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THE RECORDING INDUSTRY MAGAZINE

# Mix

Pee-wee's Big Production

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MARK R GANDER  
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**Issue**

**History:  
Post-Production Facilities**

**Synchronizer Survey**

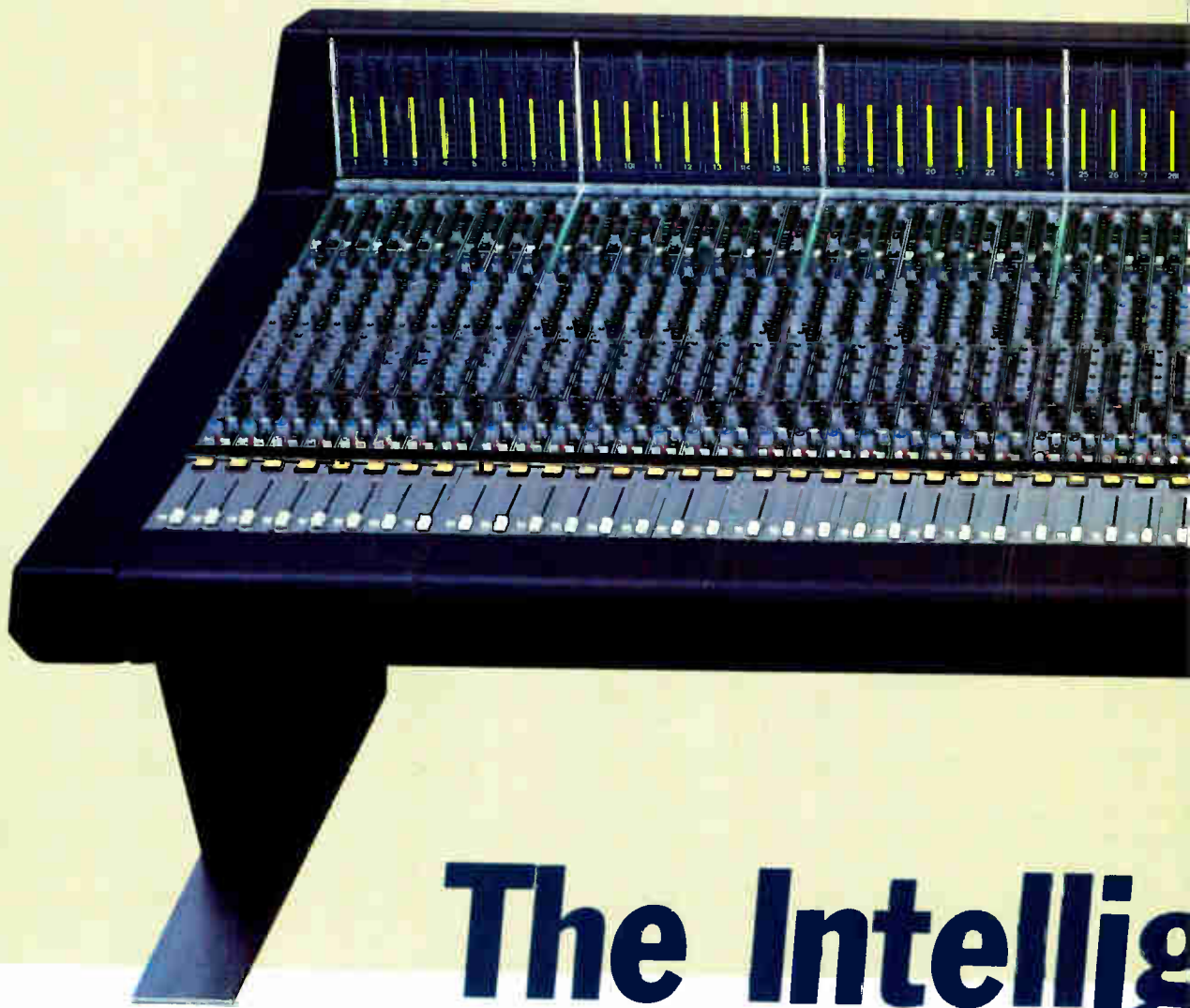
**Capitol Records'  
Joe Smith**

**Location Miking**

**Cartoon Post-Production**

**Adrian Belew**

**Digital Video Update**



# The Intelligent

## **Westar Outperforms That Well-Known Console.**

Compare features, specifications, sonic performance and dynamic automation options, and you'll agree. Exclusive features are: Fully parametric EQ on all 4 bands, eight echo/cue sends, dual stereo mix buses, 60 segment LED meters with spectrum analyzer, up to 64 track monitor, from 20 to 60 inputs, field expandable frame, and three levels of automation options. And excellence in performance: Transformerless +28dBm outputs, EIN at -129dBm, Output noise at -86dB, IM distortion at 0.02% with VCAs, Crosstalk at -80dB, Wide band frequency response and high RF immunity.

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## **Compumix PC Hard Disk Automation.**

Compumix PC is a powerful and technically advanced automation system, providing storage on floppy diskettes of an unlimited number of mixes and off line editing of mix data. The Compumix PC comes complete with IBM XT compatible PC (with Dual Floppy and 20 MB Hard Disk Drives), Mitsubishi 13"



# ent Choice.

color graphics monitor, custom and standard keyboard, and all cables and software. Compumix PC is probably the most cost-effective high-performance automation system available today, and a perfect fit for Westar. As a bonus, the new AMP (Assistant Mixer Program) software provides the mixing engineer and the producer with time saving and practical features like track sheets, telephone auto dialing, timers, and quick-find reference tables.

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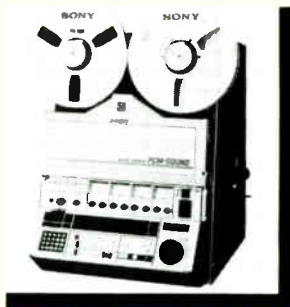
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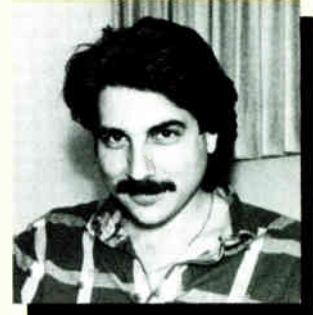
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Cover: Studio A at Unique Recording (New York City) was designed by owner Bobby Nathan and includes two Fairlight CMI Series III, a Fairlight Series IIX, a SynthAxe and a large assortment of outboard gear. Opened eight years ago, this 48-track studio is equipped for video sweetening and was involved with projects that won five Grammys last year. Photo by: Timothy White



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**W**e recently spent a day at the

Village Recorder in Los Angeles with a small group of engineers, producers, musicians and other media production professionals discussing the embryonic CD-Interactive industry—what it is, where it's going and how it's going to get there. The meeting was prompted by an invitation from American Interactive Media, the group set up by CD-I co-inventor Philips to stimulate the development of the industry by finding and nurturing potential program providers. This was the first time that audio and music professionals have had a chance to address AIM as a group, and AIM considered it significant, both to inform the software producers of the medium's capabilities, as well as to absorb ideas and suggestions relative to audio/music concerns to feed back to the hardware manufacturers—still a year or so away from CD-I playback unit introduction.

Among the many spirited issues addressed during the forum, the most controversy centered around just how much interactivity to give the end user. While this is miraculous (yet still vaporous) industry purports to intermingle "intelligent" interactive audio, text, graphics, still frame images and limited motion video on a CD, the creators for this medium are faced with a judgement call for just how much potential manipulation should be user controlled and how much should be predesigned. Should an interactive music program give the user the option of choosing from several solos and arrangements in building a music playback? Should users be supplied with MIDI inputs to construct their own solos in RAM, or be able to monitor their accuracy on screen in music training CD-I's? Just how sophisticated is the market and what complexity level will it support in the quantity that will guarantee a successful introduction and a long term growth market for CD-I?

AIM is currently looking for the common denominator of the mass market for early CD-I products. Their party line is that a base case CD-I system should be simple to use, friendly to the user and have its high tech guts carefully hidden so as not to make the user feel that computer savvy is required for its operation. The playback device, they say, will look little different from a conventional CD player, save for a few extra control devices.

Watching the birth of a new industry so important to us is an exciting and inviting proposition. We plan to keep a close eye on the developments, especially as they affect audio people. We'll also be running suggestion and opinion letters from Mix readers on the topic, and we encourage you to give it some thought and let us know what's on your mind.

Keep reading,

David M. Schwartz  
Editor/Publisher



# CURRENT

## **PolyGram Introduces CD-V at NARM**

Compact disc-video was officially launched by PolyGram's CEO Jan Timmer at the recent National Association of Recording Merchandisers' (NARM) annual convention in Miami Beach, following on the heels of a joint agreement between Sony and Philips. The CD-video system, which merges digital audio with high quality analog video (by LaserVision) into a consumer-oriented entertainment system, was demonstrated by Timmer using a 5-inch gold CD-video single. This was described as "the heir apparent to the 7-inch vinyl single," intended to transform music video into a popularly priced mass-market product. The playback device used by Timmer was a Philips/Magnavox CD-video "Combi Player," engineered to play, in addition to the CD-video singles, CD digital audio discs, and 8-inch and 12-inch LaserVision discs with either analog or digital sound.

PolyGram Records simultaneously announced the formation of PolyGram CD Video to spearhead the introduction of the system into the US market. Guenter Hensler, former president of PolyGram Records, Inc., has been named president of PolyGram CD Video and will oversee the selection, mastering, production and distribution of all US PolyGram CD Video titles. Emie! Petrone, former senior vice president, Compact Disc, for PolyGram Records, Inc., who also co-founded and chaired the Compact Disc Group of America, has been named executive vice president of PolyGram CD Video. He will continue to serve, in addition, as vice president, marketing and public relations, for American Interactive Media, Inc., the PolyGram/Philips joint venture CD-I catalyst organization.

The first production models of CD video Combi Players from Philips, Magnavox and several other manu-

facturers are expected to be introduced in June at the Consumer Electronics Show in Chicago.

## **Senate Considers DAT Bill**

In an attempt to prohibit the use of DAT recorders for home taping CD quality copies of prerecorded music, Senators Albert Gore (D-TN), Pete Wilson (R-CA), Alan Cranston (D-CA), John C. Danforth (R-MO) and John F. Kerry (D-MA) have introduced a bill into the Senate that would mandate that DAT machines transported in interstate commerce contain a "copy-code" scanner chip that would prevent the unauthorized duplication of copyrighted recordings. Termed the Digital Audio Recorder Act of 1987 (S.506), the bill also makes it unlawful to render a copy-code scanner inoperative, or to manufacture, assemble or offer for sale, resale, lease or distribution, any device or service that does so.

Included in the Senate bill are provisions intended to provide a remedy for anyone harmed by a violation, including songwriters, artists, music publishers, record companies and even competing manufacturers of DAT machines. The minimum award has been set at \$1,000 to provide a sufficiently strong deterrent to violators and an equally strong incentive to private enforcers. Under certain of the bill's exemptions are businesses with a legitimate need (such as manufacturers of prerecorded DAT cassettes, radio stations or recording studios) who may obtain recording devices without copy-code scanners.

## **New A/V Electronic Bulletin Board**

A non-profit computer bulletin board service, geared to the needs of users in the sound and video industries, has been formed and is scheduled to go online in late April. The service, known as AV-SYNC, is dedicated to the free exchange of ideas, special interests

and discussions among professionals in the audio, video and production-oriented areas of the industry. The online conferences will be structured into the following groups: Audio for Video, Television Sound, Production Q&As, New Technology, Manufacturer's Forum, Trends and System Files conference. Where applicable, there will be new or modified files available for users of software-based mixing and editing systems along with updates and related text files as supplied by various manufacturers and programmers. For further information, contact AV-SYNC at (404) 438-5858, or write PO Box 49567, Atlanta, GA 30359.

## **US DEAF Chapter Forms**

Modeled on the British group of slightly irritated professional audio engineers, some wayward LA types have put together the Distinguished Engineers' Audio Federation to provide a necessary outlet for good natured pissing and moaning. Meetings are held generally on the second Tuesday of each month at Sorrentino's Restaurant in Burbank at 8 p.m. Plans are also underway for an awards dinner to honor such meritorious work as "The Most Reference Discs Cut for a Non-charting Single," "The Largest Collection of Rental Gear for an Album Project," and "The Worst Parking Lot Award." For additional information, contact DEAF, 366 Las Casas Avenue, Pacific Palisades, CA 90272, or call (818) 506-1071.

## **Summer CES Slated**

Over 1,000 manufacturers and marketers have already applied for exhibit space at the 1987 International Summer Consumer Electronics Show, to be held May 30 through June 2, at Chicago's McCormick Complex. For more information, contact the Consumer Electronics Group, 2001 Eye Street, N.W., Washington, D.C. 20006, phone (202) 457-8000. ■



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# INDUSTRY NOTES

With the expansion of their creative sound production complex in midtown Manhattan, **Shelton Leigh Palmer & Co.** has named **Alan Meyerson** engineering consultant for the 5000 sq. ft. facility. . . . **LaserVideo, Inc.**, the compact disc manufacturer with plants in Anaheim, CA, and Huntsville, AL, has announced that **Cal Roberts** has joined the company as vice president of compact disc marketing. . . . Audio and video tape distributor, **The United Group**, has moved to 6855 Vineland Ave., North Hollywood, CA 91605. . . . **Ernie Heisser** has been appointed vice president, sales and marketing for **VCA Teletronics**. . . . **Klark-Teknik Electronics** has expanded the dealer network for their **DDA** recording consoles to include **Everything Audio**, Encino, CA; **Pro Media**, San Francisco, CA; and **The Audio Line Inc.**, Waukesha, WI. . . . **Lexicon** has restructured its distribution network to include 17 advanced products dealers throughout the U.S. For specifics, contact **Joel Silverman** at (617) 891-6790. . . . **Mobile Visual Productions, Inc.**, has relocated its corporate facilities to 3611 S. Harbor Blvd., Suite 150, Santa Ana, CA 92704, (714) 241-7724. . . . At **Discovery Systems**, in Dublin, Ohio, **Michael Ward** has been named vice president, compact disc marketing, and **Joel G. Nagy** has been appointed vice president, creative services. . . . **Ken Marcoux** has been named president and chief executive officer of **Howe Audio Productions, Inc.**, in Boulder, CO. . . . **Synergetic Audio Concepts** will sponsor a recording studio designer's workshop June 12 through 14 at the **Master Sound Astoria Recording** facility, in New York. For more information, contact **Syn-Aud-Con** at PO Box 1239, Bedford, IN 47421, (812) 275-3853. . . . **Editron Australia**, of Los Angeles, has moved to 748 Seward St., Hollywood, CA 90038, (213) 464-8723. . . . **Monterey Peninsula Artists**, the prestigious rock music booking agency, has opened a new office at 33 Music Square West, in Nashville, under the name **Monterey Artists**. . . . **SHAPE Video** has opened their **SHAPE Northeast Media Center** at the Airport Industrial Park in Biddeford, ME, to serve as a distribution and marketing center for SHAPE's commercial video products. . . . The Sony Broadcast Products Division, **Sony Communications Products Company**, has announced the formation of a new northwestern sales region managed by **Chris Golson**, formerly from Sony's Marketing Development office. **Reuel Ely** has been appointed director of engineering for **Sony Professional Products Company**. **M.H. "Sonny" Chaffin, Jr.** has joined **Sony**

**Corporation of America** as vice president, Advanced Technology Group. . . . The **MEDISCO** division of **Monfort Electronics**, the Indianapolis, IN, wire and cable distributor, has announced that **David Utterback** has joined them as a wire distribution specialist. . . . The Audio-Video Systems Division of **Ampex Corporation** has appointed **R. Bland McCartha** director of marketing. . . . The **University of Iowa's** eighth annual Seminar in Audio Recording will be held June 15 through 26 with professors **Stanley P. Lipshitz** and **Lowell Cross** as principal instructors. For more information, call (319) 335-1664. . . . **VCA Teletronics** has named **Barry Keith Eckhardt** video publishing sales supervisor, **Laura Lee Custer** business development representative for the video publishing market, **Vicki Harrell** industrial market sales supervisor, and **Laura Chastain** business development representative for the industrial market. . . . **Mid America Reps** has been appointed manufacturer's representatives for **Soundcraftmen's** professional products division. . . . **Future Music** has relocated their executive offices to 900 West First St., in Reno, NV. . . . **Debra A. Knight** has been appointed district sales manager/radio for the Florida and Georgia territories of **Harris Corporation**. . . . **Henry Lasch** has been named national sales manager for **Cubcomp Corporation**, the Hayward, CA-based manufacturer of 3D computer graphics systems. . . . **Hannah Greenberg** has joined **Kopel Films, Inc.**, of New York City, as senior account executive. . . . **Tom Anderson** has been named vice president, marketing, at **Vidicopy Corporation** of Sunnyvale, CA. . . . **Craig Park** has joined the San Francisco-based acoustical and audiovisual consulting firm of **Paoletti/Lewitz/Associates** as director of their audio visual consulting services. . . . **Redwood Marketing** has been formed in Nashville, TN, by **Claude** and **Terry Hill** and will be marketing the **GENELEC** line of self-powered professional studio monitoring systems. They can be reached at 820 Redwood Drive, Nashville, TN 37228. . . . **Richard Sirinski** has been named vice president and director of sales at **CMX Corporation**, in Santa Clara, CA. . . . **Thomas R. Meyer** has been promoted to director of engineering and **James S. Meek** has been named product manager at **DYNAIR Electronics** in San Diego. . . . **Pinnacle Systems, Inc.**, a Santa Clara, CA-based manufacturer of digital video effects systems, has added **Jeff Blackden** as manufacturing manager and **Betsy Edwards** as marketing communications manager. . . .

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Finally the true potential of the digital studio can be realized. No longer are you limited to storing and retrieving digital data on media designed for outdated tape technology. The Direct-to-Disk Multi-Track Recording System by New England Digital uses multiple, high capacity, winchester hard disk drives for data storage.

When comparing the Direct-to-Disk System with standard tape-based digital recording there is a dramatic difference. For example, the Direct-to-Disk System does not need error correction. Its negligible error rate contrasts sharply with tape-based digital recorders which require error correction software to compensate for error rates of up to 180,000 bits per hour. This dramatic difference in data integrity illustrates New England Digital's commitment to quality and audio fidelity.

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*Murray Allen, President, Universal Recording Corporation*

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The fidelity, speed, and flexibility of this system make the Synclavier Direct-to-Disk Multi-Track Recording System truly the most powerful digital audio system available today.

For a complete information package, including an audio cassette demonstrating the Synclavier and the Direct-to-Disk System, send \$5.00 to New England Digital Corporation, Box 546, White River Junction, Vermont 05001.



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## NORTH CENTRAL

At *Studio A*, Dearborn Heights, MI, producer *Rudolph Stanfield* digitally mixed a live performance of gospel artists, *James Chambers & the Ecclesiastical Choir* from Chicago. *John Jaszcz* and *Eric Morgeson* were behind the console. . . . At *Seller Sound Studio* in Sterling Heights, MI, the group *4th Floor* was in recording a song for their debut LP on Capitol Records, produced by *Melvin Riley Jr.* of Ready for the World, engineered and miked by *Gary Spaniola*. . . . "One Shining Moment," a song chosen by CBS Sports as the closing theme for the 21st Super Bowl, was recorded at *Solid Sound* in Ann Arbor, MI with *Will Spencer* as engineer. . . . At *Chicago Recording Company*, *Joe Morgan* tracked vocals on "The One You Own." *Craig Parsons* produced with *Joe Tortorici* mixing. . . . At *Alliance Studios* in Fenton, MI, *Via Satellite* has been recording their first album. *Greg Ward* is co-producing and engineering. . . . Jazz pianist *Gerri Allen* has been in *Sound Suite* in Detroit recording her latest album with engineer *Mike Brown* at the console. Also, gospel performer *Rance Allen* put down tracks for his forthcoming release, with Brown at the console. . . . Blues great *A. C. Reed* returned to *Soto Sound* in Evanston, IL to add vocal overdubs with Maurice Vaughn and Douglas Watson on "Don't Drive Drunk," his latest recording from the album *I'm in the Wrong Business*. *Jerry Soto* engineered the session. . . . At *Mus-I-Col* in Columbus, OH, Psychedelic Furs bassist *Tim Butler* produced *The Toll's* demo. *Doug Edwards* handled engineering responsibilities with assistance from *John Hetrick*. . . . At *Tone Zone Recording* in Chicago, songwriter/bassist *Dennis Woods* put the finishing tracks on his current demo titled "Talkin' Dirty." *Darryl Thompson*, guitar player for the Grammy-winning Black Uhuru, produced and co-wrote the song. *Joe Tortorici* and *Roger Heiss* engineered. . . .

## SOUTHWEST

Christian music artist *Wayne Watson* is recording a new LP, *Watercolor Ponies*, for Day Spring Records at *Rivendell Recorders* in Pasadena, TX. Wayne is acting as producer on the project with *Paul Mills* co-producing and engineering. . . . At *White Rose Studio* in Edmond, OK, sessions were finished for an album project for *Jimmy Swat*. Production was done by Swat, engineering by *Scott Minor* and Swat. . . . Local Dallas blues act *Anson & the Rockets* were in at *Goodnight Dallas*

cutting tracks for their upcoming album on Black Top Records. *Hammond Scott* was producing the project with *Larry Wallace* engineering. Goodnight's *Ruben Ayala* and *Don Seay* assisted. . . . *Denman-Clark* finished up their album at *Musicworks* in Carrollton, TX. It was engineered and produced by *David Rosenblad* for release on the RCA subsidiary Hacienda Records. . . . *Agony Column* recorded at *Lone Star Recording* in Austin, TX, with producer *Stan Coppinger*. Nightholler Productions' *Richard Ellsworth* and *Terry Lunsford* also worked on demos at Lone Star. All sessions were engineered by *Jay Hudson*. . . .

## NORTHWEST

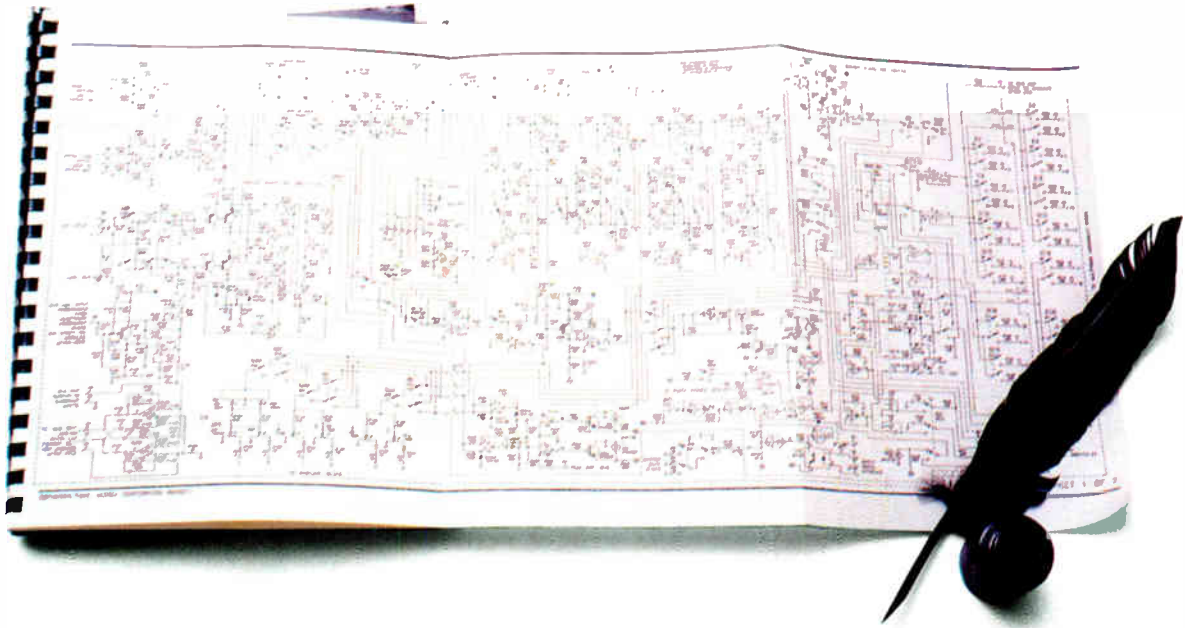
*Cyndi Lauper* recorded some vocals in Studio C at *Steve Lawson Productions* in Seattle. Lauper, who was on tour in Seattle, recorded vocal tracks to "What's Going On," a song off of her latest CBS release album *True Colors*, for rerelease as a single. . . . At *Avananche Recording* in Northglenn, CO, engineer and producer *Bill Porter* has completed mixing an album for Christian artist *Milo Herrick*. . . . The *Santana Band* brought in producers *Jeffrey Cohen* and *Don Miley* to collaborate on a 48-track dance mix of "Veracruz," a cut from their latest LP. The track was engineered by *Maureen Droney* and *Robert Missbach*, with assistance from *Stuart Hirotsu* and *Gordon Lyon*. . . . At *Triad Studios* in Redmond, WA, *Danny Dardorff* produced a film score for Puget Sound Pictures, with *Lary Netzger* engineering. . . . *Bernie Krause* has been in SF's *Russian Hill Recording* working on an album of environmental sounds with engineer *Jeffrey Kliment*. . . . *Narada Michael Walden's* projects at his *Tarpan Studios* (SF) included producing the latest single by the *Starship*, "Nothing's Gonna Stop Us Now" for the film *Mannequin*; and ongoing production on *Whitney Houston's* follow-up LP to her phenomenally successful debut album for Arista Records. Narada's next project will be his own solo LP for Warner Bros. Records. All projects were engineered by *Dave Frazer*, with assistance from *Dana Chappelle*. . . . *The Music Source*, Seattle, completed several video sweetening and custom music productions for 30-second TV spots. Clients included *Kobasic, Harris & Savage* of Portland for Nissan Dealers, starring Joe Montana. . . . At *Jopheir 12* studio in Los Gatos, CA, *Jim Reinhart* did work on his audio portfolio which includes four song demos. The project is being produced and engineered by *Colby Pollard*. . . . The Northern

California band *Rare Breed* was in *Montage Recording* (Newark, CA) recording a demo for Gypsy Productions. *Jerry Merrill* engineered, *Curtis Autin*, second. . . . At *Cascade Recording* in Portland, OR, *The Kingsmen* (of "Louie Louie" fame) worked on 24-track demos. Seattle's *Pamela Moore* also did vocal sessions there for an upcoming project. . . . *Chico Freeman's* new solo album was recorded at the *Music Annex* in Menlo Park, CA. The album was engineered by *Jim Dean* and co-produced by Freeman and *Herb Wong* for Blackhawk records. . . . At *Poolside Studios*, a new San Francisco facility, *Rand Weatherwax* and the Grateful Dead's *Mickey Hart* have been working on music for a documentary about mythologist Joseph Campbell. *David Nelson* and *Jerry Beasley* engineered. . . .

## NORTHEAST

*Suburban Dog* has been recording compositions for future release at *Dungeon Recording Studios*, Maplewood, NJ. The project is being produced by *Chuck Brownley/Orpheus Entertainment* with *Skip Spady* assisting. . . . *Jean Steals* was in *EARS* (East Orange, NJ) with producer *Michael Whyte* doing more work for their project on MCA Records. *Tom Zepp* was behind the desk with *Michael Van Duser* and *Carl Davis* assisting. . . . *The Blow Monkeys* have been in at NYC's *D&D Recording* making their next album with producers *Michael Baker* and *Axel Kroll* of Simple Simon, Inc., *Douglas Grama* engineering and *John Leposa* and *Michael Rogers* assisting. . . . EMI recording artist *Africa Bambaataa* has been in *Platinum Island* (NYC) recording his forthcoming album, featuring duets with Tina Turner, Grace Jones and David Bowie. Producer/engineer is *John Robie* with *Bryan Martin* assisting. . . . At *Air Craft Recording Studios* (Pittsburgh, PA), chief engineer *Barney Lee* and songwriter *Dave Hanner* recently completed the audio tracks for the latest Diet Sprite national TV commercial, featuring model Paulina. . . . *Music & Sound Design Studio* in Bridgewater, NJ completed soundtracks for several clients, including Sandoz, Mita, Mercedes-Benz, Casio, McNeil, and City Federal Savings. . . . At *39th Street Music* in NYC *Ashford & Simpson* completed tracks with *Tim Cox* at the board, assisted by *John Paul Cavanaugh*. And *Lenny White* produced *52nd Street* for *Virgin Records*, with *Alec Head* engineering, assisted by Cavanaugh. . . . At *Shakedown Studios* in Manhattan, *Michael Levine* and *Nelson Cruz* have been producing *Mari-*

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## NEOTEK

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*belle* for Arthur Baker's Criminal Records label. *Ed Chism* and *Ann Godwin* helped produce the vocals. Baker, Leyvine and Cruz also recently produced English artist *John Rocca* for *Criminal at Shakedown*. . . At Suffolk, NY's *Advanced Media Productions*, final recording was completed for an upcoming independent single release by a Connecticut-based rock group, *Murray the Wheel*, produced by *Tim Keenan*, engineered by *Glenn Finn*. . . *Tom Alonzo* was working in *Sheffield Audio/Video's* Maryland studio scoring the soundtrack for the movie *Tusks*. Also just completed was mixing for the PBS *Thelonus Monk Tribute*, with *Dave Glasser* engineering, *Bill Mueller* assisting. . . At *Northeastern Digital Recording* (Shrewsbury, MD), several new compact disc masters for the Rykodisc label were completed, including *Frank Zappa's* newest album, *Jazz from Hell* and a live album of *The Jimi Hendrix Experience* playing at Winterland in San Francisco in 1968. The recording will be released for the first time on CD only. . . In NYC, *Chung King House of Metal* aka *Secret Society* has been busy with the sounds of DEF JAM acts *Jimi Bleu*, *Public Enemy*, *Davy DMX & MC Breeze*. And *Jammaster Jay* is producing *Seriously Fine* with *Steve Ett* at the desk. . . *Kool & The Gang* were in NYC's *Unique Recording* mixing cuts 48-track digital using twin Sony 3324s in Studio A for their new LP with producer/engineer *Chris Lord Alge*, *Steve Antebbi* assisting. Also, *Russ Titleman* finished mixing *Jude*

*Cole's* debut LP for Warner Bros. Records. *Neil Dorfsman* engineered with *Acar Key* assisting. . . At *Broccoli Rabe* in Fairfield, NJ, RCA recording artist *Alisha* made use of the 48-track capability of Studio A to enhance the sound of her upcoming album. Producer *Mark Berry* worked with engineer *Al Theurer* and Synclavier programmer *Lee Shapiro*. . . At *Calliope Productions* in NYC, *Glenn Burtnick* put down basics for his new album on A&M Records. *Peter Moffitt* wrote and produced his debut album for RCA Records with *Chris Irwin* at the console. . . *Wicked Sin* was in Lodi, NJ's *Reel Platinum Studios* cutting their latest LP. . . *The 77s* were in NYC's *Quad Recording* recording their debut LP for Island Records. Producing and engineering for the 77s' self-titled album was *Robert Musso*. . . Jazz saxophonist *Michael Pedicin* has been in Philadelphia's *Kajem* cutting a new LP for an undisclosed label. Self-produced, the LP is being engineered by *Mitch Goldfarb* and *Joe Alexander*. Assistants include *Ryan Dorn* and *Jim Campbell*. . . Artist/producer *Dee Snider* of *Twisted Sister* finished tracks at *Cove City Sound Studios*, Glen Cove, NY, for Atlantic Records' group, *Envy*. *Eddie Delania* engineered. . . At *Avenue Recording* in NYC, *Dan Neer* of WNEW-FM and *Dewitt Nelson* produced the "Big Blue Boogie," a Texas boogie rocker, in honor of the New York Giants. It aired every day on WNEW-FM the week preceding the Super Bowl. . . At *Inner Ear Recording* in Queens, NY,

*Lenny Starwood* is laying vocal tracks for his new album. The production is being handled by *Tony Kessler*, engineering by *Steve Vavagiakis*. . . *Michael Baker* and *Axel Kroll* of Simple Simon were in *Digitel* in NYC producing cuts for *Grayson Hughes* on RCA. And *The Fat Boys* were in with *Gary Rottger*, who produced a song for their movie *Disorderlies*. . .

## SOUTHEAST

At *Chelsea Studios* in Nashville, independent record producer *Scott Tutt* has been cutting tracks on the Kentucky band *Government Cheese*. Recorded 32-track digital, the sessions were engineered by *Jon D'Amelio*, with *Dave Hieronymus* and *Kevin Smith* assisting. . . In Memphis, singer/songwriter *Tony Joe White*, was at *Cotton Row Recording* laying down tracks for his new album. *Jerry Bridges* and *Jeff Hale* produced. *Nikos Lyras* engineered. . . At *Morrisound Recording* in Tampa, FL, *Kevin DuBrow*, formerly of *Quiet Riot*, has been producing an album for the rock group *Juliet* using QR's *Frankie Banali* on drums. Also, *Nasty Savage* recently completed its second album on *Metal Blade Records*. . . At *Criteria Recording Studios* in Miami, the band *Urgent* (Manhattan Records) finished up edits and assembly on their upcoming LP. Production was by *Tom Allom*, with *Eric Shilling* engineering and *Patrice Levinsohn* assisting. . . At *Ardent's Studio A* in Memphis, *Terry Manning* was in doing work on *George Thorogood's* song "Bad to the Bone" for the EMI record label. *Al Green* was in to complete work on his latest album for A&M records; *Mark Culp* engineering. . .

## SOUTHERN CAL

In at *Metropolis Recorders* in Studio City, was Elektra recording artist *Irene Cara* finishing her upcoming album with *George Johnson* producing and *Paul McKenna* engineering. . . *Jellybean Benitez* has been in *Larrabee Sound* in L.A. working on *Jennifer Holiday* for Geffen Records. *Joe Chicarelli* engineered while *Jeff Lorenzen* assisted. *Jellybean* also has been in producing his own project for *Chrysalis*. . . *Michael Huey* (drummer for *Glenn Frey*, *Joe Walsh*) is back in the studio, this time wearing his producer hat. He's been at *K-Disc* in Hollywood mastering the new *Gene Clark* (The Byrds) and *Carla Olsen* (The Textones) debut LP for *Rhino*. . . At *Studio II Recording*, Culver City, *Michael Byers* completed his LP with *Barry Fazman* producing and *Jason Wolchin* at the board. . . Recording in *Rumbo Recorders' Studio A* (Canoga Park) was *Heart* with *Ron Nevison* producing, *Julian Stoll* assisting. Also, Elektra Recording artists *Dokken* were in working on a song for the upcoming movie in the continuing saga of *Nightmare*

—CONTINUED ON PAGE 237

*The Stocking Screen*

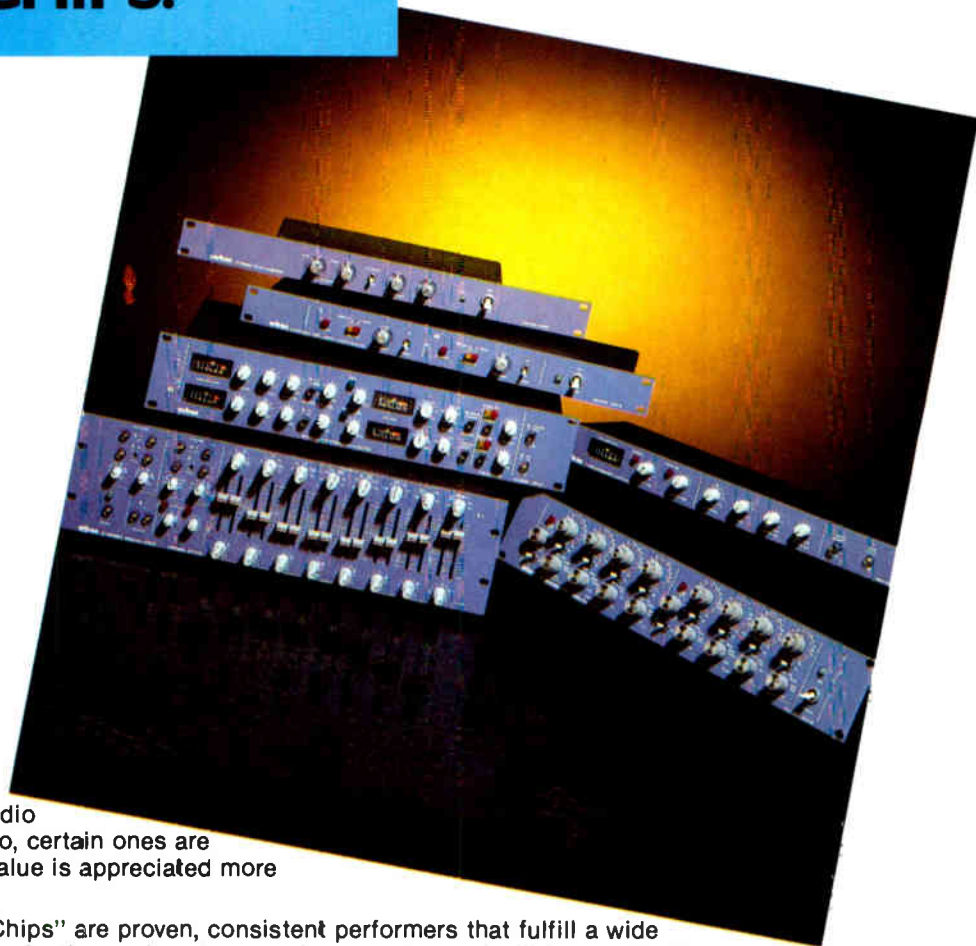
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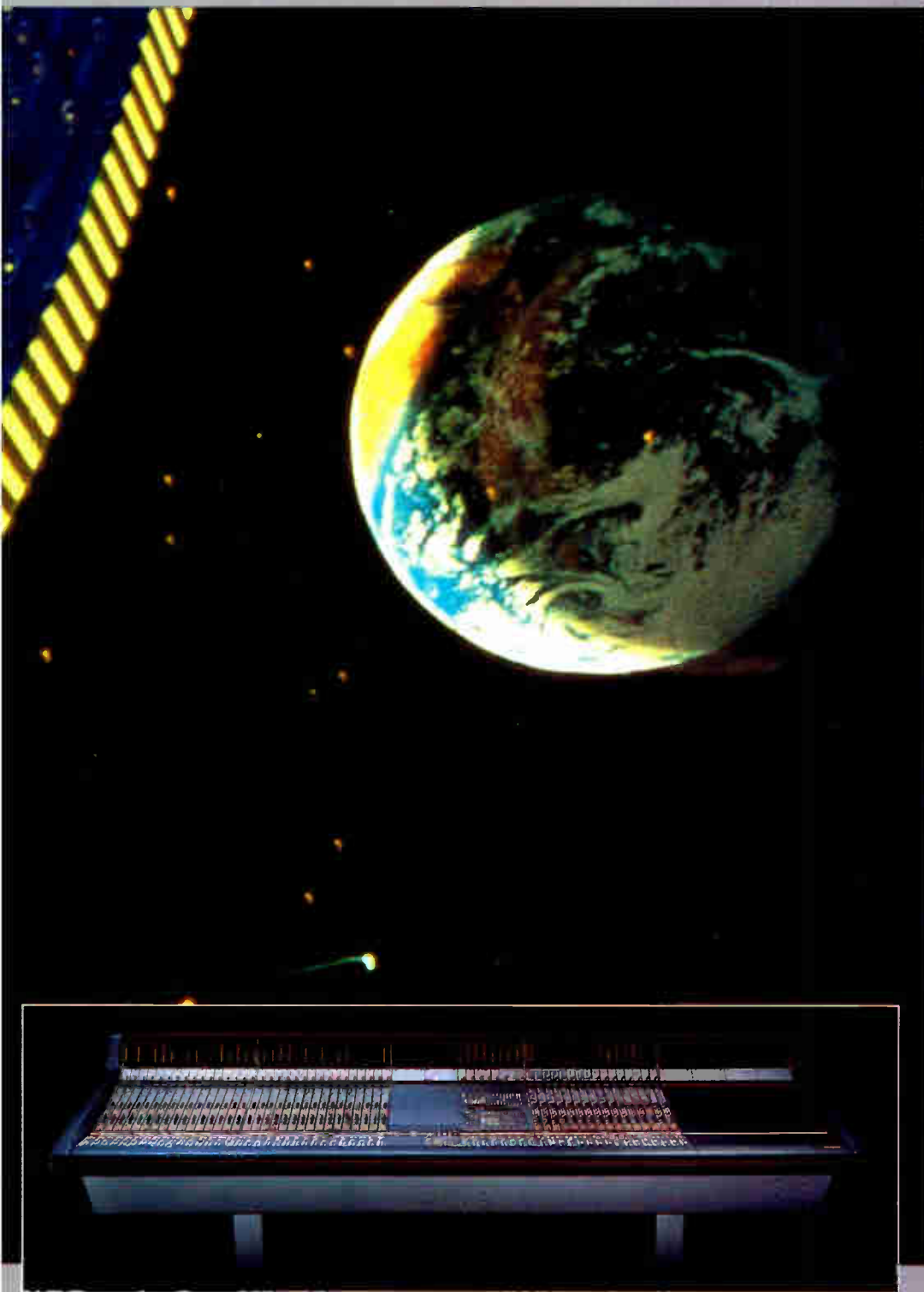
ruined for the normal.

You will undoubtedly say that Series Ten is the best sounding mixing desk you have ever used. If you do you will be in good company. Some of the industry giants have already said that.

Series Ten ever so gently pampers and protects the elements you have worked so hard to capture. However, at your command you can unleash an awesome fury of sonic gymnastics. Unless you have already experienced Series Ten you can only imagine fully automated dynamics and equalization. Think...

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World Radio History

# INSIDER · AUDIO

by Ken Pohlmann

South Florida has caught the spotlight of nationally prominent films and television shows on several occasions. Each time, the exposure has raised hopes that the time has come to establish a major film and television industry in the area. With the quick rise of *Miami Vice* to high Nielsen ratings

## ON LOCATION *MIAMI VICE*

and *Time* magazine cover status, those hopes are again out in the sun. But will those hopes remain, and prosper into reality, after *Miami Vice* has gone?

Part of the answer lies in *Vice's* successful demonstration that the Miami production crew can both interface and compete with the established Hollywood industry, and indeed experiment with innovative technology that points out the conservative Hollywood industry's lagging response time to change. Simultaneously, the success of *Vice* demonstrates the limitations of the local industry, and thus the need for local expansion.

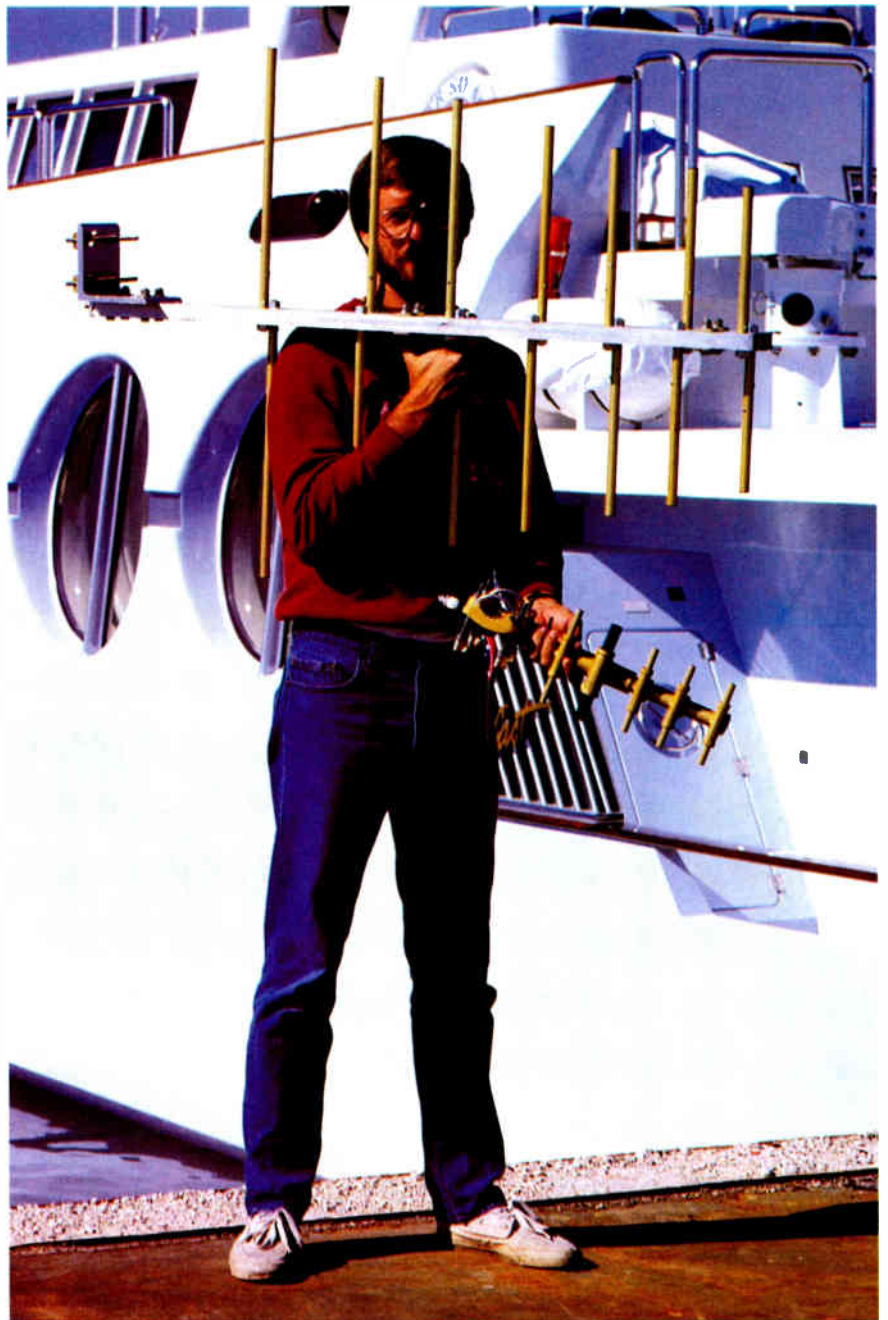
I thought "Insider Audio" readers might want to know how *Vice's* sound is recorded and post-produced, and which new techniques are allowed (and not allowed) by the overseeing Hollywood crowd, and what lies in Miami's future. So I applied liberal amounts of Turtle Wax and Armor All to my Porsche, fitted my hippest sunglasses, and went on-location with *Miami Vice*.

The sound team of Joe Foglia, Mark Weber, and Jeff Blynder is in charge of all original sound in Miami, thus originating the long chain of events that

culminate in recorded dialog, effects and ambient sound that is broadcast in stereo every Friday night. Music is primarily courtesy of Jan Hammer, supplied from his own Red Gate Recording Studios in upstate New York.

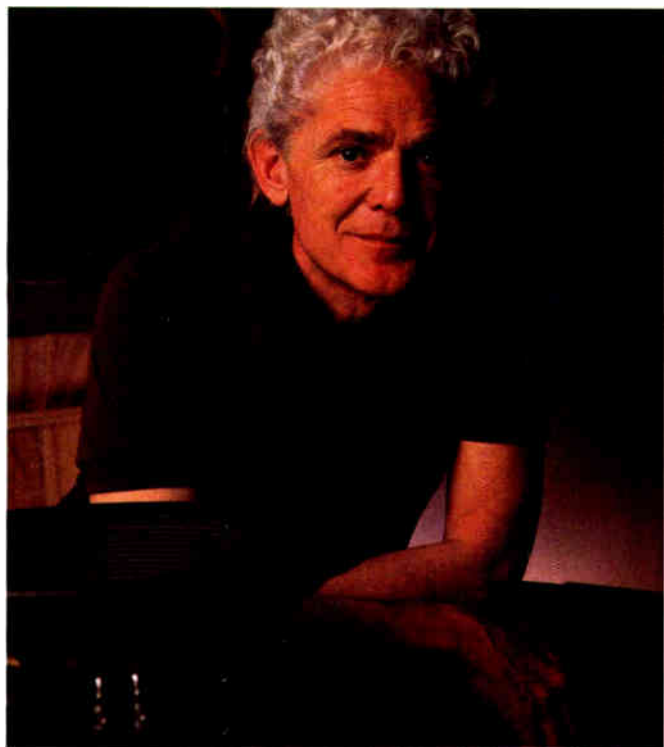
The recording equipment and techniques used for shooting *Vice* represent an interesting mix of the traditional and the new. Moreover, it demonstrates the soundmen's fight against

monaural film and TV sound, often of poor quality. For *Vice*, all spoken dialog is recorded in mono on a Nagra 4.2, resolved on a 60 Hz pilot tone. However, ambient sound, such as room tone, and wild sound such as special effects, are recorded in digital stereo with a Sony F1/SL 2000. The F1 has been modified by the Record Plant to resolve a 60 Hz pilot tone. A Sony 12 x 4 (model MX-P61) mixer



**Mark Weber with Yagi antennae: VHF for Sony 210 on top; UHF version in left hand.**

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In fact, he does more than prefer them. Insists Tom, "I will use only TAD, unless a client demands otherwise."

We, of course, are delighted that Tom feels so strongly. But it should also be of more

than passing interest to you, since you want the speaker components you use to be the best.

And on the subject of "best," Tom has some very definite opinions about TAD. "They are the most state-of-the-art, consistent quality products today. Nothing touches their performance, honesty, stability and transient response."

---

*"NOTHING TOUCHES THEIR PERFORMANCE, HONESTY, STABILITY AND TRANSIENT RESPONSE."*

---

There are some sound technological reasons for such enthusiasm. For example, we use only pure beryllium diaphragms in our compression drivers for high speed sound propagation and exceptional efficiency. We also assemble every component by hand, with tolerances as close as a millionth of an inch. And we use exhaustive and esoteric evaluation techniques — such as the Doppler laser and anechoic chamber — every step of the way, from original design right through to manufacturing.

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*"TAD MAKES THE BEST SOUNDING COMPONENTS I'VE EVER HEARD."*

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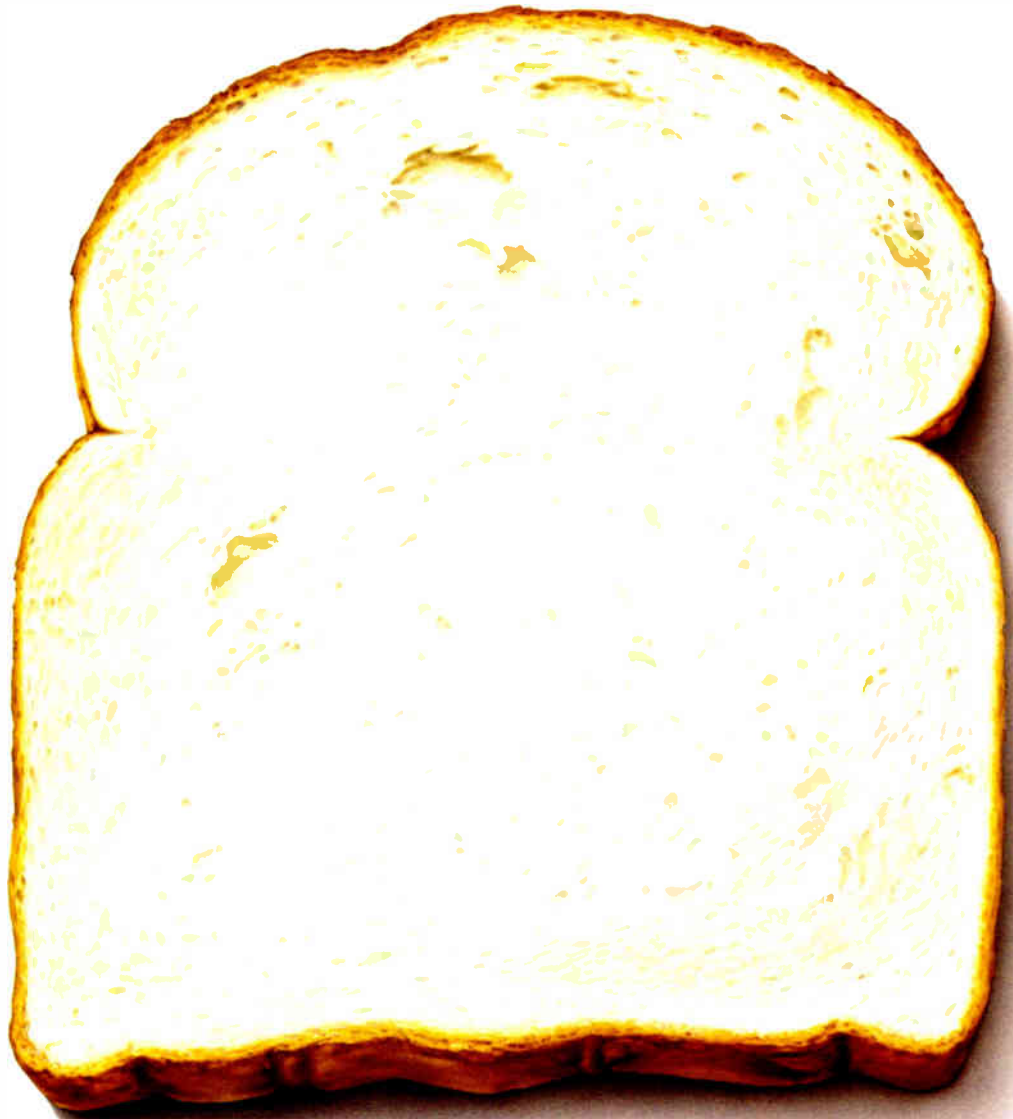
But for Tom, that's all frosting on the cake. "At the end of the day," he says, "it's what comes out of that speaker that determines success or failure. No matter what it measures, it all comes down to what it sounds like. TAD makes the best sounding components I've ever heard."

If you're in the market for professional speaker components, for yourself or a client, we hope you'll seriously consider what Tom Hidley has to say about TAD.

And thanks for listening.

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feeds the mono Nagra. Another Sony 4 x 2 board (model MX-P42) feeds the F1. The result is a battery-powered analog and digital recording studio.

Dialog, ambience, and wild effects are recorded with omnis, shotguns, or lavalier wireless microphones, depending on the application. For example, close shots, in the studio, can be handled with shotguns, selected for their slightly wider (and thus more natural-sounding) pattern, while location shots usually call for tight-pattern shotguns, and wide shots require wireless mics. The audio team uses a variety of microphones, including Neumann KM 84s as a 90-degree stereo pair, KMR 81 and 82 shotguns, and four channels of the Sony 210 VHF selectable frequency wireless system using Sony ECM-77 lavaliers.

Because of the urban environment, extensive location shooting, and the fact that the principle shooting area in South Miami Beach is under an airport flight path, dialog and ambient sound replacement is sometimes necessary. For dialog replacement, actors loop their lines to dubbers at Orion Film, a Miami studio, and ambient sound is added during post in Hollywood.

The recorded analog tapes, as well as 35 mm film, are flown daily to Hollywood for processing via an afternoon nonstop to LAX. Film is developed, printed, and synched with the 35 mm magnetic sound transfers. A VHS video copy of the previous day's work is returned to Miami for review. The transcoastal production system works well, except for the time when one critical day's work was lost, and later found in Mexico City. Nevertheless, the episode aired on time.

Although some feature films have successfully used modified stereo F1 systems to record both dialog and ambience, the time constraints and traditional methods of real-world television production currently limit the possibility of recording *Vice* all digitally.

*Vice's* digital stereo ambience and effects tapes are sent directly to Blue Light, a Burbank post-production house which handles much of Universal's post audio film work (such as *Back to the Future*) and other Michael Mann productions (such as *Crime Story*, and *Manhunter*). In the case of *Vice*, Blue Light builds the soundtrack from *Vice's* ambient sound, and Blue Light's own sound effects library.

Foglia and Weber try to record three to five seconds of ambience (or room tone) for each shot. Blue Light sam-

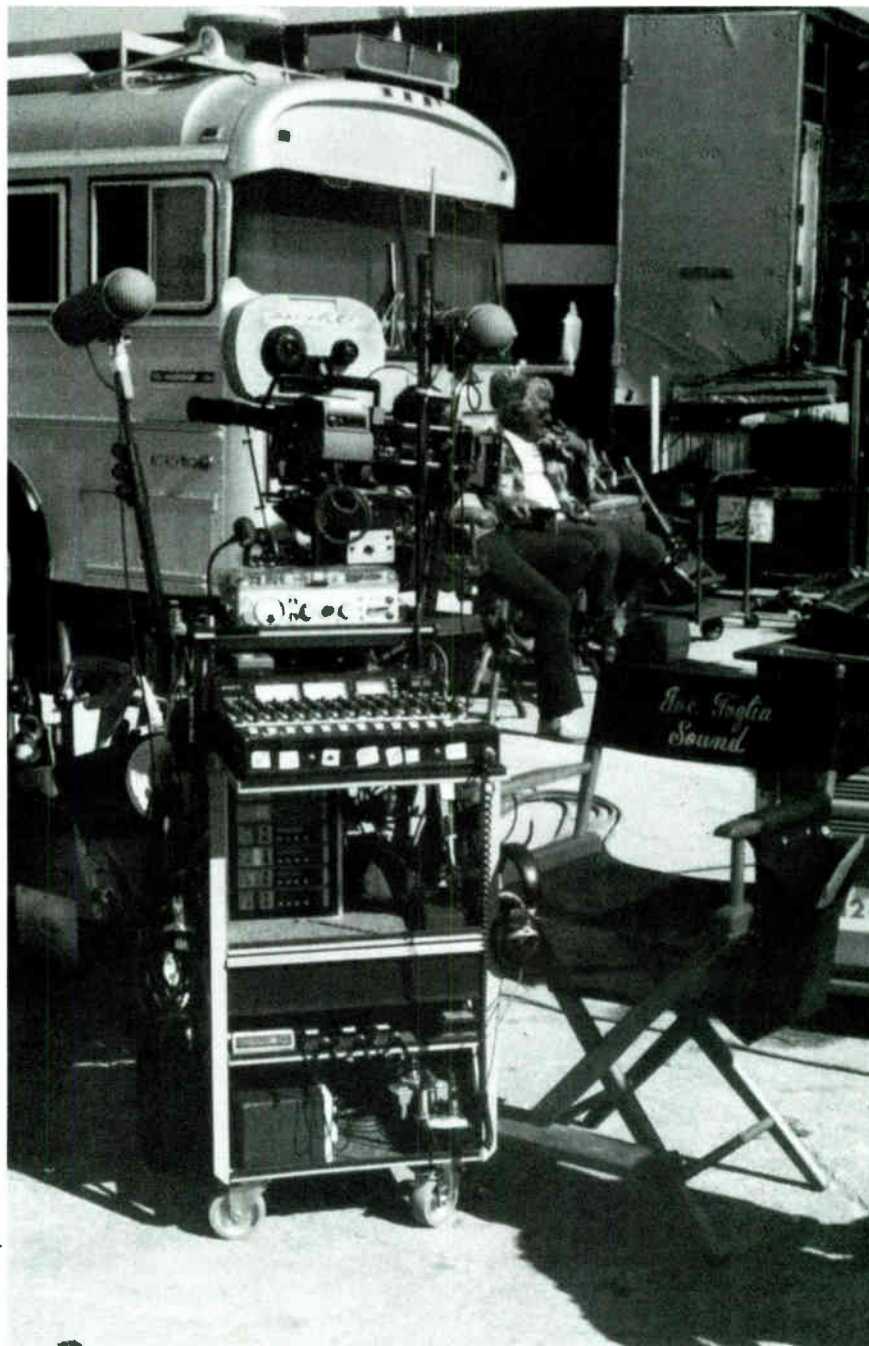
ples the room tone to synthesize an ambient bed for the scene.

John Larsen of Blue Light appreciates the use of F1, for the same reasons that *Vice* does: clarity, low noise, and convenience—necessities for both ambient sound and sound effects. For these and other reasons, Universal's optical effects library is not used for *Vice*. Blue Light is transferring its extensive sound effects collection to F1 with time code. In addition, an in-house computer-based library catalog permits rapid access to the effects collection, and organization according to the script.

The music soundtrack is in stereo, but use of stereo effects is usually limited to four or five per episode. This is

in keeping with Larsen's attitude that stereo is simply not appropriate in most cases, because extreme left/right or off-camera effects are inconsistent with most camera work. In time, a more creative approach might occur, but only as allowed by the visuals.

The bi-coastal sound production chain is thus complete: it is comprised of Foglia, Weber, and Blynder recording in Florida. Dialog replacement or looping is done at Orion Film in Florida. Ambient sound and effects are created and edited at Blue Light in California. Transfers to 35mm mag, additional looping, editing, and final mixing of music, dialog, effects, and ambience to picture is done at Universal.



*Sound cart with Panavision camera and Don Johnson's trailer in the background.*

Although *Vice* episodes are shot weeks prior to broadcast, each episode's five reels must be completed on a weekly basis, usually during the week of broadcast. Typically, a rough edit is screened on Monday night; usually the Miami crew re-shoots something that week for Friday's episode. The complete audio track is completed

Alai court in action. The more realism presented to a viewer's senses, the more the viewer becomes involved in a scene.

**Mix:** The guys spend a lot of time each episode driving around. How do you record dialog on the road? Is it all replaced?

Testarossas—one authentic car for picture, another authentic one for rigging, and two replicas for stunt driving.

**Mix:** Tell us about your Yagi.

**Vice:** The Yagi is a dipole array antenna just like a standard TV antenna, only ours is built of rugged aluminum stock. It was built for us by Scala Electronics, which manufactures antennae for offshore oil rigs that go through hurricanes and such. Ours is a custom length tuned to 173-205 MHz for the Sony wireless VHF systems we use. The 10 dB gain and directivity factors allow much cleaner reception over greater distances, for long shots. They also allow us to rig the boom mics in a wireless configuration for mobility and flexibility when problem shots make cabling difficult.

**Mix:** I notice you use a number of Neumanns. Aren't they kind of rare on location?

**Vice:** Yes. We've both had extensive background in the studio and music production. The concern for quality carries over to location work.

**Mix:** What's the deal on the radio headphones you use on the set?

**Vice:** Our mix is broadcast through a Nady transmitter tunable to standard FM broadcast frequencies. We hand out regular radio headsets or Walkmans to our directors, camera operators, and script supervisor, so they can hear dialog. Also, during the driving shots, the car radios can monitor when sound is being rolled. Sometimes Teamsters also listen in just to keep tabs on us. This is also the two-way connection that makes the wireless boom mic possible.

**Mix:** Does the size of the camera shot influence your choice of recorded perspective?

**Vice:** Not really. Again, *Vice* always presents itself a little bigger than life. You might be watching two people talking 100 yards away, but you still hear them as though you were right there with them.

**Mix:** I understand that the new Panasonic Platinum camera provides for optical time code on perforated film. If you had the budget, would you go for all-digital, time coded audio?

**Vice:** Absolutely. Positively. First, the quality of digital speaks for itself. Next, time code greatly enhances production efficiency. While shooting with time-of-day coded slates, script and production management is benefitted. With sound rolling, multi-cameras can be rolled and cut numerous times in

—CONTINUED ON PAGE 72

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## The success of *Vice* demonstrates the limitations of the local industry, and thus the need for local expansion.

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no later than Thursday, for the Friday broadcast.

Meanwhile back in Miami, in between takes, I talked with Joe Foglia and Mark Weber about recording *Miami Vice*, and their views of life after *Vice*.

**Mix:** Does recording *Vice* present any unique challenges?

**Vice:** *Vice* is a "polished" product—bright colors, high fashion, fast cars, and clean, close sound. The challenge is to attempt to record dialog as free from background noise as possible. This is especially difficult due to the varied and often noisy locations we shoot. We feel we've been successful in that the dialog replacement is usually necessitated by factors other than sound problems—things like script changes, or the way the actor has read it.

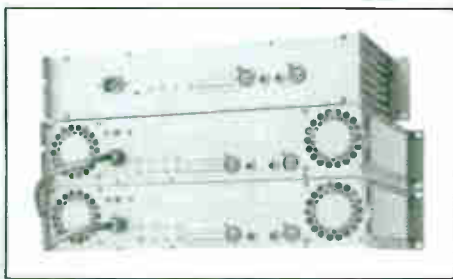
**Mix:** Does the extensive use of music affect your recording philosophy?

**Vice:** The predominant music of *Vice* precludes the use of much of the natural background sounds. The dialog is all we need, most of the time. Blue Light, the post house, does take samplings and creates synthesized "area tone" loops so the edits from shot to shot don't mismatch. Still, we digitally record stereo perspective ambience and special effect sounds such as cars, boats, planes, gun shootouts, etc., and more unique sounds such as a Jai

**Vice:** We are proud of Crockett's and Tubbs' driving dialog. The Testarossa is a relatively quiet car to begin with. Since Don does all his own driving, a Testarossa is totally rigged with cameras, lights, sound, and two-way communication. There is always a caravan of police and production crew in pursuit. When they are ready to shoot, they simply turn on all cameras and sound, slate themselves, and do whatever they need to. The trick is, we've prewired the car with two microphone lines, a headphone return, and an on/off switch. These go through to the front storage area under the camera rigging to a Nagra IV SL stereo recorder. We use the same mics from the wireless system plugged into a power supply adaptor which receives phantom power from the Nagra. Levels are simply preset. Don is recorded on the left channel, and Philip on the right. The headphone output is fed to either a walkie-talkie or a Nady transmitter so that dialog may be monitored, and by monitoring tape, we can assure that the sound has rolled. What you hear on the air is what we recorded on the road. Oh—sometimes the car's acceleration (and Don's occasionally heavy foot) overpowers the recorder. The G-force causes the tape transport to freeze momentarily, and it loses sync. Also, just for the record, the Testarossa we rig for sound is not the car you see on TV. There are actually four



# introducing the DX300, DX800 and DX1500 power amplifiers



The DX300, DX800 and DX1500 amplifiers all feature balanced XLR inputs, balanced and unbalanced 1/4" inputs, banana outputs, ground lift switch and a terminal block with access to all inputs and outputs.

**DX300 output power:** 200 watts into 8 $\Omega$  (per channel, both channels driven, 20Hz - 20kHz, -0.5dB) 400 watts into 8 $\Omega$ , 450 watts into 4 $\Omega$  (burst power\*) **distortion** (250mW to rated power at 8 $\Omega$ ): IMD SMPTE: < 0.01%. THD (1kHz): < 0.01%. THD (20kHz DIN): < 0.02% **size:** 2 rack spaces, 8 1/2" behind front panel **weight:** 7Kgs, 16 lbs. **cooling:** 2 passive heatsinks.

**DX800 output power:** 250 watts into 8 $\Omega$ , 400 watts into 4 $\Omega$  (per channel, both channels driven, 20Hz - 20kHz, -0.5dB), 800 watts into 8 $\Omega$  (bridged mono), 800 watts into 4 $\Omega$ , 900 watts into 2 $\Omega$  (burst power\*) **distortion** (250mW to rated power at 8 $\Omega$ ): IMD SMPTE: < 0.01%. THD (1kHz): < 0.01%. THD (20Hz-20kHz DIN): < 0.02% **size:** 2 rack spaces, 13" behind front panel **weight:** 13Kgs, 29 lbs. **cooling:** 1 servo controlled DC fan.

**DX1500 output power:** 300 watts into 8 $\Omega$ , 500 watts into 4 $\Omega$ , 750 watts into 2 $\Omega$  (per channel, both channels driven, 20Hz - 20kHz, -0.5dB), 1000 watts into 8 $\Omega$ , 1500 watts into 4 $\Omega$  (bridged mono) 1500 watts into 2 $\Omega$ , 1600 watts into 1 $\Omega$  (burst power\*) **distortion** (250mW to rated power at 8 $\Omega$ ): IMD SMPTE: < 0.01%. THD (1kHz): < 0.01%. THD (20Hz-20kHz DIN): < 0.02% **size:** 2 rack spaces, 13" behind front panel **weight:** 15Kgs, 34 lbs. **cooling:** 2 servo controlled DC fans.

\*Burst power is a 1kHz tone for 10ms every 100ms, single channel (an indication of the amplifiers ability to handle music transients and tolerate deviations in nominal speaker impedance)

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# JOE SMITH



## *A Conversation With Capitol's New CEO*

by Alan di Perna

Joe Smith is fond of speaking about music in terms of sports. It's one of the first things you notice if you spend any length of time talking to this music industry veteran, who has recently been appointed CEO of Capitol Records. Music and sports are Smith's twin ruling passions, so his tendency to equate the two in conversation isn't surprising. What's perhaps more notable is the way in which Smith's own music business career qualifies him for nomination as one of his game's best all-around players.

To begin with, he's played quite a few positions. Smith started out as a radio DJ after graduating from Yale in the '50s. Then he jumped over to promotion—first on an independent basis and then for Warner Bros. Records. He worked there in several capacities before becoming the president of Warners in 1972. In 1976, he changed up again, signing on to be captain of the Elektra/Asylum/Nonesuch team. All along the way, he proved a tireless and resourceful talent scout, signing power-hitters like Rod Stewart, the Grateful Dead, James Taylor, Van Morrison, The Cars and Motley Crue. And

he's always demonstrated a determined willingness to hang tough when it came to lobbying in Washington for fair play in copyright and tape piracy legislation.

In 1983, Smith got a chance to pursue his love of sports more directly as president of Warner/AMEX Cable's Home Sports Entertainment division. After leaving that position in 1985, he initiated a variety of projects. Among them is an oral history of the music business for Warner Books and several film properties developed under the aegis of Smith's own company, Unison Productions.

In the latter half of last year, Smith became a topic of conversation at NARAS (National Academy of Recording Arts and Sciences), the organization behind the Grammys. Having operated for years under volunteer, part-time leadership, NARAS felt the need for a full-time, paid president. After all, doling out the music industry's Most Valuable Player awards on a yearly basis is no easy job. Beyond that, some NARAS members felt the Academy should be playing more hardball in areas precisely like piracy and copyright laws. "We need a Joe Smith type" is the phrase that came up repeatedly in NARAS discussions. Ultimately, it was decided: "Why not ask Joe Smith?" After some deliberation, Smith accepted the position.

To all appearances, it was the tidy end of a well-played inning: "Distinguished Record Exec Assumes Helm of Industry's Top Academy." But while journalists—this one included—polished their pat headlines, Smith's career took another unexpected ground hop. Capitol asked him to be their CEO. Under the circumstances, how would you play this one? Joe Smith said yes.

**Mix:** How did the position at Capitol come about, and how did you come to leave NARAS?

**Smith:** Well, I was really settling into NARAS. I had a good handle on what my priorities should be in taking over that job. And that was when I was approached by Capitol. My first reaction was to say no. Firstly, because I had just made a commitment to a job; and secondly, because I wasn't sure if I wanted to go back and run a record label again. But as this position became more and more clear, I realized it was much more than running a label. This is a rather large, self-contained corporation in the U.S., with four la-





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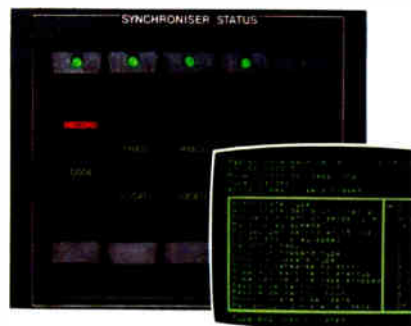


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concise English commands, tape location by timecode, foot/frames, cue numbers or key words, and complete session list management. And that SSL alone offers extensive fader, group and mute automation and mix manipulation plus optional programmable parametric equalisation and panning, multi-repeatable Events Control, and Automatic Dialogue Replacement.



bels, manufacturing, distribution, music publishing, a tape manufacturing company, a Canadian company and all the other elements of a large corporation. That was very challenging to me. But although the company has enormous assets, a great tradition and very good visibility in the business, it just hasn't been doing as well as it should be. I felt that could be turned around.

I had some concern that the parent company in England—Thorne EMI—wasn't as committed to the music business. So they suggested I come to London and talk with them. I did, and found they were very much committed to making this American company happen. So I took the job. I called Mike Green of NARAS and [entertainment attorney] Jay Cooper, who was also active in recruiting me for NARAS. I told them I'd do what I could to bow out of NARAS gracefully. As I told Mike, I felt this was the kind of opportunity I couldn't pass up. I'm not the kind of guy who backs away from commitments; I worked for one company [WEA] for 25 years. But this time, I had to make this move or I'd feel that I had shortchanged myself somewhere.

Mix: So the reorganization at Capitol

was mainly prompted by financial difficulties?

Smith: The North American company is not performing as well as it has in the past. But the record business runs in cycles. A&M, CBS and Warners have all had down years. The feeling was that Capitol needs some on-site management. Bhaskar Menon, who

ident of the company.

Mix: How would you sum up your new duties at Capitol?

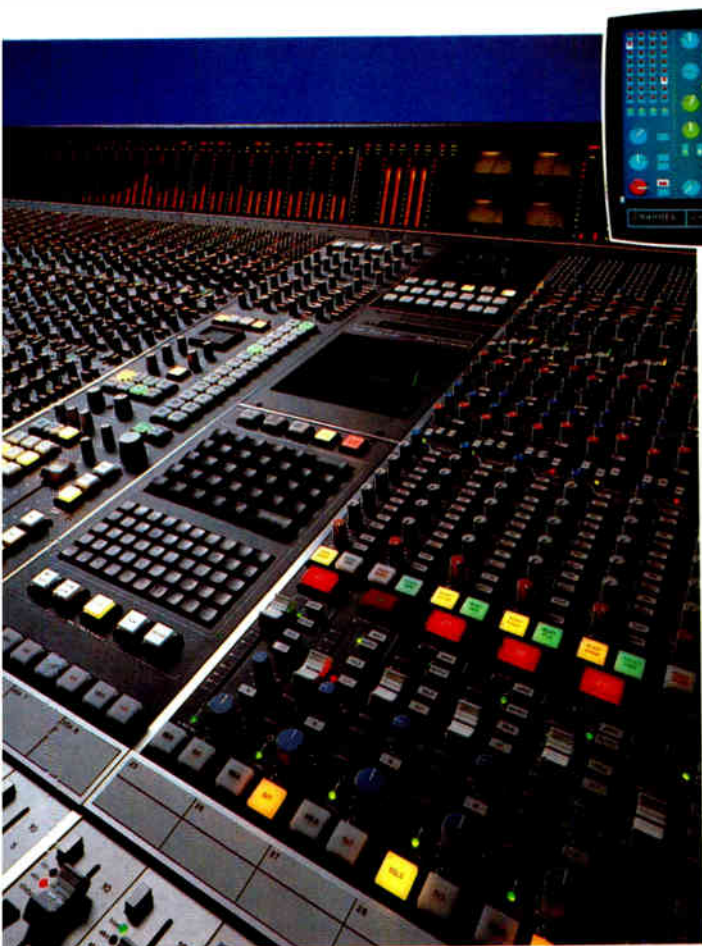
Smith: Simply, to maximize the many good assets that company has and make it more efficient. Most of all, I want to make it more of a member of the music community. Capitol has somehow slipped out of being a major player in every aspect of the industry—retail, radio and talent. I want the label to be the first choice for talent to go to. I want radio and retail to look to Capitol as being on the cutting edge of the best new things that are happening. And that means a review of our A&R staff, our promotion staff, our marketing and sales policies. At this point, I'm still learning about the company—what works and what doesn't.

Mix: In the various music industry roles you've played over the years, have you found yourself drawing on the early experience you had in radio?

Smith: Always. It's amazing how what I had in radio has served me so well and for so long. Radio is the next step up from the people. A record company is a generation removed—especially if you stay in your office in Hollywood, New York, or Nashville. You don't get feedback. But in radio, you

*“I remember having to explain to Sinatra why I was paying attention to Hendrix. . . .”*

has been running the company, is also head of the worldwide organization, and therefore his time has been split. This is too important to try to run on a part-time basis. And so the commitment was made to bring in a high-profile executive. So I'm coming in with David Berman, who will be pres-



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it faster than ever to recreate headphone and monitor mixes, equalisation, or entire console setups with quarter dB accuracy and rapid verification. And SSL alone offers data-compatibility with more than 300 installations — in over 80 cities around the world.

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play a record and you know what's happening the next minute. Also, you have the opportunity to look at the whole spectrum of the music business. Not just your own company. Sometimes I can get a chill when I hear a record, and there's a pretty good chance that it will be a hit. That's what comes from being a DJ and just listening to so many records. I was a hot shot disc jockey in a key town—Boston. I was on the air seven hours a day. I was single, so I did nothing but listen to records. And this was during the great rock and roll period of the '50s. So I saw it all explode, with Fats Domino, Chuck Berry, Little Richard, the Everly Brothers, Gene Vincent and all these people.

**Mix:** By the time you'd moved on to promotion at Warners—during the early '60s—another pivotal period in pop history was underway: the British Invasion. What was that like?

**Smith:** It was terrifying. Because Warners wasn't allied with any of the major English companies. We were allied with an independent called Pye Records. They had a few records. But we weren't like Capitol, who got The Beatles because their affiliate, EMI, had signed The Beatles in Britain. Or like London Records, who got the Rolling Stones because their English af-

filiate, Decca, had signed the Stones. And because I was doing A&R and promotion then, I realized we were in trouble. I decided I had better go to England, which I did for the first time in 1964. So Warners [Reprise] signed the Kinks, Sandie Shaw, Jimi Hendrix—and that was the beginning. Then we started the "London Express," going five or six times a year. So rather than fall down and moan about it, we eventually became the biggest in English music with Black Sabbath, Deep Purple, Jethro Tull, Procol Harum, the Faces, Rod Stewart—all kinds of acts.

**Mix:** It has been suggested that the era we're talking about was such an intensely creative one partially because nobody—particularly on the U.S. side—quite knew how to market this new music. As a result, all kinds of music came through that might not have been heard otherwise.

**Smith:** Yes, all kinds of stuff. First of all, the numbers changed. I remember having to explain to Frank Sinatra [founder of Warners' affiliate, Reprise Records] why I was paying a lot of attention to Jimi Hendrix, who had sold more copies of one album than Frank had sold on his last four records. So really, it was the best of times for this industry, because no matter what we did we made money.

**Mix:** How would you contrast today's record business with that?

**Smith:** Well, it has leveled off and become a business. Obviously it's still creative. But never—not in my lifetime, at least—will it grow at the same rate it did back then.

**Mix:** When you moved over to Elektra in 1976, what kind of changes did you feel were necessary?

**Smith:** I felt the company had to expand. It was very narrow in its reach, because both Jac Holzman and David Geffen had really liked the white pop/folk kind of thing. But I signed some new bands, like The Cars; and I got the label into black music. We made a deal with Solar Records, which got us the Whispers, Shalamar, Lakeside, Klymaxx and Midnight Star. I got the label into jazz and built a strong country roster. We also got into soundtracks in a big way. I had been into it earlier with *Music Man*, *Deliverance* and pictures that weren't necessarily pop music. But then I did *Urban Cowboy* at Elektra. I did *Heavy Metal* and *Fast Times at Ridgemont High*. Those were three very successful soundtrack albums. They set the tone for a lot of albums later on, like *Flashdance* and *Top Gun*.

**Mix:** The overall "marriage" of pop mu-

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The new Peavey PCS™ (Processor Controlled System) isn't magic, but the audio processing functions it performs, when taken together with the correct power amplifiers and speaker enclosures, can sound quite magical!

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## ● "Sense Inputs" (Telemetry Ports)

The PCS™ utilizes "sense inputs" which are connected to the outputs of the system's power amplifiers.

## ● User variable loudness compensation

This function adds a predetermined amount of low end at low sound pressure levels. As system output rises, this compensation is incrementally removed until, at maximum power, the system is again flat. This technique provides the inverse of the way humans hear, and results in a system which sounds "impossibly" good at low levels, and very high in apparent headroom at high levels. This compensation is user adjustable to suit individual preferences.

## ● Subsonic Filtering

The PCS™ also utilizes extremely high order subsonic filtering to remove unwanted headroom wasting subsonic signals. This technique results in a very tight, punchy low end by maximizing available energy in the usable portion on the bass spectrum.

## ● Excursion Protection

In addition to the subsonic filtering the PCS™ also engages special excursion protection during extreme power events. This is accomplished by slightly raising the corner frequency of the high pass filtering. This further enhances the system's power handling, apparent headroom, and overall clarity.

## ● Thermal Protection

The PCS™ constantly monitors the outputs of the system's power amplifiers and when they reach the transducers' maximum power handling the PCS automatically engages limiting circuitry. The system's transducers are protected from unacceptable and destructive power amp clipping, and output sound pressure is maximized.

Use the Peavey PCS (Processor Controlled System) in its 2-way mode with the Peavey SP-2™ or the new SP-4™ trapezoidal enclosure, or for bigger jobs use the PCS in its three way mode by adding a subwoofer to either enclosure.

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sic and visuals has had a tremendous impact on the industry. But in the long run, many people feel music video clips have proved a disappointment.

**Smith:** That's due to overexposure, I guess. Also there are artistic limitations to making three- and four-minute splashes. You're not making *Terms of Endearment* or *Birth of a Nation*. They tend to look the same and there are a lot of bad ones. There almost has to be, at the rate they're grinding them out. So I think music video will level off, but that it will stay around. It isn't going to go off the boards like video games.

**Mix:** You've lobbied for reform of copyright laws and for legislation on tape piracy. Specifically, what measures do you feel need to be taken in these areas?

**Smith:** I think there should be a performance royalty paid by broadcasters. Broadcasters have access to a lot of music just by paying a blanket license fee. I believe there should be some royalty in addition to that. I feel we've addressed the question of royalties for songwriters in doubling that figure over the last few years.

As for the piracy issue, I helped get the first tape piracy law passed. I've been with the FBI many times explaining the procedure. I've been an expert witness in government cases—when they've nailed somebody—explaining what tape piracy is and how it impacts the industry.

I also have strong feelings about the digital audio tape [DAT] format. I think it's a killer. I'm not an alarmist; but, if introduced, it will short-circuit the incredible growth of the compact disc format and technology we've seen developing so rapidly. And we're trying to get the manufacturers to eliminate the recording capability. Because the only thing that people are going to record on digital audio tape is something that's digitally recorded to begin with. And the only way to get that is from a compact disc.

**Mix:** You played an active role in expanding the artist rosters at Warners and Elektra. Do you have similar plans for Capitol?

**Smith:** Well, this is a full-line company already. There are three pop labels. Capitol was named number one in black music last year. There's a strong country department in Nashville and one of the best classical catalogs anywhere. We just need a few more Bob Segers, David Bowies and Tina Turners. Hopefully we can attract some stars from the other labels and develop some of the best new talent ourselves. I think Berman and I have been around winners long enough to know one when we see one. ■

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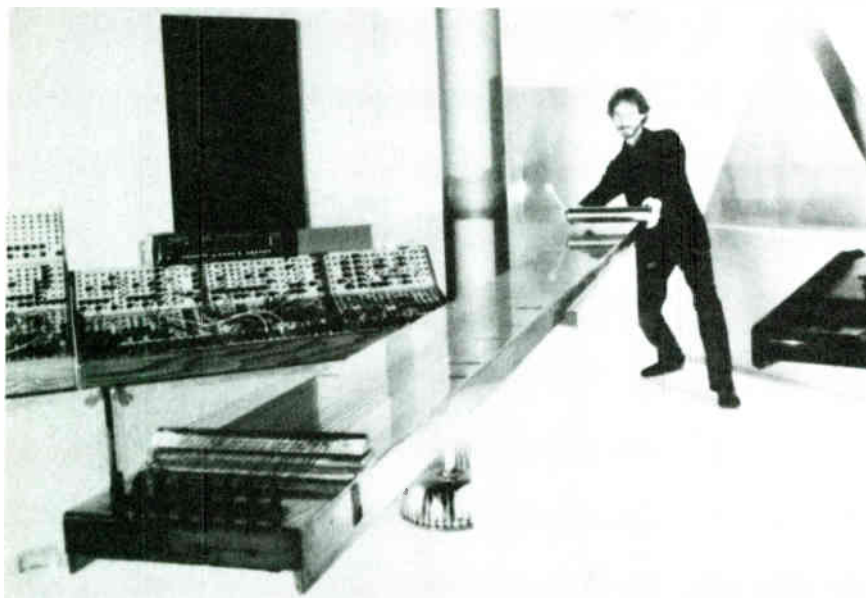
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# FLYING INTO THE FUTURE on THE ENTERPRISE



*Huxley at the helm of his Blaster Beam*

by Iain Blair

**QUESTION**—What has a billion bytes of Winchester memory, a massive 360-degree 5-channel class A speaker system, and a post-modern Memphis marble echo chamber?

**ANSWER**—The Enterprise.

The Enterprise, a brand-new 10,000 sq. ft. multi-million dollar world-class recording facility in Burbank, California, is unlike any studio you've ever seen. As its name suggests, it's more like something straight out of *Star Trek* than anything you'd expect to find on a quiet San Fernando Valley street.

You enter through a spacious, gleaming-white lobby area into a striking, hybrid environment that combines the witty and colorful features of the Memphis style with what is claimed to be "the most advanced computer keyboard facility in the world today."

Bold geometric shapes in purples and blues lead the eye down the hallways and towards the various doorways, each one decorated with a different architectural feature, which open into the equally individual sets

of offices—and the heart of the complex, the studios themselves.

With such a unique visual and design build-up, you're expecting something special, and The Enterprise does not disappoint. The brainchild of composer/performer/artist/producer/inventor and creative director Craig Huxley, this studio really does try to go where no studio has gone before.

"It's something I've been planning and dreaming about for a long time," explains Huxley, who started off as a child jazz prodigy before becoming a hugely successful session player and later, composer and producer.

"I've always been aiming towards building the 'ultimate' studio, and I was one of the first to build a 48-track studio, where I worked on *2010: Odyssey II* using a Synclavier for the very first time," he adds. "Another impetus came from the session scene. About ten years ago, when I was really busy, usually working from 8 a.m. through till midnight most days, I quickly realized I was always crammed into some studio with all the gear, too much distracting noise, and no space to work.

"So I dreamt up this idea of a 'the-

ater-type' studio, with movie screens up front, and then a series of tiered levels for all the equipment and producers," he continues. "And I also always loved the volume and acoustics of very high ceilings—just like the old-time movie-houses where you feel like you're in a womb. That was the inspiration.

"So the basic idea was to design and build a studio that was specifically geared towards doing film, television and video electronic scoring, because even in the last few years, the business has changed so dramatically. Before, you'd be catering to rock groups, or live orchestral work. But today, thanks to equipment like the Synclavier, etc., electronic scoring is already the industry standard. And it's also getting bigger and bigger."

With all this in mind, The Enterprise has been custom-designed into a series of film/video control centers of varying sizes, an iso/vocal booth, the extensive L-shaped computer machine bay and a technical support area, in addition to its three lounges, conference rooms and reception area.

Individual studio specifications and equipment are impressive. Studio A features a four-tiered control room "mini-theatre" 25' x 30' x 15' high, with the latest custom Amek 3500 56x32 console, SMPTE-based fader automation, 500 individual send recalls, discrete 5-channel surround class A monitors, a live room, an iso booth and an optional second live room.

Studio B offers a similar set-up, with an Amek 2500 48x48 board with MasterMix automation. And Studio C offers a three-tiered control room with an Amek 2500 60x48 console. Both "A" and "B" also offer Quedsted 412 monitor systems designed by Roger Quedsted of London—"the best in the world and the first ones in the U.S." boasts Huxley.

In addition, there is Studio H, a private hillside studio featuring the Amek 2500/48, MasterMix automation, a Steinway "O" Grand piano and a Sonor drum kit and percussion; and Studio S, the synthesizer programming room which contains a Yamaha TX816,



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APIs, Massenburg EQ and compression, Dr. Click, Neve limiters, Quantec QRS and much more.

"We aimed for the very highest level in every area," comments Huxley, who hired top West Coast studio architect Jeff Cooper (famous for his work with George Lucas and Steven Spielberg) to design the facility. The design team was completed by Huxley's own designer wife who was responsible for the striking Memphis look.

Small wonder that the clientele for the newly-opened complex has already included such heavyweight visitors as Warren Beatty, George Massenburg, Jermaine Jackson, Giorgio Moroder, Richard Baskin, Donna Summer, Bruce Willis, CinemaScope/Disney, Jean-Luc Ponty, Ravi Shankar, Michael Sembello, Julio Iglesias and Patrick O'Hearn and Huxley's partner Jerry Immel, who has scored such well-known shows as *Dallas* and *Knot's Landing*.

Huxley has also been very busy working on his own numerous projects at the complex. The composer/producer, whose extensive scoring

a Super Jupiter, the 3000-sound Op-code Libraries running on Mac Plus, Amek Scorpion 24/8/2, JBL 4311 monitors, a Pioneer hi-resolution video monitor and a 64-voice Synclavier PolyTower.

Studios A,B,C and H also include their own "computer grade" cold air machine rooms, electronically filtered air-conditioning systems, large wide-

screen video projection, a choice of AMS or Lexicon digital reverb and a wide array of outboard gear.

Optional equipment includes Mitsubishi X-850 digital 32-track, X-86, extra Otari MTR-90 MkII 24/16 (or one-inch 8-track), Synclavier PolyTower with up to a gigabyte of Winchester memory and 30 megabytes of RAM, Dolby SP24, Drawmers, Emulators,

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credits include such films as *Dreamscape*, *Roadie* and *Americana*, as well as original music for all four *Star Trek* adventures, is currently scoring an ABC Movie of the Week entitled *We Are The Children*.

"It's a totally hybrid score and very interesting to do, as it mixes sampled African instruments with more conventional pop sounds on the synclavier, and then sweetens the whole thing with real strings and flute," he explains.

"I really like to explore hybrid sounds like that, and the great thing is that film scores are getting so progressive these days. Even just ten years ago,

the picture was vastly different. People were still very nervous about electronic scoring and computers, and assumed it meant the results would inevitably sound very mechanical and cold.

"But today a lot of directors and producers are hip to more unusual approaches to scoring, and to combining more types of music to achieve an effect, such as rock or ethnic elements along with electronic sounds. And that's why I wanted our rooms to be so spacious, so that the film people can come over and become actively involved in the process."

And Huxley is enthusiastic about

the future of such scoring methods and the customized services offered by his complex. "The advantages are enormous, for now, thanks to MIDI, you can work with one or two keyboards controlling everything, and so the economy in space alone is dramatic," he points out. "And now the ability to sequence and edit, especially with the Synclavier system, has reached a level that even surpasses real time playing and punching-in.

"It's also clear to me now that the creative use of high quality custom samples in stereo at 50kHz sample rate combined in unusual ways is much more interesting than purely synthetic sounds," says Huxley. "For instance, I recently created this great effect by yanking a bass string with a pair of pliers, sampled that sound, and then combined it with a very mellow bass sound and a 'popping' bass sound—and the end result was totally fresh. I feel that kind of hybrid approach and sound, where you mix hi-tech methods with traditional instruments and live musicians, is really the wave of the future."

Not surprisingly, Huxley has consistently pursued unusual sounds since engaging, at the age of 17, in an exploration of "flexitones," his own term for the study of the origins, nature and methods of resonance. Inspired by this, he subsequently invented and designed several acoustic and electronic instruments that are flexitonal, perhaps the most famous of which is his 20-foot Blaster Beam.

"I built it about ten years ago, and it's made from aluminum with bronze wiring, magnets and a resonating area, and is played with artillery shell casings," he explains. The Blaster Beam has appeared on all four *Star Trek* soundtracks, in addition to other film scores.

Huxley also participated in the creation of another instrument dubbed The Tubulons, which has also appeared in many soundtracks, and has designed a Flexitonal Clavichord which is featured extensively on his own New Age recording, *Quantum Mechanics*, which is available on Huxley's own recording label, appropriately called Sonic Atmospheres.

"I'm also currently developing another translucent matrix keyboard system—but but that's still top secret," he adds. "All these instruments are part and parcel of what we're doing at the studio—expanding the possibilities of sound. And I want everyone who comes in here to be totally blown away at what we can offer—not only the incredible equipment, but the freedom and flexibility that goes hand in hand with it." ■

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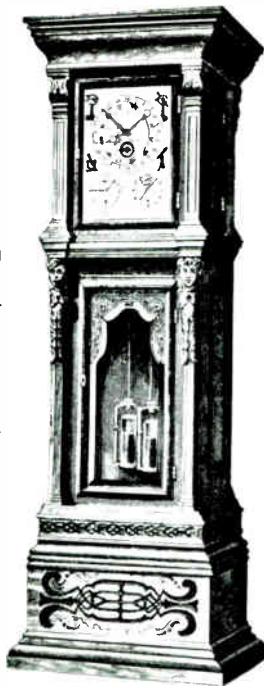
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# Technology.





PHOTO: SANDY L. OSTROFF

## ADRIAN BELEW DESSERT AND COFFEE AT ROYAL RECORDERS

by Gregory A. DeTogne

Adrian Belew's wide-ranging career has taken him along a path filled with musical experiences of the highest order. Besides his guitar work with such luminaries as Frank Zappa, Talking Heads, David Bowie, King Crimson, Paul Simon, and Laurie Anderson, he has also won critical acclaim for his solo efforts, which reached new heights this year with the release of

*Desire Caught by the Tail*.

Today, Belew is also expanding his horizons with a new band called The Bears, and has entered into a unique partnership with Lake Geneva, Wisconsin-based Royal Recorders. In the case of the latter arrangement, Belew has joined the studio's ranks as an artist/producer in residence. In this capacity, he will be utilizing Royal's digital/analog facility to provide direction to his production efforts, and

will help woo top names to the studio's resort setting in the hills of southern Wisconsin.

A lifelong resident of the Midwest, Belew has moved his family and dog to Lake Geneva, where he'll be able to ride his bike to work. For our interview, we commandeered a vacant office late one night at Royal Recorders, in between his production and performing work on The Bears' first album. The always affable Belew spoke freely about The Bears and their new record deal, his prospects for the future, and his views as a producer in his new role with Royal Recorders.

• • •

**Mix:** You've always been highly regarded and instantly recognized for your guitar playing. What made you add the title of producer to your list of musical credits?

**Belew:** I did it to be more in control of the resulting music. I've always had a natural tendency for producing and arranging, but to do it properly, it requires education and experience. Only now, after ten years of recording, I am starting to accomplish what I've wanted to do all along. I'm a late bloomer, I guess. Since my teens, I've listened to records analytically, while working out all the harmonies and parts. As I listen, I ask myself why the drums are pitched a certain way, what effect was used on the voices, and so on. Emotionally, I listen for enjoyment, but a major part of my musical education has come from the study of everyone else's records. Now, whether I'm writing or producing a song, it gets to a point where I can hear the whole song in my head. I can imagine all of the components: the sound, the arrangement, the production techniques, and everything else, just as if the record was being played for me. Stan Hertzman, one of my managers, says I have a 24-track mind. It's important for me to establish that mental framework, then the little unusual touches come easier.

**Mix:** Was it a natural progression for you to get into this situation at Royal Recorders?

**Belew:** It seems fairly natural to me after years of world touring to want to settle into a more constant productive environment where I can have break-

# The Latest Page in Audio History.

## 1877: The microphone is invented.

Developed by Alexander Graham Bell, Thomas Edison and Emile Berliner, it was patterned after the human ear itself. The first of many attempts to capture sound as we really hear it—a goal that took more than a century to realize.



## 1896: The first synthesizer.

Thaddeus Cahill's Telharmonium weighed 200 tons! A touch-sensitive keyboard drove a complex labyrinth of motors, pulleys and alternators.

## 1924: The dynamic loudspeaker.

The design first developed by Chester W. Rice and Edward W. Kellogg has changed very little over the years. But today's broad frequency bands and increasingly complex audio signals are challenging the loudspeaker like it's never been challenged before.



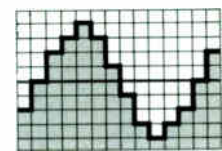
## 1925: The vacuum tube amplifier.

The collective work of Edison, John Fleming and Lee DeForest. Transistors later came to replace tubes, but audio-philosophers have never been entirely satisfied with what they heard.



## 1958: The advent of digital.

Working at Bell Telephone Laboratories, Max Matthews developed a computer program for creating and storing audio waveforms as digital data. Today, digital technology is widely available to musicians and consumers through innovations like user sampling devices and CD players. To hear the sound, however, it's still necessary to translate it back into the analog domain. And that's where problems develop.



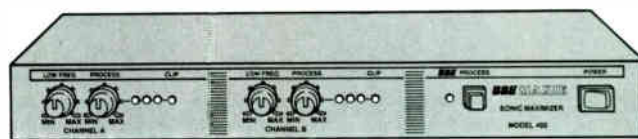
## 1978: The BBE breakthrough.

When you put a power amp and a loudspeaker together, something has always been lost in the interface. That's where phase and amplitude distortion develop, due to "miscom-

munication" between amp and speaker. And that's why amplified sound has never had the dimension, depth and realism that the human ear can hear all around it in nature. That is until Bob Crooks made an important discovery—BBE. BBE is the vital "missing link" between amplifier and speaker. It analyzes the action of both—automatically and on a continual basis. It applies the phase and amplitude correction that's needed to make the sound come through the way you and nature intended it. The difference is easy to hear. Improved low-end definition and punch. Cleaner high-end transients. Better mid-range presence. *In short, unprecedented clarity.*

## 1984: BBE on stage.

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gathers for such events as the Grammys and the Academy Awards, BBE is there, making sure the sound is as special as the occasion itself.

## 1985: BBE in the studio.

Award winning producer Steve Levine joined forces with the Beach Boys and teamed them up with BBE for an all-digital recording session for CBS/Caribou. "BBE is to digital what equalizers were to analog," said Levine. "I can't imagine ever recording without BBE again."

## 1986: BBE today.

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"After producing three solo albums, I learned that there are many subtle techniques for providing the illusions of shape, size, and depth that a record may need."

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fast with my family, work all day, and still eat dinner at home. I think this lifestyle will result in a finer-quality output.

**Mix:** Has the fact that you've been around some of the best producers in the business influenced any portion of your knowledge?

**Belew:** Not as much as it should have. When I was rubbing elbows with Frank Zappa or Brian Eno, I was too stupid to know what to listen for. Hands-on experience is the most valuable tool. After producing three solo albums, I learned that there are many subtle techniques for providing the illusions of shape, size, and depth that a record may need.

**Mix:** According to your own definition, what is the most important attribute

a producer should possess to excel?

**Belew:** I think you need vision, and need to know how to bring the best out of an artist. Once you have these qualities, then you have to be able to commit your vision to vinyl.

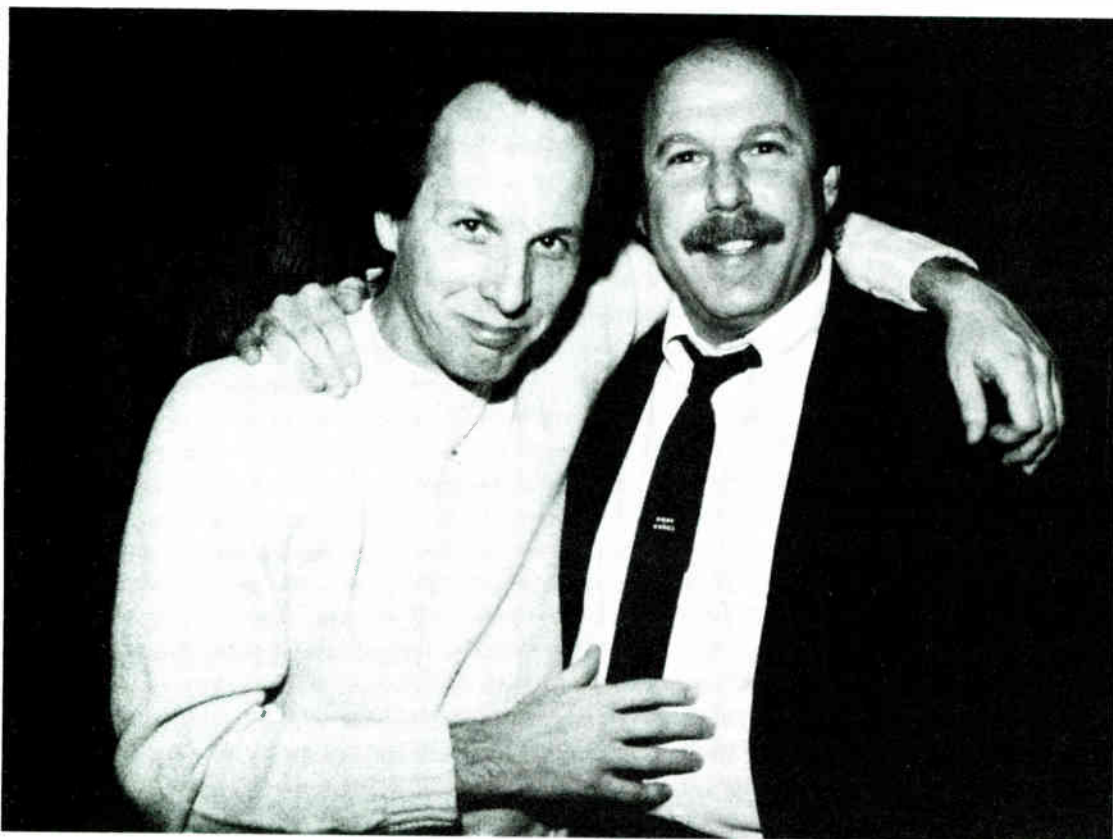
**Mix:** You produced your latest solo album, *Desire Caught by the Tail*, with quite a few creative touches that are definitely out of the ordinary. Violin, bass clarinet, and horn sounds come out of your guitar, as well as microtonal simulations of the Turkish reed instrument, the zurna. There are also sounds achieved with studio techniques such as backwards recording, tape editing, and vari-speeding, and to top it off, you composed the album on a dobro, which you claimed to have tuned like a "George Gershwin-sounding piano." Is there any order to this

apparent disorder?

**Belew:** Let me clarify one thing first. Side one contains music which was written beforehand, on an acoustic dobro, and orchestrated track-by-track in the studio. Side two contains more experimental "sound paintings," which were born entirely in the studio. Though each piece of music was treated differently, there is an order because the overall idea was to create orchestral music using mainly guitars and percussion, the instruments I work with best.

**Mix:** How long did it take you to produce *Desire Caught by the Tail*, and how did you create such diverse guitar sounds?

**Belew:** I worked with engineer Rich Denhart, and the production took a full year-and-a-half. Rich and I have worked together for nine years, developing our own "secret" methods, which involve trendy acoustic techniques such as miking wood-paneled doors instead of snare drums, or the console padding instead of a floor tom. For *Desire*, we used pots and pans, toy guitars, laughing boxes, and anything else we could get our hands on. The Roland GR-700 guitar synthesizer provided most of the guitar sounds. It allowed me to create sounds from scratch, and then to refine them, and store them on small cartridges. In this way, I built my "guitar orchestra," and was assured that the end product would be acoustical as well as electronic.



**Adrian Belew (left) with Stan Hertzman, his mentor, manager, and the executive producer of *The Bears'* first album.**



PHOTO: SANDY UNDERWOOD 1986

**Mix:** How did you become Royal Recorders' artist/producer in residence?

**Belew:** I befriended Bob Brigham and Ron Fajersteir, Royals' owners, and we began cooperating on projects. The more we did together, the more we realized that I should be here on a regular basis. So Rich (Denhart) moved here, and so did my family and I. We love Lake Geneva—you get four full seasons, there's skiing, swimming, boating, and countless other recreational activities. It's also a great place to raise children, as opposed to a place like New York City. It's beautiful, quiet, and the people are kind.

**Mix:** Royal Recorders has quite a formidable collection of both digital and analog equipment. How does all of this fit into your production scheme?

**Belew:** No doubt, the equipment list here is impressive. There are two 32-track Mitsubishi digital recorders, an 80-input SSL console, two 24-track Studers, 60 vintage tube mics, and a truckload of outboard gear. While the array of components is staggering, whatever serves the music best is still the most important. The digital gear is beautifully quiet, but sometimes guitars sound warmer on analog. The outboard gear is terrific too, but I still like it best when used to make drums sound natural. They are all tools of our trade, and it remains challenging to make a good sounding record, regardless of the toys.

**Mix:** Looking toward the future, who would you like to work with here?

**Belew:** If you can believe this, Paul Simon once suggested that I co-author some songs with him. I plan to invite him here. I also hope to do more proj-

ects with Laurie Anderson and Stewart Copeland, and maybe Bill Bruford and Tony Levin [fellow King Crimson members] could come by and see what happens. We could make the Fripp-less Crimson album. The studio setting is built to be enjoyable, so I think that any of my "famous" friends would feel comfortable working here. Additionally, I've been approached to do some film scores, and I think that they'd make good long-term projects.

**Mix:** Let's talk about the new band you're with, The Bears.

**Belew:** Bob Nyswonger plays an electric upright bass, Chris Arduser plays acoustic drums, and Rob Fetters and I play guitars and sing. The four of us write, as well, sometimes in tandem. We try to write traditional pop songs, only with somewhat exotic treatments.

**Mix:** You've known each other for a long time, haven't you?

**Belew:** The band is based upon a ten year-old friendship between people who enjoy working together, have similar backgrounds and values, and yet are unique individuals. As rock stars, we're feebly controversial—we like wild things like reading books and going bowling.

**Mix:** Where did the name come from?

**Belew:** We wanted a generic name, something that sounded like a team, and had multiple associations. One night Rob Fetters and I were at my house, and I suggested that we call ourselves The Tigers. Rob replied that the name had already been used, and suggested The Bears. I remember asking Rob, "Isn't there already a football team named the Bears?" Mind you, this was a year or so before the Chicago Bears became major media figures.

**Mix:** How would you best describe The Bears' music?

**Belew:** New, yet familiar. Musically, we combine Far Eastern overtones with Midwestern American music. East meets Midwest, we call it. Rob and I sing Beatle-like two-part harmonies, with the music being slightly sophisticated. Solid writing is our most important feature. Lyrically, we're concerned humanists writing about everything from love to nuclear aftermath.

