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THE RECORDING INDUSTRY MAGAZINE

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Conway Recording caters to the top record-date clientele in LA's highly competitive studio recording scene. Yet hits are their stock in trade.

Owner Buddy Brundo has assembled outstanding engineering talent and provided them with the equipment necessary to record some of the most demanding performances in the world. Conway has repeatedly chosen Neve recording equipment, most recently the V Series 60 input multitrack console with enhanced dynamics.

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The V Series offers separate releases on the combined noise gate/expander and limiter/compressor to ensure the highest degree of control. More threshold controls make it

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What all this means is the real world of recording is a flexibility and warmth that have helped make Conway a consistent winner in any musical genre.

"We've had Dionne Warwick in to do *That's What Friends Are For*, as well as Smokey Robinson, Mr. Mister and the Talking Heads, who did a remix of *Wild Life*," adds Brundo. "We've had an unbelievable amount of hits this year, and our clients keep coming back. They know there's something special about the sound that comes out of here."

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MIX

SEPTEMBER 1987

THE RECORDING INDUSTRY MAGAZINE

VOL. 11, NO. 9



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FROM THE EDITOR

Cover: Ignited Productions of Hollywood, CA was designed by Emmitt Siniard of Audio Paragon, interior design by Jacquelyn Cartwright and MIDI design by Greg Bartheld and Peggy McAfee. According to general manager Jefferson Chitouras "the facility is a computer/MIDI/synth/mix room, fully operational for audio in the visual media and records."



Photo: Daniel Martinez

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We often find ourselves in a seductive position—looking through the crystal ball, spotting trends and taking peeks over the horizon for an idea of the future of the industry. It's fascinating stuff, the direction in which production and recording are moving right now. There's a new world of technology being born all around us, posing unlimited possibilities in a science fiction-style music industry. We eagerly await the satellite-linked, disk-recorded, computer-processed, optically stored, direct-to-brain media transfer.

But as we journey into "The Age of Hypermedia" and other space age applications of our technology, we must be careful not to get so enamored of the future that we lose sight of today's world. Many of us have invested heavily in the equipment and expertise to make our livelihood by today's standards, not tomorrow's. We have made major commitments to getting the full value and life cycle out of some finely crafted engineering, some of which may date back 20 or 30 years and still be unsurpassed in their qualities.

We have a confusing and delicate balance, to make the most from the way things are right now, and still invest enough to remain up-to-date and competitive as technology gallops into the future. This is no small challenge for those whose duties include how to spend the new equipment budget, those who must decide if today's proven workhorse will generate more business than that shiny piece of advanced technology that their engineers are itching to get ahold of. More and more, as good business practice becomes standard operating procedure, we will need to continually balance the worlds of today and tomorrow in the light of our individual situations.

This month, as we focus in on the Southern California recording scene, we also look at some of today's finest products in the way of good new-fashioned analog 2-track recorders. They're not dead yet—and won't be for a long, long time.

Keep reading,

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

David M. Schwartz
Editor/Publisher



CURRENT

AIM Integrates The Record Group CD-I Product

American Interactive Media, Inc. (AIM), has consolidated its compact disc interactive program development by integrating certain products developed by The Record Group (TRG).

As part of that consolidation effort, Stan Cornyn, formerly president of TRG, will now serve as senior consultant for CD-I product development, and will report to Dr. Bernie Luskin, president and chief operating officer of AIM.

"TRG was originally established and funded by PolyGram in 1985 as a pilot project to explore multimedia, interactive programming applications of compact disc technology for what emerged as the CD-I standard," says Gordon Stulberg, chairman and chief executive officer of AIM and president of PolyGram Corp. USA. "Stan Cornyn's pioneering efforts helped pave the way for the creation of AIM in 1986, and together these two ventures have been significant in launching an entirely new industry."

Marc Blank, most recently vice president and supervising producer at TRG, has been named as a special consultant for CD-I software design and production. Blank was one of the founders of Infocom, a leading supplier of interactive fiction for personal computers. He wrote many of Infocom's most successful titles, including the million-seller *Zork*. While serving as executive vice president—research and development at Infocom, he designed an authoring system for interactive fiction that is still in use today.

Blank holds a Bachelor of Science degree from MIT and an MD from

Albert Einstein College of Medicine. One of his duties at AIM will be to identify appropriate computer software titles for possible adaptation to CD-I.

Westwood One to Acquire NBC Radio Networks

Westwood One Inc. (NASDAQ/WONE) and the National Broadcasting Company Inc., a subsidiary of General Electric Company (NYSE) recently announced that they have entered into a letter of intent relating to the acquisition by Westwood One of the NBC Radio Networks and related matters.

Westwood One, a Los Angeles-based producer and distributor of national radio programming and parent of the Mutual Broadcasting System, will acquire the three NBC Radio Networks (NBC Radio Network, The Source and Talknet), including the long-form program unit NBC Radio Entertainment.

In the transaction, Westwood One would pay a total of \$50 million and issue five-year warrants to purchase one million shares of Westwood One common stock for \$36.40 per share to National Broadcasting Company Inc.

Randall D. Bongarten, president of NBC Radio said, "This transaction will create a strategic network radio alliance, which will combine our individual strengths. We believe this will allow us to broaden the exposure of our news product in the radio marketplace. In addition, both companies will benefit from the efficiency and flexibility of a combined organization that is totally focused on radio."

Norman J. Pattiz, chairman of Westwood One Inc. commented, "We are proud of this alliance with

NBC and of the value it brings to both parties. It allows us to provide the quality and tradition of NBC News to radio stations and advertisers. The NBC Radio Networks will maintain their identities in much the same way as the Mutual Broadcasting System."

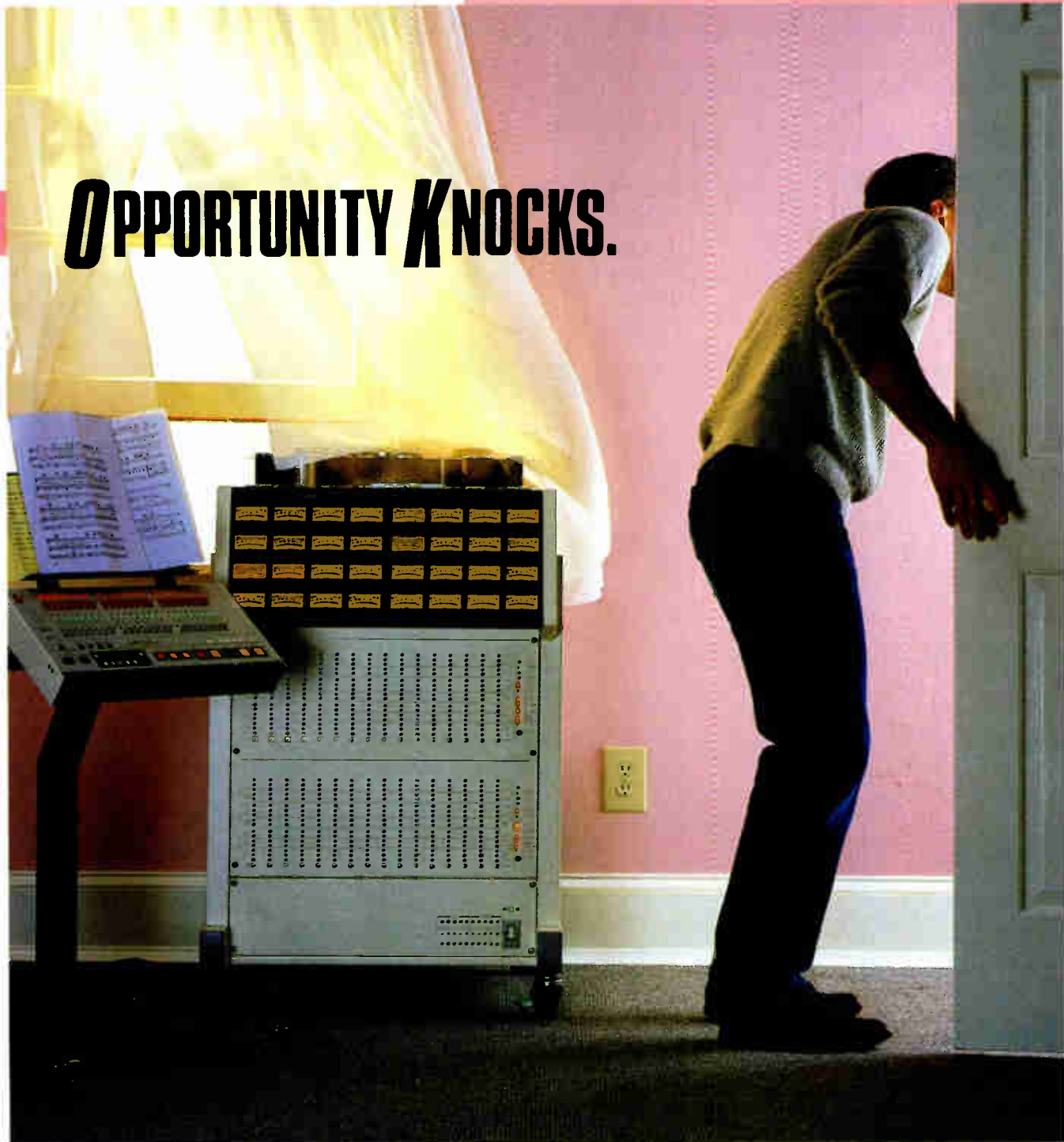
The companies will be reviewing each other's operations and Pattiz expects that contracts will be signed and necessary regulatory and board approvals completed shortly thereafter.

Radio Music License Committee and BMI Contract Agreement

The All-Industry Radio Music License Committee finalized a new license agreement with BMI this spring. The contract runs through December 31, 1999, according to Donald Thurston, president of Berkshire Broadcasting of North Adams, MA, and interim chairman of the committee. The contract, says Thurston, means "administrative simplicity and a long term of stable costs."

Contract agreements include: limitation of the program period to 15 minutes; a "weighted program period" system comparable to the ASCAP per program license, using the same weights or various time periods as in the ASCAP license; and license fees calculated by (a) the revenue per weighted period multiplied by the weighted periods during which the station broadcasts a BMI feature performance and, (b) by the license fee of 4% (3.5% for stations whose gross revenues are under \$150,000), along with a monthly fee four times the station's highest one-minute rate (48 times the HOMR per year). ■

OPPORTUNITY KNOCKS.



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OTARI

INDUSTRY NOTES

Audio L.A., a new audio equipment supplier specializing in systems design, installations, service and sales, has been formed by **Ike Benoun**. The company will cater to high-end audio, video and MIDI markets, and is a newly authorized representative for Tascam's ATR-80 series 24-track recorder. . . **American Interactive Media, Inc. (AIM)**, a joint PolyGram/Philips venture to develop software for the 1988 launch of Compact Disc-Interactive (CD-I), has appointed **Laura Foti** as director of marketing and public relations and **Frank Huttlinger** as producer. . . The **Gand Musictech '87**, an annual exhibition of high-tech keyboards, sound and recording systems hosted by **Gand Music & Sound** (Northfield, IL), will be held September 18 through 20 at the Hyatt Hotel in Lincolnwood, IL. For further information call (312) 446-GAND. . . **Barry Diament Audio**, a company specializing in mastering for compact disc, has begun operations at 2728 Henry Hudson Pkwy., Riverdale, NY 10463, (212) 543-2079. . . **Discovery Systems**, a Columbus, OH firm providing compact disc mastering and replication services, has opened an L.A. office at 225 W. Broadway, Ste. 508, Glendale, CA 91204, (818) 500-7267. . . **Forat Electronics** (Studio City, CA) has appointed **Toby Sali** as sales manager. . . **Otari Corporation** has broken ground on their new 34,000-square-foot headquarters in Foster City, CA. The facility will include combined office and warehouse space, a sound room, customer training facilities, and a special test room for the laser-based thermal magnetic video duplicator (TMD) . . . **Richard Wheeler** will head the sales and marketing division of **Sony Communications Products Company**. . . **Audient Marketing Services**, a new company providing marketing services to the

pro audio/music industries, has opened shop in Mission Hills, CA, (818) 367-6328. . . The **Recording Industry Association of America (RIAA)** demonstrated the copy-code scanner technology proposed for digital audio tape (DAT) machines. The system, developed by **CBS Records Technology Labs**, was shown to industry executives in Nashville, Los Angeles, and New York. . . **Tascam** has added three new people to its sales staff: **Chuck Prada**, the new Eastern regional manager, **Bill Stevens**, the new Southern regional manager, and **Mick Walker**, who was promoted to a professional sales position for Southern California. . . The **National Association of Broadcasters (NAB)** television board of directors established a committee to investigate funding opportunities for development of high-definition television systems (HDTV) in the U.S. which will be compatible with the current terrestrial broadcast system . . . The **National Sound and Communications Association**, a non-profit organization for sound and electronic system contractors, has scheduled regional conferences for California and the Midwest to display new contractor-related products and conduct educational seminars. For more information on the seminars, which will be held from September through December in Detroit, Pittsburgh, Chicago, Los Angeles and San Jose, call the NSCA at (312) 593-8360. . . **Joy Tillis** has joined the **Editel** staff in Chicago as marketing and advertising coordinator. . . **Telex Communications, Inc.** appointed **Claude Boyd** as national sales manager of its MI products division. . . **Carlton Communications**, a group of 23 companies including TV facilities, video production, digital TV equipment, satellite TV and digital audio firms, recently bought **Simmons**

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G R E A T C O M P A N Y
recorder: courtesy of Otari Corp.

SESSIONS AND STUDIO NEWS

NORTH CENTRAL

Natalie Cole was at **Paragon Studios** in Chicago recording vocals for the gospel song "Caretaker" which will be included on the Yancy Family Album currently in production. The session was produced by **Kevin Yancy** and **Michael Wade**. **Marty Feldman** was the engineer for the session. His assistant engineer was **Scott Barnes**. . . At **Sparrow Sound Design** in Chicago, Southport recording artist **Willie Pickens** completed work on his soon-to-be released album, featuring two trios. . . **Zenith/db Studios** (Chicago, IL) has completed mixing an album for **The Texas T-Bone Revue** entitled *The End Justifies the Means*. This psychobilly-jazz album was mixed by **Pete Gale** and **Ric Coken**. . . At **Seller Sound Studio** in Sterling Heights, MI, **Gary Spaniola** mixed the debut LP for **Adele Bertei** on Chrysalis Records, produced and engineered by Spaniola. . . In recently at **Mame Studios**, Eden Prairie, MN, was former Prince & The Revolution bassist **Mark Brown** and **LaSalle Gabriel**. . .

SOUTHEAST

Rene and **Yvette Barge** of **Music a la Carte** in Miami produced a jingle adaptation for The Florida Keys. . . At **Air Studios** in Hendersonville, TN, **Bobby Hoyt** self-produced artist demos with engineer **Denny Knight**. . . At **Memphis Sound Productions** **Rufus Thomas** recorded two sides to be released as a single. **Peter Hyrka** produced and **John Fleskes** and **Richard Scott** engineered. . . At **Soundshine Productions** in Ft. Lauderdale, FL, **Barry Smith** began work on his latest gospel album. . . At **Bias Recording** in Springfield, VA, art-

ist **Mary Chapin Carpenter** has completed her debut album entitled *Hometown Girl*, with engineers **Bob Dawson** and **John Jennings** and **Steve Buckingham** (Sweethearts of the Rodeo) sharing producing credits. . . **Sixteenth Avenue Sound** in Nashville was the setting for country artist **Billy Joe Royal**'s recording of several tunes for the Atlantic-America label. **Nelson Larkin** produced the sessions, with **Ron "Snake" Reynolds** engineering. . . **Bob Cheevers** has been recording an album in Nashville at the **Stargem Studio**. The sessions were produced by **Ian Samwell** and **Cory Fite** and engineered by **Joe Bogan**. . . Activity at **Southern Tracks Recording Studio** in Atlanta included final mixing of **Sammy Johns'** new single, "Early Morning Love," produced by **Sonny Limbo**, recorded by **Doug Johnson**, mixed by **Greg Archilla**. The group **Atlanta** has also been working on a new single, produced and engineered by Doug Johnson. . . At **Reflection Sound Studios**, Charlotte, NC, **Don Dixon** overdubbed and mixed several tracks with Warner Bros. artist, **Marshall Crenshaw**. . . At **Sound Emporium** in Nashville **Suzy Boggus** was in with producer **Wendy Waldman** and engineer **John Wiles** mixing tracks for an upcoming Capitol release. . . New Orleans' top party band, **The Radiators**, were in that city's **South Lake Studios** cutting tracks for Epic Records with producer/engineer **Rodney Mills**. . .

NORTHWEST

Corridos, a KQED production which features Linda Ronstadt, completed all sound post-production at **Russian Hill** in SF. Engineer **Samuel Lehmer** worked on the music mixing, sound effects, dialog,

Foley and the broadcast stereo mix of the program. . . At **Moon Recording** in Sacramento **Club Nouveau** finished work on their song "Step by Step" for the soundtrack for the next Madonna movie. . . The **Beach Boys** dropped by Sandy Pearlman's **Alpha & Omega Studios** in SF for a vocal overdub on one of their current projects. And **Marcos Silva** completed basic tracks for his upcoming album on Concord Jazz with **Phil Edwards** engineering. . . At **Triad Studios** in Redmond, WA, **Michael Tomlinson** completed his second album project, to be released on the Cypress record label; **Danny Deardorff** and Tomlinson producing with **Lary Nefzger** engineering. . . At **Steve Lawson Productions** in Seattle, Epic recording artists **Sanctuary** were in cutting a single for their new LP, with **Terry Date** behind the console. . . **Anita Pointer** was in SF's **Different Fur** mixing her new solo album for RCA with **Preston Glass** producing and **Maureen Droney** engineering, **Devon Bernardoni** assisting. . .

—CONTINUED ON PAGE 12



Gus Skinas demonstrates the Sony PCM-3324 digital multi-track at a company open house in Nashville.



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Ampex hits the top of the charts with its newest release, Ampex 467 digital mastering tape.

We not only pioneered digital audio tape, we also refined it. The result is Ampex 467, a tape that sets the highest standards for all digital audio applications. And it's available in all open reel and cassette formats, including the new 80-minute cassette length.

More top performers record their hits on Ampex tape than any other tape in the world. While opinion may vary on what it takes to make a hit, there's no argument on what it takes to master one.

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NORTHEAST

Activity at the Woodstock, NY studio **Dreamland Recording** included drummer **Jerry Marotta** producing singer/pianist **Gil Silverbird** for Mystical Rose Productions. Engineering was handled by **Mark Mandelbaum** and **David Cook**. . . **Lizzy Borden** is at work on their new album at **Longview Farm** in North Brookfield, MA. It is being produced and engineered by **Max Norman**. . . At **E.A.R.S.** in East Orange, NY PolyGram recording artist **Gwen Guthrie** cut tracks for what will be her second album for the label. The production was

engineered by **Tom Zepp**, assisted by **Michael Van Duser**. . . At **39th Street Music** in NYC **Lotti Golden**, **Tommy Faragher** and **Don Powell** were in producing **The Jets** for MCA Records. Lotti and Tommy also produced **Brenda K. Starr** for MCA, with **Lance McVicker** engineering both projects, assisted by **Dennis Wall**. . . At **Rockin' Reel Recording Studios**, East Northport, NY, the pop R&B group **Crown Heights Affair**, have just completed an LP for Release Me Records. The LP was produced by **Donnie Linton**, engineered and co-produced by Rockin' Reel owner/engineer **David Greenberg**, and mixed by **Bob Lessick**. . . "Marco Polo," the latest single from venerable folk-rocker

Kenn Kweder, was recorded at **Morning Star Communications**, Spring House, PA. The sessions, which were produced by **Ben Vaughn** and engineered by **Mark Schultz**, included work on additional material for a new album . . . At **Lakewood Studios**, Nyack, NY, Wally Utsch Productions finished the final mix of "Tear Down the Walls," the debut release for Florida gospel artist **Teddy O'Farrell**. Producer **Scott "Woodman" Suckling** was at the board, assisted by house engineer **Ron Reitz**. . . At **Grand Slam Studio**, West Orange, NJ, **J.B. Moore** produced the "Nerd's Rapp" for the motion picture *Revenge Of The Nerds Part II*, with **Rick Kerr** engineering. . . Novice (RCA) Recording artist **Michael Gregory** was in NYC's **Quantum Studios** mixing his album. **Michael Gregory** produced, **Joe Ferla** engineered and **Noah Baron** assisted . . . At **Evergreen Recording** in NYC, **Daniel Ponce** finished mixing his upcoming release, *Arawe*, for Antilles/Island, with **Jay Henry** engineering and **Andrea Bella** assisting. . . At **I.N.S. Recording** in NYC, A&M Records recently had **Robert Clivilles** and **David Cole** in working on the remix of **Tramaine Hawkins'** new 12-inch single. "Freedom" was produced by **Tito Jackson** with the Jacksons doing background vocals. **Dan Sheehan** engineered the session. . . **Gary Rottger** and **Mark Berry** were in **Digitel** in NYC doing tracks for Canadian artist **Mary Lu**. And the **Fat Boys** came in to do a live show tape for their upcoming tour. . . **Pearl Bailey** was at **Lion & Fox Recording** in Washington, DC to perform voice-overs for two 30-second radio spots for the **Sioux Honey Association**. . . Producer/arranger **Patrick Adams** was in **Power Play Studios** (L.I.C., NY) producing "Jack in the Bush," a timely remake of "In the Bush" which Adams originally produced. In for the mix was **Tony Arfi**, as was **Elai Tubo** for the edits. Engineering the sessions was Adams; assisting were **Floyd McKenzie** and **Leon Sills**. . .

SOUTHWEST

Jaime Paige is mixing his second LP for Destiny Records at **Rivendell Records** (Pasadena, TX) with **Chuck Sugar** engineering and **Jeff Thurman** co-producing. . . At Dallas' **Sumet-Bernet Sound Studios**, renowned gospel singer **Willa Dorsey** completed her latest album, *I Just Wanna Sing*, with produc-

—CONTINUED ON PAGE 214

the 'mix' consoles

multimix 19" rack mount 16:2:1 12:4:2:1 and 16:4:2:1
 * 3 band eq. * 2 aux sends * 48V p.p. * line inputs
 * RIAA inputs * direct outs * 100mm faders * 12 way LED displays * peak LEDs

stagemix 19" rack mount 12:6 rack mount monitor console
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World radio history

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Circle #006 on Reader Service Card

by Ken Pohlmann

R-DAT

YOU BE THE JUDGE

Following its introduction in the Far East, and announced introduction in the United States this fall, surrounded by copy-code controversy and Senate subcommittee hearings, perhaps no other electronics product has enjoyed a christening as notorious as that of R-DAT. It is an object of scorn, derision and condemnation on the part of record labels, who see this high-quality tape recorder as the ultimate threat to their livelihood. And it is an object of admiration, pride and joy for the Japanese manufacturers who have developed this highly advanced technology, and wouldn't mind recouping their investment, and then some. Of course, both parties are correct in their thinking. R-DAT is everything that has been attributed to it, and probably more. Like all new technology, no one really knows just what the ramifications will be.

Below: The Marantz DT84 digital audio tape recorder, shown here with its programming/input selector panel exposed. The company may be the first to market consumer DAT machines to the U.S. this year.

The professional audio industry has a unique role in the debate. On one hand, studios are likely customers for these inexpensive tape recorders (gray market 100-volt Japanese models are already a common sight in many studios). On the other hand, by endorsing the product, studios may consequently harm their own cause if their clients, record labels, are indeed affected by decreased sales.

So, is R-DAT good or evil? Moreover, exactly what fate lies in store for the

product? Will it emerge as another compact disc—and displace the analog cassette as the CD replaced the LP? Will it languish in a niche market? Or will it fail? Is R-DAT a consumer, semi-professional, or professional product? All of those? Or none of those? The answers lie in R-DAT itself. By weighing the pros and cons of the technology itself, we may be able to project the path of its success, or failure.

Below, I've listed a number of advantages of the R-DAT system, and a number of disadvantages as well. If you're willing to form an opinion on R-DAT, run down the list and register the importance you attach to each argument. At the end, determine how the advantages weigh against the disadvantages. Use that balance, with a pinch of gut feeling, to pronounce your opinion on the fate of R-DAT.

I've taken the liberty of already forming an opinion, but I'll wait to offer it until you've read the pros and cons yourself. Don't try skipping to the end to read my opinion by itself—this column is copy-coded to guard against unfair practices like that.

Advantages of R-DAT

R-DAT is recordable. It is the first low-cost, mass-market digital audio tape system.

The timing of its market introduction is good. High cost has been the



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primary obstacle to digital tape recorder proliferation.

R-DAT enjoys sound quality similar to that of the CD, with 48 kHz sampling and 16-bit quantization. With proper input and output stages, its fidelity theoretically could equal that of professional digital audio recorders.

R-DAT is programmable, with subcode features. For example, fast music

search is available, and ID marks may be recorded in subcode to help locate audio selections.

Full tape rewind is 50 seconds or less for a 120-minute cassette.

The R-DAT cassette is small, yet enjoys playing time of up to two hours.

Automatic track finding minimizes head alignment problems.

It may be configured to record and reproduce the SMPTE/EBU time code format.

It is capable of external synchro-

nization.

It may be configured with an AES/EBU serial interface, for interfacing to other digital equipment.

It may be configured for 4-channel recording, at 32 kHz sampling, and 12 bits.

The helical scan drum rotates at 2,000 rpm. This provides gyroscopic resistance to external disturbance, useful for truly portable applications.

The tape-to-head contact will minimize problems from shock and vibration. Again, useful in portable applications.

A battery-powered R-DAT (for example, using an NP-1A battery) with two hours of battery life, would weigh a total of only nine pounds.

The R-DAT is affordable. Using the CD as a guide, the initial price of consumer-grade R-DAT machines of \$1,235 to \$1,310 should decline to \$500 within two years, then to a base price of \$250 in two more years.

Tape is affordable: \$13 (120 minutes), \$11 (90 minutes), \$9 (60 minutes), and \$8 (46 minutes) for blank tape.

—CONTINUED ON PAGE 21



Fuji DAT cassettes

Take it EIAJ

"When F1s are outlawed, only outlaws will have F1s"

When Sony introduced their PCM-F1 digital processors several years ago, they had no idea what impact these (EIAJ format) digital wonders would have on the world. Originally designed as a home recording system, they never really caught on with consumers, but quickly became the darlings of professional recording studios everywhere. Today, with the first sales of DAT format recorders just weeks away, will the EIAJ digital processors go the way of the dinosaur, the dodo and the one-inch 12-track recorder? Probably not, at least for a few years, anyway.

Now why would anyone struggle with a VCR, a separate PCM processor and a tangle of cables, when one of these sexy, compact DAT units is available? The answer is versatility. There are a lot of tricks these digital processors can do that a DAT machine cannot, including making a videotape of the World Series with that VCR you have to schlep around with you. But getting

down to serious business, what follows is a list of some of the advantages of F1-style recording.

No matter how cheap the VCR you use is, you always have access to that overlooked advantage, the mono audio track, which is a handy place to dump time code, a MIDI track, or even sync pulses for slide shows. Along with the two PCM tracks, that third track can be extremely useful in impressing your friends with all kinds of bells and whistles. Going one step further, if you store your digital data on a VCR equipped with stereo hi-fi tracks, you can make simultaneous 4-track recordings. Something I always like to do is record live concerts by running the board mix onto the digital tracks and then putting a pair of stereo audience mics onto the hi-fi

tracks, which affords me a great deal of latitude when mixing later.

Much has been said and written about copyguard systems for DAT, and it's nice to know that PCM processors do not incorporate that particular "feature." In fact, the Copy Out jack on the back of the PCM-F1 allows digital copying for making safeties and archival copies.

One little-known trick with a PCM-F1 is the processor's ability to do simultaneous encoding and decoding. This means that you can ping-pong audio tracks using only one F1 and two VCRs. Connect the playback deck to the F1's "video in" jack and the audio outputs to a mixer; add whatever sounds you desire, and connect the mixer's outputs to the F1's audio inputs. Once you connect the F1's video out to the video inputs of the second deck, you're ready to record. I've bounced tracks up to ten times using this method before signal problems (usually console noise) became apparent.

—George Petersen

Sony PCM-F1





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MULTI-TRACK MASTERPIECE

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Besides an excellent recording system, AMR manufactures the **PRM™ Series** studio quality phase reference monitors. These highly efficient quality phase reference monitors feature 18 dB per octave crossovers with time correction. Foam acoustic blankets reduce baffle reflections, thereby minimizing comb-filtering colorations. Each monitor exhibits accurate frequency response for true fidelity playback with excellent imaging.

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AMR accessories include phantom power supplies, headphone distribution systems, rack mount kits, quality audio cables and other important tools of the trade. Best of all, AMR products are made in the USA. Check in at your AMR dealer today and check out the gear that can make your audio dreams a successful multi-track reality.



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Circle #102 on Reader Service Card

INSIDER · AUDIO

Its digital technology is appealing to buyers, and clients.

Disadvantages, Both Technological and Political

The robustness of recordings is a concern: packing density is 114 Mbits/square inch, track width is 13 microns, nominal tape speed is ¼ ips. Repeated playings, temperature, humidity and long-term aging all may cause deterioration beyond the ability of the error correction system. Obviously, any uncorrected digital error is a serious flaw.

As with all tape formats, R-DAT tape suffers from stretching, breaking and jamming.

Head wear and dirty heads will affect playback.

Tape is not random access.

The professional audio industry has never demonstrated complete acceptance of a cassette system.

As a cassette system, editing capabilities will depend on independent editing systems, as with video.

The projected price of a professional portable R-DAT recorder is set at \$7,000.

Many record stores oppose introduction of R-DAT because of the burden of having to carry titles in six formats (single, LP, EP, CD, cassette and R-DAT).

Consumer confusion over another format introduction may adversely affect R-DAT.

R-DAT does not offer a new concept or promise to open a new market; it is, in fact, a smaller, slightly better-sounding cassette.

Consumer model R-DATs are designed with incompatible sampling rates: the system can playback, but not record at 44.1 kHz. Copying from prerecorded 44.1 kHz software (CD and prerecorded R-DAT) necessitates D/A-A/D conversion, and the resulting slight degradation of fidelity. (Professional R-DATs would record at both 44.1 and 48 kHz.)

A copy-code system has been contemplated by the U.S. Congress; this would code all prerecorded software with a deep notch around 3.8 kHz; a chip in the R-DAT recorder would detect this and defeat record circuitry. If implemented, this would largely defeat R-DAT's ability to record prerecorded software—the major application of this recorder. In addition, because of record label opposition to R-DAT, some labels (such as CBS

BOOK REVIEW:

AUDITORY PERCEPTION

Have you ever listened to the curious phenomenon called "low pitch," in which complex tones seem to have a slightly lower subjective pitch than pure tones of the same frequency? Have you ever heard a Mobius sequence, such as a progression of ascending tones starting at middle C and eventually winding up back at middle C? Have you ever experienced "difference tones?"

Can you explain how masking works? Have you ever used probe tones to explore your auditory system's network of critical bands? When you hear a violin tone, are your ears sufficiently trained to distinguish the third harmonic from the fundamental? How about the fifth harmonic? Not easy to hear!

How's your pitch discrimination, and how good are you at hearing distortion in loud and soft signals?

Have you ever tried the famous experiment performed by Joseph Henry in 1849? (I know you have.) How about the experiment Helmut Haas did in 1949, to demonstrate the amazing Precedence Effect? Why are some sounds more pleasant than others, and how do consonance, dissonance and critical bands relate to provide the answer?

Auditory Perception

An Audio Training Course
by F. Alton Everest



If any of these questions pique your interest, you can explore all of them, and more, in the audio training course *Auditory Perception* by F. Alton Everest. The course contains a 104-page manual and four audio cassettes, each of which includes two one-hour lessons. The book contains an introduction on the physiology of the human hearing system and eight chapters of information on select topics; its text duplicates the narrative on the tapes. The book also supplies visual representations and graphs, while the tapes provide the listening tests themselves. The tapes are chrome and are recorded in stereo with Dol-

by B noise reduction; their quality level is good enough to rarely interfere with the lesson at hand.

Author Everest, a veteran audio consultant and writer, has once again succeeded admirably in conveying difficult or intangible information in an understandable manner. His experiments, text and sequence of presentation communicate a great deal of information in a short time. In addition, a bibliography and glossary invite one to further study.

While the course is not inexpensive, it is a small investment compared to that which many of us make in audio hardware and software. Surely it is worth the price to learn more about our most important audio component, our ears. As an educator, I am pleased that copies of the manual alone are available for \$14.95. Now, if only Mr. Everest would try one more experiment: Publishing this course on CD-I. That would be a revelation indeed.

—Ken Pohlmann

Auditory Perception by F. Alton Everest. Published privately; 104-page manual and four audio cassettes, \$160. (Available from Mix Bookshelf, 2608 Ninth St., Berkeley, CA 94710; (800) 641-3349 in California, (800) 233-9604 elsewhere.)

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Records and PolyGram International) would refuse to release prerecorded R-DAT software; this would diminish the available catalog of R-DAT tapes.

Recently, the Senate agreed to have an independent agent such as the National Bureau of Standards evaluate the system. Insiders speculate that such a study would take about one year to complete. This may further delay R-DAT introduction, and create more confusion.

CBS has recently announced that all future CBS CD software releases

will be copy-coded, in anticipation of implementation of the copy-code system.

A spokesperson for one leading R-DAT manufacturer, Onkyo, has stated that if copy-code is implemented, his company may abandon hopes of selling R-DAT in the U.S. market.

Even if copy-code is not implemented, one of several alternative punitive measures is likely, including a proposed 35% tariff on all R-DATs.

A consumer R-DAT recorder without ability to record either through analog or digital transfer from prerecorded software becomes a player

only. In addition, many popular releases would not be available because of record label boycott. On that basis of comparison, it is an inferior product to the CD player. It is doubtful whether the format would ever become widely popular, even in applications where it would be used primarily as a playback-only device. Without a consumer R-DAT market, professional R-DAT prices could remain much higher.

Because of technological limitations, and political fallout, the future of R-DAT is uncertain. At any rate, R-DAT would compete head-on with two extremely popular formats, the cassette and the CD. The latter is R-DAT's biggest obstacle; new format spinoffs such as CD-ROM, CD-V, CD-I and CD-Single could popularize the format even more. R-DAT would not be able to accomplish such versatile applications.

Sales in the Japanese market for R-DAT hardware are projected to be 50,000 units in 1987, 220,000 in 1988, and 1.1 million in 1989. However, after a March introduction, sales in Japan are poorer than expected.

Several studies have projected a slow growth curve for the R-DAT in Europe and the U.S.; with copy-code, sales would be even worse.

A recordable/erasable compact disc has been widely prototyped; market introduction of this and other optical disc recorders in both the professional and consumer marketplace appears inevitable.

• • •

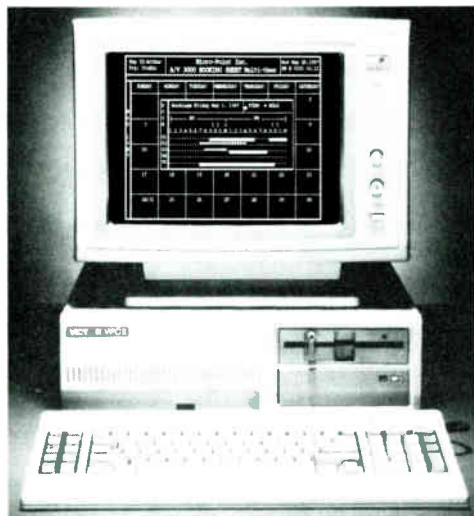
There you have it. My list of pros and cons perhaps has overlooked some criteria. I'll pause for a moment while you include those in your own evaluation.

Now, what did you decide? Will R-DAT be a widely successful consumer product? Will R-DAT make it in the professional marketplace? Would you buy a professional R-DAT for \$7,000?

My own gut answers for the above questions are respectively: No, yes, maybe. I've had the pleasure of using several consumer R-DAT recorders, and I can vouch that it is a high quality format indeed. However, in light of the threat of copy-code, competition from the CD, and the fact that tape, especially digital tape, is still tape, I do not believe that R-DAT has the same potential as the CD; its

—CONTINUED ON PAGE 205

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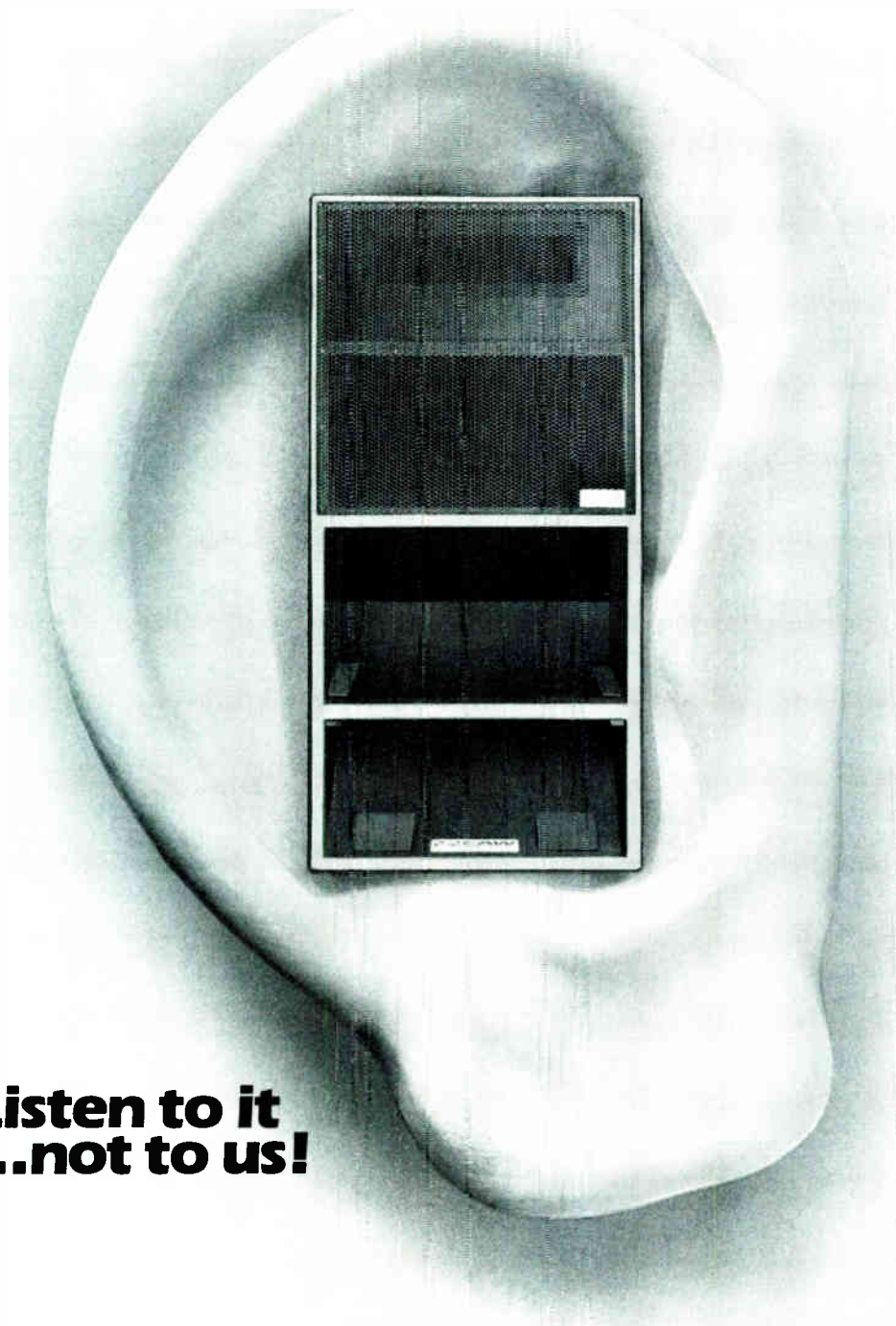
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we continually refined it to stay well ahead of our imitators. And, true, our single-box system is still the qualitative standard of the industry.

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World Radio History

ANALOG 2-TRACK RECORDERS



Studer's A812 includes user-programmable command keys handling over 40 different functions; console, meter bridge and center track are optional.



Tascam's ATR-60 comes in 1/4-inch, half-inch and time code versions.



The Otari MTR-20 features computer control of audio calibration parameters; 1/4-inch, half-inch and time code versions are available.

It's 1987, and despite rumors to the contrary, the analog 2-track machine is alive, still very much with us, and isn't even on the endangered species list. Of course, there has been a great deal of ballyhoo about digital recorders, ranging from DAT cassettes to the high performance specs of DASH and PD decks, as well as talk of strange beasts of both optical and magnetic disk varieties.

Yet at the same time that digital developments grab headlines and attention within the audio community, 2-track machines have made significant strides in keeping up with the latest technology. For example, the integration of microprocessors into the analog deck has resulted in faster, yet gentler tape transports, versatile autolocate features, and the ability to program and store bias and equalization information for various tape types. Another point of considerable impact

is the availability of 2-tracks with center track SMPTE time code capability, which eliminates the need for using a 4-track recorder when a 2-track machine would suffice.

Certainly, the most compelling reason for analog 2-track's dominance over other formats is that it is the most universally accepted professional tape format, found in recording studios, mastering houses, production facilities and radio stations worldwide. Add to this an unparalleled ease of editing—using basic, simple tools—and it is obvious that there is indeed a lot of life left in the analog 2-track format for years to come.

Which Machine Should I Buy?

Whether equipping a new studio or upgrading an existing facility, anyone in the market to purchase a new 2-track today will be faced with a large number of choices. The accompanying chart lists 44 different machines, but with a wide variety of options

available—ranging from mounting and floor console selections to speed, format and time code versions—the actual number of models to choose from becomes staggering. The answer to the question of what deck to buy is simple: select a machine which best suits your needs.

Evaluating the most basic parameters is the best place to begin your search. Certainly a 30 ips, half-inch, time code machine would be an inappropriate choice for use in a simple home demo studio, just as a large, console-mounted machine would prove unwieldy in a cramped remote recording van.

The actual price of a recorder is an important consideration in anyone's evaluation of 2-tracks available today, which vary from \$895 for the basic, no-frills Tascam 22-2, to over \$18,000 for a time code-equipped Nagra T-Audio with internal synchronizing. If money is tight, but your future plans include getting into time code work,

To us, it's sheet music.



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

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

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

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

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

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

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

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

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

But if they had . . .

NEOTEK

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chicago, illinois 60657
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Circle #141 on Reader Service Card

World Radio History

or half-inch mastering, you may want to look into a deck that allows adding these as options at a later date.

Unfortunately, a recorder's maximum reel capacity is one feature which doesn't permit future upgrading, and buyers would do well to look at their own applications before deciding on a deck. A 2-track equipped for 7-inch reels would be fine for mixing song demos, jingles or spot work, but would be somewhat lacking for recording live concerts or other long-play applications. Likewise, it's tough fitting a 30 ips album side on a 10.5-inch reel, unless you have a

The Sony APR-5003 includes an internal SMPTE/EBU time code reader/generator and chase-lock synchronizer.



Scully's LJ-12 features continuously variable speeds (3-36 ips) and bidirectional play capability.



particular affinity for 0.5-mil tape or prefer short albums. Of course, if you do your mastering work at 15 ips, then a recorder with 10.5-inch reels would do nicely.

While it certainly is possible to go through a chart listing features and prices of different 2-track machines to determine what deck most closely fits your needs, a hands-on test is invaluable, especially when evaluating and comparing the editing flexibility of different recorders. Since a great deal

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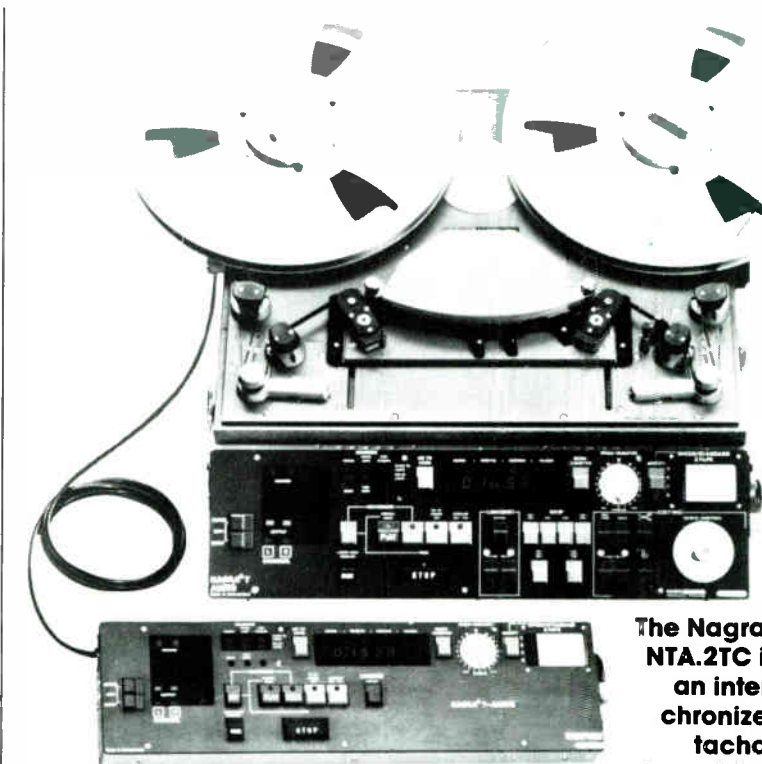
Circle #012 on Reader Service Card



The E-2, like all 2-tracks in the current Fostex line, is equipped for center track time code.

of time is usually spent on editing chores (usually on irreplaceable master material), a 2-track's ease of editing actually may be its most important feature. The best way to check out a deck in this regard would be to actually try some edits, at an audio dealer, or by renting a machine for a day or so before making a purchasing decision.

Some features which make the editor's life easier are: simple basics such as a splicing block and headphone output, to more sophisticated touches such as the ability to do tape "dumping" from either reel and special edit modes which decrease reel tension, allowing the operator to easily rock the reels back and forth by hand for precisely locating edit points. Other



The Nagra T-Audio NTA.2TC includes an internal synchronizer; its detachable keyboard doubles as a remote controller.

GO GOLD LINE!



**4 gates plus 4 limiters
complete with 4 key inputs
The ideal machine for
RECORDING, BROADCAST, or SOUND
REINFORCEMENT applications.**

- You can GATE without LIMITING, or LIMIT without GATING. You can GATE AND LIMIT at the same time and achieve a wide variety of special effects.
- The limiting is hard enough to limit but will not cause pumping (Softknee). The limiters include threshold controls, attack and release settings and threshold LED indicators.
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**Model 400A — Gates only at \$419.95
Model 400B — Gates with Limiters at \$599.95**

1/3 Octave Hand Held Real Time Audio Analyzer

The Model ASA30B incorporates all of the features of other Gold Line hand held analyzers and is designed to fill the need for a truly professional 1/3 octave portable at an affordable price.

Features include: 30 bands on ISO centers • ANSI Class II Filters • Built-in Microphone • Aux Line Input • SPL in A or C weight • Decay Settings.



Suggested Retail \$599.95



1/3 Octave Spectrum Analyzer (A Growing System)

The model 30 is a professional analyzer with the features required by acoustic contractors. Every model 30 is supplied with 4 expansion ports to allow for additional features. Two of these ports can now be filled and the other 2 are in reserve to allow your 30 to grow. Now available for Expansion:

- A card to provide 30 non-volatile memories plus printouts on low cost parallel interface printers.
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BASIC MODEL 30 — \$2150.00



TS-1

Oscillator • Frequency Counter • dB Meter

Three audio test instruments combined in one unit. Features include:

- Low distortion audio oscillator with frequency range 10Hz to 30KHz.
- Frequency counter with response of 1Hz to 99.99 KHz.
- DB meter with range of -50 to 24dB from 20Hz to 20KHz.

**MODELS: TS-1 — Balanced In \$299.95
TS-1RM — Rack Mount Balanced In \$359.95
TS-1RMX — Rack Mount Balanced In and Out with XLR Connectors \$399.95**

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Circle #013 on Reader Service Card
World Radio History

amenities range from built-in tape scissors and tape markers to monitor speakers, either internal, or externally mounted in an overhead bridge. Another advantage is having the recorder mounted in a floor console or stand at a convenient height, and all the manufacturers we surveyed offer either console models or optional

mounting stands.

Time code or not time code? That is the question; where the need for SMPTE coding was once the exclusive domain of film and video environments, the growing use of time code for MIDI and electronic music has made the 2-track-plus-sync machine a more desirable commodity for a vari-

***Key to Notes:**

- A** XLR inputs/outputs optional
- B** meter bridge optional
- C** includes synchronizer
- D** TC-50 time code adapter available
- E** time code version available
- F** tape scissors optional
- G** transformer inputs/outputs optional
- H** low-speed version available
- I** phantom power on mic inputs
- J** available in 2mm track separation version
- K** tape scissors included
- L** 15/30 ips version available

Analog 2-Track Recorders: Facts and Features

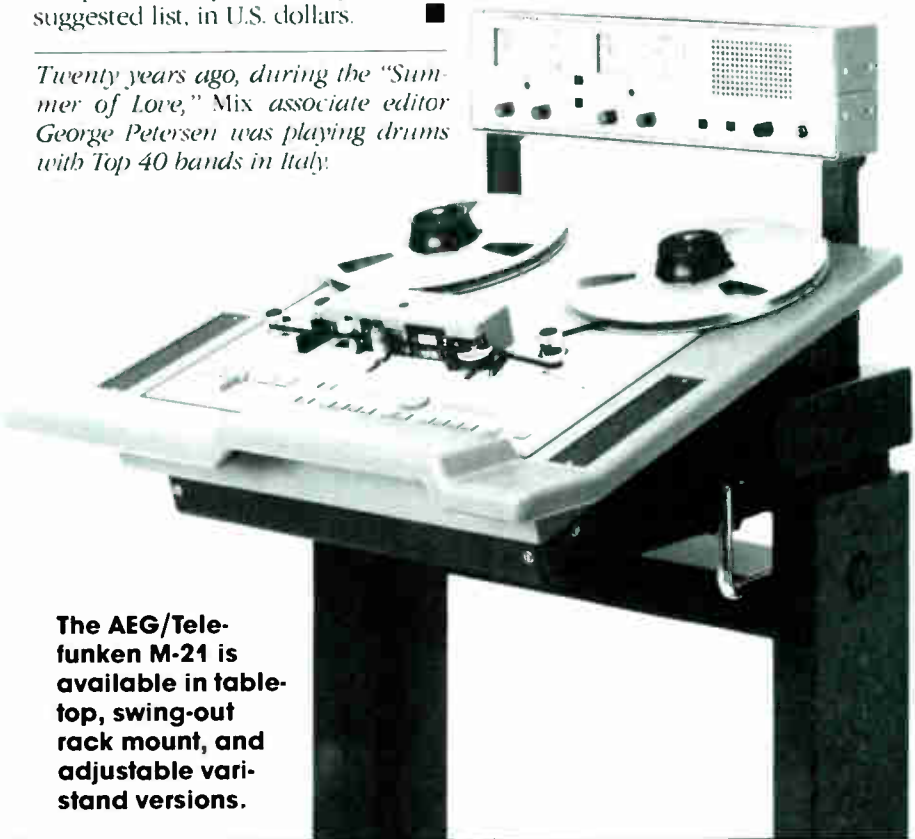
	MODEL	FORMAT	REEL SIZE (INCHES)	SPEEDS (IPS)	FAST WIND TIME	PITCH CONTROL (%)	CENTER TRACK	MONITOR SPEAKER	METERS, TYPE	MIC INPUTS, TYPE	CONSOLE/FLOOR STAND	RACK MOUNTABLE	WEIGHT (KG)	DIMENSIONS W x D x H (MM)	PRICE U.S.\$	NOTES*	
ACES	MT 225	1/4"	10.5	(2) 15/30	100s/2400'	±50	NO	NO	2 VU	NO	YES	NO	N/A	610 x 534 x 864	2,200	A	
	MT 25	1/2"	10.5	(2) 15/30	100s/2400'	±50	NO	NO	2 VU	NO	YES	NO	N/A	610 x 534 x 864	3,400	A	
AEG	M-21-2	1/4"	12.5	(4) 3.75-30	100s/3300'	±10	NO	OPT	2 VU	NO	OPT	OPT	45	483 x 525 x 277	8,490		
	M-21-2½	1/2"	12.5	(4) 3.75-30	100s/3300'	±10	NO	OPT	2 VU	NO	OPT	OPT	45	483 x 525 x 277	10,340		
	M-20-2	1/4"	12.5	(4) 3.75-30	100s/3300'	±50	NO	OPT	2 VU	NO	OPT	YES	45	483 x 525 x 277	10,450		
	M-20-TC	1/4"	12.5	(4) 3.75-30	100s/3300'	±50	YES	OPT	2 VU	NO	OPT	YES	45	483 x 525 x 277	12,625		
FOSTEX	Model 20	1/4"	7	(2) 7.5/15	140s/1800'	±10	YES	NO	3 LED	NO	NO	NO	13	358 x 334 x 205	1,450		
	Model E-22	1/4"	10.5	15/30 or 7.5/15	140s/2500'	±15	YES	NO	3 VU	NO	OPT	OPT	30	430 x 444 x 308	3,995	B	
	Model E-2	1/2"	10.5	15/30 or 7.5/15	140s/2500'	±15	YES	NO	3 VU	NO	OPT	OPT	30	430 x 444 x 313	3,750	B	
NAGRA	T-Audio NTA.2	1/4"	11.8	(4) 3.75-30	100s/2400'	±6	NO	OPT	2 LED	NO	OPT	OPT	N/A	420 x 610 x 250	12,376	B	
	T-Audio NTA.2TC	1/4"	11.8	(4) 3.75-30	100s/2400'	±6	YES	OPT	2 LED	NO	OPT	OPT	N/A	420 x 610 x 250	18,950	B, C	
OTARI	MX-5050B-II	1/4"	10.5	3.75/7.5 or 7.5/15	90s/2400'	±7	OPT	OPT	2 VU	XLR	OPT	OPT	27	442 x 518 x 259	2,795	D	
	MX-5050B MKIII/2	1/4"	10.5	3.75/7.5 or 7.5/15	90s/2400'	±7	OPT	OPT	2 VU	XLR	OPT	OPT	48	439 x 718 x 476	3,495	D	
	MTR-10C	1/4"	10.5	(3) 3.75-15 or 7.5-30	65s/2500'	±20	NO	YES	2 VU	NO	YES	NO	100	634 x 588 x 1170	7,950		
	MTR-10CT	1/4"	10.5	(3) 3.75-15 or 7.5-30	65s/2500'	±20	YES	YES	2 VU	NO	YES	NO	100	634 x 588 x 1170	10,448		
	MTR-12C	1/4"	12.5	(3) 3.75-15 or 7.5-30	65s/2500'	±20	NO	YES	2 VU	NO	YES	NO	100	634 x 588 x 1170	8,950		
	MTR-12CT	1/4"	12.5	(3) 3.75-15 or 7.5-30	65s/2500'	±20	YES	YES	2 VU	NO	YES	NO	100	634 x 588 x 1170	11,445		
	MTR-12H	1/2"	12.5	(3) 3.75-15 or 7.5-30	65s/2500'	±20	NO	YES	2 VU	NO	YES	NO	100	634 x 588 x 1170	11,200		
	MTR-20s	1/4"	14	3.75/7.5/15/30	80s/2500'	±50	NO	YES	2 VU	NO	YES	NO	96	768 x 675 x 1267	10,950	E, F, G	
REVOX	B77 HS	1/4"	10.5	7.5/15	135s/3600'	±10	NO	NO	2 VU	1/4"	NO	OPT	17	452 x 414 x 207	2,450	H	
	PR99 HS	1/4"	10.5	7.5/15	120s/2500'	±3/4/7	NO	OPT	2 VU	XLR OPT	OPT	YES	18	483 x 349 x 201	2,799	G, H	
SCULLY	LJ-12-2/1	1/4"	11.5	(4) 3.75-30	120s/2400'	±20	NO	NO	2 VU	NO	OPT	YES	34	482 x 514 x 305	7,950		
	LJ-12-2/2	1/2"	11.5	(4) 3.75-30	120s/2400'	±20	NO	NO	2 VU	NO	OPT	YES	34	482 x 514 x 305	9,950		
	LJ-14-2/1	1/4"	14	(4) 3.75-30	120s/2400'	±20	NO	NO	2 VU	NO	OPT	YES	34	482 x 514 x 305	10,550		
	LJ-14-2/2	1/2"	14	(4) 3.75-30	120s/2400'	±20	NO	NO	2 VU	NO	OPT	YES	34	482 x 514 x 305	11,785		
SONY	APR-5002	1/4"	12.5	(3) 7.5-30	110s/2400'	±50	NO	YES	2 VU	NONE	OPT	YES	46	480 x 410 x 502	7,875	F	
	APR-5002H	1/2"	12.5	(3) 7.5-30	110s/2400'	±50	NO	YES	2 VU	NONE	OPT	YES	46	480 x 410 x 502	8,925		
	APR-5003	1/4"	12.5	(3) 7.5-30	110s/2400'	±50	YES	YES	2 VU	NONE	OPT	YES	46	480 x 410 x 502	9,975	C, F	
STUDER	A807-2/2 VU	1/4"	11.1	(3) 3.75-15	90s/2500'	54/35	NO	YES	2 VU	2 XLR	OPT	OPT	30	445 x 500 x 225	5,450	I	
	A810-0.75 VU	1/4"	11.1	(4) 3.75-30	120s/2400'	54/35	NO	YES	2 VU	NONE	OPT	YES	31	488 x 443 x 235	7,790	J	
	A810-2/2 TC VU	1/4"	11.1	(4) 3.75-30	120s/2400'	54/35	YES	YES	2 VU	NONE	OPT	YES	31	488 x 443 x 235	9,800		
	A812-0.75 VUK	1/4"	12.5	(4) 3.75-30	N/A	54/35	NO	YES	2 VU	NONE	YES	NO	83	690 x 635 x 1126	9,950	F, J	
	A812-2TC VUK	1/4"	12.5	(4) 3.75-30	N/A	54/35	YES	YES	2 VU	NONE	YES	NO	83	690 x 635 x 1126	12,650	F	
	A820-0.75 VUK	1/4"	14	(4) 3.75-30	55s/2500'	54/35	NO	YES	2 VU	NONE	YES	NO	91	700 x 656 x 1298	11,500	J, K	
	A820-2/2-1/2" VUK	1/2"	14	(3) 7.5-30	55s/2500'	54/35	NO	YES	2 VU	NONE	YES	NO	91	700 x 656 x 1298	12,500	K	
	A820-2/2 TC VUK	1/4"	14	(3) 7.5-30	55s/2500'	54/35	YES	YES	2 VU	NONE	YES	NO	91	700 x 656 x 1298	14,250	K	
	A820-2/2-1/2" TC VUK	1/2"	14	(3) 7.5-30	55s/2500'	54/35	YES	YES	2 VU	NONE	YES	NO	91	700 x 656 x 1298	15,000	K	
	TASCAM	22-2	1/4"	7	7.5/15	120s/1800'		NO	NO	NO	2 VU	2 1/4"	NO	NO	14	410 x 326 x 231	895
32		1/4"	10.5	7.5/15	90s/2400'	±12	NO	NO	2 VU	2 1/4"	OPT	OPT	20	410 x 461 x 256	1,495		
42B		1/4"	10.5	7.5/15	120s/2400'	±12	NO	NO	2 VU	2 XLR	OPT	OPT	32	432 x 505 x 272	2,695		
ATR-60-2N/2D		1/4"	10.5	7.5/15	130s/2400'	±15	NO	OPT	2 VU	NONE	OPT	YES	45.5	482 x 566 x 310	4,995	L	
ATR-60-2T		1/4"	10.5	7.5/15	130s/2400'	±15	YES	OPT	2 VU	NONE	OPT	YES	45.5	482 x 566 x 310	5,995	L	
ATR-60-2HS		1/2"	10.5	15/30	130s/2400'	±15	NO	OPT	2 VU	NONE	OPT	YES	45.5	482 x 566 x 310	6,495		

ety of production tasks. So far, Fostex is the only manufacturer incorporating center track capability as *standard* equipment into all their machines, and this may be a growing trend to watch in the future. Otari recently unveiled the TC-50, a retro-fit center track time code accessory for their MX 5050 line of 2-tracks, although it also can be used with some other machines.

The chart on page 30 includes information on a number of current 2-track offerings and was supplied by the companies listed. Performance specs are not included, due to incomplete reporting of measurement methods used by some manufacturers, so one would be advised to contact a local dealer or the companies directly for more information. The prices refer to basic models, and the dimensions include the console or floor stand only if it is supplied with the standard version. Another thing to note is that the heights of units include meters in an overbridge configuration, and on some models the electronics can be mounted below the transport, in a

low-profile setup. Also, all prices are suggested list, in U.S. dollars. ■

Twenty years ago, during the "Summer of Love," Mix associate editor George Petersen was playing drums with Top 40 bands in Italy.



