Confessions of a Video Restorer
Or How Come These Tapes All Need To Be Cleaned Differently?

By Jim Lindner

I would like to share a few of my observations that have been gained through restoring several hundred videotapes. These tapes have come from a wide variety of sources and include many different formats including 1/2" reel to reel, 2" Quad, 1" Types A, B, & C, 3/4", and many other obsolete formats too numerous to mention (or remember). These tapes have been stored in a wide variety of conditions, some in pristine climate controlled vaults, and some in the top of closets in Florida or in the flooded basements of houses along the Long Island Sound. All of these tapes had one thing in common: (they cannot be played by the user), and, perhaps most importantly, many things that were different.

In the scant literature on videotape degeneration primarily discusses binder breakdown or what has been termed the "sticky shed syndrome". While many of the tapes that we have restored have exhibited this problem to various degrees, I have come to learn that many of the tapes have compound problems that do not fit the "classic" profile of sticky shed syndrome. In addition, while I have heard that many are looking for a "holy grail" solution that cures all tapes of their illnesses at least long enough to get a decent transfer, my personal observation is that such a single cure all is highly improbable, and that there is no one solution to the various maladies that have come my way.

This realization is quite important because it means that the general application of a single solution "cure" can actually make the tapes much worse then they were before the cleaning process was applied. As an obvious example, a tape that has a physical fold could be severely damaged by a cleaning machine that scrapes the surface of the tape with a razor or similar "burnishing" station. Similarly, baking a tape that does not have sticky shed syndrome but does have serious chemical contamination due to its sitting in contaminated water for a couple of weeks is not a good idea. In fact, we have seen tapes that are of the same format, shot approximately at the same time, and stored next to each other exhibit different problems. More often, we are greeted by exasperation on the part of the client when one of two tapes that have been stored identically does not play when the other is fine.

A single cure solution actually seems silly when one considers some of the differences in the design of videotape itself, the requirements of the machines that the tapes were recorded on, and the handling the tape received during and after production. As the technology of videotape recording changed over the years, so too did the characteristics of videotape, because the demands of the equipment required different performance on the part of the tape itself. Indeed,

videotape engineering is a crucial element in recorder design because what good is a fantastic machine without the tape to record the image on? In many cases, the design of the recorders required radically different types of videotape performance, and, as a result, the chemistry of these products and the manufacturing techniques used to make them are very different. 2" Quad videotape, for example had to withstand severe abuse from the heads every time that it was played due to the deep head penetration that this format required. As a result, this tape is much thicker than the tape used in current digital videotape recorders whose heads barely touch the tape but require a much higher recording density than quad technology. Optimal abrasivity of the tape is also different for different formats, and the "stiffness" of the tape which was optimal for proper head to tape contact in one format could be very different for another format. Many other characteristics of videotape vary significantly from format to format, and in some cases from magnetic tape supplier to supplier.

The importance of maintaining a proper environment for tape storage has been discussed, but some of the worst problems we have encountered are caused in production... long before storage has occurred. What single restoration solution could handle the unintentional abuse given by a well intentioned crew member who placed a tape inside a sandwich bag (that apparently previously held a sandwich) where it remained for 20 years? Some of my personal favorites include the tape that broke in production and was taped together.... with duct tape, and the tape that had paper "bookmarks" to mark where an important scene started. And of course there have been tapes that have been visited by living creatures over the years, some microscopic, and some generally characterized as "vermin".

I have seen old quad tapes that have the problem of oxide literally flaking off the base, but I have never seen 1/2" reel to reel tapes have a severe shedding problem where the oxide literally separates from the base in a large section. Similarly, I have seen 1/2" tapes that needed to be cleaned 8 times before the adhesive could be removed for playback (classic sticky shed syndrome), but I have never seen stickiness quite this bad with quad tapes.

Unfortunately the end result of these videotape problems may appear to be the same... clogged heads which do not allow the video to be viewed. Jumping to the contusion that the malady that caused the clogged heads is the same problem for different tapes is most often incorrect, and the theorem that one cleaning solution will work for all tapes is similarly incorrect.