

PRESERVING VIDEO ART, A WORK IN PROGRESS ART/TAPES/22 COLLECTION OF ASAC-LA BIENNALE¹

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Introduction

The digital preservation intervention of the art/tapes/22 collection was performed at the Università degli studi di Udine, thanks to the experience of *La Camera Ottica* and *C.R.E.A.* laboratories, in the field of film restoration. At the same time, video preservation has its history and its complex geography, made of laboratories, research centres and institutions which are partly or entirely dedicated to the preservation of video heritage. Nowadays, there is a lively international debate among the most important museums and art institutes (such as the Guggenheim's, Tate Gallery, MoMA, Centre Pompidou) on the practices and methods of video art preservation; moreover, some significant restoration and preservation projects have been realized. Among the most important methodological research actions, the *Preserving Video Art* project, elaborated by the Netherlands Media Art Institute and Montevideo/Time Based from 2000 to 2003, is particularly important. This intervention included the digital preservation and the conservation of about 1700 works (created before 1993), mainly by using the Philips 1500/1700, Betamax, Video8/Hi-8, VHS/S-VHS and U-matic lowband/highband/BVU-sp supports. The protocols and methods adopted were published and they are available in *The Sustainability of Video Art work*.²

Another important intervention has been undertaken within the context of the *40yearsvideoart.de* project, organized by the Kulturstiftung des Bundes (The German Federal Cultural Foundation)³ which led to the digital restoration of thirteen works of German video art with the Diamant software (Hs-Art). This project is noteworthy in that it faced for the first time the practical possibilities as well as the ethic questions related to the use of digital restoration systems applied to video.

However, from the methodological and technical point of view, such interventions are considered pilot projects still to be discussed, as the related intervention protocols and decision models are not yet final.

We consider the preservation of the art/tapes/22 collection, that will be briefly and concisely described herein, as a *work in progress*. This is not only because the project is still open in our laboratories, but also because the entire landscape of contemporary art preservation, as we mentioned above, is indeed still evolving and needs further definition.

During the critical examination of the tapes, the historical and present technologies, and the texts and documents, we have found that film restoration processes, categories and theoretical principles permit, on the one hand, to resolve many of the problems of video preservation, on the other hand, they are hindered by some concrete cases.

To anticipate some conclusions, this is due to the contents, the *material* and the identity of video art.

The aim of our intervention on the art/tapes/22 collection has a strictly preservation function. This means that its main goal is to propose some conservation indications suitable for the archive's materials; to develop some intermediates of conservation that would document and "replay" the original piece as faithfully as possible (with all the necessary reservations and the technical and practical cautions); to develop the access copies. Preservation in the cinematic field has been defined as an

*"Active conservation" action geared to guarantee the transmission to posterity of the article's content. In its current meaning, preservation indicates a mere intervention of duplication, done without modifying (e.g. editorial modifications) the original material.*⁴

We would like to integrate this definition with another one:

*The complex of procedures, criteria, techniques and practices that are necessary for maintaining the integrity, for restoring the content and for organizing the intellectual experience of a moving image in a permanent way [...]. Duplication, restoration, conservation, reconstruction (if necessary), access and exhibition in the most appropriate conditions, these are the basic elements of the moving image preservation activity.*⁵

It is well-known that the duplication process is not neutral at all. However, the intervention has been done "without modifying (e.g. the editorial modifications) the original materials, other than in minimal part and only with regard to the access copies."

Preservation, as it is seen in English speaking countries, seems to be a complex and multilevel system. However, the revision and control of the original materials, their manipulation and reversion to digital form necessitates some choices: the principle of selectivity, that is so close to the restoration theory, is already at work.

Most probably, *each intervention* on the original piece aimed at changing the state of the preserved material – physical examination, tape restoration and despooling, cooking, washing, conversion/duplication – has to be considered as *one dimension of the restoration*.

We may then consider preservation as a *primary articulation of the restoration*.

We consider the Digital Intermediate of Conservation the result of a first level of the material's restoration, even though it is located within the system and within the complex actions derived from the previously agreed definition of preservation. Instead, we consider the production of Access Copies as a second level, a second articulation of the restoration.