The AEG/Telefunken M-21 is available in table-top, swing-out rack mount, and adjustable vari-stand versions.

A Judgement Rendered on LENCOS AMPS



"Performance specifications alone won't reveal all one needs to know in determining the merits or the deficiencies of a power amplifier; but when we found one that had a slew rate of 300 V/μs (8 Ohms), a damping factor that hits the 1000 mark - all the way up to 5 KHz, and a THD of .003%, it came as no surprise to us to find this same level of superb quality in every other department we evaluated on the LENCOS MPA POWER AMPLIFIER."

"Its greatest attribute was discovered at the listening tests. This amp brought a dimension in realism, depth, and accuracy to our monitor system none of us had heard before. From the lowest bottom end, through the midrange, and up through the highs, a new clarity and 'openness' revealed every detail of the recorded material. This allowed making evaluations on EQ and dynamics control much easier!"

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RADIO SEARCHES

FOR A BETTER RECEPTION

by Hank Lam

Radio broadcast technology is experiencing a year of self-improvement. Between the new FMX system unveiled at last spring's NAB convention and a renewed push for AM stereo, there is a good chance for radio broadcast to make big news in the near future.

Stereo FM, as we know it today, enjoys a success and status as a high-fidelity medium. Authorized in 1961, the present system of FM stereophonic radio broadcasting imposes a significant degradation of the received signal-to-noise ratio when compared to monophonic transmission. As a consequence, a stereo station coverage area is reduced for both mono and stereo coverage. Reception shrinks by as much as one-fifth the area of a mono station. A new companded service, designated FMX, has been employed as a solution, without compromising existing FM broadcast services. FMX provides improved signal quality, increased stereo station coverage area, and reduces the noise and distortion due to multi-path reception in moving vehicles.

Initial tests were conducted in cooperation with Connecticut Public Radio, WPKT. Stereophonic coverage extended to the monophonic contour. In this test, the 60dB stereo service area (representing the bounds of stereo imaging) was effectively quadrupled.

Sanyo and Sprague Electric are now manufacturing the integrated circuits, and several receiver manufacturers intend to market FMX technology in 1988. NAD Electronics already has in-

troduced the model 4300 FMX Tuner.

FMX was co-developed by Thomas Keller, senior NAB VP, and Emil Torick, formerly of the CBS Technology Center. Torick expects at least one car manufacturer to offer their '89 models equipped with FMX. Quick acceptance by FM broadcasters is expected.

To generate FMX, no transmitter modifications are required; the broadcaster needs only to replace the conventional stereo generator with a new one, which provides re-entrant compression, a compressed stereo sub-channel (that is, an FMX-compressed quadrature signal). Basically, the normal left and right signals (L minus R) are sampled and compressed by the FMX system, an ID signal is added, and the signal is modulated back into the standard FM signal. A new, companded signal is transmitted (called "S"), to provide noise-free stereo. The detection of the ID provides automatic switching for the new service. Compatibility with conventional FM is maintained. No additional spectrum space is used.

Pick up any radio broadcaster's magazine, and the most controversial issue *still* is AM stereo. Kahn/Hazeltine and Motorola C-QUAM battle for the dominant position as *the* format for the medium. Broadcasters debate and rave about their favorite system, and some even feel the FCC should decide on the standard. In March, the Canadian government chose C-QUAM as their standard, as at least six countries have

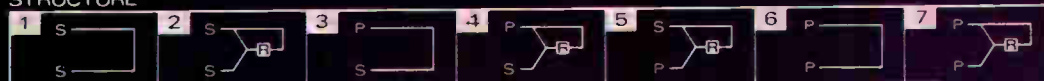
previously done. What will happen in the U.S.? Will AM stereo go the way of quad audio? Sony, Sansui and others tried to market multi-mode receivers; I know of none in production now. There are an estimated 8 million C-QUAM receivers on the U.S. market now; over 17 automobile manufacturers, and over 16 equipment manufacturers. And, Motorola apparently leads Kahn in the broadcast station arena by at least a six-to-one margin, and now has over 90% of the receiver market.

But AM stereo is a new technology, and even retail salespeople are still not familiar with its advances or status. Motorola introduced new ICs, very low-current C-QUAM devices, at the NAB show in Dallas last March, so now your boom-box can give you AM stereo without eating batteries at the rate of ten per hour. Will this development turn the tide of dominance? Will AM stereo bring back the lost audience of AM radio? Doubtful, but the battle proceeds. AM stereo does provide improved treble response and excellent separation, but it should (AM has always had the capability of decent frequency response at the expense of coverage/power output). Yet promoting AM stereo quality as "nearly equal to" FM (as the industry literature reads) would seem only to foreshadow a losing effort at promotional gimmickry. ■

Owner of Associated Productions of Texas, Hank Lam designs entertainment and communications systems, works as a consultant, writes technical articles, and is involved in audio/video/film production. He's also into digital voice encryption.

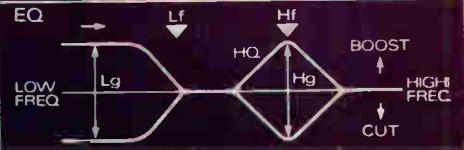
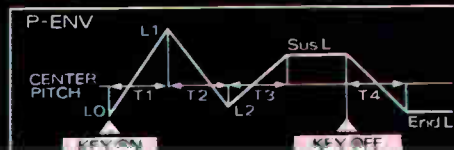
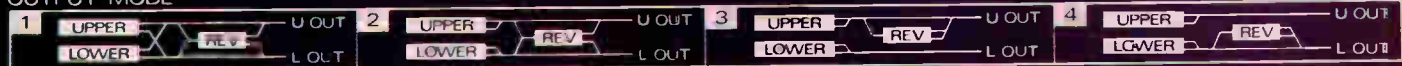
A NEW TECHNOLOGY IS CREATING A POWERFUL STORM IN THE WORLD OF SOUND SYNTHESIS

STRUCTURE



S=SYNTHESIZER SOUND GENERATOR
P=PCM SOUND GENERATOR
◻=RING MODULATOR

OUTPUT MODE

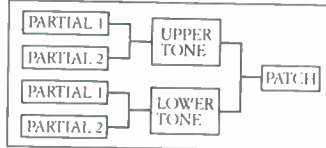


INTRODUCING THE D50

THE BOLD NEW FORCE IN DIGITAL

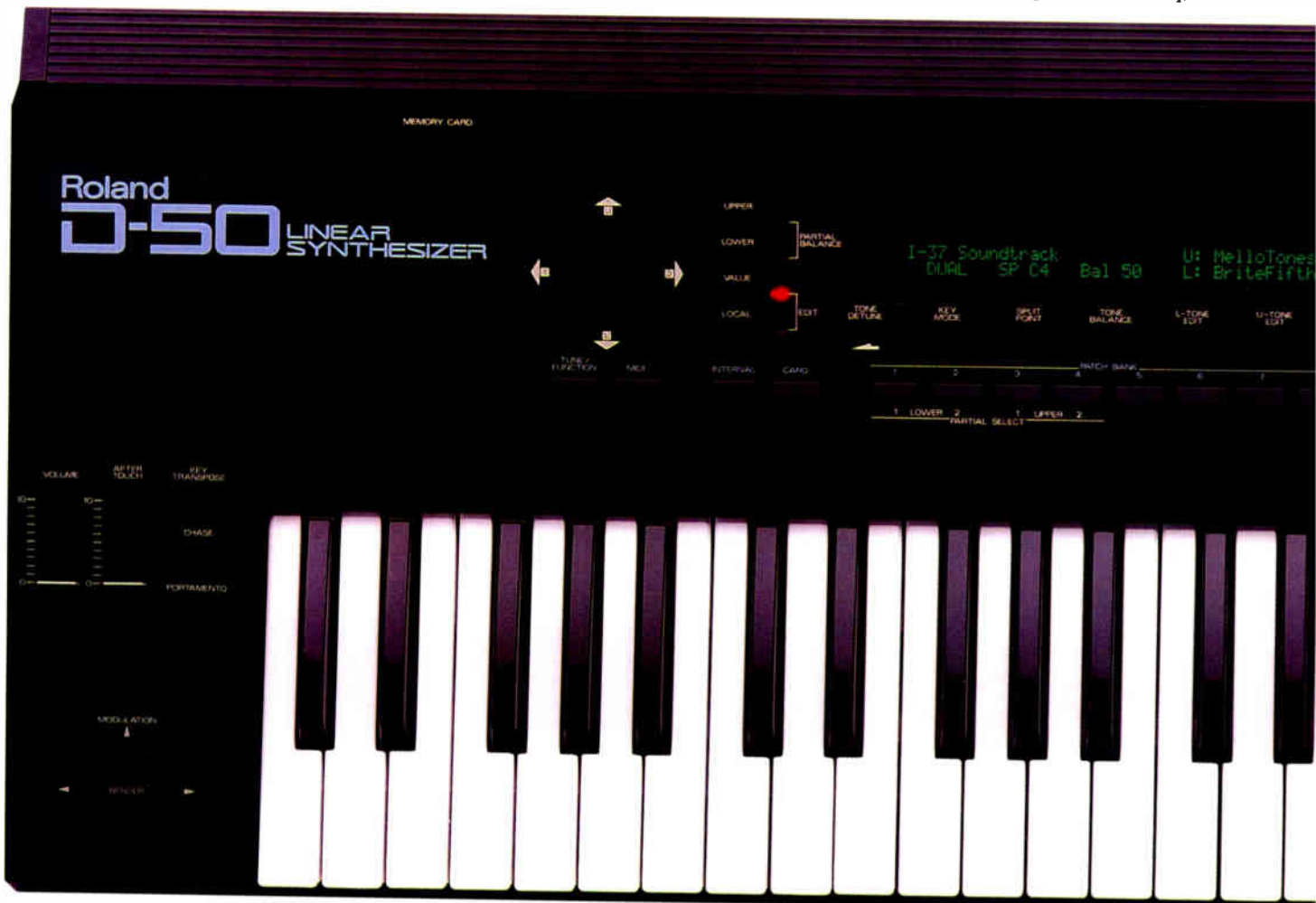
To the Player It's a Dream, To the Programmer It's a Miracle/Imagine a new technology that is so sophisticated that it offers totally new and unparalleled sound creation possibilities, combined with a programming method so logical that it actually builds upon the knowledge you currently have of sound synthesis. That is the essence of the D-50 Linear Synthesizer, a completely new, fully-digital synthesizer realized by Roland's Proprietary LA Synthesis Technology. The sounds created by the D-50 are simply breathtaking, resonating with character, depth and complexity, but with a warmth and completeness digital synthesis has never had before. The reason is that no sound has ever before been created in a manner so complex and rich with possibilities, and yet ultimately so very logical. Linear Arithmetic (LA) is normally used for computing complex mathematical problems in the field of science. In the area of sound synthesis it is an ideal creative method, offering superb

FIGURE 1 PATCH CREATION



predictions, analysis and control capabilities. Roland engineers have spent years developing a new highly sophisticated LSI chip, code-named the "LA Chip," that utilizes a linear arithmetic technique to digitally synthesize sounds. The "LA Chip" is the heart of the D-50.

LA Synthesis Explained/LA Synthesis is component synthesis on the highest order. To create complex sounds, the D-50 starts with a very simple premise—build sounds from the ground up by combining different types of sounds together, and then experience the interaction of these sounds on each other. We start with individual elements of sound called Partials. Two Partials are combined to create a Tone, and two Tones are combined to create the Patch. (Figure 1) The D-50 can hold 64 Patches and 128 Tones. Each of the two Tones can be processed individually by on-board signal processing that is sophisticated enough to rival a rack-full of equipment, and includes digital reverb, digital parametric eq,



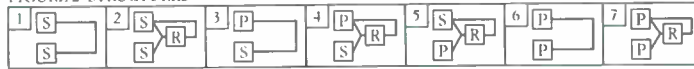
LINEAR SYNTHESIZER

SOUND SYNTHESIS TECHNOLOGY

digital chorus, digital delay and more. But before we go too far, let's get down to the basics, the building blocks of LA Synthesis — Partial.

Synthesizer Partial/What is a Partial? A Partial can be either a digitally synthesized waveform, or a PCM sample. Each of the thirty-two Synth Partial contains all the components usually found in the hardware of an analog synthesizer, presented here as digital software. This includes the Wave Generator (to create a sawtooth or square waveform), the Time Variant Filter, the Time Variant Amplifier, three five-stage Envelope Generators and three digital LFOs. In this way, even though the D-50 is a digital signal, programming the Synth Partial is very similar to programming on an analog synthesizer, (as these components react in the same way as VCO's, VCF's and VCA's on analog synthesizers) while offering sound synthesis capability beyond the most advanced digital synthesizer.

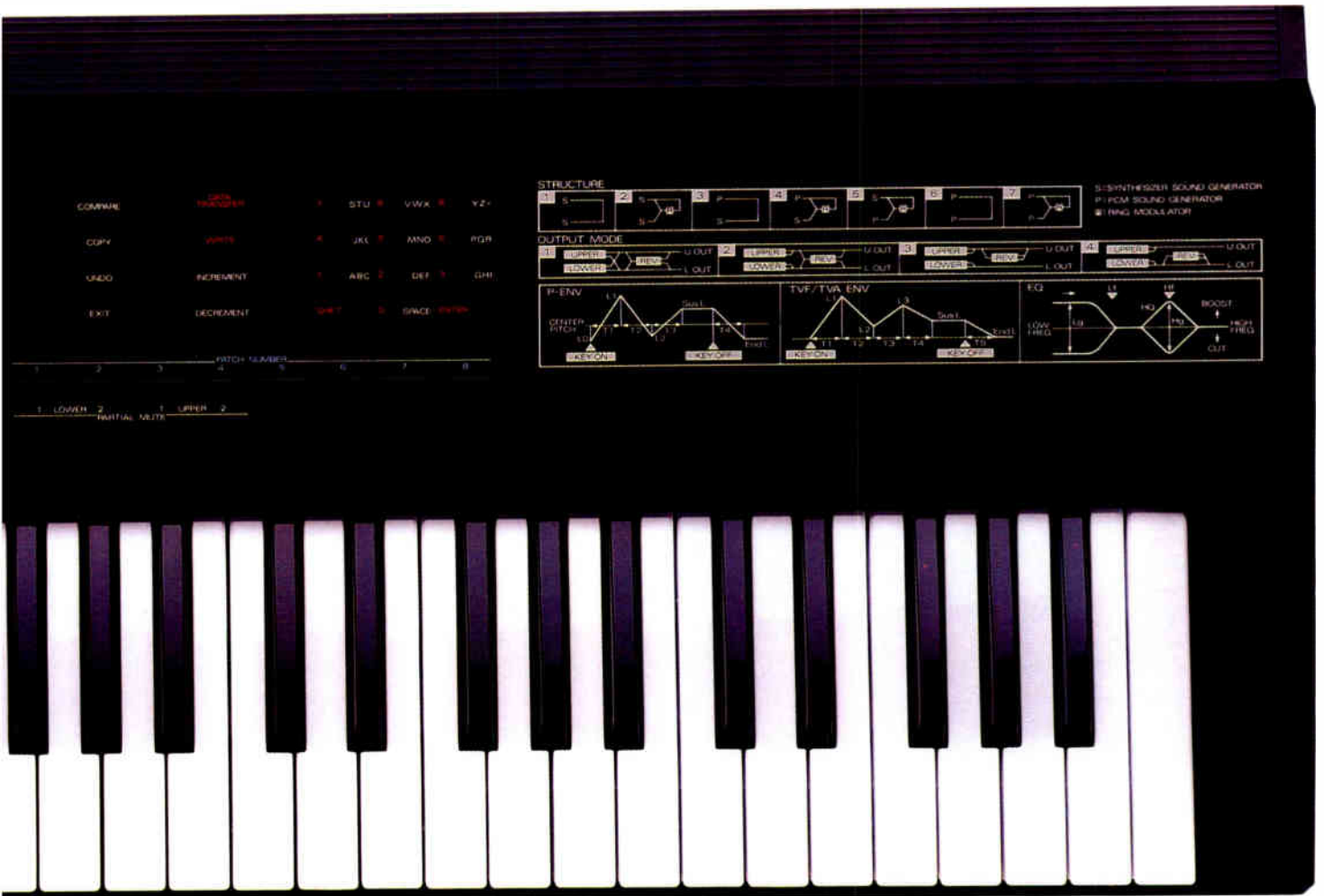
FIGURE 2 STRUCTURES



PCM Sampled Partial/A Partial can also be more than a digitally synthesized signal, it can also be a PCM sample. Resident in the memory (ROM) of the D-50 are over 100 carefully selected 16 bit PCM Sampled Wave Tables which can be used by themselves, combined with Synth Partial or combined with each other. The PCM Partial

are carefully selected, and digitally processed so that they combine well with other Partial. Some of the

sounds include a wide variety of the attack portions of percussive sounds: marimba, vibes, xylophone, ethnic instruments, grand piano hammer attack (with the fundamental removed), a variety of flute and horn breaths, a range of different string plucks and bows, nail files, guitars, and many more. The Wave Table library also includes Loop sounds and long samples, such as: Male and female voices, organs, pianos, wind and brass instruments, and also Harmonic Spectrum sounds, which are created by removing all of the fundamentals of a sound, isolating its harmonic components.



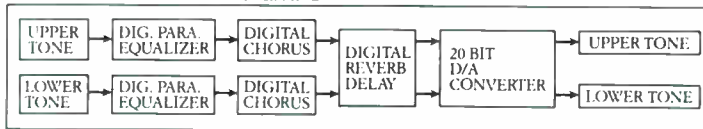
The sounds created by the D-50's PCM Waveform Generator are far superior to wave table samples found in other synthesizers, which are usually only one looped cycle in duration, and are usually no more than 5 milliseconds. In contrast, many of the PCM Partials on the D-50 are up to 256 milliseconds.

Structures/The combination of the Partials' operation modes can be set by selecting one of the seven Structures. (Figure 2) By choosing one of these Structures it is possible to combine two Synth Partials, or two PCM Partials, or a combination of the two in several different relationships. In addition, the Partials can be cross-modulated by the digitally-controlled Ring Modulator, which helps to create the complex harmonic environment for the resulting Tone.

Unlike ring modulators of the past (which tended to be interesting yet unpredictable), the Ring Modulator in the D-50 is designed to track with the keyboard, ensuring the proper harmonic relationships as you go up and down the keyboard.

Built-In Digital Effects/The final routing of the signal before it reaches the output is through the digital effects circuitry. (Figure 3) But, far from being merely an add-on, the D-50's effects are as carefully thought-out as the rest of the instrument, and likewise just as integral to the creation of new and unique sounds. The first effect is the digital Parametric Equalizer, used to contour the equalization curve for the tone before it passes into the digital Chorus, or we should say Choruses, as the D-50 fields an arsenal of eight chorus circuits — all available simultaneously, configured in any of 16 modifiable presets such as panning chorus, tremolo, flanging and much more. Within each chorus there are parameters set up as to how these chorus interact for maximum effectiveness. Lastly, the signal passes through the digital Reverb, which can also function as a digital Delay, offering

FIGURE 3 DIGITAL SIGNAL PROCESSING



various room and hall sizes, gated (non-linear) reverb, reverse, stereo panning effects that can be routed to either or both of the stereo outputs. The awesome power of these built-in effects means that the D-50 requires literally no outboard effects processing. And just as important, because all the D-50's effects are processed in the digital realm, they are completely noise free.

A Mother of a MIDI Keyboard/The D-50 is also an excellent mother keyboard for your MIDI system, as it is totally dynamic, offering 61 keys in four different key modes (Whole, Split, Dual and Separate). In the Whole mode the D-50 is 16 voice polyphonic, while in the other modes it functions as two 8 voice synths,

one for each Tone. All mother keyboard functions are programmable per patch including a separate transmit

channel. As the D-50 is truly bi-timbral it can function as two MIDI sound modules as each tone can receive on its own MIDI channel. All D-50 parameters and programs can be saved on Roland's

M-256D MEMORY CARD



new M-256D memory card which offers 32K bytes of storage in the size of a credit card. All of the D-50 functions can be programmed internally, or externally with the use of the optional PG-1000 programmer, which combines visual clarity and speed for the

programming professional.

Put It All Together/Taken as a whole, the D-50 represents more sound creation potential than most of the leading synthesizers combined. And just as important, it comes at a price that you can afford — \$1895.00.* Of course, the only real way to find out for yourself is to play the instrument, but we'd like to suggest you do a little more. Go to your dealer, but before you try the D-50, try three or four other synthesizers first — really give them a good going-over. Then spend some time on the D-50. We think you'll find that the world of sounds you knew before, now seems to be black and white — while the D-50 has just exploded you into a universe of color. The new force has taken you by storm. RolandCorp US, 7200 Dominion Circle, Los Angeles, CA 90040 (213) 685 5141.

PG-1000 PROGRAMMER



*Suggested retail price.
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SOUTHERN CALIFORNIA SCENE:

RADIO DAYS

by Linda Jacobson

Once upon a time, in the year 1923, the Eveready Company produced a musical variety show to promote their batteries. This was just three years after the first full-scale radio station went on the air, one year after the first radio advertisement was broadcast. Because the *Eveready Hour* cost a lot to produce, and because Eveready sold its

products in every state, the company sought to distribute the program as widely as possible. In 1924, Eveready bought time simultaneously on over a dozen stations, which AT&T had begun to link into a primitive network.

That's how Eveready became broadcasting's first national advertiser, and thrust the concept of "networks" into the limelight. Station owners liked the concept because it reduced their pro-



Photo above: HLC partner (and composer of Levi's 501 Blues) Joe Lubinsky.

Ron Hicklin (far right) leads a jingle choir in a leased studio, prior to establishing HLC in Hollywood.



PHOTO: SHERRY RAYN BARNETT

The control room at Encore Studios in Burbank, where Los Lobos and The Blasters recorded tunes for Budweiser.

gramming burden. Listeners liked it because national programs (i.e. sponsors) boasted bigger budgets, thus attracting bigger stars.

By 1929, there were three profitable radio networks: AT&T, NBC and CBS (ABC wasn't founded until 1943). Throughout the 1930s and '40s, the networks dominated radio, and radio dominated home entertainment. However, even at the zenith of network radio, there were many non-network stations. When the nets turned their eyes to TV, radio became much less profitable overall, but non-network stations got a big boost.

Today, networks confine their interest in radio to their tiny handful of owned-and-operated stations, along with their hourly syndicated news broadcasts. But the vast majority of stations are not affiliated with any network, create their own programs, and receive their news from the UPI or AP wire services. Even those that are network affiliates do most of their own non-news programming.*

These days, stations typically don't run their own recording studios. Instead, independent radio producers assemble packages of series, or programs, which the stations buy. Some producers run their own recording facilities, some don't. *Mix* contacted

production facilities and recording studios in Southern California to find out what's new in radio production, both in programming and in advertising.

To get an idea of how radio producers go about creating their shows, we first called Patricia Carroll, director of programming for Jim Brown Productions in Culver City. Besides overseeing the administrative aspects of the firm's work, Carroll is responsible for three nationally syndicated programs: the weekly call-in show *Hit Line*, the daily *Personal Finance Digest* hosted by Lou Irwin, and the weekly *Country Music's Top Ten*, which Carroll writes and produces.

Country Music's Top Ten germinates in Carroll's office, where she receives records and artist bios, and writes scripts. She uses a PC to write and to calculate times—length of the copy, cuts to be played, fade times and commercials, so the complete show comes out on the mark. Then she brings her materials into the recording studio.

Says Carroll, "With pre-production, I usually spend a couple of days a week in the studio. We usually produce *Country Music's Top Ten* on Wednesdays. That's when we bring in the host, have him lay down his vocal tracks, and then we assemble it. We record everything 15 ips, stereo, 2-

track. On Thursdays we ship it out on vinyl discs." The program's theme music was composed by an independent musician and performed on synth and guitar, with vocals, following suggestions sung to him over the phone by Carroll. Carroll brought the recorded theme into the studio and carted it up.

"I work out of Hit City West, a studio in Los Angeles," says Carroll. "They do record and radio production. We chose it because it's about 15 minutes away from us, and someone here knew their engineer, Ron McCoy, was talented, and he had control of one studio at the facility. All the stuff I work on is very time-sensitive, so we have to get it done fast and efficiently."

"Fast and efficiently." That's the key to radio program production, whether the show is produced in a 48-track production complex with isolation booths or in a one-room, 8-track studio with isolation curtains.

After Hours

After Hours Recording Company opened last year in the Glendale studio that used to be Berkens Sound. About to upgrade to 24-track, the 8-track After Hours primarily handles radio dramas, voice-overs, and a bit of music recording.

After Hours' Bill Berkuta has engineered for 13 years, ten of those in radio production. He tells us the studio currently is responsible for two radio dramas, one a weekly soap opera broadcast on the low-wattage KOTR station in the San Luis Obispo area. KOTR plans to syndicate the half-hour program, entitled *Milford Haven*. After Hours records and mixes the show's audio, and handles all post-production including live and library-based sound effects ("the music's already in the can"). Work on *Milford Haven* occurs at After Hours four days a month, after three or four days a month at the KOTR facility.

Berkuta explains, "some of the actors live in the San Luis Obispo area [about 170 miles north of Glendale], and some of them live in L.A. They record parts of four shows up there, then bring the 2-track tape down here. In the parts where people have to talk to each other but can't actually get together, I edit those lines apart, keeping one person talking in the background, and I use that to record the actor talking live up here—so it sounds like there's actual live interaction, like both of them are here at the studio.

*Sandman Peter, David Rubin and David Sachsman, *Media: An Introductory Analysis of American Mass Communications*, Prentice-Hall, Inc., 1976.



A Session with Ted and Shelly

Chicago-based TMK Elias is one of the busiest and best-equipped music production facilities in the country. Founded five years ago by musicians Ted Kay and Shelly Elias, the studio's work encompasses commercial jingles, music for industrials, and scoring for TV programs. Clients range from America's top ad agencies to such Fortune 100 companies as General Motors, Anheuser-Busch, Kellogg's, and Amoco. Here are some worthwhile thoughts from a recent interview with Ted & Shelly.

First in a Series

On competition

Ted: "Over the last few years, we've seen more music composers like ourselves go in-house with production facilities. The result has been more competition than ever before."

Shelly: "When Ted and I started out, there were about a dozen music houses in Chicago. Now I think there are about 60."

On client expectations

Shelly: "We're finding that clients have become much more discriminating in their evaluation of what good sound quality is. Not only does the creative product have to be excellent, but the sound quality has to match it."

Ted: "If you don't have professional state-of-the-art equipment to keep your product at the highest level, you're going to be working at competitive disadvantage."

On technology

Ted: "Technology has obviously played a big role in the production business and some facilities have certain pieces of equipment that can do things that competitors' equipment can't do. For example, we have the Synclavier system, which is a digital synthesizer and sampler."

Shelly: "1987 music is very different from 1980 music and you've got to stay current to compete successfully."

On choosing a supplier

Shelly: "When you're trying to maintain a quality music production company, you need a supplier you can depend on."

Ted: "We're a supplier to our clients and they depend on us. So we need someone we can count on."

Shelly: "A good supplier has to have a complete grasp and understanding of today's technology. We also want them to be around for a long time so we can grow together."

On working with audioline

Ted: "We started working with AudioLine about three years ago because they deliver a very excellent product and they're good guys to work with. I think that's important."

Shelly: "They're very professional and they understand what we're talking about -- our problems and our needs. They also bend over backwards to help us out when we need help."

On comparing equipment

Shelly: "We field-test a lot of equipment and that helps us decide if we want to get involved with it. When we were looking for a new console, AudioLine helped us have a Battle of the Boards so we could compare one with another."

Ted: "The one we ultimately agreed on, the Neotek Elite, turned out to be the console AudioLine recommended. Our senior engineer, Joe Ott, was impressed with the sonic quality of the Neotek over the English boards we listened to."

On quality vs. price

Ted: "We're very quality-oriented but we also have to think of the bottom line. That's why we look for equipment that can best serve our purposes. And then we try to get it at a price we can afford."

Shelly: "AudioLine can take care of most of our equipment needs, as well as the servicing and supplies. And as long as they do a good job, and we're getting what we were told we would get, and the equipment delivers what we were promised it would deliver, we're happy."

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Basically, I edit the KOTR 2-track stuff in with the 2-track stuff I do here—I get all the voice tracks onto 2-track so when I put it onto the 8-track, I don't have any physical hits to do. The most I have to do is punch in and record. Doing it this way also gives me a chance to overlap tracks, so I don't have people stop and start, stop and start, but can have continuous talking going on tape."

Commenting on the evolution of the radio field, Berkuta notes, "We've gone from wild-tracking a bunch of tape machines to multi-tracking, which simplifies things considerably because everything stays cued up. The other way, you just had to punch and go. We've consolidated some of the live sound effects onto cassette, so we can re-use them, or have them last a lot longer than our arms could hold up making that sound. We transfer the effect from reel to cassette, and loop it so it lasts six, seven times longer than the original. Now we're planning to go to CD, probably a library, because we're having problems with the albums. Every time you use them, they get a little more scratched and pick up a little more dirt, so everybody can start telling it's coming off a record."

When asked if his radio production clients are more audio savvy now than they were when he started in the business, Berkuta says "they're basically the same. But I work with people who have low budgets, not people who look for 24-track and digital stuff."

ABC Watermark

It's acknowledged that computers and synthesizers have helped audio and music production. But computers have helped radio program production as well, thanks to the ability to store and manipulate massive amounts of textual information. One company that utilizes this sort of equipment is ABC Watermark, a radio production facility established in L.A. in 1970. Currently 16-track, set up for 24, Watermark houses the writing and production staff of the venerable *American Top 40*, hosted by Casey Kasem, and *American Country Countdown* featuring Bob Kingsley. The Global Satellite Network produces their three ABC radio network shows at Watermark: *Reelin' in the Years* with George Taylor Morris, *Let the Good Times Roll* with Beau Weaver and *Power Cuts* with Geno Michellini. Watermark also produces demos for ABC's sales department.

Other clients include Warner Audio, Bantam Books, John Wiley Publishing and Hanna Barbera.

Last month, ABC Watermark went on-line with their new Digital Microvax II mainframe computer and terminals, a comprehensive database/information system. Johnny Biggs, who runs the place, explains, "*American Top 40* and *Country Countdown* are based on *Billboard* charts, with histories that go back to the 1940s. All that information is in the computer: we put in the Top 100s from the beginning of time, 45 years of chart information. Now we can access whatever kind of configuration of information we want. If we want to know every song that had 'rain' in it, the system will pull them all out. Also in the computer is bio information on every artist and group who's ever hit the charts. Every writer for each program has his own terminal and writes directly into the computer, does all re-writes on it, and it stores everything automatically.

"We started out entering all the information on IBM PCs until Digital wrote the software for us," continues Biggs. "Then we downloaded everything from the PCs to the mainframe. In the pop artist files for individuals alone, we have 6,500 entries. We have to turn the show around fast; our writers are always writing, they always watch what's coming up in the Top 100 chart before it hits the Top 40 to make sure we've researched it, and they start to write stories about those artists. We get the chart numbers for *American Top 40* on Wednesday and we produce the show on Thursday. The computer system helps us expedite turning the show around, and therefore make a better show."

ABC Watermark is set up for audio, not music. They don't produce or record theme songs—they do voice-overs, and they will create a sound effect when the script calls for it. Biggs says, "we're kind of a hybrid between a music recording studio and a radio production studio. We try to have as much capability to create stuff as possible. Some of our shows go live to tape and some don't, but we always try to create the atmosphere as if it were happening live."

When asked what changes radio production has undergone in the past few years, Biggs responds, "well, you always continue to improve yourself. The marketplace has become so competitive on a syndication basis as well

as the commercial basis. So we're very service-oriented, and we feel we go into a partnership with whoever rents the studio.

"As far as technical changes," adds Biggs, "we always continue to look for new mics, because we want that warmth to be able to be communicated. Right now, with Casey Kasem we use a Neumann U-89, and before that we used a U-87. The other announcer, who has a big voice, uses an AKG414. The studios are set up with cart machines and turntables, but we also have CD players to play the songs. In the area of sound effects, we pull our effects off tape now, because albums don't last very long. We're going to move to taking sound effects off CD, and eventually we'll get into sampling and MIDI so that we can create special music beds for our radio shows. That's where we see ourselves going."

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As we saw in our Eveready tale, there would be no programming if there were no advertisers. It's oft stated that



The site of many a long-distance dedication—ABC Watermark, production home of Casey Kasem's *American Top 40*.

radio exists to sell products. Today, many recording facilities exist just to help advertisers compete with the music in between the ads.

Traditionally, music production for ads followed a relatively slow path, from composition to demo to approval to production. Computers and synthesizers have hastened the process considerably. This technology lets the cli-

ent audition the music without spending hours in the recording studio. Indeed, a client can hear a theme that sounds "finished" before even stepping into the studio, and synths have eliminated the need to redo demos from scratch. Plus, the synth enables one person to perform musical pieces that would be literally impossible to play acoustically. That's not to say that

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live musicians no longer help sell beer, cars and clothes. They do. We contacted a few studios to find out who and how.

Encore Studios

Encore Studios in Burbank opened for business in 1985 after acquiring the Kendun Recorders facility. They redesigned the dual 24-track studio, with the help of Lakeside Associates, to include a motorized system of acoustic louvers fitted into the studio's walls and ceiling (adjustable from the control room). The Hidley-designed control room was left intact.

Encore focuses primarily on music

recording. Their main client, MCA Records, has brought in Kenny Loggins, Natalie Cole, Morris Day and dozens of their other artists. Studio manager Billy James tell us that Encore's secondary focus is on commercials. "We get those jobs mostly through the producers, and in some cases the musicians—rarely the agencies. Mark Price is an independent commercial producer who works here a lot, creating original music for radio spots."

Price's projects have included music for Budweiser and Bud Lite, and Coca Cola's Classic Coke and Cherry Coke, working with the NYC-based agency CSI. Los Lobos recorded music

for a Bud spot at Encore, as did The Blasters. Commercial producer Robert Craft worked at Encore on Seagram's Wine Cooler music for client Oglivie & Mather, with recording artist Albert Collins and narrator Bruce Willis. "On that one we did overdubs and the narrative," notes James, "and also started the basic tracking. What we do on each spot varies. Sometimes they come in for just an overdub, and sometimes we've gone from scratch, from the very beginning."

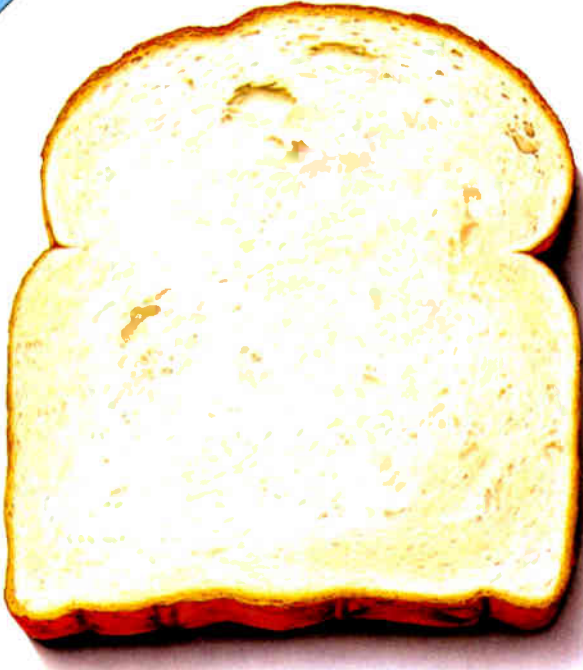
At Encore, automated mixdown is possible via a Solid State Logic 4000B, and 48-track recording capability is possible via two interlocked 24-track Studer A-800 machines. Encore clients usually record a combination of live, acoustic and synthesized material; for this reason, the studio owns Yamaha DX7 and Oberheim DX keyboards. Encore does not own a music or sound effects production library; says James, "we are a raw facility, and the producers bring in whatever they need."

"Ambience has a lot to do with the selection of this facility," notes James. "There are several rooms to accommodate the client and musicians, and we also have an apartment with a jacuzzi. While the producers or outside engineers are working in the control room, the clients—the sponsor, the account executives, agency's creative heads—can conduct their business away from the focused energy of the studio. They take phone calls in the apartment, take a shower, watch TV if they're on a break. Because Encore is a one-studio facility, there aren't a bunch of other people you don't know running around. Like record producers, agency people are sensitive about that when they're working on a campaign. So there's privacy, and coupled with the privacy there is security. That's important to commercial clients."

Tuesday Productions

Tuesday Productions operates two 24-track studios in San Diego. They record a substantial amount of commercial music, averaging six finished productions a week. When Tuesday started out in the early '70s, they created jingles for shopping centers and department stores. Their first national accounts—Budweiser and Michelob—came in 1978. Today, what they call "custom music for advertising" comprises 75% of their business. The rest of Tuesday's work is music for TV sta-

—CONTINUED ON PAGE 121




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World Radio History

STEPHEN HILL



PHOTOS BY DINO YOURNAS

Since 1983, when National Public Radio began carrying the increasingly popular “new age” music program *Hearts of Space*, it has gone from an initial roster of only 35 stations to a current slate of 223 stations. This represents almost 70% of all the available NPR affiliates in WESTAR 4’s satellite “footprint” which stretches from Alaska to Miami, and from Maine to Hawaii. It has become the most successful new music series in public radio history and is generally considered to be the granddaddy of all new age music programs; precursor to the new full-time new age station in Santa Cruz, KILRS, and “The Wave,” KTWV in Los Angeles.

Actually, Stephen Hill—sound-sculptor-cum-psychedelic-tour guide for *Hearts of Space*—dislikes the term “new age,” which he feels describes the audience more than the music. The term he prefers is “space music”—a type of music that is characterized by being primarily instrumental with few sudden dramatic contrasts; the kind of music that has come to be associated with labels like Windham Hill or Amer-

PSYCHIC RADIO TOUR GUIDE OF NEW AGE MUSIC

BY MORRIE WARSHAWSKI

ican Gramophone, and played by artists such as Shadowfax, Fresh Aire and Will Ackerman. It’s also the kind of music that is quickly becoming one of the mainstays of our aural environment, accounting for about 5% of all record sales this year.

If it is true that “some people are just born with a direction in life,” as producer Hill claims, then he was conceived with radio in his genes. Hill remembers being fascinated by radio as a child in Atlantic City. At the tender age of ten he regularly would wake up early and ride a bus to the Steel Pier where he delivered a fresh hot cup of coffee to the local radio station’s “morning man.” “I nailed what I do now when I was in the 7th grade,” says Hill, who became an ardent ham operator by the time he turned 12 and bought his first tape recorder at 13.

“I foresaw a career in communications,” he adds, “but I didn’t then see the music side of it.” That piece of the puzzle did not fit into place until the family moved to Miami. At 17 he began taking classical guitar lessons on an instrument his father, the owner of a women’s knitwear business, had brought home from a trip to Puerto Rico. That same year the family spruced up its living room with a brand new hi-fi system (Harmon Kardon receiver with KLH speakers), which proved to be the catalyst for a major turning point in the young man’s life.

As Hill fondly recalls, one Friday night after the usual guitar lesson, his teacher decided to play a record on the new stereo. With the lights dimmed they listened to the densely resonant strains of Bach's "D-Minor Concerto for Two Violins and Orchestra." "That was the first time I realized that music was capable of doing deep things to people," Hill wistfully says. "For me the world of art became a pathway for development—an accessible form of spirituality." He followed this path through two years of art history emphasis at Johns Hopkins, followed by eight years in architecture at the University of Pennsylvania, where he studied with the revered architect Louis Kahn, a man he calls "a spiritual teacher to a whole generation of architects."

After graduating, Hill came to San Francisco in 1970 and spent a year "being independently poor" dabbling in photography, video and radio engineering. By 1971 he was working at San Francisco PBS affiliate KQED as a board operator and volunteer producer for their "Tribal Radio" format—a fertile breeding ground for some 35 ethnic and alternative programs. He was also perfecting his audio engineering skills under the tutelage of Bob Olhsson, a professional recording engi-



neer formerly with Motown Records. When a program slot opened up on Saturday nights from 10 p.m. to 1 a.m., Hill grabbed it "It was totally freeform experimentation," recalls Hill. "I was casting around for what eventually became *Hearts of Space*."

He began blending together such disparate artists as Pachelbel, Vangelis, Brian Eno, Saint-Saens, Kitaro, Rachmaninov and even sounds from the radio telescope at Stanford—all in an effort to forge a totally new radio listening experience for people. Hill considers his work with music a direct extension of his studies in architecture: "I was trained to work with physical environments. Now I work with sound—creating psycho-physical en-

vironments." This work dovetailed with his creation of Celestial Sound Studio, which he devoted to recording new age music and soundtracks for multi-media shows.

Not long after beginning the KQED program, he received an inter-office memo from Anna Turner. She was working at the station's National Center for Experiments in Television, had heard Hill's program and had been deeply moved by it. "I heard things in Stephen's early programs that I hadn't heard before," explains Turner. She offered to help out with the program and began a collaboration with Hill that lasted for 13 years.

Hearts of Space moved to KPFA in Berkeley in 1973, where it remained until jumping into national syndication in 1983. The program first filled a Thursday night 11:30-to-3:30 slot and then on Sunday nights from 11 to 2 ("or until we were tired," says Hill). During the KPFA years they worked at refining their format. Programs would generally have very little verbal interruption and, eventually, consisted of only a brief introduction followed by totally uninterrupted music.

"We tried to provide the most enchanting experience possible," recalls Turner, who left the show in February to work on independent projects. "We wanted to create dream journeys undisturbed by words, letting the music cascade for an hour." The trick was always to lead the listener through a journey of physically relaxing music that somehow remained psychologically stimulating.

"It's a little like being a chef," explains Hill. He spends three to four days a week creating 34 to 36 new programs each year with titles like "Desert Night Winds," "Cello Deeps," "Dream Dances," and "Electric Snowflake." Because his radio studio is in his house, Hill literally lives with the music. One of his 16 cassette decks almost always has a new tape in it, or is playing something that Hill has had around for a while and is just beginning to think about using for a program.

As Brian Clark, office manager, notes, "Sometimes I arrive in the morning and Stephen has been up all night working on a program. He is totally devoted to this music. It's obviously a labor of love on his part." It helps that Hill's small staff is headed by his wife, Leyla Rael Rudhyar Hill, who directs the administration and management

—CONTINUED ON PAGE 216

Some Notes on the Production and Distribution of *Hearts of Space*

Hearts of Space programs are assembled by dubbing LP, CD or F1 encoded tapes to a 7½ ips dbx Type 1 encoded music submaster. Sequencing and music editing for timing or artistic reasons occur at this stage as well as touchup EQ, de-clicking of LPs, level changes, or other remastering. Program masters incorporating voiceovers are mixed at 7½ ips with no noise reduction.

The *Hearts of Space* production studio uses audiophile-grade equipment wherever possible. The present setup includes Thiel CS3 and Spica TC-50 monitors, ASC Tube Traps, Monster Cable speaker and interconnect wiring, a SOTA Star Sapphire vacuum turntable with an SME Type V arm and Monster Alpha II high-output moving coil cartridge, and a Mod-Squad modified Philips/Magnavox CD player.

Finished programs are distribut-

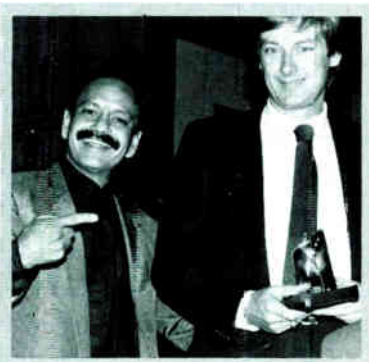
ed by the NPR satellite system, linking some 290 downlink-equipped receiving stations with a network of 19 regional uplinks under the coordination of MOTC (Main Origination Technical Center) at NPR headquarters in Washington, DC.

Each station also has a satellite-delivered teletype data channel (DACS) which also originates in Washington and is used for scheduling messages and general system announcements. DACS messages may be input directly to the system by stations and independent producers via modem.

The NPR satellite microwave system runs on WESTAR IV, Transponder 2D, is all analog and allows 12 simultaneous transmission channels with a 15kHz bandwidth. Special 3:1 companders, custom built by dbx, are used to increase the S/N ratio to approximately 70 dB.



Mix magazine editor, David Schwartz (L) with 1986 award presenters Jeff Baxter and Cbeech Martin.



Engineer Bruce Jackson (R) accepts award for 1986 Outstanding Sound Reinforcement Engineer from presenter Cbeech Martin.



1986 award presenter and nominee Narada Michael Walden (L) clowns with TEC Master of Ceremonies, Ray Hanna.



TEC Awards nominee Alan Parsons (L), Mix editor David Schwartz and TEC keynote speaker David Pack share a moment before the 1986 ceremony.

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NPR Workshops

Education to Overcome Limitations

by Brooke Comer

Thanks to high technology, commercial radio stations can now send better sounding broadcasts over the air to listeners who own more accurate playback systems. But how much benefit can public radio reap from today's improved sonic quality? Subsidized in part by the Corporation for Public Broadcasting, grants and donations, public radio traditionally is short-staffed and economically limited when it comes to selecting equipment. Yet public radio listeners, for the most part, come from upper-middle income brackets, appreciate the classical, jazz and folk music that is the mainstay of public radio programming, and want the highest quality audio. National Public Radio has chosen to address this dichotomy.

National Public Radio (NPR), the DC-based membership organization composed of 254 public radio station subscribers around the country, became alarmed by the quality of tapes they were receiving from their member stations. In 1981, NPR instigated intensive workshops to teach their members console operation, mixing, ear training, mic placement, as well as tips on sound reinforcement and monitoring. At these workshops, the participating members, many of whom perform diverse functions, gain new confidence, sharpen their ears and learn technical insights. Elaine Salazar, training coordinator/station services associate for NPR's Representational Division, believes in strengthening individual stations. "Our regional stations could contribute to national programming if skills at the station level increase," she notes. And if July, 1987's 15th biannual workshop is any indication, skills are on the rise.

The State University of New York's

College of Fredonia was the site of this year's NPR workshop. Thirty participants, selected from twice as many applicants, came from around the country to hone their skills, and in some cases, get their first try at hands-on mixing. "We think we have a good product," says Salazar, "but it could be fine-tuned."

The fine-tuning process consists of intensive lectures, demonstrations, listening sessions and mixings, overseen by a faculty of experts in recording-related fields. Each year, one workshop is devoted to jazz recording, and another to classical. This year folk joined the jazz curriculum. "Jazz is basically multiple mic mixing to stereo," says instructor David Moulton, chairman of the Department of Music Production & Engineering at the Berklee School of Music in Boston. "Classical is usually two mics, and you want to capture the sound of the room." There is, however, large crossover attendance; participants of one workshop return to take the other.

Moulton was responsible for adding ear training to the program. He uses standard music school techniques and teaches students to recognize chords and intervals. "Then I re-apply it to audio, and teach them to identify noise

bands," he adds. "I can boost a band of pink noise and they tell me what octave it is." Listening also helps when the participants get a chance to break up into small groups to mix—and later critique—a live jazz band and a folk group. "In the classical session, we'll do that with an orchestra," says Moulton. "With a lot of different mic placements recorded simultaneously, we can go from stereo pair to stereo pair, to three spaced omni mics, to what we call double-MS mic placement."

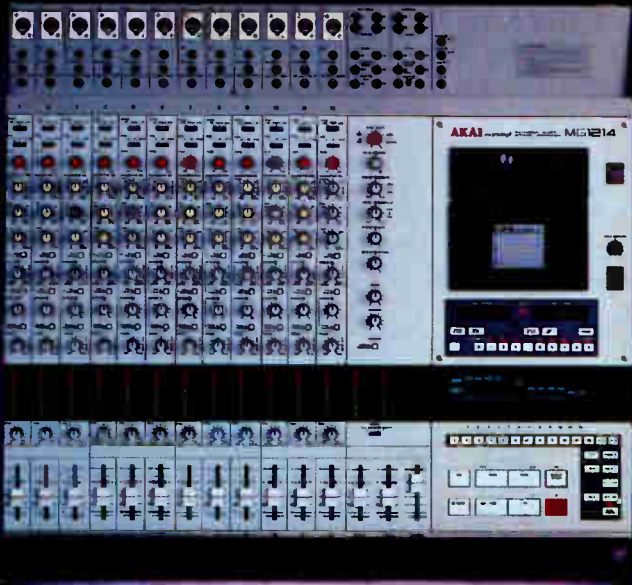
But how will trained ears make up for lacking funds that prevent public stations from enjoying new technology? NPR instructor Neil Muncy, an independent design consultant to recording and broadcast facilities, admits that money can alleviate many of the station's problems. "But you don't need to have the highest technology to do a very musical-sounding recording of a live event," he points out. "There's a higher probability of getting good music from musicians who play at the same time, as opposed to musicians who lay down a track at a time. Capturing an event live is the sonic equivalent of getting an exciting photograph of something that's happening now and may never happen again."

Half of Muncy's recent class members never had their hands on a tape machine. The other half didn't know what a dB was. But everyone could wax eloquent on the latest high-tech gizmos. Muncy brought in a tape of test tones and recorded effects, so his students could hear the adjustment of the tape machine in real time. That way they could go back to their ten-year-old tape machines that never worked right, and determine if they need a few little parts, or a trip to the ATR graveyard. "Or, there could be absolutely nothing wrong with it,"

Skip Pizzi at board



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Muncy suggests. "Maybe no one's aligned it properly." He also brought in a flutter demo with a bit of splicing tape stuck to a capstan. "There's no question that this tiny sliver of tape that's only stuck to part of the capstan totally wrecks the performance of the machine."

Some of Muncy's instruction techniques focus on working within the confines of existing equipment. He pokes his finger into a pan of water to demonstrate how sound travels in a spherical wave away from a source. He also uses the ripples to make the Live End/Dead End™ design theory come to life, "I'm able to show early reflections, how initial time delay of a small space can be dramatically enhanced," Muncy says. "By spacing out the arrival of the early reflections from the arrival of the direct sound by a few milliseconds, your brain has time to figure out what's hitting your ears before any variation of that sound comes in."

Muncy also extols the economic virtues of Sony's digital Pulse Code Modulation scheme to budget-conscious broadcasters, who might be hesitant to invest in a VTR and a PCM processor. Sony's videocassette machine and PCM processor cost considerably less than a good 2-track, 1/4-inch tape machine. Muncy points out that the \$8 price of one videocassette is the recording-time equivalent of \$100 worth of 1/4-inch tape. "Stations who buy the VTR and use it as a tape machine find that it pays for itself in tape savings in a few months," he explains. Two-track digital has become popular for capturing live events, because you get a couple of hours of continuous recording with one machine, and no machine-tweaking is required. "When you go out on a remote, take along an extra VTR," Muncy suggests. "But you won't have to worry about head alignment or EQ tweaking."

Muncy thinks analog tape also will be around for a long time, "because of the ease of editing. Stations are finding that they can capture a live recording in digital and transfer to analog to edit, then put it on the air." And because the tape that's aired is a first-analog copy of the digital master, there is no noise build-up. According to Muncy, Dolby's SR process is another factor that will insure the destiny of analog. "If Dolby figures out how to make them fast enough," he says, "I'm sure the broadcast industry will be buying them by the boatload." (NPR has already in-

stalled SR circuitry for the production of one of their daily radio shows.)

Muncy and his colleagues are careful not to glorify equipment that's too expensive for NPR participants. "We're very sensitive about not bringing in equipment that's out of the station's reach financially," says instructor Skip Pizzi, training coordinator for NPR's Program Engineering Department. "Station managers get bent out of shape when their producers and program directors come back from the workshop and say 'I can't work on anything but a Cadillac device.' That wouldn't be effective training." Still, Pizzi, who understands the intricacies of budgetary allotment in public radio, doesn't hesitate to inform his students of recent developments that bring down prices.

Equipment and tape fall into separate budgets in public radio, making it harder for stations to get good blank tape. "Very often, tape is an operating budget item, and equipment is a capital budget item," Pizzi notes. Grants, or funding from licensees, can build up the capital fund to purchase new equipment. But budget cuts constantly prevent the acquisition of good quality, high-speed tape. "We have to realize what factors people are going to face when they go back to their stations," Pizzi adds. "I don't mean to make public radio sound like Third World audio. Some of the stations have good budgets, and some are strapped." That's why, without getting into specific brand names, Pizzi and his colleagues plot the spectrum of available costs of a complete list of essential equipment. "You can spend from \$150 to \$1,000 on a mic, but within that realm, how low can you go and still come out safely?" This is the sort of question Pizzi answers in his part of the workshop.

Most of Pizzi's students are not involved with multi-track recording, but with live to 2-track, or live to the air. "We focus on those two areas," says Pizzi, "teaching people that since they have one shot at getting a performance on tape, they have to be fast and accurate." That's why David Glasser, co-owner of Airshow, Inc., an audio recording and production company specializing in location concert recording, participates as a workshop faculty member. Logistics are Glasser's specialty. He provides tips on packaging equipment, and methods of accomplishing "busy work"—splitting mics

—CONTINUED ON PAGE 216

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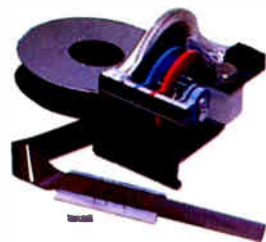
technology has led



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industries...

where has it



taken ours?

The Dedicated Synclavier® Studio

As their businesses expand, studio owners are increasingly concerned about the high cost of building additional rooms in a marketplace already crowded with conventional facilities.

Today's broadcast, advertising and record clients demand versatile digital audio production suites that are fully video, MIDI, and stereo capable. That's why recording studios throughout the world are now expanding by designing new facilities around the extraordinary capabilities of the Synclavier Digital Audio System and the Direct-to-Disk™ Multitrack Recorder — The Tapeless Studio™.

The Tapeless Studio and limited peripherals provide a total computerized recording environment that is flexible enough and powerful enough to meet the needs of a diverse range of production and post-production applications: music scoring, recording, video sweetening, sound design, effects edit-to-picture, Foley, ADR and film-style mixing.

Through massive on-line Optical Disk and winchester hard disk storage, high speed processing

and revolutionary new applications software, The Tapeless Studio combines the functions of multi-track, sequencer, drum machine, synthesizer, sampler, digital effects processor and mixing board in a single workstation. Comprehensive SMPTE, MIDI, and clock interfaces assure compatibility with a wide range of audio and video equipment.

Best of all, in an era of spiralling real estate costs, a fully equipped Synclavier and Direct-to-Disk suite, including live overdub booth, can be comfortably housed in an area no larger than 12' by 15'.

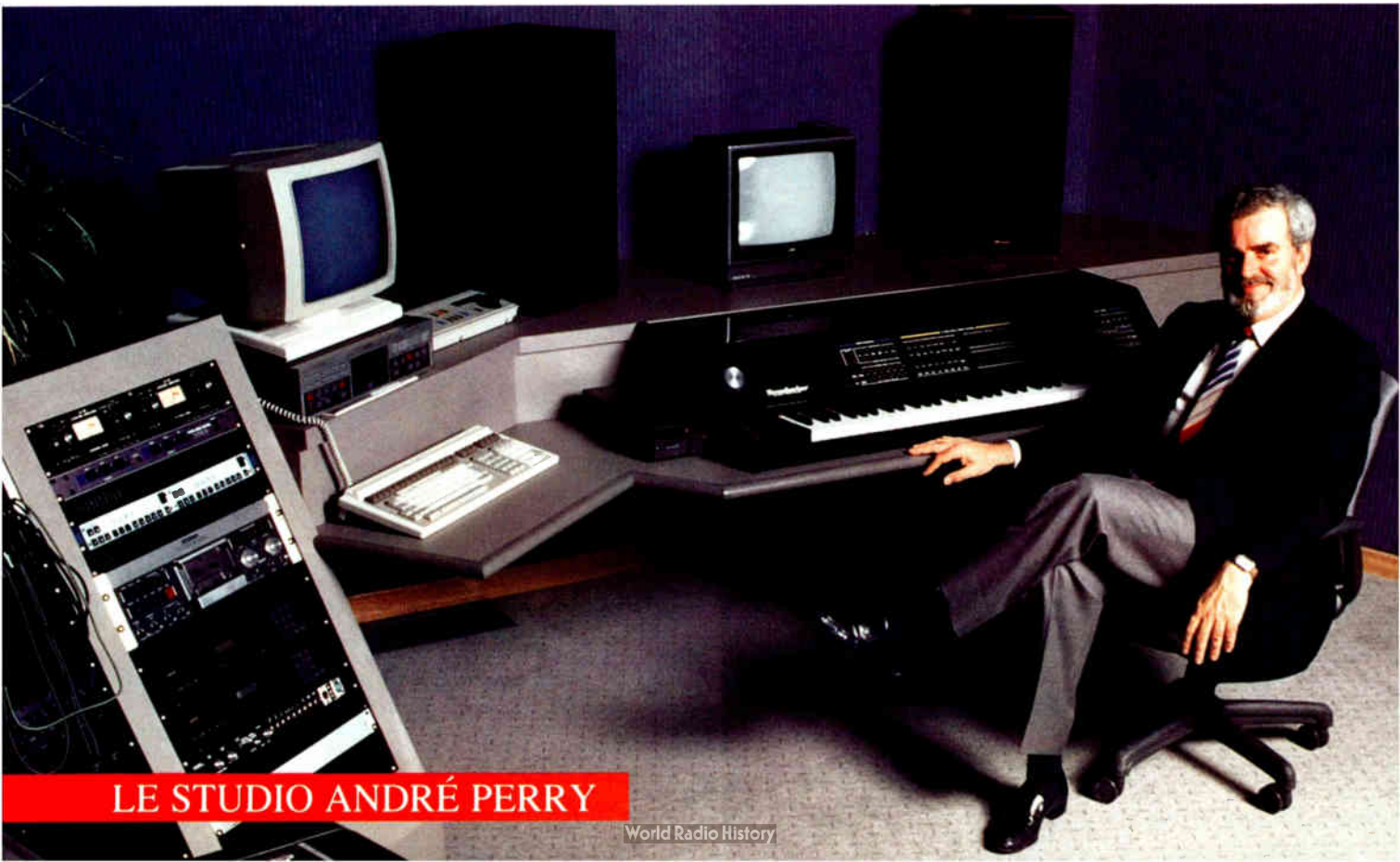
Le Studio André Perry near Montreal transformed an extra client lounge into a dedicated Synclavier room. In the first month, the studio completed the soundtrack for a major network Movie of the Week, sound effects and mixdown for a second, and the score for a multi-media musical.

With that kind of versatility, The Tapeless Studio is more than just a capital investment: it's a business opportunity. 🏠

"Adapting to change is what keeps you on top. A production studio built around a couple of tape machines and synthesizers can no longer keep up with the demands of today's marketplace. Particularly in the area of video, there is no better way to keep pace with technology than with Synclavier and Direct-to-Disk."

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André Perry, CEO and Chairman of the Board



LE STUDIO ANDRÉ PERRY

World Radio History

Direct-to-Disk™ Multitrack Recording

With recent advances in analog noise reduction, fidelity alone has not seemed to justify the expense of a major investment in digital tape recorders. Providing no new benefits in time savings or ease of use, digital tape only goes halfway.

Presenting the first digital recorder to combine high fidelity with extraordinary new high-speed performance and editing capabilities: the Direct-to-Disk Multitrack Recorder.

Direct-to-Disk Multitracks are now available in 4, 8, and 16-track configurations. They can be integrated with the Synclavier® to form The Tapeless Studio™ or used as individual, remote-operated units to replace conventional analog and digital recorders. All recording functions can be fully controlled from a terminal or separate remote.

Direct-to-Disk brings a new standard of performance and editing flexibility to the recording studio because it is a random access technology. This makes fast-forward and rewind instantaneous. Whether you're in the middle of the first chorus or the tenth, press play and you're right at the top. Or set a mark point and immediately auto-locate.

Because you never have to spool tape, you're always ready to record, always ready to respond to the client. Punch-ins and punch-outs are instantaneous too — and with crossfade times as fine as 1/100,000 of a second, absolutely inaudible. At last, the pace of a session can be controlled by the creative flow, not the speed of the tape transport.

Along with this dramatic increase in operating speed, Direct-to-Disk offers variable stereo sampling rates of up to 100 kHz, with 16-bit resolution and 96dB signal-to-noise ratio. The result is a level of audio fidelity unequalled by any other recording system, digital or analog. And because the winchester hard disk offers superior data integrity, Direct-to-Disk needs no error correction — in sharp contrast to tape-based systems which must compensate for error rates of up to 180,000 bits per hour caused by dust, wear, and imperfections.

Intricate edits, difficult with even the latest "edit-friendly" digital tape units are easy with Direct-to-Disk. You simply identify cues — in and out points — on a track or group of tracks, and instruct the computer to move from one cue to the next.



