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## IBM Correcting Selectric Typewriter: An Analysis of the Use of the Correctable Film Ribbon in Altering Typewritten Documents

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The IBM Correcting Selectric typewriter was introduced 1 April 1973. It was a new dimension in typewriter history and a product that many wished had been conceived of years ago. The Correcting Selectric uses two types of ribbon systems: a Correctable Film ribbon with lift-off tape and a Tech III ribbon with cover-up tape. This paper is concerned with the former ribbon system because of the unique manner by which a typewriting error is corrected. The mechanical operation of the machine remains the same with both ribbon systems.

The Correctable Film ribbon contains a specially formulated ink that works in conjunction with a white, adhesive-type tape to effect total removal of the typed image from the paper. The principle of the system lies in the ink formulation of the ribbon; the lift-off tape is simply an adhesive material which lifts the ink off the paper. Removal of an incorrect character is accomplished very simply: the correcting key is depressed, allowing the carriage to backspace to the desired point and at the same time setting into position the lift-off tape and disengaging the escapement action; the incorrect character is then retyped, removing the image from the paper, and while the carriage remains stationary, the correct character may be typed in its place. The machine then returns to normal operation, re-engaging the escapement action and moving the lift-off tape out of position.

When the Correcting Selectric typewriter appeared on the market it proved successful because it was now possible for every typist to prepare a typewritten page free of any erasures. However, there was one area of the business community that anticipated the possibility of fraudulent use of the machine. It was felt that valuable documents, such as negotiable instruments, many of which are typewritten, could be altered without leaving a trace of the alteration.

Actually, the problems involved in altering<sup>3</sup> a typewritten document prepared with a Correctable Film ribbon are essentially little different than those encountered using any other type of typewriter ribbon. Once the document has been removed from the machine, all the difficulties attendant to horizontal and vertical realignment of the inserted character with the remainder of the typing are similar. In fact, perfect realignment with

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<sup>3</sup> In this discussion, the authors refer to alteration as the substitution of one typewritten character for another after a document has been removed from a typewriter.

the Correcting Selectric may be even more crucial since the character is removed while the paper is in the machine. If perfect realignment is not achieved the first time, ink traces will remain on the paper and a second realignment will be necessary (Fig. 1). The problem of using the same style of type is also essential to effect a complete removal of the character.



FIG. 1—Ink traces resulting from imperfect realignment of material in typewriter or “setting up” of ink on the paper.

Alterations of typewritten documents where only one or a few characters need to be changed are usually effected by erasing, in some manner, the original material and inserting the desired characters. Indication of such erasures, whether of a fabric or carbon ribbon, is dependent on the type of paper being erased, the pressure or indentation of the character into the paper, the condition or inking of the ribbon used, and the knowledge and skill of the person altering the document. Evidence of an erasure is usually seen in the disturbance of paper fibers (sometimes even removing a fluorescent dye, as from safety paper), the thinning of the paper, the visibility of small particles of ink remaining imbedded in the paper, or any combination of these conditions. Although the Correcting Selectric actually removes the ink from the paper, evidence of erasure is still present.

The striking of the typing element against the paper in the removal process leaves an indentation in the paper and causes the disturbance of paper fibers in the area (Fig. 2). Both of these phenomena are visible by sidelighting and readily revealed under microscopic examination. In some instances, the inserted character will almost completely cover the indentation of the corrected character, for example, the letter “o” over the letter “c,” and care must be exercised when making this examination. Usually it is possible to determine what the corrected character was from a study of the design of type used (Fig. 3).

The ink of the Correctable Film ribbon will begin to “set up” on the paper after a certain period of time<sup>4</sup>. Depending on the length of time, the ink will be found to be increasingly more difficult to remove completely. Therefore, if a character is erased on

<sup>4</sup>Through experimentation, the authors have found that the ink will generally begin to set up within 24 hours; however, atmospheric conditions will affect this timetable.

