

# Operational/Implementation Issues

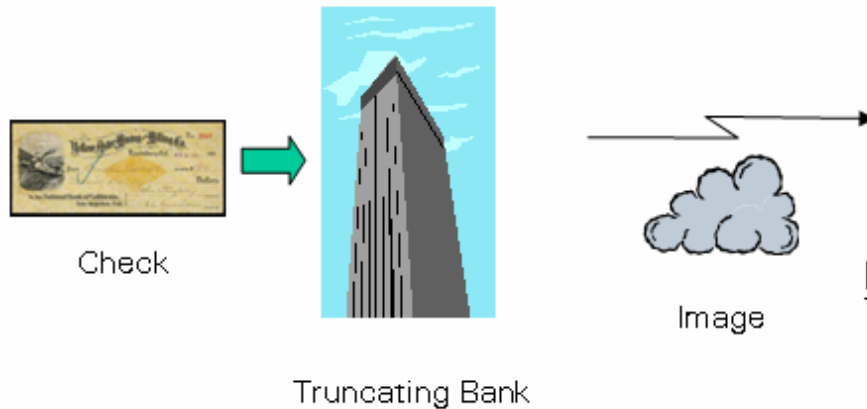
Version 1 – January 2005

One of ECCHO's primary focuses relative to Check 21 was the identification and resolution of Operational and Implementation issues. Some of the issues, while not directly related to Check 21, were felt pertinent to banks in the implementation of Check 21. For example Check 21 does not directly address image exchanges, which is left to agreement by the parties, but image exchange needs to be addressed in order for banks to achieve the full value of check truncation. The legal coverage for image exchanges is left to agreements; these agreements can be clearing house rules (e.g. ECCHO), Fed operating circular, other multi-lateral agreements or bilateral agreements. There is a significant list of operational and implementation issues that have been addressed or that need to be addressed by the banking industry. This document addresses issues associated with the creation of substitute checks and/or image exchange that have been addressed by ECCHO; for organizations that do not want to create substitute checks or participate in image exchanges see Minimum Compliance Requirements on this website. The bankers working on this project felt that many issues are difficult but are not "show stoppers" in the creation and exchange of substitute checks.

**Processing Scenarios** - There are numerous possible processing scenarios involving the use of image and substitute check creations. See "Ways to Use Check21" on this website for examples of possible scenarios.

**Flow Chart** – Below is a chart showing a potential transaction flow under a Check 21 and image exchange process. The flow begins with a check transaction via image with the image sent to a processor bank where the image is reconverted to a substitute check. The chart identifies the processes and processing considerations associated with each step. A description of each processing consideration is then developed in the body of this document. Also included is a Processing Consideration Matrix that cross-references each processing consideration with the appropriate flow diagram. The flow diagram can represent either a forward collection process or a return process. While there has been an attempt to fully describe each processing consideration, this was not possible in all cases. In some situations the issues are only identified. As more information is known this document may be updated accordingly.

# A. Truncating Bank – Converting to Image



## Processes

Capture check

Image check

Transmit image

Store original check

Requests for and retrieval of check

Destroy check

## Processing Considerations

1. Standards
  - a. Identify truncating bank on image (N)
  - b. Image formats & quality (N)
2. Request/Retrieval Mechanism
  - a. Retention of original (N)
  - b. Retrieval of original – Transit Bulk File (N)
3. Processing
  - a. ECP files sent prior to or with images (N)
4. Individual Bank Issues
  - a. Image transmission – time and cost (N)
  - b. Avoidance of duplicate collections (N)
  - c. Control of image cash letters (N)

