

MIDI STUDIOS • ORNETTE COLEMAN • TEC PHOTOS

U.S. \$4.95 CANADA \$5.95 JANUARY 1989

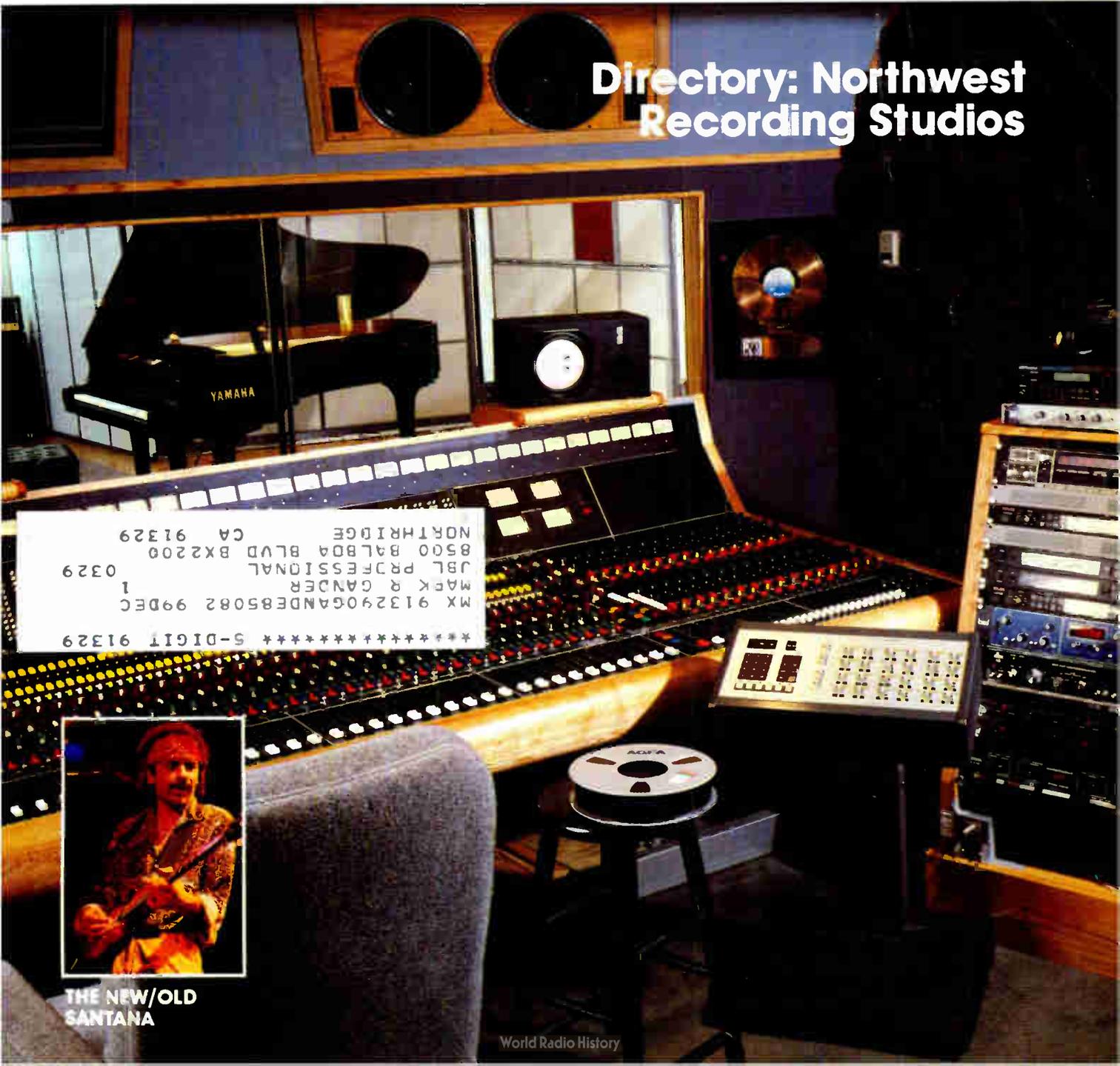
# MIX

## Recording the Classical Orchestra

## The Best New Music Software

### THE RECORDING INDUSTRY MAGAZINE

### Directory: Northwest Recording Studios



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# MIX

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THE RECORDING INDUSTRY MAGAZINE

VOL. 13, NO. 1



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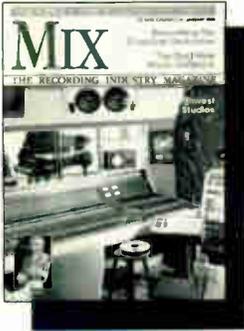
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# FROM THE EDITOR

Founded 1977 by  
David M. Schwartz and Penny Riker Jacob



**Cover:** Studio D Recording, a premier tracking facility in the San Francisco Bay Area, features a Trident TSM console, a Studer A800 multi-track recorder, three large iso booths and a tunable ambient room with 20-foot ceilings. **Photo:** Garry Gay. **Inset photo:** Carlos Santana by Jay Blakesberg.

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Among the many technical innovations and visions of the future presented at the recent AES Convention in L.A., perhaps the most remarkable display was one devoted to a look backward. Featured in the Los Angeles Room of the Hilton was John T. Mullin's collection, "The History of Sound Recording."

As many of you know, John T. "Jack" Mullin brought the first tape recorders into the United States just after World War II. His two "souvenir" German Magnetophons were of immediate interest to Bing Crosby, who used them to record, edit and play back his weekly ABC radio program. Another fledgling business of the day, Ampex Corp., also found the recorders fascinating, and turned its attention toward developing the professional applications of this novelty.

Since that time, Mullin has continued to assemble and document a truly museum-worthy collection of audio recording and reproducing technology. Besides the early Magnetophon, Mullin's collection includes an 1877 Edison Phonograph, an 1896 Berliner Gramophone Disc Player, early wire recorders, home playback systems from the '20s and '30s, Ampex's first professional recorders and a wide variety of early microphones. A walk through this collection gives the visitor a great and unique sense of the history and development of our industry.

And now the bad news. After four days of this glorious display, it was boxed up and stashed back in Mullin's garage. Not that Jack wouldn't like to see this on public display—just that to date no space has been made available for this collection in a protected public environment.

Certainly one of Jack's goals for this AES exhibit was to stimulate the move to a permanent location for these cultural treasures. To address this problem, he and a number of other industry notables have formed SAVET (Save Entertainment Technology), a non-profit organization supporting museums and archives around the world with artifacts, documentation, research services and exhibits on entertainment technology.

SAVET is working to find homes in existing museums and archives for artifact and software collections that would otherwise be lost to students of history and culture. It needs additional support to accomplish this work, however, and is open to contributions of time, artifacts, money and ideas from all interested parties.

For more information on SAVET or the John T. Mullin Collection, you can phone Peter Hammar at (415) 941-0295, or Shelley Herman at (213) 849-4136.

Keep Reading,

A handwritten signature in black ink, which appears to be 'D.M. Schwartz'.

David M. Schwartz  
Editor-in-Chief

# Every sound engineer needs a silent partner.

An investment in a recording console represents a partnership you plan to live with for some time. Which is why the Sony MXP-3000 series console is a sound business decision.

Its design concept is based extensively on sonic performance. Boasting features such as low-noise hybrid amplifiers, gold-plated connectors and large crystal oxygen-free interconnect cables that produce unparalleled sound quality. These ingenious features tell the inside story as to why this console is so quiet. And countless installations tell the outside story as to why this console is so successful.

Of course, sonic performance isn't the only story behind our console. Flexibility is a necessity in the creative recording process, as well. Naturally, the MXP-3000 offers a host of flexible features at an unmatched value.

For instance, you have your choice of five distinct equalizers, and five different channel input modules. Plus, there are many other options available to suit your individual needs. All of which come housed in an ergonomically designed control surface.

For a demonstration of the quietest addition to your control room, contact your Sony Professional Audio representative. Or call 1-800-635-SONY.

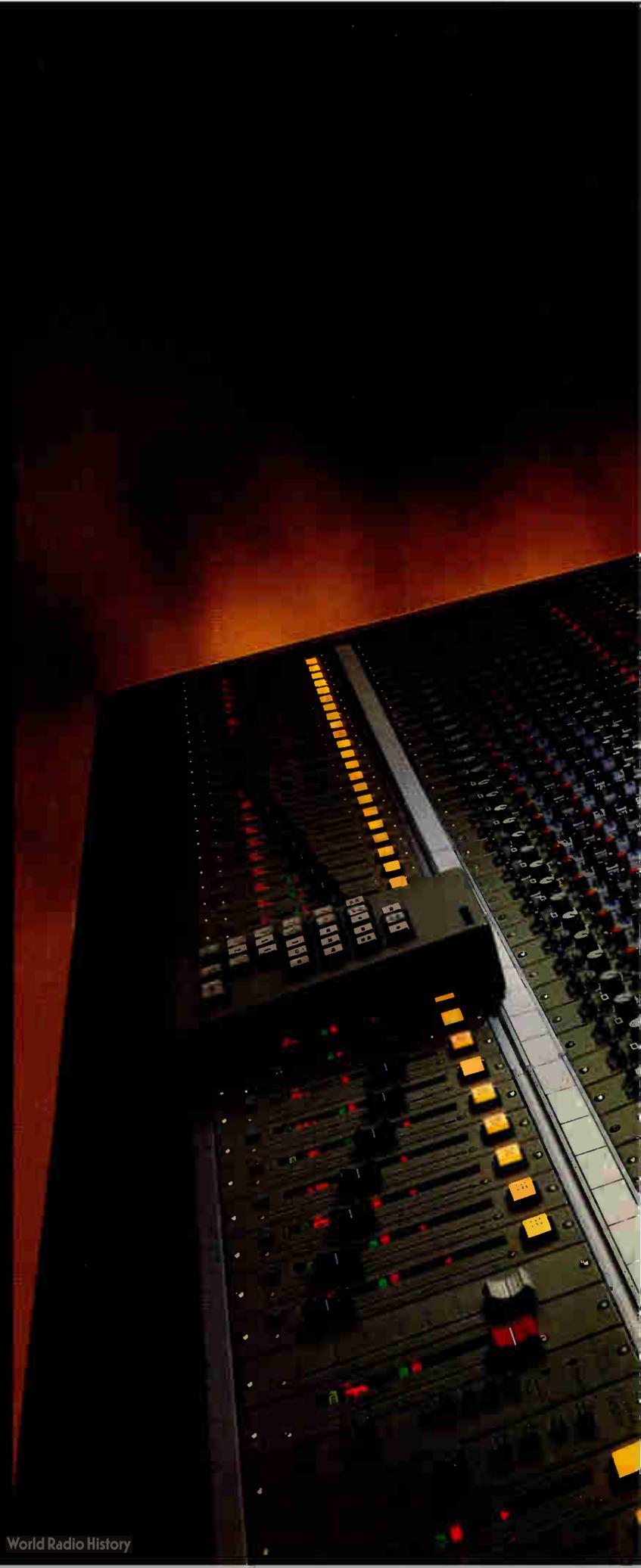
And remember, when you want a quiet mixer to back you, put a Sony MXP-3000 in front of you.

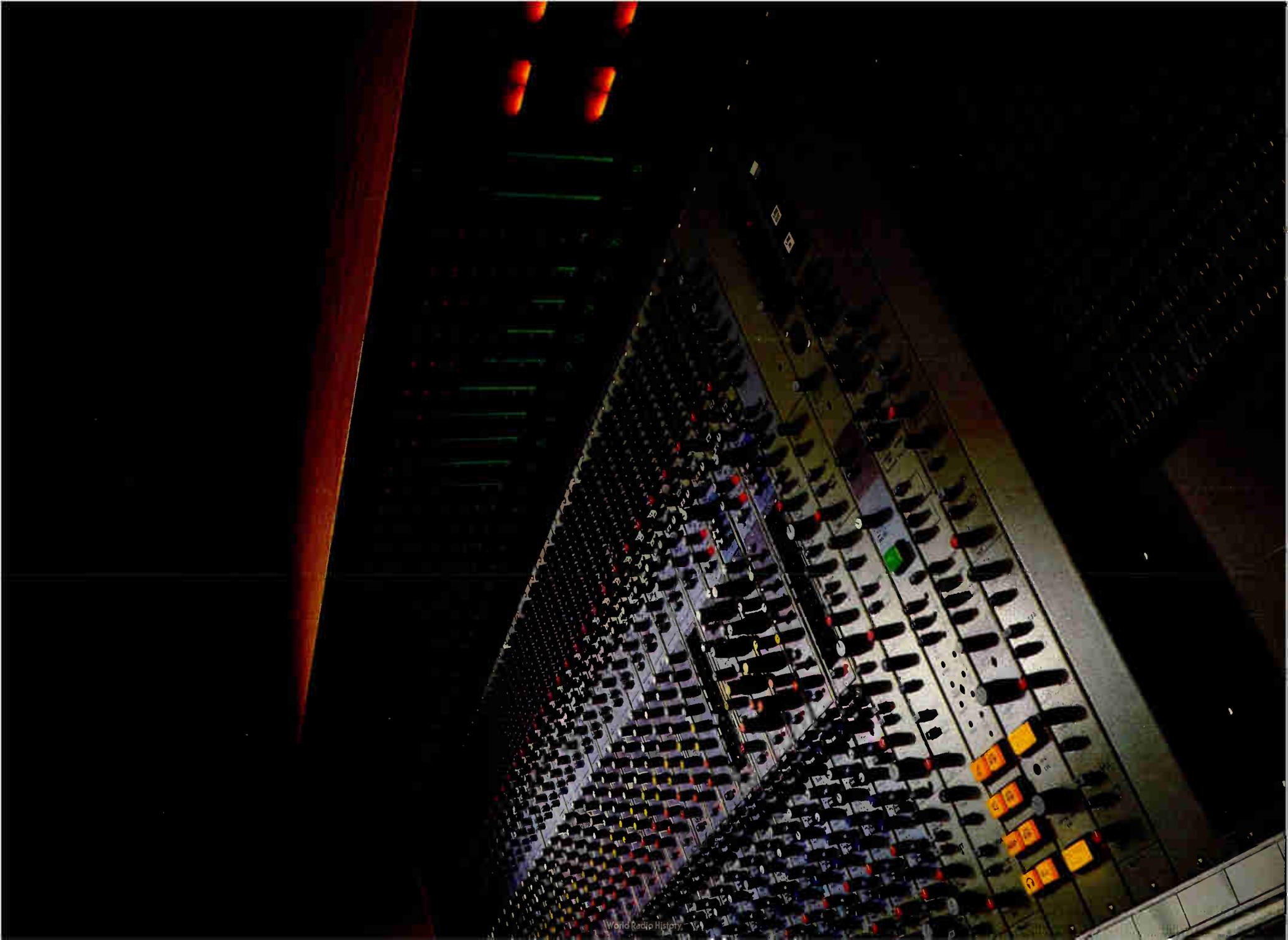
## SONY

Professional Audio

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World Radio History





# CURRENT

## **Intel Acquires DVI Technology**

Intel Corporation, the Santa Clara-based microcomputer systems manufacturer, has purchased the Digital Video Interactive (DVI) technology venture from General Electric Company with the express aim of speeding up the commercialization process of interactive, full-motion digital, multimedia programming. To date, DVI has been available to selected beta site customers only.

"It's time to start the process of bringing DVI technology from the lab to the marketplace," says Dave House, Intel's senior vice president and GM of the Microcomputer Components Group. Companies should begin announcing DVI-based products in the first half of 1989, including applications software and board and chip sets.

Developed by GE RCA at the David Sarnoff Research Center, Princeton, New Jersey, the DVI standard was first introduced to the public in early 1987. Its ability to produce more than one hour of full screen, full-motion digital audio/video from data stored on a standard CD-ROM disc, marks a significant advance in the transmission of image data.

Producing digital video requires huge amounts of data storage. When a standard screen of analog video measuring 512 x 400 pixels is converted to digital form, the information takes up about 600 kilobytes of data per image, per frame. (CD-ROM, for example, can store only about 30 seconds of digital video.) DVI increases data storage through a patented compression/decompression scheme, which squeezes audio/video information into fewer bits during the mastering process, then enlarges the data during playback to capture the original audio/video qualities.

DVI's motion video can be combined with still images, foreground video images, text, dynamic graphics and multi-track audio, all manipulated by the user. The integration process makes DVI ideal for training simulation applications in the business, government and educational markets, three of Intel's initial target users. With an IBM PC AT and a few boards, DVI should be available for the home by mid-1989.

Intel has outlined a three-step program for bringing DVI technology to the consumer. By 1990, the company expects to bring out low-cost, highly integrated DVI products based on a new Intel DVI chip set. For more information, contact Intel Corp. at (800) 548-4725, or (408) 765-4758 from outside the U.S.

## **American Recording Orchestra Debuts**

A career in classical music usually involves fighting it out for rare opening spots in a major symphony orchestra. Few graduating students consider a career in recording, or other options that might be available. Sensing a need for top students to become involved with music beyond the competition for seats, composer Patrick Williams has helped create a new musical organization known as the American Recording Orchestra at Duke.

Each summer, 90 college-age musicians will assemble at Duke University for four weeks of performing and recording a great variety of American music, using state-of-the-art digital technology. Students will be led by some of the finest instructors, composers and artists in the professional world. Already the Board of Advisors and Directors includes Quincy Jones, Alan and Marilyn Bergman, Henry Mancini, Phil Ramone, John Willi-

ams and Humberto Gatica, among others.

The idea for bringing together novice and professional is based on a concept used by the late maestro of the Philadelphia Orchestra, Leopold Stokowski, in his pioneering work with the "Youth Orchestra."

For more information, contact Bobbi Marcus at (213) 479-2001.

## **RIAA Announces 1988 Six-Month Figures**

The Recording Industry Association of America, Inc. (RIAA) announced sales figures and total recorded units shipped for the first half of 1988. The dollar value of U.S. manufacturer net shipments of pre-recorded discs and cassettes was up 18%; total number of units shipped increased by 11% over the same six months in 1987.

Sales of the new cassette single format rose by 547% over a year ago, while standard cassette units sold increased by 11%. Compact discs were up 64% in units sold, but only 47% in dollar volume, as sale prices across the country began to drop. The 3-inch CD single, introduced in early 1988, accounted for 435,000 units shipped and \$2.9 million in sales. Unit sales for LPs were again down, 22.4%.

A total of 364.4 million units were shipped from January to June 1988, accounting for \$2.96 billion in sales at suggested retail price. This compares to 329.3 million and \$2.51 billion for the first six months of 1987.

## **Correction**

In the December issue of *Mix*, the listings cover photo should have identified the facility as Session Masters. ■



## THE NEXT "WORKHORSE."

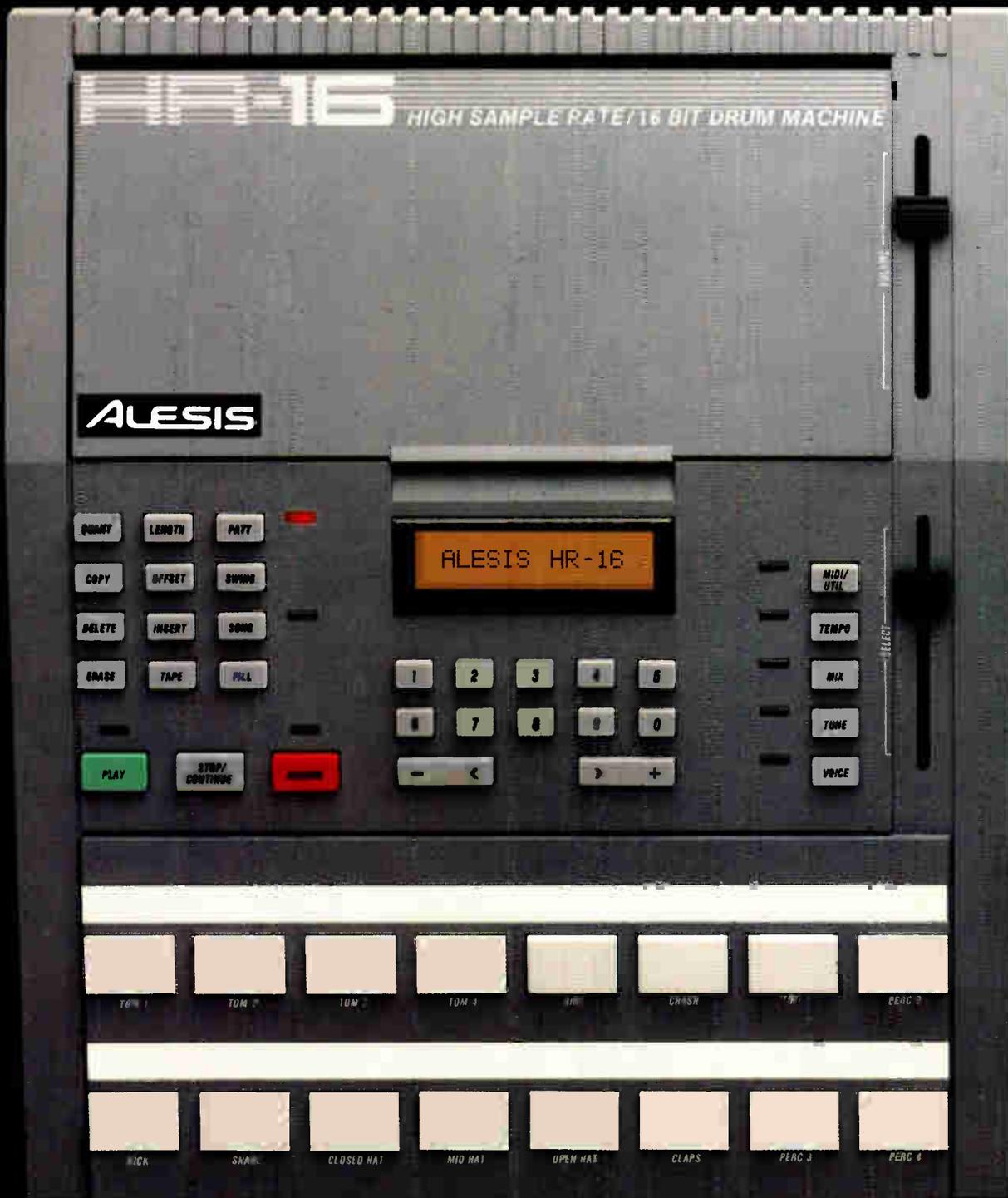
© Otari 1988 \*Gapless, seamless, punch-in, punch-out is available only on some MX-55 models (GSPiPO is a trademark of Otari Corporation)

Before you take us to task for trying to improve the B1, a design that has become the "workhorse" standard for two-channel audio machines, consider what the new MX-55 offers:

An integral autolocator; a voice editing mode that allows 2X speed playback at normal pitch; a built-in cue speaker; GSPiPO (gapless, seamless, punch in, punch-out),\* and because you told us you wanted it, *all* adjustments are available through the front panel! These, and many more improvements will help make your job easier, and the results more creative.

And for those of you who still won't forgive us, we're keeping the B11 in the line. So either way, you can get exactly what you need from Otari Technology You Can Trust. Call Otari at (415) 592-8311 for information about the new MX-55.

**OTARI**



# 100% Real.

It's true. Nothing sounds like the Alesis HR-16 Digital Drum Machine. Except real drums.

16 Bit technology. Incomparable 20kHz frequency response. No wonder the music press calls the HR-16 "staggeringly realistic".\* There's plenty of kicks, snares, toms, hi-hats, cymbals... and a bunch of percussion and rhythm toys. 49 sounds altogether. All tuneable and touch sensitive. Each one unique and dripping with personality. Record-quality sounds. 100% real. And, you can combine them endlessly.

Own a drum machine already? Put it in the drum machine museum. Permanently. The HR-16 is the one you wish you had anyway. And it's so affordable you can buy two. You know you want real drums. So go ahead, get the Alesis HR-16. The industry standard. The 100% real choice.

\*David Crogger in Home and Studio Recording  
Circle #157 on Reader Service Card

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OFFICES, 19725 Sherman Way, Suite 160, Canoga Park,  
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# INDUSTRY NOTES

**Harrison Systems, Inc.** of Nashville has added new executive offices to house its administrative, sales and engineering departments. Same address. Same phone... Burbank, CA's **Stephen Paul Audio, Inc.** has been named official dealer for **Neumann** and **Sanken** mics. Service is now available on the West Coast, and the staff has expanded to meet the demands of a larger clientele... **Nakamichi Corporation**, Tokyo, recently purchased **Mountain Computer, Inc.** of Campbell, CA, for \$45 million. The acquisition brings together two suppliers of tape drive equipment, and allows for a strategic alliance with **California Peripherals, Inc.** (CaliPer), exclusive OEM distributor for Nakamichi's computer peripheral products... **Integrated Media Systems, Inc.** has moved from San Carlos, CA, to nearby Menlo Park. New address: 1370 Willow Road, Suite 201, Menlo Park, CA 94025; (415) 326-7030, FAX (415) 326-7039... **Klark-Teknik Electronics, Inc.**, Farmingdale, NY, has been named exclusive U.S. distributor for **Milab** microphones, with all sales and service handled through the home office... **Ralph H. Justus** recently began a three-year term as president of the **Institute of Electrical and Electronics Engineers' (IEEE)** Broadcast Technology Society, the world's largest scientific/engineering society with over 280,000 members in 130 countries... More acquisitions. **Dallas Post-Production Center** recently purchased **Spindletop Productions, Inc.**, also of Dallas, in order to expand its editing and tape duplication services. Spindletop brought along some major advertising accounts, including Pepsi-Cola, Ford, Chrysler and McDonald's... Salt Lake City-based **Centro Corporation** will serve as systems integrator for Toronto's **Dome Productions** to provide sound and television capabilities for the new **Toronto SkyDome**, scheduled for completion in May... The **Electro-Voice** engineering department has moved to new R&D quarters at 128 Front St., Buchanan, MI 49107, about four blocks from the parent facility. Also at E-V, **Bill Mul-**

**lin** has joined the company as market development manager, and upper management has restructured to plan future growth and maintain responsibility for operations. **Paul McGuire**, VP of marketing, will head a team consisting of himself, **Roger Gaines** and **Alan Watson**... **Bill Porter**, a University of Colorado-Denver assistant professor of music, is the first person to be inducted into the *Absolute Sound* magazine Hall of Fame. Porter developed the nation's first university audio recording program... **Lee Bartolemei** has been promoted to regional manager at **Digital Audio Research's** newly relocated U.S. headquarters. Address: 6363 Sunset Blvd., Suite 802, Hollywood, CA 90028; (213) 466-9151. **Jennifer Phillips** has joined the company as sales associate... **Synergetic Audio Concepts**, Norman, IN, will be hosting two workshops in the L.A. area in January. **Concert Sound Reinforcement** will be held January 17-19 and **Grounding, Shielding & Installation** on January 27-29. For more info, call (812) 995-8212... **Phillip A. Phelon** has been named executive vice president of Minneapolis-based **Telex**... **Kenjiro Takayanagi**, television pioneer, developer of the two-head helical-scan VTR and supreme adviser at **JVC**, was made an honorary member of **The Society of Motion Picture and Television Engineers**, the group's highest honor. Takayanagi is the first man of Japanese descent to receive the honorary title. Also at JVC, **Michael Gutman** has been appointed national sales and marketing manager at **JVC Company of America**, Elmwood Park, NJ... **Celco Incorporated** of Farmingdale, NY, lighting division for Klark Teknik, has formed a new division: **Elektralite**. **Vincent Finnegan** was named national sales manager... **Scott J. Wojahn**, a producer/composer, and **Meredith Edelman-Raffel**, account rep, have joined **Sound Images** of Cincinnati, OH... **Local 802** in NYC reached a three-year collective bargaining agreement with **AFM** and the management of the **New York Philharmonic Society**. ■

# Why the world's top studios overwhelmingly choose Mitsubishi digital

Of the top studios in Los Angeles, Nashville, New York and London, the overwhelming choice for digital is Mitsubishi. Why? Because the vast majority of top producers insist on Mitsubishi for their digital work. And why is that? Because Mitsubishi sounds best.

Mitsubishi machines make digital recording profitable for the studio owner. They attract more and better clientele—and command higher rates. Plus they're more productive and more reliable in professional recording applications.

## New X-880 32-channel digital

Mitsubishi's new X-880 is smaller and lighter thanks to LSI technology. It uses less power and runs quieter. It's our *third* generation multi-track (we've been at this longer than any-one). And it's fully compatible with X-850 recorders, so you'll be compatible with most other top studios.

All the features of its predecessors are here and more, including improved design auto-locator and a sample accurate chase synchronizer option for 64-track lockup.

Call for a brochure or demonstration in your studio.



## MITSUBISHI PRO AUDIO GROUP

DIGITAL ENTERTAINMENT CORPORATION  
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# SESSIONS AND STUDIO NEWS

## SOUTHEAST

The mixdown of **John Stewart's** latest LP was recently completed at **Soundtrax Recording** in Johnson City, TN. . . Nashville's **Sound Emporium** reports that producer **Garth Fundis** and engineer **Gary Laney** were cutting tracks for **Don Williams'** new release on RCA. . . Windham Hill recording artist **Scott Cossu** completed tracks for his new LP with producer **Dave Valentin** and engineer **Mark Williams** at **Reflection Sound Studios** in Charlotte, NC. . . From Yorktown, VA, comes word that producer **Kim Person** is producing an album at **Wistaria Recording Studio** for pianist/composer **Cathy Combs**. . . Artist **Judy Rodman** has been working with producer **Tommy West** and engineer **Gene Eichelberger** on the mix for her new MTM release at **The Bennett House Studios** in Franklin, TN. . . At **Memphis Sound Productions**, Virgin Records artist **Rocky Hill** was working on his next album with producer **Bill Ham**. Engineers were **Michael Hutchinson** and **Dan Pfeifer**, with assistance from **John Fleskes** and **The Jammer**. . . **Jim Dickinson** and **Danny Green** have been co-producing tracks for a new album by blues great **Albert King** at **Kiva Recording Studio** in Memphis. **Pat Taylor** and **Danny Jones** are engineering the project. . . At **Criteria Recording Studios** in Miami, FL, rap artists **2 Live Crew** were recently mixing a remake of "Yakety Yak" for an upcoming motion picture. Producing was **Luke Skywalker**, with **Ted Stein** at the faders. . . Also at Criteria, **Pia Zadora** has been working on tracks written and produced by **Miami Sound Machine** and **Emilio Estefan**. Engineering the dates were **Patrice Levinsohn** and **Eric Schilling**. . . **The Radiators** mixed their next album for Epic at **Cheshire Sound Studios** in Atlanta, with **Rodney Mills** producing and **Lewis Turner Padgett** at the

console. . . Nashville's **Music Mill** reports that **David Briggs** was in mixing tracks with engineers **Jim Cotton** and **George Clinton** for artist **Larry Boone's** upcoming PolyGram album. . . At **Musiplex** in Atlanta, **Glenn Phillips** recorded tracks for his next album with engineering help from **George Pappas**. . . **Flood Zone Studios** in Richmond, VA, reports completing tracks for **Rock For Life**, a compilation album of 12 area bands, produced by **Bruce Olsen** and engineered by **Olsen** and **Karl Eriksson**. Proceeds from record sales will be donated to research on AIDS. . . Warner Bros. artist **Beth Chapman** was at **AMR Studios** in Nashville working on overdubs with producer **Jim Ed Norman** and engineer **Eric Prestidge**. . . **Mitchell Stewart** was at **Soundshop Recording Studios** in Nashville with engineer **Mike Bradley** to record an album with **Danny Harper**. . .

## NORTHEAST

**Robbie Norris** assisted producer **Eric Thorngren** on the production of **Debbie Harry's** new album at **Quad Recording Studios** in New York. . . **Fastbreak & Supreme** have recorded their first single for Kellyn Records at **Stardust Recording Studios** in Upper Montclair, NJ, with **EZLAB** producing and **Ed Lotwis**, **Kevin Hedge** and **George Louvis** engineering. . . **Studio 4** in Philadelphia reports that producer **Bill Whitman** has been working with RCA artist **Rob Jungklas** on his next album. **Jim Hinger** has been engineering. . . **Bruce Nazarian** has been using the Synclavier system at NYC's **Planet Sound** to engineer **Anita Baker's** new Elektra LP. . . Producer/songwriter **Raymond Jones** was at **Right Track Recording Studio** in NYC to mix "Bedroom Eyes" for **Kate Cebrano's** upcoming London Records album. . . **Lou Reed** recently completed an album for Sire Records, with assistance from co-

producer **Fred Maher** at New York's **Mediasound**. **Jeffrey Lesser** engineered and **Victor Deyglio** assisted. . . Canadian rockers **Syre** have been working on their debut LP at **The River** in Fort Erie, Ontario. Production chores are being handled by **Ed Stone**. . . **Peter Denenberg** has been engineering on a new album by trumpeter **Jeff Beal** for Island Records at **Acme Studios** in Mamaroneck, NY. Producing are **Beal** and **Jean-Pierre Weiller**. . . Guitarist **Gene Marchello** was at **Rockin' Reel** in East Northport, NY, working on his forthcoming CBS album project. The LP was produced by his father, **Peppi Marchello**, and engineered by **Dave Greenberg**. . . Engineer/producer **William Garrett** and producer **Anton Fier** are currently recording a new LP with the **Golden Palaminos** at **Platinum Island** in NYC. Garrett recently won the Producer of the Year award at the 1988 Boston Music Awards. . . The score for **Alan J. Pakula's** new film, *See You in the Morning*, was recorded at **The Edison** recording studio in New York. Recording and mixing the 40-piece orchestra's performance was chief engineer **Gary Chester**. . . In New York, **Gene McFadden** and **Sue Fisher** are working with **Sunset Productions** studio owner **Ben Tao** on tracks for artists **Eric Gable** and **Greg Willis**. . . **Randy Ezratty** and the crew of New York-based **Effanel Music** followed Amnesty International's tour to its final stop in Buenos Aires, Argentina, to capture the event for HBO's *World Stage* series. . . **Prince** and **Sheila E.** were recently heard recording tracks at **Omega Studios** in Rockville, MD, with Omega's **Bill Brady** assisting. . . **Wayne Horowitz** was at **Baby Monster Studios** in NYC producing pianist **Robin Holcomb's** new album. **Steve Burgh** engineered. . . **Hugh Masekela** is finishing up tracks for an upcoming release at New York's **Evergreen Recording**. Joining forces with Masekela are engineers **Lance McVickar**,

**Cynthia Daniel** and **Dave Dachinger**, and old frat buddies, producer **John Cartwright** and sax player **Morris Goldberg** . . . The latest artist produced by **Terry Lewis** and **Jimmy Jam** at New York's **Ready Or Not Productions** is **Lori-Lori** . . . **Richard Gottehrer** was at **Skyline** and **Platinum Island Studios** in New York to record and mix a single for **Zette** . . . In at **Quantum Studios** in New York mixing the finishing touches off her newest album was CBS recording artist **Constina**. Producing was **Reggie Lucas** and engineering was **Doc Dougherty**, assisted by **Bill Klatt** . . . In another New York session, producer **Lenny Kaye** was recently at **Sound On Sound Recording** with Rhino artist **Cindy Lee Berryhill** tracking and mixing for her next release. **Knut Bohn** was engineering with **Peter Beckerman** assisting. . .

## NORTHWEST

Seattle's **Steve Lawson Productions** recently booked its 10,000th session, which involved original music composed by **Carol Howell** for Bon Marche department store TV spots. . . **The Steeve Ray Gunn Band** has finished recording its first album at **Bullfrog Studios** in Vancouver, B.C., with engineering help from **Gerry Gagnon** and **Gordon Booth**. . . In other news from Vancouver, **Inside Trak Studios** reports **Doug Johnson** of **Loverboy** fame was recently in the studio mixing songs with **Kick Axe's** lead vocalist, **George Christianson**. **Dave Slagter** was at the console with **Lisa Barton** assisting. . . **Deyong Sound Services Ltd.** recently completed a 24-track mobile recording of an **Amnesty International** concert in Vancouver, featuring a variety of local artists. Engineers for Deyong were **Ric Walkington** and **Darwin Lemay**. . . Producers **Thomas McElroy** and **Denzil Foster** have been working with engineer **Ken Kessie** on a new **Sharon Bryant** album at **Starlight Sound** in Richmond, CA. . . **Peter Buffett** is currently working on his second LP for the Narada Mystique label at **Independent Sound** in San Francisco. . . Producer **Kent Nelson** was at **Granny's House** in Reno with engineer **Scott Spain** to lay rhythm tracks for a debut solo album by **Rob Quist & The Great Northern Band**. . . **Will Ackerman** and **Cookie Marengo** produced a digital Christmas album featuring a host of Windham Hill artists at San Francisco's **Different Fur Recording**. **Stephen Hart** engineered and **Mark Slagle** assisted on the project. . . **The Doobie Brothers** were

recently in at **The Plant Recording Studios** in Sausalito, CA, working on their Capitol Records release scheduled for March with producer/engineer **Rodney Mills** and assistant **Devon Bernardoni** . . . **Sonny Boy & The Real McCoy** recently finished their new single at **Tiki Recording Studios** in San Jose, CA. . . **Jet Red** has completed basic tracks at Sausalito's **Studio D** for an upcoming album on Relativity Records. **Brian Foraker** handled the production and engineering with **Jim "Watts" Vereecke** assisting. . . In Santa Rosa, CA, recent session activity at **Banquet Sound Studios** included harpist **Georgia Kelly** and guitarist **Dusan Bodganovic**, working on their latest album project for Global Pacific/CBS. **Warren Dennis** was at the console. . . **Chris Isaak** is currently working on his new Warner Bros. album at San Francisco's **Dave Wellhausen Studios** with producer **Erik Jacobson** and engineer **Mark Needham**. . .

## NORTH CENTRAL

Gospel singer **Andrew Butts** recently finished mixing his latest effort at **Audio Recording** in Cleveland, with engineering help from **Bruce Gigax**. . . **Tamara** was in at Chicago's **Tone Zone** laying tracks for a new EP release. **Roger Heiss** engineered the sessions. . . Recent activity at Chicago's **Sparrow Sound Design** includes a direct-to-digital classical guitar project by artist **Paul Henry**. . . Virgin Records act **Innecity** used **Pearl Sound Studios** in Canton, MI, to mix their latest effort with producer **Kevin Saunderson** and engineer **Ben Grosse**. . . Recent recording activity at **Pinebrook Studios** in Alexandria, IN, included completion of a children's album by **Sandi Patti**, produced by **Greg Nelson**. . . Word from Chicago's **Paragon Recording Studios** is that producer/songwriter **Chip Douglas** and engineer **George Warner** were recording tracks for **The Monkees'** next album. . . **Seagrape Recording Studios** in Chicago saw mariachi singer **Ishmael Rodriguez** cutting vocal tracks for his forthcoming album, with engineering assistance by **Tommy White**. . . Blues sax virtuoso **Abb Locke** was at **Soto Sound Studio** in Chicago with producer **Gerald Simms** to add overdubs on his latest album. . . **The Ruby Star Band** has been recording its new album for Emotion Records with engineer **Joe Tortorici** at **Opus Recording** in Gurnee, IL. . . At **Seller Sound Studio** in Detroit, producer **Gary Spaniola** remixed and engineered the debut release by **Erica Smith**. . .

## SOUTHWEST

**Wayne Watson** completed his new album for Dayspring Records at **Rivendell's** 48-track facility in Houston. **Paul Mills** assisted Watson on the project. . . **L. E. McCullough** used the engineering and producing talents of **Tim Stanton** at **Tim Stanton Audio** to mix his latest album of eclectic Celtic woodwind music. . . Christian band **Mirror Image** was at **Inside Track Studios** in Denton, TX, cutting its new album with engineer **Jim Vincent**. . . At Dallas' **Future Audio**, producer **Randy Wills** has completed work on an audio-for-video project for the University of Oklahoma centennial, with engineering help from **Doug Phelps**. . . Dallas-based **Omega Audio's** remote facility traveled to **Tipitina's Club** in New Orleans for a live record album project with Blacktop recording artists **Anson and the Rockets** and **Nappy Brown**. The live date was produced by **Hammond Scott** and engineered by **Mark Bingham**. . . In other news from Dallas, **Safety In Numbers** has begun work on a new album at **Crystal Clear Sound**, with **Keith Rust** and **Ernie Myers** producing. . . **Loaded Gunn** recently shot through **Planet Dallas** and will soon be coming out with an EP engineered by **Rick Rooney**. . .

## SOUTHERN CALIFORNIA

Producers **L.A. Reid** and **Babyface** are back in at **Elumba Recording Studio** in Hollywood doing several dance remixes for MCA, including "The Lover in Me" by **Sheena Easton**. . . **Cheap Trick** recently beamed aboard **The Enterprise Studio B** in Burbank with the producer/engineer team of **Richie Zito** and **Phil Kaffel** to mix a new version of the **Beatles'** "Magical Mystery Tour" for the soundtrack on an upcoming film. . . **The Captain & Tennille** have been working on their new album at **Rumbo Recorders** in Canoga Park. . . **Alan Holdsworth** was at Hollywood's **Paramount Recording Studios** producing basic tracks and vocals with **Kurt James**. **Larry Goetz** did the engineering and **Tim Johnson** assisted. . . Warner Bros. artist **Morris Day** has been mixing a new single with producer **Michael Moore** and engineer **Fred Howard** at **Skip Saylor Recording** in L.A. . . **The Blue Hearts** mixed an upcoming album at **Lahaina Sound Recording Studio** in Maui, HI, with **Eddie Delana** at the console assisted by **Dave Russell**. . . **Uncle Bill Crawford** was completing

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two albums at **Hit City West** in L.A. with producer **Taale Rosellini**. **John David Hiler** assisted engineer **Kevin O'Connor**. . . Producer **Keith Forsey** and engineer **Dave Concors** have been working with **Billy Idol** on his new album at **Track Record Inc.** in North Hollywood. . . U2 has been in **Summa Music Group's** Studio A mixing a live version of "Love Rescue Me" with **Keith Richards**, **Ziggy Marley** and engineer **David Tickle**. . . Producer **John Purdell** and engineer **Duane Baron** were mixing **Berlin's** latest LP for Warner Bros. at **Smoketree Productions** in Chatsworth, CA. . . **El DeBarge** came in to **Larrabee Studios** in L.A. to mix a version of "Real Love" for Motown with engineer **Taavi Mote**. . . At **Westlake Audio** in Los Angeles, MCA artist **Stephanie Mills** was laying down tracks with producer **Angela Winbush** and engineer **Dennis Stefani**. . .

## STUDIO NEWS

**Dan Alexander** has purchased **Coast Recorders** in San Francisco. One of three U.S. studios designed by **Bill Putnam**, the three-room complex has been a major ad agency studio since the early '70s. Alexander intends to upgrade the facility and

equipment and retain the current staff. . . **Interlok Studios** in Los Angeles has opened a second room, equipped with a Soundcraft Series 3B console, specifically designed for film and television audio work. . . New equipment at the recently expanded **DRC Recording Studio** in Springfield, IL, includes a Tascam MS-16 recorder with dbx noise reduction and MegaMix automation. . . **TRC Studios** in Indianapolis has upgraded Studio B to a film/video mix room. Centerpiece of the upgrade is an MCI JH-110 1" video layback machine. . . A second Neve V Series console was recently installed at Hollywood's **Baby 'O Recorders**. Neve reports additional V Series console installations at **Master Sound Astoria** in Queens, NY, **AD Productions** in Milwaukee, **Sigma Sound Studios** in NYC, Chicago's **Streeterville Studios**, and **The Burbank Studios** in Hollywood, site of the largest Neve console ever shipped to North America. . . Two Toronto studios have added Mitsubishi equipment to their arsenals. **Evolution** has acquired a 32-input Mitsubishi Westar console to integrate with its X-850 32-channel digital recorder, and **Phase One Recording Studios** boasts an X-850 digital 32-track and an X-86 digital 2-track to mate with its SSL 4000E

board. . . New York's **Skyline Studios** recently announced the opening of its third 24-track room, a MIDI-equipped suite with a 36-input, 2500 Series Amek console. . . **Fortunate Sun Studio** in Honolulu has upgraded its facility to 24 tracks with the installation of a new Otari MX-80 recorder. . . **Triad Studios** in Redmond, WA, has completed major expansion, which includes the installation of a 52x24 Mitsubishi Westar console in Studio A, and a 36x24 NEOTEK Series IIIC board with Diskmix moving fader automation in Studio C. . . In New York City, **D&D Recording** has just added an MCI 24-track recorder and an Amek TAC Scorpion to its MIDI room. . . **The Music Annex** has equipped its San Francisco studio with a New England Digital Postpro direct-to-disk digital multi-track recording system. . . **MIDI Productions** in Skokie, IL, has recently installed a spate of new equipment, including two Lexicon LXP-1 effects processors with MRC remote control and three Yamaha DMP7 automated mixing consoles, controlled by *DMP7 Pro* running on a Mac II. . . Toronto's **Eastern Sound** announced acquisition of a Neve V 60 console with integral Necam 96, and installation of the automation system in its existing Neve boards. . . **Coupe Studios** in Boulder, CO, has upgraded its facility with an Otari MX-80 24-track recorder. . . **Soundwave Inc.** of Washington, DC, recently added a new video sweetening room, featuring a Studer A810 multi-track machine and an Audio Kinetics Eclipse edit controller. . . **Roy and Marina Kamen** have announced the opening of their new studio complex, **Kamen Nightline Recording Studios**, in the heart of NYC's music district. The facility includes two 24-track rooms and an 8-track MIDI suite. . . **New York Audio Productions** has completed renovation of its Manhattan studios with the installation of a 16-input TAC Scorpion. . . An MCI JH-114 is the centerpiece of an upgrade to 24 tracks at **Maxwell/Sound** in Athens, GA. . . The **Sunset Marquis Hotel** in West Hollywood has announced the opening of an in-house, state-of-the-art recording studio and post-production facility. The highlight of the studio is a Synclavier Digital Audio System. . . Well-known sound engineer **Mark Pinske** has opened **Professional Media Services, Inc.** in Gainesville, FL. The new facility has been designed around the Sony PCM-3324 digital multi-track recorder. . . **Forge Recording Studios, Inc.** in suburban Philadelphia has added a complete line of Sony CD premastering and digital editing equipment to its 24-track digital room. ■

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by Ken C. Pohlmann

# DAT TECHNOLOGY

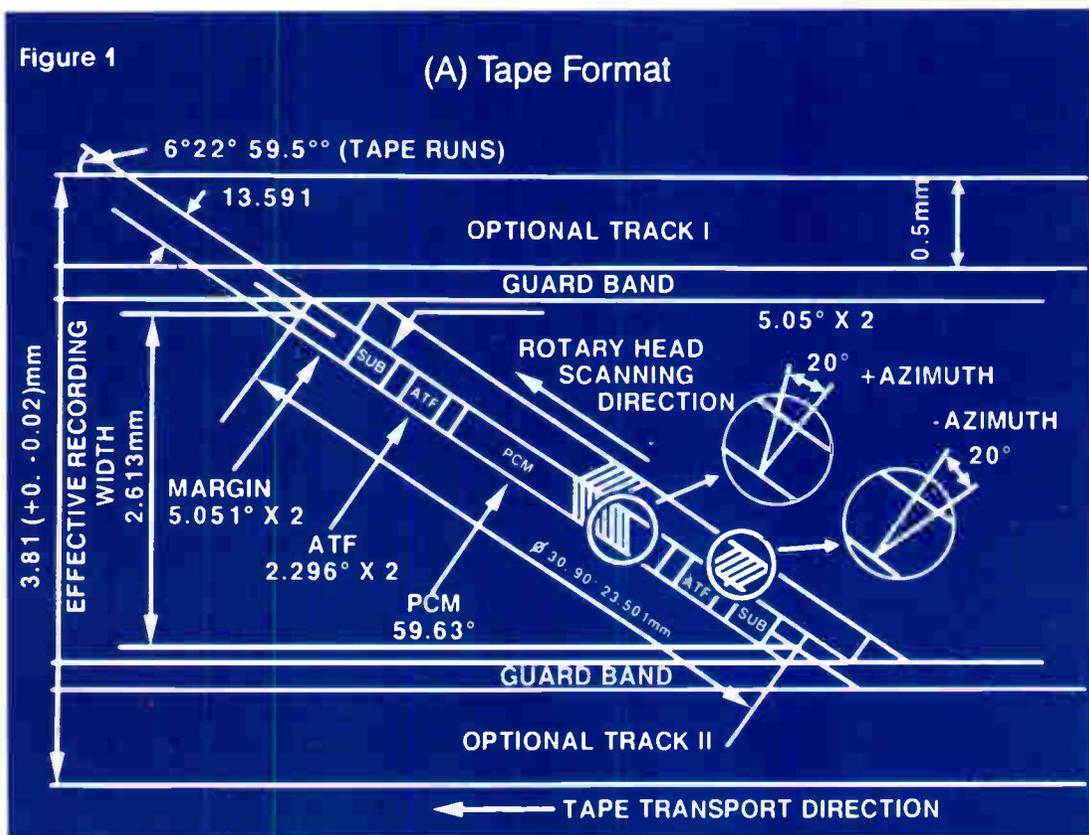
**PART I**  
At last, it is safe to say that DAT is here to stay. After literally years of tentative announcements, political infighting and even technological troubles, the digital audio tape format has emerged as a rapidly growing recording medium. In particular, the professional engineer has found much to love in this compact, convenient format. DAT appears to successfully marry the analog cassette with the compact disc, providing a near-ideal storage medium for a variety of applications.

Clearly, DAT will become increasingly important in our lives. For that reason, "Insider" thought it was high

time to provide a detailed tutorial on DAT, explicitly stating its technological abilities and limitations, and even imparting enough know-how to aid in that not-too-distant time when—yes—your DAT breaks. This month, and for several months to come, let's explore the ins and outs of DAT.

Digital audio tape is the first *mass-market* digital audio recording format made available to the consumer. Similar to a videocassette recorder, it employs a rotary head. Because it borrows technical solutions from video head and tape technologies, DAT provides the wide recording bandwidth needed for PCM digital audio storage.

**Figure 1: The DAT tape format utilizes a rotary head that lays PCM audio and subcode data in a track that is only 13.591  $\mu\text{m}$  thick—roughly one-tenth the thickness of a human hair.**





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## AMPEX

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The technical specifications of the format have been standardized by the Electronics Industry Association of Japan (EIAJ), ensuring compatibility between manufacturers. Work on DAT began in 1981, followed by demonstrations of prototypes. Eighty-one companies formed the DAT Conference in June 1983, during which R-DAT (rotary head) and S-DAT (stationary head) formats were examined. In August 1986 the Conference announced the completion of the R-DAT standard. Since its introduction in March 1987, the R-DAT format has become known simply as DAT.

In the DAT format, the analog audio signal is recorded and played back with pulse-code modulation. As with any digital audio recording, wide dynamic range, low distortion, high signal-to-noise ratio and low wow and flutter are facilitated. However, the operation of DAT is a great deal more sophisticated than other recording media. In fact, several of its features are unprecedented in audio recording technology.

The DAT format supports playback of three sampling frequencies: 32 kHz, 44.1 kHz, and 48 kHz. To discourage home taping of prerecorded digital media, consumer DAT decks will not record at 44.1 kHz. This sampling frequency is reserved for playing back prerecorded DAT tapes. Professional DATs, of course, can record at 44.1 kHz. Because DAT decks have digital inputs and outputs, two decks may be connected together for high-quality tape duplicating at 32kHz and 48kHz sampling rates. Subcode information is conveyed along with digital audio data. However, a DAT deck will identify data that has been recorded with a copy-inhibit flag in its subcode, and will refuse to digitally copy that recording. Amplifiers with D/A converters or onboard D/A converters can be connected to a DAT deck through its digital output jack.

The user can write and erase non-audio information into the subcode area. Three kinds of data can be written into the subcode area: start ID indicating the beginning of a selection, skip ID to skip over a selection and program number indicating selection order. This subcode data permits rapid search and other user functions. Although subcode data is recorded onto the tape in the helical scan track

along with the audio signal, it is treated independently and can be erased and rewritten without altering the audio program, and entered either during recording or playback, manually or automatically.

With the ID codes entered into the subcode area, desired points on the tape—such as the beginning of selections—can be located at high speed by detecting each ID code. For example, the start ID codes from the current position can be detected in sequence, or a specific program number can be searched for directly. During playback, if the skip ID is marked,

and standardized exclusively for the DAT format. Cassette size is 73 x 54 x 10.5 mm, slightly more than half the size of an analog cassette, and weighs approximately 20 grams. It uses tape that is 3.81 millimeters wide (see Fig. 1), equal to the eighth-inch tape used in analog cassettes. Tape typically has a total thickness of 13 microns (the oxide coating accounts for about three microns), equal to that of analog C-90s. DAT tapes can record up to two hours of audio on a tape about 60 meters long. By slowing tape speed, reducing sampling rate, reducing hub diameter or using thinner tape, re-

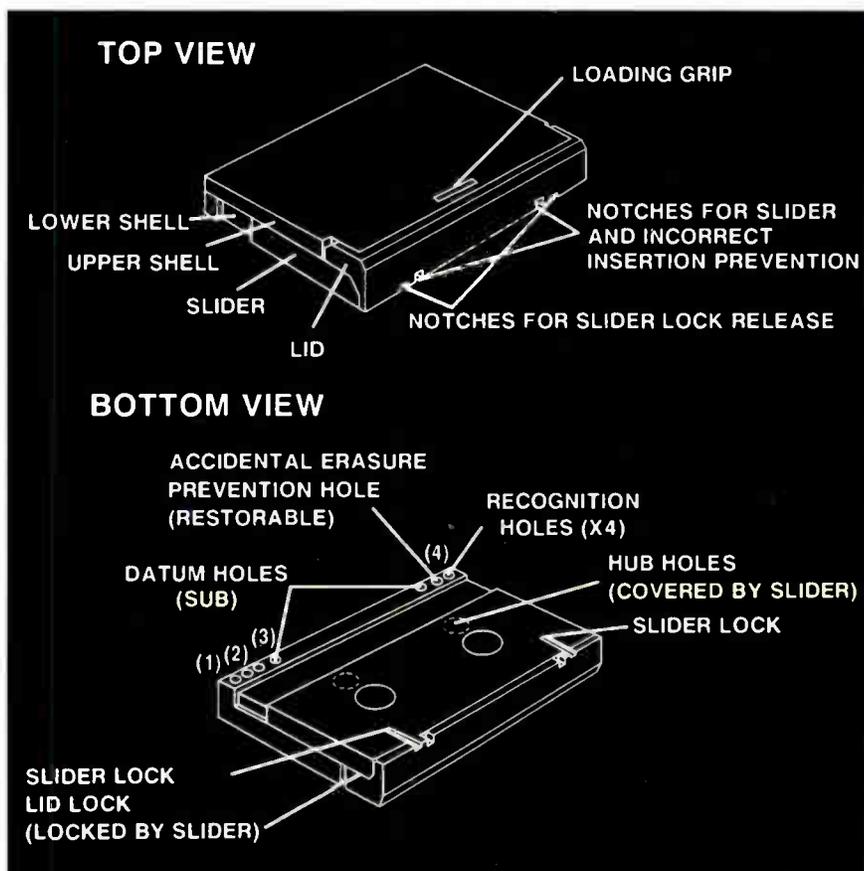


Figure 2: DAT cassette construction.

playback is skipped to the point at which the next start ID is marked, and playback begins again.

In the DAT format, the recorded area is distinguished from a blank section of tape with no recorded signal, even if the recorded area does not contain an audio signal. Unlike blank areas, the track format is always encoded on the tape, even if no signal is present. If these sections are included on a tape, search operations may be slowed. Hence, blank sections should be avoided.

The DAT cassette was developed

and recording times of four to six hours can be achieved. Blank tapes use a metal-powder oxide, while prerecorded tapes use a barium-ferrite oxide.

DAT cassettes are designed with a means of physically protecting the tape inside. Only when a tape is loaded into a DAT deck is a slider retracted to reveal tape hubs and a door opened to allow access to tape. A hub brake mechanism inside the cassette is provided to minimize tape slackness. In addition, there is provision for optically detecting the end (or beginning) of a tape by means of either transmit-

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\*Rick Allen notwithstanding

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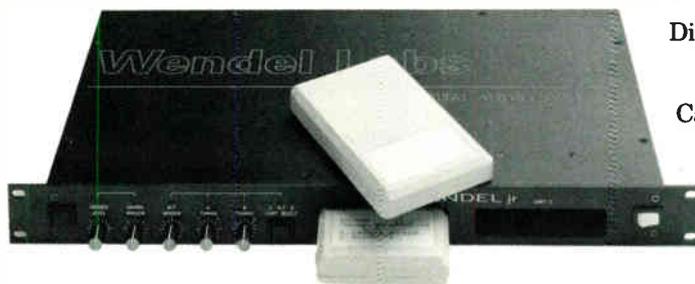
Toto, Miles Davis, Pink Floyd, Heart, Supertramp, George Benson, Paul Simon, Christopher Cross, Bruce Hornsby and the Range, David Foster, etc.

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ted light or reflected light. The former method may shine light across the corner of a cassette, while the latter may use a prism molded into the cassette's transparent window.

DAT cassettes contain a safety tab on one end; to prevent accidental erasure, the tab may be slid toward the center of the cassette, opening a copy-prohibit hole on the cassette's underside. To make a recording, the tab must be reset to its original position.

There are four recognition holes in every DAT cassette (see **Fig. 2**), locat-

ed in standard positions. These holes are used by the recorder to identify the kind of cassette inserted. The first three holes form a code with four states presently defined for tape thickness and track pitch. The fourth hole identifies a prerecorded or re-recorded tape.

Two other holes toward the center of the cassette are used for alignment. A notch on the top of the cassette is used as a loading grip.

The DAT standard calls for four record/playback modes and two playback-only modes. All machines will have full digital inputs and outputs. The standard record/playback, and

both playback-only modes, called "wide" and "normal," are implemented on every DAT recorder. The standard mode offers 16-bit linear quantization and 48kHz sampling rate. Both playback-only modes will use a 44.1kHz sampling rate. As noted, the consumer DAT format outlaws 44.1kHz recording so that one cannot digitally record compact discs (from CD players with digital outputs) or prerecorded DAT tapes; professional DAT recorders permit recording at 44.1 kHz. In addition, DAT recorders contain a watchdog circuit that prevents operation if the copy-inhibit flag in the bit stream of any digital source has been enabled. CDs and DATs can be recorded via an analog connection; the analog output from a CD or DAT player can be connected to the DAT analog input, and the material recorded at the 48kHz sampling rate.

Three other record/playback modes, called Options 1, 2 and 3, all use 32kHz sampling rates. Option 1 provides two-hour recording time with 16-bit linear quantization. Option 2 provides four hours of recording time with 12-bit nonlinear quantization. In addition, the linear tape speed and drum rotating speed are halved. Option 3 provides 4-channel recording and playback, also using 12-bit nonlinear quantization. These options are compatible with direct broadcast satellite (DBS) material beamed earthward at 32 kHz. Fully digital recordings could be made if you live in the satellite's footprint. DBS is available in Japan, India and parts of Europe.

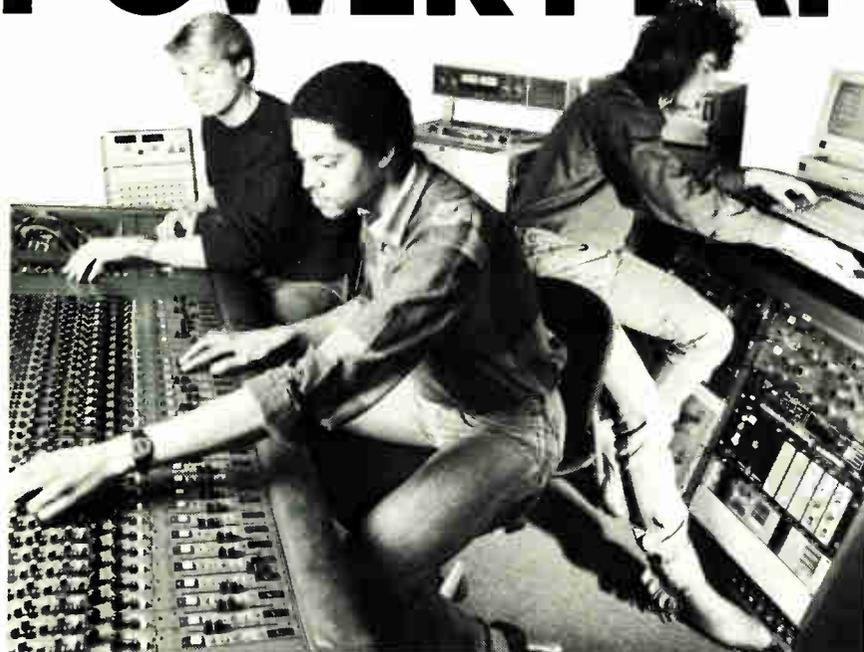
In summary, the DAT standard provides a comprehensive recording system suited for a variety of applications, both consumer and professional. Small tape size, low power consumption, low hardware cost, user features such as subcode and, of course, digital storage, make it the most sophisticated tape medium yet devised.

Next month: the system architecture and rotary head recording used in DAT.

(This material is adapted from Ken Pohlmann's forthcoming second edition of *Principles of Digital Audio*, available from the Mix Bookshelf.) ■

*Ken Pohlmann is an associate professor of music and director of music engineering at the University of Miami. His numerous published works include Principles of Digital Audio and The Compact Disc Handbook.*

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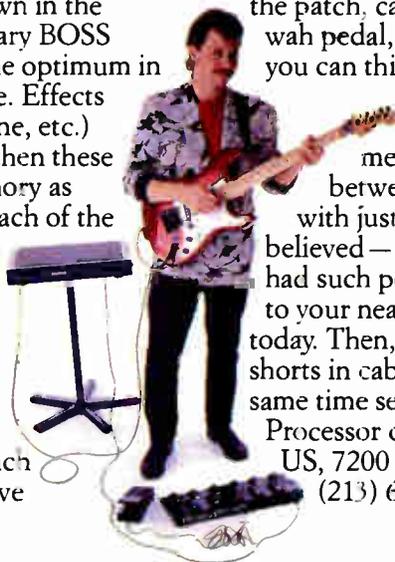
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Look into the display of the new Roland GP-8 Guitar Processor and you'll see an indication of effects control like you've never experienced before. That's because the GP-8 Guitar Processor is actually eight effects in a single rack-mount package — all under the most advanced computer control ever to grace the world of guitar. All of the effects (as shown in the display) are based upon Roland's legendary BOSS products, and are designed to provide the optimum in sound quality with the minimum of noise. Effects parameters (Level, Distortion, Delay, Tone, etc.) can be freely varied for each effect, and then these settings can be stored in the GP-8's memory as a patch, along with the on/off status of each of the effects in the chain. Then the patch can be named with its sound or the name of the song it's used in. (The display above is an actual GP-8 readout showing patch name, and number. The effects that are turned on show up as numbers, the ones turned off show up as "\*".) Parameter settings can vary widely for each patch, so, for example, one patch can have

screaming distortion, while another might have just a touch. Altogether there are 128 patches available, accessed either by the front panel switches or the optional FC-100 Foot Controller. Another pedal that greatly expands the GP-8's capabilities is the optional EV-5 Expression Pedal, which, depending on the patch, can function as a volume pedal, a wah pedal, a delay time pedal, almost anything you can think of. The GP-8 is also MIDI compatible and transmits or receives MIDI program change messages. The GP-8's power to switch between radically different effects settings with just one touch must be heard to be believed — guitar players have never before had such power. So take your guitar down to your nearby Roland dealer and try it out today. Then, say goodbye to dead batteries, shorts in cables, ground loops, noise, and at the same time see the magic that the GP-8 Guitar Processor can add to your music. Roland Corp US, 7200 Dominion Circle, Los Angeles, CA (213) 685 5141.



by Stephen St. Croix

# DAT MACHINES

## IT TAKES MORE THAN SPINNING YOUR HEAD TO TURN MINE

I just got off the phone with a friend who called to see if I happened to know why his new DAT machine sounded so bad. Sad, so many dollars for so few bits. Well, its not the bits—there are 16 of them per channel, as advertised. But there just aren't 16 bits *worth* of sound.

Don't get me wrong. I have gone from a rather cool initial impression

onto a ridiculously small plastic cassette, then stick it in your shirt pocket at the end of the session, take it home and promptly lose it, is truly great! Technology marches ever sideways.

### No Bad

You can go directly to the start of any tune and drop into play at exactly the right point automatically: no wow, no



of the value of R-DAT, to actually liking the *concept* of the DAT format quite a lot.

The technology of spinning that tiny head really really fast, while recording 32 bits of rock and roll (plus secret codes so it can resurrect those darn lost bits), while burying little access codes, is pretty neat.

The idea that you can take 40 tracks of master and mix it down directly

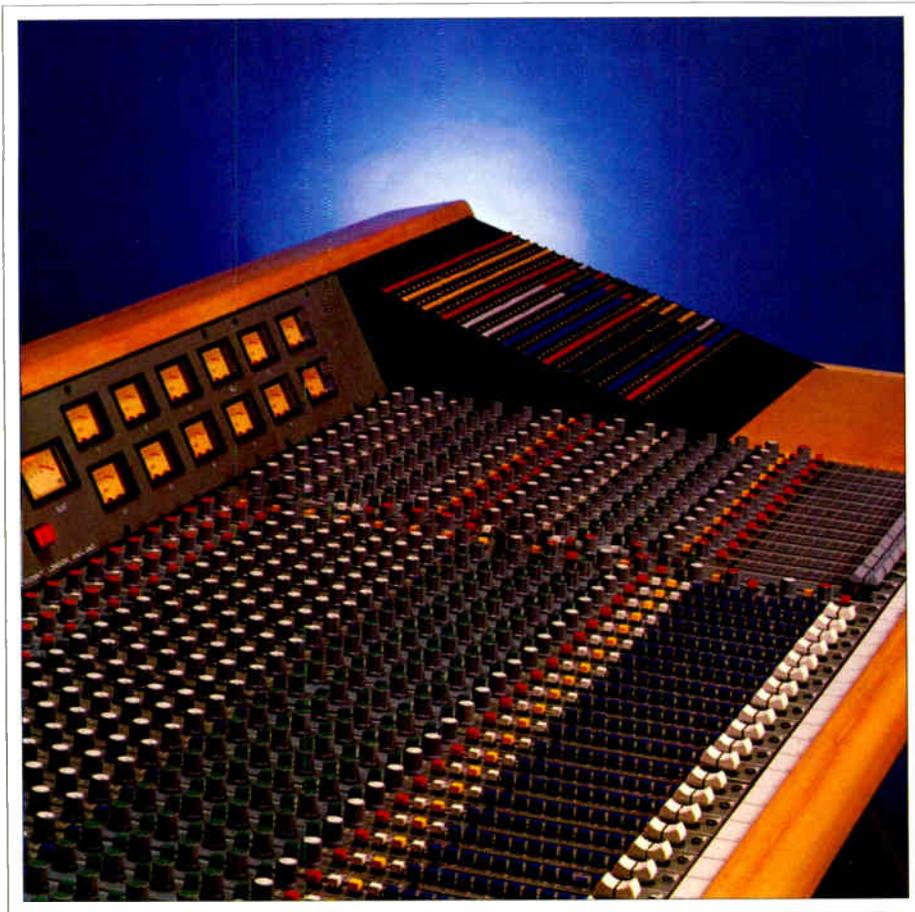
flutter, no noise, no bulk, no searching for songs by ear, no automatic room heating, no fan noise, no worries about touching exposed digital tape, no format wars, no long rewind or search waits, no tape vaults the size of your house, no copy-code.

### No Good

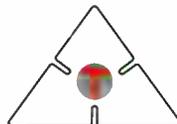
No usable SMPTE time code stripping, reading, locking, no real universal

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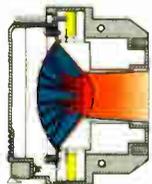
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digital I/O, no full-featured machines, no acceptable analog or converter design, no 44.1 record, no optical I/O, no relief from other people *trying* new music-damaging copy-protection schemes, no real delivery after all this time...

### No Way

Why can't I play that great old game of SMPTE with my DAT? Why does my little 601 or my F1 sound better than my 2500? For that matter, why does my consumer 1000 sound so much better than my big bad pro 2500?

Why do my tapes send me secret messages by way of the dropout error light after only 30 passes? Is it perhaps because the data track is smaller than a human hair? Nah. That's not it. It is clear to those that have means of monitoring dropout that it is the limit of today's tape technology to store data with the incredible density that DAT uses. As better tapes are developed (and that is every week now), this problem should disappear. Right now I don't get very good results with Sony tape, but I do with TDK.

Hey, tape manufacturers! This is your big chance. You can make more money per square millimeter of final tape product than ever before, or you can let it all slip by and be forced to learn how to make erasable CDs. Your choice.

I think I will cut right to my point, just to show you that I can if I want to. The DAT hardware concept will soon be sound. It would be very nice if it actually *sounded* good, too. True, the DAT guys managed to turn my head by spinning theirs, but now it's time for them to follow through on the original promise. I won't pay money for nothin', just to get frills for free.

How can it be that the leading edge of technology brings us DAT machines that were apparently designed while the analog engineers were on vacation? Or *are* there any analog engineers working on these projects? We have machines with amazing transports from tomorrow and analog circuitry from five years ago. Truly, the worst converters, filters and general signal handling ideas that I have heard in years are in these things. What's going on?

A DAT with a single 16-bit converter (circa 1984), no oversampling, with *analog* filters—maybe even tuned-coil

analog filters? Is this one of those bad April Fool's new product releases? Unfortunately not. This is reality. Well, not really; actually it's insanity.

You can get a DAT with dual converters and 64 times oversampling, but then you don't get cue search and other cool stuff. You can get a pro DAT with all the transport features that a studio needs, and even error lights, but then you get converters and filters from the piezoelectric period, shortly after dinosaurs.

Then there is SMPTE. *SMPTE?* Forget SMPTE. There have, of course, been various attempts at a usable system of recording time code longitudinally, but when those who proposed the standard don't use it themselves. . . . Work goes on in digitally recording it within the flying head fields, and somebody is going to have to come up with a convincing standard soon, so that life may go on.

Very soon we will be offered a viable alternative. I will happily be recording and re-recording my latest rock and roll (along with new circuit board designs and other computer data) onto erasable CD; if not on this computer, then on the NeXT one.

I won't wait much longer for decision-day. If that DAT don't dump data directly to tape without degradation from deficient DACs or damage from dropouts by D-day, I shall in desperation dispatch it, demoting it to duty as a digital dictaphone, or delegate it to disco. Damn!

I don't want to take a step backwards to take a step forwards. That's dancing, and I don't dance.

The technology exists *today* to make a DAT machine sound as good as it looks. Let's use it, or we will lose it. Granted, good analog-to-digital conversion is difficult in such a complex chassis. There are several sources of noise that can confuse the converters, such as power supply switching artifacts, mechanical interruption current products from motors, RAM addressing currents, thermal shifts inside the A/D itself, and sample-and-hold limitations. But these problems are being solved by the very manufacturers I'm complaining about, even as you read this.

The limiting factor I do not understand is the shocking weakness in the *analog* sections. Noisy front ends, generally inferior feedback configurations, absolutely terrible (and totally obsolete) filter designs with awful

phase response, and bad sounding aluminum electrolytic capacitors in the primary audio path are a few of my not-so-favorite things.

Come on, guys, gimme gimme gimme what we cry for: a good full-featured transport with cue and fast search, real SMPTE time code functions, error lights, programming and replay looping. Add to that full legitimate digital I/O (don't lock me out of 44.1; we are professionals here, you

---

**We have  
machines with  
amazing  
transports from  
tomorrow and  
analog circuitry  
from five years  
ago. What's  
going on?**

---

know), real, grown-up 18-bit converters (for a reliable 16-bit end product) with at least four times oversampling, digital filtering and high-quality (serious) audio paths.

Give us that, and we will give you our money. We have proven our faith—we managed to leave the CBS copy-cold. Now we are ready for the grown-up stuff.

### In the End, What I Found Out Before the Beginning

I wanted to be as fair as I could when I wrote this column, so I researched the current status of DAT development, hoping to find the light (other than error lights) at the end of the tunnel, so to speak.

What I did find, surprisingly, was

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that several of our favorite manufacturers *are* aware of the existing state of serious shortcomings and are working hard to rectify them. The real big boys are moving a bit slowly, while the people who have yet to release pro DAT machines are, in general, moving much faster.

Panasonic (the people that brought us the wonderful, home, automated "Bread Bakery") currently has two machines out that together offer almost all the performance and features you could want, but separately fall short of what I feel is a realistic machine. The little portable is beautiful, but lacks features, while the big "pro" has features, but lacks the trick converters and filters. These are first-generation machines, but there is no question that at this time the 250 is the portable of choice for me. It simply sounds good.

Since ad coverage is so heavy, I expect Panasonic will hang in with these models for a while; though I know that late spring will reveal *Star-dat: The Next Generation*.

Sony...well, they make the 1000 and the 2500. I own them both, and in the words of Robin Leach, "I don't know why!" I must, in my own defense, tell you that my 2500 is highly modified, with little goodies like Apogee filters surgically implanted, and the 44.1 kill defeated. I will say that the front panel configuration is very good, the controls are *usable*.

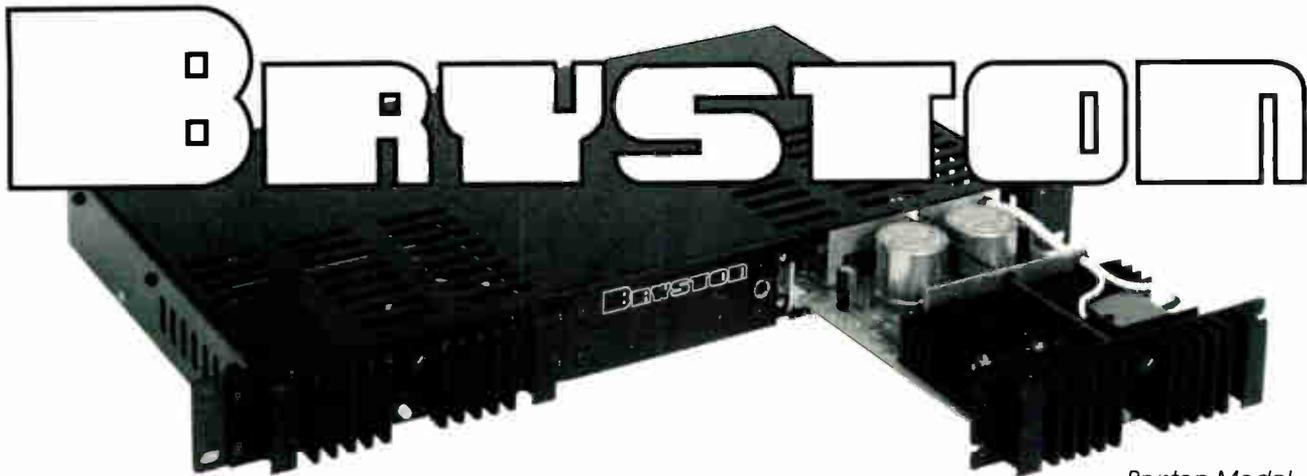
Fostex has worked very hard on establishing a viable SMPTE/EBU time code concept that would allow real live slaving! Their coming D-2 is quite different than all the others. It has AES/EBU and analog I/O only. They say it is a pro machine: why more?

Here is where it starts to get interesting. There are *four* heads on the drum so that it can read off tape at normal *and* shuttle speeds. Gosh, maybe time code?

It will have either two or four times oversampling (unknown at the time of writing), and for real off-the-tape monitoring, just like the old days, simultaneous record and monitor/playback (the other reason for four heads). They will push it simply as a digital 2-track that happens to use DAT cassettes.

Other features include error detection lights, dual A/Ds and DACs, and

—CONTINUED ON PAGE 177



*Bryston Model  
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Circle #081 on Reader Service Card

by Mel Lambert

# OPTIONS & DECISIONS

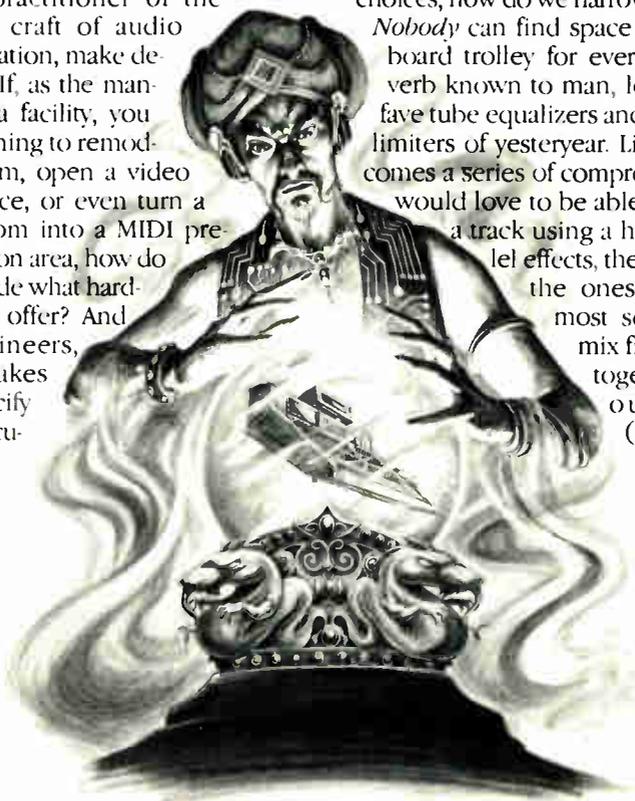
As I write this first column of a new year, it is difficult to resist the urge to dust off the crystal ball and ponder the myriad influences that will ebb and flow through the pro audio industry during the next 12 months. So, zooming straight through my major prediction that the first quarter of '89 will witness the demise of at least one-and-a-half manufacturers of random-access editing systems, and the introduction by at least one major Japanese firm of a truly cost-effective, all-digital mixing and processing system, let's move on to more useful stuff.

