

APRIL 1987
U.S. \$4.00
CANADA \$5.00

THE RECORDING INDUSTRY MAGAZINE

Mix

Pee-wee's Big Production

7682 MXAPR 1299 3 CIR
/BL PROFESSIONAL
MARK R GANDER
8500 BALBOA BLVD BOX 2200
NORTHridge CA 91329
FHC

Issue

**History:
Post-Production Facilities**

Synchronizer Survey

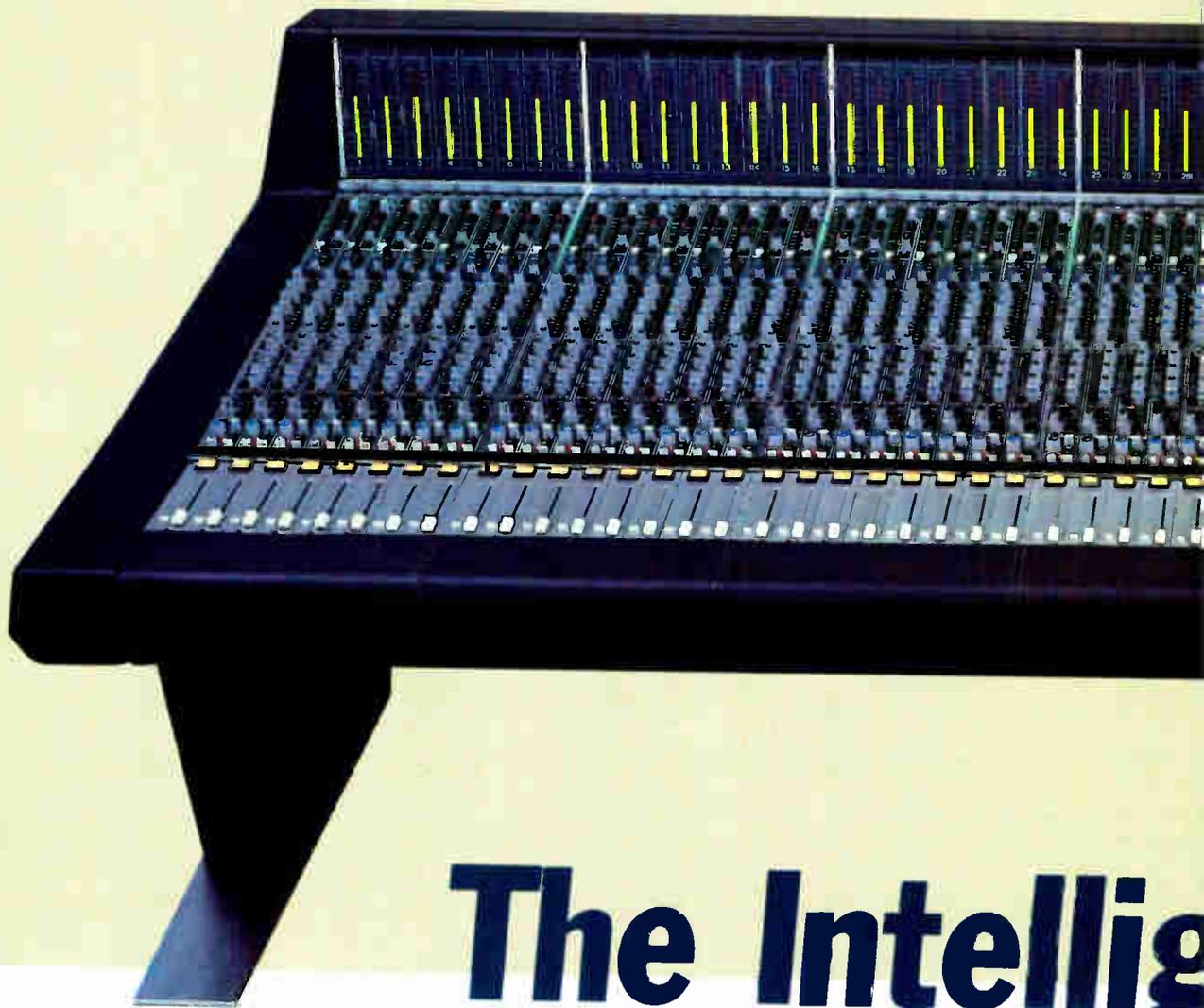
**Capitol Records'
Joe Smith**

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.

Westar Is The Only Truly Modular Console.

The Westar is a totally modular console using air frame design concepts for strength and rigidity. Individual frame sections are in groups of 8 I/O

modules, with plug-in frame wiring for true field expandability. New sophisticated limiter/compressor/gate modules may be fitted, wired either in-line with the input module or peripheral. Plug in interchangeable equalizers and preamplifiers in each I/O module give instant user selectability and allow the addition of new technology at any time. Automated EQs are scheduled to be available in 1987, with retrofit possible on all previously delivered Westar Consoles.

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.

Westar— The Best Console Buy Around.

With cost-effective digital processing consoles scheduled to be available by 1990, the profit-oriented studio today needs a reliable high-performance analog console to match the sonic qualities of the new digital recorders like the Mitsubishi X-850. The Westar is such a console system, at a price the studio can pay back by the time digital consoles become reality. It all adds up to a professional studio console system offering the most attractive performance/price ratio. Call or write for our comprehensive brochure.



MITSUBISHI PRO AUDIO GROUP

DIGITAL ENTERTAINMENT CORPORATION

Headquarters: 225 Parkside Drive, San Fernando, CA 91340 • Phone (818) 898-2341 • Telex: 311786

New York: Suite 1321, 555 W 57th Street, New York, N.Y. 10019 • Phone (212) 713-1600 • Telex: 703547

Tennessee: 104 Eastpark Drive, Suite 306, Brentwood, TN 37027 • Phone (615) 371-6602 • Telex: 510617477

Canada: 260 The Esplanade, Toronto, ONT M5A 1J2 • Phone (416) 365-3363 • Telex: 06219839

United Kingdom: Unit 13, Alban Park, Hatfield Road, St. Albans, Hertfordshire • Phone 0727-40584

Circle #001 on Reader Service Card

World Radio History

Diamond Leasing
AVAILABLE



Mix

APRIL 1987

THE RECORDING INDUSTRY MAGAZINE

VOL. 11, NO. 4



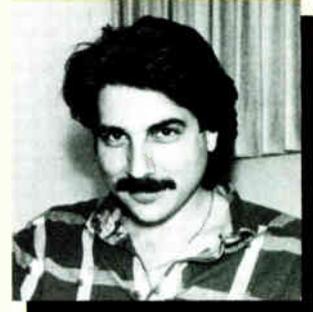
PAGE 24



PAGE 144



PAGE 225



PAGE 40

FEATURES

- 24 A CONVERSATION WITH JOE SMITH**
by Alan di Perna *Capitol Records' new CEO talks about changes in the music business and his illustrious career.*
- 54 LOCATION MICROPHONE TECHNIQUES: The Recordist's Art** by George Petersen
Top professionals share their equipment preferences and offer secrets for successful location film sound recording.
- 74 PEE-WEE'S BIG PRODUCTION**
by Dan Daley and Blair Jackson
Two stories examine the wildest, most creative children's show on TV—Pee-wee's Playhouse.

Daley looks at the complex production requirements of the program, while Jackson chats with Devo's Mark Mothersbaugh and Oingo Boingo's Danny Elfman about the show's unique music.

- 92 THE STATE OF SYNCHRONIZATION**
by Linda Jacobson *An in-depth examination of recent advances in synchronizer technology.*
- 232 AFTER-MIX: The RIAA on R-DAT**
by Philip De Lancie *The Digital Audio Tape threat is making RIAA chief Stan Gortikov see red. He tells our writer why the industry must act now to stop this potentially crippling high-tech invasion.*

AUDIO

- 18 INSIDER AUDIO: On Location with Miami Vice**
by Ken Pohlmann
- 40 LUNCHING WITH BONZAI: Stephen Paul (Dr. Microphone)**
by Mr. Bonzai
- 64 SOUND ON STAGE: NAMM Jamm!**
by Mike Stande and John Locke III
- 120 SOUND MIXING AT WGBH**
by Neal Weinstock
- 124 POST-SCRIPT: Cartoon Post-Production**
by Bill Koepnick
- 144 FIELD TEST: Sony BVH-2800 Video/PCM Audio Recorder**
by Mark Schubin
- 220 FIELD TEST: Symetrix 528 Voice Processor**
by George Petersen

MUSIC

- 36 PRODUCER'S DESK: Adrian Belew**
by Gregory DeTogne
- 222 MI UPDATE: NAMM Revisited**
by Craig Anderton
- 224 MUSIC NOTES: RykoDisc CDs, Hiram Bullock, Marti Jones, Steve Tibbetts**

VIDEO

- 30 FLYING INTO THE FUTURE ON THE ENTERPRISE** by Iain Blair
- 88 THE POST-PRODUCTION WORKSTATION**
by Lou CasaBianca
- 100 AUDIO MEETS VIDEO AT VISUAL EYES**
by Jeff Burger
- 104 COMPONENT VIDEO: An Overview**
by Jim Farney
- 108 VIDEO TECH: A Brief History and Digital Video Update** by Oliver Masciarotte
- 114 THE EVOLUTION OF SYNCHRONIZER CONTROL SOFTWARE**
by Jeff Roth

DEPARTMENTS

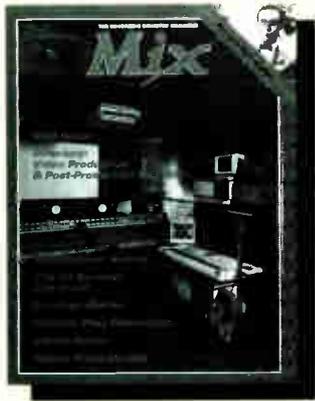
- 6 CURRENT**
- 8 INDUSTRY NOTES**
- 12 SESSIONS/STUDIO NEWS**
- 214 MIX WORDS**
- 216 PREVIEW**
- 236 FEEDBACK**
- 238 CLASSIFIEDS**
- 242 AD INDEX**

FROM THE EDITOR

DIRECTORY

VIDEO PRODUCTION AND POST- PRODUCTION FACILITIES

- 150** NORTHEAST US
- 170** SOUTHEAST US
- 179** NORTH CENTRAL US
- 190** SOUTHWEST US
- 195** SOUTHERN CALIFORNIA
- 204** NORTHWEST US
- 213** OUTSIDE US



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



Mix magazine is published at 2608 Ninth St., Berkeley, CA 94710 and is ©1987 by Mix Publications, Inc. This is Volume Eleven, Number Four, April 1987. Mix (ISSN 0164-9957) is published monthly. Subscriptions are available for \$38.00 per year. Subscriptions outside U.S.A. are \$50.00 per year. Single copy price is \$4.00, back issues \$5.00. Please address all correspondence and changes of address to Mix magazine, 2608 Ninth St., Berkeley, CA 94710, (415) 843-7901, Fax: (415) 843-9540. Second Class postage paid at Berkeley, CA and additional mailing offices. Mix magazine is distributed in pro-audio stores, music stores and other related businesses. If you have a recording or music related business and would like to distribute Mix, please give us a call. Display advertising rates, specs and closing dates are available upon request. This publication may not be reproduced or quoted in whole or in part by mimeograph or any other printed means, without written permission of the publishers.

We 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,

A handwritten signature in black ink, which appears to read 'David M. Schwartz'.

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. ■



SUPER-SONIC TRANSPORT

Fast, accurate and powerful. Someday, all audio machines will be built this way, but consider what the MTR-90's advanced technology can do for you right now.

A capstan motor that's *designed* to be speed-slewed; designed so well that it stops faster than it starts—and it starts in 600 milliseconds to 30 ips! (We can also give you our specs for 15 to 30 ips and from 15 to 7.5 ips if you think we're just kidding around.)

Think about what all this means when you want your audio machine to be externally controlled. Do you want a heavy flywheel working against you, or a light-weight printed circuit motor of the latest design working *for* you?

And the signal electronics? Well, here we go again: GSPIPO*—in *vari-speed!* Dynamic range 78 dB at 30 ips....but you get the idea.

Now get the full story about the audio machine they're all still trying to catch. Call Otari, Technology You Can Trust. (415) 592-8311.

OTARI

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 **MED-ISCO** 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. . . .

STAFF

EDITOR/PUBLISHER
David M. Schwartz
ASSOCIATE PUBLISHER
Penny Riker Jacob
ASSOCIATE PUBLISHER/ADVERTISING DIRECTOR
Hillel Resner

MANAGING EDITOR
Blair Jackson
ASSOCIATE EDITOR
Ken Pohlmann
ASSISTANT EDITOR
George Petersen
SENIOR EDITOR
John Woram

MUSIC EDITOR

David Gans

EDITOR-AT-LARGE

Mr. Bonzai

EDITORIAL ASSISTANTS

Linda Jacobson Josh Gressel

Karen Dunn

CONTRIBUTING EDITORS

Jain Blair Lou CasaBianca

Dan Doley Philip DeLancie

Bruce Nazarian Larry Oppenheimer

Bruce Pilato Tony Thomas

ART DIRECTOR

Tim Gleason

ASSISTANT ART DIRECTOR

Dave Marrs

DESIGN AND PRODUCTION

Patsy Messerer Denise Hilton

TYPOGRAPHY

Linda Dierking Connie Wiggins

PRODUCTION MANAGER

Anne Letsch

PRODUCTION ASSISTANT

Kathy Badertscher

ASSISTANT ADVERTISING DIRECTOR

EASTERN AD MANAGER

Jeffrey Turner

SOUTHERN CALIFORNIA/SOUTHWEST AD MGR.

Ken Rose

NORTHWEST/NORTH CENTRAL AD MGR.

Horton Firmin

SALES ASSISTANTS

Randy Alberts Donna Burriston

MARKETING ASSISTANT

Jane Byer

TRAFFIC MANAGER

Neil McKamey

DIRECTORIES/CLASSIFIEDS MANAGER

Lauri Newman

DIRECTORIES/CLASSIFIEDS ASSISTANTS

Athena Craig Carol McMurray

CIRCULATION MANAGER

Nick Clements

CIRCULATION ASSISTANT

Judith F. Acton

CUSTOMER SERVICES

Lisa Hester

GENERAL MANAGER

Mark Gunther

CONTROLLER

Jerry Cellilo

ASSISTANT CONTROLLER

Linda Simpson

ACCOUNTS PAYABLE

Cathy Boyum

CREDIT MANAGER

Ann Cuadra

BOOK DIVISION GENERAL MANAGER

Craig Wingate

ASSISTANT MANAGER

Camille Coyne

FULLFILLMENT SERVICES

George Keres Brad Smith

OFFICE MANAGER

Rachel McBeth

RECEPTIONIST

Lisa Jensen

NATIONAL EDITORIAL, ADVERTISING

and BUSINESS OFFICES

2608 Ninth St. Berkeley, CA 94710

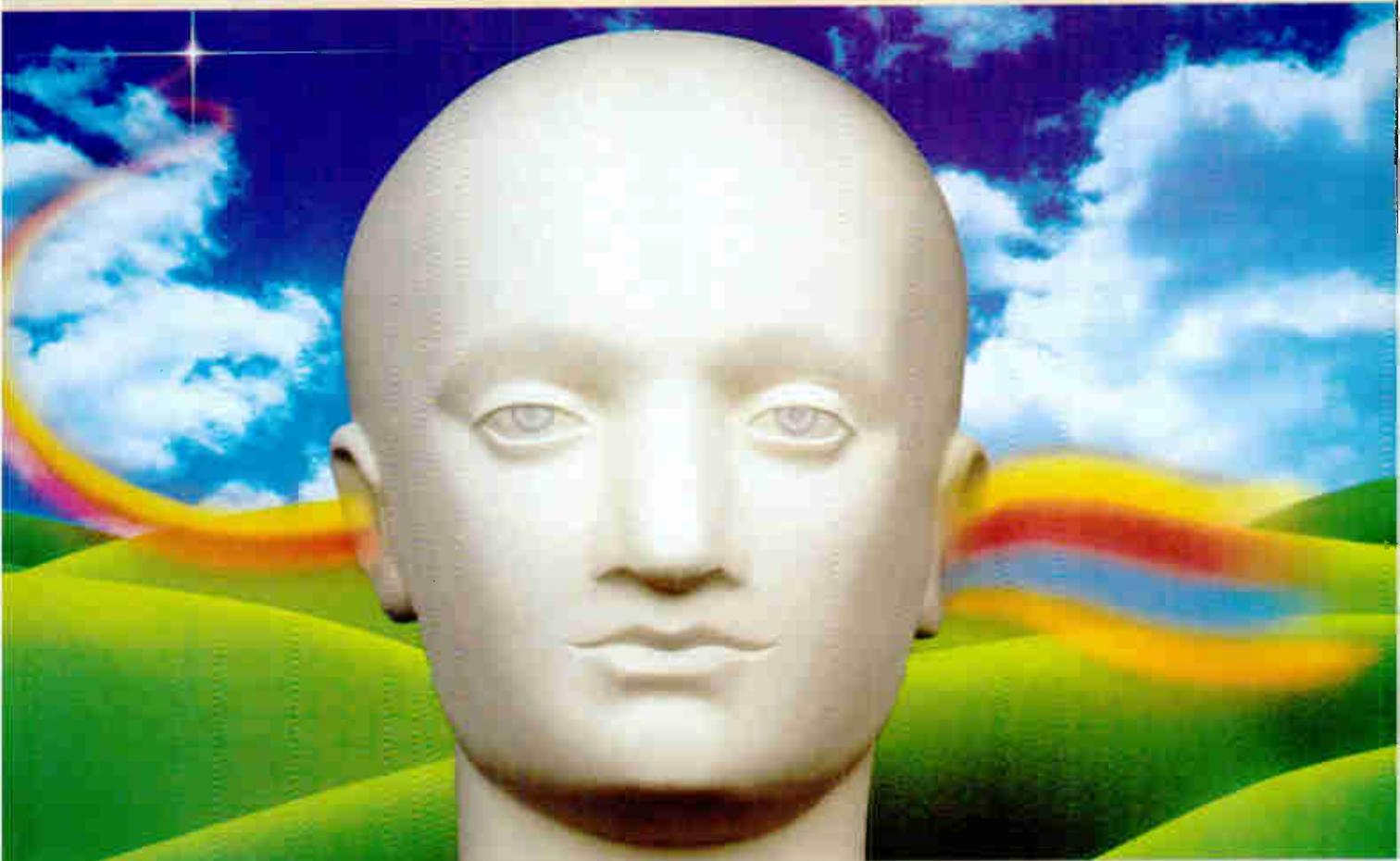
(415) 843-7901

SOUTHERN CALIFORNIA ADVERTISING OFFICES

19725 Sherman Way, Suite 160, Canoga Park, CA 91306

(818) 709-4662

THE FINE ART OF SOUND.



True artistry revels in simplicity; in quality of execution...in clarity of expression. At Neve, the first name in quality audio mixing control and distribution systems, we couldn't agree more. In fact, when it comes to the fine art of sound, anything less than a Neve sounds like...well, something less than sound at its best.

What's more, Neve's "V" Series console, plus the incomparable NECAM 96 computer-assisted moving fader automation system, gives you the important extra of total command...with virtually unlimited flexibility and ease of operation. To enhance your creativity to a level you never dreamed possible, with:

- 48 groups ■ Intelligent solo facilities
- Field-expandable frame ■ Balanced mix buses
- Split-or in-line operation
- Channel and rev status on all inputs
- Mix to analog; mix to digital; mix to picture capabilities

Hear the Neve quality difference for yourself. Find out firsthand how Neve advanced engineering gives you "a touch of the future."

Circle the bingo card for a literature pack. Or call (203) 744-6230 for a demonstration of Neve sound at your location.



Nothing sounds as good as a Neve...
because nothing else is.

Rupert Neve Incorporated
Berkshire Industrial Park
Bethel, Connecticut 06801
Telex 969638
Facsimile (203) 792-7863
(203) 744-6230

7533 Sunset Blvd.
Hollywood, California 90046
(213) 874-8124
Facsimile (213) 874-1406

P.O. Box 40108
Nashville, Tennessee 37204
Telex 796509
(615) 335-2727

1841 Broadway, Suite 511
New York, NY 10023
(212) 956-6464

Neve Electronics Int'l Ltd.
Cambridge House, Melbourn, Royston
Hertfordshire SG8 6AJ, England
ph (0763) 60776 fax (0763) 61686
telex 81381

 **Neve**
A Siemens Company

See us at NAB—Booth 3318!

Circle #003 on Reader Service Card

Why Leading from Tape

The Synclavier Tapeless Studio™ is available today!

Start with the industry-proven Synclavier Digital Audio System. Now available with a 32 track digital sequence recorder, 32 megabytes of high-speed RAM and on-line storage support for up to 2000 megabytes of sampled sounds.

The Direct-to-Disk System can be added at any time. Operation is simple! The system is controlled by the Synclavier's keyboard control panel. The easy-to-use interface provides all standard tape recorder functions, and more!

The finest quality 16-bit A/D conversion processes and output filtering technology available are combined with variable "stereo" sampling rates of up to 100kHz to offer audio fidelity unequalled by any other system.

The Direct-to-Disk System stores large volumes of digitally coded information on formatted winchester hard disks. Once stored, this information can be accessed randomly at any point in the recorded program material. This random access technology provides virtually instant rewind and sophisticated editing features that would be impossible using conventional technology.



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.

Expanding the system is simple. Start with as few as 4 tracks for overdubbing vocals or live instruments onto your Synclavier sequences; add on more tracks and recording time as needed. With configurations of up to 16 tracks and almost half an hour of recording time large multi-track projects can be easily completed. With the Synclavier's advanced hardware and software architecture, you always have the option to expand.

We invite you to stop by any one of our offices, worldwide, for a complete demonstration of this amazing product.

Studios Have Changed to Direct-to-Disk™

“The Synclavier,® combined with the new Direct-to-Disk™ Multi-Track Recording System, provides us with the most compact, reliable, upgradeable, and high fidelity recording environment available today. For video-post, Foley, or music recording, it’s a product which offers us tremendous benefits, both sonically and financially.”

Murray Allen, President, Universal Recording Corporation

Using today’s advanced computer technology, the Synclavier Tapeless Studio now offers more than just the ability to synthesize and create music. Now you can record “live audio”

simultaneously onto as many as 16 separate tracks. Dialogue, effects, vocals, and or music tracks can be SMPTE synchronized and edited with word processing-like control at a single workstation.

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.



Synclavier is a registered trademark of New England Digital. Direct-to-Disk and The Tapeless Studio are trademarks of New England Digital.
© 1986 New England Digital
All specifications are subject to change without notice.

Seattle: 206 623-7860 London: 202-4366 Tokyo: 416 868-0528

Circle #004 on Reader Service Card

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 *Geri 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

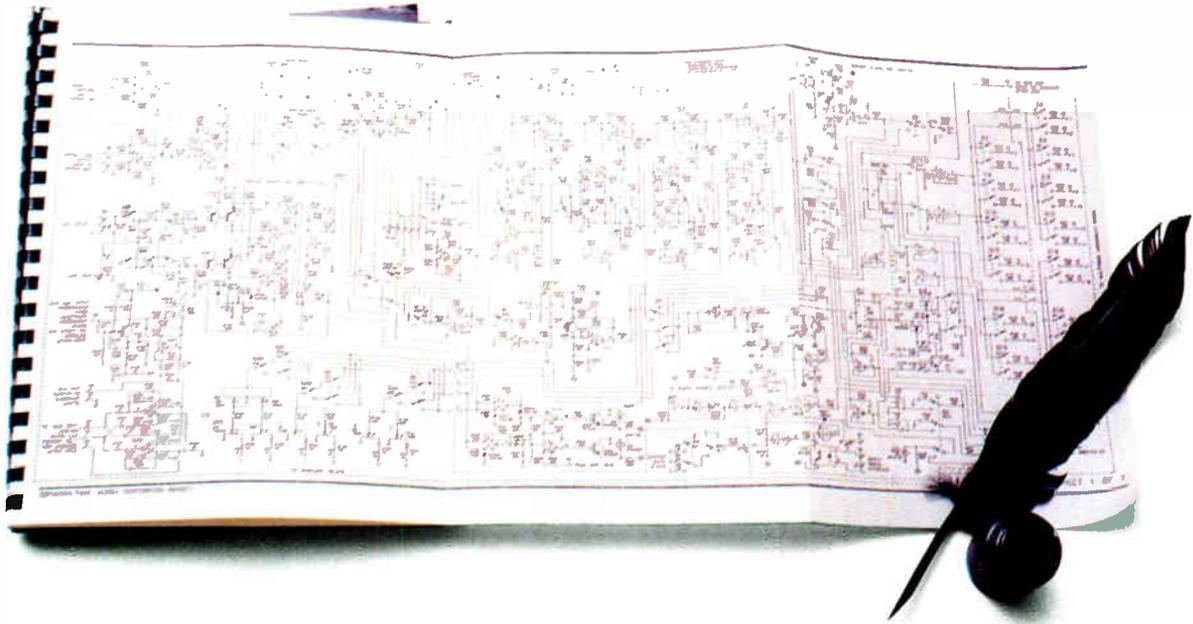
Cyndi Lauper recorded some vocals in Studio C at *Steve Lawson Productions* in Seattle. Lauper, who was on tour in Seattle, recorded vocal tracks to "What's Going On," a song off of her latest CBS release album *True Colors*, for rerelease as a single. . . . At *Avananche Recording* in Northglenn, CO, 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-*

To us, it's sheet music.



It goes without saying that great performance begins with great design. And that mixing console designs are judged by the most critical performance standard: Great sound.

Still, you may not care that Neotek designed transformerless consoles years ahead of everyone else. Or that we introduced state variable equalizers. Or that circuits that others would say are revolutionary are pretty much old hat with us. Our new hybrid amps, for example.

But you do care about sonic quality. That's how your own work is judged. It's how you judge ours.

Neotek's reputation for performance is built on outstanding circuit design. It's the reason no other console sound compares.

Our sound is the reason Abbey Road bought their first American made console. The reason you find Neotek credits on the finest classical CDs. Why top mic and synthesizer manufacturers demonstrate on Neotek consoles.

You can put our designs to work in your studio. Whether you need to capture a perfect vocal, get every nuance of a drum kit, or input a hot sample that makes your synth sound its best,

your Neotek sound will be remarkably brilliant, clear, and musical.

That's why we work so hard to put our console designs at the leading edge of technology. It puts your sound ahead of all the muddy and fuzzy alternatives.

Great composers write each note carefully on the page. Every passage leads to their vision of the whole. So it is with Neotek's artists of circuit design.

We suspect that Brahms, Beethoven, and Mozart never wrote a schematic.

But if they had . . .

NEOTEK

Circle #005 on Reader Service Card

1154 west belmont avenue
chicago, illinois 60657
(312) 929-6699

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

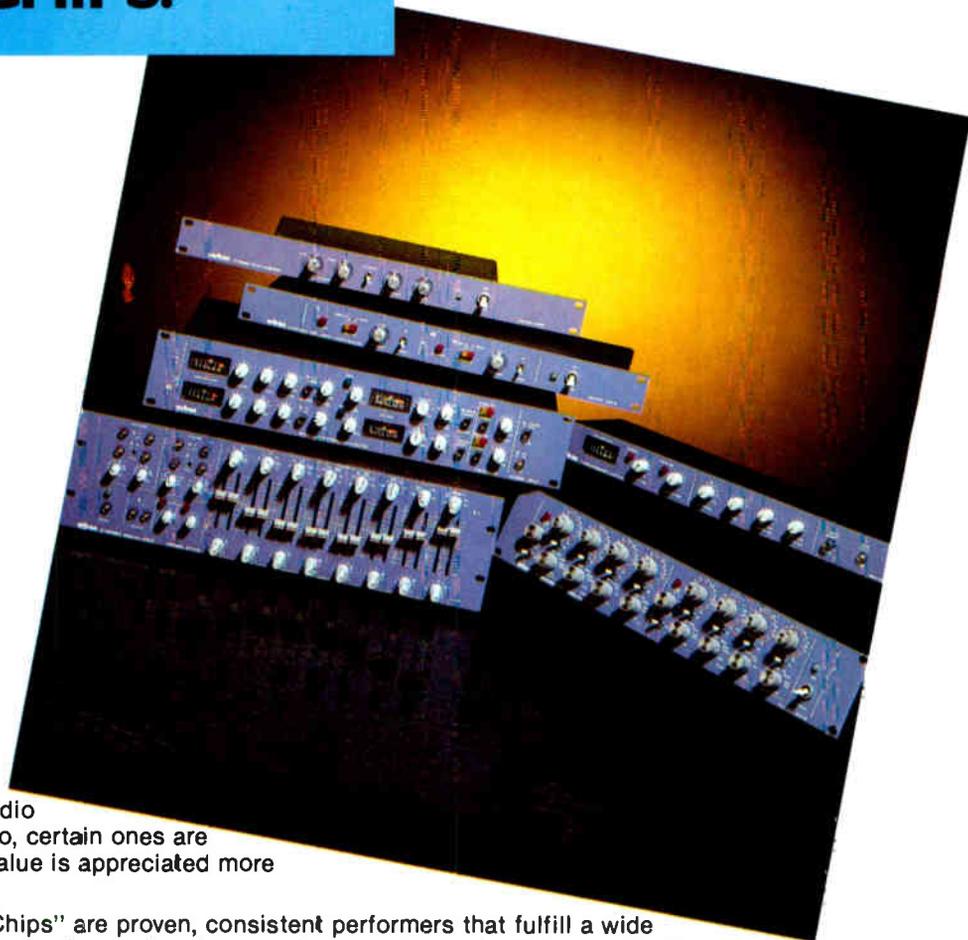
. . . A twin membrane system providing excellent breath-pop protection and superior transparency throughout the vocal bandwidth. Standard 5/8" mount. Colors in Pink, Aqua, Black, or Studio Grey.

For the dealer nearest you: (201) 739-9162
or make check for \$49.95 payable to:

The Stocking Screen — Box 531, Keyport, New Jersey 07735
(In NJ order call (609) 761-1001)

Circle #006 on Reader Service Card

THE BLUE CHIPS.



While trendy audio products come and go, certain ones are timeless. Their true value is appreciated more year after year.

Orban's "Blue Chips" are proven, consistent performers that fulfill a wide variety of essential production and system requirements in top facilities worldwide.

622B Parametric Equalizer: The standard by which all others are judged. Sonically and musically pleasing. Can be used as combination 4-band EQ and notch filter. A real job saver.

672A/674A Graphic Parametric Equalizers "The Paracrossalizer": Combines eight bands of parametric EQ with tunable high and lowpass filters. A uniquely versatile production tool. Also quickly becoming the smart choice for room and system tuning because it eliminates ringing and phase shift problems. Can be used as full electronic crossover plus EQ in one cost-effective package.

536A Dynamic Sibilance Controller: Around the world, Orban de-essers are the salvation of vocal sessions. Quick set up and easy operation.

422A/424A Gated Compressor/Limiter/De-Esser "The Studio Optimod": The most flexible, cost-effective level control system available. Orban compressors are known and appreciated for their smoothness. No pumping, no breathing; they work for you, not against you in tough applications.

412A/414A Compressor/Limiter: Transparent level control delivers the punch without the bruise. Very cost-effective. Ideal for installations and reinforcement work.

245F Stereo Synthesizer: Magical stereo effects from mono synths, drum machines, or any mono source. Perfect for extending capability of smaller format multi-track systems—the 5th, 9th, 17th, or 25th track. Inexpensive.

Orban also manufactures the reliable 111B Dual Spring Reverb as well as attractive acrylic security covers which fit all standard 19" rack mount products.

Orban Associates Inc.
645 Bryant St. San Francisco, CA 94107
(415) 957-1067 Telex: 17-1480

Circle #007 on Reader Service Card





SERIESTEN Dave Harrison is responsible for conceiving and overseeing the design of the Series Ten. He was elected a Fellow of the Audio Engineering Society for originating the user interface of today's inline mixing desks. Since he did his pioneering work, nearly all major mixing desks have adopted this revolutionary architecture.

The Series Ten is no less remarkable than his earlier work. The best mixers and tonmeisters throughout the world are acclaiming the brilliance of its user interface which so seamlessly joins man and machine.

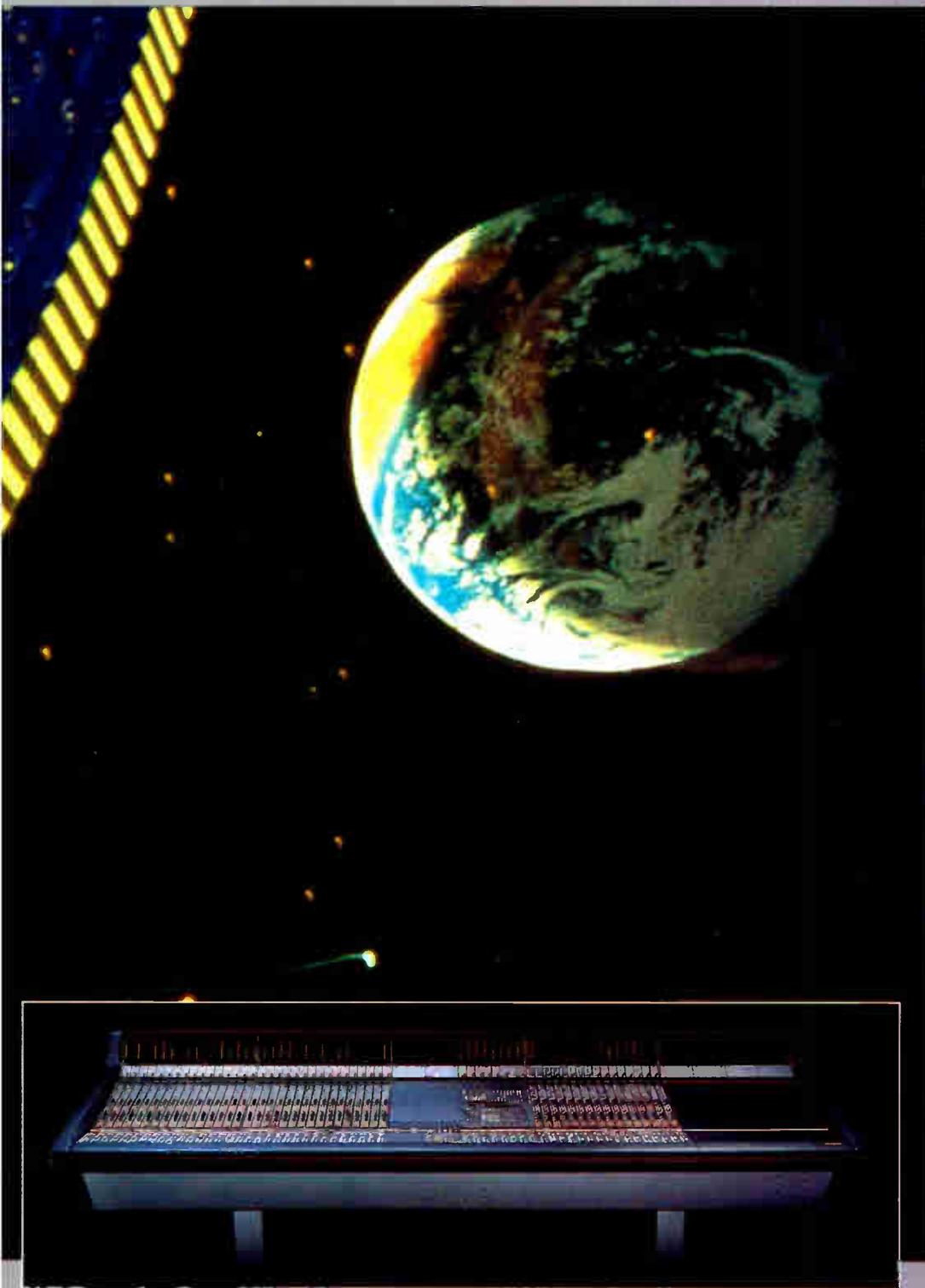
Harrison has crafted the Series Ten to allow full access to the elegant power of this, the world's most capable mixing system, with a minimum of change to the way you work. You will be at home when you first sit at a Series Ten desk. You will be

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...

Harrison is the motion picture industry's supplier of choice for automated post production mixing desks. Our PP-1 mixing desk up to now has been the world's most automated mixing desk. It is from this experience base that we now bring you a system powerful enough to fully automate a mixing desk of the



REPRESENTED

magnitude of Series Ten.

This system is so powerful that Harrison must have United States government approval before shipment to most parts of the world. Do not let this intimidate you. As we have developed the power of this automation system, we have also refined its control. You may even forget about it—forget about it at least until you try to mix on another desk without it.

Many years of listening to you and responding to your needs have uniquely prepared Harrison for this bold new step.

Series Ten from Harrison—It's all you hoped it would be.

imagine  **Harrison**

Circle #008 on Reader Service Card

Harrison Systems, Inc. • P.O. Box 22964
Nashville, TN 37202 • Telephone (615) 834-1184 • Telex 555133

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.

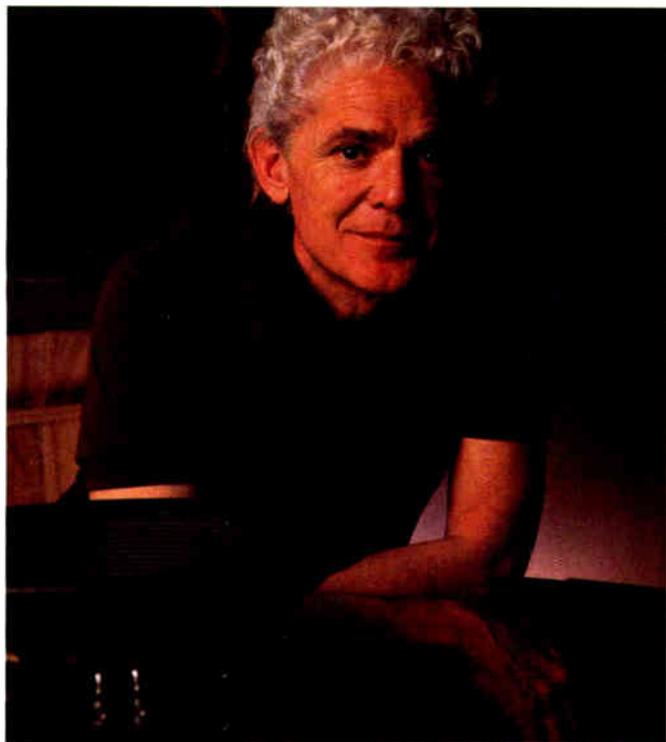
The recording equipment and techniques used for shooting *Vice* represent an interesting mix of the traditional and the new. Moreover, it demonstrates the soundmen's fight against

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.

Before you choose speaker components, listen to Tom Hidley.



It's a good bet that of all the people reading this ad, 10 out of 10 know the name Tom Hidley.

One engineer we spoke with called him "the best engineer in the world." Another described him, a bit more colorfully, as "pretty damn hot."

But most of you know him as perhaps the foremost studio designer in the world today.

The reason we bring this up is that the speaker components Tom prefers for his clients are the ones we make.

TAD.

"I WILL USE ONLY TAD, UNLESS A CLIENT DEMANDS OTHERWISE."

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.

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

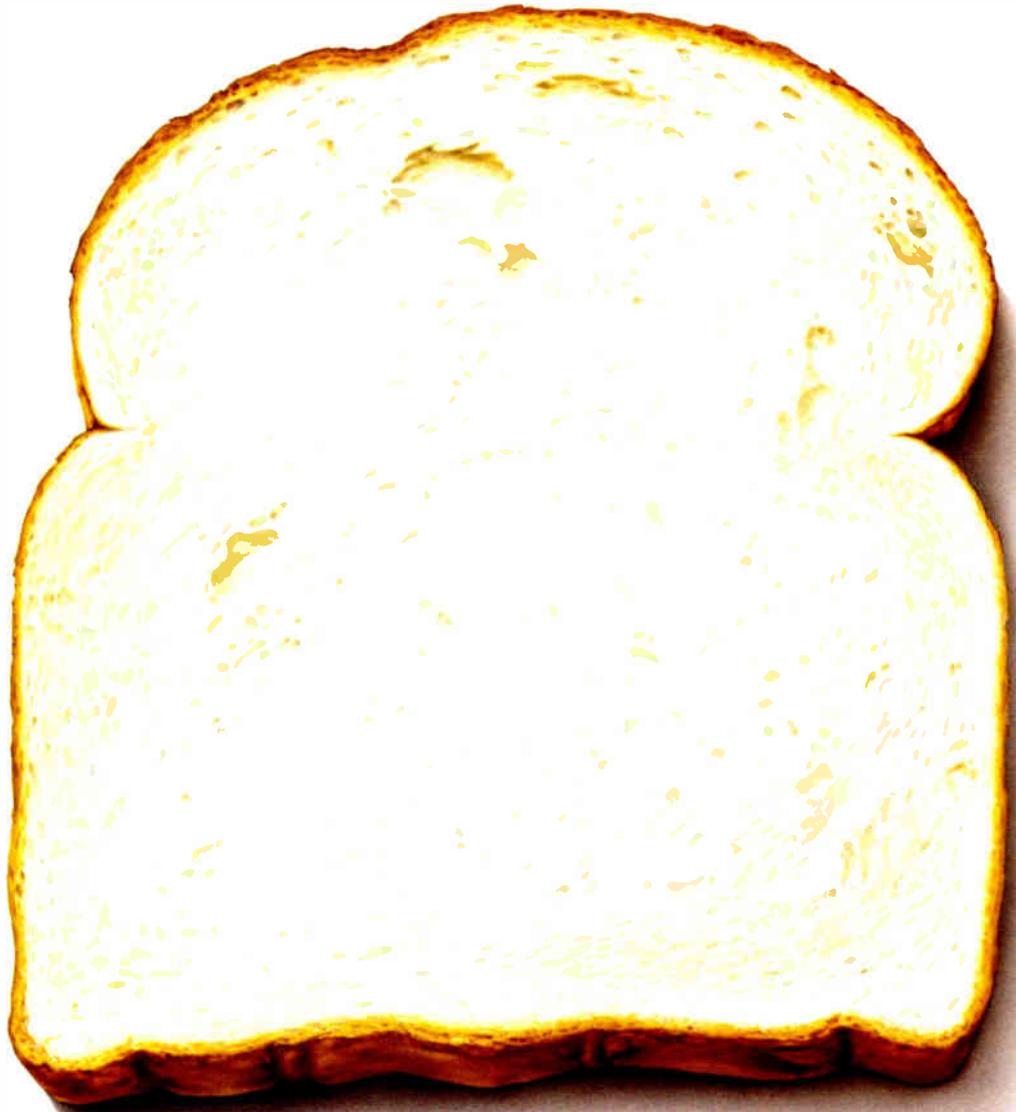
But for Tom, that's all frosting on the cake. "At the end of the day," he says, "it's what comes out of that speaker that determines success or failure. No matter what it measures, it all comes down to what it sounds like. TAD makes the best sounding components I've ever heard."

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.

TAD Technical Audio Devices

Professional Products Division of Pioneer Electronics (USA) Inc.,
5000 Airport Plaza Dr., Long Beach, CA 90815. (213) 420-5700.



Our music library is anything but this.

Just mention the words stock music and many people think of music as bland as white bread.

Now there's an alternative to stale stock music. The Air Craft Music Library. Designed for people who want stock music

that gives them an edge. That gives them the uniqueness and personality good music is supposed to create.

Give a listen. Then give us a call at 1-800-343-2514. Why settle for white bread when you can get fresh baked goods?



77 North Washington St., Boston, MA 02114 (617) 367-0510
25 East 21st Street, New York, NY 10010 (212) 420-6010

Circle #010 on Reader Service Card

World Radio History

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-

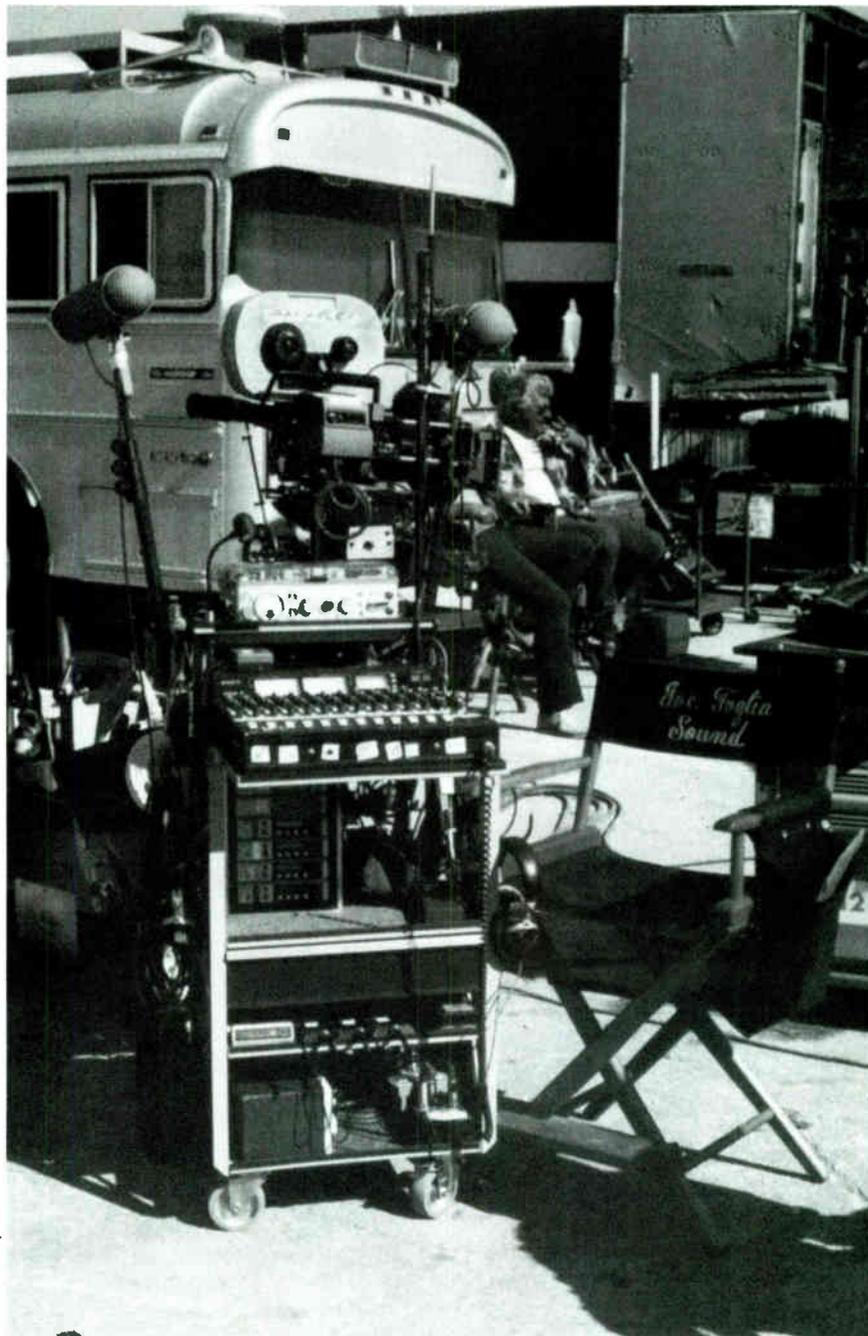
ples the room tone to synthesize an ambient bed for the scene.

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

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

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.

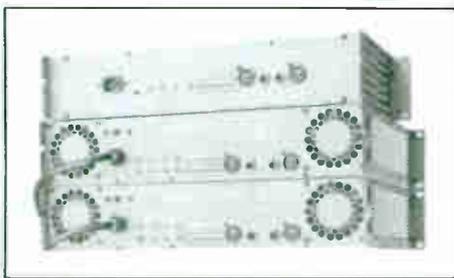
Mix: Does the extensive use of music affect your recording philosophy?

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 Ω (per channel, both channels driven, 20Hz - 20kHz, -0.5dB) 400 watts into 8 Ω , 450 watts into 4 Ω (burst power*) **distortion** (250mW to rated power at 8 Ω): 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 Ω , 400 watts into 4 Ω (per channel, both channels driven, 20Hz - 20kHz, -0.5dB), 800 watts into 8 Ω (bridged mono), 800 watts into 4 Ω , 900 watts into 2 Ω (burst power*) **distortion** (250mW to rated power at 8 Ω): 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 Ω , 500 watts into 4 Ω , 750 watts into 2 Ω (per channel, both channels driven, 20Hz - 20kHz, -0.5dB), 1000 watts into 8 Ω , 1500 watts into 4 Ω (bridged mono) 1500 watts into 2 Ω , 1600 watts into 1 Ω (burst power*) **distortion** (250mW to rated power at 8 Ω): 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)

Total Audio Transparency

Manufactured in the UK:

Hill Audio Ltd., Hollingbourne House, Hollingbourne, Kent ME17 1QJ England
Tel: (062 780) 555/6/7 Tlx: 966641 HILL

U.S. Sales Office:

Hill Audio Inc., 5002B N. Royal Atlanta Dr., Tucker, GA 30084 USA
Tel: (404) 934-1851 Tlx: 293827 HLAD



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-



Why should anyone else listen if you can't hear yourself?

A good monitor mix lets each member of the band hear exactly what he or she needs to hear. And that can be critical in helping any band play its best.

It's with this in mind that Yamaha designed the new MC monitor mixing consoles, the 16-channel MC1608M and the 24-channel MC2408M.

Both offer eight independent monitor mixes via eight outputs. And two auxiliary sends which can be used to patch in signal processors or tape recorders, as well as provide two additional mixes.

Each channel has a phase reverse switch, 20 dB pad, gain control, peak LED, three-band equalization with sweepable mid-frequency, two auxiliary send controls, eight rotary level controls, channel on/off switch, and channel cue switch.

The Input Channel Cue Priority System makes the monitor mix engineer's job a little easier. By pressing the cue switch on one or more input channels or auxiliary inputs, the master outputs being monitored are muted. So he can monitor only the selected input signal through headphones or speakers.

The MASTER section cue function permits the engineer to monitor an individual performer's monitor mix through his own headphones or near-field speakers without affecting

the overall monitor mix.

The MCM consoles' communication facilities include talkback assign switches, XLR talkback mic input, and COMM IN jack and level control. So the monitor mix engineer can communicate with the house mix engineer as well as with the individual performers.

All primary inputs and outputs are electronically balanced with XLR connectors. And there are insert patch points on all input channels as well as the master outputs.

Yet with all this flexibility and these features, both the MCM consoles are lightweight and compact. And at \$2,895* for the MC1608M and \$3,995* for the MC2408M, surprisingly affordable.

So now that you've heard us, it's time to go to your Yamaha Professional Audio dealer to check out an MCM mixing console. And hear yourself.

For a complete brochure, write: Yamaha International Corporation, Professional Audio Division, P.O. Box 6600, Buena Park, CA 90622. In Canada, Yamaha Canada Music Ltd., 135 Milner Ave., Scarborough, Ont. M1S 3R1.

*U.S.A. suggested retail price. Prices will vary in Canada.



YAMAHA[®]
Engineering Imagination

CLEAR REASON

For the music studio owner, no decision is more critical than choosing a console. Both financially and creatively, the success of your operation may well depend on the capabilities and quality of the system you select, and the company that supports it. Clear reason, we suggest, to consider the SL 4000 E Series Master Studio System from Solid State Logic. But certainly not the only reason.

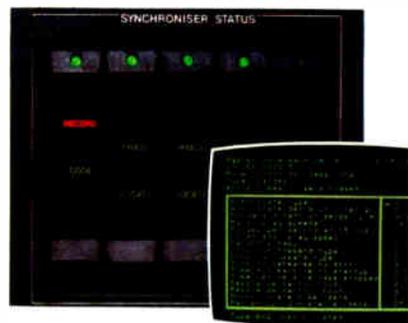


plus switchable phantom power, patchfree audio subgrouping, AFL and PFL monitoring, fader start for external devices,

Consider, for instance, that only SSL has built-in track remotes on every channel, integrated with the industry's most versatile monitor fader and foldback facilities. Or that SSL alone provides pushbutton signal processor routing for each channel's noise gate and expander, compressor/limiter, high and low pass filters, and parametric equaliser —

and stereo modules with balance and Image Width controls.

Consider that SSL makes the industry's only comprehensive studio control system — with integral synchronisation of up to five audio/video machines,



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?

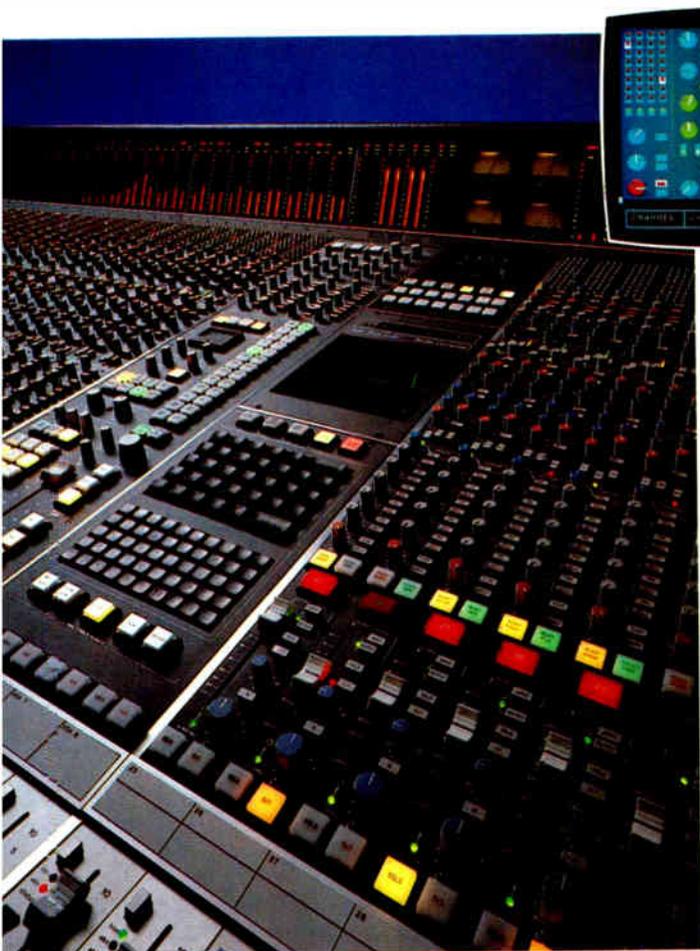
Smith: Simply, to maximize the many good assets that company has and make it more efficient. Most of all, I want to make it more of a member of the music community. Capitol has somehow slipped out of being a major player in every aspect of the industry—retail, radio and talent. I want the label to be 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-



Then consider that SSL's Studio Computer alone goes beyond mixing automation to provide Total Recall™ — a unique system, completely independent of the audio path, which stores all I/O module settings after each session. The new TR AutoScan function makes

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.

Finally, consider a company whose record of practical innovation, ongoing development and in-depth technical support has earned repeat orders from many of the world's toughest customers — a company that other manufacturers use as a standard for comparison. We join them in urging you to compare. Our 40 page colour brochure on the SL 4000 E Series is a good place to start. It's yours for the asking, and it just might make your difficult decision a whole lot easier. Clear reason, may we suggest, to write or call us today.