N – New Issue on this Page

## B. Processor/Bank – Converting from Image to Substitute Check



### Processes

Receive image

Process image

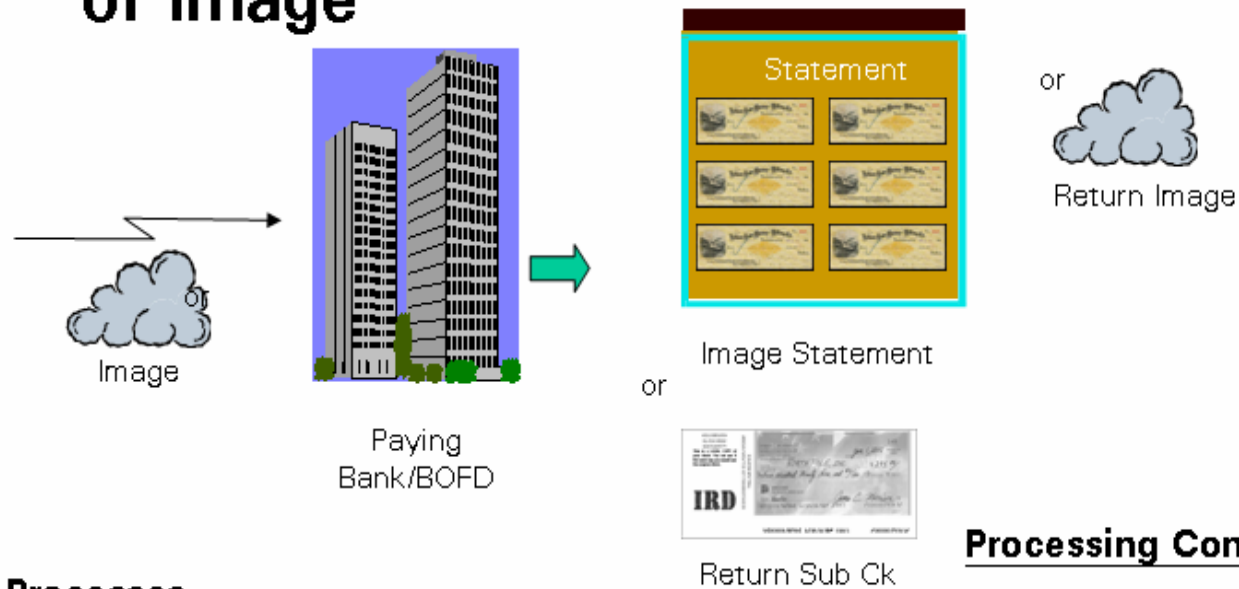
Convert image to substitute  
check

### Processing Considerations

1. Standards
  - b. Image formats & quality
  - c. Substitute check formats & quality (N)
3. Processing
  - b. Full field repair (N)
4. Individual Bank Issues
  - a. Image transmission – time and cost
  - b. Avoidance of duplicate collections
  - d. Control of substitute check cash letters (N)
5. Endorsements
  - a. Moving endorsement chain across media including return code (N)

N – New Issue on this Page

# C. Paying Bank (forward) or BOFD (return) – Receipt of Image



## Processes

Receive image

Process image

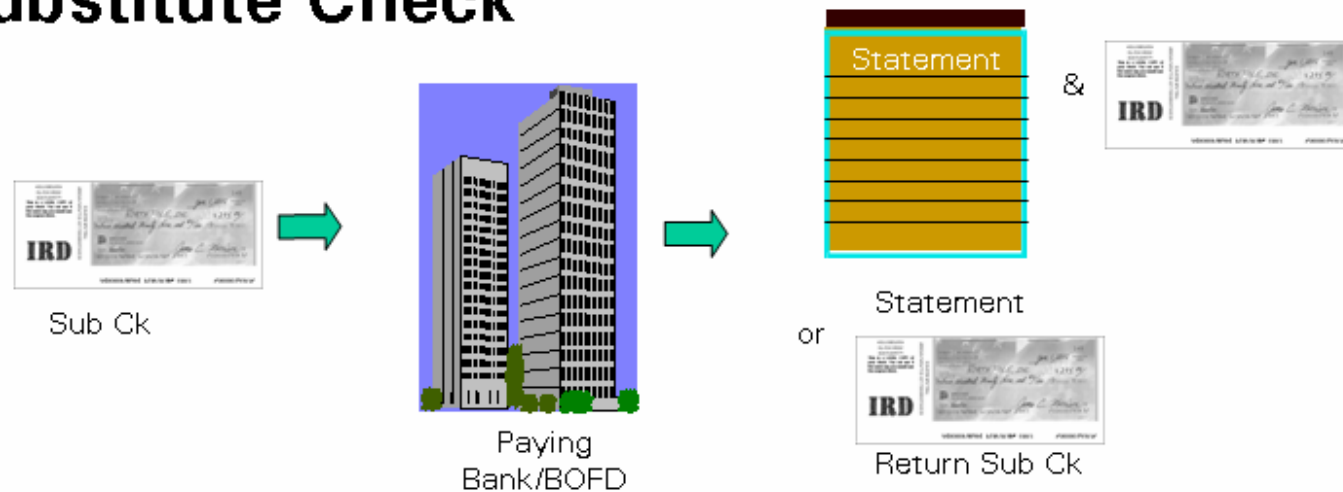
Provide statement or return to customer

## Processing Considerations

1. Standards
  - b. Image formats & quality
  - c. Substitute check formats & quality
3. Processing
  - c. Statement Rendering (N)
4. Individual Bank Issues
  - a. Image transmission – time and cost
  - e. Avoidance of duplicate postings (N)

