

TROY Laser Indelible Solution™

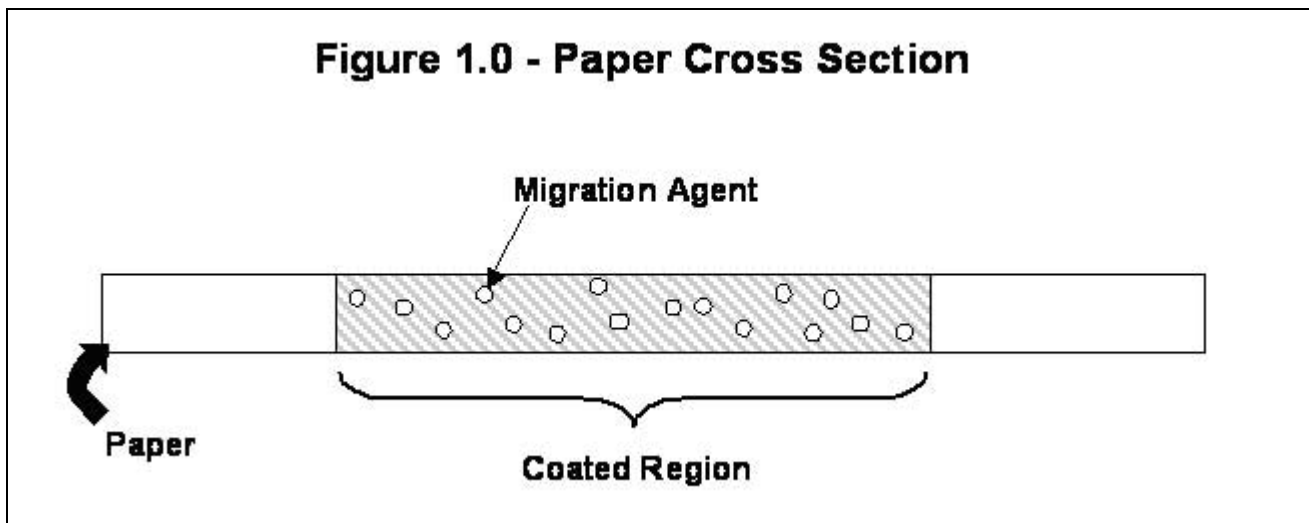
OVERVIEW

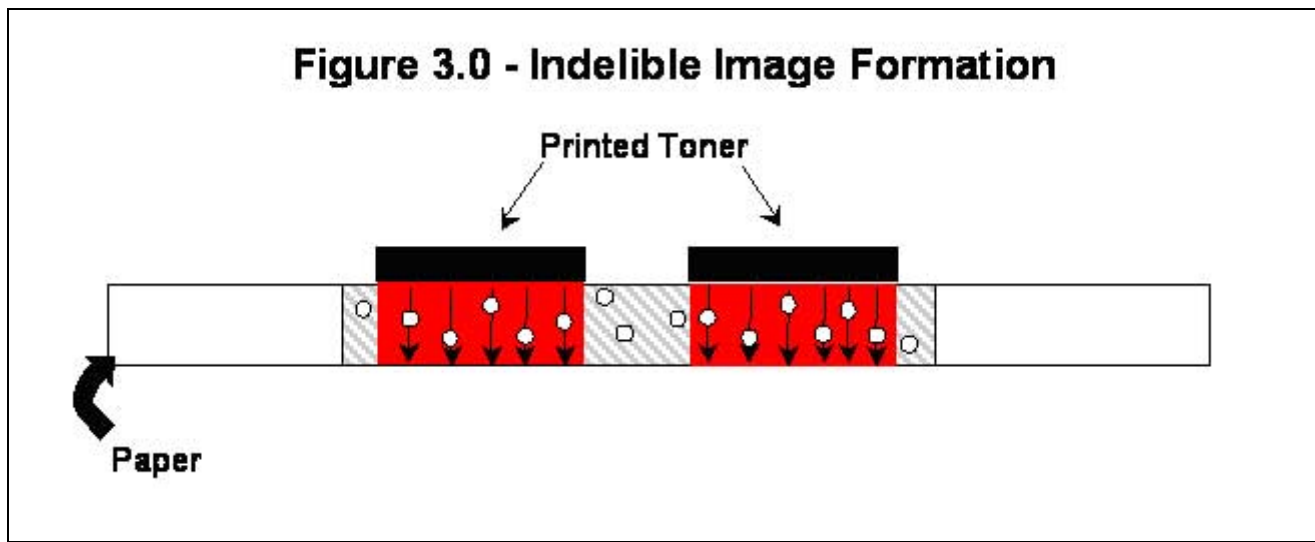
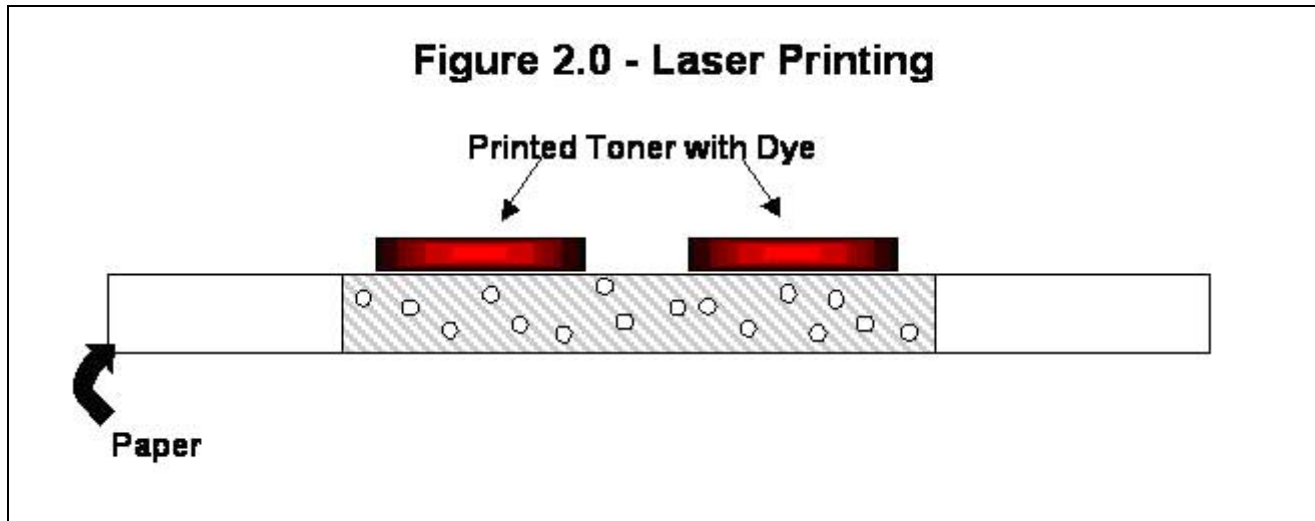
TROY Group, Inc. has developed a new digital printing technology for security printing (patents pending). This new technology is the TROY Laser Indelible Solution™. The TROY Laser Indelible Solution™ is a laser toner and paper system that work together to create an indelible image on documents printed with desktop laser printers.

HOW IT WORKS

The new security product line is a toner and paper system patented by TROY. On each sheet a selected area has a special coating that contains a “migration agent” designed to interact with the toner (Figure 1.0). The toner, a specialty MICR toner formulation, contains a dye (Figure 2.0). When printed, the dye in the toner is released by the migration agent and drawn through the paper (Figure 3.0). The resulting image is a black toner character or graphic on the front of a document and the same character or graphic in red dye, permeating the thickness of the paper. Each character becomes visible as a red mirror image on the backside of the document.

Figure 1.0 - Paper Cross Section





USING TROY LASER INDELIBLE TO REDUCE FRAUD

One of the advantages of TROY Laser Indelible Solution™ is that sensitive regions of a document can be targeted for the Laser Indelible security. This is achieved by coating certain areas of a form, while leaving other areas uncoated. Printing on the regions that are coated will form a red indelible image underneath the standard black toner. Printing on uncoated areas will have the standard black toner appearance.

Check fraud is a common problem costing banks and business billions of dollars each year. Organized criminals often attempt fraud on high value business checks, bank checks and payroll checks. They try to counterfeit a check by copying an original, stealing an original and altering it, or creating a check with an official looking appearance. The most common method of fraud on business checks is toner removal from the face of a check, with a knife or chemicals, then the criminal reprints a new character in place of the one that is removed. Using this technique, the payee name can be changed or the amount of the check can be

increased. Chemically reacting papers are used to help to reveal chemical alteration; however, they do not reveal alteration by toner removal using a knife. Even on high quality check stock, with coatings designed to enhance toner adherence to the paper, a fraudster can carefully remove the toner.

Figure 4.0 is an illustration of a business check that has been coated in the payee name and the amount regions of the document. The backside of the check reveals that TROY Laser Indelible Solution™ has been used to print this check. The visible nature of the indelible image acts as a deterrent to alteration and thereby reduces the risk of being targeted by fraud.