Solid State Logic

Begbroke, Oxford, England OX5 1RU • (08675) 4353
 200 West 57th Street • New York, New York 10019 • (212) 315-1111
 6255 Sunset Boulevard • Los Angeles, California 90028 • (213) 463-4444

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-

Rack Magic



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!

● Electronic Crossover

The PCS™ is a premium quality 3rd order (18dB per octave) electronic crossover. The PCS™ crossover function is selectable 2 or 3 way for use with a variety of Peavey speaker enclosures.

● "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.

The PCS™ from Peavey...no, it's not magic...but use it correctly and audiences just might think you are!



Circle #013 on Reader Service Card

For a complete look at the entire Peavey line, write for our magazine "The Monitor". Please send \$1.50 to cover postage and handling.

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.

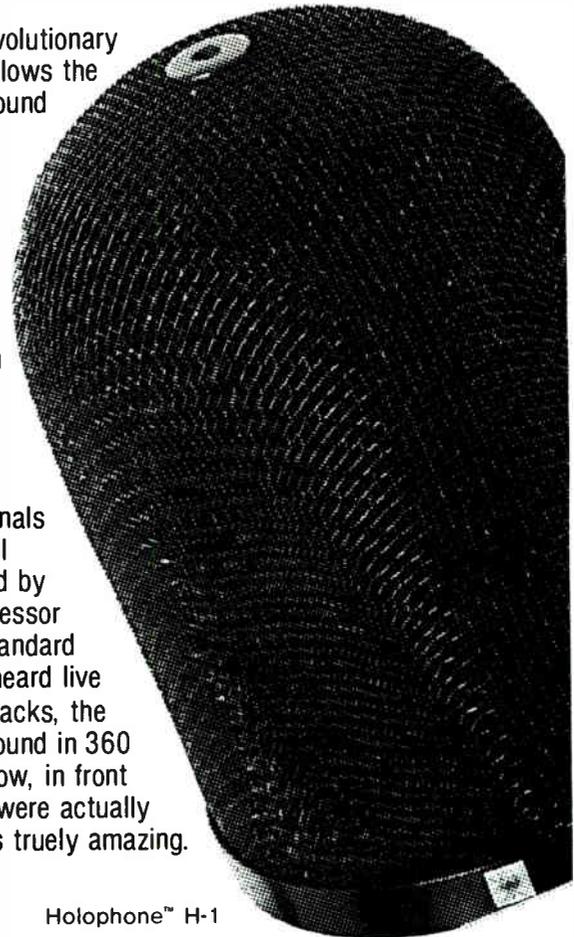
Mix: You played an active role in expanding the artist rosters at Warners and Elektra. Do you have similar plans for Capitol?

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. ■

THREE-DIMENSIONAL SOUND

for a three-dimensional world

Holophonics™ is a revolutionary new process which allows the listener to perceive sound in three dimensions. Designed by a team of experts in audio engineering, biology, anatomy and micro-electronics, the Holophone™ is an accurate reproduction of the human head which simulates the actual process performed in the three stages of the ear. Signals from twelve individual sensors are controlled by an internal microprocessor terminating in two standard XLR outputs. When heard live or recorded on two tracks, the listener can detect sound in 360 degrees – above, below, in front and behind, as if he were actually present! The effect is truly amazing.



Holophone™ H-1

Features:

- Operates on Standard "Stereo" Format
- Built-In Talk-Back Speaker
- Runs on Phantom Power or Internal Rechargeable Battery
- Battery Charger included
- Self-Contained Windscreen
- Built-In Elastic Suspension Shock-Absorber
- Universal Stand Mount (top and bottom)
- Rugged Lightweight Carrying Case included

For Demo Cassette and Information, Send \$3.00 (postage and handling) to:



Holophonics New York
1120 Ave. of the Americas
Suite 4270
New York, NY 10036
212-787-7767

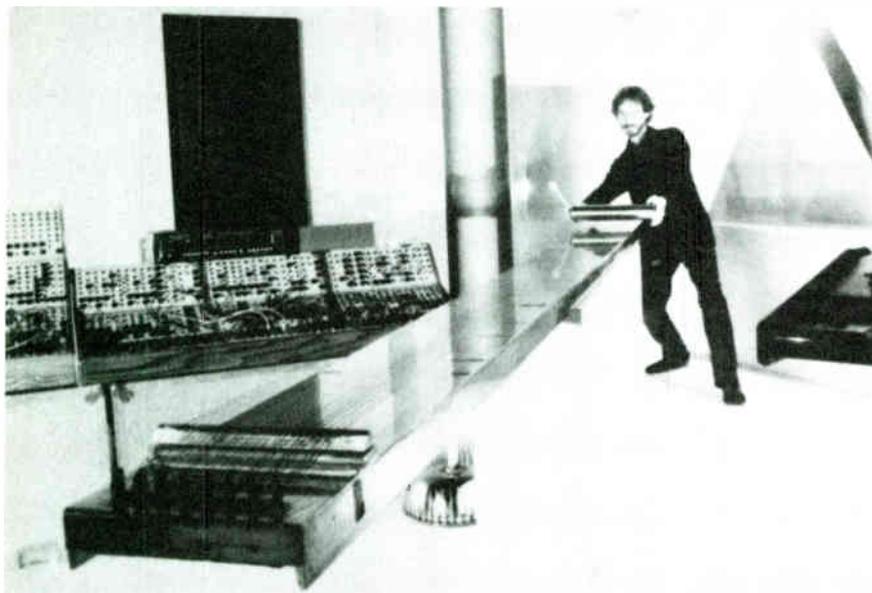
Holophonics L.A.
7131 Owensmouth
Suite B-45
Canoga Park, CA 91303
818-999-4425

Holophonics S.p.A.
Via Magno Magnini 24
Perugia, Italy 06100
075-751715
74770-756522

HOLOPHONE™, HOLOPHONIC(S)™ are registered trademarks of Holophonics Systems S.p.A.

Circle #014 on Reader Service Card

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 Quedest 412 monitor systems designed by Roger Quedest 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,



Studio with its new Amek console

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,

Hear the great wireless sound.

Consider the size advantages...

Cetec Vega's R-33 PRO PLUS wireless microphone receiver mounts inconspicuously on a camera. Or on a tiny corner of your sound cart. Or in your pocket. Or on your belt, providing you with program-quality headset audio.

With the R-33 you have a wide choice of transmitters...any Cetec Vega DYNEX® II bodypack or handheld. A full complement of useful accessories is included.

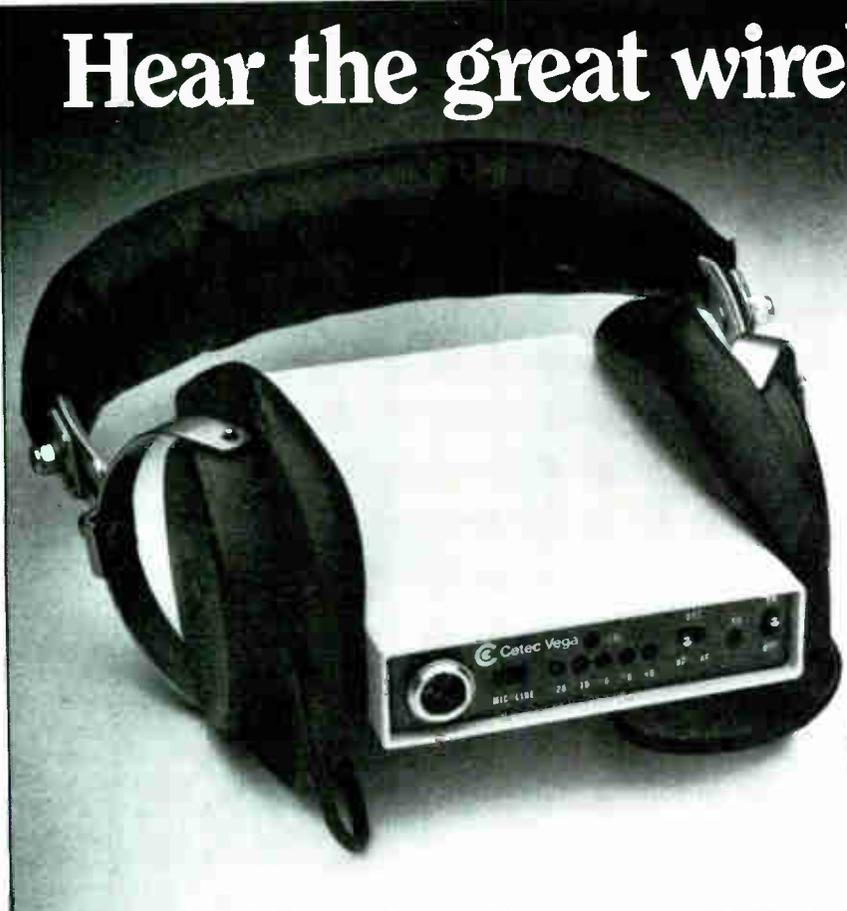
The R-33 provides 8 hours of operation on a single 9-volt battery. Audio is studio-quality (e.g., over 100 dB S/N).

All this, in a rugged package less than 12 ounces, and only 3.4 x 3-1/4 x 5-5/8 inches (HWD). Available in two colors... PRO Brown/Cream or Camera Black.



Cetec Vega

... the professional's wireless
9900 Baldwin Place
El Monte, CA 91731-2204
(818) 442-0782



Circle #015 on Reader Service Card

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." ■

A FEW WORDS ABOUT SOUNDMASTER™ AND TIME

In the time it takes you to read this ad, you can learn how to execute your first Soundmaster edit, flawlessly.

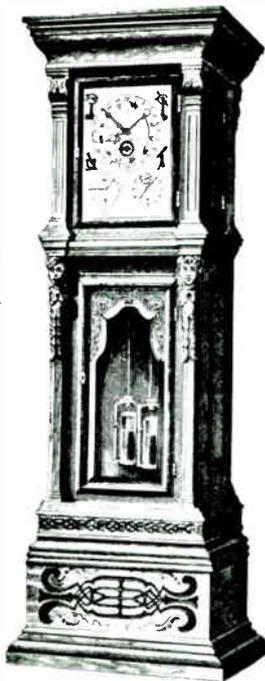
In the time it takes to call and arrange for a personal demonstration, your Soundmaster system can be up and running.

In the time it takes you to pull together the financing for one of our cost-effective systems, Soundmaster can profitably lay down the tracks for a half hour program.

In the time it takes you to compare Soundmaster to our competitors, you can leapfrog your competitors in one sound business decision.

Soundmaster. The fully integrated editing system designed to perform perfectly time after time after time after time...

NAB BOOTH #2780



soundmaster

Soundmaster International, Inc., 306 Rexdale Boulevard, Unit #5
Toronto, Ontario, Canada M9W 1R6, (416) 741-4034 - Telex 06-963548

NEW YORK • LOS ANGELES • CHICAGO
TORONTO • MONTREAL • SYDNEY • TOKYO • PARIS

Circle #016 on Reader Service Card



THE EVOLUTION OF SUCCESS

To stay number one, you've got to make the best even better. Which is why for ten years Ampex has continued advancing the performance of mastering tape. Through a decade of increased performance and reliability, Grand Master 456 remains the tape behind the sound of success. Which is why more top albums are recorded on Ampex tape than any other tape in the world. For Grand Master 456, the beat goes on.

AMPEX

Ampex Corporation, Magnetic Tape Division, 401 Broadway, Redwood City, CA 94063 415/367-3809 Ampex Corporation - One of The Signal Companies

AND THE BEAT GOES ON

Circle #017 on Reader Service Card

World Radio History

Studer A820, A812 and A810 recorders are at the leading edge of microprocessor control technology. The common design goal: unprecedented transport quickness, sonic accuracy, and production flexibility.

A New Concept – It began with the A810. Utilizing innovative microprocessor control networks, Studer engineers developed the first “computer age” recorder based on a total systems integration concept.

Extended further in the A812 and A820, this concept is now revolutionizing production and maintenance procedures in studios all around the world.

Programmable for Your Production – The old approach to recorder design had one button for one fixed operating feature. Then Studer opened a whole new realm of flexibility by making a variety of features user programmable. Greater operating flexibility was easily achieved without extra options or costly custom modifications.

Studer pioneered this concept, and today no other recorder line comes close. On the A820 and A812, for example, over forty different features can be programmed and assigned to any panel button. Even highly specialized production demands are easily accommodated. For example, three different sequences for start locate and rollback are available.

Essentially, every button on a Studer does something *you* want it to do.

Faster Set-Up – Studer was also the first to offer digital setting and storage of audio alignment parameters. Alignment parameters are keyed directly into the ma-

Studer: Leading Edge



chine or transferred via serial interface from an out-board computer. Non-volatile memory holds data for two tape formulations at all four speeds.

Interchangeable Cards – All three recorders share the same new generation of plug-in audio circuit boards. Noise and distortion specifications are significantly better than designs from just a few years back. Advanced phase compensation improves high frequency dynamics. And both transformer and transformerless inputs and outputs are available.

Systems Smart – For complex audio/video/film production systems, available options include center track time code, serial data bus, and special FM pilot and Neopilot versions.

A820: Ultimate Mastering – The fastest, smoothest, most “intelligent” tape transport ever made. Period. Available in 1/4” or 1/2” two-track versions.

A812: Mid-Sized and Sophisticated – An all-new transport with 12½” reel capacity, the A812 offers the same operating system software as the A820.

A810: The Compact Pioneer – Though the smallest and lowest-priced of the three, the A810 offers the same uncompromising audio performance. Available in console, rack mount, or portable versions.

Bring Your Production to the Leading Edge – For more information on the new generation of Studer recorders, please call your nearest Studer office.

Circle #019 on Reader Service Card

STUDER REVOX

STUDER REVOX AMERICA, INC.
1425 Elm Hill Pike, Nashville, TN 37210, (615) 254-5651

Offices: Los Angeles (818) 780-4234/New York (212) 244-4462/
Chicago (312) 526-1660/Dallas (214) 943-2239
San Francisco (415) 930-9866

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.



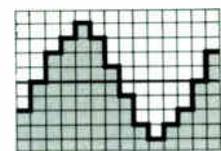
1925: The vacuum tube amplifier.

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.



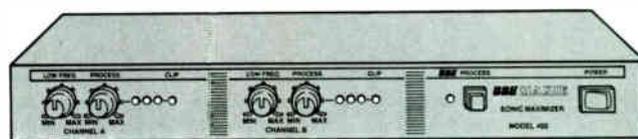
1978: The BBE breakthrough.

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.

Major P.A. companies like Stanal Sound and Best Audio made BBE part of their touring systems. And when the entertainment industry



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.

Wherever sound is amplified, recorded or broadcast, there's room for the BBE improvement. Because at the end of the line, we still have the loudspeaker that made big news back in 1924. Which is why you need BBE more than ever. Visit your BBE dealer for a demonstration. To find a BBE dealer near you call today toll-free at 1-800-233-8346. In California, 1-800-558-3963. And start making some history of your own.

BBE All the sound you've never heard.
Barcus-Berry Electronics, Inc.

Circle #018 on Reader Service Card

"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."

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. ■

EAR Professional Audio-Video

2641 EAST McDOWELL PHOENIX, ARIZONA 85008

Circle #020 on Reader Service Card

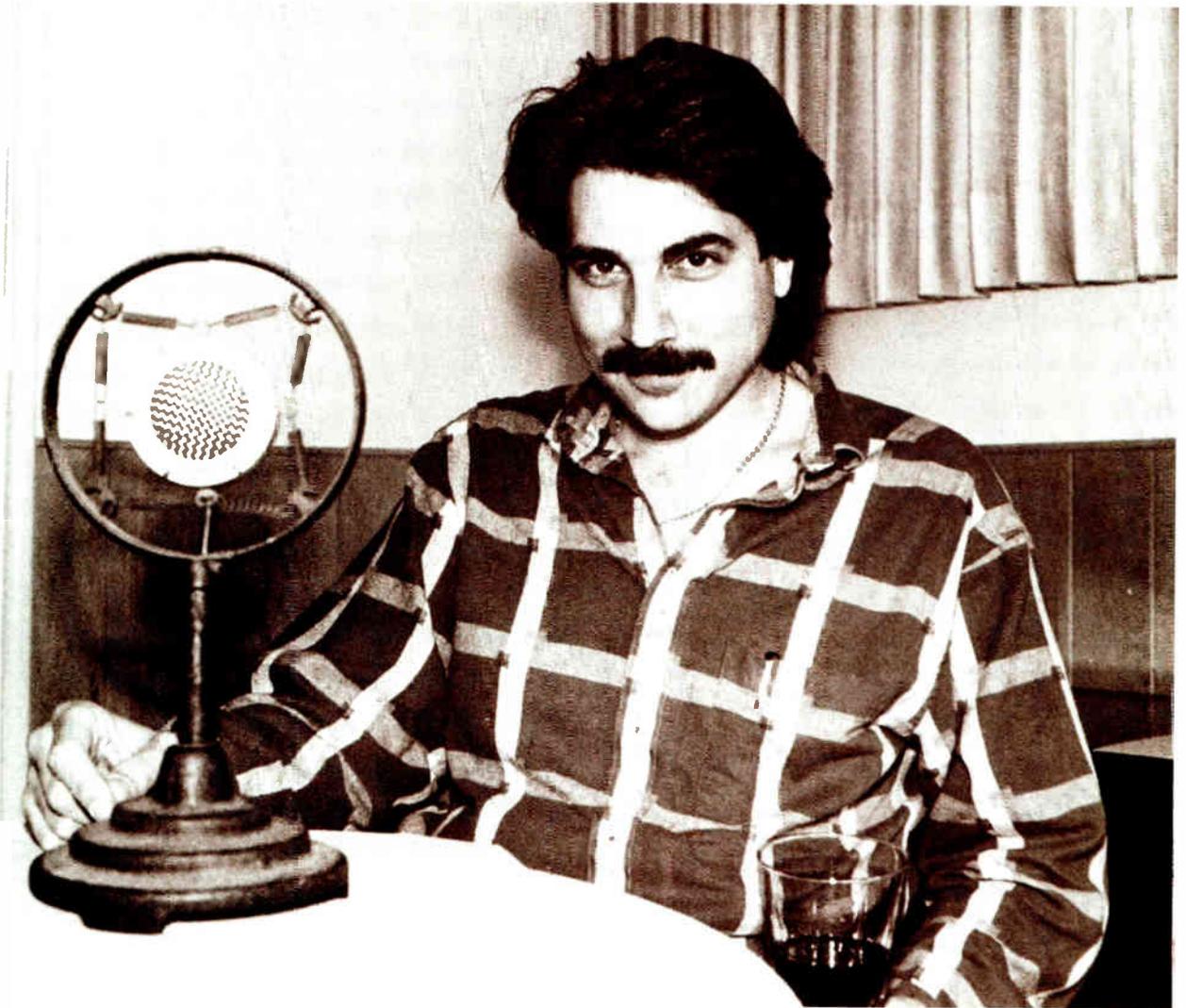
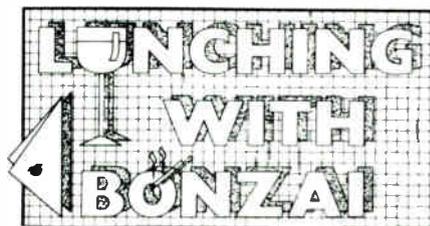


PHOTO: MR. BONZAI

STEPHEN PAUL

DOCTOR MICROPHONE



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.

We met at the Stephen Paul Audio facility in Los Angeles—a stylish three-bedroom home and workshop crammed with test equipment, hand-made tools, and the exposed guts of scores of priceless microphones. He introduced me to Jason Yamashita, a freelance engineer brought onboard to increase the output of mics with the hidden Stephen Paul restoration stamp. Stephen has earned his position as "Dr. Microphone," the specialist requested by the kingpins of the recording world. He can take apart a vintage tube mic from the '40s, restore every arcane detail, and then put it back

—CONTINUED ON PAGE 45

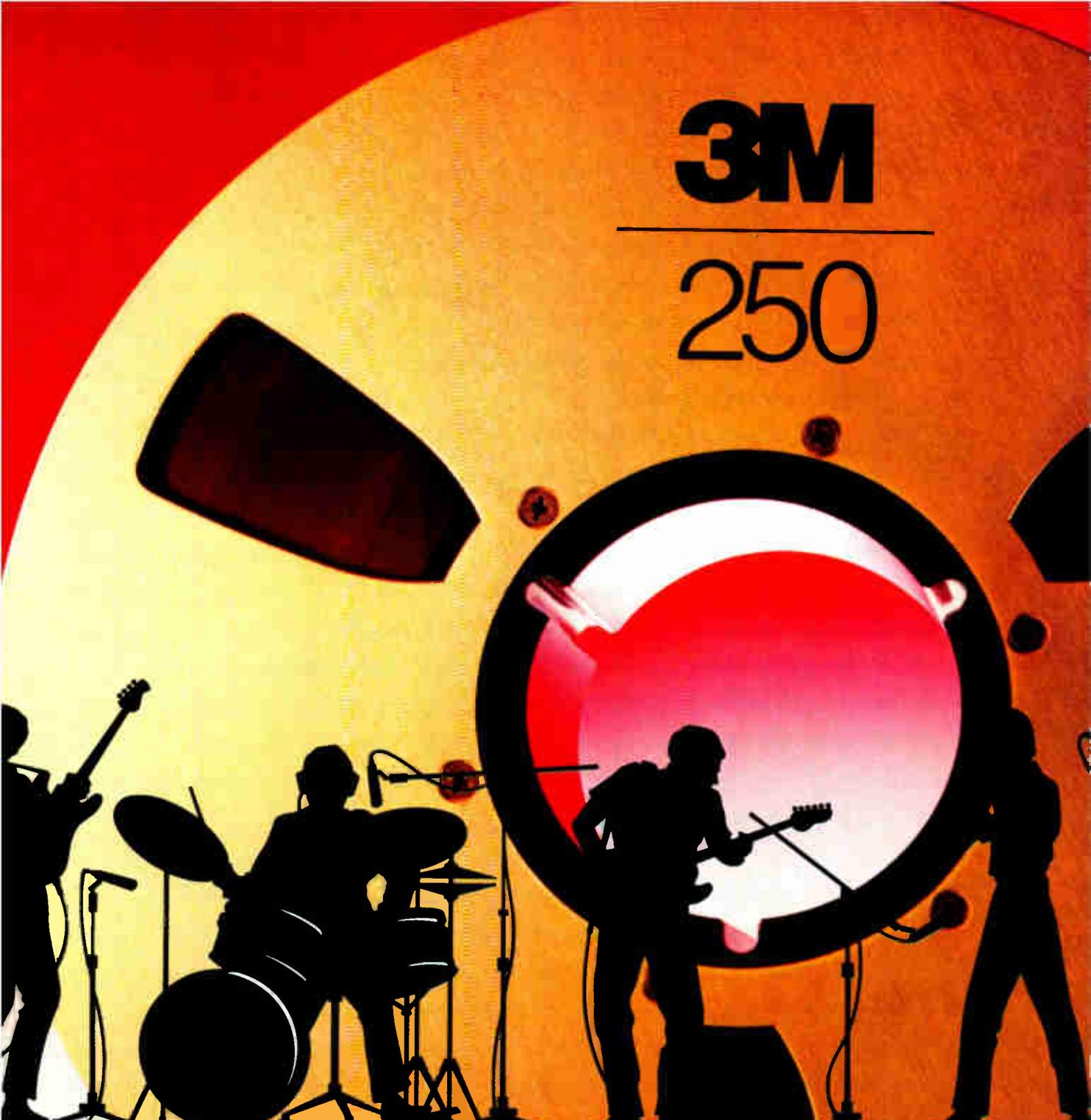
SUPER JX

BEYOND IMAGINATION

A truly revolutionary concept is difficult to imagine without first-hand experience. It was probably like that the first time you experienced the creative possibilities of a synthesizer. But once you experienced it, the creative doors it opened changed your music forever. It's like that with the Super JX—a revolutionary instrument that dramatically expands the synthesizer's scope of expression to offer unlimited creative possibilities to satisfy the demands of even the most exacting professional. The Super JX starts with the premise that two sounds are better than one, and that's the way each sound is created, by combining two different patches from two internal synthesizers under a single keyboard's control. And what control—combine percussive clear "digital" sounds with deep broad "analog" sounds, then use the Super JX's unique playing modes to play the same combination of patches in numerous expressive ways for an incredible variety of tonal textures. But it doesn't stop there. The Super JX combines this sophisticated synthesizer circuitry with extensive programmable functions, flexible outputs, full MIDI implementation, a dynamic 76 note keyboard with aftertouch that makes it an excellent MIDI controller, and enough other features to allow you to explore new dimensions not only in sound synthesis but also in playing technique and sound placement. Expand your imagination, and your creative possibilities, with a first-hand experience of the incredible Super JX—the friendliest and most advanced performance-oriented synthesizer the world has ever seen. Roland Corp US, 7200 Dominion Circle, Los Angeles, CA 90040 (213) 685 5141.  Roland®

Circle #021 on Reader Service Card

©1986 Roland Corporation US



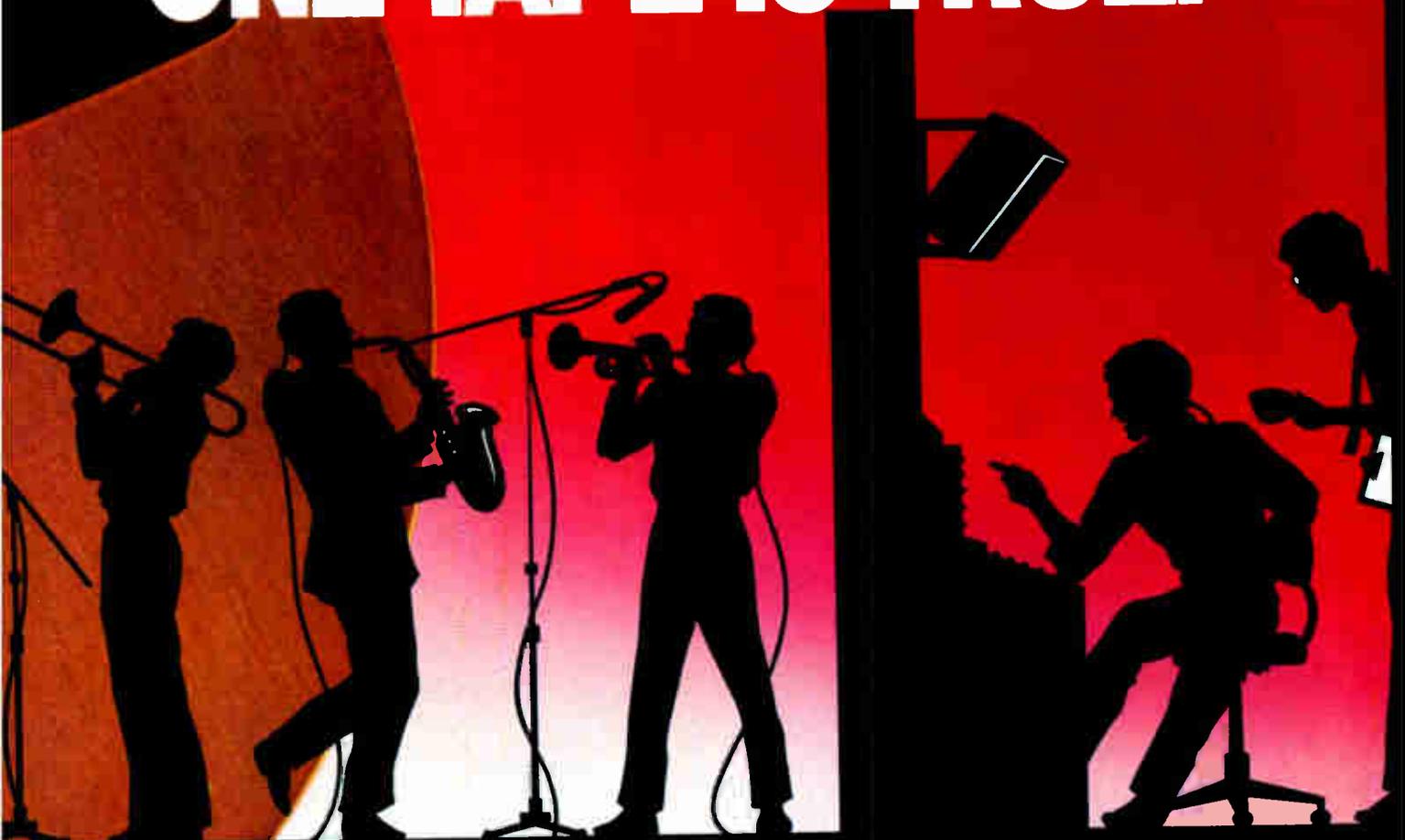
3M

250

One Tape Sounds True.

Because capturing all the music is all that matters, we've created the world's finest music mastering tape. 3M 250 Recording Tape. Designed to deliver the greatest dynamic range and best signal-to-noise ratio of any tape in the world. To give you the truest sound.

TO THOSE WHO PUT A RANGE OF MUSIC ON A ROLL OF TAPE, ONE TAPE IS TRUE.



One Tape Stands True.

Helping you capture all the music...that's what we've been doing since we introduced recording tape back in the '40s.

That's why we stand by you—with the largest support force in the field.

And we stand behind you—with some of the most advanced research in the industry.

All to keep our standing—as number one in the world of the pro.

NUMBER ONE IN THE WORLD OF THE PRO

3M

Worldwide Sponsor
1988 Olympic Games





The fact that we don't want to mention digital recording in this advert is no reflection on its undoubted merits, or the merits of Brüel & Kjær Series 4000 Professional Microphones.

The thing is, we've seen enough adverts claiming that the ultimate microphone for digital recording has arrived; too many in fact. To paraphrase Shakespeare, "methinks they do protest too much". And he was acknowledged as a genius without mentioning digital recording once....

All we'd like to say is: don't listen to us, listen to our microphones. They speak for themselves.

SERIES 4000 PROFESSIONAL MICROPHONES

Brüel & Kjær 

Brüel & Kjær Instruments, Inc.

185 Forest Street, Marlborough, Massachusetts 01752 · (617) 481-7000

**Contact your local dealer for a demo microphone
and make your own evaluation.**

86-349

AVC SYSTEMS
747 Church Road, Suite A6
Elmhurst, IL 60126
(312) 279-6580

EAR PROFESSIONAL AUDIO
2641 E. McDowell
Phoenix, AZ 85008
(601) 267-0600

LEE FURR ASSOCIATES
5035 N. Via Condesa
Tucson, AZ 85718
(602) 299-2571

PHIL REDDISH SOUND
6234 Pearl Road
Parma Heights, OH 44130
(216) 885-3030

STUDIO-SONICS CORP.
1165 Tower Road
Schaumburg, IL 60195
(312) 843-7400

AVC SYSTEMS
2709 E. 25th Street
Minneapolis, MN 55406
(612) 729-8305

EVERYTHING AUDIO
16055 Ventura Blvd.
Encino, CA 91436
(818) 995-4175

LEO'S PROFESSIONAL AUDIO
5447 Telegraph Avenue
Oakland, CA 94609
(415) 652-1553

RECORDING CONSULTANTS, INC.
8550 Second Avenue
Silver Spring, MD 20910
(301) 587-1800

TEKCOM CORP.
408 Vine Street
Philadelphia, PA 19106
(215) 627-6700

BRIDGEWATER SOUND
160th and S. Halsted
Harvey, IL 60426
(312) 596-0309

HY JAMES
24166 Haggerty Road
Farmington Hills, MI 48018
(313) 471-0027

MARTIN AUDIO VIDEO CORP.
423 West 55th Street
New York, NY 10019
(212) 541-5900

RMS SOUND
3235 S. E. 39th Avenue
Portland, OR 97202
(503) 239-0352

VALLEY AUDIO
P.O. Box 40743
2812 Erica Place
Nashville, TN 37204-3111
(615) 383-4732

BRIDGEWATER SOUND
936 Montana Street
Chicago, IL 60614
(312) 281-8920

L D SYSTEMS, INC.
467 W. 38th Street
Houston, TX 77018
(713) 695-9400

MILAM AUDIO COMPANY
1470 Valle Vista Blvd.
Pekin, IL 61554
(309) 346-3161

RMS SOUND
17517 15th Avenue, N.E.
Seattle, WA 98155
(206) 362-0491

WESTLAKE AUDIO, INC.
7265 Santa Monica Blvd.
Los Angeles, CA 90046
(213) 851-9800

Circle #022 on Reader Service Card

—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.

**V/A
A R O O M
M M**

SMPTE-MIDI-AUDIO FOR VIDEO

**We Have The
People With Years of
Experience in Putting
Together Systems.**

- RECORDING/POST PRODUCTION
- BROADCAST STUDIOS
- MIDI MUSICIANS INTERFACE

**AVC SYSTEMS
INC.**
2709 East 25th Street
Minneapolis, MN 55406

PRO-AUDIO
SPECIALISTS

1-800-323-0281

Circle #023 on Reader Service Card

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

“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

THE PROS SAY A FEW WORDS ABOUT THE MANY COMPONENTS OF JBL.

High-quality components teamed up with results-oriented engineering. That's how JBL Professional helps the pros achieve superior sound for specific applications. Here's what JBL means to five leading professionals—all with vastly different requirements:

"JBL products are very reliable and efficient, and that's why we've used them for 16 years here at Abbey Road Studios. We have JBL equipment in many locations throughout the studios, and these products give us the sound uniformity we really need. We can count on JBL for professional, solid, great-sounding products."

**Ken Townsend, General Manager
Abbey Road Studios, London, England**

"In the concert sound business, we don't get any second chances. If the sound system doesn't perform, the audience can't come back next week when we've got it right. That's why we chose JBL. JBL products

offer professional dependability and great sound—and that's how we define quality in our business. JBL really cares about making their products the best."

**Roy Clair
Clair Brothers Audio**

"You can't create a truly outstanding soundtrack without being able to hear everything accurately. That's why JBL's clarity was the first thing that impressed me. And with JBL, I can rest assured that our soundtrack will sound just as good in the theaters as it does in the studio."

**John Bonner, Chief Engineer
Goldwyn Sound Department
Warner Hollywood Studios**

"We first installed JBL equipment when we were selected as the boxing venue for the 1984 Olympics. Our P.A. system brings great consistency and clarity to all our sporting events, including wrestling, motor sports, track meets, and basketball. JBL components deliver outstanding

sound regardless of your seating location or the size of the crowd."

**Glenn Mon, Acting Director
Los Angeles Sports Arena**

"We chose JBL equipment because of its great reliability and transparency. All the worshippers in our 7,000-seat sanctuary must be able to hear equally well. JBL horns accomplish this without coloration. The sound is very clear and natural no matter where you're sitting."

**David Taylor, Director of Media
First Southern Baptist Church
Del City, Oklahoma**

At JBL Professional, we believe that components should match your application, not the other way around. To hear more about what sound professionals see in us, contact your JBL Professional dealer.



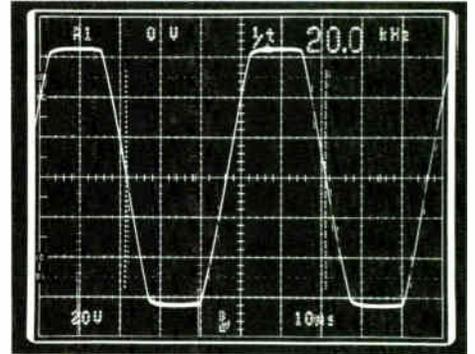
JBL Professional
8500 Balboa Boulevard
Northridge, CA 91329



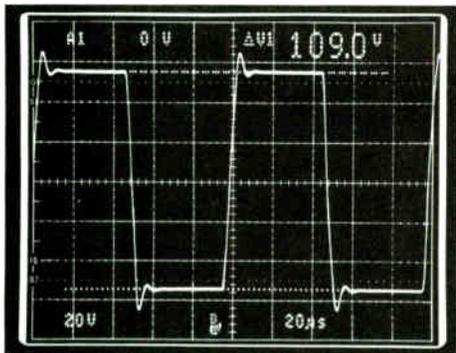
Knowledge is Power.

The more you know about RAMSA power amps, the better they look. Designed for stability and reliability,* they reflect our knowledge of the most demanding applications.

And their graceful overload



The WP-9220 exhibits gentle overload characteristics even when overdriven 3dB into 4Ω Load at 20 kHz (643 Watts).



The WP-9220 exhibits minimum ringing even with extremely reactive loads. (8Ω, 1μF; 10 kHz square wave input.)

characteristics dramatically improve apparent headroom. To learn more, see your RAMSA dealer, or write to 6550 Katella Avenue, Cypress, CA 90630.

RAMSA

Panasonic
Industrial Company

*Ramsa amplifiers carry a 5-year limited warranty.



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.

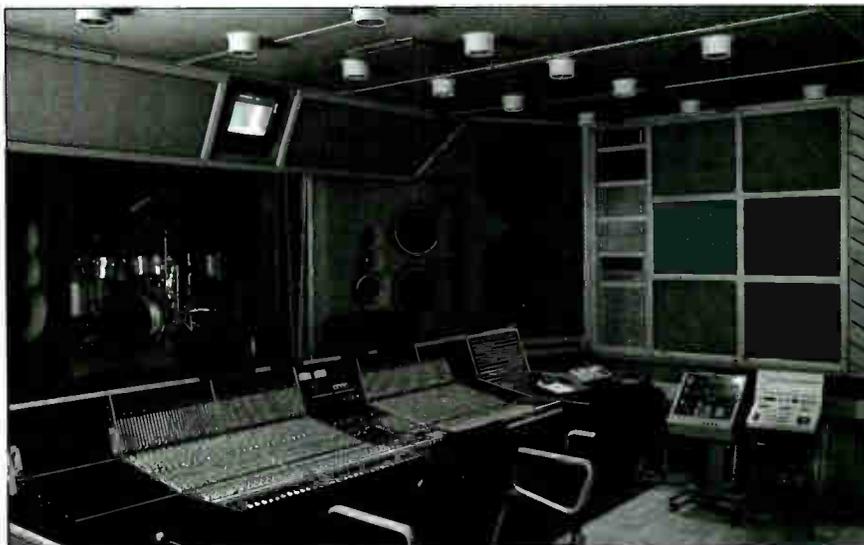
AMS and Calrec are only 14 miles apart and are located approximately 20 miles north of Manchester. The merger is not a mere financial exercise and building work is now underway at the new AMS headquarters in Burnley to provide extra room for the Calrec workforce and staff. Although the move is not intended 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. 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

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

Also 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.*



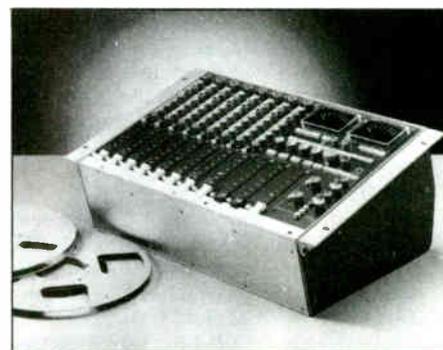
A/V SYNC FOR US ARMED FORCES NETWORK

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.

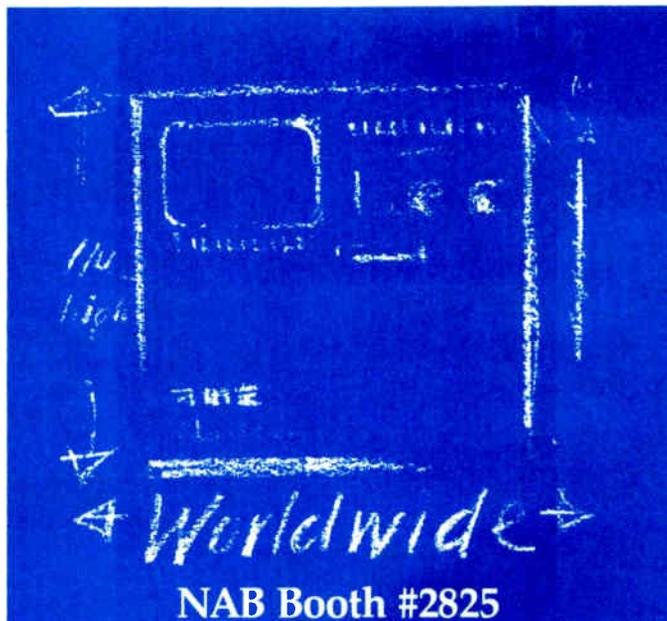
ECHO TIMES CHANGE OF STYLE

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.

Distributors

- Australia:** Syntec International PTY Limited, 60 Gibbes Street, Chatswood, NSW 2067. Tel: 406 4700/4557/4627. Telex: AA70570 CONTACT: Robert Sloss.
- Heaton Communications Pty Ltd**, 26 Ridge St, North Sydney, New South Wales 2060. Tel: (02) 428 3430. Telex: 20149. Ref. ST281. CONTACT: Paul Heaton.
- Austria:** Studer Revox Wien, Ludwiggasse 4, A-1180 Wien. Tel: (0222) 47 33 09. CONTACT: Ing H. Musmann.
- Canada:** Manta Electronics Group, 204 King Street East, Toronto, Ontario. M5A 1J7. Tel: (416) 868 0513. Telex: 06218665. CONTACT: Marshall Freund.
- Denmark:** Slt Studie & Lydteknik Aps, Skjulhoej Alle 57, DK-2720 Vanlose. Tel: (0) 1-71 33 44. Telex: 22924 slt dk. CONTACT: Ole Lund Christensen.
- Finland:** MS-Audiotron, Laitilantie 10, 00420 Helsinki 42. Tel: 566 4644. Telex: 125778 msa sf. CONTACT: Jarmo Roivas.
- France:** High Fidelity Services SA, 4 Rue Pierre Semard, 75009 Paris. Tel: 285 00 40. Telex: 290585. CONTACT: Jean Noel Kendirgi.
- West Germany:** Elmus GmbH., Hohenzollerndamm 58, 1000 Berlin 33. Tel: 030 823 99 61. CONTACT: Henri Keinert.
- Greece:** KEM Electronics O.E., 28 Papadiamadi Str., 14452 Metamorfofis, Attkis. Tel: 2819151/2811626. Telex: 222700 fimigr. CONTACT: Thimios Koliokotsis.
- Hong Kong:** Audio Consultants Co. Limited, 9th Floor, Kai It Building, 58 Pak Tai Street, Kowloon. Tel: 3-7125251. Telex: 54640. CONTACT: John Ho.
- India:** Katonix, C-15 Greater Kailash 1, New Delhi - 110048. Tel: 641-1369. Telex: 3163145 ktnx. CONTACT: Manjal Prabhat.
- Italy:** Audio International SRL, Via Santa Maria 100, San Maurizio AL Lambro, Milan. Tel: 0039-2-25390121. Telex: 322251 AUDINT. CONTACT: Roberto Beppato.
- Japan:** Continental Far East Inc., Sa Saki Building 18-9, Roppongi 3, Chome, Minato Ku, Tokyo. Tel: 583 8451. Fax: 5890272. CONTACT: Shingo Araki.
- Netherlands/Belgium:** Audioscript BV, Nijverheidsweg 13, 3762 EP SOEST. Tel: 2155-20302. Telex: 49353. Fax: 2155-22806. CONTACT: Jan Slooter.
- Norway:** Pro-Technic A/S, Lyder Sagens Gate - 19, Oslo 3. Tel: 02 460554 Telex: 72580. CONTACT: Martin Viktorin.
- New Zealand:** Maser Communications Limited, 3/7 Marken Place, Glenfield, Auckland. Tel: 444 3583/4. Telex: 63100. CONTACT: Gareth Jones.
- South Africa:** Tru-fi Electronics S.A. (Pty) Limited, P.O. Box 84444, Greenside 2034, Republic of South Africa. Tel: (011) 786-7177/8. Telex: 4-28708. CONTACT: Fleming Ravn.
- Spain:** Fading S.A. Servando Batanero 8, Madrid 17. Tel: 408 67 00/408 68 08. Telex: 44330. CONTACT: Felix Mayor.
- Cash Productions**, Agastia 20, Madrid 27. Tel: 267 52 22. CONTACT: Jim Kashishian.
- Sweden:** Soundtrade AB, Rasundavagen 45, S 17152 Solna. Tel: 08-7300400. Telex: 10551. CONTACT: Carl Langeskiold.
- Switzerland:** BVS AG, Neuhof, CH 8164 Bachs. Tel: 010 411 858 13 13. Telex: 56857 ABQCH. CONTACT: Rolf Jauch/Mark Ofner.
- U.S.A.:** AMS - Harris Sound Inc., 6640 Sunset Blvd., Suite 110, Hollywood. CA 90028. Tel: (213) 469-3500. Telex: 265871 MONREF G. Quoting: 84:DGS1547. CONTACT: Harry Harris.
- U.S.A.:** Calrec by AMS - Calrec by AMS, P.O. Box 31864, Seattle, WA 98103 - 1864, Canada. Tel: (206) 633 1956. CONTACT: Nigel Branwell.

- Distributors currently with AudioFile Demonstration System.



In the world of hard disc based recording, one particular system is rapidly achieving byword status.

The AMS AudioFile.

The Japanese have discovered a yen for its reliability.

Frankly, the French have fast developed a penchant for its fidelity.

And you can bet your bottom dollar, the number of Stateside studios with this most valuable production tool is growing and growing.

All told, the AMS AudioFile is in use in more locations, in more countries than any other system. A hard fact that's hard to ignore.

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.

ams
AUDIOFILE

Advanced Music Systems,
AMS Industries plc, Burnley, Lancs.
BB11 5ES. Tel: (0282) 57011.
Telex: 63108 AMS-G. Fax: (0282) 39542.



The Queen's Award for Export Achievement
to Edendeck Ltd. 1984/85 and AMS Industries plc 1986.
In July 1985 Edendeck Ltd. became AMS Industries plc.

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?

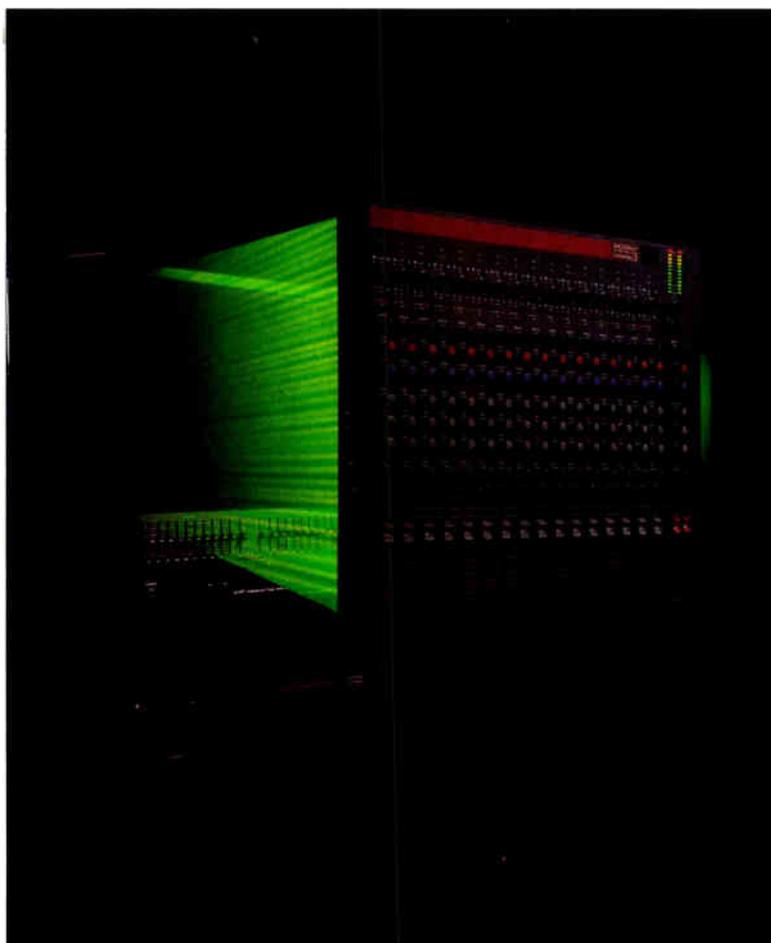
Paul: It's become an obsession.

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-



Room At The Top For You!

- **A 16-Input Stereo Mixer in a Rackmount Configuration.** Synthesizers, drum machines, and multiple microphones. . . RACKMAX is a new high-performance, full feature 16-channel mixer especially designed for those solo performers and small groups that have a lot of equipment, but not much room.

- **BIAMP makes room for you.** Only 10 spaces high, and 3 inches deep, including power supply, RACKMAX is compact but totally complete. You won't have to compromise sound quality or features for the extra room it gives you.

- **Features and Performance of Mixers Twice its size!**

- 3 separate sends per channel, fully configurable.

- Integral Digital Reverb (optional).
- LED indicators at each channel for signal present and clipping.
- 48 volt phantom power-switchable at each channel.
- Mic/line switching.
- Complete cue/solo system.
- Discrete Transistor Low Noise and Distortion Front End.

RACKMAX. NEW FROM BIAMP!

"Where do you go for a high performance rack mount mixer?"

"Biamp of course. Their new 16 channel RACKMAX is simply the best."



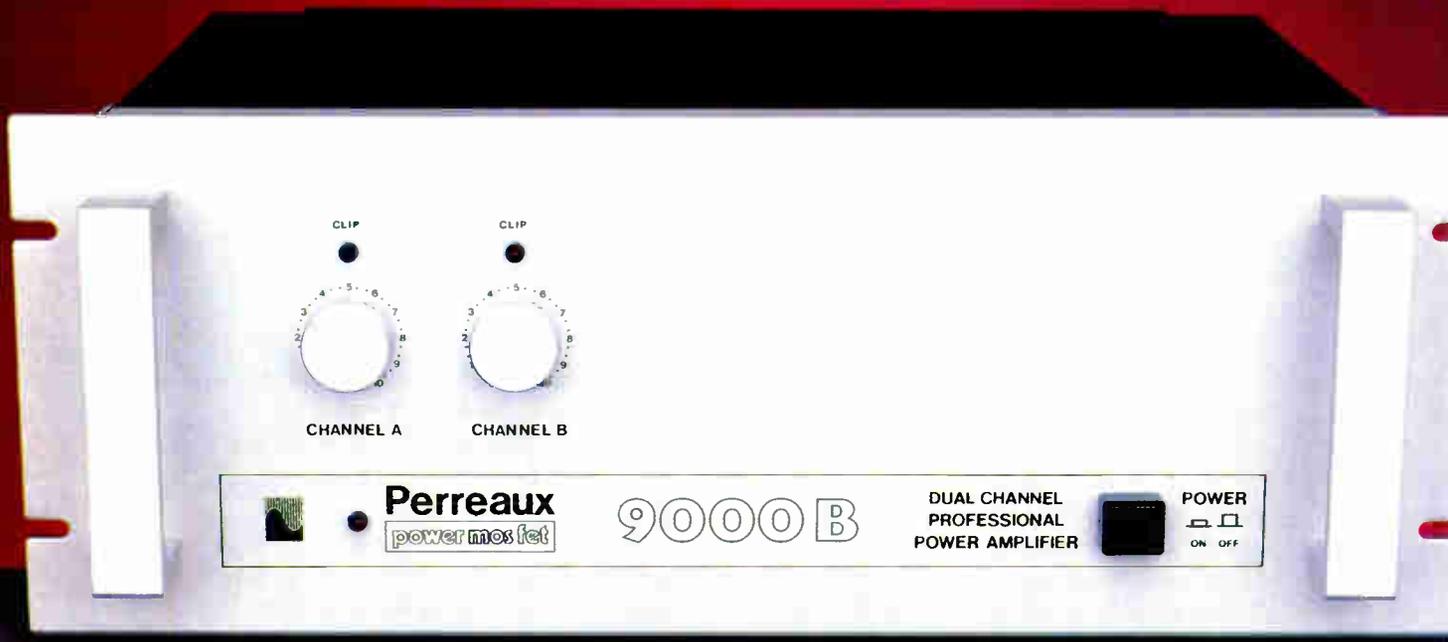
biamp

AMERICAN SOUND CRAFTSMANSHIP

Biamp Systems, P.O. Box 2160, Portland, Oregon 97208 (503) 641-7287

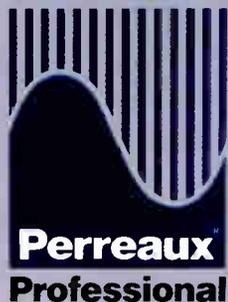
Circle #026 on Reader Service Card

Pro-Perreaux



U.S. Distributor:
G.M.I. DISTRIBUTORS, INC. 5000 Birch St., Suite 3000, West Tower
Newport Beach, CA. 92660 Tel. (714) 476-3606

World Radio History



Circle #027 on Reader Service Card

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. ■

Whether 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

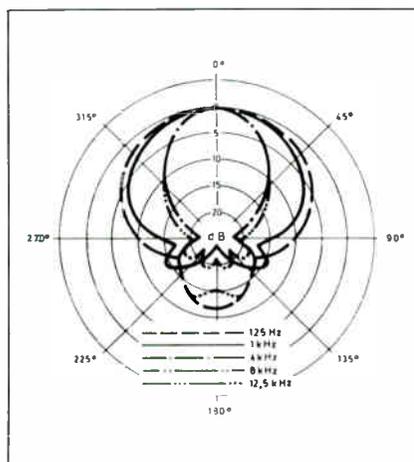
LOCATION MICROPHONE TECHNIQUES:

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-

We have many competitors. But no competition.



© 1987 Sennheiser Electronic Corporation (N.Y.)



Sennheiser Electronic Corporation (N.Y.), 48 West 38th Street, New York, N.Y. 10018 (212) 944-9440 Manufacturing Plant: D-3002 Wedemark, West Germany
PROFESSIONAL MICROPHONES • HEADPHONES • WIRELESS MICROPHONES • INFRA-RED SYSTEMS

Circle #028 on Reader Service Card



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 12/48 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.

Introducing
ART's
IEQ
with
Smartcurve™



The
INTELLIGENT
Approach to
Equalization

- Fully programmable, including Smartcurve™
- Superior audio performance
 - over 100dB dynamic range
 - less than .008% THD
 - > 15dB with 10dB input
- Over 120 user presets
 - 16 character user definable name
- User-friendly alphanumeric LCD display
- Complete MIDI interface
 - Recognizes MIDI presets
 - Total computer control over all functions
- The composite view shows:
 - Actual frequency response
 - Gain position
 - System and MIDI info
- Controls up to 16 other ART programmable EQ's
- Active balanced input
- Quick to set up, simple to use, rugged and reliable.

It Has To Be A Work Of

ART

Applied Research & Technology

215 Trenchard Street
Rockstar, New York 10828
114-436-2720
Telex: 494781 ARTROC

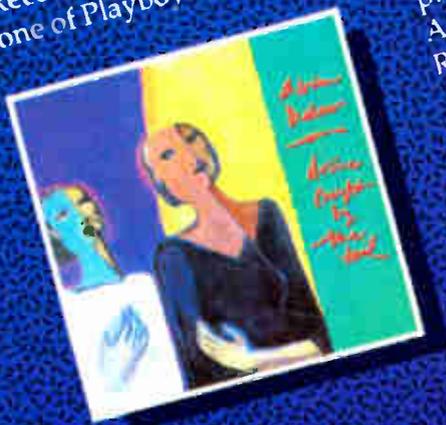
Circle #029 on Reader Service Card



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.

