Technical Procedure for Audio Evidence Repair

1.0 Purpose - The purpose of this procedure is to attempt to repair physical damage to audio evidence in order to allow it to be played.

2.0 Scope - This procedure describes the steps to be taken by personnel of the State Crime Laboratory to repair physical damage to audio evidence.

3.0 Definitions

- **Write Protection** – A feature available on many types of media which helps to protect the media from inadvertent alteration or deletion. This is sometimes referred to as "Record Protection."

4.0 Equipment, Materials and Reagents

- Screwdriver
- Permanent Marker
- Tape
- Cutting tool
- Cleaning solution
- Spare parts from similar physical audio evidence

5.0 Procedure

5.1 Determine, based on the general characteristics of the media and the Forensic Scientist's training and experience, whether a repair is possible. In general:

5.1.1 Repairs can be attempted on analog, tape-based media (such as audiotapes, microcassettes, etc.).

5.1.2 Generally, digital media (e.g., CDs, MiniDiscs, hard drives, flash memory cards, etc.) cannot be repaired in the Laboratory. If recovery of data is needed from these types of media, attempt to copy the data onto another piece of media. It is recommended that several different pieces of equipment attempt to read the data, if possible.

5.2 The remainder of this procedure will focus on the repair of tape-based media.

5.3 Remove the tape from the housing. Determine whether the housing will need to be replaced. If so, set aside empty replacement housing.

5.4 Determine if the tape reels are damaged.

5.4.1 If reels are damaged:

5.4.1.1 Using empty reels from a similar type of media, wind the evidence tape on the new reels. The surface of an audio tape can become coated with contaminants if exposed to situations such as smoke or immersion in water. If the audio tape is exposed to these types of damage, the tape can be cleaned during this step.

5.4.1.2 Label the original reels, as well as the replacement reels, using permanent marker in accordance with the Laboratory Procedure for Evidence Management.

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5.4.2 If reels are not damaged:

5.4.2.1 The surface of an audio tape can become coated with contaminants if exposed to situations such as smoke or immersion in water. If the audio tape is exposed to these types of damage, clean the tape at this time.

5.5 Determine if the tape is broken.

5.5.1 If broken:

5.5.1.1 Cut away any jagged or stretched pieces of tape around the portion of the tape to be spliced.

5.5.1.2 Splice the tape together using adhesive tape on the side opposite the audio and/or video information.

5.6 Place the reels into the original housing or the replacement housing if it was determined previously that the housing needed to be replaced.

5.7 If the housing was replaced, label the replacement housing using permanent marker in accordance with the Laboratory Procedure for Evidence Management.

5.8 If a write protection feature is available, enable it at this time.

5.9 The tape shall be re-tensioned before playback. This is accomplished by fast-forwarding and rewinding the tape one full time.

5.10 If the damage to the tape was significant, the media shall be duplicated the first time it is played in order to preserve the evidence in the event the original tape fails. Refer to the Digital/Latent Evidence Section Audio Duplication and Conversion Procedure for more information.

5.11 Identifying markings shall be placed on the evidence if possible. Avoid placing identifying markings on removable labels present on the evidence.

5.12 If no native write protection feature exists, a read-only playback device may be used, if available.

5.13 Standards and Controls – N/A

5.14 Calibrations – N/A

5.15 Maintenance – N/A

5.16 Sampling – N/A

5.17 Calculations – N/A

5.18 Uncertainty of Measurement – N/A

6.0 Limitations - Failure to repair physical audio evidence correctly could result in further damage to the evidence or the equipment used for playback.

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7.0 Safety – N/A

8.0 References

- Laboratory Evidence Management Procedure
- Audio Duplication and Conversion Procedure

9.0 Records – N/A

10.0 Attachments – N/A

Revision History		
Effective Date	Version Number	Reason
09/17/2012	1	Original Document

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