Laser Discs: Production Questions and Answers (11/95)

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TOPIC ---

This article contains some questions and answers about laser disc production.

DISCUSSION -----------------------------------

Question: I have seen the "ABC News Presidential Election" laser disc. This particular disc has the single image (freeze frame) and runtime movie (video clips). I know about two methods of recording: CAV (still image) and CLV. Which method was used for this disc? Can you combine both methods of recording on one disc (one side with CAV and the other side with CLV)?

Answer: Constant Angular Velocity (CAV) is capable of providing both freeze-frame and full-motion video. Constant Linear Velocity can provide only the full motion video. Therefore, if both freeze frame and full motion are desired, then CAV is the technique to use when creating the laser disc.

The disadvantage of the CAV method concerns the amount of video that can be placed on the laser disc. This is 30 minutes per side. CAV plays only one frame in one revolution of the laser disc. This is where CLV has the advantage; it is capable of placing more video on the same disk, namely, 60 minutes per side. However, there are varying number of frames played during a revolution. This is why the freeze-frame feature is not available in the CLV format.

Technically, it would be feasible to use CAV on one side of a disc and CLV on the other side. Typically, this is not a method used in the laser disc industry since the CAV method provides both freeze frame and full motion.

Question: I would like to print my laser disc. I have all the materials on video tape. Can it be done?

Answer: Laser disc production houses have specifications that vary. Generally, these production companies want the master video tape in the 1-inch broadcast tape format; some may accept 3/4-inch broadcast tape. There are precise specifications for the layout of information on these master video tapes. Different production companies may require slightly different layouts.

If material has been transferred from motion picture film to video tape, there

are special considerations for freeze-frame images. The method of transfer from the film to the tape is very important. When transferring 24 frames a second (the film standard) to 30 frames a second (the NTSC video standard), the method used to compensate for the differing frame rates must be precisely controlled.

If the original material was shot on video tape, the frame-rate issue is not a concern. However, freeze-frame images still need special attention so there will not be image flicker during the laser disc freeze-frame display. Two methods are available: frame-accurate edits or multiple-frame recording.

- Frame-accurate edits allow just one frame of video to be recorded on the laser disc for the freeze-frame image. This is the preferred technique.

- Multiple-frame recording allows freeze frames without the need to have frame-accurate edits. Three frames are recorded on the laser disc, and the middle frame is used for the freeze frame. This uses space on the disc quickly; three times the space that is used for frame-accurate edits. Someone using a disc recorded with this method cannot step through the freeze frames, frame by frame, without seeing the same image three times.

Question: If I want my laser disc in NTSC format, what should I do?

- Will PAL-formatted video tapes work?
- Do I need high-band (broadcasting) or low-band (normal/home use) video tape?

Answer: It is possible to move from one format to the other, but there are issues that need to be addressed when using the CAV method. These are related to how the conversion takes place. A laser disc production company can explain the details of these issues.

Most disc production companies require the master video tape to be on 1-inch video tape or 3/4-inch video cassettes.

Question: How long does it take to do the pressing?

Answer: The usual turnaround -- from the time a production company receives the master video tape until the duplicated discs are ready -- is 10 days. If faster turnaround is required, turnaround time as short as same day is often available. However, any turnaround less than the typical 10 days will cost extra. The faster the turnaround, the more the cost.

In summary, using the CAV method requires a specifically formatted master video tape in 1-inch or 3/4-inch format. Freeze-frame images require very close attention to avoid image flicker. Film-to-video tape transfer is a very precise process that must be monitored very closely. Many laser disc production companies provide books, at no cost, that detail the many specific issues that must be addressed to produce a quality video disc.

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