Terry Williams, Vice President and Jay Antista, Vice President and Director of Engineering

This software-based editing capability is fast, accurate and non-destructive, because you never actually change or move the original recorded data.

Leading studios throughout the world are already using Direct-to-Disk systems and they all agree on one thing: this is the one digital recorder it was worth waiting for. 🏠

"With the popularity of CDs, consumer audio tastes are getting more sophisticated all the time. So top artists and producers are becoming more and more demanding in terms of fidelity. NED's Direct-to-Disk offers unequalled editing flexibility and the best specs on the market today. That's why Lion Share chose Direct-to-Disk."

TERRY WILLIAMS LION SHARE, LOS ANGELES

Composition and Pre-Production

In an era where diversity can play an important role in building business, many studios are offering in-house creative services in addition to technical expertise. Nobody's been doing it longer or more successfully than Motown/Hitsville who've had a team of full-time songwriters on staff ever since the late fifties.

But these days Motown's songwriters aren't writing with piano and paper anymore. That's because Motown has built two entire Synclavier® suites dedicated to composition and record pre-production.

The Synclavier Digital Audio Workstation puts an unprecedented arsenal of creative tools at the composer's fingertips, starting with an incomparable and ever-growing library of sampled and synthesized sounds that ranges from hip-hop electronic drums to lush strings and concert quality grand pianos. And with 64 stereo voices and a full 32 megabytes of Random Access Memory, you can easily orchestrate the most complex compositions.

"The remarkable thing about the Synclavier as a pre-production tool is that it enables the writer/producer to preserve the original texture and groove as part of the original composition. Time isn't wasted recutting tracks and trying to recreate the feel. The demo becomes the master. A hit from the git!"

GUY COSTA MOTOWN/HITSVILLE, LOS ANGELES

Unique, signature sounds are easily created using the Synclavier's additive, FM, sampling and resynthesis capabilities, then combined and enhanced with a variety of real time effects and expression devices.

Songs, soundtracks, or entire symphonies can be built from conception to full realization using the Synclavier's powerful, 200-track Memory Recorder. Record in real-time from the 76-note velocity/pressure keyboard, the Synclavier guitar interface, or any MIDI controller. Activate the justify feature, and the Synclavier will quantize on record, with a one-millisecond internal timing resolution that is superior to any drum machine or sequencer on the market today.

For precision editing, the Synclavier terminal offers the widest variety of software options, including notation, step-editing, even computer music formats. Enhanced cut and paste software lets you loop, copy, lengthen and shorten individual tracks or groups of tracks (up to and including all 200!) Splice, bounce, slide — even combine sections from different compositions.

The Synclavier gives you the flexibility to try out different arrangement and production ideas, like substituting synthesized sounds for natural instruments. Or changing tempos and keys. You can add panning effects, chorus, vibrato — even perform fade-ins and fade-outs.

And the best part is that the Memory Recorder stores your every move. So your composition will sound exactly the same tomorrow as it does today.

No wonder why at Motown/Hitsville, songs that are begun on the Synclavier are often completed on the Synclavier. 🏠

Guy Costa, Vice President, Managing Director, and John West, Programmer



MOTOWN/HITSVILLE



CHARLES BROWN MUSIC

Charles Brown, Owner

Score-to-Picture

Because perfect sync is just as important in production as perfect fidelity, the Synclavier® recognizes all major SMPTE time code standards.

For Charles Brown Music, this kind of flexibility makes the Synclavier the creative tool of choice for any scoring assignment, whether it's a soundtrack for a film, corporate video, or commercial.

Because it's a random access system, the Synclavier locks to picture in under a second — compare that to tape, which can need catch-up times of up to ten seconds. Unique to the Synclavier is the ability to track SMPTE at 20% real-time, an invaluable tool for entering complex hit lists in slow-motion or improvising musical cues.

For film soundtrack work, the Synclavier expresses click rates in frames-per-beat with eighth-of-a frame resolution. Or you can create custom click tracks simply by tapping out a rhythm on the keyboard while watching the image.

You can quickly build up complex orchestral cues in real-time using the Synclavier Memory Recorder. Performances can also be created or edited with subframe accuracy from the Synclavier terminal.

For the composer who works with traditional instruments and ensembles, the Synclavier Music Printing Option will transcribe complete engraving quality scores from compositions created on the Synclavier Memory Recorder.

Up to 64 parts per score are available, with chord symbols, lyrics, dynamic and tempo indications, and other musical expression marks. Or individual parts may be automatically extracted and transposed — all with unprecedented speed, accuracy and at substantial savings.

But it's at the last minute, when "locked pictures" suddenly change, that the Synclavier really shines, by letting you slide individual tracks or whole cues back or ahead . . . by allowing you to insert or delete musical passages while preserving SMPTE lock. . . by offering software-based time compression.

With the Synclavier, last minute changes no longer mean late nights and lost profits. 📺

"The Synclavier lets me work one-on-one with the audio producer, the same way he works with the video editor. He makes suggestions, and I can respond instantly. The Synclavier literally makes it possible for me to compete for work that would typically go to New York or L.A."

CHARLES BROWN
CHARLES BROWN MUSIC, CINCINNATI

Video and Film Post-Production

When The Power Station, one of the best known music recording facilities in the world, decided to expand their business operations, they identified the video post-production market as an area of explosive growth opportunity. To enter this market, they chose Synclavier®.

The Synclavier is the most technologically advanced and cost-effective system for automated video and film post-production available today. Applications as diverse as sound design, effects edit-to-picture, Foley, dialogue replacement and film-style mixing can now be performed from a single workstation.

The massive storage capacity of the new Optical Disk provides an on-line sound effects library of unlimited size, fully indexed and cross-referenced. Any individual effect can be retrieved within seconds. This gives you the unprecedented ability to create a precise SMPTE hit list, then audition different sounds and effects sequences while locked to picture.

Lay in effects by typing SMPTE addresses at the terminal, or play them in real-time from the 76 note velocity/pressure keyboard. With each key triggering different sounds, elaborate sequences can be built

quickly. For example, the Synclavier makes it possible to place the sound of a car starting on one key, the idle on another, the engine rev on yet another — not to mention coughs, sputters and door slams. The Synclavier even lets you fit effects to picture in slow motion while maintaining perfect sync.

For dialogue replacement, Direct-to-Disk™ offers over three hours of continuous recording time. The system automatically allocates track space and there's never any wait for reload or rewind as with conventional methods. Master takes can be assembled from multiple passes simply by setting cue points, then automatically fitted back to picture at the precise SMPTE location logged from the original sync master. To ensure consistency, room ambience can be extracted from location takes, then looped and overlaid on the re-recorded dialogue.

Together the Synclavier and Direct-to-Disk systems give you up to 216 separate tracks of audio, with separate control of volume, pan and SMPTE offset times for each individual track. This enables you to perform sophisticated film-style mixing at a fraction of the cost of traditional dubbing facilities.

Now, with The Tapeless Studio™, The Power Station can bring their renowned sound to the video world. 🏠

"In one compact, cost-effective package, the Synclavier gives you world-class post-production capabilities. The system is intuitive and easy to learn. At the same time, it offers many powerful editing features that other systems cannot match."

BOB WALTERS THE POWER STATION, NEW YORK

Ed Evans, Chief Engineer, Bob Walters, President, and Rob Eaton, Engineer



THE POWER STATION

World Radio History

The Master MIDI Studio

MIDI keyboards, sequencers and effects are proliferating, changing the way music is being written and produced. In a competitive marketplace, commercial studios need to offer MIDI-capable facilities and production services. But studios that invest heavily in conventional MIDI set-ups often find the return is limited, because the equipment is so widely available.

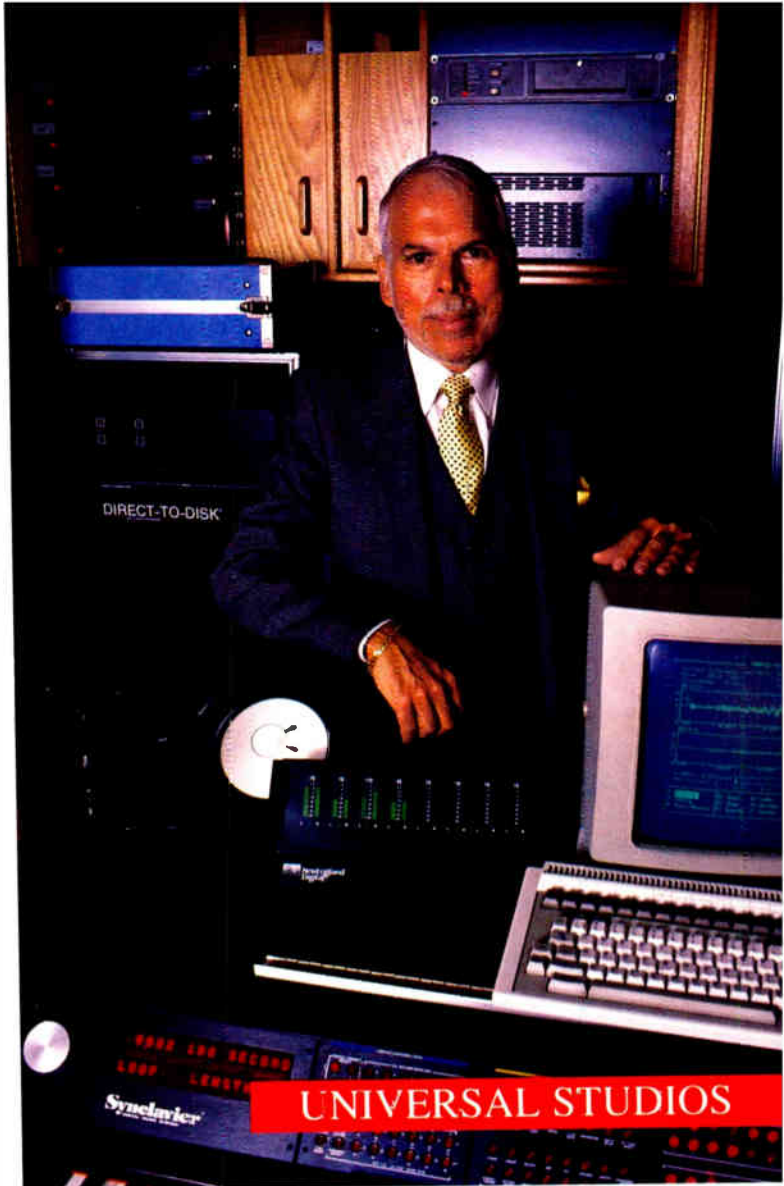
Making the Synclavier® the center of your MIDI facility solves this problem. With the Synclavier you offer true state-of-the-art MIDI production capabilities that cannot be duplicated.

32 stereo FM voices and 32 stereo polyphonic sampling voices plus multiple MIDI ins, outs and throughs make the Synclavier a perfect all-in-one tool for polishing rough MIDI demos into finished professional productions. Rhythms come alive when stock drum machine sounds are replaced with custom 16-bit samples. And with extensive libraries of expressive sounds, both real and synthesized, to choose from, creative and commercial arrangements can be fully realized.

But the Synclavier's true power emerges when you use it as a master MIDI controller and sequencer. Extensive MIDI implementation allows you to remap MIDI outputs, filter out unwanted and incompatible controller messages like aftertouch and bend, transmit patch changes, and send overall MIDI volume commands. The Synclavier also transmits and receives MIDI song position pointer, and can now control up to 128 external MIDI tracks.

By transferring MIDI sequences into the Memory Recorder, you can take advantage of the Synclavier's superior one-millisecond timing resolution. (By way of comparison, thirteen milliseconds is the resolution of a well-known software sequencer for a popular personal computer). MIDI delay problems can be solved by using the Synclavier track sliding feature — individual tracks can be slid forward or backward by fractions of milliseconds to achieve dead-on perfect timing.

From a studio owner's point of view, the Synclavier solves another problem too — the problem of obsolescence. As the number of low-end synthesizers, samplers and sequencers grows, product lives get shorter and shorter — many models lose popularity and are discontinued before they can even be depreciated.



Murray Allen, President

A Synclavier, on the other hand, represents an investment. Regular software enhancements, sent to you on floppy disk, keep your system fully up-to-date as we introduce new features. And our modular hardware design always allows you the option to expand your system — to add voices, more memory, or new additional features like music printing, Optical Disk storage, even Direct-to-Disk™ recording.

So the system that helps you grow can grow right along with you. 🏠

"Because of its enormous power, fidelity and versatility, a Synclavier is a merchandising tool — clients will come to your studio because you have it. The Synclavier is truly a step up in terms of production quality and capabilities — and that's exactly what people look for when they're renting studio time."

MURRAY ALLEN UNIVERSAL RECORDING, CHICAGO

Commercial Production

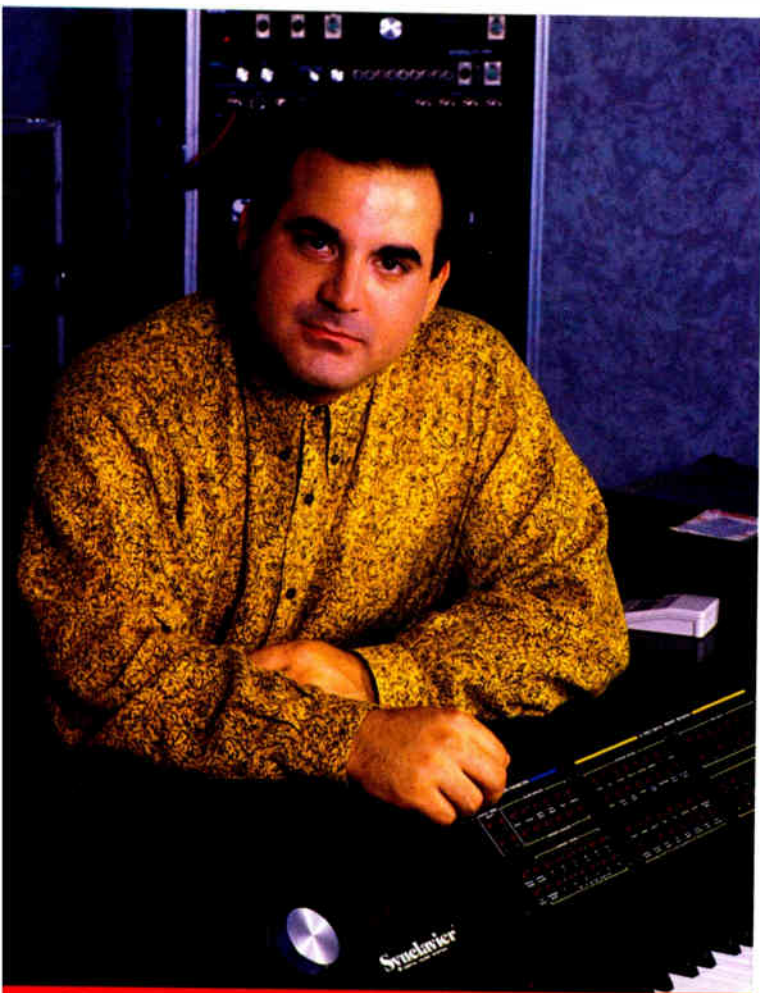
Shelton Leigh Palmer & Co. is one of New York's busiest commercial houses, and in the world of commercial music, clients don't wait.

That's why at Shelton Leigh Palmer, when the music score is done, the Synclavier®'s work has only just begun.

The Synclavier can greatly speed up the many routine, and yet very important production tasks you're faced with. Take voice-overs, for example.

By recording the announcer directly into the Memory Recorder instead of a multitrack, you can assign each line to its own track, using simple cut and paste commands. This allows you to accommodate inserts and tags of different length by independently shifting individual lines backward or forward against the music bed, eliminating the need for transfers or backtiming.

Shelly Palmer, Owner



Multiple instrumental versions can be quickly produced from a single commercial as well. The Memory Recorder allows you to switch instrumental sounds, mute and solo tracks, and change keys without changing tempo. Cut and paste editing makes quick work out of turning a 60 second bed into a 30. By assigning volume envelopes to your musical tracks, it's possible to program precise fade-ins and fade-outs — a quick and easy recipe for doughnuts.

Edit down the audio for an instructional cassette, a corporate A/V presentation or a network radio talk show? Direct-to-Disk™ eliminates the need for time-consuming razor splices. Simply mark your in- and out- points on the software display, and the computer automatically (and inaudibly) splices from cue to cue while storing each move. Since you're not physically cutting or moving sound data, the original audio track is left intact, so you can always make changes later.

For broadcast audio features, like syndicated concert, humor and sports shows, the Synclavier and Direct-to-Disk function as a fast, flexible all-in-one editing and mixdown system. Each segment — intro, theme music, monologue, etc. — can be assigned to different Memory Recorder or Direct-to-Disk tracks, and triggered at precise intervals via SMPTE from the terminal.

Special effects can be recalled directly from the on-line Optical Disk library. Recurring spots, station I.D.'s and audio logos can be retrieved from winchester disk and dropped in where needed at precise SMPTE locations. Program your individual track volumes, fade-ins and fade-outs, and pan assignments and you're done — in a matter of minutes rather than hours, because there's no transferring or splicing by hand.

"Advertising clients come to us with a wide range of ideas and needs — and we have to respond quickly. The Synclavier provides the capability. Sampling, synthesis, recording, editing — we use every single function of the machine. The Synclavier is a commercial production studio in a box."

SHELLY PALMER
SHELTON LEIGH PALMER & CO., NEW YORK

Speaking of audio logos, remember that famous Meow Mix commercial? Well, Shelly Palmer sampled a 22 pound cat named Stanley, resynthesized the sample, then had 76 meows to play up and down the keyboard . . .

And when you're in the business of selling creative services, that's the great advantage of The Tapeless Studio™ — to automate the routine so you can spend more time on the creative. ■



THE COMPLEX

George Massenburg, Owner, Wells Christie, Synclavier Consultant

Record Production

As a sound and electronics designer, George Massenburg has earned a reputation for his unrelenting attention to detail. When George Massenburg and Greg Ladayni redesigned The Complex, they specified Synclavier®.

Today's Synclavier is truly a tool for the creative engineer as well as the creative artist. Its unsurpassed fidelity and one millisecond accurate timing resolution permit engineering feats difficult or impossible with conventional tape or MIDI gear.

For example, the Synclavier has become the engineer's secret weapon for vocal fixes. By sampling the vocal to Synclavier RAM, you can correct for pitch with the bend wheel, then fly the new passage right back into the master track. Sync is always perfect because the Synclavier records precise SMPTE location while sampling — and 100 kHz fidelity ensures the correction is indistinguishable from the original.

A similar Synclavier technique has become standard practice for chorus fly-ins, too: sample that first perfect chorus to RAM, then trigger it in real-time

from the keyboard or via SMPTE from the terminal for each chorus thereafter.

For drum replacement, the Synclavier's clock interface features a unique holdoff control that filters out double hits, flams and false triggers. It can also clock an incoming signal while simultaneously generating time code — perfect for creating sync tracks after the fact.

In today's competitive studio market, compatibility is no longer a luxury, it's a necessity.

With hundreds now in use throughout the world, the Synclavier has truly become studio equipment in demand — used by top artists and producers who have come to rely on its efficient and cost-effective performance. A Synclavier attracts the client who is interested in quality and reliability.

After all, state-of-the-art should mean providing clients with the facilities and expertise they want. That's why George Massenburg and The Complex chose Synclavier. ■

"I can't imagine a session when I'm not called upon to sample sounds, or tweeze together vocal tracks, or spin sounds all with dependable transparency, resolution, and flexibility...and to do it all in data domain! Not having these capabilities at hand would essentially say, 'Would you care to try another studio?'"

GEORGE MASSENBURG THE COMPLEX, LOS ANGELES

The Tape

The Synclavier® Digital Audio System and the Direct-to-Disk™ Multitrack Recorder combine to form The Tapeless Studio, a complete computerized recording environment for music and post-production. The heart of The Tapeless Studio is the proprietary high speed Synclavier computer, which integrates and controls the functions of a diverse array of hardware and software for the generation, manipulation and storage of sound.

The Synclavier system's outstanding power, speed, and ease of use derives from the computer's unmatched ability to address massive amounts of digital sound data. A maximum configuration of 8 gigabytes of on-line storage offers the largest capacity of any system of its kind.

Synclavier memory can be configured to match your specific requirements.

Winchester hard disks provide on-line "workspace" for songs in progress and libraries of frequently used sounds. High density floppies are used for storing individual projects, sound libraries and installing factory software updates, while 15 Mb streaming cartridges provide hard disk back-up. Optical Disks offer a full 2 gigabytes of memory for mass on-line recording storage of sound data.

Random Access Memory is used for the recording, editing and playback of short instrumental sounds or sound effects: 32 Mb are available, again the



largest of any audio system. Additional system RAM provides storage for the 200-track Memory Recorder — maximum size is 8 million note/events.

Synclavier user interfaces include the computer terminal, mouse controller, the 76-note velocity/pressure keyboard, and the optional Digital Guitar. System interfaces such as the MIDI, SMPTE, Multi-Channel Output Distributor and external timing modules may also be added.

Software updates keep the Synclavier system at a state-of-the-art level. Recent enhancements make available advanced features like cut-and-paste editing for the Synclavier Memory Recorder, mouse-based editing for sampled sounds, engraving quality Music Printing, database organization of archived sounds, and full SMPTE and MIDI editing capabilities.



less Studio™

The Direct-to-Disk Multitrack Recorder, featuring unsurpassed 16-bit/100kHz fidelity, can now be configured in stand-alone 4, 8, and 16-track units. It records and plays back audio information from a dedicated network of winchester hard disks, and backs-up on convenient, reliable data cartridges. Direct-to-Disk also incorporates its own SMPTE synchronizer and MIDI interface.



Like the Synclavier, the Direct-to-Disk system is based on proprietary computer hardware and is software updateable. Current software implements advanced non-destructive cut-and-paste style editing. A maximum continuous recording time of over 3 hours is available at a sampling rate of 50 kHz with a 16-track system.

The Tapeless Studio™ has been designed as a modular, open architecture system, which can be expanded as your business grows and as new technology becomes available — while protecting your original investment in the system and in the time spent learning its operating procedures. New England Digital provides comprehensive training for you and your staff.



Technical assistance and service are available on-site or by phone from any of our offices worldwide. There are company-owned sales, service and training offices in Los Angeles, New York, and Chicago, with branch offices in Nashville, Toronto, France, Great Britain, West Germany and Japan, in addition to our corporate headquarters in Vermont.

We recognize that when you make a significant capital investment in equipment, you are also, in part, investing in a company. New England Digital is a research-oriented, American computer company dedicated to a single goal: building the finest computer-based digital audio systems for the music, recording and post-production industries.





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Chicago, IL 60611
(312) 266-0266

Los Angeles

New England Digital
8453 Beverly Blvd.
Los Angeles, CA 90048
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For a complete information package, including an audio cassette demonstrating the Synclavier and the Direct-to-Disk System, please send \$5.00 to New England Digital Corporation, P.O. Box 546, White River Junction, Vermont 05001.

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MIX-MINUS

by Donna Carter & Skip Pizzi

"Mix-minus" is a frequently encountered function in broadcasting. For those unfamiliar with the term, it refers to the use of a broadcast mixing console's auxiliary bus ("audition," "Pgm 2," "Pgm B," etc.) for the creation of a secondary mix, which is identical to the main mix except that it does *not* include one of the main mix's inputs. That one element undelegated to the secondary (mix-minus) bus is typically an incoming line from a remote source, such as the output of a telephone interface device, satellite downlink, etc. While you record or broadcast the main program mix ("full mix"—includes all inputs), the mix-minus is used as a monitoring send ("backfeed") to the remote location. By doing this, you allow the remote source to hear all other elements of the program, but avoid sending the source's output back down the line to itself.

This is done to prevent two problems from occurring. The first is feedback, from a typical telephone interface when external gain is sufficient to overcome its internal trans-hybrid loss or gating depth (see sidebar on telephone interfaces); the second—and more important—is echo, of either the single ("slap") or regenerative variety, caused by the delay inherent in satellite communications. Slap echo, or a single repeat ("hello-lo"), is caused by lack of mix-minus at one end of a satellite link; regenerative echo, or multiple repeats ("hello-lo-lo-lo..."), is caused by lack of mix-minus at both ends of the circuit. More on this below.

A "Binary" Function

Note that an auxiliary bus with inde-

pendent send levels (a typical "echo send") is *not* necessary for mix-minus (although one certainly can be used for it). The mix-minus' elements need not be at different mix levels from what they are in the main mix, but rather, the received signal from the remote source must be included in the main mix and not included in the mix-minus. So delegation switches rather than send level pots are all that is required to insure that the main mix contains all elements, while the mix-minus contains all but one. Otherwise, the mix-minus is unchanged from the main mix.

Telephone Applications

Imagine a typical phone interview situation with an interviewer (we'll call him/her "talent") and an interviewee (the "guest"). For a standard phone interview (i.e. someone interviewed

from their home or office telephone), a mix-minus backfeed is provided back down the phone line to the caller, to prevent feedback through the phone interface, and so the caller will not hear an echo of her/himself (the latter only will occur in the case of a satellite-delivered call).

For a phone interview with a guest in another studio, a similar mix-minus backfeed is provided, but the other studio must do the same, to prevent you from hearing your own talent's voice coming back to you through the phone line. In other words, what the other studio feeds the phone line to you with must be "guest-only" audio. On either end, the full mix of studio mic plus phone-line audio is delivered to the headphones and control room monitors only. Of course, on one end (typically), this full mix is the program that is being broadcast or recorded, as

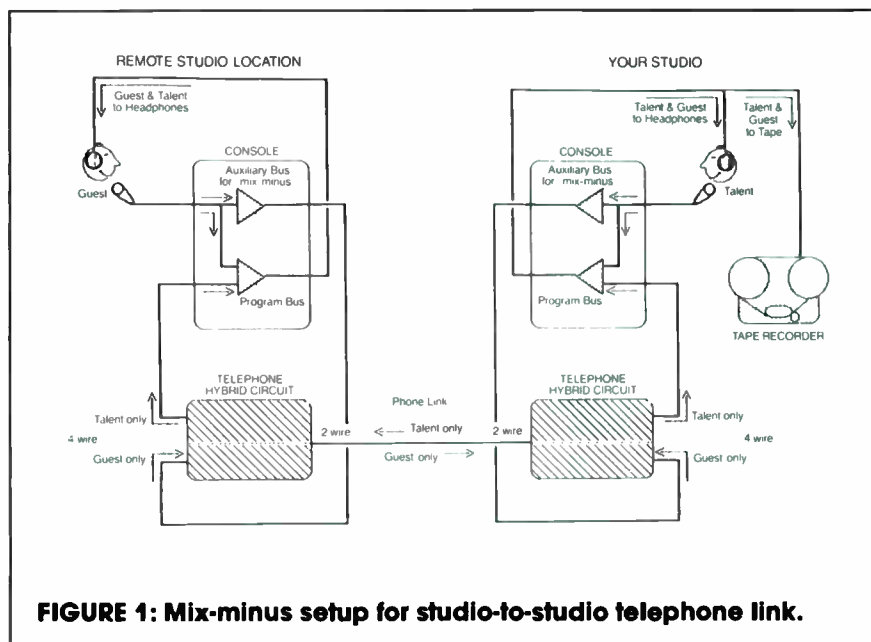


FIGURE 1: Mix-minus setup for studio-to-studio telephone link.

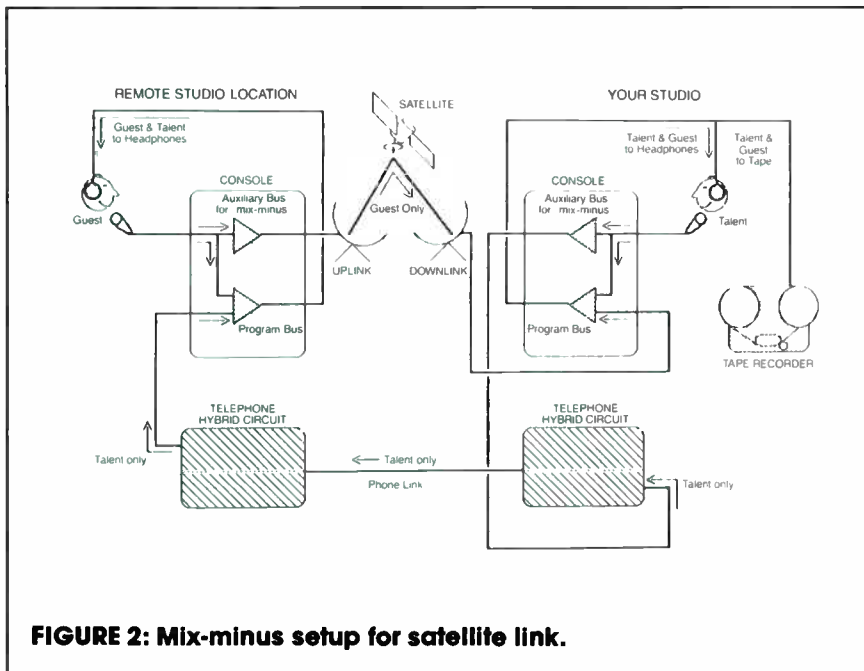


FIGURE 2: Mix-minus setup for satellite link.

well. See Fig. 1.

Satellite Applications

Now imagine a situation in which you are recording a session or broadcasting a program in which talent sits in your studio, and a guest sits in a remote studio. This time, however, the route of that remote studio's output to you is not via a telephone but rather via a satellite channel (typically a quiet, wideband—15KHz—audio channel). The satellite channel is a one-way line, from the remote studio to you. You must provide a separate way for your talent to be heard by the remote studio, but this needn't be a high-fidelity link, since it is purely a monitoring feed. A dial-up phone line is therefore adequate, so, assuming that both studios are equipped with telephone interfaces (couplers will do in this case), placing a call to the other studio is all that is required to complete the setup. This phone line also will be used as a one-way link, from your studio to the remote studio; it is called the "dial-up backfeed."

The backfeed must be fed with mix-minus audio, meaning that the satellite-received audio from the remote studio must not appear in the bus being fed back down the phone line. This is done to prevent the guest from hearing an echo of themselves on their monitor feed, due to the transmission time delay caused by the use of a geostationary satellite. (This delay is about a quarter second. These satellites orbit at 22,300 miles above the earth, in

order to appear stationary from earth while they are actually traveling at orbital velocity—about 17,000 mph. Even at the near-light-speed at which radio waves travel to and from the satellite, the total distance up and back [44,600 miles] results in the delays referred to here.)

If the backfeed is a phone call that is also routed via satellite by the phone company, the delay involved grows to about half-a-second. If you've ever tried recording your voice while listening on headphones connected to the repro head, you have an idea of what it's like to try doing one of these without mix-minuses. (See sidebar on alternate long distance services.)

Typically, the only element that is in the mix-minus backfeed is your talent's voice, but on some occasions, there may be other program elements such as carts, tape cuts, theme music, other voices, etc., which the guest on the remote end must hear. Hence the term *mix-minus* is an apt one, since all these elements are included in it, minus the guest.

Meanwhile, the remote studio must also be doing a mix-minus act of its own, but a bit differently. The guest there will hear a mix on headphones that combines his/her own microphone's output with the incoming telephone backfeed line from your studio. The remote studio's feed to the satellite channel, however, must be purely the guest mic, and not include any of the phone line backfeed audio. So on your end, the mix-minus is used for

monitoring, and full mix is used for program; on the remote end, mix-minus is used for program, with full mix used for monitoring. See Fig. 2.

Note that acoustical leakage from headphones can defeat or inhibit mix-minus, as can the use of a telephone instrument receiver in lieu of headphones in the remote studio on a satellite hookup. Make sure that the remote studio's guest-only mix-minus feed to the satellite channel is truly guest-only, with any crosstalk and leakage substantially (50 dB or more) down.

Multi-Source Applications

A more complex scenario involves the setup for a recording or broadcast to which several different remote locations are connected simultaneously, by phone or satellite. For example, consider a host in your studio talking to guests at studios in Atlanta, Boston and Chicago. Each needs a separate mix-minus to be able to hear one another, but not hear an echo of themselves. To accomplish this, your mixing console must have a sufficient number of spare buses, such that a separate mix-minus bus for each remote location can be created (in this case, three—let's call them A, B and C). Your studio talent should be delegated to the main mix bus (which is being used for the recording or broadcast mix) and to all three mix-minus buses. The Atlanta source should be delegated to the main mix and only two of the mix-minus buses, say B and C. The one bus that Atlanta is *not* delegated to (bus A) is used for its backfeed. Boston is delegated to main mix and buses A and C. Bus B is used as its backfeed. Chicago goes to the main mix, and buses A and B, with C used as its backfeed. See Fig. 3.

Full-Mix Backfeeds

In some instances, dedicated program circuits from the telephone company are used for both receive and backfeed lines to and from a remote location. This is often referred to as a "four-wire" situation, in that separate pairs of wires are utilized for send and receive along the whole circuit. (See sidebar on telephone interfaces.)

Here, since neither the dial-up telephone network (the "two-wire" situation) nor any satellite delay is encountered, mix-minus is not required for the backfeed. In this case, a full mix may be sent down the backfeed line, and the remote guest may monitor just

TELEPHONE INTERFACES

A telephone interface is a familiar piece of radio station gear, and has been referred to over the years by several other names: "coupler," "hybrid," "phoner," "speakerphone," and even "beeper" from the days long past when FCC regulations required that the device beep periodically to alert callers that they were being broadcast or recorded.

There are some differences among these, primarily in that the coupler types are simply for a one-way interface, either to record from or to feed into the phone line. They are generally simple, passive devices which match impedances and often limit level going into the line, along with blocking DC ring voltages and offsets from coming out of the line into recorder or console inputs. When setting up a dial-up backfeed for a satellite or non-dial-up telco-line interview, a coupler is all that is necessary.

The other main type of device is an interactive sort of either the hy-

brid or the speakerphone type. These allow a full two-way conversation to be interfaced with a console, and basically provide electrical connections that replace the function of the acoustic transducers (mouthpiece and earpiece) of a regular telephone instrument's handset. It is these units, therefore, that are used when recording or broadcasting a dial-up telephone interview or call-in show. A detailed explanation of the inner workings of such devices is fair game for another complete and lengthy article, but concerning the applications being discussed here, it is important to note a few of their relevant functions.

These units attempt to take the caller's audio from the phone line and present it at the device's output, while at the same time taking your studio's backfeed (mix-minus from your console presented to the device's input) and sending it down

—CONTINUED ON PAGE 66

SECONDARY LONG DISTANCE CARRIERS

Note that some of the cut-rate long distance carriers use satellites even for relatively short calls—New York to Pittsburgh, for example—which often will be provided via landline by AT&T or others. In addition to the delay, S/N ratio usually suffers in these cases. If your normal LDS fits this category, in most areas you can subvert them on an individual call by dialing the prefix 10XXX, followed immediately by area code and number (no intermediate dial tone will be heard) where XXX is a three-digit code representing the other LDS of your choice for this call. For instance, AT&T is 288, Sprint is 777, MCI is 222, USTel is 333, etc. You needn't have any account set up with this LDS. You will eventually be billed for the call, in some cases directly from the LDS, and in others by your local telephone company on their behalf.

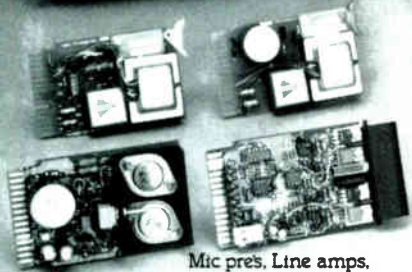
HEARD ANY GOOD ONES LATELY ?



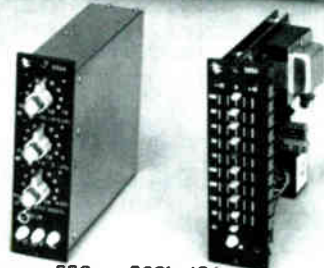
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the phone line to the caller. What is happening is that two separate audio circuits—an input and an output—appear on the studio side of the device, but these must be combined into a single, bidirectional line to travel into the dial-up network. This is the so-called two-wire to four-wire interface. (See Fig. 1 of main article.)

By various means (balanced bridges, gates, digital networks), the phone interface tries to cope with its biggest problem: how to get your backfeed onto the phone line for the caller to hear without it coming back out of the device's output and into your console along with the caller's voice. This is referred to as "sidetone suppression" or "trans-hybrid loss." The varying levels and impedances presented by each call make the designing of a one-size-fits-all circuit configuration to accomplish this a formidable task. Although some rather ingenious "smart interfaces" using adaptive circuits to tailor a balancing network to each individual call, using both analog and digital techniques, have been produced recently, about the most isolation one can expect on these hybrid-type interfaces (which allow caller and talent to talk simultaneously, and be heard on air and by each

other without gating) is 20 dB, with 6 to 10dB being much more common. This means that your backfeed going into the interface will be coming right back out of its output at a level only about 10 dB lower than the level at which you are feeding it.

Some speakerphone designs may perform a bit better than this on the average, in terms of isolation, but they use some fairly brutal gates which allow only one voice to speak at a time, and this can cause real problems for both the art of conversation and tape editing, not to mention obnoxious phone line noise gating in and out—making it more noticeable than if it were stable—and even occasional dropouts on low-level calls.

This brings up two operational points. First, don't send the backfeed level any hotter than it absolutely needs to be for the caller to hear clearly. On hybrid-types, the higher the backfeed, the more of your talent's voice comes back out of the interface with the caller's voice, resulting in a tinny coloration being added to your talent's voice, since it is being heard both through the studio mic and through the band-limited telephone system's interface. On speakerphone-types, the higher the backfeed level, the

less sound from the studio is required to gate out the caller's voice, so that even paper rustling or the talent's moving or breathing may cause dropouts in the phone line. Some coloration of talent voice may also occur on these designs. Secondly, although audio processing is necessary and desirable on telephone audio, beware of excessive compression (especially when using simple, non-gated compressors), since this reduces the trans-hybrid loss or gating depth of the speakerphone by bringing up the noise floor (and hence backfeed leakage).

Getting back to the subject at hand, if mix-minus were not used on backfeeds for telephone interviews, there often would be only a 6 dB margin keeping the telephone interface's output from being fed back into itself. This internal 6 dB of isolation in the interface would quickly be taken up by external compression or straight amplification of the phoner's output at the console, and a feedback condition would quickly occur. Since mix-minus eliminates the telephone interface's output from the backfeed completely, it gives a helping hand to the often mediocre isolation performance of even the best telephone interfaces.

that alone. No local monitor mixing at the remote site is required for the guest to hear her/his own voice. Their monitor mix is identical to your program mix in this case.

Summing It Up

Providing a quick and simple way to accomplish mix-minus is an important part of any studio's design. It has other applications as well, but all involve a mixing console's ability to perform two or more mixes at once. Mastery of the signal flow concepts involved enhances the skill and versatility of every audio engineer, and has become essential to technical personnel in today's increasingly interconnected studio world.

Donna Carter is a broadcast technician at National Public Radio headquarters in Washington, DC. Skip Pizzi is training coordinator for NPR's Program Engineering Department.

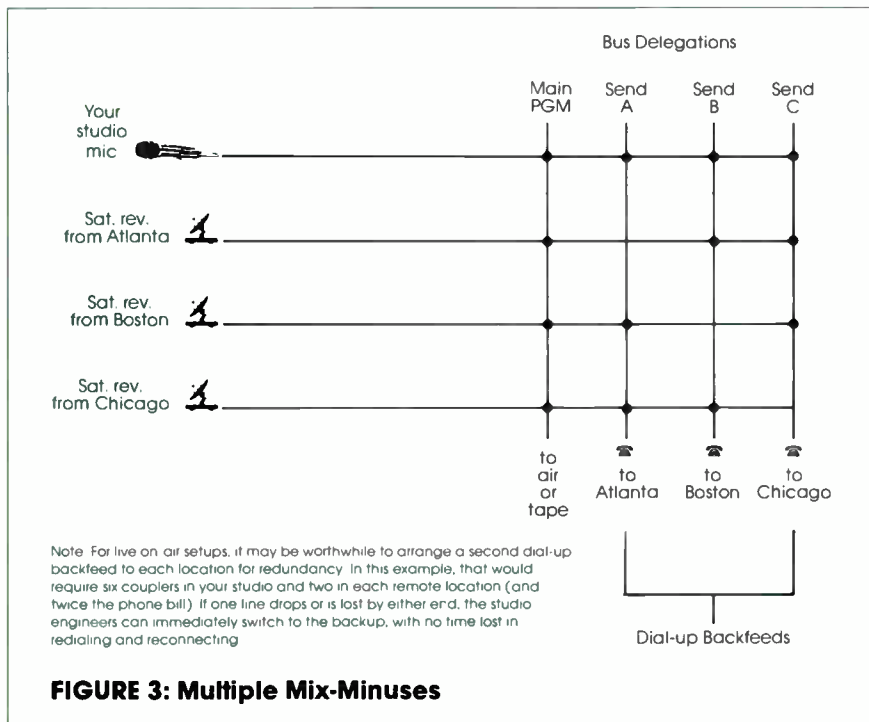


FIGURE 3: Multiple Mix-Minuses

BRYSTON



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

Bryston design philosophy incorporates three general concepts.

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

MUSICAL ACCURACY

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

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

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

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

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

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

STANDARDS OF RELIABILITY

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

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

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

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

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

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

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

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

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K-ROCK

TACKLES PRODUCTION

by Dan Daley

"When this station started, New York City was a fragmented marketplace," says Mike Koste, production director of "classic" rock-formatted WXRK, better known locally as K-ROCK (no relation to L.A. giant KROQ). "There was no duplication of formats: WABC played the hits, WINS did the news, et cetera. Now there's the same number of stations but there's a lot of format duplication—several stations go after the Top 40 listener, us and WNEW go

after the album-oriented listener. It's not that the market has changed; the competition has changed."

In the tightly competitive market that is New York, K-ROCK looked to a combination of new technology, innovative (for New York, anyway) marketing along with familiar and controversial on-air personalities to achieve its goals.

Since its inception in July, 1985, K-ROCK has gone with a mix of veteran New York disc jockeys, including Meg Griffin, Vince Scelsa, Marc Coppola and Tony Pigg. The crew is led by

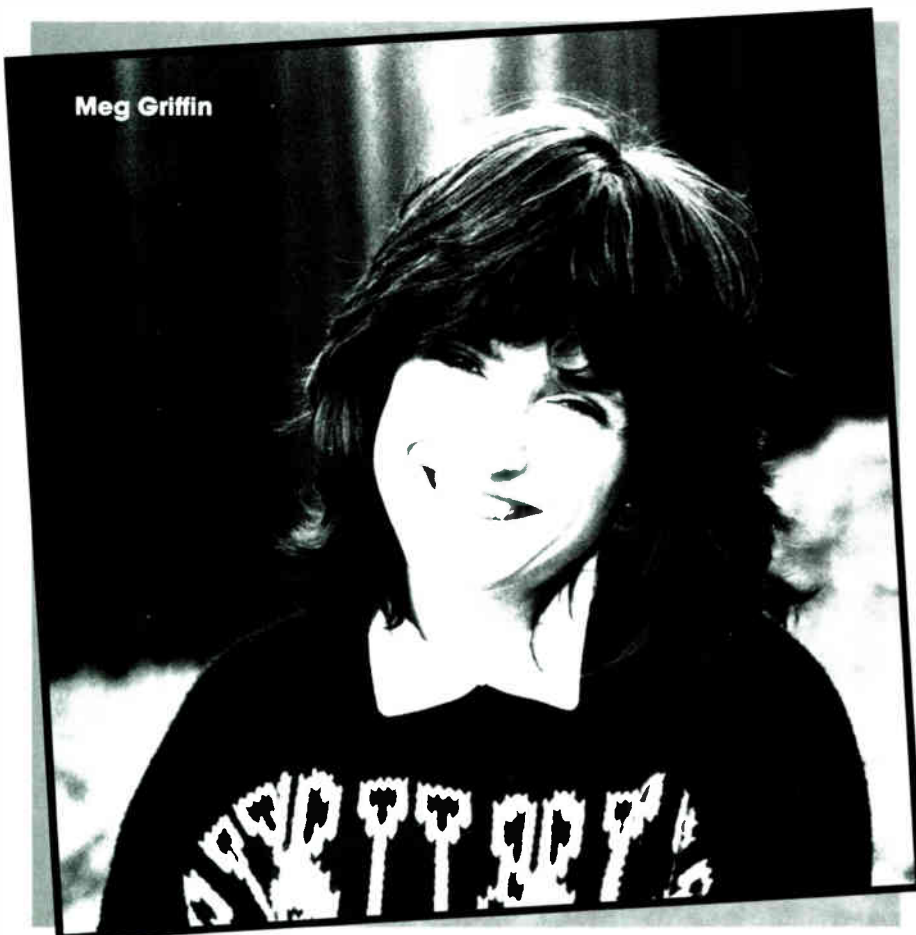
morning drive-time jock and professional bad boy Howard Stern, whose iconoclastic antics have brought both high ratings and warnings from the FCC.

It was Stern's presence that influenced the choices of technology when K-ROCK made its recent move into its new 18,000-square-foot quarters on Madison Avenue. Stern required several outboard effects to enhance his personal brand of madness, and he required a sophisticated telephone hookup to take calls live on the air. Given Stern's lubricious inclinations, this also necessitated a seven-second delay line on those phones. Items like an Eventide Harmonizer and echo and reverb units are located in a production studio separate from the on-air room but are closely linked to the air room via tie-lines, since Stern demands—and gets—total control over every aspect of his program, from commercials to special effects. (His morning drive-time slot garners a very healthy 6.2 percent of the area's market.)

The additional technology is fine with Koste, who sees effects like the ones Stern employs as part of the package that defines the station in the market. Koste's position as production director—as opposed to program director, a post held by Pat Evans at the station—has given him a perspective on what makes a radio station unique in a tight market. He sees production values as important here as in a record.

"When I started in radio, a production room had a turntable and a tape recorder," recalls Koste, who's been directing production for ten years at various stations. "These days what we have at K-ROCK is state-of-the-art, but it's also very standard as far as what everybody else has. However, the new equipment puts everything at my fin-

Meg Griffin



gertips; whereas in the past, where it was an engineer-friendly situation, it's now an engineer-operator-announcer-friendly connection."

Koste feels the added technology frees up creativity. For instance, for on-air promotions he likes to write copy himself and he gets ideas while in the studio, as opposed to waiting for copy from one source and ideas or instructions from others. "Then I take it to the [Sony/MCI] 4-track deck and mix it down. I have no idea what it's going to sound like till it's done. In the past you had someone write you a script and send over the song bytes that they wanted you to use and you'd lay down a music track and you'd voice it and cart it up and there it was."

Amid all the gadgets, Koste finds himself wearing a lot of hats as producer, announcer, copywriter—it's a throwback to earlier radio days. Which in a way is just what Stern himself is.

"I knew Howard when we worked opposite sides of the street back in Detroit," Koste remembers. "And I heard him at WNBC in New York and between those two times I realized that this guy is not a disc jockey; he's a radio entertainer and very unique at what he does. He's like the guy in front of the tent at the circus saying come on in and look at the two-headed snake. He's the guy who lures people in and gets the crowd."

"We had the equipment that Howard needed; we had to make some modifications because Howard does live telephone calls; he doesn't tape them and edit them and then air them later. We had to put in the seven-second delay system. And we had a lot of people in the studio with Howard."

"When Howard first came on and started using the Eventide Harmonizer on the air, the people at Eventide had never heard anyone use it live before. So suddenly they started making contact with Howard and his engineer on a regular basis and giving them updates on what the Harmonizer was capable of doing and provided him with settings after hearing him do certain things with it. It was amazing that they were paying attention, and as they have stayed in contact with him and his engineer, they have learned to do more with it. If you consider Howard's popularity and how successful he is, my feeling is that radio stations and their on-air personalities will be using toys like that more in the future."

"Certain effects don't just have to be

"Any kind of tools, especially in radio, free you up to be more creative."

—MEG GRIFFIN

used for comedy; they can also be used for drama. The outboard gear is always hooked up to the console now. Not everyone will use it but now and then someone will use the echo chamber for one word, for effect, for impact, and it's a lot of fun—it's not the same bland background disc jockey patter—it's like someone's playing with my head. This is fun!"

But effects need a place to be put, he points out. "The problem was that as a result we ran out of effect return positions on the board. The console

we have now is the same as what we had but there's more on it."

The solution was new consoles from Pacific Recorders, a broadcast console specialist in California. The station's chief engineer, George Steiger, says the two types of consoles, a BMX-3 for on-air applications and an AMX-3 for production, have effects returns as standard but that having them is a decided plus in the production end since, with the exception of jocks like Stern, few other DJs bother to use them.

The configuration of the consoles delivered to K-ROCK was the result of a lot of give and take between Pacific Recorders and Steiger's group of engineers at the station. Howard Stern was again the primary consideration. "Since at the present time our major program at WXRK is Howard Stern," says Steiger, "we needed a console that is very flexible because Howard is continually evolving new ideas and making new requests [of the engineering department], and so far with the Pacific Recorders console we've been able to implement everything that he's asked for. Like special telephone requests, his sound effects that he puts on the

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Circle #109 on Reader Service Card

air, and implementing a second console to tie in with the Pacific Recorders so that his people can play the cartridges instead of Howard. In his type of programming, it gives a degree of flexibility that most stations don't need. He has total control when he's at the console. He has to have some degree of control over what he puts on the air in terms of sound effects and commercial cartridges. For that we purchased another smaller console and tied it into the main console by hard wiring. Fred, Howard's production person, then has complete control over prerecorded commercials, subject to Howard's approval. He has ultimate control.

"Many of the effects that Howard uses are in the production room. We patch it through master control to the studio. Howard was here for a year and a half before we designed these consoles so we made sure we could anticipate his requests. Basically, there's nothing unusual about them except that Pacific Recorders turns out the finest equipment that you can get in the broadcast field at the moment, and they're also excellent when it comes to backup and support."

Several consoles of each type were necessary since Infinity Broadcasting, the company that owns WXRK-FM, also has an AM side: WJIT, one of New York's Spanish-language stations. WJIT broadcasts at 5,000 watts from an antenna in nearby New Jersey; K-ROCK sends out 13,000 watts from atop the Empire State Building, whose 1,200-foot height gives the station an effective equivalent of 50,000 watts.

Steiger has been in radio for 42 years. He started at WXRK when it was called WHON in 1946. The station has been through three sets of owners and three station moves and several transmitter moves. Steiger feels that 42 years ago, radio production essentially consisted of not much more than microphone placement: "Forty-two years ago when it was WHON and only AM, we used to put on regular opera programs—live, not recorded. We also used to put on soap operas in Spanish and in Italian and that was something to watch. I remember one time there was a guy who played the part of a guy who was stabbed by a rapier. When the moment came, he laid down on the floor like he was dead, like this was television. Who saw this on radio? It was like the Stanislavsky method of radio acting.

"When I started in radio, all a production room had was a turntable and a tape recorder."

—MIKE KOSTE

"Everything was live back then. That hardly exists anymore. To my mind, radio production is something that you prerecord in a production studio and you play it back on the air."

Meg Griffin, perhaps the most recognized female voice in rock radio in New York over the last ten years, represents the other side of the production coin, preferring to deliver her patter and plays relatively straight. "I guess most jocks don't use the equipment as much as Howard does, either out of choice or not knowing what to do with it," she says. "It's that simple."

Well, not *that* straight, perhaps. Griffin has an exceptionally keen sense of humor and does build in some comedy drop-ins between songs. "Any kinds of tools, especially in radio, free you up to be more creative," she says, "from more effects to more records. I'm doing the same kind of radio show I've always done. Howard has all the whistles, bells and gongs in the morning because that's what he does and I don't. I think that with the kind of music we're playing on FM, most stations have traditionally done it in a kind of serious manner. I've always felt that there could be and should be more radio production involved, especially on a comedic level, content-wise. Now more than ever, because people really do need a laugh—and laughs are harder and harder to find. The less staid and the more creative is definitely advantageous. There's something about sounds and what the imagination can do with them."

Koste's assessment is put in more pragmatic terms: "You have to consider that radio is in the business of selling commercials—that is basically what we're here for; the listeners don't look at it that way, they see it as enter-

tainment. But the bottom line is that we are here to sell commercials. And how radio stations sell themselves to get those spots is the bottom line. So the job of the production director is to sell the radio station through creative production of promos and station IDs and then, secondly, it's quality control and creativity in commercials and that's what pays the bills and buys the toys in the production room."

Koste sees part of his job as making all aspects besides tunes and on-air personalities as interesting as possible. He says AOR listeners are better educated, higher income types, and are conspicuous consumers and well-informed. "Because of that you can take news and entertainment elements and combine them with the format that the radio station is doing. For example, I take clips from TV and movies off a VCR, things like that two-record set of TV themes—they're part of a generation's consciousness—and make up imaginary conversations with Jack Webb from *Dragnet* and have him say positive things about the radio station. That's the kind of creativity I'm talking about in terms of defining the radio station's product and its attitude. It's making it recognizable to the audience."

Even as spontaneous types like Howard Stern make radio livelier by being live, Koste sees a parallel development with the increased use of technology in radio, if for no other reason than survival. "I honestly believe that the future of in-home entertainment is such that radio and television could be obsolete by the year 2000," he predicts. "We might be watching holograms of the six o'clock news in our living rooms. Increased technology affects every aspect. Everybody has CD players now. In America you strive to keep up with the Joneses. When something new comes along people buy it. I was working at a station in San Francisco just four years ago and we built it new from the ground up. It was state-of-the-art. A friend from Atlanta came and saw it and said it's nice—when are you going to remodel? I said this stuff isn't six months old yet. He said well, you haven't heard about such and such and it was true. The ambient aspects of radio will be as important as the personalities and the music." ■

Dan Daley is a contributing editor of Mix. But he has a rich and complex other life.



SERIES IN-LINE

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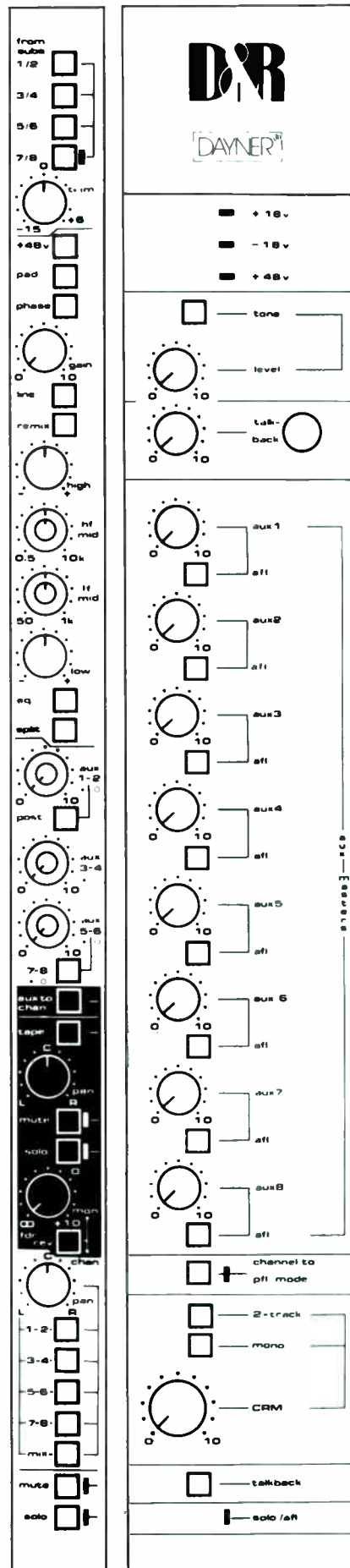
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Fader Sections not shown.

Circle #110 on Reader Service Card

D&R Dayner In-Line Module

Holland's D&R Electronics responds to the "more MIDI inputs" request by introducing an in-line

module for their Dayner Series mixing console. The module features eight aux send buses, eight floating sub groups, a complete monitor section, fader reverse, split EQ, two sets of patch



points, and other standard Dayner features. A 62-space chassis can accommodate 56 in-line modules with 112 returns to the mix bus—and still

have blank modules. The new module is available in the States from D&R USA (Arlington, TX).

Circle #179 on Reader Service Card

Precision ROAM-8

ROAM-8 is a new remote on-location audio mixer from Precision Design (Kent, WA) that operates on AC power or its internal extended-life battery pack. Features include eight mic or line-level input channels with 3-band EQ, two headphone jacks with individual level controls, a limiter, pink noise generator and the ability to output via a studio-quality line feed or an internal telephone transmission net-



work (just plug in, dial and send). Housed in a durable poly case with detachable cover and foam-lined accessory compartment, the ROAM-8 weighs under 14 pounds.

Circle #181 on Reader Service Card

JBL Performance Series Speakers

JBL announces their new Performance Series line of portable, on-stage loudspeaker systems, which provide high acoustic

output and incorporate features available from JBL's professional loudspeaker components. The line consists of: the G-730 Vocal Reinforcement System (12 inch, 2-way); the

G-731 Stage Monitor (12-inch, 2-way, tilts at two angles); the G-732 Full-Range Horn-Loaded Sound System (high-efficiency, 15-inch low-frequency driver); the G-773 Three-Way Keyboard/Reinforcement System (8-inch and 10-inch low-end drivers); the G-734 Direct-Radiator Sound System (15-inch, 2-way in bass-reflex enclosure); and the G-791 High-Frequency Power Pack (horn, driver, and crossover network for do-it-yourself component-loading). System enclosures have interlocking corners for stacking, and also can be mounted on JBL's MT-4612 tripod. Each plywood enclosure features recessed handles, steel grille and corner protectors.

Circle #180 on Reader Service Card



The Mic

Ross (Ft. Worth, TX) presents "The Mic," a 4-pattern condenser microphone featuring dual-condenser capsule design, active FET electronics, full 4-pattern switching and response tailoring. With flat response to below 10 Hz, The Mic's pattern settings are omni, cardioid, hypercardioid, and figure eight. Its response settings are flat, 50Hz cut, 10dB pad, and pad/cut. Priced at \$349.95 (matte black finish), The



Mic is supplied with a fitted hardwood case and an 8-point studio suspension shockmount. A "studio matte grey" version costs \$399.95.

Circle #182 on Reader Service Card



Audio-Technica ENG Mixer

Audio-Technica (Stow, OH) announces a price reduction, from \$1,595 to \$1,295, of their AT4462 stereo field production mixer. It features two pannable monaural inputs and two true stereo inputs, all transformer-coupled at mic or line level. Pre-fader "cue" is provided for each input. Program audio or any external source can be delivered as a monitor feed to talent over mic cable on input channels 1 and 2. A "Lev-Alert" system delivers an audible tone to the mixer headphones when peaking or limiting occurs.

Circle #183 on Reader Service Card



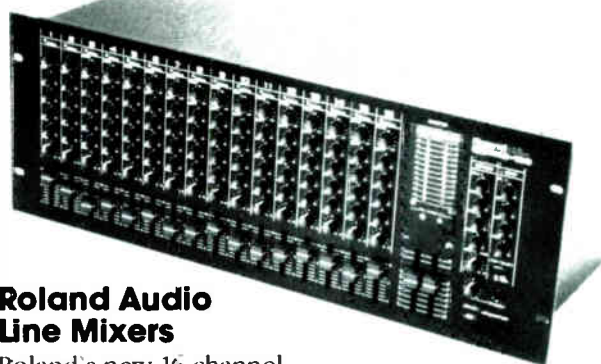
DDA/Klark-Teknik Console

The introduction of the DCM 232 in-line recording/production console marks the first joint venture between DDA and Klark-Teknik. The DCM 232 configures its inputs with a dual signal architecture to handle the need for more inputs in minimum physical space. The 56-channel console allows up to 112 inputs in mixdown, and provides 32 output buses. The DCM 232 design eliminates most switching functions (aux muting, pre/post switching, EQ and insert in/out, phase reverse, mute bus) from the modules and moves them to a central panel, for efficient control and ease of use. Each channel module features its own set of LEDs that displays current channel status. Other features include the ability to copy a channel setup to any other channel(s), 8-way sub-grouping function,

and floppy disk storage of switching functions (which can be set up as an events list, stepped manually or triggered by time code). The DCM 232 uses a split equalizer

design, with switchable channel insert points. Frame sizes accommodate 40 and 56 modules. The DCM 232 will debut at next month's AES Convention.

Circle #184 on Reader Service Card



Roland Audio Line Mixers

Roland's new 16-channel M-160 and 24-channel M-240 audio line mixers are designed for electronic music applications. Features include +4dB inputs and outputs (balanced XLR/unbalanced phone jack on each main output), sensitivity controls, three effects sends, aux, pan and channel fader. Each mixer allows three different stereo effects per channel, along with

the aux channel which can be used as a mono send. The aux input allows pre/post selection, and built-in send and return jacks enable connection to multiple effects units. The rack mountable (four spaces) M-160 retails for \$1,095, while the compact, console-style M-240 goes for \$1,495.

