Problems observed with MIRA-1000 type magnetic tapes

- Severe stiction causing frequent tape drive faults.

- Material deposits on a drive head and/or tape cleaner, sometimes removable.

- Holes occurred in the tapes because of coating pullout.

- Stretched and wrinkled tape resulting from the tape having stuck previously in a tape drive.
Severe Stiction effect, tapes peeled from Magnetic Heads
Why Stiction can occur in some tapes?

- In contact with water, Polyurethane binder undergoes hydrolysis, higher temperatures accelerate the reaction.

- Lower molecular weight polymers formed, cause the tape coatings to be become sticky.

- Polyurethane hydrolysis can be temporarily partially reversed by heating a tape at a relatively low temperature for several days.
Block #20 needs to be recovered from the backup

Merge Master and Backup to get complete blocks of data for Block# (20-23)
How to minimize Data loss?

- Use certified media to archive electronic information.
- Allow for incoming media to acclimatize for a minimum of 24 hours before attempting to process.
- Archive tapes in controlled environment. Temp 66-68 F and 30-35% humidity.
- Rewind/retention all media types.
- Migrate E-records from legacy media formats to newer formats.
NASA Recovery work on images from Lunar Orbiter tapes


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