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## EASY PLUG-IN INK COLLECTOR MODULE WITH MAGNETS FOR TEXTILE LARGE FORMAT PRINTER

HP INC

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# Easy plug-in Ink Collector module with magnets for textile large format printer

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## **Title**

Easy plug-in Ink Collector module with magnets for textile large format printer

## **Abstract**

In our large format printers, an ink collector accessory is used to enable the possibility of printing onto porous substrates (textiles for example). Nowadays the set-up process consists on placing some ink collector modules on top of the print-platen of the printer. To secure those ink collector modules, the user must manually rotate up to 18 latches, which can be quite annoying and time-consuming for him/her. In addition to that, there is a failure mode on the field related to a misuse of those latches that can result in broken parts, and therefore, in a service intervention to repair the module.

The invention described in this document consists on substituting the mentioned manual latches by a customized magnet feature, which makes the process of installing/uninstalling the ink collector modules easier and more comfortable by far. All in all, both, the set-up time and the ergonomics are improved thanks to this invention. Moreover, the magnet feature is more robust against misuses than the current rotating latch mechanism.

## **Projects**

Serica, and potentially other large format products.

## **Problems solved by the invention**

Current solution to secure the ink collector module on top of the print platen of our printers is time-consuming and quite annoying for the user, since he/she must manually rotate one by one 18 mechanical latches.

Moreover, current mechanical latch is quite easy to break if the module is not manipulated carefully by the user. The following picture shows some latches broken in the field:

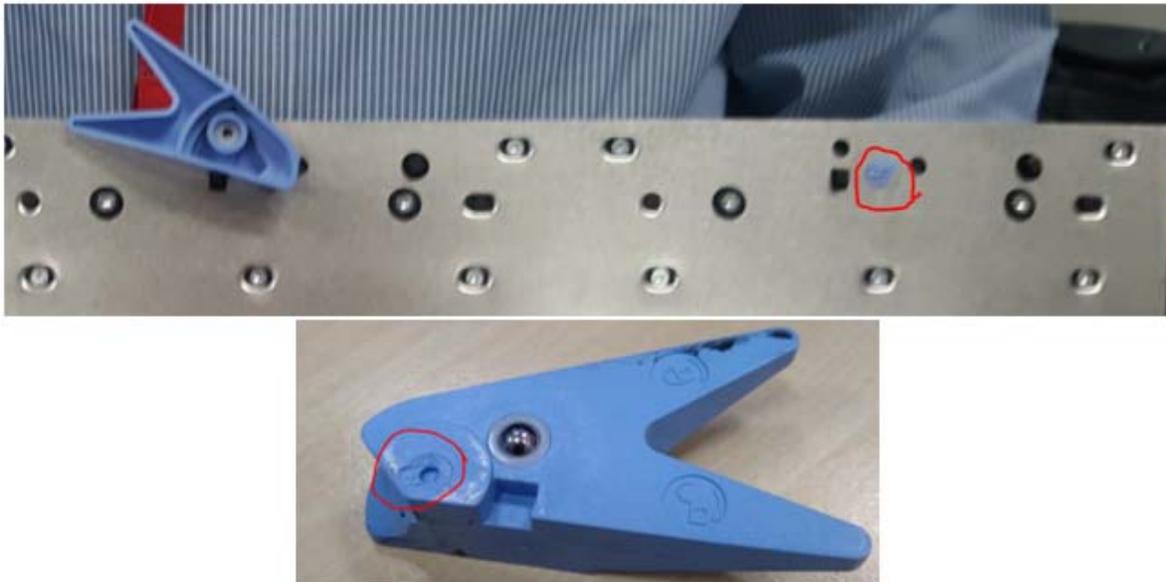


Figure 1 Current rotating latch mechanism. It might brake quite easy under misuse.

### Prior solutions and their disadvantages

Our large format printers have 18 mechanical latches that should be rotated by hand one by one in order to secure the ink collector modules. The following picture shows one of the ink collector modules with its 3 latches to be manually rotated by the user. Typically 6 modules are needed to cover the full width of the print platen of our large format printers, that makes a total of 18 latches.