**Mix:** Can we expect to see more touring from The Bears?

**Belew:** Sure, we're going around the world. We've already played in Israel, and have a May tour of Brazil planned. We're savoring the usual main course tour of the major powers for dessert and coffee. ■

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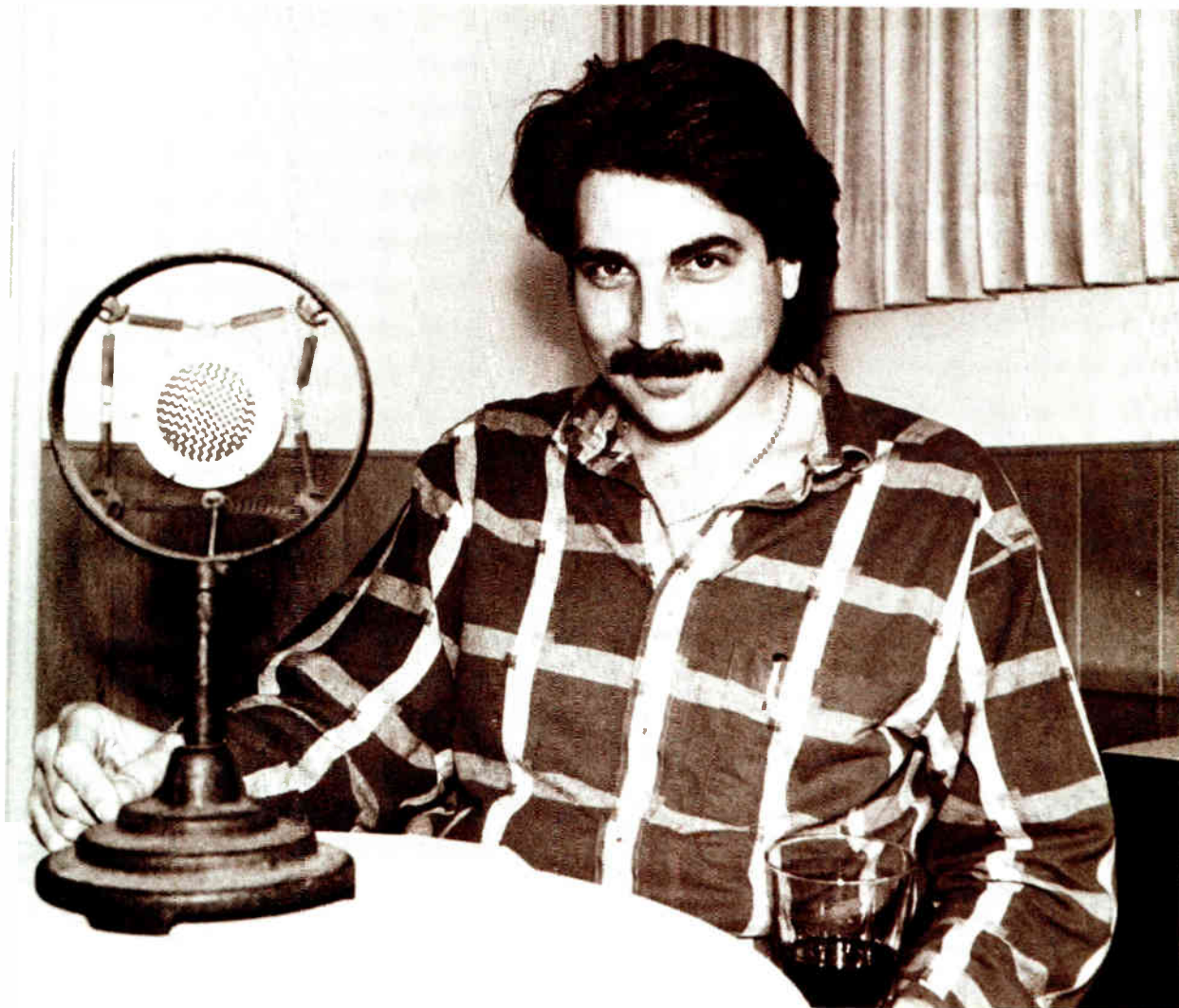


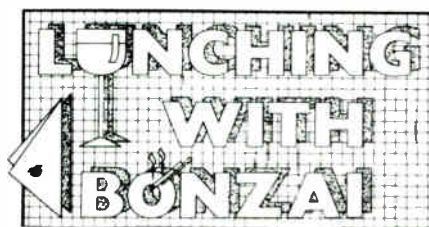
PHOTO: MR. BONZAI

# STEPHEN PAUL

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## DOCTOR MICROPHONE

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by Mr. Bonzai

Stephen Paul is a dashing knight on a quest for the Holy Grail of microphones. He's driven, obsessed, and outspoken. He often lapses into wacky European accents, amplifying his already mad scientist style.


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—CONTINUED ON PAGE 45



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—FROM PAGE 40, BONZAI/PAUL together again.

But that's not all. He is using '80s technology to hot rod these old gems, and his rebel reputation is growing. And now he says he is going to build a new microphone that will raise eyebrows from Tokyo to Berlin. He's calling it the "Firebottle,"™ the nickname old broadcasters gave to tubes.

And now meet Stephen Paul, living proof that a maverick can not only survive, but prosper and have some yuks in this starched corporate world of ours.

• • •

**Bonzai:** Many of the great acoustic and organic natural instruments seem to have been replaced by computers.

**Paul:** Disgusting, isn't it?

**Bonzai:** But microphones—people still hanker for that old sound of the great microphones.

**Paul:** Isn't that amazing? People are working with digital multi-tracks and computerized consoles loaded with all the latest high speed tricks—everything you can think of—and what do they plug into this incredible state-of-the-art starship? They plug in a 30-year old microphone. I love it.

**Bonzai:** Was there a golden age of microphones?

**Paul:** No—I think we're just approaching the golden age of microphones. I do think there was a golden age of recording where things were very much more straightforward, although some of the more complex artistic visions may have been harder to realize, or achieve. But if you listen to a well-preserved recording from the '50s done with tube mics through a tube console loaded with iron and huge patch bays and big Bakelite stuff everywhere, I'll tell you something—there's a clarity to the sound that we've really moved away from.

We've become familiar with the change and I think, as a result, we're willing to call clarity something else at this point, and use a different point of reference. That old clarity may not be something we are able to defend on a measurement basis, at least not necessarily with anything we've learned to measure yet. But subjectively, as far as what the ear likes to hear and perceives as clarity—certainly there were recordings made in the '50s that would be very difficult to imitate today. It's a very open, clear, transparent quality that in a way we have been struggling back towards with all of the technology.

**Bonzai:** And the microphone plays a key role in this.

**Paul:** The ultimate role.

**Bonzai:** Let's talk about a perfect world. Can you tell me what the perfect microphone consists of?

**Paul:** The perfect microphone would have a slew rate of infinity, meaning how quickly the whole system responds to a change of input. The speed of an amplifier is measured in terms of its ability to follow a sudden shift in its input level, and this is a very important specification in the transient analysis of the circuit. It's by no means the only spec with meaning, but it's a key factor. And a mic with infinite slew rate would mean that the microphone would respond literally instantaneously to a pressure change across its surface and transduce that electronically, equally as quickly.

The mic would have a self-noise level of 0 dBA, or acoustic dBs—meaning that if you took the entire microphone system and you enclosed it in a vacuum chamber, and there were absolutely no air molecules disturbing the surface of the diaphragm, and you were left purely with the thermal residue of activity in the microphone circuits and capsule materials and so forth, that the microphone at that point would have an immeasurable noise output, well below -160 dBm, something that would be immeasurable unless the measuring equipment was cooled to near 0 temperature and became superconductive.

**Bonzai:** But a microphone has to be in the air to work.

**Paul:** Well, if you will, enclosing it in a cast iron cylinder which is completely impervious to vibrations and just have it sitting in air—either way. In other words, once you remove vibrations of external sources as a figure, what are you left with? The ideal microphone would have zero contributions. Absolutely, no self-noise. Another dream-like spec.

The third spec would be, for example, a dynamic range of 200 dB—a good figure for the dream microphone.

**Bonzai:** Is there a sound of 200 dB strength?

**Paul:** It isn't a question of loudness—it's a question of ratio of the softest to the loudest sound that the microphone is capable of dealing with, without distortion. Meaning everything from the gnat sneeze to a bomb exploding would be easily handled at one centimeter range. But again, this might be difficult to achieve in reality.

The fourth aspect might be a boundary frequency of 100 kHz, meaning that by the time this mic handles 15K it's not even breathing hard. The problem with that spec also is that while it's

achievable, the trade-offs in other areas are considerable. You sacrifice other things which are more important than the boundary frequency, but if we are considering an ideal mic from a totally technical point of view, ignoring the laws of physics and what can be achieved in reality, those things would all be nice. And I should add the final thing. It should, to boot, have a 32mm capsule.

**Bonzai:** What would that give you?

**Paul:** Bottom end. Bass response. The big capsule sound. We can make a capsule that will go out to 200 kHz. B&K has been doing it routinely for the last 30 years, but to make that an exciting sound when Linda Ronstadt sings into it is a completely unrelated situation.

**Bonzai:** How close are we today to the perfect microphone?

**Paul:** Well, some microphones exist which are pretty stinkin' close in a lot of areas. The only thing is that although they may be suitable for test measurement and use in explosive environments, as hot as it may get in the average rock session, I don't know if that's what we're looking for from the microphone. In a way, the ideal microphone really has no meaning. Of course it would be nice to have all the things we love about a mic and have zero noise level and infinite dynamic range—those are two specifications, regardless of the microphone type, we would like to see. Even though in some cases, the distortion of the system may be used as an artistic effect, when it comes to the microphone it isn't usually desirable. The Neumann U-47 was an exception.

**Bonzai:** In what way?

**Paul:** It's a high distortion microphone, but the distortion just happens to be very fat and creamy. With or without the modification that I do, which wipes that distortion out, the microphone still seems to be accepted by the recording community at large and they're all very happy with it.

**Bonzai:** The Neumann U-47 is really one of the legendary mics, isn't it?

**Paul:** Yep, it's a depth bomb. If you get one where the capsule is properly tensioned and in good condition, the bass response of that capsule is pretty awesome. Neumann was able to achieve that because of his unique approach to the construction of the capsule, which complicates its analysis immeasurably in a Laplacian sense, meaning in the differential and integral calculus that describe the diaphragm motions. But at the same time, it makes a certain sound. He put



PHOTO: MR. BONZAI

*Stephen Paul, Dr. Microphone*

a post in the center of the backplate which supports the diaphragm in the middle. Now, adjusting the tension across the membrane is another trade-off. Loosen the tension and you get a louder capsule. Sensitivity increases. But at the same time you lower the resonant frequency of the entire system, so the system has to be made smaller if it's going to respond to high frequencies. Make it smaller and you lose some of the output you gained by dropping the tension—and round and round we go.

What Neumann did in those older mics was to use this center post, which let him drop the tensioning of the diaphragm considerably. You can't drop it too much because when the voltage is applied, the electrostatic activity sucks the diaphragm down to the backplate. So the tension is essential to keep the diaphragm suspended, leaving it free to vibrate. With the center support, he was able to drop the tension quite a bit, lower the resonant frequency of the system—somewhat compensated for by a smaller capsule dimension and so created a microphone which has a legendary proximity effect, which refers to the bass response increase when a cardioid microphone is brought within inches of a sound source. He made a microphone which has an incredible bottom end and basically, that's how he achieved it.

Bonzai: Is he still alive?

Paul: No, Georg died in the mid-'70s, I believe.

Bonzai: In your estimation, who are

some of the key figures in the development of microphones?

Paul: The published father of the modern condenser mic, complete with mathematical equations and the basic study of how it works—even though he was incorrect theoretically in several areas—is a fella named E.C. Wente, an American who worked for Bell Labs.

Bonzai: Who made the first mic?

Paul: I would say Alexander Graham Bell made the first real transducer. Wente made a few wrong assumptions, though, which were cleared up by I.B. Crandall. Wente wrote his first big paper in 1917, which was published in *Physics Review*. It covered the modern phenomenon of the condenser microphone, and how to make and calibrate one.

Bonzai: What type of microphone came before the condenser?

Paul: Most of the mics previously in operation were of the carbon granule type, consisting of a stretched diaphragm with sort of a tack stuck through the center. The tack had an end that poked into a little cup full of carbon granules. A voltage was run across the cup, which is possible because carbon is a conductor. As the little tack vibrated with the motions of the membrane, it would disturb carbon granules and a voltage change would occur, which was then amplified. As you can imagine, it was a rather noisy way of making a microphone.

Bonzai: Amazing that someone would

come up with such a concept.

Paul: Bell was playing around with similar devices, although I'm not absolutely sure that he made the first mic. I also heard a later story about Edison. He was supposedly playing around with microphones and he noticed that he could feel the pressure of the tack impinging on his finger and had a vision—take a piece of foil and make the impressions in it, and then read them.

Bonzai: Anyway, the condenser mic was a leap forward. What is the principle?

Paul: The condenser mic's development became important because the carbon microphone was a rather noisy and high-mass device and, as a result, proved difficult to control in terms of its frequency response, due to resonances. This was one of the first big Bell Labs jobs—to unravel some of the mysteries. I understand that Georg Neumann was working in Europe on carbon mic development and came up with some sort of a marble encasement in order to damp out some of these resonances. He gained early experience with resonance control in his microphone systems. He then turned to the twin diaphragm condenser.

Bonzai: What does "condenser" mean?

Paul: It means capacitor. It means two parallel plates which aren't touching, and have so many coulombs of charge on them. There follows the well-known effect of surface area vs. spacing of the plates creating a capacitance, or the ability to hold a charge—if you then vary one of those parameters (the spacing, in the case of microphones), you will create a voltage drop in the circuit around it, which can be amplified and delivered to the outside world as sound.

Bonzai: Some other heroes?

Paul: Harry Olson was a big ribbon microphone hero, an RCA man working during the '30s. He helped develop the velocity microphone. The ribbon mic was really the first cardioid microphone, which used a phase type of technique in order to cancel sounds coming from the rear.

Bonzai: Cardioid means "heart-shaped?"

Paul: In our language, Yes. The Germans say *niere*, which means kidney-shaped.

Bonzai: Why did you become so enamored with microphones?

Paul: Good question, because contrary to what you see around me, I am not really a big lover of *things per se*.

It's fun to have them, but I would give them up in a second if it meant I could follow my star. I've always been a fan of art, though. I love high art. And there are few things in our society which are both high art and high technology as well. If you get close to an F-16 and study it, you find that from afar it appears to be a work of glistening technology, but when you get close and go over it with a magnifying glass, you can suddenly see that this thing is handmade. It has marks where the hammer whacked it into curved pieces of metal. It's got dimples from the riveter and pieces of tape—it looks like it came out of someone's high technology garage. It's as if each one has elements of prototypical creation. A Lamborghini Countach—same thing. Looks incredible from six feet away, but up close you can see that everything doesn't fit perfectly. There are the marks of a handmade object. I've always been fascinated by high performance aircraft and the more esoteric creations that are not mass produced. They take such precision and such care that no one was ever able to make enough of them to refine them into the slickness of a commercial product. There is almost a raw look to them.

**Bonzai:** Is this true of some microphones?

**Paul:** Some microphones are very much this way. The older Neumann and AKG mics were always finished like fine watches on the exterior, but there is something about the way the metal was finished, the look of the microphone—there was a feeling that in this thing was magic. There was something that transcended its technology, something that transcended the limitations of the time in which it was made. And when you open up these older microphones and you look inside, a very strange thing happens. You open some of the old condenser mic boxes finished in wood or that leatherette covering and you find velvet-covered particle wood, and out comes an old musty smell, like from an old violin case. Then you take this crazy thing out and pop the screws off and take out the capsule and behold the antique wonder of its secret interiors.

A story that I heard was that some American general came marching into Berlin at the end of World War II. They were taking over various companies, like BMW, from Germany. Apparently they walked into the Gelfell factory at Neumann and saw these guys over in a corner of a bombed out building. They were pouring polyvinyl chloride out of a pot onto a piece of sheet glass to make diaphragms. They

were still in there making microphones in the middle of all this desolation, like someone would want them. The Allies are marching through the middle of this. The military report is filed away in the Library of Congress and I have the number of it and am waiting for a reprint. This is a fascinating thing to me. If you look at some of the first classics off the assembly line—for example, I have U-47 #50—the first hundred or so did not even have a cast emblem on them. They have a piece of sheet brass that was hand-engraved with the Neumann emblem.

**Bonzai:** Were these for singing?

**Paul:** These were for broadcasting. If you look at old photos, you'll see the reporters standing there with a six-pound, huge bomb of a microphone. They had to lift weights before doing interviews.

Anyway, looking at these old mics is very interesting. There aren't many glues in the world that will hold a polyvinyl chloride diaphragm under a degree of tension and these old mics—they must have used a hot glue, or something similar. If you take it apart and scratch at it, it crumbles. It's like a fine violin rosin, and the whole microphone has the aura of a Stradivarius. It's like a musical instrument, and it has a sound of its own.

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**Bonzai:** We've focused on Neumann, but there are other great microphones.  
**Paul:** We focus on Neumann because the European development of this design was largely carried out initially by Neumann. The original historic gentlemen who designed the dual membrane system were Branmuhl

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***“Sometimes I sit for hours staring at one piece of my work—a wiring harness or a circuit board I’ve built by hand—and I realize that what I’m doing is imbuing it with energy, putting a spell on it.”***

---

and Weber. They held the basic patent, which has since expired, but was taken out in 1939 in America and in 1935 in Europe. Very little has been written about this system—it's all a very deep, dark Teutonic secret. The two systems were the dual membrane and the mechanical shutter system, which was licensed to Schoeps. I understand that Schoeps microphones were made in an old Bavarian castle—real mad scientist stuff, but also a jewel-like microphone. Neumann was certainly one of the pioneers—he also invented NiCad batteries. Out of his experiments with nickel came the capsules for the original KM mics. K stands for *kleine*, little.

AKG, again, has their own history. The story that I heard was that AKG originally got into the condenser market and made the 251 to compete with the U-47, which may be true. They OEM'ed the mic to Telefunken. In the meantime, the C-12, which had been built since 1957—at least that's the earliest schematic I have—had already gotten into a dual backplate design which Neumann was still several years away from introducing in a large capsule format with the U-67.

AKG was the first to build a large diameter capsule with the partial car-

dioid solution to pattern control for the microphone, to get better rejection from the back of the mic and yet maintain a nice, wide frontal pickup of high frequencies. This was a big challenge because high frequencies are very directional; they tend to beam. The dimensions of the mic and the capsule start to interfere at a certain point because of the physical size relationship to wavelength. As a result, with the older microphones it was very difficult to get a good match between front and rear diaphragms and a good rejection at the back of the microphone and still have a good off-axis pickup of high frequencies. The solution was to make the mic a cardioid up to a certain frequency, and have it transition to an omni above this point.

This brings us to future microphones and present microphones, and what the thrust of a lot of modern design has gone after—to build microphones which have better off-axis characteristics. This is one of the big things that has been heralded with the Neumann TLM-170 and U-89, and the Beyer 740. The whole point of these microphones is that manufacturers have tried to develop a capsule design with the normal high frequency roll-off when you tilt it off-axis, but what you have up to that point is fairly smooth and doesn't go up and down and have comb-filter type effects.

**Bonzai:** How does a design like PZM fit into all of this?

**Paul:** In the same way that any different mic fits into it. When a PZM will do the job, that's the mic you should use. The PZM is a boundary microphone which basically means a tiny microphone placed close to a boundary layer that doesn't carry multiple reflections in the initial sound. You get an in-phase effect across the entire boundary—the wave hits the entire system at one time. This is a mic you can place at a distance from a sound source and still discern a reasonably clear image. You don't get a lot of multiple bounces. For a while in the late '70s, it was very popular to stick a PZM on the control room glass and record a vocalist. But the trend kind of wore off, because it works fine for lower, longer wavelength signals, but when you start getting into shorter wavelengths, the effect of hitting surfaces becomes much more complicated and difficult to resolve, and the microphone doesn't have as clear an image up top as with a microphone placed in close proximity to the singer. It also lacks proximity boost, as you aren't normally close to it.

**Bonzai:** Are there good microphones being made today?

**Paul:** There are microphones being made today that are technically light years ahead of anything from the tube era, such as the Sanken, which is a stunning technical achievement. However, technical superiority may not make for the most exciting image, in some cases.

**Bonzai:** What does the tube do?

**Paul:** Let's write a book, shall we?

**Bonzai:** And why have they stopped?

**Paul:** Expense, reliability—the “E” and the “R” of everything. Expense, because it's just expensive. You need a power supply and multi-pair cable and you need a whole system, you can no longer feed a phantom power to everything and just plug a mic into the wall.

**Bonzai:** What is your business?

**Paul:** My business is telling people, “No, your mic ain't ready yet—go away!”

**Bonzai:** You're a rebuilder, but also a modifier?

**Paul:** Yes. I am not so much a restorer as I am like the Carrol Shelby of microphones. What attracted me to this field? When I opened my first little home studio to do my music, the reason I became so deeply and passionately involved in the microphones was because I discovered that if you had cruddy recording equipment that you could still get a competitive, fantastic recording sometimes if you had a *great* microphone plugged in. Then, during my other forays into the professional world of studios, I found that even with all the most fantastic toys at my disposal, if I didn't have a great mic I could sit there all night and not get a single good track. I discovered that the microphone can make the difference between a great recording and one that takes a lot of fixing.

I started taking them apart and I became fascinated with the pieces of gold and wires and the whole watch-like construction. Then I started studying the subject and I found that these guys were still doing it like they did in the '40s. I'm living in Southern California—aerospaceland! We build shuttle orbiters. I can get stuff they couldn't even dream about! I figured, couldn't we take these great microphones to another level of performance? Why does it have to be done this way?

Of course, in my ignorance and foolishness, I dashed madly into the fray and started playing around with their alchemical formulas. I fell on my ass a bunch of times, but I also found that some of my instincts were quite correct. I found that by breaking some of the rules (I didn't know at the time I



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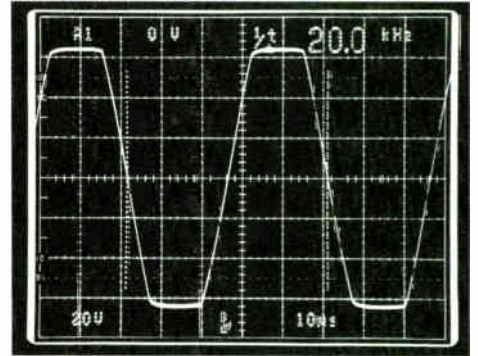
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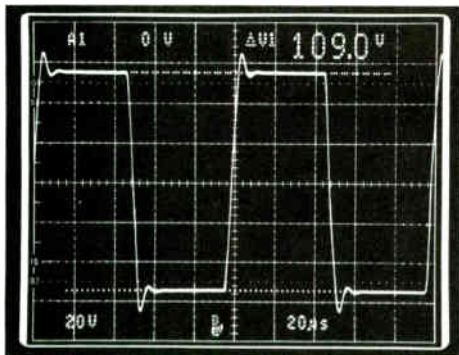
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# ECHO TIMES

*Calrec by AMS*

**AMS and Calrec merge.  
Calrec by AMS emerges**

**calrec**  
by AMS

Probably the most noteworthy piece of news since the publication of the last Echo Times is the merging of Advanced Music Systems and Calrec. The two companies have independently addressed the professional audio industry for over 10 years and are now determined to use their joint experiences to enhance their separate product lines as well as jointly introducing new products.

AMS and Calrec are only 14 miles apart and are located approximately 20 miles north of Manchester. The merger is not a mere financial exercise and building work is now underway at the new AMS headquarters in Burnley to provide extra room for the Calrec workforce and staff. Although the move is not intended to be completed until sometime in mid 1987, Calrec digital R & D staff moved into the new AMS office complex the day following the signing of the Calrec purchase agreement.

## THE CALREC COMPANY

Calrec began life as a manufacturer by designing and building microphones culminating in the world's highest quality microphone system, the Soundfield. More recently, Calrec have become recognised for their expertise in the custom design and build of broadcast consoles. These consoles range from small portable systems like the Minimixer, to the most recently developed digitally assignable system. The one common factor amongst the entire range of consoles built by Calrec is the transparent nature of the electronics and the resultant high audio quality when following any signal path through the console.

## THE UA 8000 MUSIC CONSOLE

The UA 8000 is a music recording console, the specifications for which were identified during many years of custom building. Although the marketplace for large 'flagship' consoles is very competitive, 1986 has seen a great deal of success for this no compromise console. The first UA 8000 was sold to the Abba studios in Stockholm, but the most talked about location of the UA



UA8000 installed at Puk Studios Denmark.

8000 has been, until recently, the excellent 'no expense spared' PUK facility in Denmark.

At the same time as the AMS Calrec merger, probably the most famous recording studio in the world, EMI Abbey Road announced their decision to install a UA 8000. The choice was made by Abbey Road because of the exceptional audio fidelity of the console. At the November AES in Los Angeles a document was presented to one of the



Steve Jagger, Stuart Nevison and George Waddington following Abbey Road decision to purchase UA8000 console.

directors of Calrec which detailed a year long search by Master Mix Recording Studios of Nashville for a new console. The

conclusions of the document resulted in the first North American sale for the UA 8000. There is now considerable interest in the UA 8000 as it seems to offer a unique choice in this very exclusive area.

Only a limited number of UA 8000 consoles can be manufactured during 1987 compared with the number of orders and the amount of serious interest being shown. There is no doubt that the UA 8000, in the short term at least, will remain a unique and in demand piece of equipment available at only a few exclusive locations throughout the world.

## THE DIGITALLY ASSIGNABLE CONSOLE

At the same time as the evolution of the UA 8000 music console, digital research was channelled into an assignable console. Again, although pursued by many of the leading console manufacturers Calrec have taken great pride in designing, manufacturing, commissioning and accepting payment for two complete digitally assignable installations. The first of these consoles was supplied to Thames Television and at the time of writing, the second was undergoing final acceptance tests by the British Broadcasting Corporation. The desk supplied to the BBC is a 112 input console fitting across the width



*Digitally assignable Calrec console installed in BBC Master sound control vehicle.*

of the BBC's Master Sound Control Vehicle which is used for all the major outside broadcast recordings made by the BBC. The success of these two installations is not only measured by the fact that many other broadcasters are now also interested in the technology, but that both Thames Television and the BBC are looking to repeat orders for the systems they are now working with.

## THE FUTURE

The announcement of the AMS Calrec merger has been greeted with enthusiasm by the professional audio industry. The two companies exhibit both strong similarities and radical differences. On the one hand Calrec have an expertise in custom manufacture of mixing consoles for the British marketplace, on the other AMS's experience lies in the production-build audioprocessors for an international marketplace. From these differences and from the strength associated with two companies adopting a parallel approach to digital research, must come an interesting future.

# AMS AUDIOFILE

## ON THE UP AND UPDATE

### AMS AUDIOFILE

#### THE NEXT STEP

AMS announced before the end of 1986 that it had been over 12 months since the first AudioFile was sold and that there were now over 50 systems in the field. These facts alone must make AMS AudioFile the world's most popular tapeless audio recording system. The past twelve months have provided AMS with a database of user requirements, some of which have already been incorporated in AudioFile and some of which are soon to come. Each AudioFile owner seems to have been more than pleased to participate in providing operational feedback which has been vital in making AudioFile fast, easy to use and a desirable, essential piece of studio equipment for anyone wishing to manipulate audio.

### AMS AUDIOFILE

#### THE CURRENT POSITION

A CUE on AudioFile represents any recorded piece of information and an EVENT LIST is a series of cues for sequential or simultaneous playback. Once one understands this popular terminology takes over and everyone should then understand 'AudioFiles'.

The last standard issue of software for AudioFile in 1986 was Version 4. Some of the system enhancements included in that issue are described here as well as some additional features that have been made available since then.

### AMS AUDIOFILE

#### THE 'RECORD PAGE'

An update to the Record Page on

AudioFile now allows Cues to be recorded either into the Cue Library or directly into an Events List. Recording may be manually implemented or programmed against incoming timecode. The new record page includes Insert Record which equates to drop-in on a tape based system. Insert Record is initially non-destructive of any original Cues and the facility also exists to audition an Insert before commitment to it or retrying. The Record Page now permits the selection of the audio standard to be recorded, be it analogue, digital - PCM 1610 format which includes direct input from 1630, 3324 digital tape recorders and the Sony CDP 3000 compact disc player, or finally F1 / 701 format.



*AMS AudioFile putting sound to picture.  
World Radio History*

### AMS AUDIOFILE

**A**BACK UP AND DISK ARCHIVING Although there is a great deal of talk concerning various optical media and digital tape streamers for backing up audio material stored on Winchester type hard disks, AMS have not yet committed their AudioFile users to any of this current technology. Hooks have been designed into the AudioFile hardware which will allow connection immediately to most of the systems that are being speculated about. However, AMS believe none of these systems currently offer the correct combination of data transfer rates, mass storage or cost effectiveness.

As an interim, AMS have developed a system which utilises a piece of equipment common to many recording studios - the Sony F1 or 701. Raw Cues from AudioFile's hard disks may be transferred digitally along with edit points and timecode information onto a VHS, Betamax or U-Matic video tape. By keeping the relevant AudioFile system disc associated with the Cues, any Events Lists created may be re-assembled rapidly on reloading AudioFile's hard disks from the digital audio cassette.

This back up is accessed and controlled via the Filing System page. Also new to the filing system page is the ability to select frame-rate. 24, 25, 30 and 29.97 (Drop Frame) are available with a default condition stored on the system floppy disk.

### AMS AUDIOFILE

#### MACHINE CONTROL

**A**lso full machine control including rewind, play, stop, fast forward, shuttle, jog and locate is now offered from the dedicated controls and digipots on the AudioFile control surface. The current list of machines capable of being controlled is as follows:

Sony BVU 800/850 series

Sony DMR 2000 VCR

JVC Professional series of VHS machines

Sony 5800 series in conjunction with an IF 500 converter.

# AMS OUTBOARD STILL OUT FRONT



**AUDIOPROCESSORS STILL REPRESENT THE BEST VALUE PROFESSIONAL SYSTEMS ON THE MARKET**



1986 will be remembered as the year of the cheap digital reverb. It seemed that each month a different manufacturer introduced a new product aimed at the semi-professional, for a price half the cost of the previous month's new introduction.

Many recording studios have seen the advantage of these budget systems and today, it is unusual not to see a wide and varied selection of these systems slotted into studio control rooms.

Distributors worldwide reported a period of obvious confusion as all sorts of lower and lower-priced digital audio processors appeared, which seemingly promised everything offered by a professional system at a fraction of the cost.

A recent survey of North American dealers revealed that AMS had come through this period of industry uncertainty with flying colours and that whatever people's views may be on budget audio processors, the best value for money in a system designed purely for the professional remains an AMS system. Some quotes made early in 1987 explain why:



“After 5 years of selling AMS products, sales are as strong as ever – which points to demand for quality updatable equipment. Investment in AMS holds over a long period of time which is highlighted by how little, if any, used equipment ever appears for sale. After working with AudioFile we expect the same to hold true with that as well.”

... *Harris Sound, Los Angeles.*



“Audio quality and construction is the primary reason for AMS's good sales record. Certain key producers, engineers and musicians latch on to these products because of these facts.”

... *Martin Audio, New York.*



“The RMX 16 offers excellent preset programs – most other reverbs have so-so parameters but the RMX offers good sounds more easily and more quickly and still at a good price. The DMX is still the leading product of its type offering dual channel delay, sampling and pitch change.”

... *Studio Supply, Nashville.*



“AMS has become the accepted thing. 85% of AMS units are sold to record companies because it takes an AMS to make a hit record and they don't object to that. More note is taken when an engineer doesn't request AMS for a mixdown.”

... *Harris Audio, Florida.*



“We feel AMS is the finest product we can offer to our customers. We have high end customers who only want to buy one time and not fool around.”

... *Indy Pro Audio, Indiana.*



“AMS has such a good name and reputation and is so reliable, as well as being good both sonically and very quiet. There are a lot of other systems out there but without full bandwidth and noisier.”

... *Profound Sound, Kansas.*



“Simply because the quality is so superior.”

... *Lake Systems, Massachusetts.*



“The one consistent thing that turns customers on is the fact they really do everything that they are supposed to do – good solid products and of course the DMX 15-80S is unique”

... *Veneman Music, Maryland.*



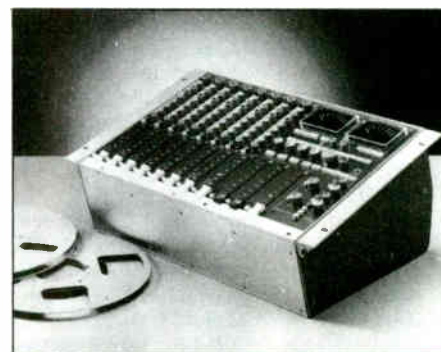
# A/V SYNC FOR US ARMED FORCES NETWORK

In January an order was received from the USA to supply 19 A/V Sync digital audio synchronisers for supply to the US Armed Forces Network. The A/V Sync is a specialist dual or triple channel audio delay compensator for use with video synchronisers.

The A/V Sync can automatically prevent loss of lip-sync which is introduced by varying amounts of video signal delay associated with passage of vision through a field or frame store. The system can also be programmed manually, allowing fixed offsets to be introduced to accommodate situations where synchronisation is lost again when vision has been transmitted via a satellite and sound by landline.

The A/V Sync has proved a popular system with broadcasters worldwide and in the U.K. alone systems are in daily use with the BBC, Thames Television, London Weekend Television, Television South, Yorkshire Television and HTV.

# GRT ORDER 11 MINIMIXERS



Greek Radio and Television have taken delivery of the first six of a total order of eleven Minimixers. The Calrec Minimixer was chosen because it offered more facilities than any other for the size and price. The 19" rack mount mixers have been supplied with rechargeable battery packs capable of powering each system for up to ten hours.

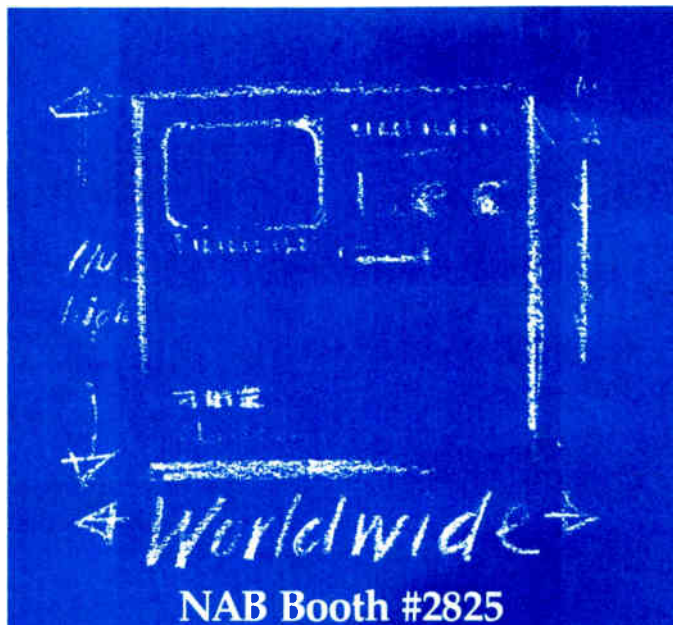
# ECHO TIMES CHANGE OF STYLE

This issue of Echo Times has had a slight change of style due to the large amount of news items reported. Echo Times 10 will return to the more familiar format and two excellent interviews are already on file for inclusion in future editions.

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You won't have to travel the world to test a system. The AMS AudioFile is available for demonstration in Australia, Belgium, Canada, France, Germany, Holland, Italy, Japan, Sweden, Switzerland and the USA.

For more details on a hard disc demo contact AMS today.

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was breaking them but I was tramping all over things held dear and revered), by Jove they sounded better and they worked better! I decided, well, gee, one of these days I'm going to have to document what I'm doing because they sound pretty good.

And so I prevailed upon my friend Jim David, owner of One On One studios. I didn't have a tremendous capital resource, only two years into the business. I was in the black, but it was a miracle. I think it's because there was nobody else really doing this work. Jim helped me get a TEF [Time Energy Frequency] computer and suddenly the skeleton key became available. The TEF machine is like an electronic anechoic chamber. I unlocked the deep, dark closet of research and development.

**Bonzai:** Has it become a good business?

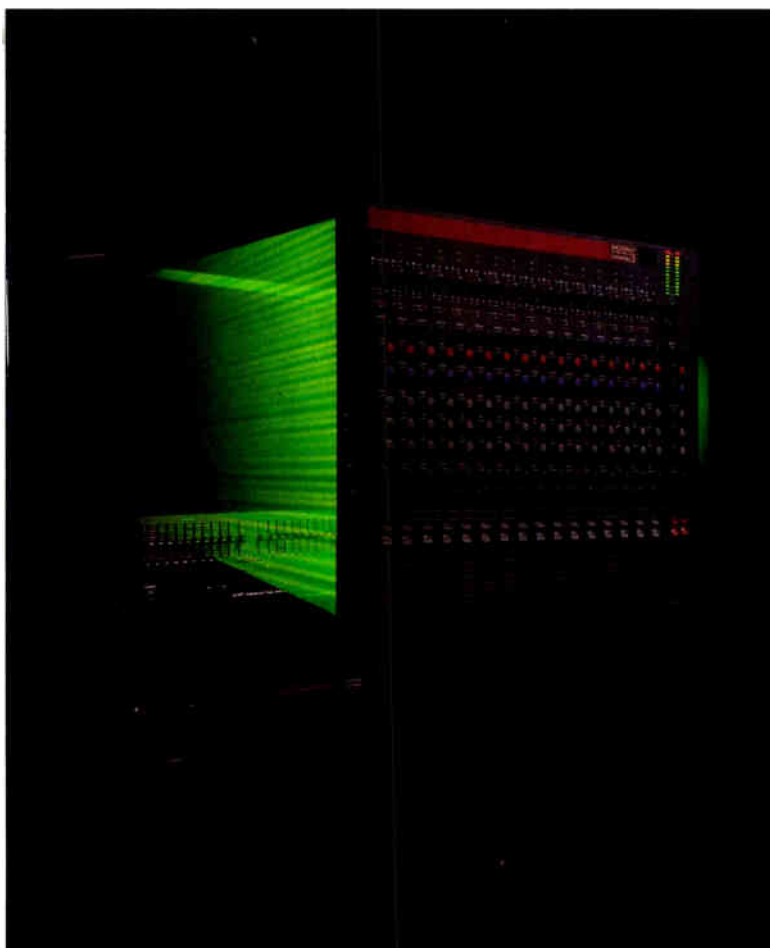
**Paul:** It's become an obsession.

**Bonzai:** A financially rewarding obsession?

**Paul:** Sometimes. It slowed my music life down, but I realized that I was entering an area which was extremely esoteric. Few people understood the physics involved, and even fewer had mastered the skills of the precision machinist, of the mathematician, of all these things you need to be one guy who can sit down and build a mic capsule from scratch that will work and outperform what's out there. This business was a good thing because, A, I would always have good mics around to sing into, and B, you need leverage in this music business. Let's face it. I had been up against the record machine for 17 years when I decided to make a go of this business. I had my share of close misses on record deals, political problems, crap that I had to endure because these guys had me over a barrel.

I found out that there were absolute megastars that either owned studios, or microphones, or both. And in some cases, they are downright superstitious about their microphones. I realized that the microphone business was an untapped resource—because there were only two sources available for AKG and Neumann people—with all due respect to AKG and Gotham, who do a hell of a job. But they are in the business of replacing factory components. Neumann would kill Gotham if they started messing around, and rightfully so. As a result, they don't have the freedom to play as I do.

I designed and built my own tensioning jig, and sputtered my own film, and found out what the "Lore of TORR" was all about in those vacuum chambers. I may have access to aerospace-



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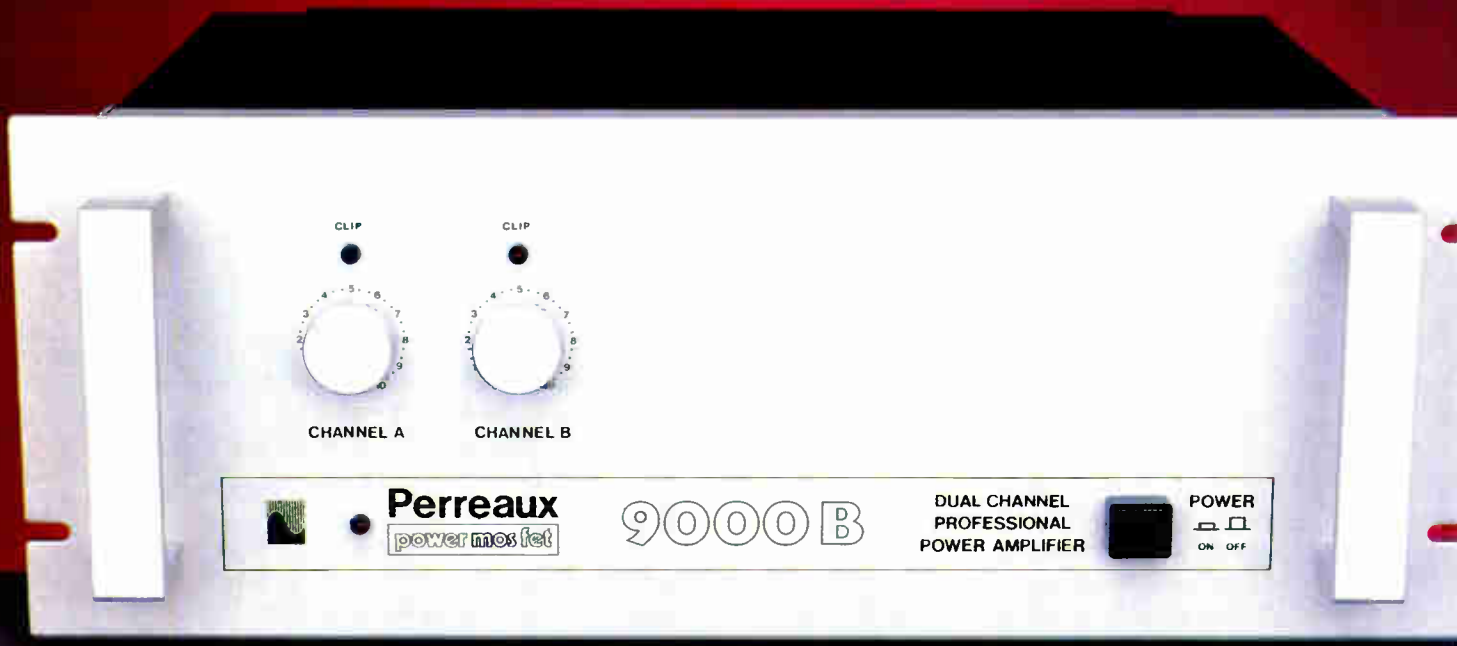
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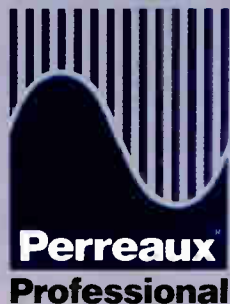
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World Radio History



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land, but it didn't turn out to be all that easy. Especially when you want to do limited, small runs of things. These guys are into the government contract scene, you know!

**Bonzai:** Let's touch on some of these megastars, and their superstitions, or their love of good microphones.

**Paul:** Well, in a lot of cases, the stars themselves are not directly clients, although I have received complimentary phone calls from the artists. This business is very funny, and if a guy has cut ten hits on a certain microphone—you may make that mic better, but if it's different there may be a problem. If it doesn't seem better, then you are in deep trouble.

**Bonzai:** Names! Give me some names!

**Paul:** OK, here's my most recent triumph. I got it through the grapevine—nobody even called me to tell me (sob). I came up with a new spiffy thing I'm doing to Neumann tube M-49s, which were designed by Dr. Grosskopf for the IRT. It's a venerable old mic used by such singers as Barbra Streisand, who in fact, sometimes uses one I restored. There was a shootout—all the big rental companies in town sent an M-49 to Can-Am Recorders because Heart was coming in. "We want to choose the best—only the best!" I had just finished an M-49 for Audio Affects and I had tried this totally whacko thing that shouldn't have worked. In fact, there is a tiny flaw in it but it sounds like God! It goes right out to 17K—it does the impossible thing on the top end. This mic was up for evaluation. I thought to myself, if they don't pick that M-49, I'm closing up shop, because nobody gives a damn. The suspense was killing me, and finally my good friend Mike Freas at the Record Plant, who runs Livingstone Audio, gave me the word—they had chosen the Audio Affects M-49.

We've had that same microphone on Stevie Nicks and I've done mics for Fleetwood Mac's studio. Mike Freas also tells me that when Rod Stewart's people come in and they are doing vocals with Rod, they request a Stephen Paul U-87. My U-87 modification has resulted in us shipping about ten a month. I've hired some people to help out because I can't do them fast enough. I can supply full curves on request.

Linda Ronstadt and Dolly Parton have used a very special U-67 I did for George Massenburg over at The Complex. Bryan Ferry is using one of my M-49s. . . Madonna. . . Elvis Costello has used a Telefunken AKG 251 of mine from Audio Rents—that was the mic that came after the C-12. Lindsey Buckingham, Ed Van Halen, Steve

Perry, Jackson Browne—in fact, I did an AKG-414 for David Lindley and he told me that after the sessions at Jackson's house he wouldn't give the mic back to him. Let's see—Richard Carpenter, a modified U-87 much liked by Shelley Yakus and the gang at A&M. It's been designated for vocals only (read "No Drums!") Tim Schmit, Glenn Frey, Don Henley, Don Felder—I did a 251 for him.

Some of the studios I've worked for are A&M, Record Plant, Smoketree Ranch, One on One, Music Grinder, Pasha, Group IV, Hollywood Sound, Rumbo, Conway.

**Bonzai:** Any emergency calls where you have to run off with your doctor bag?

---

***"I love high art.  
And there are  
few things in  
our society that  
are both high  
art and high  
technology."***

---

**Paul:** There have been a few but I don't know how many we can go to print with. I think we can talk about an experimental microphone I did for George Massenburg, a U-67 that had an aura of great hits. The capsule looked like it had been pissed on and then someone shot a bullet through it. I had just started experimenting with a film that was only about a micron thick—extremely difficult to handle. It's incredible that the molecules stick together. I didn't know how it would sound, or if it would even work, because of a number of damping factors involved. George wanted me to try it and it worked out very well.

**Bonzai:** How would you like to be remembered in history?

**Paul:** As an artist who cared for his work and tried to achieve perfection.

**Bonzai:** Can you remember any eureka moments in your work?

**Paul:** Yes, the day that I glued in my first diaphragm and turned on the mic and got sound out of it—I nearly fell over. I didn't expect it to work.

**Bonzai:** Do you believe in magic?

**Paul:** Oh, yes. It's an essential part of the formula. We live in a vibratory universe. Our complete sensory experience is a vibration-based one. From the ditherings of quanta-packets which compose substance to the touch, to the force of the atmosphere—which, although invisible, is capable of lifting 600 tons of airplane off the ground, the phenomena of acoustics is so complex that no math can truly do it justice. The greatest luminaries always had to carry out experiments to check the math, which was sometimes incorrect inasmuch as theoretical prediction was often sufficiently out of agreement with observed results that it became clear that more thought was needed before calculations which successfully predicted physical effects could be derived. Some of these are still out of reach mathematically; some of the tricks I use are technically not supposed to work—but they damn well do. The tests on which the caveats are based were written years before laser light and high-speed computer modeling were available. Ray and wave theory in optics have undergone considerable revision and acoustics has been rather slowly following.

Also there are phantom effects on a sub-perceivable level that influence that which we do perceive. There are thermal waves running around and other more esoteric gaseous effects whose presence is continually changing its character and rendering any attempts at 100% predictability completely ludicrous in the most controlled circumstances. So, no matter what you do, it's found in quantum physics, it's found in acoustics—the very presence of the experimenter changes the outcome of the experiment. There is magic—though Einstein didn't want to accept its presence in quantum theory. He found the quantum theory untenable because it presupposed a consciousness on the part of the quanta they were trying to measure and this he found totally unacceptable. I've studied that subject for years.

Sometimes I sit for hours staring at a piece of my work—a wiring harness, or a circuit board I've built by hand, and I realize after a while that what I'm doing is spending a lot of time imbuing it with energy, putting a spell on it. There is no substitute for it—it cannot be mass-produced. And it takes time, and this is what made a Stradavarius a Stradavarius. It couldn't be passed on to any apprentice. There is magic—produced by those who have learned to focus the will so completely that physical changes can be produced. This is the secret of great art, and I feel that great microphones fall into this category. ■

**W**hether working in film or video, the role of the location sound recordist—or production mixer—is very important indeed. By providing quality, useable audio for dialog, a recordist can save thousands of dollars in post-production costs in looping or automatic dialog replacement sessions, as well as reduce some of the sound editor's workload by delivering well-recorded effects tracks.

While stereo television and multi-channel cinema grow in popularity and require increasingly more complicated audio, the recordist's basic tools (sync recorder, small mixer, booms and "fishpoles," and a selection of microphones) remain largely unchanged. Another point remaining unchanged is the need for a skilled technician who is sensitive to the needs of each production situation to operate that equipment.

We talked to a number of experienced recordists who took time from their hectic production schedules to share their insights into the art and science of location recording.

#### GLENN BERKOVITZ

Independent production sound recordist Glenn Berkovitz of Spinning Reel Sound Services, Los Angeles, CA, has worked on a variety of video, documentary and theatrical film projects ranging from *Godzilla '85* to *Soul Man*

#### Shotgun Microphones: Tools of the Trade

As with any craft—such as carpentry or mechanics—having the proper tools is an essential component of quality location sound recording. The tools of the recordist's milieu are many, ranging from the fundamental recorder and/or mixer, to accessories (sound cart, "fishpole," booms, headphones, windcreens, cables, etc.), and most importantly, a variety of microphones to suit different applications. Of all the mics used in production work—cardioids, omnis, lavaliers, and ultradirectionals—the latter are probably the most misunderstood.

Also known generically as "shotguns," ultradirectional microphones have a lobe-shaped pickup pattern due to a high amount of rejection of off-axis sounds. Shotgun mics are characterized by having a microphone element placed at the end of a slotted tube: when the tube is pointing at an audio source, sounds emanating towards the mic diaphragm are relatively unaffected, while sounds entering the tube

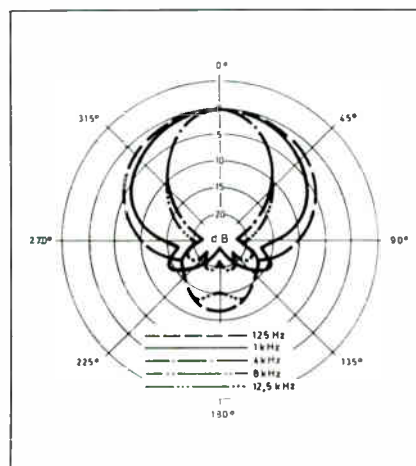
# LOCATION MICROPHONE TECHNIQUES:

# The Recordists' ART

by George Petersen

to *Three for the Road*, the upcoming Charlie Sheen release. Berkovitz recently returned from China, where he recorded documentary sound and 14 concerts for a Jan & Dean tour

through the side slots are effectively attenuated via phase cancellation. Both the frequency response and directionality of the mic are largely dependent on the length of the tube, and the number and posi-



**Polar response pattern of a typical shotgun microphone: note that directionality varies with frequency.**

*What is your usual setup on a shoot?*

I usually bring two mono Nagra's, two Sennheiser 416s, a Sennheiser 816, three Schoeps with variable capsules, and four radio microphones, usually Micron. I have a wireless headphone system for the director and producer, which is a modified Nady guitar transmitter that broadcasts to FM headsets. I also have time code gear, such as the Denecke time code reading slate and a Com-Tek for wireless time code. It's really helpful and the Com-Tek can also double for a wireless headset if I need it.

I have an Audio Developments 6 x 3 Pico mixer, which is fine for interfacing to a Nagra or field recording deck and is actually quite clean. They are very common in L.A., because Audio Services Corp. (North Hollywood, CA) represents and distributes them.

Whenever I use lavaliers, it's almost always in conjunction with radio mics and I use Tram 50s and [Sony] ECM-50s. I have been looking into the Sennheiser MKE 40—it's an omnidirectional capsule—but I'm told it sounds great and matches the Schoeps quite closely. When I use a radio mic, I try not to rely solely on it and will try to supplement it with a boom.

When I'm doing a theatrical film, I'll bring two mono Nagra's. I don't go with a stereo Nagra at the moment—

—CONTINUED ON PAGE 61

tion of these perpendicular slots.

One of the peculiarities of the shotgun microphone design is the fact that directionality increases with frequency: a typical shotgun's polar response is fairly wide—nearly cardioid—at low frequencies, say 50-100 Hz; while the narrowest pickup patterns are achieved in the 5-15 kHz ranges. With this anomaly in mind, a shotgun will never sound as good as a cardioid mic of equal quality—however there are many instances where an ultradirectional mic can save the take, especially where the isolation of a single voice or sound is required.

Yet the nature of ultradirectionality is a double-edged sword: the effect of minimizing off-axis sounds is accompanied by the emphasis of on-axis sounds, whether desirable or not. For example, a shotgun mic pointed at an actor may also clearly pick up the sound of a distant aircraft which passes across the mic's axis. Obviously, a bit of forethought is required when decid-

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Above, from left: Shure SM89 with case, windscreen and optional shock mount; Sennheiser MKH416 on fishpole; Beyer condenser shotguns and capsules.

ing on microphone placement.

As useful tools in film, video, radio, music recording, sound reinforcement and theatrical applications, shotgun microphones are versatile performers indeed: they can be handheld, boom or fishpole mounted, attached to a camera, hung from a batten, or placed in an audience or orchestra pit. And there are literally dozens of accessories available, such as pistol grips, protective windscreens, shock mounts, phantom power supplies,

and wireless attachments for adapting the shotgun mic to any specific need.

One new approach to shotgun mic design is the Neumann RSM 190i stereo shotgun microphone system. The RSM 190i (to be exhibited at this month's NAB Convention in Dallas) is a single mic body containing both a short shotgun and a figure-8 capsule with its axis at a right angle. The outputs of the two mics are available either as X-Y (left-right) or M-S (mid-side) and the

MTX 190i matrix amplifier accessory allows the choice of six different, remotely-controllable directional characteristics, with selectable predominance of the center image and the stereo panorama width.

Listed below are a number of the professional shotgun microphones available, in alphabetical order. A wide range of prices is represented, in long and short shotgun designs, and both one-piece and modular (interchangeable head/preamp combinations) are included.

MFG	MODEL	MODULAR DESIGN?	IMPEDANCE (ohms)	FREQ. RESP. (Hz)	INTERNAL POWER?	PHANTOM VOLTAGE (VDC)	BASS ROLLOFF POSITIONS	FINISH	DIMENSIONS (mm)	WEIGHT (grams)	PRICE (US)	COMMENTS*
AKG	CK8	YES	200	30-18k	NO	9-52	2	SATIN CHARCOAL CHROME	18 x 215	155	\$520	A,B
AKG	CK9	YES	200	30-18k	NO	9-52	2	SATIN CHARCOAL CHROME	23 x 610	560	\$570	A,B
AKG	C568EB	NO	200	20-20k	NO	9-52	1	MATTE BLACK	21 x 255	175	\$295	A
AUDIO-TECHNICA	AT835	NO	600	40-20k	1.5V	NO	1	MATTE TAN	21 x 368	212	\$235	A
AUDIO-TECHNICA	AT815A	NO	600	40-20k	1.5V	NO	1	MATTE TAN	21 x 465	260	\$260	A,C
BEYER DYNAMIC	MC717	YES	200	40-20k	NO	48	1	MATTE BLACK CHROME	19.6 x 555	340	\$820	D,E
BEYER DYNAMIC	MC737	NO	150	40-20k	NO	48	1	MATTE BLACK CHROME	21 x 564	440	\$830	
BEYER DYNAMIC	MC716	YES	200	40-20k	NO	48	1	MATTE BLACK CHROME	19.6 x 284	185	\$740	D,E
BEYER DYNAMIC	MC736	NO	150	40-20k	NO	48	1	MATTE BLACK CHROME	21 x 294	240	\$750	
ELECTRO-VOICE	DL42	NO	150	50-12k	NO	NO	0	BEIGE/BLACK	97 x 426	369	\$665	A,F
NEUMANN	KMR82i	NO	150	40-20k	NO	48	1	MATTE LIGHT OR MATTE BLACK	21 x 395	250	\$675	A,G
NEUMANN	KMR81i	NO	150	40-18k	NO	48	1	MATTE LIGHT OR MATTE BLACK	21 x 226	145	\$600	A
SENNHEISER	MKH416	NO	400	40-20k	NO	48	0	MATTE BLACK	19 x 250	175	\$798	H
SENNHEISER	MKH816	NO	600	40-20k	NO	48	0	MATTE BLACK	19 x 555	375	\$1069	H
SENNHEISER	ME80/K3U	YES	130	50-15k	5.6V	12/48	2	SATIN NICKEL	19 x 313	165	\$409	I
SENNHEISER	ME88/K3U	YES	130	50-15k	5.6V	12/48	2	SATIN NICKEL	19 x 703	169	\$478	A,I
SHURE	SM89	NO	150	60-20k	NO	11-52	2	BLACK	20 x 524	195	\$900	A
SONY	ECM-672	NO	250	50-16k	1.5V	48	1	MATTE ALUMINUM	24 x 303	250	\$450	A,J
SONY	C-74	NO	250	40-16k	9.8V	48	2	SATIN NICKEL	25 x 427	355	\$820	A
SONY	C-76	NO	250	40-16k	9.8V	48	2	SATIN NICKEL	25 x 678	415	\$930	A

\*Key to Comments: A—Price includes windscreen, B—As used with C451EB module, C—Phantom power version available, D—8-52 VDC version available, E—Wireless version available, F—Dynamic microphone design, G—10kHz HF rolloff switch, H—12 Volt versions available, I—Switchable 12148 Volt operation, J—Available 6/87. Note: All mic bodies terminate with XLR-M connectors, and except as noted above, all are condenser designs. The frequency response information is taken from manufacturer specification sheets, and most do not include qualifying data, such as the ±dB deviation from flat response. Therefore some discretion should be used in interpreting this parameter. Also the "bass rolloff positions" category in the chart refers to the number of low cut settings in addition to a "flat" or "normal" position.

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After logging many solo musical miles, and a multitude more with the likes of Frank Zappa, David Bowie, Paul Simon, Laurie Anderson, King Crimson, and the Talking Heads, guitarist/producer Adrian Belew decided to check in for a sample of Royal Recorders' fabled royal treatment. His experiences with the studio began in earnest with work on his album "Desire Caught by the Tail", and went on to include group efforts with a new band, The Bears. Today, Adrian admits it was love at first sight, and to consummate the relationship, he has joined the Royal court by becoming their artist producer in residence.

Besides their formidable array of equipment capable of recording 80 independent tracks, Adrian enjoys the natural beauty surrounding Royal Recorders at Southern Wisconsin's Americana Lake Geneva Resort. Formerly one of Playboy's premier Midwestern clubs, recreational accommodations ranging from golf to skiing, plus a complete physical fitness center are available at the Americana, and are at the complete disposal of Royal Recorders' clients.

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"the American"



—FROM PAGE 54, MICROPHONE

although I'm a partner in a stereo time code Nagra—just because transfer of such is so hard to explain to theatrical producers. It's unfortunate, because with the stereo machine you can split tracks—put a radio mic on one track and a boom on the other—and give them a lot more latitude in post-production. It takes some explanation and doubles the transfer costs, which producers don't want to hear about.

*How important is matching production sound to camera perspective?*

Matching to camera perspective is very important. For example, wireless is never along with camera perspective: the mic puts you right next to the person, for the sake of dialog clarity. In a long shot, I will blend two radio mics of people talking with a shotgun near the camera, to approximate the sound you would have heard had there been an overhead mic—to reflect what the camera is viewing. Admittedly, it's kind of a lethal space to say that you'd hear every word of a conversation from 20 feet, but you have to take that lethal space to make the drama work.

I want to blend in as much unobtrusive exterior ambience as possible. Personally, I take a lot more chances than someone else might, but if I can make it sound appropriate and natural there, I'll be happier and do a better job, rather than just opening a pot for one radio mic. You can run into potential problems wherein the acoustic phasing between the radio mic and the shotgun 20 feet away can become totally apparent if they're misused. I tend to experiment a bit, although if it doesn't work, I'll go back to the basic one mic/one channel stuff.

*Has stereo changed your miking techniques?*

It hasn't changed my technique for recording dialog, but stereo comes in nicely for recording effects: you can really go to town making something broad. I like to use an M-S pattern, with a Schoeps hypercardioid and Schoeps figure-8, recording them discretely. I have a really good M-S matrix made by Audio Services. I like being able to have the matrix on my monitor output, so I can try different miking possibilities and hear what sounds best. When the tape gets to post, the editors can establish what sort of perspective they want.

*Are there any special techniques you've developed for location miking?*

I don't have any special tricks, but I feel very good about planting microphones, presuming we're in a theatrical situation with blocked action, so I can depend on someone hitting that mic. I love the ability to plant microphones and have them work in that

situation. I tend to go with large numbers of mics, whereas some other people may rely on two for booming. Dramatically, the effect is lovely if you can count on where the actors will be. It's not uncommon for me to have four mics on a set and the sound is much fuller than putting a radio mic on a person, which would be the easy way.

The biggest problem I ever run into is an uncontrollably noisy location. If that is the case, then I will record the cleanest dialog possible without regard to the location, which normally means putting the person on a radio mic and leaving it wide open. On my last shoot, we did a lot of work near freeways, so it was mostly a radio mic show. They had to nullify incoming noise by adding a background traffic track in post. It made for a noisy track, but at least the words were intelligible, and the bottom line is you have to understand the words being spoken.

### STEVEN PINSKY

Formerly a location sound recordist specializing in documentary work (including Bill Moyers' Emmy-winning *Harvest Journal* for PBS and *Stages: Houseman Directs Lear*), and now a partner/engineer at Sound Recording Organization (SRO) of San Francisco, Steven Pinsky has extensive experience in production and post work. SRO, said to be the busiest daily screening facility in Northern California, showing both 16 and 35mm rushes, offers complete post-production services, including transfers, editing and mixing.

*Do you have any particular mic setup you prefer?*

My standard setup was always a fishpole with a Schoeps hypercardioid and the Schoeps Cut-1 filter—it's a variable low-cut filter that allows you to take the microphone out on a blustery day with no windscreen and dial out most of the rumble. It's also light: most of the productions I've done have been documentaries where you want something as light as possible, so I'd use a light fishpole with the Schoeps, whether indoors or out. So with that, a Nagra and a pair of headphones, you could do almost anything. I also carried a shotgun mic for about ten years, but only remember using it once. The Schoeps has much more consistency and very little off-axis coloration, compared to a shotgun. Shotguns are fine for feature films, where moves are rehearsed—if you're always right on axis, there's no problem.

*Did you use lavaliers much for documentary work?*

I would sometimes use lavaliers mics for sit-down interviews where people weren't moving around, or I'd use radio mics. If I was doing a long, "talking head" shot, I would put the Schoeps

on a fishpole, with a clamp to mount it from a light stand just above the frame line. I'd rarely use lavaliers, because most people didn't want to look at them and I hate the sound of a hidden microphone. They lose a lot of the presence—which could be put back in during the mix—but it still wouldn't sound real.

There's also the whole issue of clothing rustle: I remember once putting a lavalier on a guy wearing a silk tie, a silk shirt, and a silk suit. They wanted the mic buried, and I almost suffered a heart attack on that one. Lavaliers can work, but only if you have the cooperation of the people involved, in terms of the clothes they wear: natural fibers, cotton and rayon are particularly helpful.

*How do you deal with matching production sound to camera perspective?*

You have to go for the best sound you can get in every shot, and let the editor or post-production mixer figure out what's best. If you have unilateral decisions on location—like equalizing the sound of a lavalier to match the sound of a fishpole—you may look like a hero in dailies, but it may not be fix-able in the mix. It's not in the best interests of the picture.

In terms of decision-making, let as much go to the end as possible, to have the most flexibility, unless it's something radical, like trying to record in a howling gale where you have to filter it to get something intelligible.

*Has stereo changed your miking technique?*

Recording dialog in stereo is a bad idea. You should always record dialog in mono. I don't think I've ever seen a successful show where the dialog was anything but hard center. If you're looking at a scene with one actor on the left and the other on the right, and you cut to a reverse angle, you also have to switch the channels the sounds are on, which is confusing: you lose all sense of spatial direction.

A couple of years ago I attended a wonderful AES workshop on stereo for television where they showed different sporting events in stereo. It was hilarious to look at a tennis match where the typical camera angle used 95% of the time is the [over shoulder] end court to end court shot, and the balls were whizzing left to right, because the mics were placed at mid-court to pick up from a sideways perspective. Next they showed a hockey game where the puck changed direction with each camera angle, but wouldn't change speakers.

Our hard and fast rule here is: lots of stereo effects, lots of stereo music, lots of stereo ambience to help put things in perspective, but the dialog is always straight up the middle.

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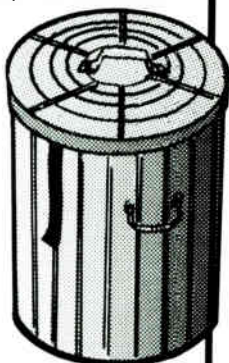
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**Mix**  
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*On Stages: Houseman Directs Lear,* I used a stereo Nagra; not for stereo sound, but as a 2-track machine. The film covered all the phases of play production, from rehearsals to opening night. Since the set kept changing, we had to be ready to record anywhere at anytime, in various rehearsal halls. I had a variety of mics hung or placed on the floor in the different performing areas, and I had a mixer I'd plug in whenever we got to that place. On the other channel, I put Houseman on a radio mic. Sometimes he'd walk onstage, and we'd work him using the cast mics, or we had the radio mic to choose from. Using stereo 16mm transfers for the mix, we were able to get really good sound that otherwise would have been a compromise.

*Do you have any techniques or tips to offer for getting good location sound?*

You have to stick up for getting good sound, especially when people don't want to wait for the airplane to fly by or for the car to pass. Yet these same people are always sorry they didn't wait when they get to post. I'd rather have them hate me on the set than in the editing room, because they'll forget things that happened in production a lot quicker than a mistake that they will have to live with later.

### JIM TANENBAUM, C.A.S.

In addition to completing his fourth film with Brian De Palma (*The Untouchables*, slated for mid-'87 release), Jim Tanenbaum is also writing *The Production Mixer's Manual*, which should be published in 1988. "It's the book I wish I had 20 years ago, when I was starting out," notes Tanenbaum, who adds that *The Stuntman* (in which almost no dialog was looped) was his favorite project.

*Do you have a usual setup of gear you bring on a shoot?*

My rig is a large case with all the gear built into it and permanently connected, so I don't have 37 cases to connect, set up and break down. When we have to move, I just throw the front cover on and go. It's a bit heavy, but it's very compact and well worth the penalty of a few extra pounds.

I bring a great deal of stuff on location, because I never know what I'll need. I prefer Sennheiser mics: they are more rugged and reliable than Schoeps, and I don't think any difference in sound between them matters by the time you go through a dialog EQ and put it on a track in a movie house with people eating popcorn and farting and talking. The convenience, ruggedness and reliability of the Sennheisers outweigh any nuances you'd get with a Schoeps or a Neumann.

I also feel that shotguns are vastly overused and I find that all of those interference type mics color the off-axis sounds in a very unpleasant way. Also, like the long lens on a camera, shotguns have a tendency to pull the background behind the actor up, which can be quite noisy. As a result, I prefer to use a cardioid, even at distances where other mixers would use a short shotgun. It sounds better and there is less outside noise. The Sennheiser 406 is my prime mic when I'm fishpoling. When I'm planting, I'll use a 406 or a 435, which is similar to the 406 but has a wider acceptance angle.

*How do you deal with matching sound to camera perspective?*

The biggest problem is deciding whether you want to do that or not. Each project is different: in a feature situation, you can think about doing things in camera perspective, which is what I prefer. You do have to make adjustments in order to have something for the rerecording mixers to work with, and really have to stay in closer than the actors appear on camera. There's really no way to remove distance from a production track, but you can add to it: if the mixers decide they want more distance, they can add some reverb or echo to thin out the track in post-production.

One problem occurring more and more frequently these days is that the location is noisy or the lighting is such that you can't boom it. You're pretty much locked into radio mics, and in that case I go for the cleanest neutral track and let post-production handle the perspectives. These are people who like to mix in a shotgun, but you put yourself into a situation where you can get into trouble, especially if they decide to zoom in for a close-up at the last minute and you think they're still shooting the wide shot. By going with a neutral radio track under those conditions, you're covered.

*What is your approach to working in stereo?*

I have the possibility of doing my next feature project in full stereo: dialog and everything in M-S, so it will be perfectly compatible for a mono release. The biggest problem to date with doing things in conventional X-Y stereo is that the tracks sound terrible when collapsed down to mono, and it's very difficult to boom it. You wind up with the question "Do I track the actor with the mic pair, where the background stage is shifting, or do I let the actor walk back and forth in front of the mic pair?" Since you can vary the separation, M-S allows you to do a number of things to save that date.

My feeling is that if the camera isn't moving, then neither should the mic pair, because you want to maintain

background perspective to match the camera. However, M-S does require that your equipment be in good shape, because the stereo information is encoded as a phase difference and it's very important that your two channels are coherent, while not too much happens if you have a phase shift in ordinary stereo.

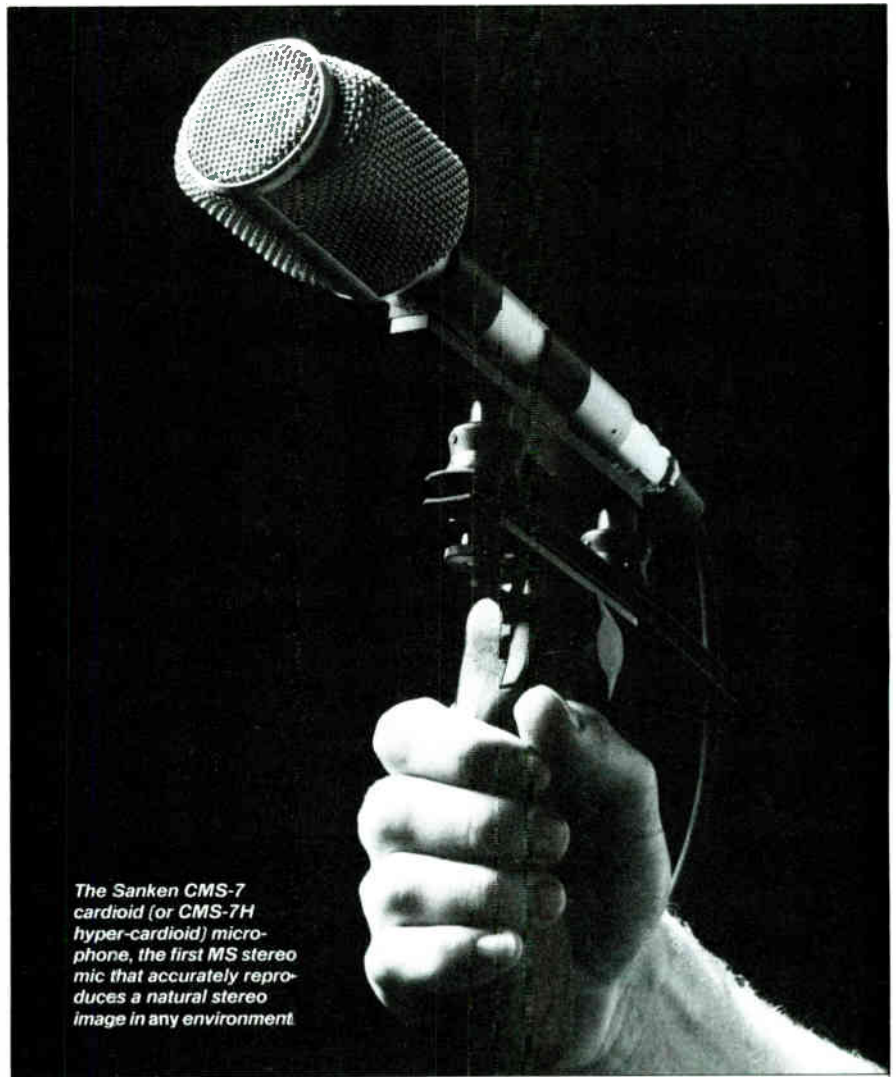
*What kind of wireless system are you using?*

I use the Vega diversity system with Dynex. I would never go back to a non-diversity mic: the freedom from dropouts and other problems far outweighs the extra cost or weight of a diversity system. Likewise with Dynex, I don't have to worry about people slamming car doors on lines. The stuff is useable: I'm not fighting a compressor that's skipping in and out.

I have a dozen different mics I use with the wireless, depending on the circumstances. In terms of sound, I like the Sony ECM-50s, which unfortunately are rather on the large side, so I also use the ECM-30 or 150, which is a smaller mic. I use the Sennheiser MKE-2 lavalier and also use it for planting, since it's small and has a very high output which is great when you're trying to "reach" for sounds. My only complaint is that its stainless steel cable carries noise, so I have to make a full 360-degree loop of cable to isolate the mic from mechanical noise. Trams are not my favorite mic in terms of frequency response, but are very convenient to use. I also use the Crown GLM-100: it's quiet and it's the most isolated from mechanical noise of any of the mics I have, but its level is a bit on the low side and I can't use it on people that whisper. The Electro-Voice C085 tie-tack mics have saved the day on a number of occasions: it's a shame they've been discontinued. I have the Trams in all four colors and the Sennheiser MKEs in the two colors they're available in, because there are times that a mic of a certain color will be less obtrusive with a sheer wardrobe.

*Do you have any special techniques or tips to offer for location miking?*

When I have two people on radio mics in a fixed relationship, I will often cross-mix—use the mic on the person who isn't speaking—and many times this gives me better tracks. I can always depend on this if they've rehearsed the scene and I know one of them isn't going to walk off. Also I do *mix* when using radio mics: I only have the mics up on the people that are talking, which keeps the air, the clothes rustle and the breathing of the people who aren't talking off the track. You have to be careful with overlaps and ad-libs, but with scripted dialog, I only keep the pots up on the people talking. ■



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# SOUND ON STAGE



PHOTO: JOHN G. LOCKE III

## SOUND FOR THE 1987 NAMM JAMM

by Mike Stande and  
John G. Locke III

**T**he 1987 Winter NAMM International was held at the Anaheim Convention Center (Anaheim, CA) from January 16th through 18th. One of the music industry's most popular annual events, this year's meeting of the National Association of Musical Merchants saw scores of new products in the musical instrument, recording equipment and sound reinforcement fields introduced to industry professionals. The show topped its own attendance records, with pre-registration up 52% from last year, and 508 exhibiting manufacturers sprawled across 230,000 square feet of floor space.

A highlight of the three-day exhibition was the third annual NAMM "All Star" JAMM, staged in the ballroom at the Marriott Hotel adjacent to the Convention Center. Sponsored by Seymour Duncan (Santa Barbara, CA) and Kramer Music (Neptune, NJ), the JAMM brought together a host of rock's most highly visible stage performers to help usher in new guitar, drum, keyboard and amplifier product issues.

In addition to Kramer and Seymour Duncan guitars and amplifier products, artists such as Edward Van Halen, Elliott Easton (The Cars), John Entwistle (The Who), Alan St. John (Billy Squier), Gary Tallent (E Street Band), Tim Bogert (Vanilla Fudge), and the group Loverboy were supplied with Pearl drum sets and Zildjian cymbals for a no-holds-barred concert performance

for those 1800 persons fortunate enough to receive written invitations.

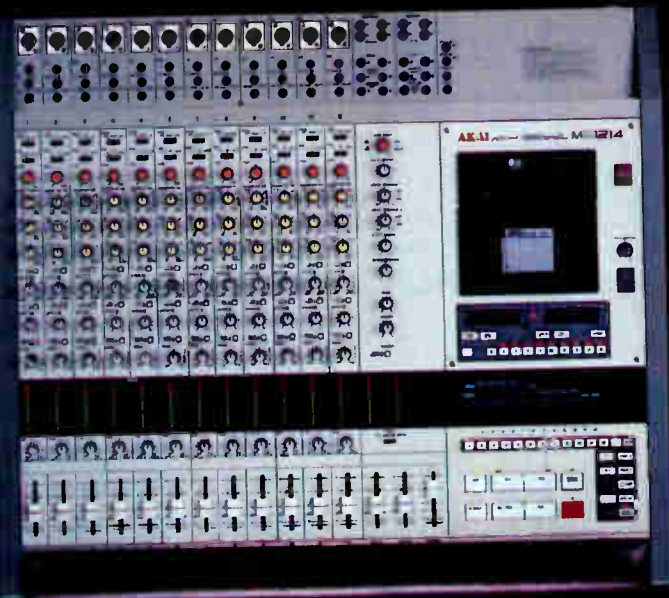
To help take the JAMM from a hotel ballroom setting to a concert arena feeling, Philadelphia P.A. Inc. (PPA) of Riverside, California, was contracted to handle the production work and to do a cost perspective for the event. West Coast Concert Lights was contracted for the event, and PPA provided full sound system services. "Most companies involved here are donating products or services gratis, all in the interests of a great show," explains PPA's Karen Austin.

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(Photo above) Jamming at the NAMM JAMM: (L to R) Steve Stevens, Eddie Van Halen and Tim Bogert.

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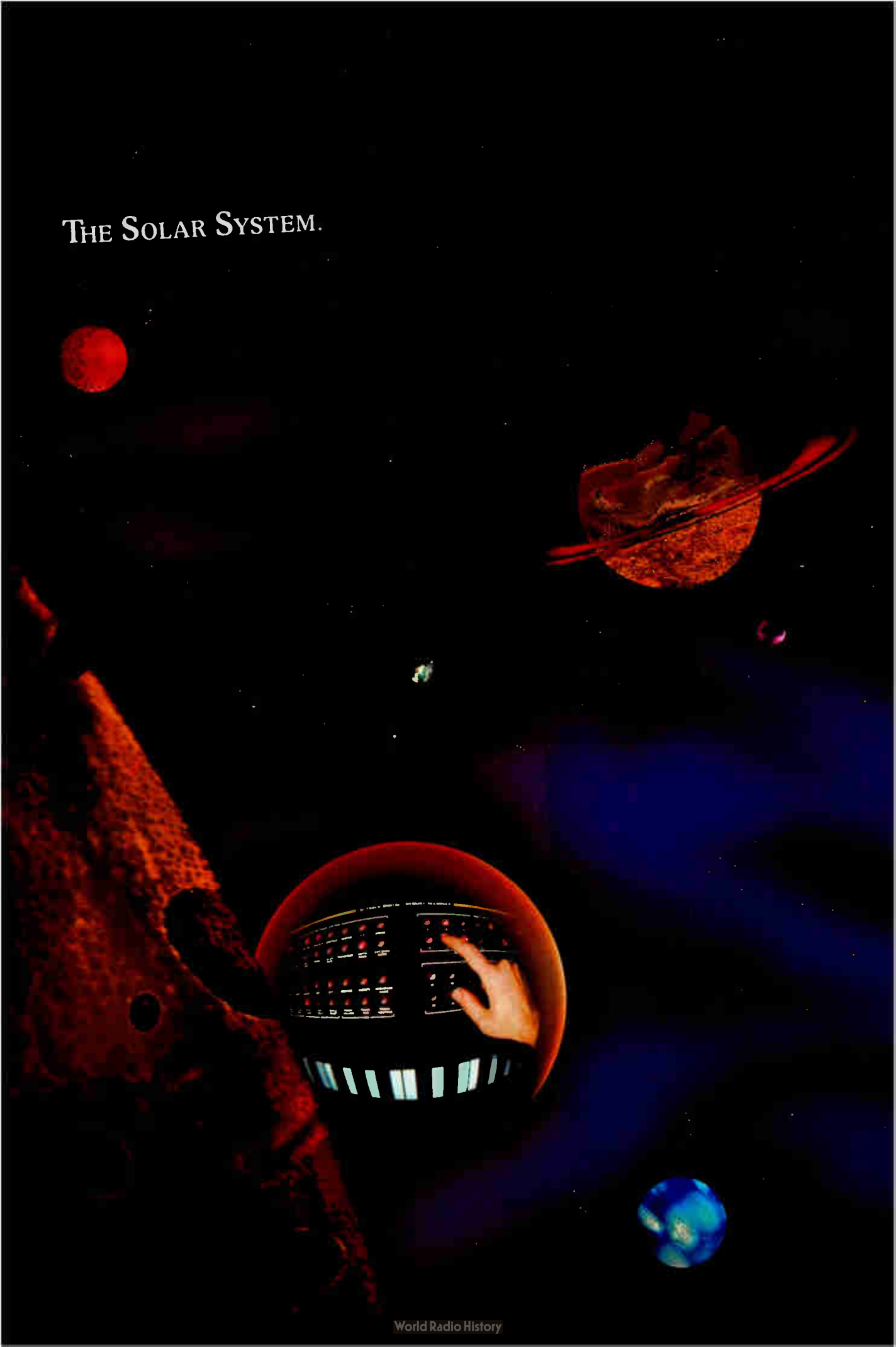
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plains Richard Mandella, director of sales for the professional division. "Our high visibility is primarily due to Gene Czerwinski, the company's owner and president. Gene is an electrical and acoustical engineer who started this company from scratch many years ago, building audio gear for both sound reinforcement and musical instrument use."

When the company's first products were developed, Czerwinski personally went out and promoted them. "Today, our main focus is on manufacturing a wide range of audio products," says Mandella. "Companies like PPA and live sound people like Henry Austin become our vehicle to work out new products, and have them used in all sorts of different applications."

"I've been using Cerwin-Vega equipment for seven years now," Austin states. "Our relationship started when I had to do a gig for 100,000 people several years ago. I needed more low end for outdoors than I had available at the time, so I went to check out Cerwin-Vega. On just a handshake, I was able to do the show with loaned gear." Today, PPA serves as a consulting firm to Cerwin-Vega, helping with product development and field-testing.

"One of the primary advantages of this system is its extended midrange characteristics," explains Austin. "It's a tri-amped system. The lows cross over at 200Hz (24 dB/octave), symmetrical within the bandpass and then the mids take over up to 3kHz, where they drop out at 12dB per octave. The high frequency drivers kick in at 3kHz with a 12dB/octave slope. Other traditional systems usually cross over at around 1.5 to 2.4 kHz, resulting in a 'blare' at 2.5kHz to 3.1kHz. This is an ideal range for a crossover point, due to the human ear's sensitivity to those frequencies. The Cerwin-Vega system is capable of being crossed-over at a higher point, so we don't have that problem in that frequency range," Austin adds.

Austin finds this "horn blare" to be a common problem with all the 2-inch compression drivers he has used. "It is rare to have a midrange cabinet that can cover a +10:1 frequency ratio (200-3 kHz) like the "Spruce Moose," Austin advises. The cabinet is loaded with M-162 compression drivers. A bent horn design provides for a 3-foot path length in only 17 inches of cabinet depth.

The system's L-36 "Junior Earthquake" bass cabinet is an 18 cubic foot, single-throat folded horn, driven by a high excursion 18-inch loudspeaker (model 189JE). Equipped with a 3-inch, 400W (EIA rated) voice coil assembly, the 189JE is said to be

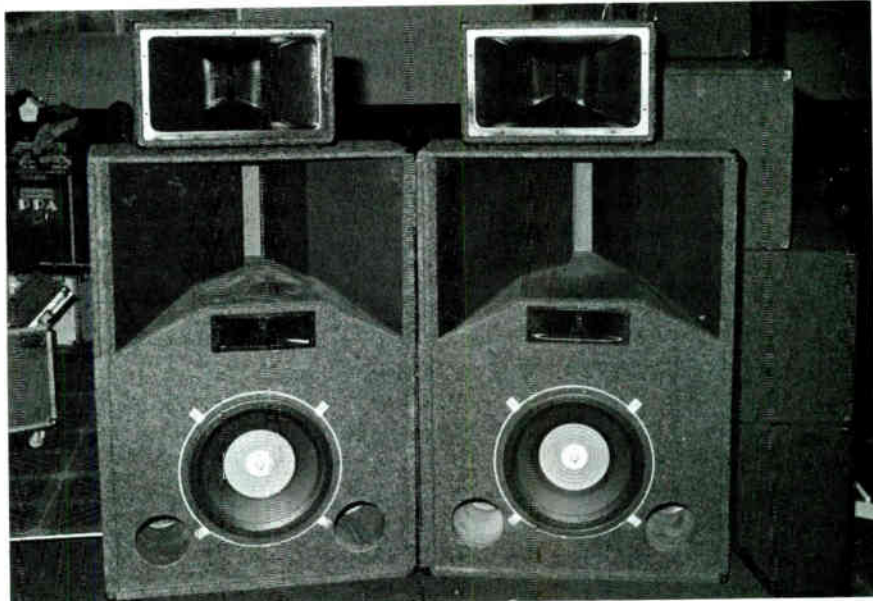


PHOTO: JOHN G. LOCKE III

Side fill monitors with "Stroker" 18-inch piston drive.

*Horn-loaded speaker systems were once the industry standard; improvements in direct-radiating sound system design changed that in the '70s.*

unique in its ability to produce extremely high acoustical output very near the low frequency cutoff point (in this instance, 32Hz) without the need for using corner loading techniques or bulky mouth extensions. A 6-foot folded exponential/hyperbolic horn is used in the cabinet, yielding a theoretical LF cutoff of 32Hz with a mouth area of only six square feet.

The DB-10 narrow-band equalizer allows the lower bandwidth limit to be extended by more than one-third of an octave below the prior unequal-

ized response. The DB-10 also functions with the sealed rear chamber of the bass driver to prevent potentially damaging driver displacements below the cutoff frequency by supplying twin-pole high-pass filtering.

High frequencies above 3kHz to beyond 15kHz are reproduced by the JMH-1 one-inch throat compression driver mated to a 90 X 40 degree controlled coverage horn. The JMH-1 utilizes an aluminum diaphragm with elastomer surround and an edge-wound, copper-clad aluminum wire voice coil. Fully enclosed for portable system use, these high frequency units are designated CMH-1.

Power to drive the loudspeaker system was supplied by Cerwin-Vega model LPA-600 amplifiers, with approximately 8500 watts of total available power per stack for the hotel ballroom show.

#### Stage Sound

Cerwin-Vega supplied a complete stage monitor system, which was linked to a console supplied by PPA. A unique, newly developed stage monitor speaker was featured. Not yet in full production, the custom cabinets were prototyped and developed for the recent Charlie Watts tour, which was handled by PPA (Watts, drummer for the Rolling Stones, toured the country in late 1986 with a Big Band show).

The new floor slants house an 18-inch loudspeaker, covered by Cerwin-Vega's "Midaxe" filter, a specially-designed acoustical filter made from aluminum and cut with specific angles in order to reduce Doppler shift between the 18-inch speaker cone and the mid/high driver.

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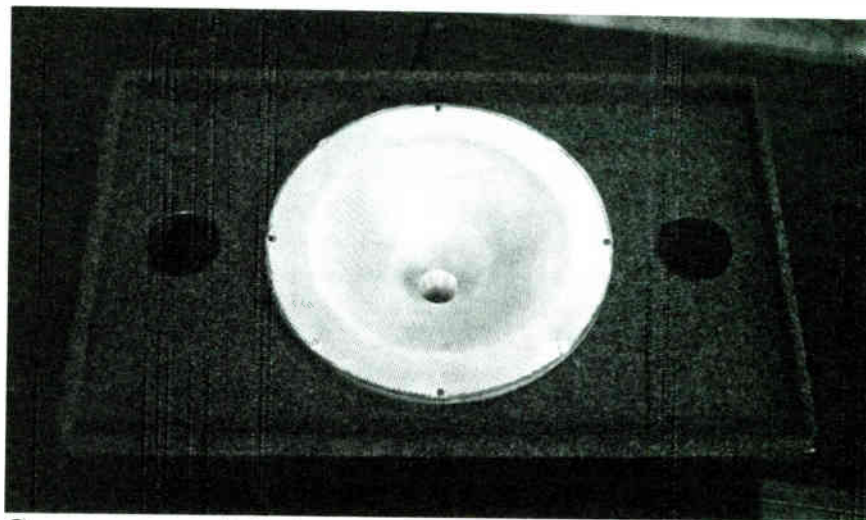


PHOTO: JOHN G. LOCKE III

*Coax monitor with Midaxe acoustical filter developed for the Charlie Watts tour.*

Installed in new prototype side fills is a "Stroker" 1895C woofer. Cerwin-Vega developed the first 18-inch driver, and now has apparently moved to radically advanced bass frequency reproduction technology with this heavy-duty device. A patented design allows this loudspeaker to handle more input power, and to produce more sound pressure output levels, than traditional 18-inch speakers.

Intended for use in the 28-500 Hz frequency range, the Stroker makes use of a dual-spider alignment system, which allows precise longitudinal stabilization of the voice coil gap. In addition to a normally-positioned spider at the apex of the speaker cone, the 1895C has another spider attached to the inside surface of the cone. The restoring force of the dual spiders acts with a special non-fatiguing impregnated cloth surround to prevent "bottoming" of the voice coil should the speaker encounter subsonic input at potentially damaging levels.

"The design of the 18-inch speaker allows a high excursion," explains John Davies, an electronics engineer for Cerwin-Vega. "Rubbing in the gap is one of the major problems with most 18-inch speakers. This design allows long excursions without the worry of the cone snapping back at an angle and causing the voice coil to rub in the gap. That type of action will ruin a loudspeaker." Adds Henry Austin, "the Stroker is one of the smoothest-responding 18-inch speakers that I have used. It is the first one that I know of that is able to handle levels in excess of 130 dB at 30 Hz without blowing out due to voice-coil displacement."

Austin found the wide variety of instrumental talent on the show to be challenging. "By the very nature of this event, with its 'jam session' format,

the onstage sound levels can be pretty difficult to control," he notes. "This particular sound system is advantageous in those types of situations, particularly in a smaller facility. We can get the average sound pressure level of the horn-loaded system up enough to get a good, clear mix without the typical horn 'cut' that tears off people's faces with traditional systems."

Monitor mixing onstage was handled by PPA technician Terry Nakamura. Rhythm-heavy mixes for drum riser positions were fed through Cerwin-Vega V-43 3-way full range speaker cabinets, equipped with "Junior Earthquake" bass horns, the M-161 2-inch compression driver, and H-25 one-inch compression driver.

With live musical events more popular than ever before, different options in sound reinforcement equipment are arriving on the scene. Horn-loaded speaker systems were once the industry standard; improvements in direct-radiating sound system design changed that during the 1970s. Now, with improved transducers and loading techniques, both types of systems are available to contemporary designers.

Companies that specialize in professional sound reinforcement hardware like Cerwin-Vega report increased interest in systems that offer high sound-pressure levels with fewer transducers and less amplifier power requirements due to higher electrical-to-acoustical conversion efficiency.

Industry events like the NAMM JAMM offer equipment manufacturers a chance to preview new gear for both professional entertainers and their own peer group; if this year's JAMM is to be a sign of things to come, the touring sound industry can expect to make a place for a new breed of all horn-loaded sound systems. ■



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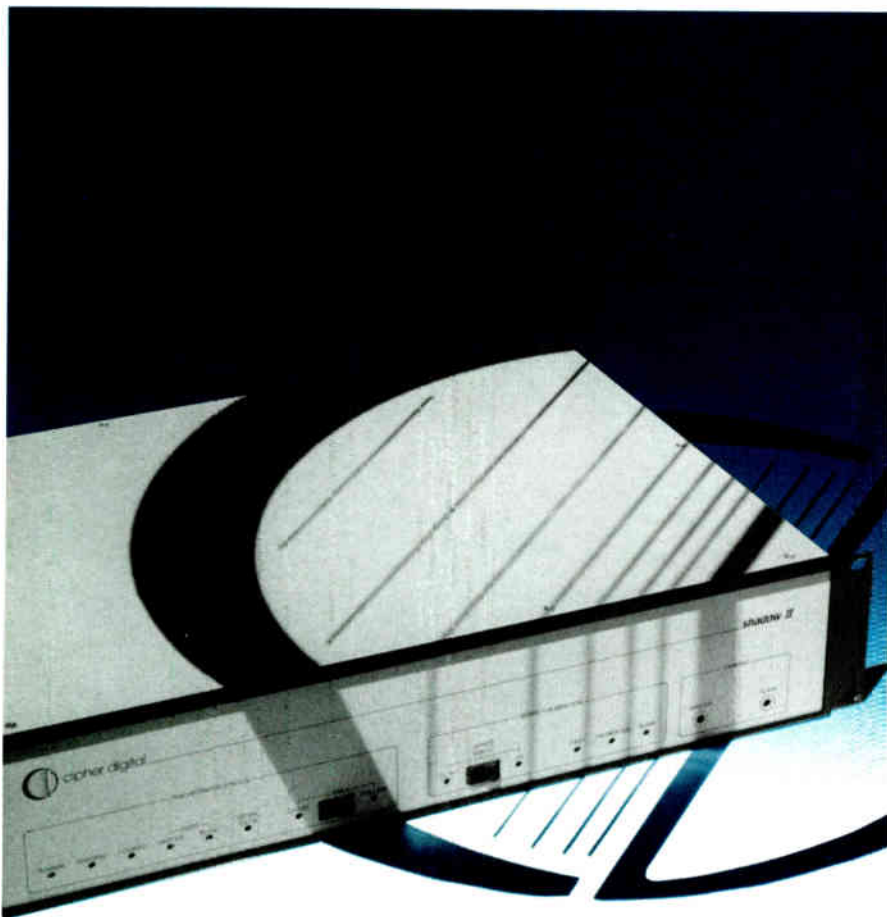
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—FROM PAGE 22, MIAMI VICE

sync without the need to roll either from or to a slate. You save time and material. In post, it's a piece of cake locating and synching tracks. A whole edit log can be computerized, executed, and updated in a fraction of the time [i.e. money] currently spent.

**Mix:** Does Miami have the facilities to post-produce a show like *Vice*?

**Vice:** Yes. But not under one roof as yet. We are working on that problem. Joe's own Sound East Audio Services and several other Miami companies are already providing current technology in post audio production and equipment rentals. One obstacle for a Hollywood company like Universal is that they have several projects being worked on simultaneously and it's prerequisite that the producers have hands-on with each one. That's tough when they're two thousand miles away.

**Mix:** Realistically, could Florida emerge as a force in film and television?

**Vice:** Definitely. Obviously the climate is here. The labor force is here, and priced reasonably. The facilities exist, although a bit scattered. Orlando seems to be blossoming with MCA/Universal and Disney currently building major production lots. Miami is increasingly active with major projects.

**Mix:** What happens when *Vice* goes to the big syndication in the sky? Is there life after *Vice*?

**Vice:** Well, we're hoping there's vice after life. Meanwhile, *Vice* has been a dream come true, and sets a great example for the future. The producers actually told us to try anything we wanted to get good sound, even though they didn't know what we were talking about most of the time. So we went in with the works. Unfortunately some great techniques such as time code and digital multi-tracked dialog were more than the current system could bear, so we backed off a bit. But it is all coming and we have at least proved its worth. The industry is changing and willingly so. We feel we are the front line. Our future plans are to help extend the support facilities and personnel to further Miami's position as a full service production community. Even more so than it is now. We want all work, pre through post, to be handled here. A lot of these hopes are being actively pursued at this moment.

**Mix:** I guess either way you could lose your jobs, but I'll ask anyway. Is Don Johnson a better actor, or singer?

**Vice:** Goodbye, Ken. Don't forget your sunglasses. ■

# In sound reinforcement, there are no insignificant details.

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# PEE ~ WEE'S

by Dan Daley

Domestic dinosaurs. Talking windows. A magic screen. Strange neighbors. Mutant toys.

It all might seem a little out there, even for New York, but these are actually some of the more routine aspects of *Pee-wee's Playhouse*, Pee-wee Herman's Saturday morning romp on CBS. Pee-wee (aka Paul Reubens) owes his initial visibility to a successful cable TV special and appearances on *Late Night with David Letterman*, where the eternal pre-pubescent would show up with collections of cheap plastic toys, exaggerated heels on his shoes and armed with pithy (for a 10-year-old) comeback lines like, "I know you are but what am I?"

With the success of Herman's 1985 Warner Bros. movie, *Pee-wee's Big Adventure*, CBS gave the go-ahead for 13 episodes of a half-hour series for the Saturday morning kiddie zone. Forty-five straight days of shooting began last July at Broadcast Arts, a production facility in lower Manhattan which specializes in animation—one of the key elements of *Pee-wee's Play-*

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house. But it's the post-production work by both Broadcast Arts and Sync Sound that brings the Playhouse alive. And it's the sophistication of both the show's concepts and execution that have made the show a surprise smash hit with both children and many young adults.

"We hoped to be able to put the whole show together on one system," says Jeff Schon, coordinating producer for the show. "But during the first show, we got a little nervous about it as the deadlines started getting tighter." Schon says the overall budget for the series' production was around \$3.5 million, with about 20% of that dedicated to post-production.

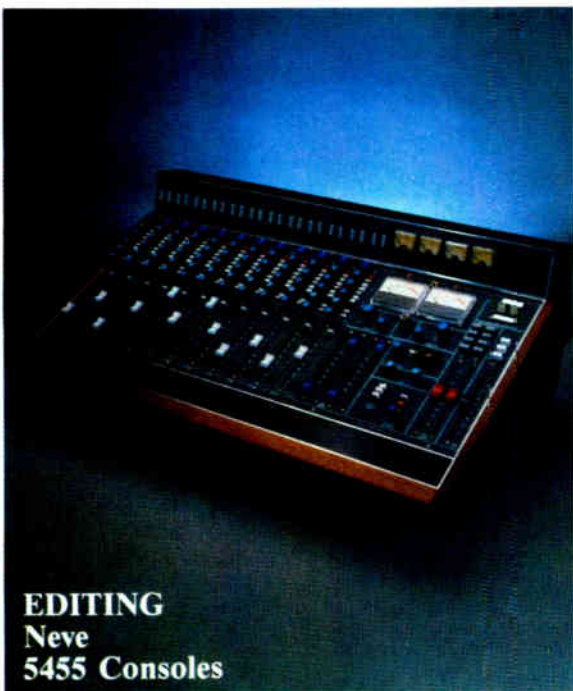
In addition to buying a Convergence 195 off-line editing system for the production, Broadcast Arts rented a Convergence 204 system. "We knew that we were going to want to do the on-line edit with a disk and do as close to an auto-assemble as possible, while keeping track of time code numbers," says Schon. "We bought a Leading Edge IBM-compatible computer and a program that could track the edits. The editors then would build an edit



PHOTO: JOHN D. KISCH

*Playhouse fun (L-R): Jambi the genie, Pee-wee and guest star Roger the Monster.*

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list and dump them to disk."

Information handling and storage were primary considerations to Schon. "It was the sound that made address track capability necessary," he says. "You have two audio tracks and an address track possible on a 3/4-inch tape; you can put your time code information on the address track if you have an address track head, or you can put it on an audio channel. But with *Pee-wee* it wasn't possible to give up an audio track because of all the special effects. The audio was fairly complicated and while you can't do too much with two channels, you can really do nothing with one."

For 3/4-inch decks, Schon narrowed it down to the Sony 5850 and the Sony BVU-800. The latter comes equipped with address track heads, while the 5850 can be retrofitted for them. Balancing technology and economics, Schon chose the less expensive (even with the modification, done by Technisphere) Sony 5850 decks. "We felt this was the best for the money," he explains.

The show was shot on 16mm film, at 30 frames per second. The look of film was better for the show, says Schon, and the higher speed made 16mm feasible and less costly than 35mm. The film was bumped to video at Image-mix, a division of New York's MTI Studios, where the final on-line editing was done with editor Joe Castellano.

"We did our synching there," explains Schon, "from the 1/2-inch audio tape and the 16mm master to the one-inch video masters, and we synched them at the same time. It saved us two steps: we never had to make a [one-inch] work tape or a 16mm mag, and at the same time they made us a 3/4-inch work copy that had burned-in time code on the address track."

Once the picture was locked onto video, *Pee-wee* (Reubens) and director Steve Johnson decided on cuts. "Individual editors then began making the 'clean' list of edits and we hired one person to track the listing," says Schon. "Each editor's cuts were added to a list and they corresponded to the numbers on the one-inch reel. Then when Steve [Johnson] made additional moves, which might have resulted in time and length changes, for instance, the editor would take his first assembly and put it in the source deck and start building a new show. That series of edits no longer related to the original one-inch tape; it related to the assembly cassette. When you got through that two or three times and wound up with your final cut, you still had visual time code numbers which allowed you to track your visual cuts, but you had to be able to sort through

—CONTINUED ON PAGE 83

## THE MUSIC OF PEE-WEE'S PLAYHOUSE

### TWISTED TUNES & MERRY MELODIES

by Blair Jackson

The first few times most people see *Pee-wee's Playhouse*, they are so overwhelmed by the show's visuals—the saturated cartoon colors, the phantasmagorical claymation effects, the cluttered set that seems to be equal parts *Romper Room* and *The Cabinet of Dr. Caligari*—they miss the brilliance and subtlety of the program's music. Not

mainly on synthesizers. This is a so-called "children's show" where you're more likely to hear a musical quotation from Devo's cult classic "Mongoloid" under a scene, than the 2000th variation on the theme from *Star Wars*. It's a program where strange, robotic passages of music sit comfortably beside the merry melodies of singing flowers and insects in '30s Ub Iwerks cartoons. There've been take-offs on surf music and psychedelia, but there is also often an undercurrent of traditional children's mu-

*Mark Mothersbaugh dares to be strange.*



surprisingly, this is hardly typical Saturday morning kiddie show fare, which generally consists of faceless "action" music and tired sound effects clichés. No, the music that emanates from kidvid's strangest address is a surreal amalgam of different styles—rock and roll, Hawaiian, spaghetti-western, avant-garde, you name it—played

music themes, though generally skewed and twisted so it all sounds just a little bit "off"—like P.W. himself. Or like any of the five composers who scored the first batch of episodes (which are still in reruns): Mark Mothersbaugh, mastermind of Devo; Oingo Boingo leader Danny Elfman; Todd Rund-

—CONTINUED ON PAGE 78

PHOTO: ED COLVER

—FROM PAGE 78, PEE-WEE'S MUSIC

ceptualized.

Elfman and others who've been involved with the music acknowledge that the man who really set the tone for the week-to-week scoring of *Pee-wee's Playhouse* was Mark Mothersbaugh, who worked on five episodes and also wrote the show's theme music and the daffy "Good Morning Song." Mothersbaugh, too, had known Reubens for many years—they connect through Mark's ex-girlfriend Lorraine Newman, who was in the Los Angeles-based Groundlings comedy troupe with Reubens. Originally Mothersbaugh was approached by *Playhouse* director Steven Johnson (another old acquaintance) to score the entire season, but he balked. "I'd never done any scoring for TV and I was real nervous about it," Mothersbaugh recalls. "Plus I had other projects I needed to do so I wasn't sure I wanted to get so involved. With Devo, we've done some songs for movies—'OK, give us a song that'll get on the



Danny Elfman

radio' or 'Give us a title song'—but we haven't done much underscoring, so I didn't want to commit to 13 episodes. So Steve came up with the idea of having a few different composers work on it."

One of Mothersbaugh's first tasks was to write the "Good Morning Song." "The only mistake I made was I said, 'Paul, I'll write you "good morning" songs until you find the one you like,'" he remembers with a chuckle. "So I ended up writing 13 'good morning' songs. There's a great one that sounds like Twisted Sister, and another that sounds like Run DMC. Around theme number nine they started to get really obnoxious; that's when the obnoxious element started to creep in. Then, after we'd listened to all 13, we ended up picking the first one!"

Cyndi Lauper was brought in to sing the song, though by the time the first episode aired, her manager had decided that her name should not appear in the credits. "He thought it would be a bad career move for her because she was trying to appear more serious," an anonymous source connected with the program told us. (By the way, *Pee-wee* has a cameo on *True Colors*, the Lauper album released right before *Pee-wee's Playhouse* hit the air.)

Todd Rundgren

"After the initial song was done," Mothersbaugh says, picking up the chronology, "I was really sweating, thinking 'My God, this is going to be torture!' I was committed to three episodes, but they wanted six. I went to New York when they were starting on the first one, and I spent a lot of time talking with the actors and getting a feeling for the show. I talked a lot with Paul and Steve, who had artistic control over everything on the show—everything had to be OK'd by them. They wanted lots of music cues, because they thought the music would help the visuals move along even faster. The only real suggestion I got, though, was Steven said, 'If a scene is sad I want the music to be *really* sad. If it's crazy, I want it to be *really* crazy. Take it to extremes. Subtlety has no place here.' So that's what I went for. In the process, I borrowed shamelessly from everything I've ever heard," he adds with a laugh.

Though the writing wasn't quite as difficult as he'd anticipated once he was in the swing of things, Mothersbaugh, like everyone involved on every end of the show, found that time pressure, not creative demands, was his worst enemy.

"They were always behind schedule," he notes with a bemusement

—CONTINUED ON PAGE 83





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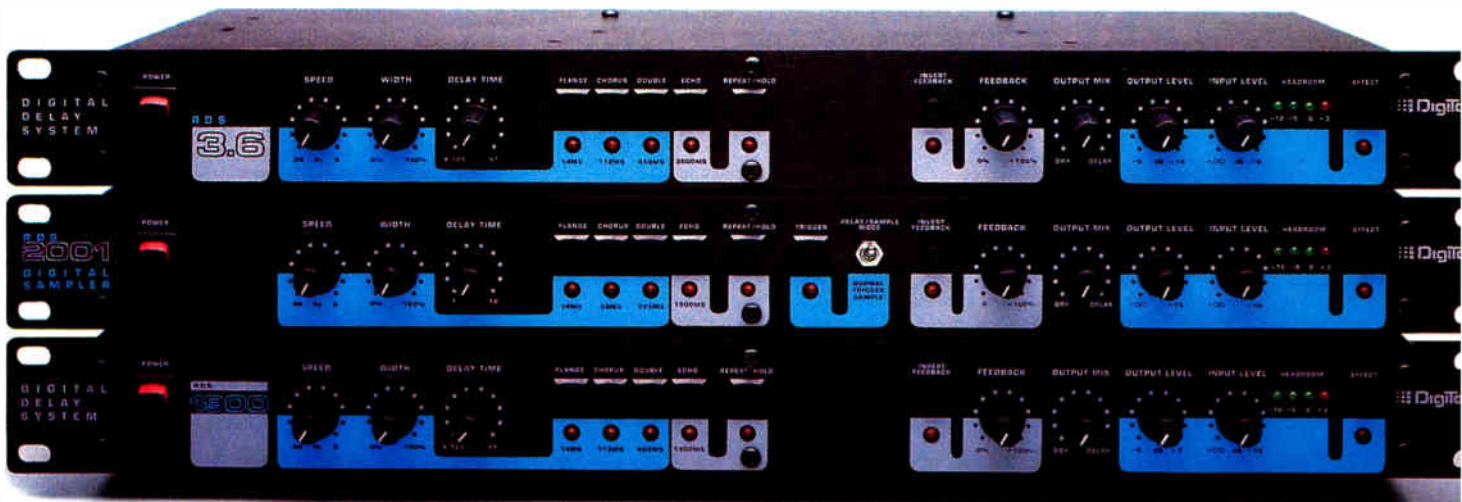
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—FROM PAGE 77, PEE-WEE

all these print-outs to be able to figure out audio cuts, like lifting a line from one place and inserting it in another."

SMPTÉ non-drop frame time code was the format used, and the show delivered to the network was a drop-frame master. "The other thing we did to keep track of all the dailies was a system where the 'A' camera had a '1' prefix and the 'B' camera had a '2' prefix, and when we were transferring our dailies and making the ¾-inch cassettes we would burn in not just the time code off the tape, but also a number like '110,' which meant 'A' camera, tenth day, and so on, and the off-line editor would add that to his sheet. If we ever needed to re-transfer something, it would be easy to know what camera our input source was from."

Visual special effects were half the show, says Schon: "For every 20 hours on assembly, there'd be another ten hours of effects particular to that show." As an example, he cited an underwater sequence involving Pee-wee and an affable lifeguard character named Tito. Though it wasn't *Sea Hunt*, it still took ten hours: "We got some stock underwater footage and we slowly began to composite the images of Pee-wee and Tito swimming against a blue screen. We had access to a two-channel Ampex ADO [a digital video manipulation device] and Pee-wee was programmed at one speed at the top of the frame with Tito at the bottom. Then we dumped that off onto one reel which became the submaster and composited that with the fish footage."

"One of the more standard special effects is the flashing of the secret word," he continues. "What made that easier was programming the Chyron [a digital graphics generator] to say 11 frames on and 11 frames off, which made the audio aspect easier to coordinate. It systematized the process at the on-line stage and it also made the sound effects people's life easier."

