AUTOMATICALLY REALIGNING MEDIA BEFORE PRINTING

HP INC
Automatically Realigning Media Before Printing

Abstract: A realign process automatically ensures that print media is properly aligned without user intervention.
This disclosure relates to the field of printers.

A technique is disclosed that automatically ensures that print media is properly aligned before printing without requiring user intervention.

In many large format printers, the paper is not completely aligned properly before printing. This often occurs where the media need to be driven from a drawer (or other media input system) to a printzone that is disposed relatively far from the input system and thus has a long media path. Media alignment depends not only on the media path architecture, but also on how the user loads the media, which can vary the media alignment positions. Printing without having the media properly aligned will undesirably introduce errors in margins width and image quality.

According to the present disclosure, and as understood with reference to the Figure, the realign process is conducted in two phases: (1) Printzone Realign; and (2) Parking Realign. The realign process starts once the media has entered into the printzone, the alignment has been measured, and its value is over the maximum limit of 2.2 mm/m. The media alignment is always measured when the media enters into the printzone from the input for the first time, and after each realign iteration.

Printzone Realign begins after the alignment has been measured, and it has been determined that alignment is out of the threshold limits. The Printzone Realign process is as follows:

1. The media is moved for 30 inches with the grit roller 10 and under the backtension needed for the media type being used. This allows the media to move laterally and align the media displacement direction with the roller perpendicular axis.
2. Once finished, pinches 20 are lifted to allow media stress relief and then set down to hold the media.
3. The media is moved backwards the same distance but without tension, generating a bubble between the media input system and the grit roller 10.
4. At the end of the backwards move the media is moved forward again to find the front edge of the media so that the alignment can be measured again.

In some cases, the convergence is not always achieved using only the Printzone Realign, or the convergence process is too slow. In these cases, once the maximum iterations for printzone realign has been exceeded, the Parking Realign process is performed. The media is moved to the parking position 30 inside the media input system. Then it is moved again to the printzone. After this, the Printzone Realign process is initiated again.

The workflow used to realign the media differs based on whether the printer is loading the media from rollswitch (unattended mode), or the media is manually loaded by a user. For manual loading, Printzone Realign is performed up to a predetermined maximum number of times if needed to achieve proper alignment. If it is not achieved, Parking
Realign is performed, and then Printzone Realign is again performed up to the predetermined maximum number of times if needed to achieve proper alignment. If it is still not achieved, the user is queried whether to (a) load the media anyway; or (b) unload the media.

For unattended (rollswitch) loading, Printzone Realign and Parking Realign (as described above for manual loading) are repeated for a second predetermined maximum number of times if needed to achieve proper alignment. If alignment is still not achieved, printing proceeds regardless.

The disclosed technique advantageously improves image quality. Precise margins widths (error below 2.2 mm/m) are achieved automatically, without user intervention. There is less dependence on the expertise of the user when loading media, and load failure rate is significantly reduced.

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