

JANUARY 1987
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THE RECORDING INDUSTRY MAGAZINE

Mix

Interview: Jack Nitzsche

**Directory:
Northwest Studios**

**The Next Generation of
Musical Instruments**

**Tomita Plays New York
Sampling Sampling
Polygram's Dick Asher
SMPTE Review
A Night at the
TEC Awards**

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NOISE

Mix

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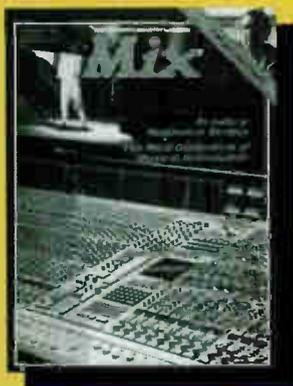
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Cover: San Francisco's Different Fur Studio, designed by John Storyk, now features a Solid State Logic SL-4056 console (with Total Recall) in a 48 x 48 configuration. The facility is equipped with both Sothy digital and Studer analog 24-track recorders, with a large assortment of outboard gear and tube microphones. Photo art direction by John Paul; photography by Irene Young.

Corner photo: Jack Nitzsche
Photo by: Mr. Bonzai



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T

his new year marks the beginning of our tenth year of publishing *Mix*. There are some similarities between this issue and the very first, but not many. The most apparent likeness is the studio directory. That is really where *Mix* started—as a consumer's guide to the resources of professional (and semi-professional, as it was referred to back then) audio recording. And, not so coincidentally, that first issue listed recording studios of Northern California.

The first issue's editorial included little more than the directory; just a couple of articles aimed at giving the readers some information about how to record a tape, and opinions on the market conditions at that time. It was all printed on a tabloid format newsprint paper stock, and there was no extra charge for the souvenir ink smudge left on the hands of the readers. It was a humble beginning, to be sure.

Ten years later we marvel at the changes, not only in our business but in the recording industry in general. We have been fortunate enough to witness some tremendous developments and evolutions in how entertainment and information are produced and delivered. For us here at *Mix*, it was a bit like climbing on a mysterious rollercoaster. We loved the idea of taking a ride, but had no idea of quite where it was going and how fast we would get there. After ten years that answer seems no closer than when we started, but what a ride it's been!

The recording industry is built by people who love what they do. Usually this business defies conventional logic, and anyone who joins up with the idea of a predictable career is quickly washed out or headspun to a new way of thinking. It becomes more and more clear, as we go along, that there is no endpoint or ultimate goal for those who find success in this business... not a Number One record or even an overstuffed bank account. After a while those things don't quite seem to be the reason that people do this sort of thing. In the long run what it is about is what happens along the way—the joy of creation, the unique characters and relationships, the thrill of discovery. These become the motivating forces for the fortunate few who can manage a career in this business.

We here at *Mix* are thankful that we found a place for our efforts in the recording industry. We hope that our second decade will keep us just as busy with things to talk about and information to be shared. And, as we toast the new year, we'd also like to thank you for making us a part of your career.

Keep reading,

David M. Schwartz
Editor/Publisher



CURRENT

SSL Reveals Digital Plans

Solid State Logic has released the first detailed information regarding their digital studio systems research, since their original presentation at the 1985 New York Audio Engineering Society Convention. Without revealing any specific product or contract, this most recent announcement involves several key developments, including "the existence within SSL of proprietary and fully operational 24-bit linear digital audio processors of enormous speed." Additionally, their research has taken a hardware-independent approach to design, in which individual consoles are defined solely by two large pieces of software and a control surface layout. The software-based design approach allows the systems to incorporate upgrades to cheaper and faster processing technologies as they become available, with no need to redesign the system architecture or render existing units obsolete.

The resulting economies of the new design approach, according to SSL chairman and managing director Colin Sanders, will bring about a price competitiveness with digitally-controlled analog consoles. "The large scale SSL Digital Studio Systems that we anticipate offering in 1989 or 1990," says Sanders, "should cost roughly the same as the assignable analog consoles that will become available next year." He promised a specific product announcement from SSL "sometime in 1987."

Sonopress Opens CD Plant in West Germany

Sonopress, the music and video product manufacturing arm of Bertelsmann, the West German media company that recently purchased RCA/Ariola Records, has opened a 25 to 30 million capacity CD plant in Gutersloh, West Germany. Known as Europe's largest record and tape manufacturers, Sonopress will manufacture CDs for both Bertelsmann-owned companies and outside firms.

LaserVideo Opens Huntsville CD Plant

LaserVideo, Inc., a subsidiary of Quixote Corporation, has opened its second compact disc plant in Huntsville, Alabama. The new facility will have an eventual capacity of 60 million CDs per year, and is 16 times larger than LaserVideo's first production center in Anaheim, California.

LaserVideo has been in the optical disc business since 1979, and manufactured the first CD in the U.S. Recently they have reached a cooperative agreement with Japan-based Marubeni Corporation to provide assistance to developers of CD manufacturing plants throughout the world. As a result, the two companies expect to create a worldwide network of CD plants that can interrelate on technical improvements, training and marketing.

Philips/Donnelly CD-I Venture

According to the CD Data Report, N.V. Philips and R.R. Donnelly have formed a joint venture called OptImage to offer a wide range of services to publishers of CD-I media, including "creative guidance, interface software, digitization and compression of images, and the formatting of data to a CD-I standard. OptImage's final product will be a magnetic tape that is ready to go to a mastering facility." A Chicago office has been opened for OptImage, with a London branch set to be operational by the second quarter, 1987.

CD-I News Debuts

A 16-page newsletter called *CD-I News*, published by LINK Resources, has been introduced to track developments concerning the emerging compact disc-interactive medium. LINK currently publishes six newsletters in consumer electronics, electronic information services, videotex, telecommunications, telecommuting and education media. David Rosen, director of LINK's Consumer Electronic

Media Program, will be executive editor of the \$195 monthly. For more information, or submission of news releases, contact *CD-I News* at LINK Resources, 79 Fifth Ave., New York, NY 10003.

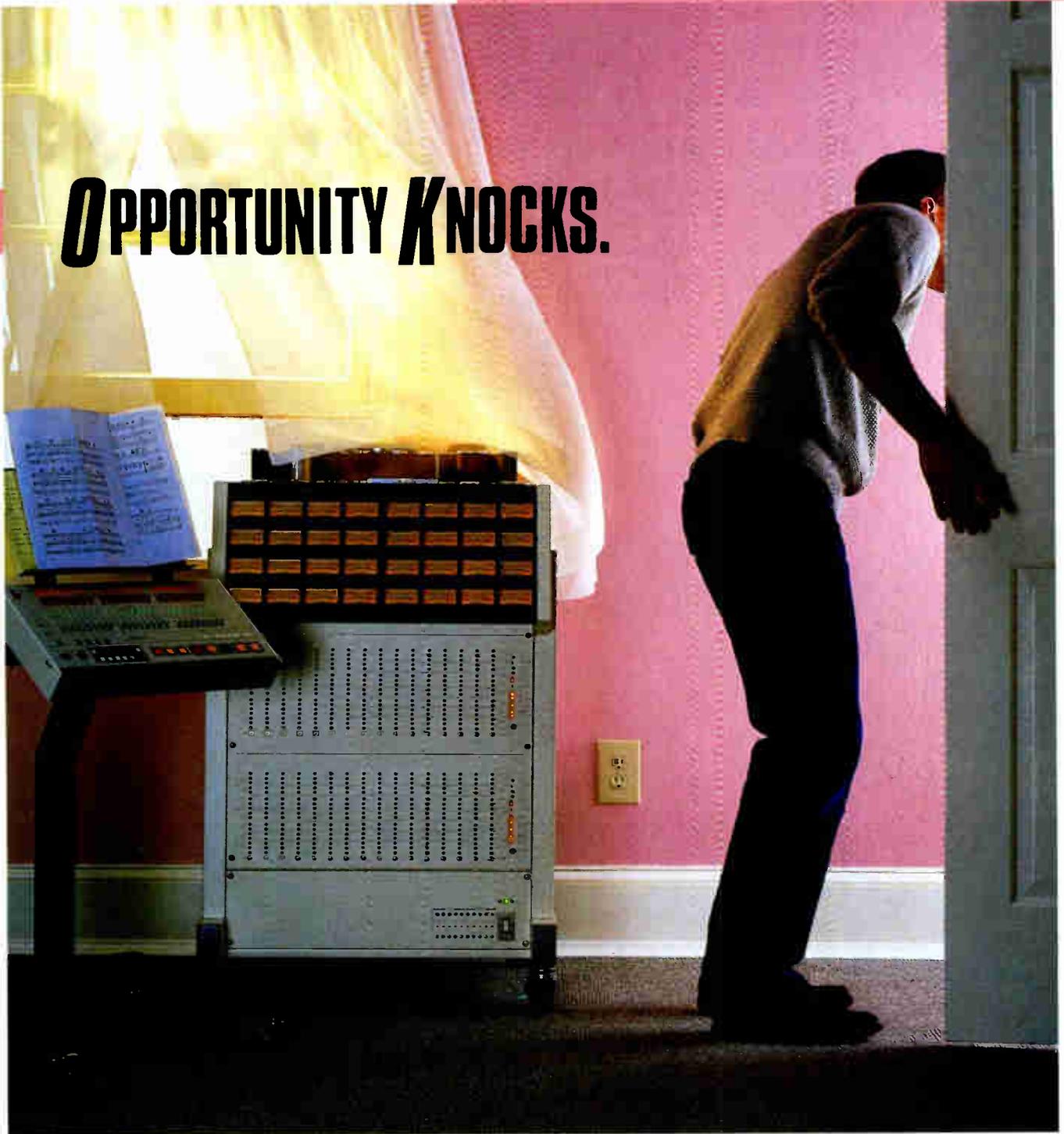
Microsoft CD ROM Conference

The second Microsoft CD ROM conference and trade show will be held at the Seattle Sheraton Hotel & Towers in Seattle, Washington March 2 and 3. The conference will feature sessions that focus on new developments, standards, data protection, CD-I developments, industry announcements, market forecasts and other related issues in this fast moving field. Workshops preceding the conference will focus on the tools and techniques for creating and managing CD ROM products. Pre-registration information will be available through the Seattle Sheraton & Towers, 1400 Sixth Avenue, Seattle, WA 98101, (206) 621-9000.

Ampex Restructures Marketing

Ampex Corporation's Audio-Video Systems Division, which manufactures and markets professional video products and systems, has restructured to "streamline and refine its product development, sales, marketing and support functions." Mark C. Gray has been named director of marketing in addition to continuing as assistant general manager of the division. Other key positions include Bland McCartha, applications marketing; Neil Selvin, product/program management; George Merrick, turnkey systems; Jock Diermann, technology planning; Bruce Pharr, marketing communications; and Pat Burns, director of worldwide sales and service, and U.S. national sales manager. Robert Natwick, former U.S. national sales manager, has been assigned to an expanded Northwest sales region. M. Michael D'Amore, former director of worldwide marketing, has been named manager of worldwide dealer/OEM sales. ■

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32 Tracks; ■ constant tension tape transport; ■ built-in autolocator; ■ noiseless and gapless punch-in/punch-out, and HX-Pro—at a price you can afford. ■ We call it "opportunity". You'll call it "a killer".

We know getting started in the music business can't mean an MTR-90 in the first month, even when your talent warrants it. ■ So we've given you the next best thing—the MX-80. ■ Now you have room for the band, the back-ups, the strings and the horns—with some bucks left over for that new console you've been looking at. ■ And there's a 24 channel version too! ■ From Otari: Technology You Can Trust.

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Sony Professional Audio will be holding seminars in Los Angeles, January 13 to 20, and in New York, January 27 to February 3, for music industry professionals interested in compact disc mastering. For info, call (201) 368-5158 (NJ) or (213) 537-4300 (L.A.)... **Quested Monitoring Systems, Ltd.** has announced the appointment of **Apogee Electronics Corp.** as distributors of their line of studio monitoring speakers within the U.S. market. Also at Apogee, **Grace Gehman** has been appointed marketing director... **Studio designers Benchmark Associates** has joined with the architectural firm **Downtown Design** to offer turnkey studio design and construction. Call (212) 688-6262 for details... Also at **Sony**, **Paul Zimmerman** has been appointed marketing manager, display products, **Sony Communications Products Company**, and **Gary Johns** has been named midwest regional manager for video products... **Jason S. Berman** has been picked as the new Washington-based president of the **Recording Industry Association of America**, replacing **Stanley Gortikov** who becomes chairman of the board... **Hector Martinez** has been named to the new position of market manager at **JBL Professional**, in Northridge, CA... **Carlos Kennedy** of **Ampex Corporation** has been elected president of the **Society of Motion Picture and Television Engineers** for a two year term... The **Musicians Institute**, home of the **Guitar Institute of Technology**, the **Bass Institute of Technology** and the **Percussion Institute of Technology**, will move into a new home at 1655 McCadden Place, Hollywood, CA in March of 1987... **FM Productions** has opened a retail operation at its headquarters at 3775 Bayshore Blvd., Brisbane, CA, to offer a wide range of theatrical supplies to its customers in the San Francisco Bay Area... A Chicago chapter of the **International Teleproduction Society** has been founded. For info, call **Scott Kane** at (312) 729-5215... The owners of Detroit's **Grace and Wild Studios** have acquired Hollywood-based

Altavideo post-production facility... **SHAPE Inc.** has announced the appointment of **Mort Fujii** as president of **SHAPE International**... The **Institute of Communication Arts**, of Richmond, British Columbia, has appointed **David Miles Huber** audio department head instructor... **Biamp Systems**, for the past 15 months a wholly owned subsidiary of **Leupold & Stevens** of Portland, OR, has been acquired by the management team in a leveraged buyout... Dallas-based **Tele-Image** general manager **Diane Barnard** has been promoted to vice president/general manager... **Bruel & Kjaer's Pro Audio Group** has added **Jim Rondinelli** for the development, distribution and promotion of the **Series 4000** professional microphones in the U.S... High speed duplicating equipment manufacturer **Cetec Gauss** has announced promotion of **Jim Williamson** to vice president and general manager, **Jacques Fleischmann** to national sales manager and has appointed **Brian Trankle & Associates**, of Hillsborough, CA, and **Richard S. Pass Associates**, of Alexandria, VA as new factory sales reps... **CMTV Inc.**, Burbank, CA, has been appointed a dealer to market the line of **Ikegami** cameras in California, Arizona and Nevada... **Flanner's Pro Audio**, of Waukesha, WI, and Chicago, IL, has changed its name to **Audioline, Inc.**, after its recent acquisition by **John R. Loeper**... **Future Access, Inc.**, of Cincinnati, OH, is offering a one day seminar on the **Synclavier Digital Music System**. Call (513) 281-5212 for info... **Audio Kinetics** have recently appointed **Stirling Audio Systems** as dealer for their **MasterMix Console Automation System**... **Astatic** has appointed **Sunrise Sales** of Romeoville, IL, and **Bi-State Marketers** of Ridgefield, NJ, as new manufacturer's reps... the **Mitsubishi Pro-Audio Group**, handling sales and support for the European studio market, has relocated to Unit 13, Alban Park, Hatfield Road, St. Albans, Herts, England... **Edcor**, of Irvine, CA, has purchased transformer manufacturer **Delta Magnetics**...

Westar+ COMPUMIX P.C.

The New Westar+

Need bells and whistles? The new Westar+ High Performance Music Recording Console is the only console available today with the combination of a field expandable frame design, plug-in equalizer options (4 types), 3 levels of automation option, 8 auxiliary sends, 4 different fader options (Manual, VCA, TBA and IDF), and technical and sonic performance second to none.

Studio Requirement

With cost effective digital processing consoles scheduled to be available by 1990, the profit oriented studio today needs a reliable high performance analog console to match the sonic qualities of the new digital recorders like the Mitsubishi X-850. The Westar+ is such a console system, at a price the studio can pay back by the time digital consoles become reality.

Studio Economics

Investing over \$400,000 in a digitally controlled analog console does not make sense economically, nor can such a console match the processing and automation power of the future digital consoles. The cost effective choice today is the Westar+.

Westar Studios

Westar consoles are already proven in service at leading studios around the world, in the U.S., Canada, Japan, Scandinavia, Austria, W. Germany, Colombia and England. For studios not intimidated by "the fashion console of the month," the Westar+ is the intelligent choice.

Powerful Automation

Compumix PC is a powerful extension of the popular tape based automation system, providing storage on floppy diskettes of an unlimited number of mixes and off line editing of mix data. The Compumix PC comes complete with IBM XT compatible PC (with Dual floppy and 20 MB Hard Disk), Mitsubishi 13" color graphics monitor, custom and standard keyboard, and all cables and software.

Compumix PC is probably the most cost effective high performance automation system available today, and a perfect fit for Westar+.



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SESSIONS

NORTHWEST

At *Starlight Studio* in Richmond, CA, British producer **Geoff Workman** (Queen, Dokken, Motley Crew among others) was in tracking with LA-based *Heroes*, while **Ronnie Montrose** worked with South Bay favorites *Valor*... *The Dave Brubeck Quartet* with producer **Russell Gloyd** recorded and mixed their new album at *Russian Hill* in S.F. using the new Dolby SR recording system. **Gary Clayton** engineered, assisted by **Marnie Moore**... At *Triad Studios* in Redmond, WA, A&M recording artists *UB40* recorded and mixed a new song for a soon-to-be-released major motion picture by Orion Films; UB40 producing with **Tom Hall** engineering and **Mike Tortorello** assisting. Also, **Reilly & Maloney** completed mixes on a live album recorded at the Backstage Theatre with **Larry Nefzger** engineering... At the *Music Source* in Seattle, **Jim Wolfe** and **Jerry Frank** wrote and produced theme music for commercials promoting NBC Sports coverage of the 1988 Olympics in Seoul, Korea... In *London Bridge Studios* in Seattle were *Avalon*, cutting demos for Atlantic Records; and *Eternal Daze* doing an LP project with **Peter Barnes** producing and engineering... At *Colorado Sound* (Westminster, CO) producer **Jim Mason** has been extremely busy. **Dan Clawson** (Pure Prairie League) and Jim were in producing two of Dan's songs. Mason also produced three songs for *No Doubt About It* and worked on several tunes with an artist from North Carolina by the name of **Kier**. Jim's name can also be found listed among the credits of *Rare Silk*'s latest album as mix engineer... **Ann** and **Nancy Wilson** of *Heart* fame were in at **Steve Lawson Productions** (Seattle, WA) to record vocals and guitar for a song on the soundtrack to Eddie Murphy's new film *The Golden Child*... At *CD Studios*, San Francisco, *The Seahags* completed tracks for an unusual LP—one side of studio tracks produced by Metallica's **Kirk Hammett**, and the other recorded live to 2-track before an in-studio audience. **Sylvia Massy** was the engineer for both sets of sessions... The Bay Area Music Award-winning group *The Uptones* completed a two-song demo which was recorded and mixed at *Hyde Street Studios*, and engineered by **Garry Creiman**... At *The Plant* in Sausalito, **Zakir Hussain** and *The Rhythm Experience* completed an LP due out on the Aspen Records label. Contributing talents included Narada Michael Walden and Mickey Hart. Production was handled by Hussain and **Anthony Hindson**, with **Gordon Lyon** engineering. Assistant engineer on the sessions was **Stephen Hart**... At *Crow Record-*

ing in Seattle, **Robert Cray** filmed his MTV video "Smoking Gun" produced by Lime-light Productions, London, and Doug Kershaw band member **Max Schwensen** cut an LP with **John Nelson** producing and engineering...

SOUTHEAST

Producers **Jimmy Lewis** and **Rich Cason** completed mixing on a new album for *The Rose Brothers* at *Muscle Shoals Sound Studios* in Sheffield, AL... At *Cheshire Sound Studios* in Atlanta, GA, **Sheila E.** laid tracks for her upcoming album for Warner Brothers/Paisley Park Records. Sheila E. and **David Z.** produced and engineered, assisted by **Tom Wright** and **Thom Kidd**... At *New River Recording Studio* in Ft. Lauderdale, **Renee** and **Yvette Barge** of *Music A La Carte* finished the production of a jingle for Southern Bell's Yellow Pages entitled "High Heels." Engineering the session was **Ted Stein** with **Teresa Verplank** assisting... At *Criteria Recording Studios* in Miami, **Ron** and **Howard Albert** produced local artist **Ronnie C** for Fat Albert Productions... **Johnny Cash** was in *Air Studios* in Hendersonville, TN working on his syndicated radio show, *American Folklore* at the newly renovated MCI 24-track facility (formerly Doc's Place). The room was designed by **Steve Durr**... Since its completion in the summer of 1986, *Chips Moman's Three Alarm Recording Studio* in Memphis has kept busy on a number of album projects, such as **Bobby Womack**'s new album for MCA Records, with **Chips Moman** producing and Moman and **David Cherry** engineering; and **Kris Kristofferson**'s debut LP for Mercury Records, with Moman producing and Moman and Cherry engineering... At *Cotton Row* in Memphis, blues singer **Bobby Blue Bland** was in with Malaco Records owner **Tommy Couch** overdubbing on Bobby's new album...

NORTHEAST

At *Inner Ear Recording* in Queens, NY, singer/songwriter **Jey Montreal** was in working on tracks for his new single, "Powerful Lady"... *Modern Audio Productions* of Philadelphia was called to provide sound effects for production of the first television special by comedian **Jay Leno**. Modern's **Bob Schachner** handled that one... At *Dreamland Recording Studio* in Woodstock, NY, veteran session guitarist/producer **Bobby Messano** (Steve Winwood, Joe Lynn Turner) was in

doing three songs for his upcoming album, as well as producing Zeno keyboard wizard **Larry Dvoskir** recording tracks for his upcoming album... The *Music & Sound Design Studio* in Bridgewater, NJ completed soundtracks for audiocassette, video, multi-image, and sound-slide productions for a variety of clients including *AT&T Communications*, *National Sales Trainers*, *New Century Education*, *Merrill Lynch*, *Ricoh*, and *HBO*... *Reel Platinum Studios* in Lodi, NJ had **Ike Richardson** in producing an EP of R&B dance music for Infinity Productions; and **Roger Monaco** and **Jamie Te Selle** co-produced Te Selle's latest 45... At *West 55th Street Studios* in Manhattan, TV's notorious horror movie host, **Zacherle**, completed a rap single "Overdrawn at the Blood Bank," produced by **Andy** and **Leslie Zwerling**, and engineered by **Steve Rosenthal** with **John Marino** assisting... *Westrax Recording Studio*, NYC, has been the East Coast base for the recording of Potpourri Productions' album *Mostly Mercer*. Producer **Frank Fiore** has been overseeing vocals by Mimi Hines, Kaye Ballard, Anita O'Day, and others. Sessions are being engineered by **Jeremy Harris**... Acts recording at *Courtlen Recording* in Hanson, MA included *The I-Tones*, Boston's premier reggae act; the rock band *After the In*, and *The Coyotes*. All sessions were produced by **Jon Gorr** and engineered by **Fred Danner**... At *Z-Studio* in Brooklyn, **Mark Berry** produced **Alisha** for RCA Records. Berry also produced new artist **Vince Buffa** for Sire Records... RCA recording artist **Alisha** recorded a new song, "Nightwalkin'" by **Bob Christianson** and **Peppy Castro** of AOA at Bob Christianson's *Great Immediately Recording* in NYC. The album is being produced by **Mark Berry**... Independent artists utilizing *Trod Nossel Recording Studios* in Wallingford, CT included: **Lucy Ann** and *the Fearsome Foursome*, *The Baker's Dozen*, and **Ralph DeLucia**... Recording at *Evergreen* in New York City was **Fonda Ray**, tracking her newest for Sage Music. **Lance McVicar** engineered and **David Knight** produced... *Neran Productions*, Huntington, NY completed a digital master of **Shlomo Bat-Ain**'s Middle Eastern jazz album *Distant Echoes* featuring guitarist **Larry Coryell**... Caribbean Soca artist **King Short Shirt** was in at *Sound Heights* in Brooklyn to record and mix his latest single "Forward Together." Executive Producer **Michael Gould** will be releasing the single and was at the sessions with the song's arranger/producer **Frankie Macintosh**. Engineering and mixing duties were performed by **Vince Traina** with assistance from **Matt Malles** and **Hugh French**... Activities at NYC's *Unique Recording* included producer **Freddie Bas-**

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tone working with *Frankie Goes To Hollywood* for Island records; *Jeff Lord Alge* programming SRC, Linn 9000 and SP-12 and engineering overdubs. *Chris Lord Alge* engineered the SSL mixes. Also, UK artist *Jennifer Rush* was in recording her new LP with producers *Andy Goldmark* and *Bruce Roberts* for CBS Records. *Steve Peck* engineered with *Barbara Milne* assisting... At *Howard Schwartz Recording* in New York City, *Leon Redbone* and *Applegate & Schwartz Music* (New York) updated a highly successful campaign for Anheuser-Busch's Budweiser Beer, with Schwartz at the controls, assisted by *Jay Newland*... At *Secret Sound Studio* in NYC, recording artist *Barbra Roy* was in working on her song, "Gotta See You Tonight," engineered and mixed by *Jim Lyon*. And *Aldo Marin* produced *Sa-fire*, engineered by *Tom Gartland*... At *Kajem Recording Studios* in Gladwyne, PA, the upcoming *Lillo Thomas* LP on Capitol Records was produced by *Lillo* and *Ron Banks*, who also engineered the LP... At *Power Play Studios, Inc.* in Long Island City, NY, recording duo *Thomas & Taylor* were in remixing for domestic release their hit single, earlier trucked and mixed there, entitled "You Can't Blame Love"... *Walter Gibbons* was in *I.N.S. Recording* in NYC to remix a single by the *Clark Sisters* for Word/A&M Records... the rock group *Valhalla* was in at *Sigma Sound Studios* in Philadelphia, mixing their debut album. Chief engineer was *Gene Leone* with *Adam Silverman*, *Armand "Poke" Pocoroba*, *Dave Saia* and *William Riddle* assisting. *Bill Lucas* and *Carlo* and *Marco Talarico*, and *Gene Beer* produced... At *Quad Recording*, *M&M Productions* team (*John Morales* and *Sergio Munziba*) worked on the re-mix of *Nu-Shoo's* release entitled "Don't Let Me Be The One" for Atlantic Records. Additional engineering was by *Brian Max*. The M&M production team also worked on *Five Star's* 12-inch release entitled "Can't Wait Another Minute" for RCA Records... At *Shakedown Sound* in NYC, *Arthur Baker* has been busy on several re-mixes for *Daryl Hall*. All were produced by *Arthur Baker* and engineered by *Bob Rosa* assisted by *Ed Bruder*... *Princess* was in at *Quantum Sound* in Jersey City being produced by *Reggie Lucas* for her upcoming album on Polydor Records. *Jim Gallagher* engineered with *Craig Johnson* assisting... Activity at *Platinum Island* in NYC included producer *Rob Freeman* (Go-Go's, Twisted Sister, etc.) cutting tracks for a new album by Star Search finalists *Jailbait*, with *Jerry Gottus* engineering and *Rich Travali* assisting... *Dan Hartman* was in at *Greene Street Recording* in NYC working with *Nona Hendryx* on tracks for her upcoming EMI album; and *Kurtis Blow*, whose recording career began at Greene Street, is producing *High Voltage* with *Rod Hui* engineering... Tommy Conwell's *Young Rumlbers* were in Philly's *Studio 4* cutting their first LP with The Hooters' *Andy King* producing, *Phil Nicolo* engineering...

NORTH CENTRAL

The new Polygram group, *Visions*, has been recording its new album at *Fifth Floor Productions* in Cincinnati. The group is self-produced, with *Robin Jenney* and *Steve Moller* engineering. *Phil Renghia* is assisting... *Stage 4 Productions* of Royal Oak, MI, has completed the soundtrack of a nationally released video for the American Cancer Society. It is called "Pink Lungs" and was written by *Spencer Dawwik*, produced by *James Pauli* and *Spencer Dawwik*... At *Solid Sound*, Ann Arbor, MI, *David Barrett* produced the first project of solo artist *Rick Ruether* with *Will Spencer* engineering... At *Studio A*, Dearborn Heights, MI, rappers *Everready Crew* finished work on a self-produced 12-inch for ERC Records; with *John Jaszcz* engineering, assisted by *Jim Grant*... At the *Sound Suite* in Detroit, producer *Mike Powell* laid tracks with CBS vocalist *Regina Belle*, with *Steve Smith* at the board... *Bloomington*, Indiana's popular funk/dance band *Voyage* travelled to Chicago for a marathon session at *Seagrape Studios*, recording two new songs with *Tom Haban* and *Mike Konopka* engineering... At *Tone Zone Recording* in Chicago, Chicago rock and roll favorites *Illicit* cut their latest single with *Mickey Gentile*, *Chip Altholz* and engineer *George Warner*... At *Barn Burner Studio* in Annawan, IL, *Doug Sorenson* finished a heavy metal project with *Caveat Emptor*... At *Sparrow Sound Design* in Chicago, *Mike Zerang* is recording his original score for a ballet-performance art creation to be premiered at Moming dance space in Chicago. The score makes use of rare native flutes from eastern Asia and programmed digital units, engineered by *Sparrow*, *Joanie Pallatto* and *Annette Schwartz*... *Studio 309* of Danville, IL completed the music tracks for the Midwest Production Group project *One Rainy Day*, a half-hour children's television show that will be marketed internationally. The score was written by *John Hoekstra*, produced by *Michael Taylor* and engineered by *Joe Wasser*... at *Reference Standard Studio* in Northfield, IL, recent activity included studio owner *Gary Fry* co-producing demos with former off-Broadway and Pezband singer *Cliff Johnson*...

SOUTHWEST

At *Lone Star Recording* in Austin, TX, the final cuts were recorded and mixed for *Bubble Puppy's* reunion album with producer *Stan Coppinger* and engineer *James Tuttle*... *Ambush* was in the *MusicWorks* studio (Carrollton, TX) tracking their upcoming album. *David Rosenblad* engineered the band for the RCA subsidiary Hacienda Records... At *Planet Dallas Studios*, *Louis Johnson* put finishing touches on his album project... At *January Sound Studios* in Dal-

las, engineer *Larry Wallace*, assistant *Mark Plati* and producer *Barry Wilson* mixed a new *Neville Brothers* album for Spindletop Records... *Omega Audio's* 24/48-track mobile production facility was called upon to record *Neil Young's* "Garage Band" tour in Kansas City and Minneapolis. Producing the sessions for Young was *David Briggs*. Engineering for Omega were *Paul Christensen*, *Pam Irwin*, *Ken Pelic*, *Kevin Hart*, and *Pat Holloway*... At *Dallas Sound Lab*, producers *Bart Barton* and *Mike Stanling* of Canyon Creek Records completed three cuts for the *FBI Rap* album by *Fresh Brother's Inc.* *Bob Singleton* engineered the session with *DSL's Tim Kimsey* assisting... Working on a new album at *L.A.W.* in Las Vegas have been MCA artists *Gladys Knight & The Pips*, with producer *Howie Rice*, and engineer *Curt Seraioli*... *Reelsound's* truck was in Houston and Dallas recording live album and concert video dates with *Judas Priest*. *Tom Allom* produced with *Malcolm Harper*, *Mason Harlow* and *Gordon Garrison* engineering... *G. Brian Tankersley* of Myrrh Records was at *Rivedell Recorders* (Pasadena, TX) working with *Kim Boyce*, a new Myrrh artist and former Miss Florida... At *White Rose Studio* in Edmond, OK, the *Holy Smokes* finished a project which will be included on an album being released by KATT, FM-100 in Oklahoma City... The Dallas group *No Strings Attached* cut tracks with engineer *Ruben Ayala* at *Goodnight Dallas*. The material features writers *Kevin Kirk*, *Steve Ince* and *Steve Nichols*...

SOUTHERN CAL

At *Image Recording* in Hollywood, *New Edition* mixed a new MCA album; *Freddie Perren* producing, *Gabe Veltri* at the board. Additionally, *Wayne Shorter* produced an LP of his own for CBS, *K2* at the desk, assisted by *Steve Krause*... The *Le Mobile* remote truck has been busy recording around Los Angeles—bookings included two dates with *Elton John* at the Universal Amphitheater, three dates with *Genesis* at the Los Angeles Forum, and one night with *Eddie Money* at the Wiltern Theater... *Nichelle "Commander Uhura" Nichols* has compiled an album's worth of tunes she has recorded at *Harlequin Studios* in Northridge including the only vocal version of the famous theme song (that we're aware of). The cassette album came out for Christmas release... Among those recording recently at the *Yamaha Research & Development Studio* in Glendale were *The Bangles*, working with producers *David Kahne* and *Steve Beltran* and engineer *Keith Cohen*; and *Andre Cymone*, who produced himself with engineering assistance from *Taavi Mote* and *Keith Cohen*... *The Complex* in West L.A. was kept busy as *Greg Ladanyi* and *Duane Sekora* engineered for the band, *ETC*... *Native Alien* cut their debut EP at *Headway Studios* in —CONTINUED ON PAGE 180

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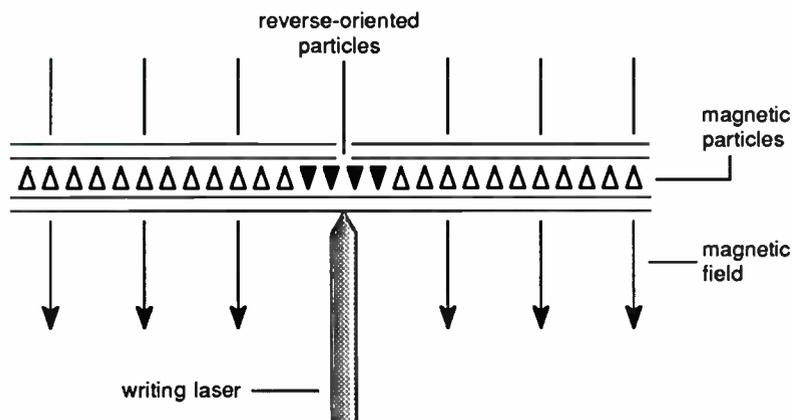


Figure 1: Writing

MOD

AN ALTERNATIVE TO TAPE

by Ken Pohlmann

Clearly, the imminent arrival of DAT has the professional audio industry in a tizzy. Record labels are screaming bloody murder at the Japanese manufacturers responsible for bringing this new evil into the world; they figure that about two minutes after DAT is introduced, record labels will have their hands tied behind their backs, and be forced to walk the gangplank, while the Jolly Roger flies from the foremast.

On the other hand, recording studios are intensely curious about DAT; they figure that once a +4 version is available, it'll be pretty neat to pay only \$2K for a digital recorder, as opposed to \$20K for the current versions. They overlook the minor fact that DAT was designed to be strictly a

consumer format and will be as useful for professional recording as was the advent of the analog cassette. In particular, I doubt the error correction will be adequate for professional applications. Moreover, once record labels are all in Davey Jones' locker, who's going to pay the bills?

DAT has things pretty well stirred up, even though hardly anyone has been able to take a close look at one. Of course, retaliation is already well under way. Corporations with interests in the CD, and music software, (or both) are actively denouncing DAT and lobbying like crazy. For example, the Senate has been toying with a bill that would add a 35% tariff to any imported digital recorder without copy-guard circuitry. (Hopefully professional recorders would be exempt.)

To more firmly establish the com-

mercial compact disc standard, Philips and Sony have been spinning off CD applications at a dizzying rate. The original Red Book defines the CD-audio standard, the Yellow Book defines the CD-ROM standard, the Green Book defines the CD-I standard, and the soon-to-appear Blue Book will define the CD-video standard. My guess is that they will run out of colors before they run out of CD applications.

The point is that the CD is an amazingly versatile format. Moreover, its non-audio applications (such as computer, database, and publishing) will bring it incredible clout that could far exceed its impact on the audio industry.

On the other hand, aside from the stimulation it is providing to recorded music sales, the CD is a major technology in the recording studio. That is understandable. How important could a non-recordable medium be to a recording industry? That's why we're all partial to magnetic tape—it's the only recordable medium. Right?

Prepare to re-orient your thinking. Optical recording is poised for introduction, and it promises to surpass the performance levels of both analog and digital magnetic tape. Optical disc technology provides both greater data longevity, and storage density. To put it simply, magnetic tape is an old technology, showing its age. And optical recording is a new technology ready to compete. Over the coming decade, any and all users of magnetic media will have to evaluate their recording technology in light of optical recording.

Any business or institution in the habit of making, saving, and retrieving files is a prime candidate for optical storage. Thanks to the focusing power of the laser, the storage capacity of optical discs is tremendous; optical discs have 10,000 to 20,000 tracks per inch, compared to less than 50 for a magnetic floppy disc. For example, a single removable optical disc can hold the same amount of information as 40 large reels of computer magnetic storage tape, at a fraction of the cost per byte. Moreover, optical discs do not require rewinding or recopying, do not need a controlled atmosphere, are unaffected by stray magnetic fields, tolerate rough, repeated handling, and in some applications can reduce total operator labor by a factor of more than 100.

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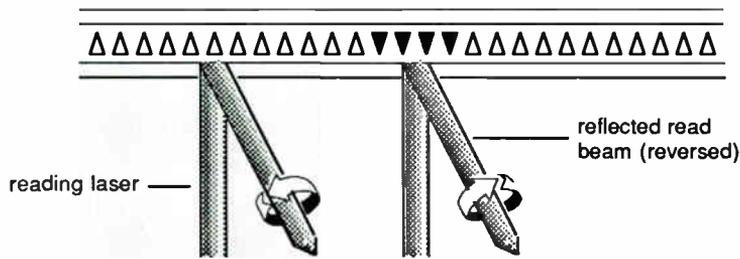


Figure 2: Reading

of books, could sure use optical storage. Another place that handles a fair amount of data is, of course, any recording studio, which must find room for about 2 million bits for every second of digitally-recorded sound. Optical recording is ideally suited for audio recording, editing, archiving, and of course, replication. The key trick is the recordability of an optical disc.

For all of its assets, the compact disc could never have major impact on the recording studio. As a playback-only medium, it lacks the *raison d'être* of a studio—the ability to record. Thus, work on a new and improved disc system has been underway ever since the inception of the CD. Numerous methods are being actively explored, including phase change and organic material media, however one system seems to be particularly promising, and in an advanced stage of development. Specifically, the new medium is a recordable/erasable system using a combination of vertical magnetic recording and laser optics, called the Magneto-Optical Disc (MOD). Both Philips and Sony (and other manufacturers) have prototypes up and running in their laboratories and the market introduction is only a matter of time.

Magnetic storage has been around for a half century; it's a great way to record and erase data, but suffers from some basic problems such as medium and head wear. In addition, magnetic storage has hitherto used longitudinal recording, in which the magnetic particles are laid flat across the medium; this limits the density of particles, and the amount of information stored in an area.

Optical storage is a newcomer; its longevity of medium and pick-up, and data density are powerful assets. Thus far, only read-only optical media such as the CD family have been widely commercialized. That's because optical properties of materials are not as easily changeable as their magnetic properties.

Magneto-optical storage promises to merge the record/erase properties of magnetic materials with the high density and contactless pick-up of optical materials, using a number of very clever technological tricks.

Fundamentally, MOD recording is the same as any magnetic recording, however vertical (sometimes called perpendicular or VR) recording is used. This differs from regular, longitudinal recording, in which the mag-

netic particles are oriented lengthwise along the tape. In a vertical medium, magnetic particles are placed perpendicularly to the tape surface. This allows for much greater particle density, shorter recorded wavelengths, and hence greater recording density. Vertical recording actually becomes more robust as recording density increases; as the cylindrically-shaped particles are packed more tightly, they must be made thinner, which increases their magnetic strength.

However, this great recording density is under-utilized by conventional magnetic heads. Their recording flux fields cannot be focused sufficiently; in other words, the recorded area uses a far greater area than necessary. This is where magneto-optics enters the picture. A magnetic field is used to record data, but it is about 1/10 the strength of conventional recording fields. By itself, it is too weak to affect the orientation of the magnetic particles. However, a unique property of magnetic materials is utilized: as they are heated, their coercivity, the field strength required to bring a saturated tape to erasure, suddenly drops close to zero at their Curie point. In other words, at that temperature (about 200 degrees Centigrade), the magnetic particles are easily oriented by a weak field.

A laser beam, precisely focused through an objective lens, is used to heat a minute spot of magnetic material to its Curie point. At that temperature only those few particles are affected by the magnetic field from the recording coil, and a very high density recording results. After the laser pulse, the temperature decreases, and the data is "frozen" into the magnetic layer. As in any digital magnetic storage, saturation recording is used. In this case, the aligned particles are reverse-oriented perpendicularly, as shown in Fig. 1.

Reading the data from the MOD uses still another trick: the Kerr (or Faraday) effect. This characterizes the rotation of the plane of polarized light as it passes through a magnetized material. Specifically, the reverse-oriented regions will reflect laser light differently than the unreversed regions. To read the disc, we shine a focused laser on the disc and monitor the angle of rotation of its reflection, as shown in Fig. 2. An analyzer distinguishes between rotated and unrotated light, and converts that information into a beam of varying light intensity. Data is then recovered from that modulated signal. The intensity of the reading laser is much lower (by a factor of ten) than the recording laser so the magnetic information is not affected.

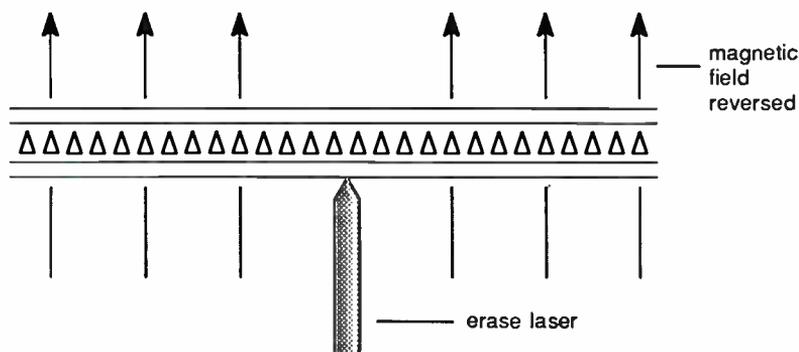


Figure 3: Erasing

To erase data, and write again, a reversed magnetic field (in the same direction as the original recording) is applied to the MOD, along with the laser heating spot, as shown in Fig. 3, and new data is written. Both operations can be accomplished in one pass, as with conventional magnetic media.

Of course, any recording scheme is dependent on the modulation method used to write the data on the medium. There are several clever modulation methods suitable for MOD, for example, consider Fig. 4. The specific channel lengths of the input data is converted into a series of pulses. The pulses cause the recording laser to switch on and off, recording patterns of varying lengths corresponding to the input signal. Because of the overlap between recorded spots, density is considerably increased.

An important aspect of any recording medium is its compatibility with media from other recorders. To achieve this within the high tolerances of a MOD, blank discs will be manufactured with prerecorded and nonerasable addressing. The method is called hardware address sectoring, and uses a grooved disc in which address information is physically formed in the groove, and detected by light beam

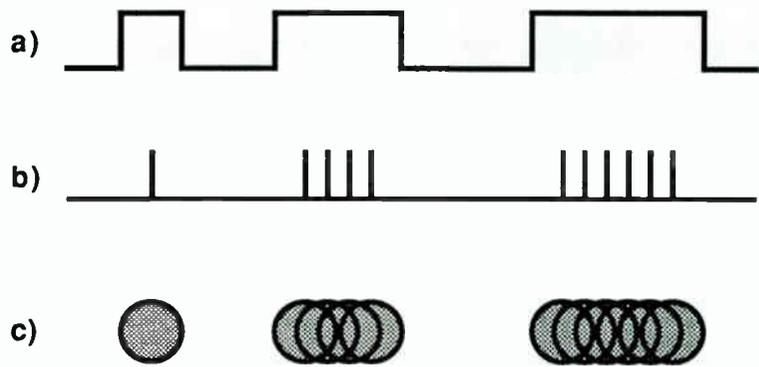


Figure 4: a) Binary signal to be recorded. b) Pulse train derived electronically from the signal. The pulse train determines the position of the unit magnetic domains by the laser being switched on and off. c) The domain pattern obtained. If unit domains overlap, there are variations in the domain length.

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reflection. Using this system, any MOD player will automatically track both address and data information contained on any MOD disc. By superimposing the hardware addressing information with the recorded data signal, playing time is not sacrificed.

A MOD disc would retain the protective properties of other optical media. The recording layer would be sandwiched between a transparent substrate, and a protective layer. The laser light would shine through the substrate, using its index of refraction to place surface dust and scratches out of focus with respect to the interior data. Although several magnetic materials could be used, the ultimate selection will be based on orientation properties, signal-to-noise ratio, and long term stability. System designers are currently researching amorphous thin film magnetic materials with coercivity of about 2500 Oersteds. Tests indicate that a MOD disc could be erased/recorded over 10 million times, and would retain its data for ten years or more.

The optical head and magnetic coils require sophisticated engineering both in terms of their own design, and the hardware and software which controls them. In addition, a complete signal encoding chain is contained in every recorder. We can summarize some of the tasks a MOD recorder must deal with: Audio signal processing for both recording and playback, constant linear velocity (CLV) control of the disc, drive control of the optical head block for the focusing servo, tracking servo, and traverse motor, magnetic field control, laser drive control, disc loading and clamping mechanism, system control of recording, reproduction, erasing, and access, etc. Clearly, because of the similarity of tasks, it would make sense for a MOD player to borrow some technology from the CD system.

The consumer may be one of the first to enjoy the benefits of MOD (if record labels can deal with the introduction of another recording medium). Consumer MODs will conform to the CD format, hence MOD will be a recordable/erasable CD. Moreover, the MOD system will be upwardly compatible with the CD. Because much of the electronics are identical, all MOD players could also play back CDs, in the same way that a cassette machine can record, or play prerecorded tapes. They could share a common optical head, and even the difference between CD and MOD would be automatically detected, owing to the differences in reflectivity.

Consumers can buy as many CDs

as they want (record labels should like this part) and they will remain just as they are—the medium for prerecorded optical reproduction. Of course, if they want to record MODs, or play back already recorded MODs, they'll need an MOD recorder. While many people will certainly switch to an MOD recorder, I suspect that CD players will keep going strong, just as another great prerecorded software transport, the turntable, persisted for a number of years.

Recording studios will surely be another beneficiary of MOD technology. In addition to professional versions of the consumer MOD format, new MOD formats will be introduced, using greater recording densities, or larger disc diameters to achieve longer playing times. Undoubtedly, multi-track MOD recorders could be developed to meet the unique needs of the studio. It would be fitting, I think, if audio recording abandoned tape storage and returned to its origins of disc recording.

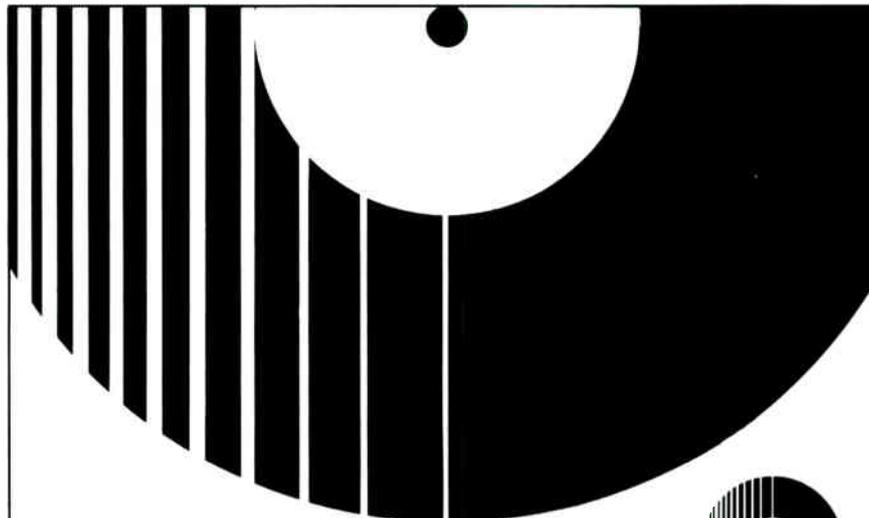
At this point, MOD is still an experimental system. However, the introduction of an erasable optical media seems inevitable, and close at hand. However, MOD is not the only system being researched. Phase-change media

make use of materials which can be changed from a crystalline state with high reflectivity, to an amorphous state with low reflectivity, and back again. Writing and reading are done by a laser. Permanent recording may be achieved by simply increasing the power of the writing laser; this burns holes in the recording layer rather than changing its phase. Other proposed erasable optical media include polymer/dye binder media, which may offer lower production costs.

Whichever technology wins out, it seems clear that optical recording is close at hand. In that light, the merits of products such as DAT must be carefully evaluated. Surely the advantages of optical storage, as demonstrated by the CD, should cast considerable caution on the acceptance of stop-gap technology such as the DAT. Increasingly, in the future, stretched tape, shedding oxide, and dirty and worn heads will be no match for the laser beam.

• • •

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The Just-Tempered Recording Engineer

by John M. Woram

I've just finished reading the November (1986) issue of *Mix's* sister publication, *Electronic Musician* magazine, which takes a long look at alternate tuning schemes that are now, thanks to electronic keyboards, becoming so much easier to utilize. Based on the information found in several of the *EM* features, it looks as though the electronic music segment of the recording industry can at last take a giant step backwards and rediscover just intonation.

Alternate tuning can also be examined from the point of view of the recording engineer, who may need to know a little more about it if and when it shows up on a session. And so, here begins a column or three on the subject, with some liberal borrowing—from *EM*.

But first, a digression. How many out there have a personal computer lying around? In the hopes that the readers of this column have such a toy available, I've tossed in a few BASIC programs to help clarify (or maybe, further obscure) some of the

points raised. These were written on an IBM PC, so the LOCATE and PRINT USING statements may need to be modified if the program is run on some other computer. Let me know (no letter bombs, please) if this helps or hinders the subject.

For those who slept through Music in Western Civilization 101, the key changes that every contemporary musician now takes more or less for granted were no easy matter some 200 years ago. By then, the musical notes within the octave had long-since evolved into a series of twelve tones based on a natural harmonic series. Then as now, you didn't have to be a musicologist to pick out frequencies that seemed to go well together, or to recognize those that didn't. To prove it, just take any two signal generators, set them at the same frequency, and then vary the frequency of one of them. Some combinations blend well and others don't—and you don't need much ear training to tell which is which.

Why? Well, physics majors tell us that if a string vibrates at some fundamental frequency, f , it simultaneously

vibrates at harmonic frequencies of $2f$, $3f$, $4f$, . . . and so on. We hear mostly the fundamental frequency, with the harmonics reproduced at lesser amplitudes. That's the way Mother Nature designed the vibrating string, and just about everything else that moves back and forth. So it's natural for musicians to try to move air in such a way that pleases Mother Nature and the rest of us as well.

This suggests that the frequencies we use for music are no accident. For example, if we look at a musical scale based on a fundamental frequency of 440 Hz, the frequencies we now call the major third and perfect fifth are respectively 550 and 660 Hz—or at least they were before Bach. The numbers almost look like an engineer designed them, but in fact they are based on the natural harmonic series: for example, the fifth is a sub-harmonic of (one octave below) the fundamental's third harmonic ($440 \times 3 / 2$).

To make a long story reasonably short, all the tones within the octave are related to the fundamental frequency by various whole-number ratios. The closely-related frequencies (fifth, third, etc.) have small-number ratios (3:2, 5:4, etc.) while more-distant relatives such as the major seventh and the semitone have higher-number ratios (15:8 and 25:24). The specific ratios that were eventually accepted into the musical scale will all be listed later on in this column.

A Just-Tempered Limitation

One big problem with this natural, or just-tempered, scale is discovered when we try to build a new key based on a frequency taken from a previously-constructed scale. For example, let's see what happens when we start with the A-sharp (458.33) found in the just-tempered key of A Major. Applying two of the ratios found above, its perfect fifth and major third are 687.50 and 572.91 Hz. The new fifth (E-sharp) exactly corresponds to the F in the former key of A, but the new third (C-double sharp) lies somewhere between the old C-sharp and D.

Therefore, a traditional keyboard instrument tuned to the just-tempered scale of A-Major would require an additional mechanical key in order to play a major third in the key of A-sharp Major. In fact, a lot of extra keys would be needed in order to play the instrument in every musical key. So a

Figure 1

A BASIC program to compare the well- and just-tempered scales. If a frequency of 440 is entered at line 120, the readout seen here will be displayed.

A.	B.
100 DATA 1,1, 25,24, 9,8, 75,	0 440.00 440.00 1
54, 5,4, 4,3, 25,18	1 466.16 458.33 1.017085
110 DATA 3,2, 25,16, 5,3, 125,	2 493.88 495.00 .997744
72, 15,8, 2,1	3 523.25 515.63 1.01479
120 INPUT F	4 554.37 550.00 1.007937
130 FOR K = 0 TO 12	5 587.33 586.57 1.00113
140 READ N,D	6 622.25 611.11 1.018234
150 JUST = F * N / D	7 659.26 560.00 .9988713
160 WELL = F * 2^(K/12)	8 698.46 687.50 1.015937
170 DIFF = WELL/JUST	9 739.99 733.33 1.009076
180 PRINT K, USING "#####.##";	10 783.99 763.89 1.026315
WELL, JUST;:PRINT, DIFF	11 830.61 825.00 1.006799
190 NEXT	12 880.00 880.00 1



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practical compromise was proposed by Bach and others, who introduced a "well-tempered" scale in which each semi-tone is an equal interval from the preceding one.

In the well-tempered major scale, each frequency is found by simply multiplying the fundamental frequency by two raised to $K/12$, where $K = 0, 1, 2, \dots, 12$. Or if you like, multiply any frequency by $2^{(1/12)}$ —that is, by 1.059—to find the next highest note.

The BASIC program seen in Fig. 1A will display the differences between the well- and just-tempered scales based on any frequency entered in line 120. If a frequency of 440 is entered, the display should look like that seen in Fig. 1B. The DATA in the first two program lines contain the ratios of the 13 notes in any just-tempered scale. For human types, the data in these two lines should be read as 1:1 (unison), 25:24 (semitone), 9:8 (Major 2nd) and so on. The FOR/NEXT loop beginning on line 130 makes 13 passes (0 to 12), line 140 reads a data pair, and line

150 calculates the just-tempered frequency by multiplying the fundamental frequency by the ratio formed by the data pair just read. The equivalent well-tempered frequency is calculated in line 160, and line 170 calculates the accuracy of the well-tempered frequency with respect to the equivalent just-tempered frequency.

As you can see, two well-tempered frequencies (unison and octave) are exact, two others (Major Second and Perfect Fifth) are slightly low, and all the rest are slightly high. But if any new scale is constructed from one of the frequencies listed in the well-tempered column, at least no new frequencies will appear in that scale. So at the cost of a little internal detuning, it's possible to build a keyboard or other instrument with a reasonable number of mechanical keys and still be able to play it in any musical key.

Bach wrote his well-tempered Clavier to check out the system, and you know the rest; equal temperament is now almost an ANSI standard. To

demonstrate the practical problems that it overcomes, Fig. 2A again calculates the notes in the just-tempered scale, which are seen in the first column of Fig. 2B. Then a new just-tempered scale is calculated, based on the second frequency in the first column (458.33). To read this scale, move over one column to the right, where 458.33 appears again. Note that the second frequency in this new key (477.43) does not match up with any frequency in the first column. The third frequency (515.63) does match, as do three others.

Return to column 1 and read the third note (495.00), then move over to column 3 to begin another new scale, and note that even more new frequencies show up. And so it goes, until ten columns are displayed, which is the limit for an 80-character display. To print a hard copy of all 12 just-tempered scales based on all the tones in column 1, change the 10 in line 200 to 12.

By the way, line 280 is used just to

A.

```

100 H = 1
110 DIM F(13)
120 CLS
130 DATA 1,1, 25,24, 9,8, 75,64,
      5,4, 4,3, 25,18
140 DATA 3,2, 25,16, 5,3, 125,72,
      15,8, 2,1
150 INPUT F
160 FOR K = 1 TO 13
170 READ N,D
180 F(K) = F * N / D
190 NEXT
200 FOR A = 1 TO 10

```

```

210 RESTORE
220 F = F(A)
230 FOR V = 1 TO 13
240 READ N,D
250 F = F(A) * N/D
260 LOCATE V+Q,H
270 PRINT USING "####.##";F
280 IF F > F(12) THEN LOCATE V + Q - 12,
      H:PRINT USING "####.##";F/2
290 NEXT V
300 H = H + 8: Q = Q + 1
310 NEXT A
320 LOCATE 23,1

```

B.

440.00	429.69	429.69	429.69	429.69	440.00	424.38	440.00	429.69	429.69
458.33	458.33	464.06	447.59	458.33	458.33	458.33	458.33	458.33	458.33
495.00	477.43	495.00	483.40	477.43	488.89	477.43	495.00	477.43	488.89
515.63	515.63	515.63	515.63	515.63	509.26	509.26	515.63	515.63	509.26
550.00	537.11	556.88	537.11	550.00	550.00	530.48	550.00	537.11	550.00
586.67	572.92	580.08	580.08	572.92	586.67	572.92	572.92	572.92	572.92
611.11	611.11	618.75	604.25	618.75	611.11	611.11	618.75	596.79	611.11
660.00	636.57	660.00	644.53	644.53	660.00	636.57	660.00	644.53	636.57
687.50	687.50	687.50	687.50	687.50	687.50	687.50	687.50	687.50	687.50
733.33	716.15	742.50	716.15	733.33	733.33	716.15	742.50	716.15	733.33
763.89	763.89	773.44	773.44	763.89	782.22	763.89	773.44	773.44	763.89
825.00	795.72	825.00	805.66	825.00	814.81	814.81	825.00	805.66	825.00
880.00	859.38	859.38	859.38	859.38	880.00	848.77	880.00	859.38	859.38
	916.67	928.13	895.18	916.67	916.67	916.67	916.67	916.67	916.67
		990.00	966.80	954.86	977.78	954.86	990.00	954.86	977.78
			1031.25	1031.25	1018.52	1018.52	1031.25	1031.25	1018.52
				1100.00	1100.00	1060.96	1100.00	1074.22	1100.00
						1173.33	1145.83	1145.83	1145.83
							1222.22	1237.50	1193.58
								1320.00	1289.06
									1273.15
									1375.00
									1466.67

Figure 2

This BASIC program calculates ten different just-tempered scales, each based on one of the frequencies found within the scale listed in column 1.



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STANDARD (stan' dērd), *n.* 1. Something established as a rule or basis of comparison in measuring or judging quality, value, capacity, extent, etc. 2. Something used by general agreement as a type, model, or pattern.

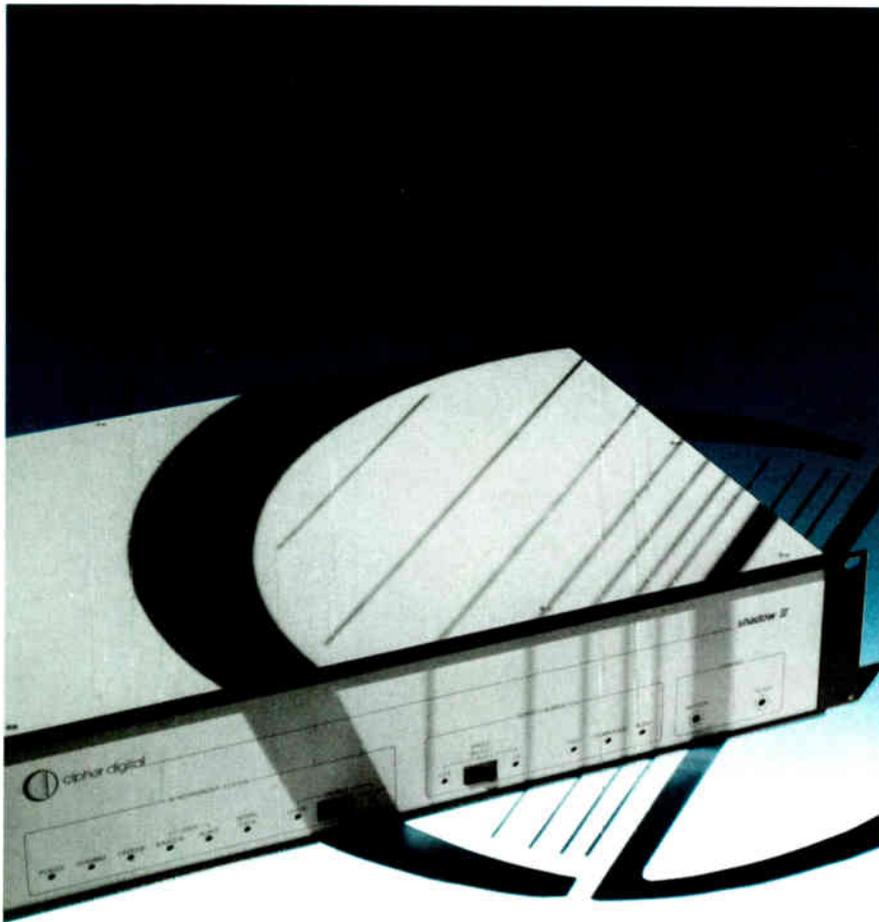
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fill in the notes in the octave below the starting frequency in each column, making each column begin in row 1. Leaving this line out when you first run the program may give a clearer picture of what's going on. If you don't have a PC available, just follow along with part B in each of the figures.

In any case, note how many discrete frequencies are needed in order to modulate among all the major scales. So it can be seen that the well-tempered scale greatly simplifies things. But remember that although it bends the laws of physics slightly, the natural overtones produced by any instrument still vibrate the way Mother wants them to. So, there's a slight clash between say, the perfect fifth heard as a natural harmonic of the note that is played, and the same fifth as played on an accompanying instrument, or simultaneously on the same instrument.

Of course, this detuning of the fifth is so slight as to be almost undetectable. However, the difference between major thirds (554.37 and 550.00) is enough to create a noticeable tremolo, and between minor thirds (523.25 and 515.63) there's a very obvious discord. But given the nature of most music composition, the amplitudes of those natural harmonics that might cause audible tuning problems are usually low enough to cause little trouble.

Still, there's always been an interest in the acoustic purity of the just-tempered scale, and with the flexibility of many new electronic keyboard instruments, a number of musicians are experimenting with this new/old sound. For more details on all of this, see the November 1986 issue of *Electronic Musician*, and especially Vanessa Else's "Opening the Door to Music Math."

To include the Pythagorean tuning described in Else's Music Math feature, add the following lines to the program listing given in Fig. 1A:

```
142 PYTH = F × 1.5K
144 IF PYTH > 2 × F then PYTH =
PYTH/2: GOTO 144
```

Line 142 calculates the Pythagorean frequency, and line 144 reduces it (if necessary) to the sub-harmonic that lies between the fundamental frequency, *f*, and its octave. To display these frequencies, insert PYTH in line 180, as seen here:

```
180 PRINT K, USING "#####.###";
PYTH, WELL, JUST;:PRINT, DIFF
```

These frequencies do not appear in ascending sequence, since this would require a major program overhaul to include a sorting routine. ■

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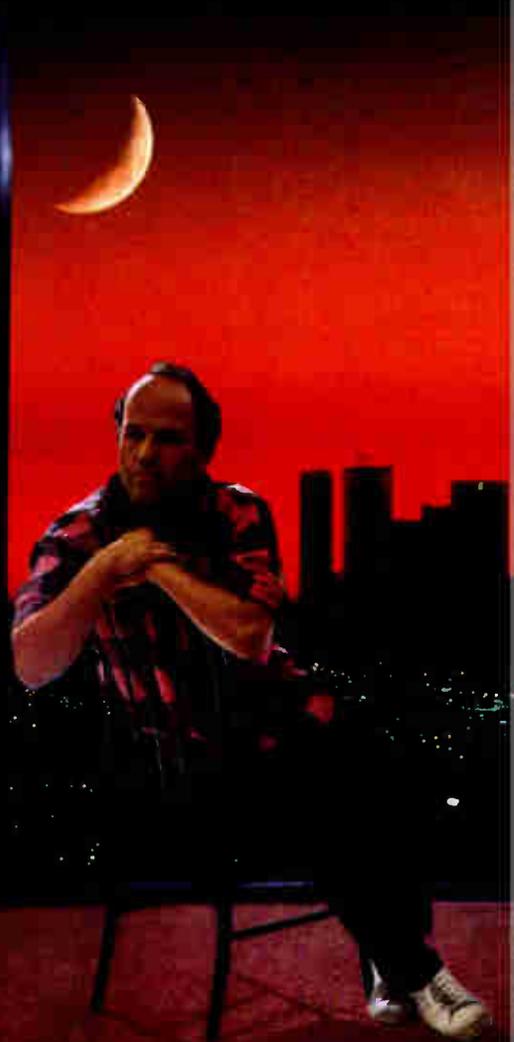
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Speculation on the future of Musical Instruments

VISIONS OF THE DIGITAL BEYOND

by Larry Oppenheimer

*"Life is change, how it differs
from the rocks."*

—Jefferson Airplane

*"Eenie Weenie Chili Beanie, the
Spirits are about to speak!"*

—Bullwinkle J. Moose

It's true that speculation is a dangerous pastime, but on the other hand, projection is a valuable tool. The best we can hope to do is look at recent developments and directions, and attempt to extrapolate to where things might lead. This is what I'm going to attempt here. To start with, let's enumerate some of the more obvious trends in the last few years. In the area of sound generation, we've seen several new methods of digital synthesis become popular, notably FM (as in Yamaha's DX synths), phase distortion (as in the Casio CZ series), and wave-table (as in the Sequential VS, Ensoniq ESQ1, PPG, etc.). Currently on the rise is Roland's "Structured Adaptive Synthesis," which appears, from what little information has been released, to be an adaptation of linear predictive coding (LPC), and software synthesis programs, such as Digidesign's Soft-Synth, which generate waveforms in non-real time for downloading and playback in a sampling instrument. Analog synthesis has remained viable, however, with a significant increase in programmability, as in the Oberheim Xpander and Matrix synths, and Roland's JX and alphaJuno series instruments. Of course, we should not neglect to mention sampling. In fact, sampling has given rise to a number of new directions. Besides the most basic and obvious application of enabling a huge range of natural (and unnatural) sounds to be captured and

*"It is now possible
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time code synchroni-
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bility to offload
samples to a PC, all at
a moderate (if not
low) price."*

used, sampling has also begat: PC-based programs for analysis, editing and processing of samples, SMPTE-driven sequencing for electronic production of sound effects as well as music in film and video work, and the aforementioned non-real time software synthesis packages.

In the area of control, the most evident trend has been MIDI. As with sampling, MIDI has opened the door for numerous new areas. Sequencing large numbers of instruments and synchronization to SMPTE Time Code are two important areas. But MIDI has also brought home an even more basic and important concept: the independence of sound generators and controllers. Expander modules and master controllers are both attributable to this

perspective. Another concept that MIDI has spawned in the commercial marketplace is that of processing of control data.

Finally, there has been the continuing trend towards ever more powerful instruments. It is now possible to buy an instrument that offers high-fidelity sampling, analog and digital processing, MIDI sequencing, SMPTE Time Code synchronization, and the capability to offload samples to a PC, all at a moderate (if not low) price. The high-end instruments have progressed accordingly, now offering resynthesis, true digital recording, and publishing quality notation. So what does any of this point to in the future?

First of all, there are many synthesis techniques that have yet to leave the research laboratory. In some cases this is because it has taken the power of a mainframe or minicomputer to perform them in the past, and in other cases because they are quite new. In either event, the barriers to many of these unexplored methods are yielding, and it seems likely that at least a few of them will see the light of day and become popular. Each form of synthesis offers its own strong and weak points, so we can expect that there will actually be room for a greater variety of technologies. After all, the current rage is to have at least one each of a digital synthesizer, analog synthesizer, and sampler, exactly because each does things that the others don't do as well. Additionally, I think that we can expect to see enhanced use of some existing synthesis methods. I am referring here to the difficulty and tediousness currently involved in programming useful sounds using FM or additive synthesis. I think that in the future, high-level tools will be developed to make programming more understandable, simple, and in-

tuitive. Analysis/resynthesis is one way that additive synthesis can be used more easily: start from an analysis of an existing sound and then modify it, rather than building sounds from scratch, partial by partial. Similarly, methods of mapping timbral attributes to FM algorithms would be a utilitarian improvement which would increase the usefulness of FM instruments. (In fact, this idea was already presented in a paper at the 1985 International Computer Music Conference.)

Non-real time software synthesis may yet yield to real time software synthesis, as digital signal processing hardware matures into a new generation of VLSI chips. However, it looks as if sampling instruments are being positioned as playback ports (with musical controllers) for data from a var-

ety of sources. Not only are there the non-real time software synthesis packages appearing, but the MMA sample dump standard and analysis/editing/processing programs which are available for a number of different samplers make it increasingly easy to transfer sounds between sampling instruments in the digital domain. As the AES format for serial transmission of digital audio comes into general use, and all-digital recording, editing, and processing systems seep into the field, it does not seem far-fetched to think about sounds that are only in analog form at the beginning (if they are not digitally synthesized in the first place) and the end of the signal chain. In fact, the line between recording/editing/processing systems is getting thinner every day, and may soon be-

come so blurred that it is insignificant. It seems terribly obvious to expect synthesizers with onboard digital reverb, by extension we can think about instruments with other types of onboard digital signal processing: compression/limiting, equalization, auto-panning, vocoder, even some amount of mixing. However, it is difficult to say at this point when it might become more advantageous to perform some of these tasks digitally than with analog methods.

There are several directions that seem likely in control of instruments. The two that suggest themselves the most heavily are the variety of controllers available and ease of use. We are now starting to see MIDI controllers of all description appearing at trade shows and in stores; witness the

Yamaha 1887-1987

THE SPIRIT OF INNOVATION CONTINUES



From archery equipment to automated digital mixers... from computers to Club Med-style recreational facilities... from marimbas to motorcycles... from outboard motors to outboard signal processing... and from skis to synthesizers, the extremely broad range of products manufactured by the Yamaha Group is almost beyond belief. Yet even with such an enormous diversity of activity, providing quality music and sound products has always been one of the company's main goals, ever since founder Torakusu Yamaha built Japan's first reed organ in 1887. A few years later, Mr. Yamaha formed Nippon Gakki Company, Ltd., a name that is literally translated as the Japan Musical Instrument Company. Yamaha's strong ties to their musical roots are exemplified by their cor-

porate symbol, which is comprised of three tuning forks.

Yamaha's initial move into the age of modern electronic music began with the development of the world's first all-transistorized organ—the Yamaha Electone—in 1959, and ever since, the company has made continual efforts to keep on the cutting edge of technology. Yamaha engineers traveled to America to visit FM synthesis pioneer John Chowning after he published his research in a landmark paper on the subject in the September 1973 issue of the *Journal of the Audio Engineering Society*. Ya-

maha spent nearly ten years perfecting the technology, culminating with the introduction of the DX7 in 1983, possibly the most common synthesizer in use today.

Given the proliferation of DX-series sounds and voicings in popular music, it is almost difficult to recall what those pre-FM synthesis days were like. Yet after the introduction of products such as the TX816 system, with the equivalent power of eight DX7s in a single modular rack; the DX5 dual six-operator synthesizer; and even the FB-01 FM sound generator/expander (offering 240 pre-programmed



**Yamaha's
DMP7
Digital Mixing
Processor**

Synthaxe, remote keyboards like the Lync, percussion controllers like the Octapad, Kat mallet controller, Air-drums, even a suit of percussion pads. The Yamaha MCS2 is a device dedicated solely to controllers such as sliders, wheels, and footpedals. In the future, alternate hardware controllers are likely to be explored. Think of the audience response when you put down your guitar controller and begin tap-dancing a melody played by a sampled French horn! It is here, with low-level controller interpretation, that control data processors may become valuable. PC-based utility programs based on this idea are a natural, and we may see some of this capability appearing in stand-alone sequencers.

High-level software control tools, extending in the direction of the Mu-

voices for \$345); Yamaha's commitment to FM synthesis is far from completed. "As far as FM synthesis goes, we've barely scratched the surface with our four- and six-operator systems," notes company spokesman Phil Moon, "the DX7 was just the beginning!"

As far as future predictions are concerned, Yamaha keeps fairly tight-lipped, preferring to let the industry know about new developments when they were perfected, rather than making bold promises about products that are years away. One recent example of this philosophy was their unveiling at the Los Angeles AES Convention of the DMP7, an 8-input/2-output digital mixing console with 16-bit resolution, 32-setting on-board "snapshot" memory and moving fader automation—at a price of \$3995. Additionally, a digital bus feature allows the cascading of up to four DMP7s: a 32x2 console can be configured for under \$16,000.

While the DMP7 digital mixer (which should be available within six months) represents a major breakthrough in price/performance technology, it is definitely in keeping with the spirit of innovation sparked 100 years ago by a master instrument builder. As for the future, we'll just have to wait and see what tomorrow brings as Yamaha begins its second century.

—George Petersen



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sicMouse program will probably appear. These may be considered compositional aids, but in fact they are high-level control programs. With this scenario, a musician or composer may establish some set of conditions or rules (in Artificial Intelligence lingo, an "Expert System"), and then use a tactile controller as input to a system which then interprets the controller data in the context of the set of rules. Picture this: a musician plays the chords of a song through once, and then begins to solo. A computer has recorded the chords as they were played, and now plays them back for the musician to solo over, but the computer has been pre-programmed with a set of rules about voicings, voice leading, chord substitutions, and re-harmonization—perhaps even gleaned from analysis of recordings compared to scores of the tunes. In any event, the chords are quite dynamic, responding appropriately to the soloist by analyzing the solo as it is played and applying another set of rules about comping behind soloists. Of course, the computer would also track the performer's tempo. Have the machines then taken over the music? Of course not! Somebody had to teach it about those rules, and the skill and musicality with which that task is done will determine how musical the resulting accompaniment is. I'm not saying that any of this is easy, tempo tracking is extremely tricky (as is pitch tracking), and expert systems at this time are way too slow for real time performance. But these are directions that seem ripe for pursuit.

How about this ease of use idea? One big drawback of many existing instruments is the paltry displays that are generally supplied. PC-based voicing programs have shown how much easier it is to operate an instrument when a large amount of information can be viewed at one time. Graphically-oriented operating environments seem to be good for the intuitive approach often employed by musicians. Until now, however, such displays have required too much processing power, and have been too costly, delicate and space-consuming to include on an instrument. Flat-screen display technology is coming along quite well, though, and if the price drops we might start to see nicer displays onboard musical instruments. In any event, interfacing to PCs is an area which will probably continue to expand.

Now here's where I get myself in big, big trouble. I really love MIDI, I think it's the greatest thing since sliced voltage control, and I will continue to use it and write about it profusely. But let's face it, folks, when you get four or five polyphonic instruments with a

"One of the most frustrating aspects of dealing with the amazing rate of technological advance that the music industry is showing, is figuring out what to buy."

couple of controllers like pitch bend and mod wheels, plus controller moves to control your MIDI signal processors, and then throw in some real time MIDI Time Code messages, all coming out of one sequencer, well, you've got a pretty darn clogged data stream, and things are going to bog down (even given zero internal processor delay in the instruments). And the two-way communications that are coming into use for voicing, librarian and processing programs point up the limitation of MIDI's assumption of one-way communication on each cable. Since these are some of the directions that people are definitely moving in, I think that MIDI will be just plain not enough to do the job. And I don't think that it will be very long at all until that Rubicon is reached: I already need to use two synched sequencers to provide separate data streams for note events and controller events in my MIDI system (which has five polyphonic synthesizers, a drum machine, four or five MIDI-controlled processors and is driven from SMPTE). I can't say that I think MIDI will die in five years or so; it won't. But (here it comes) I wish it would, so that it could be replaced with an interface more adequate to deal with the incredible demands that we are devising right now. So there. I said it. We're already into MIDI up to our gizzards (and I, for one, am quite enjoying it in spite of its problems), so this new interface would have to be downward-compatible, which could be an annoying hurdle to overcome.

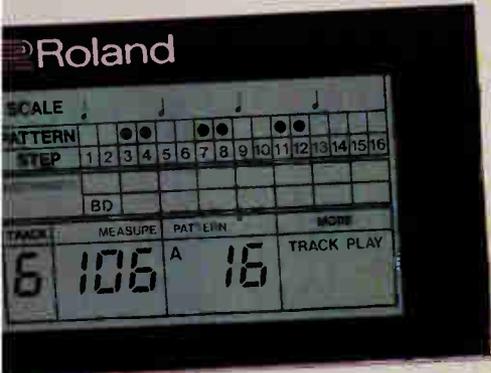
On a less volatile note, it will be interesting to see how the instrument market acts in the future. Recently,

the high-end instruments have incorporated more and more features and capabilities, while the very low-end instruments have traded most of the bells and whistles for a rock-bottom price. Meanwhile, some instruments in the \$3,000 to \$8,000 range have incorporated more features and higher fidelity while keeping a relatively constant price. This has caused such stratification that there are very few instruments in the \$10,000 to \$30,000 range. It would seem that the high- and low-end instruments will continue along their same directions, but it is hard to imagine that such a gaping hole will remain in that upper-mid price bracket. I think we can expect to see the full gamut of prices represented very soon.

One of the most frustrating aspects of dealing with the amazing rate of technological advance that the music industry is showing, is figuring out what to buy. It seems that as soon as you get something, something better comes along. You can wait for the something better, but if you keep waiting for the better instrument, you'll be very old before you ever buy anything, and will miss out on a lot of music-making in the process. A good way to evaluate a possible purchase in light of future developments is to apply two criteria: first, look at current availability and usefulness. Most new models are announced, shown, and even demoed in stores long before they are in stock anywhere. If you pay for it now, how long will it be before you get it? As for usefulness, is this an instrument that will fill your need, or is it merely a halfway measure? If it is not really the right thing, maybe it is worth waiting a little while to see what else comes along. If it is useful now, it will probably still be useful later (even if something that seems much hotter comes along), and it is worth getting. Remember, there are still Minimoogs, ARP 2600s, and even modular synthesizers that are still in productive use.

Second, think about how well the instrument will be supported once it is no longer the hot box of the month. If a lot of them are sold, then there will be many others in the same boat as you when the model is discontinued or the company goes belly-up. This means that you are likely to be able to find support for your instrument: patches, parts and service, information and tips, etc.

In short, there's better yet to come than we even have now, and what we have now is pretty cool. But you already knew that. So there you have it, folks, a picture of the future from a genuine psychotic, er, psychic. Next month I will predict the outcome of last November's election. ■



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JACK NITZSCHE

SCORING SUCCESS

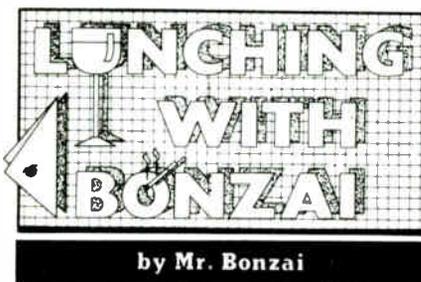


PHOTO: MR. BONZAI

Is Jack Nitzsche one of the great composer/arrangers of the 20th Century? Little is known about this very private artist, but his work has penetrated indelibly into the musical consciousness of three decades.

We grew up with Phil Spector's "Wall of Sound," without knowing of Jack's subliminal role as arranger. He joined Phil for "He's a Rebel" and stayed by his side until the Wall came down.

I first became fascinated with Jack Nitzsche at a screening of *Performance* before its premiere in 1970. With no reviews or ads, I was unprepared for director Nicholas Roeg's dark vision of a rock star's (Mick Jagger) bizarre mind games with a petty crook, underscored with Jack Nitzsche's jagged score. There is sweet melody as a gangster has his head shaved and rival thugs douse his Rolls with acid. Jagger snarls his "Memo From Turner" as fat stock brokers frolic in the nude like ancient Romans. The music slashes and soothes, rips and roars.



Jack says he's having a hard time topping himself. But he hasn't been idle. *An Officer and a Gentleman* earned him an Academy Award nomination. He's also given us *Stand By Me*, *Jewel of the Nile*, *One Flew Over the Cuckoo's Nest*, *The Exorcist* and *Starman*, to name a few. For such a recluse, he certainly has an artful knack for connecting with the masses.

Mrs. Bonzai and I buzzed an intercom at the base of a jumbly bungalow above the Sunset Strip. Our invitation was arranged by Jim Keltner, a good

friend who assured Jack that our visit would be painless and pleasant. We announced ourselves and Jack buzzed the electric doorway. It didn't open. We buzzed again and explained our situation. The maestro himself descended to ground level and led us through a maze of stairways, bedrooms and pantries.

Jack surrounds himself with lots of space. In a sun porch adjacent to the living room is a futuristic array of synthesizers. He reclined on a sofa—not quite comfortably—and explained that he doesn't go in for publicity. I learned that this home was only temporary, and that he and his wife, singer Buffy Saint-Marie, have a large ranch on Kauai. Jack is irritated by the soulless scene in Hollywood, which claims so many victims. I am interested in how talented people survive. But I felt like a truant officer who had called a day-dreaming delinquent into his office for a "man-to-man" talk.

—CONTINUED ON PAGE 37

flexibility...



Audio consoles were once designed for particular applications. You decided up front what type of clients you were going after, and then picked a console accordingly, keeping your fingers crossed that the clients would approve.

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Bonzai: Where did life start for you?

Nitzsche: My parents came from Germany and I was born in Chicago, but I was raised in Michigan, north of Grand Rapids.

Bonzai: How did you get out here to California?

Nitzsche: I drove a Studebaker here when I was 18. While in high school in the '50s, I used to read *downbeat* magazine and I saw ads for The Westlake College of Music. It was a school of so-called "modern harmony," as opposed to traditional courses. At the time there were two schools that interested me: the Berklee College of Music in Boston, and Westlake in Hollywood. I chose Hollywood.

Bonzai: How formal was your musical education?

Nitzsche: Not very formal at all. I started taking piano lessons when I was five and played classical piano through high school. In the fourth grade I started to play clarinet and was in the school band. By the time I was 15 I started learning the tenor sax and played with a small dance band in Michigan.

I was a big record fan from early childhood and when I first heard "Earth Angel," it was all over for me. I loved records and came out here to go to music school, but I was lured away by rock and roll. I lost my interest in jazz because rock and roll took my heart away. I started missing more and more school and tried writing songs and began to visit record companies. I met Sonny Bono, who was an A&R man at Specialty Records, and got my first paying job in the music business: writing out lead sheets.

It sounds corny, but my education really came from the streets, not from schools. I learned about music from records. Because I didn't have much formal music education, I sometimes feel limited. I've visited music schools to talk with students about getting into the record business and I usually tell them to quit school and get a good record collection. Music school students tend to write predictable music. Maybe I'm fortunate to have a limited education—it's forced me to come up with my own ways.

Bonzai: Can you remember some strong musical influences in your development?

Nitzsche: I appreciated many types of music when I was young. I used to listen to Dizzy Gillespie, Stan Kenton, Lee Konetz, and even The Billy May Band—if you can believe that. They used to perform at a dance hall near



PHOTO: MR. BONZAI

Jack surrounded by his "orchestra" at home.

my home in Michigan. That was the first real live music I experienced. Next came my tenor sax period—that's all I listened to. I went from jazz players to Joe Houston which is like night and day. Joe Houston wasn't a virtuoso, but it was true rock and roll sax. I guess it was an influence, but I was really just a big fan of rock and roll. The real influences came later on as far as recording goes. The music that Jerry Lieber and Mike Stoller made with their arranger Stan Applebaum influenced me a lot. And working with Phil Spector made a big change in my life.

Bonzai: Would you say that you are mostly known as an arranger?

Nitzsche: I don't know—probably. In the record business I'm known as an *o*die's arranger.

Bonzai: How did you meet Phil Spector?

Nitzsche: It started with Lester Sill and Lee Hazlewood, who were partners. Sonny Bono, and other people, would go to Lester to get record deals so they could make records. When I met Lee he had just split up with Lester. Lee asked me to come with him and help with arranging and making records. For that I got a free space in his office and a small percentage if the records sold—but they didn't sell. We were in a building on Sunset Boulevard that had a lot of music people in it. Lester

Sill was on the floor above my office. One day, he came down and said that Phil Spector was in town and that he was looking for an arranger. I went upstairs and met Phil and he played the demo for "He's a Rebel." We went to a rehearsal with The Blossoms, became friends and worked together from then on.