Let me pose a question: How do you, as a studio owner, or you, a self-styled practitioner of the magical craft of audio manipulation, make decisions? If, as the manager of a facility, you are planning to remodel a room, open a video post space, or even turn a copy room into a MIDI pre-production area, how do you decide what hardware to offer? And for engineers, what makes you specify one particu-

lar item of hardware for a remix date over another? Or maybe rent a rackful of the latest toys to try out some of the new sound textures?

All of us like to experiment with new ideas and techniques, primarily because it expands our options, but also because we can—sometimes at least—turn speculation into pragmatic truth. (Okay, I'd be the first to admit that no facility owner is going to build a million dollar room without having a good idea that the space has a better than average chance to attract an eager clientele from the recording community, but the concept is still valid.)

Faced with such a profusion of choices, how do we narrow our sights? *Nobody* can find space on the out-board trolley for every digital reverb known to man, let alone the fave tube equalizers and happening limiters of yesteryear. Life often becomes a series of compromises—we would love to be able to develop a track using a host of parallel effects, then decide on the ones that make most sense as the mix finally comes together under our hands. (And would



it be cynical of me to suggest that few facility owners object to seeing the hourly rate nudge upwards as they add in all those little extras that find their way onto the session budget?)

The problem is that we seldom have the time to run through all the options, let alone document the variations of panel settings we set up in the pursuit of the ultimate audio experience. What to do, I pondered, as I sat in on a recent all-digital session at a leading Hollywood facility. Here we all were, spread out in the opulence of a state-of-the-art production facility that boasted a 56-mainframe console with servo faders, dual DASH-format multi-tracks, a ProDigi 2-track and an impressive collection of outboards. But something was holding up the remix. We were well past the boredom threshold and into some serious negativity as the session ground to a long halt.

No hardware problems—all that electronic gadgetry was humming along nicely. Taking up so much time on the session was the development

of a simple but reliable way of controlling the outboard toys. Because, as so often happens on such dates, we wanted to run the gamut of textures, it had been decided to run various tracks in parallel through an array of digital and analog reverbs.

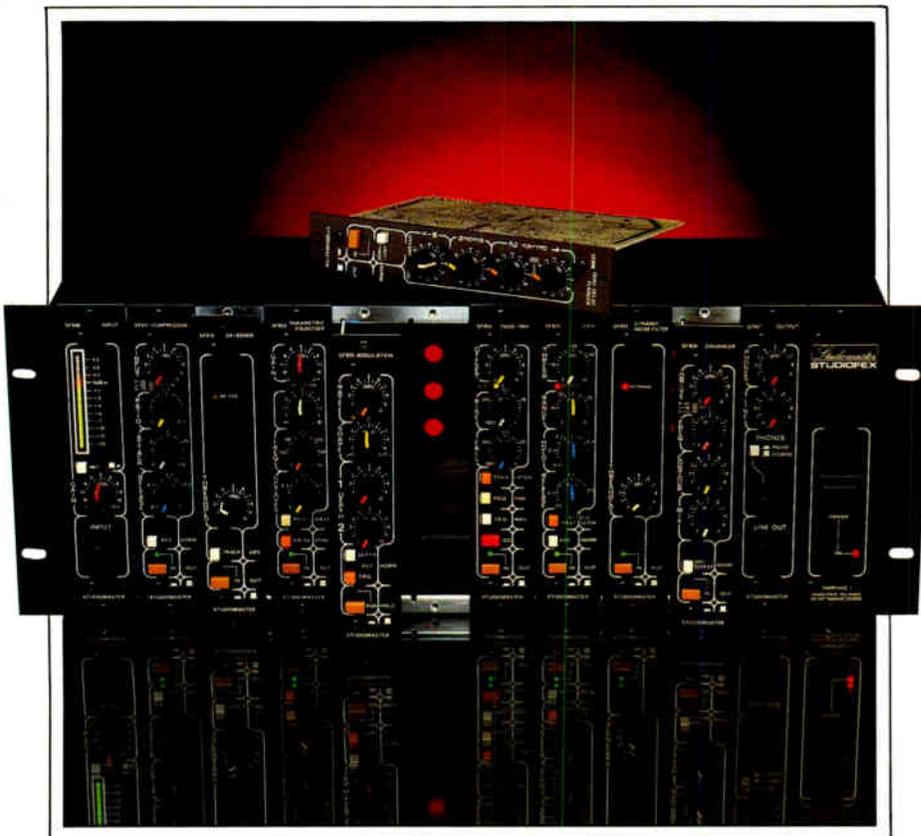
(Yes, EMT plates are alive and well and not gathering a whole lot of dust in the Big Orange!)

And because of the production team's fastidiousness, they wanted to document all the front-panel settings and programs as they went. MIDI would have been extremely useful on the session—apart from the older EMTs and similar hardware, of course—but there still remained one, nagging problem. Nobody on the session knew how to run the Macintosh and MIDI sequencer combo, let alone how to tag the automation data to the primary console computer. Frustration ensued.

What should have been a simple procedure just never made it off the ground, despite the collective cleverness of some of the brightest minds

in the industry. How simple it would be, we mused after the session was forced to move on using handwritten notes, to have a Mac II take care of that data (allied to an equally sad feeling that we probably wouldn't be able to duplicate a fraction of the neat sound textures and balances developed experimentally during the mix session).

Why, we pondered during the subsequent discussions, hasn't there been more of an effort made to get the console companies jazzed at the chance of hooking up with the outboard folk? It makes too much sense that a SMPTE-based, moving-fader automation system (with or without system recall) should be able to tag MIDI program-change information and even dynamics changes as part of a low-level overhead. It doesn't even have to do the grunt work. Why not use a Mac II or similar workhorse (time for Amiga advocates to take that important step forward, perhaps) for the data acquisition and display functions, then slam the material at the



Studiofex is a highly organised modular effects system, covering a wide range of contemporary effects and signal treatments. The system is based around a 4U high 19" rack mounting mother unit containing the routing system and power supply, into which up to 11 modules may be fitted.

The inter-module routing system allows a high degree of flexibility because processors can be used individually or in subgroups or a signal can even be treated by 11 modules consecutively.

There are 12 modules to choose from: SF800 Stereo Gate, SF801 Stereo Compressor, SF802 Stereo Dynamic Noise Filter, SF803 Parametric Equaliser, SF804 Fader Panner, SF805 Modulation Source, SF806 Stereo Input, SF807 Stereo Output, SF808 Enhancer, SF809 Dual Delay Flanger, SF810 De-Esser, SF811 16-bit Digital Delay.

Some applications made affordable with the Studiofex system are one-per channel gating (with up to 11 SF800 stereo gates), comprehensive vocal treatments (such as compression, de-essing and enhancing) and a stereo headphone distribution amplifier using a stereo input and 10 stereo outputs.

If you are looking for a range of full feature effects which offer true flexibility and no-nonsense performance - look no further than STUDIOFEX.

For detailed colour literature, contact Jim Giordano, Paul Reeve or Tony Allen at STUDIOMASTER INC, 1340-G Dynamics Street, Anaheim, CA-92806 Tel: (714) 524 2227 Fax: (714) 524 5096

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World Radio History

THE SOUND EXPERIENCE

console automation system in high-speed bursts?

What about this scenario: Could we possibly configure the system to simply "mimic" the operation of a small, maybe 8-channel submixer section, complete with mutes? Then the incoming, multiplexed data would simply be stored to hard disk along with the channel IDs, level changes and mutes from the conventional section of the console. During playback, the tagged processor data would just be vectored toward the outboard computer system, and hence to the MIDI-capable peripherals. (And, while we're at it, how about offering the ability to interface with outboard boxes that feature voltage-control ports?) The beauty of such a solution is that the incoming data from the MIDI system doesn't need manipulating in any way by the console automation computer, and is in perfect time-code sync with the other fader moves. If you want to mix, merge or edit together various sections of the mix, the MIDI-derived data just goes along for the ride. Sounds feasible to me. What about you?

Of course, if any console manufacturer would like to build a proprietary box that accepts a conventional MIDI bit stream and converts it into a format that appeals to the voracious data appetite of its host computer, we would all be furlongs ahead of the competition. Also on my agenda from that studio session is a discussion of digital interface standards. It appears that several well-known firms are not only confusing the audio industry, but doing little to end the counterproductive confusion that is beginning to make itself felt. Any of you tried, for example, to get a DAT machine to talk with another DAT, or a DAT to talk with a 1630, X-86 or 3324 via their EIAJ CP-340, S/P DIF, AES/EBU, Mitsubishi-format or SDIF 2 ports? Not so easy, is it? Which machines ignore copy-inhibit bits? Should they ignore copy-inhibit bits if they are correctly implementing the agreed standard of digital interface? More on this subject next issue. Stay tuned. ■

*Mel Lambert has been actively involved with professional audio on both sides of the Atlantic for the past decade, and is currently president of Media&Marketing, a consulting service for the pro audio industry.*

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Neil Peart was one of the first to incorporate the ZMC-1 system into his set-up.

Today, the ZMC-1 goes on the road with pros like Gregg Bissonette (David Lee Roth), Tommy Aldridge (Whitesnake), and Joey Kramer (Aerosmith). Jon Erickson, the engineer for

Rush, calls the ZMC-1 "overwhelming; it brings out the true sound of the cymbals."



Neil Peart

The ZMC-1 system features five ZMC-1 cymbal microphones, one HiHat mic and the ZMC-1 6-channel mixer unit. Extra mics are available for larger set-ups.

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\*Based on Music and Sound Retailer's monthly survey of 1,200 audio dealers. World Radio History

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# NEWS

## FROM AROUND THE WORLD

### Edinburgh's REL Relocates

In the music business since 1973, REL Studios of Edinburgh, Scotland, recently moved to more spacious quarters in the capital city's downtown area, in order to accommodate a plethora of new advertising and corporate accounts.

REL is fully equipped to produce 24-track masters and demos. The control room is 4 x 5 meters (approx. 13 x 16 feet) and built on the LEDE® principle. From the mixing console the engineer can see the multi-track machines and power amplifiers that are housed in a separate room. TEF™ analysis revealed an essentially flat response and delay time of 15 milliseconds.

Two studios spin off of the control room. The smaller one, 3.5 x 4.5 meters with a 3-meter ceiling (11 x 14.5 x 10), is popular with acoustic musicians because of its short reverb time, flat response and mid-range liveliness. The main room is 12 x 9 meters with a 6-meter ceiling (40 x 29 x 19.5), and has a capacity of up to 40 musicians without losing its ambient qualities. Off the main room is a small iso booth.

A 32 x 24 x 24 Trident Series 80A with 56 inputs in remix mode controls both rooms. Recorders include an Otari MTR-90II 24-track with Dolby SR, Otari MTR-10 2-track and Tascam ATR-60 2-track with center-track time code and Dolby A. Aiwa and Sony DAT decks fill out the tape capabilities. And two Bel BDE 2600 delays offer 26 seconds of sampling in mono or stereo.

—CONTINUED ON NEXT PAGE

### Berwick Street Up and Running

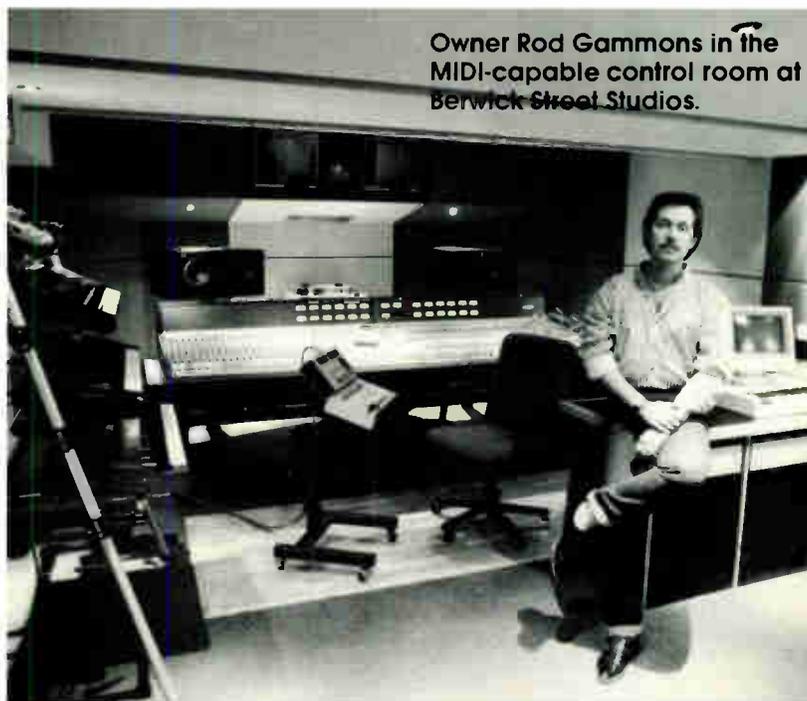
Rod and Helen Gammons have come into London's Berwick Street Studios and given it a complete facelift. The large, live studio has been reduced to the size of a well-proportioned over-dub booth, and the small control room has been enlarged to accommodate the MIDI boom and open up room for keyboards.

Located in London's Soho District, Berwick Street had fallen on lean times in recent years. The Gammons purchased the building from Record Shack and brought in Andy Munro to direct the redesign. "[Andy] drew up a concept for the new shape of the control room and allowed us a lot of input in terms of aesthetics and appearance," Rod Gammons told a British magazine. "It was a welcome surprise when it was completed to switch

on the desk and discover there was no hum whatsoever, mains or otherwise."

The desk is a DDA AMR 24, chosen because its clean, transparent signal is ideal for the dance/pop music the studio hopes to attract. The multi-tracks include an Otari MX-80 and a Studer A810 with Dolby SR. The studio is configured for audio/video synchronization with either *Q-Lock* or Lynx and a Fairlight III. Naturally, the array of keyboards is vast.

But it's the monitoring system that makes the rooms special. Berwick Street features the first installation of the new Klark-Teknik Jade II monitors, designed jointly by Munro and Klark-Teknik. Each custom-made, free-standing Medite cabinet contains two 8½-inch bass units, a 3-inch soft dome mid-range and a soft dome tweeter.



Owner Rod Gammons in the MIDI-capable control room at Berwick Street Studios.

They're small, but "they just have to be heard to be believed," says Gammons.

**Soundtracs Seminar in Singapore**

The pro audio industry is slowly but surely inching its way into the Pacific Rim. Soundtracs Plc, the English console manufacturer, held seminars in Singapore and Jakarta this past July on the topics of SMPTE-based synchronization for automation and live television and video dubbing.

The Indonesian seminar was centered around sound reinforcement and broadcast applications, using the Soundtracs CP6800 as the "housekeeping system." Strong attendance was reported from Far Eastern broadcast and installation companies, including the Singapore Broadcast Corporation.

More than 250 professionals from Singapore and Malaysia attended the seminars, which were sponsored by Soundtracs in conjunction with Singapore-based distributors Lingtec Pty and the Indonesian company P.T. Kirana Yudha Teknik. A ring binder was included with seminar notes in both English and Mandarin.

**Jagger in the Land Down Under**

While on a recent tour of Australia, Mick Jagger became a regular at Metropolis Audio in Melbourne. The reason? He participated in the mixing of a soundtrack for his television concert special, a project undertaken by the Channel Nine Network. Jagger, Ian "Mack" McKenzie, Tony Blanc and

ing the live show," McKenzie points out. "We actually recorded the closing credits music at Metropolis with Jagger and the band. Also, the first half of 'Party Doll' was recorded separately and filmed at Broken Hill. On the show we crossfade from film to the live video halfway through the song."

The program was taped during Jagger's concerts at the new National Tennis Centre. Engineers Ernie Rose and Ian McKenzie recorded the shows from the Metropolis Audio mobile unit.

—CONTINUED FROM PREVIOUS PAGE

The addition of Steinberg Pro-24 and Masterscore Atari ST software and a Bokse SM9 SMPTE time code reader/generator has brought in voice-to-picture business, jingles, advertising spots and documentary films for television.

Big Country, Iggy Pop, Wet Wet Wet, Love & Money, Syndicate and Local Hero have all recorded at REL, but the studio's biggest success story so far is Scotland's own Aneka, whose international #1 single "Japanese Boy" sold 5 million copies worldwide.

Jimmy Ripp mixed around the clock to complete the project.

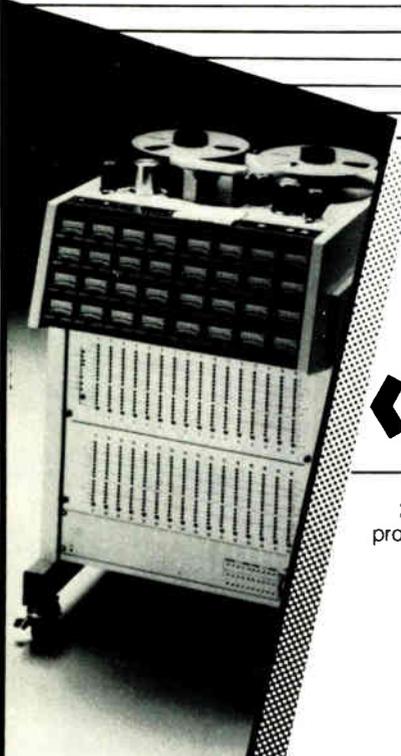
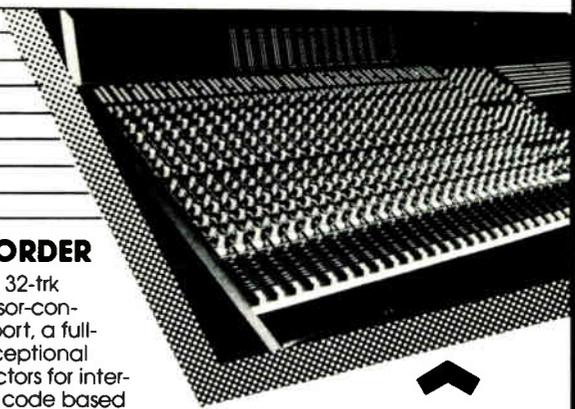
"The project was not simply mix-

**The Church Goes with Amek**

Since its inception in 1986, The Church has had the reputation of a "unique" recording environment that was not especially commercial. The phenomenal success of co-owners Dave Stewart and Annie Lennox (Eurythmics) filled up most of the studio time. Now, with the addition of a 48-input Amek G2520 recording console, at least 70% of The Church's capacity will be available to outside projects.

Alan Cundell, the engineering consultant who oversaw the Amek installation, says: "The desk has progressively built up a strong reputation for

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# It's Not Just A Phase We're Going Through.

The tremendous success of the Tannoy PBM series of reference monitors is by no means coincidental. Since the introduction of the world renowned NFM-8 nearfield monitor, much time and effort has been spent on discerning the needs of the mixing engineer and the applied requirements of "playback monitors". The PBM Line exemplifies this commitment to excellence in reference studio monitoring. These compact loudspeakers sport robust poly cone mid-bass transducers utilizing efficient long-throw, high power voice coils. The low frequencies are carefully controlled by optimally tuned ports located on the rear of the loudspeakers. Hi frequencies

are provided by Hi Power ferro fluid cooled polyamide dome tweeters which extend H.F. bandwidth beyond 20KHZ. The driver accompaniment is knitted together by means of a precision hardwired crossover unit, utilizing robust low loss components, and heavy-duty input terminals which will accept standard 3/4" spaced banana plugs and the majority of high quality, specialist audio cables. Transducers and crossover assemblies are neatly housed in a stylish, high density, partial wrap cabinet.

specially designed to minimize unwanted cabinet resonance, and high frequency reflection. In summarizing, we have left the best feature of all for last "price versus performance."

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## INTERNATIONAL · UPDATE

—CONTINUED FROM PREVIOUS PAGE

its audio performance, quietness and logical operational layout, but I am aware that a growing band of engineers not only appreciates the generous headroom, but now realizes that the mic amps and EQ are among the very best available."

The G2520's automated fader, mute and mix controls allow it to control a broad spectrum of recording and mixdown applications. Its in-line design means it can process two signals simultaneously within each module. Eight stereo auxiliary line returns bring the console's capacity to a whopping 112 line inputs.

The commercial attraction of the studio can be seen in other areas as well. Neil Grant of Harris-Grant Associates has refined the acoustics in The Church's two studios, and video tie-lines now connect all rooms. Three Otari MTR-90s have been purchased and both studios now boast DAT mastering facilities. The Church is located in London's Crouch End.

### HHB Distributes Broadcast Video

HHB Hire & Sales, one of Europe's

leading pro audio suppliers, has landed two major distribution accounts for broadcast video products. The company has been named a systems house for the newly formed Sony Broadcast & Communications Products (UK), and has been awarded the exclusive UK distribution for Audio Kinetics' ESBUS audio/video synchronizer.

The venture into broadcast video was not unexpected, as most of HHB's clients are already involved in video-related post-production work. HHB also specializes in system packages for large-studio installations. Recent clients include Virgin Studios' new "Olympic" complex in Barnes, England, The Church (see above) and the BBC.

Managing director Ian Jones says: "We now have the in-house expertise, the facilities and the technology to fully support an active role as suppliers to the broadcast industry. With the advent of stereo television and the proliferation of digital video techniques, our experience and service skills are going to be a valuable resource for many customers."

### Bits and Pieces

**Rainhill Tape Specialists**, a major

Northern England cassette duplication plant, has taken delivery of a Lyrec P-2000 high speed tape duplication system, which has been added to its existing duplication line. . . And speaking of Lyrec, the Oxford, England, company has recently delivered its TR-533 16 24-track recorder to **Studio Multitrack** and **IIC Studios** in Belgium, **The Midi Music Centre** of Copenhagen, **PT Musica Studios** of Jakarta, Indonesia (its third TR 533), and **Bjartsyni HF** of Reykjavik, Iceland. . . Apogee Sound, Inc. of Petaluma, CA, introduced their full line of processor-based speaker systems to the Australian pro audio community at the Melbourne AES Convention in August. . . **Guang Dong TV** in Canton, the largest broadcasting company in Southern China, recently purchased two TAC SR9000 live-sound superconsoles. The 42x16x2 VCA group versions will be used on the TV studio floor. . . Also from TAC, the Matchless 24-bus, in-line recording console sports a refined electronic design and some new features, including an input reverse switch and both line and tape monitor inputs on the jackfield. A 32-track Matchless is also now avail-

—CONTINUED ON PAGE 177

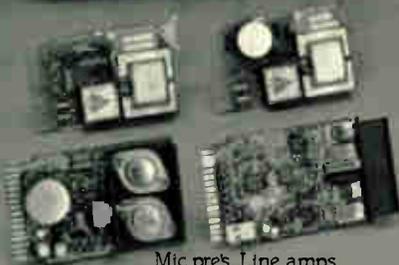
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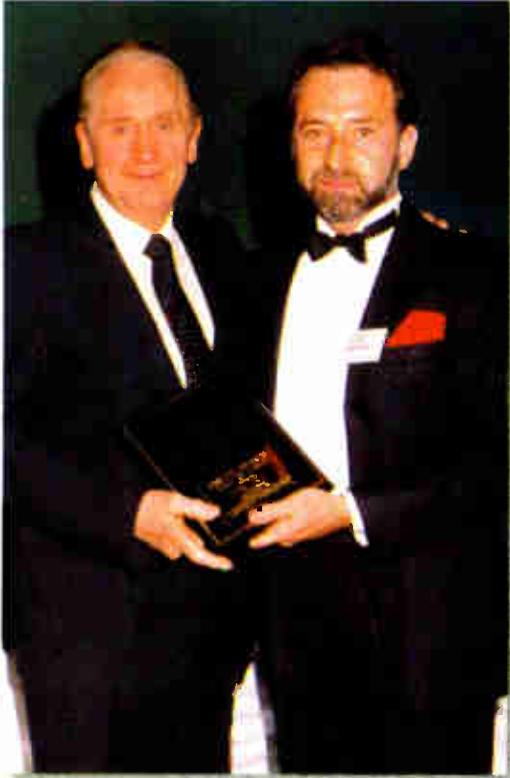
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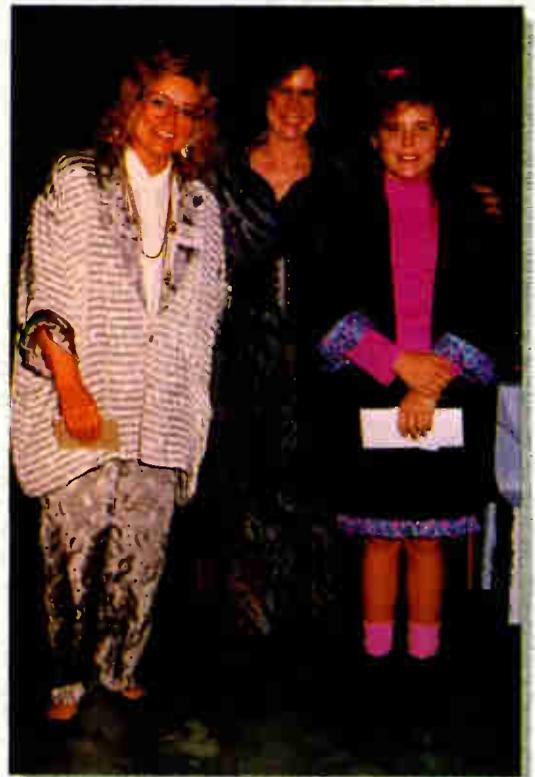
World Radio History



# Celebrities and Audio Greats



▲ George Martin (L) and Chris Stone (rear) present Quincy Jones representative Michael Robinson with the Outstanding Creative Achievement, Record Producer award.  
 ▲ Les Paul (R) accepts the TEC Hall of Fame award from *Mix* editor-in-chief, David Schwartz.



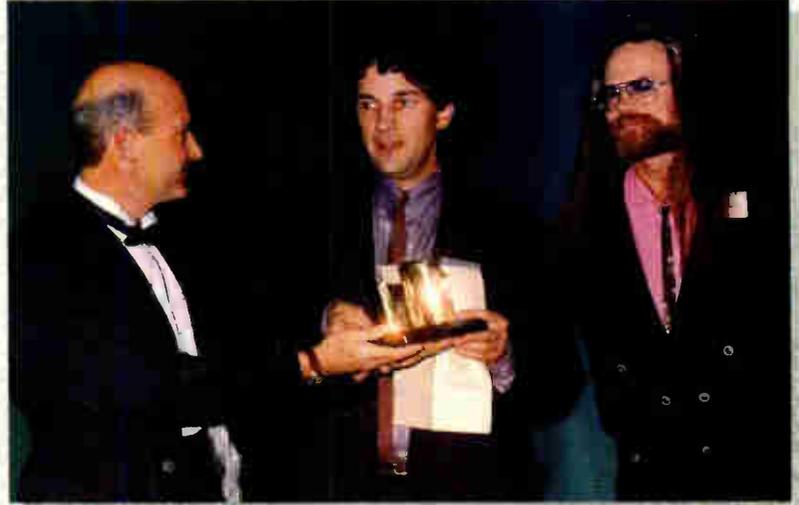
▲ Roland president Tom Beckman, winner for Outstanding Technical Achievement, Musical Instrument Technology, accepts the award from synthesists/sound designers Frank Serafine and Suzanne Ciani.

▲ (L to R) *Mix* magazine's Penny Jacob and House Ear Institute's Charlie Lahaie and Tracy Husted.

**Over 600 audio industry professionals turned out on November 3 to honor the 19 winners and two Hall of Fame inductees in the largest Technical Excellence & Creativity (TEC) Awards ever. Held at the beautiful Biltmore Bowl in Los Angeles, the fourth annual event raised a record \$28,000 to be divided among the House Ear Institute (50%), the Audio Engineering Society Educational Foundation (25%) and the University of Miami (25%), winner in the Recording School/Program category.**

# Turn Out for '88 TEC Awards

PHOTOS: ALEX BERLINER



▲ Christoph Heidelberg accepts the award for Outstanding Technical Achievement, Ancillary Equipment, for Apogee's digital filters from *Mix* editors Mr. Banzai (L) and Stephen St. Croix (R).  
 ◀ Universal Recording's Murray Allen presented awards in three categories.



▲ Phil Proctor emceed the evening's festivities.



▲ Bernie Grundman is congratulated by Bob Clearmountain (C) and Jeff Baxter (R).

Emceed by actor/comedian Phil Proctor, the evening's highlights included the first meeting of legendary producer George Martin and audio pioneer Les Paul. Paul, along with the late Bob Liffin, was inducted into the TEC Awards Hall of Fame. The Outstanding Producer Award, now sponsored by 3M Corporation, was awarded to Quincy Jones. A cochlear ear implant will be donated by 3M in Jones' name to a deaf child in care of the House Ear Institute. See list of TEC winners on page 42.



(Clockwise, from upper left) 3M's Richard Collins, House Ear Institute's Charlie Lahaie, TEC Awards producer Hillel Resner, emcee Phil Proctor and *Mix* editor-in-chief David Schwartz; Showco's Wil Sharpe accepts the Outstanding Institutional Achievement; Sound Reinforcement Company award from Guy Costa; Bruce Jackson accepts his second award of the evening for Sound Reinforcement Engineer; Hillel Resner presents Emil Torrick from the AES Educational Foundation with a check for 25% of the proceeds; Suzanne Ciani (L) presents Liz Gebhardt with the award for Outstanding Technical Achievement, Computer Hardware/Software.



### OUTSTANDING CREATIVE ACHIEVEMENT

**Sound Reinforcement Engineer**  
*Bruce Jackson*

**Film/Video/Broadcast Production Engineer**  
*Bob Liftin*

**Film/Video/Broadcast Post-Production Engineer**  
*Richard Beggs*

**Mastering Engineer**  
*Bernie Grundman*

**Record Producer**  
*Quincy Jones*

**Recording Engineer**  
*Neil Dorfman*

# 1988 TEC AWARD WINNERS

### OUTSTANDING TECHNICAL ACHIEVEMENT

**Signal Processing Technology**  
*Alesis MIDiverb II*

**Transducer Technology**  
*Tannoy PBM-6.5 Monitors*

**Ancillary Equipment**  
*Apogee Electronics 944-S/  
944-G Digital Filters*

**Console Technology**  
*Yamaha DMP7 Digital  
Mixing Processor*

**Computer Hardware/Software**  
*Apple Macintosh II*

**Musical Instrument Technology**  
*Roland D-50 Linear  
Synthesizer*

**Recording Devices/Storage Technology**  
*Sony PCM-2500 Pro DAT  
Recorder*

### OUTSTANDING INSTITUTIONAL ACHIEVEMENT

**Sound Reinforcement Company**  
*Showco, Inc.*

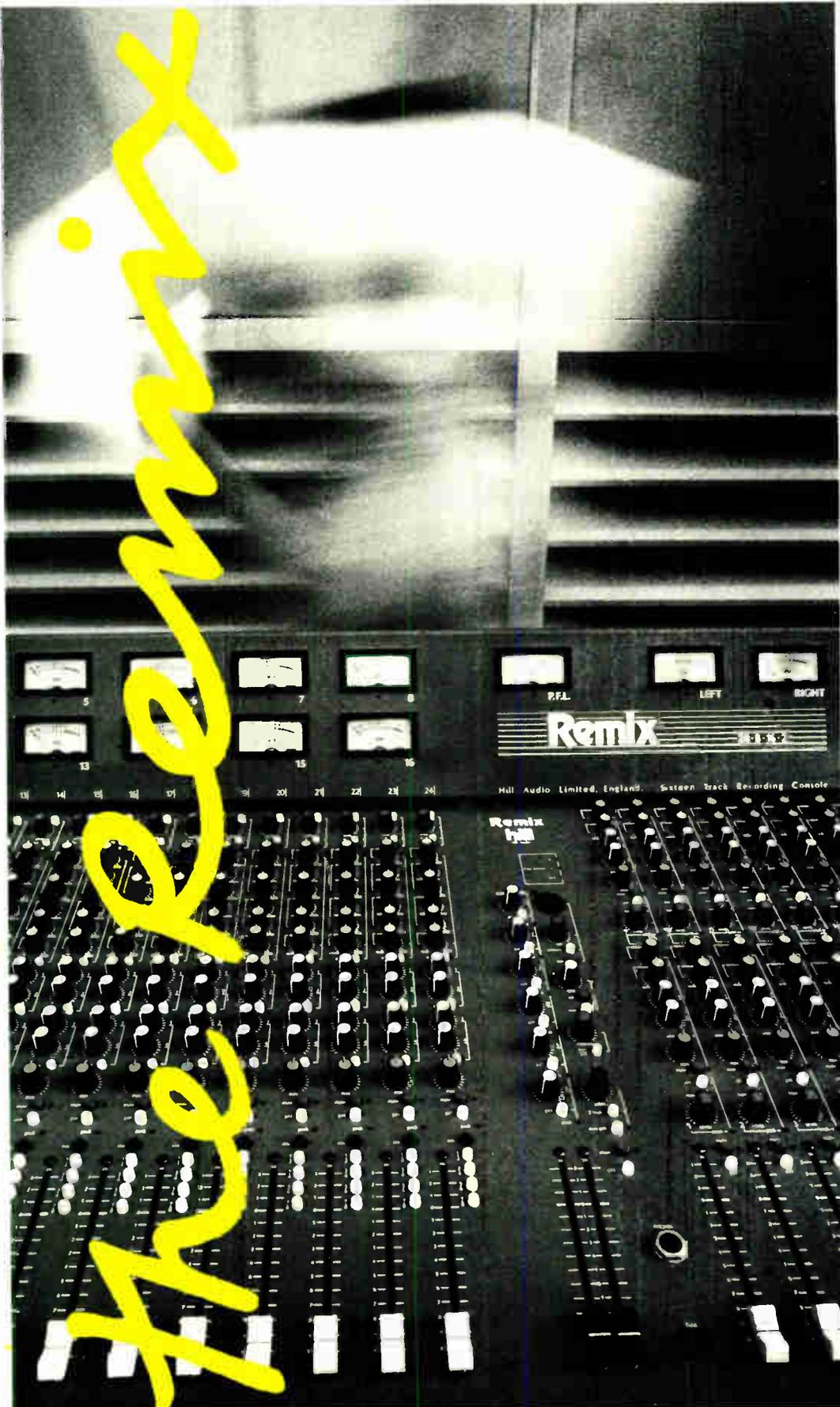
**Remote Recording Facility**  
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**Recording School/Program**  
*University of Miami*

**Acoustics/Studio Design Company**  
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# THE MANY FACES OF

# MIDI

## HOW IT AFFECTS

## MAJOR NORTHWESTERN STUDIOS

by Linda Jacobson

Toss a couple of monitors, a small power amp, a mixer and a few dozen rack space's worth of MIDI instruments into a small room and Bingo! You've got a potentially money-making composition/pre-production suite. Funny, though, how this can happen in the storage room at a 24-track studio—or in the spare bedroom at a music producer's house.

Today, the commercial recording studio finds itself working both *with* and *against* the home studio operator. The 24-track studios want those MIDI-minded producers/engineers/musicians to save the big projects for the big rooms, while simultaneously they may be competing for the same types of projects. Many studios feel they must be compatible with the clients who've pre-produced at home, so they've bought computers and MIDI software, MIDI interfaces and/or MIDI keyboards—or simply added MIDI ports near any XLR and RCA jacks. And with a complete MIDI setup in a remote corner of the facility, the studio (theoretically) can do more work in less time, move more clients through, and increase billings.

The catch is, so much of this work is done outside the studio. One person working at home can handle a large project on a small budget. This can be great for producers and musicians.

And for studio owners? Well, MIDI giveth...and MIDI taketh away. Studio owners have dealt with the situation in a variety of ways, as we learned when we surveyed several in our own backyard—the American Northwest.

• • •

Celebrating its sweet 16th with an

unprecedented spurt of growth is the legendary Plant Recording Studios in Sausalito, just north of the Golden Gate and San Francisco. Part of the Plant's growth stems from a surprising MIDI-related turn of events. Last year around springtime, a greatly heralded MIDI/pre-production suite opened at the ever-busy Plant. But now the MIDI gear has been replaced by a digital audio workstation, and the room's focus is on digital editing and post-production, not MIDI composition and pre-production.

The way Plant co-owner Bob Skye figures it, the musicians and producers who habituate the Plant can find

MIDI's SMPTE is our primary control code, while MIDI's designed to talk to everything. It's a little more primitive format, but it's widely accepted, very usable and friendly."

Noting the capabilities enabled by digitally interfaced music technology, Skye points to the trend in "music composition handled by small groups of people or single individuals working part electronically, part acoustically." This is one reason for his definitive new plan(t) of action.

Kicking off the plan in September, Skye (who purchased the Plant two years ago) took on a new partner, recording engineer and digital audio

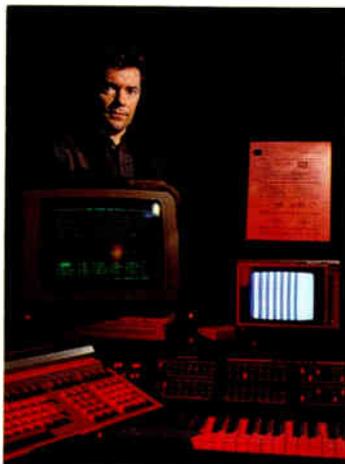


PHOTO BY HARRINGTON



From left to right: Greg Shaw and The Plant People—Arne Frager, studio manager Alice Young and Bob Skye.

equal (or better) MIDI studios in their homes or their friends' homes: "Pre-production away from the studio is so viable that it wasn't worthwhile for us to do that within the studio. We still have computers and MIDI, but we don't stock a full complement of 'just

pioneer Arne Frager. Frager built and ran the successful L.A. facility, Spectrum Studios, which was among the first to work with the now-ubiquitous Sony PCM-1610 technology. In 1986 Frager moved to San Francisco but continued to commute to L.A., where

**Robert Forman in the MIDI room of Granny's House Recording Studios (Reno).**

he freelanced on a couple of Prince albums, the recent Robert Palmer release, *Heavy Nova*, and other LP projects until joining forces with Skye. (Although at press time he was in L.A. working on Paul McCartney's latest record.)

When we spoke, Skye and Frager had begun to redesign Studio C—turning the studio into a control room and vice versa—to house an 8-channel, direct-to-disk Synclavier and 4-channel "Dual Dyaxis," the Mac-based disk recording and editing system by Integrated Media Systems. Plans call for a Kurzweil 250, Yamaha DX7IIs,



"Rocky Mountain MIDI, that's us! If you can play guitar or drums, you can play a MIDI orchestra here." Just opened to the public, The Ranch (Woodland Park, Colo.), is a 120-acre complex owned by classic rockers Flash Cadillac and run by veteran engineer Duane Scott (McCartney, Fogelberg, Heart, etc.). Here at the foot of Pike's Peak you'll find

Sony/MCI's new, automated MXP-3000 desk, nine vintage guitars, a 1930 Mason & Hamlin grand, four electronic and acoustic drum sets, and a major MIDI system with over 2,000 banks of sounds. The IBM PC-based setup is accessible via modem from anywhere in the country, for long-distance downloading of sounds.



**Spectrum Sound of Portland, Oregon**

**"MIDI has changed my life for the better. Because it's cheaper (an entire film can be scored by one composer) and faster (no more dealing with scheduling musicians), it's enabled us to increase our profit margin and pass the savings onto our clients. We can do better work, cheaper, so we get more of it. And the 'MIDI-combo' can give us individualized sounds, so everything sounds better."**

**—Patrick Cullie  
Coupe Studios, Boulder**

Roland D-550s and "every keyboard that's state-of-the-art." The entire system will be controlled from a pair of Macintosh IIs and work in conjunction with a video projection system, 24-track analog with Dolby SR and 32- or 24-track digital machines, a large mixing console and Meyer ACD mon-

itors. "The idea is to sit at the workstation in this self-contained room and create music for records, television and film," says Frager. "Synth outputs will be triggered live by MIDI through the mixing console, then mixed directly to digital. All stereo mixing will be done on the Dyaxis, and Dyaxis will provide the final digital output. You can take any format out of the studio, including DAT, 2-track digital, even the removable [optical] disk cartridges from the Dyaxis."

The "Plant Digital Studio 01" seeds were sown by Frager and Skye working with Greg Shaw, musician, engineer and proprietor of Gentle Synergy, a music/effects production company in San Francisco. The room opened last month as a joint venture between the Plant and Gentle Synergy (Shaw owns the Synclavier). At press time, the spiffed-up Studio C already had been booked for its first project, the new Starship album. Several other major jobs are slated, including HBO feature film SFX design by Greg Shaw.

What do others say about the fact, as the Plant learned first-hand, that much pre-production work now can be handled outside the studio? David Porter of the Music Annex in San Fran-

cisco says: "Two years ago, I was deathly afraid that my business would leave for the home [MIDI] studios. But those home studio people have become our customers. They're not going to buy a Lexicon 480 or automated console, because they only need it occasionally. So they come to us for that, and for the acoustic recording they cannot do at their house."

"My fears [about home studios] are probably true for the budget 16-track and 8-track commercial studio operations. I think they'll have a harder time surviving because now anyone can have that at home."

Porter's right, and this fact even extends to 24-track studios, particularly the ones outside major urban areas. Outside the SF Bay Area, many large studios exhibit ambivalence about MIDI; "sure, MIDI's great, but it's negatively affected business." These studios have used resourcefulness, flexibility and talent to make up for it.

In Santa Rosa, bordering the wine country an hour north of San Francisco, Banquet Sound Studios has felt the effects of MIDI. Built in 1983 as a "traditional" recording facility complete with large studio, variable acous-

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**"MIDI gives the client the option of making changes at any time, from the beginning of a project to the end, and that includes the mixing process. You can do a song in one day, send it to L.A., and the next day the A&R person calls and says, 'That snare drum is too rap, can you give me a rock snare?' Yeah, sure! Or, 'Make the voices more consistent in the books.' I can use a MIDI sampler to spin in the best book, using MIDI with SMPTE. Since I do mostly songs, that's what MIDI's about."**

**—Jim Gardiner  
Live Oak Studios, Berkeley, CA**



**Jim Gardiner at Live Oak Studios in Berkeley.**

tics and iso booths, the Banquet "hesitated to get into the MIDI revolution," says owner Warren Dennis, "primarily because we had invested in the other approach [and have worked with Windham Hill, Global Pacific, Capitol and other labels]. But over the last year-and-a-half, we've moved

toward a lot more work in commercials, jingles and soundtracks, and the Macintosh-oriented MIDI programs have a lot of advantages in terms of adjusting for specific time cues, transpositions and making a 20- into a 32-second bed."

So Banquet took a byte. Now into

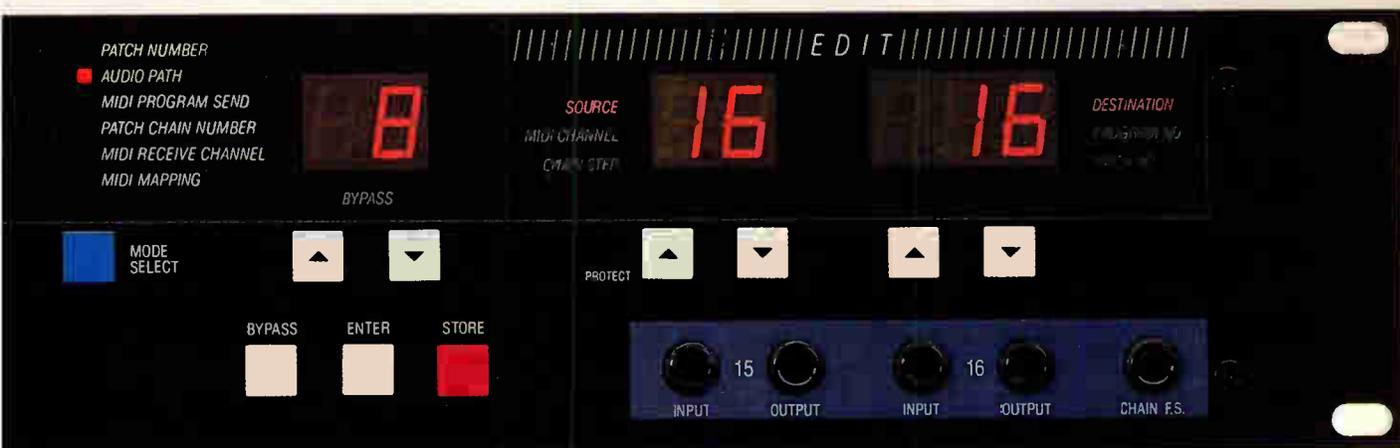
the Macintosh and Mark of the Unicorn's *Performer* program, Dennis has also invested in MIDI-controlled synth modules, samplers and Opcode's Timecode Machine for MIDI/SMPTE

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**"MIDI has been an invaluable tool in the recording business, especially for demo projects. It's a little too early to tell where it's all headed, but already a lot of people are doing nothing but MIDI, and others are gravitating toward [only] live recording. That might be a reaction to everyone being MIDIified."**

**—John Nelson  
Crow Recording Studio, Seattle**

conversion. "The system rolls around on a cart, which lets us handle compositional stages in the pre-production room, the control room or even my office. So the studio can be doing one project while we're pre-producing in another environment."

Nonetheless, as a music producer experienced in many styles and a musician with a composition degree, Dennis has "a tear in my eye about the MIDI revolution. Because it makes

it possible for mediocre musicians to create. I see this time and time again. Everybody has the great sounds, can get the computer to play things that they're not capable of playing [themselves].

"On the other side of the tear," admits Dennis, "is a fascination with, 'Look what this technology is making us capable of doing.'" Still, Dennis feels, "MIDI has hurt the medium-sized studio tremendously. We're not located in the city or large enough to attract major label projects, and we're too large for the homegrown studio approach. Many musicians have MIDI studios in their houses and we've lost that client base.

"The Banquet has the best of both worlds—the acoustically designed, controlled environment and the MIDI technology—and people have told me, 'This will bring new clients into your studio.' But our overhead prices us out of the market for people who have a \$10,000 MIDI setup in their house. I haven't seen my clients come here to work in the MIDI format. They may come here to mix, to do overdubs and download to tape, but we've lost more client base than we've gained.

"The only way we can be profitable is to move into post-production, jingles and commercials. So a while ago I formed Mediasonics, which is the most award-winning advertising and soundtrack production company up

**"With MIDI, I can wear my composer, arranger, producer and engineer hats all at once, which means I can work very fast. I can use MIDI to incorporate post-production techniques into the composing process. Sound effects and edit decision lists are becoming part of the composer's palette. At times, MIDI has also caused my hair to fall out, and has substantially increased my long distance phone bills!"**

**—Eric Jensen  
Jensen Sound, San Francisco**

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But the real pleasures of the M-600 will only be evident after it's in your studio. Up to 64 stereo or 128 mono inputs can be accessed directly from the top panel. A patch bay can be added for fast, flexible routing. That's convenience.

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here—big fish in a small pond. Now we're trying to expand Mediasonics' market into Marin and the Bay Area."

MIDI also dramatically affected Bear Creek Recording, which is located in an idyllic farm setting a half hour drive from Seattle. Because of MIDI, Bear Creek was forced to change the focus of its business from music recording to full-service music production company (which is "always looking for musicians with great material"), doing commercials, TV and film work. Recent clients include NBC Sports, Will Vinton's Claymation Productions, Alaska Airlines and Boeing.

"When we opened in 1977, any band had to go into a recording studio to make a demo. We were 16-track then, charging \$75 an hour, and were booked around the clock, mostly cut-



Bear Creek Recording outside Seattle

*"We're known for how quickly we turn out a product, and I think that's due to MIDI. With MIDI sequencing, you don't need tape to put down an idea quickly. You can change things in an instant, and get to many timbres with a single keystroke or knob-twist. You have much more access to all the manufacturers—each one can put out less expensive boxes that do the favorite things for that particular manufacturer."*

—Peter Buffett  
Independent Sound  
San Francisco

ting demos for groups," says owner Joe Hadlock. "Now groups can make better-sounding demos at home with their Macintoshes and MIDI equipment. They don't come here to record demos anymore. So we had to find other sources of business."

Hadlock's been keeping up with the industry, constantly implementing new MIDI technology, and this is not only expensive, but "very time-consuming, and that's frustrating. I think of the months that I've spent reading manuals. But still, MIDI has changed my life. I got into this business as a keyboard player, working with synthe-

sizers since they first started making them, when I had to stack up tracks playing single-note parts. Now I can play a whole symphony orchestra with one note."

This doesn't necessarily hearten Hadlock, who talks about the large, ambient space at Bear Creek, the high

ceilings, expensive mics, and "all the time we spent learning how to capture a live performance on tape" (Bear Creek hasn't departed entirely from the music scene, having recently hosted Heart pre-producing the band's last album.) Although Hadlock laments MIDI's ability to replace live

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musicians, he sees it as a "temporary shift" only, and acknowledges, "MIDI has even changed the way our production company works. Using the MIDI technology, we do a lot more work, a lot quicker."

Also affected by the onslaught of MIDI studios is Spectrum Sound of Portland, which moved into all-new facilities a year ago, at age 14. The Joiner-Rose-designed complex holds four studios, a scoring suite and Oregon's only SSL console. Spectrum handles music recording, commercial audio/broadcast sound and audio/video systems design. Projects last year included the sound mix/sweetening for Will Vinton's CBS-TV California Raisins special and recording of the accompanying *Meet The Raisins* release on Atlantic Records. Nu Shooz performed much of it, and also is a regular Spectrum client. Spectrum also recorded the new CBS release by the jazz band Oregon, as well as other jazz and new age artists for such labels as CBS/Masterworks and Rounder.

When it comes to MIDI, Spectrum will gladly rent gear upon request, but doesn't own MIDI equipment. "MIDI has hurt the bona fide studio owner—I include myself there—because," says owner Michael Carter, "it enables so many small-time people to have their own 16-track basement studio-type operations. Those are just *everywhere*. The guy doing jingles can now do it at home in his MIDI setup and doesn't hire the studio, which diminishes my activity."

Indeed, this is the reason Spectrum's scoring suite provides canned sound effects and music libraries for video. Why buy a Macintosh, MIDI keyboards and patch editing software when "the same basement guy doing jingles has the little video setup with his MIDI setup, and he's doing scoring there, not here"?

Because of MIDI, when Spectrum was redesigned over 100 audio line connectors were installed in the producer's desk in the main studio, including plenty of MIDI ports, which route to the control room and all around the studio. "We can even do mixing from, say, a Synclavier, in through the board," says Carter, stipulating, "We're much more what you'd call an acoustic studio with digital-grade, quiet studios."

Carter did just take delivery of an Akai S950 sampler with Akai's keyboard controller. "We'll load our sounds and effects into the sampler

**"MIDI has greatly enhanced our ability to do soundtracks for video, by allowing us the capabilities of synchronizing musical elements to specific locations relative to the picture. It's opened up a whole world of musical scoring in the video sweetening end. Further, if we didn't have MIDI, video producers would still be using library music."**

—Paul Scoles  
Ironwood Studio, Seattle

and build a library, then use it in all our studios and the scoring suite." Doesn't this serve as Spectrum's first foray into MIDI triggering? "We're getting into MIDI, but only as a production tool," qualifies Carter, "because digital sampling is so handy. You can manipulate it, you can change the pitch. So we're getting into it as a faster, more convenient tool for our clients."

MIDI's inspired other busy Northwest studios to dedicate real estate to the technology, with great success. It's important to note that those who benefit from this approach have a much different business focus than the aforementioned Plant.

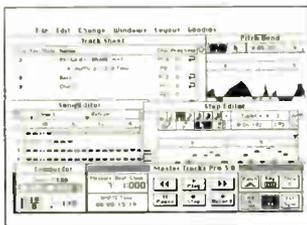
The four-year-old Granny's House in Reno, Nevada, recently built a small

**"I love MIDI. It's opened up so many possibilities for me in terms of sequencer use and sounds. It's not without its frustrations, MIDI delays being the worst, and we all have to learn a lot. MIDI also has changed the way you do business, because people tend to do more work at home. So I'm more likely to get involved in quickie-type projects with tracks that have already been sequenced."**

—Steve Savage  
Savage Studios, San Francisco



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**—Matthew Howe  
Studio Center San Jose  
San Jose, CA**

MIDI "showplace" studio (complete with stained glass windows) on its third floor. The room's anchor is an Anvil rack case filled with "everything from an Akai sampler to [Yamaha] TX-816s, [Alesis] MIDIverbs, Roland D-110 and D-50, and a 16-track MIDI mixer, all MIDI'd up through an Atari 1040ST computer, with C-Lab's Crea-

tor sequencer software [from Digidesign]. The whole system is hooked to the Akai 12-track [cassette recorder/mixer]," says studio owner Robert Forman.

The MIDI room is cabled to both Studio A and the new, 800-sq. ft. Trident-based Studio B. "We can get a MIDI situation going on the third floor," details Forman, "then call on the intercom for someone to roll tape in Studio A or B, and dump the MIDI stuff directly to 2-inch. If we're doing lighter demo work or commercials, we just stay with the Akai 12-track upstairs. We also have a 2-track Otari upstairs."

To illustrate the MIDI room's creative capabilities, Forman mentions something else that's cooking at Cranney's House: Taj Records, their in-house record company, a Motown/MCA affiliate as of last August. The first single by their first artist, Gerald Austin (The Manhattans' former lead singer), was a *Billboard* "pick." He wrote the entire album in the MIDI room. "Our record company is running on MIDI," muses Forman (noting one exception, the recently signed Jack Mack & the Heart Attack). "It's just a phenomenal method of doing music. The technology is

so, so good, you can't *not* do it. I'm not particularly computer-literate myself, because as the studio owner I spend most of my time worrying about money, but even I can get into the system and use it with a great deal of ease."

Has MIDI lessened any of those financial worries? "It has," answers Forman. "No question about it. If you work with musically creative people who have a basic understanding of music theory and how MIDI works, the possibilities are almost endless."

Endless possibilities... music to the ears at Russian Hill Recording, a leading post-production and music recording facility in San Francisco. Engineer Sam Lehmer has been pleased with the post-oriented developments in MIDI technology, and has been dealing with "more and more computers" coming in with Russian Hill's independent producer and composer clientele.

A couple of years ago, Russian Hill equipped a small top-floor room for MIDI work. The room works well and often, though it doesn't pretend to "have it all." Lehmer says, "We've bought the MIDI equipment only as necessary. We don't have a ton of sampling keyboards or MIDI instruments—clients bring them or we rent them when needed." Audio ties route throughout the building, but each room is self-contained where MIDI's concerned. Lehmer points out, "We inevitably have to change things while the system's running, so it's much more convenient to bring the MIDI system downstairs [to the main studio]."

Russian Hill's projects over the past year or so all incorporated the gear in the MIDI room, in some way. These projects include movies (*Walker, Thin Blue Line, Two Idiots in Hollywood*), records (Dave Brubeck Quartet, Mark Isham, Cleo Laine), commercials (Polaroid, Chevron, CitiCorp) and lots of Saturday-morning TV work (Garfield, Charlie Brown, Gumby).

Within this work, Lehmer says, "We use MIDI in three areas. One is music production with MIDI instruments. Generally, we use Performer on the Macintosh Plus, usually synched to SMPTE with the Opcode Timecode Machine. Then Performer runs the MIDI-controlled keyboards, drum machines, samplers, etc."

Another MIDI'd area is audio post work, much of it done with MIDI-con-

—CONTINUED ON PAGE 178

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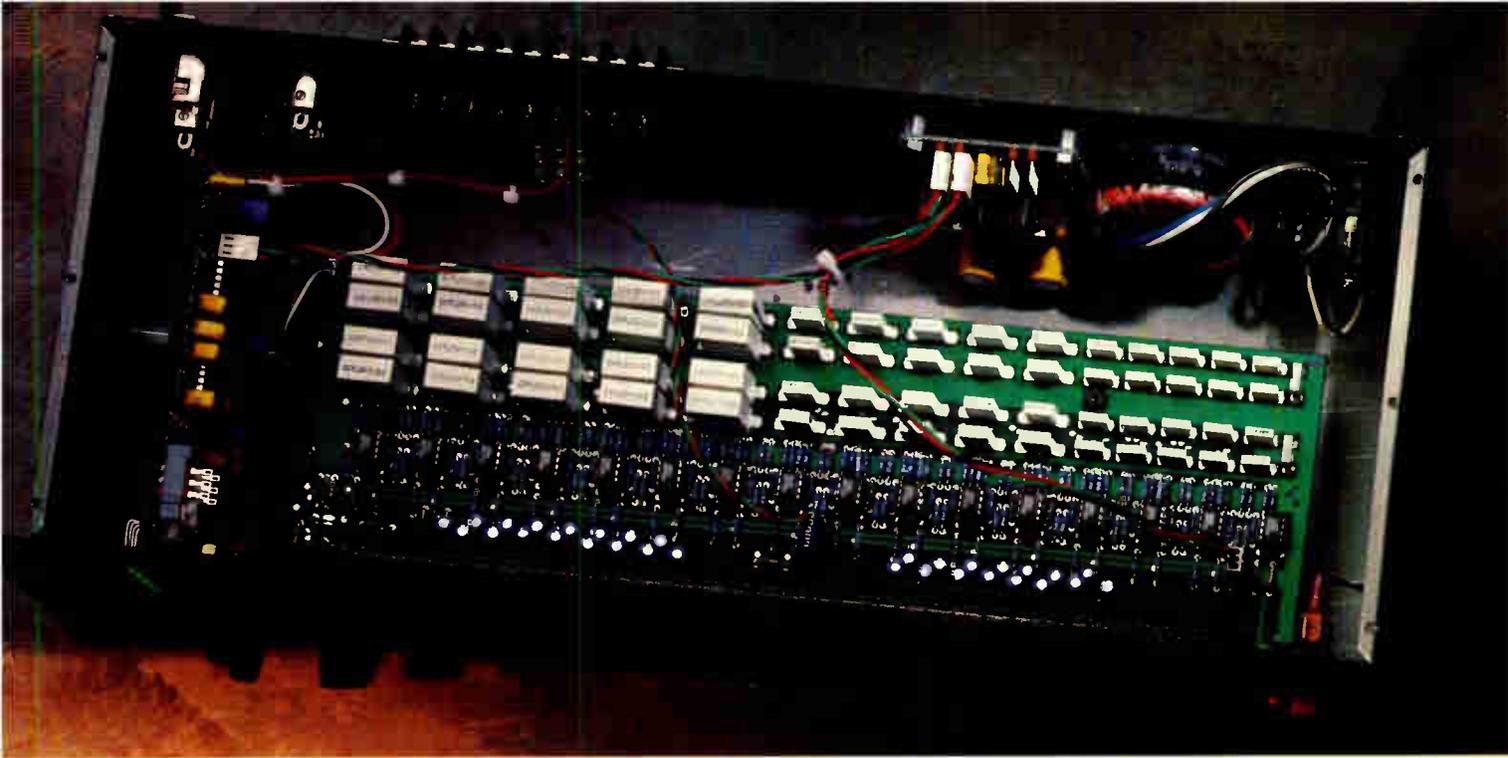
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Frequency Response	18 Hz to 30 kHz +/-0.5 dB	10 Hz to 40 kHz +0/-3 dB	20 Hz to 20 kHz +1/-2 dB	20 Hz to 20 kHz +/-0.5 dB
Number of Bands	31	30	30	30
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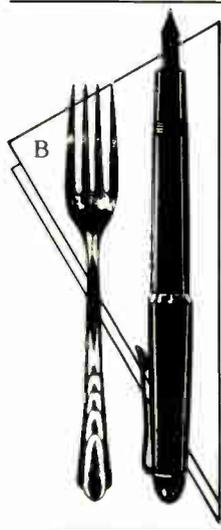


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by Mr. Bonzai

# YESTERDAY TODAY & SANTANA



For Mrs. Bonzai and me, this was a day of total Santana. We started off meeting with Carlos, Gregg Rolie and Michael Shrieve in a suite at the Sunset Marquis, a favorite haunt of the rock elite. Michael and Gregg greeted us enthusiastically, having followed these *Mix* lunchings through the years. When Carlos arrived from some radio interviews the chat soup was already cooking, and he hopped into the juice with unusual sizzle. An hour later we had turned up some Santana stories to add to the rocklopedia.

By early evening we were winding our way through the Hollywood Hills toward the outdoor Greek Theatre. A wrong turn took us on a long jaunt that gave us plenty of time to listen to some classic Santana, as well as a prerelease of a new album from Shrieve. Pulling up at the Greek, we merged with the thousands of Santana fans revving up for the 20th anniversary reunion concert: Viva Santana!

There's no idle flash with this band—just solid power jams and acrobatic solos. Percussion concussion opens the show and sets the stage for Carlos' entry. Rolie gets his B-3 to howl out those ol' riffs while his vocals take us right back to the heart of the hits. Shrieve is a one-man drumscapade, striking the skins with seasoned spice and occasionally dazzling us with new melodic electronic trickery. Add to this the conga heartbeat of Armando Peraza, the ringing snap of Jose "Chepito" Areas on timbales, Alphonso Johnson on bass and Stick, and former

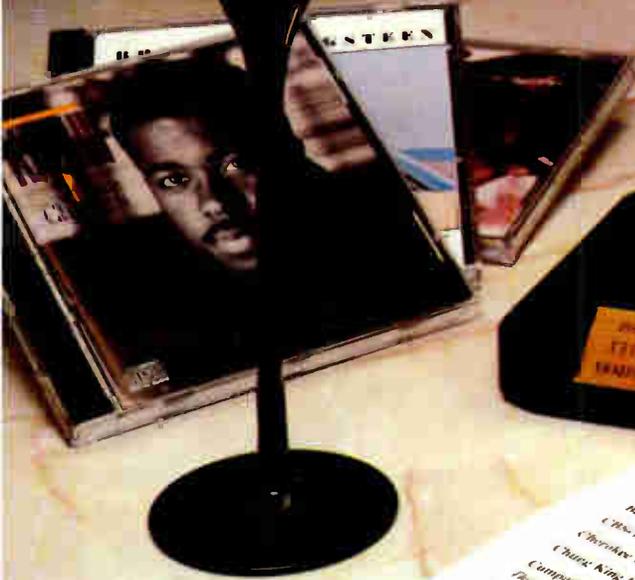
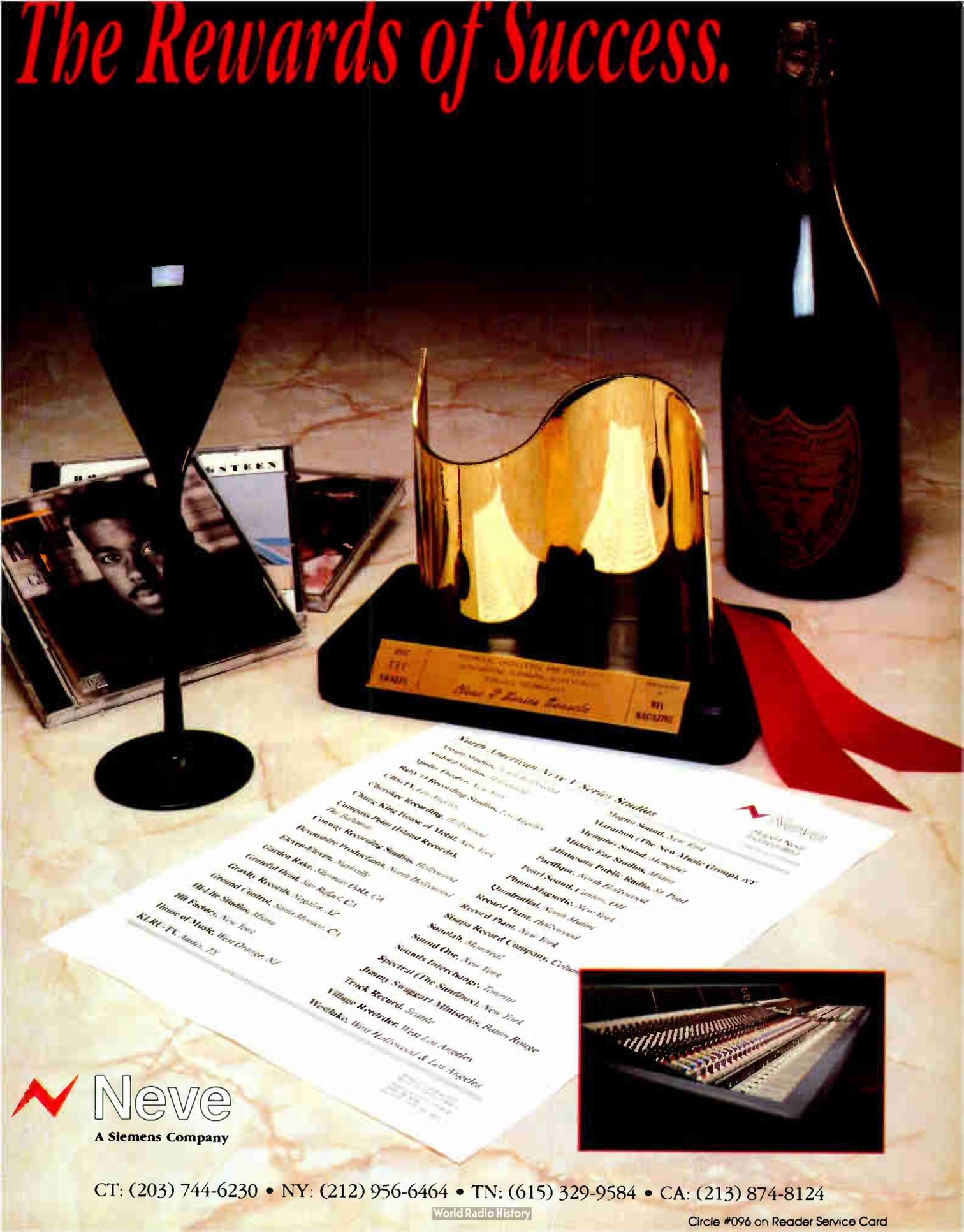


Tower of Power keyboardist Chester Thompson.

**Carlos Santana  
and Armando  
Peraza**

The audience was ready to flash back to Woodstock, and Santana gave us every hit and lots more. A number of folks got their love beads and paisley frocks out of mothballs—they were in Hippie Heaven. A healthy Latino contingent was there to cheer on a

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## LUNCHING · WITH · BONZAI

hero. A guest spot, with Los Lobos' Cesar Rosas joining Carlos for dueling guitars, brought everyone to their feet and lifted them into the starry night. The concert was a statement of musical internationality and a testimony of talent surviving, growing, revitalized with time and taste.

But let's get back to the morning of the show. . .

**Rolie:** Carlos, I told you no fun—no smiling and laughing. I'm gonna have a discussion with the whole band about this. I saw far too much enjoyment on the stage, and I don't want to see anymore of it.

**Bonzai:** So, good show last night?

**Santana:** Yeah, a lot of fun.

**Bonzai:** You guys have been in touch through the years, haven't you?

**Santana:** Inwardly, we kept in touch. Outwardly, once in a while we'd get together. Fortunately, it wasn't like the Beatles communicating through lawyers. It was never like that.

**Rolie:** We went in different musical directions and everyone was busy. We just didn't have time. Around 1980, I quit Journey and had a lot of time, as a matter of fact, and I worked on some stuff with Carlos. I hadn't seen Mike for a long time—he was in New York and elsewhere. It slowly progressed into doing more and more together. Then around '86, Carlos decided to do a little reunion at Shoreline Amphitheatre [in Mountain View, California, south of San Francisco].

**Santana:** Right, I was booked to play at Shoreline. Actually, it's my sister-in-law who takes the credit for us getting together. She said, "Why don't we call everybody and have a jam session?" I told her she was out of her mind! She said, "So what if I'm out of my mind. Call everybody anyway and let's see what happens." So, we called Gregg and Michael, and all of a sudden they called me back in Columbia, Maryland, and said the original band was gonna be there. I said, "They are?!" They said everybody wanted to come. I said, "Maybe we should rehearse. We haven't played in 20 years. . ."

**Rolie:** Maybe we should rehearse—I like that. That's good.

**Santana:** So we took one day before the show to rehearse.

**Rolie:** The chemistry and magic was intact.

**Bonzai:** I'll be at the show tonight,

so I don't yet know what you're doing for this Santana reunion tour. . .

**Santana:** Yesterday, today and tomorrow—two-and-a-half hours. And go fishing on the spot. People love it when you walk that tightrope. They like it when you stick your neck out in front of everybody. And it's refreshing. It's not nostalgia, or like those revue bands I've seen. It's not reviving a cadaver and presenting it.

And you can see it in the people. The last few concerts that we've done, something's happening. When we were first touring together as this band, people would jump on stage and start dancing. They didn't want to steal your guitar or steal your congas. They just wanted to jump on stage



Gregg Rolie, Carlos Santana, Michael Shrieve

and be there. "How you doin' man? Keep playin', don't mind me." It's happening again. That's what we want to do—go ahead, and keep playin'.

**Rolie:** It's true. Carlos has kept the music alive through the years. To come back and play these tunes feels very fresh. It isn't one of those tired reunion revues. The music is played with the same fervor but with more knowledge, better musicianship than ever. Even the technology—all of it's better. And we're having more fun.

**Bonzai:** Speaking of technology, a lot has happened in 20 years. What's different for you with the keyboard setup now?

**Rolie:** It's not necessarily so much my setup. I give a lot of credit for live sound to the P.A. system and the effects that I can put on my own equipment. But I'm mainly playing a B-3. Both Chester and I play B-3s. He doesn't play it as much as I do, so there's a combination of synthesizer and B-3.

The band sounds enormous—a big wall of sound. He has seven, eight synths, maybe 20. I've got five or six that I use on top of that.

**Bonzai:** You could program a synth to sound like a Hammond B-3, couldn't you?

**Rolie:** No, never. You can get close and you can play it close, but there's nothin' like the real thing. You can't get a synthesizer to swirl like a B-3; you can't get it to sound like a piece of wood. It isn't the same. And I don't play a B-3 the same as a synth. I feel very delicate if I have to go through a different keyboard. I play the B-3 too much like an animal to be delicate with it. I feel like I'm tiptoeing across the keys if I'm playing anything else.

**Bonzai:** What's new for you, Mike?

**Shrieve:** Well, last night was the first time that I started using some electronics, aside from a few things where we've been triggering snare drum and bass drum sounds for a couple of tunes. On my own, I've been using electronics and playing melodic stuff on pads. This is a band that can use the technology very well and bring a combination of the earthiness and the rawness with the percussion and the music. It's a good place to do it. This is a group that would never let the technology overtake the human element.

**Bonzai:** Let's go back through the years. Carlos, I was curious about the time when you lived alone in Tijuana. How old were you?

**Santana:** About 12 or 13.

**Bonzai:** And you were playing?

**Santana:** I was playing, yeah. That's why I went back. My family had moved from Mexico to San Francisco, and I

PHOTO: MIP BONZAI

had the choice of going back to Tijuana and hanging out with black blues players and strippers, or going to junior high school and hanging out with a bunch of squares. There was no choice. My mother was furious, but she gave me a one-way ticket to Tijuana and \$20.

When I got there it was Halloween night, and everybody was dressed up like skeletons. It suddenly dawned on me that I was really alone. Totally alone. The first thing that I did was go to the church of The Virgin de Guadalupe, the patron of Mexicans. I remembered that a year or two before we emigrated, my brother had a bad toothache, or something, and Mexican custom says that you walk on your knees through the church before praying for help. I guess my brother felt awkward about doing it alone, so he asked me to go with him. When I came back to Mexico and went to the church alone, I said, "You know, two years ago I was here and I walked on my knees and I didn't ask you for nothing, so I figure you owe me something." That's how I approached it.

**Rolie:** Makes sense to me.

**Bonzai:** A little something in the spiritual bank account. . .

**Santana:** Yes, spiritual practicality. So, I asked her to protect me and my family, and to help me to stay safe. But I didn't have any problems as soon as I got into the cantina again. At first, the owner said, "What are you doin' here?" I told him that my mom said I could come and play. He said I needed a letter, because I was underage and they would put him in jail and close his place. I convinced him it was all right, because my mother was in San Francisco. Anyway, he told the guitar player to leave and I started playing. I stayed there for a year-and-a-half. It was an experience. You learn in there to [snaps his fingers] catch the listener. Most people go there to get drunk, to find drugs or women. Just like Las Vegas or the South of France. There isn't as much money, but it's the same hustle. I learned in there that if you play the music correctly, you can make prostitutes stop hustling, you can make the hustlers stop hustling.

**Bonzai:** Bad for business, though. . .

**Santana:** Yeah, they didn't want me to do that too much. Just play the Top 40. If you couldn't play "Green On-

ions" and "Hideaway," you couldn't go on the bandstand. That's basically where I got my attitude as far as hitting the note here, here and here. [Carlos slaps his head, heart and groin.] Most musicians play from the fingers on out, so it's very hard for the music to go inside people. I learned in the cantina how to get inside the note, so when the audience is talking they even stop and listen.

**Bonzai:** Your family were professional musicians?

**Santana:** My father, my grandfather and his dad. My great-grandfather played something like a big French horn, between that and a tuba. My grandfather played an instrument more like a French horn. My father played violin. He tried to turn me on to the violin, but it had three strikes against it: I hated the way it smelled, the way it sounded and the way it looked.

My father moved to San Francisco because everyone was playing mariachi music and he couldn't make any money. I was making more money than he was. I dressed up as a little *charro*, *vaquero*, a Mexican cowboy, and played the songs he was playing. Because I was young, it was cute and I made more money. I would go around, literally, on Revolution Street, saying, "Fifty cents a song, man—you want a song, mister?" I'd play Mexican folk songs. When my father moved to San Francisco I stopped learning music. Every day he had a lesson for me. I hated it. I would learn the lesson, and then he'd say, "Well, you did so good, let's do tomorrow's lesson." I couldn't get past him. He was really sneaky. For about six months after he left I didn't play nothin'. My father was living in San Francisco. My mom was getting worried.

She's the one who took me to the park where I saw guys with khaki pressed pants, with creases like knives, and big mops and grease. They were playing straight-ahead Chuck Berry, Little Richard and B.B. King. I remember the way the amplifier and the guitar sounded against the trees and the cars. I was mesmerized. This is it! I followed one guy for about a year, like a little puppy dog, trying to copy his licks and his tone. My mother wrote my father a letter, "You know, Carlos is seriously into music, but he wants to play the guitar." My father sent me this Roy Rogers or Gene Autry electric guitar. Weird-looking model,

but that's where I learned. That's where I got that T. Bone Walker injection connection and electric guitar sound.

**Bonzai:** From hearing his music?

**Santana:** From hearing Xavier Batiz—he was playing basically T. Bone and B.B. King. He had a beautiful tone and still does.

**Bonzai:** Let's jump to San Francisco and the time when the band was formed. You were in some talent nights at the Fillmore. . .

**Santana:** Well, before that there was a talent night at the Cow Palace with KFRC and KYA, the radio stations that had the battle of the bands contest. There were about a thousand bands. Five hundred sounded like the Rolling Stones and got eliminated. Three hundred sounded like them doing "Gloria." After a while there were four bands: mine and three others. We were doing original stuff and there was this black lady from Daly City singing "Steal Away." First they introduced The Turtles and Sam the Sham as the real professional guys. Then they brought us on. It was a heart-breaking thing for me, because I was ready to hit it, but my partners got drunk. They were so nervous that they drank too much. When we went out there to hit it, it sucked.

**Bonzai:** Were you guys there?

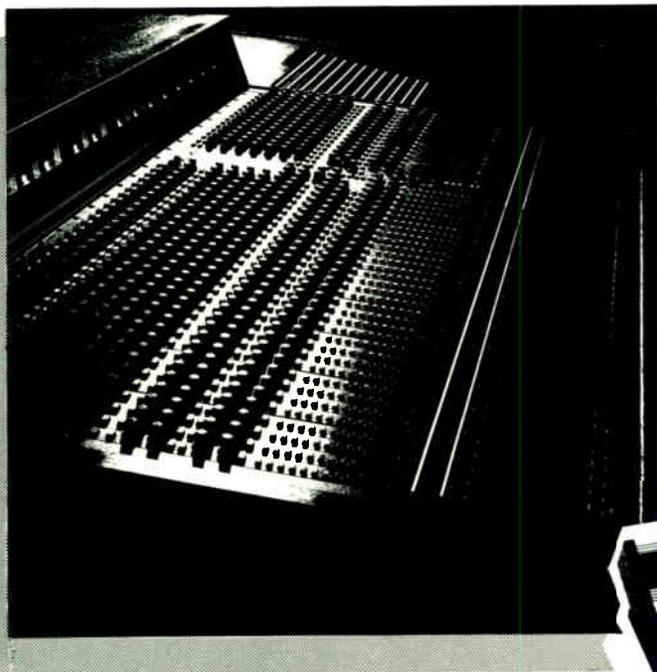
**Rolie:** No, this is the first time I've heard this.