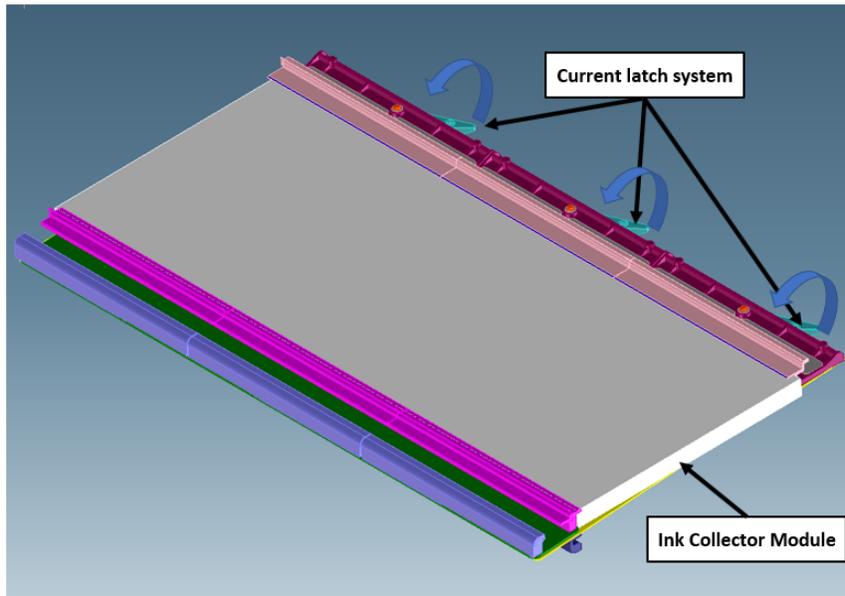


Figure 2 Ink Collector Module with current latch system to be manually rotated by the user.

Due to the high number of latches to be actioned one by one the setup process is time consuming, and it is not a good solution from the user experience and ergonomics point of view.