Bonzai: Those were the days of mono...

Nitzsche: Oh yeah—2-track was a big deal. We moved from mono to 3-track, and then ping-ponging and overdubbing began.

Bonzai: Did Phil use ping-ponging as soon as 3-track was available?

Nitzsche: I think he used it right away. I can remember times when the three tracks were full and we had to add something more, maybe even a vocal. It's hard to believe Phil would do this, but he'd have the engineer disconnect the erase head, record live over the previous material and take the chance that it would be a great take. Multi-tracking changed everything. Three tracks was like heaven.

Bonzai: Did this affect your arrangements?

Nitzsche: Not at all. We just recorded in sections, which was new. Strings were recorded separately from the horns, vocals separate from rhythm, and so on.

—CONTINUED ON PAGE 38

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—FROM PAGE 37, BONZAI

Bonzai: Did you use both acoustic and electric bass for those sessions?

Nitzsche: Acoustic bass, Fender electric bass, and a lot of times we used a Danelectro 6-string bass—all recorded simultaneously.

Bonzai: Were the Spector records all recorded at Goldstar?

Nitzsche: Almost all of them. We sometimes worked at United Western, but the big hits were done at Goldstar.

Bonzai: What was so special about that studio?

Nitzsche: The echo chamber—the studio had a great live chamber.

Bonzai: What was it like working with Phil?

Nitzsche: I think Phil is the best record producer—no, I mean he is the *only* artist/record producer. He was firstly an artist. He knew what he wanted from me every time, and gave me lots of input for the arrangements. We had a way of working together that was easy and fun, because we were friends on top of everything.

Bonzai: Is there one record that established the famous "Wall of Sound?"

Nitzsche: I think it happened gradually, and I can't remember when Phil started using that term. The sound just kept getting bigger and bigger. "Zip-a-dee-do-dah" was bigger than the one before, and "Then He Kissed Me" was bigger still. There was one record I remember with The Crystals, "Little Girl." When it was recorded, Phil used more echo than usual. Sonny Bono and others said that it had too much echo—it wouldn't get played on the radio. Phil said, "What's too much echo. What does that mean?" When does it become distasteful or offensive? I've always felt the same way myself. It hadn't been done before and people in the promotional side of the record industry felt that it was too different. But echo is like garlic. You can't get too much.

Bonzai: Echo was the major change in Phil's sound, but weren't there incredibly large numbers of musicians on those recording dates?

Nitzsche: Oh, sure. We might have four keyboards, but they were different kinds. There would be a grand piano, a Wurlitzer electric piano, a tack piano, and a harpsichord. We usually had three acoustic guitars, three basses, electric guitar, three or four percussionists, a drummer...

Bonzai: How did Gene Page fit in?

Nitzsche: Gene arranged "You've Lost

That Lovin' Feeling," because at the time I was musical director for The Tami Show. I couldn't do that session and that was one of the records that Gene did.

Bonzai: The Spector records had a lot of surprising sounds—castanets, etc. Were you responsible for adding strange instrumentation?

Nitzsche: No, those were Phil's ideas. But it wasn't something that was planned out. Phil would rummage through the percussion kits and say, "Let's try these castanets—the song needs something here." Those were the early days of making records. There were no formulas. We tried new things, and that fun seems to be gone now. It's such a business now. We used to have room to experiment and make the records sound different. I wasn't directly responsible for bringing exotic instruments to those records, but I do feel that I brought exotic instruments to film scores.

Bonzai: How did things end?

Nitzsche: I quit when Phil quit. I didn't quit arranging, but I stayed with Phil until he decided he didn't want to go on.

Bonzai: Do you know why that was?

"There were no formulas. We tried new things, and that fun seems to be gone now. It's such a business now."

Nitzsche: Not exactly. I can't believe that it was all because of the disappointment over "River Deep, Mountain High," but this country didn't recognize what a great record it was. It was number one in England, but barely made the charts here. Everyone was very excited when Phil first came along with The Wall of Sound, but things change. When a producer has too many hits, people wait for him to fall. I feel that it's the human nature of this business. That started happening, and also we started to imitate ourselves in the studio. The spirit of cooperation started to change. It just stopped being so much fun. I remember one session

with The Ronnettes—while we were listening to the playback, Phil said to me, "It's over. I can feel it—it's just not here anymore." I guess it was just a combination of things but Phil could give you a better answer than I can.

Bonzai: Do you have a favorite singer?
Nitzsche: Aretha Franklin.

Bonzai: Are there arrangers that you especially admire?

Nitzsche: Stan Applebaum was a great arranger, and I like Paul Buckmaster, who did a lot of work with Elton John. But Gil Evans is the greatest. [Evans arranged many of the classic early '60s Miles Davis albums.]

Bonzai: Where did you record "The Lonely Surfer"?

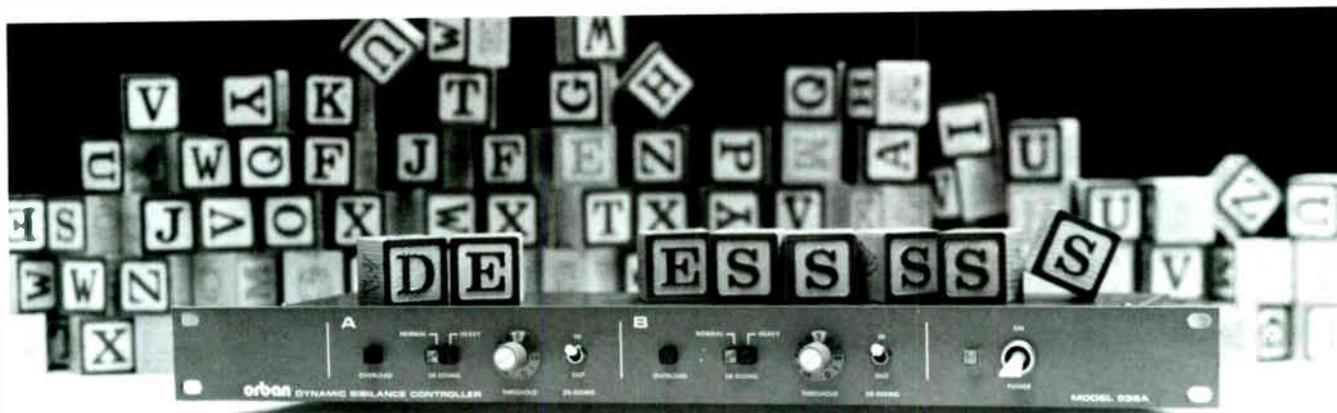
Nitzsche: That was done at United Western in Studio B.

Bonzai: Did that studio have a special sound?

Nitzsche: Not really—it was just big.

Bonzai: Did you work with Duane Eddy?

Nitzsche: Yes, I wrote the horn arrangements for a movie that he was in. We didn't do much together, but I



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was around him often.

Bonzai: "Needles and Pins" and "When You Walk in the Room"—who were the musicians on those sessions?

Nitzsche: The same musicians who played on the Spector records. The players would sometimes vary but I think it was Jimmy Bond on acoustic bass, Ray Pohlman on Fender bass, Al Casey on six-string Danelectro; Billy Strange, Glen Campbell or Carol Kaye on electric guitar; Tommy Tedesco and Bill Pittman on acoustic guitars. Hal Blaine on drums. Franky Capp on percussion; sometimes Julius Wechter on percussion. Pianos: I would play, and

Leon Russell, and Al Delory.

Bonzai: What was your working relationship with Jackie DeShannon like?
Nitzsche: We were very good friends. I did the arrangements and between the two of us we produced those records. But that was in the days of A&R men, and they got the producing credits.

Bonzai: How did you meet Neil Young?

Nitzsche: Through Charlie Green and Brian Stone, who managed the Buffalo Springfield. They played me Neil's songs and I loved his work. Neil and I became friends and he would always

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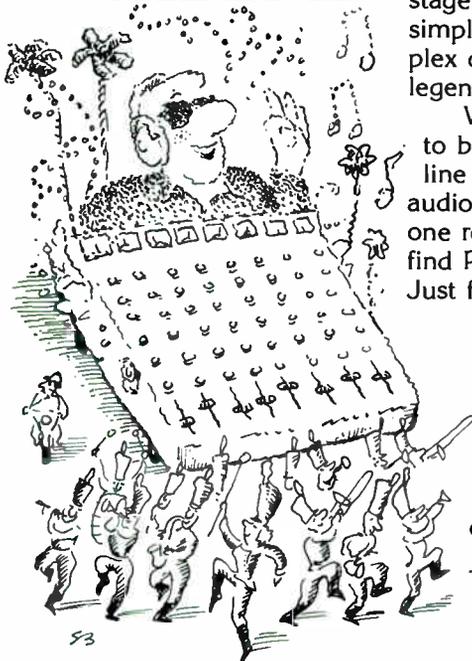
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play me his new songs. He wanted to leave the Springfield, because they didn't let him sing enough. So I helped him make a record called "Expecting to Fly." I did some arrangements for his first album, and also some producing. Then I came to a Crazy Horse rehearsal, played piano, went on the road with the band and did some recording. I ended up moving to Northern California. I had the same managers as Neil—Geffen/Roberts—and for a couple of years I lived on the ranch that Elliot Roberts owned, next door to Neil. This was around the time of the *Harvest* album and the tour of '73. After that, Neil and I drifted apart.

Bonzai: What about P.J. Proby?

Nitzsche: I met him when he was singing demos for Metric Music. He had a contract with Liberty Records and I arranged for some of his sessions. Nothing ever sold in America, but he moved to London and became quite successful. I was there in '64 talking to artists about doing *The Tami Show* and we spent some time together. Back in the United States we tried a few things that didn't materialize, but I always felt that he was a great singer.

Bonzai: Did you ever work with The Beatles?

Nitzsche: No, but I did an arrangement for Richard Perry for Ringo Starr's "Photograph." To tell you the truth, I was never a big fan of The Beatles.

Bonzai: Have you worked with Stevie Wonder?

Nitzsche: I did string arrangements for "Castles in the Sand," but we never actually met.

Bonzai: In your mind, who is an amazing artist?

Nitzsche: That's a tough question. There's one artist that isn't that well known—Willy DeVille, of Mink DeVille. I think he is really great. Let's see—Barbra Streisand is an amazing singer, and Aretha Franklin and Tina Turner just knock me out. It seems that Mick Jagger should fit into the "amazing" category, but his style is a copy of black music, so I can't give him credit for being amazing. It's really jive and clown more than music. Jumping around on MTV isn't Howlin' Wolf. I wish I had worked with Howlin' Wolf—there's an amazing artist.

Bonzai: How has the development of new electronic instruments affected your work?

Nitzsche: It's completely turned it around—for scoring films, for everything I do. It's totally changed my work.



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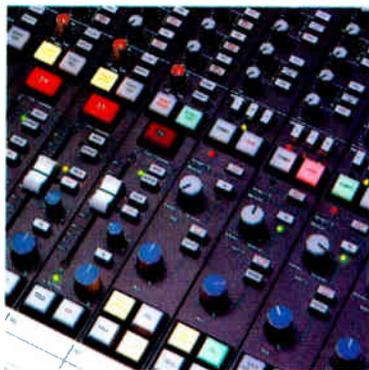
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I use a Synclavier; I have a Fairlight, an Oberheim Matrix 12, a Yamaha DX7, and lots of outboard equipment. It's a whole new world for me.

Bonzai: Do you mean you can do a lot of the work personally, rather than dealing with...

Nitzsche: With musicians and their attitudes? Yes. And I can avoid getting burned out on studios. Electronic instruments are great for the composer. I can understand the musicians' argument, but the virtuosos and the great musicians will always be here. Electronics can't do everything, but it does eliminate the need to deal with a string section that isn't interested in the music and doesn't care about how quiet they are during a session. You can avoid the unconcerned attitudes that musicians sometimes have. I love the change.

Bonzai: Has music benefitted?

Nitzsche: Yes, and it's only just begun. But there is room for all of it. I like live music, too, and I love large orchestras.

Bonzai: How did you make the transition from records to your film scoring?

Nitzsche: It really started with *Performance*, Nicholas Roeg's film starring Mick Jagger. I actually did one

film before that called *Village of the Giants*, which is one of the worst films of all time. Anyway, I had been doing some work with the Rolling Stones for a few years before *Performance* was made. I played piano for the Stones and all sort of things. Their recording style was entirely new to me—they would block book a studio for two weeks and you could go in to record whenever you felt like it. And if you didn't come up with anything some days, it didn't matter. This was a new approach. We usually recorded here in Hollywood at RCA studios, but then I began traveling to London to work with them.

Mick flew me to London to see *Performance* and suggested we work together on the soundtrack. I asked him, "What do I need you for?" and he said, "Right." He took care of everything and made sure that I had the freedom to score the film. I was afraid that there might be trouble and I might not get paid, but Mick and the director made sure that all went smoothly.

Bonzai: I feel it's one of the most powerful and memorable scores...

Nitzsche: I haven't been able to top it yet. Often, directors will use that soundtrack as temporary music for their films before they choose the final music. I

think it's pretty original work. *Performance* was the beginning of my crossover to films. Then came Milos Forman's *One Flew Over the Cuckoo's Nest*, which really established me in the film world.

Bonzai: Do you have any recollections about *The Exorcist*?

Nitzsche: I worked with a friend of mine from San Francisco, Ron Nagel—a great artist and songwriter. I suggested him to the sound editor and he provided lots of bizarre sounds for the film. He did things like recording bees and then stacking up tracks recorded at different speeds. Lalo Shifrin's score was thrown out and the director, Billy Friedkin called me. Ron and I spent about four days in the studio experimenting. I brought in a lot of exotic instruments and gadgets from toy stores and we played around with different tape speeds. We recorded crystal glasses and other strange instruments and came up with bits and pieces which Billy Friedkin combined with records. He used some Pendresky and others to come up with the score. Ron and I had a lot of fun working together on that one.

Bonzai: *Cannery Row*?

Nitzsche: Well, I think I wrote a good



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score for a terrible picture. The director [David Ward] turned a great Steinbeck story into a slapstick comedy. For the score, I put together a real good band—New Orleans players—and I hired Mac Rebennack [Dr. John] to play piano. It was a wonderful two weeks hearing Mac play boogie-woogie. I think he's probably the best piano player alive.

Bonzai: What are your favorite films?
Nitzsche: I'm really a big movie fan—a few of my all time favorites are *Putney Swope*, *One Eyed-Jacks* and anything with James Dean.

Bonzai: You're composing music for a new film now, aren't you?
Nitzsche: Yes, I'm working on a film called *Streets of Gold*, starring Klaus Maria Brandauer.

Bonzai: Can you imagine playing music if you had lived in another period of history?
Nitzsche: No, I like this time the best. I liked the '50s and the '60s, but the '70s weren't very interesting. I like the '80s—electronic music has created enthusiasm for me again.

Bonzai: Is there an instrument that you feel most comfortable with?

Nitzsche: Synclavier.

Bonzai: Are you performing at all these days?

Nitzsche: No, no, I never really did that. I played with some bands behind artists, but never on my own.

Bonzai: You did some work with the Japanese artist, Yosui Inoue, didn't you?

Nitzsche: Yes, I did some arrangements for one of his records. I think it became a hit in Japan. The sessions were done here. There were a lot of Japanese people in the studio. I wanted to talk to them about Kendo, which I studied for many years with a Japanese master, but the musicians weren't interested in old Japan.

Bonzai: If you had to go off alone to a desert island, and you could only take ten records, which would they be?

Nitzsche: 1) *Possible Musics*, by Jon Hassel; 2) *Dream Theory in Malaya*, by Hassel; 3) *Dr. John The Night Tripper*; 4) *Aretha's Gold*; 5) one Howlin Wolf double album; 6) Hui A'ahna's first album; 7) The Rancheros—*Los Tres Ases*; 8) *Le Chat Bleu*, by Mink DeVille; 9) *Many a Mile*, Buffy St. Marie; 10) *Performance* soundtrack. Some other people I like are Charles Ives, Captain Beefheart, Jimi Hendrix,

ZZ Top, and John Lee Hooker.

Bonzai: So, most of your time is spent scoring films these days?

Nitzsche: Yes, and I've decided to only do films that I like—unless I have to pay the rent. But I am also writing some things on my own, for myself. Eventually, I'd like to put out a record of my own music.

Bonzai: Do you have any advice for musicians?

Nitzsche: Practice? No, I don't have any advice for musicians. Wait a minute, I guess I do have some advice. Musicians shouldn't be playing on records if there isn't the energy and enthusiasm that you feel when you first start out. When it starts to go, I think musicians should give everyone a break. When studio musicians have done so many sessions that it's just another date in the book, another job, then they are no longer a help on the record, even if they can play every note and get every sound. So much of it has to do with enthusiasm, and when that's gone, they should do something about it for themselves. When that enthusiasm is gone, when it's just another session, then the musician is no longer helping to create something worthwhile. Be honest, you know? ■

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STUDER REVOX

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Dick Asher

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PHOTO: NEAL WEINSTOCK

by Neal Weinstock

Dick Asher has been president and C.E.O. of Polygram Records in the U.S. for over a year now, and it's been a strong year. Asher has been able to build on the organizational successes of the American subsidiary's previous president, Guenter Hensler, and also help Polygram bring out some exceptionally talented—and profitable—new artists.

Beginning his record industry career as an attorney, he worked his way up through various posts at CBS, to deputy president and C.E.O. of CBS Records Group and president of CBS Records Division before jumping to Warner Communications in 1984, where he became senior VP of the Record Group. Yet he describes himself as "a tortoise in a world of hares." That's some fast tortoise.

Asher defines himself as "not really knowledgeable about so much of music. Part of managing an enterprise like this properly is to leave what I don't know to other people who can do these things very well." Yet he seems to be in this business because of a deep love for music. When first contacted about an interview, he said, "I'll talk to you because I hope you'll want to talk about music, not all this

business stuff."

So, gradually, it becomes clear why Asher describes himself as a tortoise, why he apologizes for not being a great speaker, why he looks up to his artists and his company's other creative talent like a star-struck fan, why he cares as deeply about putting out new jazz as making scads of money in new technologies like CD-I: Dick Asher is that most rare of denizens of the music industry or of the executive suite, a modest man.

Our interview begins with my expressing my personal gratitude for his recent decision to revive the Verve label for new releases, not just reissues.

Asher: I must say, probably like a lot of my contemporaries, usually if we make a bad mistake you can trace it from growing up as jazz fans. Some of my colleagues have gone over the top with jazz-related projects in the past—well, I'm sure this isn't over the top. Before I was involved in the business I was very excited by jazz. And then I was a young attorney and one of my first clients was a company called Prestige—and I would have worked for them for nothing.

I've always had fairly specific ideas about how jazz should be done. There is a symbiotic relationship between jazz musicians and record compan-

ies that should be beneficial to all. But when either party gets unrealistic, then somehow they destroy what amounts to a beautiful relationship. When I was at CBS, I picked out Wynton Marsalis from a whole batch of releases and started screaming at everybody about how we've got to work at this one, this is good!

It's impossible to have an interest in jazz and not be aware of what Verve was all about—and actually, what Mercury has been about, with people like John Hammond working there for years. We also have the right person to revive it now—I think Rick Seidel has impeccable taste and is very knowledgeable. I'm excited about it. We're not going to get rich off of it. My personal career won't ride or fall on it, but it's something I take an out-of-proportion interest in.

Mix: Where is pop music going to evolve in the next couple of years? What's going to be hot?

Asher: I think there's a definite trend toward better lyrics. There was a time you could get by with licks, musically and verbally. But I'm hearing more music with decent lyrics, crafted lyrics, in all genres. But, I guess, now qualifying as a veteran, one of the things that strikes me is how the world keeps turning. One year R & B music

isn't important, the next year it is important. Of course it's always there. Country music, the same thing, jazz the same thing. We have a strange situation with radio over the last eight or ten years, where it's really hard to start pure pop records, because most records start AOR or R & B or Country, then cross over to Top 40 stations. With a pure pop record, there can be no place for it to really get off the

“The public, in a strange, mystical way, usually has a way of discovering talent, even when the talent is pretty oddball.”

ground. That's why there's very little pure pop music around. But obviously the audience is there, because when it surfaces, there are big, big numbers.

The performers and the writers and the musicians set the directions. And their directions are set by their own musical taste. The public, in a strange, mystical way, usually has a way of discovering talent, even when the talent is pretty oddball. If you had another Hank Williams writing songs, I'm sure right now there would be another resurgence of country music.

Mix: Hasn't video offered more of a way for pure pop to break through?

Asher: It did. Video was a sort of door-opener for pure pop. When MTV first started, they had a voracious appetite for video and there was practically no video material around. But there was the British material and, to a lesser extent the Europeans had been making them for years, and it was all pop. That had a lot to do with the BBC not having to show what they thought an advertiser wanted for a particular market; the BBC says, "We're here to entertain the public and this is what they want." They can program to all those audiences under 15 and over 35. Those are our audiences, too; they buy records. They just don't buy many other things advertisers want to sell.

Now, anything that bursts on the scene initially has a novelty effect. I can remember when our family first got a television... I'm not saying I don't watch television now, but it isn't the same thing. When MTV first came on it was the most interesting thing on television. A good deal of money was spent on three or four minutes of production, which had to be attractive, different and interesting. If you didn't like music, you would be tempted to watch MTV just for the pictures. Well, if you notice, network television copied a lot of the techniques, and the things that were so unique became commonplace. Now it's just a part of life. Some videos play a large role in breaking a new release or artist, some videos play no role even though fantastic amounts of money are spent. In some cases they play a negative role.

If you have a rock star of some prominence who's also getting on in years a bit, and if he insists on a lot of frontal close-ups, kids look at it and it looks like their father. They don't relate to their parents. But stars dictate their scripts and you can't stop them.

But an older group can do very nicely with a video, too. We succeeded with the Moody Blues video by using a lot of flashbacks. As a matter of fact, one of the members of the group said to me that a kid came up to him and said, "I saw you in the Moody Blues video"; he thought the flashbacks were the present and these older guys were somebody else.

Mix: How much direct input do you have into each release?

Asher: If I have a comment that I think is worthwhile, I'll make it. I'll also make one if I'm asked. I'll always give somebody a straight answer. If I see something I think is a good idea and overlooked, or if something could be done a little better this way or that way... But I almost never will go head-to-head with one of my people if they say that's the way they want it. I'll live with them on it. We do the same thing with artists. Occasionally we'll say, "Don't you want to use a different picture on the cover?" Or, "Don't you think this song doesn't really fit the album? Or maybe it should be re-mixed?" Almost all the decisions that are creative are also subjective; especially before the public has had a chance to pass its judgement. But the artist only has one career, and if they feel strongly about something, you back off. Either that or you drop the artist.

Mix: What will make video more than just another marketing tool, something to be justified for its own profitability?

Asher: Kids expect pictures with their music these days. So having the pictures is not such a bad idea—even now that you can't sell the pictures for very much. There are things that I've seen and heard in my own company which seem viable and real, which involve singles with pictures. We're not talking Buck Rogers—we're talking five years, or even three years. There are digital discs larger than the conventional CD, and maybe we'll have three or four videos along with an album of music. I think this makes a lot of sense. I think it's really interesting. I think it's a viable concept. When it happens, we're going to be there with something to put out.

One of the amusing things about the success of the CD is that we are putting out and selling for \$15 things like 1940s jazz that were available on black vinyl for under five dollars and probably weren't doing very well. Now they're available on compact disc for \$15 and doing very nicely, thank you. The engineers do a brilliant job of cleaning the records up and making them sound spectacular.

But still, it's something worth wondering. In the future I want to be there with the videos that I can sell—with the way inflation runs it'll be \$100. Whatever it is, I think it's worth just stockpiling on a sort of vague understanding that somehow pictures are going to go with music in the future.

Mix: What are you doing with CD-I?

Asher: I find the potential phenomenal—maybe because I like games a lot. The realism that is possible would add tremendous excitement to all kinds of games. And when you can get the phone books for the entire country or world on a disc, that's an obviously important usage. It's exciting when you think of a whole encyclopedia, but then I have a set of encyclopedias at home that I don't look at very often these days. Of course the possibilities are enormous; given time, the medium begins to create its own artform.

The album as we know it today is not what originally came out on 33 $\frac{1}{3}$ rpm discs. So I don't know what form the new technology will take, but I'm a software guy, I tell the engineers I want the standards to be as wide as they can possibly be, to include everything an artist can make, anything we can possibly sell. But you can't have a disc as big as a pizza. They've got to make their hardware compromises. At least on this technological advance, the artists and the engineers, the hardware and the software people, are talking to each other—in our company, at least. That's a nice change. ■

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A SAMPLING OF SAMPLING

by Tim Tully

Just as the productions of the '70s saw the emergence of the analog synthesizer (these days referred to as the "(yawn) standard, old-fashioned analog synth"), the electro-musical toy of choice for the '80s is certainly the digital sampler—deployed, needless to say, with full MIDI implementation.

The sampler has inherited pretty much all the accoutrement associated with the first two or three generations of electronic music machines, including the lightning-fast development and the controversy. Depending upon who's got the floor, the sampler can be the demon that will de-humanize music; the most exciting and flexible instrument since Cro-Magnon plucked his bowstring for fun instead of food; an immoral, unethical and soon-to-be illegal ripoff of *real* musicians' performances on *real* instruments or the wave of (what else) the future.

Curious as to what reality might lie behind such rhetoric, *Mix* spoke with some of the practitioners of the sampling craft. As one might expect, none of the above cants or rants were resolved, but all (with the exception of the bowstring controversy) were addressed in some form. What is clear, regardless of the posture one's epistemology assumes, is that digital sampling is now playing a *major* role in record, movie and industrial productions, and it doesn't appear ready to go away.

On the useful side, we found good examples of some of the more successful concepts, techniques and projects at work today. For the studio owner, composer, producer or musician who needs to keep up with the keepin' up, and who may not be all that well acquainted with the way these machines are used, here is some of what is going on.

In its simple, original form, the dig-



Brian Banks and Anthony Marinelli of Sonar Productions have used their dual Synclavier system on films such as The Color Purple, Blue Thunder, and The Karate Kid II. "Sample libraries are now data bases for resynthesis... a whole new world of expressive sounds," comments Banks.

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World Radio History

ital sampler memorized the wave form of a sound from the real world, then let the musician play this sound back from its keyboard. At the hands of skilled—if occasionally capricious—musicians, standard acoustic instruments and live voices were sampled and played back; depending upon the player, they might emulate the original with uncanny realism or make everything stutter like Max Headroom. It is important to note here that serious concern quickly arose that technology would put the timbre of every instrument and the tone quality of every artist into the hands of anyone with the price of a low-cost sampler, and so far, this problem remains unsolved.

Yet, from the beginning, instruments and voices were not the only grist for the sampling mills. Dogs were sampled, breaking glass, the Three Stooges, Ronald Reagan and even less polite sounds were put into digital memory and in many cases made the Top 40. Stored as digital information, sounds could be stretched, inverted, filtered, overdubbed, combined and shaped. In a serious and real way, all the world became a musical instrument. Lately, simple mimicry seems to be waning and techniques of sample-synthesis and resynthesis have emerged in which samples are used not so much as raw imitations of the real thing, but as building blocks, or models, for entirely new sounds. It may be that the challenge of sophisticated sampling piques the creativity, rather more than the larceny, in many musical souls.

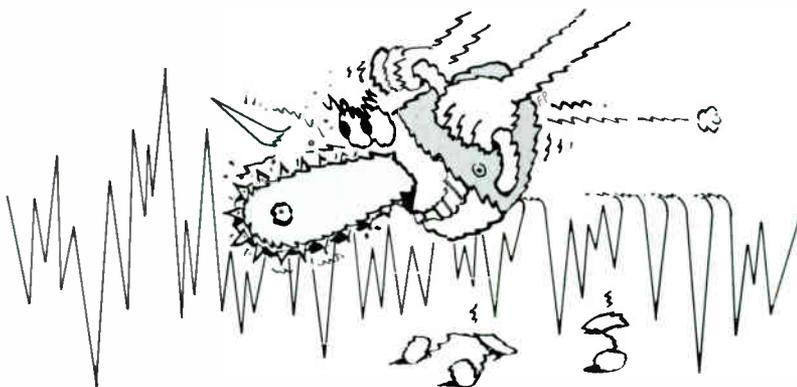
Jeff Rona, a composer/synthesist in Los Angeles, produces records and music for films. Rona won't sample from records and often avoids sampling other instruments in favor of the sounds of billiard balls, brake drums, garden weasels and "anything from the real world." Once the sounds are recorded on his Akai S-900, Rona shapes, changes and mixes them until they become as musically useful as possible. In part, this means they can be treated just like synthesizer wave forms, and produce "a new and exciting form of synthesis. You synthesize sounds that are based on and reminiscent of real life sounds such as tin cans, wine glasses or doors slamming. This gives you a new sonic palette that didn't exist before and extends the definition of what a musical instrument is. Listen to music these days," Rona comments, "and you hear the most outrageous sounds, the kind that used to be limited to avant-garde music; hear them with a good back beat and you say, 'Yeah, let's dance!' Especially for percussion sounds, with a good sampler, instead of being limited

to a standard trap set, now you have to ask yourself 'Out of all possible sounds, what do we want to use for this piece?' Right now I'm just exploring, creating drum sets with fantastic sounds: refrigerator grates, birds. . . . With the extensive library of sounds I've created, building up a new drum kit on every project is a very practical thing."

Although he won't sample sounds from records, Rona doesn't limit himself to sampling non-instruments exclusively. "TV shows often want 'fantastic instruments,'" he says. "I created a shakuhachi flute-type sound for a new show called 'Gung Ho,' based on the Ron Howard movie. They wanted an 'expressive, ethnic flute sound'

—something different from a standard classical flute. I sampled the sound of a pan pipe into the Akai and tuned it to the pitch I wanted. Then from experiments with a lot of shakuhachi sounds with dozens of the different attacks and dynamics the shakuhachi has, I found one that I felt matched the pan pipe. I sampled this into the Akai so the two sounds would play at the same time and set the sampler so the volumes of the two would mix according to the after-touch."

The final bit of sampling magic on this project had to do with how these two sounds really did mix. "Actually," Rona says, "it wasn't the touch but the breath control of the musician that



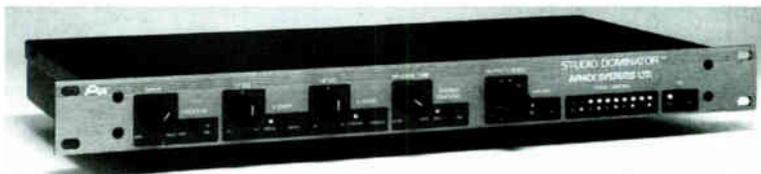
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controlled the sound mixing. To really get a flute feel, I used a wild, MIDI-ized version of an instrument called the Electronic Wind Instrument, or 'EWI' [rhymes with 'Kiwi'] played by a man named Fred Selden." Rona explains that the EWI is similar to the Lyricon in that it lets a player with wind-instrument chops control the parameters of a sampled/synthesized sound. It offers a great deal of expressiveness, and a vocal quality to a timbre that might otherwise be somewhat static. A unique quality of the EWI is that it can perform decrescendo and crescendo, parameters not available

through MIDI.

In addition to sample-synthesis techniques, the resynthesis of sampled sounds is gaining a lot of popularity. Sonar Productions, another Los Angeles facility, is operated by Anthony Marinelli and Brian Banks. Banks and Marinelli see themselves as "first of all synthesists and composers who coincidentally own a studio." They've used their two Synclavier systems to create the sounds and scores for such films as *The Color Purple*, *Karate Kid II*, *Stand By Me* and *Blue Thunder*. Their application of sampling is similar to Rona's.

"Sampling," Banks says, "is not some new, great toy somebody handed us and we said, 'Oh, goody. Now we don't have to hire orchestras anymore.' To us sampling is nothing more than one other source of sound. We've got FM synthesis, analog subtractive synthesis, additive synthesis and sampling synthesis." Sonar will produce "orchestral simulation" on the Synclavier if that's what's called for by a producer, but they feel that the ear of the general public has been educated by the rapid advances in synthesis technology and by the intense creative competition among their peers. Audiences expect to hear a new, varied and broad range of tones and Banks and Marinelli feel they cannot maintain their position in the business by offering nothing more than "simulations" of acoustic instruments.

"Every manufacturer of high-end synthesizer gear right now offers resynthesis," Banks says. "From Synclavier to Fairlight to the Digidesign software that tacks on to the Prophet 2000 (and the E-mu's, Korg DSS-1, Mirage and Akai S-900)." The Synclavier resynthesis, called timbre frame synthesis, analyzes a sample, strings together a number of harmonically different pieces of its wave form and cross-fades between them to create a dynamically changing harmonic structure, programmed into an FM synthesizer. "Once it's a synthesizer sound, it's more alive than a sampled sound. Samples are just recordings, play them back and they sound the same every time," Banks explains.

Resynthesis has also begun to erase the distinction between score and sound effects in films. To make a score feel more organic to the context of the film, composer/arranger/synthesists like Rona and the people at Sonar will sample and resynthesize sounds that occur on the film's soundtrack and play them as musical timbres in the score. To many people in the industry, this practice suggests some very exciting developments in the future of film scoring. They conceive of a soundtrack in which all the elements—music, sound effects, Foley work—all come out of the same sounds and ambiances, and all work together musically as parts of the score. The creative possibilities seem staggering, but the practice is already in force.

Banks and Marinelli are currently working with Georgio Moroder on a new Sylvester Stallone film, *Over the Top*. Moroder, they say, will play demos of songs he's written for the film, sketch out the chords and melody and explain where, in the film, he'd like a verse part, chorus, rhythm bed under dialogue, "or he'll say some-

—CONTINUED ON PAGE 181

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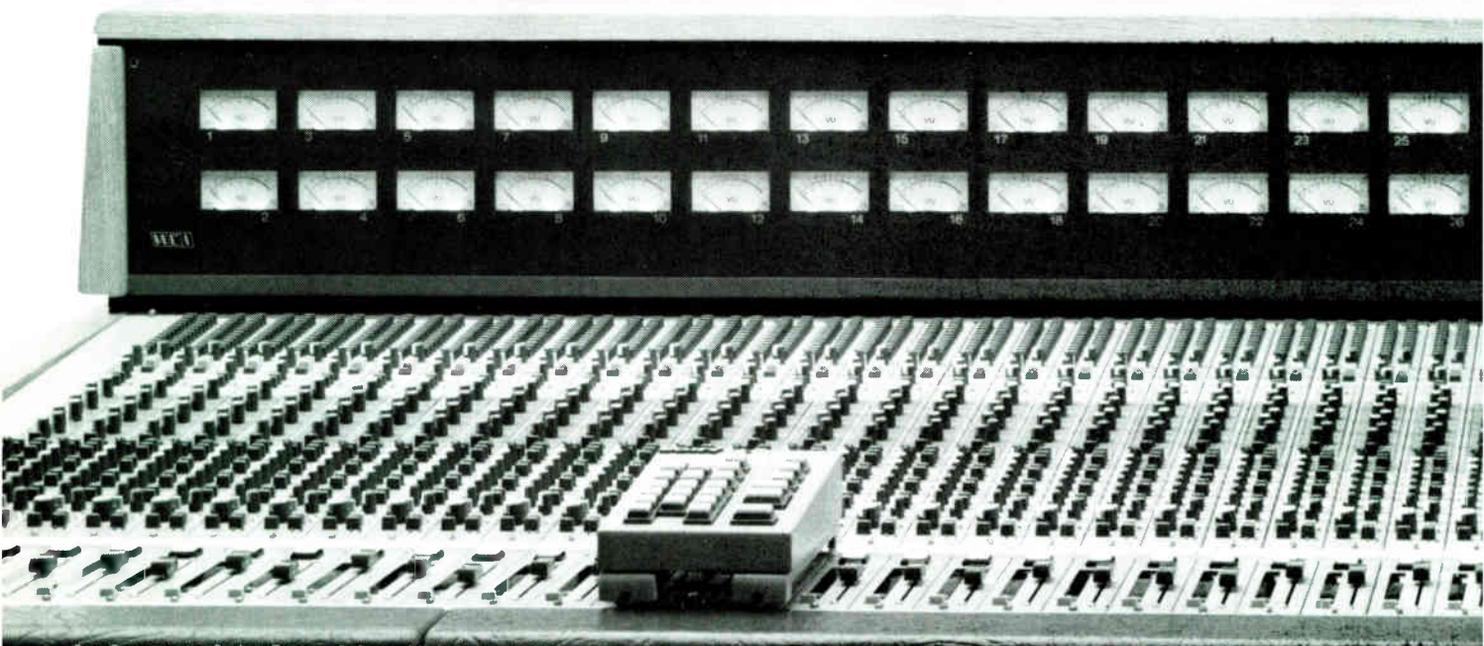
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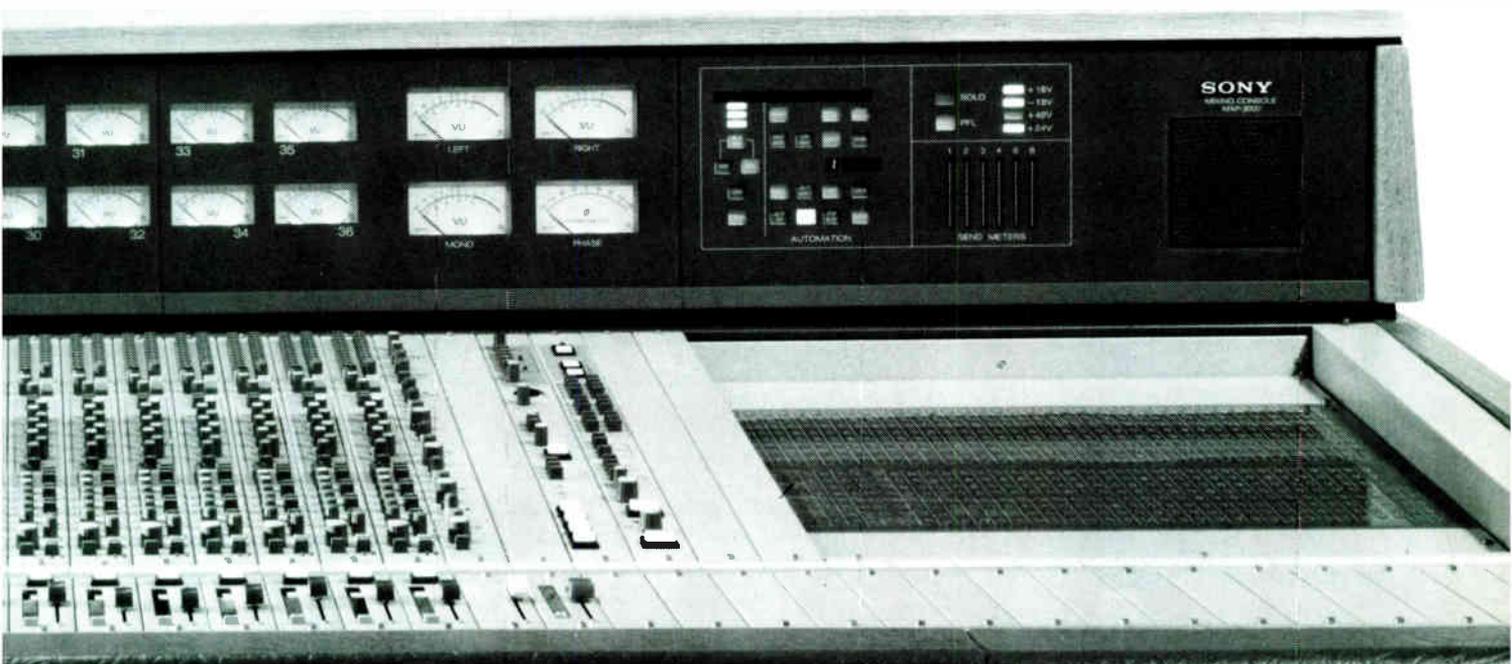
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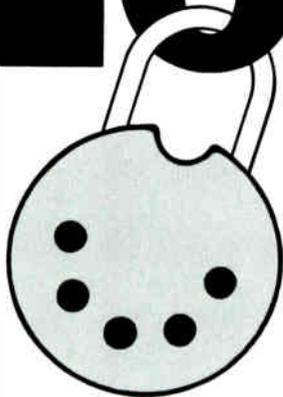
DUMP & LOCK

by Larry Oppenheimer

*"Just the facts, Ma'am, just the facts." —Sgt. Joe Friday, *Dragnet**

Well, it's been a good three years now since MIDI hit the music industry like an exploding tomato, and you think that you finally have it all under control and understand all the things that you can do with it. Guess again, because the MIDI manufacturers haven't let the MIDI spec sit idle all this time. As the uses of MIDI have spiraled dizzyingly beyond anyone's original conception, new applications have arisen, and the demand to accommodate these budding techniques has become quite strong. Most obvious has been the use of hula-hoops and yo-yos in MIDI systems. Wait a minute, I mean samplers and SMPTE Time Code (which is not to say that you couldn't find a MIDI hula-hoop if you looked hard enough at the NAMM show).

The use of samplers has led to the demand for a standardized way of off-loading and storing sample data. With such a protocol in place, it becomes possible to transmit samples between identical or compatible machines, and to dump samples to sample librarian/processing programs. SMPTE Time Code provides a sophisticated and established method of synchronizing and locating a large network of machines. Increasing use of MIDI instruments in



Recent Enhancements to MIDI

all phases of audio production, including those (such as film, video, and broadcast) which already employ SMPTE Time Code, has made it very desirable to be able to directly link these two protocols. Powerful motivation leads to powerful innovation.

In 1985, the MIDI Manufacturer's Association (MMA) discussed reserving some System Exclusive codes for the transmission of non-real-time data

between instruments. The first realization of this idea, referred to as system Exclusive Common or Universal, is the MMA Sample Dump Standard, originally proposed by Chris Meyer of Sequential. The second is MIDI Time Code (MTC), which is not yet ratified, pending approval by the Japan MIDI Standards Committee. (The MMA is discouraging the publication of any details on the current MTC proposal until it is finalized and ratified. The concepts as described here, however, are likely to remain.) MTC will use a System Common or Real-time message for maintaining real time synchronization, and System Exclusive messages to provide a non-real time method for directly transmitting SMPTE Time Code information over MIDI. The data stream thickens. Shall we gather at the river?

Non-real-time System Exclusive

System Exclusive (SysEx) is a classification of MIDI data created in anticipation of the need for manufacturers to transmit information unique to their instruments, and to provide for future expansion. In the MIDI 1.0 specification, not much more is defined for SysEx data transmissions than that they start with the SysEx status byte (1111 0000 binary, FO hex), follow that with a data byte containing a Manufacturer's ID number, end with the End of

Exclusive (EOX) code, which is 1111 0111 (F7H), and have leading zeros on all the bytes in between. If an instrument is capable of responding to SysEx, it will check the ID to see if it is capable of responding to data from that manufacturer. If not, or if the instrument is totally incapable of SysEx operation, the message is ignored. The ID is typically followed by a header (not defined in the MIDI spec), which contains further explanation, perhaps a model ID, or some information on the data that follows.

The non-real-time SysEx identifier is 1111 1110 binary (7EH) sent in place of the manufacturer's ID number. But it says right here in my copy of the spec that 7EH is the status code for Active Sensing you are exclaiming. That's true—when it is sent as a status byte, but once that FOH identifier goes by, all that goes by the wayside.

MMA Sample Dump Standard

The MMA sample dump standard consists of a header, some number of blocks (called "packets") of sample data, and a few handshaking messages. It is designed such that it can operate with either one-way (transmitter's MIDI Out to receiver's MIDI In) or two-way (a ring connection; each instrument's MIDI Out to the other's MIDI In) communications.

Dump Sequence

A sample dump is initiated either from the instrument's front panel, or through one of the handshaking messages: the sample dump request. This message has the following sequence (all byte values from this point are in hexadecimal):

Byte	Meaning
F0	SysEx 10
7E	Universal Non-real-time
dd	Device number
02	Dump request
aa	Sample number, low byte
aa	Sample number, high byte

The device number allows individual sampling instruments to be addressed when there are several online in a system. Unfortunately, they are also referred to as "channel" numbers, which should not be confused with MIDI channel numbers. After receiving a dump request, the header is transmitted. The header contains a 14-bit (two-byte) sample number, the coding resolution of the data (from 8-28 bits, linear), sample period in nanoseconds (1- 2,097,151), sample length in words (0-2,097,151—better than 43 seconds at 48 kHz sample rate), sustain loop start and end points in words, and loop type (forward or

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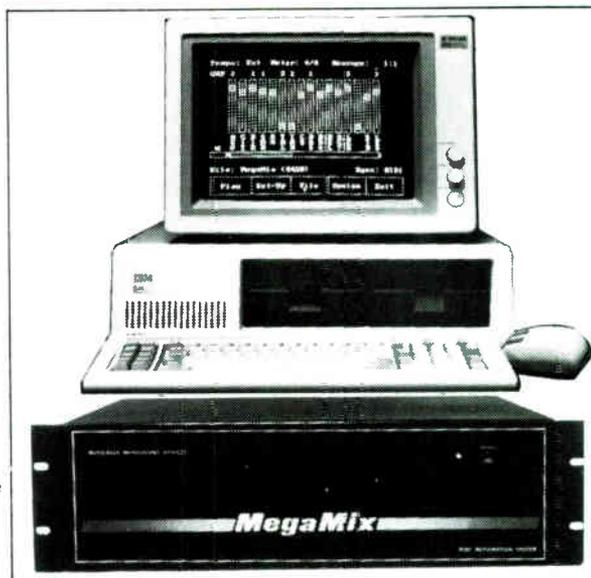
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"The use of samplers has led to the demand for a standardized way of off-loading and storing sample data."

backward/forward). Values of more than one byte are sent low byte first. Note that the resolution is expressed as an unsigned linear quantity. This means that instruments using coding other than linear, notably "companding DAC" systems, must perform an internal conversion to and from a linear representation. The sample period can be easily converted to sample rate through the formula: $F \times 1/P$, where F is the frequency in Hertz and P is the period in seconds. This results in a range of sample rates from 477 Hz up to 1 GHz, which will most likely be sufficient for any sampling task you may have at hand. The sample number will vary in meaning, depending on the manufacturer and the instrument.

After transmitting the header, wait for at least two seconds for a reply. If the intended instrument reads the header and can accept the dump, it sends an Acknowledge (ACK), which looks like this:

Byte	Meaning
F0	SysEx 10
7E	Universal Non-real-time
dd	Device number
7F	Acknowledge
pp	Packet number
F7	EOX

If the receiver cannot accept the dump, it will send a Cancel Dump message, which is the same as the ACK, except that the fourth byte is 7D instead of 7F, and returns to normal

operation. This message may be sent if the size of the sample as indicated in the header exceeds the available memory, or if the sampling rate is wrong. A receiving instrument can elect to receive the transmission even if there is an incompatibility in sample rate, resolution, or size. In this event, the receiver may use some "brute force" approach to converting the data for playback: play it back at its own sample rate and require retuning, truncate the word if the resolution is too high (lower resolution is played back with no problem by substituting zeros as LSBs for the unused bits), or simply accept as much data as memory allows and then send a Cancel. When the transmitting instrument receives the Cancel Dump, it says, "To hell with this," sends an EOX, and returns to normal operation.

The receiver may also elect to send a Wait message, which is again the same as the ACK, except that the opcode (fourth byte) is 7C. This causes the transmitter to pause until it receives some other handshaking message or any other MIDI status byte (which would cause it to abort the dump). A receiver may use the Wait message to allow itself to perform internal operations, such as saving the data received to that point onto disk.

If the transmitter receives no reply, as it would in a one-way system, or if it receives an ACK, it then proceeds to dump the sample data, a packet at a time. Each packet consists of a packet number from 0 to 127 and 120 bytes of sample data. If there are more than 128 packets of data, the packet number rolls over to 0. To give some idea of how much data this is, a dump from a 12-bit sampler with a 30 kHz sampling rate could fit about a quarter of a second of data into 128 packets. There are always 120 bytes of data in a packet; extra bytes are arbitrarily filled by the transmitter, and are ignored by the receiver.

A Slight Digression

At this point, the method of bit-packing comes into play. Since all data bytes (even SysEx) have only seven bits of information, even an eight-bit sampling system must use more than one byte to transmit a word. Bit-packing is the term used to describe how the words are distributed into multiple bytes. Samples in the MMA standard are left-justified, with unused bits set to 0. This means that the sample data starts with the MSB next to the leading 0 and goes to the right. Unlike the dump request message and the header, the sample data in the packets is sent upper byte first. An 8-bit system and a 12-bit system will both use two

bytes to transmit a word, then, and both have the same number of packets for a given sample rate and length. Sixteen through 20-bit systems would use three bytes per word (at this time there are no samplers using greater than 16 bits of resolution), and systems of yet higher resolution (24 or 28, perhaps) would use four bytes per word. A little quick math (tap, tap, tap) shows that 60 8- or 12-bit words, 40 16-bit words, or 30 24-bit words can be transmitted in one packet. It may seem that the ability to transmit 24-bit words is wasteful when no instrument of this resolution exists, but it may in fact prove to be useful as more powerful instruments come along. In fact, as the AES format for serial transmission of digital audio comes into use, we may see devices that convert between this format and the MMA sample dump format for direct digital audio transfers between MIDI sampling devices and pro audio devices. One application of this would be to digitally record, edit, and process a sound, transfer it digitally to the MIDI format, and download into a sampler for playback (which may very well adapt the data to fit its limitations). Similarly, PC-based programs like Sound Designer and Sound Lab can access samples from many instruments for non-real-time processing.

Back to Dumping

Anyway, once 120 bytes of data have been sent, an Exclusive-OR checksum is sent, and, finally, the EOX. Checksums are a method of error-checking in which an algorithm is applied by the transmitting device to a block of binary data, resulting in a number which is sent immediately following the data. The receiving device performs the same algorithm on the incoming block of data, and then compares its result to the checksum. If they match, everything is hunky-dory, if not, something is amiss. One of the simplest and most common checksum schemes is to perform a logical Exclusive-OR (XOR) operation on the data, starting with the first two bytes, then XORing the result with the next byte, and so on to the end of the block. The Sample Dump Standard checksum XORs everything after the SysEx identifier, up to the checksum byte itself.

After sending the packet and checksum, the transmitting device waits 20 milliseconds for a reply. The receiving device checks the packet number to see if it is a new packet or a retransmission, and attempts to match its checksum with the one received. If everything is right, the receiving device transmits an ACK, causing the transmitting device to increment the packet number and send the next

packet. The next packet is also sent if no reply is received, as the transmitting device then simply assumes it is in one-way communication. If the checksum does not match, a Not Acknowledge (NACK) is returned, which is the same as the ACK, except that the third byte is 7E. If the transmitter receives a NACK and the packet number matches that of the last packet sent, it will retransmit that packet. If the packet number does not match, the NACK is ignored. In the future, instruments may be able to transmit packets in an arbitrary order; right now they can only be sent sequentially. Eventually, all of the sample data is (hopefully) successfully transmitted, and an EOX is sent to happily return both units to normal operation. Another

day, another dump.

MIDI Time Code (MTC)

MTC became necessary because of the advantages of absolute autolocation offered by SMPTE Time Code. Up to this point, the link between SMPTE Time Code and MIDI was done by converting time code information to MIDI Song Position Pointer (SPP) information. Unfortunately, SPP is only a counter that indicates the number of elapsed MIDI beats (defined as six Timing Clocks, or 16th notes in 4/4 time) since the beginning of the piece. (To avoid confusion between MIDI beats and beats within a time signature, we will from this point refer to Pointer INCrementS, or "pinks," instead of MIDI beats.) It is therefore



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tempo dependent and good only for relative location. Let's say that we are adding music hits to a video, and have a cue that occurs at a SMPTE Time Code address of 00:01:10:00. Our tempo for the music is 120 bpm, and we are starting at 00:01:00:00. This means that our hit falls on the 21st beat, or the downbeat of the sixth measure (80 pinks). All well and good, but then we discover that the tempo is just a little too slow, so we speed it up fractionally. Visually, our hit still occurs at the same time code address, but the downbeat of the sixth measure now happens at a slightly earlier address, throwing the hit off. SPP's relative location characteristic also means that a MIDI sequencer cannot jump or shuttle to a given time code address from any location, only chase to it by starting at the beginning of the piece and fast shuttling to the lockup point. This is still better than using sync clocks, which must always be started at the beginning and cannot chase at all, but is less desirable than standard SMPTE Time Code chase-locking.

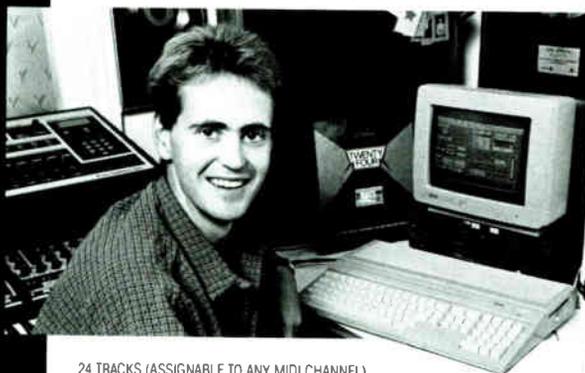
MTC is not completely free of this restriction. Chasing from the beginning is also done to make sure that program changes, controller information, etc., are current when the lockup point is reached. If a sequencer were to jump directly to a given address, what would happen to a program change that occurred two bars before? Worse yet, consider that if an upwards pitch bend occurred before the lockup point, but the bend back down occurred after, the result of picking up playback from the lockup point would be a downwards pitch bend that never came back up.

Real-time Messages

The currently proposed MTC specification has both real time and non-real time aspects which allow syn-

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chronization and extensive setup functions. The real time implementation consists of two parts: a real time synchronization message, and a "long form" System Exclusive message which sends the complete address in one transmission. The type of time code (24 fps, 25 fps, 30 df, 30 ndf) would also be in this message. One of the advantages of SMPTE Time Code is the ability to run in reverse as well as forwards, and this is defined in MTC as well. For reverse operation, the synchronization messages are simply sent in the reverse order.

The long-form message is used when locating or shuttling, which avoids filling the MIDI data stream with synchronization messages sent at high-speed. Typically, this message will be sent once the lockup point is reached.

MTC is also likely to provide for the transmission of the User Bits which are available in SMPTE Time Code through another SysEx message. This message is similar to the long-form message, except that the sub-ID 01 is used, and the data consists of five bytes. The 35 bits in these bytes represent four eight-bit characters, a two-bit Format Code, and an unused bit.

Non-real time Messages

The real time messages provide MTC's synchronization functions, but time code's strengths also lie in the ability to designate events to occur in relation to time code addresses. MTC is expected to include a setup message intended to meet this need. Cue points, even start and stop times, punch in and out points, and a device number would be logical components of a setup message.

Oh Boy, Now What?

The MMA sample dump is already being implemented; Sequential's Prophet 2000 being one of the first instruments capable of performing this task. We can expect to see MTC showing up very soon in PC-based and stand-alone MIDI sequencers, and probably even onboard some instruments, possibly as soon as the next NAMM show. MTC opens the door for a host of new software and hardware, as if there wasn't already an overwhelming plethora of both to deal with already. Just remember, a few years ago the entire concept of MIDI seemed equally overwhelming, but now that we've had a chance to use it some we've gained a better grasp (which is not to say that I don't still feel overwhelmed sometimes). I expect that these new innovations will follow much the same course, but, in the end, they will only make our work more fruitful (if not always easier).

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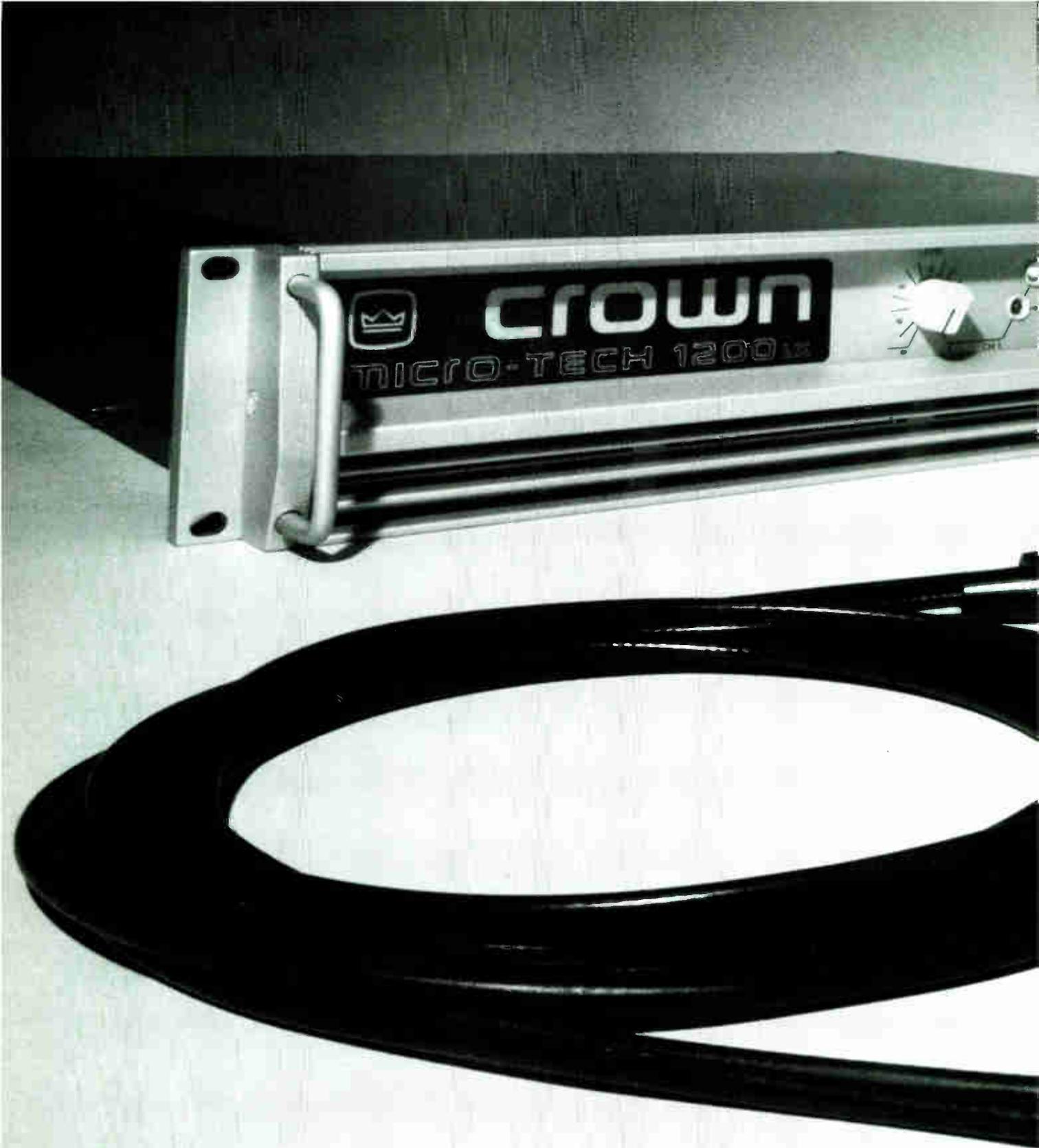
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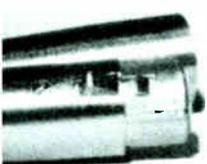
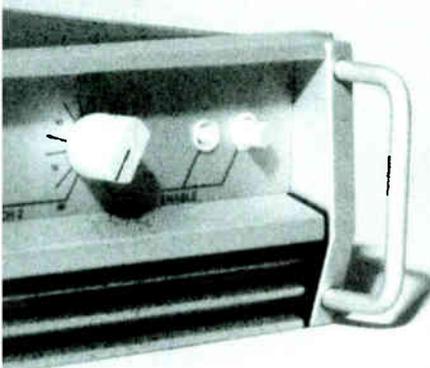
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Alan Brewer works with members of Sister Sledge at Advision in London.

by Dan Daley

There is a scene in the movie *Playing for Keeps*, in which the youthful protagonists, looking to pick up a few bucks to finance their dream of rocking the Catskills, don Boy Scout uniforms and sell cookies door to door. Alan Brewer, a kid from the streets of New York himself, never sold cookies door to door, as the musical director of the movie (as well as the film's co-producer), he found that kind of resourcefulness comes in handy when you are pulling together over a half-dozen artists with names like Pete Townshend, Phil Collins, Arcadia, Sister Sledge and Julian Lennon onto one piece of vinyl.

"I guess it's a combination of two things that gets you through it," he muses. "First, my personal musical tastes are incredibly eclectic. I've played and enjoy everything from bluegrass to jazz and rock. Secondly, in terms of organization, I've never done only one job at a time. I'm pro-

ALAN BREWER Balancing Between Two Worlds

fessionally accustomed to doing three things at once."

If we really want to get simplistic and break producers down into only two categories, the high-concept types and anything-goes trench fighters,

Alan Brewer unhesitatingly identifies with the latter group. "To a certain extent I am a trench fighter, involved in projects in which there are more than one artist," he says from behind his bristly beard. "It's been necessary for me to work with each situation as unique, rather than say, 'This is my style and I will superimpose it over everyone else's music.' I don't want that option and it's not necessarily desirable, especially when you have a film project where the most important thing is what the scene or the film is doing, what kind of emotion is supposed to be conveyed. If I come in with preconceived notions of what I personally prefer musically for that song, or what I personally prefer musically that week, for that matter, it may get in the way of what's best for the situation and the artist. I have to be very flexible, but I also have to be able to do that very quickly."

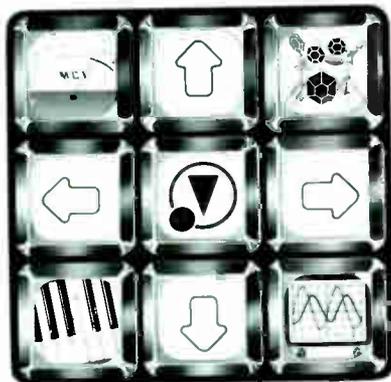
Brewer grew up in Queens, New York. His musical background centered around garage bands in high

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"If I come in with preconceived notions of what I personally prefer musically for that song, or what I prefer musically that week, for that matter, it may get in the way of what's best for the situation and the artist."

school and at Antioch College playing guitar and keyboards. While he studied both film and music, and taught the latter in public schools in Massachusetts for a few years, the 33-year-old Brewer says that getting into film wasn't a calculated move on his part. His friendship with Bob and Harvey Weinstein, his co-producers on *Playing for Keeps*, assisted him in breaking into film music work. He was the sound supervisor and composer of original music themes for an American version of *The Secret Policeman's Ball*, titled *The Secret Policeman's Private Parts*, which the Weinsteins' company, Miramax, released.

His ability to get things done on schedule fueled his career, and he was asked to re-mix musical selections from video and film productions by Phil Collins, Pete Townshend, Sting, Bob Geldof, Jeff Beck and Eric Clapton, among others. Brewer also served as technical and sound consultant on David Bowie's seminal rock documentary *Ziggy Stardust & the Spiders from Mars*, Paul McCartney's *Rockshow* and the all-star benefit film, *Concert for Kampuchea*, and as musical director for the film *The Burning* whose original score was written by Rick Wakeman and produced by Wakeman and Brewer.

The Weinstein brothers, who wrote and directed *Playing for Keeps* as a paean to their childhood on the streets of New York, approached Brewer in 1983 with the idea of a youth-oriented movie in which the music was more than simply background. They wanted a score that was integral with the spirit and the story they wanted to portray. The three of them considered all the artists they had worked with individually and collectively over the years and began the process of contacting them, setting up screenings of the film for them and explaining the kind of feel each scene needed musically.

Here again, Brewer functioned as musical director, a title that is as comprehensive as it is vague. "I was actively involved in the writing, the playing and the producing," he explains. "And on the tracks where I did none of the above, like the Pete Townshend tracks, I was there to supervise the recordings.

"We chose Townshend close to a year before we began recording," recalls Brewer. "We thought of him early on as a writer and performer. Initially, he responded that he didn't have the time. This was in late 1984. But when we saw that our deadlines were being pushed back, we decided to re-approach him. His schedule had eased up by then and he agreed to try. He presented us with lyrics within 24 hours."

The scene Townshend composed for was originally cut to Bruce Springsteen's "No Surrender" as a scratch track, says Brewer. "There came a point where we very much wanted to license that track, but it's very difficult to license Springsteen tracks to begin with, and we were leaning towards as much original music as we could get for the film. We wanted someone who could write an anthem, and whose style would be as street-credible as Springsteen's. It couldn't just be a light pop song."

The song, "Life to Life," captured the movie's essence so well the producers decided to make it the title track. Jon Astley and Phil Chapman produced the musical track at Revolution Studios in Manchester, England with Brewer assisting on the arrangements and supervising the vocal and guitar parts. (According to Brewer, it's the first time Townshend has appeared on a soundtrack other than his own film and video efforts).

Phil Collins, who had initially accepted the assignment to write the title track, fell behind schedule due to

other commitments. A song of Collins' called "We Said Hello, Goodbye," which appeared as a flip side to one of his singles but never on an LP, was put up against the scene and it worked. Steven Hague remixed and re-edited the track to Brewer's specifications and it appeared in the film.

Brewer did the actual production of Sister Sledge's "Here to Stay." The act was touring Europe at the same time Brewer was in London. "The track had to be in perfect sync with the dance scene it was meant for," says Brewer. "Because of that and the fact that we were all in Europe at the time, we decided that it would be appropriate for me to go in and produce it. We did it at Advision in London. Andrew Gold, who was doing his Wax project with Graham Gouldman, did some of the programming and helped with the arrangement. I brought in some session players while Sister Sledge was doing gigs around England and laid down the tracks. When an opportunity developed they came in and did their parts."

Brewer also produced Joe Cruz and Hinton Battle for the soundtrack record, and co-produced Eugene Wilde with Donald Robinson. That last track came in just under the wire, Brewer remembers: "We wound up recording it the same week we were doing the final film mix. We were mixing the movie in New York in Sound One Studios and I was shuttling every day between there and Alpha Studios in Philadelphia where we recorded Eugene. We worked on that track at night and did the film mix during the day. I was eating supper on the train. It was the most insane deadline I ever had."

Pop music and movies forged an alliance years ago, and for a lot of contemporary movies—especially so-called "youth movies"—big names on the soundtrack can often contribute to a film's box office success. Brewer has developed his rationale to balance art and commerce in this environment as best he can: "I guess to say that it's not right to use pop music to lure people into the movie theater is like saying that Chevy Chase should not be in Paul Simon's video to promote his song. I don't think anybody goes around saying that. A movie is there to entertain you for the most part. Music is part of that entertainment process. Why is that seen as more gimmicky than blowing up trucks on screen or car chases? There's no control board that sits around deciding what's fair and what's not, what will retain or destroy integrity."

However, he adds, "It does bother me when I see movies that have no care put into them other than choice

of the music. We tried to avoid that with this movie."

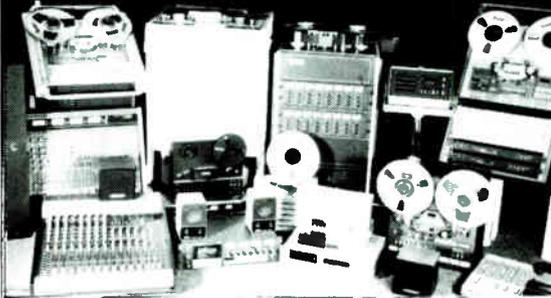
Brewer is not an engineer and he has yet to produce an entire single artist album rather than individual cuts. (In fact, he's the first person ever profiled in "Producer's Desk" who hasn't done an entire record.) But that's the nature of the Hollywood beast when it comes to combining music and film; it has created in people like Brewer a unique organism: a sort of artistic systems resource manager, ever balancing aesthetics and the bottom line.

Film and music keep following him like a pair of bloodhounds. But he's a fox that's not adverse to being caught:

"I am fascinated by the challenge of adding the element of sound to what's already on film to enhance it, intensify it or add irony to it."

"It's fate. I love movies and I love music. I've always made music and I love doing that with something that's already been created visually. I am fascinated by the challenge of adding the element of sound to what's already on film to enhance it, intensify it or add irony to it. The best part is to not do the obvious, not repeat what's already being stated by the film. That's one of the things that came up with Pete Townshend. He said he didn't know if he could write a song that said exactly what was being said in the film. Our attitude was: don't. Please give us another perspective; don't just repeat it. That's what really challenges me: to do something that really supports what's already on screen but that on the other hand adds a dimension to it that wasn't already there." ■

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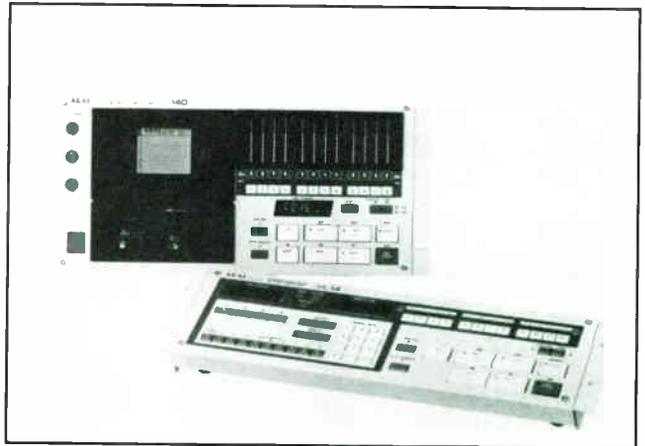
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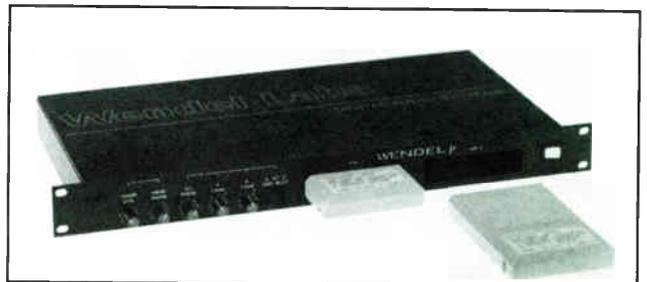
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Wendel jr.™

Unveiled in prototype form over a year ago and now available through select audio dealers, Wendel jr. is the first audio

product from Wendel Labs Ltd. of Canoga Park, CA. Designed by noted engineer Roger Nichols, the device is a sample playback system that allows the replacement of pre-recorded, live or synthesized drum sounds with high quality 16-bit drum samples taken from Nichols' own library of sounds. Wendel jr. uses a system of ROM cartridges with a variety of percussion sounds, ranging from the usual kicks, snares and toms to explosions. Two cartridge slots are provided, along with controls for automatically alternating between the two for creating realistic drum rolls and other effects. Other controls include trigger input level and "ignore" (for eliminating false triggers) and two extremely wide ranged tuning adjustments. The Wendel jr. is priced at \$995, and cartridges have an average retail of \$75 each.

Circle #126 on Reader Service Card



Soundtracs CP6800 Console

Designed for professional recording and post-production studios, the CP6800 from Soundtracs features advanced analog circuitry with programmable digital routing that can be interfaced with video synchronizers. Available in a number of configurations—with or without patch-bay—the CP6800 includes an internal computer and monitor built into the console face, while disk storage, SMPTE reader, and eight-way events controller are housed in a remote six-unit rack. Metering choices include either moving coil VU or high resolution LED bargraphs. The CP6800 is now in full production; pricing ranges from \$35,000 to \$40,000, depending on configuration.

Circle #127 on Reader Service Card



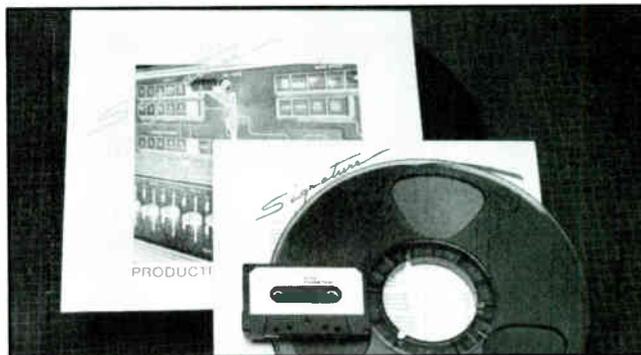
Studer A820 Multi-Track

Unveiled at the AES Show in Los Angeles, Studer's A820 24-track is designed for speed and versatility in any audio production application. The microprocessor-controlled transport accepts 14-inch reels and is convertible between one-and two-inch tape widths; three tape speeds are standard, as is reverse play. All transport operating keys are user programmable, with a choice of over 40

functions assignable from an internal software library. Internal digital memories store the alignment parameters for two tape formulations as well as for 8-, 16- and 24-track headblocks.

Some of the A820's other features include built-in card slots (located in slide-out drawers beneath the transport) for various noise reduction options: Dolby SR, Dolby A, or telcom—noise reduction levels are stored digitally along with other alignment parameters; and the meter over-bridge can be located up to 300 feet from the transport via a single four-conductor cable. Price for a 24-track version with channel remote and autolocator should be under \$60,000 (not including the Dolby SR option), and initial U.S. deliveries are expected in the first half of this year.

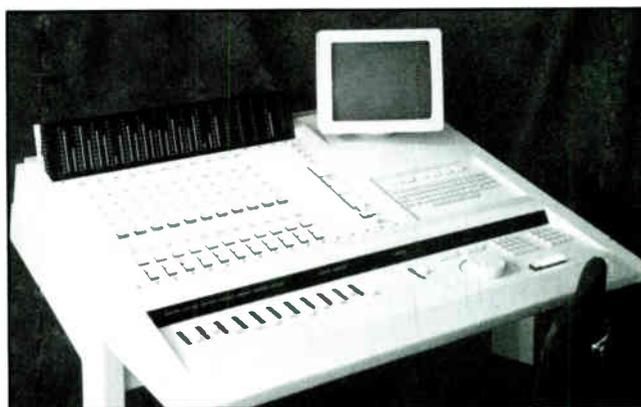
Circle #128 on Reader Service Card



Signature Music Library

The Signature Production Music Library, from Signature Music of Chicago, IL, has recently introduced four new volumes designed specifically for industrial, institutional and broadcast AV/video applications. This addition expands the library to eight volumes of 56 fully-orchestrated music themes, available on LP records, cassettes or reel tapes. Licensing is on a one-time, buy-out basis for single volumes, complete or partial sets, or a subscription plan.

Circle #129 on Reader Service Card



Lexicon Opus Workstation

Opus, the long-awaited, fully-integrated random access digital audio production system recently debuted by Lexicon (Waltham, MA), performs functions such as 16-bit digital recording, non-destructive editing, time alignment, overdubbing, signal processing, and more—all in the digital domain. The system offers up to eight hours of on-line random access storage on magnetic hard disks, which can simultaneously record or play back up to eight events in any combination. A write-once optical disk system is optional.

Circle #130 on Reader Service Card



THE HAFLER P505 PROFESSIONAL POWER AMPLIFIER

by Kurt R. Berge

In 1983, the Hafler Company extended its consumer stereo amplifier line to a professional series that now contains the P500, P225, and P125 with respective power ratings of 225, 115 and 60 watts into an eight ohm load. We tested the P505, one of Hafler's largest professional amplifiers, rated at 255 watts per channel into an eight-ohm load.

The P505 fits in a 19-inch rack and takes four spaces (seven inches). It is 14 inches deep including rack handles and weighs 48 pounds. Feet are included for tabletop use and are easily removed for rack mounting. The

front panel switch contains a pilot light that also doubles as a warning light to indicate excessively high amplifier temperatures: the lamp blinks two to three times a second, indicating amplifier shut down by a thermal breaker.

The P505 is designed for permanent installations such as for theaters, stadiums auditoriums, and control room monitoring. The back panel of the unit contains all of the inputs and outputs, and controls. Its brother, the P500, is electronically identical except it contains front panel knob adjusted levels and LED level indicators. This version, intended for sound reinforcement or other applications requiring these features, has a slightly high-

er cost, yet should perform identically. The back panel of the P505 has the chassis ground lift switch, right and left input level potentiometers, output fuse holders, female 1/4-inch inputs, banana output connectors, and a switch for bridged mono operation.

The standard input to the system is made with unbalanced 1/4-inch jacks. The input levels may be adjusted with a screwdriver. Hafler offers the BL500 option that converts to transformerless balanced 1/4-inch or XLR connectors. The polarity for balanced 1/4-inch connectors is tip-high, ring-low and ground to sleeve; for XLRs, ground to pin 1, high to pin 2, and low to pin 3. If the occasion requires the use of input transformers, Hafler suggests keeping the transformers at a distance from the power amplifier, in order to avoid induced magnetic fields produced by the amplifier's large power transformer.

Outputs include two pairs of red and black five-way binding posts, spaced for dual banana plugs. The mono output uses the red posts that are properly spaced for a dual banana plug. The polarity of the output is clearly marked above the posts. For long output cable runs, Hafler recommends the use of balanced 70 volt lines. This can be provided by their optional LX250 transformers that produce a 70.7 volt output per channel that would maintain the stereo power specifications with an eight ohm load. The company has predrilled holes into the back

panel to accompany this modification. There is no need to use output transformers for the mono mode.

The P505 uses a unique system of ventilation. The intake air is provided through a three- by four-inch port located on the side panels. The port is indented approximately a 1/4-inch to accommodate filters, a system that simplifies the removal and replacement of filters, that can be easily cleaned using mild detergents rinsed with water and dried.

The filters proved their effectiveness in our test. After only ten days in our studio at the University of Miami (which is as clean as can be expected for a facility that is in use 24 hours a day), the filters had accumulated a considerable amount of dust and dirt. When looking into the amp, it was clean. The fan has three speeds that are controlled by thermal switches located on the heat sinks.

The P505 includes comprehensive protection from real world problems. For protection against large DC offsets, the output load would be disengaged by a relay. Hafler uses a thermal circuit breaker on the heat sinks to determine excessively high temperatures. To avoid damage by output signals caused by turn-on transients of associated equipment, a three-second delay has been implemented. If necessary, this delay may be lengthened. The amp contains separate power supply fuses for the B+ and B- rails on each channel so if one channel fails the other one will keep running. In the unlikely event of amplifier failure, Hafler has installed a 15 ampere slo-blo fuse on the AC line. These fuses are only accessible by taking off the top cover, thus discouraging rating increases by "unauthorized service personnel." Output fuses located on the rear panel provide a margin of safety for loudspeakers, and can be selected by the user depending on the loudspeaker's requirements. The output fuses that come with the P505 are ten amp fast-blo. They allow the full output power of the amp to reach your loudspeakers. This was dramatically proven on a brand new set of monitors installed into our studio! These monitors presented a two ohm load to the amp that allows it to deliver approximately 800 watts. A soloed timbale did both monitors in, but the amplifier begged for more. It is suggested that you replace these fuses with ones suitable for your monitors.

The P505 employs Metal Oxide Semiconductor Field Effect Transistors (MOSFETs), offering many advantages over most transistors. Unlike conventional bi-polar transistors, MOSFETs have a negative temperature co-efficient. When the temperature of the

MOSFET rises, the current passed by the device is reduced. This guarantees protection from thermal runaway. A second advantage of MOSFETs over BJTs is faster speed. The speed is advantageous for high slew rates and broad bandwidth. In the audio range, the MOSFET has orders of magnitude

The P505 performed far better than its published specifications in the bench test.

higher input impedance than a BJT, allowing the MOSFET to be run at a lower current, while delivering the same amount of power.

If repair is needed, the amplifier may be opened by removing 22 screws from the top and the sides of the case. Looking into the unit, one can see that the elements are arranged in an orderly fashion. All elements are secured from the base of the case. The power switch and the input/output connectors are easily removable from the front and back panels. The power transformer and the audio module (fan, heat sinks, circuit boards) can also be removed with ease. This allows in-house troubleshooting. The damaged parts can be sent back to the company without having to ship the whole unit. The internal fuses are easily locateable and accessible. Hafler uses single conductor wires to connect the unit together.

The 12-page manual given with the P505 is easy to understand. All diagrams are well defined and labeled while the text is comprehensive and clearly stated. The manual gives a complete functional block diagram, printed circuit component layout, component values, and schematic diagram of the amplifier. There are also troubleshooting hints, installation instructions, and warranty stipulations.

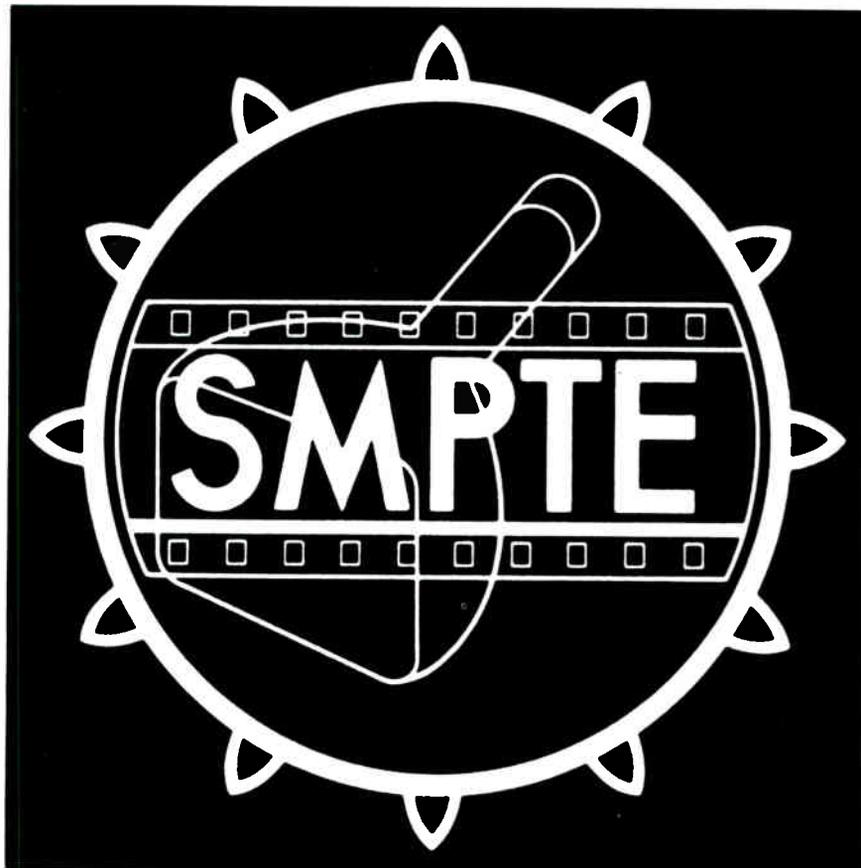
The P505 performed far better than its published specifications with the bench test. At 255 watts into an eight ohm load, the THD with noise was 0.0024% at 20 Hz., 0.0017% at 1 kHz,

and 0.0027% at 20 kHz. The IM distortion at one watt was 0.0035% and at 255 watts, 0.0044%. The input sensitivity was 2.22 volts for 255 watts into eight ohms that makes it well suited for +4dBv systems. The frequency response of the amplifier proved excellent with 0 dB at 10 kHz, -1 dB at 60 kHz, and -2 dB at 100 kHz. When the bench test was performed, we incited the output relay, which efficiently disengaged the output load.

The P505 is covered by warranty for three years from the date of purchase. It includes parts, labor, and return shipping costs from the service facility to the owner within the continental USA. The owner only needs to present a copy of the bill of sale.

The installation of the P505 into our studio was quick and easy. The hardest part was lifting the 48 pounds into the rack. After plugging in the three pin power cord and turning on the power, the fan started right away. Its volume level was noticeable, but this should pose no problems, since professional power amps are often isolated from the listening environment. In comparison with our previous power amp, I noticed a crisper and cleaner sound. The transient responses of percussion instruments was more apparent. When connected to a pair of two ohm loudspeakers, the unit performed flawlessly. We have had experiences with other amplifiers distorting transients with those speakers, even though the amps were rated for two ohm operation. Louder output levels weren't as noticeable, even though power was increased two-fold over our regular amplifier. The amplifier was also tested in a live sound reinforcement situation. It performed at near peak output capability with a mere increase in fan speed being the only indication of stress. Overall, the performance of the P505 was excellent.