**Santana:** I started hanging around the Fillmore West. One Sunday matinee, Paul Butterfield was on the bill. I can say this—he's in heaven and I'll be forgiven. He took too much LSD. I could tell because his hair was uncombed, he had no shoes and he was watching the wall. I knew he was gone, he wasn't gonna play that day. It was a jam session, and Michael Bloomfield was playing keyboards. The Grateful Dead and Jefferson Airplane were there. A friend of mine, Stan Markham, said to Bill Graham, "Hey, I know this Mexican kid from Tijuana who's like B.B. King. You think you guys might let him play?" So Bill suggested he ask Michael Bloomfield. He said, go ahead, man. I grabbed the guitar and started playing. A guy was there named Tom Fraser. He saw what I did and sought me out.

I was working at the Tic-Toc as a dishwasher. This guy sneaks his head in the kitchen and says, "You're Carlos, right?" I said, "Yeah." He says, "Man, I was looking for you. You want

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## LUNCHING · WITH · BONZAI

—CONTINUED FROM PREVIOUS PAGE

to start a band?" Who is this guy, ya know? Anyway, he took me to Palo Alto, where I met Gregg. There was a rehearsal, and it was funny then, because the cops came in while we were playin'. It was loud, and there were joints all over the place. You see kids jumping out the window.

**Rolie:** We ran for it and hid in a tomato patch. Left our stuff. When they left, we loaded up the stuff and said, "I don't think we should play anymore."

**Santana:** That's how I met Gregg, and

we started puttin' it together.

**Bonzai:** Michael, how did you come into the picture?

**Shrieve:** Well, it's interesting listening to Carlos, because if it wasn't for Michael Bloomfield, I don't know if I would be in the band. I was living in Redwood City at the time. I had a band, and I called up everybody I knew because there was a supersession at the Fillmore with Michael Bloomfield, Al Kooper and Stephen Stills. I called every musician I knew and said, "Let's go see if we can jam." They said, "Naw, they'll never let us do that." Or else they'd say, "Yeah, that sounds great." Then they'd talk to

their girlfriends and get back on the line. "Oh, I think I'll stay in tonight." So I said, "Well I'm gonna go. At least I can say I tried." I borrowed my father's car to get there and went up to Michael Bloomfield and said, "Do you think I could sit in?" I expected him to say, "Get outta here, kid." But he said, "Well, you know, the drummer's a real nice guy. Go ask him." Then I was saying to myself, "Oh, no, this is gonna happen." The drummer said it was okay, and I sat in and played. Stan Markham and David Brown were there, and I guess Carlos was having some trouble with the drummer at the time.

I had seen Santana play around. So they took my number and never called, but I went to see the band some more. I was planning on doing some recording, and I drove up to a studio in San Mateo one night and as I was walking in, their drummer was walking out. Santana was recording there and Stan and David recognized me from a couple of shows. I ended up playing most of the night with the band, and at the end of the night they asked me if I wanted to join the group.

**Bonzai:** Mrs. Bonzai [Keiko] was at your concert in Yokohama nine years ago. She tells me the entire train system was jammed with your fans. She described the show as very exciting and very beautiful. It sounded like you were playing with the environment, with nature. Late afternoon, early evening, the crowd was going nuts. As the sun was setting, you did "Samba Pa Ti." Everyone cooled out. I'm curious—do you adjust your shows for different cultures?

**Santana:** Unconsciously, you do. It's something—there is a connection. If you go to Africa, you walk differently than you walk in Mill Valley or Pittsburgh or Detroit. In Japan, for me, it's always easiest to be more soft and not sell them anything, not push the music, but let the music flow. The Japanese don't come to be impressed or knocked down. They're not stimulated with drugs. It's easier to just present your music rather than hit 'em with it.

They're more receptive. Americans are still roller coasters and drive-in movies and hot dogs. The Japanese mind and the European mind are more mature, to me. But America is beginning to get that ear for the real music, instead of ten Marshalls blast-

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ing away to move them. It's easier for me to go to Japan and just play music. It's not forced. That's probably what you remember, Keiko. Things flow better over there instead of trying to cram it to them.

**Bonzai:** How has the spirit of Santana grown in 20 years?

**Rolie:** There is a lot of room for evolution because of the way we all have looked at music. It's serious—it's serious fun. And there's an awareness of everybody's differences, more so now than before. We don't lock ourselves into just one kind of sound, or one kind of music. There's more of an international flavor. I'm more receptive to Latin and African ideas than I was before. Santana has always meant the music comes first. That's why it can grow and you can grow older with it and still have it be very realistic, in a real world.

**Santana:** Bill Graham told me before we went to the East Coast for the first time that this band is the only band that represents the streets of America, all of it—black, white, everyone. We represent the whole rainbow. So it means that the spirit is a little deeper.

There are only two kinds of people on this planet: artists and con artists. The spirit of this band is art. I learned this from Japanese people, and I'm not saying this because Keiko is here. I heard them say it first, when I went to Japan in '73. Life is an art—not business. Donald Trump talks about the "art of the deal," but there's no art to greed. The only art is when you enhance life. That's what this band is about. Whether we play "Black Magic Woman" or "A Love Supreme," or whatever, that's what it's about.

Sometimes I need to not be so serious. And lately, it's really refreshing, the last two months, since Gregg is back in the band, because he has a beautiful way of just opening the doors and the windows so that I don't have to be so serious all the time. So I can let air come in through the windows and I can laugh at things. That's what I've been missing for a long time. I've been too *on it*.

**Rolie:** We all know how serious we take this, so let's just do it. One of the major reasons that the band comes across the way it does, and why playing in Moscow and Woodstock has the specialness that it does, and why the band relates, is that we as a unit

bridge the many cultural gaps that most people find difficult to handle.

But we don't look at it that way. Never have. This is Carlos, this is Mike, there's Armando, Chester, Chepito, Alphonso—and we do this and we're friends. It's that simple, and we would like to relate that to people. This is how simple it really is. You like people because you like them, and you play music with the people you like and you should have a good time here. It relates to life in general. We've bridged the differences. It's finally being discussed, but we've never had to talk about it.

**Bonzai:** I've been listening to the older stuff, and it's so well recorded. Great records that really hold up.

**Santana:** Jim Gaines is the latest person who can translate our music the way we want to say it, without making it sound like Afrosheen, or some kind of sheen. I hate sheen. I like the rawness.

**Bonzai:** Who was your first engineer?

**Shrieve:** Fred Catero, Red Dangerfield was on the first album, and Glenn Kolotkin did some work after that.

**Santana:** There was a premise we had for someone to work with the band. They had to have worked with Mongo Santamaria and Jimi Hendrix. Fred had worked with both. We wanted an engineer who could understand the electricity as well as the beautiful sound of a conga.

You know, people used to tell me that if I used congas and maracas the music would sound ethnic. I said, "Yo mama's ethnic." Why is it that Pat Benatar and the Rolling Stones can use congas and it sounds so hip? I'm Mexican and it sounds ethnic. Get outta my face. That's how I feel about it.

Now we work with Jim Gaines, because he intuitively gets to the heart of what we're trying to say. In fact, if Gregg, Michael and I went to the studio right now, we don't have to worry too much about what he's going to do. We worry about putting ourselves together. Gregg will say, "Man, it sounds like you put the microphone inside of my feeling." That's why Jim is so important. He's got that extra ear.

**Bonzai:** You must have quite a crew to handle this tour.

**Shrieve:** It's very well organized and things run smoothly, like a well-oiled machine. Also, it's not extravagant like groups traveling with an entourage of

30 or 40. Everything's taken care of with just the number of people needed to get it done.

**Rolie:** Very comfortable.

**Bonzai:** You've earned it. I can imagine schlepping in the early days.

**Rolie:** Well, with Journey it was three-and-a-half months on, one week off.

**Santana:** Even an airplane has to go home and refuel. Three weeks out, a week at home—that's pacing yourself. I don't believe in door-to-door, and I don't believe in forcing things. What does it benefit you to sell quadruple platinum albums and you can't stand yourself, can't stand the guys in the band and you can't stand your family?

**Rolie:** The record company gets rich and you're beat up.

**Santana:** That's not what music is about.

**Bonzai:** How do you prepare for the shows?

**Santana:** I have to tune my guitar, so I figure I also have to tune myself and hand it over. In ten minutes I try to hand over my expectations and speculations of how the show should run or what it should sound like, and receive what it is going to be, regardless of what's gonna happen. In other words, be more detached. It gives me peace of mind, rather than going out with knives and the first guy who makes a mistake, chop his head off in front of everybody. You need to tune yourself before you can offer something to them. Music is to complement life, so if I can't complement my musicians, my friends, how can I complement life?

**Shrieve:** You don't want to take it for granted, night by night, even when you get more comfortable with the material. Yesterday, it was a week off, it's L.A., it's a big city, and you feel the pull, but you feel the need to center yourself a little bit and put everything in perspective and focus on the music.

**Rolie:** A little quiet time to center on what it is. As the first note's getting hit, I'm right where I should be. It's pretty simple for me. It's nice in this band, because it's relaxed. It's not tight. Nobody's here to find the error—it's the other way around. Find the good stuff. ■

*Mr. Bonzai, a 15-year veteran of the music industry, is former manager of a major Southern California recording studio, and author of Studio Life: The Other Side of the Tracks (Mix Publications).*

# Mix Music Software Survey

## Drought Fails to Adversely Affect Current Crop

by Paul Potyen

What with this year's abundant harvest of music software, *Mix* decided not to attempt the impossible: a discussion of *all* the wonderful new programs that have sprouted silicon-based shoots in the recording community in the last 12 months. Instead we asked some of you what favorite software programs reside in your gardens. We talked to studio owners (Bob Blank of Blank Productions), studio managers (John Mahoney), sound designers (Frank Serafine and Bill Koepnick), composers (Tom Scott and Wendy Carlos), producers (Wayne Cobham) and others active in the industry, to come up with this crop of software favorites.

While most of them turned out to

utilize MIDI-based technologies, we discovered some non-MIDI applications of interest to the recording industry.

### John Mahoney on Archie

The Macintosh continues to be the computer of choice for most people we talked to in this survey, and one of those non-MIDI applications to hit the streets in recent months is a comprehensive studio management system called *Archie*. While there are programs with similar features available in the IBM environment—such as Pristine's *Studio Management System* and Integral Systems' *Organizers*—*Archie* is one of the first comprehensive packages of its kind to be offered on the Mac.

John Mahoney is an independent composer and music producer who also manages a Synclavier-based re-

recording studio at Atlantic Records' facility in New York. He describes his role this way: "They've built a room here which I manage, and I'm chief programmer for their room as well. I also have my own music production company for advertising and film, for which I compose and produce."

Mahoney says, "I needed a software program that would help me do my own bookings, billings and track sheets for my own music business. I also needed something that would allow me to log what programmers have to get paid what at the end of the month, how much tape we've used, how many disks we've used. In the past, Atlantic has primarily serviced the record community. In introducing this room they are expanding into film and advertising. So thirdly, I needed a software program to organize a whole database of advertising people, film producers, and film and jingle composers to let them know that this new room is available.

"It's a lot to do and I don't have a secretary. I might do an advertising spot in the morning, and I'll have a half-hour turnaround to pick up on the third reel of a film score for another composer at 1 p.m. Then we might stop at 5 o'clock and have a half-hour to prepare for a Jennifer Holliday record. So I need to be able to log quickly what happened, where did we stop, who gets billed how much, what's the rate, what's the P.O. number, is it direct billing, who was in on the session, who were the sidemen, do we need to cut checks for them, etc."

*Archie* was created by John Alcock, who helped build and run a studio in London, and who has been active as a record producer in the past. He designed the program to be able to run on a multi-user network as well as a single-user environment. "So far my second programmer and I are running it on one Mac," says Mahoney. "However, the rest of the studio is looking

### Track sheet form from *Archie Studio Management System* for the Macintosh.

**File Edit Set View Data Entry Billing Stock**

**Tracksheet Entry**

CLIENT # 101      TRACKSHEET NO TR 1

CLIENT NAME Famous Record Company, Inc.      DATE STARTED 5/5/88

ENGINEER JE      MASTER TAPE ID# 100      ROOM A

ASST. ENG      LINE UP BY AE

ARTIST The Slippery Pole      TITLE My, Oh My

PRODUCER      bpm 1/4 1/8 1/8 1/8 1/16

INITIALS ZW      123 488 367 244 163 122

NAME Ziggy Weasel

SET UP NOTES  
Rent Fairlight

SMPTAPE POSITION		
START	STOP	DURATION
20:34:23	20:39:10	0:4:47

TAPE POSITION INDICATOR	
START	END
1234	3456

1	2	3	4	5	6	7	8
Kick Near RE 20	Kick Far	Snare Top	Snare Bottom	OH Left U87	OH Right U87	TT Left	TT Right
9	10	11	12	13	14	15	16
TT Floor		Emulator Left	Emulator Right	Guitar Near B & K	Guitar Far PZM	Bass Amp	Bass DI
17	18	19	20	21	22	23	24

at how well it's working for us. The value of doing this on a network for the whole facility is becoming apparent.

"With four digital editing rooms, three mastering rooms, three analog studios and my digital studio, there's a considerable amount of paperwork involved," Mahoney admits. "If there were an Archie network with a Mac terminal in each of the studios and one over at Atlantic Records, each assistant could just sign out on the terminal, and all that information would be available on the same day to everyone. It would be terrific to have it all on one database."

Although Archie can be resident under *MultiFinder*, along with a sequencer or some other application, Mahoney is fortunate enough to have a Mac II dedicated to the Synclavier and another Mac II dedicated entirely to Archie.

Does he feel that he has been able to take advantage of all that Archie has to offer? Mahoney laments, "We get so many pieces of gear in here, we don't really have the luxury of sitting down and going through the manual to learn all about the product. It's more like, 'What-do-we-need-let's-go!' But Archie's manual is clear enough, so we sort of tackle each new function as the need arises. So far we haven't run up against any deficiencies. It's really a wonderful piece of software and the customer support has been terrific."

Archie is distributed by Words & Deeds, Inc., 4480 Sunnycrest Drive, Los Angeles, CA 90065; (213) 255-2887.

### Bill Koepnick on Turbosynth

Sound effects designer and editor Bill Koepnick is active in film and TV in the Los Angeles area. This time of year his time is taken up largely with work on Saturday morning television shows: *The Real Ghostbusters*, *Alf* and *Alf Tales*. He also does the Foley and lay-back for those shows. "It's the kind of thing that used to take four people two weeks to do, and now it takes two people two days," he says, "thanks largely to samplers, the Macintosh and Digidesign's software programs, notably *Q-Sheet*, *Softsynth* and *Turbosynth*."

Koepnick makes abundant use of samplers for sound effects editing. He also likes the opportunity that animation and science fiction movies afford him for creating sound from scratch—creating an atmosphere for a world that doesn't exist. "Sometimes that

will mean manipulating real sounds in the samplers, but more often if I can, I like to synthesize sound effects. One of the nice things I found about Turbosynth is that unlike the hardware-based synthesizers that I use [a Sequential Circuits Prophet-VS and an Oberheim Xpander], the oscillators can be dynamic in time, so the actual waveform can be varied. The oscillator module provides a palette of waveforms that you can paste into an oscillator. There's a time scale that is dependent on the length of the sample you're working on. With sufficient RAM in the Mac you can make some very long samples. Say you have a five-second sample. You begin with a waveform of your own choosing, like a sine wave, and then at two-and-a-half seconds you can paste in another totally different waveform, say a square wave, or even a hand-drawn wave shape. As you play this note, the wave shape will make a smooth transition from the first waveform to the second, giving you a dynamic control you can't get with any hardware synths. Turbosynth lets you put up as many different waveforms in that oscillator window as you want, and you have very precise control over the way they change. Then you can save that oscillator and call it up in a different patch, or duplicate it and have one modulate the other. It's a very flexible and dynamic system."

Koepnick concedes that his system, a Mac II with five megs, does use a lot of memory. "I started out with one meg and quickly ran out of room," he says. "I'm using a CMS 80-meg internal hard drive. The files can also take up a lot of room. I generally save portions—you can save an operator or a patch without necessarily saving the whole sound."

Depending on the circumstance, he may begin constructing a sound with either an oscillator module or sample module. For things that sound more like synthesizers—electronic noises—he generally prefers the start-from-scratch approach with oscillators. But he says, "I also use it to call up sections of a sampled waveform and, in *Sound Designer* format you can take anything you've sampled and use that as a basis for creating a new sound. This latter technique yields a whole different texture. I think that someone doing musical patches would probably find the sampled module the more useful approach."

According to Koepnick, there are

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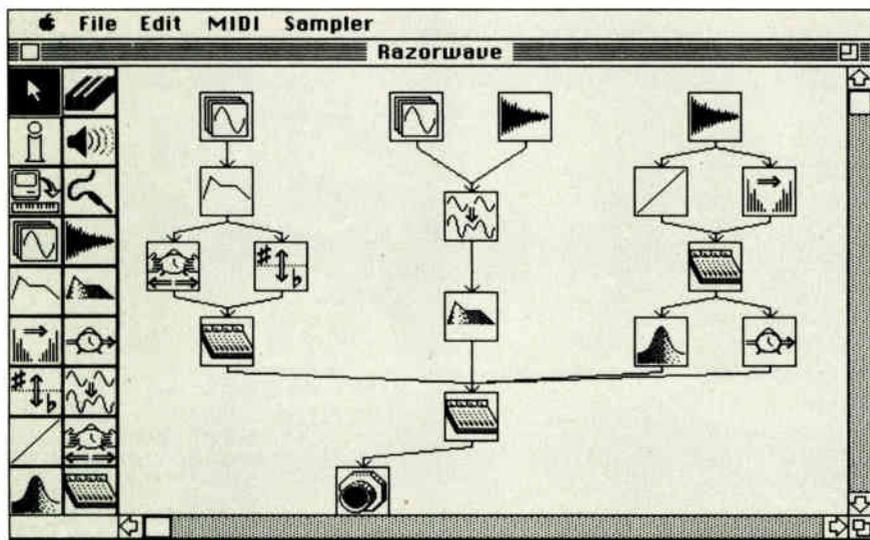
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**Turbosynth for the Mac lets the user build sampled as well as synthesized waveforms using digital signal processing modules. The sounds can then be transferred from the Mac to most popular samplers.**

limitations to Turbosynth, depending on the samplers you're using. "For example," he explains, "the Emulator II will not allow you to place the loop point at the first sample or the last sample. So it is possible that you can have something that works in the Mac but does not work on your sampler. But it's not a difficult thing to work around by repositioning loop points either in the E-II or in Sound Designer."

Turbosynth has 12 modules in all, some of them rather obscure. "I haven't used the Stretcher module much," he says. "I haven't gotten into a situation where I needed to fill out the length of the sample. I think that would be more applicable in a musical situation. But I use the Spectral Inverter [which converts low harmonics to high and vice versa] a lot. It's a very interesting and powerful effect. I haven't learned how to predict its effects yet. It's predictable in some respects in that you're playing with the phase, and if you draw a straight diagonal line from upper left to lower right on the graph, you get complete phase cancellation and no output. You know what not to do, so you're not shooting in the dark entirely."

Koepnick finds that the Mac speaker is a good enough preview to let him know if he's going in the right direction in designing a sound. "When I think I've got it the way I really want it I'll download it. Only occasionally will I find that I have to go back into Turbosynth to fine-tune it."

"I expect to get Sound Accelerator [a hardware box just released by Digidesign] very soon, which will enable

me to get full 16-bit sound straight out of the Mac, thereby saving a big step. In my business time is money, and the more work I can get done, the happier everybody is."

For more information on Turbosynth, contact Digidesign, 1360 Willow Road, Menlo Park, CA 94025; (415) 327-8811.

#### **Tom Scott—Cue**

Not to be confused with Digidesign's *Q-Sheet*, Opcode's *Cue* is a sophisticated software package for the Mac, created by film composers Bob Johnston and Bob Walter. It is a comprehensive aid in blocking out cues for TV and film.

Hollywood TV and film composer (and sax great) Tom Scott testifies, "I'm very happy with *Cue* and I use it a lot. I've also taught a couple of music editors how to use it," he adds. "It was a bit of an uphill climb in the beginning trying to get these music editors to use the program. But now when a messenger comes to the door, instead of a package of cue sheets, I get an envelope with a disk in it."

"In the old days I dreaded scoring chase scenes," Scott recalls. "I always used to put those off until the last minute, because they're generally long and they are fast tempos, so there are a lot of bars. I'd have to number the bars on score paper from 1 to 100 and then do click numbers from 1 to 100, and hope that somewhere in the middle of it I wouldn't suddenly decide, 'Gosh, I've got to have a 3/4 bar here, instead of 4/4,' and have to renumber everything from that point

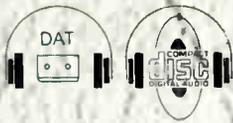
on. *Cue* has made that much, much simpler. Once I choose a tempo, I can scroll through the Clicks window to see where things fall. If I don't like it I can readjust it—I can change the tempo quite easily, I can change the meter of a bar, I can do all kinds of things. Before I've ever written a note all the math has been figured out, so I can then just print out the customized score paper."

Sometimes with large orchestrations Scott designs two separate score pages—a top score page and a bottom score page. "I actually print up the cue twice, lop off part of each one and tape them together," he says. By printing sideways he can create a large piece of score paper with as many as 16 lines.

*Cue* is chock full of bells and whistles, including the ability to drive sequencers with MIDI clocks, Tempo and Meter maps for sequencers with MIDI Files, and the ability to create streamers and punches on the Mac screen. Scott admits he has not gotten into some of these more advanced routines. Of streamers and punches, he says, "I haven't used that yet. The first thing I ever did for TV was an episode of *Dan August*, a series starring Burt Reynolds in 1969. Dave Grusin recommended that they give me a shot at it. In those days we didn't even have projection. You saw the film once, of course, when you did the spotting. But you had to take your notes and work either to clicks or to a clock. On many of the rubato cues I learned, like so many of my predecessors, how to accurately conduct to a clock. I still do rubato cues the old-fashioned way. I might take the clicks

#### **Tom Scott**





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out of the headphones at the beginning or the end of a cue if it is to begin or end out of tempo. Someday, if I have a bunch of stuff to do that way, I will use that feature of the program. It's a delightful thing to have that in front of you in an accurate way."

Scott also uses Cue on home projects with his synthesizers. "I use it to print guides for me—usually a one- to three-line score page with timings on it for a jingle or a short piece of music. I figure out the tempo, block it out, print it and use it as a layout when I go to do the composing on *Performer*.

"Sound effects is a very logical extension of the Cue program," opines Scott, "but I'm not a sound effects guy. I hope sound effects guys are becoming aware of how useful Cue can be for them."

More information on Cue is available from Opcode Systems, 1024 Hamilton Ct., Menlo Park, CA; (415) 321-8977.

### Frank Serafine on Alchemy

A Macintosh program released last winter by Blank Software, *Alchemy*, has garnered much attention as a state-of-the-art, 16-bit stereo sampling storage and editing environment. Version 1.2 adds E-mu Systems Emulator III, and Roland S-50 and S-330 samplers to an already long list of supported equipment, including the IMS Dyaxis sample-to-disk system. Although *Alchemy* has features in common with Digidesign's *Sound Designer*, probably most valuable and unique is its ability to manage sound files among a

network of samplers.

Film composer and sound designer Frank Serafine has been using *Alchemy* since its release. He currently runs it with his Emulator I, II and III, an Oberheim DPX-1 and a Korg DSS I. "We're also using the Dyaxis system and the Emulator 300MB hard disk drive with four Mac SEs, a Mac II and a Mac Plus," explains Serafine. "They're all networked on TOPS."

Serafine finds it an indispensable tool for taking sounds from other samplers and directly inputting the digital information to other samplers. He also uses it to communicate with other librarians. "By storing data in *Alchemy* files and putting them on a disk, it's a great way to trade sound effects. It's like an intelligent music library, where the sound is stored in *Alchemy* and can be transferred into any sampler via digital-in or SCSI port."

One frequently used feature is *Alchemy*'s digital equalizer. "Normally we would run a sound through our Hill console and use parametric EQs. Now with *Alchemy* we can EQ in the digital domain."

Serafine recalls the use of another of the program's features: "We had a great thunder sound that was recorded in New Mexico by the Weather Bureau. They set up microphones over a seven-mile radius, which they used to record for weather testing. But the whirring and clicking noises of the weather testing gear were on the recording. We were able to remove the sound of the test gear with *Alchemy*'s harmonic spectrum editor to

***Alchemy*, a 16-bit stereo sample editing and networking program for the Macintosh.**



get a totally clean, unaffected thunder sound.

"We're interested in dumping down all of our close to 20,000 digitally recorded sound effects that we've put into our E-II and start transferring them into the E-III," explains Serafine about one of his latest projects. "We have also been doing a lot of resampling. I record all my own sound effects for each movie that I do. Now that I have the stereo sampler, I'm resampling not only sound effects, but orchestral sounds. For example, I did a record with Ravi Shankar and I recorded the whole Indian orchestra—sitar, sarod, Indian percussion. I also sampled the Seattle Symphony."

The Dyaxis system is analogous to a multi-track recorder for Serafine. "The great thing about it is that it's got all this time in it. If we want to run stereo ambiences for ten minutes at a time, the Dyaxis has that capability. We can dump the sound into the Dyaxis in pieces, or we can loop it."

Serafine expects to do editing in both the Dyaxis and the Alchemy environment. He elaborates: "Alchemy allows us to take all the sound effects that I've been putting into the E-III and dump straight into the Dyaxis and

manipulate them in the Dyaxis domain. It's really a transfer mechanism, and as you transfer you can process and manipulate your sound. We'll probably get into a lot of that once we start handshaking our E-III with our Dyaxis."

To get more information on Alchemy, contact Blank Software, PO Box 6561, San Francisco, CA 94101; (415) 863-9224.

#### **Wayne Cobham on Master Tracks Pro for Macintosh**

Wayne Cobham describes himself as a Mac nut. He has most of the music software that's available, including Passport Design's *Master Tracks Pro*. "I'm a producer/arranger," he says, "but first I'm a trumpet player. I've been into MIDI since its inception, and when gigs got scarce I started getting into sequencers and samplers and the like. I have a MIDI pre-production studio in New York called 1512 Productions, where I do work on albums and film scoring." Cobham did brother Billy's last two albums here, *Picture This* and *Power Play*.

Cobham uses three Akai S900s, an S700, a 612 sampler, a trusty old DX7, a Juno-106, a Casio CZ-101 and a Ro-

land D-110 ("It's a great box!") with two Simmons SPM 8x2 MIDI mixers and a Simmons MTM trigger device for drum pads. He sometimes syncs his TEAC 80-8 to the Mac with the Master Tracks Transport Box.

"I also have *Performer* and *Midi-Paint*," he says. "The reason I prefer Master Tracks is that ultimately I just took to its graphics. It's much easier to see where the note placement is, and if I wanted to extend it I could just draw it out a little longer on the screen, affecting only that note. I was able to cut and paste over the full number of tracks in the sequence. It's a lot more efficient than going track by track in *Performer*. There's also a feature that allows you to zoom in almost down to a tick, so it's easy to see what you're doing."

He's had Version 3.2 since the end of September. "It's pretty much rock-solid," he says. "Version 3.0 had a few bugs in it, and 2.1 didn't do SMPTE lockup right. The new version includes a neat little thing called a click setup window. Instead of having to listen to the click out of the Mac speaker or plugging the speaker output into the board, you can send the click via MIDI to any one of your MIDI

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For more on ADx-22 and other ADx Time Code products, contact your nearest ADx Systems dealer or call ADx at 1-800-444-4 ADX.

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instruments. My D-110 has a good rim shot, so I just use that sound for my metronome. There are other minor things, like a Delete/Measure feature, which closes up the space on either side. It's also got a conductor track, which is rather like MidiPaint's tempo map. It allows you to change meter and tempo for all tracks."

Master Tracks is the only sequencer to offer mix automation and controller chasing via MIDI in one package. Cobham says, "It's a really hip feature to have. Using different controller settings you can do very much in the way of automated mixes and fades. You can really make it sound like a studio mix in the computer. It also

chases your patches. In the older versions, if you started in the middle of your sequence to do a punch-in, it would play whatever patch was currently up on your synth. Now it searches back through the sequence to make sure it's got the correct patch up. Their interface provides a good, solid lock to SMPTE and FSK, which is critically important for doing film stuff."

Master Tracks Pro is from Passport Designs, Inc., 625 Miramontes St., Half Moon Bay, CA 94019; (415) 726-0280.

**Wendy Carlos and Coda's Finale**  
Calling *Finale* a music scoring program is a bit like saying Leonardo Da

Vinci had an interesting idea. There was a considerable buzz in the industry about this huge, expensive Macintosh program prior to its official release last September. The Enigma code that the developers created originally on mainframe computers to design the many elements of *Finale* allows for a fairly straightforward porting of the program over to the IBM environment. In fact, Coda is in the process of doing that now.

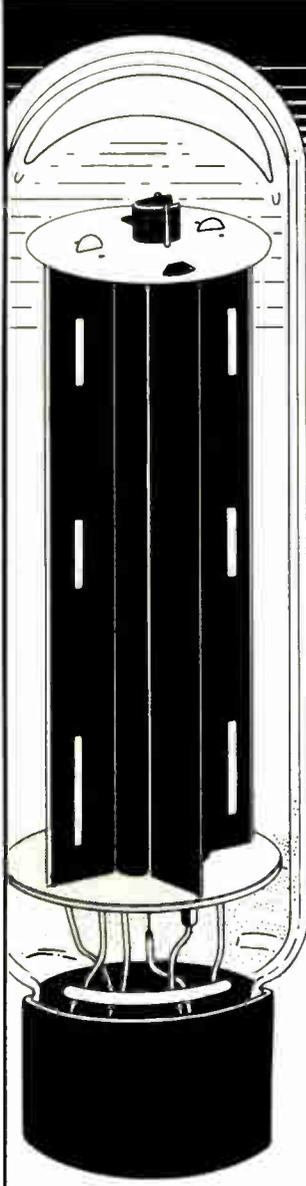
Highly acclaimed composer Wendy Carlos admits, "I'm not a power user with the program yet. I've not yet had an initiation by fire where I'm on a deadline and I force myself to sweat it through. That's the way I get to know any piece of software or equipment. I have been working with it, but I'm not as comfortable with it yet as I want to be. It's a bit unwieldy—but it's an awfully powerful program. I'm very fired up by it, but I'm also frustrated by it. That's the way it is with the introduction of any new product that crosses over a lot of lines as this one does."

Carlos' first beta copy arrived in June. "I'm amused at the hype that's surrounded this product," she observes. "I've not seen another Mac product surrounded by so much of this, and I think it threatens to sink the ship, which is a damned shame. Nothing can live up to that kind of hype. It feels a little like the Chinese farmer story, where he never could grow his crops because he was so nervous that he kept pulling up the seeds to see how they were doing. Nothing ever grew this way.

"The truth is that the program is

**Wendy Carlos**





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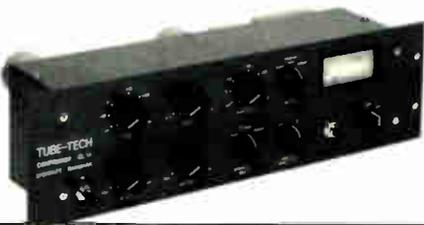
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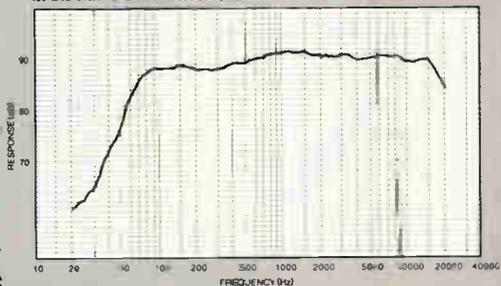
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not one tool; it's many tools masquerading as one tool. I'm told that this release contains about 80% of the toolbox that had been originally developed, and in the next few months many of the remaining features will also become part of the package.

"I suspect also the program will run faster when it's unbuttoned. One of its major problems is that it's so very large that its size prevented the developers from doing things to help speed it up or make it more convenient. Although you can run it on a double-floppy system, any serious person will want to run it on a hard disk. It's unfair to penalize this program by comparing it to something like *MacWrite*. It was designed before a personal computer existed that could run it. The Mac was the first machine on the market suitable for controlling this large stack of music tools."

Carlos expects to use it a lot for doing "serious music"—things every bit as advanced as Bartok and Stravinsky, for example. "However," she adds, "it's also appropriate for studio applications, for working with other composers and other musicians, and for interfacing with other programs. We're at the point now where people will want to consider getting a second Mac in their studio to run things in parallel. I may try that myself on a [possible] upcoming film score. If it happens, I will definitely be running two Macs: one with a sequencer like Performer and the other with Finale. I'll probably use Performer against picture, put a couple of lines down, and then dump it into Finale to get it in a more mnemonic form.

"My music tends to be fairly complex, and Finale has a very elaborate chord system that lets me handle triadic harmonics as well as create symbols for any type of chord that I might think of. Also, Finale allows me to design new types of keyboards, new types of microtonal tunings and new symbols for notating music created on these new structures, including strange, unusual staves, unusual numbers of lines or unusual spacings of these lines, and unusual accidental shapes. As it stands now, the program can read microtonal MIDI data and put it up on the screen as an approximation in traditional notation.

"The tool is more open-ended than most other software. What has been left out is a polished Mac interface. So the program is awkward to learn and

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rather unforgiving. If you're as imperfect a creature as I am, you make all kinds of mistakes. That's how I make my music. It's a process of throwing away the mistakes, and what's left behind is supposed to be music. I count on making mistakes. That Van Gogh quote comes to mind: 'I'm forever doing what I cannot do, yet in order to learn how to do it.' I like to go off in the dark nooks and crannies. To do that you have to allow yourself a forgiving attitude. With Finale there are few Undo commands, but there are ways to recover. Sometimes they're a little awkward: you have to do lots and lots of saves; there's no Revert, so

you have to close the file, remembering not to save it, and open up the last saved file.

"For certain things it's very fast. If you are looking for a program to help you fumble around in the dark like I do, it's awkward and slow. If you want to play something cleanly on your MIDI keyboard, and you're going to tap your own tempo or play it neatly against a metronome, and you expect a nice transcription, it works well. For a disciplined user, as most studio people are, the program is very fast.

"There's a lot of power within the list of submenus on the left side of the screen. It's not quite a normal Mac

program, because you normally expect to access the tools from the menus at the top. Those [menus] are for the edits and modifiers and preferences and things like that. It's almost as if you have—what is it, about 30 different subprograms within one master program, and they're all tied together on the screen. For example there are various note-entry modes and there is a very powerful word-entry mode for lyrics.

"When you begin using the program you'll find it frustrating because there is so much to learn. However, the documentation is as good as I have ever seen. There are not a lot of help diagnostics on the screen, although Jim Romeo has put together a wonderful HyperCard stack with all kinds of hints and tips, to which you can add some of your own.

"There's a high price of admission to get into using the thing, but the violin is not an easy instrument to use, either. Its difficulty is there because of its power, not in spite of it. We don't even know yet what this thing can do."

For more information on Finale, contact Coda Music Software, 1401 E. 79th St., Minneapolis, MN 55425; (612) 854-9554.

### Pat Buryk on SampleVision for IBM

While the Mac environment has seen an explosion of music software activity, there have also been significant new developments on the comparatively less prolific PC scene. For example, several companies now offer IBM software to aid in sampling, editing and harmonic analysis—among them Lyre Inc. and Turtle Beach Softworks.

Producer Pat Buryk does commercial production and arranging in MIDI studios in the New Jersey area. He uses Turtle Beach's *SampleVision* for transferring and editing sounds between different samplers. He says, "I was going crazy trying to find a decent visual sample editor for the Prophet and my IBM AT. I also use a Casio FZ-1, an Akai S900 and an E-mu Emax. That [hardware combination] limited my choices considerably. I called Digi-design and they recommended Turtle Beach."

SampleVision Version 1.1, which was scheduled to ship on November 15, supports 22 different samplers directly, with many more using their Sample Dump Standard. It can also import and export Sound Designer files. All internal processing uses 16-

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Quizzed about the company's OverDesign approach to a mic splitter, company managing director Chas Brooke dryly stated: "Yes, I know we're viewed in the audio industry as a bunch of obsessive zealots. But we have to OverDesign every aspect of every product. I couldn't look my wife in the eye every morning if one of our products failed to operate at optimum level in every possible situation.

"OverDesign pays. Through superior performance in the short term. And

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"In the case of our MSR-604 mic splitter, we had literally no design standard to compete with," says Brooke. "Other than home-made devices consisting of transformers, tape and wire. These appear to be less expensive at first, but end up costing more in the end. Because the client's time is valuable. Spare parts are expensive. And then

there's the hidden cost of replacing the device after its abbreviated lifespan."

According to company handouts, the MSR-604 is a dedicated non-interactive splitter OverDesigned to solve the problem of supplying multiple feeds to differing technologies from a single source.

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BSS tells us that the MSR-604 is OverDesigned to eliminate signal degradation and improve overall performance by providing proper current driving stages for long shielded cable runs.

Its seemingly endless list of attributes includes: a particularly low noise floor; special Master Gain section and Remote Gain/Headroom



"OverDesign™ is my life!" says one of Chas Brooke's BSS researchers.

control for ease of use; phantom power switch and a consistent, positive grounding system. Plus its standard racking capability allows mounting convenience and unusually quick assembly.

Why OverDesign something as functional as a mic splitter? "Because," says Brooke, "We can't bear to think of the alternatives. And neither should you."

### Think Of The Alternatives



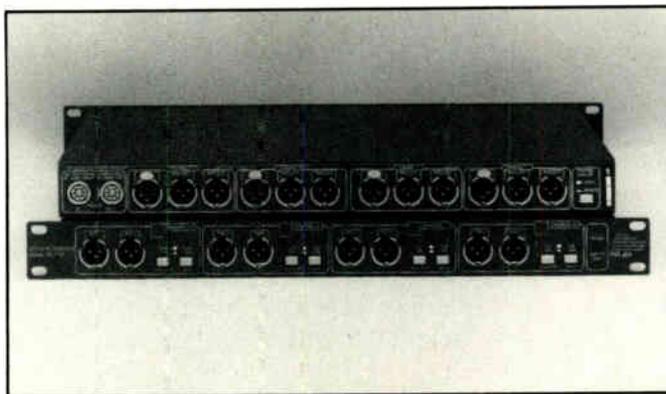
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bit resolution.

"I've had Version 1.0 since the beginning of August," says Buryk. "Functionally it seems like SampleVision is very similar to Digidesign's Sound Designer for the Macintosh. The gen-

## Works: For the Mac Who Has Everything

So you've got your Mac running a sequencer, several librarian/editors for your synths and even some nifty algorithmic composition programs. But if you think MIDI programs are the only programs worth running for music, think again. A lot of the software designed for the bean counters in the blue suits can also simplify life in the studio, and if you haven't yet discovered Microsoft's *Works*, then I have a treat for you.

*Works* is a single software package that consists of four individual, integrated programs (database, spreadsheet, word processor and telecommunications). Each program is not as strong as individual stand-alone equivalents; the word processor is kind of like *Word* on Valium, and the spreadsheet could pass as *Excel's* little brother. But put all these programs together, and you have quite a package.

The program that gets the most exercise in my studio is the database. The first database I set up was an equipment database for tax and insurance purposes; it also has fields for warranty and service information, so I can track the reliability of various pieces of gear. Another database catalogs all my samples according to type, memory required, sound quality, origin, disks on which they are stored, and so on. This is invaluable for finding the sampled needle in a haystack. For example, once I needed to locate all my synth bass sounds for use on a particular session. With the database, I just printed out a report of which disks contained sounds with the desired criteria, grabbed the disks, and was ready to go. Granted that it takes a bit of work to fill up a database with this data, but a few minutes each day is sufficient to keep the records

eral dump format lets me upload and download samples between the different samplers. Of course, you have to set the loop points, and that can be a pain sometimes."

Buryk cautions, "There are a num-

updated.

I particularly like the *Works* database because it's easy to use, and you can add new fields at any time. Larry Fast, who turned me on to *Works* in the first place, created a database to track correspondence—that way he can print out a report of, say, all letters that were sent out before a certain date for which answers have not yet been received. My next project is to catalog all my tapes in a database so that I can find any given tune instantly.

I do my taxes with a spreadsheet, but spreadsheets are good for any what-if situation. One application is to set up a spreadsheet where entering a song tempo produces a printout of the number of milliseconds for different note values (eighth note, 16th note, 32nd note, different triplets, etc.). This lets you set digital delay times to match a song's tempo. For musical engineers, spreadsheets can be set up to do filter calculations (e.g., how does changing a lowpass filter's capacitors alter the cutoff frequency?) and the like.

The word processor is handy for taking notes and jotting down lyric ideas, but you can also use it in conjunction with the database for "merge prints"—mass mailings and such. The telecommunications program is useful for accessing PAN, Esi, CompuServe and other services when you want to catch up on the latest musical gossip, or send lyrics (or sequences, for that matter) to a songwriting partner when you can't wait for next-day mail.

*Works* cost me less than \$200 from a mail-order software shop, and if you think of it as a collection of four \$50 programs, it starts to look like a real bargain. In a small studio context, it provides all the power most anyone would reasonably need. *Works* is aptly named: this is indeed a program that works, and works well.

—Craig Anderton

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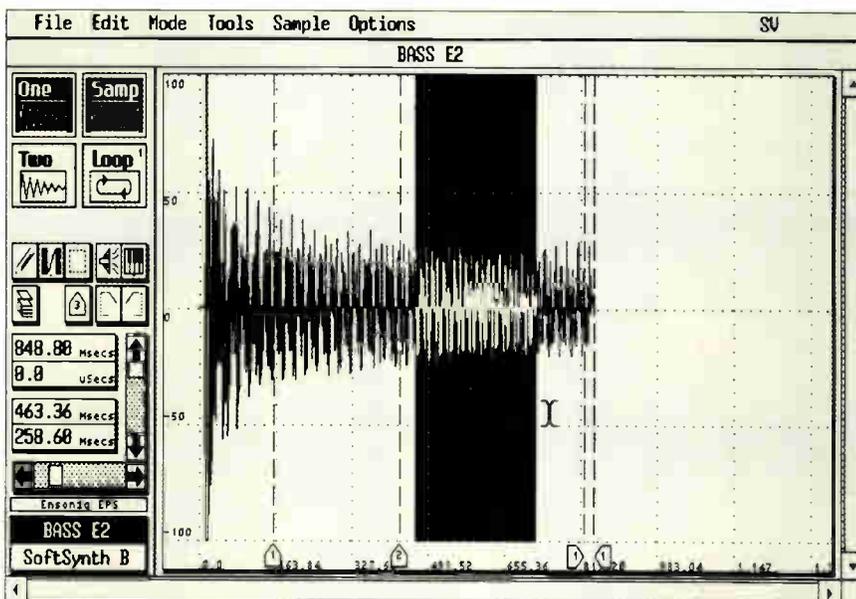
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Sample editing screen from *SampleVision* for IBM-compatible computers.

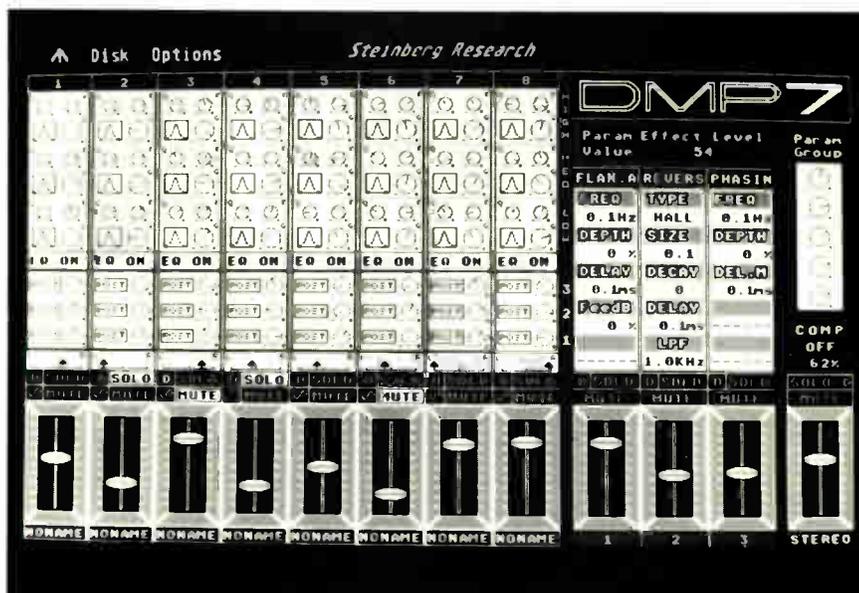
ber of caveats [in the I.I. documentation] that explain, for instance, on the 2000, if you upload and download beyond certain limits you might hang the processor, or other weird things could happen. I found additional [similar anomalies] when I tried to combine two sounds, and then tried to do a global scaling on it. I hung the routine and I had to reboot my machine. Overall though, it provides the right answer to my sampling editing needs."

SampleVision is by Turtle Beach Softworks, PO Box 5074, York, PA 17405; (717) 757-2348.

### Bob Blank on Steinberg/Jones Pro-24

Bob Blank used to own Blank Tapes Recording Studio in New York, a big, three-room facility with an SSL and a Sony 3324 as well as a Synclavier and Direct-To-Disk System. He sold it last January and moved into a converted 90-year-old farmhouse in Connecticut with a Studer 24-track, three Yamaha DMP7 digital mixers and about \$30,000 worth of synths. "We're primarily doing scoring for jingles, movies and records here," he explains. "We use [Steinberg's] SMP 24 programmable SMPTE MIDI box, the Desktop Mixing

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DMP7 software program and the Pro-24 sequencer.

"We have two Ataris," he says. "We create a sequence with the Pro-24 on one Atari, and we have the DMP software on the other machine operating as a live, interactive monitor. Quite honestly, I could run the whole thing off one Atari 1020 ST. The DMP mixing works really great running right off SMPTE. We don't have to go to tape, and if we are on tape we have the three DMPs."

Blank describes a recent Chaka Khan project they worked on: "We took these master multi-tracks of hers from five to ten years ago, striped a track with SMPTE, slaved our new MIDI stuff up to it, and used Chaka's original vocals and parts of some of the original tracks in combination with all the new sounds recorded on the Atari with Pro-24. She never actually came in to sing. The one we did a lot of work on up here, 'Ain't Nobody,' started out as a very simple song, and by the time we finished it had all new drums and all new rhythm. Usually it starts with MIDI stuff and you add vocals. This was unique in that we had the opportunity to build everything around her."

Why Atari? "One of the reasons we bought the first Atari was for the DMP mixing software, which wasn't available on the Mac. We were blown away by what we got for the money. For \$800 we have a one-meg machine we can totally dedicate with MIDI connections on board, and it has a big, high-resolution monitor. On the DMP mixing software we have to look at 32 channels with EQ, and you could go blind looking at a Mac. [The facility is also equipped with two Macintosh SEs, which are for clients who like to use Performer, MidiPaint or other music applications.] The sequencing software also takes advantage of the high-res monitor and graphics really well.

"One thing I really like about the Pro-24 is that you can be in record mode and go from track to track. I would say, with the software that Steinberg is putting out, buy two Ataris; they're cheap!"

For information, contact Steinberg/Jones, 17700 Raymer St., Suite 101, Northridge, CA 91325; (818) 993 4091. ■

*Paul Potylen is associate editor of Mix, and a music software gardener, as is evidenced by his green digit.*

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Circle #022 on Reader Service Card

## Alpha Upgrades Boss Editor

Alpha Audio (Richmond, VA) promoted its Boss to



second-generation status with the unveiling of the Boss/2 automated audio editor. The upgraded system offers digital waveform editing (previewing edits entirely in the digital domain), speaks RS-422, RS-232, SMPTE and MIDI simultaneously, communicates with any machine using Sony, Ampex, ESBUS or other serial protocols, and works with any combination of mixed-brand synchronizers.

Circle #067 on Reader Service Card

## JBL G-718 Loudspeaker

The latest addition to JBL's Performance Series line is a loudspeaker that doubles as a subwoofer or bass guitar system. The G-718 features JBL's E155-4 18-inch LF driver and is rated at 600 watts (continuous program). Its vented-box enclosure is made of high-grade, multi-laminate crossgrain material (same as other Performance speakers), includes stacking corner protectors and measures 33 1/4 inches high, 24 3/4 inches wide and 17 3/4 inches deep.

Circle #068 on Reader Service Card

# NEW PRODUCTS

## ART High-Def EQs

"High Definition" is the name of the new graphic equalizers from Applied Research & Technology (Rochester, NY). They feature 60mm faders, switchable subsonic and ultrasonic filters, clip/signal metering, hardwire bypass, and balanced XLR, 1/4-inch and terminal block connectors. The 1/3-octave version has 31 hands (from 20 to 20k Hz), switchable 7.5 and 15dB scales and a transformer-balancing option. The 2/3-octave version has 15 bands per channel, with independent level controls.

Circle #069 on Reader Service Card



## Community Floor Monitor

The wedge-shaped CS28M is a cost-effective, subcompact floor monitor from Community Light & Sound (Chester, PA). Equipped with a 12-inch

driver and PZT driver coupled to an exponential horn, the bass-reflex system accurately handles 100W RMS, 250W program material, with max SPL of 117 dB at one meter. It measures 14 inches high, 15 inches wide and 22 1/4 inches deep, weighs 29 pounds and is enclosed in a portable package covered with black carpet (also available with oak veneer). Suggested retail price is less than \$300.

Circle #070 on Reader Service Card



## Adams-Smith Zeta Controller

Those who use the Zeta-3 audio/video/MIDI synchronizer from Adams-Smith (Hudson, MA) will welcome the new Zeta-Remote. This device controls up to four Zeta-3s and has a 100-point autolocator that works (and displays) in bars/beats or SMPTE/EBU time code, and handles tach-only autolocation. It doubles the Zeta-3's alphanumeric display capabilities by adding a data entry keypad and dedicated display

keys. Features include memory to store 100 edit setups, six user-programmable function keys and a tempo map beeper, all in a box small enough to hold in one hand.

Circle #071 on Reader Service Card

## Macaluso Record Deal Software

This software program performs all the calculations needed to determine who makes how much money from a recording project. Designed to help plan these projects and negotiate the financial aspects of record deals, *The Record Mogul, V2.0* from Macaluso Music Company (Arlington, VA) runs on IBM PC/XT/AT-type computers (a Macintosh format is in the works). It helps budget for the costs of producing, manufacturing and marketing records, cassettes and CDs, prepares mechanical and recording royalty statements and produces reports on each project. Retail price is \$250 (\$260 for 3.5-inch disk), which includes 45 days of tech support by phone.

Circle #072 on Reader Service Card

## SoundTech A600 Power Amps

The A600 power amp from SoundTech (Buffalo Grove, IL) is a three-rack-space, stereo unit providing 300W per channel into 4 ohms. Along with input attenuators, the front panel features two LED ladder-type displays for output level and clip, and a dual-color LED for normal/protect modes. When not running stereo, the user can choose

bridged mono inputs with parallel or bridged mono outputs. Rear-panel connectors are balanced XLR/unbalanced 1/4-inch inputs and dual banana plug speaker outputs.

Circle #073 on Reader Service Card



global and local fader and mute mode controls; "match" buttons for auto-nulling; master/slave and Necam-style grouping; color video display with pull-down menus and help screens; trim for one or all faders in 0.1dB steps; automated digital calibrator (aligns servo system in under ten seconds), and interface to the Adams-Smith 2600 A/V system. The system can handle up to 256 Flying Faders, retrofitable to all Neve consoles and most consoles from other manufacturers.

Circle #074 on Reader Service Card

### ▲ Neve Flying Faders

Neve has introduced its fourth generation of moving fader console automation systems. Dubbed "Flying Faders," the system includes expanded 12-bit resolution to provide accuracy with a total of 4,096 digital steps (Necam 96's 8-bit resolution provides 256 steps). All levels are stored with 0.1dB accuracy. Other features include:

### HOT OFF THE SHELF . . .

**Stewart Electronics' MM-4S** (\$399) is a half-rack, stereo mixer with four balanced mic/line inputs (each with level and pan), L/R master out and switchable 48VDC phantom power supply. Call (916) 635-3011 for more info . . .

**E-mu Systems' Emulator III Version 2.0 Soft-**

**ware** (free to registered owners) offers SCSI compatibility, sound bank loading via external MIDI commands, MIDI sample dump and "Quick Zone" keyboard parameter manipulation. Call (408) 438-1921 for more info . . .

**The Electronic Musician's Dictionary** (\$9.95) by Craig Anderton, is published by Amsco (Music



### ▲ J.L. Cooper PPS-100

J.L. Cooper Electronics (Marina Del Rey, CA) has developed a low-cost, single-rack, SMPTE event generator and SMPTE/MIDI synchronizer. The PPS-100 converts SMPTE to MIDI sync with song position pointer, stripes all SMPTE formats and generates MIDI Time Code, DIN sync, direct time lock and ppqn sync. It also can output any MIDI command at any user-programmed

SMPTE time. Two programmable relays allow for time-code-referenced switching. The event generator can be programmed in real time, functioning as a SMPTE-locked MIDI data recorder, or can be programmed "off line" (from the front panel). Any number of tempo changes can be programmed easily. Optional software for the Atari ST and Macintosh allows for cue sheet events entry. Suggested list price is \$595.

Circle #075 on Reader Service Card



### ▲ Otari MX-50

For \$2,495, Otari (Foster City, CA) offers the new MX-50 2-track recorder, available in 15/7.5 and 7.5/3.75-ips versions. Features include: tape timer display with search-to-cue and search-to-zero; front-panel  $\pm 7\%$  varispeed; 10.5-inch reel capacity; headphone amplifier; electronic lifter control, and dump edit function. An optional voice editing module provides 2x playback without pitch shift, for fast editing and review of dialog or news material.

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Sales Corp., New York City) and defines over 1,000 technical and musical terms, from accelerando to zipper noise. To order, call (800) 233-9604 or (415) 653-3307 . . .

**Black Audio's Mic Shell** (\$18) is a clear, plexiglass cover designed to increase the directionality of Crown PZM™ microphones in theatrical foot-

light miking applications. For more info and/or a catalog of mic accessories, call (805) 653-5557 . . .

**Soundcraft's 500 Console Matrix Module Option** (\$1,750) facilitates 2, 4, 6 or 8 matrix mixes from subgroups. The system is available factory-installed or as a retrofit. For more info, call (818) 893-4351 . . .

by George Petersen

# PRODUCT CRITIQUES AND COMMENTS

## DIGITAL DESIGNS LS-161 STUDIO MONITORS

Don't be ashamed if you've never heard of Digital Designs. Located in the California desert, just north of the Mexican border, this company has been manufacturing a line of compact—yet high quality—near-field studio monitors for about a year now. Since Digital Designs is now distributed by Audix, you may be seeing (and hearing) a lot more of them soon.

The model LS-161 monitors are a two-way design, with a 4-ohm, 6.5-inch polypropylene woofer combined with a 1-inch ferrofluid-cooled, polymer dome tweeter. A 12 dB/octave crossover (at 3,500 Hz) is employed, along with an acoustic suspension cabinet of dense fiberboard covered with hardwood veneers. Obviously, a lot of work goes into these beautiful cabinets, yet I was more interested in the way they sound.

An asymmetrical, mirror-image design, with the tweeter located off-center, allows placement of the LS-161s in a variety of near-field positions, depending on the height and width of

the console, and the engineer's seating arrangement. Since nearly all near-field speakers are used in a horizontal plane (laying on their side), then why are the logos on such speakers usually located for proper reading when the speaker is in a vertical position? Fortunately, the desire to *listen* to the LS-161s overcame my need to seek the answer to such philosophical quandaries.

I was immediately struck by the LS-161's clear imaging, fast transient response and excellent musical balance. The latter was confirmed by listening tests and tracking and mixing on the LS-161s over a period of several weeks. These are serious studio monitors, and the amount of effort that designer Jassa Langford has put into these speakers is quite apparent.

The LS-161's rear panel incorporates heavy, 5-way binding post inputs, along with a crossover adjustment switch allowing users to select between "accurate" and "mid-range" boost. The boost setting is designed to make the LS-161s emulate the sound of a certain popular model of small



PHOTO: GEORGE PETERSEN

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## AUDITIONS

speakers found in many studios today, but I preferred the sound of the speakers in the "accurate" position and found this switch to be of little use.

Magnet shielding is used to reduce video monitor interference from the 16-ounce magnet on the LS-161's woofer. I was able to place the speakers within three inches of a video screen without interference. The rated impedance is 4 ohms, with a power handling conservatively stated at 60 watts RMS.

Priced at \$349/pair (in oak veneer finish), the Digital Designs LS-161s are an exceptional buy, and deserve the consideration of anyone seeking a compact, yet accurate, near-field monitor.

Audix Corporation, 5635 West Las Positas, Pleasanton, CA 94566, (415) 463-1112.

### VALLEY MICRO FX COMPRESSOR AND NOISE GATE

Since 1969, Valley International has earned a reputation for delivering top-quality outboard gear for the studio and sound reinforcement professional, particularly in the area of dynamics processors. With this in mind, I was interested in checking out the com-

pressor and noise gate in their Micro FX line of compact, cost-effective audio devices. This one-third rack-width series consists of a compressor, noise gate, single-ended noise reduction,



and de-esser (each priced at \$165), and a signal booster and an attenuator (\$135 each).

The first thing one should know about the Micro FX compressor is that the device is not a limiter or a compressor/limiter, but a *compressor*, offering processing ratios ranging from 1.1:1 to 20:1. Other adjustable parameters include threshold (-34 to +14 dB), release (.04 to 20 seconds per 20 dB of attenuation) and gain (-20 to +20 dB). The rear panel contains balanced 1/4-inch audio and key inputs, unbalanced 1/4-inch audio out, 9 VAC input and RCA stereo link jack.

Since all the controls are continuous rotary (rather than stepped-type), and the numeric values of the controls are not marked, finding exact settings for repeatability can be difficult. However, discovering the right amount of compression for any particular job requires only a few moments' time, as the unit is straightforward and simple to operate.

All the equipment in the Micro FX series includes short, but complete instructions. Examples of sample settings for compressing vocals, program material and guitar are given, providing useful start-off points for the beginner.

I was particularly impressed with the unit's performance on bass, lead guitar and vocals. Bass is one instrument that always needs some compressing to even out the differences between the initial pluck of the string and the resulting sustain of the note. The Micro FX's wide-ranging gain control allowed low-level instruments, such as bass and guitar, to plug directly into the compressor, so the unit can do double duty as both a studio tool and a live performance processor.

It seems that there are never enough noise gates around when you need them, and Valley's Micro FX units are

A photograph of the J.L. Cooper PPS-100 SMPTE/EBU to MIDI Synchronizer and Event Generator. The device is a rack-mountable unit with a blue faceplate. It features a power switch, a digital display, and several buttons labeled 'NO', 'YES', 'ENTER', 'CLEAR', and 'RUN'. The model number 'PPS-100' is printed in large white letters on the right side of the faceplate. The background is dark with a red and blue gradient.

smpte gets smarter.

J.L. Cooper's PPS-100 is a SMPTE/EBU to MIDI Synchronizer and Event Generator with smarts. The PPS-100 converts all SMPTE formats to MIDI Sync and Song Position Pointer with programmable tempo changes. The PPS-100 also generates MTC (MIDI Time Code), DIN sync, Direct Time Lock, and PPQN sync.

Need to generate time code as well? The PPS-100 generates all formats, starting at any time. And the PPS-100's "event generator" is even smarter! Any kind of MIDI commands (notes, program changes, even systems exclusive messages) can be output at any SMPTE time.

Two independent on-board relays and two pulse outputs may be programmed to turn on and off at any SMPTE time. Unlimited uses include auto punch-in and automated effects bypass.

Optional software "desk accessory" for the Atari ST and Macintosh allows for cue list entry of events.

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## AUDITIONS

a welcome addition to anyone's rack. These feature an identical rear panel as the compressors, and the front panel controls (threshold, rate, hold and release) are similarly unmarked with their numeric values.

My first opportunity to test the gate was salvaging a client's live 2-track mix of a concert where the bass guitar was overpowering. Fixing the bass was a simple matter of EQ adjustment, but this method had the unfortunate side effect of attenuating the kick drum into oblivion. Efforts to restore the kick by adding an equalized aux send of the program into the mix were both unmusical and not clean enough to trigger a drum machine. This signal was routed to the gate's input, which (after a few quick adjustments) transformed the bad kick sound into a sharp spike for clean drum triggering.

The Micro FX gate's "hold" control (that delays the gating action by up to two seconds) was useful in a variety of applications. The hold helped retain the natural character of instruments—especially vocals and lead guitar—by reducing the chance of false closures during short musical pauses.

My main complaint about the Micro FX units concerns the use of external AC power transformers, which can be annoying at times, but are one of the obvious tradeoffs in lowering manufacturing costs by reducing cabinet and shielding requirements. (A few notes about these ubiquitous audio denizens: I recently invested in a couple of power strips that have the AC outlets oriented perpendicular to the length of the strip, so *all* six outlets can be used to accommodate transformers. Also, I always make sure that the AC power to the transformers is disconnected whenever the rest of the studio equipment is powered down: better safe than sorry. On a somewhat lighter note, manufacturers and industry leaders have recently been meeting on the subject of adopting a power standard for audio gear, which could someday lead to universal power supplies capable of powering mini effects by different manufacturers.)

Overall, I liked the Micro FX compressors and gates. They offer surprisingly good audio performance at a low price, and would be a welcome addition to either the performing musician's gig bag or to a studio outboard

rack (via an optional rack adapter).

Valley International, 2817 Erica Place, Nashville, TN 37204, (615) 383-4737.



### RSP TECHNOLOGIES HUSH 2000 SINGLE-ENDED NOISE REDUCTION

The first offering from RSP Technologies, the Hush 2000 (\$799) is a versatile single-ended noise reduction device with many applications in live sound reinforcement, recording studios, tape duplication, broadcasting, vid-

eo production and motion picture sound.

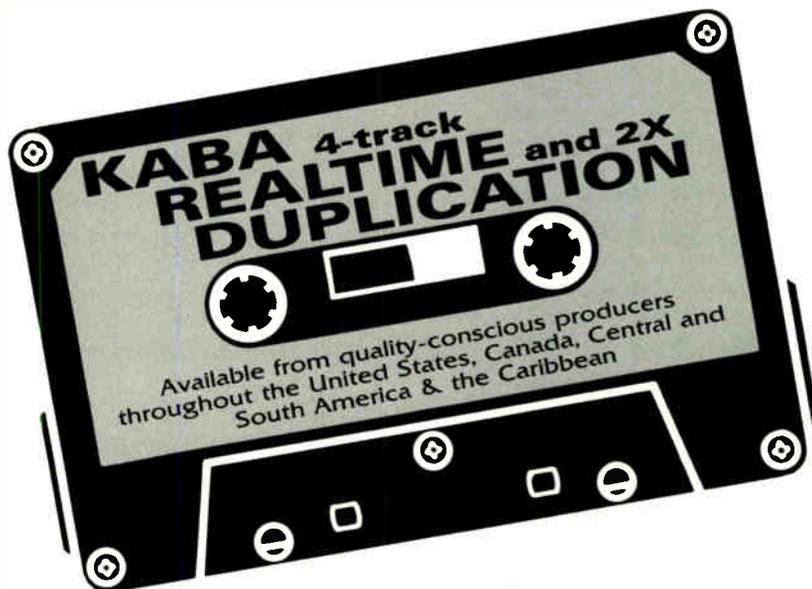
The Hush 2000 combines dynamic lowpass filtering (Class-A VCAs imple-

mented as state-variable, voltage-controlled filters) with a downward expansion (gating) section. Depending on the amount of mid- and high-frequency material present in the input, the filters open and close the bandwidth. Noise reduction can be performed in stereo or dual mono, with each channel handling different mono

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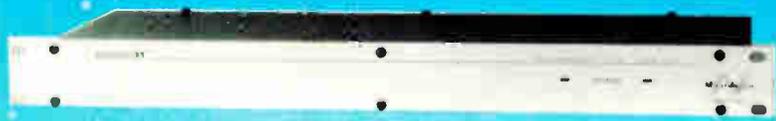


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program source material, and the unit can also be used as a dual noise gate.

The instruction manual covers all the operations of the unit in a clear and concise manner, with suggested sample settings. Unfortunately, no circuit block diagrams or schematics are included. RSP covers the unit with a two-year parts and labor warranty, and recommends that the unit be returned to the manufacturer for any repairs.

The Hush 2000 is laid out in a logical fashion, with the filter and expander sections placed on either side of a central stereo link switch. While bypass switches are provided for each channel—which greatly simplifies A/B testing of processed vs. non-processed signals—the unit has no AC switch. The latter seems somewhat odd, because unlike a reverb or equalizer, a single-ended noise reduction unit is probably not in constant use in most studios, unless that facility happens to be a mastering room or audio-for-video post-production suite.

Operationally, it is quite simple to use, and the unit's comprehensive LED metering of each of its four processing sections greatly increases operator efficiency. Back-panel connections include both 1/4-inch and XLR-type, with balanced inputs and outputs as standard equipment. The unit automatically terminates as unbalanced if the ring (minus) shorts to the sleeve (ground) connection, as would be the case when a standard 2-conductor, 1/4-inch plug is inserted.

My first task for the Hush 2000 was cleaning up some old analog masters I was archiving to digital. Getting rid of the hiss on these 15-year-old masters was no challenge whatsoever. I was, however, somewhat surprised by the unit's subtleness. It succeeded in the task of reducing tape noise without destroying the program's high-end response. I got similar results working with some fourth-generation, edited video masters, and was amazed when the Hush 2000 was able to clean up the output from my favorite rotating-speaker simulator box. I'm impressed.

RSP Technologies, 1900 Star Batt Drive, Rochester, MI 48309; (313) 853-3055.

*Mix* products editor George Petersen lives with his wife and two musical dogs in a 100-year-old house on an island in San Francisco Bay!

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## 4011 CARDIOID MICROPHONE

**B**rueel & Kjaer has been building fine-measurement microphones for many years. The company first entered the studio market with a line of omnidirectional microphones and now is adding to the line with cardioid model 4011.

The 4011 is a prepolarized transformerless condenser microphone that operates on standard 48-volt phantom power. It can withstand sound pressure levels of up to 158 dB before clipping and has a switchable 20dB pad to protect preamp inputs when close-miking high-level sources.

B & K claims extremely smooth on-axis response for the 4011. Specs are stated to be flat (+1, -2 dB) from 40 Hz to 20 kHz, and each microphone includes an individual frequency response chart (**Fig. 1**). Special attention was paid to the off-axis leakage problem that is common with close-miking technique, and the result is a very smooth polar pattern.

Priced at \$1,399, the 4011 is supplied with a cable, windscreen and a really fine mic clip for attaching to a stand. The microphone slides into a compression-fitting clip that tightens down to prevent movement. The clip provides one with a strong sense of security, an important consideration in a mic of this

quality.

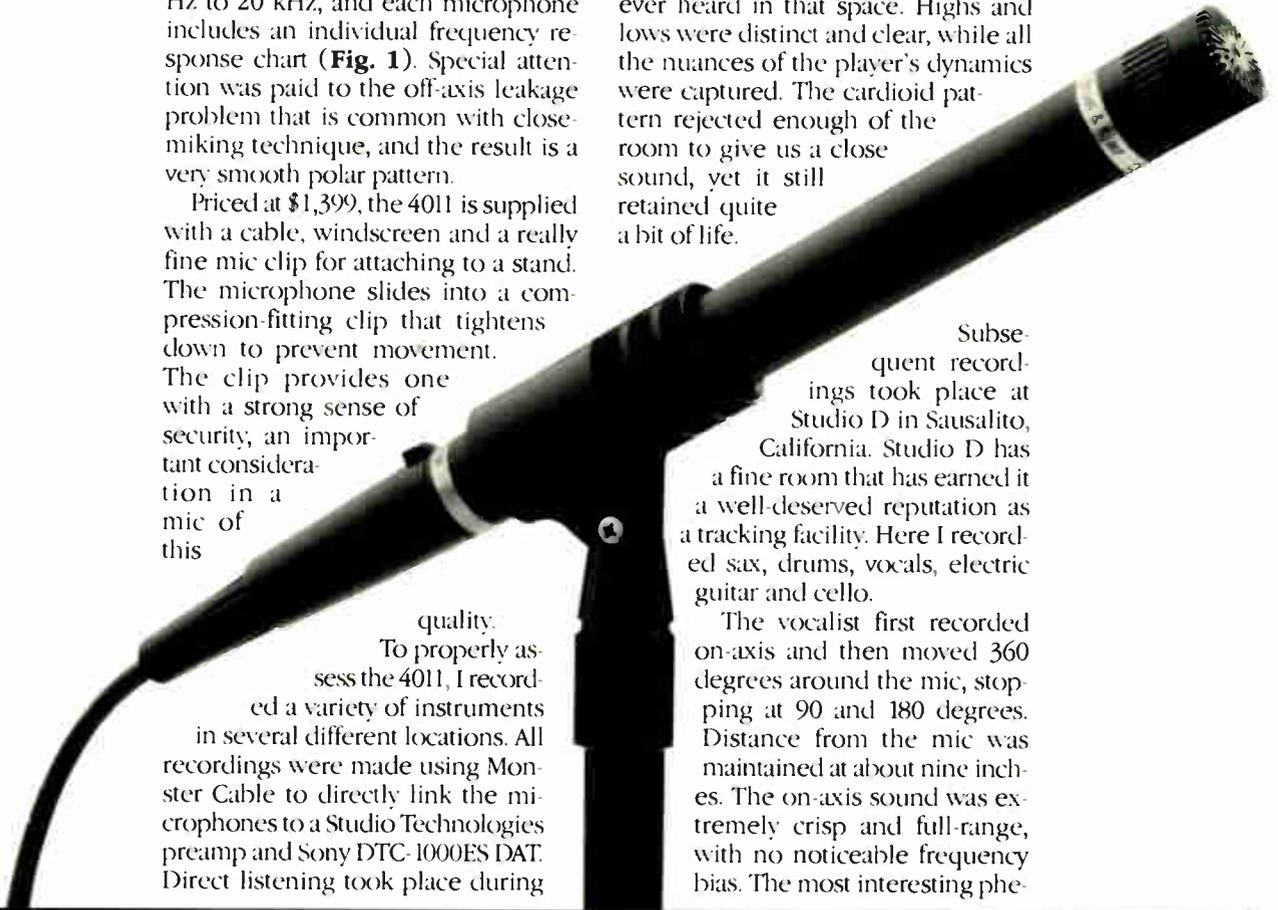
To properly assess the 4011, I recorded a variety of instruments in several different locations. All recordings were made using Monster Cable to directly link the microphones to a Studio Technologies preamp and Sony DTC-1000ES DAT. Direct listening took place during

recording, followed by later critical listenings in a SIMed room utilizing a Meyer Sound Labs studio monitor system. Fellow engineer Paul Stubblebine joined me for the listening, adding his welcome comments to the analysis.

My first recording was a solo piano piece performed by Dwight Peltzer. The recording took place in a private home with 8-foot ceilings. The instrument was an old Steinway with the lid removed. Previous recordings had been made with B & K 4007 omnis, but due to the small space there was always too much "room" in the piano sound. The 4011 gave us a sound that the composer felt was the best he had ever heard in that space. Highs and lows were distinct and clear, while all the nuances of the player's dynamics were captured. The cardioid pattern rejected enough of the room to give us a close sound, yet it still retained quite a bit of life.

Subsequent recordings took place at Studio D in Sausalito, California. Studio D has a fine room that has earned it a well-deserved reputation as a tracking facility. Here I recorded sax, drums, vocals, electric guitar and cello.

The vocalist first recorded on-axis and then moved 360 degrees around the mic, stopping at 90 and 180 degrees. Distance from the mic was maintained at about nine inches. The on-axis sound was extremely crisp and full-range, with no noticeable frequency bias. The most interesting phe-



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## FIELD TEST

nomenon was an immediately discernible lack of coloration. Some vocal "pops" were audible, so the mic's windscreen was put to use. This solved the problem completely, and the voice sounded much more natural. The windscreen does seem to warm up the mic just a bit.

The off-axis response of the 4011 was even better than indicated by the polar pattern. At 90 degrees, the audio level was down considerably, and at 180 degrees there was an extreme drop. Most impressive was the fact that the off-axis response was extremely linear. Thus, any leakage would sound like the source and add in without coloration.

Next, alto, tenor and baritone sax were tested. All sounded very good and natural. There was no mid-range rise, and the bottom end was clear and strong. With alto and tenor the windscreen seemed preferable, while we opted for no filter on the bari. Alto and tenor were miked about a foot off the horn and aimed between the horn and keys. Bari was miked more off-axis, but because of the 4011's high SPL handling, I would not hesitate to place it looking right down the horn for the best bass response.

The 4011 is a strong contender for drums based on the 158dB level capability. The 20dB pad was used for close mic positions in order to protect the preamp from clipping (more on this below). No windscreen was used.

We got a very full-range signal on snare, and the cardioid proximity effect brought up the bottom considerably in a close-miked position. Raising the mic several feet above the snare gave a smooth clear sound, indicating its usefulness as an overhead.

Toms were another winner with the 4011. The mic was positioned to represent a typical close-field technique, bringing into account some proximity effect. The mic reproduced the toms quite faithfully with lots of cutting attack and a rich, clear bottom. A very modern sound indeed.

Kick drum did not fare so well on this test. We had what I considered to be a good-sounding kick in the room, but did not get a satisfying translation in the control room. Numerous mic positions and configurations were tried without success. Based on the results from the other drums, this was a surprise, and I cannot account for it.

As an overhead for cymbals, the 4011 captured an incredible amount of harmonics without the least hint of distortion. I really can't recall having heard cymbals with this much detail before, and as a result, you may find yourself being much more critical of cymbal selection for harmonic layers in your songs.

Cello was recorded in both close-miked and XY configurations. For XY we used a fairly tight pattern, a 90-degree pattern and, for comparison, an on-axis pattern. The conclusion reached was that the 4011 would work well as a distant coincident pair. A tighter pattern is recommended for single sources or small ensembles, with a 90-degree spread giving quite acceptable response for a larger group.

On-axis as a close mic, the 4011 gave incredible detail to the cello. Rich, warm bottom and all the nuances of the bow were captured.

Both rhythm and lead guitar were recorded using a pair of mics very close in on a stereo amp. No windscreen or pad was used. The 4011 captured an extremely accurate representation without any hint of compression due to level. Tone was clear and clean, and the guitar player commented on the accurate reproduction of the tone when he heard the playbacks in the control room.

The 4011's built-in 20dB pad is not placed in front of the microphone's electronics, contrary to the method utilized by most manufacturers. The 4011 electronics do not need protection from overload, and this pad works to protect unpadding mic preamps. Much lower signal degradation is accomplished by placing the pad after the circuitry. Still, there is some slight degradation of signal, although not nearly what one would expect from typical mic pads, and certainly better than some console pads I've run across. In these tests we never experienced mic distortion. The pad was only used when close-miking drums, since my preamp did not have a built-in pad.

We also found that the windscreen had a softening effect on the signal. I considered this to be an advantage, as it seemed to take the edge off some instruments and vocals. Since the 4011 response is quite flat out to 20 kHz, I sometimes felt that there was too much definition and the mic could get a bit "scratchy." Changing the windscreen allowed me to contour the sig-

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by Bob Hodas

# QUANTEC

## QRS-XLC SOFTWARE

The Quantec QRS-XL is a unique piece of audio processing hardware, indicative of the future of audio. It is basically an effects processing computer that can be externally controlled by an MS-DOS or Macintosh computer. The PC connects via a DB-25 port on the rear panel. Before we get too far, let me

age is restricted only by your disk budget. The XL contains not only the original QRS program algorithms, but many additional new reverbs and effects such as FIR filters, chorus, flanging, delays and gates. The U.S. distributor (Marshall Electronic) supplies 30 program variations in user memory.

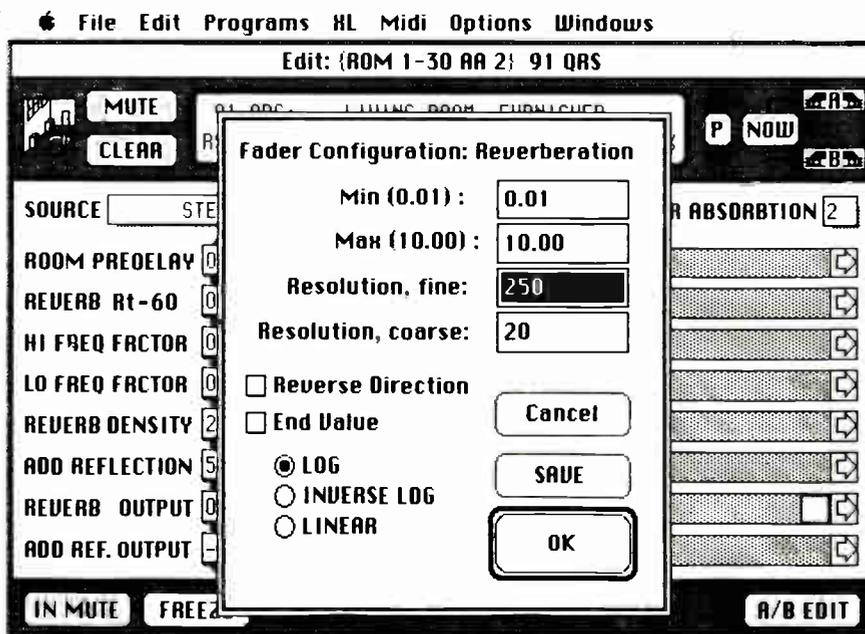


Figure 1: Fader configuration window

stress that the XL may be operated without a PC. Any ROM program may be called up for operation, but if parameters are to be manipulated or new programs designed, a PC is necessary. This article deals mainly with the Mac software designated as *XLC* (Mac Plus and SE) and *XLC2* (Mac II) developed by Marshall Electronic, but first I want to say a bit about the XL.