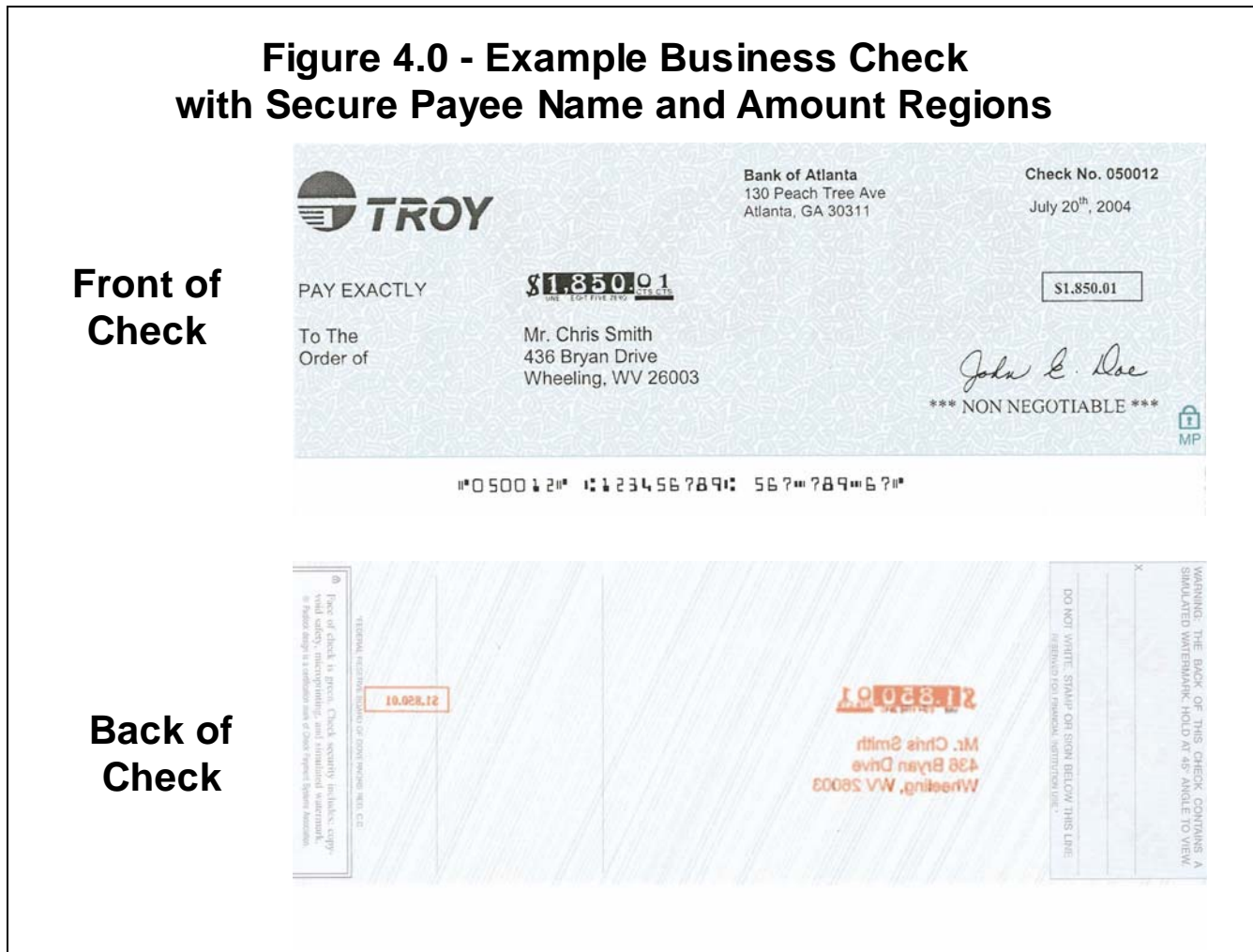


Figure 5.0 illustrates the effect of careful removal of toner from the payee name “Chris” on a check printed with TROY Laser Indelible Solution™. In this example, the toner was removed with a repeated scraping motion using an X-acto knife. Toner removal reveals the red image underneath the toner. The dye used to create the toner permeates the paper and cannot be removed with bleach. Some solvents do not affect the dye; others will cause the dye to migrate into surrounding areas, creating an obvious red stain. If chemical alteration is a

concern to an organization using TROY Laser Indelible Solution™, TROY recommends using this technology in conjunction with chemically reacting papers.