N – New Issue on this Page

# D. Paying Bank (forward) or BOFD (return) – Receipt of Substitute Check



## Processes

Receive substitute check

Process substitute check

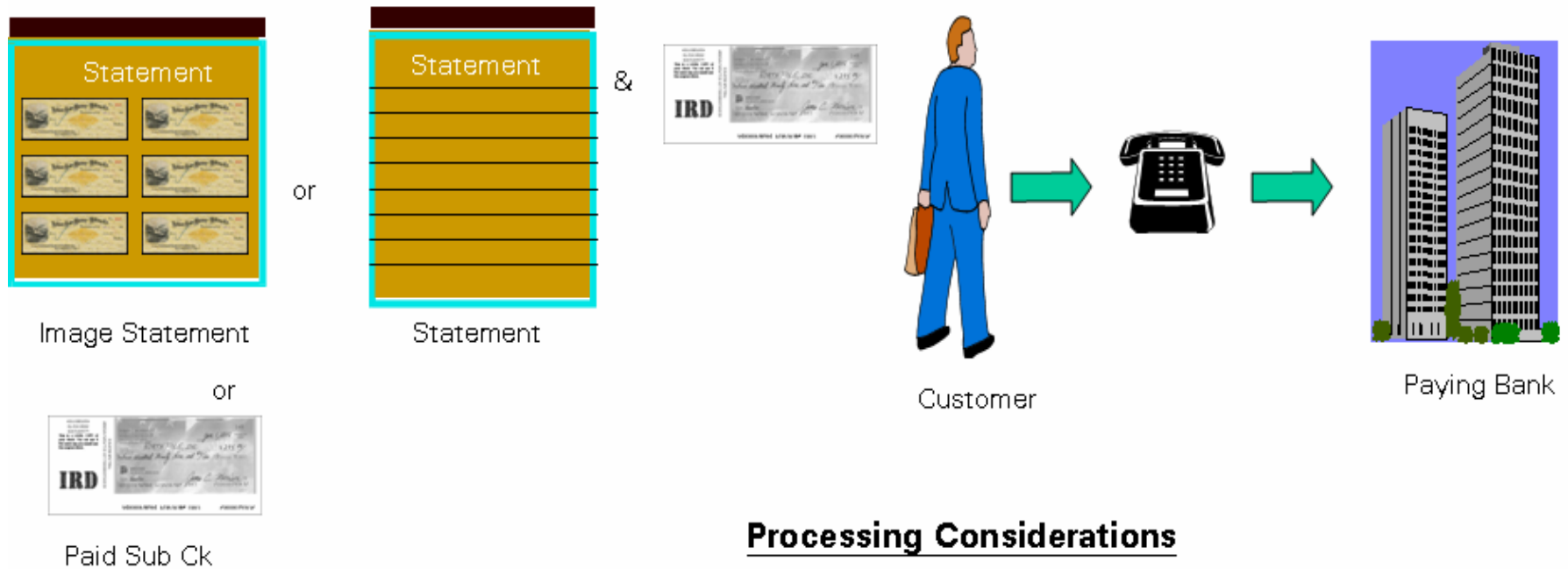
Provide statement or return to customer

## Processing Considerations

1. Standards
  - c. Substitute check formats & quality
3. Processing
  - c. Statement Rendering
  - d. Processing issues with substitute check (N)
4. Individual Bank Issues
  - e. Avoidance of duplicate postings
6. Fraud
  - a. Potential for fraud by customer (N)

