

**NEA Grantee: Pacifica Foundation / Pacifica Radio Archives**  
**NEA Grant #: 05-3400-7004**  
**Attachment: Draft -Best Practices Manual - Tape Preservation**

**Pacifica Radio Archives – Preservation & Access Project**  
**Draft / Outline: “Best Practices: On-site Preservation”**  
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**Note: David Seubert, Audio Records Archives Consultant worked with the Pacifica Radio Archives Staff and PRA Preservation & Access Team, to develop a “Manual of Best Practices” for on-site assessment, preservation, duplication and digitization of audio recordings submitted to, or residing in, the Pacifica Radio Archives.**

## **I. INGEST OF NEW TAPES**

**[NOTE: Inventory/Accession/Process Notes in “Processing” Notebook.**  
**Information migrated to catalog as appropriate]**

### **A. Labeling of ingested items**

1. Dates to include:

Date of production

Date of any speeches in the production

Date (and name and number) of any archives programs used in the production

Broadcast date

2. Description

Title of Program

General description of program content: including names of any speakers or performers.

3. Location of where/when recorded and where/when first broadcast [Question: what to do when info not available? Guidelines for checking or researching recording info]

4. Length of Program

If the production is on more than one reel/CD/etc, this should be noted, using "Reel 1 of \_\_\_ reels", and noting length of that reel in relation to the total length of the program. Example: "Reel 1 of 4 reels. Reel 1: 57 min. Total length: 420 min" [Question: How should different entries for different physical recordings of same program content be related in the catalog / descriptive record?]

5. Credits

Producers, writers, hosts, guests, technical help, engineers, mixers, editors, music.

[Question: archival material; other contributors of audio materials; researchers; reporters; actors; directors; program?; distributor?, underwriters or sponsors?]

6. Restrictions, if any. Also, if applicable, get the original signed speaker release form [s].

Also, if applicable, get the original license agreement [s].

7. Numbering system

This system was setup by previous catalogers and archivists. If any of the programs are part of a series (i.e. “Democracy Now!” KPFK's” Uprisings”, “Explorations”) then the series number changes every fiscal year, beginning October 1, and the series program is listed as xxxxx.01, etc.

Tapes from KPFK: KZxxxx

Tapes from KPFA: AZxxxx

Tapes from PRA or Pacifica national: PZxxxx

Tapes produced by non-Pacifica people: SZxxxx

[QUESTION: numbering of limited series; different versions or editions of same program]

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### **B. Handling and storage of tapes**

Tapes should be leadered before storage [Question: preferred leader = paper or acetate?]

[Question: Preferred splicing tape for leader?]

[Mark leaders with “heads” and “tails” and the archive number]

Tapes should be stored “tails out”

Tapes should be played [real time] before storage, not rewound

Tapes should be stored on slot-less reels and the wind should be even and neat before they are put in storage [Question: are plastic or metal reels preferred?] [Question: stored in box with hub?]

[Question: Specifications for boxes?] [Question: Specifications to reduce “shelf crowding / compression?”] [Question: How bad is it to save as pancake on foam hub?]

### **C. Handling and storing of CDs**

Submaster CDs should be stored in “jewel cases”

Submaster CDs should not be labeled directly on the disc, but on the jewel case

Submaster CDs should always be handled carefully by their edges and returned promptly to storage

### **D. Cataloging tapes**

[As there is currently no Cataloger on staff], all ingest information is entered into a binder in the front/reception area, to be catalogued into our (for now) *InMagic* database at a later date.

Recently, some (most? all? ask Shawn) of this information was entered into a *Filemaker* database as a backup for the physical binder. Additionally, Edgar has his own de-facto catalog of recent additions to the Archives: the CD label folders. [NOTE: Make sure all staff is aware of location of these databases and catalogs, what they contain, and how to access them]

### **E. Ingest of programs from digital sources**

File formats: The preferred source for ingest of program content from digital sources is an uncompressed, two-channel, 44.1Khz, 16bit wav file. If it is not possible to ingest an uncompressed wav file, mp3 files can be ingested if the quality is high enough, preferably 128 kbit/sec or greater. Under no circumstances should other compressed formats meant for online distribution such as *Windows Media* or *Real Audio* be ingested. All ingests in compressed formats should be converted to uncompressed wav files.

Cataloging: Cataloging of digital files should be handled in the same manner as analog source material, with the addition of format specific fields.

