Designed to be a source of information for educators about interactive videodiscs, this handbook presents an overview of the technology and offers additional sources to be consulted for more detailed information. It is noted that, although this second edition of a 1985 publication has gone through extensive changes, clarifications, and corrections, the focus has been kept on the use of technology in education with specific information on appropriate hardware and software to provide a single-source reference for educators and trainers. Information on interactive videodiscs is presented in 10 chapters: (1) Introduction to Videodiscs; (2) Overview of Laserdisc Systems; (3) Selecting a Laser Videodisc Player; (4) Video Playback Units; (5) Videodisc Interface Units; (6) Disc Player Peripherals; (7) Videodisc System Packages; (8) Educational Videodisc Software; (9) Interactive Videodisc Authoring Tools; and (10) Care and Maintenance. Ten appendices provide directories of laserdisc players, television monitors and projectors, laserdisc interfaces, laserdisc peripherals, laserdisc system packages, laserdisc software, videodisc mastering options, and authoring language distributors; service information; and a videodisc bibliography which lists 11 books, 17 periodicals, 6 conference proceedings, 3 special videodisc publications, a directory of 14 organizations that hold conferences and workshops, and an index of 142 manufacturers. (MES)
The Educators' Handbook To Interactive Videodisc

By Ed Schwartz

aect
Association for Educational Communications & Technology
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FORWARD TO THE SECOND EDITION

The sales and comments from the first edition of this book have led to the writing of this second edition. The book has gone through extensive changes, clarifications and corrections. This is not to say that the book is free of errors, but it should give the reader a better idea of the videodisc industry as it is today with respect to education and training. The industry has gone through many changes in the past months, and the book will not necessarily reflect all of those changes. Only those changes that effect the use of this medium in education and training have been directly discussed. The focus has been kept on the use of the technology in education with specific information concerning appropriate hardware and software to provide a single-source reference for educators and trainers.

This edition has added several new features that are hoped to be of use to the readers. The opening introduction to capacitive videodiscs has been replaced by a discussion of the new Laserfilm technology by McDonnell Douglas. A section in the Videodisc Software appendix has been added for Vocational Education. Many of these discs may be appropriate in an academic or a vocational setting.
This handbook is designed to be a source of information for educators about interactive videodisc. It does not attempt to be a detailed reference of the technology. It is, rather an overview of the technology, offering additional sources that you can consult for more detailed information. This should help educators find the appropriate equipment and software for any specific application. The book also serves as a starting point for many educators who know nothing of the technology, and assists you in deciding whether the technology is worth pursuing as an educational tool in your specific situation.

The listings of equipment and software contained here are the result of a search of the listed publications, plus the attendance at professional conferences. Although there may be other products available that are not included in this handbook, the listings nonetheless reflect a good portion of the videodisc-related products available today. Because of the fast pace of the industry, many of the prices quoted here may have changed by the time this book is distributed. The prices do, however, still provide a good indication of a general price range of specific items. The products listed are all for use with NTSC (American) standard television equipment unless otherwise specified.
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CHAPTER 1. INTRODUCTION TO VIDEODISC

Rapidly changing technology confronts an educator with difficult choices in selecting new equipment. Will today's state-of-the-art equipment be tomorrow's Edsel? Obviously, educators must be careful in choosing a particular technology, making certain that it will play an important functional role in the educational system. The Laser Videodisc system is such a technology.

Not all videodisc systems are either as flexible as the laserdisc systems or viable for all of the varied educational settings. The RCA capacitance system, for example, which was removed from the market in the spring of 1984, was not suited to most instructional uses. RCA's decision to withdraw its capacitive system left the laser technology as the only working videodisc format available to American consumers. Recently, McDonnell Douglas introduced the laserfilm system. This system uses a low cost photographic method of information storage and replication while using a laser playback system. The laserfilm system has many of the same characteristics of the laserdisc systems.

LASERFILM (PHOTOGRAPHIC) SYSTEM

The photographic technology has been around for some time now. The early 70's saw at least two photographic systems being developed. The Thompson system sold a small number of units in the late 70's, but the reflective systems received the most attention. McDonnell Douglas took the lead in 1981 to develop the photographic system for their many applications of the medium. They are now marketing the system to primarily maintenance, logistics, and training markets that need to update and change information frequently.

The Laserfilm system consists of the player, a television monitor and the Laserfilm disc. The LSF-4400 player has a full list of features that rival those of the reflective systems. The player can play both directions 2 or 3 times the normal speed or 1/2, 1/3, 1/5 the normal speed as well as step frame and scan. The stereo audio channels are individually selectable and features a noise reduction system. Other standard features include 2 second worst case access time, digital data retrieval at 2.8 KB per frame, instant jump (under computer control), and still frame audio. The player can have an RS232 serial port or an IEEE 488 port and an optional internal computer that can support a variety of input devices and graphic overlay. Without computer control, an optional remote control unit can perform the necessary control functions.

The Laserfilm videodisc is made of photographic film stored inside of a protective plastic caddy. The disc can store 18 minutes of motion video or 32,400 still frames of information. The still frame audio feature can store 4.77 seconds of audio per frame for over 40 hours of audio available on the disc, or any combination of still frame audio and still frame video.

The largest difference between the reflective and the photographic systems is the mastering and replication. Because the master is made of photographic film, the process of mastering and replication is as simple as developing a photographic negative and then making multiple prints from the negative. Aside from reducing costs, this process can mean easy upgrading of information, quick turnaround, and rapid distribution.

The current costs of the system are $3,600.00 for the basic player without options. The mastering costs from a master videotape are $200 per hour to format the tape, then $500.00 for the master disc, and $10.00 for each duplicate disc. Discs can be replicated at a rate of over 200 to 1000 per hour with an automated system, or about 25 per hour with a man-operated system. All of the formatting, mastering and replication systems are available for purchase to allow any facility to master and replicate their own discs.

LASERDISC (REFLECTIVE) SYSTEMS

The laserdisc system is an optical system reading reflected light from the disc spinning at 1800 revolutions per minute. At this speed, one revolution can playback one frame of video information. This allows the laser to read one revolution over and over, creating a freeze or still frame. A normal 12-inch Interactive (CAV) disc can play up to 30 minutes on one side. This offers 54,000 frames or spaces available for information storage (1,800 x 30 = 54,000). An 8-inch disc can also be used holding 25,200 frames or 14 minutes of information.

With the interactive disc, you can search for and display each of these 54,000 frames in less than three seconds. One disc can store 54,000 pages of information or 54,000 individual pictures and retrieve them at will. With the aid of a small microprocessor (which is
standard on selected players), you can access information on the disc very easily.

The Non-Interactive (CLV) laserdisc continually changes speed to fit more information on the disc, playing up to 60 minutes of video with stereo audio on one disc side. Digital audio tracks are also available on either CAV or CLV discs. These audio tracks can only be read by players specifically designed for that purpose.

The disc itself is made of a metallic substance covered in thick clear plastic so it can be handled without damaging the quality of the recorded information. In fact you can be touch; scratch; drop, and soil it with no ill effects to the recorded signal. Only the laser beam comes in contact with the disc, preventing any wear on the disc when it is played. The disc is not indestructible, but with reasonable care, a laser videodisc will last indefinitely.

In summary, the laserfilm system can perform all of the normal playback functions common to the laserdisc system with about the same flexibility. Both systems have still frame and slow motion capabilities, random access to each individual frame (54,000 with laserdisc and 32,400 with laserfilm), and normal play functions. Both systems are impervious to wear, as they both are read by the laser and nothing touches the discs during playback. The laserdisc audio quality is slightly better than the laserfilm and offers digital audio as an option. Where the life of the laserfilm is not yet known, the inexpensive mastering and replication is a definite advantage.

Figure 1 compares both the laserfilm system and the laserdisc system. It is assumed that these are the top of the line systems with all available options.

<table>
<thead>
<tr>
<th>Film</th>
<th>Disc</th>
<th>System Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>Inexpensive mastering and replication</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Store computer information</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Interface with home microprocessor</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Download data from the disc</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Rapid access to anywhere on disc</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Random access to frame numbers</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Freeze frame</td>
</tr>
<tr>
<td>No*</td>
<td>Yes</td>
<td>54,000 color frames per side</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Full set of interactive functions</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Stereo audio</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Digital audio</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>User friendly equipment</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Low cost of playback equipment</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Low cost of discs</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>No erasure of information</td>
</tr>
</tbody>
</table>

*Laserfilm contains a maximum of 32,400 frames

**WHY THE LASERDISC?**

It should now be obvious that both laserfilm and laserdisc systems with their complete interactive capabilities make them very desirable for educational applications. The laserfilm is, however, new and untested in the classroom. The laserdisc has been used effectively in the classroom and has a growing list of educational software available to the instructor. In the classroom the possibilities for either system become endless and their unique capabilities cannot be found in any other single media system. Videodiscs and interactive video will be the educator's tool in the classroom of tomorrow—and it is available to the educator today!
CHAPTER 2. OVERVIEW OF LASERDISC SYSTEMS

The delivery systems for the laser videodisc cover a wide range of possibilities. The main difference in the systems is their varying levels of interactivity. The disc systems range from a stand-alone system that only plays back recorded material to highly interactive systems that employ the use of a host computer to run the disc.

One of the features of the laserdisc is that interactive programming can be encoded either on the disc and downloaded to a microprocessor in the player, or on a separate floppy disc driven by a host computer. This addresses the main limitation of the laserdisc system: it is a read-only medium. Read-only means that the end user cannot change the materials on the disc—including the encoding. Just like the information on a phonograph record, the information recorded on the videodisc cannot be changed. When you couple the videodisc with a microcomputer, however, it can become extremely flexible in any setting. You can change and update properly designed programs easily on the host computer. You can superimpose graphics from the computer on top of the videodisc picture allowing modification of the pictures as well.

**HARDWARE OVERVIEW**

The basic piece of hardware for a laserdisc system is the laserdisc player. The players are categorized by their level of interactivity. The Level One player has limited interactive capabilities. Both Level Two and Level Three players, on the other hand, can be highly interactive. The helium-neon lasers of the early players are now being replaced by the longer lasting solid-state laser diodes.

The other necessary piece of hardware is a television monitor. Although the system will work with any standard black and white or color television, professional television monitors will yield much better picture resolution. High resolution is necessary for classroom use so that students can read screen text clearly. Large classrooms need large image television projectors that offer the best possible clarity and resolution.

The higher the desired interactivity, the greater the need for a microcomputer to be connected to the system. All of the microcomputer’s educational characteristics, including complex branching, can be incorporated in the system by means of a videodisc/computer interface. You must take care to ensure that the interface is compatible with all of the desired hardware components and that it is capable of performing all the desired functions. Standard RS232C serial communications ports on both computer and videodisc player can eliminate the need for a separate interface.

Authoring tools (authoring languages and authoring systems) allow anyone, regardless of programming experience, to create lessons with very complex computer routines. These authoring tools are generally programs that allow you to insert information into pre-programmed routines. You can then put these routines in any order you choose. The computer does nearly all the work through a series of questions and prompts for the non-programmer.

**Standard Videodisc Control Features**

Power—This function switch turns the AC current on or off.

Play—Starts the player after the disc has been put into an alternate mode such as pause.

Reverse—Allows the machine to play backward at normal speed.

Stop—Stops the disc on a single frame and waits for a new command.

Pause—This is the same as Stop on most players. Some players will automatically blank the screen in this mode.

Index/Frame Display—This feature enables the user to see which frame of video is being viewed. It is used for finding information in single still frames as well as starting points for sections of video. Frames 1 to 54,000 are available. With CLV discs, this feature will display elapsed time in either minutes or minutes and seconds depending on the player.

Scan Forward—This moves the disc forward at a fast rate of speed and allows for fast identification of the video images.

Scan Reverse—This provides the identical features as Scan Forward, but with the image moving backward.

Fast Forward—This function advances the disc image at three to five times the normal rate of speed.

Fast Reverse—This function moves the disc image backward at three to five times the normal rate of speed.

Still Forward—This will advance the disc forward one frame at a time.

Step Forward—Same as Still Forward.

Still Reverse—This will advance the disc backward one frame at a time.
Step Reverse — Same as Still Reverse.
Multispeed — This feature allows the user to select a bi-
directional multispeed viewing rate. Speeds in-
clude timed still step at 1 frame every 3 seconds or every second, slow speeds at \( \frac{1}{2}x \), \( \frac{1}{4}x \), \( \frac{1}{8}x \) and \( \frac{1}{16}x \) normal speeds, a normal 30 frame per sec-
ond speed and a 3x, or 2x fast speed.
Audio 1 — This switch controls the first audio channel which corresponds to the left channel on standard stereo systems. The switch can be toggled on or off.
Audio 2 — This switch controls the second audio channel which corresponds to the right channel on standard stereo systems. The switch can be toggled on or off.

INTERACTIVE: LEVEL ONE

A Level One player is the basic videodisc unit on the market. The Level One player usually comes with a small hand controller that lets you operate the player in a remote mode or using the controls on the player itself. Two primary features of the Level One players that are the Search and the Picture Stop features. They allow you to stop the disc at exact frame locations, thus providing natural divisions in the materials presented, or allowing you to address specific still frames.

Most Level One players also feature interface ports to upgrade the system. Random access time varies from one player to the next. Short jumps are usually under one second, but the maximum search times can be up to ten seconds.

Frame/Chapter Search

The Search functions of the Level One player are very valuable and, with proper software, give the unit a high degree of interactivity. Think of the CAV disc as an “electronic textbook” with 54000 pages (frames) of materials. With the Search function, you can easily go to any page (frame) or chapter of information.

You can access any still frame on the disc by using the hand controller. You merely enter the five digit number, from 00001 to 54000 into the small computer in the player and, with the press of the Search key, the frame will appear on the screen — usually in less than fifteen seconds. This function allows you to go anywhere on the disc at any time. If the disc has Chapter Codes, the Search key can also move you to any given chapter of material.

Time Search

Although a few of the early players had the capability to search to time locations on CLV discs, it was very difficult to use effectively. The TIME SEARCH is accomplished in the same manner as a FRAME SEARCH. The player will indicate that it is a CAV disc by displaying minutes and seconds in the screen (00:00) rather than the five digit frame number (00000). Some early players would allow the search to any minute of a CLV disc or 60 possible searchable locations on an hour disc side. The new line of Pioneer players now will search to any second on a CLV disc or 3,600 searchable locations on a CLV disc. This advance means that the vast amount of commercial videodiscs that are now available can be used effectively in the classroom. An opera, a classic film, or possibly a filmed stage production can be studied and viewed in a way that has never been possible and in great detail. The only disadvantage is the inability to use the still frame feature.

Access Time

Access Time is the term used to designate the worst-case search time from any two random points on the disc. If the access time for a player is given as three seconds, for example, the player can Search from frame 1 to frame 54,000 in three seconds or less.

Chapter Codes

The Chapter Code is a feature that many have called Chapter Stop. Chapter Stop is actually incorrect, because the player does not automatically stop at a chapter from the play mode. The correct term is actually Chapter Code. This feature can only work if Chapter Codes have been encoded on the disc. This means that there is a digital code in the vertical or blanking interval of the video signal. With the Chap-
ter Search command, you can then move directly to any encoded chapter by using the hand controller. The player ignores the Chapter Codes when in the normal Play, Forward, or Reverse modes, but in the scan mode, the player will stop within 400 frames of the Chapter Code.

Picture Stops

Picture Stops, like Chapter Codes must also be encoded on the disc, using a digital code in the vertical interval of the video signal. The disc will stop automatically on an encoded Picture Stop frame from the Play or any of the Multi Forward/Reverse modes. Together, the Chapter Stop and Picture Stop will provide the user with a point on the disc that will give an automatic still frame and can be located quickly by a Chapter Search.

Instant Jump Feature

This feature, found on many of the high level players, is available on the Hitachi and Philips Level One players. The Instant Jump allows the disc player to move instantaneously by random access from one
frame to another within a specified tolerance. The Hitachi VIP-9550 player can jump 200 frames forward and 200 frames in reverse in less than 5 milliseconds. This eliminates screen blanking or breakup from one frame to the next.

The other Level One player with this feature is the Philips VP-935 with a 99 frame jump capability in either direction. Some Level Two and Level Three players are also equipped with the Instant Jump feature. Pioneer uses the term Multiple Track Skip to denote Instant Jump. Like the Philips player, the Pioneer models with this feature are capable of jumping multiple tracks, up to 100, in less than 5 milliseconds.

**INTERACTIVE: LEVEL TWO**

The Level Two videodisc player is designed for industrial and educational applications. These players have built-in microprocessors allowing you to use the player as a stand-alone fully interactive system.

The onboard microprocessor uses at least two forms of memory to store and retrieve information. One form of memory is the Frame Recall storage. A user can store and retrieve a five digit frame number in a file in any order. The important frames needed for any given application can be identified and stored for faster access. The other common form of memory is the Program storage. This allows the user to create computer-assisted instruction (CAI) programs. Such programs can include user input functions, branching, and other normal CAI features as well as timed sequences of Still Frames or real time motion.

These players usually feature an RS232C parallel interface for system upgrading. Random access time is usually under one second for short jumps, and up to five seconds for maximum search distances.

**INTERACTIVE: LEVEL THREE**

Any disc player interfaced with a microprocessor is a Level Three disc system. The Level One players with computer ports can be interfaced into a Level Three configuration; so can the Level Two players with interface ports. All of the disc players on the market today can be upgraded to a Level Three system with the exception of the Pioneer model LD-838D. Several advantages of the Level Three system are obvious. There is a large increase in the available memory, and the use of high-level math functions allow more sophisticated programming. This technology is the combination of computer-assisted instruction (CAI) and high quality visuals.

There are several players on the market designed to work exclusively with microcomputers. These players do not include controls on the player or have provisions for handsets. They are totally dependent on the host microprocessor for control and allow the user to design more specific functions for the player.

**INTERACTIVE: LEVEL FOUR**

The definition of this level of interactivity is still being debated in the videodisc field. The Level Three went a step beyond the disc player to the computer for control. Many look at Level Four as the use of overlaid text, graphics, other visual information, and digital data from the external computer. This combination allows all of the computer's power to be used in conjunction with the videodisc player. Visual displays, combining both real video from the disc and text or graphics from the computer, provide an extremely high degree of flexibility for all educational applications. This overlay capability along with the added ability to read digital data from the disc, and input devices including touch screens, joy sticks, light pens, bar code readers, voice activated systems, or bit pads can greatly increase the interactivity of any system and promote a more efficient means of attaining particular objectives.

Whatever the definition of Level Four is, it will be difficult to get a unanimous agreement from the industry. It will probably be adequate to say that the applications of this level are in most cases very unique and require specialized hardware that will make this type of system difficult to obtain with off-the-shelf equipment. The Level Four system is the highest level of interactivity that is currently available on the market. While basically a modified Level Three system, there are no players that are designed solely for this application. Obviously, Level Three players would be the best players suited for this system.
CHAPTER 3. SELECTING A LASER VIDEODISC PLAYER

LEVEL ONE PLAYERS

Level One players are the most economical for many applications. These players allow the full range of interactive features along with the capability to interface with a microprocessor. Too, the access time on these players is generally slower.

Several Level One players are currently on the market. Most of these players have a serial computer interface port that, with the addition of a microprocessor, will allow more sophisticated applications (see Level Three applications). The costs range from $550.00 to $1,690.00.

Pioneer, Hitachi, and Sony all offer Level One players. The Pioneer line offers a wide range of players starting with the low end model LD-838D at $550.00, the LD-V2000 listing at $590.00, model LD-4200 at $995.00 and the consumer combination player, the CLD-909, at $950.00. The Hitachi VIP-9550 lists for $1,350.00 and the Sony LDP-2000/1 is $1,690.00. It should be noted that many of these prices are the suggested list prices, and with some shopping around, many of these players can be found anywhere from 10% to 25% lower than list. Quantity purchases will also permit the vendor to lower the price.

One player that continues to stand out from the others is the combination player on Pioneer's consumer side. The CLD-909 is a multi-purpose player that is capable of playing compact audio discs (CD's) as well as the 12” and 8” videodiscs. This player lists at $1,200.00 and has the same basic video characteristics as the other players. In the digital audio mode it can compare to many of the top CD players. Institutions that are involved in music instruction and home users should find this unit very convenient with the same quality of performance as separate players would provide. This has opened the way for videodiscs that have true digital audio. These discs have both digital and analog audio encoded on them so any videodisc player can play the disc, with the 909 necessary to reproduce the digital track. The digital discs can now be pressed in the CLV or the CAV format for maximum use of the laser technology. Alpine, Luxman, NAD, Sansui and Teac all have similar combination players on the market. These players are actually Pioneer CLD-900 players which were the precursors to the current CLD-909.

Two main issues to be weighed in player selection are cost and function. The higher priced players have several features that might or might not be important to the user. The two main issues would be access time and interface sophistication. The quicker access time of the more expensive players could be a good reason to spend the extra money, but with the access time of the inexpensive players coming down, the real issue seems to be in the degree of sophistication of its interface capabilities. The new CLV time search features of the Pioneer players and the instant jump feature. Many of these features need to be weighed carefully to insure that the right decision is reached. The primary advantage of the Level One players over many of the higher level players is the optional remote handset that allows the player to be used without the computer affording the educator added flexibility in the classroom.

Hitachi VIP9550:
Access Time: 3 seconds Instant Jump 200 frames forward, 200 frames reverse
Price $1,350.00

Philips VP 935/17:
Access Time: 3 seconds, Instant Jump 100 frames forward, 100 frames reverse
Price $1,395.00

Pioneer LV-838D:
Access Time: 8 seconds
Price $550.00

Pioneer CLD-909:
Access Time: 10 seconds
Price $1,200.00

Pioneer LD-V2000:
Access Time: 8 seconds
Price $590.00

Pioneer LD-V4200:
Access Time: 3.5 seconds
Price $995.00

Sony LDP-2000/1:
Access Time: 1.5 seconds
Price $1,690.00

LEVEL TWO PLAYERS

Level Two players are extremely versatile units but are also more expensive. If a stand alone system
is needed with full interactive capabilities, this is the one. The internal memory of the player makes it desirable in many of the more sophisticated applications.

Level Two players offer several options of memory capacity. The onboard microprocessor of the Sony LDP-2000/2 and Pioneer's 6000 line of players, the LD-V6000A, LD-V6010, and the LD-V6200 all have 7K of memory (7156 bytes) and the Philips VP935/ISIA has 8K or ROM and 28K of RAM available. The players have been designed to take advantage of picture stops and chapter search features. The Pioneer players will search to any second on the CLV discs, while the others search only to minutes. All of the players (except the LD-V6200A) have an RS-232C port that allows for upgrading to Level Three as well as a combination of onboard computer routines and host computer commands. The LD-V6200A has an IEEE-488 port for specialized applications. The Sony player is sold for $1,895.00 with a 1.5 second access time, the three Pioneer players are $1,875.00 for the LD-V6200A, $1,800.00 for the LD-V6000A, and $1,650.90 for the LD-V6010 all with 2 second access times, and the Philips VP935/ISIA is priced at $1,595.00, with a 3 second access time.

**Philips VP 935/ISIA:**
Access Time: 3 seconds, 8K ROM, 28K RAM, Instant Jump  
Price $1,595.00

**Pioneer LD-V6000A:**
Access Time: 2 seconds, 7K Memory, Instant Jump  
Price $1,800.00

**Pioneer LD-V6010A:**
Access Time: 2 seconds, 7K Memory, Instant Jump  
Price $1,650.00

**Pioneer LD-V6200A:**
Access Time: 2 Seconds, 7K Memory, Instant Jump  
Price $1,875.00

**Sony LDP-2000/2:**
Access Time: 1.5 seconds, 7K Memory  
Price $1,895.00

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**LEVEL THREE PLAYERS**

The Level Three players offer the speed of the Level Two players and an increased set of capabilities. These tend to be the most versatile players available. They demand, however, a greater understanding of computer hardware and programming. They are not always as “user friendly” as other players.

The Level Three players can perform many unique functions that are made possible with a dedicated computer. This player is best suited for individual learning applications. The Philips VP-832/37 player has a three second access time and costs $1,595.00. The Sony LDP-2000 series feature 1.5 second access times for all of the players and starts at $2,325.00 for the LDP-2000/3 that has the onboard memory of the 2000/2 but adds a parallel interface and the capability of controlling 16 players. The LDP-2000/4 lists at $3,235.00 and adds Still Frame Audio capabilities in a stand-alone or computer controlled setting. Any Level One or Level Two player may also be used as a Level Three player with the exception of the Pioneer LD-838D.

**Philips VP832/37:**
Access Time: 3 seconds, Instant Jump  
Price $1,595.00

**Sony LDP-2000/3:**
Access Time: 1.5 seconds, 7K Memory  
Price $2,305.00

**Sony LDP-2000/4:**
Access Time: 1.5 seconds, 7K Memory, Still Frame Audio  
Price $3,235.00

**Sony LDP-2000/5:**
Access Time: 1.5 seconds, 7K Memory, Digital Data access  
Price $3,535.00

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**LEVEL FOUR**

Again, Level Four does not have a special player associated with it. As with Level Three systems, any disc player that is interfaced with a computer is considered to be Level Three. The addition of external input devices to the computer, the ability to read digital data, and high resolution color graphics overlays will bring any system to Level Four.

Appendix A lists all of the laserdisc players discussed and their specifications. It should be noted that the majority of the players are front loading machines. The front loading features are useful in situations where space is a consideration.
CHAPTER 4. VIDEO PLAYBACK UNITS

The most misunderstood component of the laser-disc system is the video playback unit. There are two types of units to choose from: a television receiver (the kind of television most people have at home) and a television monitor (a higher quality unit usually found in educational and industrial settings). Although either video unit can reproduce the laserdisc image, the high video quality of the laserdisc often demands greater resolution than most normal home televisions can offer. A major difference between monitors and receivers is in the type of electronic signal that each will accept as an input. There are two types of television signals that can be used to reproduce the videodisc image: an RF signal and a composite video signal. (A third type of signal—RGB—is common in the high-quality reproduction of computer graphics). Each of these signals yields a different picture reproduction quality. RF and composite signals are standard outputs on all videodisc players. RGB output must be created by a computer, normally for computer graphics overlay applications.

TELEVISION RECEIVERS

For situations that do not require the highest quality picture reproduction, a normal color television will give you an adequate result. The quality of the television receiver is limited by the electronic signal that it uses. The RF (radio frequency) signal used by the receiver mixes the audio and video signals into one. The quality of both audio and video signals are compromised by this method. Although the hardware necessary to reproduce this signal is the least expensive option, the quality of the television picture does not adequately reflect the quality of the images that have been recorded on the discs.

TELEVISION MONITORS

The more demanding applications require the use of television monitors. A monitor uses a composite video signal to reproduce an image, and gives the best picture quality in color and clarity. The audio signal in this format is processed separately. Because the composite signals are processed separately, there is a substantial improvement in both the audio and the video as compared to an RF signal. A monitor costs more than a receiver, but the increased quality of the picture is well worth the higher cost. Because the monitor is not equipped to receive commercial television stations by antenna or cable, you need a separate tuner to use it for normal television reception. Many combination units are available that combine the features of receivers and monitors, these cost little more than the monitor alone. If television reception is a requirement, a receiver/monitor might be the answer.

Many television monitors will also accept the RGB (red, green, blue) signal for a high-quality image from the computer. The RGB signal is the fundamental video signal consisting of the primary colors. It produces clearer images and good color from the computer because it receives the least amount of processing. Computers can produce the RGB signal in one of two formats: analog or digital. Unfortunately, there is little standardization in the RGB output from one brand of microcomputer to the next. You must be very careful in the hardware configuration, therefore, to insure the compatibility of equipment. The RGB signal will produce the best results in the use of graphic overlay with the videodisc image, but it also demands the most expensive television monitor.

It is also important to understand that for each type of playback unit, only a limited number of viewers can comfortably see the image on the screen. As a general guideline, you should have no more than twenty people viewing a 19-inch monitor. For the best results, you should select television monitors and receivers with specific applications in mind. A large-screen projector can be the answer to many situations, but one must be certain that the projector will give adequate results with the room configuration and degree of image resolution. Media specialists should be consulted for specific applications.

TELEVISION PROJECTORS

There are two basic types of large screen television projectors from which you can choose. The first type is a self-contained unit that has a projector built into a cabinet. This type of unit is fairly mobile, and has a screen connected to the unit. These units are fairly inexpensive and are often found in stores for home use. They yield acceptable results in the proper environment. Detailed images can often be blurred if not properly maintained.

The second type of system allows the image to be projected onto screens of all sizes (much like a movie projector) through the use of special lenses.
These units generally are permanently mounted in large rooms, including auditoriums. Many of these units can produce images up to 25' wide. All of these units can project the image from in front of the screen (like a movie projector); many also can reverse the image and project from the rear of the screen. Although these units are highly effective in large-group situations, they can be very difficult and expensive to maintain. For example, the light valve system used in some projectors has a life expectancy of about 1,000 hours. Replacing the light valve costs about $17,000.00 for parts alone, so the use of such a system would have to justify the cost not only of purchase, but repair and maintenance as well.

On a whole, large television monitors not only are more durable and take less maintenance than do the projection units, but they also have a sharper picture. The self contained projectors are fairly inexpensive and offer a minimal amount of maintenance. They also have the larger screen and thus can accommodate more viewers. The projectors with a very large image and rear screen capabilities are expensive and only should be considered when a capable technician is available.

The listings in Appendix B are selected television monitors, self-contained television projectors, and mountable television projectors. This listing in no way represents all of the units in the market. The listed units are known in the field and are readily adapted to videodisc applications. It should be stressed that television specifications do not always give an accurate representation of the video image. Because television image reproduction is very subjective, you should view every television unit prior to purchase.
CHAPTER 5. VIDEODISC INTERFACE UNITS

NON-COMPUTER INTERFACES

Audiotape/videodisc interfaces offer low-cost alternatives to a microprocessor when you need a slide show or other programmable presentation. These interfaces require an audiocassette recorder, with the first track used to carry an audio control signal for the videodisc commands and the second track for narration, music or other audio information. This kind of interface system is versatile, inexpensive, and easy to use. Its limitation, however, is that full interaction with the user is not possible. To explore fully the many interactive capabilities of the laser videodisc system, you need to use a computer.

Optical Data Corp.—ATVI
Price $125.00

Whitney—A1320
Price $100.00

COMPUTER INTERFACES

For computers to control videodisc players, system hardware and software must be compatible. Sometimes you can directly connect computers and videodisc players with RS232C ports to obtain the desired results. When this is not the case, an interface unit is the necessary hardware to provide this compatibility.

Interface units for videodisc systems provide the link between the player and the computer. The units come in all shapes and sizes. You can install an interface card inside the computer or as a separate external unit. Some interface units do more than others, so you need to know their capabilities.

The simplest interface units control only the videodisc player. The main role of the interface is to facilitate the performance of all desired functions through the host computer. These are the functions that you would normally access through the interactive player controls in the handset.

The next level of interface units will also switch displays onto a single screen, relieving you of the need to watch both the computer screen and videodisc screen at the same time. This can be desirable in many situations, because you can run a small amount of text on the same screen that you use for visuals and thus keep the learner's attention focused on just one screen. Sometimes, however, you may want to keep the images separate in order to run text on one screen at the same time that you run visuals on the other.

A more sophisticated interface group enables you to superimpose the graphics capability of the computer over the video image from the disc. This interface combines the functions of several units into one peripheral. These interfaces, normally expensive, reconstruct the NTSC video signal from the videodisc and the RGB signal from the computer, making them compatible. The added capabilities of the overlay function for appropriate applications are usually well worth the extra expense.

The following interface compatibility chart represents many of the interfaces that are currently available as well as their compatibility with several microcomputers. The chart also notes two of the important features of interfaces: single-screen switching and overlay capabilities. Refer to Appendix C for detailed information on a specific interface unit.
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AP = Apple
CM = Commodore
TI = Texas Instruments
AT = Atari
IB = IBM-PC
SS = Single Screen
OL = Overlay
(I = Overlay Included)
(O = Option Available)
Peripherals are add-on devices that offer new dimensions to laserdisc system capabilities. Many of these peripherals such as touch panels, and light pens are standard devices used in Computer Assisted Instruction. These common devices, plus many of the special peripherals for videodisc systems, make the videodisc the most powerful teaching tool available today. Listed below are short descriptions of many of the Peripherals available for use with the videodisc technology.

**GRAPHIC OVERLAY**

Graphic overlay devices are very important to interactive video lessons. These devices allow the user to superimpose computer generated graphics or text over the television picture from the videodisc. You can display information on the television monitor in a single-screen mode from a computer or the disc.

**STILL FRAME AUDIO**

The still frame audio adapter is designed to read specially encoded discs. You can play these discs on any laserdisc player, but the special encoding can only be decoded by this device. This digital device compresses analog audio so that it uses only about (1/75) of the space that it would normally occupy on the disc. When you only need still frames visually, but also require either narration or some form of audio, you do not want to waste space by repeating the same video image on the disc. With special encoding, you can compress the audio portion so that 40 seconds of audio and still video are condensed into just a few frames. Compression allows you to store about 1.3 second of audio in the space of a visual frame.

**NOISE REDUCTION**

The CX noise reduction system is unique to the laserdiscs. It is a built-in feature in many of the players but you can also purchase it separately. This system claims to improve the signal-to-noise ratio of the reproduced discs by as much as 10dB for more than 75dB (1kHz, 100% mod.IHF A). When you connect this device to your system, you only have to turn it on; you do not have any adjustments to worry about.

**INPUT DEVICES**

Several types of touch screens are on the market allowing the user to input information into the system's computer simply by touching the appropriate spot on the television screen. The Infrared system and the Capacitance Grid system are the most common. While the touch systems on the market are relatively expensive, they provide a real advantage for many situations where the keyboard can impede learning.

Graphics tablets, light pens, and joy sticks are inexpensive alternatives to the touch screen. Generally you can purchase these devices as add-ons through computer manufacturers, and then integrate them into any microcomputer system. Like the touch screens, these alternative devices are useful for several instructional applications, especially with lessons for young students whose concentration is easily broken when they cannot find the correct key on the keyboard. Alternative computer inputs get the learner away from the keyboard. Alternate input devices facilitate young students' learning by making it easier for them to enter answers.

**VOICE SYNTHESIZERS**

Voice synthesizers can offer speech output as a way of communicating with the user. Speech output devices can enhance many applications of videodiscs, especially where written text is a problem.

Information on several peripherals are listed in Appendix D. This list is not exhaustive, but it provides an indication of the prices and capabilities of similar items.
CHAPTER 7. VIDEODISC SYSTEM PACKAGES

As the demand for interactive video technology increases, the need for workable systems also increases. Companies now offer complete system packages already configured to serve particular applications. Many of these are "turnkey" systems—ones where you only need to plug them in and "turn the key on." These system packages make the technology even more accessible to persons intimidated by machines.

Some of the systems are self-contained, and some are complete with large cabinets allowing the system to be moved where you need it. Other systems supply the interface, authoring system, and demonstration materials, allowing you the opportunity to provide other components (computer, television receiver or monitor, and disc player). In this way, you can configure a system using already-existing equipment.

Most systems come with a standard authoring language plus a demonstration package that enables you to familiarize yourself with the system in a short period of time. This package takes you through all the steps you need to know to design the videodisc program.

As each system is dependent upon the host computer, all videodisc system packages are Level Three systems. The large price difference among systems is attributable to several factors. One of these factors is the system's ability to overlay color graphics and text from the computer. A system that can perform this function will cost considerably more than one that cannot. This capability also indicates that the system requires more sophisticated software to operate. The price of the system rises with increased interface capabilities. The price of the computer itself can be an important factor. An IBM-PC, for example, is much more costly than the ATARI-800. The cabinet or enclosure that comes with several systems adds a sizable sum to the total price. So do peripherals that are included in the system.

Several systems require minicomputers or mainframe computers, and allow you to network several terminals on one computer. These systems can be desirable in many situations. The primary manufacturers that support such systems are Control Data Corporation with the PLATO system, Digital Equipment Corporation with the IVIS system, Hazeltine Corporation with the MicroTICCIT system, and WILCAT Systems. Each has its own high-level authoring features and ready-to-run software.

Appendix E outlines several currently available videodisc system packages. If you choose one of these systems, you should carefully consider the capabilities of the host microcomputer and all functions you need for specific applications.
CHAPTER 8. EDUCATIONAL VIDEODISC SOFTWARE

Videodiscs are produced in two formats. Constant Linear Velocity (CLV) for limited interactive uses, and Constant Angular Velocity (CAV) for highly interactive instruction. The CLV format allows for Chapter Stops and time search, while the CAV format allows all interactive functions to include still frames of any disc frame and random access to any disc frame.

While total interactivity may be desirable, many educational needs can be filled by the limited functions of the linear play discs. The arts, operas, orchestral works, or ballets can be studied with chapter stops and time search. The increased capabilities of the time search functions of the newer players have given a new perspective to CLV discs allowing you to search to any second on the disc.

In science or mathematics, today’s teaching styles demand greater interactivity. As the list of educational videodiscs increases, there will be a marked emphasis on highly interactive programs.

The term “linear disc” refers to a CLV disc with materials that are, from an educational perspective, limited in their interactive possibilities. The discs can be programmed with the newer players and used quite effectively in appropriate situations.

An “interactive disc” is a CAV disc that has materials suitable for programming with an internal or external microprocessor.

A “programmed disc” is an interactive CAV disc that has available computer software or, in some cases, necessary computer software either on diskettes or on the disc itself in the Level Two applications.

Appendix F lists current educational videodiscs on the market. All the discs listed are pressed in the NTSC television standard and are designed to be used in videodisc players sold in America and other countries using the NTSC standard. The hardware and software requirements of each disc are identified whenever possible. The programmed discs are the discs that need special attention from the hardware and computer software perspective. Linear and interactive discs are functional on any system.

Several mail order houses sell commercial laser-discs at about 10 percent less than retail cost, many of their discs are useful in the educational setting. All of the discs distributed by Laserdisc Corporation of America (LDC) can be purchased through these mail order companies. Instant Replay also carries discs from LDC Japan (noted as imported titles). Be careful when purchasing discs in this manner because many familiar titles are dubbed in Japanese or have Japanese subtitles. If you are ordering by phone, do not hesitate to be specific in stating what you want or do not want. Ken Cranes Video Disc, Instant Replay, Laser World, Starship Industries, U.S. Video Source, and Video Dynamics are a few of the mail order companies around the country. Their addresses and phone numbers are listed in the manufacturers index.

VIDEODISC MASTERING

The other aspect of the videodisc itself is the mastering and pressing of the discs. The most efficient way for one to get started is to share the cost of pressing a disc with others. This option allows you to pay only for the space that is absolutely needed on a disc. Several groups offer this service and usually offer production services to those clients who do not have adequate production facilities. APh Technological Consultants offer a program called Share Disc. They press shared discs on request and offer a variety of production services as well. Comsell has an open disc service that offers a shared disc on request while production services are also available. IICS (International Interactive Communications Society) also has a similar program with production services as an option. In Canada, 3rd Wave Media Consultants will offer many of the same services.

Another inexpensive way to master a disc is to use the services of a company such as Crawford Communications, Inc. in Georgia, or Spectra Image in California. These companies will press a CAV disc for $300.00 in 24 hours. The video and audio quality of these quick discs may not be as good as that of discs pressed in the normal fashion. They are meant to be low-cost check discs that can be used to check frame numbers and test interactive programming.

Laser Video has the same type of limited-quantity fast-turnaround service, but they give you the quality and full 30-minute storage capacity available from the larger mastering facilities. Laser Video will provide a 30 minute CAV disc for $2,200.00 and or 60 minute CLV disc for $2,900.00 in 24 hours with a high degree of quality control. A six day turnaround costs $1,200 for the CAV and $1,900 for the CLV. The eight-inch prices are $1,600.00 for a CAV and $1,800.00 for CLV with a 24 hour turnaround, and $600.00 CAV and $800.00 with a six day turnaround.

The next group of companies produce quality controlled videodisc masters and can replicate them.
in large quantities. Each company has special ar-
rangements for digital dumps, special encoding, 24-
hour turnaround, and packaging. This book does not
discuss the production of videodiscs, but Appendix G
is offered as a resource for those interested in the
possibility of producing their own materials. It lists
the names and addresses of the primary companies
involved in the technology as well as comparison
charts outlining set-up and per-disc costs of each vol-
ume mastering facility in the United States.
CHAPTER 9. INTERACTIVE VIDEODISC
AUTHORING TOOLS

There are two tools available to the instructor to create interactive videodisc lessons: authoring systems and authoring languages. Each system or language is designed to be compatible with one of the major computers on the market. It is crucial in the selection of an authoring tool that the desired system or language be correct for the microcomputer that will be used. Specific options such as high resolution graphics and graphic overlay are supported by many of the available tools, but it should be emphasized that the purchase of a specific graphics or graphics overlay board is almost always necessary.

Authoring systems are computer programs allowing an individual, without a computer background, to design interactive lessons on a microcomputer. Each of the systems on the market varies in its ability to perform the more complex routines including the control of videodisc players. The less expensive systems tend to be very limited in their ability to handle any graphics, graphics overlay, peripheral device inputs, answer judging and record keeping. The more expensive systems can usually handle these functions easily. The most common systems are menu driven. In other words, a series of menus take the user through the programming possibilities and allow the user to make decisions based on available options. The menu driven systems are easy to use, and usually take no understanding of computer programming. All of the actual computer code is generated by the authoring system based on the user responses to the menu questions.

The authoring language is a computer language that requires knowledge of the language and the programming techniques to implement the desired teaching strategies. Authoring languages generally offer more versatile options than authoring systems as they are not locked into a set pattern of choices, but the languages give up the ease of use that the systems offer. The primary functions of these languages are not difficult to learn, but it does take a good deal of experience to understand and program the more complex routines. The knowledge and creativity of the programmer is normally the most limiting factor of any language. Examples of an authoring language would be BASIC, Pascal or C.

Appendix H lists several authoring tools that are designed for interactive videodisc applications. Each of the listed tools offers a slightly different approach to the development of an interactive lesson, but all should give the same results for a basic lesson with multiple choice or true/false branching. Normally, the higher the cost of the tool, the more options and flexibility. Again, these options often might require the purchase of a separate hardware unit.
CHAPTER 10. CARE AND MAINTENANCE

VIDEODISC CARE

Videodiscs themselves are quite durable. They are, however, not indestructible! The discs, when abused, can crack or warp. Minor scratches on the disc surface do not normally affect the playback. Large scratches or foreign substances on the disc will affect the playback. The only way to insure that the discs will always play correctly is to handle them with care.

The easiest way to eliminate possible problems is to handle the discs as if they were phonograph records. Store the discs standing on end on a shelf away from the sun and heat sources. Do not place the discs on top of the player, amplifier or other warm equipment. Handle the discs only by their edges and center.

Although the plastic coating on the disc protects it from damage, discs will not play correctly if they are warped, dirty or scratched, and they may damage the player. The discs should be wiped clean with a soft cloth before each use, and should be at room temperature before they are played. Moisture may condense on the surface of the disc and effect it’s performance.

Remove the tight cellophane wrap that seals most newly purchased disc jackets as soon as possible. This cellophane can tighten around the jacket and may warp the disc if stored for a long time.

Testing for a warped disc is easy. Place the disc on a flat surface and check to see if the disc is touching the surface on all sides. If a gap exists under any part of the disc, there is a potential problem. If the gap exceeds the thickness of a nickel, you need to flatten the disc. You can do this by placing the disc between two flat surfaces with evenly distributed weights on top. A day or two in this improvised press should put the disc in a playable condition.

SYSTEM ENVIRONMENT

The environment necessary to support the system is fairly reasonable. The room temperature should be between 45 and 95 degrees fahrenheit (5 to 30 degrees centigrade), with humidity ranging between 0 and 90 percent. The optimal conditions, of course, lies somewhere in between. It is wise to let equipment warm up for a minute or two if it is moved from a cold room to a warm room. This will allow any moisture that has collected to evaporate. Al-though there probably is little chance of damage, the more care you give a system, the longer it will last.

In equipment placement, be certain that the equipment has adequate ventilation. Heat will build up very fast in enclosed areas such as cabinets, and this can result in serious damage.