The P505 performed ideally and demonstrated itself to be a fine power amplifier offered at its reasonable price of \$895. The range of available options are beneficial for the purchaser who doesn't need all the extras. It also demonstrates Hafler's commitment to accommodate the widely varying needs of its users. A customer can get a version that meets his specifications exactly, without having to accept compromises required by other applications. In many cases, I would have liked to have seen a clipping indicator for the amplifier that can be found in the P500 model. In the event that a lower powered amplifier is needed, you should check out Hafler's P255 or P125. For more information, contact the David Hafler Company at 5910 Crescent Boulevard, Pennsauken, New Jersey, 08109. ■



THE 128TH SMPTE TECHNICAL CONFERENCE AND EQUIPMENT EXHIBIT

by Oliver Masciarotte

To set the tone of this piece, I must say that I was disappointed with the 128th SMPTE conference. The audio products that were shown were interesting but there was nothing really new and exciting. But, fear not. I do have some good stuff to tell you about, though space limitations dictate that I mention only new products unique to SMPTE. My apologies to those slighted.

Now for all you broadcasters out there, Graham-Patten Systems, Grass Valley, CA, has developed an efficient method of combining a base band video signal with up to four channels of digital audio. I talked with Reed Lawson about the "VAMP" system; "VAMP stands for Video Audio Multiplexing Process. Using Dolby's digital encoder, we take four channels of digital audio and modulator and we combine it [by frequency division multiplexing] with the video signal coming from a network and sent it to a transmitter on the regular 7 MHz bandwidth that everyone is using. At the receive end there's a reverse process that filters the video out, and decodes the audio and you end up with four channels of audio. The digitized audio is actually modulated in the video signal. You have no degradation of the video."

The system can also be applied to terrestrial microwave systems or any system that has the bandwidth required for the VAMP high frequency carrier. VAMP affords better SNR, dynamic range and more channels than an FM subcarrier system. Two way, send only, receive only, and data and program encryption packages are available off the shelf.

A personal favorite of mine is the Micron line (Micron Audio Products, Valhalla, NY) of British-made wireless radio systems, microphones, and accessories. Paul Tepper was showing the new 500 series of transmitter/receiver combinations featuring better than 115db S/N ratio, very low distortion, and 15kHz bandwidth. Receivers are available in non-diversity and stand-alone or modular diversity racks with up to eight true diversity channels. A nifty Micron product for studio broadcast and live sound applications is the REM1 remote display which, when hooked to a MDS2 modular diversity receiver, allows for complete monitoring of both transmitter and receiver operation. The REM1 would allow the receivers to sit in an equipment rack tucked away somewhere so that just the remote is needed to ensure optimum operation of the system. Also, since the MDS2 is modular, there could be racks in various studios and the plug-in MDR4 receiver

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modules could be moved around as the need arises.

While we're on the subject of wireless systems, I must mention the Precision Audio Link (PAL) system from HM Electronics in San Diego, CA. The PAL system is an FM wireless transmitter designed for use by sound contractors and acoustical engineers as a precise link between sound measurement locations and the analyzing and recording instrumentation typically employed on site. PAL, utilizing the VHF Hi-Band, offers an audio bandwidth of 20 Hz to 20kHz and has a line-of-sight range of over 1000 feet. Because the design goal of this product was strict signal integrity for measurement purposes, the signal is not compounded and so the S/N ratio is about 60dB. Various input and output configurations for the system are included.

Also shown was a FR200 field pac receiver case which can contain up to four RX752 flat pac individual receivers and provides a common source of DC or AC power to the flat pacs. Included is an antenna diversity system and space for accessories.

Film sound buffs take heart. There is progress out there and Lance Ong, director of engineering for Polyphonic FX SYSTEMS of Hollywood proved it with their new gadget. "This system is optimized for doing sound effects," he says. "It allows you to sync up sound effects to picture using SMPTE time code, and it keeps a complete library of digital samples for the Akai S-900 sampler on magnetic or optical disc [CD ROM]. It allows you to load, audition, retrieve, and log against time code. Finally it will print out lists or play back [with selectable pitch] to picture. The system will support up to 16 different samplers, each sampler able to play 16 samples. So you have the maximum potential of 256 sounds in memory and ready to happen at once.

"Access time is limited to the speed of MIDI, however we are developing an RS-232 port and ultimately changing over to an SCSI port."

The Polyphonic FX system also runs on an internal clock to allow for off-line creation and building of events and lists of events without code or picture.

When cross fading between two sound elements on mag film, the common practice is to selectively remove the magnetic coating on the two pieces of film and so create a cross fade by purely physical means. This is less than ideal, and Hollytronics of Marina Del Rey, CA have devised an electronic editing system designed to enhance existing film sound editing equipment. The self-contained unit can

"The Polyphonic FX system allows you to sync up sound effects to picture using SMPTE time code, and it keeps a complete library of digital samples for the Akai S-900 sampler on magnetic or optical (DC-ROM) disc."

be retrofitted to most any existing flatbed or upright film editor and provides for efficient, repeatable manipulation of sound on film. This includes such tasks as cross fading, level alteration, effects "cutting" and transferring.

Holding down the fort was Derek Caballero: "The Kine 2000, built by Hollytronics, consists of a squawk box (with EQ!), four channel mixer, record/play amplifier, and a special degaussing section known as the cross fader. Instead of using razor blades or acetone, you mark your two reference points (with a special felt tip marker at the start and finish), and it will do a clean fade out or in. At the same time, you can do 50% degauss for blending in background ambience." The editor can select the beginning and final volume levels of the fade or wipe and an optical sensor measures the length of film and executes a precise electronic fade.

The system also allows for the operator to mark a place on the film and, as the mark passes the sensor, have the Kin 2000 trigger a playback device to semi-automate the process of dropping in sound effects.

The ever reliable W. Steenbeck & Co., Chatsworth, CA, had on hand their new ST 7223 studio magnetic film recorder/reproducer for 16, 17.5 or 35mm mag film. The transport is capable of handling 2000m loads, has varispeed up to 750 fps for 16mm, and will run at 24, 25, or 30 fps. The machine can derive sync from mains, crystal, or external sources and in-

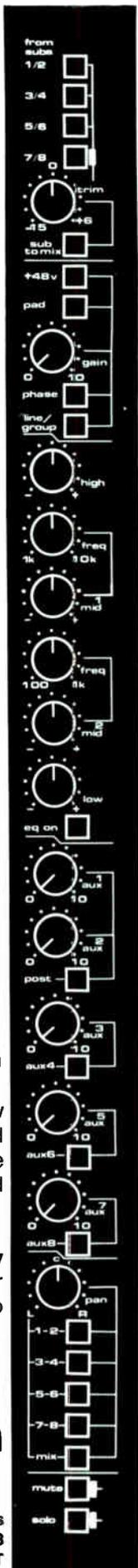
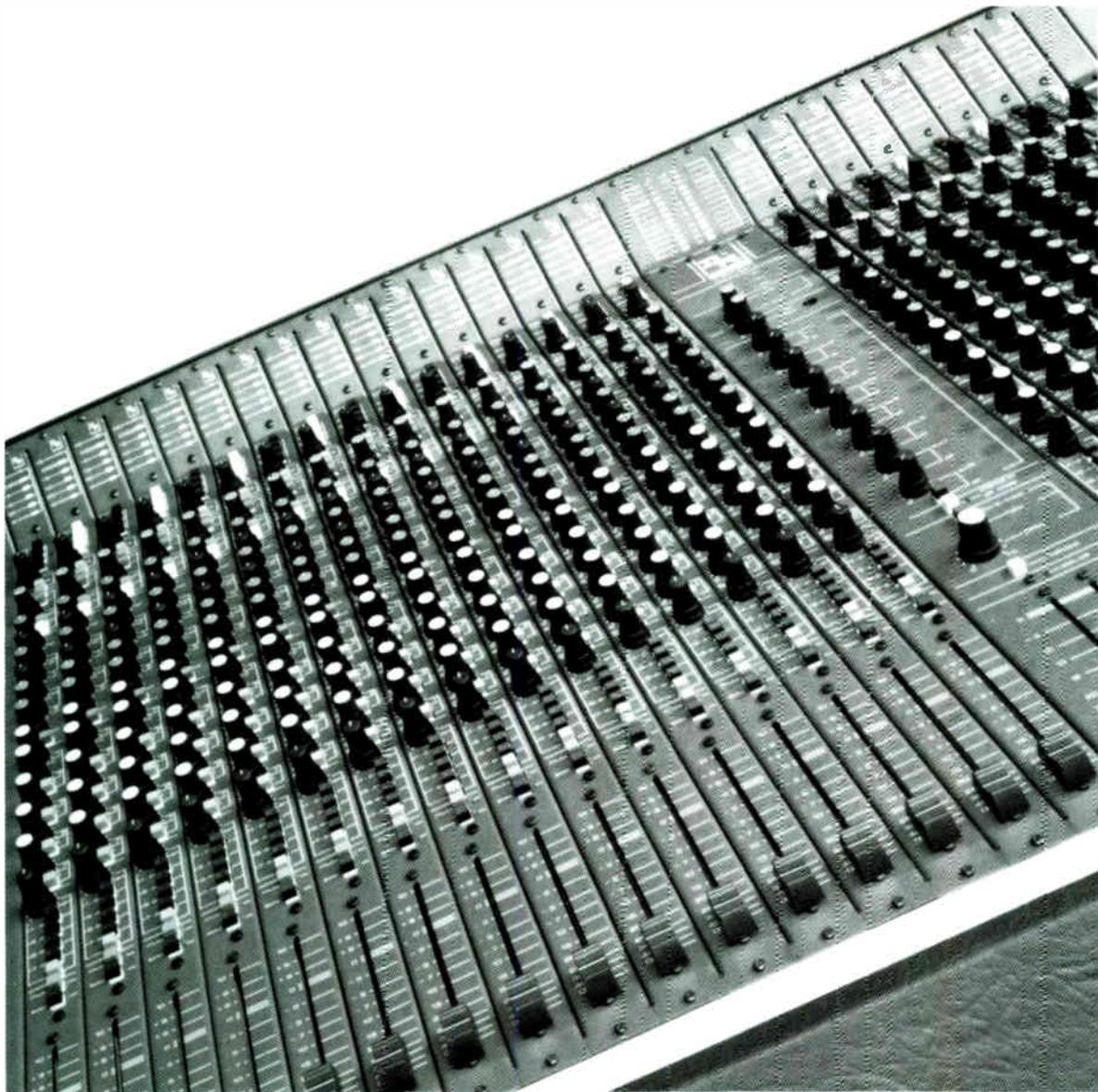
cludes versatile interlock features for audio, film and video. Up to eight audio tracks plus two cue tracks are available for 35mm. Also shown was the companion ST 7311 high speed film projector as well as their extensive flatbed and peripheral line.

Not to be outdone, trendsetting Sendor Export of Zollikon, Switzerland began an initial foray into our domestic audio market with a showing of their rack and console mounted mag film recorder/reproducers. Information was available concerning their film scanner/projector, synchronizer, electronic looping controller, and peripherals as well. Up front at the booth was the OMA S mag film recorder/reproducer, a top o' the line device with all of the standard features including four to 200 fps shuttle, auto-detection of A or B wind, and very low noise and distortion.

A first time showing by Branch & Appleby Ltd., Middlesex, England allowed a look at their line of OEM and replacement magnetic heads, upgrade/replacement electronics for film and tape recorders, and the ADR1 looping control system. The ADR1 is a film sound dubbing control system featuring a compact touch sensitive control screen, providing massive (1000 loops in internal memory) but simple to use loop and event memory. Control configuration can be altered at will for operation, data entry, set-up, etc. Installation for interlocked film, audio, and video is easy and leaves existing controls and synchronizers in operation. Footage or time display is provided for a video monitor.

In the Last But Definitely Cool department, Sony showed their DVR-1000, the first production version of the global standard type D-1 4:2:2 component digital videotape recorder with four channels of AES/EBU digital audio. (Why can't the AES agree on a standard like this?) Significantly, the 3102 single DASH 7.5 ips and the 3202 Twin-DASH 15 ips machines have not only analog inputs and outputs but also two types of digital inputs and outputs. The first type is SDIF 1 (Sony Digital Interface 1) which is the AES/EBU port for connection to a DVR-1000. The second type is SDIF 2, which is a PCM-1630 compatible port. You can go directly from this machine, in or out, to a 1630. Wait for the NAB issue of *Mix* for more information on the Type D-1 format.

That's all from the cavernous convention center. Thanks Eddie and Tony, and while I'm at it, if you think you're into sound for pictures, why not join the SMPTE (595 W. Hartsdale, White Plains, NY 10607) and add your voice to our band! ■



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TEC

A · W · A · R · D · S

by Iain Blair
All photos by Alan Berliner

Last year, *Mix* magazine's first ever Technical Excellence and Creativity Awards ceremony debuted on the East Coast in New York City's historic Puck Building in Soho.

This year's TEC Awards moved appropriately west, along with AES, to the slightly less historic ballroom of the Los Angeles downtown Hyatt Regency. Number two was no less fes-

sive or entertaining an occasion, however, as over 600 of the biggest and brightest names in the audio industry gathered to honor and recognize their peers, their products and the institutions that have made significant contributions to the audio and sound production field in the last year.

As with all such events, there were a few inevitable strays as the festivities got under way, fuelled by complimentary bubbly, a lavish buffet, and two hard-at-work carvers for the mountains of roast beef. "Are you sure this is the fashion show?" one particularly

bemused guest could be heard exclaiming near the entrance as she and her exotically-styled companion took in the scene—the sober suits and ties of such sound (pun intended) fashion men as Ray Dolby, Bruce Jackson and representatives of the leading studios.

At that point, the trademark beret of ex-Doobie guitarist Jeff "Skunk" Baxter came into view, as he hunkered down for the pre-dinner chat with another luminary, Cheech "Born In East L.A." Marin, looking resplendent in a dark blue silk suit. As the two

—CONTINUED ON PAGE 79

THE 1986 TEC AWARD WINNERS

Outstanding Institutional Achievement

Recording School/Program:
Berklee College of Music

Acoustics/Studio Design Company: Valley Audio

Remote Recording Facility:
Record Plant, Los Angeles

Sound Reinforcement Company:
Clair Brothers

Recording Studio:
Power Station

Mastering Facility:
Bernie Grundman Mastering

Record Company:
CBS Masterworks

Outstanding Creative Achievement

Broadcast Sound Engineer:
Ron Estes

Film Sound Engineer:
Dennis Sands

Sound Reinforcement Engineer:
Bruce Jackson

Mastering Engineer:
Bob Ludwig

Recording Engineer:
Bob Clearmountain

Recording Producer:
Phil Collins/Hugh Padgham

Outstanding Technical Achievement

Tape/Disc Manufacturing Technology: Philips/Sony CD-Interactive Format Standard

Film/Broadcast Sound Technology:
Droidworks/SoundDroid

Acoustics Technology:
Meyer Sound Labs,
SIM Equalization System

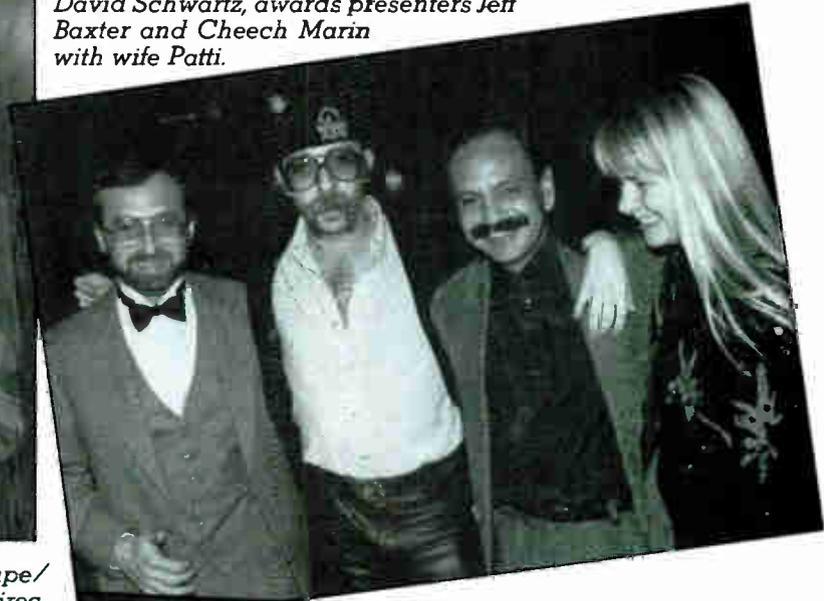
Sound Reinforcement Technology: Yamaha International, PM-3000 Console

Musical Instrument Technology:
New England Digital,
Synclavier Digital Audio System

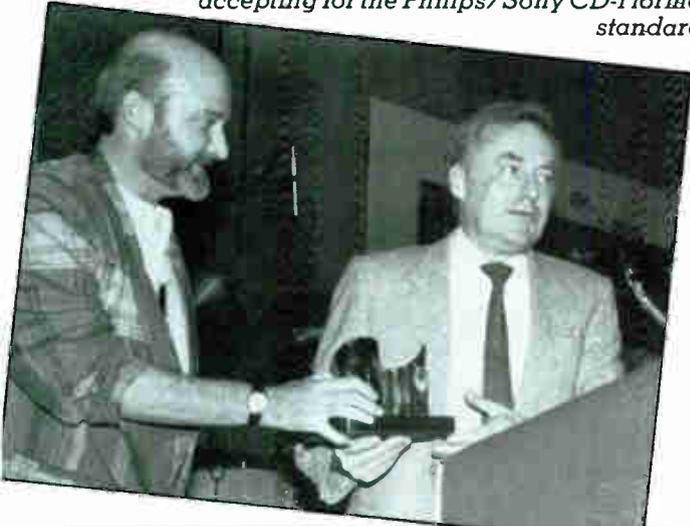
Recording Technology:
Yamaha International,
REV-7 Digital Reverberator



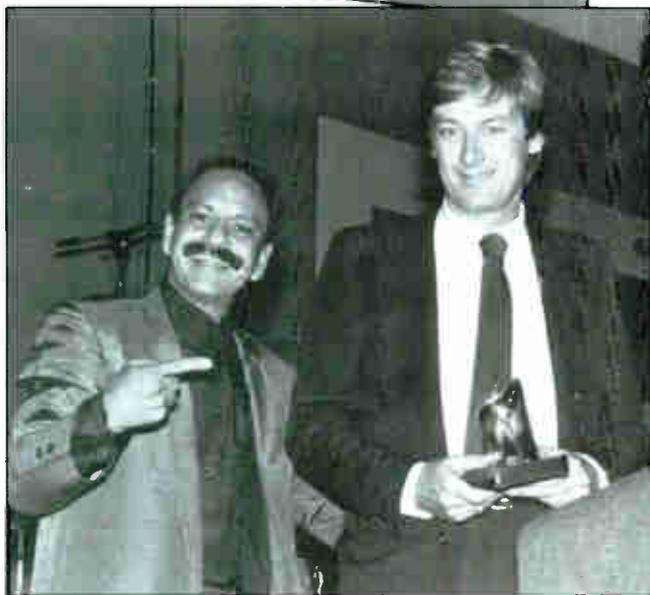
Record producer/award presenter Narada Michael Walden (far left) returns the gracious introduction to Master of Ceremonies Ray Hanna. (Below, L to R) Mix editor/publisher David Schwartz, awards presenters Jeff Baxter and Cheech Marin with wife Patti.



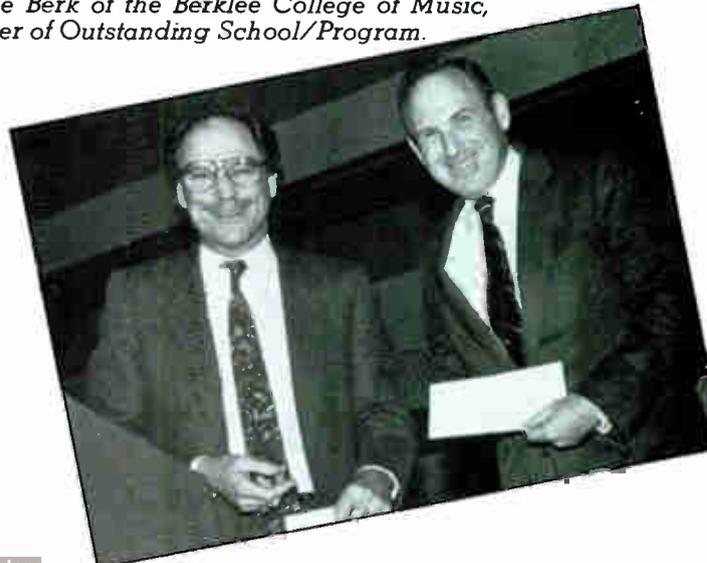
Mr. Bonzai (below left) presents TEC Award for Tape/Disc Manufacturing Technology to Sony's Peter Dare, director of product development for Sony's Broadcast Division, accepting for the Philips/Sony CD-I format standard.



(Left to right above) Keynote speaker and former Ambrosia band leader David Pack poses with Charlie Ennis, public relations coordinator for the House Ear Institute; Mix Magazine publisher Penny Jacob and TEC nominee Alan Parsons. Mix associate publisher Hillel Resner (below left) presents a check for one fourth of the TEC ticket revenues to Lee Berk of the Berklee College of Music, winner of Outstanding School/Program.



Cheech Marin presents the TEC Award for Sound Reinforcement Engineer to Bruce Jackson.



Bill Porter (near right) with TEC winner for Broadcast Sound, the Tonight Show's Ron Estes; (bottom right photo) The sound reinforcement for the event was provided by Sound Image of San Marcos, CA. Shown here are S.I.'s John Oster (left) and Rob Mailman; (bottom photo) New England Digital's Mark Terry (left) receives TEC Award for Musical Instrument Technology from Electronic Musician editor Craig Anderton.



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—FROM PAGE 76, TEC AWARDS

discussed the finer points of problems of combining mariachi music and rock and roll into a workable whole, the misplaced fashion exiles could only stand and stare.

"Isn't that....?" said the first excitedly.

By now, Baxter was warmed up and tossing off some highly technical and complex observations about his current involvement in a "Think Tank."

"Jesus, this is definitely *not* the fashion show," squawked her companion, as she hurriedly dragged her out.

Meanwhile, inside, all those who had turned up in the right place table-hopped, swapped anecdotes and phone numbers, and generally made merry before the Awards presentation itself. A slightly jet-lagged Alan Parsons held court at one table, while at another, a constant stream of visitors paid their respects to such legendary figures as Bill Porter (the man who twiddled the knobs for guys like Elvis, Roy Orbison and the Everly Brothers), and Ron Estes (Johnny Carson's sound engineer).

After a witty and well-received introduction by MC comedian Ray Hanna, the Awards got under way with a touching keynote address from ex-Ambrosia leader David Pack for the House Ear Institute (Pack himself suffered some permanent viral damage to his own hearing, it turned out—"I'm now a mono-man" he quipped). House Ear was one of the beneficiaries of the evening's ticket revenue, joined by the Audio Engineering Society Educational Foundation and the Berklee College of Music, winner as Outstanding Educational Institution.

Up next was a colorfully dressed Narada Michael Walden who charmed everyone with another witty address. Not to be outdone, the producer was followed by Jeff Baxter (still in his chic beret), whose high wit and irreverence affectionately turned the screws on the record biz to the delight of everyone. It was a hard act to follow, but Cheech grasped the occasion firmly with both hands and turned the humor all the way up.

Later, amid a blizzard of mutual congratulations (for the happy winners) and predictions for next year's awards (from the disappointed), a full house schmoozed and drifted to the inspired accompaniment of jazz great Don Randi & Quest.

No wonder the fashion maven was heard to observe as she stopped by the door on her own way home, "Jules, I told you we should have stayed—it looks like a lot more fun than ours was...."

Of course, there's always next year. ■

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CREATING A TOTAL EXPERIENCE WITH T O M I T A'S

by Neal Weinstock

"Isao Tomita is one of the big three synthesizer wizards in the world. Working with him was a tremendous thrill and an honor," says Ron Hays as we watch the dramatic shadows of men pouring smoke into colored laser-light on the tugboat a few yards away. Beethoven is drifting in the harbor wind, in and out of hearing range, much like the fog wafting around us. Then the choir on our ferryboat is drowned out by a chopper overhead; dangling beneath it like a gangway to a UFO is a raft of loudspeakers and flashing

"BACK TO THE EARTH"

lights. "But it's a little loose," says Hays. "I would tighten up the timing, get a jet helicopter so you could hear the music better. This is a new art, you know, people won't settle for something this lax in a few years."

Ron Hays is a director of industrial and music videos and an assistant director of feature films, who likes to specialize in grand orchestrated events. He directed a relatively modest movie of Isao Tomita's last big event, a free concert dedicated to peace called "Mind of the Universe," in Adolf Hitler's hometown of Linz, Austria in 1984. Now, in September, 1986, he is standing on the bow of a chartered Staten Island Ferry, encircled by Tomita's \$2 million salute to New York Harbor and to peace, again, called "Back to the Earth."

"'Back to the Earth' is a story set in the future," according to glossy programs distributed to the crowd of about 30,000 in Battery Park. "A musical celebration of the cosmos and the earth conceptualized by Isao Tomita, utilizing a 'Sound Cloud,' which envelops the audience from all directions. The interplay of sounds, lights, and water creates a total experience..."

Is the crowd drawn to the park because the happening is free, or because they know his music? Tomita had sold a couple of hundred thousand albums in America a few albums ago, back in the '70s; a lot for a classical release, but barely noteworthy for a pop record. But that was before everybody knew what a trade deficit was. It seemed to me, when I heard the ad on pop/rock radio, that now just might be the moment for a pop Japanese breakthrough. Thirty thousand other Big Apple-ites may have thought so, too. Why else advertise only on rock stations and in the *Village Voice*?

"We wanted to get across the event nature of it," said rock promoter John Scher, who handled publicity. "There was no point saying he's a pop star; he's not. We billed it as a once-in-a-lifetime event, something you've just got to see. I understand there are plans for a major television special."

"We wanted to symbolize the build-



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ings of the New York skyline so we did that with the letters of Tomita's name," adds producer Danny O'Donovan. "There was a dove there, for the guiding idea of peace. And this sort of synthesized picture of the earth." He also says that, unlike the Austrian concert, where "a very low budget, nothing-special film was made, here we had nine video cameras, we've got wonderful footage, and we'll be offering a 90-minute special to several of the networks very shortly."

O'Donovan, a producer and promoter who began over 20 years ago by booking The Who in London clubs for "\$15 and \$20 a night," met Tomita in April and was brought into the show in July; Tomita had already been planning the concert for a year or more. Japan Satellite Broadcasting was the original producer, because Tomita's backers "were a bit leery of giving all this money to one guy, so they gave it to this very established corporation." But Japan Satellite Broadcasting had never put on a show anything like this. Actually, neither had O'Donovan,

even with all his years working with the likes of Frank Sinatra and Diana Ross. He knew, however, how to augment his own talents, and hired Michael Ahern, who often works with John Scher and who'd helped set up Live Aid and Farm Aid, to supervise the technical aspects of the production.

The program's illustration of all the barges, tugs, helicopter, towers, and other paraphernalia is reproduced here. Suspended over the park by a crane was a glass pyramid, softly glowing pink, in which sat keyboards, computers, communications crew, and Tomita.

"The musical selections are intended to evoke the images of a space journey," the program continues, "which begins with the creation of the universe, the formation of the Earth and its creatures, and the evolution of human life to the present..."

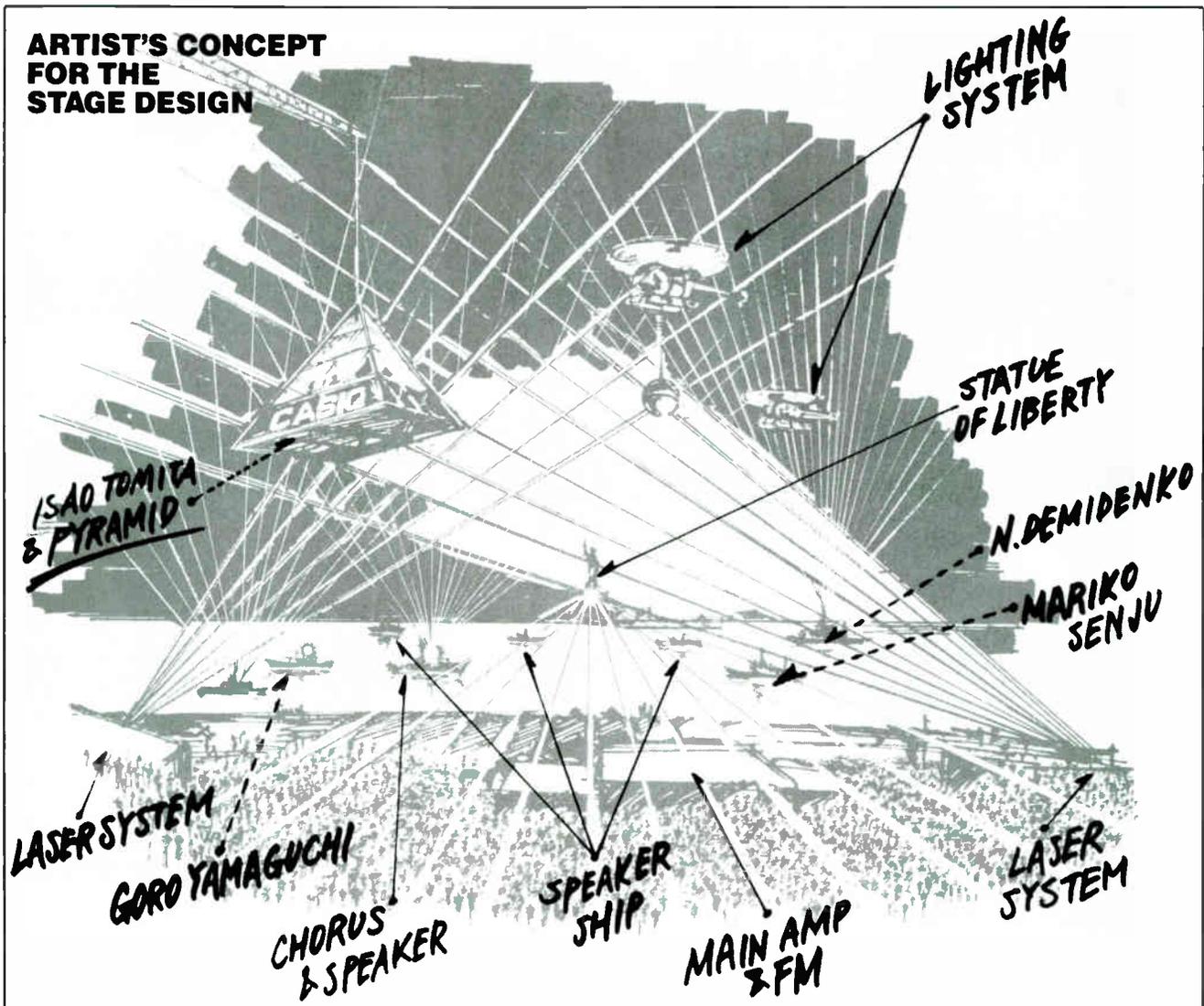
O'Donovan agrees that the time is ripe for Japanese artists to be accepted by Western audiences; that's why he's also managing Loudness, a rock group that successfully toured the U.S. this

summer. Is the time ripe for Tomita, too? "People from Francis Coppola to Stevie Wonder love his music. And I think the excitement generated in New York proves that America is ready for him." In fact, O'Donovan says, Coppola volunteered to help set up the concert, but wasn't needed.

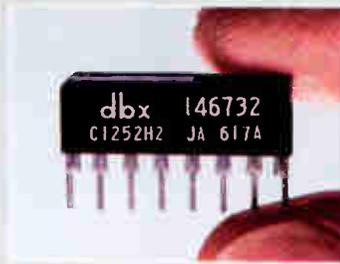
"The story then continues to the near future," says the program, "to the space age, where mankind leaves the earth on space colonies, to search out a more desirable habitat. The space colonists travel for centuries, trying to find a new home that would rekindle ancient memories of the good Earth. They send out signals hoping that something or someone would respond to offer guidance..."

Accompanying this fantasy story, Tomita has programmed 19 short pieces of more or less known works of Dukas, Wagner, Bach, a Japanese tra-

The scope of the undertaking is effectively shown in this illustration of the Battery Park area.



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ditional melody the program says is "currently traveling through space on the Voyager spaceship," Ravel, Mahler, Richard Strauss's *Zarathustra* and Holst's *Planets* (of course), Charles Ives and Dvorak, Vaughan Williams and John Williams, Prokofiev and Stravinsky, something Chinese, too, and *Rhapsody in Blue*. Everything who's anybody. Would it be like An Evening At Pops, one wondered while waiting for the press buffet? But it wasn't at all. It was like living in a movie, one made up of equal parts *Victory at Sea*, *Close Encounters of the Third Kind* and *Ikiru*.

All corny, strange, tearful and thrilling. "People will do these kinds of things instead of drugs in coming years. It's the next thing," says Ron Hays. "But that's terrible, that's terrible there," he complains, pointing at the sudden giant, unexpected appearance of a brightly-lit ocean liner, stage right. "You've got to have military control over these things."

Tomita did have certain things in tight control: the fireworks, for instance. Have you ever known fireworks to go off with any rhythm other than TA DA DA BOOM TEE AY? That night's went off slowly, elegiacly, Japanese.

The name "CASIO" was emblazoned on the biggest laser barge, off towards Ellis Island. John McDonald, president of Casio's American subsidiary, said, "It's just one way to repay the public for their support."

Casio put up the cash for the show. Another sponsor, All Nippon Airways, provided its services. Wouldn't sponsoring a somewhat more popular star have done more to promote Casio's products? "Tomita hit it off with the Casio brothers, in Japan," said McDonald. "He's a philosopher, an intellectual, he's in step with them psychologically. T. Casio is about 60, he's got a Steinway grand piano in his living room, his tastes are classical and his taste is for Tomita. Tomita has been a consultant in our R and D section for three or four years. We've built a super synthesizer for him, built it into that pyramid capsule he used. Maybe we could have gotten more publicity with a rock act, I'm sure our advertising people see it that way, but this wasn't just done for publicity. It was something the Casios just wanted to do."

"The story concludes when a signal is answered," says the program. "The spaceship is pulled toward a beautiful planet. The spaceship descends onto the planet and one of the crew leaps on a boat floating on the water. . . ."

Casio had a yacht full of their dealers and representatives in the harbor for the performance. Unfortunately, to clear the way for the performing boats, Casio's own had to cruise out of ear-

shot of the music.

"To the space person's surprise and joy, the landscapes of the planet were familiar," continues the program. "It was . . . BACK TO THE EARTH, and in New York City, the home man left centuries ago. . . ."

Pat Carrasco, who works in advertising and public relations for Casio, says the Casios had wanted to arrange a New York concert for Tomita for some time. For about a year, she worked up proposals with John Scher. They figured that, with a limited budget, the best thing for Tomita and Casio would be a bill split with somebody like Emerson, Lake and Powell, at a big

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sound and
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summer. Is the time ripe for Tomita, too? "People from Francis Coppola to Stevie Wonder love his music. And I think the excitement generated in New York proves that America is ready for him." In fact, O'Donovan says, Coppola volunteered to help set up the concert, but wasn't needed.

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Accompanying this fantasy story, Tomita has programmed 19 short pieces of more or less known works of Dukas, Wagner, Bach, a Japanese traditional melody the program says is "currently traveling through space on the Voyager spaceship," Ravel, Mahler, Richard Strauss's *Zarathustra* and

arena. Then, at the summer's beginning, they were told about the plan for Back To The Earth, and told that Japan Satellite Broadcasting was the producer. Evidently Tomita had persuaded the Casio brothers to come up with more cash.

Says the program, "All the performers join in a tribute to celebrate peace and prosperity on planet Earth . . . our beautiful planet."

The revelation that the spaceship had landed in New York was represented by a few minutes of "Rhapsody in Blue" played by the Russian pianist Nikolai Demidenko. With fireworks slowly crashing over New Jersey, and a spotlight on Demidenko casting his 100-foot-high shadow—at a grand piano—against the walls of Manhattan's skyscrapers, it was a thrilling crescendo.

Demidenko arrived in New York only the night before the concert, said O'Donovan, because the U.S. State Department worked hard at keeping him out. All of O'Donovan's powers of persuasion and deal-making were necessary to clear the last-minute hitch.

"Through this sound and light experience, I hope you will reflect upon the wonders of the Universe," runs an italicized quote from Tomita in the program, "and Mother Earth, and ultimately the experience will serve to enhance better understanding, love and peace in the world."

I think he means it. Danny O'Donovan agrees that Tomita stays away from production details; "He is the artist. He concentrates on his creativity and leaves the technical details to people he trusts."

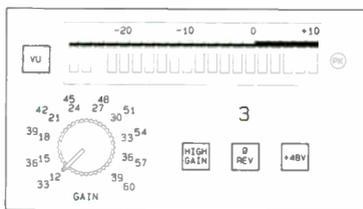
The next day I had a date with him, in his hotel suite high over Central Park. Tomita speaks no English, so there was a lady interpreter present, dressed for success though this was Sunday. His Japanese impresario was also present, blue suited, drinking tea and answering money questions. Tomita seemed to be an absent-minded fellow, dressed in casual but rich materials, one sleeve rolled up and another down.

"Mr. Tomita says the concept was planned as a Sound Cloud 400 meters square, with the sound from the helicopter 600 meters above," said the interpreter. "The idea was that people would be able to move around within this cloud, and enjoy the sound from many vantage points."

I mentioned how much I liked the serendipity of the appearance of the ocean liner, and other obviously unplanned occurrences—and that Ron Hays hadn't liked that. Had Tomita?

"He doesn't consider the serendipity a damage whatsoever," said the interpreter, "because the whole idea

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is to exchange the sound that surrounded the music with the sound that comes from the outside. Mostly now, music is heard in a confined space—behind heavy concrete walls. People inside of this prison can hear it, people outside have no way to enjoy it. He was counting on the sound of the helicopter and all of that. He thinks music is diminishing over the years. First people would can music in radios and cassettes, then they would put it into little headphone sets. He wishes to make music public again."

I said the water, smoke, lights and fireworks had all reminded me more

"People will do these things instead of drugs in the coming years. It's the next thing."

of old war movies than anything futuristic. The interpreter said, "He grew up during the war. . . in an area very close to the kamikaze pilot training area. As you know, the enemy came through flying objects during the war. So there is still a fear attached to things that fly, and memories of the war. So he is trying to have peace come from the sky." She also said that Tomita's favorite part of the concert, like mine, was the Gershwin segment. "He was overcome with emotion then."

No wonder the canned versions of Tomita, on disc, hardly do him justice. He said he hopes to do similar concerts in Moscow, and perhaps in China. These do not seem likely to do much for Tomita's Western record sales, but this hardly seems a concern to Tomita. Danny O'Donovan prefers the possibilities of putting on something similar in Sydney Harbor for Australia's bicentennial in a couple of years, or perhaps in London. We talked until a batch of hatchet-faced, horn-rimmed, gray-suited American boys came in to discuss money, and while they glared at me, Isao Tomita bade a polite good-bye.

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PHOTO: GEORGE PETERSEN

Jan Hammer, demoing the Fairlight Series III at the Fall AES.

FALL AES HIGHLIGHTS

by Craig Anderton

The Fall 1986 AES show was held November 12-16 at the Los Angeles Convention Center. To the seeming despair of some audio purists, MIDI and other musical instrument technologies were a significant part of the show, both on the exhibit floor and in the technical workshops.

The trend that stood out the most to me was the maturation of the *audio workstation*—a complete audio production center based almost exclusively on digital technology. TEC-award winning New England Digital hosted a Synclavier demo with Frank Zappa that showcased the Synclavier's ability to combine sampling, FM synthesis, sequencing, and mass storage to create complete compositions. Zappa did not ignore the occasional frustrations and difficulties in working with a system of this level of complexity, but his compositions were ample proof of what the system could do. Fairlight's demo of the *Series III*, which featured Jan Hammer (composer for *Miami Vice*) and jingle whiz/

Electronic Musician author Terry Fryer, also emphasized the workstation approach—but specifically with respect to audio-for-video. I had a chance to play with the Series III the previous week at Musicom '86 in the Netherlands (still my favorite audio convention), and was impressed by the vast improvement in sound quality compared to the Series II. Although work remains to be done on the Series III—software updates are, according to a company representative, still arriving on an almost weekly basis—the results were nonetheless impressive.

Lexicon took a somewhat different, and even more sophisticated, approach with *Opus*. This is a complete recording/mixing/processing "tapeless studio" where virtually every function takes place in the digital domain. As with the Fairlight and Synclavier, *Opus* relies on hard disk technology for mass storage of all this digitized audio data. However, there's also a write-once optical disk for backup and archival storage.

The above systems are very costly

(starting at about \$60,000 for the Series III) but there's hope for the less affluent. Hybrid Arts' long-awaited *ADAP* system, an under-\$2,000 digital audio workstation based on the Atari ST, is nearing completion and includes several new features (vocoder, pitch shifting, echo, and reverb). The main attraction is the ability to store up to 48 minutes of digitized audio and edit it on a "microscopic" level, but *ADAP* is equally well-suited as a high-quality MIDI-controlled sampling device. Speaking of Hybrid Arts, they showed a new version of *DX-Android* (originally called *DX-Droid* until the Lucasfilm lawyers objected) with several improvements and additions. Hybrid Arts has a policy of providing upgrades for the difference in list price plus \$15, so I hope that all *DX-Droid* owners sent in their warranty cards...

Hybrid Arts also demonstrated the *SMPTETrack ST* sequencer (\$575) along with the *SMPTEmate* interface (\$499.99). Yes, it really can handle just about any flavor of SMPTE (drop frame, non-drop, 24, 25, or 30 frames per second), and can read, write, chase, and lock. Other notable features include 60 tracks, MIDI clock/song position and 24/48/96 pulses per quarter note outputs for driving non-SMPTE gear, real time mute, solo, transpose, patch change, looping, and so on. An accessory program provides SMPTE hit points and regenerates SMPTE code. As someone who has finally managed to "SMPTEfy" my studio, I'm glad to see companies like Hybrid Arts and Southworth offering built-in SMPTE in their software.

PCM60 and *PCM70* owners can take advantage of new software from Lexicon. Version 3.00 for the *PCM70* (\$249) provides inverse room (which allows for variations in the initial portion of the reverb envelope), new presets, MIDI clock control, and several other features. Version 2.00 for the *PCM60* (under \$200) replaces the *Plate* program with an *Inverse Room* program. Another interesting device, the *Clarity MIDI/XLV* (\$1,295) allows for MIDI control over any Lexicon 224XL and 480L parameters and was developed with Lexicon's co-operation. Thus, reverb parameters may be set on the 224XL, translated into MIDI and stored in a sequencer, then played back into the 224XL during mixdown. I am particularly pleased that the

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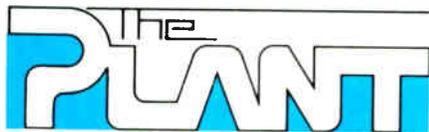
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MIDI/XLV also provides eight control voltage outputs. These can be varied by mod wheel, pitch bend, breath controller, or any other MIDI controller. With so much interest in MIDI, it's easy to forget that there is a large installed base of control-voltage devices, and that this protocol has its own unique set of advantages.

Digital signal processing gear continues to proliferate. ART's ProVerb (\$395) is a rack-mount digital reverb with 50 reverb presets, ten gated reverbs, ten reverse reverbs, ten chorus/flanging effects, ten echo effects, and ten delay-based programs—100 presets in all. ART also showed a mock-up of the IEQ Intelligent Equalizer, and this looks like it's going to be an outstanding piece of gear (especially at the projected \$600 price). While calling it a programmable, MIDI-addressable 2/3 octave graphic equalizer tells part of the story, the IEQ offers a feature called "Smart Curve," which allows for just about any desired response curve—with no interaction between bands (!). There's even a video out that shows the exact frequency response curve, which is far more accurate than just seeing "where the knobs are" with a regular graphic EQ. Keep an eye out for this one.

Alesis, who shook up the digital reverb field with their MIDIVerb, now offer the Microverb (\$249). Three of these fit in a special rack mount adapter; surprisingly enough, it sounds *better* than the MIDIVerb thanks to 16-bit operation. Naturally, I couldn't avoid peeking "under the hood," and was intrigued to see a complex custom chip providing, according to Alesis, 70% of the MIDIVerb's functions. The Microverb also accepts -20 dB to +4 dB signals, so guitarists can plug right in. What's next—the Picoverb? Femtoverb?

And before we go, a brief word on mixdown automation. Musically Intelligent Devices, creators of Megamix, now have a version for the Macintosh that retains all of the same features as their IBM PC version—extensive editing capabilities, real time editing, and B&B VCAs. Meanwhile, Stramp joins Akia (mentioned in a previous MI Update) in putting out a system for the Commodore-64. The Stramp CP-1 has some great features such as invert track (for panning), 256 step resolution, dbx VCAs, and relation of all timing parameters to note and measure values. A 16-channel package costs \$3,980; a 32-channel package goes for \$7,370.

For next month's column, I'll be "turning Japanese" with a report on Yamaha's new line of equipment, as premiered at X-Days in Japan. Don't miss it!



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COLLABORATION

LEGAL PROBLEMS TO AVOID



by Kent J. Klavens

You finally get together with a songwriter you've been wanting to work with. You bounce a few ideas back and forth. Impressed with each other, you decide to write a few songs. You record rough piano-vocal demos of the songs on a portable cassette recorder. Over the next few months, these problems arise:

1. You wrote all the music for one song and one-half of the lyrics. The two of you decide to license the song to a television producer for a \$1,000 synchronization fee. Do you automatically get \$750?

2. For another song, you've written only the music. Within two days after recording the song, you've gotten harsh criticism from all your songwriter friends about the lyrics. You decide to rewrite the song with another lyricist, without your collaborator's approval. Can you do this without any remaining obligation to the original lyricist?

3. You want to save one of the songs for only your artist demo tape, because Irving Azoff told you it's the key to a potential record deal with MCA. Your collaborator, needing quick cash to pay the rent, wants to license the song for use in national TV ads for a sexploitation picture. Can you prevent the license?

4. Your collaborator is hitchhiking across Europe and cannot be reached. Michael Jackson calls. He's in the studio with Quincy Jones and they want your song to be the "A" side of the next single, but only if you assign all publishing rights to them within 24 hours. Can you legally do it?

Unfortunately for you, the answer to all of the questions above is "No!" Now you can understand why the legal effects of collaboration are some of the most misunderstood aspects of the business of songwriting. The following information should clear up some of the confusion.

How is a "joint work" created? A "joint work," under the Copyright Law, is a "work prepared by two or more

authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole." A song is subject to copyright protection when "fixed in any tangible medium of expression . . . from which [it] can be perceived, reproduced or otherwise communicated, either directly or with the aid of a machine or device."

This stuffy legalese means that when you create lyrics or music, intending that someday they will be part of a song, your creation becomes part of a "joint work" when it is recorded on tape or written on a lead sheet along with someone else's lyrics or music. Even though your individual contribution was separately subject to copyright laws, and could have been registered and protected by itself, the song comprising the joint work is then covered by the copyright laws in its joint form, *even if the complete song hasn't been registered in Washington, D.C.* (Registration does, however, provide evidence of your claim to authorship of the song, as well as giving you certain legal advantages if you sue someone for infringement.)

You don't have to be physically present when the "merging" of creations occurs (with your consent, of course). In fact, it's not even necessary that you knew who your eventual collaborator would be when you composed your music or wrote your lyrics.

Collaborators each own undivided, equal interests in the whole song. Unless you agree to the contrary, two co-writers each own one-half, three co-writers each one-third, etc. These fractions apply to the entire song. Separate lyrical and musical ownership rights to joint works do not exist without agreement.

There are legal cases that appear to protect songwriters from the claims of minimal contributors. The writing of a few words or composing of a few notes will not normally entitle that songwriter to an equal share, even without an agreement. It is better to be cautious, though, if you have the slightest doubt,

making it clear to such a person exactly what his or her financial and ownership in the song will be.

Contributions to a joint work cannot be separated. This is a source of major trouble. Without the consent of the other writer involved, one writer can't simply remove that writer's contribution and get a new collaborator to replace it, because the original writer will still own up to one-half of the new version (where there were only two writers of the original version). The ownership share of the original collaborator may not be reduced by the addition of new writers without consent. (Be careful. This legal prohibition is removed in almost all publishing agreements unless restricted.)

Each co-writer can grant non-exclusive licenses without the consent of the other writers. For example, any writer can grant a synchronization license to a television or motion picture producer for the non-exclusive use of the song, as long as that writer accounts to the other writers and pays them for their share of the income received. As a practical matter, however, due to the laws of many foreign countries, most licensees want the signature of all songwriters on any license.

No writer may assign an exclusive right to a song without the consent of the other writers. Most importantly, this means that none of the co-writers can deal with the "publishing rights" (i.e., ownership and administration rights) of the other writers. No assignment of exclusive rights is valid unless written, so oral agreements between the writers on this issue are unenforceable.

How can you protect yourself? Naturally, an attorney like me is going to tell you to have a written agreement.

Isn't a complicated agreement a "turnoff" that could destroy a new collaboration? Definitely. Keep it short and simple.

If you feel you deserve 75 percent of the song, get it in writing. If you want to be able to take back your lyrics if the song isn't cut within one year, agree to it. If you want to save a song for only your artist tape, tell your co-writer up front and include this requirement in your agreement. If your collaborator likes to go wilderness camping for months at a time, get a "power of attorney" or a written, short-form assignment of all publishing rights, so you can deal effectively with the rights to the song.

Collaboration is often a friendly, casual process. That doesn't mean it has to be an ignorant process as well. ■

Kent Klavens is a music industry attorney with offices in Los Angeles.



PHOTO: ED COLVER

(L to R): Berry, Buck, Mills and Stipe.

REM Comes Into Focus

by Josef Woodard

By the beginning of the 1980s, rock was showing its age yet again. Punk's snarl hid a yawn, new wave's trend-of-the-week syndrome lacked depth, and mainstream pop was still learning its way around new techno toys. The music scene was looking for the worst for wear, and searching for a

great white hope in the tradition of Rock Heroes emerging from some unforetold underground to rejuvenate the old guard.

No one can predict where such saviors might pop up; certainly no one was bending an ear towards Athens, Georgia, a humid college town whose main claim to rock fame was the B-52s. But from this kudzu-entangled hamlet arose what, at mid-decade, has become a strange paradox: America's best known "underground" band. REM is one of the decade's most oft-imitated bands, a factor which now

imbues them with an exaggerated prevalence on the scene. Where once they mainly stoked the fires of critical accord and college radio, their pagantry has spread, this season, on a broader scale.

Despite the increased visibility brought on by their fifth record, *Lifes Rich Pageant*, REM remains a prime example of organic evolution in a modern rock combo. In 1980, singer Michael Stipe and pal guitarist Peter Buck joined forces with bassist Mike Mills and drummer Bill Berry; to combat the small town funk, they started playing in an abandoned church. As evidenced on 1982's vinyl debut, *Chronic Town*, what they were coming up with didn't have any direct debts to their musical peer group. Rather, they looked back to an era when the Byrds and Buffalo Springfield roamed the land letting their guitars ring in clean-toned declaration.

REM captured favorable attention almost from the outset, because they knew how to rock propulsively while suggesting subtler layers of sound and imagery. They lay down a groove to scale the peaks by, but they also hover in a mist of impressionistic details and half-finished lyrics. Buck's winding Rickenbacker arpeggios embrace Stipe's romantic, garbled croon while Buck and Mills attend to the business of driving the rhythm with no mercy.

This basic blueprint of REM's musical plan hasn't changed much over the years, but the band has effected subtle sonic alterations in production. The first records capitalized on the sixth-sense resourcefulness and garage studio savvy of Mitch Easter and Don Dixon (who have since gone on to their own endeavors on both sides of the studio glass). For last year's *Fables of the Reconstruction*, the band brought veteran producer Joe Boyd (Fairport Convention) on board. The most radical step, though, was their employment of Don Gehman for the new album. *Lifes Rich Pageant* was cut at Belmont Mall Studio in Bloomington, Indiana, the studio owned by Gehman's famous client, John Cougar Mellencamp.

Could Mellencamp's producer be sensitive to the fine (and rough) points of REM? Could he ensnare that fragile combination of spontaneous fire and lyricism? Could he find the right mix of business and pleasure?

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the album (with some reservations from diehard fans, unaccustomed to such clarity in an REM record), the group's gamble paid off. *Lifes Rich Pageant* lets the group age gracefully; what with six years under the belt, REM is already bucking for seniority in rock's volatile arcade. Buck spoke of the group's rapid chart movement from their tour stop in Oklahoma City.

Mix: In a way, REM is now in an elder statesman position, in terms of rallying an entire new rock genre, the New Psychedelia. Do you get the sense of leading a pack?

Buck: I don't feel like we're leading anything, but I know what you mean. We're probably the first successful band of our peer group, that's made it on the radio and the covers of magazines. In that respect, we're kind of the old dads of the business. But we're not leading anything. I don't think anyone's following us. We just make music and we just happened to get there first.

Mix: Much has been said about the ambiguities of the band sound—especially Michael Stipe's vocals and some of the unusual song structures. Was it a goal to bring the group more into pop music focus?

Buck: We felt the songs we were writing were more focused than they had been in the past because they're less personal and more about the world around us. We did pick Don Gehman because he is a real focused producer. He'll question why you do this or that, and that really helped us. We weren't looking for someone who would come in and tell us how to have a hit. We were looking for someone who would maybe help us question our motives

about what we do and why songs are arranged the way they are. He did that.

Mix: The band has always seemed quite intuitive and self-reliant about the creative process. Was his input ever intrusive?

Buck: We are real intuitive, but we'll listen to anyone's advice and think about it. If it feels right, we'll go with it. A lot of what he did was technical, just getting different drum sounds, suggesting guitar ideas and sounds, that kind of thing. It wasn't so much that he was saying "Well, you've got to sing this a different way." It was real helpful.

Mix: There is the style of producer who acts as almost a band member, getting into the midst of the musical act. Was that the situation with Gehman?

Buck: Not at all. We had already written the songs when he met us. We knew what we were doing. We told him what we wanted and he agreed with us. It was a collaboration from then on. A lot of producers sit in on rehearsals while you're writing the songs and say, "No, that's not good, redo that." We didn't think that could help. He heard our songs and said, "This is really far along. I'm happy."

Mix: Was the whole idea in getting out of Georgia to gain a new perspective on things?

Buck: We always try to record away from Georgia to help the situation at home. The place he picked was where he was familiar with working. We made our last record in London, so that's about as far as you can get from Georgia.

Mix: I know in the past, your studio sessions were a combination of work and madness—using strange, low-tech methods. Have those habits changed with the new record? Was this a fairly workman-like recording experience, or did you keep it loose in the studio?

Buck: We use it all. This record has all kinds of high-tech things going on, but there is still us banging on cans or singing with our head in a bucket. Everything is at our disposal and there's no reason for us not to have fun while we're doing it. We had plenty of fun, getting ideas for sounds and songs, playing around with things.

Mix: There are some strange segues, such as the banjo into "I Believe" and the source material before "Superman." How did those come up?

Buck: The banjo part is one of the few things I can play on the banjo. When

we were mixing the record, one of the second engineers was from Japan. He had this big talking Godzilla; that was the sound it made. We thought it sounded perfect before "Superman," so we put it on there.

Mix: Do you consider the studio a drawing board? You say the songs were pretty well written beforehand.

Buck: We write when we're rehearsing. When we get into the studio, we concentrate more on fleshing out the songs and playing around with them and making sure they fit. It's more of a playground; we take something we know, mess around with it and see what happens.

Mix: The album is refreshingly varied in terms of sound textures. You have quirks that add to the whole; it almost comes off like a concept album, dusty as that term is by now.

Buck: We wanted to have a real diverse record. Our engineer, Greg Edwards, said, "People don't make records like this. Every track is kind of different." That's the kind of record I like. I don't want to hear all the same kind of stuff. There are things that didn't make it to the record that would have made it even more diverse if we had finished them.

Mix: What was the order of tracking on this project? Are you traditionalists in the sense of laying down basic tracks first and later embellishing those? Or are there ground rules at all?

Buck: What we tried to do was come in around noon or one and, while fresh, lay down some tracks. We'd cut three or four tracks, see how we liked them, think them over. We were pretty particular about how tight the tracks were. The three of us were playing live.

We'd usually get a couple of tracks each day and then take an hour break and go to the Dairy Queen or send out for pizza and watch a baseball game. We'd come back and spend some time overdubbing with those tracks that night—percussion, organ, guitar, vocals or whatever. Eventually, after a couple of weeks, we were done with the tracks and mostly done with the overdubs. I guess it took us three weeks of recording to finish the album.

Mix: Does that differ from the early days? Do you take more or less time in the studio before a record is hatched?

Buck: Each record has taken a little bit more than the one before it, but we're not going to do a Springsteen and spend a year and a half in the studio. We're just not interested. Nor do we have the money. I like working the way we do, because there's just

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By GARY LARSON



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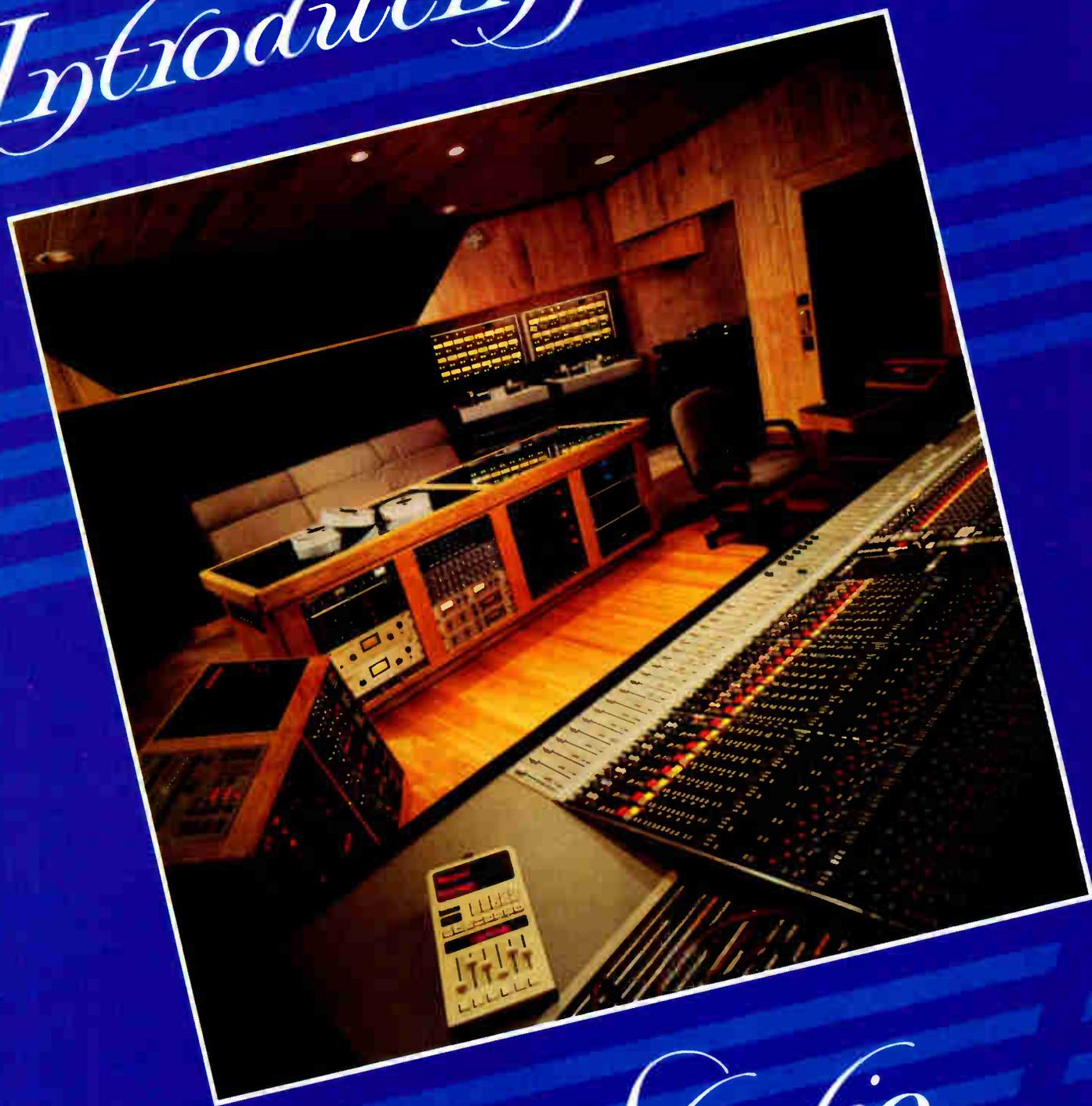
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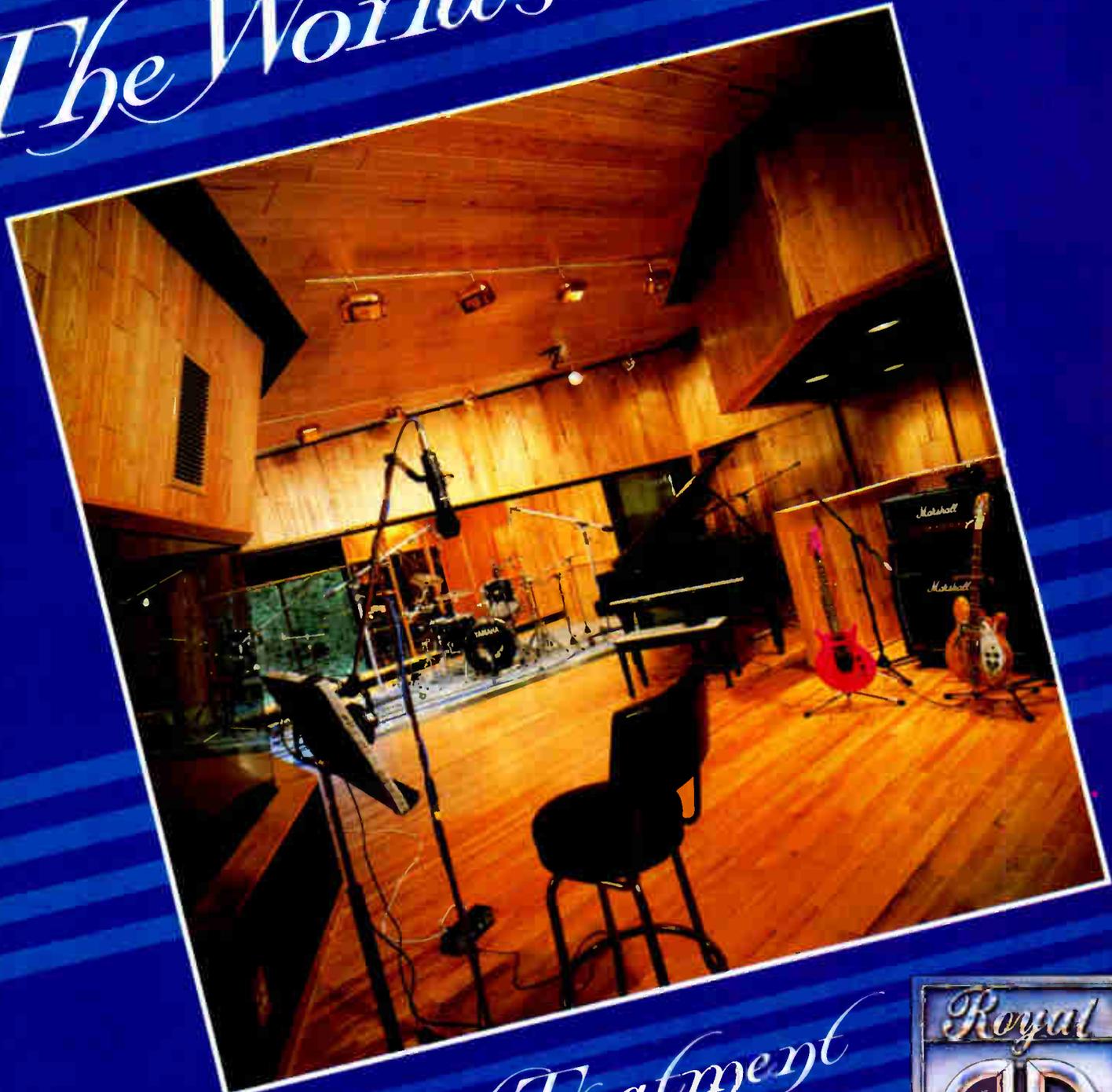
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enough pressure for us to be trying lots of different things fast, but there's enough time to relax and not worry about it if we want.

Mix: I noticed you use the acoustic guitar in a real percussive way, set deep in the mix. What guitars did you use for this project?

Buck: The acoustics are almost all Guilds, except there was one old Gibson that Don had. For electrics, I used mostly Rickenbackers and then there was this one that this guy Ken Houston makes called a Robin. I used that for some rocking type stuff.

Mix: What amps were you using?

Buck: An old pre-CBS Fender Twin Reverb, a mid-'60s Ampeg and a Mesa Boogie.

Mix: Did you have any unusual guitar recording methods this time around?

Buck: Not so unusual; Don and Greg are real big on mic placement, which I'm not real good at. We'd talk about what kind of tone I wanted and I'd try to get the basic tone. They'd take four mics and set them up anywhere from an inch from the speaker to 20 feet away to get a nice ambient sound.

Mix: What does the term "jangly guitar" mean to you? It seems to haunt you as a critic's catch phrase.

Buck: "Chiming" is right up there, too. I think of Roger McGuinn—"So You Want to Be a Rock and Roll Star." I've never really felt all that jangly. If you write that about Mitch Easter, he'll come over to your house and stab your hand. He doesn't like it much.

The thing is, I can see that some of our stuff is more melodic and arpeggio-type guitar. But the last couple of albums haven't had all that much. "I Believe" and "Flowers of Guatemala" chime, but that's it. The rest is more of a roar.

Mix: Rock music has been roughly divided up into clean and grungy guitar modes, which then in turn dictates the basic attitude of the given group. Robbie Robertson versus Tony Iommi, for instance. Have you always leaned toward the former?

Buck: I never wanted to be in a heavy metal band, but I can crank it up there with the best of them (laughs). I play loud on stage. Our sound guy has worked with Ted Nugent, the New York Dolls and Aerosmith. He said I play louder than the Dolls and less loud than Nugent. I like the ability to be clean, but I like it to be grungy at times. I'm not one of those mile-a-minute guitar players. That's not where my aptitude lies.

Mix: I take it you're not too interested

in the latest guitar advances, such as MIDI applications, etc.?

Buck: I don't really see the point. I can get any sound I want to out of my guitar. There are so many things you can do, but guitar sounds good enough by itself. We used a sequencer to trigger drum sounds on a couple of tracks, synthesizers on a couple of others—to get a good tone that we couldn't quite get on a real organ. So we certainly used the studio in a modern way, but I don't enjoy guitar things that don't sound like a guitar.

Each instrument has its own feeling. I don't see any reason in the world why you'd want to buy something to stick on your instrument to make it sound like a second-rate version of something else.

Mix: There is something inherently nostalgic about REM's music, going back to a less calculated period in rock. Can you pinpoint any of the influences in the band's sound?

Buck: We all listen to tons of different music. We're one of the few bands that gets into the Top 40 consistently that doesn't have a formula carved in stone that was voted on by a group of men in business suits at a table. We're just musicians who play around with what we do. That doesn't happen much now; most people settle into a groove

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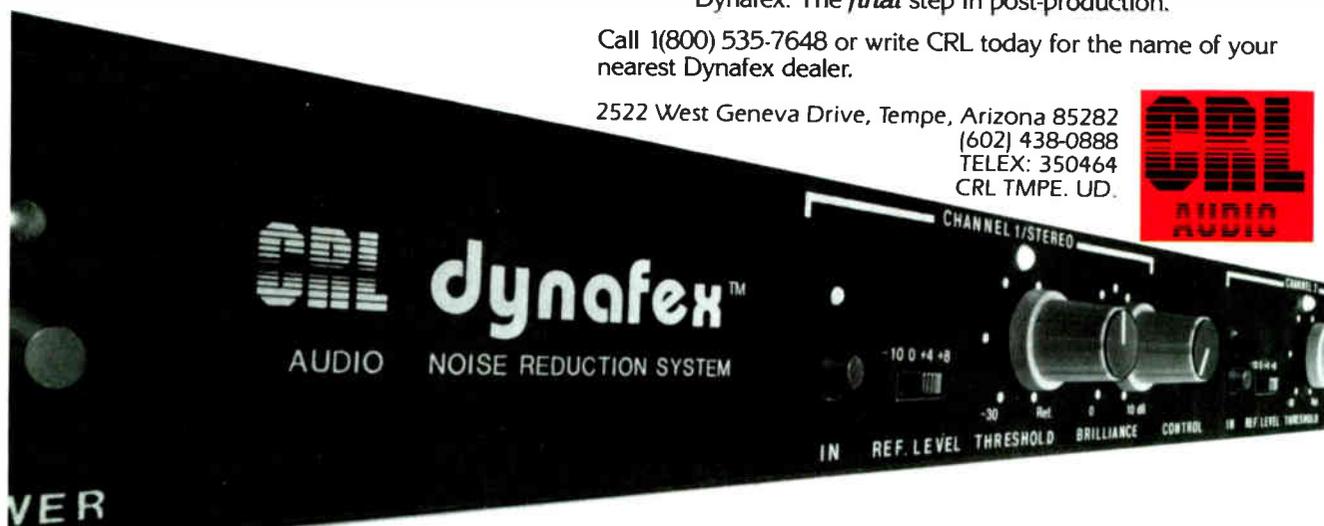
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and stick with it until they die.

That didn't happen, I don't think, in the '60s. Stevie Winwood makes really weird records considering where he's been and the way he's doing it. He doesn't seem to have any real formula.

Mix: You seem to be a band that doesn't mind spending extended periods of time with each other. How do you do it?

Buck: We get along really well. I'd never want to be in a band with people who weren't friends. That would be horrible. We've had our fights. I think everyone does in bands. That's the way it works. I can live with that. We get along better than most I know of, that's for sure. We don't have any antagonisms that stretch back over the years or anything; what we fight about is strictly of the moment.

Mix: From The Beatles on down, bands have been fragile entities because of the balance of egos. Is there any related problem in REM?

Buck: We're as democratic as you can get. We write the songs together. We get the same amount of money. We get the same kind of hotel rooms. We have the same say in how we do things. No one can be dissatisfied with his part because we're all working together. When you don't have a democracy, that's when people get dissatisfied and leave.

I wouldn't be in a band where I couldn't make choices unless I was

making so much money that I didn't care. I can't imagine that ever happening.

Mix: REM has really established Athens as a new rock and roll seedbed. Have you been given the key to the city yet?

Buck: We haven't been given the key to the city, but we bought a building and have been given a low-interest loan from the city council to make a historical renovation. Then the city council guys and the mayor came to a cocktail party we had and were all blown away. They thought, "OK, this is a rock and roll building, it's going to be whatever." They walk in and there are computers everywhere, filing cabinets up to your neck.

Of course, that's the upstairs. We didn't show them the rehearsal room downstairs, which is knee deep in beer bottles and electric guitars everywhere.

Mix: You do seem to be the local boys made good; you've put the city on the map as some sort of rock and roll mecca.

Buck: Well, the B-52s did it first, but we stuck around—we stayed home. The people in the city council are happy. We bring a lot of money into that town, considering how small it is—there are 40,000 full-time residents, and 15 to 20 thousand more college students. We hire six or eight people full-time and spend a lot of money there in taxes, and we buy property.

They love us. They love that fact that Athens is mentioned a lot in the media and we're actually bringing in tourists. Kids come in from miles around, although there's not a lot there (laughs). I like to think that Athens is a nice rock and roll town. ■

Shadowfax Without Labels

by Rip Rense

You'd sort of expect to find members of Shadowfax eating fresh-baked bran muffins and drinking cappuccino in a little *nouvelle-colored* cafe with fashionably enigmatic paintings on the walls. After all, they record for Windham Hill.

To be sure, Shadowfax has *that* reputation. The whole Yuppie Muzak rap. You know—that the group plays a lot of derivative, melodic stuff that is good to grow organic vegetables to. Or build a compost pile by. New Age music, as the marketing people call it.

So it wasn't really surprising to find Chuck Greenberg, Phil Maggini, and Shadowfax engineer Harry Andronis sitting in a place that looked like a Windham Hill album cover. What was surprising was that this was in Los Angeles (specifically, Santa Monica), not Marin County—and that the nucleus of the group grew up playing the blues on the south side of Chicago—

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not strumming 12-strings in Big Sur. Come to think of it, Greenberg, Maggini, and two others guys in the group used to back up Hound Dog Taylor, for grits' sake. And they love Captain Beefheart. Stir *that* into your brown rice.

"Yeah," says Greenberg. "We loved *Trout Mask Replica*. And you can tell the Captain that *Clear Spot* really made a clear spot in us."

Yet Shadowfax has *that* reputation. They are excellent musicians; the music is very substantial, but there are these weird reviews, you know, and uh...

"We have the wimpy, bad reviews, where they just sneak in," says the red-bearded Greenberg. "And we have the very pointed, sharp-edged, knife-in-the-groin attacks where they call us *wheat germ granola elevator Muzak*. Now those are the ones we really appreciate—when you have a bad review and you *know* they hate you."

Greenberg chuckles. He often does. "Yes, we like the ones where they go after you with a hatchet and say their pet bullfrog doesn't like your music, and that the pet bullfrog threw up on your record, to boot. Those are the ones you *really* appreciate."

Shadowfax actually did receive one such review—from a college lad who was worshipping at the Church of Van Halen. Not exactly a critic given to enjoying subtlety. But there have been compensating moments—like the time they'd been touring for several weeks in a Winnebago ("smelled like a locker room," Maggini recalls) and pulled into some town in Colorado to play a largely empty, overgrown beer-bar. Things felt pretty bleak, they said, when suddenly a kid walked up who'd been there waiting for them—for hours. Seems Shadowfax was the young fellow's favorite group in the whole, wide world.

"It was at that point," says Greenberg, "that we realized there were all these closet Shadowfax fans out there. And it really made a difference to us."

Greenberg is the producer and sax (plus lyricon, wood flutes, and double ocarina) man for the group, which he terms the "electric black sheep" of the mostly acoustic and mostly laid-back Windham Hill stable. It's a group that plays rock-inflected jazz, or jazz-inflected rock, or fusion-inflected blues, or something like that; a group that has attracted great praise from jazz critic Leonard Feather as well as pop writers and artists, and...

Attention, all music writers: this is one article that will not label Shadowfax's music; that will not invent a category by hyphenating a bunch of words like techno or ethno or Groucho or Chico. (Look, just because you use a

timbale or a button accordion or a tabla, does that make your music "ethnically influenced"?)

Greenberg bites down on that muffin.

"You know, we've never done anything except things that interested us. And a lot of different elements in the songs are just different things that we listen to that crept into the compositions. We never wanted to categorize it... Right now, when we walk into record stores and find ourselves in the New Age section, we want to *throw up*. I don't even know what New Age means."

(Maybe it has something to do with the notion that a lot of people who buy Windham Hill records—the bulk of the New Age catalog—are those who grew up in the '60s and '70s, and are now *newly aging*.)

Well, Shadowfax, hippie-ly enough, was named for Gandalf's canary or some such character from the Lord of the Rings trilogy. And Shadowfax *can* be defined, in fact rather exactly. It is a special kind of musical entity; one seemingly becoming more of an anachronism. It is a throwback to a time when friends with common interests got together to play music they liked—and stayed together—at least for more than a couple of albums, movie soundtracks, or drug overdoses (whichever occurred first). A time of those quaint little entities called *bands*—as distinguished from clusters of mousse-laden kids with one-chord guitars or groups of session guys playing homogenized licks with all the commitment of a pickup basketball team.

"Chicago," says Greenberg, "is an incredible place to put a band together because of the musical climate. If you're in L.A. or New York, you'd be so busy running around doing sessions, probably, or trying to get a career together, that you'd never actually sit down and try to work with a group of musicians over a long period of time and actually *be* a band. And Shadowfax actually is a band in the truest sense of the word."

Indeed. These guys are all flirting with 40 now—at least the core. G.E. Stinson (guitar, mbira, tamboura), Greenberg, and bassist Maggini have been together since about 1972. Drummer-percussionist Stuart Nevitt joined two years later. Called themselves the Yazoo Shuffle Band back then, and played shows with Howlin' Wolf and the like (Maggini, in fact, played on one of the Wolf's Chess albums—"an 18-year-old punk," he says, "and the only white cat in the studio.") Violinist Charles Bisharat and keyboardist David Lewis rounded out the current incarnation in 1984. The basic heart of the band has been together

(except for a period of depressed inactivity during the Great Disco Blight) for 14 years. They've now recorded five LPs for Windham Hill, the latest being *Too Far To Whisper*.

"If you look at the body of work we've done over the five records," says Greenberg, "that's pretty tough to categorize. It's an individual sound, and we try to keep changing. A lot of that is by design, because we don't want to be the kind of band that, if someone goes out and buys two Shadowfax albums, they never have to buy a third one—because the first two sound exactly alike. We always want to keep changing, and adding different things to what we do."

The addition of Bisharat and Lewis (former keyboardist for Ambrosia) was an effort to expand the sound of the group, readily apparent in the new record's extra body and textures. What hasn't changed, perhaps—what sets the band apart—is an ethereal, pastoral quality that pervades the compositions. This is cool music. Even when playing something blatantly rhythmic like "The Orangutan Gang (Strikes Back)," or delicately percussive items like "Slim Limbs Akimbo" (both from *Whisper*), there is a far-away, peaceful sense to the stuff. Even in the calypso-like "Maceo" (also from *Whisper*); it sounds like calypso, but it

sounds like Shadowfax. In this respect, perhaps, the band is wholly appropriate for Windham Hill. The music is sweet but intelligent; light but not lightweight; complex but not complicated.

And there is one more important new "expansion" on this LP—one that might have those "closet" Shadowfax fans a bit worried. (Many, incidentally, seem to have emerged from that closet—evidenced by 250,000 records sold for each LP and a recent series of sellouts at the Greek Theater in Los Angeles.) The new expansion is not Lewis's ubiquitous, dreamy synthesizers—not even the added (on *Whisper*) percussion of guest Emil Richards.

Nope. It's the good ol' human voice. That's right. Shadowfax, heretofore an instrumental band, is singing.

"It's strange that people should raise a hoopla over there being a vocal tune on a record," says Maggini. "It ties into the whole approach the industry has of categorizing things. In *New Age Music*, it's kind of a faux pas to have a vocal track. Well, this freaking band will just write tunes when it feels like it."

Adds Greenberg:

"Why sing? Why *not* sing? I think the whole problem is that when you're primarily an instrumental band, especially in the jazz idiom, a lot of groups will suddenly take some singer—usually a girl—and play a song that is

really not related to anything they do. Why? Because they see it as being a way to *commercially broaden* their horizons.

"But in the case of this band, I think we're looking for the right material. Is this a Shadowfax song? Is this a piece of material that's going to fit... I think they're good songs, and that's all that really matters."

If you think you hear disdain for the industry preoccupation with marketing and demographics, you do. These guys are no fans of the mainstream operating methods of the music industry. They recorded one album in the mid-'70s that went nowhere, and would not, probably, be recording at all today were it not for a chance meeting between Greenberg and Windham Hill recording artist Alex de Grassi. Greenberg had left Chicago during the disco horror, and wound up in L.A. working on one of guitarist de Grassi's early Windham Hill releases. Greenberg suspected Shadowfax might have found a home. Stinson and Maggini soon moved west also, and proved Greenberg correct.

"As far as record companies being interesting in things musically, they were not interested in Shadowfax," Greenberg continues. "There was a time when this band could not get arrested. They (the companies) were in-

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terested in what a 16-year-old kid in Milwaukee would buy, because that sold records. They would consider a quarter-million records sold as not being a valid thing."

With that, it's time to go next door and begin rehearsing one of those new vocal Shadowfax tunes. Next door? Right. Shadowfax rehearses in a little hip pocket of a studio adjoining the Cafe Trendee, or whatever. It's a cozy little joint, with more challenging decor than the cafe. For some mysterious reason, an odd painting of engineer Andronis lords over the room. Greenberg offers an explanation:

"We consider Harry part of the whole thing. Because he's really in control, if you think about it. You know, we're on stage, but he's out there mixing. Let's say he doesn't like me very much that night, I've treated him badly that day. So maybe—uh, sax? what sax? I'm in deep shit. So," he winks, "I would say that Harry is probably the most important member of Shadowfax."

The only other decoration is a poster of some Indian deity. In the adjoining "rec room," however, are other wall hangings that offer keen insight into the collective psyche of Shadowfax: a poster of a "Valley girl," Albert Einstein (with the quotation, "Great spirits have always encountered violent opposition from mediocre minds"), and one of William "Refrigerator" Perry.

"Don't forget the Refrigerator," says Greenberg. "He's our greatest inspiration."

Let it be reported here that the serene, lovely noise that Shadowfax creates does not just float easily and smoothly from their instruments. They do not simply jam together these effortless-sounding compositions. They work hard. The drummer really sweats. And yes, they bitch a little—with that kind of no-offense-taken license that comes from being old friends.

Stinson, an intense guy with a high-rise of mostly gray hair, spends about an hour leading the band through one tune—a new song that he wrote and sings. Working title: "Ashes and Dust." Kind of a cosmic number, from what could be picked up of the lyrics. But first there is some fine tuning. A keyboard is, for a short time, inexplicably playing by itself (maybe it's the Refrigerator). Greenberg struggles with his cords ("tell your readers never to buy Whirlwind cords—they're terrible"), and then Nevitt, without any warning, pops off the count. Suddenly the band is well into "Dust." And what sounds finished to the unfamiliar ear proves to have a few kinks in it.

Lewis complains, "It's not going anywhere. It's just floating. It doesn't groove."

Stinson half-smiles.

"It's a sax solo. It's not supposed to go anywhere."

"Try it again," says Greenberg.

And so it goes. Every time there is a sticky point, "play it again" is the solution. Sometimes Bisharat sits out. Sometimes the drums are busier. Sometimes there is added percussion, sometimes not. Stinson tells old pal Maggini rather pointedly to "lay into something more solid" on the bass, and to stop "greasing around."

"Ashes and Dust" is played a good seven or eight times that day; the sax solo portion more than that. Greenberg never seems overtaxed; his tenor fluidly and smoothly moving through the solo each time. And as time passed, the overall sound of the song did change; it took on more definition—almost imperceptibly. Finally, after the *n*th take—

"Did you hear what I was doing?" Stinson asks Lewis.

"No," says Lewis, "I was concentrating on what I was trying to do."

"Then it was a happy accident," says Stinson. "It sort of worked."

And such is the serendipitous process by which Shadowfax seems to operate. To arrive at those "happy accidents" as often as possible between all the planned and sequenced material. (The band is, in fact, moving more away from sequencing—learning to integrate sequenced music rather than to build around it.) And then, after the music falls into place; after enough "happy accidents" occur...

"Cappuccino time," Stinson announces. "Let's take a break."

Right. But go easy on that stuff, guys. You could get a reputation... ■

Clubland Report

Jocks band together in WARD

by Derk Richardson

The DJ cues up a record on the turntable. The needle hits the groove. The rhythm track explodes out of the speakers, igniting a throng of dancers into a giddy, delirious frenzy.

The ideal follow-up to this dance club scenario has the trendsetting club-hoppers mobbing the jock to find out the name of the record and dashing out the next day to buy the disc, sparking further interest in the song—which gets picked up by radio stations and becomes a smash hit. The club owner slaps his DJ on the back and says, "You're great, play whatever you want!" Record company promo folks smack their lips as another single breaks out. And the artists who cut

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the track bask in the neon glow of their "overnight sensation."