"Creatively, the atmosphere here is perfect, especially if you work best away from the trappings of normal hectic life," Adrian says. "Add to that the copious amounts of the best equipment around, a studio with unparalleled acoustics, and a managing staff that couldn't be more cooperative, and I feel confident in saying that there is no finer studio."



Adrian Belew...



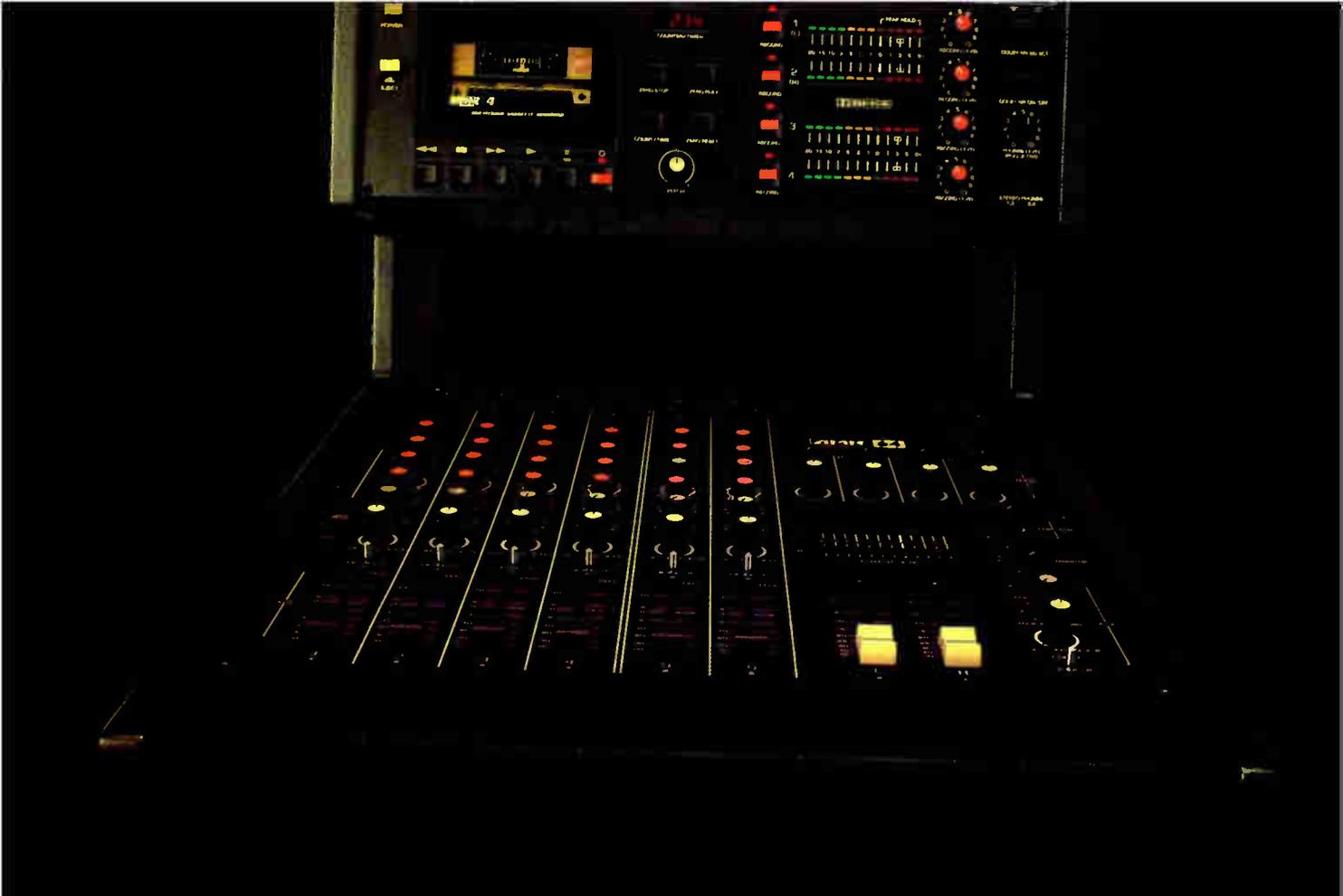
PHOTO-DESIGN SANDOZ CIECO 1987

gets the Royal treatment.

LAKE GENEVA, WI (414) 248-9100

World Radio History
Circle #030 on Reader Service Card





SERIOUS

High quality, professional performance, versatility, rugged metal construction with performance and feature extras. It's AMR System I.

- 4 Channel Multi-Track Cassette Recording System
- 28 dB of Headroom
- Solid metal construction
- Overdubber™ Multi-function pedal remote control (optional)
- Monitor Mixer section
- 6 x 4 mixer for tracking and overdubbing
- 10 x 2 mixing capability for mixdown
- 3 Band EQ (with sweepable mid-range) on each input
- Peak Hold Level indicators
- Electronic Stopwatch
- Insert "patch" jacks on each input
- Pan Pots on each input (assignable to tracks 1-2, 3-4, or L-R)
- Overdub, Ping-pong and mixdown without patching or changing signal cables
- Mute switch on each input
- Auxiliary master send control
- Assignable Auxiliary master return
- High Power internal headphone amplifier
- Dolby® B and C Noise Reduction
- Solenoid operated transport function controls
- Zero Stop and Zero Play
- Interconnecting cable harness (included)
- Manufactured in the USA.

If you are serious about your multi-track recording, the AMR System I offers the features and performance found in large and expensive professional recording equipment. See the AMR System I at your local AMR multi-track dealer and hear the difference.

Circle #031 on Reader Service Card

Dolby® is a Registered Trademark of
Dolby Laboratories Corporation

AMR[™]
World Radio History

AUDIO MEDIA RESEARCH ROUTE 2 HWY 503 DECATUR, MS 39327 601/663-2244

"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.

You know how low-quality tape winds up, right?

Why be bothered with it?

Count on United Group—manufacturers of expertly wound, highest quality custom loaded and custom length video and audio cassettes and more!

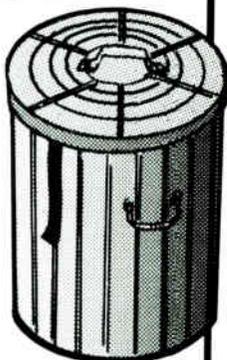
Authorized distributors of:

- AMPEX
- SCOTCH/3M
- TDK
- BASF
- CAPITOL
- TEAC/TASCAM
- DISCWASHER
- AUDIOLAB

Forget garbage forever!
For information, call or write:

UNITED GROUP

6855 Vineland Ave. • No. Hollywood, CA 91605
To call in California: 818/980-6700
or dial toll free 1-800/247-8606
From outside California: 1-800/433-4271



Circle #032 on Reader Service Card

Want More Information?

The advertisers in *Mix* are happy to supply readers with additional information about the products and services advertised in this issue.

To receive more information, just circle the appropriate numbers on the Reader Service card on page 210.

Mix
Resources for Creative Technology

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.

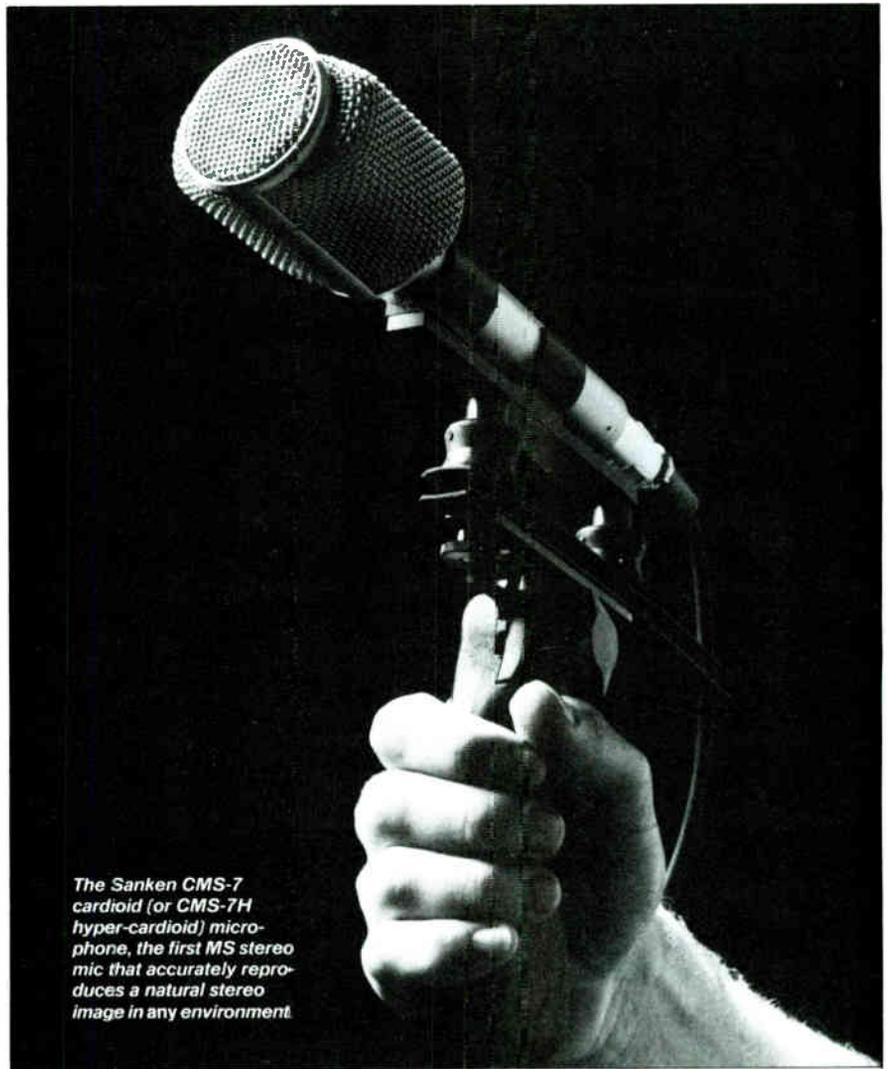
What kind of wireless system are you using?

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. ■



The Sanken CMS-7 cardioid (or CMS-7H hyper-cardioid) microphone, the first MS stereo mic that accurately reproduces a natural stereo image in any environment.

TRUE STEREO IN A PORTABLE MICROPHONE!

Sanken, maker of the world-acclaimed CU-41 CD-recording microphone, is pleased to announce the new CMS-7, the first portable MS stereo condenser mic that accurately captures a natural stereo perspective in any environment. Ideal for TV and radio broadcasting, motion picture making and studio recording. Its corrosion-free titanium diaphragm is immune to temperature and humidity changes, and performs superbly in adverse conditions. Battery power supply/switchable matrix box, which clips to your belt, carries an aperture control for focusing the stereo perspective. For more information, please contact:

LOS ANGELES	Audio Intervisual Design Tel: (213) 469-4773	NEW YORK	Martin Audio Video Corp Tel: (212) 541-5900
NASHVILLE	Studio Supply Co., Inc. Tel: (615) 366-1890	CANADA	Gould Marketing, Inc. Tel: (514) 342-4441



Japan's most original microphone maker

Sole export agent Pan Communications, Inc.
5-72-6 Asakusa, Taito-ku, Tokyo 111, Japan
Telex 2423934 KNMPCM/Telephone 03-505-5463
Telefax 03-505-5464/Cable Address PANCOMMJPN

Circle #033 on Reader Service Card

SOUND ON STAGE



PHOTO: JOHN G. LOCKE III

SOUND FOR THE 1987 NAMM JAMM

by Mike Stande and
John G. Locke III

The 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.

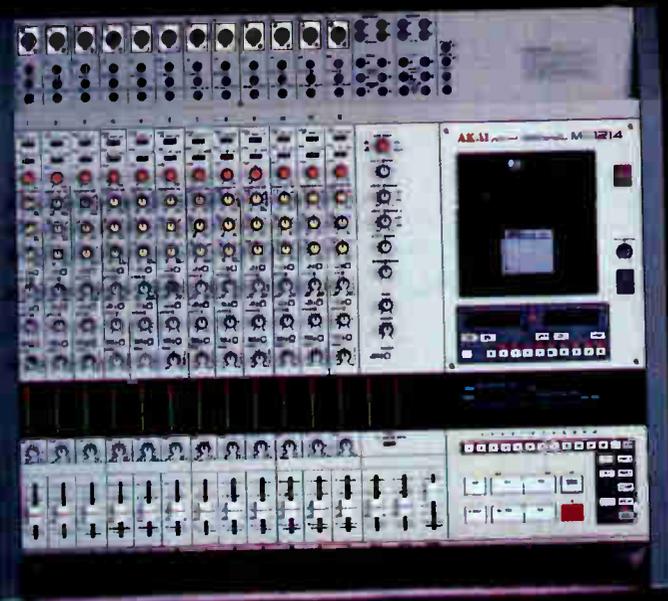
To help take the JAMM from a hotel ballroom setting to a concert arena feeling, Philadelphia P.A. Inc. (PPA) of Riverside, California, was contracted to handle the production work and to do a cost perspective for the event. West Coast Concert Lights was contracted for the event, and PPA provided full 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.

Sound System Design Origins

Highly active in the professional music and sound industry, Cerwin-Vega has recently begun to strengthen its commitment to pro sound, ex-

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

ALL IN ONE AND ONE FOR ALL



• AKAI MG1214 12 CHANNEL MIXER-12 TRACK RECORDER

• AKAI MG14D/ML14 RACK MOUNT 14 TRACK RECORDER and REMOTE AUTO-LOCATOR

Experience the ease and convenience of Akai's revolutionary MG1214 "all in one" mixer/multitrack recorder. SMPTE sync capabilities, programmable auto locator, and computerized patching provide the serious musician with a powerful, yet simple personal recording system.

The rack mountable MG14D gives you the flexibility and portability to use all of your existing mixing and "sweetening" equipment with the same superb multitrack recording deck used in the MG1214. The ML14 auto locator gives you control over twelve memory points (to the 10th of a second) for punch in, punch out, playback mute, repeat and much more.

Akai multitrack recording systems — There's one for all your needs.

RECORDING SPECIFICATIONS

- Tape format** • 1/2 inch AKAI original cassette tape (MK20)
- Track format** • 14 tracks 12 channels (including 1 control track and 1 sync track)
- Head configuration** • Super GX recording/playback head (1)
Control head (1), Erase head (1)
- Tape speed** • 19 cm/s and 9.5 cm/s
- Pitch control** • ± 12% (of standard speed)
- Recording time** • 10 minutes (19 cm/s) or 20 minutes (9.5 cm/s)
- Wow and flutter** • 19 cm/s: 0.03% (WRMS) - 0.05% Peak (DIN IEC Weighted)
9.5 cm/s: 0.04% (WRMS) - 0.06% Peak (DIN IEC Weighted)
- Distortion** • 19 cm/s: 0.5%, 0 dB (315 Hz third harmonic distortion)
9.5 cm/s: 0.8%, 0 dB (315 Hz third harmonic distortion)
- Noise reduction** • dbx Type I
- Cross talk** • (Between neighboring channels) 55 dB, 1 kHz (19 cm/s, 9.5 cm/s)

AKAI
professional

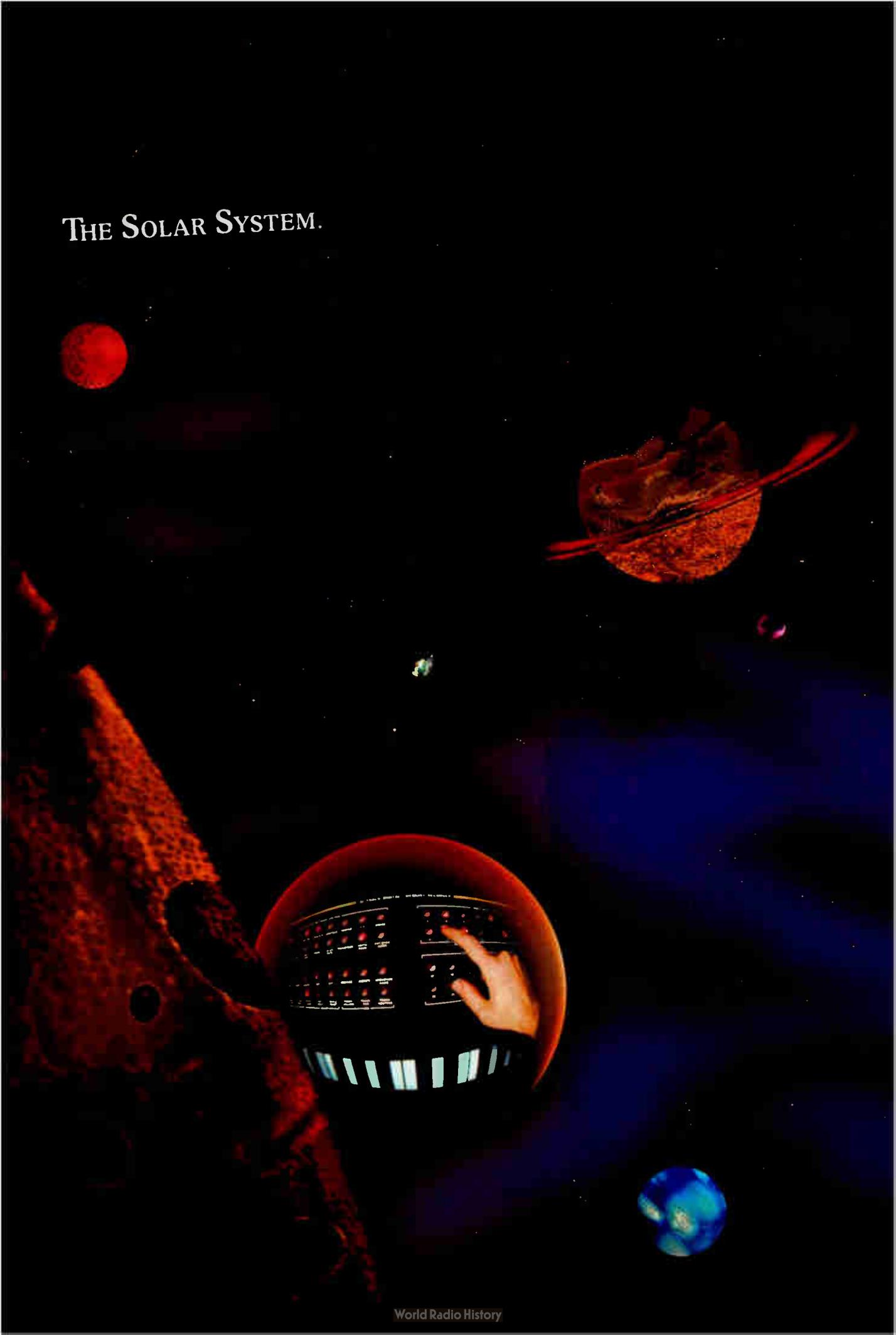
Creative At Heart.

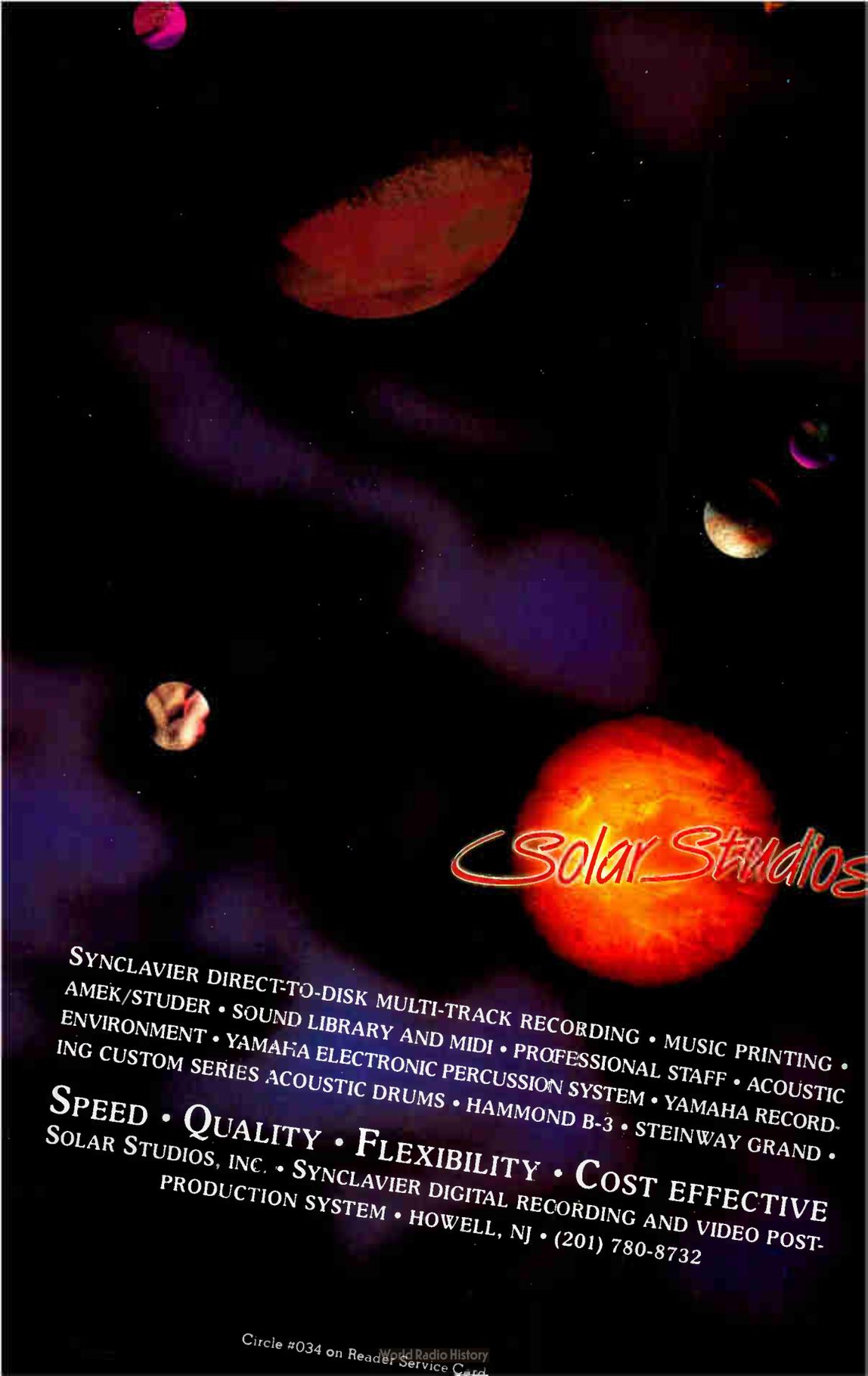
Circle #035 on Reader Service Card

For complete details write to AKAI P.O. Box 2344 Fort Worth, Texas 76113
Please send me more information on the AKAI MG1214 and MG14D/ML14.

Name _____
Address _____
City _____ State _____ Zip _____
Tele (_____) _____

THE SOLAR SYSTEM.





Solar Studios

SYNCLAVIER DIRECT-TO-DISK MULTI-TRACK RECORDING • MUSIC PRINTING •
AMEK/STUDER • SOUND LIBRARY AND MIDI • PROFESSIONAL STAFF • ACOUSTIC
ENVIRONMENT • YAMAHA ELECTRONIC PERCUSSION SYSTEM • YAMAHA RECORD-
ING CUSTOM SERIES ACOUSTIC DRUMS • HAMMOND B-3 • STEINWAY GRAND •

SPEED • QUALITY • FLEXIBILITY • COST EFFECTIVE
SOLAR STUDIOS, INC. • SYNCLAVIER DIGITAL RECORDING AND VIDEO POST-
PRODUCTION SYSTEM • HOWELL, NJ • (201) 780-8732



Finally, someone tied everything together — MIDI, SMPTE and the tape recorder — in one smart package. The company is Fostex and the product is the Model 4050. Much more than an autolocator, it provides a level of automation never before available.

Now musicians and songwriters have direct access to SMPTE time code, the universal time standard. Sync all your MIDI clocks and the tape recorder to SMPTE for rock stable timing.

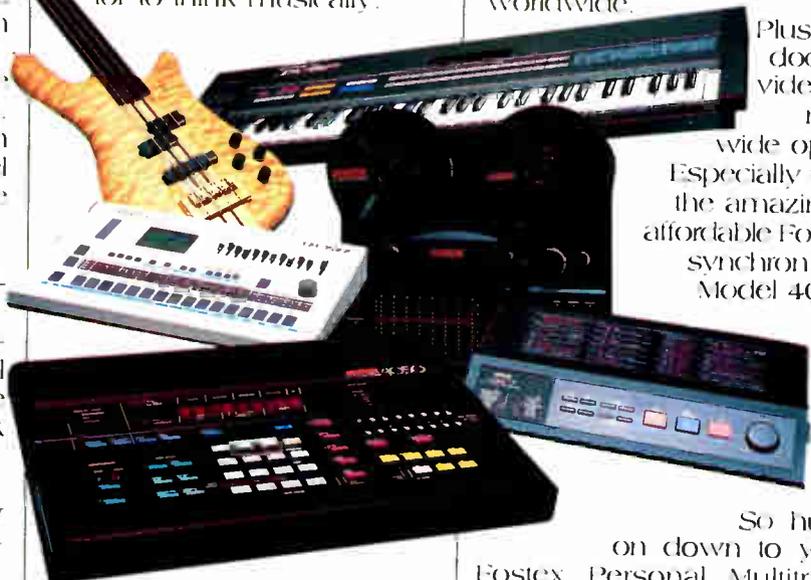
Program and edit with a new level of confidence and accuracy. Features include:

- Up to 100 cue point memory for autolocate on Fostex Models 80 and 20, B-16 Series and all E-Series.
- Automatic programmable punch-in/out.
- Complete control of MIDI start time, tempo, meter and length of song.

The 4050 is the first autolocator to think musically.

the professional standard, worldwide.

Plus, the door to video is now wide open. Especially with the amazingly affordable Fostex synchronizer, Model 4030.



So hurry on down to your Fostex Personal Multitrack Dealer and put a 4050 into action. Because now's the perfect time.

- Recognizes MIDI Song Pointer.
- Selectable Pre-roll up to :99 sec.
- Built-in SMPTE Time Code Generator/Reader — all four formats.

When your timing reference is SMPTE, you're in sync with

Fostex

15431 Blackburn Ave.
Norwalk, CA 90650
(213) 921-1112

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

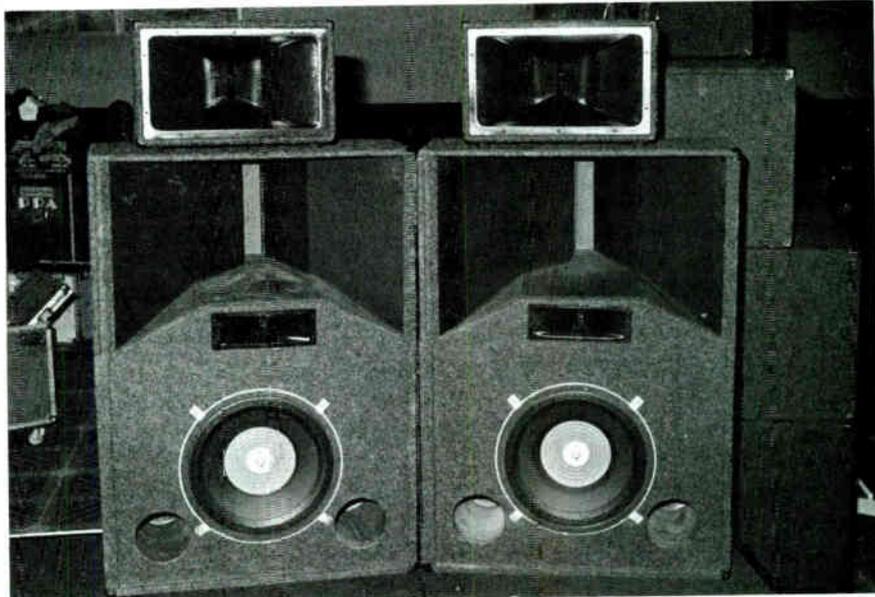


PHOTO: JOHN G. LOCKE III

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 JM-1 one-inch throat compression driver mated to a 90 X 40 degree controlled coverage horn. The JM-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.

Get Your Music's Worth For Your Media Productions

- QUALITY THEMES
- VARIETY OF STYLES
- FULL ORCHESTRATIONS
- ONE-TIME BUY-OUT

4 NEW VOLUMES

Signature
**PRODUCTION
 MUSIC
 LIBRARY**

BOX 268554, CHICAGO, IL 60626
 REQUEST A SAMPLE

Circle #089 on Reader Service Card

THE PRESSING PLANT

2727 Irving Blvd. • Dallas, Texas 75207

SPECIAL OFFER

**500 - FULL COLOR
 CUSTOM ALBUMS**

— AND —

**300 - CASSETTES with
 FULL COLOR
 INSERTS**

\$1795.00

FREE Test Pressing

Mention this Ad and Receive
 Similar Savings on
 Your Project.

**CALL FOR ADDITIONAL
 INFORMATION
 (214) 630-6401**

Circle #090 on Reader Service Card

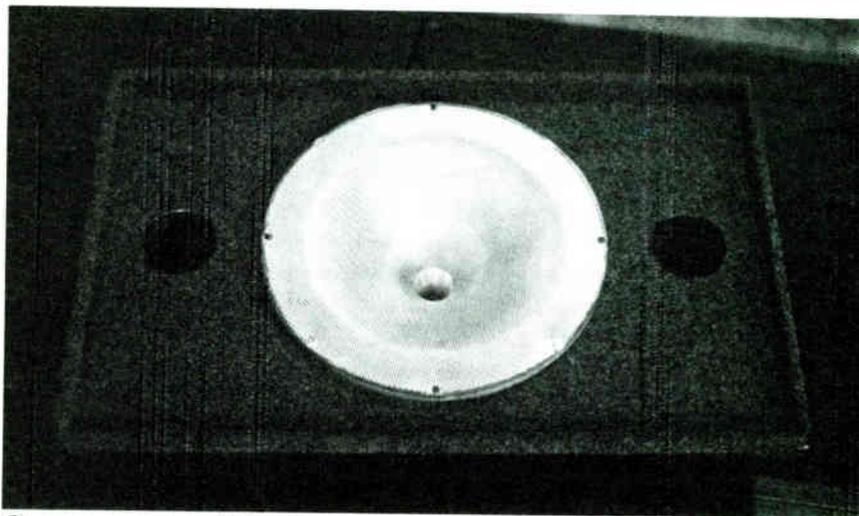


PHOTO: JOHN G. LOCKE III

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. ■



In business I've learned that the most important thing isn't always the bottom line. What makes the difference to me is the quality, service and personal commitment that come along with the price. Thank you Hy James.

Jeff Jones
Owner/Production Mixer
Audio Visions Film • Video •
Teleconferencing

Jeff's clients include:

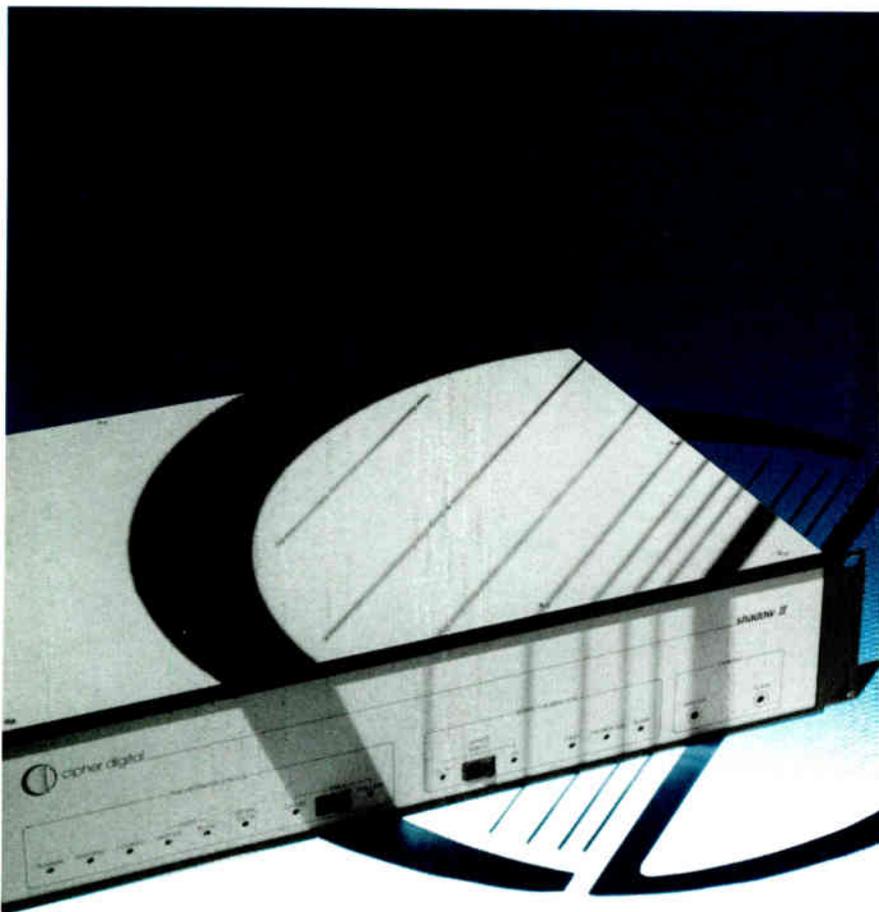
Ford Motor Company
Aretha Franklin/EUE Screen Gems
Ross Roy Inc.
David Brenner Nightlife
Maritz Communications
Comedy Jam/HBO
Tiger Town/Disney
Visual Services Inc.
Aretha Franklin & George
Michael/Vivid Productions
Elton John/September Moon
Productions

HY JAMES
24166 Haggerty Road
Farmington Hills, MI 48024
(313) 471-0027
994-0934 - Ann Arbor

HY JAMES
the audio professionals

Circle #037 on Reader Service Card

World Radio History



The Shadow Knows

The new CDI-4800 SHADOW II™ synchronizer/controller with universal transport capability knows how to control virtually any audio, video or film transport on the market. Completely redesigned to reduce cost and increase reliability, the CDI-4800 Series features an improved time code reader, an enhanced code only master, RS-232/422 interface control, master record-in, and a more powerful microprocessor.

And the all new SHADOW II™ performs with even greater versatility, yet is completely compatible with its predecessor.

The SHADOW II™ provides the ultimate in production flexibility for complex edits. And it's affordably priced for today's professional.

Each unit carries a 3 year warranty.

For more details contact Cipher Digital today. Call (800) 331-9066.



cipher digital, inc.

P.O. BOX 170/FREDERICK, MD 21701
(301) 695-0200 TELEX 272065

Timely today, consistent with tomorrow.

Circle #038 on Reader Service Card

—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.

An infinite capacity for taking pains

It's an apt description of genius, especially in the arena of sound reinforcement. Each job comes with its own endless list of minor obstacles, all ready to become major headaches at a moment's notice. That would be reason enough for us to design every section of D Series consoles for maximum performance; even if we weren't committed to finding out just how good sound reinforcement consoles can be.

Technical advances are raising audience expectations

CDs, digital recording and related developments have created higher fidelity in the home - and higher standards for live sound reinforcement. Still, some consider our approach to console engineering extremist. They think it unnecessary to reduce crosstalk between groups to a level typically 17 dB below conventional mixing consoles. Or to utilize a military multiple grounding system that virtually eliminates hum generation. To offer transformer balanced mic inputs and line outputs as options, or use rigid steel center trusses and



DETAIL: Auxiliary modules have three band EQ with variable Mid frequency for more usable, functional outputs.

DETAIL: Standard inputs have LED level meters next to input faders for accurate, timely signal monitoring.

DETAIL: All input modules give positive LED visual indication of EQ in/out status.

flexible "mother loom" wiring harnesses to minimize mechanical stress on circuit cards.

We consider all these steps essential, because exceptional performance is the most reliable way to deliver accurate sound under less than ideal conditions. We share that attitude with Klark-Teknik, our parent company.

Options for job-specific configurations

Your live sound console must have the flexibility to do the job your way — and the versatility to cope with unexpected difficulties. The informed, insightful design of D Series consoles gives you a selection of eleven different module types, each optimized for a different job. Configure 36-, 48- or 56-space frames with any combination of Standard, Monitor, Theater or Stereo inputs, Recording, PA or Matrix outputs and Stereo, Monitoring or Auxiliary Master modules. All achieve audio performance that is equal to the most demanding applications, including live-to-digital recordings. D Series consoles are presently used by major British sound companies and studios for reinforcement and remote recording applications.

The extensive features and functions of D Series modules and consoles are detailed in an eight page brochure. To get one, send your business card or letterhead to:

DIDA D SERIES

Klark-Teknik Electronics Inc., 30B Banfi Plaza North
Farmingdale, NY 11735 (516) 249-3660

Unit #1, Inwood Business Pk., Whitton Rd.
Hounslow, Middlesex, UK TW3 2EB



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-*

BIG PRODUCTION

A LOOK INTO VIDEO COMEDY'S TOY CHEST

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.

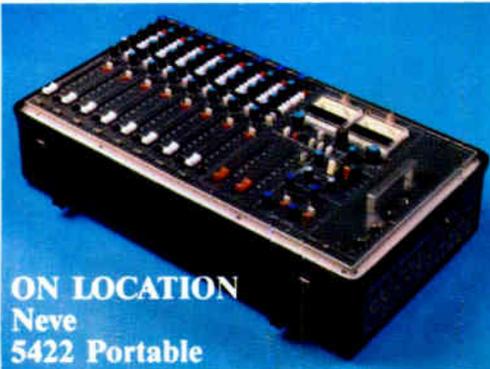
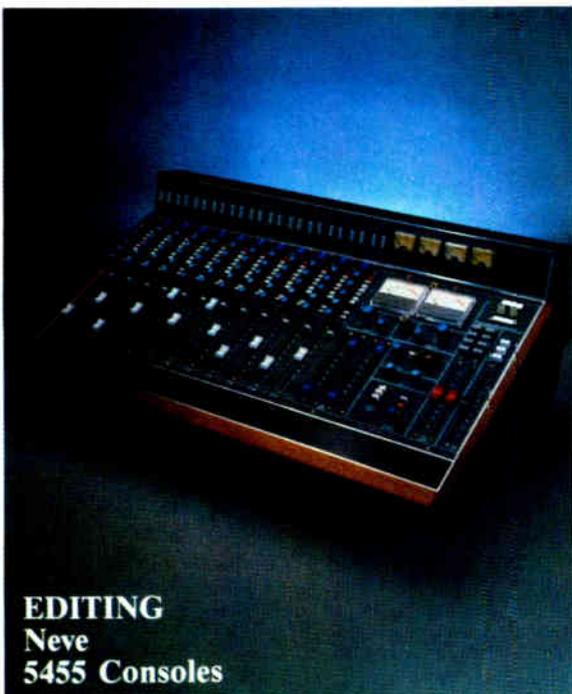
In addition to buying a Convergence 195 off-line editing system for the production, Broadcast Arts rented a Convergence 204 system. "We knew that we were going to want to do the on-line edit with a disk and do as close to an auto-assemble as possible, while keeping track of time code numbers," says Schon. "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.

Neve Congratulates the New...



"The most complete teleproduction facility in the country"

SimeSite VIDEO

Neve...Only the Best for the Best!



Rupert Neve Inc.

A Siemens Company

CT - (203) 744-6230

NY - (212) 956-6464

CA - (213) 874-8124

TN - (615) 385-2727

SimeSite

VIDEO

7355 Northwest 41 Street

Miami, Florida 33166

(305) 593-6969

Contact: Michael Garrett, Opns. Mgr.

Michael Hoffmann, Richard Achor, Sr. Audio Engs.



The Purity of Sound

The **PS** Plus

Quality German Engineering has developed a Compressor/Expander System which virtually eliminates magnetic tape noise while maintaining the purest possible sound. **Pure Sound Plus** up to 40 db improvement in dynamic range with no distortion. The telcom C4 Noise Reduction System requires no level alignment, and with over 10,000 channels in use, is rapidly becoming a European Standard in the Broadcast and Recording Industry.

Clean up your Act with the **PS Plus**—
A Sound Investment!

telcom C4 
Silence by Design

ANT
Telecommunications

ANT TELECOMMUNICATIONS / 211 Perry Parkway / Gaithersburg, MD 20877 USA (301) 670-9777

Circle #041 on Reader Service Card

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

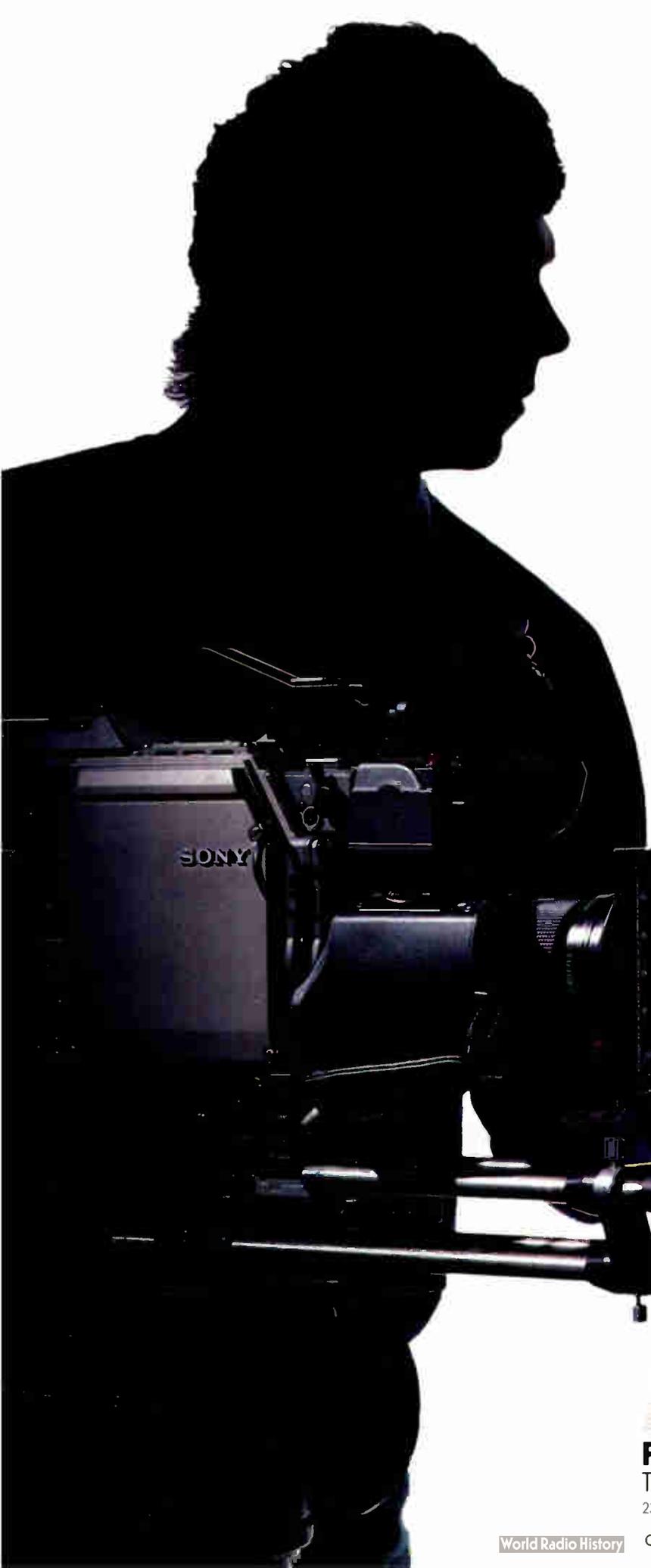
"After the initial song was done," Mothersbaugh says, picking up the chronology, "I was really sweating, thinking 'My God, this is going to be torture!' I was committed to three episodes, but they wanted six. I went to New York when they were starting on the first one, and I spent a lot of time talking 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





When You're Serious about Betacam

PVR's total component facility renders images with outstanding color and clarity. Our award-winning staff delivers production and post-production services on time and within budget; (without all the hassle).

Let's talk seriously about your next project. Give us a call.

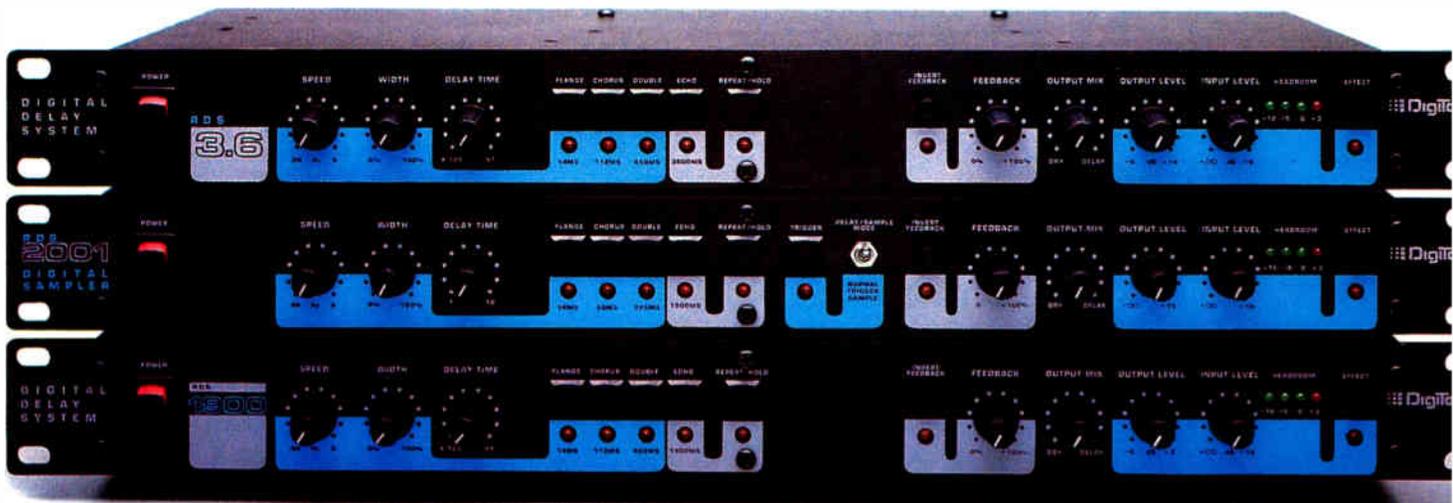
Partial List of Equipment:

Grass Valley Component
Switcher Ampex Component
ADO Component Chyron
Scribe Cox Component Color
Correctors Betacam SP VTRs
Otar MX 70 Sony PCM F 1
Digital 2 Track Sound
Workshop 34B Mixer



PACIFIC VIDEO RESOURCES
TOTAL COMPONENT VIDEO

2339 Third Street M-4, San Francisco, CA 94107 415-864-5679



We can't seem to leave well enough alone.

How did we improve something that didn't need improving?

Take it from us, it wasn't easy. In fact, improving our rack mount digital delays was a team effort involving a lot of very, *very* picky people. But the result is something to behold.

Introducing the new RDS series of rack mount digital delay systems, exclusively from DigiTech.

First, our design engineers stripped each product back to the chassis. Using sophisticated computer-aided design techniques, they added a more dependable modular circuit board along with a stronger transformer that delivers 15% more power. They included a unique -10dB/-30dB two-position input sensitivity switch on the rear panel that lets you match input level to the source.



They even managed to squeeze out more headroom, and incorporate an invert feedback function that gives you maximum phasing control at the push of a button. And just for



fun, they included micro-touch switching for even cleaner, more reliable operation.

Then our graphic artists took over and turned one of the best sounding digital delay lines into one of the most beautiful looking.

Finally, we let the folks in accounting have their way. The result is an awesome display of technical achievement at a downright frivolous price.

Try out all three of the new RDS rack mount digital delay systems at your authorized DigiTech dealer. By now it should be perfectly obvious: they're as close as audio technology ever gets to perfection.

For a full-color product sheet, write DigiTech, 5639 South Riley Lane, Salt Lake City, Utah 84107. Or call (801) 268-8400.

DigiTech
Start at the top.

Circle #043 on Reader Service Card

—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]

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.

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." ■

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

**AURASONIC'S
REMOTE
POSSIBILITIES
IN SIGNAL
PROCESSING**

**ASI MOBILE
AUDIO/VIDEO
P.O. BOX 791
FLUSHING, N.Y.
11352-0791
(718) 886-6500
TELEX 271382 ASI UR**

Circle #045 on Reader Service Card

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.



Stop by and see us
of NAB/Dallas—Booth #3345 and
our Demo Suite at Loews—Anatole Hotel!!

The Best Just Got Better...
We Have Invested In The Future.

audiopak
BY CAPITOL

Broadcast Cartridges

FOR STATIONS WHO CARE HOW THEY SOUND!

Capitol Magnetic Products

CORPORATE AND INTERNATIONAL SALES OFFICES:

6902 Sunset Boulevard Hollywood, CA 90028 (213) 461-2701 Telex: 4720854 Facsimile: 12134676550

EASTERN SALES OFFICE: 2980 Avenue B Lehigh Valley Industrial Park #1 Bethlehem, PA 18017 (215) 868-1401 Telex: 4761180 Facsimile: 12158610878

CENTRAL SALES OFFICE: 1400 Renaissance Drive, Suite 309 Park Ridge, Ill. 60068 (312) 296-1806

WESTERN SALES OFFICE: 3116 West Avenue 32 Los Angeles, CA 90055 (213) 254-9111 Facsimile: 2132553392

UNITED KINGDOM: 1-3 Uxbridge Road Hayes, Middlesex UB4 0TG United Kingdom: 561-0922 Telex: 917029 Facsimile: 15739623

1987 Capitol Records, Inc.

Circle #046 on Reader Service Card

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. ■

Found, The Missing Link. Gauss Coaxial Monitors

It's a well known fact that loudspeakers are the missing link in studio, post production and broadcast facilities' audio chain. The accepted criteria for ideal speakers are: balanced, phase-coherent or time aligned, and with as little color as possible.

Gauss Coaxial Monitors let you hear it all, even the mistakes... without adding color. These time coherent monitors provide an extremely stable stereo image so you know exactly what you're mixing. And, if you're mixing digital sound, they offer the cleanest reproduction you've ever heard... with no high-end harshness. And, with 400 watts of power handling, you'll hear all the dynamics.

If you're upgrading for better sound, be sure to include Gauss coaxial monitors in your plans. Your choice of 12" or 15". Remember, if you can't hear the mistakes, they end up in your finished product. Let your speakers be the strongest link!

Call us today for the name of your nearest dealer or rep so you can arrange a demonstration.



gauss
by Cetec

Sound Ideas for Tomorrow Today!
Cetec Gauss
9130 Glenoaks Blvd., Sun Valley, CA 91352
213/875-1900 Telex: 194989

Circle #047 on Reader Service Card

AUTOMATING AUDIO POST-PRODUCTION



AT NAB

Booth 2506

Audio Kinetics has the highest reputation for post-production synchronizers and mix-down automation which are reliability, cost-effective and user-orientated.

MASTERMIX: Automatic Automation. Disc-Based which can be fitted to almost any console. Easy to use, with the highest quality VCA faders available on the market.

ECLIPSE: Tomorrow's Audio Editor Today. Multi-machine, Dual Tasking, and user programmable keys. A really powerful machine-control editing system.

PACER: New. The low-cost solution to two-machine synchronizing, but with no sacrifice in performance. Built-in time code generator.

Come and talk to the experts.



AUDIO KINETICS LIMITED
Kinetic Centre, Theobald Street,
Borhamwood, Herts. WD6 4PJ, England.
Tel: 01 953 8118 Tlx: 299951 Fax: 01-953 1118



AUDIO KINETICS

AUDIO KINETICS INC
1650 Highway 35, Suite 5, Middletown,
New Jersey 07748, U.S.A. 201-671 8668 Fax: 201 671 6902

Circle #048 on Reader Service Card

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

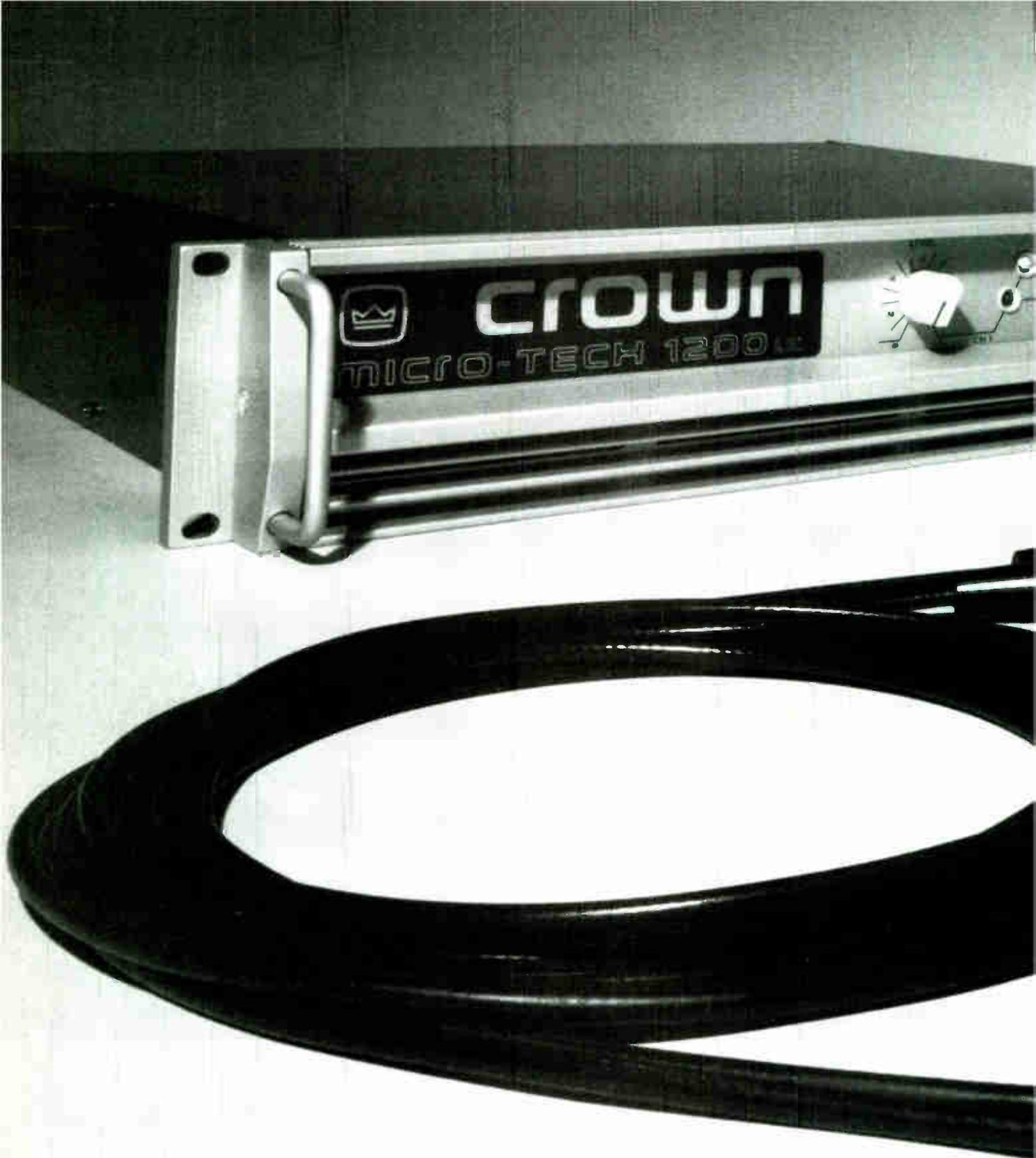
ROCK-ROLL-MIX-DUB-SYNC

Features
 A.D.R. Looping • Time Code —
 Feet Frames Display • Multi standard machine control • Up to 15 machines On-Line • Rotary Jogger for machine control • Large variety of interfaces • In-built Time Code Reader/Generator
 Phone us for your application.