HARDWARE MAINTENANCE

Repair and maintenance should be performed by a knowledgeable person. You should allow for maintenance and repair of equipment in your budget before problems arise. Most of the problems you are likely to encounter will be minor, but even minor problems can make a system inoperable. Many companies offer service contracts for selected hardware. You also might arrange for service from the dealer that supplied the hardware. Although it is unlikely that major repairs will be needed for the hardware listed, you should consider some type of service contract. If you work in a large institution, you might already have a contract that covers all video equipment or computer equipment, or you may be able to add more items to an existing contract.

One company that provides this service is the Warrantech Corporation. This firm will provide extended warranty coverage on most videodisc related items. Based in New York, Warrantech has a chain of authorized service centers in all 50 states. The extended warranty begins upon the expiration of the original manufacturer’s warranty on labor or parts, whichever occurs first. The coverage can extend up to five years from the original purchase date of the item. In Service, Inc. offers fast and reliable service of videodisc players. Based outside of Chicago, In Service boasts a 5-day turnaround of videodisc players with extended warranties available. Appendix I lists their addresses and the current costs for some of the items covered.
## APPENDIX A. DIRECTORY OF LASERDISC PLAYERS

### CURRENT LEVEL 1 PLAYERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Video</th>
<th>Audio</th>
<th>Interactive Capabilities—Level 1</th>
<th>Others</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hitachi VIP 5550 VIDEODISC PLAYER</td>
<td></td>
<td>Video Response: NTSC specification</td>
<td>Output Level: 650 mVrms nominal (1kHz 100% mod.)</td>
<td>Interactive Capabilities—Level 1</td>
<td>Power: AC 120V/60Hz; 220-240V/50Hz</td>
<td>$1,350.00</td>
</tr>
<tr>
<td></td>
<td>S/N Ratio: More than 42 dB</td>
<td>Harmonic Dist.: 1% (1kHz 100% mod.)</td>
<td>Memory: None</td>
<td>Power Consum.: 55 watts</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Impedance: 75 ohms</td>
<td>Freq. Resp.: 40Hz-20kHz</td>
<td>Access Time:</td>
<td>Disc Format: CAV/CLV, 12&quot; &amp; 8&quot;</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Harmonic Dist.:</td>
<td>CX Encoding: Optional</td>
<td>CLV Search:</td>
<td>Dim. (WxHxD): 535x133x478 mm (21x5.2x18.8 in)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S/N Ratio: More than 70 dB (CX on, 1kHz 100% mod.)</td>
<td>Interactive Capabilities—Level 1</td>
<td>Access Time: 3 seconds, Instant Jump 99 Fwd., 99 Rev.</td>
<td>Weight: 12.5 kg (27.6 lbs)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Freq. Resp.: 40Hz-20kHz</td>
<td>Memory: None</td>
<td>Optional IEEE 488 parallel control bus</td>
<td>Price: $1,395.00</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Optional</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pioneer Video LD-838D VIDEODISC PLAYER</td>
<td></td>
<td>Audio (analog)</td>
<td>Output Level:</td>
<td>Power: AC 120V/60Hz; 220-240V/50Hz</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Output Level:</td>
<td></td>
<td>Power Consum.: 55 watts</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Harmonic Dist.:</td>
<td></td>
<td>Temp. Range:</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S/N Ratio:</td>
<td></td>
<td>Disc Format: CAV/CLV, 12&quot; &amp; 8&quot;</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>VHF Output:</td>
<td></td>
<td>Dim. (WxHxD): 535x133x478 mm (21x5.2x18.8 in)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impedance:</td>
<td></td>
<td>Weight: 12.5 kg (27.6 lbs)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S/N Ratio:</td>
<td></td>
<td>Price: $1,395.00</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freq. Resp.:</td>
<td></td>
<td>**</td>
<td></td>
<td></td>
</tr>
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</table>

### Phillips VP 935/17 VIDEODISC PLAYER

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Video</th>
<th>Audio</th>
<th>Interactive Capabilities—Level 1</th>
<th>Others</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hitachi VIP 5550 VIDEODISC PLAYER</td>
<td></td>
<td>Video Response: NTSC specification</td>
<td>Output Level: 650 mVrms nominal (1kHz 100% mod.)</td>
<td>Interactive Capabilities—Level 1</td>
<td>Power: AC 120V/60Hz; 220-240V/50Hz</td>
<td>$1,350.00</td>
</tr>
<tr>
<td></td>
<td>S/N Ratio: More than 42 dB</td>
<td>Harmonic Dist.: 1% (1kHz 100% mod.)</td>
<td>Memory: None</td>
<td>Power Consum.: 55 watts</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Impedance: 75 ohms</td>
<td>Freq. Resp.: 40Hz-20kHz</td>
<td>Access Time:</td>
<td>Disc Format: CAV/CLV, 12&quot; &amp; 8&quot;</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Harmonic Dist.:</td>
<td>CX Encoding: Optional</td>
<td>CLV Search:</td>
<td>Dim. (WxHxD): 535x133x478 mm (21x5.2x18.8 in)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S/N Ratio: More than 70 dB (CX on, 1kHz 100% mod.)</td>
<td>Interactive Capabilities—Level 1</td>
<td>Access Time: 3 seconds, Instant Jump 99 Fwd., 99 Rev.</td>
<td>Weight: 12.5 kg (27.6 lbs)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Freq. Resp.: 40Hz-20kHz</td>
<td>Memory: None</td>
<td>Optional IEEE 488 parallel control bus</td>
<td>Price: $1,395.00</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Optional</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Audio (analog)</td>
<td>Output Level:</td>
<td>Power: AC 120V/60Hz; 220-240V/50Hz</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Output Level:</td>
<td></td>
<td>Power Consum.: 55 watts</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Harmonic Dist.:</td>
<td></td>
<td>Temp. Range:</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S/N Ratio:</td>
<td></td>
<td>Disc Format: CAV/CLV, 12&quot; &amp; 8&quot;</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>VHF Output:</td>
<td></td>
<td>Dim. (WxHxD): 535x133x478 mm (21x5.2x18.8 in)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impedance:</td>
<td></td>
<td>Weight: 12.5 kg (27.6 lbs)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S/N Ratio:</td>
<td></td>
<td>Price: $1,395.00</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Freq. Resp.:</td>
<td></td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CX Encoding:</td>
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<td></td>
<td></td>
<td>Audio (digital)</td>
<td>Output Level:</td>
<td>Power: AC 120V/60Hz; 220-240V/50Hz</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Output Level:</td>
<td></td>
<td>Power Consum.: 55 watts</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Harmonic Dist.:</td>
<td></td>
<td>Temp. Range:</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S/N Ratio:</td>
<td></td>
<td>Disc Format: CAV/CLV, 12&quot; &amp; 8&quot;</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>VHF Output:</td>
<td></td>
<td>Dim. (WxHxD): 535x133x478 mm (21x5.2x18.8 in)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impedance:</td>
<td></td>
<td>Weight: 12.5 kg (27.6 lbs)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S/N Ratio:</td>
<td></td>
<td>Price: $1,395.00</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freq. Resp.:</td>
<td></td>
<td>**</td>
<td></td>
<td></td>
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<td>CX Encoding:</td>
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<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interactive Capabilities—Level 1</strong></td>
<td><strong>Pioneer Video</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Memory:</strong> None</td>
<td><strong>LD-V2000 VIDEODISC PLAYER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interface:</strong> None</td>
<td><strong>Video</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Access Time:</strong> 8 second maximum search time</td>
<td>Video Response: NTSC specification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CLV Search:</strong> Minutes/Seconds</td>
<td>S/N Ratio: More than 45 dB</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Others**

<table>
<thead>
<tr>
<th>Laser: 7,800 Angstrom, laserdiode</th>
<th><strong>Power:</strong> AC 120V/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consum.: 38 watts (UL)</td>
<td><strong>Temp. Range:</strong> +5 deg. to +30 deg. C. 45 deg. to 95 deg. F</td>
</tr>
<tr>
<td>Temp. Range: +5 deg. to +30 deg. C. 45 deg. to 95 deg. F</td>
<td>Disc Format: CAV/CLV, 12” &amp; 8”</td>
</tr>
<tr>
<td>Disc Format: CAV/CLV, 12” &amp; 8”</td>
<td>Dim. (WxHxD): 16.5x4x16 in</td>
</tr>
<tr>
<td>Dim. (WxHxD): 16.5x4x16 in</td>
<td>Weight: 20 lbs</td>
</tr>
<tr>
<td>Weight: 20 lbs</td>
<td>Price: $590.00</td>
</tr>
</tbody>
</table>

**Pioneer Video**

**CLD-909 VIDEODISC PLAYER**

**Audio**

<table>
<thead>
<tr>
<th>Output Level: 650 mVrms nominal</th>
<th><strong>Harmonic Dist.:</strong> Less than 0.003%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonic Dist.: Less than 0.003%</td>
<td><strong>S/N Ratio:</strong> 98 dB</td>
</tr>
<tr>
<td>S/N Ratio:** 98 dB</td>
<td><strong>Freq. Resp.:</strong> 4Hz-20kHz</td>
</tr>
<tr>
<td>Freq. Resp.: 4Hz-20kHz</td>
<td></td>
</tr>
</tbody>
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**Interactive Capabilities—Level 1**

<table>
<thead>
<tr>
<th>Memory: None</th>
<th><strong>Others</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface: None</td>
<td>Laser: 7,800 Angstrom Solid State</td>
</tr>
<tr>
<td>Access Time: 8 second maximum search time</td>
<td>Power: AC 120V/60Hz</td>
</tr>
<tr>
<td>CLV Search: Minute/Second</td>
<td>Power Consum.: 38 watts (UL)</td>
</tr>
</tbody>
</table>

**Video**

<table>
<thead>
<tr>
<th>Video Response: NTSC specification</th>
<th>S/N Ratio: More than 42 dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHF Output: Channel 3 or 4 (switchable)</td>
<td>Impedance: 75 ohms unbalanced</td>
</tr>
<tr>
<td>Impedance: 75 ohms unbalanced</td>
<td></td>
</tr>
</tbody>
</table>

**Others**

<table>
<thead>
<tr>
<th>Laser: 7,800 Angstrom Solid State</th>
<th>Power: AC 120V/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consum.: 38 watts (UL)</td>
<td>Disc Format: CAV/CLV, 12” &amp; 8”</td>
</tr>
<tr>
<td>Temp. Range: +5 deg. to +30 deg. C. 45 deg. to 95 deg. F</td>
<td>Dim. (WxHxD): 16.5x4x16 in</td>
</tr>
<tr>
<td>Dim. (WxHxD): 16.5x4x16 in</td>
<td>Weight: 19 lbs (8.6 kg)</td>
</tr>
<tr>
<td>Weight: 19 lbs (8.6 kg)</td>
<td>Price: $550.00</td>
</tr>
</tbody>
</table>

**Pioneer Video**

**LD-838D VIDEODISC PLAYER**

**Audio (Analog)**

<table>
<thead>
<tr>
<th>Output Level: 650 mVrms nominal</th>
<th><strong>Harmonic Dist.:</strong> Less than 0.3% (1kHz 75% mod.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonic Dist.: Less than 0.3% (1kHz 75% mod.)</td>
<td><strong>S/N Ratio:</strong> More than 70 dB (CX on)</td>
</tr>
<tr>
<td>S/N Ratio:** More than 70 dB (CX on)</td>
<td><strong>Freq. Resp.:</strong> 40Hz-20kHz</td>
</tr>
<tr>
<td>Freq. Resp.: 40Hz-20kHz</td>
<td></td>
</tr>
</tbody>
</table>

**Interactive Capabilities—Level 1**

<table>
<thead>
<tr>
<th>Memory: None</th>
<th><strong>Others</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface: None</td>
<td>Laser: 7,800 Angstrom, laserdiode, 3 mW</td>
</tr>
<tr>
<td>Access Time: 8 seconds maximum search time</td>
<td>Power: AC 120V/60Hz</td>
</tr>
<tr>
<td>CLV Search: Minutes/Seconds</td>
<td>Power Consum.:</td>
</tr>
</tbody>
</table>

**Audio (Digital)**

<table>
<thead>
<tr>
<th>Output Level: 650 mVrms nominal (1kHz 100% mod. 50K ohms terminated)</th>
<th><strong>Harmonic Dist.:</strong> Less than 0.003%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonic Dist.: Less than 0.003%</td>
<td><strong>S/N Ratio:</strong> 98 dB</td>
</tr>
<tr>
<td>S/N Ratio:** 98 dB</td>
<td><strong>Freq. Resp.:</strong> 4Hz-20kHz</td>
</tr>
<tr>
<td>Freq. Resp.: 4Hz-20kHz</td>
<td></td>
</tr>
</tbody>
</table>

**Interactive Capabilities—Level 1**

<table>
<thead>
<tr>
<th>Memory: None</th>
<th><strong>Others</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface: None</td>
<td>Laser: 7,800 Angstrom, laserdiode</td>
</tr>
<tr>
<td>Access Time: 8 second maximum search time</td>
<td>Power: AC 120V/60Hz</td>
</tr>
<tr>
<td>CLV Search: Minute/Second</td>
<td>Power Consum.: 38 watts (UL)</td>
</tr>
</tbody>
</table>

**Pioneer Video**

**CLD-909 VIDEODISC PLAYER**

**Video**

<table>
<thead>
<tr>
<th>Video Response: NTSC specification</th>
<th>S/N Ratio: More than 42 dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHF Output: Channel 3 or 4 (switchable)</td>
<td>Impedance: 75 ohms unbalanced</td>
</tr>
<tr>
<td>Impedance: 75 ohms unbalanced</td>
<td></td>
</tr>
</tbody>
</table>

**Others**

<table>
<thead>
<tr>
<th>Laser: 7,800 Angstrom Solid State</th>
<th>Power: AC 120V/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consum.: 38 watts (UL)</td>
<td>Disc Format: CAV/CLV, 12” &amp; 8”</td>
</tr>
<tr>
<td>Temp. Range: +5 deg. to +30 deg. C. 45 deg. to 95 deg. F</td>
<td>Dim. (WxHxD): 16.5x4x16 in</td>
</tr>
<tr>
<td>Dim. (WxHxD): 16.5x4x16 in</td>
<td>Weight: 19 lbs (8.6 kg)</td>
</tr>
<tr>
<td>Weight: 19 lbs (8.6 kg)</td>
<td>Price: $550.00</td>
</tr>
</tbody>
</table>

**CLD-909 VIDEODISC PLAYER**

**Video**

<table>
<thead>
<tr>
<th>Video Response: NTSC specification</th>
<th>S/N Ratio: More than 42 dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHF Output: Channel 3 or 4 (switchable)</td>
<td>Impedance: 75 ohms unbalanced</td>
</tr>
<tr>
<td>Impedance: 75 ohms unbalanced</td>
<td></td>
</tr>
</tbody>
</table>

**Others**

<table>
<thead>
<tr>
<th>Laser: 7,800 Angstrom Solid State</th>
<th>Power: AC 120V/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consum.: 38 watts (UL)</td>
<td>Disc Format: CAV/CLV, 12” &amp; 8”</td>
</tr>
<tr>
<td>Temp. Range: +5 deg. to +30 deg. C. 45 deg. to 95 deg. F</td>
<td>Dim. (WxHxD): 16.5x4x16 in</td>
</tr>
<tr>
<td>Dim. (WxHxD): 16.5x4x16 in</td>
<td>Weight: 20 lbs</td>
</tr>
<tr>
<td>Weight: 20 lbs</td>
<td>Price: $590.00</td>
</tr>
</tbody>
</table>

**Pioneer Video**

**LD-V2000 VIDEODISC PLAYER**

**Video**

<table>
<thead>
<tr>
<th>Video Response: NTSC specification</th>
<th>S/N Ratio: More than 45 dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHF Output: Channel 3 or 4 (switchable)</td>
<td>Impedance: 75 ohms unbalanced</td>
</tr>
<tr>
<td>Impedance: 75 ohms unbalanced</td>
<td></td>
</tr>
</tbody>
</table>

**Others**

<table>
<thead>
<tr>
<th>Laser: 7,800 Angstrom, laserdiode</th>
<th>Power: AC 120V/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consum.: 38 watts (UL)</td>
<td>Disc Format: CAV/CLV, 12” &amp; 8”</td>
</tr>
<tr>
<td>Temp. Range: +5 deg. to +30 deg. C. 45 deg. to 95 deg. F</td>
<td>Dim. (WxHxD): 16.5x4x16 in</td>
</tr>
<tr>
<td>Dim. (WxHxD): 16.5x4x16 in</td>
<td>Weight: 19 lbs (8.6 kg)</td>
</tr>
<tr>
<td>Weight: 19 lbs (8.6 kg)</td>
<td>Price: $550.00</td>
</tr>
<tr>
<td>Audio (Analog)</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>---</td>
</tr>
<tr>
<td>Output Level:</td>
<td>650 mVrms nominal (1kHz)</td>
</tr>
<tr>
<td>Harmonic Dist.:</td>
<td>Less than 0.3% (1kHz 75% mod.)</td>
</tr>
<tr>
<td>S/N Ratio:</td>
<td>76 dB</td>
</tr>
<tr>
<td>Freq. Resp.:</td>
<td>20Hz-20kHz</td>
</tr>
<tr>
<td>CX Encoding:</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Audio (Digital)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Level:</td>
<td>650 mVrms nominal (1kHz)</td>
</tr>
<tr>
<td>Harmonic Dist.:</td>
<td>Less than 0.003%</td>
</tr>
<tr>
<td>S/N Ratio:</td>
<td>96 dB</td>
</tr>
<tr>
<td>Freq. Resp.:</td>
<td>5Hz-20kHz</td>
</tr>
</tbody>
</table>

**Interactive Capabilities — Level 1**

| Memory: | None |
| Interface: | Serial 24 pin & 8 pin DIN connector |
| Access Time: | 10 second maximum search time |
| CLV Search: | Minute/Seconds |

**Others**

| Laser: | 7,800 Angstrom, laserdiode, 3 mW |
| Power: | AC 120V/60Hz |
| Power Consum.: | +5 deg. to +30 deg. C, 45 deg. to 95 deg. F |
| Disc Format: | CAV/CLV, 12" & 8" |
| Dim. (WxHxD): | 420x168x447 mm (16"x6"x17" in) |
| Weight: | 15.6 kg (34 lbs 7 oz) |
| Price: | $995.00 |

**Sony Video**

**LDP-2000/1 VIDEODISC PLAYER**

| Video |  |
| Video Response: | NTSC specification |
| S/N Ratio: | More than 40 dB |
| VHF Output: | Channel 3 or 4 (switchable) |
| Impedance: | 75 ohms unbalanced |

| Audio |  |
| Output Level: | Less than 2K ohms (100% mod.; 47K ohm load) |
| Harmonic Dist.: | Less than 0.3% (1kHz 75% mod.) |
| S/N Ratio: | 55 dB (67 dB CX on) |
| Freq. Resp.: | 20Hz-20kHz |
| CX Encoding: | Yes |

**Interactive Capabilities — Level 1**

| Memory: | None |
| Interface: | RS-232C, 1200, 2400, 4800, & 9600 baud |
| Access Time: | 1.5 seconds maximum search time |
| CLV Search: | Minutes |

**Others**

| Laser: | 6328 angstrom, He-Ne 1mW |
| Power: | AC 120V/60Hz |
| Power Consum.: | 75 watts |
| Temp. Range: | +5 deg. to +35 deg. C, 41 deg. to 95 deg. F |
## CURRENT LEVEL 2 PLAYERS

### Philips
**VP 935/ISIA VIDEODISC PLAYER**

**Video**
- Video Response: NTSC specification
- S/N Ratio: More than 42 dB
- VHF Output: Optional RF-modulator
- Impedance: 75 ohms

**Audio**
- Output Level: 650 mVrms (1kHz 100% mod.)
- Harmonic Dist.: 1% (1kHz 100% mod.)
- S/N Ratio: 55 dB
- Freq. Resp.: 40Hz-20kHz
- CX Encoding: Optional

**Interactive Capabilities—Level 2**
- Memory: 8K ROM, 28K RAM
- Interface: RS232C/110-9600 baud selectable, Optional IEEE 488 parallel control bus
- CLV Search: 

**Others**
- Laser: 7,800 Angstrom, laserdiode, 3 mW
- Power: AC 120V/50/60Hz
- Power Consum.: 40 watts (UL)
- Temp. Range: +5 deg. to +35 deg. C.
- Disc Format: CAV/CLV, 12" & 8"
- Dim. (WxHxD): 16'7/8x5'5/16x16'/16
- Weight: 30.9 lbs
- Price: $1,800.00

### Pioneer Video
**LD-V6010A VIDEODISC PLAYER**

**Video**
- Video Response: NTSC specification
- S/N Ratio: More than 40 dB
- VHF Output: Channel 3 or 4 (switchable)
- Impedance: 75 ohms unbalanced

**Audio**
- Output Level: 3.3K ohms
- Harmonic Dist.: Less than 0.5% (1kHz 75% mod.)
- S/N Ratio: 67dB with CX, 55 dB without CX
- Freq. Resp.: 20Hz-20kHz
- CX Encoding: Yes

**Interactive Capabilities—Level 2**
- Memory: 7K byte programmable microprocessor
- Interface: RS-232C built-in interface
- Access Time: 2 seconds maximum search time; Instant Jump, 100 forward, 100 reverse
- CLV Search: 

**Others**
- Laser: 7,800 Angstrom, laserdiode, 3 mW
- Power: AC 120V/50/60Hz
- Power Consum.: 40 watts (UL)
- Temp. Range: +5 deg. to +35 deg. C.
- Disc Format: CAV/CLV, 12" & 8"
- Dim. (WxHxD): 16'/7/8x5'5/16x16'/16
- Weight: 30.9 lbs
- Price: $1,800.00
Pioneer Video
LD-V6200A VIDEODISC PLAYER

Video
Video Response: NTSC specification
S/N Ratio: More than 40 dB
VHF Output: Channel 3 or 4 (switchable)
Impedance: 75 ohms unbalanced

Audio
Output Level: 3.3K ohms
Harmonic Dist.: Less than 0.5% (1kHz 75% mod.)
S/N Ratio: 67 dB with CX, 55 dB without CX
Freq. Resp.: 20Hz-20kHz
CX Encoding: Yes

Interactive Capabilities—Level 2
Memory: 7K byte programmable microprocessor
Interface: IEEE-488
Access Time: 1.5 seconds maximum search time
CLV Search: Minutes

Others
Laser: 7,800 Angstrom. laserdiode, 3mW
Power: AC 120V/50/60Hz
Power Consum.: 40 watts (UL)
Temp. Range: +5 deg. to +35 deg. C. 41
deg. to 95 deg. F
Disc Format: CAV/CLV, 12” & 8”
Dim. (WxHxD): 1617/32x515/16x165/16
Weight: 30.9 lbs
Price: $1,650.00

Sony Video
LDP-2000/2 VIDEODISC PLAYER

Video
Video Response: NTSC specification
S/N Ratio: More than 40 dB
VHF Output: Channel 3 or 4 (switchable)
Impedance: 75 ohms unbalanced

Audio
Output Level: Less than 2K ohms (10% mod., 47K ohm load)
unbalanced
Harmonic Dist.: Less than 0.3% (1kHz 75% mod.)
S/N Ratio: 55 dB (67 dB CX on)
Freq. Resp.: 20Hz-20kHz
CX Encoding: Yes

Interactive Capabilities—Level 2
Memory: 7K
Interface: RS-232C, 1200, 2400, 4800, & 9600 baud
Access Time: 1.5 seconds maximum search time
CLV Search: Minutes

Others
Laser: 6328 angstrom. He-Ne 1 mW
Power: AC 120V/60Hz
Power Consum.: 75 watts
Temp. Range: +5 deg. to +35 deg. C. 41
deg. to 95 deg. F
Disc Format: CAV/CLV, 12” & 8”
Dim. (WxHxD): 424x132x488 mm
(164/5x53/4x193/4)
Weight: 13.7 kg (30 lbs, 4 oz)
Price: $1,895.00

CURRENT LEVEL 3 PLAYERS

Philips
VP 935/37 VIDEODISC PLAYER

Video
Video Response: NTSC specification
S/N Ratio: More than 42 dB
VHF Output: Optional RF-modulator
Impedance: 75 ohms
**Audio**

- **Output Level:** 650 mVrms (1kHz 100% mod.)
- **Harmonic Dist.:** 1% (1kHz 100% mod.)
- **S/N Ratio:** 55 dB
- **Freq. Resp.:** 40Hz-20kHz
- **CX Encoding:** Optional

**Interactive Capabilities—Level 3**

- **Memory:** None
- **Interface:** RS232C/110-9600 baud selectable IEEE-488 parallel control bus
- **Access Time:** 3 seconds, Instant Jump 99 Fwd., 99 Rev.

**Others**

- **Laser:** 6328 angstrom, He-Ne 1mW
- **Power:** AC 120V/60Hz
- **Power Consum.:** 75 watts
- **Temp. Range:** +5 deg. to +35 deg. C, 41 deg. to 95 deg. F
- **Disc Format:** CAV/CLV, 12" & 8"
- **Dim. (WxHxD):** 424x132x488 mm (16½x5½x19¼)
- **Weight:** 13.9 kg (30 lbs, 8 oz)
- **Price:** $2,305.00

**Sony Video**

**LDP-2000/4 VIDEODISC PLAYER**

**Video**

- **Video Response:** NTSC specification
- **S/N Ratio:** More than 40 dB
- **VHF Output:** Channel 3 or 4 (switchable)
- **Impedance:** 75 ohms unbalanced

**Audio**

- **Output Level:** Less than 2K ohms (100% mod., 47K ohm load)
- **Harmonic Dist.:** Less than 0.3% (1kHz 75% mod.)
- **S/N Ratio:** 55 dB (67 dB CX on)
- **Freq. Resp.:** 20Hz-20kHz
- **CX Encoding:** Yes

**Interactive Capabilities—Level 2/3**

- **Memory:** 7K
- **Interface:** RS-232C, 1200, 2400, 4800, & 9600 baud IEEE-488, Still Frame Audio
- **Access Time:** 1.5 seconds maximum search time

**Others**

- **Laser:** 6328 angstrom, He-Ne 1mW
- **Power:** AC 120V/60Hz
- **Power Consum.:** 75 watts
- **Temp. Range:** +5 deg. to +35 deg. C, 41 deg. to 95 deg. F
- **Disc Format:** CAV/CLV, 12" & 8"
- **Dim. (WxHxD):** 424x132x488 mm (16½x5½x19¼)
- **Weight:** 14.1 kg (31 lbs, 14 oz)
- **Price:** $3,235.00

---
### Sony Video

**LDP-2000/5 VIDEODISC PLAYER**

#### Video

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Response</td>
<td>NTSC specification</td>
</tr>
<tr>
<td>S/N Ratio</td>
<td>More than 40 dB</td>
</tr>
<tr>
<td>VHF Output</td>
<td>Channel 3 or 4 (switchable)</td>
</tr>
<tr>
<td>Impedance</td>
<td>75 ohms unbalanced</td>
</tr>
</tbody>
</table>

#### Audio

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Level</td>
<td>Less than 2K ohms (100% mod., 47K ohm load) unbalanced</td>
</tr>
<tr>
<td>Harmonic Dist.</td>
<td>Less than 0.3% (1kHz 75% mod.) unbalanced</td>
</tr>
<tr>
<td>S/N Ratio</td>
<td>55 dB (67 dB CX on)</td>
</tr>
<tr>
<td>Freq. Resp.</td>
<td>20Hz-20kHz</td>
</tr>
<tr>
<td>CX Encoding</td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### Interactive Capabilities — Level 2/3

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>7K</td>
</tr>
<tr>
<td>Interface</td>
<td>RS-232C, 1200, 2400, 4800, &amp; 9600 baud IEEE-488, Still Frame Audio, Digital Data</td>
</tr>
<tr>
<td>Access Time</td>
<td>1.5 seconds maximum search time</td>
</tr>
<tr>
<td>CLV Search</td>
<td>Minutes</td>
</tr>
</tbody>
</table>

#### Others

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser</td>
<td>6328 angstrom, He-Ne 1mW</td>
</tr>
<tr>
<td>Power</td>
<td>AC 120V/60Hz</td>
</tr>
<tr>
<td>Power Consum.</td>
<td>75 watts</td>
</tr>
<tr>
<td>Temp. Range</td>
<td>5° deg. to +35 deg. C, 41 deg. to 95 deg. F</td>
</tr>
<tr>
<td>Disc Format</td>
<td>CAV/CLV, 12&quot; &amp; 8&quot;</td>
</tr>
<tr>
<td>Dim. (WxHxD)</td>
<td>424x132x488 mm (16½x5½x19¾&quot;)</td>
</tr>
<tr>
<td>Weight</td>
<td>14.6 kg (32 lbs, 2 oz)</td>
</tr>
<tr>
<td>Price</td>
<td>$3,535.00</td>
</tr>
</tbody>
</table>
# APPENDIX B. DIRECTORY OF TELEVISION MONITORS AND PROJECTORS

## TELEVISION MONITORS

### Mitsubishi

**CS-2061R 20” Television Receiver/Monitor**

**Video**
- Picture Size: 20” diagonal
- Picture Tube: RGB, NTSC-composite video, or RF
- Video Input: NTSC-composite
- H. Resolution: 320 lines

**Audio**
- Audio Input: Line level
- Audio Output: Line level in

**Other Features**
- Power: 120VAC/60Hz
- Consumption: 165 watts
- Dim (WxHxD): 26x19½x22½ in
- Weight: 108 lbs
- Price: $1,895.00

### NEC

**CT-2060 20” Television Monitor**

**Video**
- Picture Size: 20” diagonal
- Picture Tube: Square-cornered picture tube
- Video Input: NTSC-composite video
- H. Resolution: 380 lines

**Audio**
- Audio Input: Line in
- Audio Output: Line in

**Other Features**
- Power: 120VAC/60Hz
- Consumption: 180 watts
- Dim (WxHxD): 23½x17½x18½ in
- Weight: 48.5 lbs
- Price: $600.00

### Pioneer

**SD-25A 25” Television Monitor**

**Video**
- Picture Size: 25” diagonal
- Picture Tube: 0.75mm pitch
- Video Input: NTSC-composite video, (RGB optional)
- H. Resolution: 400 lines horizontal

**Audio**
- Audio Input: Line level
- Audio Output: 10 watts per channel

**Other Features**
- Power: 120VAC/60Hz
- Consumption: 200 watts
- Dim (WxHxD): 24½x22½x19½ in
- Weight: 104 lb, 1 oz
- Price: $1,300.00 ($70.00 for RGB)

### Sony

**PVM-1271Q 12” Television Monitor**

**Video**
- Picture Size: 12” diagonal
- Picture Tube: Trinitron, 0.25mm RGB phosphor-stripe pitch
- Video Input: NTSC-composite video, RGB, PAL, SECAM
- H. Resolution: 500 lines (video), 600 lines (RGB)

---

(continued on page 36)
Audio
Audio Input: Line level
Audio Output: 

Other Features
Power: 120VAC/60Hz
Consumption: 
Dim. (WxHxD): 13 1/2x13 1/2x15 1/4 in
Weight: 31.7 lbs
Price: $930.00

Sony
PVM-1910Q 19" Television Monitor

Video
Picture Size: 19" diagonal
Picture Tube: Trinitron
Video Input: NTSC-composite video, analog/digital RGB

H. Resolution: 

Audio
Audio Input: 
Audio Output: 

Other Features
Power: 120VAC/60Hz
Consumption: 
Dim. (WxHxD): 19 1/4x18 1/4x21 1/4 in
Weight: 63 lbs 15 oz
Price: $820.00

Hitachi
CT5011 50" Projection Television

Video
Picture Size: 50" diagonal
Picture Type: Front projection console
Video Input: RF, NTSC-composite video
Brightness: 220 ft lamberts

Audio
Audio Input: Line level
Audio Output: 20 watts stereo, built-in speakers

Other Features
Power: 120VAC/60Hz
Consumption: 
Dim. (WxHxD): 
Weight: 
Price: $1,500.00

NEC
PJ-4000EN 40" Projection Television

Video
Picture Size: 40" diagonal
Picture Type: Rear projection console, 5" refractive CRT
Video Input: VHF, 75 ohm unbal., NTSC-composite video
Brightness: 150 foot lamberts at center

Audio
Audio Input: Line level
Audio Output: 20 watts, built-in speakers

Other Features
Power: 120VAC/60Hz
Consumption: 
Dim. (WxHxD): 940x1240x560 mm
Weight: 
Price: $2,800.00

Sony
KPR-4620 46" Projection Television

Video
Picture Size: 46" diagonal
Picture Type: Rear projection console
Video Input: RF, NTSC-composite, RGB (analog or digital)
Brightness: 220 ft lamberts

Audio
Audio Input: Line level
Audio Output: 

Other Features
Power: 120VAC/60Hz
Consumption: 186 Watts
Dim. (WxHxD): 44 1/4x48 1/2x25 1/2 in
Weight: 169 lbs, 5 oz
Price: $3,395.00
**Mountable Television Projectors**

**Electrohome (U.S.A.) Limited**
ECP-2000 Television Projection System

**Optical**
- Projection System: 3 Tube, 3 Lens Front or Rear Screen
- Picture Tube: 3 Cathode Ray Tubes, 36KV at 1ma each
- Projection Lens: High-resolution, coated f1.0 lenses
- Picture Size: 4 ft. to 20 ft. wide
- Picture Brightness: High-resolution, coated f1.0 lenses
- Throwing Distance: 1.5xScreen Width (6' image = 9' throw)

**General**
- Video Format: NTSC
- RGB Resolution: 600 lines
- Horizontal Scan: 15KHz to 33KHz
- Vertical Scan: 45Hz to 100Hz
- Power Requirements: 90VAC-132VAC or 180VAC-264VAC, 50/60Hz
- Power Consumption: 250W
- Dimensions (HxWxD): 254x956x651mm (10"x37.63"x25.63") HWL
- Weight: 75 lbs
- Price: $15,995.00

**Electronic Systems Products, Inc.**
AQUASTAR IIIC Television Projection System

**Optical**
- Projection System: 3 Tube, 3 Lens Front or Rear Screen
- Picture Tube: 3 Cathode Ray Tubes, 36KV at 1ma each
- Projection Lens: High-resolution, coated f1.0 lenses
- Picture Size: 4 ft. to 20 ft. wide
- Picture Brightness: 130 foot lamberts (6-ft image / 10 gain)
- Throwing Distance: 87.5 inches

**General**
- Video Format: NTSC
- RGB Resolution: 600 lines
- Video Resolution: 525 lines, 60 fps
- Horizontal Scan: 15KHz to 33KHz
- Vertical Scan: 45Hz to 120Hz
- Power Requirements: 115VAC 60Hz, 220VAC
- Power Consumption: 400W
- Dimensions: 22x51x72 cm (9.5x20x28.5 in) HWL
- Weight: 33.7 Kg (75 lbs)
- Price: $9,995.00

**General Electric Company**
TALARIA PJ4500 Television Projectors

**Optical**
- Projection System: Single gun single path system
- Picture Tube: Single optical path light valve
- Projection Lens: 86 mm lens, less than 1.5% distortion
- Picture Size: 4 feet to greater than 24 feet
- Picture Brightness: 325 lumens
- Throwing Distance: 5 feet to 200 feet

**General**
- Video Format: NTSC or RGB
- RGB Resolution: 625 lines, 50 fps
- Video Resolution: 525 lines, 60 fps
- Horizontal Scan: 15KHz to 33KHz
- Vertical Scan: 45Hz to 100Hz
- Power Requirements: 105 to 132v or 190 to 260 volts 50/60 Hz
- Power Consumption: 900W max
- Dimensions: 22x17x34 in, HWD

**Interactive Videodiscs**

- Weight: 75 lbs (33.7 kg)
- Price: $12,995.00
<table>
<thead>
<tr>
<th><strong>General Electric Company</strong></th>
<th><strong>Inflight Services, Inc.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TALARIA PJ5050 Television Projectors</strong></td>
<td><strong>V STAR 5 Television Projection System</strong></td>
</tr>
<tr>
<td><strong>Optical</strong></td>
<td><strong>Optical</strong></td>
</tr>
<tr>
<td>Projection System:</td>
<td>3 Tube, 3 Lens Front or Rear Screen</td>
</tr>
<tr>
<td>Picture Tube:</td>
<td>5&quot; cathode ray tubes</td>
</tr>
<tr>
<td>Projection Lens:</td>
<td>Delta-2D or Delta-HIM</td>
</tr>
<tr>
<td>Picture Size:</td>
<td>50 inches to 20 feet diagonally</td>
</tr>
<tr>
<td>Picture Brightness:</td>
<td>480 foot lamberts (average)</td>
</tr>
<tr>
<td>Throwing Distance:</td>
<td>1.5x screen width</td>
</tr>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Video Format:</td>
<td>PAL, SECAM, NTSC 3.58, NTSC 4.43</td>
</tr>
<tr>
<td>RGB Resolution:</td>
<td>625 lines, 50 field</td>
</tr>
<tr>
<td>Video Resolution:</td>
<td>525 lines, 60 field</td>
</tr>
<tr>
<td>Horizontal Scan:</td>
<td>14KHz to 32KHz</td>
</tr>
<tr>
<td>Vertical Scan:</td>
<td>50Hz to 100Hz</td>
</tr>
<tr>
<td>Power Requirements:</td>
<td>110VAC/220VAC, 40Hz to 100Hz</td>
</tr>
<tr>
<td>Power Consumption:</td>
<td>250W</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>9.25x22.25x36.6 in, HWL</td>
</tr>
<tr>
<td>Weight:</td>
<td>81.5 lbs</td>
</tr>
<tr>
<td>Price:</td>
<td>$14,495.00</td>
</tr>
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<table>
<thead>
<tr>
<th><strong>TALARIA PJ5055 Television Projectors</strong></th>
<th><strong>BARCODATA 3 Television Projection System</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optical</strong></td>
<td><strong>Optical</strong></td>
</tr>
<tr>
<td>Projection System:</td>
<td>3 Tube, 3 Lens Front or Rear Screen</td>
</tr>
<tr>
<td>Picture Tube:</td>
<td>5&quot; High-resolution projection tubes</td>
</tr>
<tr>
<td>Projection Lens:</td>
<td>f1.0 coated lenses</td>
</tr>
<tr>
<td>Picture Size:</td>
<td>50 inches to 20 feet diagonally</td>
</tr>
<tr>
<td>Picture Brightness:</td>
<td>480 foot lamberts (10 gain screen)</td>
</tr>
<tr>
<td>Throwing Distance:</td>
<td>1.6x screen width</td>
</tr>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Video Format:</td>
<td>PAL, SECAM, NTSC 3.58, NTSC 4.43</td>
</tr>
<tr>
<td>RGB Resolution:</td>
<td>625 lines, 50 field, 10MHz full drive</td>
</tr>
<tr>
<td>Video Resolution:</td>
<td>525 lines, 60 field</td>
</tr>
<tr>
<td>Horizontal Scan:</td>
<td>15kHz to 32kHz</td>
</tr>
<tr>
<td>Vertical Scan:</td>
<td></td>
</tr>
<tr>
<td>Power Requirements:</td>
<td>110VAC/220VAC</td>
</tr>
<tr>
<td>Power Consumption:</td>
<td>200W</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>485x130x315 mm HWL</td>
</tr>
<tr>
<td>Weight:</td>
<td>7 kg</td>
</tr>
<tr>
<td>Price:</td>
<td>$9,995.00 (15MHz)</td>
</tr>
<tr>
<td></td>
<td>$12,995.00 (30MHz)</td>
</tr>
<tr>
<td>Sony Video Communications Company</td>
<td>VIDMAGIC FP-62 Television Projection System</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td><strong>Optical</strong></td>
<td></td>
</tr>
<tr>
<td>Projection System:</td>
<td>Single Lens Front Screen system</td>
</tr>
<tr>
<td>Picture Tube:</td>
<td>5.25&quot; high-brightness color tube</td>
</tr>
<tr>
<td>Projection Lens:</td>
<td>Acrylic lens f1.0/130 mm</td>
</tr>
<tr>
<td>Picture Size:</td>
<td>36 to 200 inches diagonally</td>
</tr>
<tr>
<td>Picture Brightness:</td>
<td>50 ft with 19 gain 55&quot; screen</td>
</tr>
<tr>
<td>Throwing Distance:</td>
<td>Approx. 1.1 m (3.7 ft)/30&quot; screen</td>
</tr>
<tr>
<td></td>
<td>Approx. 2 m (6.7 ft)/55&quot; screen</td>
</tr>
<tr>
<td></td>
<td>Approx. 3.8 m (12.7 ft)/100&quot; screen</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Video Format:</td>
<td>NTSC-composite video, VHF/UHF</td>
</tr>
<tr>
<td>Video Resolution:</td>
<td>240 lines</td>
</tr>
<tr>
<td>Horizontal Scan:</td>
<td></td>
</tr>
<tr>
<td>Vertical Scan:</td>
<td></td>
</tr>
<tr>
<td>Audio:</td>
<td>Built-in 3 watt public address system</td>
</tr>
<tr>
<td>Power Requirements:</td>
<td>120VAC/60Hz</td>
</tr>
<tr>
<td>Power Consumption:</td>
<td>110 watts</td>
</tr>
<tr>
<td>Dimensions (HWD):</td>
<td>246x220x668 mm</td>
</tr>
<tr>
<td></td>
<td>(9¾x8¾x26¼ in)</td>
</tr>
<tr>
<td>Weight:</td>
<td>14 kg (30 lb 14 oz)</td>
</tr>
<tr>
<td>Price:</td>
<td>$1,505.00</td>
</tr>
<tr>
<td><strong>Options</strong></td>
<td></td>
</tr>
<tr>
<td>RM-27 Remote control</td>
<td></td>
</tr>
<tr>
<td>unit with microphone</td>
<td></td>
</tr>
<tr>
<td>VLC-60 Projector Carrying Bag</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sony Video Communications Company</th>
<th>VPH-1030Q-5 Television Projection System</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optical</strong></td>
<td></td>
</tr>
<tr>
<td>Projection System:</td>
<td>3 Tube, 3 Lens Front Screen system</td>
</tr>
<tr>
<td>Picture Tube:</td>
<td>5.5 in high-brightness monochrome tubes</td>
</tr>
<tr>
<td>Projection Lens:</td>
<td>Acrylic lenses f1.0/130 mm</td>
</tr>
<tr>
<td>Picture Size:</td>
<td>72 to 250 in, diagonally</td>
</tr>
<tr>
<td>Picture Brightness:</td>
<td>More than 65 foot lamberts</td>
</tr>
<tr>
<td>Throwing Distance:</td>
<td>Approx. 3.368mm (132.75 in)</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Video Format:</td>
<td>PAL, SECAM, NTSC, NTSC</td>
</tr>
<tr>
<td>RGB Resolution:</td>
<td>4.43</td>
</tr>
<tr>
<td>Video Resolution:</td>
<td>900 lines RGB</td>
</tr>
<tr>
<td>Horizontal Scan:</td>
<td>570 lines</td>
</tr>
<tr>
<td>Vertical Scan:</td>
<td>15kHz to 26kHz</td>
</tr>
<tr>
<td>Power Requirements:</td>
<td>110VAC/240VAC, 50Hz/60Hz</td>
</tr>
<tr>
<td>Power Consumption:</td>
<td>215W</td>
</tr>
<tr>
<td>Dimensions (HxWxD):</td>
<td>21x11½x23½ in, 532x280x597 mm HWD</td>
</tr>
<tr>
<td>Weight:</td>
<td>30 kg, (66 lb 2 oz)</td>
</tr>
<tr>
<td>Price:</td>
<td>$9,999.00</td>
</tr>
<tr>
<td><strong>OPTIONS</strong></td>
<td></td>
</tr>
<tr>
<td>VPR-722 Remote Controller</td>
<td></td>
</tr>
<tr>
<td>SV-722 Projector Pedestal</td>
<td></td>
</tr>
<tr>
<td>VPS-F100 Video Screen</td>
<td></td>
</tr>
<tr>
<td>VPS-100HG1 Video Screen</td>
<td></td>
</tr>
<tr>
<td>Screen</td>
<td></td>
</tr>
<tr>
<td>PSS-722 Ceiling Mount</td>
<td></td>
</tr>
</tbody>
</table>
Sony Video Communications Company
VPH-722Q Television Projection System

**Optical**
- **Projection System:** 3 Tube, 3 Lens Front Screen system
- **Picture Tube:** 5.5 in high-brightness monochrome tube
- **Projection Lens:** Acrylic lenses, f1.0/130 mm
- **Picture Size:** 72 in. diagonally
- **Picture Brightness:** 130 foot lamberts (13 gain screen)
- **Throwing Distance:** Approx. 2,480 mm (97.75 in)

**General**
- **Video Format:** PAL, SECAM, NTSC, NTSC 4.43
- **RGB Resolution:** 600 lines, 2000 characters
- **Video Resolution:** 490 lines
- **Horizontal Scan:** 15.75 KHz
- **Vertical Scan:** 60 Hz
- **Power Requirements:** 120 VAC, 50 Hz/60 Hz
- **Power Consumption:** 165 W
- **Dimensions (HxWxD):** 10.25 x 20 x 23.63 in., HWD
- **Weight:** 26 kg (57 lb, 5 oz)
- **Price:** $6,260.00

**Options**
- VPR-722 Remote Controller
- SV-722 Projector Pedestal
- VPS-F100 Video Screen
- VPS-100HG1 Video Screen
- PSS-722 Ceiling Mount

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*Interactive Videodiscs*
APPENDIX C. DIRECTORY OF LASERDISC INTERFACES

Allen Communication

UVC (Universal Video Controller)

This unit is an intelligent, self-contained interface that links virtually any computer with multiple videodisc and videotape players.