Overall, says Schon, the show used a mix of old and new technology. "It's not like the effects look cheesy, but a certain amount of fun went into them," he notes. "Without the ADO, half the things on the show couldn't have been done. Now the ADO has been around a while, but given the time and money constraints we had to work with, there are a lot of things we couldn't have done on budget unless we did them the way we did."

Schon was in charge of sub-contracting work to other firms for *Playhouse*, and Sync Sound was his choice for audio post-production. "It took a lot of back and forth dialog between us to lock it in," says Ken Hahn, Sync's co-owner and chief mixer, "but I think it

—FROM PAGE 80, PEE-WEE'S MUSIC

that comes only from retrospective reflection. "They'd get a rough edit of the show together on Sunday or Monday, which is when I'd get it. I'd write the music on Tuesday; spend all night Tuesday writing and then record it all first thing Wednesday morning. Then I'd put the 4-track masters on a plane for New York. They'd lay in the music on Thursday and the episode wouldn't be finished until late Friday usually. So we'd all see the finished show—composers, bleary-eyed editors and directors—when it aired on Saturday morning."

"Because everything had to be done so quickly, I had to work on first impressions a lot of the time when I was writing, which actually might have been good. With albums it's like: 'Hey we've gotta get a hit single out of this. Let's sing this word a few more times and get it right.' Whereas there was no time for that with Pee-wee and it was kind of refreshing. It was the total opposite."

Mothersbaugh did his work at Devo's own Southern California studio, putting in time between sessions by Police guitarist Andy Summers, who was working on a solo album. "I wrote mainly on a Roland JX8P," he says, "and the bulk of it was performed on an MKS-80, the one with the piano module. I used that with the JX8P so I could get a piano and a string sound at the same time. I wanted it to have a little bit of a Mister Rogers/Pinky Lee flavor, but by using warped themes, you change the character of that kind of music. On the last episode I had bits of 'Jocko Homo' and 'Mongoloid' [both Devo tunes]

in there, and on another episode I put a bunch of pieces from Talking Heads songs in there."

Besides the aforementioned equipment, Mothersbaugh also made extensive use of Fairlight—"whenever I had to put together a song that needed complex orchestration. I did that instead of using MIDI. I have an MC-500, but I'm not very good at it yet. About a year ago I rebelled against technology. I'm afraid to learn anything new. I sort of OD'd on it. I know how to run so many pieces of obsolete music equipment it's disgusting." Quite a statement from a musician whose band played a major role in popularizing electronics in rock music.

As with any project, it's ultimately the final product that matters most—not the sweat that went into it. And in the case of the music for *Pee-wee's Playhouse*, the crazed hours each of the composers put into scoring the show paid off in spades: week to week the show boasted the freshest music of any show on television. For a change, viewers were treated to a show where off-the-wall unpredictability was the rule of the day. Somewhere in all this there's a great album to be made—something to document Elfman's Sergio Leone-in-Hell western music, Rundgren's psychedelic luau music from episode two, Mothersbaugh's sparse electronic doodles, and all the other wildness. Whether that will happen, though, and whether the show can sustain its consistent musical excellence next season, remains to be seen.

"It sure was different than anything I've ever worked on," Mothersbaugh comments. "And I've worked on some weird stuff." ■

was sealed two years ago at the Monitor Awards. I won two or three that year and Jeff Schon was sitting behind me during the presentation. He told me, 'That's when I knew I wanted to work with you.' So those awards paid off," Hahn laughs.

Sync Sound took responsibility for all sound above and beyond actual dialog. Working with engineers Pam Bartella and Grant Maxwell, Hahn began building the sound effects library for *Pee-wee's Playhouse*, sonically fleshing out characters as they went along. "There is so much happening visually on the show that the director wanted sound to reinforce the picture," says Hahn. "We stayed away from what could be called 'synthesizer effects'; there are no 'whooshes' in there.

We tried for more organic-type effects. There's a lot of what you'd call cartoon effects in there, like 'boings.'"

Sync used two studios simultaneously—one for the Synclavier and another for Foley work. Pee-wee's "boings" and other effects were sampled into the Synclavier, stored on tape and cross-referenced. Several effects became integral parts of the program, and other sounds needed modifications from week to week, like Pee-wee's constantly growing ball of aluminum foil: as it grew each week, its rumble increased. For the foil ball, they built a program in the Yamaha SPX-90 digital reverb. Other effects used were Yamaha REV7 and a Lexicon 224X digital reverb.

Another effect was the flap of Pterri,

—CONTINUED ON THE NEXT PAGE

*Ken Hahn (left) and Bill Marino in Sync Sound's Studio B.*



the lovable pterodactyl's wings. "That was done with a really nice leather coat that Jeff brought in," says Hahn. "We played with that one a lot, trying to get the flap just right, not too thin, not too fat."

Sync Sound's Synclavier is fitted with a SMPTE option to track time code, a feature that Hahn says made life a lot easier. "We would build the show's effects on the [Otari MTR-90] 24-track machine [with Dolby], including the

simultaneous Foley work in studio C and any additional dialog from a 1/4-inch tape, and dump it all onto the Synclavier, and its SMPTE reading ability let you put it all in order."

Hahn says that with all the bells and whistles clanging away on the show, it seemed appropriate to take a cartoon approach for the mixes. Furthermore, he adds, "It's not playing in prime time with normal commercials around it. You have screaming high-level commercials like McDonald's and candy bar ads. It's like little music videos selling kids' stuff. These are high-energy spots—Rambo and GI Joe toys. We dealt with Pee-wee like a half-hour commercial and a cartoon at the same time—except that cartoons have a nice clean voice track that you can hit the music real hard behind. With Pee-wee, it's a noisy set—with robots, talking windows and things like that; there's a lot of ambient noise and Pee-wee's voice ranges from conspiratorial whispers to his high-pitched laughs and screams. There's a dynamic range of 100dB that you're trying to put on video tape. That was the challenge—to make that show compete with what was going on around it. The commercials have an apparent loudness—it's music playing at zero for 30 seconds, and I can't do that with Pee-wee because there's a dynamic range there. That was the hard part: to keep the dynamic range."

Another challenge felt by both Hahn and Schon was scheduling. "We always wished we hadn't fallen behind during the first couple of shows," says Schon. "There were always changes

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*Jeff Schon, coordinating producer of "Pee-wee's Playhouse," reviews takes of the show at the off-line editing system of Broadcast Arts, New York.*



in the script that we tried to keep up with. But it was the kind of show that we wanted to keep on making better. No matter how much time we could have had, we would have still wanted to do more on it."

Hahn recalls that in many instances Sync would get off-line copies with animation segments still missing or incomplete. A typical sequence: "We'd get the show on Friday or Monday. Tuesday and Wednesday were spent

building the show with one person on the Synclavier and another person in studio C laying in particular effects that were new to that show. We mixed it Thursday, it was delivered Friday morning and aired Saturday morning.



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Then we started all over again on Monday. We were always hoping for a presidential address or something to pre-empt the show and give us a week off," he laughs.

"The first show took—literally—24 hours to mix, mainly because we were still establishing characters. I've never had to write that on an invoice before: 'First show—24 hours mix time.' That was 24 hours straight. But a lot of that was fine-tuning the sounds and voices. Is the sound of the flapping wings too rich? What do flowers sound like when they sing? What do ants sound like when they scurry? Those sorts of things."

Eventually, though, things became

less hectic as a feel for the show developed on the technical end. "The on-line editing time decreased because our edit list got cleaner," says Schon. "Reel changes and keeping an eye on recording levels became the only real things to take care of during a mix by the last few shows."

The music for *Pee-wee's Playhouse* was written and recorded by an eclectic collection of musicians working independently. Mark Mothersbaugh (of Devo), Todd Rundgren, Danny Elfman, Mitch Froom and Jay Cotton all sent in their pieces on time-coded 4-track tapes—stereo music mix and time code. (See sidebar for more on the music of *Pee-wee's Playhouse*.)

Jeff Schon indicates that he didn't shoot film to music, except for the opening theme song ("The Good Morning Song"), which was played on the set during filming. As the show moved through production, he sent rough cuts to Mark Mothersbaugh's home in California via courier. Mothersbaugh was scoring incidental music as well as writing special material. For the first show, Mothersbaugh had only four days to complete the initial score, "and he was up all night the night before the mix," recalls Schon.

Composers worked with 3/4-inch video cassettes with drop-frame code striped on the channel two audio track. "We would send them as close to a locked picture as we could get," says Schon. "We'd be on-lining the show while they were composing and recording the music.

"When we got our music from the composer, we would end up individually dropping in each cue. We would see where his cue related to his 3/4-inch version and then line that up with our 3/4-inch off-line version and then slide it in."

There were a few moments where the show had been lengthened or shortened after the music was done. In that case they would add a bar by editing and looping rather than try to re-record, although if they could anticipate it, they would ask the composer for an extra few seconds of music.

The music generally arrived the morning of the mix, according to Hahn. The challenge here was to blend the music with the sound effects into a cohesive whole that made sense, says Hahn. "Some of the composers, like Mark Mothersbaugh, tended to be very rich and full in terms of sound. They weren't really doing sound effects, but it sounded like they were, so we were always looking to strike a careful balance between sound effects and music."

The production schedule was hectic for everyone involved—Ken Hahn's reaction to mixing *Pee-wee* is: "I literally didn't have enough hands to do it; usually there's not this much action and layering of sound on television—or even in movies, for that matter." But the creative rewards were worth it, he says: "It really shows what you can do to enhance picture."

*Post Script: As Pee-wee Herman works on his next feature film, CBS has decided that Pee-wee's Playhouse might have an appeal to a market broader than the Saturday morning cartoon crowd. The program is slated to begin a late night run of its own, aimed at the Letterman/SNL audience. The show also has been renewed for Saturday mornings this coming September, according to CBS.* ■

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World Radio History

# THE PRODUCER'S WORKSTATION

by Lou CasaBianca  
and Todd Cochran

*For this piece, Mix contributing editor Lou CasaBianca is joined by guest composer-keyboardist Todd Cochran, for an in-depth review of the producer's workstation. The two have worked together in the past as composers and producers of the Automatic Man album for Island Records. Since then, Todd has toured as multi-keyboard synthesist with Peter Gabriel and Carl Palmer; produced or co-produced such artists as Maynard Ferguson, Cheryl Lynn and Arthur Blythe; and provided arranging services and performed as an electronic musician on The Incredible Hulk, The Greatest American Hero, and Bustin' Loose. In addition to music production, Lou has*

*specialized in film and video, producing and/or directing videos for Journey, Chuck Mangione, Chaka Kahn, Narada Michael Walden and others. They have drawn from their collaboration on the production of the music and a music video for Todd Cochran's upcoming solo album as the basis for this producer's workstation article.*

## OVERVIEW (BACKGROUND & OBJECTIVES)

The video producer, the electronic musician, and the music producer have specific and shared needs in the application of workstation tools for the development of off-line creative materials for production or post-production. In the August '86 *Mix* we postulated the concept of the "intelligent studio"—a facility that would be able to grow with the changing and newly emerg-

ing production technologies. The basic operating unit of the intelligent studio is the personal workstation. Our mission here is to prepare and create, at the producer's workstation, a 16-track music demo and synchronize it to computer graphics video footage. Upon completion, we will have a totally documented and charted pre-production product that is complete for presentation as is, or for transfer to a more advanced production format. The greatest benefits to be derived from this approach are the ability to better capture the initial creative inspiration, develop and refine it in a relaxed and controlled environment, and thereby create a more cost-effective finished product.

The workstation must provide all the computing and production tools you will need in your daily work routine—word processing, spread sheets and applications like storyboarding, scripting, scoring, sequencing, archiving, sheet music printing, budget and project management, and the ability to share that information over a local or wide area network. The expanded capabilities of the workstation in this case are managed by our computer of choice, the Apple Macintosh.

The number of electronically based creative hardware and software tools continues to expand. Based on budget and the level of expertise, with linkage provided by SMPTE and MIDI, and the control and organization provided by the personal computer, we have the option of assembling beginner, intermediate or advanced user workstation configurations. The equipment packages may be designed for portable desktop or studio applications environments. There is a wide range of semi-pro and professional equipment that can cost effectively be integrated and utilized in the producer's workstation to handle virtually any application.

Everyone's orientation to music and video is different, in terms of goals

**Composer/multi-keyboardist Todd Cochran at the producer's workstation in his home studio.**



PHOTO GLENN SAMUELS

and priorities. Nonetheless, much of the equipment and the mechanics of expression remain the same. The key to the producer's workstation design is selectively sorting through the maze of gear and systems available, and designing the configuration that represents the most creative, and functional package for your level of expertise, your budget and your applications.

## TECHNOLOGY

### (THE TOOLS & HOW THEY WORK)

There are five elements and seven major components in our advanced producers workstation configuration: **Music:** the E-mu II+ digital synthesizer and SP-12 rhythm machine; **Audio:** the Tascam MS-16 16-track tape recorder, the Tascam M-520 mixing board; **Video:** the Sony BVU-850-SP 3/4-inch videotape recorder; **Computer:** the Apple Macintosh Plus; and **Synchronization:** the Synchronous Technologies SMPL Lock System.

## MUSIC

### Emulator II+HD

The Emulator II+HD is one of the most sophisticated pieces of gear in our producer's workstation configuration. The Emulator II+ is the third revision of E-mu System's digital sampling keyboard with 12-bit resolution. The II+ has a double bank storage capacity of two times 17.6 seconds, for a total of 35.2 seconds of playback time without having to load from disk. The hard disk stores 47 disks in its nonvolatile memory with disk loading into the bank occurring in less than two seconds.

There are quite a few tricks to be learned and applied in successfully operating the E II+HD. It has one floppy disk drive for 5 1/4-inch double sided/double density disks and one hard disk drive. Frequently accessed "presets" can be stored on the hard disk saving a lot of time and creative juice. Storage of sequences can get a bit taxing. You cannot segue from one sequence to another without exiting the play mode and restarting the sequencer. This can make reviewing the segments a bit tedious, however, by creating a back-up disk or storing the sequences in an alternate bank (i.e., BANK A while you append an experiment in BANK B) you can go back and rework your ideas as necessary.

The actual sequencing capacity of the E II+ is ample for most applications. The eight tracks (per sequence) can be bounced down to one track, and you can continue to develop the section on the seven other available tracks. The quantization can be different each time you run the track, whether recording from scratch or punching in. This works well for inte-

grating different feels. For example, the part being played may be a pattern of quarter note triplets. While corrected to that value, upon listening it may feel better to play the piece in real time. You can record the alternate approach on another track, and bounce the track with the feel that you prefer onto the main track. This works well for previewing sequences for feel, performance and dynamics without having to commit yourself until the final playback of your composition in the fully appended form. As long as you have more than one track, you can switch the information around from track to track by bouncing.

When punching in and *not* recording (erasing) you continue to hear the

information you are erasing until the sequence is completed. You must then play the sequence back to check your work. Local control "off" allows you to use the E II+ as a "mother" or master control keyboard without any sounds necessarily coming from the Emulator. This function also allows you to use the E II+ as a clock reading and triggering machine in your chain of equipment. (More about this application in the methodology section.)

Sampling manipulation functions include: truncation, looping, velocity, assignment of level, individual voice attenuation and tuning, solo mode (monophonic), voice combining, filter frequency, level, resonance, envelope

—CONTINUED ON PAGE 134

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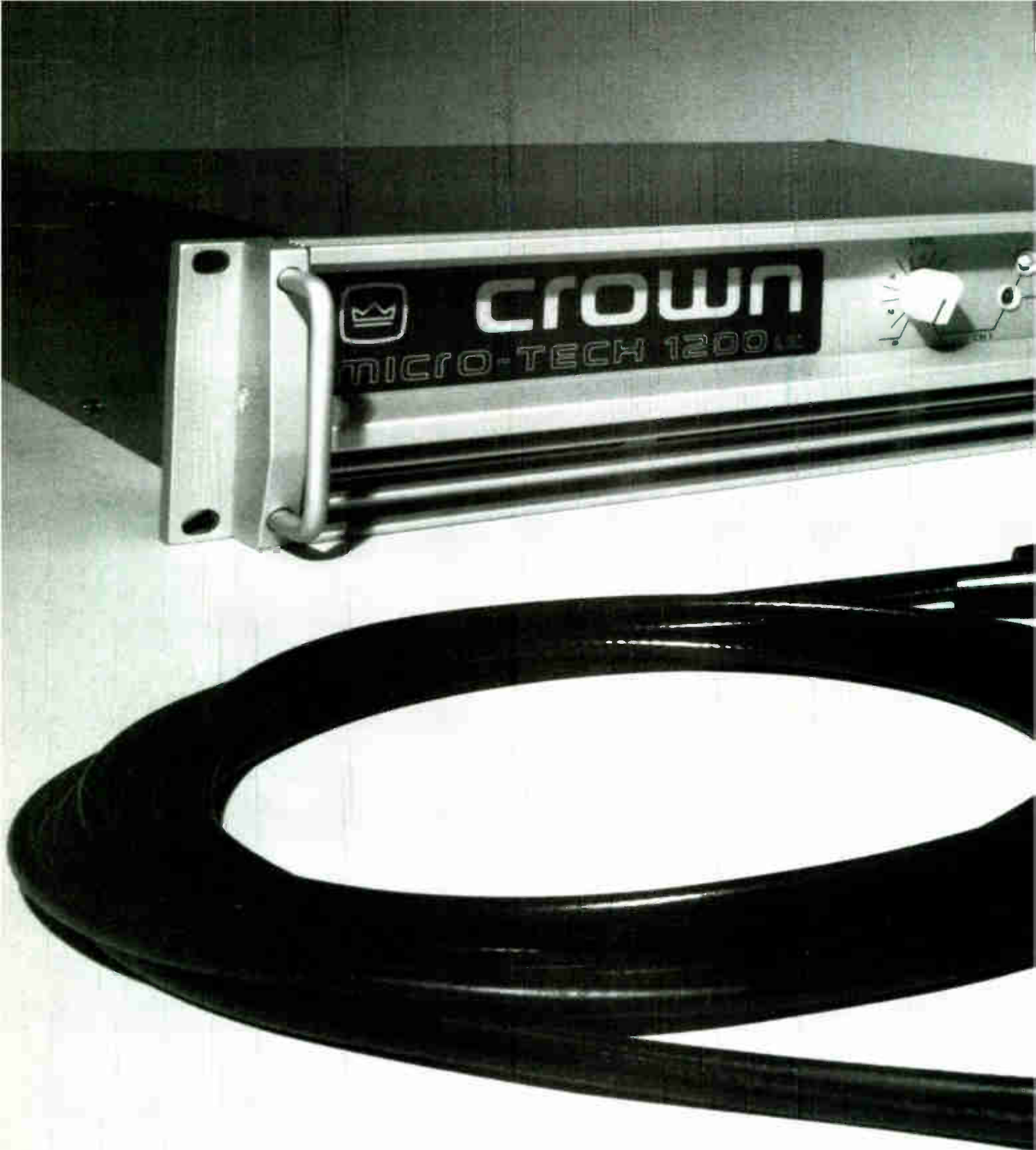
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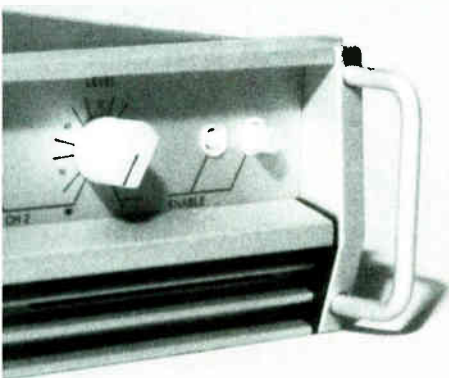
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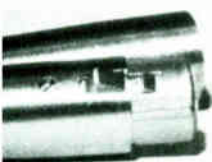
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# THE STATE OF *SYNCHRONIZATION*

“Black box” synchronizers are going strong, but battle for market share with synchronizing software for PCs and with complete, disk-based systems that virtually eliminate the razor blade.

by Linda Jacobson

The year is 1980. Fresh out of college, I'm hired to write technical manuals for a company in a Boston suburb. Two years earlier, the company was a garage operation run by five young electrical engineers; now it's a full tilt manufacturing firm with about 20 employees. We all work for BTX, where the atmosphere is charged with excitement—for BTX products are revolutionizing the audio industry.

BTX's SMPTE time code generators, readers, and synchronizers are housed in fat black boxes, faced with chunky toggle switches and rotary thumbwheels. Within a year or so, they move into cream-colored, LED-laden, single-rack enclosures. And in early '81, with much pomp and circumstance, we introduce the sleek, dark Shadow synchronizer and its wedge-shaped remote controller. The industry snaps 'em up. Industry pros such as sound designer Frank Serafine helped develop the Shadow, for the BTXpers—while they know their EPROMs outside and in—aren't exactly industry-savvy. Meanwhile, other companies such as Audio Kinetics, Adams-Smith, and EECO are building the same kind of systems. Their synchs, and ours, are basically universal, transparent, microprocessor-based devices which need only custom-made cables to lock up most audio, video, and some film transports.

Fast forward to 1987. I've moved out west, Cipher Digital of Maryland has bought up BTX, the audio and video industries have finally joined hands, and we've all entered the personal computer age. In a relatively short amount of time, we've reached

the point where a post-production house can't survive without a time code synchronizer. Many recording studios own such units, so they can double their tracking capacity. But with the advances in microprocessor and audio-for-video/film technology, the synchronizer industry has matured and divided.

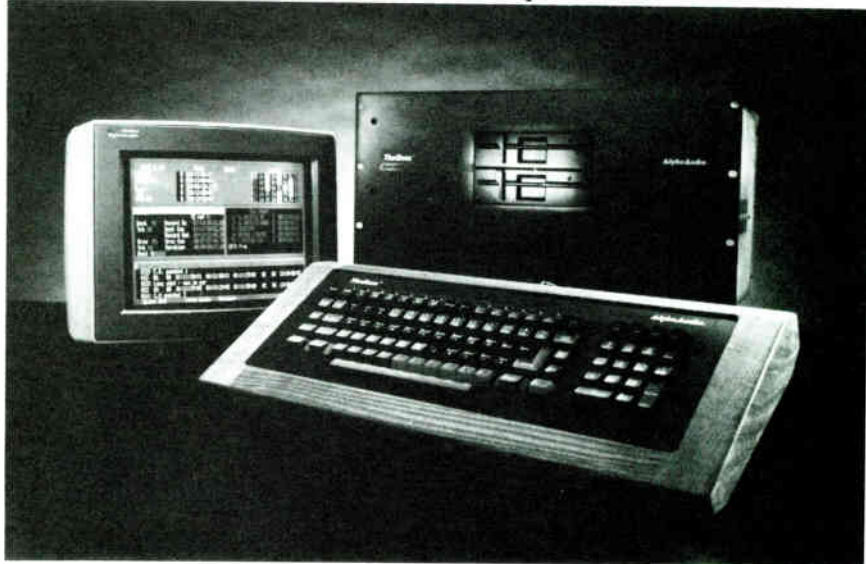
“Black boxes” still are going strong, but they battle for market share with synchronizing software for PCs and with complete, disk-based systems that virtually eliminate the razor blade. There's *lots* of competition. About 20 companies offer synchronization and edit control systems, ranging in cost from \$2000 to over \$20,000. *Mix* contacted several leaders in the field to find out what's new and different. As you read the following paragraphs,

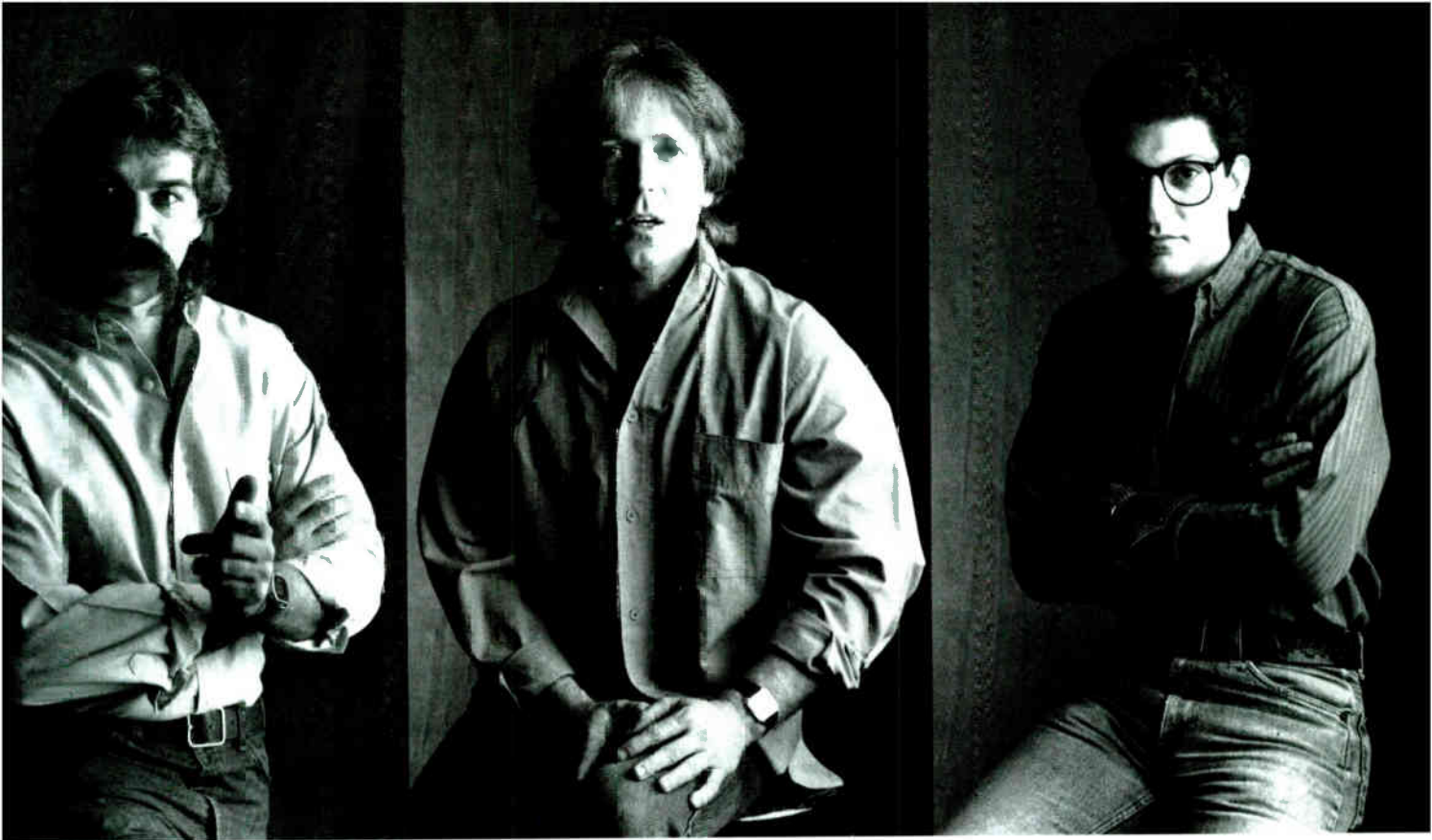
please keep in mind that we've barely touched upon the many features offered by the systems these firms have developed.

## **Adams-Smith**

The pioneering synchronizer company Adams-Smith, in operation since 1970, has augmented their wide product line in several ways. In early 1983, the Hudson, MA-based firm launched their full-featured 2600 system, an outgrowth of their TS-605 synchronizer. The 2600 provides chase lock resolution to 1/100th of a frame. Vice president Harry Adams told us “think of the 2600 as a series of rack mount modules, each one with a specific task. You put these modules together in various ways to build the system you need. We have modules that generate time

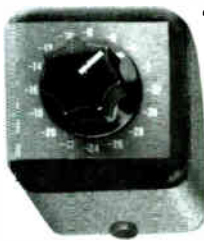
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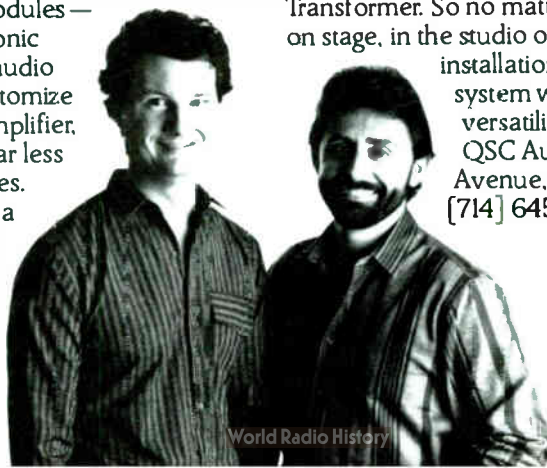
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Patrick Quilter  
Vice President/Engineering,  
QSC Audio.



Barry Andrews  
President,  
QSC Audio.

code, read it, synchronize machines, etc. We add to the system and make it more useful all the time. Since it's a distributed processing system, when you add new modules, you don't obsolete the other ones and there's no need to rewrite any software."

The latest addition is the 2600CC, a compact, portable keyboard that controls up to five machines. It interfaces with the 2600 with flexible cable, and bears full-footprint rubber padding, so you can set it on your mixing console. The CC permits video and audio style editing; when you want to insert sound effects, you do it with one button. The CC handles punch ins and outs, cueing, looping, and all audio-for-video post tasks. It also interfaces with the outside world (PCs, other SMPTE gear) via its RS-422 port. It works with virtually any audio or video transport, and with film units that generate biphasic (no easy task, for the system must convert the biphasic pulses into a sort of pseudo-time code). All you need is the right cable, which you build yourself (Adams-Smith provides drawings), or, more likely, your dealer builds it. They have cables now for all the digital multi-track machines. When you want to switch transports, you just modify the synchronizer through the 2600 module's front panel.

A basic Adams-Smith chase synchronization system (one master, one slave) costs about \$4200. A 3-machine system with the 2600CC costs about \$12,000. As you add functions, you can go up to \$25,000, enjoying 5-machine control, interfacing with PCs and video editors, time code generating and reading, video sync and VITC (Vertical Interval Time Code) generation, etc. etc. For the high-end, automated facility, Adams-Smith offers the 2600A/V. It's an audio and video editor with qwerty keyboard, color monitor, 20 megabyte hard disk and two floppy disk drives (which accept edit decision lists on floppies from both CMX and Grass Valley/ISC video editing systems). The keyboard is set up like the CMX editor, and the video display resembles CMX's, but oriented towards audio.

Set for NAB debut is Zeta Three, Adams-Smith's audio/video/MIDI synchronizer. It's a single-rack space unit that generates code, includes two time code readers, synchronizes transports, synchronizes to MIDI signals, and generates MIDI song-pointer, all for just \$2995 plus cable. Zeta Three handles chase synchronizing, resolves audio recorders to video sync, generates MIDI sync signals, and synchs MIDI (from drum machines, sequencers, etc.) to time code. The RS-232 port on the Zeta Three interfaces with PCs, and the RS-422 port allows the

unit to serially control recorders. When using PCs with MIDI programs to control Zeta Three, MIDI-based composers don't have to dump their sequences to tape in order to play back full orchestrations in sync.

### Alpha Audio

Alpha Audio Automation Systems, a division of Alpha Recording in Richmond, VA, manufactures the Boss automated audio editor and synchronizer. The Boss was developed by audio and recording engineers over a two-year period, and introduced in January '86 as a complete, high-speed dedicated system.

David Walker, Alpha Audio's marketing director, says of the Boss's development, "We applied our resources towards a product that people were asking for in audio-for-video post-production. The audio market was missing the sophisticated, computer-based

editing techniques used in the video domain. When video producers went to work in the audio bay, they wanted to know why they were going from high-powered computer systems to stone knives and bearskins, which are razor blades and tape. Suddenly the whole editing process became manual rather than electronic, which was disconcerting.

"With the Boss," Walker continues, "we tried to keep the things that are important to the system's function right up in your face at all times, so you don't lose track of anything. A lot of our clients say they don't want a transparent interface, but the comfort of knowing the offsets, and where the different machines are. They depend on an interface that tells them all the things they're used to dealing with."

The Boss essentially provides a completely automated, audio or audio-for-video editing environment. It compris-



PHOTO: GEORGE PETERSEN

*Firesign Theatre producer Fred Jones demonstrates the "Sound Effects Manager" program he developed for Pristine Systems.*

### And That's Not All . . .

Pristine Systems in Hollywood offers a new IBM-PC (XT/AT/clone) program, set for NAB release. It's "Sound Effects Manager," essentially a database which uses your sound effects library list that's stored on a disk. Some effects might be on cart, some on CD, some on tape. SEM lets you set up a cue list, on screen or on paper, and then lets you select, from that list, which sound effect you want, where it's located, and when (at which time code point) you want to trigger it. And then SEM does it.

Here's how it works: a cable attaches to a standard IBM and feeds into a little black box that's basically a set of relays. The black box

connects to a variety of machines, such as the Sony CDK-006 60-disc CD changer, so you can retrieve and trigger sound effects from CDs, create and execute edit decision lists, and generate reports, including lists of SFX used for any program, the effects' sources, and their track assignment. Projected list price is \$995 for the software, plus the cost of the interface for the computer.

Sound Effects Manager is essentially a group of GPIs (general purpose interfaces), which are found on most professional editing systems such as the Sony 5000 series. With a GPI, you can trigger a cart machine at any time code point—ideally suited for an automated radio station.

—L.J.





**Adams-Smith compact controller for System 2600.**

es a 16-bit, central processing unit with two disk drives, a qwerty keyboard with numeric keypad and familiar edit control keys and color monitor. It connects to, and controls, a wide range of what Alpha Audio calls "less intelligent" devices, including synchronizers and audio or video tape machines. No computer knowledge is needed to

do one-button sound effect inserts, cue up a VTR, execute a script, create sound design on the fly, recall the routines of any editing session, etc. The screen display is divided into lists that describe everything you need to know about what's going on in the system.

The Boss has seven serial ports (RS-

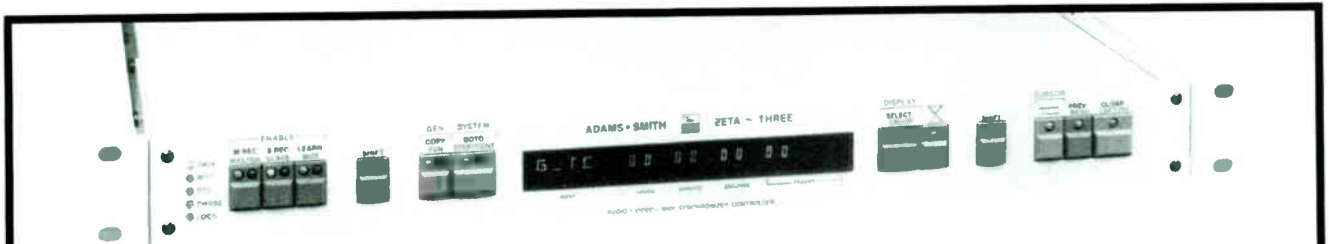
422 and 232), a MIDI port for direct control of MIDI devices, an industry standard parallel interface, and a GPI relay control that triggers cart machines and CD players. In the case of Cipher Digital Shadows, you connect one to each serial port for each slave. Bus-oriented systems such as Adams-Smith 2600 set up in a daisy chain configuration, allowing lock-up of up to 15 transports.

Recent developments include a software interface that lets the Boss chat with Sony's professional CD player; and the ability for the Boss to work with TimeLine's Lynx synchronizer (another daisy chain configuration for up to 15 machines). For film production, the Boss now supports the feet-and-frame display of SMPTE time code information. Another recent development is full-blown auto-assembly from CMX edit decision lists, that allows use of source material with discontinuous code.

The Boss retails for \$18,750. A system like this lets you toss out the razor blades. But you still have to thread tape.

**Audio Kinetics**

Audio Kinetics is a 17-year-old synchronizer pioneer based near London, with American headquarters in Middletown, NJ. AK's dedicated Q.Lock



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4.10A synchronizes many types of audio, video, and film transports, and has relays to fire external devices such as cart machines. In the field since 1985, the 4.10 has evolved from the 3.10, which was introduced way-back-when in 1980. AK constantly upgrades the system to interface with more machines, including film units. The most recent 4.10 interfaces are for Mitsubishi and Sony digital multi-tracks, Studer A812 and A820, Tascam ATR-60 and MS-16, Otari MTR-20, Nagra T-Audio, and, in video, the JVC CR-850/900. Another new 4.10 feature lets you bring a machine on and off line at particular time code points, for automatic machine switch-over during long-running programs.

Discussing AK's design scheme, Iain Roche, vice president/sales, says "In synchronizing, the bottom line is to lock machines together. But there are two ways to approach machine control. Do you want a qwerty keyboard-type interface, or do you want a dedicated interface which is virtually transparent, and follows the same lines as the other equipment in your studio? Our design premise was based on that kind of transparency. The Alpha [controller] for the 4.10 emulates the existing control circuitry as much as possible, so operational training is minimized. And we also offer a dedicated audio editor, not a control unit that uses other people's hardware."

That editor is the Eclipse, a controller that allows three slave machines and a master to play together when you push the Eclipse play button. It's a keyboard/computer that interfaces with the 4.10. At NAB '87, AK will introduce their IBM-PC (and compati-

#### **Audio Kinetics' Eclipse.**



ble) interface which runs the Eclipse's storage program. This enables disk storage of 99 loops, events, offsets, and "Q.Key" setups (the Eclipse has 12 Q.Keys—user-programmable keys—which allow you to program any series of real time events, up to 300 of them, on one key). The new option consists of software, documentation, and RS-422 cable, and soon will expand to include operation with the Macintosh computer.

Roche continues, "the Eclipse screen displays all information—functions and system data, such as offsets and machine names—in language familiar to the studio worker. And when you want to press 'play' or 'rewind,' you have those buttons in the same configuration that they are on the tape machine. You should be able to put a synchronizer in the studio and not create yet another interface for the operator to deal with, because that gets in the way of his purpose."

The 4.10's original control unit, the Alpha keyboard, also takes over all system functions. Today, each Alpha includes a software package for post-production applications: Gen-Lock, SFX, ADR, and Conform, for edit decision lists (previously, there was an extra charge for the software).

While the Q.Lock 4.10 and an Eclipse cost \$17,940, and a 4.10 with an Alpha controller (3-machine control plus post-production software) costs \$10,380, AK also offers the less expensive Pacer, a stand-alone chase synchronizer. It's for those times when you just need one audio machine to chase and lock to one audio, video, or film master. It generates and reads all time code standards and can reference to an external

sync source, and goes for \$2995 with cable.

#### **Cipher Digital**

Cipher Digital took over the assets of BTX in early 1985, and revamped the renowned, four-year-old Shadow system. A "fully intelligent," multi-standard time code synchronizer for audio, video, and film transports, the first Shadow learned each transport's dynamic characteristics to optimize control, and improved performance as it got better acquainted with the transport; it even retained the knowledge after power-down. One of the early Shadow's precedent-setting features was an RS-232 connector, enabling an interface with "mini-computers such as TRS-80, Pet, and H.P.," or the Shadow's control console/audio editor. That console, redesigned and named the Softouch in 1983, provided dedicated keys for transport functions and commands such as Go To and Follow, had LEDs for code status, and contained nine memory registers. Two displays showed manual and slew offsets in the standard "00:00:00:00" format, plus another ":00" to show sub-frame (1/100th of a frame) accuracy.

The new Shadow II, introduced at NAB '86, features a faster, more powerful microprocessor, time code reader, code-only master, RS-422/232 interface control, master record-in, and complete compatibility with the original Shadow. The Shadow controls one master and one slave machine; additional slaves each require one Shadow. The front panel provides status LEDs for lock, chase and serial interface, rocker controls for calibration, damping controls, and chase enable control, with video resolution to the subframe and audio accuracy to 1/3000th of a frame. List price is \$3295.

The Softouch controls four machines and has 16 user-programmable soft keys for repetitive or intricate editing or machine setup routines. Last fall, Cipher Digital introduced new Softouch software, BP-3, for older (pre-Shadow II) units, also compatible with newer units. The BP-3 software gave Shadow II user's full control of all new Shadow II features, which the earlier Softouch didn't support. Another new Softouch feature is a computer cartridge that plugs into the unit, for external storage of soft keys, loops and machine control information. Each cart stores 500 soft keys, and 35 to 100 loops, depending upon their size. Two carts are supplied with each Softouch, and it's easy for Cipher Digital to modify older Softouch units to include the feature.

Tony Mattia, Cipher Digital's general manager, says they'll be introducing three new products in the synchronizer/edit controller line at NAB. Re-

cent machine interfaces for the Shadow II are the JVC-850 (video), Mitsubishi X-850 and X-800, Otari DTR-900, and Tascam's Studio 8 and MS-16.

There are lots of Shadows out there, and several companies are cooking up ways to help out all those Shadow owners—by taking advantage of the Shadow's external control interface. Alpha Audio currently is testing it for use with the Boss, and Kelly Quan Research in San Francisco is using it with their software (see related story on page 114). Canada's Studiomaster software (from Master's Workshop) was developed using the Shadow interface. And who knows how many other independents are writing their own control software? The Shadow knows....

### Editron

The Australian-based Editron introduced their synchronizing and editing systems to the U.S. market in 1985 from their Hollywood office. Bob Blanks, sales manager for American distribution, says a group of engineers developed their system for an audio/video post-production facility in Melbourne in 1982. Intended as a one-shot deal, the system received so much positive attention and critical acclaim that the folks who built it formed Editron and began mass-production, then brought it to this country three years later.

Editron's primary product, the 500A, is a computer-based, multi-machine, audio post-production system that controls up to 15 audio, video, and film transports simultaneously via one central host unit (with a separate interface for each transport).

Designed for large studios and editing suites, the 500A can run tape machines located up to a half-mile away, and any machine can be designated as master. The system automatically calculates multi-machine offsets, and handles multiple standards—time code, tach pulses, pilot, or quad. Resolution is to 1/80th of a frame (audio). It provides 999-event list storage, a display of operating parameters, a rotary "jogger" to position images and scroll through screen info, and a time code generator/reader. The contents of its nine soft keys can be saved to disk. The host computer (RS-422 interface) with two 5.25-inch disk drives, keyboard, and 12-inch color monitor costs about \$12,000; a new system option is an automatic dialog replacement program. Intelligent machine interfaces each run about \$3200. New developments in the 500A line include interfaces for film, Rank Cintel telecine, and Sony and Mitsubishi digital multi-track machines.

Soon to be released in the States is Editron's 100A, a lower-cost (\$5500),

expandable, rack mount synchronizer with optional 200A remote controller.

### Fostex

Fostex manufactures a complete line of systems for audio sweetening in film and video post-production, which includes their 4030 synchronizer and 4035 remote controller, introduced in mid-'85. The 4030 enables chase and pre-roll, resolves to film, and was nominated for a 1986 TEC Award in the Film and Broadcast Sound Technology category. The low-priced (\$1500) unit provides 1/100th frame resolution, works with the various time code standards, and runs one master and one slave (added slaves each require a 4030). Its RS-232 port interfaces with

the \$500 4035 unit (featuring, among other capabilities, a programmable auto-punch in/out with rehearse function, 10-position auto-locate, selectable pre-roll times, end-of-tape tags, and ability to address one master and three slaves individually or together). Fostex also has a software program called FAME (Fostex Automated Media Editing), compatible with Apple IIc and Apple IIGS computers so the 4030 connects to Apple for external audio/video assembly editing.

"About every four or five months we have software updates for the 4030," reports company spokesman Mark Cohen, "which offer many more features and improved performance over the one we first produced. Peo-

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*Fostex 4030 synchronizer and 4035 controller.*

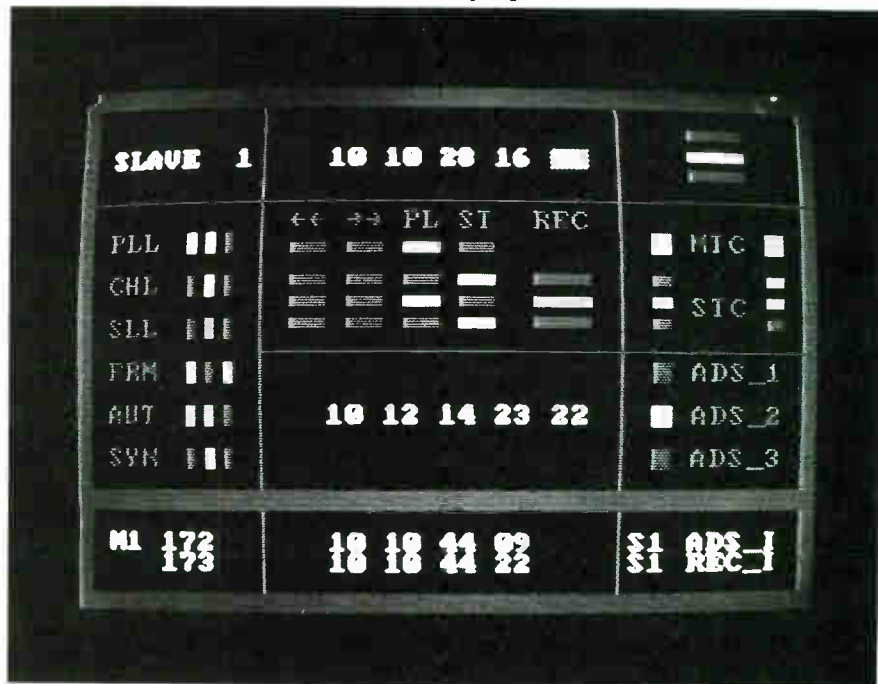
ple can send in their earlier models and we'll upgrade them." The unit is totally software based, so updating means plugging a new EPROM into the package. Concerning the 4030 and tape transports other than Fostex, Cohen says, "we originally thought we'd have to offer socketed EPROM software for different machines. But because of the way we've improved the 4030 software, there's no need for that. You don't need to make any changes, hardware or software, for the 4030 to work with other machines. All you do is use the proper cable available for most current models of machines—Otari, Tascam, Studer, MCI." New machine interfaces are Studer A800 and A80, Sony BVH-2000 ser-

ies, JVC VR-7700, and Series I Otari MTR-90s and MTR-10s. "We're working on one now for the Sony PCM-3324 digital multi-track."

At NAB, Fostex will introduce their new Model 8753 interface, which allows all Sony Type 5 video recorders to be used as slaves, and their new 4010 time code generator/reader.

"Our biggest problem," Cohen says, "is that people can't believe our synchronizer works as well as it does, for as inexpensive as it is. Any synchronizer is basically a personal computer with two time code readers. In reality, there's a lot more to it, but after what's happened with the personal computer in the past few years, the 4030 can run 512K of ROM at a tenth of the

*Soundmaster's controller screen display.*



price that synchronizers cost seven or eight years ago."

Cohen adds, "Before we introduced our own synchronizer, we used everybody else's synchronizers at trade shows to show that our tape machines were smart enough to lock up. But we had so many problems—some with reliability, some because the systems were made by rocket scientists, not industry people. So we made our own; we have an audio/video production facility here, we know what's needed. So that's why we built the least expensive, most reliable, and most bonzo-proof synchronizer."

Fostex also offers the 4050—a \$1300 unit including an autolocator, time code generator/reader, and transport controller that allows synching MIDI to SMPTE—which also works in conjunction with the 4030.

### Soundmaster

Master's Workshop, an audio-for-film/TV production facility in Toronto, Canada, began developing their Soundmaster software when they bought their first Shadow synchronizer in 1981. They realized the power offered by RS-232-interfaceability, and applied their knowledge and resources towards building a software interface for the transports, synchronizer, and PC. They tweaked, tuned, removed the bugs, and, by 1983, the program was at a high enough level (version 3) to offer to other people who wanted sophisticated, IBM-based sound editor/controller systems. Bob Predovich, Master's Workshop vice president, and software programmer Andy Staffer formed Soundmaster International, and began marketing in '85. By that time, Soundmaster also designed their own software-based synchronizer, called Syncro. The complete system (version 4) appears for the first time in production form at NAB '87, with several new and unprecedented features.

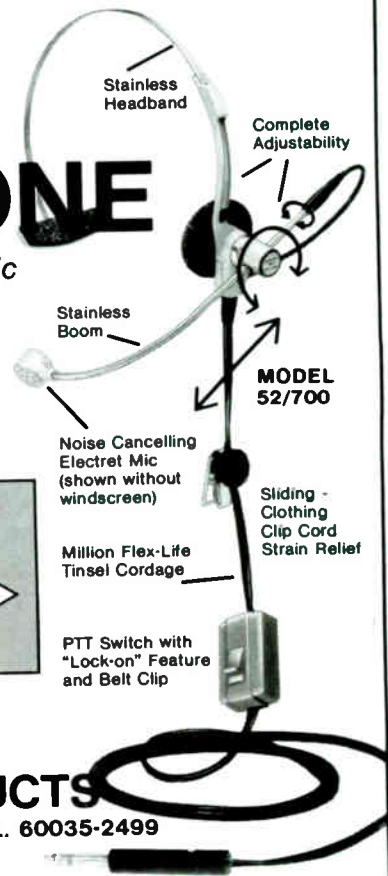
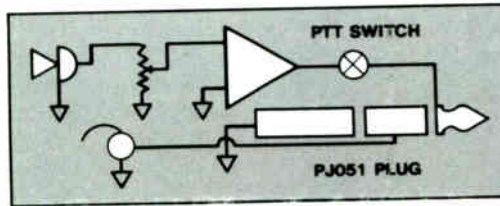
Soundmaster software is supported by a color-coded keyboard and a custom, 3-port, RS-232 communications board that installs in a PC expansion slot. Version 4 supports 16 or more Syncro interfaces. The program consists of three sections, or displays: Controller (the main user interface, with status and event info and transport controls), Edit List (2550 event storage in RAM, real time "hands-free" auto-assembly), and Set-Up (variable system parameters, reaction and record-in trim, pre-roll, relay closures).

In a paper Predovich presented at the 1985 SMPTE conference, he noted the great importance they placed on incorporating "traditional, manual film sound editing techniques into a computerized approach that's familiar and

—CONTINUED ON PAGE 231

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# AUDIO MEETS VIDEO AT VISUAL EYES

by Jeff Burger

In today's fast-paced production world, the marriage of visual images and audio for cable, MTV and home video is big business. Santa Monica's Visual Eyes is one offspring of that union and another real-life marriage—that of producer Alan Kozlowski and director Sandra Hay. Together with partner Doug Rosen, the team has spawned a first-class production and post-production facility featuring one of the most sophisticated component editing systems in the Los Angeles area. In two short years, the trio has attracted such heavy-hitting clients as

Karl-Lorimar, Warner Bros., Motown Records, HBO, Lionel Richie and Windham Hill. Kozlowski feels that the blend of their background is what makes Visual Eyes different. "What we've tried to do is combine the best of our experiences from the visual medium and the audio medium to give a product that is the best of both worlds," he says.

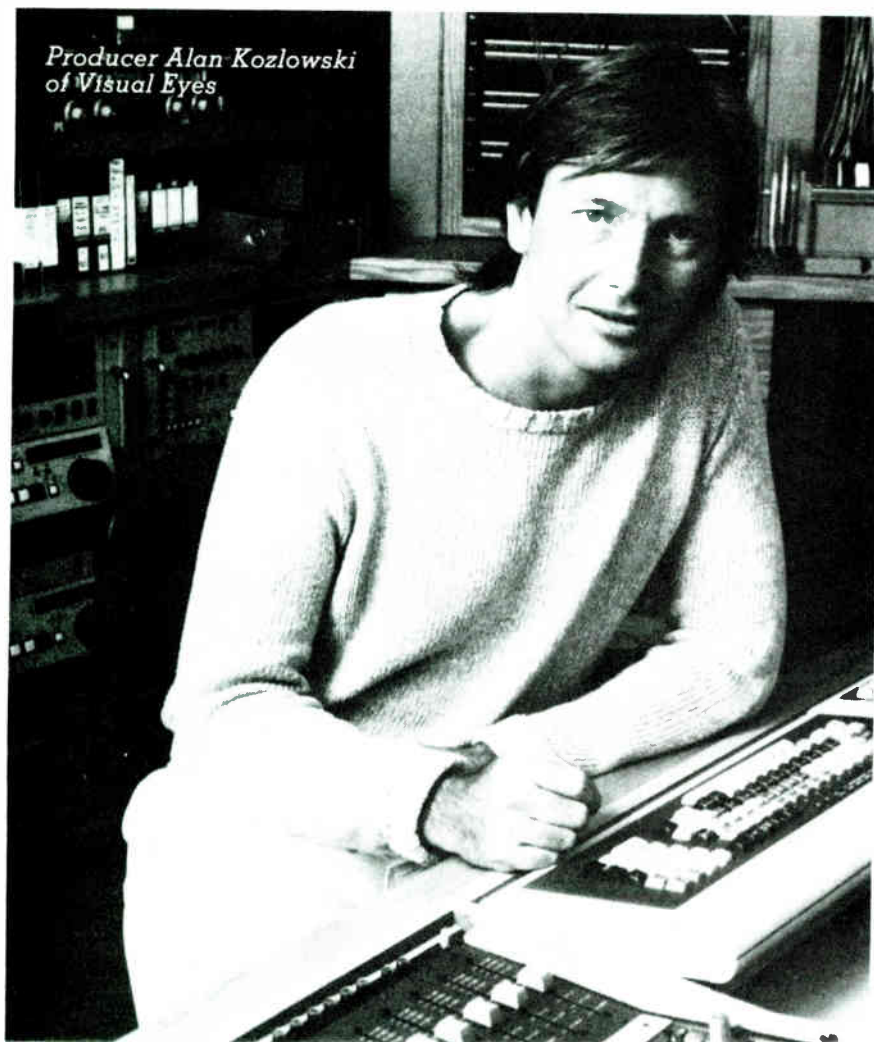
The firm owes much of its success to strong musical sensibilities. After seriously studying classical guitar, Kozlowski disciplined himself in the technologies involved in producing multi-image audio/visual extravaganzas. Meanwhile, Hay began playing

piano at age five before training internationally as a dancer and choreographer. Soon, she found herself integrating dance with musicians and multimedia imagery and became aware that her choreographic sensibilities made an ideal background for directing and production. The two met while working on the kickoff for Disneyland's Space Mountain ride, and became an inseparable team at Quantum Leap, a multimedia firm Kozlowski founded in 1979.

After doing freelance productions together, they bought one of the first Betacam systems when Ravi Shankar asked them to go to India to do a project with him. Returning with 30 edit hours of footage and nowhere to edit it but in costly studios, Kozlowski and Hay began piecing together an off-line editing system in the guest bedroom in their condominium. Hay recalls, "Soon, there was just too much going on out of our little condo, so we decided to get an A-B roll editing system and studio space. We were here for a week when we had lunch with Doug Rosen, who said he'd really like to be partners. He had this client, Karl-Lorimar, who was willing to give us a contract to do home video and we had one contract with Motown to do a music video for them. At that point we decided to put in a little bit more elaborate editing system and the next thing we knew, we had this full-blown, state-of-the-art facility here that had a life of its own!"

The original 3/4-inch video system has become the cuts-only off-line room; the facility's new on-line room was designed by Bret Thoeny of Boto Design and includes Westlake Audio monitors. While footage is shot on Betacam, everything is edited to one-inch video on a Sony BVH 2800 which has two channels of PCM-encoded audio in addition to the two standard longitudinal audio tracks, SMPTE and video. A TAC Scorpion board and Lexicon digital reverb are used to mix multi-track audio from the 16-track Tascam 85-16 (with dbx) to Sony PCM F1, which has been modified to accept external video sync. "If you make a recording in the field on a VHS or Beta player," Kozlowski explains, "and you don't send it external video sync, it's just running on its own internal reference. It won't always play back the same; the audio can drift." All the audio and video machines are then synchronized via the Grass Valley ISC 41 edit controller and component video switcher.

The move toward Betacam and component technology in the industry is no great mystery. Unlike the NTSC composite video standard developed in the '40s, luminance is recorded on





*Director Sandra Hay of Visual Eyes*

one track of video and two different color signals are multiplexed together on two other video tracks, providing much more control over the signal. The rest of the video switching and effects gear is designed specifically for that format. The final switcher output is encoded to the NTSC standard as it hits the mastering machine, so everything stays in the highest possible quality until the final step.

Finding a niche has contributed greatly to the success of Visual Eyes. "We're not trying to compete with some place that has a full, one-inch oriented multi-million dollar facility. We all deliver on one-inch. It's how you get there," Kozlowski says. "We chose a market of the highest quality in a certain range, which is the Beta-cam component technology for video. That allowed us to afford a facility that turns out a broadcast quality product but is affordable enough that you can go in for long periods of time, experiment and come out with something that's more creative because you're not on the clock."

Approximately half of the firm's income is generated from in-house productions and the other half from renting out equipment and post-production services to outside projects. Music videos are a natural for Visual Eye's talents. "We will sketch out a concept



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and budget together, strike the deal, shoot it and edit it," Kozlowski says. "It can leave here and go directly to MTV because we do broadcast-quality format." MTV requires one-inch, with a separate PCM audio or half-inch 4-track audio with time code.

Kozlowski works hard to preserve the highest quality audio. "These days you can get a PCM digital copy of the audio master and lay that directly onto the one-inch tape," he says. For instance, we did *Windham Hill in Concert* that we shot for Pioneer Laser Disc and Paramount Home Video. We recorded it all 24-track digital on Sony 3324 machines, mixed it down digitally to a digital master that went directly onto laser disc. So the sound never touched analog the whole way. Then we also made a digital layback onto the one-inch tape that went to the home video company where they made their copies. So it stayed digital all the way until it went to VHS and then it was VHS Hi-Fi, so it was still very high quality audio tape in a home video product."

The Windham Hill project was a concert-style video featuring Windham Hill artists Michael Hedges, William Ackerman, Scott Cossu and Shadowfax. (Visual Eyes co-produced with director Stanley Dorfman.) "We did wraparound material that we shot at one of the concerts at Red Rocks Amphitheater, Colorado," Kozlowski recalls, "then shot the bulk of it as a four-camera Betacam shoot at SIR. We built sets, lit it and staged a concert for these artists that we shot over a two-day period with an invited audience. We brought in a Record Plant truck and recorded it all on 24-track digital and mixed it at Digital Magnetics."

Shooting the concerts provided the opportunity to pull out a few technotricks. "We were shooting multi-camera Betacam and syncing time code to get all the cameras together to give you all four 'isos,' as opposed to taking a one-inch truck in there where you could do a live cut maybe with a couple of 'isos.' All four cameras played with click track on the Shadowfax stuff so we could stay in sync and do multiple passes. Here in post-production we can sync-roll in the on-line bay. We can play back all four cameras at a time and do a real-time edit to the music, or go back at any point and overdub the visuals and put in close-ups from another tape."

The Karl-Lorimar exercise videos featuring Richard Simmons also brought up some new requirements in integrating music and video. For starters, the talent got the timing from a click track instead of music during the shoot. "It's actually a thumper," Kozlowski explains. "What we do is

shoot it with a very low frequency boom box so that you can roll that out of the final mix. They can keep the tempo, and at the same time we record a digital PCM copy of the dialog and the click track. Then it goes back to the composer on 3/4-inch cassette with the visual, click and the SMPTE tracks. The music is composed on a Macintosh using MIDI and they can deliver back a PCM digital audio copy with the music and the same time code all

*Alan Kozlowski—  
"What we've tried to do is combine the best of our experiences from the visual medium and the audio medium to give a product that is the best of both worlds."*

the way through. When it comes back here, it drops right in and mixes with the dialog."

This process has not been without a few problems. "MIDI can be 144 beats or 145 beats," Kozlowski continues. "You need more fine tuning than that over a period of time, or it'll start drifting. We ended up having to VSO some stuff here, so that the people aren't spastic and clapping or stepping off the beat." Hay adds, "These exercise tapes are 40 to 45 minutes long. So what begins to happen is that by having the thumper there, the exercisers



are in sync with the thumper, but we're doing multiple takes. What happens is we begin to see things drifting and we don't know where it's drifting. Then we find out it's inherent in the music track."

One of Visual Eyes' latest credits is the HBO special *Come On Up!—The Making of Lionel Richie's 'Dancing on the Ceiling'*, documenting the entire process from pre-production to the building of the sets to the actual shoot. "We tried to make it different than the standard, boring 'Making Of's' that you see on TV," Kozlowski says. "Everything's cut to music with fast paced visuals. We shot for 11 days total, 14 hours a day. We set up a time-lapse camera at the top of the sound stage to shoot one frame a minute for the entire 11 days. Then we shot a lot behind the scenes. We didn't try to make it sound like we were making a music video. When we cut the basic track of the music, we took their live mix and used that as our music bed."

A full complement of shotgun mics, radio mics and the like were employed to capture live sounds, such as dialog. Back in post-production, the whole half-hour was cut to a PCM copy of the rhythm track without the vocals. "We built all the tracks directly onto the 16-track here," Kozlowski recalls. "So we dumped the video onto the one-inch machine and dumped the audio tracks directly onto the 16-track audio machine, slaving them so they ran together. Then we went back later and mixed those tracks down, so it was first generation audio." Additional tracks of sound effects from the Sound Ideas CD library were built up to embellish booms, bangs, applause and claps. The CD player can be fired at a given SMPTE point from one of 16 general purpose switch closures available on the Grass Valley switcher.

Especially given their musical backgrounds, Kozlowski and Hay are excited to see new technology bringing high-quality audio and video closer together. This summer they plan to replace video mastering with one of the first Sony 19-millimeter component digital video machines, featuring four PCM audio tracks which allow unlimited digital track bouncing. "Audio for video used to be a throwaway," comments Kozlowski. "Visual music is coming along that expects that high-quality audio. You can really start creating the synthesized audio tracks that go directly with the video and because they are all in the computer, you can massage one against the other—create the audio and create the visuals that go along with it. The fixed guidelines between the two are getting meshed together and that's what we designed this studio for." ■

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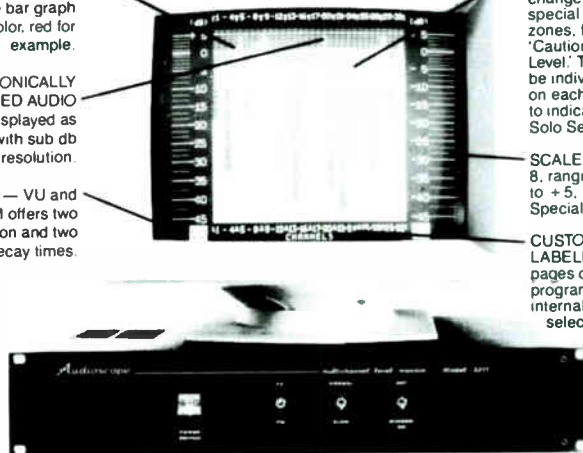
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# C·O·M·P·O·N·E·N·T V·I·D·E·O

## AN OVERVIEW

**W**ith nearly 30,000 Betacam recorders and players in use around the world, the concept of component production and post-production is growing in importance. Yet many video and film professionals are unclear about the technical workings of component video, and its application to their projects. What is clear is that component video is inherently technically superior to traditional composite, or encoded video; that most producers welcome the opportunity to remain in their chosen shooting format and avoid the hassles of interformat editing; that for projects involving computer generated graphics, large screen projection, or tape-to-film there is simply no alternative; and that there are considerable cost advantages compared to one-inch to one-inch editing.

Component video is really not that complex or difficult to understand. In fact, it's much simpler than composite

by Jim Farney

**Component video is really not that complex or difficult to understand. In fact, it's much simpler than composite video.**

video. Color television is based on additive color, which means that by adding together different combinations of the three primary colors red, green, and blue (RGB), the entire spectrum of colors including black and white can be created. These three signals, RGB or the Betacam/SMPTE equivalent Y, R-Y, B-Y signals, are the basic components that make up the television signal. Traditionally, these component signals have been combined into one signal for broadcast. And it's here, in this encoding process for broadcast, that the quality of the television image goes downhill fast. To better understand what happens, let's take a trip through a camera.

Most broadcast-quality cameras create the television image by dividing the incoming light with a prism into its component parts, the primary colors red, green, and blue. Each color is scanned by its own camera tube, generating three separate electronic signals that are processed, cleaned up,

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another full day. At this point, they are returned to the test bench for another complete checkout of all operating parameters and functions, at which time a test sheet is made, and included in the packing with the unit.

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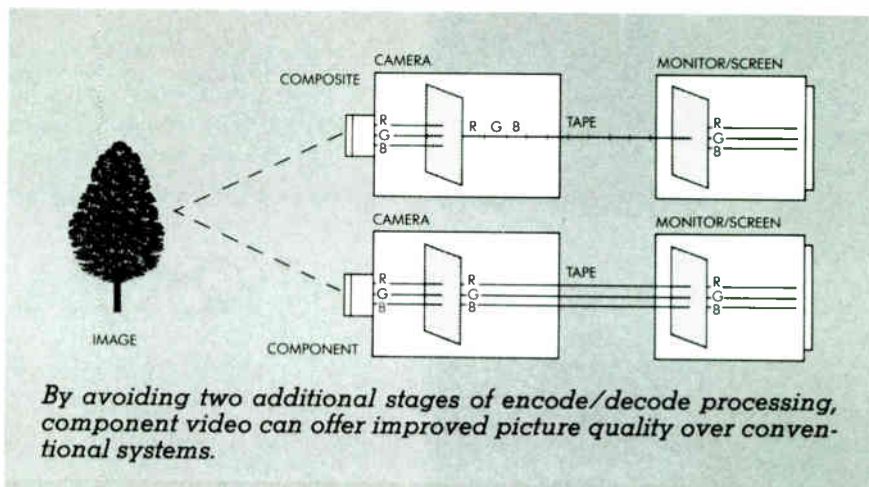
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## Modern digital devices just can't deal with the composite signal.



and enhanced. Up to this point, there is really no difference between traditional video and component video, but now the paths diverge. In the traditional process, the three component signals are combined into one composite color signal before the signal leaves the camera. This encoding process is necessary, for the image to conform to the USA broadcast standard—NTSC. Years ago when color TV was introduced, it was decided *not* to make black & white obsolete, so the color signals had to be piggybacked onto the existing B&W signal. This decision resulted in color TV images that had more electronic noise, less resolution, and plenty of interference between B&W and color that results in moire and all sorts of falsely colored images. Because both color and B&W information are recorded at some of the same frequencies, you have the classic problem of two things trying to be in the same place at the same time. Like two cars sharing the same space in an intersection, the resulting signal is a little crunched up and definitely not as attractive as it was before they were combined.

The Betacam half-inch format (not to be confused with existing consumer Beta) and the new higher performance/90-minute record time Betacam SP (Betacam-compatible) and M2 formats have opened up the possibilities of achieving the highest quality images (by sticking to the basic components) without the flaws that are added in the composite domain (3/4-inch, one-inch and 2-inch quad). Returning to our trip through the video camera, we see that Betacam bypasses the encoding process, and literally records three discrete signals that represent the original RGB outputs of the source. The recorded signals are free of the troublesome encoding artifacts that limit the sharpness and control over the color saturation. Field recording in these relatively new formats has

obvious technical advantages besides the convenience and economics of the smaller, lightweight equipment, and its reduced tape costs.

The advantages of editing in the component domain are tremendous. In a true component editing suite, every device accepts and manipulates the picture in the component form, preserving information and detail. In particular, one can achieve superior results in component editing when titling using either a character generator or a title camera (less crawl, especially on small letters or brightly colored characters), better computer graphics (more distinct images and less crawl on lines, boxes, etc.), excellent chroma keys from tape (essentially the same as live RGB camera keying), and a virtually transparent interface to digital video effects and character generators. Contrast that with the traditional composite editing process, where every time the picture passes through a time base corrector, or a special effects device, or a color corrector, the signal is decoded (trying to reconstruct the original components from the composite signal) and re-encoded. Why? Because modern digital devices just can't deal with the composite signal. The artifacts that accompany the repeated encoding and decoding have a cumulative effect that moves the images further and further from their component beginnings, yielding a severely compromised picture.

Since it's fair to say that it's still largely a composite world out there, why are so many people turning to component production and post-production? For most people it falls into one of three categories: 1) simple economics; 2) the desire to remain in their shooting format and avoid the hassles of interformat editing; or 3) because their project can take direct advantage of the improved quality of component video.

For many producers, the first attrac-

tion of component editing is the price/performance ratio. For considerably less money than one-inch to one-inch editing, comparable results can be achieved. The savings come partly from the reduced cost of the VTRs and tape stock, and partly from the speed advantages of a cassette-based system versus an open reel system. Most full-featured component suites charge about 60 to 75% of a comparably equipped one-inch suite. Many producers are already shooting in Betacam or Betacam SP, and they prefer to stick with the format, avoiding the operational problems that result during sophisticated edits in an interformat suite. Building complicated effects often means building in stages by creating tapes (submasters) with as much of the effect as can be generated in one pass. These submasters are then played back and additional elements added to complete the effect. This process can suddenly take on unnecessary complexity in interformat editing when the machine recording the submasters is a different format than the playback machines. Usually, this means an additional one-inch playback machine must be rented, further increasing the cost.

Component production really comes into its own when the video never has to be encoded into NTSC (in at least one of its intended applications), and it turns out that there is quite a number of these kinds of projects. Among them: a) tape-to-film, b) large screen projection, c) computer graphics, d) hi-tech companies whose products normally operate in RGB, and e) those projects intended for foreign distribution.

Many corporate/industrial projects are intended to be viewed by large audiences in group settings, and so must be projected in film or in video using a large screen projector. Both possibilities are well served by component video. Better film transfers are achieved from component video be-

cause no decoding is required. Image Transform, an acknowledged leader in the field of tape-to-film, claims the quality of transfers using component video is superior to that which can be achieved from any current broadcast standard. The same applies to large screen projection, where component video feed directly to the RGB inputs of the projector provides more resolution and richer colors without encoding artifacts. This is especially important since large screens tend to magnify any visible defects.

Computer graphics are another natural for component video. Like a color camera, computer graphics are generated by creating three separate images—red, green and blue. Anyone who has watched a graphic artist work with an RGB display knows what the device is inherently capable of. Many hi-tech firms also employ RGB graphics to provide CAD/CAM (computer aided design/computer aided manufacturing) or for medical imaging and diagnostic aids. For these firms, component post-production is a godsend, for it allows them to create a fully edited program for trade shows and exhibitions while retaining the image quality necessary for their high resolution displays.

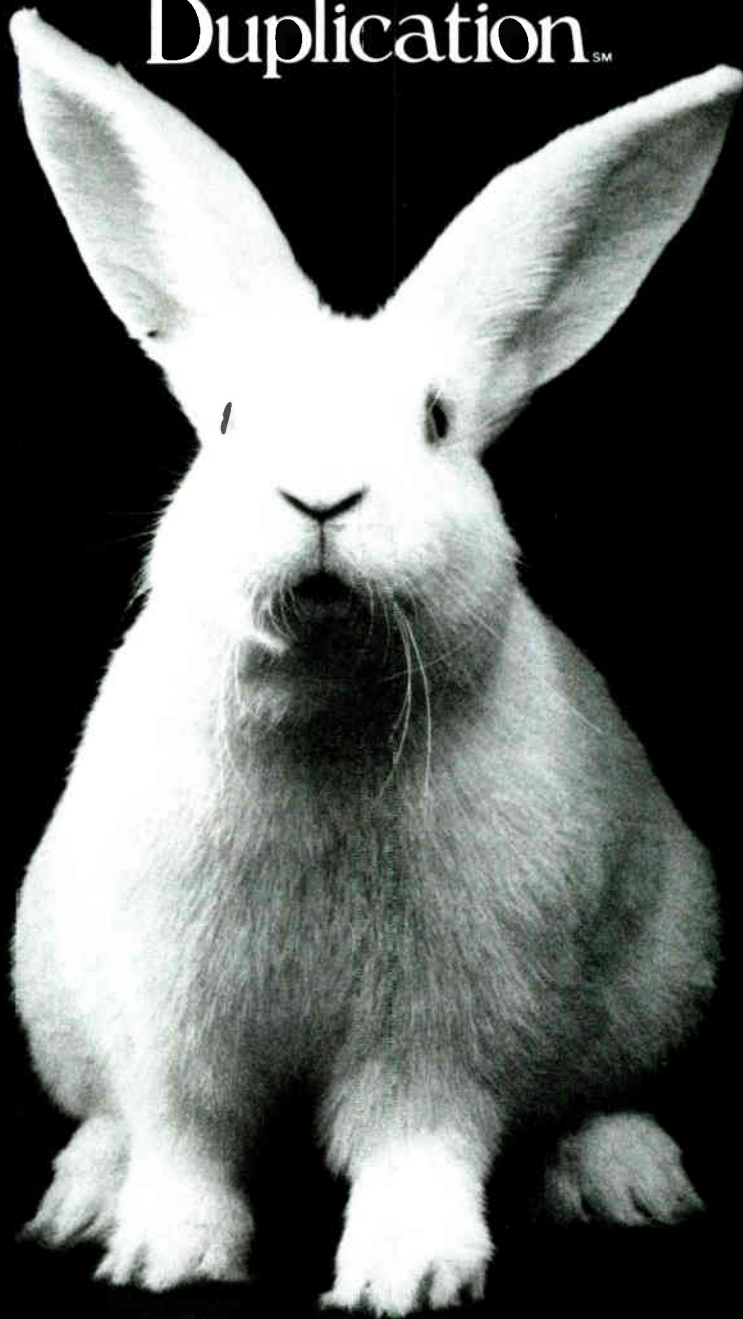
Component video is also favored by those whose material is intended for foreign distribution. Transfers to PAL and SECAM are of much higher quality when the source material has never been encoded into NTSC. Because many programs have multiple distribution requirements (many of which remain undetermined when production begins), component video is an inherently safer option because of its versatility.

Now that the component recording formats are coming of age with improvements like Betacam SP (which enhances picture and sound quality, improves multi-generational capability, and increases record time to 90 minutes per tape while retaining complete compatibility with Betacam), it is easy to see why even a network like NBC, which must broadcast in NTSC, has chosen to switch to an entirely component system. For producers, it is an exciting time when a superior product can be had for less money. And that is the promise of component video. ■

...

**Jim Farney is a partner in and director of post-production for Pacific Video Resources. The San Francisco based company has been operating a total component editing suite since 1985.**

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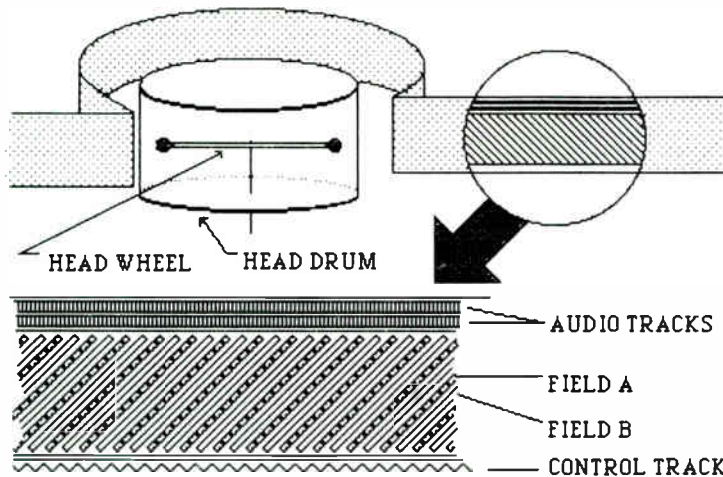
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# VIDEO TECH:

## A Brief History

by Oliver Masciarotte



*Helical scan video path and tape format.*

rooms, it seems as though many audio engineers are becoming increasingly involved with sound for pictures, yet have little knowledge of video tape recorders. This article, far from an exhaustive treatment of the subject, talks about the development of video recording and tries to give an inkling of the technology involved.

In the early 1950s, broadcasters had problems contending with the three-hour time difference between the East and West Coast. In 1956, television came of age with the introduction of a practical electronic recorder for the then-new system of television, the rotary head quadruplex or "quad" format video tape recorder (VTR). Prior to the introduction of the quad VTR, broadcasters relied on kinescope recorders; film chains that converted the video information into a motion picture record of the electronic event. Quad VTRs, huge beasts still doing time in machine rooms today, were named for their four video heads all spinning at 14,400 rpm perpendicular to the direction of tape travel. The purpose of employing moving read/write heads was that engineers needed a way

—CONTINUED ON PAGE 111

I grew up with Johnny Quest and Supercar. That is, I was born and raised with television as part of my existence. Today, satellites and cablecasting services deliver a plethora of high quality signal to our jaded eyes and ears, a far different situation in some ways from 20

years ago, when color television was still something of a novelty. To many audio engineers, video recorders are something you use to watch *Late Night with David Letterman* on Saturday morning.

With video equipment becoming commonplace in audio control

### The Type D-1 Component Digital Video Recorder

There exist several digital video-only recorders and analog video/digital audio recorders but only one machine standard that offers digital component video with digital audio. The type D-1 format proposes a recorder that combines video digitally recorded in color-difference component form (Y, R-Y, B-Y) with four tracks of AES/EBU standard digital audio. The rotary head writes both audio and video samples to tape. The 20-bit audio information, with a data rate exceeding three megabits per second, is re-

corded with 100% redundancy; that is, it's recorded twice in two different places on the tape to ensure data recovery and ease of editing.

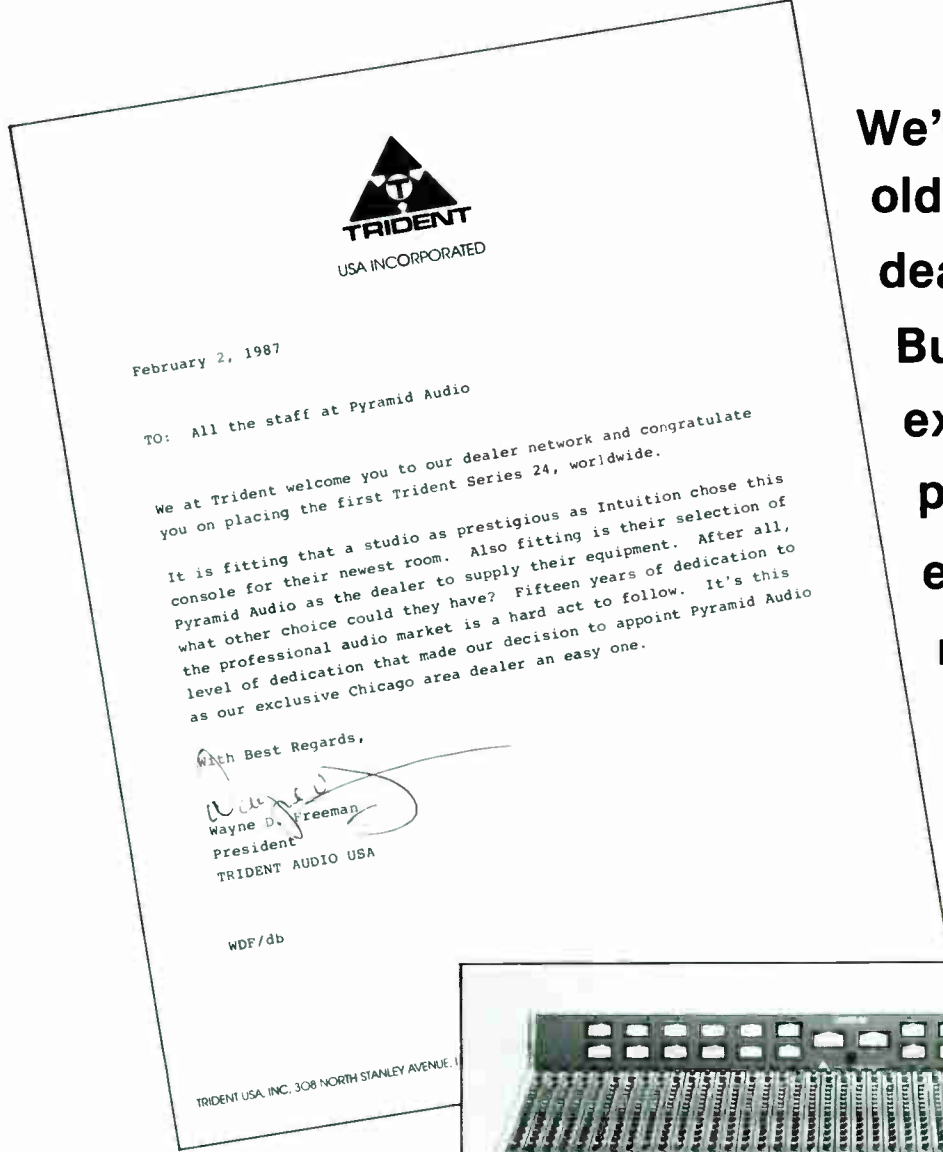
Longitudinal tracks at 11.2 ips are also present; a control track and low-fi audio track which can provide a reference when the transport is in fast shuttle mode. A dual channel SMPTE time code track, usable from .1 to 50X play speed, is also provided. When editing, you could have one time code channel carrying the discontinuous code

—CONTINUED ON PAGE 110

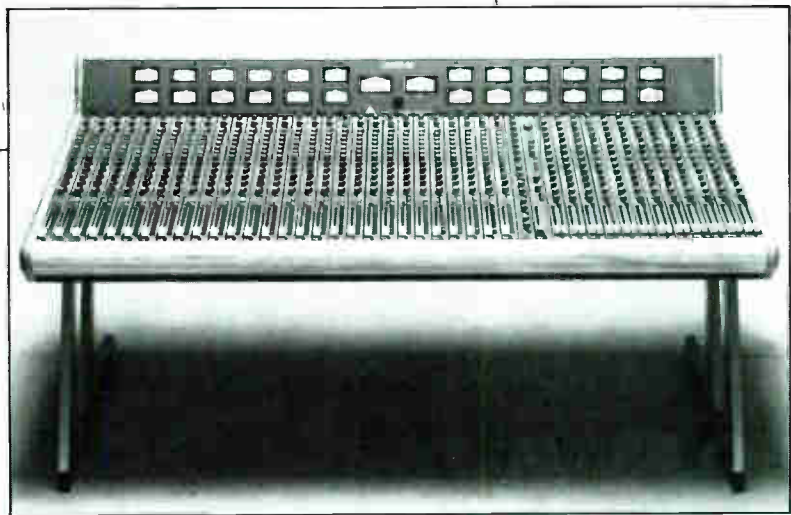


*Sony DVR-1000, a D-1 format digital videotape recorder.*

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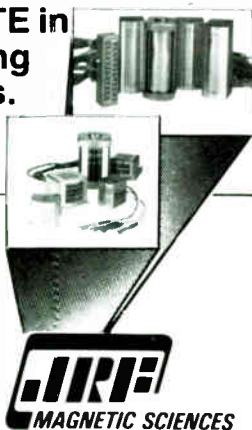
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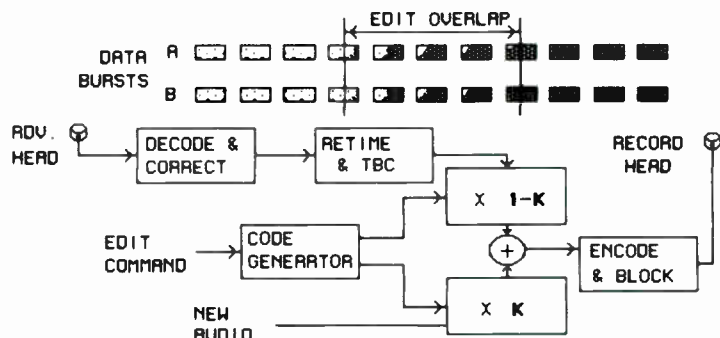
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Data flow for programmable cross fades in the D-1 format.

—FROM PAGE 108, DIGITAL VIDEO

from each inserted segment, while the other channel has continuous drop-frame code for your dumb synchronizer to read. The tape itself is safely locked up in a cassette, the largest size allowing for more than 76 minutes of play time. So as not to ruffle anyone's feathers, D-1 decks are designed to handle NTSC format signals as well as PAL and SECAM formats, which means you're covered anywhere you go.

Let's look at the audio data characteristics. The input and output signals, as per AES/EBU recommendations, are serial digital streams carrying two audio signals. Each signal has its own status and user data embedded in it. The audio interface employs biphasic modulation of a balanced RS-422 circuit at 3.072 Mbit/sec. This corresponds to two 24-bit/48kHz audio signals, each with a 48-kbit/sec status channel and user bit channel. Parity, validity, and synchronization bits are included.

Incoming data, either digital data encoded elsewhere or analog information digitized by converters inside the machine, is decoded into its constituent parts and stored for additional processing. Once the data is decoded and demultiplexed, it is formatted and routed to a buffer memory. Formatting consists of rounding the 24-bit sample (the audio portion can consist of up to 20 bits), deletion of parity, validity, user or status bits and assembly into data blocks equivalent to a recording track. The block has a length of 318 to 324 samples, depending on the frequency that is being used for synchronization. Control data words are generated and inserted into the block. These words concern the location of block boundaries for status and user data, audio sample count, word length in the current block, pre-emphasis, and edit overlap control. Finally the data is divided into 8-bit words and organ-

ized into a 60 x 8 matrix for the error correction encoder. To output data, the processing is performed in pretty much reverse order. The fifo and clock act as a TBC to output data at a constant rate, free of timing errors. Due to error detection, interleaving, and spatial redundancy, the audio represents but 2% of the total information, yet has a final error rate about 100 times better than the video.

A great deal of thought has been given to the functional aspects of the D-1 format. Because of the clever formatting of data to tape, with a hefty preamble or "edit gap" at the head of each inner code block, editing can be performed in the machine as if it were a normal audio recorder. A butt splice of both identical data bursts, with a resolution of 6.6 msec, is the simplest form of electronic edit possible. The edited track might play back with a burp at the edit point due to the sharp transition between data segments. An alternative approach, with identical resolution, would be to replace first one data burst, then the other. This approach is easy to implement and provides for a transition between old and new data. With the addition of an extra set of heads, maybe in a non-portable model, fancy read/modify/write operations are possible providing for programmable cross-fades.

Today, typical video houses own mostly analog equipment with digital processing used for special effects and temporary storage on hard disk. In an attempt to provide an orderly and cost-effective transition from analog to all-digital plants, some manufacturers are supporting a digital composite format for recorders and processors. This is seen as an interim solution to the problem of huge capital outlays for new digital component equipment that is incompatible with existing gear. The market is left to decide the fate of all the new boxes.



of writing the very short wavelengths that recording video signals entails. Audio tape recording technology with fixed heads was originally tried as a basis for video recording but the machinery was not up to the task of recording signals with a bandwidth of 4 Mhz. Not unlike the cars of the '50s, I guess the concept was "faster is better." Thirty ips ATRs are real creepers when compared to the experimental 360 ips fixed head transports that were cooked up around mid-decade to cope with the bandwidth problem. Adding insult to injury was the fact that conventional transports, when jacked up to very high speeds, also exhibited problems with excessive jitter in the time domain.

Once the lab boys came up with moving heads to achieve a reasonable tape to head speed (close to 1500 ips), the next problem to solve became amplitude variations due to tape path and head contact instability. The solution was to employ amplitude independent encoding; researchers chose to frequency modulate the video information prior to laying it on tape. Gyro-

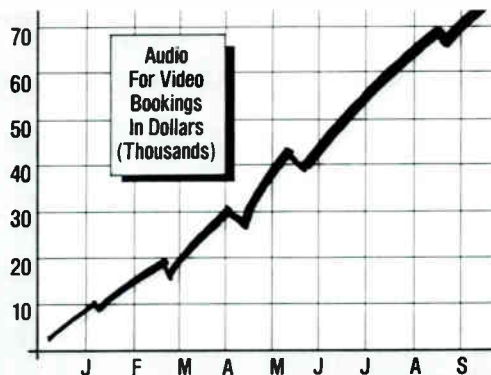
### Thirty ips ATRs are real creepers compared to the experimental 360 ips video transports of the mid-1950s.

scopic inertia of the rotating heads helped smooth out time fluctuations as well.

The advances made with the early video machines are still with us today. Your consumer VTR uses FM'd luminance or brightness signals (the black and white part of a color TV image, referred to as "Y") recorded with spinning heads but the tape path is different from those bygone days. Unlike quad decks, modern machines wrap the tape around a cylinder, the drum, in which the head assembly lives. This creates a helical tape path and allows one complete video field to be recorded as a continuous diagonal track, rather than the discontinuous fractions of a field that

a quad machine's perpendicular head wheel produces. The invention of helical scan VTRs, as they are called, made for simpler, smaller, less costly machines that, with the help of co-evolving analog and digital signal processing technology, eventually supplanted quad format recorders in both broadcast and consumer applications.

The video heads and tape, at first a formidable engineering challenge, became less esoteric as materials science and mechanical engineering progressed. Alperm, sendust, and, later, conventional ferrite heads, evolved into the single-crystal ferrite head that is common today. The magnetic tape has had its share of attention as well. Because the size and shape of a magnetic particle is very important, it must be rigidly controlled. When specifically grown into a tiny "needle" shape, it allows for higher packing density, more uniform orientation in the coating and lower asperity noise. At first, iron oxide was used because it is chemically stable and inexpensive. But it doesn't exhibit the coercivity (only 250 to 400 Oe) necessary for high



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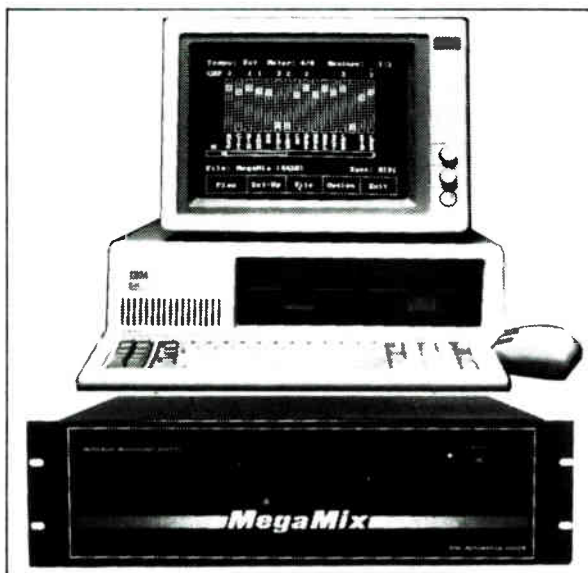
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density recording. Gamma ferric oxide and cobaltdoped ferric oxide formulations were later developed to overcome the inadequacies of plain old rust. Manufacturers currently provide coercivities of over 1000 Oe. Thus these two substances have become the mainstays of everyday magnetic media. In a search for ever higher density, metallic iron, a reactive substance, was tamed and current tape formulations have brought it full circle with evaporated metal tape (ME) being used in the new 8mm products.

Speaking of 8mm, consumer video has battled its way through the format wars of the 1970s where three incompatible formats vied for the consumer's currency to today's war between half-inch and 8mm. Of the three half-inch formats, one never took off worldwide and those remaining evolved into the current Hi-Fi formats still competing for market share. Whereas most video decks record the audio as a longitudinal stripe using a stationary head, "Hi-Fi" models frequency modulate the audio and write it with rotary heads on the same area as the video. This produces wide frequency response and because the rotary heads are servo controlled, also gives low wow and flutter. Destined for the home market, a two-head design is used in a basic Beta or VHS deck to reduce the drum diameter and thus, the overall size. These consumer machines, designed to be economical, rely on a scheme called azimuth recording. The idea is to increase packing density of data on tape by eliminating guard bands or unrecorded tape on either side of a track employed by older recorders so that two adjacent tracks wouldn't overlap. Azimuth recording allows tracks of video information to be written right next to each other without crosstalk. Because each head has its own azimuth setting, overlapping information will be greatly reduced in amplitude by the azimuth loss.

After seeing machines that were small and inexpensive, the professional community demanded something to replace the 3/4-inch format that would be easier to tote to Tierra del Fuego and provide a better picture. So, the Betacam and M-II formats were born. These machines are similar to a consumer version but the video is handled in its component parts rather than as a composite signal to preserve picture fidelity. Also pro half-inch ma-

chines have +4 audio in and out, and other features necessary for EFP (electronic field production). Digital technology, used in professional video for a while, has come to the consumer market in the form of the previously mentioned 8mm format. These decks provide stereo digital audio with 8-bit PCM encoding. Despite the departure from analog audio, the bandwidth is limited about 14kHz due to sampling rate; and dynamic range, with noise reduction, is about 85 dB.


Most video plants, like audio studios, are basically "seas" of analog systems with "islands" of digital processing scattered about. All that I've mentioned so far concerns analog signals in the NTSC format; recorder/reproducers whose input and output signals conform to the television standard for North America and Japan. Modern video systems rely more and more on digitally encoded signals, in either "component" or "composite" form. Analog composite video is what your consumer deck understands and it is a bandwidth-reduced, matrixed version of component video. Component video, as the name implies, consists of coded versions of the three colors added together by your eye to generate video images—red, green, and blue. In component signals these three channels (R, G, & B) stay essentially separate; thus the signal integrity is preserved and visual fidelity is maximized.

In many products, from time base correctors (TBCs) to special effects generators, analog information in either component or composite form is digitized to allow for unique processing or transmission. Digitizing video offers the same advantages as digitizing an analog audio signal; low noise and immunity to interference, negligible generation loss, and the ability to do complex signal processing unheard of in the analog domain. As John Watkinson of Ampex said, "The modern trend (in video) is toward extensive post-production where multi-generation work is essential. The adoption of digital techniques will essentially remove problems for the audio in VTRs as it did for audio-only recorders. Once the audio is in numeric form, wow, flutter and channel phase error can be eliminated by time base correction, crosstalk ceases to occur, and, provided a suitable error correction strategy is employed, the only degradation

## *Digitizing video offers the ability to do complex signal processing unheard of in the analog domain.*

will be due to quantizing." [Source: AES Preprint 2359(N8)]

The television industry is changing. As more emphasis is placed on quality audio, audio engineers will see an increase in the use of video equipment and techniques in their studio. As video evolves towards totally digital systems handling signals in excess of 1000 lines of resolution, audio professionals will increasingly be called on to provide their expertise. Audio engineers must stay abreast of video practices to remain competitive in a technology-sensitive discipline.




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**I**t was not long ago that the methods and materials of music, film, and video sound technicians were unique and mutually exclusive. Only within the last few years has the combination of time code and affordable computer power allowed us to interweave these different formats. Having worked first in film, then music, and most recently in video sound, I have a great appreciation for the technology which has brought together these art forms. The result has been an infusion of creativity and experimentation in areas which haven't seen technological change since the advent of magnetic recording and the invention of videotape.

In 1979, I was cutting mag tracks for a documentary on reggae entitled *Word, Sound and Power*. There I was

## FOCUSED AUDIO MEETS KELLY QUAN RESEARCH

by Jeff Roth

at the flatbed, laying in "slug" (filler between sounds), splicing in my cue, re-splicing, labeling the trim of sound with a felt-tip marker, logging the trim and storing it, winding through my reel of mag looking for the next cue, marking it with grease pencil, marking the slug, splicing to slug, etc., etc.... Working on a six-plate machine, I could hear only two tracks simultaneously with picture, and when one track was my location recording of that sweet reggae music, the playback wow and flutter made me cringe. Around that same time, some very astute engineers were pouring over papers and coming to an agreement, a standard for a time code which would assure them immortality—for this code's future users would be so thankful for it, they would refer to the

# THE EVOLUTION OF SYNCHRONIZER CONTROL

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*Author Jeff Roth at his Focused Audio studio in San Francisco.*



PHOTO: SHARON BEALS

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 Len Feldman—db magazine  
 September/October—1986

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code by the name of the distinguished body which created the standard: SMPTE.

Time code, originally designed for video editing, has had an impact on every aspect of the recording industry. We use time code not only to link audio and video machines, but also synthesizers, multi-image projection systems, automated mixing and lighting boards, and more. In my experience, the most exciting application of time code has been the synchronization of multi-track audio machines with video machines. This achievement has turned the recording studio, originally designed just for music, into an electronic flatbed for film and video soundtrack design. Virtually overnight, the ways and means of creating soundtracks for video and film have been radically altered and expanded. After the code came the hardware.

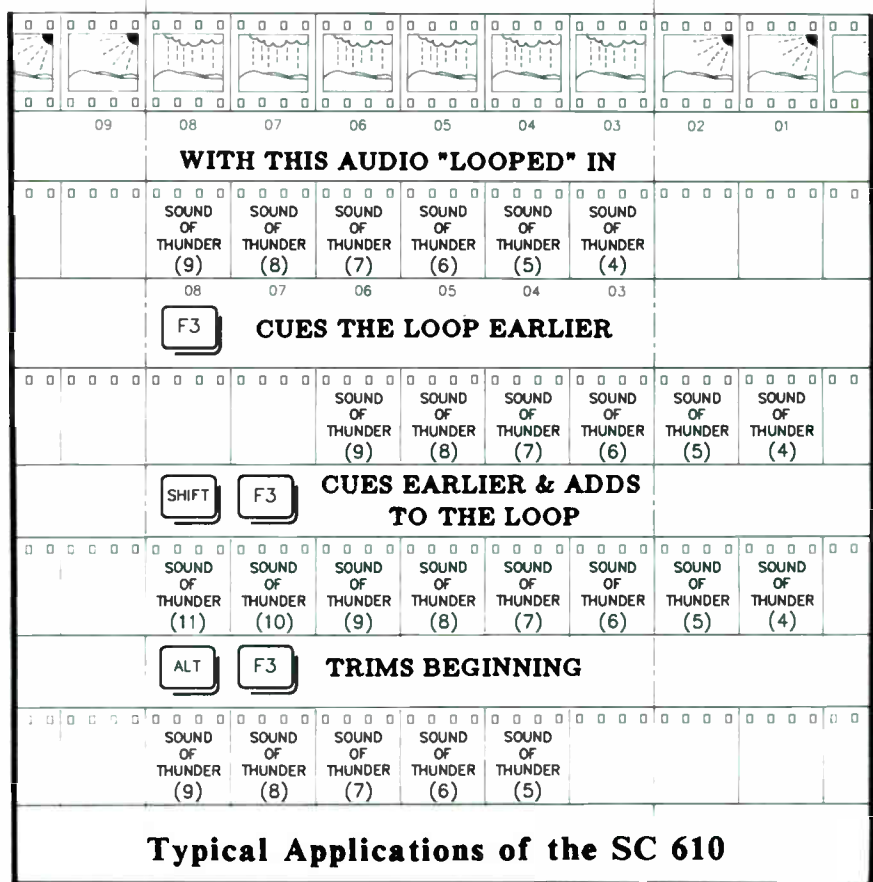
The first synchronizer I had experimented with was the BTX 4500, vintage 1979. I modified my Otari 8-track and cabled it to the BTX. This first generation box was not "fully intelligent"—it would synchronize tape machines within three seconds, but the slave machine was not capable of chasing to the master's location. It was therefore necessary to manually park both transports close to the same SMPTE number, and then start them simultaneously while hitting "enable" on the 4500. While this sounds laborious by today's standards, it seemed like a miracle then. Synchronization without sprocket holes, seven tracks of audio on one piece of tape—truly amazing. I later lightened my burden by getting the BTX 4600 keyboard to control the synchronizer. This unit gave "go to's," autolocated to any time code number, and allowed me to program record ins and outs and remotely "enable" the synchronizers. It remembered and executed 35 events, and triggered my half-track with a relay closure at a pre-programmed time code number; for that time, a very impressive box. Encouraged by the success of some very complex experiments, I bought another 4500, a BTX 4100 time code generator, BTX 4200 reader, and an Otari MTR-10.

Seduced by the combination of multi-track and image, Focused Audio moved into audio-for-video specialization. When it came time to upgrade the studio last year, I fell prey to the insidious "duck bonding syndrome." Like those little feathered creatures, I attached myself to the first things I saw as I emerged from the electronic audio editing egg. I bought an Otari MX-70 and a pair of BTX (now CIPHER Digital) Shadows.

As anyone who has picked up a

## Focused Audio's Film - Style USERKEYS™

### PICTURE THIS . . .



recent audio or video trade magazine knows, the synchronizer market is jumping right now. I held off buying the BTX-designed Softouch controller for my Shadow synchronizers at that time, even though I thought it was the most advanced design, because I was anxious to see some of the IBM-based software programs that were coming out for this purpose. A computer-based system obviously would allow for fantastic memory capabilities, the ability to load in and out various kinds of lists, and unlimited potential for growth and system evolution. While investigating some of these IBM-based programs, I was assisted by Dave VanHoy of Sound Genesis (now with AIC). Dave introduced me to Kelly Quan, the San Francisco-based software writer and designer of the Otari synchronizer for the MTR-90. The timing of this meeting was fortuitous for both of us—I needed a controller for my new system, and Kelly needed a working audio-for-video studio to test his software development.

A year ago, when I first saw a demo of Kelly's software program, it consisted of one screen and was not (at

that time) capable of all the functions of a Softouch. I made my decision to take a chance and invest in this early version of the software, and a computer to run it, based on what I saw in the early stages of development, and the vision of what the system could evolve into.

The first software version I received consisted of one color screen which displayed all synchronizer status modes, constant time code read-outs for the master transport and a chosen slave transport, and the running offset between the master and chosen slave. The display of the edit information was logical and easily understood. "Record ins" and "outs" refer to the master machine, in my case the VTR, and the multi-track, which in my setup is slave #1 and usually running at a zero offset with the master. "Mark in" and "mark out" allow you to set different parameters for the actual start and stop points of the master, which is helpful in ADR applications and music overdubbing when the talent needs additional lead-in time before the actual record point. The "cue in" and "cue out" registers refer to the time code locations on the

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designated source machine; in my application, slave #2 is the 2-track source machine. A third slave machine can be accommodated. While there were no memory storage capabilities in that version of the program, the simple fact that all the information I possibly could need was there simultaneously on a color monitor was a great aid, and an advance over most available systems.

The first new addition to the software came when I needed to assemble some non-time coded 1/4-inch tapes. Working with producer Claire Schoen on *Desde el Exilio* (Voices of Exile) for National Public Radio, our elements consisted of interviews, ambient sounds, and translation overlays. Since Ms. Schoen's tapes all were

ating speed took a quantum leap forward. A user key can record many individual key strokes and play them back as programmed when needed. Available in the user keys' memory are 3000 key strokes, which can be spread over an incredible 56 user keys in any combination. With this many keys available, it's possible to create a permanent key for rarely used functions. The first keys I programmed simply moved a cue forward or back by whatever value I put into the key-

*The Kelly Quan synchronizer program's screen display includes master, slave and offset status readouts, as well as record and mark in/out points.*

their own key assignments wherever they work.

The software version I received contained an EDL memory and a "scratch-pad" memory. The EDL memory was storable to floppy and could hold 99 edits. I got into the habit of hitting the "store loop" key and assigning a number to each edit, writing down that number on my cue sheet. During work on *Not All Parents are Straight*, Kevin White's documentary which will air nationally on PBS this year, we put this new feature to work. Composer Frank Harris continually gave us new orchestrations or remixes of his score, which he created on a Synclavier. To audition a new cue, we simply recalled the original edit number, entered the time code number of the new music mix into "cue in," and pressed "begin." Going back to change an edit was quick and painless.

As the software stands now, the EDL holds 999 edits, which can be printed out; a CMX EDL can be loaded in and the audio edits extracted; and there is a new screen for EDL list management which lets you insert, delete, move, or scroll through edits. You also have the ability to add a notation to each edit, which will be displayed on the normal screen and the EDL screen when you scroll to that particular edit number. The edit notes print out with the EDL list.

In response to complaints about not knowing the last EDL memory position available at any given time, Kelly devised an elegantly simple way to assign an EDL number to an edit. The same "enter" key used to write a user key now can be used to enter the edit information and an edit comment into the next open EDL slot—with one key stroke. This eliminates up to five key strokes previously necessary ("shift," "store loop," "0," "0," "1"). The EDL also can be used in an auto-assembly mode.

Two more memories available for storage and print-out are the "scratch-pad" and the "log." Right now, both are in use on *G-Rex*, a video feature by producers Rob Seares and Paul Bassis. With a running time of an hour and 40 minutes broken down into five reels, there are many cues and source tapes to access. Normally, this would call for a complex logging system; and still much time would be spent searching. The "log" consists of a screen with the running master time code displayed in the center. When you hit the carriage return key, the code freezes and allows a message to be typed in; hitting return again stores the time code number and message, and starts the code rolling again. This feature also can be used to log audio tapes and print out time code numbers and

prepared with leader when she came to Focused, I asked Kelly to incorporate a trigger start command into his software. Using the relay closure in one of the Shadows, and a new display which could be toggled on and off, the new version of the software would trigger any one of three slaves at a specific master time code number. It also included a programmable key for determining a trigger delay time, if one were necessary. With the time readout on the MTR-10, it is a simple task to back off the cue a second and mark the tape for accurate re-cueing. With one second stored in the trigger delay, the cued sound comes up right on target, without having to perform any time code calculations.

When user-programmable keys were added to the software, the oper-

board display. This seemingly simple task combined about a dozen keyboard strokes into one. While working with David Brown on *A Question of Power*, his documentary on the anti-nuclear movement which aired nationally on PBS in '86, I developed 12 user keys to perform specifically film-oriented adjustments to a particular cue. Since David's background was in film, this gave us a quick, accurate basis for conceptualizing how we intended to change the cue relative to picture. Focused engineer Marian Wallace drew a graphic chart, illustrating the effect of each user key as if the sound were being manipulated on a flatbed editing machine. In the current software version, the user keys are stored on floppy disk, so each operator can carry and load in





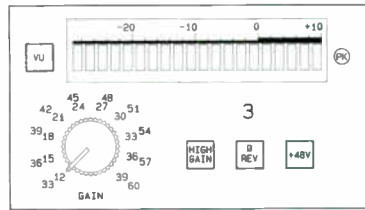
messages. When *G-Rex* director Ursi Reynolds flew in from Oregon to oversee the soundtrack building, we called up the "log" function and proceeded through the entire feature, entering time code location notes for music, fx, ADR, Foley, and mix notes. I then printed out hard copies for us. This "log" became the master list from which we compiled library effects, and it was our check list in building tracks and mixing.

The "scratchpad" stores time code numbers in memory locations 00 through 99. Once we compiled our music, narration, and effects on 1/4-inch reels with center-track time code, we logged them into the scratchpad memory. I always code each 1/4-inch reel with a different time code hour designation for easy identification, and include that number in the reel's computer ID name. Going through each reel one time, we grabbed the starting time code number of each cue with one key stroke, hit "store," and then the appropriate memory location. After this, we stored to floppy and printed out the log of each 1/4-inch tape, giving them names like "rex#1.scr," etc.... If we needed to access effect #32 of fx reel #3, I would simply put up the 1/4-inch tape, load the memory of that reel into the program, hit "recall," "32," and the 2-track parked at that effect. If we wanted to hear it in sync to picture, I hit "store," "cue in," and "begin." I no longer had to concern myself with the actual time code location of the sound, because the computer knew it. This is extremely helpful when using Focused's library of 1/4-inch tapes of common fx like "wind," "traffic," "exterior ambience," etc....

A computer virgin at the start of this collaboration, I found it exhilarating to witness the amount of raw computer power which can be harnessed for a very specific purpose. Kelly Quan's Audio Editing System puts this power to work, providing a sophisticated, flexible, yet extremely affordable system.

Technology has changed soundtrack production for film from a slow, labor-intensive activity into one that's fast and equipment-intensive. Reactions to this new way of working go to the extremes in both directions. The tactile experience of manipulating mag tracks, cutting away at the raw material like a sculpture... a stone cannot be duplicated in the realm of electronic audio editing. The aesthetic implications of this change in process have yet to be determined. For video soundtrack production, the implications are clear—the tools necessary for audio to fulfill its expanded role in the digital, hi-fi, laser age of consumer electronics are now available. ■

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# SOUND MIXING AT WGBH

## Quality on a Shoestring Budget

**N**ova, *Frontline*, and *American Playhouse* are among the award-winning PBS TV series produced at Boston's WGBH. Most shows in these series are mixed by Richard Bock.

by Neal Weinstock

"Anything that originates or is repackaged here," according to Bock, comes through his mixing room. That's given him responsibility for the sound in some of the consistently best productions on television—yet without a great many of the resources of his commercial competition.