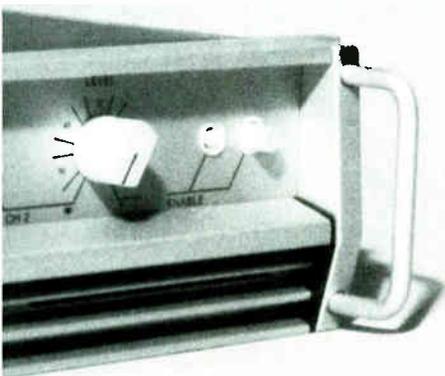
editron
 Editron (U.S.A.)
 748 Seward St. Hollywood, California 90038
 Tel. 213-464-8723, FAX: 213-464-5786

THE COMPLETE AUDIO POST PRODUCTION SYSTEM

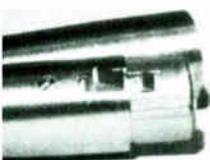
Circle #049 on Reader Service Card



 **CROWN**® International



TO GET THE COMPLETE STORY YOU'VE GOT TO GO THROUGH CHANNELS



A superior amplifier has to be experienced firsthand. All the overplayed adjectives used to relate sonic quality of audio equipment in print become moot once the truth leaves the speaker.

Your nearest Crown dealer has the complete story at the flip of a switch.



1718 W. Mishawaka Road, Elkhart, IN 46517 (219) 294-8000

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 BTXperts—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.

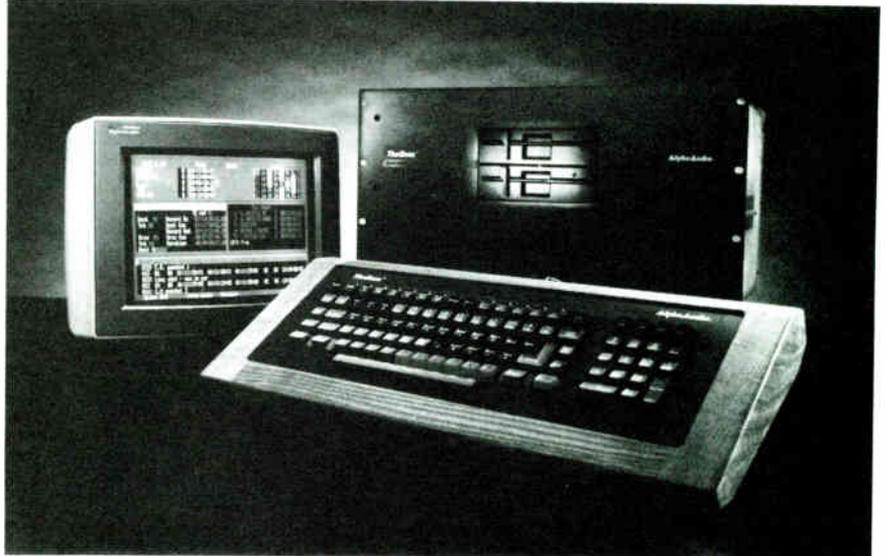
“Black boxes” still are going strong, but they battle for market share with synchronizing software for PCs and with complete, disk-based systems that virtually eliminate the razor blade. There's *lots* of competition. About 20 companies offer synchronization and edit control systems, ranging in cost 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,

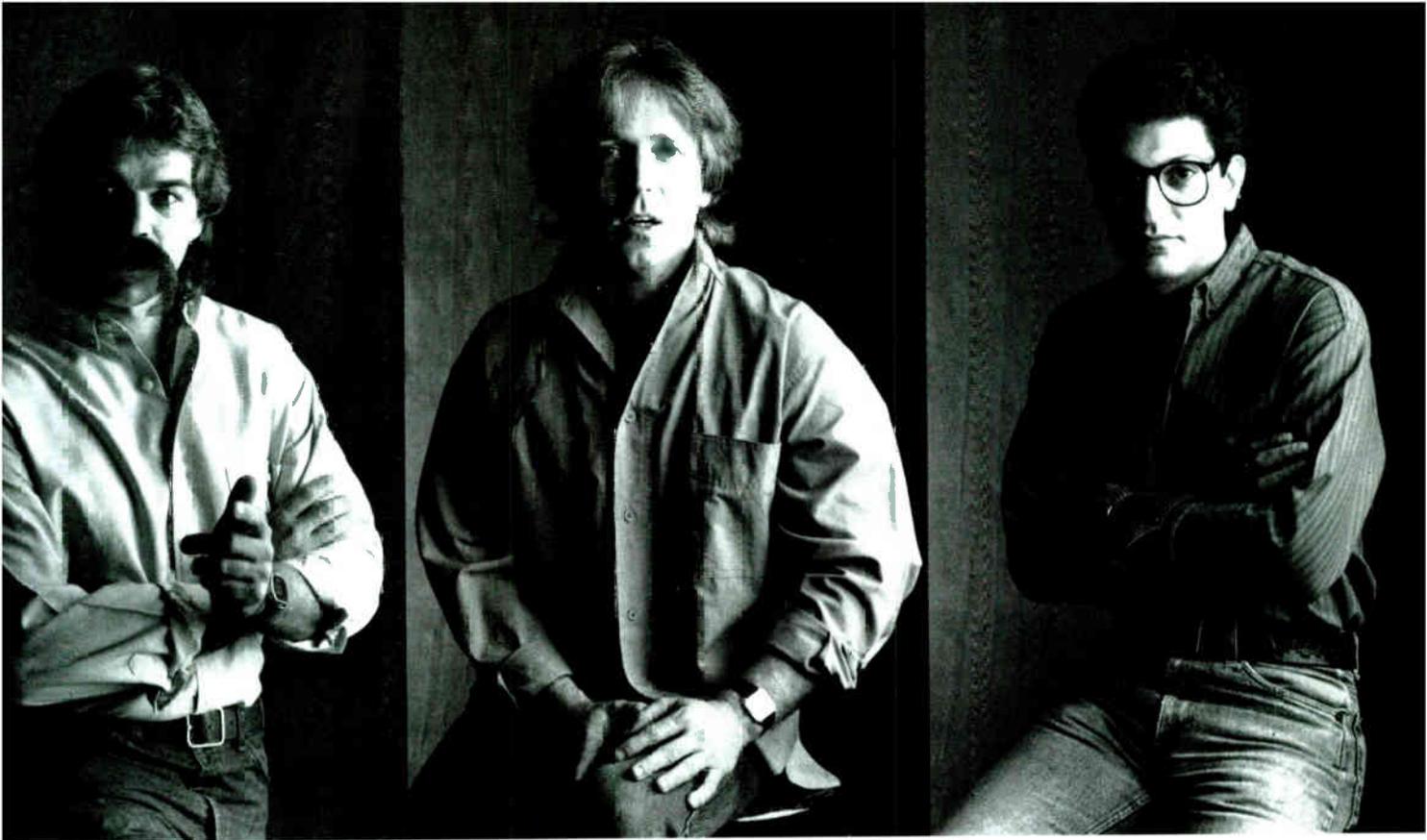
please keep in mind that we've barely touched upon the many features offered by the systems these firms have developed.

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

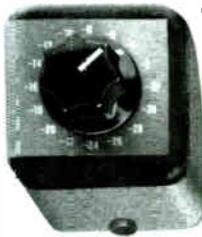
The Boss automated audio editor from Alpha Audio.





"I Put Crossovers And Limiters In Zero Rack Space."

Mike Payne
South Coast Sound
Live Sound Engineer



"I Got A Cleaner Sound With More Punch And Tighter Bass."

Danny Watson
Promise Productions
Producer/Keyboardist

"We Can Customize The Sound System For Each Job."

Miles Kapper
Sight-On-Scene Staging
AV Staging Specialist

Three professionals whose careers depend on getting excellent sound — and though each has a different set of criteria, all agree on the benefits of QSC's Octal



Accessories. QSC has pioneered the development of high power, low-profile amplifiers of unquestionable fidelity and reliability. And with the new Octal Accessories we've also pioneered versatility. QSC's unique Octal socket [which is standard on all Series One and Series Three amps] accommodates a whole line of passive and active Octal Input Modules — from input transformers to electronic crossovers and power limiters — audio accessories that enhance and customize the performance of each QSC amplifier, quickly and easily, and at a cost far less than buying rack-mounted devices. And when requirements change, a different QSC Octal module can meet that need. In this way QSC is making obsolescence a thing of

the past. QSC Octal Products are space-savers too: each module attaches at the rear panel, out of the way without adding rack space. All Octal Accessories perform to the same high standards that distinguish QSC amplifiers, combining meticulous design considerations with real-world durability. Octal Modules include: XH-1 and XL-1 Crossovers, PL-1 Compressor/Limiter, UF-1 Universal Active Filter, T-1 Input Transformer, A-1 Octal Attenuator, and AT-1 Octal Attenuator with Input Transformer. So no matter where your sound matters — on stage, in the studio or in a custom designed

installation, QSC provides your sound system with an invaluable lasting benefit: versatility. For more information contact: QSC Audio Products, 1926 Placentia Avenue, Costa Mesa, CA 92627 [714] 645 2540.



Circle #051 on Reader Service Card

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

"More for less... the ZETA~THREE audio-video-MIDI synchronizer"

All in one small, neat package—

- **Audio/video tape synchronizer**
Slave chase, offset, resolve
Master/slave GO-TO, loop, rehearse, record
Menu-driven set-up and transport selection
Factory cables for most transports
- **MIDI-SMPTE synchronizer**
Outputs MIDI sync, song pointer, time code
- **Two full-range time code readers**
1/10 - 100 x play speed
Auto CTL/tach pulse updating
- **SMPTE/EBU time code generator**
Int/ext reference, drop/non-drop frame
Jam, copy, video sync TC and UB
- **RS-232/422/MIDI communications**
PC control of recorders and MIDI devices
Serial control of professional recorders
MIDI merge capability

— All for less than \$3,000.

Write or call for details.
Tel: 617-562-3801 • NYC: 516-365-6664
TWX: 710-347-0096 • FAX 617-568-0404
LA Rep: 213-876-9164 • UK: 0223-410104

ADAMS • SMITH
34 Tower St., Hudson, MA 01749 USA

Circle #052 on Reader Service Card

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-

SIMPLY THE BEST!



Simon Systems is setting a new standard of excellence in professional audio signal processing equipment. It began with the **DB-1A Active Direct Box**. Boldly designed and independently powered*, the DB-1A delivers performance that blows every other DI away. The unique design of the DB-1A is based on totally active (transformerless) circuit with no insertion loss. And with features like line level output, rechargeable battery capability, and automatic power system check circuitry, it's easy to understand why so many professionals refer to it as simply the best direct box money can buy!

Then came the **CB-4 Headphone Cue Box**. With four outputs independently controlled by conductive plastic stereo power controls, the CB-4 allows up to four headphones to be driven from the same amplifier. A three position switch selects left mono, right mono, or stereo mix, and XLR input/output connectors are provided for paralleling additional cue boxes. It's no wonder why the CB-4 has become a standard in the industry.

And the tradition of excellence continues with the **RDB-400 Integrated Direct Box**. Based on the same design technique which made the DB-1A the premier direct box of the industry, the AC powered RDB-400 is four direct boxes in one. It can be rack or floor mounted and has countless uses. It features line level output mode with infinitely variable trim, attenuation mode with stepped variable trim, input overload LED, speaker level input pad, balanced and unbalanced buffered outputs with front and rear XLR connectors, ground isolation switch, and a toroidal power transformer.



So the next time you think signal processing equipment, think like a pro: Simon Systems — Simply the Best!

Thanks for setting the trend:

PAUL ANKA SHOW • GLENN CAMPBELL • FLEETWOOD MAC • KENNY LOGGINS • JEAN-LUC PONTY
JEFF PORCARO • RED SPEEDWAGON • UNIVERSAL STUDIOS • TITO JACKSON • JOHN COUGAR



SIMON SYSTEMS

707 Clear Haven Drive, Agoura Hills, CA 91301. (818) 707-9980

MIDI MADE AFFORDABLE



CMS-Visual Sequencing System
includes: 12" Monitor & AT Style Keyboard

CMS has done it again with their new road worthy 19", **easy to operate**, rack enclosure. This Visual Sequencing System, (CMS-VSS), includes a



Roland compatible interface with 1 input and 4 outputs, tape in and out, and metronome out. The CMS-VSS is designed around a 8mhz turbo motherboard with 640K RAM. Software included is the Sequencer Mark 1 and MS/DOS 3.1. It will also run all IBM music software and 99.9% IBM business and application programs.

\$1299

Desktop unit available - \$999

Rackmount your current IBM or compatible computer with the CMS 19" conversion kit. \$249

CMS
COMPUTER
MUSIC
SYSTEMS

800/322-MIDI

382 N. Lemon Ave. Walnut, CA 91789
714/594-5051



Fostex 4030 synchronizer and 4035 controller.

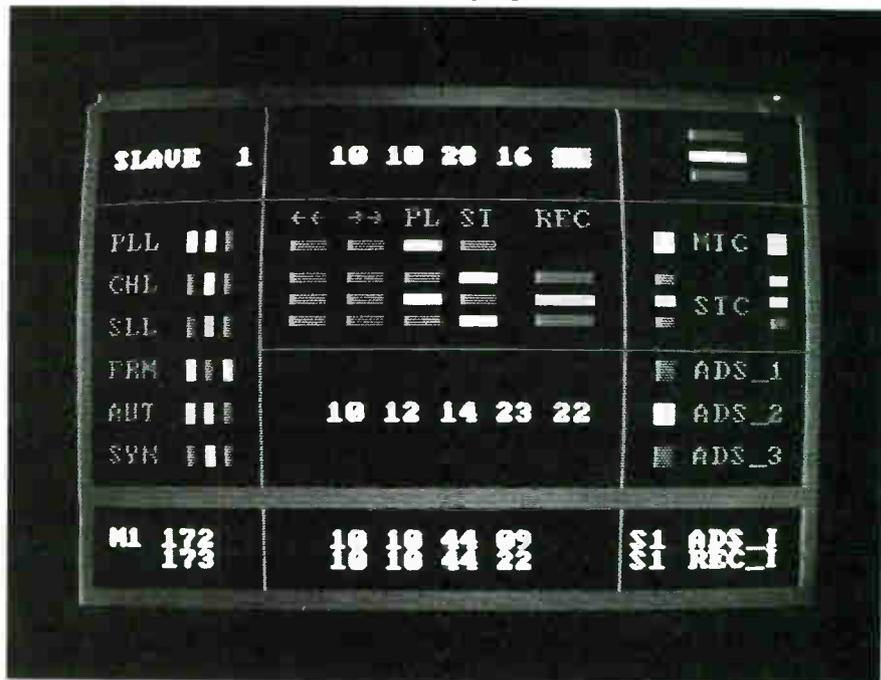
ple can send in their earlier models and we'll upgrade them." The unit is totally software based, so updating means plugging a new EPROM into the package. Concerning the 4030 and tape transports other than Fostex, Cohen says, "we originally thought we'd have to offer socketed EPROM software for different 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.

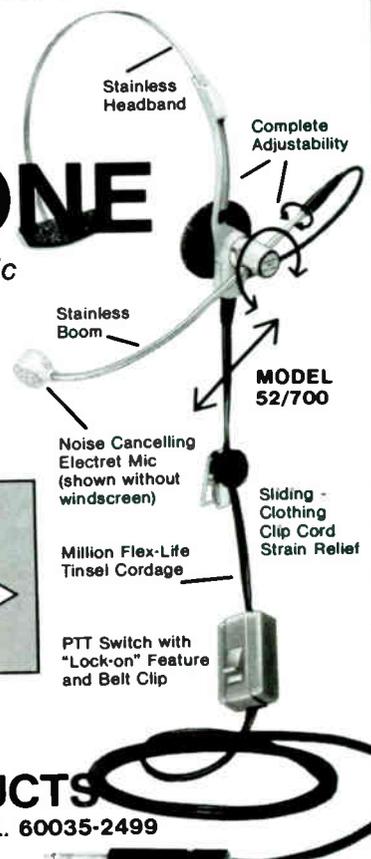
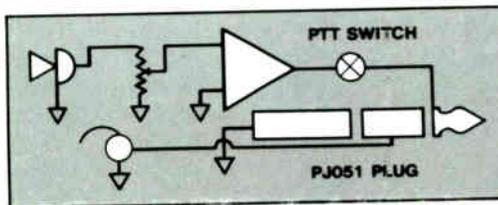
Soundmaster software is supported by a color-coded keyboard and a custom, 3-port, RS-232 communications board that installs in a PC expansion slot. Version 4 supports 16 or more Syncro interfaces. The program consists of three sections, or displays: Controller (the main user interface, with status and 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

1 OUNCE AMPLIFIED CAMERA HEADPHONE

- Replaces Old Style Carbon Mic Type Headphones.
- In-line Push-To-Talk Switch.
- Compatible With Existing TV-Cameras.

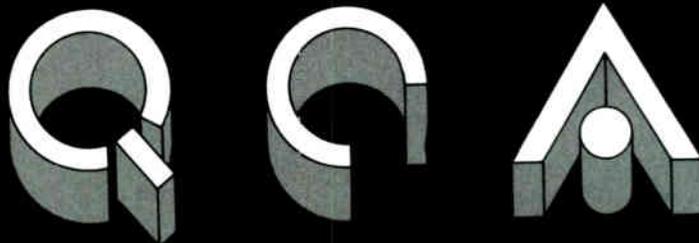


Try It At NAB Booth 2671

R-COLUMBIA PRODUCTS

2008 St., Johns Ave., Highland Park, IL. 60035-2499
(312) 432-7915 TWX: 910-692-2160

Circle #054 on Reader Service Card



The Masters of Sound Sculpture

When it comes to quality record manufacturing and cassette duplication, QCA has no equal.

2832 Spring Grove Ave.,
Cincinnati, Ohio 45225
513/681-8400



Circle #055 on Reader Service Card

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.

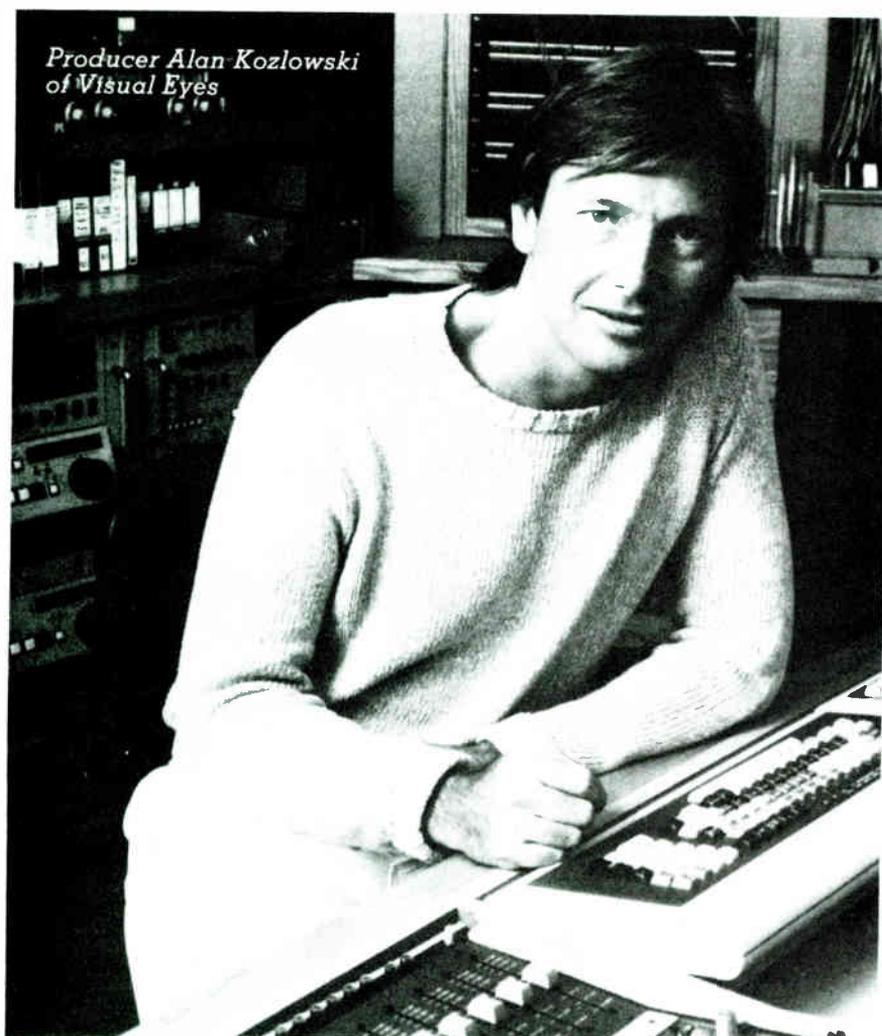
The firm owes much of its success to strong musical sensibilities. After seriously studying classical guitar, Kozlowski disciplined himself in the technologies involved in producing multi-image audio/visual extravaganzas. Meanwhile, Hay began playing

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



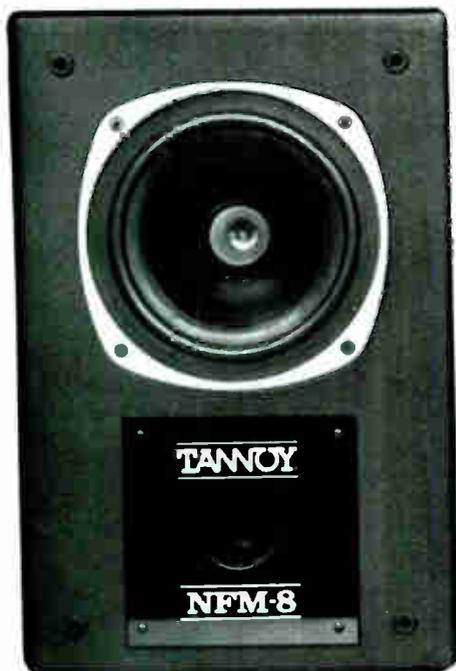


Director Sandra Hay of Visual Eyes

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



"NO TISSUE" REQUIRED



POINT SOURCE-PHASE COHERENT MONITORING

By **TANNOY**

Tannoy North America Incorporated, 97 Victoria Street, North, Kitchener, Ontario, Canada, N2H 5C1. Telephone (519) 745-1158 Telex: 06955328.

Circle #056 on Reader Service Card

SINCE THE BEGINNING OF RECORDING TIME

• Record Jackets • Labels
• 7" Sleeves • CD Packaging
• Cassette Inserts & Labels
• Pressure Sensitive Labels
• Complete Art & Typesetting

KEYSTONE

KEYSTONE Rt. 247 / Moosic Lake Pa. • Jessup, PA 18434 • 717-383-3280
Printed Specialties Co., Inc. * Since 1914

Circle #057 on Reader Service Card

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." ■

FLYING BLIND?

Visualize precisely where you are with a
3211 Video Based Metering System

OVERLOAD COLOR CHANGE — Selectable point where bar graph changes color, red for example.

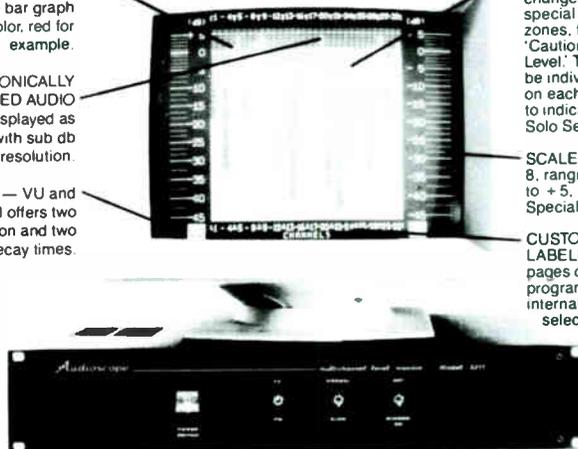
32 ELECTRONICALLY BALANCED AUDIO INPUTS displayed as vertical bars with sub db resolution.

BALLISTICS — VU and PPM offers two integration and two decay times.

WINDOW FUNCTION — An adjustable color change area to indicate special audio level zones, for example "Caution" or "Optimum Level." This function can be individually selected on each bar, for example to indicate "Channel Solo Select" or "Record."

SCALES — A choice of 8, ranging from ± 12 db to $+5$, -50 db full scale. Specials available also.

CUSTOM CHANNEL LABELLING — 16 different pages of four lines, programmable, stored internally, externally selectable with remote switch.



AUDIOSCOPE Model 3211 uses: Additional meters for console or multitrack, Amp racks, Cassette duplication, machine room remote metering.

For more information call or write:

APOGEE ELECTRONICS CORPORATION

1517 20th St., Santa Monica, CA 90404 (213) 828-1930

Apogee

SAM ASH MUSIC STORES

ANNUAL NEW YORK

KEYBOARD & SOUND EXPO

MIDI Products, Recording Equipment, Computers & Software, Electronic Drums and Drum Machines, Signal Processing, Sound Reinforcement, MIDI Guitars, Cases, Stands, Publications

•OVER 60 MAJOR BRANDS EXHIBITING THEIR LATEST MODELS

•MEET MANUFACTURERS REPRESENTATIVES & FAMOUS ARTISTS

DONT MISS THE 1987 EDITION OF THE COUNTRY'S OLDEST AND LARGEST DEALER SHOW!!

SATURDAY MAY 2 11AM TO 7PM

SUNDAY MAY 3 NOON TO 6PM

Admission \$5.00 Per Day

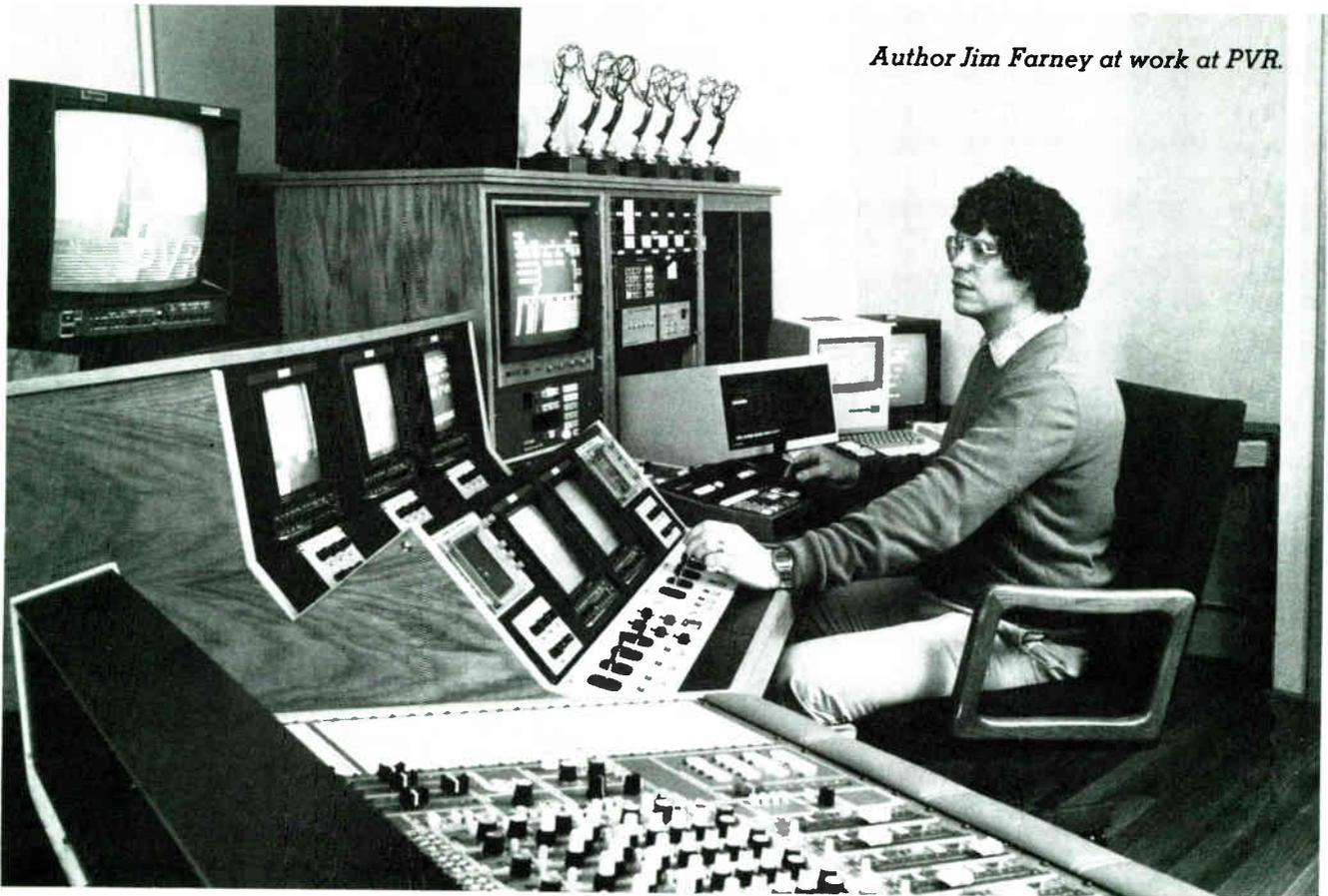
WASHINGTON IRVING HIGH SCHOOL-IRVING PL. & E. 17 ST, NYC
INFO (718) 347-7757

Sam Ash

124 FULTON AVENUE HEMPSTEAD, N.Y. 11550

MUSIC STORES

Circle #058 on Reader Service Card



C·O·M·P·O·N·E·N·T V·I·D·E·O

AN OVERVIEW

With 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,

BRYSTON



BRYSTON POWER AMPLIFIERS CONTINUE TO DEFINE THE STATE-OF-THE-ART IN MUSICAL ACCURACY, LONG TERM RELIABILITY AND PRODUCT INTEGRITY.

Bryston design philosophy incorporates three general concepts.

1. Musical accuracy
2. Long term reliability
3. Product integrity

MUSICAL ACCURACY

Musical accuracy is reflected throughout all Bryston power amplifiers and includes the necessity for wide-band transient accuracy, open loop linearity ahead of closed loop specifications, and power supply design as an integral part of the overall sonic and electrical performance of a power amplifier.

We have found that a simple carbon film resistor can contribute more static distortion to a signal than the entire remainder of the amplifiers circuitry combined.

We discovered that some parameters of transistors must be controlled as much as 1000 times more closely before their contribution to audible distortion is rendered negligible.

We discovered that under certain actual conditions of speaker loading amplifiers were incapable of yielding high-power transients without distortion.

Each of the various steps or stages in every Bryston amplifier, from

the input section to the output section, without exception, are designed to optimize the musical experience.

STANDARDS OF RELIABILITY

We consider this criterion to be exceedingly important. We have applied techniques and materials in our everyday construction of electronic equipment more typically utilized in the military and aerospace industries.

All components used in Bryston power amplifiers are specified for continuous duty at maximum power, with typical safety margins of 250%.

The power transistors used in all Bryston amplifiers are 100% tested for safe operating area, both before and after installation in the circuit. They are then taken to a "burn-in" table when they are given a capacitor load, a square-wave input signal, and set at slightly under clipping for a period of 100 hours. During this time, the input signal is cycled three hours on to one hour off, to exert additional thermal stress.

Following the burn-in period, the amplifiers are monitored for DC bias stability for approximately

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.

As may be seen, Bryston takes very seriously the correct functioning and long term reliability of its products.

INTEGRITY

Bryston contends that the term 'best' should apply to the honesty, pride and courage with which we conduct our business, as well as to the performance of our products.

For this reason, you will not find Bryston's products being cosmetically "updated" on a regular basis merely in order to keep the customer's interest, in something 'new'. If we make a change in the circuitry, it will be because, and only because, it yields a worthwhile performance or reliability improvement.

We feel that regular sweeping revisions to basic circuit design (accompanied by revised jargon) to be cynical marketing on the part of the manufacturer and insulting to the discerning customer.

In the United States:

BRYSTON VERMONT

RFD #4, Berlin, Montpelier, Vermont 05602
(802) 223-6159

Circle #063 on Reader Service Card

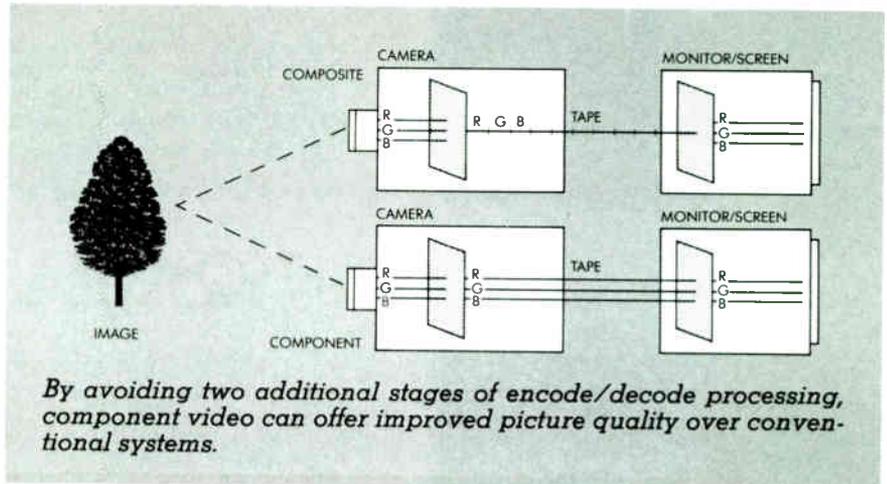
World Radio History

In Canada:

BRYSTON MARKETING LTD.

57 Westmore Dr., Rexdale, Ontario, Canada M9V 3V6
(416) 746-0300

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.

Masters of DuplicationSM



CASSETTE WORKS

Audio & Video Duplication

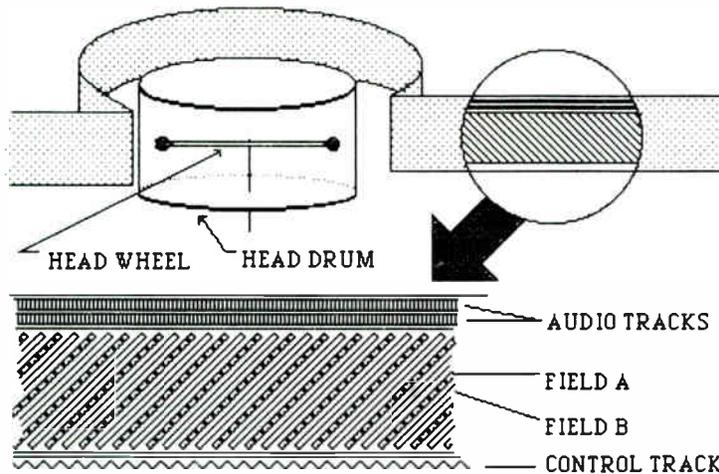
Call or Write for Free Services Kit
P.O. Box 158 Pasadena, CA 91102
1-800-423-TAPE^{US} 1-800-972-TAPE^{IN CA}

Circle #064 on Reader Service Card

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.

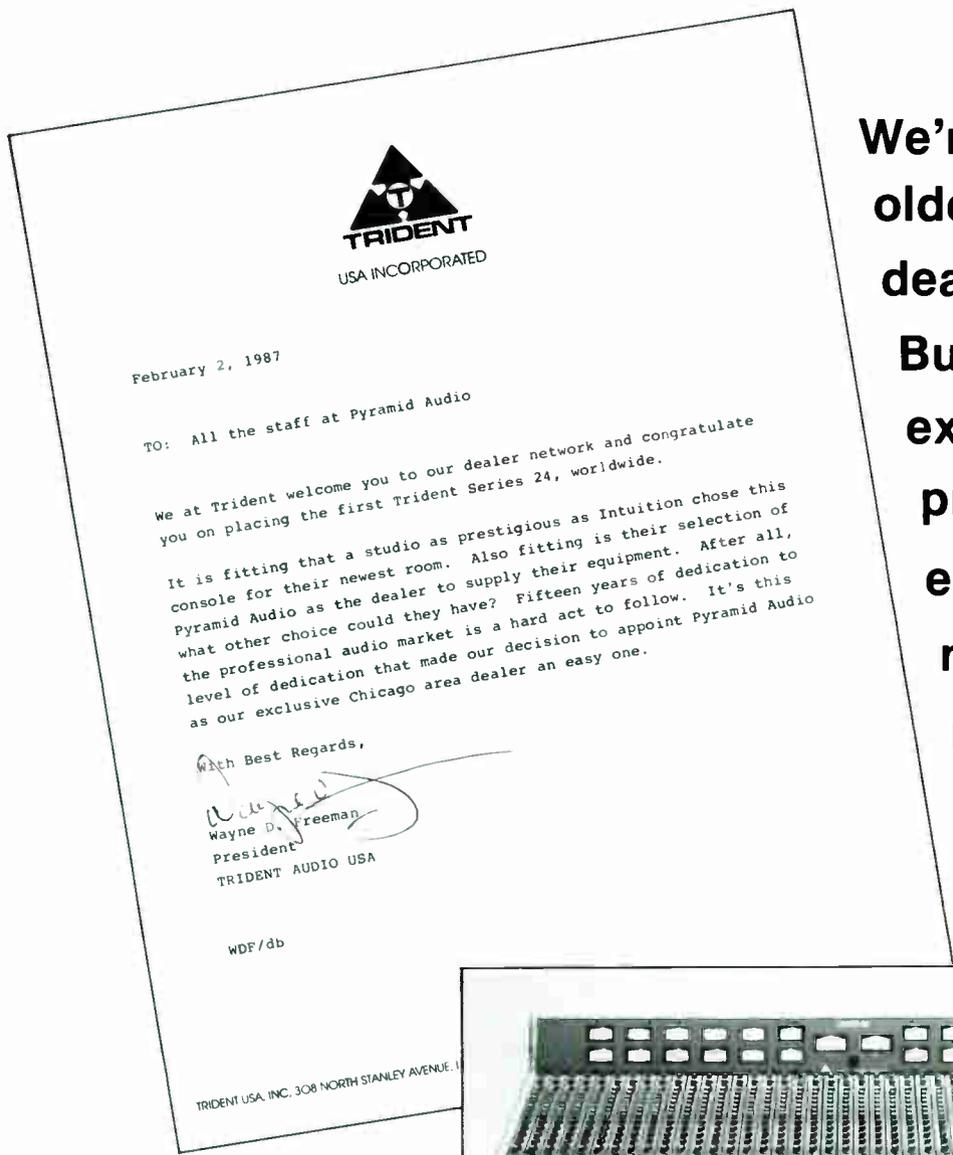
Longitudinal tracks at 11.2 ips are also present; a control track and low-fi audio track which can provide a reference when the transport is in fast shuttle mode. A dual channel SMPTE time code track, usable from .1 to 50X play speed, is also provided. When editing, you could have one time code channel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

—CONTINUED ON PAGE 110

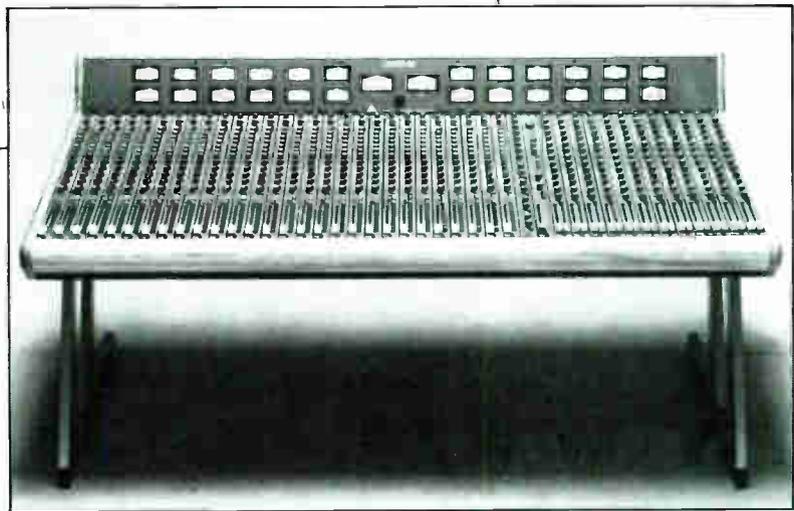


Sony DVR-1000, a D-1 format digital videotape recorder.

How long has your dealer been a dealer?



We're not the oldest Trident dealer in the country.... But our 15 years of experience as a pro audio dealer enables us to recognize a hot new product and bring it to you first!



Pyramid Audio Inc.
450 W. Taft Drive • South Holland, Illinois 60473 • (312) 339-8014

Circle #065 on Reader Service Card

For the FINEST Tape Recording Heads and the ULTIMATE in Relapping Services.



We stock a full line of direct replacement heads from mono to 24 track.

We also provide precision relapping and optical alignment of all magnetic recording heads and assemblies.

If you need optimum performance from your tape recording equipment you need our services. Call or write:

JRF/Magnetic Sciences, Inc.

The audio magnetic professionals with the track record to prove it.

Kennedy Road • P.O. Box 121
Greendell, NJ 07839
(201) 579-5773 • Telex: 325-449



Circle #060 on Reader Service Card

DO YOUR PRODUCTIONS SOUND AS GOOD AS THEY LOOK?

They will, with music from APM.

More than 20,000 selections, specifically created to meet today's professional AV, film and video needs.

WRITE NOW OR CALL FOR OUR LATEST FREE SAMPLER CASSETTE. ALSO ASK ABOUT OUR NEW COMPACT DISCS.

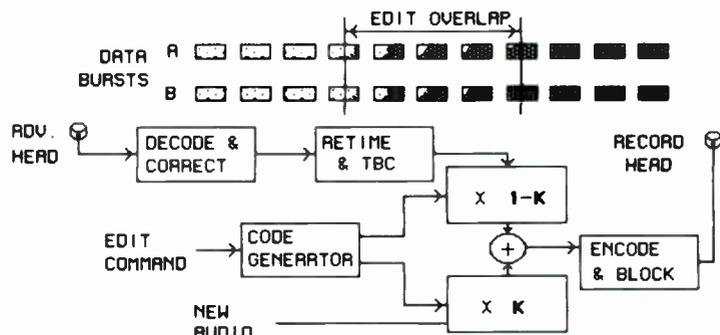
Exclusive representatives of the KPM, Bruton, Conroy and Themes Production Music Libraries.



Associated Production Music

888 Seventh Avenue, New York, NY 10106
(212) 977-5680
6255 Sunset Blvd, Hollywood, CA 90028
(213) 461-3211

Circle #061 on Reader Service Card



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-

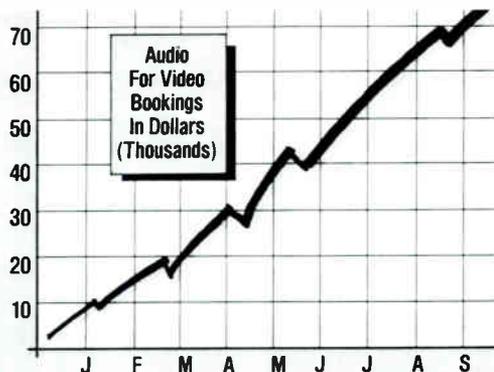
Thirty ips ATRs are real creepers compared to the experimental 360 ips video transports of the mid-1950s.

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



The Boss™ means business.

Good business decisions begin with a clear understanding of what an investment will return to you. That's why at Alpha Audio we believe a worthwhile product pays its buyer back: in efficiency, in creativity, and in dollars. And that's why we're so bullish on The BOSS, our premiere audio editing system.

Since its introduction in January 1986, the BOSS has been generating high revenues at studios in Atlanta, Hollywood, Detroit, Houston and Philadelphia. Because our system works, from automated track building to looping, from video edit decision list exchange to MIDI control, from sophisticated machine handling to extensive list management.

We feel the measure of a good system is not what it promises, but what it delivers. Isn't that the basis for a good buying decision?

Shake hands with The BOSS. For further information, contact David Walker, Director of Marketing. (804) 358-3852.

Circle #062 on Reader Service Card

Alpha Audio. Automation Systems

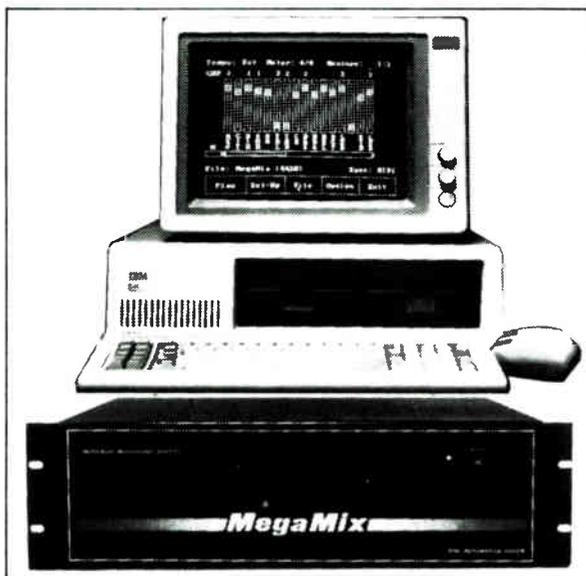
MegaMix™

FINALLY!

A High Quality,
Professional
AUTOMATION
System at an
AFFORDABLE
Price.

Easily interfaces
to your exist-
ing console.

- Full fader automation
- Mute and solo
- 8 Subgroups
- Real time and step edit
- Mix merge
- Copy, bounce, delete fades
- SMPTE compatible
- Runs on IBM and compatibles and
- MacIntosh 512 & Plus



PATENT PENDING

MIDI BASED MIXING BOARD AUTOMATION ON YOUR PC

Musically Intelligent Devices
3 Brian Street, Commack, NY 11725

516 864-1683

Circle #068 on Reader Service Card

MANHATTAN COMPACT DISCS



FOR A FREE DEMO TAPE

call
(212) 333-5766
or write

Manhattan Production Music
P.O. Box 1268
Radio City Station
New York, N.Y. 10101

★ Our entire music library has been digitally mastered and converted to compact discs including new material never released before ★ Over an hour of music per disc ★ Easy accessing of cuts ★ No more scratches, pops, or ticks ★ Much quieter transfers ★ Easy to edit cuts ★ Cuts are pre edited into 60's, 30's & 10's for quick use ★ All styles of music from high energy industrial music to beautiful pastoral music ★ Accomplished, reknowned composers and arrangers ★ Reasonable needle-drop fees ★ Ask about our low cost annual blanket fees ★ Hundreds of satisfied clients ★

MANHATTAN

P R O D U C T I O N • M U S I C

VISIT US AT NAB BOOTH #2550

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.

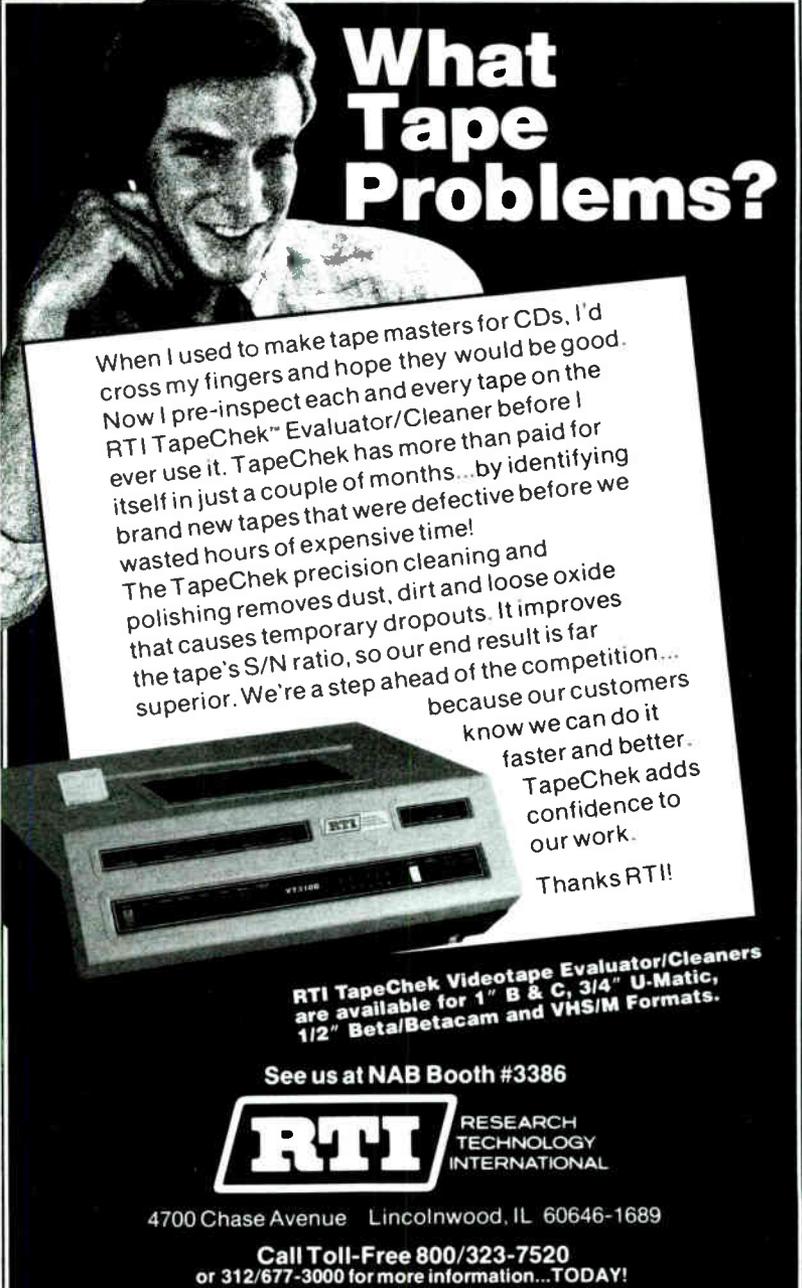
Most video plants, like audio studios, are basically "seas" of analog systems with "islands" of digital processing scattered about. All that I've mentioned so far concerns analog signals in the NTSC format; recorder/reproducers whose input and output signals conform to the television standard for North 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.



What Tape Problems?

When I used to make tape masters for CDs, I'd cross my fingers and hope they would be good. Now I pre-inspect each and every tape on the RTI TapeChek™ Evaluator/Cleaner before I ever use it. TapeChek has more than paid for itself in just a couple of months...by identifying brand new tapes that were defective before we wasted hours of expensive time!

The TapeChek precision cleaning and polishing removes dust, dirt and loose oxide that causes temporary dropouts. It improves the tape's S/N ratio, so our end result is far superior. We're a step ahead of the competition... because our customers know we can do it faster and better. TapeChek adds confidence to our work.

Thanks RTI!

RTI TapeChek Videotape Evaluator/Cleaners are available for 1" B & C, 3/4" U-Matic, 1/2" Beta/Betacam and VHS/M Formats.

See us at NAB Booth #3386

RTI RESEARCH TECHNOLOGY INTERNATIONAL

4700 Chase Avenue Lincolnwood, IL 60646-1689

Call Toll-Free 800/323-7520 or 312/677-3000 for more information... TODAY!

It 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

S · O · F · T · W · A · R · E

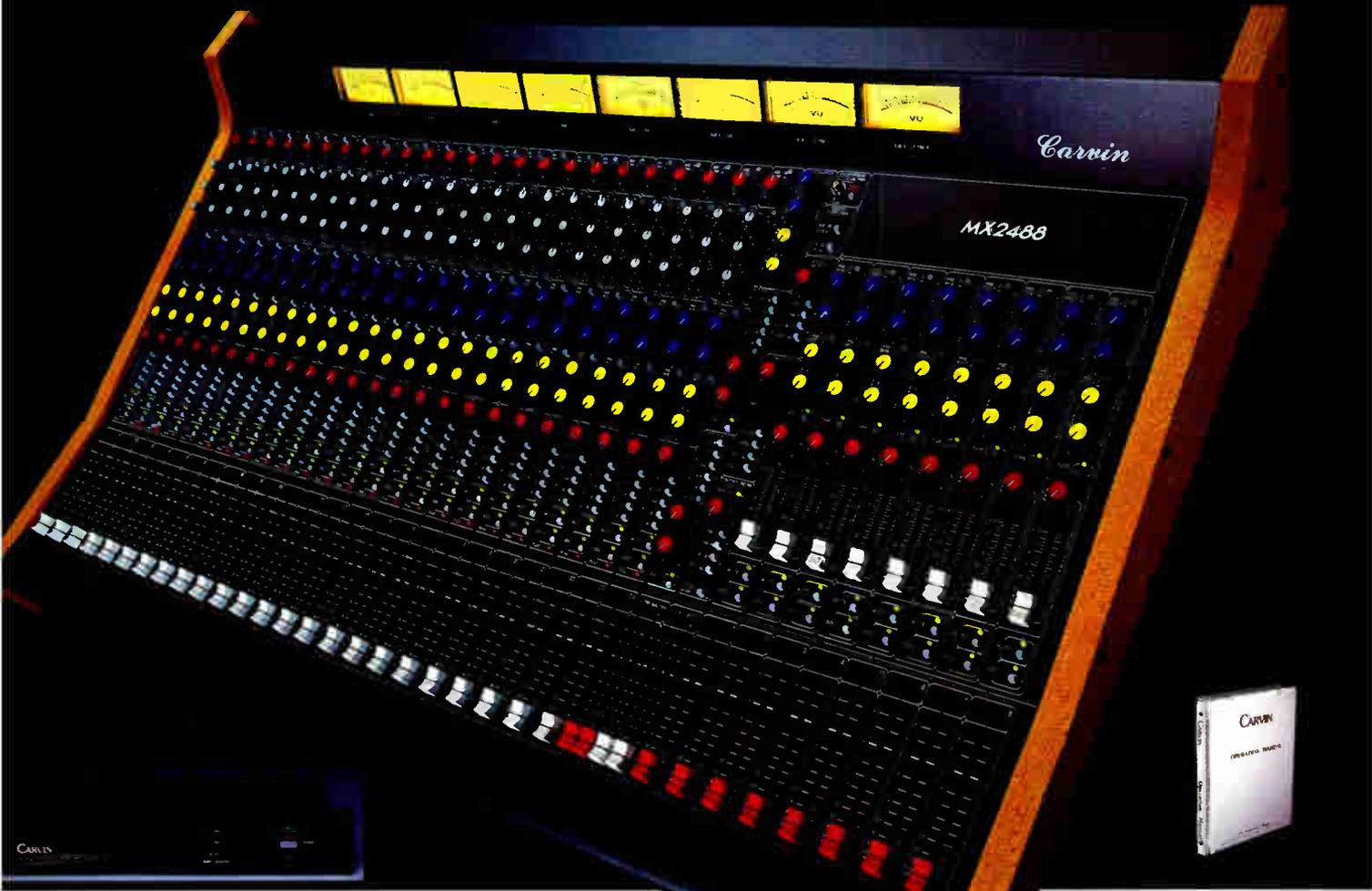
Author Jeff Roth at his Focused Audio studio in San Francisco.



PHOTO: SHARON BEALS

CARVIN MX2488 \$3995!

The American made mixer that leads in value!



Made in USA

The CARVIN MX2488 console offers the features, specs and performance you expect from a professional recording console—at a price that's unexpected! That's because CARVIN sells DIRECT, saving you about half the retail price—no commissioned salesmen or store overhead to pay.