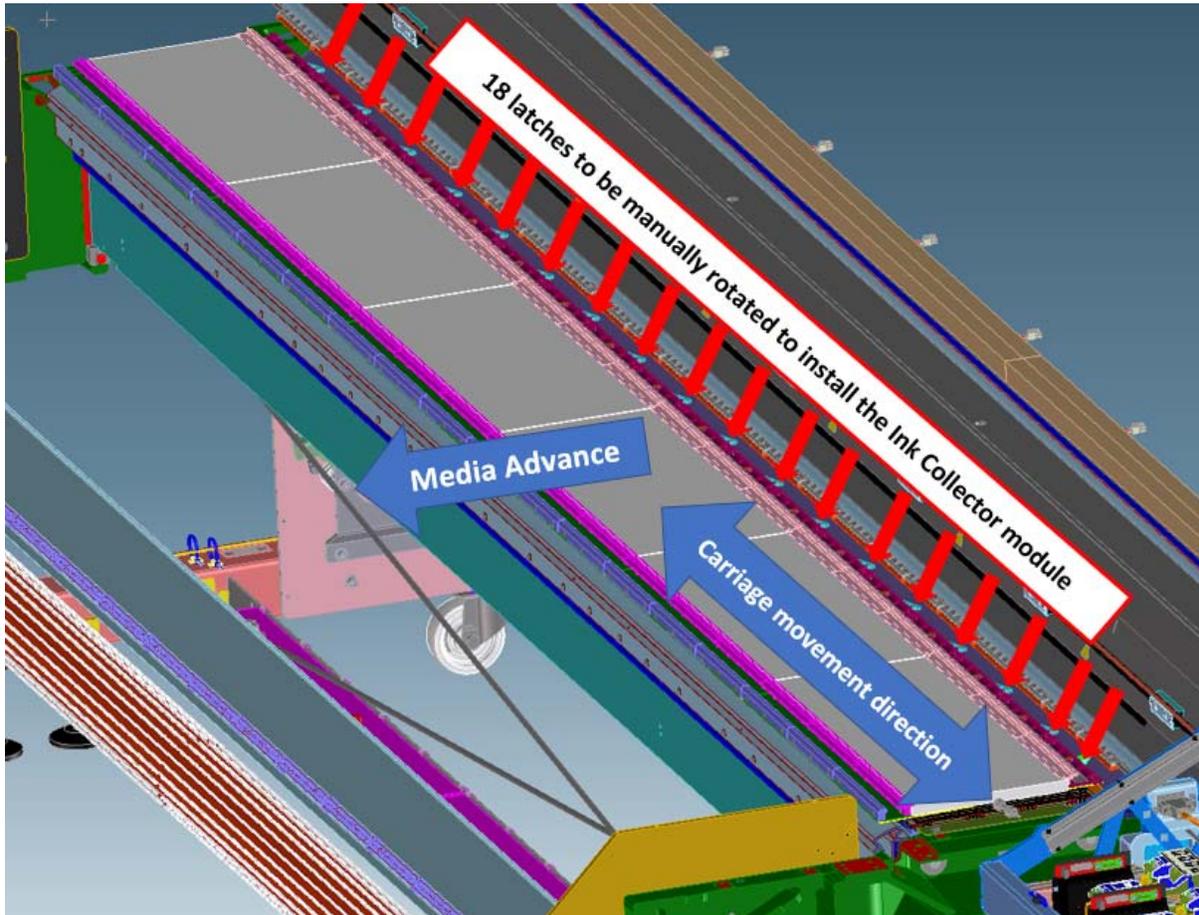
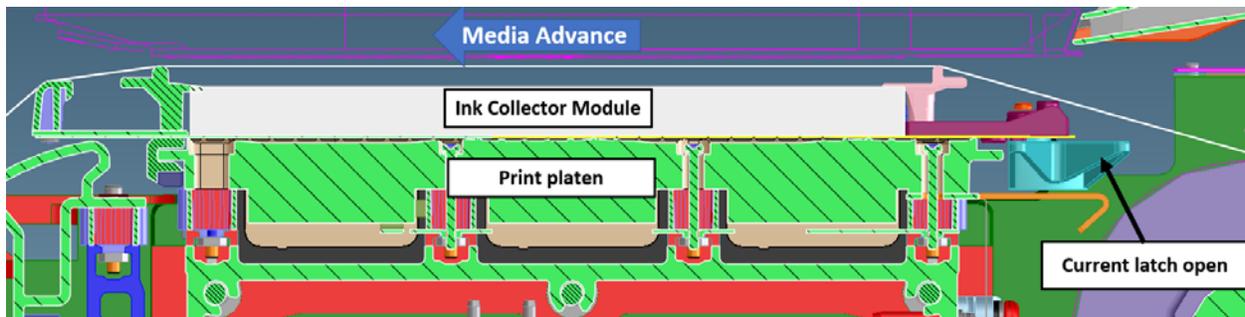


Figure 3 General view of a large format printer with Ink Collector accessory installed. A lot of latches to be manually activated by the user.

The following picture shows in detail the latch open and closed. Once closed, the ink collector module is secured to the print-platen.



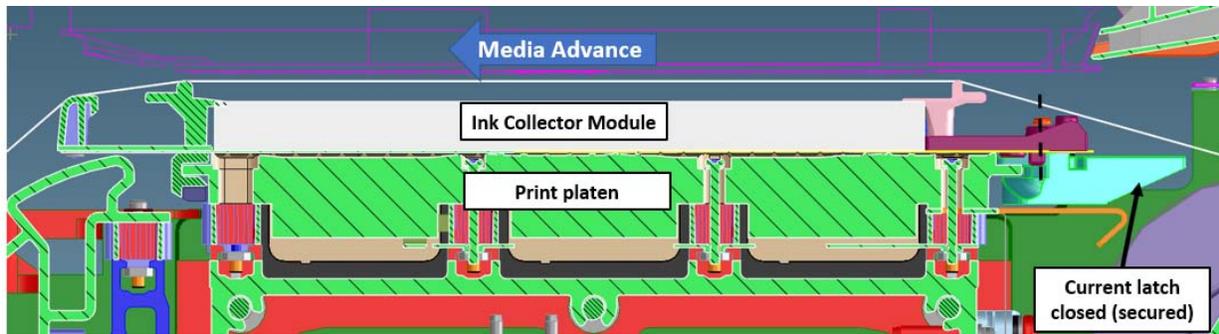


Figure 4 Detailed view of current latch open/closed

Moreover, under misuse conditions, those mechanical latches can easily brake. In that case a service intervention would be required to repair the module.