Features
- Controls up to two disc and two tape players
- 1K RAM buffer
- Z80 microprocessor, 2.5 MHz
- RS-232C connectors
- Auto baud rate detection from 150-19200BPS
- Accepts 4 audio sources, switches 2 channels out
- Accepts 3 video sources, switches 1 channel out
- Supports overlay of synchronized video
- Custom cables and demo disc/tape provided

Price: $1,200.00

Allen Communications

VMI (Videodisc-Microcomputer Interface)

This unit will interface an APPLE II computer with any of the disc players currently on the market.

Features
- Can use either Apple Pascal or Basic formats
- Multiple boards in one computer can run several videodisc players
- Standard RS-232C connections
- Baud rates 150, 300, 600, 1200, 2400, 4800, & 9600BPS
- Software can switch audio and video between monitor or computer input
- Cables and demo disc provided

Price: $575.00

Options
- Enhanced Super PILOT authoring software available
- Microkeyer video overlay board available
- Software and cables for additional players available

BCD Associates

VIPc IBM-PC Videotape/Videodisc Controller

Features
- Contains an internal microprocessor
- Simple user commands can access all videodisc functions
- Compatible with all current disc players except Hitachi, Philips, Pioneer LD-V6000
- Compatible with the IBM-PC, Compaq, Columbia, Corona and other similar computers
- The plug-in board comes with up to two modules for disc, tape or one of each
- Supports the use of the Microkey graphics overlay system

Price: $1,195.00

Options
- Board with combination of any two modules tape or disc ($1,695.00)
- Microkey overlay system for IBM ($2,800.00)

Comsell, Inc.

VID-GO Controller Board

Features
- Compatible with IBM-PC, XT, AT, and compatible computers
- Z8 control processor
- 8K of ROM or 4K of ROM and 2K of RAM
- 4 parallel ports, 1 serial port, a special serial port for the COMSELL Casual-User keypad, and a special port to control and invert sync for the Sony line of Profeel monitors
- Supports the Pioneer LD-V1000 videodisc player
- Single screen switching

Price: $595.00

Allen Communications

MVP Interface (Most Valuable Peripheral)

Features
- Compatible with Apple II+, IIe, IIc, Commodore 64, Atari, and other microcomputers in progress
- Supports Pioneer VP1000, PR-8210, LD-V7000, LD-V4000, Magnavox 8010, Sylvania 7200 players
- Can use Pascal, Basic or SuperPilot programs
- Software Command Menu provides exercise of all commands through single keystrokes
- Software can switch audio and video between monitor or computer input
- Cables and demo disc provided

Price: $149.95
Health EduTech
EDUTECH IVC-I - Videodisc Interface

Features
• For use with Sony LDP-1000A, 2000, and Pioneer LD-V6000 videodisc players
• Can switch between RGB and NTSC screens on monitors equipped with that feature
• Requires no special computer card

Price: $250.00

IEV Corporation
IEV-1200/2000 IBM-PC Overlay and Disc Controller Board

Features
• Overlay RGB onto NTSC composite video
• 128K of user memory
• Genlock sync generator syncs to videodisc or videotape players
• Control features for videodisc or videotape players
• Available with RS-232 or programmable parallel port control
• Compatible with IBM-PC or XT
• Single screen switching
• Graphics board is compatible with most standard IBM software programs, 640x480x16 with a palette of 4096

Prices:
$2,495.00 IEV 1200/2000 with normal video output
$2,795.00 IEV 1200/2010 with higher quality video output
$2,995.00 IEV 1210/2010 for use in a separate off-board box in multiple card applications

IEV Corporation
IEV-60 Disc Controller System with Graphic Overlay

Features
• Overlay RGB onto NTSC composite video
• Can drive NTSC or RGB color monitors
• Genlock sync generator syncs to videodisc or videotape players
• Control features for videodisc or videotape players
• Contains on-board Motorola 68000 32-bit microprocessor with memory to run user programs
• This system requires no additional microcomputer
• Parallel or serial ports allow compatibility with most current microprocessors
• Graphics resolution of 640x408x16 from a palette of 4096
• Single screen switching

Price: $395.00 (Includes DiscWriter course writer)

Interactive Training Systems
ITS-3000 Interface Controller

Features
• For use with IBM-PC computers
• Works with Beta or VHS videotape, and laserdisc players
• Converts NTSC video to RGB video
• Supports earphone attachment
• RS-232C connections
• Single screen switching
• Graphic Overlay Capabilities
• Time code reader and regenerator
• 1200 baud interface, 8 bit ASCII with 2 stop bits
• 18.75"x14.25"x3.5" (WDH)

Price: $2,995.00

J.A.M. Inc.
JAM Card Videodisc Interface

Features
• For use with IBM-PC computers
• Single screen switching
• Serial or Parallel capabilities
• Compatible with the following players: Pioneer LD-V1000, 4000, 6000, 6010, & 7820-3 Sony LDP-1000, 1000A, LDP-180, & LDP-2000 Hitachi 9500
• Software support drivers included
• One set of specified cables included

Price: $395.00 (Includes DiscWriter course writer)

Learncom
MIC System 2000 - Videodisc Overlay Interface

Features
• For use with IBM-PC, XT, AT computers
• Supports graphic overlay
• Can be used in PAL or NTSC video formats
• System includes Interactive Video Controller Card, Interactive Video Graphics Card or an interface to the IBM Enhanced Graphics Adaptor, all connecting cables, MIC Software Diskette, and a User Guide and Installation Manual
Supports mouse, light pen, touch screen, and joystick
Software interface available for any authoring language
Automatic fading or "Soft-editing" feature included
Compatible with existing IBM software

Price: $1,950.00

**New Media Graphics**
**PC-Graphover Videodisc Overlay Interface**

**Features**
- Complete compatibility with IBM software
- Graphic overlay capabilities
- Pixel addressable, 640x400
- Graphics selectable 16 out of 4,096 colors
- Multiple character fonts with selectable drop shadow
- Analog RGB output (RS-170)
- Digital data readback from videodisc
- Interface for Pioneer LD-V4000 videodisc player
- RS-232C interface for other players
- Supports touch screen, mouse, and light pen
- Graphics libraries and software demo included
- Uses two slots in the PC

Price: $1,990.00

**Options**
- Expansion board for 265 simultaneous colors ($695.00)
- Expansion boards for 4,096 simultaneous colors ($1,390.00)
- Lightpen ($190.00)
- Mouse ($190.00)
- 19 inch monitor with touch screen ($1,590.00)
- Player control cable ($90.00)
- Enhanced graphics library (supports window management) ($290.00)
- NMG-Font library ($190.00)
- NMG-Paint ($290.00)

**Online Computer Systems**
**VDC-100 Videodisc Controller Board**

**Features**
- For use with IBM-PC computers
- Includes touch panel interface for the Sony PVM1271Q
- Allows multiple controllers within one PC
- Controls any interactive laserdisc player
- Cables are included for specified configuration
- Any cable configuration is optionally available
- PILOTplus, PASCAL MT + library, and C library are available

Price: $350.00

**Options**
- Second set of cables ($75.00)
- PILOTplus ($1,000.00)
- PASCAL MT + library ($100.00)
- C library ($100.00)

**New Media Graphics**
**Graphover 9500 Videodisc Overlay Interface**

**Features**
- Interfaces to any computer
- Graphic overlay capabilities
- Pixel addressable, 768x484
- Graphics selectable 16 out of 64 colors
- Resident and down-loadable character fonts
- RGB RS-170 and NTSC video outputs
- Pan, zoom, blink, split-screen, and hardware area fill
- Interfaces to any videodisc player
- RS-232C interface
- Supports touch screen, mouse, tablet, joystick, and light pen

Price: $1,500.00

**Interactive Videodiscs** 33
Options
- PASCAL MT+ library ($150.00)
- C library ($150.00)
- PILOTplus ($1,000.00)
- Studio-PC graphics ($1,200.00)

Optical Data Corporation
VAI-II Videodisc/Apple Interface

Features
- For use with Apple II or IIE computers
- Software based controller connects to game paddle port
- No modifications necessary
- Operates with the following laserdisc players: Pioneer VP-1000, LD-1100, PR-8210; Magnavox VC8010GY; Sylvania VP7200
- Software, sample programs and cables included
- Single screen switching

Price: $125.00

Options
- IN04 Interface cable for LD-700 ($15.00)
- IN05 Interface cable for LD-V4000 ($15.00)

Optical Data Corporation
ATVI Audio Tape/Videodisc Interface

Features
- No computer needed
- Videodisc control commands are on audiotape
- Voice or music can be used on second audio track
- Filmstrip style programs are easily programmed
- Compatible with the following laserdisc players: Pioneer VP-1000, PR-8210, DVA-7820, LD-1100; Magnavox VC8010GY; Sylvania VP7200

Price: $125.00

Poseidon Systems
Apple II Laserdisc Controller

Features
- Plugs into one slot on Apple II, IIE, or II+
- Controls one or two players from one card
- Basic commands can be called from most authoring languages
- Several routines are included
- Supports Pioneer LD-700 and LD-V4000 videodisc players
- All cables and interface adapters included
- Single screen switching

Price: $195.00

Poseidon Systems
Commodore Laserdisc Controller

Features
- Plugs into one slot on Commodore computers
- Controls one player
- Basic commands can be called from most authoring languages
- Several routines are included
- Supports Pioneer LD-700 and LD-V4000 videodisc players
- All cables and interface adapters included

Price: $129.00

Poseidon Systems
IBM Compatible Laserdisc Controller

Features
- Plugs into one slot on IBM or IBM compatible computer
- Controls up to four players from one card
- Commands can be called from most authoring languages
- Several routines are included
- Supports Pioneer LD-700 and LD-V4000 videodisc players
- All cables and interface adapters included
- Single screen switching

Price: $375.00

Symtec
DVA Videodisc Control Card

Features
- Plug into single APPLE peripheral slot
- 8-bit parallel bi-directional communication
- Software supports 7820-2 and 7820-3 players
- Single screen switching
- Software on DOS 3.3 disk
- 75 ohm video inputs
- 75 ohm video outputs
- Software accessible from BASIC programs

Price: $350.00

Symtec
Sony Videodisc Control Card

Features
- Plug into single APPLE peripheral slot
- RS232 serial interface, bi-directional
- Single screen switching
Software on DOS 3.3 disk
Two 75 ohm video inputs
75 ohm video output
Software accessible from BASIC programs

Price: $350.00

Systems Impact
VID-232 Videodisc Interface

Features
- For use with any computer with an RS-232 serial port
- Serial and parallel ports to control most videodisc players
- Built-in RF modulator for use with a standard television in a two screen environment
- Supports most authoring languages
- Single screen switching

Price: $695.00

Technovision Inc.
TSI-101 Serial Interface Adaptor

Features
- Links Pioneer LD-V1000 or LD-V4000 to any RS232C device
- 300, 1200, 2400, or 9600 baud, selectable
- Fully supports player I/O protocols
- Internal buffers can receive up to 128 command characters
- May be used as a standalone unit

Price: $285.00

U.S. Video
OVERLAY! 110 Videodisc Controller

Features
- Compatible with IBM-PC, XT, AT computers
- Capable of graphic overlay
- Compatible with most graphics cards
- Supports most videodisc players
- Supports most popular IBM standard software

Price: $980.00

Video Associates Labs
PC Microkey System Control/Overlay Systems

Standard Features
- The PC Microkey System is fully IBM-PC compatible
- Will work with off-the-shelf software
- Compatible with AT&T, IBM-CGA or EGA, Persyst Color II, Sperry, and Tecmar graphics cards
- Videodisc controller for most current players included
- All cards must be physically cabled to the resident color graphics card by Video Associates Labs (included in price)
- Resolution and software are determined by the individual graphics cards
- Two slots required

Model 1125
- Parallel or serial ports
- Keying monitors (Sony PVM. KX series or equivalent) required
- Available in PAL standard

Model 1175
- All of the Model 1125 features included
- Addition of a second port for controlling other disc players
- Available in PAL standard

Model 1225
- Parallel or serial ports
- For use with any analog RGB monitor
- Optional fade unit for audio and video

Model 1275
- All of the Model 1225 features included
- Addition of a second port for controlling other disc players

Model 1300
- For use with most NTSC video sources
- Compatible with any composite NTSC monitor or keying monitor
- Broadcastable and recordable NTSC composite video output
- Built-in parallel port

Prices:
$1,345.00 for Model 1125 (single video input)
$1,645.00 for Model 1175 (dual video input)
$1,595.00 for Model 1225 (single video input)
$1,645.00 for Model 1275 (dual video input)
$1,995.00 for Model 1300 (single video input)

Options
- EGA Color Graphics Card ($595.00)
- IBM Color Graphics Card ($275.00)
- Persyst Color II Graphics Card ($195.00)
- Tecmar Graphics Master Card ($695.00)
- MicroKey Fader ($495.00)
Visage, Inc.
V:LINK 1000 Videodisc Interface with Overlay

Features
- Uses one expansion slot on an IBM-PC with 256K (512K and two disk drives needed for development)
- Universal videodisc control interfaces most current players
- NTSC graphics generation and overlay capabilities included
- Real-time data decoding from the videodisc
- Operating software, graphics development software and a package of useful graphics elements are included
- 256x192 pixel resolution with 16 colors
- "Open architecture" allows for third party software in development and delivery
- Internal sync for independent operation

Price: $1,150.00

Options
- V:Link Bit Pad Package (BPD-1000) ($850.00)
- Videodisc Interface Cables (Specify disc player) ($35.00 to $75.00)

Visage, Inc.
V:LINK 1500 Videodisc Interface with Overlay

Features
- Uses two expansion slots on an IBM-PC with 256K (512K and two disk drives needed for development)
- Universal videodisc control interfaces most current players
- RGB graphics generation and overlay capabilities included
- Real-time data decoding from the videodisc
- Operating software, graphics development software and a package of useful graphics elements are included
- 256x192 pixel resolution with 16 colors
- "Open architecture" allows for third party software in development and delivery
- Internal sync for independent operation

Price: $1,850.00

Options
- V:Link Bit Pad Package (BPD-1000) ($850.00)
- Videodisc Interface Cables (Specify disc player) ($35.00 to $75.00)

Visual Database Systems
PC/LD Videodisc Interface

Features
- Includes cable and software driver
- For use with IBM-PC, PCjr or XT computers
- For use with Pioneer LD-700, LD-V4000 and LD-V6000 disc players
- Software is capable of issuing the entire command set to the disc player
- Can be connected to the Cassette or Parallel port
- Can control up to four videodisc players

Prices:
- $65.00 (for parallel port version)
- $95.00 (for cassette port version)

Whitney Educational Services
A1320 Videodisc/Audio Interface

Features
- Two screen system
- Control videodisc player with audio tones on videotape
- Real-time video on tape can be augmented with slides from the disc
- Both players can display video simultaneously
- Compatible with Apple computers

Price: $100.00

Options
- PC1320 interface for the IBM-PC ($100.00)
- SM1320 interface for the Sony SMC-70 ($100.00)
Whitney Educational Services

PC-500-A IBM-PC Disc/Tape Controller

Features
- For use with IBM-PC or XT computers
- Operate videotape and disc players together or separately
- May be used with the Insight 2000 Plus authoring language
- Compatible with Pioneer LD-V4000, PR-8210; Hitachi 9500; and Sony LDP-1000A players

Price: $990.00

Whitney Educational Services

SM-500-A SMC-70 Disc/Tape Controller

Features
- For use with Sony SMC-70, 70G computers
- Operate videotape and disc players together or separately
- May be used with the Insight 2000 Plus authoring language
- Compatible with Pioneer LD-V4000, PR-8210; Hitachi 9500; and Sony LDP-1000A players

Price: $895.00

Whitney Educational Services

A3001A Apple Disc/Tape Controller

Features
- For use with APPLE II & IIe computers
- Operate videotape and disc players together or separately
- May be used with the Insight 2000 Plus authoring language
- Compatible with Pioneer LD-V4000, PR-8210; Hitachi 9500; and Sony LDP-1000A players

Price: $695.00
APPENDIX D. DIRECTORY OF LASERDISC PERIPHERALS

GRAPHIC OVERLAY DEVICES

IEV Corporation
IEV-1200/2000 IBM-PC Overlay and Disc Controller Board

Features
- Overlay RGB onto NTSC composite video
- 128K of user memory
- Genlock sync generator syncs to videodisc or videotape players
- Control features for videodisc or videotape players
- Available with RS-232 or programmable parallel port control
- Compatible with IBM-PC or XT
- Single screen switching
- Graphics board is compatible with most standard IBM software programs, 640x480x16 with a palette of 4096 colors

Prices:
$2,495.00 for IEV 1200/2000 with normal video output
$2,795.00 for IEV 1200/2010 with higher quality video output
$2,995.00 for IEV 1210/2010 for use in a separate off-board box in multiple card applications

IEV Corporation
IEV-60 Disc Controller System with Graphic Overlay

Features
- Overlay RGB onto NTSC composite video
- Can drive NTSC or RGB color monitors
- Genlock sync generator syncs to videodisc or videotape players
- Control features for videodisc or videotape players
- Contains on-board Motorola 68000 32-bit microprocessor with memory to run user programs
- This system requires no additional microcomputer
- Parallel or serial ports allow compatibility with most current microprocessors
- Graphics resolution of 640x408x16 from a palette of 4096 colors
- Single screen switching
- Text and special characters of different styles and sizes
- Graphics commands for picture creation

Prices:
$3,600.00 With 128K user memory
$4,500.00 With 512K user memory

New Media Graphics
PC-Graphover Graphic Overlay Unit

Features
- Complete compatibility with IBM software
- Graphic overlay capabilities
- Pixel addressable, 640 x 400
- Graphics selectable 16 out of 4,096 colors
- Multiple character fonts with selectable drop shadow
- Analog RGB output (RS-170)
- Digital data readback from videodisc
- Interface for Pioneer LD-V4000 videodisc player
- RS-232C interface for other players
- Supports touch screen, mouse, and light pen
- Graphics libraries and software demo included
- Uses two slots in the PC

Price: $1,990.00

Options
- Expansion board for 265 simultaneous colors ($695.00)
- Expansion boards for 4,096 simultaneous colors ($1,390.00 Lightpen ($190.00))
- Mouse ($190.00)
- 19 inch monitor w/touch screen ($1,590.00)
- Player control cable ($90.00)
- Enhanced graphics library (supports window management) ($290.00)
- NMG-Font library ($190.00)
- NMG-Paint ($290.00)

New Media Graphics
Graphover 9500 Graphic Overlay Unit

Features
- Interfaces to any computer
- Graphic overlay capabilities
- Pixel addressable, 768 x 484
- Graphics selectable 16 out of 64 colors
- Resident and down-loadable character fonts
- RGB RS-170 and NTSC video outputs
- Pan, zoom, blink, split-screen, and hardware area fill
**Learncom**

**MIC System 2000 Videodisc Overlay Interface**

**Features**
- For use with IBM-PC, XT, AT computers
- Can be used in PAL or NTSC video formats
- System includes Interactive Video Controller Card, Interactive Video Graphics Card or an interface to the IBM Enhanced Graphics Adaptor, all connecting cables, MIC Software Diskette, and a User Guide and Installation Manual
- Supports mouse, light pen, touch screen, and joystick
- Software interface available for any authoring language
- Automatic mouse or “Soft-editing” feature included
- Compatible with existing IBM software

**Price:** $1,950.00

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**Online Computer Systems, Inc.**

**GL-512 Graphic Overlay Card**

**Features**
- High resolution graphics 512x480 pixels
- 16 colors from a palette of 4096
- Hardware pan and zoom (256x240x16 color resolution)
- Video images can be overlayed with position dependent graphics
- Multiple card options for one PC to control multiple displays and disc players
- Broadcast quality RGB color graphics
- PILOTplus, PASCAL MT+, or C libraries available

**Price:** $1,500.00

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**Synetix, Inc.**

**Videosprite Graphics Overlay System**

**Features**
- Requires Apple II series micro with 48K memory, 1 disk drive and DOS 3.3 operating system with two monitors (one for programming input and one for video output)
- Large range of computer graphics capabilities
- Easy to use command language
- Commands can be abbreviated
- Background resolution of 256x192 pixels
- Standard text mode with 40 columns by 32 rows
- 14 selectable colors and black
- Video output retains standard of video input
- 16K of dedicated video RAM on board
- Incoming video can be interlaced or non-interlaced
Signal is phase and frequency locked to color burst, horizontal and vertical signals of video source
- Includes Painting and Titling software (P.A.T.) & system documentation

Price: $995.00

Options
- Flashcard 144K (RAM disk emulator)($395.00)
- Flashcard 288K (RAM disk emulator)($595.00)
- Complete System (includes: videosprite board, P.A.T. software, Flashcard 288K and Apple IIe starter system with documentation) ($3,695.00)

U.S. Video
Overlay! 110 Overlay System/Videodisc Controller

Features
- Compatible with IBM-PC, XT, AT computers
- Capable of graphic overlay
- Compatible with most graphics cards
- Supports most videodisc players
- Supports most popular IBM standard software including; dBase, R:Base, Savvy, KnowledgeMan, 1-2-3, Sidekick, Wordstar Chart Master, and PC Paintbrush

Price: $980.00

Video Associates Labs
PC-Microkey System for Graphics Overlay

Features
- Compatible with Apple II, IIe, and II+ computers
- NTSC Standard composite video signal, 75 ohm self term.
- Normal resolution, 280 pixels per line; 192 lines; 53,760 pixels per picture; 140 nanosecond width
- Works with VTR's & Videodiscs without a TBC
- Operates without a video input
- genlock Sync Generator locks to external sources
- Proc amp regenerates burst and sync
- Capable of producing 2,560,000 colors
- Broadcast NTSC keyed video output
- Power Supply included
- Several Optional Software Packages available

Prices:
$1,795.00 for VB-3E Microkeyer For the Apple IIe
$1,695.00 for VB-3 Microkeyer For the Apple II/II+

Option
- Apple Microkey System Software ($200.00)
● Tecmar Graphics Master Card ($695.00)
● MicroKey Fader ($495.00)

**TOUCH SCREENS**

**Allen Communication**

**Touchpoint Touch Screen**

**Features**
- For use with IBM-PC, XT, AT, and compatible computers
- Supports several models of videodisc players
- 100 x 100 sensors for up to 10,000 active touch points
- RS-232C from host computer
- Zenith ZVM 135 monitor included

*Price: $1,450.00*

**Carroll Touch Technology Corporation**

**Touch Screens**

The Carroll Touch Technology Corporation has a wide range of touch screens available for the common monitors and terminals used in the computer field. The prices range between $1,900.00 and $2,500.00.

**13" Monitors**
- Aydin 8039,8810
- Mitsubishi C3419
- Ramtek GM714
- Sanyo DMC6013
- Sony PVM-1271Q

**19" Monitors**
- Aydin 8025,8026,8040,8830
- Ikagami DM511H
- Mitsubishi C3910,C3919,C6912,C6919
- Ramtek GM719,GM720,GM95C
- Sony CVM1900

**Terminals**
- Hewlett-Packard 24X series, DEC VT100TM and VT103TM, Datamedia Excel 22, Excel 24 and Color-scan, & ISC800UG

**Flat Touch Panels**
- 9"x9" window ($1,800.00)
- 17"x17" window ($2,900.00)

**Generic Kits**
(price includes $600 controller)
- 9" diag. frame ($1,600.00)
- 12" diag. frame ($1,800.00)

**Computer Technology Associates**

**CTA 500X Soft-Touch Touch Screen with Interface**

The Touch Screen interface is designed to be used with the Apple II+ or Apple IIE microcomputer, and the screen can attach to any 12 inch video monitor.

**Features**
- Infrared emitter-sensor array, self scanning
- 96 horizontal by 64 vertical point resolution
- Active touch area, 11 in. vertical by 8 in. high
- Outside dimensions 12x10x.75 in WHD
- Input power +5v at 600mA from Apple power supply
- Occupies 1 Apple II interface slot
- Parallel cable between screen and interface
- Apple computer buss between interface and CPU
- All necessary hardware and software supplied
- No extra assembly language subroutines necessary
- Screen accessed through Applesoft BASIC

*Price: $695.00*

**Ear Three Systems Manufacturing Company**

**The Particpator Touch Screen**

This screen is designed to be mounted flush with the work surface of a desk, and includes an expanded touch area. The monitor is mounted under the screen. The system includes:
- 11x8.5 inch display screen (14 inch diameter)
- 14x12 inch touch screen (18¼ inch diameter)
- Audio system with two audio jacks and a microphone jack for verbal input to the computer

*Price: $4,000.00*

**Electro Mechanical Systems, Inc.**

**Touch Information Display Touch Screen**

**Features**
- Custom designed touch screens
- Patented Ambient Light and Noise Reduction Circuit
- Box frame and window frame configurations available
- Custom bezel redesign and display packaging available

*Price: $1,265.00 and up depending upon application*
Elographics, Inc.  
Touch Screens

Features
- Resistive type screen
- 4000x4000 point resolution
- Easily installed and calibrated
- Flat Screens available
- IBM-PC, XT, or AT controller is needed

Prices:
- $800.00 for 12 and 13 inch screens
- $900.00 for 19 inch screens
- $300.00 for IBM controller

MicroTouch Systems Inc.  
MicroTouch Kit Touch Screen Specifications

MicroTouch Kits are designed to configure existing terminals, monitors and other CRT displays with touch-sensitive screens.
- Analog capacitive sensing technology
- 256x256 touch points
- 75 touch points per second
- Offered in 9, 12, 13, 15, 19 inch, and custom-sized screens
- Uses RS232C serial port
- 110-9600 baud
- Kits include glass sensor, intelligent controller, serial interface, and EEPROM
- Device driver for touch screen controller is available
- Software packages available

Prices:
- $995.00 for 9, 12, 13 inch diagonal
- $1,045.00 for 14, 15 inch diagonal
- $1,295.00 for 19 inch diagonal

Options
- Additional power supply ($95.00)
- Power supply w/enclosure ($175.00)
- RS-232C cable ($20.00)
- DrivePoint device driver ($125.00)

Touch Technology, Inc.  
PC-Touch Touch Screens

Features
- Available in resistive and capacitive models
- 1000 x 1000 contact points (resistive)
- 32, 56, and 60 contact points (capacitive)
- Standard RS232 communications

Prices:
- $749.00 for 13 inch screen (installed add $100)
- $1,175.00 for 19 inch screen (installed add $100)

LIGHT PENS

FTG Data Systems  
FTG Light Pens

Features
- For use with IBM-PC and compatible computers
- Will work with IBM-PCjr computers
- Optical push-tip switch standard
- Will not work with IBM monochrome display
- Several software packages available

Price: $195.00

Options
- Hi-Resolution Light Pen Board ($149.00)

Symtec  
Professional Light Pen Specifications

Features
- Push-tip nose switch on pen
- 0.3 microsecond response time at 1 milli-lambert screen brightness
- Touch sensitive
- 12.5mm diameter by 175mm long (.5in by 6.875 in)
- Pen and cable 168 grams (6oz)
- Plug in interface for compatible computers
- Adjustable for light sensitivity
- Can resolve a single pixel

Compatible Computer Systems
- Apple IIe, II+, III
- Atari 400,800
- IBM-PC
- Commodore VIC-20, 64
- Franklin Ace

Compatible Screens
- Any color TV or monitor
- Any black and white TV or monitor
- Most green screens

Prices:
- $250.00 for Apple compatible
- $175.00 for IBM-PC compatible
- $15.00 (extra) for Push-tip model
Video Associates Labs
LPS II Light Pen (by Gibson Labs)

Features
- True Raster-Scan light pen
- Locations are plotted 60 times per second

Price: $349.00

Warp Speed Computer Products
Warp Speed—Light Pens

Features
- Compatible with IBM-PC and compatible computers
- Can be used on Amber and Green monitors
- Includes all necessary connecting cables
- Includes Light Pen Controller software
- Comes with side button switch or push tip switch

Price: $199.00

Personal Computer Supply
Voice Input Module

Features
- For use with the Apple II or IIe
- 98% recognition accuracy
- Vocabulary listing and voice pattern stored on disk
- Uses one adapter slot
- Vocabulary is user defined
- 8K onboard memory
- Menu driven Voice Utility program included
- Programs available for VisiCalc, Wordstar, Magic Window, List Handler, and Applesoft Basic to name a few
- Immediate response time
- 80 words or phrases per application
- Maximum word/phrase length 1.25 sec
- Minimum pause between words 160 msec
- VIM board, cables, manual, Voice Utility Program, and microphone are included

Prices:
VIM-1—Hand-held microphone included
Apple II Apple IIe
$845.00 $90.00
VIM-2—Gooseneck microphone included
920.00 $995.00
VIM-3—Headset microphone included
$950.00 $1025.00

Introvoice II (160 word vocabulary) add $200.00 to prices.

Accessories:
Wireless microphone (half mile dist.)
Apple II Apple IIe
$595.00 $595.00
Noise-cancelling gooseneck microphone with foot pedal switch
$160.00 $160.00
Noise-cancelling headset boom microphone
$180.00 $180.00
$20.00 $20.00

Scott Instruments
Voiced Based Learning System

Features
- For use with Apple II or IIe computers with 48K or the Franklin computer
- 98% accuracy rate
- Instant response
- 40 word vocabulary, with overlays to access additional sets of 40 word vocabularies
- Compatible with Pascal, Fortran, Basic, Applesoft, Pilot, and Machine Code
- Compatible with modems, printers and other peripherals
- Uses one Apple peripheral slot
- Compatible with VisiCalc, Visidex, Apple Plot, The Source
- All systems include reference manuals, headset microphone, and Voice Entry Terminal
- Maximum word length 1.5 second

Prices:
$895.00 for VBLS System (includes Author diskette)
Stand alone version
$795.00 for VET-2 System (includes system diskette)
Computer dependant system
$595.00 for Shadow/VET System (includes system diskette) Computer dependant system

MULTIPLE INPUT KEYPADS

Meeting Services Inc.
RESPONDER—Group Keypad System

Features
- 20-Key multifunction keypad
- Operates from a standard computer with an RS-232 port
- Up to 1,000 keypads can be used simultaneously
- Each keypad can be identified by the computer
- Interaction may occur concurrently at the individual, group and sub-group level
- Offers multiple-choice, yes/no, integer and floating point numeric (with optional arithmetic calculation), a
timed mode for competitive and task fulfillment signaling, and an open-key format for electronic handwriting.

- Response data can be displayed immediately in graphic form, stored for later evaluation, or printed.
- PromptText can scroll messages to one or all of the keypads.
- Tone can be generated via built-in speaker or earplug.
- 16 character single line alphanumeric backlit LCD display.
- Systems include Responders, System Controller, cabling for power and data, and software to operate Responders from an IBM-PC or compatible.

Prices:
- $2,060.00 System 4 with 4 Responders
- $6,284.00 System 24 with 24 Responders

Options
- Responder 4-Pack System Expander ($844.00)
- Power/Data Expander Pack (one needed for every 24 additional Responders) ($248.00)

**VOICE SYNTHESIZER**

**Borg-Warner Educational Systems**

**UVS—Ufonic Voice System**

Features
- Capable of adding human-sounding voice to any CBI lesson.
- Operates on Apple II or IIe computers.
- Works in any available Apple slot.
- Card contains microprocessor, memory and synthesizer.

External amplifier/speaker included.
Instructional program and voice data are contained on a single diskette.
Additional software available.

Price: $495.00

Options
- UF-SC. The Ufonic Speech Composer ($225.00)
  Includes 4 disks and Teacher's Guide to add speech to existing lessons.

**STILL FRAME AUDIO DEVICES**

**EECO**

**VAC-300 Still Frame Video/Audio Converter**

Features
- Up to 40 seconds of audio per still frame of video.
- Each audio frame can store 10 seconds of real-time audio.
- With 54,000 frames possible at 10 seconds per frame, 54,000 seconds or 150 hours of audio are possible with no video (see chart below).
- Up to 120 hours of audio with 10,000 slides per disc side.
- Compatible with interactive VCR'S.
- Computer controllable.
- RS232 interface.
- Baud rates 300 to 9600.
- Audio frequency response 100 Hz to 3700 Hz, –3dB.

Prices:
- $2,500.00 for Printed Circuit Card
- $3,000.00 for Stand-alone Desktop

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**Possible Frames Per Disc**

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<tr>
<th>Number of Segments Possible</th>
<th>Audio Frames Per Segment</th>
<th>Video Frames Per Segment</th>
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<tr>
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<td>3</td>
</tr>
<tr>
<td>54,000</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

**LaserData**

**PC-TRIO—Still Frame Audio Card**

Features
- Single plug-in card for the IBM-PC.
- 75 hours of digital audio available on one disc side.
- External amplifier/speaker included.
- Instructional program and voice data are contained on a single diskette.
- Additional software available.

Price: $495.00

Options
- UF-SC. The Ufonic Speech Composer ($225.00)
  Includes 4 disks and Teacher's Guide to add speech to existing lessons.

**800 Megabytes of computer data available on one disc side.
- 200 K bytes/sec maximum data transfer rate.
- Corrected error rate better than 10-12.
- NTSC video format.
- Three selectable levels of audio quality.
- Maximum data integrity achieved by proprietary error correction.
<table>
<thead>
<tr>
<th>Level</th>
<th>Bandwidth Kilohertz</th>
<th>Sec./Frame</th>
<th>Sec./Event (standard)</th>
<th>Sec./Event (optional)</th>
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<td>II</td>
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<td>III</td>
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<td>2.5</td>
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<td>30</td>
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</table>

**Price:** $1,150.00

**LaserData**

**TRIO 110—Still Frame Audio Controller**

*Features*
- Uses a built-in Intel 80186 microprocessor
- 75 hours of digital audio available on one disc side
- 800 Megabytes of computer data available on one disc side
- 400 K bytes/sec maximum data transfer rate
- Corrected error rate better than 10-12
- NTSC video format
- Three selectable levels of audio quality
- Can interface up to four disc players
- Can multiplex up to four computers
- Control software, Information Retrieval Software, and Diagnostic Software available

<table>
<thead>
<tr>
<th>Level</th>
<th>Bandwidth Kilohertz</th>
<th>Sec./Frame</th>
<th>Sec./Event (standard)</th>
<th>Sec./Event (optional)</th>
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<tr>
<td>I</td>
<td>2.5</td>
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<td>3.33</td>
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<tr>
<td>III</td>
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<td>2.5</td>
<td>15</td>
<td>30</td>
</tr>
</tbody>
</table>

**Price:** $2,950.00

**Pioneer Video**

**SS-D1—Still Frame Audio System**

*Features*
- Data storage capacity of 1000 floppy diskettes per side
- 35 hours of digital audio available on one disc side
- 427 Megabytes of computer data available on one disc side
- Reed-Solomon error correction method
- RS-232 Baud rate 300-38400 selectable
- Three selectable levels of audio quality
- Error correction selectable between 10-4 to 10-12 for 0% to 53% redundancy

<table>
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<tr>
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<td>1.2</td>
<td>9.3</td>
<td>11.7</td>
</tr>
</tbody>
</table>

**Price:** $1,500.00

**Sony Video**

**SFA-1000 Still Frame Audio Adapter**

*Features*
- Audio Playback Time, 1.5 to 20 seconds
- Optional expansion to total of 40 seconds allowing the storage of 15 hours of linear audio per disc side
- Audio frequency response, 3.5 kHz, -3dB
- Video input, 1V p-p
- Remote control, wireless infrared or cable
- Power requirement, 120VAC, 35W
- Dimensions, 3.28x10x14.16(HWD) 82x250x354 mm (HWD)
- Weight, 8.8 lbs (4kg)

**Price:** $2,500.00
Pioneer Video, Inc.
R-1000 CX Noise Reduction System

The CX NOISE REDUCTION system is unique to the laser discs. It is a built-in feature in many of the players but can be purchased separately. This system can supposedly improve the signal-to-noise ratio of the reproduced discs by as much as 14dB to more than 70dB (1kHz, 100% mod.IHF A). When connected to a system, the user only has to turn it on. There are no adjustments to worry about.

Price: $80.00
APPENDIX E. DIRECTORY OF LASERDISC SYSTEMS PACKAGES

APPLE COMPUTER INTERACTIVE VIDEODISC SYSTEMS

Actronics Learning Systems
CPR LEARNING SYSTEM

This system is designed specifically for use in training for CPR certification or recertification.

Features
- Industrial laserdisc player
- Microprocessor
- Random access audio cassette tape unit
- Two television monitors
- Light pen
- User control box
- Operating systems software
- One adult manikin
- All necessary cables and user documentation

Price:
Complete System: $20,000.00
Options
- Infant Manikin ($2,500.00)

Allen Communications
Totally Integrated Interactive (TII) System

Features
- Allen Communications Learning Station
- VMI, Video Microcomputer Interface with Demo
- Super Pilot Authoring Language with AC library diskette
- Pioneer Industrial Videodisc Player PR-8210
- Apple II Plus Computer or equivalent
- Disk Drive with controller
- 16K RAM card
- Amdek Color One 13" Monitor

Price: $4,395.00

Options
- NEC color monitor with touch screen ($1,500.00)
- VB-3E Microkey overlay system ($2,195.00)
- Pioneer LD-V1000 ($1,200.00)
- Philips VP832 player ($1,395.00)
- Gibson LPS-II Light Pen ($349.00)
- Koala Pad touch tablet ($124.95)

Superior Training Systems
Apple II/Ile Interactive Video System

This system is designed to be used with an Apple II/ Ile with 64K, two disk drives, color monitor and a video player. The $2,400 package includes the Insight 2000 Authoring System. Packages complete with fully wired Learning Center cabinet and peripherals are available.

Features
- Plug in Video Controller Interface board with cables for a compatible video player.
- INSIGHT PLUS Courseware Authoring System with both Authoring and Lesson diskettes.
- Detailed and Quick Start Installation and Courseware Authoring Manuals.
- Videotape (VHS or Beta) tutorial on effective courseware authoring techniques.
- To be used with the following tape or disc players:
  Disc—Pioneer VP1000, 8210—Sony LD-1000 Tape—Panasonic 8200 VTR—Sony Beta, U-Matic VTR’s

Prices:
Disc or Tape
Complete System—$1,690.00
Interface Only—$ 695.00
Disc & Tape
$2,400.00
$ 895.00

PLATO INTERACTIVE VIDEODISC SYSTEMS

Control Data Corporation

CDC does not promote a specific videodisc delivery system but does advertise an authoring service for PLATO users. Any user of PLATO can take advantage of the videodisc technology with a Control Data PLATO terminal connected to a central PLATO System and a level three videodisc player, or a microcomputer that supports Control Data’s Micro PLATO delivery software.

PLATO-compatible terminals are the Control Data IST, IST II, IST III, Viking 721-30/31, IBM-PC or Zenith Z100, and certain IBM-PC compatible microcomputers.

Micro PLATO-compatible micro-computers are the CDC110, IBM-PC and the Zenith Z100, and certain IBM-PC compatible micro-computers.
For more information on the PLATO system, contact Control Data Corporation at the address listed.

**DEC PRO 380 COMPUTER INTERACTIVE VIDEODISC SYSTEM**

Digital Equipment Corporation

**IVIS—Interactive Video Information System**

This system offers a stand-alone terminal that can be networked to a mainframe computer. The price listed is for the workstation and peripherals only. The authoring software and networking hardware must be purchased separately as well as the host mainframe. For detailed information on this system contact DEC at the address listed.

**Features**

- Digital Professional 380 personal computer
- Analog interface box
- VR241-A, RGB 13" color monitor
- Hitachi VP-9500 or Sony LDV-1000A videodisc player
- Software device driver
- RS232C connectors
- Baud rate from 50 to 19200
- Overlay enhancement (drop shadow width 1-15 pixels)
- Two floppy disk drives with 10 megabyte hard disk

**Prices:**

- $10,000.00
- $11,100.00 with touch screen

**MicroTICCIT INTERACTIVE VIDEODISC SYSTEMS**

Hazeltine Corporation

**MicroTICCIT SYSTEM II**

The system II configuration is designed to optimize courseware development and delivery for medium-scale computer-based training efforts. The system will support up to forty MicroTICCIT workstations, each of which can be used for student, instructor, or author functions. For detailed information on this system or any other systems, contact Hazeltine Corporation at the address listed.

**Features**

- Data General microECLIPSE S/20 host processor with 256 K bytes RAM
- 50 M bytes of fixed storage for on-line system software, student records, and courseware
- 15.4 M byte cartridge tape drive for loading or dumping data from fixed disk

**IBM-PC COMPUTER INTERACTIVE VIDEODISC SYSTEMS**

Allen Communications

**Totally Integrated Interactive (TII-PC) System**

**Features**

- IBM-PC (640K)
- 10Meg hard disk; one floppy
- Microkey 1125 overlay and interface board
- Pioneer Industrial Videodisc Player LD-V1000
- Zenith ZVM 135, 14 inch color monitor

**Price:** $4,670.00

**Options**

- Touchpoint II touch screen ($875.00)
- Sony PVM 1910 color monitor ($845.00)

**Digital Videodisc Technologies, Inc.**

**Video Window Digital Interactive Videodisc System**

Complete system includes:

- IBM compatible CPU with 30Meg internal hard drive, 32,768 colors at 256 x 256 pixels, 16-bit concurrent MS-DOS, and 60Meg streamer backup drive
- Compatible for Sony LDP-2000, LDP-180 or Pioneer LD-V6000
- One floppy disk drive
- 12 inch color monitor with infrared touch screen with 30 vertical and 40 horizontal points continuously active
- Keypad with 72 alphanumeric keys and a 10-key numeric keypad with cursor arrow and function keys that emulates an IBM keyboard
- Supporting software that features: digital video, digital audio, graphics overlay, and supporting database frames

**Price:** $7,500.00

**Option**

- 400Meg external optical drive (WORM) ($6,995.00)
Interactive Training Systems, Inc.
ITS 3100 Interactive Video Kit

Complete kit includes:
- ITS 3100 controller (full slot board for IBM and compatibles) with 16 color display, high-resolution text and graphics overlay, and RS232 serial control interface for videodisc
- High-resolution 13 inch color monitor
- Integral touch screen and controller
- Cabling and system documentation

Price: $2,995.00

Interactive Training Systems, Inc.
Interactive Videodisc Training System

Features
- IBM PC microcomputer
- High resolution color monitor
- Supports touch screen and light pen
- Laserdisc or videotape player
- ITS-2000 Controller

Price: $10,564.00

Option
- Authority software package ($12,000.00)

International Business Machines Corporation
INFOWINDOW Interactive Videodisc System

Complete system includes:
- IBM-PC XT (512K) microcomputer
- 1200 IBM Enhanced Graphics Adapter
- 1203 IBM G Memory Module
- 3336 120K bytes Memory Module Kit
- InfoWindow display
- DOS 3.2
- GPIB card
- Enhanced Graphics Adapter jumper card
- Control Program
- Pioneer LD-V6000 videodisc player
- Pioneer cable group CK323

Price: $10,383.00

Online Computer Systems
IBM-PC PILOTplus Training System

The basic package includes:
- IBM PC with 128K RAM
- Two double sided disk drives
- IBM or Okidata 92 80 column printer

- PILOTplus Authoring Software
- 12" Sony PVM 1270Q color monitor
- VDC-100 Videodisc Control Card
- IBM Color Graphics Card
- Pioneer LD-V1000 Videodisc player (or equivalent)

Complete System: $6,000.00

Options
- Touch panel
- Graphics overlay
- IBM-PC XT 10mb Hard Disc

Superior Training Systems
IBM PC Interactive Video System

This system is designed to be used with an IBM-PC with 128K, two disk drives, color monitor, and a video player. The $2,400 package includes the Insight 2000 Authoring System. Packages complete with fully wired Learning Center cabinet and peripherals are available.