The 1U, rack-mount package comes with 90 ROM presets plus an additional 30 user program storage locations. Of course, with the Mac, program stor-

Included are extra plates and some unusual special effects programs. If you need something specific, Marshall will ship XLs with custom programs designed to specifications submitted by the user. Marshall is also responsible for the development of the *XLC* control program for the Macintosh.

Quantec supports continuous program development and will provide available compilers for hackers who feel the creative urge. The owner's manual extensively covers program creation and language. The XL's de-



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## FIELD · TEST

sign puts the power of program creation directly into the hands of the user, and the ability to store new and altered programs on disk means that updates and exchanges may be accomplished by phone with a modem. All new programs for which there are existing compilers are available free of charge. Interested parties could easily establish program exchange clubs on any E-mail service.

The XL is currently the most powerful effects processor around. Its input and output DACs are 16-bit linear, while internal architecture is 32-bit. Extremely high audio quality is achieved with 2× oversampling on the input and 4× oversampling on the output, and the digital filters exhibit almost no phase shift. The XL's quoted bandwidth is 15 kHz. Each XL comes with its own set of graphs so that the user has a personal record of his or her unit.

The front panel of the Quantec XL is laid out in a logical, straightforward fashion. To the far left is a rotary pot controlling the wet/dry mix ratio at the outputs. Beneath the stereo input meters are separate PC and MIDI communication LED indicators. Information is displayed on an 80-character (40x2), reverse-transmissive LCD. The green display is quite easy to read and may be adjusted for different viewing positions and lighting conditions. To the right of the LCD are the stereo output meters and two software-programmable LEDs. On flange programs, for example, the LEDs show the flange peak and sweep rate, while on gate programs they indicate opening and closing operations. A second rotary pot calls up the desired program to the LCD display.

The rear panel includes left- and right-channel XLR ins and outs, a DB-25 port for connection to your PC, baud rate and communication configuration switches (Mac RS-422, MS-DOS RS-232), MIDI in and thru ports, MIDI channel set switches, LCD screen control, fuse access and 115/230 VAC selection. Two separate XLs may be run by one Mac with no extra hardware. The addition of a switcher will let you address as many XLs as the switcher can handle.

The MS-DOS version controller is quite simple, with control via your computer keyboard. A mouse may be used for cursor control if you have

one (I recommend it). When you are using a PC as the controller, new programs may be called up directly from disk. Parameters are displayed on the PC screen for manipulation in real time, or offline while a different program is running. Loading in a new program requires that the XL recompile, so there is a pause of several seconds between the time you load and the time that the program starts running. MIDI mapping also allows rapid direct program loads when operating with a synth or MIDI controller.

There are several different levels of help screens that make referring back to the manual practically unnecessary.

Commands may be given using the function keys or the first letter of the command. The screens are laid out logically and the operation is simple, albeit slow. The designers put some thought into this program. Even when doing parameter edits, the computer would not let me enter figures outside its range.

Still, this system suffers from MS-DOS-isms. Several levels of keystrokes are required to load or save programs, and I often had to go into the directory to find the program number I needed. Even then, there are no descriptions that accompany DOS filenames. I ended up making a book of

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Bob McCarthy  
Senior SIM Engineer  
at the 1988 Grammys

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## Results-Oriented Measurement.

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*SIM equalization grew out of Meyer's uncompromising production philosophy, and as such, SIM is applied only to Meyer Sound equipment installations. Instead of attempting to second-guess the tastes of the market, Meyer produces sound systems that most truly represent the character of the signal they receive, leaving artistic control to the artist. With SIM, Meyer offers an equalization tool that leaves complete control of spatial sound dynamics where it belongs—with sound designers, consultants, and mixers.*

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MEYER SOUND

## FIELD TEST

programs to keep track of things. Moving around the edit screens can also be time-consuming with only a keyboard.

As good as the MS-DOS version is (and I've used it for almost a year),

They are mostly latching switches and highlight when selected. Every program has an A/B edit switch that allows you to compare your current parameters to the last move you made. I am all for A/B comparisons, and it sometimes helps when dealing with the producers.

two ways. Parameter displays may be clicked open, and the desired number typed in or a fader may be moved. The faders may be clicked on and dragged or moved automatically by clicking on the directional arrows. A fader configuration window (Fig. 1) is used to change the scale of individual faders to suit the user's taste. It allows one to set fader linearity, direction, resolution and limits. I love it!

All programs are stored in "libraries," which are the basic working blocks of this system. The Performance Library consists of 30 programs that can be transmitted in and out of XL user memory. A partially full library will transmit only into its coincident program numbers, leaving all other existing user memory locations in the XL as empty slots.

Pulling programs from other libraries to create a new library for parameter manipulation is easy. This operation is identical to word processing, utilizing functions of select, insert, cut, paste and copy. Adjusting library window size can give you a view of both the source and target libraries at the same time (Fig. 2). This is really fast. Another quick and easy method is to transmit default settings from the program menu scratchpad. One might create a library of only delays or favorite plates. Or you could make a library of various program types that could be stepped through during a performance if you don't have a MIDI controller. Many libraries may be stored on

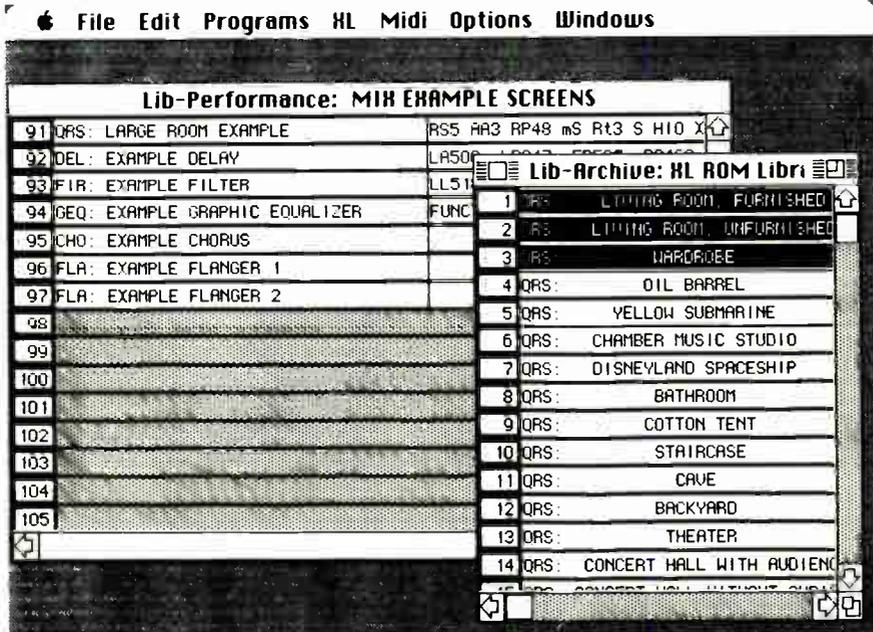


Figure 2: Library arrangement for program transfer

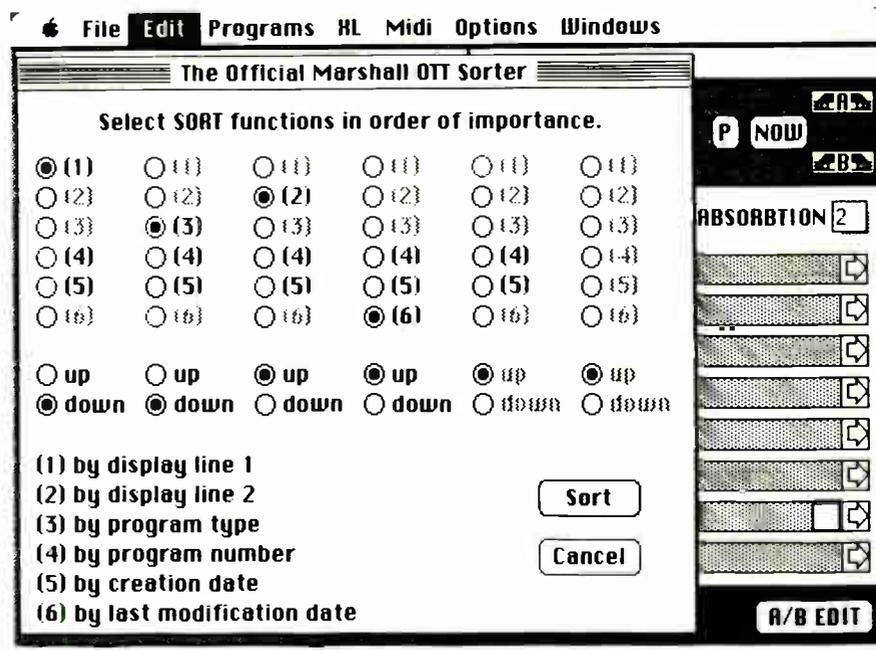
the Mac XLC version smokes it. The graphic abilities of the Mac make the XLC software an outstanding control program. It is easy, logical and much faster than MS-DOS. First, you should know that I had never used a Mac before I received this software. With no Mac or XLC manuals I was able to utilize almost all the XLC functions within a few hours. Most of this time was spent learning Mac-isms. (Note: *The XLC/Mac manual was released at press time. Bob says it's excellent.* —Ed.)

The XLC edit screens are self-explanatory. The top bar contains a neat little graphic ID in the upper left-hand corner, along with latching output mute and momentary clear "buttons." The center window reflects the information on the XL LCD. To the right are program switches for scrolling up or down, or moving directly to programs of the same type. Other switches let you select whether you compile in real time or on command, and which XL you are talking to.

The bottom bar of each screen displays switches that vary in function depending on the program needs.

Most of the parameter action takes place in the center screen. Non-numeric parameters have menu choices that pop up when clicked open. Numeric parameters may be adjusted in

Figure 3: Sorter window



## FIELD · TEST

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one disk since the XLC includes a file compressor.

Archives are created in a similar fashion to libraries and can be used for program storage and transfer. They have no size limits or particular program number locations. Included in the program is the Marshall OTT (over the top) sorter. This has got to be one of the best sorters around. Libraries may be totally rearranged to suit various situations. There are six priority levels and each level can sort forward or backward (**Fig. 3**).

I have worked extensively with the QRS and the XL over the past year and have always been very impressed with Quantec's audio quality. As it did with

the market, the density parameter should be reduced considerably if one is trying to emulate other commercial reverbs.

Five plates and 25 different rooms are supplied in ROM (with more in the XL-A library). These programs can handle large amounts of bass and percussive transients without a problem. They are smooth and dense, and I have used various rooms for just about every instrument.

The flange effects are the best I've heard. Acoustic guitar sounds wonderful, and it even works for flanging a whole track. The flanges can do zero crossover, and channels are adjustable from tracking to independent. The control provided by XLC is simply phenomenal, with so many param-

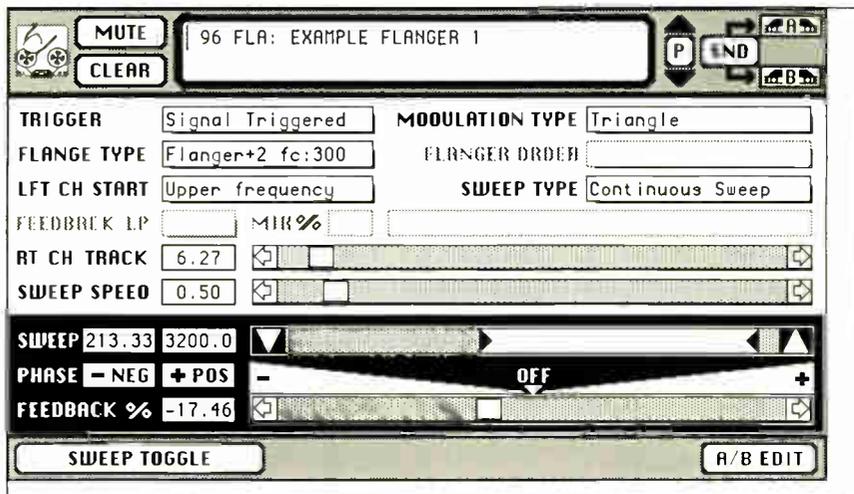


Figure 4: Library edit screen

eters available for manipulation that it is best just to look at the edit screens. Twelve flange types are initially provided with full parameter control open to the user.

the QRS, Marshall is now performing enhanced hardware updates available only with the XLC version. These include digital hot rods for the O.S. and an audio tune-up. By the way, the QRS will continue to be sold since its stand-alone design makes it a simple (though limited, compared to the XL power) choice for real-time manipulation, and it does have two extra outputs, which appeals to film people.

The room simulation programs are extremely impressive. The 15kHz bandwidth has added a new dimension to the old QRS sound, but Quantec has not deserted its QRS fans. The QRS may be very closely approximated with some parameter adjustments. There are five selectable algorithm modifiers that closely simulate air absorption. This is a real trick feature. Since the XL's reflection density is much greater than anything else on

The graphics strength of the XLC really shines through on the flanger edit screen (**Fig. 4**). The sweep frequency window can be set as individual upper and lower limits, and then moved as a block as well. You can toggle between positive and negative feedback settings. If you set feedback past 25%, a warning pops up to remind you that you could possibly turn your monitors to toast if you don't reduce volume levels before compiling.

I am just as impressed with the chorus as with the flange. You can't pan the individual chorus voices, but the programs still provide astoundingly beautiful effects. Modulation speed and voice diversity is selectable, and

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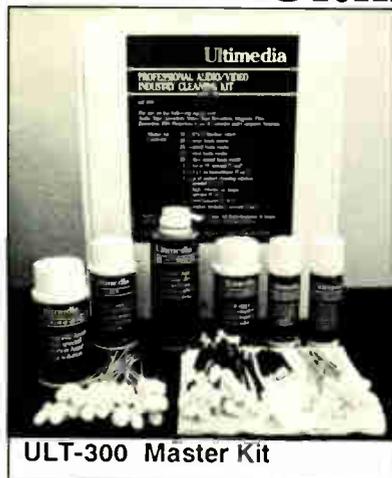
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## FIELD · TEST

2, 4, 6, 12 or 24 voices may be chosen. I used the chorus on guitars and synths with great success.

Typically, I like the versatility of gating a reverb myself, but the XL has a couple of gates that I would definitely use. This is possibly because the XL takes a different approach to gated reverb. It is not actually a gate but a crossfade between two reverbs. In XLC Version 1.0, there are currently no edit controls, but a gray-shaded command is waiting in the default program menu. In the next release you will be able to do true size change and even move from a plate to a room. Hold-time, trigger selection and discrimination will be also be adjustable.

Delays are both useful and top-quality. The edit screen (**Fig. 5**) demonstrates the wild versatility that is open to the user. One can use pure delay, regenerate, tap and crosspatch with ease. Delays may be kept strictly separate as left-right or crossed over at inputs and outputs. Selectable high-pass and lowpass filters can be implemented on all feedback paths for precise control. I find this very handy.

The panning and special effects are a lot of fun. Panning was impressive in that it creates not only a left-to-right illusion, but in a film mix theater I also heard top-to-bottom! Auto pan is called up as part of the flange edit screen. Special effects are not currently editable, but they are mostly variations on FIR filters, and with some time to play, you can create your own weirdness.

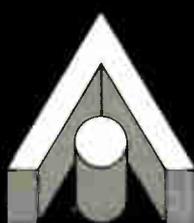
Working with the FIR filters is quite an educational experience. Some amazing things can be done with them, and since they exhibit no time delay, FIR filters can be used in real time. Filters may be assembled as highpass, lowpass, bandpass or notch. Frequencies may be typed in or points on the graph may be clicked and dragged into place for some fast filter building. By clicking on "filter order" and then grabbing the lower attenuation point, you can drag and change both parameters simultaneously. Doubling the subsampling also changes the scale of the frequency graph and doubles the filter order. Increased resolution is a big advantage here. Increasing the subsampling further creates some very unusual special effects. The factory-supplied telephone filters are the actual curves developed by the



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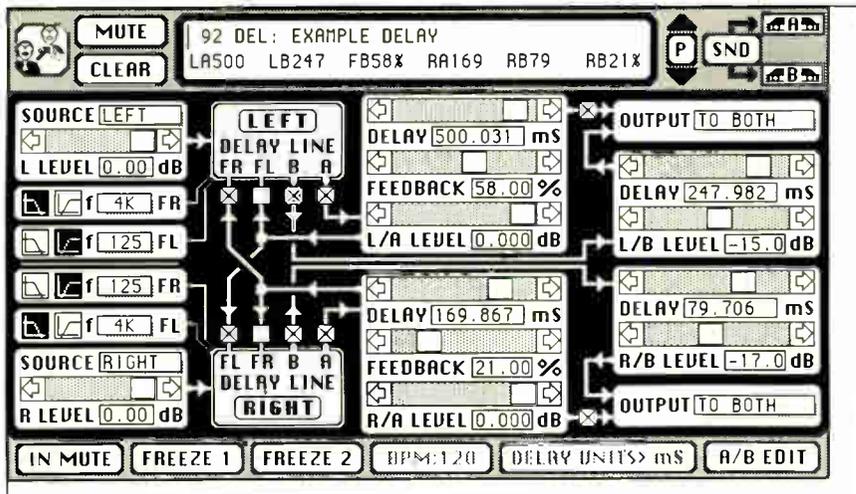


Figure 5: Delay edit screen

phone company, and the phonograph filter is a model of a 78 rpm steel-needle phonograph. These programs are just examples of what you can do, and the application will be specific to the user's needs.

The graphic EQ is a 9-band, 2-channel EQ made up of square FIR filters. Once again, the graphics of the XLC package are excellent. Left and right channels may be adjusted separately or in a right left tracking mode for

true stereo operation. Channels 1-4 may be individually turned off, automatically widening the bands covered by the remaining channels. This could be a super mastering EQ for broadcast work. Because of the complexity of nine FIR filters, there is a time delay of 88 ms with all channels active. This may make this program inappropriate for certain real-time uses such as EQ-ing one track on a multi-track recording. The time delay can be reduced to

zero by turning off the bottom filters, and time delay is displayed in the XL window. No secrets here.

An interesting program shipped in the XLA library is called *Air*. It gives the track more punch, high end and wider stereo field without the use of EQ, excitement, compression or distortion. The track appears noticeably louder, with no level increase on the meters. This could be attractive to radio stations. I like to use it to make background vocals or synth lines stand out.

At this time, MIDI mapping of programs, triggering and real-time note control for some programs is possible. MIDI maps are a breeze to assemble and may be stored on disk for later retrieval—a nice safety feature.

Future releases of XLC will include the gated reverb edit screen, as well as new programs such as parametric EQ, split reverbs, limiters and more. Owners of MS-DOS-version XLs can contact Marshall Electronic directly for information concerning updating to XLC. Marshall is making a serious effort to keep Quantec ahead of the pack, and from what I see they have a fine head start. ■

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Andre Previn conducting the Los Angeles Philharmonic.  
Below: Joseph Magee.



# RECORDING THE CLASSICAL ORCHESTRA

## A Conversation with KUSC-FM Audio Producer Joseph Magee

by Mel Lambert

**I**n this age of consumable everything, it's refreshing to come across a radio station dedicated to providing quality music for its listeners. One such outlet is KUSC-FM, an affiliate of American Public Radio located near the campus of the University of Southern California in Los Angeles. KUSC produces a wide variety of classical concert recordings, including the Los Angeles Philharmonic Orchestra Broadcast Series, which comprises 26 two-hour programs heard once a week throughout the U.S. on the American

Public Radio Network (APRN) and commercial stations. Now in its 10th anniversary season, the Broadcast Series, hosted and produced by Gail Eichenthal, is reportedly the most listened-to symphony orchestra program in the U.S.

The engineer/producer responsible for recording the entire concert series is audiophile Joseph Magee, a jovial native of Seattle, Washington. Magee also handles remote and studio recording duties for a wide variety of KUSC and APRN concerts, including the Los Angeles Chamber Orchestra Series, Los Angeles Music Center

Opera Company, the Los Angeles Philharmonic New Music Group and various visiting symphony orchestras. He is assisted on most sessions by recording engineer Fred Vogler.

Magee also serves as a lecturer at the USC School of Music, where he teaches classes in studio techniques and remote/location recording. An accomplished musician with a BA in Music Education from Central Washington University, and an MIA from USC, he also serves as an independent consultant to a number of orchestras, record companies and equipment manufacturers.

### Original Microphone Array: Blumlein Crossed Figure-Eights

For the 1987-88 season of L.A. Philharmonic recorded broadcasts from the Music Center's Dorothy Chandler Pavilion in downtown Los Angeles, Magee developed a new microphone rig based on spaced omnis, in place of his usual Blumlein pairs of crossed figure-eights.

"When I first joined KUSC in 1983," Magee recalls, "we were using a Neumann SM69 [stereo microphone]. I would have preferred an AKG C-24, which has a slightly 'bigger' sound and a flatter frequency response, because the SM69's frequency response only goes up to around 15 kHz and the bottom-end down to 60-70 Hz.

"The very first thing I did was acquire a vintage C-24—which, as far as I could determine, once belonged to Frank Sinatra—on consignment at Coast Recording, Hollywood. I had to reject a lot of secondhand mics, however, because I don't like the sound of later C-24s. But this one from Coast sounded very good, and I used it for about a year as the primary pickup in a traditional Blumlein array.

"But the Blumlein pair wasn't without its own problems. Apart from having to use a couple of touch-up mics on stage, the figure-eights' back lobes pick up a great deal of audience noise. And, given the brightness of the hall, placing a pair of condenser figure-eights, with their extended HF response, posed problems, particularly for strings—a movement up or down of two inches could radically alter the ensemble sound. Also, covering a piano concerto with crossed figure-eights wasn't really an ideal situation!"

Magee says that he experimented with an additional MS array to cover piano, while using the Blumlein pair to capture the ensemble. "It became difficult, however, to set up other touch-up mics because they never matched up perfectly with the Blumlein pair's precise imaging perspectives."

About that time, Magee noticed that engineer/producer Doug Sax and musician/producer James Boyk were both using Coles Model 4038 ribbons in a crossed figure-eight configuration with great success on classical recordings, and decided to give them a try. "Once I'd successfully developed a way of rigging the pair of large ribbon mics—using a custom-designed, light-weight aluminum mounting bracket designed by Ted Ancona—I discovered that the reduced top-end perform-

ance of the ribbon element, compared to a condenser figure-eight, had taken care of the brittle, high-end problem."

The downside, he recalls, was that orientation of the stereo pair became far more critical. Blumlein pairs of Coles 4038 mics prefer to be aimed flat and low, and fairly tightly into the ensemble. "I had problems with being too low over the first two rows of audience seats, but the array sounded wonderful on strings and brass! The main drawback, however, was that the Coles ribbon wasn't really 'fast' enough for percussion.

"I used the Coles rig for about one-and-a-half to two years, but during that time I'd been experimenting with spaced-omni techniques—I wanted to reduce the amount of audience noise that the Blumlein Coles were picking up."

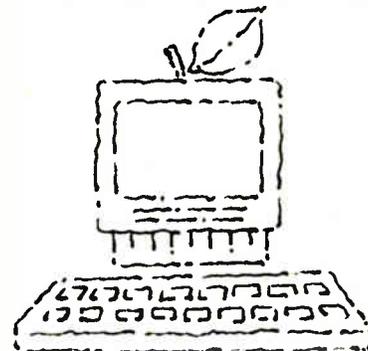
### Current Mic Layout: Spaced Omnis in Modified "Decca Tree" Array

It was while planning a series of recordings for the Royal Opera during the 1984 Olympics that a \$10,000 donation from the Times-Mirror Group, who also sponsored the event, enabled KUSC to purchase a collection of Schoeps Colette cardioid and omnidirectional microphones, finished in non-reflective gray.

"We listened to a lot of Schoeps mics," Magee offers, "and were able to select matched pairs. Because we were supplied with a large number of units for the opera recordings, I could match mic bodies to preamps and retain the best combinations. The Schoeps were later used with the L.A. Philharmonic, and our experience led to the use of our current series of Sennheiser MKH Series mics. The Sennheiser MKH-20 omnis that we subsequently purchased for use here also have sequential serial numbers, and are reasonably matched."

As can be seen from the accompanying diagrams, to mic the sound of the LAPO in the Dorothy Chandler Pavilion, Magee uses a primary array of four Sennheiser MKH-20 omnis laid out in a modified five-microphone Decca Tree array. (This configuration was named after the pioneering work done by Decca recording engineers in the middle to late '50s, using a central array of three omnis mounted on high stands around the conductor's podium, with an additional pair of spaced omni microphones located in front of the orchestra. The three cen-

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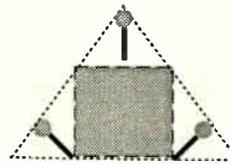
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CONDUCTOR'S  
PODIUM

Safety Curtain/Front line of Orchestra

**Ambience Spaced Omnis**  
(Spaced 30-40 feet apart;  
9-11 feet behind podium;  
12-14 feet above floor level;  
angled 15-25° from horizontal.)



**Ambience Spaced Omnis**  
(Spaced 30-40 feet apart;  
9-11 feet behind podium;  
12-14 feet above floor level;  
angled 15-25° from horizontal.)



### TYPICAL LAYOUT FOR CLASSICAL "DECCA TREE" ARRAY USING FIVE TELEFUNKEN TUBE M50 MICS

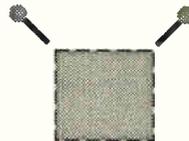
trally positioned omnis are designated as the left, center and right pickups. The majority of the label's current classical recordings are still made using variants of the Decca Tree array.)

At the Dorothy Chandler Pavilion, Magee has rigged Sennheiser MKH-20 omnis as the inner left and right pair of a modified Decca Tree layout. The MKH 20s are located approximately 8.5 feet above the stage floor, and 18 inches to two feet in front of the conductor's podium. The mics are spaced about 3.5 feet apart, angled down about 17 degrees from the horizontal plane and pointed into the string sec-

tions. (The center omni used in a "traditional" Decca Tree is omitted in Magee's modified version.)

To provide a more focused central image, Magee has added an ORTF pair of Sennheiser MKH-40 cardioids, whose subtended angle has been widened out to 100 degrees. The ORTF pair is mounted about 1.5 feet above the center line between the second pair of MKH-20 outer spaced omnis, and around 12.5 feet from the orchestra. An additional, distant pair of outer Schoeps MK3 omnidirectional mics are mounted in line with the inner MKH-20s, and separated by about 40

**Central Spaced-Omni Pair**  
(Spaced 3.5-6 feet apart;  
8.5-10.5 feet above floor level;  
angled 15-25° from horizontal.)



CONDUCTOR'S  
PODIUM

Safety Curtain/Front line of Orchestra

**Ambience Spaced Omnis**  
(Spaced 14-30 feet apart;  
9-11 feet behind podium;  
10.5 feet above floor level;  
angled from horizontal by  
13° for Schoeps omnis or  
17° for Sennheiser omnis.)



**Ambience Spaced Omnis**  
(Spaced 14-30 feet apart;  
9-11 feet behind podium;  
10.5 feet above floor level;  
angled from horizontal by  
13° for Schoeps omnis or  
17° for Sennheiser omnis.)



### TYPICAL LAYOUT OF MODIFIED "DECCA TREE" ARRAY USING FOUR OMNIDIRECTIONAL MICROPHONES

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\*Note that for the latter part of the L. A. Philharmonic Orchestra's 1987/88 season, and since upgrading to the new Panasonic WR-S840 console and Lexicon 480L digital reverb, Joseph Magee has increased the spacing of the outer pair of omni mics to 14-16 feet — *ML*.

Primary or "Inner" Spaced-Omni Pair:  
Sennheiser MKH-20s  
(Spaced 3.5 feet apart; 18-24 inches in front of podium; 8.5 feet above floor level.)

APPROXIMATE SCALE  
Four Feet

CONDUCTOR'S PODIUM

Safety Curtain/Front line of Orchestra

Ambience Spaced Omnis:  
Schoeps MK3s  
(Spaced 30-40 feet apart; 9-11 feet behind podium; 10.5 feet above floor level.)

OTRF Near-Coincident Pair:  
Sennheiser MKH-40s  
(Angled 100 degrees apart; 11-13 feet behind podium; 11-13 feet above floor level.)

Ambience Spaced Omnis:  
Schoeps MK3s  
(Spaced 30-40 feet apart; 9-11 feet behind podium; 10.5 feet above floor level.)

Outer Spaced Omnis:  
Sennheiser MKH-20s\*  
(Spaced 12-14 feet apart; 9-11 feet behind podium; 10.5 feet above floor level.)

Outer Spaced Omnis:  
Sennheiser MKH-20s\*  
(Spaced 12-14 feet apart; 9-11 feet behind podium; 10.5 feet above floor level.)

**MICROPHONE LAYOUT FOR RECORDINGS  
OF THE LOS ANGELES PHILHARMONIC ORCHESTRA  
AT THE DOROTHY CHANDLER PAVILLION, LOS ANGELES**  
ENGINEER-PRODUCER: JOSEPH MAGEE



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When Magee records at an outside venue, either as part of his duties for KUSC or as an independent engineer, he has a set routine for finding the best location for his modified Decca Tree microphone array. "To determine where I would mount the central pickups—which gives me a focal point—I listen primarily on the outer pair to differentiate direct from ambient sound, which tells me how far from the players they should be. Then I determine the height, which is a function of overall timbre—i.e., how the strings sound, particularly the high strings.

"For hanging mic systems, I work with two assistant engineers: one up on the mic cable lines, and another down on the guy lines. From my rough rigging plots, I might be as much as a foot off, which, given all the other constraints, can radically alter the sound. From experience I know that if I'm working with the Schoeps MK2 I need to be a little further back from the ensemble, and a little lower and flatter with the angle of inclination. Whereas with an MKH-20, I need to be tighter to the ensemble, a little higher and steeper.

"That's because the MKH-20 picks

up more ambient information, so you can afford to go somewhat tighter. And, because the MKH-20 isn't so 'steely' as the Schoeps, you can afford to get high and work at a steeper angle. The latter orientation gives you better definition, and you can choose which instrument or groups of instruments in the ensemble you want to favor.

"Being first and foremost a musician—my first degree was in music—I visualize the array in musical terms. I then consider it from a photographic viewpoint: how the microphones are 'seeing' the instruments in the ensemble; the acoustical perspective, if you will, of what those mics are detecting in the far field, and what kind of snapshot the polar pattern is taking. The differences can be incredibly subtle; a matter of inches of movement can throw off the entire perspective."

#### Mixing, Processing and Monitoring Equipment

Monster Cable M1000 is used between the mics and the Jensen preamps, and also for the line-level send to the control room located in back of the auditorium at the Dorothy Chandler Pavilion. Benchmark preamplifiers are used for the MKH-40 ORTF cardioids, while Boulder Twin-Servo preamps handle all other microphones. (At the time of writing, Magee was planning to replace the Benchmarks with Twin-Servo preamps.)

For the majority of the 1987-88 season, Magee used a 20-input, 8-bus Panasonic WR-T820B console. "The 820B has faster chips than the original version," Magee explains. "Considering how little this console costs, it's amazing how good it sounds!

"I particularly like the 820B's grounding scheme. I can hook up lots of gear to this board without any problem, and the headroom is excellent. When the orchestra opens up out there, I need to be able to handle a lot of dynamic range. Sometimes I can never be sure that what happens in a dress rehearsal is going to be the same level on the night of a performance. The L.A. Philharmonic does a pretty decent job of matching levels from dress to night time, but other ensembles can literally jump in level—specifically the percussion section—by up to 10-15 dB. On other consoles I've used for orchestral recordings, the headroom disappears quickly.

"The 820B's EQ section is also very effective, and very 'quick,' not that I

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use a great deal of EQ on the mic array. The main pickups are run flat, and I just roll off the low end for the close orchestra mics in front of the conductor, because of the air conditioning we have up on the stage. I also EQ the spot mics and the returns from the Lexicon Model 200 digital reverb. Because the average mid-range reverb time at the Dorothy Chandler Pavilion is rather short, I add a longer mid-range reverb time to create the kind of decay associated with excellent concert hall acoustics. I send a selective mix to the 200—I wouldn't bus the mics from a chorus section, for example—and EQ the return to make the processed sound fit in with the particular piece.

"Earlier in the year I was using a Lexicon 480 in here, which outperformed the 200. The first thing you run into whenever you try and liven up a dry-sounding hall using artificial reverb is muddiness. How am I going to gently add in the sound of a larger hall when I've already achieved a sense of definition and detail with my main mic arrays? But the algorithms in the 480 sound so good that the device suddenly became a musical enhancer. I can take a string section, for

example, and make it sound as if it has expanded a little bit, and overlapped into the section next to it; the sections sound full, not muddy.

"By being able to control all the early reflection parameters with the 480, I can also correct the anomalies in this hall: a low proscenium, and a non cohesive, reflective shell. Also, the 480's two separate stereo channels allow me to set up independent processing for the voices and the orchestra, for example."

For the latter part of the 1987-88 L.A. Philharmonic season, Magee replaced the Panasonic WR-T820B with a new WR-S840 Series console.

The stereo mix is recorded in the control room on a pair of overlapped Studer B67s running at 15 ips with Dolby A noise reduction. Tape is Agfa PEM469, selected for its low print-through performance, operating at a reference of +3 dB over a 250 nano-Weber/meter flux level. Magee also records the mix to a dbx Model 700 CPDM digital processor and a companion half-inch VHS video deck. "The dbx serves primarily as a backup for potential record release," he confides. "We've had records released from some of our earlier 15-ips mas-

ters, which bothers me. Major labels are now pursuing the L.A. Philharmonic to release some of its concert tapes. For me the dbx Model 700 is the best sounding of the various digital processors."

For monitoring, Magee uses ADS 980 loudspeakers modified internally with Monster Cable PowerLine 2, and using M1 as interconnect. The 980s are powered by a Ramsa Model 9220 amplifier.

"Through years of experience, and having an understanding of the technical aspects, I determine how each of these parameters will affect the sound," Magee says. "The bottom line, however, is how the classical orchestra sounds over the air during the recorded broadcast, or on record or compact disc. All my skill goes into selecting the tools and recording techniques that will achieve the greatest sense of reality for the listener." ■

*Mel Lambert has been intimately involved with professional audio on both sides of the Atlantic for the past decade, and is currently the president of Media&Marketing, a consultancy service for the pro audio industry.*

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Circle #031 on Reader Service Card  
World Radio History

by Mark Herman

# SOUND REINFORCEMENT NEWS

This past October I went to the **Cow Palace** in South San Francisco to catch the **Scorpions** show. It isn't often I go see a heavy metal band at an auditorium built for cow auctions, but, at the insistence of a fellow soundman, I went to see if sound company **Audio Analysts** could beat the odds and pull off a decent gig. I have to admit it was good. House mixer **Achim Schulze** really works out on the Midas Pro 40 when he mixes, and the result was one of the best shows I've ever heard at the Cow Palace. Schulze and monitor mixer **Wolfgang Hofer** are German engineers who often work with **Rock Sound**, one of West Germany's largest sound reinforcement companies. Audio Analysts supplied the complete P.A., including 12 AA subwoofers and 64 of their new Crown MA-2400-powered HDS-4 cabinets, QSC 3800-powered monitors, and a great crew of **Mario Leccese** (crew chief), **Mark Jay** and **Bob Leonard**. From watching the equipment setup, interacting with the crew, inspecting the gear and listening to the final result, I feel that Audio Analysts really deserves its hard-earned reputation as one of the best sound reinforcement companies in the world.

Located in Long Island, **Rock Systems Audio** (Plainview, NY) has been in business for five years and runs a total of three arena-size systems as well as three theater-size systems. The business focus is mainly national concert-touring sound reinforcement. Recent tours completed were with popular rappers **Run-D.M.C.**, the **Beach Boys**, **Erika D.** and metalists **Slayer** (see "On The Road"). Slayer was out for two months ending in December and carried 24 Rock Systems flying custom cabinets. . . . Rock Systems also services local NY venues such as Madison Square Garden, Radio City Music

## Engineer Spotlight: MICHAEL BRIGGS

Name: Michael Briggs

Age: 31

Home: Palo Alto, CA

Now employed by: Independent

Years of experience: 10

Favorite console: Gamble Series EX 56-channel house with matrix and 768-pt. patch bay

Favorite signal processing devices: TC Electronic delay, Yamaha SPX-9011, Drawmer gates, dbx 160X compressor

Favorite venues: Madison Square Garden, NY; Shoreline Amphitheatre, CA; Red Rocks, CO

Memorable tours: George Thorogood '88

**Background:** Michael Briggs is an independent engineer whose services are currently in high demand following well-mixed tours with the likes of Robin Trower, George Thorogood, Vixen and Al Jarreau. He began his career working with local bands in California and Hawaii, before completing courses at the California Professional Music Business Academy in Santa Clara, CA. A diploma in recording engineering helped Briggs land a job with a recording studio. After several years he left—"I got tired of the clinical environment"—to become the house engineer for three years at the busy Keystone nightclub in Palo Alto, CA. Seizing the opportunity to mix Robin Trower's first tour in ten years propelled Briggs into national touring. After four years and 15 subsequent tours, Briggs changed scenery in quest of a higher equipment budget and more challenges. Following tours developed his reputation as a first



class engineer. Now Briggs' biggest problem is finding spare time between tours.

**Mix:** What is important to you?

**Briggs:** Good gain structure and good equipment.

**Mix:** How would you express the highs and lows of mixing?

**Briggs:** The high is being an extension of the band. I feel like an artist at times—expressing the music through the musicians and then through me. The low point would be getting my luggage ripped off at Long Beach Arena while working.

**Mix:** Your advice for aspiring live engineers?

**Briggs:** Work harder than you need to. You can't work for the money. You have to work harder than what you get paid for. You have to work hard, otherwise you won't get noticed, and if you don't get noticed you'll never get anywhere.

**A final comment:** "For me, going out on the road and mixing on superior equipment is like paying a child to sit in a sandbox with all his favorite toys." ■

# SOUND · ON · STAGE

Hall, Beacon Theatre, Capitol Theatre, Jones Beach Theatre and more. Recently they worked a week at Radio City Music Hall providing audio for television's popular game show, *Wheel of Fortune*. Owner **Leon Esker** commented on business, "1988 was a very good year—better than '87—and it looks like '89 will be even better for us." . . . Rock Systems has a total of 250

full-range RS-4 cabinets available for main P.A. use. That is a lot! According to Esker, "Our proprietary speaker cabinet is similar to an S-4. Each enclosure has two 18-inch speakers, two 12-inch, a 2-inch and a tweeter." Electro-Voice cones and JBL driver components are used in the boxes. A console inventory shows Yamaha PM-3000s, a 40-channel Soundcraft Series

4, a Soundcraft 800B monitor 40x10, and a Soundcraft 500 monitor 40x12. The amplifier stock is entirely Carver PM 1.5s.

**Eighth Day Sound Systems** (Cleveland, OH) reported continuing concert tour business and an increased industrial workload. Apparently they picked up a lot of national and local industrial work through a friendly pro-

# ON THE ROAD

## SOUND COMPANIES, EQUIPMENT, ARTISTS & PERSONNEL ON TOUR

Artist Sound Company Tour Dates & Region	House Console #1 House Console #2 Monitor Console #1 Monitor Console #2 House Crossover	Main Speakers Other Speakers Subwoofers Monitor Speakers	Main Amplifiers Other Amplifiers Sub Amplifiers Monitor Amplifiers	Engineers: (B) band (H) house (M) monitor (a) assistant
Blood Sweat & Tears Thunder & Lighting Sept-Dec North America	Wheatstone 1080 40x8x2 ---- Wheatstone M-16 32x16 ---- Renkus-Heinz	(12) Renkus-Heinz M-1 (4) Renkus-Heinz SR-1 ---- T&L WM-1 Renkus-Heinz SR-2A Sidefills	Crest 4001, 3001 Crest 4001 ---- Crest 4001	Lee Jennings (H) B. Harold Smick III (M) Frank Degennaro
Jackson Browne Sound Image Sept-Nov West Coast	Yamaha PM3000 40x8x2 ---- Ramsa 840 40x18 ---- BSS 360	(10) Phase Loc Series 5 High ---- (6) Phase Loc Series 5 Low Sound Image Series 2	QSC 3800, 3350 ---- QSC 3800 QSC 3800, 3350	James Geddes (B, H) Mike Adams (M) Rob Mailman
Erasure Eighth Day Sound July-August North America	Soundcraft Series 4 40x16x2 ---- Soundcraft 800B 32x12 ---- BSS MCS	(48) Turbosound TMS-3 ---- (12) Turbosound TSW-124 EDS Custom 2x15 Turbosound TMS-3 Sidefills	AB 1200, Hafler P500 ---- Crown MA2400 AB 1200, Hafler P500	Andrew Whittle (B, H) John Scheirman (M) Rod Price
Ministry Bernhard Brown Nov-Dec North America	Yamaha PM2000 32x8x2 ---- Soundcraft 400B 32x8 ---- BSS 360	(8) Turbosound TMS-3 ---- (2) Turbosound TSW-124 BB Wedge 2x12	Crest 8001 ---- Crest 8001 Carver 2.0	"Rave" Dave Olgilvie (B, H) John Paul Porter (M) Bart Blikerstaff
Oingo Boingo Schubert Systems Group Oct-Nov U.S.	Gamble HC 40x16x2 ---- Ramsa 840 40x18 ---- SSG Custom	(32) SSG Steradian ---- (16) SSG Sub 2x18 SSG M115, M115	Crest 8001 ---- Crest 8001 Carver 1.5	Dirk Schubert (H) Gary Sanguinet (M) Marty Naclerio
Slayer Rock Systems Audio Oct-Dec North America	Yamaha PM3000 40x8x2 ---- Audioarts M-10 24x10 ---- BSS 360	(24) RS-4 ---- RS-1 1x15 Wedge	Carver 1.5 ---- ---- Carver 1.5	Greg Bess (H) Scott Widney (M) Marty Reynolds
'Til Tuesday Sun Sound Audio November East Coast	Yamaha PM3000 40x8x2 ---- TAC Scorpion 40x12 ---- EAW MX800	(16) EAW KF850 ---- (8) EAW SB850 Sun Sound 2115	Crest 8001 ---- Crest 8001 Carver 1.5	Bob Humphreys (H) Fred Mueller (M)

## SOUND · ON · STAGE

duction house. "We are concentrating more now on industrials than in the past," stated **Tom Arko**. "They really help fill the holes between tours." . . . Eighth Day is capable of putting out two to three good-sized systems at a time. Recent tours were with regular client **Kool & the Gang**, seven weeks with the UK's **Jethro Tull** and a six-week national tour with the up-and-coming European band **Erasure** (see "On The Road"), who started with 24 TMS-3 Turbosound cabinets and ended up with 48, plus 12 Turbosound TSW-124 subs for the main P.A. Con-

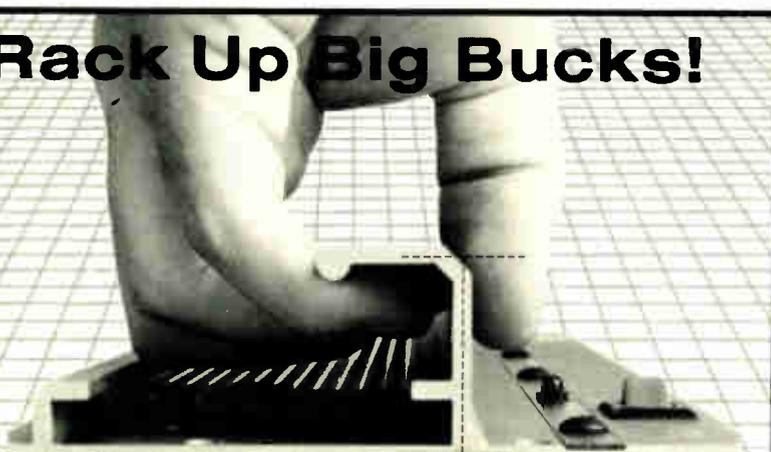
soles used were a Soundcraft Series 4 40x16x2 and a Soundcraft 800 32x12. Monitor cabinets employed were Eighth Day's bi-amped custom JBL-loaded double 15-inch. All the tours used Turbosound main P.A. rigs. Major equipment purchases for 1988 were a Yamaha PM-3000 and 12 more Turbosound TMS-3s.

**Bits and Pieces:** Former Electro-tec Productions VP of marketing, **Mike Renault**, has left the sound company to mix house for glam band **Bon Jovi** . . . Longtime Audio Analysts engineer **Rocky Holman** was snagged by Bon Jovi for monitors. . . **Kevin Korecky**, owner of **Pro Audio Rentals** in Palo

Alto, CA, purchased a **Jim Gamble Associates Series EX** 56-channel house console. The \$120,000 unit was immediately put to work doing dates with **INXS**, **Julio Iglesias** and **Al Jarreau** . . . **Intersonics Inc.** servo-drive subwoofers were on tour with Electro-tec for the **Alabama** and **Def Leopard** tours. **Michael Jackson's** U.S. tour with **Clair Brothers** utilized 16 Intersonics SDL 5s along with 72 Clair S-4 cabinets. The servo-drive's extended low-frequency response provides additional low-end enhancement and special effects. . . Console manufacturer **DDA** has come out with a new Q-Series console designed for both sound reinforcement and multi-track recording applications. The 8-bus console is available in 40-, 32-, 24- and 16-input frame configurations. . . Consider yourself warned! In September I attended the first concert ever held at the brand-new **Arco Arena** in Sacramento, CA. Obviously built with the Kings NBA basketball team in mind, the arena's acoustics are less than desirable for concerts. Definitely an audio engineer's nightmare. . . Stockholm, Sweden's new 16,000-seat **Globe Arena** purchased 86 QSC power amplifiers. Forty QSC MX1500s will drive a central cluster for the main arena, and 46 QSC 1200s will power speakers for additional public areas. Currently under construction, the Globe will be the world's largest spherical building when completed.

Delaware's **Thunder & Lighting** got its start in the theatrical touring business ten years ago. Past credits include a year with **JC Superstar**, **Best Little Whorehouse in Texas**, **Ob! Calcutta!** and **The Wiz**. Later, T&L began concert touring with the band **Pieces of a Dream** and finally quit Broadway touring in 1984. Now they are a full production company that handles audio, lighting, backline gear and more. They have toured with artists such as **Pure Prairie League**, **Grover Washington, Jr.**, **The Four Tops** and **The O'Jays**. Currently their focus is on concert touring with **Blood, Sweat & Tears** (see "On The Road"), who recently finished an Eastern U.S. fall tour, and jazz saxophonist **Ornette Coleman**, who toured this past year in Europe. The Blood, Sweat & Tears tour used a four-box center cluster of **Renkus-Heinz** SR-1 cabinets mounted over center stage, mixed through a matrix output on the house console for vocal reinforcement only. "It gives

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World Radio History

## SOUND · ON · STAGE

it incredible vocal clarity," owner **Lee Jennings** commented. "We are into touring during the September through April period—while in the summer we do primarily large scale outdoor events." This past summer included several Fourth of July events and the well attended outdoor **Philadelphia Folk Festival**, with over 200 bands in three days on four stages. Jennings said, "We specialize in the quick-on/quick-off business." I'd have to agree! ... Like other sound reinforcement companies, Thunder & Lighting has entered the industrial market recently. They also handle installations, one of which is New York's famous **Apollo Theater**, where a Crest powered Turbosound main P.A. and Renkus-Heinz monitors were required. Now they're working on a major disco installation at the **Wherehouse** in Philadelphia, and a gymnasium job at the **University of Scranton**. On another audio tangent, T&L custom designs and builds complete MIDI rigs for live and studio applications.

A description of T&L's audio equipment inventory shows the main front



Top: The Scorpions' multi-stage setup was rolled into place under the lighting rig; left: Scorpions mixers Achim Schulze (house) and Wolfgang Hofer (monitors).

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end to be a Renkus-Heinz Smart system with 30 flying M-1 cabinets, powered by Crest 4001 and 3001 amplifiers. The second system—used for local work and additional audio support—is composed of 20 proprietary P.A. cabinets that are similar to Clair's S-4. They are loaded with two 15-inch speakers, four 10-inch speakers, a 2-inch horn and tweeters in a one-box system powered by Crown PSA-2 amps. Monitors are proprietary bi-amped wedge enclosures (built out of finished furniture grade hardwood) loaded with a 5-inch and 2-inch, with JBL and Renkus-Heinz components. The sidefills are Renkus-Heinz SR-2As, while the drum monitor is a proprietary 3-way box. House mixing consoles are Yamaha PM 3000 and Wheatstone 1080; stage consoles are Wheatstone M-16 32x16 and two Audioarts (Wheatstone) 24x8 desks. Lee Jennings explained his choice of **Wheatstone**: "I love the Wheatstone consoles. They are one of the finest-built consoles around. The company support is outrageous. We also use a lot of their outboard gear—limiters and equalizers, etc. They support us so well. Anything we ask them to build specialty-wise, they can do it." Besides the Wheatstone signal processing equipment, T&L has the standard assortment of dbx, Yamaha, Lexicon and Roland signal processing devices. Recent equipment purchases include a newly revamped Whirlwind snake system and new Crest amplifiers.

Midwestern sound company **MD Systems** (Wichita, KS) has been doing regional, local and fairground work between tours. "We're doing around ten to 15 shows a month," reported owner **John McBride**. Recent work included several weeks with **Cheap Trick** and a few **Miller High-life** dates. . . MD Systems was out all summer on a tour of North America with speed-metal guitarist **Yngwie Malmsteen** and opener **Lita Ford**. Twenty-four main P.A. boxes were carried. They provided personnel only for a short Japan tour leg. Japanese sound company **Hibino** provided the equipment. A Ramsa 840 monitor console was used for the stage mix along with JBL monitors and Turbosound sidefills. Recently MD was out for nearly a year and-a-half with **Step-penwolf**. . . MD's system employs 24 proprietary two box cabinets, a TAC Scorpion 36x12x2 house board and a Soudcraft 800B 32x10 for the stage.



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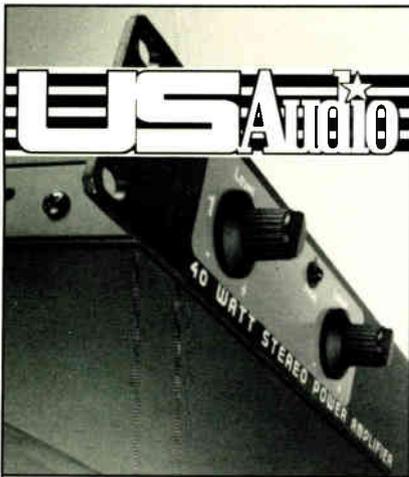
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## SOUND · ON · STAGE

Monitor enclosures are proprietary KYFO (Knock Your Face Off) 2x15 JBL component wedges. Twenty Crest 8001s are utilized for amplification. McBride commented on the amps, "I've loved the 8001 since day one. I think it is a great sounding amp." . . . MD is currently in the process of putting together a new proprietary full-range speaker system using JBL components.

**Amplifier Report.** . . Have you ever wondered which professional audio power amplifiers are currently favored by U.S. sound companies? A recent poll of 70 leading sound reinforcement companies, conducted by well-known journalist **David Schierman**, reported the following amplifier manufacturers' products to be the most widely used (some companies use more than one type): Crest 56%, Crown 36%, Carver 24% and QSC 21%.

**More thunder!!** . . . as in **Southern Thunder**, a Minneapolis-based production company providing sound reinforcement, lighting and trucking. "1988 was a good year for us," owner **Art Welter** stated. "We do a variety of things, such as national concert touring with recent acts like **The Jets**, **World Party** and **Shriekback**; national one-offs; state fairs; industrial shows with clients like **3M**, **Unisys**, **International Dairy Queen** and the **Carlson Company**; quite a number of Christian rock fests and a variety of country festivals. Over the course of the summer our business tends to be more outdoor-oriented, with events such as the 12-day Riverfest here in Minneapolis-St. Paul, the Taste of Minnesota and the three-day Detroit Lakes Country Music Festival." . . . Welter described his two-box, horn-loaded main P.A. system and amps: "Each amp rack powers a block of speakers. The amp racks consist of Crest 8001s for bass, 4001s for low-mids and mids, and 3501s for high-mids and highs. Each speaker block consists of eight 15-inch, eight 12-inch, four 2445s and four 2425s. We have 12 blocks total." Southern Thunder's main P.A. cabinets consist of an L-4 bass enclosure with four front horn-loaded Electro-Voice 15-B speakers; an H-38 high box with four Electro-Voice 12-Ls; two JBL 2445s (mids), two JBL 2425s (highs) and an H-34, which has half the components of an H-38. A block usually has two L-4s and two H-38s. . . Additional main

speaker boxes consist of 16 F-3 full-range proprietary flying cabinets loaded with an 18-inch E-V, two E-V 10s and a JBL 2425. According to Welter, the F-3 works well for in-the-round and outdoor shows because of its coverage capability and strong bottom end. The bi-amped proprietary monitor wedges use an E-V 15-L and a JBL 2445 driver, powered by Crest Powerline 400s. Consoles are Yamaha PM-3000, Soundcraft 800 32x8x2 and Soundcraft 400 monitor 32x10.

From Tuscaloosa, AL, **Ram Sound's Bob McTyeire** declared, "We do a lot of regular industrial clients and conventions every year. Concert-wise we've done many national one-offs, some regional tours and several national Christian tours." They have used Klipsch speakers extensively in 15 years of business. At this time Ram Sound has the first and only complete new Klipsch concert touring system in the country, but according to McTyeire, it didn't happen overnight. "We have been busy for a long time getting our new Klipsch KP-600 Series system finished. It is composed of three different boxes: the KP-650HF, the KP-650LF and the KP-680 subwoofer. It is a full-range, two-box, all horn-loaded system with additional ported subwoofers containing two 18-inch speakers. All the enclosures are the same size. The cabinets are unique in that they are of a composite fiberglass design. As a result they are very lightweight. We have 20 boxes total, eight of the HF, eight of the LF and four of the 680 subs." . . . For mixing duties Ram Sound has a Walker/DDS 32x8x2 house and a Walker/DDS 24x8 monitor console. Carver 2.0 amps are used for main P.A. and monitors. The stage cabinets are Klipsch 2-way ported 15-inch speakers with a 1½" horn. Sidefills used are the Klipsch KP-450 with two 15-inch speakers.

**Showco's little sister!** Everyone knows Dallas' **Showco** is one of the major touring sound companies worldwide. Less talked about but always active is their industrial division, **Showco Creative Services**. According to vice president **Scott Thompson**, "Creative Services handles technical production and design for anything that is not concert tour-related, including full packages from concept on up. We take care of scenery design, lighting design, sound design, video and total technical coordination for private events, awards programs, industrial

and fashion shows all over the world." Surprisingly audio production is very important for fashion shows and big business. Thompson added, "Our division is really a group of designers and production coordinators. We draw on the resources of the rest of Showco for audio and lights. The shows range from 200 people in a hotel ballroom to 8,000 people in a convention center." We (Creative Services), as a separate division, own some specific P.A. equipment, but generally we draw from the Showco inventory and tend to use the Showco SS cabinets a lot because of their compact size." Thompson also explained Creative Services' audio approach to industrial shows: "In almost all industrial situations we try to use a totally distributed sound system, or at the very least some kind of a delay system for a show. We try not to blast the people out in the front seats, while providing important vocal information in a comfortable, clear format to everyone in the audience."

A major Creative Services industrial client, **Mary Kay Cosmetics**, holds an annual convention in Dallas, which is actually four, three-day conventions for nearly 30,000 salespeople. Audio production requirements must be met for major national entertainers, production numbers, business and sales meetings, etc. "This spring we will put together sound, lighting, scenery and production coordination for a set of shows that involves 19 cities in the same two-day period," said a Mary Kay spokesperson. Due to the sheer volume of equipment needed, local P.A. support will be used as necessary. "The annual Mary Kay show has to be one of the largest technical productions that is done anywhere. It takes a week to set up and requires 25 of our personnel." . . . Other industrial work includes several shows a year around the world for the sophisticated **Hong Kong Trade Development Council**. Recently Budapest, Hungary, was the site of a show with regular industrial client **Walt Disney Productions**. ■

*Author Mark Herman owns Hi-Tech Audio, a sound reinforcement company specializing in console rentals.*

If you want to make the news, call (415) 726-2428 or send press releases & photo to: Mix Publications, Sound Reinforcement News, 6400 Hollis St. #12, Emeryville, CA 94608.

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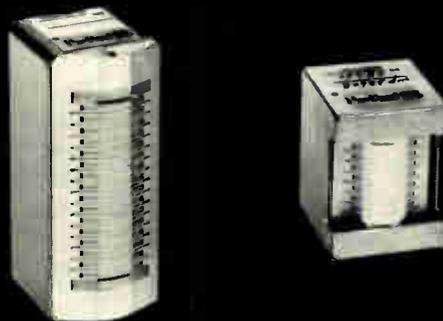
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by Craig Anderton

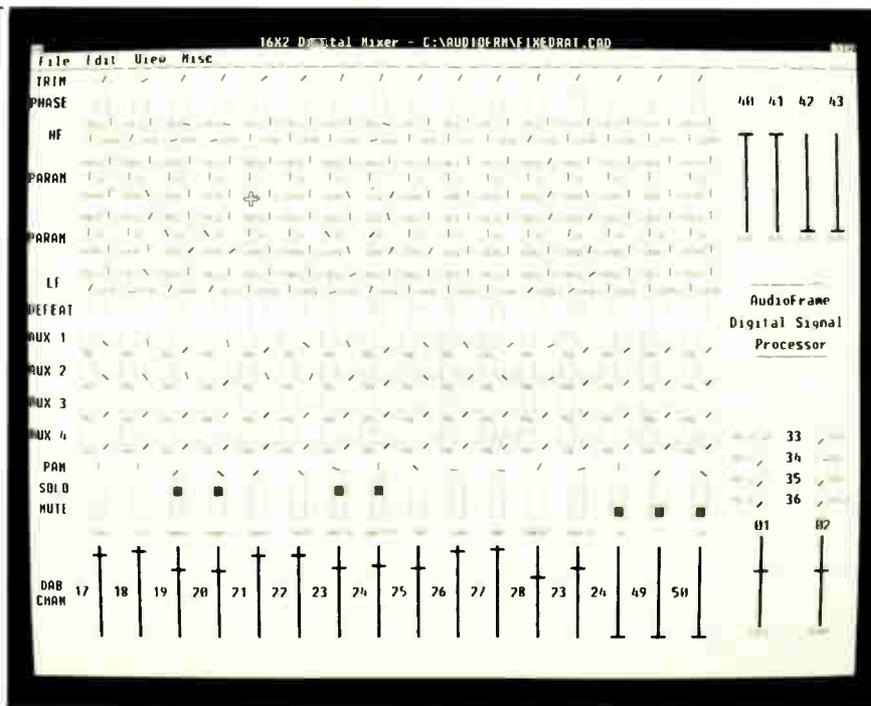
# THE AUDIOFRAME GROWS UP

About two years ago, industry heavyweights started disappearing on a regular basis and reappearing in Boulder, Colorado, as part of a start-up venture called WaveFrame. At the 1987 AES in New York, the wraps came off, production units of the AudioFrame started shipping thereafter and the company was on its way. Positioned

those early claims have come true and the system's current level of operation demands a close look by anyone who works professionally in sound and video production.

## The Concept

The AudioFrame (AF for short) recalls the early days of microcomputers,



AudioFrame's mixing screen offers a visual representation of parameter settings for the internal 16 x 2 digital mixer.

as a high-end digital audio workstation *a la* Synclavier and Fairlight, the AudioFrame's under-\$50,000 price—not exactly small change, but competitively priced for what it claimed to do—raised a few eyebrows. Most of

when systems consisted of a single large box with a motherboard and card cage. Cards were plugged in as needed to configure particular systems. The advantages were and are that you need to buy only as much

system as you want, and expansion is relatively painless. (I'll attest to the soundness of the concept: my 1979 CompuPro computer has gone from 64K of RAM to 2 megs, from an 8080 to an 80286, from single-user to multi-user and from a floppy to hard drive, all by simply plugging in a few boards.)

The AudioFrame system fits in a 10U rack-mount box with backplane and card connectors. The backplane handles 64 channels of high-speed, multiplexed audio; information is conveyed from one bus slot to another in 350 nanoseconds, and audio is updated every 22 microseconds (the 44.1 kHz sampling rate standard). The backplane also includes a 1 megabit-per-second communications line for handling multiple MIDI streams, SMPTE and user commands from the central computer (more on that later). Working with, for example, MIDI at such a high internal rate renders the "MIDI's too slow" argument moot, if not pointless. Once MIDI enters the AF, it *flies* from point to point.

#### Cards currently available for plugging into the mainframe include:

**Studio Control Processor.** This communications board drives up to four of the AF racks and handles (among other things) two independent MIDI inputs and outputs, SMPTE (linear time code) in and out and VITC (vertical interval time code) in, house sync, digital word clock and connections for the IBM Token Ring network, an industry-standard, local-area network. These can all be in use simultaneously. For example, another user in another studio can access the system via the Token Ring network, while the system itself syncs to SMPTE and outputs MIDI.

**Analog-to-digital converters.** Available in 2- or 8-channel configurations, these modules convert real-world analog signals into a form compatible with the AF's all-digital internal environment. The use of high-quality converters and a 44.1 kHz constant sampling rate insures accurate 16-bit conversion. This board (as well as the

output D/A boards) can work with -10dB and +4dB signal levels.

**Digital-to-analog converters.** These output boards convert the AF's digital signals back into analog, at a constant sampling rate of 176.4 kHz. There are also four stereo AES/EBU outputs for those instances when you want to stay in the digital domain (e.g., go directly to digital tape).

**Sampling board.** This includes 16 dynamically allocated voices and 2 megs of RAM—enough for 24 seconds of mono audio data. There's also a SCSI-compatible adapter for high-speed data storage/retrieval (more on this later).

**14-meg RAM board.** For 2.5 minutes of CD-quality sound, add this board to the basic sampler. If that's not enough, you can add more sampler boards for more voices, or more memory for more sampling time.

**DSP board.** Using four Motorola 56000 DSP chips, this board is software-configurable to perform a variety of signal processing tricks. Currently, there is software to turn this board into *MIDICAD*, a 16 x 4 x 2 mixer with digital reverb (it could also be configured as a 16 x 8 mixer *sans* reverb). Remember, all this occurs completely in the digital domain, using 24-bit internal processing. Also, 24 channels of digital audio can be transferred from one DSP board to another. We'll cover the mixer in more detail later.

The other essential part of the system is an IBM 386 compatible computer. This and a monitor are included in the system package price.

#### But What About...

The hardware is pretty sophisticated, but bits, bytes and speed mean nothing without sound quality, a well-designed user interface and the software to make it all fly.

Regarding sound quality, it's gorgeous, real and smooth. The AF employs fixed sample rate technology and interpolates literally hundreds of samples in between sample points to smooth out a wave. This gives the effective equivalent of a drastically higher sampling rate and greatly relaxes the output filtering requirements. You

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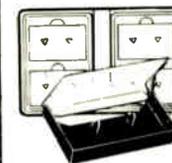
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## MI · UPDATE

can take a gong and transpose it down four octaves, and the sound is still clean, bright and free of garbage. No one is going to fault the AF for sound quality; it's as good as any digital audio I've ever heard come out of a speaker. Pitch bending doesn't produce "zipper noise," even when "scrubbing" the sound to find precise loop, edit and truncation points (and yes,

since the data is ASCII, it's easy to export to a word processor, too. There are also edit windows *a la* Digidesign's *Sound Designer* or Blank Software's *Alchemy* to edit loops and such, but seeing all parameters at a glance helps identify "rogue" samples (e.g., ones that had to be detuned to hit concert pitch) and greatly speeds up the editing process.

My one major disappointment with the sampler is the lack of onboard

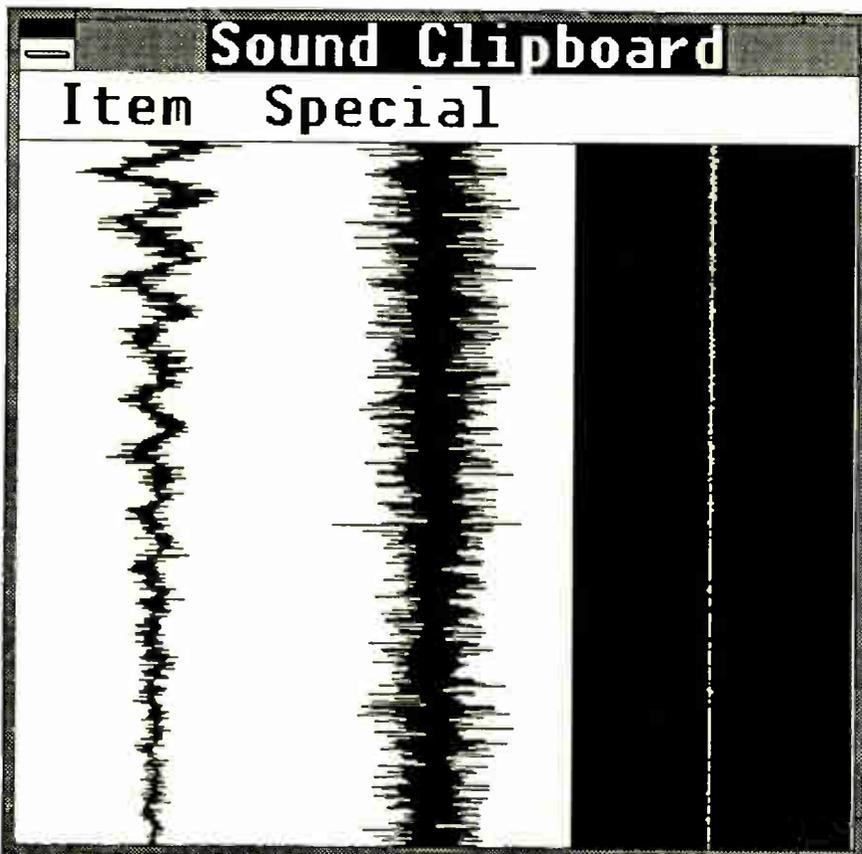


FIGURE 1: AudioFrame's "trim bins" allow sections of audio to be copied, cut, stored, zoomed and rearranged.

the scrubbing implementation is superb). There's even a track-replacement feature if you want to replace existing taped sounds with sampled sounds from the AF.

Sampling also works hand-in-hand with the user interface. The main interface is Microsoft's *Windows*, and those windows are used very creatively. All parameters for a sampled preset are shown (and are editable) on screen, including length, transposition range, original pitch, tuning, loop points, envelopes, MIDI channel and so on. What a relief after scrolling through LCDs one parameter at a time! Waveframe also claims to be readying a way to print out those parameters for hard copy perusal, and

filtering. There is a low-pass filter to cut down on brightness when samples are transposed upwards, but only three cutoffs are available and the filtering is not dynamically alterable via envelopes. This is not crucial when sampling only acoustic instruments, but for sampling synthetic timbres, having onboard filters is pretty close to a necessity. Also, polyphonic aftertouch is not supported (but there's not all that much you can assign velocity and aftertouch to anyway). There is one way to help compensate for this; you can record up to seven layers of sound, each triggered by different velocity levels. So, if you want the sound brighter when you hit the keys harder, you can bring in a brighter sample. Still,

this is no substitute for dynamic filtering. Although plans are afoot for digital EQ on the sampler, I think we'll have a bit of a wait until dynamic filtering becomes a reality on this system.

### Visual Editing

When it's time to get visual, the AF is clearly optimized for film and dialog work. Sections of audio can be cut and placed in "trim bins," where the audio is shown vertically, just like hanging up strips of film (Fig. 1). Cut, paste, copy and zoom in/out are supported; more esoteric features, like Alchemy's ability to translate sample rates and swap samples between different machines, are not. The visual editing capabilities are functional and easy to use (finding good loops is a cinch, probably owing to the interpolated samples that help you find exact loop points with great ease), but the bells and whistles belong to the future.

Still, there's more to sampling than sound quality and visual editing—the loading and organization of samples is important, especially in a time-equals-money studio or post-production environment. Loading time becomes significant for pulling megabytes of sound from disk; however, the AF now implements an absolutely marvelous feature called *SoundStore*, which transfers samples from 90- to 300-megabyte hard disks directly to RAM via SCSI. (Up to three 300MB hard disks will fit in one rack.) I watched one of the initial tests load one-and-a-half minutes of audio in seven seconds—most impressive. This feature alone could save hours, if not days, over the course of a year's worth of work.

But the *coup de grace* is an associative database built into the *SoundStore* package. All sounds are identified by multiple user-definable fields. For example, you can load all sounds used on a certain project, all sounds above a certain user-defined quality level, any sound that contains the word "violin," etc. If you've ever tried to organize your samples, you know how hard it is to keep everything under control. Far from being a gimmick, the *SoundStore* database is one of those brilliantly obvious solutions to a very perplexing problem. (In fact, this inspired me to start cataloging my Emulator II and Ensoniq EPS samples in Microsoft's *Works*, which has drastically cut the time required to find samples.) Features such as this and the

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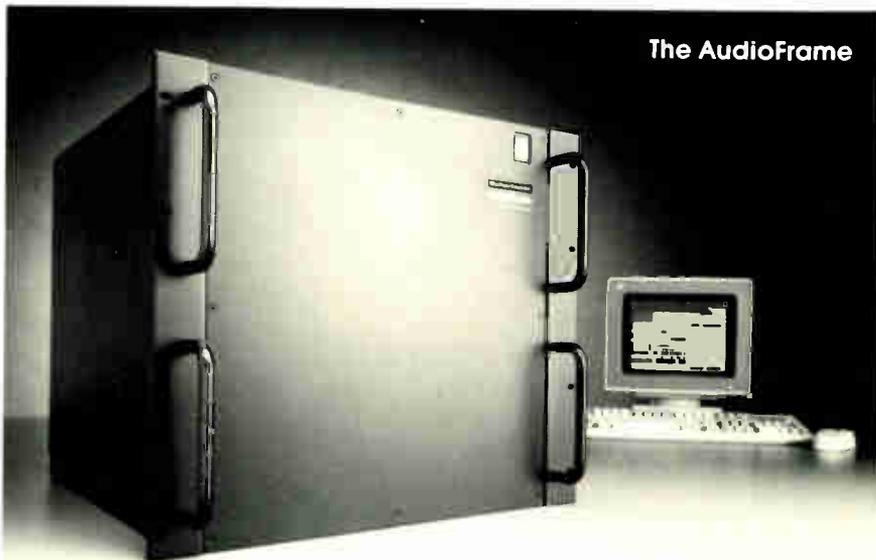
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MI · UPDATE

onscreen "spreadsheet" of sample data greatly speed the production process.

I tried storing video editing cues and synching them to a Three Stooges movie; being able to read VITC directly (you just feed it into a BNC connector on the back) is a blessing, since you don't have to cue edit points "on the fly." I've never had the opportunity to use VITC before, but it's clearly an essential option for video work. When you have the appropriate edit point, click on the effect you want and it's stored in the edit list, with 1/100th-

Jam Box combination, which is great if you want to drive the internal samples and external MIDI devices without perceptible MIDI data clogging). And that's it—no punch-in or -out, no overdubbing, no graphic editing, no event editing (although punches are scheduled for implementation and, in fact, may already be available). To remedy this deficiency, *Texture* is being ported over to the AF, and it's not inconceivable that ports of other sequencers could become available. For now, though, the sequencer is best thought of as a tape recorder without razor blades. At least you can record



The AudioFrame

of a-frame resolution. Although only 32 edit points were available when I tried the machine, I've been assured that bug will be fixed by the time you read this. [According to a company representative, the system has recently handled up to 1,800 edit points without problem—Ed.]

**The Sequencer**

The sequencer is primitive. Considering it coexists with features like SoundStore, the sequencer's lack of sophistication stands out all the more. To be fair, it makes more sense to spend precious engineering time on developing unique features; after all, you can use a standard MIDI sequencer to drive all those gorgeous sampled sounds. Still, that grates conceptually—after all, the AF is supposed to be a one-stop workstation.

What we do have is 64 multi-channel tracks with quantization and the ability to assign separate tracks to separate cables (*a la* a MIDI Paint and

different sections of a part on different tracks, so you don't have to redo an entire part every time you make one little mistake.

Eventually, I expect the sequencer will often be used in conjunction with the mixer. The mixer is *great*: 16 channels of digital audio (internal sampled sounds, or external audio sources hitting the A/D boards in real time) with input trim, 4-band EQ with two parametric stages, four effects sends, sub-grouping, etc., all displayed in high resolution with a picture of a mixer. Click on a button, move the mouse and *voila*—the change is made. It's clean, quiet and gives you a way to easily automate mixes, right down to EQ and pan changes.

As with the sequencer, there are some frustrating limitations; unlike the sequencer, these would appear to be easy to fix and are in fact high on WaveFrame's priority list for a software update. First, any changes in the mix are not shown on screen. In other

words, the onscreen "knobs" don't move in real time to reflect changes. [At press time, we were informed that this bug has been corrected—Ed.] Second, using a mouse to adjust parameters puts you back in that change-one-parameter-at-a-time situation we all know and loathe; fortunately, WaveFrame has started work on an improved user interface that will most likely use motorized faders. I suspect the mixer is only a few updates away from being the digital mixer of my dreams. Meanwhile, because the mixer uses standard MIDI commands, I understand that several AF users are using J.L.Cooper's MIDImation system strictly as a controller (audio is still routed through the AF, not the Cooper system). And what about the "but MIDI's too slow to control a mixer?" Well, don't forget that MIDI signals are running around inside the AF on a 1-megabit-per-second bus—that's about 30 times the normal rate.

### Conclusions

We need to consider two elements: what the AF can do *right now* and its potential for the future. If you take any *single* element of the AF except for sound quality, which is beyond reproach, there are products out there that (arguably) do the job better. There are more sophisticated automation systems and better, though not necessarily faster, dedicated visual editing programs. There are more expressive samplers out there, too. However, the AF combines a bunch of disparate elements in an ergonomic, intelligently designed package with a level of integration and speed that could never be achieved with stand-alone products. Take SoundStore, for example; adding in a database, while not a trivial job, was accomplished in a relatively short period of time, and thanks to the system integration, it fits the sampling section like a glove.

Basing the system on a Token Ring network is also wonderful; several users can access one master sound library, for example. And speaking of sound libraries, a collection of several hundred high-quality sounds already exists, and more are on the way.

The big question is how the AF compares to a Synclavier or Fairlight. The Synclavier is a mature system that offers a lot *right now*. The Fairlight occupies a similar position. WaveFrame is the new kid on the block and they have accomplished much in a short

period of time. But while no one would say the AudioFrame's sequencer and mixer are unfinished—they do work and don't crash—they have yet to reach their full potential. How long it will take to reach that potential is anyone's guess, particularly since the potential is so vast... which brings us to the future.

When you buy into a software-based system you, in effect, marry a company. WaveFrame has not had much time to build a track record, but that track record is still undeniably impressive. They came out of nowhere, hired top-notch talent, have comfortable financing and have delivered on their promises to a degree that all but the most picky would consider exemplary. The design decisions behind the AF allow for a degree of expansion that should, in my opinion, give users about a six- to ten-year ride (at the very least) on the cutting edge of technology. I expect that most AFs will have paid back their owner's investment long before then. And the investment required by an AF is pretty reasonable, given the state of the art.

The bottom line? If you're in the market for a digital audio workstation, the AudioFrame is worth a close look. For dialog and video work, it's pretty exceptional. As a musical instrument, the sound quality is flawless; if WaveFrame can build in a bit more expressiveness, it will be unbeatable. The mixer is already brilliant; updates will only make it more compelling. And WaveFrame is just starting to learn how to use the DSP board to model acoustic sound sources. While full implementation is way off in the future (WaveFrame was reluctant for me to even mention it, since they don't want to be accused of luring customers with vaporware—but hey, I said it, not them), this could add a new dimension to the creation of synthetic sound.

Gambling on the future of a high-tech company in an industry as fickle as the music business is always risky, but WaveFrame has proven they have solid engineering, musical chops and a strong commitment to their product line. They're on to something, and they're on to something big. ■

*Among other things, Craig Anderton writes books, produces music, edits our sister publication Electronic Musician and performs with the synth band Transmitter.*

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## IT'S PRIME TIME FOR ORNETTE COLEMAN

by Hank Bordowitz

Ornette Coleman has always been notorious, but suddenly he is also hot. People want to play his music—the *tour de force* on Branford Marsalis' latest album, for instance, is his version of Coleman's 30-year-old composition, "Lonely Woman." Musicians want him to play on their records, but so far he's been too busy playing with the latest edition of his band, Prime Time, to weigh these offers. Then there's *Virgin Beauty*, his most recent record, which already is the most successful record of his career—it debuted at Number 8 on the jazz charts.

