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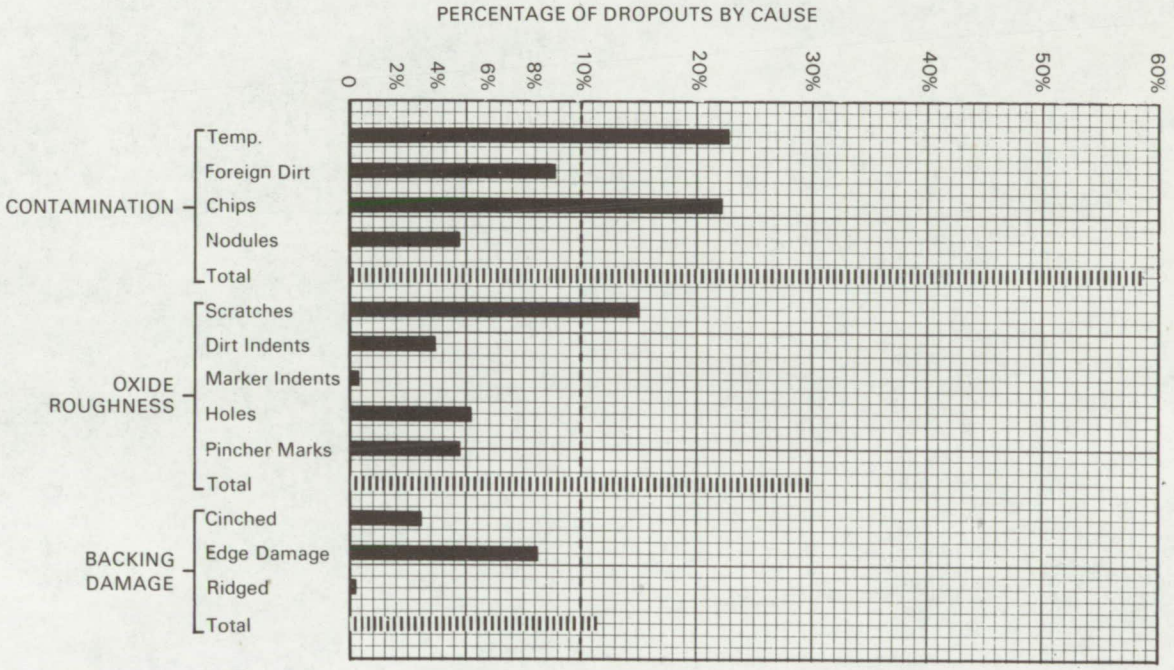
NASA TECH BRIEF

Computer Magnetic Tape Rehabilitation Study



A study has been made to determine the most efficient method whereby magnetic tapes may be rehabilitated and stored for reuse. Also investigated were the physical changes taking place in the tape during the rehabilitation process, measure of quality of the processed tapes, and the level of quality required to achieve sufficient yield.

Loss of signal (dropout) occurs when the oxide coating on the magnetic tape fails to make perfect contact with the read or write heads on a recorder/reproducer and is termed "separation loss." This loss may be due to poor head alignment, improper guiding, dirt buildup on the heads, or poor quality tape. Only tape quality is considered in this study because the other factors concern computer maintenance and housekeeping practices.

As shown in the figure, dropout causes are divided into three types, namely contamination, oxide roughness, and backing damage. Temperature effects are listed within the contamination type because the heat generated as the tape passes over the stationary head often tightly adheres contaminants to the oxide surface of the tape.

Both wet and dry cleaning methods and combinations of the two have been used in the study. In a previous system: after the tapes have been cleaned,

(continued overleaf)

all tapes with 6 or less dropouts are rewound and stored for reuse. Tapes with 7 to 35 dropouts are reworked to 6 or less and all tapes with over 35 dropouts are discarded. The system used in this study differs slightly. The dropout count is first determined at 50% and the tape is then graded by determining at what signal level the tape is dropout free. Grading tapes by their zero dropout count has the advantage of assuring that users will receive no tapes having severe permanent dropouts. Dropout free tape at 50% can then be selected for the most critical applications.

Note:

Inquiries concerning this innovation may be directed to:

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Reference: B68-10035

Patent status:

No patent action is contemplated by NASA.

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