And so today we are inclined to consider restoration as the result of two distinct actions: obtaining maximum preservation of materials in context, which is a priority that must be guaranteed (through the preservation project). This includes calculating an amount of new quality materials; this will be considered ideally as added value within the context of contemporary project culture. Restoration can therefore be redefined as the sum of two actions: *Restoration = preservation of existing materials (overall value) + planning for new materials (added value)*.⁶

Briefly, this second level in production of access copies coincides with *the planning of the new* that implies, even with a minimum level of action, a series of editorial interventions that are defined and evaluated within the order and the substance of aesthetic, historical and use values which we attribute to the preserved works.⁷

The Planning of the New: The Work on Access Copies

Following the above, we are going to illustrate briefly where and in what way we intervened by modifying the nature of the original document in the access copies:

1. Segmentation of the works. In the copies held in the art/tapes/22 collection, each tape often contained several works. For this reason it was necessary to define the text limits and the consequent determination of the *mark ins* and *mark outs*.
2. Reconstruction of separated works. When the works copied were "separated", divided and partially present on more tapes, we proceeded by restoring their textual integrity. This was done after verifying their belonging and/or their derivation from the same occurrence and the same copy.
3. Initial signs. Whenever their intelligibility had been spoiled by the tape's wear, by signal decay or by errors in past duplications. In the case of works produced by art/tapes/22, that action has been carried out respecting the nature of the document realized by a factory which produced and distributed its products and which was claiming its productive and distributive paternity. Our intention was to reproduce the edition as a whole.
4. Crop levels for the web edition. The examples of video art in this collection, when they become accessible in our historic and cultural present era, are and will be perceived mainly through rather different display media than those they were invented for. The monitor image, a television display, to be precise, cuts, that is, makes invisible one part of the picture, by superimposing a second "framing". Digital displays and, consequently, the DVD and WEB access copies would show things invisible in the past. That is why we have chosen to crop the image in order to make it similar to the display format of the past. In order to understand the ways to recover these works, we have to consider first of all that these works were visualized on monitors and small or medium sized television sets (considering the possibilities and the technologies available in the past) The works were not made to be video screened, except for a few cases (we mean the ones to be included in a performance context and those translated in video language even though originally "written" on film, albeit in the 16 mm format).

Thus access copies show how a "simple" work of preservation is inevitably to be transformed into a "planning of the new", making these works current and functional, thanks to their cultural and aesthetic value, and thanks also to the user value we attribute to them.

The Video Art Material

The material we worked on was a magnetic support (1/2 or 3/4 inch wide) subject to more or less rapid decay. One tape is composed of three main layers: a recording mag-

netic surface; a binder that puts together the magnetic paste and the third main element, the base.

The tape, according to its origin, preservation and structural composition (format, year of production, sensitive layer, brand), contains an audiovisual signal that is destined to decay in time, more or less rapidly. In a way, the consciousness of the aesthetic, historical and cultural duration value attributed to the action and artistic process recorded in the video-registration, can be summed up by the time duration of the videographic material, which clashes with and penetrates such consciousness.

We have noticed in our copies that, in addition to the decay of the layer and the signal, the past duplication work was often superficial, naïve and did not adopt the registration standards. The latter reveals a sort of technical amateurism, that can be found by analyzing the tapes (master and copies). Such amateurism contrasts with the "professionalism" in implementing and editing the tapes in the contemporary broadcast context. This fact underscores that even if there were some artists who were extremely conscious of the technological nature of the medium (e.g. Bill Viola) and some technicians used and able to video record (e.g. Andrea Giorgi), the tapes – master or copies – store information that often lacks the most elementary rules of standard audiovisual recording.

Moreover, in many cases the naïve duplication has introduced editorial failures, gaps and errors in the works. In addition, this duplication has copied some visible forms of signal decay present in the original copy.