This sort of adulation was a long time coming, but couldn't have happened to a more deserving artist. Coleman's music has been on the cutting edge for more than three decades. He invented "free jazz" and was ostracized because of it. He was one of the first horn players to eschew keyboards in favor of working with just a bassist and drummer. And for the last dozen years or so, he has been working on complex theoretical music he calls "harmelodies," much of it done with Prime Time, his amplified double quartet (two guitars, two bassists, two percussionists). *Virgin Beauty* is the latest refinement of Coleman's ideas.

The album, produced by Coleman's son, drummer



and manager, Denardo, is nothing short of brilliant, easily one of the most exciting and accessible recordings Coleman has made. Compositionally, it is a linear descendant of his previous album, a double set called *In All Languages*. On that ambitious record, Coleman used the amplified Prime Time on one disc, and his "classic" quartet from two decades ago (Billy Higgins, Charlie Haden, Don Cherry) on the other, each group recording the same seven compositions. Among the features that set *Virgin Beauty* apart, however, is its enormous stylistic diversity. "Three Wishes" has a distinctly Middle Eastern feel, "Happy Hour" has a real country tinge and the other cuts have equally diverse flavors.

"I think that comes from

when you allow musicians to express their emotional feeling about what they are playing with you, rather than having them play a specific thing to make you sound good," Coleman comments. "These people are reaching to other areas of their brain and heart to express other things besides just playing their instruments. There's more to music than just sound."

This notion manifests itself on *Virgin Beauty* in several ways, not the least of which are several tunes that are so infectious and upbeat, they could be remixed easily for the dance floor. If the thought of Coleman making dance music sounds strange to you, it is not a new thought to him.

"I've always felt that people could dance to the music I was making," he declares. "I was telling someone the other day that 90% of all the music

that has to do with emotions has rhythm in it. People dance in many ways. That's why I put out my record called *Dancing in Your Head*."

Beyond all that, or perhaps incorporated within it, is a melodic eloquence and elegance that pervade both *Dancing in Your Head* and *Virgin Beauty*. Coleman once was known as a firebrand, highly regarded for the outrageous nature of his music, but his last several recordings have added to his always complex melodies a lyricism and lightness that have rendered not only a challenging and rewarding listening, but a pleasurable one as well.

Because of Coleman's eclecticism and Prime Time's instrumentation, he has in recent years enjoyed a following that stretches well beyond strictly "jazz audiences." Prime Time rocks ferociously at times, and his compositional approach has earned the healthy respect of fans of the avant-garde. On *Virgin Beauty* Coleman has also endeared himself to an unexpected audience: followers of the Grateful Dead. Already attuned to intense instrumental music, Deadheads rejoiced when lead guitarist Jerry Garcia turned up on three tracks of *Virgin Beauty*. The pairing of Coleman and Garcia caught some critics off guard, but to Coleman it seemed natural.

"Why not?" Coleman demands. "I don't see any difference. Every person has something to say. It's just a matter of who they're saying it with. It's a matter of each person having an experience that makes them

—CONTINUED ON PAGE 135

# KAZUMI WATANABE RIDES WEST

by Robin Tolleson

You'll think you're listening to a small horn section sometimes, or a steel drum, or a demon's voice will kick in only to be sucked back into the Steinberger that's in the hands of Kazumi Watanabe. At 36, Watanabe has been Japan's leading jazz guitarist for more than 15 years. His five recent releases on Gramavision (the last two, *Spice of Life* and *Spice of Life Too*, featuring Jeff Berlin and Bill Bruford) have introduced his playing and composing



PHOTO: ELLIOTT GALT

skills to a wider U.S. audience.

"The song is important to me," Watanabe says. "But improvisation is very difficult, and that's very important for me also. The communication between

the bass and drums and guitar, the basic trio function, is interesting to play. There are many spaces to create. Sometimes synthesizers complete the music too much."

Watanabe wanted to make sure he gave Berlin and Bruford their space on *Spice of Life Too*. "Jeff is a good improviser, and Bill has his own world of music," the guitarist says. When they go into the studio, things aren't 100% set. "I try to get 60% of the idea," says Kazumi, "because I expect to get Bill's and Jeff's ideas. Sometimes their ideas are better than mine."

"We 'The People' on *Spice of Life Too* is one of the most lovely melodic pieces Watanabe's done, and it segues directly into one of the most cold-blooded funk tunes he's played, "Fu Bu Ki." "My basic ideas changed and changed," says Watanabe. "Jeff added that bridge and Bill wanted to put an 11/8 bar in a certain place, like that. 'Fu Bu Ki' is a group composition."

There's another difference between *Spice Too* and the first release with Berlin and Bruford. On the new album, keyboardist

Peter Vettesse is along to fill in some backdrops. "Playing the guitar synth on stage is no problem," Watanabe says, "but in the studio sometimes it bothers me, because I have to play two personalities, like I'm Jekyll and Hyde. For this new recording I decided to concentrate on playing guitar."

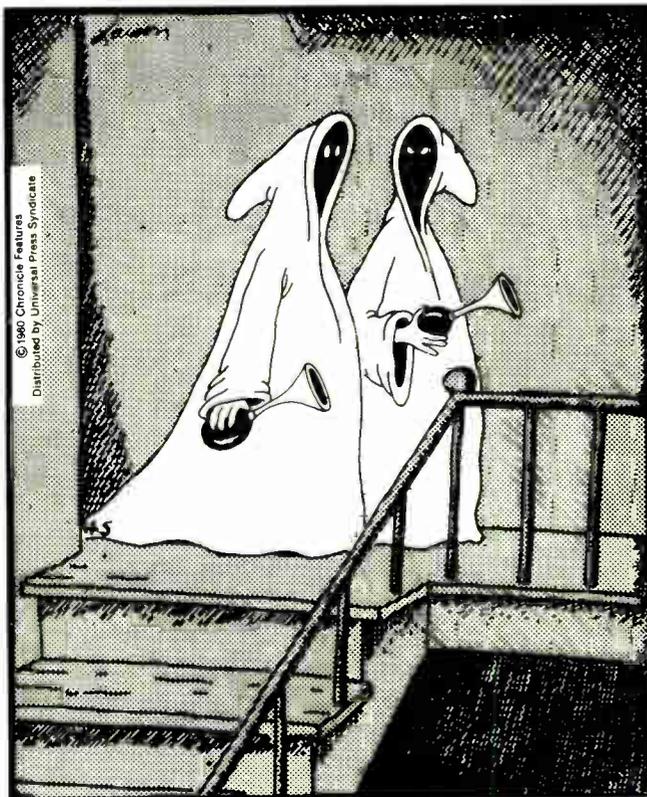
Watanabe's first guitar idol was Wes Montgomery. Larry Coryell and Jimi Hendrix were also big influences. He enjoys the Dixie Dregs and King Crimson. And he still listens to Django Reinhardt. "He was a maestro on the guitar," says Watanabe, who was 12 when he realized he wanted nothing more than to be a guitarist. "I learned a lot about guitar by myself. After a while, I decided to learn jazz and went to a Yamaha jazz school close to my house."

The guitarist also learned jazz method from saxophonist Sadao Watanabe (no relation), who brought his Berklee college lessons back to Japan. From playing with Michael Brecker in Steps Ahead in 1981, he says he "learned how to play with other

—CONTINUED ON PAGE 134

## THE FAR SIDE

By GARY LARSON



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"This is just not effective . . . We need to get some chains."

—FROM PAGE 133, KAZUHI

musicians and develop solo play." And more lessons were learned playing with bassist Jaco Pastorius in 1984 and '85. "After his big band, Jaco came to Japan with a small horn section, and that meant more free jazz music. It was a good experience. Jaco taught me about dynamics and economy, saying that you must put more space in music."

Watanabe's talents as a bandleader really came into play on his *Mobo* albums (1984), where he used two sets of drummers and bassists at times. "I

had a plan to do a recording with one Jamaican side and one New York side," he says. "But one day I could get all those musicians in the studio on the same day. Omar Hakim and Sly Dunbar played together, and Marcus Miller and Robbie Shakespeare at the same time. It sounded great. I brought my music in and showed it to Robbie and Sly, and they both said, 'I don't read music.' It was a problem but it *wasn't* a problem, because from the beginning it was happening. We said, 'Let's create music without music, without paper.' I gave them the tempo and a simple melody and the key, and said 'Let's play.' On the opening ses-

sion we played over 40 minutes. During the song the engineer was changing the reels."

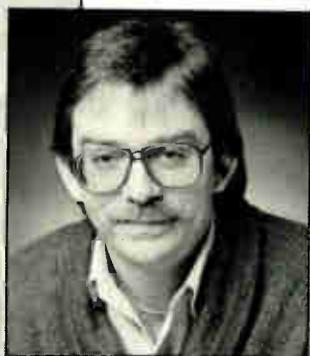
*Spice of Life Too* was recorded and mixed by Adam Moseley in February and March of 1987 at Great Linford Recording Studio, Milton Keynes, England, an hour-and-a-half from London. "That was my first experience using a residential studio," says Watanabe. "It's very good. It's in a big manor there. There's a recording studio and kitchen, bedrooms, ping-pong and a couple of snooker tables. We spent two weeks there, started recording around noon and continued to midnight everyday. It's better than recording in the city. In the city, after recording you have to catch a taxi back to the hotel and the next morning wake up and catch a cab to the studio. That gets boring. And this way we can talk with each other many times about the music."

Watanabe was playing a Roland guitar synth as far back as his *Mermaid Boulevard* album, recorded in 1977. "I enjoy the technology, especially to play the MIDI guitar at home, to create a new song. MIDI is very helpful," he says. "I have a computer with music sequencer software, and I plug in my MIDI guitar or keyboard to the computer sequencer and start to play. Sometimes I get a good idea for a song. If not, I can erase and start from the top again. It's very easy. You can use the sequencer like a tape recorder. Another good thing is, when I record the MIDI code on the sequencer, after that I can change the sound. For example, my first idea of the melody is using the piano sound, but if I change my mind I can use the pan flute sound for the same data."

"For *Spice of Life Too* it helped a lot. I had always brought my demo tapes already prepared and recorded. But this time I didn't bring tapes, I just brought floppy disks. At the studio I put in the floppy disks, and Bill and Jeff and I could try other ideas and sounds on the songs. I couldn't do that if I just brought a tape."

Watanabe is a sound-conscious player, and it's not always a clean and common sound he's after. "I like to use a sampler," he says. "I'm very interested in correct samples of ethnic instruments. I have many ethnic instruments at my home, from Tibet, from Indonesia, and when I have time I sample them. One is called the ankrum, and comes from Java. It's a bam-

# SOUNDS GREAT!



Sound mixer Andy Nelson has joined Film House, Canada's pre-eminent post production sound studio, as Director of Sound. In his new position, Andy will ensure re-recording of the highest quality on feature film soundtracks.

Andy has had more than ten years' experience, including three years as Head Mixer of Shepperton Studios in London, England, during which time he has re-recorded more than thirty major feature film soundtracks. He has received three British Academy nominations and much acclaim for his work in both film and television.

Andy's extensive re-recording credits include Stanley Kubrick's "Full Metal Jacket," Michael Apted's "Gorillas in the Mist," Nicholas Roeg's "Track 29," and five Ken Russell films, among them "Crimes of Passion." His most recent work includes David Cronenberg's "Dead Ringers" and Norman Jewison's "January Man," both re-recorded at Film House this past summer.

## FILM-HOUSE

To contact Andy, please call (416) 364-4321 or write to him  
c/o The Film House Group Inc., 424 Adelaide Street East, Toronto, Ontario M5A 1N4.

boo percussion instrument, a bamboo bell. I sampled that one and play it on guitar on 'Small Wonder,' a Bill Bruford song. Peter Vettesse uses a Panamanian nose flute sample on that and triggers it from his keyboard. On the song 'Kaimon' I play an Indian sarod sample with my guitar synthesizer, playing the arpeggio behind the melody."

The guitarist uses a custom-made tube amp and has three different axes. "I'm still playing the Steinberger, and now a Paul Reed Smith and an Alembic, depending on the parts of the song. The Paul Reed Smith is always for the melody and solos. The Alembic I used for the leads at the beginning of 'Fu Bu Ki.' And I can create good grooves and chords with the Steinberger, like a keyboard."

When he wants to, Watanabe can chill out, direct the traffic and make things smooth. And then he can take off ahead of the pack and rip some monster lick out of his arsenal of ideas and sounds. In concert, Watanabe's effects rig (including Lexicon PCM70 reverb, TC Electronic TC2290 delay) takes up about as much stage space as he does. Those sounds are constantly changing, but on *Spice of Life Too* Watanabe also gets away from the effects a little and just enjoys blowing. "I wanted to plug in the guitar, and put a mic on the amp, without effects," he says. "I just tried getting back to the basics." ■

—FROM PAGE 132

feel good. Jerry was very happy and turned on playing with us, and when I heard him play, it was just beautiful. The main idea of making music, with whoever you're making it, is to have the privilege of being yourself, regardless of style or category."

That characterization certainly applies to Coleman, who, through all his musical changes, remains one of the most widely regarded alto players. He is also a distinctive violinist and has earned a considerable reputation on the trumpet—check out "Bourgeois Boogie" on *Virgin Beauty* for some of his finest horn work. Still, Coleman thinks of himself primarily as a composer. And he brings to his compositions the same sense of wonder that informs the work of all great artists.

"Every music you've ever heard since you were born in the Western world consists of the same, identical notes," he muses. "So it's very strange

that in the last 400 years, everyone is still using those same intervals, and still coming up with melodies that sound fresh and sometimes outdate other things."

Precisely the sort of music that Ornette Coleman hopes to write, play and record as long as he makes music. ■

## DAVID PAICH: THE KEYS TO TOTO

by Randy Alberts

Over the last ten years the members of Toto have had a knack for climbing the Top 40. Hits like "Hold The Line," "I'll Supply the Love" and "I'll Be Over You" were tailor-made power pop successes, and the singles from their Grammy-smashing *Toto IV* alone could satisfy many a career. All these accomplishments are even more im-

pressive when reminded that concurrently each band member has developed personal session credits worth rescheduling for.

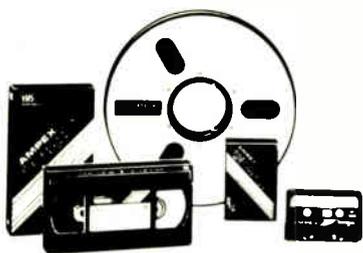
At the core of this success is writer and keyman David Paich. Since Toto formed in 1978, Paich and his bandmates have managed to cultivate their session work in complete harmony with the full-time attention needed for the band, a feat some of the band's critics have doubted in the past.

"People think that we do outside sessions all year long and then get together occasionally to fulfill our contracts, which is false," says Paich. "Toto is our full-time love, 355 days a year. During that time we may do outside sessions from 9 a.m. to noon, and then Toto works from 1 p.m. till midnight. On the other ten days of the year we may play on ten other albums, so at year's end the public perception is that we haven't done too much with Toto, which certainly isn't the case."



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## MUSIC · NOTES

With numerous accomplishments within Toto and countless credits outside the band, Paich's complete commitment to music is evident. His career was launched in 1973 when he played on Seals & Crofts' "Diamond Girl," and from there went on to work with Steely Dan on *Katy Lied* and *Pretzel Logic*, Boz Scaggs' *Silk Degrees* album and tour, plus numerous sessions with Paul McCartney, Elton John and Michael Jackson during the five years prior to the forming of Toto. Since then the band has recorded seven albums garnering 12 Top 40 singles and seven Grammys, and penned the *Dune* soundtrack.

Their current release, *The Seventh One*, marks the first time in ten years that Toto has used outside producers (George Massenburg and Little Feat's Billy Payne). In the past, Toto had a hard time finding a production team for their needs. "After ten years of doing it ourselves we finally realized that there are other producers that can be just as meticulous as we are in the studio," recalls Paich. "I personally thought I had an inkling as to what it's all about in the studio. Then I met George and found out what a technical giant he is! Having Billy and George to act as our ears in the control room allowed us to really open up on this album.

"We were very good at not stepping on each other's toes," Paich continues. "Billy was very hesitant to play on the album, but I got him to play some keys on 'Can't Stop Loving You' during the solo. I'd most certainly feel the same way if I were at the producer's desk for Little Feat."

Toto's latest album also marks the first time they have ventured into digital recording, and it had an impact on how the production was approached. "We immediately shifted into the 'less is more' philosophy," says Paich. "It changes the way we layer sounds, because we don't have to try so hard to get a big, rich sound. The mid-range, such as shaker, bells and echo, all come across so much better without the smearing that happens with analog tape."

Another change to the Toto lineup on this album is mainly a legal one. Steve Porcaro, the other half of Toto's keyboard team, has moved out of the "visual picture" to free himself up for future solo projects. Porcaro still re-

cords and tours with Toto, and apparently has the full support of Paich and the band. "Steve is still participating as a full member of the band. The only thing that has changed is paperwork, and that's perfectly okay with the rest of us," says Paich.

Porcaro has always been Paich's teacher when it comes to the technology that Toto embraces on their albums. "He's taught me most of what I know about technology: it should make songs easier to create without overshadowing the depth of the music itself," states Paich. "I basically come from the hunt-and-peck method where the original sound source is very random. Then I tweak the parameters until I hear something useful. I've spent entire weekends reading materials, but my best sounds are really just beautiful accidents. Programming can be such a humbling vocation!"

Despite the modest appraisal of his own technical skills, Paich has been around technology awhile. Around the time of the GS1, Yamaha looked to Paich and Porcaro to demonstrate the "new" DX7 phenom, and they ended up recording an album of instrumental synth music to show off what it could do. But Paich's approach on selecting synth voicings isn't restricted just to Yamaha. "I like the Yamaha stuff as a good base sound to start with, but I also use Oberheim Xpanders, Prophet-VS, Emulator II, some Akai samplers, Roland D-50s. And at the heart of it all I still love the Minimoog!"

With a small army of prolific songwriters in the band and musical friendships stretching throughout the industry, Toto has never been at a loss of material or talent around album time. The songwriting is evenly distributed on *The Seventh One*, with some help from Jimmy Webb and Randy Goodrow. With so many cooks in the kitchen, how does the band sort through all the lyric sheets? "On the earlier albums I did the bulk of the songwriting, but we've always been a band and not someone's solo excursion," says Paich. "We've all gotten more adept at songwriting, and occasionally we'll see individual songs make it to the albums, but it just seems to work out that we do a lot more band collaborations nowadays."

For Toto, there appears to be room for everyone on the Yellow Brick Road. ■

by David Leland

# AL JARDINE

## A BEACH BOY'S BIG SUR "BARN"

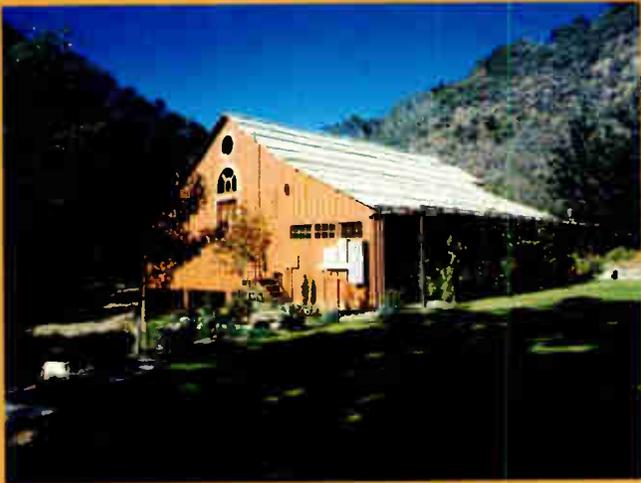
**T**here are many distinct advantages to being a member of the Beach Boys. One of those is the luxury of having a recording studio in your own home.

For the past 27 years Al Jardine, currently a part-time resident of Big Sur, Calif., has been harmonizing and playing guitar with one of the world's most popular groups. He recently realized a long-standing dream when he installed a state-of-the-art recording studio in the "Red Barn" on his Big Sur ranch. He has high hopes for the venture both on a personal and altruistic level.

"Maybe the studio will be a magnet for other artists," offers Jardine, in an interview before a Beach Boys concert at Great America Amusement Park in Santa Clara, Calif. "I see Big Sur as being a very creative place."

Since his 1973 move into the historic house of John Pfeiffer, one of Big Sur's original settlers, Jardine has become acutely aware that the small

style of pin-striped shirts the band popularized in the '60s. "The studio is a microcosm of that process." Indeed, if peacefulness and tranquility are vital ingredients for creativity, Jardine's ranch surely provides the ideal setting. While part of the complex includes 130-year old buildings, open spaces, horses and a modern home



coastal community, located 26 miles south of Carmel, provides a hub of positive energy. "I think Big Sur is a microcosm of the creative process," says Jardine, who still wears the same

replete with satellite dish, the studio serves a private mecca for Jardine.

He points out that he has no intention of selling studio time to outside musicians—this venture is for pure enjoyment. "My pals and I will use the studio as a basis for writing and producing concepts," explains Jardine, who divides his time between Big Sur, Scottsdale, Ariz., and more than 200 concert dates a year. "It allows me to have a certain amount of freedom." He adds that he hopes his new neighbor, rock star Peter Gabriel, will join him on some tracks next year.

The idea of having a complete recording studio at his fingertips is nothing new to Jardine. During the late '60s, while staying at Beach Boy Brian Wilson's home, Jardine had the opportunity to experiment with one

by Philip De Lancie

# APOLLO

## THE SUN RISES AGAIN

**I**n last May's column I took a look at Transco Products, one of only two remaining producers of master recording blanks for phonograph records in the world. Two other manufacturers in this highly specialized field closed their doors in 1987. In both cases the abandoned operations, Pyral in France and Apollo in the U.S., were small parts of large companies. Apparently, their respective owners felt they had seen the writing on the wall regarding record sales and the demand for master lacquers. Not unlike the proverbial rats on a sinking ship, they decided it was time to turn their attention elsewhere.

The shutdowns seemed to confirm widely held pessimism on the outlook for phonograph records. But in spite of that conventional wisdom, a new player has stepped forward to prove that there's still a little life left in the old lacquer. Taking a cue from *Reanimator*, though hopefully with happier consequences for all concerned, GC International of Monrovia, Calif., has purchased the Apollo name and equipment from Capitol Records with the intention of injecting new life into the defunct Apollo line.

GC International is a manufacturing conglomerate that has been making substrates for the lacquer master industry since 1978. It also makes computer disk substrates and parts for the computer industry. Apollo Masters Corporation, the new division of GC, is being installed in a 30,000-square-foot plant in Banning, Calif., 75 miles east of Los Angeles. Several former Capitol employees have been brought out from the plant's former site in Winchester, Va., for the new facility, including operations manager Kevin Demski and chemist Beverly Taylor. Former Capitol Magnetic Products sales executives Larry Hockemeyer



**Richard  
Carlson of  
Apollo**

and Bud Jackson have been enlisted to set up marketing networks in the U.S. and Europe. At the top of the organizational pyramid is GC's president, Richard Carlson, who in the following interview set forth his views on the future of the reborn Apollo.

**Mix:** Describe the history of GC International's involvement with the lacquer master manufacturing industry, and how the new Apollo division will fit in with the company's other activities.

**Richard Carlson:** In 1976 Capitol asked us to develop a new substrate for lacquer masters. Alcoa had been supplying them at that time, and there had been problems in getting good quality. We started a research program that resulted in an exclusive development contract with Capitol to provide them with master substrates for 1978 through 1982. We also made equipment for them and taught them how to use it to make their own substrates. After 1982 we continued to make substrates for them for about half their

production. They made the rest in-house. During this time we also made substrates for Transco, Pyral in France and once or twice for Micropoint in Japan. So we have been one of the major suppliers for a long time.

When Capitol went out of the business, we elected to add to our vertical integration by doing the lacquering of the substrates. For one thing, the industry wanted to have two suppliers. With Apollo and Pyral out of it, and Micropoint not really being a big factor in the U.S., that left only Transco. After discussions with the management at Capitol Records, with whom we had worked very closely over the years, we decided to try our hand at it. We know a lot about the lacquers and the substrates, and they had all this fine equipment for sale. We bought the equipment from them and moved it out to our facility in Banning, which is ideal. It's the same size they had in Virginia. We proceeded to modify that building, move all the equipment in and update it. It is now ready, and we hope to start producing the lacquers very shortly.

**Mix:** Will you still be supplying substrates to Transco?

**Carlson:** Yes. They have since found someone to sell them some substrate manufacturing equipment, so I'm not sure how much of their substrate they are buying from us and how much they are doing internally. But we developed the finer, lower-cost substrate that is the standard in the industry now, and I believe we are still supplying more than half their needs. I don't see any conflict from our standpoint. We have one division that will continue to supply substrates to lacquer people. They will sell to our Apollo division or to Transco. But my guess is that Transco will eventually be making their own.

**Mix:** Given the dramatic and undoubtedly irreversible decline of the phonograph record as a prerecorded music carrier, what is the motivation for GC International to get involved in this market at this time?

**Carlson:** We did a lot of studying on that aspect of it. We think that the biggest drop in the record masters industry really hit when audio tapes came out as opposed to the CD. The CDs and players are still relatively expensive. From what we have seen, all the



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mium type of nitrocellulose that is available. We are running some tests in our lab, and in the next few weeks we are going to have that resolved.

**Mix:** Do you already have orders from mastering houses, or are you holding off on the marketing until you have shippable product on hand?

**Carlson:** We have people who are willing to buy from us, but we are not taking any orders until we have run some samples of our production for some local mastering houses and put samples from actual production runs out into the field. We want to make sure we have an excellent product before we hit the marketplace. At the same time, we will be contacting the old Capitol dealers and distributors to set up our international marketing organization. We are telling them that we will be in the business and will have some samples in the coming months.

**Mix:** When do you expect to actually be shipping product to customers?

**Carlson:** That question is a little bit difficult, because we have our applications in to the local air-quality people, and we cannot run production until

**“We plan to offer everything to the marketplace that is needed. That means 10-inch, 12-inch and 14-inch.”**

we have approval from them. Assuming we get the OK soon, we probably will have shipped our first product by the middle of November.

**Mix:** Will you be offering a full line from the outset, or will you be concentrating on one particular size of lacquer?

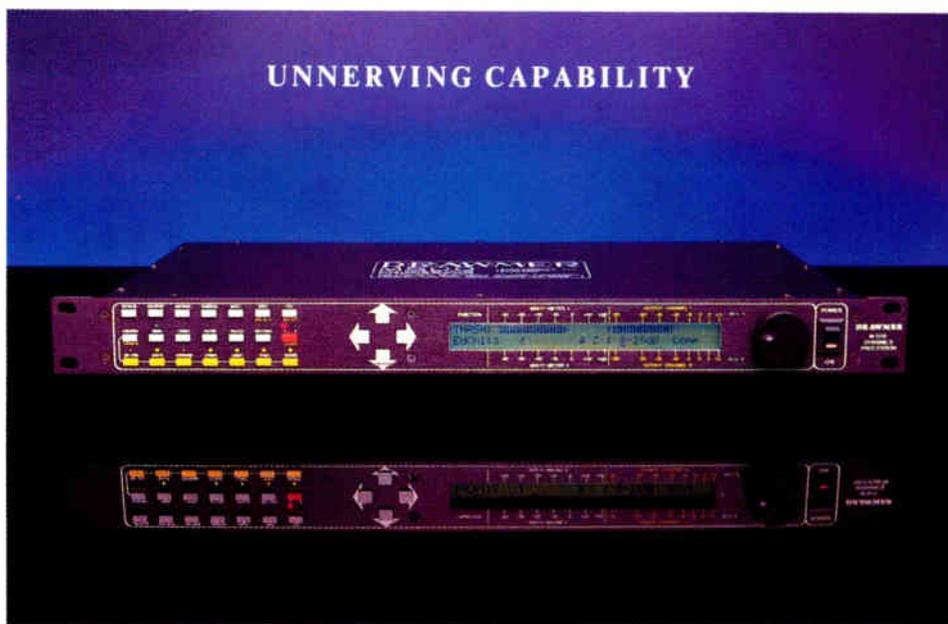
**Carlson:** We plan to offer everything to the marketplace that is needed. That means 10-inch, 12-inch and 14-inch. We have also heard people talk of some other sizes that were used in the past, and there is a very small market for those. Since we are vertically integrated it is not a problem for us to make our substrate any size we want. So we can offer anything.

**Mix:** At what prices will you be offering your products, and how will they compare to your competition?

**Carlson:** We anticipate being slightly higher than Transco and less than Micropoint. Hopefully we will have a product whose quality will get a little bit more than Transco. But I don't think we will be as expensive as Micropoint. If we are able to produce the kind of quality product that Capitol produced in the days before they had the plating problem, I think we will have a good portion of the marketplace.

*Phil De Lancie is our resident expert on record mastering and manufacturing, tape duplication, CD replication, storage and formats. He's also a mastering engineer at Fantasy Recording Studios in Berkeley, Calif.*

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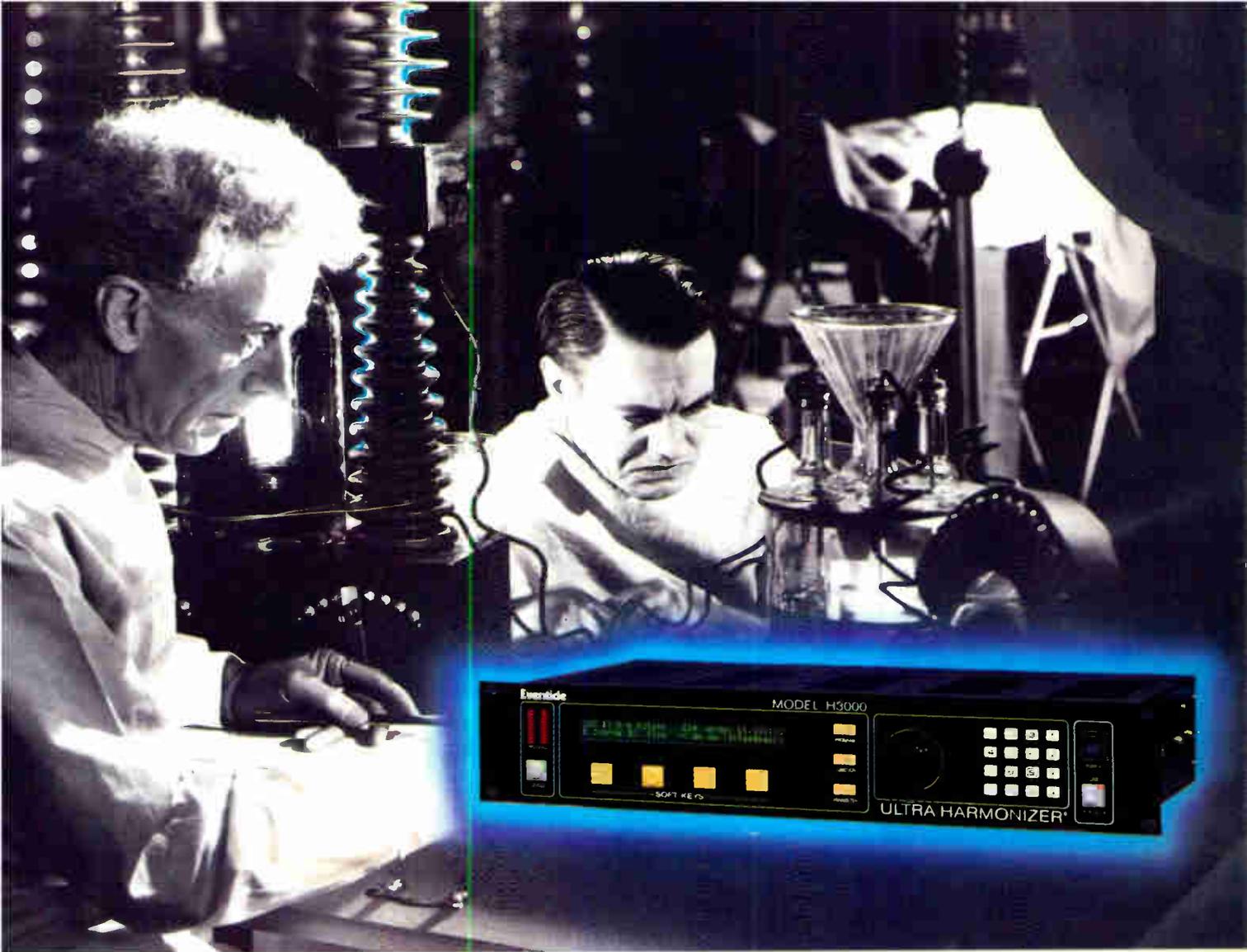


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by Michael David

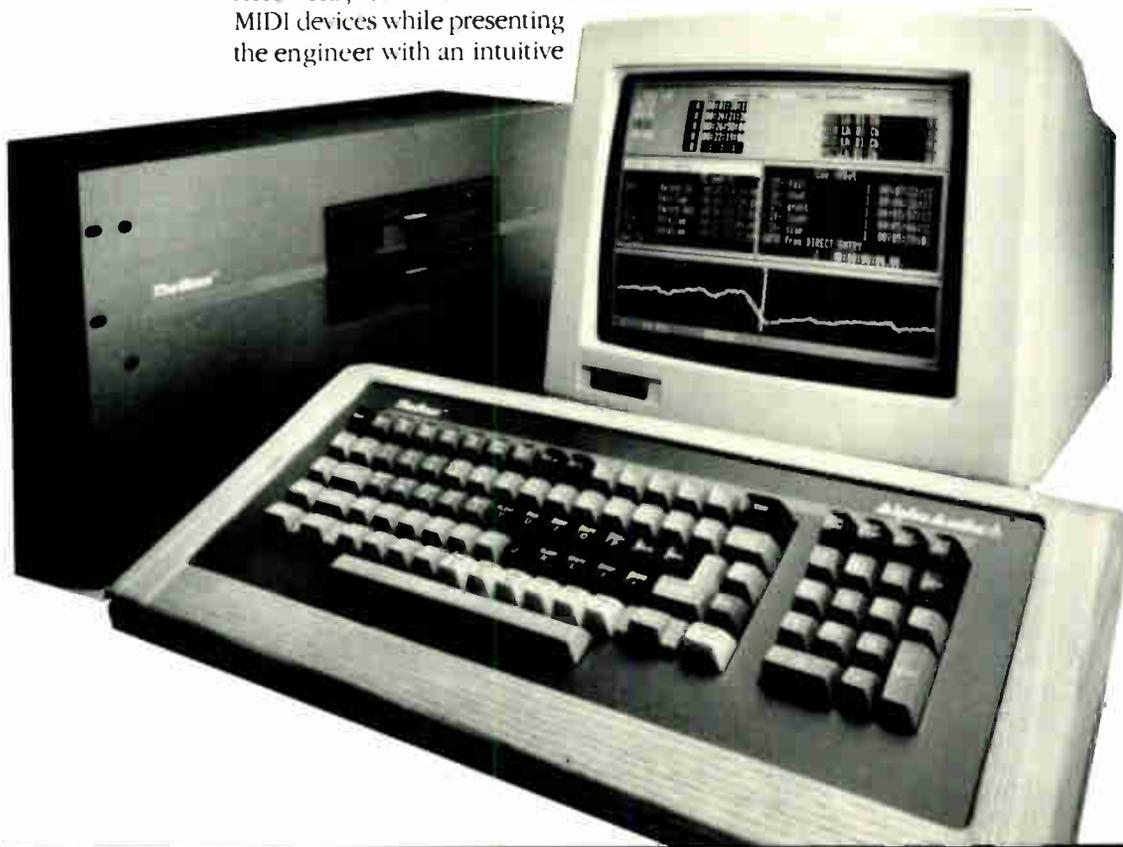
# WORKING WITH THE BOSS

**I**n recent years, audio studios have expanded their services to accommodate the ever-growing post-production market. Many facilities have found this move to be difficult due to the lack of efficient technology in time code-based audio editing systems. Enter the Boss.

Designed as a dedicated, audio post-production workstation, the Boss 8400 automated audio editor from Alpha Audio Automation Systems (Richmond, Va.) presents an effective hardware/software solution to the many difficulties of audio-for-video/film post-production. It simultaneously can control any combination of up to five ATR VTRs, 48 wild sources and 16 MIDI devices while presenting the engineer with an intuitive

and comfortable user interface.

The Boss is not a digital editing system. It uses a distributed-processor architecture to control tape machines through synchronizers. It currently interfaces to all the well-known professional transport controllers via the TimeLine Lynx, Adams-Smith 2600 or Cipher Digital Shadow II synchronizers. Each of these synchronizers has its own specific advantages. Since the Boss talks VPR-3 protocol, it can also interface directly to Ampex VTRs without the need for a synchronizer. Our system uses an Ampex VPR-80 one-inch, C-format VTR, with Lynx synchronizers for the ATRs.



The "Boss" 8400 Automated Audio Editor system from Alpha Audio Automation Systems of Richmond, Virginia.

The Boss hardware consists of a 95-key keyboard, a 14-inch color monitor and a rack-mountable master processor unit (MPU) that resembles a standard MS-DOS computer with two 360K disk drives and 768K of RAM. One interesting feature is the modem port. With a Hayes-compatible modem, the factory can troubleshoot the unit remotely, and software revisions can be downloaded directly into the Boss and saved to the internal disk drive. Other hardware features include: a Centronics-compatible, parallel printer interface; complete MIDI implementation; 48 general purpose interfaces (GPIs); and the ability to control the record-ready status of up to 48 tracks. Alpha also offers an optional mini-keyboard called the "PKA" (programmable keyboard accessory) with 44 user-programmable softkeys and a jog/shuttle knob. Also available is an optional 8-inch disk drive for importing most video edit decision list formats.

The Boss software comes on two floppy disks; one for system software specific to each of the above listed synchronizers, and the other for utilities. After initial configuration, the

screen divides into five areas showing machine status, operational parameters, the active edit, the cue sheet and the applications window. Alpha has given the name "application" to software tools that deal with specific post-production routines such as configuration, session start-up, track building and automatic dialog replacement (ADR).

The first application is "configuration." From this menu, you select the types of ATR/VTRs that are interfaced to the Boss. Once selected, the names appearing on the screen can be changed to suit your preference. The Boss lets you save files for different machine configurations, which can be recalled whenever a session requires that particular setup.

In the "session start-up" application, the appropriate information about the session itself is entered. When an "audio decision list" (ADL) or cue sheet is printed, this information appears at the top of the print out.

The "track building" application is the most comprehensive. It encompasses sound effects insertion, dialog editing, pre-lay, "auto assembly" and "cluster edits."

In a cluster edit—a feature exclu-

sive to the Boss—a block of events (up to 999) can be defined and a specific action can be designated to take place at each event. For example, shortly after acquiring our Boss, we were contracted to post a cartoon show requiring almost 1,000 footsteps. First, using cluster edit, I defined all the left footstep events as MIDI note #1 and all the right as MIDI note #2. I then loaded the footstep sounds into the sampler and assigned them to the appropriate MIDI notes. As the video rolled by, the Boss repeatedly fired the "MIDI footsteps" and perfectly laid them to tape in one pass. What could have been days of tedious button-pushing was now reduced to a morning's work, and I never had to type a single time code number!

Equally impressive is the "auto-assemble" facility. I often edit the entire project without committing anything to tape until just before the mix. I preview and adjust each edit, then store it in the list along with its appropriate track number. When the director and I are satisfied, the Boss auto-assembles the session while we sit back and enjoy a cup of coffee.

The secret to all this power is the audio decision list. In addition to the



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## AUDIO GALLERY

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## With a Hayes-compatible modem, the factory can troubleshoot the system remotely, and software revisions can be downloaded directly.

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information stored in a typical video edit decision list, the ADL stores the record machine(s), source machine(s), the MIDI assignments used (up to eight per edit), GPI assignments, whether the edit was wild or synchronous, cluster information, a comment about the source audio (in addition to the edit comment), and what track(s) were placed into record. That's a lot of data, but all essential to the audio engineer.

The ADL can hold up to 999 edits that can be displayed in time code or feet/frames, and in Boss ("user customizable") or CMX formats. Any edit in the list can be easily located by scrolling, searching by edit number or searching by notes (a nice feature

when you're at edit 457 and can't remember which edit was scene 12). Edits can be easily stored, recalled or replaced with a single keystroke. They can be deleted, un-deleted, printed (with the name of your studio at the top of the page) and saved to disk. The disk containing the ADL can be stored in the box with the tape, so when the client changes his mind (as he invariably does), it is easy to go back and make the change without having to reassemble the entire project.

Speaking of changes, if the client comes back with footage that has been added to or cut from the middle of the project, the Boss ADL makes it easy to deal with the change. Use the "update" key to offset all the edits af-

ter the addition or cut, then auto-assemble. Up to 999 edits can be re-timed with just a few keystrokes.

The ADL is loaded with useful features that use computer power to simplify the audio engineer's job. Since it is a list, the ADL can be sequenced by edit number or ascending record-in times if edits have been made out of order. The software automatically re-numbers edits when the list is "purged" of all deleted events. This is typical of how the Boss eliminates some of the repetitive chores, allowing the engineer more time to concentrate on the project.

One of an editor's most tedious tasks is dealing with time code numbers and the associated math. The "waveform monitor" reduces the process to a point-and-click operation. When you press "source cue" or "destination cue," the Boss' internal A/D converter samples the audio and stores a 40-frame picture in memory. With one keystroke, a graphic representation of the sampled audio appears on the screen. When the cursor (accurate to 1/100th of a frame) is moved across the waveform to the desired starting point, the "dest cue" or "source cue" times the increment or



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## POST · SCRIPT

decrement accordingly. Position the cursor at the beginning of audio, and the result is a perfect edit on the first try, with no trimming, no time code entry and no repeated previews, especially with the client staring at the clock and worrying about budgets.

Another amazing feature is the cue sheet. As its name implies, it's a list of cues in the form of time code (or feet/frame) locations and corresponding labels. Because these labels can refer to a machine or group of machines, the cue sheet functions as an incredible autolocator. However, the cue sheet is really a streamlined database with extensive search capabilities. Suppose you have a 1/4-inch tape (striped with time code) with 100 sound effects. Using the waveform monitor, you can easily find the start of each sound effect (without typing or trimming numbers) and automatically transport it to the cue sheet. Then a descriptive label can be entered for every cue number. When a door slam is needed, press the "GOTO" key, and type "door." The cue sheet will find every match for "door" and display all of them in order on the screen. When the desired door is selected, the machine bearing the reel with that particular cue automatically locates to the beginning of the effect. At this time, a simple press of the "source cue" button will transport that time code number to the active edit area, ready for the next edit.

This make-it-easy philosophy holds true throughout the system. Data transfers easily from one area to another. You never have to reenter data that has been entered previously. Like the ADL, the cue sheet can be saved to disk and printed.

When considering the purchase of a system as complex as the Boss, the learning curve and customer support are important issues. When we purchased our system at Group Andre Perry, Alpha Audio provided the installation and training as part of the purchase price. They arrived on Monday and left on Thursday. I experimented with the system for a half-day on Friday, then did a full-scale session on Saturday. I found the Boss extremely intuitive and dependable, more so than any other system we have had (this was our third). The first edition of the instruction manual left something to be desired, but the latest re-

vision (which comes free of charge) is coherent.

The software has gone from good to even better. Alpha is genuinely interested in comments and suggestions from the end user. We have received several software revisions in the last year, and each one has included new routines that I suggested to Alpha. There are still a few features that are not visible from the main screen (which function key does what) or not obvious (control-k accesses the MIDI screen, control-b for cue tone), but overall, the software is well organized and easy to use.

At first I was skeptical—the claims seemed too good to be true—but now I wouldn't work any other way. The Boss offers a great deal of flexibility, and sessions become effortless and run much faster. I now have the freedom to concentrate on creativity, because I can stop worrying about the mechanical tasks involved in posting.

The basic system costs \$21,900 and will work with your existing synchronizer and tape machine setup. The price includes installation, training and Alpha's friendly support for a year. The 8-inch floppy option with import software sells for \$2,250, and the optional PKA costs \$1,995. I found both options to be extremely useful.

The future possibilities for the system are exciting. Console interface, direct machine interface and control of hard disk-based recording systems are just a few ideas that come to mind. The Boss allows the engineer to stop fighting the process and start thinking about the project. If you are oriented toward audio, and want to find an easier way to deal with video, you deserve to have the Boss in your editing suite.

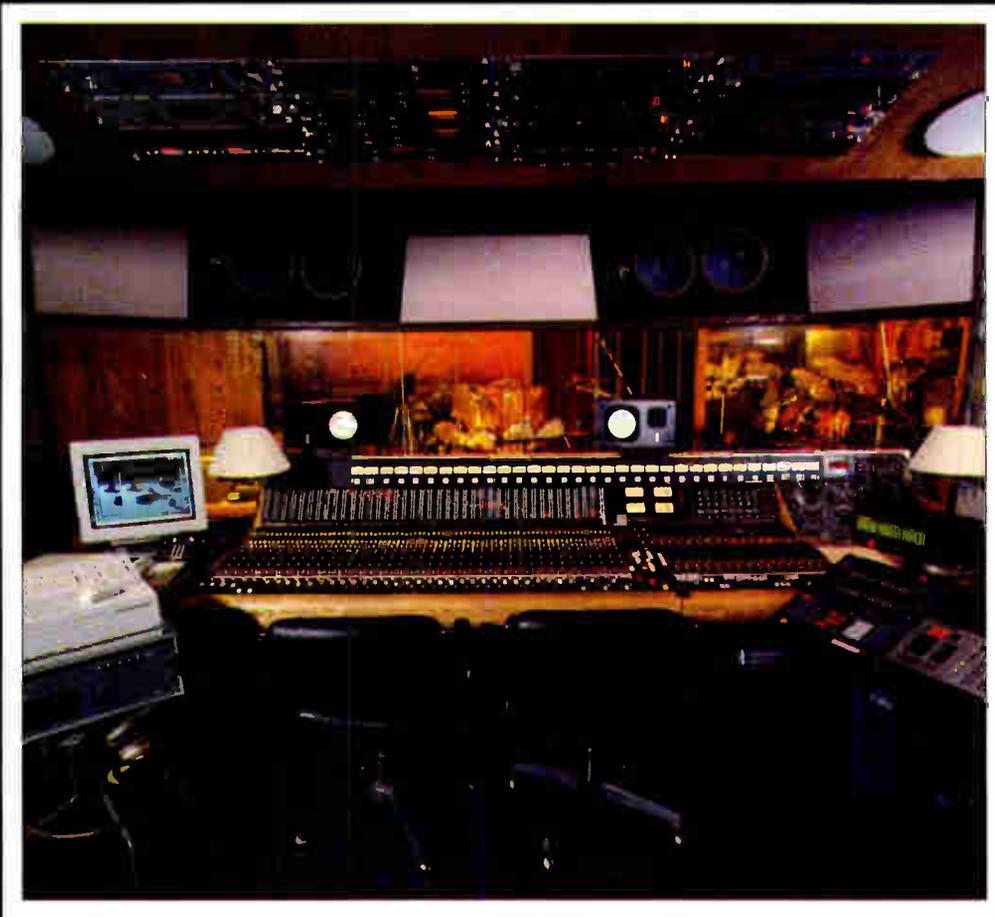
**Note:** At press time, Alpha Audio unveiled the Boss/2, the second-generation successor to the Boss 8400 system, offering expanded features and flexibility in both its hardware and software designs. For more information, see this month's "Preview" column—Ed. ■

*Award-winning composer and engineer Michael David is senior audio editor/mixer at Group Andre Perry in Washington, DC. His past projects include work on Star Trek IV—The Voyage Home, The Twilight Zone TV series, the 1987 Emmy Awards and commercials for Pacific Bell, Hyundai, Chevron and Toyota.*

# 1989 MIX DIRECTORY

# NORTHWEST STUDIOS

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.



Studio B at The Plant in Sausalito, Calif., features a 40x32 Trident TSM console and a Mitsubishi digital 32-track recorder. Shown at left are the IMS Dyaxis digital audio system and Mac II used to create final mixes for a recent Doobie Brothers project. For more about The Plant see "The Many Faces of MIDI" in this issue. Also, note the out-board equipment mounted in the ceiling above the engineer's seat. Photo by Phil Bray.

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*Mix* listings procedure: every month, *Mix* mails questionnaires to recording studios and/or other vital facilities and services for the recording, sound and video production industries. There is a nominal charge to list a Boldface Listing (name, address, contact) and an Extended Listing (equipment, credits, specialization and photo or logo). If you would like to be listed in a *Mix* Directory, write or call the *Mix* Directories Department, 6400 Hollis Street #12, Emeryville, CA 94608; toll free 800-344-LIST!

### Upcoming Directory Deadlines:

Video Production/Post-Production: **January 16, 1989**

Northeast Recording Studios: **February 14, 1989**

Remote Recording/Sound Reinforcement: **March 14, 1989**



## LIVE OAK STUDIOS

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Live Oak Studio is designed for the artist/composer or producer who wishes the highest quality recording tracks. We are equipped to produce albums or record tracks for movie scores or video work. We have the very latest synchronization gear, a computer-automated mixing console and an outstanding selection of outboard gear. There are many fine studios on the West Coast; we are one of them. But, we offer something truly unique: an ambience conducive to creativity. So, we invite you to visit our studios and experience for yourself what makes working at Live Oak something special!

### Services & Equipment Offered:

**Facility Manager:** Priscilla Gardiner. **Engineers:** Dale Everingham, Jim Gardiner. **Dimensions:** Control Room: 275 sq. ft., Studio: 350 sq. ft., Attic: 800 sq. ft. **Consoles:** MCI JH-636 32x24 w/DiskMix automation, Sound Workshop 34C 32x28x24 w/automation, Yamaha DMP7 8x2. **Audio Recorders:** (2) MCI JH-24, Otari MTR-10 2-Trk 1/2" & 1/4", Sony PCM-F1 **Signal Processing:** Lexicon 224X, Prime Time II, PCM42, Roland SDE-3000, Publison Infernal 90, Yamaha REV7, (4) MIDlverb II. **Other Outboard Gear:** Scamp rack, Vocal Stresser, Drawmer gates, UREI LA-2A, LA-3A, 1176,

Spectra Sonics 610, Publison Vocal Exciter. **Monitors:** Bryston, Yamaha, Toa, Auratones. **Synths/Computers:** Kurzweil 250 w/sampling, E-mu SP-12 Drum Machine, Yamaha TX816 (8 modules), Oberheim Matrix-12. Garfield Master Beat, Macintosh w/Performer software, Emax SE w/hard disk. **Video Equipment:** Q.Lock 4.10-E w/Eclipse editor, JVC 8250 3/4" U-VCR, Sony projection system w/ 100" diag. screen, Sony color monitor. **Extras:** Original music composition, in-house production services, CD sound effects library.

## MUSIC ANNEX, INC.

69 Green Street, Second Floor, San Francisco, CA 94111 (415) 421-6622

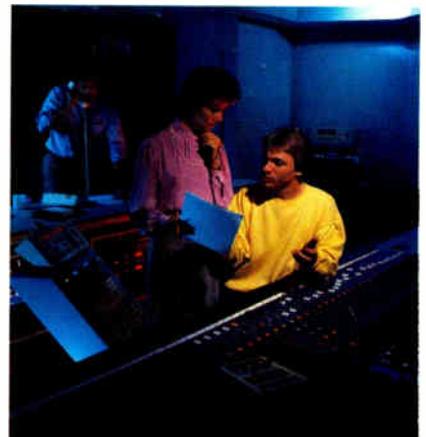
Music Annex offers an outstanding environment for audio production. Our two studios, located in the heart of downtown San Francisco, give clients access to the finest technology available for television, radio and media production. We are within walking distance of SF's largest advertising and corporate clients.

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Take the opportunity to visit our studios, have a cup of our great coffee and listen to our reel. You'll hear why our clients keep coming back.

### Services & Equipment Offered:

**Facilities Manager:** Angela Goodison. **Engineers:** Randy Bobo, Patrick Fitzgerald, Roger Wiersma, Linda Lew. **Dimensions:** Control One: 12x23, Studio One: 12x16, Foley One: 12x8x5; Control Two: 18x12, Studio Two: 13x12. **Consoles:** Amek 2500 36x24 w/ automation; Amek/TAC 16x8. **Audio Recorders:** NED Direct-to-Disk digital multi-track, MCI 24-Trk, Otari MTR-12 2-Trk w/CTTC, Otari MTR-10 1/2" 4-Trk, Otari MX5050-III 8-Trk, Otari & Ampex 2-Trks. **Synths/Computers:** E-mu Emulator II, Apple Macintosh II. **Video & Film Equipment:** Sony BVH-1100 1" C-type VTR w/TBC. JVC CR850U (2), JVC VHS Hi-fi, MTM Mag Dubber. **Other:** Audio duplication of cassette and reel-to-reel for distribution and broadcast. Original music composition and scoring available; comprehensive music and sfx libraries



## RUSSIAN HILL RECORDING

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"Directors like Errol Morris, Norman Mailer and David Byrne...have found a comfortable home in San Francisco's Russian Hill Recording — well-known for sophisticated feature and independent film and TV sound design." *Post Magazine*, September 1988.

Russian Hill Recording has a well-established reputation for providing superior quality sound work for feature films, TV, commercials and music production. Our enthusiastic and talented staff brings years of technical and creative skills into every project.

The facility, nestled in a comfortable San Francisco neighborhood, includes one 24-track and one 32-track studio, a studio/synth/media room and a film-to-tape transfer suite to meet the needs of a diversified clientele.

Please call Gail Nord, facility manager, for a visit and more complete information.

### Services & Equipment Offered:

**Facility Manager:** Gail Nord. **Engineers:** Jack Leahy, Sam Lehmer, Gary Clayton, Jeff Kliment. **Dimensions:** Control A: 13x17, Studio A: 16x26x13, Iso A: 9 1/2x10; Control B: 11x16, Studio B: 14x20x13, Iso B: 8x9, 4x7. **Consoles:** A: SSL 4048E 32x32 Total Recall, B: NEOTEK Series III 28x24; C: Soundcraft 600 24x16. **Audio Recorders:** MCI JH-24 24/16-Trk, MCI JH-110 4/2-Trk, Fostex E16+E22. **F/T Suite:** KEM K-800 6-Plate, Sharp XC801 color camera, full edge code transfer capability. **Video Recorders:** Sony BVU-800, JVC 8250, VHS and Beta. **Synths/Computers:** E-Mu II, DX7, Macintosh Plus. **Film & Video Equipment:** Film editing and duplication avail. **Other:** Complete post-production and recording services available. 48 tracks of audio synchronized to picture. L/C/R/S Dolby Stereo sound monitoring.



# N O R T H W E S T

# 24+ TRACK

## STUDIOS

[24+] **AKASHIC RECORDS GROUP/STEPHEN JARVIS RENTALS**; also REMOTE RECORDING; PO Box 395; Danville, CA 94526; (415) 837-7959 SF/Jarvis; (818) 769-6233 LA/Gooch. Owner: Stephen Jarvis. Specialization & Credits: Now available: 48-track Dolby SR system (2 XP-24 frames) with auto-switching interface for Studer A80/800, MCI, Otari MTR-90 and MX-80, 3M and manual box. Shipping available throughout the western United States. 24 280SR cards for use with Dolby M frames, stereo pair 361 Dolby SR systems, George Massenburg mic preamps and EQ, Sony PCM-F1 with Meyer correction filter and Hitachi portable VHS VCR, tube mics and more... Rentals by the day, week and month. Please call for rates.

[24+] **ALPHA & OMEGA RECORDING**; 245 Hyde St.; San Francisco, CA 94102; (415) 885-4999. Owner: Sandy Pearlman. Studio Manager: Nancy Evans. Engineers: John Cuniberti, Marc Senasac, Paul Mandl, Anne Maria Scott, Mary Ann Zahorsky, David Plank. Mixing Consoles: API 44-input w/36-monitor section, Penny & Giles moving fader automation ARMS, IBM PC. Audio Recorders: Otari MTR-90, (2) Ampex 124, Ampex ATR-102 1/2" and 1/4", Sony R-DAT. Cassette Recorders/Duplicators: (2) Tascam 122 Mark II. Noise Reduction Equipment: (2) Dolby SR. Synchronization Systems: (2) Lynx TimeLine. Echo, Reverb, & Delay Systems: Lexicon 480L, Lexicon Prime Time II, Lexicon PCM42. Quantec stereo room simulator, Eventide SP 2016, Eventide H3000, Eventide 949, Eventide Phaser, AMS RMX-16, AMS 15-80S, TC Sampler, Yamaha SPX90, EMT 140ST plate. Loft delay, live echo chamber. Other Outboard Equipment: (4) dbx 160, Drawmer tube compressor, Trident stereo limiter, Massenburg stereo limiter, NTP stereo limiter, (2) LA-2A, (2) LA-4, UREI 1176, (2) EAR Fairchild limiter, Fairchild 660, Fairchild 670, (2) Pultec EQP-1A, (2) Massenburg EQ, (2) Massenburg preamp, (2) Pultec MEQ, (4) API 560, Pultec HLF filter, Aphex Aural Exciter, EXR exciter, BBE exciter, Valley People de-esser, (10) Kepex II, (6) Drawmer DS-201. Microphones: (2) Neumann U89, (2) Neumann TLM-170, Neumann U47, (2) AKG 460B, (3) AKG 414, (6) Sennheiser 421, (6) S57, S56, S57, (2) Countryman DI, UREI DI, (4) Simon DI. Monitor Amplifiers: Phase Linear, MOSFET, Crown, McIntosh, Marantz. Monitor Speakers: Yamaha NS-10M, JBL, custom monitors. Musical Instruments: E-mu SP-1202, Yamaha C3 grand, Marshall bottoms, Hammond organ with Leslie. Video Equipment: Sony BVU-800, Sony BVH-3100, Sony SP-75 Betacam, Sony BVW-40, Sony BVW-15. Rates: \$85-\$100 per hour except video, which is \$175-\$225 per hour. Specialization & Credits: In just over a year and a half, we have established ourselves as one of the best facilities in California. The reasons are simple. Every piece of equipment in the massive array of outboard gear and every one of the staff engineers was hand-picked by a well-known working producer, who designed the room with the needs of the producer in mind as well as the musician. The facility has spacious support areas for the large main room, and also has indoor parking. We offer clients the convenient service of making airline, hotel and restaurant reservations, as well as apartment and car rentals. Recent and ongoing clients include CBS, RCA, Warner Brothers, King Jay, Combat, Relativity, Rough Trade, Mechanic and Concord Jazz.

[24+] **ATLANTA PRODUCTIONS**; 6884 Atlanta Cir.; Stockton, CA 95209; (209) 473-2345. Owner: Ralph & Diane Stover. Studio Manager: Diane Stover. Engineers: Ralph Stover, Cecil Ramirez, independents. Mixing Consoles: NEOTEK Elite 32 x 24 w/MIDImute automation. Audio Recorders: Studer A80 MkIV 24-track, Studer A812 2-track, Otari MX-5050. Cassette Recorders/Duplicators: Nakamichi. Noise Reduction Equipment: (2) Dolby SR. Synchronization Systems: (3) Lynx time-code modules, Jam Box/4+ Echo, Reverb, & Delay Systems: Lexicon 480L, Lexicon PCM70, TC Electronic delay and effects, Yamaha REV7, Yamaha SPX90, Alesis MIDVerb II, Alesis Microverb, Yamaha R1000. Other Outboard Equipment: (4) dbx 903 compressor, (4) dbx 904 Kepex, dbx 902 de-esser, Eventide Harmonizer. Microphones: AKG tube, Neumann U87, Neumann U89, (2) Neumann KM84, AKG C-414, Beyer M380, Shure, AKG Dynamics. Monitor Amplifiers: OSC, Perreux, (2) Rane headphone amps. Monitor Speakers: (2) Westlake BB5M-8, (2) Yamaha NS-10M. Musical Instruments: Emulator II w/CD-ROM, E-mu SP-1200, E-mu SP-12, Roland MKS-80 Super Jupiter, Roland MKS-20 digital piano, Roland D-50, Oberheim DPX-1, Yamaha TX802, Yamaha TX816 rack w/8



ATLANTA PRODUCTIONS  
Stockton, CA

modules, Prophet-2000, Ensoniq ESQ-1, Steinberger w/Roland synth electronics, Steinway grand piano, Yamaha KX88, Emulator III, Alesis HR-16, Yamaha DX7IIFD, Spector bass. Other MIDI Equipment: Synlogic 16 x 32 MIDI switcher, Macintosh SE, Mega mix automation system, Performer 2.0, Digidesign sampling and Q-sheet, Macintosh Plus, Cue, Opcode librarian. Video Equipment: JVC CR850 3/4" video deck w/remote, Sigma Electronic color sync-generator, JVC digital VHS, (2) Sony color monitor. Other: Macintosh 512K, Fender, Ibanez, Yamaha bass guitars, Yamaha MJC8, Yamaha OX1 sequencer, etc. Rates: Please call. Specialization & Credits: Atlanta Productions is a full-service commercial production facility specializing in audio post-production and music scoring. We cater specifically to the independent producers who wish to complete their project on time and within budget. We also have an extensive library of music, sounds and sound effects to choose from. Our experienced staff of programmers, engineers, composers, arrangers and musicians can help your project look and sound its best. Work can be performed in a relaxed, friendly and professional atmosphere complete with swimming pool and spa. Local transportation and lodging can also be provided. For any questions regarding our services please call Diane.

[24+] **AUDIO DESIGN GROUP**; 1921 Minor; Seattle, WA 98101; (206) 623-1418. Owner: Audio Design Group. Studio Manager: Craig Ormond, Jeff Smith.

[24+] **AUDIOWORKS RECORDING**; 7479 S. Teller St.; Littleton, CO 80123; (303) 972-4255. Owner: Bill Prentice. Studio Manager: Bill Prentice.

[24+] **AVALANCHE RECORDING STUDIOS, INC.**; 10650 Irma Dr., #27; Northglenn, CO 80233; (303) 452-0498. Owner: Avalanche Recording Studios, Inc. Studio Manager: Linda Warmann. Engineers: George Counna, Harry Warmann, Steve Forgy, Michael Pfeifer. Dimensions: Studio 44 x 30, control room 20 x 30. Mixing Consoles: Soundcraft 2400 52-channel 28x24 transformerless, with SMPTE-based automation. Audio Recorders: Sony/MCI JH-24 24-track, Sony/MCI JH-24 16-track, Sony/MCI JH-110C 1/2-track/4-track 1/4" or 1/2", Studer Revox PR99 2-track 1/4", Studer Revoc A77 2-track 1/4". Cassette Recorders/Duplicators: Technis RSB100. Noise Reduction Equipment: Upon request. Synchronization Systems: (3) Lynx TimeLine. Echo, Reverb, & Delay Systems: Lexicon 92, Lexicon 480L, Lexicon PCM42, (2) Lexicon PCM70, Lexicon 95, Audi-ence RFS-2 plate reverb, Lexicon PCM41, TC Electronic 2290 (12-sec.), Eventide H949 Harmonizer, MXR flanger/doubler, Eventide Ultra-Harr-onizer H3000, Roland stereo chorus, Ecoplate II. Other Outboard Equipment: (2) Aphex CX1 comp/exp, (2) B&B F-2 EQ, (2) dbx 160, (3) UREI 1176LN dbx 263X, dbx 166, UREI 546 parametric EQ, Aphex Type B Aural Exciter, (2) Symetrix 522 stereo expander gate, (2) Pultec EQ (tube), (2) ElectroSpace State Gate. Micro-



AVALANCHE RECORDING STUDIOS, INC.  
Northglenn, CO

phones: (2) Neumann U87, (2) Neumann U47, Neumann U48 (tube), Neumann J67 (tube), (4) AKG C-414, (5) AKG C-451, AKG D-112, (2) Telefunken Elam 251 (tube), (2) Sony C-37A (tube), Sony C-37P, (6) Sennheiser 421, Sennheiser 441, RCA 77, (2) E-V RE20, (2) Crown PZM-30GPB, (2) Beyer M260, (5) Shure SM57. Monitor Amplifiers: UREI 6500, Haller 200, Phase near 400, Technics SE-9060. Monitor Speakers: (2) JBL 4430, (2) Yamaha NS-10, (2) Tannoy SRM-12, (2) Auratone cube. Musical Instruments: Yamaha C7 grand piano, Hammond B-3 w/Leslie 147, Korg DSS-1 sampling keyboard, Yamaha RX11, Fender 1965 P Bass, Fender 1954 Telecaster, Seymour Duncan 100-watt convertible (all modules), Fender Bassman 10" miscellaneous percussion. Other MIDI Equipment: Programmers available with various equipment. Video Equipment: JVC CR6650U 3/4" video recorder, Panasonic CT 1930 19" color monitor. Rates: Upon request. Rate card and color brochure available. Specialization & Credits: We are pleased to offer our clients a complete sound effects and music library. Up to 40-track capability with automated mixes also available. Accommodation service for mountain retreats or Denver's best hotels w/transportation arrangements available. Less than an hour drive to Rocky Mountain serenity. Top studio musicians, producers, arrangers and composers. Digital 2-track mastering and synchronizer lockup with any additional equipment available upon request. Credits: The Pretenders, The Winans, Michael McDonald, The Four Tops, Leon Russell, Jock Bartley, INXS, TNT, (Firefall) Highway 101, Flash Cadillac. Producers: Paul Worley, Bill Porter, Geoff Workman, Warner Brothers, Geffen Records, Island Records. We continue to offer our clients the best in state-of-the-art equipment, engineers and personal service. Avalanche has a highly creative and comfortable atmosphere and total privacy.

[24+] **THE BANQUET SOUND STUDIOS**; 540 E. Todd Rd., Ste. B; Santa Rosa, CA 95407; (707) 585-1325. Owner: Warren Dennis. Studio Manager: Shanin C. Jones.