The MX2488 is versatile. It handles every recording requirement with ease, from basic tracks to overdubs and mixdowns.

The MX2488 is professional—right down to its modular design and outboard rack power supply. A recent MX1688 test review quoted: "Total harmonic distortion at mid freq. measured only .025% while the inputs measured only 0.01%—very low for a console of this type."

If you want a transparent sound that fits into today's "digital" recording world, then the MX2488 is worth considering. Write for literature and a recent test review or send \$10 for the complete manual (100 pages) including schematics and circuit layouts.

MX2488 RECORDING FEATURES

- Eight track studio control center
- Quick tape playback & rough mix capability
- Three band parametric EQ with defeat
- Complete cue mixing facilities
- Four auxiliary busses with pre-post switching
- Two effects returns with panning and soloing
- Patch jacks and direct outputs on each channel
- Solo & mute on all input & output channels
- Built-in talkback system & monitor diming

FACTORY PRICES

	LIST	DIRECT
MX2488 24x8x2	\$8995	\$3995
MX1688 16x8x2	\$6950	\$2995
MX1644 16x4x2	\$4595	\$1695
AN-16 16ch Anvil case	\$ 395	\$ 269
AN-24 24ch Anvil case	\$ 469	\$ 299

"Having lived with the Carvin MX1688 for a couple of weeks before reluctantly sending it back to the manufacturer, I can attest to the fact that it is truly targeted at the professional recording engineer or sound reinforcement engineer."
"It is obvious that the people who designed this unit spent a lot of time in both recording studios and at concerts where sound reinforcement is both critical and complex."
 Len Feldman—db magazine
 September/October—1986

CARVIN

Dept. MX77, 1155 Industrial Ave.,
Escondido, CA 92025

Circle #071 on Reader Service Card

Order Direct Today—Visa, MasterCard
Factory Hours: Mon.-Fri. 8:00-4:30 Calif. Time

Call TOLL-FREE
800-854-2235 (Calif. 800-542-6070)

Free Catalog \$10 enc. for MX88 manual
 Name _____
 Street _____
 City _____ State _____ Zip _____

MX77

Are You A Slave To Your Machines?



Free Yourself With The *Human* CLOCK™



NEIL ZLOZOWER

If you've ever tried playing live with a sequencer or a drum machine, you know what it's like to be a slave to your machines. The rigid tempo just doesn't feel right. Or, if you've ever tried adding sequenced material to a prerecorded track then you know what it's like to be the prisoner of your computer.

Free yourself with the HUMAN CLOCK™.

The HUMAN CLOCK takes rhythmic pulse output

from your drummer, bass player, rhythm guitarist or keyboardist and through an exclusive Kahler® process called REAL TIME PREDICTION™, calculates live tempo and converts it to a midi-clock output that moves and changes with your tempo! Instantly and naturally.

The HUMAN CLOCK lets you make music the way YOU want to, not the way your machines force you to.

Experience the freedom at your Kahler® dealer. The HUMAN CLOCK.™

AN AMERICAN INVENTION BY™

Kahler®
MADE IN USA

APM P.O. Box 9305 Anahiem, CA 92802



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.

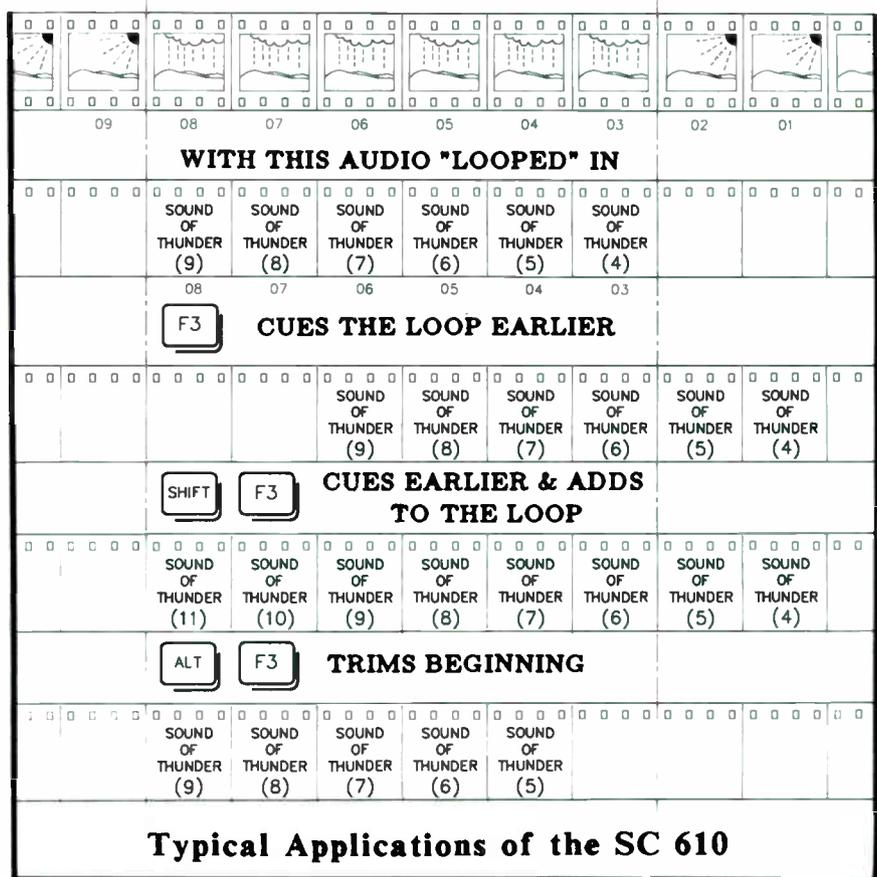
The first synchronizer I had experimented with was the BTX 4500, vintage 1979. I modified my Otari 8-track and cabled it to the BTX. This first generation box was not "fully intelligent"—it would synchronize tape machines within three seconds, but the slave machine was not capable of chasing to the master's 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

SC 610 and USERKEYS are trademarks of Kelly Quan Research.

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.

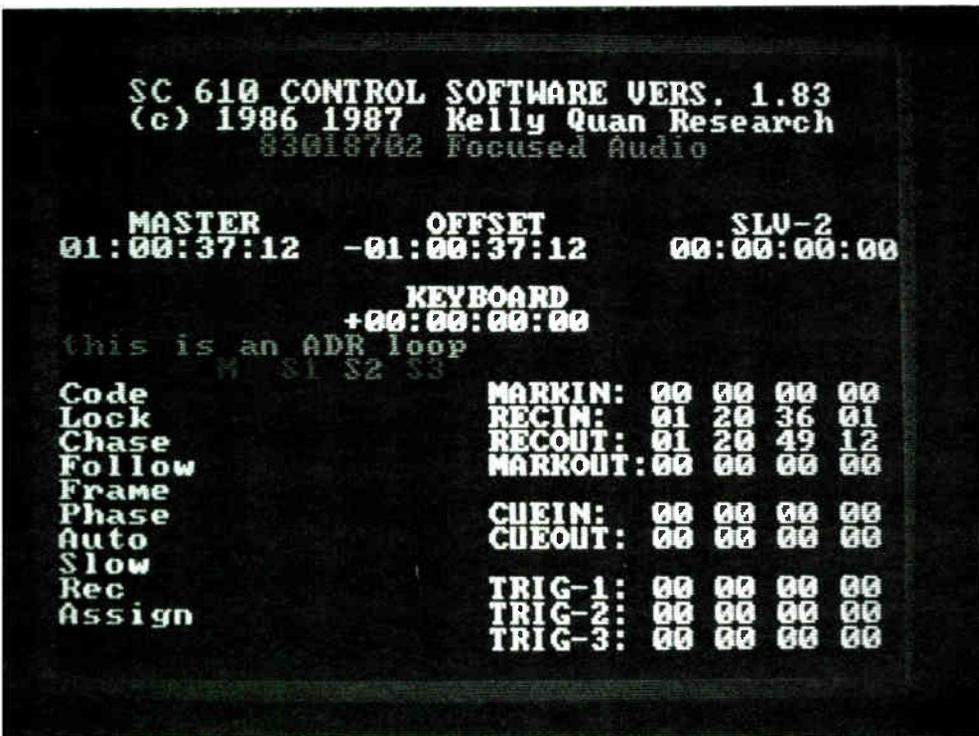
In response to complaints about not knowing the last EDL memory position available at any given time, Kelly devised an elegantly simple way to assign an EDL number to an edit. The same "enter" key used to write a user key now can be used to enter the edit information and an edit comment into the next 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



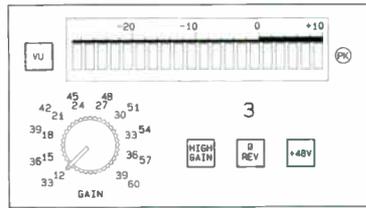
messages. When *G-Rex* director Ursi Reynolds flew in from Oregon to oversee the soundtrack building, we called up the "log" function and proceeded through the entire feature, entering time code location notes for music, fx, ADR, Foley, and mix notes. I then printed out hard copies for us. This "log" 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. ■

The Mic Preamp you've been wishing for is here!



The M-1 Mic Preamp

The John Hardy Company M-1 Mic Preamp gives you superior quality of sound at a very affordable price. Features include:

- 990 discrete op-amp
- Jensen JE-16-B mic input transformer
- DC servo circuitry



THE JOHN HARDY COMPANY

The Manufacturer of High-Quality Audio Equipment

P.O. Box AA631
Evanston, IL 60204

(312) 864-8060

TELEX: 910-380-4670
(JOHN HARDY CO)

Circle #072 on Reader Service Card

Print label copy right on your cassette with the apex printer



Forget about paper labels.
Print over 7,000 units per hour.
Save time, money, trouble, space.
Eliminate inventory problems,
costly label overruns.
Save 4¢ or more per cassette.

Five models to choose from:
One manual single color unit.
Two semi-automatic one color table top models.
Two high production multi-color consoles
that print up to three colors in one pass.

Manufactured and distributed
in U.S.A. by

apex

apex machine company
3000 n.e. 12th terrace
fort lauderdale, fl 33334 u.s.a.
telephone: (305) 566-1572

Distributed internationally

audio

audiomatic corporation
400 madison avenue
new york, new york 10017 u.s.a.
telephone: (212) 308-6888
telex: 12-6419

Circle #073 on Reader Service Card

SOUND MIXING AT WGBH

Quality on a Shoestring Budget

Nova, *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."

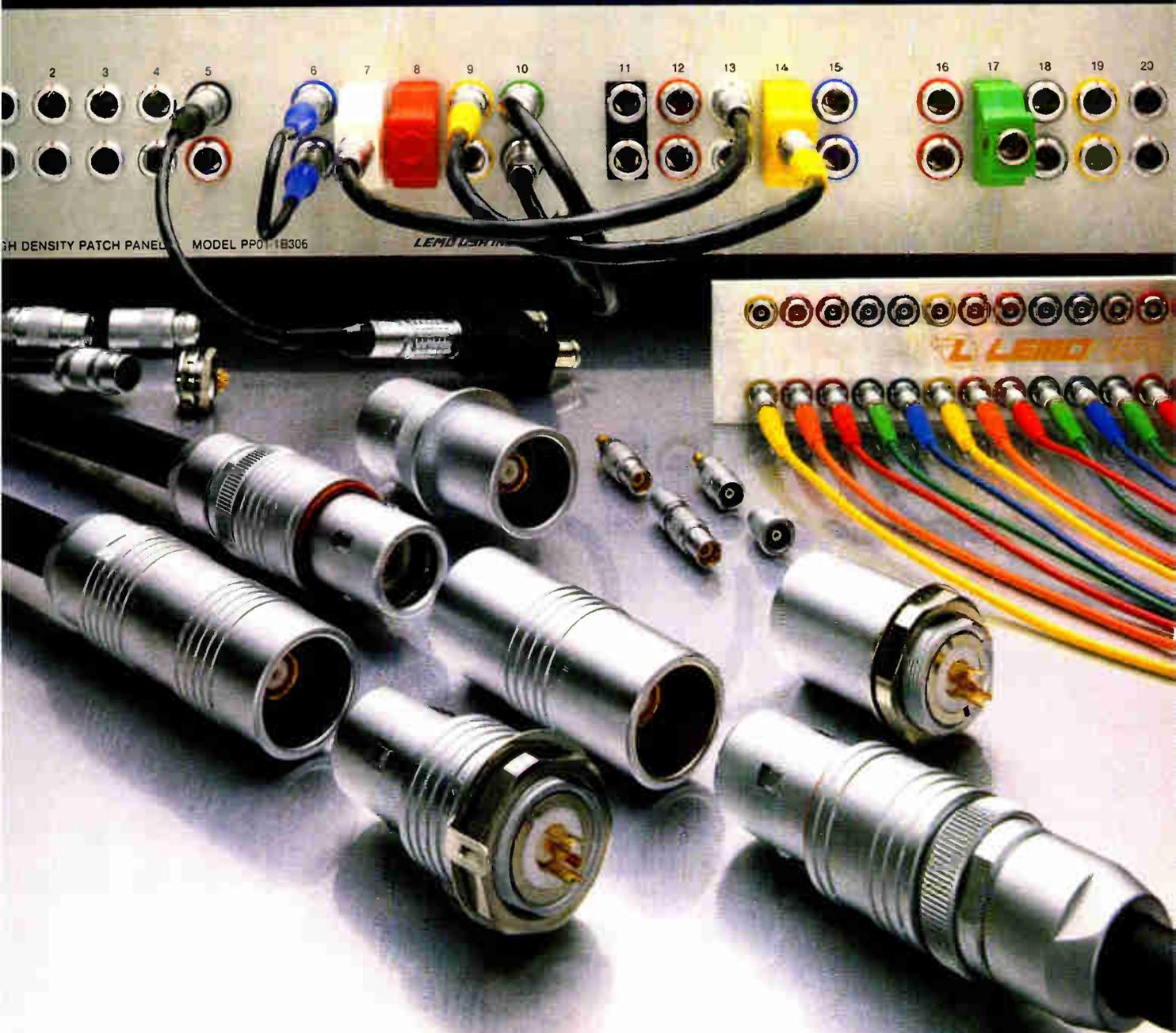
Bock says he usually works most directly with editors, that he seldom sees the films' directors there at the mix. "In my case, I'm not sure why that's worked out. I guess they're usually already into their next project. The editor may or may not be at the mix, but we talk at some point. Really, the editor 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."

Quality is seen in every detail.



Does your equipment have LEMO Connectors?

- ◆ Designed to maximize communications capabilities within a minimum of space.
- ◆ Available in coax, triax, multicontact and mixed coax-multicontact configurations.
- ◆ Cable assemblies available.
- ◆ Custom designs welcome.

LEMO connectors feature the unique "Quick Lok" self-latching quick connect-disconnect positive locking mechanism, gold-plated contacts and rugged, space saving design.

For more information see **EEM**.

Circle #074 on Reader Service Card



THE QUALITY CHOICE

For technical data and catalog or the name of your local representative, please call or write:

LEMO USA, INC.

P.O. Box 11488, Santa Rosa, CA 95406

telephone (707) 578-8811

telex 340-933, telefax 707/578-0869

Exclusive Broadcast Industry Distributor:

BI-TRONICS, INC. Tuckahoe, NY

1-(800) 522-7377 • (212) 585-1645

See us at NAB booth number 2805.

Post production is a race against time.



If you work with equipment that slows you down, the competition will pass you by.

So you'll be glad to know that Tascam's engineers have created the very first racing machine for audio post production.

Introducing the 24-track Tascam ATR-80 Recorder/Reproducer.

Our new machine is built for speed. The kind of speed that makes posting a lot more productive.

To start off, Tascam's exclusive

samarium cobalt motors enable the ATR-80 to shuttle up to 380 IPS. So you'll never again have to wait for the audiotape to catch up with the videotape.

You'll save editing time, too, because unlike other audio recorders, the ATR-80 allows edit previews.

Which means no more retakes.

And no more punch-in problems. In an engineering first, we devised a set of microprocessors that makes editing gapless *and* seamless. Your edits will be perfectly transparent, as well as surprisingly quick.

Overdrive for Overdubs.

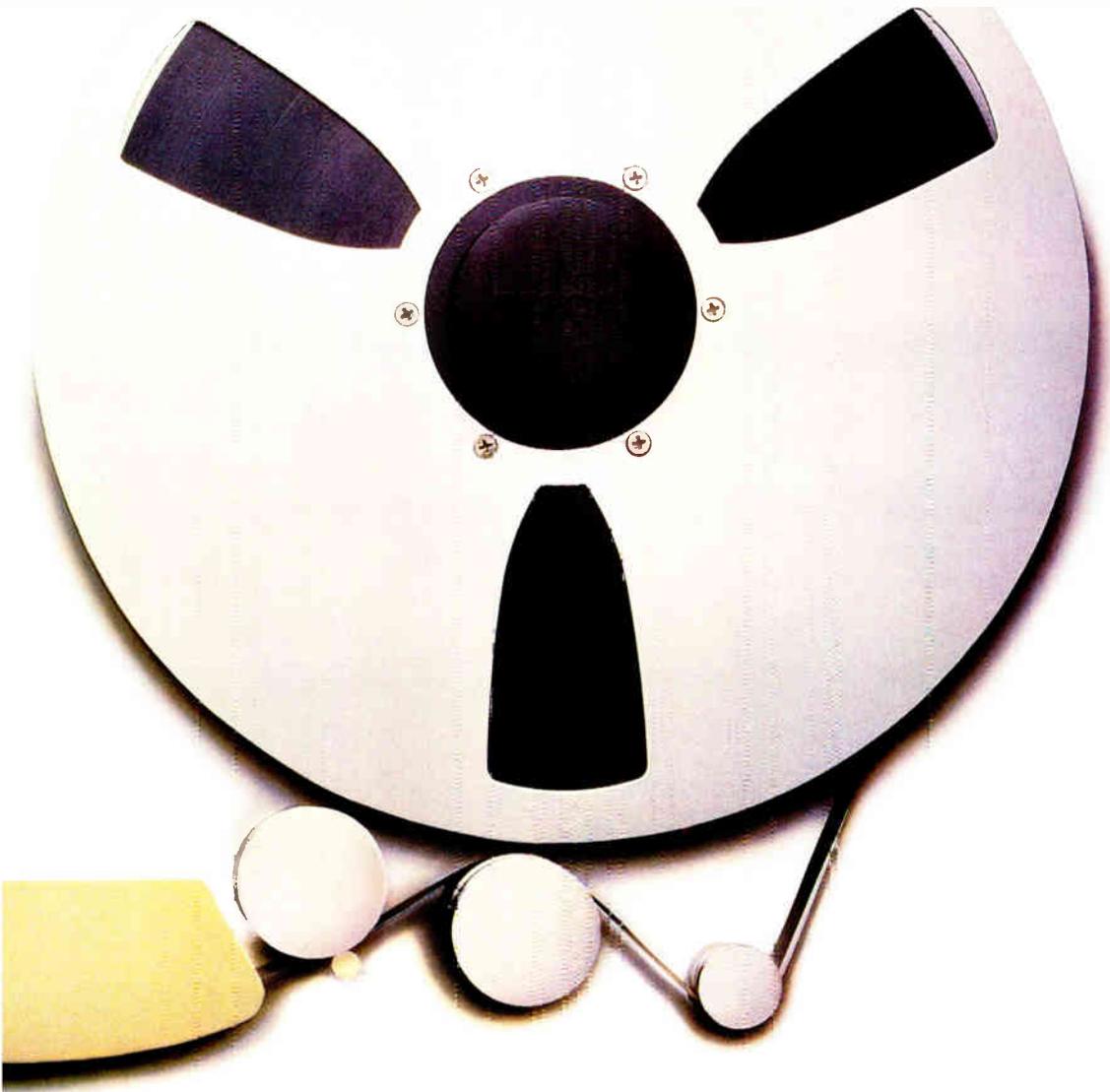
You can accelerate your overdubbing, thanks to the lead we've taken in head design.

The ATR-80's uniformly responsive heads allow you to make final EQing decisions right in the Sync Mode, without having to rewind and check the sound from the Repro head.

Our heads also give you crosstalk rejection that beats most others. So you can use the track next to time code for music, instead of wasting it as a guard band.

And now there's a faster way to finish.

TASCAM



Quicker editing and overdubbing would ordinarily be enough to distinguish a new machine. But the ATR-80 doesn't stop there.

For instance, it interfaces instantly with any existing noise reduction system (including Dolby SR). And it accepts 14" reels, so you can work non-stop with an hour's worth of tape.

Faster in the Long Run.

We even built speed into the ATR-80's maintenance systems: you can replace its modular power supply in just minutes if anything goes wrong.

Of course, that's very unlikely. Because like every Tascam component, the ATR-80's power supply has been built to the industry's most rigorous standards. And designed with the benefits of 30 years' experience and field-testing.

We're so confident of our quality, in fact, that we'll come to your studio and give the ATR-80 a complete check-up. While it's still under warranty.

So call us for the Tascam ATR-80 dealer nearest you. Then look one over and start it up.

You'll finish in the money.



TASCAM

THE AUDIO/POST SOLUTION

FILM/VIDEO SCORING
SOUND DESIGN
SMPTE, MIDI,
SCSI CONTROL
HARD DISK RECORDING
USER FRIENDLY

CMI

SERIES



Drennon Advertising

- **Los Angeles**
Fairlight Instruments, Inc.
(213) 470-6280
- **New York**
Fairlight Instruments, Inc.
(212) 219-2656
- **Chicago**
Gand Music & Sound
(312) 446-4263
- **Miami**
Limelite Video
(305) 593-6969
- **San Francisco**
AIC
(415) 686-6493
- **Australia**
Fairlight Instruments, Pty. Ltd.
(02) 331-6333
- **Canada**
Computer Music International
(416) 964-1885
- **U.K.**
Sycos Systems, Ltd.
(01) 724-2451

Fairlight

SEE US AT NAB
BOOTH #215

**THE COMPANY
BEHIND YOUR
SUCCESS**

Circle #076 on Reader Service Card

*Jim Hodson
& Bill Koepnick*



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 Foley-ing 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-

*EXCELLENCE...
from start to finish*



**Expensive?
...Yes.**

A little more than other cassette duplicators, but at Music Annex, we don't sell price...we sell quality.

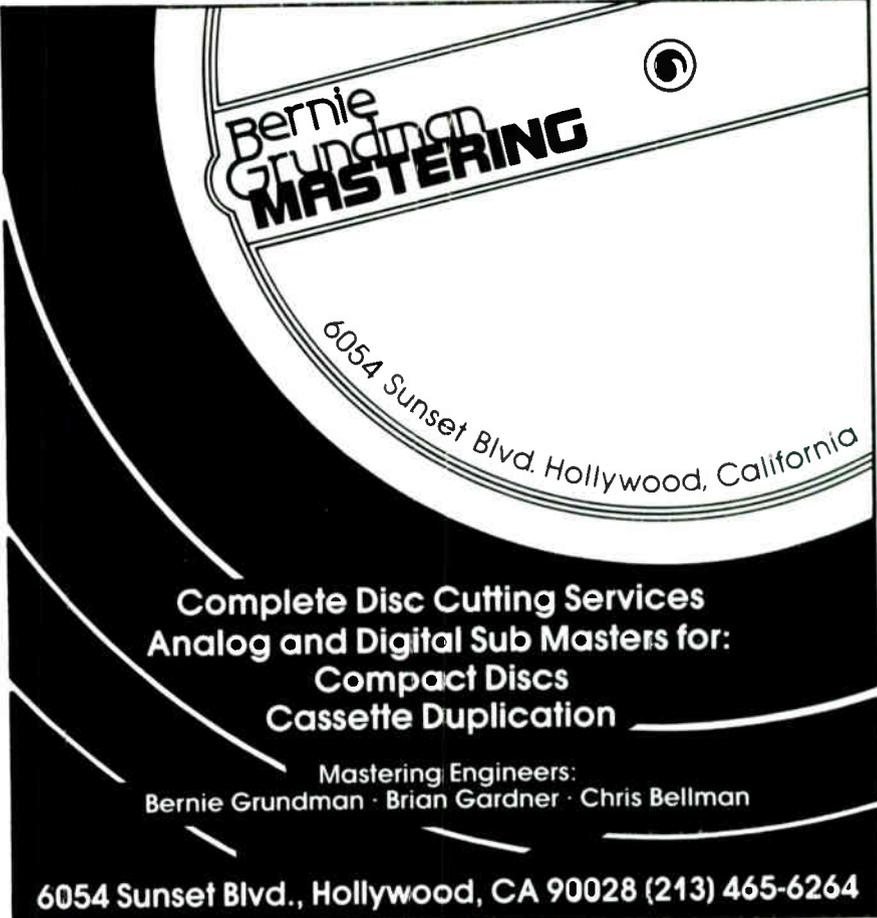
Remember, we started in the studio business and that's why we won't compromise when it comes to using the best materials and equipment...

You shouldn't have to either!

Music Annex

CASSETTE DUPLICATION
 69 GREEN ST., 2ND FLOOR 970 O'BRIEN DRIVE
 SAN FRANCISCO, CA 94111 MENLO PARK, CA 94025
 (415) 421-6622 (415) 328-8338

Circle #077 on Reader Service Card



**Bernie Grundman
MASTERING**

6054 Sunset Blvd. Hollywood, California

**Complete Disc Cutting Services
Analog and Digital Sub Masters for:
Compact Discs
Cassette Duplication**

Mastering Engineers:
Bernie Grundman · Brian Gardner · Chris Bellman

6054 Sunset Blvd., Hollywood, CA 90028 (213) 465-6264

Circle #078 on Reader Service Card

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

The mix begins with the dialog.



Buy one, get four free.

Symetrix

They say you get what you pay for. Indeed, the 528 Voice Processor proves the point. Five high performance signal processors in a single rack space, for about what you'd expect to pay for each. Mic Preamp, De-esser, Compressor/Limiter, Downward Expander, Parametric EQ/Notch Filter. Even 48v phantom powering and a balanced line input. No compromises, nothing left out.

The 528 Voice Processor is the ideal mic input system for sophisticated recording and high level sound reinforcement systems. Control annoying sibilance, optimize spectral balance. Set overall signal levels. Reduce noise. And, eliminate resonances and ring frequencies with the 528's extremely selective EQ and filtering.

Get what you pay for, and then some. Get the 528 Voice Processor. Call or write for a detailed spec sheet.

4211 24th Avenue West
Seattle, Washington 98199, USA
Telephone (206) 282-2555
Telex 703282

Signal processing at its best

Circle #079 on Reader Service Card



How Many Different Products Would You Have To Buy To Get All These Features?

96 ROM-Based Sounds

- Base model: Grand piano, harpsichord, string section, acous. bass, acous. guitar, drums & percussion, electric organs, horns, & more
- Sound Block A: Choir, woodwinds, timpani, electric bass, vibes, marimba, chimes, conga, harp
- Rock Block B: Minimoog™, electric piano, electric guitar (mutes, lead, harmonics), snare drums (5), kick drums (5), toms (3), cymbals (rides, crash, hi-hats)
- Classical Block C: Solo and pizzicato strings, celeste, hand bells, bassoon, pipe organs and more
- Brass Block D: Solo trumpet, trumpet mutes, solo trombone, hard tenor sax, growl tenor sax, soft tenor sax, stabs, square wave, digital wave form
- 341 ROM-based keyboard setups
- Up to 40 user-definable keyboard setups
- Up to 48 user-definable effects setups
- Advanced keyboard and instrument editor facilities

50 KHz sampling

- 18-bit floating point sampling
- 14 sampling rates
- Six sampling modes
- Variable trigger input sensitivity
- 100 seconds of sampling at 5KHz
- 10 seconds of sampling at 50KHz
- 31 assignable samples per keyboard
- Full editing of user samples, including trimming, looping, reversing, tuning, dual amplitude keyboards
- SUPERAM I—doubles sampling memory
- SUPERAM II—quadruples sampling memory
- QLS™ (Quick Load System) software for rapid loading to and from Macintosh™ personal computer. Includes: SD Convert for using Sound Designer™ and Soft Synth™ sound editing programs, Keyboard Mover and Sequence Mover
- Kurzweil 250 Sound Library
- Simultaneous use of sampled and resident sounds

12 Track 12,018-note Sequencer

- Sequence MixBoard—mute, solo
- Punch in/out
- Record continuous controllers (pitch bend, volume, etc.)
- Looping
- Quantization on playback
- Set play/record pointer
- Record and play back over MIDI
- Sequence chaining
- Full track/event editing
- Call section, section copy, track copy
- Variable rate external sync and MIDI sync
- Simultaneous access to all on-board sounds

And More

- Powerful MIDI implementation
- Multi-timbral over MIDI
- Responds to continuous controllers over all channels, including poly-pressure

We Racked Our Brains

The Kurzweil 250 RMX is the new rack-mount version of the Kurzweil 250, measuring 19"(W) × 10.5"(H) × 22"(D) and weighing only 53 lbs. The Kurzweil 250 RMX can be purchased in the same configurations as the Kurzweil 250, with all the same great features and sounds.

You could buy a sampler, a sequencer, hundreds of sounds on disk, a mixing board and more and still not equal the power of the Kurzweil 250. The immediacy and convenience of the Kurzweil 250 as a compositional tool are unmatched. And now you can buy the Kurzweil 250 RMX, the Kurzweil 250 in a 19" rack that is portable and space-saving.

All in One THE KURZWEIL 250™ AND 250 RMX

Kurzweil Music Systems, Inc. 411 Waverley Oaks Rd. Waltham, MA 02154 (617) 893-5900

Specifications subject to change without notice. Kurzweil (logo) and QLS are trademarks of Kurzweil Music Systems, Inc. Apple is a trademark of Apple Computer, Inc. Macintosh is a trademark of Macintosh Laboratories, Inc. Minimoog is a trademark of Moog Music, Inc. Sound Designer and Soft Synth are trademarks of Digidesign Inc.

Circle #080 on Reader Service Card



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.

Another benefit is the fidelity of the

dynafex[®]

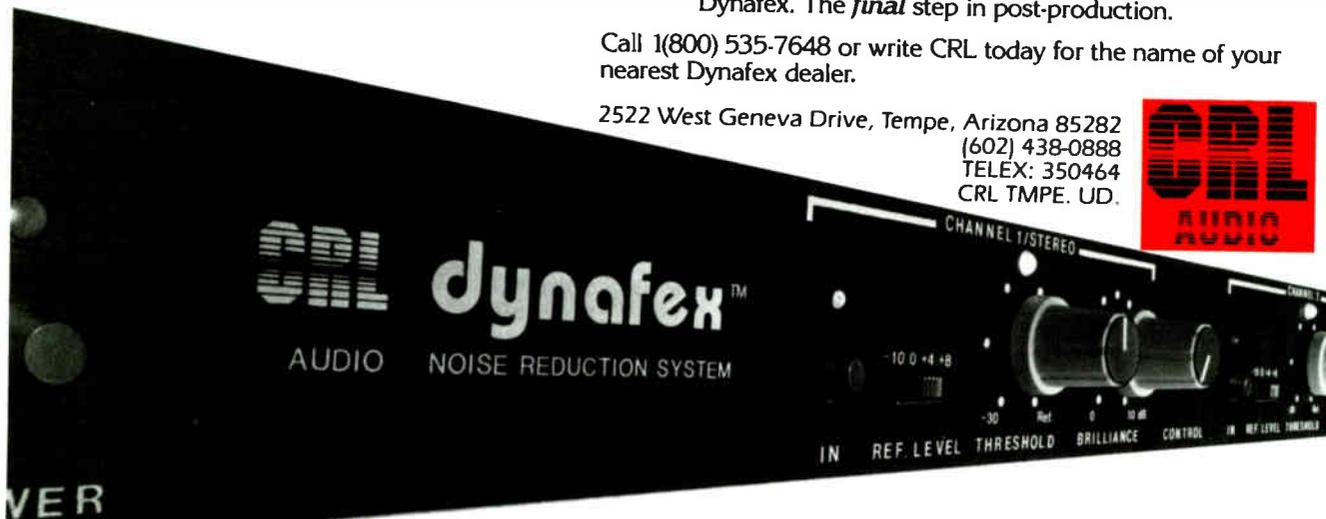
Because
it's a
noisy world.

- Up to 30dB noise reduction (better than many compressor/expander systems)
- Works after the fact – no encoding or decoding required
- Simple, trouble-free operation
- Effective on any audio program material.

Dynafex. The *final* step in post-production.

Call 1(800) 535-7648 or write CRL today for the name of your nearest Dynafex dealer.

2522 West Geneva Drive, Tempe, Arizona 85282
(602) 438-0888
TELEX: 350464
CRL TMPE. UD.



Circle #081 on Reader Service Card



THE NEXT GENERATION FROM ALESIS . . . 16 BIT DIGITAL EFFECTS PROCESSOR

*The unmistakable quality of the Alesis digital reverb. 29 natural, sparkling reverberant images that made MIDIVERB famous. Plus unusual delay and studio production effects . . . sounds that make your music leap with your imagination. **Plus** flange, triggered flange, shimmering chorus programs, multi voice chorus, multitapped delays, gated reverb, reverse reverb, echoes, and more. Incredibly crisp **15kHz** frequency response. **16 bit** linear PCM processing for uncompromising sound. Fast, logical control directly through the front panel or via MIDI. **99** programs in all.*

*Assignable to any of **32 MIDI** patch locations. Stereo all the way. 19" rack with 1/4" phone jacks for instant hook-up. The Alesis signal processing microchip keeps the price exactly where you want it. **MIDIVERB II** blows the lid off the world of signal processing.*

Circle #082 on Reader Service Card

LOS ANGELES: P.O. Box 3908 · Los Angeles, California 90078 · FAX: 818-503-0943

LONDON: 6, Letchworth Business Centre, Avenue One · Letchworth, Hertfordshire SG6 2HR · FAX: 46-268-3999



Everyone Says They're Better — We Prove It!



- Time Delay
- Reverberation
- Crossovers
- Tape Noise Reduction
- Compressor / Limiters
- Expanders
- Spectrum Analyzers
- Parametric EQ

With all the strong claims by advertisers, it's not easy to distinguish between the hot air and the hot products. That's exactly why we prepared this demonstration album. In it we show you what our products do and how they compare with the best of our competition under identical circumstances.

You will hear our phenomenal MICROPLATE® Reverb with over 18 KHz bandwidth in side by side reverb only comparisons with the EMT® Plate on percussion and vocals. No other spring reverb would dare attempt such a comparison! The cost is incredible too, under \$600 mono, \$1,200 in stereo!

We also show our CLX-2 Compressor/Limiter/Expander in side by side comparisons with the dbx® 165 and illustrate the CLX's audibly superior freedom from distortion as well as its other abilities of De-Essing, Expansion, Keyed Expansion, Push button Stereo Tracking, and Ducking.

Other demos feature our exceptionally versatile parametric equalizers, time delays and tape noise reduction. Examples are drawn from the master tapes of top 40 Hits and show some of the most sophisticated recording techniques ever devised. Let your ears decide who sounds best before you buy. Only direct sales allow us to offer a superior product at prices lower than the competition.

Write or call for a free 24 page brochure and demo album.

**LT Sound, Dept. MX-1, P.O. Box 338,
Stone Mountain, GA 30086 Phone (404) 493-1258**

LT Sound

We Make A Better Product

World Radio History

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.

Aspen Music Festival

Four two-week sessions, June 29–August 23, 1987

Gordon Hardy, President

Jorge Mester, Music Director

The Aspen Audio Recording Institute • Aspen, Colorado

FACULTY

Dan Craik, Director, Ray Barker, John Eargle
Andrew Heller, Thomas Knab, Shawn Murphy

Full use of professional recording equipment provided by James B. Lansing Sound, Inc.; TEAC-Tascam; Beyer Dynamic; UREI; Lexicon; Yamaha; Mitsubishi; and Studer-Revox America.

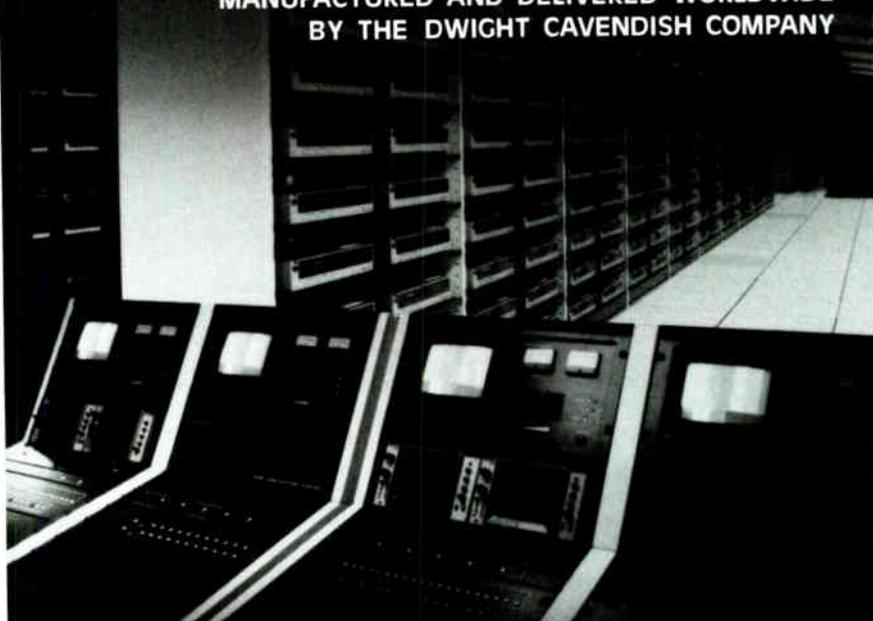


Write or call for information: • Aspen Audio Recording Institute
Aspen Music School • 250 West 54th Street • 10th Floor East
New York, NY 10019 • (212) 581-2196

Circle #083 on Reader Service Card

VIDEO CASSETTE DUPLICATOR

MANUFACTURED AND DELIVERED WORLDWIDE
BY THE DWIGHT CAVENDISH COMPANY



COPYMASTER SERIES 50, 250 or 1000 DUPLICATORS INCLUDE:

- Controls for 10 Slaves to 1000's
- Video/Stereo Audio-HIFI
- Modular "Easy-Add-On" Design
- 10 High VCR Stacking
- Full Function Remote Control
- QC System Included

DWIGHT CAVENDISH COMPANY, 2117 CHESTNUT, WILMETTE, IL 60091
(312) 256-0937 Telex: 286 897 Video UR

Circle #084 on Reader Service Card

—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-

STEP UP To The BEST AUDIO/VIDEO SYSTEMS Under One Roof!

The LINES:

- SONY PRO AUDIO
- TASCAM
- DWIGHT CAVANDISH
- ORBAN
- JVC PRO VIDEO
- AMPEX
- RAMSA
- ADAMS-SMITH
- UREI
- ELECTRO-VOICE
- SYMETRIX
- AMEK
- TAC
- TEAC
- LEXICON
- STAR CASE
- SWITCHCRAFT
- DDA
- KLARK-TEKNIK
- BEYER
- KLOSS VIDEO
- VALLEY PEOPLE
- NEC VIDEO
- YAMAHA
- BBE
- APHEX
- ATI
- SENNHEISER
- CROWN
- AUDIO-TECHNICA
- CRL
- AUDIO CONTROL
- KLIPSCH
- MARANTZ
- NAD
- NEOTEK
- MAXELL
- SONY PRO VIDEO
- BOSCH VIDEO
- RAMKO
- RANE
- SHURE
- STL
- TECHNICS
- CONNECTRONICS
- NUMARK
- PANASONIC VIDEO
- dbx
- and MORE!

AUDIOLINE & CORPLEX Milwaukee • Chicago



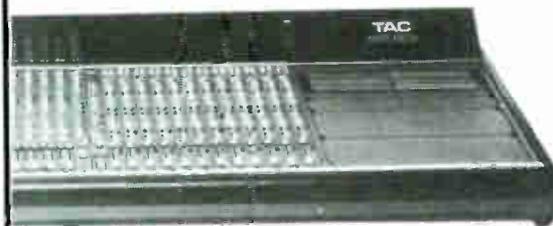
(414)785-9166
(312)676-9166

The STORY:

AudioLine, Inc has been serving the Midwest area for the past 10 years with the finest in pro audio equipment. Now we've taken the next step. AudioLine has teamed up with Corplex, Inc. announcing the formation of the best in audio and video from a single source. We are taking our knowledge of pro audio and the best in professional video from Corplex to give you the optimal system approach to audio and video. Now AudioLine and Corplex can handle all of your audio and video needs, whether it's individual pieces or complete audio/video systems. **We've got ALL that you need at competitive prices plus SERVICE!**

Call for details

- Sales
- Service
- Installation



New larger location:

2323J Bluemound Rd. Waukesha, WI 53186

New Showroom and Office:

6444 N. Ridgeway Lincolnwood, IL 60645

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-

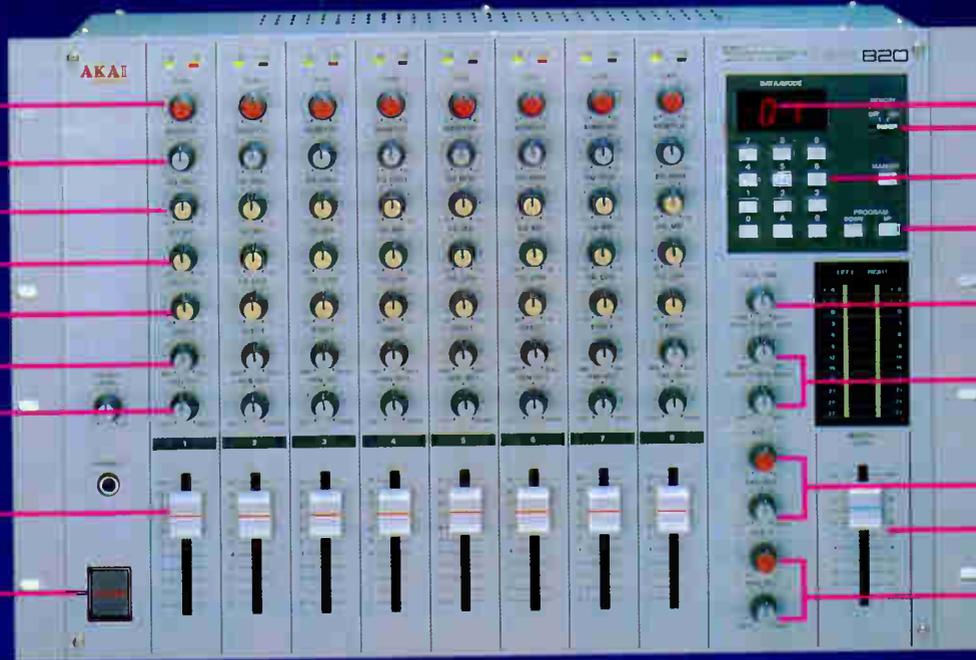
THE PROGRAMMABLE BREAKTHROUGH

WITH THE NEW

AKAI MPX-820

Fully Programmable 8 Channel Mixer
Mixing will never be the same!

**AUTOMATION FOR
UNDER \$2,500.00**



Gain
Programmable Monitor Send
Programmable 10kHz Hi EQ
Programmable 3kHz Mid EQ
Programmable 100 Hz Low EQ
Programmable Effect
Programmable Pan
Programmable Fader
Power Switch

LED Program Display
Memory Protect Switch
10 Key Program Pad
Program Up/Down Selectors
Programmable Fade Time
Programmable Effects Returns
Programmable Aux. 1 with Pan
Programmable Master Fader
Programmable Aux. 2 with Pan

AKAI PROFESSIONAL MPX-820 PROGRAMMABLE AUDIO MIXER . . . FINALLY ALLOWS PROGRAMMABLE MIXERS TO BE AFFORDABLE.

Until now fully programmable automated mixing cost over a hundred thousand dollars, allowing only a select few to have the luxury of this creative tool. Now through AKAI's imaginative and dedicated design team programmable computer mixing is now available at a cost that even the amateur recording enthusiast can afford. For an audio experience, see your nearest authorized AKAI Professional Product Dealer.

- 99 Programmable Memories
- Programmable Fade Time 40ms - 15 sec.
- Fully MIDI Compatible
- Slave up to 8 Consoles for 64 Programmable Channels
- Impeccable Audio Performance
- Frequency Response 20Hz-20kHz \pm 1.0dB
- E.I.N. - -128dB Max.
- T.H.D. - 0.04%
- Fader Resolution - 0.03dB

AKAI
professional
Creative At Heart.

Circle #144 on Reader Service Card

For complete details write to AKAI P.O. Box 2344 Fort Worth, Texas 76109
Gentlemen: Send me a data sheet on the new AKAI Professional MPX-820 Programmable Mixer.
Name _____
Address _____
City _____ State _____ Zip _____
Tele () _____

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 1M2

R1 REF2 OFF

REFL: OPT ON

R2 REF OFF

CHORUSING 51

REFLECTION
DELAY TIMES

REVERB
TIMES

R1 MS1

RT LDW 20 S

L1 RFL 96 MS

RT MID 11 S

L2 RFL 300 MS

EDGER 950 M2

R1 RFL 84 MS

RT HC 623 4M2

R2 RFL 300 MS

"SPACE SHIFTER" Dynamic MIDI patches
for use with the YAMAHA DX7

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

EFFECTS INTO MUSICAL PERFORMANCE: A LEXICON APPLICATIONS BRIEF

We developed *Dynamic MIDI*[®] to take digital effects beyond static environments and flat textures. With it, you can use MIDI controllers to change your music's sonic space or texture as you're playing.

With the PCM 70 Digital Effects Processor, we pioneered the concept of parameter control through MIDI: it's still the most MIDI-responsive effects device available. Each program and register has 10 MIDI patches that assign any controller to any parameter. One controller can change two parameters, or two controllers can affect the same parameter. *Dynamic MIDI* makes possible dramatic unusual techniques that add impact to your music.

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.

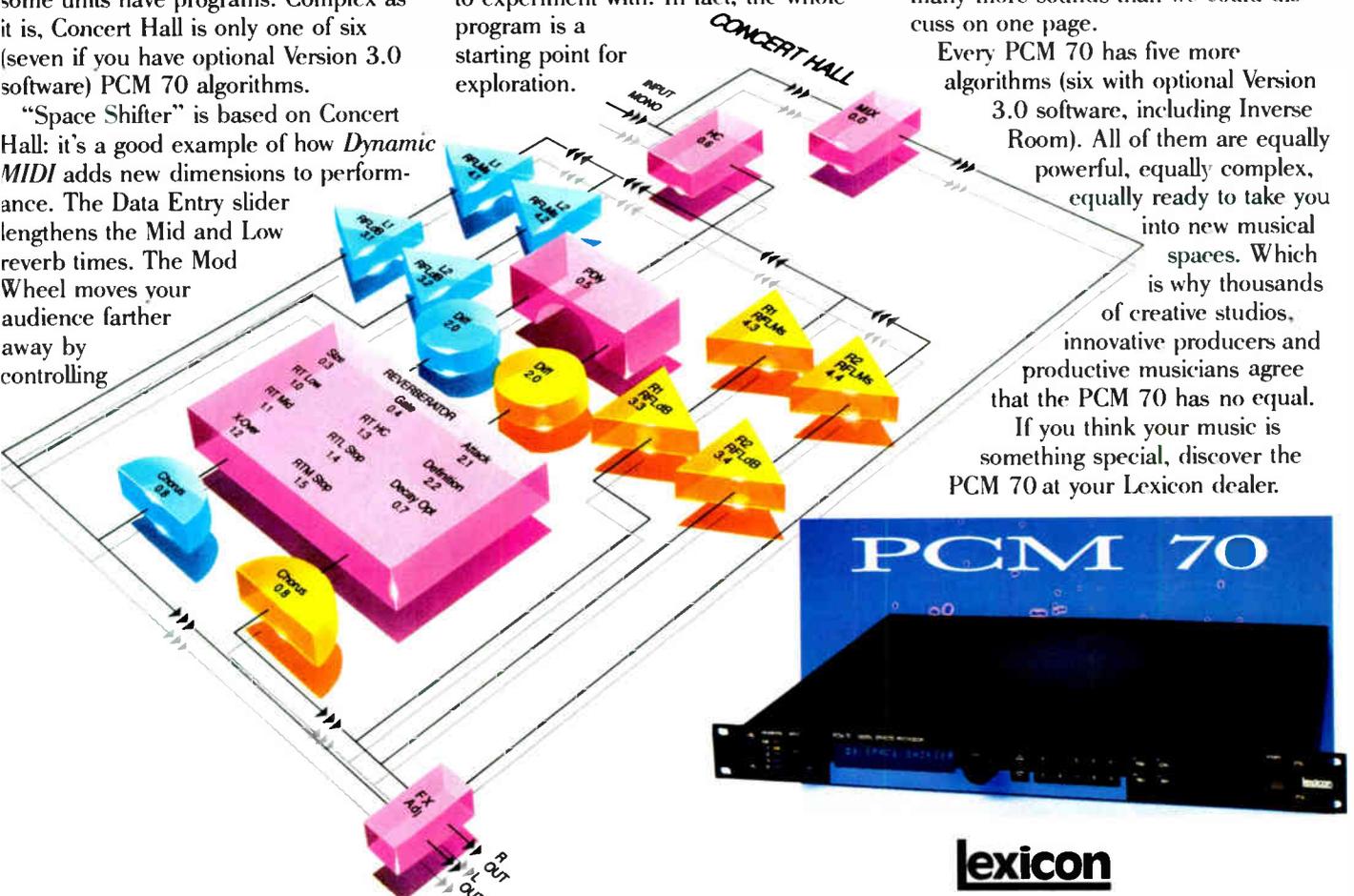
Try adjusting the Scaling function to get the polarity and range of control you want. If you need a wider range than a controller offers, you can "double assign" it to the same parameter for up to twice the variation.

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.

Every PCM 70 has five more algorithms (six with optional Version 3.0 software, including Inverse Room). All of them are equally powerful, equally complex, equally ready to take you into new musical spaces. Which is why thousands of creative studios, innovative producers and productive musicians agree that the PCM 70 has no equal.

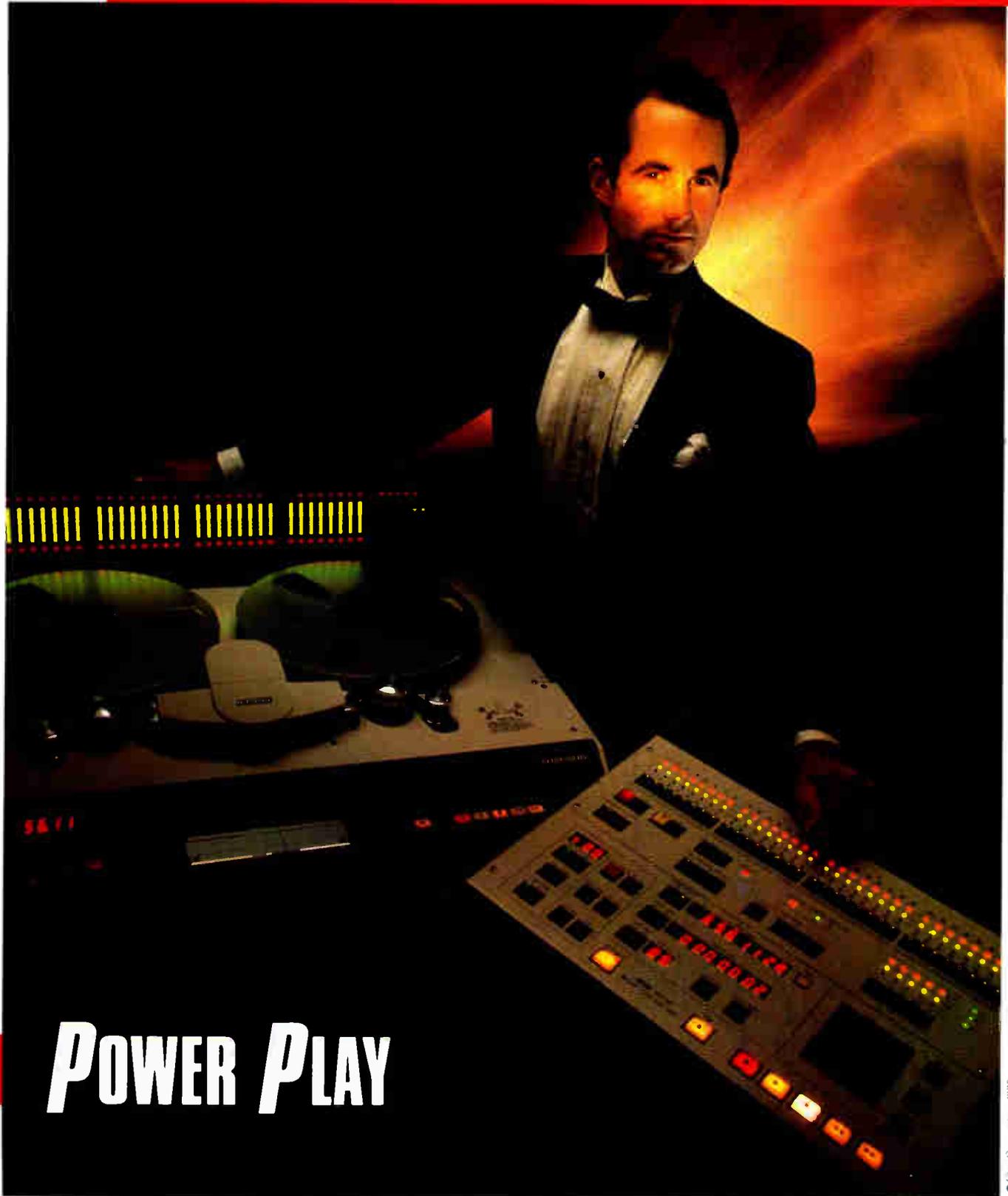
If you think your music is something special, discover the PCM 70 at your Lexicon dealer.



Circle #087 on Reader Service Card

Lexicon Inc., 100 Beaver Street, Waltham, MA 02154 (617) 891-6790

lexicon



POWER PLAY

Professional Digital standard recording format ■ 32 tracks ■ Peak reading LED meter bridge ■ The incomparable ballistics of Otari's renowned pinchrollerless transport ■ SMPTE-EBU time-code synchronization.

When you are ready to create the ultimate recording studio, the Otari DTR-900 awaits.

■ Otari, Technology You Can Trust ■ Otari Corporation, 2 Davis Drive, Belmont, California 94002 ■ (415) 592-8311 TWX 9103764890.



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 syncing 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

Now, Great for
VIDEO!
Full Compass,
now for BOTH
Audio & Video!



Panasonic
Industrial Company

You have
known us for
AUDIO...

170 PRODUCT LINES FOR THE PROFESSIONAL
Amplifiers • Cassettes • Headphones • Intercoms • Lighting • Mics • Mixers • Parts • Signal Processing • Speakers • Tape • Recorders • Test Equip. • Turntables • Video

TOLL FREE in 50 States
1-800-356-5844
In Wisconsin **1-800-362-5445**
Consultation: **608-271-1100**



6729 Seybold Rd. • Madison WI 53719-1393

Circle #044 on Reader Service Card

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

The producer's workstation may represent a new standard for off-line pre-production.