Figure 1 shows a graph that divides our materials according to support (U-matic, 1/2 inch); brand (individuating implicitly their mechanical, physical and chemical characteristics); and according to the generation, gleaned from the documents' information, and therefore sometimes misleading.

generation	total
Duplicato [Dupe]	4
Matrice [Master]	8
Matrice da film [Master from film]	1
Riversamento Videofilms (Ginevra 1978) [duplication]	26
absent indication	29
Total	68

Brand	Total
Dupont Crolyn KC10	1
Fuji Film BERIDOX KCA-60	1
JVC U-VCR KC-30	1
MEMOREX CROMEX U60	1
Memorex UCA60	2
Scotch UC-30	1
Sony KC10	2
Sony KC-10	4
Sony KC-15	3
Sony KC-20	2
Sony KC30	2
Sony KC-30	13
Sony KC-40	1
Sony KC-60	4
Sony KCA30	1
Sony KCA60	29
Total	68

Fig. 1

As can be seen, there is a series of materials that are heterogeneous in terms of both generation and physical, chemical and mechanical characteristics.

Most of the treated and examined material is in U-matic format. As far as the cultural history and the generation of these copies are concerned, in our collection there are 1/2 inch originals, which are duplicated in U-matic format or, in the case of "the Geneva subsection", they are duplicated in third generation 3/4 format.

The information derived from this subdivision was confronted and cross examined with the contemporary technique owned by the *art/tapes/22* of Florence.

The U-matic Format

In this brief report, we are going to examine the U-matic support. The U-matic format was developed by Sony in 1969 and it was the forerunner of all video formats for domestic use. The format was designed for professional use and that is why it contained some advanced characteristics from the very beginning, which made it fully functional in the editing phase. There are three different versions (LB, HB and SP) that differ from each other on the basis of the different subcarrier frequencies that were used for the luminance and chrominance recording. The tapes we worked on are of the LB type, used in the 1970s.

The Action Protocol

We are going to describe now, using a diagram and synthetic descriptions, the working phases. Namely, we will describe the way we have processed the tapes in order to preserve and make them accessible. The preservation process phases are as follows:

Phase 1 – Control of the physical state and tape baking:

- a. Allocation of the identification number, control of the preservation state of the support, cataloguing.
- b. De-assembling of the U-matic cassette and first tape despooling (U-matic/open reel).
- c. First baking of the tape.
- d. Second despooling.
- e. Second baking of the tape.
- f. U-matic re-assembling and open reel rewinding

Phase 2 – Signal equalizing and transfer on the conservation support:

- a. Loading and sliding test on the player.
- b. Analysis and tracking of the audio/video signal.
- c. Translation on the "Cinewave" workstation.
- d. Replacement of the tape into the original holder.
- e. Making of a check/answer copy for technical and textual analysis.
- f. Implementing of the conservation copy (digital intermediary).

Phase 3 – Output of access copies:

- a. Results of the technical analysis and the textual analysis.
- b. Location of the in/out points.
- c. Corrective actions.
- d. Exporting of the audio/video file into mpeg2 and mpeg4 codes.
- e. Authoring DVD.
- f. Stamping

Each of the points mentioned above contains a series of actions and subprocesses that redefine and translate – in terms of consequential actions and cross-checks – the logics that we illustrated in the previous slide.

We are not going to describe each phase of the process; it is more interesting to face some crucial points of the action protocol that we elaborated and to illustrate some concrete examples that pick up the most common and, last but not least, the most significant problems of video art preservation.

The first step, obviously, was the review of materials, which – in film restoration – corresponds to the first phase of “the critical examination of materials”. However, as in film restoration, the operator is immediately able to observe the image and to examine the quality of its preservation and the levels of decay.

In our case we have a situation, concerning materials, that puts together videographic and audio restoration. In other words, the “review” is no longer literal and total, even if the tape’s physical and chemical state allows us to make hypotheses with regard to the signal’s decay and the loss of the information, on the basis of physical and chemical features, if any.

