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The Identification of an Office Machine Copy of a Printed Copy of a Photographic Copy of an Original Sales Receipt

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ABSTRACT: Document examiners are often asked to examine copies in lieu of originals. Although copies frequently limit the forensic examination, they sometimes provide evidence that greatly increases their investigative importance and prosecutorial value. This paper presents one such case recently examined at the Southern Region Crime Laboratory of the U.S. Postal Inspection Service. The case involved large numbers of office machine copies of gasoline sales receipts used to support a series of false claims. Laboratory examinations of the copies disclosed evidence that led to their positive association with the original and with several previous generations of copies produced by a variety of reproductive methods.

KEYWORDS: questioned documents, reproductions, printing equipment

Document examiners are frequently asked to examine questioned documents that are copies. The original may have been lost or destroyed, or it simply may be unavailable for examination. The document examiner is then faced with the added problem of evaluating evidence that is less than ideal. Copies, however, are subject to the "best evidence" rule and, therefore, often become the objects of an examination. Often, these copies contain sufficient evidence to link them positively to other generations of copies and to their original, thereby establishing proof of the commission of a crime.

Occasionally, document cases are submitted for examination by people, either formally trained to investigate document-related matters or with no specific training in this area, who fail to ask the right questions or pose the correct problems to the examiner. The submitter may not fully understand either the capabilities or the limitations of the forensic science of questioned documents and may fail to recognize the potential of the evidence and its capacity for examination.

These two conditions existed in a recent case submitted to the Southern Region Crime Laboratory of the U.S. Postal Inspection Service.

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Case Background

Preliminary investigation by U.S. Postal Inspectors revealed that, during the latter part of 1979 and early 1980, a series of eight monthly claims certificates for alleged fuel cost increases were submitted to the Disbursing Office of the U.S. Postal Service by the owner of a trucking firm contracted to transport bulk mail. These certificates claimed reimbursement for alleged gasoline purchases that exceeded a pre-established per-gallon contract price. Large numbers of office machine copies of gasoline sales receipts were attached to each of the monthly certificates to support the fuel cost increases. These receipts documented gasoline purchases allegedly made by drivers of the trucking contractor during the preceding months from service stations in several Mississippi cities. Each receipt showed the specifics of an alleged gasoline sale, such as date, number of gallons, price per gallon, and total amount of purchases, as well as the purported signature of the driver. Records of the respective service stations, however, established that most of the transactions shown on the office machine copies of the receipts had never occurred. The trucking contractor, therefore, was suspected of submitting fraudulent claims to the U.S. Postal Service.

Further investigation also resulted in the confiscation of documentary evidence from the job order records of a local printing firm. The firm's records disclosed that in mid-1979 the trucking contractor's wife had presented an original blank sales receipt from a specific service station, Jim's Union 76 in Byhalia, MS, and directed that a number of copies be printed from that original. Also confiscated from their files, along with the original Jim's Union 76 receipt, were several additional documents pertaining to the specific job order. These included a paste-up sheet, which contained four photographic copies of the Jim's Union 76 receipt, and several blank Jim's Union 76 receipts that had been produced during the printing operation.

The technical term paste-up sheet (also referred to as a set-up sheet) is used in the printing trade to identify a document created during an intermediate step in the printing process. In this instance, the original Jim's Union 76 receipt had been photographed with a 3-M brand "X-L" plate film on a 3-M brand Photomatic Processor by the printing firm. Four of these photographs were then attached to a blue-lined sheet of paper, which became the paste-up sheet. A master plate for an offset printing press was prepared from the paste-up sheet, and the desired number of blank copies of the Jim's Union 76 receipt were printed.

The U.S. Postal Inspectors surmised that the contractor and his wife had the printing firm produce a large number of blank receipts from the Jim's Union 76 receipt for the ultimate purpose of creating the office machine copy receipts to support their false claims.