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

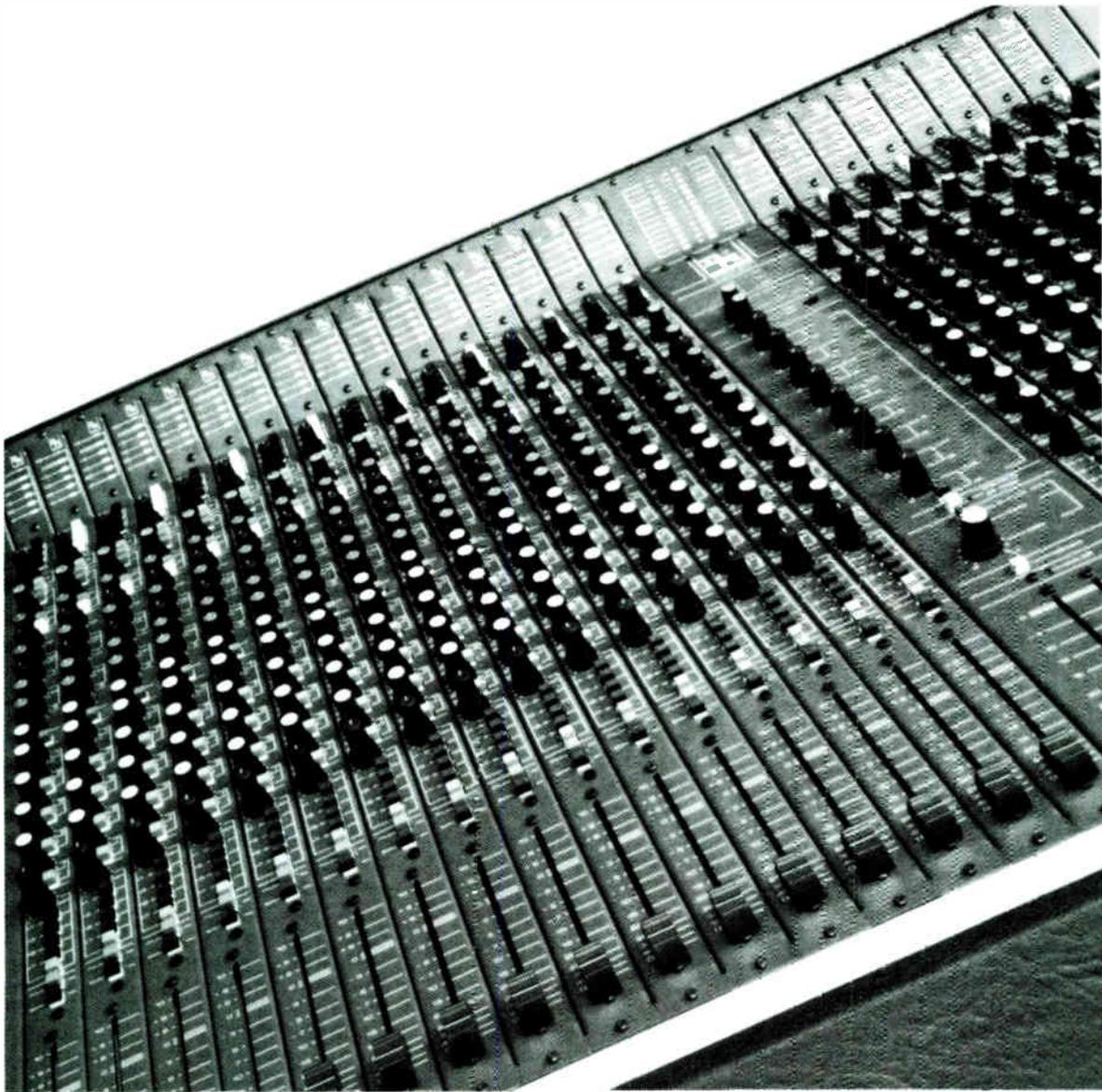
We found the mixing console to be very clean. The front panel controls are color coordinated and the signal path is well laid out. The EQ smooths out noticeably in the high end, which if not compensated for can result in everything having a creamy quality. However, by boosting the signal at around 10k 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. ■



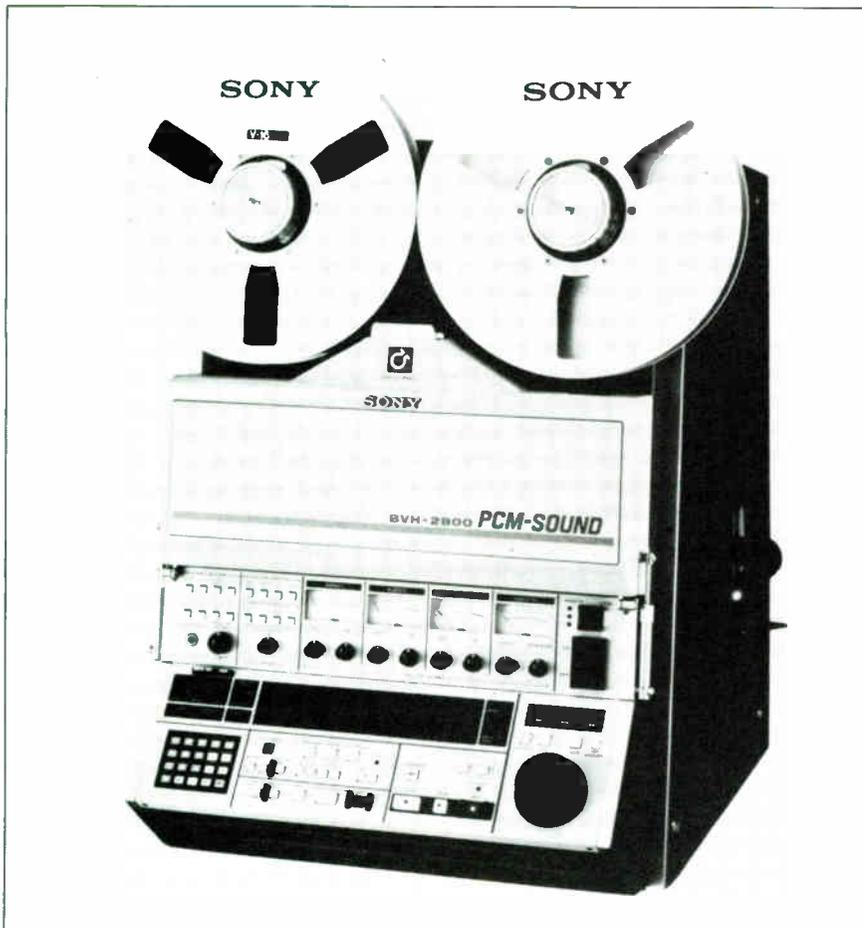
D&R DAYNER SERIES CONSOLE

- **Totally modular I/O design, with new 30mm wide channel modules:** provide unlimited expandability with unparalleled compactness. Individual LED metering, 4 band EQ, and 8 aux busses are all standard.
- **8 fully floating sub-groups :** allow routing any input (or group) to any multi-track channel(s) without repatching. In addition, since any I/O module can become a subgroup master, sub-groups can be equalized, fed to auxiliaries, muted or grouped.
- **Discrete MIC preamps and proprietary circuit design :** yield outstanding headroom, audio transparency, and transient response.
- **Modular dual-function tape monitors :** allow monitor capacity to be individually determined and expanded. Monitor channels also double as returns for effects, samplers, and sequenced synthesizers on mixdown.
- **Precision engineered and manufactured by D & R Electronics :** recognized the world over as a leader in professional audio. Priced to make value an understatement.

beyond comparison

Manufactured by : **D & R Electronica b.v.**
 Rijnkade 15b-1382 GS Weesp-Holland
 Tel.02940-18014 — Telex 18503 drnl

Available in the U.S. exclusively through: **WJR Distributors**
 4451 N. Log Cabin Dr., ste. 132, Smyrna GA 30080
 Tel. 404-436-7605—Telex 271942 WJRDIST



SONY BVH-2800

by Mark Schubert

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 playback 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



The new SM96. When you don't want home studio tapes to sound homemade.

Your recordings are only as good as the mic you use. Why hurt your chances of selling your song by using an inferior microphone?

The first affordable studio-quality vocal condenser microphone.

The SM96 is especially designed for home studios. It captures vocal subtleties ordinary mics can miss. So the tapes you produce sound crisper, punchier, and smoother.

We've even built in a three-stage pop filter and a precise bass rolloff to compensate for the proximity effect of a close-miked vocal. And, our unique 3-point space frame shock mount totally isolates the SM96 from mechanical noise pickup. Your tapes will sparkle with a quality you would expect only in professional studio recordings.

Works with or without phantom power.

The SM96 is the first microphone of professional caliber which can be powered by a readily available 1.5 volt AA battery. So you can have the silky-smooth sound of a top quality condenser mic even if your equipment doesn't have phantom power. And you can use the SM96 on stage with any mixing board.

Can you afford to make the modest investment in this remarkable new microphone? If you're serious about your music, a better question is, can you afford not to?

Shure Brothers Inc., 222 Hartrey Ave., Evanston, IL 60202-3696. (312) 866-2553. G. S. A. approved.

Circle #175 on Reader Service Card



SHURE

Breaking Sound Barriers
for over 60 years

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.

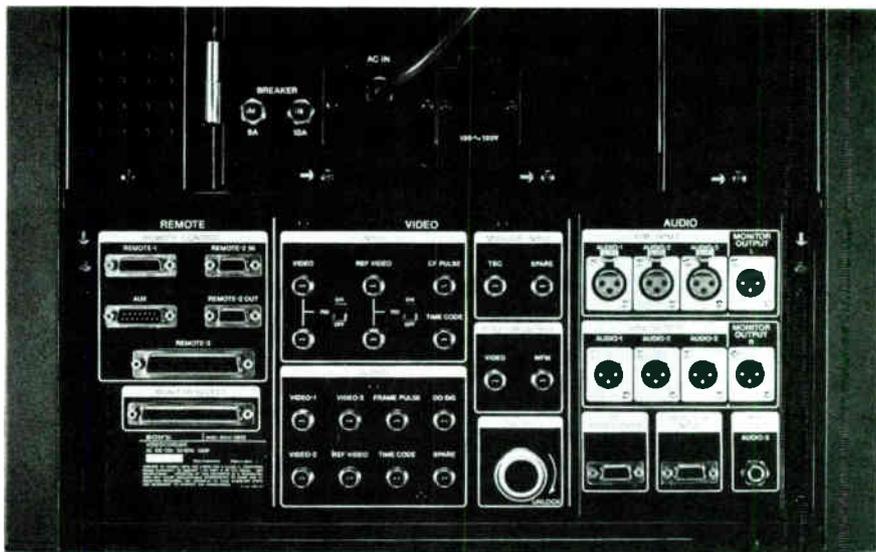
I was unable to discern any problems with the digital audio, either with test instruments or from subjective monitoring, as long as the machine was able to correct the errors. I used the machine at two different shows. First, just to play with it, I had it at a *Live From Lincoln Center* production. 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.

New Carver Amps for permanent installation, studio, and concert use. PM-175 and PM-350.

NOW THAT THE CARVER PM-1.5 IS PROFESSIONALLY SUCCESSFUL, IT'S STARTED A FAMILY. INTRODUCING THE NEW CARVER PM-175 AND PM-350.

Month after month on demanding tours like Bruce Springsteen's and Michael Jackson's, night after night in sweltering bars and clubs, the Carver PM-1.5 has proven itself. Now there are two more Carver Professional Amplifiers which deliver equally high performance and sound quality — plus some remarkable new features that can make your life even easier.

SERIOUS OUTPUT. The new PM-175 delivers 250 watts RMS per channel into 4 ohms. As much as 500 watts RMS into 8 ohms bridged mode. The larger PM-350 is rated at 450 watts per channel into 4 ohms. Up to a whopping 900 watts in 8 ohm bridged mode. Both with less than 0.5% THD full bandwidth at any level right up to clipping. Plus 2 ohm capability as well.

SERIOUS PROTECTION. Like the PM-1.5, both new amplifiers have no less than five special protection circuits including sophisticated fault interruption against dead shorts, non-musical high frequency, and DC offset protection, as well as low level internal power supply fault and thermal overload safeguards. The result is an amplifier which is kind to your expensive drivers — as well as to itself.

OUTBOARD GOES INBOARD. Each PM-175 and PM-350 has an internal circuit card bay which accepts Carver's new plug-in signal process-

ing modules. Soon to be available is an electronic, programmable 2-way stereo crossover, with 24 dB per octave Linkwitz-Reilly phase-aligned circuitry, a built-in adjustable high-end limiter and balanced outputs. And more modules will be available in the near future to further help you streamline your system.

PRO FROM CONCEPTION. The PM-175 and PM-350 inherited their father's best features. Including slow startup and input muting to eliminate turn-on current surge, 11-detent level controls, phone jacks, power, signal, clipping and protection indicators as well as balanced XLR input connectors. In a bridged mode, both amplifiers will drive 70-volt lines without the need for external transformers.

MEET THE FAMILY AT YOUR CARVER DEALER. All remarkable Carver Professional Amplifiers await your own unique applications. Hear their accuracy and appreciate their performance soon.

SPECIFICATIONS: CARVER PM-175 Power: 8 ohms, 175 w/channel 20-20kHz both channels driven with no more than 0.5% THD. 4 ohms, 250 w/channel 20-20kHz both channels driven with no more than 0.5% THD. 2 ohms 300 w/channel 20-20kHz both channels driven with no more than 0.5% THD. Bridging: 500 watts into 8 ohms; 400 watts into 16 ohms. THD-less than 0.5% at any power level from 20 mW to clipping. IM Distortion less than 0.1% SMPTE. Frequency Bandwidth: 5Hz-80kHz. Gain: 29 dB. Input Sensitivity: 1.5 V rms. Damping: 200 at 1kHz. Stew rate: 25V/micro second. Noise: Better than 115 dB below 175 watts. A-weighted. Inputs: Balanced to ground, XLR or TRS phone jacks. Input Impedance: 15k ohm each leg. Compatible with 25V and 70V systems. 19"Wx3.5"Hx11.56"D

SPECIFICATIONS: CARVER PM-350 Power: 8 ohms, 350 w/channel 20-20kHz both channels driven with no more than 0.5% THD. 4 ohms, 450 w/channel 20-20kHz both channels driven with no more than 0.5% THD. 2 ohms 450 w/channel 20-20kHz both channels driven with no more than 0.5% THD. Bridging: 900 watts into 8 ohms; 750 watts into 16 ohms. THD-less than 0.5% at any power level from 20 mW to clipping. IM Distortion less than 0.1% SMPTE. Frequency Bandwidth: 5Hz-80kHz. Gain: 31 dB. Input Sensitivity: 1.5 V rms. Damping: 200 at 1kHz. Stew rate: 25V/micro second. Noise: Better than 115 dB below 350 watts. A-weighted. Inputs: Balanced to ground, XLR or TRS phone jacks. Input Impedance: 15k ohm each leg. Compatible with 25V and 70V systems. 19"Wx3.5"Hx11.56"D



- Powerful • Reliable • Versatile • Stackable • Rugged • Easy to Install • Compact • Lightweight • Cool Operation • Bridgeable • Quiet • Affordable • Multi-Function Protection • Superb Sound

CARVER

PO Box 1237, Lynnwood, WA 98046

POWERFUL

MUSICAL

ACCURATE

Circle #096 on Reader Service Card

World Radio History

Distributed in Canada by: evolution technology

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.

CONTENTS

150	NORTHEAST U.S. FACILITIES
170	SOUTHEAST U.S. FACILITIES
179	NORTH CENTRAL U.S. FACILITIES
190	SOUTHWEST U.S. FACILITIES
195	SOUTHERN CALIFORNIA FACILITIES
204	NORTHWEST U.S./HAWAIIAN FACILITIES
213	OUTSIDE U.S. FACILITIES

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**

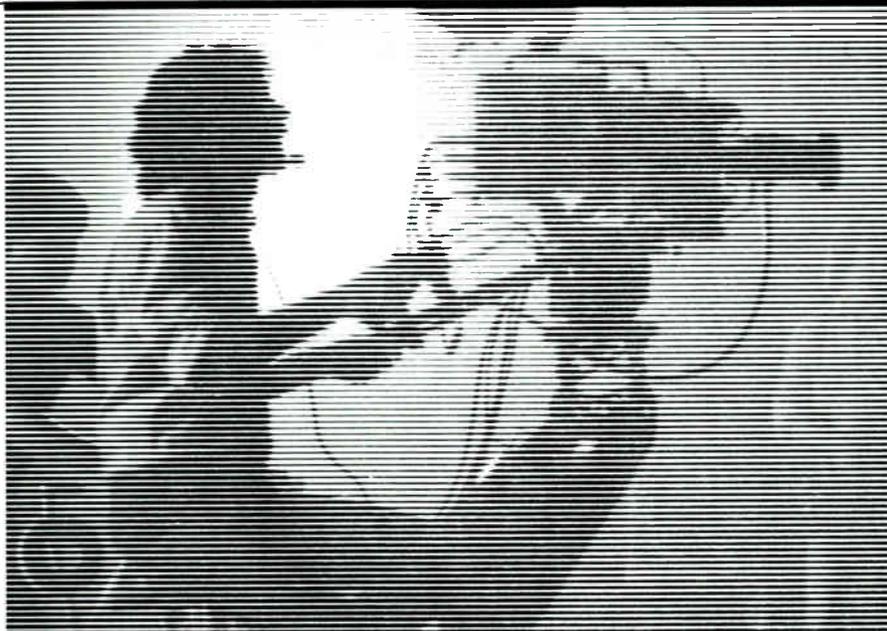
Southern California/Hawaiian Studios: **June 1, 1987**

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. Plid., 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, Abekas 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

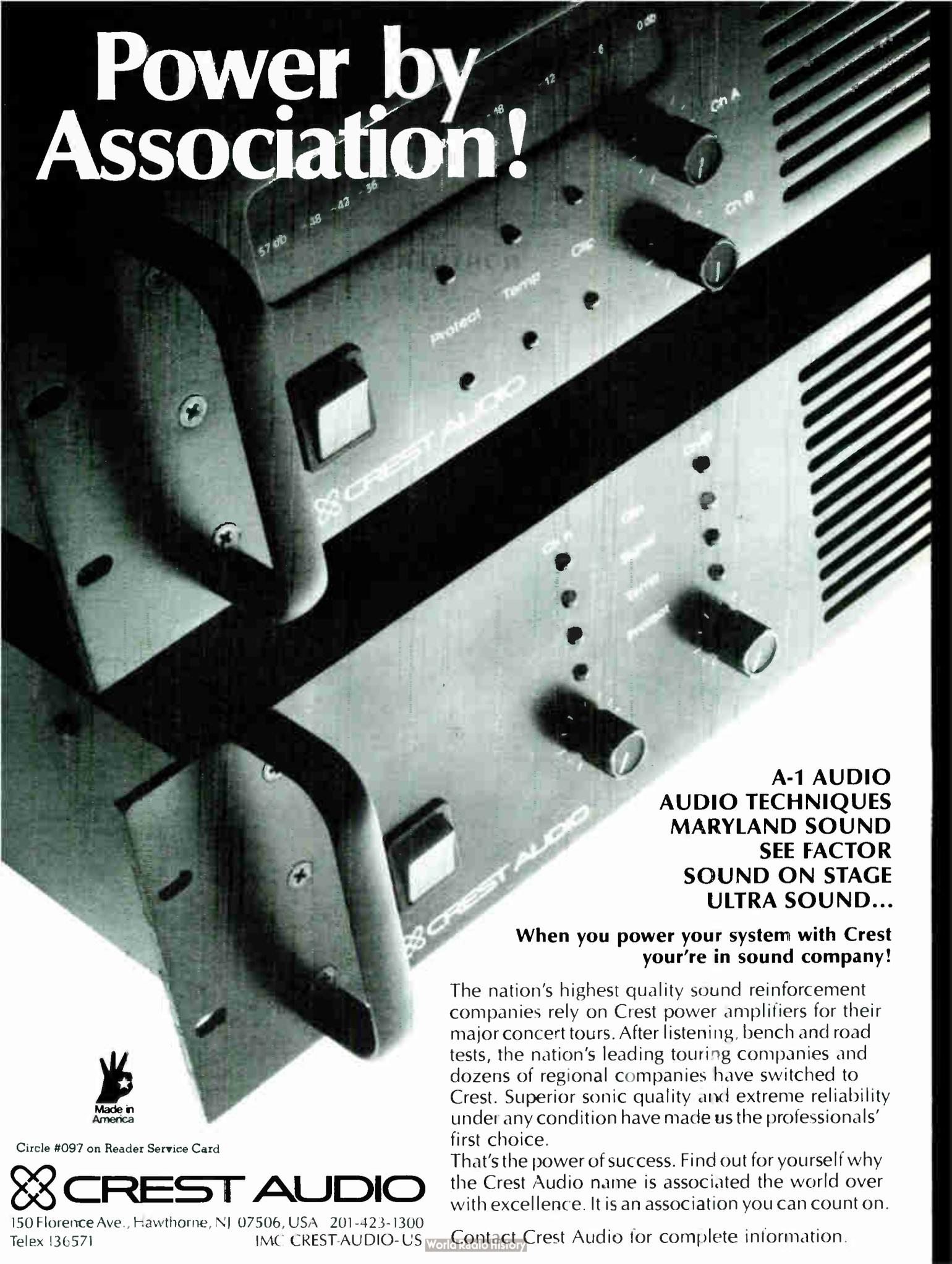
DEWOLFE MUSIC LIBRARY, INC.

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!



**A-1 AUDIO
AUDIO TECHNIQUES
MARYLAND SOUND
SEE FACTOR
SOUND ON STAGE
ULTRA SOUND...**

**When you power your system with Crest
you're in sound company!**

The nation's highest quality sound reinforcement companies rely on Crest power amplifiers for their major concert tours. After listening, bench and road tests, the nation's leading touring companies and dozens of regional companies have switched to Crest. Superior sonic quality and extreme reliability under any condition have made us the professionals' first choice.

That's the power of success. Find out for yourself why the Crest Audio name is associated the world over with excellence. It is an association you can count on.

Contact Crest Audio for complete information.



Circle #097 on Reader Service Card

CREST AUDIO

150 Florence Ave., Hawthorne, NJ 07506, USA 201-423-1300
Telex 136571 IMC CREST-AUDIO-US

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) Shibusaku CVM 20, (2) Shibusaku 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
Maspeth, NY 11378
(718) 672-3865
Owner: Joseph Peter Storza



THE 1987 TEC AWARDS

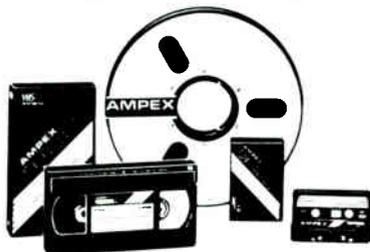
Honoring Technical Excellence
and Creativity in the
professional audio industry.
Watch for your voting ballot in the
August 1987 issue of *Mix*.
For information regarding tickets,
program book advertising, or
procedures, call or write to:

Penny Jacob—Executive Director, Mix Publications, 2608 Ninth St., Berkeley, CA 94710 (415) 843-7901

AMPEX

Amper Corporation • One of The Signal Companies

— Blank Audio/Video, —
Digital Audio Tape



B Burlington
Audio/Video Tapes, Inc.
106 Mott Street
Oceanside, New York 11572

**FOR HARD TO GET
ACCESSORY ITEMS**

Reels, Boxes, Custom Cassettes,
Leaders and Splicing Tape
Digital Audio Tape Available
In Stock and Priced Right!
Immediate Delivery

**Call for FREE Catalog
Toll Free: 1-800-331-3191
In N.Y. 516-678-4414**

Circle #099 on Reader Service Card

McVee productions

**Connecticut's Leading
Independent Production Center**

- Hitachi and Ikegami Cameras
- 1" Ampex VPR 80's - Stomo & Still Frame
- 1" VPR 20 Portable Type C VTR
- 45' X 48' Studio with Full Lighting
- Full 1" and 3/4" Computerized Editing
- Duplication 1" 3/4" and 1/2"
- Quantel DPE 5000 sp Digital Effects
- Music Videos
- Full Broadcast Quality Commercials
- Scriptwriting
- Illustration
- Art Services
- Slide Productions
- Rentals

McVEE PRODUCTIONS
will take your production from concept
to post production perfection
without taking your budget for a ride.

McVee Productions
140 Bradley St.
New Haven, CT 06511
(203) 776-4800

(A Division of M.C.V.P. Inc.)

Circle #100 on Reader Service Card



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 Griesch
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: MPCS 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, 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, OLVP
1999 E. Route 70
Cherry Hill, NJ 08003
(609) 424-3300
Owner: Steven Tadzynski

LAVA PRODUCTIONS
VFP, VPP/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, VPP/E, OLVP, APPV
420 W. 45th St.
New York, NY 10036
(212) 757-0204
Owner: Jeffrey Poretzky
Studio Manager: Jeffrey Poretzky

LINDAJAY PRODUCTIONS
VFP, VPP/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, VPP/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

commodates 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 I. Black

LOOKING GLASS FILM COMPANY
VFP, VPP/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

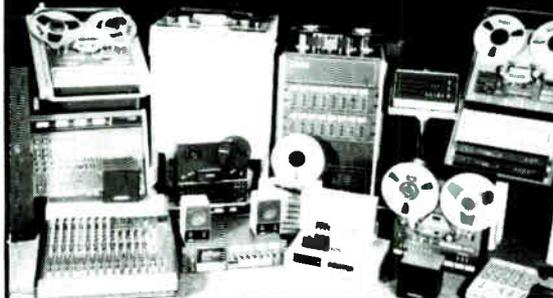
LRP VIDEO
VFP, VPP/E, OLVP
3 Dag Hammarskjold Plaza
New York, NY 10017
(212) 759-0822

LUCAS CHRISTIAAN PRODUCTIONS
OLVP
177 Water St.
Brooklyn, NY 11201
(718) 596-0649
Owner: Ronald L.C. Kienhuis

LYONS PRODUCTIONS
VFP, VPP/E, OLVP, APPV
715 Orange St.
Wilmington, DE 19801
(302) 654-6146
Owner: William Spiker
Studio Manager: Jim Hefferman

MAGNO EMPIRE RECORDING STUDIOS
VFP, VPP/E, APPV
18 W. 45th St.
New York, NY 10036
(212) 757-8855
Owner: Magno Sound & Video
Studio Manager: Larry Roemer

THOROUGHbred MUSIC HAS FREE DELIVERY.



20,000 Square Feet Of
State-Of-The-Art Pro Audio
Shipped Daily

THOROUGHbred MUSIC

2204 E. Hillsborough Ave.
Tampa, FL 33610
(813) 237-5597

* Mail orders only
shipped in continental U.S.
via U.P.S.



RECORDERS

MONITORS

AMPS

MICROPHONES

SIGNAL
PROCESSING

TASCAM

FOSTEX

KURZWEIL

E-MU

ENSONIQ

AKAI

UREI

Circle #101 on Reader Service Card

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

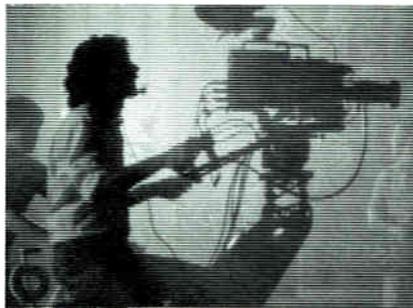
MED/ART VIDEO & CINEMAGRAPHICS
VPF, VPP/E, OLVP, APPV
 5904 Char Leigh Cir.
 Frederick, MD 21701
 (301) 694-0541
 Owner: Robert L. Medvee
 Studio Manager: Robert L. Medvee

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

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).

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. Jeffrey

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, Corrad, 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 F45mar 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
 VPF, 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.
 VPF, VPP/E
 420 Lexington Ave.
 New York, NY
 (212) 661-8830
 Owner: Henry Steiner

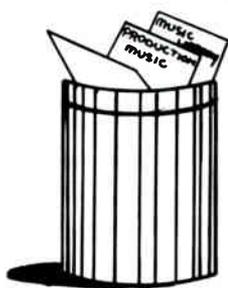
OKOVIC/GOODMAN PRODUCTIONS
 VPF, OLVP
 718-B S. 22nd St
 Philadelphia, PA 19146
 (215) 546-1448
 Owner: J. Okovic
 Studio Manager: Robert M. Goodman

OPTIMEDIA SYSTEMS, INC.
 VPF, 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
 VPF, 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) Ikkagami 79 EAL w/studio configuration.
 Synchronizers: Adams-Smith synchronizer controls all audio machines, and a BVU-800.
 Audio Recorders: Sony JH24 24-track, Sony JH10C 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.

OUT WITH THE OLD!



IN WITH THE NEW.....

DIMENSION PRODUCTION MUSIC LIBRARY

- World's Only Music Library • Lifetime Blanket License
 Containing 11 Holophonic's (No Needle Drop or Annual Renewal Fee)
- Digitally Mastered • Available in C.D.'s or L.P.'s
- AND IT'S AFFORDABLE!

FOR FREE CASSETTE SAMPLER, CONTACT:
 P.O. BOX 1561 • JUPITER, FLORIDA 33468 • PHONE: 305/746-2222

(HOLOPHONICS IS A TRADEMARK OF ZUCCARELLI HOLOPHONICS, INC.)

Circle #102 on Reader Service Card

MAKE THE RIGHT CHOICE FIRST! CSE AUDIO



The Broadcasters' Choice.
 SONY MXP-2000 Series
 Audio Follow Video / Editor Interface and much more.

AMEK/TAC • ADAMS-SMITH •
 NAKAMICHI • ASC/TUBES •
 ART/MXR • AVL • APHEX •
 BEYER • DYNAMIX • MRL •
 CROWN/PZM • HAFNER •
 COUNTRYMAN • MILAB •
 EMULATOR • ORBAN •
 DBX • EV/SENTRY • LOFTEC •
 OTARI • AKG • KLARK-TEKNIK •
 PERREALUX • RAMKO • SAMSON • SCS • SHURE • SCOTCH/3M • MCI/SONY •
 TANNAY • TASCAM • USAUDIO • VALLEY PEOPLE • VISIONIKS • WHIRLWIND •
 FOSTEX • MARK OF UNICORN • DIGI DESIGN • OPCODE • AND MUCH MORE!



Circle #103 on Reader Service Card

**TAC
 SCORPION**
 16 x 8
 w/16 Monitor



**TASCAM
 M-16**
 (Auto Locator,
 • DBX Noise Reduction,
 & Floor Cabinet Extra)

16 Track Package
\$14,995

**AMEK/TAC
 MATCHLESS**
 26 x 24
 w/Patch Bay



**MCI-SONY
 JH-24**
 with Auto Locator III
 (Less Stand)

24 Track Package
\$44,400
 Quantity Limited

Call Us about
**The Best Studio Monitors
 Money Can Buy!**

**AFFORDABLE
 EXCELLENCE**
 CSE Audio
 1200 Scottsville Road
 Rochester, NY 14624
 716-436-9830

Lease/Purchase programs available

EUROPADISK, LTD.



Direct Metal Mastering

U.S. Only Complete
DMM Facility—

- Disk Mastering Suite
- Hi-Definition Plating
- State-Of-The-Art Pressing

For
brochure & pricing,
call or write

EUROPADISK, LTD.

75 Varick St.
N.Y. 10013
(212) 226-4401

Circle #104 on Reader Service Card

HEADS UP

The superb workmanship of AMP Services in the refurbishing of heads and head assemblies is matched only by the rapidity of a same day turn-around, weekdays, evenings and weekends.

- Authorized **OTARI** Service Center
- All work guaranteed.

DON'T LOSE YOUR HEAD
Over neglect or poor
restoration

IN FL (305) 659-4805
1-800/826-0601

Mastercard & Visa



Audio Magnetic Professional Services, Inc.
224 Datura Street, Suite 614
West Palm Beach, FL 33401

Circle #105 on Reader Service Card



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 I-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.
 VPF, VPP/E, OLVP
 535 Broadhollow Rd.
 Melville, NY 11747
 (516) 420-5680
 Owner: Harvey M. Birnbaum
 Studio Manager: Roslyn Chalman

PRODUCTION MASTERS INC. (PMI)
 VPF, VPP/E, OLVP, APPV
 321 First Ave.
 Pittsburgh, PA 15222
 (412) 281-8500
 Owner: David Case
 Studio Manager: David Case

QUALITY PRESENTATIONS ASSOCIATES LTD.
 VPP/E, APPV
 553 Rockne Ave.
 Massapequa Park, NY 11762
 (516) 799-5281
 Owner: Carl H. Greenberg
 Studio Manager: Robert Zyra

QUARK VIDEO
 VPP/E, OLVP
 421 Hudson St.
 New York, NY 10014
 (212) 807-8504

RAMPION VISUAL PRODUCTIONS
 VPF
 316 Stuart St.
 Boston, MA 02116
 (617) 574-9601
 Owner: Randel F. Cole
 Studio Manager: Pam Hallom

RAYTHEON SERVICE CO.
 VPF, VPP/E, OLVP, APPV
 2 Wayside Rd.
 Burlington, MA 01803
 (617) 272-9300
 Owner: Raytheon Company
 Studio Manager: Ed Dextraze

RBY RECORDING AND VIDEO
 VPF, VPP/E, OLVP, APPV
 920 Main St. N.
 Southbury, CT 06488
 (203) 264-3666
 Owner: Jack Jones
 Studio Manager: Marjorie Jones

REALITY VIDEO
 VPF, VPP/E, OLVP
 213 Middle River Rd.
 Danbury, CT 06811
 (203) 743-7102
 Owner: Robert Morse
 Studio Manager: Robert Morse

REFLEX TELEPRODUCTIONS
 VPF, 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.

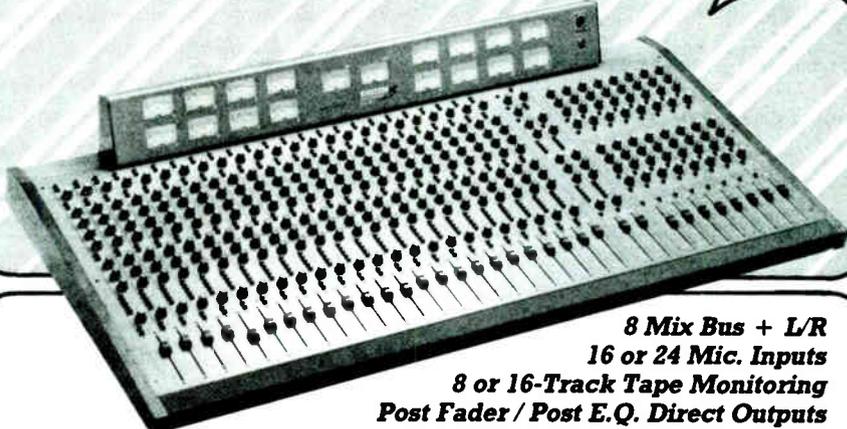
REGENT SOUND STUDIOS, INC.
 New York, NY

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.
 VPF, VPP/E, OLVP, APPV
 50 Kane St.
 Baltimore, MD 21224
 (301) 633-7600
 Owner: Register Photo Service Inc.
 Studio Manager: R. Eugene Foote

AHB

SYSTEM 8



8 Mix Bus + L/R
 16 or 24 Mic. Inputs
 8 or 16-Track Tape Monitoring
 Post Fader / Post E.Q. Direct Outputs
 Alps Glass Smooth Faders / 48 Volt Phantom Power

Whether in Multi-Track Recording or Sound Reinforcement, AHB brings to you over 14 years of experience in the design and manufacture of mixing consoles. This experience has been incorporated into the System 8 Series of mixers, making them one of the most reliable and versatile consoles on the market, while offering one of the best cost-to-performance ratios within the industry.

We invite you to Look, Listen, and Compare . . . You will agree that the System 8 Series of mixers are Designed not only to handle your present needs, but also your needs of the Future!

AHB

Allen & Heath Brenell Ltd.
 69 Ship St. Brighton, BN 1 1AE England
 Telephone: (0273)24928 / Telex 878235

Allen & Heath Brenell (USA) Ltd.
 Five Connair Road
 Orange, Ct. 06477 / (203) 795-3594

Canadian Distributor: Heini Electronics Inc. / 1-416-727-1951

Circle #106 on Reader Service Card

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 P (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 ¾-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

SHOOTERS
VPF
 Avenues of Commerce,
 Ste. 208, 2428 Rt. #38
 Cherry Hill, NJ 08002
 (609) 268-8400

Masters at Work

- Fast turn-around*
- Custom printing
- No minimum runs

- Extensive quality control
- Lowest prices
- From any master

Resolution brings you the Revox B-215 and a cassette of superior quality. The B-215 features Dolby HX Pro. Unlike high speed duplicators, we cut direct from digital masters. Resolution manufactures cassettes for some of the most demanding producers and labels in the country. All in real-time, all on time. Phone now **toll free 1-800-862-8900** and ask about our special test cassette offer and free catalogue. We now provide Hi Fi video duplication, as well.

All work is 100% guaranteed.
*24-hour service available.



RESOLUTION
 VIDEO AUDIO AND FILM
 Chace Mill
 One Mill Street
 Burlington, Vermont
 05401-1514

Owner: Craig Needelman
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

It Should Sound Better

Bryston has always thought so. Their latest product, the **6B**, is a professional monaural power amplifier that can be switched between bridged and parallel operation. With enormous current handling capability, even in bridged mode, the **6B** sets a new standard for certain demanding monitor applications. Bridged, it delivers 500 watts into 8 ohms, 800 watts into 4 ohms. In parallel it delivers 500 watts into 2 ohms, 800 watts into 1 ohm. As with **Bryston's** renowned **4B**, **3B**, and **2B-LP**, the reliability and sound quality are superb.

There's more to an amplifier than a spec sheet—call **Studio Consultants** to find out why **Bryston** is the only amplifier we sell, and to discuss a demonstration in your facility.

AMS AudioFile, API, Audio Developments, Audio Digital, Audio Kinetics, Bryston, Fostex Professional, Rane, Valley People, Westlake, White—and other fine products.

**studio
consultants,
inc.**

321 West 44th Street, New York, NY 10036 (212) 586-7376

Equipment, support, and design services for professional audio facilities and broadcasters.

Circle #108 on Reader Service Card

MIX 10TH ANNIVERSARY ISSUE

August
1987

Help Us
Celebrate!

Mix, the world's #1 professional recording magazine, celebrates ten years of serving the industry with a very special August issue. Features will include:

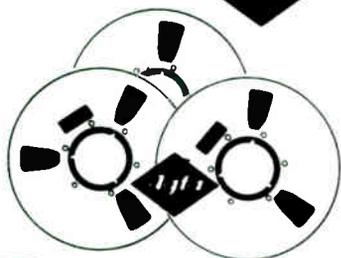
- The Future of Recording
- Acoustics, Design & Installation Supplement
- Directory of Designers and Suppliers

Whether you've been reading **Mix** for ten years or six months, you'll want to read—and save—the Tenth Anniversary Issue.

Attention Advertisers: As a way of thanking the people and companies who have contributed to our success, **Mix** will offer a special **Tenth Anniversary Advertising Discount** in the August issue. Call (415) 843-7901 for complete details.
Advertising Deadline:
June 7

Audio & Video
Tape for
the 80's

Agfa



B Burlington
Audio/Video Tapes, Inc.
136 Mott Street
Oceanside, New York 11572

New PEM 469 Audio Tape,
Cassette Pancakes and
A Full Line of Video Tapes
Plus Reels, Boxes, Leaders
& Splicing Tapes. Custom Cassettes
In Stock and Priced Right!
Immediate Delivery

Call for FREE Catalog
Toll Free: 1-800-331-3191
In N.Y. 516-678-4414

Circle #109 on Reader Service Card

api

a reputation of quality—

- custom products
- equalizers
- the 2520 OP-AMP
- distribution amplifiers
- microphone pre-amps
- replacement parts

File Use
CAD/CAM

Plus these new products:

- 5502 Dual Four Band Rack Mount 550A EQ
- 940M Motorized Servo Fader
- 318a distribution amplifier

api audio products, inc.

7953 Twist Lane, Springfield, VA 22153
(703) 455-8188 tx; 510-6001-898

studio consultants, inc.

321 West 4th Street, New York, NY 10036
(212) 500-7100

eastern representative

16055 Ventura Blvd., Suite 1001
Encino, California 91436
(213) 276-1414

western representative

Circle #110 on Reader Service Card



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) ¾-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.

It'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.

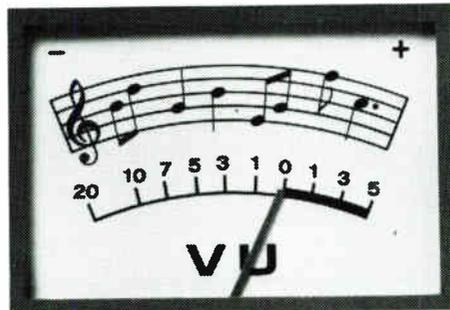
You'll work with a full spectrum of acoustic to electronic music, from Top 40 to film and television scores. And you'll learn sound reinforcement techniques for a wide variety of live music applications.



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.

Mail coupon to: **Grove School of Music**
12754 Ventura Boulevard
Studio City, California 91604

Please Print:

Name _____

Street _____

City _____

State _____ Zip _____

Phone() _____

MIX 4/87

I'd like to know more about the Recording Engineering Program.

I'd also like more information on the other programs checked below:

Songwriting Program

Synthesizer Program

General Musicianship Program

Vocal Program

Keyboard Program

Guitar Program

Bass Program

Percussion Program

Composing and Arranging Program

Film/Video Composition Program

Circle #111 on Reader Service Card

World Radio History

Peabody Conservatory of Music

Recording Workshops

Basic Recording Techniques

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

All courses meet M-F 9-4 p.m. and offer 2 credits. Tuition is \$250 per week.

For further information:

Peabody Conservatory of Music
Recording Arts and Sciences
1 E. Mount Vernon Place
Baltimore, MD 21202
(301) 659-8136

Circle #112 on Reader Service Card

From a pistol shot, to a world



SOUND EFFECTS ON COMPACT DISCS.

The finest DIGITAL STEREO SOUND EFFECTS, in one versatile, easy-to-use collection of 10 COMPACT DISCS. From VALENTINO, INC. the leader in Sound Effects production and offering the greatest experience in the selection and recording of sound effects for the professional broadcaster. Now the newest library available—on COMPACT DISC!

- PERFECT FOR USE IN TELEVISION, RADIO AND FILM OR VIDEO PRODUCTION.
- TRUE DIGITAL RECORDING - FROM START TO FINISH.
- OVER 650 DIFFERENT EFFECTS IN ONE SET OF CDS.
- THE ULTIMATE SOUND EFFECT LIBRARY.

All for \$500.00, exclusive of shipping charges.

Call toll free (800) 223-6278 for free catalog.

THOMAS J
Valentino, inc

SOUND EFFECTS LIBRARY
151 West 46th St., New York, NY 10036
(212) 869-5210 / (800) 223-6278

Circle #113 on Reader Service Card



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); OLVF (On Location Video Production); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

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, OLVF
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
 VPF, VPP/E, OLVP, APPV
 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

ian ian ian ian ian ian ian ian ian

FROM START TO FINISH . . . ian



**Audio Cassette & Video
Tape Duplication**

From 100 - 100,000 copies, the same consistent quality goes into every tape we duplicate.

Computer controlled, state of the art facilities accommodating all formats and budgets.

And there's more . . . with our in-house graphics and printing capabilities, your project will be complimented by great looking packaging, too!



When your reputation depends on it . . .

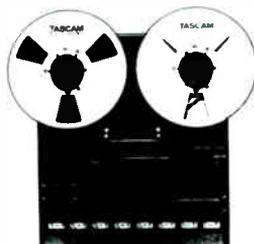
ian Communications Group, Inc.
 10 Upton Drive Wilmington, MA 01887 (617) 658-3700

ian ian ian ian ian ian ian ian ian

Circle #114 on Reader Service Card

RECORDING EQUIPMENT

—All Major Brands—



**FOR STUDIOS/HOMES
CHURCHES/CLUBS**

- Reel to Reel Decks (2-4-8-16 Track)
- Cassette Decks • Mixing Boards
- Mikes • Studio Monitor Speakers
- Special Effects Units Accessories

TASCAM
 H.A.C. Production Products

- VOLUME DEALER
- NEW & USED
- E-Z TERMS
- ALL MAJOR CREDIT CARDS
- PROFESSIONAL ADVICE



RHYTHM CITY

287 East Paces Ferry Road N.E.
 Atlanta, Georgia 30305
 1-404-237-9552 • 1-404-237-8526
 CALL TOLL-FREE IN GA 1-800-282-7995

Circle #115 on Reader Service Card

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
VPF, 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
VPF, 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
VPF, 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.
VPF, 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
VPF, 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.
VPF, OLVP
990 - 6th Ave.
New York, NY 10018
(212) 967-2977
Studio Manager: Alan Kaufman

WPHL PRODUCTIONS
VPF, VPP/E, OLVP
5001 Wynnefield Ave.
Philadelphia, PA 19131
(215) 878-1700
Owner: Providence Journal Co.
Studio Manager: Joel Levitt

XEROX CORPORATION
VPF, 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
VPF
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
VPF
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

**Call For Free Catalog
Immediate Delivery**

3M VIDEO

All Lengths & Widths
3M 480, 479, Color Plus
1/2 inch, PB20, New MBR
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

**All Shipped from Stock—
Priced Right!**

Scotch™
MAGNETIC MEDIA
NUMBER ONE IN THE WORLD OF THE PRO

3M

Circle #116 on Reader Service Card

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.

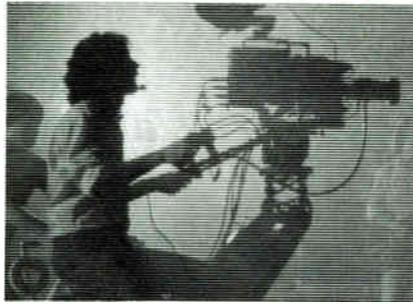
ALLEN-MARTIN VIDEO PRODUCTIONS INC.
VFF, VPP/E, OLVP, APPV
9701 Taylorsville Rd.
Louisville, KY 40299
(502) 267-9658
Owner: Allen-Martin Productions
Studio Manager: Michael J. Gibson

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

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).



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

Panasonic	
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.
JVC	
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

Panasonic VHS	
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

Panasonic	
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.
JVC	
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

Panasonic	
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.

JVC	
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.

NEC	
CM 1991 19" RGB	543.
CM 2591 25" RGB	720.

Kodak Datashow	
Projector w/remote	949.

**We Are An
Authorized
Sony Dealer**

Circle #117 on Reader Service Card

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

Sony Eastman Maxell			
	9.90		
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.			

WRITE FOR OUR COMPLETE TAPE PRICE LIST

WE ALSO SELL ALL MAJOR BRANDS

**TERMS: Certified Check, COD,
Bank Transfer, Cashiers Check
FOB: Highland Park, IL.
Some Quantities Limited.
All prices subject to change.**

COLUMBIA AUDIO/VIDEO

The Columbia Building • Laurel and Second • Highland Park, IL 60035 • 312 433-6010

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

When it comes to service most music stores are way off track. Their expertise extends as far as the price tag; Their interest in you as far as their commissions.

HOW MAY WE SERVE YOU?
From 2 trk to 32 trk; from MIDI to SMPTE
PRO AUDIO AND MUSICAL EQUIPMENT

Reliable Music
1001 South Independence Blvd. Charlotte, NC, USA 28202
704-375-8662

Circle #118 on Reader Service Card

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

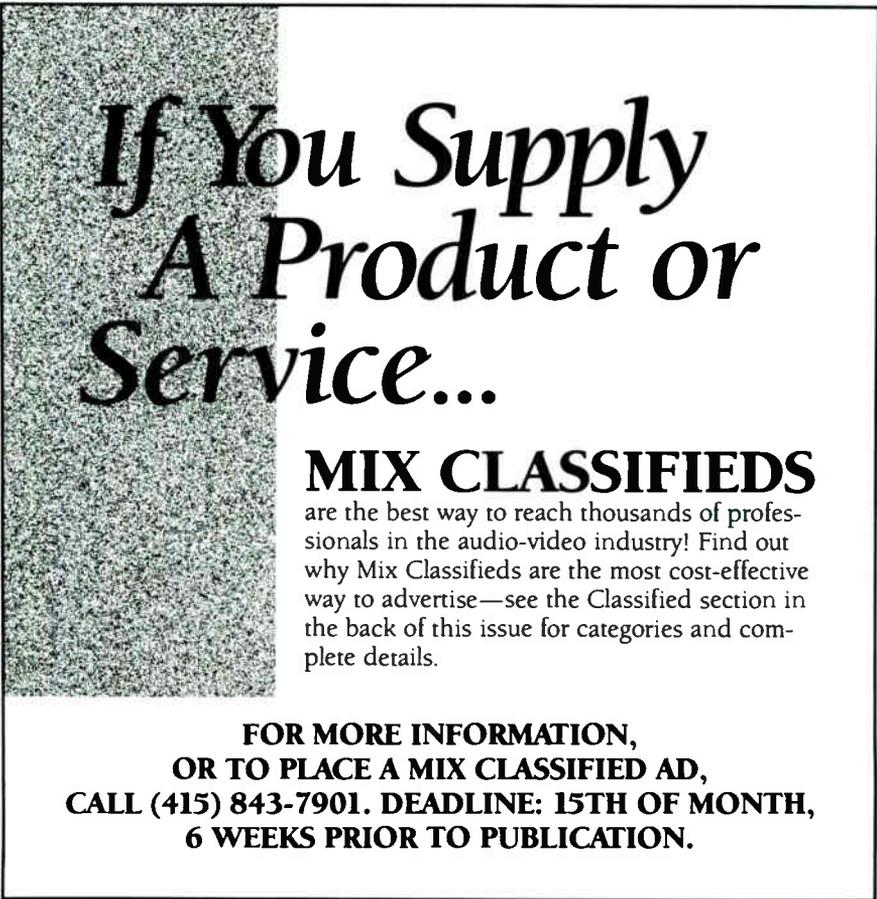
THE MARKETING CONNECTION
VPF, OLVP
7616 Southland Blvd., Ste. 100
Orlando, FL 32809
(305) 855-4321
Owner: H. LeBeau
Studio Manager: L. LeBeau

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



If You Supply
A Product or
Service...

MIX CLASSIFIEDS

are the best way to reach thousands of professionals in the audio-video industry! Find out why Mix Classifieds are the most cost-effective way to advertise—see the Classified section in the back of this issue for categories and complete details.

**FOR MORE INFORMATION,
OR TO PLACE A MIX CLASSIFIED AD,
CALL (415) 843-7901. DEADLINE: 15TH OF MONTH,
6 WEEKS PRIOR TO PUBLICATION.**

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.

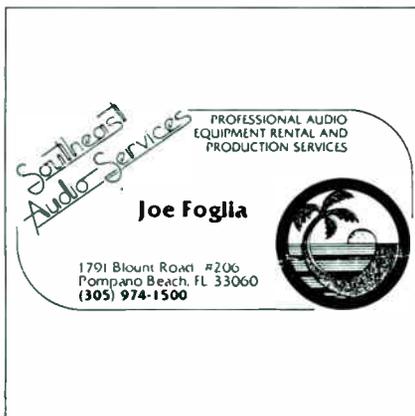
SMALL WONDER STUDIO
VPF, OLVP
1813 Lombardy Ave.
Nashville, TN 37215
(615) 298-1545
Owner: Mark F. Pleasant
Studio Manager: Mark F. Pleasant

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

SOUTHEAST AUDIO SERVICES
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.
Extras & Direction: Production services, both studio and on location, and post-production services. Some of our clients include: Universal Studios *Miami Vice*, CBS Television "Happy New Year America," CBS Records, Don Johnson Productions, Friday Night Videos, Home Box Office, NBC Television *Days Of Our Lives*, MGM Films, United Artists, Cannon Films, Fairbanks Films, Pepsi Cola, Mr. Mister, Shooting Star Productions "Bob Hope Special," ESPN, F&F Productions, General Motors, IBM, .38 Special, Expose, Peabo Bryson, Broadcast Sports Technology, World Sports, Opry Land USA, SIN Television Network, Unity Pictures, Ultrascopes, September Productions, Storer Cable, Holiday Inn Of America, Polygram Records, and many more.
Rates: Send for our free catalog.

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

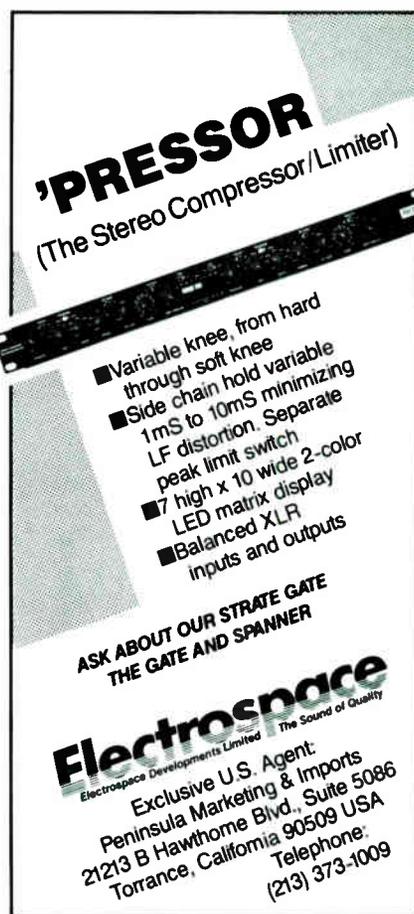
VFF, VPP/E, OLVP, APPV
6002 Hickory Tree Rd.
Louisville, KY 40291
(502) 491-1922
Owner: Martin L. Anderson
Studio Manager: Martin L. Anderson

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



'PRESSOR
(The Stereo Compressor/Limiter)

- Variable knee, from hard through soft knee
- Side chain hold variable 1mS to 10mS minimizing LF distortion. Separate peak limit switch
- 7 high x 10 wide 2-color LED matrix display
- Balanced XLR inputs and outputs

ASK ABOUT OUR STRATE GATE
THE GATE AND SPANNER

Electrospace
Electrospace Developments Limited The Sound of Quality

Exclusive U.S. Agent:
Peninsula Marketing & Imports
21213 B Hawthorne Blvd., Suite 5086
Torrance, California 90509 USA
Telephone: (213) 373-1009

Circle #119 on Reader Service Card

The art of shaping sound.

SONEX is a high-performance acoustical foam that upgrades your studio inexpensively. Ideal for a temporary isolation booth, it can also eliminate slap echo and harsh resonances in the main room or silence noisy tape equipment in the control booth.

Write for our color brochure today.



Alpha Audio

2049 West Broad St.
Richmond, VA 23220 (804) 358-3852

Circle #120 on Reader Service Card

UNIVERSITY OF MISSISSIPPI-COMMUNICATION
& RESOURCE CENTER
VPF, VPP/E, OLVP, APPV
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

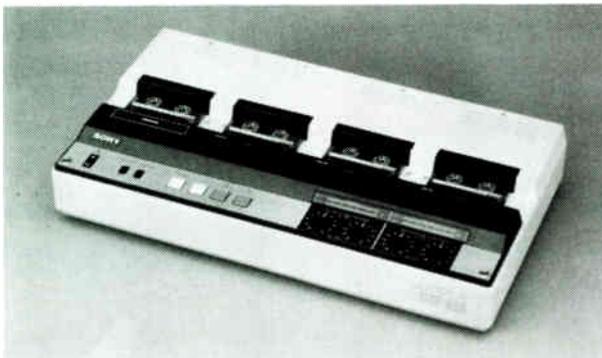
SONY's high speed audio cassette duplicators represent the standard against which all others are compared.