N – New Issue on this Page

# E. Paying Bank/Customer Interface



## Processes

Bank sends image statement or statement with returned substitute check

Customer initiates inquiries

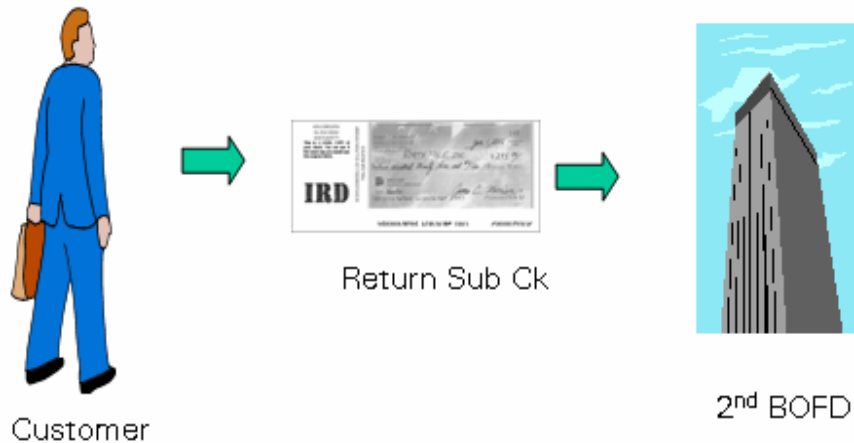
Customer requests expedited recredit

## Processing Considerations

4. Individual Bank Issues - Customer Service
  - f. Customer inquiries (N)
  - g. Customer makes claims (N)
  - h. Impact on other customer products (i.e. Payable through, ARP, paper fraud features, etc.) (N)
6. Fraud
  - a. Potential for fraud by customer

N – New Issue on this Page

# F. 2<sup>nd</sup> BOFD/ Customer Redeposit



## Processes

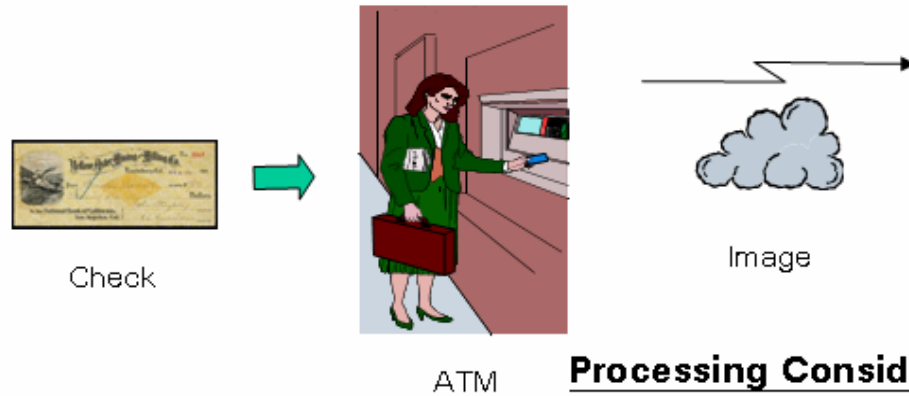
Bank receives customer's redeposited substitute check

## Processing Considerations

3. Processing
  - e. Representments (N)
  - f. Control of number of representments (N)
  - g. Tying original item to representment (N)
5. Endorsements
  - b. Placement of endorsements on substitute check for representment (N)
6. Fraud
  - a. Potential for fraud by customer

N – New Issue on this Page

# G. ATM Deposit Taking



## Processes

Customer deposits check

ATM images check

Checks transported to processing center

## Processing Considerations

6. Fraud
  - a. Potential for fraud by customer
7. Processing - ATM
  - a. Check jam (N)
  - b. Entry of dollar amount (N)
  - c. Transmission of image – batch or real time (N)
  - d. Imaging at ATMs (N)
  - e. Redesign of customer interface in ATM (N)
  - f. Tying ATM image to paper capture sequence number on subsequent day (N)

N – New Issue on this Page

## Processing Consideration Matrix

Processing Number	Processing Consideration	Flow Diagram	Description Page
1.	Standards	A, B, C, D	10
a.	Identify truncating bank on image	A	10
b.	Image formats & quality	A, B, C	10
c.	Substitute check formats & quality	B, C, D	10
2.	Request/Retrieval Mechanism	A	11
a.	Retention of original	A	11
b.	Retrieval of original – Transit Bulk File	A	11
3.	Processing	A, B, C, D, F	12
a.	ECP files sent prior to or with images	A	12
b.	Full field repair	B	12
c.	Statement Rendering	C, D	13
d.	Processing issues with substitute checks	D	13
e.	Representments	F	14
f.	Control of number of representments	F	14
g.	Tying original item to representment	F	14
4.	Individual Bank Issues	A, B, C, D, E	14
a.	Image transmission – time and cost	A, B, C	14
b.	Avoidance of duplicate collections	A, B	14
c.	Control of image cash letters	A	15
d.	Control of substitute check cash letters	B	15
e.	Avoidance of duplicate postings	C, D	15
f.	Customer inquiries	E	15
g.	Customer makes claim	E	15
h.	Impact on other customer products	E	15
5.	Endorsements	B, F	15
a.	Moving endorsement chain across media including return code	B	16
b.	Placement of endorsement on substitute check for representment	F	16
6.	Fraud	D, E, F, G	16
a.	Potential for fraud by customer	D, E, F, G	16
7.	Processing – ATM	G	17
a.	Check jam	G	17
b.	Entry of dollar amount	G	17
c.	Transmission of image – batch or real time	G	17
d.	Imaging at ATMs	G	17
e.	Redesign of customer interface in ATM	G	17
f.	Tying ATM image to paper capture sequence	G	17