The Requested Examination

The evidence submitted to the crime laboratory consisted of the eight certificates to which were attached office machine copies of 335 receipts showing fuel purchases from various service stations; the original blank Jim's Union 76 receipt; the paste-up sheet with four photographic copies of the blank Jim's Union 76 receipt; two printed blank Jim's Union 76 receipts; known handwriting specimens from the contractor, his wife, and several drivers; and the inked fingerprints of the contractor's wife. Additional evidence submitted to the laboratory is not relevant to this paper.

The Questioned Document Section of the laboratory was requested to make a comparative examination of the known handwriting with the questioned handwriting on the monthly certificates and the questioned handwriting depicted on the office machine copies of the receipts. Additionally, an examination was requested of the original Jim's Union 76 receipt (confiscated from the printing firm's records) to determine what information, if any, was beneath various portions of the receipt that were covered by a white opaquing material

(referred to by such brand names as "Liquid Paper," "Sno-Pak," and "Wite-Out," which are used to correct typing errors).

The comparative handwriting examination resulted in a variety of findings pertaining to the suspects. Many of these findings, while they strongly associated the contractor and his wife with the majority of the questioned entries, were less than full identifications. The handwriting examination was primarily limited because of the poor quality of the office machine copies of the receipts, as well as the disguise within the request specimens, and it was the prosecutor's final decision at the trial not to require testimony on the handwriting aspects of the case.

Examination of the original Jim's Union 76 receipt (Fig. 1) with both an infrared viewing device and a transmitted light table disclosed that certain printed and stamped information had been covered with an opaquing material. It was discovered that a red numeral 12 had originally been hand stamped in the lower center portion of the receipt. The numeral 12, which had apparently been stamped onto the receipt at the service station as an internal control number, was almost completely obliterated with the white opaquing material. Horizontally, across the bottom of the receipt, the name and address of the original printing firm and a control number ("BROWN PRINTING COMPANY, HOLLY SPRINGS, MISS. 38635 45742-6") that had been opaqued were discovered (Fig. 2).

The Latent Print Section of the laboratory was requested to process the original Jim's Union 76 receipt, the paste-up sheet, and the two printed blank Jim's Union 76 receipts for latent prints and to compare any prints developed with the recorded inked prints of the contractor's spouse. The subsequent comparison of the developed latent prints with the submitted record prints failed to effect any identification.

JIM'S UNION 76
 Byhalia, Miss. 38611 Phone 838-2877

Date _____ 19__

Name _____

Address _____

Reg. No.	Clerk	ACCOUNT FORWARD		
1	PREM. GAS			
2	REG. GAS			
3	DIESEL			
4	OIL			
5	FILTER			
6	LUBE			
7	WASH			
8	TIRE REPAIR			
9	LABOR			
10	SERVICE CALLS			
11	TAX			
12	TOTAL			
13				
14				
15				

Your Account Stated to Date — If Error Is Found Return at Once.

FIG. 1—Jim's Union 76 sales receipt with opaqued areas.

ORIGINAL RECEIPT - NORMAL LIGHTING

JIM'S UNION 76
 Byhalia, Miss. 38611 Phone 838-2877

Name _____ Date _____ 19__

Address _____

Reg. No.	Clerk	ACCOUNT POSTPAID
1	FRESH GAS	
2	REG. GAS	
3	DIESEL	
4	OIL	
5	FILTER	
6	LUBE	
7	WASH	
8	TIRE REPAIR	
9	LABOR	
10	SERVICE CALLS	
11	TAX	
12	TOTAL	
13		
14		
15		

Your Account Stated to Date — If Error is Found Return at Once.

LOWER PORTION OF ORIGINAL RECEIPT - NORMAL LIGHTING

7	WASH								
8	TIRE REPAIR								
9	LABOR								
10	SERVICE								
11	TAX								
12	TOTAL								
13									
14									
15									

Your Account Stated to Date — If Error is Found Return at Once.