Circle #185 on Reader Service Card

Yamaha Digital Processors

Yamaha's new REX50 digital multi-effect processor offers 30 preprogrammed effects along with 60 user-memory locations for creating and storing custom effects. Presets include reverb, gated reverb, echo, delay, flanging, pitch change, pan, digital distortion, and a group of programs which combine distortion with other effects. Each effect has up to 9 parameters for editing; once edited, one of REX50's utility functions lets the user name the new sound. MIDI control capability allows direct selection of programs from a MIDI keyboard or controller (or optional footswitch). Yamaha suggests a \$495 retail price.

Yamaha has expanded



their SPX90's capabilities, with the unveiling of the SPX90II. The updated multi-effect processor offers the same number of presets and user-programmable memories (30 and 60), yet has increased the range of the delay parameter significantly (e.g., the SPX90II allows sampling a sound for two seconds on "Freeze" programs, and permits a full second of initial time delay for reverb effects). It is available for \$845. Optional accessories in-

clude remote controller, foot controller and foot switch.

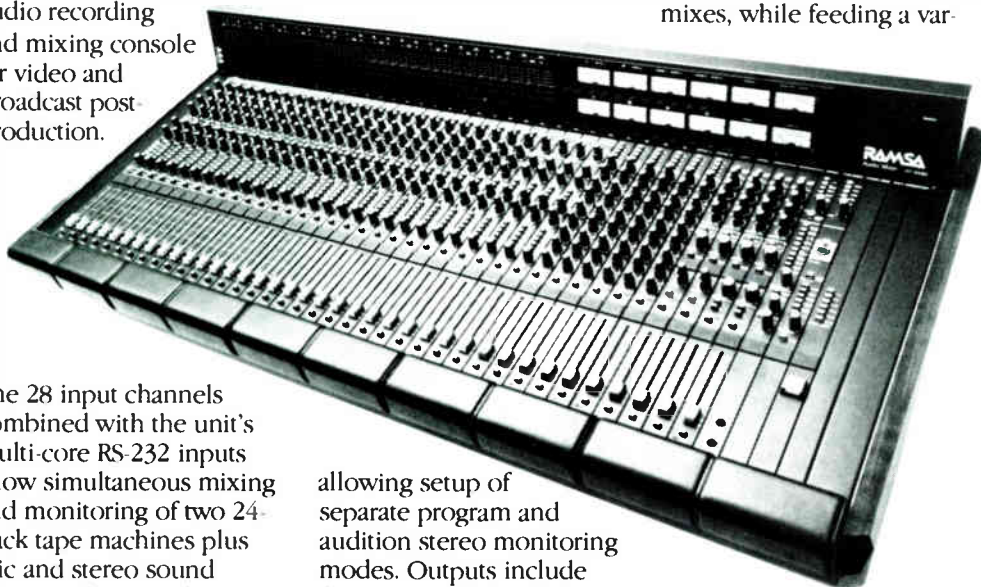
The third generation of Yamaha REV digital reverberators arrives with the debut of REV5. Increased sampling frequency is 44.1kHz, with 20 to 20k Hz response. The REV5 incorporates 30 preset programs including reverb, early reflections, delay, echo, modulation effects, gated reverb, and pitch change. Nine programs contain unique effect combinations. The

user can create and store 60 custom programs, each with original title. For sound tailoring, the unit provides a set of internal parameters for each program, and also offers programmable 3-band sweep EQ (with 3-band digital parametric EQ) for each program. The REV5's connectors cover MIDI, along with electronically balanced inputs and outputs which the user can switch to -20dBm or +4dBm level.

Circle #186 on Reader Service Card

RAMSA Post Console

Panasonic recently showcased its RAMSA WR-8428 audio recording and mixing console for video and broadcast post-production.



The 28 input channels combined with the unit's multi-core RS-232 inputs allow simultaneous mixing and monitoring of two 24-track tape machines plus mic and stereo sound sources. The WR-8428 provides ten mixing bus lines

(four Group, two Master, two Send, two Echo). The Group and Master lines can be monitored in stereo,

allowing setup of separate program and audition stereo monitoring modes. Outputs include four Groups, left and right stereo masters, a mono

master, and four matrix outputs. This permits simultaneous Dolby™ surround, stereo and monitor mixes, while feeding a var-

ety of back-up machines.
Circle #187 on Reader Service Card

Mogami Snakes

Marshall Electronics (a division of Mogami, Culver City, CA) introduces new Neglex-X Series OFC Snake Multi-Cables. Offering a number-coded/color-coded individual pair ID system, the new cable features the addition of a drain wire with each pair for added tensile strength and easy installation. Each individually shielded pair has cross-link polyethylene insulation, and consists of two 25-Awg oxygen-free copper conductors with matching OFC service shield, and superflexible 2.7mm OD PVC jacket with large printed numbers. The Neglex-X multi-cables are available in 2-48 pairs.

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Circle #022 on Reader Service Card

**Actual N/D408, 308 user comments are kept on file at the Electro-Voice Corporate headquarters in Buchanan, Michigan.*

by John Schroeder

QSC AUDIO

THE MX 1500 POWER AMPLIFIER

A

s its name suggests, the MX 1500 amplifier from QSC Audio is rated at 1,500 watts into a single 4-ohm load when bridged for mono operation, as well as 750 watts into a minimum 2-ohm load per channel. The design also includes a good deal of circuitry for protection against just about any conceivable operational error.

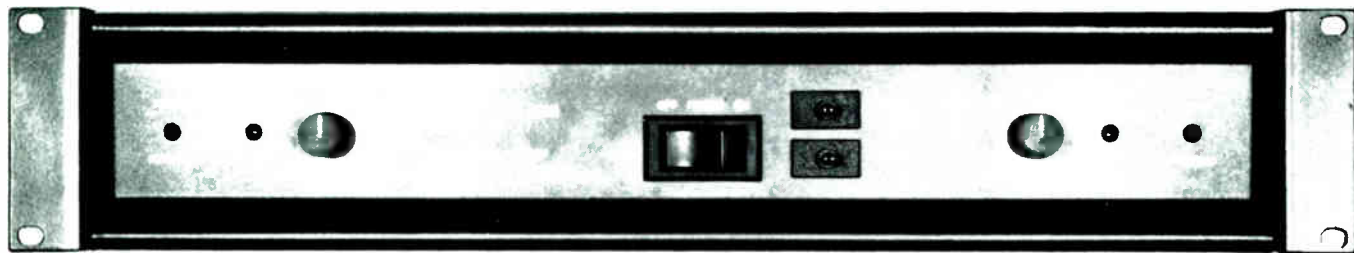
Although it is a two-channel amplifier, QSC calls the MX 1500 a dual-monaural amplifier rather than a stereo amplifier because a failure in one channel won't affect the operation of the other. This is because each channel of the MX 1500 is powered by its own balanced bipolar supply, which probably adds to the overall weight of the unit, but also insures total isolation between the channels, and stability into mismatched loads. An operational amplifier input stage allows for the noise cancelling advantage of balanced inputs, followed by a variable resistance controlling the gain of a second op-amp stage. From here, the signal flows into a push-pull class A-B circuit, with 12 complementary power transistors providing the final gain. Since the circuit lacks a great deal of complexity, signal degradation is kept to a minimum, and there are basically fewer things to go wrong, not to mention the advantage of smaller packaging.

The MX 1500 employs a number of self-protective measures, such as QSC's

patented short circuit protection system which actually monitors the load impedance and limits the current flow within the amplifier whenever necessary. When the load drops to below the minimum, the current is limited slightly for immediate protection. If a short occurs at the output for any length of time while a high-level input is being applied, limiting will increase smoothly until the current is reduced to a safe level. Thermal protection is provided by a sensor attached to the heat sink, triggering a relay whenever its temperature reaches 90°C. This relay simply shorts the load to ground, effectively disconnecting the loudspeaker(s), and resets within a couple of minutes. The input stage of the amp is protected by matched buffer resistors which prevent damage from huge input levels or radio frequency interference, and the output is protected from reactive loads by a network which isolates them somewhat at frequencies above the audio spectrum. Finally, AC circuit breakers protect each power supply from unexpected overloads.

Load protection is also provided by the MX 1500 in a couple of ways, which both utilize the previously mentioned relay to decouple the speakers when necessary. DC fault protection is provided by simply triggering the relay during the presence of a DC offset at the output. Power up/down relay muting is also standard.

The QSC MX 1500's dual monaural design, with separate power supplies and channel circuitry, maximizes freedom from crosstalk.



Connections to the MX 1500 are standard, with one exception: balanced or unbalanced inputs are in the form of 1/4-inch jacks, with tip being negative (inverting), ring positive (non-inverting), and sleeve, of course, ground. This is the exception, since tip and ring typically are positive and negative, respectively. QSC's reasoning is that optimum unbalanced connections can be made without confusion: the tip of a typical unbalanced phone jack, when inserted, will link the signal to the inverting terminal of the input stage of the amplifier, and the non-inverting input will automatically be grounded through the sleeve portion of the plug. Of course, this causes the output to be phase-reversed from the input, but QSC maintains that running the signal through the inverting input allows it to be more stable due to the influence of negative feedback, a trade-off they feel is in order. We had to fashion special adaptors to correctly make balanced connections, but if standard connectors are used,

SPECIFICATIONS

OUTPUT POWER

(per channel, both channels driven)

2 ohms, 1kHz, 0.25% THD	750W RMS
4 ohms, 1kHz, 0.25% THD	570W RMS
4 ohms, 20.20kHz, 0.1% THD	500W RMS
8 ohms, 1kHz, 0.25% THD	360W RMS
8 ohms, 20.20kHz, 0.1% THD	330W RMS

(Bridged mono operation)

4 ohms, 1kHz, 0.25% THD	1,500W RMS
8 ohms, 1kHz, 0.25% THD	1,100W RMS
8 ohms, 20.20kHz, 0.1% THD	1,000W RMS

DISTORTION:

8 ohms, THD, 20-20kHz	Less than 0.1%, 0.01% typical
8 ohms, SMPTE IMD	Less than 0.02% at rated power

FREQUENCY RESPONSE:

20.20kHz, ± 0.1 dB

the output connections can be reversed to regain correct polarity. A screw-terminal barrier strip is provided for making input connections, and can be used for bridging to mono by using jumpers to link the inputs. Outputs are standard five-way binding posts.

The front panel, naturally, includes some important features besides a sin-

gle power switch. There are two reset buttons for the circuit breakers, and a gain control for each side. These gain knobs, as a matter of fact, actually go to 11 (which of course is one louder than 10 according to Nigel Tufnel, lead guitarist for Spinal Tap). Two LED indicators per side appear as well, one which lights green when the channel is in operation, or red when the channel is being protected (muted) for whatever reason, while another serves as a clipping indicator.

The MX 1500's packaging is quite sturdy, employing a welded single-piece chassis with removable top cover as well as integral rack mount ears. All components and PC boards are mounted or tied down very securely, and both power supply transformers are located in the center so the unit is symmetrically weighted. The two channel PC boards are mounted on opposite sides of the housing which, along with the complete channel isolation mentioned, minimizes crosstalk, and

—CONTINUED ON PAGE 132



Technically speaking, the PHANTOM is a VTR Emulator that allows video editing systems control of audio transports. It accepts information from virtually any video editing system via the RS-422 interface and provides parallel information to the audio transport. Designed around a high speed microprocessor, the PHANTOM has the capability to provide control of up to four events and will even interface U-Matic type VCR's with video editing systems designed for 1" VTR's.

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PHIL SPECTOR & THE WRECKING CREW

by Hal Blaine

The following is excerpted from Hal Blaine's forthcoming autobiography. Hal, reported to be the world's most recorded musician, has drummed on more than 1,100 gold and platinum records. His autobiography is more than a recap of his achievements—it is also a unique view of the development of the West Coast's popular music industry. In this chapter, Hal introduces us to the Wrecking Crew, the aggregation of studio musicians who formed under the direction of Phil Spector and became the hottest session players in L.A. during the '60s.

The sessions with Phil Spector at the helm were truly amazing: the results will live forever. There was a familiar magic whenever we walked into Gold Star Studios. Phil had the magic wand and sprinkled fairy dust on us all. The Wrecking Crew was the envy of the recording industry.

There were always little signs hanging around the studio, proclaiming things like "Phil the King." Phil himself would stick goofy signs on us like "Hi! I'm Betty Boop!" or "I'm W.C. Fields' mother-in-law!" It was pure comedy from the moment we entered the studio. Every member of the Wrecking Crew was lavished with crazy gifts like a pair of garters or a box of rubbers, always beautifully gift wrapped. Phil once handed me a present, rather heavy, and as all of the guys stood by

watching with anticipation, I opened the neatly wrapped gift—it was a perfectly sculptured, red and white striped peppermint candy penis.

Phil's sessions maintained a state of barely controlled chaos. He would be jumping all over the booth, conducting the engineer, Larry Levine, and bumping into friends and musicians strewn around the control room. We were just having such a ball, and we knew that we were making history. Phil's "Wall of Sound" was the hottest thing in music all over the world.

Phil had a way of holding me back while the band rehearsed. I felt like a racehorse who wants to run as soon as the gate opens, and Phil, the jockey, would rein me in until we were coming around the clubhouse turn, heading for the final stretch. When the right take materialized, he would start his incredible gyrations in the booth, running from one side of the glass to the other, looking at key people during crucial moments like Leonard Bernstein conducting the New York Philharmonic.

He would conduct with one hand, asking for loudness, while the other hand was directed at another section calling for quiet. Then he would give me that magical look that meant only one thing—Go! And we would both go crazy, me doing fills that were total lunacy: I would do eighth-note and 16-note fills during a shuffle, and vice versa. One particular lick that I came up with during these bursts of madness stuck and became a regular Spec-

tor trademark: quarter-note triplets played against what the band was doing. The record was never done until Phil cued me to do the triplets. (My friend Max Weinberg, Bruce Springsteen's drummer, once told me that he and Bruce were raised on Phil Spector records and that Bruce often looks at Max during sessions and shouts "Hal Blaine!", meaning those fills.)

The recording dates were always clearly marked "Closed Session," but anyone who poked his head in was told to come in, sit down, or go grab an instrument and play. It was a well known secret that the "Closed Session" sign was more like a welcome sign. Every producer in town "just happened" to be passing Gold Star and wanted to say hi to Phil. Actually, every producer and artist wanted to have the magic touch them, so there were usually more people in the booth than in the studio.

Some of the artists who came by were out of work, and Phil would often "throw a bone" to the people who needed a helping hand. For instance, Sonny Bono was working for a record distribution company at the time, and he had just started dating Cher, who was singing backgrounds now and then. Sometimes Sonny would play one of my cowbells or shake my shakers during a take, and Phil would put him on the contract and let him make a few bucks. Frank Capp, Gene Estes, Gary Coleman, Terry Gibbs, and I or the other regular percussionists would bring crates of percussion toys to these



dates and and it got to the point where as many as eight or ten people would be playing castinets, shakers, jingle bells, bongos, congas, puili sticks, slapsticks, tambourines and any other gadget they could find in the percussion crates.

The "Wall of Sound" was literally that. Remember, these were the early days of recording, and echo was about the only special effect that studios had. But our engineer, Larry Levine, had some tricks, and every time he came up with a new one Phil would beam and want to use it on the record.

We would rehearse for hours and hours, and no one could even go to the toilet for fear of moving a mic. Finally, after endless run-throughs, Phil would call a "ten" and scream, "Don't touch the mics!" And no one did.

I clearly remember how carefully we would all get up, twisting our bodies and moving delicately. Phil had positioned the mics himself, and the placement was sacred. Like ballet dancers, we would step around the mics and over the cords strewn all over Studio A. The heat was incredible. There was no real air conditioning in those days before they remodeled the studio. We used to say that the flies buzzing around Gold Star were getting as large and as famous as us musicians.

Phil Spector is the only producer I've ever known that always had an

1. Jay Migliori, 2. Lou Blackburn, 3. Steve Douglas, 4. Roy Caton, 5. Al Delory, 6. Don Randi, 7. Phil Spector, 8. Hal Blaine, 9. Ray Pohlman, 10. Jack Nitzsche, 11. Lyle Ritz, 12. Sonny Bono



extra 2-track recorder running constantly from the beginning of every session. Everything said, or played, went on tape—and it was quite a trick. Musicians often walk into the studio cold and start warming up in their own way before the tracking begins. They come up with strange riffs and when asked what they've played, they never remember. Not so at Phil's sessions. He would ask, play back the lick, and say, "Remember that—I want it on the front of the bridge." Phil would pick out the nuggets he wanted and by playing them back, make them history. (So many musicians play incredible warm-ups and never even know it.)

Phil's "Wall of Sound" was not only making a name for itself—it was making a name for all of us involved. Although we often had more than a dozen musicians on any given session, there were several rhythm players that always seemed to be on the hits. I was fortunate to be a part of one section that worked together constantly. The

band typically consisted of Carol Kaye and Ray Pohlman on Fender basses; Lyle Ritz and Jimmy Bond on upright basses; Tommy Tedesco, Barney Kessel, Howard Roberts, Glen Campbell and Bill Pitman on guitars; Don Randi, Leon Russell, Larry Knechtel and Al Delory on pianos—regular and tack. There was always a host of percussionists, and at various times different piano players, guitarists, drummers and horn men. Jack Nitzsche usually did the chord charts, and I was usually on drums. I missed a few of the monster hits, like the Righteous Brothers' "You've Lost That Lovin' Feeling," which was given that lovin' touch by Earl Palmer, the drummer's drummer from New Orleans. Earl had played with Fats Domino and countless other greats on their hits, and he taught me a lot of what I used throughout my career. Steve Douglas was usually on sax along with Nino Tempo (April Stevens and Nino had the big hit "Deep Purple"), Jay Migliori and Roy Caton

on trumpet along with Ollie Mitchell and Tony Terran. Virgil Evans, Lou Blackburn and other horn men substituted from time to time.

We came along behind the well-schooled demigod session players of Hollywood. These were the studio musicians who were honored and revered. They were the veterans, well-trained in the pop and classical fields, who had worked with all the popular bands from the radio and TV shows of the '40s and '50s. These were the troops that could, and literally did, read fly shit off the chart if it happened to be there. Their abilities were incredible.

Before rock and roll came along and transformed the business, the pop music scene had been great in its own way. The musicianship was superb, and the masses enjoyed the music they grew up with during the war years. There was a soft, light sound that made you miss your brother, your husband, your lover. Music could make you feel patriotic, urge you to send packages to the boys overseas, and volunteer to work in hospitals to get the awful mess over with. The film scene was the same—you missed your loved ones and the scores tugged at your heart. Everyone had someone "over there," and we were bombarded with patriotism 24 hours a day. The general public had not yet experienced the new music that was coming down the road—the rock road and the country road. It was down and dirty, rebellious, anarchistic and sexually free. It was the music of a generation of kids brought up on ration coupons and the smell of Korea. Now it was our turn to write and sing what we felt.

Our time had come, and we were taking the music world by storm. We were known as a group that cared about making music, not just taking the money and running to the Cadillac agency. We had a special "feel," a key word in understanding this new sound. We felt the song, listened to the lyric. We cared for the music, the artist, the writer. This was something new in the Hollywood music business. It's not that the older, well-respected musicians didn't care—but when we worked with many of the regulars, it seemed more like a job to them. It seemed like they wanted to get the session over with and get off to the golf course.

As for our nickname, the Wrecking Crew, it came about because that was the impression we gave the older mu-

sicians. The established studio musicians always wore their blue blazers and neckties and always cleaned their ashtrays after a date. We were the new guys, and we dressed as we lived—in Levi's and T-shirts. We were informal and spontaneous, and a lot of the old hands thought we were wrecking the music industry.

It didn't take long for the word to get around that a new breed of musicians was making the hits. We were new in town and it seemed like everything we touched turned to gold. Our sudden success was phenomenal. We were booked weeks and weeks in advance, sometimes months ahead. Producers coming in from New York would demand the West Coast guys who were making the new hits. They wanted the same guys, the same studios (usually Gold Star, Western, United and Sound Recorders), and the same engineers.

Producers knew that our involvement with a production was different too. Nine times out of ten the arranger would say, "I don't like what I've written," or the producer would say, "I'm not really satisfied with this score." They would tell us to use the charts as a guide, and that's all. We were encouraged to go for it, to go beyond what had been written. We had the opportunity to create, to be a team of arrangers—20 players who loved one another and would really listen to each other and maybe say, "Hey, Tommy's into something here," or "Don's really stretching it. I'm going to try something new." I might get into a new groove with Carol on bass, or play off Earl's drumming, and it would start a chain reaction. The collaboration and continually surprising magic became second nature for all of us.

The huge diversity of backgrounds our musicians had may have been responsible for this new spirit and sound. I'd guess that 90% of our group had some jazz or academic background. We had studied, done shows and were well trained. We had enough confidence to hang loose, and we felt free to experiment. The country musicians who joined us weren't exactly academics, though they added important new elements to our chemistry. The jazzers could keep rock solid time, and guys like Glen Campbell, Billy Strange and James Burton would bring wild, off-the-wall solos that had never been heard before. Putting all of this on a rock and roll record was totally

fresh.

You should understand that most of us Easterners thought of country musicians as hillbillies. They were unpolished, unschooled musicians who played a style of music very different from the Big Band, Swing-era styles that had dominated Hollywood until we all converged simultaneously on the scene in the late '50s.

Glen Campbell was especially interesting—a true life hillbilly from Delight, Arkansas, who took Hollywood by storm. He couldn't read a note of music, but the record buying public was eating him up. He had incorporated country-style electric guitar into rock music, and his solos injected an uninhibited, savage, raw feeling into the records. He played a big part in transforming the pop and rock scene forever.

Leon Russell was another hillbilly type from Tulsa, Oklahoma. When I first met him, he was a skinny, short-haired kid who had suffered the ravages of polio as a child. He limped noticeably in those early years, but when he sat down at the piano, he turned the record business upside down. Every producer wanted Leon Russell, also known early on as Russell Bridges. Like Glen, Leon brought savage solos to our sessions and added a key element to our hit record formula.

Billy Strange came out of the backwoods too: a cowboy who could make a guitar talk. Billy was a very underrated player whose roots were strictly country, but with a jazz touch thrown in. He was conductor for Tennessee Ernie Ford's TV show out of San Francisco. Billy was never seen without his cowboy boots. He was a hulk of a guy, well over six feet tall, and awesome with those boots on. He had a great knowledge and intuition for arranging and was a noted songwriter. Billy was one of the exceptions to the rule that all country musicians are self-taught. He could read well and had a broad knowledge of the music business. He also had a strong background in studio recording from years of working at Capitol with many of the famous artists of the day. Billy was very instrumental in directing us newcomers to the complexity of studio life.

Tommy Tedesco, a legendary musician, was another founding father of our new sound. Tommy came from a different direction. He was a well-trained guitarist from Buffalo and a real New Yorker. Tommy was one of

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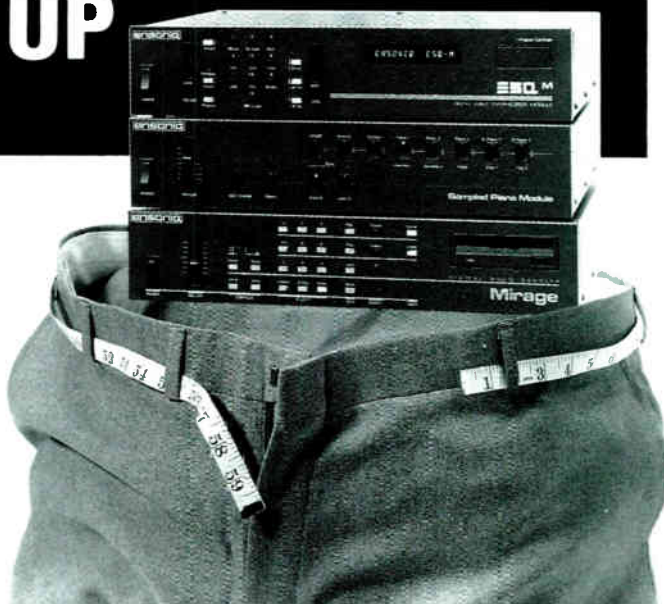
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those bird dogs that helped us in times of need. When an arranger pulled out one of those incredible scores and laid a part in front of us that was literally blackened with notes, Tommy would be the first to lean over and calmly decipher the tough passages. He saved many a session that would have ended in disaster, and saved many of us from ulcers. Tommy and I became very close in those days—and I mean close. We often worked 12 to 14 hours a day, side by side, and then lay down next to our instruments at 4 a.m. to catch a little rest before an 8 a.m. session.

Lyle Ritz, an upright bass player (at a time when the electric Fender bass was taking over on the recording scene), was another mainstay of the Wrecking Crew. Very mild mannered, Lyle was a funny, funny man who had a smile for everyone. He had fallen into the position of having to play his upright in unison with a Fender because the engineers and producers found that the two basses played together created a much "fatter" sound, providing the perfect bottom for records. This was during the 2- and 4-track days before overdubbing made it possible for one player to get that kind of fat sound.

Carol Kaye was the lone female musician in the Crew. Carol is truly a musician's musician and has received much praise. Originally an incredible jazz guitarist, Carol (Kahalavich) picked up the Fender bass one day and the rest is history. She is a killer bass player who never let you down or ever got in your way. We made such solid music together—I often thought that this was the woman I should have married.

Don Randi: pianist extraordinaire, jazz afficionado, New Yorker to the Nth degree, also known as "Schwartz." He was a classically trained pianist and another key ingredient in our recipe for the hit sound. My first meeting with Don was a wild and funny date—a Spector session. We worked the night away, and during the breaks we talked and became friendly. We were just a couple of Jew boys from the East Coast trying to make it in Hollywood. We were easy and cordial in our "See ya later," and the next morning I hopped a plane for Manny Skar's Sahara Inn in Chicago. I was traveling with the Patti Page Show and landed, had a quick band rehearsal, and opened on a Saturday night. After the show I walked downstairs to the lounge and heard this incredible trio blowing their brains out on stage. I was yanked

in by the music and nearly fell over in surprise. There was Don Randi with his group. What a great treat and quick reunion, and what a ball we had that week.

I have to bring up a few more guys to take a bow—Ray Pohlman, the gentleman's gentleman, a guitarist turned bass player turned guitarist. Ray was a solid mainstay of the Wrecking Crew. He would lay down an incredible feel at all times and, by being a great arranger in his own right, was one of the main men who helped so many of us. He was a well-schooled musician and a scholar to boot. On top of all that, his vocal training, background singing and vocal arrangements often made the difference between a good record and a great record. I am personally beholden to Ray for so many hours of true studio bliss.

Bill Pitman! Every recipe has a special spice, and Bill was ours. "King Salt," as he was fondly called, was another truly great jazz guitarist working in the studios. He was known for his perfect time and great technique. When Bill laid it down, it stayed there. Whenever Bill was on the date, everyone was totally comfortable with the time.

Steve Douglass, aka Steven Kreisman, was chicken saxophonist royale, the West Coast master of the chicken sax solo. Whether you know it or not, you've heard Steve on the Spector hits and stacks of other West Coast gold records. He was with Duane Eddy during Duane's heyday and then decided to settle down to a studio career. I count him as a very special friend, someone who I respect for his musicianship, and someone who, countless times, made me laugh my head off.

Ah, Jimmy Bond—a master of the upright bass who refused to cross the electric line. He had every right to stay his ground, a trained musician who could read anything and make it feel right. He was one of the few musicians who was renowned in jazz circles, and it was a thrill to play with him and become his friend. He had been with the greats and his reputation was undisputed. Jimmy was one of the few black men in the Crew, but it was his impeccable wardrobe that made him always stand out against our typical casual style.

Al Casey—another country-flavored guitarist, but not just *another* guitar player. He fell into our circle of hit makers because of his great rhythm

work. It all seems so obvious now in retrospect, but at the time I didn't fully realize how each member of the Crew had a special identity that made his work outstanding. Al was just a quiet guy who carried a big guitar. He came from the Duane Eddy school of twang and had written the hit, "40 Miles of Bad Road." Without ever pushing it, his motto seemed to be "let's just make a hit."

Another legend in his own time, giant in the industry and a guitarist supreme—James Burton, from Shreveport Rouge, Louisiana, came to Hollywood as a kid and fell in with Ricky Nelson around the time that we first met. James was the guitar, from Ricky Nelson to Elvis Presley to John Denver. We spent five years together touring with John all over the world and his style is branded deep in my heart.

Larry Knechtel slipped out of nearby Bell, California, and set Hollywood on fire. He was a driving force on both piano and Fender bass, and his intro to "Bridge Over Troubled Water" that we recorded for Simon & Garfunkel will live forever. It was such an integral part of the song's impact that Larry was handed a Grammy for his piano work. His contribution as a member of Bread wasn't exactly chopped liver either.

Joe Osborn was the original Mr. Electric Bass. He is probably still using those same strings that he refused to change, the ones that made that unmistakable thudding sound on that same old original Fender. He was one of the most sought after bass players—everybody wanted his unmistakable touch.

Joe, Larry and I were the silent kings of rock and roll for a long time in Hollywood. The number of hits we cut is staggering and I am floored when I think of the enormity of it all.

Jerry Cole was a screaming solo guitarist and a most lovable guy. He was featured on so many records and TV shows that I wouldn't know where to begin. When Jerry was on a session with Glen Campbell and Billy Strange the sparks would fly. It was always a tossup as to who would grab the solo, and each could make a hit.

Chuck Berghoffer was a bassist who crossed the electric line and became a great on the Fender. It's Chuck who you hear on the "Barney Miller Theme" intro. He added just the right touch to so many hits. We were also part of the fabled Jimmy Owens-Reprise Records band, usually conducted by the late and great Ernie Freeman.

Larry Carlton—a universal name in jazz and rock—was about 14 when I first called him for a date I was contracting. I saw him on a Saturday morning kid's show called *Mrs. Alphabet*, and we first worked together for Richard Delvy and The Challengers. It was a great beginning. He was amazing as a young teenage virtuoso and never stopped.

Barney Kessel, a forever shining guitar star. Kessela, as I used to call him, was another member of our rock clan. He was obviously brilliant and thoroughly enjoyed every session, sometimes questioning the musical changes, but never making a fuss. He was a legend who joined in with the Wrecking Crew and had a ball.

Frank Capp, Emil Richards, Gary Coleman, Julius Wechter, Larry Bunker, Dale Anderson, Hugh Anderson, Bernie Mattison, Jack Arnold, Ralph Collier, Victor Feldman, Frank Flynn, Steve Forman, Terry Gibbs, Curry Tjader, Nick Pelico, Tommy Vig, Jerry Williams, Jules Greenberg, Milt Holland, Norm Jefferies and Kenny Watson are the percussionists who come to mind when I think of the *creme de le creme*. These are some of the guys I started out with and worked with through my years in the studios. They're the best in the business, and every one of them has helped me in my careening career, either by showing me what to do or by loaning me an instrument when I didn't have the tool to create the sound I heard in my head. These are the guys I admired and tried to emulate.

One last guy who deserves special mention is Lou Singer, one of the truly great in the history of percussion.

After the Wrecking Crew had made its mark on the music scene Phil Spector went off to do his own thing. No one really knew what he was up to until we realized that some of the big Beatles hits were his productions. I hadn't seen him for some time, and then I got a call from Donna, his Girl Friday, asking me to do some dates. The old band was reassembled for some special sessions for Leonard Cohen at Gold Star and at Whitney Studios in Glendale. They were incredible dates. There was one major change though—we had the Kessel brothers (Barney's sons). Phil was now hiring the second generation of Hollywood musicians. Once again, everyone in town dropped by to hang out. Here was Cher, Bob Dylan with his wife, and Allen Ginsberg—singing backgrounds

for Leonard Cohen. They couldn't quite get the hang of coming in at the right places, so Phil asked me to conduct the chorus on overdubs. Jeeze, it was fun to be working with the master again.

But it was all leading up to the big one—the John Lennon project. Jim Keltner called and asked if I would work double drums with him for Phil's sessions with Lennon. This was the West Coast album that John did before going to New York for his last work. Of course I said that I'd be thrilled to be there.

Once again a new Wall of Sound was put together and assembled at A&M. We were in the big studio, and the lot was buzzing with the name John Lennon. We worked there for about a week and then moved to the Record Plant for a few nights. Everyone was totally immersed in the project. This was Phil Spector at his greatest. The material and the band were synched beautifully.

I found John Lennon to be rather shy and unassuming. I would usually get to the studio early to check my drum setup, and each night John would already be there tuning up and going over his material. We had nice long talks about the business and all of the records that had helped shape his musical career. He thanked me for working with him and said that he had been a fan, and confessed that most of his favorites were "your" West Coast records and that he had grown up with them.

John was going through a rough period in his life at that time. He was estranged from Yoko, unhappy and drinking a lot, and Julian was with him. My son David was with me, and our situations were similar. Julian was only about 12 or 13, as I remember, and he wanted to play drums. The four of us met for lunch one day in Hollywood and had a beautiful time together—just fathers and sons.

The last session I did with Phil and John was the last time I saw either of them. John went back to New York, made his great comeback, and the ensuing tragedy is still with all of us. Donna calls from time to time to say hello from Phil, and we've all begged him to come out of retirement to do an all-star Phil Spector revue. If he ever does pull us all together again, it'll be a show to end all shows. Phil never did do anything small—maybe his full name was Philharmonic! ■

by Tony Thomas

EMPLOYEE MORALE AND MOTIVATION

An Interview with Nick Smerigan/Village Recorder

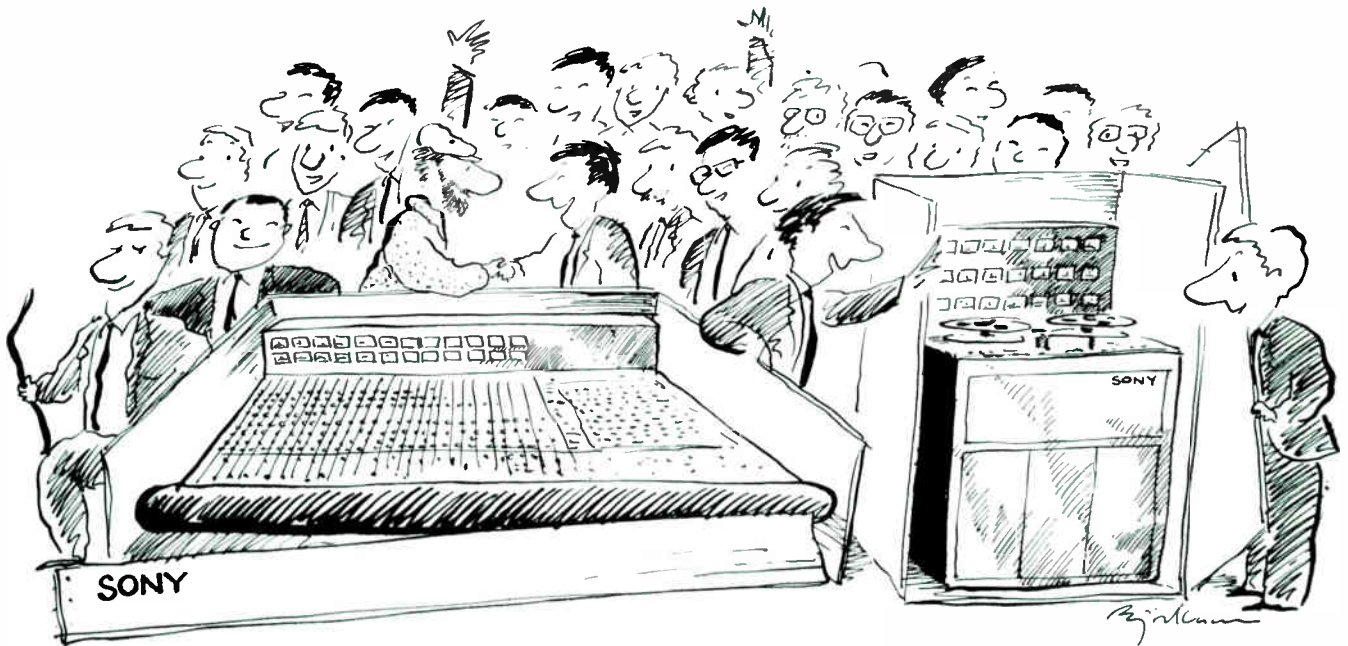
Keeping employees happy is a tough job. Witness the strikes and labor disputes that have become a common part of American life. Employee dissatisfaction is on the upswing. Productivity is on the downswing. Further complicating this dilemma is the ever increasing demand for more products and services at lower and lower prices. Something has got to give. And something often does.

In the recording business, we somehow feel immune to the labor-related

ills that have a stranglehold on other industries. Instead of confronting our problems with employees head-on, we often choose simply to replace the of-



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fenders. At best, such an action is merely a stop-gap solution that does not directly address the root of the problem. While it is true that the recording business is a "glamour" industry, with no shortage of qualified people to fill any openings which may occur, we still should make an effort to nurture the talent we have at our disposal and do all we can to bolster morale.

Although employees are often replaced when labor disputes arise, the damage done to the business by the time of termination can be severe. Revenues lost by the actions of a disgruntled employee cannot be easily

bouncing back, and his management style is one important reason for the turnaround.

Mix: What is your basic philosophy for motivating your workforce and keeping overall employee morale high?

Smerigan: I think that motivation has to be the priority in any recording studio. I don't care how much money the owner has invested in the studio—nine times out of ten, or maybe even ten times out of ten, the owner or operator is not the one who the clients deal with. The only view of the studio and studio management the client usually gets is provided by the traffic

run. For that reason, I try to walk around the place and see each of my people at least once a day. I try to keep it light—it's not an inspection tour by any means. But, I also tell them if they have a problem, to come up to my office and jump in the chair and talk about it. I keep my office door open—it's an open door policy. One thing that is kind of a double-edged sword is trying to maintain inter-departmental unity. I want people to feel a strength within their department, but I want them also to feel a strength in the whole operation.

Mix: What kind of motivational techniques do you utilize to keep morale high?

Smerigan: We have set up a training program for the group we call "the runners"—the young kids who come in to learn the business and function as messengers. On the weekends, we bring in our chief engineer, our head of maintenance, as well as outside engineers, to spend some time with them. That way, they get a well-balanced recording education. Our guys may say: "Here at the Village we mic things this way because it is the Village way" while an outside engineer may approach it differently. Then, they can make up their own minds as to how to do it. The program has been undermined a bit because the studio has been so busy lately. So I encourage the "runners" to steal time when they can—to ask questions and read literature and manuals when they get a chance.

I'm also an education freak. I don't care if it is technical or not. Even if a guy wants to go back and study to be an accountant, I try to get behind that in any way I can because it will better the individual. Plus, you will inevitably learn things that relate to this business.

Another thing I try to do is to encourage the assistant engineers to go out and get involved with bands, and bring the bands in and record them. That way, they have a chance to sit in the pilot's seat every once in a while and say, "This is my band and I'm the engineer." At the point we're at, I'm not so concerned about the talent of the band. I am concerned that my people get in there and do it. It's common for any assistant who's been in this business for any length of time to say: "I can engineer better than

"No one can remain an assistant engineer forever. After three or four years, they have to decide if they are an engineer, a maintenance person or a restaurant manager."

recouped. Lost clients alienated by an unruly employee cannot be quickly regained. So what is a studio owner to do?

For answers to that and other tough questions, *Mix* spoke to Nick Smerigan, executive director of the Village Recorder in West Los Angeles. Smerigan is no stranger to the studio business and the personnel management skills our business requires. For six years, Nick was studio manager at the Record Plant in Los Angeles—the prototypical independent recording studio.

After an eight or nine-month stay at A & M Studios (a "coffee break," he jokingly calls it), Smerigan took over the helm of the Village Recorder, a state-of-the-art facility which had seen some tough times, largely because of the proliferation of quality studios in the L.A. area, and a simultaneous reduction of recording budgets. Under Smerigan's direction, the Village is

manager, the front desk people, the maintenance people and, of course, the assistant engineers.

The most important thing studio management people can do, as far as personnel goes, is to try to make their people understand that they are as important as the owner, the operator or whoever is in charge. I often tell my people that if this place burns down, just because I'm the manager, that doesn't mean I won't burn any faster or slower than they will—we'll all burn at the same speed. I have my function and they have theirs, and both are important. Trying to make them understand that is a very important part of my job and it gives them pride in their job.

It also tells them that if they have a problem, there is someone up here who is willing to listen and who will empathize with them. They know that they have a say on how this place is

him." It's like a kid who says, "I know how to drive—I've been watching Dad for 12 years." But put him behind the steering wheel and it's a different story. It's the same with engineering. Get a band in there and suddenly, they're not your friends anymore because they feel that they can do it better. They not only learn the technical end, but they also learn the creative end and how to deal with the different personalities involved.


I also do this because no one can remain an assistant forever. No matter how good they are and how much I would hate to lose them, they can't stay here as an assistant. I want them here as engineers working on their own projects. After three or four years as an assistant, they have to decide if they are an engineer, a maintenance person or a restaurant manager.

Mix: How do you deal with an employee when he or she makes a mistake?

Smerigan: I think that there are several different kinds of mistakes and each one has to be dealt with differently. There is what I call a "mistake in the right direction" which is when someone has a lot of initiative and gumption and really toils, and it just doesn't work out the way he planned. That is totally different than someone who doesn't come in on time and says: "I'm late. So what!" Those kinds of mistakes and people you really don't mind eliminating.


Just as there are different kinds of mistakes, there are different kinds of personalities that have to be managed differently. With some people, you can bring them in and give them a three-minute stern lecture, like a father would. With others, you have to use a more gentle approach, almost like a big brother. Each situation is totally different. The bottom line is I look at the individual involved and their intent. It may not be the best way to manage a fast-moving business, but I don't want to risk throwing away a good individual because of a stupid mistake. In all the years that I've spent managing people, I don't think I've ever fired anyone. They always fire themselves. ■

Tony Thomas is the managing director of Target Communications Int'l, an ad agency, broadcast production firm and recording studio in Southern California.




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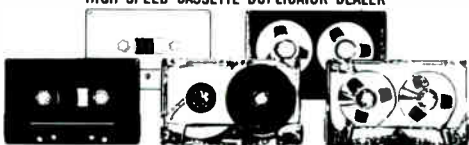
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by Lou CasaBianca

AIM • MIX CONFERENCE

THE VILLAGE RECORDER, L.A. • PART 3

This is the third and final segment of our coverage of a conference co-sponsored by American Interactive Media and *Mix*, hosted by The Village Recorder, specifically to introduce CD-I technology to the audio recording and music community in Los Angeles. Attendants were invited to ask questions and make suggestions about developments in CD-I. The meeting speakers were AIM's Mark Fine, VP of business development, and Mark Dillon, VP of technical and creative services, Larry Lowe and Rodney Wood. It was moderated by *Mix* publisher/editor, David Schwartz.

Our goal in presenting coverage of this meeting is to help provide an overview of the audio implications of CD-I technology, and to help illustrate some of the ways in which interactive technology will affect music and audio recording.

Larry Lowe: I'm Larry Lowe, and I have the title of applications design engineer for CD-I for AIM. I'm here to support various projects that AIM has got going and also try and shepherd one or two internal ones along. I've been in the microcomputer revolution for about ten years and the music business, the movie business and the fine arts, and I've got some experience in interactive video design. The fusion we're going to have to see is of text and print publishing industries, the computer industry software folks, the music people and the film and television imagery folks. It's just incredible what we are faced with and what we are going to have to do. There are enough problems for everybody. So

let's everybody take one and solve it and change the world.

Rodney Wood: It's been said that any sufficiently advanced technology is indistinguishable from magic, and I believe that CD-I is magic. When I first heard what CD-I was going to be about, it was described as this computer system that does all these graph-

“The possibilities of CD-I are sensational—to be able to listen to music and get pictures of the person who performed, or get a history or discography...”

ics and has great sound and gets its information off of a compact disc. And I thought, “Wow, this really sounds great. I'd love to go work for that company.”

Well, I didn't know much of the story of what CD-I is about. It's audio, video and computer capabilities are incredible. It's not something that you should have to consider as being a

computer. It should be something that the consumer will sit down and play with just like he plays with his television, or his microwave oven or the washing machine or the car that he or she drives. The user should not have to worry about what kind of processor is inside the machine or what the operating system is, or does he use 5½-inch disks or 8-inch disks or those little microfloppies or anything like that. He already knows what a CD is and so it's just drop the single disc he has always used in and either play it as it is or explore some incredible possibilities.

The possibilities are indeed sensational—to be able to listen to music and get pictures of the person who performed that particular musical selection or get a history or a discography while you are listening to a song. It's quite incredible to think that you would be able to do that.

David Schwartz: Now we would like to throw the floor open to questions or comments that anyone has for any of the people up here, just anything in general.

Question: What is a "base case" player?

Mark Dillon: OK, let's discuss the concept of the base case player. All players meet certain minimum specifications. For next year, that's all that we really should be concerned with. MIDI for example, will be up to given specific manufacturers. Now on a more practical basis, before we start adding items on to the base case, let's master and be able to control the base case specifications. There's enough to do out there already; there's enough to learn. I think it's probably best that we try and deal with the basic dream specification, and once we can control all the things that it does, and when we have a real need based on experience, we can expand beyond them. I think the point is that whenever you talk to someone who comes from a computer background, they say, "Well, I want to do something different." Well, OK, you'll be able to do that, but in this case, because it is a consumer medium, because it has these specifications, let's work within that.

Right now, there is no MIDI port specified in the system itself. Working for AIM and being involved in the initial rollout, I have to pretend that it

doesn't exist, but I am just as aware as you are about the impact of that on other devices, and like I said earlier, I'd be surprised if it went unheeded. It's just that right now it is not specified.

To get the feedback and the interest of the people who you really want to get early on, you will have to give them at least the possibility of interfacing things. CD-I is really not as powerful, if you are a musician, unless it has a MIDI port; it makes more sense. But we're being asked to develop ideas like video editing or RGB for CD-I and, yet, that's not part of the standard.

Let me say one final thing. One of the coming things that started all this train of thought is the memory trade-off vs. bandwidth. And as long as you are storing digitized audio, you're talking about a fair amount of memory. You can store an incredible amount of MIDI data in a fraction of what it would take you at the lowest bandwidth of digitized audio. And when that MIDI data comes out, it comes out in the instrument in its full bandwidth with everything that the synthesizer can produce. So, if nothing else but as a means to make memory consumption far more efficient, it's worth looking into.

Question: What about WORM—Write-Once-Read-Many times, and the new erasable media that they are working on right now? You have other media that are coming, how is that going to affect CD-I down the road?

Mark Dillon: Each technology has its place. Quarter-inch tape has a place, cassette has a place, CD has a place, AM/FM, books, plays, magazines—each has a place. It's not like one technology is here to replace all technologies. CD-I has a distribution need. For that reason, recording in WORM, which is the way to record an optical disc, is not as important for distribution need. In a way it's a form of broadcasting. WORM has more positive implications for the development and production of CD-I. I want those WORM drives because they're going to help in development environments to create better CD-I's.

Question: Would that be a peripheral that somebody would attach to a CD-I? Would they write their media once, mix them together, and create the disc and play that disc back?

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INTERACTIVITY

Mark Dillon: Quite possibly. Some people might use floppies, some people might use hard disks, magnetics, some WORMS. All you're doing is describing a more robust environment in which CD-I is just one player.

Question: I think you have to have something besides a video game approach; where a person can go out and capture something live. That's why you have to have portable recorders and cameras. People want to put themselves into it.

Mark Fine: I don't think it's unrealistic to have in a CD-I program all kinds of type fonts and all kinds of clip art. You can record your family and carry it across from your VCR. So your VCR becomes your peripheral. Your CD-I becomes the controller where you can put in all the enhancements and all the sweeping required. You use your 8-mm or video camera, to record your family or your rock band or whatever the case might be. So I see the CD-I as the ultimate controller or brain of your multi-media home system, and it will manage all these components and tie them all together.

Question: A lot of the artists will put in an image and, in the form that they present it, that's their artistic endeavor. I'm not certain they are going to want to have the people reproduce their work.

Mark Dillon: I look at the medium as an authorship medium, as Mark was alluding to earlier. I come from TV, with a little squawk box up there for audio. So we talk about compromise in audio, I'll look at it and say, "Hey, what's the problem?" The real issue comes with team work because there is no CD-I producer right now, and I'm willing to sit at any roundtable and have someone educate me about why I have no brain and no ear. That's fine for me because I am looking at a medium that requires a team for authorship. You have that in film. You have that in TV. I'm sure you have that in the audio world. And now you have their weird media that has even stranger people around the table, none of whom speak the same language. So I can imagine some of the problems we are going to have.

One key is that you really have to approach it as not being derivative,

because if you think that it's going to be a derivative of a record, you're wrong. If you think it's derivative of one thing or another, you're limiting yourself. It grows. It's synergistic. Everybody gets involved. Everybody does things that they are not used to doing. Video guys are going to have to start listening to audio and paying attention to it.

CD-I, from an artistic standpoint, is a brand new thing. It is the first time that the artist, whether he is writing a book, whether he's writing a piece of software, whatever, is given the visual, textual and audio elements in sufficiently random quantities and high resolution to exercise his bid for art as a total experience for that end user.

With CD-I you have the ability to create your packaging and blur the distinction between where the packaging ends and the artwork begins. There is no more package. I mean, if you want to buy it in a jewel box, fine, but the package is in the software, the package is in how, once that disk begins to spin, it magically responds to the user. There is a blurring for the first time in history of the line between packaging and content, and even more importantly, between the artist and the experienter or user.

Interactive video discs have been around for quite a while now. There are interactive video disc programs out there right now which would blow you away if you could see them. They're mostly for very specialized applications, things like emergency simulators, welding simulators, etc., which are not entertainment-oriented products. We've got applications right now where CD-I is going to be invaluable, an educational tool unparalleled today. Users can't afford the interactive disc technology. They've done \$200,000 worth of software, but they don't want to spend \$15,000 for the playback device as well.

Here we're talking about a piece of hardware that's going to come down to under \$1,000. There are some very low technology "interactive" video discs out there. But even though they are very low technology, and even though the interactive things aren't very good yet, they've had a real following and they've given people experience they couldn't get any other way. And I think they are all looking to CD-I to give video discs a whole new dimension. It's got all the things that the

video disc has right now and a whole bunch of new ones. The fact that an interactive video disc or CD-I disc is a piece of permanent material which cannot be altered is largely imaginative in that you can build interactive routines with many different pathways which can be different every time you watch them. If you want to run through the program and view all the possibilities, it would take you ten hours.

Question: Somebody earlier said 16 channels of audio. Does that mean I can put my drum on tracks 1, 3, 5 and 7 and my guitar here and mix it myself?

Mark Dillon: No. You can address any of eight stereo pairs. Those are 16 channels. And you can still access instantaneously any of those pairs. You can't take the left from this pair and the right from that pair. Right now there's very little mixing capability. Consider it as a patchbay. You've got eight stereo pairs there and you can plug into one pair at a time. That's at the lowest audio level, like listening to AM radio.

We will work with everyone whether they come from music, film or television technology. Our job is to bring together members in the creative community, each of whom has different expertise. This is going to be a team thing. But let's not try to break the mold on CD-I first time it's out. Let's do it. Let's do it well. Make sure it has content. And we'll start worrying about breaking speed limits when we learn how to drive.

Question: I still don't quite understand the nature of American Interactive Media. Are you a record label? Are you a software producer? I think a lot of people here are just interested in speaking to one another. They're interested in generating projects and stuff for you. But I don't think that people here know your source of funds or your contacts.

Mark Fine: Good point. Let's address that. For the first time Philips Electronics, the big, massive monolith, has acknowledged their need to be a software company. Now most of us in this room know that PolyGram is an existing Philips software company, but they don't necessarily think of it that way. So we have a unique synthesis of a record company that's facing 22 different countries' distribution mechanisms. We can get funds, if necessary, while a normal venture capitalist doesn't know

this media and doesn't operate that way. So the PolyGram advantage is there—we have a distribution mechanism inherently established.

Secondly, by the nature of our parentage, we can assure the best possible price and the best possible quality. Through the Philips-Dupont replication facility, the plant in Canada, and a plant going up in King's Mountain, North Carolina, we should handle 60 million discs a year.

We didn't want to be producers, as such. We want to be publishers and distributors. But there's nowhere else it can be done at this moment, in terms of the CD-I format. For actual CD-I

mastering and replicating, AIM will be one of the few key centers for that service.

Now the money issues. We accept the player base is zero. It is crucial some kind of capitalist company exists that can help seed projects. One approach is to underwrite and re-do products 100% and make them come out with 200 for launch in time for Christmas '88. On the other hand, we feel, after learning from some of the mishaps that occurred in the computer industry, that we can develop partnership, I'd be comfortable with 50-50, but that's not what's installed. We can go forward together in producing

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C-40	5.30	2.45	2.14	1.71	1.51	1.46	1.41	1.36	1.31
C-50	5.66	2.70	2.33	1.90	1.70	1.65	1.60	1.55	1.50
C-60	5.95	3.02	2.54	2.11	1.91	1.86	1.81	1.76	1.71
C-70	6.71	3.70	2.79	2.36	2.16	2.11	2.06	2.01	1.96
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INTERACTIVITY

titles. I am intrigued more with mass consumer products rather than highly specialized niche markets because we have this commitment to develop and capitalize. What that magical number for titles is, 200 by launch, 50, I don't know. But we feel that the commitment is going to be for more than several.

Question: Are you the right guys to talk to for our concerns about developing professional grade CD-I's, not only just the music industry product for the consumer, but for our business in general? Business is going to need the high grade.

Mark Dillon: We are a CD-I midwife. My job is to work with producers and management of some of our larger accounts and get them involved in CD-I. In some ways, too, we are the only show in town. If we can't help you and we can't get involved with you on that level, and some times that is true, then our job is to point you to the people who can. One of the reasons for this meeting is to bring everyone together who has an interest and help bring focus to the issues. Maybe there are ten people who are interested in something; well, if we talk individually, there's no synergy there. But if we collect and bring together the others, our job can really help create an industry. We are aimed at the consumer marketplace, but I know that there will be an industrial marketplace as well. We are supporting that out of our back pocket. It's not in our charter to do that, but having come from the industrial video disc market, I know how critical it is for the people who have projects and interests and activities in that area.

David Schwartz: A lot of us have ideas, things that we think could be good potential CD-I projects. Where do we start? What's the first step? Larry, let's say you're a producer with a brilliant idea. It's a totally different concept. How do you start? What do you do first?

Larry Lowe: We are working on a Designer's Guide that will be out sometime in September. We intend to sell it, and that's a year's subscription with a series of updates as we learn more. It's a big notebook. We'll make it available. It's not a secret thing. You have to study the media well enough to understand if the idea you want to

try will work. There will be more information at various CD-I conferences.

Existing interactive concepts should be studied. Read Ted Nelson, the inventor of Hypertext. Look at what the interactive video disc community is doing. Go get some programs that run on a Macintosh like Guide and other new design packages. We are producing an interactive Macintosh edition on CD-ROM. Look at MacroMind's Interactive Video Works. Look at the Mac, in a way it is a sort of baby kind of black and white CD-I machine because while it has some limitation on the speed of its drives, it has graphics and audio and it is a very simple minded model.

“The Macintosh is a sort of baby black and white CD-I machine: while it has limitations on the speed of its drives, it has graphics and audio...”

David Schwartz: If someone wants to pitch AIM on a project, how do you like to see a proposal?

Mark Dillon: Write something up and call Mark Fine.

Note: For information about AIM's CD-I Designer's Guide contact Larry Lowe at AIM, 11111 Santa Monica Blvd., Suite 1000, Los Angeles, CA 90025. 213-473-4136. The Guide is for serious producers and will require a basic working knowledge of the technology. It is not designed to answer questions about the hardware and manufacturing aspects of CD-I, which are contained in "The Green Book." For project evaluation information contact Mark Fine at the same location. ■

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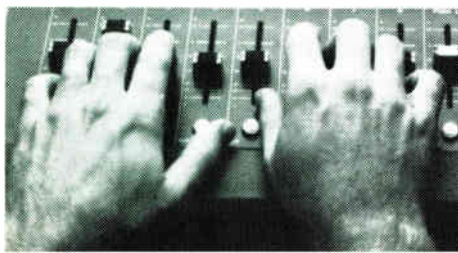
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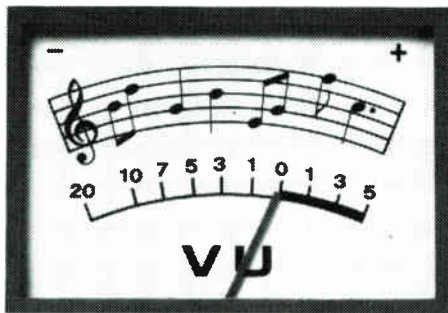
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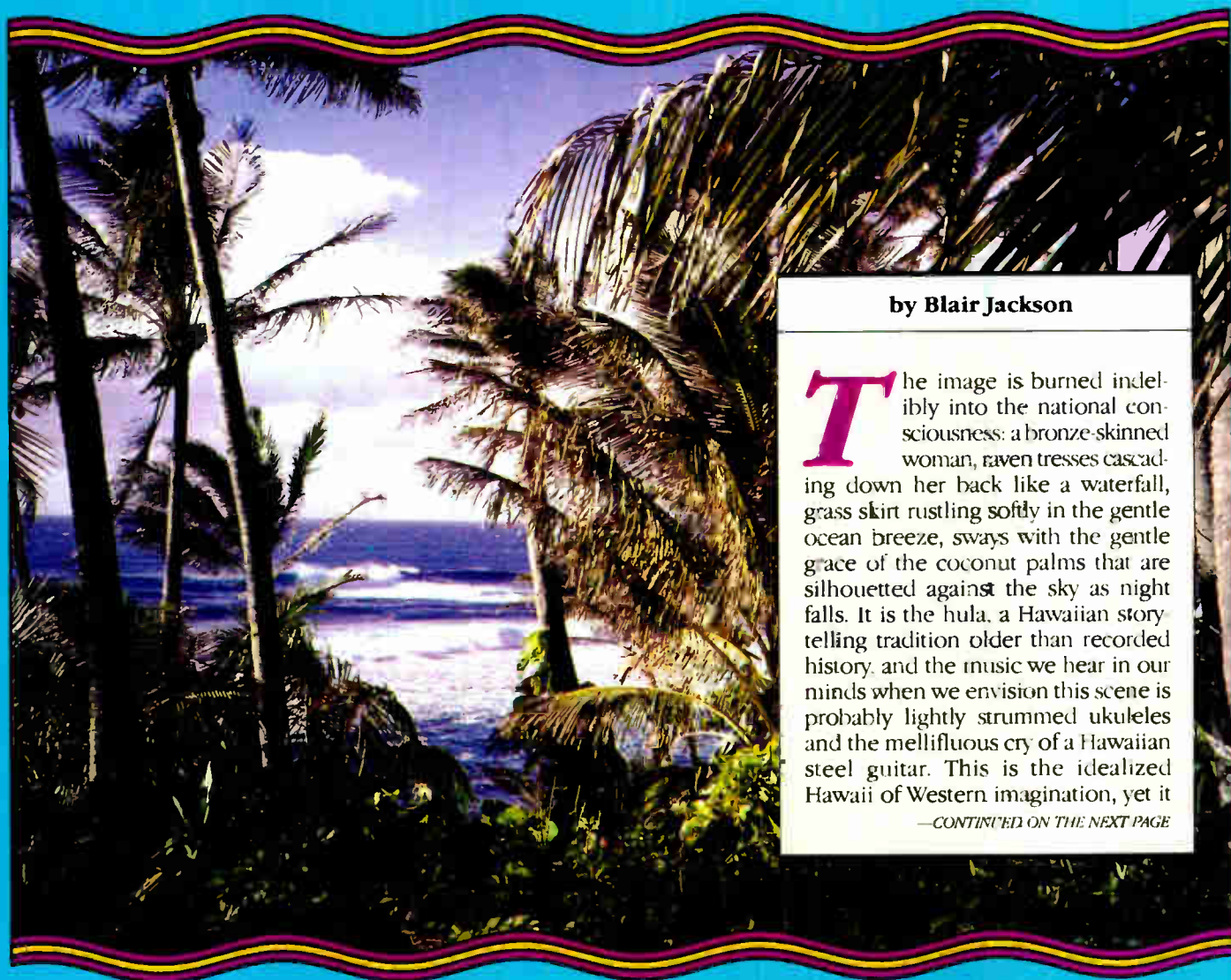
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HAWAII

MUSIC & RECORDING ADVENTURES IN PARADISE



by Blair Jackson

The image is burned indelibly into the national consciousness: a bronze-skinned woman, raven tresses cascading down her back like a waterfall, grass skirt rustling softly in the gentle ocean breeze, sways with the gentle grace of the coconut palms that are silhouetted against the sky as night falls. It is the hula, a Hawaiian storytelling tradition older than recorded history, and the music we hear in our minds when we envision this scene is probably lightly strummed ukuleles and the mellifluous cry of a Hawaiian steel guitar. This is the idealized Hawaii of Western imagination, yet it

—CONTINUED ON THE NEXT PAGE

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in everything in sight," Tyler says. "I think I'm safe in saying that all the major hotels in Waikiki are owned by Japanese now—even the Sheraton. We now do more groups from Japan than the mainland. They love it—they love the golf courses, because those are so expensive in Japan, and actually our studio rates are much cheaper than they are in Japan. We've done a lot of big rock and jazz albums for Japanese companies, and more and more we're also doing commercial work for Japan, too."