### Description of the invention

The invention consists on a custom 3D printed part with a magnet inside, that substitutes the current mechanical latch. That means that the user no longer needs to manually activate one by one each of the latches, but he/she only needs to place the ink collector module on top of the print-platen. The 3D printed part has some datum surfaces that guide the module till it fits in its final position and the magnet force retains the ink collector module gently on its place.

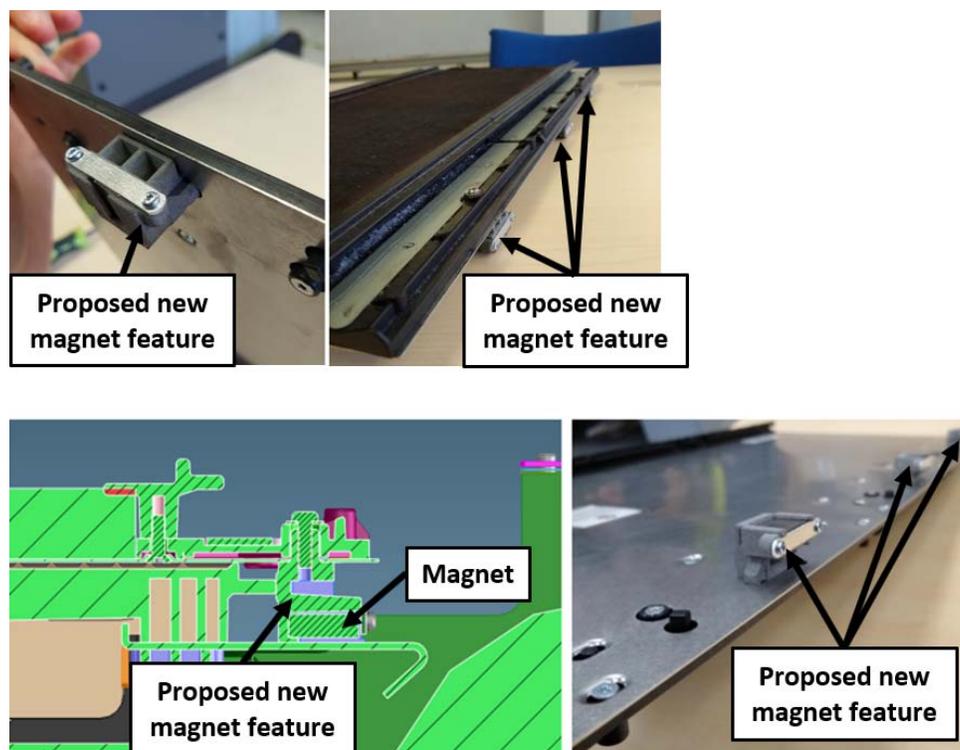


Figure 5 Proposed design with a magnet feature. The magnet secures the module on its place, and the new feature contains datum surfaces to ensure the correct position. The user should only place the module on its place gently. No latches to activate, and therefore set-up time is reduced, and user experience improved.

When the user wants to remove the ink collector module from the printer, he/she only needs to gently pull the ink collector module out. There are no latches to handle, and therefore set-up time is reduced, and user experience improved by far.

### **Advantages of the solution over what has been done before**

- Better user experience and ergonomics.
- Time to set up the ink collector reduced (installation and uninstallation).
- More robust solution against misuse conditions. It is by far more difficult to brake than current mechanical latch. This helps to reduce service interventions and to improve quality perception in terms of robustness.

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