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# NASA TECH BRIEF

## Lyndon B. Johnson Space Center



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### Recovery of Recordings from Heat Damaged Magnetic Tapes

#### The problem:

Magnetic tapes used in cassette and tape recorders often contain valuable recordings that cannot be replaced. Therefore, accidental damage to such tapes from heat, water, etc. causes some owners to expend great efforts in their restoration. Probably the most destructive damage to magnetic tapes results from heat which curls and distorts them. Such tapes are commonly restored by carefully rolling them into a tape stack and heating the stack to approximately 65 to 75° C (150 to 170° F) for up to 24 hours. Tapes that are too tightly curled, however; cannot be flattened with this method.

#### The solution:

A simple technique restores heat damaged tapes that have been shrunk and curled into a tight roll to one-fifth of their original width. Damaged tapes can now be repaired at home as long as the damage does not extend to layer-to-layer adhesion within the tape roll.

#### How it's done:

Before the tape is repaired, a length of double-backed adhesive tape is attached to a smooth, hard surface. This length must be equal to or longer than the damaged magnetic tape section. Over this double-backed tape, an equal length of splicing tape is placed with the adhesive side up.

A thin rod, cut at an angle to its axis to form a sharp point, is used to press and smooth the small sections of magnetic tape, oxide side down, along the adhesive surface of the splicing tape. The sharp point of the rod is used to unfold curls and wrinkles, and the smooth surface to flatten the tape against the adhesive strip.

After the entire damaged section of magnetic tape is smoothed out, it is covered with a splicing tape. The

edges of both splicing tapes are trimmed to the width of the magnetic tape. Finally, the oxide surface of the magnetic tape is detached from the bottom splicing tape with care to avoid damage to the oxide.

To preserve the recording, the repaired section is spliced into a good roll or cassette for copying. Every effort should be made to complete the copying on the first run, because fidelity in the repaired section deteriorates with each repetition.

#### Notes:

1. Before attempting the actual repair, the procedure should be tried on a piece of the same type magnetic tape which has been intentionally damaged to approximately the same degree.
2. Requests for further information may be directed to:  
Technology Utilization Officer  
Lyndon B. Johnson Space Center  
Code JM7  
Houston, Texas 77058  
Reference: TSP73-10173

#### Patent status:

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning non-exclusive or exclusive license for its commercial development should be addressed to:

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Category 02