OPAQUETED PORTION OF ORIGINAL RECEIPT - TRANSMITTED LIGHTING

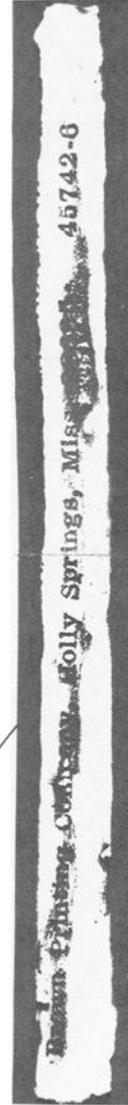


FIG. 2—Original Jim's Union 76 sales receipt (normal lighting) and enlargements of lower portions of receipt (transmitted lighting) to portray opaqueted stamped and printed information.

The Examination Not Requested

A critical examination of the original Jim's Union 76 sales receipt disclosed that the document itself contained individual identifiable characteristics. The receipt was an off-white piece of poor quality paper that contained numerous brown paper fibers. These fibers had been incorporated into the pulp during the paper-making process, and similar to the colored rag fiber content found in U.S. paper currency, the fibers were randomly dispersed throughout the finished paper product. The uniqueness of the random dispersal of these fibers, therefore, made the receipt identifiable as a source document.

Another feature was discovered on the receipt that proved as uniquely identifiable as the individual paper fibers. This feature was created during the opaquing process while the receipt was being prepared for photographing and subsequent reproduction. One of the applications of the opaquing fluid was made to the far right column of line 2 on the receipt. A small portion of the vertical line was inadvertently obliterated, and in an apparent attempt to restore the continuity of this line, a black liquid ink pen was used. The ink, however, was quickly absorbed by the surrounding paper fibers and the "feathering" effect resulted in a clearly distinctive pattern.

Figure 3, entitled "original receipt," depicts a photographic court chart of the original Jim's Union 76 receipt and six circular enlargements of specific areas of the receipt that enhance some of the identifiable characteristics found during the examination. The top three enlargements, as well as the fifth (from the top) enlargement, portray individual brown paper fibers: a circular fiber to the right of center of the letter *N*, an elongated fiber to the right of the *19*, a circular fiber partially concealed by the bottom of the horizontal line beneath the *N* in *No.*, and a circular fiber slightly to the right of the center of the enlargement and partially concealed by the horizontal line. The fourth (from the top) enlargement depicts the feathering caused by the fluid ink during the retouching of the vertical line. The bottom enlargement depicts an area of the original receipt that contained no specific feature of identification but later became of interest. This aspect will be addressed in subsequent paragraphs.

An examination of the four photographs of the Jim's Union 76 sales receipt on the paste-up sheet (obtained from the printing firm's files) disclosed that many of the individual brown paper fibers identified on the original receipt had also been photographically reproduced. Furthermore, the irregular pattern from the touch-up of the vertical line was also clearly identifiable in the photographs of the paste-up sheet. These individual markings, as well as others not portrayed, positively identified the original receipt as the source document of the four photographs.

It was also observed that each of the four photographs on the paste-up sheet showed areas near the bottom of the photographs where the image appeared to break up. This poor reproduction of the original receipt occurred during the photographic process, possibly as the result of irregular or uneven lighting. The image created by the photography formed an identifiable broken pattern that was not present on the original receipt.

The photographic chart, entitled "'paste-up' receipt" (Fig. 4), depicts one of the four photographs attached to the paste-up sheet as well as enlargements of the specific areas that correspond to those in Fig. 3. The top five enlargements depict the corresponding characteristics identified on the original receipt that were reproduced photographically. The bottom enlargement depicts the broken pattern that was also created during the initial photographic process. In contrast, the bottom enlargement of Fig. 3 depicts solid, clear lines that show no broken pattern.