Over at Sounds of Hawaii, original owner Herbert Ono is long gone, but with Hendrick Yano at the helm, the studio has continued to thrive. As the studio where much of the better Hawaiian music of the late '60s and '70s was recorded, Sounds of Hawaii has always had the reputation as one of the places to record native music, and that continues to this day. "We do lots of Hawaiian music," says staff engineer Kevin Hiras, "but it is getting harder to compete because there are more good small studios than there used to be. It seems that a lot of bands don't have as much money for recording as they once did because live music has

taken a downturn. That used to be where a lot of groups made most of their money, but it's been harder to get jobs since so many of the clubs have become video clubs with no live music." (The video age strikes again!)

The Neve-MCI studio, one of just four 24-tracks on Oahu, still has music as its bread and butter, both record and cassette projects, and some music for commercials: "We know all the good players so it's no trouble for us to put together musicians for that kind of work," Hiras notes.

The opening of the New Studio Hawaii last month represents the return of one of Oahu's most venerable recording institutions. Back in 1978, Al Harrington, a Samoan who has long been one of the most popular entertainers in Hawaii (right up there with Don Ho) started a 24-track studio in Honolulu to give himself a place to record and work with other local musicians. It was originally called Broad Studios, after producer Gordon Broad, who'd convinced Harrington to make the move, but it was soon changed to Studio Hawaii, "in part because people kept mistaking 'Broad' for something else," laughs "New" Studio Ha-

waii owner John Chang, who got his start at the old facility. (In fact, he first became interested in engineering after taking a course at Broad.)

With its Ampex recorder, Trident board and assortment of top processing equipment, Studio Hawaii fared very well on the local scene, capturing a sizable share of the Hawaiian market, and doing the odd outside project for mainland or Japanese clients as well. Eventually, however, Harrington decided to bow out of the business and the studio shut down for a while. That's when Chang, who'd worked his way up to head engineer and manager during his tenure there, stepped in. He bought the old studio's equipment, found a new site, and spent much of the past year getting it ready to open again.

"I wanted to keep the name because it was an exceptional studio with a good reputation and I was very involved with it for many years," Chang says. "At the same time, it really is 'New' and I wanted to get that across, too." Chang expects to keep the thrust local, and he also plans to install a 16-track system to go along with the 24-track gear. His reason is simple: "It's

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Control Room B in Commercial Recording

gotten very competitive around here. Ever since the advent of lower cost and good quality recording equipment, people who never would have gotten into the studio business have opened up places and managed to get some of the demo business and smaller projects.

"One way I hope to survive is to start attracting up-and-coming producers and engineers to the studio with their projects. In the past, it's been hard for young engineers to get studio time at local studios. I want to change that, help train them, and then maybe those people will feel like they have a good place to work on their projects."

Up in Hauula, on the beautiful North Shore of Oahu, a long but scenic ride from Honolulu, Sea-West Studio is a 24-track that has thrived almost exclusively on music work from outside the Islands for the past eight years. Here, the primary drawing card is the presence of owner/engineer Rick Keefer, who recorded Heart and many other top bands during a long tenure at Sea-West studios in Seattle during the '60s and '70s. Says his wife Donna, who is studio manager at the Hawaiian version of Sea-West, "we came over here on holiday and decided it would be a nice place to live. So then we figured out a way to do it. We looked on some of the outer islands, but finally decided the North Shore was the best because it has that thing of being both far away from Honolulu and close enough that if people want to party they can drive down there.

"We're in a real rural situation," she continues. "We're on a mountaintop with ocean and mountain views, waterfalls and all—it's very Hawaiian looking. Rick had a lot of clients on the mainland who liked working with him, and you can imagine he didn't have to twist their arms to get them to come to Hawaii," she adds with a laugh. "Obviously, this is a great place to get away

from it all, and it also works well for artists who are well known, because fans don't bother them here."

The North Shore has turned out to be a good international location for Sea-West—the studio has drawn acts from all over the world, including the U.S. (Crosby, Stills & Nash cut *Daylight Again*, and Nash made a solo album there), Great Britain (Souixie & the Banshees, etc.), Australia (Australian Crawl), Japan and other lands thousands of miles from Hawaii. "We've got a Scottish band coming in soon," Keefer says. "They're going to be using a lot of local ukulele players on it so it should be a lot of fun." The studio also has a good Hawaiian clientele, too—Kalapana, who are probably the top contemporary band in the Islands, popular in Japan and California both, recorded their last three albums, including the current *Lava Rock*, at Sea-West.

"We rely mainly on word-of-mouth," Donna says, "and that's kept us real busy. We're happy just doing music. We're not geared for ad agency people because of our location. To those people, the North Shore is like the end of the world. But Rick doesn't want to do that kind of work anyway."

With such a seemingly idyllic life, one wonders why other mainland engineers and producers aren't booking flights for Hawaii as you read this, hoping to stake out some turf. Well, there's the fact that the market is really quite small even for the limited number of studios there are, and then there's another problem which Donna Keefer explains:

"We've had people come over from L.A. for a couple of months here and there but it's never worked out—they always just end up on the beach. It turns out what these engineers and producers really wanted was a paid vacation. You'd talk to them before they came over and they'd be all ex-



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Composer's Workshop

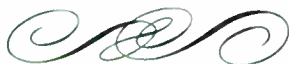
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cited, but then after a few days here it was like they were in the ozone — Polynesian paralysis or something."

Commercial Recording's Tyler has had similar experiences with engineers from the mainland. "They're not used to the pace over here," he says, "plus they don't realize the market is so small. So even though it has this surface glamour, it gets boring for them after a while. Fortunately, we've had no problem finding good local engineers."

A 16-track that has done very well is Hawaii Artists in Wahiawa. According to Bob Kindler, "unlike the other studios here, we have a special focus and some exciting things happening to us. I have just signed a five-year contract with my partners at Global Pacific Records [who put out mainly instrumental music slanted towards environmental folk and new age] in conjunction with CBS Records, which means that many of the past recordings we did for Global and many future albums will be distributed through CBS. This historic contract means that Hawaii will be connected to the world via CBS, and Hawaii Artists will be producing the master tapes of artists such as Paul Horn,

the Kindler Brothers, and other up-and-coming people."

The Composer's Workshop in Honolulu specializes in demo packages for young talent on the rise, and that facility's Rick Mahoney believes that there are more skilled players out there than there have been in a long time. "The young players are smarter than they used to be—they know more about technology and they're more interested in it," he says. "Still most people can't afford and aren't ready to go into the big rooms around here, so what we offer is a chance for the young musicians to work in a solid, professional environment. So far, the response has been very good."

After Oahu, the most developed of the islands is Maui, known the world over as a top-notch resort area. Maui, of course, was practically colonized in the late '60s and early '70s by Californians who became disenchanted with mainland life and sought the relative wildness of this picturesque isle (not to mention the fertile, densely forested hills that were perfect for growing pakalolo—marijuana. The Big Island and Kauai have since equalled and surpassed Maui as the grower's favorites).

—FROM PAGE 100, SOUND IN HAWAII

both Kono (on the island of Hawaii) and Honolulu, keeps their custom 3-way system (JBL double 18s, 12-inch cone mids and TAD HF drivers) and Soundcraft 8000 console busy on a variety of projects. "We mostly do the larger local entertainers and a lot of convention work," notes company spokesman Vincent Ching. "We like to do trade shows, because the caliber is high—they really strive for high fidelity. The audiences are smaller, but the shows are high quality." One trend Ching has noted over the past year is the increasing competitiveness of the sound reinforcement market. "Everybody's spending a lot of money upgrading their equipment," says Ching, who is also optimistic about the large Hyatt complex coming to the Big Island, which should be good news for their branch in Kono.

"The big money in Hawaii is not in rock concerts—it's in conventions," says Eric Petersen of Hawaii Sound and Lighting, a Honolulu company offering a large JBL con-

cert system (40 4550 bins, 24 Bi-Radial horns and 24 tweeter packs with 2425 drivers and bullet tweeters) as well as a Renkus Heinz Smart System (eight B-1 full range, four L-1 subwoofers and eight B-2 smaller full-range boxes) for convention gigs.

"There are shows here all the time, but big rock concerts are pretty seasonal," notes Petersen. "Usually bands come here on their way to Japan or on their way back. We get rock and roll tours that are either just starting or just finishing up. Our normal rig at the NBC (Neil Blaisdell Center) Arena is 20 JBL 4550s, ten BiRadials, ten tweeter packs, Yamaha PM2000 board and full monitoring with our 38 input Stephenson board with 12 monitor mixes, biamped wedges and stuff. Our rental on a system like that would be about \$2,000, whereas on a convention, we'd take our smaller Renkus system out and get \$6,000, including rehearsals. Conventions are where the bucks are!"

The blight of urban sprawl is unfortunately not limited to the main

land, and encroaching housing units are threatening the picturesque Waikiki Shell, an 8,000-seat outdoor amphitheater similar in design to the Hollywood Bowl, located at the end of Waikiki beach at the foot of Diamond Head. Randy Bauske of Baus Engineering offers sound reinforcement for concerts and industrial shows with his large Meyer system (driven by Mark Levinson amplifiers) and audio consulting and testing with his Techron TEF System 10. Since Bauske does most of the shows at the Shell, including the weekend Starlight Pops symphony series, and most recently concerts by Anita Baker and Bruce Hornsby, he obviously is concerned about the effect of the strict noise ordinance passed by the city.

"We've had a long ongoing project, working on a solution to the city's noise ordinance, trying to design baffles using TEF measurements to curtail the noise so we can do more rock shows in there," explains Bauske. "The Shell is a beautiful venue and right now we're trying to save it. Because of the volume restrictions, they can't put enough shows in there and the city is entertaining the idea of tearing it down. It's at the foot of Diamond Head where nobody used to live, and now there are a lot of condos and upper-class apartment buildings nearby and those people tend to complain a lot. It's hard to reinforce within the noise limit of 55 dB at the property line: the traffic at 10 o'clock can exceed that!"

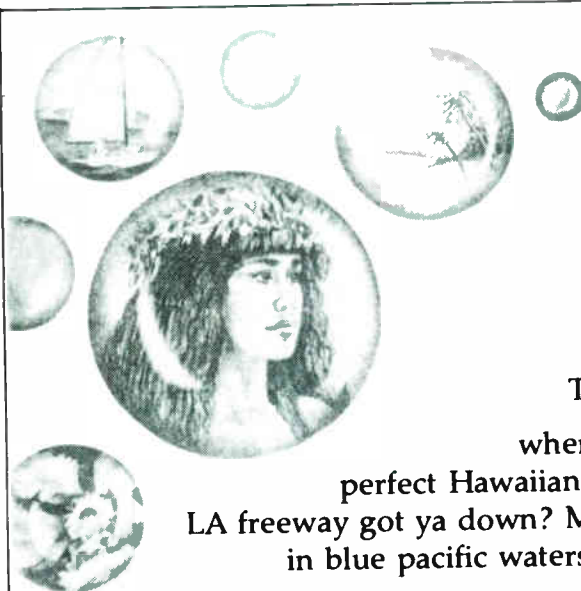
Moving northwest to the island of Kauai, Kent Tanigawa of Audio Concepts keeps his active 4-way JBL system busy with a steady mix of concerts, local events and conventions. Tanigawa sees business on the upswing, especially with the opening of a new 580-acre resort this month, but it hasn't always been so good. "I've only been here for two-and-a-half years, and the sound business has changed a lot in that time. When I first came here, the other sound companies were using 20-year-old Altec Voice of the Theatre speakers and nobody knew what a direct box was: running high-impedance signals through a 100-foot snake. Their prices were really low compared to mine, and

it's been two years of educating people about good sound."

"We don't cater to the big shows," says Glenn Yafuso of Yafuso TV and Appliance, which offers professional audio sales, rental and service, as well as sound reinforcement services with their Crown and QSC powered JBL system with Yamaha and Soundtracs consoles. Based in Hilo, on the sparsely inhabited Big Island of Hawaii, Yafuso doesn't have a lot of big shows come in, "but we do a lot of club shows, pageants, international fes-

tivals and Hawaiian music shows. There are a lot of sound companies starting to do parties and small shows here, but for the major shows, it's slowly growing, as the population grows. Now it's a gamble for a promoter to bring in a big show and expect to get anything out of it." ■

While George Petersen frequently wears Hawaiian shirts around the Mix office, he has never been to the islands, and a special trust fund has been set up for this purpose.



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There's been a major tourist explosion there the past decade as air fares have become cheaper to and from the mainland and Japan. And since major air carriers began direct flights to Maui, eliminating the need to take short connecting flights from Honolulu, the local economy has gone through the roof. The main recording studio on Maui is Lahaina Sound, owned by fusion guitarist/singer George Benson. The facility boasts the only SSL (4000) in Hawaii, as well as a new digital Sony 3324 multi-track and a full complement of the latest outboard gear. "Benson keeps it a state-of-the-art studio," comments studio manager Amos Daniels. "Hopefully what we offer the client is isolation, environment and technology." While projects by the likes of Dan Fogelberg and other top U.S. acts help give the studio its high profile, Daniels says that the Japanese invasion has hit there, too. "I think the improved dollar-yen ratio has made Hawaii a much more attractive place to record," he says. "We have equipment as good as any you'd find there, plus we have the added attraction of seeming like a working vacation to them. Business has been good."

Maui Recorders is a MIDI-based production room with 8- and 16-track capability which has succeeded in drawing a lot of the local musicians on Maui. "Our primary business is Hawaiian albums and some radio production," says owner John Neff, a 22-year veteran of the business who worked previously in Detroit, Toronto, Phoenix and L.A. before marrying a Maui native and moving there several years ago. "I had basically left the business for a couple of years, but around '82 I got drafted by some local people to engineer some Hawaiian albums." Until it got too crazy, he worked out of his home, but eventually the demand for his services became so great he opened Maui Recorders.

A lot of the musicians who currently use his studio "are playing something they call 'contemporary Hawaiian,'" he says. "They embrace the chord structure and some of the melodic figures of some of the more traditional groups like the Sons of Hawaii, but they're doing music that's more uptempo and with modern instruments. They're using MIDI, digital drums and sequencing. They want it to have a Hawaiian feel but also to sound like it's on the radio."

Neff likes to put together packages

for the local players, taking them from tracking through the actual production of cassettes, which the musicians then sell at their gigs. His latest move, though, is more ambitious:

"I've put together a Maui resort recording package, a one-stop deal for recording, air fare, ground transportation, catering, hotel, studio time, rehearsals, video documentation, photography, just about anything. We've also got a production agreement with Lahaina Sound if we need to use the bigger facility for a project. We're offering everything from 'coach'—rent a car and condo—to 'first class'—a Rolls Royce limo and the best suites available." (I'll be right over!)

One of the most recent MIDI studios in Hawaii is the year-old Splash Recording on The Garden Isle of Kauai. Run by Stuart Hollinger, it's a MIDI-equipped Tascam room, the only one like it on the island. They do a lot of local radio work and, increasingly, projects with Kauai musicians. "We get a lot of local island people, contemporary and traditional," says Hollinger's wife Mika. "The market here is starting to grow. It used to be really limited, but that's changing. Honolulu used to have the grip on all the recording, but now musicians are finding more and more they don't have to go over there to do a good project." The Hollingers plan to go 16-track in the next year, "though we always want to have the 8 track available," Mika says. "A lot of people can't afford 16-track and they should have a good place to go, too."

On the Big Island of Hawaii, Ken Chikasuye's Rain Recording is situated in Mountain View on the lush green slopes of the Mauna Loa volcano, just 15 minutes from Volcano National Park. "What keeps us going is local Hawaiian music," he says. "Most of what gets done in Honolulu or on Maui these days is fairly contemporary, but this island is one of the last hold-outs of traditional music—the real slack key and ukulele stuff."

Chikasuye says recording this kind of music is actually more challenging than it might appear: "There's nothing simple about getting good separation for a uke and a voice that are a couple of inches apart. Most of the older musicians aren't familiar with overdubbing, either, so it's a challenge to get a good live sound. That's been changing a little, though. This year we did some vocal overdubs on one of the traditional projects, plus I've even gotten to put



Engineer Wes Pacanas in Kauai's Splash Recording

some little synthesizer things on once or twice—maybe some string sounds or a wave sound. The thing about these people is that even though they're very traditional, they can see what technology can do for them and more and more they're open to using it for their own benefit."

With an MCI JH-24, an Allen & Heath console and lots of outboard equipment, Chikasuye has more than enough to suit the needs of most Hawaiian players, who he generally records 16-track so he can get "a good fat sound." His own projects, however, make full use of his technology—he's put out a couple of albums as leader of a rock and roll outfit called Ziggy Warfield, and he's hoping to break in Japan in the next year. Interestingly enough, Japan is also one of the main markets for the Hawaiian albums he does.

"Japan has gone crazy over Hawaiian music!" he enthuses. "They have special clubs where everyone dresses up in Hawaiian outfits and they transform these rooms into scenes of Hawaii and they listen to Hawaiian music. They even have magazines devoted to it. After Honolulu itself, Tokyo is the biggest market for Hawaiian music."

The location of Rain Recording so close to a volcano lends a certain exotic quality to the facility, but it has' its drawbacks, too. "When the volcano goes off, we usually have to stop recording for a bit to wait for the heavy rumble to stop. You get this nice red glow in the sky. But fortunately, all the lava flows down the other side."

Only in Hawaii.

The Future's So Bright... (And They're Already Wearin' Shades)

Clearly the recording scene in Hawaii is the healthiest it's ever been—how else can you explain all the studios that have opened in the past five years?

A lot of it really is the proliferation of young musicians, inspired by MTV or records, who are driven to make music—just like kids on the mainland. At one time, these kids might have been discouraged to try non-traditional music, but no more. Anything goes. Within the past year, Glenn Medeiros of Kauai had a nationwide hit with a song that doesn't sound even remotely Hawaiian. No doubt others will follow.

There will probably always be a traditional Hawaiian music scene, as well. Many of the big hotels on different islands give steady employment to singers and bands that still play guitars and ukuleles and sing in Hawaiian—in fact, some of the most beautiful Hawaiian music I ever heard was a lone female singer with a uke in a restaurant on Kauai owned by Charo, of all people. And as long as there are luaus (let's face it, there will always be luaus in Hawaii) the old songs will continue to be sung pretty much the way they have been for the years before pop music began its insidious creep into Hawaiian music.

As for the real old stuff—well, more of that is available now than any time before, too, thanks to adventurous American labels like Arhoolie and Folklyric, who've made LPs from 78s that have been out of print for more than 50 years. I guess when it's all said and done, I'll always prefer the traditional folk music of the Islands. Nobody made a steel guitar sing like Sol Hoopii did in the late '20s. And for my money, no one will ever match the down-home harmonies and gentle strumming on more recent records by the Sons of Hawaii and the late, great Gabby Pahinui. But maybe that's because, like many mainlanders, I prefer to see and hear the old Hawaii. Obviously, you can't stop progress, and there's no reason why every island *shouldn't* have state-of-the-art recording facilities. But the soul of Hawaii's people has always come through in their music, from the crudest mono recordings to the present. And that's because music, not technology, will always be king there. ■

Mix managing editor Blair Jackson got turned on to Hawaiian music through Ry Cooder's recordings with Gabby Pahinui in the mid-'70s. His favorite island song is "Muana Alani" by the Sons of Hawaii, and he'd much rather be sitting on the beach at Hanalei Bay than working for an audio magazine.

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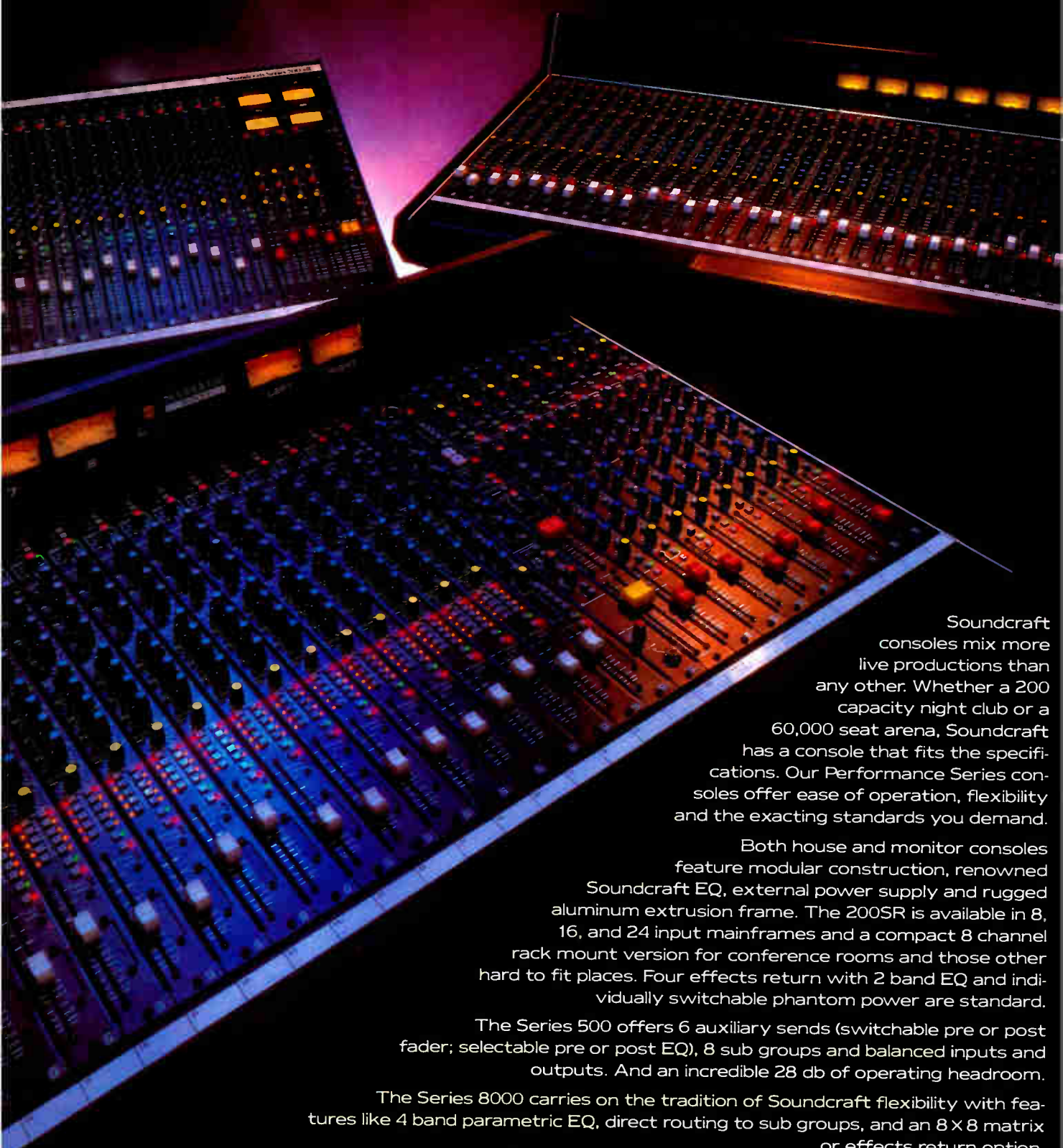
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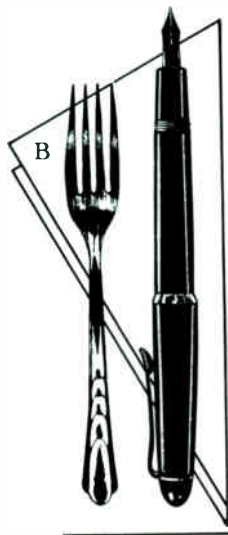
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World Radio History

by Mr. Bonzai

TWO OPEN DOORS

RAY MANZAREK & JOHN DENSMORE



Imagine it—a very early appearance of The Doors, before they made it big. The Hullabaloo, a Hollywood nightclub, used to have all-night concerts performed on a revolving stage and while one act performed, the next would be setting up on the hidden side of the circle.

The nightclub had a painted Paris skyline, left over from its previous incarnation, the Moulin Rouge. Now, looking back after 20-plus years, it seems fitting that I would first see Jim Morrison stand out against a stylized French backdrop. The band played a crisp set and then spun away, making way for the next act.

In the summer of '67, I sailed to Europe for a year of self-imposed academic exile (thanks to a student deferment from the draft). I packed the essential mementos, thinking Vietnam might prevent my return. I wore my hippie beads and yellow sunglasses proudly—too proudly—and almost got deported by the Edinburgh police when they sniffed the aroma of a dangerous substance lingering in my sweater.

One of the handful of albums I listened to that year was *Strange Days*. I don't know if Jim Morrison will go down as one of the great poets of the century, but I found great comfort in "People are Strange." And I admired the balls of this group that was causing such a stir.

I happened to see Jim Morrison one more time before his early death. I was sitting in the balcony of The Troubadour, watching a lone folksinger do his best to sell his soulful tunes to the

audience. Morrison sat a few seats from me. After each verse was sung, Morrison would lean forward, nearly fall over the railing, and groan out "Fuck." The battle of sensitivity and Morrison's offbeat, contrapuntal critique made for lively theater.

Years later, living in the Hollywood hills, I made friends with a neighbor

**Jim Morrison
of The Doors
during the
"Hollywood Bowl"
performance**





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LUNCHING WITH BONZAI

named Ray. After six months of backyard chats, I asked him what he did. He fingered an imaginary keyboard and told me that he used to be in a rock band. You guessed it—The Doors.

The Doors—Live at the Hollywood Bowl, just released after nearly 20 years in the can, is a real view of the band. They play their hits, of course, but they also swerve off on some pretty wild excursions into poetry and jazz. The Doors were much more than their signature hits. The video shows the rough edges, the theatrics, the flesh and bones of an experimental band.

There is power in this bumpy time machine back to the '60s, when concerts weren't so perfectly planned as they are today. We see Morrison, the beat adonis, go from sweet boyishness to angry, painful rantings. It's a performance piece that leaves you with a close feeling for these four trailblazers who made a lot of money and got in a lot of trouble.

Doors keyboardist Ray Manzarek and I got together to chat about the concert and reflect on the strange days of a band that remains popular today. By telephone I was introduced to drummer John Densmore, and discovered new insights into the myth and the character of The Doors.

Bonzai: How did this new video materialize after all these years?

Manzarek: Well, we've had the raw footage in storage since 1968; it was our first major concert in Los Angeles. We decided to film it with Paul Ferrara, the director of photography, who was one of our buddies from UCLA. He was in charge of the film crew. We filmed with sync sound and Paul Rothchild and Bruce Botnick took care of the audio. Two cameras were in crystal sync and three were wild, one shooting slow motion.

A few months after the concert, we got together and watched the rushes. It was fine, although there were some technical problems. The wild cameras were not running at the same speed as the sync cameras, and there was no way to get everything locked up without going through some incredibly expensive optical procedure. So the project was shelved.

About a year ago, after the release of the *Dance on Fire* video, which was very successful and a lot of fun, we

decided to go back to the archives and try something else. We started looking through the boxes and found this Hollywood Bowl concert. The big difference now is that with today's video technology, you can adjust speeds with no problem at all. After looking at some footage we decided to put the whole damn show together. It had never been done before and this is all there is of The Doors, live, in color, with sync sound.

Bonzai: Then this is it for history?

Manzarek: Well, we did something in England at The Roundhouse for Granada/BBC television, but it's a black-

and cleaned it up. I worked with them and the online people. It was my responsibility to make sure it came out right; if it didn't, that is also my responsibility.

Bonzai: The sound is tremendous—was there some new high technology utilized here?

Manzarek: I think that Paul and Bruce were right on the money in the first place. They were state-of-the-art in 1968. The fidelity was incredible. We took the multi-track and transferred the tracks over to a 24-track PCM-3324. We had separate tracks for bass, keyboard, voice, audience tracks, etc., and



Ray Manzarek and his son, Pablo, at home in Los Angeles.

and-white show. This is the only color Doors concert.

Bonzai: You're credited as director—what does this mean?

Manzarek: I put the whole thing together. As director, I was responsible for making sure that everything materialized—getting the right people to work on it, making sure the cuts were right. I sat with Richard Ross, a great editor, and we made the cuts. Rick Schmidlin produced and John Densmore co-produced. Because it's a documentary, I didn't write a script. I took the raw material and guided the project. Rothchild and Botnick came in and worked on the sound, digitalized

Paul and Bruce were able to reprocess and use today's technology to really polish the soundtrack. We also had some help from Sonic Solutions, a high-tech sound restoration company in San Francisco, who cleaned up some of Jim's vocal track that had been obscured by noise from a faulty mic cable.

Bonzai: Nice to have the original engineer and producer on the project.

Manzarek: Yeah, there we were, all together again. Well, Jim was on the screen, but he would have loved having it all come together like this.

Bonzai: Was this a typical Doors concert?

Manzarek: This is an especially hypnotic Doors concert. There was a mood

in the air, in the outdoors, during that warm summer night with a bright half moon—if it had been a full moon that night, the concert might have turned into chaos. There was a hypnotic power to that show. Doors' shows would go from wild and crazy affairs to very strange, moody affairs. This show was one of The Doors' hypnotic best, and Morrison was really on top of the words. He wasn't performing for 15,000 strangers—this was L.A. and those were his friends out there. The power of the words and the music carried the performance. We were on as musicians, and Morrison was on as a poet. This is a Doors poetry, jazz and rock show.

Bonzai: I was surprised to see the video—it's definitely not your typical rock concert. There is a lot of spoken word and strange musical atmosphere.
Manzarek: It's what The Doors were all about. This captures what our shows were like. The Doors were poetry and rock and roll. In that context we could play flamenco, do 1930s German music, jazz improvisations. Morrison improvised with words. He never did the same thing twice and some of this stuff had never been done before—and was never done again.

Bonzai: Who was the main musical force in the group?

Manzarek: It was completely communal. Everyone put in their two cents. If anyone had an idea, he could put it into the hopper and if it didn't work we'd throw it out and try something else. Everyone contributed and that was the joy of it. There was no musical dictatorship.

Robbie [Krieger, The Doors' guitarist] wrote "Light My Fire." The guitar player comes in one day and says he's got a new song. It's called "Light My Fire"—yeah, let's get hot, let's get high, let's hear it. Robbie starts playing. Yeah, that's good, that's good. Let's make a change here. John suggested changing the beat; it sounded too folk-rock. He gave it a Latin beat, "You know that it would be untrue"—the verses. Then a hard rock beat. Then I came up with the introduction. Two verses, two choruses, now it's time for a solo. Let's stretch out here—we're in A minor, let's do an A minor, B minor. Actually, the solo is a variation on John Coltrane's "My Favorite Things." It's

an E minor to an F sharp minor; we just used a different key. Coltrane's is in 3/4, we had it in 4/4. Densmore knew a lot of Coltrane. "Yeah, you guys just go and I'll follow." "Light My Fire" went from essentially a short little song, a good song, and evolved into the full-blown composition that it ultimately became.

Bonzai: Can you describe a recording session from those days?

Manzarek: Let's talk about the first album. It was four tracks; the second was eight, where we really got to experiment and have a great time. Rothchild, as producer, was basically in charge of keeping the whole thing going. Botnick made sure the sound was right. The first album was really a Doors set. We had two albums worth of material and picked what was best, and what would go together to make a great debut. We had "Light My Fire," "When the Music's Over" and "The End" and felt we had to save one for the second album. We used "Light My Fire," "The End" and saved the other one.

The band would set up and Morrison would be in a vocal booth. We recorded at Sunset Sound in Hollywood. Botnick would set up the microphones, we'd turn on the tape and go. The first album was recorded in two weeks. The second album took longer because we had eight tracks.

Bonzai: It must have been one of the first 8-track albums, because I know Bruce was always ahead of the times.

Manzarek: Both Rothchild and Botnick were technical geniuses, and Bruce was always on top of things. When we got eight tracks, we thought, we can do everything we did on the first album and more. The first album had Jim on one track, drums on one track, guitar and keyboard on one track, which was tricky. Overdubs were hard, because you had to leave one track free and ping-pong, and be very careful. When it came time for *Strange Days* we had four extra tracks—"Holy Shit!"

We went totally insane. I played one piano overdub backwards on "Unhappy Girl." We flipped the tape over so the song started from the end. I wrote out, measure by measure, the chord changes and started at the end. I played forward but I counted from the back.

Bonzai: What keyboards were you

using?

Manzarek: A Vox at the beginning, a Vox Continental organ. The black-and-white keys were inverted, so the sharps were white. It was flat, red, and had a Z side to it—the same keyboard that was used by The Dave Clark Five [laughs].

Bonzai: And you simultaneously played bass, too.

Manzarek: Yes, I had a Fender Rhodes keyboard bass that sat on top of the flat organ.

Bonzai: The keyboards in the video look sort of primitive now—no wall of synthesizers.

Manzarek: Actually, by the time we made the film I was playing a Gibson Kalamazoo. The Vox had broken down.

Bonzai: How about today?

Manzarek: All synthesizers—Roland, Yamaha, Emulator.

Bonzai: No acoustic piano?

Manzarek: I have the Roland which has a great acoustic piano sound, and a great touch.

Bonzai: And your son Pablo is helping out with some of your work?

Manzarek: Yes, in addition to my film and music projects, we're working on a project called "The Bamboo Jungle." Pablo is in charge of percussion and working the computer, a Mac. We're all MIDI'd up, with 64 tracks to play with. He's 13, half-Polish, half-Japanese/American. He's in charge of the technical end of it, and the rhythm. He's got a great sense of rhythm, and a great imagination with drums and percussion sounds.

Bonzai: Let's look back once again. I'm sure that people would be interested in some of the infamous Doors concerts.

Manzarek: There was one that happened in Miami [laughs], and another in New Haven, Connecticut. These are not typical Doors concerts. It's a psychic event in which the tribe comes together and people perform for each other. The audience performed as much for The Doors as we performed for them. We struck a bond of union between us. That was the important thing—the poetry and music.

Every once in a while, things would get out of hand and become notorious Doors concerts. In New Haven,

Jim was arrested right on stage. I had never seen that actually happen before; I don't think it's happened since. The man was busted right on stage—he was baiting the police. He was telling the story of how he got maced, tear-gassed about a half-hour before the concert started. He was downstairs in one of the bathrooms, in a shower with one of his fans, one of his female admirers. They were getting friendly—nothing serious. Just some heavy necking and one of the policemen came in and said, "Hey, you kids, get out of here." Morrison said, "What d'ya mean, get outa here?" "No one is allowed backstage." Morrison told him he belonged backstage and told him they weren't doing anything.

The policeman pulled out his can of mace and sprayed both of them. He was ready for a riot and sprayed them. Then it was discovered that this kid was the lead singer of the group that was playing that night. Two-thirds into the concert, in the middle of "Back Door Man," during the vamp section, Morrison starts telling the story of what happened. "This little blue man in a little blue hat came up. I was with this little girl and we were just talking and having some fun, hugging and kissing, and this little blue man, this little blue pig pulled out a can and sprayed this stuff on me, and I couldn't breathe. I thought he was going to kill me." And then Jim went on about how the police were supposed to protect us and serve. He started saying "pig" a few too many times and the police absolutely freaked out. The captain ran on stage and grabbed him, took the microphone out of his hands. Jim told the captain to make a speech. Then two more cops came out and grabbed him, dragged him off stage and they shut the concert down. They roughed him up, took him to jail and charged him with inciting a riot, breach of peace, and probably profanity. I don't think Jim used any of the forbidden words, might have said "shit," but that's all.

In the famous Miami concert, he incited the audience to have an ecstatic experience, but somehow it got all perverted into thinking he pulled his member out. I'll go on the record—at no time did I ever see Jim Morrison's snake emerge from his pants. I don't believe he ever really did it. I think it was a mass hallucination. He told the people he was going to do it, and he was fooling around. "I'm gonna show



At the premiere screening of *The Doors: Live at the Hollywood Bowl* are bandmembers (L-R) Ray Manzarek, Robbie Krieger and John Densmore

it to ya—is that what you're here for? You didn't come to hear rock and roll—you came to see something, didn't you? How 'bout if I show you my cock?" The audience started screaming, "Yeah, yeah!" "No, no!" So he took his shirt off and held it in front of himself and said, "watch this." He used his shirt like a matador's cape and quickly pulled it aside and said, "See, I showed it to ya." Then he fumbled around behind his shirt and did it again, but I never saw anything. I thought, they're not gonna fall for this. And they fell for it, and Dade County, Florida, said that man exposed himself before 15,000 people.

Bonzai: Speaking of falling—Jim falls down in the concert video. I was wondering, did he ever hurt himself on stage?

Manzarek: Not that I know of. The way he hit the stage was amazing, though. It was the mock assassination he was doing, hit by the bullets [on "Unknown Soldier"]. I guess he was just so loose and snaky that he never really damaged himself. He did tear his shirt and if you look closely you'll see his elbow showing through and he might have damaged himself slightly.

Bonzai: What do you think contributed to the decline of The Doors, the end of the group as a performing vehicle? Why did things wind down?

Manzarek: I think the Miami concert was the beginning of the end of The Doors. We had set out in Miami to

change the obscenity laws in the trial, and we never received backing from the rock and roll press, or from the populace. No one could get past the fact that Jim allegedly pulled it out. We tried to change the laws, but the trial didn't result in that conclusion, unfortunately.

Then we started to play gigs again. It took six months before we could get any bookings outside of New York, San Francisco and Los Angeles. When we started to play around the country, the narcs were on one side of the stage, the vice squad was on the other. We had to perform with obscenity clauses—if Jim Morrison says any dirty words at all, you will be arrested, you will not be paid. Performing became very difficult for us. I think that's what caused the decline of The Doors.

The next morning, I phoned John Densmore...

Bonzai: Are you excited about this new Doors video?

Densmore: Yes, I am. I'm very happy about it.

Bonzai: Do you think it's an accurate representation of the legendary Doors?

Densmore: Pretty much, yes.

Bonzai: I saw you guys once on a

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revolving stage at the old Hullabaloo club in Hollywood. You were on the bill with about ten other bands, so it must have been pretty early in your career.

Densmore: I remember our show that night—it was a pretty good concert.

Bonzai: When The Doors struck it rich and became megastars, did it come as a surprise to you?

Densmore: Yes, and no, Mr. B. It's funny, in the early days we had this sense that we were gonna do it. Maybe it sounds arrogant—maybe it *was* arrogant—but we knew Jim was unique and the songs seemed pretty interesting, so we were confident. On the other hand, I can't believe I am here 20 years later, and it's still going on. I thought maybe if we lasted through the '60s, it would have been wonderful. I suppose in another ten years, people will remember "Light My Fire" and a few others, so some of the songs have become standards. That's a surprise, and something to be proud of.

Bonzai: Can you tell me about the first time that you met Jim?

Densmore: It was down in Manhattan Beach at Ray's parents' garage. We had a garage band and this was before Robbie joined us, although we were friends. I went down to jam with Ray and his brothers. He introduced Jim—the singer—who had never sung. He was a real shy guy who looked incredible, like Michaelangelo's David. He was barefoot, wearing cords and a T-shirt and kind of sung toward the corner of the garage. He was very introverted. I was thinking, "This is the next Mick Jagger? I don't know, Ray."

But he showed me "Moonlight Drive" and "My Eyes Have Seen You," and some of those early songs. I thought I would like to drum to this stuff. It was different, to put these words to rock and roll. I wanted to try it.

Bonzai: You had been playing jazz before this?

Densmore: I played drums from the 7th grade, and in high school bands and orchestras. I got a fake ID and started playing in bars, and for weddings, dances and bar mitzvahs—anything. It was good for me, because I had to play waltzes and fox-trots and everything, besides rock and roll. Then

I got obsessed with jazz, and I can still imitate Elvin Jones, Philly Joe Jones, the drummers for Miles Davis and John Coltrane. There was a connection Ray and I had, because he, being from Chicago, had all these blues roots. He loved Muddy Waters, but he also knew these jazz albums that I knew. We used to play Miles Davis tunes, old blues, when we first got together to jam.

Bonzai: Ray mentioned a Coltrane influence.

Densmore: That free improvisational stuff, possibly in the Hollywood Bowl concert. We'd just stop everything and grunt and groan on our instruments, spontaneously improvising behind whatever Jim was blasting out poetry-wise. It was Coltraneish, because he went outside the chords for a while after he went through bebop and everything.

Bonzai: Unusual for those days, and still seems strange—lots of spoken word with atmospheric music. Must have surprised audiences.

Densmore: Yes, and we liked that element. What I got out of The Doors is a sense of dynamics, as opposed to playing on one level. Get real quiet, stop the beat, and then slam back into the song and jolt everybody. It's fun.

Bonzai: You've been doing some one-man shows?

Densmore: Yes, I wrote a one-act play and have performed it with a Sam Shepard one-act. I plan to film or video that within a year. I've primarily been writing a book and I'm close to finishing it.

Bonzai: Is it about your days with The Doors?

Densmore: That, plus I'm trying to bring it up to being 40 years old with a kid and being a survivor in the '80s.

Bonzai: Ray was telling me about your interest in mythology and the works of Joseph Campbell.

Bonzai: Yes, I helped finance a film called *The Hero's Journey*, which premiered the other night. I sat next to Mr. Campbell afterwards in a panel discussion.

Bonzai: How does this relate to your music and your book?

Densmore: Well, The Doors certainly

built a mythology. It's interesting—who is running the myth, or is the myth running you? Jim, at some point, maybe started to buy this big myth that he and we got going. He was special and creative, but you can't take it too seriously.

Bonzai: It creates an identity crisis.

Densmore: Yes, and I'm trying to figure out his self-destruction. Although he came in with it, I think. When he was born, he was out there.

Bonzai: In the world of drums, have you made the transfer into electronics?

Densmore: Yes, I succumbed to a drum machine reluctantly (because it's putting drummers out of work), but my friend in the drum shop said, your mind thinks like these buttons. You can program better than keyboard players, and that talked me into it. Recently, I did a theater piece and backed up some dancers, just with the drum machine. At the end, I played it with my feet—I writhed around on top of the setup. Very funny, sort of the appropriate way for a drummer to play one of these things.

Bonzai: Ray asked me to mention Dynacord.

Densmore: Yes, I know. I have a Simmons setup, but Ray is big on Dynacord and wants me to check it out. I did a drumathon with Bill Bateman of the Blasters and Don Bonebrake of X at a club a few weeks ago. Three drum sets going at it for an hour.

Bonzai: So you're staying in the public eye?

Densmore: I play once in a while with friends.

Bonzai: What are your acting plans?

Densmore: I have a small part in an upcoming movie called *Dudes*, directed by Penelope Spheeris—she did *The Decline of Western Civilization*. Really, I want to finish the book and then get going on the acting again. And I want to film my one act, called *Skins*, which I performed in New York at La Mama.

Bonzai: Last question—were there seeds of destruction in Morrison's being?

Densmore: Not destruction. He was just someone who was so driven, that he had to pack everything into 27 years and make a big impact, and that's it. ■

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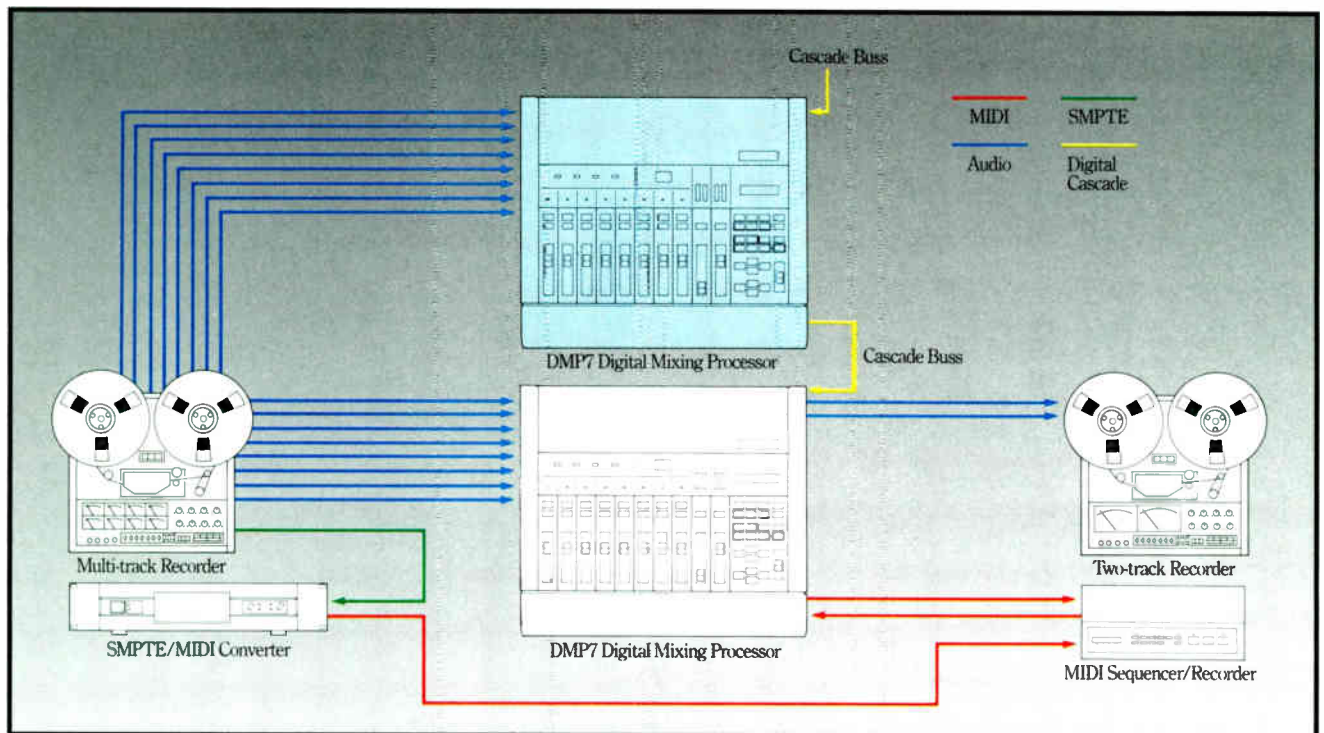


demo. Until now, this level of mixed automation was only possible with more expensive consoles.

The DMP7 doesn't just do the final mixing, but the final processing as well, to each individual track. With reverbs, flanging, delay, and stereo panning. Or whatever sweetening you

need. And again, in sync with the music.

What's more, if you have more than eight tracks, you can cascade in the digital domain to another DMP7 for 16 tracks. Or another for 24. And yet another for 32 tracks.



Yamaha Music Corporation, Professional Audio Division, P.O. Box 6600, Buena Park, CA 90622.
In Canada, Yamaha Canada Music Ltd., 135 Milner Avenue, Scarborough, Ontario M1S 3R1.

tions ("image songs" and theme music for news shows) and for multimedia productions, working with corporate and civic clients such as American Airlines, the city of Pittsburgh and Exxon.

"Custom" (as in "custom music for advertising") doesn't necessarily imply "original." For instance, Tuesday Productions has produced a new version of the Beach Boys classic "Fun Fun Fun" for Southwest Airlines. Bruce Tucker, Tuesday's executive producer, notes, "one change that's occurred is the trend in advertising to remake old songs rather than going for original material. In theory, they're tapping into a certain age group."

Of their methods Tucker says, "we usually don't get into post effects; we wild-track sound effects on a separate reel, and don't put it on the music tape. The final product is generally a 15 ips, leadered, stereo reel-to-reel master, which is best for radio, and along with that we supply a 7½ ips dub and a cassette. Everything is in stereo, though we tailor to the client's needs."

Tucker adds, "with the advent of drum machines and sophisticated synthesizers, the market place has become very competitive. There are production companies who, instead of hiring a string section, will just do everything on synthesizers and undercut prices. After all, there are clients who can't hear the difference between when you should and when you shouldn't use synthesizers. Now anybody who has a DX7 and a telephone is basically a jingle company. You have many, very small, independent shops competing in local markets, whereas at one time Tuesday Productions was one of the only regional music production shops where you could get a piece of music on a buy-out, non-union basis at a reasonable price.

"We still use live musicians here. At the same time, one of our 24-track studios is dedicated to synthesizers. We have the Synclavier system, DX7, Oberheim Xpander, and a Korg drum machine, all MIDI'd up. Many times we do a demo using the synthesizers, then go into the studio to finish it, to flesh it out with live strings or live brass.

"We don't use a music production library. We have a sister company, Network Production Music, and we occasionally sample sound effects from that library. Or we'll use the Synclavier ef-

fects, or record the real thing. The Network pieces (a 50-volume set on 7½ or 15 ips tapes or LPs) are available on a non-exclusive basis, whereas our work is licensed on an exclusive basis so no two clients receive the same thing."

Levin & Many Composing

One way a studio or production house can attract advertising projects is by keeping up with technology. Because technology gives composers a wider range of audio and musical tools, while eliminating the cost of hiring studio musicians, the pressure is on the composer/producer/engineer more than ever to create great music, *all* the time.

Musicians Geoff Levin and Chris Many have that kind of batting average, which has enabled them to set up a three-studio facility to accommodate their commercial projects. Their client list names such conglomerates as Kodak, Paramount, Westinghouse, ABC, IBM, IT&T, Ringling Brothers Circus, the Girl Scouts, Pepsi, Nestle's, Mazda, Maytag and Toyota, for whom they've written and produced scores, underscores, and theme songs. Is there anyone out there who can't remember the Levin & Many-penned "Milk Does A Body Good" for the Milk Advisory Board? These guys have won many, many awards, both for their commercial stuff and industrial/educational production scores.

The Levin & Many Composing facility in Burbank comprises one 16-track synth lab and two 24-track studios, one private and one for hire. Set up for video interlock and audio sweetening for broadcast and industrial clients, the place is not, according to Levin, "what you call 'L.A. hip,' which means we don't have all the bells and whistles like the chef on site or the big kitchen or plush furniture. It's clean, it looks nice, it's just not the 'LA.' studio most agencies are used to. Advertising is such a conservative industry. They only use those things that somebody else has used and that ten other people have recommended, and then they'll try something, or somebody, new. So we work a lot with the producers instead, who know what we can do, and we're kind of insulated from the agencies."

The duo also creates music for production libraries, and is affiliated with Regent Recorded Music, an LP-based library. Having just signed with Firstcom of Texas, Levin looks forward to

hearing how their stuff will sound on metal-mastered compact discs (also noting, "agency people are just dying for good library music"). While most tunes they create for commercials are original, Levin says they also modify existing production music.

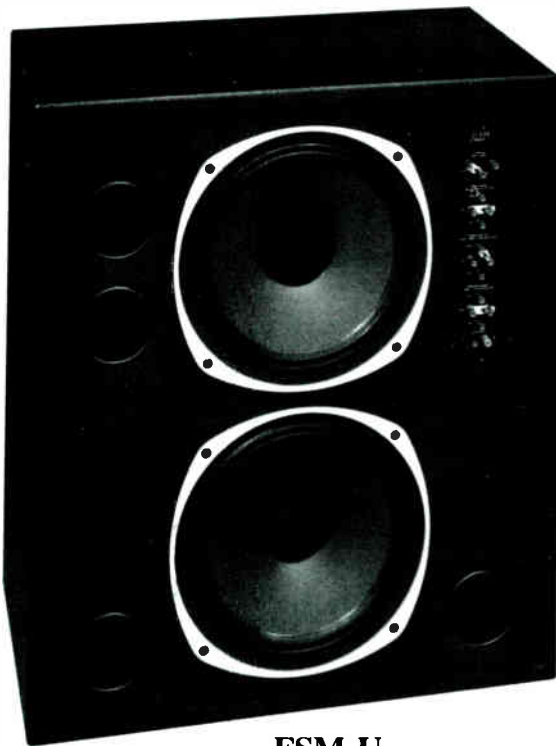
Levin's written and produced radio jingles since 1975. When asked what changes he's seen in the commercial music arena, he responds, "the ad agencies have gotten worse, there are more talent agencies than ever, and also more talent doing commercials. I think everybody in the agencies is three months behind what's hip, as opposed to two years behind. There's certainly more good music production now in radio commercials. I just think it's *too* hip and that bothers me, because I'm a performance-oriented artist. So I have two feelings: it's nice that there's a hell of a lot more good music being utilized, and certainly more good players; by the same token, it kind of cheapens some of the quality stuff."

Another change in the world of radio production, according to Levin, is the desire of producers to "get *more* on the radio. We just finished the music for a radio soap opera, something people haven't really done before."

Outside the studio and commercial world, Levin and Many perform their own music (guitar and keyboards) and produce avant-garde musical theater. Their goal in creating commercial music is to never make it sound like a commercial. Says Levin, "we don't like our stuff to sound too electronic. It ends up sounding modern and acoustic, because we throw it back and put guitar on it. It used to be, for me, that the idea of touching anything electric was odious. My roots are in acoustic and folk music, and that stuff never leaves your blood.

"But everything we do starts with synthesizers," continues Levin. "One of our rooms is just for that, centered around the Hybrid Arts sequencing system and the Atari ST. We'll probably get Hybrid Arts' new ADAP 16-bit sampling unit for the ST, and we'll store on that. We sample a lot of stuff, which is stored on a Prophet 2000 as well as in PCM format so it's easy to pull it off again. We use the Kurzweil 250 and a bunch of other synths [Yamaha TX816 rack, Yamaha DX7IIFD, Oberheim Xpander], rather than one of those real expensive systems which is overkill for our types of clients. We're more

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music-oriented and less equipment-oriented."

HLC Studios

The year-old, L.A.-based HLC Studios is your prototypical "big jingle house." Partners Joe Lubinsky and Ron Hicklin used to lease two studios on a full-time basis, until they opened HLC—four 24-track studios devoted to their own projects, typically turning out five to eight pieces of music every day. Lubinsky is a lyricist, producer, UCLA instructor and author. Hicklin has worked on films as a vocal contractor, singer and composer (his credits include *Butch Cassidy & the Sundance Kid*, *M*A*S*H*, *Rosemary's Baby*, *Sweet Charity*, *Grease*, *Rocky II* and *Airplane*). He's produced and sang backup for Dolly Parton, Donovan, The Beatles, Herb Alpert, The Supremes, Peggy Lee, Leon Russell, Bing Crosby, and on and on.

HLC's reputation stands on music for commercials. Their clients include many big names, from Blue Cross to Blue Diamond Almonds, Disney to Dodge, Coors to Anheuser Busch. When you switch on your radio and hear Levi's 501 Blues, or "What the Big Boys Eat" (they eat Wheaties), you're listening to HLC originals. HLC also boasts a broadcast division which creates ID packages for radio and TV stations, a music production library which they produce and market, a radio drama production division (Lubinsky mentions they've produced a syndicated radio show that we'll soon hear on the air, provided they win the bid), and a home video division currently working with Columbia.

HLC's methods of jingle creation have changed, thanks to affordable digital technology. Lubinsky remarks, "we do digital commercials when the client has the money to rent the digital multi-track. Anheuser Busch, for example, wanted a digital recording of their commercial. We still master on analog because most people still have analog machines. Besides that, the commercials have changed technologically in their content. We've been able to get into using the Publison [Infernal 90] in commercials, which allows you to do something like 'B-B-Bu-Bu-Bud-Man,' the kind of stuff you hear a lot in rap music."

Other tools in the HLC kit include Kurzweil 250s, the Roland digital sampler, Yamaha DX7s, Emulators and the Fairlight. Says Lubinsky, "Synthesizers have taken over almost all string play

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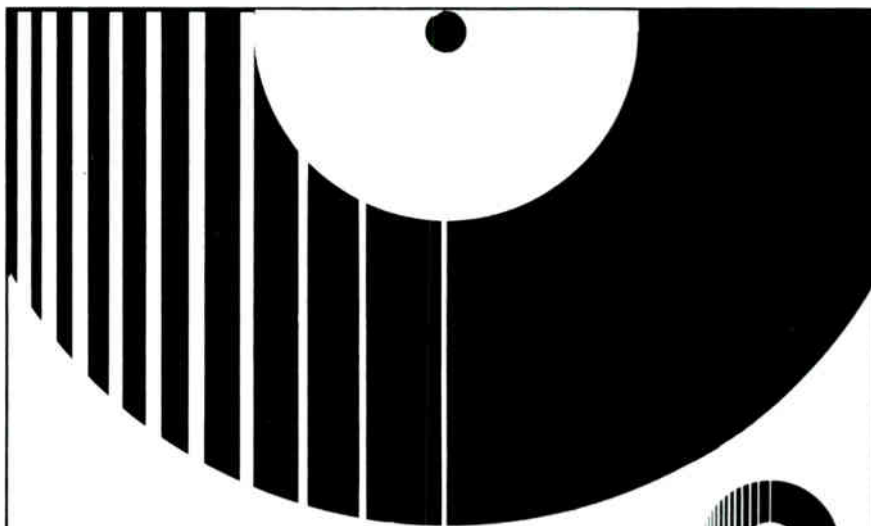
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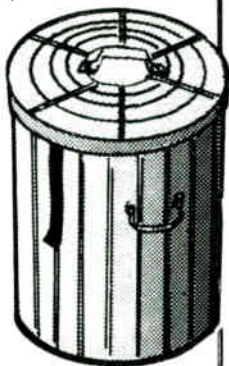
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ers. I can't remember the last time we had a big string section in here. If we do want to include a big string section, we can bring in eight players and then synthesize bottom-end strings and other strings behind them, and put the live players up front for the runs. A synthesizer will *neversound* the same as three or four violins doing an arpeggio."

Noting that their sound effects library is stored on compact disc, as much for fast access as for sound quality, Lubinsky observes that effects have become a big part of certain commercials. However, "technologically, I don't think sound effects have changed a heck of a lot. They're still recording things with Nagra's, still going out and standing six feet from a train."

Lubinsky has been writing jingles for 14 years. "When Ron and I came on the scene five years ago," he says, "one of the things important to us was that each jingle should have a distinctive personality and not sound like a piece of advertising. The jingle should have some emotional impact. It should meld a primary emotion—love, anger, hate, fear, joy, loneliness—with the product. When you *do* love a commercial or a piece of music in it, you *will* turn it up and listen. For example, something like 'I'd like to teach the world to sing' from the early '70s. People got together and wanted peace and harmony, and they drank Coke. There was a great meld there, because you could look at that and say 'I really do have a warm fuzzy feeling about Coca Cola.' That kind of commercial lasts forever. Producers went in that direction, knowing that great music stirs the emotions."

Lubinsky continues, "I think there's now also a real view that a great piece of music is essential in getting your idea across. That's why you hear commercials like Levi's 501 Blues, 'Gatorade is Thirst Aid,' Stouffer's Lean Cuisine. All of them are very musically driven. That's because of music videos, and music-driven movies like *Footloose* and *Flashdance*. Advertisers see something working, so they say 'let's do the same thing.'"

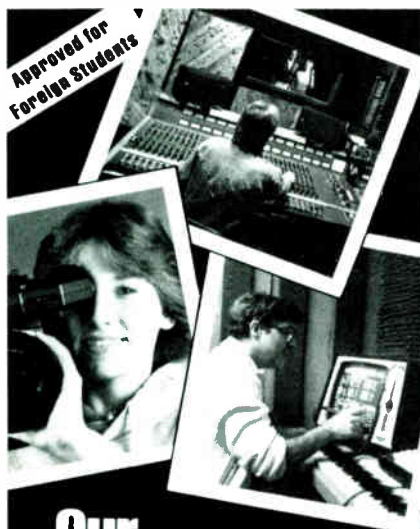
And they lived happily ever after. ■

Linda Jacobson is the assistant editor of Mix. Her interest in advertising dates back to the third grade, when her best friend's father wrote the lyrics to the catchy "You look better in a sweater washed in Woolite!"

INDUSTRY NOTES

—FROM PAGE 8, INDUSTRY NOTES

Electronics Ltd. and its international subsidiaries. . . **Quatro Limited**, a Melbourne, Australia-based investment and management company, announced that its compact disc manufacturing associate, **Discronics Limited**, bought out an established British CD manufacturing operation, **Distec Limited**. The purchase upped Quatro's share of the global CD market to more than 14%. . . The **UCLA Extension Department of the Arts** will offer a one-day course August 29 in "Professional Practices for Recording Engineers," which will analyze current career issues, business procedures and ethics of the recording industry. . . **HM Electronics** has opened a district sales office in Anaheim, CA, to cover the California, Arizona and Nevada territories. **Eunice Davis** will head the office, which can be reached at (714) 921-1918. . . **Karl Bruhn**, senior vice president of Yamaha International Corp., was elected president of the **American Music Conference**. . . **Giga-bit Forum**, a journal for professionals and educators in computer-based digital sound production, reported that its premier issue was a success and doubled the print run for its second issue in July to 1,000. Interested subscribers can call the office of its Minneapolis publisher **Genesis Corporation** at (612) 944-8528. . . The third annual **Rocky Mountain Film & Video Expo**, scheduled for September 10 and 11 at the Denver Regency Hotel, will feature the latest in professional film and video equipment and educational seminars. The Expo 1987 info number is (303) 691-4600. . . **Synergetic Audio Concepts** announced their fall schedule for two-day audio engineering seminars. The locations (with seminar dates in parentheses) are: Lansing, MI (August 26 to 27), Chicago (September 15 to 16), Denver (September 29 to 30), Kansas City (October 6 to 7), New York (October 14 to 15) and Washington, DC (October 27 to 28). For information, phone (812) 275-3853. . . **Brian Kepes** was named general manager of **Studio Center**, a new communications complex in Farmington Hills, MI. . .