Occasionally it happens that way. Usually it doesn't. But in either case, we need to backtrack and ask how the record got into the hands of the disc jockey in the first place. For hundreds, if not thousands of dance club DJs (and a relative handful of radio jocks) around the country, the primary source of new vinyl is the record pool, a somewhat "grassroots" and vaguely cooperative configuration that channels the latest releases from those who turn a profit promoting product to those who try to make a living lowering tone arms for the dancing masses. In Northern California, branching out into a half-dozen other states, the most im-

portant pool is WARD, the Western Association of Rock Disk Jockeys.

For seven years WARD has been pooling records for its membership, which now numbers 100 and, while focused in the San Francisco Bay Area, extends into Washington, Oregon, Nevada, Arizona, New Mexico and as far as Colorado and Texas. In April of 1982 the organization started publishing the WARD Report, a bi-weekly newsletter that charts and analyzes the progress of records in clubs, on progressive Top 40 radio, and in selected retail outlets. Over the past year or so, the Report's scope has been expanded to include record reviews and artist profiles. If its staff members are able to realize their vision, the

Report will continue to grow, reaching the record-buying public, and extending WARD's clout from behind the scenes to the front lines of the rock music market.

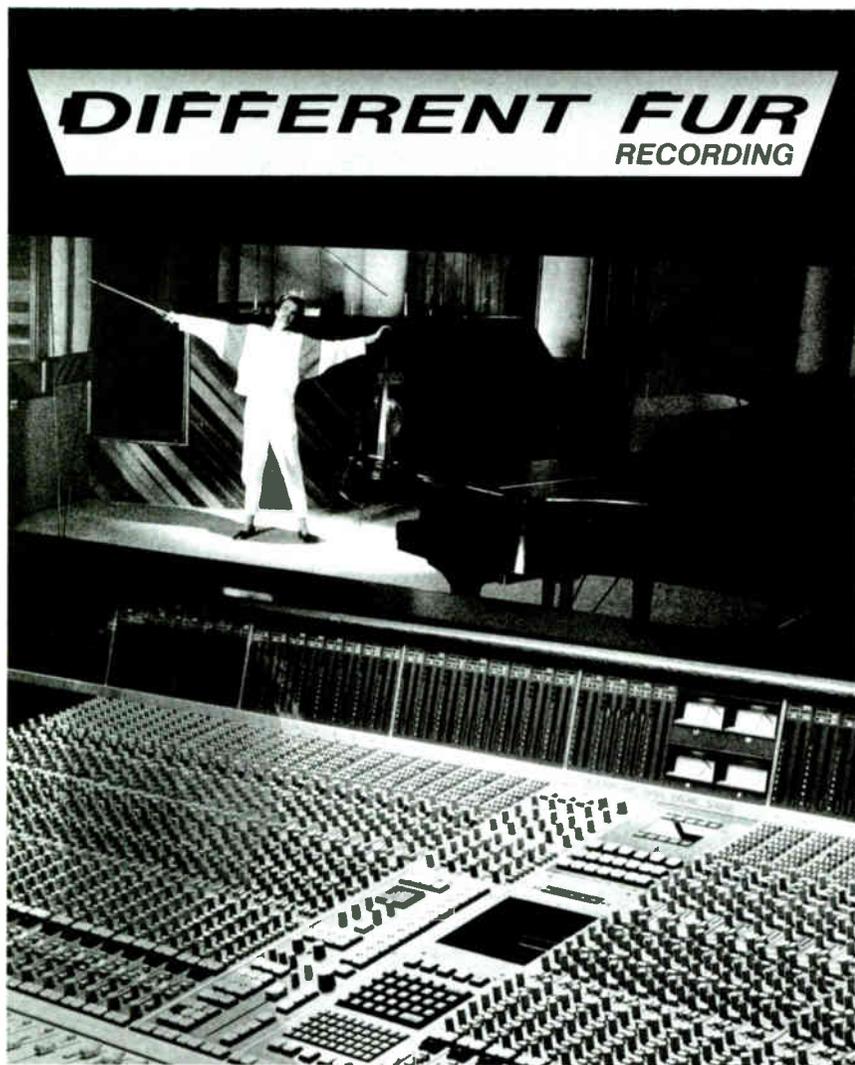
"Basically, what we are is a promotional arm of the record companies," says David Bassin, a prominent Bay Area DJ and editorial director of the WARD Report. "But we're also in it for ourselves. Our purpose is to try to promote the progressive dance music that we like. We hate mediocrity."

"We're also a source of promotion for the independent labels, which we really actively support—the labels that sign the artists who can do what they want and can create music that is interesting without worrying about whether Columbia wants them to go gold or platinum—who are putting out music for music's sake, not money's sake."

WARD was started in late 1979 by Alan Robinson, one of the first San Francisco DJs to play rock music in the city's gay dance clubs. Post-punk rock was beginning to challenge the reign of disco on the dance floors, and like-minded jocks began to band together. "Rockpool started the whole thing in New York," Bassin explains. "The need was to organize disk jockeys playing similar music, to provide people with records so they could play them. Then it became a way to get records from record companies." For record companies, the pools meant promotion, and the possibility of "building" a hit record through exposure in the clubs. "It had been done with disco for awhile," Bassin continues, "and with the rise of new wave rock, record companies recognized the need to increase their scope."

The WARD Report was inaugurated primarily as a "tip sheet" for the record companies, charting the progress of songs and offering revealing matchups with other product. The charts—Rock Club Top 50, R&B Dance Cross-over, Selected Retail Charts, Progressive Radio Top 40, and Selected Radio Charts—still play a prominent role in the Report. In the Sept. 18, 1986 issue, for instance, you could find Bananarama's "Venus" and the B-52s' "Summer of Love" topping the Club list, Run-DMC's "Walk This Way" edging out Janet Jackson's "When I Think of You" and UB40's "Sing Our Own Song" in R&B, and REM's *Lifes Rich Pageant*, The Smiths' *The Queen Is Dead* and Agent Orange's *This Is The Voice* holding strong on Progressive Radio. You could also find out what was selling in Long Beach or Denver, and what was being played on selected radio stations in Athens, Evanston, Bozeman, or Pasadena.

All that, however, seems consonant with the function of any record pool



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and tip sheet. So what makes WARD different? "We cover a lot of music that no one else does," Bassin asserts, arguing that geographical differences are reflected in musical tastes. "Generally people on the East Coast, especially in the metropolitan New England and New York areas, don't think anything else exists," he says. "And from a Western point of view, our music is different in many ways from what is happening on the East Coast." In the East, he says, disco and R&B dominate the dance floors. "I went to New York for the New Music Seminar and every club I went into played the same ten records," he complains. West Coast rock dancers, he asserts, respond more to the "darker side of rock spectrum—Bauhaus, Siouxsie and the Banshees, the Cult."

And a pool like WARD can have an impact on what people hear in their favorite clubs. DJs not only compete for audiences, they share their tastes and discuss what's hot, through their affiliation in the pool. Bassin points to such bands as The Cult and Gene Loves Jezebel, and such songs as Romeo Void's "Never Say Never," as having been catapulted into regional popularity largely due to the boost they received through WARD.

If a song's popularity can be affected by the pooling efforts of WARD, it's because the WARD membership is deliberately shaped into a "progressive" force. Not just anyone can join WARD and pay the \$60 monthly fee to receive records. "If they're playing Top 40, and that's all they're gonna play," says Bassin, who screens the membership applications, "they don't get in the pool. If they have a leaning towards something else, and show a decent creativity, then I look at their application seriously. But there are plenty of pools that service only Top 40, and there are plenty of pools that'll take anybody in because they want the money. We don't care about that. We have a reputation for being progressive and forward-looking."

But Jonathan E., club DJ and the WARD Report's outspoken production editor, doesn't think WARD is all that exceptional any more, because DJs are bowing to the conservatism of club owners. "By and large," he says, "radio is setting the pace because club DJs aren't taking any risks and aren't really providing an alternative to the songs you can hear on the radio." Jonathan E. plays and promotes African and Caribbean music almost exclusively and sees few other platter-spinners who are willing to go out on a limb for the music they really love. "Most DJs are stuck in a groove," he complains. "'Progressive' means sounding individualistic, fresh, having something

to say worth hearing. It does not include this whole current load of totally indistinguishable records. For example, the Stevie Winwood record; why bother to make a record like that? The thing sounds like everybody else's record. The dance clubs are real close to what discos were. Most are playing formula music, and they're not trying to break out of that. Although it might be moving records for the record companies, it's not *moving* anywhere."

But Jonathan E.'s pessimism about the pool does not extend to the Report. He agrees with Bassin, who says, "Only Rockpool (New York) and Tracks (Los Angeles) come close." Both men see the Report as a provocative force with its personalized columns, opinionated but acutely descriptive record reviews and special features. They would like to make the WARD Report accessible and available to the general public, offering, in Bassin's words, "the kind of writing that's going to inspire the person on the street to go out and buy that record, or say 'I agree' or 'I disagree'—something to stimulate thought."

The pool itself is not likely to grow. It could be bigger, Bassin admits, but, he notes, "dealing with 100 flaky DJs

is plenty. You're dealing with people who stay up late at night, take lots of drugs and drink, don't wake up till four o'clock the next day, and are delirious. In that case, you're working against a lot of odds and trying to make sense out of it." But WARD, the WARD Report, and the hardcore of dedicated progressive music boosters, are unwilling to stop making sense before the music has a chance to be heard. ■

Clubland Report/2 Remixes:

DJs as Producers

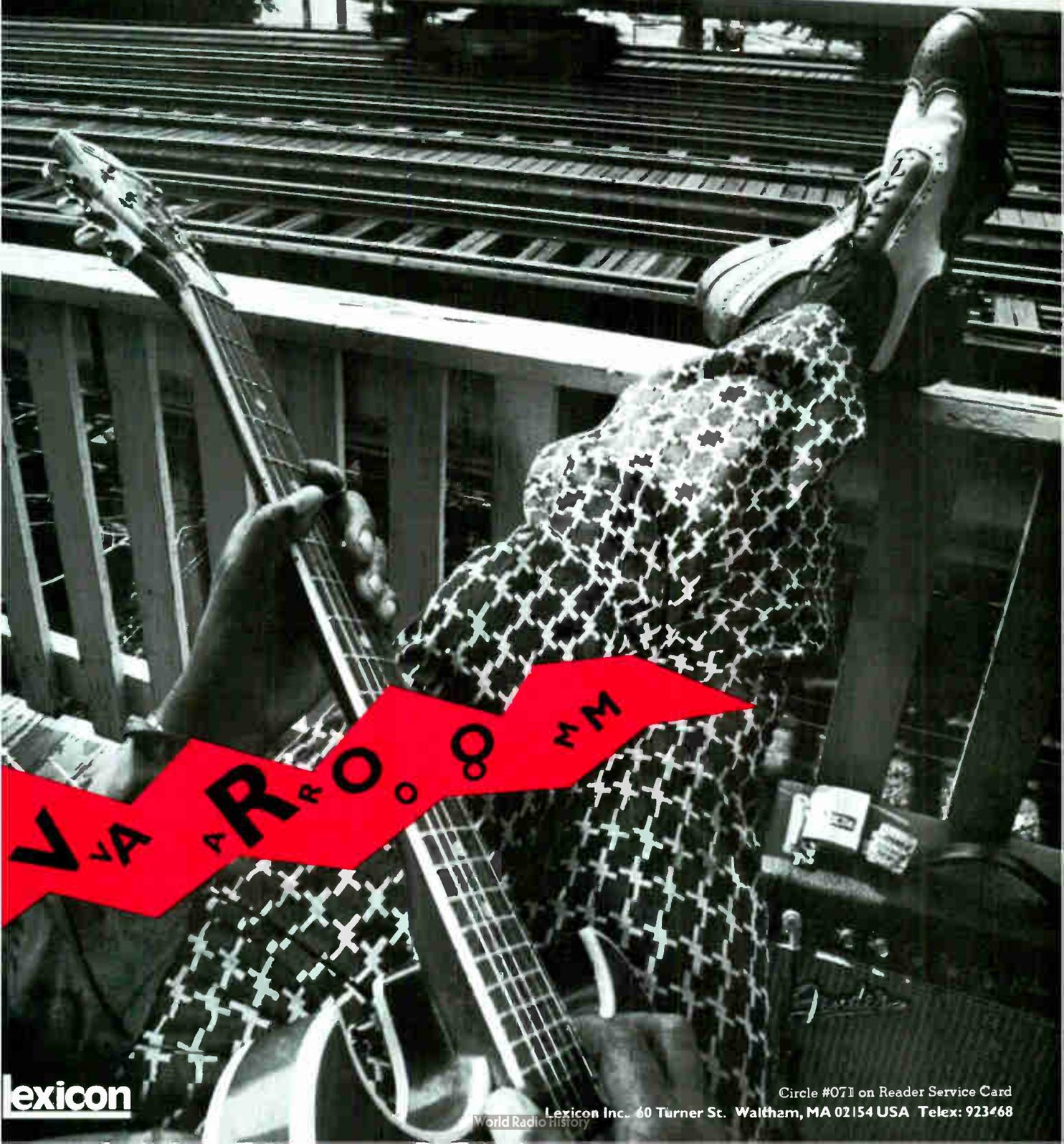
by Dan Daley

A revolution has swept the music business over the last decade, combining a powerful selling tool, a seemingly reliable economic barometer and perhaps the best new farm system for young producers since the mid-'70s: custom remixes made for play in dance clubs.

The M&M Team: Sergio Munzibai (L) and John Morales.



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"The remix concept started out as one guy sitting in his living room late at night turning a three-and-a-half-minute record into a six-and-a-half-minute record," says John Morales, who, with his partner Sergio Munzibai has been through the trenches as a club and radio DJ. The duo, known as M&M, have developed the approach that spinners need not necessarily be limited to playing only what's already in the grooves.

Morales began editing records on a 2-track in his apartment in the Bronx. "I'm a real freak like that," he says. "I'm one of those guys who takes the rent money and buys new gear. I'd spend every last dime I had on equipment."

Hunched over an MCI 2-track night after night, Morales recorded from vinyl onto tape and then began letting his imagination loose, looping, close-editing, adding half- and quarter-beats, dropping in sections of other records until the final product was drastically different from the original. "I'd sit at home every night editing as many as I could." He then took the tapes and made acetates for sale through a specialized retail outlet. "It was a way for me to be there, to be involved with the music," he says.

Meanwhile, Sergio Munzibai was getting a foothold at New York's WBLS after a career as a music teacher and DJ. He began doing specialized mixes at the station, which was embroiled in a ratings war with WKTU during the phenomenal rise of Urban Contemporary Radio in the early '80s. "Back then, BLS and KTU were going at each other to see who was going to be Number One in the country," he recalls. "They had a lot of freedom at the time, not like now with Hit Radio formats. They could play something five minutes long and get away with it."

The ratings war was managed for BLS by the legendary Frankie Crocker, who as program director instituted the playing of customized versions of songs for the station. "If KTU was playing a record," says Munzibai, "Frankie didn't want to play it exactly the same. He wanted something special."

Both Morales and Munzibai were up to the challenge. The latter moved from programming consultant to music director and later PD while Morales worked special shifts with his home-mix versions. "Frankie would say he wanted, for example, a different intro or an extended version," says Morales, "so I'd cut it up."

"And it had the stamp of BLS," adds Munzibai. "You wouldn't hear [that version] anywhere else. It became a big war over who put out the best mixes."

Morales and Munzibai began working as a team in 1982. That same year,

Munzibai was approached by a record company to create a remix from a multi-track master for the first time. He asked Morales, who had been honing his chops as an audio engineer, to help him. It became the first of more than 375 records they've worked on together to date. Interestingly, the record was one that failed on its initial release: the Fantastic Aleems' "Get Down Friday Night." The record company, NIA, felt it had nothing to lose by commissioning a remix, according to Munzibai. "At first it was tunes that needed help and we were called in to doctor them. Then, as we got better known, we got called more for dub [mainly instrumental] mixes before the record was released."

The attractive thing about remixers, according to Munzibai, is that they provide a "third ear" in the record-making process, after the artist's and the producer's. Morales' analysis is much more utilitarian. "I think the bottom line on all this was that the record companies needed to make more money." Munzibai has to concur: "It became another promotional tool, a cheap way for a label to expose an artist. And there are always the small labels that can't afford to take big ads. The 12-inch is a tool that they can afford to use."

While remixing began with dance records, its implications as a promo tool for other, more mainstream acts was soon evident to record companies. "They're trying to cash in on what remixing has done for dance and R&B music, which is to expose it to an otherwise unreachable audience," says Morales. "You get a hard rock tune and black clubs are not going to play it." That is, until it's doctored by remixers like M&M, who added heavier backbeats, boomier bass and additional overdubs to records like Heart's "If Looks Could Kill," The Style Council's "Long Hot Summer" and the Rolling Stones' "Too Much Blood," making versions more amenable to discos.

The 12-inch format has become both a way to draw additional revenue from records already successful in LP versions and, perhaps more significantly, to give new artists a run up a flagpole to gauge consumer response, a sort of American Bandstand Rate-a-Record played out nightly in key urban markets across the country.

"Dance music has always been the bastard child of the industry. We take these records that theoretically should never see the light of radio . . . and get them out there," says independent record promoter Brad Le Beau, the young owner of Pro Motions in Manhattan. "We only work on independent 12-inch records and we only work on records we like," says the former

Xenon and Magique DJ, who also manages M&M. "The club circuit is an important pivot for many acts, especially new ones. There are acts that we've worked with that have depended upon it."

Le Beau sees the dance category as being different only semantically from its progenitor, disco, whose demise in 1979 was "a self-fulfilling prophecy" due to a combination of market saturation and general economic malaise. "When people went back into the business and came out with records you could dance to, instead of calling it disco—since disco was dead—you had to call it something else. So you called it a dance record."

But so-called dance records don't have to be by Donna Summer to earn the sobriquet, according to Le Beau, who points out that all the singles from Springsteen's *Born in the U.S.A.* were released in 12-inch form. "It's a tool to fool the public," he declares. "You're paying \$4 for a single instead of \$1.50. So you get two more minutes (of music); it's still the same song. If you buy a single, you get an A side and a B side, two different songs; on a 12-inch you never get different songs, you get an instrumental. The list price on a 12-inch is \$4.98; the list price on a single is \$1.78."

Le Beau feels that mainstream, MTV-acceptable acts like the Thompson Twins, whom M&M have mixed, gain relatively insignificant additional sales from 12-inch remixes; the real benefit, in his opinion, lies in the exposure it gives to new acts, particularly those on smaller, independent labels. The importance of the clubs is that success there increases opportunities to get the radio attention a record needs to sell well nationally. No small order in urban areas like New York, which Le Beau's assistant, Nillie Adams, characterizes as "a very tired radio market. We don't have any urban programmer in this market today who is going for guts or is willing to go out on a limb. Frankie Crocker was the last of the breed." Amplifies Le Beau, "If a record doesn't happen in three days, they pull it. They have the attention span of an after-dinner mint. . . You have more and more product and fewer outlets for it."

Given that what a disk jockey chooses to play—or not play—can make all the difference in the world for a new record, it would seem as though that end of the industry would be ripe for under-the-counter "inducements" to jocks to play certain records. But, Le Beau contends, "It's as pristine an area of the business as you can get," since—like college radio, to use his analogy—the clubs are neither dependent upon nor influenced by

advertising dollars. "The DJs can play music for music's sake," he says. While Nillie Adams admits that the term "independent record promoter" has been dragged through the mud recently because of renewed payola charges, Le Beau believes that the vast majority of indy record promoters would rather be creative than corrupt. Le Beau himself limits his gratuities to promo items like turntable covers and baseball hats.

That assessment seems to hold up in the field. Says DJ Justin Strauss, who spins at the chic Manhattan discos Area and Limelight, "Every once in a while you'll get some sleazy record promoter who'll offer you something, like drugs. But I don't do anything that they could offer me. I've never taken anything for playing a record."

Strauss, like most DJs, chooses his own material, combining personal taste with that of the club's regular crowd. He has also been dabbling in the art of DJ remixes, including some newer twists showing up on the scene. "A lot of DJs sometimes play along with a record with synthesizers or drum machines, changing [the record] right then and there; changing EQs, taking out the bass and then putting it back in, remixing the record live right there in the DJ booth. You

can create tremendous tension and effect that way.

"People are getting more into creative remixing, almost to the point of re-producing the records. The couple of things I've worked on I've practically done all my own production, adding percussion and new bass lines on songs. In one case the artists really loved it; in another case they really freaked out. So it depends—they give you something and you do what you think will make it a better dance record."

Strauss says he sees more and more radio program directors hanging out in the clubs, as they did years before, listening to what's being added. "They want to get more in tune with what's happening," he says. "Obviously radio reaches out to a larger audience, but if the radio stations are listening to the clubs, that makes [the clubs] more important in that respect." That growing taste-making role that club DJs have developed has led to closer relationships between them and some record companies. Those companies in turn are offering to let the spinners do more mixes, giving them greater latitude in the control room, and in general regarding it as a sort of *quid pro quo* for helping break the records, which, Strauss reasons, is "taking advantage of your position,

but not using it for corrupt purposes."

Strauss sees the trend moving from just radio and club remixing to DJs becoming the initial producers of records, and in some cases, becoming the artist, too. [ed. note: ask Arthur Baker of Jellybean.]

For their part, M&M have been moving more into full production of records, but the transition has its rough edges, since, according to John Morales, many companies still perceive DJs as remix artists limited to post-production work and tend to pigeon-hole them as such. One point in their favor, he feels, is that, "Companies are realizing that it doesn't cost much more to let us produce all the way than just to remix."

But the Yellow Brick Road of club mixes is wending toward an uncertain horizon, with perhaps more product coming down the pike than the road can easily accommodate. "There are so many unnecessary, useless 12-inch records that come out from other records," says Justin Strauss. "Every record these days seems to get a 12-inch remix whether it warrants it or not."

Brad Le Beau sums up the near future in one word, "Overload. Good records are going to get lost in the shuffle. All I hear is there are too many records out there. It has to lighten up."

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by Rich Macar

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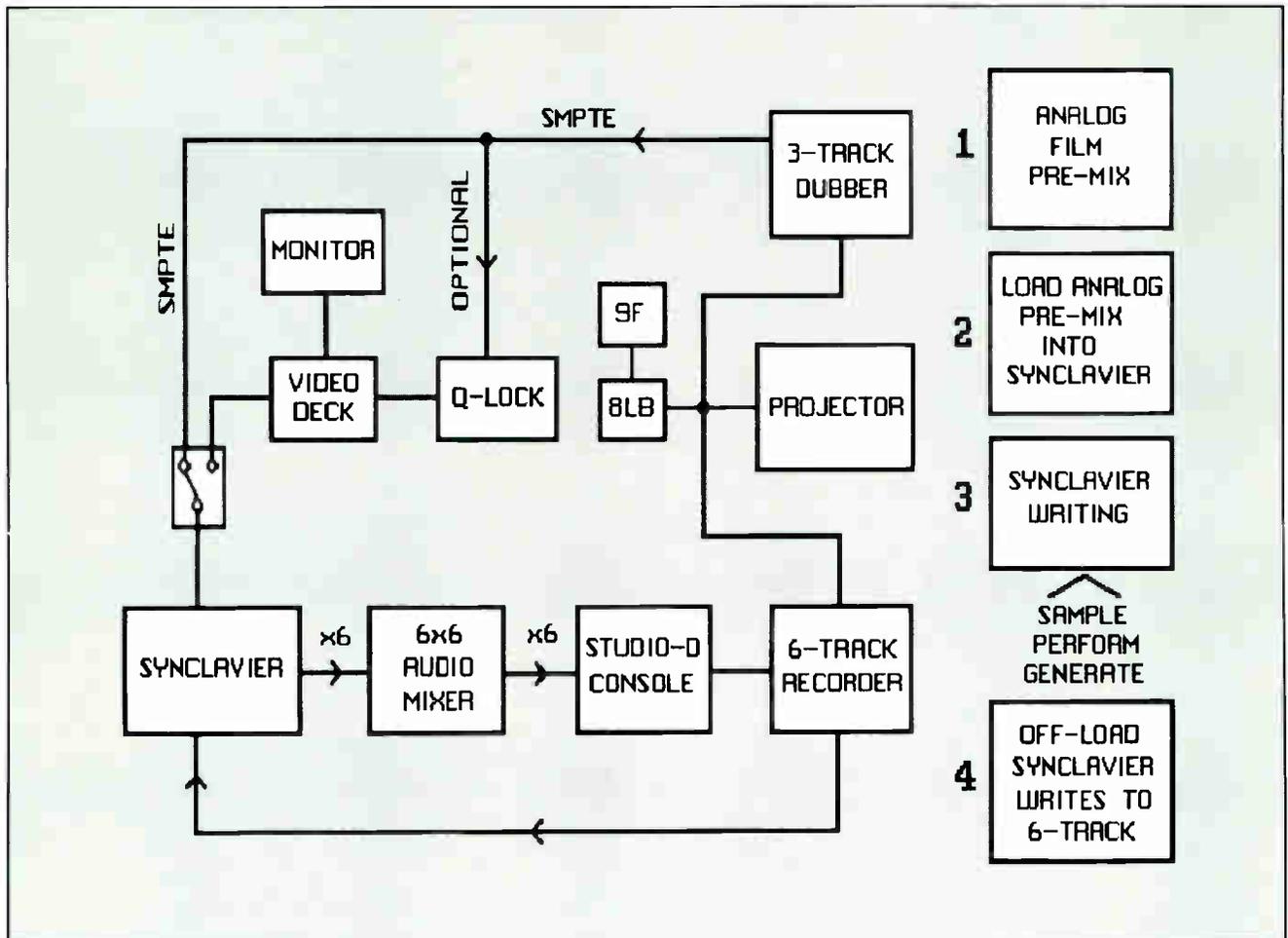
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Figure 1: Signal/Synchronization Flow Chart



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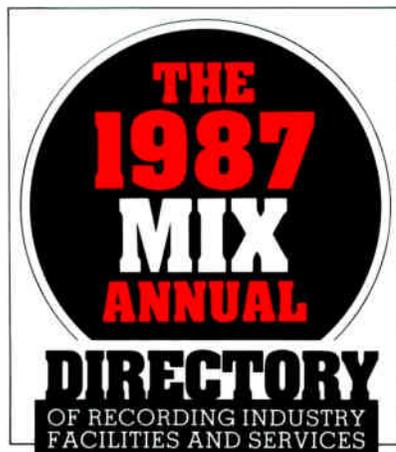
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Stephen King's last film, *Maximum Overdrive*, a suspense story about trucks that come to life (thanks to a comet) and start killing people. I teamed up with Christopher Hyams-Hart, sound composer, as a Synclavier programmer. My brother Alex provided the Synclavier. Together we were to execute an idea of Chris'—to program the Synclavier to marry animal sounds to truck premixes, in effect giving the trucks life. The Synclavier has 32 synthesizer voices, 16 polyphonic voices, 10-megabyte hard disk, super floppy disk, Kennedy tape drive and eight individual outputs, MIDI along with SMPTE interface.

We were anxious to establish our process, but we had to consider what sound designer Greg Sheldon, picture-editor Evan Lottman and, of course, Stephen King had in mind. Along with Lee Dichter and Mel Zelniker (the film's mixers) and Don Costanzo (Sound One's technical adviser), we all met and discussed everyone's ideas. Our primary problem was to test a synchronization system. Engineers Bob Troeller, Stanley Kastner and Avi Niado drew a diagram showing our process (Fig. 1) which involved transferring film to video straight through, once for dialogue reference and again with truck premixes, as each reel was completed by Neal Kaufman. We would then compose to truck premixes and then check to dialogue. Afterwards we would dump to 4-track mag. When they transferred video with code, they would also record a mag stripe with the same code. Thus, when we would dump to mag we would use the mag stripe code rather than the code on the 3/4-inch machine when dumping our sequences. Though there were doubts from the film community, we tested the system and all worked well. The SMPTE interface of the Synclavier worked very well.

We were set up on the third floor of Sound One on Broadway in New York, next door to the machine room of Studio D, where the film was being mixed. This was convenient when we dumped to mag because we could run reasonably short cables down the hall, to the machine room patch bay. The individual outs of the Synclavier are at mic level which posed a problem; the Neve console was not wired for microphones because it is primarily a mixing room. This caused some confusion because the Synclavier indicates +4 output which would imply line level. The technicians at Sound One were extremely helpful in pursuing the problem. However, we ended up using an Audioarts console to pre-amp the outputs to line level.

From this point, we buried ourselves in this windowless room sampling

every animal sound we could find. Chris screened the tapes and I sampled and edited the samples. We spent many hours watching the film, listening to the trucks, premixing, and discussing the personalities of these trucks. We assimilated certain trucks to certain animals. We even created samples vocally using different people for different trucks. We then performed sequences to picture using the polyphonic feature to double voices or poly the samples at different sampling rates. Sometimes we would analyze the truck sounds by sampling and then viewing them on the terminal. And with the Synclavier, we were able to edit and correct our performances to the burned in code, typing in changes on the multi-track display. An unexpected issue arose concerning the placement of sound effect to picture, especially with events. Greg, Evan and eventually Stephen, primarily had to make these decisions. At times we were before or behind visual events. Chris and I encouraged them to decide before we dumped because of the flexibility of the Synclavier. Once they saw how we would slide tracks, events and change sampling rates, etc., they got into it even though they are so accustomed to waiting until the mix to slide tracks with the mag machines.

As our research developed, we previewed out developments for Greg and later to Evan and Stephen for their feedback and approval. The Synclavier plays back sequences just like a multi-track with no need for rewinding, although a preroll is necessary.

We spent ten weeks composing and recomposing right up to the final mix. We dumped our work to four tracks on mag, so they could mix in traditional film style. We could have locked the Synclavier to their final mix but they preferred a mag copy.

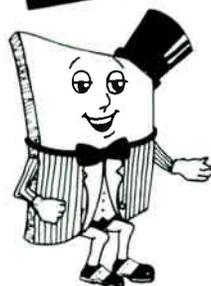
In all, many of our sounds were used, and King was most delighted. Still, the ones used amounted to approximately 20% of what we generated. Our sounds, especially of idles and revs, followed the truck premixes, amplitude envelope so closely that when mixing the two there was a lot of room for taste discretion. They could be subtle (felt, not heard) or outrageous and scare the pants off you. Just like a Stephen King story should. ■

Rich Macar freelances in New York City as a music/sound composer and audio engineer. He recently scored the feature film *Real Trouble* with Christopher Hyams-Hart, worked for Francis Coppola on *Peggy Sue Got Married*, and composed the music for a national television commercial presently airing for Bausch & Lomb.

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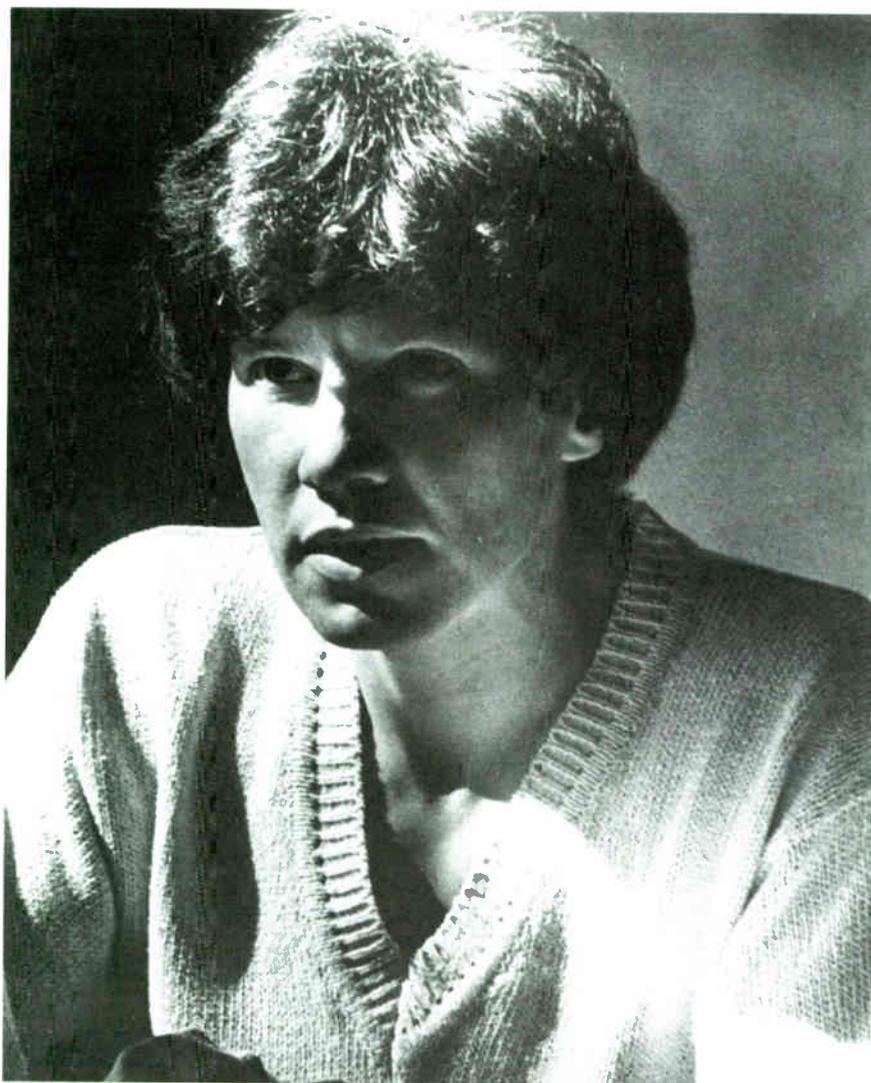
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BERNIE KRAUSE

RECORDING NATURE'S MUSIC

by Blair Jackson

I first met Bernie Krause in 1979, when I was working on a story about the scoring of the film *Apocalypse Now*. He had been brought into that project because of his pioneering work with synthesizers through the years, and much of our discussion that afternoon focused on the remarkable patches he'd created for Francis Coppola's landmark Vietnam war epic. But seven years later, what I remember most from my hours with Krause is a tape he played me after our interview was over. It was a field recording he'd made of some wolves, as I recall, and I was struck by the sheer musicality of the beasts; in fact, it all reminded me a bit of Jimi Hendrix's screaming, feedback-laden version of "The Star Spangled Banner." Krause told me that day his dream was to make records using animals as "instruments," and that his work in electronic music, animal recording and bioacoustics was leading him to a fascinating new synthesis. Last summer, that nascent dream became a reality.

The fruit of Krause's labors is a remarkable tape called *Equator*, sold exclusively through the stores and 2.5 million mail-order catalogs of the Northern California-based Nature Company, which specializes in what Krause calls "the environmental arts"—ecology-oriented lithographs and photos, *objets d'art*, books, toys, maps, etc. Side one of *Equator* is "an aural reflection of the terrestrial environment of Africa," according to Krause. Essentially it is a compressed version of an entire day at an East African water hole with some synthesizer accompaniment. Side two is a beautifully constructed progression of natural sounds emanating from aquatic environments.

"The second side is interesting because it begins up in a mountain stream, and then heads down to the ocean," Krause explains. "So you start with spadefoot toads and as you head downstream, those segue into seagulls as it moves to the ocean. You hear the waves and then you actually go through the waves and then the first thing you hear are killer whales. Then you hear humpbacks and then that segues into fish.

"Now, nobody has heard fish before," he says with a chuckle. "Nobody knew they made that much noise. But actually they're very percussive. They grind their teeth or they make their air

bladders boom like a bass drum. Then there are actually drum fish that sound like drums. There are fish that sound like a closed hi-hat. From the fish, you then hear the sound of a boat moving through the current from a couple of hundred feet below the surface, and it eventually goes up and out of the water again."

Admittedly, *Equator* isn't about to challenge Whitney Houston on the pop charts, but the tape has been a strong seller for Nature Company, which projects eventual sales to hit somewhere between 75,000 and 100,000, an amazing figure for such an esoteric product. And no one has to pay any royalties to the "musicians" on the tape—the 23 species of African birds, the elephants, monkeys, hyenas, baboons, shrimp (!), walruses and fish with names like puffers and croakers.

Krause has been on the cutting edge of music for more than two decades. He first came to prominence as a member of the latter-day Weavers folk group, but when he hooked up with jazz pianist Paul Beaver to form Beaver & Krause in 1967, he found himself midway between the pop world and the avant-garde. Beaver & Krause purchased the third Moog synthesizer produced for a then-hefty \$15,000 and essentially introduced the rock world to that new technology. Their synth session credits include work on albums by The Doors, the Stones, the Beach Boys, The Beatles, Neil Young and many others, and they were the first musicians on the West Coast to use a synthesizer in commercials.

Beaver & Krause also put out a series of highly eclectic albums, including *Gandharva*, the critically acclaimed and influential Nonesuch *Guide to Electronic Music*, and the conceptual forerunner of *Equator*—1970's *In a Wild Sanctuary*, which included Krause's first nature recordings, made with a couple of crude Uher portables. Beaver & Krause came to a sad and abrupt end in 1975 when Beaver died of a stroke. Krause threw himself into commercial and some film music work and in the late '70s went back to school to earn a PhD in creative arts with a specialty in bioacoustics from the Union for Experimenting Colleges and Universities, a coalition of top progressive schools.

"The reason I went back to school was it gave me access to resources in the environment that I otherwise wouldn't have had access to," Krause says, citing the Antarctic as an example. "Academia simply affords you more possibilities.

"When Paul died in '75, there was a real problem for me because I'd always been connected with someone

on some level—first with The Weavers, then Beaver & Krause—and I'd never really found my own voice. And it took me a long time to figure out what that would be. I knew I didn't want to be in a recording studio all my life and that I needed to get out in the field and do some recording. I didn't want to compete with other keyboardists, because I'm not really a keyboardist—I mostly fake it. But I think I am a good musician and I wanted to do something different and accessible. *Equator* came about as an idea when I went back to school, and I've been trying to sell it ever since."

It was commercials, primarily, that paid the bills in the early '80s, but Krause generally found that kind of work unsatisfying. "There's a real paucity of imagination in that world," he says. "I've worked on about 2500 commercials, which is not something I'm particularly proud of, except for a few. During the '60s and early '70s there was a creativity and ferment in the advertising community that has long since disappeared. Today, I find there to be a pervasive acceptance of mediocrity. The emphasis is on production value rather than real substance. There's plenty of flash but it's mainly empty flash. There's no soul."

When a leading commercial agency illegally used some of his music in a

spot, Krause won a substantial favorable judgement that allowed him to curtail his commercial work and to spend more time pursuing his nature recording. Upon completion of his PhD work, the California Academy of Sciences sponsored a trip to Africa, where Krause made his watering hole recordings using a Nagra IV-S stereo recorder with Schoepes 541 microphones. His tapes were edited to be part of an exhibit at the Academy of Sciences' museum in San Francisco and then he began adding his own musical ideas to the tapes, with an eye towards perhaps finally making his dream album. He added bits of Moog, DX7 and Kurzweil and combined them all on his 4-track Tascam 34 recorder.

Then came the really hard part. He sent out 185 cassettes to every conceivable record company, "and out of all that, I only got back one form letter, which was a rejection. One. No one would return my calls and it got real depressing, to the point where I didn't know what to do with it." He took it to the Nature Company in June of '86, and also submitted a proposal to set up an audio and video arts program for the company. The president of Nature Company flipped over Krause's work and summoned him to his offices. "It was unbelievable," Krause says. "The contract negotiations took 15

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minutes, and I had a check in 20, and that's no exaggeration. From there I completed it."

Recording in the wild has presented its own set of problems to Krause through the years, not the least of which is the effect of changing climate conditions on sensitive recording equipment. "The jungle, of course, is very, very damp," he says, "and when you're using condenser mics they have a tendency to fizzle and pop a lot—the moisture produces a lot of noise. So you have to keep the mics dry. I found in Africa the best way to do that was to put a kerosene lamp under the mic stand during the night."

When he was airlifted to a remote Alaskan wilderness, he was faced with different dilemmas. "It was so cold I'd wake up in the morning, take the batteries out of my Nagra and put them

the water. *That* was scary. I went back and got about a 200-foot cable from the scientific station nearby and never went close to the edge again!"

The ambitious second side of *Equator* is comprised of recordings made in a multitude of spots under varying conditions, and even some sounds recorded by the Navy in the '50s and '60s. "You'd be surprised at some of the stuff the military has recorded through the years," Krause says. "The Navy has submarines that have 3000 hydrophones mounted in the hull. They've done extensive studies on the sounds fish make so that when they're listening to things in the ocean they know what they're picking up. With most of the fish on the tape, because of the way they were recorded and the generally poor quality of the recordings, we had to sample them in an

"What I'm trying to do essentially is use the environmental sounds themselves as elements of orchestration and score them in the same way you might score a film."

under my arm for a couple of hours to get them warm enough so they'd work. I was up there for two weeks, completely alone and it got to be routine." Less routine was his encounter with a scavenging polar bear outside his tent one morning—he shot it in the chest with his flair gun and the beast scampered off.

Thousands of miles south, in the Antarctic, Krause's attempts to record the marine life under the ice put him in another perilous spot: "I was working on the edge of the ice recording, and I saw a huge killer whale spyhopping [looking above the surface] a ways in front of me. It was a rare nice day—about 15 below, as I recall. Anyway, the whale went under and all of sudden it leaped onto the ice, slithered over to this group of about 30 emperor penguins that were behind me, got one of the penguins and slid back into

Emulator 2 and EQ them pretty heavily to bring out the qualities we wanted for the 'rhythm section.' And we added echo, of course.

"The humpbacks and killer whales had natural echo. But we also programmed them into the Emulator for one of the middle passages there so we could bring them back on keyboard and play them in time, so we didn't have to loop them."

Equator is only the most visible of Krause's current projects. One of his major sidelines is working in audio forensics, where he is frequently called upon "to clean up tapes that have been recorded by the FBI or local law enforcement people, usually working for defense attorneys. There are computers that can clean up sound, take out background noise, and make conversation intelligible. I also do analysis to see if there's been tampering with the

tapes, and often enough with state and local police, there has been evidence of tampering."

A year or so ago, Krause also achieved some brief celebrity for being the director of operations for a team of scientists and naturalists who successfully lured a whale that had swam through San Francisco Bay into shallow river waters back through the Bay to the Pacific Ocean. Krause was widely credited with saving the whale—nicknamed Humphrey—from certain death.

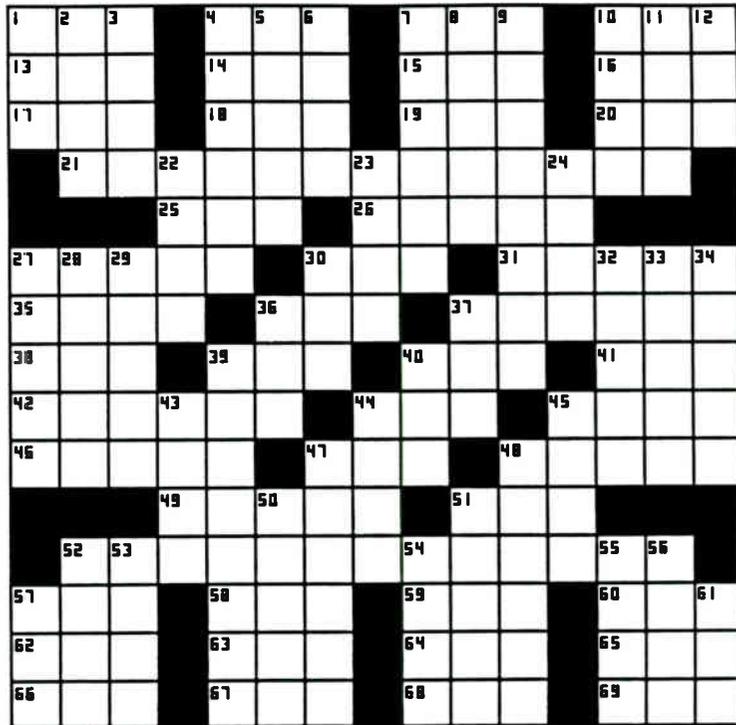
"Basically, we had to trick it," he says. "We played back recordings made by a student at the University of Alaska of whales coming together in a group. We processed the tapes with a computer and changed the frequency and the time base and the echo and basically changed the characteristics enough so the tapes would sound different all the time so the animal wouldn't habituate itself to it. We played the tapes through this big Navy underwater speaker that's worth something like \$17,000. And eventually it worked."

Krause is already working on his next project for Nature Company; this time it's a sonic tapestry showing "the anatomy of a storm." And, of course, he continues to spend much of his free time off on recording trips. When we spoke, he was getting ready for a trip to a remote California lake where he was going to try out some new equipment—a Colossus, 4-channel U-matic digital recorder. "To be honest, I'm not sure how much difference recording digitally will make on this sort of recording," he comments. "In the environment there's a lot of background noise and a lot of white noise. Even the most anechoic place has its own ambience that's special and unique and noisy. Forget tape hiss—you've got life hiss!"

After recording everything from sperm (the wagging tail sets up a frequency) to whales, one would think there aren't many frontiers left for Bernie Krause. But his ground-breaking and exciting *Equator* shows that he's actually just starting to tap into the potential of nature recording. "What I'm trying to do essentially is use the environmental sounds themselves as elements of orchestration and score them in the same way you might score a film," he says. "When Paul [Beaver] and I started working together with the synthesizer, one of the first things we found was that music no longer had to be relegated a 12-tone scale. Really, what music is now isn't 'notes' but the control of sound. It's up to the artist to push the limits of what that means."

And Bernie Krause is pushing it to the furthest reaches of our planet. ■

Mix Words



ACROSS

1. Prohibit
4. New vocal style
7. Certain bev.s
10. Hat
13. Prayer
14. Compass pt.
15. Brick ____
16. Poem
17. Tape thickness meas.
18. "____ Duke"
19. Agcy.
20. Earnings
21. Tape parameters
25. Pub fare
26. Beach Boy bike
27. Sam ____
30. Type of "ex"
31. Accumulate
35. Tapestry
36. Crude
37. Internal program
38. Youngster
39. Latin being word
40. Hip extreme
41. Comparative ending
42. ____ Fideles
44. Diamond ____
45. Bear's team
46. Acoustical searcher
47. Bricklayer's tool
48. Flower
49. Belongs to a Roman emperor
51. Album credit (abbr.)
52. Taping spec
57. Cousin
58. Evans
59. Top grunt
60. Outside prefix
62. Metric measure
63. Half a fly
64. Map abbr.
65. However, to Burns
66. Austin dude
67. "Tell ____ No"
68. Another 39A
69. Sweet nothing

DOWN

1. Music mag.
2. Zealous

3. Depend
4. ____ value
5. Elemi
6. Elf
7. Elf king
8. Shade of red
9. Industry ____
10. Calibration ____
11. Coolers
12. Series winner
22. Zilch, in 28D
23. Food or dog
24. Up for
27. Casa rooms
28. Spanish gallery
29. Eve ____
30. Type of shaft
32. Kurd
33. Appears

34. Wander
36. ____ the day
37. ____ Joey
39. Signal ____
40. Get ____ of
43. Warbled
44. ____ Horizon
45. Type of sax
47. Shout
48. Stall
50. Poker bet
51. Poetically close
52. Dry
53. Holly
54. Gape at
55. Noah's son
56. Outboard gear
57. Tease, in a parlor
61. Weight





ELECTRO SOUND'S **BOB BARONE** LOOKS BEYOND THE "TECHNOLOGY SCARE"

by Philip De Lancie

Freedom of choice is among the most fundamental features of American life. From the polling place to the marketplace, we expect to be presented with a variety of options, each competing vigorously for our favor. As our rate of technological development

accelerates, the array of possibilities available to us continues to expand. In home entertainment related fields, for instance, we see the proliferation of audio and video formats, with the compact disc, 8mm video and rotary head digital audio tape [R-DAT] being the most recent examples. Unfortunately, while this explosion of alterna-

tives promises opportunity for many, it brings with it great uncertainty as well. For those who can't afford to make the wrong choices, these are dicey times.

To the average consumer, choosing a soon-to-be-outmoded format, model or feature in a product may prove to be frustrating or disappointing, but rarely catastrophic. On the business side of the music industry, however, committing resources to a format that may not be around in five years is potentially suicidal. The future of many companies rests almost entirely on their ability to foresee tomorrow's market when making today's capital investment decisions. But with three main prerecorded music formats already vying for dominance, and R-DAT waiting in the wings, the future market situation is far from clear. Unpredictability means risk, and some companies may be so afraid of taking the wrong direction that they choose to do nothing at all until trends come further into focus.

"When you look around the U.S. audio duplicating industry," says Bob Barone, president of Electro Sound, Inc., "and you see almost every plant that we have information on running flat out, full capacity, and nobody buying any equipment, you really have to question what is going wrong." Barone, whose Sunnyvale, California-based division of the Electro Sound Group manufactures cassette duplicating equipment, has understandably given the matter a great deal of thought. "I attribute the whole thing to a sort of technology scare that is running through the industry today. Nobody knows what is coming next or how fast. What's the total impact of CDs? What is R-DAT going to mean? Because of these questions, everybody is afraid to make large capital expenditures. So they're sitting back and waiting to see what the world is going to bring."

At Electro Sound, this reluctance to invest on the part of duplicators has already made itself felt. Barone announced in mid-October that the company would not go into production with its new 4800 series cassette duplication master, which it had been touting as "the most advanced duplicating system in recorded history." "The slave is done and it's out there,"

Barone explains. "We're already selling them, and people are accepting the new (4800 series) slave for use with the older master machines. Now that we've got it, we're going to continue with it. But I had to make a big decision about entering the new master into production. That's a major dollar decision. We had been marketing the thing for seven months. We had put extensive money into advertising here and in Europe. And I would be surprised if we had three serious inquiries. So it didn't look like we should make the next big jump and go out and dump hundreds of thousands of dollars into inventory to build the first run of masters. It just isn't worth it."

Barone hastens to point out that the decision, though disappointing, is not indicative of troubled times for the company as a whole. "I've got sales. I'm selling the old line equipment overseas. So, in terms of the economics of my company, I'm not hurting. But in terms of the technology which we really thought we were bringing to the field, it was a yawn."

"If I went to any of our potential customers and offered them a system just to try," he continues, "they would all have been glad to try it. But if I offered to sell them the system with a money back guarantee, they would

say no. Nobody wants to commit."

Naturally, drawing any broad conclusions from the industry's reaction to just one new product seems a bit risky. But Barone is convinced that ElectroSound is not the only manufacturer affected by the uncertainty factor. "I know generally from my competitors that they are facing a similar type of sales slowdown. Whether they have tried to introduce new technology, and haven't had it be fully accepted, I don't know because I haven't seen anything like that from any of them. But certainly the sales slowdown is evident everywhere in the U.S. All my sales are going overseas."

"Basically, we have two sets of problems in the U.S. One is that the major companies like CBS and RCA, because of the economic things that are going on within their own corporations, just aren't doing anything right now. The other companies don't want to commit to capital expenditures until they see a clearer picture of where the technology is going."

Of all the factors that conspire to frustrate music industry fortune tellers, the questions surrounding R-DAT are among the most vexing. Barone has no doubt that R-DAT is a major reason for the wave of caution in duplicating circles. Indeed, there are those among

his clients who view R-DAT as not merely a question mark but rather as a deadly threat. "I'm dealing mostly with labels, not only independent duplicators," he notes. "The primary feeling of most label people reflects the A&R side of the business and not the manufacturing side. They're going to try to hold R-DAT off for as long as they can."

The reluctance of the labels to welcome R-DAT into their family of distribution formats stems, of course, not only from their stake in cassette duplication capacity, but from fear as well about the effect of R-DAT on the development of the CD market. That is a concern that is viewed with a lot of sympathy at Electro Sound. "We've just done a joint venture with Mitsubishi to put in a CD plant in Texas," explains Barone. "We just committed \$15 million. For a small company like Electro Sound, that's like betting the company. So, corporately, we feel that since we're going so deep into CDs we'd just as soon go with the crowd and let R-DAT get pushed back."

While Barone well understands the reasoning behind the widespread antipathy toward R-DAT in the industry, his personal views lean towards accepting the inevitable. "I don't think they can hold it off. Certain Japanese



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companies that are hurting are not going to let R-DAT be pushed back. I look at a company like Sony, and I have to believe that they are hurting with the death of Beta and the fact that 8mm hasn't yet gone anywhere. They are sitting there with billions of dollars of capital investment in big plants. They need something for those plants. They need to build something. R-DAT players are perfect. They use all the same technology. I can't believe that Sony, being the big loser in the video wars, is going to sit there and do nothing."

Barone is not impressed with the argument that control by the labels over software gives them the upper hand in dealing with the hardware manufacturers. "Picture a major Japanese company coming in and buying CBS Records and getting all the software they can take. Or picture them coming in and making a deal with RCA and MCA, neither of which has decided to build CD plants. They could make good clean software deals that could be very lucrative for those two companies. The others would have to follow. The Japanese manufacturing machine needs something to put in their plants. They're not going to sit still when they've got a product. So we delay them until mid 1987. Big deal. That's not a delay. A delay is five years."

Barone is equally emphatic when it comes to the question of how rapidly the new format will catch on once it is introduced. "I believe that once R-DAT comes it will move faster than everyone thinks. Everybody is talking in terms of \$1200 to \$1500 machines that will take a couple of years to get down to the popular price range. I don't believe that. I'll bet that within a year it will be a \$250 machine. With each new product cycle, you see the time compression getting worse and worse. This is what confuses the people that buy my products. They are really afraid of this thing coming and sweeping the market, and they'll be caught in the wrong format."

Given Barone's observations on the effects of new technologies, one wonders what plans he has developed to ensure the continued prosperity of his company. Questioned about the possibility of entering the field of high speed duplication for R-DAT, Barone was willing to allow only that Electro Sound "has not passed up" looking at high speed video duping, the technology for which would automatically apply to R-DAT as well. Discretion forbids that he go into greater detail, but he hopes to have more to say on the subject while the new year is still young.

Interest in R-DAT, however, by no means implies that Electro Sound has

given up on the analog audio cassette. "We believe," Barone states, "that even with the advent of R-DAT, the analog cassette will not go away for some years." That conviction is evident in the company's commitment to the development of an all new master system for high speed cassette duping, even as it lays the 4800 series master to rest.

The system under development represents a fairly radical departure from conventional approaches, in that the bin loop master is eliminated entirely. In its stead is a tapeless master. Once again, Barone is unable to go into great detail at this time, but his remarks hint at some general outlines. "We believe that we can come out with an analog tapeless master for high speed audio duplicating that would be very reasonably priced, and would bring two things to the guy who would buy it. Firstly, better quality, because he does not have the physical degeneration that comes from running a bin loop master over and over on a machine. Secondly, we bring him economics, because we bring him the ability to run with only having to create the tapeless master once from the studio master, and not having to worry about repeatedly making running masters to do big runs."

One of the first issues that comes to mind when considering a tapeless system is whether the program material is stored on the master in analog or digital form. "We have an analog tapeless system which could also be a digital tapeless system if we wanted it to be," says Barone. "It's two different uses of the same technology. There are technologies out there which can be handled either way." But Barone is sympathetic to the concerns expressed in "After-Mix" [May, 1986] by Ian Hardcastle of Dolby on the subject of "digital bin loop" masters. Responding to a question about the efforts of Capitol in that area, Hardcastle noted that digital-to-analog conversion at 64 times real time taxes the accuracy of currently available conversion technology. "I agree with him," Barone says. "That's why the method we prefer is to deal only in analog, because then we don't have a conversion problem."

"There are lots of analog storage systems that people have ignored over the years," Barone continues. "They are commonly used, but we don't think of them in that way. The technology is not a breakthrough. It's putting together common things to do something else with them." Barone prefers not to actually name the storage medium outright. But he does concede, not surprisingly, that the phonograph record was a "definitely unlikely" choice, while noting that "all the video optical

systems are in FM analog."

Speaking hypothetically about how optical video storage might be applied to high speed duping, Barone points out that the high end of the audio bandwidth, when multiplied 64 times, is in range of the low end of video. Thus, an optical "video" master would have the bandwidth required to store frequencies 64 times higher than the frequencies of an original audio source. If fed to duplication slaves and recorded at 120 ips, those higher frequencies would return to the audio band when played back at standard cassette speed. As for the means by which signals from a studio master might be "sped up" by a factor of 64 during transfer to optical disc, Barone has no specific explanation to offer publicly at the moment.

With the fantastic prerecorded cassette sales boom of the early '80s apparently running out of steam, and the threat of R-DAT hanging over duplicators' heads, one might think that Electro Sound would be reluctant to devote further resources to cassette product development, regardless of how appealing a new system may be technically. However, given the tapeless system's expected "reasonable" price tag, and the fact that it can be used with existing slaves, Barone be-

lieves there is a place for it in the market. "The sale that we see is not necessarily the new capacity sale, or the brand new duplicator sale. We think it's a viable product because we can look at replacement sales."

Barone hopes to be able to introduce the system as early as mid-1987. "It's not a commercial product yet," he says. "We have working models of parts of it, the parts we had to prove. The other parts are existing technology, so we already know that we can do them. We are currently talking to possible industry partners who may be willing to fund part of the rest of the development. We think that, with the things we are trying to do in terms of financing all this, it will become a commercial product."

Barone's confidence in his company and its new system is reflective of his underlying enthusiasm for the industry in general, despite his feelings about a "technology scare." "I don't think the influences that we always counted on or believed in are necessarily the ones that are going to make history and policy in the future," he states. "We have to be careful not to restrict our thinking based on what used to be. It is going to be a question of people making some right choices with good timing to come out of this

thing whole, because we are at the mercy of a lot of influences. But I've got to tell you, I think the future is going to be very exciting."

The Recording Industry Association of America (RIAA) report on net shipments of prerecorded product for the first half of 1986, released at the end of October, proves to be gloomy news for all but those in the CD related segments of the business. Compared to the same period in 1985, an overall decline of 7% to 278.6 million was recorded in unit terms, while dollar volume figured at suggested retail list prices climbed a scant 1.1% to \$1.952 billion. Singles, LPs and EPs were hard hit, with unit and dollar volume declines in the 20 to 27% range. Cassettes fared somewhat better, with tiny unit and dollar volume increases of 1.9% and 1.5% respectively. CD growth was, not suprisingly, substantially more dramatic, with increases of 148.8% in units and 155% in dollar volume.

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by Lou CasaBianca

NORTHERN CALIFORNIA VIDEO ROUND-UP

The San Francisco Bay Area has a long history of innovation in technology. It is increasingly becoming a major center for the film and video production industry. In 1912, long before Hollywood gained dominance, G.M. Anderson, otherwise known as Bronco Billy, formed S&A Films and made over 350 Westerns in Niles, California, just south of Oakland. Charlie Chaplin did his first 14 films in Niles for S&A, in what was the first center for motion picture production in the state. Philo T. Farnsworth invented the first working television system in San Francisco. Down the peninsula in Silicon Valley, video games were invented in a warehouse by Nolan Bushnell. A few years later two of his proteges went on to develop the personal computer in a garage, in a classic case of a bootstrap company start-up that became a billion dollar company, Apple Computer.

In recent years, a sense of excitement has returned to the Bay Area, which continues to attract talent from all over the world. This month's MVP is a review of some of the leading production companies involved in live action film and/or video, music video, animation and special effects, video discs, television commercials, industrials and special projects. While it is impossible to review all of the outstanding companies actively involved in these fields, we believe that the production houses covered will be representative of the kind of enthu-

siasm that pervades the Bay Area production community.

One Pass Inc.

The One Pass organization just celebrated its tenth anniversary. In a very real sense, the company's enormous success parallels the evolution of video technology over that same period. As the Beta test site for Sony, One Pass was the first facility with on-line one-inch video, when many industry pundits felt 2-inch would never die. In a series of corporate moves right out of *Fortune* magazine, One Pass and partner George Banta Company formed ScanLine Communications, and bought the Editel Group facilities in New York, Chicago and Los Angeles, a move that culminated in the sale of One Pass in San Francisco to ScanLine. In spite of the high stakes, high finance corporate activities, the environment at One Pass is still charged with the kind of excitement I felt when I first used the facility when it opened ten years ago.

Video Opticals

Today, One Pass is deeply involved with film production. The lush texture of film is not only the standard in motion pictures, but it also dominates commercials, and music "videos." One Pass has specialized in film-to-tape, and has pioneered techniques in film to tape to film production. This includes the use of digital recording technology. The Abekas A62 digital disc recorder maintains first generation picture quality through hundreds of composition layers. Up to six times faster than systems off-loading to one-inch VTRs, Abekas A62 serves as recorder and composer for the Steadifilm pin registration transfer system. As an editing tool, its internal digital matting and real time, simultaneous record/playback capability greatly expands creative options. It offers precise CMX-controlled editing, variable playback speed and a storage capacity of 100 seconds, allowing the completion of complex optical composites without generational loss.

Pin registration produces rock-steady transfers by eliminating picture weave during film transfer. This is accomplished via the Steadifilm telecine gate and the Abekas A62 digital disc recorder working with the Rank Cintel Mark III telecine. The gate is driven by microprocessor control and can advance film in four ways: pulse-by-pulse, sprocket pitch, frame-by-

frame or shuttle mode without engaging register pins. Pin registration offers such "optical" options as step or skip printing. It can also composite mattes, title graphics and animation using Ultimatte to Abekas A62 during the process without generational quality loss.

Ultimatte

When the announcer walks through a watch band, or when models, people and live action backgrounds are combined, you are probably looking at effects created with the Ultimatte. A video matting system similar to film blue matte optical separations, Ultimatte is a "soft matte" process which creates intermediate hi-con images or composition mattes in real time. Ultimatte matting foreground and background elements in film-to-tape maintains first generation quality. It eliminates the hard edge and substantially reduces "noise" problems common to other electronic matting systems. Ultimatte provides smoother edges and transitions and highly realistic overlays, and has dissolve capacity to provide in and out images and create "ghost" effects. It interfaces with pin registration and Abekas A62, allowing for the highest quality compositing.

Da Vinci is the most selective and sophisticated color correction system available. By broadening the traditional six-color vector arrangement (red, green, blue, yellow, cyan and magenta) to 16 vectors, da Vinci provides an almost infinite palate of color possibilities. A key element in the da Vinci System is "Color Grabber," a cursor control which offers pinpoint selection, isolating specific colors which appear on the screen, allowing more exact control of these colors.

3-D Animation

A video-compatible computer graphics animation system, the Dubner CBG II works as a 3-D vector graphics system, paint system and character generator. Its capabilities include palette animation, two and three dimensional animation, in-betweening and over 50 resident typefaces. Since the Dubner is primarily designed for real time output to video, it is fast and economical for creating moving graphics. Co-developed by ABC, most of the Western world has become familiar with its capabilities through the *Wide World of Sports* and other graphics used by the network.

The Cubicomp Picturemaker is a 3-D, solid modelling, animation system with extensive features including

texture mapping of live video or painted images, translucency, shading and multiple light sources. It can generate complete animation sequences or be used as an element for compositing with Paintbox, ADO and Abekas A62.

Motion Control

Three-dimensional video imagery can be created with the computer controlled IMC camera stand. Camera moves can be programmed to track one point while changing perspective and be easily repeated, foregrounds and backgrounds can move in the same perspective. For more flexibility, moves can be manually plotted with rotary knobs. The system provides real time or single frame applications including variable speed with tapers in and out on all eight axes of control. Using Ultimatte, models shot on the motion control system can be composited with other elements.

Editing

The core of the One Pass complex are the two one-inch CMX 3400 suites equipped with state-of-the-art 3ME switchers, two channels of ADO, Ampex VPR3s, Zeus TBCs, Quantafont Q8 character generator, color cameras and matte cameras with access to Abekas A62 digital disc recorder. The Abekas A62 allows first generation quality through hundreds of composition layers. ADO is available in each

suite, or two channels in one suite. The VPR3s are the fastest and most flexible Type C one-inch available. With their companion Zeus time base correctors, video slo-mo and reverse can be done without jitters.

Two Montage suites offer an entirely new approach to editing. Montage offers the flexibility and creativity of film editing with the immediacy of video. The system provides the ability to change editorial decisions at random and view results immediately without dubs, tape changes or list problems. It also offers wipes, dissolves, printed storyboards and floppy disc list output for the CMX on-line.

Additional services include the Paintbox, in an electronic graphics studio capable of producing animation, typography, graphics, and effects at extremely high resolution. Interformat editing requirements have become an essential part of today's production picture. Betacam to one-inch, 3/4-inch to Betacam or one-inch. The Interformat Suite is equipped with CMX 340, GVG Switcher, Sony BVX 30 Noise Reducer and DVE. The Convergence VHS half-inch suite with control track editing and list print offers producers an inexpensive "off" off-line alternative. Film editing facilities include a complete editing room featuring 16/35 mm 8-plate KEM Uni-

versal, bench, bins, and storage.

Audio sweetening services include ADR, sweetening, mixing, voice over recording and FT synching of audio mag to videotape. CMX CASS (computer aided sound sweetening) provides central control for an automated Harrison 32 input board, 24-/16-track Studer, 24-track Otari, 8-/4-track Otari, 2-track Studer, Adams-Smith synchronizers and assorted outboard gear. With CASS, audio sweetening has the flexibility to mix and edit soundtracks with the programmable repeatability of video post-production. (See October *Mix*—MVP).

Animatics

The Animatics facility combines two suites so that shooting and editorial happen concurrently. Shoot animatics with the computer controlled IMC Camera Stand and edit immediately in the Interformat Edit Suite. The IMC stand can shoot flat art, rear lit transparencies, slides or dioramas. With programmable camera moves, it is easy to record a move twice and be ready to A/B roll edit in Interformat without the delay of dubbing.

Realtime Video

Founded by director, Will Hoover, Realtime Video has established its own unique niche in the Bay Area production scene. Specializing in interactive

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video, Realtime is pushing the edge of videodisc design technology in a series of innovative projects. The whole facility is built around interactive video production. The Sony 2500, a powerful frame by frame video one-inch recorder, the first in the U.S., was delivered to Realtime Video and is the hub of operation. Hoover says, "Today, the most popular home video medium is the half-inch tape cassette. But for business and education, the medium of choice is the laser videodisc, because this is where computers and video merge. The videodisc holds 54,000 separate images, or 30 minutes of video programming. But unlike half-inch tape, the laser disc is interactive, and can provide instantaneous

access to any single frame or linear material on the disc."

An example of a recent interactive project is the "Combat Medical Training Disc." Realtime was commissioned to master and replicate a combat trauma medical training disc for the United States Armed Services. After the appropriate orientation and screening, this first-of-a-kind laserdisc production, requires the viewer to make fast and important decisions affecting the life and health of injured soldiers while under the unusually high stress conditions of battle. In the disc program, a barrage of situational conditions are presented, requiring the viewer to respond by making basic and immediate yes/no choices in medi-

cal procedures via touchscreen. The intention of the disc project is to simulate for the doctor, who may not have combat experience, the conditions under which he will make his life saving decisions. Hoover continues, "Put this technology together with a computer, and you have an ideal medium for instruction, or for point-of-purchase programming. The computer is a perfect instructor or demonstrator because it is infinitely patient."

Realtime has received the second SCRIBE character generator delivered in the United States, from Chyron Corporation. This new character generator has the highest resolution of any character generator available. Fonts are based on the universal typographic design of the print industry, so font names are based on standards used by print houses, rather than the mixed bag of names adapted by different character generator manufacturers. Among the new features the SCRIBE offers are: 16.7 million colors; over 1500 typestyles available; each font can be individually sized between ten and 400 scanlines; unlimited overlays and positioning; automatic "graded" background shading; anti-aliasing and 8k x 8k resolution provides "print quality" keying; fonts can be custom shaded and "metallized"; and the system has the ability to rotate characters or words in XYZ axis, similar to ADO-type movement effects. The SCRIBE is now installed in Realtime's CMX online edit suite, and is available for full one-inch, Betacam, and 3/4-inch to one-inch editing.

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spider... which leads to a lot of recone jobs!

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with a beautifully designed software system. The system runs on a Sun host computer, with an Iris 3020 as a stand-alone modelling station. Along with an excellent modelling software design, the V-2000's claim to fame is a unique rendering system, which utilizes Vertigo designed render accelerator boards that fit into the Sun to dramatically speed up throughput, making animation that much more cost-effective. Although just recently installed, it promises to deliver higher image quality and speed. It is capable of texture and reflectance mapping currently, with bump mapping to follow as an add-on in the next few months. Although the 3-D system is fairly new, and has pushed the facilities other gear and personnel to the limit, SFPG is doing some of San Francisco's most innovative work.

SFPG president, Jeff Cretcher says, "The most exciting thing that we have discovered is that the integration of these technologies is a brave new world of possibilities, and what we are selling now is our experience in putting them together in creative ways. With the addition of the 3-D system, we are developing a new kind of business (that is developing in parallel across the country). In the past, a client went to a graphics boutique for 3-D

graphics and a post-house for editing. We hope to become a new hybrid, with all the tools and expertise in one place so that the most appropriate technology and techniques can be combined on a project with the result greater than the sum of the parts. The bottom line costs for the work should be significantly lower as well."

Other SFPG plans include more channels of ADO, digital disc recording and expanded audio capabilities, all presently under evaluation.

Cretcher continues, "We've found that this process demands incredible people skills as well as technology and I am personally quite proud of the group we have assembled. The animators that we've been able to attract for the Vertigo System are top-notch. Kirk McNroy comes to us from Vertigo where he has been operating the system for several years during its development. The other animator, Rick McKee is coming out from Cranston Csuri in Ohio. In addition to just learning how to do 3-D graphics, on an on-going basis, we will endeavor to get our systems truly working together. Ultimately, we hope to be able to directly link our 3-D graphics, motion control, ADO and the Images II, so we can do pieces that involve absolutely frame-locked coordination of

these technologies. This is one place that I am convinced that the future of video lies."

Varitel Video

Varitel was started seven years ago in the San Francisco Bay Area by Art Porter, William Osterhaus, John Chaney and Bill Hillier. With extensive experience in television program syndication, the principals' marketing strategy centers on the assumption that there is a real and growing market of legitimate producers who need the highest quality editing services at reasonable prices. They believe that most producers try to transfer those dollars spent in post-production onto the screen. Extras such as designer furniture, full-service kitchens and multiple edit suites stocked with every imaginable piece of equipment can often add dollars to the base rate charge by a facility, a luxury unaffordable under many of today's post-production budgets. Varitel has struck a balance between luxury and affordability in its San Francisco facility. Based on feedback from the production community, Varitel offers excellent off-line and on-line editing, along with special effects and graphics work in an extremely modern and comfortable setting.

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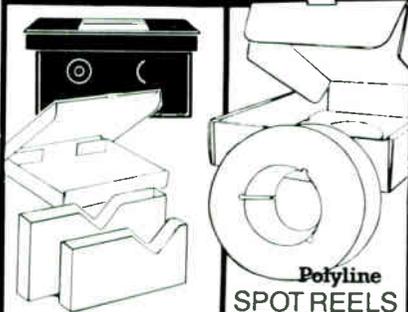
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lished a division to focus on new applications for CD-ROM and CD-I technology. Varitel and its associates, offer clients a unique perspective gained from its experience within both the television and computer industries. An exceptionally diverse team of producers, writers, educational technologists and computer programmers has been coupled with the entrepreneurial skills of marketing, financial analysis and implementation.

Varitel provides a creative environment and tools for the entertainment industry, and offers business solutions to corporations, specializing in solutions to problems that often originate in communications or information delivery. Solutions that can be implemented through the creative uses of video, interactive video and CD-ROM: training, sales promotion and information delivery.

Currently, Varitel is developing a proprietary CD-ROM "viewer" for physicians and medical office personnel, as well as turn-key training stations for training hospitals. Partner John Chaney says, "We are proceeding with a plan that will make a major impact on the CD-ROM producing community: to establish the first and best equipped mastering facility in Hollywood and Silicon Valley. The facility will be well tooled and staffed to provide the excellence and service that the creative communities within the film and television industries have already grown to expect."

Western Post

Western Post, a division of Western Videotape Productions, offers full production services, crews, facilities and equipment rentals. The on-line editing suite provides the CMX 340X editor with EMEM, one-inch, Betacam and 3/4-inch, with ADO, Quantel DVE system, Paintbox, and at the time of this writing, the only Quantel Harry digital video recorder in Northern California. EFP and ENG packages include Ikegami HL-79AL, DA remote three-camera system and Betacam. Additional services include satellite uplink and distribution.

Western's Harry operator is Jonathan Keeton from Quantel, considered the most advanced user of the Harry and Paintbox. Alec Cawley of Quantel provides us with some background on this unique system: "Harry is a large real time random-access digital disc recorder, using four large high-speed Winchester-type disks to store digitized frames on a disc. With the use of this amount of computing power and the number of special high speed disks, pictures can be written to, or read from disc at full video frame rate (i.e. in real time). Special handling techniques

mean that frames can be randomly accessed and do not need to be read in the same order as they were written. Using this image database, Harry can record frames at any speed from 25 frames per second (in PAL) downwards, shuffle and edit the order of these frames, then replay the assembled result at full speed. This provides elaborate animation capabilities and cut-only editing. In addition, other features include frame replication, field de-interlacing and re-interlacing. The disks provide storage for 80 seconds of video and the ability to extend this will be available soon. Most commercials or special effect segments often have a typical duration of less than a minute. Also, the way that Harry can randomly access the disks means that, if a frame is repeated (in a freeze, or by repeating a section of source material twice) the second copy does not use any more disc space.

"A central concept to Harry is the clip. A clip can be thought of as the same as a 35mm film clip: simply a number of frames which follow each other in sequence. The simplest facilities on Harry manipulate clips as a film editor might manipulate film, cutting and splicing at chosen frame boundaries. Harry then adds extra features for stretching clips, keying them, dissolving between them, transferring them to Paintbox and back again reversing them and many other manipulations.

"Harry's digital storage system uses the CCIR 601 standard for digital video and has digital inputs and outputs which can interchange digital video with any other equipment conforming to this international standard. The same standard is used by Quantel's Satin standards converter, so NTSC pictures can be input to or output from a PAL Harry in digital format.

"At NAB '86, Quantel and Sony showed Encore connected to a Sony Digital VTR using a CCIR 601 digital standard—the same standard Harry uses. This means that Harry is now positioned to form the heart of a digital post-production studio. A DVTR can be used to source video digitally to Harry which then edits and manipulates the video. When digital video effects are required, Harry passes the frames digitally to Encore or Mirage, which perform the required transformation from their enormous repertoire before passing them back, still digitally perfect. When a segment of video is complete, it is laid back to tape using the DVTR. However complex the intricate manipulations, the picture still retains its 'first generation' quality.

"One piece of digital equipment is of particular importance with Harry—

the Quantel Paintbox. There is already a considerable use of frame by frame retouching, rotoscoping, matting and other manipulation of clips using Paintbox. This is currently a laborious task and very unforgiving of errors. If a mistake is made during a sequence (perhaps a frame skipped or doubled) it is difficult to get back and delete it. It is obvious that Harry can do the frame-assemble sequential frames of painted animation with ease."

The Armory Studios, Inc.

Greg Snazelle, former Lucasfilm CEO Robert Gruber, and attorney Bruce Cole have formed The Armory Studios, Inc. to develop the largest film video production center in San Francisco. The 74-year-old SF Armory is listed in the National Registry of Historic Places, and is a designated San Francisco landmark. The project is budgeted at \$25 million, with occupancy slated for late 1987. The facility will provide 200,000 sq. ft. of production facilities, five soundstages, averaging 4000 to 18,000 sq. ft. There will be 80,000 sq. ft. of production support space, including production service facilities, screening and editing rooms, full post-production and production equipment rentals. The Armory will eventually house 24 suppliers, and function as a kind of merchandise mart, with service companies, artisans, make-up artists, prop shop, set construction stylist, location scouting operations, mobile truck, equipment rentals, etc.

Greg Snazelle will move his Snazelle Films and Cine-Rents West into the Armory next year. In addition to the considerable resources represented by these two companies, Cine-Rents West is the exclusive Northern California distributor for Panavision cameras and lenses. Snazelle says, "Our intention is to become the center for production in the Bay Area, attracting a large population of talented filmmakers and production personnel. Armory Studios will offer an opportunity to produce high quality, low budget projects in cooperation with a quality studio. As a result of negotiations with the City of San Francisco, the developers were awarded \$1.6 million from the Department of Economic Development SAG, AFTRA, IATSE and other trade unions have endorsed the project because of the direct effect it will have on jobs in the Bay Area. Snazelle and Company are in negotiations with investors, banks, and brokerage houses. They have also formed Armory Productions, to produce self-generated film, broadcast television and home video projects. The Armory project is like a beacon, pointing in the direction of even more heightened production."

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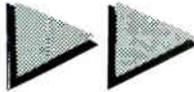
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Northwest Recording STUDIO ROUND-UP

by Linda Jacobson

The Northwest has built its reputation on breathtaking scenery, wineries aplenty, the high technology outgrowth of California's Silicon Valley, the "San Francisco sound" of multitudinous, locally-based bands, independent record labels, thriving nightclubs, and the habitual rebellion against "Manhattanization" and "L.A. Attitude." It's only in the past decade that the region has beckoned to recording professionals nationwide, with facilities that rival any other in the country. Today, thanks to society's heightened audio awareness, northwestern studios are expanding their services to meet the ever-increasing needs of the music, video, and film industries in the entertainment, commercial, and corporate arenas. The result? Nineteen eighty-six was a peak year for many studios.

Several reported to us on the events of the past year, which we detail here; but first, we bid adieu to a few...

Onwards and Upwards

Fane Productions, the only automated 24-track studio in Santa Cruz, closed in August. Their '86 clients included George Winston, Eddie & the Tide, and the *Nightingale Radio Show*, so it wasn't due to lack of work—the studio

lost its lease. Owner Fane Opperman decided to not rebuild, mainly because of 1987 tax changes. Today, Fane is an independent engineer and producer for music, commercial, and radio projects, and says the studio's closing "really changes the recording scene around here. Now the nearest automated studios are all about an hour away."

Also closing down this year, both in San Francisco, were Audio-Video Resources and Sound Genesis, the big pro audio dealers. The Plant in Sausalito had its share of trouble. Despite this, nearly everybody else in the region reports a year of success and advancement.

Making the Difference

Two San Francisco studios almost simultaneously purchased Solid State Logic consoles; one of them is Different Fur. Says VP/general manager Susan Skaggs, "The real hero is San Francisco's recording, music, and film industry. These major purchases demonstrate the positive atmosphere and growth taking place in San Francisco in the past year. Investing in new technology reveals our tremendous confidence in the future of the San Francisco recording scene." Susan and partner Howard Johnston are the owners of the "new" Different Fur; within 18 months they transformed the stu-

dio from a 24-track Harrison room into a 56-track SSL room, with digital and analog recording capability, and a Lynx sync-to-tape system. With their recent Sony 3324 acquisition, digital multi-track recording accounts for a third of Different Fur's business.

Five albums on *Billboard's* 1986 jazz charts were recorded at Different Fur—LPs by George Winston, Rare Silk, Andy Narell, and various Windham Hill artists. Other DF projects were a digital Windham Hill guitar sampler and a series of children's "spoken music" stories, one of which featured Bobby McFerrin (he played on a digital Levi's 501 spot, too, at the studio). DF also worked with rock artists Snakefinger, The Residents, and other local bands. The studio was soundtrack headquarters for a new Dino DeLaurentis film, as well as an ABC-TV movie, handled by Pat Gleason and Michael Shrieve. Other work, as Susan explains, is the result of "a lot of people who recorded previously in analog are coming back and transferring to digital. I guess they'll eventually release it in CD form." Susan reports that clients are using digital format to make their safety copies, even if they record in analog.

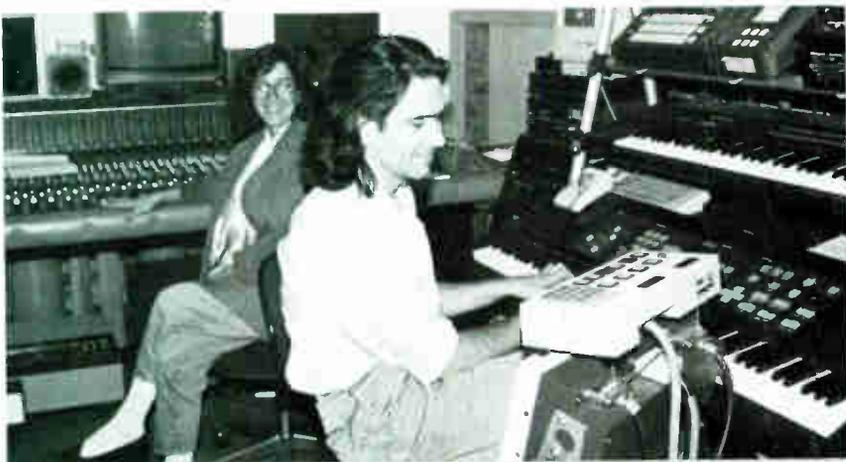
It's All Downhill From Here

The other San Francisco owner of a new Solid State Logic console is Russian Hill Recording. They arrived at Studio A in September. It's a 4000E, modified for Russian Hill's combo of music work and audio post-production for film. Co-owner and general manager Bob Shotland: "Our major reason for this has to do with film, because it's the meat of our business now. SSL's engineers in England worked with us and with Lucasfilm (who are also buying an SSL) to design modifications, which make it easy to switch between music sessions and film-type work. We're all primarily music engineers, so we expect more music projects, because the SSL is probably the most popular board with independent engineers and producers.

"This year we did more soundtracks for bigger films; we're bidding against



Gate Five Studio in Sausalito.



Mary and Peter Buffett at Independent Sound.

L.A. and New York. The *True Stories* project (David Byrne) was a big one, and we're getting more work in that direction. We've also done advertising work, but there seems to be less than in other years. Every few years we go through that—it seems no one's doing jingles here—everybody's going to L.A.—then one local music guy will get a few big ad projects and that leads to others. Suddenly you're doing nothing but ads. Then six months later it seems like no one's working in town anymore. I think it will continue to go back and forth. What I'm really hoping is that more audio post for TV gets done up here.

"We just opened our synth/media room (with 16-track recorder, Emulator II, DX7, and a Macintosh, all tied into the two 24-track rooms). Leslie Shatz, the *True Stories* sound designer, has practically moved in there to do sound design and pre-post production work for *Batteries Not Included*, Spielberg's new film. A lot of people think of synth rooms in terms of music projects, but we're primarily using it for offline audio production to picture, for sound design work, effects, and editing."

In '86, Russian Hill worked on an album with the Dave Brubeck Quartet, finished the Bobs' new record, continued doing segments of CBS-TV's *Twilight Zone* score with Merl Saunders, and worked on TV spots for Bank of America, Bernstein Salad Dressing, Pacific Gas & Electric, Anheuser-Busch, and Orville Redenbacher, the popcorn king.

Branching Out

Berkeley's Live Oak Studios, owned and run by Jim and Priscilla Gardiner, underwent "dramatic" changes in '86. "Everybody in the Bay Area wants to be the baddest on the block, in terms of equipment," reports Priscilla, admitting that they, too, are after that bad

In Sync(lavier) with Independent Sound

Nestled among the Victorian homes in residential San Francisco is Independent Sound, the turf of Mary and Peter Buffett. In this 24-track studio, the Buffetts mastermind digital synthesis, sampling, and old-fashioned keyboard composition for commercial music production. The day we spoke with the Buffetts was a happy one for them—they'd just purchased an option-packed Synclavier digital audio system.

This Synclavier is the Bay Area's second (Denny Jaeger owns the other). The Buffetts bubbled enthusiasm as they discussed the possibilities of "incredibly cost-effective" tapeless recording and CD-quality, stereo sampling capabilities. Mary credited Peter for his ability to "visualize where the market's going. We had one of the first LinnDrums, one of the first Prophet 1Ds; we're always interested in the serial numbers! By the time everyone else has it, we're a big jump ahead in terms of understanding the equipment. That's been a big part of our success." Peter was the first in Northern California to use his Kurzweil 250 to create audio for a major broadcast commercial (1984), and no doubt will be a pioneer in using the Synclavier for commercial sound design, scoring, and post-production.