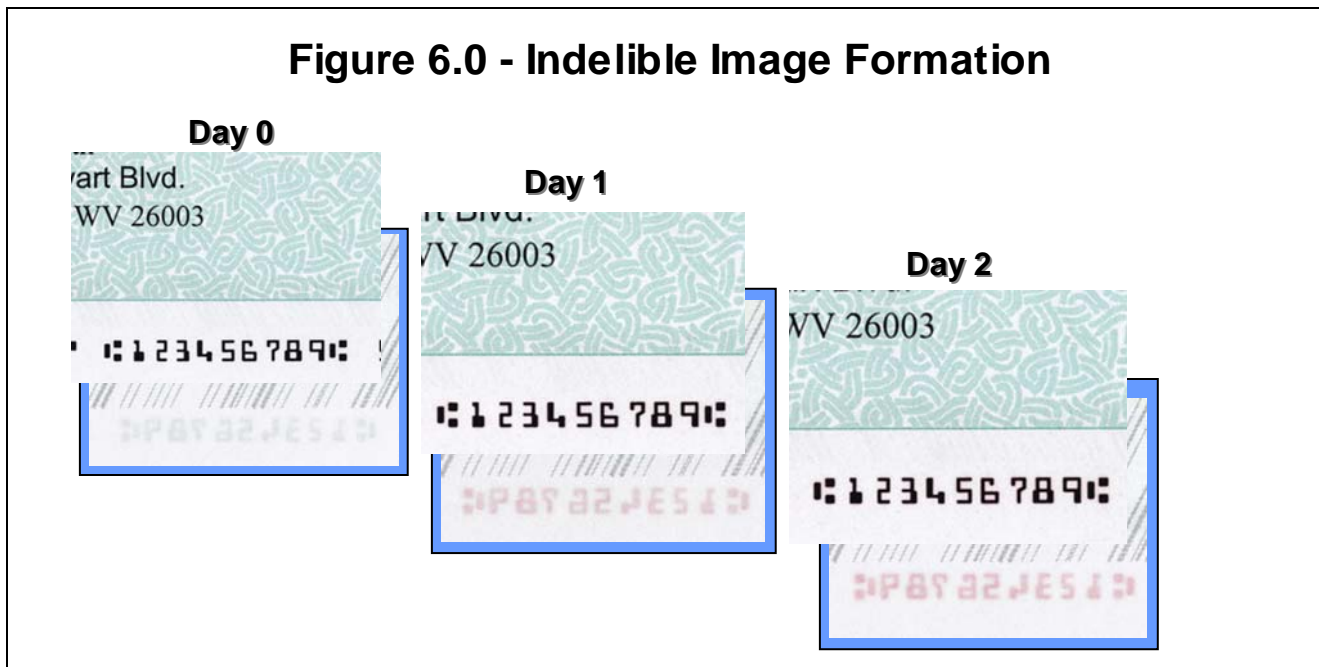
Figure 5.0 - Toner Removal



INDELIBLE IMAGE FORMATION

As previously noted, the red indelible image provides a visual fraud deterrent as well as an easy way to help determine document authenticity. One of the considerations when using TROY Laser Indelible Solution™ is the rate at which the indelible image is formed. Once a document is printed using TROY Laser Indelible Solution™, the formation of the image occurs gradually over a period of several days (Figure 6.0). If toner is removed from the face of a document, you will see the red characters underneath the toner within the first 24 hours. After the first 24 hours, you will also begin to see the red image on the backside of the document. After 48 hours, the red image is apparent on the back of the document. Over several days, the red image more vivid and sharp. After a week, the dye will also appear on the front side of the document, appearing as a red halo surrounding the black character. This affect is visible around the magnified "123..." in figure 5.0.

Figure 6.0 - Indelible Image Formation



APPLICATIONS

TROY Laser Indelible Solution™ can be used for any official document that is at risk of alteration or fraud. The toner used in the Laser Indelible Solution is the highest quality MICR toner, so laser checks are an ideal application. Other form designs can be treated with the coating used in TROY Laser Indelible Solution™, opening up other uses. Other applications include:

- School Transcripts
- Titles
- Classified documents
- Shipping documents
- Legal documents
- Gift Certificates

CONCLUSION

Document fraud continues to remain a significant financial and security concern to businesses, the financial industry, governments and many other industries. While digital imaging is here to stay, it opens up even more risk of document fraud. TROY Laser Indelible Solution™ provides a new level of document security to print-on-demand documents. It provides a visual deterrent in the areas that are at risk of alteration. It also provides a tamper resistant indelible image that “raises the bar” in document security.

For more information on TROY Laser Indelible Solution™ visit the TROY web site at www.troygroup.com or contact the TROY sales department at 800-332-6427 ext. 595.