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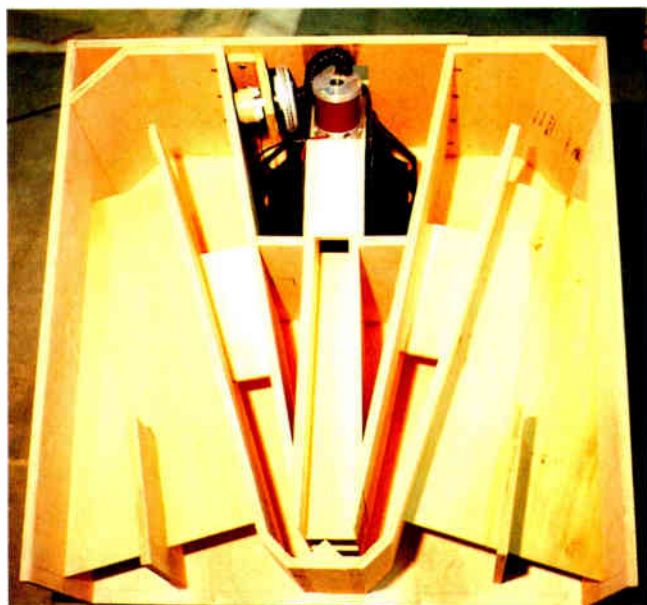
by David Scheirman

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**INTERSONICS SERVO DRIVE LOUDSPEAKERS
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Since the days of Woodstock, sound system designers for outdoor festival events have had to wrestle with some basic laws of physics. Low frequency (bass) program material requires a tremendous amount of electrical power, or else massive, oversized loudspeaker enclosures, for true full-bandwidth sound to be presented accurately to large audiences.

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Above: Interior cutaway view of SDL-5 Servo Drive Loudspeaker (photo courtesy of Intersonics). At left is the stage view from the mix position (photo by David Scheirman).

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Electronic production techniques using MIDI and SMPTE sync require more control than a "wire with gain" can provide. But as functions and components accumulate, the console's signal path has grown more complex, and its audio performance has suffered. On analog recordings, higher levels of crosstalk, noise and intermodulation were an acceptable price for additional control. On digital multitrack, however, these flaws become glaringly obvious.

Crosstalk blurs the stereo image.

Now that digital recorders have virtually eliminated crosstalk, this is an especially annoying problem. *The AMR 24 matches the channel separation performance of digital multitracks* because it employs balanced buses that eliminate crosstalk the same way mic inputs do. This radical design approach takes full advantage of digital's more coherent stereo imaging.

Balanced buses also eliminate the intermodulation that plagues the sound of conventional "virtual ground" mix amps. *The AMR 24's noise floor is constant whether you route one input*

to a group, or thirty six. So you can concentrate on the music without distractions from the mixer, even on digital multitrack.

Features shouldn't degrade audio performance.

Automation widens creative possibilities — and narrows the margin for console error. For example, FET mute switches that are "silent" individually can produce audible glitches when grouped. The AMR 24's carefully controlled switching time constants eliminate this problem.

Every circuit in the AMR 24 has been calculated with equally close attention. Each stage has at least 22 dB of headroom; total dynamic range is over 100 dB. Even so, *unused stages are bypassed to produce the shortest effective signal path in every operating mode.*

Perhaps the AMR 24 is a product of extremist engineering. But as we see it, optimum audio performance, not simply a revised layout, is what makes a console automation- and digital-ready.

The feel is familiar, the functions are unprecedented.

The AMR 24 facilitates innovative production techniques within a classically

split configuration. Master Input Status switches select mic inputs or line returns on all input channels simultaneously. In its mixdown configuration, the AMR 24 will handle up to 60 tracks, because the 24 Track Select switch changes the monitor returns to line returns normalised to your second 24 track (or to synchronised "virtual tracks" from synthesisers and samplers). The monitor returns have aux buses, solo and mute, plus four bands of EQ and long throw faders, so this flexibility is achieved with no loss of audio quality. For additional effects returns, the Fader Reverse function creates an additional 24 patch points through the cue send faders.

Imaginative design and uncompromising construction give the AMR 24 flexibility and sonic transparency that represent clear achievements: especially clear on digital recordings. For all the facts on this innovative console, send your business card or letterhead to:

DDA

AMR 24



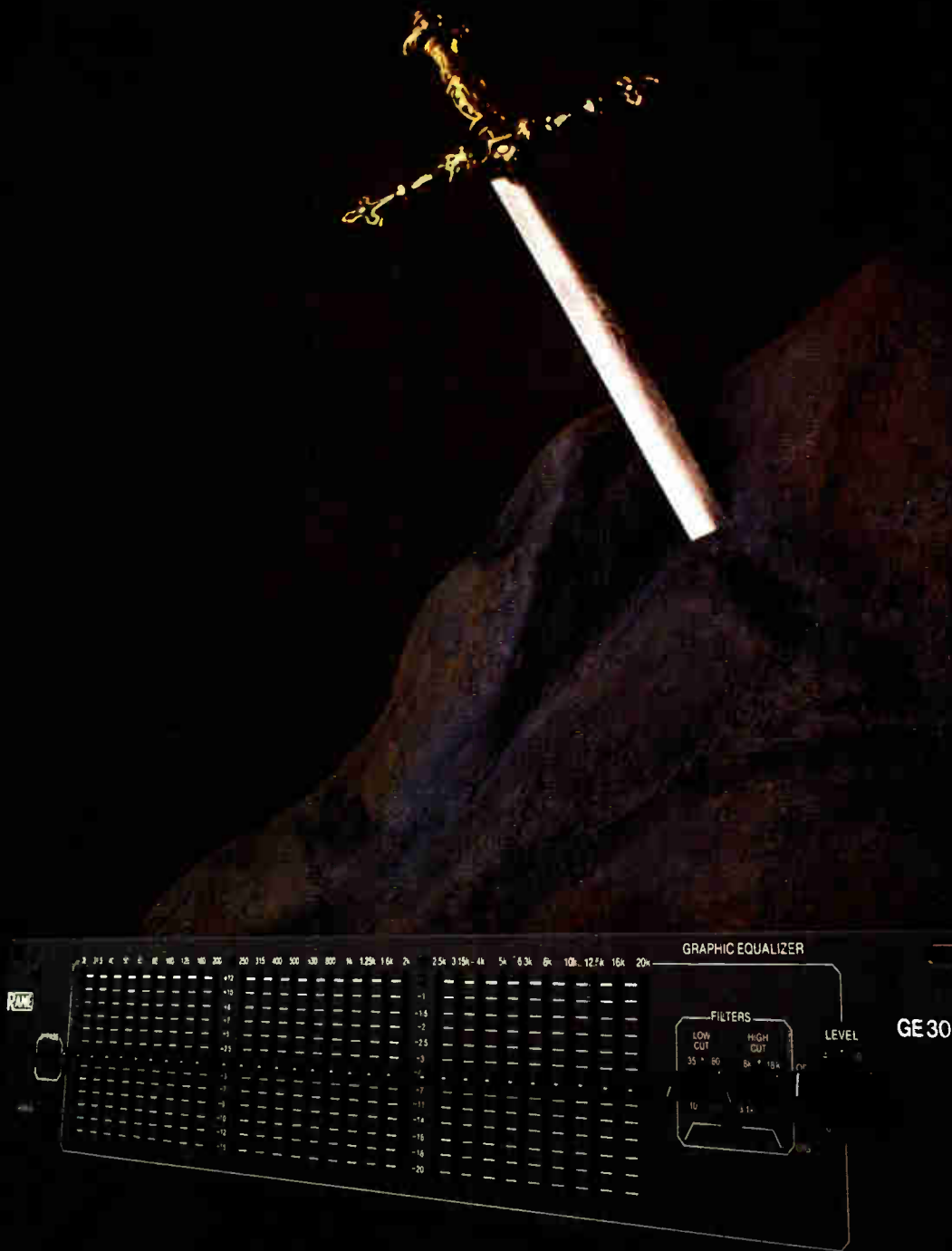
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RANE

ever, audible distortion, lack of system headroom and the logistical difficulties related to constructing and transporting huge wooden boxes made gearing up for large festival events a difficult undertaking.

Many different designers have tackled this problem in the recent past. Detachable, fiberglass horn flares and densely-packed direct radiating systems both improved the situation, as sturdier bass loudspeaker cones and more powerful amplifiers were gradually developed. Today, a wide variety of options is available for presenting low frequency program material, ranging from the Acoustic Wave Cannon from Bose (with 12-inch loudspeakers ingeniously loaded in a long plastic tube) to the 30-inch diameter subwoofers from Mitsubishi (currently touring with Run DMC and the Beastie Boys in a system supplied by Audio Analysts).

Perhaps the most radical departure from traditional loudspeaker design technology for bass frequencies, and arguably one of the most effective, comes from Intersonics, Inc. This high-tech research and development firm has engineered the innovative Servo Drive loudspeakers which are to be found everywhere from Disneyworld's Epcot Center to rock shows like Alice Cooper. The Sixth Annual June Jam, hosted in Fort Payne, Alabama by the country rock group Alabama, marked the use of a sound reinforcement system assembled by Electrotec Productions (Canoga Park, CA) that included 12 of Intersonics' SDL-5 bass units—the largest number of this type of low frequency device ever assembled for use at a single event.

Let's examine the deployment of the SDL-5s by Electrotec for the Alabama June Jam, then take a look at the technology behind the system.

1987 June Jam

In 1986, the June Jam was one of the largest single-day concerts held in the United States, with more than 55,000 persons attending. Staged near the athletic field of Fort Payne Sr. High School (alma mater for members of the group Alabama), the yearly event draws country music fans from across the nation. The 1987 event relied on the band's regular touring sound system from Electrotec Productions, along with

supplemental sound gear brought in for the outdoor festival event. Dave Zammit, house soundmixer for Alabama, was responsible for the system's setup and operation.

Eighty-four of Electrotec's Lab-Q enclosures were in use (42 each low and mid/high cabinets, loaded with JBL 18-inch and 12-inch speakers and compression drivers mounted on fiberglass horns, along with bullet tweeters). Thirty cabinets were stacked in

"We normally carry four Servo Drive Units with Alabama's touring system, to supplement a 32-cabinet Lab-Q rig," comments soundmixer Zammit. "In general, they work well both indoors and out. There's been a favorable response regarding the sound of this system from bands, audiences and promoters. The system's bass will shake the ground, it will rattle your body."

Electrotec system planners opted to integrate the Servo Drive Loudspeak-



(L to R) The Intersonics' SDL-4 and SDL-5 subwoofers.

two horizontal rows on the primary left and right sound wings; an additional 24 boxes were grouped on a center scaffolding tower, thus providing two separate performance stages that insured prompt set changes between acts. Featured performers invited by the group Alabama included such artists as Percy Sledge, Carl Perkins, the Oak Ridge Boys, Petra, Restless Heart and Michael Johnson.

Four Intersonics SDL-5s (a new, advanced unit with forced-air cooling which eliminates power compression) were located at ground level beneath each of the three Electrotec sound stacks. This subwoofer complement of 12 units was driven with an auxiliary effects output bus from a Soundcraft Series Four mixing console, and set up as an overlapping subwoofer-type bandpass with an upper cut-off frequency of 80 Hz using a Brooke-Siren Systems FDS-360 electronic crossover.

ers into the firm's touring sound rigs in an effort to achieve a more powerful bass response without significantly increasing the size of the available systems. Electrotec's Mick Whelan undertook an intense search for products that represented improved low frequency technology. Alabama's touring sound system represented one of the first experimental efforts to field-test the Servo Drive loudspeakers from Intersonics on a national touring basis.

"We've really had no maintenance problems, although the SDLs use a motor assembly with moving parts that is very different from traditional loudspeaker cones," Zammit says. "The SDL-5 units with power cooling are vastly improved over the earlier models that we tested. They have a much higher acoustic output. They eat up a lot of power, but it's a reasonable compromise. What would you rather carry around, a more powerful amplifier or

—FROM PAGE 77, FIELD TEST

the output power transistors are mounted directly onto two internal aluminum heat sinks which separate the electronics on either side from the transformers in the middle. This creates an effective "cooling tunnel" situation for the fan which blows from the rear of the unit toward the front and directly cools the transformers and heat sinks. A dust filter isn't used since clogging can hinder proper ventilation, and QSC says that dust build-up should be confined to the cooling tunnel area anyway, which must be cleaned only occasionally.

The specifications of the MX 1500 are quite respectable, especially considering the power rating. On the test bench, this amp proved to meet the power output ratings, distortion characteristics, and noise ratings with considerable accuracy. The manual is well written and includes quite a bit of helpful information in addition to design and operational specifics, schematic diagram, and even a smattering of theory.

In the real world, the MX 1500 performed admirably. We put it through the paces of reinforcing a three-hour outdoor concert. Powering the mains (two huge 8-ohm bins including horn-loaded drivers) at a rock and roll volume level, the amp's clipping indicators were lighting quite often, although it was rarely audible, and for the most part the sound was clear and clean. Admittedly, we took it for all it had, and although it spent at least two hours in direct Florida sunlight, it was only slightly warm to the touch; apparently, the cooling system is more than adequate. The MX 1500 sounded excellent in a control room monitoring situation as well.

The QSC Audio MX 1500 is clearly a well-designed unit for a lot of reasons, and it certainly delivers a huge amount of power for its size and weight (47 pounds). Protection circuitry runs rampant within, and its dimensions suggest that it would be an ideal amplifier for large reinforcement systems, since a large number of MX 1500s would take up considerably less space than most amplifiers with the same collective power. At a price of \$998 and with gain controls that go to 11, what more could a power-hungry sound engineer ask for?

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

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 Len Feldman—db magazine
 September/October—1986

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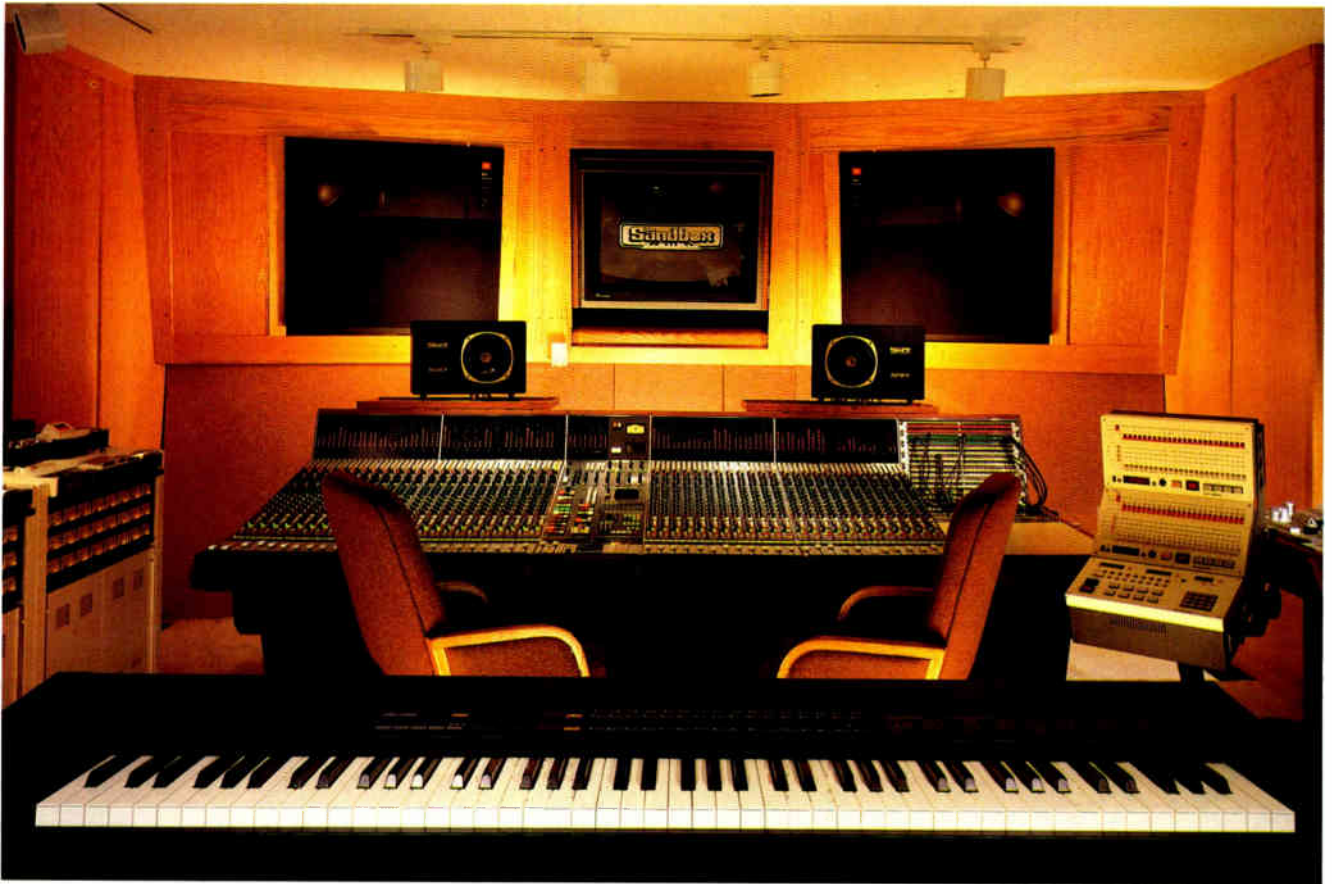
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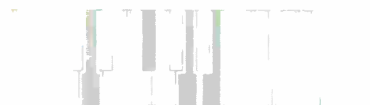
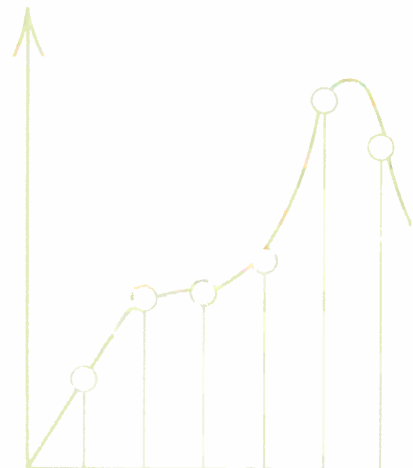
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a box containing loose sand for children to play in, promoting imagination, spontaneity, and creativity. b: an automated 48 track recording studio in Fairfield County, Connecticut.





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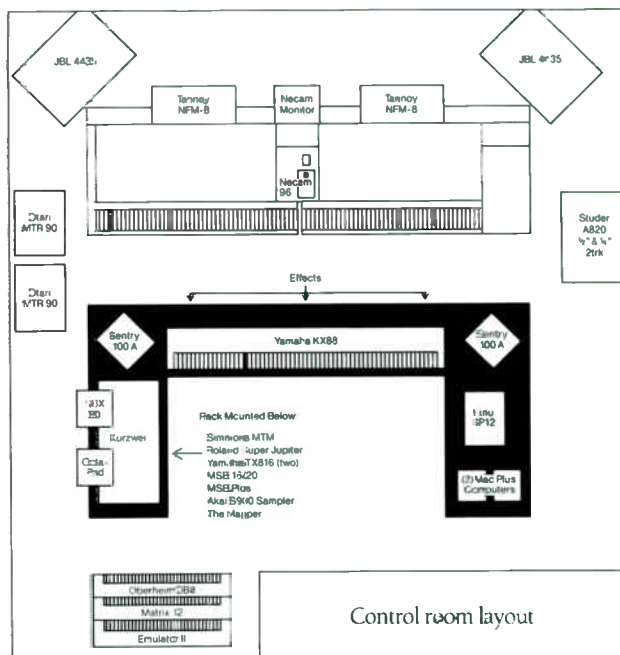
This allows for any complex, computer controlled MIDI configurations to be applied easily for an immediate response. Great care was taken to ensure that traditional recording techniques were addressed equally.

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RANDOM SAMPLING

Volume I

Notes and News from Kurzweil Music Systems

Issue No. 3

MORE OUTS IN SOON... Announcing an exciting new *Separate Output* upgrade for all Kurzweil 250's—with 12 direct monophonic channel outputs to let you separately EQ sounds played on the 250... load out individual instruments in real-time...and record multiple tracks from the 250's sequencer in one recording pass! Look for it around



November. The *Separate Outputs* upgrade will be strictly an option—not a **standard feature**. So why wait? Get your Kurzweil 250 now. **GOOD NEWS...** We've filled all back-orders for 250 RMX's, so you should have yours by now. Don't have one? Now's the time to see your Kurzweil dealer! **KURZWEIL 250 ON THE TUBE...** on "BW5" on PBS later this year. All the music was written by Lou Garisto and performed entirely on a K250. "Kurzweil has revitalized my interest in more serious music," says Garisto, who's been in the business for more than 20 years. **IS IT REAL OR...** as the tracks for "BW5" were being mixed, the engineer

said to Garisto, "It's such a pleasure to hear live music again." Surprise! **ROBOTS ON THE ROAD... ROBOTS and Beyond: The Age of Intelligent Machines** starts a new gig at Science Museums of Charlotte in North Carolina on October 3, 1987. Hear a computer-composed piece on a Kurzweil 250... and see where artificial intelligence is really going! **CONCERTO FOR ASTRONAUTS GOES CD...** Written by Russian emigre Emile Sichkin and released by New Frontier, the opus uses a Kurzweil 250 for at least 50% of the music. The tape sounded great, but the new CD is incredible.

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by Craig Anderton

PRODUCT JAM

EMERGING TRENDS AT SUMMER NAMM

Yes, it's back—the NAMM show. Like most of the recent summer NAMM shows, this year's edition was somewhat laid-back compared to the ever-splashier Anaheim show that takes place in January. Most companies seemed content to actually be shipping the products (or at least, saying they'd be shipping them *real soon now*) that were announced back in January. Still, although many showgoers professed boredom (“gee, there's nothing new”), I can't agree. What I found most interesting was that certain trends seemingly came out of nowhere to take over the spotlight, and this month's column will examine those trends.

16 Bits and What Do You Get?

Another day older and most certainly, deeper in debt. But those 16 bits buy you a lot more fidelity than 8-bit stuff, and many of the show's stars were 16-bit devices. E-mu's Emulator III, with 16-bit stereo sampling, got the lion's share of the attention—and with good reason. Put together a very capable sequencer with an Emax-like operating system and *stereo* 16-bit sampling, and you really can't go wrong. But they weren't the only game in town. Forat Electronics (best known for supporting, and eventually completing, the Linn 9000 after Linn Electronics folded) showed a nifty rack-mount 16-bit sampler. Originally billed as a drum machine, the thing has enough sampling time to do a whole lot more. It's not cheap, but the quality is good. I expect we'll be hearing more from these folks.

Casio's FZ-1, announced last January, became a reality at this show and does seem to be one of the most cost-effective samplers going. While it's not a Synclavier in a box, it does show that Casio has a good chance of being the

company that keeps other manufacturers tossing and turning at night in the years ahead. When you consider how far they've come since marketing the humble and somewhat bizarre VL-Tone calculator/sequencer/musical toy a few years back, you've got to wonder what they're going to do in the *next* few years.

Meanwhile, the ADAP system from Hybrid Arts, a 16-bit sampling system based on the Atari ST, seems to have at long last made it out of vaporware limbo and into the real world. It sounded just fine; if you like the idea of cutting and pasting vocals, this is the place to start.

One of the biggest surprises was the Alesis HR-16 16-bit drum machine, which boasts 48 great sounding (no kidding) on-board samples. That's sur-

—CONTINUED ON PAGE 205

Wind-to-MIDI controllers were the talk of the show. Here inventor Nyle Steiner (right) and composer/session ace Joel Peskin perform a duet on the Akai EWI/EVI systems. Other wind controllers were shown by Yamaha, Artistry and Music Industries Corp.



NEW ALBION'S DISCRIMINATING NEW MUSIC

by Josef Woodard

New Albion Records is the brainchild of Foster Reed, a San Franciscan with a grand idea, a nest egg to launch the thing and a good deal of tenacity. Thus far, his fledgling new music enterprise has released 11 projects by singular modern composers. Though each record has its own persona, its own musical dialect, the New Albion catalog has an alluring emotional continuity. You can jump from the albums by Bay Area composers John Adams, Paul Dresher and Ingram Marshall, from Stephen Scott's music for bowed piano to Daniel Lentz' chilling choral evocations or the music of Alvin Curran and Morton Subotnick with only minor brainwave adjustments, coming away convinced that Reed is on the verge of a New Albion "sound."

The initial impetus came several years ago. "I knew Ingram and John, and was listening to them bemoan the recording situation for geniuses such as themselves," Reed recalls. "I'd inherited some money I never really wanted to touch, because it wouldn't have been right to go out and buy a Ferrari with it. I had an ambiguous relationship with this pile of money. First of all, I loved their music. The 1750 Arch Street label seemed, to me,



Foster Reed of the adventurous New Albion label.

like a very ongoing, viable, honorable endeavor—if not quite profitable.

"I was becoming obsessed with the idea that I would create a sort of modest publishing house of records, geared towards art—what can be done by these gifted composers rather than from the point of view of what I think would sell. Little by little, I got further and further into it. It's a fever. It's also a fundamentally impossible proposition—given the realities of the industry—to create something on an artistic level."

Reed's concept was to build a small, feisty new music label in the tradition of the now-defunct Berkeley-based Arch Street, one that wouldn't pander to commercial trends and that would reflect his own vested aesthetic tastes. His first recording project, fortuitously, was the

spacious brass/synthesizer work *Light Over Water*, by John Adams, who has since gone on to considerable acclaim as a minimalist to watch. Ambitions firmly in place, Reed named the company after Sir Francis Drake's designation of the West Coast when he claimed it for Elizabethan England.

"I thought the name was sufficiently flat and literary, long and awkward, that it would look different in the context of other record labels. Also, by a poetic back door, it represented something I was trying to do—present something new to the old world. Since then, I've decided I don't like the name. In retrospect, I would opt for the names I didn't like in

—CONTINUED ON PAGE 140

LARRY FAST: LOOKING BACK & MOVING FORWARD

by Bill Milkowski

"I was one of those kids who was always wiring things and playing around with electricity," says electronic music explorer Larry Fast. "I was always playing with stereo equipment and radios and all of that. At the same time, I was completely captivated by the rock and roll that was happening around me, slightly before The Beatles. And the one place where those twin interests could fuse and feed each other was in the field of electronic

THE FAR SIDE

By GARY LARSON



Viking campfires



Larry Fast surrounded by some of the tools of his trade.

music."

For a time Fast had seriously considered a career in law, but his hobby got out of hand. "It was something that drew me very strongly, so I decided to give it a shot and see if people were interested in hearing my music," he recalls. "I figured, if I can make a career out of it, great. If I can't, then I'll go to law school."

While attending Lafayette College as a history major, Fast began working part-time for an electronics company that was importing Japanese equipment. He also found time to conduct interviews with up-and-coming rock acts for the campus radio station.

One memorable interview with Yes keyboardist Rick Wakeman led to bigger things. "I was doing a bit of custom syn-

—CONTINUED ON PAGE 143

VINCE GILL FINDS THE MIDDLE GROUND

by Robyn Flans

When RCA put Vince Gill together with Richard Landis to produce Gill's third album, *The Way Back Home*, Gill thought, "'Oh my God, we're going to kill each other.' I asked around about him and was told that he's kind of outspoken and likes things his way. He called me up and said, 'Hey, I hear around town that you think I'm a tyrant.' I said, 'That doesn't mean you're

a bad guy. You can be a tyrant all day long if you're right, but I can be just as much of a tyrant back if I think you're wrong.' We had a really neat relationship and it worked out great. I think everyone expected a slick pop record because Richard makes good, slick records, but we both had our ideas and worked together."

The result of their efforts was a mixture of Gill's progressive country music and his bluegrass roots. While his first solo mini-LP, *Turn Me Loose*, was more on the country side of things and his second album, *The Things That Matter*, much more contemporary, *The Way Back Home* displays Gill's musicianship on banjo, mandolin and dobro in addition to guitar.

Some remember Gill as

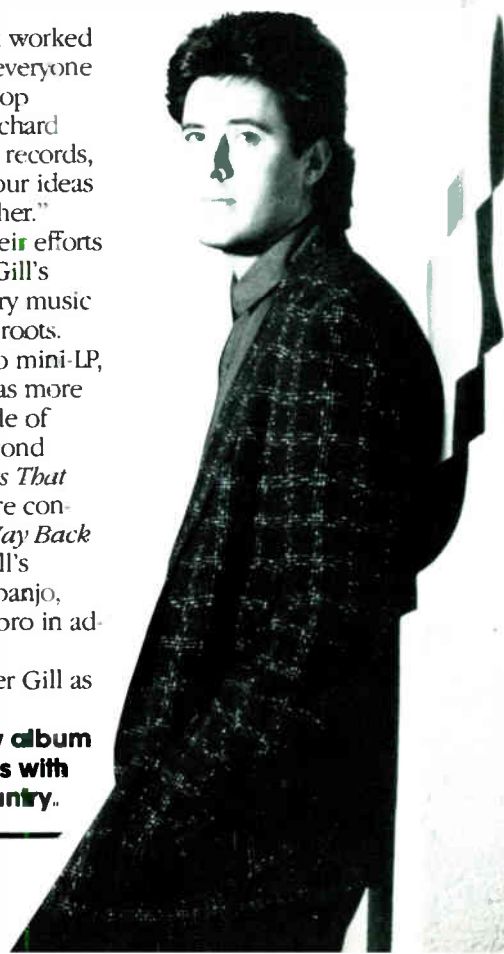
Vince Gill's new album mixes bluegrass with progressive country.

lead singer for Pure Prairie League in the late '70s and assume he is a pop singer turned country boy, but in fact, Pure Prairie League was the odd gig of Gill's career.

At 8, Gill was playing "Long Tall Texan" at a local Oklahoma radio station with his older brother. By high school, Gill was playing in one of Oklahoma's primary bluegrass groups, Mountain Smoke. While he was grappling with the decision to go into music or golf professionally, he got a call to join the Bluegrass Alliance and it was off to Kentucky. While Gill admits it wasn't your basic music mecca, it was great fun.

He even left the Alliance for a little while to play bass and steel guitar for

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—FROM PAGE 138, NEW ALBION

the beginning, like *Spiral* or *Conjecture*, or 33."

As Reed has nurtured his company, he's learned some sobering things about the interplay of art and commerce. "I began with an arrogance and anger; that propelled me into this industry. That arrogance has been tempered by humility. As an independent, you're not in a position to compete with the majors. Even if you make the best record in the world, as an independent, you're not going to get into stores in the suburbs of Kansas."

Those venturing into the minuscule, but growing, new music market take a calculated risk. After approaching numerous distributors across the country to no avail, Reed discovered the sympathetic New Music Distribution Service in New York and secured West

Coast access through JEM. "The distribution picture looks pretty good on both coasts," says Reed.

Although the New Albion roster has a direct link to the strains of work currently gaining credibility in academic circles—a new classical crossover—Reed doesn't want to limit its focus. "On one level, the museums and institutions have discovered the material I'm working with. That's a significant form of support. On another level, it's the kiss of death. A museum will host someone, 20 people will come, and there's no accountability for that, whereas in the real world—at a theater or club—they wouldn't allow 20 people to come. They're so desperate that 250 people have to come in order for them to do something. So modern composition has been legitimized by the institutions, but it's lost some of its grassroots connection."

New Albion has received a good

deal of praise from the music press and other interested parties, including a favorable review of Lentz' *Missa Ubrarum* in *Newsweek*. Reed's energies are reaping results only slowly, though, which the one-man company finds frustrating. "I'm beginning to think the public does not want to listen to things that demand attention," he comments. "The records I make are terrible background music. They don't function that way. I confront the new age market, which is bigger by far than the new music market or even the classical market. Our music is too radical for them, even though some of the music approaches a new age sensibility; it's not mellow by intention. It's not relaxing by intention, so I can't market in that context. If I could, I'd sell twice as many cassettes as I do."

Short of compromising the musical integrity of his output, Reed is open to

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Audion: Welcome to Larry Fast's Next Age

In the beginning there was Steven Halpern. He played soothing, crystalline music on his Fender Rhodes piano around 1969, formed his own small label and began hand-delivering his albums to health food stores, Zen bookstores, yoga centers and holistic conferences. He called his music "the anti-frantic alternative." Halpern's gentle music was greatly appreciated by a small circle of like-minded folks back then, around 1975. Enter George Winston, the barefoot and bearded pied piper of Windham Hill Records. His trance-like piano tapestries struck a chord with the same crowd, but also appealed to folks outside that holistic network. Winston's contemplative noodling was hailed as the antidote to urban madness and young professionals by the score began buying Winston's albums.

After Winston's *Autumn* went platinum and the "new age" tag caught on, maestros of mood music have been coming out of the woodwork. Every major label is jumping on the bandwagon, and hordes of new age independents have cropped up (Terra, Coda, Pri-

vate, Sonic Atmospheres, Narada and Lifestyle) to fill record store shelves with new age product.

With his Audion label, Larry Fast is attempting to tap into the new age market without blending into the crowd. In fact, he doesn't even like to refer to Audion's music as new age. He prefers to call it "next age."

"It's not new age in the strictest sense," says Fast. "It's not piano meditation music, or anything along the lines of jazz. This is coming at it from a different angle. It's experimental electronic music, which has a lot of the same overall attributes as new age but is, I feel, more challenging to the listener."

Drawing from the lessons of such electronic innovators as Kitaro, Klaus Schulze and Jean-Michel Jarre, Audion's adventurous young electronic composers are indeed taking the new age to the next age. Whether it's guitar synthesists Neil Nappe and Barry Cleveland, Don Slepian's electric/acoustic blend, the woodwind-synth duo of Bob Stohl and Kat Epple (known as Emerald Web), the computer-generated experiments of Utopia's Roger Powell, or Fast himself, this music is fresh and uncompromising, jumping out at you with authority—pretty daring stuff.

Says Fast, "There are a lot of peo-

ple who grew up in the '60s, Vietnam-era rock fans who now work jobs and have families. There's really not a lot of music available in the current pop market that speaks directly to us. This age group has always been a bit revolutionary, and certainly wasn't ready to settle down with mellow music in the traditional sense—the dentist's office kind of middle-aged music that was expected of the previous generation. So gravitating toward so-called new age music is their way of creating their own music, much the same way this same generation hasn't just accepted Johnny Carson, but has created a David Letterman to become our marker for late-night TV. New age is the same thing; it's more demanding and intelligent and, I think, a wittier approach to soothing music than just rolling over with Mantovani. And the artists on Audion are going one step beyond that to another level."

Audion seems committed to the artists' growth as well as the label's. "There are an awful lot of electronic artists who really don't have anywhere to place their music," continues Fast. "A lot of them are just languishing on privately produced cassettes, unable to reach a greater audience. So we're providing a

—CONTINUED ON PAGE 142

THE ADVANTAGES OF A STUDIO CONDENSER WITHOUT A SOUND OF ITS OWN



Photographed on location at Clinton Sound, New York, NY

For all of its virtues, the typical studio condenser imparts a definite character to any recording. These impositions are often considered inevitable technical imperfections: accepted, ignored or tolerated by audio engineers.

Characteristic anomalies of condenser performance such as exaggerated high end response or distortion have even been rationalized as compensation for the high frequency losses inherent in typical analog formats. Nowadays, however, they are increasingly viewed as unnecessary intrusions in critical analog and digital recording situations.

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The MC 740's freedom from exaggerated sibilance or graininess and its greatly reduced distortion are immediately apparent to critical listeners. European and American engineers have already commented on the startling accuracy of the 740, and the way it reveals the subtle differences between instru-

ments and ambient environments.

Accuracy And Versatility Without Compromise. Uniform (< 2 dB: from actual machine specs, not just published specs) frequency response curves for all five polar patterns may seem a remarkable breakthrough. To Beyer, this is simply a design criterion for the microphone. Similarly, there is no contradiction in the fact that the 740 is exceptionally sensitive, yet also withstands extreme SPLs (up to 144 dB with the 10 dB attenuator in circuit).

Hear What You Could Be Missing. The MC 740's unconventional design offers a clear alternative. The best way to evaluate the difference the MC 740 can make is to work with it in your studio. To arrange a hands-on audition of this remarkable new audio instrument, contact your Beyer dealer or write us: Beyer Dynamic Inc., 5-05 Burns Avenue, Hicksville NY 11801.

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—FROM PAGE 140, NEW ALBION

inventive cross-marketing. He is currently assembling a sampler of pieces

selected expressly for the new age listener. "I have no ambivalence in trying to increase the marketability of what I'm doing. I'm not tied to a new music tag. I never call it that. I call it new and

unusual modern classical music, post-minimalist, neo-gothic experimental avant-garde."

New Albion is a viable, well-considered West Coast representative of con-

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home for them."

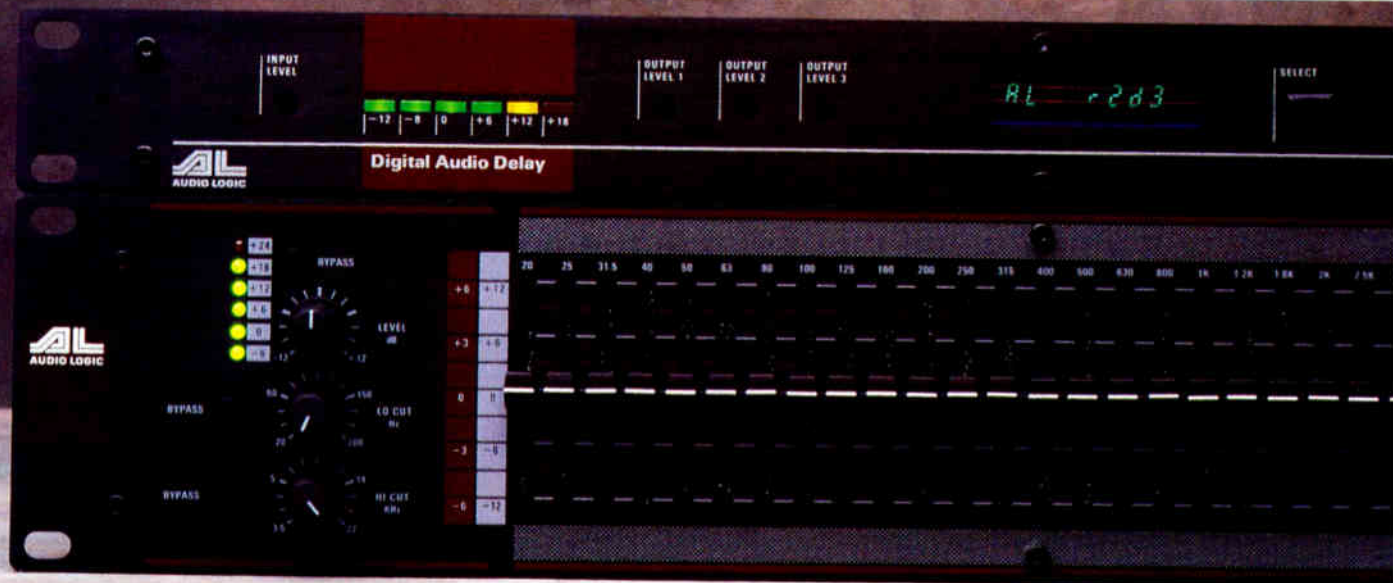
Don Slepian, for instance, was working at Bell Laboratories and experimenting with textural, spacious sounds when Fast met him eight years ago and invited him to record for Audion. Barry Cleveland, from Berkeley, California, was experimenting with processed guitars, playing his Les Paul Custom through a series of DeltaLab delays and a loop system consisting of two Revox A-77 open-reel tape recorders. Neil Nappe had his Les Paul hooked up to an array of homemade gadgets, exploring the sound possibilities. And Garry Hughes is a British artist whose sequenced repetitive style of electronic music falls somewhere between Philip Glass and Jean-Michel Jarre. They've all found a home at Audion.

From Roger Powell's IBM computer-driven music to Emerald Web's electronic chamber music approach to Barry Cleveland's E-Bow guitar, each artist on Audion has a distinct sound. As Fast notes, "I try to keep it open enough so there are a variety of approaches. We have quite a range of electronic styles, even though the overall sounds of the records are definitely related. They feel as though they belong on the same label, but there's no way anyone is going to confuse them with each other. Each has his own unique style.

"We want to keep it pleasing and yet still be intriguing," adds Fast. "I don't think the public is looking for the kind of challenge they would get from intellectual academic music. My role in coordinating the label has been to try and define some

limits that will fit what has evolved into a new age marketplace, and trying to extend it to encompass the electronic medium as well."

Fast initially got involved in electronic music in the late '60s after hearing Walter Carlos' seminal *Switched-on Bach* (whose 20th anniversary Wendy Carlos is now preparing to commemorate with an updated recording for Audion). "I always had this tremendous overriding interest in electronics as a kid," Fast recalls. "And when electronic music finally evolved into something that was reasonably controllable in the late '60s, it was a natural fusion for me of my two interests—piano and electronics. And I just stayed with the development of the technology of music composition, trying to pull the most out of both worlds." ■



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temporary music. Reed likes to envision his records as having the open-ended immersive qualities of good books—worlds unto themselves. One barrier he may face is a body of record-buyers who generally like their music to be more like ad copy than great

American novels: succinct, readily digestible. Nonetheless, Reed seems determined to make his project fly, and to avoid the entrepreneurial martyrdom that can befall such undertakings. ■

—FROM PAGE 139, LARRY FAST

thesizer module building," Fast explains, "primarily because it was cheaper to build than to buy what was available commercially at the time. During the course of my interview with Wakeman, I happened to mention some of the electronic equipment I had been designing." Wakeman was impressed by the sophistication of Fast's gadgets, and it wasn't long before Fast was designing the electronic devices that Wakeman would use to record several of Yes' platinum albums.

Around the same time, Fast began working on his own electronic compositions. By the mid-'70s, Passport Records had signed him as an artist and begun releasing a series of recordings under the name Synergy. Through his association with Passport (owned by JEM, the main Stateside distributor of European and British progressive rock

albums at the time, which played a key roll in launching Genesis in America), Fast became acquainted with Peter Gabriel.

"Everybody knew everybody else," he says. "I was aware of what he was doing and he was aware of what I was doing. All of the friendships and interpersonal relationships were already in place because we were all in the same family, so to speak. And when Peter left Genesis [in 1975], I joined him."

Over the next ten years, Fast programmed and played synthesizers on Gabriel's albums and toured as a member of his band. Even after he stopped touring with Gabriel, Fast was still there in spirit: the synthesizers backing Gabriel on the Amnesty International tour in 1986 were controlled by computer disks programmed by Fast, as was the computer disk operating the Fairlight during Gabriel's late '86 tour.

Fast left Gabriel in 1985 to pursue another challenging Synergy project. He began working in the basement of his New Jersey home, using an MCI JH-110 8-track recorder with an Apple II computer, an Emulator II, a Roland

New Albion Discography:

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Light Over Water, Shaker Loops/Pbyrgian Gates (originally released on 1750 Arch)

Daniel Lentz: *Missa Umbrarum*

Ingram Marshall:

Fog Tropes/Gradual Requiem

Paul Dresher:

Night Songs, Channels Passing

Samei Satoh: *Litania*

Anthology:

Portraits (also on CD)

Morton Subotnick:

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World Radio History

MUSIC · NOTES

MSQ-700 sequencer, the Moog modular synthesizer, a Yamaha DX7, a Yamaha TX-216, a Sequential Circuits Prophet-5 synthesizer, an Oberheim Xpander, various sound processing devices and the all-important Synchronous Technologies SMPLSMPTE/MIDI lock-up system. He emerged some ten months later with the MIDI'd tracks for *Metropolitan Suite*, which he then transferred to Sony PCM-F1 and Sony 1630 digital 2-track recorders at the House of Music in West Orange, NJ, where Fast has done all his mixing for the last 12 years.

"Everything was very meticulously plotted out in advance," he explains. "Most of the time on this project was spent with the writing and refining of what was going onto the MIDI storage devices. The actual recording went very quickly because everything had been planned ahead of time. The actual transferring of the sounds as executed by the MIDI controller took about ten days in the studio and another ten days in the mix. There was virtually a small telephone book full of MIDI information already prepared when I went into the House of Music, so I knew exactly what was on every track. The whole thing was just SMPTE-locked, one track at a time, from the sequencer to the multi-track digital machine."

When Sony learned that Fast was planning a new album, the company offered him free use of their new 24-track digital tape machine in exchange for permission to use the final product as a demonstration of the machine's technical superiority. Fast took Sony up on the offer and recorded side B of *Metropolitan Suite* on the Sony 3324 multi-track digital machine. In November of 1986, Sony took the finished tracks to the annual Audio Engineering Society convention in Anaheim and used it to awe the high-tech types.

Metropolitan Suite (Audion Syn 204) is Fast's first album since his ambitious *Computer Experiments, Vol. 1*, which was sold initially in 1981 by mail-order only and later distributed by JEM Records. This latest project, his sixth under the Synergy name, is an entrancing, melodic, orchestral affair with the kind of grand, sweeping statements that recall the musical modes of a bygone era. The "Metropolitan Theme" in particular is reminiscent of Gershwin's "Rhapsody in Blue" and Richard Rod-

gers' "Slaughter on Tenth Avenue."

To Fast, this idea of "constructing something that looks back warmly on another era in music" is analogous to some current trends in urban architecture. "From the turn of the century, architecture was rather ornate, exemplified by buildings like the Woolworth Tower. But that gave way to a very stark modernist period that began around the time of World War II and reached its height over the last 20 years. This sparse style is probably best exemplified by Bauhaus architecture, which shunned embellishments and stripped the form down to its simplest elements. But those stark buildings became less and less relevant to the people who had to exist in them," Fast explains, "and that inspired the post-modernist movement that we're in now, in which architects are looking for what was good in the past and acknowledging that the old forms of decoration have an undeniable appeal. This is perhaps best exemplified by the new AT&T building in Manhattan. It's an older-looking form, but you wouldn't call it an old building by any stretch of the imagination. Many modern buildings look back to older styles, but they're still built with the newest hi-tech approaches—new materials, computer environmental controls and so on.

"And that's what I've tried to do with *Metropolitan Suite*. I'm trying to mirror some of the styles that worked in past eras, but I'm using the newest building techniques—digital recorders, samplers, synthesizers. Electronic music has gone through its Bauhaus period, and many of the electronic composers have clung to minimalism. But like the new architects, I prefer to bring back more traditional elements. Some electronic composers have thrown out conventional elements such as rhythm, melody, harmony and embellishments. I embrace them."

By adapting this "looking back" approach, Larry Fast has produced an opus that is uncommonly warm-sounding by electronic music standards. He says, "I've always tried to take the approach that the equipment shouldn't dictate what the sounds of the music and the quality of the music will be. The equipment is just a tool to express the composer. There's no reason why electronic music should sound cold and unfeeling unless the person trying

—CONTINUED ON PAGE 150

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A CHANCE TO BE HEARD

by Randy Alberts

For most songwriters who try to get their foot in the door of publishing houses and record companies, there are weeks of charged anticipation, usually followed by the bitter disappointment of your unplayed tape returned along with the standard form letter rejection. Let's face it, if you don't have those precious connections in the A&R department, you may play out this scenario over and over again without so much as the satisfaction of even being heard. Add to this the fact that thousands of songwriters here in Los Angeles all are struggling for those selective ears and you have the potential for lifelong anonymity.

Enter The Los Angeles Songwriter's Showcase, appearing like an island in the sea of lyric sheets and home demos. There have been showcases for as long as there have been record deals, but getting into them usually requires paying expensive representation to pave the way for you—not to mention a major case of nerves when you get your "one shot." With LASS, you not only have a very supportive environment in which to operate, but also a direct link to those very same ears you've been chasing for so long. Where else can an independent songwriter be in the same room with an A&R rep as they listen to and critique your best stuff?

The Showcase had its beginnings in 1971 when Len Chandler and John



Len Chandler (L) and John Braheny of the L.A. Songwriter's Showcase.

Braheny rented out the Ash Grove Club in Hollywood to showcase Len and some local performers. Upon returning from Tokyo, Len found the Grove completely sold out thanks to John's promotion talents, and a bi-weekly showcase venue was created. In 1972 it became a weekly event, after moving to the Capitol Records recording facilities. The first publisher that Len and John attracted was Ed Silver, then president of Warner Bros. Music, and the rookie songsters to take advantage of LASS (then named The Alternative Chorus Songwriter's Showcase) were Stephen Bishop, Karla Bonoff, Andrew Gold and Greg Kihn, with

showcase sets ranging from two to six songs each.

The next installment of LASS took place for five years at The Improvisation (formerly the Ash Grove), during which time two showcase staples were originated: Casette Roulette and Pitch-A-Thon. The roulette wheel is filled with up to 75 cassettes and the publisher or record rep gives the lucky tapes their precious five to 30 seconds of undivided attention, followed by a short critique. In the Pitch-A-Thon, the producer/A&R person is shopping for a specific project and an interview is conducted before listening to any tapes. As in Roulette, you get a yes or no on the spot—no critique this time, but at least the writer is convinced their hard work is heard. About 15% of the tapes submitted each week are taken back to A&R for more screening. The format is such that tapes submitted are identified only by number and song title, and if the critique is unfavorable no names are mentioned. When a "keeper" is announced, the artist's name is called and you get a very supportive round of applause as you take a bow. It's not quite time to leave your daytime job yet, but someone who can sign you is hearing your music while driving home that night. I attended the inaugural new age edition of the Showcase and was fortunate to get two songs "red-bagged" for further scrutiny. It's always exciting when new people hear your material, but my heart was jumping out of my throat by the time my tape came up on the wheel!



The Showcase's annual membership fee of \$75 entitles members to *The Musepaper* newsletter, as well as discounts on blank tapes, books and priority over non-member tapes in the Pitch-A-Thon. Weekly fees are \$7 for members and \$10 for non-members, while admission without tapes is \$5 and \$8 respectively. I found this cost to be more than offset by the unique environment LASS offers its members. Run primarily by volunteers, the Showcase has a high level of warmth, camaraderie and opportunity.

BMI has sponsored LASS since 1973 with annual grants. Other sponsors to help out are *BAM* magazine, Chappell Music, CBS Songs, Warner Bros. Music, Capitol Records and Irving-Almo Music. The weekly Showcase now takes place at Gio's Restaurant located at 7574 Sunset Blvd. in Hollywood, every Wednesday night from 7 to 10 p.m. The office address is PO Box 93759, Hollywood, CA 90093, (213) 654-1940.

LASS is also responsible for The 11th Annual Songwriters Expo, two days of workshops, panels and expanded versions of the Pitch-A-Thon and roulette wheel that attract the best ears of A&R nationwide. "Musiccollege Cassettes," a series of taped lectures and forums from LASS and The Expo, are available from the Mix Bookshelf and cover everything from writing songs to legal tips.

Any songwriter who utilizes the wealth of tools the Showcase has to offer can walk away feeling revitalized in every aspect of his or her art. Sure, there are going to be nights when your latest material is torn apart anonymously, but this is a good way to receive constructive feedback without letting something called ego interfere. And somehow, knowing that Stevie Nicks, Lindsey Buckingham, Warren Zevon, Rickie Lee Jones and Stephen Bishop have felt that same lump in their throat during the spin of that roulette wheel can be inspirational to anyone who waits for their tape to come up! ■

Randy Alberts is a composer, guitarist and synthesist working in the Los Angeles office of Mix Publications.

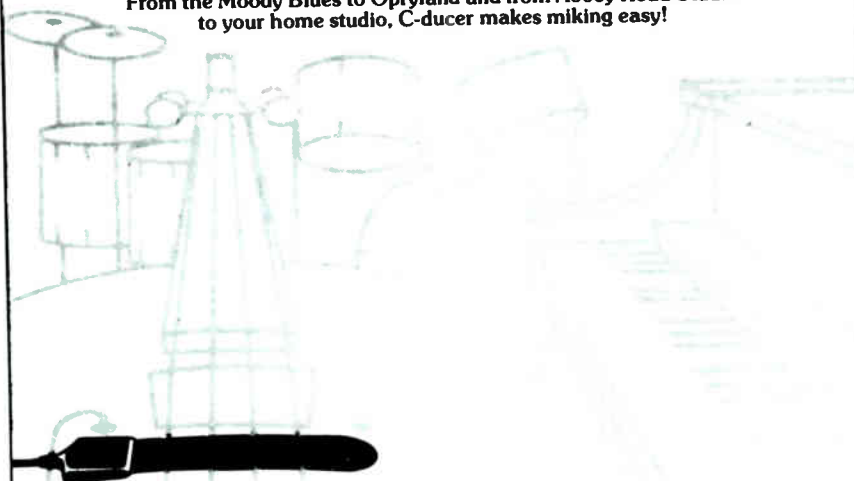
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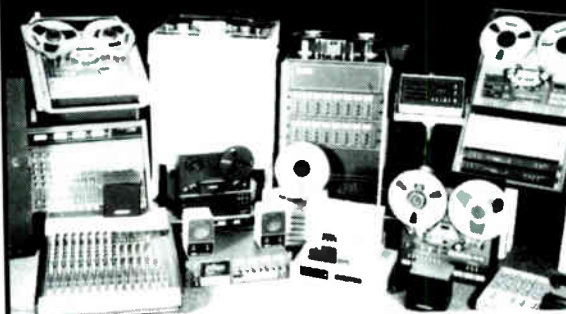
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THE

MICRO PLANT

The Rewards of Thinking Small



Steve Deutsch in the micro PLANT.

by Alan di Perna

A studio within a studio—that's the best way to describe the 16-track synthesizer facility known as micro PLANT. It's kind of like an embryo: comfortably tucked inside a second-floor space at the L.A. Record Plant. Its small size belies the complexity of its inner workings, and the strength it draws from the "mother ship."

Micro PLANT started life as a home studio assembled by bassist/composer Steve Deutsch. It was perfect for handling Deutsch's jingle and TV theme assignments (which include *Simon & Simon*, among others). But then Steve's studio and his family both began to grow at a competitive rate. It was time, he realized, to move the studio to outside premises. Record Plant scoring chief Joel Moss suggested taking a room at Chris Stone's high-tech hotel on Sycamore Avenue. "I checked out the space and I signed the lease the next day," says Deutsch. Micro PLANT opened officially on the first of this year.

Synthesists and other privileged technocrats have long been doing their pre-production work at home studios: programming sequences and synth sounds, saving them to disk and saving expensive studio time by bringing the disks into the studio. Deutsch's facility makes this kind of capability

available to all the Record Plant's clients, or to anyone else for that matter, for a modest \$40 an hour. Recently, micro PLANT has hosted songwriting/pre-production sessions with people like Al Jarreau, producer Marcus Miller, A&M artist Maria Vidal and her producer, Robbie Sideman.

A chip off the old block, micro PLANT operates under the same basic philosophy as Record Plant Sr.: namely, survival by diversification. Along with the above-mentioned pre-production services, it also has provided post-production scoring and soundtrack songs for film/TV projects such as *Beverly Hills Cop II*, *Back to the Beach*, *Sea Hunt* and the animated TV feature *Mark of the Talisman*. Deutsch even engineered a radio special at micro PLANT: *The British Invasion*, narrated by Mick Fleetwood. Deutsch holds classes at his studio—updating songwriter clients on the latest gear and techniques—and is using the facility to develop a library of factory samples for the Akai S900 digital sampler. Like the personal computer itself, micro PLANT is many things to many people.

Maybe it's fitting, then, that the studio's control center is an Apple Macintosh Plus computer. Deutsch runs Mark of the Unicorn's Performer sequencing program on the Mac. This works in tandem with Mark of the Unicorn's Professional Composer manuscript

printing program, enabling hardcopy scores to be generated on micro PLANT's ImageWriter 1 printer. The sequencer program commands a battery of MIDI synthesizers and samplers, including a DX7IIFD, Roland D-50, Korg EX8000, Prophet VS, Roland MKS-20 digital piano, Akai S900 sampler and E-mu SP-12 sampling drum machine. The Mac is also used to run Opcode patch librarian programs for the EX8000 and DX7.

A Yamaha KX88 MIDI controller generally serves as the system's master keyboard. But micro PLANT also boasts a JL Cooper MSB-1620 MIDI switcher which has been preset with a number of different master/slave MIDI channel assignments. This enables clients to use any keyboard they fancy as their master controller.

Program change commands on micro PLANT's rack of signal processing devices are also under MIDI control. The rack includes a Yamaha REV7 and SPX90, Roland SRV-2000, SDE-3000, DEP-5 and a Lexicon PCM70. Rather than use up extra MIDI inputs on the Cooper switcher, however, Deutsch has connected several of the effects processors via their MIDI Thru ports.

The studio's MIDI chain is linked to its tape machines by means of a Fostex 4050 autolocator. This device interfaces with the Mac/Performer program via MIDI. It reads and writes SMPTE time code, which is used to lock the studio's Fostex E16 16-track recorder to the sequenced tracks via a Fostex 4030 synchronizer. Deutsch plans to add a half-inch JVC video deck with center-track time code facilities to micro PLANT. This will enable synchronization to a video workprint. For now, playback of video workprints is done on a JVC HR470U VHS deck and a Sony XBR 20-inch monitor. The latter is mounted between micro PLANT's audio monitors: JBL 4425s and Yamaha NS10Ms, powered by a Quad 405 amplifier.

But micro PLANT is linked to the Record Plant from more than just an operational standpoint. Audio tielines connect Deutsch's facility with the Record Plant's two studios and four EMT plates. Video tielines provide important visual communication between micro PLANT and the downstairs studios. The audio tielines are accessed via a custom patchbay designed by the Record Plant's director of technical



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engineering, Bruce Maddocks. "Conceivably, I could cut drums in one room downstairs and cut vocals in another, all through the tielines," Deutsch notes. "I'm now working on a movie called *Weeds* where we're going to have a 24-track downstairs linked to my Fostex up here. So we'll have 40 tracks going.

The board in question is a 32 x 8 x 2 TAC Scorpion. Apart from audio considerations, plentiful inputs are also an important factor in selecting a console for a synth-oriented facility such as micro PLANT, where each synthesizer generates its own pair of stereo outputs or, in many cases, individual outputs for each of its voices (which can be as many as 16). "I basically settled for more inputs and less of a mixdown section," Deutsch explains, "because we will usually not go to tape with the majority of the synths in the room. And the console's eight buses with EQ can function as extra inputs." The final mix output by the Scorpion can be sent to any of three mixdown machines: a Technics 1520 1/4-inch analog 2-track, a Sony PCM 501 ES digital processor (which encodes a

digital audio signal onto the studio's VHS video deck), or micro PLANT's new Aiwa XD001 Digital Audio Tape (DAT) machine.

Deutsch is eagerly awaiting the installation of one additional link with the downstairs studios: MIDI tielines. The MIDI spec will not support ordinary cable runs of the length necessary to link the facilities, but Bruce Maddocks is currently designing a fiber-optic MIDI system that will circumvent those difficulties. "It will be great to have a controller and a Macintosh in each room, all MIDI'd up to micro PLANT," Deutsch observes. "Basically, they'll be able to say 'send us down a sample of a grand piano and a locomotive.' And the samples will come up on their Mac."

Digital sampling is an area that holds tremendous promise, for Deutsch, in the ongoing relationship between the Record Plant and micro PLANT. Continually updating his sample library—which currently includes some 10,000 sounds—Deutsch is pleased with the prospect of using the Record Plant's recording rooms and microphone complement for recording samples. "One

thing I'm discussing with Chris Stone is creating a Record Plant library of sounds. That incredible live room downstairs would be perfect for drums. We've also talked with a couple of film post-production companies about doing digital Foley work in here."

So in all, the Record Plant and micro PLANT have one of those mutually beneficial relationships—like a powerful sea creature and its small, fast-moving pilot fish. The small studio can draw on the large one's vast business and technological resources, while the large one reaps the rewards of having a special in-house facility devoted to the new electronic music and sound design technology. And at the rate this technology is advancing, that's no small advantage. ■

Alan di Perna waxes verbose on music and technology for numerous publications and currently serves as Musician magazine's electronic media editor. This former academic spy and installer of underground water sprinklers has also worked as a rock keyboardist, pop songwriter and college English teacher.