"Ad agencies are on top of what's happening in technology," Mary says. "They're very aware of the

—CONTINUED ON PAGE 132

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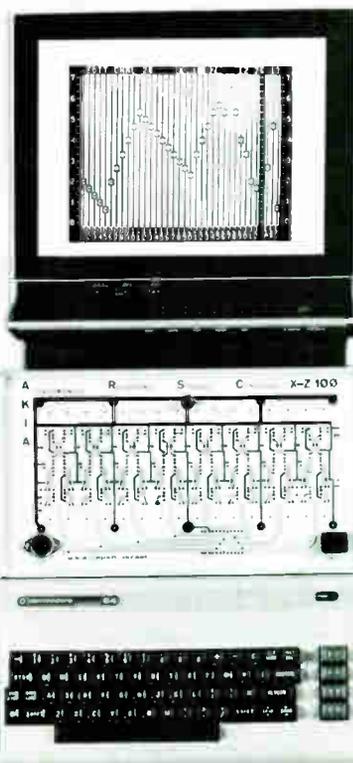
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Sun Valley Audio owner Amos Galpin in plan B, his 8-track where he worked with Peter Cetera.

rep. Live Oak recently purchased the area's first Publison Internal Machine, a digital audio effects processor with 42 seconds of sampling. And, thanks to the addition of a Q.Lock Eclipse editing system, a 100-inch video screen, and a Sony high-res, overhead projection system, the studio's now set for film, TV, and commercial soundtracks.

The video gear at Live Oak was broken in by Thomas Dolby, for the film and MTV soundtracks of George Lucas' *Howard the Duck*. Others busy at the studio in '86 included Rosie Gaines, PBS artists recording harpsichord music for national CD release, and Live Oak's new staff engineer, Richie Corsello (formerly of Fantasy). "We did a lot of work for Aspen Records and some commercials with Gary Remal Music Design."

Live Oak also branched into MIDI pre-production, recently completing their large "Attic." Along with "cathedral ceilings and an incredible view



of the bay," the Attic provides sampling and synth gear from Kurzweil, Yamaha, Oberheim, E-mu, Casio, and Garfield—along with a Mac from Apple, 250-track MIDI software, and a notation program, complete with printer. Live Oak's owners now want a 24-track recorder for the Attic, something they can carry downstairs when 48 tracks are needed in the studio.

The (Oakland) Hills Are Alive

With the sound of Denny Jaeger Creative Services, a music recording

—FROM PAGE 131, INDEPENDENT SOUND

digital scene, and of what we have here—a complete CD sound effects library, the Kurzweil, of course a DX7, the Linn 9000, all-digital reverb, and a wonderful new Roland Super Jupiter."

Peter (a musician and recording engineer) and Mary (a vocalist, first hired at age 14 by Phil Spector) met and married in 1981. Independent Sound was born that year. A keyboard studio from day one, Independent allows Peter and Mary to write, arrange, produce, and execute original electronic music and sound for major commercial clients. "In the last year," says Mary, "we've really become recognized as a music source. We've created a 'sound' which people identify with Peter and me. We enjoy a good relationship with other music writers and producers in town, who usually come here or go to Russian Hill or Music Annex."

Mary composes and produces music, sings, does voice-overs, and handles the business. Peter composes, synthesizes, programs, engineers, and plays keyboards. They provide a blend of talent and capability that satisfies the demands of advertising giants like McCann-Erikson, Young & Rubicam, and

Foote, Cone & Belding. The Buffetts create demos for jobs the agencies are bidding, or the final pieces—such as music and sounds for Emporium-Capwell, Clorox, Del Monte, Foster Farms, and "Madballs" TV spots. Also, the Buffetts recently created trailer music for the Mill Valley Film Festival, an all-music soundtrack for a multi-media Nevada promo piece, and currently are scoring an NBC-TV movie.

When the Buffetts are called, they usually meet with the client and receive an off-line, 3/4-inch video dub. They then slave their Otari MTR-90 to their JVC-6650U video deck and work from there. Usually they create original music; sometimes they enhance existing needle-drop material to provide a unique flavor. Mary reports, "With Peter and me, the ad agency can conceptualize something, and when it's out it's the way they heard it from the beginning. So the agencies are having a lot more faith in what we can do, and they're not running off to L.A., New York, or Chicago. When you have the confidence of the people in town, that's when you make it. We're so fortunate to be able to make of living doing what's fun!"

—Linda Jacobson

facility set up for album, commercial, film, and TV work. He has access to 104 digital and analog tracks that can be mixed simultaneously on the new automated Harrison 10 console (the first in the world), synched to picture, and spiced with California's largest collection of digital effects. In 1986, Denny redesigned the studio with the help of Dennis Rice, placing all machines in an air-cooled, sound-proofed room, separate from the control room. New Meyer speakers were installed and tuned by John Meyer, who worked out the facility's final acoustics. To attain the best of both worlds, Denny moved in two new Sony 3324 digital 24-tracks, complementing his 24- and 4-track Ampex machines. "But, I hardly use analog anymore," he says. "Along with the 48 tracks of Sony digital, I have 32 digital tracks inside a Synclavier II System, one of the four largest systems in the world that NED's delivered. Most of the stuff in the studio is for my own production. But I want to sell more studio time." DJCS clients in '86 included Sandy Perlman, producer of Clash and Blue Oyster Cult, finishing up an Elektra LP for Joan Paladin. Denny also provided the music in TV spots for Dr. Pepper, Levi's, The Gap, Visa, and Chevrolet. For much of '86, however, he concentrated on working with Michael Jackson, developing new sounds on the Synclavier for Jackson's new album.

D-Lighted

Sausalito's Studio D just turned two years old, and their main claim to fame so far is four months of basic tracking for the *Fore* LP by Huey Lewis & the News. Huey also worked at Studio D on the production of Bruce Hornsby's acclaimed album. Van Morrison was in, too, cooking up basic tracks for a new record, as were the Kantner/Balin/Casady band.

Co-owner Dan Godfrey says of his one-room studio with a 20-foot ceiling, "We're known in the Bay Area as 'the tracking facility' because of our live ambient sound. Bill Gibson from Huey's band came back and sampled all his drums here, so he could take our sound on the road with him. We also did a 15-piece string arrangement for Aretha Franklin's new album, with Jerry Hay conducting. What bands like about this place is the privacy and the '80s design. We've got SBX90's now, we Z-linked most of our amplifiers, and suped up our vocal mics. We keep adding to it, and keep pumping away."

Rolls' Taping

Another newcomer to the Bay Area, the San Rafael-based Rolls Recording,

New Roots For The Plant

The dirt flew when U.S. federal marshals seized the venerable Plant Studios in Sausalito, after its owner was accused of purchasing it with profits from illegal drug sales. But things settled down quickly and pretty much went on as before. Loyal clients included Huey Lewis, Buddy Miles, Journey and Santana. Last August, the Feds held a closed auction to sell the facility, and Bob Skye, owner of the Delaware-based Skye Labs, offered the winning bid.

"I was on four newscasts, includ-

ing CNN, and written up in the *Philadelphia Enquirer*," he says with a laugh. "The idea of the Feds doing rock 'n' roll as business made the story very unusual—I guess that's what they call sensationalism. So we've been in the public eye. That's great, because now we know the Feds are getting out of the business, and hopefully that will clear the air for a lot of The Plant's former clients, who've been a little reluctant to come back on board since the take-

—CONTINUED ON PAGE 134



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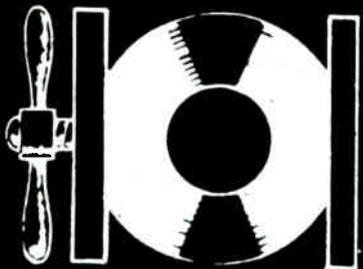
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is the personal 16-track domain of musician and producer John Lawrence, a top Australian session player who moved here four years ago. John, who's worked with various big names and staffed at the Plant for a year, is presently "doing a new kind of rock, King Crimson commercialized," he says. He's about to release his own album, but this year he also worked on outside projects, including a Nuns album for Geffen Records.

"We're intensely into keyboards and MIDI," he notes. "We have an Amiga computer with Soundscape software, the E-mu II+ with hard disk and SP-12 drum machine, four DX100s, and two DX7s. We can get more than six keyboard tracks happening at once. I have one of those Nakamichi converters that takes analog signals and encodes them into digital. We master straight onto the thing."

—FROM PAGE 133, THE PLANT

over. I think the current owner—the United States of America—has done a fabulous job. If my calculations are correct, 1986 was the first time the studio made a profit in six years."

Of course, the government hasn't bought any new gear or upgraded the present setup, as Skye plans to do. "As far as the equipment goes, we're still working with butchered 1972 technology. With all that's happening in the Bay Area, The Plant has one giant step to make to move into the 'now' zone. And then even one step further, to retain the aura and operation values that The Plant's always operated under—basically a laid-back, easy-going, incognito place where clients can hang out and do what they like to do. But we must get our technology up to par, where it continues to entice new clients."

We asked Skye if The Plant would move into digital recording. "There's a very open stage for digital, but I think, in the Bay Area, digital's still on the back burner. We've got backing and technological expertise, so we can go a long way with analog. We're playing around with the idea of a new console, probably an SSL, to be installed in Studio A. Studio B seems to be more popular than A, so we'll refurbish A and leave B alone because clients like it the way it is. I think more or less it's just a matter of sprucing things up, making sure the equipment is being taken care of. As far as staff, the studio operates now, and it operates well. There's no reason for me to upset any apple carts."

Positive Attitudes

The future looks bright at Positive Audio, the brand new sister of San Carlos' Positive Video. "We're the first video facility around the South Bay to make a big commitment to audio," reports general manager Jack Santry. They completely rebuilt an existing audio facility next door to their video digs with the help of engineers Michael David, Carl Reig and Tom Bruchs. They specifically built for audio sweetening and film scores, combining analog and digital technology. The studio is based around a Macintosh computer with "Total Music" software, four Emulator 2s, Yamaha and Roland keyboards, and a supply of digital outboard gear, all tied into two 24-track MCIs. On-line since October, as of this writing they'd completed five major projects (TV spots, corporate videos, the score for the Mill Valley Film Fest-

Plant plans also include a pre-production/MIDI studio; Skye likes the E-mu systems, the "whole barrage of great Yamaha stuff," and already has the MacPlus, Apple IIe, and IBM-PC/XT computers which will move to Sausalito with him. Regarding software, "if we have a client who says 'I'm going to be here three days a week, and this is what I need,' we're going to oblige."

Skye's present concern is Skye Labs, which runs a mobile remote studio based in the East. The 48-track studio is a certified Live End-Dead End mobile control room, built into a GM Greyhound bus named Rover ("what else do you call a greyhound?"). Now that Skye Labs is the corporate entity which owns The Plant, the entire operation will move west. Skye calls the event his "homecoming." He was born and raised in California; his great-grandparents moved to the Bay Area just before the 1906 earthquake.

"I'm excited and open about what's happening in the San Francisco scene; there's a tremendous amount of film and video business that shouldn't be ignored. We're going to put a U-matic video unit and sync system in Studio A to account for video, but my primary point is making sure that our music customers are being covered for any kind of work they have. At the same time, I've got to keep in mind that 60% to 70% of the work that Rover does is audio-for-video, so here we have a prime opportunity to cover all clients from square one."

—Linda Jacobson

tival video leader). "We've got MIDI and SMPTE synch, and the room is interfaced with our one-inch video room so our CMS can take control of the audio and put it on a video master. You never lose a generation."

Five Alive

Another new kid on the block, Gate Five Studios of Sausalito, is owned by Chris Hubbard and was designed by Dr. Richie Moore. The eight-month-old Gate Five recently opened Studio B, a Macintosh-controlled MIDI room for music tracks and pre-production. It's tie-lined to the 16-track Studio A downstairs, a post-production SMPTE facility for video work. As we spoke to Chris, Cory Lerios (Pablo Cruise keyboardist) was working on pre-production of film soundtracks during a three-month lock-out. Most of Gate Five's work, however, has been demos and albums for independently produced projects, such as the L.A. band Shattered Glass and Kingfish.

One Gate Five goal is to be a "support system" for the major 24-track studios in the area. Explains Chris, "We're right around the corner from Studio D [which was also designed by Dr. Richie Moore] and also near The Plant, so bands going there can work up stuff for their projects here. And if they need to rehearse before they go into record 24-track, they're set."

Star Bright

Starlight Studios of Richmond enjoyed an exciting '86, reports studio manager Michael Rosen. Their fully automated, 24-track studio has been "incredibly busy; right now we're working on albums for the Walter Hawkins Family and Love Choir. We were the place for Timex Social Club's 'Rumors' and the follow-up album by Jay King—that was our first platinum record this year. And because of that, we've become the rap center, especially because we're in Richmond (a largely black East Bay community). Ken Kessie and Megatone do all their work here for the Sylvester projects, for Modern Rocketry, Jolo, the whole Megatone family. We have the capability to do any kind of dance remix; we're doing the Joseph Watt sessions for Razormade Records, and we've had Berlin in here, the Pointer Sisters, Depeche Mode. Also, Jesse Coiin Young was just in to lay down the acoustic guitar and vocals for the new Levi's 501 commercial. David Rubinson mixed the Freaky Executives' album here. Mark Deutrom, a young up-and-coming producer, was in here doing progressive metal and hardcore punk albums."

And new gear? "We added ten new reverb units and five delays," Rosen

notes. "We've got digital mixing capabilities and a half-track PCM F-1." Samplers and synthesizers saw a lot of action this year; "People have been bringing in their own Macintoshes, because I've got three patch bays, including a full MIDI one, so it's easy to get into our MIDI gear."

Oldies But Goodies

Dave Wellhausen Studios of San Francisco enjoyed a whopping 600 sessions in '86, especially on projects for local and independent labels—Redwood Records, Ralph Records, and Rounder Records among them. The players included Paris Slim & the Continental Rockers (blues), Good Ole Persons (C&W), Johnny Nitro, Duck's Breath Mystery Theatre, plus a series of classical recordings by the David Crane Agency. This 24-track facility purchased two new recorders, MCI 16-and 24-trackers, a Yamaha grand piano, Lexicon digital reverb, and lotsa outboard goodies.

Fantasy Island

It was business as usual in '86 for Fantasy Studios, the leading Bay Area music recording center—bookings by nationally hot artists, purchases of major gear. Nina Bombardier, Fantasy studio manager, ticked off the names: Journey (who worked on *Raised on*

Radio album vocals for three months), Night Ranger (who, as we spoke, had been in for two months), Eddie Money (recording his new LP), Bruce Hornsby (with Huey Lewis producing), Frankie Beverly & Maze, Jeffrey Osborne, Eddie & the Tide, Mickey Hart & Olatunji, The Kantner, Balin, Casady Band, plus a few Windham Hill album projects. Then there were "tons of local and independent labels working here, like Redwood Records, Theresa Trull's new album, Bonnie Hayes, and a series of children's albums for a local production company." Fantasy also finished the sound effects for the film *Mosquito Coast*, starring Harrison Ford.

The studio just completed Tape Copy 2, their CD production room. "We were getting an abundance of work, not only from within Fantasy Records, but from people all over the area who have to do mixes, mastering, and copy work for CD," Bombardier says. "We brought in all this equipment so people can do their F-1 and Sony 1630 work, all the stuff they need so they can send their master to the CD production plant. Also, last January we built a keyboard room; for the low hourly rate, you get the room, all the equipment—Kurzweil, the Linn 9000, the DX7s, the Oberheim, etc.—and the guy who'll do all the programming for you. It's all laid down to disc.

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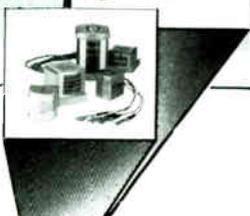
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to do your overdubs and mix."

Hot Potato

Smack in the middle of south Idaho
is Sun Valley, ski mecca, home of the
resort recording facility Sun Valley
Audio. Studio owner Amos Galpin,
after a year of working on regional
music projects and his own songwriting,
is now "seriously batting the ball
around about adding a video mixing
suite to attract more commercial work.
I'm aiming to produce audio tracks
for local video producers. There's lots
of ski film people and ski industry work
up here, and a good industry for winter
clothing, but all the video work's
being subbed out of the area. We want
to take a shot at it.

"What I spent most of '86 doing was
working on songs for Peter Cetera's
album. The studio did some regional
albums, an Idaho country project, and
some Christmas projects with local
artists. We've done a fair number of
jingles. We're starting to see a lot of
pre-produced tracks, especially on the
Yamaha QX digital system, which we
dump off onto analog tape here, then
build up other tracks. I opened a new
studio called 'Plan B,' in another build-
ing—it's an 8-track facility for song-
writing and radio jingle production."

The Seattle Slew

Seattle's hosting more national talent
for major shoots, concerts, and
theatre work. While on location, several
performers stepped into Steve
Lawson Productions for other projects:
Hoyt Axton cut jingle vocals for an
Oklahoma TV station, and actor Joe
Morton worked on dialogue replacement
for a *Miami Vice* episode. SLP

saw much more video sweetening
work in '86. They provided music,
VOs, and effects in projects for Boe-
ing and Microsoft, for regional and
national TV spots, and for two award-
winning multi-image productions. Mus-
ically speaking, last year's booking
highlight was Steve Miller sessions.
SLP's work isn't always for profit—in
'86, they raised \$100,000 for Chil-
dren's Orthopedic Hospital through
sales of *Christmas in the Northwest*, a
benefit album featuring various North-
west musicians, which was conceived
and produced by SLP. Says Steve
Lawson, "I wanted to give something
back to the community, and demon-
strate that it's not necessary to go to
New York or Los Angeles to produce
a great album."

SLP also added a new MIDI suite,
based on a Macintosh computer and
sampling Kurzweil 250, which tie lines
into any of their three studios—including
Studio A with its Q-Lock and one-
inch video layback systems.

London Bridge is Seattle's new and
largest one-room studio, opened in
late '85 by musicians/brothers Raj
and Rakesh Parashar. They handled
many vocal albums and demos this
year—some jazz, some gospel, but
mainly they're a rock and roll studio.
The 24-track facility, which was de-
signed by the Parashars and Pacific
Western Audio, Ltd. (designer of Van-
couver's Little Mountain Studio), has
seen "a lot of ad work... but we're
looking to do lock-outs for larger album
projects. We're doing lots of keyboard
music, using the E-mu SP-12 drum
machine which runs our Dr. T se-
quencer on the Commodore 64. These
days we're bidding on a couple of
L.A. album projects, and I figure if we
stick it out, we'll be able to get a few
up here."



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Nova Music Recording owner Paul Speer bought a house in Bellevue, just east of Seattle, and moved his studio there, too. "There's much more room here; we just expanded from 8-track to 24-track. Because I make my living as a record producer and engineer, I freelance all over the place. Some of my projects are done here, some in other Seattle studios, or else-

where on the West Coast. Nova is for my own use as a recording artist, and for my clients [such as Paul Revere and the Raiders; others include video producers who want Paul to sweeten their audio].

"My own albums are done entirely at Nova—they're on Catero Records, distributed by Fantasy," he continues. "One of them, *Natural States*, is actu-

ally an environmental music video shot in the Pacific Northwest, with nine pop/new age instrumental cuts. It was a collaboration with keyboardist David Lanz." The success of Paul's work—which includes VH-1 airplay, a Japanese laser disc deal, a European distribution deal, and a record album/CD deal with Narada Records—is what enabled Nova to invest in 24-track. ■

The Two Faces of Music Annex

The phones are ringing. Producers are booking sessions. The engineer is checking the levels. The tape's rolling. Business is good. The Music Annex has arrived in San Francisco.

In mid-1985, Dave Porter (president of this recording/production complex, based in Silicon Valley) and Keith Hatschek (director of client services) began tossing around the idea of opening an annex to the Annex. Today, Music Annex/San Francisco is a strategically located, 24-track studio. Designed by Dave Porter and George Augspurger, it's dedicated to providing sound-for-picture for the corporate, advertising, and broadcast markets.

Studio One opened in October; during that month, the Annex booked 35 sessions, carrying them out while the facility was still under construction (Studio Two, an 8-track broadcast production room, would not be completed until December). Among other projects, the new Annex recorded KPIX-TV I.D.'s and promos, did audio sweetening for KGO-TV, and created custom sound effects for an in-house Pac-Tel video.

The original Music Annex, which opened in '72, has recorded hundreds of albums, soundtracks, and corporate productions (in '86, this facility hosted Computerland and Hewlett Packard, GrammaVision's new age artist Steve Halperin, and Stan Getz for Blackhawk Records). The facility also includes a video shooting stage and audio cassette duplication plant. When the Annex team decided to move the mountain to Mohammed, "the rap on the street," Hatschek says, "was that, with the exception of a couple shops in town, there wasn't anybody who really knew how to handle audio for video. We've been doing it in Menlo Park, but agency people don't like to travel, so we said okay, we'll come up here and be in their own backyard.

"The other facilities in town," he

continues, "that specialize in audio-for-video often are booked weeks in advance. When ad agencies need to lay a music track to a rough cut on the same day they receive it, they can't hop on a plane; so that was sort of the *raison d'être* for this crazy notion of opening a place in the city."

Hatschek told us their goal is to "offer a translation between audio and video, the conversions from 3/4-inch to one-inch and back, and make sure the soundtrack remains close to what the composer intended. We can go direct from a multi-track recording to a one-inch master, hot mix, and save the client at least two or three generations. That's a real plus." Another plus is the symbiotic existence of the two facilities; daily shuttle service between them allows city projects to travel to the suburbs for mass duplication. Or, as in the case of a Bank of America jingle, the music was recorded in Menlo Park, and mixed to picture in San Francisco.

"However, much of what we do here is drop pre-recorded music

onto existing video tape, working with needle-drops," Hatschek explains. "Our sound effects and music library is huge, and 90% is on CD. We're exploring off-line synthesizer capability—a MIDI-to-SMPTE interface with sampling abilities. We're also considering digital recording, but we want to move at the right time, so we don't charge too high a rate. And we don't want to offer technology that's far ahead of what it's going to be broadcast on.

"Talking with people about their needs before opening the new studio helped a lot in building the client base's awareness of our services, so you might say that by doing our research, we were pre-marketing the facility as well. One of the big learning experiences in moving here has been that if you don't first talk to the people who you hope are going to be your prospective clients, you could be building a white elephant. In this day and age, when things are so competitive, no one can afford to do that."

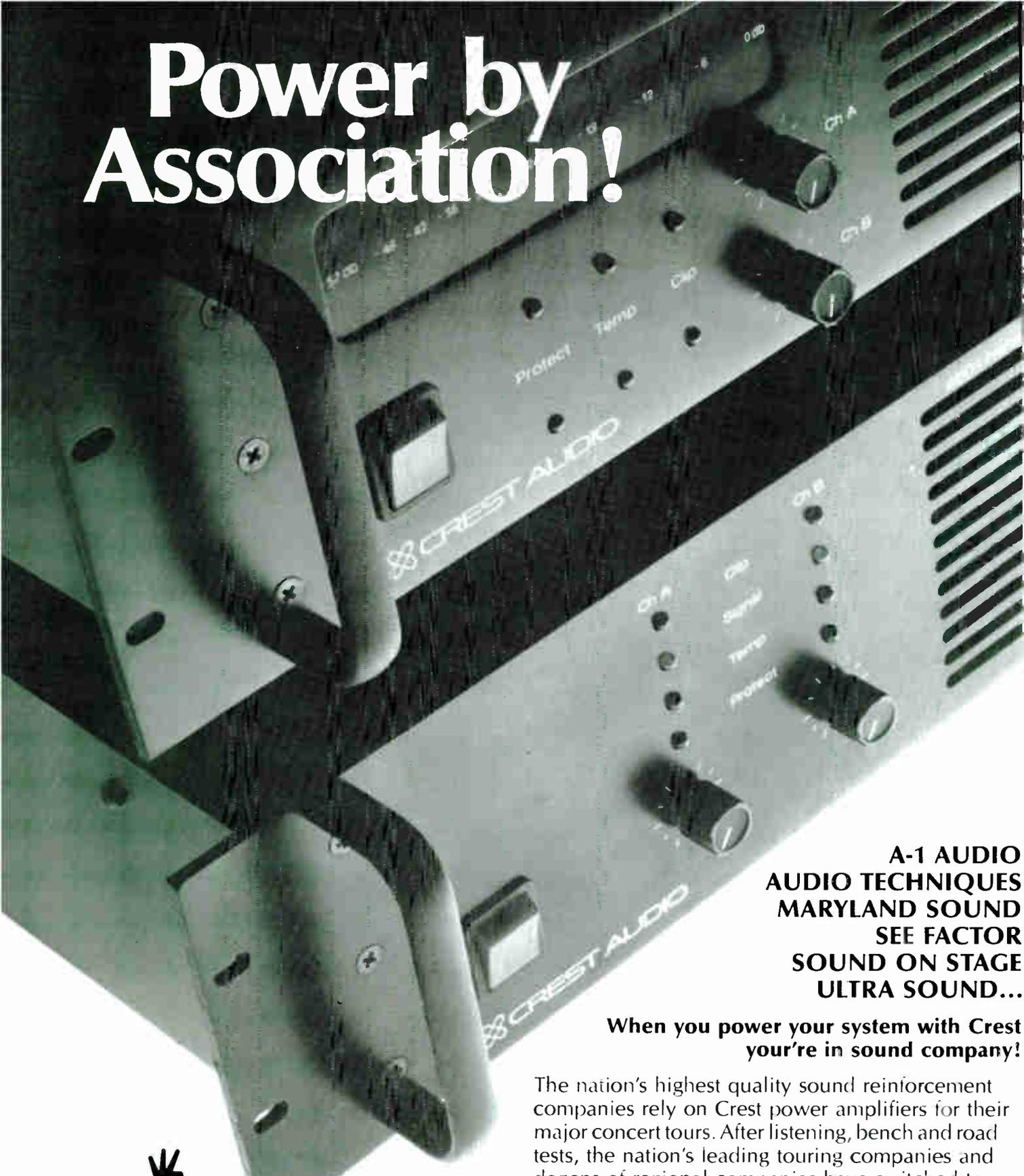
—Linda Jacobson

Music Annex's new Studio One audio-for-video sweetening room in SF. Pictured are engineer Randy Bobo at the board and KPIX-TV's Michael Smith.



PHOTO DENNIS BAYER

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The Attic, a fully-equipped pre-production and electronic music facility at Berkeley's Live Oak Studio, features a Kurzweil 250 music system, E-mu SP-12 sampling drum machine, Oberheim Matrix 12 and OB-Xa synths, Yamaha TX-816 rack, Casio CZ-101, Garfield Master Beat, Publison Infernal Machine with SMPTE/MIDI, and Macintosh computer with Mark of the Unicorn software for sequencing and scoring. Tie lines link The Attic with the automated 24-track studio downstairs. 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. Basic listings (name, address, contact) are provided free of charge. Extended listings (equipment, credits, specialization), and photographs or company logos may be included at a nominal charge. If you would like to be listed in a *Mix* Directory, write or call the *Mix* Directories Department, 2608 Ninth Street, Berkeley, CA 94710, (415) 843-7901.

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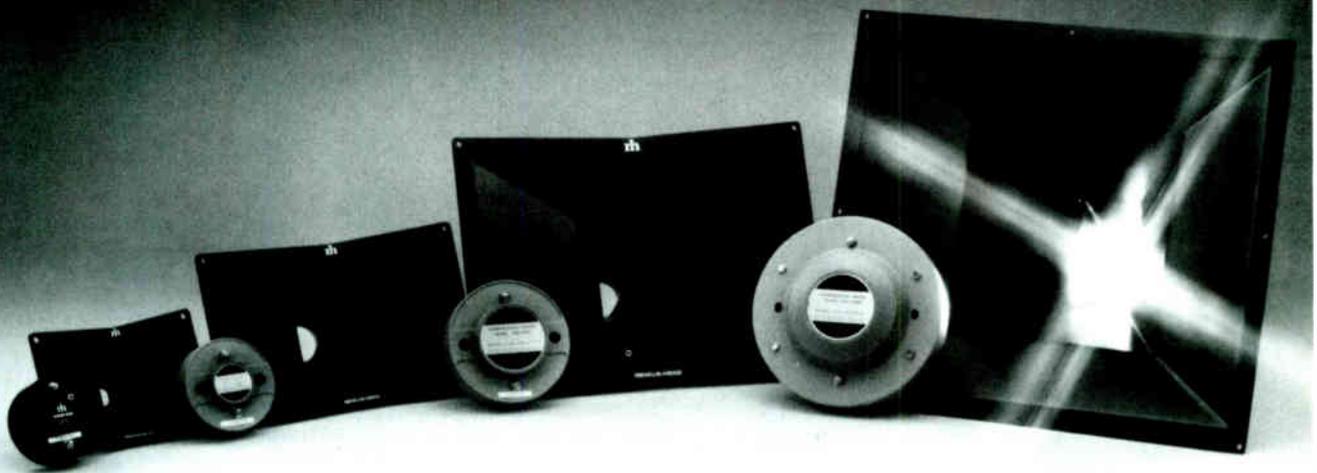
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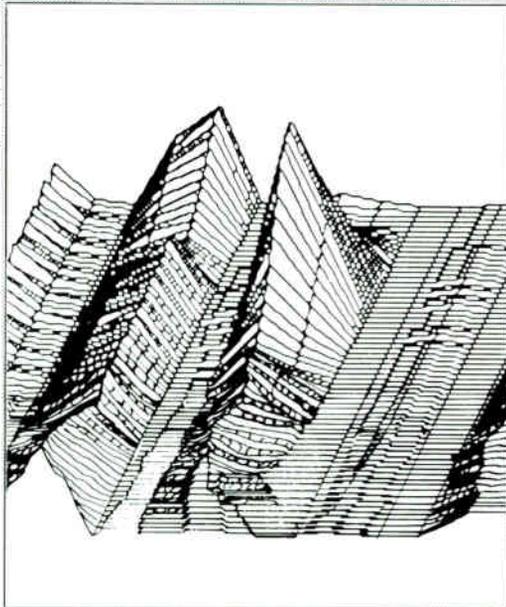
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(209) 539-3503
Owner: Jean Inman, Ken Emmer
Studio Manager: Ken Emmer

[8] ALBRIGHT PRODUCTIONS
also REMOTE RECORDING
607 West 3rd Ave., Ellensburg, WA 98926
(509) 962-2820
Owner: Sam Albright
Studio Manager: Steve Fisk

[2] ALLERICE VIDEO
also REMOTE RECORDING
350 "E" St. Ste. 309, Eureka, CA 95501
(707) 445-3922
Owner: Darrell Shull
Studio Manager: Esmaa Martin-Shull

[8] ANGEL STUDIOS
P.O. Box 496, Penngrove, CA 94951
(707) 795-7399
Owner: Linda Donahoo
Studio Manager: Linda Donahoo

[8] AN TOMAR STUDIOS
also REMOTE RECORDING
Oakland, CA 94602
(415) 482-0839
Owner: Anthony Pasciucco
Studio Manager: Tony Pashucco

[4] APTOS AUDIO
also REMOTE RECORDING
P.O. Box 1445, Aptos, CA 95001
(408) 684-1555
Owner: Kenneth Mabie
Studio Manager: Kenneth Mabie

[8] ARCAL PRODUCTIONS
2732 Bay Rd., Redwood City, CA 94063
(415) 369-7348
Owner: Arcal, Inc.
Studio Manager: Sal Viola

[8] ARTICHOKE PRODUCTIONS
also REMOTE RECORDING
4114 Linden St., Oakland, CA 94608
(415) 655-1283
Owner: Paul Kalbach
Studio Manager: Paul Kalbach

[8] ARTIST PRODUCTIONS
also REMOTE RECORDING
3420 E. 64th Ave., Anchorage, AK 99507
(907) 349-5239
Owner: Merl Shandley
Studio Manager: Jason T. Rogers

[4] AUDIO ACTIVE SOUND SYSTEMS
also REMOTE RECORDING
1031 Middlehoff, Oroville, CA 95965
(916) 533-6152, 534-3441
Owner: Stan Baunstock, Hank Hampton

[8] AUDIO DESIGNS
also REMOTE RECORDING
P.O. Box 15501 Wedgwood Stn.
Seattle, WA 98115
(206) 325-9286
Owner: Ric Vaughan, Neil Bermester
Studio Manager: Ric Vaughan

[8] AUDIO PRODUCTION STUDIO
7404 Sand Lake Rd., Anchorage, AK 99502
(907) 243-4115
Owner: Creative Productions, Inc.
Studio Manager: Bruce Graham, Ginni Graham

[4] AUDIO PRODUCTIONS
also REMOTE RECORDING
350 Ward Ave. Ste. 106, Honolulu, HI 96814
(808) 833-5413
Owner: Dan T. Miyamoto
Studio Manager: Dan T. Miyamoto

[8] AUDIO RECORDING STUDIO
also REMOTE RECORDING
Spokane, WA 99207
(509) 487-9319
Owner: Gary Long
Studio Manager: Gary Long

[8] AUDIO RECORDING INC.
also REMOTE RECORDING
4718 38th Ave. N.E., Seattle, WA 98105
(206) 623-2030, 525-7372
Owner: Kearney W. Barton
Studio Manager: Kearney W. Barton

[8] AUDIO VISUAL ASSOCIATES
also REMOTE RECORDING
1515 Old Bayshore Hwy., Burlingame, CA 94010
(415) 692-1271
Owner: Stephen White
Studio Manager: Ron Vierra

[8] AUDIOGRAPHIC PRODUCTION LAB
also REMOTE RECORDING
Fremont, CA
(415) 657-8716
Owner: Dave Humrick, Robin Humrick

[8] AUGUST PRODUCTIONS
6822 21 Dr. NE, Marysville, WA 98270
(206) 653-6117
Owner: Gregory G. Landon
Studio Manager: Gregory G. Landon

[8] AUTO-TRAK
only REMOTE RECORDING
6355 S.W. Princess, Beaverton, OR 97005
(503) 626-6702
Owner: Bob Bentley
Studio Manager: Bob Bentley

[4] MARTY BAGGEN RECORDING
also REMOTE RECORDING
P.O. Box 1128, Sitka, AK 99835
(907) 747-3985
Owner: Marty Baggen
Studio Manager: Marty Baggen

[4] BARKING DOGS
also REMOTE RECORDING
P.O. Box 3044, Fairfield, CA 94533
(707) 428-3240
Owner: Ray Towns Jr.
Studio Manager: Nikko

[8] BATISH RECORDS
1310 Mission St., Santa Cruz, CA 95060
Owner: Ashwin and Ravi Batish

[8] BENT NAIL STUDIOS
2375 Cory Ave., San Jose, CA 95128
(408) 244-0766
Owner: Dave Morris
Studio Manager: Dave Morris

[8] BESSONETTE RECORDING STUDIO
also REMOTE RECORDING
2125 Knowles Rd., Medford, OR 97501
(503) 773-3988
Owner: Skip Bessonette
Studio Manager: Waldo Thompson

[4] BIG EAR DIGITAL RECORDING
also REMOTE RECORDING
P.O. Box 2758, Novato, CA 94948
(415) 892-5911
Owner: Mel Martin
Studio Manager: Catey Nash

[8] BIRKIN GRIF
P.O. Box 1096, Richland, WA 99352
(509) 946-7914
Owner: Alonzo Powers
Studio Manager: Alonzo Powers

[8] BLUE CRYSTAL STUDIO
also REMOTE RECORDING
11520 Edgewood Rd., Auburn, CA 95603
(916) 888-7478
Owner: Jeff Bond
Studio Manager: Jeff Bond

[8] BOBKAT MUSIC PRODUCTIONS STUDIO
P.O. Box 5503, Berkeley, CA 94705
(415) 548-9766
Owner: Kat Epple, Bob Stohl
Studio Manager: Bob Stohl

[4] CALEDONIA STREET SOUND
250 Caledonia St., Louisville, CO 80027
(303) 666-9678
Owner: George T. Ward
Studio Manager: George T. Ward

[4] LANE CAMERON STUDIOS
P.O. Box 5267, Incline Village, NV 89450
(702) 831-6516
Owner: Lane Cameron
Studio Manager: Lane Cameron

[8] C.A.V.E. RECORDING
 85B South Second St., Campbell, CA 95008
 (408) 378-2283
 Owner: California Audio Video Engineering
 Studio Manager: Brett Tyson
 Engineers: Brett Tyson, Mike Pomeroy
 Dimensions of Studios: Main room 22 x 17 x 10 ceiling, live room 9 x 8, dead room 9 x 9, drum booth 10 x 7, 31 x 3 x 3 reverb chamber.
 Dimensions of Control Rooms: 13 x 17 all rooms acoustically designed
 Tape Recorders: Otari MX5050, 8-track; TEAC 3440, 4-track; Tascam 22-2, 2-track; Sony cassette.
 Mixing Consoles: Audio Track 16 x 8 x 2, Kustom 16 x 4.
 Monitor Amplifiers: Yamaha 2201, Kustom 200 and 400.
 Monitor Speakers: JBL 4313s, Hortortones (control room), JBL playbacks (studio).
 Echo, Reverb & Delay Systems: Eventide 910 Harmonizer, Lexicon PCM41, DeltaLab Acousticcomputer, ADA digital delays, Yamaha SPX-90 digital reverbs, Furman RV-1 reverbs, Roland 501 space echo, etc.
 Other Outboard Equipment: UREI LA-4 compressors, Orban 424-A stereo compressor/de-esser, Eventide omnibuss, dbx 160X limiter, Aphex Aural Exciters, ATS VE1000M Vocal Exciters with DNR, Orban 245 E stereo simulator, DOD stereo chorus, (10) Automix noise gates, dbx 150 Type I noise reduction (all channels), TEAC Dolby noise reduction, Tascam PE40 4 channel parametric EQ, MXR dual 15-band graphic EQ, Ross dual 15-band EQ, 128 point patch bay, various stomp boxes.
 Microphones: Neumann U87, AKG 414s, D1000Es, C451s, Shure PE-SP 50s, SM57s, 58, 77, Sennheiser MD 421s, 441, MKE 40s, 60s, 80 condenser capsules, Electro-Voice, Beyer, PZM.
 Instruments Available: Oberheim DX digital drum machine, Memorymoog, Fender Rhodes, Yamaha CP70, Rickenbacker 4001 bass, Ampeg, GMT, Roland, Peavey, AMPs
 Rates: Call studio manager for a pleasant surprise.

[8] CENTER FOR CONTEMPORARY MUSIC
 5000 MacArthur Blvd., Oakland, CA 94613
 (415) 430-2191
 Owner: Mills College
 Studio Manager: Scot Gresham-Lancaster, Richard Poval, Maggi Payne

[8] CHAMPAIGN SOUND
 also REMOTE RECORDING
 P.O. Box 7003, San Jose, CA 95150
 (408) 252-4536
 Owner: Ted Champaign
 Studio Manager: Ted Champaign

[8] CHERRY RECORDING
 also REMOTE RECORDING
 1235 15th St. S.E., Salem, OR 97302
 (503) 399-9775
 Owner: Ron Skog
 Studio Manager: Ron Skog

[4] CHONK MOONHUNTER PRODUCTIONS
 only REMOTE RECORDING
 484 Lake Park Ave. Ste. 289, Oakland, CA 94610
 (415) 444-3074
 Owner: Curtis A. Choy

[8] CHROME DREAMS PRODUCTIONS
 also REMOTE RECORDING
 5852 Sentinel St., San Jose, CA 95120
 (408) 268-6066
 Owner: Leonard Giacinto
 Studio Manager: Monette Paporotti

[8] CLAWS-ON PRODUCTIONS
 also REMOTE RECORDING
 1355 C Bear Mtn. Dr., Boulder, CO 80303
 (303) 499-1144
 Owner: Lisa and Dan Clawson
 Studio Manager: Lisa Clawson

[8] CLOCKWORKS
 also REMOTE RECORDING
 955 E. Sherman, Pocatello, ID 83201
 (208) 232-1829
 Owner: Michael Worona, Dave Baumert,
 Bart Hendrickson
 Studio Manager: Michael Worona, Dave Baumert,
 Bart Hendrickson

[4] COMMAND PRODUCTIONS
 also REMOTE RECORDING
 Customhouse P.O. Box 2223

San Francisco, CA 94126
 (415) 332-3161
 Owner: Warren Weagant
 Studio Manager: Michael Dupen

[8] JOE CONTI PRODUCTIONS
 also REMOTE RECORDING
 P.O. Box 557, Capt. Cook, HI 96704
 (808) 328-8106
 Owner: Joe Conti
 Studio Manager: Joe Conti

[4] CONTROL I
 also REMOTE RECORDING
 2207 Shattuck Ave., Berkeley, CA 94704
 (415) 848-4395
 Owner: KPFA
 Studio Manager: Jim Bennett

[8] COVENANT RECORDINGS INC.
 also REMOTE RECORDING
 1345 S. Major St., Salt Lake City, UT 84115
 (801) 487-1096
 Owner: Lew Kofford
 Studio Manager: Chris Jensen

[4] CRYSTAL HERMITAGE STUDIO
 14618 Tyler Foote Rd., Nevada City, CA 95959
 (916) 292-3111
 Owner: J. Donald Walters
 Studio Manager: John M. Peters

[8] DAYSTAR RECORDING STUDIOS
 1105 Leyden, Denver, CO 80220
 (303) 394-4637
 Owner: Kirk Hutchinson
 Studio Manager: Kirk Hutchinson

[8] DEROY PRODUCTIONS
 1210 Washington, Eugene, OR 97401
 (503) 683-6866
 Owner: D. Roberts, Ron Royer
 Studio Manager: Ron Royer

[8] DEVA STUDIOS
 3525 Calafia Ave., Oakland, CA 94605
 (415) 638-3341
 Owner: Bruce Mishkit
 Studio Manager: Bruce Mishkit, Raena Rodriguez

[8] DISCOUNT MUSIC RECORDING
 415 Broadway, Vallejo, CA 94590
 (707) 643-2588
 Owner: Frank Henderson
 Studio Manager: Frank Henderson

[8] DITURI RECORDING
 307A W. 11th St., Tracy, CA 95376
 (209) 836-5288
 Owner: Louie Dituri
 Studio Manager: Louie Dituri

[8] DOME STUDIOS
 1912 Gilmore Trail, Fairbanks, AK 99712
 (907) 457-1993, 456-2604
 Owner: Jerry Rafson
 Studio Manager: Rif Rafson
 Engineers: Jerry, Rafson, Rif Rafson
 Dimensions of Studios: 400 sq. ft. (irregular polygon).
 Dimensions of Control Rooms: 150 sq. ft.
 Tape Recorders: Tascam 80-8, 8-track; TEAC A3340S, 4-track; Technics RS1500 US, 2-track; Pioneer RT 1050, 2-track; Tascam 122B, cassette.
 Mixing Consoles: Peavey MC-24, 24 input; Tascam Model 3, 8 input; (2) Shure sub-mixers, 4-channels.
 Monitor Amplifiers: Haller, Crown, Rane HC-6 head-phone amp.
 Monitor Speakers: Klipsch Cornwalls, JBL 4313, Auratones.
 Echo, Reverb & Delay Systems: DL-2 Acousticcomputer, AKG BX-5 reverb.
 Other Outboard Equipment: Orban 622B parametric, Rane GE-27, Rane RE-27, (2) Furman comp/limiters, Symetrix 511, 8 channels dbx.
 Microphones: Neumann U47 tube, Beyer, Shure, Crown PZM, Audio-Technica, Peavey, Calrec, Countryman boxes, others available on request.
 Instruments Available: Upright grand, Yamana DX7 and QX7, E-mu Drumulator, E-drums, bass (electric and acoustic), guitars, drums.
 Rates: Upon request.



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[4] dp PRODUCTIONS INC.
2368 Glencoe St., Denver, CO 80207
(303) 355-8139
Owner: Dennis Papin
Studio Manager: Dennis Papin

[8] EAGLEAR SOUND PRODUCTIONS
also REMOTE RECORDING
2044 10th Ave., Greeley, CO 80631
(303) 352-3051
Owner: Dwight D. Oyer

[8] EGO MANIAC STUDIO
90 Woodhams Rd., Santa Clara, CA 95051
(408) 243-7431
Owner: Sani Sasmita, Myron Dove
Studio Manager: Myron Dove, Sani Sasmita

[8] ELBERTA RECORDING STUDIOS
also REMOTE RECORDING
343 E. Elberta Dr., N. Ogden, UT 84404
(801) 782-6356
Owner: David T. Brnhall
Studio Manager: Richard Myrup, David T. Brnhall

[2] EMERALD CITY PRODUCTIONS
also REMOTE RECORDING
512 Lisbon St., San Francisco, CA 94112
(415) 469-8453
Owner: Cody Gillette
Studio Manager: Christopher J. Grinstead

[2] EMERSON FILM AND VIDEO SOUND
only REMOTE RECORDING
1490 South St. Paul St., Denver, CO 80210
(303) 744-3001
Owner: James Emerson
Studio Manager: James Emerson

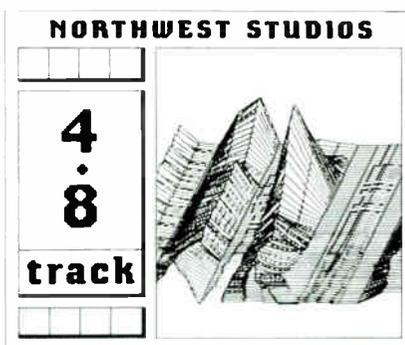
[8] EMW STUDIO @ VENDING SYSTEMS
76 Pasadepa St., San Francisco, CA 94134
(415) 334-4061
Owner: Joseph Enright
Studio Manager: Encka Rojas Enright

[8] ESS PRODUCTIONS
also REMOTE RECORDING
1235 N. 900 E, Bountiful, UT 84010
(801) 298-7445
Owner: Ess Productions
Studio Manager: Gaylen Smith

[8] EUPHONICS
448 Reynolds Circle, San Jose, CA 95112
(408) 436-1219
Owner: Russel Mulock
Studio Manager: Russel Mulock
Direction: We pride ourselves on being an intermediate step between the unsigned performer/songwriter and a recording/publishing contract. Euphonics has provided recording facilities and song/sound development capabilities since 1984 for bands, commercial and jingle production, and theatre sound design. Attitude and ergonomics are as important to getting an expressive performance as good equipment is for capturing the right sound. Neither is overlooked in our recordings. The Otari MX5050-Mark III 8-track and half-track decks and an AudioArts 24 x 8 console provide excellent price/performance quality. Add to that a LinnDrum and Drumulator; DX7 and Prophet keyboards; microphones including AKG and Sennheiser; UREI, DeltaLab, Aphex and LT Sound outboard processing gear; dbx noise reduction; Altec 604 monitor speakers powered by a Crown DC300 in a control room 14 x 17 with a studio 18 x 25. Other instrumentation and processors available upon request. For bigger projects, facilities off the premises are used for 16- and 24-track recording. Call aujourd'hui for more personal attention.

[8] FERGUS SOUND ENTERPRISES
also REMOTE RECORDING
Boulder, CO 80302
(303) 442-3939
Owner: Fergus
Studio Manager: Fergus

[8] FOLEY STUDIO
1815 Spring Mtn. Rd., St. Helena, CA 94574
(707) 963-9528
Owner: Bob Foley
Studio Manager: Bob Foley



[8] FORTE STUDIO
12495 S.W. Summercrest Dr., Tigard, OR 97223
(503) 620-7849
Owner: Walter Bruhn
Studio Manager: Walter Bruhn

[8] FOX PRODUCTIONS
401 S St., Sacramento, CA 95814
(916) 448-8220
Owner: Derek Packard
Studio Manager: Michael Fox

[8] FOX RECORDING
P.O. Box 120, Felton, CA 95018
(408) 458-5222
Studio Manager: Tom Fox

[8] FRED FOX MUSIC CO.
also REMOTE RECORDING
5 Elkwood Dr., So. San Francisco, CA 94080
(415) 994-5908
Owner: F.H. Nesbitt Jr.
Studio Manager: V.A. Nesbitt

[8] FREELANCE RECORDING
1434 Willamette St., Eugene, OR 97401
(503) 343-9130
Owner: Guy Ritter
Studio Manager: Chuck Pepper

[8] GARY GADWOOD CUSTOM RECORDING
also REMOTE RECORDING
11995 N.W. Kearney, Portland, OR 97229
(503) 644-0683
Owner: Gary Gadwood
Studio Manager: Gary Gadwood



GATEWOOD STUDIO
Livermore, CA

[4] GATEWOOD STUDIO
also REMOTE RECORDING
1057 Pine St., Livermore, CA 94550
(415) 447-6455
Owner: Dean A. Gatewood
Studio Manager: Chns Keller

[8] GENERATION ORGANIZATION
also REMOTE RECORDING
4840 Brookwood St., Eugene, OR 97405
(503) 484-9087
Owner: Lew Thorne
Studio Manager: Lew Thorne

[8] GLOBE STUDIOS
also REMOTE RECORDING
16 Locust Ave., Mill Valley, CA 94941
(415) 381-1702, 383-0629
Owner: Tim Eschliman, Austin Delone, Paul Rogers
Studio Manager: Tim Eschliman, Austin Delone, Paul Rogers

[8] GRASS ROOTS RECORDING
also REMOTE RECORDING
2737 N.E. 25th Ave., Portland, OR 97212
(503) 281-5108
Owner: Michael O'Rourke
Studio Manager: Michael O'Rourke

[8] GREEN FLASH RECORDING STUDIO, KONA
also REMOTE RECORDING
P.O. Box 78, Honaunau, HI 96726
(808) 328-9502
Owner: Teddy Ginn
Studio Manager: Teddy Ginn

[4] HANK'S BASEMENT AUDIO
also REMOTE RECORDING
5665 E. Colorado Ave., Denver, CO 80224
(303) 756-8777
Owner: HBA Enterprises, H.B. Anderson, Jr.
Studio Manager: H.B. Anderson, Jr.

[8] HAPPY TRACKS RECORDING
P.O. Box 398, Belmont, CA 94002
(415) 595-4666
Owner: John Habold
Studio Manager: Doug Dayson, Doug McVay

[8] HARVEST PRODUCTIONS
Rt. 3 Box 85, Northport, WA 99157
(509) 732-6657
Owner: Jim and Ronda Murphy
Studio Manager: Jim Murphy

[8] HEAVENLY GROTTO STUDIO
11 Milton St., San Francisco, CA 94112
(415) 469-0192
Owner: Eric and Suzanne Jensen
Studio Manager: Eric or Suzanne Jensen

[8] HEXTRAX PRODUCTIONS
P.O. Box 4067 (Mission & Warm Springs)
Fremont, CA 94539
(415) 490-7732
Owner: Hext Brothers Enterprises
Studio Manager: Craig Hext
Engineers: Ron Hext, Craig Hext
Dimensions of Studios: 23 x 25 x 16
Dimensions of Control Rooms: 18 x 10 x 8
Tape Recorders: Tascam 80-8, 8-track; TEAC A-2340-SX, 4-track; TEAC A-6100-MkII, 2-track; Akai 4000 DS, 2-track; Aiwa AD1250, cassette; TEAC A170S, cassette.
Mixing Consoles: Sound Workshop 128DBBEQ, 12 x 8; TEAC Model 3, 8 x 8 x 4; Biamp 8802, 8 x 2 x 1.
Monitor Amplifiers: Spectro Acoustics 500 SR, Crown D75, Peavey Century.
Monitor Speakers: Klipsch La Scala, Yamaha 54115H.
Echo, Reverb & Delay Systems: Master-Room XL-305, Roland DC-10.
Other Outboard Equipment: dbx 161 compressor, Spectro Acoustics 2102 EQ.
Microphones: AKG 330BT, AKG 125D, Shure SM57, TEAC M-80, Realistic P2M, Electro-Voice RE20.
Rates: 8-track, \$25/hr.; 4-track, \$16/hr.; including engineer, block rates available.

[8] HIGH ALTITUDE STUDIOS
also REMOTE RECORDING
P.O. Box 2411, Truckee, CA 95734
(916) 587-1583
Owner: Paul Rose
Studio Manager: Paul Rose

[8] HIGH KITE PRODUCTIONS
1245 Elizabeth, Denver, CO 80206
(303) 322-8964
Owner: Henry Rowland
Studio Manager: Henry Rowland

[8] HIGHLAND STUDIO
(Formerly Summit Studio)
P.O. Box 554, Los Gatos, CA 95031
(408) 353-3952
Owner: Joe Weed
Studio Manager: Joe Weed

[8] HOERNER AUDIO PRODUCTIONS
also **REMOTE RECORDING**
P.O. Box 27090, Seattle, WA 98125
(206) 362-2611
Owner: Clinton J. Hoerner
Studio Manager: Clinton J. Hoerner

[2] HOLLCRAFT STUDIOS
also **REMOTE RECORDING**
1961 Rose Lane, Pleasant Hill, CA 94523
(415) 689-3444
Owner: E.J. Hollcraft
Studio Manager: E.J. Hollcraft

[4] HOT SPOT MOBILE RECORDING
only **REMOTE RECORDING**
Olympia, WA 98506
(206) 357-3637
Owner: Rick Slood
Studio Manager: Rick Slood

[4] HUDGINS STUDIOS
also **REMOTE RECORDING**
1575 Bayshore Blvd. Ste. 150
San Francisco, CA 94124
(415) 648-1499
Owner: David Hudgins
Studio Manager: Janice Waller

[8] HUMMINGBIRD SOUND LAB
10201 Belgrave Ct. NW, Seattle, WA 98177
(206) 782-1512
Owner: Robert Casper, Donnee Casper
Studio Manager: David Casper
Engineers: David Casper
Dimensions of Studios: 16 x 15.
Dimensions of Control Rooms: 16 x 8.
Tape Recorders: Otari MX5050B, 8-track; Otari MX5050B, 2-track.
Mixing Consoles: Sound Workshop 1280 B Super EQ 12 x 8.
Monitor Amplifiers: McIntosh 1900.
Monitor Speakers: JBL L100.
Echo, Reverb & Delay Systems: Lexicon PCM60, Master-Room XL305, Lexicon PCM42, Digitech RDS 900.
Other Outboard Equipment: dbx noise reduction, dbx compressor, Orban 424A compressor/limiter/de-esser, Universal Audio 1176N peak limiter, Symetrix SE-400 parametric EQ, U.S. Audio Gatex noise gates, Aphex type C Aural Exciter.
Microphones: Neumann KM84s, Sennheisers, others.
Instruments Available: Prophet 2000 sampling keyboard w/expanded memory, CZ-101 synth, Yamaha QX21 MIDI sequence recorder, exotic instruments from around the world, Steinway "B" 7-foot grand piano.
Rates: \$24/hr. general, \$20/hr. for solo composers.

[8] HYBRID MUSIC
2777 Devonshire Ave., Redwood City, CA 94063
(415) 364-0354
Owner: Ronald Craig Torbensen, Christina Marie Saxton
Studio Manager: Ronald Craig Torbensen, Christina Marie Saxton

[4] HYDROSPHEAR RECORDING
6278 SE Deering Ct., Milwaukie, OR 97222
(503) 659-1372
Owner: John Dukal
Studio Manager: Cpt. Fog

[8] INFINITY PRODUCTIONS
753 Cardinal Dr., Livermore, CA 94550
(415) 443-4966
Owner: Clifton Hildreth
Studio Manager: Clifton Hildreth

[8] INLAND AUDIO VISUAL CO.
N. 2325 Monroe, Spokane, WA 99205
(509) 328-0706
Owner: Larry Ellingson
Studio Manager: Bruce Hemingway

[8] JADE PRODUCTIONS
also **REMOTE RECORDING**
P.O. Box 4803, Modesto, CA 95352
(209) 578-3770
Owner: Gina A. Rose
Studio Manager: Alvin R. Rose

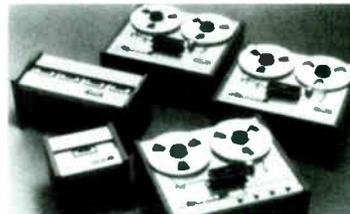
[8] JAGS ENTERTAINMENT SERVICES
also **REMOTE RECORDING**
P.O. Box 935, Captain Cook, HI 96704
(808) 323-3315
Owner: Eric Jaeger
Studio Manager: Eric Jaeger

[8] JAZZY J'S RECORDING STUDIO
also **REMOTE RECORDING**
807 Grove St., San Francisco, CA 94117
(415) 626-4522
Owner: Reiko Record Company
Studio Manager: Bruce A. Jones
Engineers: Bruce Jones, Raynard Jackson III.
Dimensions of Studios: 12 x 10.5 x 10.
Dimensions of Control Rooms: 12 x 11.5 x 10.
Tape Recorders: Fostex B16, 16-track; Ampex 440, 8-track; Ampex 350, 4-track; Tascam 244, 4-track; (2) 3M 56, 2-track.
Mixing Consoles: Soundcraft 1600 Producer Series, 24 x 24 x 8; Tascam M520, 20 x 8 x 16; Tascam Model 3, 8 x 4 x 2.
Monitor Amplifiers: Crown, Sensus.
Monitor Speakers: JBL 4311 (control room) AL series 1000 (studio).
Echo, Reverb & Delay Systems: Lexicon PCM70 digital reverb, Alesis MIDlverb digital reverb, Yamaha SPX-90 multi-effects processor, Alesis MIDlflex digital delay.
Other Outboard Equipment: ADA Pitchtraq Harmony, Valley People Dyna-Mite 430, dbx 166 dual-channel dynamics processor, Aphex Exciter Type C, UREI 1176W 4 compressor/limiter, Rane HC-6 headphone console, Ashly parametric EQ SC-66A, dbx 160X compressor limiter, Akai sampler 5900, Akai MIDlnote separator WE255, Commodore SMPL transport automation system, Commodore 128 computer.
Microphones: Sennheiser, Shure, Electro-Voice, Neumann, AKG.
Instruments Available: Yamaha DX7, RX21, TX7, QX21 digital sequence recorder, Oberheim 8 synthesizer, Oberheim DMX drum machine, tom drum machine, Roland 707 drum machine, Fender P-bass, Les Paul guitar, other guitars and drum machines.
Video Equipment & Services: On request.
Rates: 4-track \$7/hr.; 8-track \$10/hr.; 16-track \$20/hr.; video-audio \$50/hr.

[8] JB RECORDINGS
6532 5th Ave. N.W., Seattle, WA 98117
(206) 783-6579
Owner: JB
Studio Manager: Mr. James Bachman
Engineers: Jim Bachman
Dimensions of Studios: (A): 11 x 18 x 8; (B): 14 x 15 x 8; Vocal booth: 11 x 6 x 7.
Dimensions of Control Rooms: 11 x 8 x 7
Tape Recorders: Otari MX5050 MkIII, 8-track; Tascam 32, 2 track; Nakamichi BX2, cassette.
Mixing Consoles: Studio Master patch bay, 16 x 4 x 2.
Monitor Amplifiers: Pioneer Spec 4.
Monitor Speakers: E-V Sentry 100A
Echo, Reverb & Delay Systems: Lexicon Model 200 reverb, PCM42 delay w/ext. memory, Fostex 3050 delay.
Other Outboard Equipment: Dyna-Mite 430I, Symetrix SE400 parametric EQ, MXR dual limiter, Phase Linear 1300 Series 2 noise reduction, Symetrix HA 10B headphone amp, Rane SM26 splitter/mixer, Otari CB 116 auto locator, Aphex Type "C," Axiom Ten Stereo Imager.
Microphones: (2) Neumann U89, (2) Beyer M69, AKG 330 BT, Shure SMS7.
Instruments Available: Assorted things with strings.
Rates: \$15/hr.

[8] JUDE PRODUCTIONS
P.O. Box 90, Dutch Flat, CA 95714
(916) 389-2326
Owner: Russell Brian Brooker
Studio Manager: Victoria Brooker

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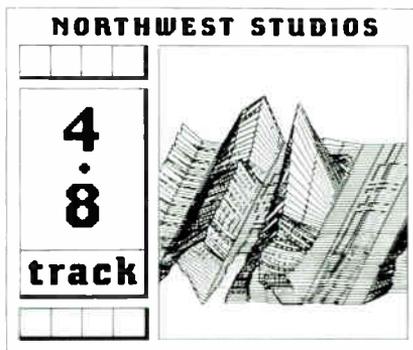
[8] KABA STUDIOS
also **REMOTE RECORDING**
24 Commercial Blvd. Ste. E-G, Novato, CA 94947
(415) 883-5041
Owner: Kenneth A. Bacon Associates
Studio Manager: Rick Boroughs
Engineers: Rick Boroughs
Dimensions of Studios: 7 x 9
Dimensions of Control Rooms: 9 x 14 (also used for direct input instruments).
Tape Recorders: (2) Otari MX-5050 MKIII-8, 8-track; (2) Otari MX-5050 B-Q LXD, 4-track; (2) Otari MX-5050B-II, 2-track; Nakamichi DMP-100 digital, 2-track; Technics SV-110 digital, 2-track; Nakamichi MR-1 cassette deck.
Mixing Consoles: Ramsa WR-8210 10 x 4.
Monitor Amplifiers: JBL 6260, Symetrix A-220.
Monitor Speakers: JBL 4312, JBL 4401, Auratone 5-C.
Echo, Reverb & Delay Systems: Yamaha digital reverb, ADA digital delay.
Other Outboard Equipment: Aphex Aural Exciter, Aphex Compellor, Valley People Dyna-Mite, Tascam 4 channel parametric EQ, IVC XL-V200 CD player, Technics turntable, Countryman direct boxes, AKG headphones.
Microphones: Electro-Voice and AKG.
Instruments Available: Upon request.
Video Equipment & Services: VHS and Beta video recorders for digital mastering and video copies.
Rates: Block time discounts available. Call for rates.
Extras: Real time cassette duplication, KABA 4-track real time system, for demos or production runs, complete graphics (inc. 4-color inserts) and packaging. Staff photographer.
Direction: KABA occupies a unique position as a major equipment and supplies distributor, a full service production house for both high-speed and real time digital duplication and the developer of the KABA 4-track real time and 2x duplication system. The facilities and experience provide an environment for speedy, cost-effective production of audio cassette programs of exceptionally high quality. Studio work includes post-production audio sweetening, remixing, digital mastering, production of sound tracks for animated cartoons, radio and video commercials, original music production, voice-over demos, educational, therapeutic and self-improvement tapes.

[8] KALEIDOSOUND
185 Berry St. Ste. 2805, San Francisco, CA 94107
(415) 543-0531
Owner: Forrest G. Patten
Studio Manager: Forrest G. Patten

[8] KEZR-FM
777 N. 1st St. #700, San Jose, CA 95112
(408) 287-5775
Owner: Alta Broadcasting Co.
Studio Manager: Dan Seibold

[8] KUOP RECORDING STUDIOS
also **REMOTE RECORDING**
3601 Pacific Ave., Stockton, CA 95211
(209) 946-2582
Owner: University of the Pacific
Studio Manager: Joshua Sacco

[8] LCO MUSIC PRODUCTIONS
P.O. Box 2366, Kailua-Kona, HI, 96745
(808) 325-7525
Owner: Woody Demarco
Studio Manager: Woody Demarco



[8] LITTLE PEOPLE STUDIO
also **REMOTE RECORDING**
2111 Research Dr. #2, Livermore, CA 94550
(415) 449-9820
Owner: Doug Mann, Michael Ferrucci
Studio Manager: Doug Mann, Michael Ferrucci

[8] MAMMOTH RECORDING STUDIOS
8580 Essex Dr., Denver, CO 80229
(303) 287-2382
Owner: Kenneth Hendricks
Studio Manager: Kenneth Hendricks

[8] MANGOID MUSIC
1216 Burnett, Berkeley, CA 94702
(415) 849-4913
Owner: Victor Spiegel
Studio Manager: Victor Spiegel

[2] DAVID MATHEW RECORDING SERVICES
only **REMOTE RECORDING**
2815 NE 35th Ave., Portland, OR 97212
(503) 287-1420
Owner: David Mathew
Studio Manager: David Mathew

[8] McCOY STUDIOS
125 S. Central Ave. Ste. 209, Medford, OR 97501
(503) 773-2113
Owner: Mike McCoy
Studio Manager: Jeff Bates



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
Studio Manager: Jim Draper
Engineers: Steven Richardson, Jim Draper, Don Geis
Dimensions of Studios: 16 x 26
Dimensions of Control Rooms: 15 x 19
Tape Recorders: Otari MX 5050-8, 8 track; (2) MCI JH-110, 2 track; Otari MX 5050 BQII, 4 track; Ampex 440, 2 track; Ampex/Inovonics 350, 2 track; Ampex 350/351, mono. (Sixteen track [1-inch-2-inch] on request.)
Mixing Consoles: Amek TAC 1682, 16 x 8 x 2.
Monitor Amplifiers: Hafler DH 200, (biamped).

Monitor Speakers: McCune SM-4B (Altec 604s w/active X-over, including time-correction and EQ circuitry), Auratones.
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 1176 LN compressor/limiter, Orban de-esser, Technics SL 1200 MK2 turntables w/Burwin TNE 7000A transient noise eliminator, and other devices from McCune rental stock.
Microphones: Neumann U87, KM84; AKG 414, 451, 202; Sony C-37; RCA 77; Shure SM-56, 57, 58; and many others from McCune rental stock.
Instruments Available: On request.
Video Equipment & Services: Full production services; 3/4-inch-1-inch studio/location recording; 3/4-inch editing; full duplication services (1-inch-3/4-inch, VHS, Beta); 16mm and slide-to-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.
Extras: Free parking and coffee.
Direction: McCune Studios are fully equipped to serve the needs of our media clients, from television and radio spots, to multi-image presentations, to films and videos.

[8] McPET MUSIC
151 Hunt Way, Campbell, CA 95008
(408) 866-4875
Owner: David Petrucci
Studio Manager: David Petrucci

[8] MEDIA WEST, INC.
491 Gianni St., Santa Clara, CA 95054
(408) 980-1008
Owner: Media West, Inc.
Studio Manager: Ric Getter

[8] MELODIC SERVICES
also **REMOTE RECORDING**
P.O. Box 393, Loveland, CO 80539
(303) 669-1525
Owner: Brian Salyards
Studio Manager: Brian Salyards

[4] MERIWETHER PRODUCTIONS
885 Elkton Dr., Colorado Springs, CO 80907
(303) 594-4422
Owner: Arthur L. Zapel
Studio Manager: Theodore O. Zapel

[4] MISS WHIB, ABROAD
only **REMOTE RECORDING**
P.O. Box 185, Greenville, CA 95947
(916) 284-7258
Owner: Jean A. Souders
Studio Manager: J.A. Souders

[2] MOBIL SOUND & LIGHTING SYSTEMS OF HAWAII
only **REMOTE RECORDING**
P.O. Box 1380, Kailua, HI 96734
(808) 235-0522
Owner: Scott W. Wood
Studio Manager: Woody Barboza

[4] MOTION FANTASY & ILLUSIONS INC.
P.O. Box 3388, Kirkland, WA 98083
(206) 428-4606
Owner: Jeffrey L. Mindt
Studio Manager: Jeffrey L. Mindt

[8] MOUNTAIN STUDIO
17835 Hwy 9, Boulder Creek, CA 95006
(408) 338-9555
Owner: Thom Carlsen
Studio Manager: Steve Keitzer

[8] MUSIC ETC.
3016 1st Ave. Ste. 407, Seattle, WA 98121
(206) 323-5066
Owner: Jaime Jones
Studio Manager: Len Wallick

[8] MYERS AUDIO RECORDING
344 Lagomarsino Way, Sacramento, CA 95819
(916) 454-4619
Owner: Fred and Ginger Myers
Studio Manager: Fred Myers

[4] NEW LIFE BROADCASTING
also REMOTE RECORDING
P.O. Box 117, Quincy, CA 95971
(916) 283-4144
Owner: Ron Trumbo
Studio Manager: Ron Trumbo

[8] ON THE ROCK
also REMOTE RECORDING
1727 Dotsero Ave., Loveland, CO 80538
(303) 669-0739
Owner: Donald Mattson, Jr.
Studio Manager: Donald Mattson, Jr.

[8] ONION AUDIO
also REMOTE RECORDING
P.O. Box 869, Greenville, CA 95947
(916) 284-6929
Owner: Hank Alrich
Studio Manager: Lanis LeBaron

[8] P&G SOUND
also REMOTE RECORDING
1190 Santa Clara St., Santa Clara, CA 95050
(408) 247-3327
Owner: Paul Goeltz
Studio Manager: Sandy Tolosky

[8] PEAK RECORDING & SOUND
also REMOTE RECORDING
P.O. Box 1404, Bozeman, MT 59715
(406) 586-1650
Owner: Peak Recording & Sound, Inc.
Studio Manager: Gil Stober

[8] PEEKABOO MOUNTAIN STUDIOS
590 Bel Air Way, Morgan Hill, CA 95037
(408) 778-2072
Owner: Jeff and Gail Hester
Studio Manager: Jeff Hester

[4] PEOPLE'S MEDIA COLLECTIVE
also REMOTE RECORDING
618 Shrader St., San Francisco, CA 94117
(415) 752-5750
Owner: Haight Ashbury Arts Workshop
Studio Manager: Joel Sachs

[4] P.F.S. RECORDING
also REMOTE RECORDING
P.O. Box 6840, San Jose, CA 95150
(408) 275-6322
Owner: Mike Halloran
Studio Manager: Mike Halloran

[8] PHANTASMA SOUND
also REMOTE RECORDING
7935 Fremont Ave., Ben Lomond, CA 95005
(408) 336-2494
Owner: Errol G. Specter
Studio Manager: Errol G. Specter

[8] PHANTOM POWER STUDIO
also REMOTE RECORDING
105 Pennsylvania Ave., Hamilton, MT 59840
(406) 363-2835
Owner: Joe McLean
Studio Manager: Joe McLean

[4] PINE APPLE STUDIOS
also REMOTE RECORDING
P.O. Box 427, Glendon Beach, OR 97388
(503) 746-2617, 757-8702
Owner: Clay Ashley
Studio Manager: Henry Zellers

[8] POLYMORPH STUDIO
also REMOTE RECORDING
P.O. Box 7963, Berkeley, CA 94707
Owner: Mark Stichman
Studio Manager: Mark Stichman

[4] POLYTUNE RECORDING STUDIO
also REMOTE RECORDING
3211 Silver Crest Dr., Bothell, WA 98012
(206) 337-4322
Owner: Paul Havniak
Studio Manager: Paul Havniak



CHAIRMAN Music Production & Engineering Department

The Music Production and Engineering Department within the Music Technology Division is accepting applications for Chairman, Music Production and Engineering Department. Applicant must have an extensive background in professional music production or production/engineering and management, teaching and administrative experience. A Master's degree or equivalent professional training is required.

The Chairman is responsible for the administration of the department, including budgeting, faculty hiring, student selection and curriculum direction. He/she will work directly with and report to the Chairman, Music Technology Division.

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Owner: Errol G. Specter
Studio Manager: Errol G. Specter

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Studio Manager: Mark Stichman

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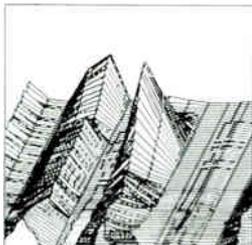
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NORTHWEST STUDIOS

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[8] PUDDINGSTONE PRODUCTIONS
4804 58th St., Sacramento, CA 95820
(916) 452-2956
Owner: Bruce Bolin
Studio Manager: Bruce Bolin

[4] RADIOACTIVE RECORDS
170 SW 139th, Beaverton, OR 97006
(503) 626-2331
Owner: Mark Hannah
Studio Manager: Mark Hannah

[8] RAL-RECORDING
also REMOTE RECORDING
2855 Oleander, Merced, CA 95340
(209) 722-3220
Owner: Robert A. Laughton
Studio Manager: Robert Laughton

[8] RAP RECORDING
also REMOTE RECORDING
167 S. 3rd East, Rexburg, ID 83440
(208) 356-8705
Owner: Trent Walker

Studio Manager: Trent Walker
Engineers: Trent Walker
Dimensions of Studios: 14 x 20.
Dimensions of Control Rooms: 15 x 16.
Tape Recorders: Tascam 80-8, 8-track; Ampex 350, 2-track; Sony TC-850, 2-track; TEAC 122-B, cassette; Marantz 3200, cassette.

Mixing Consoles: Tascam Model 15 w/phantom 19 x 8 x 16.
Monitor Amplifiers: Crown DC 150, DC300, D75.
Monitor Speakers: E-V Sentry 100s, Auratones.
Echo, Reverb & Delay Systems: Lexicon PCM60, Ibanez DM2000, Ibanez SDR 1000, MXR digital, MXR doubler, flanger Biamp 140.

Other Outboard Equipment: Aphex Aural Exciter, UREI LA-4 and Ashly SC-50 comp/limiters, UREI 527 EQ, DOD EQ, Rane Analyzer, Passport Master Tracks 64-track sequencer w/Landy 1000 256K with 10 meg hard disk.
Microphones: Neumann U87; AKG 414, 224E; E-V RE 20s, RE15s; Shure SM57, SM58; AKG DM100E; Sennheiser: 421, Crown 30GP P2Ms.

Instruments Available: Ensoniq Mirage, Yamaha CP35, Roland 707 drum machine, Roland Octapad, others available on request.
Video Equipment & Services: Sony 3/4-inch U-matic. Full sound effects library.
Rates: Competitive rates, hourly and block rates, call for quote.

[4] RAVEN RADIO
also REMOTE RECORDING
Box 520, Sitka, AK 99835
(907) 747-5878
Owner: Raven Radio Foundation
Studio Manager: Mary L. Baker, Rich McClear

[4] RAWHIDE RECORDING
also REMOTE RECORDING
West Bercaile Creek, Judith Gap, MT
(406) 473-2242
Owner: Jack Mills
Studio Manager: Jack Mills

[8] REAL TIME RECORDING
also REMOTE RECORDING
8101 Peck Ave. #34E, Anchorage, AK
(907) 333-1189
Owner: Patric D'Eimon
Studio Manager: Patric D'Eimon

[8] RECIPROCAL RECORDING
4230 Leary Way NW, Seattle, WA 98107
(206) 782-6411
Owner: Chris Hanzsek, Mike Giacondino
Studio Manager: Chris Hanzsek
Engineers: Mike Giacondino, Chris Hanzsek, various independents.
Dimensions of Studios: 25 x 23 x 12 (ceiling), 10 x 8 x 12 (ceiling).

Dimensions of Control Rooms: 18 x 22.
Tape Recorders: Otari MX5050 MKIII, 8-track; TEAC A3340 S, 4-track; Revox A77 (high speed), 2-track; (2) Vector Research VXC cassettes.
Mixing Consoles: Tascam M-50, 12 x 8 x 8; (2) Tascam M-1, 8 x 2.

Monitor Amplifiers: Hafler DH-220, Sansui AV-6600, Onkyo A-15, Rane HC-6 headphone amplifier.
Monitor Speakers: Auratone QC-66, TDC Point-Five's, Speakerlab 3s, AKG 240 headphones.

Echo, Reverb & Delay Systems: Lexicon PCM60 digital reverb, Yamaha SPX90 digital effects processor, AKG BX-5 and Tapco 4400 spring reverbs, DeltaLab ADM-2048 and Digitech RDS-1900 digital delays, Roland Space Echo.
Other Outboard Equipment: dbx 155 type 1 noise reduction (8 ch.), Symetrix 522 stereo comp/limiter/expander/gate/ducker, CL-100 compressors, Audioarts 1200 comp/limiter, Biamp quad limiter, Aphex Aural Exciter, IVP instrument preamplifier, MXR Distortion II.

Microphones: AKG 414EB; Audio-Technica 91s; Beyers M-300s, M-400s, M-500; Sennheiser 416, 421; Shure SM58s; Sony ECM-23Fs.

Instruments Available: Sequential Circuits Pro-Ones synthesizer, Krell upright piano, Roland TR-808 drum machine, Guild electric guitar, Fender amplifier, drums, Yamaha DX7 synthesizer, RX-11 drum computer and QX-1 MIDI sequencer available at additional cost.

Video Equipment & Services: On-location simultaneous video shoots. Rates quoted on request.
Rates: \$17/hr.

[8] RECORDING ETC.
also REMOTE RECORDING
633 Cowper St., Palo Alto, CA 94301
(415) 327-9344
Owner: Dennis Reed
Studio Manager: Ted Brooks

[8] REEL ART RECORDING
534 Acoma St., Denver, CO 80204
(303) 534-7775
Owner: David E. Rice
Studio Manager: David E. Rice

[4] REEL CREATIONS
also REMOTE RECORDING
E. 11321 37th, Spokane, WA 99206
(509) 928-2460
Owner: Alan J. Perry
Studio Manager: Alan J. Perry

[4] REEL TIME REPRODUCTIONS
only REMOTE RECORDING
190 Marianna Way, Campbell, CA 95008
(408) 265-5364
Owner: Timothy Whyte
Studio Manager: Timothy Whyte

[8] ROCKY MOUNTAIN ARTISTS
6851 Highway 73, Evergreen, CO 80439
(303) 674-2379
Owner: John J. Newkirk
Studio Manager: Richard Pritekel

[8] ROMANCE RECORDING
4215 E. 30th Ave., Spokane, WA 99223
(509) 534-5933
Owner: Richard Vallance
Studio Manager: Richard Vallance

[8] D. ROSS PRODUCTIONS
also REMOTE RECORDING
3097 Floral Hill Dr., Eugene, OR 97403
(503) 343-2692
Owner: Don Ross
Studio Manager: Don Ross

[2] NORMAN ROSS PRODUCTIONS
also REMOTE RECORDING
47 E. Stratford Ave., Salt Lake City, UT 84115
(801) 484-0401
Owner: Norman B. Ross
Studio Manager: Alice L. Ross

[8] RUBBER PARK PRODUCTIONS
 also REMOTE RECORDING
 P.O. Box 120, Tahoma, CA 95733
 (916) 525-6554
 Owner: David F. Chance
 Studio Manager: Stephen L. Teshara

[4] RUTHER REMOTE RECORDING
 also REMOTE RECORDING
 1421 Circle Dr., Walla Walla, WA 99362
 (509) 522-0438
 Owner: Bud Ruther
 Studio Manager: Bud Ruther

[8] S-G-L RECORD
 1959 Lemon Ck. Rd., Juneau, AK 99801
 (907) 780-6364
 Owner: Sam S. Hughes
 Studio Manager: Sam S. Hughes

[4] SADDLE BUTTE MUSIC
 also REMOTE RECORDING
 P.O. Box 2232, Jackson, WY 83001
 (307) 733-9008
 Owner: Barbara Moore
 Studio Manager: Roger Lavake

[8] SAN FRANCISCO PRODUCTION GROUP
 550 Bryant St., San Francisco, CA 94107
 (415) 495-5595
 Owner: Jeff Cretcher, Joel Skidmore
 Engineers: Mark Cretcher, Leroy Clark
 Dimensions of Studios: 6 x 10 narration booth
 Dimensions of Control Rooms: 16 x 17
 Tape Recorders: Otari MTR 90-11B, 8-track; Tascam ATR 60-2T, 2-track w/center TC; Otari MX 5050, 2-track; Technics 1500, 2-track.
 Mixing Consoles: Sound Workshop Series 34, 12 x 12.
 Monitor Amplifiers: Bryston 4B, Crown PS-200.
 Monitor Speakers: JBL 4425, Yamaha NS-10, Auratone.
 Echo, Reverb & Delay Systems: Lexicon 200 reverb.
 Other Outboard Equipment: Valley People, dbx, Audioarts, Orban (gates, comp/limiters, EQ, etc.).
 Microphones: Neumann, AKG, Shure, Sony.
 Instruments Available: Yamaha KX88, TX rack, Prophet 5, LinnDrum, MIDI sequencer software w/SMPTE sync.



SAN FRANCISCO PRODUCTION GROUP
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Video Equipment & Services: Layback to one-inch type-C, Betacam or 3/4-inch, w/Adams-Smith and Otari synchronizers and CMX controller. State-of-the-art one-inch and interformat video post-production and special effects, computer graphics, animation, remote production packages.
Rates: Call for rates.
Extras: Original scoring to picture, music and effects library.
Direction: Audio post-production and sound design for video.

[8] SCHECHTER STUDIOS
 2800 Hill Top Rd., Healdsburg, CA 95448
 (707) 433-1720
 Owner: Randy Schechter
 Studio Manager: Michelle Schechter

[8] SCHLAGEL STUDIO
 18234 E. Layton Pl., Aurora, CO 80015

Owner: Bob Schlagel
 Studio Manager: Bob Schlagel

[8] SENSATIONAL SOUNDS
 P.O. Box 2039, Mill Valley, CA 94942
 (415) 381-4224
 Owner: Michael Angelo
 Studio Manager: Michael Angelo

[2] ROBERT SHUMAKER RECORDING SERVICES
 also REMOTE RECORDING
 2321 Russell St. #1E, Berkeley, CA 94705
 (415) 548-9986
 Owner: Robert Shumaker
 Studio Manager: Robert Shumaker

[8] SHYNE SOUND
 only REMOTE RECORDING
 P.O. Box 9906, San Rafael, CA 94912
 (415) 459-2833
 Owner: Leroy Shyne
 Studio Manager: Leroy Shyne

[8] SIRIUS PRODUCTIONS
 also REMOTE RECORDING
 2125 Knowles Rd., Medford, OR 97501
 (503) 772-6031
 Owner: Skip Bessonette
 Studio Manager: Waldo Thompson

[4] SNAKE RIVER SOUND
 also REMOTE RECORDING
 1008 N. 6th St., Boise, ID 83702
 (208) 386-9276
 Owner: David Smyth

[4] SNAKE RIVER STUDIOS
 also REMOTE RECORDING
 Rt. 6 Box 46, Idaho Falls, ID 83401
 (208) 529-3786
 Owner: Max E. Harrison
 Studio Manager: Max E. Harrison

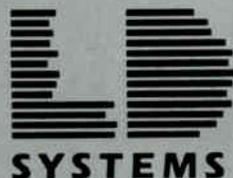
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dbx digital	Soundcraft
Deltalab	Star Case
EAW	Switchcraft
Electrovoice	TAC
Eventide	Tascam
Fostex	TOA
Gauss	Turbosound
GLI	Urei
Goldline	Ursa
HME	White
Interface	Whirlwind
Ivie	Williams
JBL	Wireworks

[8] SOLO PRODUCTIONS
also REMOTE RECORDING
119 Charles Pl., Pocatello, ID 83201
(208) 232-6688
Owner: Dean Adair
Studio Manager: Dean Adair

[8] SOUND PRODUCTIONS
also REMOTE RECORDING
Box 31232, Seattle, WA 98103
(206) 525-9999
Owner: Brian Bouchard
Studio Manager: Brian Bouchard

[8] SOUNDCAPSULE STUDIOS
also REMOTE RECORDING
P.O. Box 1232, Nevada City, CA 95959
Owner: Michael Loomis
Studio Manager: Michael Loomis

[4] THE SOUNDSMITH
Seaside, CA 93940
(408) 394-6940
Owner: David Kempton
Studio Manager: Jeremy Hertzberg

[8] SPLASH RECORDING STUDIO
P.O. Box 103, 4444 Rice St., Lihue, HI 96766
(808) 245-5710
Owner: Stuart Hollinger, Wes Pacanas
Studio Manager: Stuart Hollinger

[4] SQUARE ONE
also REMOTE RECORDING
104 Yosemite Ave., Santa Cruz, CA 95060
(408) 429-6929
Owner: John V. Reynolds
Studio Manager: John V. Reynolds

[4] STARWEST PRODUCTIONS
also REMOTE RECORDING
1391 N. Speer Blvd. #490, Denver, CO 80204
(303) 623-0636
Owner: Starwest Productions, Inc.
Studio Manager: Steven Pettit

[8] STEP ONE STUDIOS
432 Church St., Garberville, CA 95440
(707) 923-3388
Owner: Jimmy Dangler
Studio Manager: Jimmy Dangler

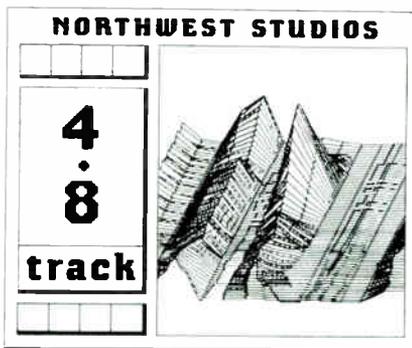
[8] STONNELL ENTERPRISES
also REMOTE RECORDING
P.O. Box 217, Bozeman, MT 59715
(406) 586-2443
Owner: Jack Stonnell
Studio Manager: Jack Stonnell

[8] STOTZ'S SOUND
also REMOTE RECORDING
576 Cypress St., Monterey, CA 93940
(408) 375-9718
Owner: Gary M. Stotz
Studio Manager: Gary M. Stotz

[2] STUDIO M PRODUCTIONS UNLIMITED
only REMOTE RECORDING
8715 Waikiki Station, Honolulu, HI 96830
(808) 734-3345
Owner: Mike Michaels
Studio Manager: Mike Michaels

[8] STUDIO P
1833 Lake St., San Francisco, CA 94121
(415) 221-4JOE
Owner: Joe Paulino
Studio Manager: Bob Ducatt

[4] STUDIO III PRODUCTIONS
also REMOTE RECORDING
16303 Panoramic Way, San Leandro, CA 94578
(415) 276-1536
Owner: Gary J. Allsebrook
Studio Manager: Gary J. Allsebrook



[8] STUDIO Z RECORDING
2612 "J" St. #1, Sacramento, CA 95816
(916) 448-0370
Owner: Zack Boles
Studio Manager: Zack Boles
Engineers: Zack Boles, Jay Lemmons
Dimensions of Studios: 8 x 12.
Dimensions of Control Rooms: 14 x 12.
Tape Recorders: MCI 110-C, 8 track; Scully 280, 2 track;
Otari 5050B, 2 track; Ampex 440-B, 2 track.
Mixing Consoles: Sound Workshop Series 30, 18 in x 8
out.
Monitor Amplifiers: Crown.
Monitor Speakers: JBL 4311, Auratones.
Echo, Reverb & Delay Systems: MICMIX Master-Room
B; Super C, Yamaha SPX-90, Yamaha REV7.
Other Outboard Equipment: Valley People Dyna-mite;
MXR graphic EQs; Aphex Aural Exciter, Aphex Compel-
lor, DeltaLab Super Time Line, Dynaflex DX-2, Yamaha
DX7 synth.
Microphones: Neumann U87s; Shure SM5Bs; AKG 414s;
RCA 44, 77.
Rates: Audio: \$50/hr.