- **No Belts** — Direct drive transport motors provide unmatched reliability with precision tape handling.
- **CPU Controlled** — Single chip 8851 microcomputers control all functions as well as insure trouble free duplicating.
- **Features** — With flexibility to match its durability, SONY duplicators feature audio end detect, one or both side duplicating, short tape warning and automatic copying.
- **High Performance** — 4 track 4 channel systems offer a frequency response of 30 Hz to 12.5 kHz, and the lowest distortion and signal to noise ratios in its field.
- **Flexibility** — Stereo systems can produce up to 43 copies at a time, monaural up to 11 copies at eight times and 16 times normal play, respectively.
- **Guaranteed** — All SONY duplicators are backed by a TWO YEAR GUARANTEE against head wear.

SONY proves that quality can be duplicated. SONY, when quality counts.

Call us for the name of a dealer nearest you (213) 677-8167/(213)671-2636.

SONY
AV PRODUCTS



CCP-300 Cassette Duplicator

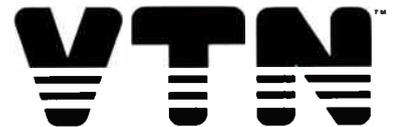
NATIONAL DISTRIBUTOR

educational electronics corporation

P.O. Box 339 • Inglewood, CA 90306-0339 • 213-677-8167, 671-2636

Circle #121 on Reader Service Card

Video Technologies Network, Incorporated



VIDEO TECHNOLOGIES NETWORK, INC.
Marco Island, FL

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

VIDEOFONICS, 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

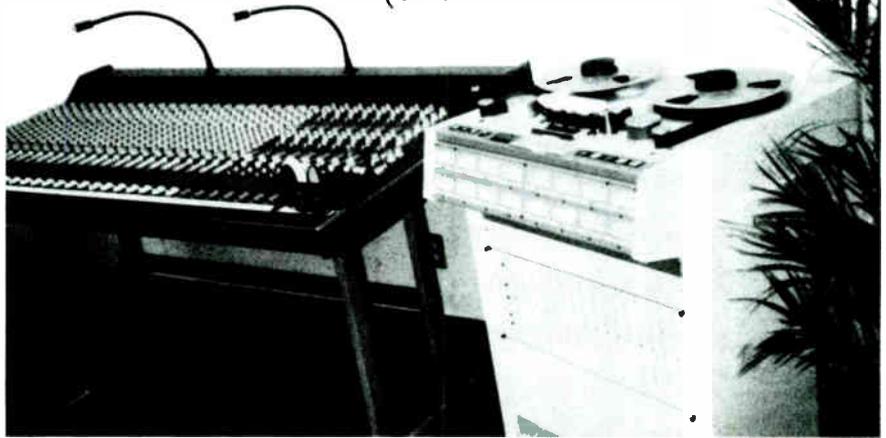
Tired of Shopping?

Whether it's consoles, 24 track recorders, signal processing or video gear, we are in the business of helping you define your needs, equipping you with the best products available and being on hand to help you complete your project.

Over 180 major lines and a capable staff makes us a company you can rely on to meet your audio and video needs.

NATIONAL SOUND & VIDEO ENGINEERING
A Step Ahead

1756 Wilwat Drive, Suite A
Norcross, Georgia 30093
(404) 447-1717



Circle #122 on Reader Service Card

WHITE FIELD STUDIOS

2902 W. Gerry, Santa Ana, Ca. 92704
(714) 546-9210

Audio and Video Production

32 TRACK OTARI DIGITAL AUDIO
24 TRACK AUDIO

VIDEO FILM STAGE

WE MAKE YOUR LIFE EASIER.
CONTACT (714) 546-9210

Circle #174 on Reader Service Card

THIS MONTH IN ELECTRONIC MUSICIAN...



Pick up the newest issue of *Electronic Musician* at your favorite music store, or, better yet, subscribe today and don't miss a single issue. Save 50% off the newsstand price—you will receive 12 issues (one year) of *Electronic Musician* for only \$14.95!

Get the best information available on the latest technology. Get *Electronic Musician*.

Electronic Musician,
a Mix Publication
2608 Ninth Street,
Berkeley, CA 94710



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).

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.

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, OLVP
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

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



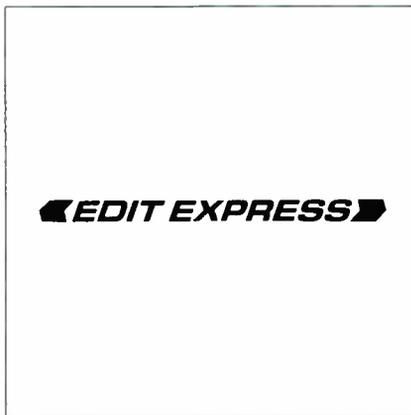
NORTH CENTRAL

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 Sinckland

THE FINISHING HOUSE
VPP/E, OLVP
 1635 W. Big Beaver Rd.
 Troy, MI 48084
 (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

Professional SOUND recording & duplicating

SUPPLIES



POLYLINE

- Blank-loaded audio cassettes
- Empty reels and boxes
- Audio cassette boxes and albums

AUDIO TAPE and CASSETTES from

- Agfa • FUJI
- Ampex • Maxell
- 3M • TDK
- BASF

POST-PRODUCTION and MAINTENANCE SUPPLIES

SHIPPED FROM STOCK WITHIN 24 HOURS
under normal circumstances

ASK FOR OUR FREE CATALOG

Call Polyline
312 / 298-5300
 8:30 am - 5 pm Central Time

Polyline Corp.
 1233 Rand Road
 Des Plaines, IL 60016

Circle #123 on Reader Service Card

WISER MUSIC

"VISIT THE MIDWEST'S LARGEST MULTI-KEYBOARD SPECIALIST"

KURZWEIL
 €-mu Systems, Inc.
SEQUENTIAL
AKAI
 KAWAI
Oberheim
KORG
CASIO
 TOA
 lexicon
 Audio-TECHNICA
 ARC
FOSTEX
 dbx
 Studio Master
BOSE
ALESIS
RANE
DIZARI
SIMMONS

ATARI®
 ST-1040-520
 Sold and Serviced

MIDI SMPTE SYSTEMS FOR THE PROFESSIONAL

SOUTHWORTH digidesign
PASSPORT Hybrid Arts, Inc.
JTE COPPER ELECTRONICS
 Performer

Dr. Ts Opcode

314-837-3030

11740 WEST FLORISSANT AVE., ST. LOUIS, MO 63033



KEYBOARDS DRUM COMPUTERS SEQUENCERS PA RECORDING SOFTWARE COMPUTERS SERVICES SUPPORT

ARRIVE CASSETTES

Circle #124 on Reader Service Card

PRODUCERS TAPE SERVICE

SHAPE Basf
Ampex Fuji
Scotch 3M Sony



Supplying the Midwest
with the standards
of the A/V industry...

DUPLICATORS
Bulk audio and
video specialists

Same day shipment in most cases

313-549-3500
2601 West 14 Mile Road
Royal Oak, MI 48073

Circle #125 on Reader Service Card

RCA



Test Tapes

A Sound Measure

- Cassettes
- Open Reel up to 1"
- Custom Formats

For a catalogue of standard test tapes or
further information contact:

RCA TEST TAPES
DEPT M
6550 E. 30th St.
Indianapolis, IN 46219
(317) 542-6427

Circle #126 on Reader Service Card



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

VPF/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 Birr

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

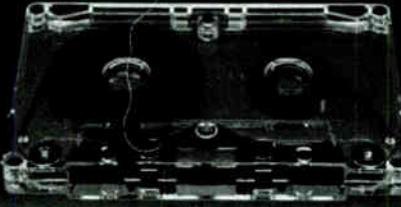
VPF
 8901 Indian Hill Dr., Ste. 201
 Omaha, NE 68114
 (402) 392-0924
 Owner: Bruce E. Thiebauth
 Studio Manager: Mark L. Nielsen

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

CASSETTE DUPLICATION SERVICE

24 HOUR TURNAROUND



So Simple

So Exact

So Affordable

We specialize in short runs (1 to 1,000)

SUPERB SOUND REPRODUCTION
 Our technicians are a unique blend of musicians and engineers who can deliver the sound that you demand. Each cassette is individually tested; each machine is calibrated daily.

TROUBLE-FREE OPERATION
 Bauer Audio loads all their own cassettes with the most advanced equipment in the industry. You're assured jam free operation with low distortion and wide dynamic range.

PERSONALIZED SERVICE
 Bauer Audio has a complete mastering facility to meet your individual needs. We can add special audio effects or improve old, noisy masters. Call Jim Bauer directly for any questions you may have on cassette recording or duplication techniques.

FAST, ON TIME DELIVERY AT COMPETITIVE PRICES
 Bauer Audio delivers! Our reputation for on time delivery at realistic prices is unmatched in the industry. Contact us for our complete price schedule and **FREE SAMPLE TAPE.**

BAUER AUDIO

10735 BURBANK BOULEVARD
 NORTH HOLLYWOOD, CALIFORNIA 91601
 (818) 763-8606

HOURS: 9-5 MONDAY thru Friday Visitors: pickups and deliveries by appointment only

BAUER AUDIO CAN DO IT ALL FOR YOU

REQUEST COMPLETE PRICE LIST AND DETAILS ON ALL OUR SERVICES.

CASSETTE DUPLICATION SAMPLE PRICE SCHEDULE

	5	12	30	60	100	250	500	1000	5000
REAL TIME (HIGH BIAS CHROME TYPE II)									
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
PRACTICE CASSETTE SPECIAL (NORMAL BIAS TYPE I)									
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
MUSIC CASSETTE SPECIAL (NORMAL BIAS TYPE I)									
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			

ONE STOP SERVICE

Bauer Audio offers a complete range of services:

- LABELS
- PRINTING ON CASSETTE
- BOXES
- BOX INSERTS
- SHRINK WRAP
- BLANK CASSETTES

Give us a call—we'll handle it all for you. We are experienced and we care.

Too busy. Put us to your test. Satisfaction guaranteed.

Prices subject to change without notice or obligation.

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

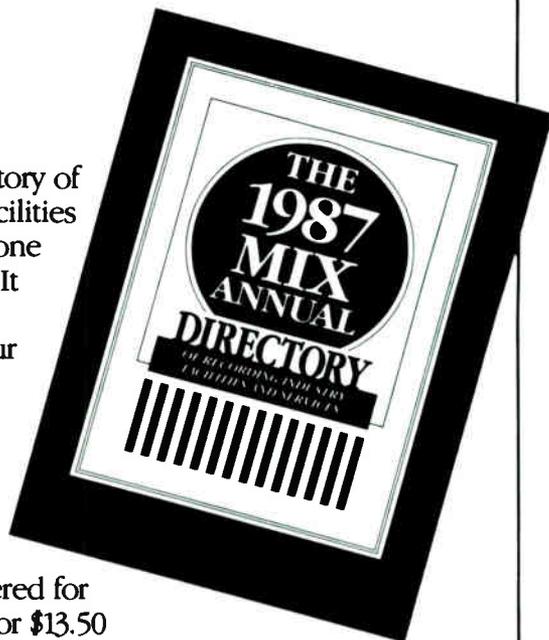
RUSTAD / WICKHEM / VIDEO, INC.
VPF, VPP/E, OLVP, APPV
4902 Hammersley Rd.
Madison, WI 53711
(608) 274-4000

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

Don't be without it!

The *Mix* Annual Directory of Recording Industry Facilities and Services is the phone book for the industry. It puts over 5,000 useful phone numbers at your fingertips. Whether at home or work, you'll want a copy close at hand.

Additional copies of the Annual Directory may be ordered for \$24.95 per Directory (or \$13.50 per copy on orders of five or more). Add \$2.50 per copy for postage and handling.



To order copies of the Annual Directory, send check or money order to:

Annual Directory
c/o Mix Bookshelf
2608 Ninth Street
Berkeley, CA 94710

To order by Mastercard or Visa call:
(800) 233-9604 (outside California)
(800) 641-3349 (inside California)

STRAMP

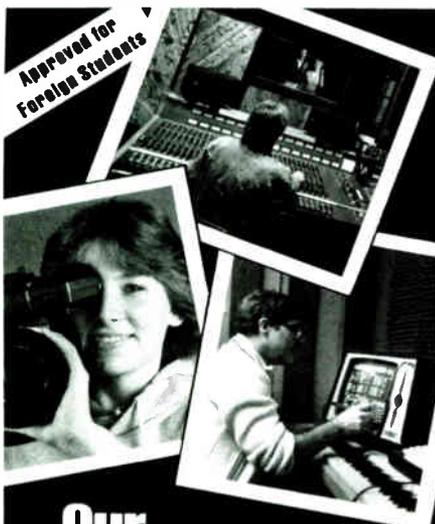


mixdown automation

- without console modification
- 8-64 channels (modular)
- synchronized via SMPTE - EBU TC / MIDI song position pointer
- affordable for **every** studio

STRAMP USA please contact
 7, Charles Lane
 New York / NY. 10014
 (212) 929 9479

Circle #128 on Reader Service Card



Our Graduates Work

A practical education in audio and video recording arts and sciences for anyone who takes recording seriously.

Institute of Audio-Video Engineering

1831 Hyperion Ave., (MI) Hollywood, CA 90027

Call Toll-Free: National 1-800-551-8877
 State 1-800-972-1414 Local (213) 666-2380
 Telex 910 240-4388 IAVE HLWD

Circle #129 on Reader Service Card



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

SOUNDTREK 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

“We're fanatical about quality. That's one reason why our business has doubled in the past two years. And that's why we've had to install a second KABA Realtime System. Why KABA? Because they feel the way we do about quality.”

LESLIE COHN, SALES MANAGER

at&t Recording/Duplicating
Hollywood, California



AUDIOPHILE QUALITY
DUPLICATION
EQUIPMENT

MOST COST EFFECTIVE SYSTEM

★
COMMERCIAL DUTY
CONSTRUCTION

★
INTERFACE ANY AUDIO SOURCE

★
1 1/2 AND 3 1/4 IPS OPERATION

★
2 OR 4 TRACK DUPLICATION

★
EXPANDABLE: 2-50+ POSITIONS

FOR
DESCRIPTION SPECS, PRICE &
DEMONSTRATION CASSETTE
CALL

800 231-TAPE
FROM CALIFORNIA 415-883-5041



KENNETH A. BACON ASSOCIATES
24 Commercial Blvd., Suites E-G
Novato, CA 94947 USA

Circle #130 on Reader Service Card

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
VPF
 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
VPF, 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
VPF, VPP/E, OLVP, APPV
 646 Boulevard
 Dover, OH 44662
 (216) 343-7755
 Owner: Gary A. Petncola
 Studio Manager: Carey Gardner

WLFI-TV PRODUCTIONS
VPF, 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
VPF, VPP/E, OLVP
 107 N Franklin
 Saginaw, MI 48606
 (517) 755-8191
 Owner: Meredith Corporation
 Studio Manager: Todd Holmes

WORLDWIDE SOUND AND VIDEO PRODUCTIONS
VPF, VPP/E, OLVP, APPV
 202 W Plum
 Robinson, IL 62454
 (618) 544-7898
 Owner: Ron Wheeler
 Studio Manager: Ron Wheeler

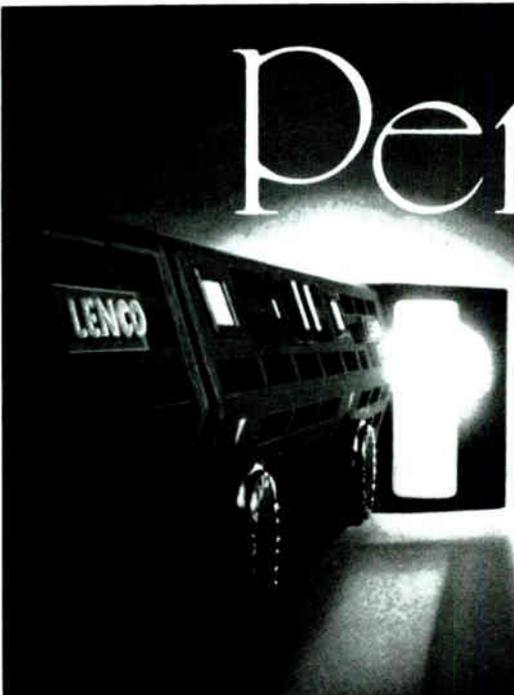
WSIU-TV
VPF, VPP/E, OLVP
 Communications Bldg.- SIU
 Carbondale, IL 62901
 (618) 453-4343
 Owner: Southern Illinois University
 Studio Manager: Lee O'Brien

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, Lenco, 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 85033
(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!

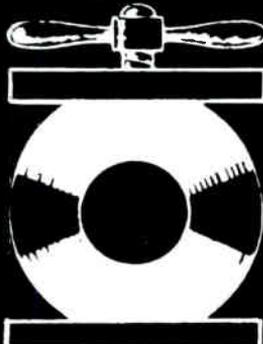
TAPE DUPLICATION

- 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



Circle #132 on Reader Service Card

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

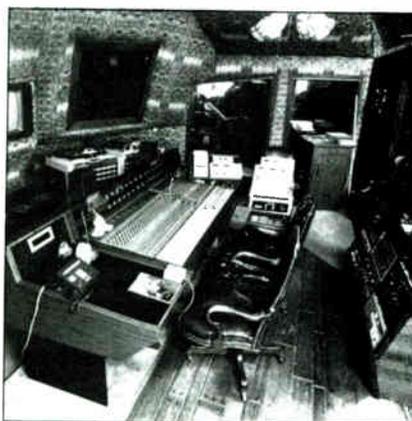
NORTH LAKE COLLEGE
VFF, VPP/E, OLVP, APPV
5001 N MacArthur Blvd.
Irving, TX 75038
(214) 659-5340
Owner: Dallas County Community College District
Studio Manager: Jim Picquet

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 Reddy.
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,

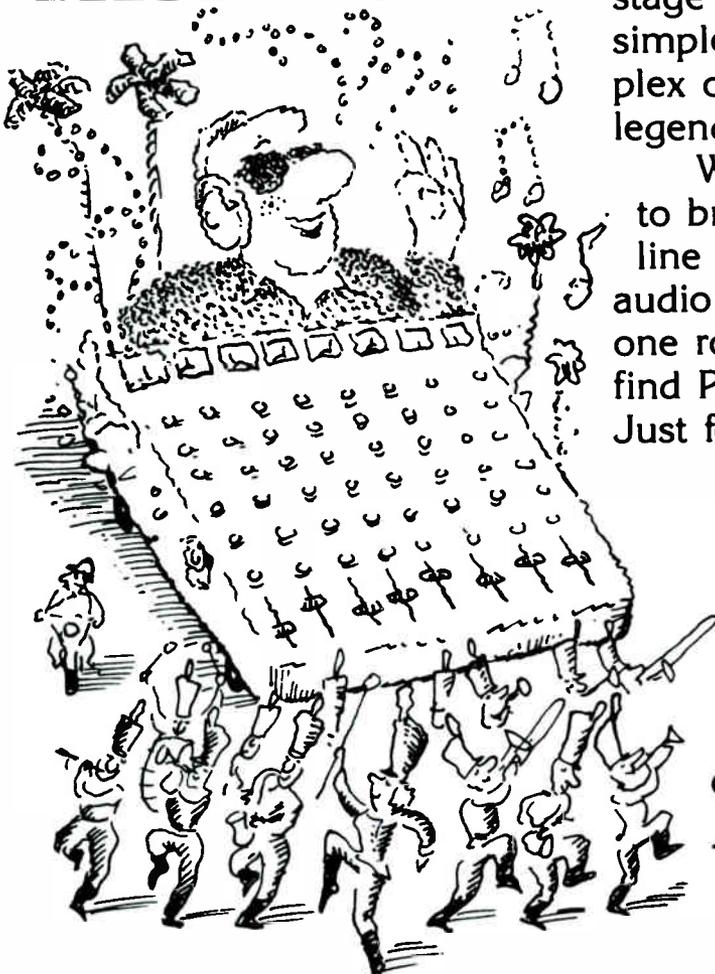
If you'd like to hear for yourself the truly unprecedented sound quality that has the recording business humming a different tune, just drop by AEA. You'll be more than impressed with NEOTEK's unexcelled equalization, their tremendous flexibility, high quality components and their rugged

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.

VPF, 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.

VPF

2649 Tarna Dr.

Dallas, TX 75229

(214) 243-5719

Owner: Northwest Teleproductions, Inc.
Studio Manager: J.P. Shives

TELE-IMAGE, INC.

VPF, 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

VPF, 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

VPF, VPP/E, OLVP

6914 S. Yorktown

Tulsa, OK 74136

(918) 481-1400

Owner: Tempo Enterprises

Studio Manager: Nancy Mitchell

TEXAS VIDEO & POST

VPF, VPP/E, OLVP

8950 Kirby

Houston, TX 77054

(713) 661-2020

Owner: TVX Inc.

Studio Manager: David Leavell, Grant Guthrie

THIRD COAST VIDEO, INC.

VPF

501 N. IH-35

Austin, TX 78702

(512) 473-2020

Owner: Ben Y. Mason

Studio Manager: Jeff Van Pelt

3G VIDEO

VPF, 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.

VPF, 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

VPF, 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: VPF (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

VPF, 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, Con-

vergense.

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 profes-

sionals, allied health agencies, and the medical industry

for the last 15 years. Since 1971, VAS has enjoyed a reputa-

tion as a group that produces excellent work, as well as a

group that solves communications problems, with the re-

sults tailored specifically for the individual client. VAS

offers extensive 3/4-inch digital video tape, 16mm film, illus-

tration, animation and design services. With the addition

of a Marron Carrel 1600 camera system, our corporate

services include complete multi-image design and pro-

duction 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 Menelee

VIDEO DALLAS PRODUCTIONS

VPF, VPP/E, OLVP

15775 N. Hillcrest, Ste. 508

Dallas, TX 75248

(214) 781-4115

Owner: Wade Wilson

Studio Manager: Clay Harris

THE VIDEO EYE

VPF, VPP/E, OLVP

13002 Campos Dr.

Houston, TX 77065

(713) 469-2222

Owner: Robert Fitch

Studio Manager: Robert Fitch

VIDEO-MEDIA PRODUCTIONS

VPF, 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 Bryn

VIDEO PRODUCTION SERVICES

OLVP

7431 Holly Hill #215

Dallas, TX 75231

(214) 739-3658

Owner: Robert Charlap

Studio Manager: Binks Chat

VIDEO PRODUCTIONS, INC.

VPF, VPP/E

2217 C. Michigan

Arlington, TX 76013

(817) 265-4300

Owner: (non-profit) Jane Alexander

Studio Manager: Belva Peurman

VIP PRODUCTION COMPANY

VPF, 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

VPF, VPP/E, OLVP, APPV

PO Box 161

Cave Creek, AZ 85331

(602) 488-3952

Owner: Ron Walker

Studio Manager: Julie Walker

WILDMAN PRODUCTIONS

VPF, VPP/E, OLVP

8925 Rosecliff

Dallas, TX 75217

(214) 398-3456

Owner: David Hirsch

WM PRODUCTIONS

VPF, 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); OVLP (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
VPF/E, APPV
7000 Santa Monica Blvd.
Hollywood, CA 90038
(213) 467-3700
Owner: Roger Mende
Studio Manager: Kirsten Mende

APTECH PRODUCTIONS/ENVIRONMENTAL COMMUNICATION
VPF/E, OLVP
1935 1/2 Barry Ave.
Los Angeles, CA 90025
(213) 473-1084
Owner: Eric Werbalowsky
Studio Manager: Laun Flack

ASC VIDEO CORPORATION
VPF/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
VPF/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
VPF/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.

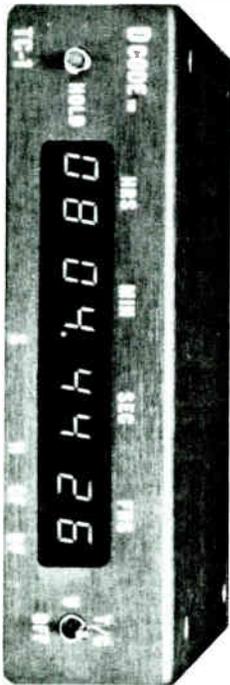
THE DCODE™ TC-1 TIME CODE READER

- Reshapes Time Code for copying
- Memory holds Time Code and user bits
- Reads Time Code from 1/50th to 15x speed
- 60 Hz sync from 24 or 30 frame code

DENECKE, INC. 5417-B Cahuenga Blvd., N. Hollywood, CA 91601 (818) 766-3525

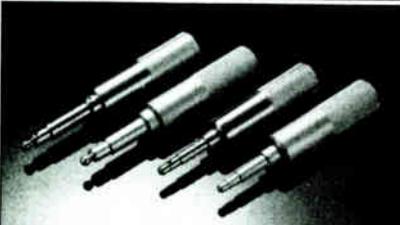
\$550

For Film and Video Production



Circle #091 on Reader Service Card

CLEAN PATCH BAYS NO DOWN TIME



VERTIGO BURNISHERS AND INJECTORS RESTORE ORIGINAL PERFORMANCE TO YOUR PATCH BAYS

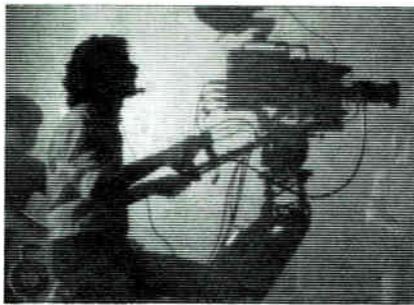
VERTIGO 1/4" TRS AND TT BURNISHERS:
Each used to eliminate noise caused by contamination of main contacts in normal patching situations.

VERTIGO 1/4" TRS AND TT INJECTORS:
Each allows injection of cleaning solvent in breaking contacts (normals), to eliminate intermittency that occurs when patch cord has been removed

STILL ONLY \$29.95 Ea. (Cont. USA)
Please write for additional information and order form. Used by Professionals Worldwide. Patent Pending

VERTIGO RECORDING SERVICES
12115 Magnolia Blvd. #116
North Hollywood, CA 91607
Telephone: 818/769-5232
Telex: 5106006748 VERTIGO RECRD

Circle #092 on Reader Service Card



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); OVLP (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-Amenca 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.

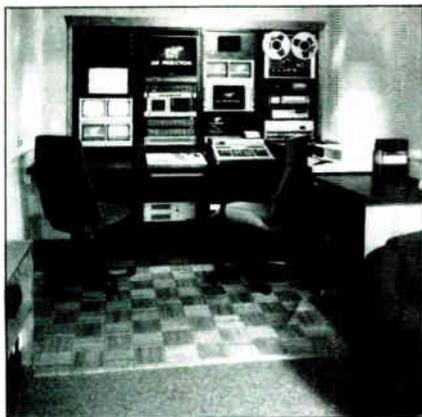
CREATIVE SERVICES GROUP
APPV
17456 Emelita St.
Encino, CA 91316
(818) 343-7005
(213) 641-0849
Owner: Rick Fleishman, Carl Rigoli
Studio Manager: Rick Fleishman, Carl Rigoli

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
VFP, 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
VFP, 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
VFP, OLVP
1638 1/2 Edgecliff Dr

Los Angeles, CA 90026
(213) 665-8640
Owner: Jerry Feldman

FILM TRANSFORM, INC.
VFP, OLVP
3755-B Cahuenga Blvd. W.
Studio City, CA 91604
(818) 769-3010
Owner: Eric Sherman
Studio Manager: Eric Sherman

FILMCRAFTERS
VFP, VPP/E, OLVP, APPV
PO Box 45572
Los Angeles, CA 90045
(213) 641-6028
Owner: Gene Burson, Patti Burson
Studio Manager: Gene Burson

NOISE REDUCTION FOR UNDER \$10.

MIXING CONSOLES

SWITCHES

MICROPHONE CONNECTORS

SNAKE CABLES

BATTERY CONTACTS

ALL PLUGS & JACKS
(XLR, PHONE, PHONO, DIN, MIDI, ETC.)

PATCHBAYS

FADERS, POTS

TERMINAL STRIPS

SPEAKER TERMINALS

CRAMOLIN®

Even the finest equipment in the world can't guarantee a noise-free recording. One "dirty" connection anywhere in the electrical path can cause unwanted noise or signal loss.

"MORE THAN A CONTACT CLEANER"

CRAMOLIN® is a fast-acting, anti-oxidizing lubricant that cleans and preserves all metal surfaces, including gold. When applied to metal contacts and connectors, **CRAMOLIN®** removes resistive oxides as it forms a protective molecular layer that adheres to the metal surfaces and maintains maximum electrical conductivity.

CRAMOLIN® - USED BY THOSE WHO DEMAND THE BEST:

Bell & Howell	Hewlett Packard	MCI(Sony)	Nakamichi
Boeing	John Fluke Mfg.	Motorola	RCA
Capitol Records	McIntosh Labs	NASA	Switchcraft

SINCE 1956

CAIG LABORATORIES INC.

1175-O Industrial Ave., (P.O. Box J) - Escondido, CA 92025-0051 U.S.A. • (619) 743-7143

**LOS ANGELES
RECORDING
WORKSHOP** 

**EXTENSIVE
HANDS-ON TRAINING
IN FOUR 24-TRACK
RECORDING STUDIOS**

- Synth Programming
- MIDI Interfacing
- Live Concert
- Music Production
- Small Classes

**5-WEEK PROGRAM
HOUSING AVAILABLE**

**FOR FREE CATALOG
12268 VENTURA BLVD.
STUDIO CITY, CA 91604**

(818) 763-7400

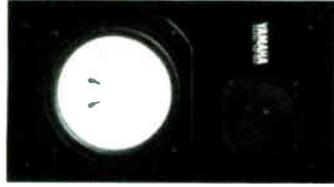
Circle #135 on Reader Service Card

**THRIFTY
ELECTRONICS**

**THE SOUND
SHACK**



Speaker Components
NS-10M · Visonik · David · JBL

YAMAHA Nakamichi Hafler

 **Professional Products** **Repair delivery and much more**

**13643 Burbank Blvd
Van Nuys, CA 91401
(818)786-1610 (213) 873-2976
Since 1953**

Circle #136 on Reader Service Card



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); VPP/E (Video Post-Production/Editing); APPV (Audio Post-Production for Video).

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
VPP/E, OLVP
5666 La Jolla Blvd., #171
La Jolla, CA 92037
(619) 483-1373
Owner: Michael P. Salmen

MULTI IMAGE PRODUCTIONS
VPP/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.
VPP/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.
VPP/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.**
VPP/E, APPV
1327 Cabrillo Ave.

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

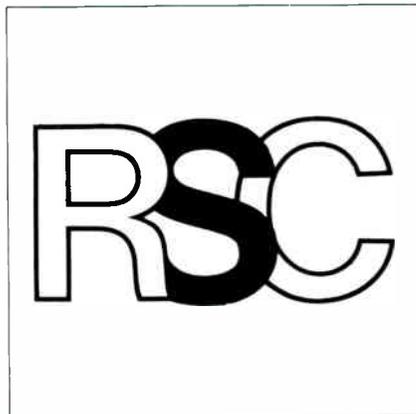
PRO-LENS PRODUCTIONS
VPP/E, OLVP
1155 S Diamond Bar Blvd., Ste. R
Diamond Bar, CA 91765
(818) 330-1955
Owner: Walt Schmidt
Studio Manager: Donn Wade

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, Audiotronics 501.
Other Major Equipment: RSC offers a complete complement 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

OTARI MX-80 2" RECORDER

AVAILABLE AS: 24-trk, 24/32-trk, 32-trk
MX-80 features a microprocessor-controlled constant-tension transport, a full-function remote controller, exceptional audio electronics, and connectors for interfacing 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.
- RETAIL PRICE FROM \$39,950**

YOUR EXCLUSIVE AMEK DEALER FOR SOUTHERN CALIFORNIA



619 South Glenwood Place
Burbank, CA 91506 • (818) 843-6320

Circle #137 on Reader Service Card

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

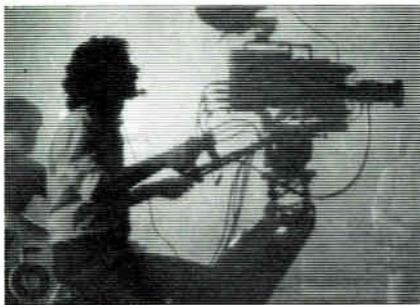
VFF, VPP/E, OLVP, APPV
7023 15th Ave. NW
Seattle, WA 98117
(206) 789-8273
Owner: Conrad W. Denke
Studio Manager: John F. Wehman

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/L 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.

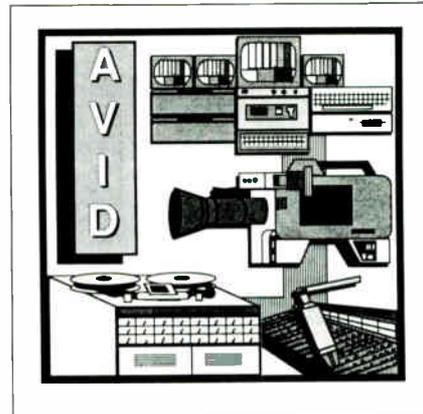
VFF, VPP/E, OLVP, APPV
60 Broadway
San Francisco, CA 94111
(415) 781-2603
Owner: Gary A. Duoss
Studio Manager: Jeff Mestier

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.



— SINCE 1939 —

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 \$1666⁰⁰**

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 \$1444⁰⁰**

Same as above package except One-Color Jacket. 10 to 15 working days.

Does not include composite negatives.

*** 1000 7" 45's \$595⁰⁰**

Lacquer mastering — 3-step metal plating — 8 test pressings — 2-color labels (including type) — white sleeve — completion 10 working days.

*** 500 7" 45's \$475⁰⁰**

As above

CASSETTE PRICES **\$888⁰⁰**

*** 1000 FULL-COLOR CASSETTES**

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

\$1222⁰⁰
FULL-COLOR
PACKAGE AS ORIGINAL
10-12 working days

\$999⁰⁰
ONE-COLOR
PACKAGE AS ORIGINAL
10 working days

\$333⁰⁰
As Original
7-10 working days
7" 45

\$200⁰⁰
As Original
7-10 working days
7" 33½

\$777⁰⁰
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.

The PLANT
 RECORDING STUDIOS

- Live-To-Two Track
- 24/28 Track
- Live and In-House
- Recording, Mixing & Post Production
- Music, Film, Video Broadcast

Anywhere

2200 BRIDGEWAY
 SAUSALITO, CA. 94965
 (415) 332-6100

A SKYLABS COMPANY

Circle #142 on Reader Service Card

Puzzled about Pro Audio? Leo's has the solutions.

Recording & Midi Systems for Stage or Studio.

leo's audio and music technologies

Anticipating the needs of musicians and audio professionals since 1956.

5447 TELEGRAPH AVENUE
 OAKLAND • CA 94608 • (415) 852-1553

Circle #143 on Reader Service Card

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 ¾-inch address tr., (2) Sony 2860 ¾-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) Amek, 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 ¼-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 ¾-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

Russian Hill Recording

Records

Film

Video

New for 1987

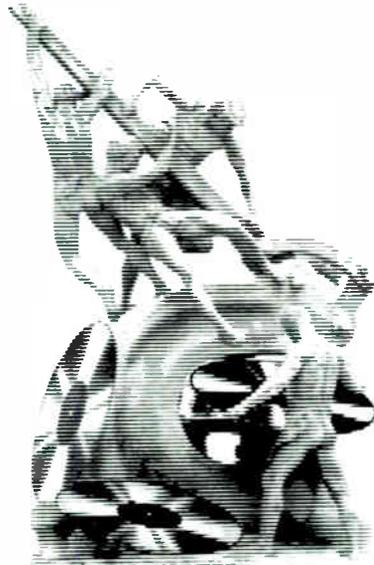
- 2nd generation design for Studio A
- New SSL 4000e custom designed for record and film mixes
- 6 track monitoring, all configurations
- New off line studio C—computerized editing, sound design, music production and multitrack mixing in sync.

Call Gail Nord for information at (415) 474-4520.

1520 Pacific Avenue
San Francisco, CA 94109

Circle #144 on Reader Service Card

One Stop Service Quality Products Timely Deliveries



Let the quality of your graphics reflect the excellence they can expect to find in your music.

Stoughton Printing can provide all your record and video related printing and packaging. Direct board record jackets, 7 and 12 inch sleeves, labels. The finest in UV Coatings. All done in house. CD booklets and inlay cards, posters, box wraps and any other graphic material you may need to promote your products.

If it's worth doing, it's worth doing right. Come to the source . . . We're there when you need us.

stoughton printing co.

130 N. Sunset Avenue, City of Industry, CA 91744

From Los Angeles: (213) 686-2753

(818) 961-3678

Quality Printing For The Record Industry Since 1965

© 1986 Stoughton Printing Co.

Circle #145 on Reader Service Card

SOUND SYSTEM

BUZZ

ITS TOO BAD YOU
CANT ALWAYS KEEP IT CLEAN

BUT NOW
ITS ONLY TEMPORARY
INTERFERENCE WITH

A MODEL PS-1



In addition to reducing RFI the PS-1 can also protect your sound reinforcement equipment from:

HIGH VOLTAGE TRANSIENTS
UNEXPECTED POWER UP TRANSIENTS
IMPROPER LINE POLARITY

■ linear & digital
systems, inc.
■ 46 marco lane
centerville, oh.45459

Circle #146 on Reader Service Card



Original Music

"Affordable Excellence"

- Soundtracks
- Backgrounds
- Jingles

Contact:
Suzanne Jensen
415/469-0192

Demos Available

Circle #147 on Reader Service Card



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

QDD 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); VPPIE (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.
VPF/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

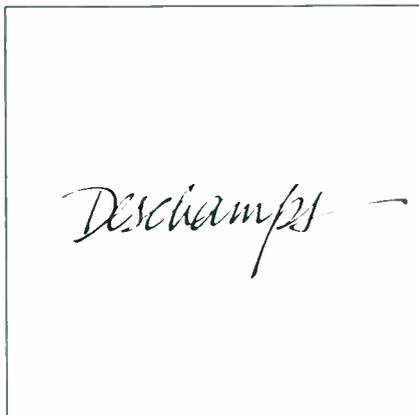
APPV
151 John St., 5th Floor
Toronto, Ontario M5V 2T2 Canada
(416) 534-7464
Owner: Brock Fricker
Studio Manager: Robert G. Hanson

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

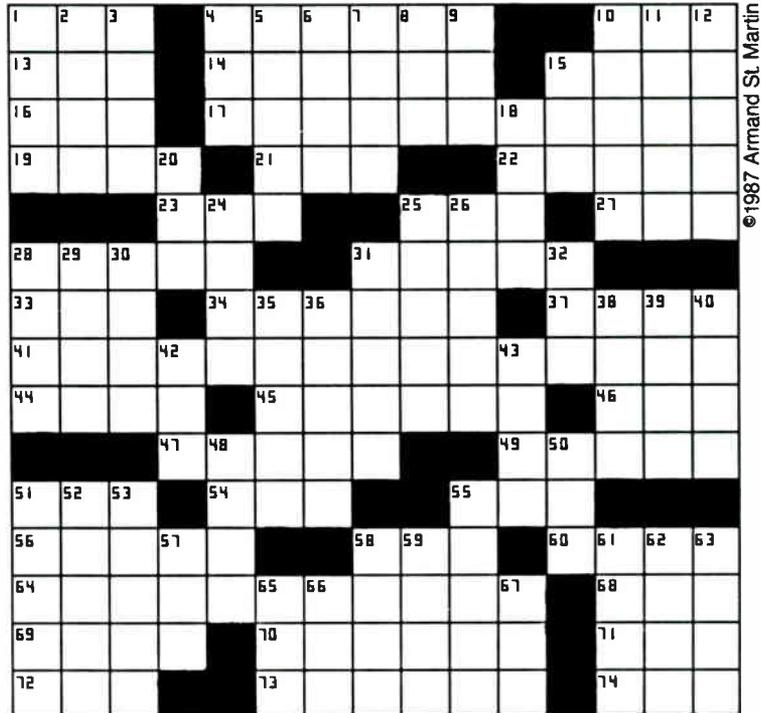
VIDEO-FILM PRODUCTIONS LTD.
 VPF, VPP/E, OLVP, APPV
 5 Cumberland Rd.
 Kowloon, Hong Kong
 (336) 620-7
 Owner: TVB Sister Company
 Studio Manager: K.K. Lau

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



©1987 Armand St. Martin

"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.

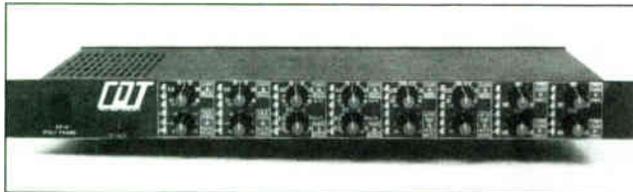
These CD Libraries provide easier access to tracks, greater durability and superior sound reproduction to the analog media. Together, the Series 1000 and Series 2000 offer a selection of over 5000 sound effects, the largest CD library of digital sound effects in the world!

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

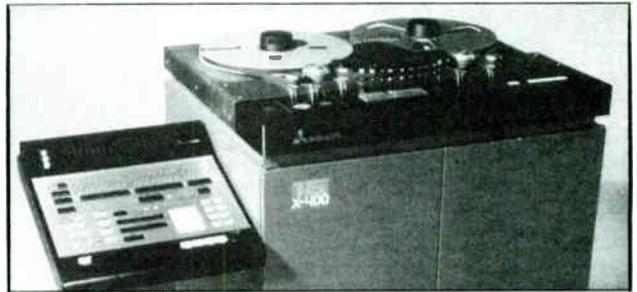


AEA MS380 M-S Matrix

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.

Circle #162 on Reader Service Card

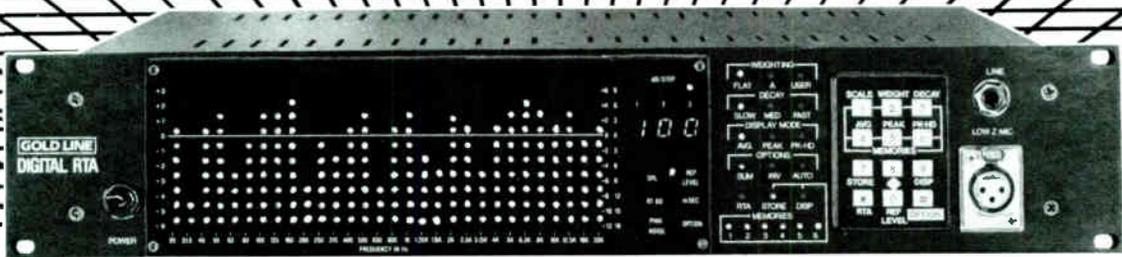


Mitsubishi 8-track Digital Recorder

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.

Circle #163 on Reader Service Card

A SOUND INVESTMENT



**1/3 Octave
SPECTRUM
ANALYZER**
With Printout Option

• Full 30 Bands • Printer Option with 30 Memories via Parallel Centronics Interface • Weighted Curves.

The Model 30 features 6 memories, line level and microphone inputs, a pink noise generator, summing and averaging ability plus all of the other features you would expect from a top of the line instrument.

Contractor Prices /Free Literature Available

Model 30

\$2150

Model 30 with printer option

\$2650

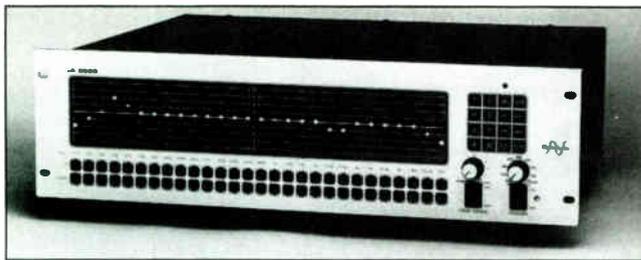
Call:

(203) 938-2588

Write:
P.O. BOX 115
WEST REDDING, CT 06896

GOLD LINE

Circle #148 on Reader Service Card

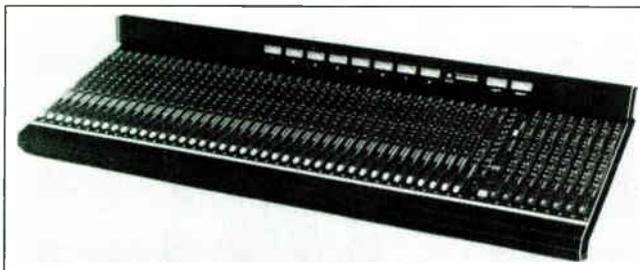


Micro Audio Programmable EQ/RTA

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.

Circle #166 on Reader Service Card



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.

Circle #167 on Reader Service Card



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

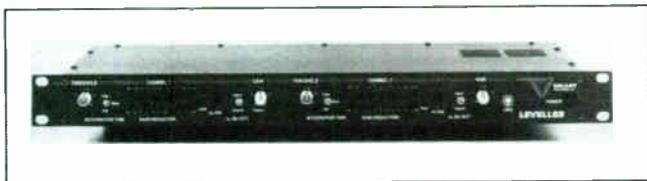
sound to be controlled simultaneously in real time from any MIDI controller, and allows factory program and user register selection via MIDI. The software also adds MIDI Clock as a controller for parameters such as the BPM Master Function in Chorus and Echo, Multiband Delay, and Resonant Chord programs.

Circle #169 on Reader Service Card

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.

Circle #170 on Reader Service Card



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.

Circle #172 on Reader Service Card

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.

Circle #173 on Reader Service Card

GET LISTED!

In Mix Directories

Mix Directories are the most complete guides to facilities and services for the audio and video industries. When production professionals need equipment, studios, or other services, they consult *Mix* first. To receive a questionnaire for a listing in any or all of the following Mix Directories, simply fill out and return the coupon or call the Directories Dept. at (415) 843-7901.

* Two-for-one! By listing in *Mix* magazine's monthly directories, you will receive the same listing FREE in the 1988 Annual Directory!

- JULY '87: **STUDIOS OF THE SOUTHWEST & RECORDING SCHOOLS AND PROGRAMS** (Deadline: April 13)
- AUGUST '87: **STUDIO DESIGNERS & SUPPLIERS** (Deadline: May 6)
- SEPTEMBER '87: **STUDIOS OF SOUTHERN CALIFORNIA** (Deadline: June 5)
- OCTOBER '87: **AUDIO, VIDEO & MUSIC NEW PRODUCTS** (Deadline: July 6)

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

() _____
TELEPHONE

Mail to: **Mix Directories**
2608 Ninth Street
Berkeley, CA 94710

NOTE: Questionnaires for specific issues will be mailed five weeks prior to issue date.

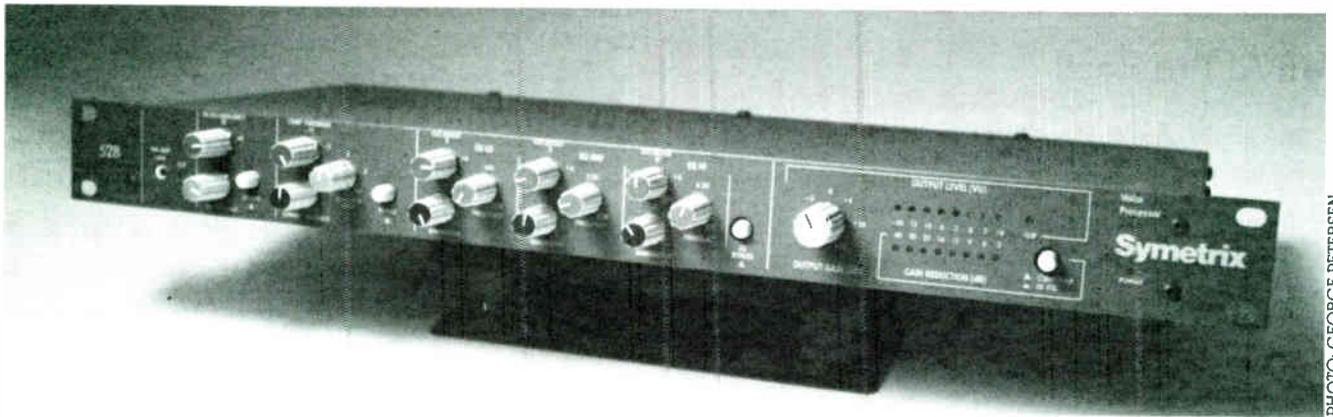


PHOTO: GEORGE PETERSEN

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).

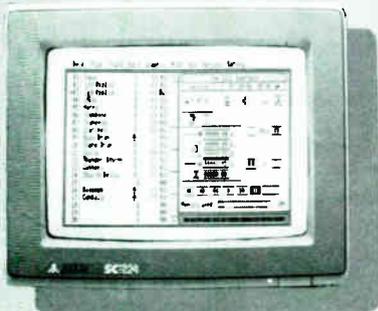
The Symetrix 528 Voice Processor is a versatile and highly useful tool which would be equally at home in a recording studio, radio production room, video facility, sound reinforcement rack, or any place where quality vocal processing is required. While it's not MIDI, programmable, or even digital, at \$649 this unit offers a lot of bang for the buck and is well worth checking out. ■

Tapeless Technology™

Inspired MIDI Software from



Nobody knows MIDI on the ATARI like Hybrid Arts. We have been the undisputed experts since MIDI started, and now we've got all the bases covered.



Miditrack ST

MIDI Recorders: With several different professional quality systems to choose from, Hybrid Arts has a MIDI Recorder for every musician and any budget from hobbyist to broadcast professional. Starting with EZ-Track, the 20 track polyphonic recorder with editing features like quantizing and instant transpose. Miditrack ST has a full range of advanced editing features including an auto patch injection system and FSK, Roland and TTL sync to tape for studio use. And Miditrack Professional comes complete with our SMPTEmate box. SMPTE specs include SMPTE read/write, drop frame, non drop frame, 24, 25, or 30 fps, jam sync, both reading and writing of user bit data. Resolution is at the bit level.

Patch Librarians: A complete line of products are available for sound patch libraries. Genpatch is designed to work with all MIDI keyboards regardless of manufacturer. DX-Android, the highly acclaimed editor/librarian program for the Yamaha DX-7 and TX series. This was the first product of its kind to offer both graphic and numeric editing along with the famous android functions that create new musically useful sounds instantaneously. CZ-Android is the CASIO version that works with all of the CZ keyboard series including the new CZ-1 and CZ-230S.



CZ-Android



ADAP SoundRack

Sampling and SMPTE hardware: The revolutionary ADAP SoundRack (Analog to Digital Audio Processor) takes full advantage of the speed and memory of the ATARI 1040ST. The "ADAP" is a hardware/software peripheral for the ST that allows music and broadcast professionals to sample 20 seconds at 44.1 khz with 16 bit resolution. Full MIDI compatibility is implemented. System is upgradeable to direct to hard disk stereo digital mastering and SMPTE interlock.

The Midimate software series for the ATARI 8 bit computers: For the musician on a limited budget but still needing professional quality, Hybrid Arts has a complete line of studio-tested software. Miditrack III is a 16 track MIDI recorder, synchronizer and remote controller for the ATARI130XE. Standard features include 10,500 note capacity, looping, copy and paste editing, programmable tempo, track combining and uncombining. MMS is a sophisticated monophonic single step entry sequencer. The operator can enter musical notes from either the computer keyboard or the MIDI synth keyboard. 99 tracks are available to work with. GenPatch is a generic patch librarian system for all MIDI keyboards. DX-Editor is a numeric editor and librarian for the YAMAHA DX-7 and TX. Oasis is our low cost Visual Editing System for the Ensoniq Mirage keyboard sampler. Features include full MASOS implementation, 8 levels of magnification, redrawing of wave forms with high resolution graphics. Midicom is a MIDI tele-communications program designed for easy use.



Miditrack III

Call or write for a free catalog and newsletter which includes a complete listing of products and pricing.



11920 W. Olympic Blvd., LA, Ca. 90064
Computer BBS: (213) 826-4288 Main Office: (213) 826-3777
Telex: 4931231 (HYBRDUI)

ATARI, ST, 520ST, 1040ST, and 130XE are trademarks of ATARI Corp.
Hybrid Arts, EZ-Track, Miditrack, GenPatch, ADAP SoundRack, Oasis and Midicom are trademarks of Hybrid Arts Inc.
DX-Android and CZ-Android are products of Hybrid Arts Inc and are not affiliated in any way with LUCASFILM LTD.
DX-7 and TX tone rack are trademarks of YAMAHA International Inc.
Mirage and Ensoniq are trademarks of Ensoniq Inc.
CZ-1 and CZ-230S are trademarks of CASIO Computer Co.



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).

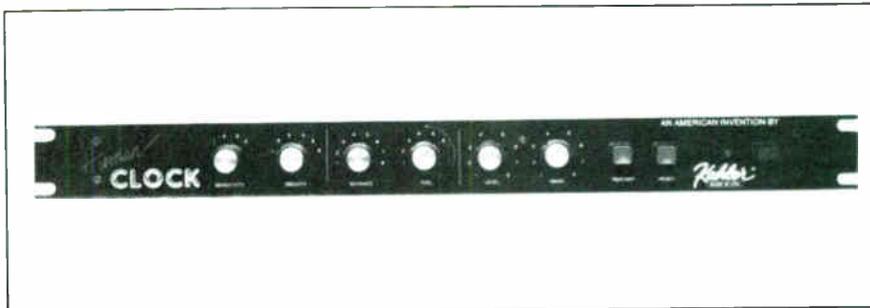
We've already mentioned Yamaha's new DX7 in the February MI Update, but we didn't mention the QX5. This is a very powerful 8-track, 16-channel sequencer that, while it doesn't replace the QX1, gives it a run for the money at a much lower cost. Korg had a teeny little hand-held sequenc-

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. ■



*Fader/VCA
Packages
Available
Soon!*

Affordable AUTOMATION

Finally there is an inexpensive, simple-to-operate, flexible modular Automation System to retrofit any console. SAM™ (SMPTE Automation Manager) and MIDI MUTE truly constitute a breakthrough in console automation. Now you can automate your studio starting for as little as \$549 for full mute automation, or \$1398 for a full SMPTE self-locked automation system. And, like all JLC Cooper products, these grow with you — up to 24 channels. Best of all, SAM and MIDI MUTE require no modification of your console, just plug them in and you're ready to go.