## 1. Standards

- a. Identifying truncating bank on image
- b. Image formats and quality
- c. Substitute check formats and quality

Standards have been developed for the creation of substitute checks and the exchange of images. The X9.37 (will be renamed shortly to ANS X9.100-180) standard has been modified to allow for the exchange of images in a cash letter structure. When the standard was recently modified, considerations for the Check 21 Act were taken into account. The standard allows for the inclusion of multiple endorsement records for both the forward and return processes. Indicators help to identify the bank that truncated the item as well as the bank that converted the item into a substitute check.

(Terminology note: In discussing the ANS X9.100-140 standard (previously referred to as DSTU X9.90), substitute checks will be referred to as IRDs. For all other topics, the term substitute check will be used.) The X9.100-140 standard was developed for the creation of Image Replacement Documents (IRD). The standard includes an image copy of the front and the back of the original item. In addition to the images of the original check there are specific areas designated on the IRD to identify the original check truncating institution and the reconverting bank. Other information on the IRD includes the legal legend text, return item information and also optional areas specifically for control information and security features. The images of the original check are shrunk to fit into the allotted space on the IRD. For retail checks they are shrunk to about 95% of their original size and for corporate checks they are shrunk about 67% of their original size. All IRDs must contain a "4" in position 44 (EPC digit) of the MICR line of the check to indicate it is an IRD so that other parties can properly handle the item. Unpaid returned IRDs must contain a "5" in position 44 on the qualified return strip. The IRD must conform to all current check standards including size, paper weight and MICR toner thus allowing the IRD to be processed as if it were the original check.

For more information regarding the image and IRD formats, see Processing and Quality Standards on this website or purchase the DSTU X9.37 and ANS X9.100-140 refer to the X9.org website.

Quality - Image quality is that characteristic defined as a faithful digital representation of the source document. Image usability is that characteristic defined by the degree of legibility and readability necessary to perform a specific function. Legibility is the quality of a letter or numeral that enables the observer to identify it positively and quickly to the exclusion of all other letters or numerals. Readability is the quality of a group of letters or numerals being recognizable as words or complete numbers.

Under the ECCHO rules the minimum required quality standards are: full image (not a partial image), image of a single check (not a piggyback), no skewing, no streaks or bands, and within tolerance of compressed image size (to be determined by the trading partners). Work on image quality is in its infancy. Other groups including the FSTC and X9 have projects underway to define and quantify image quality and usability.

In order for substitute checks to be acceptable, reject rates for them cannot be any greater than they currently are for original paper checks. Substitute checks, as the result of being printed in magnetic ink, may experience greater number of piggybacks, overprinting or magnetic bleed through than original paper checks.

## **2. Request/Retrieval Mechanism**

- a. Retention of original
- b. Retrieval of original – Transit Bulk File

Request/Retrieval - Under Check 21, a consumer customer has the right to file an expedited recredit claim in which they can assert that the production of the original check or a better copy of the original check is necessary to determine the validity of a claim. Non-consumer customers can also make warranty and indemnification claims under the Act. The possible retrieval request data elements are:

- Date of processing – Included in endorsement information
- Item capture sequence number – Included in endorsement information
- MICR line data of check – On check
- Copy of substitute check – clearly marked as a copy

Retention – Under Check 21 there is no requirement for the truncating bank to retain the original physical check for any period of time. The law does indicate how long certain parties can make claims. The consumer has 40 days to make an expedited recredit claim from the date the bank sent the relevant statement and the claimant bank has 120 days from the date of the transaction to make the claim to an indemnifying bank. Banks will make business decisions regarding the retention of the original checks weighing the risk of non-retention against the cost of retention. Banks may want to dollar cut and only retain items over some threshold amount for any significant length of time.