BAYVIEW STUDIO  
Richmond, CA

[24+] **BAYVIEW STUDIO**; 1368 S. 49th St.; Richmond, CA 94804; (415) 237-4066. Owner: Stephen Suda, Robert Hall. Engineers: Tom Anderson, Jack Crymes. Dimensions: Studio A 45 x 20 x 17, Studio B 19 x 16 x 17, control room 14 x 18 x 8. Mixing Consoles: Soundcraft TS 24 40 x 24. Audio Recorders: Studer A800 24-track, Ampex ATR-102 2-track, Studer A80 MkII RC 2-track 1/2", Echo, Reverb, & Delay Systems: (2) EMT 140 stereo plate, Yamaha REV7, Roland SRV-2000. Other Outboard Equipment: Eventide 949 Harmonizer, Lexicon Prime Time II, (4) UREI 1176, (2) UREI LA-4A, Teletronix LA-2A,

—CONTINUED ON NEXT PAGE

# NORTHWEST 24+ TRACK STUDIOS

—CONTINUED FROM PREVIOUS PAGE

dbx 161. (2) Valley People Dyna-Mite. (2) Pultec MEQ-5. (8) Dolby 361. Microphones: AKG 414EB, AKG 414EB-P48, AKG 451, AKG C-422 stereo, Neumann U87, Neumann KM84, Neumann U47 FET, Neumann M49B, Crown PZM E-V-RE20, Shure SM57, Shure SM7, Sennheiser 421, Sennheiser PML DC-73, Countryman Iso-max direct boxes, Sony ECM-50 Monitor Amplifiers: Haller Monitor Speakers: Meyer 833, Yamaha NS-10, JBL 4311, Auratone 5C, MDM-4 Musical Instruments: Gretsch, Yamaha 'R' Series, Simmons drums available by arrangement vintage Fender basses and guitars, Martin guitars, Gretsch guitars, old Fender amps, Ampeg B-15 bass amps, Steinway B piano also available by arrangement Rates: Please call for rates

[24+] **BEAR CREEK STUDIO & MUSIC PRODUCTION**, 6313 Maltby Rd., Woodinville, WA 98072; (206) 481-4100. Owner: Joe Hadlock. Studio Manager: Dana Lombard

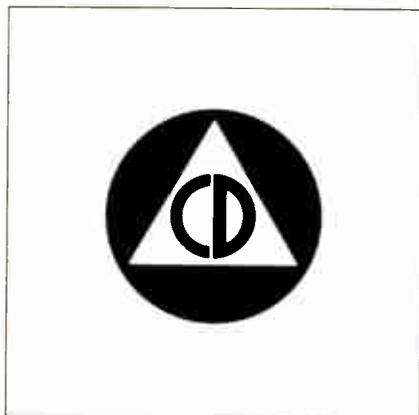
[24+] **BEAR TRACKS STUDIO**, 348 Blossom Hill Rd., San Jose, CA 95123; (408) 281-3535. Owner: Eddie Bear. Studio Manager: Christopher Bentley. Engineers: Eddie Bear, Christopher Bentley, Dennis Holseybrook. Dimensions: Studio 14 x 17, control room 13 x 9, iso booth #1 8 x 9, iso booth #2 5 x 4. Mixing Consoles: Tangent 3216A 24 x 24 x 2. Audio Recorders: MCI JH-16 24-track, Tascam 38 8-track, Otari MX 5050 2-track. Cassette Recorders/Duplicators: JVC KD-D400, (3) JVC KD-D50, (4) Aiwa AD-S15. Noise Reduction Equipment: (8) dbx 150 for 8-track, Echo, Reverb, & Delay Systems: Lexicon PCM70, Roland SRV-2000, Yamaha SPX90, DigiTech DSP 128. DOD digital delay. Other Outboard Equipment: dbx 166 dual compressor/limiter plus noise gate, (2) MXR 15-band graphic equalizer, BBE 422 sonic maximizer. Microphones: AKG C-414B, AKG D-100DE, (2) Sennheiser 421, RCA 77-DX, (2) E-V RE15, E-V PL95A, PE76 664, Audio-Technica ATM63, PR60. (6) Shure SM57, SM58, PE50SP Monitor Amplifiers: Crown D-150A, Rane HC6 [cue]. Monitor Speakers: (2) Yamaha NS-10M, (2) Tannoy SRN 10B, (2) Auratone. Musical Instruments: Korg DW-8000 synth, Akai S900 sampler, Yamaha RX15 drum machine, Roland CR-16 Compu-Rhythm drum machine, Gibson 335 Fender Telecaster. Other: Peavey Combo 300 amplifier, Fender Twin Reverb amplifier, assorted footpedal effects. Rates: \$25-\$40/hr. Call for quotes

[24+] **BERTUS PRODUCTIONS/THE STUDIO**, 22723 Berdon St., Woodland Hills, CA 91367, (818) 883-1920. Owner: Robby Weaver. Studio Manager: Robby Weaver. Engineers: Robby Weaver. Dimensions: Studio 29 x 26, control room 20 x 16. Mixing Consoles: APSI 32 x 24. Audio Recorders: Otari MTR-90II 24-track, Otari MTR-10 2-track, Otari Mark III 4-track, Panasonic 2500 DAT recorder. Cassette Recorders/Duplicators: Nakamichi MR1 cassette recorder. Synchronization Systems: (3) Lynx TimeLine, Echo, Reverb, & Delay Systems: Lexicon 480L digital FX system, Lexicon 224XL digital FX system, (2) Lexicon PCM70 digital FX system, Yamaha SPX90, Eventide 949 Harmonizer, Lexicon Prime Time II, various digital delay units. Other Outboard Equipment: Full complement of limiters and gates. Microphones: Neumann tube mics, AKG, Shure, Sennheiser, Crown PZM, Milab, B&K, Countryman. Monitor Amplifiers: (2) Quicksilver tube amps, Acoustal, Haller. Monitor Speakers: (2) KEF 301 (2) custom-designed main control room monitors, (2) E-V 100 (2) Yamaha NS-10M, (2) MDM 4, (2) Auratone. Musical Instruments: Synclavier digital audio system, Yamaha 7, grand piano, Yamaha TX rack, Yamaha DX7, Roland D-50, Prophet-VS, various guitars. Other MIDI Equipment: Roland SBX 80 SMPTE, io-MIDI sync, Macintosh computer with software, Cooper 12 x 16 MIDI switcher. Video Equipment: JVC 6850 3/4" video deck, Panasonic VHS video deck. Rates: Rate card available upon request. Specialization & Credits: We specialize in audio production for video and film, including complete sound design (FX, dialog, Foley) and music. Credits too numerous to list, available upon request

[24+] **BEYOND SOUND**, 6300 Federal Blvd., Denver, CO 80221; (303) 427-6789. Owner: Paul Stenwig

[24+] **KEN CARLTON RECORDING**, 11240 Hwy 41, Madera, CA 93638; (209) 431-5275. Owner: Ken & Marilyn Carlton. Studio Manager: Ken Carlton. Engineers: Ken Carlton. Dimensions: Studio 20 x 22, control room 14 x 17, w 8 x 8 piano alcove, iso room 9 x 10, vocal booth 5 x 10, equipment room 22 x 18. Mixing Consoles: Sound Workshop Series 34 32 x 24 w/Diskmix II. Audio Recorders: Otari MTR-90 16/24-track, Otari MTR-10 2-track, Otari MTR-12c w/CTC 2-track, Otari 5050B 2-track, Pioneer RT707 1/4-track. Cassette Recorders/Duplicators: (2) Akai GX-912, (13) Hitachi DE-7. Noise Reduction Equipment: Dynaflex (2 channels). Synchronization Systems: Soundmaster 4 Syncro three-machine system w/shuttle GPI to CD player, Echo, Reverb, & Delay Systems: Lexicon

224XL, Lexicon PCM70 V.3, Ecoplate II, DeltaLab DL-3 Eventide 949 Harmonizer, Eventide H3000, Marshall 5402 Time Modulator, tape delay. Other Outboard Equipment: Aphex stereo Compeller, ADR Vocal Stresser, Stereo Express comp/lim/exp, (2) UREI LA-4, (2) UREI 1176L, Drawmer dual gate DS-201, Valley People GateX, (2) dbx 165, Orban 622B parametric EQ, Aphex Aural Exciter, Total Power One protection on all AC. Microphones: (2) Neumann U87, (2) Neumann U89, Neumann TLM-170, Neumann KM86, (2) AKG 414EB, (7) AKG 451EB, (2) Sennheiser 441, (9) Sennheiser 421, (2) E-V RE20, E-V RE16, (2) Crown PZM, Shure 56, (8) Countryman FET 85 DI and more. Monitor Amplifiers: Bryston 4B, Haller. Monitor Speakers: JBL 4430 BiRadials, Bryston bi-amped, Yamaha NS-1000 in-studio, Yamaha NS-10M studio, Auratone. Musical Instruments: Kurzweil 250 w/all updates, fully loaded, Linn 9000 w/sampling, Yamaha TX802, Roland MKS-70, Roland D-550, Akai arpeggiator, Roland Juno-106, Yamaha C7 grand piano, Moog, others, Peterson strobe tuner, many guitars and amps, Rockman Rock Module, various other effects. Other MIDI Equipment: Macintosh Plus w/Midi-Port and Jam Box. 4. Video Equipment: JVC CR8250, Foxtel 4010 gen/read, Horita Micro-window, Sony & RCA monitors. Other: Sound Ideas SFX libraries among others. Rates: \$35/hr 2-track, \$60/hr 24-track, \$75/hr audio-to-video. Engineer and all equipment and instruments included

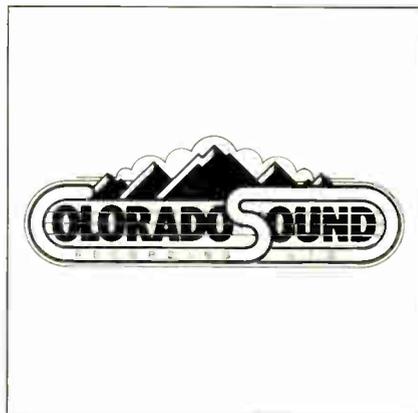


C.D. STUDIOS  
San Francisco, CA

[24+] **C.D. STUDIOS**, 1230 Grant Ave., Ste. 531, San Francisco, CA 94133; (415) 285-3348, (415) 750-3554. Owner: C D Presents. Studio Manager: Janet Stark Krick. Engineers: Gary Hobish (chief), Gary Mankin, Amy Atchison, Janet Stark Krick, Robert Geller, Dave Wellhausen (independents welcome). Dimensions: Studio 30 x 40, control room 13 x 16 (approx). Mixing Consoles: MCI JH-636 30 x 24 automated transformerless w/parametric EQ. Audio Recorders: Studer A80 MkIV 24-track transformerless w/autolocator, MCI JH-110B 2-track transformerless, Nakamichi PCM-F1 digital 2-track w/AMR transformerless interface, Panasonic VHS videocassette. Cassette Recorders/Duplicators: Aiwa M700B, Technics M280 Echo, Reverb, & Delay Systems: Lexicon 200 digital reverb, AKG BX-10 spring reverb, Lexicon PCM42 digital delay line, DeltaLab DL-4 digital delay, ADA STD-1 stereo taped delay, Lexicon 480L digital reverb and processor. Other Outboard Equipment: Drawmer noise gates, Valley People Dyna-Mite, UREI LA-4 compressor/limiter, Symetrix 501 compressor/limiter, DeltaLab DL-5 HarmoniCompuer, API 554 EQ. Microphones: Neumann U64 tube, Neumann U67 tube, Neumann KM54, AKG C-24 stereo tube, AKG C-414EB, AKG C-12A, AKG C-460B, AKG C-451, Sony C-48, Sony ECM-22P, Sennheiser MD-421U, Sennheiser MD-441, Shure SM57, Shure SM58, Shure SM81, Shure SM85, E-V RE20, E-V RE16, E-V DS35, Beyer M201, Countryman direct boxes. Monitor Amplifiers: Haller P-225, Crown DC-300A, Crown D-60, Phase Linear D-60, Klark-Teknik DN27A 1/2-octave EQ. Monitor Speakers: UREI 811A Time Aligned, Yamaha NS-10M, JBL 4301, JBL 4313, Realistic Minimus-7, Auratone 5C. Musical Instruments: Baldwin 1929 7' grand piano, Hammond M-3 organ with Leslie cabinet, Rickenbacker bass, various guitars and amps. Specialization & Credits: C D Studios natural, live acoustics dramatically enhance tracks of any style—from thrash metal to orchestral. Our large main studio is known as one of the finest tracking rooms in the Bay Area. The combination of Studer 24-track, MCI automated console and Lexicon 480L provides our clientele with start-to-finish quality control, our affiliate label, C D Presents can help with manufacturing and distribution of your final product. Customers enjoy our spacious lounge with microwave, full-size refrigerator, fresh-ground coffee, sleep-over area and shower. Satisfied clients include Game Theory (last 2 albums, produced by Mitch Easter for Enigma Records), Club Nouveau, Michael Cooper (King Jay Records), Bill Cutler (Juliet Slip, Boys Cry Wolf, Flame), Tramaine Hawkins (A&M Records), Seahags (produced by Kirk Hammett), 'Big Ed' Moore (Sleeping Bag Records), True West, Twisted Roots, Rat Music Vol III (C D Presents). For the big sound you're looking for, C D Studios has "all the ROOM you need"

[24+] **COAST RECORDERS**, 1340 Mission St., San Francisco, CA 94103; (415) 864-5200. Owner: D&M Enterprises. Studio Manager: Steve Atkin. Engineers: Steve Atkin, Bob Lindner, Jim Hilson. Dimensions: Room 1, studio 25 x 40, control room 18 x 20, Room 2, studio 12 x 18, control room 16 x 18, Room 3, studio 6 x 12, control room 10 x 12, Room 4, control room 14 x 14. Mixing Consoles: MCIJH-428B 28 x 24 automated, Harrison 3624 36 x 24 automated, API 1604 16 x 4, NEOTEK 20 x 4. Audio Recorders: MCI 24-track, MCI 16-track, MCI 8-track, MCI 4-track, MCI 2-track, Ampex 8-track, Ampex 4-track, Ampex 2-track, Ampex mono, 3M 16-track. Cassette Recorders/Duplicators: Sony, TEAC, Nakamichi. Noise Reduction Equipment: Dolby 30 channels. Synchronization Systems: BTX 4600, BTX 4500 synchronization systems, Echo, Reverb, & Delay Systems: EMT 140 stereo plates, Yamaha REV7, Yamaha SPX90. Other Outboard Equipment: Lexicon Super Prime Time II, Lexicon 2000 time compressor, UREI 1178, UREI 1176, UREI 537, UREI 535, Orban de-essers, Drawmer noise gates, Eventide 949 Harmonizers, UREI digital metronomes, Korg digital delay. Microphones: Neumann U87, Neumann KM84, AKG 414, AKG 451, Sennheiser 421, Sennheiser 441, E-V RE20, Beyer 160, Shure SM56, RCA 77-DX. Monitor Amplifiers: UREI 6500, UREI 6250, UREI 6260, UREI 6150. Monitor Speakers: UREI 813, UREI 811, UREI 809, Auratone 5C. Musical Instruments: Steinway grand piano, Celeste. Video Equipment: JVC 8000U VCR, JVC 850 VCR, BTX 4450 Jam-sync general 3-way machine lock. Rates: Audio \$75 to \$100, w/video \$105 to \$165

[24+] **COLOR BLIND MUSIC; also REMOTE RECORDING**, 1128 Alder, Ste. C, Eugene, OR 97403; (503) 342-2844. Owner: Glove Productions. Studio Manager: Michael Pfloh



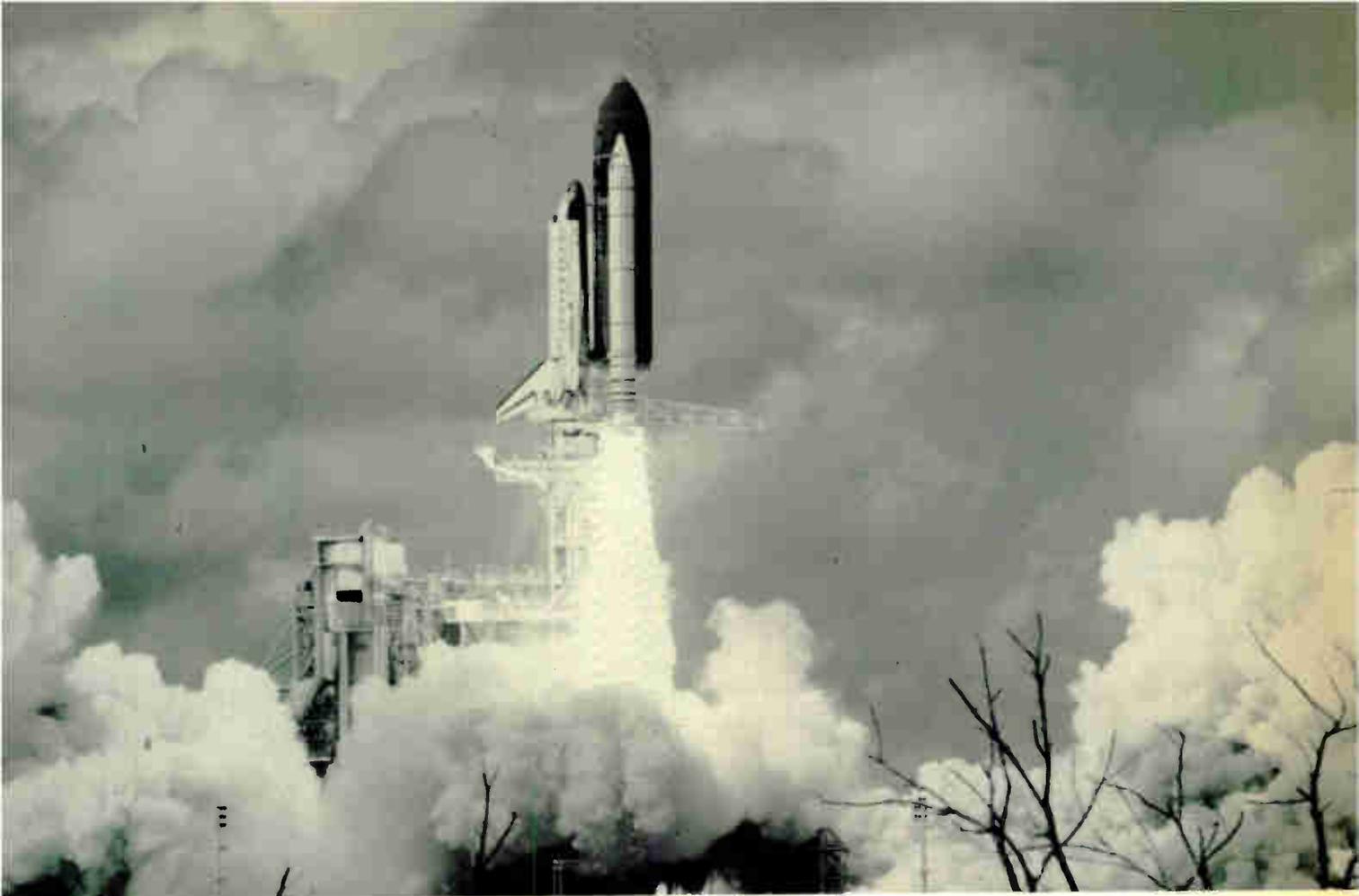
COLORADO SOUND RECORDING  
Westminster, CO

[24+] **COLORADO SOUND RECORDING; also REMOTE RECORDING**, 3100 W. 71st Ave., Westminster, CO 80030; (303) 430-8811. Owner: Kevin Clock. Engineers: Kevin Clock, Tom Capek, Neal Thompson. Dimensions: 650 sq ft, 550 sq ft, control room 450 sq ft, control room 10 x 13. Mixing Consoles: Trident TSM 24 x 24 x 2. Audio Recorders: Otari MTR-90 24-track and 16-track, Ampex ATR-104 2/4-track 1/4" and 1/2", Studer A80 2-track 1/4" and 1/2", Revox PR99 2-track, Technics 1500 2-track. Cassette Recorders/Duplicators: Technics RSB100 Echo, Reverb, & Delay Systems: AMS RMX-16, Lexicon PCM70, (2) Yamaha SPX90II, Ecoplate, Lexicon Prime Time, (2) DeltaLab 1024, USA Space Station, TC 2290 18-bit digital processor, Lexicon 92. Other Outboard Equipment: (2) API 550 EQ, (2) API 525DS compressor/limiter, Audioarts 4200B parametric, Teletronix LA-2, (2) UREI LA-3A, (2) UREI 1176, (2) UREI LA-4, (4) Valley People Dyna-Mite, (2) dbx 902 de-esser, Bercus-Berry Electronics 802. Microphones: Neumann U47 tube, (2) Neumann U87, (2) Neumann U47, Neumann KM84, Neumann KM86, AKG C-24 stereo tube, (4) AKG 414, (2) AKG 451, AKG C-33, (2) Sennheiser 441, (2) Sennheiser 421. Monitor Amplifiers: UREI 6300, Yamaha, Crown. Monitor Speakers: UREI 813, UREI 809, Yamaha NS-10, Auratone. Musical Instruments: Yamaha C7 grand piano, Emulator II, (2) Yamaha DX7, Emulator SP-12 drum machine, Hammond C-3 w/Leslie, Oberheim Matrix-6, Oberheim Matrix-6R, Roland MKS-20 digital piano, Yamaha KX88, Yamaha TX802, Mesa/Boogie guitar amp, Rockman Type III, Korg DSM-1 digital sampler. Other MIDI Equipment: Macintosh sequencer/editor program. Rates: \$600/day \$60/hr

[24+] **CROW RECORDING STUDIO; also REMOTE RECORDING**, 4000 Wallingford N., Seattle, WA 98103; (206) 634-3088. Owner: John Nelson. Studio Manager: John Nelson

[24+] **DIFFERENT FUR RECORDING**, 3470 19th St., San Francisco, CA 94110; (415) 864-1967. Owner: Susan Skaggs. Howard Johnston. Studio Manager: Susan Skaggs, assistant, Kristin Yee. Engineers: Howard Johnston, Mack Clark, Marc

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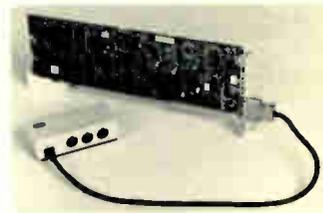


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NORTHWEST  
24+ TRACK  
STUDIOS

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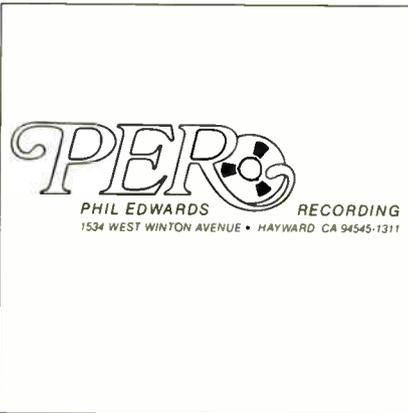
DIFFERENT FUR RECORDING  
San Francisco, CA

Senasac, Mark Slagle, Chad Munsey, Jacquire King and Pete Scaturro (MIDI). Dimensions: Studio 25 x 35 x 12, control room 17 x 21 x 12 plus isolation. Mixing Consoles: SSL 4056 48 x 48 w/Total Recall. Audio Recorders: Studer A80 VU MkII 24-track, Sony PCM-3324 24-track, Studer A80 VU MkII 2-track 1/2" and 1/4", MCI JH-110A 2-track and/or 4-track, Sony PCM-F1 2-track digital, Sony R-DAT 1000ES. Cassette Recorders/Duplicators: (5) Denon cassette. Noise Reduction Equipment: (2) Dolby B, (2) Dolby SR. Synchronization Systems: (3) Lynx Echo, Reverb, & Delay Systems; Lexicon 480L, Lexicon 224 digital reverbs, (2) Yamaha SPX90, Yamaha REV7, EMT 240 Gold Fcil, Eventide digital delay, (2) Lexicon Prime Time, live echo chamber. Other Outboard Equipment: Kexep II, Gain Brain II, 1176, LA-4A, Eventide Harmonizer, White 1/8-octave digital spectrum analyzer, MXR flanger, Aphex Compellor, Orban de-esser, Drawmer gates. Microphones: Neumann SM69 stereo tube, Neumann 269, Neumann 254 (pair), Neumann U87, Neumann U47, Neumann KM84, AKG 414, AKG 452, Beyer, Sennheiser, Sony, E-V, Shure, many rare tube mics available. Monitor Amplifiers: Crown, BGW, Spectra Sonics, Phase Linear, Yamaha. Monitor Speakers: Westlake TM-1, 604E, JBL 4310, JBL 4311, Yamaha NS-10, Auratone, Musical Instruments: Yamaha C7B grand piano. Also available at specially arranged rates: 32-voice Synclavier. Video Equipment: Sony 25" monitor, JVC U-matic 3/4". Rates: \$125/hr, \$1,500/12-hour lockout, rates subject to change. Telephone for rate card. Specialization & Credits: MIDIFUR. Computer Production—Macintosh II, Kurzweil, E-mu, plus sauna/shower, lounge w/kitchen, TV. Custom services in a first-class studio designed by John Storyk, with acoustical consulting in 1987-88 by Russell Berger of the Joiner-Rose Group and Tom Paddock of Sound Research, offering both digital and analog expertise. Complete seclusion in a very private atmosphere. Recent clients include, Stevie Wonder, Bobby McFerrin, B.B. King, Bobby Brown, Exodus, Robin Williams, Remal-Boyd Music Design, Kronos Quartet, Tuck & Patty, Earth, Wind & Fire, Looters, Freaky Executives, Will Ackerman, Game Theory, John Zorn.

[24+] DIGITAL SOUNDWARE PRODUCTIONS; 7683 Orange Blossom Dr.; Cupertino, CA 95014; (408) 255-0207. Owner: Robert M. Lopes. Studio Manager: Brian Godula

[24+] DRAGON STUDIOS; 100 Fifth Ave.; Redwood City, CA 94063; (415) 366-5575. Owner: Charles & Sally Albert. Studio Manager: Cathy Furness.

[24+] PHIL EDWARDS RECORDING; also REMOTE RECORDING; 1534 W. Winton Ave.; Hayward, CA 94545; (415) 784-1971. Owner: Phil Edwards. Studio Manager: Brian Hague. Engineers: Phil Edwards, Brian Hague. Dimensions: Track 16 x 8. Mixing Consoles: API De Mague 4024 40 x 24. Audio Recorders: (2) 3M 79 24-track, 3M 79 16-track, MCI 110B 2-track, Ampex 440B 2-track. Cassette Recorders/Duplicators: (2) Sony TCK-81, Aiwa M700B. Noise Reduction Equipment: Dolby M24 "A", (4) Dolby A361. Synchronization Systems: Adams-Smith 605B three-machine synchronizer. Echo, Reverb, & Delay Systems: Lexicon PCM70, Yamaha SPX90II, Yamaha REV5, EMT 140ST. Other Outboard Equipment: (5) UREI 1176L.N., (2) UREI LA-3A, (2) Orban parametric EQ, Orban 516 de-esser, (4) Valley People noise gate, Sony PCM-F1 digital processor, (4) Sony 323 and 1000 Beta decks, Panasonic VHS deck. Microphones: (5) Neumann U87, (2)



PHIL EDWARDS RECORDING  
Hayward, CA

Neumann U47, Neumann KM84, AKG 414, (2) AKG 451, (25) Shure SM56, Shure SM58, (2) Shure SM85, (2) Shure SM87, (4) E-V RE15, (2) E-V 1761, (6) Sennheiser 421, Sony ECM-22P, (2) RCA 77-DX, (5) Countryman FET85 DI, C-tape stereo transducer. Monitor Amplifiers: Crown DC-300A, (2) McIntosh MC2100, McIntosh MC250. Monitor Speakers: (2) UREI 811A, (4) Auratone 5C, (2) KLH CL4. Video Equipment: Sony KX-1901 video monitor, Sony KX-1201 video monitor, Sony Trinitron 220 color camera. Rates: Studio hourly rates from \$50, truck daily rates from \$1,200. Specialization & Credits: The "PER" tradition continues with remotes and production for: ABC Sports (1988 Winter Olympics—Calgary), KQED, KRON (NBC), Concord Jazz, Wild Sanctuary—St. Louis Zoo, Carsey-Werner Communications—Bill Cosby, Kitaro, 1988 BMMIES, KFOG live radio broadcasts. Write for brochure.

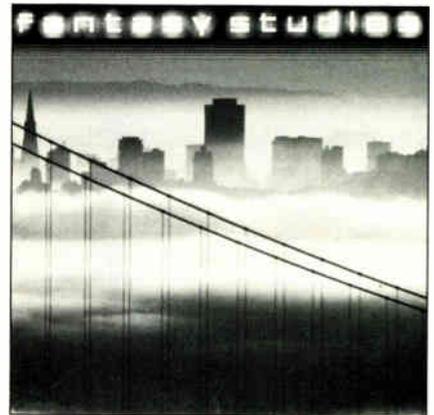
[24+] E.S.P. AUDIO DESIGNS; 5722 25th Ave. N.E.; Seattle, WA 98105; (206) 522-0432. Owner: Charles Meserole, Rick Vaughn. Studio Manager: Rick Vaughn.



FANFARE RECORDING STUDIOS  
Golden, CO

[24+] FANFARE RECORDING STUDIOS; 5142 Quaker St.; Golden, CO 80403; (303) 279-2334. Owner: Guy Bianchini. Studio Manager: Guy Bianchini. Engineers: Guy Bianchini, Bill Thomas. Dimensions: Studio 16 x 35, control room 17 x 15. Mixing Consoles: Trident 24 series with 60 inputs in mixdown 36 x 24 x 24. Audio Recorders: Sony/MCI JH-24 24-track, Otari MTR-10CT 2-track 1/4" with center track, Sony PCM-2500 R-DAT 2-track digital. Cassette Recorders/Duplicators: Nakamichi MR-2. Synchronization Systems: Adams-Smith Zeta-3 Echo, Reverb, & Delay Systems: Lexicon 200, Lexicon PCM70, (2) Yamaha SPX90II, (2) Lexicon LXP-1. Other Outboard Equipment: dbx 160, (2) Valley People Gain Brain, Valley People DSP-815 de-esser, (5) Valley People Kexep II, Audioarts 4200B parametric, Klark-Teknik DN360 graphic, Aural Exciter Type B. Microphones: AKG tube, (2) AKG C-414, (4) AKG C-460/CK61 and CK62, (2) Sennheiser 421, (2) Sennheiser 421, E-V RE20, (2) Shure SM59, (2) E-V PL95. Monitor Amplifiers: JBL/UREI 6290, (2) Crown D-300A, (2) Yamaha P2200. Monitor Speakers: (2) UREI, (2) Yamaha NS-10M, (2) JBL Control 5, (2) JBL Control 1, (2) Auratone Cubes. Musical Instruments: Yamaha C7 conservatory 7' grand piano, Emulator III with 8-meg memory and CD-ROM library, Yamaha YPR-9 electric piano, Prophet-600, Fender Stratocaster, Fender fretless Precision bass, 100W Marshall stack, Peavey bass amp with two 10" and one 15" speaker, Gon-Bop congas. Other MIDI Equipment: Macintosh Plus with Southworth Jam Box/4+, Performer 2.3 and other assorted sequencers and librarian software, Yamaha KX-88 MIDI keyboard controller.

Video Equipment: JVC CR600U 3/4", JVC BR7700U Hi-fi VHS, fast-forward video F21 time-code character inserter, Otari 1/4" 2-track with center-track SMPTE. Other: A full assortment of sound FX and music production libraries. Rates: Please call for rates. Specialization & Credits: Brand new air conditioned facility with two large overdub rooms and a vocal booth as well as studio recording room. Fully equipped MIDI pre-production room at reduced rates. Quality audio for film, video and radio as well as records and demos. Quiet country setting on more than an acre along the picturesque Rocky Mountain foothills, only 20 minutes from downtown Denver or the airport. Amenities include a lounge with cable TV, a basketball court, ping-pong and croquet. Professional engineers and programmers to assist you in your direction. Composers, arrangers and studio musicians available at your request. At FanFare we believe that the most important aspect of a successful recording is capturing the intent of the artist and the producer.



FANTASY STUDIOS  
Berkeley, CA

[24+] FANTASY STUDIOS; 10th & Parker Sts.; Berkeley, CA 94710; (415) 549-2500. Owner: Fantasy Records. Studio Manager: Nina Bombardier. Engineers: Danny Kopelson, Dave Luke, Michael Rosen, Tom Size. Dimensions: Studios: (A) 30 x 50, (B) 21 x 26, (C) 24 x 37, (D) 30 x 50 w/18 x 30 string room. Other rooms: CD and disc mastering room, keyboard room w/Kurzweil 250 and tape copy room. Mixing Consoles: SSL 4056E 56 x 32 Total Recall and automation, Neve 8108 56 x 48, Neve 8108 32 x 24, Trident Series 80 32 x 24 x 32. Audio Recorders: Mitsubishi X-850 32-track digital, Mitsubishi X-80 2-track digital, Sony PCM-1630 2-track digital w/D4000, Sony PCM-F1 2-track digital, Studer A800 24-track, Studer A80 2-track 1/2" and 1/4", Studer A80 4-track 1/2", MCI 110C 4-track and 8-track. Echo, Reverb, & Delay Systems: Live chambers, EMT 140, Ecoplate, AMS, EMT 250, Lexicon 224XL, Lexicon 200, PCM60. Other Outboard Equipment: Bel DDL, Eventide DDL, Eventide 910 Harmonizer, Eventide 949 Harmonizer, Lexicon Prime Time, Dyna-Mite gates, Drawmer gates, Lexicon PCM42 DDL, Space Station, ADR Complex limiter, ADR Vocal Stresser, dbx 160 limiters, Orban de-esser, Scamp rack, MXR phaser, AMS 15-80S, and much more. Microphones: (174) microphones—ribbon, dynamic, condenser and PZM. Monitor Amplifiers: Crown, McIntosh. Monitor Speakers: Sierra-Hidley, UREI Time Aligned, Yamaha NS-10, Auratone, Visonik, MDM, JBL 4311. Video Equipment: Video sweetening, video transfers, 3/4" to VHS or Beta 1/2", SMPTE code, window dubs, etc. Rates: Call for rates, Nina, Andrea or Roy.

[24+] FOCUSED AUDIO; 30 Berry St.; San Francisco, CA 94107; (415) 777-3108. Owner: Jeff Roth. Studio Manager: Jeff Roth. Engineers: Jeff Roth, James Allen. Dimensions: Room 1: studio 12 x 14, control room 20 x 40. Room 2: studio 12 x 14, control room 12 x 14. Mixing Consoles: Studio B: Allen & Heath 16 x 16; Studio A: NEOTEK Series III 32 x 24 console. Audio Recorders: Otari MX-80 24-track, (3) Foxtek B-16 16-track, Otari MTR-10 2-track center-track SMPTE, Technics RS-1500 2-track. Cassette Recorders/Duplicators: Sony, Hitachi, Akai. Noise Reduction Equipment: Dolby SR 24-track and 4-track. Synchronization Systems: IBM clone w/Kelly Quan Audio Editing System, (3) Cipher Digital Shadow, Shadowpad. Echo, Reverb, & Delay Systems: (2) Yamaha SPX90, ADM 1024 Electron DDL, MIDiverb, Master-Room reverb, Roland SDE-1000 DDL. Other Outboard Equipment: (2) Kexep noise gate, (2) Gain Brain compressor/limiter, UREI 1176 stereo peak limiter, Aphex Aural Exciter, (2) Orban parametric equalizer, White passive equalizer, Roland 15-track CompuEditor SMPTE automation, (3) Orban de-esser, (2) Technics SL-P1200 compact disc player. Microphones: RCA 77-DX ribbon, RCA BK5A ribbon, Schoeps, Sennheiser 421, Sennheiser 441, Sennheiser condensers, (3) E-V RE15, Neumann available. Monitor Amplifiers: NAD, Crown. Monitor Speakers: JBL bi-radials, (2) Yamaha NS-10M, (3) Yamaha MS-40. Musical Instruments: (2) Roland S-50 digital sampler, Ensoniq Mirage digital multi-sampler, (2) Oberheim OB-8 polyphonic 8-voice synth, Roland D-50 linear 16-voice synth,

Roland Juno-60 programmable 6-voice synth, Roland MD-8 MIDI/DCB interface, Yamaha TX7 6-voice digital FM synth, Oberheim digital drum machine, E-mu Drumulator, Roland G-303 guitar, Roland GR-300 synth, Fender Telecaster, (2) Music Man amplifiers. Other MIDI Equipment: Opcode Studio Plus 2 interface, Farallon Computing Phone Net interface, Korg MIDI synchronizer. Video Equipment: JVC 850 1/4" w/address-track time code, JVC BR8600 VHS editor, JVC VHS Hi-fi recorder, BTX synchronous time-code generator, BTX regenerator. Other: (2) Apple Macintosh Plus w/hard disks, (2) Apple Macintosh SE with 40MB, Atari 40MB, (19) software programs for sequencing, sampling and editing digital audio, Adap digital editing system. Rates: Studio A audio only \$60/hr, audio-for-video \$125/hr, Studio B audio only \$50/hr, audio-for-video \$85/hr. Consultation, complete soundtrack design and booked rates on a per-project basis. Specialization & Credits: Focused Audio specializes in post-production sound for theatrical, broadcast and corporate film and video. Working with SMPTE synchronization since 1983, Focused has been an innovator in the development and application of software for audio post-production (see *Mix* article April 1987 "Focused Audio Meets Kelly Quan Research"). With audio engineers experienced in film, video and music/MIDI production, Focused has pioneered the development of new techniques that bring together the best qualities of these previously distinct audio disciplines. Speed, flexibility and creativity in soundtrack design and production are the result of our hardware, software and talent mix. From feature films to documentaries, Universal Studios to "Gumby," HBO to MTV, Focused Audio is committed to client satisfaction. In four SMPTE studios, Focused offers total audio post-production services, including: original music and sound FX creation (as well as vast CD libraries), ADR, Foley, narration recording, digital sampling and editing, MIDI sequencing, SMPTE-based automated mix.

[24+] **FTM STUDIOS**; also **REMOTE RECORDING**, 1111 S. Pierce St., Denver, CO 80226; (303) 922-3330. Owner: John & Diane Sundberg. Studio Manager: John F. Sundberg. Engineers: John Sundberg, approved independents: Jeff Shuey, Steve Avedis, Michael Pfeifer, Dan Diamond. Dimensions: Room 1: studio 2,200 sq.ft. w/5 isos, control room 550 sq.ft. Room 2: studio 1,500 sq.ft. w/4 isos, control room 450 sq.ft. Room 3: 550 sq.ft. w/iso, control room 350 sq.ft. Mixing Consoles: Soundcraft 2400 28 x 24 x 24 customized and modified, Soundcraft 2400 24 x 24 x 24 customized and modified, Tascam 15 24 x 16 x 8. Audio Recorders: (2) Otari MTR-90 24-track w/autolocator, (2) Soundcraft 760 24-track w/autolocator, Otari MTR-10 2-track 1/2" and 1/4" w/center-track SMPTE, (3) Otari MkIII 2-track 1/4", Otari MkIII 4-track 1/2", (2) Ampex



**FTM STUDIOS**  
Denver, CO

ATR-700 2-track 1/4", Tascam Series 70 4-track 1/2", Tascam 80-8 8-track 1/2", Otari 5050B 8-track 1/2". Echo, Reverb, & Delay Systems: EMT 140 plate, Audi-ence plate, Quantec QRS, AMS RMX-16, (2) Lexicon 200 w/6 programs, Roland SRV-2000, AKG BX-10, (2) Scamp stereo, (2) Lexicon Prime Time II, Lexicon Prime Time, (3) DeltaLab, Eventide 949 Harmonizer, Eventide 910 Harmonizer, (2) 1024 Effectron II, MXR pitch transposer, DL-5 pitch transposer, Ursa Major Space Station, Lexicon PCM70, (4) Yamaha SPX90. Other Outboard Equipment: GateX, Scamp, (4) limiter/compressor, (4) expander gate, (4) noise gate, automatic panner, (2) parametric EQ, (4) Symetrix 501 limiter, (2) Symetrix 522 limiter/exp, (8) Bi-amp limiter, (3) dbx 161, (4) dbx 160X, (2) dbx 161, (3) Aphex, (2) Sontec parametric EQ, (2) Audicarts 4200B parametric EQ, (2) dbx 905 parametric EQ, (2) Orban steric parametric EQ, (2) dbx 902 de-esser, (2) Orban 536A de-esser, (3) Orban 516EC de-esser, UREI LE5, 1:76, Valley People DynaMite gate, (2) MXR 1/2-octave EQ. Microphones: AKG C-24, AKG 442, AKG 414, AKG D-112, Neumann U87, Neumann U89, Neumann KM86, Neumann KM84, Neumann U47, Shure SM81, Shure SM85, Shure SM57, E-V RE22, E-V RE15, E-V RE10, E-V RE16, E-V RE11, Sennheiser 421, Sennheiser 431, Crown PZM, Countryman Pressure Zone. Monitor Ampli-

fiers: Crown Delta Omega, (8) Hafler 500, Crown D-300, Crown D-150, Crest 3501. Monitor Speakers: UREI 813B, E-V 500, Yamaha SP10, Auratone, Tannoy 12B, Tannoy NS10B, E-V 100. Musical Instruments: Kawai 7'4" grand piano, Kawai US50, Kurzweil 250 w/all blocks and sampling, Oberheim OB-Xa, Oberheim DMX, Oberheim DSX, Rhodes, Korg C-30 organ, ARP Odyssey, Korg DW-8000, Yamaha TX7, Yamaha RX5. Video Equipment: Adams-Smith 2600 SMPTE/EBU, JVC CR850U 1/4" video stereo recorder, Otari 1/4" w/center-track SMPTE, NEC 25" high-resolution monitor. Rates: (1) \$65 w/eng, (2) \$45 w/eng, (3) \$15 w/eng. Block rates available. Specialization & Credits: Large lounge w/big-screen TV, kitchen and meal table. Conference room with high ceilings for practice and relaxing. All rooms acoustically designed. Constructed from the ground up. Studios 1 & 2 with RPG diffusers on rear walls. Real-time cassette duplication. CD sound effects and music libraries. 48 tracks available, commercials, jingles, audio sweetening, film scoring. Macintosh computer w/Performer arranging and sequencing to our Kurzweil 250. Arrangers and producers are available. One of the nation's finest studios. Located on the west side of Denver. Near summer mountain activities and winter skiing.

[24+] **PHILIP (ROSCOE) GALLO PRODUCTIONS**, 3112 Laguna; San Francisco, CA 94123; (415) 563-8223. Owner: Roscoe Gallo. Studio Manager: Roscoe Gallo

[24+] **GUNG-HO STUDIO**, 86821 McMorott Ln.; Eugene, OR 97402; (503) 484-9352. Owner: Bill & Julianne Barnett. Studio Manager: Bill Barnett. Engineers: Bill Barnett, independents. Dimensions: Studio 30 x 20, control room 17 x 12. Mixing Consoles: Trident Series 65 wired for 3M automation w/EI Marko software 40 x 16 x 2. Audio Recorders: Otari MX-80 24-track, Otari 5050B 2-track, Tascam MS-16 16-track. Panasonic R-DAT digital 2-track. Cassette Recorders/Duplicators: (4) Nakamichi MR-2B, Akai GX-9, Sony Pro Walkman. Noise Reduction Equipment: (2) Dolby 361 w/SR cards, (2) dbx stereo Type I (180 & 150), (2) dbx 8-channel DX-80 for 16-track Tascam. Echo, Reverb, & Delay Systems: Lexicon PCM-70, Lexicon LXP-1, Lexicon PCM42, Yamaha SPX90, Eventide H3000 Ultra-Harmonizer/reverb/delay/etc., DeltaLab CE-1700, DeltaLab ADM-1024. Other Outboard Equipment: (2) dbx 160X compressor/limiter, Symetrix 525 gated/compressor (stereo), dbx 166 gated compressor/limiter (stereo), (3) Aphex 612 2-channel expander/gate, (4) Valley People 4-channel GateX expander gate, Valley People Autogate 2-channel expander/gate, Orban de-esser, ART-DRI digital reverb etc., Aphex Type C Exciter, Studio Technologies stereo

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# NORTHWEST 24+ TRACK STUDIOS

—CONTINUED FROM PREVIOUS PAGE

mic preamp, etc. Microphones: (2) Neumann U87, Neumann KM84, (2) AKG C-414EB, (2) AKG C-451E, AKG D-112, (2) Sennheiser 441, (4) Sennheiser 421, Beyer 422, (4) Shure SM56/SM57, (2) Shure SM58, (2) PZM (custom), etc. Monitor Amplifiers: Hafler 220, McIntosh 6100, Rane HC-6 headphone console. Monitor Speakers: Yamaha NS-10M, JBL 4411, Auratone 5C, Eclipse, AKG 240 headphones. Musical Instruments: Yamaha C3 6' conservatory grand piano, 1959 Fender Precision bass, 1967 Fender Telecaster w/Bigsby, 1947 Martin 0018 acoustic guitar, assorted Zildjian cymbals & hi-hat, Ensoniq EPS sampler/sequencer, synth & drum machine rentals available on request, Ampex B-15 portaflex amp. Other: Mr. Coffee Sr. (10-cup version). Rates: Call for rates.



JOE HOFFMANN STUDIOS  
Occidental, CA

[24+] **JOE HOFFMANN STUDIOS**, also **REMOTE RECORDING**; PO Box 840; Occidental, CA 95465; (707) 874-2278. Owner: Joe Hoffmann. Studio Manager: Tina Dungan. Engineers: Joe Hoffmann, independents: Stephen Hart, Brian Walker, Randy Quan. Dimensions: Studio 23 x 26 skewed, drum/iso booth 10 x 14 skewed, control room 16 x 21 skewed. Mixing Consoles: NEOTEK Series II 28 x 24, Ramsa 8210A 10 x 4. Audio Recorders: Otari MTR-90 16-/24-track, Otari MX-5050 MkIII 8-track, TEAC 3340S 4-track, Otari MX-5050B 2-track, Otari MTR-12 2-track (30 ips). Cassette Recorders/Duplicators: Denon DR-M14HX, (5) TEAC for real-time dupes. Noise Reduction Equipment: (24) Dolby A, (4) Dolby C, (2) Dolby SR, (10) dbx Type I. Echo, Reverb, & Delay Systems: Klark-Teknik DN780, Lexicon 60, Lexicon 70, Lexicon 200, Roland DEP-5, Roland SRV-2000, MXR flanger/doubler. Other Outboard Equipment: Symetrix 522 (5-function stereo), Symetrix SG200 stereo gate, (2) Symetrix 501 comp/limiter, (2) UREI LA-4 comp/limiter, (2) Phase Linear E51 parametric, Technics SL-1200 MkII, Shure V15 Type 5 cartridge, Bercus-Berry Electronics processor, CD player. Microphones: AKG, Audio-Technica, B&K, Beyer, E-V, Sennheiser, Shure, Sony, Tascam, Neumann M249 tube. Monitor Amplifiers: Peavey DECA 700, Carver 1200, Rane HC-6 (cue), Hill MX500. Monitor Speakers: KEF Model 105/2, KEF 104/2, Yamaha NS-10, Toa 312-ME, Auratones, JBL 4408. Musical Instruments: Steinway 9' concert grand piano. Video Equipment: Live session shoots arranged with a local production company in 1/2" or 3/4" video format. Rates: \$35-\$50/hr. Please call for rate card and literature. Specialization & Credits: Imagine a warm, comfortable, acoustically satisfying space where you could record your songs, perhaps have a small live audience, or lead your workshop and have a high-quality audio recording or videotape made of your presentation. I've custom designed and built the ideal recording environment near Sebastopol, with skylights and a spectacular view of the Redwoods. It is complete with 2- through 24-track recording capability, a nine-foot concert grand Steinway piano and the affordable rates you need. A wide variety of music and other projects have been produced here on cassettes, vinyl and compact discs, including original music, healing arts projects, new age music, radio drama, classical, jazz, folk and children's music, commercials and video soundtracks. Certified massage and hypnosis are available for performance preparation. You're welcome to call or visit and ask questions about your special project.

[24+] **HYDESTREET STUDIOS**; 245 Hyde St.; San Francisco, CA 94102; (415) 441-8934. Owner: Michael Ward. Studio Manager: Beverly Sommerfeld. Engineers: Garry Creiman,

John Cuniberti, Ricky Lee Lynd, Mark Needham, Wendy Bardsley, Andrew Murdock, Larry Schalit. Dimensions: Studio 31 x 20, control room 20 x 18. Mixing Consoles: Arnek 2500 48 x 24 x 48 automated/MasterMix disc-based. Audio Recorders: Studer A80 24-track w/auto locate, 3M M79 24-track with auto locate, 3M M79 16-track w/auto locate, Otari MTR-10 2-track 1/2", Otari MTR-12 2-track 1/2", Otari MX-5050B 2-track 1/2", Scully 280 4-track 1/2", Sony TC-K555 cassette deck. Echo, Reverb, & Delay Systems: Acoustic chamber, Yamaha REV7, Lexicon PCM60, Lexicon PCM70, Lexicon PCM41, Lexicon PCM42, TC 2290, Eventide 949 Harmonizer, Delta-Lab DL-2, Lexicon 480L w/LARC. Other Outboard Equipment: (6) Drawmer noise gate, (5) Dyna-Mite, Teletronix LA-2A, (3) Urei 1176LN, (2) Furman parametric, (2) White 10-band EQ, (2) Klark-Teknik 1/2-octave graphic EQ, (2) dbx 165A, UREI 565 Little Dipper, Lang PEQ1. Microphones: Neumann M49, Neumann U47 (tube w/omni capsule), Neumann U67, Neumann U87, Neumann KM54, AKG C-12 (tube), (4) AKG C-12A (tube), (2) AKG 414EB, (2) Pearl DC-63, Sennheiser, Beyer, Shure, Crown PZM, etc., Countryman direct boxes. Monitor Amplifiers: Hafler, Soundcraftsmen, Crown. Monitor Speakers: Meyer, Yamaha NS-10M. Musical Instruments: Steinway 9' grand piano, Emulator II, Hammond B-3 organ w/Leslie, Music Man amp, Rogers drum kit and percussion. Video Equipment: (2) Lynx synchronizer modules w/Kelly Quan software controller, Sony VO-5800 1/4" video deck w/address-track modification. Rates: Please call for rates.

[24+] **INDEPENDENT SOUND**; San Francisco, CA; (415) 929-8085. Owner: Peter Buffett, Mary Buffett. Studio Manager: Yvonne Graves.



IRONWOOD STUDIOS  
Seattle, WA

[24+] **IRONWOOD STUDIOS**; 601 NW 80th St.; Seattle, WA 98117; (206) 789-7569. Owner: Paul Scoles. Studio Manager: Myron Partman. Engineers: Bryan Rutter, Cary Wakeley, Paul Scoles, Jay Follette. Dimensions: Studio 34 x 28, control room 16 x 14. Mixing Consoles: Harrison Raven 32 x 24 automated, MCI 416 24 x 24. Audio Recorders: (2) MCI JH-24 24-track, Tascam ATR-60 2-track w/center-band time code, (2) MCI JH-110 2-track 1/2" and 1/4". Cassette Recorders/Duplicators: (4) Technics. Synchronization Systems: Audio Kinetics Q.Lock 4.10 synchronizer, Adams-Smith Zeta-3 synchronizer. Echo, Reverb, & Delay Systems: Lexicon 480L w/LARC, Lexicon 200, Lexicon PCM70, Lexicon Super Prime Time delay, (2) Yamaha SPX90II, DeltaLab DL-2, Roland SRE-555 tape echo. Other Outboard Equipment: dbx 900 rack w/4 gates, (3) compressor, de-esser, Aphex Type E, Teletronix LA-2A (tube limiter), (2) UREI 1176 limiter, (2) Symetrix parametric EQ, (2) Symetrix, (2) Symetrix gate, MXR pitch transposer, Audioarts parametric EQ, Roland Dimension D, Roland flanger, UREI 527a EQ. Microphones: Telefunken U47 (tube), Neumann U67 (tube), (2) Neumann U87, Neumann U47 FET, (2) Neumann KM56 (tube), (2) Neumann KM84, AKG "tube", (2) AKG 451, AKG D-12E, (2) Sennheiser 441, (2) E-V RE20, E-V RE16, (2) Sony C-37A, Sony C-500, Norelco C-61, Norelco C-60 and many more. Monitor Amplifiers: Hafler P-500, (2) Yamaha P2050, Crown D-60, McIntosh 240, BGW 100. Monitor Speakers: JBL 4430, JBL 4320, (2) Yamaha NS-10, (2) Auratone 5C. Musical Instruments: Yamaha 7'4" grand w/Forte MIDI mod., Korg DSS-1 sampling synthesizer, Korg M-1 MIDI workstation, Roland JX-10 synthesizer, LinnDrum, Hammond M-3 w/Leslie, Micromooog, Hohner D-6 clavinet, Pearl drums. Other MIDI Equipment: Yamaha OX-5 sequencer. Video Equipment: Sony JH-110C 1" layback recorder, (2) Sony VO-5600 1/4" videocassette recorder, (2) NEC video monitor. Other: Diskmix console automation system. Rates: Please call for rates.

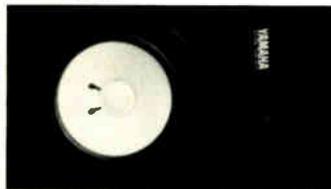
[24+] **DENNY JAEGER CREATIVE SERVICES, INC.**; 6120 Valley View Rd.; Oakland, CA 94611; (415) 885-4999. Owner: Denny Jaeger. Studio Manager: For studio bookings, call Nancy Evan. Dimensions: Studio 14.5 x 24, control room 14.5 x 22 w/adjoining equipment room 10 x 18.5. Mixing Consoles: Harrison Series X virtual console 112 inputs x 48 bus. Audio Recorders: (2) Sony 3324 24-track digital with Apogee filters, Ampex ATR-124 24-track, Ampex ATR-104 2-track 1/2",

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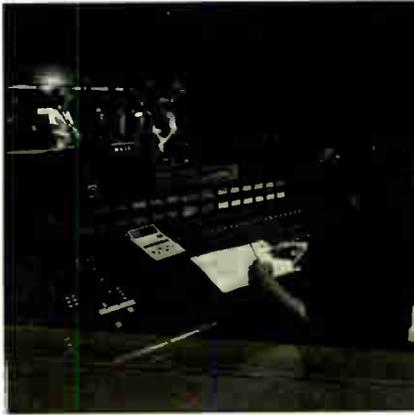
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Sony PCM-F1 2-track digital. Echo, Reverb, & Delay Systems: (4) Quantec room simulators, Lexicon 224XL, (2) Lexicon PCM70, (2) Lexicon PCM42, Eventide SP2016, Lexicon 480L, (2) Yamaha SPX90II, (2) ART DRI, (2) Alesis MIDiverb. Other Outboard Equipment: (4) Drawmer stereo gate, Aphex Dominator, (2) Aphex Compellor, (2) dbx 160X limiter/compressor, (2) LA-4, (2) UREI Universal filter set, E-mu voltage controlled low-pass filter, E-mu voltage-controlled high-pass filter, Aphex Aural Exciter II, Dolby 361A, (5) Lynx module, (2) BSS limiter/compressor, Mac II, Mac Plus. Microphones: Schoeps, B&K, Neumann U87, Sony (many varieties), E-V RE20, Shure SM56, Shure SM57. Monitor Amplifiers: Meyer MS1000 amp, Crest 4000, BGW 250, Bryston. Monitor Speakers: Meyer 833 w/processor and complementary phase EQ. Musical Instruments: Yamaha grand piano, Synclavier digital system w/32 megabytes of RAM, 64 voices, (2) 140-megabyte Winchester, velocity keyboard, guitar controller, SMPTE, MIDI, Kennedy cartridge device, music printing, Yamaha DX7, Ensoniq ESQ-1. Oberheim Matrix-6. Video Equipment: JVC 6650U 3/4" recorder, JVC 8250 3/4" recorder, Sony KV-25XBR monitor, QLock 4 10 synchronizer. Rates: Upon request

**[24+] JENSEN SOUND PRODUCTIONS;** (415) 346-2418. Owner: Eric and Suzanne Jensen. Studio Manager: Suzanne Jensen. Engineers: Eric Jensen, Gary Mankin. Dimensions: Studio 16'6" x 6'6", control 17'6" x 10'9". Mixing Consoles: Sound Workshop Series 34 with Diskmix automation 40 x 24. Audio Recorders: Otari MTR-90 24-track, Otari MTR-12 2-track w/SMPTE center stripe, Sony PCM-501 2-track, Casette Recorders/Duplicators: Nakamichi MR2, Sony TC-D5M, (2) Onkyo TA2027. Noise Reduction Equipment: Rocktron Hush IIC Synchronization Systems: Otari EC-101. Opcode Timecode machine. Echo, Reverb, & Delay Systems: (2) Lexicon PCM70, Lexicon PCM60, Roland SRV-2000, ADA STD-1, Lexicon PCM41, Roland SDE-3000, ADA 1 28 digital delay. Other Outboard Equipment: (2) dbx 160 compressor/limiter, Valley People Dyna-Mite, Aphex Aural Exciter Type B. Microphones: AKG 414, (2) Sennheiser 421, (2) Sony ECM-33, Beyer M500, Shure SM57. Monitor Amplifiers: Halter P505, Symetrix A-220 cue amp. Monitor Speakers: (2) UREI 809, (2) Boston Acoustics A60, (2) Realistic Mimimus-7, (2) Auratone 5C, (5) AKG 240 headphones. Musical Instruments: Emulator III digital sampler w/8MB RAM and unlimited hard disk storage. Emulator II digital sampler. E-mu Emax digital sampler, E-mu SP-12 digital sampling drum machine, Prophet-VS, Roland MKS70, Roland D550, Roland GR700 guitar synthesizer, Oberheim Xpander, Oberheim Matrix-6. Oberheim Matrix-1000, Yamaha TX802, Yamaha DX7 w/EI upgrade, Yamaha TX7, Yamaha TX81Z, Yamaha FB-01, Kurzweil 1000PX w/Soundblock A, Ibanez bass w/EMG pickups, various acoustic and electric guitars. Other MIDI Equipment: Macintosh II computer w/5MB of RAM. Software: Mark of the Unicorn: Performer, Professional Composer, Opcode: Sequencer, various librarians & editor/librarians, Cue, Music Mouse, Digidesign: Q Sheet, FX Designer, (2) Sound Designer, Softsynth, Blank Software: Alchemy, Drumfile, Intelligent Music: M, Jam Factory, Upbeat; Roland Octapad w/Drum Workshop trigger pedal, Harmony Systems MIDI merger, J.L. Cooper 16/20 MIDI patcher, J.L. Cooper MSB-1 MIDI patcher, Yamaha MEP4 MIDI event processor, Roland GM70 MIDI guitar, Beetle Quantum MIDI guitar. Video Equipment: JVC CR8250U 3/4" video deck, Panasonic VHS Hi-Fi 1/2" video deck, Sony SL-HF 400 Beta Hi-Fi 1/2" video deck, Sony Hitachi and Sanyo video monitors. Other: Denon DCD-1500 CD player, Groove Tubes guitar studio preamp, ADA MP-1 MIDI guitar preamp, (2) Tom Scholz Rockmodule, Seymour Duncan convertible guitar amplifier, Mesa/Boogie MkIIIB guitar amplifier, Carvin X-60 guitar amplifier, Music Man RD50 guitar amplifier, Lab Series L5 guitar amplifier, (2) Miller 1 1/2" speaker cabinets w/EVM 12L speakers. Rates: Call for rates and further information.

**[24+] KAYE/SMITH PRODUCTIONS;** 2212 4th Ave., Seattle, WA 98121; (206) 728-8651. Owner: Lester Smith. Studio Manager: Reed Ruddy

**[24+] STEVE LAWSON PRODUCTIONS;** 2322 6th Ave., Seattle, WA 98121; (206) 443-1500. Owner: Steven Lawson Productions, Inc. Studio Manager: Vince Werner. Engineers: Bob Israel, Steve Lawson, Jim Wilson, Brett Eliason, Vince Werner, Carol Howell, Randy Yount. Dimensions: Room 1: studio 27 x 16.5, control room 17 x 13. Room 2: studio 13 x 14, control room 12 x 13. Room 3: studio 50 x 14, control room 16 x 11. Mixing Consoles: (2) MCI 636 with Diskmix automation 28 x 24, Tangent 3216. Audio Recorders: (2) MCI JH-24 24-track, MCI JH-110C 8-track, (3) MCI JH-110C 2/4-track with dbx noise reduction, (3) Otari 5050 2-track, Sony ATR-5003 2-track center-track time code. Echo, Reverb, & Delay Systems: Eventide 949 Harmonizer, Lexicon 224X w/LARC, AMS reverb, Lexicon Prime Time, Lexicon Prime Time II, (3) PCM-42, Klark-Teknik DN780, AMS RMX-16, Yamaha REV7. Other Outboard Equipment: (2) UREI 1176, UREI 1178, Symetrix 501, Gain Brains, Kepex, Scamp rack w/assorted modules, Symetrix Hybrid telephone interface, Orban de-esser, Symetrix 522, (2) Teletronix LA-2 tube limiter, CD players, digital satellite downlink from studios around the country. Microphones: AKG, Shure, Neumann, Sennheiser, RCA and others. Monitor Amplifiers: UREI, BGW, Crown, Halter Monitor Speakers: JBL 4430, JBL 4311, UREI Time Align, MDM-4, Auratone, Yamaha NS-10. Musical Instruments: (2) Yamaha 74" grand piano, Tama SuperStar drum kit w/power-toms, LinnDrum, DMX, Oberheim drum machines, Music/MIDI suite w/Fostex 4050 SMPTE/MIDI interface, Kurzweil 250 advanced, Yama-



STEVE LAWSON PRODUCTIONS  
Seattle, WA

ha TX rack w/4 modules, Juno-106 synthesizer keyboard, Macintosh computer, Opcode MIDI Mac 2.5 sequencer, and assorted edited programs, books w/operator tie lines to all studios. Video Equipment: Audio Kinetics QLock synchronizer, Sony BVU-800, MCI 1" layback machine for laying audio directly to 1" videotape, JVC CR8504, Sony APR 5003 2-track recorder with center-band time code. Other: MCI 110 B-track and Nakamichi F1 digital 2-track for location recording. Rates: Call for information. Specialization & Credits: Our equipment and rooms are state-of-the-art, but it is our people that make us shine. We work on many different types of projects from heavy metal to light banter. LP projects and audio sweetening soundtracks, radio and TV commercials and audio sweetening of video projects. We also offer high-quality, high-speed reel to reel and cassette dubs in mono and stereo. Call for rates. Our great rooms and comfortable atmosphere attract superb engineers. Our commercial work has been recognized by the world's largest awards including: Clio, IBA, Andy's, One Reel Show and Best in the West. Our music production includes major label releases with top producers. And best of all, our clients from around the country come back. Again and again. Give us a call. We'd love to give you a tour.

**[24+] LIVE OAK STUDIO;** also REMOTE RECORDING; 1300 Arch St.; Berkeley, CA 94708; (415) 540-0177; See Our Ad in the BusinessPages! Owner: Jim & Priscilla Gardiner. Studio Manager: Priscilla Gardiner. Rates: Upon request. Specialization & Credits: Artists' lounge with spectacular views of the Bay. Private garden with redwood decks and brick patios. Complete pre-production services available using top-of-the-line synthesizers and computer programs. Live Oak Studio is designed for the artist/composer or producer who wishes the highest quality recording tracks for his or her project. We are equipped to produce albums or to record tracks for movie scores or video work. We have the very latest synchronization gear, a computer-automated mixing console and an outstanding collection of outboard gear including the Publison Internal Machine 90. We have a long list of satisfied clients who enjoy the beautiful and peaceful private atmosphere. If you need a producer for your project, Jim Gardiner is available to help you get the best product.

**[24+] LONDON BRIDGE STUDIOS INC.;** 20021 Ballinger Way NE, Ste. A; Seattle, WA 98155; (206) 364-1525. Owner: Raj and Rick Parashar. Studio Manager: Raj Parashar. Engineers: Rick Parashar, Peter Barnes, Ron Gangnes. Dimensions: Studio 27 x 46, control room 20 x 21. Mixing Consoles: Neve 8048 30 x 16 x 24 w/1081 EQs. Audio Recorders: Studer A800 MkIII 24-track, Sony APR-5002 2-track, Ampex ATR-102 2-track. Echo, Reverb, & Delay Systems: Lexicon 224XL, Yamaha SPX90, Yamaha SRV-200, Yamaha REV7, (2) CompuEffectron, (3) Roland SDE-3000, (2) Roland SDE-2500, Lexicon Prime Time. Other Outboard Equipment: (4) Neve compressor/limiter, (2) Neve noise gate, ADR Vocal Stresser, (6) Scamp gate, (4) Scamp compressor, ADR de-esser, UA-176 tube compressor, ADR Panscan, Aphex Aural Exciter, MIDiverb II, Yamaha SPX90. Microphones: (2) Sheffield Lab custom tube mic, (2) Neumann U47, (2) Neumann U87, AKG 414, AKG D-12, AKG 460, Sennheiser 421, E-V RE20, Shure SM57, Shure SM58. Monitor Amplifiers: Crown, Halter Monitor Speakers: JBL 4435, Yamaha NS-10, Auratone. Musical Instruments: Yamaha C7E grand piano, Emulator SP-12, Yamaha DX7, Roland JX-8P, Korg DW-8000, Roland Super JX, Ensoniq EPS. Other MIDI Equipment: Macintosh computer, Mark of the Unicorn, DRT, Opcode, Commodore 64 computer. Rates: Upon request.

**[24+] MICHAEL LORD PRODUCTIONS;** 9508 17th Ave. NE, Seattle, WA 98115; (206) 527-9002. Owner: Michael Lord. Studio Manager: Michael Lord.

**[24+] MASTER TRACK PRODUCTIONS;** 1524 W. Winton Ave.; Hayward, CA 94545; (415) 782-0877. Owner: Don Enns.

—CONTINUED ON NEXT PAGE

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—CONTINUED FROM PREVIOUS PAGE

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[24+] **MILLTREE PRODUCTIONS**; PO Box 70322; Seattle, WA 98107-0322; (206) 782-3115. Owner: Milltree Productions, Inc. Studio Manager: Claude Autry.

[24+] **MIRAMAR RECORDING STUDIOS (FORMERLY NOVA RECORDING SERVICES)**; 14715 SE 37th St., Bellevue, WA 98006; (206) 747-5233. Owner: Miramar Images, Inc. Studio Manager: Paul Speer. Engineers: Paul Speer, David Lanz, James Reynolds. Dimensions: Studio 15 x 25, control room 12 x 15. Mixing Consoles: Biamp Bimix 24 x 16. Audio Recorders: Sony/MCI JH-24 24-track, Otari 5050 2-track, Sony F1 2-track. Cassette Recorders/Duplicators: Awa, Technics. Noise Reduction Equipment: Symetrix 511. Synchronization Systems: BTX Shadow Echo, Reverb, & Delay Systems: Lexicon PCM70, ART 01A, Yamaha SPX90, Roland SDE-1000, Roland SDE-3000 MIDiverb II. Other Outboard Equipment: dbx 900 rack w/comp/gate/EQ/de-esser, dbx 166 stereo comp/gate, Symetrix 522 comp/gate. Microphones: E-V RE20, (2) Sennheiser 421, (2) AKG 414, Neumann U87. Monitor Amplifiers: Crown D-150A, Symetrix head-phone amp. Monitor Speakers: (2) JBL 4425, (2) Yamaha NS-10, (2) Auratone 5C. Musical Instruments: Prophet-VS, Yamaha DX7, Yamaha TX7, Roland MKS-20 piano, Roland D-550, Yamaha KX88 MIDI board, Korg EX-8000, E-mu Emax, LinnDrum, Simmons drum kit. Other MIDI Equipment: Yamaha QX5 sequencer. Video Equipment: NEC 20" monitor, Sony 12" monitor, Sony 3/4" VCR and Beta Hi-Fi VCR, Magnavox VHS VCR. Other: Krups espresso machine. Rates: Vary. Private facility/invitation only.

Neumann U47 tube, (2) Neumann KM54 tube, (2) Neumann U87, (2) Neumann KM84, (2) Neumann KM85, (6) Sennheiser 421, Sennheiser 402, Beyer M500, (2) Shure SM57, E-V RE15. Monitor Amplifiers: Haller 500, Crown D-150, Crown D-60. Monitor Speakers: (2) UREI 811, (2) Altec 604 w/mastering lab crossovers, (2) Yamaha NS-10, (2) Auratone Musical Instruments: Yamaha C3 6' grand piano, Fender Telecaster (w/EMG pickups), Yamaha RX15, Slingerland "Radio King" drums, Fender Vibrolux amp, Fender Bandmaster amp. Other MIDI Equipment: Available as rentals. Video Equipment: Available as rentals. Rates: On request. Block rates and lockout rates available.



**MOON RECORDING  
Sacramento, CA**

[24+] **MOON RECORDING**; 156 Otto Cir., Sacramento, CA 95822. (916) 392-5640. Owner: George Whyler. Studio Manager: George Whyler. Engineers: David Houston, Gary Woltman. Dimensions: Studio 22 x 34, control room 17 x 18. Mixing Consoles: MCI JH-636 32 x 24 fully automated. Audio Recorders: Otari MTR-90 24-track, Otari MkIII-8 8-track, Otari MTR-10 2-track 1/4", Otari MTR-12 2-track 1/2", Sony PCM-2500 DAT recorder. Cassette Recorders/Duplicators: (2) Tascam 122B. Echo, Reverb, & Delay Systems: Lexicon Prime Time II, DeltaLab CompuEffectron, Eventide Harmonizer, Lexicon PCM70, Lexicon PCM60, Lexicon PCM42, Yamaha REV7, Ecoplate I, Yamaha SPX90. Other Outboard Equipment: (2) UREI LA-3A limiter, UREI 1178 comp/limiter, Orban 424A comp/limiter, (2) dbx 160 comp/limiter, Aphex Dominator, Aphex B Aural Exciter, Valley People 415 sibilance processor, (2) Valley People Maxi-O, (6) Valley People Kepex 810, (2) Valley People Gain Brain II, (2) Drawmer 201 noise gate, Furman QN4A noise gate, Barcus-Berry 802 processor. Microphones: (2) Neumann U87, (2) Neumann U67, (4) E-V PL29, (5) E-V RE15, (2) Sennheiser 441, (3) Sennheiser 421, (3) AKG 451, (2) AKG 414, (2) Crown PZM-31S, Sony ECM-56F, (3) Shure SM53, Neumann KM84. Monitor Amplifiers: UREI 6300. JBL LREI 6290, Crown 1200. Monitor Speakers: (2) UREI 813B, (2) JBL 4, (2) E-V Sentry 100A, (15) AKG 240 headphones, (2) Tannoy NFM-8, (2) Yamaha NS-10M, (2) Auratone Soundcubes. Musical Instruments: Yamaha 7' grand piano, Emulator III, SP-1200 drum machine, Yamaha DX7, (6) Yamaha B16, Yamaha RX11 drum machine, Roland Octapac, Minimoog, Macintosh 512 w/CD sound library. Other: Sony PCM-701 digital processor, Sony 2710 Beta VCR, Sony 520-ES CD player. Sound Ideas sound effects library. Rates: Please call. Block rates available.

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**MOBIUS MUSIC RECORDING  
San Francisco, CA**

[24+] **MOBIUS MUSIC RECORDING**; also **REMOTE RECORDING**; 1583 Sanchez St., San Francisco, CA 94131; (415) 285-7888. Owner: Oliver DiCicco. Studio Manager: Oliver DiCicco. Engineers: Oliver DiCicco, Ken Kessie, Jane Scoleri, Maureen Droney. Dimensions: Studio 38 x 16, control room 18 x 16, plus two iso booths. Mixing Consoles: Neve 8068 40 x 24. Audio Recorders: MCI JH-114 16/24-track, Studer A820 2-track, MCI JH-110 2-track. Cassette Recorders/Duplicators: (3) Sony FX44. Echo, Reverb, & Delay Systems: Lexicon 224 reverb, Eventide H3000 Harmonizer, Yamaha REV7, Yamaha SPX90, DeltaLab DL4, Lexicon 92, Master-Room MR3. Other Outboard Equipment: (2) dbx 160 limiter, (2) UREI LA-4 limiter, (2) Dyna-Mite processor, (2) Drawmer gate, (2) Kepex gate, Lang program EQ, UREI 530 graphic EQ, Orban 622 parametric EQ. Microphones: (2) B&K 4006,



**MUSIC ANNEX, INC.  
Menlo Park, CA**

[24+] **MUSIC ANNEX, INC.**; also **REMOTE RECORDING**; 970 O'Brien Dr., Menlo Park, CA 94025; (415) 328-8338.

Owner: Music Annex, Inc Studio Manager: Michelle Le Corrie Engineers: Russell Bond, David Joslyn, Jim Dean, Rainer Gembalczyk, Andy Heller. Dimensions: Room 1 studio 28 x 25, control room 22 x 25. Room 2: studio 16 x 13, control room 21 x 18. Room 3: control room 30 x 20 Room 4: mastering, control room 28 x 22. Mixing Consoles: Neve 8036 24 x 8, Soundcraft 3-B 32 x 24, (2) Amek TAC 16 x 8 Audio Recorders: Studer A80 16/24-track, MCI JH-114 8/16/24-track, (4) MCI JH-110B 2-track, (6) Ampex 440B 2-track, (2) Otari 5050B 2-track, Otari 2-track. Cassette Recorders/Duplicators: (8) Tascam 122, (2) Nakamichi MR2. Noise Reduction Equipment: dbx 157 8-channel, Dolby 361 Type A 4-channel, Dolby 361 Type SR 2-channel. Synchronization Systems: SF facility only Echo, Reverb, & Delay Systems: Lexicon 224, Quantec QRS room simulator, (4) Yamaha SPX90, Lexicon Prime Time, (2) Lexicon Super Prime Time, Klark-Teknik DN34 analog processor, EMT 240 Gold Foil plate, EMT 140 plate, Roland 2000 and 1000 DDL, Marshall Time Modulator, Korg digital reverb. Other Outboard Equipment: (4) UREI 1176LN limiter, (2) UREI 1178 stereo limiter, ADR Vocal Stresser, ADR stereo EQ, UREI Little Dipper filter set, (3) Scamp racks 30 modules, (2) Drawmer noise gate, Aphex stereo Compellor, (2) Valley People Gan Brain, (2) Valley People Dyna-Mite gate. Microphones: (120) AKG, Neumann, E-V, Sony, Shure, Sennheiser, Beyer and Calrec, (12) Countryman FET direct, (3) Crown PZM-30GP, (3) Tram lavalier Monitor Amplifiers: BGW, Crown, Yamaha, AB Systems, Haller Monitor Speakers: UREI Time Align primary, various auxiliary monitors including Yamaha NS-10, Klawitter 702, MDM-4, Auratone, Augsburg custom, JBL 4333, JBL 4310, JBL 4301 Musical Instruments: Yamaha CT, Fender Rhodes, Yamaha DX7, E-mu Drumulator, Yamaha C3 Video Equipment: (2) Sony 2860 3/4", (2) Sony color monitor Other: Sony PCM-701, Sony 2860 3/4" U-matic, (2) SMPTE-based automation system, Sony 2500 R-DAT. Rates: \$30-125/hr

[24+] **MUSIC ANNEX, INC.**; also **REMOTE RECORDING**; 69 Green St., 2nd Floor, San Francisco, CA 94111; (415) 421-6622. See Our Ad in the BusinessPages! Owner: Music Annex, Inc Studio Manager: Angela Goodson Engineers: Randy Bobo, Roger Wiersema, Patrick Fitzgeraid, Linda Lew Dimensions: Room 1. studio 12 x 16, control room 23 x 28 Room 2 studio 13 x 11, control room 17 x 14. Mixing Consoles: Amek 2500 36 x 24, Amek TAC 16 x 8. Audio Recorders: MCI JH-114 24-track, Otari: 5050 MkIII 8-track w/dbx, Ampex 440-B 4-track, (2) Otari MTR-12 2-track CTC, (2) MCI JH-110B 2-track, (2) Otari 5050 2-track, Otari MTR-12 4/2-track CTC, NED direct-to-disk 8-track. Cassette Recorders/Duplicators: (3) Tascam 122, Otari C-2 master w/2 slaves, (3) Otari 5050-2 (dubbers) Noise Reduction Equipment: Dolby M-24, (3) Dolby CAT-43/361 A, (4) Dolby SR 361, 8-channel dbx Synchronization Systems: (2) Q-LOCK 3- or 4-machine lockup Echo, Reverb, & Delay Systems: Lexicon 480 LARC, Lexicon 224, (2) Yamaha SPX90, 949 Harmonizer Other Outboard Equipment: (2) Symetrix phone patch, (4) UREI 1176 limiter Microphones: (2) Neumann U87, (4) AKG 414EB, (2) Sennheiser 421, (2) AKG 452 Monitor Amplifiers: Yamaha 2200, BGW 750, (4) BGW 100, Haller Monitor Speakers: JBL 4430, JBL 4425, MDM-4, (4) Auratone, Klawitter 702 Musical Instruments: Emulator III, Mac II w/640MB HD, Yamaha DX7 Video Equipment: (2) JVC 850 3/4" U-matic, JVC 8250 3/4" U-matic, Sony BVH-1100 1" C-format, JVC 5760 1/2" VHS Hi-II, ASACA color critical monitor Other: Datametrics time-code generator, Sigma black generator, Tektronix wavelform monitor Rates: \$75-\$290/hr.

[24+] **MUSIC ARTS RECORDING STUDIO (MARS)**; PO Box 1838, Aptos, CA 95001; (408) 688-8435. Owner: Ken Capitanich Studio Manager: Heather Capitanich Engineers: Ken Capitanich, Ken Kraft, David Gibson, Eric Bates. Dimensions: Studio 16 x 18, control room 14 x 16. Mixing Consoles: Soundcraft TS 24 32 x 24. Audio Recorders: Ampex MM1100 24-track, Tascam 80-8, Ampex 440-C 2-track, Otari 5050 2-track Cassette Recorders/Duplicators: (3) Sony TC-K81. Noise Reduction Equipment: (8) dbx. Echo, Reverb, & Delay Systems: Lexicon 200, Ecoplate II, Lexicon Prime Time #93, Eventide Harmonizer, MICMIX XL-305, ADR Time Module, Yamaha SPX90 Other Outboard Equipment: (5) ADR (Scamp) expander/gate, (5) ADR (Scamp) comp/limiter, (2) ADR (Scamp) parametric, Aphex Exciter, dbx 165 compressor, dbx 162 compressor, (2) TLA 100 tube limiter, (2) TPA 200 tube preamp, Pultec tube EQ Microphones: (2) Neumann U47, (4) AKG C-414, (2) Sennheiser MD-441, Sony C-37P, (2) Shure SM54, (2) Neumann U87, (5) Beyer M500, Neumann U67, Electro-Voice RE20, (2) Electro-Voice 666, (2) Electro-Voice CS15, Electro-Voice RE16, Electro-Voice DS35, (2) Shure SM56, (4) Shure SM57, (2) Shure SM545SD, (3) AKG C-451, (2) AKG 330BT, AKG D-112, AKG D-12E, (4) Sennheiser MD-421, Sony ECM-22 Monitor Speakers: (2) UREI 811, (2) MDM-4, (2) JBL 4313B, (2) Auratone Musical Instruments: Chickering 6'6" grand piano, Hammond B-3 with Leslie, Yamaha DX7II FD, Oberheim DMX, various drums, cymbals and toys, Ampex amp Rates: Rate sheet available upon request

[24+] **THE MUSIC SOURCE**; 615 E. Pike, Seattle, WA 98122; (206) 323-6847. Owner: Jim Wolfe. Studio Manager: Peter Barnes Engineers: Jim Wolfe, Peter Barnes, Glenn Lorbeck, Ron Gangnes, Ben Goldfarb. Dimensions: Room 1: studio 27 x 24, control room 27 x 18. Room 2: studio 15 x 13, control room 15 x 21. Room 3: studio 11 x 12, control room 15 x 15. Mixing Consoles: MCI 636 automated 36 x 44, MCI 636 automated 36 x 36, MCI 636 28 x 28. Audio Recorders:

AudioFile digital recorder, (2) MCI JH-24 48-track in room A, (2) MCI JH-24 24-track in B and JH-114 in C, (2) Sony/MCI JH-110 2- and 4-track, Tascam ATR-62 2-track center-channel time code, Sony 1" layback video, Magna-Tech 16/33mm recorder/reproducer, Sony PCM-F1 digital Cassette Recorders/Duplicators: (10) cassette real-time duplicator, Nakamichi, (8) Tascam 22-2 and Revox A77 dubbing decks. Noise Reduction Equipment: dbx 8 channels, other formats available Synchronization Systems: (2) Adams-Smith 2600 for 5 slaves, including compact controller Echo, Reverb, & Delay Systems: (2) Lexicon 224X w/LARC, Lexicon Prime Time, Lexicon Super Prime Time, (2) Yamaha SPX90, Yamaha REV7 and REV5, Eventide Harmonizer, Alesis digital reverb, AKG BX-10, DOD Electronics digital delay Other Outboard Equipment: Scamp rack, UREI, Symetrix, dbx, Spectra Sonics limiters, graphic and parametric EQ, Aphex and EXR Exciters, Garfield Master Beat and Drum Doctor, Roland Vocoder, UREI 1/8-octave equalizers, Barcus-Berry BBE-802. Microphones: Neumann U87, Neumann U67 (tube), AKG 414, AKG 451, AKG D-12E, AKG "the Tube," E-V RE20, Shure SM57, Sennheiser MD-421, Beyer ribbons, RCA 77-DX, Altec M-20 condensers (tube), Sony tube condenser Monitor Amplifiers: UREI 6500, Crown, BGW, Phase Linear, Symetrix, Carver Monitor Speakers: JBL 4430, JBL L-100, Yamaha NS-10M, Auratone. Musical Instruments: Kurzweil K-250, Yamaha DX7, Oberheim OB-Xa, Minimoog, (2) Emax, Yamaha FB-01, Yamaha TX81Z, Yamaha RX5 drum machine, LinnDrum (w/MIDI), Oberheim DMX (w/MIDI), Kawai 9' concert grand, Simmons electronic drums, Yamaha acoustic drum kit Other MIDI Equipment: Garfield Master Beat and Drum Doctor, Mac Plus w/hyper-drive-running Opcode software. Video Equipment: Sony layback (1"). Sony 5850 3/4" w/address track, Magna-Tech film dubber (16/35mm) Rates: Available upon request

[24+] **ONE PASS FILM & VIDEO**; One China Basin Bldg.; San Francisco, CA 94107; (415) 777-5777. Studio Manager: Client Services Engineers: Thomas Betz Dimensions: Studio 10 x 17, control room 19 x 17 Mixing Consoles: Sony MXP-3036VF console with Diskmix moving fader automation 36 x 24 Audio Recorders: Otari MTR-90 Series II 24-track, Studer A800 24-track, Studer A80 8/4-track, Studer A820 2-track center-track TC, Otari MTR-12 2-track center-track TC. Cassette Recorders/Duplicators: Nakamichi MR-1B, Sony RCD-D10 R-DAT 2-track digital recorder. Noise Reduction Equipment: Dolby SR 34 channels, Dolby A 8 channels. Synchronization Systems: Lynx keyboard controller and system supervisor, (5) Lynx/SAL module Echo, Reverb, & Delay Systems: Klark-Teknik DN780 digital reverb, (2) Lexicon PCM70 digital reverb, TC Electronic 2290 digital delay, Yamaha SPX90 multi-effects unit, Roland DEP5 multi-effects unit Other Outboard Equipment: Eventide 3000B Ultra-Harmonizer, (2) Dolby CAT 43, various dbx compressors/limiters/gates/de-essers, Aphex Aural Exciter, Aphex Studio Dominator, Aphex Compellor, (2) UREI 565T "Little Dippers," (2) Valley People Kepex II gate Microphones: Beyer Dynamic MC740, Neumann 1905i stereo mic, Neumann U87, (2) Sennheiser 416 Monitor Amplifiers: (2) Perreux 6200B and 3000B, (4) Bryston 3B & 2B-L Monitor Speakers: (2) JBL 4430 (bi-amped), (2) Auratone 5CV Musical Instruments: Emulator III (8MB RAM) with Macintosh II computer interface Video Equipment: Sony BVU-800 3/4" U-matic, Sony BVH-1100 1" C-format, Sony BVW-75 Betacam-SP, Sony DVR-10 digital video with PCM audio, Sony DVR-1000 digital video with PCM audio Other: MTM series 2000 dual recorder/reproducer magnetic film recorder (4/3/1-track heads), MTM series 600 magnetic film reproducer (3/1-track heads), Gefen M&E organizer system with (2) Sony CDK-006 CD units (120 CDs) Rates: Call for information

[24+] **OTR STUDIOS**; also **REMOTE RECORDING**; PO Box 874; Belmont, CA 94002; (415) 391-9861. Owner: Cookie Marengo Studio Manager: Amy Yamamoto Engineers: Randy Sellgren, Cookie Marengo, Mike Cutler, Victor Bellomo. Mixing Consoles: Sound Workshop Series 30, Soundcraft 600. Audio Recorders: Otari MTR-90 Series II 24-track, Otari 5050 8-track, Otari MTR-10 2-track 1/2", 1/4" and center-track time code heads, Otari 5050B 4-track, Otari 5050 2-track, (2) Sony PCM 2-track digital encoder/decoder, DAT Cassette Recorders/Duplicators: Yamaha C200, Tascam 122, Nakamichi Noise Reduction Equipment: dbx, Dolby SR available upon request Synchronization Systems: Audio Kinetics Eclipse Q-LOCK 4 10 Echo, Reverb, & Delay Systems: Lexicon 224XL reverb, AMSRMS-16 reverb, Lexicon Super Prime Time delay, Lexicon PCM42, Lexicon PCM60, Yamaha SPX90, DeltaLab 1024 Other Outboard Equipment: Eventide 949 Harmonizer, Aphex Compellor, Drawmer noise gates, Valley People Dyna-Mite gates Microphones: AKG 414, AKG 451, Neumann U87, Neumann U67, E-V RE20, Crown PZMs, Shure SM56, Shure SM57, Nakamichi C-100, Sennheiser 421, Sennheiser ME80, Sennheiser ME88, Beyer Monitor Amplifiers: Crown Monitor Speakers: Meyer 833, Tannoy, Yamaha NS-10M, Auratone Musical Instruments: Steinway 7 piano (1885), Yamaha DX7, Yamaha TX7, Prophet-2002 samplers, Prophet-VS synthesizer, Prophet-5 w/MIDI, Minimoog, LinnDrum, Casio CZ-101, Roland 505 drums, Roland MSQ-700 sequencer, Roland MC-500 sequencer, Hammond B-3 organ, Roland D-50, Korg M-1 Other MIDI Equipment: Macintosh computer MIDI system, Mark of the Unicorn Performer/Composer software, Opcode patch librarian, Digidesign Sound Designer software, Opcode Cue, Finale, hundreds of samples. Video Equipment: (3) recorder, (2) monitor Other: Roland SBX-80 sync box, Nanodoc

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# 24+ TRACK

STUDIOS

[24+] **PACIFIC MOBILE RECORDERS**; only **REMOTE RECORDING**; 2616 Garfield Ave.; Carmichael (Sacramento), CA 95608, (916) 483-2340. Studio Manager: Kat Coffey Hibbard.