The challenge of turning out high quality sound in these productions for PBS can be far more formidable than in commercial filmmaking. While Bock and his crew have a Neve console at their disposal, among other reliable equipment, the original recording they have to work with is constrained by budgets, occasionally uneven recording work, and by the vagaries of a new independent production system.

"In years past," says Bock, "all of these shows were produced by WGBH, at WGBH. Now that's changed; because of the way things are financed now, there are a lot of independent producers from within and outside of the Public Broadcasting System who are shooting *Nova* programs. Before, you could say we controlled the entire production. But in general, there's a certain level of competence people tend to have. There are special cases all the time, but there's been no major problem with technical quality, yet.

"The real problem," he continues, "is that what I get in here is often many generations removed from the original."

While making a silk sound out of an unprofessionally recorded *Nova* can be gratifying, once surmounted, Bock usually prefers a different sort of challenge. "*American Playhouse* offers the most interesting possibilities," he says.

He thinks particularly of the *Concealed Enemies* film presented in that series in 1984, which won him a national Emmy, or of *The Wide Net* and Horton Foote's *Courtship*,

which opened the 1987 season for the series in January and February.

"Dramas are in some ways easier," he says, "because there has been much more attention paid to the material every step of the way. But you can work art into it, as opposed to just trying to make it sound decent. The finished results are much more gratifying."

*The challenge of turning out high quality sound in productions for PBS can be far more formidable than in commercial filmmaking.*

For example, "The question came up the other day, in *The Wide Net*, about the level you play music at in a scene—assuming that the music has a source that's located visually. The music may be a part of the scene, but as the camera moves, maybe at the same level it begins to dominate. The level of the music alone, or when there's also dialog: should it change? And by how much? There have been a number of times that I've gone back into the track, even after apparently doing the mix to the editor's satisfaction, and made slight adjustments so that, in *The Wide Net*, for instance, if I lower the music level I get that and the dialog to complement each other. Of course, there are times that you want the music to overpower the scene. There can be some tricky judgement calls."

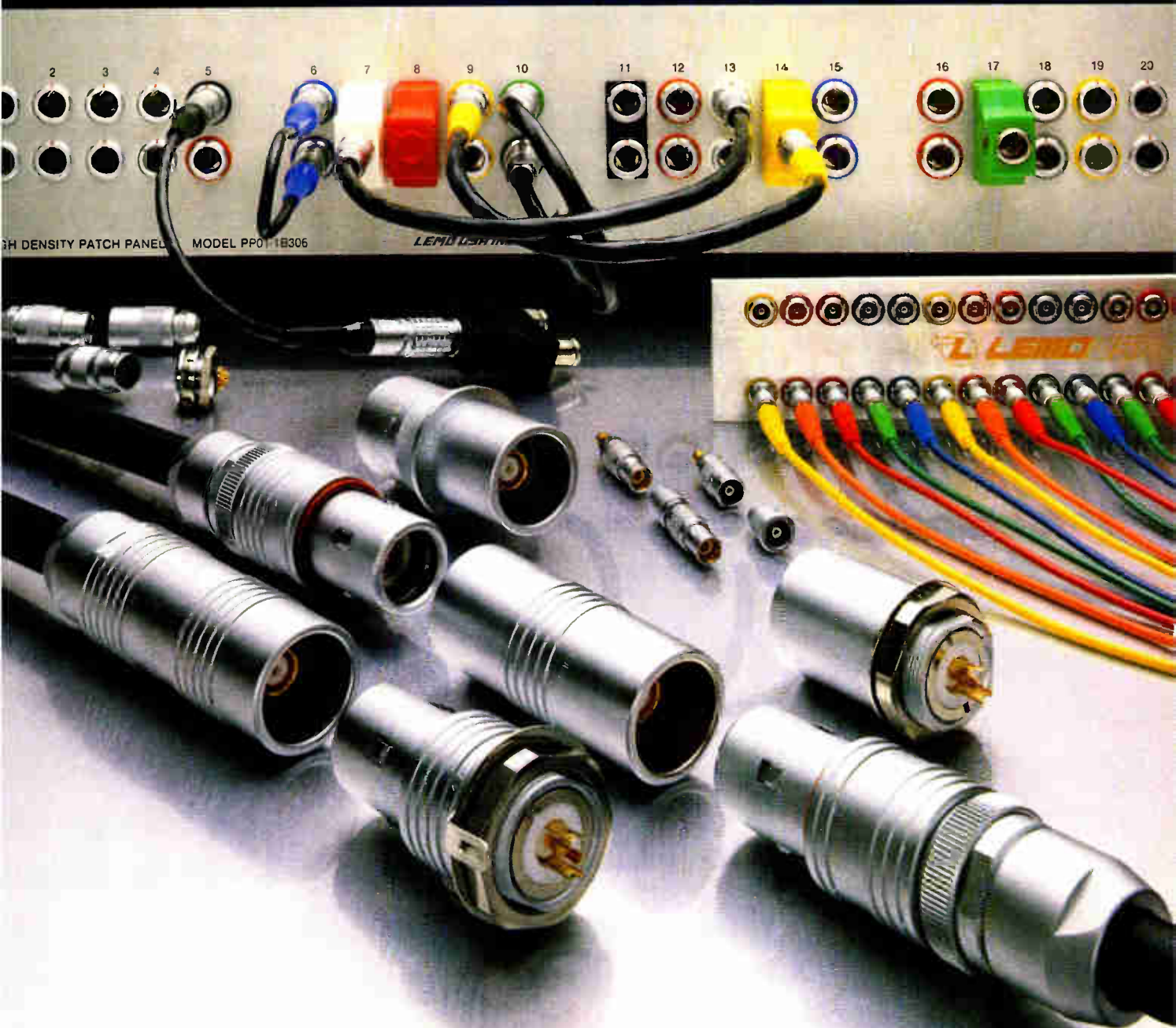
Bock says he usually works most directly with editors, that he seldom sees the films' directors there at the mix. "In my case, I'm not sure why that's worked out. I guess they're usually already into their next project. The editor may or may not be at the mix, but we talk at some point. Really, the editor knows the film best when I get to it. He's worked closely with the director, and then had his own input."

The *American Playhouse* series is essentially shot like a set of feature films. Each is separately and independently financed and produced, with different crews, etc. But they are extremely low budget productions. "The dialog in productions is usually recorded on location," says Bock. "They're only very rarely post-dubbed. It's all original field sound. So we have to finesse it in changing ambience around actors; matching the background sound of crickets chirping from shot to shot. Extensive ADR is simply not done; there are not mega-budgets to work with. We've had no problems though."

Bock came to Boston from California 17 years ago to go to the School of Social Work, "but I was always interested in film," he says. "I quit after one year and went to a film school in Boston that doesn't exist anymore." Eventually, he went to work for a small local company making slide-tape shows. "You know, it was the most rudimentary of equipment that I had to work with there, but it was very intriguing from the standpoint of putting together a good mix. Because in slide-tape, the sound mix determined the pacing of the show. The images may be what everybody thinks of first there, but the sound is really the backbone. It was pretty good training."

He began doing freelance field recording for WGBH in 1976, and has been behind the mixing board there since 1981. "I don't know if I want to go anywhere from here," he says. "This is a very good job. In the Boston area, there are certainly no other choices. I would have to go to New York, work in a house that does higher budget features. That might be nice, but totally aside from the fact that I like living in Boston, there are a lot of very interesting projects here. A *Nova* can be a lot more interesting than a high budget feature film. I learn a lot from that show. You know, you stop what you're doing for a second, you watch or listen to the footage, and suddenly, for a few minutes, it's not footage, it's very good film. That happens in a different way from all these very different shows we get involved in. I don't know if I'd have that just working on big features."

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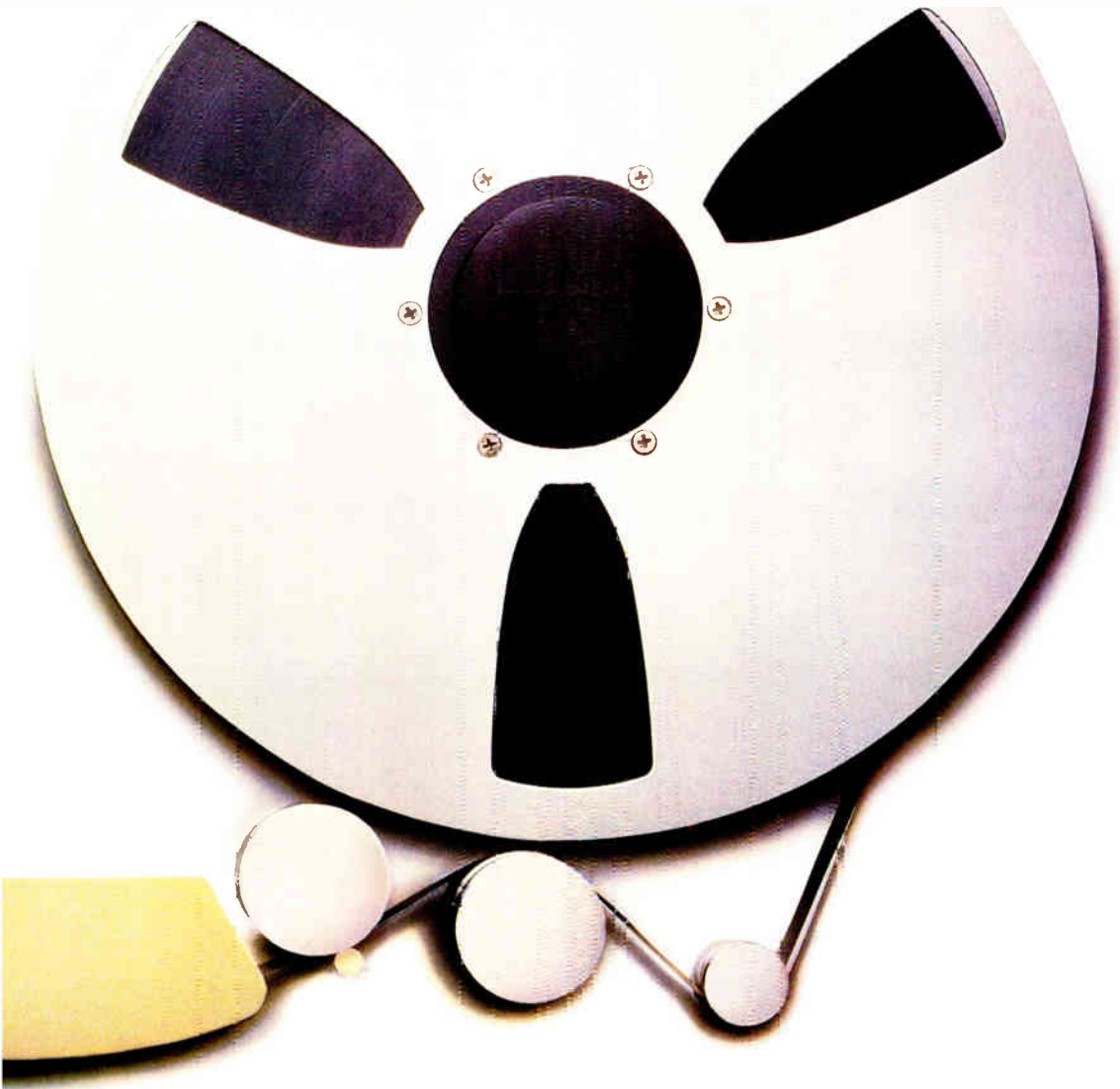
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*Jim Hodson  
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## CARTOON POST-PRODUCTION IN VIDEO

by Bill Koepnick

Unbeknownst to most people, months of preparation are necessary to put together the 22 minutes of a typical Saturday morning network cartoon show. Once a company finalizes a contract to produce 13 weekly episodes of a half-hour show, plots (treatments) are concocted, scripts written, storyboards drawn up, voice talent (actors) recorded, dialog edited, animation drawn cell-by-cell to fit the dialog, sound effects added to fit the action, music written and edited to underscore the action, the sound elements all mixed down to a final soundtrack, the sound and picture telecined to video tape, copies made, and finally (after the network's Bureau Standards and Practices approves the show) it is shown to the audience: mainly children between the ages of 4 and 12.

This process begins months before the air date. After the stories have been scripted (a major task in itself), the voices are recorded on 1/4-inch

audio tape in a typical recording studio with one or more actors reading their lines under the guidance of a dialog director who knows how the lines will relate to the action. These tapes are transferred to 35mm mag stock for the film sound editors. They split off the tracks of characters who need special processing (harmonizing, filtering, etc.), and add the right amount of "air" between characters' lines to give them the most natural conversational feel. 16mm copies of these audio tracks are sent with their associated storyboards to the animators, who are given 12 weeks to completely draw and film the story, using the dialog tracks as guides for lip movement.

Once the animation has been approved, timed, and edited (if necessary), the dialog editors match the original 35mm dialog tracks to the picture, shifting it to allow the action to occur where it must, and the music editor selects and edits music from the show's library of cues to enhance and underscore the picture.

At this point in the process, it is possible to either continue working in the film domain, or switch to video to complete the post-production. Why here? With present day technology, the older methods of sprocketed film mechanically married to sprocketed

audio still proves the most efficient for the tasks up to this point. Sound and picture elements are constantly in a state of flux, and slipping a single mag track in relation to another is much more simple than advancing or retarding one track of a multi-track audio tape in relation to its neighbors. All through the editing phases of the show, everything changes several times. Many companies prefer to remain in the film environment for the effects editing, the music editing, and the final dub (mix) of the show as well, leaving the inevitable transfer to video to the absolute last stage. This method is tried and true. It has worked well for decades, and continues to perform in a well-ordered, predictable manner. The only problem with continuing a project to its completion in the film medium is cost. Video sweetening, combined with other newer technologies in the area of sound sampling, can provide a more cost effective alternative to finishing a show in film. In order to make a comparison of the merits of the two systems, I'll briefly outline the methods employed by each.

Once the picture is "locked"—no more changes to be made—and the dialog edited to conform to the film, it takes two film sound editors an average of three days to cut effects for an action packed 22-minute show. This is done by making mag-to-mag copies of sounds from their library, and assembling them—in order and in sync—to the picture using a block (mechan-

ical) synchronizer, a Moviola, or a flatbed film editing machine. Where there are no sounds, sync is maintained by inserting non-coated stock (usually film out-takes) in the unit so that the linked sprockets pull the sound reel along with the picture. Where there are multiple or overlapping effects, extra units are created. In the final assembly of the sound, there may be five to 20 units of effects all being driven in sync on separate playback mag machines (feature films often use two to three times that number). Each unit is of equal length (in feet), and they all have a common starting point indicated by a short tone placed two

ed and then formatted for network broadcast.

In video post-production of a "locked" film reel, it is first necessary to transfer (telecine) the picture to video tape while simultaneously recording longitudinal time code on one of the audio (or time code) tracks. It is then general practice to re-transfer this video to a 3/4-inch video cassette "work print" while simultaneously transferring the "A" (main) dialog track, and the time code (through a regenerator) to both the video cassette and a 24-track audio tape machine. The work print will now be the video master, and the 24-track machine will be

of the video. Effects are then assembled one-by-one on tracks of the multi-track, using as many tracks as needed (extra multi-tracks can be slaved if necessary). This is the process used in the average video sweetening session.

The greatest time savings in effects pre-lay is accomplished by employing digital sampling devices for the storage and retrieval of sound effects. Most effective are the sampling keyboards now available. With them it is possible to virtually "play" a sound or sequence of sounds to picture, tailoring the effects in real time through the use of pitch wheels, filter modulation, and dynamic keyboard response. Sounds can be made more massive by playing a "chord" of the same sample. Samplers allow the instant reversal of a sound, or nearly instantaneous looping of an effect. It is easy to loop the end of an effect in ways that are not possible in any other medium—i.e. the start of a car engine which then settles into a steady idle. Just loop the idle, and it can go on forever.

#### A CASE IN POINT

I use this last method of effects pre-lay in my work. I built all of the effects for *The Real Ghostbusters* (ABC TV, Saturdays, 9 a.m.) with this system, so I will explain it in more detail in a real life situation.

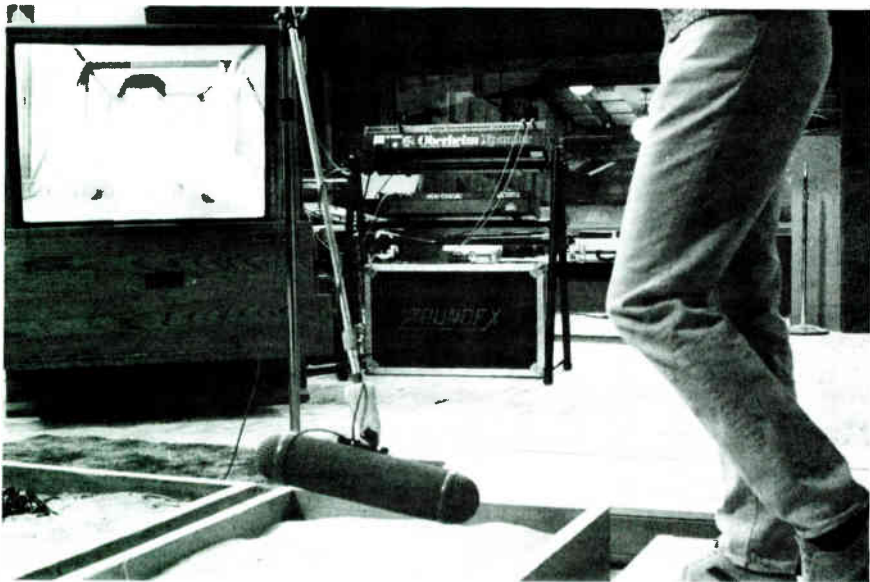
#### Friday Morning

The one-inch video transfer of the final edited version of the show arrives at 9 a.m. Jim Hodson, my engineering partner, and I are set up in Studio 1 at Devonshire Sound in North Hollywood. Dave Mancini, the owner of Devonshire, bought an Otari MTR-90, an Adams-Smith 2600 Synchronizer, and a Sony BVU 850 to put in this, his second largest room (of four). The RCA one-inch video machine is located in Studio 4 along with the time code readers and character generator. This room is linked via tie lines to Studio 1, our home for 13 weeks.

The first job is to "lay down" the show. This entails making a 3/4-inch video copy of the show with the picture, reference dialog, and time code from the one-inch video all being transferred. The time code is run through a regenerator to reshape and restore the code, and through a character generator to print the code in a small box visible in the upper left-hand corner of the picture. The reference dialog and regenerated time code are also copied of two tracks of the MTR-90 at the same time.

After the laydown is complete, we conform the original dialog tracks and the music to the multi-track from the 4-track tapes that DIC (the producers of the show) provides. The dialog tapes

*Bill Koepnick Foleying footsteps for character in "Ghostbusters."*



seconds prior to the first frame of picture.

As the film sound editor compiles the effects, he has the facility to listen to only a few of his effects tracks simultaneously. As a result, the effects are generally only placed in their proper position (relative to the picture), and the more subtle details of balancing levels and equalizing the sounds are left to the mixers on the dubbing (mixing) stage. Most effects are transferred from the library at 0 VU to provide the best signal to noise advantage. In the final mix of the soundtrack, the dubbing mixers are often required to make significant alterations to each sound's level and EQ in a pre-mix of the effects. This pre-mix is later readjusted when balanced against the dialog and music tracks. The final mix is made to a 3-stripe mag film (a 35mm film stock with three individual tracks of oxide side-by-side on the film's surface) also running in sprocketed sync to the picture. This 3-stripe is then transferred simultaneously with the picture to one-inch videotape which is then edit-

slaved to it using a synchronizer, which compares and matches the time codes of the two machines.

There are many methods of building effects in this medium. Some prefer to work in a manner not unlike film, where each effect is simply placed accurately in relation to the picture with no compensation for level or EQ. However, since it is possible to hear virtually all of the tracks you are assembling in relation to each other, many editors tailor the sound as much as possible while transferring it from the source to the multi-track. Fine tuning can still be done in the final mix.

The transfer of effects from the source to the 24-track can be accomplished in a number of ways as well. Again, it is possible to approximate the standard practices of film editing by copying a sound from your tape library to the multi-track. By using the event relays within the synchronizer to remotely start the playback of the source tape machine, you can accurately position the first modulation of the sound to the corresponding frame



have the separated dialog elements on individual tracks. The main "A" dialog is on track 1, and usually consists of most of the speaking lines of the main characters. Subsequent tracks are reserved for crowd "walla," voices to be effected (like monsters and ghosts), voices to be "futed" (as through a telephone), and any other unusual sounds not like those found on other tracks. There are from four to six dialog units per show divided between two 4-tracks. Each has been transferred from the 35mm mag units that have been edited to match picture. The transfers are made at DIC where up to three units are run in sync and copied to the 4-track tape recorder while a time code generator (referenced to the same AC line that drives the mag machines) sends a stream of drop-frame time code to track four of the 4-track. (This code does not have to match the code on the one-inch telecine of the film. We calculate an offset with the synchronizer by aligning the "two-pop" at the head of each act. The reference dialog on the video has a short burst of tone two seconds before the first frame of picture, as does the edited dialog on the 4-track.)


Once the dialog units have all been transferred to individual tracks on the multi-track, we proceed to conform the music tracks in a similar fashion. Music is cut into "A" and "B" rolls to allow for crossfades between the two tracks during the mix. These units are placed on two individual tracks on the multi-track.

We now have everything except the effects in place. By running the dialog and music at their approximate mix levels as we begin to add effects, it is possible to place the sounds at a level relative to the other main audio elements. Perspective, EQ, and even room ambience or reverb are added while pre-laying the effects to make the adjustments less drastic in the final mix. All of the sounds can be heard in concert as they are added, so it is possible to layer the tracks as necessary until the scene is complete.

#### Friday Afternoon

We use an Emulator II+HD as the main effects storage and retrieval unit. The hard disk in the E-II holds 46 banks of sounds that are most often used in the show. These banks can be accessed and ready to play in under three seconds. A CD-ROM drive (made by Sony for Optical Media International) for the Emulator holds an additional 125 banks of sound effects accessible in 14 seconds. The remainder of the comprehensive library of additional effects is stored on five 1/4-inch floppy disks which take about 30 sec-

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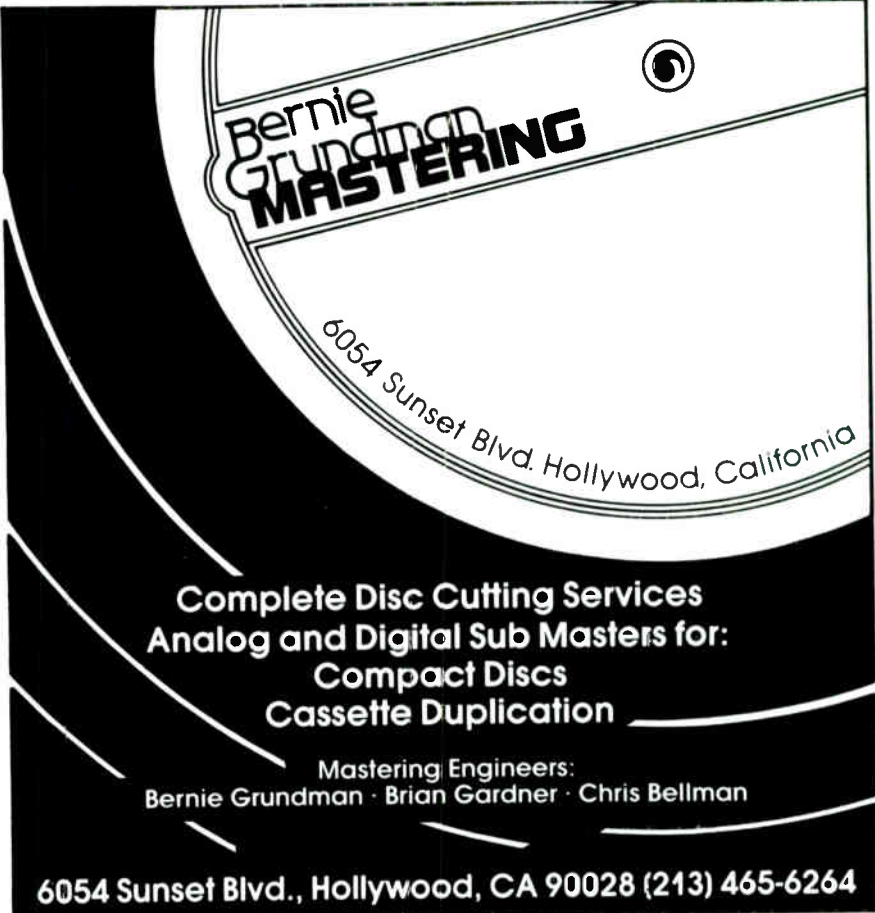
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onds to load into the Emulator. A 512K Macintosh with a 20 MB Hyperdrive is connected to the E-II to allow us to run Digidesign's "Sound Designer" program for greater flexibility and control of the Emulator. The Mac also controls the CD-ROM drive, and displays its catalog of banks.

Two synthesizers are employed for creating unusual backgrounds and specialized effects for electronic devices used in the show. The main unit is an Oberheim Xpander, which is controlled via MIDI by either the E-II, or the Sequential Circuits Six-Trak—the other synth. Thirdly, the Sound Idea CD Sound Effects Library is on hand to fill in the gaps in our sound collection. A Yamaha CD-2 provides quick access to any individual track and index.

The outputs of these devices are pre-mixed in a Hill Audio Multi-Mix console, where I can make EQ adjustments and add any effects as required. In the rack with the mixer are an Audio Arts four-band parametric EQ, a Drawmer two-channel keyable expander/noise gate, a Yamaha SPX-90, and an Aphex type "C" aural exciter.

In the control room, Jim takes the feed from my pre-mix, and feeds it into a second Audio Arts parametric EQ, where he can fine tune the level and EQ of the effect in relationship to

the other sounds in the track. The output of the EQ is then fed directly into the Dolby "A" track associated with the MTR-90, bypassing the input section of the MCI 500 series console. The tracks are monitored back through the console only—to minimize the signal path.

We pre-lay effects in a scene-by-scene manner, building layers as necessary. Backgrounds usually go in first, followed by whatever comes along in chronological order. Jim keeps as much room as possible between different effects on a single track to allow for changes in the mix. We generally use eight to ten tracks for library effects, and three tracks for Foley. Jim keeps a track sheet with time code references as we go. We will generally finish all of the library effects in the first act before calling it quits Friday night. (The show is two acts long, each roughly 11 minutes in length.)

### Saturday

We start Foley pre-lay in the morning on Act One. I perform all of the walking and props cues that couldn't be effectively covered with library sounds. We use a Schoeps hypercardioid mic connected directly into a Drawmer 1960 tube limiter/compressor. The compression is bypassed, allowing us to use just the pre-amp

and the internal phantom power in the unit. The Audio Arts EQ is inserted in line, and the output once again fed directly to the Dolby rack.

The Foley surfaces were designed and built by Dave Mancini with my help. There are four 3'x4'x6" (sort of) portable boxes to hold sand, dirt, gravel, and concrete, respectively. A fifth box is empty with a removable slatted "decking" lid. A varied assortment of Foley props is, of course, close at hand. It takes about three hours to Foley an act. It's time for lunch.


After lunch, we return to pre-lay library effects in to Act Two. This process generally goes on into the early evening.

### Sunday

Foley is once again the first order of business. Act Two will be completed before lunch. After lunch, Bruce Elliott—the supervising editor—comes in to approve the pre-lay. Any suggested improvements or changes are accommodated in the next hour, and then it's time for the director, Richard Raynis, to come and have a look. Once again, any changes or improvements are made, and everyone goes home happy.

### Monday

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Since the show will be televised, it is essential to have the dialog foremost in the mix at all times. Jim goes through both acts making sure that all but the most quiet passages routinely register 0 VU or better. Monsters are treated with various effects, Ghosts are bathed in reverb, and telephone callers are appropriately futzed. Room, hall, or cavern reverberation is created with either a Lexicon PCM 70, or 224. Everything is combined to a single mix bus, and "bounce" recorded in sync to an empty track on the multi-track. By one p.m. the dialog mix is complete, and it's lunch time once again.

Next, the music and effects are added to the mix. Jim handles the effects mix, while I tend the music. The two elements are each rerecorded to individual tracks on the multi-track in the same manner as the dialog. The final mix is called a 3-stripe. Music, dialog, and effects are all combined when the sound is re-married to the one-inch video master, but they are kept separate to facilitate possible changes in the mix, and/or the replacement of the dialog tracks for foreign distribution of the show.

It's now after dinner, and the client—Joe Medjuck of Columbia Pictures Television—has arrived to view the final product. With him is usually an

emissary of ABC's Bureau of Standards and Practices to make certain there is nothing objectionable in the show. There are often minor changes to be made to satisfy everyone, but a few minutes' work is all that is required.

It's time to "layback," or rejoin the completed dialog with the video. The multi-track is synchronized to the one-inch video master as the three mix elements are combined and insert recorded on tracks one and two (of the one-inch). A 4-track audio tape containing the 3-stripe and the time code is made at the same time. A transfer of this 3-stripe to 35mm mag will be made later for another interlock telecine to one-inch video as the film is color corrected scene-by-scene, and the show's opening, close, and commercial bumpers are inserted.

• • •

This is the typical agenda for post-production. In some instances where the delivery of the film from the animators is delayed, or other setbacks occur, we can work longer days and accomplish the entire process in three days. Because of the speed of our system, we can cut the time necessary between receipt of the film to final delivery to the client by several days. When there is an eight day turnaround to

allow the initial editing, dialog editing, music editing, telecine, effects pre-lay, final audio mix, color-correction, formatting (inserting open, close, and bumpers), and client approvals, it is a genuine advantage to have the increased efficiency that we provide. Naturally, this efficiency has a side benefit of lower payroll costs. The charges incurred using a sweetening studio slightly offset the savings, but the final result is a substantial net gain.

The quality of the effects is also generally superior for several reasons. The most obvious is the performance nature of the Emulator. Sounds can be modified on-the-fly as the action dictates by controlling pitch, filters, dynamics, and combinations of effects. This is done in a Foley fashion where the operator matches the sound to the picture in real time. Effects that would require extensive layering and alteration of individual elements in the film process, (normally taking hours to accomplish), can be created in minutes on the Emulator, and customized to an extent that in many cases would simply not be possible cutting film effects from a stock library. Since it is so easy to recall and add effects, we usually create a greater depth to the soundtrack than is often attempted in animation.

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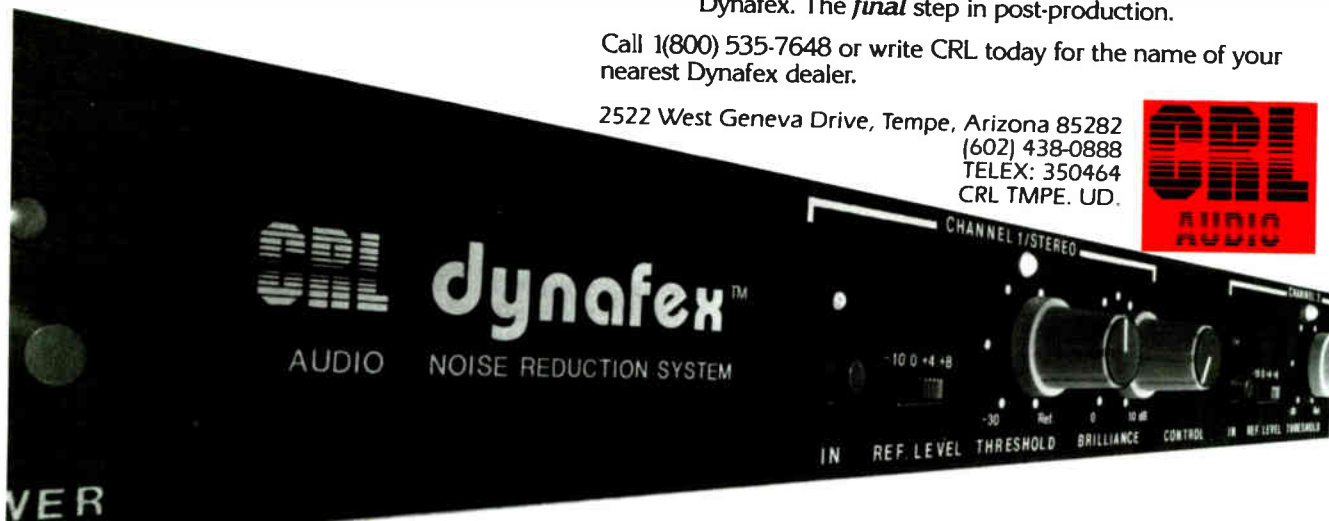
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effects. The samples stored in the Emulator come from a variety of sources: PCM-F1 recordings transferred directly into the E-II; sounds Foleyed directly into the E-II or recorded onto tape and later sampled; trades with other effects editors; and samples from sound effects libraries. In the case of *The Real Ghostbusters*, we were provided with the effects stripe from the original film, and many sounds were sampled from that. Sampling is something of an art. Properly done, the effects are stored in their optimum state—appropriately EQed, effectively truncated (where necessary), and with any glitches removed by processing them through "Sound Designer." Once stored this way, they are clean, digital copies, ready to be transferred to the multi-track at the touch of a key, over and over with no tape fatigue, no generation loss, and no additional tape hiss.

The synthesizer sounds have the added bonus of being true first generation effects every time they are called for. The most wonderful feature of digitally-controlled synthesis is the ability to store patches (all the important settings held in RAM) for future recall. Each of my synths has an internal programmable memory of 99 patches. For the Xpander, I have Opcode's "Xpander Patch Librarian" which provides a limitless resource for storing effects patches and a handy method of retrieving them for use. With these devices I can store any and every specific effect created for a particular event in case it should be needed again—without having to record it on tape!

Foley is always first generation sound as well. We Foley every show in the same manner, but each track—each footstep—is slightly different. Foley adds a realism to a show that cannot be rivaled with effects cut from stock. We have attempted to sample some standard Foley footsteps and props with only limited success. Glass breaking and metal crashes make fine samples, and obviate the need for repeated clean-ups on the Foley stage. But footsteps vary with every step a person takes, and that variety is hard to recreate in sampled form.

The combination of all of these factors gives us a distinct advantage over the traditional methods of effecting and mixing television programs—especially animation. Not only can we do more for less money, we can do it faster, and in most cases, better. Others are beginning to adopt these methods, but with varying degrees of success. The machinery involved is merely a set of tools used in an innovative manner. But the skill of the operators will determine how effective they can be.

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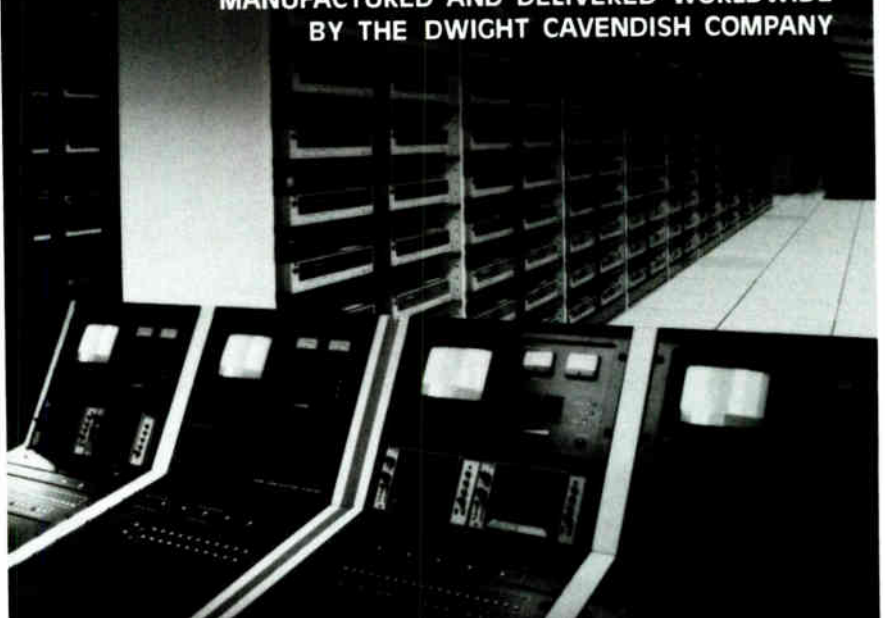


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—FROM PAGE 89, WORKSTATION

amount, ADSR (attack, sustain, decay and release), LFO amount, keyboard amount, VCA, LFO rate, delay variation, and backwards mode. Real time control can be accomplished through the wheel pitch, filter (cutoff), level, and LFO (pitch, filter, level) attack rate. Footswitches can operate sequencer control, sustain, release, susatenuto, and advance preset.

The E II's sequencer can handle eight tracks with bounce, erase and punch in. It controls storage, pitch bend, filter level changes and MIDI channel. Its synchronizing capabilities include handling internal clock, external click track (24/48/96 PPQN-pulses per quarter note) read or write,

---

The workstation  
must provide all the  
computing and  
production tools you  
will need in your daily  
work routine.

---

MIDI timing messages, and SMPTE time code—read or write. While in the read mode the sequencer can also produce PPGN output for clock synchronization, sequence preset re-assignments, sequence appending, and storage to disk (all parameters). The Mark of the Unicorn's Composer & Performer provided valuable assists on the sheet music output and on sequencer programming. This article was completed before we had access to Digidesign's MIDI/SMPTE Q-Sheet software. It displays a cue list, otherwise known as an edit decision list, and would have been invaluable in using SMPTE events to trigger sound effects on samplers, trigger program changes on MIDI reverb effects units, and other sonic goodies.

### SP-12 Turbo

The SP-12 drum machine features 12-bit sound digitizing sampling capability and modular design, with many unique functional procedures and extensive use of display messages.

Some of the most outstanding features of the SP-12 Turbo are: (1) SMPTE reading and writing capability; (2) variable click track and tempo control;

the ability to change tempo can be instant or gradual over a programmable period of time i.e., accelerando and rallentando; (3) the location of sampled sounds can be changed; you can have the same rhythmic pattern trigger another sound by "swapping" sounds (ideal for experimenting and layering things already committed to tape); and (4) each of the channel output points have different filter options that dramatically alter the character of the sampled sounds.

The SP-12 Turbo can be played (triggered) from any MIDI keyboard in either the Omni or Poly mode, (Channels 1-16). Dynamic control of the program material makes this machine very expressive in a musical setting—the nuances and subtlety of percussion, (i.e., dynamic execution) are now an aspect of creativity to be mastered along with composition.

You can "dimension" a segment—set the time signature and or bar length—in a few ways. To establish the numerator, denominator, and segment length you can use the right arrow and left arrow (scroll) or use the keypad. In real-time dimensioning, depress the segment length key and press run/ stop to begin and press run/stop again to end. By using this method you can go for a direct feel in the length of your segments—16 beats and a little bit more. The display tells you the amount of overage relative to a default guideline structure.

The E-mu's modular panel has seven control modules. The Master Control Module controls tempo, enter key, left arrow, right arrow (scrolling function), master numerical keypad, including yes and no commands, mix volume, and metronome volume. The Performance Module controls tap/ repeat, run/ stop, record/edit, sample locations, four rows of eight sounds, tune/decay, mix, and multi-mode. The Programming Module controls segment mode, metronome, swing, copy, time signature, segment length, erase, auto correct, and step program.

The Sample Module controls VU mode, voice assignment, level, threshold set, sample length, re-sample, arm sampling, and force sampling. Set-up Module controls multi pitch, multi level, exit multi mode, dynamic buttons (on or off), define, select mix, channel assignment, decay/tune select, loop/truncate, delete sound, first song step and MIDI parameters. Special Module: memory remaining, clear all memory, clear sound memory, clear sequences, copy sound, swap sounds, default decay, default tuning range.

Sync Module controls internal, MIDI, SMPTE, and click. The Cassette/Disk Module controls save sequences, save sounds, load sequences, load

sounds, load sequence#, load sound#, verify sequences, verify sounds, catalog and format.

### CDS3 CD ROM

Optical Media International has created the CDS3 (Compact Digital Sound Storage System) to enable the retrieval of thousands of voices for the Emulator II+ in a condensed media space. One CD-ROM disc can store the equivalent digital data of 1100 5¼-inch floppies. On the disc reviewed, *The Universe of Sounds, Volume I*, there are about 275 megabytes of data, which is equal to 536 Emulator II floppy disks. A hand-held terminal that comes with the package can also be used to access the CD-ROM sounds. With the terminal you can scroll through the library by category or by individual bank which is shown on a two-line by 16-character liquid crystal display. By entering the bank number, voices are directly loaded into the E II+. We used the optional Macintosh computer interface, enabling sound selection directly from the computer screen and transfer of presets (voice banks) to the Emulator. The face of the hand-held terminal comes up on the Macintosh screen.

The CDS3 Master Disk software package comes with a mini disk that requires the Macintosh system and Finder Software to be copied onto it before it can be used. As with any original software, we made a back-up copy and stored the disk in a safe place. The Mac software enables the directory of sounds to come up on the screen. When the list categories box is called up from the bank, the selection menu appears on screen. You can select a specific bank by placing the cursor in the "Selection Box" and typing the bank number. To see additional banks you click "Next Page." The voice information can be stored in the Emulator or into the Mac.

Setting up the system is straightforward and using it is very easy. With pencil and paper nearby for notation of sound locations you are ready to experience a vast and diverse catalog of sampled sounds. The E II+, with the SP-12 and CDS3 is a composer's workstation in and of itself.

### AUDIO

#### Tascam M-520

The Tascam M-520 can handle 20 channels of input, and monitor 16 channels with eight buses, four auxiliary effect sends and returns, and two stereo master outputs. The board provides two switchable stereo masters, A&B left and right, and four auxiliary VU meter bridges. It delivers 3-band parametric equalization with EQ in and out button switching. Microphone in-



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puts are XLR with 0 and -30 dB pads. You can generate test tones to bus and aux. 1,2,3,4, at 40, 1k, 10k. It also has PFL (pre fader listen) and solo listening modes, with stereo panning and level controls, pre. post, tape—effects sends, and a stereo headphones output jack. It provides an 8-channel VU meter bridge, which takes a little getting used to, but contributes to keeping the unit in a reasonable price bracket. It operates on a parallel 8-channel, 8-bus format; channels 1, 2, 3, 4, 5, 6, 7, 8, become channels 9, 10, 11, 12, 13, 14, 15, 16. For example, you cannot record different information on track 3 and track 11 at the same time. The M-520 has been designed with a great deal of built-in flexibility. You can patch around initial line level amps while in the mixing mode for a more direct signal path and noticeably cleaner signal reproduction. The only functions lost are the "overload" input LED and use of "trim." Its power is provided by PS-520 external power supply.

### Tascam MS-16

The Tascam MS-16 is a 16-channel, one-inch tape recorder, which can run at 15 or 30 ips, with or without dbx noise reduction. Track 16 has special time code data output functions which enable continuous high speed code data to synchronizer or editor, however it does not mute with the "lifter/defeat mute" switch on. It handles time code servo-control capabilities including SMPTE, tally signals to synchronizer (play, f, fwd, rwd, stop), and status commands from synchronizer (play, f, fwd, rwd, stop, rec, lifter cont). The 38-pin accessory connector on the rear panel has the capability to handle many synchronizers, such as the Adams-Smith or Cyphers. The modular system can be mounted in a 19-inch EIA standard rack, or Tascam's CS-65 "roll around console" or located in a permanently stationary position.

The RS-65 remote controller operates in play, f, fwd, rwd, stop and rec. Additional features include digital counter display, "cue" sets cue point, STC (Search To Cue), RTZ (Return To Zero), reset and pitch control. The AQ-65 multifunction autolocator's remote function control panel can be remotod. Functions include output select: input, sync, repro; input select; channel-track assignment. Rear panel Inputs and Outputs accept XLR connectors and RCA jacks. Transport controls special features include an "edit mode" for a small amount of back tension for hand editing. The "dump edit mode" capstan and pinch roller, can pull tape past heads at 15 or 30 ips or adjusted pitch. The take-up reel does not spin.



PHOTO: GLENN SAMUELS

*A Tascam MS-16 one-inch 16-track with AQ-65 autolocator forms the heart of the producer's workstation.*

Pitch control can be fine at  $\pm 0.7\%$  or "course" at  $\pm 15\%$ . Spooling is at 80 ips (203cm/sec) for uniform tails out tape pack. An edit wind feature lifts tape from heads during rewind, creating less friction on heads, which allows for longer wear.

We used the J.L. Cooper SAM (SMPTE Automated Mixer) and MIDI Mute to shut down MIDI tracks between signal to tape sections, and the effect was amazing. The outboard 19-inch units and software virtually eliminated any MIDI instrument noise between musical sections and functioned as effectively as mutes built into expensive high end boards.

### AQ-65 Multifunction Autolocator

The AQ-65 has functions that warrant reviewing separately, as its features take the MS-16 solidly into the professional range. It is straightforward to operate and was consistently reliable in our field test. The AQ-65 panel is well highlighted and color coded for ease of operation and it functions beautifully in tandem with the RC-65. It can also be connected in parallel with an editor controller. Both remotes can be used at the same time. It has two large numeric windows; 1) tape time, and 2) locate time and a ten-slot memory register numbered 0-9.

In our opinion, the AQ-65 is a must for single operator use at the producer's workstation. This accessory has been very well thought out. Features include memory loading by pressing the appropriate keys on numeric keypad or the direct store key. When the tape is at a given location, pressing the direct store key stores the location in the lowest numbered vacant memory register and the appropriate LED lights up. Memory recall functions are:

RTZ, tape fast winds to zero; Recall memory is accessed by pressing RCL (recall) and the appropriate # on the numeric keypad, the LED for that register blinks, and the locate position appears in the locate time display window. Pressing "search" sends the machine to the desired location. You can scroll through everything you have stored in memory. Press RCL and while its LED is lit press it again and it will search. The AQ-65 searches until tape time equals locate time. Pre-roll establishes a tape park point one to 19 seconds before the cue point. The "looping" feature allows the machine to continuously repeat between tape time and locate time display locations. "shift to right," "shift to left," moves location display from right window to the left window or vice versa. Overall the Tascam 16-track recorder, mixing board, remote controller and autolocator proved to be an extremely sturdy and reliable integrated recording system.

### VIDEO

The Sony BVU-850 SP was used as the video record and sync deck. This relatively new machine can use metallic tape, and has an increased audio capability beyond the typical  $\frac{3}{4}$ -inch audio limit of about 12k to about 15k ( $\pm 3\text{dB}$ ), and includes Dolby "C." The unit delivers improved audio SNR of better than 52 dB. Audio editing accuracy has been improved significantly by the addition of special ROMs control the audio heads, which eliminates the pops and clicks that used to be an annoying by-product of U-matic audio editing. Monochrome picture is viewable at 40x normal speed for faster search capability. The BVU-850 SP also has increased horizontal line, to 430 vs. 260 lines of horizontal resolution in the old format. The video SNR is 47 dB, with improved luminance and chroma SNR performance. It uses CCD technology for drop-out compensation. It has built-in capability allowing control track or SMPTE edit control from deck to deck without an outboard editor.

### SYNCHRONIZER SMPL System/SMPL Lock System (Synchronous Technologies)

We selected a synchronizer which is relatively inexpensive, but able to handle all of the functions SMPTE audio-video and MIDI applications required. The SMPL Lock System is a further development of the SMPL system for use with two tape transports and other clock-reading synchronizing gear, i.e., drum machines or sequencers. The system requirements include a televi-

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sion or video screen for time code monitoring. SMPTE time code is generated at drop, non-drop, 24 frame or 25 frame format. The system reads a minute of SMPTE time before actual run time and thus defaults to 00:01:00:00. Windows display "slave" machine status showing current or last time code value, "cue," "song," "master," "offset," and "format." Auto punch in/punch out is acknowledged by audible beeps when rehearsing section, and activates the record function when doing a "take."

MIDI sync provides MIDI output from lock box connected via MIDI cable to MIDI input of the first instrument to be synchronized; also metronome tempo, and song start time. The "lock mode" functions like the basic SMPL system, except that two machines are controlled instead of one (commands sent to both machines) and it provides auto locate functions on both machines and frees up the operator to focus on the sound without being concerned with the operation of the video machines.

Chase/solo modes: "solo" commands the slave machine only, which is a real asset when working with audio only. In "chase" mode, the master machine can operate from its own front panel or remote controller, which allows interlock of machines when no control cable exists for the master machine. It also allows for system use with consumer VCRs, and three-machine interlock where a video editing console is locking two machines together.

## METHODOLOGY

*(Approach and Techniques)*

### KEYBOARDS/SEQUENCERS

The E-mu II+ and SP-12 were used as the primary composition and performance instruments. They also served as controller instruments for sequencer programming. The configuration for sequence writing varied constantly for reasons of feel, ergonomics and ease of computer loading and playback. The E-mu II+ was used primarily for live and sequencer performances. We intentionally wanted to avoid sequencer "overkill" and went for live performances as much as possible.

All machines operated most consistently with each other in the pulse-per-quarter-note time base. SMPTE writing and reading and MIDI control was executed from the Emulator II+ HD and SP-12. Controlled voltage (CV) and gate was from the Oberheim DSX. PPQN sequencers and SMPTE synchronizers, read from SMPTE striped tape. The SMPL System locked the E-mu, the MS-16 and the Sony BVU-850.

### TAPE RECORDER(S)

Daily work tapes were made on the

Tascam 122 MKII cassette recorder, which was also used for sequencer information data storage. The Tascam ATR-60 4-track mixing/mastering machine was used for rough and final mix downs. It was set up with stereo mix tracks on track 1 and 2, track 3 open as a guard band, and track 4 was striped with SMPTE. The stereo music tracks and time code were dumped to the Sony 3/4-inch for synchronization with picture elements, which were cut to the music.

### TECHNIQUES

The key to successfully operating the producer's workstation, is concentrating on the basics of what you are doing, and building on it as you expand. An "all at once" approach usually leads to frustration and wasted creative energy. Build a strong foundation and make it flow from the bottom up. Needless to say, the path to simplicity is not always easy to uncover and often involves a lot of experimenting. However, it is this process that establishes the procedural formats—guidelines—for a producer's workstation methodology. The preproduction time you spend organizing your method and approach will contribute to much higher creative results. Once the music and the storyboards were conceptually sketched out and data, we were ready to work on the technical data base (time base map).

The music conceptual data base included:

- 1) "blocking off" the various sections of the composition
- 2) notating the sections in terms of melody, rhythm and dynamics
- 3) establishing the primary timbre of the sounds, the ensemble and orchestral colors
- 4) establishing the mood and tempo
- 5) manuscript notation

The technical data base included a graphic overview cue chart with:

- 1) sectioning and segue lay out
- 2) sequences; part number and length
- 3) instrument sound notation; cartridge #, disk#, modulation amounts
- 4) MIDI chain
- 5) effects
- 6) EQ
- 7) track sheets

The visual conceptual data base included:

- 1) "delineating" the various sections of the composition with the script treatment
- 2) storyboard layout and notation
- 3) notating the program sections in terms of frames, clips and groups of clips
- 4) establishing the primary quality of the visuals: animation, live action, etc.
- 5) synching mood and tempo for editing

# ENVIE

## INTEGRATING DIGITAL

PCM 70 parameter settings.  
Program Row 3  
Concert Hall:

REVERB  
DESIGN

CONTROLS

MIX 100 W WET

DIFFUSION 60

ATTACK 5

F2 ADJ + 6 DB

DEFINITION 4

SOFT KNOB

REFLECTION  
LEVELS

SIZE 290 M

L1 MS1

GATE OFF

L1 REF2 OFF

PDELAY: 24 MS

L2 REF OFF

HC 900 MHz

R1 REF2 OFF

RETR: OPT ON

R2 REF OFF

CHORUSING 51

REFLECTION  
DELAY TIMES

REVERB  
TIMES

RT LDW 20 S

R1 MS1

RT MID 11 S

L2 REF 300 MS

EDGER 950 Hz

R1 REF 104 MS

RT HC 623 kHz

R2 REF 300 MS

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MIDI CONTROLLER	PARAMETER	SCALING	LIMIT VALUES
DATA SLIDER	1 0 RT Low	+13	2.8/52
DATA SLIDER	1 1 RT Mid	+22	1.1/26
MOD WHEEL	1 2 Crossover	+17	350 Hz/4.85 kHz
MOD WHEEL	2 1 Attack	+81	15/95
FOOT PEDAL	0 8 Chorusing	+17	51/68
LAST VELOCITY	3 1 Lt V1 Reflection Level	+33	Off/-8.5
LAST VELOCITY	3 3 Rt V3 Reflection Level	+30	Off/-6.5
MIDI CLOCK	0 3 Size	-33	29.8 @ 100 BPM
MIDI CLOCK	4 0 Delay Master	-110	0 @ 100 BPM

"Space Shifter" was written by Lex-con Applications Engineer Will Eggleston

# ENVIRONMENTAL IMPACT

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Why do we give you more MIDI patches than most effects have parameters? Because the PCM 70's algorithms (like the Concert Hall algorithm shown here) give you more parameters than some units have programs. Complex as it is, Concert Hall is only one of six (seven if you have optional Version 3.0 software) PCM 70 algorithms.

"Space Shifter" is based on Concert Hall: it's a good example of how *Dynamic MIDI* adds new dimensions to performance. The Data Entry slider lengthens the Mid and Low reverb times. The Mod Wheel moves your audience farther away by controlling

two parameters at once. As it raises the Crossover frequency, sending more reverb energy into the longer RT Low decay, it lengthens Attack time. The foot pedal choruses the reverb, while keyboard velocity controls the level of left and right reflections.

MIDI clock (included as a controller in our optional Version 3.0 software) adjusts Room Size and Delay Master for different tempos. The chart at bottom left shows that most controllers are scaled to vary the effect from a "minimal" space to one with a powerful impact. But the MIDI Clock patches are negatively scaled: as tempo goes up, size and reflection levels go down, to keep the reverb from "washing over" the beat.

For PCM 70 owners, "Space Shifter's" parameter settings and MIDI patches are in the charts on the left. The tenth MIDI patch is empty: it's yours to experiment with. In fact, the whole program is a starting point for exploration.

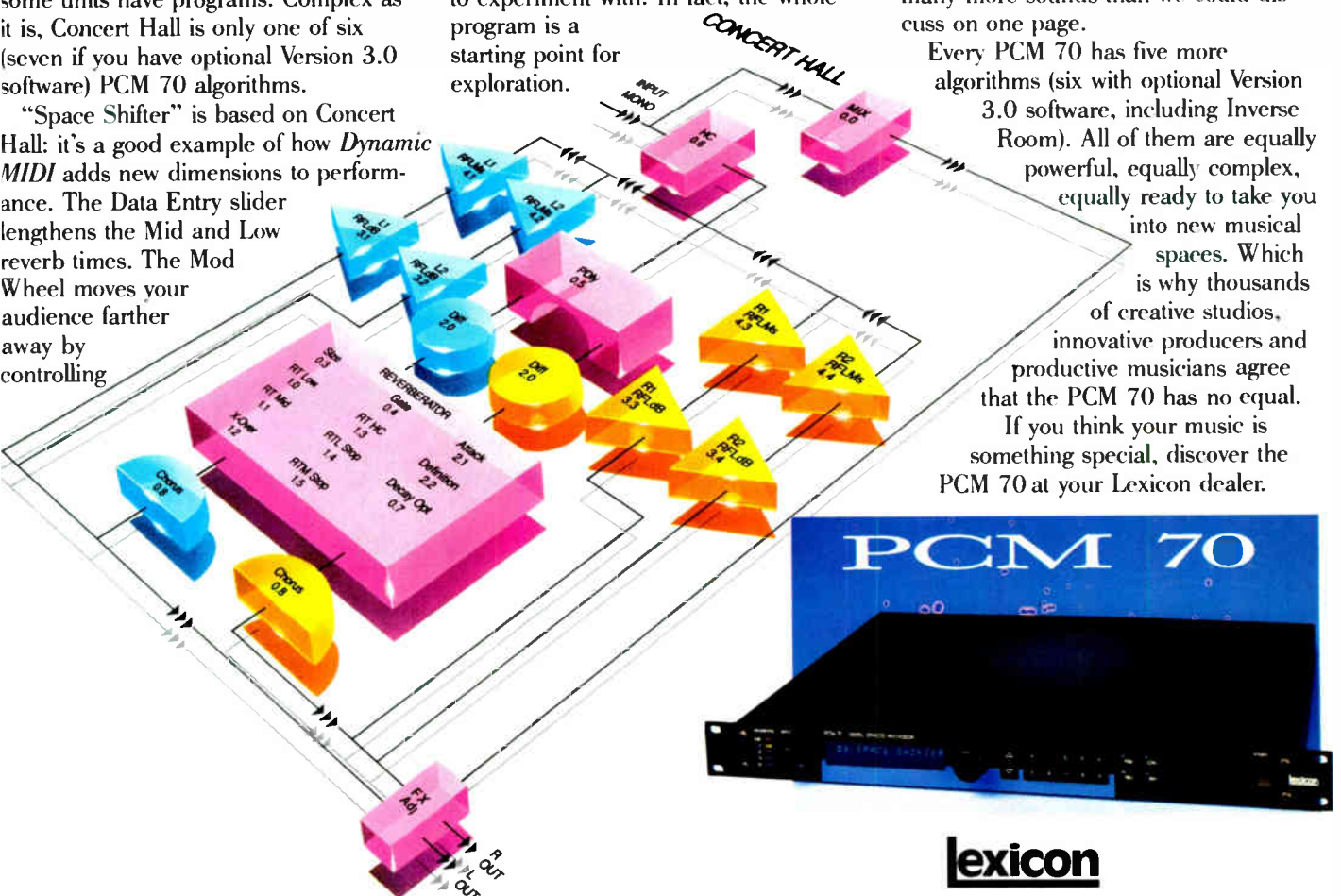
Try adjusting the Scaling function to get the polarity and range of control you want. If you need a wider range than a controller offers, you can "double assign" it to the same parameter for up to twice the variation.

These are by no means the only controllers you can use. Pitch Wheels, Sustain pedals and over 120 others are included in *Dynamic MIDI*. Engineers often use Last Note when recording parameter changes to a MIDI sequencer for automated playback during mix-down.

Now a word of warning: If you don't yet own a PCM 70, don't drive yourself crazy trying to duplicate "Space Shifter" or other PCM 70 sounds using less advanced devices. With 30 to 45 parameters, every PCM 70 algorithm gives you multi-dimensional control that's simply not available in simpler units. Concert Hall alone generates many more sounds than we could discuss on one page.

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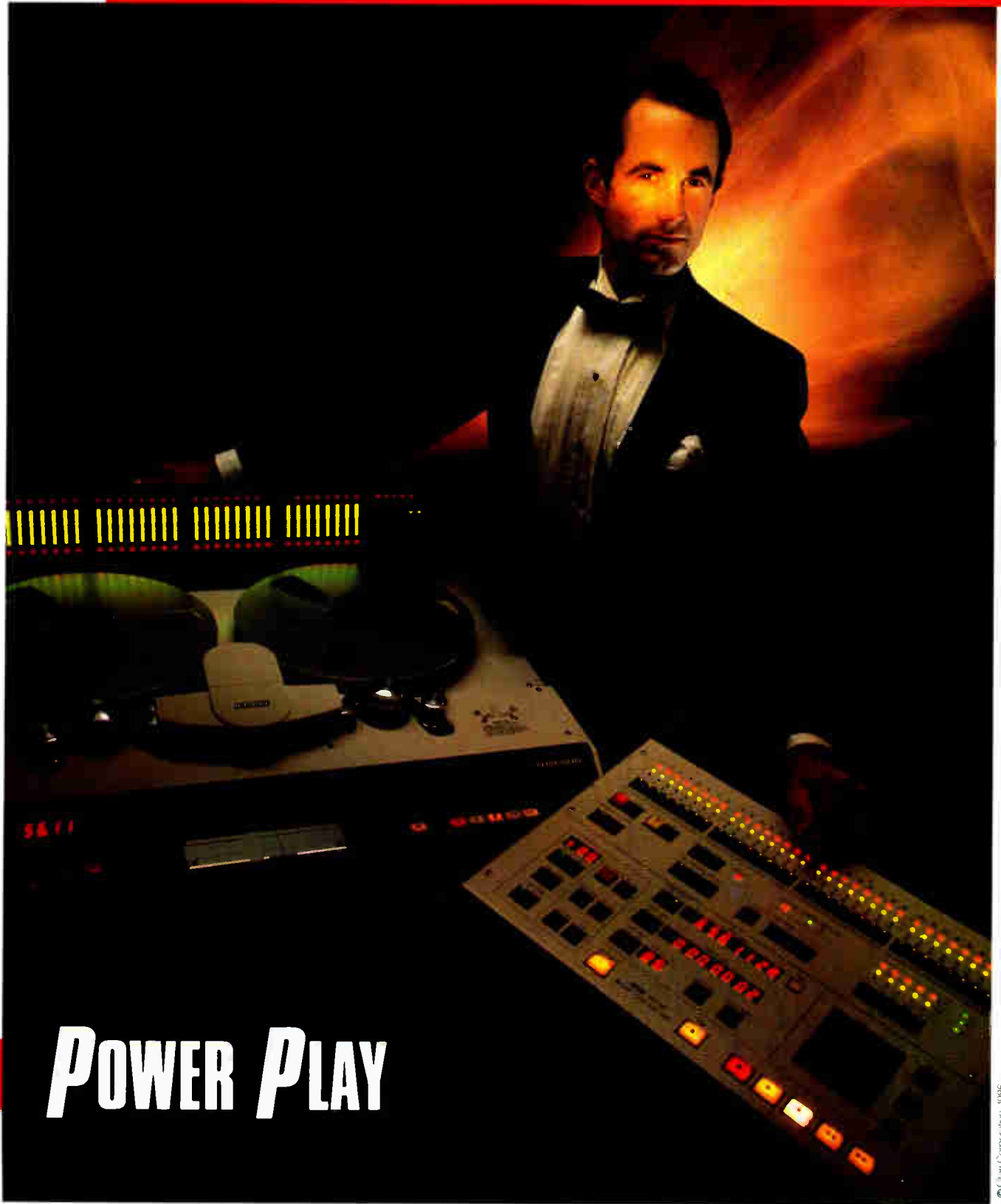
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## GETTING IT ON TAPE

To begin, all of the one-inch audio tape was striped with SMPTE time code at 30 fps non-drop, generated by the Emulator II+ HD on track 16 of the MS-16. Each of the reels were striped with a different hour starting point for cataloging. A minute of SMPTE was run just in front of where the actual composition was to begin, to allow the machines ample time to locate when reading the code. A working sequence was made on the E II+ and run in a constant loop during playback to audibly check for any possible SMPTE errors before synchronizing the sequencer-instrument chain to tape. Any drastic errors would be visible on the E II+ window, as breaks in the readout. We also checked the time code on tape for error with the SP-12 with a simple drum pattern running in loop. The same readout function exists in the SP-12 and it flashes an "awaiting SMPTE" message if there is any time code dropout.

The signal path of the SMPTE time code to tape was from the E II+ to a direct box, to the M-520 recording console, and then to tape at -3dB. Output of the code was taken directly from the MS-16 (TK 16) and connected to the SMPTE input of the E II+. The M-520 RC is basically an 8-bus, 8-channel console running in parallel to enable 16-channel monitoring. Once you understand its configura-

immediate playback gratification, but it contributes to keeping the recording process "honest."

Before working with the E II+ we had done a considerable amount of sketching with the Oberheim DSX sequencer and OB-8, so the first concern was to sync up the work we had stored to SMPTE time code without having to re-do it. This was achieved by having the E II+ read SMPTE from tape and produce a 96 PPQN clock output to drive the DSX. First we created a guide sequence on the E II+ to drive its clock output. On the E II+ we entered the "auto correct" mode in the sequencer module and had the metronome output produce click. In the "external clock" mode we changed the PPQN rate to 96 to drive the DSX. We offset the SMPTE start point by a frame or two for cleaner, non-processed first generation stereo doubling onto tape.

The working setup for sequence writing was based on clock control. SMPTE was not used until laying the music to tape. In these situations we utilized all of the countdown features of the sequencers along with foot control, start and stop of record and playback. A typical basic sequence writing chain: remote control footswitch-SP-12-Garfield-E II+-Linn-DSX and OB8. In this instance the focus was on the rhythm writing. The actual full chain became:



	SP-12	OB MODULAR
	LINN	ROLAND JP 8
MS-16 SMPTE—EII+HD—GARFIELD	DSK	OB8
DX7s	ROLAND TR606	MOOG
	SIMMONS	PROPHET V

tion, the desk is not difficult to operate. The total output of the eight channels in and the 16 channels out are all summed up in the VU levels of the stereo master A and/or B meter groups. (These meter groups can also be switched to monitor your auxiliary send levels, channels 1-4). Because the system is in parallel, you cannot record different information—for instance on TK 1 and TK 9, or TK 2 and TK 10—at the same time. Monitoring and overdubbing was a bit tricky until we got comfortable with the desk. Effect sends 1-4 were used both from line and from tape. We brought the returns up on input channels 17-20 in stereo, bused them to channels 7 and 8, and monitored them in the bus position on channels 15 and 16. With this setup we obviously could not control the auxiliary effects send levels with the track monitor faders and had to continuously adjust the (aux send levels for) effect balance. This way you are somewhat restricted in terms of

For thematic compositions requiring a "conducted" feel, the SP-12 has a few features that are essential: 1) variable clock for immediate tempo changes or programmable accelerando and rallentando (change over a determined amount of time); 2) output of variable clock while reading SMPTE from tape. These functions worked perfectly every time, and refining the aspects of tempo change made the process even easier. The tempo changes are entered into the composition in the "song mode" by inserting a trigger step in the song sequence.

In quite a few instances where a rhythmic sound was a combination of more than two instruments sounded at once—for example E II+ claps, Roland toms, Simmons digital noise—we sampled the blend into the SP-12 and freed up the triggering chain. With the sampled blend we still had options to further manipulate the sound with truncation, filtering, dynamic control and/or copying the sound for stereo

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effects. The sound of the SP-12 with its bit sampling rate is impressive. None of the compositions were entirely sequenced. We used the sequenced parts of a given piece as an ensemble, a "band" to play with and react to; this becomes one of the keys in developing a musical setting that has a multi-dimensional feel. We looked at the parts according to their musical role and structural importance, defined the foundation and then carefully expanded the picture.

At the onset we used the SMPL System for automatic punch ins and outs. The record in and record out points came up in the visual time code display of the monitor screen. However, we found the process of assigning the punch points too time consuming in the situation of getting an emotional flow onto tape as quickly as possible and let the AQ-65 handle the locating chores. The SMPL System in our application was most effective during the mix: triggering MIDI control of the REV7 and PCM70 effects (dramatic switching at designated points), and chase lock synching 16 TK and stereo master to video.

The Emulator II+HD played an important role in all phases of the recording process. As the basic digital sampling keyboard in the producer's workstation, it was a centerpiece of the whole sonic spectrum from the foundation to the final touches, from the rhythm through the "actuals." The vast sound library that has been developed for the E II+ makes this instrument an increasingly viable tool for studio and scoring performances. Of real value to serious operators, is the ability in the "Special Mode" to update the software data on your older floppy disks.

As a sampler, the E II+ was consistent and challenging. Layering sounds by assigning two voices to the same range with velocity switching created some very unique sounds and effects. By splitting the output channel assignments going to tape, the impact became that much more vivid.

The feel with all of the instruments synchronized by clock, in the writing configuration, was "tighter" than the feel of the Emulator reading SMPTE from tape and generating clock as the controller. To correct this problem, we had to offset the time delay of the SMPTE micro processing. There were problems with the SMPTE reading and writing hardware of the SP-12 that Emu corrected with the installation of a new chip. Nonetheless, the E II+ sufficiently handled the job.

Optical International Media's CD-ROM greatly expanded the sampled library of sounds and especially showed its strength in the final phase

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## The producer's workstation may represent a new standard for off-line pre-production.

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of the recording process. Good samples take a great deal of time to prepare and the digital sound library, *The Universe of Sounds, Volume I* is well put together and has a very logical flow to it. The CDS3 software package required an "MO 189" Macintosh Plus peripheral adapter cable. Accessing the sounds via the Macintosh in the terminal position resulted in fast loads and extensive usage of the catalog.

Video picture was cut to sound previously recorded on the Sony BVU-850 SP machine. Editing deck to deck was frame accurate and did not require an outboard editing system.

### CONCLUSION

#### *(How They Functioned Together)*

Basically all of the equipment selected performed their dedicated tasks well, in both controller and slave modes, some better than others. The gear in our producer's workstation has a few functions that overlap each other. Many times when a piece of gear is assigned to perform one task, it cannot simultaneously perform another. Using equipment in its strongest capacity and avoiding incompatible equipment duplication is critical to the depth of the producer's workstation. We were also very concerned about not setting up a system that was so technically rigid that it would impede the potential for spontaneous creativity. The ability to capture inspiration quickly, document the performance and try alternate approaches was the goal of the system architecture.

The phase by phase positioning of the machines in the work chain took shape after experimenting with many configurations. Each task took on its own system design relative to the type of work that needed to be done. Stress reduction was achieved by keeping the technical chain as short as possible. SMPTE control (of the computerized sequencers) was not used until the point of actually committing the compositions to the MS-16 multi-track

tape recorder. The coordinate points were charted with direct clock control from the primary instrument and linked by the Garfield Mini Doc.

### M-520

We found the mixing console to be very clean. The front panel controls are color coordinated and the signal path is well laid out. The EQ smooths out noticeably in the high end, which if not compensated for can result in everything having a creamy quality. However, by boosting the signal at around 10k when going to tape, the bite and punch is there in playback. Tascam has clearly made a major contribution to a cost effective, efficient production system, with high-end features and flexibility within a modest budget range. Its size may also be a positive factor for consideration for those with limited workspace. The VU meter readings were accurate and the desk can be expanded to work with another console and give you VU levels on eight additional channels by switching the meter select to external; very useful for monitoring additional effect returns during mixing.

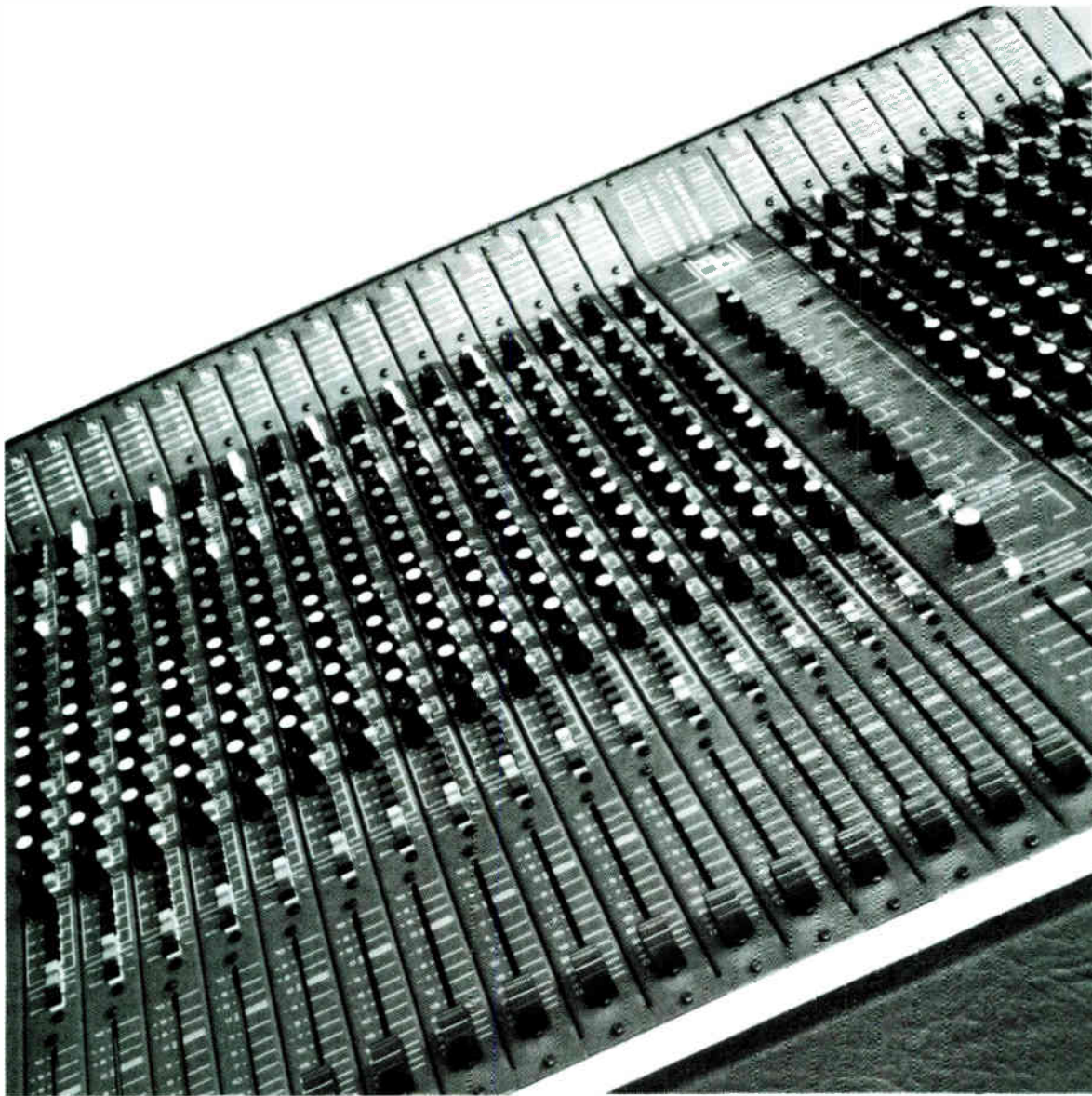
### MS-16/AQ-65

The MS-16 impressed us as a quiet workhorse; the motor noise and transport sounds are minimal. This is a great feature in the limited physical environment of the producer's workstation. The 30 ips tape speed allowed for some tight punch ins and punch outs. After getting a feel for the response time of the machine the results were practically seamless; as expected, the punch outs required the most finesse. Addresses on the locator were found quickly and accurately with very little drifting.

To see how the system relates to the rest of the world, we had a frequency analysis test done on the MS-16 with a UREI 200 Response Analyzer by Ron Sundell of Suntronics in Los Angeles. He found that there was no drop off of signal run through input and output circuit—unaltered signal to tape. Bias was adjusted to flatten responses so that we could feel confident about the tape performing to the same specs on another machine. With a "plot chart" of manual response you can feel confident about the MS-16's overall playback frequency performance and the ability to make musical adjustments with equalization.

The producer's workstation will continue to be a trend in audio and production. And it may, in fact, represent a new standard for off-line preproduction or low budget on-line production. We would like to thank all the manufacturers involved for their valuable assistance in preparing this article. ■





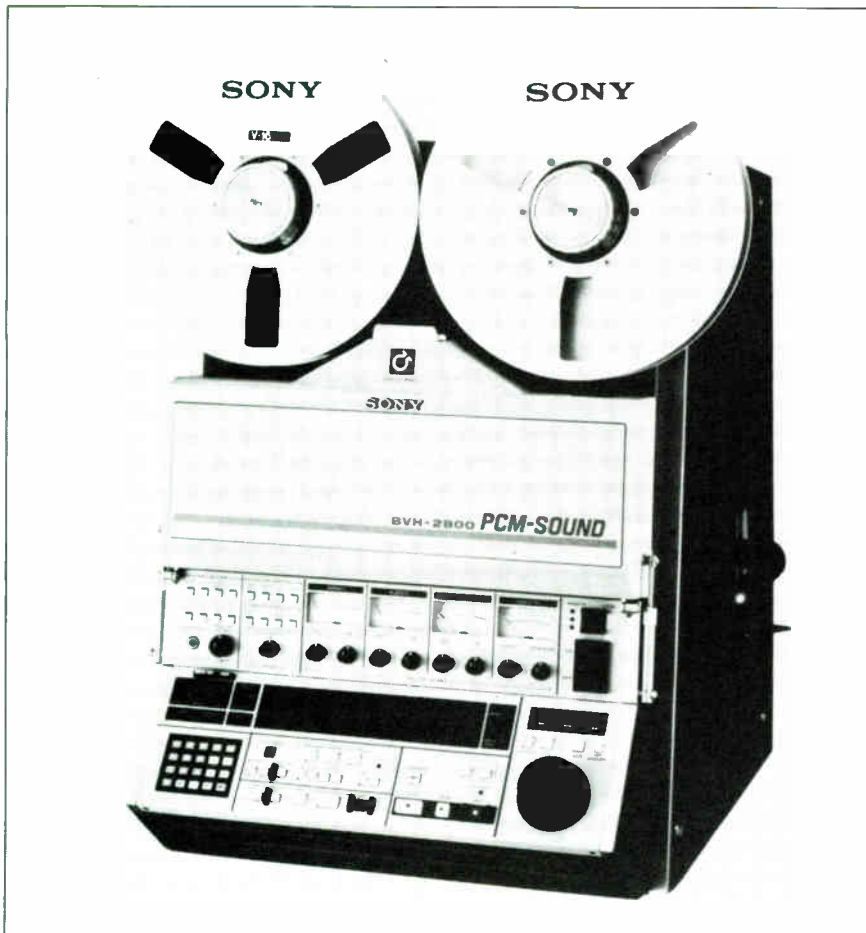
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## SONY BVH-2800

by Mark Schubin

When a Sony BVH-2800 was actually delivered to me, I felt something like an adult discovering there really is a Santa Claus. Sony's one-inch videotape recorder with PCM audio had been introduced to the press shortly before the 1986 NAB convention and was shown to the trade at that exhibition, but, despite repeated attempts to get a machine for field testing, it took many months and excuses (e.g., "The truck broke down again") before it finally arrived.

As a 2-track digital audio recorder, this is certainly one of the biggest. It'll fit in an equipment rack (except for the tape reels), but it's over 26 inches high and over 22 inches deep, not counting the digital processor (another

seven inches of rack space). Recorder and processor combined tip the scales at 208 pounds.

On the other hand, if you think of the machine as a video recorder, it's almost identical in size, shape, and weight to any of the other machines in Sony's BVH-2000 series. There are some differences, however.

The most obvious one, at first glance, is the fact that the head drum cover, a transparent panel on all other BVH-2000 machines, is opaque. That's because it contains shielding considered necessary for digital audio operation.

Then there's the head drum itself. Instead of the six heads one expects to find on a Sony VTR (erase, record/play, and "confidence" for both video and vertical sync), there are 12, only three of which have anything to do

with the video (there are no vertical sync heads). The other nine handle digital playback, recording, and confidence, with three heads devoted to each function.

All of the digital audio recording takes place in the area normally devoted to vertical sync recording. Since this area is so tiny, rather than recording one severely time compressed track, the machine records three tracks, each track a third the width of a usual video track.

So what about the vertical sync track? It's not really necessary. The SMPTE Type C video recorder standard calls for the sync track to be optional. Sony VTRs have traditionally included it; Ampex VTRs have traditionally left it out. However, the standard also says that nothing other than sync may be recorded in that area. Therefore, the BVH-2800 (and its three-hour capacity twin, the BVH-2830) is not a Type C VTR.

On the other hand, it seems to be 100% compatible with Type C VTRs. The azimuth of the digital heads is slanted so that the digital information will not be read by a sync head on a Type C VTR. One of the first things I attempted with the machine was interchange. I played a videotape recorded on the BVH-2800 on a Sony VTR equipped with a sync head and on an Ampex without one. I also took tapes from those machines and played them on the BVH-2800. In each case, interchange was absolutely perfect. In fact, the BVH-2800 that I used was probably the best one-inch videotape recorder I have ever used, digital audio notwithstanding. It was able even to play back some tapes that other machines could not.

But I wasn't supposed to be impressed with the video part of this machine (and it's possible that Sony's BVH-3000 series, introduced at the 1987 NAB show, may outperform the BVH-2800 in video areas). Aside from the lack of sync track, which can be a bit of a nuisance if you're planning to load the vertical blanking interval of your video signal with lots of data signals, the PCM audio tracks do not affect or detract from the machine's video operation or performance in any way. There are still three longitudinal audio tracks available, and even these seemed to outperform the norm.

Connection to the digital processor is fairly straightforward. There are few

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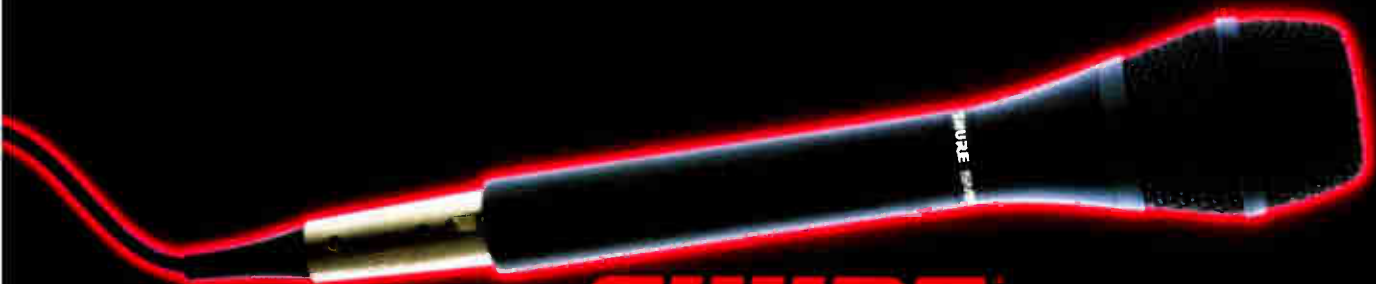
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controls, either on the front panel or inside, but different sampling frequencies (48 kHz, 44.1 kHz, and 44.056 kHz) can be selected, and there are a few other options. According to Sony, the processor has the most advanced error correction circuitry yet applied. Perhaps it's necessary, given the tiny size of the tracks.

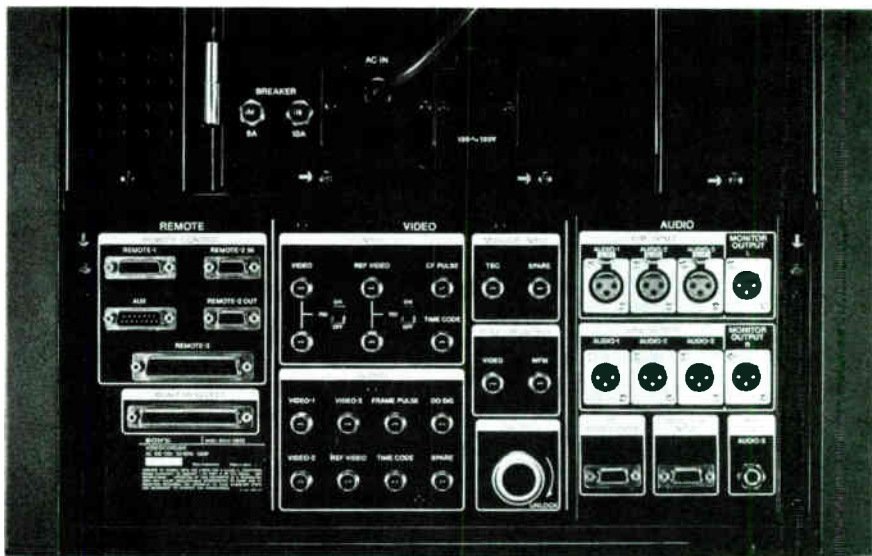
I was unable to discern any problems with the digital audio, either with test instruments or from subjective monitoring, as long as the machine was able to correct the errors. I used the machine at two different shows. First, just to play with it, I had it at a *Live From Lincoln Center* production. I used tape provided by Sony and never bothered to clean the heads, just to see what would happen.

For days, I recorded, rerecorded, and rerecorded again over the same piece of tape. There are no digital erase heads, the digital tracks working much

**"The BVH-2800 was probably the best one-inch videotape recorder I have ever used, digital audio notwithstanding."**

like the data tracks on a computer disk—when data is overwritten, it changes from zero to one or vice versa. The three sets of heads are used to allow perfect synchronization with the video and perfect digital editing, to say nothing of "confidence," the ability to monitor the digital tracks off the tape while recording.

On the last day (yes, the shows are really live, but there are rehearsal and setup days beforehand), there was one time when the error correction couldn't quite compensate for something the confidence heads had picked up. The audio muted, and the legend "CONF MUTE" appeared on the VTR display panel. One nice feature of the machine is that any errors that have been concealed by linear interpolation or replaced by the system to mute are noted by their time code and stored in a memory. After recording, a spin of the VTR shuttle knob reveals these error locations, one at a time. It's a simple matter then to shuttle to a confidence error location and see whether the error was recorded in, or just noticed in confidence playback.



*Back panel of the Sony BVH-2800*

It's likely just to have been noticed in confidence playback. When the machine is recording, the video and digital record heads are in the ideal position to lay down tracks. The video confidence head is equipped with a mechanism that can move it slightly up or down across the width of the tape. In that way, it can follow the tracks perfectly, too. This feature is called dynamic tracking.

Unfortunately, none of the digital heads has dynamic tracking. Therefore, even for ordinary playback, Sony recommended adjusting the tracking of the machine to maximize the output from the digital playback heads, letting the dynamic tracking video head take care of the video tracking. Sure enough, playback, adjusted this way, produced no errors.

The second show I used the machine at was Arts Video's production of the Guarneri Quartet Beethoven Cycle, shot on location at Old Westbury Gardens on Long Island. This time, instead of being a visitor, the BVH-2800 was used as the main video tape recorder, and, instead of Sony supplying tape stock, the producer did, with different brands, some new and some used. The heads were also cleaned each time tape was changed.

Inside the processor front panel (which opens like a door), there are columns of red and green lights that show how hard the machine is working at error correction. With zero errors, no lamps light. With corrected errors, only green lamps light. With concealable errors, some red lamps and some green lamps light. Finally, with unconcealable errors, the inside of the processor lights up like a Christmas tree.

At Lincoln Center, there was an occasional green light and a rare red

one. At Old Westbury Gardens, there were many more lights, and their number and frequency seemed related to the tape stock used. Admittedly, the machine had been optimized for Sony stock (which was not one of the brands used) and, even when errors were found in confidence, they disappeared when the machine's tracking was optimized for the digital heads in playback. Still, the "confidence" heads didn't give me much confidence.

Aside from the increased confidence errors, the machine seemed to perform flawlessly. I even played around a bit with digital editing. It works. The play heads coming before the record heads allow perfect data continuity. It's features like that (and the perfect lip sync and error/time code correlation) that show off the advantage of this machine over a double system setup using, say, a PCM-1630 connected to a 3/4-inch videocassette recorder. On the other hand, the tracks are awfully small (I was advised by one Sony engineer to be very careful cleaning the digital heads).

I wish I had more time to play with the machine under more conditions (Sony offered it to me for plenty of time, but my schedule wouldn't allow me to keep it) and to try optimizing it for different tape stocks. I also would have liked trying an analog/digital shootout with Dolby SR on the longitudinal tracks, which might have been very interesting.

Still, the bottom line is, I liked it. I liked it a lot. ■

**Author Mark Schubin, a two-time Emmy Award winner, is the technical designer for the *Live from Lincoln Center* series and created the first nationwide, live stereo simulcast network in 1976.**

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# VIDEO PRODUCTION and POST-PRODUCTION

Information in the following directory section is based on questionnaires mailed earlier this year and was supplied by those facilities listed. *Mix* claims no responsibility for the accuracy of this information. Personnel, equipment, locations and rates may change, so please verify critical information with the companies directly.



Now entering its second decade of operation, Group IV Recording in Hollywood has contributed to the scores of both successful feature films (including *Tootsie*, *On Golden Pond*, *Back to the Future*, and *Flashdance*, to name a few) as well as dozens of television shows over the years.

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*Mix* listings procedure: Every month, *Mix* mails questionnaires to recording studios and/or other vital facilities and services for the recording, sound and video production industries. Basic listings (name, address, contact) are provided free of charge. Extended listings (equipment, credits, specialization), and photographs or company logos may be included at a nominal charge. If you would like to be listed in a *Mix* Directory, write or call the *Mix* Directories Department, 2608 Ninth Street, Berkeley, CA 94710, (415) 843-7901.

### Upcoming Directory Deadlines:

Southwest U.S. Studios/Recording Schools: **April 13, 1987**

Studio Designers and Suppliers: **May 4, 1987**

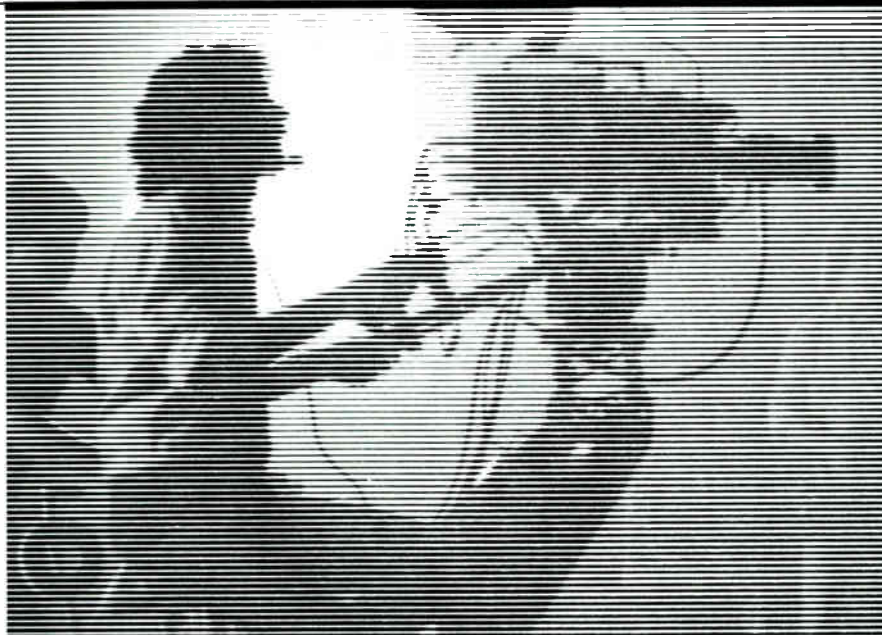
Southern California/Hawaiian Studios: **June 1, 1987**

Studio Design: **May 1, 1987**

# VIDEO PRODUCTION

The following studios span the spectrum from audio recording studios with basic video interfacing equipment to full video production centers with audio sweetening capabilities.

As this area is in a dynamic growth and update period, we encourage readers to contact the facilities for specifics.



In the following listings each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OLVP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

## AND POST-PRODUCTION

### NORTHEAST

CONNECTICUT, DELAWARE, MASSACHUSETTS,  
MARYLAND, MAINE, NEW HAMPSHIRE, NEW JERSEY,  
NEW YORK, PENNSYLVANIA, RHODE ISLAND,  
VERMONT, WASHINGTON, D.C.

**AB STARLITE INC.**  
VPF, VPP/E, OLVP  
Bucks Co. & Philadelphia  
Philadelphia, PA  
(215) 752-7491  
Owner: B.W. Feldman  
Studio Manager: D.L. Assal

**RAY ABEL PRODUCTIONS, INC.**  
VPF, VPP/E, OLVP  
Shore Dr.  
Port Chester, NY 10573  
(914) 939-2818  
Owner: Ray Abel  
Studio Manager: Jim Key

**ACE PRODUCTIONS**  
OLVP  
7545 Wilhelm Dr.  
Seabrook, MD 20706  
(301) 552-3869  
Owner: Dandridge P. Pitts Jr.  
Studio Manager: Robert Rivas

**ACI-ADVANCE COMMUNICATIONS INT'L.**  
OLVP  
20 W. 23rd St.  
New York, NY 10010  
(212) 691-5080  
Owner: C. Reppke  
Studio Manager: C.R. Tayman

**ACTION VIDEO PRODUCTIONS**  
VPF, VPP/E, OLVP, APPV  
1828 State St.  
East Petersburg, PA 17601  
(717) 560-0605  
Owner: Ian K. Harrower  
Studio Manager: Gordon J. Harrower

**ADM VIDEO PRODUCTIONS INC.**  
VPF, VPP/E, OLVP, APPV  
40 Seaview Blvd.  
Port Washington, NY 11050  
(516) 484-6900  
Owner: Tony DeMartino  
Studio Manager: Chuck Cali

**A.D.R. STUDIOS, INC.**  
OLVP, APPV  
325 West End Ave.  
New York, NY 10023  
(212) 486-0856  
Owner: A D.R. Studios, Inc.  
Studio Manager: Stuart J. Allyn

**AEROMEDICAL TRAINING INSTITUTE**  
(DIV OF E.T.C.)  
VPF, VPP/E, OLVP, APPV  
125 James Way  
Southampton, PA 18966  
(215) 355-9100  
Studio Manager: Robert A. Montgomery, Jr

**DOM ALBI ASSOCIATES, INC.**  
VPF  
251 W. 92nd St.  
New York, NY 10025  
(212) 799-2202  
Owner: Dom Albi  
Studio Manager: Jane Roeser

**ALDEN VIDEO & FILM PRODUCTIONS, INC.**  
VPF, VPP/E, OLVP, APPV  
80 Commerce St.  
Glastonbury, CT 06033  
(203) 633-9481  
Owner: Dennis Prueher, Allen Guilmette  
Studio Manager: Robert Dio

**ALL MIXED UP**  
APPV  
245 W. 104th St.  
New York, NY 10025  
(212) 222-5024  
Owner: Peter Bochan  
Studio Manager: Peter Bochan

**JOHN E. ALLEN, INC.**  
VPP/E, APPV  
116 North Ave.  
Park Ridge, NJ 07656  
(201) 391-3481  
Owner: John E. Allen  
Studio Manager: Gene Kerber

**AMERICAN MADE PRODUCTIONS**  
VPF, VPP/E, OLVP, APPV  
216 E. 45 St.  
New York, NY 10017  
(212) 557-4949  
Owner: Bob Becker  
Studio Manager: George Kane

**ANDIAMO FILMS**  
OLVP  
6 E. 30th St.  
New York, NY 10016  
(212) 683-7478  
Owner: Mitchell Sklare  
Studio Manager: Charmaine Kiehne

**ANGELSEA PRODUCTIONS**  
VPF, VPP/E, OLVP, APPV  
55 Russ St.  
Hartford, CT 06106  
(203) 241-8111  
Owner: Angelsea Productions, Inc.  
Studio Manager: Douglas Munford

**ANGLE FILMS**  
OLVP  
358 Central Ave.  
Jersey City, NJ 07307  
(201) 659-5193  
Owner: John Engel

**ANTHEM PRODUCTIONS**  
VPF, VPP/E, OLVP, APPV  
901 Pine Valley Cir.  
West Chester, PA 19382  
(215) 431-2963  
Owner: Charles L. Fisk, Skip Hempsey  
Studio Manager: Charles L. Fisk, Skip Hempsey



**APERTURA**  
**VPF**  
Main St., PO Box 12  
Orford, NH 03777  
(603) 353-9067  
Owner: John Karol  
Studio Manager: John Karol

**ARINC RESEARCH TELEVISION CENTER**  
**VPF, VPP/E, OLVP, APPV**  
2551 Riva Rd.  
Annapolis, MD 21012  
(301) 266-4686  
Owner: Privately owned corporation  
Studio Manager: Tim Eisenhut

**ARKAY VIDEO PRODUCTION, INC.**  
**VPF, OLVP**  
25 Van Zant St.  
East Norwalk, CT 06855  
(203) 866-3352  
Owner: Ralph Haselmann  
Studio Manager: Stan Shuman, Craig Reynolds

**A. S. P. ENTERPRISES**  
**VPF, VPP/E, OLVP, APPV**  
80-15 Grenfell St.  
Kew Gardens, NY 11415  
(718) 849-5769  
Owner: Bradley Halweil  
Studio Manager: Jimmy Madison, Bob Green

**ATLANTIC FILM AND VIDEO CO.**  
**OLVP, APPV**  
171 Park Ln.  
Massapequa, NY 11758  
(212) 927-1509  
Owner: Michael Canzoneri  
Studio Manager: Lia Volland

**AUDIO VIDEO PRODUCTIONS**  
**VPF, VPP/E, OLVP**  
PO Box 6287  
Lawrenceville, NJ 08648  
(609) 882-5570  
Owner: Mel Obst  
Studio Manager: Manny Obst

**AUDIOLINK**  
**APPV**  
1380 Soldiers Field Rd.  
Boston, MA 02135  
(617) 783-0433  
Owner: Steve Olenick  
Studio Manager: Mary Guest  
Video Tape Recorders: IVC 6650 U-matic, Sony Type C  
1-inch.  
Video Monitors: Sony, Toshiba.  
Synchronizers: (3) Timeline Lynx modules.  
Audio Recorders: Otari MX-70 16-track, Otari MTR-10  
2-track center track, Nagra IV-ST.  
Audio Mixers: Soundcraft 600 24 input.  
Other Major Equipment: Otari CB120B time code-based  
edit controller, Yamaha QX-1 digital sequence recorder,  
Akai S900 sampler, Yamaha synthesizers, Oberheim syn-  
thesizers, Moog synthesizers, Neumann TLM-170 mic (and  
others).

**AVATAR PRODUCTIONS**  
**VPF, VPP/E, OLVP**  
418 Castleton Ave.  
Staten Island, NY 10013  
(718) 816-0501  
Owner: Paul Jacobson  
Studio Manager: Joanne Zemek

**AVEKTA PRODUCTIONS INC.**  
**VPF**  
164 Madison Ave.  
New York, NY 10016  
(212) 686-4550  
Owner: Maria Avgerakis

**AVID RECORDERS**  
also **REMOTE RECORDING**  
PO Box 1727  
Wallingford, CT 06492  
(203) 284-2000  
Owner: D.E. Ferrara  
Studio Manager: Loyalty Pearson

**AVON PRODUCTIONS**  
**VPF, VPP/E, OLVP, APPV**  
123 Mattis  
So. Pl'd., NJ 07080  
(201) 756-0643  
Owner: F. Lipowitz

**BAILADOR PRODUCTIONS**  
**VPF, VPP/E, OLVP, APPV**  
PO Box 44208  
Pittsburgh, PA 15205  
(412) 922-2272  
Owner: Kathleen M. Smith  
Studio Manager: Dave Gross

**BALLENTYNE BRUMBLE COMMUNICATIONS**  
**VPF, OLVP**  
906 N. American St.  
Philadelphia, PA 19123  
(215) 923-5454  
Owner: John Ballentyne, Dianne Brumble  
Studio Manager: John Ballentyne

**BALSMEYER & EVERETT, INC.**  
**VPF, VPP/E, OLVP**  
230 W 17th St.  
New York, NY 10011  
(212) 627-3430  
Owner: Mimi Everett  
Studio Manager: Randall Balsmeyer

**BOB BALZARINI SOUND SVC.**  
**OLVP**  
4851 Bell Blvd.  
Bayside, NY 11364  
(718) 423-7507  
Owner: Bob Balzanni

**TOM BARTLETT TELEVISION PRODUCTIONS**  
**VPF, VPP/E, OLVP**  
175 Bunker Hill Rd.  
Auburn, NH 03032  
(603) 483-2662  
Owner: Tom Bartlett  
Studio Manager: Tom Bartlett

**BLACK TIE PRODUCTIONS**  
**DIV. OF FRANK HARRISON INC.**  
**VPF, VPP/E, OLVP, APPV**  
29 W. Palisades Ave.  
Nanuet, NY 10954  
(914) 623-0842  
Owner: Frank Bohlke  
Studio Manager: Frank Bohlke

**BLANK TAPE SYSTEMS**  
**VPP/E, OLVP**  
1619 Third Ave.  
New York, NY 10128  
(212) 860-5783  
Owner: Ellen Afromsky  
Studio Manager: Sam Blank

**SAMUEL R. BLATE ASSOCIATES**  
**VPF, APPV**  
10331 Watkins Mill Dr.  
Gaithersburg, MD 20879

(301) 840-2248  
Owner: Samuel R. Blate  
Studio Manager: Samuel R. Blate

**BOSTON PUBLIC SCHOOLS HUMPHREY  
OCCUPATIONAL RESOURCE CENTER**  
**VPF, VPP/E, OLVP, APPV**  
75 New Dudley St.  
Boston, MA 02118  
(617) 442-5200, ext. 530  
Owner: Boston Public Schools  
Studio Manager: Phil Worrell, Tessil Gillins

**BREITROSE-SELTZER STAGES**  
**VPF**  
383 W. 12th St.  
New York, NY 10014  
(212) 807-0664  
Owner: Mark Breitrose  
Studio Manager: Cyndi Margulis

**BRIDGE STREET PRODUCTIONS**  
**VPP/E, OLVP**  
5 Bridge St.  
Watertown, MA 02172  
(617) 924-0285  
Owner: Bob Warren, Mike Chuany

**BROAD STREET PRODUCTIONS**  
**VPF, VPP/E, OLVP, APPV**  
50 Broad St., 20th Floor  
New York, NY 10004  
(212) 480-8031  
Owner: Drexel Burnham Lambert  
Studio Manager: David Dreyfuss

**BROADWAY VIDEO INC.**  
**VPP/E**  
1619 Broadway  
New York, NY 10019  
(212) 265-7600  
Owner: Lorne Michaels  
Studio Manager: Peter Fatovich

**BUDGET PHOTO/VIDEO PROMOTIONS**  
**VPP/E, OLVP**  
313-B W. Water St.  
Toms River, NJ 08753  
(201) 244-8306  
Owner: Kryn P. Westhoven  
Studio Manager: Chris Ott

**BWA**  
**APPV**  
21 Erie St., Ste. 30  
Cambridge, MA 02139  
(617) 354-8332  
(617) 499-2585  
Owner: Bill Wangerin  
Studio Manager: Karen Smith

**CABSCOTT BROADCAST PRODUCTION, INC.**  
**VPF, VPP/E**  
517 Seventh Ave.  
Lindenwold, NJ 08021  
Owner: Larry Scott  
Studio Manager: Anne Foster

**CAESAR VIDEO GRAPHICS**  
**VPF, VPP/E**  
137 E. 25th St.  
New York, NY 10010  
(212) 684-7673  
Owner: Peter Caesar  
Video Tape Recorders: (4) Ampex VPR-3, Sony BVH-  
2000, (3) Sony VO-5800 U-Matic, (2) Panasonic NV-8200,  
Sony Beta Hi Fi.  
Switchers/editors: CMX3400A computerized 1-inch  
editor, CMX340X computerized 1-inch editor, Grass Val-  
ley 300-3A Switcher.  
Video Cameras: NEC SP-3A CCD color camera, B/W  
title camera, Quantel Harry DCR-7700 realtime digital  
cel recorder.  
Synchronizers: CMX.  
Video Effects Devices: Ampex ADO w/Digi-Matte, Quan-  
tel Encore, (2) Quantel DPB-7000 Paintboxes w/V.3/V.4  
software, (2) Chyron 4100 electronic graphic systems w/2-  
channel CCM, MGM, Digiflex, and font/logo compose.  
Audio Recorders: Otari MTR-10 4-track.  
Audio Mixers: Neve 5452 16-input stereo console.

—LISTING CONTINUED ON NEXT PAGE



AVATAR PRODUCTIONS  
Staten Island, NY

—LISTING CONTINUED FROM PAGE 151

**Soundstages:** Audio announce booth, design studio, conference room.

**Other Major Equipment:** One-inch edit suite, digital animation studio, Faroudja Lab decoder for composite to RGB, programmable IMC animation, stand, (2) Dubner CBG-2 real time animation systems, Lyon-Lamb VAS IV, edit controller for animation, Newsmatte, Matrix high-resolution video printer (35mm and polaroid), UREI 813B speakers, Dolby "A" noise reduction.