Transit Bulk File - In addition to the storage of the original truncated checks, the truncating bank may need to find and retrieve the items when requested. Some have indicated that the timely location of the items is a very difficult (if not impossible) process while others believe it is possible. Some banks do this kind of processing, when they process for multiple banks. It was recommended that as

long as the checks are stored by date and sequence number, it would be possible to locate, perhaps with some effort, specific items.

### **3. Processing**

- a. ECP files sent prior to or with images
- b. Full field repair
- c. Statement rendering
- d. Processing issues with IRDs
- e. Reprintment of IRD
- f. Control of number of reprintments
- g. Tying original item to reprintmented items

ECP files sent prior to or with images – In order for banks to post transactions there must be a posting record. While it may not be impossible to post from an image, it is very difficult. The images are extremely large and would require more processing just to be able to post the transaction. ECP files can be sent prior to the transmission of the images and posted. Images can follow later to be used for day two processing. Depending on the volume of images, some banks may choose to send the posting information along with the image. Many believe that by coupling the ECP data and the images, it eliminates some reconciliation processes. Since ECP records are significantly smaller than the images, the ECP files can be sent prior to posting and provide the paying bank with the opportunity to accelerate the posting of more transactions resulting in increased benefits to both the presenting and paying bank.

Full Field Repair – Check 21 requires that the MICR line on the substitute check contain all information appearing on the MICR line of the original check, except as provided under generally applicable industry standards for substitute checks to facilitate the processing of substitute checks. The Federal Reserve acknowledged the highly technical nature of the MICR line and its important role in check processing and left the details regarding permissible MICR line variations up to the X9.100-140 standard. The allowable variations are expected to be kept to a minimum to facilitate substitute check processing. The allowable variations include:

- The reconvertng bank can make corrections to a MICR line if they know there is an error in the MICR line information of the original check. Any corrections made by the reconvertng bank are subject to the encoding warranties of UCC and Regulation CC.
- A reconvertng bank does not have to reproduce blank spaces within the MICR fields from the original check, dashes and other MICR symbols from the original check are required.

- Position 44 from the original check if not blank will be changed on a substitute check.
- Reproduction of inadvertent misreads from the original check, will not effect the status of the substitute check.

This implies that reconverting banks may need to perform full field repair to meet the statutory requirement for substitute checks. It may also be helpful for downstream banks to know whether MICR are present on the original item to help address fraud concerns, but there is currently no mechanism to provide that information.

While it may be referred to as “Full Field Repair” because operationally that is what is happening, under the law it is not. Check 21 and the standard require that the substitute check contain all the MICR information and is an accurate representation of the original item. If the MICR information on the substitute check were different than on the original, the amount of liability incurred is specified in Check 21 and not any other rules (e.g. clearing house, UCC). Under the UCC, the full field repair liability can be as severe, but under clearinghouse rules that allow for full field repair, the repairing institutions are normally held harmless.

Statement Rendering is discussed in Minimum Compliance Requirements on this website.

Processing issues with substitute checks – Overall there has been minimum experience in the processing of substitute checks. However, to date there has not been any significant issues processing substitute checks. Many banks report that they are unable to detect a substitute check from any other check that they process. However as other entities begin creating substitute checks the potential for processing issues will increase. It is likely that substitute checks will be printed in many decentralized printing environments and that printing will occur in the middle of the collection process. This will require the printing to be done quickly in order to make check clearing deadlines. This is a different environment than exists for typical print shops. Traditional print shops have adequate time for the proper quality control because the process is outside of the time-sensitive collection processes. Some of the potential issues that have been identified are:

- Increased piggybacks as the result of checks sticking together when printed using laser toner. Toner rests on the surface of the paper while ink is incorporated into the fiber of the paper.
- MICR bleed through causing more mis-read items
- Incorrect placement of MICR and other information on the substitute check, also causing more rejects

Representments – Minimal work has been done for representments other than to identify some potential issues. Under the Check 21 Act, a customer who receives a substitute check as a returned item can representment that substitute check as if it were the original check. In the case of representments, the reconverting bank remains the bank that originally created that substitute check and not the BOFD from which the item is represented. When a customer represents a substitute check, the substitute check may look to bank personnel like a copy of a check. Tellers and other customer service bank personnel are trained not take items that are potentially fraudulent and some of the processes used to identify potentially fraudulent items include recognizing copies of checks. Bank personnel will have to be retrained to distinguish between copies and valid legal substitute checks.