—FROM PAGE 145, LARRY FAST

to operate the equipment doesn't have enough control over it." ■

Guitarist/bassist Bill Milkowski lives in Manhattan where he plays in several bands. As a freelance writer, he contributes regularly to Mix, downbeat, Guitar World and a number of Japanese publications.

—FROM PAGE 139, VINCE GILL

Ricky Skaggs' Boone Creek, but "I started complaining incessantly and eventually drove myself out of the band," Gill recalls.

By the end of 1975, Gill had driven out to L.A. to play with Byron Berline's Sundance. It was there he met up with Rodney Crowell.

"We were playing the Troubadour and Dolly [Parton], Rodney and Emmylou [Harris] were out there. I sang 'Till I Gain Control' and Rodney came up to me afterwards and said, 'Oh, by the way, I'm Rodney Crowell and I wrote that song.' He paid me some really fine compliments and that's where our friendship started."

Gill was already with Pure Prairie

League when Crowell left Emmylou Harris and invited Gill to join his own Cherry Bombs. "I said, 'I've wanted this call for the last five or six years of my musical being, but I just recorded this album with Pure Prairie League which we really think has a good shot at having a hit or two on it, so I have to say no right now.' When I left the band, I called him up and said, 'If it ever comes up that you need a high harmony singer who plays guitar, please call me.' So we started playing together, and then Rosanne [Cash] needed a guitar player, so I stepped in and started doing that."

It was at one of Cash's concerts in Houston that Tony Brown, who then worked with RCA, offered Gill his solo deal. So in 1984, Gill moved to Nashville where Emory Gordy produced his first two efforts and where Gill's wife Janis' career with Sweethearts of the Rodeo skyrocketed. While that was a great source of pride to Gill, it also presented some problems, providing a wealth of creative inspiration for his new album.

"It seems the radio is how Janis and I communicate these days. I turn on the radio and there she is. I hate songs

that are 'cry me a river,' so in 'The Radio' it states, 'Hey, it's the life you chose. You knew all along that this was what the deal was going to be. Grin and bear it.'

"I'm more proud of this album lyrically than anything I've done and I'm doing handstands right now. Everybody was saying, 'Are we going to get another album full of Vince's sad songs?' And I said, 'My ego is not going to get in the way. You guys pick the songs to go on the album.' So the material on this album was selected by the record company and Richard Landis.

"I don't knock commercialism. I hear people say that there is all this great music that gets thrown by the wayside, and it does happen, but the majority of the good stuff gets out there. Bluegrass is great, but it's never going to sell millions of records. That shouldn't be the criteria of success, but unfortunately, if you're going to be in the record business, that's what you live and die by. If I'm going to be in this business, I can't be Mr. Eclectic Hipster. It's not as bad as people make it out to be, though. I don't have bad things to say about the business. It's been very good to me." ■

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***MAXI Q (Fully Parametric 3 Band Equalizer)**—Maximum equalization capabilities when the MAXI Q operates. Each of the unit's 3 bands may be switched to boost, the peaking or shelving mode or the "out" position, so that the operator may employ only the needed portion(s) of the equalizer. The MAXI Q's variable "roll off" rate in the shelving mode provides the opportunity to create artificial tonal or "phasing" effects. The exclusive *TUNE* mode of the MAXI Q allows the operator to disconnect the main audio feed, leaving only the output of the one filter selected. This feature provides exceedingly accurate set-up and application, since the only part of the audio spectrum which is heard is the portion passed by the selected filter.

***DSP (Dynamic Sibilance Processor)**—Users of de-essers have found that the devices are literally "ess removers," a high frequency limiter of sorts, quite effective on spoken word, but virtually unusable on vocal musical tracks and especially offensive on mixed program. The DSP's proprietary circuitry allows the unit to "seek out" sibilance, which is characterized by sinusoidal signal content. When sinusoidal information is detected, the unit's control circuitry inverts the tone, and sums it with the original signal, thus neutralizing and eliminating the sibilance. This action takes place instantaneously without

"holding" or coloring the original signal. The unit's *TUNE* mode allows the DSP to be adjusted simply by listening and observing the control status indicators.

***LEVELLER (Audio Level Controller)**—The wide spectrum of sounds, from musical instruments and voice to mixed program material, comes out just the way the human ear wants to hear it, sonically correct, when processed through the LEVELLER, thanks again to *LINEAR INTEGRATION DETECTION*. Fast, effective results are easily obtained with the LEVELLER. More or less "levelling" action is achieved with the unit's threshold control. There are no attack time or release time controls to adjust on the LEVELLER. *AUTOMATED PROGRAM DEPENDENCY* circuitry automatically optimizes the unit's attack time, release time, and ratio dynamically as the program content changes.

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KEEPING THE CUSTOMER SATISFIED

Studio Amenities In Los Angeles

by Josh Gressel

The Southern California studio scene, with its concentration of recording and film work, is arguably the most glamorous and competitive in the world. It seems reasonable to expect that in an area with so many studios competing for the major acts, a little “extra something” is necessary to draw clients; something beyond state-of-the-art equipment and top house engineers.

In this article, *Mix* surveyed Southern California studios, asking them what amenities they offered to make clients happy and keep them coming back. While there may be a precise dictionary definition of the word “amenity,” each person had a slightly different opinion of how the word should translate for his or her clients. Their answers may seem surprising, both for what they said—and what they left out.

The Studio as Hotel

“The difference between studios in terms of amenities is that you’ve got your Holiday Inns and you’ve got your Beverly Wilshires,” says Chris Stone, owner of L.A.’s Record Plant, whose industry reputation and studio rates definitely place it in the latter category. “In essence, studios are much like hotels. They are renting rooms and providing ancillary services.

“The Record Plant provides everything from a private office, lounge with video games, bar and travel arrangements to housing arrangements and 24-hour food service. Another thing the Record Plant has always had is a *human being* who answers the phone 24 hours a day, seven days a week. If our clients need something

at 3 a.m., they can at least get somebody to listen to them. It’s that type of thing that distinguishes the top-of-the-line studios from the middle ground studios or the demo studios. The lower down the path you go—again, much like hotels—the lower the cost and the quality of service.

“Mark Knopfler, with Dire Straits, is in our studio over on the Paramount lot. The reason that we have Mark there—and he’s a *very* demanding artist—is he was able in essence to redesign the room, in terms of what he wanted in the room, how he wanted it to look, who was to come into the room and go out, everything down to having his own phone line put in and getting him 24-hour access to the Paramount lot where he’ll be very

secure and know he won’t be bothered by the hangers-on who are always trying to get to him. He was able to make all of those demands on a staff which is used to those kinds of demands. A lower priced studio would simply not be set up to handle those kinds of requests.”

Thom Roy, studio manager for White Field Studio (Santa Ana), echoes Stone’s service sentiment: “We handle recording projects in a lot of respects like a film company handles their location work. If you require service, boy can we provide it; if you don’t, boy can we disappear.

“I’ve asked my clients what keeps them coming back. Their answer was the sound, and the attention to details of their personal lives. If they tell us

A Neve V60 console looks out onto the greenery at Buddy Brundo's Conway Recording Studio in Los Angeles.



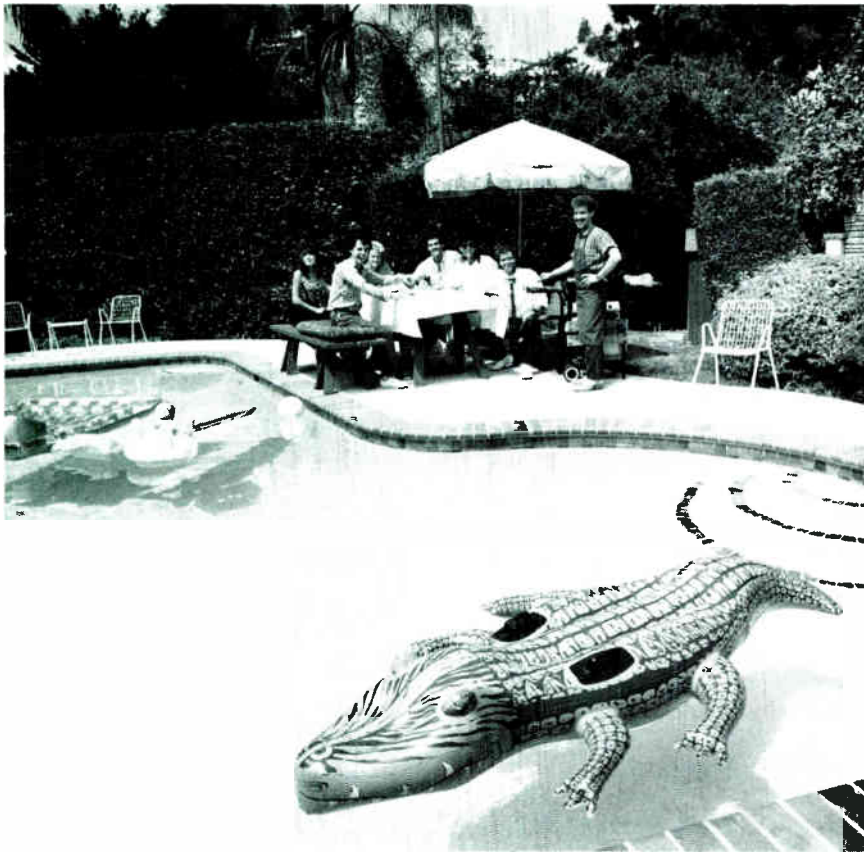


PHOTO MARK EFFORD

The staff of DMO Productions in Van Nuys takes a pool break between sessions. The head of studio security is pictured in the foreground.

they want a pizza at 12 they've got a pizza at 12. They don't need to arrange for it and after they've said it, they don't need to think about it."

For some big name Hollywood clients, discretion may be a major consideration. Recognizing this, Jacqueline Dispoto, studio manager for Promise Productions, asked that we not even mention what city their studio is located in: "We're keeping ultimate discretion so people don't have to worry that they'll have to fight their way out to their car after a full day in the studio." Dispoto, a gourmet cook, also has her clients over for dinner at the completion of a project.

Studio Aesthetics

In an urban sprawl like Los Angeles, it might be expected that some grass and a few trees in a studio setting would lend a competitive edge.

"If I've got to be in this place, it's got to be beautiful," says Buddy Brundo about his Conway Recording Studios in Hollywood. To this end, Brundo says he has spent between \$100,000 and \$150,000 over the years on landscaping, and employs a staff of four gardeners to keep the grounds up.

"I view my grounds as just as important as my equipment," he says. "The clients [Madonna, Motley Crue, Dionne Warwick, Smokey Robinson, Ted Nugent, Talking Heads] say it's unbelievably relaxing. It's so different from all of Southern California. Most studios are like a sub-sub-sub basement. Here, it's the closest you can come to working outside without being outside."

While Brundo has the grounds to landscape, a studio on the sixth floor of a building, like the newly opened Ignited Productions at Hollywood and Vine, has found creative ways to have a creative working environment.

"Los Angeles is exploding with the arts," says studio manager Jeff Chitouras. "I've made the studio and the client's lounge area into an exhibition space for artists of all forms: sculptures, wall hangings, paintings, just anything. I don't have to put any money out in setting the studio up in a very comfortable and creative way. The artists love it because there's never enough exhibition space [Chitouras plans on changing the works every two months]. And the clients and artists are in the same sort of world anyway—they sort

of congregate in the same places. The best advertising is by word of mouth."

Chitouras provides another service he feels will bring in more clients: "A week before they come in, we'll sit down with the producer or artist, and try to map out as much pre-production for ourselves as we can. During my ten years as an engineer, I always felt at the end of a session, 'I wish I knew what they were planning on doing beforehand so I had some time to think about it, because I would have approached it this way, or miked it that way.' Generally, time is money and people rush in and say 'OK, we want to do this,' and more often than not I'd have to go with what was safe, with what I knew, just so I could get the job done. After a pre-production meeting, our staff is prepared, so if they're sitting over breakfast with a cup of coffee a few days after talking and they get an idea [they'll be able to try it out in the session] and keep that creative edge."

Chitouras says the pre-production meetings, which he provides at no extra charge, have met with great enthusiasm from his clients.

What—No Jacuzzis?

I confess, I may have a distorted image of the L.A. lifestyle, due either to my Ohio roots or the magazines I read while waiting in supermarket check-out lines. I asked everyone of the 16 studios I interviewed if they had a Jacuzzi. I couldn't find one anywhere.

"Most of the people come to get a job done," explains Kathy Konop, studio manager of The Village Recorder (West Los Angeles). "It doesn't seem to be the attitude to play around and waste money. That was here ten years ago, with the big budgets, where they took a day's block and only worked six or seven hours."

"Those Jacuzzi studios are generally not around anymore," Kevin Mills, owner of L.A.'s Larrabee Sound Studio says. "You have to reinvest in the business, not in Jacuzzis. If the studio owners have Ferraris and boats and Jacuzzis, those studios are in Chapter 11."

In this get-down-to-business atmosphere, Mills cites his maintenance crew as an all-important amenity.

"If something breaks, they want someone who can fix it right then. Most of our competitors have a maintenance person on call. I have three people who each could be a head of maintenance at another studio, so that

if there's a session at 4 in the morning, there's a \$15/hr. person on the premises. If we're booked 24 hours a day, we have a maintenance person there 24 hours a day, even if we're paying them double time.

"When Keith Richards was in, the power supply in our Studer blew up at 3 in the morning. They were about to finish their movie and someone was coming in the next day. We had a guy that knew how to change and fix the power supply within 45 minutes at 3 o'clock on a Saturday morning."

Mills places his own accessibility to clients also high on the amenities list:

"I sit downstairs—I don't even have an office. Every single client who comes in knows me on a first-name basis. If they need something or they have a problem, whether it be with rates or service or they require some equipment, they know I have the power to make the decision at that moment. I had a problem where we had a Lexicon 480L and a 224XL. The client wanted another 480L. He explained why he needed it and I bought one that moment and had it delivered by the afternoon—it's a \$10,000 piece of equipment.

"Right now we have Supertramp in one room, with Tom Lord Alge," Mills continues. "When they tell me that they would like larger coffee cups, they get larger coffee cups. Someone said The Jacksons are coming in and

they like grapes. I make sure there's ten pounds of grapes.

"Those kinds of things might not seem important, but to someone who just comes into a studio, they're very important."

The Right Attitude

Others describe their most important amenities as a special attitude they have in working with clients. "I think first came music and then came a way to tape it," says Frank Rosato, owner of Woodcliff Studio (Sherman Oaks). "I feel a whole bunch of studios and some engineers have an attitude that 'We were here first and then this meager talent happened to stroll in.' I've had engineers come in here who are the biggest pain in the ass you've ever seen. And they make talent feel like they're dumb or talentless. Although I get very good sound and I'm very picky about everything being right, the first thing on my list is trying to get what the artist is doing.

"I was tracking someone singing one night. The person was obviously having some trouble wearing phones and tracking the song—not pitch-wise, they just weren't falling into the pocket. I asked them: 'How about if we take the phones off and if I turn on the speakers out in the studio and if you sing to the song just as if you were singing to it live?' There are sev-

—CONTINUED ON PAGE 215

Outboard gear in Studio A at Larrabee Sound Studio in L.A., owned by Kevin Mills: "Everybody who comes in knows me on a first-name basis."



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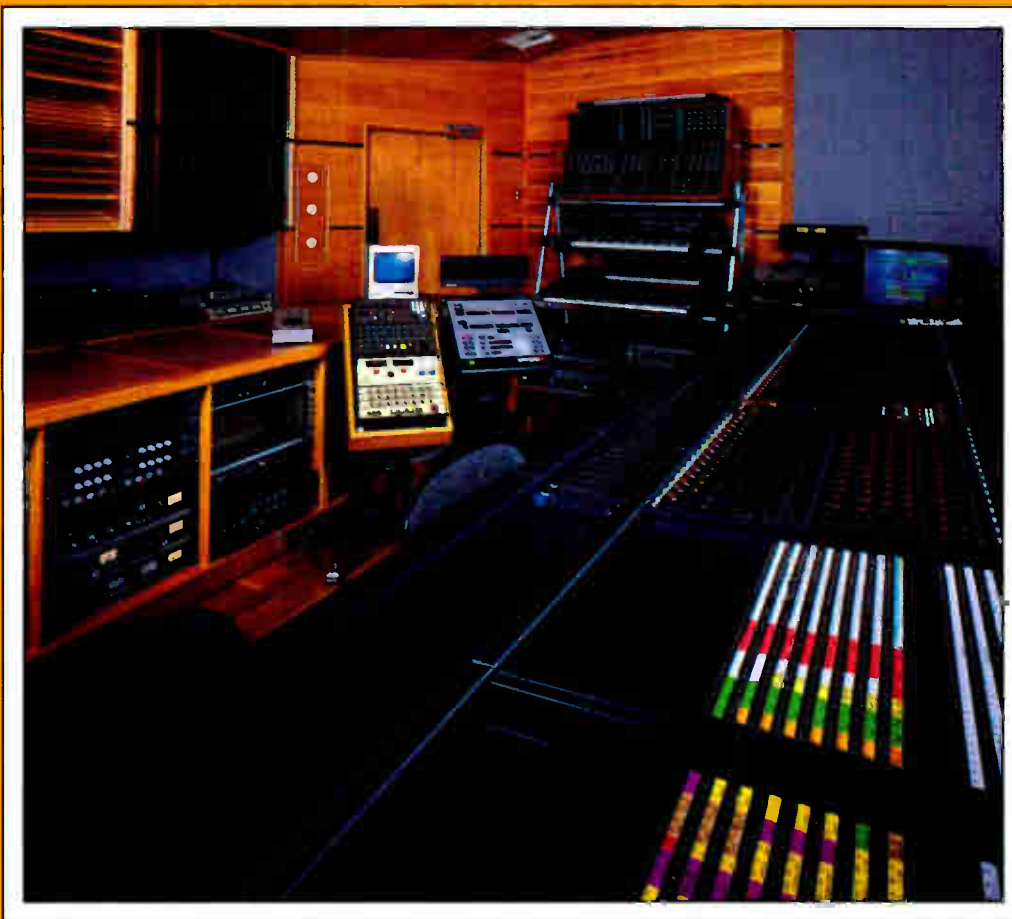
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Information in the following directory section is based on questionnaires mailed earlier this year and was supplied by those facilities listed. *Mix* claims no responsibility for the accuracy of this information. Personnel, equipment, locations and rates may change, so please verify critical information with the companies directly.



At left is keyboardist/producer Danny Watson's Promise Productions, a private facility in the greater Los Angeles area. The new facility, designed by Greg Hockman, features a 52-input Westar console with IDF and Compumix IV, Mitsubishi X-850 32-track digital recorder and two Sony analog 24-tracks with SMPTE lock to 3/4-inch video. Other goodies include a collection of new and vintage mics, a large selection of out-board gear and custom 3-way monitors by George Augspurger. Photo: Elise Weinger

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Mix listings procedure: Every month, *Mix* mails questionnaires to recording studios and/or other vital facilities and services for the recording, sound and video production industries. Basic listings (name, address, contact) are provided free of charge. Extended listings (equipment, credits, specialization), and photographs or company logos may be included at a nominal charge. If you would like to be listed in a *Mix* Directory, write or call the *Mix* Directories Department, 2608 Ninth Street, Berkeley, CA 94710, (415) 843-7901.

Upcoming Directory Deadlines:

Mastering, Pressing and Tape Duplication: **September 11, 1987**

Northwest U.S. Studios: **October 1, 1987**

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(with 2 stereo inputs) or a 16.4.2 - both of which can be expanded. The newest range is the Series 5, based on our previous 12.2c/16.4.2/16.8.2 range but with 100mm faders and 5 auxs plus many other detail improvements throughout.

Another new direction *Studiomaster* have moved in, is digital effects, the first being the IDP1 Intelligent Dynamics Processor, a two-channel multi-effects unit (including Noise Gate, Limiter, Compressor, Expander, auto-fade).

For further information, please contact Paul Reeve at *Studiomaster Inc.*, 1340-G Dynamics Street, Anaheim, CA 92806. Telephone (714) 524 2227. Facsimile (714) 524 5096.

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GET IT IN

In the field or on the run, the **AKG C 522 ENG**, mics it just like you hear it — in stereo. Wherever you are, whatever you're recording, from courthouse interview, press conference, rock concert, to forest fire, the C 522's clarity, rugged performance, and convenience are exactly what you need to add a true-life dimension.

Inside its sturdy housing are two matched cardioid condenser

STEREO.

capsules, elastic-mounted for low noise and pre-configured to give you a smooth, one-handed XY-stereo field. It's a workhorse mic, with the little extras a working pro needs, like a built-in rechargeable battery, low-power warning LED, integrated on/off switch and boom mount shock suspension.

Get it live in stereo with the **AKG C 522**.

Reporter: Denise O'Brien.
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77 Selleck Street
Stamford, CT 06902

SOUTHERN CALIFORNIA

4 & 8 TRACK

STUDIOS

[4] ABBEY TAPE DUPLICATORS, INC.
9525 Vassar Ave.
Chatsworth, CA 91311
(818) 882-5210
Owner: Norman C. Cooke
Studio Manager: Rudy Menart

[8] ACROSS THE TRACKS PRODUCTIONS
PO Box 2612
Garden Grove, CA 92640
(714) 636-3780
Owner: Brad & Jodi Clark
Studio Manager: Brad Clark

[8] AFTERHOURS RECORDING CO.
1616 W. Victory Blvd., Ste. 104
Glendale, CA 91201
(818) 246-6583
Owner: Afterhours Recording Co. Inc.
Studio Manager: William Berkuta
Engineers: William Berkuta, Richard P. Stevens II, Alex Mink
Dimensions: Studio 13 x 15 x 24, control room 12 x 12.
Mixing Consoles: (2) TEAC Model 38 x 4 x 2, Opamplabs ARC 14 x 4 x 2.
Audio Recorders: Tascam 80-8 8-track, Tascam 38 8-track, TEAC A-2340-SX 4-track, Otari MX-5050 BII 2-track, Ampex 300 2-track editing.
Cassette Recorders/Duplicators: (11) TEAC R505 cassette dup., real time, Tandberg 3014 cassette mastering, Technics M222.
Noise Reduction Equipment: TEAC, dbx DX-8, (2) Tascam DX4D, dbx.
Echo, Reverb, & Delay Systems: DeltaLab Effection II, ADM '024 digital delay, Lexicon PCM60 digital reverb.
Other Outboard Equipment: dbx 166 compressor limiter noise gate, 12-band EQ stereo, 10-band EQ stereo.
Microphones: (2) Neumann KM84, (3) Sennheiser MD421 U5, (2) PZM, (2) AKG D-190E, (2) AKG D-1000E, Shure 300 bi-directional ribbon, Sennheiser KZU shotgun.
Monitor Amplifiers: Crown Power Line One.
Monitor Speakers: (2) Tannoy.
Musical Instruments: Simmons SDS-8 electronic drums (advance notice), Yamaha CS01 synth, Casione 202 synth, Crumar Performer, Estey upright grand piano, Rickenbacker 12-string electric guitar, Ibanez Les Paul 6-string, Yamaha clarinet, violin.
Rates: 8-track \$15/hr., 4- and 2-track \$10/hr. Call for other rates.
Extras & Direction: Music demo recording, theatrical sound design and consultation; commercial voice tape production, radio drama production, audio cassette mastering. Flexibility, effectiveness and cooperation are the key elements at Afterhours, where resident producers are available to help you realize your project.

[8] ASCOT RECORDING STUDIO
1654 N. Harvard Blvd.
Hollywood, CA 90027
(213) 663-6269
Owner: James Rayton
Studio Manager: James Rayton

[8] ATM AUDIO
also REMOTE RECORDING
6 Masongate Dr.
Rolling Hills Estates, CA 90274
(213) 375-7673
Owner: Andrew T. Martin



ATM AUDIO
Rolling Hills Estates, CA

Studio Manager: Andrew T. Martin
Engineers: Andrew T. Martin, Robert E. Barnes.
Dimensions: Studio 12 x 25, control room 12 x 9.
Mixing Consoles: Carvin MX1688 (updated) 16 x 8.
Audio Recorders: Fostex 8-track, 3M 8-track, Ampex 2-track, Akai 4-track.
Cassette Recorders/Duplicators: (2) Sony.
Noise Reduction Equipment: 8-track of Dolby A, Echo, Reverb, & Delay Systems: Roland SRV-2000, Yamaha SPX90, Yamaha R1000, Roland SDR-2000, Yamaha E1010.
Other Outboard Equipment: Valley People Dyna-Mite, Yamaha GC2020, (2) dbx 160X, Eventide clock works ompressor, Orban 622B, (2) UREI 529, DAX 2709B, Rocktron Hush 2C, Aphex Type C Aural Exciter, (2) dbx 163X.
Microphones: Misc. AKG, Shure, Audio-Technica, Crown, B&K.
Monitor Amplifiers: (3) Sound Code Systems A-Series.
Monitor Speakers: (2) Fostex RM865, (2) Auratone.
Musical Instruments: Roland Juno 106, Yamaha RX11, Gretsch 5-piece studio set w/cymbals, (2) Fender Stratocasters, Takamine 12-string acoustic, misc. percussive instruments.
Other: Canare cabling and splitter boxes, hybrid TRW transformers, Telex RTS system.
Rates: Studio—\$15/hr. (block rates available), remote—call for bid.
Extras & Direction: ATM Audio is a perfect compliment from songwriters trying to get an idea down, to remote speech recordings at corporate conventions. We pride ourselves on the quality, value and service which we provide to our clients. Please give us a call and let us work with you. The difference is as clear as black and white.

[8] THE ATTIC
678 California Dr.
Claremont, CA 91711
(714) 621-7768
Owner: Dr. A. John Mallinckrodt
Studio Manager: Dr. A. John Mallinckrodt

[8] AUDIO RECORDERS
also REMOTE RECORDING
3843 Richmond
San Diego, CA 92103
(619) 296-6355
Owner: J.A. Mullen
Studio Manager: J.A. Mullen

[8] BLAKE PRODUCTIONS
11104 Aqua Vista
Studio City, CA 91602
(818) 762-7891
Owner: Keith Blake
Studio Manager: Keith Blake

[4] BLT PRODUCTIONS
Box 519
La Mesa, CA 92041
(619) 562-6077
Owner: Tom Kelly
Studio Manager: Bill Moffitt

[8] BOB'S BANDAIDS
only REMOTE RECORDING
3782 E. Austin Way
Fresno, CA 93726
(209) 227-1224
Owner: Bob Martin
Studio Manager: Bob Martin

[4] BOOMERANG BUSINESS COMMUNICATIONS
PO Box 1310
Grover City, CA 93433
(805) 481-0768
Owner: C. Stepp
Studio Manager: C. Stepp

[8] BRASS WOUND MUSIC
Box 3168
Kailua Kona, HI 96745
(808) 329-9267
Owner: Michael Cohen
Studio Manager: Michael W. Cohen

[2] BROADCAST ASSISTORS
also REMOTE RECORDING
7923 Duchess Dr.
Whittier, CA 90606
(213) 695-7715
Owner: Charles Minear
Studio Manager: Charles Minear

[8] CANTRAX RECORDERS
also REMOTE RECORDING
2119 Fidler Ave.
Long Beach, CA 90815
(213) 498-6492
Owner: Richard Cannata
Studio Manager: Nancy Cannata

[8] CATALINA RECORDING
2444 Waxwing Ave.
Ventura, CA 93003
(805) 982-5098
Owner: Lyndon Turner
Studio Manager: Michael Dosa

[8] CENTRAL COAST RECORDING
also REMOTE RECORDING
684 Stagecoach Rd.
Arroyo Grande, CA 93420
(805) 489-7861
Owner: Robert, Ruth Montano, Robert Barr
Studio Manager: Robert Barr

[8] CHALET STUDIOS
3247 Shasta Circle N.
Los Angeles, CA 90065
(213) 256-5350
Owner: Greg Tiner
Studio Manager: Greg Tiner

[8] CHARLIE'S STUDIO
20444 Napa St.
Winnetka, CA
(818) 998-8110
Owner: Charlie Mustaffa
Studio Manager: Wendy Shannon

[8] CM SOUND/CREATIVE MEDIA CONSULTANTS
also REMOTE RECORDING
PO Box 491279
Los Angeles, CA 90049
(213) 396-7105
(213) 471-1166
Owner: Creative Media Consultants
Studio Manager: Michael Binstock

[2] CMS DIGITAL, INC.
182 S. Raymond Ave.
Pasadena, CA 91105
(818) 405-8002
Owner: Corporation
Studio Manager: Cindy Bullok

[4] SHAUN COLLARD PROD.
also REMOTE RECORDING
1107 Bay St., #D
Santa Monica, CA 90405
(213) 450-6570
Owner: Shaun Collard
Studio Manager: Shaun Collard

[8] JOE CONTI PRODUCTIONS
also REMOTE RECORDING
PO Box 557
Captain Cook, HI 96704
(808) 328-8106
Owner: Joe Conti
Studio Manager: Joe Conti

[8] R.E. COPSEY RECORDING
also REMOTE RECORDING
PO Box 367
Camarillo, CA 93010
(805) 484-2415
Owner: Reese E. Copsey
Studio Manager: Reese E. Copsey

[8] CREATIVE PRODUCTION STUDIOS
18132 Schoenborn St.
Northridge, CA 91324
(818) 993-4643
Owner: Kevin McGettigan
Studio Manager: Kevin McGettigan

[8] CREATIVE SERVICES GROUP
17456 Emelita St.
Encino, CA 91316
(818) 343-7005
Owner: Rick Fleishman

[4] THE CREATIVE WORD
17885 B-2 Sky Park
Irvine, CA 92714
(714) 261-8273
Owner: Bryan Hill
Studio Manager: Ford Cirni

[8] CRESCENDO PRODUCTIONS
505 Mar Vista
Solana Beach, CA 92075
(619) 481-0192
Owner: David A. Kuspa
Studio Manager: David A. Kuspa

[4] C.S. AUDIO PRODUCTIONS
319 E. Eagle Dr.
Piacentia, CA 92670
(714) 528-3273
Owner: Curt B. Schatz
Studio Manager: Curt B. Schatz

[8] CUSTOM AUDIO
also REMOTE RECORDING
929 California Ave.
Bakersfield, CA 93304
(805) 324-0736
Owner: Trent Houston
Studio Manager: Ken Houston

[8] DB PRODUCTIONS
also REMOTE RECORDING
PO Box 3531
Long Beach, CA 90803
(213) 433-4372
Owner: Dan Brown
Studio Manager: Bruce Crook

[2] DOWNUNDER DIGITAL
also REMOTE RECORDING
3008 Passmore Dr.
Los Angeles, CA 90068
(213) 851-1445
Owner: Dennis Walters
Studio Manager: Dennis Walters

[8] DRAGONVILLE STUDIOS
1768 N. White Ave.
LaVerne, CA 91750
(714) 596-8205
Owner: B. King
Studio Manager: D. Schmidt

[8] DUBMASTER
11110 Magnolia Blvd.
North Hollywood, CA 91601
(818) 989-6004
Owner: Magnolia Properties
Studio Manager: Randi Paldi, Conrad Gleich

[8] EXTRA TERRESTRIAL AUDIO
3013 Prospect Ave.
Santa Monica, CA 90405
(213) 392-3511
Owner: Erin Thompson
Studio Manager: Erin Thompson

[8] FULL CIRCLE PRODUCTIONS
PO Box 5313
Santa Barbara, CA 93150
(805) 969-2705
Owner: Jeffrey Lovelace
Studio Manager: Doug Scott, Chas Thompson

[8] FULLER SOUND/AV RECORDING
also REMOTE RECORDING
PO Box 65051
Los Angeles, CA 90065
(213) 660-4914
Owner: Michael M. Fuller
Studio Manager: M.J. Fulton Jr.

[8] GENETIC MUSIC
6017 Bellingham Ave.
North Hollywood, CA 91606
(818) 763-3742
Owner: Richard Rosing
Studio Manager: Richard Rosing
Engineers: Richard Rosing
Dimensions: Studio 12 x 11, control room 35 x 17.
Mixing Consoles: Tascam M-512 12 x 8.
Audio Recorders: Tascam Model 38 8-track 1/2", Tascam Model 32 2-track 1/4".
Cassette Recorders/Duplicators: Nakamichi MR-2 cassette deck,ikai GX7 cassette deck.
Noise Reduction Equipment: dbx 8-channel noise reduction.
Synchronization Systems: Roland SBX-10 sync convertor.
Echo, Reverb, & Delay Systems: Lexicon PCM60 digital reverb, Yamaha SPX90 digital effects processor, Roland SDE-3000 digital delay.
Other Outboard Equipment: Valley People 430J dual dynamics processor, Rane ME-15 dual graphic equalizer, Roland Dimension C, Yamaha MJC8 MIDI patchbay.
Microphones: AKG 414EB, Beyer M88, (3) Sennheiser 421, (3) Shure SM57.
Monitor Amplifiers: Soundcraft PCR800, Technics CD4.
Monitor Speakers: (2) Tannoy SRM12B, (2) Auratone 5C, (2) Marantz Imperial 5.
Musical Instruments: Steinway grand piano, Akai S900 digital sampler w/custom library, Yamaha DX7 synth, Yamaha TX7 synth, Korg EX8000 synth, Roland Juno 60 synth w/MD8 MIDI interface, LinnDrum w/custom chips, Yamaha BB300 electric bass, Conn steel string acoustic guitar, Wilson classical guitar.
Other MIDI Equipment: Macintosh 512K computer w/10 meg Hyperdrive, Mark of the Unicorn "Performer" software, Opcode "MIDI Mac" software and patch librarian, Digidesign "Sound Designer" and "Softsynth".
Video Equipment: JVC HR-D131U 1/2" VCR w/remote, Hitachi 19" monitor.
Other: Sony CDP-55 compact disc player, Technics SL-J2 turntable, Roland MPU-103 MIDI channel filter/convertor, Apple Imagewriter printer, Countryman Type 85 direct box.
Rates: \$22/hr.

[4] GLIDE STUDIOS
also REMOTE RECORDING
PO Box 8243
Calabasas, CA 91302
(818) 902-0435
Owner: Cho Paquet
Studio Manager: Scott Kennington

[8] RUDY GUESS RECORDING STUDIO
3626 East Blvd.
Los Angeles, CA 90066
(213) 398-7833
Owner: Rudy & Lorna Guess
Studio Manager: Lorna Guess

[8] HAMMERSOUND RECORDERS
9612 Lurline Ave., Unit N
Chatsworth, CA 91311
(818) 998-9641
Owner: Chris & Brian Apthorpe
Studio Manager: Chris Apthorpe

[8] HED PRODUCTIONS
754 Saxony Rd.
Encinitas, CA 92024
(619) 436-8110
Owner: Lynn Poul Hedegard
Studio Manager: HED

[2] HI FI SOUND
only REMOTE RECORDING
PO Box 6530
San Diego, CA 92106
(619) 223-1730
Owner: Albion Productions
Studio Manager: P McManus

[4] HINDU ARTS
7042 Betty Dr.
Huntington Beach, CA 92647
(714) 841-2654
Owner: Ron "Zontar" Egliit
Studio Manager: Joey Egliit

[8] H.M.E.A.'S "STATE-OF-THE-HEART" STUDIO
also REMOTE RECORDING
PO Box 453
Lakewood, CA 90714
(213) 423-0273
Owner: Harpazol Ministries Evangelical Assoc.
Studio Manager: Duane Everts
Engineers: Duane Everts, independents.
Dimensions: Studio 15 x 21, iso room 6 x 8, control room 9 x 11.
Mixing Consoles: (2) TEAC Model 5 16 x 8, (2) TEAC Model 1 16 x 4.
Audio Recorders: Tascam 38 8-track, Tascam 32-2B 2-track, Dokorder 1140 4-track, Hitachi D-X10.
Cassette Recorders/Duplicators: (13) Pioneer CT-F550 logic-controlled, TEAC 234 4-track.
Noise Reduction Equipment: (8) channels dbx type noise reduction.
Echo, Reverb, & Delay Systems: Imagineering Audio's "Echo Digital Recorder" 16 sec. delay w/forward and reverse play, Fostlex reverb, MXR flanger/doubler, MXR autolflanger, Ibanez DM-500 digital delay, DOD stereo flanger doubler R-870.
Other Outboard Equipment: MXR dual 15-band EQ, (2) Fostlex stereo compressor/limiters, dbx 8-channel noise reduction, spectrum analyzer, Rock Trek II guitar pre-amp, Aphex Aural Exciter.
Microphones: Shure SM57s, Shure SM58s, Shure 545, (2) Audio-Technica AT-801.
Monitor Amplifiers: Sanyo P-55 100 w/ch., Marantz, Toa.
Monitor Speakers: JBL 4311, KLH.
Musical Instruments: Blackhurst custom electric bass, Blackhurst custom electric 6-string.
Video Equipment: Video production van, ISI 902 camera switcher, character generator w/downstream key edger, Sony and Conrac monitors, JVC U-matic recorder, CVS time base corrector, TEAC Model 3 audio console, Sony cassette decks, Tektronix WFM and vectorscope, Faroudja image enhancer, 1/4" editing and VHS duplication available, (2) Sony DXC-1820 cameras, Sony VO-2610 U-matic recorder.
Rates: Under certain conditions "FREE", call or write for details.

[8] HOT LIX PRODUCTIONS & MIDI STUDIO
also REMOTE RECORDING
21405 Colina Dr.
Topanga, CA 90290
(213) 455-2466
Owner: Bill Glasser
Studio Manager: Bill Glasser

[4] INCIDENTAL SOUND
29701-D Niguel Rd.
PO Box 7103
Laguna Niguel, CA 92677
(714) 495-0285
Owner: Frederic B. Hodshon
Studio Manager: Frederic B. Hodshon

[8] INDAMIX STUDIO
125 Pacific St.
Santa Monica, CA 90405
(213) 399-2314
Owner: Eric Doney
Studio Manager: Frank Febbo

[8] JAGS ENTERTAINMENT SERVICE
also REMOTE RECORDING
PO Box 935
Captain Cook, HI 96704
(808) 323-3315
Owner: Eric Jaeger
Studio Manager: Eric Jaeger

[4] JESUS IS LORD STUDIOS
5000 O'Sullivan Dr.
Los Angeles, CA 90032
(213) 222-2304
Owner: Zamar Unlimited
Studio Manager: Richard Zeier

[8] JKL ENTERTAINMENT
PO Box 548
Walnut, CA 91788
(818) 810-8979
Owner: Kevin Reinhardt
Studio Manager: K. Reinhardt

[4] JOE'S PLACE STUDIO
8033 Sunset Blvd., #1010
Los Angeles, CA 90046
(213) 659-3940
Owner: Hollywood Spectrum Inc.
Studio Manager: Joe Klein

[8] JR WEST SOUND RECORDERS
only REMOTE RECORDING
1025 N. Ferndale
Fullerton, CA 92631
(714) 645-8492
Owner: Jack Roberts

[8] JSL RECORDERS
6179 San Ramon Way
Buena Park, CA 90620
(714) 827-6063
Owner: Jeffrey & Jeannette Landgraf
Studio Manager: Jeannette Landgraf

[8] K* PRODUCTIONS & RECORDING
6436 Malcolm Dr.
San Diego, CA
(619) 583-2717
Owner: Dennis Keith
Studio Manager: Dennis Keith

[8] KEY PRODUCTION SERVICE
1040 N. Las Palmas
Hollywood, CA 90038
(213) 467-5753
Owner: Bob Parker, Jack Parker, Stan Jackson
Studio Manager: Stan Jackson

[8] KING RECORDING STUDIO
PO Box 883
Somis, CA 93066
(805) 987-2424
Owner: Don King
Studio Manager: Geoff King

[4] KOALA STUDIO
also REMOTE RECORDING
22931 Sycamore Creek Dr.
Valencia, CA 91355
(805) 259-8562
Owner: Jack Adams
Studio Manager: Shirley

SOUTHERN CALIFORNIA 4&8 TRACK STUDIOS

[8] KO'OLAU PRODUCTIONS
also REMOTE RECORDING
1826 Alewa Dr.
Honolulu, HI 96817
(808) 595-4870
Owner: Ben Borthwick
Studio Manager: Ben Borthwick
Engineers: Ben Borthwick.
Dimensions: Room 1: studio 12 x 12, control room 12 x 12.
Room 2: studio 20 x 20, control room 14 x 10.
Mixing Consoles: Peavey XR-1200 12 x 12, Tascam 388 8 x 8.
Audio Recorders: Tascam 388 8-track, Tascam 246 4-track,
Revox A-77 2-track, TEAC X10 4-track, TEAC 7010 4-track
Cassette Recorders/Duplicators: Kenwood KX-31, Fisher DD-280.
Noise Reduction Equipment: dbx, Dolby A, B.
Echo, Reverb, & Delay Systems: Peavey analog reverb, Alesis digital reverb, Ibanez digital delay.
Microphones: Beyer condenser, Sennheiser condenser, Toa digital, Audio-Technica, (3) Shure Omni, (2) Shure directional.
Monitor Amplifiers: Peavey XR-1200.
Monitor Speakers: (2) JBL 4310, (2) JBL 4406.
Musical Instruments: Ensoniq Mirage, Ensoniq ESQ-1, Yamaha DX7, Adamas 12-string stereo guitar.
Other MIDI Equipment: Commodore C-64 computer.
Rates: Variable for each room or on location, discount for demos and beginners.

[4] LAME DUCK MUSIC
also REMOTE RECORDING
324 Rancho Del Oro, #259
Oceanside, CA 92056
(619) 722-2826
Owner: Aaron Marks
Studio Manager: Aaron Marks

[8] JOHN LANDON PRODUCTIONS
2988 Andros St.
Costa Mesa, CA 92626
(714) 754-7745
Owner: Henry Maruyama, Dave Williams
Studio Manager: Maruyama, Williams

[2] LANE AUDIO & RECORDS
Box 29171
Los Angeles, CA 90029
(213) 469-8007
Owner: M.R. Lane
Studio Manager: M.R. Lane

[8] LCO MUSIC PRODUCTIONS
PO Box 2793
Kailua-Kona, HI 96745
(808) 325-7525
Owner: Woody DeMarco
Studio Manager: Woody DeMarco

[4] LU-DON STUDIO
16034 Bryant St.
Sepulveda, CA 91343
(818) 894-5693
Owner: Don Malloy
Studio Manager: Susanne Malloy

[8] MAGNETIC INK
also REMOTE RECORDING
31625 Tennessee St.
Yucaipa, CA 92399
(714) 794-3582
Owner: Doug Cross
Studio Manager: Steve Ertzner

[8] MARKUS PRODUCTIONS
also REMOTE RECORDING
398 Otono Ct.

Camarillo, CA
(805) 987-9932
Owner: Markus McDowell
Studio Manager: Michele McDowell

[8] MASTER TRACKS RECORDING & MULTI-MEDIA
402 Loma Alta Dr.
Santa Barbara, CA 93109
(805) 966-4388
Owner: T. David Sommers
Studio Manager: T. David Sommers

[8] MASTERFLOW RECORDING STUDIO
1433 Silverlake Blvd.
Los Angeles, CA 90026
(213) 661-9589
Owner: Naomi J. Guillory
Studio Manager: Debra A. Colter

[8] MAZZETTI AUDIO REMOTE
only REMOTE RECORDING
PO Box 8874
Universal City, CA 91608
(818) 761-1631
Owner: Michael Mazzetti

[4] MCCAY PRODUCTIONS & JINGLES
also REMOTE RECORDING
2400 Olive, #10
Bakersfield, CA 93301
(805) 325-3009
Owner: Steve McCay
Studio Manager: Steve McCay

[2] MOBIL SOUND & LIGHTING SYSTEMS OF HAWAII
only REMOTE RECORDING
PO Box 1380
Kailua, HI 96734
(808) 235-0522
Owner: Woody Wood
Studio Manager: Woody Wood

[4] MOFFETT MANOR RECORDERS
2154 Canyon Dr.
Costa Mesa, CA 92627
(714) 646-3838
Owner: Robert Moffett
Studio Manager: Robert Moffett

[8] MOSER SOUND PRODUCTIONS
1923 W. 17th St.
Santa Ana, CA 92706
(714) 541-6801
Owner: Richard Moser

[2] MOUNTAIN MIDI MASTERING
PO Box 46
Blue Jay, CA 92317
(714) 337-7655
Owner: R. Daily
Studio Manager: R. Daily

[8] MR. CAT PRODUCTIONS
130 Roycroft, #307
Belmont Shore, CA 90803
(213) 434-0469
Owner: Arturo M.A. Garcia
Studio Manager: Buzzy Petersen

[8] MUSIC DEPARTMENT-MUSIC TECHNOLOGY STUDIOS
only REMOTE RECORDING
California Polytechnic St. Univ.
San Luis Obispo, CA 93407
(805) 546-2406
Studio Manager: Dr. Antonio G. Barata

[8] NIGHT VISION PRODUCTIONS, INC.
also REMOTE RECORDING
8695 Hebrides Dr.
San Diego, CA 92126
(619) 566-8989
Owner: Donald V. Phillips
Studio Manager: Marianne B. Phillips

[8] NORTH STAR SOUND PRODUCTIONS
1522 Shady Bend Dr., #53
Hacienda Heights, CA 91745
(818) 369-5988
Owner: Gary L. Manning

Engineers: Albert Mendoza, Gary Manning
 Dimensions: Studio 11 x 9, control room 7 x 7.
 Mixing Consoles: Tascam M216 16 x 4, Dolby custom DBX-1 noise reduction built into each channel.
 Audio Recorders: Tascam 38 8-track, Tascam 32 2-track.
 Cassette Recorders/Duplicators: (2) TEAC 800X.
 Noise Reduction Equipment: dbx 1, Rocktron Hush-2.
 Echo, Reverb, & Delay Systems: XTC digital reverb, Boss DE-200 delay, MXR digital time delay.
 Other Outboard Equipment: Yamaha SPX90, Valley People "Dynamite" compressor, Aural Exciter.
 Microphones: (2) AKG C-414 B-U.L.S., (2) AKG C-460 B-U.L.S.-61, (2) AKG D-112, (2) Fostex M-77-RP, (2) ATM 33R, (4) Shure SM58, (2) Shure SM57.
 Monitor Amplifiers: JBL 6230, QSC 1200
 Monitor Speakers: (2) Toa 280ME, (2) Yamaha NS-10M, (4) Auratone
 Musical Instruments: Guild D-25 6-string acoustic guitar, Fender Stratocaster, Johnny Go-go custom "Blob design 6-string, electric solid body guitar, Music Man "Sting Ray" bass, a full line of percussion instruments (cow bells, go-go bells, xylophones, maracas etc.), Marshall JCM 800 amplifier, Fender Delux reverb (custom modified w/Celestian speakers, Kimber wires, Groove tubes), Roland Jupiter 6 keyboard, Roland TR-606 and TR-707 drum machines
 Rates: Please call for rates

[8] OPEN DOOR SOUND/PIER MUSIC
 145 Pier Ave.
 Hermosa Beach, CA 90254
 (213) 374-9765
 (213) 379-2975
 Owner: Mark Fitchett
 Studio Manager: Mark Fitchett

[8] OUTLAW SOUND
 1140 N. La Brea Ave.
 Los Angeles, CA 90038
 (213) 462-1873
 Owner: Allen Roth Productions, Inc.
 Studio Manager: Allen Roth

[8] OUTLOOK AUDIO SERVICES
 also REMOTE RECORDING
 330 Barry Dr.

Ventura, CA 93001
 (805) 652-1664
 Owner: Michael & Dee Horn
 Studio Manager: M. Horn

[4] PACIFIC AUDIO VISUAL ENTERPRISES
 only REMOTE RECORDING
 545 Cloverleaf Way
 Monrovia, CA 91016
 (818) 359-8012
 Owner: Ron Streicher

[8] PACIFIC BROADCAST VIDEO PRODUCTIONS
 also REMOTE RECORDING
 PO Box 2222
 Carlsbad, CA 92007
 (619) 729-1000
 Owner: Stephen Cilurzo
 Studio Manager: Steve Hill

[8] PAYNE PRODUCTIONS—PRO SOUNDS STUDIO
 623 E. 8th St. F
 Upland, CA 91786
 (714) 982-2074
 Owner: Gary Payne, Scott W. Sawyer
 Studio Manager: Scott W. Sawyer

[4] PHUSION
 only REMOTE RECORDING
 PO Box 7981
 Newport Beach, CA 92660
 (714) 650-7915
 Owner: Mark O. Paul
 Studio Manager: Sylvia L. Waack

[4] PIC STUDIOS
 also REMOTE RECORDING
 2220 W. Magnolia Blvd.
 Burbank, CA 91506
 (818) 953-4600
 Owner: Sid Lane
 Studio Manager: Scott Wedding

[8] PRIVATE RECORDING SERVICE
 also REMOTE RECORDING
 5134 Saratoga Ave., #7
 San Diego, CA 92107
 (619) 222-1039
 Owner: Tim Campbell
 Studio Manager: Billy Thompson

[4] PSI
 also REMOTE RECORDING
 18019-A Skypark Circle
 Irvine, CA 92714
 (714) 261-6119
 Owner: Robert Hagerly
 Studio Manager: Timothy Loftus

[8] QDD/STUDIO Q
 only REMOTE RECORDING
 816 Queen St.
 Honolulu, HI 96813
 (808) 521-6961
 Studio Manager: Gray Gleason

[4] RAG RECORDING
 222 S. Guadalupe, Ste. 1
 Redondo Beach, CA 90277
 (213) 372-1344
 Owner: Richard A. Grea
 Studio Manager: Eric King

[8] RAINBOW REMOTE RECORDING
 also REMOTE RECORDING
 34 Jackson
 Irvine, CA 92720
 (714) 551-5367
 Owner: Dale McCart

[8] RARE FOOTAGE RECORDING
 723 1/2 Laguna Canyon Rd.
 Laguna Beach, CA 92651
 (714) 494-9833
 Owner: Stephan Jonas Prod., Ltd.

—CONTINUED ON NEXT PAGE

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 6550 SUNSET BOULEVARD, HOLLYWOOD, CALIFORNIA 90028 (213) 466-1323

—CONTINUED FROM PAGE 165

Studio Manager: Stephan Jonas
 Engineers: Stephan Jonas, Chris Hutchinson, Peter Dobson.
 Dimensions: Studio 27 x 22, control room 18 x 18, iso. room 5 x 7, storage 15 x 5.
 Mixing Consoles: Studiomaster 20 x 8 x 2.
 Audio Recorders: Otari MX-5050 III 8-track, Sony PCM-501ES 2-track, Sony Beta Hi-fi digital, Tascam 42 2-track (analog), Revox A-700 2-track (analog).
 Cassette Recorders/Duplicators: Sony.
 Noise Reduction Equipment: (8) dbx 157, (3) Rocktron Hush IIB.
 Echo, Reverb, & Delay Systems: Roland SRV-2000 reverb, Alesis MIDverb reverb, Roland SDE-1000 DDL, Ibanez HD-1000 DDL/harmonizer, Roland/BOSS SCC-700 processing unit w/effects.
 Other Outboard Equipment: Rocktron Exciter/Imager/Hush II, Rocktron compressor/limiter/Hush II, (2) Allison Kepex, (3) Allison Gain Brains, Rockman X-100, MXR graphic EQ.
 Microphones: AKG C-414 ULS, (2) Neumann KM84, E-V RE20, Shure SM81, (6) Audio-Technica ATM-63, (4) E-V RE15, E-V 676, Shure SM58.
 Monitor Amplifiers: Randall RRM-2-250, Sony, Harman Kar-don (foldback).
 Monitor Speakers: JBL 4412 studio monitors, Yamaha NS-10.
 Musical Instruments: Yamaha RX11 drum machine, Roland GR-700/G-505 custom guitar synth, Sequential Circuits Prophet V, Rev 3.3 synth, Roland JX-8P synth (upon request), Yamaha DX7 synth (upon request), studio console piano, Martin D-18 acoustic guitar, Fender strat w/EMGs and Kahler, G&L L-1000 bass, various percussion, TAMA drums (upon request), Roland JC-120 amp, Fender Princeton '61 amp w/Groove Tubes.
 Other MIDI Equipment: Sonus sequencing (and others on request).
 Video Equipment: Sony Beta Hi-fi.
 Other: (2) Countryman direct boxes, (6) AKG and Sony headphones, Sony turntable, Sanyo air conditioner system.
 Rates: \$25/hr basic (incl. engineer), block rates avail./service quotes.
 Extras & Direction: Full service band and songwriter production from demos to digital masters in a cool, comfortable, artistic, no-pressure environment. Guaranteed cost-effective, state-of-the-art quality finished product. Also specialize in commercial jingles and soundtrack. Full roster of producers, arrangers, programmers and session players on call.

SOUTHERN CALIFORNIA 4 & 8 TRACK STUDIOS

[8] RCM PRODUCTIONS

4172 Neosho Ave.
 Los Angeles, CA 90066
 (213) 390-5573
 Owner: Bob McNabb

Extras & Direction: Specializing in complete post-production services for industrial video clientele. Soundtrack production, utilizing library or original music and effects, can be synchronized via SMPTE time code to 3/4" or 1/2" video masters. Quality narration recording capability, 3/4" and 1/2" off-line editing with window dub preparation. RCM Productions offers a relaxed, creative and affordable environment for the budget conscious industrial video producer who demands a quality product.

[8] THE REEL THING

1197 Tudor
 Ontario, CA 91762
 (714) 628-3024

Owner: Robert M. Hill
 Studio Manager: Robert M. Hill
 Engineers: Robert M. Hill
 Dimensions: Studio 12 x 19, control room 8 x 6.
 Mixing Consoles: Tascam 35 8 x 4.
 Audio Recorders: Tascam 80-8/dbx 8-track, Tascam 35-2/dbx 2-track, TEAC A-2300SD 1/4-track.
 Cassette Recorders/Duplicators: TEAC A-601R.
 Echo, Reverb, & Delay Systems: Master Room XL-305 stereo reverb, Ursal Major Space Station, Yamaha SPX90 digital multi-effect processor.
 Other Outboard Equipment: MXR noise gate, MXR Phase 90, MXR distortion +, Spectro Acoustics 210R graphic equalizer, (2) dbx 161 limiter, Tube Cube direct box, Minicube direct box,

Aphex stereo exciter.
 Microphones: Shure SM57, Shure SM58, Shure SM546, E-V RE20, (2) Sony ECM-56F, (3) Sennheiser 421, Beyer 500, (5) Audio-Technica ATM-41A.
 Monitor Amplifiers: Spectro Acoustics 200R.
 Monitor Speakers: JBL 4311B, Auratone cubes.
 Musical Instruments: Fender jazz bass, Fender precision bass, Fender Coronado Bass II, Fender Jazz Master guitar, Fender Stratocaster, Gibson Les Paul delux guitar, Fender electric 12-string guitar, Fender 12-string guitar, Epiphone guitar, Ludwig drums, piano, Roland Juno 60 synthesizer, Roland TR909 electronic drums, Fender twin reverb amplifier, Roland jazz chorus 120 amplifier.
 Rates: Please call for current rates.

[4] REL SOUND MUSIC STUDIO

also REMOTE RECORDING
 7400 Artesia Blvd., #1105
 Buena Park, CA 90621
 (714) 994-3563
 Owner: Robert E. Levesque
 Studio Manager: Robert E. Levesque

[8] RHODE HOUSE RECORDERS

North Hollywood, CA 91607
 (818) 762-8868
 Owner: Eric Schooler
 Studio Manager: Eric Schooler

[4] RISING STAR RECORDING

also REMOTE RECORDING
 655 Berry, Ste. I
 Brea, CA 92621
 (714) 671-7815
 Owner: Rudy Ising

[4] RJM PRODUCTIONS

also REMOTE RECORDING
 9317 Cedar St., #C
 Bellflower, CA 90706
 (213) 925-0141
 Owner: Robert J. Moore
 Studio Manager: Jeffrey S. Moore

[2] ROLLING ROAD DIGITAL AUDIO

only REMOTE RECORDING
 3960 Laurel Canyon, #434
 Studio City, CA 91604
 (213) 654-0410
 Owner: Rolling Road Prod., Inc.
 Studio Manager: Charles Horton

[8] ROTUND RASCAL

5654 Natick Ave.
 Van Nuys, CA 91411
 (818) 901-9636
 Owner: Dave Pearlman, Apryl Leopold
 Studio Manager: Dave Pearlman

[4] ST. THEODORES DEMO CHAPPEL

824 Woodlawn Ave.
 Venice, CA 90291
 (213) 827-8704
 Owner: St. Theodore
 Studio Manager: Sister Nannette

[8] SCA STUDIOS

3766 Santa Clara Ave.
 Oxnard, CA 93030
 (805) 485-8123
 Owner: C. Lamb
 Studio Manager: Brooke Lamb

[8] S.F. AUDIO SOUND & RECORDING

also REMOTE RECORDING
 5290 E. Hunter Ave.
 Anaheim, CA 92807
 (714) 779-6677
 Owner: Steven W. Forster
 Studio Manager: S. Forster
 Engineers: Steven W. Forster, Gary King.
 Dimensions: Studio 23 x 25 x 12, control room 25 x 11 x 8.
 Mixing Consoles: Tascam M520 20 x 16 x 8, Tapco 5216 16 x 2.
 Audio Recorders: Tascam 38 8-track, Tascam 42 2-track.
 Cassette Recorders/Duplicators: Nakamichi 480Z, Aiwa WX 220 for duplication.
 Noise Reduction Equipment: (2) Tascam DX4D dbxl, Tascam DX2D dbxl.
 Echo, Reverb, & Delay Systems: Yamaha REV7, Ibanez DM-2000.
 Other Outboard Equipment: Aphex Aural Exciter B, Fostex

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A unique dual element capsule design, together with active low-noise FET electronics, gives you features like full 4-pattern switching, response tailoring, and professional appearance at 1/2 the cost of any other microphone in its class.

Unequaled warmth and clarity thanks to phase coherence that's amazingly smooth over the entire audio spectrum. Flat response to below 10Hz.

Four pattern settings: Omni, Cardioid, Hypercardioid, and Figure Eight.

Four response settings: Flat, 50Hz Cut, 10dB Pad, and Both (Pad/Cut).

THE MIC comes complete with 8-point studio suspension, and a fitted hardwood case. Standard finish in matte black \$349.95. Vintage Professional Studio Matte Grey finish \$399.95.

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 Phone: 817-336-5114, Fax: 817-870-1271, Telex: 163203 IMCTXUT

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S.F. AUDIO SOUND & RECORDING
Anahaim, CA

compressor/limiter/noise gate.

Microphones: E-V PL20, (2) Sennheiser 421, (3) Shure SM58, Shure SM57, Audio-Technica 801, Audio-Technica ATM-10, Whirlwind direct boxes, Shure PE85, Shure Unisphere A Monitor Amplifiers: Yamaha CA 1010, BGW 7000B, Rane HC6. Monitor Speakers: (2) JBL 4312 mains, (2) Yamaha NS-10M. Musical Instruments: TAMA 7-piece Swingstar, Charvel Jackson bass, Memphis strat-style guitar, Ensoniq ESQ1, Korg Poly 61.

Rates: \$20/hr. Rates may vary according to project.

Extras & Direction: S.F. Audio Sound & Recording has been working very hard since December building our new studio. Now as of May 3rd we are completely open and growing very fast. Currently there are numerous demo projects and two album projects that we are working on. We will not let a project out that we are not happy with.