JL COOPER ELECTRONICS

1931 Pontius Avenue • West Los Angeles, CA 90025
(213) 473-8771 • TLX: 5101001679 JL COOPER



Noah Herschman (L) and Don Rose of Rykodisc

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

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

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-

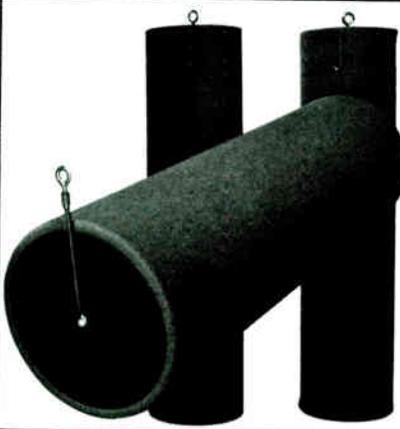
man duties, he explains that each gig really requires a totally different attitude:

"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

TUBE•TRAPS

CONTROL BASS ACOUSTICS



THE ONLY ACOUSTICAL TREATMENT SYSTEM

- Broadband, Effective 400 Hz, Thru 40 Hz
- Corrects Low End Phase Distortion
- Damps Standing Wave Room Resonances
- Reduces Room Resonance "Q" Response By 4
- EQ's Low End RT-60 Decay Constants
- Packs 15 Sables Absorption Into Each 3' Tube
- Midrange, Adjustable Diffusion
- Light Weight, Sturdy and Very Portable
- Versatile, Pressure Zone Bass Trap or GOBO

1-800-ASC-TUBE

ASC ACOUSTIC SCIENCES CORPORATION
P.O. BOX 11156 EUGENE, OREGON 97440

Circle #150 on Reader Service Card



Assured Excellence

Custom pressing, tape duplication and packaging.

1,000

7"-45^s

including mastering, metal parts and processing, white sleeves, labels, pressing.

\$439.00

12" Albums with jackets

including mastering, metal parts and processing, poly dust sleeves, labels, pressing and printing of full colour ultra high gloss board jackets from customer supplied process film.

\$1,390.00

(F.O.B. DETROIT)

- 2 - 3 WEEK SERVICE
- VIRGIN VINYL
- HIGH GLOSS BOARD JACKETS
- CrO₂ CASSETTES
- CUSTOM 7" SLEEVES
- INHOUSE ART & TYPESETTING

Call Toll Free Continental U.S.A.

1-800-263-7798

Canada's Largest Custom Producers



WORLD RECORDS

BASELINE ROAD WEST, BOWMANVILLE, ONTARIO L1C 3Z3

Circle #151 on Reader Service Card

—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 Dumtruck, 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 Zumbo, 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

RTS-321



EVERY AUDIO PROFESSIONAL NEEDS THIS VERSATILE "PHONE" / "XLR" ADAPTER IN THEIR TOOL KIT

RTS-321 FEATURES:

- 1/4 RTS Male Phone and 3 pin Cannon Female XLR
- 32 position switch instantly changes the internal wiring to match your specific interconnection needs.

ASK YOUR DEALER FOR A DEMONSTRATION
CALL OR WRITE FOR FREE BROCHURE

FOUR DESIGNS COMPANY 6531 GROSS AVENUE • CANOGA PARK, CA 91307
(818) 716-8540

RACK

ECONOMICAL 19" RACK MOUNT "FURNITURE" FOR THE PROFESSIONAL OR HOME STUDIO.

FX RACK FEATURES:

- Holds up to 18 "spaces" of equipment.
- Attractive black textured vinyl laminate
- Shown with optional wheels.

ASK YOUR DEALER FOR A DEMONSTRATION
CALL OR WRITE FOR FREE BROCHURE

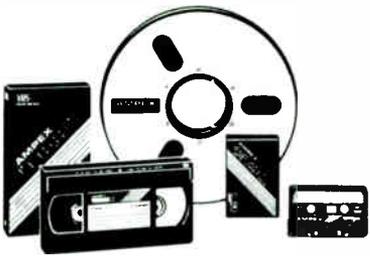


FOUR DESIGNS COMPANY 6531 GROSS AVENUE • CANOGA PARK, CA 91307
(818) 716-8540

Circle #152 on Reader Service Card

AMPEX

Professional
Audio and Video
Tapes



AVAILABLE FROM THE NUMBER ONE IN
AMPEX
PROFESSIONAL RECORDING PRODUCTS:

ADVANCE
RECORDING PRODUCTS

Please call or write for our FREE catalog.

7190 CLAIREMONT MESA BOULEVARD
SAN DIEGO, CALIFORNIA 92111
(619) 277-2540

CALL TOLL FREE: IN CALIFORNIA:
(800) 854-1061 (800) 858-1061

WHOLESALE DISTR



Circle #153 on Reader Service Card

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



The new QN-4A Quad Noise Gate from Furman Sound. Quite possibly the best sounding gate available. Why? For one reason, our pulse width modulation circuit design does away with the need for VCA's altogether. While other brands boast that their expensive VCA's are "distortion free", the fact is that they have *four times* the harmonic distortion, and *three times* the intermodulation distortion of the QN-4A. But that's not all. While others employ linear slope expanders, ours features *logarithmic* decay slopes. The results: a decay that sounds less obtrusive, more natural, And ...

- Special circuitry virtually eliminates "fluttering" during the tail end of a decay.
- The attack circuitry automatically senses a loud transient (like a drum strike) and gates open faster.
- A key input on each channel allows you to create special effects.
- A maximum attenuation of over 80 dB means "off" is really OFF.

Try the QN-4A and hear what we mean when we say the Silence is Golden.

FURMAN
Signal Processing

30 Rich St. • Greenbrae, CA • 94904
(415) 927-1225

The Silence is Golden

Circle #154 on Reader Service Card

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-

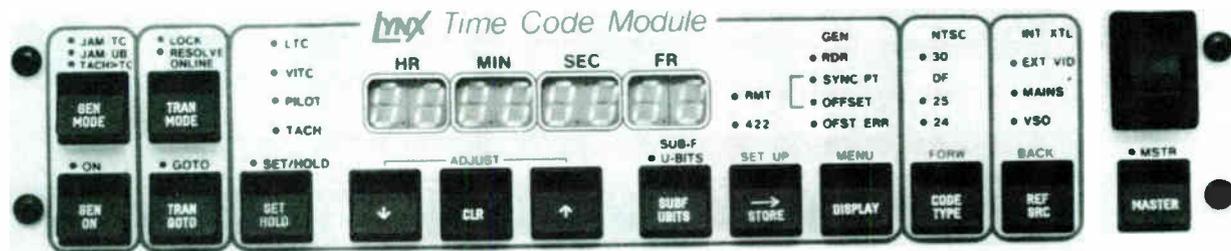
board to music, to tape something that really means something to you," explains Tibbetts. "You might tape an incredible moment. I could sit on the roof of this Tibetan guest house or walk the streets of Katmandu with a microphone and put it on two tracks of an 8-track and I swear it would just make guitar 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.

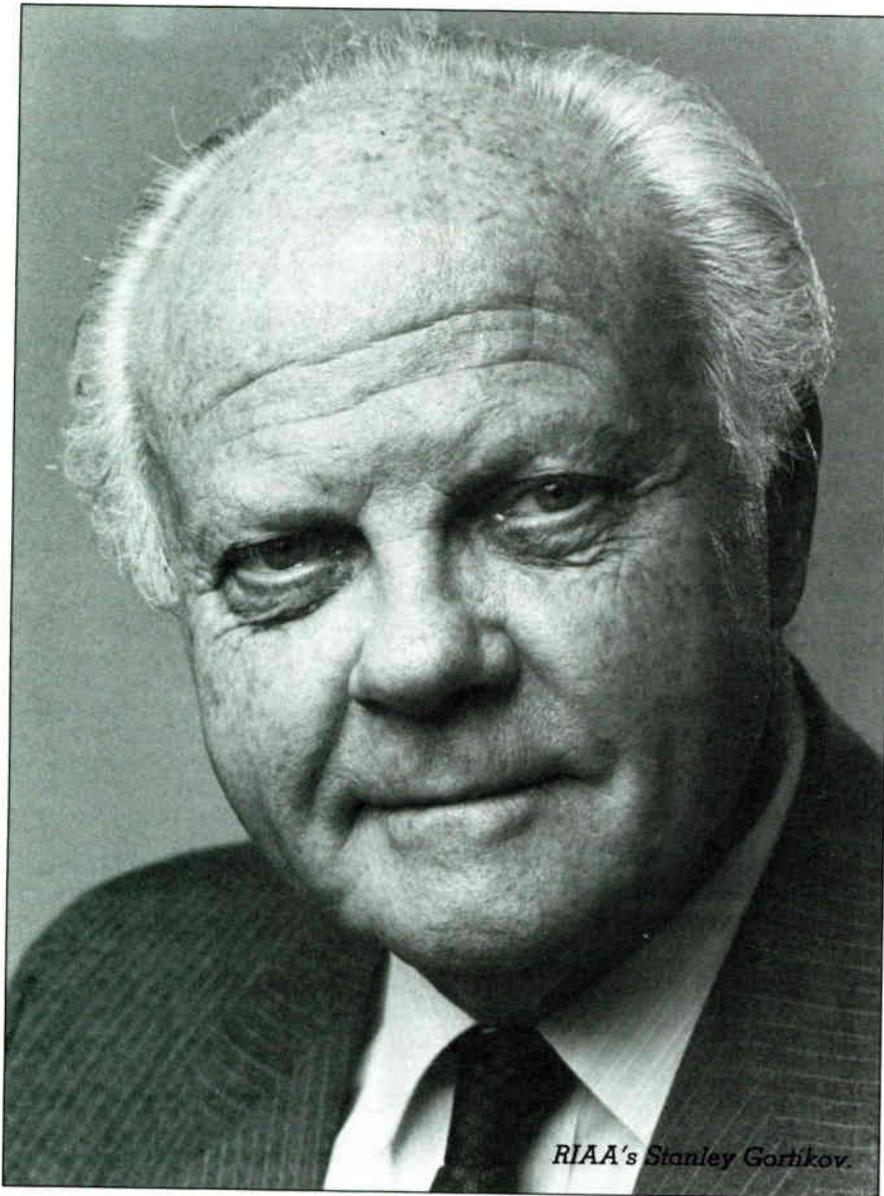
The Lynx module accesses, right

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

NEW!

**AFFORDABLE X2 SERIES,
POWER MOSFET AMPLIFIERS,
AT NSCA, SOUNDCRAFTSMEN #349**

The new X2 Series MOSFET power amplifiers offer you and your customer the utmost in performance and proven reliability. Whether the system is for a church, night club, disco, theater, stadium or a custom home, Soundcraftsmen has the amplifier for the job.

The 450X2 delivers 210 watts per channel into 8 ohms, 315 watts per channel into 4 ohms and 450 watts per channel into 2 ohms. THD is less than 0.05%.

The 450X2M is the same as the 450X2 plus calibrated LED metering for each channel.

The PM860X2 Multi-Channel amplifier has 4 channels at 315 watts each into 4 ohms.

The PM860 offers 450 watts per channel into 2 ohms at only \$599.00 List Price!

The 900X2 delivers 400 watts per channel into 8 ohms, 675 watts per channel into 4 ohms, 900 watts per channel into 2 ohms.

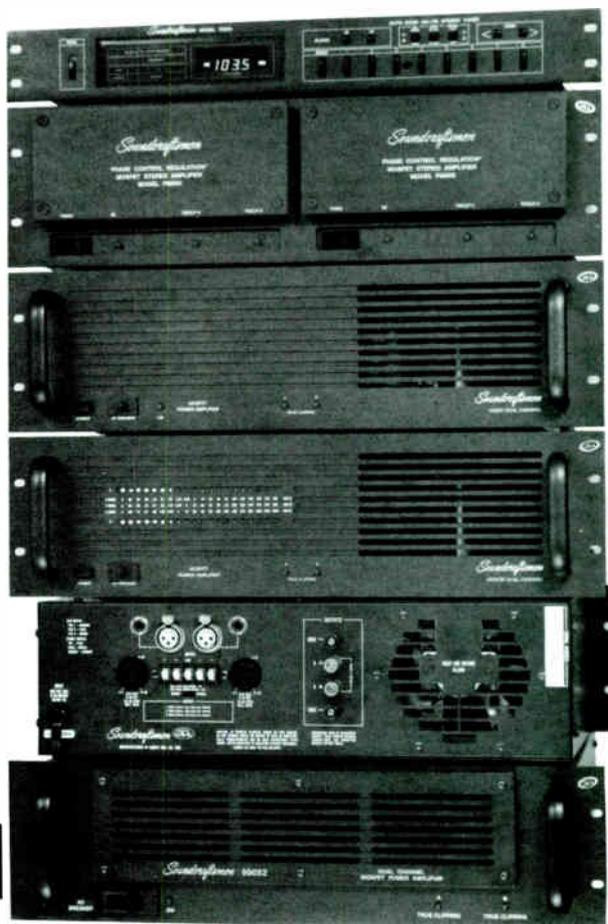
The T6200 AM/FM Stereo tuner is rack-mountable and features 8 station pre-sets and station memory retention during off duty cycle, power failure, etc.

SEE US AT NSCA #349, or CALL US DIRECT AT 714-556-6191 FOR DETAILS ON OUR SOUND CONTRACTOR PROGRAM AND SPECIAL CONTRACTOR PRICES.

PROFESSIONAL PRODUCTS by *Soundcraftsmen* USA

2200 SO RITCHEY • SANTA ANA, CA 92705 U.S.A.

Circle #155 on Reader Service Card



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?

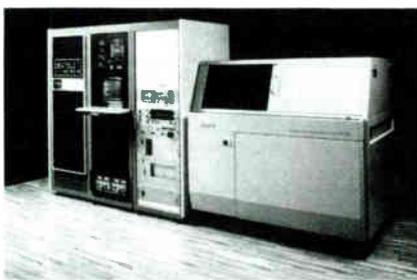
Gortikov: The underlying principle is identical, irrespective of what copying system emerges. At some point there has to be some reasonable control on the indiscriminate copying of copyrighted sound recordings. There cannot be infinite, totally indiscrimi-

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. ■

HOWARD W. SAMS & COMPANY

Audio Production Techniques for Video

David Miles Huber



Foreword by David Schwartz
Publisher: MIX Magazine

Audio Production Techniques for Video

"Today, the studios that stay on top are the ones that have mastered the arts of blending sounds and images."

David Schwartz, Editor/Publisher, MIX

Excerpt from the forward of *Audio Production Techniques for Video*

Audio Production Techniques for Video

David Miles Huber

- New Audio Equipment
- State-of-the-art Techniques and Technologies
- Production and Post-Production
- The New Audio for Video Industry Standards

Audio Production Techniques for Video examines the important role that audio plays in video production -- all that's needed to understand and create in today's world of media production.

- Time Code
- Digital Audio
- Multi-track Audio
- Live Broadcast Stereo
- The Audio Tape Recorder/Video Tape Recorder
- Synchronization
- Audio Post-Production for Video
- Introductory Electronic Editing Techniques

- Appendices: Preventing and Troubleshooting Time Code Problems; Definitions and Explanations of SMPTE, VITC, and Pilotone

"Huber is a scholar who specializes in the cross-pollination of audio and video. His remarkable depth of insight is well-represented here in his thorough explanations of the processes involved in recording technology....Huber leads the reader into a logical and near effortless grasp of the importance they occupy with respect to each other."

— David Schwartz, Editor/Publisher, MIX

HOWARD W. SAMS & COMPANY

Item #1533, \$29.95 plus \$2.50 shipping

Order through MIX Bookshelf, 2608 Ninth St., Berkeley, CA 94710 1-800-233-9604, in CA 1-800-641-3349

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. . .

NEXT IN MIX

MAY

- Studio Business Operations
- Northeast Studios Directory
- Programmable Signal Processors

JUNE

- Concert Sound/Remote Recording Issue
- Directory: Remote Trucks; Sound Reinforcement Companies
- House Mixing Consoles
- Concert Mixing for Video

AD CLOSING:

APRIL 7

MATERIALS DUE:

APRIL 15

JULY

- Audio Education Issue
- Recording Schools & Programs
- Southwest Studios Directory
- Studio Miking Techniques

AD CLOSING:

MAY 7

MATERIALS DUE:

MAY 15

Only Mix has a BPA-audited circulation of over 39,000 copies each month!

Call (415) 843-7901 for space reservations and complete advertising information.

CLASSIFIEDS

Employment Offered

SALES—MONSTER CABLE. If you are energetic, hard working and love audio, we need you! Small, fast growing audio accessories company is looking for bright sales minded individuals for management positions. Insert your ideas in sales, marketing strategies. Must be familiar w/ audio industry and have sales exp. Growth opportunities abound. Call Julie at (415) 777-1355 between 2-4 p.m. pacific standard time.

PROJECT COORDINATOR
Center for Recording Arts & Sciences at Middle Tenn. State Univ. Responsible for overseeing Center projects and teaching in the Recording Industry Management Program. Projects include: recording, acoustical analysis, LP and CD distribution, audio trade periodical index and studio operations. Research classes include: Basic and Advanced audio. Masters Degree in related field required. Industry and/or teaching experience desired. Send resume and letter of application to: Personnel Office, Middle Tenn. State Univ., Murfreesboro, TN 37132. Deadline: April 17, 1987-E.O.A.A.

Cherokee Studios is now accepting applications/resumes for its entry level position. Write or call 751 No. Fairfax, Los Angeles, 90046. (213) 653-3412.

Sound reinforcement company seeks motivated individual to book and manage full scale sound systems. Applicants should have experience booking systems, operating systems and have many industry contacts. Can provide turnkey sound and trucking for venues up to 30,000. Reply in confidence to: J.S., PO Box 4532, Highland Park, NJ 08904.

Equipment For Sale

LOW OVERHEAD MEANS LOWEST PRICES. We carry most major lines of pro audio & recording equipment. **Get your best price, then call me.** 3M Tape and accessories at factory prices.

S.C.M.S.

East U.S. Toll Free:
(800) 438-6040

West & N.C.: (704) 889-4509

KURZWEIL, AKAI, TANNOY & AUDIO-TECHNICA. Best prices on

the new Kurzweil 250 & Akai MG1212. Complete studio and sound system packages available. New & used, buy and sell. **SOUND ADVICE** (205) 592-4555, (800) 826-6552.

IF YOU'RE NOT USING IT —SELL IT!

Your national clearinghouse for used audio and video! Call for free copy of our latest listings, or to list your used gear free.

The Bertech Organization
Call toll free: (800) 992-2272
In Calif. call: (818) 909-0262
THINK BERTECH FIRST!

NEW, USED, DEMO SALE
RECORDERS, CONSOLES,
OUTBOARD EQUIPMENT
Ampex ATR102 2trk, 4trk,
Tascam 80-8 w/DX8,
Soundcraft 2400, JVC, Sony
3/4" VCRs, Monitors, Lexicon
200, Tangent 20X4, Yamaha
REV7s and SPX90s, Crown
Amps, Telex 300 Duplicator.
**E.A.R. PROFESSIONAL
AUDIO**
(602) 267-0600

**NATIONAL SOUND & VIDEO
ENGINEERING** Recording,
Sound Reinforcement, Video
Tape Duplication & Broadcast
Equip. Dependable Personal
Service. Major lines at very low
prices. Get your best price then
call us. **NATIONAL SOUND &
VIDEO ENGINEERING**, 6350
J. McDonough Dr., Norcross,
GA 30093, (404) 447-1717.

24 TRK: \$19,800. 16 TRK: \$5,900.
British-made ACES equipment features 24 TRK, 2", 30&15 ips, 50% vari, remote, a solid deck. 32 input, 24 subgroup mixer, \$13.7k. 16 TRK 1/2", built-in NR, ind. bypass, O-search, nice! 2 YR warranty. Factory distributor **ROCK STUDIO SUPPLY**, Box 5997, Norman, OK 73070, (405) 329-8431.

USED EQUIPMENT

Bought & Sold
List on request.



**Summit
Audio
Inc.**
P.O. Box 1678
Los Gatos
CA 95031
408-395-2448

API CONSOLE

Original Sound Factory Studio A console. 28 input, 16 bus, 24 monitor. 2520s & 550A EQs. \$29,500. Ask for Jon — (213) 467-2500.

MCI PARTS & MACHINES

Specializing in JH416, JH428, JH10, JH100, JH114 parts. Used heads, cards, new lamps, assoc. spare parts. Call for list and prices. Randy Blevins (615) 361-8429.

LEASE/BUY/SELL

Great prices and great service on over 200 lines including Otari, Harrison, Soundcraft, Tascam, JBL, Lexicon, AMS, Akai, Fostex, KT, dbx and all the rest for the best in new or used. Call for our latest listing. **AVC SYSTEMS (800) 323-0281**, in MN call (612) 729-8305.

VINTAGE TUBE MIKES

Call Bill Bradley
(312) 751-1216

Reliable Music

featuring
RECORDING STUDIO BROADCAST AUDIO &
SOUND REINFORCEMENT EQUIPMENT

HOW CAN WE HELP YOU?

• QUALITY AUDIO • GUARANTEED PERFORMANCE
• DEPENDABLE SERVICE • COMPETITIVE PRICES
704/375-8662
PRO AUDIO DIVISION • 1001 S. INDEPENDENCE BLVD.
CHARLOTTE, NC 28202

SIGMA SOUND STUDIOS GREAT EQUIPMENT BUYS:

2, 4-trk recorders, synchronizers, hi speed dupe equip plus lots of audio processing gear.

Call or Write:

212 N. 12th St., Phila., PA 19107
(215) 561-3660

8 Neve 1077, mic pre/three band EQ modules. In anvil case w/power supply, phantom, and Cannon connectors on rear panel \$8,000. Call Bobby (212) 921-1711.

Used Trident 80Bs f/\$30,000, also Trident 75 w/automation \$25,950, Amek Angela 36/24 auto: Ready \$P.O.A. Amek 2000 28/24 \$9,950, Allen & Heath Syncon A 28/24 \$11,950, several Neve consoles currently available. Also separate Neve EQs, new. Bel BD80 ddl \$1,195, Drawmer gates \$595. Want something British? . . . Phone British Audio (813) 238-3900.

8-TRACK PACKAGE: Otari 1/2" recorder w/new heads, Speck 16x8 mixer, patchbays, Mogami cabling, dbx optional, excellent condition. Technics RS1500 2-trk. (415) 777-3108. Asking \$5,000 or b/o. Will sell separately.

4 trk, 8 trk and MIDI studio gear. Best prices—courteous, knowledgeable staff. Most major lines of pro audio keyboard and studio equipment. Call our toll free watts line 1-800-354-7252 when you're ready. Mike, Bill, Terry or Marty.

New Used & Demo Soundcraft Neotek, Otari, Akai, Klark-Teknik, dbx, E-V, **LEXICON. USED NEO-TEK CONSOLES**, microphone sale, over 200 mics in stock. E-V, AKG, Beyer, Sennheiser, etc. New E-V N-Dyn mics in stock. Call **Pyramid Audio Inc (312) 339-8014.**
Call Us Last!

48 TRACK CONSOLE:

Sphere Eclipse C—48 inputs, outputs, & monitor, plus 12 returns. Automated, 4-band parametric EQ, plasma meters—many other features. Asking \$75,000. Call Arthur Stoppe at Sigma Sound, (215) 561-3660.

Pultec EQs (2), LA-2A, TUBE U47, Stephens 24-trk w/auto loc \$13,500, Harmonizer 949 \$1,500, EMT Plate \$1,350, Ampex AG440 \$1,200, Simmons SDS7 w/35 chips \$1,200, MXI \$300, DL2 \$650, Symetrix SE-400 EQ \$250, Eventide Flange \$250, UREI 539 EQs (2), UREI 529 EQ \$250, Crown DC 300A \$300, UREI Cooper \$200, Roland JX-10 \$1,700, Yamaha TX216 \$1,500. **WILL NEGOTIATE** (801) 785-0077, (801) 785-7383.

SONY PCM's

Audio Gallery has hard-to-find Sony PCM-501ES, PCM-601ES, Portable PCM-FI. CALL!

HIGH-END AUDIO PCM • LC-OFC WIRE • SOFTWARE ANALOG PLAYERS

Also call us for the finest in TURNTABLES, TONEARMS, CARTRIDGES and revolutionary new LC-OFC WIRING, BANSEI SOLDERLESS PLUGS & MORE. BEST PRICES!

**AUDIO GALLERY • Tues - Sat. 10AM-6PM
(213) 829-3429
2718 Wilshire Bl., Santa Monica, CA 90403**

ICB AUDIO

1349 E. McMillan
Cincinnati, OH 45206

Call us for over 100 lines of Professional Audio and Video (513) 281-5535, sales hours: 1 p.m. to 6 p.m. e.s.t. weekdays

Synclavier II Computer Music System, w/24 voices, stereo for 24 voices, \$19,500. Digital guitar interface, \$3,500. A.S.L., 832 N. Cole Ave., Los Angeles, CA 90038. (213) 462-5923.

BTX Package: Shadow II and Cipher. ADR Panscan, Buchla synths, Prophet-10, 6-trak, HM80 Harmonizers, Yamaha MEP4, Drumulator, Rane SM26 6-ch. mixers. (16) Aphex 500A VCA's in 19" rack mount w/XLR's. (212) 645-6319. Leave message.

SIDEREAL KAP. The Sidereal Kap was designed from its inception to be the finest sounding capacitor available for audio today. Find out what the music lover's capacitor doesn't sound like. Free literature and price information upon request. Dealer inquiries invited. **SIDEREAL AKUSTIC**, 1969 Outrigger Way, Oceanside, CA 92054, (619) 722-7707.

FAIRLIGHT IIX w/all software and hardware options. Road cases, stand, and accessory pedal included. Black finish, excellent condition. Used only in studio (615) 373-1845.

Yamaha RM-1608 console 16x16. UREI 1/3 oct. cut filters. (2) Altec 604-E monitors with Master Lab X-over. Other accessories available. Call Rick (214) 521-2216.

32 x 24 x 24 FOR SALE
Soundcraft 3B, full 4-band EQ, w/hi & low shelving, indiv. pk&vu plasma display, full patch bay, sep monitor section, eight sends & returns \$17,800. In excellent cond. Call (818) 763-0130.

CLASSIC NEVE FOR SALE: Discrete Neve 24 Bus recording console with Necam II. 36 inputs with four-band 1081 and 1064 EQs, (6) Neve 2254 compressor/limiters and a 960 point patch field, 66 inputs in remix. Beautiful condition. Asking \$105,000. Contact Tom Brown at (615) 441-1403 or (615) 321-5970.

OMNI SOUND AND VIDEO INC.

JBL	Telex Wireless
Bose	Lavalier Microphone
Kloss	System \$699
Crown	Biamp 1624
Fostex	16 x 4 x 2 Mixer
Yamaha	\$2195
Mitsubishi	—
Cinema Beam	Shure SM-58
	\$109

Orders (USA) (800) 443-7058
Orders (NC) (800) 662-3401
Info and Catalogs
(919) 876-8432

P.O. Box 58126
Raleigh, NC 27658

Mics, consoles, outboard gear, recorders, amps, speakers, parts. Film projectors, mag recorders. Video cameras, recorders, editing systems, monitors. Call for list. Dominick Costanzo at Sound One Corp. (212) 765-4757.

Sony JH-24 16-trk with Autolocator III. Low hours in home studio, excellent condition. Must sell \$11,500. (717) 992-5777.

STUDIO FINANCING and leasing plans for qualified buyers. Quick service, 36-60 month terms. 5K to 200K—for information call Dick McCalley at (612) 866-1868.

MCI/SONY PRODUCTS

JH-24 recorder, MXP-3000 mixing console, ARR 5003 center track recorder, Sony PCM-3324 digital. Cash, lease or finance—Quick service call Dick McCalley (612) 866-1868.

Westlake studio monitors, MegaMix console automation, Yamaha NS-10M reference monitors, Yamaha SPX90 effects processor, call Dick McCalley at (612) 866-1868.

USED EQUIPMENT

(1) Harrison 2824 Alison auto. & prod. desk, great shape—\$24K—nego. (1) Quantec Room Simulator \$9.5K—nego. Several MCI JH-400 and JH-500 consoles, Sphere Eclipse C auto., 36 channels, 28 para. EQ, many features, super deal. Call for more information. Several MCI JH-110s, 8- and 2-trks. Call Randy Blevins (615) 361-8429 or 361-6768.

Kurzweil 250 \$7,000 excellent condition, 3M 79 16-trk, 2" recorder \$12,000, low usage, new heads, excellent condition (301) 467-3547—John—Flip Side Sound Studios, 3616 B Falls Rd., Baltimore, MD 21211.

16-TRK AMPEX MM1000
2", servo, 15-30 ips, Vari-Speed.
Great condition. \$6,500.
TANGENT 3216 CONSOLE
16x16. Great condition. \$5,500.
(212) 741-2730

SOLID STATE LOGIC model SL-6000E console, six months old. Large 48 frame, 32 inputs, total recall and Adams-Smith synchronizer. Forced to liquidate. Contact David Pofner (301) 298-1200.

PERPETUAL MOTION

Your old reliable Ampex or Scully deck will probably run forever. Get new machine performance with our plug-compatible electronics. Several models—record/play—play-only.



Thousands in use!

Inovonics
SANTA CRUZ, CA (408) 458-0552

World's Best Prices on quality used equipment. Super savings on ATR-100 and multi-track heads. We buy-sell-trade. Get on our mailing list and buy where the pros SAVE. AUDIO VILLAGE, PO Box 4692, Palm Springs, CA 92263, (619) 320-0728.

OTARI MX-5050 8-trk with remote, autolocator and stand \$4,200. SOUNDCRAFT 400B mixer 16x4x8 \$2,500. AKAI MG1212 12-trk mixer/recorder \$4,000. SIMMONS SDS5 pads and three channels in mixer \$1,200. All in excellent condition. (415) 397-2565.

24-trk MCI JH-116 w/ALIII \$15,950, JH-24 w/ALIII \$17,950, Tascam model 15-24 trk \$4,900, Tascam 8516-16-trk \$5,800, Tascam 52 2-trk \$1,699. Gauss and JBL complete PA system \$8,500. We specialize in Otari, Amek, Lexicon, Crown, Ramsa, Tascam, MCI (new and used). OPUS EQUIPMENT (312) 336-6787.

Get Into 3/4" Off-Line Video Editing w/(2) Panasonic NV-9600, U-matics controller NV-960 for only \$4,995. Also Tapco C12 12x4x2 mixer \$1,000. Perry (305) 689-6650.

UREI TIME ALIGNED speakers. Excellent condition. \$2,100/pair. Triad Recording Studios. 352 W. 12th Ave., Eugene, OR 97401. (503) 687-9032.

SYNCON A 28 x 24 console—excellent condition \$13K. (203) 467-9038.

MCI PARTS & MACHINES

Specializing in JH-400 console parts, all JH-100/100/114 machines, light meters, spare cards, power supplies, etc. Special prices on all lamps. 50 mixed for \$40. Randy Blevins (615) 361-8429.

Ampex MM-1000 16-trk, VSO remote and spare parts \$4,500. MCI JH-110 1/4 1/2-trk \$2,500. JESTER SOUND (406) 248-5896.

Equipment Rental

Design Fx Audio

DIGITAL AUDIO RENTALS

Specializing in digital tape machines, reverbs and effects processors. Technical consultation included.
(213) 838-6555
Outside CA (800) 441-4415
P.O. Box 491087
Los Angeles, CA 90049

On-Call 24 Hours

at scharff rentals

1619 Broadway, N.Y. N.Y. 10019
(212) 582-7360

The Best That Money Can Rent

- Digital Multitrack
- Time Code Equip
- PA Equip
- Wireless Mikes
- Outboard Equip
- Mixing Consoles
- Walkie Talkies
- Video Playback

KURZWEIL MIDI BOARD and EXPANDER 250 with all options, E-MU SP-12 Turbo, OTARI 5050BII and other keyboards and effects. Call for

complete listing on rentals. Lowest rates in the Chicago land area. Stage Fright Inc. P.O. Box 237, Dolton, IL 60419, (312) 849-3735.

DOLBY SR RENTALS

also: TIMELINE LYNX, VCRs, QUANTEC, PCM-F1/SL2000, U7, LEXICON 480, ETC. ETC. JOHN FRANCOMBE (415) 383-4018.

SONY PCM-3324, 24-TRACK RECORDING SYSTEM available for daily/weekly rentals. Currently housed in a San Francisco studio. Available for studio clients or outside rentals. For information, please contact Suzi Peterson at Windham Hill Productions, (415) 331-1502.

Equipment Wanted

Wanted: McIntosh, Marantz, Altec, JBL, Tannoy, Dynaco, Levinson, Western Electric, Audio Research, Citation, Telefunken, RCA, Quad, Rogers, Thorens, EMT, Fairchild, Langevin, E-V, Dalquist speakers, amplifiers, tubes, tuners, etc. (713) 728-4343, Maury, 11122 Atwell, Houston, TX 77096.

Instruction

BE A RECORDING ENGINEER!

New classes quarterly.
INSTITUTE OF AUDIO/VIDEO ENGINEERING

1831 Hyperion, Dept E
HOLLYWOOD, CA 90027
(213) 666-3003

ELEC. BASSISTS!!
Study With The

"World's Most Recorded Bassist in History!"™

• CAROL KAYE •

VHS VIDEO - 2 1/2 Hr. with Manual

SPECIAL \$59.95 (\$75 Value)

Quality Video - Quality Education featuring: Rock, Funk, Pop, Jazz, Motown, Techniques, Inventing, How To Groove, In Depth Easy Theory — Triads, Scales, Cycles, ii-V7-I. Some Studio Stories, Some Jazz Guitar For Ear Players and Readers

Beginning Amateurs to Top Professionals Over 30 years Teaching Experience (almost 40 years Professional Playing)

Learn from the Legendary No. 1 L.A. Studio Bassist: Mission Impossible, MASH, Kojak, Bill Cosby, Quincy Jones, Supremes, Mancini, Michel LeGrand, 4 Tops, Ray Charles, Monkees, Johnny Mathis, Beach Boys, "Good Vibrations", "Feelin' Alright", "Memories", "Little Green Apples", "Wichita Lineman", etc.) From the Bassist who set the standards, to the Bassist who wants it all!

You'll love this interesting, information-loaded VIDEO - *The Best!*

\$59.95 - \$3.00 Shipping - CO res
add 7% tax
Sorry, no COD'S

Bass Video
Camelot-Gwyn
3124 S Parker Rd. C-101
Aurora, CO 80014

EDUCATIONAL VIDEOS

2/6/12 hour sound mixing/recording courses: \$39, \$119, \$239; 2 hour MIDI course \$39; Add \$5 shipping/handling for each course. Visa/MC/check. For brochure: RECORDING ASSOCIATION, 5821 SE POWELL, PORTLAND, OR 97206, (503) 777-4621.

INSTITUTE OF COMMUNICATION ARTS. Commercial Music Performance, Audio Engineering/Prod., Video Prod./Sound Reinforcement, Music & Entertainment Bus., Communications, Electronic Music, Music Theory & Arrang. 2 Yr. Prog./P.T. Studies. 12-12840 Bathgate Way, Richmond, B.C. Canada (604) 278-0232.

The *Mix Bookshelf* offers the best selections of books and tapes for the audio, video, and music industries from over 65 leading publishers. Write or phone for your free copy of our current catalog.

MIX BOOKSHELF
2608 Ninth Street
Berkeley, CA 94710
CALL TOLL FREE: (800) 233-9604
In California: (800) 641-3349

Maintenance Services & Repair

HARRISON SERIES TEN LEATHER UPHOLSTERY OEM now offering armrest services, repair, replace, rebuild, restore. Custom design services available. Imported leathers and full range of genuine Naugahyde offered. Call Jim (615) 876-1524 or write Studiowerx, Box 1102, Madison, TN 37116.

TECHNICAL SERVICE
Soundcraft/Trident/Neve/etc.
Consoles/Multi-Trax/Amps/FX/etc.
Hard Copy Test Results
TLM Electronics Inc.
343 Manville Road
Pleasantville, NY 10570
(914) 769-6423

Factory authorized speaker reconditioning station. JBL*, Altec*, Gauss*, Cerwin Vega*, EV, TAD, UREI*, Eminence. All speakers are repaired with original manufacturers' replacement parts. *Warranty claims accepted. Audio Sound Productions Inc., 47 Chasner St., Hempstead, NY 11550, (516) 483-1102.

Music Products/Software

THE ULTIMATE DRUM AND PERCUSSION SAMPLE LIBRARY
IS NOW
Available on CD-ROM

1000+ STUDIO QUALITY SAMPLES
PCM BETA 1.2 FORMAT (PCM F-1, 701ES, 501ES, ETC.)
COST \$1500

ALSO AVAILABLE: A 290 SAMPLE VERSION FOR THE
LINN 9000, SP-12, PROPHET 2000, & AKAI S-900 (605250)

CURRENT USE HAS INCLUDE: GIORGIO MORODER R TOM SHOW
MICHAEL JACKSON BIRNIE TAUPPI & MICHAEL SAMIRI LLO

SEND \$5 FOR EACH SPECIFIC CASSETTE DEMO & INFO

studio digital samples

18653 VENTURA BLVD SUITE 560A, TARZANA, CA 91356

**EMULATOR II
PROPHET 2000
MIRAGE**

DIGITAL HORIZON™ SAMPLES
"EXPERIENCE PERFECTION"

- COLLECTION #1: PREMIERE
 - #1 Piano #6 Anthology
 - #2 Bass #7 Composer's
 - #3 Master Strings Tool Kit
 - #4 Brass #8 Drum Kit
 - #5 Orchestra #9 Percussion
 - Classics #10 Cosmos

\$25.00 ea. Disk \$199.95 10 Disk Set

- CUSTOM SAMPLING FOR STUDIO AND FILM
- KORG DSS-1, AKAI S900, & ROLAND S-50 SOON!
- Sampling Sound Cassette. 125 PCM Mastered Sounds: \$19.95

SONIC HORIZON™ SOUNDS
"PROGRAMMING MASTERY"

- DX-7, TX, DX-100, 27, 21 - CZ series Juno 1, 2 - Six Track - TR-707 patterns. RAM, ROM, Disk, Data Sheet formats.
- Demo Cassettes Available: DX, CZ, Juno, Emu, Prophet, Mirage. \$5.00 ea. (post. incl.) specify.
- Write or Call: Complete sound lists, info. (specify) Software catalog.
- Shipping: U.S. & Can.: \$3.00 Foreign: \$8.00. Demo: \$8.00 (post. incl.)
- Send Check or M.O. Call for COD

Dealer Inquiries Welcome

MIDIMOUSE™ MUSIC
Box 272-XB
Rhododendron, OR 97049
(503) 622-5451

Recording Services

DOES THE MIXING JOB ON YOUR 24-TRACK RECORDING LEAVE SOMETHING TO BE DESIRED?

Poor EQ? Bad levels? Too much or too little delay, reverb, compression? Paradise Sound Recording offers a top notch mixing facility with an overwhelming selection of outboard effects and

WE'LL MAKE IT RIGHT!

Send the 2" - 24 track master, a cassette copy of the original mix and your instructions for changes along with a check or money order for \$575 per song to:

PARADISE SOUND RECORDING, Inc.
P.O. Box 63
Index, WA 98256
(206) 793-2614

Hamilton Brosious Associates

STUDIO EQUIPMENT APPRAISALS

If you need a professional appraisal of audio/video equipment for insurance purposes, estate settlements, loan collateral evaluation or any other purpose, you are invited to call us.

Nationwide Service
(203) 359-3506 IMC #987

The *Mix Bookshelf* Catalog contains the best audio, video, and music industry texts available from over 70 publishers. For your free copy, please see page 215.

SNB

Digital Transfers and Editing from:

- Sony DASH, F1, 1630
- CD Master Prep.
- Lacquer cutting and MUCH MORE...

disques SNB mastering
Itee
8400 Cote de Liesse, Ville Saint-Laurent, Que. H4T1G7
Tel.: (514) 342-8511

Records & Tapes

DISC MASTERING — Cut from your tapes at low cost — Plating, Pressing, Labels & Jackets — LPs, EPs & 45s. Write for free information:

THE CUTTING EDGE
Box 217 M
Ferdale, NY 12734
(914) 292-5965

REAL TIME
Best Quality Cassettes using Nakamichi decks only. Custom loaded Agfa or BASF Chrome. Label and insert printing, shrinkwrap, blank tapes.

SUPERB QUALITY AT LOW PRICES
Uni-Sette, Inc. 1854 Fulton Ave., Sacramento, CA 95825. (916) 485-9534.

Super Low Prices on Agfa, BASF, Ampex and Mag Media, Bulk Cassettes and Accessories. Real-time and High Speed Duplication. Call or write for prices and brochure. **TRAXX RECORDING PRODUCTS**, 24 Crest Way KC, New Fairfield, CT 06812, (203) 746-3561.

FACTORY DIRECT PRICES ON 3M TAPE
We can save you money.
Over 60 lines of professional recording equipment.
STUDIOWORKS
(800) 438-5921

CRYSTAL INC.
DUPLICATED CASSETTES
AS LOW AS 43¢ PLUS SET UP

FULL COLOR CASSETTE INSERTS
AS LOW AS \$53.00 PER 1000
ORDER OF TEN

FULL COLOR GLOSSY PRINTS
Suitable for Framing 23¢ EACH
AS LOW AS 1015 OF 1000

HIGH ENERGY CASSETTES
AS LOW AS
C-62: 28¢ and C-92: 34¢

FULL COLOR POSTERS OR BROCHURES
AS LOW AS \$195.00 PER 1000

FULL COLOR ALBUMS
PLUS SET UP PER QUANTITY
58¢ EACH

PHONE TOLL FREE:
1-800-826-6540
TN: 615-843-0717
8002 Middle Valley Road, Hixson, TN 37343

3M SCOTCH AUDIO TAPES
Prompt Service—Low Prices
1/4" pancakes, 1/4"-2" reels, accessories, Scotchcarts & cassettes.
Call or Write for Price List
R&M PRO AUDIO
1080 Pacheco, S.F., CA
94116-1318 (415) 665-8480

PROFESSIONAL RECORDING SUPPLIES
We are a major wholesale Distributor of Ampex, Agfa & 3M reel to reel mastering tape (1/4" to 2"). We also stock broadcast video tape, assorted reels and boxes, splicing/leader tape, and pre-packaged cassettes. We load bulk cassettes in custom lengths using a variety of tape brands. Please call or write for our FREE catalog.
Advance Recording Products
7190 Clairmont Mesa Blvd., San Diego, CA 92111
(619) 277-2540
Inside CA: (800) 858-1061
Outside CA: (800) 854-1061

VCR SALE
300 Sony Beta SLO 1400 stereo hi-fi. Industrial. Used, but in excellent condition. \$175 each. AVI, 1-800-858-3816.

"STATE-OF-THE-ART"
"Cassette Duplication Service"
We offer the highest quality cassette duplication available on ferric, chrome, or metal tape. Competitive prices and fast turnaround. When you're ready for the best call: (219) 936-2015 or write: Cup Of Water Productions, 13780 12th Rd., Plymouth, IN 46563.

ESP EASTERN STANDARD PRODUCTIONS
26 BAXTER ST., BUFFALO, N.Y. 14207

- AUDIO CASSETTE DUPLICATION
High Quality Real Time
- VIDEO CASSETTE DUPLICATION
All Formats
- CUSTOM PRINTING & PACKAGING
Labels - Inserts - Shrink Wrap

CALL COLLECT
For Free Brochure
(716) 876-1454

Studios For Sale

MANHATTAN STUDIO
First floor in SOHO, 2,000 sq. ft., 14 ft. ceiling, air conditioning. Control room and studio in spectacular condition \$425,000—(212) 925-7304.

STUDIO BUILDING FOR SALE
Pre-wired 32-channel, three booths, main room, Sonex control room, kitchen. Excellent location in Jacksonville, FL. Owner going mobile. 60K. John at (904) 388-8273.

Hamilton Brosious Associates
RECORDING STUDIOS FOR SALE

- **#1015—NYC 24tr Studer, 40 input Amek, top outboard, mint cond. engr. w/clients will stay, great control room, \$285K, some financing.
- **#1016—NYC 50/50 records-adv. good client list, top equip, \$500K cash flow, asking \$2.4M, financing.

STUDIO FOR SALE?
LIST WITH US...WE HAVE BUYERS
(203) 359-3506 IMC #987

Recording Studio—Mobile—Acreage
World class custom multi-track studio (1000 sq. ft.). Located in remote private setting complete with 2/4

acres of partially wooded land. Only minutes from Hwy. 101 and Olympia, WA. Equipment includes grand piano, Scully 2-, 4-, 8-trk, Neumann, AKG-mics and more. Includes beautiful 1800 sq. ft. three bedroom mobile and separate two car garage. Call John Tisdell (206) 943-7839. James W. Hodges, Inc. Eves: (206) 754-7157.

How to Place a Mix Classified

Please print or type in CAPITAL LETTERS and lower case. There are 8 lines to the inch and approximately 24 CAPITAL letters per line or 32 lower case letters. \$70 per inch — 1" minimum. Additional lines \$10 per line. **Bold type** \$10 per line. Black border or gray screen \$10 extra. Logos or display advertising up to 4" will be charged at \$85/inch. Multiple insertion rates available — Call for information. **Payment by check, money order or charge must accompany ad. DEADLINE is the 15th of the month, 1½ months prior to publication.**

Categories Available (Check one.)

- | | | |
|---|--|---|
| <input type="checkbox"/> Acoustic Consulting | <input type="checkbox"/> Equipment Rentals | <input type="checkbox"/> Record & Tape Supplies |
| <input type="checkbox"/> Business Opportunities | <input type="checkbox"/> Equipment Wanted | <input type="checkbox"/> Recording Services |
| <input type="checkbox"/> Employment Offered | <input type="checkbox"/> Instruction | <input type="checkbox"/> Session Player Available |
| <input type="checkbox"/> Employment Wanted | <input type="checkbox"/> Maintenance Services | <input type="checkbox"/> Studios for Sale |
| <input type="checkbox"/> Equipment for Sale | <input type="checkbox"/> Music Products/Software | <input type="checkbox"/> Miscellaneous |

Name _____

Address _____

Phone _____

I am paying by (Check one): VISA MASTERCARD

Card #: _____ Expiration Date _____

Signature: _____

Check or Money Order #: _____ Amount Enclosed: \$ _____

Mail to:

Mix Classified, 2608 Ninth Street, Berkeley, CA 94710
(415) 843-7901

Please attach your classified ad copy on a separate sheet, typed double-spaced or printed out clearly.

Miscellaneous

TRACK SHEETS BOX & REEL LABELS

- Cassette Labels & Inserts
- Drum Machine Sheets
- Alignment Plaques
- Plus many other items

PRINTED WITH

Your Studio Name
Address & Phone

FREE CATALOG

of specialized forms for the
recording & music industries

STUDIOFORMS CO

186 Glen Cove Avenue, Suite 201 / M-20
Glen Cove, NY 11542
(516) 671-1047

SOUNDTRACKS? JINGLES?
MUSIC VIDEOS? Call Syntasy Pro-
ductions, a fully computerized audio/
video/MIDI studio with total interfacing
and digital mixdown. Reasona-
ble rates. (415) 499-5709.

42,375

As of December, 1986, *Mix* had a BPA-audited monthly circulation of **42,375** copies. That's more than the *combined* circulation of *RE/P* and *Pro Sound News*. And 41% of *Mix's* subscribers are owner/managers of businesses. If you're an advertiser, these are significant numbers. For *Mix's* complete BPA audit statement, write to: Advertising Director, 2608 Ninth St., Berkeley, CA 94710.

THE RECORDING INDUSTRY MAGAZINE

Mix

**GET
THE
FACTS
BEFORE
YOU
SPEND**

ADVERTISERS INDEX

PAGE	ADVERTISER	PAGE	ADVERTISER	PAGE	ADVERTISER
191	A & R Record & Tape Manufacturing	196	Denecke	28	Peavey Electronics
226	Acoustic Sciences Corporation (ASC)	159	Dimension	207	The Plant Studios
95	Adams-Smith	82	DOD Electronics	181	Polyline Corporation
228	Advance Recording Products	39	EAR Pro Audio	70	The Pressing Plant
50	Advanced Music Systems (AMS)	89	Editron	203	Pristine Systems
65, 137	Akai/IMC	176	Educational Electronics Corporation (EEC)	182	Producers Tape Service
20	Aircraft Music Library	175	Electospace	201	Professional Audio Services & Supply
131	Alesis	160	Europadisk	109	Pyramid Audio
161	Allen & Heath Brenell	124	Fairlight Instruments	99	QCA Custom Record Pressing
175	Alpha Audio	78	Firstcom	93	QSC Audio Products
111	Alpha Audio Automation Systems	68	Fostex Corporation	205	Rainbo Records
199	American Tape Warehouse	220	Four Designs	50	Ramsa
160	AMP Services	141	Full Compass Systems	182	RCA Test Tapes
33	Ampex Corporation	229	Furman Sound	99	R-Columbia Products
76	ANT Telecommunications	199	Future Disc Systems	172	Reliable Music
119	Apex Machine Company	52	GMI Distributors	113	Research Technology International (RTI)
164	API Audio Products, Inc.	217	Goldline	162	Resolution
103	Apogee Electronics	165	Dick Grove School of Music	167	Rhythm City Music
57	Applied Research & Technology (ART)	127	Bernie Grundman Mastering	41	RolandCorp US
103	Sam Ash Music	119	Hardy Company	58, 59	Royal Recorders
133	Aspen Music Festival	16, 17	Harrison Systems	209	Russian Hill Recording
110	Associated Production Music	23	Hill Audio	235	Howard W. Sams & Company
193	Audio Engineering Associates (AEA)	29	Holophonic Systems	63	Sanken Microphone Company
87	Audio Kinetics	71	Hy James	55	Sennheiser Electronics
60	Audio Media Research (AMR)	221	Hybrid Arts	146	Shure Brothers
135	Audioline	167	Ian Communications	70	Signature Music
84	Aura Sonic	186	Institute of Audio-Video Engineering	97	Simon Systems
47	AVC Systems	49	JBL, Inc.	66, 67	Solar Studios
187	Kenneth A. Bacon Associates	210	Jensen Sound Productions	26, 27	Solid State Logic (SSL)
37	Barcus Berry Electronics (BBE)	110	JRF Magnetic Sciences	244	Soundcraft Electronics
183	Bauer Audio	116	Kahler/APM	233	Soundcraftsmen
51	Biamp Systems	145	Kawai	32	Soundmaster International
44	Bruel & Kjaer Microphones	102	Keystone Printed Specialties	243	Soundtracs
105	Bryston	129	Kurzweil Music Systems	202	Sprague Magnetics
156, 164 & 169	Burlington Audio/Video Tapes	121	Lemo USA	14	The Stocking Screen
197	Caig Laboratories	189	Lenco	209	Stoughton Printing
85	Capitol Magnetic Products	207	Leo's Audio & Music Technologies	186	Stramp USA
148	Carver Corporation	38, 139	Lexicon	34, 35	Studer Revox
115	Carvin Corporation	210	Linear & Digital Systems	163	Studio Consultants
107	Cassette Works	200	Los Angeles Recording Workshop	128	Symetrix
133	Dwight Cavendish Company	132	LT Sound	101	Tannoy
86	Cetec Gauss	112	Manhattan Production Music	122, 123	TASCAM
31	Cetec Vega	202	Marshall Electronics	19	Technical Audio Devices (TAD)
72	Cipher Digital	156	McVee Productions	157	Thoroughbred Music
171	Columbia Video Systems	2, 3	Mitsubishi Pro Audio Group	42, 43	3M Corporation
98	Computer Music Systems (CMS)	127	Music Annex	200	Thrifty Electronics
223	IL Cooper Electronics	112	Musically Intelligent Devices	79	Turbosound
153	Crest Audio	177	National Sound & Video Engineering	62	The United Group
130	CRL Audio	13	Neotek Corporation	166	Valentino
90, 91	Crown International	9, 75	Rupert Neve, Inc.	196	Vertigo Recording Services
159	CSE Audio	10, 11	New England Digital (NED)	177	White Field Studio
143	D & R Electronica	15	Orban Associates	181	Wise Music
73	DDA	7, 140	Otari Corporation	226	World Records
		81	Pacific Video Resources	25	Yamaha International
		166	Peabody Conservatory of Music		

*Affordable
Quality*

FMX SERIES MIXERS



A British company dedicated to the design and manufacture of one of the broadest ranges of mixing consoles in the World. We offer ten individual models in over fifty versions to suit your specific requirements.

The choice is yours.

Exclusive U.S. distributor:

AKG ACOUSTICS, INC.

77 Selleck Street, Stamford, CT 06902

Telephone: (203) 348-2121



**Applications: Sound Reinforcement;
Video Post Production;
4&8 Track Recording;
Broadcast "On Air"; Stage Monitoring.**

**See us at
NAB Booth #2454**

Circle #157 on Reader Service Card

To the crafted picture, a perfect partner.



The Series 200B. Compact and neat, it combines professional audio quality with excellent facilities.

Eight track/monitor returns, four cue sends, four groups, comprehensive monitoring, available sweep equalization and stereo inputs.

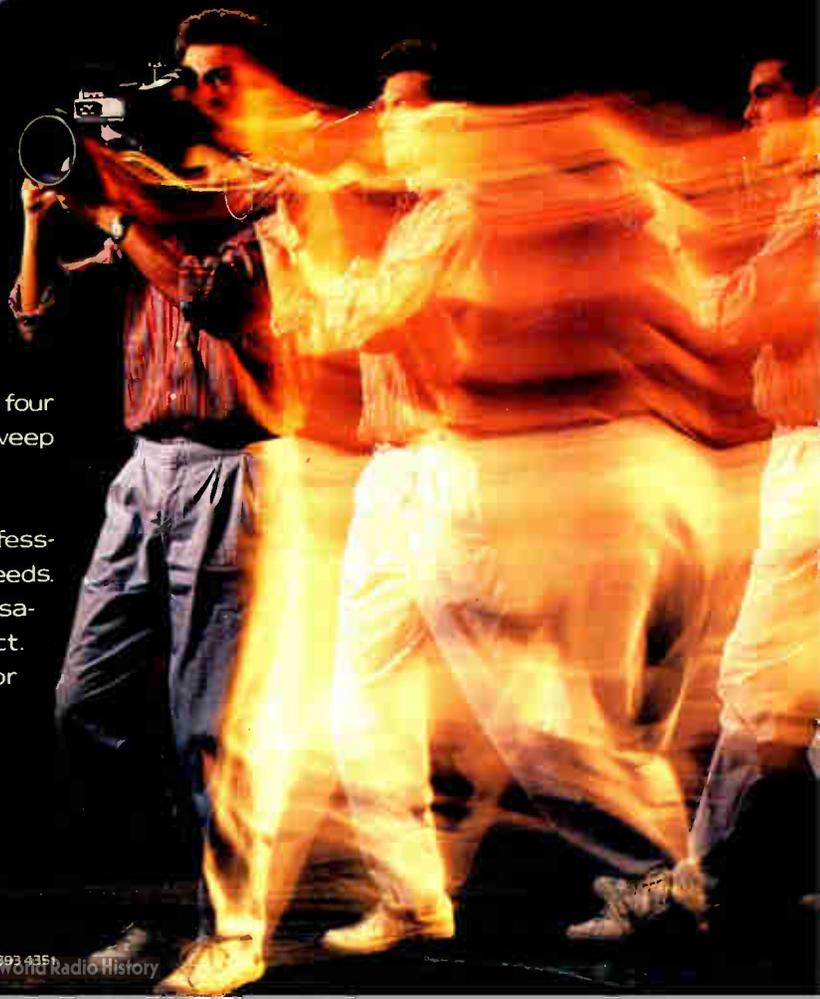
All in a well designed, and logical layout.

It's also highly flexible, enabling the professional engineer to tailor to his own exacting needs.

And it possesses the reliability and versatility that's built into every Soundcraft product.

Series 200B. Classic technology, created for audio quality.

For further information, contact us today.



Soundcraft

PRODUCTION SERIES