[8] SUNDOWN SOUND RECORDING
832 Parkview St., Louisville, CO 80027
(303) 666-7471
Owner: Chip and Debbie Monroe
Studio Manager: Chip Monroe

[8] SUNSHINE RECORDING & VIDEO
327 Del Sur, Vallejo, CA 94591
(707) 552-5210
Owner: Lyman White
Studio Manager: Lyman White

[8] SYNAPSE PRODUCTIONS
also REMOTE RECORDING
1375 W. 7900 S., West Jordan, UT 84084
(801) 561-1901
Owner: Synapse Sound Services
Studio Manager: Charles Smith

[8] SYNTONOS
1571 San Lorenzo Ave., Berkeley, CA 94707
(415) 527-5367
Owner: J. Gordon Finder
Studio Manager: Jeff Finder
Engineers: Jeff Finder
Dimensions of Control Rooms: 10 x 14 x 12.
Tape Recorders: Otari MkIII 5050-B, (1/2-inch) 8 track
w/remote; Technics SV-100 PCM, 2 track (video); Technics
RS10A02, 2 track; IVC KD-99, cassette; Aiwa WX220,
cassette.
Mixing Consoles: Dynamix D-3000, 24 x 8 x 2.
Monitor Amplifiers: McIntosh 2100.
Monitor Speakers: JBL 4312, Auratone 5C, Yamaha NS-
10M.
Echo, Reverb & Delay Systems: Yamaha SPX-90; Even-
tide 910 Harmonizer; ART 01 A, Orban 111 B, Lexicon Prime
Tjme.
Other Outboard Equipment: (2) Yamaha GQ 1031 1/3-
octave EQ, (3) MSC semi-parametric EQ, MXR dual octave
EQ, Orban stereo compressor/de-esser, dbx 161 compres-
sor/limiter, Roland SVC350 vocoder, SMPL system, SMPL
lock, IBM-XT, sequencing and voicing software, hot tub.
Microphones: Neumann U47, KM85; (2) AKG C-61, (2)
D-24, D-19, D-15; Sennheiser 413; Shure SM76, Unisphere
B.
Instruments Available: Ensoniq Mirage, Prophet 10 w/
MIDI, Casio CZ101, Yamaha CX5, Yamaha TX-7, Pro-1,
EMU Drumulator, Roland GR-700, Fender and ESP Strats,
Fender P-bass, custom fretless bass, Martin D-12/35, Mar-
tin O-18, trumpet, alto sax, Pimental classical guitar, guitar
effects.

Video Equipment & Services: PCM digital mastering;
lock-up w/multi-track; VHS portable w/camera.
Rates: \$20/hr; block rates available.

[2] SYRINX RECORDINGS
only REMOTE RECORDING
182 Caldecott Lane Ste. 314, Oakland, CA 94618
(415) 548-3996
Owner: Robert L. Miller
Studio Manager: Robert L. Miller

[8] TACHYON STUDIO
100 2nd St. E., Whitefish, MT 59937
(406) 862-7541
Owner: Kent Nelson
Studio Manager: Bruck Stark

[8] TAR INDUSTRIES
also REMOTE RECORDING
Box 1542, Columbia Falls, MT 59912
(406) 892-3845
Owner: Tad Rosenberry
Studio Manager: Tad Rosenberry

[8] TDS PRODUCTIONS
P.O. Box 31983, Seattle, WA 98103
(206) 284-2399
Owner: Tom Dyer
Studio Manager: Keith Livingston

[8] TEKNIFILM, INC.
909 N.W. 19th Ave., Portland, OR 97209
(503) 224-3835
Owner: Arlan Evensen, Frank Hood

[8] TIME CAPSULE RECORDING
1042 Perry St., Denver, CO 80204
(303) 534-6977
Owner: Jim Jackson, T.J. Jackson
Studio Manager: Jim Jackson
Engineers: Jim Jackson, T.J. Jackson
Dimensions of Studios: 22 x 18.
Dimensions of Control Rooms: 11 x 10.
Tape Recorders: Tascam 38, 8-track; TEAC 3440 4-track;
TEAC 300X, 2-track; Technics (cassette) RS-B100, 2-track.
Mixing Consoles: Tascam M320, 20 x 20 x 4; Fostex 450,
8 x 8 x 4.
Monitor Amplifiers: Yamaha, Pioneer, Tascam (head-
phone amp).
Monitor Speakers: Fostex RM 765 near field monitors.
JBL 4425 monitors, Klipsch Herseys, Waridale Diamonds.
E-V Sentry 500s, JBL 4410s.
Echo, Reverb & Delay Systems: Yamaha REV7, Yamaha
SPX-90, Alesis XT-C, ADA 640, Aphex Aural Exciter Type
C, Yamaha G-60 graphic EQ.
Other Outboard Equipment: Complete Apple IIE based
MIDI recording system with Master Track ver. 1.5 software
and interface; (2) Tascam DX-4R dbx units; (5) Yamaha 100
W. amps (1 bass, 1 keyboard, 3 guitar); (1) Shure M268
Mic/Line mixer; (1) Shure M267 Mic mixer; (6) sets AKG
141 headphones.
Microphones: (2) AKG 320B; (2) Shure SM58; (2) Shure
SM57; (2) AKG 1000E; (6) other various mics.
Instruments Available: (2) Fender P-Bass; Fender Mus-
tang; Gibson SG and various other guitars (6); (2) banjos;
Yamaha DX-100 synth; Casio CZ-101 synth; Casio CZ-1000
synth; Yamaha RX11 drum machine; Yamaha RX-21 drum
machine; various percussion instruments.
Rates: Call for rates.

[8] TIMELESS PRODUCTIONS
also REMOTE RECORDING
5050 Traverse Creek Rd., Garden Valley, CA 95633
(916) 333-1335
Owner: David A. Blonski
Studio Manager: David A. Blonski

[8] TOE JAMS RECORDINGS
895 Vassar St., Reno, NV 89502
(702) 323-2471
Owner: Keith Irwin
Studio Manager: Keith Irwin

[8] TRANSIENT SOUNDS
only REMOTE RECORDING
P.O. Box 93, Big Bend, CA 96011
(916) 244-4462
Owner: David B. Green
Studio Manager: David B. Green

[8] **TRANSMEDIA, INC.**
also **REMOTE RECORDING**
350 Pacific Ave., San Francisco, CA 94111
(415) 956-3118
Owner: David B. Adams
Studio Manager: Susan McCollom

[2] **TRANSPARENT RECORDINGS**
P.O. Box 880933, San Francisco, CA 94188
(415) 563-6164
Owner: Lolly Lewis
Studio Manager: Lolly Lewis

[4] **29TH PARALLEL**
8143 Routt St., Arvada, CO 80005
(303) 424-8209
Owner: Scott E. Wunch
Studio Manager: Scott E. Wunch

[8] **ULTIMA MOBILE STUDIO**
also **REMOTE RECORDING**
P.O. Box 20604, Sacramento, CA 95820
(916) 444-0830
Owner: Almeritt Virgal Covington
Studio Manager: Virg Covington

[8] **UNDERGROUND SOUND**
also **REMOTE RECORDING**
4577 E. 129th Ave., Thornton, CO 80241
(303) 450-0168
Owner: Scott A. Flores
Studio Manager: Lynn Berry

[8] **UNLIMITED SOUND RECORDING**
/USR PRODUCTIONS
1815 Grand Ave., Billings, MT 59102
(406) 248-2723
Owner: David Peters, Tommy Braaten
Studio Manager: Tommy Braaten

[4] **UPHILL PRODUCTIONS**
also **REMOTE RECORDING**
P.O. Box 1158 (609 Palm), Modesto, CA 95353
(209) 526-3457
Owner: James M. Lopez
Studio Manager: James Lopez

[8] **VALTRON RECORDING**
also **REMOTE RECORDING**
1002 Broadway, Helena, MT 59601
(406) 442-0734
Owner: Sandra Liedle
Studio Manager: Mike Liedle

[2] **VIDEO QUEST, INC.**
also **REMOTE RECORDING**
1200 Dore Ave. Ste. 202, San Mateo, CA 94401
(415) 347-5537
Owner: Robert M. Seeberger, Richard Owen, Wayne McFadden
Studio Manager: Robert M. Seeberger

[8] **VINEYARD STUDIOS**
P.O. Box 69522, Seattle, WA 98188
(206) 630-3466
Owner: Roger Cox
Studio Manager: Dele Stetson

[4] **VIOLET RACE STUDIOS**
also **REMOTE RECORDING**
390 N. Gate Rd., Walnut Creek, CA 94598
(415) 945-1022
Owner: Sven Jorgensen
Studio Manager: Vladimir Molinowsky

[4] **VOYAGER PRODUCTIONS**
only **REMOTE RECORDING**
P.O. Box 3647, Logan, UT 84321
(801) 753-7412
Owner: Voyager Productions Inc.
Studio Manager: James M. Wellings

[8] **WAH NOT STUDIO**
P.O. Box 427, Cool, CA 95614
(916) 823-1072
Owner: Buddy Tokes
Studio Manager: Buddy Tokes

[4] **WALKERSOUND**
also **REMOTE RECORDING**
25140 Fairview Ave., Hayward, CA 94542
(415) 581-7926
Owner: David L. Hodtwalker
Studio Manager: David L. Hodtwalker

[2] **JOHN WESLEY PRODUCTION**
Kirkland, WA 98033
(206) 827-7299
Owner: John Wesley
Studio Manager: John Wesley

[8] **WEST HAWAII RECORDING**
P.O. Box 3172, Kamuela, HI 96743
(808) 883-9383
Owner: Harrell Baker
Studio Manager: Harrell Baker

[8] **WEST SIDE RECORDING**
915 W. 100 South, Salt Lake City, UT 84104
(801) 359-4330
Owner: Jim Anglesey, Ron Miller, Mark Hahn
Studio Manager: Jim Anglesey

[8] **WESTERN OREGON SOUND & RECORDING**
also **REMOTE RECORDING**
3430 48th N.E., Salem, OR 97305
(503) 370-7906
Owner: Duane Sheets
Studio Manager: Duane Sheets

[8] **WESTMONT RECORDING STUDIO**
6034 Shawn Dr., Olympia, WA 98502
(206) 943-6328
Owner: Richard Quick
Studio Manager: Richard Quick

[8] **WILD WEST GRAPHICS & COMMUNICATIONS**
P.O. Box 346, Homewood, CA 95718
(916) 525-5201
Owner: Ed Miller
Studio Manager: Ed Miller

[8] **BOB WILSON RECORDING SERVICES**
only **REMOTE RECORDING**
4057 Partridge Dr., San Jose, CA 95121
(415) 966-2911
Owner: Bob Wilson
Studio Manager: Bob Wilson

[8] **WRENOVATION SOUND**
2365 Dartmouth, Boulder, CO 80303
(303) 499-3000
Owner: Warren F. Rider
Studio Manager: Warren F. Rider



XANDOR RECORDING STUDIOS
Orinda, CA

[8] **XANDOR RECORDING STUDIOS**
also **REMOTE RECORDING**
407 Camino Sobrante, Orinda, CA 94563
(415) 254-9077
Owner: Jim Weyeneth
Studio Manager: Jim Weyeneth

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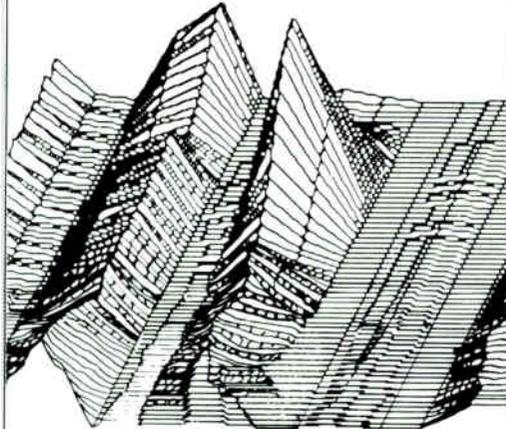
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NORTHWEST STUDIOS

12
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16

track



AVID PRODUCTIONS
San Mateo, CA

[16] AVID PRODUCTIONS
235 E. 3rd Ave. Ste. 215, San Mateo, CA 94401
(415) 347-3417
Owner: Henry Bilbao
Studio Manager: Peter Nixon
Engineers: Christopher Craig, Peter Nixon
Dimensions of Studios: (A): 18 x 20; (B): 18 x 23, video insert stage.

Dimensions of Control Rooms: 12 x 10.
Tape Recorders: Otari MTR-90II 16/24, 16-track; (2) Otari 5050B MK-II, 2-track; JVC CR8250 3/4-inch U-matic video; JVC BR8600 1/2-inch VHS video; JVC CR4900 3/4-inch portable; (16) cassette machines.

Mixing Consoles: Sound Workshop Series 34B fully automated, 24 x 24; (2) Yamaha MM10 AC/DC 4 x 2.

Monitor Amplifiers: AB Systems.
Monitor Speakers: JBL 4430, Ed Long MDM-4; Infinity, E-V, Yamaha.

Echo, Reverb & Delay Systems: Lexicon 224; Lexicon PCM70; DeltaLab DL4.

Other Outboard Equipment: dbx 900 rack w/compressors, noise gate, de-esser; Eventide Harmonizer H949; Orban 674A parametric EQ.

Microphones: Neumann U67, U47; Sennheiser MD421; Shure SM57; Beyer M69; E-V RE20; Sony ECM 30.

Instruments Available: DX7; CZ1000; Ensoniq Mirage; RX11; LinnDrum; Simmons SDS7; Roland TR808; Yamaha QX1 sequencer; Macintosh/Opcode/Mark-of-the-Unicorn sequencers; patch editors, librarians; (6) guitars, bass; (4) amplifiers; various percussion.

Video Equipment & Services: Full 3/4-inch production package; Ikegami 730A 3-tube camera; Lowell lights; Sachtler fluid head tripod; JVC CR-4900 portable 3/4-inch; (3) machine editing w/digital effects/Chyron Character Generator.

Rates: Call Peter for rates, brochure, demos, tours
Extras: Avid Productions is a clean, efficient, and beautifully equipped audio/video studio nestled in downtown San Mateo. Equidistant from San Francisco and San Jose, the area has an abundance of restaurants, parking, and shopping. Regulars at Avid find the intimate and friendly atmosphere refreshingly intimate, the quality of service outstanding.

Direction: Audio for video, scoring to picture, radio and television programs, music video, industrials, albums and demos, duplication. For clients such as: Cadillac, Nikon, Fortune Systems, GTE, Raychem, Xerox, Hewlett-Packard, Mike Harvey.

[16] BACKSTREET RECORDING
also REMOTE RECORDING
136 W. Front, Missoula, MT 59802
(406) 721-9789
Owner: Phil Hamilton
Studio Manager: Phil Hamilton, Michael Purington

[16] BAY RECORDS
1516 Oak St. Ste. 320, Alameda, CA 94501
(415) 865-2040
Owner: Michael Cogan
Studio Manager: Michael Cogan
Engineers: Michael Cogan
Dimensions of Studios: 30 x 40.
Dimensions of Control Rooms: 18 x 12.
Tape Recorders: 3M M-79 2-inch, 16-track; 3M M-79 one-inch, 8-track; Ampex ATR-800, 2-track; Sony 701 digital 2-track; Sony KC555 cassette.
Mixing Consoles: Bimix 2016, 20 x 16
Monitor Amplifiers: Haller 225
Monitor Speakers: JBL 4311s, Auratones.
Echo, Reverb & Delay Systems: Yamaha SPX-90, Mic-Mix Super "C".
Other Outboard Equipment: DeltaLab ADM 1024 digi-

[16] ACCESS PRODUCTIONS
4895 Marianna St., Salt Lake City, UT 84118
(801) 966-7148
Owner: J.S. Jongler
Studio Manager: Dan James

[16] FRED ARTHUR PRODUCTIONS LTD.
1218 E. 18th Ave., Denver, CO 80218
(303) 832-2664
Owner: Fred Arthur
Studio Manager: Susan Weber



ASTRAL SOUNDS RECORDING
San Jose, CA

[16] ASTRAL SOUNDS RECORDING
482 Reynolds Circle, San Jose, CA 95112
(408) 436-1153
Owner: Bill Hare, Joan Hare, Randy Musumeci
Studio Manager: Bill and Joan Hare.
Engineers: Bill Hare, Jeff Tracy, Hector Toro, Greg Bright, other independent engineers.
Dimensions of Studios: A: 29 x 17 x 12, B: 30 x 20 x 16.
Iso: 12 x 7 x 8.
Dimensions of Control Rooms: 12 x 17 x 12.
Tape Recorders: 3M M56 2-inch, 16-track; Sony PCM-601 ESD/SL-HF900 digital 2-track; TEAC 3440, 4-track; Otari MX5050 MKIII, 2-track; (3) TEAC V317 cassette; TEAC V417 cassette.
Mixing Consoles: Quad-Eight/Electrodyne (originally custom built for Capitol Records' Studio B), 20 x 16.
Monitor Amplifiers: Haller P500, Haller DH220.
Monitor Speakers: JBL 4430s, JBL 4406s, (6) AKG K-240 headphones.

Echo, Reverb & Delay Systems: Lexicon 224 digital reverb, Lexicon PCM42 digital delay, Yamaha SPX 90, MXR digital delay.

Other Outboard Equipment: (4) UREI 546 parametrics, (6) Symetrix SE-400 parametrics, Aphex Aural Exciter, Tapco 2202 graphic EQ, Symetrix 522 compressor/limiter.
Microphones: Neumann, E-V, Sennheiser, RCA, Beyer, Sony, Shure, Altec.

Instruments Available: Instruments available at no extra charge: Mason & Hamlin grand piano, E-mu Drumulator, Yamaha DX7 synth, Korg Poly 61 synth, Alembic bass, Fender Telecaster guitar, Guild D55 acoustic guitar, Epiphone Emperor jazz guitar, four-string tenor banjo, Bouzouki.

Rates: Affordable—\$35-\$50/hr. Block rates available.
Extras: Digital mastering/2-track recording digital safety copies with no generation loss. Lounge/kitchen/bath with shower for all-night sessions. Instruments available at no extra charge. Free information to clients about copyrighting, publishing, distribution, pressing, and legal services.
Direction: Client support and satisfaction. Pleasant, comfortable surroundings. Friendly, professional, affordable. All types of music, narration, commercials.

[16] ATWATER RECORDING
also REMOTE RECORDING
1468 Broadway, Atwater, CA 95301
(209) 358-7431
Owner: Jim Schriber
Studio Manager: Jim Schriber

[16] AUDIO MEDIA RECORDING STUDIOS
1232-C Waimanu St., Honolulu, HI 96814
(808) 531-4097
Owner: Audio Media Inc.
Studio Manager: Dunbar Wakayama

[16] AUDIO VISIONS
313 Brokaw Rd., Santa Clara, CA 95050
(408) 988-2048
Owner: Leo A. Graziani
Studio Manager: Dave Portera

[16] AUDIOWORKS RECORDING
also REMOTE RECORDING
7479 S. Teller St., Littleton, CO 80123
(303) 972-4255
Owner: Bill Prentice
Studio Manager: Bill Prentice

[16] AUTHENTIC SOUND
only REMOTE RECORDING
2401 Maranship Way, Sausalito, CA 94965
(415) 331-2889
Owner: John Overton

tal delay, SAE 2700B graphic EQ, dbx 160 compressor, others.

Microphones: Neumann U87, KM84; AKG C452, D224; E-V; Shure; others.

Instruments Available: Kawai "Artists Model" 6-ft, 8 $\frac{3}{4}$ -inch grand piano. Various percussion.

Rates: \$35/hr. 1000 LPs from your tape and artwork for \$3400 including color covers, everything.



BEAR CREEK RECORDING STUDIO
Los Gatos, CA

[16] **BEAR CREEK RECORDING STUDIO**
20711 Bear Creek Rd., Los Gatos, CA 95030
(408) 354-2351

Owner: Justin Mayer

Studio Manager: Justin Mayer

Engineers: Justin Mayer, independents welcome.

Dimensions of Studios: 11 x 13, 7 x 7.

Dimensions of Control Rooms: 9 x 11.

Tape Recorders: Fostex B16D, 16-track; Tascam 80-8, 8-track; Otari MX5050BII, 2-track; Tascam C3X, 2-track.

Mixing Consoles: Allen & Heath Brennel-CMC 24 MK-II, 17 x 8; (2) Tascam Model 1, 8 x 2.

Monitor Amplifiers: BGW

Monitor Speakers: Yamaha NS-10M, JBL 4311, Auratone. **Echo, Reverb & Delay Systems:** Lexicon PCM70 digital effects processor, Ursa Major Stargate, Effectron 1040, custom plate reverb.

Other Outboard Equipment: dbx 161 compressor/limiters, Omnicraft noise gates, (3) Furman parametric equalizers, Aphex Aural Exciter, DX8 dbx noise reduction, MXR dual 10-band graphic EQ.

Microphones: Neumann U87, Electro-Voice PL20, (2) Sennheiser 421, (2) Shure SM57, (2) Sony ECM 22p, AKG D1000E.

Instruments Available: Roland RD1000 digital piano, E-mu Systems E-Max digital sampler, Ensoniq ESQ1 digital synthesizer, computer based sequence.

Rates: \$30/hr. 16-track; \$20/hr. 8-track. Block rates available.

Dimensions of Studios: (A): 15 x 18; (B): 7 x 12.

Dimensions of Control Rooms: (A): 14 x 19; (B): 15 x 21; (C): 11 x 13; (D): 10 x 13.

Tape Recorders: (2) Otari MTR 90-II, 16-track; Otari MTR 10, 4-track; (5) Otari MTR 10, 2-track; Otari MX 5050 MkII, 8-track; (3) Otari MX 5050 MkII, 4-track; (7) Nakamichi/Akai cassette decks.

Mixing Consoles: (A): Audiotronics 110, 16 x 8; (B): Audiotronics 700, 16 x 16; (C): Soundcraft 500, 12 x 8; (D): Soundcraft 200, 8 x 4.

Monitor Amplifiers: (2) Bryston 4B, (8) BGW.

Monitor Speakers: (A & B): JBL 4430; (C): JBL 4425.

Echo, Reverb & Delay Systems: Lexicon 200 and Lexicon PCM60 digital reverbs; Eventide H949 Harmonizer; Master-Room reverb.

Other Outboard Equipment: dbx noise reduction; Dynatec noise reduction; Orban compressors, EQs, filters, and de-essers; UREI filter set; Symetrix telephone interface systems; ADR vocal stressers.

Microphones: Neumann, Electro-Voice, Shure.

Video Equipment & Services: Sony BVH 1100 1-inch VTR w/TBC and Dolby electronics; (2) Sony BVU 800 VCR; Sony 5800 VCR; Panasonic professional 1/2-inch VCR; MTR-10s w/center channel time code; Cypher digital Softouch synchronizers; Otari EC-101 synchronizer; (2) Cypher digital time code generators and readers w/windows; Sony control room and studio video monitors; fully equipped audio for video layback and transfer room.

Rates: Please call for rates.

Extras: Thousands of music and sound effects cues from the leading production libraries; client lounge, conference room and kitchen.

Direction: Robert Berke Sound is an audio production facility specializing in audio for video, commercial, and A/V sound production. The complex now features full 1-inch VTR transfer and layback capability; two acoustically identical control rooms and studios designed by Randy Sparks of RLS Acoustics; and the most up-to-date music and sound effects library available. The studio has completed post-production sound for hundreds of network, local and commercial video programs during the previous year.

[16] **BEYOND SOUND**

Westminster, CO

(303) 427-6789

Owner: Paul Stenvig

Studio Manager: Paul Stenvig

[16] **BROWN BAG PRODUCTIONS**

4134 S. Eudora, Englewood, CO 80110

(303) 756-9949

Owner: Michael Lee, Robert Lee

Studio Manager: Robert Lee

[16] **CALYPSO RECORDS RECORDING STUDIO**

41 M Hamilton Dr., Novato, CA 94947

(415) 883-4768

Owner: Michael J. Verchiani

Studio Manager: Tina Verchiani

[16] **CELLAR DOOR STUDIOS**

795 W. Amity, Meridian, ID 83642

(208) 888-9242

Owner: Mark Evans

Studio Manager: Mark Evans

[16] **RICK CHAISSE PROD.**

also REMOTE RECORDING

19 Locke Way, Scotts Valley, CA 95066

(408) 438-2331

Owner: Rick Chaisse

Studio Manager: Rick Chaisse

[16] **COUPE STUDIOS**

also REMOTE RECORDING

2539 Pearl St., Boulder, CO 80302

(303) 447-0551

Owner: Scott Roche

Studio Manager: Patrick Cullie

[16] **COZY DOG RECORDING**

603 SE Morrison Rd., Vancouver, WA 98664

(206) 694-1845

Owner: Tad Suckling

Studio Manager: Tad Suckling

[16] **CREATIVE SOUND STUDIO**

602 Cree Dr., San Jose, CA 95123

(408) 224-1777

Owner: Richard Dias

Studio Manager: Ramah Dias

[16] **CROW RECORDING STUDIOS**

also REMOTE RECORDING

4000 Wallingford Ave. N, Seattle, WA 98103

(206) 634-3088

Owner: John Nelson

Studio Manager: Todd Crooks



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 of Studios: (Main studio): 13L x 12W x 7-12H; (iso booth #1): 5L x 4W x 8-9H; (iso booth #2): 7L x 6W x 8H.

Dimensions of Control Rooms: 18L x 10W x 7-12H.

Tape Recorders: Otari MX-70, 16-track; Otari MX-5050-BII, 2-track; Tascam Portastudio 244, 4-track (cassette format); Bang & Olufsen Beocord 9000 cassette; Nakamichi BX-300 cassette; Denon DR-M3 cassette; Sony WM-D6C cassette.

Mixing Consoles: Amek/TAC Scorpion 16 x 8 x 2.

Monitor Amplifiers: Tandberg TIA-3012, Hitachi HA-610, Rene HC-6 (headphone), Tascam 40-4 (headphone).

Monitor Speakers: Spica TC-50 w/2 Spica servo subwoofers, ADSL400, Canton GL-300F, ADS300, JBL4627.

Echo, Reverb & Delay Systems: (2) Lexicon PCM70 digital effects, Lexicon PCM60 digital reverb, DeltaLab ADM 1024 Effectron II digital delay, Ibanez DM1000 digital delay.

Other Outboard Equipment: (4) Valley People Kepex II noise gates, Valley People Gain Brain II compressor/limiter/ducker, Valley People Maxi Q 3-band parametric EQ, (4) Rene PE 15 5-band parametric EQs, Orban 674A 8-band 2-channel parametric EQ (room EQ), Orban 424A 2-channel compressor/limiter/de-esser, dbx 166 2-channel compressor/limiter/gate, Aphex Type-B 2-channel Aural Exciter.

Microphones: Neumann U89i, (3) Neumann: KM84i, AKG C414, (2) Audio-Technica AT-813R, Audio-Technica ATM 63, (2) Sennheiser MD 421, Shure SM57, Sauer M201, Beyer M-500, (2) Crown PZM-30 GPB.

Instruments Available: Mirage sampling keyboard, Yamaha DX-9 digital synthesizer, Memorymoog plus analog synthesizer, Roland DDR-30 digital drum pad kit, assorted cymbals, Sequential Circuits Model 400 Drumtraks drum machine, Ibanez Roadstar II electric guitar, Yamaha G240 nylon six-string guitar, Yamaha electric bass guitar, Wing and Son concert grand upright piano, various percussion instruments.

Rates: 1-10 hrs.: \$30/hr.; 11-50 hrs.: \$25/hr.; 50+ hrs.: \$20/hr. All prices include engineer and any audio instruments the client desires to use.

Extras: Acoustically accurate studio design w/both "live" and "dead" iso booths. Production services and session musicians available. Real time cassette duplication. Lounge area includes TV and refrigerator (always stocked w/water, soft drinks, coffee and tea). Easy access to Davis Sound Studio via nearby freeways and airports.

Direction: 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. As you can see by our rates and equipment listed here, we are more than just competitive! Please give us a call or just stop by.



ROBERT BERKE SOUND
San Francisco, CA

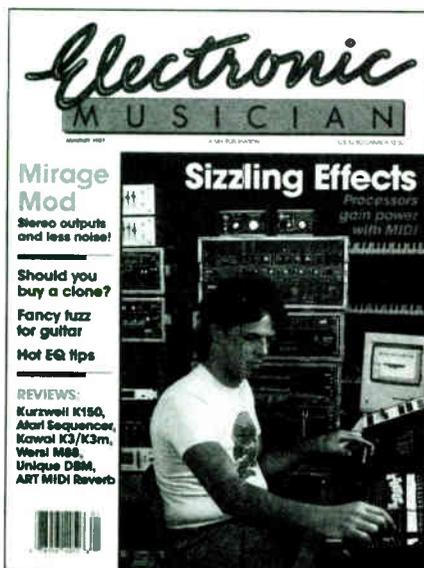
[16] **ROBERT BERKE SOUND**
50 Mendell St. Suite #11, San Francisco, CA 94124
(415) 285-8800

Owner: Robert Berke

Studio Manager: Mark Escott

Engineers: Mark Escott, Chris Miloslavich, Steve Bravin, Robert Berke

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SIGNAL PROCESSORS

Digital Signal Processors in Live Performance

by Larry Oppenheimer

Mixologist used to refer to a bartender—but it's also an appropriate description for an entirely new breed of band member.



MIDI

MIDI Controlled Effects Devices

by Alex Vangellow
Button pushing under MIDI control frees your hands for live performance, but what should you know before you shop for one of these gems?



APPLICATIONS

Cutting Through the Equalization Jungle by Craig Anderton
Sometimes less is more, so let's meet the quiet half of the boost/cut control.



COMPUTERS

Send in the Clones!

by Jason R. Rich
Can't afford to drive IBM? Here's a road map to help you navigate your way through cloneland.



TELECOMMUNICATIONS

Top Ten Telecommunications Tips

(Confessions of a Modem Junkie) by Rick Schwartz
Time is money, and the digital counters fall rapidly when telecommunicating—so make the most of your modem dollars.



DO-IT-YOURSELF

The Stereo Mirage

by Don Slepian
Modify your Mirage for stereo outputs and less noise—for under \$5!

Fuzzstain

by Bill Berardi
Looking for a tube-like fuzz with lots of sustain? Look no further.

Service Clinic: Questions and Answers

by Alan Gary Campbell

Authoritative answers to common questions about Yamaha, Casio, Moog, Fender, and Oberheim gear.



REVIEWS

Hybrid Arts EZ-Track

by Peter Vinella

Wersi M88, Unique DBM MIDI Keyboard Controllers

by Alan Gary Campbell

Kurzweil K150 Rack-Mount MIDI Sound Module

by Alan Gary Campbell

The Kawai Keyboard System (K3, K3m Rack, and Hybrid Arts Editing Software)

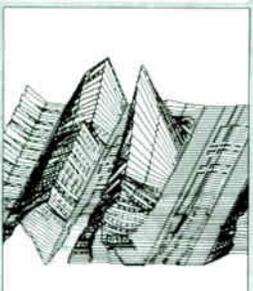
by Jan Paul Moorhead

ART DR1 Performance MIDI Reverb

by Jim Fiore

NORTHWEST STUDIOS

**12
16
track**



[16] **DOG FISH SOUND**
also **REMOTE RECORDING**
Rt. 1 Box 83A, Newberg, OR 97132
(503) 538-5638

Owner: Drew Canulette, Norm Costa
Studio Manager: Drew Canulette
Dimensions of Studios: (Main room): 19 x 21 x 11; (vocal): 7 x 8 x 11.5; (drum room): 7 x 11 x 13.
Dimensions of Control Rooms: 14 x 8 x 6.8 (truck).
Tape Recorders: Otari MX70, 8-/16-track; Otari MX7800, 8-track; Technics 1500, 2-track; dbx 700 digital audio processor 700, 2-track; Sony/Akai cassettes, Nakamichi MR1 cassette.

Mixing Consoles: Sound Workshop Series 34, 24 x 24; Ampex MX-1, 4 x 2
Monitor Amplifiers: 6250, Crown DC300A, Crown 150A, BGW 250.

Monitor Speakers: JBL 4330, Rogers LS35A, JBL 4406, Auratone 5-L.

Echo, Reverb & Delay Systems: Lexicon 224XL, Delta-Lab Acousticomputer, Scamp Rack: F300s, S100s, S31s; Alembic Tube pre-amps; Bercus-Berry exciter; Symetrix 501s, 511; UREI 526 X-over; Valley People 440; UREI LA-4s.

Microphones: AKG C414-EB, 451, 452; Neumann U89; Sony C37A (tube); ECM 33P, 63; Sennheiser 441, 421; E-V RE20, SM57; Crown P2M 30GP.

Instruments Available: Instruments w/rooms available upon request.

Video Equipment & Services: JVC 1/2-inch (VHS) editing BR8600.

Rates: Upon request.

[16] **DRONE STUDIOS**
2516 El Camino Real, Redwood City, CA 94061
(415) 366-4212

Owner: Renown Sound
Studio Manager: Greg Barton
Engineers: Brett Brown, Greg Barton.
Dimensions of Studios: 25 x 20 and 20 x 20 plus vocal booth.

Dimensions of Control Rooms: 15 x 18.
Tape Recorders: Otari MX-70, 16-track; Otari MX5050-MKIII, 8-track; Otari MX5050, 2-track; Nakamichi DMP-100 digital, 2-track; TEAC 3870, 4-track.

Mixing Consoles: Amek/TAC Scorpion 24 x 16 x 2; (2) Studiomaster 8 x 4.

Monitor Amplifiers: Haller, Crown, TOA.
Monitor Speakers: UREI, Ed Long, JBL, TOA Auratone.

Echo, Reverb & Delay Systems: Lexicon PCM70 and PCM42, Alesis XT, Roland, ADA, Ibanez and others.

Other Outboard Equipment: Orben EQs and comp/limiters. IBM and Macintosh MIDI sequencing EXR Exciter, 8 noise gates, many others.

Microphones: Sennheiser, AKG, Neumann, Shure, E-V, Beyer and others.

Instruments Available: Kurzweil 250, E-mu SP-12 drum machine, Roland Juno 1, Roland JX-3P and others.

Video Equipment & Services: Fairlight Series III coming soon!

Rates: \$35-\$25 hr. w/engineer.

[16] **DUNCAN STREET STUDIOS**
240 Duncan St., San Francisco, CA 94131
(415) 285-9093

Owner: John Blakeley
Studio Manager: John Blakeley
Engineers: John Blakeley, Robin Woodland
Dimensions of Studios: 11 x 16.

Dimensions of Control Rooms: 15 x 11 (includes iso booth for vocals).

Tape Recorders: Fostex B-16, 16-track; Revox PR 99, 2-track; (15) Sony FX-44 cassette decks.

Mixing Consoles: Soundcraft 1600, 24 in x 8 bus x 2 out.

Monitor Amplifiers: Haller DH-500 KE, Optonica SM 3636.

Monitor Speakers: Ed Long MDM near-field monitors, Auratones.



DUNCAN STREET STUDIOS
San Francisco, CA

Echo, Reverb & Delay Systems: DeltaLab ADM 1024, Lexicon 200.

Other Outboard Equipment: (4) Valley People compressor / gate/limiters, UREI 533 graphic, UREI LA-4 comp/lim, dbx type 1, dbx 160 compressor, Orben: reverb, Roland Super Chorus.

Microphones: Neumann U87, (3) SM81; (4) Sennheiser MD 421; E-V RE20, (3) SM57; MB condenser.

Instruments Available: MemoryMoog, plus 12 vintage guitars and amplifiers: i.e. '53 Tele, '54 Strat, '58 Gretsch Jet, '54 Fender 12-string. Also: 1964 Ludwig champagne drums.

Rates: \$25/hr.

[16] **EAGLE NEST RECORDING & SOUND REINFORCEMENT**
also **REMOTE RECORDING**
PO. Box 196, 45 W. 300 N., Ferron, UT 84523
(801) 384-2304

Owner: Craig C. Garrett
Studio Manager: Craig C. Garrett

[16] **EMANEE SOUND STUDIOS**
66 Club Rd. Ste. 120, Eugene, OR 97405
(503) 342-4039

Owner: Gary M. Kaplan
Studio Manager: Andy Widden-Ellis

[16] **EMERYVILLE RECORDING CO.**
1331 61st St. Unit C., Emeryville, CA 94608
(415) 655-9490

Owner: Randy Hood

[16] **THE EVERGREEN STATE COLLEGE**
Communications 301, Olympia, WA 98505
(206) 866-6833

Owner: The State of Washington
Studio Manager: Ken Wilhelm, Ed Trujillo

[16] **FAST TRACK RECORDING STUDIO**
also **REMOTE RECORDING**
4220 Broadway, Denver, CO 80216
(303) 457-0730

Owner: Technical Sounds Inc.
Studio Manager: Wayne Gerbrandt

Engineers: Wayne K. Zerbranlt, Terry McMurtry, Gil Morales.

Dimensions of Studios: 25 x 13 main room, 9 x 9.5 isolation booth, 8 x 4.5 vocal booth.

Dimensions of Control Rooms: 9 x 12.

Tape Recorders: TEAC/Tascam 90-16, 16-track; TEAC/Tascam 80-8, 8-track; Ampex ATR-700, 2-track; Sony TC-810 cassette.

Mixing Consoles: E-V/Tapco C-2 and C3E, 20 x 20 x 4.

Monitor Amplifiers: Crown D150, Sanso, AU-217II.

Monitor Speakers: JBL 4311Bs, Art Audio BA-100.

Echo, Reverb & Delay Systems: Yamaha REV7; Fostex 318II, 3050; Ibanez DM-100C, HE 1000, DM 500; (2) MXR flanger/doublers.

Other Outboard Equipment: (2) UREI 1176 limiters, Symetrix CL-150 compressor/limiter, (2) dbx 117 compressor/expander, (4) USAudio Gate-X, Aphex Aural Exciter (type B), TEAC 10-band stereo graphic EQ, Rockman X-100, dbx noise reduction.

Microphones: (2) AKG C414-EB, (2) E-V 667A, (2) E-V 654, Neumann KM84, E-V RE20, RE11, Sony ECM-220, RCA 77DX, 74B, (2) Shure 565, (2) Astac BL-34.

Instruments Available: Akai AX-80, Roland TR505, Imperial baby grand piano, Peavey 760 guitar, T40 bass, Washburn electric acoustic, Rogers 6-piece drum kit, rototom, Korg DDM-220 percussion, Marshall 100W amplifier.

Rates: \$25/hr. 16-track; \$15/hr. 8-track, discounts for block time.

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[16] FOCUSED PRODUCTIONS, INC.
 30 Berry St., San Francisco, CA 94107
 (415) 777-3108
 Owner: Jeff Roth
 Studio Manager: Jeff Roth
 Tape Recorders: Otari MX-70, 16-track; Otari 8-track;
 Otari MTR-10 2-track w/center-track SMPTE; JVC ¼-inch
 VCR.
 Mixing Consoles: Speck 16 x 8, (split to 16 out).
 Echo, Reverb & Delay Systems: Yamaha SPX90s, Delta-
 Lab Effectron II DDL.
 Other Outboard Equipment: SMPTE-based automated
 mix, Gain Brains, Kepex, Orban EQs.
 Video Equipment & Services: Services include: improve-
 ment and enhancement of existing "problem" location
 sync; recording of original music, EFX and dialog to pic-
 ture; layering of narration, music and EFX-tracks; and
 automated mixing to mono or stereo of your finished
 soundtrack.
 Rates: Audio only: \$40/hr.; audio for video: \$85/hr.

[16] FOREST PRODUCTIONS
 P.O. Box 9201, Salt Lake City, UT 84109
 (801) 466-7330
 Owner: Forest Productions
 Studio Manager: Leigh Nichols

[16] FORTUNATE SUN RECORDING STUDIO
 720 Iwilei Rd. Box 1, Honolulu, HI 96817
 (808) 531-5744
 Owner: David Tucciarone
 Studio Manager: Dave Kelly

[16] ROSCOE GALLO PRODUCTIONS
 3112 Laguna, San Francisco, CA 94123
 (415) 563-8223
 Owner: Philip (Roscoe) Gallo
 Studio Manager: Philip (Roscoe) Gallo



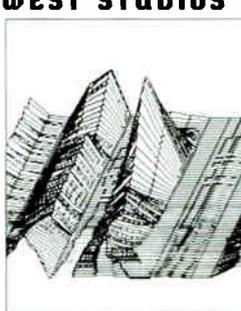
GATE FIVE STUDIOS, INC.
 Sausalito, CA

[16] GATE FIVE STUDIOS, INC.
 2 Gate Five Rd., Sausalito, CA 94965
 (415) 332-2866
 Owner: Christopher G. Hubbard
 Studio Manager: Terry S. Chambers
 Engineers: Terry Chambers, Richie Moore, PhD, Dave
 Musgrove.
 Dimensions of Studios: 20 x 20 Studio A, 18 x 20 Studio
 B.
 Dimensions of Control Rooms: Studio A Control—12 x
 12.
 Tape Recorders: Otari MX-70, 16-track; Otari 50-50 BII,
 2-track; Tascam ATR60-2T, 2-track w/TC; Onkyo TA-2047,
 2-track; Akai GX-910, 2-track; AMR 64, 4-track.
 Mixing Consoles: Ramsa WR-T820, 24 x 8; AMR 64, 6 x
 4.
 Monitor Amplifiers: (2) Z-Link; (2) Peavey Decca 700;
 Yamaha 2200.
 Monitor Speakers: (2) Tannoy SRM 12B; (2) Yamaha NS-
 10; (2) TOA 280-ME; (2) TOA 312 ME; (2) TOA 380 SE.
 Echo, Reverb & Delay Systems: Lexicon PCM70, Roland
 SDE 3000, Roland SRV 2000, Yamaha SPX-90, Roland
 DEP-5.
 Other Outboard Equipment: Aphex compeller/compres-
 ser; Aphex dominator/limiter; (2) dbx 263x d-esser; Elec-
 troSpace, The Strate Gate; (2) Rane ME30 ½-octave; Fur-
 man LCX; Symetrix 544 Quad Gate; 240 point patchbay.
 Microphones: AKG Tube; U47 Neumann; AKG C414
 EB/P48; (2) Sennheiser MD 421, (2) Shure SM81-LC; (5)
 Shure SM57-LC; Shure SM58-LC, (2) Sennheiser 409 U3
 Audio Technics ATM 63; Crown PZM mic and power sup-

NORTHWEST STUDIOS

12
·
16

track



ply; (2) Stewart direct boxes ADB-1; Countryman direct
 box 85; TOA K4; (2) Sennheiser MD409.
 Instruments Available: Complete MIDI keyboard system,
 Apple Macintosh Plus and load down hardware.
 Video Equipment & Services: (2) RGB 26-inch color
 monitor; Sony BVU-800 ¼-inch deck; SMPTE time code
 generator/reader.
 Rates: Call for rates.
 Extras: Central location in beautiful Sausalito—15 minutes
 from San Francisco. Lounge with full kitchen and shower-
 ing facility. Professional staff of full-time, experienced engi-
 neers, including full-time technical support.
 Direction: Gate Five Studios, in an effort to meet the needs
 of the recording community in the San Francisco Bay
 Area, continues to upgrade and add to their equipment and
 services. In one short year, Gate Five has become one of
 the most fully equipped 16-track recording facilities in the
 Northwest. Studio A is now synchronized with SMPTE
 time code for audio for video production and for MIDI
 interface. Studio B is complete with a full MIDI keyboard
 system interfaced with Macintosh Plus facilitating sequenc-
 ing, pre-production, and cost-effective demos. This pre-
 mier 16-track facility is not only well-equipped, it is aesthet-
 ic, private, and conducive to creativity.

[16] GLOVE PRODUCTIONS
 1128 Alder Ste. C, Eugene, OR 97403
 (501) 485-6951
 Owner: G.P.I.
 Studio Manager: Michael K. Plohl

[16] GUNG-HO STUDIO
 86821 McMorott Lane, Eugene, OR 97402
 (503) 484-9352
 Owner: Bill and Julienne Barnett
 Studio Manager: Bill Barnett
 Engineers: Bill Barnett, independents.
 Dimensions of Studios: Main room: 24 x 20; iso. booths 6
 x 11 and 4 x 6.
 Dimensions of Control Rooms: 17 x 12 toned w/ASC
 tube-traps.
 Tape Recorders: Tascam MS-16 w/dbx one-inch, 16-track;
 Otari MX-5050B-II, 2-track; Revox A-77, 2-track; cassette
 decks: Akai GX-9, Aiwa F-770 w/Dolby HX-Pro, Sony
 Pro-Walkman, Sony FX-210.
 Mixing Consoles: Trident Series 65, 24 x 16 x 16.
 Monitor Amplifiers: Haller 220s, Rane HC-6 headphone
 amp.
 Monitor Speakers: Yamaha NS-10M, JBL 4411, Auratone,
 Eclipse, AKG 240 phones.
 Echo, Reverb & Delay Systems: Lexicon PCM70; Ya-
 ma-ha SPX90; ART DRI; Lexicon PCM41; DeltaLab CE-
 1700 and ADM-1024.
 Other Outboard Equipment: dbx 160X compressor/lim-
 iters; dbx 166 gate/comp/limiter; USAudio Gatex noise
 gate/expanders; Orban 536A stereo de-esser; dbx 180A
 and 150 noise reduction; Tom Sholz Rockman; Ampex
 Model "T" discreet incompetence meter.
 Microphones: Neumann U87s, KM84; AKG C-414EBs,
 C-451Es, D-12E, D-224Es; Sennheiser 441, 421s, Shure
 SM7, SM56, 57s, 58s.
 Instruments Available: 6-ft. Yamaha C-3 grand piano;
 1967 Fender Tele w/Bigsby; 1959 Fender P-bass; 1947
 Martin 0018; assorted Zildjian cymbals; drum machine
 and synth rentals available upon request.
 Rates: \$25/hr.

[16] HACIENDA RECORDING STUDIO
 244 South A St., Santa Rosa, CA 95401
 (707) 575-9552
 Owner: Hacienda International Inc.
 Studio Manager: Phil Hirsch
 Engineers: Phil Hirsch
 Dimensions of Studios: 20 x 24.
 Dimensions of Control Rooms: 14 x 14.
 Tape Recorders: Foxlex B16, 16-track; Technics 1500, 2-



HACIENDA RECORDING STUDIO
 Santa Rosa, CA

track; Technics cassette deck, 2-track.
 Mixing Consoles: Allen & Heath 1616D, 16 x 8 x 2.
 Monitor Amplifiers: AB amp.
 Monitor Speakers: JBL 4311.
 Echo, Reverb & Delay Systems: ART 01A digital reverb,
 Roland digital delay #2500, MXR doubler/flanger, Ibanez
 analog delay.
 Other Outboard Equipment: Boss stereo chorus, Boss
 phaser, MXR distortion, The RAT, parametric EQ, Aphex
 Exciter, UREI compressor/limiter, Drumulator, Cooper
 Time Cube, stereo noise gate.
 Microphones: AKG, Shure, Audio Technica, E-V, Senn-
 heiser.
 Instruments Available: JX-3P, Mirage keyboard and
 sampler, Prophet Five, Fender Bass, acoustical guitar,
 electric guitar, banjo, piano.
 Rates: \$25/hr.

[16] HORIZON AUDIO RECORDING
 P.O. Box 358, Eagle, ID 83616
 (208) 939-6197
 Owner: Rob Matson
 Studio Manager: Rob Matson

[16] HORODKO SOUNDTRAX/LTA
 also REMOTE RECORDING
 111 Vallejo St., San Francisco, CA 94111
 (415) 956-8729
 Owner: Ed Horodko
 Studio Manager: Georgia Anderson

[16] INFAL RECORDS, CO.
 also REMOTE RECORDING
 2217 Champa St., Denver, CO 80205
 (303) 295-1500
 Owner: Victor M. Hernandez
 Studio Manager: Joe Hernandez

[16] JESTER SOUND STUDIO
 also REMOTE RECORDING
 423 Kuhlman Dr., Billings, MT 59105
 (406) 248-5896
 Owner: Bob Hale
 Studio Manager: Bob Hale, Grace Fillmore

[16] JMC MUSIC GROUP
 also REMOTE RECORDING
 2700 Champa, Denver, CO 80205
 (303) 297-3131
 Owner: John Macy
 Studio Manager: John Macy

[12] JOPHEER 12
 P.O. Box 2207, Los Gatos, CA 95031
 (408) 266-1779
 Owner: Joe Rizzi, Opher Segev
 Studio Manager: Opher Segev
 Engineers: Colby Pollard, Jeff Tracy.
 Dimensions of Studios: 20 x 20.
 Dimensions of Control Rooms: 8 x 11.
 Tape Recorders: Akai MG-1212, 12-track; Tascam 32,
 ½-inch 2-track; TEAC V518 cassette.
 Mixing Consoles: Akai MG 1212, 14 x 12.
 Monitor Amplifiers: Peavey Decca 700, Rane HC6 head-
 phone amp.
 Monitor Speakers: Foxstex RM 780, Auratone 5C.
 Echo, Reverb & Delay Systems: Lexicon PCM60, Ya-
 ma-ha D1500, DeltaLab Effectron II.
 Other Outboard Equipment: dbx 166, dbx 161.

Microphones: Sennheiser MD 421, Shure SMS7, AKG D1000, Electro-Voice PL6, Shure Unisphere PE50.
Instruments Available: Yamaha DX 21, Sequential Pro One, E-mu Systems drumulator, Roland drumulator, Emulator with over 100 prerecorded diskettes, Lauter studio upright piano, Rogers 8-piece drum set.
Rates: Call for rates.

[12] **LANIKAI MUSICAL**
also REMOTE RECORDING
 1258 Aalapapa Dr., Kailua, HI 96734
 (808) 261-0725
Owner: Christopher A. Oswald
Studio Manager: Christopher A. Oswald

[16] **LAY-A-TRACK RECORDING**
 1805 Academy Rd., Bellingham, WA 98226
 (206) 733-8824
Owner: Jim Zender
Studio Manager: Jim Zender

[16] **MICHAEL LORD PRODUCTIONS**
 9508 17th Ave. NE, Seattle, WA 98115
 (206) 527-9002
Owner: Michael Lord
Studio Manager: Michael Lord
Engineers: Michael Lord
Dimensions of Studios: 23 x 14, isolation 12 x 12.
Dimensions of Control Rooms: 12 x 12.
Tape Recorders: MCI JH-16, 16-track; Otari MX5050, 2-track; Revox A77, 2-track; Nakamichi BX100, cassette.
Mixing Consoles: Soundtracs MR 32-8, 32 x 8 x 16.
Monitor Amplifiers: UREI 6250.
Monitor Speakers: JBL 4311, Auratone, Realistic Minimus 7.

Echo, Reverb & Delay Systems: Yamaha REV7, Ibanez SDR 1000, DeltaLab DL-4, Advanced Audio Designs, MXR System III.

Other Outboard Equipment: Orban, Symetrix comp/lim., Orban parametric Rocktron Hush IIC, Imager/Exciter, Ibanez 15-band stereo graphic EQ.

Microphones: Neumann U47; (2) AKG 451, D12E; AKG 451 (2), D-12E, (2) Sennheiser MD 421; (5) Audio-Technica ATM63, (2) ATB13R, ATM 21SM; Beyerdynamic, 260, 500.

Instruments Available: Yamaha grand piano, Roland MKB 1000 MIDI controller, Roland Super Jupiter, Minimoog, Yamaha TX-7, Macintosh 512K, Oberheim DX-stretch.

Rates: Call for rates.

[16] **LUNA PRODUCTIONS**
 909 Sonoma Ave., Petaluma, CA 94952
 (707) 778-1039
Owner: Jim Stern
Studio Manager: Rhoda Block

[16] **MAGIC MUSIC**
also REMOTE RECORDING
 504 E. 32nd St., Durango, CO 81301
 (303) 259-0300
Owner: Alden Hamilton
Studio Manager: Robert Zahner

[16] **MAGIC SOUND**
also REMOTE RECORDING
 1780 Chanticleer Ave., Santa Cruz, CA 95062
 (408) 475-7505
Owner: Alan Goldwater
Engineers: Alan Goldwater, Merle Sparks.
Dimensions of Studios: 16 x 20 x 12 (asymmetrical wedge ceiling); 12 x 14 isolated drum room; 5 x 6 x 7 booth.
Dimensions of Control Rooms: 12 x 14 x 16.
Tape Recorders: MCI/Inovonics JH 10-16 15/30 ips, 16-/8-track; Rockwell computer auto locater; Ampex AG 444B 15/30 ips, 2-track; ElectroSound 505, 2-track; (2) Kenwood KX 1060 cassette; Otari MX5050, 2-track; Sony PCM 701 digital, 2-track.
Mixing Consoles: Custom 36 input, 8 bus, separate 16-track fully equalized monitor, section, full patchbay, API 550 mix board EQ.
Monitor Amplifiers: Dynaco 150 and Phase Linear 400.
Monitor Speakers: Altec/UREI 811, White EQ 4100, Sennheiser & AKG headphones.
Echo, Reverb & Delay Systems: Lexicon PCM60, Ecoplate II, multi-track reverb, Marshall Time Modulator, Roland Space Echo, Lexicon Prime Time II.
Other Outboard Equipment: (2) MXR flanger, (2) MXR 2/3-octave graphic EQ, UREI LA-4 limiter, (2) Universal Audio 175B tube limiters, Allison Gain Brain, Mayer noise gates; (8) API 550A EQs; (2) UREI LA-4A limiters, Thorens/Rabco disc player.
Microphones: Neumann KM54a, U67; (2) AKG 414-EB, C-451, D-190, D-160, D-12, C28-A (tube); Beyerdynamic, (2) X1N; (2) Sennheiser MD-421; Shure SM57, 58, 81 (several

each); Sony C377, C22, C-37A (tube); Altec M30s (tube), RCA BK5 (ribbon); (2) AKG C61a tube, C12 (tube); Shure SM-7.

Instruments Available: Cable upright piano, Hohner D6 clavichord, 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 Systems Emulator w/all software, E-mu Systems Drumulator w/computer sequencer.

Video Equipment & Services: Panasonic NVS200 w/computer search, Panasonic 8500 VHS editing system.
Rates: \$40/hr., 16-track; \$30/hr. block (10 hrs. or more); \$30/hr., 8-track; \$25 block; \$25/hr., 2-track and editing; 1 hour free set-up. Above rates include engineer and instruments.

[16] **MAUI RECORDERS**
also REMOTE RECORDING
 380 Dairy Rd., Kahului, Maui, HI 96732
 (808) 579-9498
Owner: John Neff
Studio Manager: John Neff

[16] **MELODY LINE PRODUCTIONS**
also REMOTE RECORDING
 2662 Kaliaani Circle, Pukalani, Maui, HI 96768
 (808) 572-1640
Owner: Tom Hall
Studio Manager: Tom Hall

[16] **PETER MILLER RECORDING**
 P.O. Box 11013, San Francisco, CA 94101
 (415) 567-7040
Owner: Peter Miller
Studio Manager: Peter Miller

[16] **MUSIC ART RECORDING STUDIO M.A.R.S.**
 P.O. Box 1838, Aptos, CA 95001
 (408) 688-8435
Owner: Ken Capitanich
Studio Manager: Ken Capitanich
Engineers: Pete Carlson, David Gibson, Ken Capitanich, Steve Malcolm.
Dimensions of Studios: 16 x 18.
Dimensions of Control Rooms: 14 x 15.

Tape Recorders: Ampex MM1100, 16-track; Tascam 80-8 w/dbx, 8-track; Ampex 440-C, 2-track; Otari MX 5050, 2-track.

Mixing Consoles: Neotek Series II 20 x 16.
Monitor Amplifiers: Crown DC 300A; D150-A, (2) DC75, PS-400.

Monitor Speakers: UREI 811; MDM 4; JBL 4313 B; Auratones.

Echo, Reverb & Delay Systems: Lexicon Prime Time; Eventide Harmonizer; Ecoplate II; Lexicon 200; MICMIX XL 305; S-24 time Shape Module.

Other Outboard Equipment: (2) ADR expander/gates; (3) comp/limiter; (2) ADR parametric EQ; Aphex Exciter; MXR phaser; (3) ADR 502 mic preamp, LA-2A tube limiter, Pultec tube EQ-P1 equalizer, Summit Audio tube limiter.
Microphones: Neumann, AKG, Sennheiser, Sony, Shure, E-V, Beyer, Neumann tube U67.

Instruments Available: Chickering 6-ft., 6-inch grand piano, Hammond B-3.
Rates: Competitive rates, please call.

[16] **MUSICAL IMAGE PRODUCTIONS**
 3013 E. Monte Vista, Denair, CA 95316
 (209) 632-8415
Owner: Gary L. Shriver
Studio Manager: Gary L. Shriver

[16] **NACNUD SOUND**
 6748 Hogan Ln., Lodi, CA 95240
 (209) 334-2845
Owner: Richard Duncan
Studio Manager: Agnes Duncan
Engineers: Rick Duncan, Mark Zarek, Chris Watson.
Dimensions of Studios: 36 x 23.
Dimensions of Control Rooms: 23 x 10.
Tape Recorders: Tascam w/dbx one-inch MS-16 w/ auto-locator, 16-track; Otari MX 5050B, 2-track; Pioneer RT-707, 2-track; Nakamichi MR-2, cassette.
Mixing Consoles: SoundTracs MR Series 32 x 8 x 16 x 2.
Monitor Amplifiers: Adcom GFA-1, Yamaha P-2200.
Monitor Speakers: Advent, Yamaha NS-10M, Auratone.
Echo, Reverb & Delay Systems: Lexicon PCM70, Yamaha REV7, Yamaha SPX90, AKG BX-20, Lexicon Prime Time II.
Other Outboard Equipment: Aphex Aural Exciter, dbx 163 stereo limiter/gate, dbx 160 compressor/limiter, Yamaha MJC-8 Matrix Switcher.
 —LISTING CONTINUED ON NEXT PAGE

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- Complete MIDI keyboard system
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—LISTING CONTINUED FROM PAGE 157

Microphones: AKG 414; Sennheiser 421s; Sony ECM-23Fs; AKG-451; Shure SM57, 58, 77, 54, 81s; Audio Technica ATM-11.
Instruments Available: Yamaha KX88, Yamaha DX7, Oberheim Xpander, Yamaha QX1, Oberheim Matrix 6R, Minimoog w/MIDI, Roland Jupiter 6, JX3P, JX8P, Memory-Moog, Emulator SP-12, Emulator E-Max, DK Synergy, Roland digital piano rack.

[16] RAY NAKAMOTO PRODUCTIONS
3054 Gold Canal Dr. Ste. D
Rancho Cordova, CA 95670
(916) 638-7770
Owner: Ray Nakamoto
Studio Manager: David Whitaker

[16] JON NEWTON MUSIC
Box 42526, Portland, OR 97242
(503) 233-9421
Owner: Jon Newton
Studio Manager: Michael Bard

[16] NORTHWESTERN INC.
1224 S.W. Broadway, Portland, OR 97205
(503) 226-0170, (800) 547-2252
Owner: Bob Lindahl
Studio Manager: Paul Buescher

[16] OCEAN BREEZE RECORDING STUDIO
also **REMOTE RECORDING**
2021 Bluebell Dr., Santa Rosa, CA 95401
(707) 527-8131
Owner: Ben C. Rothenberg
Studio Manager: Ben C. Rothenberg

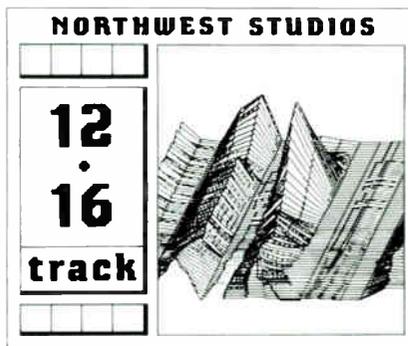
[16] PAN PANACIA PRODUCTIONS
P.O. Box 1561, Sausalito, CA 94966
(415) 331-1953
Owner: P.B. Lohar-Singh
Studio Manager: Peet Barth

[16] PARAGON SOUND
also **REMOTE RECORDING**
216 Hemlock, Ft. Collins, CO 80524
(303) 493-8395
Owner: Paragon Partnership
Studio Manager: Thad Crowe

[16] PLY AUDIO SERVICES
also **REMOTE RECORDING**
121st and Park Ave., Tacoma, WA 98447
(206) 535-7268
Owner: Pacific Lutheran University
Studio Manager: Bob Holden

[16] R.D. RECORDING
3196 16th St., San Francisco, CA 94103
(415) 863-0372
Owner: Robert David, David Denny
Studio Manager: Robert David
Engineers: Robert David, David Denny.
Tape Recorders: Ampex MM1000, 16-track; Scully 280 B, 4-/2-track; Nakamichi 550/600, cassettes.
Mixing Consoles: Sound Workshop 24 x 16 x 2.
Monitor Speakers: JBL 4311, Yamaha NS-10M, David 6000, Auratone.
Echo, Reverb & Delay Systems: (2) SRV-2000, SPX 90, Acousticcomputer DL-2, DL-1, assorted delays.
Other Outboard Equipment: SBX-80, Dyna-Mite comp/lim, Symetrix 522, dbx 160, Sennheiser-420 headphones.
Microphones: Neumann, AKG, Shure, Sennheiser, Sony, Electro-Voice.
Instruments Available: Mirage sampler, MiniMoog, Ludwig drum kit.

[16] RAIN RECORDING
also **REMOTE RECORDING**
Box 297, Mt. View, HI 96771
(808) 968-6042, 968-6346
Owner: Kenneth Chikasuye
Studio Manager: Ean Chikasuye
Engineers: Ziggy Warfield, independents welcome.
Dimensions of Studios: 32 x 40, 14-ft. ceiling.
Dimensions of Control Rooms: 14 x 12.
Tape Recorders: Sony/MCI JH-24, 16-track; Tascam 48, 8-track; Otari 5050B-II, 2-track; Tascam 70, 2-track; Technics RSM 85 MKII, cassette; Nakamichi 500, cassettes; Sony 553 ES digital, 2-track.
Mixing Consoles: Allen & Heath 24 x 16 x 8 x 2, (40 inputs for mixdown).
Monitor Amplifiers: Crown: 300, 300A, D60; Technics SE 9060.



Monitor Speakers: JBL 4411, Yamaha NS-10M, Auratone, Gauss 3588 CO-AX, Audio Concepts 312.

Echo, Reverb & Delay Systems: Lexicon PCM60, Yamaha REV7, MICMIX 305, X3500 6 x 4-ft plate, 1024 DeltaLab, 1202 ADA, 3600 Digatech, DL2 AcoustiComputer, Roland Dimension D.

Other Outboard Equipment: (2)UREI LA-4, (2) dbx 160X, Aphex Type B, EXR Projector, Rane SM26, Orban 622B, Symetrix noise gates, MXR pitch transposer, ADA flanger, Countryman and Sescom D.I., Technics Twin 31 band EQ, Simmons digital claptrap, Accessit distribution amps, Edcor headphone amps; Juice Goose.

Microphones: (2) U87 Neumann, (2) 421s, (5) SM57, (3) Altec 626A, SM81, PZM 31s, PZM 31 GPG, AKG D1000, AKG D109.

Instruments Available: Hammond C-3, (2) Leslies, Yamaha DX7, Roland GR 700, LinnDrum, Seymour Duncan Convertible, Mesa Boogie MKII, Fender Twin, Hamer Phantom synth controller, Hamer Phantom, Ibanez GB10, Kramer bass, Rickenbacker 4001, Paul Reed Smith, assorted percussion.

Video Equipment & Services: VHS services available.
Rates: As low as \$35/hr., please call.

[16] RAINSHADOW STUDIOS
also **REMOTE RECORDING**
620 E. Bleeker St., Aspen, CO 81611
(303) 925-2296
Owner: Greg Simone
Studio Manager: Gordon Wilder

[16] THE RECORDING CENTER
also **REMOTE RECORDING**
118 West Pine, Missoula, MT 59802
(406) 721-4172
Owner: Richard Kuschel
Studio Manager: Jacob Straw

[16] THE RECORDING CHAMBER, INC.
18912 SE 133rd Pl., Renton, WA 98056
(206) 235-TAPE
Owner: Dennis L. Palmer
Studio Manager: Paul R. Varn

[16] REDWOOD CREEK RECORDING
Box 5865 Stover Rd., Blue Lake, CA 95625
(707) 668-4244
Owner: Ann Bert Pectol
Studio Manager: Bert Pectol

[16] REX RECORDING CO.
also **REMOTE RECORDING**
1931 SE Morrison, Portland, OR 97214
(503) 238-4525
Owner: Sunny Day Productions, Inc.
Studio Manager: Rhiner P. Johnson
Engineers: Russ Gorsline, Richard Moore, Ken Bladow, Tim Bly, Rhiner P. Johnson, qualified freelancers welcome.
Dimensions of Studios: (1) 22 x 26, (2) 12 x 7.
Dimensions of Control Rooms: (1) 19 x 16, (2) 12 x 15, (3) 12 x 12.
Tape Recorders: 3M M79, 16-track; Otari 5050 MKIII, 8-track; Otari MTR 10 w/auto locate, 2-track w/SMPTE CT; (2) Scully 280B, 2-track; (3) Scully 250-2, 2-track; (5) Technics 1500 US, 2-track.
Mixing Consoles: Amek Angela, 28 x 24 x 2; TEAC modified 5+5 EX, 16 x 4; Electrodyne custom, 16 x 4.
Monitor Amplifiers: Kallier DH220, Technics 9010.
Monitor Speakers: H&H OY, Technics M85, JBL 4301, Auratone.
Echo, Reverb & Delay Systems: EMT 140, EMT 140ST, Yamaha SPX90, custom DDL.
Other Outboard Equipment: (2) UREI 1176 LN, dbx 160, ADR Scamp limiters/noise gates/de-essers/expander

gate, Mayer noise gates, Scamp and Technics parametric EQs, dbx type I noise reduction.

Microphones: Neumann U67, U87, KM84i, KM88; Sony (2) C500, (4) P22; Shure (2) SM81 (2) SM57; Sennheiser 441; assorted E-V; Beyers.

Instruments Available: Chickering grand piano, Yamaha DX7, Hammond B-2, assorted percussion instruments.
Video Equipment & Services: Audio Kinetics 4.10 synchronizer w/TC regen and ADR software; Sony/MCI one-inch video layback; JVC 6800 3/4-inch; MTR-10 1/4-inch w/TC center-track; Nagra 4.1 and interface; (2) Panasonic 21-inch color monitor.
Rates: \$125/hr. audio for video post-production; \$60-70/hr. media production and music. Project/block rates available.

[16] ROBINSON & RICH RECORDING
also **REMOTE RECORDING**
1927 Esplanade, Chico, CA 95926
(916) 891-1972
Owner: Charlie Robinson, Rich Pires
Studio Manager: Rich Pires

[16] ROCKY MOUNTAIN RECORDING
also **REMOTE RECORDING**
1050 E. 1600 N., Mapleton, UT 84663
(801) 489-7850
Owner: Walt C. Jones
Studio Manager: Carl Fritch

[12] ROLLS RECORDING
767 Lincoln Ave. Ste. 14, San Rafael, CA 94901
(415) 258-0535
Owner: Mark Baker
Studio Manager: John Lawrence

[12] SANCTUARY SOUND RECORDING
1116 No. 9th St., Boise, ID 83702
(208) 322-5556

Owner: P.J. Newman
Studio Manager: Doug Brown
Engineers: P.J. Newman
Dimensions of Studios: 35 x 20 x 15.
Dimensions of Control Rooms: Inclusive.
Tape Recorders: Akai MG-1212, 12-track; Tascam 224, 4-track; Tascam 32-2B, 2-track; (2) Kyocera D-801 cassettes.

Mixing Consoles: Akai MG-1212, 12 x 12 x 2.
Monitor Amplifiers: Yamaha P-2250.
Monitor Speakers: JBL 4311, Yamaha NS-10M.
Echo, Reverb & Delay Systems: Roland SDE-3000 DDL, SDE-2500 DDL, Yamaha REV7, (2) Roland SRV-2000.

Other Outboard Equipment: Aphex Aural Exciter Type C, dbx 150, rackmounted Scholz Rockman, DOD R-831 A graphic EQ, Apple 2E 128K computer.

Microphones: AKG, Sennheiser, E-V, Shure.
Instruments Available: Yamaha CP-80, Prophet 2000, Jupiter 8, Roland TR-707, Fender P-bass, Fender Strat, Ludwig drum kit, misc. percussion, Ibanez 5-string banjo, Dobro mandolin, Gibson pedal steel, Music Man amplifier.
Video Equipment & Services: Call for details.
Rates: On request.

[16] RANDALL SCHILLER PRODUCTIONS
also **REMOTE RECORDING**
1207 Fifth Ave., San Francisco, CA 94122
(415) 661-7553

Owner: Randall Schiller
Studio Manager: Randall Schiller
Engineers: Randall Schiller, Cathy Cohn, Eric Muhlitter
Dimensions of Studios: 12 1/2 x 15; drum room: 9 x 9.
Dimensions of Control Rooms: 12 1/2 x 15.
Tape Recorders: TEAC/Tascam MS-16, 16-track; TEAC/Tascam 80-8, 8-track; Otari 5050B, 2-track; Sony TC-854-45, 4-track; Sony TC-850-2T, 2-track, Aiwa AD-F990, cassette.

Mixing Consoles: TEAC/Tascam M-520, 20 x 8; TEAC/Tascam 5B, 8 x 4; TEAC/Tascam M-35EX, 12 x 4.

Monitor Amplifiers: SAE A-201, A-501; Crown Microtech 1200LX; BGW Model 100-01.

Monitor Speakers: JBL 4411, Auratone 5C, Altec A7-500 (modified and bi-amplified) and Pioneer CS-88.

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 and 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 Decilinear noise reducer, Crown VFX-2A stereo electronic crossover/filter, SAE 5000 impulse noise reduction, dbx 503 dynamic range expander, Technics SL-1200 MKII 2 turntable, assorted patchbays and necessary support equipment.

Microphones: Neumann U87, AKG C-414s; Electro-Voice RE15, RE20, 635A; Shure SM81, SM58, SM57, SM78, 555H, SM91, "Green Bullet"; Sony ECM-33P, ECM-33F, ECM-16; Sennheiser MD-421, MD-431; AKG D12 and Crown PZMs.

Instruments Available: Story & Clark console piano.
Video Equipment & Services: Sony SL-2700 stereo Hi-fi video cassette recorder.

Rates: Studio recording: 16-track, \$30/hr.; 8-track, \$25/hr.; 4-track, \$20/hr.; 2-track \$20/hr. Location recording: available upon request.

Extras: Kitchen facilities!

Direction: We are a multi-faceted company providing facilities and services in the areas of audio, video, film and theater. We are dedicated to providing the highest quality in a relaxed but professional environment. In addition to recording studio services and location recording services, we provide sound reinforcement for venues ranging from small clubs to large outdoor concerts, audio design and installation, film and video production and lighting services.

[16] SIERRA SOUND LABS
1741 Alcatraz Ave., Berkeley, CA 94703
(415) 655-7636
Studio Manager: Robert C. de Sousa

[16] SOUND TRACKS
also REMOTE RECORDING
1250 Huff Lane, Jackson, WY 83001
(307) 733-4880
Owner: Jeff McDonald
Studio Manager: Jeff McDonald

[16] SOUND WEST RECORDING
2321 Tacoma Ave., Tacoma, WA 98402
(206) 272-4251

Owner: Steve Paulik, Carl Scheider
Studio Manager: Steve Paulik
Engineers: Steve Paulik, Carl Schneider
Dimensions of Studios: 19 x 25.
Dimensions of Control Rooms: 19 x 15.
Tape Recorders: Tascam MS-16 w/dbx, 16-track; Tascam 80-8, 8-track; Technics 1500 w/dbx, 2-track; TEAC X-10R, ¼-track; TEAC X-3, ¼-track; Tandberg and Pioneer cassettes.

Mixing Consoles: Tascam Mo. 15, 24 x 8 x 16 (custom modified).

Monitor Amplifiers: Crown, Harman-Kardon, Yamaha.
Monitor Speakers: ADS BC-8, Yamaha NS-10M, Auratone 5-C, AKG phones.

Echo, Reverb & Delay Systems: Lexicon PCM70, PCM-60, PCM42, Roland SDE-1000, ADA-S1000, Furman RV-1.
Other Outboard Equipment: MIDI studio w/Lexicon PCM70, Ensoniq Mirage sampling keyboard w/extensive software library, Roland Octapad, Syntech Studio I (sequencer software w/sync to tape), Syntech DX-TX Master, (2) UREI LA-4, Gatec, dbx noise reduction, Tascam parametric EQ, Symetrix SE-400 parametric EQ, Altec compressor (tube).

Microphones: AKG, Sennheiser, Electro-Voice, Sony, Beyer, PZM, Shure, Audio-Technica.

Instruments Available: Guitars: Les Paul, SG, Ibanez, Ovation, Strat. Amps: Marshall, Gallien-Krueger, Rockman, Yamaha, Lab Series, Fender Twin, Ampeg. Keyboards (available w/advanced booking): Yamaha DX7; Roland JX-8P, Jupiter-6; Korg DW-8000, DW-6000, Poly 800 and more. Drums: LinnDrum, Yamaha RX11, Roland 505.

Video Equipment & Services: Half-inch VHS Hi-fi and Beta Hi-fi.

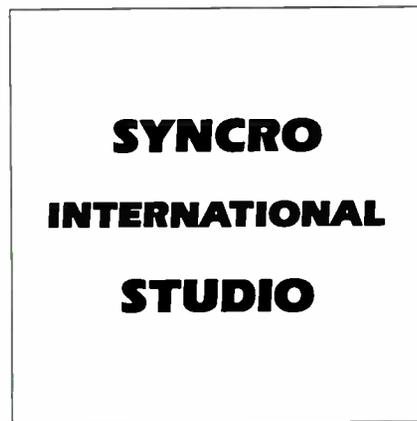
Rates: Call for rates. We encourage block booking.

[16] SOUNDCHASER RECORDING STUDIOS
only REMOTE RECORDING
P.O. Box 267, Laie, HI 96762
(808) 293-2789
Owner: Brett Butterfield

[16] STAFFORDSHIRE PRODUCTIONS
P.O. Box 4364, Napa, CA 94558
(707) 226-8273
Owner: Kent Monson
Studio Manager: Kent Monson

[16] STARTSONG
also REMOTE RECORDING
3218 E. LaSalle, Colorado Springs, CO 80909
(303) 634-2045
Owner: Tom Gregor

[16] SUITE 17 RECORDING STUDIO
1016 Morse Ave. #17, Sunnyvale, CA 94089
(408) 734-2438
Owner: Doug Hopping
Studio Manager: Doug Hopping



SYNCRO INTERNATIONAL STUDIO
San Anselmo, CA

[16] SYNCRO INTERNATIONAL STUDIO
2 Allemand Ln., San Anselmo, CA 94960
(415) 457-4852
Owner: Satoshi Suzuki
Studio Manager: Dr. Space

Engineers: Daniel Ryman (credits for *Color Purple* w/ Quincy Jones), George Chris, etc.

Dimensions of Studios: Booth: 8 x 8, room: 20 x 20, reverb room: 17 x 6.

Dimensions of Control Rooms: 12 x 20.
Tape Recorders: Tascam MS-16, 16-track; Sony PCM 601-ES, digital 2-track.

Mixing Consoles: TAC Scorpion, 32 x 16 x 8.

Monitor Amplifiers: Bryston 4B.

Monitor Speakers: JBL 4430 Bi-radial.

Echo, Reverb & Delay Systems: Natural room reverb, AMS, Yamaha REV7, Yamaha (4) SPX-90, Lexicon PCM70.

Other Outboard Equipment: dbx-900, rack w/compressors, EQs, limiters.

Microphones: U87 Neumann, 414 AGK.
Instruments Available: Emulator II+ w/hard disk; Oberheim OB-Xa synth, DSX sequencer and DMS drum machine; Korg polyphonic synth; Yamaha DX7; Fender Rhodes.

Video Equipment & Services: Video post-production equipment will be available by the first quarter of 1987.
Rates: \$35-50/hr, negotiable block rates. \$35-50/hr. for Emulator.

Extras: 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 hi-quality/low budget master and/or demo work as well as scoring for soundtracks/industrial and new age/synthesizer music. 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. 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] SYNCRONICITY
Box 596, San Rafael, CA 94915
(415) 456-1012



SYNCRONICITY
San Rafael, CA

Owner: Windsor Riley
Studio Manager: Windsor Riley
Engineers: Windsor Riley
Dimensions of Studios: One room geared for MIDI recording 12 x 14.

Tape Recorders: Fostex B16, 16-track; Sony 501ES digital 2-track w/Super Betamax, Betamax; Technics M253X cassette deck; Technics RS 933W dubbing cassette.

Mixing Consoles: Ramco WRT820, 20 x 8.

Monitor Amplifiers: NAD 3150.

Monitor Speakers: TOA 280 ME.

Echo, Reverb & Delay Systems: Lexicon PCM60, Roland SRV 2000, Roland SDE 2500, DeltaLab ADM 1024.

Other Outboard Equipment: Barcus Berry 2002B stereo processor.

Microphones: AKG C451E, Fostex M5, Sony ECM 23F.

Instruments Available: Yamaha KX88 keyboard controller, TX7s (2), Roland JX8P, Juno 60 w/MIDI, MKS20 piano module, MSQ 700; Korg EX8000, Akai S612 sampler w/disk drive, E-mu SP12 drum machine, Atari 1040 ST w/DX Droid and Steinberg Pro 24 sequencer 360 systems MIDI patcher.

Rates: Call for rates.

[16] SYNTASY
also REMOTE RECORDING
365 Ironstone Ct., San Rafael, CA 94903
(415) 499-8747
Owner: Bernard Xoloti
Studio Manager: Bernard Xoloti

[16] TIOGA RECORDING STUDIO
P.O. Box 205, Allegany, OR 97407
(503) 267-2330
Owner: Jim (Spook) Flanagan
Studio Manager: Jim (Spook) Flanagan

[12] TRUTH SEEKER PRODUCTIONS
5610 Englewood Ave., Yakima, WA 98908
(509) 457-8746
Owner: Lance Johnson
Studio Manager: Lance Johnson

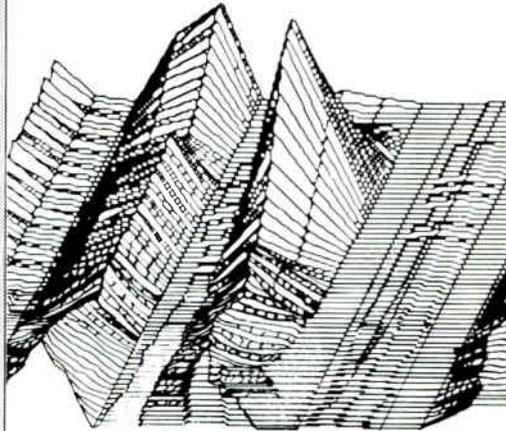
[16] WESTERN CINE SERVICE, INC.
312 So. Pearl St., Denver, CO 80209
(303) 744-1017
Owner: John I. Newell
Studio Manager: Paul Emrich

[16] WT STUDIOS
2025 So. 900 E., Salt Lake City, UT 84105
(801) 486-4977
Owner: Brent Marshall
Studio Manager: Brent Marshall

NORTHWEST STUDIOS

24

track



[24+] AKASHIC RECORDING
also **REMOTE RECORDING**
P.O. Box 395, Danville, CA 94526
(415) 686-6493
Owner: Stephen G. Jarvis
Studio Manager: Ron Timmons

[24+] ALPHA & OMEGA RECORDING
245 Hyde St., San Francisco, CA 94102
(415) 885-4999
Owner: Sandy Pearlman
Studio Manager: Nancy Evans
Engineers: Paul Mandel, Mark Needham, Mark Senesac, Maureen Dronney, Ken Kessie
Dimensions of Studios: 20 x 30
Dimensions of Control Rooms: 17 x 19
Tape Recorders: Ampex ATR 124 24-track; Studer A800, 24-track; ATR 102, 2-track w/ 1/2-inch heads; ATR 104.
Mixing Consoles: API 56 input w/Massenburg automation.
Monitor Speakers: Custom system (call for details), Yamaha NS-10Ms, RORs.

Echo, Reverb & Delay Systems: Lexicon 480L, Quantec stereo room simulator, Eventide SP2016, AMS RMX-16, AMS 15-80s stereo link sampling, Lexicon Prime II, Lexicon PCM42, Loft delay, EMT, Publison Internal Machine, Yamaha SPX90.

Other Outboard Equipment: Eventide 910, Eventide Phaser, (4) dbx 160, (2) LA2As, (4) UREI 1176s, (2) pair LA3s, (1) pair LA4s, (1) pair Neve compressor/limiters, (1) pair Fairchild, Summit Audio compressor, Compex stereo limiter, Trident stereo limiter, BBE Exciter, Aphex Compellor, Aphex Aural Exciter II, (2) Massenburg EQ, (3) Massenburg mic pre-amps, (7) API 560s, (2) Pultec EQPIAs, (2) Pultec MEQs, Pultec HLF filter, dbx de-esser, (8) channels of Drawmer gates, (8) channels Kexex gates, Drawmer vacuum tube compressor, Q.Lock, Time Lynx.

Microphones: Sanken CU-41, TLM 170s, U89s, U47 FETs, AKG C-414s, AKG 452s, Sennheiser 421s, Shure SM57s, assorted tube mics, etc.