Below are some examples of what we did, through a list of “the inspection criteria” proposed by Jim Wheeler:⁸

- Type of container the tape is in (cardboard, cheap plastic, shipper, etc.).
- Check for damage that compromises the structural integrity of the container itself.
- Check the interior of the container and the edges of the tape for patterned black, brown, or mustard colored contamination that can suggest the presence of fungus.
- Establishing the tape format.
- Correspondence of the label on the tape with the label on the container.
- Note the brand of the tape.
- For open reel tapes; is the end-of-tape secured?
- Check the tape edge for white powder or crystalline residue and check the interior of the container for black/brown flakes of oxide.
- Check reel condition. A badly, or loosely wound reel must be rewound.

Because of these aspects and in order to manage all the information a database was created.

In order to verify and manage the possible problems deriving from the *sticky-shed* syndrome, we have preventively done a test of tape baking, then we have proceeded with a washing test for the same reason, in order to ensure the absence of dirt and adhesive deposits.

The tests done on U-matic tapes revealed the almost total absence of the *sticky-shed*

syndrome and the absence of signal improvement through washing. However, the washing appeared useful in order to eliminate the dirt that would partially "spoiled" the signal reading.

Figure 2 shows a transfer diagram; as can be seen, before the making of the conservation copy and access copies there is a parallel controlling process, the analysis and the verification of the technical and textual level by the means of the reference copy. The aim of the first analytical step of the reference copy is to identify and individuate damages, if any. More generally, it allows to verify the single and particular validity of the adopted transfer chain and to modify it, if necessary, in accordance with the detected problems.

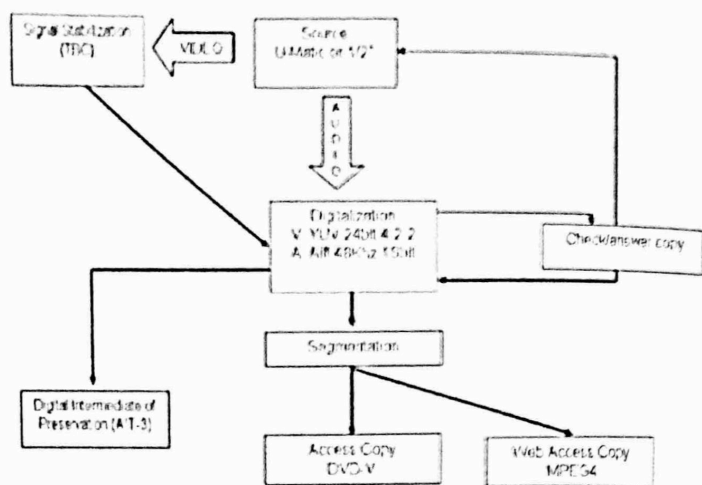


Fig. 2

The most common visible failures related to signal decay may be summarised in the following main four typologies:

- **Dropouts.** This means the loss of one or more lines. This kind of error occurs due to the lack of the signal not only during the reading phase, but also during recording. Almost always, dropouts are caused by the presence of dust or other elements which obstruct the correct reading of the signal.
- **Impulsive noise.** It has the same characteristics as the dropouts, but with infinitesimal dimensions. The defect can be seen as a white point with an appendix which looks like the tail of a comet. The treatment of the signal by the TBC (time base corrector), if any, would transform the point and its tail into a white or grey line.
- **Picture jitter.** The picture jitter is an error occurring during the reading phase of the horizontal synchronisms, the defect is seen as a waving.
- **Unhooking the picture (V Sync).** The unhooking of the picture is a TBC compensation, not a player's defect. We would not have unhooking of the board without the TBC, we would have synchronisms unhooking and loss of the picture instead.

- Synchronisms' unhooking (H/V Sync). This means a total loss of the image. There is no chance to recover the image in almost all cases.

By creating a technical report for every tape, we were able to verify the tape's quality in a simple way, on the basis of the interferences and errors found.

A cross-examination of such reports with the other collected data, makes it possible to interpret and define the state of every single tape, in relation to its physical and chemical conditions, its brand, its generation and it also helps to understand the whole collection's condition.

Some Case Studies

Finally, we would like to present some significant examples of the concrete experience of intervention developed by our laboratory and then a series of cases which illustrate some persistent problems made evident by certain works. The first one comes from *Actions*, by Antonio Muntadas. There are two copies of *Actions* in the ASAC archive. Figure 3 shows two frames of *Transformation* (one of the two parts of *Actions*) coming from the two copies. As can be noted, both of them show the same error, which is the result of the previous generation: we may define it a *subjunctive error* in philological terms.