**CALLISTO VIDEO ARTS**

**VPF**  
210 7th St. SE, Ste. 401  
Washington, DC 20003  
(202) 543-1003  
Owner: The Ganymede Group  
Studio Manager: Ves Bennett

**CAMBRIDGE MEDIA - CAMBRIDGE VIDEO GROUP**

**VPF, VPP/E, OLVP, APPV**  
91 Bloomingdale St.  
Chelsea, MA 02150  
(617) 884-2826  
Owner: David Titus & Susanna Doyle  
Studio Manager: David Titus

**CAROB VIDEO**

**VPP/E**  
250 W. 57th St.  
New York, NY 10107  
(212) 957-9525  
Studio Manager: Robin Spergel

**C.B.P. FILM TO TAPE, INC.**

**VPF, VPP/E, OLVP**  
517 Seventh Ave.  
Lindenwood, NJ 08021  
Owner: Larry Scott  
Studio Manager: Elaine R. Goldstein

**CELEBRATION RECORDING**

**APPV**  
2 W. 45th St.  
New York, NY 10128  
(212) 575-9095  
Owner: M2H&F  
Studio Manager: Chris Tergesen

**CENTER CITY VIDEO, INC.**

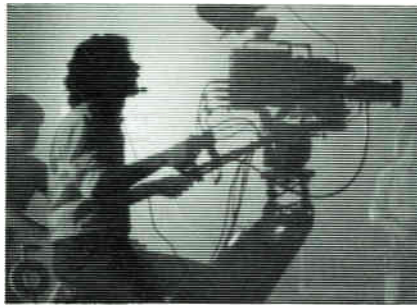
**VPF, VPP/E, OLVP**  
1503-05 Walnut St.  
Philadelphia, PA 19102  
(215) 568-4134  
Owner: Jordan Schwartz, Frank Beazley  
Studio Manager: Dave Cullver  
Video Tape Recorders: (2) RCA TR-600 2-inch, (2) Sony BVU-110 3/4-inch field, Sony BVW-25 Betacam Field, (4) Sony BVH-2000 1-inch editing, (6) Sony BVH-1100 1-inch editing, (3) Sony BVH-500 1-inch field.  
Video Monitors: Ikegami in all suites and master control room.  
Switchers/editors: GVG 300 (Grass Valley) Edit #1, Ampex AVC Edit #2, GVG 1600-3K (Grass Valley) Edit #3, GVG 100 (Grass Valley), portable/remote switcher.  
Video Cameras: (4) Ikegami HL79E, (2) Ikegami HL-730A. Video Effects Devices: (2) Ampex ADO Channels w/perspective and Digimate.  
Audio Recorders: (3) Otari 1/2-track, Tascam 8-track, Nakamichi DMP-100 digital recorder.  
Audio Mixers: Yamaha PM-2000, Yamaha PM-1516, Wheatstone P-12x5  
Soundstages: 20 x 40  
Other Major Equipment: Quantel Paint Box, Ampex Cubicomp Picturemaker, Chyron dual channel CGs edit suites, A-bekas A-62 digital video recorder, (3) 1-inch on-line edit suites, all w/interformat capability, CMX 340 and Patex Esprit editors.  
Rates: upon request

**CENTER FOR BIOMEDICAL COMMUN. COLLEGE OF PHYSICIANS & SURGEONS**

**VPF, VPP/E, OLVP, APPV**  
630 W. 168th St.  
New York, NY 10032  
(212) 305-4101  
Owner: Columbia University  
Studio Manager: Jeffrey A. Szmulewicz

**CENTURY III TELEPRODUCTIONS**

**VPF, VPP/E**  
651 Beacon St  
Boston, MA 02215  
(617) 267-6400



## NORTHEAST

*Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).*

Owner: Ross M. Cibella  
Studio Manager: Richard A. Parent

**CETCO, INC.**

**VPF, VPP/E, OLVP, APPV**  
24 Summit St.  
Hartford, CT 06106  
(203) 278-5310  
Owner: Connecticut Public Television  
Studio Manager: Ronald Thompson

**CHANNEL 3 VIDEO**

**VPF, VPP/E, OLVP, APPV**  
Pilgrim Station Box 8781  
Warwick, RI 02888  
(401) 461-1616  
Owner: Jeffrey B. Page  
Studio Manager: Mike Soltys

**CHANNEL ONE VIDEO**

**VPF, VPP/E, OLVP, APV**  
PO Box 1437  
Seabrook, NH 03874  
(603) 474-5046  
Owner: Bill Channell  
Studio Manager: Bill Harris

**CINEMA SERVICES, INC.**

**VPP/E, APPV**  
116 North Ave.  
Park Ridge, NJ 07656  
(201) 391-6335  
Owner: Michael Schuler

**CIRCUIT STUDIOS, INC.**

**VPF**  
5161 River Rd., Bldg. 2, Ste. 103  
Bethesda, MD 20816  
(301) 656-5918  
Owner: Garri Garripoli  
Studio Manager: Terr Nussbaumer

**CO-DIRECTIONS, INC.**

**OLVP**  
276 Riverside Dr. #4C  
New York, NY 10025  
(212) 865-5069  
Owner: Joe Tripician  
Studio Manager: Merrill Aldighieri

**STEVEN COHEN MOTION PICTURE PRODUCTION**

**VPF, OLVP**  
21 Fireplace Dr.  
Kings Park, NY 11754  
(516) 269-4550  
Owner: Steven Cohen  
Studio Manager: Steven Cohen

**COLOR LEASING STUDIOS**

**VPF, VPP/E, OLVP, APPV**  
330 Rte. 46 E.  
Fairfield, NJ 07006  
(201) 575-1118  
Owner: Jack Berberian  
Studio Manager: Lorraine Mancuso

**COMMUNICATIONS PLUS VIDEO**

**VPF, VPP/E, OLVP, APPV**  
360 Park Ave. S.  
New York, NY 10010  
(212) 686-9570  
Owner: Max Bodden  
Studio Manager: Ray O'Connor

**COMMUNICATIONS SERVICES GROUP/CSG PRODUCTIONS, INC.**

**OLVP**  
47 Greene St.  
New York, NY 10013  
(212) 226-7837  
Owner: Jude Quintiere, Christopher Coughlan

**COMPUGENESIS**

**VPF, OLVP**  
41-48 40th St.  
Sunnyside, NY 11104  
(718) 937-7061  
Owner: John W. Grzywacz & Anthony Stampalia  
Studio Manager: Anthony Stampalia

**CORPORATE IMAGE VIDEO**

**VPF, VPP/E, OLVP, APPV**  
PO Box 95196  
Pittsburgh, PA 15223  
(412) 784-8100  
Owner: Russ Manno  
Studio Manager: Gil Berkins

**CREATIVE ASSOCIATES**

**VPP/E, OLVP**  
626 Bloomfield Ave.  
Verona, NJ 07044  
(201) 499-0044

**CREATIVE MEDIA CONCEPTS**

**VPF, VPP/E, OLVP, APPV**  
249-02 Jericho Turnpike  
Bellerose, NY 11001  
(718) 347-1221  
(516) 352-1150  
Owner: Tim Horsting  
Studio Manager: Tim Horsting

**CREATIVE SOUND STUDIOS**

**APPV**  
601 N. Sixth St.  
Allentown, PA 18032  
(215) 439-8004  
Owner: Hal Schwoyer  
Studio Manager: Andrea Czarniecki

**CUE RECORDINGS, INC.**

**APPV**  
1156 Avenue of the Americas  
New York, NY 10036  
(212) 921-9221  
Owner: Mel Kaiser  
Studio Manager: Bruce Kaiser

**CZAR PRODUCTIONS**

**VPF, VPP/E, OLVP, APPV**  
9 Princeton St.  
West Hartford, CT 06110  
(203) 232-4701  
Owner: Gene Czarniecki

**DAYDREAM PRODUCTIONS**

**VPF, OLVP**  
85-53 144th St.  
Jamaica, NY 11435  
(718) 297-5457  
Owner: Alan Cory Kaufman

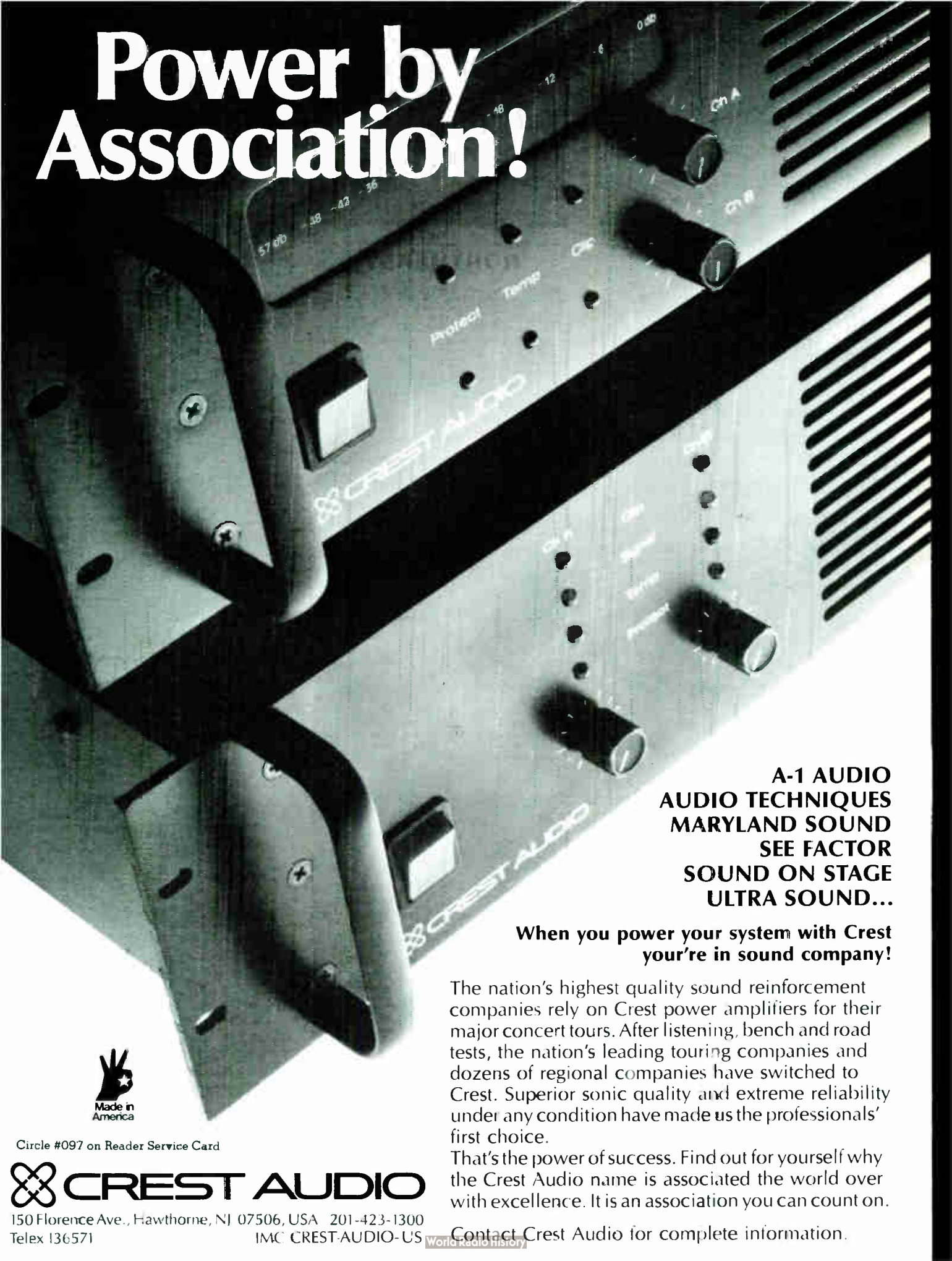
**DEWOLFE MUSIC LIBRARY, INC.**

25 W. 45th St.  
New York, NY 10036  
(212) 382-0220  
Owner: Fred Jacobs  
Studio Manager: Andy Jacobs, Mitchel J. Greenspan

**DIGITAL UNITED VIDEODISC AND COMPACT DISC**

**VPF**  
282 Cabrini Blvd., Sixth Floor  
New York, NY 10040  
(212) 795-0403  
Owner: Mark Magel

# Power by Association!



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Telex 136571

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World Radio History

**DISCOVERY PRODUCTIONS**  
**VPF, APPV**  
 509 Riverside Ave.  
 Lyndhurst, NJ 07071  
 (201) 935-6158  
 Owner: William Doran  
 Studio Manager: Robert Doran

**STEFAN DOBERT PRODUCTIONS, INC.**  
**OLVP**  
 471 Fairhaven Rd.  
 Fairhaven, MD 20754  
 (301) 855-4151  
 Owner: Stefan Dobert

**THE DOVETAIL GROUP, INC.**  
 127 W. 92nd St.  
 New York, NY 10025  
 (212) 316-2452  
 Owner: G. Brioso, R. Freitas, P. Freitas

**DOWNTOWN PRODUCTIONS**  
**VPF, OLVP**  
 22 Railroad St., Ste. 2  
 Great Barrington, MA 01230  
 (413) 528-9395  
 Owner: John MacGruer, Mickey Friedman

**DU TEL PRODUCTIONS, INC.**  
**VPF**  
 146 Old Possum Hollow Rd.  
 Newark, DE 19711  
 (302) 738-4873  
 Owner: Sam Johnson  
 Studio Manager: Liz Carlisle

**D-V-X INTERNATIONAL**  
**VPP/E, OLVP**  
 1038 Bay Ridge Ave.  
 Brooklyn, NY 11219  
 (718) 680-7234  
 Owner: Demo-Vox Sound Studio, Inc.  
 Studio Manager: Frank J. Grassi, Laura B. Grassi

**DYNAMIC RECORDING**  
**VPF, VPP/E, OLVP, APPV**  
 2846 Dewey Ave.  
 Rochester, NY 14616  
 (716) 621-6270  
 Owner: David R. Kaspersini  
 Studio Manager: Phyllis G. Bishop

**EAGLEVISION, INC.**  
**VPF, VPP/E, OLVP, APPV**  
 3001 Summer St.  
 Stamford, CT 06905  
 (203) 359-8777  
 Owner: Michael Macari, Jr., Rocky Prozano, Frank Ciliberto, Jr.  
 Studio Manager: Michael Macari, Jr.

**EAST SIDE FILM & VIDEO CENTER, INC.**  
**APPV**  
 216 E. 45th St.  
 New York, NY 10017  
 (212) 867-0730  
 Owner: Gordon Enterprises  
 Studio Manager: Jane Blecher

**EASTERN SOUND & VIDEO**  
**VPF, VPP/E, OLVP, APPV**  
 462 Merrimack St.  
 Methuen, MA 01844  
 (617) 685-1832  
 Studio Manager: Pat Costa  
 Video Tape Recorders: Sony 5850, Panasonic 9600, JVC, Ampex.  
 Video Monitors: Panasonic and JVC monitors.  
 Switchers/editors: Panasonic 4600 switcher, Pyxis DVE (A/B roll w/TBC).  
 Video Cameras: Ikegami 730As 14 x 1.  
 Video Effects Devices: Fairlight CVI digital video computer w/color modification/mattes/pixelation/strobe/chroma key and paint facilities.  
 Audio Recorders: Otari MX-80 32-track, MCI JH-110, dbx 700 digital, Nakamichi MR-1 cassette decks.  
 Audio Mixers: MCI/Sony JH-636 36-channel automated (76 mixdown channels).  
 Soundstages: Sound stage for video production with up to three cameras; 1/2-inch, 3/4-inch or one-inch broadcast quality.  
 Other Major Equipment: Two edit suites: "A" has A&B



## NORTHEAST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OLVP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).



### EASTERN SOUND & VIDEO Methuen, MA

roll editing w/full DVE, "B" offers insert and assembly editing only; Fortel TBC, Chyron VP-1 character generator; UREI B13B, Westlake, Yamaha and JBL Professional audio monitors; Neumann, Sennheiser, AKG, E-V, Crown, PZM, Beyer and Shure mics; large outboard complement: Lexicon 224, PCM60, PCM 70, Aphex and EXR exciters, gates, EQs, comp/limiters, digital delays, Eventide harmonizer, Orban de-esser, Yamaha SPX90s and more.  
 Rates: Negotiable.



### EDITEL NEW YORK New York, NY

**EDITEL NEW YORK**  
**VPP/E, APPV**  
 222 E. 44th St.  
 New York, NY 10028  
 (212) 867-4600  
 Owner: Scan Line Communications  
 Switchers/editors: (5) on-line edit rooms, (2) 3/4 inch edit rooms, interformat edit room, montage edit room.  
 Video Cameras: (2) Warren Smith animation stands,

w/Ikegami HL 79EA cameras.  
 Other Major Equipment: soundroom equipped w/SSL 6000, series console, Studer multi track machines, Dolby stereo capacity, SONY multi-track digital audio, sprocketed film facility, film to tape: Rank Cintel w/, vary-speed and XY zoom, duplication: 1-inch, 2-inch, 3/4-inch, 1/2-inch.

**THE EDITORIUM**  
**VPF, VPP/E, OLVP, APPV**  
 100 Ross St.  
 Pittsburgh, PA 15219  
 (412) 765-3500  
 Owner: Hartwick/Przyborski Productions, Inc.  
 Studio Manager: David Belko

**EDWARDS FILMS, INC.**  
**OLVP**  
 Center Rd.  
 Eagle Bridge, NY 12057  
 (518) 677-5720  
 Owner: Harvey Edwards  
 Studio Manager: Harvey Edwards

**ELECTRIC FILM**  
**VPF, VPP/E, OLVP, APPV**  
 87 Lafayette St.  
 New York, NY 10013  
 (212) 925-3429  
 Studio Manager: Willie Crawford

**ELECTRONIC ACOUSTIC RES. SYS.**  
**VPP/E, APPV**  
 3 Hanson St.  
 Boston, MA 02118  
 Studio Manager: Rob Rosati



### EMPIRE VIDEO INC. New York, NY

**EMPIRE VIDEO INC.**  
**VPP/E**  
 216 E. 45th St.  
 New York, NY 10017  
 (212) 687-2060  
 Owner: Lenny Davidowitz  
 Video Tape Recorders: (8) Ampex VPR3, (6) Sony BVU-800, (8) Sony VO-5600  
 Video Monitors: (2) Shibusoku CVM 20, (2) Shibusoku CVM 14, (2) Ikegami.  
 Switchers/editors: (2) CDL 1080s, Grass Valley 100, (2) CMX 3400, 3400A.  
 Video Cameras: Ikegami 79EA.  
 Video Effects Devices: (2) Ampex ADO, Ampex Concentrator.  
 Audio Recorders: (2) Studer A80.  
 Audio Mixers: (2) ADM 1642.  
 Other Major Equipment: Symbolics 3D animation & paint system, Warren Smith animation stand, Dubner CBG 1 graphics systems, CCI color corrector Fortel, Fortel X688 TBCS.  
 Extras & Direction: Lenny Davidowitz and Steve Rinaldis are Emmy, Clio and Monitor Award winning editors. Ron Sabatino is a young, energetic talent in Symbolics Computer systems, skilled at both Paint and 3-D Graphics. Empire Video is a push, relaxed, state-of-the-art videotape facility designed to edit and, now, animate to your needs. When you're looking for the best, call us at Empire Video. You'll recognize the difference.

**ENCORE PRODUCTIONS—**  
**DIVISION OF BLAKASLEE-LANE, INC.**  
*VPF, VPP/E, OLVP, APPV*  
2315 N. Charles St.  
Baltimore, MD 21218  
(301) 366-8881  
Owner: Blakaslee-Lane, Inc.  
Studio Manager: Charles Mann

**THE ENTERTAINMENT PRODUCING GROUP**  
PO Box 1316, Ansonia Station  
New York, NY 10023  
(212) 724-8841  
Owner: David Tynnton, Les Vanderlecht  
Studio Manager: David Tynnton

**EVERETT INCORPORATED**  
*VPF, OLVP*  
22 Barker Ave.  
White Plains, NY 10601  
(914) 997-2200  
Owner: Robbie Everett

**MARTIN EZRA & ASSOCIATES**  
*VPP/E, OLVP*  
45 Fairview Dr.  
Lansdowne, PA 19050  
(215) 622-1600  
Owner: Martin Ezra  
Studio Manager: Batman Higgins

**FADE TO BLACK ASSOCIATES**  
*VPF, VPP/E*  
PO Box 971 - 54 Hubbard Ave.  
Cambridge, MA 02138  
(617) 491-6817  
Owner: William A. Robinson, Jr.  
Studio Manager: William A. Robinson, Jr.

**ROBERT FAIR FILM SCORING PRODUCTIONS**  
*APPV*  
268 Elizabeth St.  
New York, NY 10012  
(212) 966-2852

Owner: Robert Fair  
Studio Manager: Curtis McKonly

**HOWARD FELD**  
*OLVP*  
637 Penn Ave.  
Teaneck, NJ 07666  
(201) 836-8489  
Owner: Howard Feld  
Studio Manager: Howard Feld

**FELLMAN PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
55 Grace St.  
Malden, MA 02148  
(617) 322-4571  
Owner: Henry C. Fellman  
Studio Manager: Henry C. Fellman

**STEVEN FIERBERG PRODUCTIONS**  
*OLVP*  
668 Washington St.  
New York, NY 10014  
(212) 929-4199  
Owner: Steven Fierberg

**FILIPPONE SOUND AND VIDEO**  
*OLVP*  
176 Garner Ave.  
Buffalo, NY 14213  
(716) 881-4483  
Owner: Randy Filippone  
Studio Manager: Karen Filippone

**FILMFUTURES CORP**  
*VPF, OLVP*  
799 Broadway, Ste. 325  
New York, NY 10003  
(212) 686-0544  
Owner: Ilan Duran  
Studio Manager: Aliza Cohen

**DONALD P. FINAMORE MPE**  
*VPP/E*  
619 W. 54th St.  
New York, NY 10019  
(212) 582-5265  
Owner: Donald Finamore

**FLYING TIGER COMMUNICATIONS, INC.**  
155 W. 18th St.  
New York, NY 10011  
(212) 929-1156  
Owner: Tony Foresta, K. Armstrong  
Studio Manager: Dawn E. Sinsel

**FOREMOST FILMS & VIDEO, INC.**  
*VPF, VPP/E, OLVP, APPV*  
459 Union Ave.  
Frammingham, MA 01701  
(617) 879-4775  
Owner: David Fox

**FRANKLIN COMMUNICATIONS**  
*VPF, VPP/E, OLVP*  
16 W. 32nd St., 8th Floor  
New York, NY 10011  
(212) 244-1017  
Owner: Franklin Feinberg  
Studio Manager: Stacey Orishak

**GAFFERS, GRIPS & GOFERS**  
*VPF, OLVP*  
415 Highgate Ave.  
Buffalo, NY 14215  
(716) 936-1008  
Owner: Jack Cummings  
Studio Manager: Jack Cummings

**GARDEN SPOT NEWS SERVICE**  
*VPP/E, OLVP*  
PO Box 232  
Masspeth, NY 11378  
(718) 672-3865  
Owner: Joseph Peter Storza



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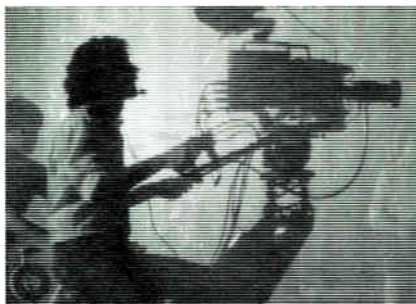
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- Duplication 1" 3/4" and 1/2"
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- Full Broadcast Quality Commercials
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- Illustration
- Art Services
- Slide Productions
- Rentals

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## NORTHEAST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OLV (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

### GARRETT FILMS INTERNATIONAL

VPF, VPP/E, OLV, APPV  
Plum Creek Rd., Rt. 3  
Bernville, PA 19506  
(215) 488-7552  
Owner: R.E. Garrett

### GLASS PRODUCTIONS

OLVP  
259 Woodlawn Ave.  
Albany, NY 12208  
(518) 482-4270  
Owner: Sam Glass

### GNVC VISUAL COMMUNICATIONS

VPF, VPP/E, OLV, APPV  
8281 Ohio River Blvd.  
Pittsburgh, PA 15202  
(412) 734-0900  
Owner: Robert R. Kellez  
Studio Manager: Stephen J. Poserbr

### GOURMET VIDEO PRODUCTIONS

VPF, VPP/E, OLV, APPV  
PO Box 433  
Manasquan, NJ 08736  
(201) 458-4625  
Owner: Nicholas G. Kuntz

### HARRIMAN COMMUNICATIONS CENTER

VPF, VPP/E, OLV, APPV  
430 S. Capitol St. SE  
Washington, DC 20003  
(202) 485-3400  
Owner: Democratic Congressional Campaign Committee  
Studio Manager: Jim Eury

### HELIOTROPE STUDIOS LTD.

VPF, VPP/E, OLV, APPV  
21 Erie St.  
Cambridge, MA 02139  
(617) 868-0171  
Owner: Boyd Estus, James Griebisch  
Studio Manager: Boyd Estus

### HILLMANN & CARR INC.

VPF  
2121 Wisconsin Ave NW  
Washington, DC 20007  
(202) 342-0001  
Owner: Alfred Hillmann  
Studio Manager: Michal Carr

### HL TV PRODUCTIONS

VPF, OLV  
170 Ave. D Ste. 8B  
New York, NY 10009  
(212) 477-2694  
Owner: Hector Lavergne  
Studio Manager: Eddie Bonilla

### DAVID HODGE PRODUCTIONS

VPF, VPP/E, OLV  
935 8th Ave.  
New York, NY 10019

(212) 245-3623  
Owner: David Hodge  
Studio Manager: David Hodge

### HORN/EISENBERG FILM & VIDEO EDITING, INC.

VPP/E  
16 W 46th St.  
New York, NY 10024  
(212) 391-8166  
Owner: Chns Horn, Alan Eisenberg  
Studio Manager: Mitch Garelick

### IF WALLS COULD TALK STUDIOS

Box 309  
Caldwell, NJ 07006  
(201) 773-6866  
(201) 226-1461  
Owner: Glenn Taylor  
Studio Manager: Glenn Taylor

### IKON PRODUCTIONS

VPF, VPP/E, OLV  
2 Forest Row  
Great Neck, NY 11023  
(516) 829-6377  
Owner: Joel Aronstein

### IMATRON PRODUCTIONS, INC.

VPF, VPP/E, OLV, APPV  
204 Country Club Dr.  
Manhasset, NY 11030  
(516) 665-4435  
Owner: Dan Fuchs, Chnstopher Roberto

### IN SYNC PRODUCTIONS

VPP/E, OLV, APPV  
211 W. 79th St.  
New York, NY 10024  
(212) 946-2636  
Owner: Ask/Hak Inc.  
Studio Manager: Joe Manzella, Hilary Kaufman

### INNOVATIVE VIDEO ASSOCIATES

VPF, VPP/E, OLV  
13 Fern Ave.  
Collingswood, NJ 08108  
(609) 858-4120  
Owner: Lawrence M. Chatman, Jr

### INTERCONTINENTAL TELEVIDEO, INC.

VPF, VPP/E  
28 W. 38th St.  
New York, NY 10018  
(212) 719-0202  
Owner: G. Citron  
Studio Manager: N. Toovey

### INTER-MEDIA ART CENTER

370 New York Ave.  
Huntington, NY 11743  
Studio Manager: Michael Rothbard

### INTERNATIONAL PRODUCTION CENTER (I.P.C.)

514 W. 57th St.  
New York, NY 10019  
(212) 582-6830  
Owner: MPSC Video Industries  
Studio Manager: Alan Neal

### IRIS SOUND STUDIO

OLVP, APPV  
237 Main St.  
Royersford, PA 19468  
(215) 948-3448  
Owner: David Ivory  
Studio Manager: Darrah Ribble

### IZEN ENTERPRISES, INC.

VPF, OLV  
26 Abby Dr.  
East Northport, NY 11731  
(516) 368-0615  
Owner: Roy Izen

### JUNKER ASSOCIATES

APPV  
55 Purdue Dr.  
Milford, MA 01757  
(617) 473-9101

Owner: Jeffrey Stephen Junker  
Studio Manager: Edward Noonan

**SLOANE KASELL H/E PRODUCTIONS**  
VFP, OLVP  
16 W. 46th St.  
New York, NY 10036  
(212) 819-1717  
Owner: Denise Kasell  
Studio Manager: Jamie Leaver

**KNOWLES**  
VFP/E, OLVP  
408 W. 57th St., 6K  
New York, NY 10019  
(212) 581-4591  
Owner: Gregory Knowles

**KOUFFMAN COMMUNICATIONS**  
VFP, OLVP, APPV  
33 Marbury Ave.  
Pawtucket, RI 02860  
(401) 725-1123  
Owner: Henry Kouffman  
Studio Manager: Henry Kouffman

**DICK LAPELL PRODUCTIONS, LTD.**  
VFP, OLVP  
250 W. 54th St., Ste. 800  
New York, NY 10019  
(212) 586-3700  
Owner: Dick LaPell  
Studio Manager: Dota LaPell

**LAUREL VIDEO PRODUCTIONS**  
VFP/E, OLVP  
1999 E. Route 70  
Cherry Hill, NJ 08003  
(609) 424-3300  
Owner: Steven Tadzynski

**LAVA PRODUCTIONS**  
VFP, VFP/E  
95 Madison Ave.  
Hempstead L.I., NY 11550  
(516) 565-4770  
Owner: Vincent Tilotta  
Studio Manager: Karl Kraft

**RICHARD LEPAGE & ASSOCIATES**  
APPV  
Suffern, NY 10901  
(914) 357-6453  
Owner: Rich LePage  
Studio Manager: Rich LePage

**LIES BROTHERS FILM PRODUCTIONS**  
OLVP  
PO Box 79014  
Pittsburgh, PA 15216  
(412) 343-0633  
Owner: Leonard and Michael Lies  
Studio Manager: Leonard Lies

**LIGHTSCAPE PRODUCTIONS**  
VFP, VFP/E, OLVP, APPV  
420 W. 45th St.  
New York, NY 10036  
(212) 757-0204  
Owner: Jeffrey Poretzky  
Studio Manager: Jeffrey Poretzky

**LINDAJAY PRODUCTIONS**  
VFP, VFP/E, OLVP  
832 Rogers St.  
Lanoka Harbor, NJ 08734  
(609) 693-1813  
Owner: L. J. Becker  
Studio Manager: L. J. Becker

**LONG VIEW FARM**  
VFP, VFP/E, OLVP, APPV  
Stoddard Rd.  
North Brookfield, MA 01535  
(617) 867-7662  
(800) 225-9055  
Owner: Gil Markle  
Studio Manager: Andrea Marchand  
Dimensions: Soundstage built for Rolling Stones. Fully lit,  
with catwalks and elevated dolly ways for cameras. Ac-



**LONG VIEW FARM**  
North Brookfield, MA

commodities audience of 350.  
Video Tape Recorders: Sony BVU-800, JVC  
Video Monitors: Videotek, Proton.  
Switchers/editors: Convergence ECS 195, Crosspoint  
Latch, Dual TBC.  
Video Cameras: Ikegami, JVC  
Synchronizers: BTX Shadow, BTX Cypher.  
Audio Recorders: Studer, Otari, MCI  
Audio Mixers: MCI 524 28 x 28, Sound Workshop Series  
34, 32 x 24.  
Other Major Equipment: Entire facility linked via video  
and audio tie lines throughout.  
Rates: Negotiable, call for details.

**LONGWOOD VIDEO, INC.**  
VFP/E  
32 W. 22nd St.  
New York, NY 10010  
(212) 741-3733  
Owner: Ira Meistrick and K. Black  
Studio Manager: Kathryn L. Black

**LOOKING GLASS FILM COMPANY**  
VFP, VFP/E, OLVP, APPV  
5914 Overbrook Ave.  
Philadelphia, PA 19131  
(215) 473-2329  
Owner: Michael Constant  
Studio Manager: Ruben Masteri

**KEITH LOVETT AND ASSOCIATES, INC.**  
VFP, OLVP  
87 Fifth Ave.  
New York, NY 10003  
(212) 627-1885  
Owner: Keith Lovett, Jason Saylor

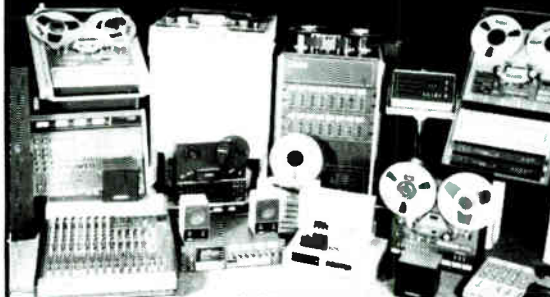
**LRP VIDEO**  
VFP, VFP/E, OLVP  
3 Dag Hammarskjold Plaza  
New York, NY 10017  
(212) 759-0822

**LUCAS CHRISTIAAN PRODUCTIONS**  
OLVP  
177 Water St.  
Brooklyn, NY 11201  
(718) 596-0649  
Owner: Ronald L.C. Kienhuis

**LYONS PRODUCTIONS**  
VFP, VFP/E, OLVP, APPV  
715 Orange St.  
Wilmington, DE 19801  
(302) 654-6146  
Owner: William Spiker  
Studio Manager: Jim Hefferman

**MAGNO EMPIRE RECORDING STUDIOS**  
VFP, VFP/E, APPV  
18 W. 45th St.  
New York, NY 10036  
(212) 757-8855  
Owner: Magno Sound & Video  
Studio Manager: Larry Roemer

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**MAJOR LEAGUE BASEBALL PRODUCTIONS**  
**VPP/E**  
 1212 Avenue of the Americas  
 New York, NY 10036  
 (212) 921-8100  
 Owner: Joe Podesta, Jim Holland  
 Studio Manager: Geoff Belinlante

**JOHN MANIA**  
**VPF, OLVP**  
 725 11th Ave. 35  
 New York, NY 10019  
 (212) 586-3578  
 Owner: John Mania  
 Studio Manager: John Mania

**JOHN MANIA**  
**VPF, OLVP**  
 193 Glen Ave.  
 Midland Park, NJ 07432  
 (201) 652-7162  
 Owner: John Mania  
 Studio Manager: John Mania

**MARKETING PROMOTIONS INC.**  
**APPV**  
 9418 Annapolis Rd., #106  
 Lanham, MD 20706  
 (301) 459-3600  
 Owner: David L. Wilson  
 Studio Manager: David L. Wilson

**MAVERICK MEDIA, INC.**  
**VPF, VPP/E, OLVP**  
 25 Maverick Sq.  
 Boston, MA 02128  
 (617) 569-3490  
 Owner: Mario Taormina, Don Reed  
 Studio Manager: Mario Taormina

**MAYOR'S OFFICE OF CABLE & COM.**  
**VPF, VPP/E, OLVP, APPV**  
 303 E. Fayette St.  
 Baltimore, MD 21209  
 (301) 396-1100  
 Owner: City of Baltimore  
 Studio Manager: Robert E. Smith

**MCVEE PRODUCTIONS**  
**VPF, VPP/E, OLVP**  
 140 Bradley St.  
 New Haven, CT 06511  
 (203) 776-4800  
 Owner: Mario C. Vilecco  
 Studio Manager: Maria G. Vilecco

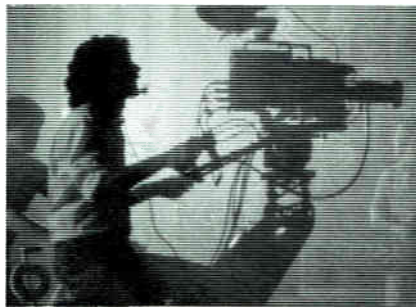
**MED/ART VIDEO & CINEMAGRAPHICS**  
**VPF, VPP/E, OLVP, APPV**  
 5904 Char Leigh Cir.  
 Frederick, MD 21701  
 (301) 694-0541  
 Owner: Robert L. Medvee  
 Studio Manager: Robert L. Medvee

**MEDIA ARTS, INC.**  
**VPF, OLVP**  
 186 Lincoln St.  
 Boston, MA 02111  
 (617) 426-5998  
 Owner: Guy F. Baughns  
 Studio Manager: David Smith

**MEDIA IN MUSIC**  
**APPV**  
 34 Starlight Ln.  
 Levittown, NY 11756  
 (516) 731-8735  
 Owner: Howard Lerner  
 Studio Manager: Sandee Lerner

**MEDIA NORTHEAST**  
**OLVP**  
 6506 41st Ave.  
 University Park, MD 20782  
 (301) 927-7788  
 Owner: Tiegh Thompson

**MEGAVIDEO PRODUCTIONS**  
**VPF, VPP/E, OLVP, APPV**  
 289 Market St., Ste. 2



## NORTHEAST

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**Saddle Brook, NJ 07662**  
 (201) 587-1177  
 Owner: John A. Falzarano, James N. Williams  
 Studio Manager: Nan Kirsten Weinstock

**MILBRODT COMMUNICATIONS, INC. DBA MUSIC & SOUND DESIGN STUDIO**  
**APPV**  
 1425 Frontier Rd.  
 Bridgewater, NJ 08807  
 (201) 560-8444  
 Owner: Bill Milbrodt  
 Studio Manager: Bill Milbrodt

**MODERN VIDEO PRODUCTIONS**  
**VPP/E, OLVP, APPV**  
 1600 Market St., 33rd Floor  
 Philadelphia, PA 19103  
 (215) 569-4100  
 Owner: Modern Video Productions, Inc.  
 Studio Manager: Christopher A. Quinn

**MODERN WORLD MEDIA PRODUCTIONS**  
**VPF, VPP/E, OLVP, APPV**  
 5219 Overhill Rd.  
 Baltimore, MD 21207  
 (301) 944-4242  
 Studio Manager: Joel Peck

**MOVIELAB VIDEO**  
**VPP/E**  
 619 W. 54th St.  
 New York, NY 10019  
 (212) 956-3900  
 Studio Manager: Gail S. Jeffee

**MUSITECH**  
**APPV**  
 115 Newbury St., Ste. 402  
 Boston, MA 02116  
 (617) 536-5262  
 Owner: Peter Bell, Peter C. Johnson

**MUSIVISION**  
**VPF, VPP/E, OLVP**  
 185 E. 85th St.  
 New York, NY 10028  
 (212) 860-4420  
 Owner: Fred Kessler

**M-Y MEDIA PRODUCTIONS, INC.**  
**VPF, VPP/E, OLVP**  
 2175 Lemoine Ave.  
 Fort Lee, NJ 07024  
 (201) 585-9424  
 Owner: William A. MacNeil  
 Studio Manager: John T. Yurko

**NATIONAL VIDEO CENTER/RECORDING STUDIOS, INC.**  
**VPF, VPP/E, OLVP, APPV**  
 460 W. 42nd St.  
 New York City, NY 10036  
 (212) 279-2000  
 Owner: Harold W. Lustig



**NATIONAL VIDEO CENTER/RECORDING STUDIOS, INC.**  
 New York City, NY

**Studio Manager: Jeff Pastiove**  
**Dimensions:** "The Edison" dimensions: 50 x 40  
**Video Tape Recorders:** Over 50, including: Ampex VPR-3 one-inch recorders, Ampex VPR-6 one-inch recorders, Sony BVW-40 3/4-inch recorders, Sony BVU-650 3/4-inch recorders, Sony BVU-820 3/4-inch recorders, Sony BVU-800 3/4-inch recorders, Ampex AVR-2 2-inch recorders.  
**Video Monitors:** Over 75, including Asaca Shibusaku, Carraro, Tektronix  
**Switchers/editors:** (10) Grass Valley 300, Grass Valley 1600, Grass Valley 100, (7) Paltex Esprit Controllers, CMX 3400A Controllers.  
**Video Cameras:** (8) RCA TK 473 EP, Vinten F40mar camera pedestals, Fujinon zoom lenses, Ikegami HL-79D.  
**Synchronizers:** (3) Adams-Smith video/audio SMPTE interlock, Audio Kinetics C/Lock SMPTE interlock.  
**Video Effects Devices:** Alaris Real time 3-D computer graphics, Quantel Mirage, Quantel Paintbox, Abekas A-62 digital disk recorder, Grass Valley Kaleidoscope digital effects, Ampex ADOs, Ampex Concentrator w/Infinity, Chyron 410G EXB, Aston Model 4 character generators, RIG computer controlled video animation stand w/color camera, Full design capability, Grass Valley DVE-2 channel, Ampex Zeus TBC/framestore.  
**Audio Recorders:** (10) Otari and Studer 24, 16, 8-, 4- and 2-track recorders, Nakamichi DMP-100 digital 2-track, broadcast audio cart machines.  
**Audio Mixers:** SSL 6000 Total Recall 56-channel, MCI stereo audio console.  
**Other Major Equipment:** Two SMPTE Interlock audio-for-video studios, Vertical Internal Time Code, Dolby noise reduction, Lexicon 2400 time compression/expansion, 3M videodisc cue inserter, color timing cameras, Sony BVX-3C video image enhancer/noise reduction, Bosch FDL 60B negative and positive transfers, Corporate Communications color corrector for scene-to-scene color correction, Lipsner Smith ultrasonic film cleaning, custom sound effects and music including 45,000 sound effects, 34 music libraries; newly recorded stereo digital sound effects, Kurzweil 250 synthesizer w/digital sampling, Juno 106, FX7 and ARP synthesizers.  
**Extras & Direction:** National's new music studio, "The Edison," (50 x 40) with SSL 6000 56-channel console, 48-track recording, video/audio interlock, all outboard equipment, microphones, etc. The Edison's enormous recording space and Tom Hickey designed control room make this studio ideal for acoustic recording of major acts, orchestras, commercial jingles, etc. Also: two interlock video sweetening rooms, five voice studios, time compression, reel-to-reel and cassette duplication, transfers, music and FX libraries, scoring and soundtrack design. Video: three shooting stages (60 x 80, 40 x 50, and 20 x 30), seven on line computer editing suites, two off-line/interformat suites, negative color correction, remote production, videodisc mastering, computer graphics, animation stands, duplication—all formats.

**NBC TELESALES**  
**VPF, VPP/E, OLVP**  
 30 Rockefeller Plaza  
 New York, NY 10112  
 (212) 664-4754  
 Studio Manager: Bill Vassar

**NEW BREED STUDIOS**  
**VPP/E, APPV**  
 251 W. 30th St., Room 7RW  
 New York, NY 10001  
 (212) 714-9379  
 Owner: Stewart Lerman, Andrew Esberbach  
 Studio Manager: Stewart Lerman



Video Tape Recorders: JVC CR 6650U, Panasonic 8500.  
 Video Monitors: (2) JVC TM-13U.  
 Synchronizers: Fostex 4030, Fostex 4035.  
 Video Effects Devices: Simple SMPTE generator.  
 Audio Recorders: Otari MX-70 16-track, Fostex B16-D,  
 Otari 5050 B.  
 Audio Mixers: Ramco WRT-820.  
 Other Major Equipment: PCM70, Akai S-900 sampler,  
 SDR-1000, Prime Time, Linn, Dyna-Mite gates, dbx.

**NEW YORK POST PRODUCTION**  
**APPV**  
 1 Artist Rd.  
 Saugerties, NY 12477  
 (914) 679-8848  
 Owner: Chrs Andersen  
 Studio Manager: Annemane Sullivan

**NIGHTHAWK STUDIOS**  
**VFF, VPP/E, OLVP, APPV**  
 6 Garrison View Rd.  
 Owings Mills, MD 21117  
 (301) 363-8585  
 Owner: Sheldon Brahms, Jack Brahms  
 Studio Manager: Sheldon Brahms

**NORTHEAST SOUND STUDIO**  
**APPV**  
 PO Box 208  
 West Newton, MA 02165  
 (617) 894-2973  
 Owner: Pamela Manks  
 Studio Manager: Gary M. Smith

**NORTHEAST VIDEO, INC.**  
**VFF, VPP/E**  
 420 Lexington Ave.  
 New York, NY  
 (212) 661-8830  
 Owner: Henry Steiner

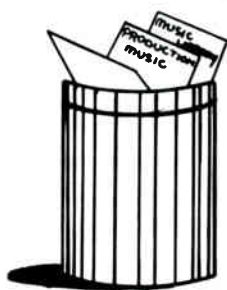
**OKOVIC/GOODMAN PRODUCTIONS**  
**VFF, OLVP**  
 718-B S. 22nd St  
 Philadelphia, PA 19146  
 (215) 546-1448  
 Owner: J. Okovic  
 Studio Manager: Robert M. Goodman

**OPTIMEDIA SYSTEMS, INC.**  
**VFF, VPP/E, OLVP**  
 373 Route 46 W.  
 Fairfield, NJ 07006  
 (201) 227-8822  
 Owner: George Hoffman  
 Studio Manager: Tim Masters

**OURTOWN TELEVISION PRODUCTIONS, LTD.**  
**VPP/E, OLVP**  
 78 Church St.  
 Saratoga Springs, NY 12866  
 (518) 899-6989  
 Owner: Steven Rosenbaum  
 Studio Manager: Pamela Yoder

**P & P PRODUCTIONS**  
**VFF, VPP/E, OLVP, APPV**  
 17 Viaduct Rd.  
 Stamford, CT 06907  
 (203) 359-9292  
 Owner: John R. Fishback  
 Studio Manager: David Frasco  
 Video Tape Recorders: (3) Sony BVU-800, (2) Sony BVW-10, Sony BVW-40.  
 Video Monitors: Sony 12-inch and 19-inch High Res, Sony 25-inch.  
 Switchers/editors: Videomedia Magnum Editor, Ross 210 switcher w/E.MEM.  
 Video Cameras: (2) Iikagami 79 EAL w/studio configuration.  
 Synchronizers: Adams-Smith synchronizer controls all audio machines, and a BVU-800.  
 Audio Recorders: Sony JH24 24-track, Sony JH110C 4-track, Sony JH110 2-track, Sony 1-inch Audio Layback Machine.  
 Audio Mixers: Syncon A 28 x 24 audio console.  
 Soundstage: 25 x 25 w/set build room and dressing room.  
 Other Major Equipment: Chyron character generator, Dynaflex, Aphex Systems, PCM70 digital reverb, E-Max digital sampling keyboard.

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 DBX • EV/SENTRY • LOFTCO •  
 OTARI • AKG • KLARK-TEKNIK •  
 PERREALUX • RAMKO • SAMSON • SCS • SHURE • SCOTCH/3M • MCI/SONY •  
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## NORTHEAST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVLV (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

### PAOLISSO COMMUNICATIONS

**OLVP**  
5 Great Valley Pkwy., Ste. 232  
Malvern, PA 19355  
(215) 648-3942  
Owner: Paul Paolisso  
Studio Manager: Dave Ryan

### THOMAS PAYNE PRODUCTIONS

**VPF**  
Ste. 58, 77 Ives St.  
Providence, RI 02906  
(401) 831-7527  
Owner: Thomas Payne

### PCI RECORDING SERVICES, INC.

**VPF, VPP/E, OLVP, APPV**  
737 Atlantic Ave.  
Rochester, NY 14609  
(716) 288-5620  
Owner: Theodore Hummel  
Studio Manager: Dave Lippa

### GLEN PEARCY PRODUCTIONS, INC.

**OLVP**  
2000 P St. NW, Ste. 308  
Washington, DC 20036  
(202) 223-8314  
Owner: Glen Pearcy  
Studio Manager: Glen Pearcy

### PECKHAM PRODUCTIONS INC.

**VPF, OLVP, APPV**  
65 S. Broadway  
Tarrytown, NY 10591  
(914) 631-5050  
Owner: Peter H. Peckham  
Studio Manager: Russell C. Peckham

### PENFIELD PRODUCTIONS LTD.

**VPF, VPP/E, OLVP**  
35 Springfield St.  
Agawam, MA 01001  
(413) 786-4454  
Studio Manager: Brook Ashby  
Dimensions: 40 x 60 x 16  
Video Tape Recorders: (3) Sony BVU 800/820, (3) Sony BVH 2000.  
Video Monitors: Ikegami 19-inch studio, (3) Ikegami TM149RH, (12) Ikegami 9-inch B&W  
Switchers/editors: Grass Valley 3002AW w/MasterEMEM, VideoMedia 26000C w/DOS  
Video Cameras: Ikegami HL-79E.  
Video Effects Devices: NEC System 10.2-channel w/curve linear.  
Other Major Equipment: Dubner CBG-2 with paint box.

### PERNA COMMUNICATIONS, INC.

**VPF, VPP/E, OLVP**  
2035 Rt. 22 W.  
Union, NJ 07083  
(201) 686-6969  
Owner: Robert P. Perna, Patrick J. Perna

### PHANTASMAGORIA PRODUCTIONS, INC.

**VPF/E, APPV**

630 Ninth Ave., Ste. 801  
New York, NY 10036  
(212) 586-4890  
Owner: J. Keith Robinson  
Studio Manager: Lori J. Horsley

### PLUM STUDIO

**VPF, VPP/E, OLVP, APPV**  
2 Washington St.  
Haverhill, MA 01830  
(617) 372-4236  
Owner: Richard & Vivian Tiegen  
Studio Manager: Vivian Tiegen

### POLYMEDIA INC.

**APPV**  
91 Newbury St.  
Boston, MA 02116  
(617) 424-1090  
Owner: David Kowal  
Studio Manager: David Kowal

### POSITIVE TRANSFER LTD.

545 Fifth Ave.  
New York, NY 10017  
(212) 370-1400  
Owner: Richard Kloss  
Studio Manager: Tom Thomas

### POTORTI VIDEO PRODUCTION

**VPF, VPP/E, OLVP, APPV**  
10005 Lacy Ave.  
Morrisville, PA 19067  
(215) 945-3990  
Owner: Carl Potorti  
Studio Manager: Robert Potorti

### POWER PLAY RECORDS INC.

**VPF, VPP/E, OLVP, APPV**  
198 Bloomfield Ave.  
Newark, NJ  
(201) 481-0972  
Owner: Power Play Records Inc.  
Studio Manager: Greg Furgason  
Dimensions: 40 x 62 x 12  
Video Tape Recorders: (2) Ampex VPR-6 one-inch, (3) Ampex VPR-2B one-inch, (4) Sony BVU-800 ¾ 1-inch, (2) Sony VO-5850 ¾-inch, (2) Sony BVU-150 ¾-inch.  
Video Monitors: (4) Ikegami TM14-10RH 14-inch color, (2) Panasonic BT-S 1900N 19-inch color, (4) Panasonic BT-S 1300N 13-inch color, (2) JVC TM-R9U 9-inch color.  
Switchers/editors: Grass Valley 1600-36, (2) Grass Valley 1-L, Paltex editing system. Esprit.  
Video Cameras: (3) Ikegami 357A 3 tube Canon lens, (2) Thompson 601A 3 tube, Sharp XC-A1 3 tube.  
Synchronizers: (2) Audio Kinetics Pacer, BTX 4600.  
Video Effects Devices: Thompson 9100 noise reducer, Thompson 5500A color corrector.  
Audio Recorders: Sony PCM-3324 24-track, Studer A-80MKIV 24-track, Tascam 85-16B 16-track.  
Audio Mixers: Soundcraft 2400 40-24-2, (2) NEOTEK Series 1E 24-8-2.  
Soundstages: 40 x 46 x 12.  
Other Major Equipment: 3M D-5000 character generator, 3M Delta IV cart machines, (2) Nakamichi DMP-100 digital audio mastering processors, (3) Ampex AG-440C ATRs, (2) Otari MX-5050 MK III-2, Otari DP-4050 C2 II slave audio cassette high speed duplicator, Bencher copy stand w/Ikegami 730 camera.  
Rates: Upon request

### POWER POST/VIDEO, INC.

**VPP/E**  
25 W. 43 St.  
New York, NY 10036  
(212) 840-3860  
Owner: Morty Schwartz, Stu Zvolinsky, Brian Williams  
Studio Manager: Jody Cohen

### PRIMALUX VIDEO

**VPF, VPP/E, OLVP**  
30 W. 26th St.  
New York, NY 10010  
(212) 206-1402  
Owner: Jeff Schwartz, Matt Clarke, Jeff Byrd, Jeff Kantor  
Studio Manager: Barbara Stumacher

### PRIVATE EYES

**VPP/E, OLVP**  
12 W. 21st St.  
New York, NY 10010  
(212) 206-7771  
Owner: Robert Shalom  
Studio Manager: Mark Ghumeim

**PRODUCERS EAST MEDIA, INC.**  
VFP, VPP/E, OLVP  
535 Broadhollow Rd.  
Melville, NY 11747  
(516) 420-5680  
Owner: Harvey M. Birnbaum  
Studio Manager: Roslyn Chalman

**PRODUCTION MASTERS INC. (PMI)**  
VFP, VPP/E, OLVP, APPV  
321 First Ave.  
Pittsburgh, PA 15222  
(412) 281-8500  
Owner: David Case  
Studio Manager: David Case

**QUALITY PRESENTATIONS ASSOCIATES LTD.**  
VFP/E, APPV  
553 Rockne Ave.  
Massapequa Park, NY 11762  
(516) 799-5281  
Owner: Carl H. Greenberg  
Studio Manager: Robert Zyra

**QUARK VIDEO**  
VFP/E, OLVP  
421 Hudson St.  
New York, NY 10014  
(212) 807-8504

**RAMPION VISUAL PRODUCTIONS**  
VFP  
316 Stuart St.  
Boston, MA 02116  
(617) 574-9601  
Owner: Randel F. Cole  
Studio Manager: Pam Hallom

**RAYTHEON SERVICE CO.**  
VFP, VPP/E, OLVP, APPV  
2 Wayside Rd.  
Burlington, MA 01803  
(617) 272-9300  
Owner: Raytheon Company  
Studio Manager: Ed Dextraze

**RBY RECORDING AND VIDEO**  
VFP, VPP/E, OLVP, APPV  
920 Main St. N.  
Southbury, CT 06488  
(203) 264-3666  
Owner: Jack Jones  
Studio Manager: Marjorie Jones

**REALITY VIDEO**  
VFP, VPP/E, OLVP  
213 Middle River Rd.  
Danbury, CT 06811  
(203) 743-7102  
Owner: Robert Morse  
Studio Manager: Robert Morse

**REFLEX TELEPRODUCTIONS**  
VFP, VPP/E, OLVP  
127 Sawmill Dr.  
Dracut, MA 01826  
(617) 454-4597  
Owner: Russell J. Barry, William Thomas  
Studio Manager: Russell J. Barry

**REGENT SOUND STUDIOS, INC.**  
APPV  
1619 Broadway  
New York, NY 10019  
(212) 245-2630  
(212) 245-3100  
Owner: Robert Lifsh  
Studio Manager: Sandi Morro  
Video Tape Recorders: (5) JVC B250, (2) Sony BVU-800DB, (2) Ampex VPR-6, Ampex VPR-80  
Video Monitors: Conrac, Videotek, Sony  
Switchers/editors: Panasonic, Convergence  
Video Cameras: (2) Ikegami 730A w/Fuji-104 14 x 9  
Synchronizers: (4) EECO MQS 103A, (3) BTX Shadows, (2) Time Line Lynx  
Audio Recorders: (3) Ampex ATR 124, ATR 116 MM1200 (5) w/P.U.R.C. and rehearse functions, (3) ATR 104, (6) ATR 102, (4) ATR 100, 440, modified mono Nagra, TEAC 40-4, Magna-Tech 16/35 mm mag dubber, (5) Aiwa cassette decks, Nakamichi cassette deck 500, Sony digital PCM-1630, PCM-10, FI, Sony 3324, CompuSonics DSP-2000.  
Audio Mixers: MCI JH-528, JH-618.  
Other Major Equipment: EECO time code generator,



regent sound studios inc.

REGENT SOUND STUDIOS, INC.  
New York, NY

time code reader, Datametrics and Esse character generators, programmable Autolade, (2) Ampex Sync-Lock, Sierra/Hidley audio monitors, JBL 42.3s and 4311s, Canton LE 900, RORs, Auratones, Lexicon DDLs, Lexicon 224s, Audicon plate, AKG BX-20, UREI 565 filter sets, 360 Systems programmable EQ, plus standard outboard equipment, Klark-Teknik.  
Extras & Direction: Electronic editing with or without picture and digital recording, and editing all sample rates tape or hard disk.  
Rates: Please write or call.

**REGISTER A/V VIDEO SYSTEMS INC.**  
VFP, VPP/E, OLVP, APPV  
50 Kane St.  
Baltimore, MD 21224  
(301) 633-7600  
Owner: Register Photo Service Inc.  
Studio Manager: R. Eugene Foote

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**REMOTE MEN VISUAL MUSIC ENT.**  
**OLVP, APPV**  
 PO Box 791  
 Flushing, NY 11352  
 (718) 886-6500  
 Owner: Aura Sonic Ltd.  
 Studio Manager: Steven Remote

**RENAISSANCE TELEVISION PRODUCTIONS**  
**VPP/E, OLVP**  
 Ste. 315, 2034 Swallowhill Rd.  
 Pittsburgh, PA 15220  
 (412) 276-0497  
 Owner: Ronald J. Bruno  
 Studio Manager: Ronald J. Bruno

**RESOLUTION, INC.**  
**VPF, VPP/E, OLVP, APPV**  
 1 Mill St. The Chace Mill  
 Burlington, VT 05401  
 (302) 862-8881  
 Owner: Bill Schubart  
 Studio Manager: Bill Schubart

**RICHFIELD PRODUCTIONS, INC.**  
**VPF, OLVP**  
 2000 P St. NW  
 Washington, DC 20036  
 (202) 775-0990  
 Owner: Richard Field  
 Studio Manager: Jim Miller

**THE RITTERS' FILM COMPANY**  
**VPP/E**  
 1000 Wisconsin Ave. NW  
 Washington, DC 20003  
 (202) 333-0015  
 Owner: Michael P. Ritter  
 Studio Manager: Michael P. Ritter

**RODEL AUDIO SERVICES**  
**APPV**  
 1028 33rd St. NW  
 Washington, DC 20007



## NORTHEAST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVL (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

(202) 338-0770  
 Owner: Rodel Productions Inc.  
 Studio Manager: Renee Funk

**WARREN ROSENBERG VIDEO SERVICES, INC.**  
**VPF, VPP/E, OLVP**  
 308 E. 79th St.  
 New York, NY 10021  
 (212) 744-1111  
 Owner: Warren Rosenberg

**RUTT VIDEO, INC.**  
**VPP/E**  
 137 E. 25th St.  
 New York, NY 10010  
 (212) 685-4000  
 Owner: Steve Rutt  
 Studio Manager: Dominick D'Agostino

**SATELLITE BROADCASTING**  
**VPP/E, OLVP, APPV**  
 4702 Mercury Dr.  
 Rockville, MD 20853  
 (301) 946-3041  
 Owner: Fred Berney  
 Studio Manager: Fred Berney

**SCHEMBRIVISION**  
**VPF, VPP/E, OLVP, APPV**  
 2156 Story Ave.  
 Bronx, NY 10473  
 (212) 863-2986  
 Owner: Salvador Schembri  
 Studio Manager: Sal Schembri Jr.

**HOWARD SCHWARTZ RECORDING**  
**APPV**  
 420 Lexington Ave.  
 New York, NY 10170  
 (212) 687-4180  
 (800) 327-7787  
 Owner: Howard M. Schwartz  
 Studio Manager: M. Laskow, B. Levy

**SEAR SOUND**  
**APPV**  
 235 W. 46th St.  
 New York, NY 10036  
 (212) 582-5380  
 Owner: Walter Sear  
 Studio Manager: Bill Titus

**SERVISOUND, INC.**  
**APPV**  
 35 W. 45th St.  
 New York, NY 10036  
 (212) 921-0555  
 Owner: Michael Shapiro, Chris Nelson, Diane Ehrlichman  
 Studio Manager: Dave Teig  
 Video Tape Recorders: (6) JVC Corp. CR 8250-V.  
 Video Monitors: (3) Sony, (5) JVC.  
 Synchronizers: BTX Shadow 4700, (3) BTX 4500/4600.  
 Audio Recorders: (2) Otari MTR 90 16-/24-track, (2) Sony APR 5000 2-track, (3) Otari MX 5050 4-track, (2) Otari MX7800 8-track, Studer A80 layback recorder, Otari MX 5050 8-track, Sony PCM-F1 recorder, (12) Ampex 440 2-track.  
 Audio Mixers: Allen and Heath Syncon A, Sony/MCI JH600, (2) Allen and Heath MOD 3, Audiotronics Grandson.  
 Other Major Equipment: Kurzweil 250, Fairlight/CMI, Yamaha DX7, Roland JX80, Korg digital drums, LinnDrum, complete music and sound effects libraries, dbx noise reduction, Symetrix single-ended noise reduction, voice to picture booths, Yamaha SPX 90, Eventide harmonizer, time code-generator/readers, Neumann, AKG, Sennheiser, EV microphones.  
 Rates: Upon request.

**SHEFFIELD AUDIO/VIDEO PRODUCTIONS**  
**VPF, VPP/E, OLVP, APPV**  
 13816 Sunnybrook Rd.  
 Phoenix, MD 21131  
 (301) 628-7260  
 Owner: John J. Ariosa, Jr.  
 Studio Manager: Nancy Riskin  
 Dimensions: 40 x 60  
 Video Tape Recorders: (5) Ampex 1-inch VPR-6, VPR-2, VPR-80, Sony BVW10 Betacam, Sony BVU 850 3/4-inch, Ampex VPR-5 1-inch portable.  
 Video Monitors: Ikegami, Tektronix, Videotek.  
 Switchers/editors: ACE Editor, Ampex 4100 switcher.  
 Video Cameras: Sony BVP-30, (2) Thomson 601A.  
 Synchronizers: BTX synchronization.  
 Video Effects Devices: Ampex ADO, NEC System 10.  
 Audio Recorders: Studer B67 2-track, 16-track.  
 Audio Mixers: Sontec 32-input 24-track.  
 Other Major Equipment: Chyron Scribe, Chyron RGU-2.  
 Rates: \$225/hr.

**SHERIDAN ELSON COMMUNICATIONS**  
**VPF, VPP/E, OLVP**  
 20 W. 37th St.  
 New York, NY 10018  
 (212) 239-2000  
 Owner: Bill Sheridan & Bob Elson  
 Studio Manager: Kathleen Held

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Studio Manager: John Godley

**FIL SIBLEY PRODUCTIONS**  
VFF, VPP/E, OLVP  
1306 Appleby Ave.  
Baltimore, MD 21209  
(301) 433-5870  
Owner: Fil Sibley  
Studio Manager: Linda Scher

**SIGMA SOUND STUDIOS**  
APPV  
1697 Broadway  
New York, NY 10019  
(212) 582-5055  
Owner: Joseph D. Tarsia  
Studio Manager: Hank Meyer

**JACK SKY PRODUCTIONS INC.**  
APPV  
218 N. Church St.  
Moorestown, NJ 08057  
(609) 234-6095  
Owner: John M. Govsky  
Studio Manager: John M. Govsky

**SMA VIDEO INC.**  
VFF, OLVP  
84 Wooster St., 4th Floor  
New York, NY 10012  
(212) 226-7474  
Owner: Michael J. Morrissey  
Studio Manager: Syndia Liejuris

**SOMERSET FILM & VIDEO**  
VFF, OLVP  
204 Rodgers Forge Rd.  
Baltimore, MD 21212  
(301) 377-9042  
Owner: Jerrold K. Cook

**SORIN PRODUCTIONS, INC.**  
VFF, VPP/E, OLVP  
Freehold Executive Center  
4400 Route 9 S.  
Freehold, NJ 07728  
(201) 462-1785  
Owner: David Sorin

**SOUND & VISION**  
VFF, VPP/E, OLVP  
83 Leonard St.  
New York, NY 10013  
(212) 219-3007  
Owner: Tina Surnelioglu  
Studio Manager: Robert Vizet

**SOUND DIMENSIONS**  
APPV  
321 W. 44th St.  
New York, NY 10036  
(212) 757-5147  
Owner: Bernard Hajdenberg  
Studio Manager: Randal A. Goya

**SOUND SELLER PRODUCTIONS**  
APPV  
Rt. 49  
Pittsfield, MA 01201  
(413) 499-3899  
Studio Manager: Steve Schwarz

**SOUND/VIDEO**  
VPP/E, OLVP, APPV  
Marlboro, NY  
(914) 236-7885  
Owner: Rich Woods  
Studio Manager: Rich Woods

**SPECTRA COMMUNICATIONS**  
VFF, VPP/E, OLVP, APPV  
Box 621  
Port Washington, NY 11050  
(516) 883-3395  
Owner: Lee Kalinsky  
Studio Manager: Tom Thomas

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## MIX 10TH ANNIVERSARY ISSUE

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**Mix**, the world's #1 professional recording magazine, celebrates ten years of serving the industry with a very special August issue. Features will include:

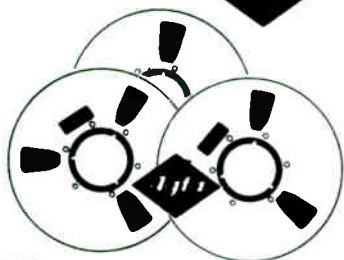
- The Future of Recording
- Acoustics, Design & Installation Supplement
- Directory of Designers and Suppliers

Whether you've been reading **Mix** for ten years or six months, you'll want to read—and save—the Tenth Anniversary Issue.

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## NORTHEAST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

### SPECTRUM PRODUCTIONS

OLVP  
1458 Gilbert Rd.  
Arnold, MD 21012  
(301) 757-4522  
Owner: Mark Goldberg  
Studio Manager: Mark Goldberg

### SPECTRUM PRODUCTIONS, INC.

VPF, OLVP  
532 Madison Ave.  
New York, NY 10022  
(212) 319-8610  
Owner: David Solomita  
Studio Manager: Kevin C. McManus

### SQUIRES PRODUCTIONS, INC.

VPF, VPP/E, OLVP, APPV  
196 Maple Ave.  
White Plains, NY 10601  
(914) 997-1603  
Owner: Gregory K. Squires  
Studio Manager: Gregory K. Squires

### THE STABLE

VPF, VPP/E, OLVP, APPV  
21 Erie St.  
Cambridge, MA 02139  
(617) 499-2580  
Owner: Roy Doolittle, Barry O'Brien, Bill Wangenn  
Studio Manager: Avra Friedfeld

### STARFLEET ANIMATION

VPF  
Rd. 5, Box 91, Avalon Rd.  
Altoona, PA 16601  
(814) 943-8494  
Owner: John Bohn

### STARWAVE VIDEO & FILM PRODUCTIONS

OLVP  
575 Rivervale Rd.  
Rivervale, NJ 07675  
(201) 391-7244  
Owner: Bill Prior  
Studio Manager: Bill Prior

### STATE UNIVERSITY COLLEGE AT BUFFALO (NEW YORK)

VPF, VPP/E, OLVP  
1300 Elmwood Ave.  
Buffalo, NY 14150  
(716) 878-4922  
Owner: State University of New York  
Studio Manager: Barry Herb

### DANDA STEIN

VPF/E  
68 Brookside Ave.  
Newtonville, MA 02160  
(617) 332-5214  
Owner: Danda Stein  
Studio Manager: Danda Stein

### E.J. STEWART FILM & TAPE

VPF, VPP/E, OLVP, APPV  
525 Mildred Ave.  
Primos, PA 19018  
(215) 626-6500  
(212) 288-0525  
Owner: Hal Lipman  
Studio Manager: Robert Momyer

### STUDIO 5 PRODUCTIONS

VPF  
5 TV Pl.  
Needham, MA  
(617) 655-8561  
Studio Manager: William Lowell

### SWERDLOFF & ASSOCIATES

VPF  
Box 600  
Boston, MA 02146  
(617) 232-3379  
Owner: Henry Swerdloff

### SYNC SOUND

APPV  
450 W. 56th St.  
New York, NY 10019  
(212) 246-5580  
Owner: William Manno, Kenneth Hahn  
Studio Manager: Sherri Tantleff  
Video Tape Recorders: Sony BVH-2000 one-inch w/Dolby, (3) JVC 8250, Sony BVU-800, Sony Betacam, VHS Hi-Fi  
Video Monitors: Panasonic PT-101 100-inch video projection system, Sony 19-inch, Sony 25 inch, Sony PVM-1220.  
Switchers/editors: Monitor switchers in all areas for multi-video source operations.  
Synchronizers: Proprietary edit system, allowing lock-up, edit rehearsal, and editing to subframe accuracy of all audio, video, and digital machines  
Audio Recorders: Sony PCM-3324 24-track digital, Sony PCM-1610 2-track digital, (3) Otari MTR-90 II w/24-, 16- and 8-track heads, Otari MTR-20 4 track, (4) Otari MTR-12 2-track w/mono, center T.C. and stereo Nagra capability, MTM 16/35mm magnetic film recorder, misc. cart machines.  
Audio Mixers: Solid State Logic 6000-series, Soundcraft 2400  
Other Major Equipment: Synclavier, Kurzweil, E-mu Systems SP-12, Synthaxe, Lexicon 224x w/LARC, Dolby SP-24, Cat 43 Dolby, Sony 701 digital, UREI 813 monitors (studio B), JBL 4411 monitors (studio C), (6) TTM NR frames, w/Cat 22 cards, Dolby surround mixing.  
Extras & Direction: Sync Sound is a full-service audio post-production house, ready to meet your audio needs with experience and enthusiasm. Our facilities are specifically designed to accommodate editing and mixing to picture (digital or analog), dialogue replacement, overdubs to picture, sound effects design, electronic composition, audience sweetening, and Dolby Surround Sound mixing for film. Sync Sound also provides ancillary functions such as: technical consultation, Nagra and mag dubs, SFX library, and video tape laybacks.  
Rates: Call for information.

### SYNERGETIC

VPF, VPP/E, OLVP, APPV  
6518 Basile Rowe  
East Syracuse, NY 13057  
(315) 437-7533  
Owner: Ronald A. Friedman  
Studio Manager: Ronald A. Friedman  
Dimensions: 60 x 50 stage w/40 x 30 L-shaped hard CYC, 6 x 19 announce booth  
Video Tape Recorders: (2) Sony BVH-2000 D.T. one-inch Type C, Sony BVH-1100A D.T. one-inch Type C, Sony BVH-500 A one-inch Type C, Hitachi HR 200 one-inch Type C, (4) 3/4-inch videotape machines, (6) VHS videotape machines, 2 Beta VCRs  
Video Monitors: Ikegami 20-inch Hi-res color monitor, (2) Sony PVM 1220, Teletronix waveform monitors and vectorscopes.  
Switchers/editors: Grass Valley 100 switcher, Sony BVE-900 editor.  
Video Cameras: Ikegami HL-79EAL w/300-foot remote digital control, Ikegami HL-37 w/901 remote control.  
Video Effects Devices: NEC system 10-3D digital video effects unit, Uhlmatte model 4.  
Audio Recorders: Technics 1500, TEAC 3440.  
Audio Mixers: Yamaha/Walker mixing consoles, dbx, Yamaha, UREI, Sony processing gear  
Other Major Equipment: Colortran crab dolly, Barber baby boom, Quantafont QCG-500 character generator, JVC off-line VHS editing system, mobile production vehicle, extensive lighting/grip gear, computer drive teleprompter.  
Rates: Call for information.

# How to make a living as a recording engineer.

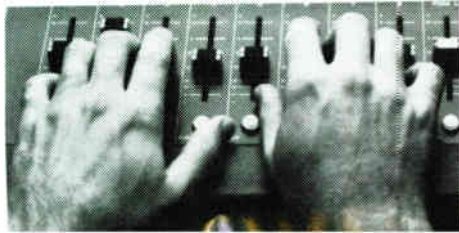
**I**t's no wonder that being a successful recording engineer is so appealing. In the magic environment of the studio, today's top engineers make a very good living by knowing how to bring music to life.

If you're serious about becoming an engineer whose services are constantly in demand by the music industry, there's something you should know. More than ever before, the hottest engineers will be those with the skills of both a technician *and* a musician. And now there's one place where you can develop your technical and musical awareness hand-in-hand—at the acclaimed Grove School of Music in Los Angeles.

Grove's new Recording Engineering Program is an intensive one-year course of study that gives you an exceptionally well-rounded approach to making music sound better. Grove instructors are working professionals based here in the entertainment capital of the world, where opportunities are at your doorstep in more studios and concert halls than you'll find anywhere else. Students from more than 30 countries have found the Grove School to be the most *practical* place to launch their music careers.

**1. Meet the versatility challenge.** Every recording, mixing and sound reinforcement situation is different. That's why the Grove program gives you such a broad range of experience, getting you comfortable engineering everything from 5-piece rock bands to 18-piece big bands to 40-piece orchestras.

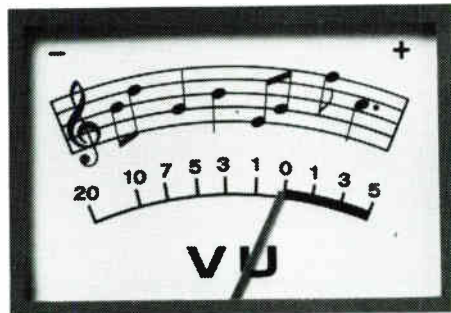
You'll work with a full spectrum of acoustic to electronic music, from Top 40 to film and television scores. And you'll learn sound reinforcement techniques for a wide variety of live music applications.



## 2. Get consistent hands-on experience.

There's no substitute for learning by doing. So you'll regularly have projects in Grove's two in-house studios, as well as taking advantage of the program's ongoing access to state-of-the-art 24-track facilities in the Los Angeles area.

To get the most from your time in the studio, you'll cover your technical bases with courses in acoustics, electronics, studio installation and equipment maintenance. You'll also learn studio management procedures to help prepare you for the business end.



## 3. Hear music through a musician's ears.

The most talented engineers are usually musicians as well. The Grove program is designed to insure that you'll *understand the music* you're recording, and that you'll be able to *effectively communicate* with musicians on their own terms. Grove's outstanding courses in eartraining,

harmony, sightreading and rhythm section arranging will result in some great advantages for you when you're behind the board.

## 4. Prepare for related opportunities.

Successful engineers often expand their careers into related fields like record production and music video. Grove offers professional workshops in both these areas, as well as many others ranging from Songwriting to Synthesizers to Drum Machine Programming. You can build these into a customized course of study, and we'll help you tailor a complete package to fit your personal career goals.

## 5. Get a competitive edge.

The Grove Engineering Program begins each January and July. You may qualify for financial aid. And if you're concerned about getting a college degree, our accredited courses can be part of your B.A. in Commercial Music through our affiliation with Laverne University.

So if you want to make a living as an engineer, we'll send you more information. Just send us the coupon below to see how you can get a competitive edge, or call us at (818) 985-0905.

## Grove School of Music.

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MIX 4/87

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June 29 - July 3 Alan P. Kefauver

### Recording Engineering Seminar

July 6 - July 10 John Eargle

### Signal Processing and Microphones &

### Digital Audio Engineering

July 13 - July 17 John Woram & Ken Pohlman

### Multi-Track Recording

July 20 - July 24 Alan P. Kefauver

#### \* Prerequisite Required

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For further information:

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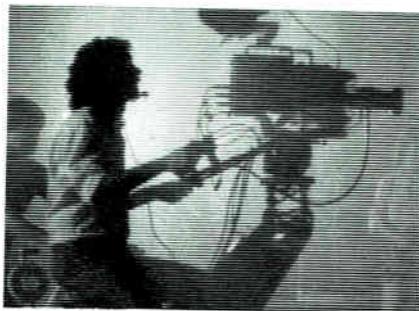
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### TAJ PRODUCTIONS

APPV  
304 E. 55th St.  
New York, NY 10022  
(212) 355-0030  
Owner: Larry Juns  
Studio Manager: Matthew Schultz

### TELETECHNIQUES POST GROUP, INC.

VPP/E  
1 W. 19th St.  
New York, NY 10011  
(212) 206-1475  
(212) 580-9551  
Owner: Michael Temmer  
Studio Manager: D. Kruse  
Video Tape Recorders: Sony 1-inch U-matic, Sony Broadcast ¾-inch, Betacam BVW25.  
Video Monitors: Ikegami, Tektronix, Barco.  
Switchers/editors: Grass Valley, Computer Image, Convergence 204.  
Video Cameras: Sony, Ikegami HL79EAL.  
Synchronizers: Sony TBCs, DVS frame synchronizer, Rutt Image Repositioner.  
Audio Recorders: TEAC, Nagra.  
Audio Mixers: Yamaha.  
Other Major Equipment: ¾-inch and ½-inch duplication services, time coding, etc.  
Rates: Competitive New York City rates.  
Extras & Direction: TPG is full service editorial house.

### TELEVISION ARTS PRODUCTIONS, INC.

VPF, VPP/E, OLVP  
8300-F Guilford Rd.  
Columbia, MD 21046  
(301) 290-8200  
Owner: Deborah Jeffreys  
Studio Manager: R. Scott Kramer

### TELEVISION ENGINEERING SERVICE

OLVP  
1 Paddock La.  
Medfield, MA 02052  
(617) 359-4624  
Owner: Elhat B. Goldman

### TEL-E-VUE PRODUCTIONS

OLVP  
PO Box 217  
Ferndale, NY 12734  
(914) 292-5965  
Owner: Paul Gerry  
Studio Manager: Patricia Gerry

### THUNDER MILL/NOTCH PRODUCTIONS

VPF, VPPE, OLVP, APPV  
PO Box 282  
Center Valley, PA 18034  
(215) 965-4197  
Owner: David Karr  
Studio Manager: Suzanne Ryan

### RICK TIEDEMANN/STEADICAM

VPF  
500 Harrison Ave.  
Boston, MA 02118

(617) 338-6769  
(212) 570-7256  
Owner: Rick Tiedemann

### RIK TINORY PRODUCTIONS

VPF, VPP/E, OLVP, APPV  
180 Pond St. Box 311  
Cohasset, MA 02025  
(617) 383-9494  
Owner: Rik Tinory  
Studio Manager: Richard F. Tinory Jr.

### TODAY VIDEO, INC.

VPP/E, OLVP, APPV  
45 W. 45th St.  
New York, NY 10036  
(212) 391-1020  
Studio Manager: Leonard Bird

### TOTAL COMMUNICATIONS

VPF, VPP/E, OLVP, APPV  
63 South St.  
Hopkinton, MA 01748  
(617) 435-2141  
Studio Manager: Duncan C. Dickson

### TOTAL VIDEO MUSIC (TVM)

VPF, OLVP  
PO Box 1233  
Edison, NJ 08818  
(201) 287-3626  
Owner: Corporation

### TOWNHOUSE EDITING

VPP/E  
1449 N St. NW  
Washington, DC 20005  
(202) 462-EDIT  
Owner: John J. Prescott  
Studio Manager: Michael M. Peizer

### TPS VIDEO

VPF, VPP/E, OLVP  
PO Box 1233  
Edison, NJ 08818  
(201) 287-3626  
Owner: Corporation  
Studio Manager: Geri Barns

### TRACK TRANSFERS INC.

APPV  
45 W. 45th St.  
New York, NY 10036  
(212) 730-1635  
Owner: Robert Hopkins  
Studio Manager: Fran Bowen

### TRACKMASTER RECORDING STUDIOS

APPV  
One Franklin Park N.  
Buffalo, NY 14202  
(716) 886-6300  
Owner: Trackmaster Audio, Inc.  
Studio Manager: Rose Grucela

### HENRY TRAIMAN ASSOCS. INC.

VPP/E  
160 Madison Ave.  
New York, NY 10016  
(212) 889-3400  
Owner: H. Traiman  
Studio Manager: H. Traiman  
Video Tape Recorders: Sony Type 5.  
Switchers/editors: Grass Valley switcher, Video 6000 disk operating system.  
Audio Recorders: Nagra, Scully.  
Audio Mixers: Ramsa 10-channel.  
Other Major Equipment: SMPTE time code, Microloc or control track editing, A/B rolls, advanced list management w/CMX disk and hard copy conversion, Harris TBCs, JBL Professional 4411 monitors, Bencher title stand.  
Rates: ¾-inch editing \$95/hr., two machine cuts only editing also available: \$60/hr. (operator included). Cost effective turnkey rates by quotation.

### TRUCOLOR

VPF, VPP/E, OLVP  
20 Powers Dr.  
Paramus, NJ  
(201) 261-2107  
Studio Manager: Robert Duda



**TULLYVISION STUDIOS**  
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 465 Main St.  
 Tullytown, PA 19007  
 (215) 946-7444  
 Owner: Michelle & Christopher Powell  
 Studio Manager: Michelle & Christopher Powell

**TUTMAN/MICHAELS TELEPRODUCTIONS, INC.**  
 VPP/E, OLVP  
 4550 Montgomery Ave., Ste. 331 N.  
 Bethesda, MD 20814  
 (301) 469-3009  
 Owner: Fred Tutman, Joyce Michaels  
 Studio Manager: Frederick L. Tutman

**TVI CREATIVE SPECIALISTS**  
 VPF, OLVP  
 927 National Press Bldg.  
 Washington, DC 20045  
 (202) 662-7680  
 Owner: Marcia Wieder  
 Studio Manager: Andrea Keating

**29TH STREET VIDEO, INC.**  
 VPP/E  
 339 W. 29 St.  
 New York, NY 10001  
 (212) 594-7530  
 Owner: Corporation  
 Studio Manager: David Wallace

**UN PRODUCTIONS, INC.**  
 VPF, VPP/E, OLVP  
 130 Engle St.  
 Englewood, NJ 07631  
 (201) 567-5102  
 Owner: Brian Cury  
 Studio Manager: John Heaney, Donald Heatley

**UNITED VIDEO FEATURES, LTD.**  
 OLVP  
 R.F.D.#1, High St.  
 Candia, NH 03034  
 (603) 483-2397  
 Owner: Stephen C. Frost  
 Studio Manager: Stephen C. Frost

**UNITEL MOBILE**  
 OLVP  
 1025 Beaver Ave.  
 Pittsburgh, PA 15233  
 (412) 231-6800  
 Owner: Dick Clouser  
 Studio Manager: Susan Devlin

**UNITEL—NEW YORK**  
 VPF, VPP/E, OLVP, APPV  
 515 W. 57th St.  
 New York, NY 10019  
 (212) 265-3600  
 Owner: John Hoffman  
 Studio Manager: Garth Gentilin

**EXSUL VAN HELDEN FILM/VIDEO PRODUCTION**  
 VPF  
 504 Kingston Rd.  
 Baltimore, MD 21229  
 (301) 566-3716  
 Owner: Exsul Van Helden  
 Studio Manager: Exsul Van Helden

**VERMONT STUDIO, INC.**  
 VPP/E, OLVP  
 Route 5  
 Putney, VT 05346  
 (802) 257-0859  
 Owner: Allan Seymour

**THE VIDEO CENTER OF NEW JERSEY, INC.**  
 VPP/E, OLVP  
 228 Park Ave.  
 East Rutherford, NJ 07073  
 (201) 935-0900  
 Owner: Frank O'Connell  
 Studio Manager: Bob Schaffner

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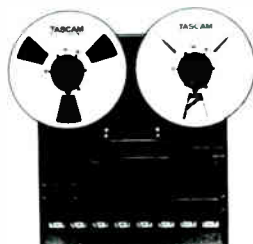
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**VIDEO CENTRAL INC.**  
*VPF, VPP/E, OLVP*  
225 W. 36 St.  
New York, NY  
(212) 947-6960  
Owner: Scott Cooper  
Studio Manager: Steve Goodman

**VIDEO CORPORATION OF AMERICA (VCA)**  
*VPP/E*  
7 Veronica Ave.  
Somerset, NJ 08873  
(201) 545-8000  
Owner: A. J. Berlin  
Studio Manager: Michael Glenn

**VIDEO DUB, INC.**  
*VPP/E*  
423 W. 55th St.  
New York, NY 10019  
(212) 757-3300  
Owner: Video Services Corporation  
Studio Manager: Donald Buck

**VIDEO LABS CORPORATION**  
*VPF, VPP/E*  
11611 Boiling Brook Pkwy.  
Rockville, MD 20852  
(301) 468-0820  
Studio Manager: Carl Montluon, Harry Zalewski

**VIDEO LINK PRODUCTIONS, INC.**  
*VPP/E, APPV*  
77-22 30th Ave.  
Jackson Heights, NY 11370  
(718) 898-0059  
Owner: William Chefalas  
Studio Manager: Robert Chefalas  
Video Tape Recorders: JVC BP-5300, JVC BR-8600, (3) JVC CR-850U  
Video Monitors: (3) Panasonic CT-1330M, (2) Sony PVM8220, Mitsubishi CS2669R, Convergence C190.  
Switchers/editors: Convergence Editor/List Management ECS195LM, Crosspoint latch switcher 6129 AHK, JVC VEP-1 editor.  
Video Cameras: Panasonic WVD5000 Key camera/copy stand.  
Synchronizers: (2) Timeline LYNX/SAL.  
Video Effects Devices: Proteus GML Digital effects/TBC, Chyron VP-2+ C.G..  
Audio Recorders: Tascam Studio 8/Mixer 8-track, Tascam 22-2 stereo.  
Audio Mixers: Crosspoint latch audio follow 6800.  
Other Major Equipment: Sony PCM-601 digital processor, Yamaha R1000 digital reverb, Tascam CG 2020 cassette deck, Roland SDE-1000 digital delay, Tektronix 1720, 1730, Kenwood stereo amp.  
Rates: Call for rates.

**VIDEO ONE INC.**  
*VPF, VPP/E, OLVP*  
10304 S. Dolfield Rd.  
Owings Mills, MD 21117  
(301) 363-6390  
Studio Manager: Jim Jones

**VIDEO PEOPLE, INC.**  
340 Pemberwick Rd.  
Greenwich, CT 06830  
(203) 531-6901  
Owner: Mirek Snopek

**VIDEO PEOPLE, INC**  
*VPP/E, OLVP*  
845 High Mtn. Rd.  
Franklin Lakes, NJ 07417  
(201) 891-3372  
Owner: Mirek Snopek

**VIDEO PLANNING PLUS!**  
*VPF, OLVP*  
325 W. 56th St.  
New York, NY 10019  
(212) 582-5066  
Studio Manager: Frank Berman



## NORTHEAST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

**VIDEO VISIONS**  
*VPF, VPP/E, OLVP, APPV*  
PO Box 1437  
Seabrook, NH 03874  
(603) 474-5046  
Owner: Bill Channell  
Studio Manager: George Dubois

**VIDEOGRAPHY PRODUCTIONS**  
*OLVP*  
353 E. 76th St.  
New York, NY 10021  
(212) 570-6888  
Owner: Dick Fisher

**VIDEOPLEX PRODUCTIONS INC.**  
*VPF, OLVP*  
530 W. 25 St.  
New York, NY 10001  
(212) 807-8211  
Owner: Diane Mele  
Studio Manager: Francoise Homel

**VIDEOPRO**  
*VPF, VPP/E, OLVP, APPV*  
PO Box 1437  
Seabrook, MA 03874  
(603) 474-5046  
Owner: Bill Channell  
Studio Manager: Bill Evalte

**VIDEOSMITH, INC.**  
*VPF, VPP/E, OLVP*  
3 Independence Way  
Princeton, NJ 08540  
(609) 987-9099  
Owner: S. Smith  
Studio Manager: Patnck Crowley

**VIDEOSMITH, INC.**  
*VPP/E, OLVP*  
2006 Chancellor St.  
Philadelphia, PA 19103  
(215) 665-3690  
Owner: Steven T. Smith  
Studio Manager: Stephen O'Driscoll

**VIEWPOINT COMMUNICATIONS**  
*VPF, VPP/E, OLVP*  
5000 Euclid Dr.  
Kensington, MD 20895  
(301) 949-1907  
Owner: Randy P. Feldman

**VIRTUE RECORDING & VIDEO STUDIOS**  
*VPF, OLVP*  
1618 N. Broad St.  
Philadelphia, PA 19121  
(215) 763-2825  
Owner: Parr-X Corp.  
Studio Manager: Frank Virtue

**VISUAL MUSIC**  
*APPV*  
20 Martha St.  
Woodcliff Lake, NJ 07675  
(201) 391-2486  
(212) 505-9281  
Owner: Jay Henry  
Studio Manager: Gene A. Perla

**VISUAL MUSIC PRODUCTION SERVICES**  
*OLVP, APPV*  
235 E. 13th St., #3-D  
New York, NY 10003  
(212) 505-9281  
Owner: Visual Music  
Studio Manager: Gene Perla

**THE VISUAL RESOURCE (TVR)**  
*VPP/E, OLVP, APPV*  
20 Park Ave.  
White Plains, NY 10603  
(914) 946-5252  
Owner: Barbara J. York  
Studio Manager: David C. Westcott

**VOX-CAM ASSOCIATES LTD.**  
*VPF, VPP/E, OLVP*  
813 Silver Spring Ave.  
Silver Spring, MD 20910  
(301) 589-5377  
Owner: B.E. Robertson Sr.  
Studio Manager: B.E. Robertson II  
Dimensions: 30 x 50  
Video Tape Recorders: (3) RCA 1100 A, Ampex VPR-2, (2) Sony 800s, Sony 820, (2) Sony BVW-10.  
Video Monitors: (2) Ikegami 25-inch, (2) Sony PVM-19-inch, (4) Sony XBR-25-inch.  
Switchers/editors: CDL480/9 switcher central dynamic, (2) Grass Valley switcher 100, CMX 340x, Calaway Editor.  
Video Cameras: (2) Ikegami 79E, (2) Ikegami 79D, (2) Sony DXCM3, (3) Sony CCD3000 chip, Sony Betacam.  
Video Effects Devices: Quantel Mirage, Quantel DPE-5000, Colorgraphics Artstar.  
Audio Recorders: Otari.  
Audio Mixers: Audiotronics Grandson, Switchcraft 200B.  
Other Major Equipment: 750 amp blimped generator truck, Tulip Crane, Fisher/Pewee dollies, Tyler camera mounts, lighting, gnp equipment.

**VP FILM & TAPE**  
*VPF, VPP/E, OLVP, APPV*  
2257 W. Broadway  
South Portland, ME 04106  
(207) 774-4480  
Owner: Dan Osgood

**KEN WALZ PRODUCTIONS, INC.**  
*VPF*  
219 E. 60th St.  
New York, NY 10022  
(212) 826-6010  
Owner: Ken Walz  
Studio Manager: Kelly Stanford

**WAVE INC.**  
*VPF, VPP/E, OLVP*  
72 Cambridge St.  
Worcester, MA 01603  
(617) 795-7100  
Owner: Walter M. Henrtize, III  
Studio Manager: Charles H. Slatkin

**WAYMAN PRODUCTION INC.**  
*VPF*  
25 Otto Trail  
Westport, CT 06880  
(203) 226-7349  
Owner: William Wayman  
Studio Manager: Billie Zilbersher

**SCOTT WEAVER'S SOUNDTRACK**  
**MUSIC PRODUCTIONS**  
*APPV*  
Sooy Lane  
Absecon, NJ 08201  
(609) 641-2555  
Owner: Scott Weaver  
Studio Manager: Scott Weaver

**THE WECHSLER GROUP**  
VFF, VPP/E, OLVP, APPV  
185 West End Ave., Ste. 22-C  
New York, NY 10023  
(212) 787-8699  
Owner: Steven Wechsler  
Studio Manager: Steven Wechsler

**WEISMAN VIDEO PRODUCTIONS**  
OLVP  
8 Jenison St.  
Newtonville, MA 02160  
(617) 332-2089  
Owner: Douglas M. Weisman

**WILDFIRE PRODUCTIONS**  
APPV  
c/o R.D. #3, Box 93-F  
Malvern, PA 19355  
(215) 296-9043  
Owner: Philip F. Pollanne  
Studio Manager: Philip F. Pollanne

**WILL ASSOCIATES COMPANY & CPC**  
VFF, VPP/E, OLVP, APPV  
PO Box 583  
Montclair, NJ 07042  
(201) 541-2279  
Owner: C.W. Harris Jr.  
Studio Manager: Janet H. Harris

**WINDSOR TOTAL VIDEO**  
VFF, VPP/E  
565 Fifth Ave.  
New York, NY 10017  
(212) 725-8080  
Owner: Robert J. Henderson, Bertram B. Goodman  
Studio Manager: Robert G. Marmuroli

**WIX PIX PRODUCTIONS, INC.**  
VFF, VPP/E, OLVP, APPV  
Rd.#1, Box 266  
Mineral Point, PA 15942  
(814) 322-1505  
Owner: Dale E. Wicks  
Studio Manager: Rebecca McAneny Wicks

**WORLD TELE-MEDIA PRODUCTIONS**  
VFF, VPP/E, OLVP, APPV  
4 Denny Rd.  
Wilmington, DE 19809  
(302) 764-3400  
(800) 654-2448  
Owner: Thomas J. Mitten  
Studio Manager: Rose Marie Mili

**WORLDWIDE VIDEO PRODUCTIONS, INC.**  
VFF, OLVP  
990 - 6th Ave.  
New York, NY 10018  
(212) 967-2977  
Studio Manager: Alan Kaufman

**WPHL PRODUCTIONS**  
VFF, VPP/E, OLVP  
5001 Wynnefield Ave.  
Philadelphia, PA 19131  
(215) 878-1700  
Owner: Providence Journal Co.  
Studio Manager: Joel Levitt

**XEROX CORPORATION**  
VFF, VPP/E, OLVP, APPV  
Webster Research Center, 0128-37E  
Webster, NY 14580  
(716) 422-3290  
Owner: Communications Services  
Studio Manager: Martin Fass

**XEROX CORPORATION - MEDIA COMMUNICATIONS**  
VFF  
780 Salt Rd., Bldg. 845  
Webster, NY 14580  
(716) 422-8173  
Owner: Xerox Corporation  
Studio Manager: Ken Kudia

**YATES FILMS**  
32 Barnegat Rd.  
Pound Ridge, NY 10576  
(914) 764-8558  
Owner: Gerard Yates

**YORK COLLEGE/CENTER FOR EDUCATIONAL TECHNOLOGY**  
VFF  
94-20 Guy R. Brewer Blvd.  
Jamaica, NY 11451  
(718) 262-2751  
Studio Manager: Dr. Che-Tsao Huang

**YOUR NAME HERE PROD.**  
APPV  
Box 309  
Caldwell, NJ  
(201) 773-6866, 226-1461  
Owner: Glenn M. Taylor  
Studio Manager: Glenn M. Taylor

**ZM SQUARED**  
OLVP  
903 Edgewood Ln., PO Box C-30  
Cinnaminson, NJ 08077  
(609) 786-0612  
Owner: Pete Zakroff  
Studio Manager: Terry Zakroff



## 3M AUDIO

All Lengths & Widths  
3M 250, 226, 227, 206,  
207, 208, 209, 176, 177  
and XSI, XSII, AVX  
and IRC Cassettes

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Umatics and 3/4 inch  
Color Plus Umatics



**B Burlington**  
**Audio/Video Tapes Inc.**  
106 Mott St. Oceanside, N.Y. 11572  
**Toll Free 1-800-331-3191**  
**In N.Y. (516) 678-4414**

- Hard to get related items
- Custom loaded cassettes
- Empty reels and boxes
- 3M Leaders & Trailers
- 3M Splicing Tapes
- 3M Holdown Tapes
- 3M Reels, Boxes & Flanges

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## SOUTHEAST

ALABAMA, FLORIDA, GEORGIA, KENTUCKY,  
LOUISIANA, MISSISSIPPI, NORTH CAROLINA, SOUTH  
CAROLINA, TENNESSEE, VIRGINIA, WEST VIRGINIA

**ADCO PRODUCTIONS**  
VFF, VPP/E, OLVP, APPV  
7101 Biscayne Blvd.  
Miami, FL 33138  
(305) 751-3118  
Owner: Sheer Genius, Inc.  
Studio Manager: Max Wyler

**AIR-MOBILE PRODUCTIONS**  
VFF, VPP/E, OLVP, APPV  
95 Robert Jemison Rd.  
Birmingham, AL 35209  
(205) 942-7023  
(800) 554-2677  
Owner: Corporation Air-Mobile Productions Inc.

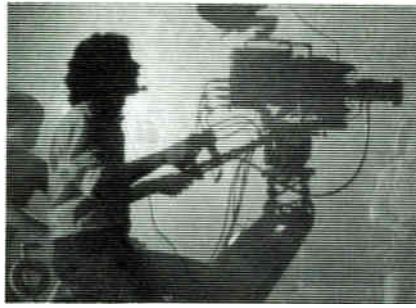
**ALLEN-MARTIN VIDEO PRODUCTIONS INC.**  
VFF, VPP/E, OLVP, APPV  
9701 Taylorsville Rd.  
Louisville, KY 40299  
(502) 267-9658  
Owner: Allen-Martin Productions  
Studio Manager: Michael J. Gibson

**AMI VIDEO/POST**  
VPP/E, OLVP  
Rt. 8, Box 249B, Tucker St. Ext.  
Burlington, NC 27215  
(919) 227-0171  
Owner: Bill Brith  
Studio Manager: Alan L. Kirby  
Video Tape Recorders: (4) Ampex VPR-2B 1-inch, Pana-  
sonic 3/4-inch, (2) Sony 5800/5850 3/4-inch.  
Video Monitors: (2) Ikegami color monitors, (3) Tektronix  
color monitors.  
Switchers/editors: Grass Valley 300 switcher, CMX  
340X editor.  
Video Cameras: Ikegami HL 79 D, (2) Ikegami 357.  
Synchronizers: Adams-Smith.  
Video Effects Devices: Grass Valley/NEC DVE.  
Audio Recorders: Otan 5050.  
Audio Mixers: Hill Audio.  
Other Major Equipment: Chyron RGU-2 Character Gen-  
erator, Sony 1-inch portable recorder, (2) GE 5050 video  
projectors.  
Rates: editing \$275/hr. day, \$225/hr. night.

**API PHOTOGRAPHERS, INC.**  
VFF, VPP/E, OLVP  
3111 Stonebrook Cr.  
Memphis, TN 38116  
(901) 396-8650  
Owner: Bill Carrier III  
Studio Manager: Bob Carrier

**PAT APPLESON STUDIOS, INC.**  
OLVP, APPV  
1000 NW 159 Dr.  
Miami, FL 33169  
(305) 625-4435  
Owner: Patrick Appleson  
Studio Manager: Fran Fiman

**ARDENT TELEPRODUCTION, INC.**  
VFF, VPP/E, OLVP, APPV  
2000 Madison Ave.  
Memphis, TN 38104  
(901) 726-6553  
Owner: John Fry, Robert Williams  
Studio Manager: Joe Dyer  
Video Tape Recorders: Hitachi, TVC.  
Video Monitors: Ikegami.  
Switchers/editors: Grass Valley, United Media.  
Video Cameras: Ikegami EC 35, Hitachi.  
Synchronizers: MCI BTX, United Media.  
Audio Recorders: MCI 24, MCI 2, Mitsubishi 32 digital.  
Audio Mixers: MCI, Neve, Solid State Logic.  
Other Major Equipment: Chyron 4100, Steadicam, Ulti-  
matte IV, NEC System 10, 16, and 35mm film.  
Extras & Direction: ZZ-Top, Bar-Kays, Degarmo & Key,  
Everly Brothers, French National TV, Dr. Scholls, Showtime  
Makeup, Schlitz Rocks America, Bryan Foods, Service  
Merchandise, Federal Express  
Rates: On request.



## SOUTHEAST

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### ARDENT TELEPRODUCTION, INC. Memphis, TN

**ATLANTIC VIDEO, INC.**  
VFF, VPP/E, OLVP  
150 S. Gordon St.  
Alexandria, VA 22304  
(703) 823-2800  
Owner: Jonathan Park  
Studio Manager: Gerard Fern

**ATLANTIC VIDEO PRODUCTIONS**  
VPP/E, OLVP, APPV  
PO Box 11203  
Jacksonville, FL 32239  
(904) 223-5907  
Owner: Juan Vila  
Studio Manager: Juan Villa

**AUDIO, INCORPORATED**  
APPV  
820 East Blvd.  
Charlotte, NC 28203  
(704) 376-3818  
Owner: Frank & Sandi Rogers  
Studio Manager: Sandi Rogers

**AUDIO-VIDEO PRODUCTIONS, INC.**  
VFF, VPP/E, OLVP  
1821 SW 11th St.  
Ft. Lauderdale, FL 33312  
(305) 763-7935  
Owner: Berry E. Cardott  
Studio Manager: Berry E. Cardott  
Extras & Direction: We specialize in on location produc-  
tions using the state of the art Ikegami HL-79EAL broadcast  
quality cameras with 1-inch, Betacam, and 3/4-inch formats.  
Some of our credits include: (66) television commercials,  
(47) 1/2-hour television shows, (44) industrial productions,  
(6) music videos, (5) concerts. Some of the people in our  
productions include: President Ronald Reagan, Senator  
Paula Hawkins, Governor Bob Graham, President Monge  
of Costa Rica, Flip Wilson, Don Johnson, Phillip Michael  
Thomas, and trusc. cast of Miami Vice.

AVP, INC.  
VFF, VPP/E, OLVP  
12155-1 Metro Parkway SE

Fort Myers, FL 33957  
(813) 768-0500  
Owner: Don W. Abbott  
Studio Manager: Don W. Abbott

**AVTEK PRODUCTIONS**  
VFF, VPP/E, OLVP, APPV  
PO Box 35356  
Richmond, VA 23235  
(804) 745-4462  
Owner: Richard R. Hencye  
Studio Manager: Sharon L. Hencye

**BEACH ASSOCIATES**  
OLVP  
1001 N. Highland St., Penthouse  
Arlington, VA 22201  
(703) 528-2244  
Owner: Frank Beach  
Studio Manager: Kay Leonard

**BROADCAST VIDEO, INC.**  
VFF, VPP/E, OLVP, APPV  
20241 NE 15th Court  
Miami, FL 33179  
(305) 653-7440  
Owner: Rick Legow  
Studio Manager: Dave Legow

**BURNS LOVIC BRYAN MEDIA GROUP**  
VFF, VPP/E, OLVP, APPV  
402-404 Miller St.  
LaGrange, GA 30241  
(404) 884-0568  
Owner: Burns Lovic Bryan  
Studio Manager: Cathy Bryan

**CDR CONSULTING & PRODUCTIONS**  
VFF, VPP/E, OLVP, APPV  
3086 Fennegan Ct.  
Woodbridge, VA 22192  
(703) 550-8070  
Owner: Christopher D. Rogers

**CENTER ONE VIDEO PRODUCTION**  
VFF, VPP/E, OLVP, APPV  
1690 Raymond Diehl Rd.  
Tallahassee, FL 32308  
(904) 386-6922  
Owner: D.W. Murray  
Studio Manager: David Murray Jr.

**CENTURY THREE TELEPRODUCTIONS**  
VPP/E, APPV  
5000 Eggleston Ave.  
Orlando, FL 32804  
(305) 297-1000  
Owner: Ross Cibella  
Studio Manager: Oliver Peters

**CHANNEL ONE VIDEO TAPE, INC.**  
VFF, VPP/E, OLVP, APPV  
3341 NW 82nd Ave.  
Miami, FL 33122  
(305) 592-1764  
Owner: George H. Livingston  
Studio Manager: Jay P. Van Dyke

**CINE SOUND INC.**  
APPV  
8934 Abbott Ave.  
Surfside, FL 33154  
(305) 861-4149  
Owner: Ron Scelza

**CITATION FILM TAPE SUPPORT**  
VFF, OLVP  
411 Annex Ave.  
Nashville, TN 37209  
(615) 356-3220  
Owner: Mark A. Tye

**COMMUNICATIONS CONCEPTS, INC.**  
VFF, VPP/E, OLVP  
7980 N. Atlantic Ave.  
Cape Canaveral, FL 32920  
(305) 783-5232  
Owner: Richard H. Stottler, Jr.  
Studio Manager: Jim Lewis

# If you know what you want in Video Equipment... We can save you a bundle of money!

By your paying in advance, we are able to offer the most competitive prices you have ever seen. And your tax savings will more than cover the freight. We are a 39 year old company offering the best savings imaginable. And at our special prices we can't even afford an 800 number. Call 312/433-6010; ask for the Professional Video Dept., too cheap to buy an 800 number. NOTE NEW LOW PRICES

## 3/4" Recorders, Players

<b>Panasonic</b>	
NV-9100A Player	1,293.
NV-9200A Recorder	2,142.
NV-9300A Rec.w/tuner	1,838.
NV-9240 Source Recorder	3,605.
NV-9600 Edit Recorder	5,191.
AU-700 Pro Edit Recorder	6,777.
System A 9240/9600/A500	9,854.
<b>JVC</b>	
CP-5200U Source Player	1,016.
CP-5550U Source Player	2,252.
CR-6060U Recorder	1,394.
CR-6650U Source Recorder	2,876.
CR-8250U Editor	4,363.
CR-4900U Portable	2,907.

## 1/2" Players, Recorders VHS

Panasonic AG-1100 Player	356.
Panasonic AG-1000 Player	411.
Panasonic AG-2100 Player	548.
Pana. AG-6100 Player	1,164.
Pana. AG-1210 Recorder; HQ	371.
Pana. AG-1500 Recorder	548.
Pana. AG-2200 Recorder	671.
Pana. AG-1810 Recorder	691.
Pana. AG-1900 HiFi	951.
Pana. AG-6200 Recorder	1,366.
Pana. NV-8950 Recorder	1,609.
Pana. AG-6810 HiFi	1,438.
Pana. AG-6300 Source/Rec	1,507.
Pana. AG-1950 Edit Rec	1,049.
Pana. AG-6500 Edit Rec	2,736.
System A 2/6500, 1/A650	6,800.
Pana. AG-2400 Portable	681.
Pana. NV-8420 Portable	727.
Pana. AG-6400 Portable	1,360.
JVC BP-5100U Player	410.
JVC BP-5300U Source Player	1,085.
JVC BR-3100U Recorder	462.
JVC BR-3500 Recorder	556.
JVC BR-6400U Source Rec	1,446.
JVC BR-7000UR HiFi	1,271.
JVC BR-7700U	1,864.
JVC BR-8600U Editor	2,398.
JVC RM-86U Edit Control	1,092.
VEP-1 5300/8600/86	4,175.
VEP-2 6400/8600/86	4,499.
VEP-3 2/8600, 1/86	5,595.
JVC BR-1600U Portable	641.
JVC BR-6200U Portable	879.

## Camcorders

<b>Panasonic VHS</b>	
AG-100S Complete Rep. Pkg	1,239.
AG-160 Chip Camcorder; AF	1,374.

## Briefcase Systems

JVC TBR 160AC AC	1,035.
JVC TBR 160U DC	1,170.
Pana. VID PAK II	1,102.

## Color Cameras

<b>Panasonic</b>	
WV-F2 6:1 CCD AutoFocus	735.
WV-2170/8AF 8:1 AutoFocus	734.
WV-3250 8:1 AF Newvicon	825.
WV-3255 8:1 AF Color VF	1,035.
WV-3250/12x 12:1 Newvicon	1,082.
WV-3260/8AF S.E.S.	1,050.
WVD-5000 ENG System	1,483.
WV-6000 S:1 Saticon w/accs	2,534.
WV-V3/L 3-tube 10:1	3,850.
WV-555 10:1 Lens	4,057.
<b>JVC</b>	
GX-N8PC RGB	979.
GXS-700U 10:1 Saticon	1,450.
BY-110U 10:1 3-Saticon	3,075.
KY-210 3-Saticon-w/o lens	4,850.

## Color Displays

<b>Panasonic</b>	
WV-5203 Tri Rack B & W	718.
CT-500V 5" Mon/Rec	377.
CT-1010M 10" Mon/Audio	308.
ST-1000M 10" Monitor	311.
CT-110MA 10" Mon/Audio	342.
AG-500 10" w/VHS	856.
CT-130V 13" w/VHS Recorder	993.
CT-1301M 13" Monitor	346.
CT-1330M 13" Mon/Audio	376.
CT-1330V 13" Mon/Rec	460.
CT-1400MG 14" RGB Monitor	547.
CT-2010M 19" Mon/Audio	476.
CT-1930V 19" Mon/Rec	630.
CT-2600M 25" 500 Line	675.
BT-S700N 7" Mon.AC/DC	445.
BT-S701N 7" Monitor	411.
BT-S702N 7" dual rack	856.
BTS-1000N 10" Monitor	414.
BT-S1300N 13" Monitor	466.
BT-S1900N 19" Monitor	582.
PT-101 Projector	4,430.

<b>JVC</b>	
TM-22U 5" Mon.AC/DC	313.
TM-63U 5" Monitor	299.
TM-9U 9" Monitor	307.
TMR-9U 9" Pro Monitor	492.
C1483UM 13" Mon/Rec	474.
C2082UM 19" Mon/Rec	586.

<b>NEC</b>	
CM 1991 19" RGB	543.
CM 2591 25" RGB	720.

<b>Kodak Datashow</b>	
Projector w/remote	949.

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## Accessories

Bogen 3124 Tripod-Micro	89.
Bogen 3140 Tripod-Mini	155.
Bogen 3064 Deluxe Set	560.
Electrovoice 635A Mike	79.
For-A FA 400 TBC	4,249.
For-A FA 410DT TBC	5,419.
For-A FA 420 TBC	5,419.
For-A VTW210 Char. Gen.	1,830.
JVC KM-1200U S.E.G.	1,456.
JVC KM-2000U S.E.G.	3,536.
Knox K50 Character Gen.	990.
Knox K40 Microfont	1,810.
Knox K100B Chromafont	2,940.
Pana. WJ 4600C S.E.G.	1,731.
Pana. WJ 5500 S.E.G.	3,317.
Pana. WJ 5600 S.E.G.	4,759.
Sci-Tech 142 Dual TBC	3,515.
Shure M67 Mike Mixer	332.
Shure FP42 Stereo Mixer	526.
Super Microscript Titler	340.
Videotek TSM50 WF Mon	1,269.
Videotek TSM60 WF Mon.	1,640.
Videotek VSM60 Vectorscope	1,880.
Set of Test Charts	90.

## Tape: Sony, Eastman, Maxell Min. 10

<b>Sony Eastman Maxell</b>			
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KCS10K Mini	10.43	12.05	10.50
KCS10BRK Brdst1	10.95	10.95	
KCS20K Mini	11.65	12.55	11.65
KCS20BRK Brdst.	10.45	10.25	10.30
KCA10K	10.95	11.80	10.55
KCA10BRK Brdst.	12.80	12.00	10.95
KCA30K	14.15	13.75	12.70
KCA30BRK Brdst.	17.02	17.10	15.85
KCA60K	17.90	19.65	16.55
KCA60BRK Brdst.		4.80	3.90
T-30 Professional	4.40	4.95	4.30
T-60 Professional	5.55	5.45	4.45
T-120 Professional	9.10	6.85	7.00
T-120X Broadcast			4.35
8mm 15 Min.		7.95	5.20
8mm 30 Min.		9.70	6.45
8mm 60 Min.		11.40	7.60
8mm 90 Min.		9.39	8.70
8mm 120 Min.		5.90	7.10
BetaCam 5 Min.		7.20	
BetaCam 10 Min.		9.45	9.00
BetaCam 20 Min.		12.15	10.25
BetaCam 30 Min.			10.45
M Format 20 Min.			