The examination of the two blank Jim's Union 76 receipts (also obtained from the printing firm's files) disclosed that many of the individual characteristics identified on the original receipt and the succeeding photographic generation had also been reproduced during the printing process. The discovery of these corresponding individualities, to include the broken

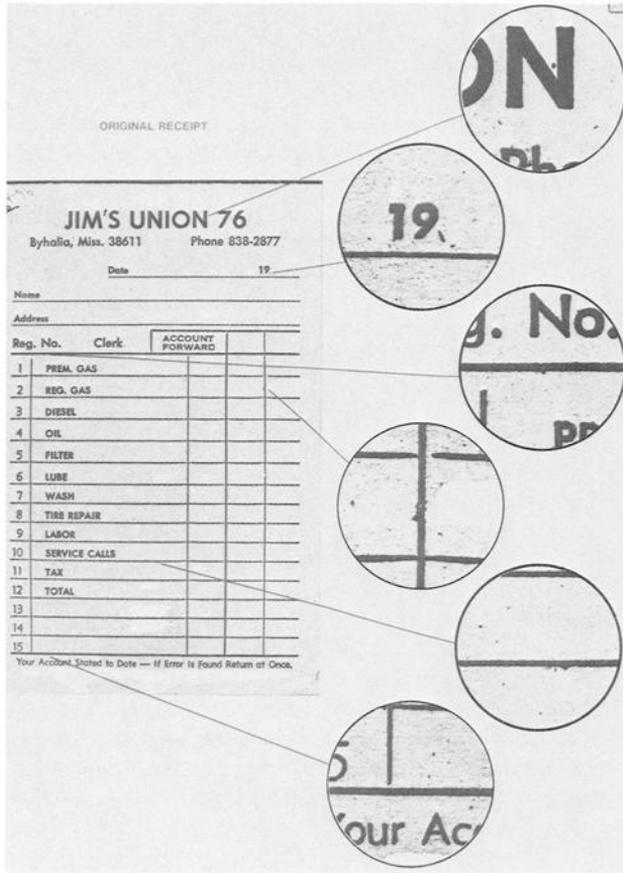


FIG. 3—Original Jim's Union 76 sales receipt and six areas of enlargement with individual characteristics.

pattern created during the photographic process, provided the proof for identifying the original receipt as the source document for the blank reproductions.

Figure 5, entitled "reproduced receipt," depicts the photographic court chart that was prepared to demonstrate the identifiable characteristics consistent with previous generations.

Each of the office machine copies of the Jim's Union 76 receipts (obtained from the U.S. Postal Service's Disbursement Office) was examined. This final generation of receipts also contained the individual characteristics of its progenitors, and, therefore, they were identified as the ultimate products of the original Jim's Union 76 sales receipt. Figure 6, entitled "submitted receipt," depicts one such office machine copy and the corresponding enlargements of the identifiable features and characteristics. This particular receipt was selected for court demonstration because it related to a specific criminal charge. Many of the other submitted copies of receipts were of superior clarity.

The positive correlation of each successive generation with the original Jim's Union 76 receipt lead to the conclusion that the contractor and his spouse had created the fraudulent receipts from the blank printed receipts they obtained from the printing firm. Data reflecting the fictitious gasoline sales were recorded on the printed receipts, and these receipts were

"PASTE-UP" RECEIPT

Q-10 76
JIM'S UNION 76
Byhalia, Miss. 38611 Phone 838-2877

Date _____ 19__

Name _____

Address _____

Reg. No.	Clerk	ACCOUNT FORWARD		
1	PREM. GAS			
2	REG. GAS			
3	DIESEL			
4	OIL			
5	FILTER			
6	LUBE			
7	WASH			
8	TIRE REPAIR			
9	LABOR			
10	SERVICE CALLS			
11	TAX			
12	TOTAL			
13				
14				
15				

Your Amount Stated to Date — If Error Is Found Return of Check.

FIG. 4—Paste-up receipt and areas of enlargement with individual characteristics corresponding to original receipt.

then copied on an office machine copier. The copies were later submitted to the U.S. Postal Service to support the false claims. The originals of the fictitious receipts were never recovered and presumably had been destroyed after the office machine copies were made.