Features
- Video Controller Interface box with cables for a compatible video player.
- INSIGHT PC Courseware Authoring System with both Authoring and Lesson diskettes.
- Detailed and Quick Start Installation and Courseware Authoring Manuals.
- Videotape (VHS or Beta) tutorial on effective courseware authoring techniques.
- To be used with the following disc players: Pioneer VP1000, 8210, Sony LDP-1000
- To be used with the following tape players: Panasonic 8200 VTR, Sony Betat. U-Matic VTR's
Prices:
$2,080.00 for complete system for disc or tape
$2,400.00 for complete system for disc and tape
$990.00 for interface only for disc or tape
$1,200.00 for interface only for disc and tape

Visage, Inc.
V:Station 2000 Interactive Videodisc System Series

Features
- Complete system includes IBM-PC, V:Link hardware interface, IBM-compatible color graphics adaptor, and a comprehensive selection of standard and optional software
- Graphic overlay including 80-column text
- RGB output
- Control of most videodisc players
- Membrane touch screen (except V:Station 2001 and 2004)
- Touch screen resolution: Med-Res 256x256, Hi-Res 1024x1024
- Full range of software support
- System will run standard IBM-PC programs
- One monitor system
- 256K or 512K of dynamic RAM available
- 10 meg Winchester hard disks available

Prices:
$5,995.00 for 2001 Floppy diskette-based system, 256K RAM
$7,695.00 for 2002-A Floppy diskette-based system, Hi-Res touch screen, 256K RAM
$6,895.00 for 2002-B Floppy diskette-based system, Med-Res touch screen, 256K RAM
$9,825.00 for 2003-A Hard disk-based system, Hi-Res touch screen, 256K RAM
$9,125.00 for 2003-B Hard disk-based system, Med-Res touch screen, 256K RAM
$7,385.00 for 2004 Floppy diskette-based system, 512K RAM
$11,650.00 for 2005-A Hard disk-based system, Hi-Res touch screen, 512K RAM
$10,850.00 for 2005-B Hard disk-based system, Med-Res touch screen, 512K RAM

Sony Video
View System I Interactive Videodisc System

Features
- LDP-2000 Videodisc Player, SMC-2000 Microcomputer
- Built-in graphic overlay
- Two 3.5 inch micro floppy disk drives
- Runs MS-DOS software
- 16 character colors, 256 graphic colors from a palette of 4096
- RS232C communications port, IEEE-488 port optional
- Supports lightpen and mouse
- High-quality graphics resolution, 640 x 400
- Integrated system minimizes the number of cables and maximizes the functionality of both the computer and videodisc player

Prices:
$6,730.00 for complete system

Options
Sony offers a wide range of software and peripheral hardware to support the system, listed are only a few of the popular options:
- Dual RS232C interface board ($185.00)
- IEEE-488/RS232C board ($510.00)
- RAM Expansion Board (to 526K) ($510.00)
- Mouse ($295.00)
- Light Pen ($175.00)
- Video/Graphics Library (Pascal or C) ($195.00)
- Lumena Graphics Creation Program ($545.00)
- Menu-driven font editor (50 included) ($295.00)
Sony Video
View System 2 Interactive Videodisc System

Features
- LDP-2000 Videodisc Player, SMC-2000 Microcomputer
- Still frame audio included
- Reads data from the videodisc
- Built-in graphic overlay
- 3.5 inch micro floppy disk drives optional
- Runs MS-DOS software
- 16 character colors, 256 graphic colors from a palette of 4096
- RS232C and IEEE-488 ports
- Supports lightpen and mouse
- High-quality graphics resolution, 640x400
- Integrated system minimizes the number of cables and maximizes the functionality of both the computer and videodisc player

Complete System: $8,260.00

Options
Sony offers a wide range of software and peripheral hardware to support the system, listed are only a few of the popular options:
- Dual RS232C interface board ($185.00)
- 3.5 inch micro floppy disk drive ($415.00)
- Ram Expansion Board (to 526K) ($510.00)
- Mouse ($200.00)
- Light Pen ($175.00)
- Video/Graphics Library (Pascal or C) ($195.00)
- Lumena Graphics Creation Program ($545.00)
- Menu-driven font editor (50 included) ($295.00)

WICAT INTERACTIVE VIDEODISC SYSTEMS

WICAT Systems
System 1250

This system is the least expensive of the WICAT line. The System 1250 offers a stand-alone terminal that can be networked. The price listed is for the workstation only. The authoring software and networking hardware must be purchased separately. For detailed information on this system or any of the larger systems, contact WICAT at the address listed.

Features
- MC68000, 12.5MHz processor (approx. 1.25 million instructions per second)
- 16-bit processor (32 bit data operations)
- Memory management
- IEEE 796 (extended Multibus) Bus architecture
- 1 MByte of RAM (expandable to 5 Mbytes)
- 2 programmable interval timers
- Intelligent disk controller
- 8-24 RS-232C serial interfaces (50 to 9600 baud)
- 1 or 3 16-bit general-purpose parallel interface
- ETHERNET PCB for networking
- Can use the WISE authoring system for courseware development

Price: $25,000.00
APPENDIX F. DIRECTORY OF VIDEODISC SOFTWARE

AERONAUTICS

National Air and Space Museum Archive—Disc One
This disc is an archival collection of close to 100,000 still images of airplanes from the museum's holdings. The disc documents the history of aircraft from the early flying machines up to the aircraft of the 1940's. The disc comes with an index that identifies the aircraft by manufacturer.

Interactive CAV
Software: None available
Smithsonian Institution (NASM)
Price: $44.95

National Air and Space Museum Archive—Disc Two
This disc is an archival collection of close to 100,000 still images of airplanes from the museum's holdings. The disc documents the history of aircraft from the 1940's up to the aircraft of the present. The disc comes with an index that identifies the aircraft by manufacturer.

Interactive CAV
Software: None available
Smithsonian Institution (NASM)
Price: $44.95

National Air and Space Museum Archive—Disc Three
This disc is an archival collection of close to 100,000 still images of airplanes from the museum's holdings. The disc comes with an index that identifies the aircraft by manufacturer.

Interactive CAV
Software: None available
Smithsonian Institution (NASM)
Price: $44.95

ART

National Gallery of Art
This disc was produced as "the first catalogue of art from a major museum to be made available to the public on videodisc." The disc is divided into two sections. The first section is a linear program that includes the story of the museum's beginnings and development including rare photographs and historic film footage. The second section of the disc is an interactive catalogue of 1,645 still frames of painting, sculptures, drawings, and prints from the Gallery. Each image is followed by a still frame of text identifying the artist and work. Following the catalog is a comprehensive tour through the collection narrated by the director of the Gallery, J. Carter Brown. The collection spans seven centuries of art.

Interactive CAV
Software: None available
LDC America, Catalog #VPI-NGA-84
Price: $95.00

Phillip Pearlstein Draws the Artist's Model
This disc is the first disc in a series called Genius In Our Time. Each one of the series projects will cover the work of some creative, living person whose work will live long after that person will. Each one will be a completely documented disc of that artist. architect, dancer, conductor, etc. This disc showcases the teaching, philosophy and art of Mr. Pearlstein, considered to be one of America's most prestigious realist painters. The paintings of the artist are cataloged on the disc along with video footage of Pearlstein in his studio, his classes and at the opening of one of his shows. Interactivity is provided by several exercises specifically designed by Pearlstein for artists as well as theories and instruction taught with the computer graphics. In doing this, the artist creates five new works.

Interactive CAV
Software: None available
Interactive Media Corporation
Price: $49.95

Profiles in American Art
A series of twelve half-hour discs documenting the ideas and works of some of today's American artists, painters and sculptors. The programs penetrate the lives and minds of these painters and sculptors to help the viewer understand that elusive mix of talent, skill and magic we call art. The following individuals
have been included in this series hosted by Alexander Scourby:

- Eric Sloan, painter & writer
- Donald Teague, watercolorist
- John Clymer, painter
- Edward Fraughton, sculptor
- Glenna Goodacre, painter
- William Whitaker, painter
- Conrad Schwiering, painter
- Sergei Bongart, painter & poet
- George Carlson, sculptor
- Wilson Hurley, painter
- John Stobart, painter
- Bob Kuhn, painter

The discs are also available in a special Collector’s Edition with a special case and a signed and numbered disc. A limit of 100 sets are available.

Interactive CAV
Software: None available
American Technology Resources
Prices:
$95.00 per disc, $995.00 for the set of twelve
Collector’s Edition: $395.00 per disc, $3995.00 for set

Vincent Van Gogh—A Portrait in Two Parts
The program on the disc is in two parts. The first part on side one is an overview of the life of Van Gogh through his paintings and several letters to his brother Theo. Over 200 of his works are shown on this side in catalogues that group the works by period. Side two is a one-man play starring Leonard Nimoy as Theo, Vincent’s brother. The contents is broken down as follows:

Side 1 — Van Gogh Revisited (hosted by Leonard Nimoy)
Chapter 1: Overview, Dutch Period.
Chapter 3: Overview, Paris Period.
Chapter 4: Catalogue: Major Works of Paris Period.
Chapter 5: Overview, Arles Period.
Chapter 7: Overview, Saint Remy Period.
Chapter 8: Catalogue: Major Works of Saint Remy Period.
Chapter 9: Overview, Auvers Period.
Chapter 10: Catalogue: Major Works of Auvers Period.
Chapter 11: Painting Techniques: Reference Series.
Chapter 12: Brabant in Vincent’s Time: Reference Series.

Chapter 14: Provence: The Land & People: Reference Series.
Chapter 15: Auvers, the Artists’ Village: Reference Series.
Chapter 16: Summary
Chapter 17: Credits
Side 2 — Vincent. The Play.
This is a two act one-man show starring Leonard Nimoy as Theo Van Gogh, Vincent’s brother.

Interactive CAV
Software: None available
LDC America
Price: $49.95

BUSINESS MANAGEMENT

The Business Disc—How To Start and Run a Small Business
The Business Disc is a sophisticated simulation which leads the user through the steps of planning and managing a small business.

The Business Disc:
- Provides business experience without risk of capital
- Can be used to improve or expand an existing business
- Accommodates users’ needs and interests
- Allows users to progress at their own pace
- Permits review of segments already seen
- Handles record keeping in detail
- Uses live action, drama, animation, graphs and slides
- Presents qualified professional advice
- Performs complex spreadsheet calculations

Part One: The Planning Phase
This section simulates six months of meetings with professional advisors, discussions with other business owners, decision making and securing financing.

Part Two: The First Year In Business
This section simulates the first twelve months of operation. Decisions may have to be made about such matters as: a rent increase, late supply deliveries, parking lot pothole repairs, employee issues, and many more possibilities.

Hardware Requirements:
Pioneer LD-V6000 or Pioneer LD-V6010
IBM-PC or compatible, 256K, 2 DS/DD Drives, RS-232 port
VAL Microkey overlay card 1150 or 1300 (Video Associates Labs)
Sony PVM or KX series monitor, or Zenith ZVM-135
Standard dot matrix printer (optional)

Programmed CAV
Software: For IBM-PC (provided)
Maryland Center for Public Broadcasting
Price: $1,995.00 (Two videodiscs, four floppy disks, manual and reproducible forms)

Decision Point: A Living Case Study
This is an instructional tool that creates a rich and engaging business-management environment providing the user with the opportunity to explore his or her decision-making techniques and capabilities. The user becomes the Associate Vice President of sales in a fictional company producing high-precision machinery-making equipment. Upon entering, the company is experiencing problems. Despite market research predicting a boom market, and despite successful past performance, sales projections are not being met. There is stress throughout the organization and the user must turn things around.

The ten major decision points involve:
- Incentive/Commission Structure
- Discount Approval Policy
- Technical Training Issues
- Workflow Revision
- Credit Policy
- Managerial Effectiveness Promotion
- Information/Report Distribution
- Increasing Staff or Improving Time Management
- Performance Measurement/Quotas

Hardware Requirements:
DEC IVIS System

Programmed CAV
Software: For DEC Pro 350
Digital Equipment Corporation
Price: $2,200.00

Fair Employment Practice
This course offers a new approach to management and supervisory training programs. This course teaches managers and supervisors how to use the principles of good management to find, hire, and place productive employees. Promote, transfer and supervise them. Handle discipline and discharge as well as prevent sexual harassment all within the bounds of EEOC regulations.

The disc is broken into four 15-minute units: Recruitment, Selection and Placement; Promotion and Transfer; Discipline and Discharge: Preventing Sexual Harassment. During the course of the program the videodisc poses multiple-choice questions which must be answered correctly before the program proceeds.

This videodisc requires the Pioneer PR-7S20 or LD-DV6001 player for interactive functions. The handset is needed for user input.

Programmed CAV
Software: Level two programming on the disc
BNA Communications Inc.
Price: $1,500.00 one year rental

An Introduction to Marketing
Understanding the role of marketing is fundamental to effective management by staff outside the marketing function. This course provides an introduction to the concepts of marketing to those who would benefit from familiarity with the marketing process. Each module requires one to two hours to complete. The learner is placed into real-life situations and required to react to the problems presented.

Module 1 — Factors Influencing Why and How People Buy
- The difference between market-led and product-led companies
- Definitions of marketing
- Environmental changes influencing buyer’s needs
- Analysis of buying behavior in terms of needs
- A buying cycle model
- External and internal buying stimuli
- Rational vs. irrational bases for buying
- Individual roles within a buying cycle
- Relating the selling cycle to the buying cycle

Module 2 — Market Research, Forecasting and Planning
- Market segmentation and sectorization/variables used
- Purpose and types of market research
- Stages of market research
- Methods of gathering information
- Methods of carrying out surveys
- Reasons for market forecasting
- Purposes of market planning
- SWOT analysis
- Stages of market planning

Module 3 — Getting the Market Mix Right
- The four P’s of the marketing mix
- Tangible and intangible attributes of a product
- Reasons for adjusting the product mix
The product life cycle
Determinants of the market price
Stages of price setting
Objectives of price setting
Purposes and methods of promotion
Criteria for deciding on the promotion budget
Advertising methods
Direct and indirect methods of distribution
Inter-relationship between the four P's
A cybernetic model of marketing/monitoring, revising and controlling

Necessary Hardware:
The Learning Center or the IBM InfoWindow

Programmed CAV
Software: Included
MindBank. Inc.
Price: $1,995.00 per module

The Name Game: A Course in Memory Skills
The Name Game is designed to develop one's ability to remember names and faces. This program is presented as a highly interactive real-time simulation that will draw the user into the action. The assignment is to attend a party at the US Embassy in France, where a deadly plot is unraveling. The key to solving the plot is remembering the names and faces of the people that are introduced.

Necessary Hardware:
The Learning Center or the IBM InfoWindow

Programmed CAV
Software: Included
MindBank. Inc.
Price: $2,995.00

Versatile Organization
This is a course that is designed to teach how to increase productivity in an organization's management, sales staff and administrative staff. The Versatile Organization is comprised of six distinct components, each of which stands on its own as a complete course. These components are:

1—The Versatile Organization
This component addresses the issue of overall organization versatility and how each individual in a company has a stake in and contributes to that. It is in fact, a cultural intervention designed to strengthen an organization at every level.

2—Managing
3—Selling
4—Supervising
5—Servicing Customers
6—Relating Professionally

The other five components facilitate applications of this principle in each of their respective areas. Of particular is Relating Professionally, which addresses a problem that is especially prominent in the burgeoning high-tech field that is, empowering people with extremely specialized skills to better relate to each other professionally more efficiently and with less stress.

The course contains a common core of three generic modules with the beginning and ending modules tailored to the specific concerns of each discipline: Selling, Managing, and Administration. Each discipline offers between 8 to 12 hours of instruction.

Hardware requirements IBM/Online; Sony View; AT&T; InfoWindow; NCR.

Programmed CAV
Software: Provided
Wilson Learning Corporation
Prices:
$10,000 for the first discipline
$5,000 for each additional discipline

CAREER COUNSELING

COLLEGE U.S.A.

This series of discs offer college-bound students a close-up view of campus life at colleges across the country. Special segments focus on career opportunities in specific fields. Career videos include:

Agriculture
This six-minute video explores the diversified, high tech and scientific nature of agriculture today. It is pointed out that 90 percent of jobs in agriculture today are off the farm in scientific research, mathematics, computing, engineering, marketing, manufacturing and a host of other specialties.

Architecture
This six-minute video encourages students to explore the challenges, rewards and practical aspects of the academic preparation for and working as an architect. This segment was sponsored by the National Architectural Accrediting Board, American Institute of Architects, American Institute of Architectural Students, Association of Collegiate Schools of Architecture, National Council of Architectural Registra-
tion Boards and the National Institute of Architectural Education.

Engineering

The seven-minute video explores the highly technological and innovative nature of engineering today including applications in medicine, fiber optics, computers and more. This segment was co-produced by the Institute of Electrical and Electronics Engineering.

High Technology

This two-minute video stresses options in chemistry, biology, computer programming and electronic engineering as well as environmental and civil engineering. This segment was produced by the U.S. Army Reserve Officer Training Corps.

Nursing

This two-minute video encourages students to consider the specialized training and financial assistance available while earning a bachelor’s degree, as well as career opportunities in the Army or National Guard as nurse/officer after graduation. This segment was produced by the U.S. Army Reserve Officer Training Corps.

ROTC Scholarships

This video focuses entirely on the financial aid aspects of the Army ROTC and outlines the details of student funding for tuition, books, fees and a monthly subsistence allowance in addition to a commission as an officer in the Army or National Guard after graduation. This segment was produced by the U.S. Army Reserve Officer Training Corps.

Teaching

This five-minute video features Ed Asner and Alex Haley recalling the impact that teachers had on their lives and high school graduates discussing what made teachers stand out. The video looks at the changes in the teaching profession and explores teaching as an attractive career choice, especially in the fields of computers, science and mathematics. This segment was produced by the American Federation of Teachers.

In the college segments, students will experience the unique personality of each college campus as the camera leads them on a tour of classrooms, labs, libraries and student unions. They'll hear insightful comments from students, professors and administrators and find answers to their key questions about colleges and careers. In addition to campus tours, each college profile includes up-to-date information about Admission Requirements, Tuition, Majors Offered, Class Sizes, Ratios of Students to Faculty, and Financial Aid.

The College U.S.A. system includes:
- A laser videodisc system
- An unlimited supply of postage-paid student response cards that make it easy to request information from any college in the U.S.A.
- Posters promoting College U.S.A. to the students
- Free hardware maintenance, with 48 hour replacement

Interactive CAV
Software: None available
Info-Disc Corporation
Price: $375.00 per year

DISCOVER for Microcomputers

This program has been created as a service of the American College Testing Program (ACT). The Discover program furnishes occupational and educational information, as well as the most comprehensive guidance component available with a computer-based occupational information resource. Students can complete the entire program in about two hours, or they can use it for a much shorter period of time, concentrating on areas of the program that supply specific information to satisfy their current needs. Discover can store information from a student’s use of a program.

This means that, over a period of time, individuals can review and update their self-information, preferred colleges, and occupations of interest. The four major components of the program include:

Learning About Yourself
This area contains three assessment tools to help a student focus on the future. Included are the 90-item UNIACT Interest Inventory, a Self-Rating of Abilities and a Values Inventory.

Searching For Occupations
This component will take the information from the last section, or will accept input from the following interest inventories: Strong-Campbell Interest Inventory, Ohio Vocational Interest Survey I or II, or Kuder Form E. Aptitude test scores are accepted from Career Planning Program, Differential Aptitude Tests, General Aptitude Test Battery, and Armed Services Vocational Aptitude Battery.

Learning About Occupations
The student may either browse the list of appropriate occupations or receive detailed information on occupations of interest. More than 12,000 occupations are listed under 23 job families and 12 map regions.

Educational Information
This section contains information on about 1,800 four-year colleges, 1,500 two-year colleges, and 1,000.
graduate schools that are updated annually. The student may search the schools by any number of criteria including majors available, cost range, size, geographic location, minority representation, and sex ratio to name a few.

**Necessary Hardware**
Apple II or Ile computer (128K), two floppy disk drives, one 10 Mb CORVUS hard disk (Omni Drive), parallel printer, and a Pioneer LD-V6000 videodisc player, or IBM-PC (not AT) computer (128K), one floppy disk drive, RGB monitor, CGA card, 10 Mb hard disk, parallel printer, and a LD-V6000 videodisc player.

**Programmed CAV**
Software: Provided DISCOVER Center
*Price*: $1,950.00

**Pathfinder—A Career Decision Process**
This is a videodisc program that interprets the results of the Strong-Campbell Interest Inventory and then guides participants through a four-step career decision-making process.

Step one helps the user understand how patterns of interest can form the foundation of a satisfying career.

Step two helps the user identify a wide variety of specific occupations that could match his or her interests. The Strong-Campbell's 106 occupational scales are expanded with 750 related occupations, with easy reference to an additional 20,000 occupations in the Dictionary of Occupational Titles.

Step three allows the user to evaluate and select the most realistic occupational choices, based on such "real world" criteria as educational requirements, actual job duties, and long-term job potential.

Step Four motivates and assists the user in developing the action steps needed to pursue his or her career plan.

Print materials include a 32-page Career Guide for the user, an Instructional Manual for the counselor and a Reference Library containing the Dictionary of Occupational Titles, the Occupational Outlook Handbook, and the User's Guide to the SVIB-SCII.

Pioneer LD-V6000 videodisc player is needed for the level 2 program on the disc.

**World of Work**
The U.S. Department of Education contracted for the production of two prime time programs entitled "Is Technology Stealing Your Job" and "Where Will You Work Tomorrow?"

Two more programs were produced as an interactive disc with the titles "Guide to Tomorrow's Jobs" and "The Hidden Job and How to Find It." The programs are closed captioned for the hearing impaired.

The target audiences for the lessons consists of decision-makers, high school counselors, students seeking information about high-technology careers, and workers who want to make mid-career changes and need to learn new skills.

The programs provide a timely overview of the following concepts:
- How the world of work has changed and its effect on both skilled and unskilled labor.
- Impacts on the job market caused by new, high-technology, especially in computers, communications technology, information sciences, and robotics on the job market.
- The need for solid basic skills (reading, written and oral communications, and mathematics) as a continuing prerequisite for a meaningful job and career advancement.
- The role of technical, trade and continuing education.

The third and fourth titles have programming available and require a Sony LDf videodisc player and a Sony SMC-70 personal computer.

Interactive/ (Third & Fourth Titles are Programmed)
Software: level 1 and 3 GPN
*Price*: $100.00 per set of three discs

**COMPUTER SCIENCE**

**Computer Literacy—Disc 1**
This is a two disc computer literacy course with 12 to 15 hours of instruction. The course can be used with the IBM-PC or Apple computer systems. Online testing and record keeping are available. Software can be altered with the Disc Writer authoring language. An online index and glossary, as well as test questions are provided.

**Side 1**
**Hardware**
Videodisc operating instructions
Microcomputer overview
History of computers
Primary and secondary storage
Printers
Common peripherals
Input devices
Processing

Side 2
Software
Introduction to software
Applications programs
Word processing
Electronic spreadsheet
Database management
Business graphics
Advanced topics
*Programming
*Operating systems
*Boolean logic

Programmed CAV
Software: written for IBM or Apple J.A.M., Inc.
Price: $2,995.00 for set of 2 discs, software, & manual

**Computer Literacy—Disc 2**
This is a two disc computer literacy course with 12 to 15 hours of instruction. The course can be used with the IBM-PC or Apple computer systems. Online testing and record keeping are available. Software can be altered with the Disc Writer authoring language. An online index and glossary, as well as test questions are provided.

Side 3
Telecommunications
Introduction to telecommunications
Modems
Telecommunications software
Local area networks
Consumer information databases
Videodisc/Videotext

**Side 4**
New Technologies
Industrial robotics
CAD/CAM
Optical storage
Integrated software

Programmed CAV
Software: written for IBM or Apple J.A.M., Inc.
Price: $2,995.00 for set of 2 discs, software, & manual

**dBASE III**
A four to six hour course on using dBASE III. Content includes creating database files, adding and changing information, performing time saving searches, retrievals and arithmetic calculations, extracting selected data and printing reports.

**Necessary Hardware**
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

**DisplayWrite III**
A six to eight hour course on the techniques of word processing and how they may be applied through IBM's DisplayWrite word processing program. Content includes DisplayWrite III's structure, creating a document, revising and printing a document, creating a longer document, advanced editing techniques, formatting text, verifying spelling, displaying a directory, and using document utilities.

**Necessary Hardware**
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

**dBASE II**
A three to six hour course in the fundamentals of data base management using dBase II. Content includes creating and changing files, addition and deletion of records, sorting, renaming and copying files, numerous math computations, and printing reports.

**Necessary Hardware**
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software:Provided Comsell, Inc.
Price: $1,995.00

**DL/I Programming**
A program which introduces the concept of hierarchical data base structure and the rules by which the DL/I data base is accessed. The major components of the DL/I programming environment are examined, including the DBD, P3B, PCB, SSA, and the EN-
TRY and CALL statements. The course also details the configuration of a DL/I application program for the purpose of accessing a database sequentially and directly. The following nine units are covered:

1—The Database Structure
2—Navigating the Hierarchy
3—LD/I Components and Program Construction
4—Sequential Access
5—Direct Access
6—Boolean Logic and Command Codes
7—Modification Function Codes
8—Path Calls
9—PCB Components and Advanced Processing Techniques

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

IMS/VS Data Communications Programming
This program examines the basic concepts of IMS-DC structure and functions, along with IMS terminology, effective on-line development, and such extended features as conversational processing.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

IMS Physical Design
This is an example-driven discussion of how best to organize data into an IMS database which optimizes both function and performance.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

Introduction to Data Communications Networks
This is an integrated series of modules providing an in-depth introduction to the techniques of modern data communications. The modules show realistic, everyday examples of data communications usage appropriate for both beginning and advanced students. Each module package includes: one videodisc, one lesson diskette, course administrator's guide, and student handouts. The modules include:

1—Basic Elements in Data Communications
2—Hardware and Software Components in Data Communications Systems
3—Binary Numbering System and Interchange Codes
4—Data Transmission Concepts and Telephone Lines
5—DTE DCE Interface and RS 232 C
6—Basic Concepts in Data Link Control
7—Start Stop Data Link Control

Necessary Hardware
IBM-PC computer, Pioneer LD V1000 videodisc player, Visual Database Systems videoswitch, or the Sony View System.

Programmed CAV
Software: Provided TCT Technical Training, Inc.
Price: $5,000.00 for complete course or $950.00 per module

Introduction to the IBM-PC
Two to four hours of fundamentals on the IBM-PC and PC compatibles. Content includes internal and external operations, keys and function keys, formatting and copying diskettes, the operating system, and files and file structure.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

Logical Data Base Design
This program is an example-driven discussion of how best to organize data into an optimally structured Logical Data Model. Using relational concepts and techniques within a structured methodology, the course covers the major phases of the design. These phases are:

• Data Analysis
• Data Normalization
• Construction of the Conceptual Data Model
Mapping of the Conceptual Data Model
Hierarchical
Network
Inverted File
Relational

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

Lotus 1-2-3
Eight to twelve hours of spreadsheet fundamentals. Content includes startup, spreadsheet setup, data entry and edits, mathematical computations, and macros.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

Lotus 1-2-3
Eight to twelve hours of spreadsheet fundamentals. Content includes startup, spreadsheet setup, data entry and edits, mathematical computations, and macros.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,995.00

MS-DOS/PC-DOS
Six to eight hours of the basics in MS-DOS/PC-DOS. Content includes basic commands, hierarchical directories, batch files, and advanced operating techniques.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

Multimate
A six to eight hour course on the fundamentals of word processing using MultiMate. Content includes startup, entry, edit, save and print options, rearranging text, form letters, math computations, and spelling checks.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

MVS/XA: Concepts and Facilities
This disc presents the theoretical foundation of the MVS/XA operating system as well as an in-depth examination of the facilities available through MVS/XA.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,995.00

MVS/XA: Production JCL
Examined are the advanced JCL techniques used to perform scheduled work in a production environment. It introduces the techniques used to code and invoke cataloged procedures and explains how to alter parameters on EXEC and DD statements in cataloged procedures. The course describes the techniques used to refine output and improve job control, defines CVOL's and VSAM catalogs, and describes the use of Generation Data Groups. The last unit identifies common JCL errors and describes how to resolve them.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00
MVS/XA: TSO/E
This is a four-unit course that covers the TSO/E facilities needed to develop programs interactively. The course presents the concepts of TSO/E and an overview of its commands and subcommands.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

MVS/XA: VSAM and Basic AMS
This course provides a general overview of VSAM with the integrated catalog facility (ICF), and introduces the AMS commands. It defines VSAM data sets and provides instruction on building alternate indexes for VSAM data sets.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

MVS/XA: VSAM Programming
This disc covers the statements necessary to define and access VSAM data sets from a COBOL program.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

PC Mentor—The PC Series
This is one part of a four-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc. The course is designed to teach an adult how to use the personal computer. Each lesson can take from twenty minutes to three hours. The package includes a videodisc and a floppy diskette.

With PC Mentor, the user learns basic computer concepts such as the input-processing-output cycle, frequently used hardware and software jargon, the function of the operating system and what the cursor is and how to control it.

Necessary Hardware
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech’s IVC1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Necessary Hardware
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech’s IVC1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided Health EduTech, Inc.
Price: $990.00 ($3,960.00 for all four courses)

Keyboard Concepts and Computer Control—The PC Series
This is one part of a four-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc. The course is designed to teach an adult how to use the personal computer. Each lesson can take from twenty minutes to three hours. The package includes a videodisc and a floppy diskette.

With Keyboard Concepts and Computer Control, the user learns the numeric keypad, the alphanumerics, the control keys and the function keys. The user also composes and edits text with the PC keyboard.

Necessary Hardware
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech’s IVC1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided Health EduTech, Inc.
Price: $990.00 ($3,960.00 for all four courses)

Disks, Drives and DOS—The PC Series
This is one part of a four-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc. The course is designed to teach an adult how to use the personal computer. Each lesson can
take from twenty minutes to three hours. The package includes a videodisc and a floppy diskette.

With Disks, Drives and DOS, the user learns how to format, copy and care for diskettes, how to copy files and how to use the disk operating system (DOS). The DOS section teaches functions such as changing disk drives, renaming and erasing files and moving from the DOS level to the BASIC level.

**Necessary Hardware**
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 12710, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)—NCR system with Pioneer LD-V1000 videodisc player.

**Programmed CAV**
Software: Provided Health EduTech. Inc.
*Price:* $990.00 ($3,960.00 for all four courses)

**Sets Interactive Personal Computing Course**
This is a 15 unit course in personal computing. A placement test allows a student to enter the course at the appropriate level: A typical unit consists of four activities: Reading the worktext, working on the interactive system, practicing at the computer, and...Getting instructional support, management, and validation. Each unit is an hour of instruction. The package is available in English or Spanish versions, and includes four laserdiscs, four courseware diskettes, a practice application diskette, a placement test diskette, a worktext, and an instructor's manual. The course content includes:

- **Unit 1:** Introduction to the Personal Computer System
- **Unit 2:** Input Devices
- **Unit 3:** Output Devices
- **Unit 4:** Memory and Processing
- **Unit 5:** Storage
- **Unit 6:** Disk Operating Systems
- **Unit 7:** DOS Commands
- **Unit 8:** Word Processing
- **Unit 9:** Data Base Management Systems
- **Unit 10:** Spreadsheets
- **Unit 11:** Graphics
- **Unit 12:** Programming in BASIC, Part I
- **Unit 13:** Programming in BASIC, Part II
- **Unit 14:** Communications
- **Unit 15:** Choosing a Personal Computing System

**Necessary Hardware**
IBM-PC computer, VAL overlay card (modified), Sony LDP-2000 videodisc player; or a Sony View System; or an IBM Infowindow System.

**Programmed CAV**
Software: Provided Synergistic Educational Technology Systems, Inc.
*Price:* $3,595.00 (English version) $3,975.00 (Spanish version)

**Lotus 1-2-3 Mentor I—The Software Series**
This is part one of a three-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc. The course is designed to teach an adult how to use the personal computer. The package includes a videodisc, a user's guide and a floppy diskette.
Lotus 1-2-3 Mentor I introduces the purpose and function of Lotus 1-2-3 via simulation. This course teaches the applications of Lotus 1-2-3, its screen components, the basic menu and command structure. All basic operations of Lotus 1-2-3 are practiced from designing spreadsheets to printing reports.

This course allows users to repeat or skip course sections, request assistance or return to the Main Menu at any point in the course and as often as necessary. Assistance provided to the user includes various combinations of audio help, computer text and video instruction.

**Necessary Hardware**
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adapter, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

**Programmed CAV**
Software: Course software provided. LOTUS 1-2-3 not provided. Health EduTech, Inc.
Price: $990.00 ($2,970.00 for all three courses)

Lotus 1-2-3 Mentor III—The Software Series
This is part three of a three-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc. The course is designed to teach an adult how to use the personal computer. The package includes a videodisc, a user's guide and a floppy diskette.

Lotus 1-2-3 Mentor III provides active instruction for Graphing, Data Management, and Programming of Lotus 1-2-3 while using the actual software. This course utilizes the DATA command to SORT data on a spreadsheet, and the QUERY command to FIND a specific word, phrase or number, and print a report. The GRAPH command is used to convert a spreadsheet to a bar graph, line graph or pie chart.

Users also learn to automate a series of commands by writing a MACRO so the commands can be executed by a single keystroke.

**Necessary Hardware**
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adapter, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

**Programmed CAV**
Software: Course software provided. LOTUS 1-2-3 not provided. Health EduTech, Inc.
Price: $990.00 ($2,970.00 for all three courses)

Symphony
A six to eight hour overview of this extremely versatile integrated software package. The lessons lead to
the production of a document utilizing the four integration applications. Side one emphasizes the spreadsheet utility of Symphony and side two looks at its word processing, data base, and graphics functions.

**Necessary Hardware**
Comsell Learning Center, Sony View System, or IBM InfoWindow.

**Programmed CAV**
Software: Provided Interactive Training Systems, Inc.
Price: $1,995.00

**Thinking: PC'S—Database**
This course consists of two videodiscs designed to provide flexible training in the usage and application of microcomputer database software. Particular focus is made on dBase III and Rbase 5000.

**Necessary Hardware**
Sony View System

**Programmed CAV**
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

**Thinking: PC'S—Spreadsheets**
Spreadsheets is comprised of two videodiscs, designed to provide personal computer users with a highly flexible training program in spreadsheet usage and application. The course features four viewing modes, each of which provides a different level of information. The course includes substantial simulation of Lotus 1-2-3 and or MULTIPLAN.

**Necessary Hardware**
Sony View System

**Programmed CAV**
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

**Vision—UNIX Interactive Video Training**
A complete course with a curriculum that consists of three courses and thirty-seven individual units. The program takes students from basic UNIX commands to a complete understanding of "C" language. The programs also provide for immediate feedback to monitor each student's progress. Student handbooks are included.

**Necessary Hardware**
Sony View System

**Programmed CAV**
Software: Provided Interactive Training Systems, Inc.
Price: $703.00

**WordPerfect**
A six to eight hour course on word processing and how it is applied through this popular and versatile word processing software. Content includes creating a document, revising and printing a document, creating an extended document, paginating and editing, formatting text, verifying spelling and using additional WordPerfect utilities.

**Necessary Hardware**
Comsell Learning Center, Sony View System, or IBM InfoWindow.

**Programmed CAV**
Software: Provided Comsell, Inc.
Price: $1,995.00

**WordStar**
Ten to twelve hours in the fundamentals of word processing using WordStar. Content includes installing WordStar, startup, menu structure, entering and editing text, moving blocks, formatting, finding and replacing blocks, reformatting, using special printing effects, and dot commands for special effects.

**Necessary Hardware**
Comsell Learning Center, Sony View System, or IBM InfoWindow.

**Programmed CAV**
Software: Provided Comsell, Inc.
Price: $1,995.00

**The World of dBASE**
The program was written by Wayne Ratliff who invented the dBase language for computers, and Robert Byer who has written several books on the subject of dBase.

Linear CLV
Software—None available
LDC America
Price: $34.95
DANCE—BALLET

Giselle
The Kirov Ballet with Galina Mezentseva and Konstantin Zaklinsky. Viktor Fedotov conducting. (Stereo version.)
LDC America. Catalog No.
Linear CLV
$34.95

Don Quixote
The American Ballet Theatre at the Metropolitan Opera House with Mikhail Baryshnikov.
LDC America. Catalog No.
Linear CLV
$34.95

La Fille Mal Gardée
The Royal Ballet at Covent Garden. Frederick Ashton, choreographer. 100 minutes.
LDC America. Catalog No. PA-81-007
Linear CLV
$34.95

Manon
LDC America. Catalog No. PA-83-047
Linear CLV
$34.95

Nutcracker
American Ballet Theatre; with the National Philharmonic conducted by Kenneth Schermerhorn. Mikhail Baryshnikov, Gelsey Kirkland, and Alexander Minz. 79 minutes.
LDC America. Catalog No. PA-82-032
Linear CLV
$34.95

Sleeping Beauty
LDC America. Catalog No. PA-83-055
Linear CLV
$39.95

Spartacus
Choreographed by Yuri Grigorovich and conducted by Alygis Zhyuratris featuring dancers Erek Mukhamedov, Mikhail Gabovich, Natalia Bessmertnova and Maria Bylova.
LDC America. Catalog No.
Linear CLV
$39.95

Swan Lake
LDC America. Catalog No. PA-82-018
Linear CLV
$39.95

DANCE—BALLET COLLECTIONS
American Ballet Theatre at the Met
This disc includes Les Sylphides, Paquita, Triad, and Sylvia-Pas de Deux.
LDC America. Catalog No.
Linear CLV
$34.95

DANCE—INSTRUCTION
Belly Dancing, You Can Do It
This series of programs instructs you on how to become an accomplished belly dancer. Each lesson is
progressively more difficult and includes reviews of previous lessons. Dual audio capabilities of the laser-disc system are used with this disc. Belly rolls, flutters, and the shimmy are included in the instruction.

Interactive CAV
Software: None available
LDC America, Catalog No. 37-602
Price: $29.95

DANCE—POPULAR
Pe'er Allen & The Rockettes at Radio City Music Hall
This disc was recorded live at the Radio City Music Hall. 57 minutes, 1981.

LDC America, Catalog No. 74-016
Linear CLV
Price: $24.95

Kids from Fame, Live at the Royal Albert Hall
Featuring Debbie Allen and Gene Anthony Ray. This disc includes We Got The Power..., Life Is A Celebration and Fame. 75 minutes, 1983.

LDC America, Catalog No. ML100205
Linear CLV
Price: $34.95

ECONOMICS
Introduction to Economics
This package is designed to be a seven week self-instruction course in economics geared for 8th grade students through the adult learner. A student manual is included to reinforce concepts and ideas through written exercises while serving as a reference for study and review. Included in the package price are nine Apple II diskettes and teacher manual.

Side One
How to use the Equipment
Pretest
Resources
Wants and Needs
Scarcity
Resource Allocation
Choices: Influences of Values
Choices: Society's Goals
Social Goals & Trade-offs
Decision making: A Process

Making Economic Decisions: A Case Study
Post-test

Side Two
Pretest
Economic Systems
Circular Flow: Household and Business
Circular Flow: Government
Households
Factors of Production
Business Organizations
Government in the Economy Money
Banking
The Federal Reserve
Summary
Post-test

Hardware Requirements
Apple II with 48K, two disk drives, two monitors (computer monitor and TV monitor), & a Pioneer VP-1000 videodisc player or a Pioneer LD V 6000 series player (serial interface card required).

Programmed CAV
Software: Provided for Apple II (nine diskettes)
MECC
Price: $249.00 for videodisc, nine diskettes and support manual for use with the LD-V6000 (No. 5105) $149.00 for videodisc, nine diskettes and support manual for use with the VP-1000 (No. 5101) $9.00 for student manual

The Joy of Stocks— Forbes Guide to the Stock Market
This disc offers step by step lessons in how to invest wisely in stocks. Topics include evaluating stocks' safety and growth potential and anticipating market shifts. 1984, 104 minutes.

Linear CLV
Software: None available
LDC America, Catalog No. ML100332
Price: $34.95

EDUCATION
Classroom Discipline: A Simulation Approach
This double-sided disc provides an introduction to six heuristic principles of classroom management and their application. The principles are fairness, consistency, firmness, courtesy & dignity, flexibility and humor. Feedback is provided at the end of each scenario with regard to the paths chosen. After the
introduction, the students are asked to deal with the following four problems in classroom management:
- A student comes in late
- A student refuses to pick up some paper
- A student is doing homework for another class
- A class refuses to settle down

In each case, the student must decide on his or her approach to the video situation from a menu of representative choices. Each choice leads to a video outcome and usually an additional series of alternatives and video outcomes.

**Required Hardware**
Sony LDP-1000A videodisc player

**Programmed CAV**
Software: Level two encoded on the disc University of Alberta
*Price: $250.00*

**Improving Teacher Effectiveness An Interactive Videodisc MiniCourse**
This miniCourse is designed to be a teacher-training workshop on videodisc. The package provides teachers with self-paced instruction and can serve as the basis for a group workshop. The goal is to make teachers more aware of the basic principles of effective teaching. Among the concepts covered are teaching to the objective, encouraging student participation, and increasing intent to learn. A videodisc, Apple diskette, and support manual are included.

**Required Hardware**
An Apple IIe computer with two disk drives, a serial interface card and a Pioneer LD-V6000 series videodisc player are required.

**Programmed CAV**
Software: Provided on Apple IIe diskette MECC
*Price: $249.00* (No. 5401)

**ELEMENTARY EDUCATION**

**The First National Kidisc**
This disc was nominated for a grammy because of its originality. Content includes 26 chapters of instruction for kids of all ages and allows for a high level of interaction.

*Chapters include:
1—Choosing Sides
2—Paper Flying Machines

3—The Flag Game
4—Sign Language
5—Terry Teaches the Jig
6—Movie Magic Flip Book
7—Flying
8—The Kidisc Target Game
9—Knot Tying
10—Three Card Monty
11—A Trip to the Zoo
12—Cat's Cradle
13—101 Jokes & Riddles
14—Waterglass Xylophone
15—Pig Latin
16—The Dinosaur Game
17—The Performing Paperclips
18—The Origame Crane
19—Terry Teaches Rock Dancing
20—A Trip to Universal Studios
21—The Secret Code Maker
22—The Kidisc Bar Game
23—The Amazing Rope Trick
24—Puzzlers
25—Athletes In Motion
26—Closing

**Interactive CAV**
Software: None available LDC America
*Price: $19.95*

**Fun and Games**
This is a two sided sequel to the popular Kidisc Instructional games, activities can be as interactive as necessary. The content is listed by chapter below.

