

Research On The Scanner Group Of A Business Machine

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Abstract—The scanner built in the business machine is a very mature product. Its development has gradually grown since 1992 and its demand has skyrocketed till 1997. The quality of scanners continues to grow and its resolution progresses to 1200 dpi (dots per inch) and beyond. The range of applications for scanners is constantly being introduced. In the addition to the traditional document scanning, the scanner has gone a step further to scan the code of goods in mall. After the scanner has so many functions, it also attracts hackers and is implanted with Trojan horse programs. Hackers can obtain confidential informations by remote control from behind. The danger of Trojan horse programs is a serious problem that the scanners and users of the built-in business machines must pay special attentions to.

Keywords—resolution progresses, dots per inch, Trojan horse programs, Hackers

I. Introduction

Most image scanners today are variants of desktop scanners. Hand-hold scanners were once popular. The hand- hold seeding sweeper that scans was once very fluid, but it is difficult to obtain the ideal image quality. Now it is obsolete. General scanners use charge-coupled device as image sensors. Image scanners are very important in our daily life. Multifunctional business machines (MFPs) that is commonly used today are integrated image scanners,

printers, photocopiers and fax machines. This article is to explain the scanner part of the multifunctional business machine (MEP).

II. Literature review

Here are a few article about the maintenance technology of the scanner group of the business machine as the example. In the literature [1], Taiwan Ricoh company made the operation method of a business that is produced by himself into a manual, the content is very detailed. In the literature [2], graduate student Chuang Qijun published “Dynamic analysis of my country’s computer scanner industry”. In this thesis, he will introduce in detail the stage of tooth eruption, exploration stage, growth stage, mature stage, intense competition stage, overproduction stage, etc. of Taiwan’s scanner industry. In the literature [3], graduate student Chuang Yuxin published “Design and manufacture of the electron beam scanner”, which is a new type of design. It is different from the traditional laser exposure scanning mode and re- establishes the scanner mode of the electron beam, Are the electron beam scanner designs superior to traditional laser exposure scanning modes? This problem has yet to be proved by the time, but the courage to innovate is very valuable. In the literature [4], graduate student Tong Qiaoyu published “Integration of image scanning device into smartphone product design”. This is the first time that an image scanning device is bult into a smartphone. There are still many technologies to

overcome in this design, especially the cost should not be too high or it will not be commercially quantifiable.

III. Explanation of principle

A. The introduction of the overall business machine



Fig. 1 The appearance of a business machine

B. The position of the scanner on a business machine

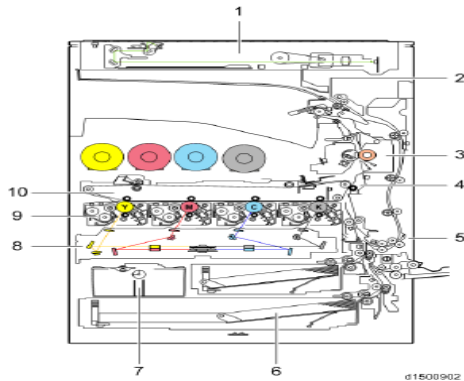


Fig. 2 The position of the scanner on a business machine

1. The scanner is located inside the top cover

C. The detail design of a scanner

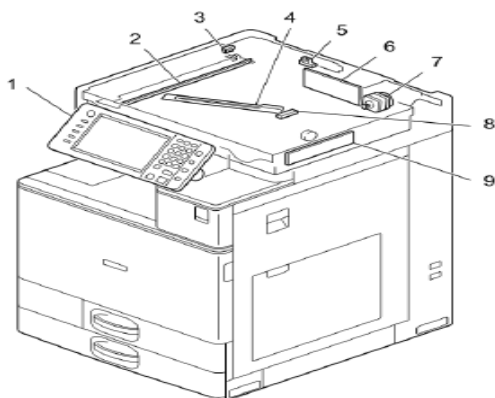


Fig. 3 The fine construction of the scanner

(1)operational panel (2)scanner lamp unit
 (3)scanner home position sensor (4)Anti-condensation heater (scanner heater) (5)direction finder (DF) position sensor (6)scanner Input/output (SISO) board (7)scanner motor (8)Auto paper size (ASP) detection sensor (9)sensor board unit (SBU)

IV. The practical operation of the scanner group of a business machine



Fig.4 View the scanner's light set

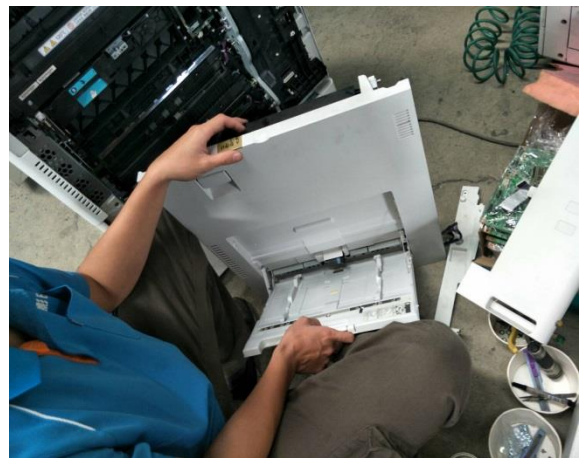


Fig. 5 Check the scanner's motor



Fig.6 scanner completed

V. Conclusion

For the scanner group built in the business machine: Compared with the old business machine and the new business machine, the new business machine has the following improvement.

(1) All light-emitting devices of the new model use light-emitting diode (LED) light sources. We compared with the halogen scanner of old model, the new model can save energy and meet the requirement of environmental protection laws and regulations.

(2) The new model adopts a non-contact full-sheet flat scanner, which can improve the phenomenon of black line variation compared with the contact full-sheet flat scanner of the old mold.

(3) The new model adapts Android operation panel. The Android operating system has built-in photocopying scanning and faxing user interfaces to obtain high-level operating functions and convenience, which are not available in the old model.

(4) The new model uses a searchable pdf file (that is, a secure digital card option) to expand the scanning function to add text information in the scanned file, which is not available in the old model.

VI. Reference

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