

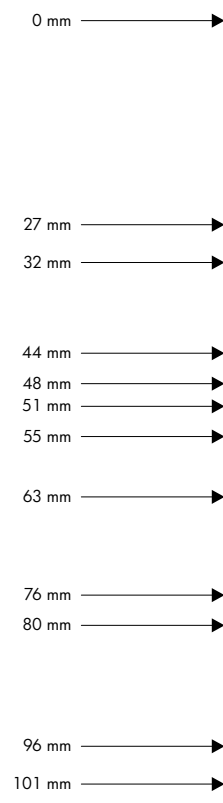
3. Touch the [Print Quality Pages](#) button.
4. Touch the [Color Band Test](#) button.
5. Touch the [Print Test Page](#) button.
6. Touch the [Print](#) button.

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 3-85 Repetitive defects ruler



Distance between defects	Product components that cause the defect
27 mm	Print cartridge
32 mm	Print cartridge
44 mm	Transfer unit
48 mm	Print cartridge
51 mm	Transfer roller

Distance between defects	Product components that cause the defect
55 mm	Print engine
63 mm	Transfer unit
76 mm	Print cartridge
76 mm	Fuser
80 mm	Fuser
96 mm	Print engine
101 mm	Print engine

Calibrate the product

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

1. From Home screen, scroll to and touch the [Device Maintenance](#) button.
2. Touch the [Calibrate/Cleaning](#) button.
3. Touch the [Full Calibration](#) or the [Quick Calibration](#) button, and then touch the [Start](#) button.
 - **Full Calibration:** takes about three minutes and performs color plane registration, drum speed adjustment, and Dmax and Dhalf adjustments. Use [Full Calibration](#) if colors are misaligned or appear blurry. [Full Calibration](#) runs automatically after a new transfer belt is installed. [Full Calibration](#) must be run manually after a laser scanner is replaced.
 - **Quick Calibration:** takes approximately 1 minute and performs Dmax and Dhalf calibrations. Use [Quick Calibration](#) if colors are wrong, highlights are missing, or if colors are too dark or too light.

Calibrate the scanner to compensate for offsets in the scanner imaging system (carriage head) for document feeder and flatbed scans. Because of mechanical tolerances, the scanner's carriage head might not read the position of the image accurately. During the calibration procedure, scanner offset values are calculated and stored. The offset values are then used when producing scans so that the correct portion of the document is captured.

Scanner calibration should be carried out only if you notice offset problems with the scanned images. The scanner is calibrated before it leaves the factory. It needs to be calibrated again only rarely.

Before calibrating the scanner, print the calibration target.

1. Place letter- or A4-size paper in Tray 1, and adjust the side guides.
2. From Home screen, scroll to and touch the [Device Maintenance](#) button.
3. Touch the [Calibrate/Cleaning](#) button.
4. Touch the [Calibrate Scanner](#) button.
5. Follow the steps displayed on the control panel to calibrate the scanner.