The second case comes from *Friction* (a part of *Actions* as well). As shown in Figure 4, there are two different types of video signal corruption in the same frame taken from the two copies. These corruptions underscore how signal decay makes the elements unique. These elements are, however, theoretically based on reproducibility and exact copying principles.



Figg. 3. 4

Another example is in *Italian Interview* by Alexis Smith (an interview with the artist Chris Burden). There is a "wave" effect that characterises the image. In other words, there is a loss of information due to the compensation process implemented by the TBC, in its attempt to reconstruct and replace the lost *data packets*. As shown in Figure 5, the two TBCs (the BVT800P and the Frame Grabber) work in a similar way. The examined tape belongs to a section of the collection which we previously defined the "Genève section" because these tapes come from a duplication process carried out in the Videofilms laboratory in Geneva in 1978.

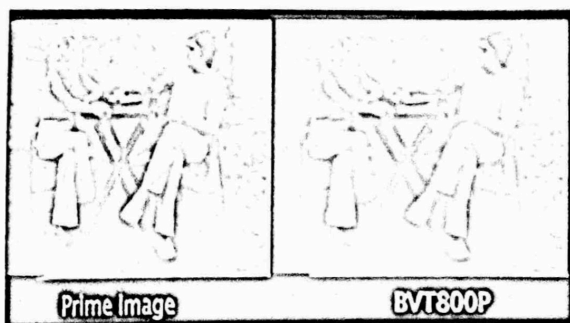


Fig. 5

Figure 6 reports a duplication tree from 1978 preserved in the art/tapes/22 collection. During the duplication of *Italian Interview* by Alexis Smith an *error* occurred. Because of the technological system used for reading or while recording the 1 inch tapes, a series of information was lost during the recording on the 1 inch (II) or during the recording from 1 inch to 3/4 inch (III). Consequently, this duplication error was "printed" on the material we now have (the 1978 U-matic). Moreover, thank to this tree, we are able to understand why the majority of our works are in the 3/4 inch format.

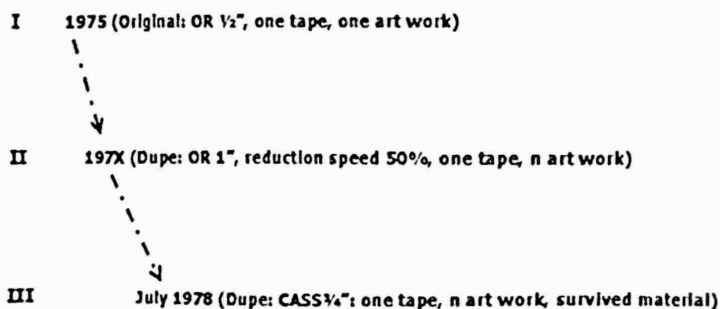


Fig. 6

Given the cultural and material history of these copies, there seem to be two feasible solutions.

The first one is to "go back up the tree" to the search for the lost 1 or 1/2 inch tapes and, at the same time, to search for the other copies of this work, which means starting a large review phase. The second one is to apply the algorithms and digital instruments to the access copies, considering our code as a *codex unicum*, in order to repair or reconstruct the lost information.

As regards the second approach, Figure 7 offers a comparison between the digitally restored and non-restored versions of Lucio Pozzi's *Portrait of Maria Gloria*. With the *Revival* digital restoration software, we were able to reconstruct and repair some kinds of signal corruption (e.g. the *dropouts*).



Fig. 7

The examples described above belong to a relatively well-known tradition of preserving methods and practices. In some cases we have found various problems caused by the "nature" of the audiovisual contents.