**Chapters—Side 1**
1—Choosing Up Sides
2—Tongue Twister
3—Monster Match
4—Flying Discs
5—Piñata Party
6—Journey of the Circle
7—Hand Shadows
8—Fun With Meadowlark
9—Marbles
10—Discomobile
11—Puppets
12—Tongue Twister
13—Card Shuffles
14—Close Up
15—Stunts
16—Charades
17—Tongue Twister
18—Hopscotch
19—Index, Side 1

**Fun and Games—Side 2**
1—Choosing Sides
2—Paper Flying Machines
3—The Flag Game
4—Sign Language
5—Terry Teaches the Jig
6—Movie Magic Flip Book
7—Flying
8—The Kidisc Target Game
9—Knot Tying
10—Three Card Monty
11—A Trip to the Zoo
12—Cat's Cradle
13—101 Jokes & Riddles
14—Waterglass Xylophone
15—Pig Latin
16—The Dinosaur Game
17—The Performing Paperclips
18—The Origame Crane
19—Terry Teaches Rock Dancing
20—A Trip to Universal Studios
21—The Secret Code Maker
22—The Kidisc Bar Game
23—The Amazing Rope Trick
24—Puzzlers
25—Athletes In Motion
26—Closing

**Interactive CAV**
Software: None available LDC America
*Price: $19.95*
ELEMENTARY EDUCATION—CHILDREN'S FILMS

Alice In Wonderland
The Animated Disney version of the Lewis Carroll story. 1951. 75 minutes.
LDC America, Catalog No. 42036AS
Linear CLV
Price: $34.95

Beauty and the Beast
Susan Sarandon, Klaus Kinski. This version is part of the Faerie Tale Theatre series. 1983. closed captions.
LDC America, Catalog No. 6395
Linear CLV
Price: $29.98

The Boy Who Left Home To Find Out About The Shivers
Dana Hill, Christopher Lee, Frank Zappa. This is a program in the Faerie Tale Theatre series about a boy that wants to learn about fear. 1983. closed captions.
LDC America, Catalog No. 6393-80
Linear CLV
Price: $29.98

Dumbo
The Disney animated classic about the elephant with oversized ears. 1951. 63 minutes.
LDC America, Catalog No. 42024AS
Linear CLV
Price: $34.95

Dunder Klumpen
Animated/live-action disc about the 2-foot tall Dunder Klumpen who steals a young girl's dolls and brings them to life because he is lonely. 1979. 85 minutes.
LDC America, Catalog No. VL3012
Linear CLV
Price: $34.95

Interactive Videodiscs

Interactive CAV
Software: None available LDC America
Price: $29.95

Villa Alegre (Happy Village)
This videodisc series is the Emmy Award-winning public television show put into an interactive format by the Nebraska Videodisc Design Production group and the U.S. Department of Education. Ten 30 minute programs are contained on 5 discs. The educational content is in the form of entertaining situations, stories, games, music, dance and visual techniques. For students ages 5 to 8.

This series comes with four diskettes for use with a microcomputer. Suggested hardware is as follows:
Disc Player—Magnavision 8010, Pioneer VP 1000 or LD 1100
Microcomputer—Apple II + (3.3 DOS) or TRS-80 III
Videodisc Interface—
VMI (for Apple computers)
Allen Communications
Disc Master 1000 (for TRS computers)
New Media Graphics

Programmed CAV
Software: Written for S-80 III & Apple II + GPN
Price: $595.00 for 5 disc series, manual & software.
Fraggle Songs Volume One
This disc features the Muppets singing many of their hit songs. 1983, 51 minutes.
LDC America, Catalog No. 810AS
Linear CLV
Price: $24.95

The Frog Prince
Kermit stars in the Muppet's version of the classic fairy tale. 1971, 50 minutes.
LDC America, Catalog No. 42805AS
Linear CLV
Price: $24.95

Goldilocks And The Three Bears
Tatum O'Neal, Alex Karras, Carole King. This disc, from the Faerie Tale Theatre series, brings the classic fairy tale to life. 1983, closed captions.
LDC America, Catalog No. 6368-80
Linear CLV
Price: $29.98

Gulliver's Travels
This is an animated version of the Jonathan Swift novel about Gulliver and the war between Lilliput and Bifieiscu. 1977, 74 minutes.
LDC America, Catalog No. VL2011
Linear CLV
Price: $34.95

Hansel & Gretel
Ricky Schroder, Joan Collins. This disc is in the Faerie Tale Theatre series. 1982, closed captions.
LDC America, Catalog No. 6409-80
Linear CLV
Price: $29.98

Hey, Cinderella
The Muppets are featured with Pat Galloway and Joyce Gordon. Lively songs and Muppet creatures give a new look to the classic tale. 1970, 54 minutes.

Jack and the Beanstalk
LDC America, Catalog No. 6369-80
Linear CLV
Price: $29.98

Little Red Riding Hood
LDC America, Catalog No. 6398-80
Linear CLV
Price: $29.98

The Nightingale
Mick Jagger, Barbara Hershey. This version is part of the Faerie Tale Theatre series. 1983, closed captions.
LDC America, Catalog No. 6392
Linear CLV
Price: $29.98

Pinocchio
James Coburn, Carl Reiner. This version is part of the Faerie Tale Theatre series. 1983, closed captions.
LDC America, Catalog No. 6390-80
Linear CLV
Price: $29.98

The Princess and the Pea
Liza Minnelli, Tom Conti, Beatrice Straight. This is the Faerie Tale Theatre version of the classic tale.
LDC America, Catalog No.
Linear CLV
Price: $29.98

Interactive Videodiscs
Rapunzel
Shelly Duvall, Jeff Bridges, Gena Rowlands. This is a modernized version of the classic tale by the Faerie Tale Theatre. 1983, closed captions.

LDC America, Catalog No. 6370-80
Linear CLV
Price: $29.98

Rumpelstiltskin
Ned Beatty, Shelly Duvall. This is a feature from the Faerie Tale Theatre. 1984, closed captions.

LDC America, Catalog No. 6391-80
Linear CLV
Price: $29.98

Sleeping Beauty
Christopher Reeve, Bernadette Peters, Beverly D'Angelo. A modern day version of the classic tale by the Faerie Tale Theatre. 1983, closed captions.

LDC America, Catalog No. 6371-80
Linear CLV
Price: $29.98

Sleeping Beauty
This disc is the animated Disney version of the tale of the beautiful princess under a spell of a wicked witch. 75 minutes.

LDC America, Catalog No. 476AS
Linear CLV
Price: $34.95

Snow White and the Seven Dwarfs
Elizabeth McGovern, Vanessa Redgrave, Rev. Smith. This is a feature from the Faerie Tale Theatre.

LDC America, Catalog No. 6392
Linear CLV
Price: $29.98

Tale of the Frog Prince
Robin Williams, Teri Garr. This disc is another story in the Faerie Tale Theatre series. 1983.

LDC America, Catalog No. 6372-80
Linear CLV
Price: $29.98

Thumbelina
Carrie Fisher, Burgess Meredith, William Katt. This disc is part of the Faerie Tale Theatre series. 1983, closed captions.

LDC America, Catalog No. 6396
Linear CLV
Price: $29.98

Velveteen Rabbit
This disc is a musical adaptation of the Margery Williams children's fable, starring Marie Osmond.

LDC America, Catalog No. 57
Linear CLV
Price: $29.98

Winnie The Pooh
This disc is Disney's version of the A.A. Milne classic story of Winnie the Pooh. The voices of Sterling Holloway and Paul Williams are used as Winnie the Pooh and Tigger. 1977, 74 minutes.

LDC America, Catalog No. 25AS
Linear CLV
Price: $34.95

The Wizard of Oz
Aileen Quinn, Lorne Green. Animated version of the classic story of Dorothy's travels through Oz. 1983, 78 minutes.

LDC America, Catalog No. LV2322
Linear CLV
Price: $29.95

FILM STUDIES

The Adventures of Robin Hood
Errol Flynn, Olivia de Havilland, Claude Rains, Basil Rathbone, Alan Hale. Directed by Michael Curtiz. 1938, 102 minutes.
<table>
<thead>
<tr>
<th>Movie Title</th>
<th>Director</th>
<th>Length</th>
<th>Year</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>African Queen</td>
<td>John Huston</td>
<td>105 min</td>
<td>1951</td>
<td>$34.98</td>
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<tr>
<td>All the King's Men</td>
<td>Robert Rossen</td>
<td>109 min</td>
<td>1941</td>
<td>$29.95</td>
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<tr>
<td>Anatomy of a Murder</td>
<td>Otto Preminger</td>
<td>161 min</td>
<td>1959</td>
<td>$34.95</td>
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<tr>
<td>Animal Crackers</td>
<td>Victor Heerman</td>
<td>97 min</td>
<td>1930</td>
<td>$29.95</td>
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<tr>
<td>Arsenic and Old Lace</td>
<td>Frank Capra</td>
<td>118 min</td>
<td>1944</td>
<td>$39.95</td>
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<tr>
<td>The Awful Truth</td>
<td>Leo McCarey</td>
<td>90 min</td>
<td>1937</td>
<td>$34.98</td>
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<tr>
<td>Ball of Fire</td>
<td>Howard Hawks</td>
<td>117 min</td>
<td>1942</td>
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<td>The Bank Dick</td>
<td>Edward Cline</td>
<td>73 min</td>
<td>1940</td>
<td>$29.95</td>
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<tr>
<td>Barefoot in the Park</td>
<td>Gene Saks</td>
<td>106 min</td>
<td>1967</td>
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<tr>
<td>Ben Hur</td>
<td>William Wyler</td>
<td>212 min</td>
<td>1959</td>
<td>$39.95</td>
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<tr>
<td>Best Years of our Lives</td>
<td>William Wyler</td>
<td>182 min</td>
<td>1946</td>
<td>$34.98</td>
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</tbody>
</table>
The Big Sleep
Humphrey Bogart, Lauren Bacall, Martha Vickers, Elisha Cook Jr., Dorothy Malone. Directed by Howard Hawks. 1946. 114 minutes. B&W.

The Birds
Rod Taylor, Tippi Hedren, Jessica Tandy, Suzanne Pleshette, Ethel Griffies. Directed by Alfred Hitchcock.

The Black Cat
Boris Karloff, Bela Lugosi. Directed by Edgar G. Ulmer. 1941. 65 minutes. B&W.

Bridge On the River Kwai

Buck Privates
Bud Abbott, Lou Costello, Lee Bowman, Andrews Sisters, F.D. Roosevelt. 1941. 84 minutes. B&W.

The Caine Mutiny

Casablanca

Cat on a Hot Tin Roof

Citizen Kane
Orson Welles, Joseph Cotton, Everett Sloane, Dorothy Comingore, Ray Collins, Agnes Moorehead. Directed by Orson Wells. 1941. 119 minutes. Includes a visual essay of over 100 photos, many never published before, and a rarely seen 3-minute trailer made by Wells from original footage not contained in the film itself.

Cool Hand Luke
A Day at the Races
The Marx Brothers, Margaret Dumont, Alan Jones, Maureen O'Sullivan. 1937. 89 minutes. B&W.

LDC America, Catalog No. ML100064
Linear CLV
Price: $25.95

Dinner at Eight
Marie Dressler, John Barrymore, Jean Harlow. Directed by George Cukor. 1933. 111 minutes. B&W.

LDC America, Catalog No. ML100533
Linear CLV
Price: $34.95

Dodge City
Errol Flynn, Olivia de Havilland. Directed by Michael Curtiz. 1939. 104 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.98

Dodsworth
Walter Huston, Maria Ouspenskaya, Mary Astor, David Niven, Paul Lukas. Directed by William Wyler. 1936. 101 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Dr. Strangelove

LDC America, Catalog No. VLD3134
Linear CLV
Price: $29.95

Dr. Zhivago

LDC America, Catalog No.
Linear CLV
Price: $39.98

Duck Soup
The Marx brothers. Side 2 is in the CAV format with the original theatrical trailer following the movie. 1933. 70 minutes. B&W.

LDC America, Catalog No.
Linear CLV, Side 1
Interactive CAV, Side 2
Price: $29.98

East of Eden
James Dean, Richard Davalos, Julie Harris, Raymond Massey, Jo Van Fleet, Albert Dekker, Burl Ives. Directed by Elia Kazan. 1955. 115 minutes.

LDC America, Catalog No.
Linear CLV
Price: $54.95

Easy Rider
Peter Fonda, Dennis Hopper, Jack Nicholson, Warren Black. Directed by Dennis Hopper. 1969. 88 minutes.

LDC America, Catalog No. VLD3140
Linear CLV
Price: $29.95

Exodus

LDC America, Catalog No.
Linear CLV
Price: $39.98

Flight of the Phoenix

LDC America, Catalog No.
Linear CLV
Price: $39.98
<table>
<thead>
<tr>
<th>Title</th>
<th>Actor(s)</th>
<th>Director(s)</th>
<th>Year</th>
<th>Duration</th>
<th>Format</th>
<th>Catalog No.</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>Flying Leathernecks</td>
<td>John Wayne, Robert Ryan</td>
<td>Directed by Nicholas Ray</td>
<td>1951</td>
<td>102 minutes</td>
<td>Linear CLV</td>
<td>LDC America, Catalog No.</td>
<td>$29.95</td>
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<tr>
<td>Fort Apache</td>
<td>Henry Fonda, John Wayne, Shirley Temple, John Agar, Anna Lee, and Bond, Victor McEaglen</td>
<td>Directed by John Ford</td>
<td>1948</td>
<td>127 minutes</td>
<td>B&amp;W</td>
<td>LDC America, Catalog No.</td>
<td>$26.95</td>
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<tr>
<td>Frankenstein</td>
<td>Boris Karloff, Colin Clive, Mae Clarke, John Boles, Dwight Frye, Edward van Sloan, Lionel Belmore</td>
<td>Directed by James Whale</td>
<td>1931</td>
<td>71 minutes</td>
<td>B&amp;W</td>
<td>LDC America, Catalog No.</td>
<td>$29.98</td>
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<tr>
<td>French Connection</td>
<td>Gene Hackman, Fernando Rey, Roy Scheider, Tony LoBianco, Marcel Bozzufi</td>
<td>Directed by William Friedkin</td>
<td>1971</td>
<td>104 minutes</td>
<td>Linear CLV</td>
<td>LDC America, Catalog No.</td>
<td>$29.98</td>
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<tr>
<td>Funny Face</td>
<td>Audrey Hepburn, Fred Astaire, Kay Thompson</td>
<td>Directed by Stanley Donnen</td>
<td>1956</td>
<td>103 minutes</td>
<td>Linear CLV</td>
<td>LDC America, Catalog No.</td>
<td>$29.95</td>
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<tr>
<td>Gaslight</td>
<td>Ingrid Bergman, Charles Boyer, Joseph Cotton, Angela Lansbury</td>
<td>Directed by George Cukor</td>
<td>1944</td>
<td>114 minutes</td>
<td>B&amp;W</td>
<td>LDC America, Catalog No.</td>
<td>$34.95</td>
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<tr>
<td>Gentleman Jim</td>
<td>Errol Flynn, Alexis Smith, Jack Carson</td>
<td>Directed by Raoul Walsh</td>
<td>1942</td>
<td>104 minutes</td>
<td>B&amp;W</td>
<td>LDC America, Catalog No.</td>
<td>$34.98</td>
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<tr>
<td>Giant</td>
<td>James Dean, Elizabeth Taylor, Rock Hudson, Carol Baker, Jane Withers, Chill Wills, Mercedes McCambridge, Sal Mineo</td>
<td>Directed by George Stevens</td>
<td>1956</td>
<td>197 minutes</td>
<td>Linear CLV</td>
<td>LDC America, Catalog No.</td>
<td>$39.95</td>
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<tr>
<td>The Glenn Miller Story</td>
<td>Jimmy Stewart, June Allyson, Louis Armstrong, Gene Krupa, Frances Langford, the Modernaires</td>
<td>Directed by Anthony Mann</td>
<td>1953</td>
<td>116 minutes</td>
<td>Linear CLV</td>
<td>LDC America, Catalog No.</td>
<td>$34.98</td>
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<td>Going My Way</td>
<td>Bing Crosby, Barry Fitzgerald, Rise Stevens, Jean Heather, Frank McHugh</td>
<td>Directed by Leo McCarey</td>
<td>1944</td>
<td>126 minutes</td>
<td>B&amp;W</td>
<td>LDC America, Catalog No.</td>
<td>$39.98</td>
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<td>Gone With The Wind</td>
<td>Vivien Leigh, Clark Gable, Olivia de Havilland, Leslie Howard, McDaniel and Butterfly McQueen, Directed by Victor Fleming</td>
<td></td>
<td>1939</td>
<td>220 minutes</td>
<td>Linear CLV</td>
<td>LDC America, Catalog No.</td>
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<td>Title</td>
<td>Cast</td>
<td>Directed by</td>
<td>Year</td>
<td>Duration</td>
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<tr>
<td>Goodbye Columbus</td>
<td>Richard Benjamin, Jack Klugman, Ali MacGraw, Nan Martin</td>
<td>Larry Pierce</td>
<td>1969</td>
<td></td>
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<tr>
<td>The Graduate</td>
<td>Anne Bancroft, Dustin Hoffman, Katharine Ross</td>
<td>Mike Nichols</td>
<td>1967</td>
<td>106 minutes</td>
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<td>Grand Hotel</td>
<td>Greta Garbo, John Barrymore, Lionel Barrymore, Joan Crawford, Wallis Beery, Jean Hersholt, Lewis Stone</td>
<td>Edmund Goulding</td>
<td>1933</td>
<td>112 minutes</td>
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<tr>
<td>The Greatest Show on Earth</td>
<td>Betty Hutton, Cornel Wilde, Charlton Heston, James Stewart, Dorothy Lamour</td>
<td>Cecil B. de Mille</td>
<td>1952</td>
<td>149 minutes</td>
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<td>Guess Who's Coming to Dinner</td>
<td>Katherine Hepburn, Spencer Tracy, Katherine Houghton, Sidney Poitier</td>
<td>Stanley Kramer</td>
<td>1967</td>
<td>112 minutes</td>
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<td>Gunga Din</td>
<td>Cary Grant, Douglas Fairbanks, Jr., Victor McLaglen, Joan Fontaine, Sam Jaffe, Sam Jaffe</td>
<td>George Stevens</td>
<td>1939</td>
<td>117 minutes</td>
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<td>High Noon</td>
<td>Gary Cooper, Grace Kelly, Lloyd Bridges</td>
<td>Fred Zinnemann</td>
<td>1952</td>
<td>85 minutes</td>
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<td>High Sierra</td>
<td>Humphrey Bogart, Ida Lupino, Cornel Wilde, Arthur Kennedy, Joan Leslie, Alan Curtis</td>
<td>Raoul Walsh</td>
<td>1940</td>
<td>140 minutes</td>
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<tr>
<td>High Society</td>
<td>Bing Crosby, Frank Sinatra, Grace Kelly, Celeste Holm</td>
<td>Charles Walters</td>
<td>1956</td>
<td>107 minutes</td>
<td></td>
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<tr>
<td>How The West Was Won</td>
<td>Henry Fonda, Spencer Tracy, John Wayne</td>
<td>John Ford</td>
<td>1962</td>
<td>165 minutes</td>
<td></td>
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<tr>
<td>Hud</td>
<td>Paul Newman, Patricia Neal, Melvyn Douglas, Brandon De Wilde</td>
<td>Martin Ritt</td>
<td>1962</td>
<td>112 minutes</td>
<td></td>
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</tbody>
</table>

Interactive Videodiscs 75
**I Married A Witch**
Fredric March, Veronica Lake, Susan Hayward. Directed by Rene Clair. 1942. 77 minutes. B&W.

**Inherit the Wind**

**Invasion of the Body Snatchers**
Kevin McCarthy, Dana Wynter. Directed by Don Siegel. 1956. 80 minutes.

**It Happened One Night**
Clark Gable, Claudette Colbert. Directed by Frank Capra. 1934.

**It's A Wonderful Life**

**Jezebel**
Bette Davis, Henry Fonda, George Brent, Fay Bainter. Directed by William Wyler. 1939. 103 minutes. B&W.

**Joan of Arc**

**Key Largo**

**Kid From Brooklyn**
Cooper. 1933, 101 minutes. Included is a running commentary by Ronald Haver on audio track two and a visual essay on the making of King Kong.

Voyager Press. Catalog No.
Interactive CAV
Price: $74.95

Knock on Any Door
Humphrey Bogart, John Derek, Allene Rogers, Susan Perry. Directed by Nicholas Ray. 1949, 100 minutes. B&W.

LDC America. Catalog No.
Linear CLV
Price: $34.95

Lady from Shanghai
Rita Hayworth, Everett Sloane. Directed by Orson Wells. 1948, 87 minutes. B&W.

LDC America. Catalog No.
Linear CLV
Price: $39.95

The Lady Vanishes

Voyager Press. Catalog No.
Linear CLV
Price: $39.95

Lawrence of Arabia
Peter O'Toole, Alec Guinness, Anthony Quinn, Omar Sharif, Jack Hawkins, Claude Rains, Anthony Quayle, Arthur Kennedy, John Astley. Directed by David Lean. 1962, 222 minutes.

LDC America. Catalog No. VLD3250
Linear CLV
Price: $39.95

The Lion In Winter
Peter O'Toole, Katherine Hepburn, Jane Merrow, Timothy Dalton, Anthony Hopkins, Nigel Stock. Directed by Anthony Harvey. 1968, 135 minutes.

LDC America. Catalog No.
Linear CLV
Price: $34.95

The Little Foxes

LDC America. Catalog No.
Linear CLV
Price: $34.95

The Little Princess

LDC America. Catalog No.
Linear CLV
Price: $34.95

Lola Montes
Martine Carol, Peter Ustinov. Directed by Max Ophuls. 1955, 140 minutes. Original widescreen format with English subtitles.

Voyager Press. Catalog No.
Interactive CAV
Price: $59.95

"M"

LDC America. Catalog No.
Linear CLV
Price: $34.95

Macbeth

LDC America. Catalog No.
Linear CLV
Price: $35.95
The Magnificent Ambersons
Tim Holt, Anne Baxter, Joseph Cotton, Agnes Moorehead. Directed by Orson Welles. 1942. 88 minutes. This version features a commentary on audio track 2. Orson Welles' complete shooting script, the complete storyboards and the entire radio play (in audio) by Welles' Mercury Theatre Group.

Voyager Press, Catalog No.
Interactive CAV
Price: $99.95

Maltese Falcon
Humphrey Bogart, Sydney Greenstreet, Mary Astor, Peter Lorre, Gladys George, Barton MacLane. Directed by John Huston. 1941. 101 minutes. B&W.

LDC America, Catalog No. 4530-80
Linear CLV
Price: $34.98

A Man for All Seasons

LDC America, Catalog No. LVD3332
Linear CLV
Price: $34.95

The Man Who Knew Too Much
James Stewart, Doris Day, Brenda DeBanzie, Carolyn Jones, Bernard Miles, Ralph Truman. Directed by Alfred Hitchcock. 1956. 120 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.98

M*A*S*H

LDC America, Catalog No. 1038-80
Linear CLV
Price: $39.98

Mr. Smith Goes to Washington
James Stewart, Jean Arthur, Claude Rains, Edward Arnold, Guy Kibbee, Thomas Mitchell, Beulah Bondi, Jack Carson. Directed by Frank Capra. 1939. 120 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Moby Dick

LDC America, Catalog No.
Linear CLV
Price: $34.98

Mutiny on the Bounty
Charles Laughton, Clark Gable, Franchot Tone, Herbert Mundin, Eddie Quillan, Dudley Diggs, Donald Crisp. Directed by Frank Lloyd. 1935. 132 minutes. B&W.

LDC America, Catalog No. ML10450
Linear CLV
Price: $39.95

Ninotchka

LDC America. Catalog No. ML100115
Linear CLV
Price: $34.95
North by Northwest
Cary Grant, Eva Marie-Saint, James Mason, Leo G. Carroll. Directed by Alfred Hitchcock. 1959. 136 minutes.
LDC America, Catalog No. MI100104
Linear CLV
Price: $39.95

Notorious
Cary Grant, Ingrid Bergman, Claude Raines, Louis Calhern, Madame Konstantin. Directed by Alfred Hitchcock. 1946. 103 minutes. B&W.
LDC America, Catalog No. 8011-80
Linear CLV
Price: $29.98

One Flew Over the Cuckoo's Nest
LDC America, Catalog No.
Linear CLV
Price: $44.95

On the Waterfront
LDC America, Catalog No.
Linear CLV
Price: $20.95

Patton
LDC America, Catalog No. 1005-80
Linear CLV
Price: $49.98

The Picture of Dorian Gray
Hurd Hatfield, George Sanders, Donna Reed, Angela Lansbury. Directed by Albert Lewin. 1945. 111 minutes. B&W.

A Place in the Sun
LDC America, Catalog No. LV5815
Linear CLV
Price: $35.95

The Pride of the Yankees
LDC America, Catalog No. 7145-80
Linear CLV
Price: $34.98

The Private Life of Henry VIII
Charles Laughton. Directed by Alexander Korda. 1933. 97 minutes. B&W.
LDC America, Catalog No.
Linear CLV
Price: $34.95

The Producers
LDC America, Catalog No. 4058-80
Linear CLV
Price: $29.98

The Raven
LDC America, Catalog No. 40386
Linear CLV
Price: $29.98
Rear Window
LDC America, Catalog No. Linear CLV
Price: $29.98

Rebel Without a Cause
LDC America, Catalog No. 1011LV Linear CLV
Price: $34.98

Roman Holiday
Gregory Peck, Audrey Hepburn, Eddie Albert, Tullio Carminati. Directed by William Wyler. 1953, 118 minutes, B&W.
LDC America, Catalog No. LV674 Linear CLV
Price: $29.95

Romeo and Juliet
LDC America, Catalog No. LV6809 Linear CLV
Price: $35.95

Rope
James Stewart, John Dall, Farley Granger. Directed by Alfred Hitchcock. 1948, 81 minutes.
LDC America, Catalog No. Linear CLV
Price: $34.98

Samson and Delilah
LDC America, Catalog No. LV6726 Linear CLV
Price: $35.98

San Francisco
Jeanette MacDonald, Clark Gable, Spencer Tracy. Directed by W.S. Van Dyke. 1935, 116 minutes, B&W.
LDC America, Catalog No. ME300474 Linear CLV
Price: $34.95

Sherlock Holmes and the Secret Weapon
Basil Rathbone, Nigel Bruce. 1942, B&W.
LDC America, Catalog No. Linear CLV
Price: $34.95

She Wore A Yellow Ribbon
LDC America, Catalog No. Linear CLV
Price: $29.95

Ship of Fools
LDC America, Catalog No. Linear CLV
Price: $34.95

Rose Marie
Jeanette MacDonald. Nelson Eddy. Directed by W.S. Van Dyke. 1936, 113 minutes, B&W.

Some Like It Hot

LDC America, Catalog No. 4577-80
Linear CLV
Price: $39.98

A Streetcar Named Desire

LDC America, Catalog No. 4571-80
Linear CLV
Price: $34.98

Strike Up the Band

LDC America, Catalog No. ML100566
Linear CLV
Price: $34.95

Suddenly Last Summer

LDC America, Catalog No. VL95560
Linear CLV
Price: $29.95

Summertime

LDC America, Catalog No.
Linear CLV
Price: $34.95

Sunset Boulevard

LDC America, Catalog No. LV4927
Linear CLV
Price: $29.95

Taming of the Shrew

LDC America, Catalog No.
Linear CLV
Price: $29.95

The Ten Commandments

LDC America, Catalog No. LV6524
Linear CLV
Price: $39.95

The Thin Man

LDC America, Catalog No.
Linear CLV
Price: $34.95

The Third Man

Voyager Press, Catalog No.
Linear CLV
Price: $39.95

The 39 Steps
Robert Donat, Madeleine Carroll, Lucie Mannheim, Directed by Alfred Hitchcock. 1934, 80 minutes. B&W.
Voyager Press, Catalog No. Linear CLV
Price: $39.95

Catch a Thief
Tony Grant, Grace Kelly, Jessie Royce Landis. Directed by Alfred Hitchcock. 1955. 103 minutes.

LDC America, Catalog No. LV 6308
Linear CLV
Price: $29.95

Tom Jones

LDC America, Catalog No. 4511-80
Linear CLV
Price: $34.98

Treasure of Sierra Madre
Humphrey Bogart, Walter Huston, Tim Holt, Bruce Bennett, Barton MacLane. Directed by John Huston. 1948. 126 minutes. B&W.

LDC America, Catalog No. 4639-80
Linear CLV
Price: $34.98

The Trouble with Harry

LDC America, Catalog No. Linear CLV
Price: $34.98

20,000 Leagues Under the Sea

LDC America, Catalog No. 42112A5
Linear CLV
Price: $34.95

2001, A Space Odyssey

LDC America, Catalog No. ML100002
Linear CLV
Price: $39.95

Vertigo
James Stewart, Kim Novak. Directed by Alfred Hitchcock. 1958. 128 minutes

LDC America, Catalog No. 40082
Linear CLV
Price: $39.98

War and Peace

LDC America, Catalog No.
Linear CLV
Price: $39.93

War of the Worlds

LDC America, Catalog No. LV5303
Linear CLV
Price: $29.95

We're No Angels

LDC America, Catalog No. LV5414
Linear CLV
Price: $29.95

The Westerner
White Christmas
Bing Crosby, Danny Kaye, Rosemary Clooney, Vera-Ellen. Directed by Michael Curtiz. 1944. 120 minutes. Digital Sound.

LDC America. Catalog No. LV6104
Linear CLV
Price: $39.95

The Wild One

LDC America. Catalog No. LV6104
Linear CLV
Price: $29.95

The Women
Norma Shearer, Joan Crawford, Rosalind Russell, Joan Fontaine, Paulette Goddard. Directed by George Cukor. 1939. 133 minutes. B&W.

LDC America. Catalog No. ML100506
Linear CLV
Price: $39.95

Wuthering Heights

LDC America. Catalog No.
Linear CLV
Price: $34.95

The Wizard of Oz

LDC America. Catalog No. ML100001
Linear CLV
Price: $44.95
**HEALTH INSTRUCTION**

**AIDS**
This is an adult education and orientation program which incorporates self-paced training and information about Acquired Immune Deficiency Syndrome (AIDS). The program is designed to provide instruction that is confidential and tailored to the individual's needs. Three branches address the specific needs of the homosexual population, the heterosexual population and the bisexual population. The package includes the videodisc and 50 AIDS information pamphlets. The contents of the course include:

- Description
- Treatment
- Symptoms
- Transmission
- Diagnosis
- Prevention
- Complications
- Implications for Lifestyle Changes

**Required Hardware**
Pioneer LD-V6010 videodisc player.

**Programmed CAV Software:** Digital dump on disc (level 2)

**Price:** $995.00

**Sexually Transmitted Diseases**
This course on Sexually Transmitted Diseases is designed for use in the classroom or for individualized use for young adults and the general adult population. Included in the package are one two-sided videodisc, STD Teacher's Guide, and 30 Student Pamphlets. Content includes:

- STD Introduction/Overview
- What it is
- Symptoms
- Transmission
- Diagnosis
- Treatment
- Lifestyle and Prevention
- Eight Specific STD
  - Herpes
  - Syphilis
  - Vaginitis
  - Gonorrhea
  - Chlamydia
  - Genital Warts
  - Hepatitis
  - AIDS

**Required Hardware**
Pioneer LD-V6010 videodisc player.

**Programmed CAV Software:** Digital dump on disc (level 2)

**Price:** $995.00

**The Way We Live**
Up to fifteen viewers control an interactive exhibit, choosing one of four characters as a surrogate. The story branches according to the character chosen and other health-related choices made via a computer-linked voting system. The object is to make choices that will offer the best lifestyle for a longer lifespan. The majority vote is the deciding factor. In deciding whether their character should go to work by car, bicycle, or bus, for example, a vote for the bus increases life expectancy because accidents are less common in buses than cars or on bicycles.

**Hardware Requirements**
Pioneer PR-8210 videodisc player, Atari 800 system with 48K, 810 interface, disk drive, and 850 nocs one large screen color monitor and two smaller monitors for data and voting display.

**Optional Hardware**
Extra input keypads for the "Computer Tally" system are available for $150.00 each. (Five are supplied with the basic package).

**Programmed CAV Software:** Atari written in Forth

**Price:** $5.00

**HEALTH SAFETY**

**Back Safety—Health Care Orientation Series**
This is one part of a four-part Health Care series by Health EduTech, Inc. This course is bilingual, (English and Spanish) and is geared to wide range of primary and secondary audiences. Primary audiences include: health care professionals, health care paraprofessionals, and health care support personnel. Secondary audiences include; housekeeping employees, food service employees, office personnel, patient care personnel, and maintenance personnel. The course meets the JCAH criteria. The package includes: a videodisc, 30 student pamphlets, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Content areas include:

- How the back works
- Proper back care
- Good lifting techniques
- Caring for your back
- Exercising your back

**Necessary Hardware**
Level 2—Pioneer LD-V6010 videodisc player.

**Level 5 (IBM)—IBM-PC or compatible (256K or 384K) with two disk drives, color-graphics adaptor with 25-pin con-
Electrical Safety — Health Care Orientation Series
This is one part of a four-part Health Care series by Health EduTech, Inc. This course is bilingual (English and Spanish) and is geared to health care audiences. Audiences include: health care professionals, health care paraprofessionals, and health care support personnel. The course meets the JCAH criteria. The package includes a videodisc, 30 student pamphlets, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Content areas include:
- Basic terminology
- Hospital electrical system
- Dangers
- Grounding
- Patient vicinity
- Electrical safety
- Emergency procedures

Necessary Hardware
Level 2 — Pioneer LD-V6010 videodisc player.
Level 3 (IBM) — IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony) — The Sony View System with 512K memory.
Level 3 (NCR) — NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $995.00 ($3,495.00 for all four courses)

Infection Control — Health Care Orientation Series
This is one part of a four-part Health Care series by Health EduTech, Inc. This course is bilingual (English and Spanish) and is geared primarily to health care audiences. Audiences include: health care professionals, health care paraprofessionals, and health care support personnel. Other audiences include; nursing employees, housekeeping employees, and food service employees. The course meets the JCAH criteria. The package includes a videodisc, 30 student pamphlets, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Content areas include:
- The chain of infection
- How infection is transmitted
- How to isolate an infection

Necessary Hardware
Level 2 — Pioneer LD-V6010 videodisc player.
Level 3 (IBM) — IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony) — The Sony View System with 512K memory.
Level 3 (NCR) — NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $995.00 ($3,495.00 for all four courses)
Proper handwashing
Immuni-tation
Good health habits

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (255K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech’s IVC-1 interface cable, and a monitor with 15: 3C/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $995.00 ($3,495.00 for all four courses)

Business/Industry—Health Hazards in the Workplace
This is one part of a five-part Health Hazard series by Health EduTech, Inc. This course is geared to a wide variety of audiences. Each target audience is grouped with similar occupations on a separate disc. This disc is a general course on the hazards in business and industry. The course can be used by business and industry to avoid the high cost of non-compliance. The package includes a videodisc, 50 user pamphlets, and 50 certificates of training. The system is for a level 2 program. Content areas include:
- Introduction
- Definition and examples of 14 hazardous substance categories
- Definition and examples of 14 harmful physical agents
- Definition and examples of 5 modes of injury
- Material Safety Data Sheet (MSDS)
- Engineering controls
- Protective clothing and equipment
- Infectious agents

Necessary Hardware
Pioneer LD-V6010 videodisc player.

Programmed CAV
Software: level 2 digital dump on disc.
Health EduTech, Inc.
Price: $1,995.00

Hospitality—Health Hazards in the Workplace
This is one part of a five-part Health Hazard series by Health EduTech, Inc. This course is geared to a wide variety of audiences. Each target audience is grouped with similar occupations on a separate disc. This disc is a course specific to the hazards in the hospitality area. Specific employee target groups include: administration, bartenders, servers, guest service employees, cooking, food preparation, kitchen, cleaning employees, engineering, building maintenance employees, housekeeping employees, laundry, valet employees, office employees, stewarding, dishwashing employees. The course can be used by the hospitality industry to avoid the high cost of non-compliance. The package includes a videodisc, 50 user pamphlets, and 50 certificates of training. The system is for a level 2 program. Content areas include:
- Introduction
- Definition and examples of 14 hazardous substance categories
- Definition and examples of 14 harmful physical agents
- Definition and examples of 5 modes of injury
- Material Safety Data Sheet (MSDS)
- Engineering controls
- Protective clothing and equipment
- Infectious agents

Education—Health Hazards in the Workplace
This is one part of a five-part Health Hazard series by Health EduTech, Inc. This course is geared to a wide variety of audiences. Each target audience is grouped with similar occupations on a separate disc. This disc is a course specific to the hazards in the education area. Specific employee target groups include: administration, art teachers, auto mechanics teachers, building & grounds employees, custodial employees, food service employees, graphic arts & photography teachers, metal shop teachers, office & clerical employees, science teachers, transportation employees, and wood shop teachers. The course can be used by education to avoid the high cost of non-compliance. The package includes a videodisc, 50 user pamphlets, and 50 certificates of training. The
system is for a level 2 program. Content areas include:
- Introduction
- Definition and examples of 14 hazardous substance categories
- Definition and examples of 4 harmful physical agents
- Definition and examples of 5 modes of injury
- Material Safety Data Sheet (MSDS)
- Engineering controls
- Protective clothing and equipment
- Infectious agents

**Necessary Hardware**
Pioneer LD-V6010 videodisc player.

**Programmed CAV**
Software: level 2 digital dump on disc.
Health EduTech, Inc.
*Price: $1,990.00*

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**Health Care—Health Hazards in the Workplace**

This is one part of a five-part Health Hazard series by Health EduTech, Inc. This course is geared to a wide variety of audiences. Each target audience is grouped with similar occupations on a separate disc. This disc is a course specific to the hazards in the health care area. Specific employee target groups include: administration, engineering and maintenance employees, food service employees, housekeeping and custodial employees, laboratory employees, laundry employees, office and clerical employees, operating room employees, patient care professionals, radiation employees, and central sterile supply employees. The course can be used by the health care industry to avoid the high cost of non-compliance. The package includes a videodisc, 50 user pamphlets, and 50 certificates of training. The system is for a level 2 program. Content areas include:
- Introduction
- Definition and examples of 14 hazardous substance categories
- Definition and examples of 4 harmful physical agents
- Definition and examples of 5 modes of injury
- Material Safety Data Sheet (MSDS)
- Engineering controls
- Protective clothing and equipment
- Infectious agents

**Necessary Hardware**
Pioneer LD-V6010 videodisc player.

**Programmed CAV**
Software: level 2 digital dump on disc.
Health EduTech, Inc.
*Price: $1,990.00*

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**Government—Health Hazards in the Workplace**

This is one part of a five-part Health Hazard series by Health EduTech, Inc. This course is geared to a wide variety of audiences. Each target audience is grouped with similar occupations on a separate disc. This disc is a course specific to the hazards in government jobs. Specific employee target groups include: street maintenance employees, parks and recreation employees, sewer department employees, water treatment and distribution employees, law enforcement employees, fire department employees, health department employees, equipment and vehicular maintenance employees, painter and carpenter employees, electrician and plumber employees, custodial employees, general office employees, and supervisory employees. The course can be used by government to avoid the high cost of non-compliance. The package includes a videodisc, 50 user pamphlets, and 50 certificates of training. The system is for a level 2 program. Content areas include:
- Introduction
- Definition and examples of 14 hazardous substance categories
- Definition and examples of 4 harmful physical agents
- Definition and examples of 5 modes of injury
- Material Safety Data Sheet (MSDS)
- Engineering controls
- Protective clothing and equipment
- Infectious agents

**Necessary Hardware**
Pioneer LD-V6010 videodisc player.

**Programmed CAV**
Software: level 2 digital dump on disc.
Health EduTech, Inc.
*Price: $1,990.00*

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**HISTORY**

**America and the World Since World War II**

This is a collection of major world events using ABC news footage with Peter Jennings.

- Volume 1, 1945-1952
- Volume 2, 1953-1960
- Volume 3, 1961-1975
- Volume 4, 1976-1985

**Linear CLV**
Software: None available
LDC America
*Price: $26.95 per volume*
The History Disquiz
This disc is a one hour program that will test ones knowledge of 20th century history. Film clips of such events as the Beatles invasion, the first moon landing and the explosion of the Hindenberg are followed by questions. Score points as you follow the action. Steve Allen is the host for the program. The History Disquiz covers a wide range of topics including politics, entertainment, science, international affairs, trends, and sports to name a few.

Interactive CAV
Software: None available
LDC America
Price: $29.95

Mein Kampf
Documentary of World War II using footage from original sources including previously untapped German archives. The disc looks at the rise and fall of German fascism. 117 minutes, 1960. B&W

Linear CLV
Software: None available
LDC America
Price: $34.95

The Statue of Liberty
A 1986 Academy Award Nominee with facts and legends surrounding the Statue of Liberty.

Linear CLV
Software: None available
LDC America
Price: $29.95

Victory at Sea, Volumes 1–18
This television series was produced by NBC TV in 1954. It is a comprehensive visual history of the Allied naval warfare during World War II. The music is an original score by Richard Rodgers and the series is narrated by Alexander Scourby. Black and White.

Disc 1
Volume 1: Design for War: The Battle of the Atlantic 1939–1941
Volume 2: The Pacific Boils Over: Pearl Harbor, December 7, 1941
Volume 3: Sealing the Breach: Anti-Submarine Warfare 1941–1943

Disc 2
Volume 4: Midway Is East: Japanese Victories and the Battle of Midway
Volume 5: Mediterranean Mosaic: Gibraltar, Allied and Enemy Fleets, Malta
Volume 6: Guadalcanal

Disc 3
Volume 7: Rings Around Rabaul
Volume 8: Mare Nostrum
Volume 9: Sea and Sand

Disc 4
Volume 10: Beneath the Southern Cross
Volume 11: Magnetic North
Volume 12: Conquest of Micronesia

Disc 5
Volume 13: Melanesian Nightmare: New Guinea Campaign
Volume 14: Roman Renaissance: Sicily and the Italian Campaign
Volume 15: D-Day: Normandy

Disc 6
Volume 16: Killers and the Killed: Victory in the Atlantic 1943–1945
Volume 17: The Turkey Shoot: Conquest of the Marianas
Volume 18: Two If By Sea: Peleliu and Angaur

Disc 7
Volume 19: The Battle for Leyte Gulf: Destruction of the Japanese fleet
Volume 20: Return of the Allies: Ground fighting in Luzon
Volume 21: Full Fathom Five: Destruction of Japanese Shipping

Disc 8
Volume 22: The Fate of Europe
Volume 23: Target Suribachi
Volume 24: The Road to Mandalay
Disc 9
Volume 25: Suicide for Glory: Conquest of Okinawa
Volume 26: Design for Peace: Hiroshima & the Japanese Surrender

Linear CLV
Software: None available
LDC America
Price: $34.95 per disc

The Video Encyclopedia of the 20th Century
This is an unprecedented collection of actual footage of the significant people and events of the 20th century. Over the past 23 years, CEL has identified and compiled millions of feet of original film and videotape documenting the 20th century. The Video Encyclopedia consists of the most significant 75 hours from the CEL Archive and offers a compelling visual perspective which motivates studying, learning, and understanding the people and the events of the 20th century . . . unlike any other educational resource available today.

A comprehensive alphabetical and chronological index system allows the user easy access to the 2,217 units in the Video Encyclopedia. The purchase price includes 38 videodiscs (in the CLV format), a four-volume Reference Set, three complete sets of the Master Index, an Instructional Manual, a curriculum guide, and a Pioneer LD-V4X,YO videodisc player. A few of the video units include:

- Thomas Edison's early films
- The San Francisco Earthquake
- The Russian Revolution
- The Depression Years
- FDR's "Nothing to Fear" Address
- The rise and fall of Adolph Hitler
- Japan's attack on Pearl Harbor
- Inaugurations of every 20th century president
- Dr. Jonas Salk developing the first polio vaccine
- Dr. Martin Luther King, Jr. leading the march to Montgomery
- Gorbachev succeeding Chernenko in the Soviet Union

Linear CLV
Software: None available
CEL Educational Resources
Price: $10,000.00

Vietnam: The Ten Thousand Day War, Volumes 1-6
This series of documentaries traces the history of the Ten Thousand Day War in Vietnam from the front lines to the home front in six videodiscs. The series is narrated by Richard Basehart and contains one volume per videodisc.

Volume 1: America in Vietnam and Dien Bien Phu
Volume 2: Days of Decision and Uneasy Allies
Volume 3: The Trail and Firepower
Volume 4: A Siege and Frontline America
Volume 5: The Village War and Peace
Volume 6: Surrender and The Unsung Soldiers

Linear CLV
Software: None available
LDC America
Price: $34.95 per volume

HOME ECONOMICS

Helen L. Alien Textile Collection
Helen Louise Alien taught at the University of Wisconsin-Madison from 1927-1968 and amassed an outstanding private textile collection. Miss Alien's collection was a bequest to the University and forms the basis of the current Alien Collection. A narrated video segment presents a short overview of the origin and contents of the Alien Collection.