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COMMUNICATIONS CONCEPTS, INC.  
VFF, VPP/E, OLVP  
4597 Parkbreeze Ct.  
Orlando, FL 32808  
(305) 297-9097  
Owner: Richard H. Stottler, Jr.  
Studio Manager: Jim Lewis

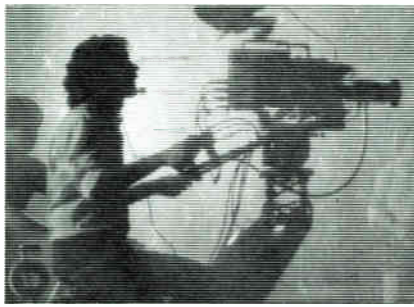
COMPUTER ART & ANIMATION STUDIO, INC.  
VFF  
1004 Hemphill Ave.  
Atlanta, GA 30318  
(404) 875-9697  
Owner: Ruth King  
Studio Manager: Katie McDonell

CONTINENTAL FILM PRODUCTIONS  
CORPORATION  
VFF, VPP/E, OLVP  
4220 Amnicola Hwy.  
Chattanooga, TN 37406  
(615) 622-1193  
Owner: J.E. Webster  
Studio Manager: J.L. Webster

CORPORATE MEDIA COMMUNICATIONS, FILM  
AND VIDEO DIVISION  
VFF  
PO Box 229  
Tucker (Atlanta), GA 30085  
(404) 491-6300  
Owner: Harry Hallman  
Studio Manager: William Onsch

CREATIVE COMMUNICATIONS DESIGN, INC.  
OLVP  
7250 NW 66th St.  
Miami, FL 33166  
(305) 593-0204  
Owner: Laurence A. Grosswald  
Studio Manager: Brad A. Kraskow

CVI/CIRACE VIDEO INTERNATIONAL  
VFF, OLVP  
115 Clermont Ave.



## SOUTHEAST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VFF (Video Production Facility); OLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

Alexandria, VA 22304  
(703) 461-9600  
(800) 222-3992  
Owner: Robert H. Cirace  
Studio Manager: Debra Palmer

DILL PRODUCTIONS  
VPP/E, OLVP  
2925 Crescent Ave.  
Birmingham, AL 35209  
(205) 870-3455  
Owner: Norton Dill, Cindy Kirkpatrick

DIVISION OF AUDIOVISUAL EDUCATION—  
TELEVISION SECTION  
VFF, VPP/E, OLVP  
PO Box 3087 Duke University Medical  
Center  
Durham, NC 27710  
(919) 681-4566  
Studio Manager: Thomas Hurtgen

DOPPLER STUDIOS  
APPV  
1922 Piedmont Cir.  
Atlanta, GA 30324  
(404) 873-6941  
Owner: Pete Caldwell  
Studio Manager: Patti Horst

DREAM PRODUCTIONS  
VPP/E, OLVP  
PO Box 7238  
Greensboro, NC 27417  
(919) 294-8100  
Owner: Cheryl A. Fulcher  
Studio Manager: Cheryl A. Fulcher

DUNECREST  
VPP/E, OLVP  
Box 171, Eastpoint  
St. George Island, FL 32328  
Owner: Thomas W. Holfer

DUTCHMAN'S FINGER VIDEO  
VFF, VPP/E, OLVP  
PO Box 3065  
Greenville, NC 27836  
(919) 758-2121  
Owner: Jacob C. Postma  
Studio Manager: Jake Postma

EDUCATIONAL TELEVISION BRANCH  
VFF  
ATZB-DPTM-TSC-ETV, Bldg. 4  
Ft. Benning, GA 31905  
(404) 545-1986

ENCORE VIDEO PRODUCTIONS  
VFF, VPP/E, OLVP  
811 Main St.  
Myrtle Beach, SC 29577  
(803) 448-9900  
Owner: Rik Dickinson, Frank Payne  
Studio Manager: David Haskell

FAITH PRODUCTIONS  
VFF, VPP/E, OLVP, APPV  
1441 Guthrie Dr.  
Cleveland, TN 37311  
(615) 478-7240  
Owner: Church of God  
Studio Manager: Mike Baker

FISHER STUDIOS  
APPV  
113 Mallette St.  
Chapel Hill, NC 27514  
(919) 968-4931  
Owner: Steve Fisher  
Studio Manager: Steve Fisher

FLORIDA MUSIC RESOURCES-FMR  
APPV  
120 S. Court St. #223  
Orlando, FL 32801  
(305) 648-8666  
Owner: Michael Redman, Alain Leroux  
Studio Manager: Michael Redman

FRANKLIN VIDEO, INC.  
VFF, VPP/E, OLVP  
1300 St. Mary's St., Ste. 205  
Raleigh, NC 27605  
(919) 833-8888  
Studio Manager: Franklin Smith

PAUL FRENCH AND PARTNERS  
VFF, VPP/E, OLVP, APPV  
The Old Rock Store at Long Cane Crk  
LaGrange, GA 30240  
(404) 882-5581  
Owner: Paul French  
Studio Manager: Ms. Gene Byrd

GALAXY SOUND STUDIOS  
APPV  
1508 Harlem  
Memphis, TN 38114  
(901) 274-2726  
Owner: GCS Communications, Int.  
Studio Manager: Dominic Herron

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**GNTV**  
*VPF, VPP/E, OLVP*  
2525 Beech Ave.  
Macon, GA 31204  
(912) 745-2366  
Owner: MUM Inc  
Studio Manager: Donald R. Wood

**GOSPEL GRAPHICS, INC.**  
*VPF*  
288 Gold Rush Rd.  
Lexington, KY 40503  
(606) 276-4883  
Studio Manager: Robert L. Oakley, Jr.

**GREAT SOUTHERN STUDIOS**  
*VPF*  
15221 NE 21st Ave.  
No. Miami Beach, FL 33162  
(305) 947-0430  
Owner: Jeffrey Gillen  
Studio Manager: Bettina R. August

**HAMMOND PRODUCTIONS, INC.**  
*VPF, VPP/E, OLVP*  
2526 Regency Rd., Ste. 102  
Lexington, KY 40503  
(606) 278-8437  
Owner: Tom Hammond and Board  
Studio Manager: Ron Mossotti

**HENNINGER VIDEO, INC.**  
*VPP/E*  
1901 N. Moore St., Ste. 210  
Arlington, VA 22209  
(703) 243-3444  
Owner: Robert L. Henninger  
Studio Manager: James L. Henninger

**HOT TUBB PRODUCTIONS**  
*OLVP*  
PO Box 4874  
Richmond, VA 23220  
(804) 783-7749  
Owner: Jay Tubb

**I VIDEO PRODUCTIONS, INC.**  
*VPF, VPP/E, OLVP, APPV*  
114 Ballard St., PO Box 461  
Yorktown, VA 23690  
(804) 898-2932  
Studio Manager: J. Timothy Ivy

**INDUSTRIAL COMMUNICATIONS, INC.**  
*VPF, VPP/E, OLVP*  
3293 Colony Dr.  
Conyers, GA 30208  
(404) 929-1514  
Owner: Dan Sawyer  
Studio Manager: Dan Sawyer

**IVS MEDIA PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
517 Meeting St.  
Charleston, SC 29403  
(803) 577-9185  
Owner: Corporation  
Studio Manager: Ed Bates

**JBH PRODUCTIONS**  
*OLVP*  
2100 N. Jefferson St.  
Arlington, VA 22205  
(703) 534-6414  
Owner: J.B. Hancock  
Studio Manager: J.B. Hancock

**JONES INTERCABLE OF TAMPA**  
*VPF, VPP/E, OLVP, APPV*  
4400 W. Buffalo Ave.  
Tampa, FL 33614  
(813) 877-6805  
Owner: Jones Intercable  
Studio Manager: Kenneth Cheek

**J.T. PRODUCTIONS**  
3215 NW 46th Ave.  
Gainesville, FL 32605  
(904) 373-5093  
Owner: John W. Thorne Jr.  
Studio Manager: John W. Thorne Jr.

**R.C. KREIDER STUDIOS, INC.**  
*VPF, OLVP*  
13105 Pennerview Ln.  
Fairfax, VA 22033  
(703) 631-7257  
Owner: R.C. Kreider  
Studio Manager: R.C. Kreider

**LADEL, INC.**  
*VPF, OLVP*  
710 Papworth Ave.  
Metairie, LA 70005  
(504) 834-8580  
Owner: Larry Lala  
Studio Manager: Larry Lala

**GLEN LAU PRODUCTIONS**  
*OLVP*  
7665 SW 100th St. Rd.  
Ocala, FL 32676  
(904) 854-6612  
Owner: Glenn H. Lau  
Studio Manager: Glenn H. Lau

**LENTZ & ASSOCIATES, INC.**  
*VPF, VPP/E, OLVP, APPV*  
501 Washington St.  
Raleigh, NC 27605  
(919) 828-6761  
Owner: L.A. Lentz  
Studio Manager: L.A. Lentz

**LIFE INTERNATIONAL PRODUCTION**  
*VPF, VPP/E, OLVP, APPV*  
750 E. 25th St.  
Hiialeah, FL 33013  
(305) 940-9197  
Owner: Roger G. Shrack  
Studio Manager: Roger G. Shrack

**LOCONTO PRODUCTIONS & STUDIOS**  
*VPF, VPP/E, OLVP, APPV*  
7766 NW 44 St.  
Sunrise, FL 33321

(305) 741-7766  
Owner: Frank X. Loconto  
Studio Manager: Phyllis Finney Loconto

**THE MARKETING CONNECTION**  
*VPF, OLVP*  
7616 Southland Blvd., Ste. 100  
Orlando, FL 32809  
(305) 855-4321  
Owner: H. LeBeau  
Studio Manager: L. LeBeau

**MATTINGLY PRODUCTIONS, LTD.**  
*VPF, VPP/E, OLVP*  
10100 Main St.  
Fairfax, VA 22031  
(703) 385-6625  
Studio Manager: E. Grayson Mattingly

**MEDIA PRODUCTIONS**  
*VPF, VPP/E, OLVP*  
2175 N. Andrews Ave. Ext.  
Pompano Beach, FL 33069  
(305) 979-6467  
Owner: Partnership  
Studio Manager: James C. Haney

**MEMPHIS COMMUNICATIONS CORPORATION**  
*VPF, VPP/E, OLVP, APPV*  
1381 Madison Ave., PO Box 41735  
Memphis, TN 38174  
(901) 725-9271  
Owner: D.W. Berry Jr.  
Studio Manager: Scot Berry

**METCALFE FILM & VIDEO PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
3709 Locksley Dr.  
Birmingham, AL 35223  
(205) 967-1661  
Owner: Charlie Metcalfe



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**MIRAGE PRODUCTIONS**  
**VPF, OLVP**  
333 N. 17th St.  
Richmond, VA 23219  
(804) 788-1450  
Owner: Jon Parks, Terry Stroud  
Studio Manager: Jon Parks, Terry Stroud

**MOUNTAIN EAR PRODUCTIONS**  
**OLVP**  
PO Box 77  
Mountain City, TN 37683  
(615) 727-5070  
Owner: Ralph Nielsen  
Studio Manager: Marci Nielsen

**MURDOCK PRODUCTIONS, INC.**  
**VPF, VPP/E, OLVP**  
Rt. 1, Box 95  
Dry Prong, LA 71423  
(318) 640-4992  
Owner: Dennis Murdock  
Studio Manager: Mary Murdock

**MUSIC BUSINESS INSTITUTE**  
**VPF, VPP/E, OLVP**  
3376 Peachtree Rd. NE  
Atlanta, GA 30326  
(404) 231-3303  
Owner: Music Business Institute  
Studio Manager: Mert Paul

**NASCAM VIDEO PRODUCTIONS**  
**VPF, VPP/E, APPV**  
PO Box 415  
Hilliard, FL 32046  
(904) 845-4626  
Owner: Oases Productions, Inc.  
Studio Manager: David Nicholas

**NATIONAL TELEPRODUCTIONS, INC.**  
**VPF, VPP/E, OLVP**  
5022 50th Way  
West Palm Beach, FL 33409  
(305) 689-9271  
Owner: R.M. Peterson  
Studio Manager: Mary F. Eddy

**OLIVERIO MUSIC STUDIOS**  
**APPV**  
750 Ralph McGill Blvd., NE  
Atlanta, GA 30312  
(404) 525-4440  
Owner: James Oliverio  
Studio Manager: Richard B. Burgess

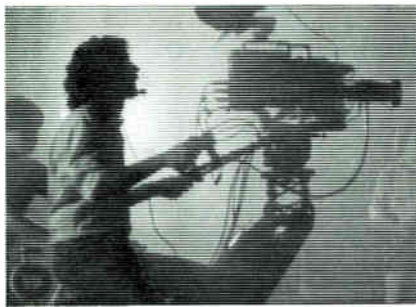
**OMNI PRODUCTIONS**  
**OLVP**  
1117 Virginia St. E.  
Charleston, WV 25301  
(304) 342-2624  
Owner: Robert F. Gates  
Studio Manager: Robert F. Gates

**PARADOX FILM & VIDEO**  
**VPF, VPP/E, OLVP, APPV**  
2305 E. 5th St.  
Charlotte, NC 28204  
(704) 333-7399  
Owner: Michael Davis

**PILOT HOUSE**  
**VPP/E, OLVP, APPV**  
2852 20th Ave. N.  
St. Petersburg, FL 33713  
(813) 323-4747  
Studio Manager: Rick Leonard (CEO)

**REUBEN PORRAS CINEMATOGRAPHY**  
**OLVP**  
290 Oakcrest Dr.  
Sharpsburg, GA 30277  
(404) 251-3256  
Owner: Reuben Porras  
Studio Manager: Jane Porras

**STEVE POSTAL PRODUCTIONS, CINEVUE**  
**VPF**  
PO Box 428  
Bostwick, FL 32007



## SOUTHEAST

*Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OLVP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).*

(904) 328-4210  
Owner: Steve Postal  
Studio Manager: Steve Postal

**THE PRODUCTION CENTER AT ARTHUR YOUNG**  
**VPF, VPP/E, OLVP, APPV**  
1950 Roland Clarke Place  
Reston, VA 22091  
(703) 648-2200  
Owner: Arthur Young  
Studio Manager: Bob Morris

**PRODUCTION WORKS**  
**VPF, VPP/E, OLVP, APPV**  
PO Box 2625  
#10 Inverness Center Pkwy.  
Birmingham, AL 35202  
(205) 870-6767  
Owner: Southern Company Services, Inc.  
Studio Manager: George Pirkle

**PROFESSIONAL BROADCAST PRODUCTIONS INC.**  
**VPP/E, OLVP, APPV**  
3224 W. Kennedy Blvd.  
Tampa, FL 33609  
(813) 877-7125  
Owner: Melvin A. Berman  
Studio Manager: Ginny Berman

**PROGRESSIVE MUSIC STUDIOS**  
**APPV**  
2116 Southview Ave.  
Tampa, FL 33606  
(813) 251-8093  
Owner: Ken Veenstra  
Studio Manager: Ken Veenstra

**THE PROVISION GROUP, INC.**  
**VPF**  
237 French Landing, Ste. 110  
Nashville, TN 37228  
(615) 256-8118  
Owner: Pat Gleason, Ed Fussell  
Studio Manager: Ed Fussell

**PUP PRODUCTIONS**  
**OLVP**  
1907 Rosewood Rd.  
Decatur, GA 30032  
(404) 289-5239  
Owner: Kenneth Allen Kistner

**REEL PRODUCTIONS INC.**  
**VPF, OLVP**  
PO Box 41115  
Nashville, TN  
(615) 297-5036  
Owner: Marian J. George  
Studio Manager: Marian J. George

**REMOTE AUDIO PRODUCTION SERVICES**  
**OLVP**  
4410 Park Ave.  
Nashville, TN 37209  
(615) 297-0513  
Owner: Al Craig

**ROXY PRODUCTION CENTER**  
**VPF, VPP/E, OLVP, APPV**  
827 Meridian St.  
Nashville, TN 37207  
(615) 226-1122  
Owner: RRT, inc.  
Studio Manager: Brenda Bridges

**SADLER PRODUCTIONS, INC.**  
**VPF, VPP/E, OLVP, APPV**  
PO Box 5375  
Bossier City, LA 71171  
(318) 742-3451  
Owner: Bill F. Sadler

**SANDCASTLE PRODUCTIONS**  
**OLVP, APPV**  
Wade Hampton Mall, Ste. 109  
Greenville, SC 29609  
(803) 235-1111  
Owner: Christopher Cassels, Rick Sandidge  
Studio Manager: Christopher Cassels

**SHOOTING STAR MOBILE TELEVISION PRODUCTION**  
**OLVP**  
PO Box 3048  
Tallahassee, FL 32315  
(904) 893-2623  
Owner: John H. Phipps, Inc.  
Studio Manager: Jan G. Rogers

**SHOT 'N THE DARK PRODUCTIONS**  
**OLVP**  
1811-A Sherwood St.  
Greensboro, NC 27403  
(919) 273-6265  
Owner: Richard Stephens  
Studio Manager: Richard Stephens

**SIGHTSONG INTERNATIONAL INC.**  
**VPF, VPP/E, OLVP, APPV**  
1158 Fifth St., PO Box 507  
Clermont, FL 32711  
(904) 394-4900  
Owner: L. Glen Lowery  
Studio Manager: Chere Roane  
Dimensions: 48 x 50  
Video Tape Recorders: Sony BVU 820, JVC CR850, Sony VO 4800.  
Video Monitors: Tektronix 650, (4) RCA 1109, (2) Panasonic 4570, (8) assorted.  
Switchers/editors: Crosspoint Latch 6112 switcher, Sony BVE800 editor.  
Video Cameras: (4) RCA TK-76 C.  
Synchronizers: Micro Time T-120D.  
Audio Recorders: Sony cassette TCD-5M and TC77, Roberts R to R, Akai R to R.  
Audio Mixers: Shure M267, Hill Multimix 16.  
Other Major Equipment: Thompson Vidifont IV, variety of lights, 8 x 1200 portable dimmer, fluid head tripods, Tektronix WFM & Vector Scopes, 26-foot GMC motor coach with two generators.

**SMALL WONDER STUDIO**  
**VPF, OLVP**  
1813 Lombardy Ave.  
Nashville, TN 37215  
(615) 298-1545  
Owner: Mark F. Pleasant  
Studio Manager: Mark F. Pleasant

**SO PRODUCTIONS INC.**  
**VPF, VPP/E, OLVP, APPV**  
900 Division St.  
Nashville, TN 37203  
(615) 248-1978  
Owner: Lynn Bennett  
Studio Manager: Steve Downey

**MARK SOSIN PRODUCTIONS**  
**OLVP**  
681 SW 15th St.  
Boca Raton, FL 33432  
(305) 368-5556  
Owner: Mark Sosin  
Studio Manager: Susan Keats

**SOUND CITY PRODUCTIONS, INC.**  
**VPF, OLVP**  
911-B 18th Ave. S.  
Nashville, TN 37212



(615) 321-5955  
Owner: Gary D. Caudel



**Joe Foglia**  
1791 Blount Road #206  
Pompano Beach, FL 33060  
(305) 974-1500

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Pompano Beach, FL

**SOUTHEAST AUDIO SERVICES**

**APPV**  
1791 Blount Rd. #206  
Pompano Beach, FL 33060  
(305) 974-1500  
Owner: Joe Foglia  
Studio Manager: Ginny Moro  
**Audio Recorders:** Nagra SN to stereo time code, Sony, Revox, Tascam.  
**Audio Mixers:** Shure, Yamaha, Scala, Ramko, Panasonic, Sony  
**Synchronizers:** Adams-Smith.  
**Other Major Equipment:** Complete line of professional audio and communications equipment for rent including walkie talkies and cellular phones.  
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**SOUTHERN PRODUCTIONS, INC.**

**VFF, VPP/E, OLVP**  
900 Division St.  
Nashville, TN 37203  
(615) 248-1978  
Owner: Lynn Bennett  
Studio Manager: Steve Downey

**SOUTHLAND VIDEO**

**VFF, VPP/E**  
655H Pressley Rd.  
Charlotte, NC 28210  
(704) 523-3121  
Owner: Southland Video  
Studio Manager: Becki Tyrrell

**STORER CABLE COMM.**

**VFF, VPP/E, OLVP**  
5205 Fruitville Rd.  
Sarasota, FL 33582  
(813) 371-4444  
Owner: Storer Communications  
Studio Manager: Rick Hartman

**STUDIO SOUTH**

**VFF, VPP/E, OLVP, APPV**  
3423 South Blvd.  
Charlotte, NC 28209  
(704) 525-0296  
Owner: William Schinman  
Studio Manager: Kathlene Baldo

**STUDIO III**

**VFF, VPP/E, OLVP**  
240 Mustang Trail, Ste. 6

Virginia Beach, VA 23454  
(804) 498-1010  
Owner: Richard Tamburino  
Studio Manager: Richard Tamburino

**SYNAPSE FILMS & TAPES**

**VFF, VPP/E, OLVP**  
951 Edgewood Ave. NE  
Atlanta, GA 30307  
(404) 688-8284  
Owner: David Moscovitz  
Studio Manager: David Moscovitz

**TAQWA PRODUCTIONS INCORPORATED**

**VFF, VPP/E, OLVP**  
1525 Bankhead Hwy.  
Atlanta, GA  
(404) 378-4219  
Owner: Hassan Shakir  
Studio Manager: Jessie Ahmed

**TELEPRODUCTIONS, INC.**

**VFF, VPP/E**  
PO Box 19708  
New Orleans, LA 70119  
(504) 486-5556  
Owner: Bill Hen  
Studio Manager: Dave Frenzt

**TELETECHNIQUES, INC.**

**VFF, VPP/E, OLVP**  
5808 Plauche St.  
New Orleans, LA 70123  
(504) 733-4424  
Owner: Paul Yacich  
Studio Manager: Deirdre Yacich

**THIRTYFIVE—SIXTEEN, INC**

**VFF, VPP/E, OLVP, APPV**  
2701-C Wilson Blvd.  
Arlington, VA 22201  
(703) 243-3516  
Owner: Frank Maniglia Sr.  
Studio Manager: Frank Maniglia Jr.

**TOTAL VIDEO PRODUCTIONS**

**VFF, VPP/E, OLVP, APPV**  
827 Meridian St.  
Nashville, TN 37207  
(615) 226-1122  
Owner: Brenda Bridges  
Studio Manager: Donna Bridges

**TRI-COMM PRODUCTIONS, INC.**

**VFF, VPP/E, OLVP**  
11 Palmetto Pkwy.  
Hilton Head, SC 29938  
(803) 681-5000  
Owner: Wm.J. Robinson, Stuart R. Silver  
Studio Manager: Carol A. Fetter

**TRISTAR PRODUCTIONS**

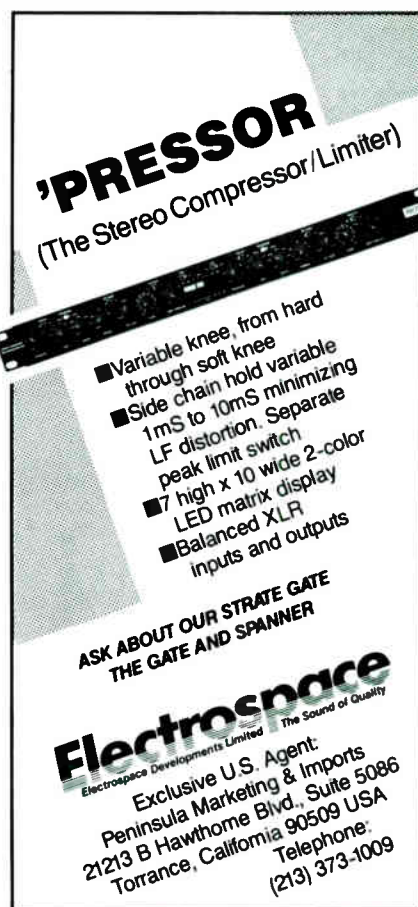
**VFF, VPP/E, OLVP, APPV**  
6002 Hickory Tree Rd.  
Louisville, KY 40291  
(502) 491-1922  
Owner: Martin L. Anderson  
Studio Manager: Martin L. Anderson

**TSC VIDEO POST AND TRANSFER**

**VPP/E**  
1107 18th Ave. S.  
Nashville, TN 37212  
(615) 320-1591  
Owner: Jerry Reed  
Studio Manager: George Betts

**TURNSTYLE PRODUCTIONS, INC.**

**VFF, VPP/E, OLVP**  
220 W. Garden St., Ste. 501  
Pensacola, FL 32501  
(904) 432-9210  
Owner: Paul Meadows  
Studio Manager: Craig Meadows



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& RESOURCE CENTER  
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Bishop Hall 201  
University, MS 38677  
(601) 232-5917  
Studio Manager: Tom Rieland

VIDEO AT A GLANZ  
VPF, VPP/E, OLVP  
1450 NE 123rd St.  
No. Miami, FL 33161  
(305) 893-1269  
Owner: Mark Glanz  
Studio Manager: Mark Glanz

VIDEO COPY SERVICES  
VPP/E  
1699 Tullie Cir., Ste. 117  
Atlanta, GA 30329  
(404) 321-6933  
Owner: Tim Harris  
Studio Manager: Ty Roberts



## SOUTHEAST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OLVP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

VIDEO IMAGE, INC.  
2724 NE 21 Ave.  
Ft. Lauderdale, FL 33306  
(305) 561-1492  
Owner: Randy J. Griffith  
Studio Manager: Larry Gentile

VIDEO IMAGE PRODUCTIONS  
VPF, VPP/E, OLVP, APPV  
808 Live Oak Dr.  
Chesapeake, VA 23320  
(804) 420-4592  
Owner: John Gimenez  
Studio Manager: Rick Milam

VIDEO TAPE ASSOCIATES  
VPF, VPP/E, OLVP, APPV  
2040 Sherman St.  
Hollywood, FL 33020  
(305) 920-0800  
Owner: W.K. (Ken) Chambliss  
Studio Manager: Chris Orsburn

VIDEO TAPE ASSOCIATES  
VPF, VPP/E, OLVP, APPV  
1575 Sheridan Rd. NE  
Atlanta, GA 30324  
(404) 634-6181  
(800) 554-8273  
Owner: W.K. (Ken) Chambliss  
Studio Manager: Mike McNally

# SONY WHEN QUALITY COUNTS

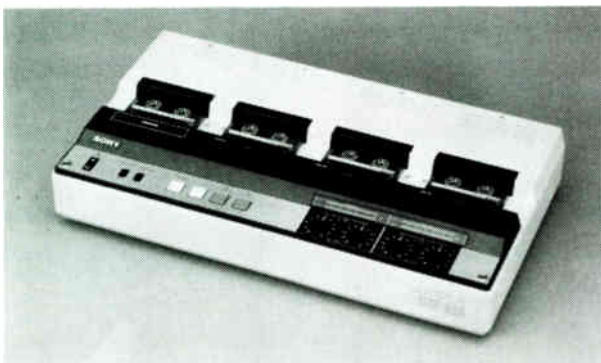
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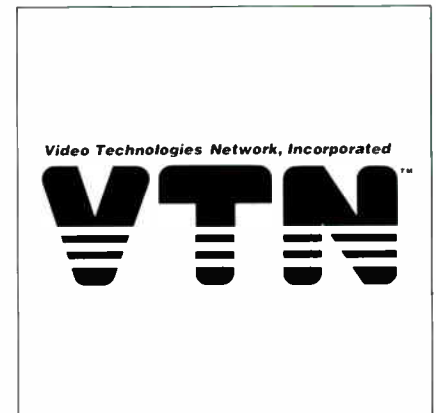
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VIDEO TECHNOLOGIES NETWORK, INC.  
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VIDEO TECHNOLOGIES NETWORK, INC.  
VPF, VPP/E, OLVP, APPV  
1000 N. Collier Blvd., Ste. 18  
Marco Island, FL 33937  
(813) 642-7500  
Owner: Thomas A. Murphy  
Video Tape Recorders: Ampex VPR-3 1-inch, Sony BVU-850 3/4-inch, Sony BVW-15DT, Sony BVW-40, Sony BVW-10  
Video Monitors: (2) CMM 20-7 Asaca Shibasoku 19-inch, (2) Sony PVM-1910M 19-inch, (6) Panasonic BT-S702 9-inch.  
Switchers/editors: Grass Valley 100CV, CMX 3100.  
Video Cameras: Ikegami HL-95 Betacam.  
Synchronizers: Fortel Turbo 2.  
Video Effects Devices: Ampex ADO 2000 w/Digmatte, DSC Eclipse.  
Audio Recorders: Tascam 48 8-track, Tascam 42B half-track.  
Audio Mixers: Tascam M-216 16-channel.  
Other Major Equipment: Dubner CB6-2LX Graphics/3-D animation computer, Dubner 20K character generator, Dubner DPS-1 paint box, Yamaha DX7, Roland S-10 digital sampler, Korg DDD-1 digital drums, sound effects and music libraries on compact disc.  
Extras & Direction: At VTN, one of Florida's only component houses, state of the art is the norm rather than the exception. We feature the latest enhancements for video production such as 3-D modeling and 3-D computer animation. We have made a real commitment to stay on the leading edge of technology. We have not let cost—high or low—dictate what we have determined to be the best: our system. Another attraction is our location Marco Island, a veritable tropical paradise.  
Rates: Please call for rates.

**VIDEO VENTURES PRODUCTIONS, INC.**  
*VFF, VPP/E, OLVP*  
16505 NW 13th Ave.  
Miami, FL 33169  
(305) 621-5266  
Owner: Jim Duffy  
Studio Manager: Jim Duffy

**VIDEO VISION PRODUCTIONS, INC.**  
*VFF, VPP/E, OLVP*  
6851 Yumuri St., Ste. 12  
Coral Gables, FL 33146  
(305) 666-1799  
Owner: Angie R. De Castilla  
Studio Manager: Charles Phillip Ray

**VIDEO WORKSHOP, INC.**  
*VPP/E*  
2400 W. Cypress Creek Rd., Ste. 205  
Ft. Lauderdale, FL 33309  
(305) 491-1244  
(800) 722-0777  
Owner: David B. Bawarsky  
Studio Manager: Steven Libowitz

**VIDEOPONICS, INC.**  
*VFF, VPP/E, OLVP, APPV*  
1101 Downtown Blvd.  
Raleigh, NC 27603  
(919) 821-5614  
Owner: Larry Gardner  
Studio Manager: Bill Blankinship

**VIDFILM SOUTHEAST, INC.**  
*VFF, OLVP*  
114 E. Franklin St.  
Richmond, VA 23219  
(804) 788-6713  
Owner: Jon Nelson

**VIRGINIA ARTS PRODUCTION STUDIO**  
*APPV*  
Box 800  
Louisa, VA 23093  
(703) 967-2245  
Owner: R. Paul Brier  
Studio Manager: R. Paul Brier

**VISIBILITY**  
*OLVP*  
4512 Southampton Rd.  
Richmond, VA 23235  
(804) 323-3810  
Owner: Stephen Berry  
Studio Manager: Mary Leath

**VISION PRODUCTIONS**  
*VFF, VPP/E, OLVP*  
1500 N. State Rd. 7  
Margate, FL 33063  
(305) 972-0660  
Studio Manager: Rick Greenlee

**WNOL-TV**  
*VPP/E*  
1661 Canal St.  
New Orleans, LA 70112  
(504) 569-0980  
Owner: TVX  
Studio Manager: Paul C. Saas

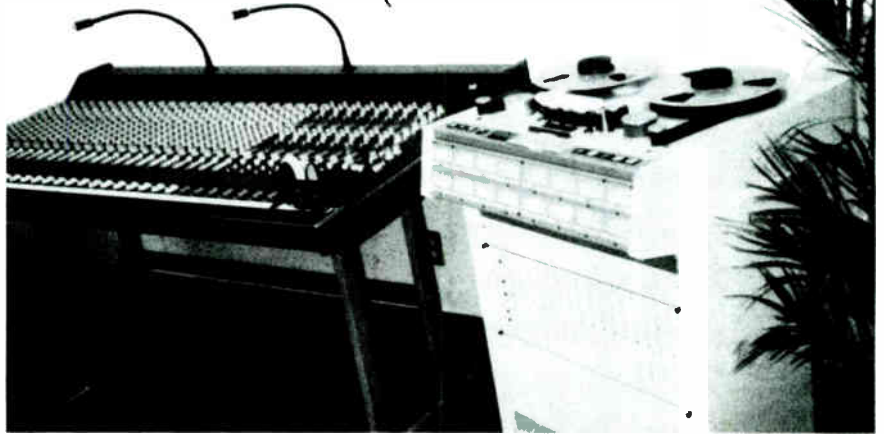
**YES PRODUCTIONS**  
*VFF, VPP/E, OLVP, APPV*  
916 Navarre Ave.  
New Orleans, LA 70124  
(504) 486-5511  
Owner: Greater New Orleans Educational Television  
Foundation  
Studio Manager: Michael J. LaBonia

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Norcross, Georgia 30093  
(404) 447-1717



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## ELECTRONIC PERCUSSION

**The Acoustic Drummer's Guide to Electronic Drums** by Jeff Burger ..... **28**  
*Drummers who don't know where to start when expanding into the world of electronic drums can start here.*

**Random Rhythms** by Tim Ebling..... **36**  
*Let Lady Luck write some unique drum parts for you.*



## RECORDING

**Things I Wish I'd Known Back When** by Vanessa Else ..... **46**  
*Just getting into recording? Might as well learn from the experiences of others.*



## INTERVIEW

**Larry Fast: Music For Metropolises** by John Diliberto..... **48**  
*Between the first Synergy album in five years, changing technology, and guiding a record label, Larry has a lot to say.*



## MIDI

**Maximum MIDI for Minimum Money** by E. A. Holley ..... **59**  
*Put together a cost-effective MIDI music studio.*



## DO-IT-YOURSELF

**Sync and Sequence with the Casio SK-1 Sampler** by Tim Fluharty ..... **62**  
*Modify your SK-1 and sync it to the real world of sequencers and drum machines.*

**Electronic Guitarist: Build the "Peakmaker"** by Craig Anderton ..... **70**  
*Don't change your pickups. Simulate the sounds of different guitar wirings—electronically.*



## APPLICATIONS AND BASICS

**Dare to be Serviced!** by Alan Gary Campbell ..... **72**  
*True stories from the land of synthesizer service.*

**Looking for Mr. Goodsound** by Kirk Austin..... **78**  
*Views and reviews on boxes for the electronic guitarist.*



## REVIEWS

**Oberheim Prommer** by Jeff Burger..... **81**

**Blank Software's Drum File** by Larry Oppenheimer ..... **88**

**The Fairlight Voicetracker** by Kevin Nord..... **95**

## NORTH CENTRAL

IOWA, ILLINOIS, INDIANA, KANSAS, MICHIGAN,  
MINNESOTA, MISSOURI, NORTH DAKOTA, NEBRASKA,  
OHIO, SOUTH DAKOTA, WISCONSIN



## NORTH CENTRAL

*Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVL (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).*

Indianapolis, IN 46220  
(317) 255-6457  
(317) 253-8562  
Owner: Bud Osborne  
Studio Manager: Linda Osborne

**AUTUMN BROOKE PRODUCTIONS**  
VPF, VPP/E, OLVP, APPV  
Rte. One, Box 305  
Council Grove, KS 66846  
(316) 767-5926  
Owner: Jef Baker  
Studio Manager: Jef Baker

**THE AVTECH COMPANY, INC.**  
VPF, VPP/E, OLVP, APPV  
6023 N. Dixie Dr.  
Dayton, OH 45414  
(513) 890-7600  
Owner: Joseph Russo  
Studio Manager: Tony Colfield

**AZI PRODUCTIONS**  
VPF, VPP/E, OLVP, APPV  
620 W. Coliseum Blvd.  
Fort Wayne, IN 46808  
(219) 484-3018  
Owner: A-Z, Inc.  
Studio Manager: Stan Adams

**AZI PRODUCTIONS**  
VPF, VPP/E, OLVP, APPV  
7315 S. Anthony  
Fort Wayne, IN 46808  
(219) 484-3018  
Owner: Stan Adams  
Studio Manager: Stan Adams

**BADIYAN PRODUCTIONS INC.**  
VPF, OLVP  
720 W. 94 St.  
Minneapolis, MN 55420  
(612) 888-5507  
Owner: Fred Badiyan  
Studio Manager: Fred Badiyan

**BALL COMMUNICATIONS, INC.**  
1101 N. Fulton Ave.  
Evansville, IN 47710  
(812) 428-2300  
Owner: Martin A. Ball  
Studio Manager: Martin A. Ball

**BARNES/WEST PRODUCTIONS**  
VPF, OLVP  
215 N. 8th St.  
Clear Lake, IA 50428  
(515) 357-7903  
Owner: David C. Barnes

**BILL BATZKALL PRODUCTIONS, INC.**  
VPF, VPP/E, OLVP, APPV  
PO Box 1541  
Elk Grove, IL 60009  
(312) 981-0198

Owner: Bill Batzkall  
Studio Manager: Bill Batzkall

**R.B. BAXTER'S VIDEO PRODUCTION**  
VPF, VPP/E, OLVP, APPV  
562 E. Greenlawn  
Lansing, MI 48910  
(517) 372-1402  
Owner: Bob Baxter  
Studio Manager: Jim Frontier

**BEHREND'S INC.**  
VPF, VPP/E, OLVP  
219 N. Carpenter  
Chicago, IL 60607  
(312) 243-8074  
Owner: Jack Behrend  
Studio Manager: Jack Behrend

**BEZORE PRODUCTIONS**  
APPV  
PO Box 2175  
Madison, WI 53701  
(608) 241-9169  
Owner: Thomas A. Naunas

**BLUE SKY COMMUNICATIONS, INC.**  
VPF, VPP/E, OLFP  
3201 S. Providence Rd. #202  
PO Box 1522  
Columbia, MO 65205  
(314) 874-2253  
Owner: David J. McAllister

**BLUE SKY STUDIOS**  
VPF, VPP/E, OLVP  
80 Butternut Ln.  
Northfield, OH 44067  
(216) 467-6866  
Owner: Patrick Wichert  
Studio Manager: Marion Schneigenberg

**BRAUNCO VIDEO**  
VPF, VPP/E, OLVP, APPV  
PO Box 236, 1125 Huntington Ave.  
Warren, IN 46792  
(219) 375-3148  
Owner: Michael Braun  
Studio Manager: Martin Christiansen, J. Alan Jones

**BRIGHT LIGHT PRODUCTIONS**  
VPF, VPP/E, OLVP  
602 Main St., Ste 810  
Cincinnati, OH 45202  
(513) 721-2574  
Owner: Rocky Spalazzi, Linda Spalazzi

**BROOKLINE VISUAL ARTS SERVICES, INC.**  
VPF, OLVP, APPV  
PO Box 1831  
Kettering, OH 45429  
(513) 254-5299  
Owner: D. Scott Morse  
Studio Manager: Carmel L. Morse

**BULLER FILMS INC.**  
VPF  
1053 N. Main St.  
Henderson, NE 68371  
(402) 723-4737  
Owner: Burton Buller  
Studio Manager: Burton Buller

**CABLE CONCEPTS CORPORATION**  
VPF, VPP/E, OLVP  
3939 Dempster  
Skokie, IL 60076  
(312) 676-4222  
Owner: Steve Zaransky

**JOHN WILSON CALDER**  
APPV  
151 Bedford St. SE  
Minneapolis, MN 55414  
(612) 379-0614  
Owner: John Calder

**ACCESS PRODUCTIONS INC.**  
VPF, VPP/E, OLVP, APPV  
323 E. Williams, Ste. 20  
Ann Arbor, MI 48104  
(313) 662-2410  
Owner: Michael Clarren  
Studio Manager: Michael Clarren

**ALLIED FILM & VIDEO**  
VPP/E  
7375 Woodward Ave.  
Detroit, MI 48202  
(313) 871-2222  
Owner: Bill Smith  
Studio Manager: Jim Naito

**ALLIED FILM & VIDEO SERVICES**  
VPP/E  
1322 W. Belmont Ave.  
Chicago, IL 60657  
(312) 348-0373  
Owner: William H. Smith  
Studio Manager: Grant Ireland

**ALLOY PRODUCTIONS**  
VPF  
PO Box 532  
Lake Zurich, IL 60047  
(312) 540-8558  
Owner: Mark Kernes

**AMERICAN MOBILE VIDEO INC.**  
OLVP  
946 Goltview Rd.  
Glenview, IL 60025  
(312) 729-6280  
Owner: R. Shapiro

**A.M.S. LOCATION RECORDING**  
VPP/E, OLVP  
PO Box 4354  
St. Paul, MN 55104  
(612) 227-2225  
(612) 227-1126  
Owner: Jim Higbee

**ANDERSON PRODUCTIONS**  
VPF, OLVP  
PO Box 6633  
Omaha, NE 68106  
(402) 449-9388  
Owner: Andy Anderson  
Studio Manager: Andy Anderson

**ANGEL FILMS**  
VPF, OLVP  
Rte. 1, Box 57  
New Franklin, MO 65274  
(314) 698-3900  
Owner: William H. Hoehne Jr.  
Studio Manager: Arlene Hulse

**ASSOCIATE PRODUCERS, INC.**  
VPF, OLVP  
6545 Bloomfield Rd.  
Des Moines, IA 50320  
(515) 285-1209  
Owner: Robt. Hulstader  
Studio Manager: Joe Brother

**AUDIOCRAFT RECORDING CO.**  
VPP/E, OLVP, APPV  
915 W. 8th St.  
Cincinnati, OH 45203  
(513) 241-4304  
Owner: Bud Herzog  
Studio Manager: Terry Alvarado

**AUDIO-VISUAL ASSOCIATES**  
OLVP, APPV  
4760 E. 65th St.

**CENTER VIDEO INDUSTRIAL COMPANY, INC.**  
**VPF, VPP/E, OLVP**  
 5615 W. Howard St.  
 Chicago, IL 60648  
 (312) 647-8700  
 (800) 621-4354  
 Owner: Stock Corporation  
 Studio Manager: Stephen B. Rudolph

**CHICAGO FILM & VIDEO LTD.**  
 1723 Howard St.  
 Evanston, IL 60202  
 (312) 864-0075  
 Owner: GN Communications, LTD.  
 Studio Manager: Steve Polydoros

**CHRISTIAN VIDEO INC.**  
**VPF, APPV**  
 753 N. 12th St.  
 Salina, KS 67402  
 (913) 827-5357  
 Owner: Corporation  
 Studio Manager: Robert McGuire

**CINCINNATI BELL CREATIVE SERVICES**  
**VPF, VPP/E, OLVP**  
 201 E. 4th St., Rm. 560  
 Cincinnati, OH 45201  
 (513) 397-8343  
 Owner: Cincinnati Bell  
 Studio Manager: Kyle Hill

**CINE-MARK DIV. KREBS PRODUCTIONS INC.**  
 10 E. Ontario St., Ste. 1303  
 Chicago, IL 60611  
 (312) 337-3303  
 Owner: Clyde L. Krebs

**CINEMARK, INC.**  
**VPF**  
 1761 Karg Dr.  
 Akron, OH 44313  
 (216) 867-2116  
 Owner: Jack E. Gieck  
 Studio Manager: Jack E. Gieck

**CITY VIDEO PRODUCTIONS**  
**VPF**  
 225 Fence Ln.  
 Hillside, IL 60162  
 (312) 449-0434  
 Owner: Frank Kostka, Alan Lusk  
 Studio Manager: Thomas O'Keefe

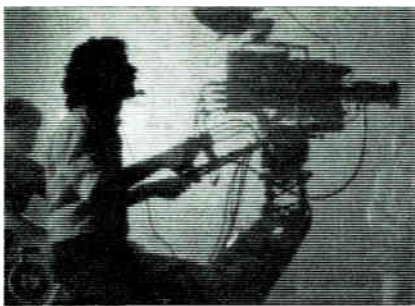
**COLUMBIA AUDIO/VIDEO**  
**VPP/E**  
 1741 Second St.  
 Highland Park, IL 60035  
 (312) 433-6010  
 Owner: Gene R. Kahn  
 Studio Manager: Bruce Berg

**COMPUTER VIDEO PRODUCTIONS, INC.**  
**VPF, VPP/E, OLVP**  
 1317 Clover Dr.  
 Minneapolis, MN 55420  
 (612) 888-2388  
 Owner: Dean Suthiff  
 Studio Manager: Dean Suthiff

**CONCORD CABLEVISION - PUBLIC ACCESS TV20**  
**VPF, VPP/E, OLVP**  
 1420 Lakeville Rd.  
 Oxford, MI 48051  
 (313) 628-9658  
 Studio Manager: Christopher Wilt

**CREATIVE PRODUCTIONS, INC.**  
**OLVP**  
 221 N. LaSalle St.  
 Chicago, IL 60601  
 (312) 332-4076  
 Owner: Leo Cummins

**DAILY PLANET**  
**VPF, VPP/E, OLVP**  
 401 N. Michigan Ave., Ste. 3260  
 Chicago, IL  
 (312) 670-3766  
 Studio Manager: Martha Koch



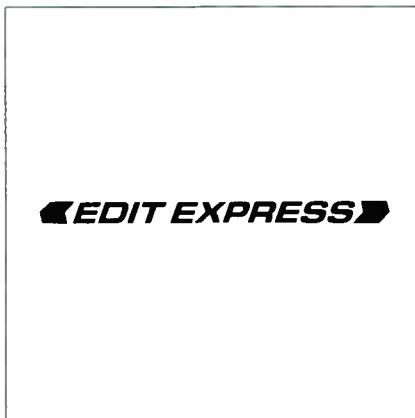
## NORTH CENTRAL

*Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OLVP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).*

**THE DAVID DOUGLAS CORP.**  
**VPF, OLVP, APPV**  
 700 Walnut St.  
 Cincinnati, OH 45202  
 (513) 721-7444  
 Owner: Edwin D. Hottinger  
 Studio Manager: James A. Szczepek

**KEN EARL PRODUCTIONS**  
**APPV**  
 590 Buckingham Way  
 Bolingbrook, IL 60439  
 (312) 472-6550  
 Owner: Ken Earl  
 Studio Manager: Ken Earl

**EDCOM PRODUCTIONS**  
**VPF**  
 26991 Tungsten Rd.  
 Euclid, OH 44132  
 (216) 261-3222  
 Owner: Joe Drabik  
 Studio Manager: Steve Jaeb, Al Roberts



**EDIT EXPRESS**  
 (A DIVISION OF AIRFAX PRODUCTIONS, INC.)  
 Chicago, IL

**EDIT EXPRESS**  
 (A DIVISION OF AIRFAX PRODUCTIONS, INC.)  
**VPF, VPP/E, OLVP**  
 727 N. Hudson Ave.  
 Chicago, IL 60610  
 (312) 943-1375  
 Owner: Neal Kesler  
 Studio Manager: Mary Ann Peter  
 Video Tape Recorders: (3) Sony BVH-2000, (2) Sony BVU-800, Sony BVU-820, (2) Sony Beta SP.  
 Video Monitors: (6) Ikegami 15-inch.  
 Switchers/editors: Grass Valley ISC 41 edit controller, Grass Valley 100 special effects switcher.  
 Video Cameras: (3) Hitachi SK-91s.  
 Video Effects Devices: Ampex ADO Digital Effects System, Chyron Scribe character generator/graphics unit.  
 Audio Recorders: Otari 4-track 1/2-inch ATR.  
 Audio Mixers: Yamaha series MS12.  
 Soundstages: 40 x 30 sound stage, wardrobe and make-

up, fully equipped working kitchen, lighting and grip equipment, screening facilities, convenient 1st floor access.

**Other Major Equipment:** Videotape production equipment, packages in one-inch, 3/4-inch or Betacam available, for in studio use or location.

**Extras & Direction:** Full service production company featuring live action for TV commercials, television programs, corporate tapes and interactive videodiscs. Specializing in people/dialogue, table-top and food, presenters, corporate image pieces, sales training films and tapes, pre-mastering for videodisc—on location or in the studio.

**EDUCATIONAL TELEVISION SERVICES—**  
**U.C. MEDICAL CENTER**  
**VPF, VPP/E, OLVP, APPV**  
 231 Bethesda Ave., ML573  
 Cincinnati, OH 45267  
 (513) 872-5652  
 Owner: University of Cincinnati  
 Studio Manager: Dan Reeder

**ELECTRIC SHADOWS CORPORATION**  
**VPF, VPP/E, OLVP, APPV**  
 3355 Richmond Rd.  
 Beachwood, OH 44122  
 (216) 831-8580  
 Owner: I Leonard Kaplan, James H. Bonnett  
 Studio Manager: James H. Bonnett

**EMERALD CITY VIDEO PRODUCTIONS**  
**VPP/E**  
 2620 Horizon Dr. SE  
 Grand Rapids, MI 49506  
 (616) 949-9283  
 Studio Manager: Thomas Love

**ENCYCLOPAEDIA BRITANNICA USA**  
**VPP/E**  
 310 S. Michigan Ave.  
 Chicago, IL 60604  
 (312) 347-7307  
 Owner: Encyclopaedia Britannica USA  
 Studio Manager: Rick Santangelo

**FACET COMMUNICATIONS**  
**VPF, VPP/E, OLVP, APPV**  
 1223 Central Pkwy.  
 Cincinnati, OH 45214  
 (513) 381-4033  
 Owner: Greater Cincinnati Television Education Foundation  
 Studio Manager: John T. Dominic

**THE FALCON - FILM/TAPE EDITING**  
**VPP/E**  
 Box 1072  
 Evanston, IL 60204  
 (312) 463-6935  
 Owner: Theodore R. Norcutt

**THE FILM HOUSE, INC.**  
**VPF, VPP/E, OLVP**  
 6058 Montgomery  
 Cincinnati, OH 45213  
 (513) 631-0035  
 Studio Manager: Ken Williamson

**FILMCHICAGO**  
**VPF, OLVP**  
 909 W. Diversey  
 Chicago, IL 60614  
 (312) 528-8200  
 Owner: Arnold Rosenthal  
 Studio Manager: Dan Stinckland

**THE FINISHING HOUSE**  
**VPP/E, OLVP**  
 1635 W. Big Beaver Rd.  
 Troy, MI 48064  
 (313) 643-4666  
 Owner: Ira Glass, Karen Gleason  
 Studio Manager: Ira Glass, Karen Gleason

**FORCES, INC.**  
**OLVP**  
 Box 3217  
 Aurora, IL 60505  
 (312) 369-4100  
 Owner: L.V. Magee  
 Studio Manager: T. Johnson

**FULLER VIDEO PRODUCTIONS**  
 VPF, VPP/E, OLVP  
 5100 Gamble Dr., Ste. 85  
 Minneapolis, MN 55416  
 (612) 542-9693  
 Owner: Jim Fuller  
 Studio Manager: Jim Fuller

**FUTURE MEDIA CORP.**  
 VPF, VPP/E, OLVP  
 211 N. Clippert St.  
 Lansing, MI 48912  
 (517) 332-5560  
 Owner: Bob Bishop, Ed Cheeney  
 Studio Manager: Ed Cheeney

**GALAXY PRODUCTIONS LTD.**  
 VPF, VPP/E, OLVP, APPV  
 707 Remington Rd.  
 Schaumburg, IL 60173  
 (312) 884-8273  
 Owner: Dennis Gallagher

**GOURMET IMAGES, INC.**  
 VPF, VPP/E, OLVP, APPV  
 144 N. 38th Ave.  
 Omaha, NE 68131  
 (402) 558-4985  
 Owner: Mary Ellen Rozmajzl  
 Studio Manager: Michael E. Lester

**GRACE & WILD STUDIOS**  
 VPF, VPP/E, OLVP  
 23689 Industrial Park Dr.  
 Farmington Hills, MI 48024  
 (313) 471-6010  
 Owner: Harvey Grace, Steven Wild  
 Studio Manager: Keith Neff  
 Video Tape Recorders: (4) Sony BVH-2000, (12) Sony BVH-1100A, (2) Sony BVH-1100A PAL  
 Video Monitors: (10) Barco, (12) Tektronix  
 Switchers/editors: (2) Vital 114 3Mix EFX, (2) Sony 5000 editors  
 Video Cameras: (2) Ikegami EC-35, (2) Ikegami HL-79E  
 Synchronizers: BTX Shadow  
 Video Effects Devices: (2) Ampex ADO 3000, Quantel Mirage  
 Audio Recorders: (2) MCI 4-track, MCI 8-track, (2) MCI 2-track  
 Audio Mixers: (3) NEOTEK  
 Soundstages: 60 x 40, 110 x 140 (under construction)  
 Other Major Equipment: Symbolics 3D/Paint system, Betacam editing, Abekas A-62, (2) Rank 3C Telecines.

**GREER & ASSOCIATES**  
 OLVP  
 312 Washington Ave. N.  
 Minneapolis, MN 55401  
 (612) 338-6171  
 Owner: Ken Greer  
 Studio Manager: Ken Greer

**DELL GROSS/MOTION/STILL/PHOTOGRAPHY**  
 OLVP  
 405 7th St.  
 Pine City, MN 55063  
 (612) 629-7364  
 Owner: Dell Gross  
 Studio Manager: Dell Gross

**GRS, INC.**  
 VPF, VPP/E, OLVP, APPV  
 13300 Broad St.  
 Pataskala, OH 43062  
 (614) 927-9566  
 Studio Manager: Steve Andrews

**HEDQUIST PRODUCTIONS, INC.**  
 APPV  
 1007 E. Madison  
 Fairfield, IA 52556  
 (515) 472-6708  
 Owner: Jeffrey P. Hedquist

**PAUL HERMAN PRODUCTIONS**  
 OLVP  
 7117 Blackburn Dr.  
 Downers Grove, IL 60516  
 (312) 964-7020  
 Owner: Paul Herman  
 Studio Manager: Paul Herman

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## NORTH CENTRAL

*Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OLVP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).*

### HEYWOOD FORMATICS & SYNDICATION

**APPV**  
1103 Colonial Blvd.  
Canton, OH 44714  
(216) 456-2592  
Owner: Max Heywood  
Studio Manager: Diane Burr

### HOYA VIDEO PRODUCTIONS

**VPF**  
5844 Elaine Dr.  
Rockford, IL 61108  
(815) 398-2500  
Owner: Robert Osborn  
Studio Manager: Richard Kessenich

### HUNT PRODUCTIONS, INC.

**VPF, OLVP**  
1500 E. 79th St.  
Bloomington, MN 55420  
(612) 854-5044  
Owner: J.F. Hunt  
Studio Manager: Joel Ripley

### IMAGEMAKERS PROMOTIONAL PRODUCTION SERVICES

**VPP/E, OLVP, APPV**  
194 E. Main St.  
St. Clairsville, OH 43950  
(614) 695-6443  
Owner: C. Jeffrey Mamone  
Studio Manager: Bruce A. Wheeler

### IN MOTION PRODUCTIONS

**VPF, VPP/E, OLVP**  
5201 W. Donges Bay Rd.  
Mequon, WI 53092  
(414) 242-0602  
Owner: Bruce Resnick  
Studio Manager: Jim Shearer, Jim Cutting

### INSTRUCTIONAL MEDIA CENTER - WWTI

**VPF, VPP/E, OLVP**  
304 N. 6th St.  
La Crosse, WI 54602  
(608) 785-9107  
Studio Manager: Karl Friedline

### IODICE & COMPANY

**VPF, VPP/E, OLVP, APPV**  
3361 N. Ridge Ave.  
Arlington Hts., IL 60004  
(312) 577-0191  
Owner: Dominic Iodice  
Studio Manager: Terry Loughman

### IPA, THE EDITING HOUSE

1208 W. Webster  
Chicago, IL 60614  
(312) 871-6033  
Owner: Scott Jacobs  
Studio Manager: D.L. Bean

### BRADLEY JOHNSON PRODUCTIONS

**APPV**  
6603 Meadowlark Ln.  
Maple Grove, MN 55369  
(612) 424-7878  
Owner: Bradley A. Johnson  
Studio Manager: Brad Johnson

### JOSEPH PRODUCTIONS, INC.

**APPV**  
21759 Melrose  
Southfield, MI 48075  
(313) 353-7300  
Owner: Sheldon J. Nueman  
Studio Manager: Eve Avadenka

### BILL JUNTUNEN VIDEO PRODUCTIONS, INC.

**VPP/E, OLVP**  
1608 Como Ave., Ste. 102  
St. Paul, MN 55108  
(612) 645-6638  
Owner: Bill Juntunen  
Studio Manager: Bill Juntunen

### K & R RECORDING STUDIOS, INC.

**VPP/E, OLVP, APPV**  
28533 Greenfield  
Southfield, MI 48076  
(313) 557-8276  
Owner: Ken Glaza

### KAGAN BROADCAST, INC.

**OLVP, APPV**  
1245 N. Water  
Milwaukee, WI 53202  
(414) 291-9666  
Owner: James Kagan  
Studio Manager: Robert Scott

### KARTES VIDEO COMMUNICATIONS

**VPF, VPP/E, OLVP**  
10 E. 106th St.  
Indianapolis, IN 46280  
(317) 884-7403  
Owner: Scripps Howard Company  
Studio Manager: Herb Pasch

### KLUGE COMMUNICATIONS, INC.

**VPF, VPP/E, OLVP, APPV**  
5350 W. Clinton Ave.  
Milwaukee, WI 53223  
(414) 354-9490  
Owner: Doug Kluge

### KOCH/MARSCHALL PRODUCTIONS, INC.

**OLVP**  
1718 N. Mohawk St.  
Chicago, IL 60614  
(312) 664-6482  
Owner: Phillip Koch, Sally E. Marschall  
Studio Manager: Phillip Koch

### K.S.M. CONCEPTS, INCORPORATED

**OLVP**  
5148 W. Roscoe St.  
Chicago, IL 60641  
(312) 685-6540  
Owner: Mitchell S. Kasprzyk  
Studio Manager: Mitchell S. Kasprzyk

### KTIV TELEVISION

**VPF, VPP/E, OLVP**  
3135 Floyd Blvd.  
Sioux City, IA 51105  
(712) 239-4100  
Owner: American Family Broadcasting  
Studio Manager: Mike Smith

### LAWSON PRODUCTS INC.

**VPF, VPP/E, OLVP, APPV**  
1666 E. Touhy  
Des Plaines, IL 60018  
(312) 827-9666  
Studio Manager: John J. Beusse

### MARK LEE PRODUCTIONS INC.

**APPV**  
730 Hennepin Ave., Ste. 800  
Minneapolis, MN 55403  
(612) 333-2241



Owner: Michael S. Peterson  
 Studio Manager: Gene Darrah

**LIGHT PRODUCTIONS**

*VPF, OLVP*  
 1915 Webster  
 Birmingham, MI 48008  
 (313) 642-3502  
 Owner: Terry Luke  
 Studio Manager: Mike Shepherd

**LONG RUN PRODUCTIONS, LTD.**

*VPF, OLVP*  
 1885 Larpenteur Ave.  
 St. Paul, MN 55113  
 (612) 647-9089  
 Owner: Thomas Ingledew, Jud Williams

**MAGNIFICENT MOVING PICTURES**

*OLVP*  
 639 Shoreline Cir.  
 Schaumburg, IL 60194  
 (312) 885-4661  
 Owner: Marc Miller  
 Studio Manager: Cathy Miller

**MAJOR MEDIA, INC.**

*APPV*  
 3326 Commercial Ave.  
 Northbrook, IL 60062  
 (312) 498-4610  
 Owner: Jay Steinberg  
 Studio Manager: Mike Sackheim

**MARX INC.**

*VPF, VPP/E, OLVP, APPV*  
 3100 W. Vera Ave.  
 Milwaukee, WI 53209  
 (414) 351-5060  
 Owner: Byron Marx  
 Studio Manager: Robert Marx

**MEDIA GROUP TELEVISION**

*VPF, VPP/E, OLVP*  
 7th Ave. & 23rd St.  
 Moline, IL 61265  
 (309) 764-6411  
 Owner: Moline Gospel Temple  
 Studio Manager: Chuck Olmstead

**MEDIA SERVICES PRODUCTIONS**

*VPF, VPP/E, OLVP*  
 1821 University Ave., Ste. S-320  
 St. Paul, MN 55104  
 (612) 645-0191  
 Owner: Robert Jackson  
 Studio Manager: Jon P. Larson

**MESHENDA PRODUCTIONS**

*VPP/E, OLVP, APPV*  
 PO Box 199127  
 Chicago, IL 60619  
 (312) 651-7713  
 (312) 936-5986  
 Owner: Lisa M. Williams  
 Studio Manager: Lisa M. Williams

**METRO VISUALS**

*VPF, OLVP*  
 2517 N. 68 St.  
 Wauwatosa, WI 53213  
 (414) 258-6464  
 Owner: D.K. Hidde  
 Studio Manager: D.K. Hidde

**MIDWEST PRODUCTION GROUP**

*VPF, VPP/E, OLVP, APPV*  
 2317 Washington St.  
 Two Rivers, WI 54241  
 (414) 793-2335  
 (800) STA-GE33  
 Owner: Charles Birt

**MIDWEST PRODUCTION GROUP, INC.**

*VPF, VPP/E, OLVP*  
 312 S. 4th St., Ste. 3  
 Springfield, IL 62701  
 (217) 544-5244  
 Studio Manager: Scott Perry

**MILLS/JAMES PRODUCTIONS**

*VPF, VPP/E, OLVP*  
 4555 N. High St.  
 Columbus, OH 43214  
 (614) 263-1600  
 Owner: Kenneth P. Mills, Cameron James  
 Studio Manager: Kenneth P. Mills, Cameron James

**MINDSIGHT**

*VPF*  
 2526 27th Ave. S.  
 Minneapolis, MN 55406  
 (612) 721-6641  
 Owner: Roger Klietz

**MOTIVATION MEDIA, INC.**

*VPF, VPP/E, OLVP*  
 1245 Milwaukee Ave.  
 Glenview, IL 60025  
 (312) 297-4740  
 Owner: Frank Stedronsky  
 Studio Manager: Peter Tanke

**MULTIMEDIA/CONNECTIONS**

*VPF, VPP/E, OLVP, APPV*  
 715 Florida Ave. S.  
 Golden Valley, MN 55426  
 (612) 544-7272  
 Owner: TSG Inc.  
 Studio Manager: Timothy "TJ" Worrell

**MULTI-MEDIA GROUP**

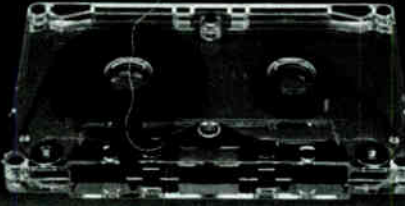
*VPF*  
 8901 Indian Hill Dr., Ste. 201  
 Omaha, NE 68114  
 (402) 392-0924  
 Owner: Bruce E. Thiebauth  
 Studio Manager: Mark L. Nielsen

**CHUCK NEFF COMMUNICATIONS**

*VPF, VPP/E, OLVP, APPV*  
 10420 Old Olive St. Rd.  
 St. Louis, MO 63141  
 (314) 991-4949  
 Owner: Chuck Neff  
 Studio Manager: Cheryl Cavins

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	5	12	30	60	100	250	500	1000	5000
<b>REAL TIME (HIGH BIAS CHROME TYPE II)</b>									
C-10	4.64	2.14	1.67	1.23	1.03	.98	.91	.86	.84
C-20	4.86	2.25	1.79	1.36	1.16	1.11	1.06	1.01	.96
C-30	5.15	2.35	1.94	1.51	1.31	1.26	1.21	1.16	1.11
C-40	5.30	2.45	2.14	1.71	1.51	1.46	1.41	1.36	1.31
C-50	5.66	2.70	2.33	1.90	1.70	1.65	1.60	1.55	1.50
C-60	5.95	3.02	2.54	2.11	1.91	1.86	1.81	1.76	1.71
C-70	6.71	3.70	2.79	2.36	2.16	2.11	2.06	2.01	1.96
C-80	6.93	3.90	2.99	2.56	2.36	2.31	2.26	2.21	2.16
C-90	7.15	4.12	3.22	2.79	2.59	2.54	2.49	2.44	2.39
<b>PRACTICE CASSETTE SPECIAL (NORMAL BIAS TYPE I)</b>									
C-60	2.50	1.37	1.04	.89	.74	.68	.68	.67	.55
C-90	3.00	1.58	1.25	1.14	1.01	.86	.86	.83	.71
<b>MUSIC CASSETTE SPECIAL (NORMAL BIAS TYPE I)</b>									
C-60	3.65	1.95	1.60	1.30	1.18	1.11			
C-90	4.85	2.60	2.10	1.85	1.65	1.55			

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**NELSON PRODUCTIONS INC.**  
**VFP, VPP/E, OLVP, APPV**  
 3929 N. Humboldt Blvd.  
 Milwaukee, WI 53212  
 (414) 962-4445  
 Owner: David W. Nelson

**NEW ORIENT MEDIA, INC.**  
**VFP, VPP/E, OLVP, APPV**  
 126 W. Main St.  
 West Dundee, IL 60118  
 (312) 428-6000  
 Owner: Carol & Robert Sandigro  
 Studio Manager: Tim Haley

**NEW OUTLOOK PRODUCTIONS**  
**VPP/E, OLVP, APPV**  
 5731 S. State St.  
 Chicago, IL 60621  
 (312) 955-3017  
 Owner: Don Greer  
 Studio Manager: Don Greer, Kathy Greer

**NLC PRODUCTIONS**  
**OLVP**  
 424 W. Minnesota Ave., PO Box 1075  
 Willmar, MN 56201  
 (612) 235-6404  
 (800) 233-6470  
 Studio Manager: Larry Huisinga  
 Video Tape Recorders: (3) Sony BVH-2000.  
 Video Monitors: (4) Ikegami TM 20-9RH, Ikegami TM-14 9RH, (12) Sony PVM-8221, (34) Panasonic B/W.  
 Switchers/editors: Grass Valley 1680 16F, Bosch TVS-2000-20X10, Sony BVE 900  
 Video Cameras: (2) Philips LDK-26, (2) Ikegami HL-79EAL, (3) additional cameras available upon request.  
 Video Effects Devices: Abekas A 53D  
 Audio Mixers: Yamaha PM 2000 32 x 8 x 2, Ramsa WR S212 12 x 2  
 Other Major Equipment: Chyron 4100EXB, all equipment is installed in a 40 foot trailer.

**NORTHWEST TELEPRODUCTIONS, INC.**  
**VFP, VPP/E, OLVP, APPV**  
 444 N. Michigan Ave.  
 Chicago, IL 60611  
 (312) 822-0444  
 Studio Manager: Ted Sodergeren

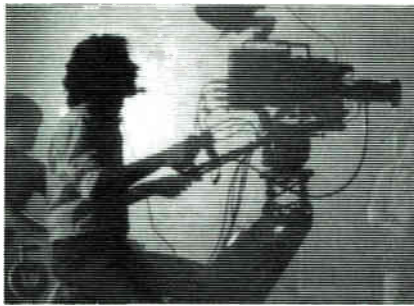
**NORTHWEST TELEPRODUCTIONS, INC.**  
**VFP, VPP/E, OLVP**  
 4455 W 77 St  
 Minneapolis, MN 55435  
 (612) 835-4455  
 Owner: Publicly owned  
 Studio Manager: Bob Mitchell

**NORWEST COMMUNICATIONS, INC.**  
**VFP, VPP/E, OLVP, APPV**  
 123 S. Hough St  
 Barrington, IL 60010  
 (312) 381-3271  
 Owner: Mark Karney  
 Studio Manager: Mark Karney

**ON-LINE VIDEO/DIV OF WTMJ-TV**  
**VFP, VPP/E, OLVP**  
 720 E. Capitol Dr.  
 Milwaukee, WI 53201  
 (414) 223-5254  
 Owner: WTMJ-TV  
 Studio Manager: Dean Maytag

**OPEN STAGE INTERNATIONAL CO. INC.**  
**VFP, OLVP**  
 1057 Pratt #2A  
 Chicago, IL 60626  
 (312) 743-7041  
 Owner: Dan & Angela Jelesco  
 Studio Manager: Dan Jelesco

**PANATROPE, INC.**  
**VFP**  
 1510 Old Deerfield Rd.  
 Highland Park, IL 60035  
 (312) 831-5788  
 Owner: Craig Witly  
 Studio Manager: Craig Witly



## NORTH CENTRAL

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VFP (Video Production Facility); OLVP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

**PEARL SOUND STUDIOS LTD.**  
**APPV**  
 47360 Ford Rd  
 Canton, MI 48187  
 (313) 455-7606  
 Owner: Ben Grosse

**PHOTO COMMUNICATION SERVICES, INC.**  
**VFP, OLVP, APPV**  
 6410 Knapp NE  
 Ada, MI 49301  
 (616) 676-1499  
 Owner: Michael Jackson  
 Studio Manager: Michael Jackson

**PINEBROOK RECORDING STUDIOS, INC.**  
**VFP, VPP/E, OLVP, APPV**  
 PO Box 146, State Rd. 9 S.  
 Alexandria, IN 46001  
 (317) 724-7721  
 Owner: W.J. Gaither, R.L. Hammel, E.L. Daniels  
 Studio Manager: R.L. Hammel

**POLYCOM TELEPRODUCTIONS**  
**VFP, VPP/E, OLVP, APPV**  
 142 E Ontario  
 Chicago, IL 60611  
 (312) 337-6000  
 Owner: Richard Jablonski  
 Studio Manager: Joseph Hassen



**POST EFFECTS**  
 Chicago, IL

**POST EFFECTS**  
**VFP**  
 400 W Erie  
 Chicago, IL 60610  
 (312) 944-1690  
 Owner: Mike Fayette  
 Studio Manager: Joyce Brady  
 Video Tape Recorders: (8) Sony BVH 2000 one inch, (2) Sony BVH 2500 one-inch, (2) Sony BVW 10 Betacam, Sony BVW 40 Betacam, Sony BVU-800 3/4 inch, Sony BVU 820 3/4 inch, Abekas A-62 digital.

Video Monitors: Ikegami TMR-20, Ikegami TMR 14, Sony PUM-1220.  
 Switchers/editors: Ross 508A production switcher, CDL 1080 production switcher, CDL 680 production switcher, Grass Valley 100 production switcher, (4) Grass Valley group edit system.  
 Video Cameras: (2) Ikegami HL-95B, Ikegami HL-79E, (3) Sony DXC-3000CCD  
 Video Effects Devices: (2) Ampex ADO, NEC Optiplex DVE & E-flex DVE, Ultimatte 4.  
 Audio Recorders: (4) Tascam 42B.  
 Audio Mixers: (2) Orton Research AMU, (2) Graham Patten.  
 Soundstages: 40 x 50 x 24 w/180° hard CVC 18' H; drive-in access, control room, working kitchen, dressing/make-up room.  
 Other Major Equipment: Computer Graphics: Alias/1 30 computer animation system, Quantel paintbox, Chyron VP 2 & Scribe character generators, Dubner CBG-2 3D computer animation system, ADDA-ESP-2 dual channel still store. Motion Control: JMC 3565, system w/2 4 x 4 artwork tables, 4 x 10 model mover, slide & transparency transfer system, plus computerized dolly, boom arm, pan-tilt hot head  
 Extras & Direction: This summer Post Effects moved from their Michigan Avenue address into their new 21,000 square foot facility in Chicago's River North District. This move makes them one of the largest post production companies in the Midwest. Their phenomenal growth was built on their Broadcast Equipment Services Department, and their growing national reputation for innovation in editing, computer animation, and special effects. Their most recent achievements are the new national campaign for RCA; the PBS special, "Die Fledermaus"; and the graphics and editing for *Siskel & Ebert & The Movies* for Buena Vista.  
 Rates: Editing one-inch—\$405/hr., Beta—\$300/hr., Beta to one-inch—\$335/hr., 3/4-inch to one-inch—\$290/hr., special effects and animation—bid on project.

**POST PRODUCTION SERVICES INC.**  
**VPP/E**  
 602 Main St.  
 Cincinnati, OH 45202  
 (513) 621-6677  
 Owner: Robert Gerding  
 Studio Manager: Tom Robbins

**POWERS PRODUCTIONS**  
**VFP, VPP/E, OLVP**  
 535 Geneva Rd.  
 Glen Ellyn, IL 60137  
 (312) 469-2133  
 Owner: C.J. Powers

**PRO MOTION TELEPRODUCTIONS**  
**VPP/E, OLVP**  
 5135 Grove St.  
 Skokie, IL 60077  
 (312) 967-0033  
 Owner: Greenberg Group, Inc.  
 Studio Manager: Iris Greenberg

**PRODUCERS COLOR SERVICE**  
**VFP, VPP/E, OLVP, APPV**  
 24242 Northwestern Hwy.  
 Southfield, MI 48075  
 (313) 352-5353  
 Studio Manager: Bruce Calmer  
 Video Tape Recorders: (11) Sony BVH-2000, (16) Sony BVH 1100, Bosch BCN 50, (10) Ampex AVR 2.  
 Switchers/editors: (4) CDL 480 model 5, GVG 300, (2) CDL-1240  
 Video Cameras: Ikegami EC-35, (2) Sony BVP-3.  
 Synchronizers: (7) Time Line Lynx  
 Video Effects Devices: (3) ADO 3000, Abekas A-62.  
 Audio Recorders: (2) Otari 24-track, Ampex 24-track, (4) Ampex 2 track, Otari 4 track, Ampex 4-track, (2) MCI 2 track, Otari 2 track w/TC.  
 Audio Mixers: SSL 4000B 24-channel, SSL 6000E 32-channel.  
 Soundstages: "A" stage: 100 x 150 x 30, "B" stage: 50 x 60 x 20, "C" stage: 40 x 40 x 20  
 Other Major Equipment: (2) Bosch FDL-60, CTR-3/CK-35 Teledyne tape to film recorder, Quantel Paint Box, Cubicomp, (5) on line edit suites w/CMX3400A, Ultimatte, Betacam.  
 Extras & Direction: Three studios; 100 x 150, 50 x 60, 40 x 40. NTSC/PAL standards conversion, all formats, mass quantity helical duplication, teleconferencing uplink (stationary), remote video production, motion picture film lab services, video disc mastering and replication, compact audio disc replication.

**PRODUCERS VIDEO**  
**OLVP**  
 1370 Cambridge Blvd.

Columbus, OH 43212  
(614) 488-4711  
Owner: Dan Sakas

PRODUCERS VIDEO SERVICE  
VPF, OLVP  
M.S. # 5, 805 W. Wolfram  
Chicago, IL 60657  
(312) 525-3109  
Owner: Mr. Jerry Skora

PRODUCTION CRAFT, INC.  
OLVP  
359 Lawton Rd.  
Riverside, IL 60546  
(312) 442-5719  
Studio Manager: James Skvaril

PROJECTIONS, INC.  
OLVP, APPV  
2855 Boardwalk  
Ann Arbor, MI 48104  
(313) 665-8051  
Owner: Dave Branson  
Studio Manager: Gregg Meloche

RAINBOW PRODUCTIONS/RAINBOW RECORDING  
STUDIOS  
APPV  
2322 S. 64th Ave.  
Omaha, NE 68106  
(402) 554-0123  
Owner: Nils Anders Erickson  
Studio Manager: Paul Jonas

REED PRODUCTIONS, INC.  
VPF, VPP/E, OLVP  
PO Box 977  
Warsaw, IN 46580  
(219) 267-4199  
Owner: Howard Reed  
Studio Manager: Howard Reed

RSVP  
VPF, VPP/E, OLVP, APPV  
840 N. Third St.  
Milwaukee, WI 53203  
(414) 276-7787  
Owner: Linda Radtke  
Studio Manager: Larry L. Hansen



**Rustad / Wickhem / Video, Inc.**

RUSTAD / WICKHEM / VIDEO, INC.  
Madison, WI

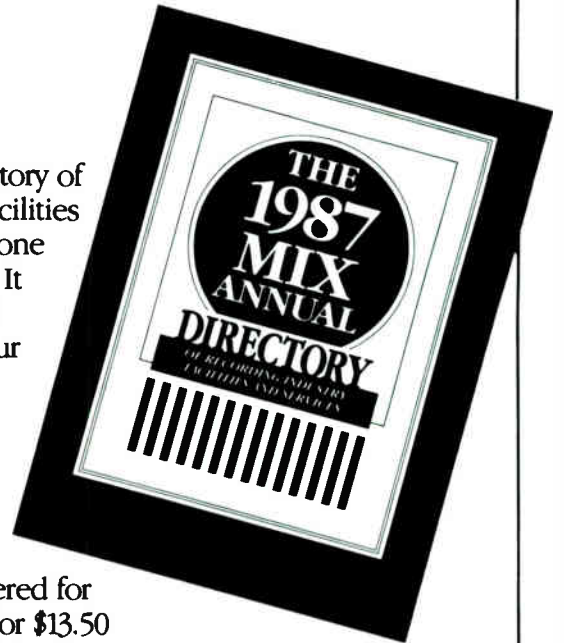
RUSTAD / WICKHEM / VIDEO, INC.  
VPF, VPP/E, OLVP, APPV  
4902 Hammersley Rd.  
Madison, WI 53711  
(608) 274-4000

SCREAMS & ROSES AUDIO/VIDEO REMOTE  
PRODUCTION  
OLVP  
6960 Angora Way  
Huber Heights, OH 45424  
(513) 236-1727  
Owner: David C. Sheward  
Studio Manager: Evelyn Sheward

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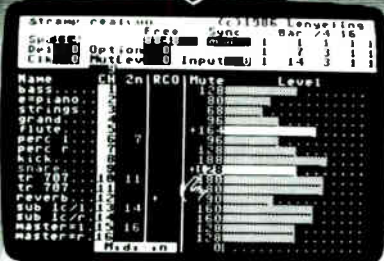


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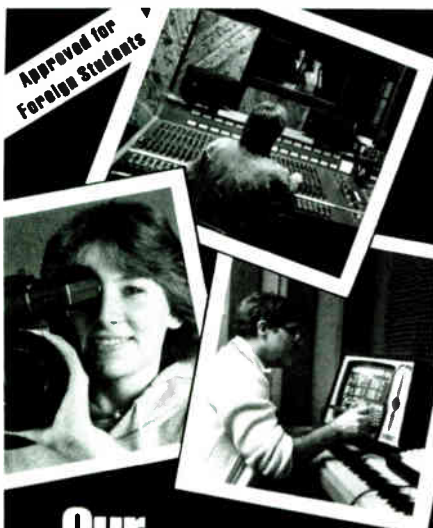


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## **NORTH CENTRAL**

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

### **SILVER IMAGE STUDIOS**

VPF, VPP/E, OLVP  
 PO Box 1796  
 Rock Island, IL 61201  
 (309) 788-0098  
 Owner: Corporate  
 Studio Manager: Greg Scott, Greg Marten  
 Video Tape Recorders: (3) Ampex VPR 80 1-inch, Sony series 5/BVU.  
 Video Monitors: Conrac, Sharp.  
 Switchers/editors: Ampex Micro Ace.  
 Video Cameras: Hitachi SK91.  
 Video Effects Devices: Ampex ADO, Chyron scribe.  
 Rates: On location/studio recording \$125/hr., Edit/Post: \$200.

### **SNUGGERY**

VPF/E  
 1799 S. Busse Rd.  
 Mt. Prospect, IL 60056  
 (312) 593-1574  
 Owner: Snuggery Pub. Inc.  
 Studio Manager: Tim Borden

### **SNYDER FILMS & VIDEO INC.**

VPF, VPP/E, OLVP, APPV  
 1419 1st Ave. S.  
 Fargo, ND 58103  
 (701) 293-3600  
 Owner: Corp., Ron Abrahamson, Tom Tolleison

### **SOLID SOUND, INC.**

APPV  
 PO Box 7611  
 Ann Arbor, MI 48107  
 (313) 662-0667  
 Owner: Robert G. Martens, James W. Spencer

### **SOS PRODUCTIONS, INC.**

VPF, VPP/E, OLVP, APPV  
 753 Harmon Ave.  
 Columbus, OH 43223  
 (614) 221-0966  
 Owner: J. Scheiman, M. Sanborn  
 Studio Manager: R. Shkolnik  
 Extras & Direction: SOS Productions is a service-driven organization committed to excellence in full-service videotape and film production and post-production, providing real value in process and product to local, regional, and national clients. An energetic blend of the technical and the human processes allows SOS Productions to be a strong contributor to the communications industry and its clients at all levels.

### **SOUND MASTER PRODUCTIONS**

VPF/E, OLVP, APPV  
 747 Brixham Rd.  
 Columbus, OH 43204  
 (614) 272-0212  
 Owner: Greg A. Martin  
 Studio Manager: Greg A. Martin

### **SOUND MEMORIES**

VPF, VPP/E, OLVP, APPV  
 PO Box 37

Riverside, IL 60546  
 (312) 788-1650  
 Owner: Al Kohout

### **SOUND MOVES MUSIC/FILM PRODUCTIONS**

VPF, OLVP  
 131 Oak St.  
 Royal Oak, MI 48067  
 (313) 548-2138  
 Owner: Burr S. Huntington  
 Studio Manager: Marylynn Kacir

### **SOUND RESOURCES**

APPV  
 1400 Energy Park Dr., #21  
 St. Paul, MN 55108  
 (612) 644-3660  
 Owner: Joey Johnson  
 Studio Manager: Dianne Corrigan

### **SOUND TREK STUDIO V**

APPV  
 9101 Barton  
 Overland Park, KS 66214  
 (913) 541-0302  
 Owner: Ron Ubel, Grant Schainost, Craig Rettmer  
 Studio Manager: Craig Rettmer

### **SPECTRUM VIDEO POST-PRODUCTIONS**

VPF/E, OLVP  
 688-B Alpha Park Dr.  
 Highland Hts., OH 44143  
 (216) 449-0552  
 Owner: WKBN-Youngstown, OH  
 Studio Manager: James A. Reynolds

### **STAGE 3 SOUND PROD., INC.**

VPF/E, APPV  
 1901 W. 43rd St.  
 Kansas City, KS 66103  
 (913) 384-9111  
 Owner: Don Warnock  
 Studio Manager: Don Warnock

### **A. STOKES ENTERPRISES**

OLVP, APPV  
 100 Stokes Ln., PO Box 398  
 Hudson, OH 44236  
 (216) 650-1669  
 (216) 656-2169  
 Owner: A.J. Stokes Jr.  
 Studio Manager: A.J. Stokes Jr.  
 Video Tape Recorders: Sony VO-5800 3/4-inch, Hitachi VT-6500A 1/2-inch VHS, Sony HF-600 1/2-inch Beta.  
 Video Monitors: (7) Panasonic BT-5701 5-inch color, Panasonic BT-S1900N 19-inch color.  
 Switchers/editors: JVC KM-2000 8 x 3 switcher.  
 Video Cameras: (3) Hitachi FP-Z31.  
 Synchronizers: BTX Softouch, Shadow, Cypher.  
 Audio Recorders: MCI JH-114-24, MCI JH-110-4, (3) Otari 5050B 2-2-track, Otari 5050-MK3 8-track.  
 Audio Mixers: Soundcraft 500 32 x 8, Yamaha RM-2408 24 x 8.  
 Other Major Equipment: Three camera remote video production system contained in road cases, RTS intercom, location audio recording van, Yamaha REV7 reverb, Yamaha SPX90 reverb, Gatex noise gates, dbx limiters, UREI, Valley People, Sony 501 digital processor.  
 Extras & Direction: Stokes Sound Services specializes in on-location sound and video for all types of projects from industrial training tapes to concert and musical specials. Audio post-production specialties include audio editing and program assembly, dialogue replacement and foreign language overdubs. Also available for rental are audio and video EFP systems.  
 Rates: Quoted on a per project basis.

### **STUDIO DE LUX**

APPV  
 West Bloomfield, MI 48033  
 (313) 855-2942  
 Owner: Rick Stawinski  
 Studio Manager: Bill McKinney



**STUDIO M**  
St. Paul, MN

**STUDIO M**  
**APPV**

45 E. 8th St.  
St. Paul, MN 55101  
(612) 293-5453  
Owner: Minnesota Public Radio  
Studio Manager: Tom Mudge  
Video Tape Recorders: JVC 8250 U-Matic.  
Video Monitors: JVC  
Switchers/editors: Panasonic.  
Video Cameras: JVC GX59U.  
Synchronizers: Cipher Digita; Softouch, Shadow.  
Audio Recorders: 3M 32-track, Otari MTR-9011, Otari MTR-12 w/SMPTE center stripe, MCI 110B 4-track 1/2-inch.  
Audio Mixers: Neve 51 Series multi-track console.  
Other Major Equipment: (2) Lexicon 224X LARC, EMT 140, Ecoplate I & II, A D & R Compex limiter, A D & R Scamp major rack, (4) UREI-LA 4A limiters, (2) Eventide 969 Harmonizers, (2) Lexicon PCM42, (2) Marshall time modulators, misc. gates and expanders, Trident Parametric EQ.  
Extras & Direction: Studio M is one of the Midwest's largest recording studios with excellent acoustics for larger projects, a superb staff and facilities to handle even the most important scoring sessions.  
Rates: Analog: \$125/hr., digital: \$140/hr., video/audio interlock upon request.

**SUITE VIDEO**

**VPF, VPP/E, OLVP, APPV**  
8035 N. Pt. Washington Rd.  
Milwaukee, WI 53217  
(414) 352-4991  
Owner: Jim Logan  
Studio Manager: Barry Mainwood

**SUMA RECORDING STUDIO**

**APPV**  
5706 Vrooman Rd.  
Painesville, OH 44077  
(216) 951-3955  
(216) 352-9802  
Owner: Kenneth R. Hamann  
Studio Manager: Michael J. Bishop

**SWELL PICTURES INC.**

**VPF, VPP/E**  
233 E. Wacker Dr.  
Chicago, IL 60601  
(312) 649-9000  
Owner: Walt Topel  
Studio Manager: Leo Cassettari

**SYNCPPOINT PRODUCTIONS**

**OLVP**  
2908 Natchez Ave. S.  
Minneapolis, MN 55416  
(612) 920-5209  
Owner: Mark Hoffman

**TAKE 1 MEDIA SERVICES**

**VPF, OLVP, APPV**  
4900 Euclid Ave.  
Cleveland, OH 44103  
(216) 431-1444  
Owner: Jeffery V. Kassouf, Philip A. Salem  
Studio Manager: Thomas M. Creter

**TAPE II STUDIOS**  
**VPF, VPP/E, OLVP, APPV**  
1999 S. Valley View Dr.  
St. Joseph, MI 49085  
(616) 428-2021  
Owner: Joel L. Motel  
Studio Manager: Joel L. Motel

**TELE EDIT**

**VPP/E**  
10 S. Fifth St., Ste. 640  
Minneapolis, MN 55402  
(612) 333-5480  
Owner: Fred Badiyan  
Studio Manager: John Gorski

**TELECOM, INC.**

**VPF, VPP/E, OLVP**  
4770 Indianola Ave., Ste. 170  
Columbus, OH 43214  
(614) 431-0076  
Owner: Mike Levi, Greg McElwee  
Studio Manager: Christi Pitman  
Video Tape Recorders: Hitachi HR-100 1-inch type C, (2)

Sony VD5850, Sony VD4800.  
Video Monitors: Sony KV12R, (4) JVC TMR94.  
Switchers/editors: Z6000-A Videomedia computer edit control, ISI Switcher 902.  
Video Cameras: Ikegami HL79DA, Digital Phaser.  
Video Effects Devices: Chyron VP-2.  
Audio Recorders: TEAC A-3440.  
Audio Mixers: TEAC Model 2.  
Other Major Equipment: Mole-Richardson lighting, (2 Juniors, 4 Babies, 6 Tweenies, 4 Midgets), Matthews grip equipment incl. overheads up to 12 x 12, Matthews doorway dolly, HME, Sennheiser, Sony microphones.  
Rates: (Starting from base rates) Loc. production: 3/4-inch \$650/day; 1-inch \$1,050/day; grip truck only \$500/day.

**TELEMATION PRODUCTIONS**

**VPF, VPP/E, OLVP**  
100 S. Sangamon  
Chicago, IL 60607  
(312) 421-4111  
Owner: Telemation Productions, Inc. Salt Lake City, UT  
Studio Manager: Harry Tate

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**TELEMATRIX VIDEOTAPE PRODUCTIONS, INC.**  
*VPF, VPP/E, OLVP*  
 5635 W. 80th St.  
 Indianapolis, IN 46278  
 (317) 872-8801  
 Studio Manager: Lynne D. Miller

**TELE-PRODUCERS, INC.**  
*VPF, VPP/E, OLVP, APPV*  
 7085 Shady Oak Rd.  
 Minneapolis, MN 55344  
 (612) 941-2988  
 Owner: Harlan Meyer

**TELOS VIDEO COMMUNICATIONS**  
*VPF, OLVP*  
 67 Alpha Park  
 Cleveland, OH 44143  
 (216) 449-4777  
 Owner: Thomas Ball, Brian Neff  
 Studio Manager: Brian Neff

**THIRD COAST PRODUCTIONS, INC.**  
*VPF, VPP/E, OLVP, APPV*  
 PO Box 93802  
 Milwaukee, WI 53203  
 (414) 276-8926  
 Owner: Vincent Gaudes, Thomas Ernest, Robert McWilliam  
 Studio Manager: Vincent Gaudes, Thomas Ernest, Robert McWilliam

**TMC MUSIC PRODUCTIONS, INC.**  
*APPV*  
 840 N. Michigan Ave.  
 Chicago, IL 60611  
 (312) 438-9099  
 Owner: Todd McGuire

**TOTAL VIDEO 3 / KMTV**  
*VPF, VPP/E, OLVP*  
 10714 Mockingbird Dr.  
 Omaha, NE 68127  
 (402) 592-3333  
 Owner: Lee Enterprises

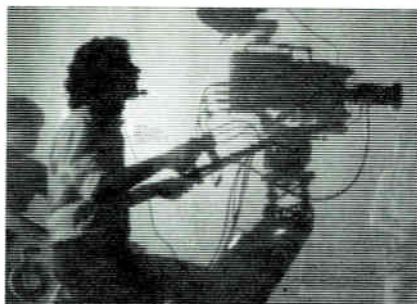
**THE TRANSFER ZONE**  
*VPP/E*  
 21170 Bridge Rd.  
 Southfield, MI 48034  
 (313) 354-5440  
 Studio Manager: Robert Nusholtz

**TRANSGRADY**  
*OLVP*  
 2105 38th  
 Des Moines, IA 50310  
 (515) 279-5740  
 Owner: J. Grady



**UNIVERSAL RECORDING CORPORATION**  
 Chicago, IL

**UNIVERSAL RECORDING CORPORATION**  
*APPV*  
 46 E. Walton  
 Chicago, IL 60611  
 (312) 642-6465  
 Owner: Murray R. Allen  
 Studio Manager: Foote Kirkpatrick



## NORTH CENTRAL

*Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVL/P (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).*

**Video Tape Recorders:** (10) JVC 8250.  
**Synchronizers:** (20) BTX Softouch systems.  
**Audio Recorders:** (37) Magna-Tech dubbers, (7) digital recorders 2-32 track, (55) analog recorders 2-24 track.  
**Audio Mixers:** Neve, SSL.  
**Other Major Equipment:** Sony video projectors, ADR total audio post house, every library.  
**Extras & Direction:** *Top Gun, Crime Story, Jack & Mike, Manhunters.*  
 Rates: \$200-\$400/hr.

**UNIVERSITY OF DETROIT TV**  
*VPF, VPP/E, OLVP, APPV*  
 3800 Puritan  
 Detroit, MI 48238  
 (313) 927-1173  
 Studio Manager: Dan Zebarah

**UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE AT ROCKFORD**  
*VPF, VPP/E, OLVP, APPV*  
 1601 Parkview Ave.  
 Rockford, IL 61107  
 (815) 987-7706  
 Owner: University of Illinois, Chicago  
 Studio Manager: Gary V. Sackman

**U.P.T.V.**  
*VPF, VPP/E, OLVP*  
 107 Elm Ave.  
 Munising, MI  
 (906) 387-2771  
 Owner: Larry LaFaué  
 Studio Manager: Joe Heribacko

**U.S. STUDIOS**  
*VPF, OLVP*  
 314 Clifton Ave.  
 Minneapolis, MN 55403  
 (612) 870-8190  
 Owner: E. Ward Eames III  
 Studio Manager: Steve Jansen

**UW-STOUT TELEPRODUCTION CENTER**  
*VPF*  
 800 S. Broadway  
 Menomonie, WI 54751  
 (715) 232-2624  
 Owner: University of Wisconsin-STOUT  
 Studio Manager: Rosemary Jacobson

**VIDCAM VIDEO PRODUCTIONS, INC.**  
*VPF, VPP/E, OLVP*  
 35550 Curtis Blvd., Ste. 420  
 Eastlake, OH 44094  
 (216) 942-7157  
 Owner: Mary Pat DeTomaso, Nick DeTomaso, Thom Hackley  
 Studio Manager: Mary Pat DeTomaso

**VIDEO CONVERSIONS INT'L**  
*VPP/E*  
 168 N. Michigan Ave.  
 Chicago, IL 60601  
 (312) 726-6556  
 Owner: Diane Kozak

**VIDEO DUPLICATION SERVICES**  
*VPP/E*  
 PO Box 20533  
 Columbus, OH 43220  
 (614) 221-0899  
 Owner: Volume Duplication  
 Studio Manager: Peter A. Stock

**VIDEO GENESIS, INC.**  
*VPF, VPP/E, OLVP*  
 24000 Mercantile Rd.  
 Beachwood, OH 44122  
 (216) 464-3635  
 Owner: Howard J. Schwartz  
 Studio Manager: Howard J. Schwartz

**VIDEO I-D**  
*VPF, VPP/E, OLVP*  
 105 Muller Rd.  
 Washington, IL 61571  
 (309) 444-4323  
 Owner: Sam B. Wagner  
 Studio Manager: Greg Ellis

**VIDEO REMOTE SERVICES**  
*OLVP*  
 1625 W. Big Beaver Rd.  
 Troy, MI 48084  
 (313) 649-0920  
 Owner: Ira Glass  
 Studio Manager: Karen Gleason

**VIDEO WISCONSIN**  
*VPF, VPP/E, OLVP, APPV*  
 18110 W. Bluemound Rd.  
 Brookfield, WI 53005  
 (414) 785-1110  
 Owner: Corporation  
 Studio Manager: John Barto, Jeff Utschig

**VIDEOMASTERS, INC.**  
*VPF, VPP/E, OLVP, APPV*  
 620 N. Broadway  
 Milwaukee, WI 53202  
 (414) 273-8686  
 Owner: Mark A. Stall, Howard L. Clyman

**VIDEOWORKS INC.**  
*VPF, VPP/E, OLVP*  
 11425 Deerfield Rd.  
 Cincinnati, OH 45242  
 (513) 489-6466  
 Owner: Robert N. Sibey  
 Studio Manager: Jeffery C. Gardner

**VILLAGE FILMWORKS**  
*OLVP*  
 235 N. Bluff  
 Wichita, KS 67208  
 (316) 682-0142  
 Owner: John R. Huey

**VISUAL COMMUNICATION CENTER**  
*VPF, VPP/E, OLVP*  
 730 N. 109th Ct.  
 Omaha, NE 68154  
 (402) 496-3535  
 Owner: Bozell, Jacobs, Kenyon & Eckhardt  
 Studio Manager: Mike Gilstrap

**WALTERS & STEINBERG PRODUCTIONS INC.**  
*VPF, VPP/E*  
 667 N. 36th St.  
 Lafayette, IN 47905  
 (317) 447-0008  
 Owner: Myra Steinberg, Dave Gass  
 Studio Manager: Myra Steinberg  
**Video Tape Recorders:** (3) Ampex VPR-6 1-inch, (2) Sony BVU-800 ¾-inch, Sony BVU-110.  
**Video Monitors:** Panasonic, JVC, Ikegami.  
**Switchers/editors:** Grass Valley 100, CMX 330XL.  
**Video Cameras:** Ikegami HL83.  
**Video Effects Devices:** Ampex ADO  
**Audio Recorders:** (2) TEAC/Tascam 3340S.  
**Audio Mixers:** Yamaha M916.  
**Soundstages:** 20 x 30  
**Other Major Equipment:** System 30 Cubicomp Picture Maker animation & graphics system, Chyron character generator, V-688 Fortel Time Base Connectors, dbx, Valley People audio processing.  
 Rates: Upon request.

**WEBSTER PRODUCTIONS**  
**VFF**  
 220 W Locust St  
 Chicago, IL 60610  
 (312) 951-7500  
 Owner: L.H. Bloodworth  
 Studio Manager: L.H. Bloodworth

**WEDDLE PRODUCTIONS**  
**OLVP**  
 PO Box 751  
 Lebanon, MO 65536  
 (417) 532-9460  
 Owner: Stanley M. Weddle  
 Studio Manager: Stanley M. Weddle

**WHA-TV PRODUCTION SERVICES UNIT**  
**VFF, VPP/E, OLVP, APPV**  
 821 University Ave.  
 Madison, WI 53706  
 (608) 263-2121  
 Owner: U.W. Board of Regents  
 Studio Manager: Dan Peterson, Mike Edgette

**WJER VIDEO SERVICES**  
**VFF, VPP/E, OLVP, APPV**  
 646 Boulevard  
 Dover, OH 44662  
 (216) 343-7755  
 Owner: Gary A. Petncola  
 Studio Manager: Carey Gardner

**WLFI-TV PRODUCTIONS**  
**VFF, OLVP**  
 2605 Yeager Rd.  
 West Lafayette, IN 47906  
 (317) 463-1800  
 Owner: Blade Communications  
 Studio Manager: Bob Ford, Ken Gardner, Tina Parker  
 Video Tape Recorders: (3) Ampex VPR-2B  
 Video Monitors: (5) Ikegami, (20) Panasonic  
 Switchers/editors: Grass Valley 1680, Grass Valley 400,  
 Grass Valley 410.



**WLFI-TV PRODUCTIONS**  
 West Lafayette, IN

Video Cameras: (6) Ikegami HL 79, Sony BVW30 Beta-cam.  
 Synchronizers: Microtime T230  
 Video Effects Devices: Abekas A52, Abekas A42  
 Audio Recorders: Tascam  
 Audio Mixers: Yamaha 15-32  
**Extras & Direction:** WLFI Productions has experience in videos, industrials, and sports. Some of our clients include: VideoBred, CBS Sports, ESPN, WDIV Detroit, P.A.S.S., U.S.A., WLS-TV, TCS Sports, General Television Network, Trio Video, C.R.T., Telemation, Grace Wild, WTVN TV Columbus, CTV Network, CTN, Sports Vision.  
 Rates: \$1000/per truck and \$500 per unit

**WNEM-TV 5**  
**VFF, VPP/E, OLVP**  
 107 N. Franklin  
 Saginaw, MI 48606  
 (517) 755-8191  
 Owner: Meredith Corporation  
 Studio Manager: Todd Holmes

**WORLDWIDE SOUND AND VIDEO PRODUCTIONS**  
**VFF, VPP/E, OLVP, APPV**  
 202 W. Plum  
 Robinson, IL 62454  
 (618) 544-7898  
 Owner: Ron Wheeler  
 Studio Manager: Ron Wheeler

**WSIU-TV**  
**VFF, VPP/E, OLVP**  
 Communications Bldg.- SIU  
 Carbondale, IL 62901  
 (618) 453-4343  
 Owner: Southern Illinois University  
 Studio Manager: Lee O'Brien

**YAMP INC.**  
**APPV**  
 PO Box 3008  
 Independence, MO 64055  
 (816) 795-8175  
 Owner: Eric W. Bartland  
 Studio Manager: Alfred Owens

**BILL YOUMANS PRODUCTIONS**  
**OLVP**  
 1264 W. Arthur Ave.  
 Chicago, IL 60626  
 (312) 761-2322  
 Owner: Bill Youmans  
 Studio Manager: Bill Youmans

**ZENITH/DB STUDIOS**  
**VPP/E**  
 676 N. LaSalle St.  
 Chicago, IL 60610  
 (312) 944-3600  
 Owner: Coken & Coken Inc  
 Studio Manager: Joyce Norman, Rebecca Labb  
**Extras & Direction:** Audio sweetening up to 32 tracks, video and film interlock, program and full production specialists for television and video box office. Most complete video audio in Midwest offered in five separate studios

# Perfection!

## MPA-SERIES MONITOR AMPLIFIERS

by

.. and now, the **MPA-2300** with the **BIG WATTS** for the **BIG SYSTEMS**

**PERFORMANCE SPECIFICATIONS of MPA-SERIES:**  
 FR= 1Hz to 100 KHz (Flat) • Slew Rate >450V/μS (8 Ω) • Damping Factor > 500 (up to 20KHz) • Power: 200 to 500W/600 to 1300W  
**INFORMATION CONTACT: JIM RHODES, LENC0, INC. / phone: 1-800-325-8494 / P.O. 348, JACKSON, MO 63755 (TWX 910/760-1382)**

Circle #131 on Reader Service Card

## SOUTHWEST

ARKANSAS, ARIZONA, LAS VEGAS, MEXICO,  
NEW MEXICO, OKLAHOMA, TEXAS

### ADVANCED VIDEO PRODUCTIONS

VPF, VPP/E, OLVP, APPV  
140 Second Ave.  
Nederland, TX 77627  
(409) 727-3227  
Owner: Ralph C. Mouton  
Studio Manager: Ralph C. Mouton

### ADVANTAGE VIDEO

OLVP  
4669 S. Oxford  
Tulsa, OK 74114  
(918) 627-3431  
(918) 747-9574  
Owner: Dale Heitzman, Steve Vandever

### AMERICAN TELEPRODUCTIONS

VPF, VPP/E, OLVP  
17602 N. Black Canyon Hwy.  
Phoenix, AZ 85039  
(602) 866-0162  
(602) 866-0072  
Owner: Times-Mirror Inc.  
Studio Manager: Scott Geyer

### AMS PRODUCTIONS, INC.

VPF, VPP/E, OLVP  
6221 N. O'Connor, Ste. 109, LB 137  
Irving, TX 75039  
(214) 869-4911  
Owner: Andrew Streitfeld

### ARIES PRODUCTIONS

VPF, VPP/E, OLVP  
1110 Ave. H East, Ste. 200  
Arlington, TX 76011  
(817) 640-9955  
Owner: Wynn Winberg  
Studio Manager: Wynn Winberg

### AUSTIN CABLEVISION

VPF, VPP/E, OLVP, APPV  
2191 Woodward  
Austin, TX 78744  
(512) 448-3977  
Owner: American Television & Communications Corp.  
(ATC)  
Studio Manager: David P. Crews

### AZBELL'S VIDEO PRODUCTION

VPF, VPP/E, OLVP, APPV  
1813 Speight  
Waco, TX 76706  
(817) 754-4689  
Owner: Billy Azbell  
Studio Manager: John Wheeler

### RICK BELL PRODUCTIONS

OLVP  
5435 E. Lewis  
Phoenix, AZ 85008  
(602) 840-5232  
Owner: Rick Bell  
Studio Manager: Rick Bell

### GORDON BLOCKER INC.

OLVP  
3900 White Settlement, Ste. 90  
Ft. Worth, TX 76107  
(817) 624-2673  
Owner: Gordon Blocker

### MICHAEL BROWN PRODUCTIONS, INC.

VPF, VPP/E, OLVP, APPV  
1730 W. Randol Mill Rd., Ste. 140  
Arlington, TX 76012  
(817) 261-2500  
Owner: Michael Brown  
Studio Manager: Michael Brown



## SOUTHWEST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

### BUSINESS VIDEO SERVICES

VPP/E, OLVP, APPV  
13531 Montfort Dr., Ste. 103  
Dallas, TX 75240  
(214) 991-1537  
Owner: Ronald C. & Eleanor L. Burton  
Studio Manager: Ronald C. Burton

### CHALLENGER PRODUCTIONS

OLVP  
5506 S. Lewis  
Tulsa, OK 74105  
(918) 742-6700  
Owner: Steve Davis, Dick Horan  
Studio Manager: Howard L. Sanders

### CHRIST FOR THE NATIONS

VPF, VPP/E, OLVP  
PO Box 769000  
Dallas, TX 75376  
(214) 376-1711, ext. 234  
Owner: Christ For The Nations  
Studio Manager: Tim Malone

### CHRISTIAN BROTHERS RECORDING

VPF, VPP/E, OLVP, APPV  
125 Albert Pike  
Hot Springs, AR 71913  
(501) 623-6512  
Owner: Otto Beck, Dan Kellerby  
Studio Manager: Dan Kellerby

### CREATIVE SERVICES KOTU-TV 18, PRODUCTION

VPF, VPP/E, OLVP  
1855 N. 6th Ave  
Tucson, AZ 85705  
(602) 624-0180  
Owner: Roman Catholic Diocese of Tucson  
Studio Manager: Rudy Casillas

### CREATIVISION

VPF, VPP/E, OLVP  
PO Box 50246  
Austin, TX 78763  
(512) 474-7296  
Owner: Eric Graham, Laune Lehnert  
Studio Manager: Laune Lehnert

### CROCKER'S COUNTDOWN PRODUCTIONS

OLVP  
5526 McCommas Blvd.  
Dallas, TX 75206  
(214) 823-2775  
Owner: Thomas C. Crocker  
Studio Manager: Thomas C. Crocker  
Extras & Direction: Crocker's Countdown Productions is a turn key Betacam video production company located near downtown Dallas. Varied and extensive background in EFP/ENG style production. Eleven years professional as Director of Photography; TV news photographer; editor; field producer. Clients include all major nationally syndicated programs. International producers utilize full production services and segment idea support. Production equipment includes BVP-30 plumbicon Betacam; Lowell light location package; BVP-21 playback, full audio; O'Connor-Gitzo sticks. Award winning documentaries for litigation production; music; sports; commercial and corporate production. Request reel



DALLAS SOUND LAB  
Irving, TX

### DALLAS SOUND LAB

APPV  
6305 N. O'Connor Blvd., Ste. 119  
Irving, TX 75039  
(214) 869-1122  
Owner: Russell Whitaker  
Studio Manager: Johnny Marshall  
Video Tape Recorders: MCI JH110 LB-3 1-inch layback recorder.  
Video Monitors: Assorted video monitors by Sony, Mitsubishi, RCA, Barco and NEC.  
Synchronizers: BTX Softtouch/Shadow (4-machine), Audio Kinetics Q-Loock 3.30.  
Audio Recorders: Sony PCM 3324 24-track digital, Otari MTR-90 24-track, MCI JH114 24-track, additional recorders by M/M, MCI, Otari, Sony and Nagra.  
Audio Mixers: SSL 6056-E automated with total recall, MCI JH536 automated, MCI JH636.  
Soundstages: 15,000 sq. feet, 6,000 sq. feet, 3,000 sq. feet (The Studios at Las Colinas)  
Other Major Equipment: MTM 35mm and 16mm high-speed projectors and dubbers, SFX library on CD, extensive MIDI synthesizer setup by Kurzweil, Yamaha, Linn, Korg, Sequential Circuits, Simmons, and Oberheim, and a fully equipped 48-voice Synclavier Music Production System.  
Rates: \$50-\$235/hr., bulk and block rates available upon request.  
Extras & Direction: Dallas Sound Lab is proud to offer the largest and most sophisticated facility of its kind in the Southwestern United States. Studio A: up to 48-track digital/analog recording to video or film for orchestra scoring to picture, video sweetening, and album-jingle production, with audio/video tie lines to three sound stages. Studio B: 24-track control room with voice-over booth for audio assembling/mixing. Studio C: 24-track digital/analog post-production control room interlocked to video or film with a large isolation booth for ADR(looping), SFX assembling, and mixing to picture. Studio D: Synclavier Hard-Disk Digital Based Production Studio for SFX assembling and synthesized scoring to picture.