Summary

The submission of copies in this case, in lieu of the originals (which had presumably been destroyed by the contractor or his wife), resulted in a number of limited findings with respect to the requested handwriting examinations. No testimony was required concerning the results of the handwriting examination, which had been the original request of the investigator. However, the submission of the original blank sales receipt (together with the other related documents from the printing firm's files) and its comparison with the office machine copies of the sales receipts resulted in a positive association of all copies of each successive generation with the original. These examination results, which had not been initially requested, proved of importance in the successful prosecution of this case.

Figures 4 through 6 depict the 760- by 1020-mm (30- by 40-in.) photographic court charts used as demonstrative aids during testimony in U.S. Federal Court. These charts, as well as

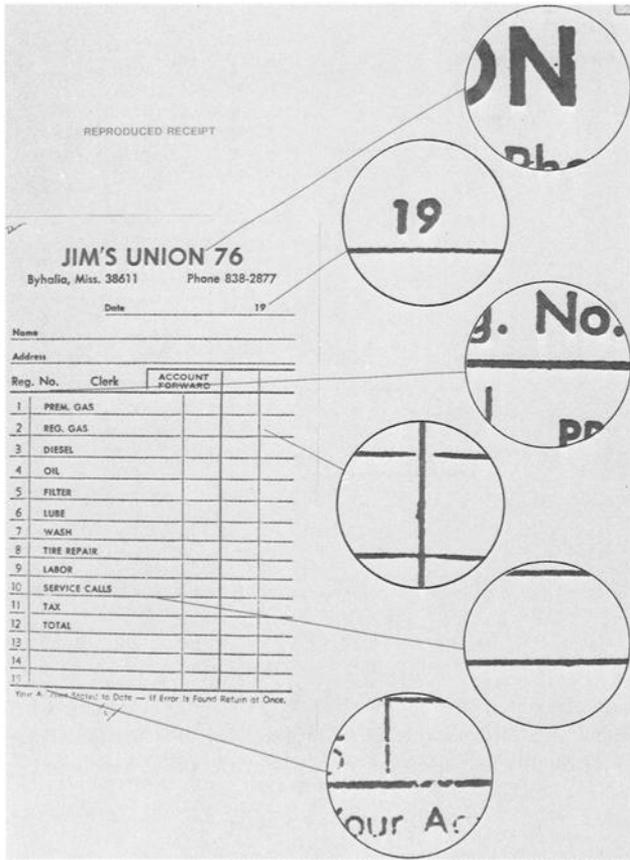


FIG. 5—Printed reproduction and corresponding areas of enlargement.

SUBMITTED RECEIPT

JIM'S UNION 76
 Byhalia, Miss. 38611 Phone 838-2877

Date 5/11/70 19 70

Name Robert Frank

Address _____

Reg. No.	Clerk	ACCOUNT FORWARD
1	PREM. GAS	
2	REG. GAS	
3	DIESEL <u>749</u>	<u>105</u> <u>1022</u>
4	OIL	
5	FILTER	
6	LUBE	
7	WASH	
8	TIRE REPAIR <u>each</u>	
9	LABOR	
10	SERVICE CALLS	
11	TAX	<u>1075</u>
12	TOTAL	
13		
14		
15		

Your Account Closed to Date — If Error, Report Return of Check

0 69 40

Four Ac

FIG. 6—Office machine copy of the submitted receipt and corresponding areas of enlargement.

the transmitted light charts depicted in Fig. 2 (which consisted of two side-by-side 760- by 1020-mm [30- by 40-in.] charts), were effective in supporting direct testimony on the relationship of the original receipt and its copies.

Acknowledgments

The author takes this opportunity to commend Postal Inspectors R. J. Tittle and R. B. Brown. Without their comprehensive investigation, which identified the printing firm involved in this scheme and resulted in the recovery of the original receipt and other documentation, no positive findings would have been possible regarding the association of the false receipts and their origin.

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