what is image processing?

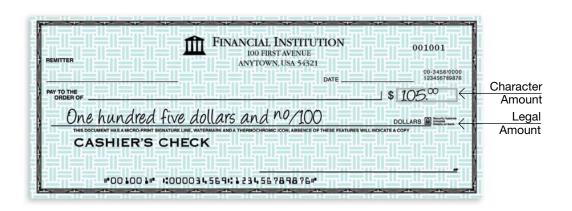CAR/LAR

Software
Drop-out

RECOGNITION

Indicators

Image Processing

The promise of higher speed, a reduction in personnel, and lower handling cost for massive amounts of paper documents makes image processing one of the most important innovations since MICR. Image processing allows financial institutions to perform processing on images rather than actual documents. This technology can be used to capture the images of various types of financial forms such as internal documents, checks, deposit tickets, remittance documents, and credit and debit card documents.

The basic objective of this technology is to reduce manual or mechanical handling of internal MICR forms, checks and deposit tickets. In the image processing environment, all documents will bypass the proof encoders and go directly to a reader/sorter equipped with a high resolution scanner (camera) where the light and dark points of the image are "captured" and converted into bits of digital information. At this point, the scanned image can be processed by two basic methods. Low speed systems will display the digitized form image on a monitor where amounts are entered. High speed systems utilize courtesy amount recognition (CAR)/ legal amount recognition (LAR) technology which allows machine recognition of OCR data, hand printed data and machine printed data. The combination of the MICR read and the captured image allows the reader/sorter to separate the documents into reject, on-us and transit groups. With CAR/LAR technology, a recognition program examines the images and stores in memory all successful "reads" (images understood by the recognition program). Items that cannot be read are displayed on a video terminal for manual entry. MICR rejects are also repaired in this way.
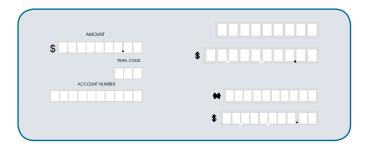
On-us items are processed in one pass and need no amount encoding. They go directly to bulk file. Transit items are sent to a high speed encoder for amount information in preparation for distribution. Inclearings also require just one pass through the reader/sorter. Images and recognition data are stored in memory and do not require sorting. In the image environment, statement preparation is made easy as customer account items stay in the bulk file and require no further processing. Images of these items will be reduced electronically to fit on a statement containing up to 24 check images per page. Sorting and handling time are eliminated and postage costs are reduced.

CAR technology addresses the simpler technology of numerical recognition. CAR matured several years ago, facilitated by the check design standard that prescribes a "clean area" for the Character amount (or Courtesy or Convenience amount). The newer LAR technology addresses the task of alphanumeric recognition, electronically viewing and trying to recognize the hand written amount in the Legal area of the check. Recognition rates are greatly increased when CAR and LAR are used together, significantly reducing the number of items that proof operators must hand key prior to Power Encoding.
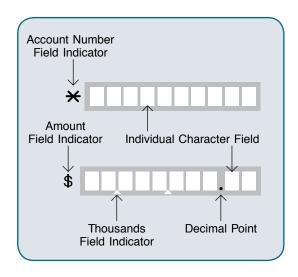

Character Amount

Legal Amount

Form Design

There is a growing number of image processing software vendors that financial institutions can choose from. Each "brand" of software processes standardized information differently and is therefore programmed to look for certain indicators of which data fields on a form will be captured for data processing. These can include MICR encoding, DOC ID numbers, imaging symbols (i.e. dollar symbol, asterisk and decimal point) or preprogrammed X-Y coordinates for drop-out boxes or teller machine imprints. In CAR/LAR environments, every form contains a recognition area which is what the image system captures and reads. This area contains field indicators, possibly led by dollar signs or asterisks. Within these field indicators are character field boxes which act as guides for hand written information. If imaging symbols are present, they are normally printed in solid color (black is preferred) and the boxes in a "drop-out ink".

Print that appears in the digitized image should be low reflective and contrast highly with the background. Print that is to drop out of the image should be highly reflective and low contrasting to the background. The height and width of the character field boxes, the space between them and the space within them must meet the precise design requirements of the chosen software vendor. Low speed systems also utilize high contrast data fields and low contrast field constraints even though CAR/LAR technology is not used. When character field boxes drop out of the image displayed on the monitor, the operator can easily locate and distinguish the amount to be keyed.

In general, we make the following recommendations:

- While there is no specified size for typical financial documents, it is recommended that you use a few standardized sizes.

- The most consistent paper is white MICR bond with a reflectance greater than 80%. Pastels are not as reliable.

- We suggest that data fields (such as account number, amount, cost center and tran code) be located in the same area on as many documents as possible. This consistency will help people adjust to new forms faster.

- The best way to distinguish the type of transaction is to use a colored bar at top and/or bottom of form instead of colored paper. MICR code lines can also help in identifying transaction types.

Document identification through unique MICR encoding is an integral part of image processing systems. Every document of a particular type, i.e., personal deposit, business deposit, cash in, cash out, general ledger debit, general ledger credit, payment coupon, etc. must be specifically identified. If several different deposit styles are to be used, each one needs its own code identity. For example, personalized deposit tickets and counter deposit tickets would need different MICR. In some CAR/LAR systems, the MICR tag tells the recognition system where to find data, whether the data represents a total amount, a line item, or an account number, and whether it is to be debited or credited to the account. The only document which does not have an assigned MICR identifier is a check. Whenever a unique MICR code is not found, the system assumes it to be a check and reverts to the scan and data search mode associated with checks.

Our Role As A Vendor

We will work hand in hand with you through all the conversion steps. We have purchased highly technologically advanced equipment that will allow us to meet exact printing specifications. We will supply proofs when necessary in order to verify software compatibility. With our assistance the switch to image processing can be an easy transaction.

Stock, Standard, Semi-Standard, Custom…
Which One is Right for You?

• We recognize that user preferences vary widely.

• We specialize in establishing custom programs that combine hardware/software requirements, user preferences and manufacturing efficiencies.

• Our staff will help you determine the program that is best for your operations.