### DESERT VIDEO AND FILM

VPF, VPP/E, OLVP  
1616 E. Osborn Rd.  
Phoenix, AZ 85016  
(602) 263-3400  
Owner: Arizona T.V. Co., Inc.  
Studio Manager: Bill Lewis

### DUKE CITY STUDIO

VPF, OLVP  
4121 Cutler NE  
Albuquerque, NM 87110  
(800) 225-6185  
Owner: J. Lefkowitz  
Studio Manager: Carol Cornelison

### FIRST VIDEO PRODUCTION

VPF, VPP/E, OLVP, APPV  
4235 Centergate  
San Antonio, TX 78217  
(512) 655-1111  
Owner: Ocey Crabtree  
Studio Manager: Glenn Duchane

### FTV PRODUCTIONS

(FIRST TEXAS VIDEO PRODUCTIONS)  
VPP/E, OLVP  
315 W. Mulberry



Sherman, TX 75090  
(214) 868-1399  
Owner: Ralph R. Renshaw  
Studio Manager: Ralph R. Renshaw III

**GAND ST. STUDIO**  
OLVP  
1600 Gand St.  
Dallas, TX 75215  
(214) 421-4693  
Owner: Jesus D. Carnillo

**DAVID GARRIGUS PRODUCTIONS**  
2025 Gardanne  
Carrollton, TX 75007  
(214) 492-5896  
Owner: David Garrigus  
Studio Manager: David Garrigus

**HAGLER PRODUCTIONS**  
OLVP  
5646 So. Boston  
Tulsa, OK 74105  
(918) 747-7210  
Owner: Ron Hagler

**INTELOGIC TRACE, INC.**  
VPF, VPP/E  
8415 Datapoint Dr. MS-8465  
San Antonio, TX 78228  
(512) 699-7112  
Studio Manager: Hank McDonnell

**INVISIONS INC.**  
VPF, VPP/E, OLVP, APPV  
3818 N. 50th Pl.  
Phoenix, AZ 85018  
(602) 840-1090  
Owner: Scott Geyer, Scott Tuchman

**JONES PRODUCTIONS, INC.**  
VPF  
517 Chester  
Little Rock, AR 72201  
(501) 372-1981  
Owner: Gary & Marlene Jones  
Studio Manager: Gary & Marlene Jones

**J.R. PRODUCTIONS**  
OLVP, APPV  
Ste. 329, 1501 FM 2818  
College Station, TX 77840  
(409) 696-8822  
Owner: Jeff Cowan

**K-VIDEO PRODUCTIONS**  
VPF, VPP/E, OLVP  
14027 N. 32nd St.  
Phoenix, AZ 85032  
(602) 992-4443  
Owner: Dennis Kayer  
Studio Manager: Dennis Kayer

**LARR COMPUTER CORP., KLARR BROADCASTING  
NET DIVISION**  
VPF, VPP/E, OLVP, APPV  
PO Box 3842  
Houston, TX 77253  
(713) 440-9224  
Owner: Dr. Lawrence Herbst

**L.B.J. HIGH SCHOOL MEDIA**  
VPF  
7309 Lazy Creek Dr.  
Austin, TX 78724  
(512) 926-7983  
Owner: A.I.S.D.  
Studio Manager: James A. Albright III

**LENRA ASSOCIATES LTD.**  
APPV  
4491 E. Ft. Lowell Rd.  
Tucson, AZ 85712  
(602) 325-5819  
Owner: Walter Arnell  
Studio Manager: Walter Arnell

# The Dallas Record Pressing Plant since 1967!

## TAPE DUPLICATION

- Any quantity, large or small
- Custom packaging
- Demo tapes (real time copies)
- Blank tapes—ANY length needed

## RECORD PRESSING IN HOUSE

- Custom Albums • 45 RPM Singles
  - Stereo Mastering With Neumann VMS70 Lathe & SX74 Cutter
  - Plating With Europa Film Equipment
- 1000 7" 45 RPM Record Package \$469.  
1000—1 Color 12" Album Package  
Records & Printed Covers \$1372.

Type Set & Proofs Included (FOB Dallas)  
(To receive this special price, this ad must accompany order)



# q+r

## RECORD & TAPE MFG. CO.

902 North Industrial Blvd., Dallas, Texas 75207  
**214-741-2027**  
**Toll Free 1-800-527-3472**



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# ATTENTION!

*Studios of the  
Southwest U.S.*

# SOUTHWEST STUDIOS DIRECTORY

The yearly *Mix* Directory of SOUTHWEST STUDIOS will be published in JULY, 1987. To receive a questionnaire or to get information, call the Directories Dept. at (415) 843-7901. \*Special 2 for 1!\* By listing in your regional directory—you'll get the same listing FREE in the 1988 Annual Directory!

**Deadline: April 13**

**THE LINCOLN INSTITUTE**  
VFF, VPP/E, OLVP, APPV  
7622 Louetta Rd  
Spring, TX 77379  
(713) 376-9679  
Owner: Lincoln Foundation  
Studio Manager: J.E. Lincoln

**MARTIN RECORDING CO., INC.**  
VFF, VPP/E, OLVP, APPV  
120 W Castellano  
El Paso, TX 79912  
(915) 532-2860  
Owner: Scott Martin  
Studio Manager: Scott Martin

**MBA PRODUCTIONS**  
VFF, OLVP  
3203 Old Seymour Rd.  
Wichita Falls, TX 76309  
(817) 322-7210  
Owner: William T. Robert C & Mack P Murr

**MEDIA PEOPLE, INC.**  
VFF, VPP/E, OLVP  
6736 E Avalon  
Scottsdale, AZ 85251  
(602) 941-8701  
Owner: Janyce Brisch Kanaba

**METROPOST**  
VPP/E, APPV  
906 E 5th St  
Austin, TX 78745  
(512) 476-3876  
Owner: Richard Knoris, Floyd Inks  
Studio Manager: Jeff Sharpe, Vincent Hollister

**MOBIUS**  
VFF, VPP/E, OLVP  
3514 Deal  
Houston, TX 77025  
(713) 665-4033  
Owner: Dale Willingham  
Studio Manager: Dale Willingham

**MOHAVE COMMUNITY COLLEGE PRODUCTIONS**  
VFF, VPP/E, OLVP, APPV  
1971 Jageron Ave.  
Kingman, AZ 86401  
(602) 757-4331, ext. 214  
Owner: Mohave Community College District  
Studio Manager: Carl E. Chapman

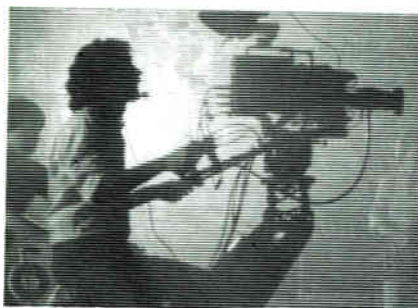
**MUSIC LANE RECORDING**  
VFF, VPP/E, OLVP, APPV  
PO Box 3829, Austin Opera House #5  
Austin, TX 78764  
(512) 447-3988  
Owner: Wayne Gathright  
Studio Manager: Wayne Gathright

**NEW AGE RECORDING**  
APPV  
520 N Medina  
San Antonio, TX 78207  
(512) 299-1038  
Owner: Richard Veliz  
Studio Manager: Richard Veliz

**NEWVISION**  
VFF, VPP/E, OLVP  
840 E Windsor Ave.  
Phoenix, AZ 85006  
(602) 265-6720  
Owner: Ron Olson  
Studio Manager: Ron Olson

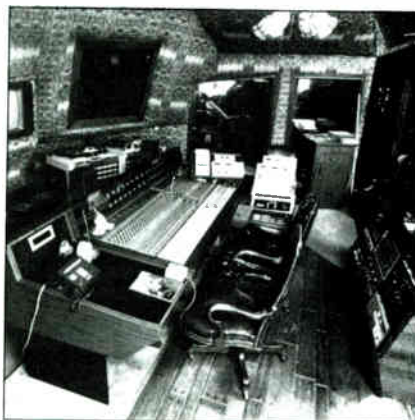
**NORTH LAKE COLLEGE**  
VFF, VPP/E, OLVP, APPV  
5001 N MacArthur Blvd.  
Irving, TX 75038  
(214) 659-5340  
Owner: Dallas County Community College District  
Studio Manager: Jim Picquet

**OMEGA AUDIO & PRODUCTIONS, INC.**  
APPV  
8036 Aviation Pl.  
Dallas, TX 75235



## SOUTHWEST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VFF (Video Production Facility); OLVP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).



### OMEGA AUDIO & PRODUCTIONS, INC. Dallas, TX

(214) 350-9066  
Owner: Paul A. Christensen, Charles R. Billings  
Studio Manager: Donna Christensen  
Video Tape Recorders: (11) RCA TH-200/2000/2500  
Video Monitors: JVC CR6600U.  
Switchers/editors: (2) Grass Valley, (2) CMX 3400A  
Video Cameras: RCA/CEI  
Synchronizers: CMX Cass 1, 5 machine audio for video/  
film editor with CMX 8-inch disk reader and CMX disk-  
based mixing automation.  
Video Effects Device: 2 channels ADO, 2 channels NEC  
E Flex.  
Audio Recorders: (3) Otari MTR 90 24 track, 46 track,  
(3) Otari MTR 102 1/4 track, Otari 5050B, Mitsubishi X 80  
digital  
Audio Mixers: Amax M2500 36 x 24 w/CMX automa-  
tion, API 32 x 24, Custom 24 x 24.  
Other Major Equipment: Full Scamp rack, Harmonizer,  
(5) DeltaLab Super Time Lines, Yamaha SPX-90, DDL-1  
Digital Delays, Lexicon 224XL, MXR Ola digital reverbs,  
Master Room MR11, Audicon Plates, UREI Little Dippers,  
stereo synth, EXR exciter, dbx program processors, Aphex  
Compeller, Barcus-Berry Electronics Exciter  
Rates: Interlock with picture \$135/hr  
Extras & Direction: Co-located with Video Post & Transfer,  
Inc. at Dallas Love Field. Recent music specials mixed/  
sweetened. Fats & Friends for HBO, Texas 150 for ABC,  
Johnny Cash for CBS, Bob Hope for NBC, Joe Bob Briggs,  
Gingerbrook Faire, Cotton Patch Gospel, Prince, Quarter-  
flash, Carl Perkins, Jerry Jeff Walker, PBS Van Cliburn Inter-  
national Piano Competition and Handel's Messiah, Joe Ely,  
Eddie Rabbitt, Oak Ridge Boys, Commodores, Helen Red-  
dy. Omega also maintains a 46 track remote recording  
facility with full SMPTE interlock.

**ON LOCATION VIDEO SERVICES**  
VFF, VPP/E, OLVP  
Box 35657  
Houston, TX 77035  
(713) 728-1020  
Studio Manager: Mel Rainer

**ON-SITE VIDEO**  
VFF, VPP/E, OLVP, APPV  
307 E. Southern Ave.  
Tempe, AZ 85282

(602) 967-5062  
Owner: John P. Gruber  
Studio Manager: John P. Gruber

**OZZ RESEARCH**  
VFF  
7004 Bee Caves Rd., Ste. 300-B  
Austin, TX 78746  
(512) 328-1506  
Owner: Bruch Hahn  
Studio Manager: Roberto Quiroga

**PEARLMAN PRODUCTIONS, INC.**  
VFF, VPP/E, OLVP  
2401 W Bellfort  
Houston, TX 77054  
(713) 668-3601  
Owner: Bennett Pearlman  
Studio Manager: Tammy Ishee

**PEGASUS FILM & VIDEO**  
OLVP  
2827 W. Brooklyn  
Dallas, TX 75211  
(214) 331-6854  
Owner: Nick Calpeno  
Studio Manager: Nick Calpeno

**TL PHIPPS & CO.**  
VPP/E  
Box 472200  
Tulsa, OK 74147  
(918) 254-1045  
Owner: Terry Phipps  
Studio Manager: Karen Hoylman

**PHOENIX AUDIO-VISUAL, INC.**  
VPP/E, OLVP  
1039 N. 24th St.  
Phoenix, AZ 85008  
(800) 262-5588  
(602) 267-8080  
Owner: James A. Smidt, Michael J. Reese  
Studio Manager: Steve Crouse  
Video Tape Recorders: Sony VP-5000, Sony VO-5800,  
Sony VP-5850.  
Video Monitors: Sony Profeel 25-inch, Sony XBR 25-  
inch, Sony Trinitrons 19-inch, Sony 9-inch to 14-inch.  
Switchers/editors: Sony SEG2000A, Sony RM-440.  
Synchronizers: Adams-Smith 2600A.  
Video Effects Device: For-A 420, Chyron UP-2.  
Audio Recorders: Nagra 4-2, TEAC 3340,3440, TEAC  
133  
Audio Mixers: Yamaha 1000, Yamaha 2000, TAC Scor-  
pion 32 x 8 x 8 x 2, and others  
Other Major Equipment: G.E. PJ 5055, Cetec Vega,  
Schoeps, wireless, Renkus-Heinz, splitters, A/V equip-  
ment, lighting, test equipment, complete grip truck and  
grip packages.  
Rates: call

**PHOENIX VIDEO FILMS/  
PAUL S. KARR PRODUCTIONS**  
VFF, VPP/E, OLVP  
PO Box 11711, 2949 W. Indian School Rd.  
Phoenix, AZ 85017  
(602) 266-4198  
Owner: Paul  
Studio Manager: Paul or Kelly

**POSTING BROTHERS STUDIOS**  
VPP/E  
6800 Gateway E., Bldg. 5  
El Paso, TX 79915  
(915) 755-1401  
Owner: P. Newell & B. Mayfield  
Studio Manager: P. Newell & B. Mayfield

**PRISM STUDIOS, INC.**  
VFF, VPP/E  
2217 C. Michigan  
Arlington, TX 76013  
(817) 277-4341  
Owner: Tave Alexander  
Studio Manager: Belva Penman

**R.W.R. PRODUCTIONS**  
OLVP  
PO Box 746  
Odessa, TX 79763  
(915) 332-4216  
Owner: Robert W. Riggs  
Studio Manager: Robert W. Riggs  
Extras & Direction: Low-budget productions: short films,  
feature-length films, promotions, music videos, and spe-  
cial effects works. Special effect work: miniature models,  
—LISTING CONTINUED ON PAGE 194

Because that's where you'll find the exclusive southern California dealer for NEOTEK's remarkable ELITE consoles.

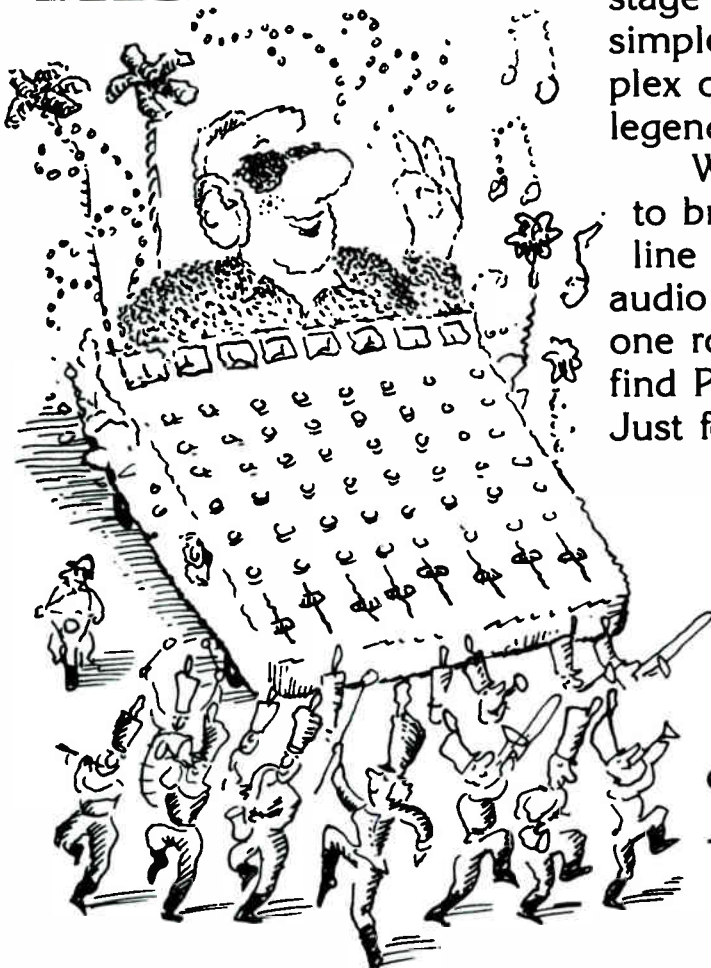
# YOU DON'T HAVE TO GO TO GREAT LENGTHS TO GET HIGH PERFORMANCE,

If you'd like to hear for yourself the truly unprecedented sound quality that has the recording business humming a different tune, just drop by AEA. You'll be more than impressed with NEOTEK's unexcelled equalization, their tremendous flexibility, high quality components and their rugged modular construction.

# JUST TO PASADENA.

The NEOTEK ELITE features dual-signal paths through each input, non-VCA grouping, multiple line inputs, and MIDI compatibility. Minimal stage signal flow design yields simple, logical control of complex operations with NEOTEK's legendary sonics.

We've gone to great lengths to bring you the broadest line of high performance audio products found under one roof. All you have to do is find Pasadena. It's easy. Just follow the parade.



audio  
engineering  
associates



1029 North Allen Avenue  
Pasadena, CA 91104  
(213) 684-4461, (818) 798-9127

**—LISTING CONTINUED FROM PAGE 192**

in-camera shots, animation, mirror shots (ghost, fades & wipes, kaleidoscope), fire effects, aci-fi lights, flashes, ray & blast effects, props & scenic items, pyrotechnic and other smokes, mechanical bullet effects, fog, mist, rain effects, make-up effects, non-explosive explosions, matte and glass shots, artificial cobwebs and break-away glass & props.

**SOUTH COAST VIDEO, INC.**

VFF, VPP/E, OLVP  
5234 Elm St.  
Houston, TX 77081  
(713) 661-3550  
Owner: Everett Gorel, Bob Willems, Bill Hamzy  
Studio Manager: Steve Goyette, Pam Budenstein

**SOUTHWEST TELEPRODUCTIONS, INC.**

VFF  
2649 Tarna Dr.  
Dallas, TX 75229  
(214) 243-5719  
Owner: Northwest Teleproductions, Inc.  
Studio Manager: J.P. Shives

**TELE-IMAGE, INC.**

VFF, VPP/E, OLVP, APPV  
6305 N. O'Connor LB 6  
Irving, TX 75039  
(214) 869-0060  
(800) 882-0060  
Owner: Robert Schiff  
Studio Manager: Diane Barnard

**TELEMATION PRODUCTIONS**

VFF, VPP/E, OLVP  
834 N. 7th Ave.  
Phoenix, AZ 85007  
(602) 254-1600  
Owner: Telemation Productions, Inc. Salt Lake City UT  
Studio Manager: Dave Roberts

**TEMPO PRODUCTIONS**

VFF, VPP/E, OLVP  
6914 S. Yorktown  
Tulsa, OK 74136  
(918) 481-1400  
Owner: Tempo Enterprises  
Studio Manager: Nancy Mitchell

**TEXAS VIDEO & POST**

VFF, VPP/E, OLVP  
8950 Kirby  
Houston, TX 77054  
(713) 661-2020  
Owner: TVX Inc.  
Studio Manager: David Leavell, Grant Guthrie

**THIRD COAST VIDEO, INC.**

VFF  
501 N. IH-35  
Austin, TX 78702  
(512) 473-2020  
Owner: Ben Y. Mason  
Studio Manager: Jeff Van Pelt

**3G VIDEO**

VFF, VPP/E, OLVP, APPV  
5510 New Haven Ct.  
Austin, TX 78756  
(512) 323-2455  
Owner: A. Benjamin Colvin  
Studio Manager: Ed Hall

**TRANS GLOBAL PRODUCTIONS, INC.**

VFF, VPP/E, OLVP, APPV  
5600 N. Dixie  
Odessa, TX 79762  
(915) 362-7122  
Owner: Bob Bailey

**UNIVERSAL MUSIC & POST, INC.**

APPV  
5840 S. Memorial, Ste.210  
Tulsa, OK 74145  
(918) 622-6444  
Owner: Rod Slane  
Studio Manager: Sallie Slane

**UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER**

AT DALLAS  
VFF, VPP/E, OLVP, APPV



**SOUTHWEST**

*Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VFF (Video Production Facility); OLVP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).*

5323 Harry Hines Blvd.  
Dallas, TX 75235  
(214) 688-3692  
Owner: State of Texas  
Studio Manager: Robert L. Tubbs



**VAS COMMUNICATIONS**  
Phoenix, AZ

**VAS COMMUNICATIONS**

VFF, VPP/E, OLVP  
4800 N. 22nd St.  
Phoenix, AZ 85016  
(602) 957-5115  
Owner: Dr. Edward B. Diethrich  
Studio Manager: Richard M. Williams  
Video Tape Recorders: (4) Sony VO 5850, Sony VO 5800, (2) JVC CR 4700 U.  
Video Monitors: Conrack.  
Switchers/editors: Paltext ST-3, Computer Image, Convergens.  
Video Cameras: (2) Ikegami ITC 430  
Video Effects Devices: CEL P 141-20, Chyron VP 2  
Audio Recorders: Otan MX 5050 8-track, Sony T6 650, TEAC 34B.  
Audio Mixers: TEAC Tascam 5, TEAC Tascam 1.  
Other Major Equipment: Marron Carrel HC 1600 camera system, AVL Genesis computer, (24) Kodak E3 slide projectors, (8) Dove X slide controllers, 16mm Moviola Flat Bed Editing table.  
Extras & Direction: VAS Communications is best known for providing communication services to medical professionals, allied health agencies, and the medical industry for the last 15 years. Since 1971, VAS has enjoyed a reputation as a group that produces excellent work, as well as a group that solves communications problems, with the results tailored specifically for the individual client. VAS offers extensive 3/4-inch digital video tape, 16mm film, illustration, animation and design services. With the addition of a Marron Carrel 1600 camera system, our corporate services include complete multi-image design and production capabilities for annual sales meetings, product launches, employee and customer orientation, and trade show exhibits.

**VICTORIA BANK & TRUST CO.**  
VPP/E, APPV  
One O'Connor Plaza, 5th Floor Video  
Communications

Victoria, TX 77902  
(512) 574-5308  
Owner: Victoria Bank & Trust  
Studio Manager: Allan Meneffee

**VIDEO DALLAS PRODUCTIONS**

VFF, VPP/E, OLVP  
15775 N. Hillcrest, Ste. 508  
Dallas, TX 75248  
(214) 781-4115  
Owner: Wade Wilson  
Studio Manager: Clay Harris

**THE VIDEO EYE**

VFF, VPP/E, OLVP  
13002 Campos Dr.  
Houston, TX 77065  
(713) 469-2222  
Owner: Robert Fitch  
Studio Manager: Robert Fitch

**VIDEO-MEDIA PRODUCTIONS**

VFF, VPP/E, OLVP, APPV  
2727 W. Southern, #7  
Tempe, AZ 85282  
(602) 966-6545  
Owner: Jim Rinkenberger  
Studio Manager: Jim Rinkenberger

**VIDEO POST & TRANSFER, INC.**

VPP/E, APPV  
8036 Aviation Pl.  
Dallas, TX 75235  
(214) 350-2676  
Owner: Neil Feldman  
Studio Manager: Jaxie Bryan

**VIDEO PRODUCTION SERVICES**

OLVP  
7431 Holly Hill #215  
Dallas, TX 75231  
(214) 739-3658  
Owner: Robert Charlap  
Studio Manager: Binks Chat

**VIDEO PRODUCTIONS, INC.**

VFF, VPP/E  
2217 C. Michigan  
Arlington, TX 76013  
(817) 265-4300  
Owner: (non-profit) Jane Alexander  
Studio Manager: Belva Peurman

**VIP PRODUCTION COMPANY**

VFF, VPP/E, OLVP  
2235 W. Alice  
Phoenix, AZ 85021  
(602) 861-2666  
Owner: Hamilton Wright Jr., Michael Jones  
Studio Manager: Chet Provorse

**JOHN WAGNER RECORDING STUDIOS, INC.**

APPV  
12000 Candelaria NE, Ste. 1  
Albuquerque, NM 87112  
(505) 296-2766  
Owner: John Wagner, Laurie L. Zachery  
Studio Manager: John Wagner

**WALKER PRODUCTIONS**

VFF, VPP/E, OLVP, APPV  
PO Box 161  
Cave Creek, AZ 85331  
(602) 488-3952  
Owner: Ron Walker  
Studio Manager: Julie Walker

**WILDMAN PRODUCTIONS**

VFF, VPP/E, OLVP  
8925 Rosecliff  
Dallas, TX 75217  
(214) 398-3456  
Owner: David Hirsch

**WM PRODUCTIONS**

VFF, OLVP  
709-B E. 45th St.  
Austin, TX 78751  
(512) 452-4852  
Owner: Wayne R. Miller  
Studio Manager: Jackie Powell

## SO. CALIFORNIA



## SO. CALIFORNIA

*Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVL (On Location Video Production); VPIE (Video Post-Production/Editing); APPV (Audio Post-Production for Video).*

**Video Monitors:** (10) Conrac 5722, (12) Ikegami 14-inch hi resolution.  
**Switchers/editors:** (3) Grass Valley 300, (3) CMX 3400.  
**Video Cameras:** (4) Ikegami HL79EAL, (2) Sony BVP30 Betacam.  
**Synchronizers:** (4) Adams-Smith 2600.  
**Video Effects Devices:** (2) Ampex ADO, Vital 4-channel squeezezoom.  
**Audio Recorders:** (2) Otari MTR-90 24-track, Otari 5050 4-track, (3) Otari 5050 2-track.  
**Audio Mixers:** Sound Workshop Model 30.  
**Soundstage:** 60 x 45  
**Other Major Equipment:** Mobile video truck, Cubicomp 3-D computer graphics system, (2) Rank Cintel MKIII, film-to-tape transfer system, (100) duplication decks.

**AMETHYST STUDIOS**  
*VPP/E, APPV*  
7000 Santa Monica Blvd.  
Hollywood, CA 90038  
(213) 467-3700  
Owner: Roger Mende  
Studio Manager: Kirsten Mende

**APTECH PRODUCTIONS/ENVIRONMENTAL COMMUNICATION**  
*VPP/E, OLVP*  
1935 1/2 Barry Ave.  
Los Angeles, CA 90025  
(213) 473-1084  
Owner: Eric Werbalowsky  
Studio Manager: Laun Flack

**ASC VIDEO CORPORATION**  
*VPP/E*  
3816 Burbank Blvd.  
Burbank, CA 91505  
(818) 843-7004  
Owner: Mark G. Chatinsky, Alan H. Immerman  
Studio Manager: Diana Mundy  
**Extras & Direction:** ASC Video Corporation specializes in rental, sales and support of video editing systems. Equipment ranging from individual machines to full systems can be provided either at a client's facility, or in ASC's on-premises editing suites. Technical assistance is available full-time, and a full-service maintenance department is located in-house. A complete sales department complements the rental/service facility with availability of everything from tapes and accessories to complete editing systems.

**ASSOCIATED PRODUCTION MUSIC**  
*APPV*  
6255 Sunset Blvd., Ste. 724  
Hollywood, CA 90028  
(213) 461-3211  
Studio Manager: Cassie Gorieb  
**Extras & Direction:** Representing the KPM, Bruton, Conroy, Themes, and Shepherds Bush Production Music Libraries to the AV, film and video media. Music available on tape, record or compact disc. Supplying music to Academy Award winning short subject *Up, The Peoples Court, The Color Purple, The Right Stuff, Superbowl 86*, original theme for WNBC's "1986."

**AUDIO ACHIEVEMENTS**  
*VPP/E, APPV*  
1327 Cabrillo Ave.

Torrance, CA 90501  
(213) 533-9531  
Owner: Audio Achievements, Inc.  
Studio Manager: Donovan

**ROLLAND BEECH FILM PRODUCTIONS**  
*VPF, OLVP*  
1795 Ridgeview Cir. W.  
Palm Springs, CA 92264  
(619) 323-8413  
Owner: Rolland V. Beech  
Studio Manager: Irma A. Beech

**BELL & HOWELL/COLUMBIA PARAMOUNT VIDEO SERVICES**  
*VPF, VPP/E*  
970 W. 190th St., Ste. 900  
Torrance, CA 90502  
(213) 515-6499  
Studio Manager: Hal Blakeslee

**BERTUS PRODUCTION**  
*APPV*  
22723 Berdon St.  
Woodland Hills, CA 91367  
(818) 883-1920  
Owner: Robby & Lynne Weaver  
Studio Manager: Robby Weaver

**BOB'S BANDAIDS**  
*APPV*  
3782 E. Austin Way  
Fresno, CA 93726  
(209) 227-1224  
Owner: Bob Martin  
Studio Manager: Bob Martin

**BREWSTER VIDEO PRODUCTIONS, INC.**  
*VPF, VPP/E, OLVP*  
1403 E. 28th St.  
Long Beach, CA 90806  
(213) 595-9411  
Owner: James D. Brewster  
Studio Manager: Matthew Clayton

**BRINCO PRODUCTIONS**  
*OLVP*  
2247 20th St. 3  
Santa Monica, CA 90405  
(213) 450-5115  
Owner: Antonio Soriano  
Studio Manager: Margarita Llano

**BROADWAY/HOLLYWOOD PRODUCTIONS**  
*OLVP*  
Box 10051  
Beverly Hills, CA 90213  
(818) 761-2646  
Owner: Dons Chu, Jennifer Yeko  
Studio Manager: Doris Chu

**BRYER PATCH PRODUCTIONS**  
*VPF*  
15363 Mulholland Dr.  
Los Angeles, CA 90077  
(818) 789-6998  
Owner: Maximilian B. Bryer

**BUZZY'S RECORDING**  
*APPV*  
6900 Melrose Ave.  
Los Angeles, CA 90038  
(213) 931-1867  
Owner: Walter Resnik  
Studio Manager: Larry Lantz

**CALIFORNIA COMPACT DISC GROUP**  
*VPF, VPP/E, OLVP, APPV*  
955 W. 19th St., Ste A205  
Costa Mesa, CA 92627  
(714) 646-3326  
Owner: Larry Marks

**CANTRAX RECORDERS**  
*APPV*  
2119 Fidler Ave.  
Long Beach, CA 90815  
(213) 498-6492  
Owner: Richard Cannata  
Studio Manager: Nancy Cannata

**A&M VIDEO, A DIVISION OF A&M RECORDS, INC.**  
1416 N. La Brea Ave.  
Hollywood, CA 90028  
(213) 469-2411  
Owner: Herb Alpert, Jerry Moss  
Studio Manager: Steve Macon

**A THRU Z PRODUCTIONS**  
*VPF, OLVP*  
17424 Citronia St.  
Northridge, CA 91325  
(213) 462-7213  
Owner: Zane Zidel  
Studio Manager: Keith Amann, Duane Rice

**ABBA DABBA VIDEO**  
*VPF, OLVP*  
3293 Cahuenga Blvd. W. 101  
Hollywood, CA 90068  
(213) 969-0910  
Owner: Joseph F. Pyles  
Studio Manager: Lezlie J. Hoskins

**ACTION VIDEO**  
*VPP/E*  
6616 Lexington Ave.  
Hollywood, CA 90038  
(213) 461-3611  
Owner: Sam Holtz, Joe Benadon, Paco Ariz  
Studio Manager: Sam Holtz, Joe Benadon

**ACTN ALAMITOS CABLE TELEVISION NETWORK**  
*VPF, VPP/E, OLVP*  
3808 Catalina St.  
Los Alamitos, CA 90720  
(213) 594-8007  
Owner: Non-Profit Corporation  
Studio Manager: Jeffrey Peters, Andrea Klein

**A/G VIDEO PRODUCTIONS INC.**  
*OLVP*  
86 W. Norman Ave.  
Arcadia, CA 91006  
(818) 445-7625  
Owner: Art Gluskoter  
Studio Manager: Art Gluskoter

**JACQUES ALBRECHT PRODUCTIONS**  
*OLVP*  
PO Box 9734  
San Diego, CA 92109  
(619) 481-8800  
(213) 468-9061  
Owner: J. Albrecht  
Studio Manager: Michael Thaller

**AM PRODUCTIONS**  
*VPF*  
46 S. DeLacey Ave., Ste. 15  
Pasadena, CA 91105  
(818) 449-0683  
Owner: Arthur C. Michaud  
Studio Manager: Arthur C. Michaud

**AMERICAN MANDALA VIDEO PRODUCTIONS**  
*VPF, VPP/E, OLVP*  
PO Box 1555  
Palm Desert, CA 92261  
(619) 568-1938  
(619) 341-3592  
Owner: John Mandola  
Studio Manager: Nick Mandala

**AMERICAN VIDEO FACTORY**  
*VPF, VPP/E, OLVP, APPV*  
4150 Glencoe Ave.  
Marina Del Rey, CA 90292  
(213) 823-8622  
Owner: Andrew Maisner  
**Video Tape Recorders:** (14) Ampex VPR 3 1-inch, (4) Sony BVW 40/BVW 10 Betacam, (8) Sony BVU800 3/4 inch.

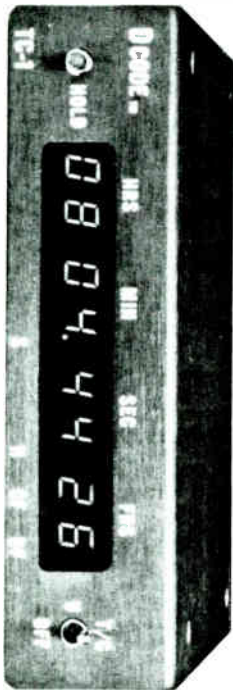
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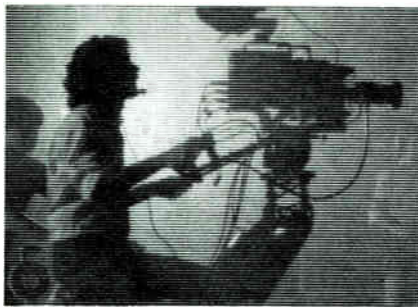
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Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OLVP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

**CANYON VIDEO PRODUCTIONS**

VPF, VPP/E, OLVP  
13733 Ventura Blvd.  
Sherman Oaks, CA 91423  
(818) 789-7894  
Owner: Ken Menkin  
Studio Manager: Ken Menkin

**CAPITOL/EMI-AMERICA RECORDS**

VPP/E  
6920 Sunset Blvd.  
Hollywood, CA 90028  
(213) 461-9141 ext. 285  
Owner: Capitol Records, Inc.  
Studio Manager: Jim Hancock  
Video Tape Recorders: (2) Sony BVU-800 1/4-inch, Sony BVU-820 1/4-inch (slow motion).  
Video Monitors: (2) Sony PVM-1220 Trinitron, (2) Jensen AVS-3250  
Switchers/editors: Sony BVE-800 (editing system), JVC KM 2000 (switcher).  
Video Cameras: JVC KY-1900CH.  
Video Effects Devices: JVC KM 2000 video effects switcher.  
Audio Recorders: TEAC A-3340S 4-track, Ampex ATR-100, Sony TC-209SD cassette deck.  
Audio Mixers: Yamaha M512 12-channel mixer.  
Other Major Equipment: (2) Sony BVT-800 digital time base correctors, Compaq personal computer w/edit lister program (EDL & punch tape), TEAC GE-20 graphic equalizer, dbx 501 dynamic range expander, dbx 164 stereo compressor limiter.  
Extras & Direction: Capitol/EMI-America Records' off-line bay specializes in the editing of music videos and is also available for TV spots, presentations, and other music or non-music related projects. Our editor, Ron Sedgwick, a professional musician for 12 years, is responsive to the demands of music orientated projects. He has edited such promotional clips as: Sly Fox's "Let's Go All The Way"; Steve Miller's "Make The World Turn Around"; and The Red Hot Chili Peppers' "Jungle Man." We provide edit decision list and punch tape for CMX on-line completion and various types of audio enhancement equipment.  
Rates: \$80/hr. including editor.

**CATZEL, THOMAS & ASSOCIATES, INC.**

VPF  
2207 Colby Ave.  
Los Angeles, CA 90064  
(213) 473-7500  
Owner: David Catzel, Kit Thomas  
Studio Manager: Amanda Foulger

**CAVALIER VIDEO / SAMPLE CORPORATION**

(A DIVISION OF)  
VPF, VPP/E, OLVP, APPV  
6520 Selma Ave., Ste. 2020  
Los Angeles (Hollywood), CA 90028  
(213) 467-4090  
Owner: Sample Corporation  
Studio Manager: Sam J. Kopetzky II, Ben Kopetzky  
Extras & Direction: Our specialty centers around video-taping bands/rock groups/new groups. We have audio chase and have two JVC cameras with 3/4-inch production only. Single camera w/cuts is the rule. Telecine transfer from 35mm, 16mm, 8mm to 3/4 master. 16mm production also. Video dubbing and/or re-recording on 16-track 1/2 audio. SFX & MX library available. Video editing—cuts only—3/4- or 1/2-inch. Rates are subject to what is required. Saturday and Sunday work too. Surround Sound available.

**CCR VIDEO CORPORATION**

VPF, VPP/E, OLVP  
6410 Santa Monica Blvd.  
Hollywood, CA 90038  
(213) 464-7151  
Owner: Rick Melchior  
Studio Manager: Bob Bran

**CHINESE WORLD TELEVISION, INC.**

VPF, VPP/E  
1103 W. 7th St.  
Los Angeles, CA 90017  
(213) 488-9122  
Owner: Dr. Min-Yu Tsai  
Studio Manager: Hiep Tran

**CMS PRODUCTIONS, INC.**

VPP/E  
5625 Melrose Ave.  
Hollywood, CA 90038  
(213) 464-4337  
Owner: Barney Cabral, Bruce Stambler, Michael Wilhoit  
Studio Manager: Barney Cabral, Bruce Stambler, Michael Wilhoit.

**COMPLETE POST INC.**

VPP/E, APPV  
6087 Sunset Blvd.  
Hollywood, CA 90028  
(213) 467-1244  
Studio Manager: Ed Migliore, Neal Rydall

**CONSOLIDATED FILM INDUSTRIES**

VPF, VPP/E  
959 Seward St.  
Hollywood, CA 90038  
(213) 462-3161  
Owner: Intermark  
Studio Manager: Rick Hoffman

**WILLIAM CRAIN PRODUCTIONS**

OLVP  
Star Route 135  
Wrightwood, CA 92397  
(619) 249-5831  
Owner: William Crain  
Extras & Direction: William Crain, director/camerman. Numerous awards, including two Gold Medals at the San Francisco Film Festival and several Cine Golden Eagles. Credits include Universal, HBO, Showtime, The Movie Channel, NBC, Vestron, PBS and many others.

**CREATIVE SERVICES GROUP**

APPV  
17456 Emelita St.  
Encino, CA 91316  
(818) 343-7005  
(213) 641-0849  
Owner: Rick Fleishman, Carl Rigoli  
Studio Manager: Rick Fleishman, Carl Rigoli

**CRUNCH NUMBER PRODUCTIONS**

VPP/E  
10419 Myrna St.  
North Hollywood, CA 91601  
(818) 760-0657  
Owner: Jim Settlement  
Studio Manager: Jim Settlement

**DAVID'S VIDEO EDITING**

VPP/E, OLVP  
1416 Macbeth St.  
Los Angeles, CA 90026  
(213) 482-1192  
Owner: David Rapka

**DECOUPAGE**

VPP/E  
741 N. Cahuenga Blvd.  
Los Angeles, CA 90038  
(213) 461-3617  
Owner: Jacques Dury  
Studio Manager: Elvia Gaitan

**DOUBLE VISION SPORTS VIDEO PRODUCTIONS**

VPF, VPP/E  
6728 Luciernaga Pl.  
Carlsbad, CA 92009  
(619) 438-5076  
Owner: Gary Stein  
Studio Manager: Gary Stein



**DSR PRODUCTIONS**  
Los Angeles, CA

**DSR PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
607 N. Ave 64  
Los Angeles, CA 90042  
(213) 258-6741  
Owner: Van Webster  
Studio Manager: Manellen Webster  
Dimensions: 30 x 40 x 12  
Video Tape Recorders: Sony BVU 850 SP, (2) Sony BVU 800  
Video Monitors: Ikegami 14-inch color, Panasonic 19-inch color, (6) Panasonic Monochrome  
Switchers/Editing Systems: EECO/EMME editor 795, Crosspoint Latch 6109/7209  
Video Cameras: Hitachi 231  
Synchronizers: Adams-Smith 2600 system  
Video Effects Devices: Fortel freeze film, 3M proc. amp  
Audio Recorders: 3M 79 24 track, Studer B67 2-track, Sony 1600 digital 2 track  
Audio Mixers: MCI 428B 28 x 24, Interface 8 x 4 100  
Other Major Equipment: Fortel time base corrector, 3M character generator, CMX compatible edit list, digital audio sound services, CD sound effects library  
**Extras & Direction:** DSR Productions is a full service recording and video production company serving the entertainment industry for more than 17 years. Our experience ranges from music recording for records and film to compact disc masters, to radio spot production, to corporate video, and to television commercials. Clients include WEA Corp., Cannon Films, Warner Bros Records, NARM, The Compact Disc Group, and the RIAA

**JODY ELDRED PRODUCTIONS**  
*OLVP*  
2250 Vista Del Mar Ave  
Hollywood, CA 90068  
(213) 465-5655  
Owner: Jody Eldred  
Studio Manager: Jody Eldred

**ELECTRONIC POST PRODUCTION SYSTEMS**  
*VPP/E, APPV*  
11321 Iowa Ave #9  
W Los Angeles, CA 90025  
(213) 477-9877  
Owner: Richard Nisbett  
Studio Manager: Richard Nisbett

**ENCORE VIDEO SERVICES**  
*OLVP*  
9582 Hamilton Ave., Ste 359  
Huntington Beach, CA 92646  
(714) 964-6947  
Owner: David Nathenson  
Studio Manager: David Nathenson

**EN-VISION PRODUCTIONS, INC.**  
*OLVP, APPV*  
24245 Larkwood  
El Toro, CA 92630  
(714) 951-5440  
Owner: Bob Allen, Shellee Allen  
Studio Manager: Derek Chambers

**EURO-ASIAN LAUGHING WARTHOG PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
2554 Lincoln Blvd., Ste 296  
Marina Del Rey, CA 90292

(213) 827-0505  
Owner: Sam Longoria  
Studio Manager: Sam Longoria

**EYESONGS**  
*OLVP*  
1529 26th St  
Santa Monica, CA 90404  
(213) 829-4700  
Owner: Don Wrege

**FACILITE ROCK SOLID**  
*VPP/E*  
801 S Main St  
Burbank, CA 91506  
(818) 841-8220  
Owner: Rock Solid Productions  
Studio Manager: John Rauh

**JERRY FELDMAN PRODUCTIONS**  
*VPF, OLVP*  
1638 1/2 Edgecliff Dr

Los Angeles, CA 90026  
(213) 665-8640  
Owner: Jerry Feldman

**FILM TRANSFORM, INC.**  
*VPF, OLVP*  
3755-B Cahuenga Blvd. W.  
Studio City, CA 91604  
(818) 769-3010  
Owner: Eric Sherman  
Studio Manager: Eric Sherman

**FILMCRAFTERS**  
*VPF, VPP/E, OLVP, APPV*  
PO Box 45572  
Los Angeles, CA 90045  
(213) 641-6028  
Owner: Gene Burson, Patti Burson  
Studio Manager: Gene Burson

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Capitol Records	McIntosh Labs	NASA	Switchcraft

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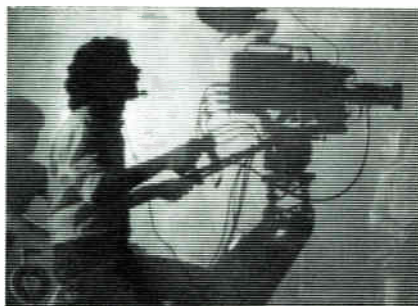
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### THE MEDIA & TALENT ORGANIZATION, INC.

VPF, OLVP  
PO Box 2310  
Beverly Hills, CA 90213  
(213) 271-4629  
Owner: Eric Heckscher

### MEDITERRANEAN PRODUCTIONS

VPF, VPP/E, OLVP, APPV  
2801 W. Olive Ave., Ste. 204  
Burbank, CA 91505  
(818) 846-2297  
Owner: E.N. Abodaber  
Studio Manager: E.N. Abodaber

### ROLF MENDEZ FILM/VIDEO

OLVP  
11820 Larrylyn Dr.  
Whittier, CA 90604  
(213) 943-1622  
Owner: Rolf J.S. Mendez

### METRON PRODUCTIONS

VPF, VPP/E, OLVP  
1154 West 160th St.  
Gardena, CA 90247  
(213) 327-2824  
Owner: Bruce B. Schwab  
Studio Manager: Bruce B. Schwab

### LAWRENCE MICHAEL VIDEO PRODUCTIONS

OLVP  
19558 Ventura Blvd.  
Tarzana, CA 91356  
(818) 881-3102  
Owner: Lawrence Lesser  
Studio Manager: Michael McDonald

### MOBILE VISUAL PRODUCTIONS

VPF, VPP/E, OLVP  
3611 S. Harbor Blvd., #150  
Santa Ana, CA 92704  
(714) 894-3133  
(714) 241-7724  
Owner: John R. Miles  
Video Tape Recorders: (2) Sony BVH-2000 1-inch C, (2) Sony BVW 10 Betacam player, Sony BVW-15 Betacam player, Sony BVU-820 3/4-inch recorder, Sony BVW-40 Betacam editor.  
Video Monitors: Sony BUM-1900, Sharp XM-1300, Ikegami TM 14 9RH-N.  
Switchers/editors: Grass Valley 1600X switcher, Grass Valley 100N switcher, (2) Convergence ECS-204 editors.  
Video Cameras: (2) Sony BVW-30 Betacam, Sony BVP-330 plumbicon camera, Sony DXC-M3 color camera.  
Video Effects Devices: Abekes A-52.  
Audio Mixers: Soundcraft 200B audio mixer.  
Soundstage: 20 x 25 shooting stage.  
Other Major Equipment: Full rental facilities and tape storage vault.

### MOBILE VISUAL PRODUCTIONS, INC.

VPF/E, OLVP  
5251 Lampson Ave.  
Garden Grove, CA 92645  
(714) 241-7724  
Owner: John Miles  
Studio Manager: Craig Camon

### MODERN VIDEOFILM

APPV  
7165 Sunset Blvd.  
Hollywood, CA 90046  
(213) 851-8070  
Owner: Moshe Barkat  
Studio Manager: Richard E. Greenberg

### MPS PRODUCTION SERVICES

VPF/E, OLVP  
5666 La Jolla Blvd., #171  
La Jolla, CA 92037  
(619) 483-1373  
Owner: Michael P. Salmen

### MULTI IMAGE PRODUCTIONS

VPF/E, OLVP  
8849 Complex Dr.  
San Diego, CA 92123  
(619) 560-8383  
Owner: Fred Ashman  
Studio Manager: Bud Gminski

### MUNOA VIDEO PRODUCTIONS

VPF  
PO Box 1802, 1126 Munoa Ln.  
Temecula, CA 92390  
(714) 676-4902  
Owner: Philip L. Munoa  
Studio Manager: John F. Munoa

### MUSIC LAB, INC.

VPF/E, APPV  
1831 Hyperion Ave.  
Hollywood, CA 90027  
(213) 666-3003  
Owner: Chaba Mehes  
Studio Manager: Craig W. Durst

### NAYIRI BROADCASTING CO., INC.

15010 Ventura Blvd., Ste. 336  
Sherman Oaks, CA 91403  
(818) 906-9966  
Owner: Vartkess Nargizian  
Studio Manager: Art Vargas

### DOUGLAS NELSON ASSOCIATES

APPV  
18965 San Jose St.  
Northridge, CA 91326  
(818) 360-0967  
Owner: Doug Nelson  
Studio Manager: Doug Nelson

### NIGHT VISION PRODUCTIONS, INC.

VPF/E, APPV  
8695 Hebrides Dr.  
San Diego, CA 92126  
(619) 566-8989  
Owner: Donald V. Phillips  
Studio Manager: Donald V. Phillips

### NORTH BROADWAY PRODUCTIONS

VPF, VPP/E, OLVP, APPV  
27418 Dolton Dr.  
Canyon Country, CA 91351  
(818) 777-2257  
Owner: Garrett Saracho  
Studio Manager: Garrett Saracho

### NORTHWEST MOBILE TELEVISION

OLVP  
15612 Broadway Centre St.  
Gardena, CA 90248  
(213) 650-8633  
Owner: King Broadcasting Co.  
Studio Manager: Tim Abhold

### OLIPHANT PRODUCTIONS

VPF, VPP/E, OLVP  
77-333 Country Club Dr.  
Palm Desert, CA 92260  
(619) 345-3737  
Owner: Richard Oliphant  
Studio Manager: Dan Dorfer

OUT-POST,  
A DIVISION OF AUDIO ACHIEVEMENTS, INC.  
VPF/E, APPV  
1327 Cabrillo Ave.

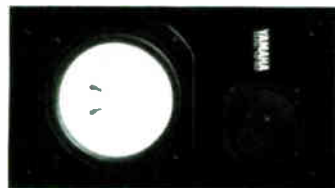
## THRIFTY ELECTRONICS



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**YAMAHA Nakamichi Hafler**



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Van Nuys, CA 91401  
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Torrance, CA 90501  
(213) 533-9531  
Owner: Audio Achievements, Inc.  
Studio Manager: Donovan

**PACIFIC BROADCAST VIDEO PRODUCTIONS**  
*VFP*  
PO Box 2222  
Carlsbad, CA 92008  
(619) 729-1000  
Owner: Stephen Cilurzo  
Studio Manager: Steve Hill

**PACIFIC VIDEO**  
*VPP/E*  
809 N. Cahuenga Blvd.  
Hollywood, CA 90038  
(213) 462-6266  
Studio Manager: Steve Schifrin

**PARAMOUNT PICTURES CORP.**  
5555 Melrose Ave., Stage 3, Rm. 207  
Los Angeles, CA 90038  
(213) 468-5983

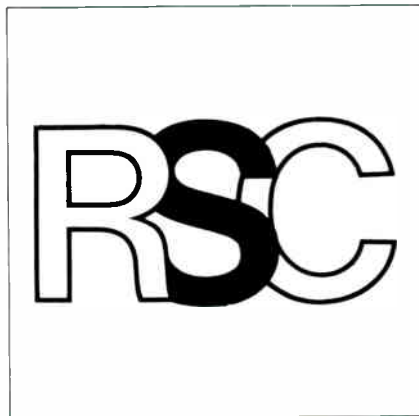
**PRO-LENS PRODUCTIONS**  
*VPP/E, OLVP*  
1155 S Diamond Bar Blvd., Ste. R  
Diamond Bar, CA 91765  
(818) 330-1955  
Owner: Walt Schmidt  
Studio Manager: Donn Wade

**GARRISON PUTNEY STUDIO**  
*VPP/E, OLVP, APPV*  
4635 E. Anaheim  
Long Beach, CA 90804  
(213) 494-4552  
Owner: Clovis L. Putney  
Studio Manager: Cree H. Putney

**RECORD PLANT SCORING INC.**  
*APPV*  
1032 N. Sycamore Ave.

Los Angeles, CA 90038  
(213) 653-0240  
Owner: Chns Stone  
Studio Manager: Lyn Collins

**ALAN C. ROSS PRODUCTIONS**  
*OLVP*  
202 Culper Ct.  
Hermosa Beach, CA 90254  
(213) 379-2015  
Owner: Alan C. Ross



*RSC/RECORDING SERVICES COMPANY*  
Burbank, CA

**RSC/RECORDING SERVICES COMPANY**  
*APPV*  
2414 W. Olive Ave.  
Burbank, CA 91506  
(818) 843-6800  
(213) 849-6800  
Owner: Recording Services Company, Inc.  
Video Tape Recorders: Ampex VPR-1C one-inch, Sony  
BVU-800 ¾-inch, JVC 850 ¾-inch, Betamax, VHS.

**Video Monitors:** All sizes as required.  
**Synchronizers:** Cipher Digital Softouch, Shadow, Q.Lock.  
All operational in-house.  
**Audio Recorders:** Otari MTR-90 2-, 4-, 8-, 16-, 24-tracks,  
Ampex MM-1200 2-, 4-, 8-, 16-, 24-tracks. RSC has every  
format analog audio recorder in-house and synchronized  
to SMPTE.  
**Audio Mixers:** Soundcraft 2400, Neotek Series II, Audi-  
tronics 501.  
**Other Major Equipment:** RSC offers a complete comple-  
ment of outboard limiters, equalizers, digital reverb, etc.  
Complete analog and digital effects library. Music library.  
**Extras & Direction:** RSC specializes in audio production  
and post-production for television. RSC's 24-track mobile  
audio unit has earned an impressive reputation in Los  
Angeles. And when you visit each of our post-audio suites,  
you'll know why RSC audio post-production is quality  
choice.  
**Rates:** On request.

**THE RYE CONSORTIUM**  
*VFP, OLVP*  
542 South Irving Blvd.  
Los Angeles, CA 90020  
(213) 933-4637  
Owner: Patricia Rye

**SAHARA PRODUCTIONS**  
*VFP, VPP/E, OLVP, APPV*  
PO Box 596  
North Hollywood, CA 91603  
(213) 483-6495  
(818) 508-6315  
Owner: Mahmud Abudaber  
Studio Manager: Donna Besse

**SHOAF COMMUNICATIONS**  
*VFP*  
2435 N. Reese Place  
Burbank, CA 91504  
(818) 842-5600  
Owner: Michael E. Shoaf

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**OTARI MX-80 2" RECORDER**  
AVAILABLE AS: 24-trk, 24/32-trk, 32-trk  
MX-80 features a microprocessor-con-  
trolled constant-tension transport, a full-  
function remote controller, exceptional  
audio electronics, and connectors for inter-  
facing to any SMPTE/EBU time code based  
editing system, controller, or synchronizer.  
**RETAIL PRICE FROM \$27,950**

**AMEK ANGELA**  
• 6 chassis sizes—up to 62 line/mic in-outs • Fully modular construction • 4 band EQ,  
swept mids w/switchable "Q," high/low shelving • 6 sends • 6 returns • 4 stereo  
subgroups • Dual signal path with in-place solo • 30 segment LED meters • P & G  
faders • Autoready available • Producer's desk • stand.  
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## NORTHWEST

ALASKA, CALIFORNIA, COLORADO, HAWAII,  
IDAHO, MONTANA, NEVADA, OREGON, UTAH,  
WASHINGTON, WYOMING

### ACCESS PRODUCTIONS

VFF  
4895 Marianna  
Salt Lake City, UT 84118  
(801) 966-7148  
Owner: J.S. Jongler Inc.  
Studio Manager: Dan James

### ADVANCE VISION VIDEO PRODUCTIONS

VFF  
3685 17th St., #19  
San Francisco, CA 94114  
(415) 552-1694  
Studio Manager: Megan Timberlake

### ADVANTAGE VIDEO PRODUCTIONS

VFF, VPP/E, OLVP  
2900 Lakeside Dr. #203  
Santa Clara, CA 95054  
(408) 727-2222  
Owner: Kent Russell  
Studio Manager: Kent Russell

### ALEXANDER FILM & VIDEO

VPP/E  
967 Elkton Dr.  
Colorado Springs, CO 80907  
(800) 525-8024  
Owner: Frameline Productions, Inc.  
Studio Manager: Don Hawks

### ALLERICE VIDEO

VFF, VPP/E, OLVP  
350 "E" St., Ste. 309  
Eureka, CA 95501  
(707) 445-3922  
Owner: Darrell Shull  
Studio Manager: Esmaa Martin-Shull

### ALLIED VIDEO PRODUCTIONS

VFF, VPP/E, OLVP  
2033 25th St. SE  
Salem, OR 97302  
(503) 363-7301  
Owner: Tom Marks  
Studio Manager: Jon Minott

### ALOHA HI-TECH VIDEO/KITV

VFF, VPP/E, OLVP  
1290 Ala Moana Blvd.  
Honolulu, HI 96825  
(808) 545-4444  
Owner: Shamrock Broadcasting  
Studio Manager: Joseph H. Loewenhardt

### ALPHA VIDEO

VPP/E, APPV  
1001 Lenora St.  
Seattle, WA 98121  
(206) 682-8230  
Owner: Les Davis  
Studio Manager: Hughie Tanner

### AMERICAN VIDEO LABORATORY

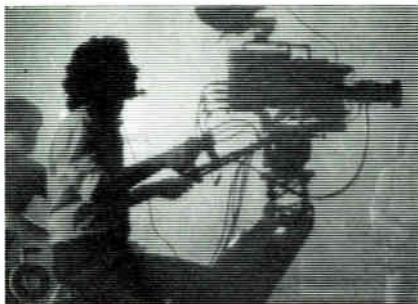
VFF, VPP/E, OLVP, APPV  
7023 15th Ave. NW  
Seattle, WA 98117  
(206) 789-8273  
Owner: Conrad W. Denke  
Studio Manager: John F. Wehman

### ANTHONY PRODUCTIONS

VPP/E, OLVP, APPV  
Rte. 1, Box 98A  
Nine Mile Falls, WA 99026  
(509) 466-6832  
Owner: Mark J. Anthony  
Studio Manager: Jeannine

### ARTICHOKE PRODUCTIONS

VFF, VPP/E, OLVP, APPV  
4114 Linden St.



## NORTHWEST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VFF (Video Production Facility); OVLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

Oakland, CA 94608  
(415) 655-1283  
Owner: Paul Kalbach  
Studio Manager: Paul Kalbach

### ARTIST SOUND

APPV  
12311 NE Glisan #254  
Portland, OR 97230  
(503) 254-9742  
Owner: Richard Paige  
Studio Manager: Susanne Ruiz  
Video Tape Recorders: Panasonic NV 8200 w/Fostex interface, Sony SLO 383 w/Fostex interface, Sony HF 900, Sony HF 500, Sanyo VCR 7300.  
Video Monitors: Sony KV 1370 R 13-inch Trinitron, TMK 5-inch portable color.  
Synchronizers: Fostex 4030/4035.  
Audio Recorders: Fostex E8, Fostex A20, Uher 4000, Uher 4400, Sony PCM-501ES digital processor, Technics SV-100 digital processor, Nakamichi BX 100 cassette deck.  
Audio Mixers: Biamp 1624, Fender 3208.  
Other Major Equipment: (2) Fostex 3070 comp/limiter, Yamaha SPX90 digital effects, Alesis MIDIflex, DeltaLab ADM 1024, MXR 1/3 octave EQ, DOD R831 1/3 octave EQ, SMP/Lock SMPTE-MIDI converter, Roland GR 700/707 synthesizer, Ensoniq ESQ1 synthesizer, Ensoniq Mirage sampler, Roland Octapad, Casio MIDI thru box, Audio-Technica and Rapco direct boxes, Shure, EV, Countryman microphones, Macintosh 512E computer w/MIDI interface, Soundlab and Performer software.  
Rates: \$50/hr audio-video interlock via SMPTE; block rates available; call for other rates

### AUDIO EXPRESS

OLVP, APPV  
320 Stewart St.  
Reno, NV 89502  
(702) 322-6292  
Owner: Bill Stephens  
Studio Manager: Cynthia Stephens

### AUDIO VIDEO RESOURCES, INC.

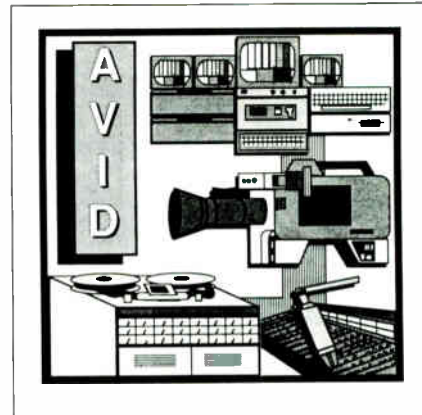
VFF, VPP/E, OLVP, APPV  
60 Broadway  
San Francisco, CA 94111  
(415) 781-2603  
Owner: Gary A. Duoss  
Studio Manager: Jeff Mestier

### AVALANCHE RECORDING STUDIO, INC.

APPV  
10650 Irma Dr., #27  
Northglenn, CO 80233  
(303) 452-0498  
Owner: Avalanche Recording Studio, Inc.  
Studio Manager: Linda Warman

### AVID PRODUCTIONS

VFF, VPP/E, OLVP, APPV  
235 E. 3rd Ave., Ste. 215  
San Mateo, CA 94401  
(415) 347-3417  
Owner: Henry Bilbao  
Studio Manager: Chris Craig, Pete Nixon  
Video Tape Recorders: JVC CR8250U 3/4-inch, JVC CP5550U 3/4-inch, JVC CR4900U 3/4-inch, JVC BR8600U 1/2-inch, JVC BR6400U 1/2-inch.  
Video Monitors: JVC C-2082 UM 19-inch, (2) JVC TMR9U 9-inch, Panasonic TR 930 9-inch.



### AVID PRODUCTIONS San Mateo, CA

Switchers/editors: JVC/Convergence VE-93, Alta Group Pyxis, JVC CI90.  
Video Cameras: (2) Ikegami ITC 730A.  
Synchronizers: Cipher Digital Shadow/Pad.  
Video Effects Devices: Alta Group Pyxis, (14 transitions/digital FX).  
Audio Recorders: Otari MTR-90 II 16-track, (2) Otari 5050B 2 2-track, (16) Sony, Technics, JVC cassettes.  
Audio Mixers: Soundworkshop Series 34B, 28 x 24. (2) Yamaha MM10 6 x 2.  
Soundstages: 12 x 8 booth; 24 x 18 insert stage.  
Other Major Equipment: Lexicon 224, PCM70 digital reverbs, Eventide H949 Harmonizer, dbx 900 w/comps/gates/de-esser, Mac/Opcode/Motu sequencers, DX7, QX1, Mirage, Linn, Simmons, Roland, drum machines, Lowell lighting, projection TV.  
Extras & Direction: Avid Productions is a totally full service facility—dedicated to the production of audio and video programs, such as: radio and television commercials; corporate/industrial communications; music demos, albums and videos. We support the independent producer, widening his or her resource base. Working primarily with medium scale budgets, we use creativity and technical excellence to achieve high production values. We strive to keep abreast of new technologies and are continuously upgrading our equipment to better serve our clients. Avid is the mid-penninsula's center for video production, editing and audio for video.  
Rates: Please call Peter for a quote.

### BROOKS BAUM PRODUCTIONS

OLVP  
2261 12th Ave. W.  
Seattle, WA 98119  
(206) 283-6456  
Owner: Wm B. Baum  
Studio Manager: Wm B. Baum

### BAY AREA MOBILETAPE, INC.

OLVP  
1019 E. San Carlos Ave.  
San Carlos, CA 94070  
(415) 593-7124  
Owner: Skip Long  
Studio Manager: Skip Long

### BCQ PRODUCTIONS

OLVP  
201 Duncan  
San Francisco, CA 94131  
(415) 826-4483  
Owner: Chris Vincent  
Studio Manager: Chris Vincent

### ROBERT BERKE SOUND

APPV  
50 Mendell St. #11  
San Francisco, CA 94124  
(415) 285-8800  
Owner: Robert Berke  
Studio Manager: Mark Escott  
Extras & Direction: Robert Berke Sound Production & Recording specializes in post-production audio for TV, radio and multi-image. Our new state-of-the-art facility features one of the most versatile and sophisticated audio for video computer systems in Northern California and includes multi-machine synchronization, event control and electronic audio editing. Our thousands of music and sound effects selections, digital reverb and effects devices, and our highly experienced and creative staff make us a valuable production resource.



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WORK DIRECTLY WITH THE WEST'S LARGEST  
INDEPENDENT RECORD AND CASSETTE DUPLICATING  
FACILITY FOR MAJOR LABEL QUALITY AND SERVICE.

# RAINBO RECORDS & CASSETTES

1738 Berkeley Street, Santa Monica, CA 90404

## — LIMITED OFFER —

### \* RECORD PRICES

**\* 1000 12" FULL-COLOR PACKAGE \$1666<sup>00</sup>**

Lacquer mastering — 3-step metal plating — 8 test pressings — 2-color labels (including type) — full-color jackets — white sleeve — shrink wrap — test within 5 working days — completion 10-15 working days after test approval.

*Does not include composite negatives.*

**\* 1000 12" ONE-COLOR PACKAGE \$1444<sup>00</sup>**

Same as above package except One-Color Jacket. 10 to 15 working days.

*Does not include composite negatives.*

**\* 1000 7" 45's \$595<sup>00</sup>**

Lacquer mastering — 3-step metal plating — 8 test pressings — 2-color labels (including type) — white sleeve — completion 10 working days.

**\* 500 7" 45's \$475<sup>00</sup>**

As above

### CASSETTE PRICES

**\* 1000 FULL-COLOR CASSETTES \$888<sup>00</sup>**

Cassette mastering test cassette — Apex printing direct on cassette — label plate — full-color inserts\* — 1000 additional inserts for reorder — Norelco box — cellophane wrapped

*Does not include composite negatives.*

### REORDER

**\$1222<sup>00</sup>**  
FULL-COLOR  
PACKAGE AS ORIGINAL  
10-12 working days

**\$999<sup>00</sup>**  
ONE-COLOR  
PACKAGE AS ORIGINAL  
10 working days

**\$333<sup>00</sup>**  
As Original  
7-10 working days  
7" 45

**\$200<sup>00</sup>**  
As Original  
7-10 working days  
7" 33½

**\$777<sup>00</sup>**  
As Original  
7-10 working days  
\*1000 full-color inserts

### COMPACT DISC PACKAGING AVAILABLE

**Lacquer Mastering by: EMI America, Capitol Records, Inc.**

**Pressed with: KEYSOR 588 Translucent Select Quality Vinyl**

**Tape: BASF-LHD Audiophile Music Quality—State-of-the-Art Bin Loop—HX PRO**

**Pressing Credits:** Capitol Records for the Beatle Releases in the early 1960's, Enigma, Rhino, CBS, RSO, Casablanca, Twin Tone, Tommy Boy, SST, United Artists, Greenworld, Frontier, Pausa, Palo Alto, Celluloid, Metal Blade, Shrapnel, Warner Bros., Elektra, and many, many more including the recently completed MCA's *Miami Vice*.

**Special Projects:** Include Shaped Records, Picture Records, and other premium record products that must remain anonymous.

(Please mention "LIMITED OFFER" when ordering)

**(213) 829-3476      (213) 829-0355**

SMALLER QUANTITIES AVAILABLE

**DOUG BERTRAN PRODUCTIONS**  
*OLVP*  
PO Box 10340  
Olympia, WA 98502  
(206) 866-8144  
Owner: Doug Bertran  
Studio Manager: Doug Bertran

**BRUNO BORELLO PRODUCTION**  
*OLVP*  
2935 Summit Dr.  
Hillsborough, CA 94010  
(415) 340-9396  
Owner: Bruno Borello

**BRAVURA FILMS, INC.**  
*VPF, OLVP*  
139 Townsend St., #205  
San Francisco, CA 94107  
(415) 546-1450  
Owner: Bob Kalsey

**CAMERA ONE**  
*OLVP*  
1609-D Iwi Way  
Honolulu, HI 96816  
(808) 732-2590  
Owner: Rodney A. Ohtani  
Studio Manager: Rodney A. Ohtani

**CHONK MOONHUNTER**  
*OLVP*  
484 Lake Park Ave., #289  
Oakland, CA 94610  
(415) 444-3074  
Owner: Curtis Choy

**CITY STAGE**  
*VPF*  
2235 Harrison St.  
San Francisco, CA 94110  
(415) 641-4848  
Owner: Wallace Murray, Howard Steinman

**COX VIDEO PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
1181 San Andreas Rd.  
Watsonville, CA 95076  
(408) 722-3132  
Owner: Denise Collins, Duane Cox  
Studio Manager: Denise Collins

**CYGNUS FILM AND VIDEO CO.**  
*OLVP, APPV*  
10610 W. 74th Pl.  
Arvada, CO 80005  
(303) 425-0269  
Owner: Michael Canzoneri  
Studio Manager: Lia Vollaack

**JAMES DANIELS PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
PO Box 618  
Palo Alto, CA 94301  
(415) 325-8574  
Owner: James Daniels  
Studio Manager: Bruce Kaphan

**DELPHI PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
1800 30th St., Ste. 309  
Boulder, CO 80301  
(303) 443-2100  
Owner: Oliver Henry  
Studio Manager: Ellen Dustman

**DESIGN MEDIA, INC.**  
*VPF, OLVP*  
2235 Harrison St.  
San Francisco, CA 94110  
(415) 641-4848  
Owner: Wallace Murray, Howard Steinman

**DIFFERENT FUR RECORDING**  
*APPV*  
3470 19th St.  
San Francisco, CA 94110  
(415) 864-1967  
Owner: Susan Skaggs, Howard Johnston  
Studio Manager: Susan Skaggs



## NORTHWEST

*Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).*

**DIGITAL POST & GRAPHICS**  
*VPF, VPP/E*  
1921 Minor Ave.  
Seattle, WA 98101  
(206) 623-3444  
Owner: Robinson Communications  
Studio Manager: Curt Blood, Pat Robinson

**DREAMARTS INTERNATIONAL CORP.**  
*VPP/E, APPV*  
1585 Kapiolani Blvd., Ste. 1110  
Honolulu, HI 96814  
(808) 533-7227  
(808) 941-2787  
Owner: Jan Huston  
Studio Manager: Joseph Rothstein

**DUDKOWSKI-LYNCH ASSOCIATES, INC.**  
*VPF, VPP/E, OLVP, APPV*  
150 Shoreline Hwy., Bldg. E  
Mill Valley, CA 94941  
(415) 359-4171  
Owner: Ed Dudkowski, Marjane Lynch  
Studio Manager: Debra Robins

**ELECTRONIC CINEMATOGRAPHY SYSTEMS, LTD.**  
(E.C.S., LTD.)  
*VPF, VPP/E, OLVP, APPV*  
2111-M 30th St., Ste. 1103  
Boulder, CO 80301  
(303) 449-9450  
Owner: T.R. Lofstrom  
Studio Manager: T.R. Lofstrom

**EMERSON FILM & VIDEO SOUND**  
*OLVP*  
1490 S. St. Paul St.  
Denver, CO 80210  
(303) 744-3001  
Owner: James Emerson  
Studio Manager: James Emerson

**ESPRESSO PRODUCTIONS INC.**  
*VPF, VPP/E*  
4560 Horton St.  
Emeryville, CA 94608  
(415) 428-9467  
Owner: Espresso Productions Inc.  
Studio Manager: Charles West

**FAST FORWARD**  
*VPF, VPP/E, OLVP*  
930 Montgomery St. #303  
San Francisco, CA 94133  
(415) 989-6245  
Owner: Paul Grippaldi, Mark O'Brien  
Studio Manager: John Lynch, Doug Baggs

**FINE LINE PRODUCTIONS**  
*VPP/E, OLVP*  
3181 A Mission St.  
San Francisco, CA 94110  
(415) 821-9946  
Studio Manager: Mark Freeman

**FIRST CAMERA VIDEO**  
*VPF, VPP/E, OLVP*  
350 Brannan St., 3rd Floor  
San Francisco, CA 94107  
(415) 495-0155  
Owner: Vaughn Kilgore  
Studio Manager: Tara McBride

**FIRSTVISION ENTERTAINMENT GROUP**  
*OLVP*  
PO Box 572  
Orem, UT 84057  
(801) 225-5050  
Owner: Gil Howe  
Studio Manager: Kevin Guest

**FISHING THE WEST, INC.**  
*VPF, VPP/E, OLVP, APPV*  
5484 SE International Way  
Milwaukie, OR 97222  
(503) 654-0092  
Owner: Kerry E. Brown  
Studio Manager: Wes Moore

**FOCUSED AUDIO**  
30 Berry St.  
San Francisco, CA 94107  
(415) 777-3108  
Owner: Jeff Roth  
Studio Manager: Jeff Roth  
Video Tape Recorders: JVC 8250 3/4-inch, JVC BR8600 1/2-inch VHS.  
Video Monitors: (2) Sharp, NEC, JVC.  
Synchronizers: (3) Cipher Digital Shadows.  
Audio Recorders: Otari MX-70 16-track. Otari 8-track.  
Audio Mixers: Anek Matchless.  
Soundstage: 20 x 15.  
Other Major Equipment: SMPTE-based automated mix, Kelly Quan Research synchronizer controller software, (2) Yamaha SPX-90, DeltaLab Efectron DDL, MICMIX, Gain Brains, Kepex, Orban EQs and de-esser, UREI peak limiters.  
Extras & Direction: Focused Audio is one of the most experienced audio-for-video facilities in Northern California. We bring together the latest advances in electronic audio editing techniques (see article this issue) with the care and skill necessary to design and create a soundtrack to complement your images. Extensive music and effects libraries on CD are available, as well as recording of original music. ADR, Foley, and narration to picture.  
Rates: Audio only \$45/hr., audio-for-video \$85/hr., consultation and soundtrack design by per project quote.

**FOREST PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
PO Box 9201  
Salt Lake City, UT 84109  
(801) 466-7330  
Owner: A Forest Production Company  
Studio Manager: Leigh Nichols

**FULL FRAME PRODUCTIONS**  
*VPF, VPP/E*  
363 Brannan  
San Francisco, CA 94107  
(415) 546-0155  
Owner: Kevin White

**FULL SPECTRUM PRODUCTIONS, INC.**  
*VPF, OLVP*  
150 E. Dana St.  
Mountain View, CA 94041  
(415) 967-1883  
Owner: John A. McCauley  
Studio Manager: Teri Collins

**GFO PRODUCTIONS**  
*VPF, OLVP*  
122 E. 19th  
Olympia, WA 98501  
(206) 352-8028  
Owner: George F. Ormrod  
Studio Manager: John Sabotta

**GOLD STREET VIDEO DESIGN**  
*VPF, VPP/E, OLVP*  
40 Gold St.  
San Francisco, CA 94133  
(415) 434-4544  
Studio Manager: Roger Krakow

**GOLDEN BAY VIDEO**  
**VPP/E, OLVP, APPV**  
 61 Camino Alto, #108  
 Mill Valley, CA 94941  
 (415) 381-2566  
 Owner: Vinton Medbury  
 Studio Manager: Vinton Medbury

**GOLDEN STATE PRODUCTIONS**  
**VPF, VPP/E, OLVP, APPV**  
 PO Box 504  
 Orinda, CA 94563  
 (415) 253-1389  
 Owner: Brian Moran

**HALF-INCH VIDEO**  
**VPP/E, APPV**  
 185 Berry St., Ste. 467  
 San Francisco, CA 94107  
 (415) 495-3477  
 Owner: Mark Lamper

**BRUCE HAYES PRODUCTIONS**  
**OLVP**  
 380 Chestnut St.  
 San Francisco, CA 94133  
 (415) 956-1542  
 Owner: Bruce Hayes  
 Studio Manager: Bruce Hayes

**HEFNER VISUAL COMMUNICATIONS**  
**OLVP**  
 3802 Mariposa Dr.  
 Honolulu, HI 96816  
 (808) 734-4713  
 Owner: Carl Hefner

**HOWEMEDIA ARTISTS INC.**  
**VPF, OLVP**  
 140 S. Mountainway Dr., Ste. 1  
 Orem, UT  
 (801) 225-5050  
 Owner: Alan Taylor  
 Studio Manager: Alan Guest

**INDEPENDENT SOUND**  
**APPV**  
 San Francisco, CA  
 (415) 929-8085  
 Owner: Peter & Mary Buffett  
 Studio Manager: Peter Buffett

**INFINITE IMAGE**  
**VPF, VPP/E, OLVP**  
 222 N. Chambers  
 Port Angeles, WA 98362  
 (206) 457-8922  
 Owner: Will Parsinen  
 Studio Manager: Will Parsinen

**KALEIDOSOUND**  
**APPV**  
 185 Berry St., Ste. 2805  
 San Francisco, CA 94107  
 (415) 543-0531  
 Owner: Forrest G. Patten  
 Studio Manager: Elaine M. Swendsen

**KCFW PRODUCTIONS**  
**VPF, VPP/E, OLVP, APPV**  
 401 1st Ave. E.  
 Kalispell, MT 59901  
 (406) 755-5239  
 Owner: Eagle Communications  
 Studio Manager: Curt Smith

**KTVU RETAIL SERVICES**  
**VPF, VPP/E, OLVP, APPV**  
 2 Jack London Square, PO Box 22222  
 Oakland, CA 94623  
 (415) 874-0228  
 Owner: KTVU, Inc. / Cox Communications  
 Studio Manager: Richard Hartwig

**LENS TO LENS**  
**VPF, VPP/E, OLVP**  
 671 6th Ave.  
 San Francisco, CA 94118  
 (415) 668-5778  
 Owner: Philip Hacker

**LIFELINE VIDEO PRODUCTIONS**  
**VPF, VPP/E, OLVP, APPV**  
 1920 116th Ave. NE  
 Seattle, WA 98004  
 (206) 454-6159  
 Owner: David J. McIntyre  
 Studio Manager: Thomas Ager

**LIVE OAK PRODUCTIONS**  
**APPV**  
 1300 Arch St.  
 Berkeley, CA 94708  
 (415) 540-0177  
 Owner: Jim & Priscilla Gardiner  
 Studio Manager: Priscilla Gardiner  
 Synchronizers: Audio Kinetics Q.Lock 4.10 E w/Eclipse editor.  
 Audio Recorders: MCI JH 24/16- or 24-track w/auto-locator, Sony PCM-F1 2-track digital, Otari MTR-10 1/4-inch and 1/2-inch 2-track.  
 Audio Mixers: MCI JH-636 32 x 24 console w/ARMS II/DISK-MIX automation.  
 Other Major Equipment: 100-inch diagonal viewing screen w/Sony VTH 1020-Q1 high resolution color video projection system, Publison Infernal Machine 90 w/SMPTE and MIDI, complete synthesizer pre-production room w/Kurzweil 250, Yamaha TX816 rack system, E-mu Systems SP-12 sampling drum machine, Oberheim Matrix 12, complete sound effects library on CD.  
 Rates: Very reasonable. Please call for further information.

**THE MAGIC SHOP RECORDING STUDIO**  
**APPV**  
 #1 Mirada Rd.  
 Half Moon Bay, CA 94019  
 (415) 726-4879  
 Owner: Christopher Hedge  
 Studio Manager: James H. Allen

**MARANATHA VIDEO PRODUCTIONS**  
**VPP/E, OLVP**  
 PO Box 851  
 Northbend, WA 98045  
 (206) 888-0292  
 Owner: Robert Schwartz  
 Studio Manager: Robert Schwartz

**MARIN VIDEO VISIONS PRODUCTION SERVICES**  
**VPF, VPP/E, OLVP, APPV**  
 300 Poplar  
 Mill Valley, CA 94941  
 (415) 381-4230  
 Owner: Fiske Smith  
 Studio Manager: Lee Lusted



**MCCUNE STUDIOS**  
 San Francisco, CA

**MCCUNE STUDIOS**  
**VPF, VPP/E, OLVP, APPV**  
 951 Howard St.  
 San Francisco, CA 94103  
 (415) 777-2700  
 Owner: McCune Audio Visual  
 Studio Manager: Jim Draper  
 Extras & Direction: Credits include Pacific Bell, PG&E, IBM, AT&T, City of San Francisco, U.S. Navy, Esprit, Edelman Public Relations, McCann-Erickson, and many others.

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 RECORDING STUDIOS

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**MEDIA DESIGN ASSOCIATES, INC.**  
**VPP**  
 PO Box 3189  
 Boulder, CO 80307  
 (303) 443-2800  
 Owner: Corporation

**MEDIA WEST, INC.**  
**VPP, VPP/E, OLVP, APPV**  
 10255 SW Arctic Dr.  
 Beaverton, OR 97005  
 (503) 626-7002  
 Owner: Brian Ratty, Tess Ratty  
 Studio Manager: Mary Malone, Sue Foley

**MERIWEATHER PUBLISHING LTD.**  
**APPV**  
 885 Elkton Dr.  
 Colorado Springs, CO 80907  
 (303) 594-4422  
 Owner: Arthur L. Zapel  
 Studio Manager: Theodore O. Zapel

**MIDTOWN VIDEO PRODUCTIONS**  
**VPP, VPP/E, OLVP**  
 1641 Downing St.  
 Denver, CO 80218  
 (303) 894-0181  
 Owner: Bob VanDerWal  
 Studio Manager: Bob VanDerWal

**MINCEY PRODUCTIONS, INC.**  
**VPP, VPP/E, OLVP**  
 116 N. Page St.  
 Portland, OR 97227  
 (503) 287-1931  
 Owner: John W. Mincey Jr.  
 Studio Manager: Steve Scott

**LYNDA MORRIS VIDEO PRODUCTIONS**  
**OLVP**  
 50 Adak Ct.  
 Walnut Creek, CA 94596  
 (415) 944-0190  
 Owner: Lynda Morris  
 Studio Manager: Lynda Morris

**REX MORRIS PRODUCTIONS**  
**VPP, VPP/E, OLVP**  
 706 Elwood Dr.  
 Boise, ID  
 (208) 344-9878  
 Owner: Rex A. Morris

**MOUNTAIN DAYDREAMS**  
 PO Box 5442  
 Portland, OR 97228  
 (503) 274-9768  
 Owner: Peter C. Little  
 Studio Manager: Peter C. Little

**MOVING MEDIA**  
**VPP/E, OLVP**  
 Box 2046  
 Aspen, CO 81612  
 (303) 925-8656  
 Owner: Greg Poschman  
 Studio Manager: Greg Poschman

**MUSIC ANNEX, INC.**  
 69 Green St.  
 San Francisco, CA 94111  
 (415) 421-6622  
 Owner: Music Annex Inc  
 Studio Manager: Angela Goodison  
**Video Tape Recorders:** Sony BVH-1100 1 inch w/TBC,  
 JVC 8250 3/4-inch address tr., (2) Sony 2860 3/4-inch.  
**Video Monitors:** Asaca Shibusaku 9 inch, (3) Sony Trini  
 trons  
**Synchronizers:** Q.Lock 3 10  
**Video Effects Devices:** Data Metrics SP 722A Window  
 generator.  
**Audio Recorders:** MCI 24 track (3) MCI 2 track (2) Otari  
 MTR 12 C Center channel time code.  
**Audio Mixers:** (3) Amed, Neve, Soundcraft.  
**Soundstages:** 30' (w) x 40' (l) x 16' (h) w/ full grid, hard cyc,  
 dressing rooms, video control room, etc. 600 amp serv  
 ice/10 ton air conditioner  
**Other Major Equipment:** Complete video equipment  
 packages available to suit the needs on any shoot.  
**Extras & Direction:** Soundstage D in Menlo Park (see  
 below) is a great sounding video soundstage that has been



## NORTHWEST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPP (Video Production Facility), OLVP (On Location Video Production), VPP/E (Video Post-Production/Editing), APPV (Audio Post-Production for Video)



**MUSIC ANNEX, INC.**  
 San Francisco, CA

home to two seasons of the *Morning Stretch* TV series as well as many industrial and commercial shoots. Our new facilities in downtown San Francisco offer the finest audio for video services and a professional full time staff to assist you with any project. We offer direct layback to 1-inch format video as well as 1/4-inch center channel time code ATHs.  
 Rates: Call for rates

**MUSIC ANNEX, INC.**  
 970 O'Brien Dr.  
 Menlo Park, CA 94025  
 (415) 328-8338  
 Owner: Music Annex, Inc  
 Studio Manager: David Porter

**NEOTERIC PRODUCTIONS**  
**OLVP**  
 4005 NE 57th  
 Seattle, WA 98105  
 (206) 522-3250  
 Owner: David Crowther, Bill Swenson  
 Studio Manager: David Crowther

**NORTHWEST MOBILE TELEVISION**  
**OLVP**  
 7867 S. 180th St.  
 Kent, WA 98032  
 (206) 251-0560  
 (800) 251-0560  
 Owner: King Broadcasting Co.  
 Studio Manager: Tim Abhold

**NORTHWEST MOBILE TELEVISION**  
**OLVP**  
 727B Waiakamilo Rd.  
 Honolulu, HI 96817  
 (800) 251-0560  
 Owner: King Broadcasting Co  
 Studio Manager: Tim Abhold

**NORTHWEST VIDEOWORKS**  
**VPP/E**  
 1631 SW Columbia  
 Portland, OR 97201  
 (503) 227-7202  
 Owner: Wayne Ahrendt  
 Studio Manager: Caleb Blodgett

**OCEAN TELEVISION**  
**VPP, VPP/E, OLVP, APPV**  
 Box 747  
 Stinson Beach, CA 94970  
 (415) 868-0763  
 Owner: Tim Tomke  
 Studio Manager: B.J. Meines

**OFF-LINE PRODUCTIONS, INC.**  
**VPP, VPP/E, OLVP**  
 877 N. Liberty, Ste. 106  
 Boise, ID 83704  
 (208) 378-9228  
 Owner: Fred Coughran, Dan Coughran  
 Studio Manager: Dan Coughran  
**Extras & Direction:** Off Line Productions, a small but growing company, offers 3/4-inch and 1 inch video production, with Betacam on request. The company can provide all phases of video production, from creative to post. Current projects include complete production of a weekly 1-4 hour program of real estate advertising for a local cable system, a series of drivers education tapes and orientation tapes for a regional engineering company and the Idaho National Guard. Past projects include commercials, training, orientation and medical tapes: shooting, editing, duplication all at a fair price.

**ON SIGHT VIDEO**  
**OLVP**  
 1079 Tennessee St.  
 San Francisco, CA 94107  
 (415) 641-8600  
 Owner: T Robin Hirsch

**ONE PASS INC.**  
**VPP, VPP/E, OLVP, APPV**  
 1 China Basin Bldg.  
 San Francisco, CA 94107  
 (415) 777-5777  
 Owner: A ScanLine Communications Co  
 Studio Manager: Client Services

**PACIFIC FOCUS INC.**  
**VPP, VPP/E, OLVP**  
 1013 Kawaiahao St.  
 Honolulu, HI 96814  
 (808) 536-3848  
 Owner: Dennis Burns  
 Studio Manager: Debra Perry



**PACIFIC VIDEO RESOURCES**  
 San Francisco, CA

**PACIFIC VIDEO RESOURCES**  
**VPP, VPP/E, OLVP, APPV**  
 2339 Third St. M-4  
 San Francisco, CA 94107  
 (415) 864-5679  
 Owner: Steve Kotton, Jim Farney  
 Studio Manager: Mollie Harris  
**Video Tape Recorders:** (4) Sony BVW-40 SP, (4) Sony  
 BVW-15 SP, Sony BVH 2000, (7) Sony BVU 800/820, Sony  
 BVW-25 SP

Video Monitors: (2) Sharp XM-1900, (4) Sharp XM-1300, Ikegami TM 20-9RH.

Switchers/editors: Grass Valley 100 CV, Grass Valley 100.

Video Cameras: Sony BVP-30, Ikegami HL-83.

Synchronizers: (2) Time Line Lynx.

Video Effects Devices: Ampex ADO-2000.

Audio Recorders: Otari MX-70, Otari 5050.

Audio Mixers: Sound Workshop model 34B w/Arms II Automation, (2) Ramsa WR-8210.

Soundstage: 24 x 18 Insert stage w/lighting grid.

Other Major Equipment: Outboard audio processing includes: Lexicon, Effectron, dbx NR, dbx de-esser, dbx Noise Gate, dbx parametric, dbx comp/limiters, Dynaflex, PCM digital audio, Chyron Scribe text generator, Sierra Video component Linear Keyer/Dissolver, Intergroup matrix wipe generator, Cox component Color Correctors, remote production van, extensive inventory of lighting and gnp equipment, PCM double system field recording, and much more.

Extras & Direction: Pacific Video Resources is a pioneer in the revolutionary Component Betacam format. Our total component video process provides richer, sharper colors than those recorded in the present 1-inch standard. It is our philosophy that this new technology should not necessarily be costly. Saving producers money, providing high quality creative photography and innovative editing strategy are the cornerstones of our business. Simply put, we understand the "Big Picture" when it comes to the complicated process of producing a television program. Our creative team has saved dozens of producers thousands of dollars with our expertise, efficiency and equipment. When you're serious about Betacam, call PVR.

Rates: Call for rates.

#### PAL PRODUCTIONS

VPF, VPP/E, OLVP

511 Second Ave. W.

Seattle, WA 98119

(206) 282-2025

(206) 284-2620

Owner: Laszlo Pal

Studio Manager: Susan Pal

#### W.A. PALMER FILMS, INC.

APPV

1475 Old County Rd.

Belmont, CA 94002

(415) 592-9170

Owner: William A. Palmer

Studio Manager: John Corso

#### PDR PRODUCTIONS

VPF, VPP/E, OLVP, APPV

3423 Investment Blvd., Ste. 12

Hayward, CA 94546

(415) 783-5000

Owner: Paul Rosa

Studio Manager: Andy W. Kochendorfer

#### PEGASUS PRODUCTIONS

204 E. 4th St.

Loveland, CO 80537

(303) 667-6923

(303) 466-0836

Owner: Paul E.A. Grinstead

Studio Manager: Paul E.A. Grinstead

#### PELICAN FILM & TAPE

VPP/E, OLVP

372 Frederick St.

San Francisco, CA 94117

(415) 566-0450

Owner: Doug Miller

Studio Manager: Arthur Aravena

#### PHILIP PERKINS LOCATION SOUND

171 S. Park

San Francisco, CA 94107

(415) 543-6661

Owner: Philip Perkins

Studio Manager: Nancy Baddock

#### PHOTO NORTHWEST VIDEO PRODUCTIONS

VPF, VPP/E, OLVP, APPV

4701 N. Huson

Tacoma, WA 98407

(206) 759-6639

Owner: Margaret H. Doman

Studio Manager: Don Doman

# RR

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- 2nd generation design for Studio A
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## NORTHWEST

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

### PINNACLE PRODUCTIONS

VPF, VPP/E, OLVP

S. 1304 Cook  
Spokane, WA 99207  
(509) 326-7030

Owner: Cowles Publishing Co., Inc.  
Studio Manager: Don Jensen



**THE PLANT RECORDING STUDIOS**  
Sausalito, CA

### THE PLANT RECORDING STUDIOS

OLVP

2200 Bridgeway  
Sausalito, CA 94965  
(415) 332-6100

Owner: Bob Skye

Studio Manager: Alice Young

Audio Recorders: (2) Otari MTR-90 II 24-track, (2) Otari MKIII 2-track.

Audio Mixers: Sound Workshop Series 30.

Other Major Equipment: Sony video monitor, (68) audio inputs, (80) Jensen mic splits, multiple DAs for audio to video feeds.

**Extras & Direction:** "Rover," The Plant's new mobile recording unit, offers the finest in mobile acoustic environments and equipment for live concert recording, remote broadcast, audio for film and video, in-house recording and post production/audio sweetening. Rover is a certified LEDE™ control room on wheels that features an acoustic accuracy surpassing many in-house studios. It has become one of the most popular "Live-to-Two" track as well as multi-track mobiles because of its ability to deliver clean, accurate sound to the client with virtually no guesswork involved. Rover is available for everything from one nighters to lengthy tours. If you are looking for more than just saturated tracks, or if you prefer mixing down at your place, Rover is the mobile to call. Some of our film and video clients/projects include: Turner Broadcast, GBH Productions, John Denver, Jacques Cousteau, WNET television, NFL Films, Anita Baker, Ronnie James Dio, Island Films, Reeves Teletape, Picture Vision, Peter, Paul & Mary. Rates: Please call or write for rates and information

### POSITIVE VIDEO—ORINDA

VPF, VPP/E, APPV

15 Altarinda Rd.

Orinda, CA 94563

(415) 254-3902

Owner: James & Lindsay Lautz

Studio Manager: Phillis Axt

### POSITIVE VIDEO—SAN CARLOS

VPF, VPP/E, APPV

1250 San Carlos Ave.

San Carlos, CA

(415) 595-4041

Owner: James & Lindsay Lautz

Studio Manager: Jack Santry

### PRODUCERS CONSORTIUM

VPF, VPP/E, OLVP, APPV

1363 W. 1600 North, PO Box 1254

Orem, UT 84057

(801) 226-8209

(801) 224-5407

Owner: R. Conrad Teichert, Michael Karr

Studio Manager: Todd Russell Mortensen

### ODD INC. (QUENZER DRISCOLL DAWSON INC.)

VPF, VPP/E, OLVP, APPV

816 Queen St.

Honolulu, HI 96813

(808) 521-6961

Owner: Mique Quenzer

Studio Manager: Tim Bradley

### KELLY QUAN RECORDING

APPV

55 White St.

San Francisco, CA 94109

(415) 771-6716

Owner: K. Quan

Studio Manager: Marie Devalos

### JONNA RAMEY PRODUCTIONS

VPF, OLVP

5020 Leona

Oakland, CA 94619

(415) 530-6460

Owner: Jonna Ramey

Studio Manager: Jonna Ramey

### BILL RASE PRODUCTIONS, INC.

VPF, VPP/E, OLVP, APPV

955 Ventura Ct.

Sacramento, CA 95825

(916) 929-9181

Owner: Bill Rase

Studio Manager: Bill Rase

### REIZNER & REIZNER FILM & VIDEO

VPF, OLVP

7179 Via Maria

San Jose, CA 95139

(408) 226-6339

Owner: Dick Reizner

Studio Manager: Dick Reizner

### RESORT INDUSTRIES COMMUNICATIONS, INC.

VPF, VPP/E, OLVP

616 W. Lionshead Cir.

Vail, CO 81657

(303) 476-4013

Owner: George J. Sedlack

Studio Manager: Gerard Golden

### NORMAN ROSS PRODUCTIONS

VPF, VPP/E, OLVP, APPV

2810 E. Evergreen Ave.

Salt Lake City, UT 84109

(801) 484-0401

Owner: Norman B. Ross

Studio Manager: Alice L. Ross

### ROVING EYE PRODUCTIONS

OLVP

27-B Cedar St.

San Anselmo, CA 94960

(415) 254-9077

Owner: James Weyeneth

Studio Manager: James Weyeneth

### TOM SADOWSKI FILMS

OLVP

536 Bonanza Ave., Ste. D

PO Box 111211



Anchorage, AK 99511  
(907) 561-2300  
Owner: Tom Sadowski



**SAN FRANCISCO PRODUCTION GROUP**  
San Francisco, CA

**SAN FRANCISCO PRODUCTION GROUP**  
*VPP/E*  
550 Bryant St.  
San Francisco, CA 94107  
(415) 495-5595  
Owner: Jeff Cretcher, Joel Skidmore  
Studio Manager: Don Ahrens  
Video Tape Recorders: (6) Sony 1-inch, (8) Sony BCC  
3/4-inch, (4) Sony Betacam.  
Switchers/editors: (2) CMX 3400A, CMX 330.  
Video Cameras: (2) Ikegami HL79D, Ikegami HL79E.  
Video Effects Devices: (2) Ampex ADO, (2) Atek-as A-62  
digital disc recorder.  
Audio Recorders: Otari MTR90, (2) Tascam ATR#0.  
Audio Mixers: Neve 542, Sound Workshop, model 34,  
Graham Patten 608.  
Other Major Equipment: MIDI-equipped sound production

tion room featuring Yamaha TX, Sequential Circuits, Linn,  
Passport Pro software.  
**Extras & Direction:** San Francisco Production Group  
specializes in providing high quality post-production and  
computer graphics services. SFPG most recently acquired  
the Vertigo V-2000 high end 3-D computer graphics system.

**SENSIBLE MEDIA PRODUCTIONS**  
*OLVP*  
219 Edison St.  
Salt Lake City, UT 84111  
(801) 328-8340  
Owner: Joe Judd, David Brothers, Peter Williamson

**SFO PRODUCTIONS**  
*VPF, VPP/E, OLVP*  
PO Box 16035  
San Francisco, CA 94116  
(415) 621-3434  
Owner: Jeff Daly

**SHOOTING STAR VIDEO**  
*OLVP*  
256 Shearwater Isle  
Foster City, CA 94404  
(415) 345-0919  
Owner: Jeff Regan

**SKYE ISLAND RECORDINGS**  
*VPF, VPP/E, OLVP*  
PO Box 441  
Mt. Shasta, CA 96067  
(916) 926-5457  
Owner: W. Miesse  
Studio Manager: W. Miesse

**SOUND RECORDING ORGANIZATION**  
*APPV*  
1338 Mission St.  
San Francisco, CA 94103  
(415) 863-0400  
Owner: S-R-O Inc.  
Studio Manager: David Dobkin

**SPECTRUM STUDIOS, INC.**  
*APPV*  
1634 SW Alder St.  
Portland, OR 97205  
(503) 248-0248  
Owner: M. Carter, L. McGill  
Studio Manager: Jo Dunbar

**STARWEST PRODUCTIONS, INC.**  
*VPF*  
1391 N. Speer Blvd. #490  
Denver, CO 80204  
(303) 623-0636  
Owner: Starwest Productions, Inc.  
Studio Manager: Steven Pettit

**STS PRODUCTION SERVICES**  
*VPF, VPP/E, OLVP, APPV*  
5181 Amelia Earhart Dr.  
Salt Lake City, UT 84116  
(801) 537-1427  
Studio Manager: Robert Quigley

**STUDIO M PRODUCTIONS UNLIMITED**  
*VPF, OLVP, APPV*  
8715 Waikiki Station  
Honolulu, HI 96815  
(808) 734-3345  
Owner: Mike Michaels  
Studio Manager: Mike Michaels

**SUMMIT PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
99-994 Iwaena St.  
Aiea, HI 96201  
(808) 487-0040  
Owner: Healthy's Inc.  
Studio Manager: Larry Olsen

## Attention Educators:

One of your best opportunities to enroll new students and interest prospective employers is coming in July! *Mix* magazine will feature its yearly Directory of Recording Schools, Seminars and Programs. To be included in the Educational Directory, just fill out the coupon and a questionnaire will be mailed to you.

# MIX DIRECTORY OF RECORDING SCHOOLS/ SEMINARS/ PROGRAMS

JULY 1987

Name of School or Program \_\_\_\_\_

Chief Administrator \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone ( ) \_\_\_\_\_ Best Time to Call \_\_\_\_\_

Return coupon to: **Mix Directories, 2608 Ninth Street, Berkeley, CA 94710.**  
For more information, call the Directories Dept. at **(415) 843-7901.**

**SUNRISE VIDEO PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
2112 Reserve St.  
Missoula, MT 59801  
(406) 721-0831  
Owner: Sterling Stayton  
Studio Manager: Sterling Stayton

**SYNTAX PRODUCTIONS**  
*VPF*  
630 W 4th Ave.  
Anchorage, AK 99501  
(907) 276-0202  
Owner: Channel 2 Broadcasting Co.  
Studio Manager: Mark D. DuMond

**TELEMATION PRODUCTIONS**  
*VPF, VPP/E, OLVP*  
7700 East Iliff  
Denver, CO 80231  
(303) 751-6000  
Owner: Telemation Productions, Inc.  
Studio Manager: Michael Theis

**TELEMATION PRODUCTIONS**  
*VPF, VPP/E, OLVP, APPV*  
1200 Stewart St.  
Seattle, WA 98101  
(206) 623-5934  
Owner: Telemation Productions, Inc.  
Studio Manager: Lance Kyed

**TELEVISION ASSOCIATES**  
*VPF, VPP/E, OLVP, APPV*  
2410 Charleston Rd.  
Mountain View, CA 94043  
(415) 967-6040  
Owner: Ed Carlstone

**TELEVISION ASSOCIATES**  
401 "S" St.  
Sacramento, CA 95814  
(916) 443-0772  
Owner: Ed Carlstone  
Studio Manager: Dale Rochon

**TELEVISION MULTI SERVICES**  
*VPF, VPP/E, OLVP*  
Box 634  
Fairbanks, AK 99707  
(907) 474-8398  
Owner: Rich Hoyt

**TEST, INC.**  
155 Fell St.  
San Francisco, CA 94102  
(415) 431-4376  
Owner: Gregg Snazelle  
Studio Manager: Kip Larsen

**TOTAL VIDEO CO.**  
*VPF, VPP/E, OLVP*  
220 E. Grand Ave.  
So. San Francisco, CA 94080  
(415) 583-8236  
Owner: Aldo J. Panattoni  
Studio Manager: Laurie Granbeck

**TRANSTAR PRODUCTIONS INC.**  
*VPF, OLVP, APPV*  
750 W Hampden #170  
Englewood, CO 80110  
(303) 761-0595  
Owner: Doug Hanes, Tony Wilson  
Studio Manager: Doug Cyphers

**TRI VIDEO TELEPRODUCTION—LAKE TAHOE**  
*VPF, OLVP*  
PO Box 8822  
Incline Village, NV 89450  
(702) 323-6868  
Owner: Jon Paul Davidson  
Studio Manager: Jon Paul Davidson



## NORTHWEST

*Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).*

**TRI VIDEO TELEPRODUCTION—LAKE TAHOE**  
*VPF, OLVP*  
PO Box 6784  
Tahoe City, CA 95730  
(916) 546-1111  
Owner: Jon Paul Davidson  
Studio Manager: Jon Paul Davidson

**UMBRELLA MEDIA**  
*VPF, VPP/E, OLVP, APPV*  
11314 NE 26th Ave.  
Vancouver, WA 98686  
(206) 574-6618  
Owner: Sid Brown  
Studio Manager: Sid Brown

**VARITEL VIDEO**  
*VPF, VPP/E*  
350 Townsend St.  
San Francisco, CA 94107  
(415) 495-3328  
Owner: Art Porter, Bill Osterhaus, Bill Weisel, John Cheney  
Studio Manager: Chrs Lathrop

**VIDEO DUPLICATORS/VIDEO PRODUCTION WEST**  
*VPF, VPP/E, OLVP*  
2515 Santa Clara Ave., Ste. 106  
Alameda, CA 94501  
(415) 522-5169  
Owner: Anne Boehm  
Studio Manager: Robert Boehm

**VIDEO EFFECTS**  
*VPF, VPP/E, OLVP, APPV*  
PO Box 6313  
Napa, CA 94581  
(707) 257-7669  
Owner: Bruce D. Chapman, Peggy Keith  
Studio Manager: Bruce D. Chapman

**VIDEO MARKETING NETWORK**  
*VPF, VPP/E*  
10940 NE 33rd Pl., #200  
Bellevue, WA 98004  
(206) 827-6444  
Owner: Gary Andersen  
Studio Manager: Rick Ballard

**VIDEO PRESENTATIONS INC.**  
*VPP/E*  
2326 Sixth Ave., #230  
Seattle, WA 98121  
(206) 728-9241  
Owner: H.V. Wright

**VIDEO PRODUCTIONS**  
*VPF, VPP/E, OLVP*  
824 NW 18th  
Portland, OR 97209  
(503) 243-6712  
Owner: Lee Enterprises, Inc.  
Studio Manager: Frank Taylor

**VIDEOM/FROZEN MUSIC**  
*VPF, VPP/E, OLVP*  
1169 Howard St., Ste. A  
San Francisco, CA 94103  
(415) 626-0123  
Owner: L.A. Paul  
Studio Manager: Don Goldberg

**VIDERE**  
*OLVP*  
3512 Crystal Springs Rd. W  
Tacoma, WA 98466  
(206) 565-0884  
Owner: Craig Kelly

**VISION PRODUCTIONS, LTD.**  
*VPF, VPP/E, OLVP*  
311 E. 6th St., #2  
Moscow, ID 83843  
(208) 883-0105  
Owner: John Francis  
Studio Manager: John Francis

**THE VISUAL COMMUNICATIONS GROUP, INC.**  
*VPF, VPP/E, OLVP, APPV*  
3300 Mitchell Ln., Ste. 393  
Boulder, CO 80301  
(303) 443-6003  
Owner: Fred Hull, Shoni Ogier Hubatka  
Studio Manager: Joe Garguilo

**VISUART ENTERPRISES**  
*OLVP*  
5915 Doncaster Dr.  
Anchorage, AK 99504  
(907) 337-5006  
Owner: Roger L. Miller  
Studio Manager: Roger L. Miller

**VTR PRODUCTIONS**  
*VPF, VPP/E, OLVP*  
1780 Fowler, Ste. A  
Richland, WA 99352  
(509) 783-5426  
Owner: Gary L. Kuster

**WESTERN AMERICA FILMS**  
*VPF, VPP/E, OLVP, APPV*  
2110 Overland, Ste. 103  
Billings, MT 59102  
(406) 656-0965  
Owner: Ken Slater  
Studio Manager: Ken Slater

**WICKERWORKS VIDEO PRODUCTIONS, INC.**  
*VPP/E*  
7342 S. Alton Way  
Englewood, CO 80112  
(303) 741-3400  
Owner: Corporation  
Studio Manager: Terry M. Wickre

**WIZMEDIA**  
*OLVP*  
PO Box 1100  
Fremont, CA 94538  
(415) 656-4251  
Owner: Andy J. deBruyn  
Studio Manager: Andy J. deBruyn

**Z-AXIS**  
*VPP/E*  
10800 E. Bethany Dr., Ste. 500  
Aurora, CO 80013  
(303) 696-9608  
Owner: Public company  
Studio Manager: Raymond Hauschel

## OUTSIDE U.S.

OUTSIDE U.S.: BRAZIL, CANADA, HONG KONG,  
PUERTO RICO, SWEDEN, SWITZERLAND,  
VIRGIN ISLANDS

### ARTS INTERNATIONAL

VPF  
39 Charterhouse Crescent  
London, Ontario N5W 5L7 Canada  
(519) 455-9222  
Owner: Non Profit Corporation  
Studio Manager: Jerry Mayes

### THE BANANAZZ CORPORATION

VPP/E, APPV  
24 Duncan St., 3rd Floor  
Toronto, Ontario Canada  
(416) 591-1281  
Owner: David Buder, Scott Carleton  
Studio Manager: David Buder, Scott Carleton

### BROCK SOUND POST AUDIO

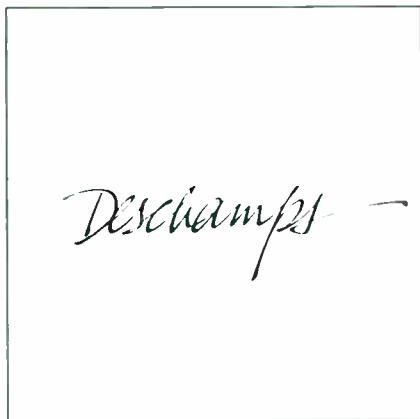
APPV  
151 John St., 5th Floor  
Toronto, Ontario M5V 2T2 Canada  
(416) 534-7464  
Owner: Brock Fricker  
Studio Manager: Robert G. Hanson

### CARLETON PRODUCTIONS

VPF, VPP/E, OLVP  
1500 Merivale Rd.  
Ottawa K2C 3G6 Canada  
(613) 224-1313  
Owner: Standard Broadcasting  
Studio Manager: Wayne Hicks

### CREATIVE DESIGN, VIDEO PRODUCTION

VPF, VPP/E, OLVP, APPV  
Formaksv. 38  
Vaxjo S-352 62 Sweden  
(464) 706-3873  
Owner: Sven-G. Lennartsson  
Studio Manager: Sven-G. Lennartsson



DESCHAMPS RECORDING STUDIOS LTD.  
Toronto, Ontario,

### DESCHAMPS RECORDING STUDIOS LTD.

APPV  
314 Dundas St. W.  
Toronto, Ontario M5T 1G5 Canada  
(416) 977-5050  
Owner: Claude Deschamps  
Studio Manager: Claude Deschamps  
Video Tape Recorders: JVC CR-850 U 3/4-inch, JVC CR-8250 U 3/4-inch.  
Video Monitors: (4) Sony.  
Synchronizers: Sound Master 4 w/Syncro, Evertz 7000 DSP.  
Audio Recorders: Studer A80 16-track Mark IV, Studer A80 8-track Mark IV, (5) Studer A820 2-track.  
Audio Mixers: Sound Workshop Series 34C 24-track, Neve 12/4.  
Other Major Equipment: Yamaha digital delays, Neve limiter/compressor, Evertz time code generator/reader w/video character inserter, Technics CD players, Studer



## OUTSIDE U.S.

Please Note: In the following listings, each facility's particular capabilities are indicated below its name using the following initials: VPF (Video Production Facility); OVLP (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

1-inch layback recorder/playback. All music libraries and sound effects on CD.