Controlling the number of times substitute checks are represented and tying of the original item to the represented item are valid issues, but they are no different for substitute checks than they are for original paper checks. Banks typically do not have a methodology to control the number of times checks are represented short of looking at the endorsements on the item, which will still be possible for substitute checks.

#### **4. Individual Bank Issues**

- a. Image transmission – time and cost
- b. Avoidance of duplicate collections
- c. Control of image cash letters
- d. Control of substitute check cash letters
- e. Avoidance of duplicate postings
- f. Customer inquiries
- g. Customer makes claim – Expedited Recredit
- h. Impact on other customer products

Each bank should determine how it will address the issues identified under Individual Bank Issues. But the following comments may be helpful in those determinations processes.

Image Transmission – Time and cost – Much work outside of Check 21 has been done on the transmission of images. SVPCo conducted a study on image transmission and is in the process of implementing an image exchange. Images are extremely large and will average approximately 30,000 characters each, which will imply that it will take more time and cost more to transmit images than it will to transmit only MICR line information.

Avoidance of Duplicate Collections – The reconverting bank would need to control its internal processes to avoid inappropriately clearing a duplicate item that it has already sent for collection. Some banks have already implemented duplicate

posting prevention processes (see Avoidance of Duplicate Postings) but it is unknown whether any of these processes might help a collecting bank avoid creating and sending duplicate items. With Check 21 there is the possibility of sending images and original checks and creating substitute checks for the same item. It would seem logical for banks wanting to initiate images and/or substitute checks to develop this duplicate send protection capability. The primary reason a bank would want this protection is that under the Act the reconverting bank warrants that other parties in the payment system will not be asked to pay an item that it has already been paid (no double debit) and a bank violating that warranty can be responsible for consequential damages.

Control of Cash Letters – Cash Letter systems may need to be modified to recognize and identify image cash letters and substitute check cash letters. Depending on the application, substitute checks may need to be cash lettered separately. Substitute checks in those cash letters can be sorted prior to the creation of the cash letter and the cash letter formed as the substitute checks are printed. Or the substitute checks can be produced and then sorted for the normal check clearing process. While it seems to be more efficient to pre sort the substitute checks prior to printing, all of the control, reporting and settlement that occurs based on cash letters will have to be reconsidered if the substitute checks are not processed through the normal check clearing process.

Avoidance of Duplicate Postings - It is possible with Check 21 to have multiple copies of the same item in various forms (substitute checks, original checks and images). Paying banks may need to develop processes or perhaps additional processes to avoid double posting. Under Check 21 customers are protected by a warranty against double posting, but banks may wish to avoid the customer service issues that might be created should duplicate postings occur. To implement an effective double post protection process, banks may need to examine items presented over a period of time and recognize potential double debits prior to posting to their customers' accounts. This double post protection may also take into account the potential for duplicate transactions as a result of check conversion under the various ACH products.

Customer Inquiries, Customer Claim and Impact on Other Customer Products – These processing considerations are addressed in the Minimum Compliance Requirements.

## **5. Endorsements**

- a. Moving endorsement chain across media including return code
- b. Placement of endorsement on substitute check for representment

Endorsement Flow - Endorsements must be included on both electronic images and substitute checks. As paper checks are converted to electronics and back to paper substitute checks, the endorsement chain must be maintained. X9.37 format includes endorsement records. IRD formats include areas for the identification of the truncating bank and the last reconverting bank. The IRD standard also requires that special characters be used to identify all reconverting banks and the BOFD in the endorsements. Special areas have been defined on the back of the IRD for the printing of the electronic endorsements.

Endorsements can appear within the image as they appeared on the original check. Electronic endorsements are provided for within the X9.37 standard and can be printed in specific areas on the IRD. Regardless of when a bank endorses the item, either prior to or after imaging there is the ability to include the endorsement information with the record.

It is likely that customers will endorse the substitute check being used for representment in the same area that a customer would endorse an original check. However on a substitute check that area may contain printed electronic endorsements. It is anticipated that there will be a small number of represented substitute check in which a customer must endorse the item as the Payee. It should be anticipated that customers will continue to endorse items as they currently do, so that the represented payee endorsements will appear over the electronic bank endorsements.

See Endorsements under Standards in Check 21 Implementation Aids on this website for a pictorial representation of conversion from image and substitute check showing how the endorsements will be transferred between electronic and physical media.