Instruments Available: Yes, please call for details.
Video Equipment & Services: Sony BVU-800DB, EEEO 1 time generator, Sony monitor, custom Sony 16 Series digital recorder.

Rates: Please call for rates.

Extras: Convenient downtown S.F. location, lounge with pool table, free parking with nite guard.

[24+] ARCHIVE AUDIO FOR VIDEO
3819 Hancock Dr., Santa Clara, CA 95051
(408) 241-6406
Owner: Syrr Media Publications
Studio Manager: Bruce Gast



AVALANCHE RECORDING STUDIO, INC.
Northglenn, CO

[24+] AVALANCHE RECORDING STUDIO, INC.
10650 Irma Dr. #27, Northglenn, CO 80233
(303) 452-0498

Owner: Avalanche Recording Studio, Inc.
Studio Manager: Linda Warman
Engineers: George Counnas, Harry Warman, Steve Forgy, (Independent engineer/producer Michael Pfeiler).
Dimensions of Studios: 1000 sq. ft.; isolation room 1: 150 sq. ft.; isolation room 2: 150 sq. ft.

Dimensions of Control Rooms: 600 sq. ft.
Tape Recorders: Sony/MCI JH-24, 24-track; MCI JH-114, 16-track; Sony/MCI JH-110C, 4-track 1/2-inch, 2-track 1/2-inch; 2-track 1/4-inch; Studer/Revox PR-99, 2-track; Studer/Revox A-77, 2-track; Sony PCM-701 w/JVC 3/4-inch, digital 2-track.

Mixing Consoles: Soundcraft 2400, 52 x 24 modified.
Monitor Amplifiers: UREI 6500, Phase Linear 400, Hal-ler, Technics.

Monitor Speakers: JBL 4430, JBL 4313, Tannoy SRM 12B, Yamaha NS10M, Auratone 5C.

Echo, Reverb & Delay Systems: Lexicon 224XL, Lexicon 200, Lexicon PCM70, Audi-ence RFS-2 plate, Lexicon 95, 92, 41, MXR.

Other Outboard Equipment: Eventide 949 Harmonizer, Roland stereo flanger, dbx 160, 166, Symetrix CL100s, SG 200, UREI 546 parametric EQ, B&B parametric EQ, Aphex CX1 compressor expander, Aphex Aural Exciter.

Microphones: Neumann U47 FETs, U67, U48, U87s; Telefunken ELA M251s; AKG C414s, 451s, D12E, D224E; Sony C37As, C37P; Sennheiser 421s, 441; Electro-Voice RE20s; Beyer M260s; PZMs; Shure SM57s; RCA 44, D77.

Instruments Available: Yamaha C7, DX7, TX816 w/computer; ARP Odyssey; Roland 909; Oberheim DX; '54 Tele-

caster, '65 P-Bass, Fender bass amp; Seymour Duncan Convertible amp (all modules).

Video Equipment & Services: JVC CR6650U 3/4-inch video recorder; Panasonic CT 1930 19-inch color monitor; 3 transport TimeLine synchronizer.

Rates: Upon request, rate card and color brochure.

Extras: Up to 40-track capability. 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.

Direction: Leon Russell, Jock Bartley (Firefall), Highway 101, producer Paul Worley, Flash Cadillac, Feyline Productions. 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+] AXE-TRAX

1558 Linda Way, Reno, NV 89431
(702) 358-7484

Owner: Dr. Lawrence R. Davis

Studio Manager: Dr. Lawrence R. Davis



THE BANQUET SOUND STUDIOS
Santa Rosa, CA

[24+] THE BANQUET SOUND STUDIOS
540 E. Todd Rd. Ste. B, Santa Rosa, CA 95407
(707) 585-1325, (415) 492-8787

Owner: Warren Dennis
Studio Manager: Janet Stark-Krick

Engineers: Warren Dennis, Denis Hulett, Janet Stark-Krick, Keith Bender, David Litman, Mark Lyon; independents welcome.

Dimensions of Studios: Main studio: 24 x 15; isolation booth #1: 12 x 19; isolation booth #2: 13 x 16; isolation booth #3: 10 x 8.

Dimensions of Control Rooms: 16 x 18.
Tape Recorders: MCI JH 16-24 w/Autolocator III, 24-track (also 16-track headblock); MCI JH-110A, 2-track; Sony 501-ES PCM digital processor, 2-track; Nakamichi MR-2B cassettes; Sony SL-H750 VCR; MCI JH-110C, 2-track.

Mixing Consoles: Amek Angela, 28 x 24 (featuring 62 input returns to mix, parametric EQ on 28 inputs, 4 stereo subgroups, and six auxiliary sends/returns).
Monitor Amplifiers: Mains: (2) Nikko Alpha 1 (350W/side); alternates: Harman-Kardon Citation 19.

Monitor Speakers: JBL 4430 Bi-radials, bi-amped and Sonipulse calibrated, JBL L-100s, Yamaha NS-10s, Visonik David 702s, Auratones. Headphones by AKG, Sennheiser and Fostex.

Echo, Reverb & Delay Systems: Lexicon 200 digital reverb, Ecoplate III plate reverb, Lexicon Prime Time and Prime Time II, Eventide H-949 Harmonizer, Roland SDE 1000 digital delay, Effectrons 256 and 1024, Roland SRV 2000 digital reverb.

Other Outboard Equipment: Aphex Compellor compressor/limiter, 2 channel; (4) Valley People Dyna-Mites (compression, gating, limiting, keying); (3) UREI LA-4 compressors/limiters; Aphex Aural Exciter; (4) Gatex noise gates; dbx Type 1 noise reduction; Sony PSX6 direct drive turntable (quartz-lock, w/Stanton cartridge); Countryman and Sescom direct boxes.

Microphones: Full complement of AKG, Neumann, Sennheiser, Sony, Beyer, Crown PZM, Electro-Voice, and Shure microphones.

Instruments Available: Yamaha CF 9-ft. concert grand piano, LinnDrum, Yamaha DX7 digital synthesizer, Oberheim OB-8 synthesizer (MIDI), Ensoniq Mirage sampling synthesizer, Gleeman Pentaphonic analog/digital synthesizer, Gibson Les Paul, Gibson Ripper Bass, Fender Strat

w/EMG pickups, Mesa Boogie, Marshall amp w/full stack, Yamaha G-50 amp, Gretsch studio drum kit featuring Pearl 8-inch snare, Peterson strobe tuner, misc. guitar effects boxes, percussion instruments.

Rates: Call us for a competitive quote on your next project. Rates include a first engineer, outboard gear and instruments. No hidden charges! Ask us about discount recording packages and the "Nite-Owl Special." Full color brochure available for the asking.

Extras: Take advantage of our pre-production room w/full array of synthesizers and LinnDrum and save on studio costs. The Banquet Productions team is ready to serve your advertising or jingle production needs. Complimentary luxury accommodations with special lock-out packages. Check out our new MIDI production studio!

Direction: There are many studios offering great equipment and a qualified staff. What puts The Banquet in a class by itself? A solid 11-year reputation for delivering production expertise with musicianship in all styles of music, resulting in a truly superior sounding product. . . a clean and conscious environment to help create those extra special performances. . . careful and continuous maintenance, updates, and purchases to keep pace with an ever-changing technical industry. Our client base is worldwide. Find out why—Taste The Banquet and create your own success!



BEAR CREEK STUDIO & MUSIC PRODUCTION
Woodinville, WA

Mixing Consoles: Trident TSM, 32 x 24.
Monitor Amplifiers: Custom EICO, McIntosh, Crown, BGW, Phase-Linear, Tapco.

Monitor Speakers: Custom Altec 4-way, Yamaha NS-10M, JBL 4333A, 4311, Auratone 5C.

Echo, Reverb & Delay Systems: AMS 15-80s, AMS chorus/keyboard interface, Lexicon 224, Lexicon Prime Time, Ecoplate II, Master-Room MR-2, MXR DDL, Yamaha SPX90.

Other Outboard Equipment: Dolby A (26 channels); modified LA-2, LA-3 and 1176 limiters; Trident stereo limiter; Scamp Rack w/gates; Aphex Aural Exciter; Orban and UREI parametrics; Orban D-ess; Kexep; Gain Brains, MXR flanger.

Microphones: Telefunken, Neumann, AKG, Sennheiser, Milab, Sony, Electro-Voice, RCA, Crown, Shure.

Instruments Available: 1919 Steinway-B (7-R.), Emulator II, DX7, Prophet V, Oberheim DMX, Camco drums, Guild D-35, Music Man amp.

Video Equipment & Services: JVC 6650, Timeline Lynx synchronizers, Proton 600M; 3/4-inch video lock to 24-track; 1/4-inch center-track time code mix.
Rates: \$125/hr., call for block and evening rates.

[24+] CASCADE RECORDING
2115 N. Vancouver Ave., Portland, OR 97227
(503) 287-1662

Owner: Hal Lee

Studio Manager: Hal Lee

Engineers: Rick McMillen, Fritz Richmond.

Dimensions of Studios: 32 x 20 w/9 x 10 iso room.

Dimensions of Control Rooms: 16 x 12.

Tape Recorders: Sony/MCI JH-24 2-inch, 24-, 16-, 8-track; Otari MTR-10 1/2-inch, 4-, 2-track; Ampex ATR-102 1/4-inch, 2-track; dbx 700 digital 2-track; Nakamichi MR-1 cassette.

Mixing Consoles: Sony/MCI JH636 36 x 24.

Monitor Amplifiers: Hafler 220, Yamaha 2100.

Monitor Speakers: Tannoy 12B, Yamaha NS-10, UREI 811, Altec 604, Auratone, others.

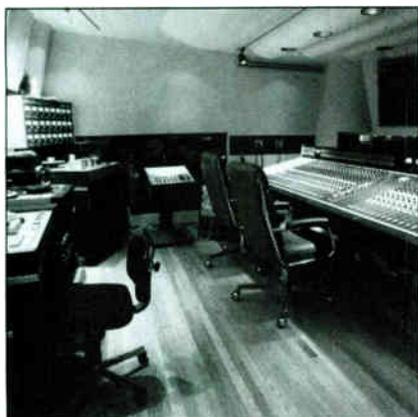
Echo, Reverb & Delay Systems: (2) Lexicon 200, Yamaha SPX90, Lexicon Super Prime Time, Lexicon PCM41, (2) Audio Digital TC2 DDL.

Other Outboard Equipment: Eventide H910 Harmonizer; UREI 1176LN limiters; Symetrix 501 comp/limiter; Aphex Type B; EXR Exciter IV; Dolby A rack; Castle dual stereo phaser 3; Scamp: parametric EQ; compressor, expander-gate, Autopanner; Ashly gates; Drawmer gates; Gain Brains; UREI graphic EQs.

Microphones: Neumann TLM 170, U87, U47, U89, KM84; KMS 84i; AKG C414, C451, D12; Beyer 88, 500; Sennheiser 421, 441; RCA 77DX; Shure 57; B&K 4006s; Calrec Soundfield.

Instruments Available: Yamaha 7-ft. grand, Gretsch drums, DX7, Gon-Bop timbales and congas.

Rates: Very competitive, please call!



BAYVIEW STUDIO
Richmond, CA

[24+] BAYVIEW STUDIO
1368 So. 49th St., Richmond, CA 94804
(415) 237-4066

Owner: Stephen Suda, Robert Hall

Engineers: Tom Anderson, Jack Crymes

Dimensions of Studios: (A): 45 x 20 x 17; (B): 19 x 16 x 17.

Dimensions of Control Rooms: 14 x 18 x 8.

Tape Recorders: Studer A-800, 24-track; Ampex ATR 102, 2-track; Studer A-80 MkII RC, 1/2-inch 2-track.

Mixing Consoles: Soundcraft TS-24 40 x 24.

Monitor Amplifiers: Hafler.

Monitor Speakers: John Meyer 833, Yamaha NS-10, JBL 4311, Auratone 5C, Ed Long MDM-4.

Echo, Reverb & Delay Systems: (2) EMT 140 stereo plates, 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, dbx 161, (2) Valley People Dyna-Mites, (2) Pultec MEQ-5, 8 Dolby 361.

Microphones: AKG 414EB, 414EB-P48, 451, C-422 stereo; Neumann U87, KM84, U47 FET, M-49B; Crown P2M; Electro-Voice RE-20; Shure SM 57, SM-7; Sennheiser 421; PML DC-73; Countryman Iso-max, direct boxes; Sony ECM-50.

Instruments Available: Gretsch and Yamaha "R" series and Simmons drums available by arrangement. Vintage Fender basses and guitars, Martin guitars, Gretsch guitars, old Fender amps, Ampeg B-15 bass amps 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 and Manny Hadlock

Studio Manager: Victoria Wirth

Engineers: Joe Hadlock, Steve Heinke

Dimensions of Studios: 25 x 38 x 12.

Dimensions of Control Rooms: 19 x 17.

Tape Recorders: MCI JH-114 (modified), 24-track; (2) Ampex ATR-100, 2-track; (2) Revox A-77, 2-track; (2) Revox B710 MkII, cassette.

FAX YOUR TRACKS!

If your studio or business has a facsimile (FAX) machine, you can send your press releases for Current, Studio News, and Preview to Mix via our FAX line: (415) 843-9540.

N.A.B.

VIDEO PRODUCTION ISSUE

Don't miss **Mix Magazine's** annual Video Production Special Issue, with bonus distribution at the N.A.B. Convention in Las Vegas (March 28 through April 1)!

- Theme: Audio-for-Video '87
- Directory: Video Production & Post-production Facilities
- Equipment Spotlight: Synchronization Systems; Shotgun Mics
- Special Feature: On-location Miking

For complete advertising information, call (415) 843-7901. In Southern California/Southwest, call (818) 709-4662.

ADVERTISING DEADLINE:

FEBRUARY 7TH

MATERIALS DUE:

FEBRUARY 15TH

Mix



C.D. STUDIOS
San Francisco, CA

[24+] C.D. STUDIOS
1230 Grant Ave. #531, San Francisco, CA 94133
(415) 285-3348

Owner: C.D. Presents, Ltd.
Studio Manager: Gary Hobish
Engineers: Gary Hobish (chief), Sylvia Massy, Gary Manking, Amy Atchison, other independents welcome.
Dimensions of Studios: Studio: 30 x 40; iso booths: 10 x 14 and 7 x 5; 12 1/2-foot ceilings.

Dimensions of Control Rooms: Approx. 200 sq. ft.
Tape Recorders: Studer A80 MkIV (xformerless) w/autolocator, 24-track; MCI JH-110B (xformerless), 2-track; Sony PCM-F1, digital, 2-track; Otari 5050 BII, 2-track.
Mixing Consoles: MCI JH-636 automated/xformerless with parametric EQ, 30 x 24.

Monitor Amplifiers: Haller, Crown, Phase Linear, Klark-Teknik EQ.
Monitor Speakers: UREI 811-A Time-Aligns, Yamaha NS-10M, JBL 4301 and 4313, MDM-4, Auratone, Realistic Mini-mus-7.

Echo, Reverb & Delay Systems: AMS RMX-16, Lexicon 200, Yamaha REV7, and AKG BX-10 reverbs; Lexicon SuperPrime Time, PCM 42 and DeltaLab DL-4 DDLs; A/DA STD-1 stereo tapped delay.

Other Outboard Equipment: Drawmer and Dyna-Mites gates; UREI LA-4s; Symetrix 501 compressor; Scamp rack w/compressor, gate, dynamic filter and EQ; DeltaLab DL-5 HarmoniComputer; API 554 EQ, SMPL system SMPTE synchronizer.

Microphones: Neumann U67 tube, U64 tube, U87; AKG C24 stereo tube, C12a tube, C414EB, C460B, C451; Sony ECM-22P, C-48; Shure SM57, SM58, SM81, SM85; Electro-Voice RE20, RE16, DS35; Sennheiser 421; Crown PZM; Beyr M88; Countryman D1s.

Instruments Available: 1929 Baldwin 7-ft. grand piano; Emulator II (programmer available); Yamaha DX7, Oberheim OB-8 w/MIDI; LinnDrum, Roland MSQ-700 sequencer, Garfield Mini-Doc; Rickenbacker bass; various guitars.
Rates: Please call for rates and complete equipment list.

Extras: Fresh ground coffee; large client lounge; refrigerator, microwave, sleeping facility, shower, one block from Willie McCovey batting range.

Direction: C.D. Studios offers an extraordinary facility at very reasonable rates: a huge, live recording space; two iso booths; a wide variety of keyboards (including the Emulator II sampler); plenty of digital reverb and other outboard toys; new and vintage tube microphones; digital mixing; automated mixdown and more. In addition, our parent company, C.D. Presents Records, can help the independent record maker with manufacturing and distribution. Check us out for your next project!

[24+] CITY SOUND RECORDING
245 Hyde St. 2nd Fl., San Francisco, CA 94102
(415) 474-0377

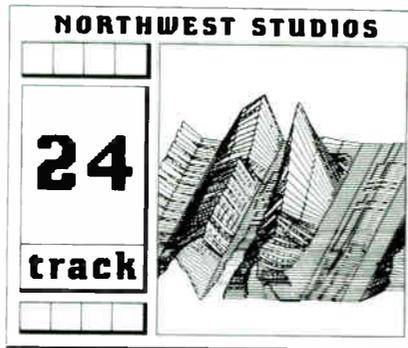
Owner: Dan Alexander
Studio Manager: John Cumberti, Connie Laventurier
Engineers: John Cumberti, Richard Van Dorn, Ricky Lee Lynd.

Dimensions of Studios: 39 x 19 w/12 x 8 iso.
Dimensions of Control Rooms: 17 x 19.
Tape Recorders: Otari MTR-90MKII, 24-track; Otari MTR-10 1/4-inch, 2-track; Otari MTR-10 1/2-inch, 2-track.
Mixing Consoles: API custom 3232, 44 x 32 x 36.

Monitor Amplifiers: Marantz model 9, Phase Linear 700, BGW 4 x 250 (headphones).

Monitor Speakers: Custom hi-fidelity system: ±2dB 50-17.5k Hz with no EQ.

Echo, Reverb & Delay Systems: EMT 251 and 144 digital reverbs, (2) acoustic chambers, (2) EMT 140 stereo plates, Publison an 89B, BEL BD 80, Super Prime Time, Eventide H949, (2) PCM41 Delta T 102 w/VCO package.
Other Outboard Equipment: (2) Inovonics 201 limiters, dbx 165 limiter, Teletronix, Fairchild limiters, (4) Drawmer



gates, (5) Valley People Dyna-Mites, (2) Pultec EQP1a3, Pultec EQP 1S2, Pultec MEQ5, Aphex II, Vocal Stressor, ADR Auto Panner, Publison stereo limiter, (2) Lang PEQ2, Pultec Mavec, Dynamic, (2) API 525 limiters, (4) Sontec parametric EQ, (2) ITI parametric, Roland Dimension-D, Roland Phaser, Eventide instant phaser.
Microphones: AKG C24 stereo, C12; Neumann M49, U47 tube, KM54, M269 and everything else.
Instruments Available: Emulator 2, Hammond B3, Oberheim DX w/custom chips, Yamaha DX7, grand piano.
Rates: Call for rates.

[24+] COAST RECORDERS
1340 Mission St., San Francisco, CA 94103
(415) 864-5200

Owner: D & M Ent.
Studio Manager: Steve Atkin
Engineers: Steve Atkin, Bob Lindner, Jim Hilson (chief eng.)

Dimensions of Studios: (A): 25 x 40; (B): 12 x 18; (D): 6 x 12.

Dimensions of Control Rooms: (A): 18 x 20; (B): 16 x 18; (D): 10 x 12; (loft): 14 x 14.

Tape Recorders: MCI 24, 16-, 8-, 4-, 2-track; Ampex 8-, 2-, 1-track; 3M 16-track.

Mixing Consoles: MCI JH-428B automated, 28 x 24; Harrison 3624 automated, 36 x 24; API 1604, 16 x 4.

Monitor Amplifiers: UREI 6500, 6250, 6260, 6150.

Monitor Speakers: UREI 813, 811, 809.

Echo, Reverb & Delay Systems: EMT, Lexicon 224, MICMIX.

Other Outboard Equipment: Lexicon 1200 Time Compressor, UREI 1178, 1176LN, 537, 535; Orban de-esser, Drawmer noise gate, UREI digital metronomes, 30 channels Dolby.

Microphones: Neumann U87, KM-84; AKG 414, 451; E-V RE20; Shure SM56; Sennheiser 421.

Instruments Available: Steinway grand, celeste.
Video Equipment & Services: BTR 4600/4500 synchronizing system, JVC 8500-U VCR, BTX 4450 jam-sync general, 3 machine lock-up capability.
Rates: \$60 to \$100/hr.

[24+] COLOR ZONE PRODUCTIONS
P.O. Box 1911, Novato, CA 94947
(415) 892-8027

Owner: Peter Gilford
Studio Manager: Elissa Allford
Engineers: Mikey Reskovsky, Rick Sanchez, Peter Gilford, other independents.

Dimensions of Studios: 9 x 12 iso.

Dimensions of Control Rooms: 19 x 17.

Tape Recorders: MCI JH-24 24 w/Autolocator III, 24-track; Otari 5050 B2, 1/2-track; Nakamichi DMP-100 digital 2-track.

Mixing Consoles: Soundcraft 1600 prod. series.
Monitor Amplifiers: AB series 900, Biamp TC-60.

Monitor Speakers: UREI 811A, JBL 4311B, Ed Long TA-2 near field, Auratones.

Echo, Reverb & Delay Systems: Lexicon 224X w/LARG; Orban 111B reverb, (3) DeltaLab Effectrons, Roland digital reverb, Lexicon PCM70, Yamaha SPX90.

Other Outboard Equipment: Valley People Dyna-Mite, Orban gated comp/limiter 424A, Orban 622B parametric EQ, Aphex Aural Exciter, Aphex Compellor, MXR flanger/doubler, dbx 161 compressors.

Microphones: Sennheiser 421, 441; AKG C414, 452EB, B330BT; Sony ECM56F, 23F; Beyr 600; Neumann U87.

Instruments Available: Simmons SDS7, Yamaha DX7, Emulator II, Rhodes 73 key piano, Chroma synthesizer, E-mu Drumulator, Fender P-Bass, Fender London reverb amp, Martin acoustic guitars, Yamaha CE-20 synthesizer, Linn 9000, Super Jupiter, Roland JX8P, TX816 rack system, Rockman Modules MacPlus with editors, librarians and sequencing, Casio CZ-101, Ibanez guitar synthesizer.
Rates: \$75/hr.

Extras: Other independent engineers available on request.

[24+] COLORADO SOUND RECORDING
3100 W. 71st Ave., Westminster, CO 80030
(303) 430-8811

Owner: Kevin Clock
Studio Manager: Kevin Clock
Tape Recorders: Otari MTR-90, 24- or 16-track w/VSO; Ampex ATR-104, 4- or 2-track—1/4-inch and 1/2-inch formats; Studer A-80, 2-track—1/4-inch and 1/2-inch formats; Technics 1500, 2-track; Technics RSB-100 and Yamaha K-2000 cassettes.

Mixing Consoles: Trident TSM 24 inputs/24 monitor, 6 aux sends, 4 echo sends, 4-band EQ on inputs.

Monitor Amplifiers: UREI 6300, Yamaha 2050.

Monitor Speakers: UREI 813A Time Align, Yamaha NS-10M, JBL 4311, Auratones.

Echo, Reverb & Delay Systems: AMS RMX-16 digital reverb, (2) PCM70 digital reverbs, Ecoplate II, Ursa Major Space Station, Lexicon Prime Time digital delay, (2) DeltaLab 1024, MXR digital delay.

Other Outboard Equipment: Audioarts 4200B parametric EQ; (2) API 550 EQ; (2) API 525D compressor/limiters; Teletronix LA-2A tube limiter; (2) UREI LA-3A limiter, (2) UREI LA-4A stereo limiter/compressors; (2) UREI 1176LN compressor/limiters; (4) Valley People Dyna-Mite; Altec 436C tube compressor; Ashley SC50 compressor; (2) dbx 902 de-esser; Aphex Aural Exciter; EXR Exciter; Dynaflex D-28; (2) White 4400 room EQs; (4) Omnicraft gates; Symetrix gate; Denon CD player.

Microphones: Neumann U47 tube, (3) U87, (3) U47, (2) KM84, KM86; Sony 939 stereo; AKG C33 stereo, C24 stereo tube, (6) C414, (5) C451; (4) Sennheiser (4) 441, (2) 421; (4) Shure SM57, (2) SM81; Wright mic; (9) direct boxes.

Instruments Available: 1984 Yamaha C7 grand piano 7'4", E-mu Emulator II w/SMPTE sync; E-mu SP-12 turbo drum machine w/disk drive; Yamaha DX7, Hammond C3 organ w/Leslie; MiniMoog synthesizer; Fender Rhodes piano; Dragon Drums 5-piece kit; Oberheim DMX drum machine; Marshall 100 watt amp; Fender guitar amps; Rockman Type BII; Brooks "Request" custom guitar.

[24+] COLORSOUND PRODUCTIONS
also REMOTE RECORDING
1426 So. Jackson, Seattle, WA 98144
(206) 324-3376

Owner: Steve Boyce
Studio Manager: Steve Boyce

[24+] COMMERCIAL RECORDING HAWAII
333 Cooke St., Honolulu, HI 96813
(808) 536-5439

Owner: Commercial Recording, Inc.
Studio Manager: Donn V. Tyler

[24+] COUGAR RUN/LAKE TAHOE
P.O. Box 7418, Incline Village, NV 89450
(702) 832-7711

Owner: Cougar Run, Inc.
Studio Manager: Jody Everett Peterson, Sr.

[24+] CUSTOM RECORDING STUDIO
2220 Broadridge Way, Stockton, CA 95207
(209) 477-5130

Owner: Dr. Thomas T. Chen, M.D.
Studio Manager: John Edman, Bryan Caldwell
Engineers: Drew Palmer, John Edman, Dr. Tom Chen

Dimensions of Studios: 32 x 30.

Dimensions of Control Rooms: 12 x 8.

Tape Recorders: Otari MTR-90, 24-track w/autolocator; Otari MTR-10, 2-track; 3M M56, 8-track w/autolocator; Ampex AG-351, 2-track; Otari MX-5050, 4-track; Otari high speed duplicator; Otari MTR-10, 2-track; JVC 8250 U video recorder with Time Line SMPTE synchronizer.

Mixing Consoles: Sound Workshop automated Series 30, 28 in x 24 out; Interface Electronics, 8 in x 4 out.

Monitor Amplifiers: Spectra Sonics Model 701, Crown D-60.

Monitor Speakers: Ed Long's TA-3, MDM-4, Auratone, Yamaha NS-10, ADS 200.

Echo, Reverb & Delay Systems: AKG BX-20 reverb, Lexicon Model 224 digital reverb, Lexicon Model 102 stereo digital delay, Quantec QRS room simulator, Yamaha REV7 and SPX-90.

Other Outboard Equipment: Valley People Gain Brain II, Kepex II, Maxi Q; Eventide 949, 910, flanger; Orban 526 A de-esser; White 1/3-octave EQ, ITI parametric EQ; Aphex Compellor; EXR EX-2; UREI 1178; Countryman Phaser.

Microphones: AKG C451E system including cardioid, omni, shotgun, D200, 414; E-V RE15, RE16, RE20; FRAP for wind instruments; MB 215, 301; microphone substitution devices; Neumann KM-48, U67, U47 FET; MN-421, MKH-405; Shure SM-58, SM57, SM-53, SM-60, SM-81; Countryman direct boxes; PZM 130.

Instruments Available: Steinway grand piano, Hammond B-3 organ w/Leslie, Oberheim eight voice synthesizer

—LISTING CONTINUED ON PAGE 164



Keeping the garbage off your tape can keep your tape out of the garbage.

Snap judgments are a fact of life for A&R execs, producers and publishers. In the first few seconds of listening, the sound of your tape tells them more about you than your bio.

When you need to present your music professionally without getting lost in the complexities of modern recording technology, dbx has the tools. Sophisticated engineering makes the 163X Compressor/Limiter, the 263X De-Esser and the 463X Noise Gate simple to operate. With only one knob and one slider to set, your ear can tell you when the sound is right for your music.

Your ear will also tell you these dbx processors are much more than 'stomp boxes' in rack mount disguise. For example, the 263X uses rms-based automatic spectrum-sensing circuits to tame ear-piercing "ess" sounds or guitar string noise. The 163X and 463X use the same OverEasy® circuitry that makes our model 160X the most popular compressor in the most exclusive recording studios. OverEasy means compression and gating you can see on the

meters without unpleasant effects you can hear on the tape.

These dbx professional products are designed for applications versatility, too. Hi-Z instrument and line level inputs give optimum results for both tracking and mixdown. The 463X Noise Gate has a Key input for frequency-sensitive gating or special effects. Strap it in stereo with the 163X and you have a pair of dbx compressor/limiters or noise gates — either one can function as the master.

The Performer Series also puts a professional polish on your live performances. The 263X De-Esser controls excessive high-frequency output without reducing intelligibility or vocal presence. The 163X and 463X connect to your PA board or your instrument amp for unobtrusive overload protection and quieter sound.

Your dbx dealer has more information on the 163X Compressor/Limiter, the 263X De-Esser and the 463X Noise Gate. They can't give you a professional track record, but they will help you put together professional-sounding tracks.

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Professional Products Division, 71 Chapel Street, Newton, Mass 02459 617-964-3210



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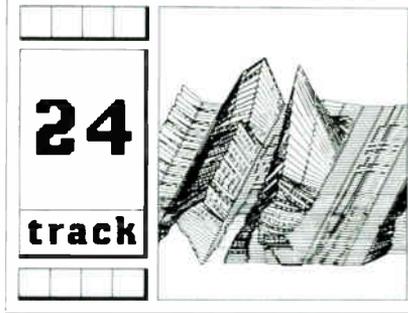


WORLD RECORDS

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NORTHWEST STUDIOS



—LISTING CONTINUED FROM PAGE 162

w/sequencer, Alembic bass cabinet, Oberheim studio amplifier, Fender Vibroverb amplifier w/JBL speakers, Fender Deluxe Reverb amplifier, Legend Rock "N" Roll guitar amplifier, Fender Precision Bass w/custom noiseless electronics, Ludwig drums, Paiste cymbals, Roto-Tom tympani, assorted percussion instruments, Oberheim DMX drum machine, New England Digital Synclavier II w/polyphonic sampling, SMPTE, MIDI and music printing. Rates: 24-track, \$60/hr.; 8-track, \$50/hr. (Block booking rates available.)

[24+] JAMES DANIELS PRODUCTIONS
P.O. Box 618, Palo Alto, CA 94301
(415) 325-8574
Owner: James Daniels
Studio Manager: Bruce Kaphan

[24+] DATA STREAM
1242 Francisco Ste. #4, San Francisco, CA 94123
(415) 775-7285
Owner: Bobby Richman, Bruce Leighton
Studio Manager: Zigmund Igor Mermaduke

[24+] DENVER CENTER FOR THE PERFORMING ARTS
1245 Champa St., Denver, CO 80204
(303) 893-4000
Owner: Denver Center for the Performing Arts
Studio Manager: Justin Dick

[24+] DESITREK STUDIOS
3415 S.E. Hawthorne Blvd., Portland, OR 97214
(503) 232-8606
Owner: Michael Demmers, Douglas Durbow
Studio Manager: Michael Demmers

[24+] DIAMOND STAR RECORDING
Bothell, WA
(206) 481-9439
Owner: Grant Gittins
Studio Manager: Grant Gittins



DIFFERENT FUR, LTD.
San Francisco, CA

[24+] DIFFERENT FUR, LTD.
3470 19th Street, San Francisco, CA 94110
(415) 864-1967

Owner: Howard Johnston, Susan Skaggs
Studio Manager: Susan Skaggs
Engineers: (Chief eng): Howard Johnston, Marc Senasac, Mack Clark, Scott Levitin, Jim Reitzel, Mark Slagle, Annemaria Scott
Dimensions of Studios: 25 x 35 x 12 plus iso booths.
Dimensions of Control Rooms: 17 x 21 x 12.
Tape Recorders: Sony 3324 digital, 24-track; Studer A80 VU MkIII, 24-track; Studer A80 VU MkIII, 2-track (1/2-inch and 1/4-inch); MCI JH-110A, 2-/4-track; (5) Technics cassette decks.
Mixing Consoles: Solid State Logic w/Total Recall 4056, 48 x 48.
Monitor Amplifiers: Crown, BGW, Spectra Sonics, Phase Linear, Yamaha.
Monitor Speakers: Westlake TM-1s, 604Es; JBL 4310s, 4311s; Yamaha NS-10s, Auratones.
Echo, Reverb & Delay Systems: Lexicon 224XL, Lexicon 224 digital reverbs, Yamaha SPX90, Yamaha REV7, EMT 240 Gold Foil, Eventide digital delay, (2) Lexicon Prime Time, live echo chamber.
Other Outboard Equipment: Q.Lock, Dolby A 2-channels. Effects: Kepex IIs, Gain Brain IIs, 1176s, LA-4As, Eventide Harmonizer, White 1/6-octave digital spectrum analyzer, MXR flanger.
Microphones: Neumann SM69 stereo tube, 269, 254 (pair), U87s, U47, KM84s; AKG 414s, 452s; Beyer, Sennheiser; Sony; E-V; Shure; many rare tube mics available.
Instruments Available: Yamaha C-7B grand piano, also available at specially arranged rates; 32-voice Synclavier, T-8, Yamaha DX7, LinnDrum.
Video Equipment & Services: Sony monitor, 3/4-inch U-matic.
Rates: Telephone for rates, block booking.
Extras: Copying facilities, sauna, shower, lounge w/kitchen, color TV.
Direction: Custom service in a state-of-the-art studio designed by John Storyk. Offering both digital and analog recording. Complete seclusion in a very private atmosphere. Media voice-over and jingle record. Recent clients include Windham Hill Records, Concord Jazz, Pat Gleason, Michael Shrieve, The Residents.



DRAGON STUDIOS
24-16-8 Track Automated Recording
(415) 366-5575

DRAGON STUDIOS
Redwood City, CA

[24+] DRAGON STUDIOS
100 Fifth St., Redwood, CA 94063
(415) 366-5575
Owner: Charles and Sally Albert
Studio Manager: Ron MacLeod
Engineers: Charles Albert, Bruce Kaphan, Laetitia Sonami, Bruce Bowers, Ron MacLeod.
Dimensions of Studios: 500 sq. ft., plus 2 isos.
Dimensions of Control Rooms: 22 x 23 x 10-non-parallel, symmetrical. Recessed soffits, three closets.
Tape Recorders: MCI JH-16 w/Auto-Locate II, VSO, 24- and 16-track; Otari MX5050 MKIII 8-track; MCI JH-110B, locate, remote, VSO, counter, 2-track; Ampex 440C Servo 2-track; Otari MX5050B, 2-track; Pioneer RTU-11, 4-track; (5) Nakamichi BX-100, (3) Technics M205 cassettes.
Mixing Consoles: MCI JH600-32VU, 32 x 24; JH-50 Automation; xformerless, Hardy preamp; Ramsa WR8816, 16 x 4.
Monitor Amplifiers: Hafler P500, BGW 100, 150, Crown, Symetrix, Sweet C.
Monitor Speakers: UREI 813A, JBL 4311, Yamaha NS-10, Auratone, Klipsch, Realistic; AKG, Fostex, Sennheiser phones.
Echo, Reverb & Delay Systems: Lexicon PCM70, PCM41, Yamaha REV7, SPX90; MXR/ART 01A; Master-Room XL-305, XL-121; DeltaLab DL-4, Effectron ADM 256; ADA

STD-1 stereo tapped DL, Sequential pro-FX DDL, phaser/flanger

Other Outboard Equipment: (3) UREI 1176LN; Symetrix CL100; Valley People Dyna-Mite (2 ch); Symetrix SG 200; dbx 155; Roland Vocoder; (2) White 4001; PE-40 para EQ (4-band, 4-ch.); Aphex Exciter; Technics SL 1200MK2 turntable.

Microphones: Neumann U89, (3) KM84; AKG414, D190E; Sony C-37A (Tube), (2) C-33F; (3) Sennheiser 421; Crown PZM-6LP; Countryman EM-202PPM; Iso-Max IIC; E-V RE-20; Shure (5) SM57; (2) SM58; Beyer (2) M-500, (2) Soundstar; (2) Countryman D1.

Instruments Available: Baldwin grand piano, Yamaha DX7, TX, Mirage; Prophet-10; Roland Juno; LinnDrum; Gretsch drums; Ludwig snare; cymbals: Paiste, Zildjian; '60 Les Paul custom; Strat/Floyd Rose; Ibanez Artist; Santa Cruz D 46C acoustic; Fender bass, Deluxe amp.

Video Equipment & Services: Audio production, sweetening, music, effects library; sampling; sound design; SMPTE. Full music production-composition, scoring, arrangement.

Rates: \$25-50/hr., call for quote.

Extras: Macintosh and Commodore computer-based MIDI sequencing, patch editing and library. Separate low-cost mixing, duping, editing, sequencing room. Air conditioned, lounge, kitchenette, parking, walk to restaurants and stores (24-hr.). Nakamichi chrome cassette dupes. Production, arrangement, full staff of session musicians, vocalists, programmers, etc.

Direction: Founded, owned and run by professional musician/engineers with years of experience on both sides of the glass. Beginner or veteran—we've been there, and we'll work with you. We care about every single project, and we respect your budget like our own. For better product without compromises for less money—call us. At Drag-on Studios, the bottom line is music. Catero/Fantasy, Mayfield Records; Windham Hill Productions; Pacific International, Random House; MR Records; First Strike; John Lee Hooker; Buddy Miles; Tuck & Patti.

[24+] PHIL EDWARDS RECORDING
also REMOTE RECORDING
1534 W. Winton Ave., Hayward, CA 94545
(415) 784-1971
Owner: Phil Edwards
Studio Manager: Phil Edwards



PHIL EDWARDS RECORDING
Hayward, CA

Engineers: Phil Edwards, Phil De Lancie, Brian Hague
Dimensions of Studios: Truck: 21 x 8 x 8; production: 12 x 10 x 8

Dimensions of Control Rooms: Truck: 16 x 8 x 8; production: 16 x 8 x 8

Tape Recorders: (2) 3M 79, 24-track; 3M 79, 16-track; Ampex AG 440C, 2-track; MCI 110B, 2-track

Mixing Consoles: API/De Medio 4024, 40 x 24

Monitor Amplifiers: McIntosh 2100s, McIntosh 250s, Crown DC-300A

Monitor Speakers: UREI 811B, Auratones

Echo, Reverb & Delay Systems: Lexicon PCM70, EMT 141/ST

Other Outboard Equipment: UREI 1176LN and LA 3A limiters; Orban 621 parametric EQ, 516 de-esser; Adams-Smith 605B three machine synchronizer; Dolby noise reduction, ITC three-deck cart machine; various Sony and Aiwa cassette machines.

Microphones: Neumann U87s, U47s, KM-84; AKG 414s, 451s; Shure SM56s, SM58s, SM85s, SM87s Electro-Voice RE15s, 1761s; Sennheiser 421s; Sony ECM-22Ps; RCA

77DXs; Countryman FET 85 direct boxes, C-Tape piano pick-up.

Video Equipment & Services: Sony KX 1901 video monitor, Sony Tricon 2200 color camera, sweetening for video.

Rates: Remote rates tailored to your project. Studio prices start as low as \$50/hr.

Extras: Remote unit features air conditioned working area, cushioned on-air-suspension system, lift gate. Dual 24- and 16-track synchronized capability. Redundant power supplies. Onboard AC power conditioning. Over 80 microphones on board, 27 pair snakes and splits. Producer's mobile cellular telephone.

Direction: Complete packages for record production, video and radio broadcast taping, film and commercial production. Simultaneous record and broadcast packaging a specialty. Experienced crew. Credits include: Concord Jazz, Kragen & Co., Edwin & Walter Hawkins, live broadcasts for KJAZ, KKGO, KMEL, Tokyo Broadcasting, Swedish Radio. Video shoots for KPIX, NPR, KQED, KRON. Call for rates and brochure.

[24+] EXIT RECORDS STUDIO
9844 Business Park Dr., Sacramento, CA 95827
(914) 361-3652
Owner: Exit Records

[24+] EXTRA SENSORY PRODUCTIONS
1028 Bellevue Way SE, Bellevue, WA 98994
(206) 451-2652
Owner: Charles Meserole
Studio Manager: Charles Meserole

[24+] FALCON RECORDING STUDIOS
15 SE 15th, Portland, OR 97214
(503) 236-3856
Owner: Dennis Carter
Studio Manager: Dennis Carter

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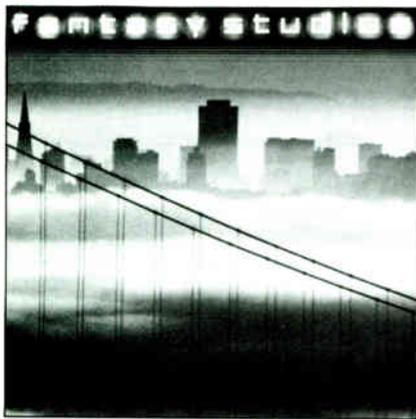
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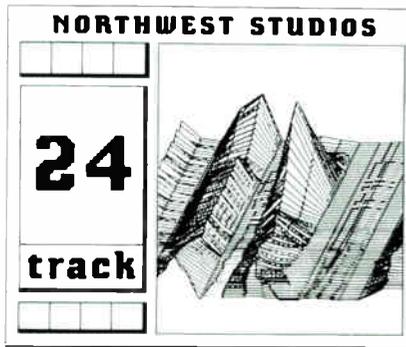
FANTASY STUDIOS
Berkeley, CA

[24+] FANTASY STUDIOS
10th & Parker Streets, Berkeley, CA 94710
(415) 549-2500
Owner: Fantasy Records
Studio Manager: Nina Bombardier
Engineers: Danny Kopelson, Dave Luke, Michael Rosen, Tom Size.
Dimensions of 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.
Tape Recorders: Mitsubishi X-850, digital 32-track; Mitsubishi X-80, digital 2-track; Sony PCM-1630 digital w/D-4000, 2-track; Sony PCM-F1 digital 2-track; Studer A800 24-track; Studer A80 1/4-inch and 1/2-inch 2-track; Studer A80 1/2-inch 4-track; MCI 110C 4- and 8-track.
Mixing Consoles: Neve 8108, 56 x 48; Neve 8108, 40 x 32; Neve 8108, 32 x 24; Trident Series 80, 32 x 24 x 32.
Monitor Amplifiers: Crown and McIntosh.
Monitor Speakers: Sierra-Hidley, UREI Time Aligned, Yamaha NS-10s, Auratones, Visoniks, MDMs, JBL 4311s.
Echo, Reverb & Delay Systems: Live chambers, EMT-140s, Ecoplex, AMS, EMT-250, Lexicon 224XL, Lexicon 200, PCM60.
Other Outboard Equipment: Bel DDL, Eventide DDL, Eventide 910 and 949 Harmonizers, Lexicon Prime Time, Dyna-Mite gates, Drawmer gates, Lexicon PCM42 DDL, Space Station, ADR Compex limiter, ADR Vocal Stresser, dbx 160 limiters, Orban de-esser, Scamp Rack, MXR phaser and much more.
Microphones: 174 microphones—ribbon, dynamic, condenser, and PZM.
Video Equipment & Services: Video sweetening, video transfers: 3/4-inch to VHS or Beta 1/2-inch, SMPTE code, window dubs, etc.
Rates: Call for rates, Nina, Andrea or Roy.

[24+] FINE ARTS RECORDING STUDIO
also REMOTE RECORDING
C-550 HFAC, Provo, UT 84602
(801) 378-2854
Owner: Brigham Young University
Studio Manager: Jon Holloman



FTM STUDIOS
Denver, CO



[24+] FTM STUDIOS
also REMOTE RECORDING
1111 S. Pierce St., Denver, CO 80226
(303) 922-3330

Owner: John and Diane Sundberg
Studio Manager: John F. Sundberg
Engineers: Jeff Shuey, John Sundberg
Dimensions of Studios: (A): 2200 sq. ft. w/5 isos; (B): 1500 sq. ft. w/4 isos; (C) 550 sq. ft. w/1 iso.
Dimensions of Control Rooms: (A): 550 sq. ft.; (B): 450 sq. ft.; (C): 350 sq. ft.
Tape Recorders: Otari MTR-90 w/autolocator, 24-track; (2) Soundcraft 760 w/autolocator, 24-track; Otari MTR-10 1/2-inch, 2-track; (2) Otari MK III 1/4-inch, 2-track; Otari MRK III 1/2-inch, 4-track; (2) Ampex ATR 700 1/4-inch, 2-track; Tascam Series 70 1/2-inch, 4-track; Tascam 80-8 1/2-inch, 8-track; Otari 5050B 1/2-inch, 8-track.
Mixing Consoles: (A): Soundcraft 2400, 28 x 24 x 24; (B): Soundcraft 2400, 24 x 24 x 24; (C): Tascam 15, 24 x 16 x 8.
Monitor Amplifiers: Crown Delta Omega; (8) Hafler 500s; Crown 300D; Crown 150D; Crest 3501.
Monitor Speakers: UREI 813B, E-V 500, Yamaha SP10, Auratones, Tannoy 12B, Tannoy 10B, E-V 100.
Echo, Reverb & Delay Systems: EMT 140, Audi-ence plate, Quantec QRS, (2) Lexicon 200 w/6 programs, AKG BX10, (2) Scamp stereo, (2) Lexicon Prime Time II, Lexicon Prime Time, (3) DeltaLab, E-V 949 & 910 Harmonizers, (2) Effectron II 1024s, MXR pitch transposer, DL-5 pitch transposer, Urso Major Space Station, Lexicon PCM70, Yamaha SPX90.
Other Outboard Equipment: GateX, Scamp: (4) limiter/compressors, (4) expander gates, (4) noise gates, Automatic Panner, (2) parametric EQs; (4) Symetrix 501 limiters; (8) Biamp limiters; (3) dbx 161, (2) 160X, 162; (2) Aphex; Orban stereo parametric EQs; (3) de-essers; UREI LE5, 1176; Valley People Dyna-Mite gates; (2) MXR 1/3-octave EQs, (2) AudioArts 4200B parametric equalizers.
Microphones: AKG C-24, 422, 414; Neumann U87, KM-86, KM84, U47; Shure SM81, SM85, SM57; E-V RE20, RE15, RE10, RE16, RE11; Sennheiser 421, 431; Countryman Pressure Zone.

Instruments Available: Kawai 7-ft. grand piano, Kawai US 50, Oberheim OB-Xa, DMX, DSX, Kurzweil w/sampling, Rhodes, Korg C-30 organ, ARP Odyssey, Korg DW-8000, Yamaha TX7.
Video Equipment & Services: Adams-Smith 2600 system SMPTE-EBU 3/4-inch JVC CR-850U video stereo recorder; Otari 1/4-inch with center track SMPTE; NEC 25-inch high resolution monitor.
Rates: (A): \$65 w/eng.; (B): \$40 w/eng.; (C): \$15 w/eng.
Extras: Large lounge w/big screen TV, kitchen and meal table. High ceilinged conference room for practice and relaxing. All rooms acoustically designed. Constructed from the ground up. Studios A & B with RPG diffusers on rear walls. Real-time cassette duplication. Sound effects library. One of the nation's finest studios.
Direction: Located on the west side of Denver. Near summer mountain activities and winter skiing.

[24+] GRANNY'S HOUSE RECORDING STUDIOS
1515 Plumas St., Reno, NV 89509
(702) 786-2622
Owner: Robert Forman
Studio Manager: Robert Forman

[24+] JOE HOFFMANN STUDIOS
also REMOTE RECORDING
P.O. Box 840, Occidental, CA 95465
(707) 874-2278
Owner: Joe Hoffmann
Studio Manager: Barbara Hoffmann
Engineers: Joe Hoffmann, Randy Quan, Dan Shea, Alan Sudduth, Michael Harmon
Dimensions of Studios: Main: 23 x 26 skewed; drum/iso booth: 10 x 14 skewed.
Dimensions of Control Rooms: 16 x 21 skewed.
Tape Recorders: Otari MTR90 16-/24-track; Otari MX-



JOE HOFFMANN STUDIOS
Occidental, CA

5050 MkIII-8, 8-track; TEAC 3340S, 4-track; Otari MX-5050B, 2-track; Akai GX-F71, cassette; (5) TEAC cassettes for R.T. dups.; digital CD mastering, Otari MTR-12 (30 ips), 2-track.
Mixing Consoles: NEOTEK Series II, 28 x 24; Ramsa 8210A, 10 x 4.
Monitor Amplifiers: Peavey DECA 700, Carver 1200, JBL 660, Rane HC-6 (cue).
Monitor Speakers: KEF Model 105 Series II phase coherent; Yamaha NS-10s, Auratones.
Echo, Reverb & Delay Systems: Lexicon 200, Lexicon PCM70, Roland SRV2000 digital reverbs/delays; MICMIX XL-305 acoustic chamber synthesizer, DL-2 digital delay, MXR flanger/doubler.
Other Outboard Equipment: Symetrix 522 (5 function stereo); Symetrix SG200 stereo gate; (2) Kepex; (2) Gain Brains; (2) Symetrix 501 comp/limiter; (2) UREI LA-4 comp/limiter; (2) Phase Linear ES1 parametrics; (10) dbx 150; (4) Dolby C; Technics SL 1200 MkII; Shure V15 Type 5 cartridge; BBE processor, 24 channels Dolby A; new Dolby SR mastering.
Microphones: AKG, A.T., B&K, Beyer, Countryman, E-V, Sennheiser, Shure, Sony, Tascam.
Instruments Available: 9-ft. Steinway concert grand, Tama 5-piece Super Star drum kit w/Zildjian cymbals.
Video Equipment & Services: Live session shoots arranged with a local production company in half-inch or 3/4-inch video formats.
Rates: \$32 to \$45/hr. Please call for rate card and literature.
Extras: The owner designed and built the studio, from the ground up, using state-of-the-art concepts. It's located in a gorgeous rural setting near the Russian River resort area. Skylights and a large picture window provide plenty of natural light. The studio, including lounge, is climate controlled and wheelchair accessible.
Direction: Complete production capabilities: albums, demos, cassettes, video soundtracks, radio drama, musicals... The acoustic design of the studio offers remarkably warm and rich sound for acoustic instruments. Recent credit: 1986 Windham Hill album. We offer sensitive professional engineering in a good feeling environment.

[24+] HORIZON RECORDING STUDIO
1317 So. 295th Pl., Federal Way, WA 98003
(206) 941-2018
Owner: Roger A. Wood
Studio Manager: Bill Gibson

[24+] THE HYDE STREET STUDIOS
also REMOTE RECORDING
245 Hyde Street, San Francisco, CA 94102
(415) 441-8934

Owner: Michael Ward
Studio Manager: Michael Ward
Engineers: Garry Creiman, John Cuniberti, Ricky Lee Lynd, Brian Risner, Les Stuck, Joe Tarantino, Richard Van Dorn, Mark Wallner
Dimensions of Studios: (A): 39 x 21; (D): 31 x 20; (E) 17 x 22.
Dimensions of Control Rooms: (A): 20 x 18; (D): 20 x 18.
Tape Recorders: Otari MTR 90-II (w/autolocate), 24-/16-track; 3M M-79 (w/autolocate), 16-track; Otari MTR-10 1/4-inch, 2-track; Otari MTR-12 1/2-inch, 2-track; (2) Otari MX 5050B, 2-track; Scully 280 half-inch, 4-track; Tascam 38 half-inch, 8-track; Revox A77 1/4-inch 1/4-track; (2) Nakamichi MR-2 cassettes.
Mixing Consoles: Trident B Range, 40 x 8 x 24; Helios custom, 28 x 16 x 24; Soundcraft 200B 16 x 4 x 8.
Monitor Amplifiers: Hafler, Soundcraftsmen, Crown, McIntosh.
Monitor Speakers: UREI 813, 815; Yamaha NS-10M.



THE HYDE STREET STUDIOS
San Francisco, CA

Echo, Reverb & Delay Systems: Acoustic chamber, Yamaha REV-7 (digital reverb w/MIDI), Lexicon PCM60, PCM41, PCM42, Eventide 949 Harmonizer, DeltaLab DL-2, DL-4, Lexicon Prime Time, Yamaha SPX90, Lexicon PCM70.

Other Outboard Equipment: (4) Drawmer noise gates, (5) Dyna-Mites, Teletronix LA-2A, (4) ADR F760 compressors, (2) UREI 1176LN, ADR Vocal Stresser, (2) UREI 546 stereo parametric EQ, (2) Furman parametric, (2) White ten-band EQ, Klark-Teknik 1/3-octave room EQ in both rooms, (2) dbx 165A, UREI 565 Little Dipper.

Microphones: Neumann: M49, U47 (tube w/omni capsule), U67, U87, KM54. Also AKG, AKG C12 (tube), (4) AKG C12A (tube), (2) AKG 414EB, Sennheiser, Beyer, Shure, Crown PZM, etc. Countryman direct boxes.

Instruments Available: Steinway 9-ft. concert grand piano, Knabe baby grand piano, Hammond B-3 organ w/Leslie, Ampeg B-18 amp, Music Man amp, Ringers drum kit and percussion. Studio E is a 16-track digital/MIDI synthesis room including: (2) Yamaha DX7, Ensoniq Mirage, Casio CZ-1000, (2) Sequential Circuits 400 Drumtraks. Also available: Emulator II.

Video Equipment & Services: Adams-Smith 2600 Synchronizer system, Sony VO-5800 3/4-inch video deck, Proton 602m 25-inch monitor.

Rates: Please call for rates.

Extras: Dual multi-track lock-up in-house production of musical scores for film and video, real time duplication; cassette, 1/4-track, 1/2-track, 1/2-inch 1/2-track, and two-inch safety masters, call screening, game and lounge room, free Peet's coffee.

Direction: Now providing quality audio for film, video, radio, theater, as well as traditional musical recordings for disc and demos.

[24+] **INDEPENDENT SOUND**
San Francisco, CA 94115
(415) 929-8085

Owner: Peter Buffett, Mary Buffett
Studio Manager: Peter & Mary Buffett

Engineers: Pete Buffett

Dimensions of Studios: 13 x 12

Dimensions of Control Rooms: 17 x 10

Tape Recorders: Otari MTR-90M, 24-track; Otari MIR-12, 2-track; Otari 5050B, 2-track; TEAC 122 cassette.

Mixing Consoles: Sound Workshop 34 automate-1, 32 x 24.

Monitor Amplifiers: BSW 75C, AB Systems 205.

Monitor Speakers: JBL 4411s, MDM-4s, Yamaha NS-10, Auratones.

Echo, Reverb & Delay Systems: Lexicon 224XL.

Other Outboard Equipment: Lexicon PCM70, Eventide H949 Harmonizer, Belanger, Drawmer gates and compressors, Orban EQ.

Microphones: AKG 414, Neumann U87.

Instruments Available: Kurzweil 250 digital sampling keyboard, Linn 9000, Folsand MKS-80 Super Jupiter, Yamaha DX7, Sequential Circuits Pro-One. All available no extra charge.

Video Equipment & Services: JVC 3/4-inch video deck, Otari synchronizer, Sony PVM-1910 video monitor, commercial music production and other audio for video projects are the main services this studio offers.

Rates: \$135/hr. or per project budget.

[24+] **INFINITE STUDIOS**
P.O. Box 1709, Alameda, CA 94501
(415) 521-0321

Owner: Michael Denten
Studio Manager: Michael Denten

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IRONWOOD STUDIO
Seattle, WA

[24+] IRONWOOD STUDIO
601 N.W. 80th St., Seattle, WA 98117
(206) 789-7569

Owner: Paul Scoles
Studio Manager: Paul Scoles
Engineers: Jay Follette, Robert Puff, Paul Scoles, independent engineers are welcome

Dimensions of Studios: 34 x 28 x 14 high.
Dimensions of Control Rooms: 14 x 16 x 10 high.
Tape Recorders: MCI JH-24, 24-track; MCI JH-110C, 1/4-inch and half-inch, 2-track; Tascam ATR-60 2-track; Akai GX630 1/4-track; Technics cassette decks.

Mixing Consoles: Harrison Raven, 28 x 24.
Monitor Amplifiers: Haller 500, Yamaha P2050, McIntosh 240.

Monitor Speakers: JBL 4430, 4311, Yamaha NS-10, Auratones.

Echo, Reverb & Delay Systems: Lexicon 200 digital reverb, Lexicon PCM70, Yamaha SPX90, DeltaLab DL-2 digital delay, Master-Room 305 reverb, Roland SRE-555 stereo chorus echo.

Other Outboard Equipment: dbx 900 rack w/compressors, noise gates, de-esser; Symetrix parametric EQ, compressors, noise gates; Teletronix LA-2A; UREI 1176; Audioars parametric EQ; Roland stereo flanger; Roland Dimension-D; MXR Pitch Transposer.

Microphones: Neumann U47 tube & FET, U67 tube, U87s, KM56s, KM84s, PML DC-63, DC-73; Sennheiser 441s, 421s; E-V RE20s; Beyer M-500; AKG C-451s, D-12; Sony C-37A tube, C-500; Norelco C-60, C-61; Shure SM57s, SM58s; Crown PZM.

Instruments Available: Grand piano, Yamaha DX7, Linn-Drum, Hammond M-3 w/Leslie, Fender Rhodes, Hohner clavinet, Fender and Music Man amps, Pearl drums, conga drums.

Video Equipment & Services: Audio Kinetics Q.Lock synchronizer, Sony VO5600 3/4-inch video tape recorder, NEC color monitor, Tascam ATR-60 2-track recorder w/center time code track. Full audio/video post-production sweetening services.

Rates: On request.

[24+] DENNY JAEGER CREATIVE SERVICES, INC.
Oakland, CA
(415) 339-2111

Owner: Denny Jaeger

Studio Manager: Denny Jaeger

Dimensions of Studios: 14.5 x 24.

Dimensions of Control Rooms: 14.5 x 22 w/adjoining equipment room 10 x 18.5.

Tape Recorders: (2) Sony 3324 digital, 24-track; Ampex ATR-124, 24-track; Ampex ATR-104 half-inch 2-, 4-track; Sony PCM-F1 digital, 2-track; Otari MTR-20 w/1/2-inch heads, 2-, 4-track.

Mixing Consoles: Harrison Series X virtual console, 112 inputs x 48 bus.

Monitor Amplifiers: John Meyer amp; MSI1000, Crest 4000, BGW 250, Bryston.

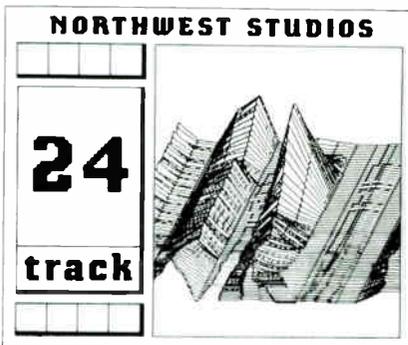
Monitor Speakers: John Meyer 833 w/processor and Complementary Phase EQ.

Echo, Reverb & Delay Systems: (4) Quantec Room Simulators, Lexicon 224XL, (2) Lexicon PCM70s, (2) Lexicon PCM42s; Lexicon 200, Eventide SP2016.

Other Outboard Equipment: (4) stereo Drawmer gates, Aphex Dominator, (2) Aphex Compellers, (2) dbx 160X limiter/compressors, (2) LA4s, (2) UREI Universal Filter sets, E-mu voltage controlled low pass filter, E-mu voltage controlled high pass filter, Aphex Aural Exciter II, 24 channels of Dolby SR, Dolby 361A; (5) Lynx modules.

Microphones: Schoeps, B&K, Neumann U87s, Sony (many varieties), E-V RE-20s, Shure SM56s, SM57s.

Instruments Available: Yamaha grand piano, Synclavier digital system w/32 megabytes of RAM, 64 voices, (2) 140 megabyte Winchester, velocity keyboard, guitar control-



ler, SMPTE, MIDI, Kennedy cartridge device, music printing, Yamaha DX7; Ensoniq ESQ-1; Oberheim Matrix-6.
Video Equipment & Services: IVC 6650U 3/4-inch video recorder, IVC 8250 3/4-inch video recorder, Sony KV25XBR video monitor, Q.Lock 4.10 synchronizer.
Rates: Upon request.

[24+] L.A. EAST
915 West 100 South, Salt Lake City, UT
(801) 532-3278

Owner: Randall Thornton, Brian Hoheins, Gary Jackson
Studio Manager: Jeff Carter

[24+] LAHAINA SOUND RECORDING STUDIO
Lahaina Square H-2, Lahaina, Maui, HI 96761
(808) 667-2587

Owner: George Benson

Studio Manager: Amos Daniels

Engineers: Steve Tose, David Russell

Dimensions of Studios: 30 x 23 x 20, iso booth 11 x 9 x 8.
Dimensions of Control Rooms: 16 x 20 x 10.

Tape Recorders: Sony PCM 3324 digital, 24-track; Ampex MM 1200, 24-track; Ampex MM 1200, 24-track; Ampex ATR 100, 2-track; Ampex AG 440, 4-track; Nagra T-Audio, 2-track.

Mixing Consoles: Solid State Logic SL4000 E, 48 x 48.
Monitor Amplifiers: Bryston 4Bs, Threshold, BGWs, Crown DC-300s.

Monitor Speakers: JBL Augspurger (custom designed), Visoniks D-9000s, JBL 4311s, Auratones.

Echo, Reverb & Delay Systems: EMT 140 tube type stereo plate, EMT 251 digital reverb, Lexicon PCM70 digital effects processor, (2) Yamaha SPX90 digital multi-effects, Lexicon Super Prime Time digital delay.

Other Outboard Equipment: Dolby SP Series unit (24 channels) with AB playback, Dolby 361, 2-track; Eventide H-949 Harmonizer, Eventide FL201 flanger, (4) dbx 160X compressor/limiter, (2) UREI 1176 LN limiters, (2) Teletronix LA2A (tube type) limiters, Akai S612 MIDI sampler.
Microphones: AKG C-28, 414s, 452s, The Tube (gold); Neumann M49s, U87, KM54, KM56; Electro-Voice RE20s, RE16s; Sennheiser MD 421s; Shure A2WS, 51, SM7, SM57s, Crown PZMs and Sony ECM-50PS.

Instruments Available: Yamaha grand piano, Fender Rhodes 73, Hammond B3 organ w/Leslie speakers, Yamaha DX7 synth, Yamaha G-100 and B-212 amplifiers, Tama drum kit and congas.

Rates: Very reasonable, call for rates.



STEVE LAWSON PRODUCTIONS
Seattle, WA

[24+] STEVE LAWSON PRODUCTIONS
2322 6th Ave., Seattle, WA 98121
(206) 625-9153

Owner: Steven Lawson Productions, Inc.

Studio Manager: Steve Lawson

Engineers: Bob Israel, Steve Lawson, Jim Wilson, Terry Date, Vince Werner, Bruce Calder, Carol Howell.

Dimensions of Studios: (A): 27 x 16 1/2; (B): 13 x 14; (C) 50 x 14.

Dimensions of Control Rooms: (A): 17 x 13; (B): 12 x 13; (C) 16 x 11.

Tape Recorders: (2) MCI JH-24, 24-track; MCI JH-110C, 8-track; (3) MCI JH-110C, 2-/4-track; (3) Otari 5050, 2-track.

Mixing Consoles: (A): MCI 636 automated 28 x 24; (B): Tangent 3216, 12 x 8; (C): MCI 636 automated, 28 x 24.

Monitor Amplifiers: UREI, BGW, Crown, Haller.

Monitor Speakers: JBL 4430s, JBL 4311s, UREI Time Aligns, MDM 4s, Auratones, Yamaha NS-10s.

Echo, Reverb & Delay Systems: Eventide Harmonizer 949, Lexicon 224X w/LARC, AMS Reverb, Lexicon Prime Time, Prime Time 2, (3) PCM 42s, Klark-Teknik DN-780, AMS RMX-16, Yamaha REV7.

Other Outboard Equipment: (2) UREI 1176s, UREI 1178, Symetrix 501s, Gain Brains, Kexpex, Scamp Racks with assorted modules, Symetrix Hybrid telephone interface, Orban de-esser, Symetrix 522, (2) Teletronix LA 2 tube limiters.

Microphones: AKG, Shure, Neumann, Sennheiser and others.

Instruments Available: (2) Yamaha 7-ft. 4-inch grand pianos, Tama SuperStar drum kit w/power-toms, Linn-Drum, DMX, Oberheim drum machines, Music/MIDI Suite: Advanced Kurzweil 250, Yamaha TX rack with four modules, Juno 106 synthesizer keyboard, Macintosh computer with Total Music Sequencer and assorted edited programs. Books with operator. Tie lines to all studios.

Video Equipment & Services: Audio Kinetics Q.Lock synchronizer, Sony BVU-800, MCI 1-inch layback machine for laying audio directly to 1-inch videotape.
Rates: Call for information.

Extras: 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.

Direction: 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.



LIVE OAK STUDIO
Berkeley, CA

[24+] LIVE OAK STUDIO
also REMOTE RECORDING
1300 Arch St., Berkeley, CA 94708
(415) 540-0177

Owner: Jim and Priscilla Gardiner

Studio Manager: Priscilla Gardiner

Engineers: Dale Everingham, Richie Corsello

Dimensions of Studios: 350 sq. ft., attic pre-production room: 800 sq. ft.

Dimensions of Control Rooms: 275 sq. ft.

Tape Recorders: MCI JH-24/16, 24-/16-track w/autolocator III; Otari MTR-10 1/2-inch/1/4-inch, 2-track; Sony PCM-F1 digital, 2-track.

Mixing Consoles: MCI JH-636 console w/ARMS II/Disk mix automation.

Monitor Amplifiers: Brystons 3B, 4B, Yamaha, Crown, Crest.

Monitor Speakers: JBL Bi-Radial 4430, JBL 4401, Yamaha NS-10, Toa 265 ME, Auratones.

Echo, Reverb & Delay Systems: Lexicon 224XL, Prime Time II, PCM42, SDE-3000, Publison Infernal Machine 90 stereo audio computer w/controller, Yamaha REV7.

Other Outboard Equipment: Full Scamp Rack, Vocal Stresser, Drawmer gates, UREILA-2, LA-3As, 1176, Spectra Sonics 610.

Microphones: Neumann, AKG, Sennheiser, E-V, Countryman, Shure.

Instruments Available: Kurzweil 250 system with 50kHz sampling option (thousands of voices available); E-mu SP-12 sampling drum machine; Yamaha TX816 rack system with 8 DX7 modules with Opcode Voice Editor and Librarian software (5000 patches); Oberheim Matrix 12 synthesizer; Casio CZ-101 synthesizer; Garfield Electronics Master Beat; Emulator II—upon request. Computers: IBM-PC with Jim Miller Personal Composer software for 32-track sequencing and printing of music scores. Apple Macintosh system with Mark of the Unicorn's "Performer" software for up to 250 tracks of MIDI control/recording, sequencing and music notation.

Video Equipment & Services: Audio Kinetics Q.Lock 4.10-E synthesizer with Eclipse Editor JVC 8250 ¾-U-VCR, Sony VTH 1020 Q-I high resolution color video projection system with 100-inch screen; Sony KV-1311CR 13-inch color monitor.

Rates: Upon request.

Extras: 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.

Direction: 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 Infernal 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+] LOFTY PRODUCTIONS

also **REMOTE RECORDING**

2750 Glenwood Ave. Unit #9, Boulder, CO 80302

(303) 444-4369

Owner: Polly Holt



LOFTY PRODUCTIONS
Boulder, CO

Studio Manager: Tris Conley, Craig Damon

Engineers: Craig Damon, Tris Conley

Dimensions of Studios: 15 x 20.

Dimensions of Control Rooms: 15 x 15.

Tape Recorders: Akai MG1214, 12-track; Akai 14D/ML14, 12-track; Akai 14D/ML14, 12-track; Akai GX 912 mixdown cassette.

Mixing Consoles: Seck 1882, 18 x 16; Akai MG1214, 12 x 8; (2) Akai MDX 820, 8 x 2.

Monitor Amplifiers: Crown DC300A, Crown MPS 1000.

Monitor Speakers: JBL, Tannoy, Yamaha NSC-10, Akai MS-200.

Echo, Reverb & Delay Systems: Roland SRV 2000, Yam D15200, DOD 1000, Vesta Fire RVD-1, assorted MIDI digital reverbs and delays.

Other Outboard Equipment: Vesta Fire SF-100 space commander, Vesta Fire D16-412, D16-delay, MLM-10 comp/limiters, MNT-10 noise gates, Garfield Master Beat SMPTE/MIDI generator-autolocator.

Microphones: Crown PZMs, assorted AKG, Sennheiser, Shure, other assorted mics and MIDI triggering systems.

Instruments Available: Kawai M-8000 MIDI keyboard controller, Kawai K3s and rack mounts, Yamaha DX7, Akai AX-60 keyboard, Akai AX73 keyboard, Akai S900

samplers, Akai VX90s, MIDI delays, pitch transposers, Akai S612 sampler.

Video Equipment & Services: ¾-inch video production available w/SMPTE lock.

Rates: Block time rates vary on applications (audio/audio-video/video/etc.). Call for bids.

Extras: Specialize in computerized MIDI systems consulting and installation. Studio design and construction. All MIDI computer systems: IBM, (Syntech Dr. T, Personal Composer, Texture); Mac, (Southworth); all Atari Passport, MIDI systems and most computer sound libraries. Also creative album and commercial photography and graphic design.

Direction: Totally computerized audio/video production as well as computer enhanced graphics and computer assisted studio design and construction. Computer, keyboard and software sales and repair on all equipment.

[24+] LONDON BRIDGE STUDIOS

20021 Ballinger Way NE, Seattle, WA 98155

(206) 364-1525

Owner: London Bridge, Inc.

Studio Manager: Rajan Parashar, Scott Shangle

Engineers: Rakesh Parashar, Peter Barnes, Scott Spain, Kurt Bujack.

Dimensions of Studios: Main room: 27 x 46 x 24, isolation room: 20 x 24 x 14.

Dimensions of Control Rooms: 20 x 21.

Tape Recorders: MCI JH-24, 24-track; Sony APR-5000, 2-track.

Mixing Consoles: Neve 8048, 30 x 16 x 24.

Monitor Amplifiers: Crown, Hafler.

Monitor Speakers: JBL 4435s, Yamaha NS-10s, Auratones.

Echo, Reverb & Delay Systems: Lexicon 224XL, PCM60, Yamaha REV7, (2) DeltaLab Compueffectrons, (3) Roland SDE-3000s.

Other Outboard Equipment: (4) Neve compressor/limiters, (2) Neve noise gates, ADR Vocal Stresser, (6) Scamp gates, (4) Scamp compressor/limiters, ADR de-esser, ADR Panscan, Aphex Aural Exciter.

Microphones: (2) custom Sheffield Lab tube mics, Neumann U47s, U87s, AKG 414s, D12s, 460s, Sennheiser 421s, E-V RE20, Shure SM57s, 58s.

Instruments Available: Yamaha C7E grand piano, DX7, Juno 106, Juno 60, Korg Poly 800 Emulator SP-12, S.C. Drumtraks, 360 MIDIbass.

Rates: Upon request.

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- Fairlight Series 2X, Emulator II, DX7s, 816, Matrix 12, PPG Wave 2, Prophet 10, Minimoog, Oscar, Linn 9000, K-Muse Photon Guitar, RX-11, SP-12, plus more

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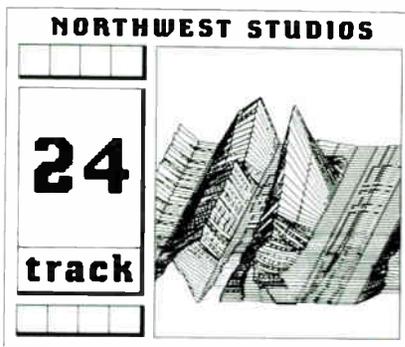
[24+] STEVEN LORENTE PRODUCTIONS
only REMOTE RECORDING
 5806 Porto Alegre Dr., San Jose, CA 95120
 (408) 268-4344
 Owner: Steven Lorente
 Studio Manager: Suzanne Lorente

[24+] L.P. STUDIOS
 P.O. Box 66302, Scotts Valley, CA 95066
 (408) 438-8723
 Owner: Leon Patillo
 Studio Manager: Jackie Patillo
 Engineers: Vince Sanchez
 Dimensions of Studios: 20 x 20.
 Dimensions of Control Rooms: 25 x 25.
 Tape Recorders: Ampex MM1200, 24/16-track; Otari MTR-12-1, 1/2-inch 4/2-track; Tascam 38-8 w/dbx, 8-track.
 Mixing Consoles: Harrison MR4 w/automation, 36 x 24.
 Monitor Amplifiers: Peavey DECA, C800, C408.
 Monitor Speakers: JBL 4430, 4401.
 Echo, Reverb & Delay Systems: Lexicon 224XL digital reverb, plate synthesizer.
 Other Outboard Equipment: (2) LA-4 limiters, (2) dbx 160, Super Prime Time, DL2, Eventide Harmonizer 910, Aphex Aural Exciter/Omni Craft noise gates.
 Microphones: RE20, SM57, MD421, AKG 451, etc.
 Instruments Available: Oberheim drum machine, OBB, DSX sequencer, OB-Xa.

[24+] MARIN SOUND
 448 Dubois St., San Rafael, CA 94901
 (415) 459-5152
 Owner: Sam Waxler, Fred Waxler, Al Lachtman
 Studio Manager: Fred Waxler
 Engineers: Fred Waxler
 Dimensions of Studios: 45 x 30 x 13.
 Dimensions of Control Rooms: 20 x 14 x 10.
 Tape Recorders: Studer A80 MKIII w/Autolocator, 24-track; Tascam 8516 w/dbx and autolocator, 16-track; Sony PCM-501 w/SL-HF400 VCR digital, 2-track; Otari 5050B, 2-track; TEAC 3300SX 2-track.
 Mixing Consoles: Tangent modified Series 16, 30 x 16.
 Monitor Amplifiers: AB Systems, Phase Linear, SAE, Yamaha, Crown, BGW.
 Monitor Speakers: UREI 813, Yamaha NS-10M, Auratones, Koss and Fostex headphones.
 Echo, Reverb & Delay Systems: Yamaha REV7; Ecoplate II; Alexis X-TC; Lexicon PCM60; Ursa Major Space Station; DeltaLab Effectron 1024 and 256; Ibanez HD1000; MXR flanger/doubler; MXR stereo chorus.
 Other Outboard Equipment: Valley People Dyna-Mite (stereo), dbx 165 (2), Symetrix gates, Roger Meyer gates, Orban stereo de-esser, Biamp EQ 140 parametric (2), Spectrasonics 510 comp/limiter, etc.
 Microphones: Sony C-48 (2), C-37 P (2), ECM 50 (2); Neumann KM84 (2); AKG 451 (2), 224, CK-22; Shure SM81 (2), SM-33, SM56 (8); Sennheiser 441, 421 (3), 409 (2); Tascam PE 250; E-V RE20, RE15 (2); Beyers M160, M88; Altec 298, Saltshaker, Lipstick; Countrymen; Jensen.
 Instruments Available: Baldwin baby grand piano, Emulator 2, lots of guitars, basses, drums, amps and keyboards.
 Rates: Call for prices.

[24+] MASTER TRACK PRODUCTIONS
 1524 W. Winton Ave., Hayward, CA 94545
 (415) 782-0877
 Studio Manager: Linda Rebeck
 Direction: For over 14 years we've been producing albums in the fields of contemporary and traditional gospel, jazz, rock, and other styles, with an emphasis on gospel music. Our facility is a completely professional, fully equipped 24-track studio with spacious rooms and high ceilings, plus a wide assortment of microphones and signal processing gear. We deliver quiet and sonically superior recordings with our transformerless 32 x 24 NEOTEK Series IIIIC console and Stephens Electronics multi-track recorder. We also feature 30 ips Studer A80 2-track recorders and Dolby A noise reduction systems. Our engineering staff is experienced, knowledgeable, and helpful with a long list of album and radio credits. Their combined expertise in the fields of musical performance and technical production assures a high level of excellence and understanding of each client's needs. MTP is also a complete, high-volume cassette duplication and packaging plant. Please call for additional information.

[24+] MILLTREE PRODUCTIONS
 P.O. Box 70322, Seattle, WA 98107
 (206) 782-3115
 Owner: George N. Miller, Claude Autry
 Studio Manager: Claude Autry
 Direction: With an emphasis on pre-production and computer assisted digital sound design and development, Milltree makes Music Magic.™ We use many of today's most innovative systems for quality, cost-effective audio production and original soundtrack scores. Our staff of talented professionals, including composer/producer Claude



Autry, is geared for the varied budget levels of the film, video, multi-image, theatre and broadcast industries, as well as individual artists' requirements. Our facility features MIDI/SMPTE hardware and software, as well as digital and analog multi-track recording. Clientele includes Rockwell International, U.S. West Information Systems, and ADSR Productions' Michael Montealeone (Universal Studios' *Legal Eagles*).



MOBIUS MUSIC RECORDING
 San Francisco, CA

[24+] MOBIUS MUSIC RECORDING
also REMOTE RECORDING
 1583 Sanchez, San Francisco, CA 94131
 (415) 285-7888
 Owner: Oliver DiCicco
 Studio Manager: Oliver DiCicco
 Engineers: Oliver DiCicco, Ken Kessie, Maureen Dronay
 Dimensions of Studios: 38 x 16 with 2 iso booths, high ceiling, variable acoustic.
 Dimensions of Control Rooms: 18 x 16.
 Tape Recorders: MCI JH-114, 24 or 16-track; MCI JH-110, 2-track; Studer B20, 2-track; Revox A77 HS, 2-track; Nakamichi 600II cassette; (2) Sony TC FX44 cassette.
 Mixing Consoles: Auditronics 501, 30 x 20.
 Monitor Amplifiers: Hafler 500, Crown D150, D60.
 Monitor Speakers: UREI 811, Altec 604 w/Mastering Lab crossovers, Auratone.
 Echo, Reverb & Delay Systems: Lexicon 224 digital reverb, Master-Room MR3 reverb, Lexicon 92 digital delay, DeltaLab DL4, Yamaha REV7 and SPX90.
 Other Outboard Equipment: (2) Dyna-Mite processors, (2) Kepex, (2) dbx 160 limiters, (2) UREI LA-4 limiters, UREI 530 graphic EQ, Orban parametric EQ, AR turntable, Lang program EQ.
 Microphones: Neumann U47 tube, (2) KM54 tube, (2) U87, (2) KM84, (2) KM85; Sennheiser (6) 421, 402; Shure SM57s; Beyers M500; E-V RE15, RE11; AKG: D200E, D160.
 Instruments Available: Yamaha C36 grand piano, Fender Telecaster (w/EMG pickups), Yamaha RX15 drum machine, Slingerland "Radio King" drums, Fender Vibrolux, Bandmaster amps.
 Video Equipment & Services: Coming soon.
 Rates: Available on request, block booking discount avail.

[24+] MONTAGE RECORDING STUDIO
 37532 Sycamore St. Bld. 1C, Newark, CA 94560
 (415) 794-2992
 Owner: Will Mullins and Bill Walsh, Jr.
 Studio Manager: Jerry Merrill



MOON RECORDING INC.
 Sacramento, CA

[24+] MOON RECORDING INC.
 156 Otto Circle, Sacramento, CA 95822
 (916) 392-5640
 Owner: George Whyler
 Studio Manager: George Whyler
 Engineers: David Houston, Steve Holsapple, Gary Woltman
 Dimensions of Studios: 22 x 34.
 Dimensions of Control Rooms: 17 x 18.
 Tape Recorders: MCI JH-24, 24-track; Tascam 80-8, 8-track; Otari MTR-10, 2-track; Sony PCM-701 processor w/2710 Beta VCR, digital 2-track.
 Mixing Consoles: MCI JH-636 automated, 28 x 24.
 Monitor Amplifiers: UREI 6300, Crown, McIntosh.
 Monitor Speakers: UREI 813B, Electro-Voice Sentry 100A.
 Echo, Reverb & Delay Systems: Ecoplate III reverb, Lexicon Prime Time II, CompuEffectron, Eventide Harmonizer delay, Lexicon PCM60.
 Other Outboard Equipment: UREI LA-3As, 537 1/3 octave EQ; dbx 160s, Orban 424 comp/lim/de-esser, Valley People Kepex II, Gain Brain, Maxi Qs; Aphex Aural Exciter; Ashly noise gates; Sony 52CES CD player, Technics SL1200 turntable.
 Microphones: Neumann, Electro-Voice, Sony, Sennheiser, Shure.
 Instruments Available: Yamaha DX7, Yamaha RX11 drum machine, Yamaha 816 MIDI track, Yamaha C-7 grand piano, MiniMoog, Fender Precision Bass, Sound Ideas effects library.
 Rates: Please call for rates. Block rates available.