Extras & Direction: English/French engineers. Phone patch so recordings can be directed from any location. Music and sound effects libraries on CD. Soundtrack producers in-house.

Rates: Recording/mixing: \$95/hr. for 16-track, \$85/hr. for 8-track. Video post production: \$125/hr. for 16-track, \$115/hr. for 8-track.

### FARASOUND PRODUCTIONS INC.

APPV  
28 Renfrew Dr.  
Thorold, Ontario L2V 4E7 Canada  
(800) 268-1366  
(800) 268-0600  
Owner: Ken Faragalli, Adrian Marinelli, John Marinelli  
Studio Manager: John Mannelli

### FILM MAGIC LTD.

VPF  
Rm. 704, Blk A, Watson's Est.  
North Point, Hong Kong  
(571) 543-2  
Owner: Percy Tung  
Studio Manager: Percy Tung

### GENERAL CINEMA SERVICE

VPF, VPP/E, OLVP  
PO Box 399  
Bayamon, PR 00621  
(809) 798-6071  
Owner: Francisco Reyes Lourido  
Studio Manager: Madeline Caperos

### GUEDA FILMS, INC.

VPF, VPP/E  
PO Box 4140  
Hato Rey, PR 00919  
(809) 765-5600  
Owner: Emilio Guede  
Studio Manager: Juan Arduza  
Video Tape Recorders: Ampex VPR-3/Zeus TBC, (3) Ampex VPR-6, Ampex/Nagra VPR-5  
Video Monitors: Ikegami TM 20-10, (2) Tektronix 650-HR.  
Switchers/editors: Ampex AVC 21 super series, Ampex ACEM.  
Video Cameras: (2) Ikegami HL79EAL, Hitachi 231 w/CCU.  
Video Effects Devices: Ampex ADO 3000 w/Digimatte opt.  
Audio Mixers: Ramse WR-8616 16-channel.  
Soundstage: 34 x 34 lighting grid.  
Other Major Equipment: Production truck, two production vans, truck mounted crane, Arriflex 35BL, Nagra III, Nagra IV.

### INTERMEDIA

VPF, VPP/E, OLVP, APPV  
3636 Shelbourne St.  
Victoria, BC V8P 4H2 Canada  
(604) 477-7777  
Owner: A. W. Reynolds

### IPL PRODUCTIONS INC.

VPF, VPP/E, OLVP, APPV  
1600 De Maisonneuve E.

Montreal, Quebec Canada  
(514) 526-2881  
Owner: Tele-Metropole Inc.  
Studio Manager: Raymond Brasseur

### RICK KIZUK VIDEO PRODUCTIONS LTD.

VPF, VPP/E, OLVP  
102 Pannelather Bay  
Winnipeg, Manitoba R2G 2T9 Canada  
(204) 667-6339  
Owner: Rick Kizuk

### LES SERVICES AUDIO MIXSON INC.

APPV  
2120, rue Sherbrooke est, Ste. 1105  
Montreal, Quebec H2K 1C3 Canada  
(514) 527-8758  
Owner: Monsieur Michel Lorton  
Studio Manager: Monsieur Michel Lorton

### MAGDER FILM PRODUCTIONS

APPV  
793 Pharmacy Ave.  
Toronto, Ontario Canada  
(416) 752-8850  
Studio Manager: P. Bonisal

### THE MAGNETIC NORTH CORPORATION

VPP/E  
70 Richmond St. E.  
Toronto, Ontario M5C 1N8 Canada  
(416) 365-7622  
Owner: Dan McGuire  
Studio Manager: Keith Robinson  
Video Tape Recorders: (8) Sony BVH-2000 1-inch, Sony BVH-1180 1-inch, (3) Sony BVU-820 3/4-inch, Sony BVU-800 3/4-inch, (2) Sony BVW-40 Betacam.  
Video Monitors: (5) Sony BVM 1900, (4) Sony PVM 1960, (3) Sony PVM 1220.  
Switchers/editors: (3) Grass Valley System 41 (ISC) edit system, (2) Grass Valley 300/3AN switcher, Grass Valley 1600/1L switcher.  
Video Cameras: Sony DXC 6000, Sony BVP 150, (4) Ikegami ITC-82 B&W.  
Video Effects Devices: (2) Ampex Rotation 2000 ADO digimatte perspective, Grass Valley DVE Mark II.  
Audio Recorders: Nagra T Audio, Revox PR 99.  
Audio Mixers: (2) Yamaha M916, (2) Graham Patten w/EG 612.  
Other Major Equipment: (2) Rank Mark III C Cintel flying spot scanners w/X Y zoom, (2) da Vinci unified color correctors, (2) Abekas A 42 still stores - tape streamer, Abekas A62 digital disc recorder, (2) Sony BVX 30 noise reducer/color corrector, (2) "Air Pak" edit suites, w/convergence 204 editors, 8-inch disc, Sony 5850's, and Transform I.  
Rates: Please phone for full brochure.

### MASTERTRACK LTD.

APPV  
35A Hazelton Ave.  
Toronto, Ontario Canada  
(416) 922-4004  
Owner: Ian S. Jacobson  
Studio Manager: Ian S. Jacobson  
Video Tape Recorders: Ampex VPR-80, (2) Sony BVU-800, (2) JVC BR-6400U.  
Synchronizers: (4) Adams-Smith 2600, Audio Kinetics Q-Lock 3.10.  
Audio Recorders: MCI JH-24 24-track, (3) Tascam 85-16B 16-track, (2) Ampex ATR-102, (3) MCI JH-110-4, Sony PCM-701.  
Audio Mixers: Audiotronics, Neve, Yamaha.  
Other Major Equipment: Film dubbing facility, (9) dubbers (35/16mm) 3-track recorder, Videola film-to-tape transfer, sound effects lay-up suite.  
Rates: Please call.

### MCCLEAR PLACE RECORDING AND

### POST PRODUCTION STUDIOS

APPV  
225 Mutual St.  
Toronto, Ontario M5B 2B4 Canada  
(416) 977-9740  
Owner: Bob Richards  
Studio Manager: Hayward Parrott

### MEGA WAVE STUDIO

APPV  
12, Place d'Armes  
1227 Carouge Switzerland  
(224) 394-65  
Owner: Christian Oestreicher  
Studio Manager: Christian Oestreicher

MOUNTAIN VIDEO ASSOCIATES  
 VPF, VPP/E, OLVP, APPV  
 PO Box 4036  
 St. Thomas 00801 Virgin Islands  
 (809) 776-8613  
 Owner: Frank H. Hurt  
 Studio Manager: Frank H. Hurt

NATIONAL FILM BOARD OF CANADA  
 3155, chemin Cote-de-Liesse  
 Ville Saint-Laurent  
 Quebec H4N 2N4 Canada  
 (514) 283-9155  
 Studio Manager: Oihman Mannof

NEW VISION  
 VPF, VPP/E, OLVP, APPV  
 Rua Irma Carolina 507  
 Sao Paulo SP 03058 Brazil  
 (551) 129-29553  
 Owner: Domingos Orlando, Alex Pimentel

OCHOA RECORDING STUDIOS, INC.  
 APPV  
 GPO Box 3002  
 San Juan, PR 00936  
 (809) 754-6363  
 Owner: Tony Ochoa, Jack Sherdel  
 Studio Manager: Tony Ochoa

S PR. STUDIO PLACE ROYALE INC.  
 APPV  
 141 St. Paul St. W.  
 Montreal, Canada  
 (514) 844-3452  
 Owner: Brown/Rodrigue  
 Studio Manager: S. Brown

TAMBRE PRODUCTIONS INC.  
 APPV  
 55 Berkeley St.  
 Toronto, Ontario M5A 2W5 Canada  
 (416) 367-9797  
 Owner: Carmen Dolgay, Marvin Dolgay  
 Studio Manager: Carmen Dolgay

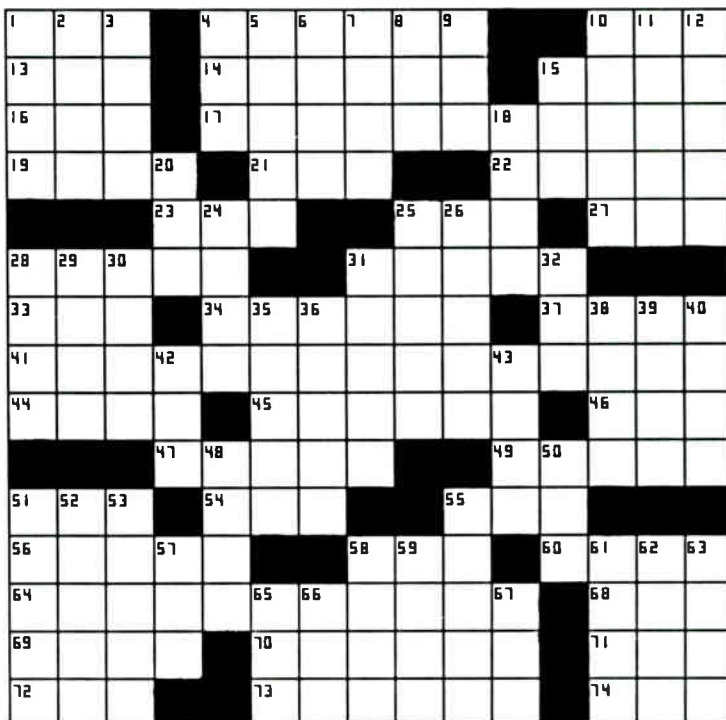
VIDEO-FILM PRODUCTIONS LTD.  
 VPF, VPP/E, OLVP, APPV  
 5 Cumberland Rd.  
 Kowloon, Hong Kong  
 (336) 620-7  
 Owner: TVB Sister Company  
 Studio Manager: K.K. Lau

WAXWORKS PRODUCTIONS  
 VPF, VPP/E, OLVP, APPV  
 Box 299, Albert St.  
 St. Jacobs, Ontario N0B 2N0 Canada  
 (519) 664-3311  
 Owner: Jim Evans  
 Studio Manager: Terry Marostega



... the first magazine devoted exclusively  
 to the new technology that's  
 revolutionizing the industry, covering  
 MIDI, computer music applications,  
 SMPTE/synchronization, video, music  
 sampling/synthesis, and much more!  
 See page 178 for complete information.  
 A Mix Publication

# Mix Words



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## "PUTTING UP RESISTANCE"

### ACROSS

1. \_\_\_ glance
4. Oriental esne
10. Audio abbr.
13. Well known Speaker
14. Supple
15. \_\_\_ Players
16. Loneliest number
17. Boost of 41A
19. Sour \_\_\_
21. Mel \_\_\_
22. Certain soloist
23. This affects 10A resolution
25. Dixie, once
27. Hesitant syllables
28. Sweet, Ital.
31. Top \_\_\_
33. Ostrich kin
34. Indolent pose
37. Being, Fr.
41. Circuit for 64A
44. Cookie
45. Erase
46. Ingest
47. Paper or myrtle
49. Tractor name
51. Owed
54. April org.
55. Legal thing
56. Small insula
58. Diminutive suffix
60. Type of foundation
64. Output and load requirement
68. Great Lakes shipping commodity
69. "\_\_\_ Purple"
70. Clive's co.
71. Hollywood music sch.
72. Misstep
73. Acerb
74. Lionel Ritchie tune, in S.A.

### DOWN

1. \_\_\_ bomb
2. Turner
3. Copies
4. Enl. man
5. Margarine
6. What a Cockney does to a pint
7. "The \_\_\_ Waltz"
8. Indoor prefix
9. Old English letter
10. Glowed

11. An enneate
12. Active ones
15. Yoko
18. Wings
20. Part of a Latin lesson trio
24. Dinero
25. Paddle boat
26. Reduce ore
28. Art style
29. Writer translated by Fitzgerald
30. Greensleeves axe
31. Naval canon
32. Revival prefix
35. Warm milk dispenser
36. Sly glances
38. Birdy sound
39. "\_\_\_ Window"
40. Russian-born Fr. designer
42. Part of 20D
43. Control room design
48. Ms. Coolidge
50. Curve
51. One way valve
52. Theater worker
53. Bugs' foe
55. Paris income
57. Czar-like ruler, abbr.
58. Voucher
59. Tilt
61. Sign
62. Seed cover
63. Video format
65. Run a \_\_\_
66. Dernier \_\_\_
67. Alligator fish

## Solution to March Mix Words



MIX BOOKSHELF INTRODUCES

# Pro Sound Libraries for The Sound Professional

Explore the possibilities with the Sound Ideas compact disc Sound Effects Libraries Series 1000 and Series 2000! Now you can have state-of-the-art digital sound quality on everything from Indian dance drums to rocket take-offs and landings.

The professional audio/video producer will never look back!



## SERIES 1000

■ Over 3000 original stereo sound effects on 28 compact discs.

■ This library was nominated for a 1986 Mix TEC (Technical Excellence and Creativity) award in the area of Broadcast Sound Technology by *Mix* subscribers.

**\$1250** (plus \$7.50 S&H)

## SERIES 2000

■ Over 2000 digitally mastered and recorded stereo sound effects on 22 compact discs.

■ Includes long ambience effects and special European sound effects.

**\$975** (plus \$7.50 S&H)

Both the Series 1000 and the Series 2000 are incorporated in the Sound Ideas catalog which provides both a fully cross-referenced alphabetical listing and a CD track and index listing included in the purchase of each Library. And both libraries come complete with their own carrying cases for easy handling and storage.

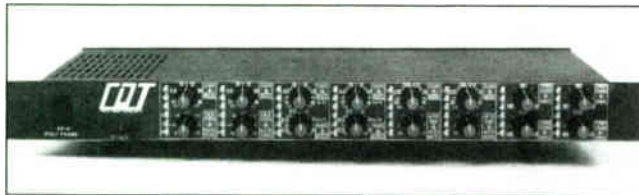
These CD Libraries provide easier access to tracks, greater durability and superior sound reproduction to the analog media. Together, the Series 1000 and Series 2000 offer a selection of over 5000 sound effects, the largest CD library of digital sound effects in the world!

## SPECIAL BOOKSHELF INTRODUCTORY OFFER

for both the Series 1000 and the Series 2000 Sound Libraries—\$1850 (plus \$12 S&H).

Order through the Mix Bookshelf, 2608 Ninth Street, Berkeley, CA 94710 or call toll free (800) 233-9604, in California (800) 641-3349.

# P R E V I E W



## CDT Signal Processors

The Multicomp MC-8 from Circuit Design Technology, Bedford Heights, OH, offers eight independent, digital quality compressor/limiters in one rackspace. Each comp/lim features process control over gain, ratio, threshold, and crest factor, and each channel also includes an adjustable automatic mute control. Intended for live reinforcement, studio, and broadcast use, the Multicomp's suggested price is \$1399.

CDT also offers the Poly Frame PF-8, a single rackspace support frame for the CDT Series 1000 processing cards. Fully loaded with any combination of cards (including compressor with Automute™, dual threshold gate/expander, dynamic modifier, enhancer, parametric limiter, and parametric variable crossover), the PF-8 retails for \$1599. The CGM-2 is a single rackspace, stereo multifunction processor. Each channel provides simultaneous or independent compression, gating, and dynamic modification, for a suggested price of \$579.

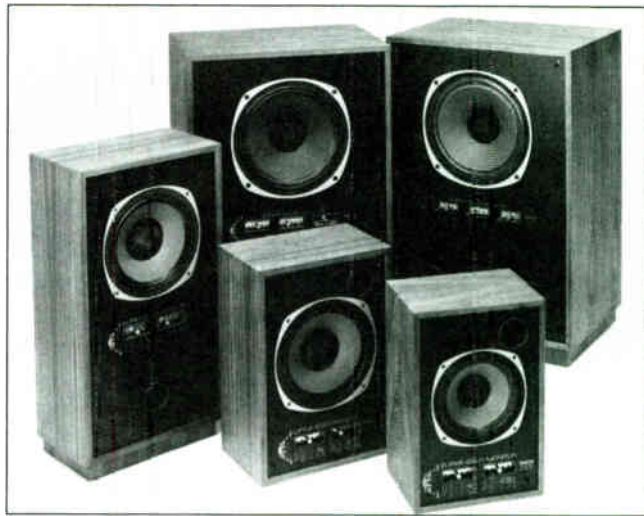
Circle #158 on Reader Service Card



## UREI C Series Monitors

UREI's new C Series studio monitors, featuring Time Alignment to solve "time smear," provide high sensitivity to input signals and high power handling. The three models in the series each use a new coaxial loudspeaker combined with a titanium-diaphragm compression driver; two models use additional low frequency drivers. The monitors incorporate a patented high frequency horn with diffraction buffer, and special slots to eliminate midrange shadowing. The C Series feature a BNC connector on the crossover's rear panel to accommodate UREI's 6500 power amplifier conductor compensation. The monitors are available in mirror-imaged pairs through JBL Professional (Northridge, CA).

Circle #159 on Reader Service Card



## Tannoy Super Gold Monitors

The Super Gold Monitor (SGM) studio loudspeakers from Tannoy are updates of Tannoy's SRM monitors. New features include hard-wired crossovers with gold-plated high current switches, gold-plated terminals, black-plated magnet for better heat dissipation, additional cabinet bracing, and new internal damping material. The series includes the SGM 10B (10-inch dual concentric drive unit in small bass reflex enclosure); the Little Gold Monitor and the SGM 12X (both 12-inch dual concentrics, the latter in a larger bass reflex enclosure); the SGM 1000 and SGM 3000 (15-inch); the FSM-U (15-inch with additional bass for high SPLs); and the 8-inch DTM-8 for near field monitoring.

Circle #160 on Reader Service Card



## Sennheiser Multi-Channel Wireless

The portable "Six Pack" RS-2012 wireless multi-channel receiver from Sennheiser (NYC) carries up to six SK-2012 transmitters and up to six EK-2012 receivers for location

work in film/video applications. All receivers are powered by a common DC supply, and supplied RF by a built-in antenna diplexer. The RS-2012 features battery power monitors, audio monitoring for any or all of the receivers, adjustable output levels, and six "windows" to see each receiver's frequency and bay location. The unit's faceplate opens easily to expose power supply and receivers, and automatically disengages power when opened. Removal of the tuned antenna also disengages power. When fully loaded with transmitters, receivers, and batteries, and in its locking steel roadcase, the RS-2012 weighs about 20 pounds.

Circle #161 on Reader Service Card

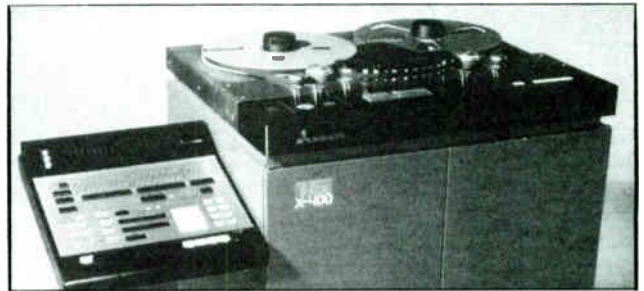


## AEA MS380 M-S Matrix

The MS380 from Audio Engineering Associates (Pasadena, CA) is a compact, versatile package containing a "dual mode" M-S stereo matrix and two high-performance mic preamps. It interfaces mics to line level inputs, meeting the international mid-side stereo recording standard. The MS380 features a "double matrix" mode for stereo image width control from conventional left-right sources.

Other features include low cut filter, selectable cut-off frequencies, continuous gain controls, phantom power at the two mic inputs, and four line-level mic preamp outputs designed to drive long cable lengths. The MS380 is one rack space high and a half-rack wide, and standard rack mount ears are available.

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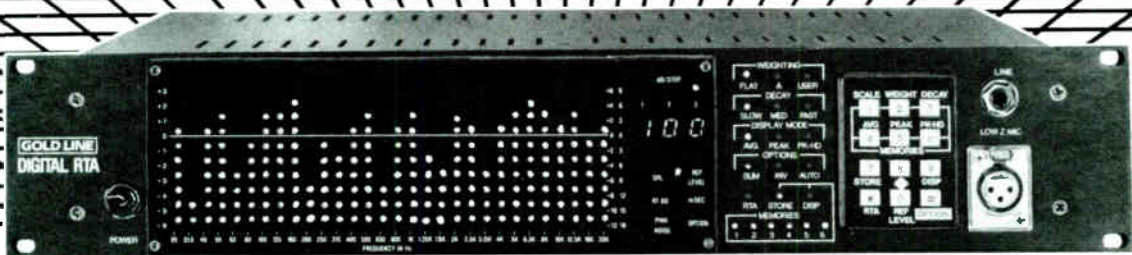


## Mitsubishi 8-track Digital Recorder

Mitsubishi adds to its line the X-400 8-track, digital audio recorder utilizing the ProDigi format. The X-400 provides, on half-inch tape, eight digital channels, two digital error correction code tracks, two analog cue tracks, a digital auxiliary track, and a time code track. Fully compatible with the 16-track X-400, the 8-track version allows cut-and-splice editing as well as overdubbing over mechanical splices. Features include RS-422/232 interface, inputs on 9.6 or 8 kHz clock rates, internally generated time code, and compatibility with NTSC, PAL, and SECAM TV standards. A PC board kit allows in-the-field upgrade to 16 channels. Suggested list is \$59,000.

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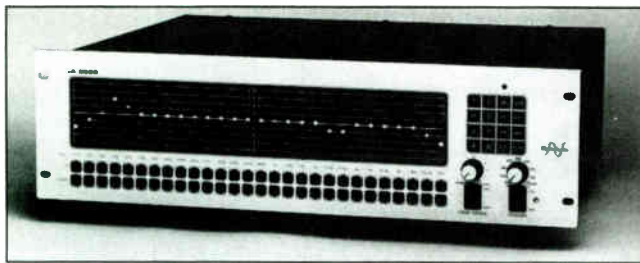
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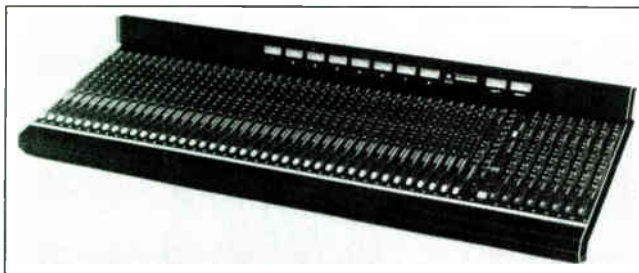


## Micro Audio Programmable EQ/RTA

The Model 2800 from Micro Audio (Portland, OR) combines the functions of a third-octave real time analyzer and graphic equalizer with a computer for measurement and control functions. Under the control of the on-board computer, gain settings on each of the 28 ISO-centered frequency bands can be stored for instant recall. The unit's RTA section incorporates a 28 band LED visual display matrix, and a pink noise generator is built-in. The 2800 lists at \$2495, with special contractor pricing available.

For the sound contractor, the 2800 can act as a master computer to down-load EQ settings into "EQ Pod" units, which are blank-paneled third-octave equalizers for permanent sound installations. Once loaded with EQ data the pods cannot be adjusted by unauthorized personnel without the 2800 master unit. The Model 1.1 pod (with non-volatile memory) is \$595; the 1.2 pod (\$695) recalls eight curves—recalled via a pre-programmed access code; and Micro Audio is currently developing a hand-held pod programmer.

Circle #164 on Reader Service Card



## Soundcraft Touring Console

Soundcraft USA offers their new Series 8000 touring sound reinforcement console, an update of the Series 800B console featuring redesigned input/output and stereo master modules, and improved EQ, routing, and talk-back capabilities. The input/output module offers 4-band parametric EQ with switchable bandwidth, eight auxiliary sends, and 8-bus routing with individual LED indicators. Available in house and stage monitor configurations (which can be linked), the Series 8000 comes in 24, 32, and 40 input channel frame sizes. JBL Professional (Northridge, CA) distributes Soundcraft products.

Circle #165 on Reader Service Card

## PFX Digital Sound Editors

Polyphonic FX Systems (Hollywood, CA) introduces the PFX Off-Line System, a sound editor's workstation with rack mount digital sampler, CPU, dual 20MB hard disk removable cartridge, keyboard, and monitor. The system can record, play back, and synchronize to any time code source (or its own clock for stand-alone operation). Features include numerous editing capabilities and list management, and hard copy list print-out in video-style EDL or film

sound cutters' format. Expansion modules allow networking to the company's powerful "Polyfile" master library file server, a visual waveform editing package, and RS-422 machine control. The company also offers their PFX On-Line system, which has the same capabilities as the Off-Line but supports 4-16 digital samplers for up to 256-channel, 128-"voice" playback of sound effects lists and/or dialog segments.

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## Sanken CMS-7 M-S Microphone

The Sanken CMS-7, a portable M-S stereo condenser mic for indoor and outdoor film/broadcast use, features axial directivity and a lightweight, compact design. The CMS-7 provides a clear stereo image with controllable width, uncolored sound, immunity to noise interference, 6 dB higher sensitivity than similar size mics, 108 dB dynamic range, nearly flat response, and inaudible self-noise. The mic is supplied by a specially designed power supply and matrix box, and is available in cardioid or hypercardioid pattern models.

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## Studio Technologies Mic Preamp

Studio Technologies (Skokie, IL) introduces a self-powered dual microphone preamplifier, the Mic-PreEminence. Designed to interface professional mics with digital recorders, the "in and out" transformerless, balanced preamp improves the analog signal and features phantom power operation, signal indicator, and trim control. Suggested retail price is \$795.

Circle #168 on Reader Service Card

## Lexicon PCM70 Software

Lexicon's new Version 3.0 software package includes an Inverse Algorithm, all-new factory programs, and new implementations of Dynamic MIDI™. Inverse Room allows the user to create a variety of gated sounds and other unusual reverb effects. New factory preset sounds include Kick and Snare Chambers and an Ambience program. Dynamic MIDI enables up to ten parameters for each



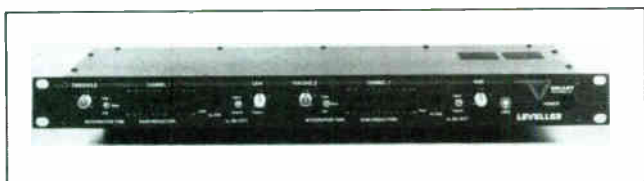
sound to be controlled simultaneously in real time from any MIDI controller, and allows factory program and user register selection via MIDI. The software also adds MIDI Clock as a controller for parameters such as the BPM Master Function in Chorus and Echo, Multiband Delay, and Resonant Chord programs.

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## Jan-Al Pro Rack

The Pro Rack from Jan-Al Innerprizes of Los Angeles is an EIA rack system that brings a Euro-style, high-tech look to a low-cost cabinet. Available in seven, 13, and 20 spaces, the Pro Rack can be assembled with a screwdriver in 15 minutes, and expands via side panel replacement. The system features a scratch-resistant, water-resistant finish, medium-duty handles with comfortable grips, and steel rack rail with 18 inches rack depth. Prices range from \$129 to \$215.

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## Valley Leveller

Valley People (Nashville, TN) announces the Leveller, an audio level controller which dynamically adjusts processing parameters to optimize a performer's output loudness for each note, syllable, or accent. Once the Leveller

operator sets input level and output gain and decides the amount of required "levelling" action, all he needs to do is adjust the threshold control. The Leveller optimizes the attack and release times as program content changes, and provides continual monitoring and recalibration of those times so no dynamic distortion is added to the signal. The Leveller is available in a 2-channel, single-space rack unit or in a single-channel module to fit in Valley's Model 816 powered rack.

Circle #171 on Reader Service Card

## Saki Studio Film Heads

Auteri Associates worked with Saki Magnetics to develop a complete new line of film heads for MTE, MTM, Steenbeck, and KEM recorders and dubbers. According to them, these heads last two to three times longer than conventional permalloy heads, and will meet or exceed original equipment specs. For prices and delivery info, contact Auteri Associates (Miller Place, NY), a lab facility specializing in magnetic audio head reconditioning.

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## Firstcom CD SFX Library

Firstcom of Dallas, TX, introduces the Digiffects Sound Effects Library featuring over 1000 brand new stereo sound effects on 11 compact discs, all digitally recorded, mixed, and mastered. The library, which features precise indexing, comprises ten categories: City, Domestic, Rural, Transportation, Industrial, Office, Leisure, Sports, People, and Specialty. It also contains longer cuts of continuous environments for multi-image use. The library retails for \$650, and Firstcom offers a free ten-day trial to subscribers.

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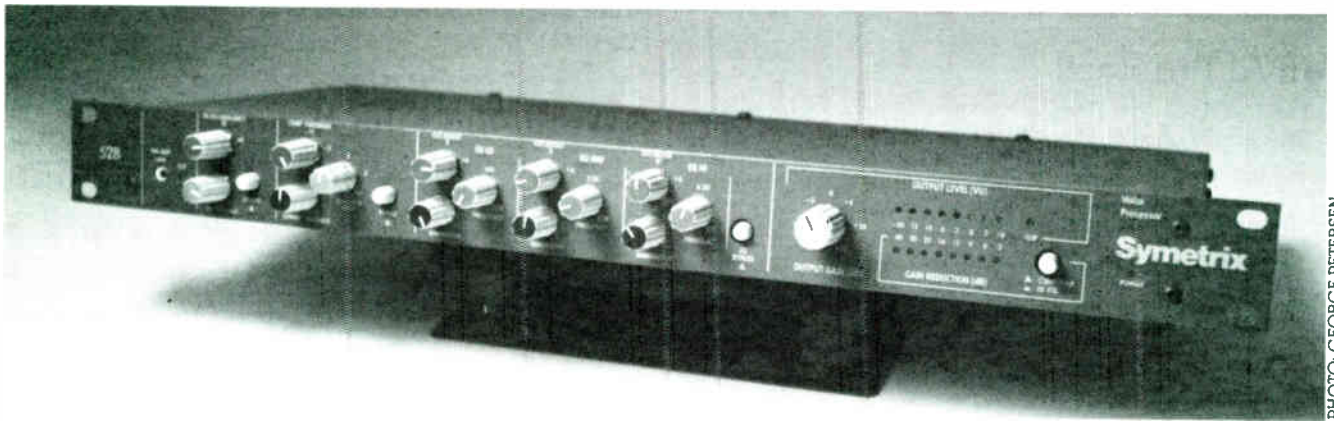


PHOTO: GEORGE PETERSEN

## Symetrix 528 Voice Processor

by George Petersen

Today, the recording industry seems to be caught up in a flurry of digital-mania, with the latest advances in digital signal processing capturing the hearts and pocketbooks of the audio community. The buzzwords of the decade—"MIDI," "digital" and "programmable"—are ever-present, seeming to jump out at the production professional from all sources, whether manufacturer brochures, magazine advertisements or trade show exhibits. Certainly this is much ado about a revolution in technology, yet at the same time it becomes all too easy to overlook less flashy products that are deserving of attention.

One such example is the Symetrix 528 Voice Processor, a versatile unit offering a mic preamp with phantom power, de-esser, compressor/limiter/expander and 3-band parametric equalizer/notch filter—all in a compact, single rack space housing. Symetrix, a Seattle, Washington-based company, has earned a reputation over the years for delivering quality signal processing products at a reasonable price, and their model 528 is no exception.

Physically, the 528 is logically designed, with front panel controls laid out left-to-right, corresponding to the order in which signal processing occurs. Conspicuously absent is an AC power switch, which seemed somewhat odd until I plugged the unit into the power conditioner that supplies AC to my outboard rack. With this setup, I rarely need to turn individual

units on or off, and while an AC switch is perhaps superfluous, I found the lack of same to be slightly disconcerting. The unit's back panel contains the balanced, transformerless XLR mic and 1/4-inch line inputs, 48 volt phantom power in/out switch, and transformerless 1/4-inch unbalanced and barrier strip balanced outputs. A transformer-coupled output version is also available.

While perusing the owner's manual, I noticed "Fast First Time Setup," a brief section which gets the more experienced user up and running quickly, with a synopsis of connecting procedures and some sample settings. Overall, the 41-page manual is very readable, and besides the basics, also includes comprehensive notes on various applications: examples include notching a 60 Hz hum from an announce mic, de-essing news feeds, and increasing mic gain before feedback in a PA situation, as well as seven pages of schematics. This attention to detail is much appreciated, as it serves both novices and "old hands" alike.

Starting from the top, the mic preamp was surprisingly clean. Preamp gain is adjusted, not with a knob, but via a flush-mounted trimpot requiring a small screwdriver to change settings. The de-esser section includes controls for both frequency and range (up to 20 dB attenuation), and a gain reduction LED meter which can be switched to display either de-ess or comp/limiter activity. Dynamic range processing controls allow varying compression ratio (from a mild 1.4:1 to severe 20:1 limiting), compress threshold,

and expand threshold. And last, but not least, is the 528's 3-band parametric equalizer with 30 dB cut capability for notch filtering.

I tried the 528's various processing sections with a variety of vocal material and it proved to be an excellent performer in each of the areas. If you've ever worked with a less-than-perfect announcer or vocalist, then you are sure to appreciate the flexibility this unit affords.

Besides packing a lot of useful functions into a single multi-processor, the 528 also offers another major advantage: that of sidechaining and access to the individual sections by disconnecting shorting straps and patching into the rear panel barrier strip. Thus, the user also has control over the order in which processing occurs: equalizing the mic preamp output before limiting is one such possibility. I also tried patching different line level signals into and out of the 528's barrier strip. On one session, I used the mic preamp and de-esser on a vocalist, while I simultaneously used the compressor on bass guitar and the parametric EQ on kick drum (both fed from external preamps).

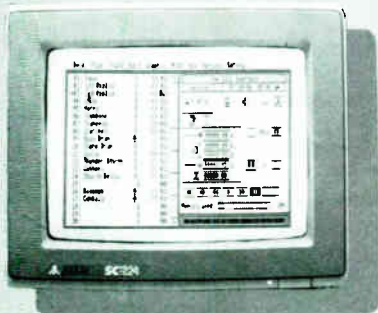
The Symetrix 528 Voice Processor is a versatile and highly useful tool which would be equally at home in a recording studio, radio production room, video facility, sound reinforcement rack, or any place where quality vocal processing is required. While it's not MIDI, programmable, or even digital, at \$649 this unit offers a lot of bang for the buck and is well worth checking out. ■

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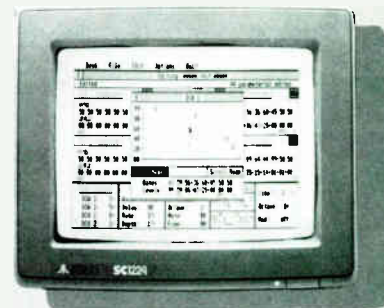
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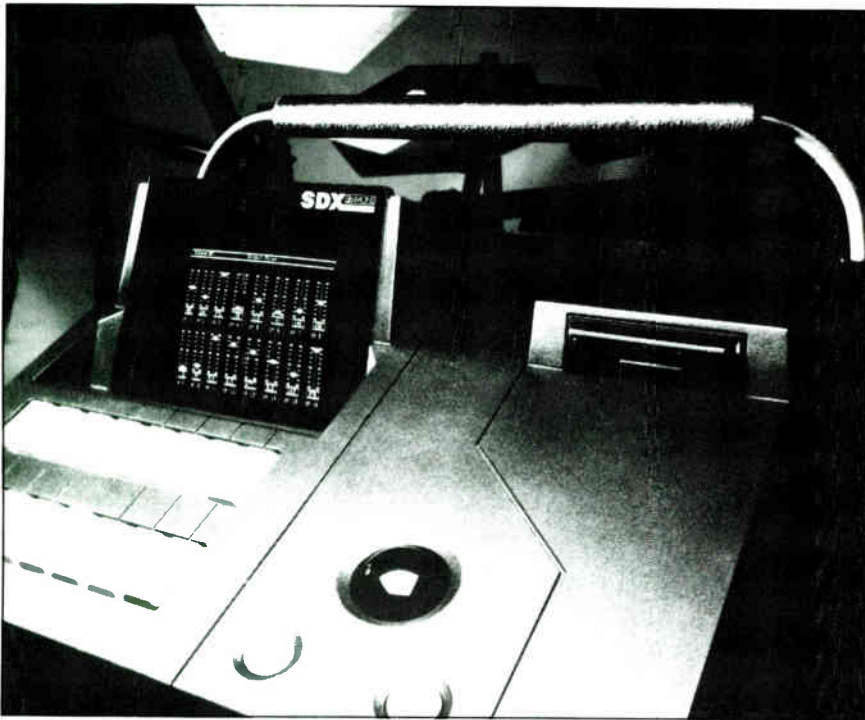
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*Simmons SDX: the shape of things to come?*

## NAMM '86: Keeping on Track with Technology

by Craig Anderton

Continuing on with the NAMM report we started last month, it seems that it was never so easy to convert non-keyboard instruments and instrumental technique to MIDI. Roland showed the VP-70, a pitch-to-MIDI converter optimized for woodwind, voice, etc., but which also includes harmonizing and chorusing-type effects. And although not shown on the floor, Yamaha demonstrated a prototype woodwind-to-MIDI converter to a selected group of dealers. Simmons had the Silicon Mallet, a mallet-oriented MIDI controller that lets vibes and marimba players in on the MIDI action. Before too long, we can expect such things as sax players blowing Jimi Hendrix solos (like Sal Galina did with the Yamaha woodwind-to-MIDI converter).

Drummers, who next to keyboard players and guitarists were the first to use alternate controllers in the name of MIDI, now have more sophisticated

tools than ever before at their command. The SDX Computer System from Simmons is a futuristic-looking electronic drum system with a 16-voice, 16-bit sampler, disk drive, SCSI port, and memory expandable up to eight megabytes. An integral video display unit shows the status of the device's various parameters. Simmons also introduced their new "zone intelligent pads," whose response depends on the force and location of drum hits.

The only new high-end rhythm machine was Yamaha's RX5, whose main features are the large number of on-board voices, and the ease with which new voices (although not samples) can load into the machine via voice cartridges. But interestingly, one of the main complaints against rhythm machines and sequencers may have been answered at the show. For those drummers who are tired of being a "slave to the rhythm," Kahler (yes, the guitar vibrato tailpiece people) had their "Human Clock," a clever little rack mount interface box that analyzes

audio signals (such as the kick drum of an acoustic drum set) and outputs a MIDI clock signal that follows the drums. The drummer can even change tempos, and play relatively complex parts, without throwing off the Human Clock. If it works on the line of fire as well as it works on the NAMM floor, sequenced music might never be the same.

In Synthesizerland, the big story was the sampler that wasn't—Yamaha's fabled 16-bit entry into the market (rumors, rumors)—and the sampler that was, Casio's FZ-1. Retailing at a little over \$2000, the FZ-1 is the first of the affordable 16-bit samplers we're sure to see in abundance during the years ahead. The LCD display even shows the sampled waveform, although I wonder what kind of resolution one can reasonably expect. Still, it sounded good, and Casio continues its reputation as a company to watch in the MI business. For low-cost sampling, Roland packaged their S-10 into a rack mount package and dubbed it the MKS-100.

Other sampling developments included Oberheim's DPX-1, their playback-only sampler that accepts Prophet, Mirage and Emulator II disks. To get further involved in the sampling world, Oberheim is now distributing the K-Muse line of sound library disks. Ensoniq has taken the Mirage out of its product lineup, but Mirage fans need not worry; it has been replaced by the Mirage-DSK, which offers virtually all of the Mirage features for \$1295 (including complete compatibility with older disks) but adds true stereo outputs. Ensoniq also had a rack mount sampled piano module for \$895, and rack mount version of the ESQ1 (the ESQ-M) for \$995. Also in keeping with the show's apparent theme of repackaging and upgrading, 360 Systems introduced Professional MIDI Bass, a rack mount version of their standard MIDI Bass with several additional features (LCD, expansion sockets for 16 sounds on-line at a time, and two independent programmable zones).

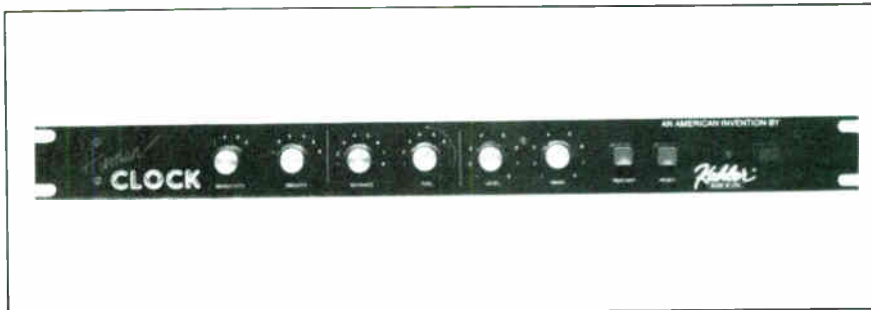
We've already mentioned Yamaha's new DX7 in the February MI Update, but we didn't mention the QX5. This is a very powerful 8-track, 16-channel sequencer that, while it doesn't replace the QX1, gives it a run for the money at a much lower cost. Korg had a teeny little hand-held sequenc-

er, the SQ-8. This is just the thing for when you want to sequence your portable keyboard in a hotel room, playing through your Scholz R&D practice amp and tapping out rhythms on a Roland TR-505 (briefcase MIDI studio, anyone?). Roland introduced an entry-level sequencer as well, the PR-100, with integral Quick Disk storage. Roland sees this as the sequencer equivalent of a cassette recorder.

On a more substantial level, Roland showed off their D-50 synth. Frankly, the process by which its sounds are generated seems somewhat esoteric—the Roland folks were no more forthcoming about details than they were about their Structured Adaptive Synthesis—but I heard a lot of great sounds. The basic idea is that you take a PCM sampled attack sound and put it at the head of a synthesized looped sound. These can be layered with other composite sounds to produce very complex timbres.

Those who have been mourning the loss of the Synergy can rejoice. Its descendant, the MuLogix Slave 32 (\$1495), is a rack mount digital synthesizer with 48 sounds in ROM and 48 user-programmable sounds. Some of its main features include microtonality, an RS-232 interface, and a 90-step programmable "stepper."

Sequential's Studio 440 is complete,



**Kahler's Human Clock: sequenced music may never be the same.**

and according to Sequential, it's the first sampler or sequencer to respond to MIDI time code. For those who love the sound of the Prophet VS but have no desire to add another keyboard to the stack, a rack mount version is now available.

But not all items of interest were sound generators. The Dornes Performance Bar is a multi-function control device that mounts easily in front of a DX7 or other compatible keyboard. A keyboard-long bar moves side to side and rotates around a pivot point, thus allowing pitch-bending without removing your fingers from the keys. Different motions can be assigned to different MIDI controllers, thus allowing such effects as a "slide-controlled" crossfade between synths.

And of course, there was software

galore. Passport showed new products for three different computers: Score, a "desktop music publishing" program for the IBM PC, MIDIsoft Studio for the Atari ST, and Master Tracks Pro for the Macintosh. Opcode also had a film scoring/composition program, a new interface for the Mac (Studio Plus), and has taken over the distribution for Laurie Spiegel's "Music Mouse" (Mac and Amiga versions). We could go on, but we're running out of space. Perhaps we'll do a more in-depth focus on software in the near future.

There wasn't a lot of earth-shattering stuff, but that's okay with me. Improvements are being made in just about every type of musical and/or computer device, and as usual, we're the ones who reap the benefits. ■



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Noah Herschman (L) and Don Rose of Rykodisc

PHOTO: DAVE WYKOFF

CDs in the U.S.," says Zappa, owner of his own Barking Pumpkin Records. "I knew of the possibility of having CDs made outside the U.S. by EMI, but they weren't doing it. So here comes Don Rose... it was the right guy at the right time and right place."

And Rykodisc took another big step at the end of '86 when it released some "new" Zappa material: a disc of Zappa and Mothers treasures entitled *You Can't Do That On Stage Anymore*.

"It's all different bands I've had through the years, with some of the weirder things that have happened on stage," Zappa explains. "It's based on the concept that most of the groups touring today aren't really playing. Either the show is coming off a Revox or coming off a sequencer. The groups willing to take a chance and change their show on a nightly basis—that's pretty much a thing of the past. And that's what this album is dedicated to."

Oh. *Spontaneity*.

"Right," says Zappa, "you remember that word. It's almost been legislated away."

Unlike a lot of the major companies, Rykodisc is not sacrificing artwork in translating an LP to CD. Often (infamously with Zappa works), the cover art is significant—to say nothing of lyric sheets and other information.

"Our credo," says Herschman, "is not only not to lose anything, but to add where appropriate. For example, with *Thing-Fish*, we have a 32-page

—CONTINUED ON PAGE 228

## Rykodisc: Rarities on CD

by Rip Rense

Looking for The Residents on CD? Richie Havens? Riders in the Sky? Frank Zappa?

If you are, then your record library is about as improbable and eclectic as the catalog of Rykodisc—a maverick kind of CD-only company which is releasing a whole lot of stuff that just ain't gettin' released nowhere else.

Where else—on CD or vinyl, after all—are you going to find a two-disc set of Richie Havens playing his previously unreleased recordings of songs by Bob Dylan and The Beatles? Nowhere else.

And nowhere else is also the same place you will find Frank Zappa on CD. Rykodisc president Don Rose had the presence of mind to realize that Zappa (through years of litigating), owns his own material and had entered into no arrangements to have it issued on compact disc. After a few conversations, Zappa entered into an arrangement with the tiny, Salem, Massachusetts-based company—and now there are ten Zappa (and Mothers) LPs on CD, ranging from *Lumpy*

*Gravy to Zappa Meets the Mothers of Prevention*.

It was, to say the least, a bit of a shot in the arm for Rose's fledgling company—which at that time was happy to get the rights to digitally remastering and releasing obscurities like *Old & in the Way*, a fine bluegrass LP with David Grisman and Jerry Garcia.

"It was a year and a half between the time of the agreement and the discs being realized," says director of marketing Noah Herschman. "The analogy we've been making is that it was like a snake swallowing an elephant."

And so far, evidently, without indigestion. Rykodisc had to grow rather suddenly to accommodate Zappa—who insisted that all the CDs be released at once. Now available: *The Grand Wazoo*, *Shut Up 'n Play Your Guitar* (all three records), *Zappa, Vol. 1*—orchestral works with Kent Nagano and the London Symphony Orchestra—*Them or Us*, *Apostrophe* and *Overnight Sensation* (on one disc), *Lumpy Gravy*, *We're Only In It For The Money*, and Zappa's yet-to-be produced musical, *Thing-Fish*. (The older LPs have been digitally reprocessed, and, in some cases, extra tracks have been added.)

"I hadn't made arrangements as an independent record company to do

## THE FAR SIDE By GARY LARSON



"Oh! Four steps to the left and then three to the right... What kind of a dance was I doing?"

# Hiram Bullock's Life After Letterman

by Bill Milkowski

Since leaving his high-visibility gig on *Late Night with David Letterman* in 1984, guitarist Hiram Bullock has kept exceedingly busy producing records for Atlantic and on tour with either David Sanborn, Carla Bley or Gil Evans. He recently released *From All Sides*, his debut as a recording artist, and is on the Manhattan club circuit fronting a hot quartet.

And there's more. Earlier this year, Bullock put in some time with the legendary Miles Davis. "I played four cities with Miles," he says. "Just a temporary thing, because I had previous commitments with Sanborn and Gil. I just did it for the prestige. Miles definitely has a very strong aura about him, and I wanted to see what that was about. I guess I wanted to see if I could impress him, you know?"

"It was very interesting," Bullock continues, "definitely an experience. I don't know if he'll call me again... we'll see what happens."

Bullock is currently involved in producing his next batch of albums for Atlantic—follow-up projects by guitarist Mike Stern, his guitar-playing wife Leni Stern, and alto saxophonist Chris Hunter—as well as his own second LP. This time around, he says, he wants to find more of a focus for his own project.

"The first one was mainly exploratory," he explains. "I just put down lots of different styles, all of which I happen to like. For example, 'Until I Do' showed a more commercial side of what I do, with me singing. Originally I had written that song for George Benson but it was rejected so I decided to do it myself. And then a tune like 'Funky Broadway,' the old Wilson Pickett hit, shows a completely different side. Then 'Window Shopping' is basically a vehicle for my guitar playing and 'Mad Dog Daze' shows a rockier side. And that's why I called the album *From All Sides*, 'cause that's where it was coming from."

"But I'd like to target the next album more for black radio. Maybe a little heavier on the instrumentals and with more of a backbeat. I really want to get a concept for the next album that's more focused."

While *From All Sides* was strictly a New York session (cut at RPM Studios and mastered at Sterling Sound), chances are Bullock's next project will be a Minneapolis affair. "I've been do-



PHOTO: EBET ROBERTS • 1987

ing some work up there with Ricky Peterson, who plays keyboards with Sanborn. I may do some or all of the next album with him there. It will be just him and me with a lot of machines and a lot of overdubbing. Like Miles' last album, *Tutu*."

On *From All Sides*, Bullock recorded his guitar through Mesa/Boogie amps using different microphones on different songs (either Sennheiser 421s, Shure 57s or Neumann tube 47s). Occasionally, he'd run a direct guitar line in addition to the miked amps.

When he's on the road with either Sanborn, Bley, Evans or Miles, Bullock relies heavily on a Yamaha SPX-90 signal processor in conjunction with a Boss octave pedal, MXR stereo chorus and a Tube Driver pedal (made by Chandler Industries of San Francisco). Though these effects help him achieve his signature sound for side-

man duties, he explains that each gig really requires a totally different attitude:

"Sanborn's gig is in a way the closest to the way I normally would play. It's a groove gig. You lay down thick grooves, he plays over them and you get to solo here and there. That's pretty much what I do with my own band playing around New York [either Darryl Jones or Steve Logan on bass, Dennis Chambers or Charlie Drayton on drums, and Kenny Kirkland or Delmar Brown on keyboards, depending on who's available]. Sanborn's stuff is not really technical, 'hard' music. The challenge of the gig is to make it sound effortless, to make the pocket, to make the switches between parts, to put on a really professional show."

"By comparison, Sanborn's is like a Mack truck barreling down the road while Carla's is like a glider or a sail plane. There's a lot of potential energy

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—CONTINUED FROM PAGE 225

there. You'll hear a groove forming and it'll sound like it's gonna stomp, but it never does. It's always kind of held back, and a bit more subtle than what I would naturally do. So going from the Sanborn gig to the Carla gig is a radical shifting of gears. I did it once and I felt like I was stomping on a field of daisies or something. It definitely takes another attitude to play with Carla. Sort of laid back, more yoga-like attitude where you let the music flow over you. With Sanborn, you push the music out; Carla's gig is like watching TV in the lotus position.

"Then Gil's gig is something else—like The Grateful Dead of jazz. Anything goes on that gig. You never really even know who's gonna be in the band when you show up. It's whatever, whoever, and I find that to be real stimulating. Gil's gig is, in some ways, what jazz is all about, because you can't play the same thing every night on his gig. You can't just come up with a part and stick with it because the music is totally different every time you play. Same tunes, different grooves. The music has a life of its own with Gil. He has a kind of cosmic view about music. There's a real spirituality about Gil. He's definitely the Obi-Wan Kenobi of the jazz scene. He's my guru all right. He really showed me a lot about myself."

Bullock compares his gig with Gil Evans to his brief stint with Miles Davis. "With Gil, you have to be listening every second because the music is constantly flowing and changing. With most bands, you can work up little riffs that you go toward every night, but you can't do that with either Gil or Miles. When a thing gets too regular, like if everyone's vamping on a certain groove and it's locked in, they'll play something jarring to totally throw it off kilter. They don't want it to ever get predictable. It's always got to be on the edge, where it keeps everybody on their toes. It's a whole different way of looking at music, and both Miles and Gil look at music that way."

Hiram Bullock was born in Osaka, Japan. His family moved back to the States and settled in Baltimore, where Hiram first picked up the guitar and began emulating the likes of Eric Clapton, Duane Allman and Steve Miller. Then the family moved to Panama where Bullock played bass in high school bands before studying music and law at the University of Miami. For a time, he seriously considered a career as a lawyer. "I had about half a semester of school left and was ready to take the LSAT," he recalls, "but at the same time I was playing Ramada Inn-type gigs around Miami with Phyllis Hyman, the singer.

"Well, everyone in the band got disgusted with Miami and started talking about going to New York to try their luck there. So during the Christmas break of 1975, Phyllis talked us into coming up to New York."

Bullock had planned to return to Florida right away, but success intervened. The band landed a gig at a popular uptown spot frequented by the likes of Michael Brecker, David Sanborn, and a host of other hot New York players. "Phyllis created a tremor," he recalls. "All the celebrities and great musicians I dreamed of meeting were coming by every night to check her out."

Sanborn asked Bullock to join his band. The LP called *Sanborn* was "the first real important record date I ever did," and, needless to say, he never returned to the University of Miami. The Sanborn gig was a springboard into a ton of session work, including Billy Joel's *The Stranger* and Kenny Loggins' *Celebrate Me Home*.

In 1977, he formed the 24th Street Band with drummer Steve Jordan, keyboardist Cliff Carter and bassist Mark Egan. Egan left to join Pat Metheny's band and was replaced by Frank Gravas, who left in 1978 and was replaced by session ace Will Lee. That lineup went on to record three albums in Japan, where they were something of a sensation from 1979 to 1981. "We had developed a really wild show, with me and Will up front, singing and running around and everything. The chicks would go crazy. Our final gig was January 29, 1981 in Kyoto. They ripped the clothes off two of the guys in the band. So we ended it on an up note."

From there, he immerse himself in more studio work, appearing on Steely Dan's *Gaucho*, among others. Then in 1982, he got the call from keyboardist Paul Shaffer to join the house band on *Late Night With David Letterman*, which included his old 24th Street Band cronies Jordan and Lee. It was like coming home, in a sense.

"That gig was a great experience for me," says Hiram. "It was not only my first experience with the so-called 'straight world,' where I had to interact with all these regular, corporate-type people, but it was also a chance for me to play with some of my heroes. On that show I got to play behind James Brown, B.B. King, Wayne Cochran. I got to play piano with Carole King. I did a duet with Toots Thielemans. There were a lot of great memories over that two-year period."

And now, he's busy forging a name for himself as a producer and bandleader. Expect to hear a lot from this guy in the coming year. He's a valuable man to have around. ■





## Interpreting Marti Jones

by Derk Richardson

In the late 1960s, Dusty Springfield turned songs by Bacharach & David and Goffin & King into Top 40 hits. In the pre-new wave mid-'70s, despite the preeminence of the singer-songwriter syndrome, Linda Ronstadt built her career on sumptuous versions of classic early rock and roll material and tunes by less mainstream songwriters such as Tracy Nelson, Anna McGarrigle, Eric Kaz, and J.D. Souther. Now, in the mid-1980s, against the wake of punk's do-it-yourself ethic (which still has a grip on the garage-band "new American pop"), a mid-western vocalist named Marti Jones is emerging as a new generation's finest singer of other people's songs. After the release of her second solo album, *Match Game* (A&M) late last year, Jones was earning accolades in the *Washington Post* as "perhaps the first truly great interpretative singer of the new wave," and in the *Village Voice* as "one of the most powerful interpreters of post-new wave songs by little-known writers."

A naturally modest young woman, Jones almost abandoned the pop life after a discouraging experience in the band Color Me Gone. But with the help of producer Don Dixon, known for his work with such bands as REM, Guadalcanal Diary, the Dumptruck, she rebounded with two albums, *Unsophisticated Time* and *Match Game*, that have had critics reaching for comparisons. "I expected the Linda Ronstadt thing," Jones admits, lauding Ronstadt's knack for "tapping in on those great songs, and really calling attention to people like Elvis Costello.

The funny thing about Dusty Springfield is that I never really listened closely to her, I never bought any of her records, and I never realized the similarities. Then I was riding along in a car with [Don] Dixon when we were on tour last year, and he popped in a tape, and a song by her came on and my mouth just sort of hung open and I said, 'I really do sound like her.'"

The parallel with Ronstadt is based on Jones' *modus operandi*. *Match Game* draws its material from an array of contemporary songwriters whose successes have been more or less marginal to the mainstream of pop music. Marshall Crenshaw contributed "Whenever You're On My Mind," Dwight Twilley penned "Chance of a Lifetime," and Liam "Walk Like An Egyptian" Sternberg wrote "Crusher." In addition, Jones taps Reed Nielson, Richard Barone and Don Dixon, and turns in superb covers of four surprise selections—Elvis Costello's "Just a Memory," John David's "It's Too Late" (recorded by The Searchers), Free's "Soon I Will Be Gone," and the LP's closer, "Soul Love" by David Bowie. And like Ronstadt's work with Peter Asher, or Rosanne Cash's with Rodney Crowell, the album's production throws in just enough idiosyncratic twists on studio-slick MOR strategies to be both easily accessible and subtly individualistic.

The comparison with Springfield is justified by Marti's sultry, smoky tones, especially evident in her evocative ballad readings of "Just a Memory" and "Crusher." Her voice has a lovely, ethereal quality that's brought down to earth by fine traces of soulful grit. With instrumental touches supplied by Dixon, T-Bone Burnett, Mitch Easter, Marshall Crenshaw, Vinnie Zummo, Paul Carrack and others, Jones is able to make each song wholly her own.

But she is still aware of the prejudice


that holds that a truly authentic artist should write her own material. "I've taken a small beating for not being a singer-songwriter," she says. "A lot of people still aren't accustomed to this approach being reintroduced into the world. But I watched that video of the girl groups of the '60s, and that was the way things were done before The Beatles, really. Songwriters had their place, singers had their place. I think it works out really well, because what you've got is someone doing their craft, the very best thing they can do is songwriting, and another person who's a singer doing the very best that they can do. You put those things together and you've got a really great song. It's great to be able to keep your ears open and find those people and take advantage of these great songs that are being written and never heard."

Jones grew up in Akron, Ohio, listening to the pop and Motown singles brought home by her two older sisters. "Later on," she says, "I wanted to be a folksinger like Mary Travers, Judy Collins or Joni Mitchell." She started playing guitar when she was ten. "I found out I could do it for money when I was in college," she laughs. She earned her keep in the mid-to-late-'70s by playing in the local lounges around Kent State University, singing songs by Joni Mitchell, Carly Simon, and Carole King. "The more you sounded like the original artist who did the songs," Jones explains, "the more people were excited by it. So I would try real hard to sound like Joni Mitchell and people would bring their friends back and say, 'You're not going to believe this girl, she sounds just like Joni Mitchell.' Then I would throw in Dave Van Ronk or David Bowie songs and people would just sort of stomach those sorts of things."

The coffee house circuit was sufficient for Jones in those days. "I never had any huge aspirations towards making records," she says. "I always thought it would be fun but I never thought I had that sort of ambition to get in there and make demos and really push it. I didn't have that much in the way of spunk."

But her friend Liam Sternberg mentioned her name to the Ohio band Color Me Gone when it was looking for a lead singer. Jones stayed with the band long enough to record a six-song EP for A&M in 1984, "just long enough," she says, "for that struggle to get something going with a record company." But she had come in on a going concern and never grew quite acclimated to the band's dynamic. "As with a lot of bands," she explains, "it was one step forward and 20 steps backwards, and we weren't tight enough as friends to withstand

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that sort of pressure that everyone undergoes trying to get somewhere in the music biz.

"A lot of bad things happened," Jones continues. "We were just misguided in a lot of ways, and since I'd never really experienced that end of playing music and making a record and going with a major record label, I assumed that that was the way things were handled with everyone, that you had to step on a lot of people's toes and do a lot of backstabbing. I just didn't feel that it was something that I wanted to pursue at all. I really wasn't sure what it was that I was going to do, but I knew I didn't want to have that sort of feeling in my life."

Back in Ohio, a discouraged Marti Jones was biding her time, when Don Dixon contacted her, offering to work with her on an album project. "I never expected it to happen," she says. "It is a complete turnaround, too, to realize that you really can be honest about everything and still get somewhere." She and Dixon quickly found common creative ground and came up with *Unsophisticated Time*, a gently quirky album, lacking substantial focus but establishing Jones as a stylist to be watched.

She admits that there was pressure from A&M to come up with something more radio-appropriate on the second album. "What I wanted to do was not lean too much that way but sort of make a logical progression from *Unsophisticated Time* to another kind of record that would fit in more to what is contemporary in radio today, without going the Janet Jackson or Madonna route. Why would you want to make a record that sounds like everything else on the radio? I can't understand that, and it's being done over and over and over again. What's the purpose of doing a 'new' record if you don't do something a little bit different, or a lot different?"

Jones found that her first task as solo artist was to find her own voice, and she's confident that, with Dixon's help, she's overcome the self-imposed restrictions of her early imitative lounge work and her two-year stint conforming to the needs of a band. "It was real hard for me to come up with what I sounded like," she admits, "after having sung in so many different styles in the lounge days. Then when it came to Color Me Gone I just sort of sang, molding myself around how the music was, and I still didn't feel that that was really me. It wasn't until *Unsophisticated Time* that I started to chip away at what I thought I should sound like."

Devoting herself to achieving her genuinely personal sound, and succeeding so brilliantly on *Match Game*, Jones has given only minimal consid-

eration to conventional notions of what she ought to look like as a female rock and roller. "The only place you have to be careful is with the trends that have been set by sex kittens," she argues. "To be taken seriously as a singer, you can't be too cute, you can't do a song that is going to make you come off sounding too cute. I'm not trying to change the world with records or anything, I'm just doing what I like to do. But I take it seriously as an art, and as long as you believe in what you're singing, and you don't sell out to wearing spandex pants or a mini-skirt, I think you do OK."

Jones has indeed done OK, coming up with one of the underrated pop gems of 1986, and staking out her own turf as an interpreter of modern songs. Still, in the back of her mind, she toys with the idea of conquering her songwriting shyness. "It would feel so great if I had written a song that I really like and that I was able to sing at the same time," she confesses. "I haven't really felt that I needed to write songs, but it's something that I have in my hip pocket waiting to bring out. ■"

—FROM PAGE 224, RYKODISC

libretto enclosed in the CD. That's just one example. And, talking about adding something, well, a CD can hold 74 minutes of music, approximately. On *Frank Zappa Meets the Mothers of Prevention*, there's an English cut not on the U.S. version, and one other cut not available in England—so we put both of 'em on the CD. You might as well... the guy is shelling out some sixteen-and-some-odd dollars for a CD. He wants his money's worth."

While Zappa music is certainly the big item in Rykodisc's catalog (Rykodisc, Akai, and *Musician* magazine are sponsoring a promotional contest with an interview with Frank as first prize), it is far from the only interesting material they release. Their territory is primarily securing the rights to stuff that the big companies no longer want. Some of the stuff is idiosyncratic, some not. It all started a-way back in 1984 when Rose released of all things, "Witchi-Tai-To," a one-time top 40 hit by Jim Pepper based on Apache and Comanche Indian chants. An inauspicious debut?

"Well," laughs Herschman, "we didn't have any contracts yet, really. Don (Rose) had his own record label at that time called Eat Records. It had Human Sexual Response, Rubber Rodeo, and other new music groups from Boston...."

Rose saw, and jumped at, an opportunity. A lot of music was not being reissued by big record companies. It was just no longer marketable—at

least, as far as the large companies were concerned—and was falling through the cracks. Rose got underneath and started collecting. One of the first catches was *Old & in the Way*. The LP's rights were secured, the material shipped to Northeastern Digital's Dr. Toby Mountain ("he's so good," says Herschmann, "that he did Frank Zappa's tapes, and Frank was impressed") for digital remastering, then into production. Rose's partner, Robert Simonds, handled distribution through Eastside Digital, which Herschman says is the world's first CD-only distributor.

*Old and in the Way* did well, as have most of the Rykodisc releases. The pressings have been small, but they sell out. The latest releases:

- Two 60-plus-minute compilations of recordings by The Residents, entitled *Heaven and Hell*, respectively. ("One is beautiful and the other is ugly," says Herschman.)
- Four samplers of Rounder Records artists: *New Acoustic Music* (featuring Russ Barrenberg, Bela Fleck, David Grisman, Rob Wasserman, Norman Blake, and others), *Out of the Blue* (an assortment of electric blues by artists including George Thorogood, the Night-hawks, Buckwheat Zydeco Band, Room-

ful of Blues, Clarence "Gatemouth" Brown, Johnny Copeland, and others), a folk music sampler (including Riders in the Sky) and a reggae CD entitled *Heartbeat Reggae*.

• *Cruisin'*, a CD of digitally remastered "AM car radio stuff," says Herschman, from 1955 through 1967. ("Something for *Mix* readers to know," he says, "is that this music is also being enhanced by FDS" (Fully Dimensional Sound).

• *The Atmosphere Collection*, a series of natural sounds recorded by Dr. Mountain while toting a Sony F1 around Cape Cod. An entire day is represented in four different CDs, from *Early Cape Morn* (lots of birds) to *Babbling Brook*. It is, said Herschman, "*National Geographic* for the ears," adding that it has great commercial potential.

"It's a pleasant backdrop for everyday life," he says. "If you put it on continuous repeat, there's no static, no hiss and it will go on forever."

Kind of like natural Muzak, Noah? He grows excited.

"Now, somebody in the middle of New York City can use these discs at low volume level and really get something out of it. *In the office. You know, lawyers, doctors, stockbrokers...*"

Dunno, Noah. Maybe they'd be better off listening to Zappa. . . . ■

## Steve Tibbetts

### Inner Landscapes

by John Diliberto

In 1976, right around the time Prince began sticking his guitar into his briefs, another Minneapolis-St. Paul resident was orchestrating inner landscapes and out-of-bounds solos—and, like Prince, producing his own product (on his own Frammis label). Taking a page from Mike Oldfield, Steve Tibbetts recorded densely layered guitars and percussion on a 4-track.

Ten years later, with another self-produced masterpiece, *Yr*, and three LPs for ECM (including his newest, *Exploded View*), Tibbetts is still recording in his home studio—albeit with eight tracks instead of four. "My studio is a real dump," he laments. "It's a real state-of-the-art dump. I have a Tascam [recorder], a horribly out-of-date Tascam board, two blown-out Bang & Olufsen speakers, and two microphones."

But hearing the music Tibbetts has produced in that "dump" would leave most musicians staring bleakly at their automated consoles and digital recorders and wondering, "Why doesn't

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mine sound that good?"

Tibbetts packs a lot into those eight tracks, creating spacious sonic fields. Crunching solos move back and forth, spinning an array of patterns transmuted through feedback and propelled by dervish rhythms that sound like an international drum conference. But it's only Tibbetts, percussionist Marc Anderson and one of their Twin Cities cohorts on tabla or bass.

"You can do anything with eight tracks," Tibbetts explains matter-of-factly. "Sometimes I'll try to show how much I can do, and that can be a problem, too. Every track is filled up all the time, and sometimes I wish I had cooled it to one guitar and one percussion instrument a little more often. But what the hell." As Tibbetts told me in an earlier interview, "Why use one guitar when you can use a thousand?"

Indeed, it was this idea that led to the panoramic scenes of *Yr*, his second self-produced album. It's a seamless journey through pastoral reveries and the African-Indian grooves of percussionist Anderson and tabla players Marcus Wise and Steve Cochrane. Electric guitar choirs emerge out of plaintive acoustic melodies set against a landscape of gurgling clay pots, tablas and synthesizers. It's at once heroic and exotic, yielding a satisfying feeling that yes, this is what music is all about.

Which might be why fans of *Yr* were disappointed with Tibbetts' first two ECM recordings, *Northern Songs* and *Safe Journey*, which explored a more refined and contemplative environment. *Northern Songs*, produced in Oslo, Norway, with ECM chief Manfred Eicher, was mostly crystalline acoustic guitars and open spaces. "We wrote knowing that we'd be working for three days with Manfred Eicher in that studio," Tibbetts reflects. "At that time I felt a lot of peace. I felt real excited about doing a record in three days rather than a year and a half or two years. I felt an absence of struggle. Then actually coming to Norway and seeing how the land looked—the darkness of the streets and how the sun peeks over the horizon at ten and goes down at two, the dark studio and Jan Erik, the dark engineer and Manfred Eicher, the dark producer—all molded that thing like Play-Doh." Add to that a landlord who didn't like mega-decibel guitars in his building and you have *Northern Songs*, a serene and softly textured recording of guitar and percussion meditations.

*Safe Journey* saw the return of Tibbetts to his own studio as well as the return of electric guitar. It still traveled the more ambient road of *Northern Songs*, but with more color and light and even a wild feedback foray on "Test." "I wanted it to unfold imagery

in the listener's brain," says Tibbetts. "To do that I would use my own images as crutches to get a song started. If I didn't know where to take it I would try to follow the movie that I was using to accompany the music, which was nothing more than a device to finish the song. Once the tune has its own legs, you can drop that stuff. The whole album is a series of these structures that have music built around them like scaffolding."

But I suspect *Exploded View* will have many of Tibbetts' earlier fans enthused. It careens with extended guitar screams and orgasmic rhythms. "The idea behind this record was to scream at the walls and scream at the tape recorders and not assume that anything was ever going to come out on record."

That may explain the unlikely appearance of folk singer Claudia Schmidt, a frequent guest on Minnesota Public Radio's *A Prairie Home Companion*. "What I was looking for was the sound of many, many women coming over a hill brandishing spears," says Tibbetts excitedly. "What would they be singing? And this woman said, 'Well, you want Claudia Schmidt.' I thought, well Claudia Schmidt writes about old people and warm fuzzies, right? And she said 'No! Claudia can really holler.'" Tibbetts was convinced when he discovered that she had once opened a concert for the MCS and the Amboy Dukes, armed with only an acoustic guitar. Her soaring vocals and field holler cries give *Exploded View* an added edge of urgency.

*Exploded View* packs three years of hectic and sometimes traumatic experience into its grooves—broken relationships ("My girlfriend and I broke up"), skydiving malfunctions ("I thought, 'let's finish the record before we die'") and a concert tour by Tibbetts, Anderson and bassist Glenn Hughes ("Which meant a lot of electric guitar").

But the most important factor may be the one Tibbetts is least inclined to talk about, a three-and-a-half-month pilgrimage to Nepal where he spent time in monasteries with Buddhist monks. "I looked at the mountains and played guitar," reflects Tibbetts with a twinge of sarcasm. "I wrote 'A Clear Day And No Memories' while I watched Ganesh Himal One and Two—two mountains—usually as the sun went down. It was spectacular. You'd see the squalid street scenes around you, kids on the roof flying kites, the mountains, the sun going down in the western part of the Katmandu valley. I'd have rum and cokes and play guitar and watch the sun go down and write music."

He also recorded the monks chanting and used them as the basis for "Another Year." "It's such a spring-

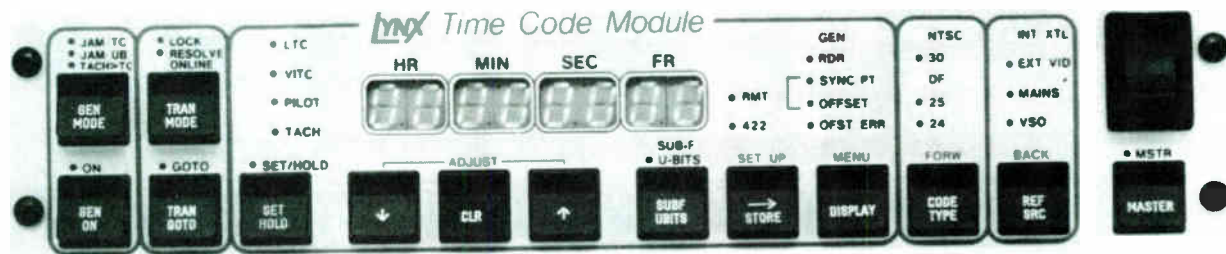
board to music, to tape something that really means something to you," explains Tibbetts. "You might tape an incredible moment. I could sit on the roof of this Tibetan guest house or walk the streets of Katmandu with a microphone and put it on two tracks of an 8-track and I swear it would just make guitar stuff pour out. The courageous thing to do is keep the guitar stuff and get rid of the sounds which mean nothing to anybody else. It just sounds like horns beeping and you might be on 52nd Street in New York."

Far from being meditative, *Exploded View* is cathartic, continuing Tibbetts' tradition of intensely polyrhythmic percussion layers. Percussionist Marc Anderson has been a constant in Tibbetts' explorations, and a trap set has yet to appear on any of their five albums together. "If you had a player like Marc Anderson that's what you'd do," enthuses Tibbetts. "There's something about snare drums that makes me think of the University of Wisconsin marching band. You can't stack them up. They don't do anything when they stack up except remind you of half time at a football game."

Tibbetts is not averse to using the occasional drum machine, especially when laying down the basic rhythms of a tune. "Some of them started with drum machines. There's a drum machine on the first cut, playing millions of drums on the right channel."

At the Naropa Institute in Boulder, Colorado, where Tibbetts teaches in the summer, he sat in on classes by a master Cuban drummer. "He wrote down in great detail these traditional Cuban rhythms," recalls Tibbetts. "I'd go back every night and enter them into a drum machine. I would substitute toms for congas, and I could do a cowbell pretty well, and I'd have the kick drum be the Bembir or the low drum or whatever, just to remember them. I brought them back to Minneapolis and just used those rhythms to construct songs. Then Marc would come in and sometimes duplicate the rhythm or play over the rhythm."

Pinpointing the sources of Tibbetts' music almost diminishes the truly brilliant pan-ethnic, metal-folk synthesis he's pulled together. It's an evocative sound, yet it reaches out on that gut visceral level that the best popular music attains. That's what you'd expect from an artist who says he's a folk musician on the one hand while proclaiming a love of heavy metal on the other. "I love the attitude of heavy metal," Tibbetts says a bit incredulously. "Because it doesn't pretend to be anything other than what it is. It's just silly headbanging music." Tibbetts' music may not be headbanging, but it is mind-exploding. ■



### TimeLine's Lynx module.

—FROM PAGE 99, SYNCHRONIZERS

comfortable, meets or exceeds needs, and is not intimidating. This led to a system which strives to be as invisible as possible between the creator and his creation, minimizing keystrokes and maximizing the computer's contribution towards 'number-crunching' and sequence manipulation."

Discussing Syncro's development, Predovich says they used unique design approaches: parallel communication with the host computer at a speed of 5 MHz, without any "interrupts" or "time sharing." This means that every Syncro in the system can access control data and status info without having to "wait in line." Each Syncro works with a small, machine-mounted device, and has its own microprocessor, the same one the IBM-PC uses. This small box provides the 2-way translation that makes every machine (Otari, Studer, Sony, MCI, etc., even film dubbers) appear identical to Syncro. Since all of Syncro's functions are programmable, it handles true multi-tasking; at any time, the user can control a number of programmed devices, with each performing independent routines that are loaded from the host PC.

Syncro locks machines at variable play speed, handles all time codes, and translates code to support film data entry in footage and frames. Since all Syncro cabling is the same, rapid field expansion is a cinch. Syncro features onboard RAM that provides 400-event storage, and 1/100th frame accuracy. Master machine designation is via the Soundmaster keyboard. A PC board that installs in the host IBM—with two screws—allows communications with up to eight Syncros. The only user requirement is a standard IBM-PC with 256K, a color graphics card, and a floppy disk drive. Soundmaster doesn't affect your original use of the PC; you can still play flight simulator on it.

Version 3, which supports up to three Shadow synchronizers, costs \$6495. Version 4, a complete turn-key system that includes Syncro, costs \$10,335 for 2-machine control, about \$13k for three machines, \$15k for four ma-

chines, and just under \$18k for 5-machine control.

At NAB '87, Soundmaster will reveal a revolutionary feature, so ahead of its time they haven't decided what to call it yet. What does it do? For example, if a transfer from film to video tape occurred at double the speed of the time code, then your machine lock would be way off. Using the new feature, one merely enters a simple, 4-digit number into Soundmaster, and for every single frame, the program will generate two frames of time code. In other words, Soundmaster handles *more* than vari-speed lock; it constantly performs speed conversions on time code to maintain a steady offset. And there were some who thought that was impossible!

### TimeLine

TimeLine in New York City is owned by Gerry Block, who has designed lathe controllers for record manufacturing, built recording studios, and managed Sigma Sound Studios for years. In 1985 he started his own company. Says Block, "I thought there was a real need for simple, extremely reliable, time code products." TimeLine's main product is the Lynx Time Code Module, a universal interface for audio tape transports and serial control systems. In its stand-alone configuration, the Lynx is a chase synchronizer, using one module for each transport. Modules interconnect with RS-422 cables, and support a system of up to 32 machines. When different tape machines are used, no internal adjustments are needed, for the Lynx microprocessor automatically handles all operating parameter reconfiguration.

The modular, rack mount Lynx (half-rack, actually) provides all status indicators and controls (to set sync points, offsets, generator control, etc.) on the front panel. It reads, generates, and resolves time code, and translates tach pulses to time code (multi-speed and multi-standard). It provides an RS-422 port to communicate with external editors. As an option, it handles film-chain drives. And it costs \$2450, not including cable.

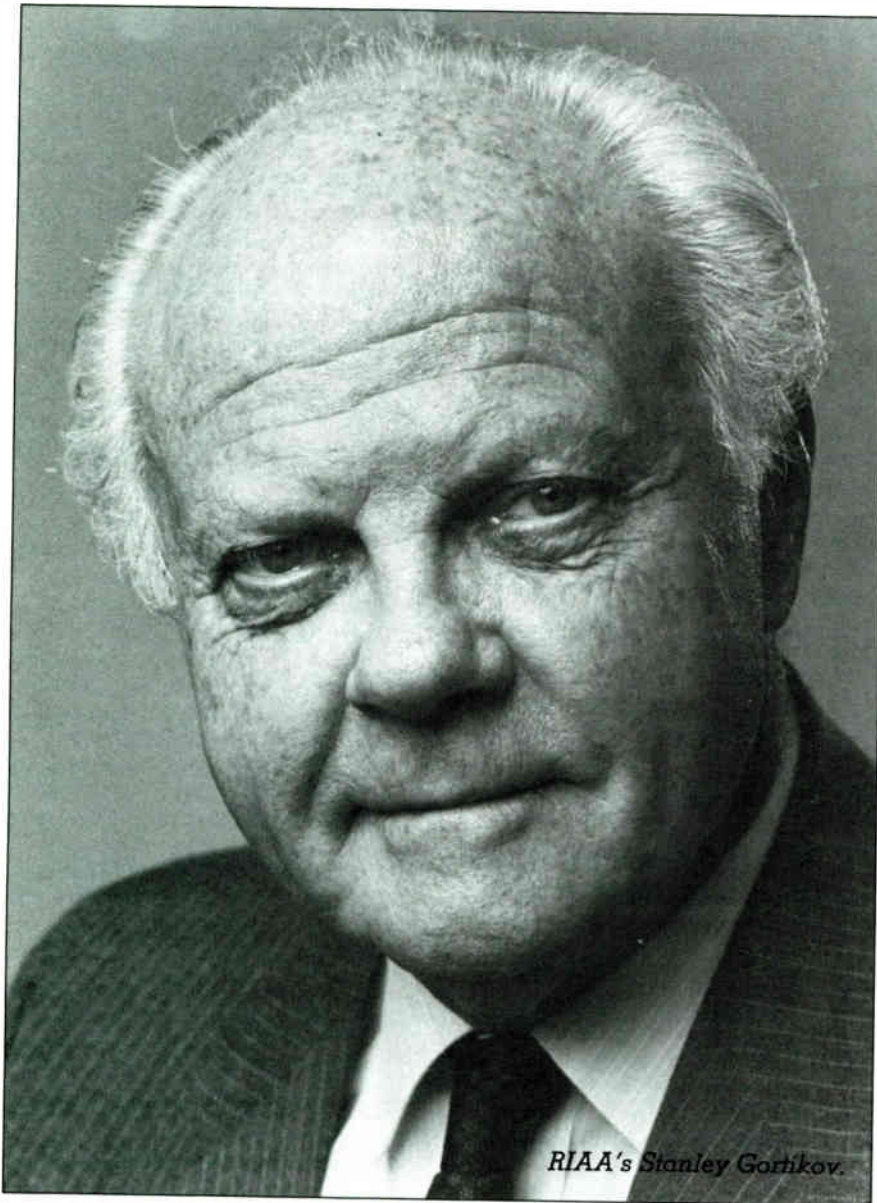
The Lynx module accesses, right

off the shelf, almost all audio tape machines, and can select any as the master. In a chase configuration, one of the Lynx module's connectors goes to the tape machine and the other goes to a second Lynx module, hooked to another tape machine. A second configuration of the Lynx is the VPR3 Video Editor Interface, which allows video editing systems (Ampex, CMX, and Grass Valley/ISC) to control ATRs through the Lynx, letting you edit audio on a video editing system. Example: you have an Ampex ACE Editing System, a couple of Sony BVU-800 video decks, and an 8-track Otari 5050 audio deck, and you want to construct audio on the Otari. You plug the Otari into the ACE through the Lynx, and control the Otari from the video system's existing edit list or create new edit lists in the audio domain.

In early '87, TimeLine plans to release a computer interface, a unit that simplifies system programmability by allowing the user to plug into RS-232 computers and write control programs. The external system will handle machine control, by transmitting, via the Lynx, Ampex VPR-3 type commands.

Recent machine interfaces are Mitsubishi X-850, Otari DTR-90, Sony 3324, Studer AB20, Sony 3/4-inch VO-5850 and BVU-800 with the PCM-3310. Says Block, "our box is not totally ATR-oriented. It uses a couple of VTRs as master and slave to allow digital audio for layback purposes. And it can interface a video editor with a VCR, even low-end machines that video editors don't normally plug into."

Block says "Our box is closer to a black box than anybody else's, but we're still very oriented towards helping people solve problems, which often have nothing to do with our equipment but with the equipment it's connected to. So we make the boxes, supply the cables, and guarantee the complete interface to work. And it works on a menu setup, so anyone who knows how to key in the correct machine—which comes up by name on the module's time code display window when you power up—can get the system rolling without any technical help." ■



*RIAA's Stanley Gortikov.*

## RIAA VS. R-DAT Stanley Gortikov Speaks Out

by Philip De Lancie

When the analog cassette was introduced some 20 years ago, few in the record industry apparently foresaw the impact that the new configuration would eventually have. As a sound storage medium, the cassette's advantage of convenience was initially more

than offset by its poor fidelity. But as cassette technology rapidly improved through the years, industry executives began to realize the implications of placing convenient recording ability within reach of the masses. Suspecting that the booming blank cassette market was not supported solely by students taping lectures, or songwriters

sending out demos, they have sought for years a practicable means of protecting their revenue base against erosion by home taping, which they regard as nothing less than thievery.

Home tapers, of course, don't see themselves as criminals. Perhaps it's hard for the average wage earner to work up much remorse for depriving Michael Jackson of a few pennies in royalties. And it may also be difficult for music consumers to erase the memory of laying out good money for prerecorded cassettes that sound like they were duplicated in the Middle Ages. (In spite of vast improvements, buying prerecorded cassettes can still be a bit of a crapshoot.) Whatever the reason, home taping has come to be accepted by a wide variety of Americans as a sort of inalienable right, regardless of the validity of the arguments against it.

Recognizing that this situation is unlikely to be influenced by attempts at public persuasion, the record industry had, until recently, apparently all but given up on the idea of preventing home taping. Instead, it hoped to use lobbying clout in Congress to win compensation for the holders of violated copyrights in the form of royalties imposed on blank tapes and/or audio recorders. Those who were deprived of income by home taping would have been "reimbursed" from the revenues collected, and everyone concerned would theoretically live happily ever after. But while these potentially complex and inequitable proposals have languished in Congressional committees, the inexorable march of technology has brought forth two developments which have substantially influenced the home taping picture.

The first is Digital Audio Tape (DAT). By combining the recording convenience of the analog cassette with fidelity equivalent to the compact disc, DAT's Japanese developers have created a nightmare-come-true for record industry interests. In the words of outgoing Recording Industry Association of America (RIAA) president Stanley Gortikov: "The prospect of unbridled, perfect, master-quality home copying is ominous." Gortikov has been an outspoken and vehement critic of the Electronics Industry Association of Japan (EIAJ) for its perceived insensitivity to music industry concerns about DAT. For much of 1986, Gortikov ap-

parently felt that his efforts towards opening a dialog with the EIAJ were falling on deaf ears. What Gortikov hoped to discuss with the Japanese was the possibility of limiting DAT's potential for damage through use of another recent technological development: the CBS "copy-code chip."

Born in the labs of the CBS Technology Center, the copy-code chip has re-oriented the record industry's approach to the home taping problem. As described by the RIAA, "the system requires placement of a copy-code chip in recording equipment, which would then be prevented from replicating those copyrighted recordings which are compatibly encoded during the mastering process. Attempted home taping on equipment so equipped would result in disruptive intermittent periods of silence and music." The chip, seemingly more fair and direct than the proposed royalties on recorders and blank tape, would finally allow the industry to thwart the home tapper without penalizing other users of home recording gear.

While development of the copy-code chip is good news for the RIAA and its constituents, at least one major problem with the system remains unsolved. The chip must be installed in the recording hardware, which is not

under the control of the record industry. One can easily imagine why the hardware manufacturers would be disinclined to limit the uses of the equipment they sell. An established format like the analog cassette might survive being handicapped by the chip. But for a new format like DAT, copy prohibition could be the kind of crippling blow that would prevent the configuration from ever getting off the ground.

Until late last year, the EIAJ apparently chose to ignore the growing chorus of DAT opposition. Given the fiery mood among American lawmakers regarding Japanese trading practices, however, this tactic may have been ill advised. U.S. Senator John Danforth, (R.MO), supported by several of his colleagues, introduced a measure to impose high tariffs on DAT machines marketed without copy-code protection, adding force to the Reagan administration's already stated endorsement of a copy-code approach. In Europe, meanwhile, the IFPI (international counterpart to the RIAA) was pushing for an outright ban on copy capable machines within the European Economic Community (EEC).

Perhaps concerned by these threatening developments, the EIAJ agreed to meet with RIAA and IFPI represent-

atives on December 11 in Vancouver, Canada. Thirty of the highest level executives in the world's music and consumer electronics industries attended the one-day conference, but to no avail. According to an RIAA statement, the meeting "failed to reconcile sharp differences" between the participating groups. Naturally, Stanley Gortikov was among the attendees. Reached at his New York RIAA offices, Gortikov shared his views on the current status and future course of the home taping controversy:

**Mix:** How would you summarize the differences in the positions and outlooks brought to the meeting by the RIAA/IFPI and the EIAJ?

**Stanley Gortikov:** What the RIAA and IFPI were seeking from the Japanese manufacturers was their consideration of inclusion of the copy-code chip in DAT recording equipment. The position of the EIAJ was just the opposite. They refused to consider even the principle of it. They refused even to witness a demonstration of the technology that we had set up in the room adjoining the meeting. They felt that nothing should interfere with their technological advances, nor with what the consumer should have access to as a result of those advances. That

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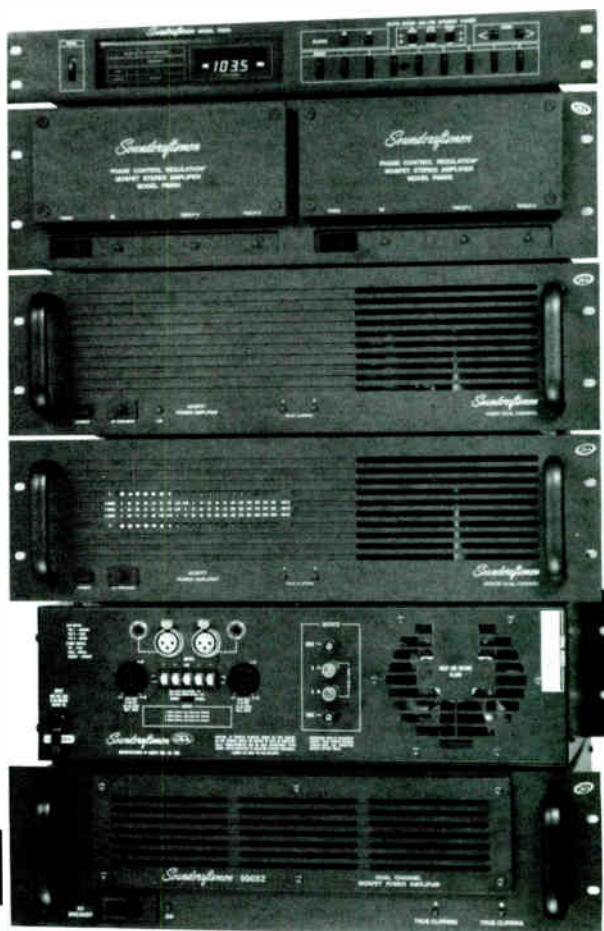
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was the essence of the respective positions.

**Mix:** What arguments did the RIAA/IFPI delegation present to the EIAJ in support of its positions?

**Gortikov:** The key argument was, of course, fostering of copyrights. DAT will perfectly clone our industry's master recordings. Therefore, because of the miniaturization, the convenience and the outstanding quality, it offers unprecedented incentives to consumers to tape, thereby reducing their purchasing and displacing sales. This would have a long run negative impact on recording companies, artists, songwriters, music publishers and the entire music constituency. That is the core of the premise we were advancing.

Also, the copy-code system would address only our copyrighted sound recordings, not anything else that DAT tape or equipment manufacturers might wish to foster the recording of.

**Mix:** What arguments did the EIAJ put forth in response to those concerns?

**Gortikov:** As I recall, they felt that nothing should stop technology, that the music industry has always prospered from technological change and has somehow reckoned with its flaws, that the industry has always predicted doomsday, and that copyright considerations are less vital than the other factors involved. I think that was the substance of their response.

**Mix:** Was any approach to copyright protection other than the CBS copy-code chip proposed by either side?

**Gortikov:** Not at all, except that we did express an openness to other options if the EIAJ found the approach we were advancing to be flawed. As long as the protection is implicit in the result, it matters not that it is one technology versus another, as long as it is universal.

**Mix:** Did any developments take place which might provide a basis for further dialog or negotiations with the EIAJ?

**Gortikov:** There was nothing that would lead our side to believe that there was any hope in the EIAJ position, because of their expressed intransigence. The EIAJ did gratuitously offer to support an industry anti-piracy effort, but that is totally unrelated to the issues we were addressing. Piracy is the commercial counterfeiting of recordings, and we're not dealing with that here. We're talking about the private copying of copyrighted works and the displacement of sales.

**Mix:** How would you describe the overall tone of the meeting?

**Gortikov:** Hardline on the part of the

EIAJ. It was cordial, and they were respectful. They listened, but they did not really dialog on the issues.

**Mix:** To what extent does concern for the continued success of the CD play a role in record industry opposition to DAT?

**Gortikov:** I would say not at all. CD is increasingly successful. It appears that it will be an ultimate long term replacement for the LP. We have long coexisted with multiple configurations. So that is really a non-issue. The copying of CDs on DAT, however, is certainly an issue.

**Mix:** Is the bill introduced in Congress last session by Senator Danforth of Missouri, which would impose a 35% tariff on any DAT machines imported into the U.S. without the copy-code chip, now the sole focus of RIAA efforts in opposition to DAT?

**Gortikov:** The Danforth tariff measure was introduced in the closing days of the last Congress, and did not go anywhere as the Congressional term ended. It has not been reintroduced. The legislation that is fostered by the industry would require any DAT recorder that is imported, manufactured or marketed in the U.S. to contain the copy-code chip that would offer protection on copyrighted recordings that are encoded. That is the thrust of the legislation. It also makes unlawful any devices that would tend to go around or nullify the system.

**Mix:** Why the shift in emphasis from reliance on economic disincentives such as tariffs to seeking outright prohibition of any recorders without the chip?

**Gortikov:** Our original thrust was not tariffs, anyway. It was the mandated inclusion of the copy-code technology. That is the same content of legislation that is being fostered throughout Europe, within the European Economic Community.

The Danforth tariff measure was to have been a quick undertaking. This was borne out in the statements of those senators who urged Japan to be cautious on introducing the equipment before Congress has an opportunity to address the various issues. Congress was asking Japan to hold back on release of that equipment until it could examine the equities on both sides, and determine whether a legislative response was called for, and, if so, what.

The tariff approach was never really intended as a long range solution to the problem. First of all, a tariff measure would bring revenues to government. What we are looking out for is the interests of those who are injured

by the practice (of home taping): the songwriters, the record companies and the artists.

**Mix:** What alternative courses of action are under consideration by the RIAA in the event that the legislation you seek is not forthcoming from Congress?

**Gortikov:** I know of no recourse other than legislation. Individual record companies have other options. They can decide whether they want their repertoire released on DAT, but that is a determination by each company and artist.

**Mix:** Various optical disc-based erasable recording systems, some of which potentially have CD playback compatibility, are currently under development. For instance, both Philips and Sony reportedly already have working prototypes of Magneto-Optical Disc (MOD) recorders. Does the RIAA have any resources devoted to keeping tabs on these systems and evaluating their potential impact on the music industry?

**Gortikov:** Technical specialists are monitoring all the developments, such as recordable CD. Sony has even announced new generations of DAT, before they've even released the first one. I've read in their own literature that this next generation, instead of having one to two hours on a DAT, will have four to six, and be half the size of DAT. All that will ensure is continuing obsolescence for the consumer and consumer confusion.

**Mix:** Specifically regarding the disc-based consumer recording devices, do you think it likely that they might actually make the whole DAT controversy irrelevant in the not-too-distant future?

**Gortikov:** It's possible. It depends on what thrust the makers of DAT put behind their product. Based on the recent Consumer Electronics Show, they seem intent on rather early release of equipment. So I can't forecast what the real result would be.

**Mix:** Presumably, disc recording would pose a threat to copyright interests equal to that which the record industry maintains is posed by DAT. Does the RIAA have any policy under development in anticipation of the introduction of these technologies to the consumer marketplace?

**Gortikov:** The underlying principle is identical, irrespective of what copying system emerges. At some point there has to be some reasonable control on the indiscriminate copying of copyrighted sound recordings. There cannot be infinite, totally indiscrimi-

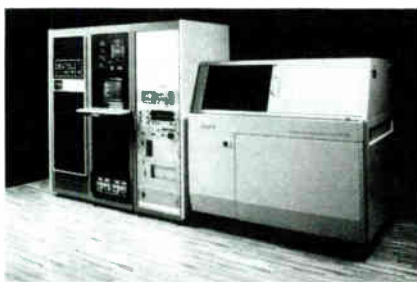


nate and escalating copying of recordings with resulting sales displacement if the public that enjoys that music wishes an unbridled availability of variety and flow of new talent. People have to be able to have incentives to make careers, make profits and to have jobs out of this process. To the extent that the flow (of revenue from sales) diminishes, so will all those other results.

I don't think the RIAA strategy with respect to disc-based copying systems will be any different than the strategy related to tape systems. I don't know enough about those systems yet to be specific, but I'm certain enough about the underlying principle of copyright protection to see a total parallel between the two situations.

• • •

A Compact Disc master code cutter has been added to Sony's line of CD mastering equipment. Designated the DMC-1200, the cutter is comprised of two systems: the cutting unit and the computer controller. The cutting unit includes a laser optical system, sleding mechanism and turntable mounted on a solid, cast iron floating bed. The mobile helium cadmium laser system slides on air, never contacting the guide table. The turntable is driven by a brushless DC motor, and may be



randomly changed from 180 to 1000 rpm. The unit is powered by a computer operated control and display system which includes an interactive CRT display for simplified instruction entry.

• • •

In a move billed by the company as a demonstration of its commitment to the LaserDisc video format, Pioneer has announced that it will spend \$10 million on renovations at the Carson, CA disc pressing facility of its U.S. videodisc subsidiary, LaserDisc Corporation of America. The improvements are expected to double the plant's monthly capacity to 400,000. LaserDisc now offers more than 1600 programs in the format. In related news, Pioneer Electronics has announced the development of a LaserDisc player offering a built in digital sound decoder and 400 lines of video

resolution. The new LD-838D also includes fully automatic front disc loading and automatic playback.

• • •

Audiodata Company and Dolby Laboratories have signed a license agreement amendment giving Dolby the right to sub-license high separation "logic" decoding technology to manufacturers of consumer Dolby Surround equipment. The license specifies use with a single rear surround channel in accordance with present Dolby practice.

• • •

Magnefax International, Inc., of Rogers AR, is introducing the 7800 cassette duplicator. Based on the 7500 series, the 7800 machines offer a 24:1 duplication ratio with a 7.5 ips bin loop master, and are available in a 1/4-inch or half-inch format.

• • •

Madison, Wisconsin's Concept Productions is expanding into video cassette duplication. Concept's system will handle 3/4-inch, Beta and VHS formats, and incorporates digital time base correction, dropout compensation and auto scan quality control. Concept also offers audio reel-to-reel and cassette dubbing, as well as label printing and tape packaging services. ■

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# F E E D B A C K

## Dear Mix:

What follows is an open letter to Andrew Oldham and Allen Klein.

It is with great dismay, disgust, and out-and-out anger that I write this letter to you. As an engineer, audiophile, Rolling Stones fan, and something of a rock historian, I am nothing short of violently insulted by the release of the Rolling Stones catalog on CD and the shoddy job that was done re-mastering them.

The trigger to all my rage is Mr. Oldham's comments as printed in the December '86 *Mix* magazine ["Producers Desk"]. In and of themselves, the comments *sound* right, but when read after hearing some of the discs, one thing is for sure: they are pure baloney. I defy Mr. Oldham's claim that these discs are taken from original "master" recordings. There are too many instances where the lack of care and research show like a sore thumb. For example: 1) While the correct "Everybody Needs Somebody To Love" is finally released on *Now* (in place of the demo version issued by mistake) it is in mono; 2) On *Flowers*: "Have You Seen Your Mother. . ." is re-channeled! "Out of Time" is the edited 3:11 version, *not* the original five-minute one. "Mother's Little Helper," not only the first track from the English *Aftermath* album, and therefore perhaps one of the most common stereo tracks around, is not just mono, but re-channeled! "Lady Jane" has more hiss than signal.

These are just a few examples. As an engineer I know that no Rolling Stones track should be mono. These were all done at least on 4-track.

I also would like to mention all the stereo mixes that are sitting in the vaults just collecting dust. The English CD of *Hot Rocks* let the world hear many Stones classics for the first time anywhere in true stereo. ("Satisfaction," "Get Off My Cloud," "Play With Fire" to name a few.) And can't anyone see the absolute mess "19th Nervous Breakdown" is in lately? From the obnoxious crackling noise in the intro, to the numerous drags (from poor splices obviously) throughout the song, one would think Mr. Oldham would either go for the still-shelved stereo mix or find a better sounding mono. The hiss levels are sometimes so high as to be more than annoying, while the English

CDs are as quiet as possible. (Just compare the US *Aftermath* to the UK one. Not only does it sound better, it has more tracks and is a better value. As a matter of fact, *all* the English CDs are better than the "re-mastered" American ones.)

Robert Cristarella  
NY, NY

## Dear Mix:

I would like to compliment Larry Oppenheimer on his article in the Jan. '87 issue of *Mix* on the next generation of musical instruments. I would like to point out that some of his predictions are already coming true. On-board digital reverb and effects are on the new Roland D-50 digital synthesizer. The Hybrid Arts ADAP for the Atari ST computers will have digital effects like reverb, echo and chorus in the software to actually process the samples. This reduces the extra AD conversions and DA conversion in having the effects process the sound after it has been converted into an analog signal. Another item that has come true is the flat screen that is built into the new FZ-1 digital sampler by Casio.

I would like to give my own predictions about keyboard design. A very obvious development has occurred with the new DX7 II. I have wondered for quite awhile why synthesizer manufacturers use cartridge storage for patches instead of built-in disk drives. Disks are a lot cheaper and can store much more information, especially with the advent of the 2.8-inch quick disk. They are terrible for storing samples like the Akai X-7000 and the Roland S-10 use them for, because they do not have enough storage for that. But they are nearly ideal for saving banks of patches. I predict that more and more synthesizers will adopt this idea. It seems that Yamaha was influenced by the Synergy in using cartridges, and also in a few others as well.

I am pretty confident that it won't be very long before we see several 16-bit samplers in the same price range as the 12-bit samplers available. The Casio FZ-1 is one. I also expect to see stereo sampling in a lot more cheaper machines. The Hybrid Arts ADAP has not only 16-bit resolution, but stereo sampling. I suspect that the chip de-

signed by Roland for their S-10, S-50, and D-50 keyboards has variable resolution as high as 28-bit and supports sampling rates as high as 100kHz and probably allows for stereo sampling as well. The reason I believe this is because of the specs on the new D-50. When Roland announced their S-50 and S-10, they made a big deal about the fact that the chip used was the most complex digital audio chip ever designed and had more circuit density than any other chip of its type. The reason is obvious: Roland can keep up with future developments simply by changing whatever software switches control those two parameters. I also suspect that they will eventually attempt to develop a relatively low-cost alternative to a Synclavier studio system or a Fairlight studio system. Hybrid Arts may do this also with the ADAP.

If the above is true, and because samplers will probably be competing with more and more sampling time, then either some new methods of data compression will probably start appearing to get more samples stored on 3.5-inch disks, or we will start seeing the use of removable hard disk cartridges. Hybrid Arts has shown their ADAP with a hard disk which turns it into a low-cost stereo digital studio.

I expect to see more digital instruments with multiple modes of synthesis. This has started with the Korg DSS-1. Purely analog synthesizers will probably disappear as digital techniques are developed which will produce analog sounds by digital means. Keyboards such as the Ensoniq ESQ-1, the Korg DW-8000, the Kawai K-3 and others have already begun to imitate and replace analog synthesizers. However, the PPG Realizer can imitate analog VCOs and VCRs with remarkable authenticity entirely by software.

There will also appear digital methods of controlling spatial perception. What this means is that with only two channels of sound, the synthesists will not only create or manipulate sounds, but they will be able to synthesize the spatial parameters of sounds and how they are perceived by the listener. This will go far beyond simply adding stereo reverb or other stereo digital effects.

Synthesizers with sophisticated se-

quencer/recorders will become more and more common as people realize that built-in sequencers are much easier to use than outboard ones. This is something Synclavier and Fairlight owners have known for a long time. The ESQ-1 is a good example of this.

Now on to MIDI. Was Larry courageous for saying he wishes MIDI in its present form would go away? I'll say it simply because it's true. I have some suggestions for it. Back in the beginning, supporters of MIDI said that one advantage was that it was cheap to add to a synthesizer. A new MIDI could be implemented with the old MIDI existing side by side on an instrument. This would allow compatibility to existing items with MIDI, but allow for real growth and sophistication for the new MIDI. Eventually, the old MIDI would die out. Adapters could be designed for the die-hards with old equipment, or companies could at some point offer retrofits to earlier MIDI 1 equipment. The point is that MIDI in its present form is grossly inadequate to handle sophisticated applications with light boards, automated mixers, digital effects, and multi-track sequencers. A new standard needs to be developed with these ideas in mind. The developers of MIDI readily admit that MIDI was designed mainly to do something not much more complicated than playing two synthesizers from one. If something is not done now, it will be worse later. We may even see manufacturers who wish to develop something MIDI can't do, leave it entirely. It will be less painful now than later. With microprocessors such as the Motorola 68000 cheap enough to use as a doorstop, there is no good reason not to develop a sophisticated standard with a much higher baud rate and with a parallel port instead of a serial one. If a new standard is developed, I hope the present MIDI committee will have the brains to include manufacturers of light boards, mixers, and digital effects processors as well as drum companies and other companies. I think they should also consult Oberheim. They had a pretty good digital interface for their system going before MIDI came. As you can tell I am not fond of MIDI.

William H. Roberts  
Indianapolis, Indiana

**Correction:** Due to an oversight, the listing in our North Central studio directory for Sound Impressions (Milwaukee, Wisconsin) did not mention that the studio features an Amek Matchless console, modified for 68 returns, with Roland Compueditor 26 x 24 x 16 x 2. We regret the mix-up. ■

—FROM PAGE 14, SESSIONS  
on Elm Street; Neil Kernon producing, Andy Udoff assisting. . . Ralph Morman, ex-lead singer of Savoy Brown and the Joe Perry project, is back in *Golden Goose* in Cosa Mesa working on his new single for Khepera Records. Dennis Rose is both producing and engineering the sessions. . . At *Studio Ultimo* in L.A., T. Lavitz has been producing his new album with Jimmy Mayweather engineering, Mitch Zelezny assisting, and guest shots by Bruce Hornsby, Alex Ligertwood and Dave Samuels. . . At *Soundcastle* in L.A., Roy Thomas Baker mixed Virgin Records' artist T-Pau, with Jerry Napier engineering and Bino Espinoza assisting. Also, Manhattan Records artist Robbie Nevil was in remixing with Erik Zabler engineering and Liz Cluse assisting. . . Kenny Loggins has been in West L.A. tracking at the *Village Recorder's* Studio D with producer Richie Zito and engineer Phil Kaffel, assisted by Jeff Morris. . . Action at producer Larry Robinson's L.A. studio, *The Rock House*, included J.D. Hall cutting a track for the soundtrack of the movie *Believers* starring Martin Sheen for Orion Pictures. Vaughn Clay engineered. . .

## STUDIO NEWS

**NRG Recording** North Hollywood, CA installed a 28-input Neve 8058 console (from The Who's *Eel Pie Recording*, London), an Otari MTR-90 and Otari MTR-10. . . **Goin' Mobile** in Boston, MA, has expanded its services to include a remote truck with 8- and 2-track capabilities. It offers 16 inputs, CCTV monitoring, a Seck 1882 console, and up to two stereo and three mono feeds for broadcast. . . **Air Craft Recording Studios** in Pittsburgh, PA, has recently upgraded from a 16- to a 24-track recording facility with the installation of a Trident Series 80B 30x24x24 mixing console and Sony JH-24 24-track recording machine. Air Craft now has digital mastering capabilities with their new Sony PCM-3202, and Sony PCM-501 and 601 Beta processors, and has upgraded their analog mastering with the installation of the Otari MTR-100. . . Bob Ingria of *QuadRadial* in Miami, FL, took delivery of his first Neve—48-input mainframe stereo production console fitted with 48 modules, four stereo rev returns with equalization and Necam 96, and Neve's computer-assisted mixdown system. . . **White Field Studios** of Santa Ana, CA, has upgraded with the addition of an Otari DTR-900 32-track digital recorder, DDA AMR-Series 36x32 console with Digital Creations moving fader automation, a half-inch Otari MTR-20 4-track, and Dolby SR cards for all their 2-tracks. . . Seattle engineer/producer **Robert Puff** has formed *Sounds Effective!*, a jingle, soundtrack and music production company based in Bellevue, WA. The firm recently completed a promotional video score for equipment manufacturer H.O. Sports, and can be reached at (206) 546-0395. . . **Cascade Recording** in Portland, OR, recently purchased an Otari MTR-12 and 8 channels of Dolby SR. . .

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- Programmable Signal Processors

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