## **II. Reformatting of Archival Tapes**

### **A. Cleaning tapes**

If tapes are dirty, they may be run through a machine with green Pelon to clean off loose debris. Polyester tapes may also be cleaned after baking to remove loose residue. Check to see if tape stock is acetate or Mylar

### **B. Adjustment and cleaning of playback machine**

In addition to routine maintenance (see below), the tape path of *Otari* machines should be cleaned once per shift or whenever there is a noticeable buildup of debris

### **C. Playback of tapes**

There should be an initial assessment of the tape stock to determine if the tape can be safely played back or may need baking before playback. With historically problematic polyester tape stocks from certain time periods in the archive, it is probably safer to bake first rather than

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playing the tape back to see if it actually needs baking

**1). If the tape seems to be in good condition:**

The tape should be threaded carefully on the machine and rewound. The machine should be attended during rewind and the operator should note any problems such as squealing, shedding oxide, splices or other problems. In the event that damage to the tape is likely by a high-speed rewind, the tape should be flipped around and played back to rewind it

If no problems present themselves during rewind, the tape can be played back and digitized.

**2). If tape problems apparent:**

\*Historical knowledge of the tape and recording systems combined with trial and error will help determine the best playback equipment and settings.

**Things to note for optimum sound quality from a tape: the original tape recording speed and track configuration. Always ask a more experienced operator for advice if something seems unusual**

\*Azimuth adjustment. [NOTE: Can PRA do this?] Also azimuth alignment should be considered for each tape.... At *SafeSound Archives*, George Blood demonstrated that adjusting the azimuth can make a significant difference in sound quality. He had software that helped guide the azimuth adjustment

\*Baking tapes:

Only polyester tapes should be baked. Under no circumstances are acetate or mixed-base tapes to be baked. Typical candidates for baking are *Ampex* and *Scotch* tapes from the 1970s-1980s with back-coating, such as *Ampex 456* or *Scotch 206/226*

Tapes should be baked in the dehydrator for 2 hours at 125 degrees with sufficient time for them to return to room temperature before playback

Tapes should be transferred as soon as practical after baking, preferably within a week

Problematic tapes may be baked a second time if necessary

Tapes that don't respond to a second baking should be transferred by an outside vendor who can try other techniques

**D. Creation of open reel preservation masters**

Preservation masters are created in real time with flat master characteristics; e.g. no equalization or other audio adjustments is done to preserve the characteristics of the original recording

Logging of Preservation Masters - Relevant information is logged from the transfer including date, length of recording, any problems with the tape such as squealing, residue left on tape heads, Mylar or acetate and recording problems such as low or high levels, fluctuating levels, quality of sound, hiss etc. [this logging should be moved to *InMagic*] or successor cataloging.

Labeling Preservation Masters - Label should be as the original with the addition of a label that states it is a Preservation Master and the date it was created

**E. Creation of CD masters**

Media

CD submasters should be created only on 74 minute *MAM-A (Mitsui)* gold CDs and stored in jewel cases. The submasters are used to create the duplicating masters

CD duplicating masters are made from the submaster for duplication of programs for sale or for use by producers. The duplicating master can be on media such as *Taiyo Yuden green*, *MAM-A silver* or other less expensive media. They should **not** be on *MAM-A gold media*. Duplicating masters can be stored in paper envelopes in cabinets. In case of damage to the duplicating master, a new duplicating master should be made from the submaster

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**F. Logging of CD copies**

Note on master reel label that CD submasters and duplicating masters are available

A field is also available in the *InMagic* database to note that a CD submasters and duplicating masters are available

**G. Labeling of CDs**

Submasters should not be screen printed or marked on with a sharpie marker

Duplicating masters can be labeled with program content with the screen printer or a water-based sharpie. A basic template is available for all CDs with the Pacifica Radio Archives logo, copyright restrictions, contact information and website address. In addition to this all CDs should contain the program Title, Total Record Time, Archive #, and a short description of the show, guests, production credits etc.

**H. Storage of CDs**

Submasters should be stored in the archive room or offsite

Duplicating masters can be stored in the office

**II. Maintenance of equipment**

**A. Routine Cleaning**

*Otari* reel-to-reel machines :

(This is taken directly from "The Digital Reformatting of Magnetic Audio Recordings" report sent by Adi Gevins. This data was in turn referenced from IASA Technical Committee's "The Safe Guarding of the Audio Heritage: Ethics, Principles and Preservation Strategy," 1997; Van Bogart's "Magnetic Tape Storage and Handling", and Newton's "The Preservation of Recorded Sound Materials"). [NOTE: Create staff maintenance calendar / schedule & check off system. Include dates and contract for off-site specialist if necessary]