## **6. Fraud**

### **a. Potential for fraud by customer**

Fraud/Security – Several areas of possible fraud under Check 21 have been identified. These include expedited recredit, bank/customer validation of a legitimate item, customer/bank check stock security features, alterations/counterfeit, signature verification and physical examination of items, and duplicate identification.

Expedited Recredit – Consumers may try to defraud the bank by making claims for expedited recredit. The bank only has to provide expedited recredit under the circumstances and procedures defined in Check 21. Banks can impose holds of funds based on situations as defined in the Act. Banks should develop and

implement procedures and training to minimize the risk. (see Minimum Compliance Requirements)

Customer/bank check stock security features - These could include sophisticated features like holograms to less sophisticated features like the color of check stock. The concept of image survivable security features has been discussed but such features do not currently exist. The current possibilities like 2D Bar Code and Digital Watermark are still being investigated for survivability of imaging, shrinkage and multiple imaging and re-imaging. "Void" pantographs exist and may cause Substitute Checks to have the word Void printed on it. Operationally the reconverting bank would not know that the "Void" appeared without looking at the item. If a check security feature were lost when a check was truncated, resulting in a loss to the paying bank or its customer, that would not have occurred if the security feature had been retained and used, then the Check 21 indemnity would apply and the reconverting would be liable for the loss.

Alterations/counterfeit – At this time it is difficult to determine whether it would be more or less easy to counterfeit and/or alter a substitute check. Since the item is imaged and then printed it may be difficult to determine alterations on a substitute check.

Signature verification and physical examination of items - Many believe that fraud is detected by the physical review of items and that images are not as good for fraud detection. With Check 21, the original item may not be readily available for review. Some banks firmly believe that a percent of fraudulent items are best detected by touching and feeling the original check. This may include color, watermarks, and physical check stock attributes. Staff with many years of experience can distinctly identify fraudulent checks. Some banks perform random review of poor quality and rejected items and the original check is required to retrieve information that cannot be identified by the image. By eliminating or altering the process, it may increase the number of bank calls to customers to verify certain checks prior to payment.

Other banks have already changed their processes by depending on the image and no longer use the physical check for review. Some of these banks will look at an image of a prior check to compare against the check being presented, but do not examine physical security features.

Current fraud detection systems - Many of the current fraud detection systems, like rules based systems (ASI 16 and 19) will still be effective under Check 21.

## **7. Processing – ATM**

- a. Depositing checks without envelopes - Check jam

- b. Entry of dollar amount
- c. Transmission of image – batch or real time
- d. Imaging at ATMs
- e. Redesign of customer interface in ATM
- f. Tying ATM image to paper capture sequence number on subsequent day

The above have been identified as possible issues associated with imaging checks at an ATM machine and then transmitting the image to be reconverted into a substitute check. Some ATM machines are capable of imaging checks, but there has been minimum experience with the entire process required to convert the item to a substitute check.

The process is envisioned to work as follows:

- Customer makes deposit – one check at a time – without an envelope
- Front and back of check are imaged and displayed to customer
- Customer enters amount of each check separately
- ATM performs courtesy recognition on amount and provides customer option to re-enter amount if incorrect
- After two attempts at correct amount customer service will examine image in back office to determine correct amount
- ATM provides customer with receipt showing image of check
- ATM transmits single-item, self reconciling batch for each item
- The ATM will stamp the check void
- Checks will be delivered to bank identified in such a way so as to avoid reprocessing of the checks

By entering each check separately into the ATM there is the possibility of check jams. Customer entry of each dollar amount could lead to incorrect information, but the use of CAR minimizes or eliminates this issue. Initial studies have shown that accuracy rates diminish as the number of check amounts to be keyed increases. But most ATM deposits contain only one check. ATMs would have to be designed to accept the checks for imaging and request individual check amounts to be key entered. Image cameras already exist on some ATMs and would be required for this process, probably increasing the cost of the ATM.

Since ATM processing is typically conducted in an on-line environment it may be reasonable to assume that image transactions will be sent in a real time mode. Since checks are typically batched and sent at specific times of the day depending on end points and processing schedules, it may be desirable to modify the check process to allow real time transmissions. Otherwise, the check images will be held

at the ATM and periodically transmitted to the operating center, thus requiring modification to the ATM storage and processing routines.

Once the original paper checks are delivered to the processing site, care must be taken not to re-process checks and clear them a second time. There may need to be some mechanism to tie the original check to the substitute check that was previously created and sent.