The first example concerns Gerald Minkoff's *Chulk Walk* made in 1974 and distributed by art/tapes/22. Our copy is a master copy derived from the original tape, a KCro Sony U-matic cassette. As shown in the *frame* in Figure 8, we have saturation of the signal level. Even taking into account possible errors in duplication, the saturation effect seems intentional. The waveform monitor appearing on the screen shows how the author is driving the signal level towards saturation. We compared the waveform monitor shown in the video with an identical waveform monitor owned by our laboratory in order to demonstrate how the configurations of the signal levels are similar.

Another example comes from Jean Otth's *Limite E*. Figure 9 shows a *frame* from this work. There are two drop lines which we should consider as signal corruption. Actually, the drop is only the upper one, the lower line is an intentional white line that constitutes the main meaning of Otth's work.

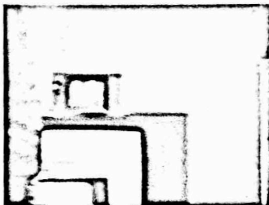


Fig. 8



Fig. 9

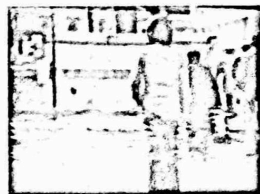


Fig. 10

The last example we consider comes from *Theme for a Race of Survival* by Marco del Re. The interference seen in Figure 10 is actually caused by the intentional use of the *slow motion* by the author. The player used was inevitably making such interference. We must then consider these interferences as technological limits of the time and that is why we must preserve them.

These examples and many others show that only the critical examination of the materials, the textual analysis (and the textual critique) and the collection and interpretation of data may offer adequate preserving solutions for the *material* and the *identity* of the tapes.

(Translated from Italian by Maria Stropkovicová)

- 1 The "Introduction", "The Projecting of the New: The Work on the Access Copies" and "The Video Art Material" paragraphs were written by Alessandro Bordina; paragraphs "The U-matic Format", "The Intervention Protocol", and "Some Case Studies" were written by Simone Venturini.
- 2 Anon., "The Sustainability of Video Art: Preservation of Dutch Video Art Collections," in *Netherlands Media Art Institute Montevideo Time Based Arts* (2003), <http://www.montevideo.nl/en/index.html> (May 2, 2006).
- 3 The first part of the project was finished in June 2005; for further information see <http://www.40yearsvideoart.de> and the book by R. Frieling, W. Herzongerath, *40yearsvideo Art. Digital Heritage: Video Art in Germany from 1963 to the Present* (Ostfildern: Hatje Cantz, 2006).
- 4 N. Mazzanti, "Note a piè di pagina. Per un glossario del restauro cinematografico," in L. Comencini, M. Pavesi (eds.), *Restauro, conservazione e distruzione dei film* (Milano: Il Castoro, 2001), p. 21. Cfr. G.L. Farinelli, N. Mazzanti, "Il restauro: metodo e tecnica," in G.P. Brunetta (ed.), *Storia del cinema mondiale*, vol. V, *Teorie, strumenti, memorie* (Torino: Einaudi, 2001), p. 1121: "Active preservation action aimed at ensuring the transmission in time of the preserved object's contents. In practice, the movie is copied on a new support. In its current meaning, preservation indicates simply the copying, without any alterations (e.g. editorial alterations) to the original material."
- 5 P. Cherchi Usai, "La cineteca di Babele," in G.P. Brunetta (ed.), *op. cit.*, p. 1037.
- 6 Report by M. Dezzi Berardeschi, in B. P. Torsello (ed.), *Che cos'è il restauro* (Venezia: Marsilio, 2005), p. 39.
- 7 For the theory of values, see A. Riegl, "Il culto moderno dei monumenti. Il suo carattere e i suoi inizi," in S. Scarrocchia (ed.), *Alois Riegl: teoria e prassi della conservazione dei monumenti* (Bologna: Gedit, 2003 [Bologna: CLUEB, 1995]), pp. 171-236 of the first edition; see also M. Dvořák, "Culto dei moderni e sviluppo artistico," in S. Scarricchia (ed.), *op. cit.*, pp. 359-373.
- 8 J. Wheeler, "Videotape Preservation Handbook," *AMIA* (2002), <http://www.amianet.org/publication/resources/guidelines/videofacts/about.html> (May 2, 2006).