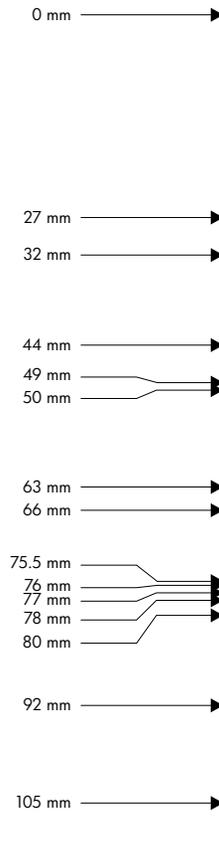# Print quality troubleshooting tools

Repetitive defects ruler

If defects repeat at regular intervals on the page, use this ruler to identify the cause of the defect. Place the top of the ruler at the first defect. The marking that is beside the next occurrence of the defect indicates which component needs to be replaced.

Figure 3-47 Repetitive defects ruler

Distance between defects	Product components that cause the defect
27 mm	Print cartridge: primary charge roller
32 mm	Print cartridge: developer roller
44 mm	Printer: primary transfer roller
49 mm	Print cartridge: RS roller
50 mm	Printer: secondary transfer roller
63 mm	ITB: secondary transfer backing roller
66 mm	Printer: distance from secondary transfer roller to fuser
75.5 mm	Print cartridge: OPC drum
76 mm	ITB: driven roller

Distance between defects	Product components that cause the defect
77 mm	Fuser sleeve
78 mm	Fuser pressure roller
80 mm	Printer: distance from primary transfer roller to secondary transfer roller for black
92 mm	Print cartridge station to station pitch: distance from the centerline of one OPC to the centerline of the adjacent OPC ITB: drive roller
105 mm	Printer: distance from registration to secondary transfer roller

Calibrate the product

Calibration is a product function that optimizes print quality. If you experience any image-quality problems, calibrate the product.

1. Press the Home 🏠 button.

2. Open the following menus:

   - **Device Maintenance**

   - **Calibrate/Cleaning**

3. Press the Down arrow ▼ button to highlight the **Full Calibration** or **Quick Calibration** setting, and then press the OK button.

   - **Full Calibration**: takes about 70 seconds and performs color plane registration, environment change control, and Dmax and Dhalf adjustments. Use **Full Calibration** if colors are misaligned or appear blurry. **Full Calibration** runs automatically after a replacement transfer belt (ITB) is installed. **Full Calibration** must be run manually after a laser scanner is replaced.

   - **Quick Calibration**: takes about 45 seconds and performs Dmax and Dhalf adjustments. Use **Quick Calibration** if colors are wrong, highlights are missing, or if colors are too dark or too light.