The videodisc also contains 20,000 full color images of individual objects from ancient to modern times. They include archaeological textiles from the eastern Mediterranean and Pre-Columbian Peru, such as Late Roman (Coptic) tapestry woven roundels and bands, and woven and painted textiles from a Paracas needle-knitted band to a Chimú miniature tunic. Also included are contemporary fiberworks by pioneers in the fiber art movement including Claire Zeisler, Peter Collingwood, Walter Nottingham, and Luba Krecji. Examples of handmade and industrial products include over 3,000 woven objects, plus bobbin and needlemade laces, block-printed yardage, cross-stitch samplers, bark cloth and the work of major textile designers like Jack Lenor Larsen, Dorothy Liebes, Sonia Delaunay, and Alexander Girard.

The disc is designed in a level one format with indexes supplied on the disc for quick and easy access to the images. A printed index accompanies each disc that provides basic information about all objects pictured on the disc fully cross-referenced, a subject index, and an artist/designer index.

Interactive CAV
Software: None available
University of Wisconsin
Price: $250.00 for disc and printed index
HORTICULTURE

Exotic Plants: A Videodisc Compendium
This disc contains over two thousand high quality color photographs of tropical, subtropical and other exotic plants. All of the popular exotic plant families are pictured, many in their natural habitats. The slides are from the personal collection of international horticulturist, photographer, and author Charles Marden itch. Also included on this disc is a film illustrating what many of these plants have in common, the ability to flower. “Why Plants Flower” is a short motion picture based on the time lapse cinematography of Ken Middleham, pioneer in high speed and time lapse photography.

The disc also comes with a User’s Guide that enables quick location of specific information on each plant pictured. The guide contains a Chapter and Frame Index, a section on How to Use the Disc, and Sample Lesson Plans. The disc contents includes:

I. Introduction to Exotic Plants: A Videodisc Compendium
II. Still Frame Exotic Plants Compendium—A Visual Encyclopedia of Exotic Plants
   Taxonomic Groupings: Family and Genus Survey
   Plant Habitats/Botanic Gardens/Common Names
   Popular Groupings
      Bromeliads/Palms/Cacti and other Succulents
      Flowering and Foliage Ornamentals
      Orchids/Gesneriads
   Plant Care/Environmental Considerations
      Light and Temperature Preferences
      Propagation Techniques/Ease of Growth
III. Why Plants Flower: A Time Lapse Motion Picture
   What is a Flower?/Why Are Insects Attracted to Them?
   Where Do Fruits Come From?/What Do Seeds Do?

Interactive CAV (8’)
Software: None available
VT Productions
Price: $230.00

Gardening at Home
This disc provides the fundamentals of gardening for both the beginner and expert gardener. A plant guide includes over 350 plants to help guide the user in their care and growth. The dual audio capabilities of the laserdisc are used for separate audio programs.

Interactive CAV
Software: None available

LDC America, Catalog No. 11-110
Price: $29.95

LANGUAGE

Exploring Language: Thinking, Writing, Communicating
This series of discs is designed to be a lower level Humanities course. The series has a dual purpose: to explore the social, psychological, and political implications of language and to teach the fundamentals of clear, concise writing by providing week-by-week instruction in organizing and writing essays. The composition and language-study parts of this course complement each other.

The composition portion helps to improve a student’s awareness of the language environment. These topics include the structure and function of language, how language is acquired, how language is used for manipulation in politics and advertising, and how it is a medium for sexism and chauvinism. This dual focus helps students to understand and to use language more effectively.

Portions of six texts and a Course Guide are required if the discs are used for credit. Suggested credit value is six semester-hours. Content of the discs are listed below.

Program 1: The Shape of Language
Program 2: Communities of Speech
Program 3: Language, Learning and Children
Program 4: The Rhyme and Reason of Politics
Program 5: The Written Word
Program 6: Men, Women and Language
Program 7: Just Plain English
Program 8: Apes and Language
Program 9: The State of English

Interactive CAV
Software: None available
Maryland Center for Public Broadcasting
Price: $125.00 per disc, or $500.00 for the set. Print materials cost an additional $60.00

LANGUAGE—FOREIGN

The Language Learning Disc
This disc is designed to help foreign language students take charge of their own learning by improving their language skills and by becoming a more active learner. The disc provides opportunities for students to experiment with a wide range of strategies. Specifi-
ically, disc users can expect to derive the following benefits from this instructional material:

- Gain insights into their own learning
- Be able to decide on strategies appropriate to a task and to their own learning purpose
- Use these strategies in a classroom, self-study, and conversation
- Determine the best strategies to improve their memory for language learning
- Learn to transfer relevant knowledge from one language to another
- Learn to use resources wisely

The disc accomplishes this purpose using a wide range of topics (from the reading of an instructional manual to connect a VCR, from listening to news and weather on a radio and T.V., to accomplishing social functions through appropriate language use) and using a wide range of languages (students can work with 20 languages on the disc).

Necessary Hardware
IBM-PC computer with a Microkey 1125 Overlay card, a Sony FVM Series Monitor or compatible, and a Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided
Joan Rubin Associates
Price: $995.00

LEGAL EDUCATION

Evidence Objections
(An interactive videodisc for legal education)
This disc is designed to augment the instruction that a law student receives in an Evidence and Trial Advocacy course. Each student can use the exercise individually or in a team of two to get experience in recognizing when to object and how to argue in support of an objection. The law student will play the role of defense counsel in a criminal trial. All of the other participants are on the videodisc. During the prosecutor's direct examination, improper questions will be asked. The witness will have improper information in some of the answers. The student must interrupt the trial at the proper occasions, otherwise the trial will not stop. After making the objection, the student will have to state the correct reason and the judge will pass a ruling on it. The trial will then resume at the proper point. The computer provides an analysis of the student's performance.

Hardware Requirements
IBM-PC computer and a Pioneer LD-V1000 Laser-disc player

Programmed CAV
Software: Supplied for IBM-PC
Center for Computer-Assisted Legal Instruction
Price: $450.00

MATHEMATICS

Infinity Factory
A series of 20 thirty minute lessons (10 discs) for students between the ages of 8 and 12 to learn math in real life situations. This is geared for students in the Black and Latin communities. All programs are closed-captioned for the hearing-impaired.

Lesson Titles
- Percentages
- Graphs
- Decimal Fractions (1)
- Approximation (1)
- Measurement in Meters (1)
- Angles
- Averages
- Fractions
- Estimation of Length and Quantity
- Estimation of Quantity and Length
- Estimation of Weight and Volume
- Measurement of Volume
- Mapping and Scaling
- Negative Numbers
- Decimal Fractions (2)
- Approximation (2)
- Measurement in Meters (2)
- Measurement of Time
- Multiplication
- Problem-Solving

Linear CAV
Software: None available
GPN
Price: $300.00 for ten discs and manual

Interactive Math Series
This is an interactive videodisc program presented on 21 disc sides. It is geared for courses that cover the specific content, or for adult and remedial courses. The package includes; Six Basic Math videodiscs. 30 Basic Math Learner Guides and Placement Tests, one Basic Math Instructor's Guide, five Applied Algebra discs. 30 Applied Algebra Learner Guides and Placement Tests, one Applied Algebra Instructor's Guide, and one floppy disk per chapter of instruction (with level 3 configuration). Available in a level 2 or level
3 configuration for IBM, Apple Sony or NCR computers. Course chapters include:

**Basic Math Program**

1. Whole Numbers
   - Preview and Self-test
   - Introduction
   - Reading and writing whole numbers
   - Addition and subtraction of whole numbers
   - Multiplication and division of whole numbers
   - Finding averages of whole numbers
   - Practical applications of whole numbers

2. Fractions
   - Preview and Self-test
   - Introduction
   - Definitions of fractions
   - Addition and subtraction of fractions
   - Multiplication and division of fractions
   - Simplifying complex fractions
   - Practical application of fractions

3. Decimals and Decimal Fractions
   - Preview and Self-test
   - Introduction
   - Properties of decimals
   - Changing fractions to decimals and decimals to fractions
   - Rounding decimals
   - Addition and subtraction of decimals
   - Multiplication and division of decimals
   - Practical application of decimals and decimal fractions

4. Percent
   - Preview and Self-test
   - Introduction
   - Properties of percent
   - Changing fractions to percent and percent to fractions
   - Solving basic percents
   - Jacob's law
   - Practical applications of percent

**Applied Algebra Program**

1. Basic Algebra
   - Preview and Self-test
   - Basic properties and definitions of algebra
   - Algebraic signs and symbols
   - Like and unlike terms
   - Positive and negative numbers
   - Addition and subtraction of signed numbers
   - Multiplication and division of signed numbers
   - Removal of signs of grouping
   - Basic operations with exponents

2. Evaluating Algebraic Expressions
   - Preview and Self-test
   - Introduction
   - Evaluating algebraic expressions

3. Solving Simple Equations
   - Preview and Self-test
   - Properties and equations
   - Solving simple equations by addition and subtraction
   - Solving simple equations by multiplication and division
   - Solving simple equations by special operations
   - Solving simple equations by several operations

4. Solving Simple Formulas
   - Preview and Self-test
   - Introduction
   - Solving simple formulas by addition and subtraction
   - Solving simple formulas by multiplication and division
   - Solving simple formulas by special operations
   - Solving simple formulas by several operations

5. Ratio, Proportion and Variation
   - Preview and Self-test
   - Introduction
   - Properties of ratios and simplifying ratios
   - Properties of proportion and solving proportion
   - Practical application of ratio, proportion and variations

**Necessary Hardware**

Level 2—Pioneer LD-V6010 videodisc player.

Level 3 (Apple)—Apple II+ or IIe (64K) computer with one or two disk drives, Pioneer LD-V700 videodisc player, Whitney's Apple SuperCircuit or the Optical Data Corporation VAI-IIe interface, and any NTSC/composi te monitor.

Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).

Level 3 (Sony)—The Sony View System with 512K memory.

Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

**Programmed CAV Software**

Provided either as level 2 or level 3

**Price:** $7,990.00

**Mastering Decimals and Percents**

This is a companion course to Mastering Fractions. The program covers the skills needed for high school
equivalency tests, such as GED. The package includes one two-sided videodisc, instructor’s manual, and 35 student response booklets. This minicourse consists of 15 lessons that include:
- Reading and writing decimals
- Adding and subtracting decimals
- Decimal/fraction/percent conversions
- Decimal division and multiplication
- Rounding
- Word problems involving decimals and percents

Interactive CAV
Software: None available
Systems Impact, Inc.
Price: $600.00

Mastering Fractions
This program takes students through the subject with explanations, guided practice, and independent practice on all requisite skills. The materials include three double-sided videodiscs, a Teacher’s Guide and Student Response Booklet. The 35 lessons covering the core concepts of fractions include:
- Discriminating whether fractions are more than, less than, or equal to one
- “Decoding” fractions so they are understandable on a number line or as diagrams
- Writing whole numbers and other values as fractions
- Generating equivalent fractions
- Ranking fractions by size
- Rewriting whole numbers on number lines as fractions
- Rewriting improper fractions as mixed numbers
- Simplifying fractions
- Multiplying fractions by fractions and whole numbers
- Adding and subtracting fractions with unlike denominators
- Rewriting mixed numbers as fractions
- Dividing fractions

Interactive CAV
Software: None available
Systems Impact, Inc.
Price: $1,800.00

Mastering Ratios
This program builds on the concepts covered in Mastering Fractions and Mastering Decimals and Percents. The material is designed to be used with upper elementary through senior high students providing lesson presentations, quizzes, on-screen teacher prompts, remediation exercises, and frequent cumulative tests. The package includes three two-sided videodiscs, instructor’s manual, and 35 student response booklets. This minicourse consists of 40 lessons that include:
- Relationships between equivalent fractions and ratios
- Estimating the missing part of a ratio
- Translation word problems into ratios
- Solving word problems that include percents and ratios

Interactive CAV
Software: None available
Systems Impact, Inc.
Price: $1,800.00

Math Assessment
This is a bilingual math assessment videodisc for grade levels 1-3. It contains 335 criterion-referenced objectives presented in English or Spanish. Developed through Utah State University’s videodisc research program, the disc can be used with or without an external computer. The package includes:
- Math Assessment Videodisc
- Users manuals
- Record-keeping software
- Support materials

Hardware Requirements
(Optional External Program)
Allen Communications Interface with Apple II or Ile micro, Pioneer PR-7820, PR-8210 or VP-1000 videodisc player.

(Internal Program)
Pioneer PR-7820-3 videodisc player (Epson printer optional)

Programmed CAV
Software: Provided for Apple II or Ile, or encoded on disc
Systems Impact, Inc.
Price: $295.00 with diskettes, $195.00 for encoded disc

Math in Biology
This program combines a videodisc and a microcomputer to provide interactive basic math instruction. The target groups for the instruction are women and minorities who seek a career in the life and health sciences, but have inadequate math skills. It is applicable to others as well. Biology examples are used throughout
Trigland

Trigland is an experimental interactive microcomputer/videodisc course in Trigonometry. It is designed for schools that are unable to offer a conventional trigonometry course. It is intended to be used by small numbers of students, preferably 1 or 2 at a time. It is recommended that a math teacher closely monitor the students' progress, give additional instruction when needed and provide supplemental materials to reinforce the topics discussed in the Trigland Modules. Progress quizzes are provided for each module to help the teacher to determine areas of weakness and strength.

The course consists of one videodisc and sixteen computer diskettes containing twelve modules of instruction. The module topics are:

1. Introduction
2. Concepts of Relation and Function
3. Circular Functions
4. Degrees and Radians
5. Sine and Cosine Functions
6. Tangent and Reciprocal Functions
7. Basic Identities
9. Amplitude, Period, Phase and Vertical Shift and Addition of Ordinates
10. Uniform Circular Motion, Periodic Motion and Simple Harmonic Motion
11. Inverse Functions
12. Solution of Simple Linear and Quadratic Equations Involving Circular Functions, and Equations Containing More Than One Circular Function.

Necessary Hardware

Apple IIe with 64K and two disk drives; a serial interface card; and a Pioneer LD-V6000 series videodisc player are required.

Programmed CAV

Software: Provided for Apple IIe
MECC
Price: $249.00 for videodisc, sixteen Apple diskettes and support manual

MEDICINE—CARDIOLOGY

Dysrhythmia Recognition Course

The purpose of the American Heart Association Dysrhythmia Recognition Course is to maximize competency and skills in recognizing dysrhythmias. It can be used as a constantly available course for training in dysrhythmia recognition as an instructor's aid or within the Advanced Cardiac Life Support Course.

The technology includes a microcomputer interfaced with a videodisc player and an interactive audio cassette player. The Learning System enhances instruction in psychomotor and cognitive skills by using multiple media: video screens and a synchronized audio track. All components combine to assist the student in gaining understanding and mastery of course content with continual audio and visual feedback.

The course consists of a series of lessons which provide the background information necessary for the understanding of dysrhythmia recognition. These sections are designed to cover, augment and expand upon the Advanced Cardiac Life Support Textbook material.

There are practice and testing sections in:

- Static Dysrhythmia Recognition
- Dynamic Dysrhythmia Recognition
- Therapeutic Modalities
With additional components in:

- Static Dysrhythmia strips, for practice and testing, generated randomly from a bank of 10 examples for each dysrhythmia
- On-demand Reference Banks in Pharmacology, Algorithms and Dysrhythmia
- The ability to include or exclude specific lessons, practices or tests
- Recorded test scores for administrative review kep: “on file” in the computer’s memory
- Ungraded content quizzes after each lesson which allow the student to ascertain his or her own retention level

Hardware Requirements

The American Heart Association CPR/ACLS Learning System.

Programmed CAV

Software: Included
Actronics Inc.
Price: $17,000.00 including the AHA CPR/ACLS Learning System; $3,500.00 for software only

The Interactive CPR V4 Courseware

The Interactive CPR V4 Courseware and Learning System were originally developed by the American Heart Association as a means of significantly increasing the number of persons trained in cardiopulmonary resuscitation by providing a high quality, standardized course that does not require an increased number of instructors.
The technology includes a microcomputer interfaced with a videodisc player, an interactive audio cassette player and a CPR manikin wired with a series of electronic sensors. The learning theory is based on the premise that student performance is improved by immediate feedback which can zero in on the student's mistakes as they occur.

As the student interacts with the manikin, the system provides four different types of feedback:
1) audiovisual coaching using videodisc action segments selected by the computer
2) visual display on the computer monitor (indicating, for example, that hand placement is incorrect or depth of compression is too shallow)
3) Audio tones to indicate the proper timing of each compression
4) a graphic summary on the computer monitor which details overall performance

An individual student with some medical background may be able to complete the CPR course in two hours. A group of four students utilizing one system may require as little as four hours to finish the program. Recertification may require less than one hour.

Hardware Requirements
The American Heart Association CPR/ACLS Learning System. An optional Infant Manikin is available for $3,500.00.

Programmed CAV
Software: Included
Actronics Inc.
Price: $22,000.00 including the AHA CPR/ACLS Learning System. $7,500.00 for software only

How Your Heart and Circulatory System Works
This videodisc is designed to teach children 10 to 17 years about the structure of the heart, function of the blood, how to monitor heart rate, take blood pressure and to understand diseases and disorders of the heart and blood vessels. Each disc is accompanied by a 110 page operator's manual. This manual explains how to use the automatic and manual mode to arrange and locate materials. The manual also describes and lists locations of motion scenes, slide and print material for each of the six chapters on the videodisc.

Hardware Requirements
Pioneer PR-7820 or LD-V6000 for programmed use

**MEDICINE—EMERGENCY PROCEDURES**

DxTER—The Clinical Simulator System
This is a series of interactive videodiscs for the nurse or physician in the intensive care or emergency room setting. The user must solve treatment problems and make decisions under the simulated daily pressures of these areas. The medical progress of the patient is depicted "live" on the screen and reinforced by the same visual, verbal and auditory cues the clinician would receive from the patient and other professionals in an actual emergency. The clinicians can generate and respond to clinical physiological and pathological data in order to make treatment decisions. The patient's outcome depends on the decisions the clinician makes.

**Necessary Hardware**
Sony View System

Programmed CAV
Software: Provided
Intelligent Images, Inc.
Price: $750.00

Trauma Training Materials Videodisc
The University of Washington Department of Surgery and the HSCER developed this program of two discs (three sides) that demonstrate basic techniques that must be mastered by a trauma care team working in an emergency room setting. Each side covers two topics including interactive testing segments on each topic. Topics include: Approach to the Critically Injured Patient; Chest Tube Placement; Subclavian Catheterization; Peritoneal Lavage; Venous Cannulation and Arterial Puncture.

**Hardware Requirements**
The Pioneer PR-7820 or LD-V6000 videodisc player is needed for the interactive testing segments. The disc may be used without the testing segments on any laserdisc player.

Programmed CAV
Software: Level 2 testing segments encoded on disc
American Technology Resources
Price: $225.00

**MEDICINE—HEMATOLOGY**

Medical Applications Videodisc: Hematology
A collaborative effort of the American Society of Hematology, the Western University Physical Diagnosis
By referring to the accompanying catalog of the disc contents the user may rapidly and accurately locate any frame of the disc. The disc may be utilized with either a syllabus or an external computer source (microcomputer to full main frame) to develop a variety of computer-assisted lessons, tests or case simulations.

This one-sided videodisc contains:

1. The entire American Society of Hematology morphology collection (approximately 2200 frames)
2. The World Health Organization International Histologic Classification of Tumors (approximately 2500 frames)
3. Selected frames from the Western Universities Physical Diagnosis Slide Bank (approximately 2000 frames)
4. The film “Red Cell Shapes” by Professor Marcel Bessis
5. The short technique video tape “Venipuncture: The Vacutainer System” by Joyce Behrens, M.T. (ASCP)
6. A short demonstration program introducing the applications for the disc

Interactive CAV
Software: None available
American Technology Resources
Price: $250.00 (estimated)

**MEDICINE—NEUROLOGY**

**Assessment of Neuromotor Dysfunctions in Infants**
This program was developed at the University of Iowa by physicians, physical therapists, and computer-assisted instruction specialists. The program was the recipient of the Fred Sage Award in 1983 and the Nebraska Interactive Videodisc Award in 1984 for the best educational project. The program presents visual examples of clinical assessment procedures in a unique format that allows the user to interact with 27 patients videotaped over a five month period. This offers first-hand exercise in the methods employed by professionals who test for neuromotor dysfunction in a self-paced program that is easy for video-computer novices to understand.

A comprehensive introduction reviews factors contributing to abnormal development, clinical clues one may note during routine exam, and questions an examiner should ask every patient. The user then participates in systematic assessment of five parameters of neuromotor function in infants followed by a case study. Each lesson is listed below with an approximate lesson completion time.

- **Introduction** (10-25 minutes)
- **Muscle function** (35-50 minutes)
- **Movement** (20-35 minutes)
- **Reflexes** (30-45 minutes)
- **Structure** (10-15 minutes)
- **Gross motor skills** (30-45 minutes)
- **Case study** (20-35 minutes)

**Hardware Requirements**
An IBM TII System available through Allen Communications, or 128K IBM-PC with one or two disk drives, Allen Communications UVC interface, Pioneer LD-V1000 videodisc player, and separate monitors for videodisc and computer.

Programmed CAV
Software: Provided for IBM-PC
Williams and Wilkins
Price: $850.00

**Disorders of the Nervous System: Motor**
This one-sided disc is a compilation of material from a "visual glossary" collection of neurological dysfunction. Normal and abnormal gaits and reflexes are demonstrated as well as a wide variety of motor signs and disorders. The accompanying catalog allows rapid access for lecture demonstration or self-study as well as the compilation of written or computerized instructional programs.

Interactive Videodiscs
Disorders of the Nervous System: Mentation
This one-sided disc is a compilation of material from a "visual glossary" collection of neurological dysfunction. Six patients are shown who demonstrate a variety of disorders of mentation. The accompanying catalog allows rapid access for lecture demonstration or self-study as well as the compilation of written or computerized instructional programs.

Interactive CAV
Software: American Technology Resources
Price: $175.00

MEDICINE—ORTHOPEDICS
The Active Knee
The Active Knee was created by Dr. Walter A. Hoyt, a leader in orthopedic medicine. Dr. Robert H. Bell, an orthopedic surgeon, Dr. P. Joseph Vertucci, president of The ALIVE Center and leading interactive design specialist, and the staff of The ALIVE Center.

Designed as a modular course, it is geared to non-orthopedic medical professionals, such as emergency physicians, paramedics, coaches and trainers, medical students, and professionals who are continuing their education. The program also has a great value to patients and athletes who run a high risk of knee injury at some time in their career.

The course is a two-sided Level 3 interactive video-disc providing up to 20 hours of instruction with five modules of instruction. Each module is further divided into subtopics. The modules are as follows:

- FUNCTIONAL ANATOMY OF THE KNEE
  Module I presents functional anatomy, addressing bones, major ligaments, main muscle groups, and the specific forces that can damage anatomical structures.
- PRE-SEASON EXAMINATION OF THE KNEE
  Module II covers a systematic process for conducting pre-season screening exams so you can determine which athletes and active people may be predisposed to knee injury.
- PHASE I KNEE EXAMINATIONS
  Module III prepares the examiner to conduct on-site examinations of the knee.
- PHASE II KNEE EXAMINATIONS
  Module IV provides complete procedures necessary to conduct off-site, comprehensive and systematic knee examinations.
- CASE STUDIES
  Module V presents detailed practical applications, using specific case histories.

Hardware Requirements
Visage V: Station 2000 or the IBM InfoWindow (Upgrade kits are available for IBM-PC owners who wish to use their own PC with the system).

Programmed CAV
Software: Provided for IBM and compatibles
The ALIVE Center
Prices:
$2,975.00 for disc, software, student workbook, and instructor's manual
$11,990.00 for complete courseware and hardware
$6,295.00 for hardware upgrade package
$19.95 for additional student workbooks
$22.95 for additional instructor's manuals

MEDICINE—ULTRASONICS
Sight Through Sound—An Interactive Introduction to Medical Diagnostic Ultrasound
This one-sided disc covers the basic concepts and practice of ultrasound from principles of physics to the use of equipment and accurate interpretation of sonographic images. Viewers benefit from an interactive learning games approach providing valuable feedback on short case histories, identification of sonograms for clinical applications, recognizing transducer motion, and more. Viewers can actually manipulate simulated ultrasound scanner controls while watching the results of their actions on the video monitor.

Hardware Requirements
Pioneer PR-7820 or LD-V6000 player needed for interactive program.

Programmed CAV
Software: Level 2 encoded on disc
American Technology Resources
Price: $495.00

MEDICINE—UROLOGY
Urinary Catheterization
This disc demonstrates the correct procedures for all aspects of preparing the equipment and the patient (male and female) for urinary catheterization. The
disc also demonstrates the proper catheterization techniques for both male and female patients. The disc includes both instructional and testing features. The videodisc, including a manual, are available to accredited educational and health care institutions.

**Hardware Requirements**

The system has program dumps on the disc, and is designed to be used with a Sony LDP-1000 videodisc player.

**Programmed CAV**

Software: Level Two program on the videodisc

ACCESS Alberta

*Price*: $225.00 including manual

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**MUSIC—INSTRUCTION**

**Videodisc Music Series, Disc 1**

This four disc series was designed and produced by the University of Delaware under a grant from NEH. Each disc side contains a supporting slide library.

**Side 1. Symphonic and Chamber Music**


- Stereo audio performance
- Two-line score with harmonic reduction & analysis


- Full video performance with stereo sound
- Full score with harmonic analysis
- Melodic contour map

**Side 2. Chamber Music**


- Full video performance with stereo sound
- Performance on period instruments
- Two of Mozart’s cadenzas
- Reduced four-line score

**Interactive CAV**

Software: None available

University of Delaware

*Price*: $295.00 for four discs and Manual

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**Videodisc Music Series, Disc 2**

This four disc series was designed and produced by the University of Delaware under a grant from NEH. Each disc side contains a supporting slide library.

**Side 1. Symphonic Program Music**


- Full video performance with stereo sound
- Reduced Score
- Statements of the Idee Fixe from all movements

Gregorian Chant, “Dies Irae.” Catholic University

- Full video performance with stereo sound
- Rhythmic analysis of the chant statements in the Symphonie Fantastique

**Side 2. Orchestral Program Music**

Claude Debussy, “Prelude to the Afternoon of a Faun.” Oberlin Conservatory Orchestra.

- Stereo audio performance
- Reduced two-line score

Orchestral Instrument Demonstrations

- Video examples with stereo sound
- Video spectrum analysis of selected instruments

**Interactive CAV**

Software: None available

University of Delaware

*Price*: $295.00 for four discs and Manual

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**Videodisc Music Series, Disc 3**

This four disc series was designed and produced by the University of Delaware under a grant from NEH. Each disc side contains a supporting slide library.

**Side 1. Vocal Music**


- Full video performances for all three settings
- Full score of the Schubert with harmonic analysis
- Full audio performance of the Schubert in English


- Full audio performance in stereo
- Full score with color-coded form analysis

**Side 2. Opera**


- Video performances of selected scenes from the opera
- Franco Zeffirelli’s views on singers/actors
- Rehearsal sequences of the opera
- Excerpts of the soon-to-be-released disc by the Met

**Interactive CAV**

Software: None available

University of Delaware

*Price*: $295.00 for four discs and Manual
Videodisc Music Series, Disc 4
This four disc series was designed and produced by the University of Delaware under a grant from NEH. Each disc side contains a supporting slide library.

Side 1. Keyboard Works
Carl Philipp Emanuel Bach. "Fantasia in G Minor." James Weaver, Smithsonian Institution.
- Full performances on clavichord and fortepiano
- Full score with harmonic reduction and analysis
- Demonstration of period keyboard ornaments
Ludwig van Beethoven. "Piano Sonata Opus 13 (Pathetique)." Michael Steinberg, University of Delaware.
- Full video performance in stereo
- Full score with harmonic reduction and analysis
- Color-coded formal analysis

Side 2. Keyboard Works
- Full video performance in stereo
- Full score with harmonic reduction
- Full score with color-coded formal analysis

Interactive CAV
Software: None available
University of Delaware
Price: $295.00 for four discs and Manual

Music Is
This course is geared for upper elementary level music classes. The course consists of 5 discs with a 30 minute lesson on each side. The instruction is based on a linear play format, so there is no interactivity built into the course. The disc is also equipped for closed captions.

1. Music Is
2. Music Is Rhythm
3. Music Is Melody
4. Music Is Harmony
5. Music Is Tone Color
6. Music Is Form
7. Music Is Composed
8. Music Is Conducted
9. Music Is Improvised
10. Music Is Style

Interactive CAV
Software: None available
GPN
Price: $150 for five discs with teacher's guide

MUSIC—JAZZ

Nat Adderly, Jazz Life Volume 3
Songs include "Work Song," "Tallahassee," "Chelsea Bridge," "Jordanian Walk" and "The Scene." Recorded live at the Village Vanguard. 55 minutes.

LDC America. Catalog No.
Linear CAV
Price: $29.95

Toshiko Akiyoshi: My Elegy
Toshiko Akiyoshi, piano; Lou Tabakin, tenor sax/flute; Frank Weise, sax; Scott Robinson, drums.
Songs include "Elegy," "Remembering Bud," and "Autumn Sea."

LDC America. Catalog No.
Linear CLV
Price: $34.95

Count Basie Orchestra

LDC America. Catalog No.
Linear CLV
Price: $47.95

Tony Bennett Sings
Includes "This Can't Be Love," "My Funny Valentine" and "Lullaby of Broadway." 49 minutes.

LDC America. Catalog No.
Linear CLV
Price: $...

Art Blakely

LDC America. Catalog No.
Linear CAV
Price: $29.95
Carla Bley: In Concert
88 minutes.
LDC America, Catalog No. Linear CLV 
Price: $34.95

Cab Calloway and His Orchestra
This disc was recorded live at Disneyland and includes “Minnie the Moocher” and “It Ain’t Necessarily So.”
LDC America, Catalog No. Linear CLV 
Price: $24.95

Richie Cole, Jazz Life Volume I
LDC America, Catalog No. Linear CAV 
Price: $29.95

Chick Corea
Songs include “L’s Bop,” “Why Wait,” “3,500 Miles High,” and “Guernica.” 57 minutes.
LDC America, Catalog No. Linear CLV 
Price: $38.95

Chick Corea & Gary Burton
Crystal Break
LDC America, Catalog No. Linear CLV 
Price: $24.95

Chick Corea & Gary Burton Live in Tokyo
Songs include “La Fiesta,” “Senor Mouse,” and “Children’s Songs.” 58 minutes.
LDC America, Catalog No. PA-83-037 Linear CLV 
Price: $24.95

Miles Davis: The Sound of Miles Davis
LDC America, Catalog No. Interactive CAV 
Price: $34.95

George Duke: Super Keyboards
LDC America, Catalog No. Linear CLV 
Price: $34.95

Ella Fitzgerald
Recorded with Paul Smith Trio and All Stars. Songs include “Night and Day,” “Honeysuckle Rose,” “Old Mac Donald,” and “Georgia on My Mind.” 59 minutes.
LDC America, Catalog No. Linear CLV 
Price: $29.95

Dizzy Gillespie & The All-Star Dreamband
With Gerry Mulligan, Max Roach, Paul West, John Lewis, Milt Jackson, and others. Recorded on February 16, 1982. 90 minutes.
LDC America, Catalog No. Linear CLV 
Price: $44.95

Dizzy Gillespie: Live at Concerts by the Sea
Recorded on February 26, 1981. Songs include “Be Bop,” “Hard of Hearing,” “Mama,” and “Jazz America.”
LDC America, Catalog No. Linear CLV 
Price: $29.95

Johnny Griffen at the Vanguard
1981, CX encoded.
LDC America, Catalog No. Linear CLV 
Price: $29.95
Johnny Griffen, Jazz Life Volume 2

LDC America, Catalog No.
Linear CAV
Price: $29.95

Chico Hamilton
Songs include "Clinton Avenue" and "The Baron." CX encoded.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Lionel Hampton and His Big Band
This disc was recorded live at Disneyland and includes "Skylark," "Hamp's Boogie Woogie," and "Flying Home."

LDC America, Catalog No.
Linear CLV
Price: $24.95

Woody Herman and The Young Thundering Herd
This disc was recorded live at Disneyland and includes "Things Ain't What They Used To Be," "Woodchopper's Ball," "Blue Flame," and "Sonny Boy."

LDC America, Catalog No.
Linear CLV
Price: $24.95

Freddie Hubbard Live at The Village Vanguard
Songs include "Happy Times," "Guernica," "Little Waltz," "Fantasy in D." Recorded on June 24, 1982. 55 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Keith Jarrett: Vermont Solo Concert 1977
LDC America, Catalog No.
Linear CLV
Price: $41.95

Keith Jarrett: Last Solo
Recorded January 25, 1984 in Tokyo. 92 minutes.

LDC America, Catalog No.
Linear CLV
Price: $44.95

Keith Jarrett Trio Live 1985
LDC America, Catalog No.
Linear CLV
Price: $44.95

Quincy Jones: Reflections

LDC America, Catalog No.
Linear CLV
Price: $38.95

George Kawaguchi Meets Shelly Manne
Songs include "Old Man," "Sand Storm," "Windy Afternoon," "Traditional" and "Bear Walk."

LDC America, Catalog No.
Linear CAV
Price: $29.95

Lee Konitz

LDC America, Catalog No.
Linear CLV
Price: $29.95
Ramsey Lewis
LDC America, Catalog No.
Linear CLV
Price: $29.95

Mike Mainieri: 7th Avenue South
Recorded live at 7th Avenue South with Omar Hakim, Eddie Gomez, and Bob Mintzer. This includes “T-Bag” and “Sarah's Touch.” 1982, CX encoded.

Henry Mancini & Friends

Mike Mainieri: Manhattan Express
Mike Mainieri with Bob Minzer on electric bass clarinet. Recorded in December of 1981 at Seventh Avenue South, New York. Songs include “I'm Sorry,” “Flying Colors,” “Crossed Wires,” and “Bamboo.” 50 minutes.

Manhattan Transfer: Vocalese
With special appearances by Bobbie McFerrin and the Four Freshmen. This disc includes “Bee Bop Blues,” “Another Night in Tunisia,” and “To You.” Digital Sound.

Music In Monk Time
Chick Corea and others pay a musical tribute to the late Thelonious Sphere Monk's compositions including 10 selections. 60 minutes.

Gerry Mulligan: Live At Eric

Henry Mancini & Friends

Mike Mainieri: Manhattan Express
Mike Mainieri with Bob Minzer on electric bass clarinet. Recorded in December of 1981 at Seventh Avenue South, New York. Songs include “I'm Sorry,” “Flying Colors,” “Crossed Wires,” and “Bamboo.” 50 minutes.

Manhattan Transfer: Vocalese
With special appearances by Bobbie McFerrin and the Four Freshmen. This disc includes “Bee Bop Blues,” “Another Night in Tunisia,” and “To You.” Digital Sound.

One Night Stand
Eubie Blake, Kenny Barron in duet with Bobby Hutcherson, Bob James and others. 1981, 98 minutes.

Makoto Ozone: Crystal Love
Makoto Ozone (piano), Gary Burton (vibes), Eddie Gomez (bass). 1985, CX encoded, Digital Sound.

Jaco Pastorius
58 minutes.
<table>
<thead>
<tr>
<th>Artist/Movie Details</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>Oscar Peterson</td>
<td>$29.95</td>
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<tr>
<td>Songs include “City Lights,” “On Danish Shores,” “Yesterday,” and “My Shining Hour.” 56 minutes</td>
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</tr>
<tr>
<td>LDC America. Catalog No. PA-82-011 Linear CLV</td>
<td></td>
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<tr>
<td>Weather Report: Evolutionary Spiral 1981. CX encoded.</td>
<td>$19.95</td>
</tr>
<tr>
<td>Nancy Wilson With The Chick Corea Band Songs include “I Want to be Happy,” “I Get a Kick Out of You,” “Round Midnight,” “But Not For Me,” “Yesterday,” “Them There Eyes,” “Take the Train,” 47 minutes</td>
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<tr>
<td>LDC America. Catalog No. PA-82-011 Linear CLV</td>
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<tr>
<td>Sonny Rollins: Montreal 1982</td>
<td>$29.95</td>
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<tr>
<td>LDC America. Catalog No. PA-82-011 Linear CLV</td>
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<tr>
<td>LDC America. Catalog No. PA-82-022 Linear CAV</td>
<td>$29.95</td>
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<tr>
<td>Mel Torme And Della Reese in Concert 1978</td>
<td>$24.95</td>
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<tr>
<td>LDC America. Catalog No. 74--009 Linear CLV</td>
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<tr>
<td>Grover Washington, Jr. in Concert With Eric Gale, Richard Tee, and Steve Gadd. Songs include “Just the Two of Us,” “Winelight,” and “Come Morning.” 53 minutes</td>
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<tr>
<td>LDC America. Catalog No. PA-82-011 Linear CLV</td>
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<tr>
<td>Blue Monday Party Percy Mayfield, Lowell Fulson and Ester Jones are recorded in concert at Mark Naftalin’s Blue Monday Party. Along with the concert are over 200 still frames with a discography, pictures of their albums covers, and archival photos from Living Blues Magazine. This disc can be used in a Level One or Level Two format.</td>
<td>$155.00</td>
</tr>
<tr>
<td>VT Productions Programmed CAV</td>
<td></td>
</tr>
<tr>
<td>Jazz On A Summer’s Day Louis Armstrong, Thelonious Monk, Sonny Stitt, George Shearing, Dinah Washington, Gerry Mulli-</td>
<td></td>
</tr>
</tbody>
</table>
Jazz Vocal Special
Rare footage of 50's television shows including Anita O'Day, Nat King Cole, Louis Armstrong, Cab Calloway, and Helen O'Connell. Songs include "Man That's Groovy," "Got A Penny Benny," "Lonesome Road," "Five Guys Named Mop," and "Thanks for the Boogie Ride." 40 minutes, Black and White. (Monaural sound)

Midnight Session
Milt Jackson (vib), Ray Brown (bass), Cedar Walton (piano), and Mickey Roker (drums) play 15 songs including "In Walked Bud," "Close Enough For Love," "Straight," "No Chaser," "Django," "Round Midnight" and "Bag's Groove." 85 minutes.

Modern Jazz Quartet: Again

Playboy Jazz Festival Volume 1
Willie Bobo, Art Farmer, Maynard Ferguson; McCoy Tyner, Elvin Jones, Lionel Hampton; Red Norvo and Grover Washington. 90 minutes.

MUSIC—MUSICALS

An American in Paris

Annie

Babes in Arms
Judy Garland, Mickey Rooney, Charles Winninger. Music by Rogers and Hart, directed by Busby Berkeley. 1939, 91 minutes, B&W.
Best Little Whorehouse in Texas

LDC America, Catalog No. 17-008
Linear CLV
Price: $34.98

Brigadoon

LDC America, Catalog No. ML100040
Linear CLV
Price: $34.95

Bye Bye Birdie

LDC America, Catalog No. 7035-80
Linear CLV
Price: $34.98

Cabaret

LDC America, Catalog No. 7035-80
Linear CLV
Price: $34.98

Camelot

LDC America, Catalog No. 11084LV
Linear CLV
Price: $39.98

A Chorus Line

LDC America, Catalog No.
Linear CLV
Price: $39.95

Fiddler on the Roof

LDC America, Catalog No. 4524-80
Linear CLV
Price: $49.98

Finian's Rainbow
Fred Astaire, Petula Clark, Keenan Wynn. Music and lyrics by Burton Lane and E.Y. Harburg. Directed by Francis Ford Coppola. 1968, 141 minutes.

LDC America, Catalog No. 11208LV
Linear CLV
Price: $39.98

42nd Street

LDC America, Catalog No. 4502-80
Linear CLV
Price: $29.98

Funny Girl

LDC America, Catalog No. VLD3155
Linear CLV
Price: $39.95
Funny Lady
Barbra Streisand, James Caan.

LDC America. Catalog No. 30685A
Linear CLV
Price: $34.95

A Funny Thing Happened on the Way to the Forum

LDC America. Catalog No. 418-80
Linear CLV
Price: $34.98

Gigi

LDC America. Catalog No. ML100050
Linear CLV
Price: $34.95

Grease

LDC America. Catalog No. LV1108
Linear CLV
Price: $29.95

Grease II
Maxwell Caulfield, Michelle Pfeiffer, Lorna Luft, Adrian Zmed, Didi Conn, Eve Arden, Sid Caesar, Tab Hunter. 1982, 115 minutes.

LDC America. Catalog No. LV1193
Linear CLV
Price: $29.95

Guys and Dolls

LDC America. Catalog No. 7039-80
Linear CLV
Price: $39.98

Hair
Treat Williams, John Savage, Beverly D'Angelo. Music by Galt MacDermot and lyrics by Geroge Ragni and James Rado. 1979, 119 minutes.

LDC America. Catalog No. 4593
Linear CLV
Price: $34.98

Hello Dolly

LDC America. Catalog No. 1101-80
Linear CLV
Price: $39.98

The King and I

LDC America. Catalog No. 1004-80
Linear CLV
Price: $34.98

Kiss Me Kate
Directed by Bob Fosse. 1953, 113 minutes.

LDC America. Catalog No. ML100307
Linear CLV
Price: $39.95

The Little Prince
Mame
LDC America, Catalog No. 111000LV
Linear CLV
Price: $39.98

Mary Poppins
LDC America, Catalog No. 42023AS
Linear CLV
Price: $44.95

Meet Me in St. Louis
Judy Garland, Margaret O'Brien, Mary Astor, Tom Drake, June Lockhart, Harry Davenport, Lucille Bremer, Marjorie Main. Directed by Vincent Minnelli. Music and lyrics by Hugh Martin and Ralph Blane. 1944, 115 minutes, B&W.
LDC America, Catalog No. ML100005
Linear CLV
Price: $34.95

The Music Man
Robert Preston, Shirley Jones, Ronny Howard. 151 minutes.
LDC America, Catalog No. 11473LV
Linear CLV
Price: $39.98

My Fair Lady
LDC America, Catalog No. LV69332
Linear CLV
Price: $35.95

Oklahoma
LDC America, Catalog No. 7020-80
Linear CLV
Price: $39.98

Oliver
Oliver Reed, Mark Lester. 1968.
LDC America, Catalog No.
Linear CLV
Price: $34.95

On The Town
LDC America, Catalog No. ML100057
Linear CLV
Price: $34.95

Paint Your Wagon
LDC America, Catalog No. LV6933-2
Linear CLV
Price: $35.95

Paleface
Bob Hope, Jayne Russell. 1948, Closed Captioned.
LDC America, Catalog No.
Linear CLV
Price: $29.95
Pete's Dragon
Helen Reddy, Jim Dale, Red Buttons, Micky Rooney. CX encoded.
LDC America. Catalog No. ML100077
Linear CLV
Price: $45.95

Pippin
LDC America. Catalog No. PA-82-009
Linear CLV
Price: $34.95

Seven Brides for Seven Brothers
Howard Keel, Jane Powell, Russ Tamblyn. Directed by Stanley Donnen. 1954, 103 minutes.
LDC America. Catalog No. ML100091
Linear CLV
Price: $34.95

1776
Howard da Silva, William Daniels, Ken Howard, Donald Madden, Blythe Danner. 1972.
LDC America. Catalog No.
Linear CLV
Price: $29.95

Singing in the Rain
LDC America. Catalog No. ML100185
Linear CLV
Price: $35.95

Sound of Music
Julie Andrews, Christopher Plummer, Eleanor Parker, Peggy Wood, Richard Haydn. Directed by

LDC America. Catalog No. 1051-80
Linear CLV
Price: $49.95

South Pacific
LDC America. Catalog No. 7045-80
Linear CLV
Price: $39.98

Swing Time
Fred Astaire, Ginger Rogers, Victor Moore, Helen Broderick, Eric Blore, Betty Furness. Directed by George Stevens. Music by Jerome Kern. 1936, 103 minutes, B&W. This version features a critical commentary on audio track 2 by John Mueller and a photo scrapbook of behind-the-scenes stills.
Voyager Press. Catalog No.
Interactive CAV
Price: $74.95

Thoroughly Modern Millie
LDC America. Catalog No.
Linear CLV
Price: $39.98

Tommy
LDC America. Catalog No. VLD5951
Linear CLV
Price: $29.95
Treasure Island, The Musical
Christopher Cazenove, Frank Gorshin, Bernard Miles. Music by Cyril Ornadel, lyrics by Hal Shaper. 118 minutes.

