, poor print quality, or unclear text.

1. Press the power button to turn the printer off, and then disconnect the power cable from the electrical outlet.



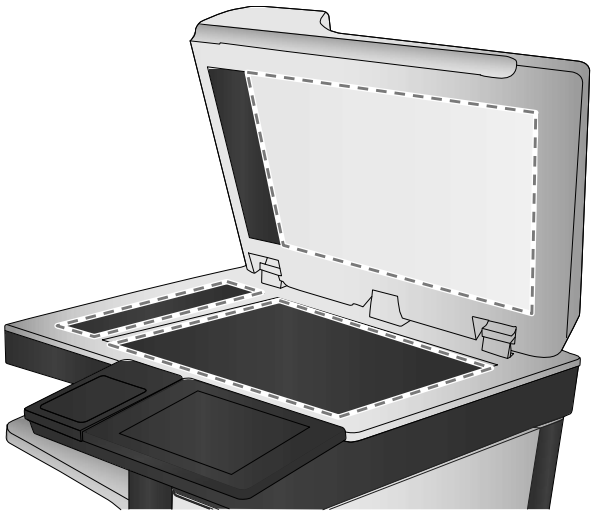
2. Open the scanner lid.



3. Clean the scanner glass, the document feeder strips, and the white plastic backing with a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.

   CAUTION: Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the printer; these can damage the printer. Do not place liquids directly on the glass or platen. They might seep and damage the printer.

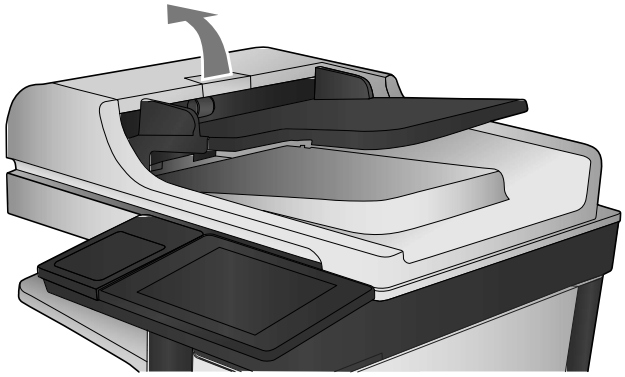
   NOTE: If you are having trouble with streaks on copies when you are using the document feeder, be sure to clean the small strip of glass on the left side of the scanner.



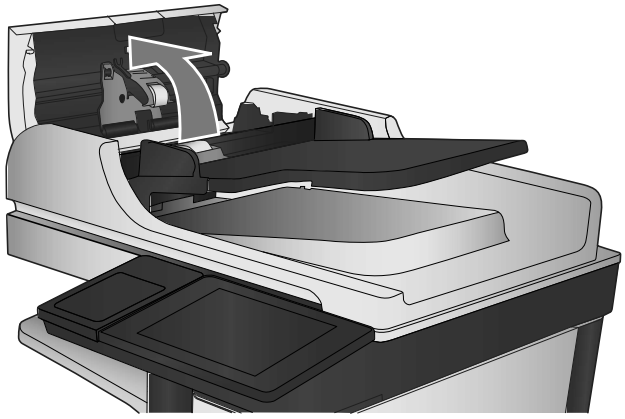
4. Dry the glass and white plastic parts with a chamois or a cellulose sponge to prevent spotting.
5. Connect the power cable to an outlet, and then press the power button to turn the printer on.

Clean the pickup rollers and separation pad in the document feeder (M527)

1. Lift the document-feeder latch.

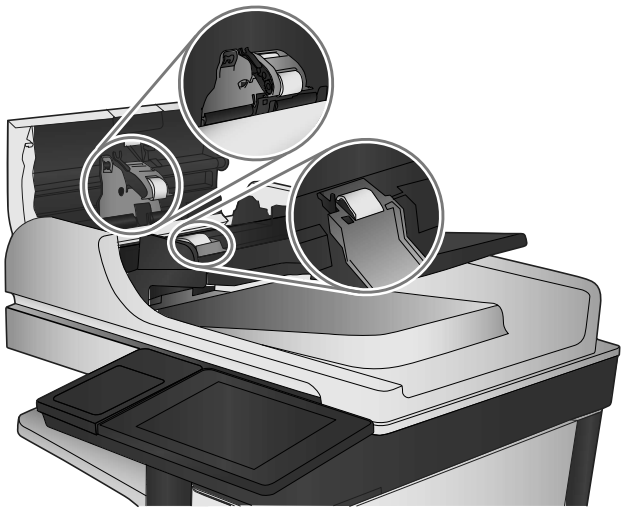


2. Open the document-feeder cover.



3. Remove any visible lint or dust from each of the feed rollers and the separation pad using compressed air or a clean lint-free cloth moistened with warm water.

   NOTE: Lift up the roller assembly to access and clean the second roller.



4. Close the document-feeder cover.

   If the error persists, install a document feeder maintenance kit (B5L52-67903).

Clean the Tray 1 roller and separation pad

NOTE: The figures in this section show the M506x. However, the procedure is correct for all M506 models and the M501 and M527 printers.

Step 1: Remove the roller

1. Open the toner-cartridge door.

Figure 2-133 Open the toner-cartridge door

2. Release two tabs between the roller collar and roller (callout 1), and then rotate the top of the roller out and away from the printer (callout 2).

TIP: Pushing down on the top of the roller might make it easier to release the tabs.

Figure 2-134 Release two tabs