**PARADISE SOUND RECORDING INC.**  
Index, WA

[24+] **PARADISE SOUND RECORDING INC.**; also **REMOTE RECORDING**; PO Box 63; Index, WA 98256; (206) 793-2614. Owner: Patrick Sample. Studio Manager: Karen Sample. Dimensions: Piano room 15 x 20 x 8, drum room 20 x 20 x 8, iso booth 12 x 5 x 8, control room 20 x 9 x 8. Mixing Consoles: Harrison MR4 32 x 24. Audio Recorders: Otari MTR-90 24-track, Otari MTR-12 2-track, Otari 5050 2-track, Revox B77 2-track, Sony 2-track digital mastering, dbx 2-track digital mastering. Cassette Recorders/Duplicators: Nakamichi, Yamaha, Otari, Echo, Reverb, & Delay Systems: Lexicon 200, Lexicon PCM60 reverb, Lexicon PCM41, AKG ADR-68K digital delay, Digitech 128 delay/reverb. Other Outboard Equipment: Aphex Compellor, dbx 163X comp/limiter, dbx 463X noise gates, Symetrix 511 noise reduction, Yamaha SPX90II, Eventide H3000 Harmonizer. Microphones: Neumann U89, Beyer M88, AKG 414, Sennheiser 421, (4) Sennheiser 421, (2) E-V PL20, (3) E-V PL76, Shure SM81, (2) Shure SM57, (2) Fender P-2, (4) E-V ND257, E-V ND357. Monitor Amplifiers: Haller P5050, Yamaha M80. Monitor Speakers: JBL 4411, E-V Century 100. Musical Instruments: Hammond B-3 organ w/Leslie, Yamaha DX7, Yamaha RX11 drum machine, Yamaha OX7 sequencer, Pearl drum set w/Zildjian cymbals, Mesa/Boogie amp, Marshall amp, Emulator II w/outstanding library, Roland S-50 sampler. Other MIDI Equipment: Roland MPU-401 MIDI processor controlled by IBM compatible w/Personal Composer software. Video Equipment: Lynx synchronizer. Rates: \$45/hr (package rates available). Specialization & Credits: Yes, it's true. Paradise Sound Recording is located in the Cascade Mountains, in the little town of Index, next to the North Fork of the Skykomish River—just a short distance from Seattle, Washington. Yes, we are building a new facility. It has been designed by one of the world's foremost acoustical engineers, with four isolation booths, a very large main recording room and a spacious control room designed with accurate monitoring, efficiency and comfort in mind. Well, yes! We are selling Time Packages to producers, sound engineers and bands from all over the country. Packages are available by the week or month for a five- or ten-year time period. No, we don't cut any corners. We believe in personal service for professional results. Please call for more details.

[24+] **PARADISE STUDIOS**; 1020 35th Ave.; Sacramento, CA 95822; (916) 424-8772. Owner: Arne Peterson. Studio Manager: Kirt Shearer, Craig Long. Engineers: Kirt Shearer, Craig Long. Dimensions: Room 1: studio 22 x 30, control room 22 x 16. Room 2: studio 14 x 10 (booth), Mixing Consoles: Amax TAC 32 x 8, Hill 16 x 4 Multimax. Audio Recorders: Sony/MCI JH-24 24-track (can be synced to 16-track), (2) Fostex B-16 16-track (can be synced together for 32 tracks or to the 24-track), Fostex E-2 2-track (30 ips) w/center SMPTE stripe, TEAC 3440 4-track w/dbx noise reduction. Cassette Recorders/Duplicators: (2) JVC TD-V66 w/Dolby B/C. Synchronization Systems: Fostex 4030 synchronizer w/4050 autocalcator. Echo, Reverb, & Delay Systems: Lexicon PCM70 effects processor with 1.2 and 3.0 software, Lexicon LXP1 effects processor with remote head, (2) Yamaha SPX90 effects processor, Yamaha REV7, Alesis XTC digital reverb, Roland



**PARADISE STUDIOS**  
Sacramento, CA

SDE 3000 digital delay, ART 01a digital reverb w/updates. Other Outboard Equipment: Aphex studio Dominator stereo peak limiter, (2) Drawmer DS-221 dual-channel noise gate, (3) Symetrix 522 dual-channel compressor/limiter/expander, Tascam PE-40 4-channel 4-band parametric EQ, Baurus-Berry BBE-202R phase compensator. Microphones: Telefunken Elam 251 tube mic, Neumann U87, (4) AKG 414 (EB and ULS series), (2) AKG 451, (2) Shure SM81 condenser, (3) E-V RE20, (3) Sennheiser 421, (5) Shure SM57, (2) Shure SM58, (4) Countryman direct box, (2) Boss DI-1 direct box. Monitor Amplifiers: Haller P-505, Haller P-225, McIntosh "60" tube amps. Carver M-400. Monitor Speakers: UREI 813A, Yamaha NS-10M "studio" near-fields, Auratone 5C Cubes. Musical Instruments: 1947 Baldwin 6'3" grand piano, 1967 Hammond B-3 organ w/Leslie model 122, Rogers 6-piece drum set w/Zildjian cymbals, Korg M-1 MIDI workstation, Yamaha DX7, Yamaha TX7, Memorymoog Plus analog synth with MIDI, Roland MT-32 module, E-mu SP-12 turbo sampling drum machine, Fender 73-key, Mesa/Boogie 100-watt guitar amp w/5-band EQ, Mesa/Boogie 4 x 12 cabinet w/E-V drivers, Mesa/Boogie 15" bass cabinet, AMP 400-watt bass amp, Fender 1962 Jazz bass. Other MIDI Equipment: Macintosh Plus computer w/Performer and Composer software; 6,000 sounds; for DX, TX stored on Opcode librarian/editor software; sample library and segment storage for SP-12 on Drumfile software; Fostex 4050 allows SMPTE/MIDI sync to tape for all MIDI equipment. Video Equipment: Audio-to-video SMPTE interlock (16- or 2-track). Rates: 2- to 16-track \$35/hr, 24-track \$45/hr, 32-track \$45/hr, 40-track \$50/hr.

[24+] **PARVIN'S STUDIO**; also **REMOTE RECORDING**; PO Box 16191; San Francisco, CA 94116; (415) 359-1853. Owner: Lee Parvin. Studio Manager: Lee Parvin.

[24+] **PEAKDESIGN**; 6114 La Salle Ave., Ste. 314; Oakland, CA 94611; (415) 531-5331; FAX: (415) 531-5332. Owner: Tony Miosz. Studio Manager: Joanna Rajska. Engineers: Tony Miosz, Stanislaw Krupowicz and freelance engineers. Dimensions: Integrated control room studio 18 x 40. Mixing Consoles: Dynamix D3000 32 x 8 x 16 (hot-rodded) w/automation, 500-point patch bay, miscellaneous submixers. Audio Recorders: Sony/MCI JH-24 24-track transferless w/Auto-lock III, Otari MX-5050 8-track ½" (hot-rodded), Sony PCM-501ES 2-track digital, Otari MX-5050 2-track ¼", Echo, Reverb, & Delay Systems: (2) Roland SRV-2000, Yamaha SPX90, (2) Yamaha R1000 (for gating), (3) DeltaLab Electron 1024, Korg SDD-1000 (modified), (2) custom springs, ADA flanger, Wavemaker phaser, Ibanez analog delay, misc effects and any other processing equipment available on request. Other Outboard Equipment: Cyclocosmic FS1 2-channel, 3-dimensional panner w/sync, Orban, Tascam, Advent, DOD equalizers, Aphex Exciter, Dynaflex noise reduction, Orban, dbx compressors, GateX 4-channel noise gate (modified), Roland SBX-80 SMPTE sync, Roland and Yamaha sequencers, (4) IBM PC/AT computers w/all major software for sequencing, editing, notation printout and librarians, Atari Mega-4 w/Notator and other not systems. We design custom gear/software as needed. Spectrum analyzers, scopes and misc equipment. Any other processing equipment available on request. Microphones: Beyer MC-740 N(C), P2M, Sennheiser, Sony and other misc. Monitor Amplifiers: Yamaha. Monitor Speakers: Calibration standard instruments, MDM-TA2 Time Aligned, JBL, Atec Lansing. Musical Instruments: Yamaha TX816, (2) Yamaha DX7, (2) Akai sampler, (2) E-mu Drumulator w/custom chips and MIDI, Alesis, HR-16, Kawai, Roland, Oberheim, Sequential Circuits-VS, Moog synths, Fender tube Twin Reverb amp, grand piano, Fender P-bass, Gibson ES-335. Many other instruments available on request. Video Equipment: ½" Beta and VHS w/SMPTE sync, PCM/Beta Hi-Fi dubbing and transfers, ¾" equipment available on request. Soundtrack composition and production to existing or planned video/film pieces. Overloaded? We handle partial subcontract work. Rates: Competitive rates include all gear and knowledgeable engineers. \$50-\$100/hr. Call for details.

## THE *Plant* RECORDING STUDIOS

**THE PLANT RECORDING STUDIOS**  
Sausalito, CA

[24+] **THE PLANT RECORDING STUDIOS**; also **REMOTE RECORDING**; 2200 Bridgeway; Sausalito, CA 94965; (415) 332-6100. Owner: Bob Skye, Arne Frager. Studio Manager: Alice Young. Engineers: Arne Frager, Stuart Hirotsu, Bob Skye, Devon Bernardoni, Tom Sadzeck, Rob Beaton, Mark Paul (chief tech). Dimensions: Room 1: studio 32 x 25, control room 23 x 21. Room 2: studio 32 x 25, control room 23 x 21. Room 3: studio 15 x 17, control room 18 x 28. Room 4: studio 8 x 12, control room 18 x 27. Mixing Consoles: (2) Trident TSM 40 x 32, Trident 80B 32 x 24, DDA AMR 24 36 x 24, Sound Workshop Series 30 32 x 24. Audio Recorders: (3) Studer A80 24-track, (2) Otari MTR-90II 24-track, (4) Ampex ATR-102 2-track, Sony APR-5003 2-track. Cassette Recorders/Duplicators: (4) Aiwa F-770, (4) Yamaha KX-800, Tascam 122B. Noise Reduction Equipment: Dolby M-24 w/ Dolby A, (14) Dolby 361 rack w/Dolby A, (4) Dolby 280 SR cards. Synchronization Systems: (2) Adams-Smith Zeta-3 w/remote, Otari EC-101, Fostex 4030/4010. Echo, Reverb, & Delay Systems: AMS RMX-16 reverb, (4) Klark-Teknik DN780 reverb, (4) EMT 140 plate, Sony DRE-2000 reverb, Lexicon 224 reverb, Lexicon PCM60 and PCM70, (4) Yamaha SPX90, (9) digital delays (Roland, ADA, Bel, DeltaLab). Other Outboard Equipment: Pultec EQP-1A3, MEQ-5, EOP-1, equalizers, Aphex Compellor, Dominator, Aural Exciter, Orban 424A, 526A, 622B, Lang PEO-2 equalizers, Teletronix LA-2A compressor/limiter, UREI LA-2, LA-3, 1176, 1176LN, Universal Audio Fairchild, RCA, tube limiters, UREI 550, 530, 555, 545, 565, API 550 and 550A equalizers, Valley People gates, Drawmer gates, Biamp gates. Microphones: Telefunken Elam 251; Milab VIP-50, AKG C-460, C-414, 414EB, 452EB, 451E, D-12E, C-24, C-61, C-535EB; Shure 546, SM53, SM56, SM57, SM7; Neumann U47 tube, U47 FET, U67, U87, KM56, KM76, KM84, M-49, U89; Sony C-38, ECM-54, C-500, Countryman Isomax, Crown P2M; Sennheiser 431, 421, 441, 211; Electro-Voice 635A, 666, RE-20, RE-15; Altec 633A; Beyer M88; RCA 77-DX, 44-BX; Audio-Technica AT816/2. Monitor Amplifiers: (6) Haller, (5) Crown, Yamaha, Phase Linear, McIntosh. Monitor Speakers: (3) Westlake pairs, Yamaha NS-10, UREI 811A, Calibration Standard MDM-4, JBL 4311, Altec 604. Musical Instruments: Synclavier system w/Mac II control terminal, release "O" software, 8-channel direct-to-disk system, Kurzweil 250, Korg Poly-800, Oberheim Matrix-12, Roland D-50, D-550, GK-1, GM-70, GP-8, MKS-20, MPG-80, Octapad, PG-1000, SVC-35, Yamaha DX7IID, KX88, TX216, (2) Marshall JCM-800 GTR amp, Hammond B-3 w/Leslie, (2) Yamaha C7 piano, Steinway 7' grand piano. Other MIDI Equipment: Macintosh Plus w/155MB HD, Mac II, Axxess mapper, Jam Box/4, J.L. Cooper, Roland MPU-103 and 104. Software: Finale, O-Sheet, Turbosynth, Total Music, Master Tracks Pro, Performer 2.3, Cue. Video Equipment: Sony 8550 ¾" video deck, Hitachi VHS Hi-Fi VCR, Sony Beta Hi-Fi VCR, JVC CR850LC ¾" video deck, Sony 13" color monitor, Panasonic NV-9 and 9" color monitors, Ikegami 9" monitor. Other: (2) Dyaxis disc recording system, Synclavier system with Mac II control terminal, release "O" software, 8-channel direct-to-disk system, PCM-F1. Specialization & Credits: The Plant Recording Studios recently celebrated its 16th birthday. Our studios combine the warm charm of Sausalito and Marin County with the finest in recording equipment and services for the San Francisco Bay Area. We have recently opened our newest studio featuring Dyaxis and Synclavier Direct-to-Disk recording systems, Macintosh II, with multi-format synchronization and picture-lock for record, video and film producers desiring to work in a studio with all the important synthesizers, signal processing and recording systems available in a comfortable studio. The combination of our family of staff for support, vintage equipment (we have the largest collection of tube microphones, limiters and Pultec EQs in the Bay Area), and availability of any format from analog 24-track (Studer and Otari) to digital 24-track and/or 32-track (Sony and Mitsubishi) to tapeless direct-to-disk digital, provides our clients the tools needed to meet their technical and budget needs. Join the ranks of our legendary clients who have come to The Plant to record gold and platinum LP's that have become pop classics such as: Fleetwood Mac's

—CONTINUED ON NEXT PAGE

# *Why this publication and more than 1,300 others let us go over their books once a year.*

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## 24+ TRACK

STUDIOS

—CONTINUED FROM PREVIOUS PAGE

Rumours, Stevie Wonder's *Songs in the Key of Life*, John Fogerty's *Centerfield*, Huey Lewis' *Sports*, Jefferson Starship's *Knee Deep in the Hoopla*, and Aretha Franklin's *Who's Zoomin' Who*.

[24+] **POINT BLANK RECORDING**; 19 Locke Way, Scotts Valley, CA 95066; (408) 438-2331. Owner: Rick Chaisse, Robert Crow. Studio Manager: Rick Chaisse

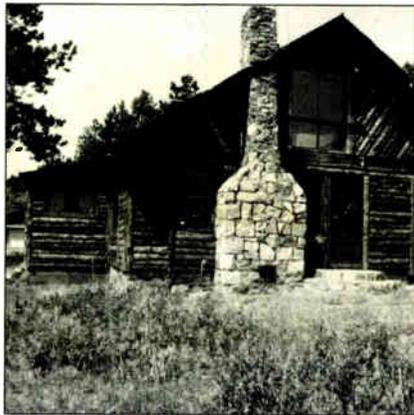


**PRAIRIE SUN RECORDING**  
Cotati, CA

[24+] **PRAIRIE SUN RECORDING**; PO Box 7084, Cotati, CA 94928; (707) 795-7011. Owner: Mark "Mooka" Rennick, Cliff Buck Kaufman. Studio Manager: Steve Buck.

[24+] **PROFESSIONAL SOUND & RECORDING, INC.**; only **REMOTE RECORDING**; 3100 W. 71st Ave., Westminster, CO 80030; (303) 426-7819. Owner: Chris Mickle. Studio Manager: Phil Crumrine. Engineers: Chris Mickle, Mickey Houlihan, Kevin Clock, Phil Crumrine. Mixing Consoles: Soundcraft 1624 24 x 24, Rowland Research Audiophile 8 x 2. Audio Recorders: (2) Stephens 821B 16/24-track, (2) Nakamichi DMP-100 PCM 2-track digital, Revox PR-99 2-track. Cassette Recorders/Duplicators: (12) TEAC V-2RX real-time, Pentagon C-4322 high-speed Echo, Reverb, & Delay Systems: Lexicon PCM60, Yamaha REV7, Yamaha SPX90II, DeltaLab ADM-1024. Other Outboard Equipment: (2) dbx 160X compressor, (2) Symetrix 501 comp/limiter, (2) Symetrix 522 gate/limiter, dbx 900 rack, (2) parametric EQ, (4) compressor, (3) gate, BBE 202R, (2) Dorrugh meter, any outboard equipment available on request. Microphones: (2) AKG C-414EB, (2) AKG C-451 w/shotguns, Schoeps CMTS 301 stereo, E-V RE20, AKG C-33 stereo, (4) Schoeps CMC-3, (2) Sennheiser MD-421U, (3) Shure SM81 Monitor Amplifiers: Intersound SP-300, Halfer DH-200, Rowland Research model 5. Monitor Speakers: B&W DM100, Spica TC-50, Yamaha NS-10, JBL Control 1, E-V Sentry 100. Other: Full audio-for-video services, Clear-Corn system, stage cameras and video monitors, all internal wiring is Mogami Neglex, audio AC circuit is transformer-isolated and maximum draw of all AC circuits is 15 amps or less. Rates: Available upon request.

[24+] **"THE RANCH"**; 15849 Stump Rd., Westcreek, CO 80135; (719) 687-9531. Owner: Flash Cadillac. Studio Manager: Duane Scott. Engineers: Duane Scott, Sam McFadin, Linn Phillips, Dan Berthelot. Dimensions: Room 1 studio 20 x 20, control room 18 x 16. Drum room 10 x 10, piano room 18 x 10, iso booth 25 x 8. Mixing Consoles: Sony MXP-3036 36 x 36, 4-band parametric EQ, 6 cue sends, optional E.O. L.C. type MXBK-EQ34, CAF 3000 fader automation system, dbx VCA system. Audio Recorders: MCI JH-24 24-track, MCI JH-110C 2-track 1/2" headstack w/Dolby SR, MCI JH-110B 4/2-track. Cassette Recorders/Duplicators: Technics RSB100 cassette recorders. Noise Reduction Equipment: Dolby SR. Synchronization Systems: Lynx system. Echo, Reverb, & Delay Systems: Lexicon 224, Yamaha SPX90II, Yamaha REV7, Lexicon PCM70, Alesis MIDiverb II, Harmonizer 910/949, (2) Lexicon PCM42. Other Outboard Equipment: dbx 165A overeasy, dbx 160X, dbx noise gate, LA-2A tube limiter, 1176 limiter, rack-mounts, Ibanez multi-effects, Hush II, Sontec stereo parametric EQ. Microphones: AKG, Neumann, Sennheiser, Shure, Sony, Beyer, AKG tube mics, Neumann tube mics. A complete selection of microphones is available at The Ranch. Monitor



**"THE RANCH"**  
Westcreek, CO

Amplifiers: Meyer MS1000 amps, Spectra Sonics 70" series Monitor Speakers: Meyer 833 sound monitor system, Yamaha NS-5T, Visonik David 7000, JBL 4333A (studio). Musical Instruments: Roland electronic drums, DDR 30 MIDI, Alesis drum machine, Linn drum machine, acoustic drums (two full sets), 1930 Mason Harlan acoustic grand piano, church pump organ, Hammond with Leslie, Leslie speaker with all JBL components, Sho-Bud pedal steel, Casio M6510 MIDI guitar, Korg with TX rack, (2) Yamaha DX7, Fender amps, Vox amps, Marshall amps, Gibson acoustic Hummingbird, Gibson acoustic 2-50, Martin acoustic D28, Rickenbacker 6- and 12-string guitars, 1950 Fender Broadcaster, 1957 Fender Gretsch, Dean Bel-Air with Floyd Rose tremolo, Mosrite 12-string w/tremolo, Jacksons. Other MIDI Equipment: IBM-compatible (AT) system, Roland S-550 digital sampler, J.L. Cooper MIDI patch bay, Patch Master Plus, Sequencer Plus Mark III Version 2.0. Video Equipment: Available upon request. Other: Flash and the kids have more equipment available than you can believe. Rates: \$1,000 a day (lodging included). Specialization & Credits: Located at the base of Pikes Peak, just 30 minutes from Colorado Springs, 90 minutes from Denver, on 120 secluded acres you will find Flash Cadillac's Ranch and Recording Complex. The Ranch blends computerized high-technology with vintage acoustic and electric instruments. The Ranch caters to all musical styles from down-home bluegrass to dance. The Ranch's vaults contain a volume library of classic rock and roll songs from the '50s through the '80s for your film, video or commercial needs. In-house producer is also available from a qualified and talented team. Relax in the beautiful surroundings of The Ranch, fish in the trout ponds shoot some hoops or just escape into the woods. Lodging is provided in a 2-story, 6-bedroom rustic ranch house, complete with moss-rock fireplace, nuclear kitchen and satellite big-screen TV. The studio and lodging are yours 24 hours a day. No outside interruptions unless you need to get to Denver or the Springs. Meanwhile, back at The Ranch... don't forget about Fun Island and that cold bottle of champagne. Come on out!

[24+] **THE RECORDING STUDIO, INC.**; 1016 Morse Ave., #17; Sunnyvale, CA 94089; (408) 734-2438. Owner: The Recording Studio, Inc. Studio Manager: Scott Smith, Doug Hoping. Engineers: Scott Smith, Kai Gilbert, Doug Hoping, Lare Garcia, Kevin Casey. Dimensions: Room 1 studio 15 x 12, control room 21 x 14.5 x 12. Room 2: studio 8 x 10 x 12. Room 3: studio 12 x 15 x 8. Mixing Consoles: TAC/Amek Matchless 20 x 24 x 8 x 2, Roland CPE-800 compu-editor (16-track digital automation). Audio Recorders: MCI JH-116 24-track, Otari 5050B 2-track, TEAC A-3340S 4-track. Cassette Recorders/Duplicators: (2) Sony TC-K44ES2, JVC KD-D4 Echo, Reverb, & Delay Systems: Lexicon 200 digital reverb, Roland SRV-2000 digital reverb, Ecoplate III plate reverb, Lexicon Prime Time DDL, Lexicon PCM41 DDL, Yamaha SPX90 multi-effects processor, Eventide 910 Harmonizer, MXR flanger/doubler. Other Outboard Equipment: UREI LA-4 compressor, dbx 160X compressor, dbx 161 compressor. Symetrix 522 noise gates, Symetrix SG-200 noise gates, Barcus-Berry Electronics exciter, EXR exciter. Microphones: AKG, E-V, Neumann, RCA, Sennheiser, Shure, Sony. Monitor Amplifiers: Halfer, BGW. Monitor Speakers: JBL 4430 Bi-Racial, Yamaha NS-10, Auratone. Musical Instruments: Kawai 6'1" grand piano, Emulator II HD, Yamaha DX7, E-mu SP-12 drum machine, LinnDrum drum machine w/extensive chip library, Roland D-50, Roland Octapad. Other MIDI Equipment: Aka-600 sampler w/extensive sample library. IBM AT computer. Rates: Please phone for rates. Weekend specials available.

[24+] **R.O. STUDIOS**; 3359 Walnut Ave., Concord, CA 94519; (415) 676-7237. Owner: The Henry Bros. Studio Manager: Ralph F. Henry Jr.

[24+] **ROSEWOOD REC. CO.**; 2288 W. 300 North; Provo, UT 84601; (801) 375-5764. Owner: Rosewood Rec. Inc. Studio Manager: Kristen Randle.

[24+] **RUSSIAN HILL RECORDING**; also **REMOTE RECORDING**; 1520 Pacific Ave., San Francisco, CA 94109; (415) 474-4520. See *Our Ad in the BusinessPages!* Owner: Jack Leahy, Bob Sholland. Studio Manager: Gail Nord. Engineers: Jack Leahy, Sam Lehmer, Jeff Kliment, Gary Clayton. Dimensions: Room 1: studio 20 x 30, control room 15 x 24. Room 2: studio 18 x 28, control room 13 x 22. Room 3: studio 12 x 14. Room 4: studio 12 x 14. Mixing Consoles: SSL 4040E 32 x 32, NEOTEK Series III 28 x 24, Soundcraft 600 24 x 16, Sony FT 8 x 2. Audio Recorders: (3) MCI JH-24 24-track, (4) MCI JH-110 2/4-track, (2) Technics 1506 2-track, (2) Fostex E-16 16-track, Fostex E-22 3-track, Sony DAT recorder. Cassette Recorders/Duplicators: (2) Aiva, Tascam Noise Reduction Equipment: Dolby A 24-track, Dolby B 6-track, Dolby SR available. Synchronization Systems: (2) Q.Lock 3.10 (3-machine), Kelly Quan 610 (4-machine), Fostex 4035 Echo, Reverb, & Delay Systems: EMT plate, (2) Lexicon 224, (4) Lexicon PCM-70, (2) Lexicon PCM60, (2) Lexicon Prime Time, other various delays and reverbs available. Other Outboard Equipment: Anything currently available, if not in house, we'll rent it. Microphones: Full complement, Neumann, AKG, RCA, E-V, Sony, Sennheiser, Crown, Shure, Countryman, etc. Monitor Amplifiers: Halfer, McIntosh, QSI. Monitor Speakers: UREI 813 TA, JBL 4311, Yamaha NS-10, Auratone. Musical Instruments: Steinway grand, Yamaha grand, E-2, DX7, various synths. Other MIDI Equipment: Macintosh-driven systems, various MIDI interfaces. Video Equipment: All studios equipped for sync A/V work. Film-to-tape transfer suite, all formats big-screen projection studios, A and B. Other: KEM K-800 six plate and full bench, mixing to all film release formats, mono to 6-track on custom SSL in studio A. Rates: Brochure on request.

[24+] **SAGE RECORDING**; also **REMOTE RECORDING**; Littlefield Farm; 14311 Stehr Rd.; Arlington, WA 98223; (206) 691-5203. Owner: Edmund W. Littlefield, Jr. Engineers: Ed Littlefield, Jr. (owner), Ed Brooks, Paul Speer, Matthew Sutton, Danny Wheatman. (Other qualified engineers are welcome.) Dimensions: Studio 25 x 35 x 10, control room 12 x 12.5 x 8. Mixing Consoles: Sony MXP-3036 with Sony hard-disk automation system. Audio Recorders: Sony PCM-3324 digital 24-track with Apogee filters, Sony PCM-3202, Sony/MCI JH-24-16 16-track, Sony/MCI JH-112. Cassette Recorders/Duplicators: (4) Nakamichi MR-1 Echo, Reverb, & Delay Systems: Lexicon 480L, Ursa Major 8 x 32 MkII, Lexicon PCM70, (2) Lexicon 41, Lexicon Prime Time. Other Outboard Equipment: (2) UREI Teletronix LA-2 limiter, (2) UREI Teletronix LA-3, (2) UREI 1176 peak limiter, (2) API EQ, (2) Gain Brain, Aphex Compeller, (4) Kepex noise gate, (2) Jensen-Hardy mic pre-amp, Klark-Teknik spectrum analyzer, (2) Yamaha DE07 digital EQ. Microphones: (6) Bruel & Kjaer 4003 (3 matched pairs), (2) Bruel & Kjaer 4004, (2) Bruel & Kjaer 4006, (2) Bruel & Kjaer 4007, (2) Neumann TLM-170, (2) Schoeps (one pair of cardioid capsules, one pair of hyper-cardioid), AKG "The Tube", (2) Countryman Isomax (omni), (2) Countryman Isomax (cardioid), Fostex stereo mic, (4) Sennheiser 421, (2) Sennheiser 441, (2) Beyer M500, RCA 77-DX. Monitor Amplifiers: (4) Yamaha PC2002, (3) Yamaha PC1002, (2) UREI Monitor Speakers: Studio: custom built by Nial Nestorovic, control room: Tannoy, MDM-20, Westlake Audio, Auratone. Musical Instruments: Yamaha KX88 MIDI keyboard, Emax, SP-1200, Yamaha DX7, Steinway 9" "D" (1982), Steinway 7" "B" (1914), (2) custom cut-away, flat-top acoustic guitars by Robert Gordis, custom classical guitar by Robert Gordis, Dobro (custom 6-string, rigged for slide), Gibson F-4 mandolin (early 1900s), Martin 0-18 (German spruce top), Sierra pedal steel guitar (single neck, 14-string), Alembic Series II electric bass (4-string, short scale), Alembic series II electric guitar, Slingerland "Maybelle" 5-string banjo (1930s), Matlin "Telecaster" with Parson-White string-bender, Mesa/Boogie Quad pre-amp, Mesa/Boogie Mark II Simulclass, fully loaded, Quo cabinet, 12" EVM, 200-watt speaker, Mesa/Boogie 15" enclosed speaker cabinet with 15" EVM, 400-watt speaker, Mesa/Boogie Theil with 12" EVM, Mesa/Boogie matched pair of open-back Quo cabinets, with 15", 400-watt EVM speakers. Video Equipment: (4) Belamax. Other: Nagra IV-s, (3) Sony PCM-F1, Sony PCM-601, Denon turntable, Denon CD player, Apple Macintosh Plus with Laser Writer II, darkroom based around Bessler automated color print processor and Bessler automated 4 x 5 enlarger. Very wide assortment of Nikkor, Leitz, Schneider, Zeiss lenses (16mm through 500mm). Deardorf, Hasselblad, Nikon, Leica cameras. Specialization & Credits: Sage Recording is located on Littlefield Farm on the South Fork of the Stillaguamish River, an hour's drive north of Seattle. We provide a beautiful, relaxed, peaceful environment that is conducive to the production of recordings of the highest quality. Studio has view of Deer Mountain. Deer, quail, bunnies and assorted forest critters can also be seen from the studio. Traditional music is one of our specialties. Write or call for more information. Credits include: *First Generation*, Bertram Levy & Peter Ostroshko; *New Melody Stamp*, How's Bayou; *Box Lunch*, Sandy Bradley & The Small Wonder String Band; *Desert Visions*, Paul Speer & David Lanz; *Haunting Melodies*, Marley's Ghost; *Sweet Rural Shade*, Boys of the Lough; *Moose On The Roof*, Norrskan; *Timepieces*, Larry Edelman; Seattle Symphony Chorale; Tim Noah.

[24+] **SAN FRANCISCO CONSERVATORY OF MUSIC**; also **REMOTE RECORDING**; 1201 Ortega St.; San Francisco, CA 94122; (415) 564-8086. Studio Manager: Lolly Lewis. Specialization & Credits: The San Francisco Conservatory of Music's Hellman Hall is a 330-seat performance hall with an adjoining

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recording facility. Capable of 2- and 4-track recording, Hellman Hall is ideal for live solo or ensemble recording. Call for details.

[24+] **SAVAGE STUDIOS**, 372 Brannan St.; San Francisco, CA 94107; (415) 546-1374. Owner: Fun Productions, Inc. Studio Manager: Steve Savage. Engineers: Kevin Casey, Brian Risner, John Nowland. Dimensions: Studio 21 x 20, control room 22 x 20. Mixing Consoles: Solid State Logic Series 4040E w/ G Series computer. Audio Recorders: Otari MTR-90 24-track series II with locator, Otari MTR-12 2-track with 1/2" heads, Otari MTR-10 2-track with 1/4" heads and center-track time code. Cassette Recorders/Duplicators: (2) Nakamichi MR-2 cassette recorder. Synchronization Systems: EC101 synchronizer for MTR-90, Adams-Smith synchronizer for JVC CR8250, Opcode Time Machine SMPTE and MTC reader/writer. Echo, Reverb, & Delay Systems: Lexicon 480L reverb, Lexicon 200 reverb, Yamaha REV5, Yamaha REV7, Lexicon PCM70, (2) Lexicon PCM42. Other Outboard Equipment: Eventide H3000 Ultra-Harmonizer, Teletronix LA-2A, Aphex 612 stereo noise gate, Drawmer DS-201 stereo noise gate, (2) Focusrite mic preamp, (2) Pultec EOP-1A, (2) UREI LA-4A. Microphones: Neumann M49, AKG C-12, (2) Neumann U87,



a division of fun productions, inc

SAVAGE STUDIOS  
San Francisco, CA

(2) AKG 414, (2) AKG 451, (6) Sennheiser 421, (2) Neumann KM84, E-V RE20, (2) Sennheiser 406, (2) Shure SM57, (2) Beyer M69. Monitor Amplifiers: Crown PS-400, Crown PS-200, Crown D-75. Monitor Speakers: Meyer 833 studio monitors, JBL 4411, Yamaha NS-10M. Musical Instruments: Kurzweil K-1000 grand piano and samples, Roland D-50, Akai S900 sampler with trigger inputs, Yamaha DX7IID, Yamaha RX11 drum machine. Other MIDI Equipment: Macintosh SE computer, Opcode Studio Plus Two MIDI interface, Performer and other sequencing and librarian software. Video Equipment: JVC CR8250 3/4" video recorder, JVC 25" video monitor. Rates: Please call for rates. Specialization & Credits: Savage Studios is a newly constructed recording facility designed to satisfy the needs of the contemporary recording process. Construction features a spacious control room and the finest in modern audio design concepts including variable studio acoustics. The 24-track facility also features the finest in audio gear centered around the SSL 4000E console with Total Recall, as well as complete video posting capabilities. The studio is located in the thriving South of Market district of San Francisco and includes easy street-level access and a comfortable lounge. Package rates including living quarters are available for out-of-towners.

[24+] **THE SITE**, PO Box 2057, San Rafael, CA 94912; (415) 662-2046. Owner: Richard Mithun. Studio Manager: Richard Mithun.

[24+] **SOUND IMPRESSIONS**, 4704 SE View Acres, Portland, OR 97267; (503) 659-8047. Owner: Dan Decker. Studio Manager: Bob Stark. Engineers: Bob Stark, Nick Kellogg, Kelly Berry, Tony Lash. Dimensions: Studio 22 x 24, control room 18 x 20. Mixing Consoles: Anek Matchless 26 x 8 x 2. Audio Recorders: Otari MX-80 24-track, 3M 79 Series 24-track, Tascam 52 2-track. Cassette Recorders/Duplicators: Nakamichi MR-1. Echo, Reverb, & Delay Systems: (2) Lexicon PCM-70, (2) Yamaha REV7, Ibanez SDR-1000, Roland SDE-3000, Eventide H3000 Harmonizer, (2) DeltaLab Effectron, Lexicon PCM41. Other Outboard Equipment: (5) Symmetrix compressor/limiter, Aphex Compellor, (2) Symmetrix Quad gate/expander, Audio Logic Quad gate, Orban 672A equalizer, Orban 622B parametric equalizer, Aphex Type B Aural Exciter, Aphex Aural Exciter, UREI 527A graphic EQ. Microphones: AKG Tube, (2) AKG 451, Sony ECM-50, (7) Shure SM57, (6) Audio-Technica 63, E-V RE20, AKG D-12E, (2) AKG 320, and much more. Monitor Speakers: UREI 813, Yamaha NS-10M, Auratones. Musical Instruments: Yamaha C3 grand piano, Yamaha DX7, Oberheim Matrix-6R, Korg DW-8000, Prophet-5, Sequential Drumtrax, Fender Telecaster, Fender J-bass, Fender P-bass. Other MIDI Equipment: Yamaha YME8, Multitech PC with 48-track PC software. Rates: Call now.

[24+] **SOUND RECORDING ORGANIZATION S-R-O**, also **REMOTE RECORDING**; 1336 Mission St.; San Francisco, CA 94103; (415) 863-0400. Owner: S-R-O Inc. Studio Manager: D. Dobkin.

[24+] **SOUNDTEK STUDIOS**, also **REMOTE RECORDING**; 85 S. 2nd St.; Campbell, CA 95008; (408) 370-3313. Owner: Robert Berry. Studio Manager: Peter Roberts.

[24+] **THE SOURCE STUDIO**; 2423 Magnolia St.; Oakland, CA 94607; (415) 421-6262. Owner: Magnolia Management Studio Manager: John Feraday.

[24+] **SPECTRUM SOUND STUDIOS**, also **REMOTE RECORDING**; 1634 SW Alder St.; Portland, OR 97205; (503) 248-0248. Owner: Michael Carter, Lindsey McGill. Studio Manager: M. Carter. Engineers: M. Carter, Chris Douthitt, Jim Baer, Rob Perkins, Mike Moore, Jeff Dennerline, Jim Rogers. Dimensions: Room 1: studio 38 x 30, control room 25 x 23.

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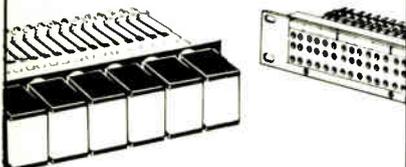
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**24+ TRACK**  
STUDIOS

—CONTINUED FROM PREVIOUS PAGE



**SPECTRUM SOUND STUDIOS**  
Portland, OR

Room 2: studio 27 x 19, control room 21 x 22. Room 3: studio 17 x 16, control room 20.5 x 22. Room 4: studio 11.5 x 17, control room 20.5 x 22. Scoring suite 20.5 x 22. Mixing Consoles: Solid State Logic SL6056E-TR 40 x 32, MCI JH-536 36 x 32 automated, (3) Spectrum Studios Inc. 16 x 8. Audio Recorders: (2) Otari MTR-90 MkII 24-track, Mitsubishi X-86a 2-track w/Apogee filters, Ampex ATR-102 3-track CTC, (2) Ampex ATR-104/102 2/4-track, (18) Scully 280B 4/2-track and monos. Cassette Recorders/Duplicators: (14) Tascam 124AV, (2) Nakamichi LX-5, (2) Tascam 133AV, (5) Technics RS B605. Noise Reduction Equipment: (2) Dolby M24h, (4) Dolby 361 w/Dolby A, (2) Dolby SR, (3) dbx 187, (7) dbx 180, (2) dbx K9. Synchronization Systems: Audio Kinetics Q.Lock 3.10, Lynx TimeLine. Echo, Reverb, & Delay Systems: Lexicon 224XL, (2) Lexicon PCM70, Lexicon Prime Time II, Eventide H910, Eventide H949, Eventide Flanger, (4) Yamaha REV7, (2) Yamaha SPX90, Ursa Major Space Station, EMT 240TS plate, AKG BX-20, Lexicon PCM70. Other Outboard Equipment: (3) ADR Vocal Stresser, (2) Barcus-Berry Electronics: 802 exciter, (5) dbx 160/162/166, (4) Roger Mayer noise gate, Orban 622B, Orban de-esser, (5) UREI LA-3A comp/limiter, (2) UREI 1176 comp/limiter, UREI Little Dipper, (3) Valley People Gain Brain. Microphones: Neumann TLM-170, Neumann U47 FET, Neumann U87, Neumann KM84, Neumann KMR81i, AKG C-414, AKG C-451 and others, Shure SM57, Shure SM54, Sennheiser MD-421, Sennheiser 815T, RCA 77-DX, Trams. Monitor Amplifiers: (2) UREI 6500A, (6) Yamaha PC2002, (4) Yamaha PC1002, (4) Yamaha PC2075. Monitor Speakers: (4) UREI 813C (A & B), (4) UREI 81-C (C & D), various Auratones, Yamaha NS-10/NS-20, Tannoys Musical Instruments: Yamaha 7' grand piano, G7 74". Other MIDI Equipment: Akia S950 W/MX73. Video Equipment: Sony BVH-1100a 1" Type C VTR w/Dolby NR, (2) Sony KV-25XB monitor, 3/4" and 1/2" machines, complete DA system, monitor ng and patching. Other: Nagra IV STC, Nagra 4.2L, complete location recording kit including Sennheiser, Neumann & Cete Vega wireless mics, 16mm reproducers/tubbers. Rates: Weekly lockout and block time available. Prices on request. Specialization & Credits: New facility. One of the quietest studios in the world. Measured noise floor NC-8. Joiner-Rose Group designed rooms. Five-room recording complex. 18' ceilings create an ambience that must be experienced. Large control room offers extremely accurate imaging. Central tech room handles all power, grounding, amplification, video, audio and MIDI between studios. In exceptiona Portland.

[24+] **STAR TRACK RECORDING**; 19351 23rd NW, Seattle, WA 98177; (206) 542-1041; (206) 745-1427. Owner: Bob Long, Richard Eaks. Studio Manager: Richard Eaks.

[24+] **STARLIGHT SOUND**; also REMOTE RECORDING; 617 S. 13th St., Richmond, CA 94804; (415) 233-7140. Owner: Bill Thompson, Neil Young. Studio Manager: Kay Ar buckle. Engineers: Bill Thompson, Steve Counter, Jamie Bridges, Kay Ar buckle. Dimensions: Studio 44 x 28, control room 28 x 28, iso/piano booth 18 x 28. Mixing Consoles: Harrison 40/32 40 x 32 w/Allison 65k automation. Audio Recorders: Studer A800, Ampex ATR-102 2-track w/1/2" and 1/4" headstacs, Otari 5050B 2-track, Sony F1 2-track digital. Cassette Recorders/Duplicators: Nakamichi MR-1, Nakamichi MR-2. Synchronization Systems: Yamaha FSK sync-MIDI, Roland SDX-80 SMPTE-MIDI, Echo, Reverb, & Delay Systems: Lexicon 224X digital reverb, Lexicon PCM70, Lexicon PCM60, Yama-

ha SPX90 digital reverb, Roland DEP-5, Alesis MIDiverb, MIDI FX, (2) Efectron DDL, Lexicon PCM42 DDL, Roland SDE-1000 DDL, MXR flanger/doubler, 910 Harmonizer. Other Outboard Equipment: (2) Dyna-Mite noise gate, (2) Drammer noise gate, (3) Symetrix noise gate, (2) Audioarts parametric equalizer, (2) Biamp graphic EQ, (2) EXR exciter, (3) UREI 1176 comp/limiter, LA-3 limiters, Rocktron power play GTR FX. Microphones: (2) Neumann KM250 tube, Neumann KM69 stereo tube, Neumann U87, Neumann U47 tube, Neumann U47 FET, (2) AKG 414, (4) Sennheiser 421, E-V RE20, RCA 77 ribbon, (4) Beyr M160 ribbon, (4) Shure SM57. Monitor Amplifiers: Bryston, Halfer, Crown, Yamaha. Monitor Speakers: UREI 813 Time Align w/custom subwoofer (non-EQed), Yamaha NS-10, Auratone. Musical Instruments: Yamaha DX7, Yamaha DX100, Prophet-2000 sampling keyboard, Oberheim Matrix-6, LinnDrum, Akai 612 sampler, Rogers drum kit, Roland Pad-8 Octapad, Simmons sampler and EPROM blower, Columbia congas, Yamaha C7 concert grand piano, various guitar amps, Marshall, Boogie, Vox, Fender, Akai AX73 sampling keyboard. Other MIDI Equipment: Atari 1040ST computer w/Steinberg sequencing software and visual patch editors for the DX7, DX100, Oberheim M-6 and Prophet-2000. Rates: Call for rates and studio tour.

[24+] **STARSOUND AUDIO, INC.**; 2679 Oddie Blvd; Reno, NV 89512; (702) 331-1010. Owner: Scott Bergstrom. Studio Manager: Lee Taggart. Engineers: Mark Ishikawa, Scott Bergstrom, Dave Jensen, Lee Taggart. Dimensions: Studio 35 x 30, (3) iso rooms 8 x 14, 7 x 10, 8 x 16; control room 15 x 25. Mixing Consoles: Amek Angela 28 x 24, CPE-800 RSS mix-down computer. Audio Recorders: Studer A80 24-track, Otari MkIII-2 2-track, Tascam 52 2-track. Cassette Recorders/Duplicators: Yamaha C200. Echo, Reverb, & Delay Systems: Lexicon PCM70, Lexicon PCM60, Yamaha REV7, Yamaha REV5, (2) Yamaha SPX90, Roland SRV-2000, Roland SDE-3000, (2) DEP-5 Brick Audio 3300 plate, DeltaLab CPE-1700. Other Outboard Equipment: Aphex II broadcast, Aphex C (mod), UREI LA-4, dbx 166, Valley People Dyna-Mite, Symetrix 522, Orban 674A parametric, Roland Vocoder, Dimension D, dbx 503. Microphones: AKG 414EB, AKG 460, AKG 451, AKG 330, Sennheiser 441, Sennheiser 421, Sennheiser 431, Sennheiser 409, Sennheiser 211, E-V PL20, E-V RE20, E-V RE15, E-V RE18, Shure SM56, Shure SM57, Shure SM81, Shure SM85, Sony C-37, PZM, Countryman 101. Monitor Amplifiers: Crown PSA-2, Crown DC-300, Yamaha PC2002, Crown PS-400. Monitor Speakers: JBL 4333, JBL 4435, JBL 4425, JBL 4411, Auratone 16, Auratone 5C, Yamaha NS-10. Musical Instruments: Large set Fibes drums, Simmons, Kawai 74" grand, Prophet-2000, Prophet-VS, E-mu SP-12, Yamaha DX7, Yamaha DX21, Akai S900, Ensoniq Mirage, Roland JX-10. Video Equipment: (2) JVC 8250 3/4" recorder, (2) JVC 5550 3/4" players, JVC 86-U editor, Sony SEG-2000 6-camera switcher/special effects generator, Sony DCX-M-3A camera, Sony CCD-3000 chip camera. Rates: \$45-\$65/hr. depending on project. Specialization & Credits: Over 2,000 instruments available in Starsound Audio/Bizarre guitar complex. TEF analysis available to clients. Studio in Reno, 45 minutes from Lake Tahoe, endless recreation potential. Also provide concert sound, lighting and staging for any Reno/Tahoe venues. State-of-the-art production facility with a high-tech, low-key staff. Complete album projects, tracking only, demos; the key is the quality of service for the small cost.

[24+] **STAUNTON STUDIOS INC.**; also REMOTE RECORDING; 5450 Coleman Creek Rd.; Medford, OR 97501; (503) 535-3972. Owner: Web & Karen Staunton. Studio Manager: Web Staunton.

[24+] **STUDIO C/CUSTOM RECORDING**; 2220 Broadridge Way; Stockton, CA 95209; (209) 477-5130. Owner: Dr. Thomas T. Chen, M.D. Studio Manager: Bryan Caldwell. Engineers: John Edman, Dr. Thomas Chen, Bryan Caldwell. Dimensions: Studio 32 x 30, control room 12 x 8. Mixing Consoles: Sound Workshop Series 30 28 x 24 w/ARMS automation, Interface Electronics 8 x 4. Audio Recorders: Otari MX-80 24-track, 3M 8-track, Otari MTR-10 2-track. Cassette Recorders/Duplicators: Nakamichi MR-1, Denon DR-M12HX, Otari high-speed duplicator. Noise Reduction Equipment: Dolby SR, Hush IIC, dbx. Synchronization Systems: (2) Lynx time-code module. Echo, Reverb, & Delay Systems: Quantec QRS room simulator, Lexicon 224, Yamaha REV7, (2) Yamaha SPX90. Other Outboard Equipment: Aphex Compeller, Aphex Dominator, UREI 1178 limiter, Eventide Harmonizer, Valley People Kepex II, Valley People Gain Brain II, Valley People Maxi-Q, Aphex Expander 612, EXR exciter. Microphones: AKG, Neumann, Shure, Electro-Voice, Sennheiser, Crown PZM, etc. Monitor Amplifiers: Spectra Sonics 701, Crown D-60, Monitor Speakers: Genelec 1022-A, JBL 4430, Yamaha NS-10, MDM-4. Musical Instruments: New England Digital Synclavier II music system including polyphonic sampling, SMPTE, MIDI, IBM interface, 200-track digital recorder, video sync, music printing, release O software and Mac II terminal. Steinway 6'8" grand piano, Hammond B-3 organ, Alembic bass w/graphite neck, misc. guitar and bass amps, Roland MKS-20 digital piano, Roland D-550, Yamaha TX802, Oberheim DMX. Other MIDI Equipment: Complete Synclavier II system. Video Equipment: JVC 8250 3/4" VTR. Other: IBM and Macintosh II computers. Rates: Available upon request.

[24+] **STUDIO D RECORDING INC.**; 425 Coloma St.; Sausalito, CA 94965; (415) 332-6289. Owner: Dan Godfrey, Joel Jaffe, Evie Thompson. Studio Manager: Joel Jaffe. Engineers:



**STUDIO D RECORDING INC.**  
Sausalito, CA

Ricky Sanchez, Bob Hodas, Karl Derfler, Robert Missbach, James "Joels" Vereecke, Jim Gaines, Scott Tatter, Dr. Richie Moore, Watt Jaffe, Brian Foraker. Dimensions: Studio 29 x 36 x 20 with tunable acoustic panels, (3) iso booths 8 x 14 x 16, control room 20 x 20 with compression ceiling. Mixing Consoles: Trident TSM 40 x 32 x 32. Audio Recorders: Studer A800 MkII 24-track, Ampex ATR-102 2-track, Sony R-DAT. Cassette Recorders/Duplicators: Aiwa F770, Aiwa F660, Yamaha KX-800. Echo, Reverb, & Delay Systems: EMT mono tube plate, AMS RMX-16 digital reverb, Roland SRV-2000 digital reverb, Roland SDE-3000 digital delay, Bel BD80 delay/sampler, Yamaha SPX90II, Yamaha SPX90, Eventide H910 Harmonizer/delay. Other Outboard Equipment: (2) Pultec EQP-1 valve EQ, (2) EAR 822Q valve program EQ, Pultec MEQ-5, (2) Lang PEQ-2, (2) UREI 545 parametric EQ, Valley People International de-esser, 1/2-octave EQ, (2) Teletrix LA-2A, (2) UREI 1176LN, (2) UREI LA-4A, Model 165 compressor, (2) Drawmer dual gate, (8) Aphex 612 expander/gate, and (4) Symetrix gate. Microphones: Neumann M49b valve, Neumann U47 valve, (2) Neumann U67 valve, (2) Neumann U87 FET, (2) Neumann U47 FET, Neumann KM84 FET, (4) AKG C-28 valve, (3) AKG C-414EB, AKG C-12A valve, (2) AKG C-451EB with pads, (2) AKG C-452EB with pads, AKG D-12E, (2) AKG D-200E, (6) Sennheiser MD-421u, Sennheiser MD-441u, E-V 666, E-V RE20, (6) Shure SM57, (4) PZM, (2) Beyer 201n and Sony ECM-50P. Monitor Amplifiers: Haflier 500, (5) Haflier 220, custom Z-link modified. Monitor Speakers: Hidley custom, Yamaha NS-10M, Auratone. Musical Instruments: Yamaha C7-E MIDI-Grand, Hammond B-3 organ w/Leslie. In-house rental items are LinnDrum, Yamaha DX7, Roland Super Jupiter with remote programmer, MKS-20 and MKS-80, Roland Jazz Chorus amp, Marshall JCM 800, and Gallien-Krueger studio amp. Video Equipment: Studio is located next to major soundstage. Video tie-in to control room. Lynx modules and all VTR formats available upon application. Rates: Please call for rates. Specialization & Credits: Studio D has become known as the Bay Area's foremost tracking facility. With tunable acoustics, 20-foot high ceilings and three big iso booths, our live ambient room sounds are unbeatable. All equipment is maintained in optimum operating condition by chief engineer Dr. Richie Moore. We also offer clients full kitchen and bath facilities, and a comfortable lounge for that home-away-from-home environment with comfort and privacy. Studio D has had the pleasure of working with such fine clients as Huey Lewis & the News (*Fore and Small World*), Bourgeois Tagg, Bruce Hornsby, Starship, Will Ackerman and Windham Hill, Earth, Wind and Fire, Anita Pointer, Four Tops, Pebbles, Van Morrison, Faith No More, The Looters, Jet Red... Thanks to all.

[24+] **SUN VALLEY AUDIO**; 808 Warm Springs Rd., Ketchum, ID 83340; (208) 726-3509. Owner: Amos Galpin. Studio Manager: Amos Galpin. Engineers: Lance Parker, Randy Young. Dimensions: Studio 32 x 23 x 16, piano room 9 x 15, control room 15 x 25 w/"The Wedge" patented control room. Mixing Consoles: ICC 9000 noise gates and limiters and automation in each channel, 24 x 24. Audio Recorders: Sony DAT-1000ES, Stevens 24-track w/BTX, Ampex ATR-104 2-track 1/4", Ampex ATR-102 2-track 1/2". Cassette Recorders/Duplicators: Nakamichi, (10) Akai. Synchronization Systems: Adams-Smith Zeta-3. Echo, Reverb, & Delay Systems: (3) Lexicon PCM60, (4) ICC plate reverb system, live echo chamber 30 x 20 x 16, Lexicon 93, Echotron, Fostex DDLS, TC Electronic 2290. Other Outboard Equipment: Eventide 949, Eventide flanger/phaser, Kurzweil AS 250, LinnDrum, Simmons head, (10) Akai cassette recorder for real-time duplication, unreal in-house technician. Microphones: AKG Tube, AKG 414, AKG 460B, Neumann U87, Sennheiser 421, Shure. Monitor Amplifiers: Haflier, PS Audio. Monitor Speakers: JBL, TAD custom monitors, JBL 4430, MDM TA-2, Auratone. Musical Instruments: Kurzweil AS 250, Yamaha 9' grand piano, Prophet-5, studio drum sets. Other MIDI Equipment: Akai MPC-60 drum machine/sequencer, Yamaha DX7IIIF. Rates: \$70/hr., block rates available. Specialization & Credits: To fill out a full-service profile, Sun Valley Audio has developed a pro audio and recording equipment division to provide equipment

and tech support to the growing numbers of 4- and 8-track studios in the state. Direct-to-DAT recording. Dealerships include JBL, Otari, 3M/Scotch audio tape, Lexicon, Eventide, Haflier, OSC and Kurzweil.

[24+] **SURREAL STUDIOS**; 355 W. Potter Dr.; Anchorage, AK 99518; (907) 562-3754. Owner: Kurt Riemann. Studio Manager: Sarah Middleton.

[24+] **SWINGSTREET STUDIOS**; 620 Bercut Dr., Sacramento, CA 95815; (916) 446-3088. Owner: Ashley Lauzon, Sillas. Studio Manager: Larry Lauzon. Engineers: Martin Ashley, Larry Lauzon, Darrell Joe, Phil Sillas. Dimensions: Studio 34 x 37, control room 21 x 24. Mixing Consoles: Quad/Eight Pacifica 28 x 24. Audio Recorders: MCI JH-16 8/16/24-track, (2) MCI JH-110B 2-track. Cassette Recorders/Duplicators: (2) Technics M-85 Noise Reduction Equipment: dbx 28 channels. Echo, Reverb, & Delay Systems: Lexicon 224 digital reverb, Lexicon PCM70 digital reverb, Lexicon 97 Super Prime Time, Yamaha SPX90 digital effects, Yamaha D1500 delay, AKG BX-20E reverb, (2) Marshall Time Modulator. Other Outboard Equipment: (2) UREI 1176LN limiter, (2) Teletrix LA-2A limiter, (2) Allison Gain Brain, (2) Quad/Eight CL-22 compander, (3) ADR/Scamp expander/gate, ADR/Scamp autopan, (2) Pultec PEQ-1S equalizer, Pultec HLF-3C filter, Aphex Aural Exciter, (2) Gregg Labs 2530 3-band compressor. Microphones: Neumann U47 FET, Neumann U67, Neumann U87, Neumann KM84, AKG C-414EB, AKG C-451, AKG C-34, Crown PZM-

30, Crown PZM-31, E-V 654A, E-V 666, E-V 667A, E-V RE20, Sennheiser 409, Sennheiser MD-421, Shure SM7, Shure SM53, Shure SM57, Shure SM58, Shure SM81, Shure 545, Shure 300, RCA 77-DX, Sony ECM-22, Sony ECM-280, Countryman EM-101, Altec M30. Monitor Amplifiers: UREI 6500, Yamaha P2150, (2) McIntosh 2100. Monitor Speakers: UREI 813A Time Align, JBL 4333, JBL 4313, JBL 4311, Auratone 5C. Musical Instruments: Yamaha C3 grand piano, Yamaha DX7, E-mu Emax sampling keyboard, various drum machines and percussion instruments, total instrument rental available. Video Equipment: Sony VO-1800 1/4" U-matic VCR, Kenwood KV-917HF 1/2" VCR. Other: Denon DCD-800 CD player, Technics SL-1200 turntable. Rates: Available upon request.

[24+] **BRUCE TAMBLING SOUND**; 1151 W. Iowa Ave.; Sunnyvale, CA 94086; (408) 733-4240. Owner: Bruce Tambling.

[24+] **TARPAN STUDIOS**; 1925-G Francisco Blvd. E.; San Rafael, CA 94901; (415) 485-1999. Owner: Narada M. Walden. Studio Manager: Janice Lee. Engineers: David Frazer, Dana Chappelle, Stuart Hirotsu, Matt Rohr, Doc Shaffer (systems engineer). Dimensions: Studio 25 x 35 irregular (including isos) ceiling 12 x 14, drum booth 9 x 8 x 12, control room 19 x 18 w/ceiling from 12 to 9 to 14. Mixing Consoles: Trident TSM 40 x 24 x 32 w/Allison automation (modified). Audio Recorders: Studer A80 VU MkIV 24-track, MCI JH-24 16/24-track. (2)

—CONTINUED ON NEXT PAGE

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N O R T H W E S T  
**24+ TRACK**  
 STUDIOS

—CONTINUED FROM PREVIOUS PAGE



TARPAN STUDIOS  
 San Rafael, CA

Ampex ATR-102 2-track with SSI amps (1/2" and 1/4"). Otari MX-5050 8-track (1/2"). Otari MX-5050B 2-track (1/4"). Cassette Recorders/Duplicators: (2) Technics RS-B100, (2) Technics RS-B50, Aiwa ADWX909. Synchronization Systems: Audio Kinetics Q.Lock 3.10 synchronizer, Roland SBX-80 sync box. Echo, Reverb, & Delay Systems: (2) AMS RMX-16 reverb, AMS 15-80S digital delay, (2) Yamaha SPX901, Lexicon Prime Time, Eventide 949 Harmonizer, Ecoplate 1, DeltaLab DL-4 w/memory module, Marshall Time Modulator, ADA SD-1, anything available upon request. Other Outboard Equipment: (2) Focusrite 110 module, NTP compressor, BBE 802, dbx 120X-

DS. Aphex Compellor, Drawmer gates, Valley People Dynagates, Orban de-esser, (4) Teltronix LA-2A, (4) UREI LA-4 compressor/limiter, Symetrix gates, (4) Allison Kexex and Gain Brain, anything available upon request. Microphones: Neumann, AKG, Sennheiser, Beyer, Shure, PZM. Monitor Amplifiers: Crown DO-2000 w/Delta Omega modules, BGW 750, (2) Crown D-150 Series II, (2) Crown PS-400, (2) Crown Micro-Tech 1000 amp. Monitor Speakers: UREI 813B, (2) Yamaha NS-10M, Auratone, UREI 811. Musical Instruments: Fairlight CMI Series III w/custom sound library, Baldwin 9' grand piano, Roland D-50, Roland MSQ-700, Linn drum machine, Alesis HR-16 drum machine. Other MIDI Equipment: Kahler Human Clock. Video Equipment: Mitsubishi 35" color monitor w/RGB, NEC DX-2000U VHS videocassette player. Other: Sony CDP-310 and CDP-550 CD players, Denon DP-30L II turntable w/Shure V15 V cartridge. Rates: Please call for rates. Specialization & Credits: Narada, Whitney Houston, Aretha Franklin, Eddie Murphy, Four Tops, Mick Jagger, Patti LaBelle, Kenny G., Starship, Clarence Clemons, June Pointer, Yoko Ono, Jennifer Holiday, Sheila E., Jermaine Stewart, George Benson, Stacy Lattisaw.

[24+] TELEMAN PRODUCTIONS; also REMOTE RECORDING; 1200 Stewart St., Seattle, WA, (206) 623-5934; FAX: (206) 682-0353. Owner: Telemation Productions, Studio Manager: Michael C. Olds. Engineers: Gordon R. Glascock, Kathie Hopkins, qualified freelancers welcome. Dimensions: Room 1: studio 28 x 38, control room 18 x 16. Room 2: studio 9 x 13, control room 15 x 13. Mixing Consoles: Neve 5116 24 x 24 x 4, Neve 5432 B x 2. Audio Recorders: Studer A800 MkII 16/24-track, MCI JH-110B 2/4-track, Nagra T 2-track center-track TC, (2) Ampex ATR-800 2/4-track, (3) Ampex 350 2-track w/Innovatics Electronics, Ampex high-speed duplicators. Cassette Recorders/Duplicators: (2) Nakamichi MR-1, (5) Ampex high-speed 1/4" dubber, (9) 3M high-speed cassette dubber. Synchronization Systems: Audio Kinetics 3.10 w/ADR, JVC CR8200U 3/4", Echo, Reverb, & Delay Systems: EMT 190 plate reverb, Yamaha SPX90, Eventide H949 Harmonizer, Ursa Major Space Station, Clover 500, additional equipment available. Other Outboard Equipment: (3) TC Electronic generators and regenerators, (4) Neve compressor/limiter, Audio & Design Vocal Stresser, (3) Orban 622B parametric EQ, BBE 802, Dynaflex single-ended noise reduction, (3) UREI graphic EQ, (6) UREI LA-4A, (2) Technics turntable, Denon DCD-1500, (2) Ashly SC-50 limiter/compressor. Microphones: (2) Neumann U87, (2) Neumann KM84, (2) AKG 414EB, (2) RCA 77-D (reconditioned), (2) Crown PZM, E-V RE20, Sennheiser 816, Sennheiser 416, additional mics available including Calrec

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Soundfield Monitor Amplifiers: BGW, Hatler Monitor Speakers: (6) Aitec 604E, (4) Yamaha NS-10M, (4) Auratone Cubes Musical Instruments: Yamaha C7 grand piano, assorted percussion, all standard instruments, synthesizers, sequencers and samplers available. Other MIDI Equipment: Available on request. Video Equipment: (2) CMX 3400 edit bays 1" and 3/4", Betacam or M-format w/ADO, Bosch FDL60B, DiVinci color corrector, Nagra T 38 x 60 x 16 stage, 1" & Betacam remote capabilities, Artisar 3-D Paintbox and full dubbing facilities. Other: (2) 16/35mm Mag recorder/reproducer, (3) Ampex VPR-3 1", (8) Sony VPR 1". Rates: Call for quote. Special night rates available. Specialization & Credits: Telemation Productions offers complete production services from concept to distribution, all under one roof. We have the most extensive collection of music libraries in the Pacific Northwest, and our sound effects library includes the latest CD libraries as well as many field recordings we have collected over the past 20 years. We can also provide composers, arrangers and musicians for original score-to-picture. The Telemation Studios are designed for music scoring, Foley, voice and ADR recording. We specialize in synchronous transfers and can solve virtually any audio sync problem. Our Nagra T allows us to resample neo-pilot, FM-pilot or center-track time code to 16-, 24- multi-

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- 1985 December, Tape-to-Disc Listings. Mastering, Pressing & Duplication. TEC Award Winners. Sound for the *Twilight Zone*. Tom Walts.
- 1986 January, Northwest Studios. Equipping Home Studios. Paul Winter. SMPTE-MIDI Connection. Yoko Ono.
- 1986 February, Independent Engineers & Producers. Microphone Special Report. Laurie Spiegel. Budgeting for Sessions. Joni Mitchell.
- 1986 March — SOLD OUT
- 1986 April — SOLD OUT
- 1986 May, Northeast Studios. Digital Supplement. Sampling Primer. CD Facilities. Future of Console Design. Steve Lillywhite.
- 1986 June, Remote Recording & Sound Reinforcement Listings. Roadability. Russ Titelman. CD-ROM & CD I. By Cooder.
- 1986 July — SOLD OUT
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- 1986 September, Southern California Studios. Film Sound. Telecommunications. Production Music Libraries. David Byrne's *True Stories*.
- 1986 October — SOLD OUT
- 1986 November, New Products Directory. CD I Supplement. Kenny Loggins. Tour Sound. Daryl Hall. Grounding Primer. Rupert Neve.
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- 1987 February, Independent Engineers & Producers. International Recording Supplement. APRS Studio Directory. Bruce Lundvall. DMM for CD. Kitaro.
- 1987 March, Southeast Studios. Digital Recording Supplement. Tom Jung. CD Mastering Forum. Richard Thompson.
- 1987 April, Video Production & Post-Production Facilities. Location Mix Techniques. Adrian Belew. Synchronizer Survey. Pee wee's Playhouse.
- 1987 May, Northeast Studios. Stevie Wonder & Nile Rodgers Record by Satellite. Programmable Signal Processors. GRP Records. Digital Video Interactive. George Martin.
- 1987 June, Remote Recording & Sound Reinforcement Listings. Touring Consoles. Video's Stephen Johnson. Women in Sound Reinforcement. Paul Simon Live in Zimbabwe.
- 1987 July — SOLD OUT
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- 1987 September, Southern California Studios. Recording in Hawaii. The Doors. Analog 2-tracks. Phil Spector.
- 1987 October, New Products Directory. Producers' Forum. John Hiatt. Tape Recorder Maintenance. Laurie Anderson.
- 1987 November, North Central and Canadian Studios. George Harrison. Pioneers and Trends in Film Sound Localization. Maurice Jarre.
- 1987 December — SOLD OUT
- 1988 January, Northwest Studios. Music Software Programs. On the Road with Pink Floyd. CD Video. Mick Jagger.
- 1988 February, Independent Engineers & Producers. International Recording Automation & Control Systems. Remixing with Alan Parsons.
- 1988 March, Southeast Studios. Optical Storage Methods. Stax Records. Studio Monitors. Branford Marsalis.
- 1988 April, Video Production & Post-Production Facilities. Sound Effects for Video. Saul Zaentz. RCA Studios. Jon Astley.
- 1988 May, Northeast Studios. Sound at the Winter Olympics. Lee Herschberg. New Age Music Production. Brian and Edward Holland.
- 1988 June, Remote Recording & Sound Reinforcement Directory. Sound at the Grammy Awards. Joni Mitchell. Tina Turner Live From Rio. Jimmy Webb.
- 1988 July, Recording Schools Directory and Southwest Studios. Education Supplement. Interactive Production Update. Talking Heads.
- 1988 August, Studio Designers & Suppliers. Australian Recording Supplement. Lucasfilm's Skywalker Ranch. Bobby McFerrin.
- 1988 September, Southern California & Hawaiian Studios. Huey Lewis. LA Recording Supplement. Second Generation CD Mastering.
- 1988 October, North Central Studios. John Lennon Movie. Digital Audio Meets Stereo TV. Read/Write Optical Storage. Andy Summers.
- 1988 November, New Products Directory. HyperMedia Update. 48 Track Digital. Sound for *Tucker*. Donald Fagen.
- 1988 December, Mastering, Pressing & Duplication Facilities. Premastering Tips. "Bird" Parker. Realities of Fiber Optics.
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[24+] **THEOCRATIC RECORDS/JAH WORKS STUDIOS:** PO Box 15; O'Brien, OR 97534; (503) 596-2180. Owner: Jah Levi, Karl Goldstein. Studio Manager: Luna Dove. Engineers: Jah Levi. Dimensions: Room 1: studio 10 x 12, control room 12 x 12. Room 2: studio 12 x 12, control room 10 x 12. Drum booth 9 x 9. Mixing Consoles: Studiomaestro Series II 24 x 16, Yamaha RM1608 16 x 16, Sound Workshop Logex 8 12 x 8, TEAC 2A 6 x 4, Gemini 8 x 4 disco mixer. Audio Recorders: Sony/MCI JH-24 24-track w/AlliL, Fostex Model 80 8-track, Nakamichi DMP-100 2-track digital PCM, Tascam ATR-60 2-track 1/2". Cassette Recorders/Duplicators: Eumig FL-1000, Technics RSB-100, TEAC W-880RX dubbing deck, Nakamichi 600. Noise Reduction Equipment: dbx 224 Type II 2-track. Synchronization Systems: Fostex 405H autolocator, Korg KMS-30 MIDI-FSK sync. Echo, Reverb, & Delay Systems: TC Electronic 2290, Yamaha REV7, Yamaha SPX90, Roland DEP-5, Roland SRV-2000, Roland SDE-2000, Alesis MIDiverb, Korg SDD-3300, Rockman rock modules, DOD Electronics 2-sec. sampling delay and TC Electronic flanger. Other Outboard Equipment: Aphex TC Aural Exciter, TC Electronic 2240 para EQ, Orban parametric EQ, dbx 166 comp/limiter, Demiler tube bass preamp, dbx 2020 EQ, dbx 48X expander, dbx 120X subharmonic synth, Kyocera DA-810 CD player, Akai CD player. Microphones: Beyers MC-740, (2) Beyers M88, Beyers M69, Beyers M160, AKG 414, (2) AKG D-310, AKG DT-330, (3) E-V PL10, E-V PL20, Audio-Technica ATM-21. Monitor Amplifiers: (2) Sumo "The Nine" Class A, Yamaha AVC-50. Monitor Speakers: JBL 4430, JBL Control 1, JBL 4612B, Klipchorn La Scala, Roland SRS-80. Musical Instruments: Korg DSS-1, Casio CZ-5000, (4) Yamaha FB-01, Photon MIDI guitar converter, J.L. Cooper MSB 16/20, Korg DVP-1, Linn 9000, Sequential Circuits Studio 440, (2) MPC percussion computer, set of North drums, Yamaha RX11, (2) Ken Smith bass, many guitars, basses, amps, percussion, sitar and ethnic instruments, Trace-Elliott, Fender and Roland Jazz Chorus—120 amps. Other MIDI Equipment: Roland Octapad, Atari 1040ST w/Steinberg Pro-24, Fairlight Voice-tracker, Yamaha QX-1. Video Equipment: Samsung VHS VCR. Other: Biotech Bionaire 2001, industrial air filter and negative ion generator, Honda EX5500 generator, (2) Heart interface sine-wave inverter and chloride battery pack, (20) Arco photovoltaic panels. Rates: 8-track \$25/hr., 24-track \$45/hr., also open to bartering. Specialization & Credits: Full production and post-production facility located in the wilderness of southern Oregon. Alternative energy-based 24-track and 8-track recording w/complete MIDI instrumentation and SMPTE time code for video lockup. Specializing in reggae, African and World Beat as well as the recording of traditional acoustic, instrumental and vocal music from around the world w/complete ethnic instrumentation available. High-tech facility located in a very rustic, remote, natural setting in Oregon.

[24+] **TIKI RECORDING STUDIOS:** 195 S. 26th St.; San Jose, CA 95116; (408) 286-9840. Owner: Gracie & Jeannine O'Neal. Studio Manager: Gracie O'Neal. Specialization & Credits: Specializing in country, gospel, rock, all styles of Mexican, Portuguese, Vietnamese and international music. Chart-proven producers, arrangers and musicians available. Three active publishing companies, one active record company. In-house cassette duplication for short or long run cassettes. Record and CD manufacturing available.

[24+] **TRIAD RECORDING STUDIOS:** 352 W. 12th Ave.; Eugene, OR 97401; (503) 687-9032. Owner: Allan Weyl. Studio Manager: Allan Weyl. Engineers: Peter Lorincz. Dimensions: Studio 30 x 40, control room 20 x 30. Mixing Consoles: Triad 26 x 16 x 24 automated. Audio Recorders: Ampex 1200

24-track search-to-cue/remote/VSO, Studer B67 2-track, Otari 5050 2-track, Revox A70 2-track. Cassette Recorders/Duplicators: Nakamichi 582, Nakamichi DP 40-50 duplicator. Echo, Reverb, & Delay Systems: EMT plate stereo tube reverb, Klark-Teknik DN780 digital reverb, Klark-Teknik DN36 delay, Lexicon Prime Time delay, DeltaLab Acousticcomputer, MICMIX Super C Master-Room reverb, Eventide 3000 Ultra-Harmonizer. Other Outboard Equipment: Scamp rack w/(4) limiter/compressor, (8) noise gate, (4) parametric EQ/delay/autopan, (2) dbx 160 compressor, (2) Roger Mayer noise gate, EXR exciter, (2) White 27-band EQ, Linn/Akai MPC-60 MIDI production center. Microphones: (2) Neumann U87, (2) Neumann U47, (2) Neumann KM84, (2) AKG 414, (2) RCA 77-DX, (2) Sennheiser 421, AKG D-112, (2) Shure SM57, (4) AKG 251, PZM. Monitor Amplifiers: Phase Linear 700B, McIntosh 7270, McIntosh 2105. Monitor Speakers: Tannoy FSMU. Musical Instruments: 1922 Steinway B vintage concert grand, Kurzweil 250. Rates: \$50/hr. includes engineer.

[24+] **TRIAD STUDIOS:** 4572 150th Ave. NE; Redmond, WA 98052; (206) 881-9322. Studio Manager: Nancy Cation. Engineers: Lary Nefzger (chief engineer), Tom Hall, Mike Tortorello. Dimensions: Room 1: studio 40 x 24, control room 19 x 24. Room 2: studio 35 x 23, control room 15 x 15. Mixing Consoles: Mitsubishi Westar 52 x 24, NEOTEK IIC 36 x 24, both consoles are equipped with Diskmix moving fader automation. Audio Recorders: (2) MCI JH-24 16/24-track, Ampex ATR-102 2-track 1/2" & 1/4" (w/center-track TC), Otari MTR-12-2 2-track (w/center-track TC), Sony JH-110B 2-track 1/2" & 1/4", Ampex AG-440C 2/4-track. Cassette Recorders/Duplicators: Technics RSM85 cassette, TEAC C3X cassette, (2) Awa WAF-660 cassette deck, (22) KABA duplicating deck. Noise Reduction Equipment: (2) Dolby SR. Synchronization Systems: (2) Lynx time code modules (3-machines sync in each room). Echo, Reverb, & Delay Systems: (4) Yamaha SPX90II, Lexicon 224XL digital reverb and effects processor, Yamaha REV5, (2) Klark-Teknik DN780, (2) Lexicon Super Prime Time digital effects processor, Lexicon PCM70, (2) Eventide H3000, (2) Lexicon PCM41 digital delay, (2) TC Electronic 2290 digital delay and digital effects processor, (2) Eventide H910 Harmonizer, (3) Alesis Microverb digital reverb, (2) EMT 140 plate reverb system. Other Outboard Equipment: Klark-Teknik DN-60 real-time analyzer, ADR Panscan, (2) Aphex stereo Compeller, ADR F760X complex-limiter, (4) dbx RM160, (2) BBE sonic maximizer, (12) Valley People Kepex II, (2) Drawmer 201 gate, (2) UREI 1176, (3) Telatronix LA-2A, (2) API 550A, (2) B&B EQF-2, Orban 536A de-esser, (2) Valley People dynamic sibilance controller, Pultec EQH-2. Microphones: AKG C-12A, AKG Tube, (2) AKG 414EB, (4) AKG 451EB, (3) AKG C-60, (2) AKG D-112E, (2) Neumann U47, (3) Neumann U87, Neumann TLM-170, (5) Neumann KM84, (2) Neumann KM88, (2) Sony C-37A, (4) Sennheiser 421, Sennheiser 441, (2) Shure SM53, (2) Shure SM56, Shure SM58, E-V RE20, (3) E-V ND408, Beyers M500, (2) Countryman E101, Countryman M85, (4) Fostex M77, (2) B&K 4001. Monitor Amplifiers: (2) QSC 3800, (2) Halfer DH-500, (2) Halfer DH-220, (3) Halfer P-235. Monitor Speakers: PAS SM-1 w/time-offset correction processor and mastering lab mods, JBL 4311, Yamaha NS-10M, Auratone 5C, KLF C40. Musical Instruments: Emulator II w/extensive sound library, (2) Akai S900 MIDI sample recorder, (2) Yamaha TX802 multi-internal tone generator, (2) Alesis HR-16 drum machine, (2) Roland MKS-70, (2) Roland D-550, (2) Emulator Emax sampler, Oberheim DFX sample player, Yamaha DX7, E-mu SP-12 drum machine, LinnDrum, Sequential Circuits Prophet-V w/MIDI, Gretsch drum kit, Ludwig drum kit, Yamaha C7D grand piano, misc. percussion instruments. Other MIDI Equipment: (2) Macintosh Plus system w/external drives, (2) Yamaha MJC-8 MIDI patcher, Synhance MTS. Video Equipment: Sony BVU-800 3/4" video recorder, JVC CR6650U 3/4" video recorder, (2) NEC CT2020 20" video receiver, JVC TM22U video monitor, (2) NEC DX2500U 1/2" VHS-HQ Dolby stereo VCR. Other: Sound Ideas complete SFX library on CD. Software available: Opcode SMPTe "Time Machine"; Digidesign Sound Designer and Softsynth; Opcode DX librarian and patch editor; Mark of the Unicorn Performer and Composer. Also Denon and Shure CD players, Technics turntable. Rates: Audio \$55-\$85/hr., video interlock \$110/hr. Brochure and poster available. Specialization & Credits: Recent projects include Steve Miller, Deniece Williams, Michael Tomlinson, Eric Tingstad, UB40, Queensryche, Uncle Bonsai, Tim Noah. Nestled in evergreens, minutes from downtown Seattle. Complete subcontracting, equipment rental and hospitality services available. Large video soundstage nearby. For eight years, we've been called the best-sounding studio north of San Francisco, now our 1988 upgrade has made Triad a truly world-class facility. Triad prioritizes your creative comfort in everything from the ergonomics of the MIDI workstations to the gourmet coffee in the kitchenette and lounge areas. State-of-the-art studios are balanced with warm, contemporary design elements. Award-winning rooms, outstanding engineers, sensitive support staff and attractive rates make Triad worth the trip from anywhere. Call for a free poster. Member Washington Film and Video Association, International Television Association and Northwest Area Music Association.