LDC America, Catalog No. PA-83-062
Linear CLV
Price: $24.95

West Side Story

LDC America, Catalog No. 4519-80
Linear CLV
Price: $39.98

The Wiz

LDC America, Catalog No. 17-005
Linear CLV
Price: $29.95

Xanadu
Olivia Newton-John, Gene Kelly, Michael Beck. 1980, 97 minutes.

LDC America, Catalog No. 17-006
Linear CLV
Price: $29.95

Yankee Doodle Dandy

LDC America, Catalog No. 4513-80
Linear CLV
Price: $39.98

Aida

LDC America, Catalog No. PA-82-017
Linear CLV
Price: $59.95

Carmen
By Georges Bizet. Placido Domingo, Ruggero Raimondi, Julia Mignes-Johnson. The French National Orchestra and Chorus are conducted by Lorin Maazel, and the film is directed by Francesco Rosi.

LDC America, Catalog No. 85-136
Linear CLV
Price: $49.95

Don Carlo

LDC America, Catalog No. PA-84-075
Linear CLV
Price: $49.95

Ernani
By Giuseppe Verdi. Teatro Alla Scala. Placido Domingo, Mirella Freni, Renato Bruson, Nicolai Ghiaurov. 138 min.

LDC America, Catalog No. PA-83-060
Linear CLV
Price: $49.95

Falstaff

LDC America, Catalog No. PA-84-064
Linear CLV
Price: $49.95
<table>
<thead>
<tr>
<th>Title</th>
<th>Composer</th>
<th>Production Details</th>
<th>Catalog No.</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>Die Fledermaus</td>
<td>Johann Strauss</td>
<td>Royal Opera House, Covent Garden, Kiri te Kanawa, Hildegard Heichle, Dennis O'Neill, Hermann Prey, Conducted by Placido Domingo. 180 minutes.</td>
<td>LDC America, Catalog No.</td>
<td>Price: $37.50</td>
</tr>
<tr>
<td>Der Freischutz</td>
<td>Karl Maria von Weber</td>
<td>Dresden State Orchestra and Chorus, Rolf Haunstein, Rolf Wolfrad, Ana Pisar, Christine Weidinger, Karl-Heinz Stryczek, Reiner Goldberg, Rolf Tomaszewski, and Gunter Leib with Siegfried Krutz conducting. 135 minutes.</td>
<td>LDC America, Catalog No.</td>
<td>Price: $41.95</td>
</tr>
<tr>
<td>Hansel and Gretel</td>
<td>Engelbert Humperdinck</td>
<td>This Metropolitan Opera Production is sung in English and features Frederica von Stade, Judith Blegen, and Rosalind Elias. Conducted by Thomas Fulton. Recorded on December 25, 1982.</td>
<td>LDC America, Catalog No. 85-136 Linear CLV</td>
<td>Price: $49.95</td>
</tr>
<tr>
<td>H.M.S. Pinafore</td>
<td>Gilbert &amp; Sullivan</td>
<td>Peter Marshall, Frankie Howard, Meryl Drower, Michael Bulman. 90 minutes.</td>
<td>LDC America, Catalog No. PA-84-467 Linear CLV</td>
<td>Price: $24.95</td>
</tr>
<tr>
<td>Idomeneo</td>
<td>Wolfgang Amadeus Mozart</td>
<td>Metropolitan Opera House, Luciano Pavarotti, Ileana Cotrubas, conducted by James Levine on November 26, 1982. Subtitled in English with Digital Sound.</td>
<td>LDC America, Catalog No.</td>
<td>Price: $49.95</td>
</tr>
<tr>
<td>La Boheme</td>
<td>Giacomo Puccini</td>
<td>Royal Opera House, Covent Garden, Ileana Cotrubas and Neil Shicoff. February 16, 1982. 116 minutes.</td>
<td>LDC America. Catalog No. PA-82-028 Linear CLV</td>
<td>Price: $49.95</td>
</tr>
<tr>
<td>La Boheme</td>
<td>Giacomo Puccini</td>
<td>Metropolitan Opera House, Teresa Stratas, Jose Carreras, Alan Monk, conducted by James Levine. Taped at the January 16, 1982 performance directed by Franco Zeffirelli. Subtitled in English with Digital Sound.</td>
<td>LDC America, Catalog No.</td>
<td>Price: $49.95</td>
</tr>
<tr>
<td>La Fanciulla Del West</td>
<td>Giacomo Puccini</td>
<td>Royal Opera House, Covent Garden, Placido Domingo, Carol Neblett, and Silvano Carroli. 1982. 140 minutes.</td>
<td>LDC America, Catalog No. PA-83-056 Linear CLV</td>
<td>Price: $49.95</td>
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</tbody>
</table>
**Lucia Di Lammermoor**  
By Gaetano Donizetti. Metropolitan Opera conducted by Richard Bogge. Joan Sutherland, Alfredo Kraus, Pablo Elvira, Ariel Bybee. 128 minutes.  
LDC America, Catalog No. PA-84-076  
Linear CLV  
Price: $49.95

**The Magic Flute**  
LDC America, Catalog No. PA-83-059  
Linear CLV  
Price: $24.95

**Manon Lescaut**  
By Giacomo Puccini. Royal Opera House, Covent Garden. Placido Domingo, Kiri te Kanawa, Giuseppe Sinopoli conducting.  
LDC America, Catalog No. PA-83-047  
Linear CLV  
Price: $44.95

**The Mikado**  
LDC America, Catalog No. PA-83-061  
Linear CLV  
Price: $24.95

**Otello**  
By Giuseppe Verdi. Arena de Verona, Vladimir Atlantov, Kiri Te Kanawa, and Piero Cappucelli. 1982. 144 minutes.  
LDC America, Catalog No. PA-83-054  
Linear CLV  
Price: $49.95

**Peter Grimes**  
By Benjamin Britten. Royal Opera House, Covent Garden. Jon Vickers 150 minutes.

**Pirates Of Penzance**  
LDC America, Catalog No. PA-83-059  
Linear CLV  
Price: $24.95

**Samson And Dalila**  
LDC America, Catalog No. PA-82-014  
Linear CLV  
Price: $59.95

**Tales Of Hoffmann**  
By Jacques Offenbach. Royal Opera House, Covent Garden. Placido Domingo, Luciana Serra, Agnes Baltsa, Ileana Cotrubas. 159 minutes.  
LDC America, Catalog No. PA-81-006  
Linear CLV  
Price: $59.95

**Tannhauser**  
LDC America, Catalog No. PA86159  
Linear CLV  
Price: $49.95

**Tosca**  
By Giacomo Puccini. Metropolitan Opera Production with Hildegard Behrens, Placido Domingo, Cornell MacNeil and Italo Tajo. Produced by Franco Zeffi-

LDC America. Catalog No.
Linear CLV
Price: $49.95

Les Troyens

LDC America. Catalog No.
Linear CLV
Price: $49.95

Un Ballo in Maschera

LDC America. Catalog No.
Linear CLV
Price: $37.50

Yeoman Of The Guard

LDC America. Catalog No.
Linear CLV
Price: $24.95

**MUSIC—ORCHESTRAL**
(* Denotes multiple selections on disc)

Bach, J.S.
*Vier Ouverturen* (Orchestersuiten)

LDC America. Catalog No. MC-065
Linear CLV
Price: $28.95

Beethoven, Ludwig Von
*Symphony No. 3 in E flat major* Op.55 (Eroica)
NHK Symphony Orchestra, Otmar Suitner, conducting. 52 minutes. Recorded in November of 1980.

LDC America. Catalog No. MC-051
Linear CLV
Price: $29.95

*Symphony No. 5 in C minor, Op.67* (Fate)

LDC America. Catalog No. MC-044
Linear CLV
Price: $34.95

*Symphony No. 6 in F major* Op.68 (Pastorale)
NHK Symphony Orchestra, Otmar Suitner, conducting. Recorded in November of 1980. 46 minutes.

LDC America. Catalog No. MC-053
Linear CAV
Price: $29.95

*Symphony No. 9 in D minor*
Wolfgang Sawallisch, conducting the Czechoslovakia Philharmonic Orchestra. Recorded in June of 1981. 71 minutes.

LDC America. Catalog No. MC-035
Linear CLV
Price: $34.95

Egmont Overture
Staatskapelle Berlin, Otmar Suitner conducting.

LDC America. Catalog No. MC-044
Linear CLV
Price: $32.95

*Leonore Overture No. 3 from Opus 72*
**LDC America, Catalog No. MC-044**

Linear CLV  
Price: $34.95

*Symphony No. 4 in E flat major* (Romantic)  

**LDC America, Catalog No. MC-045**

Linear CLV  
Price: $32.95

*Symphony No. 8 in B minor* (Unfinished)  
Staatskapelle Dresden, Herbert Blomstedt conducting.

**LDC America, Catalog No. MC-037US**

Interactive CAV  
Price: $29.95

*Symphony No. 9 in E minor, Op.95* (New World)  
Czech Philharmonic Orchestra, Vaclav Neumann, conducting.

**LDC America, Catalog No. MC-036**

Linear CLV  
Price: $27.95

*Symphony No. 9 in E minor Op.95* (New World)  
NHK Symphony Orchestra, Otmar Sawallisch conducting. Recorded in April of 1980. 46 minutes.

**LDC America, Catalog No. MC-052**

Interactive CAV  
Price: $28.95

*Mozart, Wolfgang Amadeus*  
*Symphony No. 35 in D major K.285* (Hafner)  
Staatskapelle Berlin, Otmar Suitner conducting.

**LDC America, Catalog No. MC-044**

Linear CLV  
Price: $32.95

*Smetana, Bedrich*  
*My Fatherland* (Ma Vlast)  
Czech Philharmonic Orchestra, Vaclav Neumann conducting.

**LDC America, Catalog No. MC-045**

Price: $32.95

**MUSIC—SOLO/ENSEMBLE**

**Ayako, Nakamura**  
Nakamura Ayako on piano performing Pictures at an Exhibition by Modest Mussorgsky.

**LDC America, Catalog No.**  
Interactive CAV  
Price: $29.95

**Callas, Maria**  
The Maria Callas Concerts 1959, 1962—This disc contains three concert appearances, two from Hamburg, Germany. Nicola Rescigno and Georges Pretre conduct excerpts from Massenet’s “Le Cid”, Bizet’s “Carmen”, and Verdi’s “Ernani.”

**LDC America, Catalog No.**  
Interactive Videodiscs 113
Chuchro, Josef
Josef Chuchro performing the Cello Concerto in B Flat, Opus 104 by Antonin Dvorak. Vaclav Neumann conducting the Czechoslovakian Philharmonic.

Horowitz, Vladimir

Pavarotti, Luciano
Pavarotti in London—Royal Albert Hall, April 13, 1982. Royal Philharmonic Orchestra. Includes arias from Tosca, Macbeth, L'Elisir D'Amore, and Turandot. 51 minutes.

Perlman, Itzhak
Itzhak Perlman—Philharmonia Orchestra. Carlo Maria Giulini conducting. Beethoven Violin Concerto in D, Opus 61. 45 minutes.

Rostropovich, Mstislav
Rostropovich—Dvorak Cello Concerto, and Saint-Saens Cello Concerto #1. London Philharmonic Orchestra, Carlo Maria Giulini conducting. 65 minutes.

Ensembles
The Met Gala—The one-hundredth anniversary concert at the Metropolitan Opera House features close to one hundred of the world's leading singers, seven conductors, the Met Orchestra, Chorus and Ballet performing in two separate programs. "The Met Gala" recalls some of the most brilliant arias and ensembles of the repertory, performed against a backdrop of five Met productions. 1983.

ORNITHOLOGY
Audubon Society Guide: Birds Of North America
The National Audubon Society has used the unique features of the laser disc to catalog the sights and sounds of the 116 species of North American birds on one videodisc. The celebrated editor of Audubon's bird guide books, John Farrand, Jr. was the editor for this disc that was written, directed and narrated by naturalist Michael Godfrey. After an introduction by Roger Tory Peterson, the disc boasts a collection of spectacular moving footage and color photographs from many of the great nature photographers, including Eliot Porter, Crawford Greenewalt, and Alfred Eisenstaedt.

PHOTOGRAPHY
The Creative Camera
This disc is a participative disc which enables one to learn more about 35mm single lens reflex (SLR) cameras. It describes technical terms and techniques and reviews the do's and don't's of good photography. Audio track #1 features instructions for the beginner; audio track #2 is for the more advanced photographer.

*The Camera
*The Lens
Five photo assignments include: Glamour, San Francisco Houses, Vintage Cars, Wildflowers and Rodeo.

Interactive CAV
Software: None available
LDC America—Catalog No. HP-019
Price: $29.95

**PHYSICAL EDUCATION—SELF-DEFENSE**

The World Of Martial Arts
This is a complete course on two levels. Audio track one provides explicit instructions to the moves shown on the screen, while audio track two contains more advanced information. Many of the world's foremost practitioners are teachers on this disc. An added feature is the philosophy behind the Al Thomas system of Budojutsu:

Interactive CAV
Software: None available
LDC America—Catalog No. 37-605
Price: $29.95

**PHYSICAL FITNESS—EXERCISE**

Aerobicise: The Beginning Workout.
1982. 96 minutes.

LDC America. Catalog No. LV2312
Linear CAV
Price: $29.95

Aerobicise: The Beautiful Workout.
Loryanna Catalano, Deborah Corday, Tina Rocca. 113 minutes.

LDC America, Catalog No. LV2308
Linear CAV
Price: $29.95

Aerobicise: The Ultimate Workout.
Two Self-contained classes. 1982. 105 minutes.

LDC America. Catalog No.
Linear CAV
Price: $29.95

Jazzercise
Judi Sheppard Missett is the instructor for this disc that uses many styles of popular music to exercise to. The disc allows the user to set a routine that is suited to individual needs. The disc uses the dual audio capabilities of the laserdisc.

LDC America. Catalog No. 32-608
Linear CAV
Price: $24.95

**PHYSICAL FITNESS—RELAXATION**

The Joy of Relaxation
The disc contains two complete relaxation routines. One for indoors, and one for outdoor environments. Step-by-step instructions teach the user how to relax.

LDC America, Catalog No. 37-604 Linear CAV
Price: $29.95

**PHYSICAL FITNESS—RUNNING**

Jim Fixx On Running
Tips on all aspects of running are contained on this disc, hosted by Jim Fixx. 53 minutes.

LDC America, Catalog No. 32-007
Linear CLV
Price: $24.95
PHYSICAL FITNESS—YOGA

Yoga Moves with Alan Finger
A complete workout with Alan Finger for rejuvenating the mind and body. 59 minutes.

LDC America, Catalog No. 30-002
Linear CLV
Price: $29.95

REFERENCE MATERIALS

Knowledge Disc
The first videodisc encyclopedia, Knowledge Disc, contains the entire 9 million words of Grolier’s highly acclaimed Electronic Encyclopedia. This is comparable to a full 20 volume encyclopedia set. Stepping through the frames of the disc “turns the pages” of this “book.” Knowledge Disc contains arrange, quantity and diversity of topics that will satisfy most research needs. The information can be easily and quickly accessed using the scan, search and step functions of the videodisc player. The encyclopedia is in a text-only format with no motion audio or visuals.

Interactive CAV
Software: None available
Grolier Electronic Publishing, Inc.
Price: $89.95

The Video Encyclopedia Of The 20th Century
(See History)

SCIENCE—ANTHROPOLOGY

Ninety-Six: A Cattle Ranch In Northern Nevada
This disc describes the operation of a beef cattle ranch in Humbolt County, Nevada. Side A of the disc is interactive with motion footage and 2,400 still frames of ranches, churches, clubs, and other sites in the area. Motion segments include:
   Fall roundup
   Drive
   Branding
   Animated maps
   Use of wattles to identify cattle

Side B is a linear presentation using different audio on tracks one and two. The side presents personal-experience anecdotes from ranch workers and examines the role of Native Americans on the ranch.

An 84-page companion booklet contains a complete index to the disc that is geared to college level Anthropology or Folklore courses.

Hardware Requirements:

Pioneer PR-7820-3 or the LD-V6000 player.

Programmed CAV/CLV
Software: Level 2 encoded on disc
Library of Congress
Price: $172.00 for disc booklet and shipping

SCIENCE INSTRUCTION—BIOLOGY

Animals Course—Interactive Science Series
This is one part of a four-part Science series by Health EduTech, Inc. This course is geared to students in grades 4, 5 and 6. The package includes three videodisc sides, 30 student workbooks, 30 sets of unit tests, one teacher’s guide, glossary, explanation of symbols, description of additional activities, and floppy disks (for Level 3 use). The system can be configured for level 2 or level 3 use. Lessons include:

Unit One—Vertebrates
1—Mammals
2—Birds
3—Fishes
4—Amphibians

Unit Two—Invertebrates
1—Arthropods
2—Mollusks

Unit Three—How Animals Grow and Behave
1—Life cycle
2—How animals reproduce
3—Social behavior

Unit Four—How Animals Survive
1—Animals respond to climates and seasons
2—Animals and danger

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor. Pioneer LD-V6010 or 6000 videodisc player, Health EduTech’s IVC-1 interface cable, and a monitor with NTSC/RGB key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3 Health EduTech, Inc.
Price: $1,500.00 ($4,995.00 for all four courses)

Bio Sci
This disc is a generic videodisc with a slide bank of over 6,000 color images covering many areas of biology. An image directory assists in quickly locating a given image. Areas covered are: Protozoology, Histology, Invertebrate Zoology, Plant Taxonomy, Entomology, Ecology, Ichthyology, Cell Biology, Herpetology, Developmental Biology, Ornithology, Biochemistry, Mammalogy.

Software packages available March 1, 1984:
#1—Protein Synthesis, Predator-Prey, Mendelian Genetics, and Fertilization & Development.
#2—Adaptive Illusion, Invertebrates, Insects, Amphibians, Arthropods, Reptiles.
#3—Steppe Biome, Wet Coniferous Forest Biome, Mt. St. Helens, Plant Diversity.
#4—Gymnosperms, Fungi, Angiosperms.
#5—Reptiles, Birds, Animal Diversity, Fishes, Mammals.

Programmed CAV
Software: Written for Apple II and IBM-PC jr. Videodiscovety, Inc.
Price: $495.00 for disc $75.00 per software program $300.00 for the set of five programs.

Interactive Videodisc Science Instruction Project
Developed by Nebraska Videodisc Group for the Corporation of Public Broadcasting and Annenberg School of Communications.

Lesson 1. Respiration
The videodisc is used to simulate laboratory apparatus which allows the student to subject an organism to different temperatures and pressures. The student can project how respiration will be effected by these variables and observe the organism to see if the predicted outcome was correct.

Lesson 2. Climate and Life
The student observes the characteristics of different climatic environments on earth, and studies the plant and animal life of each environment. Predictions must then be made as to the types of organisms that would likely be found in a given environment. Students must construct climatograms of those environments.

Hardware Requirements
Pioneer LD-V1000 player
Pioneer SIA interface
2—color television monitors

Option #1
Apple II, II+ or IIe (48K)
CP/M 2.0 or greater—slot independent
16K RAM card—slot 0 (II, II+)
Serial Interface Card—slot 2
80 column board—slot 3

Option #2
IBM-PC (64K)
Serial Interface Card
RS232 cable

Programmed CAV
Software: Written for IBM-PC and Apple GPN
Price: $425.00 for disc with manual and software.

Life Cycles
This disc is a comprehensive visual database for reproductive biology. Developed in cooperation with Oxford Scientific Films, this disc presents a stunning visual record of how life begins, in motion picture and still frame images with nearly 4,000 color images, graphic illustrations, and footage from sixteen films. Comes with Image Directory. Disc contents includes:

- Plants—How insects pollinate plants; fruit formation; germination of a bean plant; dissection of flower parts; pseudo copulation of wasps with orchids; flies and stink plants; Sexual Encounters of the Floral Kind.
- Protozoa—How single cell organisms reproduce through cell division; reproduction of Volvox through new colony formation; sexual reproduction in Paramecia.
- Invertebrates—Mating and reproduction in earthworms and snails; developmental forms in starfish, sea urchins, squid, octopus; octopus and their eggs; insect larval forms; ant queens/termite queens; serial chamber construction by solitary bees; Digger wasp burrows; nest-building of Paper and Mud-dauber wasps; praying mantis reproduction; metamorphosis, emergence of moths. Monarch butterfly.
- Fish—Courtship, spawning; egg laying in Brown trout; nest-building and courting of the Stickleback; territorial display, nesting, reproduction of the Siamese Fighting Fish; egg laying, embryonic development, hatching, and mouth-brooding of the cichlid.
• Amphibians—Complete documentation of frog reproduction, mating, egg laying, embryonic development: the unique brood pouch of the marsupial frog; mating of the crested newt; nesting and egg laying of the salamander.

• Reptiles—Egg laying, embryonic development, hatching of sea turtles including their march to the sea; hatching of snake eggs; the egg-tooth snakes grow and discard when out of the shell.

• Birds—Nesting, courtship, hatching; care of young in a wide variety of bird species, including the ostrich, flamingo, penguin, wren, swift, gull, Redtail hawk, Golden Eagle, Bald Eagle, osprey, and prairie chicken; the “claim-jumping” cuckoo bird; complete embryonic development and hatching of a chicken.

• Mammals—With emphasis on live birth, this section explores territorial behavior, mating, reproduction, and care of young in elephant seals, sheep, dogs, horses, and zebras, cattle and sheep, cheetahs, lions, elephants, field mice, house mice.

• Histology/Dissections—Tissue sections of normal human reproductive organs, including cross-sections of the complete organs, ovaries, endometrium, placental tissues, testes, and seminiferous tubules; close-up tissue sections of substructures.

• Models & Drawings—Three-dimensional models of in-depth understanding of cell division, mitosis, reproductive parts of plants, embryonic development, male/female reproductive organs, human birth.

Interactive CAV
Software: None available
Videodiscography, Inc.
Price: $495.00

Life Science I
This is the first of two Life Science discs in the Living Textbook Series by Optical Data Corporation.

Programmed CAV
Software: Available for the Apple II
Optical Data Corporation
Price: $400.00

Life Science II
This is the second of two Life Science discs in the Living Textbook Series by Optical Data Corporation.

Programmed CAV
Software: Available for the Apple II
Optical Data Corporation
Price: $400.00

Math In Biology
(See Mathematics)

Plants Course—Interactive Science Series
This is one part of a four-part Science series by Health, EduTech, Inc. This course is geared to students in grades 4, 5, and 6. The package includes three videodisc sides, 30 student workbooks, 30 sets of unit tests, one teacher’s guide, glossary, explanation of symbols, description of additional activities, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Lessons include:

Unit One—Plants and Their Parts
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5—Seeds

Unit Two—How Plants Survive
1—What Plants Need
2—How plants make food

Unit Three—How Plants Grow
1—How plants reproduce
2—Life cycles

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM) = IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech’s IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $1,500.00 ($4,995.00 for all four courses)

Videodisc In Science Education
This disc, produced under a NSF grant, contains two segments of materials. The first segment, an Executive Review, consists of primarily motion that reviews the need for improved science education and looks at the development and evaluation of the materials contained in the second section.
The second section, Biology Course Material, contains about 15 minutes of motion and 2,500 still frames in the area of developmental biology.

**Necessary Hardware**
Pioneer PR-7820, or LD-V6000.

**Programmed CAV**
Software: Digital dump on disc (level 2)
WICAT Education Institute
Price: $75.00

**Whales**
The Whales disc is a 24 minute program on whales that was prepared as a prototype for use in grades 3-8. It can be used as a 24 minute presentation, as four six minute lessons or as a text-and-image data base. Still-frame sequences with text provide supplemental information; video glossary defines basic terms; on-screen questions and games test the students' knowledge.
The disc offers closed captions for the hearing impaired.

**Interactive CAV**
Software: None available
National Geographic Society
Price: $97.50 for disc and complete user's guide (add $6.25 for postage and handling)

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**SCIENCE INSTRUCTION—BOTANY**

**Exotic Plants: A Videodisc Compendium**
(See Horticulture)

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**SCIENCE INSTRUCTION—CHEMISTRY**

**Chemistry For Biologists**
This 2 videodisc, 20 lesson course teaches elements and compounds, bonding, the major elements of life, equilibrium, classes of organic compounds (their composition and properties), diffusion in gasses and liquids, and water and hydrogen bonds.

**Interactive CAV**
Software: None available Systems Impact, Inc.
Price: $1,200.00

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**INTERACTIVE VIDEODISC SCIENCE INSTRUCTION PROJECT**
Developed by Nebraska Videodisc Group for the Corporation of Public Broadcasting and Annenberg School of Communications.

**Lesson 1. Titration**
The videodisc is used to simulate titration experiments with all the necessary equipment. The student has control of the variables in each experiment allowing for thousands of possible titration experiments.

**Lesson 2. Unknowns**
The student is asked to determine the chemicals used to obtain a given reaction. Hundreds of chemical reactions are available for the student to view permitting the student to observe how known chemicals react with each other.

**Hardware Requirements**
Pioneer LD-V1000 player
Pioneer SIA interface
2—color television monitors

**Option #1**
Apple II, II+ or IIe (48K)
CP/M 2.0 or greater—slot independent
16K RAM card—slot 0 (II, II+ )
Serial Interface Card—slot 2
80 column board—slot 3

**Option #2**
IBM-PC (64K)
Serial Interface Card
RS232 cable

**Programmed CAV**
Software: Written for IBM-PC or Apple GPN
Price: $425.00 for disc with manual and software.

**Standard Heats Of Solution**
An interactive general chemistry pre-laboratory experiment at the college freshman level. The program contains self-evaluation quizzes and remedial segments.

**Hardware Requirements:**
Pioneer PR-7820

**Programmed CAV**
Software: Level 2 encoded on disc
UCLA Instructional Media Library
Price: $150.00
Earth Science
The 4 videodisc, 30 lesson Earth Science minicourse explains much of the earth, ocean and atmosphere through convection. The course begins with the concepts that underlie convection: matter, temperature, density and pressure. The course then covers geology of the earth: plate tectonics (formation and structure), subduction zones, volcanoes, earthquakes and mountain building, weathering of rocks and the rock cycle; meteorology: atmosphere, rain and clouds, large scale movement of air masses, violent storms; and oceanography: major features, wind driven circulation and coastal upwelling.

Interactive CAV
Software: None available
Systems Impact, Inc.
Price: $2,400.00

Weather Course—Interactive Science Series
This is one part of a four-part Science series by Health EduTech, Inc.. This course is geared to students in grades 4, 5 and 6. The package includes three videodisc sides, 30 student workbooks, 30 sets of unit tests, one teacher’s guide, glossary, explanation of symbols, description of additional activities, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Lessons include:

Unit One—Weather Instruments
1—Measuring air temperature
2—Measuring air pressure

Unit Two—Wind
1—Air circulation
2—Wind direction
3—Wind speed

Unit Three—Air Masses
1—Describing air masses
2—Air masses on the move

Unit Four—Water Cycle
1—Evaporation
2—Condensation
3—Precipitation

Unit Five—Clouds
1—Cloud types
2—Storms

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player. Health EduTech's IVCI interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $1,500.00 ($4,995.00 for all four courses)

AAPT Physics Slides Videodisc
Thirteen of the American Association of Physics Teachers most popular 35-mm slide sets (199 slides in all) are now available on a single videodisc. An Instructor's Manual containing the teacher's guide for each slide set accompanies the videodisc. The following slide sets are featured:
• PASCO's Drawings of Famous Physicists (SL-23)
• Nineteenth Century Textbook Illustrations (SL-20)
• Atmospheric Phenomena I and II (SL-4 & SL-5)
• Bentley's Snow Flakes and Ice Crystals (SL-6)
• Stop-Action Photography (SL-35)
• Bursting Projectile (SL-7)
• Equilibrium Examples (SL-12)
• Non-Commutivity of Angular Displacements (SL-21)
• Light on Campus (SL-15)
• Total Internal Reflection and the Multimode Optical Fiber (SL-41)
• Dislocations (SL-8)
• Skylab Set (NASA Set)

Interactive CAV
Software: None available
American Association of Physics Teachers
Price: $45.00

Energy Course—Interactive Science Series
This is one part of a four-part Science series by Health EduTech, Inc.. This course is geared to students in grades 4, 5 and 6. The package includes
three videodisc sides, 30 student workbooks, 30 sets of unit tests, one teacher's guide, glossary, explanation of symbols, description of additional activities, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Lessons include:

Unit One—What is Energy?
1—Energy defined
2—forms of energy

Unit Two—The Sun's Energy
1—Heat Energy
2—Light energy

Unit Three—Chemical Energy
1—What is chemical energy?
2—Using chemical energy

Unit Four—Electrical Energy
1—What is electrical energy?
2—Using electrical energy

Unit Five—Nuclear Energy
1—Nuclear Energy

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 12710, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $1,500.00 ($4,995.00 for all four courses)

The Puzzle Of The Tacoma Narrows Bridge Collapse
This disc introduces students to the physics of wave motion and resonance. Three levels or tracks of instruction are available on the disc: Five instructional units offer both experiments and actual footage of the bridge collapse.

Ch.1—Introduction to the Player. This explains the use of the Pioneer PR-7820 (level 2) player in interactive instruction.

Ch.2—Tacoma Narrows Bridge Collapse. Eyewitness reports make up the narration for this live footage that is not otherwise available.
Ch.3—Influence of the Wind. Lab experiments are used to recreate actual conditions.
Ch.4—Importance of Physical Properties. Live film and lab experiments demonstrate the principles of physics needed to understand the collapse.
Ch.5—Conclusion.

Programmed CAV
Software: Encoded on disc (level 2)
John Wiley & Sons, Inc.
Price: $150.00

Interactive Videodisc Science Instruction Project
Developed by Nebraska Videodisc Group for the Corporation of Public Broadcasting and Annenberg School of Communications.

Lesson 1. Studies in Motion
The student is shown video segments of dance, diving and gymnastics to study motion. Linear momentum, angular momentum, gravitational potential energy, center of mass, and moment of inertia can be determined through equations.

Lesson 2. Energy Transformation
Through the use of different bicycles, the student can calculate conservation of energy, the effects of friction, wind resistance, tire inflation, and mass of the rider.

Hardware Requirements:
Pioneer LD-V1000 player, Pioneer SIA Interface, IBM-PC (64K), Serial Interface Card, RS232 cable, Video Associates Labs Microkey System, One color monitor

Programmed CAV
Software: Written for IBM-PC
Price: $425.00 for disc with manual and software.
Photons And Interference Of Photons
The first part of the disc shows an experiment with very weak light, and demonstrates that even weak light can eject electrons without delay, suggesting that radiant energy comes in packages. The second part demonstrates that even very weak light, which was shown to carry energy like a particle, produces interference patterns characteristic of waves.

For use with Apple II+ or Ile computers and Pioneer PR-8210, LD-1100, VP-1000, Magnavox VC-8010, or Sylvania VP-7200 videodisc player with the Optical Data VAI-135 interface.

Physics And Automobile Collisions
This disc features slow motion footage of automobile collisions for the study of momentum. This data base of visual information focuses on Newton’s Laws and mechanical energy. Students can still frame the disc and measure distances on the television screen and collect collision data for simulated experiments.

Necessary Hardware
Pioneer LD-V6000.

Programmed CAV
Software: Written for Apple II+ or Ile
Central Scientific Company
Price: $250.00 with program, $195.00 for disc alone.

SCIENCE INSTRUCTION—SPACE SCIENCES

Space Archive Volume 1, Space Shuttle
This disc contains an audio-visual documentation of the space shuttle STS 5, 6 and 7 missions. The program features the following events:
- Solid Rocket Booster staging, freefall, parachute deployment, splashdown and recovery.
- Flight deck views of re-entry
- On-orbit launch of communications satellites.
- Space walks of Story Musgrave and Don Peterson.
- Deployment and retrieval of the SPAS pallet satellite, including remote video views of the Shuttle from SPAS.
- Housekeeping, Shuttle style, including techniques for shaving, eating and sleeping in zero gravity.
- Still photo collection of mission activities and out-the-window views of the Earth.
- Comments by Commanders Vance Brand and Paul Weitz, and Mission Specialists Joe Allen, Sally Ride and John Fabian.

Interactive CAV
Software: None available
Video Vision Associates, Ltd.
Price: $39.95

Space Archive Volume 2, Apollo 17 Mission To Taurus Littrow
This disc takes the viewer to the surface of the moon with the first exploration team ever to set foot on it. This disc is a must for the science classroom to see the effects of low gravity on a planet. Live footage and stills of the lunar surface, and the astronauts performing their experiments are contained on the disc.

Interactive CAV
Software: None available
Video Vision Associates, Ltd.
Price: $39.95

Space Archive Volume 3, Mars And Beyond
This disc is unique in the series of space discs in that it includes footage in 3-D. Two pairs of 3-D glasses are provided with the disc. Side one documents the Viking mission to Mars with over 500 photos and 20 minutes of video (14 minutes in 3-D). Mission photos from Voyager document the planets of Jupiter and Saturn. Side Two includes a 25 minute film “Voyager” that was produced by the Jet Propulsion Lab.

Interactive CAV
Software: None available
Video Vision Associates, Ltd.
Price: $39.95

Space Archive Volume 4, Space Archive Special Edition Shuttle Downlink: The Repair Of Solar Max
This disc has live footage and still frames of the latest Shuttle mission. The disc has excellent color pictures with superb clarity of the astronauts walking in space.
as well as in the weightless cabin. The disc has some of the best blast-off footage to date. The disc also features more prompts for the viewer to take advantage of the interactive nature of the medium.

**Interactive CAV**
Software: None available
Video Vision Associates, Ltd.
*Price: $39.95*

**Space Disc 2—Apollo**
The Center for Aerospace Education at Drew University, in cooperation with NASA Education Services put this series of discs together that document outer space and this country's exploration of the space frontier. The discs come with a reference manual and image directory.
- Approximately 10,000 NASA photos of the Apollo 11, 12, 13, 14, 15, 16 and 17 missions
- Astronaut training
- Spacecraft preparation
- Mission and recovery
- "Onboard" photographs shot by the astronauts
- Movie highlights of each mission
- Launching and docking sequences
- Out-the-window views from lunar orbit and during descent and EVA activity

Includes the Space Archive Volume 2 disc

**Programmed CAV**
Software: Written for Apple IIE
Video Vision
*Price: $400.00 for 3 discs*

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**Space Archive Volume 5, Greetings From Earth**
This disc has over 2,700 video still frames including more than 1,500 color composite Landsat images. The Landsat images make up an atlas of the U.S. and other international points of interest. Also included is a twenty-page image directory and a reference map of the U.S. providing descriptions and viewing aids. Dozens of video clips and two music videos with music by Tangerine Dream comprise the rest of the disc.

**Interactive CAV**
Software: None available
Video Vision Associates, Ltd.
*Price: $39.95*

**Space Disc 4—The Sun**
The Center for Aerospace Education at Drew University, in cooperation with NASA Education Services put this series of discs together that document....
Space Disc 5—Astronomy
The Center for Aerospace Education at Drew University, in cooperation with NASA Education Services put this series of discs together that document outer space and this country’s exploration of the space frontier. The disc comes with a reference manual and image directory.
- Photo archive of more than 2,100 images that captures every aspect of solar research
- Solar spectrum from 3000 to 12500 angstroms
- Solar features at different wavelengths
- Observable layers
- Comets, aurorae and eclipse expeditions
- Movie clips of sunspots, prominences, flares, solar rotations (in H alpha, magnetograms, X-rays), the sunspot cycle, eclipse time lapse, the corona during totality and terrestrial aurorae
- Coverage of AS & E, Big Bear, Kitt Peak, Mt. Wilson, Sacramento Peak, Skylab and Solar Max
- The 28-minute award-winning NASA film UNIVERSE

Programmed CAV
Software: Written for Apple IIE
Video Vision
Price: $320.00

Space Disc 6—Earth Science
The Center for Aerospace Education at Drew University, in cooperation with NASA Education Services put this series of discs together that document outer space and this country’s exploration of the space frontier. The disc comes with a reference manual and image directory.
- Terrestrial geoscience, including plate tectonics volcanism, surface features and rock studies
- Lunar sample and meteorite studies
- Comparative planetology, including crater studies, surface mapping of terrestrial-like bodies
- U-2 high-altitude photography, including 100 largest American cities
- Gemini, Apollo, Skylab, Apollo/Soyuz Earth-looking photography
- Comprehensive LANDSAT coverage, including the USA Alaska, selected global regions, seasons comparisons and special mosaics
- Imaging radar studies from Seasat and STS 2
- Advanced analysis and mapping techniques

Programmed CAV
Software: Written for Apple IIE
Video Vision
Price: $400.00
conditions of Venus, Soviet Venera Mission to Venus, Viking Expedition to Mars, Olympus Mons, Phobos and Demos, Jupiter and Satellites, Uranus, Neptune, Pluto and Charon, Halley's Comet

*Side Two: The Stars*

Interactive CAV
Software: None available
Instant Replay
Price: $44.95

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**SOCIAL STUDIES**

*The Lost Civilization Expedition*
This interactive videodisc program is designed to help intermediate level students find lost study skills including building vocabulary, taking notes, understanding graphic information, using reference material, and outlining skills. Students sift through the many levels of their "archeological dig" to record important facts about King Tut's tomb, the Mayan Civilization, the Trojan horse and the buried city of Pompeii. The package includes one videodisc, four Apple diskettes with back-ups, a teacher's manual, and several teaching aids.

**Required Hardware**
Apple II+ or IIe (48K) computer, Pioneer LD-V4000 videodisc player, and an Allen MVP interface.

Programmed CAV
Software: Provided for Apple II+ or IIe
Society for Visual Education, Inc.
Price: $299.00

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**SPECIAL EDUCATION—SIGN LANGUAGE**

*Deaf Awareness: Let Your Fingers Do the Talking*
This disc is designed to teach sign language to communicate with the hearing impaired. The videodisc, along with a support manual, includes both instructional and testing segments on the manual alphabet, simple numbers, word signs and phrases. The disc captures the crucial elements of motion that are otherwise difficult to convey through the conventional method of learning from a series of still photographs. The program combines the benefits of personal instruction with feedback to provide the most advanced and effective methods of teaching the communication skills of sign language.

Programmed CAV
Software: Program encoded on disc (level 2)
Hardware: Sony LDP-1000
ACCESS Alberta
Price: $225.00

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**SPECIAL TOPICS**

*Discussions*
This disc is a sample of different applications for the videodisc technology. Each of the 16 demonstrations in Discursions is organized into a chapter that contains a slide show, a motion video segment, and digitally encoded text from relevant publications. These demonstration segments range in length from 40 seconds to seven minutes, and are located on both sides of the disc. Content of the chapters is outlined below.

**Side One**
Chapter 1 — Table of contents and introduction to the disc.
Chapter 10 — Interactive Movie Map (Aspen). This is a dynamic, interactive map, based on videodisc technology, which the viewer uses to take a simulated drive through an unfamiliar space.
Chapter 11 — Movie Manual. This section demonstrates how the technology might be used as an electronic book.
Chapter 12 — Communication News. This section simulates a personal electronic newspaper.
Chapter 13 — Desk File. Desk file explores electronic mail.
Chapter 14 — Talking Heads. Three-dimensional projections with sound-sync and dynamic spatial correspondence are explored.
Chapter 15 — Zero Bandwidth Video. Several teleconferencing techniques are explored.
Chapter 16 — Lip Sync. Experiments in lip sync techniques.
Chapter 17 — Caricature Generator. This program uses a computer to create caricatures.

**Side Two**
Chapter 20 — Phone Slave. This section demonstrates a personalized telecommunications system that works with voice and electronic mail messages.
Chapter 21—Put That There. A voice and gesture interactive system.
Chapter 22—Graphical Marionette. This section explores a method of capturing human motion.
Chapter 23—Archfile. A visual database of 5,000 records of American architecture.
Chapter 24—Picassofile. A visual database of 700 Picasso works stored by style, period, location and subject.
Chapter 25—Viewpoint Dependant Imaging. This section simulates viewing a three-dimensional environment.
Chapter 26—Stereoscopic Workspace. This chapter explores the use of a three-dimensional digitizer.
Chapter 27—Facemaker. This section demonstrates the use of videodisc for creating composite faces from a catalog of facial features.
Chapter 28—Disc Design. An overview of the disc.
Chapter 29—Digital Data. Description of how the data sections of the disc were created.
Chapter 30—Bibliography.
Chapter 31—Facemaker; This section demonstrates the use of videodisc for creating composite faces from a catalog of facial features.
Chapter 32—ArcMan in Action. This is a documentation of one day at the Architecture Machine Group terminal garden in still-frames.
Chapter 33—Arc Mac Slidathon. A collection of over 3,000 still images.

Interactive CAV
Software: None available
Architecture Machine Group
Price: $100.00

Frame Up
This disc is presented as the first interactive videodisc-based fiction. This is a disc that stresses strategy and making decisions. The package consists of one double-sided videodisc, a floppy diskette, and a user manual.

The scenario is about Eddy, who is locked in a department store at night. The user must make the right decisions at the right times in order to get Eddy out of trouble and prove his innocence. The store is under electronic surveillance via 10 video cameras hooked up to videotape recorders. Clever manipulation of the control room equipment will be of invaluable assistance in getting out of the trap.

Necessary Hardware
IBM-PC, XT, or AT (128K) with RS232C port and one disk drive, and a Pioneer LD-V6000 or LD-V6010 videodisc player.

Programmed CAV
Software: Included
IMEDIA International, Inc.
Price: $199.00

TELEVISION

Photo Store
One of America's top photo agencies, UNIPHOTO Picture Agency, of Washington, D.C. and Meta Media Systems, Inc., have combined to produce the Photo Store, a distinctive video and communications tool. Tens of thousands of high quality color transparencies covering the entire range of contemporary stock photography are contained on this disc.

Direct processing from the videodisc means that no external time base corrector is needed to produce a broadcast quality image. One annual licensing fee allows the use of any image for editorial video production, and many photos are released and available for commercial use on a per use basis.

The disc comes with a full color catalog/index so images can be found quickly with any videodisc player. Image Search software for the IBM-PC computers is available.

Programmed CAV
Software: Available with IBM-PC computers
Picture Management Systems
Price: $
Pretend you're reading the text naturally:

**Module A: Using The System; Identifying Coin (Sample Lesson)**

**Module B: Coin And Currency; Identifying Currency, Counting Currency, Packaging Coin, Strapping Currency, Counterfeit Money, Mutilated Money, Drawer Limits**

**Module C: Bank Services; Account Types, Safe Deposit Boxes**

**Module D: Checks And Negotiables; Negotiable or Not, Check Negotiability, Endorsements, Customer ID's, Check Numbers**

**Module E: Documents; Teller Stamp, Deposit and Withdrawal, Guaranteed Negotiables, Certified Checks, Redeeming Bonds, Cash in and Cash Out, Miscellaneous Checks**

**Module F: Debits And Credits; Debit/Credit Items, Balancing Debits/Credits**

**Module G: Transactions; Cash Deposit, Non-Cash Deposit, Split Deposit, Less-Cash Deposit, Loan Payment, Cashing Checks, Withdrawals**

**Module H: Teller Procedures; Night Depository, ATM's, Buying/Selling Cash, Completing the Teller Worksheet, Out of Balance**

**Module I: Final Test (Your First Day As A Teller)**

**Module J: Customer Relations**

**Necessary Hardware**

NCR InteractTV System

Programmed CAV
Software: Provided
NCR Interactive Videodisc Services
Price: $  

**VOCATIONAL EDUCATION—ELECTRONICS**

**Basic Electronics**

This is part one of a four-part Basic Electronics curriculum. This nine-hour course is designed for maintenance personnel, production technicians, engineers, instrumentation technicians, and others who require a basic understanding of electronic components and their measurement. This course provides an ideal foundation for more advanced courses in electronics. An optional lab pack, with a Measurement Trainer, experiments workbook, and parts kit are available. Included in this package are two videodiscs and one barcoded workbook. Course content includes:

- Electronic Quantities and Testing Principles
- Multimeters and Bridge-Type Instruments
- Oscilloscopes
- Signal Generators
- Component Testing

**Necessary Hardware**

IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included
Deltak
Price: $1,000.00 (approx.)

