

Closed Captioning on Pioneer Industrial LaserDisc Players (Special Considerations for LD-V8000)

1. Introduction

Closed captioning can be encoded on LaserDiscs. Closed caption code is usually inserted on line 21 (and usually in field 1) of the edit master video tape before it is submitted to the plant for LaserDisc replication. Use a "Closed Caption Code Inserter" to place the captions onto the tape.

Closed captioning is available during playback of a LaserDisc on a Pioneer Industrial LaserDisc Player by using a "Closed Caption Code Decoder". The decoder is placed between the player and the monitor. The decoder should let you indicate the line where the closed captioning will be found. If you use a decoder that only reads closed caption code from one specific line in the vertical interval, make sure you communicate with your sales representative and the Pioneer Video Manufacturing before preparing the edit master and pressing the disc to make sure the captioning is encoded on the proper line.

2. CAV and CLV discs with Closed Captioning

A CAV disc with closed captioning can be decoded when played back on any current Pioneer Industrial LaserDisc Player — a CLD-V2400, CLD-V2600, LD-V4400 or LD-V8000. When interactive features of the players are used — such as Pause, Still, and Search — closed captioning can be fully decoded.

A CLV LaserDisc with closed captioning can be decoded when played back on the CLD-V2400, CLD-V2600 or LD-V4400 and there is no problem with using the interactive features.

When a CLV disc with closed captioning is played back on the LD-V8000 player there is no problem decoding closed captioning as long as the player spins up the disc and plays it straight through, non-stop. If interactive features are used, however, to Pause, Still or Search, the video memory does not always grab field 1 and place it into the first of two memory banks. It will sometimes grab field 2 in place of field 1. This can happen up to 50 per cent of the time. **Since closed captioning is usually placed in field 1, there is a 50 - 50 chance that the player will playback field 2 and not make the closed captioning available to the decoder.**

If customers require closed captioning on a CLV disc that will be used interactively, they should plan to play those discs on a Pioneer CLD-V2400, CLD-V2600 or LD-V4400 player. If the customer must use a CLV disc with closed captioning on the LD-V8000 it will work fine as long as the disc is spun up and played straight through. If the disc is to be used interactively, there is a work-around possible under computer control.

3. Using CLV discs with Closed Captioning on the LD-V8000

To assure that the LD-V8000 always outputs field 1 of each frame of video on a CLV disc, so that the closed captioning will be available to the decoder, a series of Level III commands can be sent to the player. **NOTE:** When a computer is connected to the Pioneer LaserDisc player, all commands to control the player should be sent from the computer. See below for command sequence.

4. Command Sequence for Consistent Field 1 playback on LD-V8000

NOTE: See *LD-V8000 Level I & III User's Manual / Programmer's Reference Guide*, **Chapter 4** for information about sending Level III commands to the player, and for detailed explanations of commands. Page numbers for specific commands are cited below.

These are commands to use to assure that the LD-V8000 consistently outputs video frames beginning with field 1, so that closed captioning encoded in field 1 can be received by the decoder:

2RG (Register G Set) Sets video memory to Interleave Video Playback, Frame Mode. See page 4-56.

OIM (Select Playback Field) Selects the field on which interleaved video playback is started. 0 indicates field 1. See page 4-46

ORM (Select Frame Interval) Selects the number of frames to be skipped during interleaved video playback. 0 indicates that every frame should be played. See page 4-45.

NOTE: Before using the OIM or ORM commands, Interleaved Video Playback, frame mode, must first be selected using the command 2 RG. The Interleave Video Playback function is available in EPROM version DYW 1202/DYW1194 and DYW 1208/DYW 1244 and above.

Send the command string in the example below with a carriage return. The player will send back an R when the commands are executed:

Example: 2RG0IM0RM <CR> R

Execution: Player is set to Interleave Video Playback, Frame Mode and is instructed to playback the first field of every frame.

After these commands have been sent to the LD-V8000, closed captioning in field 1 of every frame will be available to the decoder.

5. Notes on the 2RG Mode

With the EPROMs described above, if a pause (PA) or Start (SA) command is sent to the LD-V8000 in 2RG mode, the player will not release the blue background after it receives a Play (PL) command. To avoid this problem when the player is in 2RG mode, send a Still (ST) or Search (SE) command before sending the Play (PL) command.