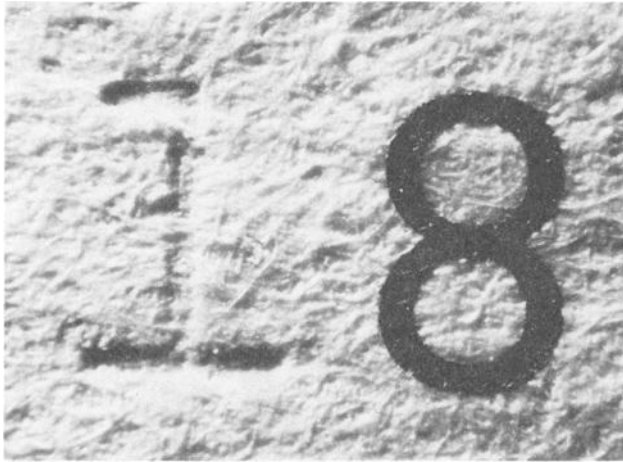


FIG. 2—Indentation in paper and disturbance of fibers resulting from correction process.



FIG. 3—Letter "k" corrected to letter "l".

the Correcting Selectric some time after the original typing (and if perfect realignment were to be achieved), it may not be possible to remove the ink completely on the first strikeover (Fig. 1). Additional strikeovers will tend to deface the paper extensively (Fig. 4), and even then it may not be possible to remove all ink traces. It will also be found that if the Correcting Selectric typewriter is not used regularly, ink on that portion of exposed ribbon in the typewriter will begin to set up and ordinary corrections will not be effected properly. In cases where the typewriter is left unused for several days, the ribbon should be advanced to a fresh portion to assure clean corrections.

Several other points should be noted when dealing with material which has been prepared on a Correcting Selectric machine. It is imperative that the original document

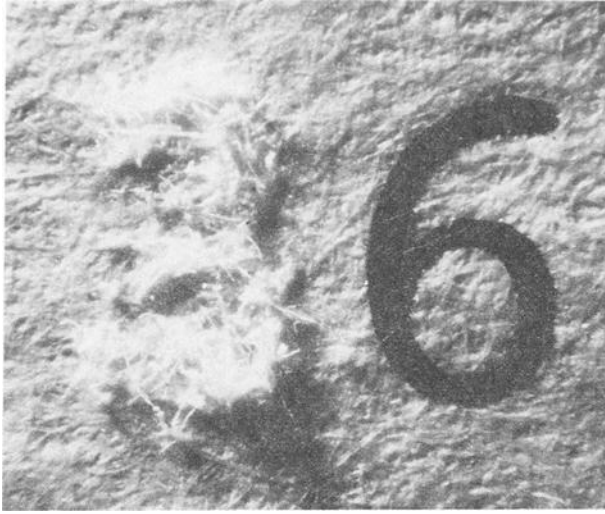


FIG. 4—Numeral "3" corrected three times in attempt to remove ink traces.

be examined; a machine copy will cover up all evidence of indentation (and therefore prevent decipherment of the original character) and disturbance of fibers. If a document prepared with the Correctable Film ribbon is placed through a heat process copier, the ink will immediately set up and any further correction will be virtually impossible. At times, Correctable Film ribbons will show scratches in certain areas of the ribbon. These scratches in the ribbon will exhibit themselves as ink voids in the typewritten character and should not be mistaken for defects in the typeface. It should also be remembered that the lift-off tape contains the corrected characters; and this tape and the ribbon itself could prove to be valuable aids in an investigation of altered typewritten documents.

In the latter part of 1973, a locking device feature was incorporated into Correcting Selectric typewriters on special order. The locking device on these machines prohibits the use of the Correctable Film ribbon with lift-off tape and therefore allows the use of only the Tech III ribbon with cover-up tape. This feature involved a modification to the tape cartridges and the machine mounting arrangement. The machine is used primarily by financial institutions conscious of the security of negotiable instruments.

### Summary

From the point of view of a document examiner, the advent of the Correcting Selectric typewriter has not changed any of the procedures ordinarily used in the examination of altered typewritten material. The same precautions should be observed in conducting examinations of such material as would be observed in making examinations for any other type of possible alteration on negotiable instruments. The security question raised with the Correcting Selectric is no different than the questions raised when an eraser was put on a pencil or a chemical bleach was found to remove ink on paper. The Correcting Selectric might even be compared to the introduction of ball-point pens on the market in the late 1940s. At that time, financial publications were suggesting that ball-point pens should not be used on any negotiable or valuable document as the ink was considered to be too readily transferable, and it was thought that they left little in the way of individual writing characteristics. However, it was not long before financial institutions were supplying such pens on their counters.

Because of the complexities involved in using the Correcting Selectric to alter a document, it is felt that such problems will prove to be less prevalent than those involving other means of alterations.

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