**DAVE WELLHAUSEN STUDIOS**  
San Francisco, CA

x 15 x 12. Mixing Consoles: Sound Workshop 34C 32 x 24 x 52 w/ARMS II automation and Diskmix (disk-based automation). Audio Recorders: MCI JH-24 transformerless 16/24-track, MCI JH-110 2-track with Dolby spectral recording system, (2) Otari MX-5050. Cassette Recorders/Duplicators: (2) Nakamichi MR-1 cassette deck, (2) Awa cassette deck. Noise Reduction Equipment: (2) Dolby spectral recording system on 2-track machine. Synchronization Systems: Opcode Time Machine—SMPTe-to-MIDI converter. Echo, Reverb, & Delay Systems: Lexicon 224XL digital reverb w/LARB, Eventide H3000 Ultra-Harmonizer, Roland SRV-2000, Roland DEP-5, Alesis Microverb, Yamaha D1500, Yamaha SPX90, Lexicon Prime Time digital delay, DeltaLab ADM-1024, DeltaLab ADM-64. Other Outboard Equipment: Eventide 910, Marshall Time Modulator analog delay, Valley People Dyna-Mite, SAE graphic equalizer, SAE parametric equalizer, (2) Drawmer gate, ADR Vocal Stresser, Symetrix noise gates, (2) UREI 1176 limiter, (2) UREI LA-4, Aphex Aural Exciter, Aphex Compeller Microphones: (2) Neumann U87, Neumann KM84, (2) AKG 414EB, (2) AKG 451, (2) AKG 460B, AKG D-12E, (3) E-V RE20, (2) E-V RE15, (6) Sennheiser 421, Sennheiser 441, (5) Shure SM57, Shure SM58, (2) Countryman direct box, Countryman EM101, Beyers M101, Beyers M201, Beyers M300, Sony C-36P, Sony ECM-33, (4) Crown PZM. Monitor Amplifiers: AS Systems 600 precedent, BGW 250, Symetrix A220. Monitor Speakers: (2) Westlake BBSM8, (2) Yamaha NS-10M, (2) Auratone, instant switching between speaker pairs. Musical Instruments: Emax HD sampler with over 3,000 voices, Yamaha C3 6' conservatory grand piano, Yamaha DX7, Roland MKS-30, Roland TR-707 drum machine, Yamaha RX5 drum machine, Fender Precision bass, Casio CZ-101, MIDI Bass, Octapad, Casio MIDI guitar and anything else available upon request. Other MIDI Equipment: Macintosh SE w/20MB hard drive, MIDIface II, Performer and Composer software, MEP 30II (MIDI patcher), MIDI thru box. Other: Massenburg EQ, 2 channels. Rates: You'll find us to be the best value in automated 24-track recording in the Bay Area. Please call for rates.

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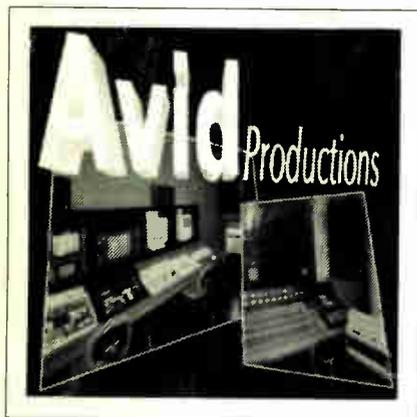
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# 12&16 TRACK

## STUDIOS

[16] **THE ART OF EARS**; 1217 A Fell St.; San Francisco, CA 94114; (415) 864-4641. Owner: Andy Ernst. Studio Manager: Nance Urquidez

[16] **ATMOSPHERE**, 23 Joseph Ct.; San Rafael, CA 94903; (415) 479-2125. Owner: Robert Brown. Studio Manager: Gregg Schnitzer. Engineers: Gregg Schnitzer, Nito Wilson, Michael White, Mark Stockham. Dimensions: Studio 15 x 25, control room 12 x 14, with separate drum booth. Mixing Consoles: Tangent 3216 custom 24 x 16. Audio Recorders: Stephens 16-track 2" 30 ips, (2) 3M 64 2-track 1/4" 30 ips, Sony 2-track digital, Otari MX-70 16-track 1" 30 ips. Cassette Recorders/Duplicators: (25) Onkyo TA-2600 (modified). Synchronization Systems: SMPL system w/MIDI interface. Echo, Reverb, & Delay Systems: Lexicon 224XL, EMT 240 Ursa Major SST-282, Marshall Time Modulator, Lexicon Delta-T, TC2290 (11-second), (4) SPX90, (3) Efectron II, Microverb, Roland DEP-5, Roland SDE-3000, SDE-1000, Eventide FL-201, Roland SRV-2000. Other Outboard Equipment: (2) 1176LN, (2) LA-3A stereo compex, Eventide Omnipressor, Aphex Studio II, Moog Poly Phaser, (2) Pultec MEQ-5, Lang PEQ-2, (2) ITI EO, Ashly SC66 stereo parametric Microphones: Telefunken, Neumann, AKG, Sennheiser, Sony, Crown, E-V, RCA, Beyer, Countryman, Altec (tube). Monitor Amplifiers: Meyer ACD, Eagle-7 (Electron-Kinetics), McIntosh Monitor Speakers: Meyer ACD, JBL 4230, Yamaha NS-10, Acoustat 4 transformer drive. Musical Instruments: Fender lap steel, Baldwin/Howard baby grand, tympani, vibraphone, Mellotron, Oberheim DX, Vocoder, DX7, D-50, JX3-P, CZ-101, Emulator II, E-mu SP-12, 9-piece Camco, 7-piece Roto. Other MIDI Equipment: Apple II+ w/Synth software, SMPL MIDI interface w/measure pointer, Amiga with Soundscape, Yamaha MEP-4, Roland SBX-10. Video Equipment: JVC 19" monitor, Amdek 15" monitor, JVC 1/4" VCR, VHS and Beta. Other: 1/2-octave RTA and X-Y scope on line. Rates: Call for rates.



AVID PRODUCTIONS  
San Mateo, CA

[16] **AVID PRODUCTIONS**, also REMOTE RECORDING; 235 E. Third Ave.; San Mateo, CA 94401; (415) 347-3417. Owner: Henry Bilbao. Studio Manager: Chris Craig. Engineers: Chris Craig, Peter Nixon. Dimensions: Studio 18 x 20. Mixing Consoles: Sound Workshop Series 34B 24 x 24 fully automated, Audio-Technica AT-RMX64 6 x 4 w/onboard 4-track cassette, (2) Yamaha MM10 4 x 2 AC/DC portable mixer. Audio Recorders: Otari MTR-9011 16-track, (2) Otari MX-5050BII 2-track, IMS Dyaxis (digital rec. 2 x 100) Cassette Recorders/Duplicators: (10) Sony TC-FX320 real-time cassette, (2) JVC DD-7 3-head cassette, (2) Technics M-205 Synchronization Systems: BTX Shadowpad synchronizer, Echo, Reverb, & Delay Systems: Lexicon 224 digital reverb, Lexicon PCM70 digital effects processor, DeltaLab DL-4 digital delay. Other Outboard Equipment: dbx 900 rack w/noise gates/de-essers/limiters, Eventide H949 Harmonizer, Orban Parasound 674A parametric EQ. Microphones: Neumann

U67 tube-type, Neumann U47, Sennheiser 421, Sony ECM-30 lavalier, Audio-Technica AT-803a lavalier, (4) Shure SM58, (2) Shure SM57, (2) Beyer M69, (2) E-VRE20. Monitor Amplifiers: (2) AB Systems. Monitor Speakers: (2) JBL 4430, (2) Ed Long MDM-4, (2) Infinity, (2) Yamaha S215H stage, (2) E-V S15-3, (2) JBL 4401. Musical Instruments: Yamaha DX7, Ensoniq Mirage sampling keyboard, Casio CZ-1000, Yamaha RX11 drum machine, LinnDrum, Simmons SDS-7, Roland TR-808, (6) guitar and bass, (4) amplifier. Other MIDI Equipment: Macintosh Opcode MIDI sequencing system, Yamaha OX1 sequencer. Video Equipment: 1/4" and VHS A/B roll edit system, master on 1/4" SP, (2) Ikegami ITC-730A broadcast video camera, Pinnacle video workstation (DVE, Paint, animation), on-location 1/4" packages. Specialization & Credits: Avid Productions is a fully integrated audio and video production complex offering complete production and post-production services. The Pinnacle 2040 Video Work Station with Video Digital Effects, Paint Box, Still store, Sculptor and 3-D Animation provides the creative innovation to keep Avid growing steadily in the areas of industrial, commercial and corporate audio and video communications. Broadcast video production, audio-for-video, scoring to pictures, radio and television programs, music videos, albums, demos and duplication for clients ranging from Star Search hopefuls and producers to major corporations such as Fortune Systems, MacUser magazine, Nikon, Safeway and the United States Postal Service.

[16] **BAY RECORDS**; also REMOTE RECORDING; 1741 Alcatraz; Berkeley, CA 94703; (415) 428-2002. Owner: Michael Coogan. Studio Manager: Michael Coogan. Engineers: Robert Shumaker, Michael Coogan. Dimensions: Studio 30 x 34, control room 15 x 20. Mixing Consoles: Biamp Bmix 20 x 16. Audio Recorders: M79 16-track, M79 8-track, Ampex ATR-800 2-track, Sony PCM-F1 2-track, Ampex AG-350 2-track Cassette Recorders/Duplicators: (2) Sony Noise Reduction Equipment: dbx 4 channels outboard, Dobby A 2 channels Echo, Reverb, & Delay Systems: Lexicon 200, Yamaha SPX-90, MICMIX Super C, Efectron. Other Outboard Equipment: dbx 160 limiter, SAE 2700 equalizer, 1176LN compressor, Compex dual compressor. Microphones: (4) Neumann U87, Neumann SM69, (4) Neumann KM84, RCA 77-DX, Sennheiser MKH-405, Neumann KM83, (2) AKG C-452, (2) AKG D-224, Sony 500, more. Monitor Amplifiers: (2) Haller. Monitor Speakers: (2) TA-2 near-field, (2) JBL 4311. Musical Instruments: Kawai 6'9" grand, misc. percussion. Rates: \$45/hr. first ten hours, then \$40/hr.

[16] **BEAR CREEK RECORDING STUDIO**; also REMOTE RECORDING; 20711 Bear Creek Rd.; Los Gatos, CA 95030; (408) 354-2351. Owner: Justin Mayer. Studio Manager: Justin Mayer.

[16] **ROBERT BERKE SOUND**; 50 Mendell St., #11; San Francisco, CA 94126; (415) 285-8800. Owner: Robert Berke. Studio Manager: Mark Escott. Rates: Please call for rates.

[16] **BLUE AFRICA INC.**; also REMOTE RECORDING; 143 E. Meadow Dr., Ste. N35A; Vail, CO 81657; (303) 827-5616. Owner: Blue Africa Inc. Studio Manager: Bob Walker. Engineers: Bob Walker. Dimensions: Room 1 studio 20 x 15, control room 12 x 12, Room 2 studio 10 x 10. Mixing Consoles: Soundcraft 600 16 x 8 x 16, Allen and Heath 12 x 4 x 2. Audio Recorders: Tascam MS-16 16-track, Fostex A-BLR 8-track, TEAC A-3440 4-track, Sony PCM-601 2-track digital Cassette Recorders/Duplicators: Nakamichi BX-125 Echo, Reverb, & Delay Systems: ART 01A, Yamaha SPX90II, Roland SDE-2000 DO, DigTech DSP 128. Other Outboard Equipment: Valley People Dyna-Mite, Orban compressor, Ashly compressor, dbx 163X, dbx 463X. Microphones: Beyer, Shure, Sennheiser, Sony, E-V, TEAC, AKG. Monitor Amplifiers: Crown, McIntosh. Monitor Speakers: Fostex, E-V, BIC. Musical Instruments: Ensoniq EPS fully expanded, Yamaha DX21, Yamaha TX81Z, Yamaha RX15, Roland Juno, Orban DX drums, tons of stringed instruments. Video Equipment: Panasonic decks. Other: Sound effects library.

[16] **CREATIVE SOUND STUDIO**; 602 Cree Dr.; San Jose, CA 95123; (408) 224-1777. Owner: Richard Dias. Studio Manager: Ramah Dias.

[16] **DANCING DOG**; 1500 Park Ave., Room B210; Emeryville, CA 94608; (415) 655-6760. Owner: David Bryson. Studio Manager: David Bryson.



DAVIS SOUND STUDIO  
Davis, CA

[16] **DAVIS SOUND STUDIO**; 1205 Oak Ave.; Davis, CA 95616; (916) 758-6661. Owner: Andy Lang. Studio Manager: Andy Lang. Engineers: Andy Lang, Christine Webster. Dimensions: Studio 13 x 12, control room 18 x 10. Iso room 7 x 5, Iso room 2 5 x 4. Mixing Consoles: Amek TAC Scorpio 16 x 8. Audio Recorders: Otari MX-70 16-track, Otari MX-5050BII 2-track, TEAC X-3 MkII 2-track Cassette Recorders/Duplicators: Bang & Olufsen Beocord 9000, Nakamichi BX-300, Denon DR-M4, Sony WM-D6C Noise Reduction Equipment, (2) dbx 224X Echo, Reverb, & Delay Systems: (2) Lexicon PCM70 digital effects processor, Lexicon PCN60 digital reverb, DeltaLab ADM-1024 Efectron II digital delay, Ibanez DM-1000 digital delay, Eventide H3000B Ultra-Harmonizer. Other Outboard Equipment: (4) Valley People Kepex II noise gate, (2) Valley People Gain Brain II compressor/limiter/ducker, (3) Valley People Maxi-Q 3-band parametric EQ, (2) Rane PE-15 5-band parametric EQ, Orban 674A 8-band 2-channel parametric EQ, Orban 424A 2-channel compressor/limiter/de-esser, dbx 166 2-channel compressor/limiter/gate, Aphex Tyoe B 2-channel Aural Exciter, Burwen TNE7000 2-channel transient noise eliminator. Microphones: Neumann U89i, (3) Neumann KM84, AKG C-414, (2) Sennheiser MD-121, (2) Audio-Technica AT813R, Audio-Technica ATM63, Beyer M500, Beyer M201, Shure SM57, (2) Crown FZM-30 GP5. Monitor Amplifiers: Tandberg TIA-3012, Hitachi HA-610 (headphone), Rane HC-6 (headphone). Monitor Speakers: Spica TC-50 w/2 Spica servo subwoofers (main), ADS L-400 (console), Canton GL-300F (studio), ADS L-400 (console), ADS 300 (car type). Musical Instruments: Roland D-50 digital synthesizer, Sequential Circuits Model 400 drum machine, MemoryMoog plus analog synthesizer, Ibanez Roostar II electric guitar, Yamaha G240 acoustic guitar, Marshall Lead 12 guitar amplifier/cabinet, Wing and Sun concert grand upright piano with Forte Music MIDI retrofit. Other MIDI Equipment: Roland Octapad Pad-8, Roland S-330 digital sampler, Macintosh SE computer (2 floppy and 1 40MB hard disk drives - all internal), Passport MIDI transport interface, Passport Master Tracks Pro sequencing software, FX Designer PCM70 visual editing software, Dr. T's Roland C-50 editing software. Other: (6) Phi Tech acoustic drum trigger, (2) Axe Klark-trac, Denon DCD-1400 compact disc player, Bang & Olufsen TX turntable w/B&O MMC 2 cartridge, NAD 4155 tuner, AKG and Sennheiser headphones. Rates: 1-25 hrs \$35/hr. 26-50 hrs \$30/hr. 50+ hrs \$25/hr. All prices include engineer and any studio instruments the client desires to use. Specialization & Credits: Davis Sound Studio strives not only to make the best possible recordings technically, but also to provide a very friendly, comfortable, relaxed and creative atmosphere for our clients. We treat every project with care and concern for what our clients want, and turn their desires into a professional-quality finished product. We handle all types of projects including narration, voice-over, commercial and jingle production (we have the entire Sound Ideas 1000 Series sound effects library on 28 compact discs), demo tapes and albums. We also offer real-time tape duplication. In addition, production services and session musicians are available upon request. Our lounge area includes TV, video games and refrigerator (always stocked with water, soft drinks, coffee and tea). Access to Davis Sound Studio is easy via nearby freeways and airports. As you can see, we are more than just competent! Please give us a call or just stop by.

[16] **DOMESTUDIOS**; 1912 Gilmore Trail; Fairbanks, AK 99712; (907) 457-1993; (907) 456-2604. Owner: Gerald Ralston. Studio Manager: Ron "Rif" Ralston. Engineers: Rif Ralston, Jerry Ralston. Dimensions: Studio 460 sq. ft. (irregular polygon), control room 150 sq. ft. Mixing Consoles: Hill B-324 8 x 2, Tascam Model 3 8 x 4 x 2, (2) Shure 4 x 1 submixer. Audio Recorders: Tascam MS-16 16-track, Tascam 80-8 8-track, TEAC 334CS 4-track, Technics RS1500US 2-track, Pioneer RT 1050 2-track Cassette Recorders/Duplicators: Tascam

122B, Technics. Noise Reduction Equipment: dbx, Symetrix 511. Echo, Reverb, & Delay Systems: ART ProVerb, DL-2 Acousticcomputer, AKG BX-5 reverb, Yamaha SPX90 Other Outboard Equipment: Orban 622B parametric equalizer, Rane GE-27 graphic equalizer, Rane RE-27 real-time equalizer, (2) Furman LC-2 comp/limiter, Yamaha GC2020 comp/limiter, Aphex Type C Aural Exciter. Microphones: Neumann U47 tube, Beyers, Shure, Sony, AKG, Crown PZM, Audio-Technica, Toa, Calrec, Peavey, Countryman direct boxes. Monitor Amplifiers: Halfer, Crown, Rane HC-6 headphone amp. Monitor Speakers: Klipsch Cornwalls, JBL 4313, Auratone. Musical Instruments: Yamaha DX7, Yamaha OX7, Alesis HR-16 drum machine, E-drums, Midi Bass, electric and acoustic bass, guitars, upright grand piano. Other: Macintosh SE with Jam Box/4 and MidiPaint. Rates: Upon request.

[16] **FASTTRACK RECORDING STUDIO**, also **REMOTE RECORDING**; 4220 Broadway, Denver, CO 80216; (303) 292-2115. Owner: Terry McMurtry. Studio Manager: Wayne K Gerbrandt.

[16] **HIGHLAND STUDIO**; PO Box 554; Los Gatos, CA 95031; (408) 353-3952. Owner: Joe Weed. Studio Manager: Joe Weed.

[16] **HORIZON AUDIO RECORDING**; 4115 E. McMillan; Meridian, ID 83642; (208) 939-6197. Owner: Rob & Kim Matson. Studio Manager: Rob Matson.

[16] **INFAL RECORDS, CO.**; also **REMOTE RECORDING**; 2217 Champa St.; Denver, CO 80205; (303) 295-1500. Owner: Victor M. Hernandez. Studio Manager: Ruth Medina.

[12] **INTERNATIONAL SENSORY AUDIO DESIGNS**, 3007 Cowgill Ave.; Bellingham, WA 98225; (206) 647-1831. Owner: Steve Pratt. Studio Manager: Steve Pratt.



KLUB KEYS RECORDING CO.  
Seattle, WA

[16] **KLUB KEYS RECORDING CO.**; 3177 NE 82nd; Seattle, WA 98115; (206) 527-2250. Owner: Kevin G. Boyd. Studio Manager: Scott Spain. Engineers: Scott Spain, Ric Senechal, Lloyd Cable. Dimensions: Studio 12 x 30, control room 14.5 x 11.5. Mixing Consoles: Soundcraft 600 32 x 8. Audio Recorders: Otari MX-70 16-track with CB-120 SMPTE autolocator, Otari MTR-12 2-track with CB-119 autolocator. Cassette Recorders/Duplicators: (2) Nakamichi MR-1, (2) Nakamichi MR-2. Echo, Reverb, & Delay Systems: AKG ADR 68K reverb, Klark-Teknik DN780 reverb, (2) Ibanez SDR-1000 reverb, Yamaha REV7 reverb, TC Electronic 2290 digital delay, Roland SDE-3000 digital delay, Roland SDE-1000 digital delay. Other Outboard Equipment: Eventide H3000 Harmonizer/effects processor, dbx RTA-1 real-time analyzer, (2) UREI 1176 compressor, (2) UREI LA-4 compressor, dbx 165 compressor, dbx 166 stereo compressor, (2) dbx 902 de-esser, dbx stereo single-ended noise reduction, (4) Audioarts 4-band parametric, Klark-Teknik DN360B 1/2-octave graphic EQ. Microphones: AKG tube, RCA BK-11A ribbon, RCA 44, Neumann TLM-170, (2) Sennheiser 441, (3) Sennheiser 421, (4) AKG 460, AKG 451, (2) AKG D-12, (2) Electro-Voice RE-20. Monitor Amplifiers: (2) Crown Micro-Tech 1200 power amps. Monitor Speakers: JBL 4425 studio monitors, Yamaha NS-10M reference monitors. Musical Instruments: Kurzweil K-250, Kurzweil K-1000 PX, Yamaha DX7IID, Roland D-550, Oberheim OB-X (with MIDI), Yamaha RX5, custom studio bass and custom studio guitar both built by Mike Lull, Musser Pro vibes. Other MIDI Equipment: Jam Box/4, (2) Yamaha MJC-8 MIDI switcher. Other: Apple Macintosh SE, full audio monitor system in LBD area. Rates: \$40/hour, 10 hrs. or less, \$35/hour, 10 hrs. or more. Specialization & Credits: Precision 1" 16-track recording for those who can't afford to do it over. We are a family of friends dedicated to artistic and technical excellence.

[16] **MAGIC SOUND**; also **REMOTE RECORDING**, 1780 Chanticleer Ave.; Santa Cruz, CA 95062; (408) 475-7505. Owner: Alan Goldwater. Studio Manager: Alan Goldwater, Merle Sparks. Engineers: Alan Goldwater, Merle Sparks. Di-

mensions: Studio 16 x 20 x 12 (asymmetrical wedge ceiling), isolated drum room 12 x 14, booth 5 x 6 x 7, control room 12 x 14 x 16. Mixing Consoles: Custom 36 x 8 separate 16-track fully equalized monitor section, full patch bay, API 550 mix-board EQ. Audio Recorders: MCI/Inovonics JH-16 15/30 ips, Rockwell computer autolocator, Ampex AG440 2-track 15/30 ips, Otari MX-5050 2-track, Sony PCM-701 2-track digital, IMS Dyaxis digital editor. Cassette Recorders/Duplicators: (2) Kenwood KX 1060. Echo, Reverb, & Delay Systems: Ecoplate II multi-track reverb, Marshall Time Modulator, Roland Space Echo, Lexicon Prime Time II, Lexicon PCM60. Other Outboard Equipment: (2) MXR flanger, (2) MXR 1/2-octave graphic EQ, (2) Universal Audio 175B tube limiter, Allison Gain Brain, Roger Mayer noise gates, (8) API 550A EQ, (2) UREI LA-4 limiter, Thorens/Rabco disc player. Microphones: Neumann KM54a, Neumann U67, (2) AKG 414EB, AKG C-451, AKG D-190, AKG D-160, AKG D-12, AKG C-28A (tube), Beyers M-260, (2) Beyers X1N, (2) Sennheiser MD-421, Shure SM57, Shure SM58, Shure SM81 (several each), Sony C-377, Sony C-22, Sony C-37A (tube), Altec M30s (tube), RCA BK5 (ribbon), (2) AKG C-61a tube, AKG C-12 (tube), Shure SM7. Monitor Amplifiers: Halfer 250. Monitor Speakers: Altec/UREI 811, White 4100 EQ, Sennheiser and AKG headphones. Musical Instruments: Cable upright piano, Apple computer 16-voice synthesizer system, Guild F30, Danelectro and Rickenbacker 12-string guitars, Fender Princeton and Deluxe amps, Polytone amps, CB drums w/Zildjian cymbals, E-mu Drumulator w/computer sequencer. Video Equipment: Panasonic NV8200 w/computer search, Panasonic 8500 VHS editing system. Rates: \$40/hr 16-track, \$35/hr block (10 hrs or more), \$30/hr 8-track, \$30 block, \$30/hr 2-track and editing, 1 hour free setup. Above rates include engineer and instruments.

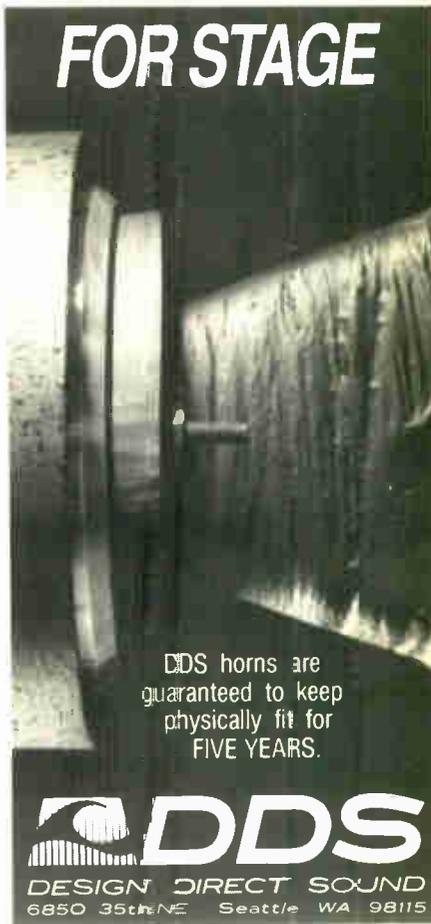


NACNUD SOUND  
Lodi, CA

[16] **NACNUD SOUND**; 6748 Hogan Ln.; Lodi, CA 95240; (209) 334-2845; (209) 474-8761. Owner: Rick Duncan. Studio Manager: Bruce Beck. Engineers: Rick Duncan, Cecil Ramirez, Mark Zarek, Bruce Beck, Bob Bellwet. Dimensions: Studio 22 x 40, control room 22 x 12. Mixing Consoles: Soundtracs MR Series 32 x 8, 16 x 2. Audio Recorders: Tascam MS-16 16-track w/autolocator, Otari MX-5050 1/2-track master w/remote, Pioneer RT-707 2-track. Cassette Recorders/Duplicators: Nakamichi MR-2, Yamaha C-300. Noise Reduction Equipment: dbx 16-track Synchronization Systems: Yamaha MSS-1 MIDI synchronizer, Performer SMPTE. Echo, Reverb, & Delay Systems: Lexicon Prime Time II DDL, Lexicon PCM70. Yamaha REV5. Yamaha SPX90II, Eventide H3000, AKG BX-20. Other Outboard Equipment: dbx 160X, Valley People rack w/Gain Brains. Kepex Max EQ, Aphex Aural Exciter, Sony headphones. Microphones: Neumann U87, AKG 414, AKG 441, AKG 442, AKG 412, Sennheiser 421, E-V RE20, Shure SM81, Shure SM58, Shure SM57, Sony ECM-230F. Monitor Amplifiers: Halfer D-500, Yamaha P2200, Adcom GFA-1. Monitor Speakers: Westlake BB-SM10, Yamaha NS-10M, Auratone. Musical Instruments: Yamaha KX88, Yamaha DX7IID "E", Yamaha TX816 rack, Oberheim Xpander, Oberheim DPX-1 sample playback of Mirage, Prophet-2000, Prophet-E-2, Roland D-50, Moog Minimoog with complete MIDI interface, Roland MKS-20 digital piano rack, Roland Super Jupiter, E-mu SP-12. Other MIDI Equipment: Macintosh Plus with complete performer sequencer, editing, sound library software, Opcode studio and MIDI interface, Jasmine 20-meg hard drive, Sycologic 32 x 32 MIDI switcher, Yamaha MJC-8 MIDI switcher, modem. Other: Universe of Sounds CD-ROM library E-Z, Hi-Watt guitar amp, Rocktron XDC, Yamaha bass rack system with JBL cabs, Crown paragratic EQ Pearl 7-pc maple drum kit w/Zildjian cymbals, Ibanez GTR, Rockman amp, Rane headphone amp, custom busses. Rates: Available upon request.

[16] **NIGHTWIND PRODUCTIONS**, also **REMOTE RECORDING**; 60 Monument Plaza; Pleasant Hill, CA 94523; (415) 827-0200. Owner: Bob Peacock, Donna Stewart. Studio Manager: Bob Peacock.

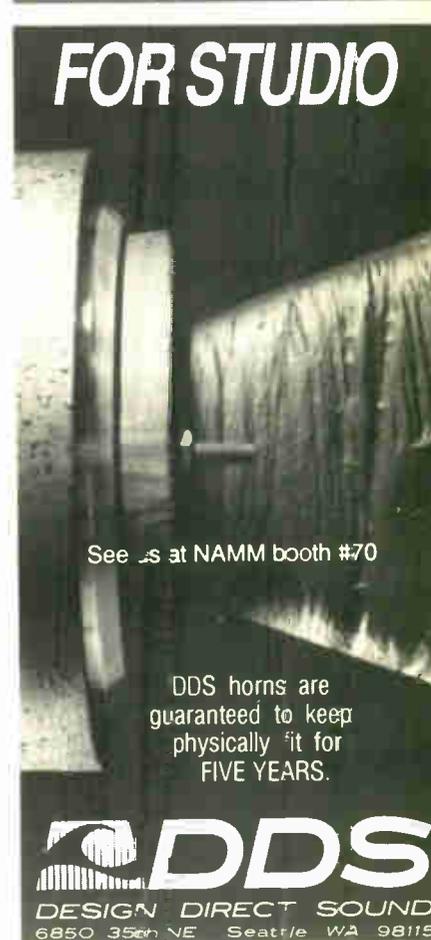
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# 12&16 TRACK STUDIOS

[16] **PAN STUDIOS, INC.**, 530 Communications Circle, Ste. 203, Colorado Springs, CO 80905, (719) 633-6764. Owner: Dale Nixon. Studio Manager: John Standish

[16] **PLU AUDIO SERVICES**, also *REMOTE RECORDING*, 121st & Park Ave., Tacoma, WA 98447; (206) 535-7268. Owner: Pacific Lutheran University. Studio Manager: Jeffrey Bruton



POOLSIDE STUDIOS  
San Francisco, CA

[16] **POOLSIDE STUDIOS**, also *REMOTE RECORDING*, 2269 Chestnut #310, San Francisco, CA 94123, (415) 931-9390. Owner: Mitchell Stein, David Nelson, Dieter Wehl. Studio Manager: Mitchell Stein, David Nelson. Engineers: David Nelson, chief engineer, Mitchell Stein, executive producer. Dimensions: Studio 14 x 21, control room 12 x 18, iso booth 8 x 5. Mixing Consoles: Sound Workshop 1600 series 32 x 16. Audio Recorders: Otari MX-70 16-track, Otari MX-55 2-track with center-track time code. Cassette Recorders/Duplicators: Onkyo TA-2056. Noise Reduction Equipment: Dolby SR, dbx 150X, dbx 224X-DS. Synchronization Systems: (3) Lynx Time-Line w/keyboard controller, Roland SBX-80 MIDI/SMPTE synchronizer, Opcode SMPTE/MIDI time-code machine. Echo, Reverb, & Delay Systems: Lexicon LXP1 (stereo), Lexicon 200, Roland DEP-5, (2) Effectron II. Other Outboard Equipment: Orban 424A stereo compressor/limiter/de-esser, (2) Valley Audio Maxi-Q parametric equalizer, Aphex Aura Exciter, USAudio Gate-X 4-channel expander/noise gate, Para-sound stereo graphic equalizer, Roland GP-8 multi-effects processor, Sony PCM-501ES digital audio processor, dbx 463X noise gate, dbx 63X compressor/limiter, Sonic Research Associates Tri-Ambient synthesizer unit. Microphones: Neumann U67, (2) Neumann KM84, (2) Sennheiser 421, Sennheiser 441, (2) AKG 160 w/capsules, (2) Crown PZM, (2) Shure SM57, (2) Shure SM58. Monitor Amplifiers: Hafler 500, Crown D-150, BGW M-75. Monitor Speakers: (2) UREI 809, (2) Yamaha NS-10M, (2) Auratone. Musical Instruments: Emulator II, Roland TR-707 drum machine, Roland Juno-106, Slingerland drum kit, Fender Rhodes stage piano w/built-in preamp, Fender Jazz bass, steel drums, timbales, congas, Korg vocoder, Moog Minimoog, extensive digital sound effects library. Other MIDI Equipment: 360 Systems MIDI patcher, Opcode Studio Plus. Video Equipment: JVC 8250 3/4" editing VTR w/controller, Sony Super Beta Hi-Fi, Quasar VHS Hi-Fi, Proton 619-S 19" monitor, (2) Panasonic CT-110 14" monitor. Other: Macintosh Plus w/60MB hard drive. Q-Sheet, Opcode 2.1, Performer, UpBeat, Sound Designer, MidPaint, AKG, Sony MDR-V6 digital stereo headphones. Rates: Available upon request. Complete production packages available. Specialization & Credits: Poolside Studios is a full-service recording studio specializing in audio-for-video production. We offer complete production services from pre-production consultation through final post. Recent Poolside productions include theatrical motion pictures, PBS documentaries, music videos, television commercials, radio commercials and record albums. Our video synchronization system makes complete soundtrack work (including ADR, sound effects, music and Foley) possible. Situated in the heart of San Francisco's Marina district, Poolside Studios is an ideal location for producers and clients. Our strength lies in our ability to provide our clients with a creative working environment without the need to "watch the clock." Whether your project takes a few hours or a few weeks, every step has been taken to insure your comfort. While our production services are state-of-the-art, our rates are very reasonable. Poolside Studios—we take pride in every project we produce.

[16] **PYRAMID SOUND**, also *REMOTE RECORDING*; 39 Gilbert St., San Francisco, CA 94103; (415) 863-8565. Owner: Keith Moreau/Gregory Gordon. Studio Manager: Gregory Gordon

[16] **REAL TO REEL SONGWRITERS PRODUCTION/RECORDING STUDIO**, 2853 Brewster, Redwood City, CA 94062; (415) 364-6524. Owner: Rob Selznick. Studio Manager: Rob Selznick

[16] **RECIPROCAL RECORDING**; 4230 Leary Way NW; Seattle, WA 98107; (206) 782-6411. Owner: Chris Hanzsek. Studio Manager: Chris Hanzsek

[16] **THE RECORDING CENTER**, also *REMOTE RECORDING*; 118 W. Pine St., Missoula, MT 59802; (406) 721-4172. Owner: Richard H. Kuschel. Studio Manager: Richard H. Kuschel

[16] **D. ROSS PRODUCTIONS**, also *REMOTE RECORDING*; 3097 Floral Hill Dr., Eugene, OR 97403; (503) 343-2692. Owner: Don Ross. Studio Manager: Don Ross

[16] **SOUND SET RECORDING**; 2125 S. Valencia St., #B; Denver, CO 80231; (303) 671-0572. Owner: Anette Yagdar, Lior Zelmanowicz. Studio Manager: Lior Zelmanowicz. Engineers: Lior Zelmanowicz, independent producers/engineers. Dimensions: Room 1: studio 21 x 18, control room 18 x 15. Room 2: studio 15 x 12. Room 3: studio 19 x 16. Mixing Consoles: AHB the CMC-32 32 x 24 (56 inputs available in mix mode, in-line semi-automated, all routing and muting controlled via built-in computer [C.A.R.S.], custom upgrades including high-tech chips installation). Audio Recorders: Fostex E-16 16-track special order 30 ips 4050 SMPTE-to-MIDI autolocator, Sony PCM-501 2-track digital, Fostex E-22 2-track 1/2" 15/30 ips, Fostex A-20 2-track 1/4" Cassette Recorders/Duplicators: Akai GX-912 2-track, (4) Telex CD4MS 4-track high-speed/real-time duplicator. Noise Reduction Equipment: (16) Dolby C. Synchronization Systems: (2) Fostex 4030 synchronizer, Fostex 8710, Fostex 4035 multi-synchronizer remote controller. Echo, Reverb, & Delay Systems: Lexicon PCM60 [V2 D] digital reverb, Yamaha REV7 digital reverb, Yamaha SPX90II digital effects processor, Roland DEP-5 digital effects processor, Roland SDE-2500 digital delay, Korg SDD-2000 sampling digital delay, Korg DVP-1 vocoder, harmonizer, pitch shifter. Other Outboard Equipment: Yamaha G-2031 stereo 31-band EQ, dbx 165A over-easy compressor, dbx 166 stereo compressor, (2) dbx 263X de-esser, Valley People "GateX" quad noise gate, Audio Logic MT-44 quad noise gate, Furman PQ-6B stereo parametric EQ, Rane SP-15 parametric EQ, Aphex Aural Exciter Type B (stereo), custom tube preamp. Microphones: AKG "Tube", (2) AKG C-414EB P-48, AKG C-4600C1 ULS, AKG D-224EB, D-12E, D-330BT, D-112, D-170 ME, (3) Sennheiser U5-421, Lynx printed ribbon M-11RP, M-80RP, M-77RP, Beyerdynamic M500, Shure SM57, Crown PZM, Monitor Amplifiers: (2) UREI 6500 power amp, SCS 2350-A stereo power amp, Rane HC-6 Monitor Speakers: (2) UREI 811B Time Align monitors, (2) Fostex 6301-B power monitor, custom-built stereo/mono headphone boxes w/AGK 240 DE and Fostex F20 headphones. Musical Instruments: Korg DSS-1 digital sampling synth with 12,000 sounds, Yamaha TX802 multi-timbral (DX7II compatible), FM tone generator, Yamaha RX5 digital drum machine, Roland D-20 multi-timbral L/A Synthesizer w/sequencer and drum machine, Roland MKS-30 synthesizer module, Korg EX-800 synthesizer module, Alesis HR-16 16-bit drum machine, Korg DDM-220 percussion machine, Roland MSQ-100 MIDI sequencer, Korg DVP-1 Human-wave synth, Korg KMS-30 MIDI synchronizer, (10) custom electric drum pads. Other MIDI Equipment: Commodore 64 w/disk drive and JMS interface, JMS 12-track MIDI sequencer, Yamaha MDF-1, YMM2, Roland PAD-8 MIDI Octapad. Video Equipment: Sony VO-5600 3/4" video for post-production, NEC video monitor. Other: Univox guitar, Roland JC-120 guitar amp, Randall 125 bass amp, custom 15" JBL bass cabinet, Roland MC-202 synth/sequencer, Roland SH-101 synthesizer, Emerson CD player. Rates: 16-track—\$25/hr., video lockup—\$35/hr. All include engineer and the use of all the equipment list at no extra charge.

[16] **THE SOUND SOURCE**, 741 4th St., 2nd Floor, Santa Rosa, CA 95402; (707) 528-1530. Owner: Randy Teaford, Dave Armpio. Studio Manager: Claire Teaford. Rates: Rates and equipment list upon request. Specialization & Credits: The Sound Source is a unique new 16-track audio/digital production facility located above one of Northern California's largest music stores, Stanroy Music Center. Our primary function is to offer all musicians, producers and filmmakers integrated computer sequencing via Macintosh Plus/Apple II computers with the very latest keyboards, synthesizers and digital samplers available as cost-effective techniques for production. An expanding library of software and samples featuring Performer/Composer, Opcode, Digidesign, Passport, Blank, Intelligent Music and many others offers clients the option to do their own pre-production if desired or have our creative staff of writers and engineers do it all for you. The Sound Source has currently finished the musical scoring and engineering for the most recent Charles Schultz film for TV, "The Girl in the Red Truck," premiering on CBS Musical

scores for film and video as well as commercial productions are our specialty

[16] **SOUND WEST RECORDING**; 2321 Tacoma Ave., Tacoma, WA 98402; (206) 272-4251. Owner: Steve Paulik, Carl Schneider. Studio Manager: Steve Paulik. Engineers: Steve Paulik, Carl Schneider. Dimensions: Studio 19 x 25, control room 19 x 14. Mixing Consoles: Soundcraft TS-12 24 x 12 x 24. Audio Recorders: Tascam MS-16 16-track w/dbx, Sony PCM-F1 (digital), Technics 1500 1/2-track w/dbx, TEAC X10R 1/4-track. Cassette Recorders/Duplicators: TEAC C1, Pioneer CT-F900. Noise Reduction Equipment: dbx 16-channel, dbx 150 2-channel. Synchronization Systems: Jam Box/4+ SMPTE lock and MIDI interface. Echo, Reverb, & Delay Systems: Lexicon PCM70, Lexicon PCM60, Lexicon PCM42, Roland SRV-2000, (2) Roland SDE-1000, (2) Ibanez SDR-1000, TC Electronic 2290 (sample and delay 11 sec.), (2) Eventide H3000. Other Outboard Equipment: Aphex Type C Exciter, Symetrix 544 gates, (2) UREI LA-4, Yamaha Q1027 EQ, (2) Symetrix 150 compressor. Microphones: AKG, Sennheiser, E-V, Sony, Beyer, Crown PZM, Shure, Audio-Technica, Milab Monitor Amplifiers: Carver, Crown, Yamaha, Harman Kardon. Monitor Speakers: UREI 809, Yamaha NS-10M, Auratone 5C, AKG 240M (phones). Musical Instruments: Ensoniq EPS, (2) Ensoniq Mirage sampling keyboard w/extensive library, Yamaha TX81Z, Akai AX73, E-mu SP-12, Roland Juno-2, Octapad, MKS. Guitars: Les Paul, SG, Ibanez, Ovation, Strat, Modulus Telecaster. Amps: Gallien-Krueger, Rockman, Yamaha, Lab Series, Fender Twin, Ampeg, Roland Jazz. Keyboards (available w/advanced booking): Yamaha DX7, Roland JX-8P, Roland Juno-2, Roland Jupiter-6, Korg DW-8000, Korg DW-6000, Korg Poly-800, E-mu Emax. Other MIDI Equipment: Mark of the Unicorn Performer (Version 2.3), Macintosh SE (45-meg HD), Jam Box/4, Sound Designer, Cue sheet, FX Design, Macintosh 512K. Video Equipment: 1/2" VHS Hi-Fi and Beta Hi-Fi, JVC KY-2000B camera, JVC GX-N5U camera, JVC GX-N70U camera. Rates: Please call for rates

[16] **STUDIO CENTER SAN JOSE, INC.**; 434 S. First St., San Jose, CA 95113; (408) 993-1040. Owner: Corporation. Studio Manager: Jerry McReynolds. Engineers: Jerry McReynolds, Matthew C. Howe. Mixing Consoles: Sound Workshop Series 30 16 x 16 x 8 custom w/automation and Diskmix, Tascam M-208 8 x 4 x 2, Neptune 8 x 2 8-channel mixer. Audio Recorders: Otari MX-70 16-track, Otari MX-5050 MkII 8-track, (2) TEAC 2340SX and 3340S 4-track, Otari MX-5050II 2-track, Pioneer RT-909 2-track. Cassette Recorders/Duplicators: Akai GX-91 2 cassette deck, Dual C828 cassette deck. Synchronization Systems: Audio Kinetics Pacer. Echo, Reverb, & Delay Systems: Yamaha REV7 digital reverb, (2) Digitech DSP 128 digital signal processor, Roland SDE-1000 digital delay, Lexicon Prime Time digital delay, Korg DRV-1000 digital reverb, DeltaLab ADM 64 Effectron II, Alesis Microverb. Other Outboard Equipment: (2) UREI LA-4 comp/limiter, MXR 15-band stereo EQ, Rane HC6 stereo headphone amp. Microphones: AKG C-414EB, (4) Shure SM57, Neumann U87, (3) Sennheiser 421, AKG 58E-200, (2) Shure SM58, Sennheiser ME-20, ATM-41. Monitor Amplifiers: BGW 750C, GLI SA-2130, AMR PMA-200, (2) QSC 37 Monitor Speakers: JBL 4411, Yamaha NS-10, Auratone Model C. Musical Instruments: Ensoniq EPS synthesizer/sampler, Roland D-50 synthesizer, (3) Roland Juno-106 synthesizer, Roland GM-70 guitar MIDI controller, Alesis HR-16 drum machine, Minimoog synthesizer, Roland TR-707 drum machine, Gibson Les Paul, Fender Precision, Audition 20 amp, Fender 25 amp, (2) Marshall cabinet. Other MIDI Equipment: Sonus SMX-2000 synchronizer, Apple Macintosh w/Professional Composer, Q-Sheet and Performer software, Digital Music Corp. MX-8 MIDI patch bay/processor, Akai ME20A MIDI sequencer arpeggiator, Compaq (IBM compatible) computer w/Robert Keller's 48-track PC software and Texture software. Video Equipment: (3) Sony BVU-950 SP 3/4" U-matic, BVE-900 editor, Sony BVU-150 SP 3/4" U-matic, Sony VO-4800 U-matic, Sony VO-5850 3/4" U-matic, Sony VO-2860 3/4" U-matic, (2) Ikegami 730A camera. Other: ADC 16-2R compact disc player, Rane HC6 stereo headphone amp, custom computer graphics system, Fairlight CVI digital effects, (3) IBM computer for music and automation storage. Rates: Call for rates

[16] **SYNCO INTERNATIONAL STUDIO**; 2 Alameda Ln., San Anselmo, CA 94960; (415) 457-4852. Owner: Satoshi Suzuki. Studio Manager: John Verman. Engineers: Daniel Ryman (credits for Color Purple w/Quincy Jones), Derek Stowe. Dimensions: Booth 8 x 8, room 20 x 20, reverb room 17 x 6, control room 12 x 20. Mixing Consoles: TAC Scorpion 32 x 16 x 8. Audio Recorders: Tascam MS-16 16-track, Sony PCM-601ES 2-track digital, (2) Fostex E-16 30-track w/synchro, Fostex E-22. Cassette Recorders/Duplicators: Nakamichi MR-1, Aiwa WX-220. Noise Reduction Equipment: (2) Dolby SR Echo, Reverb, & Delay Systems: Natural room reverb, AMS, Yamaha REV7, (4) Yamaha SPX90, Lexicon PCM70, TC Electronic 2290, Roland DEP-5. Other Outboard Equipment: dbx 900 rack w/compressors/EQs/limiter, 1960 Drawmer vacuum tube compressor, Yamaha DMP7, DOD 944. Microphones: Neumann U87, AKG 414, B&K 4007. Monitor Amplifiers: Bryston J4B, Eagle II modified Jan C. Inverson. Monitor Speakers: JBL 4430 Bi-Radial, Tannoy SRN-10B, Celestion SL6S, Auratones. Musical Instruments: Emulator II w/hard disk, Oberheim OB-Xa synth, DSX sequencer and DMS drum machine, Korg polyphonic synth, Yamaha

**SYNCR0  
INTERNATIONAL  
STUDIO**

SYNCR0 INTERNATIONAL STUDIO  
San Anselmo, CA

DX7, Fender Rhodes, Roland B-50, Casio CZ-3000, Casio CZ-101, Casio CZ-230, Yamaha TX7 rack, Roland GR-700, Roland G-707, fully upgraded. Other MIDI Equipment: Macintosh II+, Julian Strapmick 20-megabyte hard disk, Korg KMT-60, Mark of the Unicorn Performer expansion, Opcode DX librarian and Digidesign, Opcode PCM digital design FX designer Video Equipment: Video post-production equipment is available. Specialization & Credits: We proudly feature a "state-of-the-art" MIDI system. The final mix is mastered digitally, providing maximum assurance of exceptional excellence in sound quality. We specialize in high-quality/low budget master and/or demo work as well as scoring for soundtracks/industrial and new age/synthesizer music. By utilizing MIDI technology, the production often operates in 40- to 50-track ensemble. The following projects are all produced by Satoshi Suzuki. Recent projects: Satoshi Suzuki & Marty Balin/Spirit of America—Satoshi and Dr. Space Band/MTV score with Debra Winger and Kevin Tigh/director Karl Krogstad, written by Tom Robbins. Satoshi Suzuki & Bruce Beckver "Everywhere Magic" (Windham Hill artist), Anthony Hindson, Eastern Muse featuring Anthony Hanson, Tony William, Zakir Hussien, L. Shanker (currently touring w/Peter Gabriel). Also providing a production service, we will pleasantly surprise you with our ability to make the most of your production dollar. This service, based upon experienced and advanced technology, is highly versatile in many musical areas from pop to new age. We tailor productions (budget and product) to your artistic personality. After "your sound" is found, post-production direction will provide support for exposure in the current atmosphere of music production.

[16] **TURTLE MOBILE RECORDING**, only REMOTE RECORDING; 12223 Bel Red Rd., #D306, Bellevue, WA 98005; (206) 646-5484. Owner: Larry Anschell. Studio Manager: Harold Kohl.

[16] **VIDEOSONIC SOUND RECORDING**, 503 A Divisadero St., San Francisco, CA 94117; (415) 922-4382. Owner: Jack Cutter. Studio Manager: Jack Cutter.

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# 4 & 8 TRACK

## STUDIOS

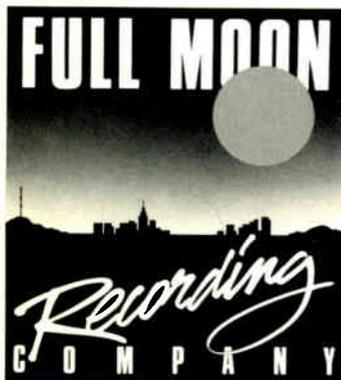
[8] **BEAR TRACKS STUDIO**; 348 Blossom Hill Rd.; San Jose, CA 95123; (408) 281-3535. Owner: Eddie Bear Studio Manager: Christopher Bentley

[8] **BUEHLER MUSIC DESIGN/NORTH BERKELEY RECORDING**; PO Box 9233; Berkeley, CA 94709; (415) 524-8596. Owner: David Buehler Studio Manager: David Buehler

[8] **CLAWS ON PRODUCTIONS**; also *REMOTE RECORDING*; 1355 C Bear Mtn. Dr.; Boulder, CO 80303; (303) 499-1144. Owner: Dan Clawson Studio Manager: Dan Clawson  
**Specialization & Credits:** CLAWS ON PRODUCTIONS specializes in original music scores and sound FX designing for film, television and video soundtracks as well as album productions. Our credits include project works for: The United Nations, Ball Aerospace, Pure Prairie League, the FAA branch of the Presidential Commission on Science and Technology, and Diners Club, as well as film documentaries and many computer graphic pieces (our favorite). We are also software consultants for IBM-based music software developers. Our music scores for visual productions are absolutely professional in quality and very price-competitive.

[8] **DJ MUSIC**; also *REMOTE RECORDING*; 3691 Edgefield Dr.; Santa Clara, CA 95054; (408) 727-7108. Owner: Dave Jasak Studio Manager: Dave Jasak

[8] **ENHARMONIK STUDIOS**; also *REMOTE RECORDING*; PO Box 22243; Sacramento, CA 95822; (916) 443-0373. Owner: Mad Rover Records Studio Manager: John Baccigaluppi



FULL MOON RECORDING COMPANY  
Eugene, OR

[8] **FULL MOON RECORDING COMPANY**; also *REMOTE RECORDING*; 197 W. 12th Ave.; Eugene, OR 97401; (503) 343-1294. Owner: PRN, Inc. Studio Manager: Steve Diamond  
**Engineers:** Steve Diamond, Jon Davie, Phil Powers  
**Dimensions:** Room 1 studio 24 x 15 plus 2 isolation booths, control room 15 x 12 Room 2 control room 15 x 12  
**Mixing Consoles:** TAC Scorpion 16 x 8, Ramsa 12 x 4  
**Audio Recorders:** Otari MX-70 8-track, (2) Otari MTR-10 2-track, Otari MX-5050 2-track, Ampex 350 1-track, Ampex 700 2-track  
**Cassette Recorders/Duplicators:** Otari DP-4050C2 stereo high-speed w/5 slaves, Nakamichi MR-1, Nakamichi MR-2 and others.  
**Noise Reduction Equipment:** 2 channels of Dolby SR Synchronization Systems; (2) Adams-Smith Zela-3 SMPTE generator/controller Echo, Reverb, & Delay Systems; Lexicon PCM-70, (2) Yamaha SPX90  
**Other Outboard Equipment:** dbx 166 dual-channel comp/limiter/gate, Aphex Compellor dual-channel, Valley People Dyna-Mite 2 channels, Valley International GateX 4 channels, UREI 533 EQ, Valley International dynamic

silbance processor  
**Microphones:** (4) Neumann U87, (2) Neumann TLM-170, (2) Neumann U89, (4) Neumann KM84, (2) AKG 460, Beyer 500, (2) Sennheiser MD-421, others  
**Monitor Amplifiers:** Halfer DH-220, Yamaha, Rane HC-6, (2) McIntosh C-60 tube Monitor Speakers: Tannoy Little Red w/sync source, JBL 4315, JBL 4311, Auratone 5C  
**Musical Instruments:** Many synths available  
**Video Equipment:** Panasonic AG 6500, center-stripe time code for Otari MTR-10 2-track, 1" layback kit for Otari MX-70 8-track, (2) MGA monitor  
**Other:** Technics SL-1200 MkII turntable, (4) Harris cart machine, (2) custom phone patch coupler, Technics SL-P1200 CD player

[8] **HANK'S BASEMENT AUDIO**; also *REMOTE RECORDING*; 5665 E. Colorado Ave.; Denver, CO 80224; (303) 756-8777. Owner: H B Anderson, Jr Studio Manager: H B Anderson, Jr

[2] **HOLLCRAFT RECORDING**; also *REMOTE RECORDING*; 1961 Rose Ln.; Pleasant Hill, CA 94523; (415) 689-3444. Owner: E Hollcraft Studio Manager: C Greenley

[8] **HOMETOWN ARTISTS RECORDING**; 120 W. 5th St.; Rille, CO 81650; (303) 625-3421. Owner: Lee & Roberta Gillespie Studio Manager: Lee & Roberta Gillespie

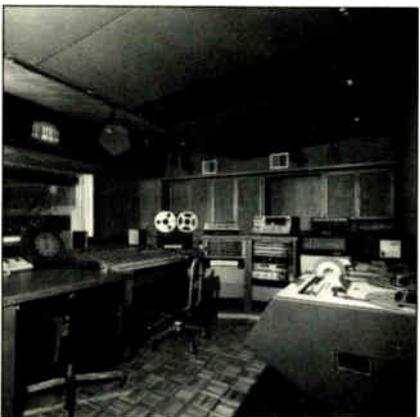
[8] **HUMMINGBIRD SOUND LAB**; 10201 Belgrove Ct. NW; Seattle, WA 98177; (206) 782-1512. Owner: David Casper Studio Manager: David Casper

[2] **JOHNSON DIGITAL AUDIO**; only *REMOTE RECORDING*; 467 Saratoga Ave., Ste. 627; San Jose, CA 95129; (408) 244-9772. Owner: Tom Johnson

[8] **JUDE PRODUCTIONS**; PO Box 90; Dutch Flat, CA 95714; (916) 389-2326. Owner: Russell Brian Brooker Studio Manager: Victoria Brooker

[8] **LEON-FORRESTER PRODUCTIONS**; 4416 SE Hwy. 101; Lincoln City, OR 97367; (503) 996-2575. Owner: L F Caulkins Studio Manager: L F Caulkins

[8] **LOWE PRODUCTIONS**; also *REMOTE RECORDING*; 5030-74 Valley Crest Dr.; Concord, CA 94521; (415) 686-0907. Owner: Samuel M. Lowe Studio Manager: Samuel M. Lowe



MCCUNE STUDIOS  
San Francisco, CA

[8] **MCCUNE STUDIOS**; also *REMOTE RECORDING*; 951 Howard St.; San Francisco, CA 94103; (415) 777-2700. Owner: McCune Audio/Visual/Video Studio Manager: Jim Draper  
**Engineers:** Dave Duca, Jeff O'Sammon, Jim Draper

**Dimensions:** Studio 16 x 26, control room 15 x 19  
**Mixing Consoles:** Amek TAC 1682 16 x 8 x 2  
**Audio Recorders:** Otari MX-5050 8-track, (2) MCI JH-110 2-track, Otari MX-5050BQII 4-track, Ampex 440 2-track, Ampex/Novonics 350 2-track, Ampex 350/351 mono, 16-track (1" / 2" on request)  
**Echo, Reverb, & Delay Systems:** AKG BX-20, Scamp S-24 Time Shape module, AMS reverb and delay on request  
**Other Outboard Equipment:** Scamp rack including compressor/limiter, parametric EQ dynamic noise filters and Time Shape module, UREI 1176LN compressor/limiter, Orban de-esser, Technics SL-1200 MkII turntables w/Burwen TNE7000A transient noise eliminator and other devices from McCune rental stock  
**Microphones:** Neumann U87, Neumann KM84, AKG 414, AKG 451, AKG 202, Sony C-37, RCA 77, Shure SM56, Shure SM57, Shure SM58 and many others from McCune rental stock  
**Monitor Amplifiers:** Halfer DH200 (bi-amped), Monitor Speakers: McCune SM-4B, Altec 604 w/active x-over, including time-correction and EQ circuitry, Auratones  
**Musical Instruments:** On request  
**Video Equipment:** Full production services: 3/4" and 1" studio/location recording, 3/4" editing, full duplication services (1", 3/4", VHS, Beta), 16mm and slide-video transfers, SMPTE coding, audio control room equipped w/video playback/recorder and monitor  
**Rates:** Audio \$50/hr. All equipment in stock no extra charge. Video on request. Call for rate card.  
**Specialization & Credits:** McCune Studios is fully equipped to serve the needs of our media clients, from television and radio spots, to multi-image presentations, to films and videos. Free parking and coffee.

[2] **THE MIDI ASYLUM**; 9202 Westmont Pl. SW; Tacoma, WA 98498; (206) 582-1214. Owner: Zero Gravity Productions. Studio Manager: Tim Elwell, Ken Blanchard

[4] **MISS WHIP, A-BROAD**; only *REMOTE RECORDING*; PO Box 185, Greenville, CA 95947; (916) 284-7258. Owner: Jean A. Souders Studio Manager: J.A. Souders

[8] **PREGNANT BADGER STUDIOS**; 10010 Biscanewoods Way; Sacramento, CA 95827; (916) 363-8361. Owner: Decision Systems Design Studio Manager: Colin Aiken  
**Engineers:** Colin Aiken, Bill Barton  
**Dimensions:** Studio 13 x 21, control room 6 x 16  
**Mixing Consoles:** Tascam Model 308 8 x 4, Biamp 12/83 12 x 2  
**Audio Recorders:** Tascam Model 38 8-track, Tascam Model 22-2 2-track  
**Cassette Recorders/Duplicators:** Tascam 225, Yamaha S20, Yamaha MT44 4-track  
**Noise Reduction Equipment:** dbx 166 comp/limiter, dbx 160 comp/limiter, Echo, Reverb, & Delay Systems: Yamaha SPX-90, Alesis XTC digital reverb, ADM 1024 Effectron, ART Proverb, DigTech DSP 128, Alesis MIDVerb II  
**Other Outboard Equipment:** Rane HC-6 headphone amp, TEAC graphic EQ  
**Microphones:** (2) Shure SM58, (3) Audio-Technica Pro 5, (3) AKG 707E, (3) Shure SM 10 headset, Shure SM57, (3) Electro-Voice DS-35 Monitor Amplifiers: (2) NAD 3130  
**Monitor Speakers:** Auratones, Toa 265-ME, ESS HD series  
**Musical Instruments:** Yamaha RX11, Yamaha RX21L, Yamaha DX9, (2) Yamaha DX7, Kawai K3, Roland Juno-106, Minimoog, Sequential Circuits Prophet-5, Yamaha TX81Z

[8] **PROJECT ONE AUDIO SERVICES**; 1430 Willamette #606; Eugene, OR 97401; (503) 746-1163. Owner: Denny Conn, Bill Shreve, Gus Russell. Studio Manager: Denny Conn  
**Engineers:** Denny Conn  
**Mixing Consoles:** Trident VFM 16 x 8 x 2, (2) Akai MB76 (programmable) 7 x 6  
**Audio Recorders:** Fostex 80 8-track, Fostex 20 2-track plus center SMPTE  
**Cassette Recorders/Duplicators:** Nakamichi, TEAC, Akai  
**Noise Reduction Equipment:** Dolby C in 8-track  
**Synchronization Systems:** Fostex 4050 SMPTE-to-MIDI, Fostex 4030 synchronizer, Fostex 4035 sync remote  
**Echo, Reverb, & Delay Systems:** Yamaha SPX90, (2) Alesis Microverb, Audio Digital TC-2, Roland SDE-1000  
**Other Outboard Equipment:** Symetrix 522 comp/limit/gate/expand/duck, Alesis Micro limiter, BBE 422, Audioarts 4100 parametric EQ, (2) Akai PEQ76 programmable 6-channel 7-band EQ  
**Microphones:** (2) ATM 813 condenser, (2) ATM 31 condenser, (5) Shure SM57 and SM58  
**Monitor Amplifiers:** Peavey CS-400, Halfer 220  
**Monitor Speakers:** (2) JBL 4408  
**Musical Instruments:** Emax SE with extensive library, Yamaha DX9, Oberheim Matrix-1000, Casio CZ-101, Korg EX-800, Korg SG1X digital grand piano, Casio MG510 MIDI guitar, Roland Octapad, Fender Precision bass, Framus acoustic 12-string guitar, Yamaha TX81Z, various other guitars, basses and synthesizers on request  
**Other MIDI Equipment:** Akai ME30PI MIDI patch bay with merge  
**Video Equipment:** RCA VHS VCR, color monitor  
**Other:** Compaq Deskpro computer with various ed/lib programs, 48-track PC sequencer, samplvision, sampler, editor, BSR real-time spectrum analyzer/EQ.

[8] **ROXOUND STUDIOS/DEM VIDEO PRODUCTIONS**; also *REMOTE RECORDING*; 2833 NE 115th; Seattle, WA 98125; (206) 365-7949. Owner: Mark Angelides. Studio Manager: Delia Gailfus

[8] **RANDALL SCHILLER PRODUCTIONS**; also *REMOTE RECORDING*; 1207 Fifth Ave.; San Francisco, CA 94122; (415) 661-7553. Owner: Randall Schiller. Studio Manager: Mark Klien  
**Engineers:** Randall Schiller, Cathy Cohn, Michael Guerra  
**Dimensions:** Studio 12.5 x 15, drum room 9 x 9, control room 12.5 x 15  
**Mixing Consoles:** TEAC/Tascam 5B 8

x 4, TEAC Tascam M-35EX 12 x 4 Audio Recorders; TEAC/Tascam 80-8 8-track, Otari 5050B 2-track, Sony TC-8544S 4-track, Sony TC-850 2-track Cassette Recorders/Duplicators; Aiwa AD-F990 Echo, Reverb, & Delay Systems; DeltaLab 2048 digital delay, DeltaLab DL-2 Acousticcomputer stereo digital delay, Eventide H910 Harmonizer, Yamaha REV7 digital reverb, Yamaha SPX90 digital reverb, Sound Workshop 242 stereo reverb Other Outboard Equipment: Yamaha Q2031 31-band stereo graphic equalizer, MXR dual 15-band stereo equalizers, Orban 622 parametric equalizer, dbx 161 compressor/limiter, dbx 163 compressor/limiter, UREI 1178 stereo compressor/limiter, dbx 154 declinear noise reduction, Crown VFX-2A stereo electronic crossover/filter, SAE 5000 impulse noise reduction, dbx 503 dynamic range expander, Technics SL-1200 MkII turntable, assorted patch bays and necessary support equipment Microphones: Neumann U87, AKG C-414, E-V RE15, E-V RE20 E-V 635A, Shure SM81, Shure SM58, Shure SM57, Shure SM78, Shure 555H, Shure SM91, Shure "Green Bullet," Sony ECM-33P, Sony ECM-33F, Sony ECM-16, Sennheiser MD-421, Sennheiser MD-431, AKG D12, Crown P2M Monitor Amplifiers: SAE A-201, SAE A-501, Crown Micro-Tech 1200LX, BGW Model 100-01 Monitor Speakers: JBL 4411, Auratone 5C, Altec A7-500 (modified and bi-amped), Pioneer CS-88 Musical Instruments: Story & Clark console piano Video Equipment: Sony SL-2700 stereo hi-fi videocassette recorder, JVC HR-D 470U stereo hi-fi videocassette recorder Rates: 8-track, \$25/hr, 4-track \$20/hr, 2-track \$20/hr Location recording available upon request

[2] SHYNE SOUND, only REMOTE RECORDING; Box 2280, San Rafael, CA 94912, (415) 459-2833. Owner: Leroy Shyne Studio Manager: Leroy Shyne

[8] STARFLIGHT SOUND STUDIO; also REMOTE RECORDING; 1175 S. Lincoln St., Denver, CO 80210, (303) 744-9751. Owner: Shirley Kenneally. Studio Manager: Mark Derryberry

[8] TIME CAPSULE RECORDING; 1042 Perry St., Denver, CO 80204; (303) 534-6977. Owner: James Jackson Studio Manager: T.J. Jackson

[8] TRI-WEST RECORDING; 21040 5th Ave. S., Seattle, WA 98198; (206) 824-6722. Owner: Dean Krippaehne Studio Manager: Dean Krippaehne

[8] VALENTINE PRODUCTIONS; also REMOTE RECORDING; 910 16th St., Ste. 900; Denver, CO 80202, (303) 893-0912. Owner: Laurie Gordon, Sam Beaman. Studio Manager: Lenny Cook

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### THE FAST LANE

—FROM PAGE 28

pitch control with up to plus/minus 12% range, and real-time punch-in/out, and all the desired cue/ID/skip/search stuff.

TEAC. Their new DA-50 has been out for a few months now, and it supposedly addresses a lot of the "feature" points. Further, it has their "ZD" circuitry, lots of it, with oversampled digital filtering. I admit I had some experience with their top-of-the-line CD player with ZD, and it was interesting. Not bad, actually. I get a little lost when they start showing me their ZD stuff, and they have yet to clearly explain it to me, so...

Maybe I'll catch a JAL flight (the one with real beds) to Tokyo and pick up a Denon 20-bit pro DAT. Or maybe the Fostex. Availability does play a minor part in the decision. ■

*Stephen St. Croix claims he was the originator of the concept of these clever little biographies, instead of real ones. Now, after several years, he has noticed many curiously similar bios in other publications. Sorry.*

### INTERNATIONAL UPDATE

—FROM PAGE 38

able... **Blackwood Recording Studios** and the music club **Atlantis** of Basel, Switzerland, held a gala press conference to announce and demonstrate their joint cable capability. It is now possible to mix all kinds of performances from the Atlantis in Blackwood Studios and broadcast them live to any participating radio or TV station... The **British BBC** recently ordered ten Amek BCII mixing console systems for radio purposes... **Pesa Electronica** of Spain ordered an Amek Classic mixing system for installation in its 42-foot remote vehicle, which is being built for **Nordisk Film** in Denmark... **TVi** of London, a post-production, telecine, transmission-services facility, recently purchased a Soundstation II digital audio recorder and production center from IAR. The TVi system will include the Soundstation II editing and signal processing functions, four channels of digital and analog I/O, four 380MB disk drives (capable of storing four hours of audio), chase synchronization and resolving, and Stereo TimeWarp. ■

ATTENTION!

ALL A U D I O POST-PRODUCTION FACILITIES

MIX BUSINESS PAGES

ARE COMING!

—FROM PAGE 54, MIDI

trolled devices, "mainly samplers," says Lehmer. "We use MIDI notes to trigger sampled effects from our Emulator II, with the [Digidesign] *Q-Sheet* program on the Mac, synched to SMPTE through the Timecode Machine. The computer becomes a time code-to-MIDI note converter. That's extremely helpful; before, we had to create a sequence in the Emulator's built-in SMPTE counter and trigger it from SMPTE, making a new sequence for every event."

Finally, Russian Hill harnesses MIDI

***"We did a complete score for a half-hour Charles Schultz 'Peanuts' special, all in three days. It would have taken weeks without the MIDI revolution. In the spring of '87, I decided to build a large, automated, MIDI-interfaceable control room. Larger control rooms and user-friendly interfaces are the wave of the future. But we have not made a commitment to buying all the MIDI synth stuff, because most of our clients have their own."***

—Mooka Rennick  
Prairie Sun Recording, Cotati, CA

to control signal processors, particularly their Lexicon PCM70 and its accompanying effects designer.

With MIDI, Lehmer notes, "There are added complications because of the need to learn new equipment, but MIDI's also been a real time-saver. We can do all these MIDI events, lock up scores, etc., with MIDI-controlled sequencers. We can do a quick music demo in the sequencer, show it to the client, and if they like it, we score it again with real instruments.

"We can lose jobs if we don't have the capabilities that MIDI gives us," Lehmer continues. "[Working with MIDI technology] allows us to stay competitive because the music industry is going that way and a lot of post-production is going that way, too. One of our selling points when we bid on a film job is that we have a reduction in labor, because we don't use a lot of

film cutters cutting sound. We do it with minimum personnel, and being able to use [SMPTE] time code locked to these MIDI samplers allows that. And soon, when we get into the random access area with a disk-based recording system, it's not only going to save time, but allow a lot of creative flexibility."

Finally, other studios in the region regard MIDI as just another instrument, something the clients deal with, not the studios. Their main concern, sharing the views of the Plant's Bob Skye, is that MIDI can communicate with SMPTE time code. Good thing the technology is here to make it happen.

Music Annex, which comprises a large facility in the South Bay (aka Silicon Valley) and a smaller one in downtown San Francisco, is renowned for its work in jazz and new age music and high-tech commercial/industrial post. As an Apple developer (designing software for audio post applications) and beta test site for E-mu's Emulator, Music Annex has welcomed MIDI aboard, but only when SMPTE's along for the ride.

Annex head Dave Porter explains, "For us, what matters is how MIDI relates to SMPTE-driven things. MIDI is like a secondary language we speak. Our primary language is SMPTE—that's the main 'control track,' if you will, and MIDI is hanging on to the tail end of it. So a lot of our stuff is triggered by a MIDI-to-SMPTE conversion process."

Sound effects storage and retrieval make up "the one area in which MIDI has had the greatest direct influence on our operations," notes Porter. "We use an Emulator III, the Opcode Studio Plus MIDI interface and the Mac II with two 320-megabyte disk drives [by Relax Technologies]. Because of this, we've gotten very adept at laying

***"Making changes and doing them quickly are extremely important and inevitable factors in the recording studio. MIDI gives us the flexibility to make those changes, and allows us not to waste time in making them."***

—Ren Klyce  
Tarpan Studios, San Rafael, CA

sound effects to picture. MIDI has let us inexpensively put together a very efficient sound effects retrieval system." This year that system has put on the finishing touches for such major names as the SFX-intensive Round Table Pizza, Kentucky Fried Chicken and a series of animated DHL spots.

Across San Francisco, composer/arranger Pete Scaturro has moved his entire MIDI system into a small room on the second floor of the popular Different Fur Recording, where he helps score NBC-TV's *Unsolved Mysteries* series, among other projects.



Different Fur (SF) recently hosted Reprise Records' reception for Randy Newman and Mark Knopfler, showcasing *Land of Dreams*, Newman's latest release.

With Scaturro's help, Different Fur has found an efficient, profitable way to use MIDI gear, enabling both businesses to share clients and increase the amount of work that can be done at once on the premises.

However, "Our studio is SMPTE-based, and just about everybody dealing with MIDI who comes into the studio expects to find SMPTE here," notes studio co-owner Howard Johnston. "We've grown through Synclaviers, and had our first system in 1981, so working with synthesizers has always been a strong point of ours. But when you think about MIDI today, you're really talking about integrated workstations, not just having a couple of instruments play the same part. Our expertise lies in taking the output of MIDI instruments, dealing with getting SMPTE back and triggering things. The clients really provide the MIDI. We just set it up so you can deal easily with electronic instruments.

"I think MIDI affects the client far more than it does the studio. The only way MIDI affects us is if a client doesn't know much about MIDI and

hears that if you have a Fairlight and Linn 9000, you can get all these great sounds, so he books a date and all these people come and no one can put the system together. It's a waste.

"When you think about it," Johnston says, "you've got impulses, feelings, thoughts, and that's what you turn into music. People working with MIDI are actually working closer to the thought process, so they take the thoughts and use MIDI to have music come out.

"On the recording side," he continues, "MIDI is starting to catch up with the music side. We have the Lexicon 480 and PCM70s, which are MIDI-based. But the client has to be smart enough to know how to use that before it becomes usable."

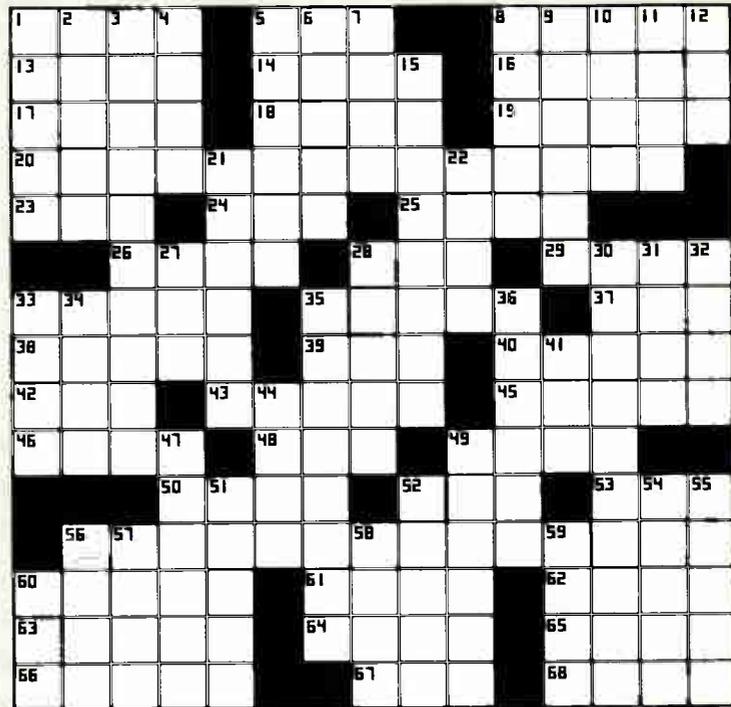
Different Fur's clients are smart enough. The studio hosts more than a few Windham Hill artists and also works a great deal in rap music, R&B, rock and speed metal. Last year, artists working there included Stevie Wonder, Earth, Wind & Fire, Bobby Brown, Game Theory and Bobby McFerrin.

Since Scaturro's room, known as MIDI Fur, has been a complete success, plans call for a new, larger one, with a Synclavier, on the newly acquired third floor of the same building. At press time, Johnston and his partner, studio manager Susan Skaggs, were considering additional ways to use the third floor: perhaps for digital, disk-based mastering or CD prep, or for offices for independent engineers, producers and technical support services. Different Fur has always been actively involved in the San Francisco music scene—getting to know the players and encouraging them to record in the Bay Area—and sees the expansion as a way to be more in touch.

"MIDI Fur helps us do that," says Skaggs, adding, "In the beginning, people said MIDI would cut down the amount of time musicians spent in the studio. But it doesn't. The studio is just as booked as it always was, but musicians are making better use of the time they spend in the studio, if they know their equipment. They can accomplish more in shorter time, then they leave very happy. We like to work with musicians who have great ideas but limited budgets, because we can do so much for them." ■

Mix assistant editor Linda Jacobson considers herself very lucky to live and work in San Francisco.

## MIX WORDS



© 1989 By Armand St. Martin

## GHOST ON THE MACHINE

### ACROSS

1. Iowa town
5. Hospital sights
8. Certain tape head
13. Coming soon
14. Fine powder
16. Piano control
17. Stare
18. Historical Muse
19. Oracular manifestations
20. Feature of many 56As
23. Prepare hide
24. Poetic above
25. Treats
26. Lights a ballad
28. Coffee holder
29. Cross the picket line
33. Vampire killer
35. Fictional detective, and family
37. Pub drink
38. Verboten
39. Anger
40. Social stratum
42. The whole ensemble
43. This is operated by a "ghost" in a 56A
45. Neckwear
46. Judge
48. "\_\_\_ the season..."
49. Opera highlight
50. Footless
52. So, state
53. Ambulance abbr.
56. Mixer of the future
60. \_\_\_ Haute
61. Subdue
62. Rose's man
63. Special vocabulary
64. Chinese river
65. Pet pest
66. Mortgages
67. \_\_\_ longa...
68. Wall St. cry

### DOWN

1. Dread
2. "It Don't \_\_\_ Thing If It Ain't..."
3. Characteristic of 56As
4. Scale interval
5. Seven year things

6. Courage
7. Narrow hole
8. Two-part bonding concoction
9. Careless
10. City at the bottom of the Red Sea
11. Vodelled
12. Chi. trains
15. 56A controller
21. Not all (2 wds.)
22. Character from Shakespeare
27. Jock-a-moe song
28. Customs
30. Ability to pour one 56A into another into another, and so on
31. Certain sax
32. Shade of red

33. African town
34. Story
35. Info often controlled by a 56A through a 15D
36. Beetle
41. "\_\_\_ was saying..."
44. A source of energy
47. Woman in charge of the household
49. Certain trees
51. Rhymsters
52. Thigh bone
54. Bay window
55. "Let's Make \_\_\_"
56. Flying prefix
57. Yen
58. Iowa county
59. Dolts
60. Jazz guitarist Farlow

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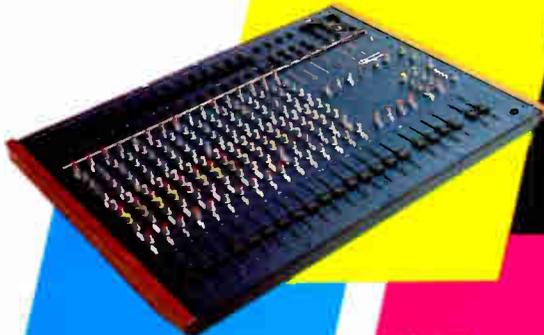
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