- 1.Clean tape heads, guides and rollers thoroughly with isopropyl alcohol and cotton swabs. Dust, oxide particles, and other contaminants affect both playback and recording performance.
- 2.Cleaning of guides and rollers should be performed once per shift or whenever a problem is encountered. Read/write heads and tape cleaner blades should be cleaned twice per shift and before any critical operation.
- 3.A technician should periodically demagnetize the tape decks.
4. Professional calibration of the playback and recording equipment is regularly needed depending on the frequency in which the equipment is being used. Keep track of the dates of the calibration and frequency of use.
- 5.Guides that are not aligned will lead to uneven rewinding of magnetic tape. Tape heads and guides should be periodically checked for alignment.
- 6.It is important that equipment is kept in a dust free environment and far from machinery, such as printers and photocopiers that generates debris and soot.
- 7.A tape tests that contains a series of test tones at a standard reference can be used to verify the performance of the tape recorder's playback system and to align and calibrate the tape recorder.
8. *Primera Signature Pro* CD labelers - It is important to routinely clean excess ink from the cartridge guide. It is fairly simple to do but it does require the removal of the plastic case. This is done by removing 4 screws at the bottom of the printer.... there is a power cable connected to the plastic case but the case moves out of the way without having to remove the cable.... clean the roller with a cotton swab and some isopropyl alcohol.... then re-lubricate it with *Lubrex* or some other lubricant that doesn't break down fast like *WD-40*

## **B. Scheduled Maintenance**

### 1). *Otari* MX5050

*Otari* open reel machines should be serviced annually, checking for head alignment and wear, replacing guides and pinch rollers as necessary

### 2). *Telex* High Speed Duplicators

*Telex* high-speed duplicators should be monitored for problems by periodically checking CD error rates with a *Clover* or other CD tester. Care should also be taken in noting things such as an abnormally high number of customer returns

Duplicators should be serviced or replaced as needed based on unacceptable error rates

### 3). HHB CD burners –

HHB CD burners should be monitored for problems by periodically checking CD error rates with a *Clover* or other CD tester

HHB CD burners should be sent for periodic maintenance (recommend = annual)

## **III. Creation of CDs for Sale**

**A. Duplication of CDs** - invoices of orders are sent to us from the front office and duplicated in order of receipt. If there is no CD submaster PRA staff create one and a CD Label using the *Discus Label* program. Submasters are created using the *Otari* reel-to-reel machine and an HHB CD burner at real time speed. High speed duplication is done on *Telex Spinwise* machines set at 12 x speed [note this is changed from 52 to 12x – DCS]

**A. Label of CDs for sale:** A basic template is available for all CDs with the Pacifica Radio Archives logo, copyright restrictions, contact information and website address. In addition to this all CD's should contain the program Title, Total Record Time, Archive #, and a short description of the show, guests, production credits etc. keep in mind that there is limited space on the CD face for printing so summarizing all the relevant information into a few sentences becomes a learned art form

## **IV. Storage of Tapes**

Original tapes should be stored in archive room except when actually being used and returned to archive room immediately after use

**!!!!Storage environment should be kept at xx deg and xx% rh [what is it currently at?]!!!!**

Lights in archive room should remain off when the room is not being used

**[NOTE: RECENT IMPROVEMENTS IN STORAGE CONDITIONS MAY BE NOTED HERE]**

## **Security**

Doors to PRA and PRA vault are kept locked when staff is not in the office (nights, weekends, lunch, etc.)

Original tapes are not loaned from PRA to producers or hosts for any reasons, including emergencies. CD copies are made for producers and hosts as needed. If a producer or host needs to listen to a tape immediately, staff will do their best to accommodate the request and play the tape for the producer

Original tapes may be sent out to service bureaus for reformatting etc. In these cases, safety copies are not made, but appropriate measures such as overnight shipping or personally transporting tapes are used to ensure the safety of originals

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[NOTE: ACLIMATING TAPE, BOXES, TEMPORARY STORAGE, TEMPORARY INVENTORY AND CATALOGING, SEE: COLLECTION INVENTORY-IN-PROGRESS]

[NOTE: PRA STAFF FILL IN "DEFINITIONS" & NOTE GENERAL USAGE EQUIVALENTS. ADJUSTMENTS MIGHT BE NEEDED IN PRA USAGE TO FACILITATE PARTICIPATION IN GENERAL DISCOURSE]

### **Definitions**

Submaster:

Preservation Master:

Open Reel Preservation Master:

### **Other recommended sources for developing best practices for sound preservation.**

1. "Capturing Analog Sound for Digital Preservation: Report of a Roundtable Discussion of Best Practices for Transferring Analog Discs and Tapes" Council on Library and Information Resources. CLIR pub 137. Commissioned for and sponsored by the National Recording Preservation Board, Library of Congress. March, 2006. Text may be downloaded at <http://www.clir.org/pubs/abstract/pub137abst.html>
2. "Guide to Standards and Recommended Practices" AKA "Bibliography of Audio Standards Documents" by David Seubert. In the "Recorded Sound Roundtable (RSRT) Newsletter" of the Society of American Archivists (SAA), Autumn, 2004. Text may be downloaded at: [http://www.safesoundarchive.com/PDF/newsletter\\_fall04.pdf](http://www.safesoundarchive.com/PDF/newsletter_fall04.pdf)

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