**Electronic Circuits**

This is part two of a four-part Basic Electronics curriculum. This fourteen-hour course is designed for maintenance personnel, production technicians, engineers, instrumentation technicians, and others who require a basic understanding of electronic components and their measurement. This course provides an ideal foundation for more advanced courses in instruction. The package includes one videodisc, two diskettes, course workbook, student notes, and a reference manual.

**Hardware requirements**

IBM-PC computer or equivalent, Pioneer LD-V6000 videodisc player, Videoswitch unit, or Sony View system.

Programmed CAV
Software: Provided
TCT Technical Training, Inc.
Price: $2,400.00
electronics. An optional lab pack, with a Measurement Trainer, experiments workbook, and parts kit are available. Included in this package are two videotapes and one barcoded workbook. Course content includes:

- Review of Electrical Quantities
- Component Characteristics and Circuits
- Resonant Circuit Characteristics
- Resonant Circuit Applications
- Rectifiers and Power Supplies
- Amplifiers
- Oscillators
- Pulses, Waveshaping, and Pulse Generators
- Logic Circuit Fundamentals
- Introduction to Number Systems
- Logic Devices and Diagrams and Circuit Applications
- Digital Types of Integrated Circuits

**Necessary Hardware**

IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included
Deltak
*Price:* $1,000.00 (approx.)

**Basic Troubleshooting In Electronic Systems**

This is part three of a four-part Basic Electronics curriculum. This twenty-four-hour course is designed for maintenance personnel, production technicians, engineers, instrumentation technicians, and others who require a basic understanding of electronic components and their measurement. This course provides an ideal foundation for more advanced courses in electronics. An optional lab pack, with trainers, experiments workbooks, and parts kit are available. Included in this package are two videotapes and one barcoded workbook. Course content includes:

- Introduction to Troubleshooting
- Methods of Troubleshooting
- Using Symptoms Diagnosis to Localize a Unit
- Isolating Trouble to a Circuit
- Locating the Defective Component
- Soldering and Desoldering Techniques
- Testing Power Supply Failures
- Input/Output Devices
- Oscillators/Multivibrators
- Digital Circuits
- Amplifiers

**Necessary Hardware**

IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

**Advanced Troubleshooting In Electronic Systems**

This is part four of a four-part Basic Electronics curriculum. This thirty-eight-hour course is designed for maintenance personnel, field service technicians, instrumentation technicians, and others who require an understanding of advanced troubleshooting procedures and test equipment. An optional lab pack, with trainers, experiments workbooks, and parts kit are available. Included in this package are two videotapes and one barcoded workbook. Course content includes:

- Troubleshooting Mechanical Problems
- Troubleshooting Power Supplies
- Grounding Problems
- Troubleshooting Linear Circuits
- Troubleshooting Microprocessors and Peripherals
- Symptom Analysis and Diagnosis
- Preventive Maintenance Techniques
- Efficient Maintenance and Repair
- Diagnosis by System Analysis
- Signal Generators and Other Instruments
- Troubleshooting Practice Problems
- Printed Aids to Troubleshooting
- Failure Rate Analysis
- Industrial Power Control
- Testing Industrial Linear Devices
- Analyzing Industrial Systems
- Commonsense Approach

**Necessary Hardware**

IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included
Deltak
*Price:* $1,000.00 (approx.)

**Electrical/Electronic Skills**

This training program takes the learner beyond the concepts presented in the ELECTRICAL/ELECTRONIC THEORY course. The program covers six distinct subject areas that are devoted to the training of practical, maintenance-related skills as applied to industrial electrical/electronic maintenance procedures and situations. The seventeen lessons included in the program are designed for training entry-level personnel and for providing remediation in selected areas to
experienced individuals. The package includes one video-disc per lesson, one set of floppy disks per lesson, five copies of the User Materials per lesson, one copy of the Instructor materials, and one Course Administration Utility floppy disk. The seventeen lessons include the following topics:

1—The Oscilloscope
2—The Multimeter
3—The Wheatstone Bridge, Megohmmeter, and Clamp-On Ammeter
4—Ladder Diagrams
5—Wiring, Single Line, and Building Electrical Diagrams
6—Electrical Control Equipment: Switches, Coils, and Overload Relays
7—Electrical Control Equipment: Limit Switches
8—Electrical Control Equipment: Fuses and Molded Case Circuit Breakers
9—Electrical Control Equipment: Motor Starters
10—Troubleshooting Electrical Control Circuits
11—AC Motors: Theory and Routine Testing
12—AC Motors: Maintenance
13—AC Motors: Variable Speed Motor Theory and Maintenance
14—DC Motors: Theory and Maintenance
15—Protective Relays
16—Switchgear: Bus Work and Circuit Breakers
17—Switchgear: Circuit Breaker Testing and Maintenance

Necessary Hardware
Visage V:STATION 2000 system.

Programmed CAV
Software: Provided
Industrial Training Corporation
Price: $12,995.00 ($850.00 per lesson)

Electrical/Electronic Theory
This training program covers two distinct subject areas that are devoted to the training of electrical/electronic theory, concepts, and applications. The seven lessons included in the program are designed for introducing entry-level trainees to industrial related electrical/electronic concepts for the first time, and for providing remediation in the theoretical foundation of the craft to experienced individuals. The package includes one video-disc per lesson, one set of floppy disks per lesson, five copies of the User Materials per lesson, one copy of the Instructor materials, and one Course Administration Utility floppy disk. The seven lessons include the following topics:

1—AC/DC Theory: Ohm’s Law and DC Circuits
2—AC/DC Theory: Characteristics of AC Circuits
3—AC/DC Theory: Three-Phase AC Systems
4—Solid-State Theory: Semiconductors and Diodes
5—Solid-State Theory: Rectifiers and Filters
6—Solid-State Theory: Transistors, SCR’s, and Triacs
7—Introduction to Digital Electronics

Necessary Hardware
Visage V:STATION 2000 system.

Programmed CAV
Software: Provided
Industrial Training Corporation
Price: $5,595.00 ($850.00 per lesson)

VOCATIONAL EDUCATION — MATHEMATICS

Applied Industrial Mathematics
This training program is an applications-oriented program that focuses on the math skills that are actually used on the job. The eight lessons included in the program cover the topics from basic skills such as whole number operations to more advanced operations such as geometry, algebra, and trigonometry. Both analytical problem-solving skills and computation skills are taught using realistic job-related problems. The program is designed for training industrial craft skills workers from all industries. The package includes one video-disc per lesson, one set of floppy disks per lesson, five copies of the User Materials per lesson, one copy of the Instructor materials, and one Course Administration Utility floppy disk. The eight lessons include the following topics:

1—Whole Number Operations
2—Fractions
3—Decimals
4—Percent, Ratio and Proportion, Graphs
5—Positive and Negative Numbers, Powers and Roots
6—Algebra: Using Common Industrial Formulas
7—Measurement/Unit Analysis
8—Geometry and Trigonometry: Length, Area, Volume and Angle Calculations

Necessary Hardware
Visage V:STATION 2000 system.

Programmed CAV
Software: Provided Industrial Training Corporation
Price: $6,495.00 ($850.00 per lesson)
Fundamental Study Skills: Mathematics
This program is a series of four modules that builds practical skills step-by-step from whole numbers through introductory algebra. The learner needs only number recognition skills to enter the program. Each of the four modules in the fifty-hour program is an independent, self-contained course. A student may take one, or all of the modules: skills are determined by objective-based pre-testing. A mastery test at the end of each module verifies that the student is ready to proceed to the next.
The package contains two videodiscs, four workbooks, Pre-test, and an Objective-based Mastery Testing Course Management System. Course content includes:

Module 1: Whole Numbers
- The Language of Numbers
- Place Value
- Adding Whole Numbers
- Subtracting Whole Numbers
- Multiplying Whole Numbers
- Dividing Whole Numbers
- Solving Problems

Module 2: Fractions
- Understanding Fractions
- Adding Fractions
- Subtracting Fractions
- Multiplying Fractions
- Dividing Fractions
- Fractions and Mixed Numbers

Module 3: Decimals
- Understanding Decimals
- Working with Decimals
- Adding and Subtracting Decimals
- Multiplying Decimals
- Dividing Decimals
- Percents

Module 4: Introduction to Algebra
- Positive and Negative (Signed) Numbers
- Adding and Subtracting Signed Numbers
- Multiplying and Dividing Signed Numbers
- Algebraic Representation and Terms
- Powers and Exponents
- Order of Operations
- Equations and Statements
- Operations with Statements

Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software—Included Deltalak
Price: $1,000.00 (approx.)

VOCATIONAL EDUCATION—MECHANICAL TECHNOLOGY

Industrial Hydraulics
This sixteen-hour course is designed for maintenance personnel, production technicians, engineers, instrumentation technicians, and others who require an understanding of basic hydraulics. This course provides an ideal foundation for more advanced courses on mechanical maintenance. It can be used to cross-train electrical/electronics maintenance personnel whose job performance would benefit from a basic knowledge of hydraulics. Included in this package are two videodiscs and one barcoded workbook. Course content includes:
- Principles of Hydraulics; Introduction to Hydraulics, Hydraulic Pressure, How Hydraulic Power Works, Pressure Gauges
- The Hydraulic Power System; Basic Components and Accessories, Symbols, Hydraulic Circuits
- Hydraulic Fluids; Properties of Hydraulic Fluids, Common Hydraulic Fluids, Storage, Handling, and Maintenance
- Hydraulic Piping, Fittings and Connections; Piping Materials, Piping Specifications, Fittings and Connections
- Hydraulic Pumps; The Hydraulic Pump, Gear Pumps, Vane Pumps, Piston Pumps, Pump Servicing
- Hydraulic System and Pump Accessories; Power Source, Fluid Reservoirs, Filters and Strainers, Heat Exchangers
- Pressure Control Valves; Relief Valves, Holding Valves, Sequence Valves, Pressure-Reducing Valves, Pressure Switches
- Flow and Directional Control Valves and Accumulators; Flow Control Valves, Directional Control Valves, Accumulators
- Actuators; Hydraulic Cylinders, Hydraulic Motors, Rotary Actuators
- Troubleshooting Hydraulic Systems; Where to Start, Loss of System Pressure, Actuator Malfunction, Overheating

Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.
**Industrial Pneumatics**

This sixteen-hour course is designed for maintenance personnel, production technicians, engineers, instrumentation technicians, and others who require an understanding of basic pneumatics. This course provides an excellent foundation for more advanced courses on mechanical maintenance. It can be used to cross-train electrical/electronics maintenance personnel whose job performance would benefit from a basic knowledge of pneumatics. Included in this package are one videodisc and one barcoded workbook. Course content includes:

- Basic Principles of Pneumatics; Properties of Air, Measuring Air Pressure and Flow
- Pneumatic Systems and Components; Basic Pneumatic Controls, Graphic Symbols
- Compressors; Types of Compressors, Positive Displacement Compressors, Non-Positive Displacement Compressors
- Fluid Conditioners; Filters, Air Dryers, Lubricators, Regulators, Trio Units
- Pneumatic Controls; Pressure Control Valves, Flow Control Valves, Directional Control Valves
- Pneumatic Actuators; Air Cylinders, Air Motors
- Maintenance and Troubleshooting of Pneumatic Systems; Compressors, Filters, Lubricators, Air Dryers, Control Valves, Actuators, Systems

**Necessary Hardware**

IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included Deltak
Price: $1,000.00 (approx.)

**Rotating Equipment Predictive Maintenance And Alignment**

This training program is an applications-oriented program that focuses on the necessity of predictive maintenance of rotating equipment. The seven lessons included in the program are designed to introduce mechanics to the concepts of predictive maintenance in order to identify and reduce potential problems. Various procedures for performing alignment are also presented. The package includes one videodisc per lesson, one set of floppy disks per lesson, five copies of the User Materials per lesson, one copy of the Instructor materials, and one Course Administration Utility floppy disk. The seven lessons include the following topics:

1—Principles and Practices of Predictive Maintenance
2—Vibration Analysis
3—Lubricant and Trend Analysis
4—Techniques for Extending Bearing Life
5—Principles of Reverse Double Dial Alignment
6—Reversal Double Dial Alignment Procedure
7—Computerized and Laser Alignment

**Necessary Hardware**

Visage V:STATION 2000 system.

Programmed CAV
Software: Provided Industrial Training Corporation
Price: $5,595.00 ($850.00 per lesson)
Module 4: Inference
Thinking Skills
Inferring the Main Idea
Inferring Relationships
Drawing Conclusions
Using Judgment
Module 5: Study Skills
Using Outlines and Charts to Organize Information
Summarizing Good Study Techniques
Problem-solving

Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included Deltak
Price: $1,000.00 (approx.)

VOCATIONAL EDUCATION—SECRETARIAL SKILLS

Make The Telephone Work For You
Initial contact with an organization often takes place on the telephone. thus an organization’s image and reputation rely on the staff’s ability to effectively handle calls. This three-part course addresses the importance and necessity of creating the right impression on the telephone. Each module requires one to two hours to complete. The learner is placed into real-life situations and required to react to the problems presented.

Module 1—Creating the Right Impression on the Telephone
- Importance of creating the right impression
- Having the right attitude and manner
- Servicing a call/importance of the first contact
- Overcoming the limitations of the phone
- Speaking clearly/making the most of your voice
- Capitalizing on words and tone
- Need for accuracy in conveying information
- Importance of note taking/conveying of messages
- Knowing about your own organization/accessing further information
- Assisting the telephone receptionist

Module 2—Using the Telephone
- Answering/greeting/getting the caller’s name and using it
- Progressing a call/transferring a call/handling a call for someone who is out
- Dealing with inquiries and taking them to the next stage

Module 3—Dealing with Difficult Calls
- Handling wrong numbers, crossed lines, noises on the line, being cut off
- Handling complaints and objections
- Questioning techniques
- Offering the caller alternatives
- Using the caller’s name effectively
- Dealing with different types of caller: vague, aggressive, rude, or complaining
- Dealing with distractions in the office

Necessary Hardware
The Learning Center or the IBM InfoWindow

Programmed CAV
Software: Included MindBank, Inc.
Price: $1,995.00 per module

Writing For Results
Acquiring the skills to write successful business letters and memos is essential to the individual and the organization. This course is designed to help the user understand and apply the basic concept of effective business writing in a disciplined approach.

Module 1—The Basics
- Writing for results
- Letters as ambassadors of your organization
- Memos as ambassadors of you
- Other types of business writing
- Analyzing effects on readers
- Understanding the reader’s concerns
- What your reader wants from you
- The pros and cons of telephoning/conversing/meeting
- When writing is required
- Recognizing mistakes
- Why people make mistakes
- Clarifying your purpose
- Considering your reader
- Organizing your ideas
- Choosing appropriate language
- Making it readable

Module 2—Planning Your Writing
- Knowing what you want to achieve
- What is an objective?
• Ordering objectives
• What you should know about the reader
• Making the right assumptions
• Why readers react as they do
• Listing your points
• Getting the facts
• The main subject
• Importance of conciseness
• Testing for relevance
• The structure of writing
• Inductive vs. deductive
• Choosing the best sequence: chronological, spatial, functional, order of complexity, order of importance
• What should happen next?
• Make it easy for the reader

Module 3—Writing with Style
• What is style?
• Written word and the reader
• What is tone?
• Writing tone through words
• Choosing your words
• Being concise
• Using familiar words
• When to use jargon
• Keeping sentences short
• Unity and complexity
• Useless phrases
• What is a paragraph
• Topic and length
• Beginnings and endings
• Punctuation
• Pausing and clarifying
• Simplifying commercial jargon
• Activating the passive tense
• How to edit your own writing
• Layout hints
• Final checklist

Module 4—When the Going Gets Tough
• Writing to persuade
• When to persuade
• Being pleasant
• Arguing your case
• Stressing the benefits
• Making your point
• Writing to complain
• The tone
• Defining the problem
• Suggesting a solution
• Keeping alternatives open
• Meeting justified complaints
• Being timely
• Admitting fault
• Being constructive
• Giving satisfaction
• Dealing with unjustified complaints

• In the interest of public relations
• The issue of fault
• Legal implications
• Getting payment
• The second letter
• The final step

Necessary Hardware
The Learning Center or the IBM InfoWindow

Programmed CAV
Software: Included
MindBank, Inc.
Price: $1,995.00 per module

VOCATIONAL EDUCATION—STATISTICAL PROCESS CONTROL

Statistical Process Control
This training program is an applications-oriented program that focuses on the role of the control chart as a powerful tool in monitoring quality. The seven lessons included in the program are designed to introduce shop floor operators, supervisors, and technical personnel to the techniques of SPC. The package includes one videodisc per lesson, one set of floppy disks per lesson, five copies of the User Materials per lesson, one copy of the Instructor materials, and one Course Administration Utility floppy disk. The seven lessons include the following topics:

1—Introduction to SPC
2—Introduction to Control Charts
3—Control Charts for Variables
4—Control Charts for Attributes
5—Advanced Control Charts
6—Machine and Process Capability
7—Problem Solving Techniques

Necessary Hardware
Visage V:STATION 2000 system.

Programmed CAV
Software: Provided
Industrial Training Corporation
Price: $5,595.00 ($850.00 per lesson)

TELEMARKETING

Make the Telephone Sell for You
Many organizations are making increasing use of the telephone as a sales medium. Telephone sales staff must be adequately trained to maximize the effective-
This course is designed for those learning to use the telephone to sell, and is also suitable as a refresher course. Each module requires one to two hours to complete. The learner is placed into real-life situations and required to react to the problems presented.

**Module 1—Communicating over the Telephone**
- Creating the right impression
- Attending to attitude/manner/voice
- Answering promptly
- Being Prepared
- Overcoming the limitations of the phone
- Using descriptive, decisive, concise language
- Avoiding jargons
- Attending to emphasis and pitch
- Obtaining feedback
- Preventing defensiveness
- Making the most of incoming calls
- Gaining information to make sales
- To sell up, on, or across
- Turning a complaint into a further sale

**Module 2—Planning your Telephone Sales Tactics**
- Building a data bank
- Knowledge of your customer's business, your products and services, and your competition
- Product knowledge based on customer application
- Sources of information/how to obtain
- Keeping customer records
- Managing outgoing calls
  - Updating records
  - Following leads
  - Identifying the decision maker
  - Planning when to call
- Structuring a call
  - Using a call planner
  - Planning objectives/the approach/key presentation points
  - Choosing an approach
- Types of calls
  - Cold calls
  - Routine sales calls
  - Calls to resolve problems
  - After sales calls

**Module 3—Making a Telephone Sales Presentation**
- Preparing a presentation
- Identifying needs
- Stressing benefits
- Using only one or two key selling points
- Using testimonials
- Carrying out the presentation
  - Getting through to the decision maker
  - Presenting in four stages
  - Generating interest by the approach
  - Identifying needs by probing

**Module 4—Dealing with Objections and Difficult Customers**
- Handling problem customers
- Talkative type: use echo technique
- Silent type: use open questions
- Buying bully: handle firmly
- Timid/indecisive types: build their confidence
- Stubborn type: use strong presentation
- Dealing with objections in two stages: handling and answering
- Preempting objections
- Using seeming-to-agree and boomerang techniques
- Uncovering concealed objections
- Handling non-genuine objections
- Answering standard objections

**Module 5—Closing a Telephone Sale and Follow-Up**
- Knowing when to close on the phone
- Picking up buying signals
- Using questions
- Types of close
- Asking the direct question
- Giving two choices
- Using assumptive close
- Using a concession
- Getting a series of agreements
- Rules after closing
- Checking for understanding
- Providing for a follow-up
- Analyzing performance if the call fails
- Follow-up calls to:
  - Check for problems
  - Sell a repeat order
  - Try another presentation after a failed call
  - Give advance warning
- Responding to danger signals

**Necessary Hardware**
The Learning Center or the IBM InfoWindow

**Programmed CAV**
Software: Included
MindBank, Inc.
**Price:** $1,995.00 per module
APPENDIX G. DIRECTORY OF VIDEODISC MASTERING OPTIONS

VIDEODISC SHARING

APh Technological Consultants
55 North St. John Avenue
Pasadena, CA 91103
(818) 796-0331

Comsell, Inc.
500 Tech Parkway
Atlanta, GA 30313
(404) 872-2500

International Interactive Communications Society
(IICS)
2120 Steiner Street
San Francisco, CA 94115
(415) 922-0214

3rd Wave Media Consultants
1600 Notre Dame, Suite 206
Montreal, Quebec Canada, H3J 1M1
(514) 932-9885

SMALL VOLUME VIDEODISC MASTERING

Crawford Communications
535 Plasmamour Drive
Atlanta, GA 30324
(800) 831-8027
(404) 876-7149

LaserVideo, Inc.
One East Wacker Drive
Chicago, IL 60601
(312) 467-6755

Spectra Image
540 North Hollywood Way
Burbank, CA 91505
(808) 842-1111

LARGE VOLUME VIDEODISC MASTERING FACILITIES

Pioneer Video, Inc.
5150 East Pacific Coast Highway, #300
Long Beach, CA 90804
(213) 498-0300

Sony Video Communications
Sony Drive
Park Ridge, NJ 07656
(201) 930-1000

Technidisc
2250 Meijer Drive
Troy, MI 48084
(313) 435-7430

3M Optical Recording Project
223-55, 3M Center
St. Paul, MN 55144
(612) 733-4435

Comparison of Mastering Costs
Set Up Costs Per Disc Side (12")

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+ CAV with digital programming
* No set up charge for discs without digital programming

### Set Up Costs Per Disc Side (8")

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<td>$ 6.75</td>
<td>$ 10</td>
<td>$ 10</td>
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</tbody>
</table>

+ CAV with digital programming
* No set up charge for discs without digital programming
APPENDIX H. DIRECTORY OF AUTHORING LANGUAGE DISTRIBUTORS

AUTHORING LANGUAGES

Almtech Corporation
Maestro Authoring System

- Runs on the following computers with mouse:
  IBM-PC
  Digital VaxStation
  Sun Microsystem/3
  Wang Advanced Professional Computer
  Sony KTX1350 Intelligent Workstation
- Icon-based menus
- "Symbolic Authoring" technique for building flow charts
- Course can be "run" from any location within the structure
- Pull down windows
- Multiwindowing with Sun and Vaxstation
- No arbitrary limits on interactivity or branching
- Supports graphic overlay
- Graphics editor included
- Frame capturing available

Price: $5,000.00

Allen Communications
Quest—Authoring System

- Runs on the IBM-PC and AT&T 6300 computers
- Menu-driven system
- Prompts displayed at all times
- No knowledge of programming necessary
- Capable of dot-by-dot color graphics
- Quick creation of shapes and animation, advanced text video and audio features
- True/false, multiple choice, and fill in the blank formats available
- Unequalled range of branching capabilities
- Student data management options
- Student feedback options
- Simple set of commands
- Lessons easily modified
- Manual with tutorials provided
- Allows the use of touch screens, light pens, and key pads

Price: $1,295.00 includes license for one development station and one delivery station

Applied Data Research, Inc.
Adroit Authoring System

- Runs on the IBM-PC computer
- Menu-driven system
- Supports graphic overlay
- Graphics editor included
- True/false, multiple choice, multiple right, multiple wrong, short answer, and close but wrong (for spelling errors) inputs
- 30 response judges per screen, up to 72 characters in length, for short answer
- Record keeping included
- Screen capture
- Easy to edit and change
- Music and voice feedback
- Supports lightpen
- Optional mouse support

Price: $5,500.00

BDC Associates
The Instructor Authoring System

- Runs on the Apple II computer
- Menu-driven system
- Student record keeping

Price: $395.00

Computer Teaching Corporation
TenCORE Authoring System

- Runs on IBM-PC computers
- Fully prompted menu-driven system
- No programming experience necessary
- True/false, multiple choice and open ended question judging
- User defined character sets can implement special symbols, graphics or logos
- Sophisticated feedback capabilities offer added flexibility
- Answer judging includes spelling, letter case, and word order
- Student record keeping
- Graphics overlay supported
- Supports mouse, light pen and touch screen
- Optional APPLE Student Executer will run IBM TenCORE programs on the APPLE II family of computers

Price: $1,295.00 includes license for one development station and one delivery station
Optional Computer-Managed Instruction System
for extensive student record keeping and management options

Price:
$2,000.00 for TenCORE Authoring System
$2,000.00 for TenCORE Computer-Managed Instruction System
$250.00 for TenCORE Assistant (authoring aid)
$2,000.00 for TenCORE Apple Student Executer

Comware Incorporated
KSS Author, Authoring System

- Runs on IBM-PC or compatible computers
- Window-level authoring system
- No menu structures to slow the advanced user
- Free form branching structures for a variety of student input from simple menu selections to sophisticated answer-judging
- Graphics editor included
- Screen capture included
- Student record keeping
- Graphic overlay supported
- Touch screen supported

Prices:
$2,995.00 Annual system license
$5,995.00 Perpetual system license

Datamed
Videodisc Authoring System

- Runs on the IBM-PC computer
- System commands use English-like syntax
- Judging includes true/false, multiple choice, keyword or phrase searches
- Source text files included to allow customizing of commands
- Input devices supported include light pens, touch screens, graphic overlay devices, barcode readers, magnetic stripe readers, and mouse devices
- No extra fees or licensing

Price: $295.00

Edudisc
Mentor/MacVideo Authoring System

- Runs on the Apple Macintosh computer
- Macintosh icon-based menus
- High resolution graphics
- Relational format for open-ended lessons
- Full windowing

- "Student Summary" feature evaluates student performance

Price: $595.00

Global Information Systems Technology, Inc.
Accord Authoring System

- Authoring and delivery on the AT&T 3B line of computers
- Delivery on AT&T PC6300 and IBM-PC computers
- Uses the TUTOR authoring language
- Full color graphic capabilities
- Full judging features for user input analysis
- Utilizes extended ASCII code for text and graphics
- Supports touch, mouse and other external devices
- Linkage to other programming languages
- Interfaces to native hierarchical file facilities
- User-defined font sets
- Graphics overlay supported

Price: $5,000.00

Interactive Training Systems
Authority—Authoring System

- Runs on IBM-PC computers
- No programming expertise necessary
- Menu-driven system
- Provides second-generation authoring capability
- Supports video and text-based course development
- Includes competency-based educational formats
- 20 touch-sensitive, lightpen-sensitive or keyboard-sensitive areas are definable
- Medium or high resolution graphics editing included
- Supports graphic overlay
- Sophisticated student record management included
- Supports light pen and touch screen

Price: $3,000.00

International Business Machines Corp.
Learning System/I—Authoring System

- Runs on the InfoWindow System
- Menu-driven system
- Supports touch screen and mouse
- Supports the integration of graphics from existing packages
- Administrative Utility supports student data collection
- Supports graphic overlay
- Supports windowing
Supports synthesized speech
• Variety of text fonts and sizes
• LS/1 Presentation System is available for lesson delivery

Prices:
$5,000.00 for LS/1 Authoring System
$125.00 for LS/1 Presentation System

J.A.M., Inc.
JAM Discwriter Course Authoring System
• Runs on the IBM-PC computer
• Menu-driven system
• No programming knowledge necessary
• User's guide gives step-by-step instructions
• Online testing and record keeping capabilities
• Prints management reports
• Menu based system

Price: $159.00

Learncom
SAM Authoring System
• Runs on the IBM-PC and compatible computers
• All commands are prompted
• Full-screen editing for text and graphics
• Page overlaying and erasing for a "windowing" effect
• Standard or user definable character sets available
• Text and graphics animation
• Sophisticated answer judging
• Strings within strings can be recognized
• Student record keeping
• Graphic overlay supported
• Fading feature can fade video, text, graphics or audio

Prices:
$4,000.00 First year license
$875.00 Per year

Master Class Corporation
Cast Authoring System
• Runs on the IBM-PC and compatible computers and any UNIX-based hardware
• Command-based system
• Student record keeping and student management features
• Up to 127 windows available per screen
• Complex arithmetic computations supported

Price: $1,295.00 for IBM-PC

Online Computer Systems, Inc.
Pilot Plus Authoring Language
• Pilot Plus is supported on CP/M 2.2 Z80 based systems and IBM-PC or computers that use 8088 or 8086 processors
• Command-based system
• Complex answer judging
• Supports digital sound technologies
• Graphic overlay supported
• Full screen editor for creating or modifying materials
• Online testing and record keeping capabilities
• User defined character sets available

Price: $1,000.00

Optical Data Corporation
Laser Write Authoring Program
• Runs on the Apple II and Ile computers
• Capable of highly structured branching routines
• Mix and match captions, true/false questions and multiple choice items with or without the laserdisc player online
• No programming experience necessary
• Programs can be edited with the Laser Write editor or Apple Works word processing program

Price: $80.00

Regency Systems, Inc.
Training & Education Language (TEL)
• Command-driven
• Menu-driven utility included
• Runs on IBM-PC computers, 320K RAM
• Graphics Editor generates TEL code
• Student record keeping
• User-defined character editor
• Fill-in-the-blank, true/false, yes/no judging
• Package includes Source Editor, Group Editor, Dotset Editor, Print Table Editor, File Manager, Online learning aid

Price: $3,950.00

Sony CDS/Genesis—Authoring System
• Runs on the IBM InfoWindow, Sony View, NCR InteracTV-2, and the Visage 1500 videodisc systems
• Menu-driven system
• Supports multi-level authoring
• Supports lesson structure design
• Screen-oriented editor
• Flow charts of lessons can be printed
• Student data gathering
• Supports light pen, mouse and touch screen

Price: $

Spectrum Training Corporation
The Educator Authoring System

• Runs on the IBM-PC, XT, AT and compatible computers
• Menu-driven options
• True/false, multiple choice, fill-in-the-blank, or yes/no judging available
• Frame Capture Utility included
• Full-screen word processing and graphics
• Total control of color
• Advanced graphics capabilities
• User-defined font capabilities
• Supports windowing
• Group or individual record keeping
• Supports graphics overlay

Price: $3,500.00 per year per author

Thomas Communications
Force Ten Authoring System

• Runs on the IBM-PC, XT, AT or compatible computers
• Supports Sony LDP-1000, LDP-2000, Pioneer LD-V6000 o: Philips VP-835E videodisc players
• Menu-driven system
• Multiple choice, fill-in-the-blank, keyword search/free form response, list match, yes/no, or true/false answer judging
• Supports graphics overlay
• Windowing and animation supported
• User-defined fonts
• Screen capture feature
• Advanced graphics features included
• Group or individual record keeping

Price: $5,000.00

Darbick Instructional Software Systems
VCIS—Video-Computer Courseware Implementation System

• No programming required
• Create and edit text and graphics
• Build and revise courseware
• User options always displayed
• Analysis of student response data available
• Complex branching routines available
• Fully transportable on the following systems: IBM-PC (MS-DOS V.2)
  Zenith Z-100 (MS-DOS V.2)
• Courseware can be developed for one-third the normal cost
• Supports graphic overlay

Prices:
$600.00 for Educational Institution site license
$2,000.00 for Full support
$1,250.00 for Small organizations 2 computer license
$3,000.00 for Full support
$2,500.00 for Large organizations site license
$6,000.00 for Full support

Videodisc
VIDKIT Authoring System

• Runs on the IBM-PC OR IBM-PCjr computers
• Menu-driven system
• Graphics editor
• Student record keeping available
• True/false, multiple choice, and short answer input judging
• Student record keeping
• Supports touch screen, mouse, and light pen inputs
• Capable of printing lesson flow chart

Price: $150.00

Video Nova
Video Nova Authoring System

• Runs on the Sony SMC-70, View and IBM-PC computers
• Menu-driven system
• Supports Graphic overlay
• Supports light pen, joy stick, and touch screen
• Graphics editor
• Answer judging includes matching text input
• Student record keeping available

Prices:
$1,995.00 for Base system
$995.00 for Course Supervisor & Student Record Keeper
$149.00 for Type Font & Titling Package
$395.00 for Deluxe Testing Format Package
**Washington Computer Service**

**Pilot Authoring Language**

- Runs on the Apple Macintosh and IBM-PC computers
- Command-based language
- Multiple text windows
- User-defined character fonts
- Extensive graphics support
- Student record keeping
- Screen capture
- Full computational features
- Arrays, strings, functions, pattern matching; judging

**Prices:**
- $200.00 for PC/PILOT
- $350.00 for MacPILOT

---

**Whitney Educational Services**

**A 128-A—Insight 2000 Plus Authoring Language**

- Runs on the Apple computer
- 35 levels of branching
- 10 levels of unit nesting
- Options for multiple choice, true or false; or fill in the blank questions with unlimited responses
- Student control can be available at any time
- Student response storage file
- Built in diagnostic features

**Price:** $990.00

---

**Whitney Educational Services**

**SM 327—Insight 70 Authoring Language**

- Runs on the Sony SMC-70 computer
- Supports the SMC-70 superimpose functions
- 35 levels of branching
- 10 levels of unit nesting
- Options for multiple choice, true or false, or fill in the blank questions with unlimited responses
- Student control can be available at any time
- Student response storage file
- Built in diagnostic features

**Price:** $895.00

---

**Whitney Educational Services**

**PC-227A—Insight-PC Plus Authoring Language**

- Runs on the IBM-PC and compatible computers
- 35 levels of branching
- 10 levels of unit nesting
- Options for multiple choice, true or false, or fill in the blank questions with unlimited responses
- Student control can be available at any time
- Student response storage file
- Built in diagnostic features

**Price:** $990.00
APPENDIX I. SERVICE INFORMATION

In Service, Inc.
765 Route 83, Suite 114
Bensenville, IL 60106
(312) 860-9822

In Service, Inc. has been designated as a preferred service company by Pioneer. Videodisc players have a five-day turnaround from the date received by In Service, Inc., with flat labor rates on all models. Extended warranties are available. Call for quotes.

Warrantech Corporation
126 East 56th Street
New York, NY 10022
(212) 8383

Approximate Costs for Selected Videodisc Related Items

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* or 14% of retail price, whichever is greater
** or 17% of retail price, whichever is greater
APPENDIX J. VIDEODISC BIBLIOGRAPHY

This bibliography is a collection of books, periodicals, conference proceedings, and special publications pertaining to the subject of videodiscs. Although very few books have been written about videodiscs, those on the market range from historical accounts of the technology to production guides for interactive programming. The bulk of the information concerning the applications of the technology, and the specific problems encountered in daily use is contained in the periodicals. The periodicals listed here are either fully devoted to videodisc technology or have frequent articles that are helpful in understanding the different aspects of videodisc use. Several fields offer publications that discuss the videodisc technology: professional television, educational media, computer assisted instruction, and optical disc technology. As each of these areas have different readers, it is often interesting how many different perspectives from which the technology can be viewed.

Videodisc Books
Daynes, Rod, and Beverly Butler. The Videodisc Book. John Wiley & Sons, Inc., P.O. Box 063, Somerset, New Jersey 08873. 1984. $89.95.
DeBloois, Michael L. Effectiveness of Interactive Videodisc Training. Learning Link Corporation, 2880 South Main Street, Suite 111. Salt Lake City, Utah 84115. 1985. $25.00.
Kindelberger, Charles. Interactive Video—1984. Applied Video Technology, Inc., 5118 Westminster Place, St. Louis, Missouri 63108. Phone (314) 569-9144. $31.50 or $45.50 with supplement.

PERIODICALS
E-ITV, C.S. Tepfer Publishing Company, Inc., 51 Sugar Hollow Road, Danbury, CT 06810. Phone (203) 743-2120. Monthly. $15.00/year, $2.00/single copy.
Interactive Discs Today, 2315 Broadway, New York, NY 10024. Phone (212) 873-5900. Biweekly $225.00/year.
Interactive Video Technology, 223 Sunrise Drive, Shreve, OH 44676. Phone (216) 567-3732. Monthly. $45.00/year.
International Television, Fulfillment Dept., P.O. Box 1229, Murry Hill Station, New York, NY 10016. Phone (212) 725-5742. Six issues per year. $13/year, $2.50/single copy.
The Laser Disc Newsletter, Suite 428, 444 Hudson Street, New York, N.Y. 10014. Phone (212) 242-3324. Monthly. $15.00/year, $2.00/single copy.
Medical Disc Reporter, 5219 Acacia Avenue, Bethesda, Maryland 20814. Bi-Monthly newsletter. $45.00/year.
Optical Information Systems, Meckler Publishing, 520 Riverside Avenue, Westport, CT 06880. Phone (800) 243-4223. Quarterly. $75/year.
Optical Information Systems Update, Meckler Publishing, 520 Riverside Avenue, Westport, CT 06880. Phone (800) 243-4223. Monthly. $96/year.
$66/year with subscription to Videodisc and Optical Disk.

Optical Memory Newsletter, E. S. Rothchild Publisher, P.O. Box 14807, San Francisco, CA 94114-0817. Phone (415) 621-6620. Bi-Monthly. $295/year.

Video Computing, P.O. Box 3415, Indialantic, FL 32903. Phone (305) 768-2778. Monthly. $130.00/year.

Videodisc Design/Production Group News, KUON-TV/University of Nebraska-Lincoln, P.O. Box 83111, Lincoln, NE 68501-3111. Phone (402) 472-3611. Bi-Monthly. Free.

The Videodisc Monitor, Future Systems, P.O. Box 26 Falls Church, VA 22046. Phone (703) 241-1799. Monthly. $197/year $10/single copy; free to video/audio professionals with purchasing authority.

**CONFERENCE PROCEEDINGS**

The following proceedings are available from the Society for Applied Learning Technology, 50 Culpeper Street, Warrenton, VA 22186. Phone (703) 347-0055.

- Public, Vocational and Industrial Education and Training (1982) $35.00.
- Videodisc, microcomputer and Learning System Technologies in Public, Vocational, Medical, and Handicapped Education and Training (1980). $40.00.

**SPECIAL VIDEODISC PUBLICATIONS**


Laser Library Resource Guide, Nashua Public Library, 2 Court Street, Nashua, NH 03060. (603) 883-4141. $5.00.

Medical Disc Reporter Project Directory, 5219 Acacia Avenue, Bethesda, Maryland 20814. Directory $65.00, quarterly updates $25.00.

**CONFERENCE AND WORKSHOP INDEX**

The following is a list of organizations that hold regular workshops or conferences in the field of interactive videodisc. Many of these organizations have sessions that are specifically geared toward education and training, as well as technical sessions geared more for industrial applications of the technology and interactive video production techniques. Readers should contact each organization before attending to be sure that the workshop or convention will be appropriate to meet their specific needs.

**Association for the Development of Computer-Based Instructional Systems (ADCIS)**

Miller Hall 409
Western Washington University
Bellingham, WA 98225
(206) 676-2860

**Association for Educational Communications and Technology (AECT)**

1126 16th Street, N.W.
Washington, D.C. 20036
(202) 466-4780

**Columbia University**

Office of Continuing Education
Box 132
Teachers College
New York, NY 10027
(212) 678-3147

**Institute for Graphic Communication**

375 Commonwealth Avenue
Boston, MA 02115
(617) 267-9425

**International Interactive Communications Society (IICS)**

2120 Steiner Street
San Francisco, CA 94115
(415) 922-0214

**Ithaca College**

Office of Summer Sessions
Muller 210
Ithaca, NY 14850
(607) 274-3525

**Knowledge Industry Publications, Inc.**

701 Westchester Avenue
White Plains, NY 10604
(800)431-1880
ACCESS Alberta
Instructional Technology Unit
16930-114 Avenue
Edmonton, Alberta, Canada
T5M 3S2
(403) 451-3160

Actronics Inc.
810 River Avenue
Pittsburgh, PA 15212
(412) 231-6200

Aimtech Corporation
77 Northeastern Boulevard
Nashua, NH 03062
(603) 883-0220

The ALIVE Center
P.O. Box 73
Fairlawn, OH 44309
(800) AT-ALIVE
(216) 374-1620 in Ohio

Allen Communications
140 Lakeside Plaza II
5225 Wiley Post Way
Salt Lake City, Utah 84116
(801) 537-7800

American Association of Physics Teachers
5110 Roanoke Place, Suite 101
College Park, MD 20740

American Technology Resources
Rose Tree Professional Center
1245 N. Providence Road
Media, Pennsylvania 19342
(215) 565-6434

APh Technological Consultants
55 North St. John Avenue
Pasadena, CA 91103
(818) 796-0331

Applied Data Research, Inc.
Route 206 and Orchard Road, CN-8
Princeton, NJ 08540
(201) 874-9000

Architecture Machine Group
Room 9-516
Massachusetts Institute of Technology
105 Massachusetts Avenue
Cambridge, MA 02139
(617) 253-5981

BCD Associates, Inc.
5809 S.W. 5th Street, Suite 101
Oklahoma City, OK 73128
(405) 948-1293

BNA Communications Inc.
9417 Decoverly Hall Road
Rockville, Maryland 20850
(301) 948-0540

**MANUFACTURERS INDEX**
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Phone Numbers</th>
</tr>
</thead>
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<tr>
<td>ECCO Incorporated</td>
<td>1601 E. Chestnut Avenue, P.O. Box 659</td>
<td>(714) 835-6000</td>
</tr>
<tr>
<td>Edudisc</td>
<td>3501 Amanda, Nashville, TN 37215 (615) 269-9508</td>
<td></td>
</tr>
<tr>
<td>Electro Mechanical Systems, Inc.</td>
<td>801 West Bradley Avenue, Champaign, IL 61820</td>
<td>(217) 359-7125</td>
</tr>
<tr>
<td>Electrohome (U.S.A.) Limited</td>
<td>250 Wales Avenue, Tonawanda, NY 14150 (716) 694-3332</td>
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<tr>
<td>Electronic Systems Products, Inc.</td>
<td>One Tico Road, Titusville, FL 32780 (305) 269-6680</td>
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<tr>
<td>Elographics, Inc.</td>
<td>105 Randolph Road, Oak Ridge, TN 37830 (615) 482-4100</td>
<td></td>
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<tr>
<td>FTG Data Systems</td>
<td>P.O. Box 615, Stanton, CA 90680 (714) 995-3900</td>
<td></td>
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<tr>
<td>General Electric Company</td>
<td>Projection Display Products Operation, Electronics Park 6-206, P.O. Box 4840, Syracuse, NY 13221 (315) 456-2152 (315) 456-2153</td>
<td></td>
</tr>
<tr>
<td>Global Information Systems Technology, Inc.</td>
<td>201 West Springfield, Suite 700, Champaign, IL 61820 (217) 352-1165</td>
<td></td>
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<tr>
<td>GPN</td>
<td>Box 80669, Lincoln, Nebraska 68501-0669 (800) 228-4630 (402) 472-2007</td>
<td></td>
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<tr>
<td>Glolier Electronic Publishing, Inc.</td>
<td>Sherman Turnpike, Danbury, Connecticut, 06816 (800) 858-8858</td>
<td></td>
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<tr>
<td>Hazeltine Corporation</td>
<td>10800 Parkridge Blvd., Reston, VA 22091 (703) 620-6800</td>
<td></td>
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<tr>
<td>Health EduTech. Inc.</td>
<td>7801 East Bush Lake Road/Suite 350, Minneapolis, MN 55435 (612) 831-0445</td>
<td></td>
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<tr>
<td>Hitachi Sales Corporation of America</td>
<td>(Disc Players) 1290 Wall Street, West Lyndhurst, NJ 07071 (201) 935-5300</td>
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<tr>
<td>Hitachi Sales Corporation of America</td>
<td>(Televisions) 401 West Artesia Blvd, Compton, CA 90220 (213) 537-8383</td>
<td></td>
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<tr>
<td>Industrial Training Corporation</td>
<td>14616 Southlawn Lane, P.O. Box 6009, Rockville, MD 20850 (800) 638-3757 (301) 279-2527 (in Maryland)</td>
<td></td>
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<tr>
<td>IEV Corporation</td>
<td>3030 South Main St., Suite 300, Salt Lake City, Utah 84115 (800) IEV-6161 (801) 466-9093</td>
<td></td>
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<tr>
<td>IMEDIA International, Inc.</td>
<td>1333 F Street N.W., Suite 330, Washington, DC 20004 (202) 639-8505</td>
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<tr>
<td>Inflight Services, Inc.</td>
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