[24+] MOUNTAIN EARS RECORDING
 1939 Pearl St., Boulder, CO 80302
 (303) 444-3277
 Owner: Mountain Ears, Ltd.
 Studio Manager: Paul Winger

[24+] MOUNTAIN MEADOW RECORDING
also REMOTE RECORDING
 570 26th St. No. 1, Ogden, UT 84401
 (801) 394-3217
 Owner: Ronald J. Watkins
 Studio Manager: Ronald J. Watkins

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331C) MODERN RECORDING TECHNIQUES, Robert Runstein, David Huber The updated 1986 edition of this classic book contains state-of-the-art technical developments and practices in recording. Practicing engineers and students will find comprehensive coverage of equipment, acoustics, controls and techniques, as well as information on proper and creative production and sound measurement. 366 pp.(P) \$18.95

340B) THE MASTER HANDBOOK OF ACOUSTICS, F. Alton Everest An all-inclusive sourcebook that fully explores the world of acoustics and sound reproduction, transmission, and reception. Includes much detail on hearing, ear anatomy and sensitivity, and audibility, room testing, and loudness vs. frequency, and intensity, and bandwidth. 337 pp.(P) \$12.95

415B) SUCCESSFUL SOUND SYSTEM OPERATION, F. Alton Everest This excellent new book provides background information on the physical nature of sound, electricity and electronics. It also gives in-depth detail on current equipment with a very useful section on equipment usage including microphone placement and usage, speaker care and placement, the working mechanics of amps, mixers, and signal processors, tips on troubleshooting and repairing audio equipment, detailed information on noise reduction, room acoustics, sound equalization, and more. 336 pp.(P) \$17.95

440B) THE DIGITAL DELAY HANDBOOK, Craig Anderton An outstanding book to help unlock the hidden potential in virtually any delay line. In addition to long, short, and multiple delay line techniques, it contains 66 different applications including auto flanging, sound effects, using percussive sounds, phase shifter simulation, reverb pre-delay, syncro-sonic echo effects, and much more. 134 pp.(P) \$9.95

1535B) AUDIO SWEETENING FOR FILM AND TELEVISION, Milton Hubatka, Frederick Hull, Richard Sanders This excellent new guide explains all current post-production techniques and equipment for sweetening audio tracks. The basic techniques of spotting, laydown, track building, mixing, and layback are covered as well as the advanced techniques for treatment of on-camera dialog music, sound effects, Foley, narration, background presence, stereo mixing and more. Includes sections on smaller scale TV productions, the history of sweetening, and state-of-the-art developments. 240 pp.(H) \$29.00

3010B) THIS BUSINESS OF MUSIC (REVISED AND ENLARGED), Shemel & Krasilovsky This highly comprehensive 1985 reference provides detailed explanations of legal, practical, and procedural problems of our industry. Part 1—Recording companies and artists; Part 2—Music publishers and writers; Part 3—General music industry aspects. Includes over 200 pages of contracts, forms, and licenses. 646pp.(H) \$22.95

3250B) SINGING FOR THE STARS, Seth Riggs This complete program for voice training was written by one of the most respected vocal coaches in the world. His students have included Michael Jackson, Al Jarreau, Bette Midler, Stevie Wonder, James Ingram among others. No matter what style of music you sing, from pop to opera, Seth Riggs' techniques will increase your vocal strength, clarity, flexibility, and range. 146 pp. plus two cassettes \$29.95

3570B) MIDI FOR MUSICIANS, Craig Anderton This brand new 1986 release is by far the best book we've seen on the subject. Clearly and thoroughly it discusses the evolution toward Musical Instrument Digital Interface, how MIDI solves musician's problems, the MIDI language and what it means in musical terms, how computers work in musical applications, MIDI applications both live and in studio, typical features of MIDI gear and their musical uses, set up and use of MIDI-based studios, MIDI accessories, musician-oriented software, and much more. 104 pp.(P) \$14.95

3580C) FOUNDATIONS OF COMPUTER MUSIC, Edited by Curtis Roads & John Strawn This superb reference book from MIT is the most complete overview of the field for serious students and practitioners. In four sections it covers Digital Sound-Synthesis Techniques, Synthesizer Hardware and Engineering, Software Systems for Music, and Perception and Digital Signal Processing. It contains many classic articles in revised and updated versions and should be in every contemporary composer's library. 736 pp.(H) \$50.00

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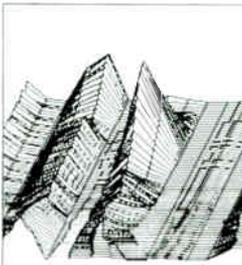
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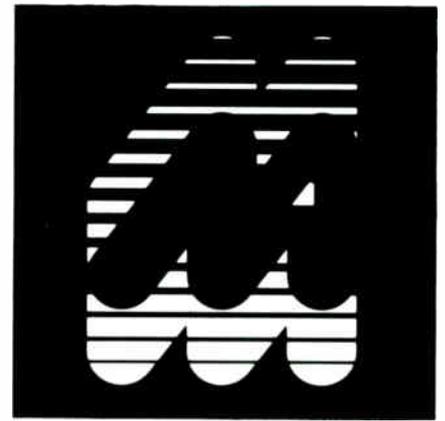
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M.S. STUDIO
San Francisco, CA

[24+] M.S. STUDIO
P.O. Box 24182, San Francisco, CA 94124
(415) 282-4806
Owner: Melvin Seals
Studio Manager: Melvin Seals
Engineers: Melvin Seals
Tape Recorders: Otari MTR-9011 24/24, 24-track; Otari MTR-10, 2-track; Sony and Technics cassette decks.
Mixing Consoles: Sound Workshop Series 34.
Monitor Amplifiers: Crown PS200, (2) BGW 750.
Monitor Speakers: JBL 4312, JBL 4411, MDM TA3, Yamaha NS-10, Auratones.
Echo, Reverb & Delay Systems: Lexicon 224XL, Eventide Harmonizer, Marshall Time Modulator, MIC-MIX, Lexicon 95 w/ memo update, Lexicon PCM70, Lexicon Prime Time II, (2) Yamaha REV7.
Other Outboard Equipment: (4) UREI 1176; (2) UREI 530; ADR Scamp Rack: (2) S04, (2) S01, (2) F300, dual gate S100; Orban 622B; UREI 537; Complex limiter F760X-RS; (2) Orban de-essers; (4) LA-4 comp/limiters; (2) Aphex Aural Exciters.
Microphones: Electro-Voice, Countryman, SGP, Sennheiser, AKG, Shure and Neumann microphones. Neumann mic cables.
Instruments Available: Emulator II, grand piano, ARP string ensemble, (2) Hammond B3s w/4 Leslies, Wurlitzer electric piano, Minimoog, Fender Rhodes, DX5 synth, Linn-Drum, sight tuner.

[24+] MUSIC ANNEX
69 Green St., San Francisco, CA 94111
970 O'Brien Dr., Menlo Park, CA 94025
(415) 421-6622, 328-8338
Owner: Music Annex Inc.
Studio Manager: Angela Goodison, Michelle LeComte
Engineers: Russell Bond, Keith Hatschek, Jim Dean, David Porter, Richard Rose, Wes Weaver, Bill Johnston, Roger Wiersema, Randy Bobo, John Francombe, Jim Simon, David Joslyn.
Dimensions of Studios: (A): 35 x 28, 10 x 8 iso booth; (B): 13 x 11; (C): 20 x 30, 12 x 12 iso booth; (D): 40 x 42; Studio I: 16 x 13, Studio: II 15 x 11.
Dimensions of Control Rooms: (A): 25 x 22; (B): 23 x 18; (C): 28 x 22; (D): 16 x 10 (video); Studio I: 28 x 23; Studio II: 16 x 14.
Tape Recorders: (2) MCI JH-114, 16-, 24-track; (3) MCI half-inch and 1/4-inch JH-110 A/B, 2-track; (5) Ampex 440 1/4-inch 440B, 2-track; Otari MkIII, 8-track; Studer A-80 24-track A-80, 24/16-track; Otari MTR-12 II-C MTR-12, 2-track; (2) MCI 11C-B 110-B, 2-track (2) Otari 5050-B 5050B, 2-track.

Mixing Consoles: Neve 8036, 24 x 8 x 24; Amek 2500, 28 x 24 x 24; Amek/TAC 16 x 8 x 8, Soundcraft 3B, 32 x 24.
Monitor Amplifiers: BGW, Crown, Yamaha, A/B systems
Monitor Speakers: (A): UREI 813; (B): JBL 4333A; (C): UREI 811 and Augsburg subwoofer system; (D): JBL 4311.
Echo, Reverb & Delay Systems: EMT 240, Lexicon 224 4.4 version, MXR 01 digital reverb, Quantec QRS, Yamaha SPX90, Lexicon Prime Time.
Other Outboard Equipment: UREI 1176, 1178 limiters; Inovonics limiters; ADR and Neve compressor/limiters; ADR Vocal Stresser; ADR stereo EQ, Scamp Racks w/EQ, gates, DDL, pan modules; Eventide Harmonizer, phase/flanger; Lexicon Prime Time; Roger Meyer noise gates; Valley Gain Brain II, Maxi-Q, Drawmer gates. SMPTE-based automation in all studios.
Microphones: AKG, Neumann, E-V, Beyer, Sennheiser, Sony, Calrec, Shure, Countryman and Crown PZMs, Countryman FET directs.
Instruments Available: Yamaha C-7 and C-3 conservatory pianos, Ampeg bass amp, alphaSyntra digital synthesizer, various snare drums and percussion equipment.

Video Equipment & Services: Complete soundstage with hard cyc 600 amp lighting grid with hot patch, Asaca and Conrac color critical monitors, Audio-Kinetics 310 Q.Lock synchronizer, JVC 8250 3/4-inch deck, dressing rooms, (2) Sony 3/4-inch U-matics, Ampex BC-3 studio camera, Sony BVH-1100 one-inch C-format with time base corrector.
Rates: \$50-\$145. Call for quotes, day rates.
Extras: TV lounge, kitchen, parking for 40 cars. Cassette duplication with the state-of-the-art Otari DP-80 480 ips system. Real time cassette copies on (5) Tascam 122 decks. Studio C audio control room may be used w/soundstage Studio D.
Direction: Music Annex has expanded its Northern California operations to include two new studios in downtown San Francisco. Music Annex San Francisco offers top quality stereo mixing for broadcast and corporate video with full synchronization and layback to one-inch and 3/4-inch video. Meanwhile, our three Menlo Park studios continue to record dozens of successful albums, soundtracks and demos in our upgraded facilities. We can also offer you the highest quality audiophile cassette duplication anywhere at reasonable prices. Our full time, experienced staff is ready to assist you with every step of your project. Stop by for a tour of either of our studios.



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[24+] THE MUSIC SOURCE
615 E. Pike, Seattle, WA 98122
(206) 323-6847

Owner: Jim Wolfe
Studio Manager: Dave Raynor
Engineers: Jim Wolfe, Dave Raynor, Peter Barnes, Ron Ganqnes, Charles Tuna, Scot Charles, Dave Perry, Herb Hamilton.

Dimensions of Studios: 32 x 35.
Dimensions of Control Rooms: 18 x 32.
Tape Recorders: (2) MCI JH-24, 24-track; MCI one-inch layback 3 audio tracks; (2) MCI 110B, 2-1/4-track.
Mixing Consoles: MCI JH-636 automated 36 x 24.
Monitor Amplifiers: UREI 6500, Crown, BGW, Symetrix.
Monitor Speakers: JBL 4430, JBL L-100, Yamaha NS-10; Auratones.

Echo, Reverb & Delay Systems: Lexicon 224XL, Yamaha REV7, Lexicon Prime Time, Alesis, Lexicon PCM60, Eventide Harmonizer.

Other Outboard Equipment: Scamp Rack; dbx Spectra-sonics, UREI limiters, Aphex, Adams-Smith synchronizer (24-track, 2-track, one-inch layback, 3/4-inch video), UREI 1/2-octave graphic EQ.

Microphones: Neumann U87, U67; AKG "tube," 414, 451, D12E; E-V RE20; Shure 57s; Sennheiser MD421, Sony and Altec tube condensers.

Instruments Available: Kawai 9-foot grand piano, Kurzweil, Oberheim OBXa, E-MAX, Yamaha DX7, DX100, LinnDrum (MIDI) Oberheim DMX (MIDI), Macintosh computer with Opcode and Southworth software, Marshall stack, Leslie speaker, Fender bass, Simmons and live drums, Garfield Master Beat and Drum Doc.

Video Equipment & Services: Sony one-inch layback, Sony 3/4-inch video, VHS and Beta, sync with Adams-Smith 2600 synchronizer. Full sweetening capabilities—music, dialogue, Foley and FX.

Rates: Available upon request.

[24+] NORTHWESTERN, INC.
1224 S.W. Broadway, Portland, OR 97205
(800) 547-2252, (503) 226-0170

Owner: Bob Lindahl
Studio Manager: Paul Buescher
Engineers: Gary Shannon, Michael Hellums, Joe Allen (maintenance)

Dimensions of Studios: 16 x 24.
Dimensions of Control Rooms: 12 x 20.
Tape Recorders: Ampex MM 1200, 16-track; (4) Ampex ATR 800, 4-track; (3) Ampex ATR 800, 2-track; Ampex 440C, 4-track; Magnasync 16mm; Nagra III - Nagra 4.2S; Ampex AD-15 duplicating; Audiotek 2000 cassette duplicating.

Monitor Speakers: JBL/Spectra Sonics.
Other Outboard Equipment: Reverb: Ecoplate, Orban, Digital.
Microphones: Neumann U47 (tube), U67 (tube); E-V RE16, RE20, etc.

Instruments Available: Baldwin grand piano.
Video Equipment & Services: Film to video transfer, video and film soundtracks.

[24+] NOVA RECORDING SERVICES
also REMOTE RECORDING
14715 SE 37th St., Bellevue, WA 98006
(206) 747-5233

Owner: The Nova Music Group
Studio Manager: Paul Speer
Engineers: Paul Speer, David Lenz

Dimensions of Studios: 15 x 25.
Dimensions of Control Rooms: 14 x 20.
Tape Recorders: MCI JH-24, 24-track; Otari 5050, 2-track; Sony PCM-F1 digital 2-track; Aiwa cassette deck.
Mixing Consoles: Biamp Bimix 24 x 16.
Monitor Amplifiers: Crown D150A.

Monitor Speakers: JBL L26, Auratone 5C.
Echo, Reverb & Delay Systems: ART 01A digital reverb, Yamaha SPX90, Roland SDE-1000 digital delay.

Other Outboard Equipment: Symetrix parametric EQ, Symetrix 511 noise reduction, Symetrix 522 compressors, Orban de-esser.

Microphones: AKG C-24 (tube), Neumann U87, AKG 414, E-V RE20, Sennheiser 421.

Instruments Available: Synthesizers: DX7, TX7, Prophet 5, Synergy, Roland digital piano. Also: LinnDrum, Scholz Rockman.

Video Equipment & Services: BTX Shadow system, Sony Beta Hi-fi VCR, audio/video interlock scoring and sweetening.

Rates: Audio recording \$50/hr.; video sweetening \$75/hr.

[24+] OCEAN STUDIO
Box 747, Stinson Beach, CA 94970
(415) 868-0763

Owner: Tim Tomke
Studio Manager: B.J. Meines

[24+] ONE PASS
1 China Basin Bldg., San Francisco, CA 94107
(415) 777-5777

Owner: One Pass Co.
Studio Manager: Client services

[24+] OTR STUDIOS
also REMOTE RECORDING
P.O. Box 874, Belmont, CA 94002
(415) 595-8475

Owner: Cookie Marenco, Robert Firpo
Studio Manager: Cookie Marenco
Engineers: Randy Sellgren, Cookie Marenco, Mike Catter, Larry Oppenheimer, independents.

Dimensions of Studios: 27 x 15; 23 x 14; 10 x 9.
Dimensions of Control Rooms: 19 x 14; separate equipment room 7 x 23.

Tape Recorders: Otari MTR-9011 w/autolocator, 24-track; Otari MTR-10, w/half-inch, 1/4-inch and center track time code heads, 2-track; (2) Otari MkIII, 8-track; Otari 5050, 4-track; Otari 5050, 2-track; Sony PCM-F1, 701, 501-ES, digital 2-tracks.

Mixing Consoles: Sound Workshop Series 30, Sound Workshop Series 20, Soundcraft 600, Soundcraft 200.

Monitor Amplifiers: Crest, Crown.
Monitor Speakers: Meyers, Tannoy 12B, Yamaha NS-10M, Auratones.

Echo, Reverb & Delay Systems: Lexicon 224 XL w/LARC and 8.2 software; AMS RMX-16; Lexicon Super Prime Time w/1.92 MEC; Lexicon PCM42; Lexicon PCM60; Yamaha SPX90; DeltaLab 1024; other units available.

Other Outboard Equipment: Eventide Harmonizer H949; Aphex Compellor; (2) Dyna-Mite noise gates, Drawmer noise gates; UREI LA-4 Orban compressor/limiter, Symetrix compressor; (2) Technics SL-1200 turntables.

Microphones: Neumann U67; AKG 414s, AKG 451s, Sennheiser 421s; Shure 57s, Shure 56s, Sennheiser ME-80 and 88, Nakamichi C-100s; Sony ECM-55B, Crown PZM 180s.

Instruments Available: Complete MIDI facility based around the MacPlus Computer, Yamaha DX7 and TX7, SCI Prophet 2002 sampling machine, Prophet 5 w/MIDI, Linn II Drums, Roland MSQ-700 sequencer, Roland 505 drums, Minimoog, Casio CZ-101; Steinway 7-ft. grand piano, Hammond B-3 organ, other instruments. Programmers on staff.

Video Equipment & Services: Audio Kinetics Q.Lock 4.10 synchronizing system, JVC 8250 3/4-inch video deck, Sony SL-750 Super Beta, Sony SL-2000 Beta, Sony SL-2000 portable Beta video deck, Sony SL—2710 Beta Hi-fi.
Rates: Upon request.

Extras: OTR Studios is a multi-purpose facility, specializing in album projects of all kinds of music, soundtracks for film, video and other media presentations, and an in-house MIDI synthesizer studio for pre- and post-production. Located 30 minutes south of San Francisco and 30 minutes north of San Jose in a quiet, relaxed environment overlooking the San Francisco Bay. Digital sound effects and music library. Audio/video producers available. Highest quality cassette duplication from a digital master.

Direction: Recent studio updates include the addition of three new rooms, all designed by RLS Acoustics. The control room was designed to be acoustically accurate, with a very comfortable atmosphere for long periods of work. Separate equipment room houses the tape recorders and other equipment that generates noise, making OTR ideally suited for digital recording. Please call for a quote and brochure on our services, including recording, production, and independent album consultation.

[24+] PACIFIC MOBILE RECORDERS
only REMOTE RECORDING
2616 Garfield Ave.

Carmichael (Sacramento), CA 95608
(916) 483-2340

Studio Manager: Kat Coffey Hibbard
Engineers: Jim Hibbard, Larry Cohn
Dimensions of Control Rooms: Truck: 7.6 x 7.6 x 18.

Tape Recorders: Otari MTR-90, 24-track; MCI/Sony JH-110B-14, 2-track; 3M M79, 2-track; TEAC V4R cassette.

Mixing Consoles: Tangent (modified), 3216 24 x 24.
Monitor Amplifiers: Yamaha, Crown D150.
Monitor Speakers: E-V Sentry 500, JBL 4313, M&K close field monitors, Auratones.

Echo, Reverb & Delay Systems: Lexicon PCM60 digital reverb, Yamaha SPX90, Ibanez digital delay.

Other Outboard Equipment: UREI LA-4 limiters, Gate gates, graphic EQs, 24-channel 3-way isolated split w/individual ground lifts, 16 ch. 2-way isolated split, 250-ft. main snake, 65-ft. subsnakes, 440/220/110 V transformer isolated AC distribution system; truck is pre-wired for additional 24-track machine.

Microphones: Neumann, AKG, Sennheiser, Crown PZM, Electro-Voice, Shure, Beyer, Audio-Technica.

Video Equipment & Services: Fostex 4030/4035 SMPTE time code generator/synchronizer/controller with various interfaces.

Rates: Competitive, please call for quote.

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[24+] PAN STUDIOS, INC.
1767 S. 8th St. M-6, Colorado Springs, CO 80906
(303) 633-6764
Owner: Dale Nixon
Studio Manager: John Standish



PARADISE SOUND
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PARADISE SOUND RECORDING INC.
Index, WA

[24+] PARADISE SOUND RECORDING INC.
also REMOTE RECORDING
P.O. Box 63, Index, WA 98256
(206) 793-2614
Owner: Patrick Sample
Studio Manager: Karen Sample
Dimensions of Studios: 15 x 20 x 8 piano room, 20 x 20 x 8 drum room, 12 x 5 x 8 iso booth.
Dimensions of Control Rooms: 20 x 9 x 8.
Tape Recorders: Otari MTR-90, 24-track; Otari MTR-12, 2-track; Otari 5050, 2-track; Revox B77, 2-track; Nakamichi Dragon cassette.
Mixing Consoles: Harrison MR4 28 x 24.
Monitor Amplifiers: Hafler P5050, Yamaha M80.
Monitor Speakers: JBL 4411s, E-V Century 100s.
Echo, Reverb & Delay Systems: Lexicon 200, Lexicon PCM60 reverb, Lexicon PCM41, Yamaha E1010 delay.
Other Outboard Equipment: Aphex Compellor, dbx 163X comp/limiter, (2) dbx 463X noise gates, Symetrix 511 noise reduction.
Microphones: Neumann U89; Beyers M88; AKG 414; Sennheiser 441, (4) 421s; (2) Electro-Voice PL20, (3) PL76; Shure SM81, (2) SM57; (2) Fender P-2.
Instruments Available: Hammond B3 organ w/Leslie, Yamaha DX7, Yamaha RX11 drum machine, Yamaha QX7 sequencer, Pearl drum set w/Zildjian cymbals, Mesa Boogie amp.
Video Equipment & Services: Lynx synchronizer.
Rates: \$45/hr. (package rates available).
Extras: We specialize in 24-track remixing and we also offer real time and high-speed cassette duplication. Quality and pride keep us both satisfied. Lodging: For those of you who need a few days to "track your dreams," we provide a package session that includes lodging in a cabin right next to the studio. It features its own kitchen and a spectacular view to inspire your creativity. There is also dining available nearby.
Direction: Quality and pride keep us both satisfied.



PARADISE STUDIOS
Sacramento, CA

NORTHWEST STUDIOS

24

track

[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 of Studios: 22 x 30, booth: 14 x 10.
Dimensions of Control Rooms: 22 x 16.
Tape Recorders: (2) Fostex w/SMPTE autolocator and MIDI sync B-16, synched for 32-track; Otari 5050B, 2-track; Tascam 3440, 4-track; Fostex E-2 (30ips), 2-track; (2) JVC TD-V66 cassettes.
Mixing Consoles: Amek TAC 32 x 8 x 16 x 2; Hill Multi-mix 16 x 4 x 2.
Monitor Amplifiers: Yamaha, Carver, McIntosh, Hafler.
Monitor Speakers: UREI 813A, Auratone T6.
Echo, Reverb & Delay Systems: Lexicon PCM70, Yamaha REV7, (2) Yamaha SPX90, MXR digital reverb w/updates, Roland SDE-3000 delay.
Other Outboard Equipment: Drawmer DS-201 noise gates, Symetrix 522 compressor/expanders, Yamaha 2Q031 graphic EQ, Tascam PE-40 parametric EQ, Bercus-Berry BBE 202R Phase Compensator.
Microphones: Telefunken 251 tube, Neumann U87, AKG 414, AKG 451, Sennheiser 421, E-V PL20, Shure SM81, SM57, SM58.
Instruments Available: 6'5" Baldwin grand, Yamaha DX7, TX7, E-mu SP-12 sampling drum machine, Rogers 6 piece drum kit, Hammond B-3 organ w/Leslie, Fender Rhodes, Mesa Boogie guitar and bass amps and cabinets.
Video Equipment & Services: SMPTE lock-up and video production available upon request.
Rates: \$45/hr. for 32-track, \$35/hr. for 16-track.

[24+] PARVIN'S STUDIO
also REMOTE RECORDING
P.O. Box 16191, San Francisco, CA 94116
(415) 359-1853
Owner: Lee Parvin
Studio Manager: Lee Parvin



PEAKDESIGN
Oakland, CA

[24+] PEAKDESIGN
6114 La Salle Ave. Ste. 314, Oakland, CA 94611
(415) 531-5331
Owner: Tony Milosz
Studio Manager: Joanna Rayska
Engineers: Tony Milosz, Stanislaw Krupowicz and freelance engineers.
Dimensions of Studios: Integrated control room studio 18 x 40.

Tape Recorders: Sony/MCIJH24-24, 24-track transformerless w/Autolocate III; Otari MX-5050 half-inch 8-track (hotrodded); Sony PCM501-ES 2-track digital; Otari MX-5050 1/4-inch 2-track; Sony 650 1/4-inch 2-track; cassette recorders.
Mixing Consoles: Dynamix D3000 32 x 8 x 16 (hotrodded) w/automation, 500 point patch bay; miscellaneous submixers.
Monitor Amplifiers: Yamaha.
Monitor Speakers: Calibration standard instruments MDM-TA2 Time Aligned, JBL, Altec Lansing.
Echo, Reverb & Delay Systems: (2) Roland SRV-2000, Yamaha SPX90, (2) Yamaha R1000 (for gating), (3) DeltaLab Effectron 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: Cyclosonic FS-1 2 channel 3-dimensional Panner w/sync; Orban, Tascam, Advent, DOD equalizers; Aphex Exciter, Dynalex noise reduction; Orban; dbx compressors; Galax 4 channel noise gate (modified); Peakdesign custom MIDI/SMPTE control computer; Yamaha CX5-F system; Roland SBX-80 SMPTE sync; Roland and Yamaha sequencers; Sony S20-ES CD player; Sony Turntable w/Monster Alpha II MC cartridge; (4) KBM PC/XT and PC/AT computers w/all major software for sequencing, editing, notation printout and librarians (over 8,000 DX voices). We design custom gear/software as needed. Spectrum analyzers, scopes and misc. equipment. Any other processing equipment available on request.
Microphones: Beyers MC-740 (N/C), P2M, Sennheiser, Sony and other misc.

Instruments Available: Yamaha TX816, (2) Yamaha DX7, Akai Sampler, (2) E-mu Drumulators w/custom chips and MIDI, Roland, Oberheim, Sequential and Moog synths, tube Fender Twin Reverb amp, grand piano, Fender P-Bass, Gibson ES-335. Many other instruments available on request.

Video Equipment & Services: Half-inch Beta and VHS w/SMPTE sync. PCM/Beta-Hi-fi dubbing and transfers. Three-quarter-inch equipment available on request. Sound-track composition and production to existing or planned video/film pieces. Overloaded? We do handle partial sub-contract work.

Rates: Competitive rates include all gear and knowledgeable engineers. Call for details.

Extras: Compact disc pre-production. CD production sub-contracted in Japan. We are a complete electronic music facility. Our solid technical expertise in software and hardware combines with music production skills to create a state-of-the-art, yet practical, working environment.
Direction: MIDI mastering, MIDI to stereo master via 8-track, 24-track or direct-to-2-track digital, with or without acoustic overdubs, such as vocals, piano etc. 8- to 24-track transfers, mixes, digital remixes. With music prepared on sequencers, truly professional mixdown becomes affordable. Our resources and expertise make the difference between a "demo" and a finished product. We also offer production/composition work, from discreet subcontracting and helpful suggestions, to complete projects.



THE PLANT RECORDING STUDIO
Sausalito, CA

[24+] THE PLANT RECORDING STUDIO
also REMOTE RECORDING
2200 Bridgeway, Sausalito, CA 94965
(415) 332-6100

Owner: Bob Skye
Studio Manager: Claire Pister
Direction: The Plant has experienced incredible growth this past year. Three solid studios and a mobile are now available for your music, audio for video and film, and location recording. With its newly rebuilt Studio A, new audio for video equipment and the addition of the Skyelabs Mobile, the Plant remains on the cutting edge—a forerun-

ner in the recording industry. Studio A is now equipped with an SSL console and 48-tracks of Otari. Studio B features a Trident board with 48-tracks of Studer. Studio C also features Trident and Studer equipment. All studios are equipped for video sweetening and sync lock-up. Digital multi-track and two-track mastering are available. The Skylabs mobile recording unit, now a member of The Plant family, delivers and records consistent, translatable audio in a comfortable, functional atmosphere. We are minutes from San Francisco yet out of the hustle and pressure of the city. The Plant maintains the finest in recording artistry and technology. And, as always, it's all offered in a setting that rivals the comforts of home.

[24+] POWER STROKE PRODUCTIONS

14 Galli Dr. #8, Ignacio, CA
(415) 883-0811
Owner: Sally Proctor
Engineers: Mark Needham, Marc Senesac
Dimensions of Studios: 27 x 18.
Dimensions of Control Rooms: 18 x 14.
Tape Recorders: Studer A80, 24-track; (2) Otari MTR-12, 2-track.
Mixing Consoles: Trident Series 80 32 x 24.
Monitor Amplifiers: Crest 4000, Haller.
Monitor Speakers: Meyers 834 studio monitors, Yamaha NS-10Ms, Auratones.
Echo, Reverb & Delay Systems: (2) Lexicon PCM42s, Lexicon 224XL w/updates, Bel BDE-320 sampler, Lexicon PCM70, (2) SPX90s.
Other Outboard Equipment: Brooke-Siren de-esser DPR 402, (10) Drawmer gates, (2) UREI 1176s, (2) UREI 4s, Summit Audio compressor, Eventide 949, Eventide SP2016, (2) API 550As, (4) Tube Techs.
Microphones: (4) AKG C414, (10) Sennheiser 421, (2) Neumann 87s, (2) Neumann 89s, (6) Shure SM57s, AKG 452s.
Rates: Please call.

[24+] PRAIRIE SUN RECORDING STUDIO

P.O. Box 7084, Cotati, CA 94928
(707) 795-7011
Owner: Mark Mooka Rennick
Studio Manager: Mark Mooka Rennick
Extras: A growing MIDI/digital orientation. A complete rehearsal/off-line production facility. Lodging and security within 45 minutes of S.F. Credits labels Shrapnel, Polygram, CBS, MCA, Combat, Important, Flying Fish, 415, Electro etc. Producers and artists: Bill Summers, Until December, Commander Cody, Lemans, Ron Keel, Steeler, Taxis, Tony Macalpine, Eric Martin, Greg Rollie, Steve Smith, Neal Schon, Norton Buffalo, Ritchie Cole, Durocs, Freddy Execs. etc.
Direction: Put simply, client satisfaction is the goal at Prairie Sun Recording. We welcome inquiry from interested parties.

[24+] PROFESSIONAL SOUND & RECORDING, INC.

only REMOTE RECORDING
3320 Chelton Loop S, Colorado Springs, CO 80909
(303) 597-8125, 578-0682
Owner: Chns Mickle
Studio Manager: Chns Mickle
Engineers: Chris Mickle, Mickey Houlihan, Mike Chilcote.
Dimensions of Studios: 12 x 7.5 1984 Winnebago Centaur van.
Tape Recorders: (2) Stephens 821 B 16-, 24-track; (2) Nakamichi DMP-100 PCM digital, 2-track; Revox PR-99, 2-track; (12) TEAC real time cassette V-2RX; Pentagon high-speed cassette C-4322.
Mixing Consoles: Soundcraft 1624 24 x 24; Rowland Research audiophile 8 x 2; additional consoles available in most configurations as needed.
Monitor Amplifiers: Intersound SP-300, Haller DH-200.
Monitor Speakers: B&W DM100; Spica TC-50; Yamaha NS-10.
Echo, Reverb & Delay Systems: Lexicon PCM60; DeltaLab ADM 1024.
Other Outboard Equipment: BBE 202R; Dorough meters; full line of Symetrix compressors, limiters, gates; dbx 166; any piece of outboard equipment available upon request.
Microphones: Schoeps; AKG; E-V; Neumann; PZM; Sennheiser, Shure; all internal audio wiring Mogami Neglex.
Video Equipment & Services: 58 input x 14 isolated output access bay. Full audio for video services. Clear-com system; stage cameras and video monitors. Completely self-contained production unit. Audio AC circuit is transformer isolated and maximum draw of all AC circuits is 15 amps or less.
Rates: Available upon request.

[24+] KELLY QUAN RECORDING

1249 1/2 Green St., San Francisco, CA 94109
(415) 771-6716
Owner: Kelly Quan
Studio Manager: Marie Davalos

[24+] RECORDING ASSOCIATES
also REMOTE RECORDING
5821 S.E. Powell Blvd., Portland, OR 97206
(503) 777-4621
Owner: Jay Webster/Bob Stoutenburg
Studio Manager: Jay Webster/Bob Stoutenburg



R.O. STUDIOS
Concord, CA

[24+] R.O. STUDIOS
3359 Walnut Ave., Concord, CA 94519
(415) 676-7237

Owner: The Henry Bros.
Studio Manager: Ralph F. Henry Jr.
Engineers: Rick Henry, Phil Kaffel, Ritchie Corsello, independents welcome.
Dimensions of Studios: 25 x 15, 20 x 15.
Dimensions of Control Rooms: 16 x 15.
Tape Recorders: Otari MTR-9011, 24-track; Otari MTR-10, 2-track; Denon DR M44, cassette; Technics SV-110, digital audio processor.
Mixing Consoles: Sound Workshop Series 40, 28 x 24 w/VCA's; 24-channel high resolution metering.
Monitor Amplifiers: Haller DH-500, BGW 750-B, McIntosh 2305.
Monitor Speakers: UREI 811s, Yamaha NS-10s, Auratones, KEF listening speakers.
Echo, Reverb & Delay Systems: Lexicon 224XL digital reverb, (2) Lexicon PCM70 digital reverbs, Eventide H969 Harmonizer, (2) 1310 digital effects processors, DDLs.
Other Outboard Equipment: (2) UREI 1176 LN peak limiters, (2) Dyna-Mite 430s, UREI LA-4 limiter, 1178 limiters, MX-MIDI device, MX1 + triggering device, any outboard equipment available upon request.
Microphones: Neumann, AKG, Sony, Sennheiser, Shure, E-V. Any mic available upon request.
Instruments Available: Yamaha grand piano, Sequential Prophet 2000, (3) Prophet 2002, (4) TX modules, Macintosh computer w/3000 DX7 sounds, Sound Designer and Performer software, Linn 9000 fully loaded w/SMPTE, Marshall amps, Rockman, Steinberger XL-2 bass, Sequential 440 drum machine and sequencer.
Rates: Call for rates. Block rates available.
Extras: Swimming pool, shower and kitchen facilities; listening room; special thanks to our clients of 1986: Eddie Money, for the *Can't Hold Back* album, Jimmy Lyons *Johnny Gunn*, Jack Gerow, Jon Gibson, Z Boy, CBS Records, Motown Records, Capitol Records, and especially producers Ritchie Zito, David Kershenbaum and Tom Dowd.
Direction: Here at R.O. we have the most modern state-of-the-art equipment available along with a very relaxed atmosphere. Come work with the best for less!

[24+] ROSEWOOD RECORDING COMPANY

2288 West 300 North, Provo, UT 84601
(801) 375-5764
Owner: Rosewood Recording Inc.
Studio Manager: Kristen Randle
Engineers: Independents: Guy Randle, Mark Hoffman, Jeff Carter.
Dimensions of Studios: 22 x 22
Dimensions of Control Rooms: 15 x 13
Tape Recorders: MCI/Sony JH-24 24-tracks; Otari 5050B 2-track; Pioneer RT 701 1/4-track; Nikko ND1000 C cassette; Technics M65 cassette; Technics SV110 digital 2-track.
Mixing Consoles: Neotek Series III C w/VCA subgrouping 36x24.
Monitor Amplifiers: Haller
Monitor Speakers: E-V Sentry 500, Yamaha NS-10M, Auratone SC, Tascam CM10, Sennheiser HD-90 cue.
Echo, Reverb & Delay Systems: Lexicon Model 200, Yamaha REV7, Roland SRV-2000, several Yamaha SPX90, Alesis: XT, several DeltaLab and Digitech Delays.
Other Outboard Equipment: Symetrix and Yamaha com-

pressors, Orban de-esser, Omni Craft gates, Symetrix 511 noise reduction, Ampex Aural Exciter, Barcus Berry 802R, Roland PM830, Audio Envelope Tubecube.
Microphones: Assorted AKG, Neumann, Shure, E-V, Bey-er, Wright and Sennheiser, including tube and large diaphragm condenser.
Instruments Available: Emulator II with large library of custom and factory sounds, Yamaha DX7 with Apple Macintosh sequencing and sound storage software, Baldwin 9-foot grand piano, Tama acoustic drums, Roland digital drums, Yamaha RX11, Fender P-Bass, Masterline banjo, Dobro, TX816 rack, etc.
Video Equipment & Services: VHS deck w/color monitor.
Rates: All this for only \$38.50/hour. Call for brochure. Block rates and w/o engineer rates available.

[24+] RUSSIAN HILL RECORDING

1520 Pacific Ave., San Francisco, CA 94109
(415) 474-4520
Owner: Jack Leahy and Bob Sholland
Studio Manager: Gail Nord, Bob Sholland (gen. mgr.)
Engineers: Jack Leahy, Sam Lehmer, Marnie Moore, Jeff Kliment, Gary Clayton, Richard Greene.
Dimensions of Studios: (A): 20 x 30; (B): 18 x 28; (C) 10 x 15; (F/T) 13 x 14.
Dimensions of Control Rooms: (A): 15 x 24; (B): 13 x 22.
Tape Recorders: (3) MCI JH-24 16-/24-track; (2) MCI JH-110B 4-track; (4) MCI JH-110B 2-track; (2) Technics 1506 2-track; Studio "C": Fostex E-16 16-track; Fostex E-2 2-track.
Mixing Consoles: (A): SSL 4048E 36x32; (B) Neotek Series 3 28 x 24; (C) Soundcraft 600 24 x 16.
Monitor Amplifiers: Yamaha, MacIntosh, QSC.
Monitor Speakers: UREI 813 (A&B), small JBL, NS-10, Auratone, etc.
Echo, Reverb & Delay Systems: Lexicon 224, PCM 70, 60, EMT plate, various delays.
Other Outboard Equipment: You name it!
Microphones: Neumann, AKG, Shure, RCA, etc.
Instruments Available: Steinway and Yamaha pianos.
Video Equipment & Services: Complete film/video post sound. A/V interlock in all three studios. Computerized sampling/synth room. Projection video monitors in studios A and B. Film to tape services include 35/16mm transfers to any video format, with all time code options including film edge code burns. KEM K-800 six plate suite. Flatbed locks to all multi-track rooms. Editing on film and tape.
Rates: Brochure on request.

[24+] SEA WEST STUDIOS / HAWAII

Box 729, Haula, HI 96717
(808) 293-1800
Owner: Corporation
Studio Manager: Donna Alexa Keefer

[24+] SLOW BOAT STUDIOS

only REMOTE RECORDING
1135 Pearl St. Ste. 7, Boulder, CO 80302
(303) 443-9822
Owner: Wind Over the Earth, Inc.
Studio Manager: Mickey Houlihan

[24+] SONOMA SOUND

P.O. Box 1623, Sonoma, CA 95476
(707) 996-4363
Owner: Aron Johnson
Studio Manager: Aron Johnson

[24+] SOUND COLUMN STUDIOS

46 E. Herbert Ave., Salt Lake City, UT 84111
(801) 355-5327
Owner: Ron Simpson
Studio Manager: Clive Romney

[24+] SOUND IMPRESSIONS

4704 S.E. View Acres, Milwaukie, OR 97267
(503) 659-5953
Owner: Daniel Decker
Studio Manager: Daniel Decker
Engineers: Bob Stark, Dan Decker
Dimensions of Studios: 24 x 24 x 12, Isolation booth 6 x 10 x 8
Dimensions of Control Rooms: 24 x 15 x 9
Tape Recorders: 3-M 79 Series 24-track; Tascam 52 2-track; Technics B-85 cassette.
Monitor Amplifiers: Crown, Biamp, Symetrix.
Monitor Speakers: Yamaha NS-10M with matching sub-wool, Auratones, Technics
Echo, Reverb & Delay Systems: Lexicon PCM 70 effects processor, (2) Yamaha REV7s, Ibanez SDR1000 digital reverbs, Lexicon PCM-41, DeltaLab 1024, DeltaLab 1064, ADA S-1000 digital delays.
Other Outboard Equipment: Symetrix 150 and 100 compressors, (2) Symetrix 544 Quad Gates, Aphex Type B Aural Exciter.
—LISTING CONTINUED ON NEXT PAGE

—**LISTING CONTINUED FROM PAGE 175**
Microphones: AKG "The Tube," AKG D12, AKG 451s, AKG 320s, E-V RE20s, E-V PL76s, Tascam PE250s, Audio Technica ATM 63s, Sony condensers.
Instruments Available: Yamaha C-3 6' grand piano, Yamaha CP-70, Yamaha DX7, Oberheim Matrix 6R, Korg DW-8000, Sequential Prophet 5, Sequential Drumtrax, Roland MSQ 700 Sequencer, Fender P-Bass, Fender J-Bass, Fender Telecaster Ampeg B-15 Bass amp, Roland Cube amp, Fender Sidekick amp.
Rates: \$35/hour regular rates, \$25/hour block rates, engineer included.

[24+] SOUND RECORDING ORGANIZATION (SRO)
 1338 Mission Street, San Francisco, CA 94103
 (415) 863-0400

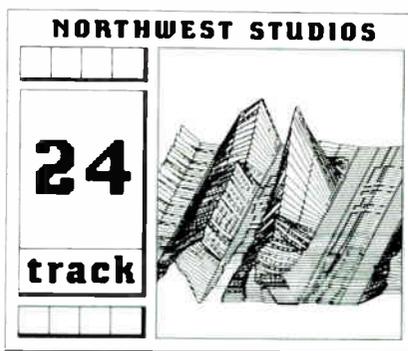
Owner: Sound Recording Organization, Inc.
Studio Manager: Luther Greene, president; David Dobkin, general manager
Direction: SRO is a complete audio post-production facility for film and video. SRO features three studios, two transfer rooms, seven editing rooms, 35mm and 16mm film mixing, video mixing, one-inch layback, screening rooms, Northern California's largest and best organized sound effects library, film-to-tape transfers, video dailies and a motivated staff of skilled mixers and engineers. Our feature film credits include work on *The Right Stuff*, *Shoot the Moon*, *One From the Heart* and dozens others. Documentary credits include *The Day After Trinity*, *Garlic is as Good as Ten Mothers*, *Louie Blaise*, *Contrary Warriors* and *Sewing Woman*. In the past 18 years we have recorded and mixed thousands of commercials, short films and industrials as well as *Porklips Now*. We will continue to lead the way with new technology and production methods as they evolve.

[24+] SOUND TECHNIQUE RECORDING STUDIO
 11240 Hwy 41, Madera, CA 93638
 (209) 431-5275

Owner: Ken and Marilyn Carlton
Studio Manager: Ken Carlton
Engineers: Ken Carlton (chief), Justin Souter (tech).
Dimensions of Studios: 20 x 22, plus 8 x 8 piano alcove, 9 x 10 iso room, and 5 x 10 vocal booth.
Dimensions of Control Rooms: 14 x 17.
Tape Recorders: Otari MTR-90, 24-track w/16-track capability; Otari MTR-10, 2-track; Otari 5050B, 2-track; Pioneer RT707; (13) Hitachi DC-7 cassette decks for RT duplication; (2) Akai GX912 mastering cassette decks.
Mixing Consoles: Sound Workshop Series 34 w/ARMS 32 x 32.
Monitor Amplifiers: Bryston 4B(3) on control room mains, Hafler DH200 on studio playback Yamaha & Sansui backup amps.
Monitor Speakers: JBL 4430 Bi-radials (bi-amped) with Yamaha NS-10 and Auratones in control room. Yamaha NS-1000 in studio.
Echo, Reverb & Delay Systems: Lexicon 224XL, Lexicon PCM70, Ecoplate II, Marshall Time Modulator 5402, Eventide 949 Harmonizer, DeltaLab DL-3, tape delay.
Other Outboard Equipment: ADR Vocal Stresser and Stereo Express, (2) UREI 1176LN, (2) LA-4, (4) Allison Research Gain Brain, (4) Kepex, (2) dbx 165, Orban B22B parametric EQ, (2) UREI Model 549 graphic EQ, Dynalox noise reduction (two channels), Aphex Aural Exciter, UREI digital metronome, Power One protection on all AC.
Microphones: Neumann U87, U89, KM86; (2) AKG 414 EB, (6) 451 EB; (2) Sennheiser 441, (9) 421; (2) E-V RE20, RE16; (2) Crown PZM; Shure 56; Beyers ribbon; (8) Countryman FET 85 direct boxes; and more.
Instruments Available: Kurzweil 250 fully loaded with a Mac Plus and Total Music. Linn 9000 with disc drive and sampling kit, Yamaha DX7, Yamaha C-7 grand piano, Prophet VS, ARP Quadra and Moog. Seven guitars, amps and a Peterson strobe tuner.
Rates: \$65 per hour (1-4 hrs) \$60/hr. (1-9 hrs) \$55/hour (more than 10 hours). All rates include everything listed above and engineer.

[24+] SOUNDLINK/DOLPHIN SOUND
 also **REMOTE RECORDING**
 554 Papa Loop, Kailua, HI 93734
 (808) 263-4800

Owner: KHNL-Channel 13 TV, Jim Linkner
Studio Manager: Jim Linkner
Engineers: Jim Linkner
Dimensions of Studios: Soundstage: 30 x 50; iso: 13 x 8.
Dimensions of Control Rooms: 14 x 12.
Tape Recorders: MCI/Sony JH-24, 24 track; (2) MCI/Sony JH-110C-2, 2 track; Revox B710 MkII, cassette; Tascam 122B, cassette.
Mixing Consoles: MCI 542B, with updated VCAs, X-formers, 36 x 32.
Monitor Amplifiers: Studer, Hafler
Monitor Speakers: New Hidley/TAD/Kinoshita vertical design (model 3), MDM-4, Auratone 5C.
Echo, Reverb & Delay Systems: AMS RMX 16 digital reverb, Lexicon PCM60 digital reverb, Lexicon 95 DDL, Lexicon 42 DDL.



Other Outboard Equipment: Eventide H949 Harmonizer, Eventide Omnipressor, UREI LA-4s, Compellor, ADR "Scamp" F-300 expander/gates, Klark-Teknik 1/3-octave EQ, Pioneer P-D70 CD player.
Microphones: Sanken CU-41; Neumann U87, KM84; AKG C460, D-12E; Sennheiser 441; Shure SM57; Countryman Isomax; Simon DB/PS/1 DIs (active); Mnicube DIs (active).
Instruments Available: Yamaha DX7.
Video Equipment & Services: Full stage and remote facilities. Cameras: (5) Sony BVP-30, (2) JVC; (4) 14:1 lenses, 17:1 lens, wide-angle zoom lens; (4) Sony BVU-800, (2) Sony BVU-820; Grass Valley 1680 switcher.
Rates: Audio: \$75/hr; video: on quotation.

[24+] SOUNDS OF HAWAII
 1084 Young St., Honolulu, HI 96814
 (808) 537-1442
Owner: Sounds of Hawaii, Inc.
Studio Manager: Hendrick Yano

[24+] SOUNDTEK STUDIOS
 85 S. 2nd St., Campbell, CA 95008
 (408) 370-3313
Owner: Bob Berry
Studio Manager: Mike Pomeroy
Engineers: Bob Berry, Mike Pomeroy, Peter Roberts
Dimensions of Studios: 800 sq. ft., 10 x 12 x 14 drum booth, 6 x 8 vocal booth.
Dimensions of Control Rooms: 400 sq. ft.
Tape Recorders: Ampex MM1200 24-track; Ampex ATR 102 2-track; 3M M79 8-track; Revox A77 2-track.
Mixing Consoles: Neotek Series III 26 x 24.
Monitor Amplifiers: Crown PS 400, PS200, DC60; Unisync; Crest.
Monitor Speakers: UREI 813; JBL 4312; Auratone.
Echo, Reverb & Delay Systems: EMT 240, 101 digital, REV7, (2) SPX90, (2) Roland SDE 3000, ADA, Eventide Harmonizer.
Other Outboard Equipment: Complete dbx 900 series rack, Summit Audio tube limiter, UREI limiters, Aphex Aural Exciter, Amiga digital sequencing MIDI studio, Rocktron exciter/reduction, Rane EQ (2) dbx 160X, UREI LA-4.
Microphones: Neumann, AKG, Sennheiser, Shure, Countryman, Crown.
Instruments Available: Prophet 2000, Memory Moog, ARP Omni, Fender Rhodes, TX7 Minimoog, Taurus Bass Pedals, B-3 Horugal 6" grand, clavinet, complete drum selection, Marshall, Ampeg, Vox and Roland amplifiers.
Rates: 8-track \$35/hr, 16-track \$45/hr, 24-track \$65/hr, reduced block rates available.

[24+] THE SOURCE STUDIOS INC.
 2423 Magnolia St., Oakland, CA 94607
 (415) 421-6262
Owner: Smokey Towers
Studio Manager: Rich Pena

[24+] SPECTRUM
 also **REMOTE RECORDING**
 P.O. Box 757, San Carlos, CA 94070
 (415) 593-9554
Owner: Paul L. Weaver
Studio Manager: Wes Weaver

[24+] SPECTRUM STUDIOS, INC.
 1634 SW Alder, Portland, OR 97205
 (503) 248-0248
Owner: M. Carter, L. McGill
Studio Manager: Jo Dunbar
Engineers: Michael Carter, Chns Douthitt, Jim Rogers, Mike Moore, Jim Baer, Rob Perkins, Jeff Dennerline.
Dimensions of Studios: (1) 38 x 28; (2) 25 x 18; (3) 15 x 16; (4) 12 x 16.

Dimensions of Control Rooms: 1) 23 x 26; (2) thru 4) 22 x 20 (5) control room only 22 x 14. 1-4 Russ Berger designs.
Tape Recorders: (2) Otari MTR-90II, 24-track; Mitsubishi X86A digital, 2-track; Ampex MM-1100, 16-track; Ampex ATR-104, 4-track; Ampex ATR-102 (1/4-inch and 1/2-inch), 2-track; (14) Scully 280B mono-, 2- and 4-track.
Mixing Consoles: Solid State Logic 6048E 48 x 32; (3) Spectrum Studios Inc. custom 16 x 8; Trident Series 65, 16 x 8.
Monitor Amplifiers: UREI 6500, Yamaha PC2002, McIntosh 2205, Yamaha PCI002, Crown D60, Spectra Acoustics 200.
Monitor Speakers: UREI 813B, UREI 811B, Yamaha NS-10M, Auratone 5C, Electro-Voice Sentry II.
Echo, Reverb & Delay Systems: EMT140, Lexicon PCM-70, (3) Yamaha REV7, Yamaha SPX90, Ursa Major Space Station, Lexicon Prime Time II, Eventide H910 Harmonizer.
Other Outboard Equipment: (5) Audio & Design Vocal Stressers, (4) UREI LA3A, (2) dbx 160, (2) dbx 162, Roger Mayer noise gates, Allison Research Gain Brains, (2) Dolby M24H, (4) Dolby 361, (3) dbx 187, (6) dbx 180.
Microphones: Neumann U47, U87, TLM170, KM84, KMR81; AKG C-451, D1000e, Sennheiser MD421, MKE815; Shure SM57, 330; RCA 77dx; Electro-Voice RE15, RE16, RE50; Trams.
Instruments Available: Yamaha C-3 grand piano.
Video Equipment & Services: Sony BVH-1100a with Dolby A; Audio Kinetics Q.Lock 3.10 synchronizer; JVC 3/4-inch; Hitachi and Sony monitors; center-track time code Ampex ATR-102; Nagra IV stc, (2) Nagra 4.2L. Services: looping, Foley, mix to picture, broadcast and music production, extensive music and sound effects libraries, location audio.
Rates: \$140/hr. for video, \$70/hr. for production, music rates on request.

[24+] STAR TRAK RECORDING INC.
 also **REMOTE RECORDING**
 19351 23rd NW, Seattle, WA 98177
 (206) 542-1041, 745-1427
Owner: Bob Lang, Richard Eaks
Studio Manager: Richard Eaks

[24+] STARLIGHT STUDIO
 617 S. 13th St., Richmond, CA 94804
 (415) 236-2281
Owner: Starlight Sound Inc., Brilliant Production and Management, Inc.
Studio Manager: Michael Rosen
Engineers: Peter Brown, Norman Kerner, Bill Thompson, Carl Herlofsson, Devon Bernardoni, Jacob Hellner, Michael Rosen, Ken Kesey, Maureen Droney, Gary Mankin, Matt Wallace, Jamie Bridges.
Dimensions of Studios: 25 x 35 x 12; piano room: 15-ft. pentagonal.
Dimensions of Control Rooms: 20 x 15 x 12.
Tape Recorders: MCI JH-16 w/Autolocator III, 24-track; Ampex ATR-102 1/4-inch and 1/2-inch, 2-track; Otari MX-5050-B, 2-track; Sony PCM-F1 digital, 2-track; Tascam 122s cassette decks; Technics turntable.
Mixing Consoles: Harrison 4032, 40 x 32 w/Allison 65k automation.
Monitor Amplifiers: Bryston, Hafler, Crown, Biamp, Marantz.
Monitor Speakers: UREI 813 Time Aligned, Yamaha NS-10M, Auratones.

Echo, Reverb & Delay Systems: Lexicon 224X, PCM70, PCM60; AMS RMX 16; Roland DEP5; Roland SRV-2000; Alesis XT, MIDIVERB reverbs, Lexicon PCM42, 41 and Effectron delays, Roland 1000, Alesis MIDIFlex, Ibanez DDL/harmonizer; Eventide H910 Harmonizer.
Other Outboard Equipment: UREI LA-4 and 1176 comp/limiters, Valley People, Drawmer, Symetrix gates/processors; Audiotarts, Biamp parametric and graphic EQ, EXR Exciter, Eventide MXR flanger/doubler.
Microphones: Large collection of vintage Neumann tube mics as well as Neumann, AKG, PZM condensers and Beyers, Shure, Sennheiser, E-V dynamics and ribbons.
Instruments Available: Yamaha C-7 7'4" conservatory grand piano, LinnDrum digital drum machine, Simmons SDS-8 drum synth w/pads, Yamaha DX7 digital synth, Oberheim Matrix-6 analog synth, Sequential Circuits, Prophet 2000 sampling keyboard, Ensoniq Mirage sampling keyboard, Roland MSQ 700 MIDI sequencer, Yamaha RX11 MIDI drum machine, Roland Octapad MIDI controller, Rogers drum kit, large collection of new and vintage guitars and amps including Mesa/Boogie MKII, Marshall, Musicman, Vox, Fender, Gibson, Epiphone, Rickenbacker, Supro, everything else.
Rates: Please call Brilliant for rate schedule and off-hour specials.
Direction: From the Starlight Sound Co.'s complete studio design system—"everything you might need at your fingertips"—to the unique full service management of the Brilliant Production Co., we will continue to offer you the finest recording experience and value in the Bay Area.

[24+] STARSOUND AUDIO, INC.
2679 Oddie Blvd., Reno, NV 89512
(800) 354-7252

Owner: Scott Bergstrom
Studio Manager: Mark Ishikawa
Engineers: Mark Ishikawa, Scott Bergstrom, Dave Jensen, Lee Taggart.
Dimensions of Studios: 35 x 30; 3 iso rooms: 8 x 14, 7 x 10, 8 x 16.

Dimensions of Control Rooms: 15 x 25
Tape Recorders: Studer A-80, 24-track; Otari MkIII-2, 2-track; Tascam 52, 2-track; Yamaha C-200, cassettes.
Mixing Consoles: Amek Angela, 28 x 24; RSS mixdown computer CPE-800.

Monitor Amplifiers: Crown PSA2, Crown DC-300, Yamaha PC2002, Crown PS-400s.
Monitor Speakers: JBL 4333, 4435, 4425, 4411, Auratone T6, 5C, Yamaha NS-10.

Echo, Reverb & Delay Systems: Lexicon PCM70, PCM-60; Yamaha REV7, (2) SPX90; Roland SRV2000, SDE3000 (2) DEP-5 Brck Audio 3300 plate; DeltaLab CPE-1700.

Other Outboard Equipment: Aphex II broadcast, Aphex C (mod); UREI LA-4s, dbx 166s, Dyma-Mites, Symetrix 522s, Orban parametric 674A, Roland Vocoder, Dimension D, dbx 503.

Microphones: AKG 414EB, 460, 451, 330; Sennheiser 441s, 421s, 431, 409s, 211; E-V PL 20, RE20, RE15, RE18; Shure SM56s, SM57s, SM81s, SM85; Sony C-37s; PZMs; Countryman 101s.

Instruments Available: Large set Fibes drums, Simmons, Kawai 74" grand, Prophet 2000, Prophet-VS, E-mu SP-12, Yamaha DX7, DX21, Akai S900, Ensoniq Mirage, Roland JX-10.

Video Equipment & Services: (2) JVC 8250, 3/4-inch recorders, (2) JVC-5550, 3/4-inch 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.
Extras: Over 2,000 instruments available in Starsound Audio/Bizarre guitar complex. T.E.F. analysis available to clients. Studio is in Reno, 45 minutes from Lake Tahoe, endless recreation potential. Also provide concert sound, lighting, and staging for any Reno/Tahoe venues.
Direction: 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.
(formerly Mountain Mobile Recording Inc.)
5450 Coleman Creek Rd., Medford, OR 97501
(503) 535-3972
Owner: Staunton Studios Inc.
Studio Manager: Web Staunton



STUDIO D RECORDING INC.
Sausalito, CA

[24+] STUDIO D RECORDING INC.
425 Coloma St., Sausalito, CA 94965
(415) 332-6289

Owner: Dan Godfrey, Joel Jaffe
Studio Manager: Joel Jaffe
Engineers: Ricky Sanchez, Bob Hodas, Karl Derfler, Dr. Richie Moore (tech. director), Lenette Viegas (ass't), James "Watts" Vereecke (ass't), Robert Missbach, Jim Gaines, Jim Stern.

Dimensions of Studios: 29 x 36 x 20 (ceiling). Iso booth: 7 x 14 x 16 (ceiling).
Dimensions of Control Rooms: 20 x 20, compression ceiling.

Tape Recorders: Studer A800 MkII, 24-track; Ampex ATR-102, 2-track; Studer/Revox B77, 2-track; Aiwa 770, cassette.

Mixing Consoles: Tndent TSM, 40 x 32 x 32.

Monitor Amplifiers: Hafler 500, (5) Hafler 220, custom modified, 2 line Hafler.

Monitor Speakers: Custom Hidley, Yamaha NS-10M, Auratones

Echo, Reverb & Delay Systems: EMT 140 plate (tube), AMS RMX16 reverb, Roland SRV-2000 reverb, Roland SDE-3000 delay, Bel BD-80 delay/sampler, SPX 90 optional.

Other Outboard Equipment: (2) Pultec EQP-1, (2) Pultec EQP-1A, (2) Lang PEQ-2, Pultec MEQ-5, (2) UREI Model 545 parametric EQ, (2) Drawmer DS-201 dual gates, (4) Kepex II, dbx 165 compressor, (2) Teletronix LA-2A, (2) UREI 1176LN, (2) UREI LA-4, Eventide H910 Harmonizer.
Microphones: Neumann (2) U87, M-49b, U67, U47 tube; AKG C-24 stereo tube, C414EB, C451EB, (2) D-200E, D-12; Sennheiser MD-421, MD-441; Beyers 201; RE20; SM57; PZMs; (2) 47 FET; ECM 50; E-V 666; KM-84; (6) Countryman direct boxes, (4) C28 AKG.

Instruments Available: LinnDrum, DX7, Hammond organ B-3, Korg Polysix. Amplifiers: Jazz Chorus, Marshall JCM 800, Gallien Krueger studio amp, SuperJupiter w/remote programmer optional.

Video Equipment & Services: Studio is located next to major soundstage. Video tie-in to control room. Q.Lock and all VTR formats available upon application.

Rates: Please call for rates.

[24+] STUDIO SOREN LTD.
7450 E. Jewell, Denver, CO 80234
(303) 755-4802

Owner: Soren Bredsdorff
Studio Manager: Soren Bredsdorff



SUN VALLEY AUDIO
Ketchum, ID

[24+] SUN VALLEY AUDIO
808 Warm Springs Road, Ketchum, ID 83340
(208) 726-3476

Owner: Amos Galpin
Studio Manager: Amos Galpin
Engineers: Lance Parker, Randy Young
Dimensions of Studios: 32 x 23 x 16 (ceiling); piano room 9 x 15.

Dimensions of Control Rooms: 15 x 25 w/"The Wedge" patented control room.

Tape Recorders: Stevens w/BTX, 24-track; Ampex ATR-104 1/4-inch, 2-track; Ampex ATR-102 1/2-inch, 2-track; Nakamichi cassette; (10) Akai cassettes.

Mixing Consoles: ICC 9000, noise gates and limiters and automation in each channel, 24 x 24.

Monitor Amplifiers: Hafler, PS Audio.
Monitor Speakers: JBL and TAD custom monitors, JBL 4430s, MDM TA-2s, Auratones

Echo, Reverb & Delay Systems: (3) Lexicon PCM 60s, (4) ICC plate reverb system, live echo chamber 30 x 20 x 16 high, Lexicon 93, Echotron, Fostex DDLs.

Other Outboard Equipment: Eventide 949, Eventide flanger/phaser, Kurzweil AS 250, LinnDrum, Simmons head, (10) Akai cassette recorders for real time duplicating, unreal in-house technician.

Microphones: AKG Tube, 414s, 460Bs; Neumann U87; Sennheiser 421s; various Shure.

Instruments Available: Kurzweil AS 250, Yamaha 9-ft. grand piano, Prophet 5, studio drum sets.
Rates: \$70/hr., block rates available.

Direction: 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. Dealerships include JBL, Otari, 3M/Scotch audio tape, Lexicon, Eventide, Hafler, QSC, and Kurzweil.

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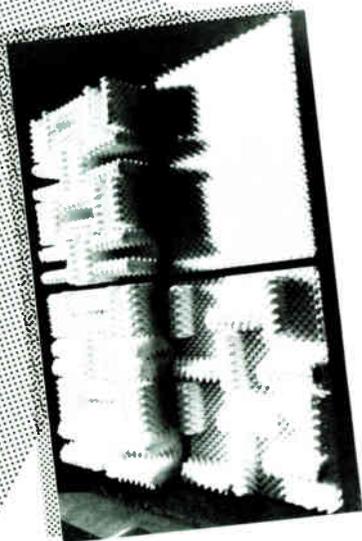
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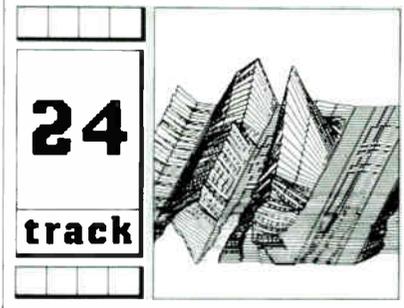
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NORTHWEST STUDIOS



[24+] SURREAL STUDIOS
355 West Potter Dr., Anchorage, AK 99518
(907) 562-3754
Owner: Kurt Riemann
Studio Manager: Lauren Koch

[24+] SWINGSTREET STUDIOS
620 Bercut Dr., Sacramento, CA 95814
(916) 446-3088
Owner: Commonwealth
Studio Manager: Larry Lauzon
Engineers: Martin Ashley (chief eng.), John Baccigaluppi, Larry Lauzon, Craig Livaich
Dimensions of Studio: 34 x 37; iso booth 12 x 15; drum alcove 8 x 9.
Dimensions of Control Rooms: 20 x 23.
Tape Recorders: MCI JH-16, 8-/16-/24-tracks; (2) MCI JH-110B, 2-track; (2) Technics M85, cassettes.
Mixing Consoles: Quad/Eight Pacifica, 28 x 24.
Monitor Amplifiers: UREI 6500; Yamaha P2150; McIntosh 2100, MC 240.
Monitor Speakers: UREI 813-A Time Aligns; JBL 4333, 4313, 4311; Auratone 5-C.
Echo, Reverb & Delay Systems: Lexicon 224 digital reverb, AKG BX-20E reverb, Lexicon 97 Super Prime Time, Eventide H-910 Harmonizer, Marshall Time Modulator, Yamaha SPX-90 digital effects.
Other Outboard Equipment: UREI 1176LN limiters, Teletronix LA-2A limiters, Allison Gain Brains, Quad/Eight CL-22 compressors, ADR/Scamp expander/gates, ADR/Scamp Auto-Pan, Aphex Aural Exciter, UREI 527S EQ, Pultec PEQ-1S EQs, Pultec HLF-3C filter, 28 channels dbx, video security system, Gregg 2530 in-band compander.
Microphones: Neumann U47 FET, U67, U87, KM-84; AKG C414EB/P48, C451, C34; Countryman EM-101; Crown P2M 30, 31s; E-V RE20, 654A, 666, 667A; Sennheiser 409, MD-421; Shure SM7, SM53, SM57, SM58, SM81, 545, 300; Sony ECM-22, ECM-280; RCA 77-DX; Altec M-30.
Instruments Available: Yamaha C-3 grand piano, various percussion, total instrumental rental available.
Rates: Available upon request.



Tarpan Studios
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TARPAN STUDIOS
San Rafael, CA

[24+] TARPAN STUDIOS
1925 Francisco Blvd. E., Ste. G, San Rafael, CA 94901
(415) 485-1999
Owner: M. Walden
Studio Manager: Janice Lee
Engineers: Dave Frazer, Gordon Lyon, Dana Chappelle,

Stuart Hirotsu, Matt Rohr, Doc Shaffer.
Dimensions of Studio: 25 x 35 irregular (including isos); ceiling: 12 x 14; drum booth: 9 x 8 x 12.
Dimensions of Control Rooms: 19 x 18 w/ceiling from 12 to 9 to 14.
Tape Recorders: Studer A80 VU MkIV, 24-track; MCI JH-24, 24-/16-track; (2) Ampex ATR-102 (1/2-inch and 1/4-inch), 2-track; Technics RS-B100 cassette deck; (2) Technics RS-B50 cassette decks; (2) Otari MX5050-B, 2-track, Otari MX-5050, 8-track 1/2-inch.
Mixing Consoles: Trident TSM, 40 x 32 with Allison automation.
Monitor Amplifiers: Control room: Crown DC-2000s with Delta Omega modules; studio: BGW 750; cue: (2) Crown D-150 Series II, Crown PS-400.
Monitor Speakers: Control room: UREI 813B, Yamaha NS10M, TOA ME265, Auratones; studio: UREI 811.
Echo, Reverb & Delay Systems: AMS digital reverb, Ecoplate I, Eventide 949 Harmonizer, Lexicon Prime Time, DeltaLab DL-4 w/memory module, Marshall Time Modulator, A/DA SD-1, anything available upon request.
Other Outboard Equipment: UREI LA-4s, Teletronix LA-2A, Symetrix gates, Allison Research Kepex and Gain Brains, anything available upon request.
Microphones: Full complement of Neumann, AKG, Sennheiser, Beyer, Shure and PZM microphones.
Instruments Available: Baldwin 9-ft. grand piano.
Video Equipment & Services: Q.Lock 310 synchronization; anything upon request.
Rates: Please call for rates.

[24+] TELEMATION PRODUCTIONS/AUDIO
1200 Stewart St., Seattle, WA 98101
(206) 623-5934

Owner: Telemation Productions Inc./Salt Lake City, UT
Studio Manager: Michael C. Olds
Engineers: Peter B. Lewis, Gordon Glascock, Kathie Hopkins. Qualified freelancers welcome.
Dimensions of Studio: (A): 28 x 38 x 14; (B): 9 x 13 x 8.
Dimensions of Control Rooms: Alpha: 18x16; Beta: 15 x 13.
Tape Recorders: Studer A-800 MkII, 16-/24-track; MCI JH-110B, 2-/4-track; Ampex ATR-800, mono/2-/4-track; Ampex ATR-800, mono/2-track; Nagra T-Audio w/TC and neo-pilot or FM-pilot resolving 2-track w/center-track; (2) 16/35mm magnetic film recorders.
Mixing Consoles: (A) Neve 5116, 24 x 16 +8; (B) Neve 5432 8 x 8 +2.
Monitor Amplifiers: BGW
Monitor Speakers: Altec 604Es, Yamaha NS-10s, Auratones.
Echo, Reverb & Delay Systems: EMT 190, Eventide Harmonizer 949, Ursal Major Space Station, Clover 500, w/Lexicon PCM 42, 60 & 224X available.
Other Outboard Equipment: Grey time code regenerator, (2) Neve compressor/limiters, (2) Ashly SC-50 limiter/compressors, ADR F769X-R Vocal Stresser, Orban 622B parametric equalizer, (2) UREI LA-4As, (2) UREI graphic equalizers, Technics SL 1200 turntable, (2) Technics stereo cassette decks. Various digital audio processors and CD player available.
Microphones: Neumann U87s and KM84s; AKG 414EBs; RCA 77Ds (reconditioned); Crown P2Ms; E-V RE20; Sennheiser 814. More great mics available including Calrec Soundfield microphone.
Instruments Available: Yamaha C-7 grand piano, assorted percussion, Kurzweil 250 and assorted synthesizers, drum machines and sequencers, plus complete drum kit available.
Video Equipment & Services: Audio Kinetics 3.10 synchronizer w/ADR, JVC CR-8200U 3/4-inch video recorder, Sony 25-inch color monitors (CR & studio), complete video production with 38 x 60 x 16 stage, (2) 1-inch or 3/4-inch CMX video edit suites w/ADOs and a Bosch Telecine film-to-tape transfer system. Betacam player w/TBC. Full dubbing facilities.
Rates: Call for quote. Special night rates.
Extras: Telemation Productions offers complete production services from concept to distribution of final product all under one roof. We specialize in synchronous transfers. Our Nagra-T allows us to resolve from neo-pilot, FM-pilot, or center-track time code to 16-/24-track, 1-inch video, or 16/35mm. We can solve virtually any audio sync problem. We have one of the largest sound effects and music libraries in the Pacific Northwest. We also can provide composer/arrangers and musicians for original score to picture.

[24+] TIKI RECORDING STUDIOS
also REMOTE RECORDING
195 South 26th St., San Jose, CA 95116
(408) 286-9840

Owner: Gracie and Jeannine O'Neal
Studio Manager: Gracie J. O'Neal
Extras: Two 8-, 16-, or 24-track recording studios 1/2-inch 8-track mixing available; in-house production and arrang-

ing staff; in-house commercial production; in-house demo videos available; in-house cassette duplication; producers and studio musicians available; celebrating our 20th year in a new facility; large control room for MIDI keyboards; large drum room and percussion booth; large singers booth; tuned string room; 9-ft. concert grand piano; custom cassette and LPs. For gospel music; specializing in all Mexican music; specializing in Portuguese music; specializing in Vietnamese music; in-house producers for heavy metal and Top 40 rock; in-house producers for Nashville country music; special packages for all songwriters demos; pre-production keyboard programming available; three publishing companies to serve songwriters.

[24+] **TJ. RECORDING STUDIO, INC.**
also **REMOTE RECORDING**
2718 E. 96th St., Tacoma, WA 98445
(206) 537-0123
Owner: Thomas J. Landon
Studio Manager: Thomas J. Landon

[24+] **TRAC RECORD CO.**
170 N. Maple, Fresno, CA 93702
(209) 255-1717
Owner: Stan Anderson
Studio Manager: Stan Anderson

[24+] **TRIAD RECORDING**
1825 Oak St., Eugene, OR 97401
(503) 687-9032
Studio Manager: Gene P. Moritz

[24+] **TRIAD STUDIOS**
4572 150th Ave. N.E., Redmond, WA 98052
(206) 881-9322
Owner: Vector Communications, Inc.
Studio Manager: Nancy Acton
Engineers: Lary Nelzger, Mike Tortorello, Tom Hall.
Dimensions of Studios: (A): 24 x 36; (B): 24 x 30.
Dimensions of Control Rooms: (A): 19 x 24; (B): 19 x 18.
Tape Recorders: (2) Sony/MCI JH-24 w/16-track heads, 24-track; (2) Sony/MCI JH110B, 2-track; Sony/MCI JH-110B 1/2-inch, 2-track; Ampex ATR 100, 2-track; Otari MTR-12-2 w/TC 2 and TC.
Mixing Consoles: NEOTEK III C, 36 x 24; NEOTEK III, 28 x 24.
Monitor Amplifiers: Hafler DH500, Hafler DH220, Hafler DH 200 Sanyo, Harmon Kardon.
Monitor Speakers: JBL 4435, JBL 4430, JBL 4312, JBL 4311, Yamaha NS-10M, Auratone ADS L520.
Echo, Reverb & Delay Systems: Lexicon 224X, EMT 140T stereo Klark-Teknik DN780, Lexicon PCM70, Lexicon PCM 41 Lexicon Prime Time, Eventide Harmonizer.
Other Outboard Equipment: ADR 760, dbx 160, Aphex, UREI 1176, Orban 622B, Orban de-esser, API 550, Kepex, LA-2A, ADR Panscan, Klark Technik RTA, Pultec.
Microphones: AKG 414, 451, C-60A, DRE, Fostex M77; Neumann U47, U87, KM84, KM88; Sony C-37A; Sennheiser 441, 421; Shure SM53, 56, 57, 58, E-V RE20; Beyers M500, Countryman 101.
Instruments Available: Yamaha C70 grand piano, Yamaha C-3 grand, Dyno-My-Piano, Fender Rhodes, Linn-Drum Yamaha DX7, Prophet V, Gretsch drums, Emulator II w/Macintosh interface.
Video Equipment & Services: JVC G550 3/4-inch Lynx Time Line synchronizers, Otari MTR-12-2 w/center-track, 3000 sound effect library on compact disc. NEC and JVC video monitors.
Rates: Upon request.

[24+] **TRUE NORTH PRODUCTIONS**
P.O. Box 2331, Redding, CA 96099
(916) 222-0900
Owner: Alan E. Phillips

[24+] **UNREGULATED RECORDING STUDIO**
P.O. Box 81485, Fairbanks, AK 99708
(907) 456-3419
Owner: Michael Stated and Unregulated Record Co., Inc.
Studio Manager: Michael Stated

[24+] **VIDEO EFFECTS**
only **REMOTE RECORDING**
P.O. Box 6316, Napa, CA 94581
(707) 257-7669
Owner: Bruce D. Chapman
Studio Manager: Bruce D. Chapman

[24+] **VILLA RECORDERS**
3013 Shoemaker Ave., Modesto, CA 95351
(209) 579-1123
Owner: Fred Eichel
Studio Manager: Louise Singleton

[24+] **VISTA SOUND RECORDING**
17760 Vista Ave., Monte Sereno, CA 95030
(408) 395-5945
Owner: Dan Wyman
Studio Manager: Timm Burleigh



DAVE WELLHAUSEN STUDIOS
San Francisco, CA

[24+] **DAVE WELLHAUSEN STUDIOS**
1310 20th Ave., San Francisco, CA 94122
(415) 564-4910
Owner: Dave Wellhausen
Studio Manager: Janet Wellhausen
Engineers: Dave Wellhausen, John Altmann, Steve O'Hara, Marc Senesac, Mikey Razor, and independents.
Dimensions of Studios: 24 x 15 x 12 w/vocal booth, piano booth, drum booth.
Dimensions of Control Rooms: 15 x 15 x 12.
Tape Recorders: MCI JH-24 (transformerless w/24- and 16-track heads); MCI 110, 2-track; (2) Otari MX5050B MkII, 2-track; (2) Nakamichi MR1 cassette decks; Pioneer RT707, 2-track; (2) Aiwa 6900 cassettes; (2) Tascam 122 cassettes.
Mixing Consoles: Audionics 501 modified, 26 x 16 x 26 (42 line returns in middown).
Monitor Amplifiers: AB Precedent 600, BGW 250, Symetrix A220, AKG 240 headphones.
Monitor Speakers: Ed Long MDM4s, Yamaha NS-10M, Auratone, 1/3-octave room equalization, AKG 240 headphones.
Echo, Reverb & Delay Systems: Lexicon 224XL w/LARC and all other updates, Lexicon Prime Time digital delay, Yamaha D1500, Marshall Time Modulator, Eventide Harmonizer, DeltaLab 1024, DeltaLab 64.
Other Outboard Equipment: (2) UREI 1176LN, (2) LA-4, Aphex Aural Exciter, Aphex Compeller, ADR Vocal Stresser, Eventide Harmonizer, Drawmer gates, Valley People Dyna-Mites, SAE graphic and parametric equalizers, BK1403 A Scope, ADI spectrum analyzer, Dolby 361 noise reduction on 2-track.
Microphones: Neumann U87; AKG 414EB, (2) C460B w/CK61, (2) 451, D12E; (6) Sennheiser 421, 441; (3) Electro-Voice RE20, (3) RE15; Sony C36P, ECM33; SM57s, SM58s; Beyers M201, 101, M301; Countryman direct boxes; EM101; rare ribbon RCA77, Crown PZMs (4).
Instruments Available: Yamaha C3 6-ft. conservatory grand piano, DX7, Roland MKS30, Roland MSQ 700 sequencer, TR707 MIDI drum machine, Octapad, Fender Precision Bass, Les Paul, Drumulator, anything else available upon request.
Rates: 24-track: \$55/hr. 16-track: \$45/hr. Block book discounts available.

Extras: Kitchen, lounge area, skylight, easy parking, within walking distance of many restaurants. Assistance in areas of session musicians, album production and mastering, pressings, jackets, etc. Visa and Mastercharge accepted. We have been at the same location for 10 years.
Direction: We will give your project the personal touch you may miss at a larger facility. We've put together a completely professional, yet relaxed and friendly studio. We've created an environment where musical creativity is encouraged, not stifled. We invite you to give us a call to discuss your recording needs or arrange for a tour. We specialize in working with groups and songwriters on a continuing basis throughout their development, i.e. demos to albums. We offer full production service and assistance as well. Our rates include all synthesizers, drum machines, grand piano, all outboard gear, engineer and everything you need to make your project a success.

[24+] **THE WINERY RECORDING STUDIO, LTD.**
240 Kaupakalua Rd., Haiku, Maui, HI 96708
(808) 572-1560
Owner: W.H.P. Davison, Jr.
Studio Manager: Jack Fisher

[24+] **WIZARDS & CECIL B.**
also **REMOTE RECORDING**
1111 Second St., San Rafael, CA 94901
(415) 453-0335
Owner: Pete Slalson
Studio Manager: Mike Brannon

[24+] **WOODMONT BEACH STUDIOS**
P.O. Box 98553, Seattle (Des Moines), WA 98198
(206) 941-2430
Owner: Rich Rogers
Studio Manager: Rich Rogers
Engineers: Rob Moitzoa, Paul Speer, Paul Varn.
Dimensions of Studios: (A) 12 x 12, (B) 13 x 10, (C) 10 x 9, vocal booth 8 x 6.
Dimensions of Control Rooms: 12 x 12 x 20.
Tape Recorders: Sony/MCI JH-24, 24-track; MCI JH-110A-4, 4-track; Sony/MCI JH-110C, 2-track; Otari MX-5050B, 2-track; Aiwa cassettes.
Mixing Consoles: Biamp/Bimix 3224 32 x 24 x 2.
Monitor Amplifiers: Hafler, Symetrix.
Monitor Speakers: JBL 4411s, Tannoy NFM-8s, Auratone 5Cs
Echo, Reverb & Delay Systems: Lexicon, Yamaha, Urso Major, DeltaLab, ADA "i" series.
Other Outboard Equipment: SP-2 Vocal Exciter by EXR, (2) UREI LA-4 compressor/limiters, Symetrix 522 stereo compressor/limiter/expander/ducker/gate, Symetrix SE400 stereo parametric EQ, custom stereo ten band graphic EQ, Omniaonix Ltd. stereo imager.
Microphones: Neumann U87, AKG "The Tube," AKG 451 (2), Sennheiser 421, E-V RE20, various E-V, AKG, Neumann, Shure, Ampex mics.
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The Mix Bookshelf Catalog contains the best audio, video, and music industry texts available from over 70 publishers. For your free copy, please see page 171.

—CONTINUED FROM PAGE 12, SESSIONS

Westminster, CA, with *Steve Kempster* producing and engineering, and *JB Lawrence* assisting. . . At *Sunset Studio* in Hollywood, *The Del Fuegos* recorded their new album for Slash/Warner Bros. *Mitchell Froom* once again produced, with *Tchad Blake* engineering and *Dave Knight* assisting. . . Actor *Bruce Willis* received some heavy-duty help for his debut album for Motown Records. The Temptations dropped by *Cherokee Studios* in Los Angeles, where Willis is recording, to add their talents to Willis' reworking of the old Drifters hit, "Under The Boardwalk." Earlier, Willis, who is being produced by *Robert Kraft* with *John Vigran* engineering, was joined by the Pointer Sisters in a fiery version of "Respect Yourself." . . . At *The Village Recorder* in West L.A., *Alan Darby* was in working on an LP with engineer/producer *Bill Drescher*. *Charlie Brocco* assisted. . . *Russ Freeman's* latest album, *Nocturnal Playground*, was recorded and mixed at *Juniper APV* (Audio Post Video) in Burbank. *Steve Sharp* engineered the session. . . *Andre Cymone* has been tracking his new CBS album with *Taavi Mote* and *Elmer Flores* engineering at *Encore Studios* in Burbank. . . *The Four Tops* were in *Skip Saylor Recording* in L.A. cutting a single for Motown Records. *Evan Pace* and *E. Wade* produced with *Tom McCauley* at the board. . . *Prince* has been tracking and mixing his new album at *Sunset Sound* in Hollywood. Prince is producing, with *Coke Johnson* and



At the Record Plant in L.A., *Star Trek IV* director *Leonard Nimoy* enjoys a playback during the film's scoring sessions with composer *Leonard Rosenman* (R) and mixer *Dan Wallin* (seated).

Susan Rogers engineering and *Jim Preziosi* assisting. . .

STUDIO NEWS

Blackbeard Studios in Lincoln, RI has expanded to 48-track with the addition of an MCI JH-24 and Sound Workshop Series 34,

50x24 console with Arms II, Disk Mix and IBM PC. . . *Regina Mullen* has joined *Sync Sound*, NYC, as an engineer. Mullen was formerly with *Reeves Sound Shop*. . . *Master Control* in Burbank has added a pair of JBL 4406 speakers to its selection of monitors. They've also acquired a Hafler P500 power amp for use with their Yamaha NS-10m speakers. . . *Steve Lawson Productions* in Seattle has recently upgraded its sound effects library, the backbone of any recording studio, by going to compact discs. Compact disc players have been installed in all of the studios as well as the dub room, and the Sound Ideas effects library is now available on CDs for sessions. . . *Frankford/Wayne Mastering Labs* of New York has just taken delivery of the new Sony PCM-3202 DASH format 2-track reel-to-reel digital tape recorder. . . *Music Annex* has named *Randy Bobo* to the position of chief engineer of the company's new San Francisco division. And *Angela Goodison* is that facility's new manager. . . Upgrades at *Reference Standard Studio* in Northfield, Illinois include an Audic Kinetics "Pacer" synchronizer, a JVC three-channel video recorder and the Sound Ideas sound effects library on compact disc. . . *Le Mobile* has acquired the North Hollywood rehearsal room facility formerly operated by *Leeds Musical Instrument Rentals*. As part of Leeds/Le Mobile, Inc., the facility will complement the services offered by the Le Mobile remote recording truck. . . The renovation of the NY facility *Magnetic Sound Studio* has been completed with the launch of new services and a futuristic facility at East 44th Street. The studios have been redesigned and acoustically upgraded, and exclusive audio equipment has been installed in the 9,000 square foot facility. . . *Image Recording* (Hollywood, CA) completed the installation of a new Solid State Logic 4056E console in Studio A. The console has 60 input channels and computer automation with total recall.

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PHOTO: GEORGE PETERSEN

Fairlight's Dan DeSouza feels computer-based instruments—combining all the subtle nuances of a musician's touch with the ability to perform frame accurate punch-ins—offer the best of both worlds to the creative artist.

—FROM PAGE 52, SAMPLING

thing like '... and an interesting sound' and then leave. When he says 'an interesting sound' we've got to look at the movie and him and sense what he's trying to get across."

To suit the quite exacting ears of Moroder, his engineers, the film editor and, in this case, Sylvester Stallone, Banks held that a simple instrument simulation is inadequate. Resynthesis is almost invariably necessary to forge a sound sampled from "nature" into a musical and useful tone. "Samples are dead," he says. "Sample libraries are now data bases for resynthesis. This technology gives us a whole world of new and expressive sounds."

In addition to resynthesis, the high sound quality and ever-increasing sample lengths available are allowing the manipulation of whole musical phrases instead of just notes. Jeff Rona cites an instance where after a singer laid down a track and then left the studio, a flaw was discovered that made a whole line of the vocal unusable. The problem was solved by sampling the same line from another verse and then punching in the good line over the bad. In one case, Rona notes, a short phrase was even transposed up a step and punched in over a bad take. The transposed phrase was shorter and faster than the original, but not to a noticeable degree in a

two-word phrase. The whole replacement in both cases took only about five minutes.

Dan DeSouza of Fairlight Instruments says that a similar technique is very popular with Fairlight users including Jan Hammer ("Miami Vice") and Michael Jackson. The Series III's two-and-a-half-minute sampling time and CD-quality sound (16-bit, 44.1 kHz sampling rate) allow mixing of extended sampled phrases in with standard, multi-track tape performances. This way the best performance of entire sections can be digitally spliced into any part of a piece. Since the sampled phrase exists as a "note" in a MIDI keyboard, the punching in is done via the computerized perfection of the sequencer (in this case, the Fairlight's on-board model). What results is a phrase (performed by a good-old-fashioned human musician, with the qualities of feeling and warmth that this usually entails) that is located and synced by computer (with its attendant qualities of cold accuracy). Both humans and computers are doing what each does best. DeSouza feels this process exemplifies a very positive attitude of "Let's get back to more human involvement, while still utilizing the technology."

The new Fairlight Series III itself is an example of the growing number of applications of sampler-based technol-

ogy. The Series III is not only a sampler, but it also functions as a very powerful MIDI sequencer capable of recording up to 16 separate tracks simultaneously. It is also a complete SMPTE-compatible post-production system for film and video, capable of placing sound effects, stings and scores onto a sound track with frame-accuracy.

The technology of digital sampling is growing with astronomical speed. Its applications are still being discovered, and will no doubt give us all plenty to work with and talk about for some time to come. That the progress in this realm creates attendant problems is all too familiar a situation, and the inequities of the ownership of a sample—pristine or resynthesized—must be settled.

Clearly, if a skilled musician supplies his unique "waveform" for sampling and resynthesis, his client receives a much more powerful and reusable—and hence, profitable—product than the traditional single performance for a single production. It is arguably equitable that the musician be compensated accordingly for the additional usefulness his product acquires through sampling. So far, no one has established a pay scale specifically for the sampling contingency, but it deserves consideration.

As Jeff Rona says, "What we need is a sampling rate." ■

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