[4] **SIDESTREAM SOUND**
also *REMOTE RECORDING*
5013 1/2 Narragansett Ave.
San Diego, CA 92107
(619) 222-0238
Owner: Ken Totten
Studio Manager: Ken Totten

[8] **SIDTREA STUDIOS**
5530 Corteen Pl., Ste. 1
North Hollywood, CA 91607
(818) 762-0748
Owner: Jeff Janning
Studio Manager: Jeff Janning

[2] **SONIC GALLERY RADIO**
1482 E. Valler Rd., Ste. A13A
Montecito, CA 93108
(805) 969-6984
Owner: Paul Hunter
Studio Manager: Annie Blaise

[4] **SOUND DESIGN STUDIOS**
also *REMOTE RECORDING*
PO Box 1645
Upland, CA 91785
(714) 982-7585
Owner: Russell Griffin

[8] **SOUND IMAGERY**
2420 Lakeview Ave.
Los Angeles, CA 90039
(213) 665-1841
Owner: Gary Macheel
Studio Manager: Beth Bohn

[8] **SOUNDSLIKE**
Box 914
Port Hueneme, CA 93041
(805) 483-0532
Owner: Tim Gillespie

[8] **SOUTHWIND RECORDING**
14751 Ararat St.
Sylmar, CA 91342
(818) 362-3843
Owner: Rick Thomas
Studio Manager: Rick Thomas

[4] **BRIAN M. SPILLANE PRODUCTIONS**
PO Box 1006
Fullerton, CA 92632
(714) 680-5051
Owner: Brian M. Spillane

[8] **SPLASH RECORDING STUDIO**
4444 Rice St.
Lihue, HI 96766
(808) 245-5710
Owner: Stuart Hollinger, Wes Pacanas
Studio Manager: Stuart Hollinger

[2] **JAY STAGGS CASSETTE DUPLICATION**
also *REMOTE RECORDING*
7419 Florence Ave.
Downey, CA 90240
(213) 928-7516
Owner: Corporation
Studio Manager: Carmen Aguila

[8] **STANDING ROOM ONLY (SRO)**
8228 Beech Ave.
Fontana, CA 92335
(714) 829-1314
Owner: Stephen Robertson
Studio Manager: Stephen Robertson

[8] **STUDIO C**
also *REMOTE RECORDING*
5042 Ruffner St.
San Diego, CA 92111
(619) 277-4714
Owner: Scott A. Higby
Studio Manager: Dan Milner

[2] **STUDIO M PRODUCTIONS UNLIMITED**
only *REMOTE RECORDING*
8715 Waikiki Station
Honolulu, HI 96815
(808) 734-3345
Owner: Mike Michaels
Studio Manager: Mike Michaels

[8] **SUNDIAL RECORDING STUDIO**
PO Box 5426
Montecito, CA 93150
(805) 969-6926
Owner: Don Messick
Studio Manager: Don Messick

[8] **SUPERIOR SONICS**
also *REMOTE RECORDING*
19516 Hemmingway
Rosedale, CA 91335
(818) 701-5253
(818) 893-1513
Owner: Richard Peden, Kevin Vincent
Studio Manager: Richard Peden, Kevin Vincent

[8] **SUPERSOUND STUDIO**
also *REMOTE RECORDING*
8946 Ellis Ave.
Los Angeles, CA 90034
(213) 836-4028
Owner: Morris David Golodner
Studio Manager: Morris Golodner

[8] **SURROGATE NOISE, LTD.**
PO Box 1155
Hollywood, CA 90046
(213) 656-9320
Owner: D. Keller
Studio Manager: I. Loritz

[4] **TARGET RECORDERS**
also *REMOTE RECORDING*
1123 Rosewood Ave.
Inglewood, CA 90301
(213) 419-4017
Owner: A.R. Thomas
Studio Manager: A.R. Thomas

[8] **THIRD EAR RECORDING STUDIO**
also *REMOTE RECORDING*
143 S. Cedros

—CONTINUED ON NEXT PAGE

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**SOUTHERN CALIFORNIA
4&8 TRACK
STUDIOS**

—CONTINUED FROM PAGE 167

Solana Beach, CA 92075
(619) 481-3030
Owner: Malcolm Falk

[4] TKO PRODUCTIONS & MEDIA SERVICES
also REMOTE RECORDING
PO Box 862
Port Hueneme, CA 93041
(805) 488-0523
Owner: T.R. Scharf, K.L. Scharf
Studio Manager: Tom Scharf

[4] TRENDS IN PROFESSIONAL SOUND
also REMOTE RECORDING
7220 N. Rosemead Blvd., Ste. 108
San Gabriel, CA 91775
(818) 287-0921
Owner: Tony Bohlin

[8] TRIHEDRA PRODUCTIONS
1920 E. Foothill Dr.
San Bernardino, CA 92404
(714) 886-2569
Owner: David Haggard
Studio Manager: David Haggard
Engineers: David Haggard, Mark Haggard
Dimensions: Studio 22 x 20, control room 12 x 18.
Mixing Consoles: Carvin 1688 (modified) 16 x 8 w/patchbay
Audio Recorders: Tascam 38 8-track w/dbx, Tascam 32 2-track w/dbx, Sony TC-355 1/4-track w/dbx 1/4".
Cassette Recorders/Duplicators: Awa cass. duplicator, (2) Fisher 120.
Synchronization Systems: Garfield MiniDoc
Echo, Reverb, & Delay Systems: Ibanez SDR 1000 (digital reverb), Yamaha SPX90 (digital reverb), Yamaha D1500 DDL, Roland SDE1000 DDL, Yamaha 1005E delay
Other Outboard Equipment: dbx 160X comp./lim., Aphex Aural Exciter, Orban stereo synth, Carvin EQ 2020.
Microphones: Sennheiser, Shure, Audio-Technica, AKG, Sony
Monitor Amplifiers: Carvin DCA 800, Carvin DCA 300
Monitor Speakers: (2) JBL 4411, (2) Auratones.
Musical Instruments: Yamaha DX7, Roland Jupiter 6, Schimmel baby grand, Oberheim DX drum machine, Ludwig 9-piece drum set, xylophone
Other MIDI Equipment: Roland MSQ 700 sequencer, JL Cooper MIDI channelizer
Other: Carvin X-100 half stack guitar amp, Ampeg bass amp, Fender and Rickenbacker amps, Yamaha PG1 guitar pre-amp

[8] 24 KT. SOUND
3817 Atlantic Ave., #250
Long Beach, CA 90807
(213) 427-2800
Owner: Todd Carter
Studio Manager: Todd Carter

[8] 24 KT. SOUND
3817 Atlantic Ave., #250
Long Beach, CA 90807
(213) 427-2800
Owner: Todd Carter
Studio Manager: Todd Carter

[8] WALLY'S WEST
5703 Harold Way, #4
Hollywood, CA 90028
(213) 462-2388
Owner: Gerry Rothschild
Studio Manager: Denny Moore

[8] WEST HAWAII RECORDING
PO Box 3172
Kamuela, HI 96743
(808) 883-9383
Owner: Harrell Baker
Studio Manager: Harrell Baker

[8] WESTERNMOST STUDIO
2330 The Strand
Hermosa Beach, CA 90254
(213) 372-5806
(213) 372-3782
Owner: Jim West
Studio Manager: Jan Elliott

[8] DANA WHITE PRODUCTIONS, INC.
also REMOTE RECORDING
2623 29th St.
Santa Monica, CA 90405
(213) 450-9101
Owner: Dana C. White
Studio Manager: Dana C. White

[8] WHITE TRASH STUDIOS
also REMOTE RECORDING
11030 Aqua Vista St., Ste. 37
North Hollywood, CA 91602
Owner: White Trash
Studio Manager: John Rally

[8] WILD TALENT STUDIOS
5720 Andasol Ave.
Encino, CA 91316
(818) 705-6985
Owner: Stan & Wynette Keiser
Studio Manager: Stan Keiser

[2] WORD OF FAITH TAPE MINISTRIES
also REMOTE RECORDING
PO Box 535
Azusa, CA 91702
(818) 969-4544
Owner: Ron Gibson
Studio Manager: Ron Gibson

[8] WORTH RECORDING
also REMOTE RECORDING
23767 Valle Del Oro
Newhall, CA 91321
(805) 255-6339
Owner: Jack Worth

[8] YLS PRODUCTION INC.
PO Box 34
Los Alamitos, CA 90720
(213) 430-2890
Owner: M. Canavan
Studio Manager: M. Canavan

[8] GREG YOUNGMAN MUSIC
PO Box 8102
Long Beach, CA 90808
(213) 425-9597
Owner: Greg Youngman

[8] ZACUTO AUDIO
1316 3rd St.
Santa Monica, CA 90401
(213) 394-4932
Owner: Gary Zacuto
Studio Manager: Joel Porter

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SOUTHERN CALIFORNIA

12&16 TRACK

STUDIOS

[16] ADVENTURE STUDIOS

1128 Oceanic Dr.
Encinitas, CA 92024
(619) 753-4634
(619) 549-0485
Owner: Adventure Communications, Inc.
Studio Manager: Spencer Nilsen
Engineers: Spencer Nilsen, David Young.
Dimensions: Studio 22 x 22.
Mixing Consoles: Ramsa WR 8118 18 x 4, Tascam 388 8 x 8, BOSS 10 x 4.
Audio Recorders: Tascam 38 8-track, Tascam 388/Studio 8 8-track, Tascam 32 2-track, Otari 5050-BII 2-track, Dokorder 7140 4-track.
Cassette Recorders/Duplicators: Yamaha K600 w/Dolby B&C (stereo), Akai dubbing deck w/Dolby (stereo), Marantz 345 remote stereo w/Dolby.
Noise Reduction Equipment: (4) dbx units for Tascam 38, (8) dbx channels for Tascam 388, Symetrix noise reduction unit.
Synchronization Systems: SMPL SMPTE lock-up system.
Echo, Reverb, & Delay Systems: Lexicon PCM70 w/MIDI, Lexicon PCM60, (2) Yamaha D1500 digital delays w/MIDI, (2) Alesis MIDiverb IIs, Fostex digital delay, Symetrix compressor/limiter, Roland space echo.
Microphones: Sennheiser, E-V, AKG.
Monitor Amplifiers: Ramsa WP 9210 (stereo), NAD 2140 power amp (stereo).
Monitor Speakers: Toa 280 ME monitors, JBL 3340 monitors, Infinity 3000 studio monitors, Auratone studio monitors.
Musical Instruments: Kurzweil 250 w/sound block A, Sound Designers, Q.L.S., (2) Yamaha DX7s w/Mac librarian, Oberheim Xpander, (2) Oberheim Matrix 6Rs, Yamaha DX100 digital FM synthesizer, Yamaha TX7 module, Yamaha CP80 electric grand piano, Moog Memorymoog w/MIDI, Moog Minimoog w/MIDI, Yamaha RX15 rhythm programmer, (2) Yamaha RX216 Latin rhythm programmers, E-mu drumulator w/custom chips, Casio CZ101.
Other MIDI Equipment: Yamaha QX7 polyphonic sequencer recorder, (2) Apple Macintoshes w/full MIDI, JL Cooper MIDI switcher, Casio MIDI thru box.
Video Equipment: Quazar professional 4-head VHS recorder/player, Panasonic pro video monitor.
Other: Oberheim 2-voice analog synth w/MIDI, 1923 Kimball grand piano.
Rates: Negotiable on "per-project" basis.

[16] ANNEX STUDIOS

1041 N. Orange Dr.
Hollywood, CA 90038
(213) 463-9944
Owner: Thorne Nogar
Studio Manager: Thorne Nogar

[12] AUDIO LAB

also REMOTE RECORDING
2521 W. La Palma, #P
Anaheim, CA 92801
(714) 220-9514
Owner: Ken Neagle
Studio Manager: Pat Crane

[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 RECORDING STUDIOS

449 N. Vista St.
Los Angeles, CA 90036

(213) 653-0693

Owner: Len Weisman
Studio Manager: Ben Weisman

[16] THE AUDIO SUITE

1110A W. Glenoaks Blvd.
Glendale, CA 91202
(818) 241-9090
Owner: Eric Sclar
Studio Manager: Eric Sclar
Engineers: Eric Sclar, Larry Kornfeld.
Dimensions: Studio 25 x 20, control room 12 x 15.
Mixing Consoles: Sound Workshop 1600 40 x 16.
Audio Recorders: Otari MX-70 16-track, Fostex E2 2-track w/center time code, Revox A77 2-track.
Cassette Recorders/Duplicators: Tascam 122B.
Noise Reduction Equipment: Dynaflex
Synchronization Systems: Fostex 4030/35, Southworth Jambox/4 MIDI/SMPTE.
Echo, Reverb, & Delay Systems: (2) Lexicon 200, Lexicon Super Prime Time w/MEO.
Other Outboard Equipment: dbx 165A comp/limiter, (2) Gain Brains, (4) Kepexs, (2) Maxi Qs, (4) QLZ pre-amps.
Microphones: (2) AKG 414, Sennheiser 421, Neumann KM84, (4) Shure SM57s, (2) Shure SM58s, (2) Audio-Technica ATM-63s.
Monitor Amplifiers: (2) Hafler 220s, (2) Phase Linear 700 B.
Monitor Speakers: (2) JBL 4411, (2) JBL 4401.
Musical Instruments: Linn 9000, Akai S900, (2) Yamaha TX7s, Macintosh Plus computer, Yamaha KX88, Martin D35, Ibanez Roadstar bass.
Other MIDI Equipment: Macintosh Plus computer w/MIDI paint, Performer, MIDImac, Soundesigner, DX lib/editor.
Video Equipment: Sony BVU.
Rates: \$30/hr. includes engineer and use of all instruments.

[16] BARE TRAX

PO Box 4988
Culver City, CA 90231
(213) 390-5081
Owner: Jon Bare
Studio Manager: Jon Bare

[12] BASSLINE RECORDERS

also REMOTE RECORDING
740 N. Hayworth Ave.
Los Angeles, CA 90046
(213) 653-0368
Owner: Freebo
Studio Manager: Freebo

[16] BEACHWOOD RECORDING

also REMOTE RECORDING
2266 N. Beachwood Dr.
Los Angeles, CA 90068
(213) 461-1008
Owner: James Lee Stanley
Studio Manager: Stephen Chandler

[16] BLINDFOLD STUDIOS

PO Box 253
Poway, CA 92064
(619) 566-3850
Owner: Gregg Brandalise
Studio Manager: Gregg Brandalise

[16] BLUEFIELD MUSIC

2147 Holly
Hollywood, CA 90068

(213) 463-7664

Owner: David Bluefield
Studio Manager: Blake Lewin

[16] BRIGADIER SOUND STUDIOS

1066 S. Hayworth Ave.
Los Angeles, CA 90035
(213) 934-3893
Owner: Craig F. Patton
Studio Manager: Frank E. Wilson, III

[16] BUZZY'S RECORDING

also REMOTE RECORDING
6900 Melrose Ave.
Los Angeles, CA 90038
(213) 931-1867
Owner: Walter Resnik
Studio Manager: Larry Lantz

[16] RITCHIE CARBAJAL MUSIC

637 Kimlin Dr.
Glendale, CA 91206
(818) 956-0723
Owner: Ritchie Carbajal
Studio Manager: Ritchie Carbajal

[16] CASBAH RECORDING

1895 Commonwealth Ave., Ste. N
Fullerton, CA 92632
(714) 738-9240
Owner: Chaz Ramirez, Kim Larson
Studio Manager: "Rollie"

[16] CENTRAL SOUND RECORDERS

1805 La Coronilla Dr.
Santa Barbara, CA 93109
(805) 962-5601
Owner: Kevin Kelly
Studio Manager: Kevin Kelly

[16] DOG BARK RECORDING

1269 8th
Los Osos, CA 93402
Owner: Jon Iverson
Studio Manager: Photon

[16] DUCHESS RECORDING STUDIO

also REMOTE RECORDING
7923 Duchess Dr.
Whittier, CA 90606
(213) 695-7715
Owner: Charles W. Minear Sr.
Studio Manager: Charles W. Minear Sr.

[16] E.D.B. AUDIO & VIDEO RECORDING

27417 Onlee Ave.
Saugus, CA 91350
(805) 259-0828
Owner: Eric DiBerardo
Studio Manager: Eric DiBerardo

[12] EQUINOX PRODUCTIONS

3707 Ben St.
San Diego, CA 92111
(619) 279-8299
Owner: Dave Kesner
Studio Manager: Dave Kesner

[16] FARIASOUND

5206 Norwich Ave., Ste. 210
Van Nuys, CA 91411
(818) 995-7563
Owner: Gus Farias
Studio Manager: Gus Farias

[16] THE FIVE SPOT

3214 Dewitt Dr.
Los Angeles, CA 90068
(213) 874-9090
Owner: Robert Kraft
Studio Manager: David Benson

[16] FORTUNATE SUN RECORDING STUDIO

720 Iwilei Rd., Box 1
Honolulu, HI 96817
(808) 531-5744
Owner: David Tucciarone

—CONTINUED ON NEXT PAGE

Studio Manager: David Tucciarone
 Engineers: David Tucciarone, Steve Kramer.
 Dimensions: Studio 20 x 20, control room 10 x 17.
 Mixing Consoles: Trident 24 24 x 16.
 Audio Recorders: Tascam MS-16 16-track w/dbx, Fostex E-2 2-track 30 ips 1/4", Tascam 42B 2-track 1/4".
 Cassette Recorders/Duplicators: Nakamichi MR-1 2-track, Akai GX-7 2-track.
 Synchronization Systems: Roland SBX-80 SMPTE to MIDI converter.
 Echo, Reverb, & Delay Systems: (2) Yamaha REV7s, (2) Lexicon PCM42, (3) ADM Effectron 1024, MIDVerb II.
 Other Outboard Equipment: Aphex compellor, Aphex Type C aural exciter, (2) dbx 160X comp/limiters, dbx 166 comp/limiter, Valley People Dyna-Mite limiter/expander, Loft Quad noise gate/limiter, Orban 622B parametric EQ, TEAC GE-20 graphic EQ.
 Microphones: Neumann U87, (2) AKG C414, (3) Sennheiser MD421, Sennheiser MD431, (2) Shure SM57, Crown PCC-160, AKG D-12E, (2) Countryman Isomax II hypercardioid.
 Monitor Amplifiers: AB Systems 6220, AB Systems Series 900, QSC 1200.
 Monitor Speakers: (2) JBL 4430, (2) JBL 4406, (2) Auratone 5C.
 Musical Instruments: Yamaha DX7IIIFD, Yamaha DX7, Yamaha TX7, Yamaha RX5 drum machine, Linn LM-1 drum machine, Matrix 6, Toyo 5"8" baby grand, Fender Stratocaster, Fender precision bass, Martin D-35 acoustic, Prophet 600.
 Other MIDI Equipment: Apple MacPlus computer w/Performer sequencing, software and Opcode ed/lib program, MSB plus, 1200 Baud modem.
 Rates: Available upon request.

[16] GBC RECORDING
 PO Box 1123
 Calexico, CA 92231
 Owner: Manuel Hurlado
 Studio Manager: Roman Romero

[16] JAMES GROUTAGE PRODUCTIONS
 9851 Prospect Ave., Ste. B
 Santee, CA 92071
 (619) 258-1400
 Owner: James Groutage
 Dimensions: Room 1: control room 16 x 20, studio 28 x 28.
 Mixing Consoles: Amek TAC Scorpion 24 x 16 x 16 x 2, Tangent Series 4 20 x 8 x 4 x 2, Tascam Model 5 12 x 8 x 2.
 Audio Recorders: Otari MX-70 16-track, Otari MX-5050 8-track, (2) Otari MX-5050 2-track, Pioneer RT 2044 4-track.
 Cassette Recorders/Duplicators: Nakamichi 550, (4) Technics M-250, (6) Yamaha K15.
 Noise Reduction Equipment: dbx, Dolby A, Burwen dynamic filter, LT Sound.
 Echo, Reverb, & Delay Systems: Roland SDE-3000, (4) Effectrons, Yamaha REV7, (2) Yamaha SPX90s.
 Other Outboard Equipment: LT Sound comp limiter de-essers, (4) Ashly SC50 comp/limiters, (8) Omni Craft noise gates, (2) UREI 1/3-octave equalizers, (2) E-V 1/3-octave equalizers, (2) MXR 2/3-octave stereo equalizers, (4) EXR Aural Exciters, Aphex compellor, Pulsar RTA 150.
 Microphones: AKG, Sony, Shure, Sennheiser, E-V, Audio-Technica.
 Monitor Amplifiers: (4) AB Systems Series 900, (4) AB Systems Series 600.
 Monitor Speakers: JBL, E-V, Yamaha, Auratone, Visonic.
 Musical Instruments: Yamaha conservatory grand, (2) Yamaha DX7s, Yamaha TX rack, Roland JX8P, Juno 106, Memorymoog, Fender Rhodes, Wurliizer EP, TAMA Superstars 12-piece, Roland DDR 30s w/pads, Yamaha RX11, MXR drum computer.
 Other MIDI Equipment: Yamaha QX1, Apple IIE w/Master Tracks, DX Pro, JX Pro.
 Video Equipment: Hitachi FPZ31, Hitachi FP7, Sony, JVC and Panasonic editors (3/4" and 1/2"), Convergence ECS 90 edit control, Scientific Atlanta TBC, (10) JVC duplicators etc.
 Rates: Call for quote.

[16] HARK'S SOUND STUDIO
 also REMOTE RECORDING
 1041 N. Orange Dr.
 Hollywood, CA 90038
 (213) 463-3288
 Owner: Dick Bogert
 Studio Manager: Jim Belcher

[16] DON HARPER PRODUCTIONS, INC.
 730 E. Third St.
 Long Beach, CA 90802
 (213) 436-5053
 Owner: Don Harper
 Engineers: Mark Jackson, Don Harper, Mike Pedersen.
 Dimensions: Room 1: studio 30 x 12 x 13, control room 23 x 21 x 9. Room 2: studio 20 x 21 x 9.
 Mixing Consoles: Trident 65 Series 20 x 8 x 16.
 Audio Recorders: Otari MX-70 16-track, Otari MX-5050 2-

SOUTHERN CALIFORNIA 12&16 TRACK STUDIOS



DON HARPER PRODUCTIONS, INC.
 Long Beach, CA

track, Technics 1506 2-track.
 Echo, Reverb, & Delay Systems: Lexicon PCM60 reverb, Lexicon PCM41 delay, Lexicon PCM70, Roland SDE-1000.
 Other Outboard Equipment: Yamaha SPX90, Dynaflex DX-2 noise reduction, UREI LA-4 compressor/limiters.
 Microphones: Neumann, AKG, Sennheiser, E-V, Shure.
 Monitor Amplifiers: (3) Hafler, (2) Crown D-75.
 Monitor Speakers: UREI 811B, Yamaha NS-10, Auratone.
 Musical Instruments: Yamaha C7 grand piano, Yamaha DX7, Prophet-5, Oberheim Xpander, Roland Super Jupiter, Mini-moog, Yamaha RX11 drum machine, Apple IIE sequencer software.
 Rates: Available upon request.

[16] HAWAII ARTISTS RECORDING STUDIO
 also REMOTE RECORDING
 916A Kilani Ave.
 Wahiawa, HI 96786
 (808) 621-7948
 Owner: Bob Kindler, Howard Sapper
 Studio Manager: Bob Kindler

[16] HOT MIX RECORDING
 5892 Los Molinos Dr.
 Buena Park, CA 90620
 (714) 761-2621
 Owner: Bob Chance
 Studio Manager: Robert Wahlsteen, Tracy Sands

[16] HUB STUDIO
 2554 Lincoln Blvd., No. 380
 Marina Del Rey, CA 90291
 (213) 306-0107
 Owner: Patrick Hubbard, Ann Hughes
 Studio Manager: Patrick Hubbard

[16] IMAGINARY STUDIOS-RADIO FREE VENICE
 also REMOTE RECORDING
 971 Indiana Ave.
 Venice, CA 90291
 Owner: Steve Terlizzi
 Studio Manager: Ric Ulsky

[16] JEL RECORDING STUDIOS
 6100 W. Pacific Coast Hwy.
 Newport Beach, CA 92663
 (714) 631-4880
 Owner: Edo Guidotti
 Studio Manager: Sandra Gentosi

[16] KENJO AUDIO, INC.
 607 E. Belmont
 Fresno, CA 93701
 (209) 266-9681
 Owner: Jim Clymer, Jr.
 Studio Manager: Jim Clymer, Jr.

[16] KITCHEN SYNC
 5325 Sunset Blvd.
 Hollywood, CA 90027
 (213) 463-2375
 Owner: Zamp Nicall
 Studio Manager: Robert Sirkin
 Engineers: Zamp Nicall, Robert Sirkin
 Mixing Consoles: Sound Workshop 1600 20 x 16.
 Audio Recorders: MCI JH-114 16-track, Ampex ATR-100 2-track, Tascam 38 8-track, Tascam 32 2-track, TEAC 6100 full-track, (2) TEAC A3300 1/4-track.
 Cassette Recorders/Duplicators: Technics, (4) Sony TCK61.
 Echo, Reverb, & Delay Systems: Ecoplate II stereo reverb, Yamaha SPX90 digital reverb, MICMIX Super C reverb, Delta-Lab DDL, Roland SR-2000, MXR DDL.
 Other Outboard Equipment: Eventide harmonizer, (2) dbx 161 limiters, (4) Omni Craft noise gates, (2) Valley People Dyna-Mites, Roland stereo chorus/flanger.
 Microphones: Neumann U87, (2) AKG 414, (4) AKG 451, (6) Sennheiser 421, (4) Shure SM57, (2) Neumann KM88, E-V RE20, (2) Crown PZM, (2) Sony.
 Monitor Amplifiers: Hafler, (3) Crown, Philips.
 Monitor Speakers: UREI 811 time aligned, JBL 4311, Auratone 5Cs.
 Musical Instruments: Kawai 6' grand piano, Roland JX8P synth, Prophet 600 synth, Casio CZ 101 synth, Roland 707 drum machine, Fender Telecaster, Fender jazz bass, Guild D-35 acoustic guitar, Ramirez classical guitar, Yamaha RX21L percussion machine.
 Other MIDI Equipment: Apple IIE w/MIDI, Yamaha QX7 sequencer.
 Video Equipment: Sony Trinitron video monitor, VHS video recorder.
 Other: Symetrix phone interface for telephone to tape transfers and live recording.
 Rates: \$25-\$50/hr

[16] LAMBDA
 only REMOTE RECORDING
 7389 Pontoosuc
 Riverside, CA 92504
 (714) 780-1657
 Owner: Fred Tedesco
 Studio Manager: Fred Tedesco

[12] LUXURY LIVING PRODUCTIONS
 2201 E. Winston Rd., Ste. L
 Anaheim, CA 92806
 (714) 491-4922
 Owner: Roy Hamer
 Studio Manager: Phil Johnson

[16] MAUI RECORDERS
 also REMOTE RECORDING
 380 Dairy Rd.
 Kahului, HI 96732
 (808) 871-1141
 Owner: John Neff
 Studio Manager: John Neff
 Engineers: John Neff.
 Dimensions: Studio 11 x 10, control room 11 x 20.
 Mixing Consoles: Fostex 450-16 16 x 4 x 2, Fostex 450 8 x 4 x 2, (3) Yamaha synth/drum submixers.
 Audio Recorders: Fostex E-16 16-track 30 ips, Fostex Model 80 8-track, Fostex Model 20 2-track, TEAC 7030 GSL 2-track, Akai GX-280D 2-track 1/4", Ampex 351 1-track (accurate sound mod.).
 Cassette Recorders/Duplicators: (4) Akai/Sansui.
 Noise Reduction Equipment: Dolby C, Fostex multi-track recorders, dbx Mod 157 2-channel, Rocktron Hush II-c 2-channel.
 Synchronization Systems: Fostex Mod 4050 SMPTE/MIDI sync and autolocate.
 Echo, Reverb, & Delay Systems: Alesis XT-c dig reverb, Alesis MIDVerb dig reverb, Alesis Microverb dig reverb, Alesis MIDifex dig FX, DDLs by, DeltaLab, Korg, MXR, Systech, Yamaha REV7 and Lexicon PCM70 available by request.
 Other Outboard Equipment: dbx 161 comp/limiters, MXR comp/limiters, (2) Aphex Type C, (2) Moog parametric EQ, (2) DOD graphic EQ, Roland SPH323 phase shifter, Omni Craft GT-4 noise gates.
 Microphones: E-V 667A, RE20, CS15, RE11, PL91, AKG 451-EB, D224-E; Sennheiser: 421, MKH-405; Shure: SM57, 58; Audio-Technica ATM 63, Neumann U67, AKG C-414 available by request.
 Monitor Amplifiers: Peavey DECA-700 digital, Crown DC-300A Ser.II, Phase Linear 300.
 Monitor Speakers: JBL 4430, E-V Sentry, Auratone.
 Musical Instruments: E-mu Emulator, Yamaha DX7, Sequential Prophet 2000 sampler, Sequential Prophet 600, 6-Trak DrumTraks drum mach. w/numerous libraries, Korg SG1-D 88-key sampled MIDI grand piano, Korg EX-800 expander modules, Korg MS-20 modular synth, Korg VC-10 vocoder, ARP Omni/Odyssey, PolyMoog synth, Hammond B-3 w/122 Leslies, Fender Rhodes 73 "Flat Top" elec. piano, Yamaha YC30 combo organ w/Leslie. Large library of sampled sounds.

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- will scroll music in playback while editing events and phrases

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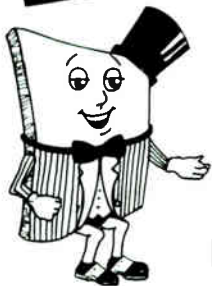

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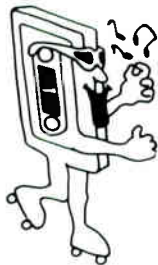
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SOUTHERN CALIFORNIA

12&16 TRACK

STUDIOS

—CONTINUED FROM PAGE 170

and synth voices, w/computer editing programs for most Commodore/Macintosh sequencing. Over 20 guitars and basses ready for the studio. Amps by Fender, Ampeg and Peavey.

Other MIDI Equipment: Akai MIDI processing units. Video Equipment: All formats and synchronization available on request.

Rates: On request. Maui Recorders specializes in complete resort recording packages on projects from demos to SSL/PCM-3324 albums.

[16] MAX SOUND
867 E. Walton St.
Long Beach, CA 90806
(213) 424-3121
Owner: Max Solomon
Studio Manager: Jamie Mitchell

[12] MCF RECORDS
3361 1/2 Cahuenga Blvd. W.
Hollywood, CA 90068
(213) 850-7751
Owner: MCF Records
Studio Manager: Danny Byrnes

[16] MEDIA MATRIX
5740 Tujunga Ave.
North Hollywood, CA 91601
(818) 760-2205
Owner: Miles Grandfield

[16] MERCANTILE MOBILE RECORDING
only REMOTE RECORDING
PO Box 2271
Palm Springs, CA 92263
(619) 320-4848
(615) 754-2444 (Nashville)
Owner: Kent Fox
Studio Manager: Kent Fox



MICRO PLANT
Hollywood, CA

[16] MICRO PLANT
1032 N. Sycamore Ave.
Hollywood, CA 90038
(213) 653-0240
(213) 461-5147
Owner: Steve Deutsch
Studio Manager: Steve Deutsch
Engineers: Steve Deutsch
Dimensions: Control room 13 x 20.
Mixing Consoles: TAC/Amek Scorpion 32 x 8 x 2.
Audio Recorders: Fostex E16 16-track (modified to 15 ips/30 ips switchable), 3M 79 24-track, Ampex ATR-102, Ampex ATR-104.
Cassette Recorders/Duplicators: (2) Aiwa F770, Aiwa "Ex-celia" digital audio tape.

Noise Reduction Equipment: dbx 165, Drawmer DS201 stereo noise gates, Dolby 361.

Synchronization Systems: Fostex 4050 autolocator, Fostex 4030 synchronizer.

Echo, Reverb, & Delay Systems: Lexicon PCM70 reverb, Yamaha REV7 reverb, Yamaha SPX90 effects processor, Roland SRV-2000 reverb, Roland DEP-5 processor, Roland DEP-3 processor, Roland SDE-3000 DDL, AMS RMX-16, Lexicon 224XL.

Other Outboard Equipment: AMS DMX 15-80S, Eventide 910 or H949, Publison America DHM-89B, Lexicon Prime Time, Massenburg parametric EQ, Pultec MEQ-5 or 1A3, UREI 527 and 530 graphic EQ, Eventide FL201 instant flanger, Eventide PS201 instant phaser.

Microphones: AKG: 414EB, 452, D-12; E-V: 666, RE20; Neumann: U47FET, U87, KM84; Sennheiser: 415T, 416P, MD-421, MD-441; Shure: SM7, SM57, SM81, SM85; Sony: C-37, ECM-150, 377.

Monitor Amplifiers: Quad 405.

Monitor Speakers: JBL 4425, Yamaha NS-10M.

Musical Instruments: Akai S900 sampler, Yamaha DX7II FD synth, Yamaha KX88 MIDI controller, (2) Yamaha TX802 synth rack, Yamaha TX817 synth, Roland D-50 synth w/PG1000 programmer, Roland MKS-20 piano module, Roland Super Jupiter, Korg EX-8000 synth, E-mu SP-12 drum sampler, Roland S-50 sampler, E-mu II w/CD ROM.

Other MIDI Equipment: JL Cooper 16/20 MIDI switcher. Video Equipment: Sony BVU-800 3/4", JVC HRD470 U, Sony KV-20XBR 20" monitor.

Other: Mac Plus w/Performer, Composer, Sound Designer, Opcode librarians, cue.

Rates: \$40/hr. with engineer. Rates available upon request. Extras & Direction: Record Plant opened January 1, 1987, upstairs at the L.A. Record Plant recording complex. Our main goals have been threefold: 1) To work closely in conjunction with the Record Plant (downstairs), providing a sequencing/sampling pre-production room with the latest keyboards and computer software, 2) To establish a sampling studio, creating and manipulating sounds and effects for film, television, jingles and records, and 3) To open a cost-efficient recording facility, interfacing the Fostex E16, Macintosh, SMPTE, Digital Audio Tape and an amazing array of outboard gear and keyboards to produce master recordings. In less than six months, Micro Plant has been steadily approaching full booked status, enjoying such clients as: Al Jarreau/Marcus Miller, Mick Fleetwood & "The British Invasion" radio documentary, "Weeds" w/Basil Poledouris, "Who's That Girl," "Seahunt" w/composer Doug Timm, Ailee Willis/Bruce Roberts and producer Enrique Elizondo.

[16] NEIL RECORDERS
61 S. Lake Ave.
Pasadena, CA 91101
(818) 796-7086
Owner: Jim Neil
Studio Manager: Jim Neil

[16] THE NOTE FACTORY
5714 Columbus Ave.
Van Nuys, CA 91411
(818) 994-3133
Owner: Richard Barron
Studio Manager: Greg Lassalle

[16] RENDEZ-VOUS RECORDING, INC.
also REMOTE RECORDING
1202 B. Kona St.
Honolulu, HI 96814
(808) 536-7124
Owner: Pierre Grill
Studio Manager: Pierre Grill

[16] ROLLTOP/TIM COFFMAN MUSIC PRODUCTIONS
PO Box 85152-MB210
San Diego, CA 92138
(619) 571-5031
Owner: Tim Coffman
Studio Manager: Tim Coffman

[16] ROSE STUDIOS
also REMOTE RECORDING
1098 Rose Ave.
El Centro, CA 92243
(619) 352-5774
Owner: Danny Berg
Studio Manager: Danny Berg

[16] THE RUBBER DUBBERS, INC.
626 Justin Ave.
Glendale, CA 91201
(818) 241-5600
Owner: Peter Smolian
Studio Manager: Eric Gotthelf

[16] SELAH RECORDING STUDIO
9190 Poppy Circle
Westminster, CA 92683
(714) 898-5220
Owner: Dave Gehlhar
Studio Manager: Dave Gehlhar

[12] THE SHOOTING STAR STUDIOS
416 Pioneer Dr., Ste. 11
Glendale, CA 91203
(818) 244-7000
Owner: William T. Jacobs
Studio Manager: Jake Thomas

[16] SING SING RECORDING
2304 Victory Blvd.
Woodland Hills, CA 91367
(818) 347-8443
Owner: Bob & Kay Smith
Studio Manager: Bob & Kay Smith

[16] SLIDERSOUND STUDIOS
11684 Ventura Blvd., #270
Studio City, CA 91604
(818) 906-2368
Owner: Dan Slider

[16] SOUND MIXER RECORDING
2301 E. Nutwood
Fullerton, CA 92631
(714) 738-4581
Owner: Kris & John Sirca
Studio Manager: Kris Sirca

[16] SOUNDGRAPHICS STUDIO
PO Box 91133
Long Beach, CA 90809
(213) 498-9135
Owner: David & Nicole Eastly
Studio Manager: David Eastly
Engineers: David Eastly, Nicole Eastly, Marc Smaniotto.
Dimensions: Studio 18 x 12, control room 18 x 8.
Mixing Consoles: Ramsa WRT-820 20 x 8 x 2, Kelsey Series 3
12 x 2.
Audio Recorders: Otari MX-70 16-track, Otari MX-5050 MKIII-
2 2-track, Crown SX722 2-track.
Cassette Recorders/Duplicators: Nakamichi MR-2.
Echo, Reverb, & Delay Systems: Delays by Roland and Ibanez,
reverbs by Roland, ART and Furman.
Other Outboard Equipment: Symetrix stereo compressor,
Aphex Aural Exciter, Rane parametric EQ.
Microphones: AKG, Neumann, Sennheiser, E-V, Shure, PZM,
Audio-Technica.
Monitor Amplifiers: (2) QSCs.
Monitor Speakers: (2) JBL 4311B, (2) Yamaha NS-10M.
Musical Instruments: Yamaha DX7, Yamaha TX81Z, Oberheim
Matrix 6-R, Korg DDD 1, LinnDrum w/MIDI, Rockman, choice
guitars, basses and amps.
Other MIDI Equipment: Atari 1040 ST computer w/lots of MIDI
software, Korg SQD-1 sequencer.
Rates: Call for quote.

[12] SOUNDSTATION
3212 Mesa Verde Rd.
Bonita, CA 92002
(619) 479-6208
Owner: Alex Gonzalez
Studio Manager: Alex Gonzalez

[16] SOUTH COAST RECORDING STUDIO
1818 1/2 N. Main St.
Santa Ana, CA 92706
(714) 541-2397
Owner: Jim Dotson
Studio Manager: Jim Dotson
Engineers: Jim Dotson, David Carey, John Brodersen.
Dimensions: Room 1: studio 15 x 20, control room 9.5 x 17.
Room 2: studio 9 x 15.5. Room 3: studio 9.5 x 10.
Mixing Consoles: Ramsa WRT820 20 x 8.
Audio Recorders: Foxlex E-16 16-track, Tascam 38 8-track,
Tascam 25-2 2-track.
Cassette Recorders/Duplicators: Nakamichi 480, JVC TD-
X201.
Echo, Reverb, & Delay Systems: Alesis XTC digital reverb,
Yamaha SPX90 digital multi-effects processor, DeltaLab ADM
1024, Furman RV-1 reverb.
Other Outboard Equipment: dbx 165A compressor/limiter.
Microphones: (2) Sennheiser MD421, E-V RE20, (2) AKG
D-224E, (2) Shure SM81, (2) Shure SM57, Shure SM58, (2)
PZM, (2) Countryman direct boxes.
Monitor Amplifiers: QSC, Rane.
Monitor Speakers: E-V Sentry 100A control room monitors,
Sennheiser headphones, AKG headphones.
Musical Instruments: Roland Juno 1 keyboard, LinnDrum
machine, Yamaha RX15 drum machine, acoustic piano
Rates: Competitive rates, please call!

[16] SOUTHWEST SOUND
14 N. Baldwin Ave.
Sierra Madre, CA 91024
(818) 355-1367
Owner: Devin Thomas
Studio Manager: Devin Thomas

[16] SPECTRUM STUDIO
also REMOTE RECORDING
(by appointment only)
664 Camino Campana
Santa Barbara, CA 93111
(805) 967-9494
Owner: Don Ollis
Studio Manager: Don Ollis
Engineers: Don Ollis
Dimensions: Room 1: studio 14 x 12 x 8, control room 20 x 17
x 13. Room 2: studio 12 x 10 x 8.
Mixing Consoles: Custom 18 x 16.
Audio Recorders: Ampex MM1000 16-track w/VSO 2", 8-
track 1" 15/30 ips, Ampex 440B 2-track, Revox A77 2-track
7.5/15 ips w/VSO.
Cassette Recorders/Duplicators: Sony TCK81, Hitachi D850,
Technics M260 (8-channel), Drawmer noise gates, Korg
Vocoder.
Noise Reduction Equipment: dbx 157
Synchronization Systems: Jambox 4 (SMPTE)

Echo, Reverb, & Delay Systems: Ecoplate II reverb, Eventide
H949 digital delays, Lexicon PCM70, Roland SRV-2000, Ya-
amaha SPX90, also 15 and 30 ips tape delay
Other Outboard Equipment: Limiters: Teletronix LA-2A, EQs:
Pultec EQP1A, MEQ5, Lang PEQ1s.
Microphones: Large selection of top mics including vintage
tubes—Telefunken, Neumann, AKG, Sennheiser, RCA, Shure,
Sony
Monitor Amplifiers: Phase Linear 700As.
Monitor Speakers: JBL 4301, Auralone, Yamaha NS-10.
Musical Instruments: Kurzweil 250, DX7, Juno 106, Minimoog,
Korg Poly 6, Korg Mono/Poly, Korg signal processor, Fender
precision bass, '57 Strat, Pre-CBS deluxe, Princeton, Guild
D40, Simmons drums, Macintosh computer w/extensive li-
brary, Roland JX8P, Arp string ensemble
Video Equipment: JVC pro video monitor (19"), Sony SL-5800
1/2" Beta recorder/player.
Rates: 16-track \$45/hr., 8-hour block \$35/hr., 1" 8-track
\$35/hr., 2- and 4-track \$30/hr.

[16] SPOT RECORDING
1700-P Newport Circle
Santa Ana, CA 92705
(714) 432-8310
Owner: Spot Industries

—CONTINUED ON NEXT PAGE

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Studio Manager: David Kory II
Engineers: Tom Versen, Gerry Heumann, David Kory
Dimensions: Room 1: studio 20 x 25, control room 12 x 20.
 Room 2: studio 6 x 5.
Mixing Consoles: Studiomastr Series II 24 x 16, Studiomastr 8 x 2.
Audio Recorders: Tascam MS-16 16-track 1", Tascam 2-track 1/4".
Cassette Recorders/Duplicators: (2) Nakamichi, Pioneer.
Noise Reduction Equipment: (16) dbx Passive I, Hush IIC.
Echo, Reverb, & Delay Systems: (5) Roland, Yamaha, Alesis, ADA
Other Outboard Equipment: (4) Yamaha comp/limiter, (2) Aphex Aural Exciter, (2) Yamaha 31-band EQ, Tascam digital autolocator, TEAC 128 patchbay system.
Microphones: (18) Sennheiser, AKG, Shure, Audio-Technica.
Monitor Amplifiers: MOSFET 260, Crown 600.
Monitor Speakers: (2) JBL 4412, (2) Toa ME-22.
Musical Instruments: Roland JX-8P, Roland Juno 106, (2) Roland Juno Alpha 1, Yamaha DX7, Ensoniq Mirage, Korg drum machine, Roland drum machine, Roland Axis controller, Korg MP-1.
Other MIDI Equipment: Roland OctaPad, Apple/Passport 8-track sequencing, editing, patch library, score printing, Simmons SDS-1.
Other: Connectronics Acto Sax, (2) clarinets, TAMA Superstar 15-piece drum kit, (5) guitar, bass, vocal monitors and speakers, fully air-conditioned studios and control room.
Rates: Call for quotes. Blocks rates available.

[16] **STAR VIDEO SERVICES**
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 741 A Kelikoi St.
 Honolulu, HI 96813
 (808) 537-9507
Owner: Ray Battaglia

[16] **STARBOUND STUDIOS/**
GOURMET AUDIO PRODUCTIONS
 also REMOTE RECORDING
 1229 San Bernardino Ave.
 Spring Valley, CA 92077
 (619) 697-2152
 (619) 745-0517
Owner: Terry L. Cheslock
Studio Manager: Denver Clay

[16] **KRIS STEVENS ENTERPRISES**
 14241 Ventura Blvd.
 Sherman Oaks, CA 91423
 (818) 981-8255
Owner: Kris Stevens
Studio Manager: Mick McCabe

[16] **STONECUTTER RECORDING STUDIO**
 also REMOTE RECORDING
 1136 Broadway
 El Cajon, CA 92021
 (619) 579-6682
Owner: Louis Lalser

[16] **THE STUDIO**
 1612 Ocean Park Blvd.
 Santa Monica, CA 90405
 (213) 452-3930
Owner: Vincent Fazzari
Studio Manager: Rhonda Tacsy

[16] **STUDIO 9 (BUDGET STUDIOS)**
 5504 Hollywood Blvd.
 Hollywood, CA 90028
 (213) 871-2060
Owner: John Gillies
Studio Manager: Steve Blazina

[16] **FRANK SULLIVAN RECORDING STUDIO**
 also REMOTE RECORDING
 658 S. Hudson Ave.
 Pasadena, CA 91066
 (818) 793-1535
Owner: Frank Sullivan, Lisa Campbell
Studio Manager: James Cruce, Scott Olin

[16] **SUNBURST RECORDING**
 10313 W. Jefferson Blvd.
 Culver City, CA 90230
 (213) 204-2222
Owner: Bob Wayne
Studio Manager: David Starns, Wayne Moggatt
Engineers: Bob Wayne, David Starns, Wayne Hoggatt, independents.

SOUTHERN CALIFORNIA 12 & 16 TRACK STUDIOS

Dimensions: Studio 22 x 18, ceiling 12-14'. Control room 18 x 15, ceiling 10-12'.
Mixing Consoles: Sound Workshop 1280-8 EQ w/expander, 24 x 24 direct x 8 bus unit, 16 channels of Super EQ modules, (4) Fostex 8 x 2 line level mixers.
Audio Recorders: Tascam 90/16 dbx 16-track, Tascam 80-8/dbx 8-track, Otari 5050 MKIII 2-track 30 ips, Tascam 25-2/dbx 2-track, TEAC A3340S 4-track, (2) TEAC C-3 2-track, Marantz C-205 1-track.
Echo, Reverb, & Delay Systems: Lexicon 200 digital reverb w/1-3 software update, Orban 111B spring reverb, Eventide H-910 Harmonizer, DeltaLab 1026 DDL, MXR DDL, Roland SDE-1000 DDL.
Other Outboard Equipment: dbx: noise reduction (10 channels), 165 compressors, 161 compressor, MXR: stereo choruses, 31-band graphic EQs, noise gates, flanger, Phase 90, Distortion +, Muirton III, (5) direct boxes, dual turntable, electronic metronome, Tom Scholz Rockman, (2) Fostex 8 x 2 line mixers.
Microphones: Neumann: U87, KM84s; AKG: 414, 451s, 100s, E-V: RE20s, RE15s, 676; Crown PZM 30 GP, Sony: EMC-33P, ECM-21; Sennheiser 421, Shure: SM81, 565; Beyer M-500 ribbon.
Monitor Amplifiers: BGW, Marantz.
Monitor Speakers: E-V Sentry Vs, Yamaha NS-10Ms, Auratone cubes, JBL L26s.
Musical Instruments: Keyboards: Kawai 7'4" grand piano w/"MIDI-mod", Model KG 6C, Hammond 1958 B-3 organ w/Leslie, various other instruments including synths and full drum kit.
Video Equipment: Sony 3 1/4" w/operator and stereo mix—available at extra cost.
Rates: 16-track \$37.50/hr., 2- and 8-track \$30/hr.

[16] **SYNTHEMEDIA MUSIC CO.**
 22515 Margarita Dr.
 Woodland Hills, CA 91364
 (818) 883-6524
Owner: Ronald John Polito
Studio Manager: Hollis Payseur

[16] **TALENT CENTER**
 also REMOTE RECORDING
 #10 McLaren, Ste. A
 Irvine, CA 92718
 (714) 837-3521
Owner: David Thor
Studio Manager: Laine Hansen

[16] **TELEWEST**
 637 S. Palm, Ste. G
 La Habra, CA 90631
 (213) 697-2786
Owner: Pete Vague
Studio Manager: Pete Vague

[16] **THETA SOUND STUDIO**
 Los Angeles, CA 90027
 (213) 669-2772
Owner: Randy Tobin
Studio Manager: Cyndie Tobin
Engineers: Randy Tobin.
Dimensions: Studio 13 x 14 plus drum booth, control room 10 x 12.
Mixing Consoles: Ramsa WR-T820 20 x 16 x 2 (46 x 2 in mixdown mode).
Audio Recorders: Tascam MS-16 16-track 1", Tascam 38 8-track 1/2", Tascam 34 4-track 1/4", Technics RS1520 2-track, Sony Beta and JVC VHS VCRs with Sony 501ES digital PCM processor.
Cassette Recorders/Duplicators: Aiwa F990, (4) Aiwa F660, (3) Onkyo 630D.
Noise Reduction Equipment: 28 channels of dbx noise reduction.
Synchronization Systems: Atari 1040ST computer with Hybrid Arts SMPTE track sequencer software, Dr. Flick digital metronome/clock synchronizer.
Echo, Reverb, & Delay Systems: Lexicon PCM70, Roland SRV-2000, Yamaha RL7V, Yamaha SPX90 digital reverb/processors, LT Sound TAD-4 stereo echo/delay, Korg SDD-2000



THETA SOUND STUDIO
 Los Angeles, CA

sampler/delay, MXR digital delay w/full memory, 20ms fixed delay doubler.
Other Outboard Equipment: dbx 166, dbx 163, Dyna-Mite, Symetrix and MXR compressor/limiters, (4) Soundcraft graphic equalizers, Inter City Aural Exciter, Dual 1229 turntable w/Shure V-15 Type V cartridge.
Microphones: AKG "Tube" and 414, E-V PL20, (2) Countryman EC-101, (3) Isomax II, (5) Shure SM57, (2) Beyer M-160, (6) M-50Q, (4) ultraminiature condenser
Monitor Amplifiers: Kenwood Pro Series high speed DC amplifier, Rare HC-6 headphone amplifier system.
Monitor Speakers: JBL 4301B, Yamaha NS-10M, Auratone 5C.
Musical Instruments: Yamaha C5 6'6" conservatory grand piano w/updated (2 MIDI channels) Forte MIDI Mod (for controlling all of our MIDI synths from the piano), Roland S-50 sampler, Yamaha DX7 synths, Ensoniq Mirage, Roland Jupiter 8 synth w/MIDI, Casio CZ-101 synth, Roland MKS-20 piano module, SCI drumtraks drum computer, (enhanced by Forat Electronics), Oberheim Prommer, Simmons SDS8, Slingerland drum kit w/TAMA hardware and cymbal assortment, Gibsor Ripper bass, Roland Octopad and assorted percussion. Extensive library of sounds for all synths and drumtraks.
Other MIDI Equipment: (2) Atari 1040ST computer w/Hybrid Arts, SMPTE track sequencer, DX Droid and CZ Droid software, Roland MPU-104 and 105 MIDI switchers, Akai MIDI patchbay, Roland Octopad.
Video Equipment: Sony SL-2710 Beta Hi-Fi VCR, JVC VHS Hi-Fi VCR, video monitor, SMPTE sync to computer sequencer.
Rates: 16-track \$42/hr.; 8-, 4- and 2-track \$36/hr.; editing \$36/hr.; voice elimination (to cassette) \$30/hr.; tape duplication \$30-36/hr. (Four to eight cassettes at once.)
Extras & Direction: Computer generated cassette labels, lyric sheets and promo materials; record production, packaging, art and graphics, photography, radio spots, jingles, voice elimination (for budget demos), recording classes and synth/sampler programming classes. Now that we've reached our tenth year, we're ready for another decade, drawing on the same philosophy that got us this far. A safe creative space, providing the tools necessary for producing recorded products, which communicate your intention. Isn't that what you come to a studio for?

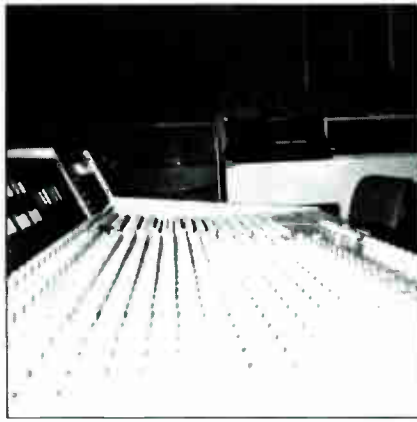
[16] **TOMSONICS**
 2336 S. Garfield
 Monterey Park, CA 91754
 (213) 721-0511
Owner: Tom Manasian
Studio Manager: Tom Manasian

[16] **TOPANGA SOUND RECORDERS**
 PO Box 1344
 Topanga, CA 90290
 (213) 455-3461
Owner: Christopher Dinneen
Studio Manager: Christopher Dinneen

[16] **TRAX SOUND RECORDING**
 1916 Manning Ave.
 Los Angeles, CA 90025
 (213) 478-8180
 (213) 475-8066
Owner: Michael McDonald
Studio Manager: Robyn Whitney
Engineers: Russ Iadevaia, Dave Cheek.
Dimensions: Room 1: studio 24 x 12, control room 13 x 15.
 Room 2: studio 6 x 8, control room 9 x 16.
Mixing Consoles: Soundcraft 2400 24 x 16 (48-input mix-down), Audiotracs R-16 28 x 16.
Audio Recorders: (2) Tascam MS-16B 16-track dbx noise reduction, (2) Otari/R-Tek 2-track 15-30 ips, Otari MX5050 B 2-track.



TRAX SOUND RECORDING
Los Angeles, CA



WOODCLIFF STUDIO
Sherman Oaks, CA

Cassette Recorders/Duplicators: Aiwa F660, (6) Technics RS-B12

Noise Reduction Equipment: (16) dbx NR on all channels of multi-tracks

Echo, Reverb, & Delay Systems: (2) Ecoplate III plate reverbs, (2) Roland SRV-2000 digital reverbs, (2) Yamaha REV7 digital reverbs, Lexicon PCM60 digital reverb, ART 01A digital reverb, (8) DeltaLab Model 1024 Effectron digital delays, (2) Yamaha SPX90 processors, Roland SDS-3000 digital delay, Roland SDS-1000 digital delay, (2) DeltaLab DR-4 digital delay

Other Outboard Equipment: Eventide H-910 Harmonizer stereo, (3) Omni Craft noise gates 12 channels total, Symetrix 522 comp/gate 2 channels (2) Drawmer DS-201 gates, 4 channels total, (2) dbx 160X limiters/compressors, (4) dbx 160 limiters/compressors, dbx 165 limiters/compressors, (2) Audacarts compressors, (2) EXR and Aphex Aural Exciters, (4) Innovative Audio tube mic pre-amps and direct boxes, EBCus-Berry 801 processor

Microphones: Neumann U87, AKG 414s, AKG 452s, AKG D-12E, Sennheiser 421, E-V RE20, RE15, Crown PZMs, Shure SM57s, Sony ECM-56, Fostex M-88-RP

Monitor Amplifiers: AE Systems, BGW, Crown, SCS, G.A.S., Nakamichi

Monitor Speakers: (4) URE-811s, (4) Yamaha NS-10s, (4) Auratone

Musical Instruments: Yamaha C7 7'3" grand piano, (2) Rockman guitar processor

Rates: Studio A \$32/hr Studio B: \$27/hr. Block rates available. Extras & Direction: Our clients include: Columbia Pictures Music, Walt Disney Productions, Lorimar Pictures, Chrysalis Records, Malaco Records, Warner Bros. Records, Chappell Music, Glen Larson Productions, Paramount Pictures, Island Records, Motown (Jobey Music), Screen Gems Music, A&M Records (Almo-Irving Music), Unicity-MCA Music, Roger Corman Films, ABC and NBC television. Trax will be adding 24-track capability in a new, larger location by the time you read this.

[16] TYRELL-MANN PRODUCTIONS, LTD.
8295 Sunset Blvd.
Los Angeles, CA 90046
Owner: Barry Mann, Steve Tyrell
Studio Manager: J.C. Phillips

[16] V.G. PRODUCTIONS
1834 Newport Blvd
Costa Mesa, CA 92627
(714) 646-9940
Owner: Virgil Gentile
Studio Manager: Sharon Taber

[16] VINNICKS AUDIO
5065 Hedrick Ave.
Riverside, CA 92505
(714) 688-1228
Owner: Wayne Vinnick
Studio Manager: Wayne Vinnick

[16] WOODCLIFF STUDIO
4156 Woodcliff Rd.
Sherman Oaks, CA 91403
(818) 784-7259
Owner: Frank Rosato
Studio Manager: Tully Winfield
Engineers: Frank Rosato, Russ Bishop
Dimensions: Studio 18 x 15 control room 12 x 8.
Mixing Consoles: Trident Series 65 40 x 16.
Audio Recorders: Otari MX-70 16-track, Otari MX-5050 2-track.
Cassette Recorders/Duplicators: TEAC 124, Aiwa AD-S200,

Yamaha K520
Echo, Reverb, & Delay Systems: Yamaha REV7, Lexicon PCM60, Ibanez SDR-1000, Yamaha SPX90, Yamaha D1500, Roland SDE-1000, DeltaLab ADM64.

Other Outboard Equipment: dbx 160X, (2) dbx 163Xs, UREI LA4, U.S. Audio quad noise gate/expander, Yamaha GC2020 stereo noise gate/compressor.

Microphones: Neumann U87, AKG 414, AKG 460, (2) E-V RE20, (3) MD 421s, (2) Beyer 160s, Beyer 500, (4) Shure 57s, (2) Shure 58s

Monitor Amplifiers: Crown Microtech 1000, Yamaha B-2, QSC 51.

Monitor Speakers: (2) Tannoy SGM10s, (2) Fostex RM-780s, (2) Auratone

Musical Instruments: Yamaha DX7 (w/custom patches), Prophet-5 (MIDI), Yamaha CP70, Oberheim DX digital drum machine (custom chips, TAMA (7-piece) drum kit, assorted percussion, Fender jazz bass.

Rates: Please call for rates.

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SOUTHERN CALIFORNIA

24+ TRACK

STUDIOS

—CONTINUED FROM PAGE 177

Musical Instruments: Yamaha YK10, Emulator II, Linn 9000, Yamaha DX5

Video Equipment: BVU-800 3/4", (2) Proton 19" color monitor, (2) Panasonic BTS1300N color monitor, (2) 1/2" VCRs

Other: (3) ITC cart machines, (2) GML moving fader automation system, Gifford computer in each studio equipped w/Wordstar for session note keeping

Rates: \$130/hr. tracking, \$150/hr. mixing.

CONTROL CENTER

CONTROL CENTER
Los Angeles, CA

[24+] **CONTROL CENTER**
128 N. Western St.
Los Angeles, CA 90004
(213) 462-4300, 413-2522
(213) 650-2334

Owner: Aseley Otten, Frank Blue Sposato, Rick Novak
Studio Manager: A. Otten, F. Sposato, R. Novak
Engineers: Aseley Otten, Rick Novak, Frank Blue Sposato,
Mike Kapitan, Eric Westfall

Dimensions: Room 1: studio 18 x 24, control room 12 x 16
Room 2: studio 7 x 12.

Mixing Consoles: API custom 32 x 16 x 24 console w/550A
and 560 EQs

Audio Recorders: Ampex MM-1200 24-track, Ampex ATR-102
2-track

Cassette Recorders/Duplicators: (2) Technics
Echo, Reverb, & Delay Systems: Yamaha REV7, Yamaha
SPX90, Ursa Major ST-282 space station, Roland SRV-2000,
Roland SDE-3000 DDL, MXR DDL, Eventide 910 Harmonizer
and delay, Lexicon PCM70

Other Outboard Equipment: (2) dbx 161 compressors, (2)
UREI LN 1176 limiters, (2) Valley People Dyna-Mites, pinball
game

Microphones: AKG 414, AKG 451, Neumann U87, Sennheiser
421, Sennheiser 441, Shure SM57, Shure SM77

Monitor Amplifiers: Hill DX3000, Crown D-75, Crown 300,
BGW 250, BGW 750

Monitor Speakers: Tannoy 15X, JBL 4312, Yamaha NS-10,
Auratone 5C

Musical Instruments: Howard baby grand piano, LinnDrum
and synthesizers upon request

Rates: \$60/hr., call for block rates and off-hours

Extras & Direction: Clients include Los Lobos, John Adams,
Gene Clark, Long Ryders, Green on Red, Dream Syndicate,
Textones, Rappin' Duke, Heavy Traffic, Malice, Taxxi, Pat
Boone, Holland Dozier Holland, Henry Lewey, Mike Huey,
Steve Barri, Tony Peluso, Jimmy Haskell, Polygram, A&M,
Warner, MCA, Atlantic, Dunhill, Rhino, Slash, Enigma, Bug,
Demon, Down There, etc

[24+] **CONWAY RECORDING STUDIOS**
655 N. St. Andrews Place
Hollywood, CA 90004
(213) 463-2175

Owner: Buddy & Susan Brundo
Studio Manager: Nadine White, Jill Pearlman
Engineers: Mick Guzauski, Daren Klein, Duane Baron, Csaba
Petocz, Richard McKernan, Gary Wagner, Marnie Riley, Bryant
Arnett, Steve Toby

Dimensions: Room A: studio 30 x 60 x 16, control room 26 x



CONWAY RECORDING STUDIOS
Hollywood, CA

25 x 16 Room B: studio 10 x 20 x 16, control room 25 x 28 x 16
Mixing Consoles: Neve 8108 48 x 32 w/Massenburg moving
fader automation, Neve custom V-60 60 x 48 w/Massenburg
moving fader automation

Audio Recorders: (2) Mitsubishi X-850 32-channel digital, (2)
Studer A800 24-channel analog, (2) Mitsubishi X-86 2-channel
digital, (2) Ampex ATR-102 2-channel, Ampex ATR-104
4-channel

Noise Reduction Equipment: Dolby SP Type A 48 channels
Synchronization Systems: Lynx TimeLine code modules

Echo, Reverb, & Delay Systems: EMT-250, RMX-16s, SP-
2016s, EMT-2016s, EMT-140s, 15-80s, Lexicons etc.

Other Outboard Equipment: Just about everything else

Microphones: Large assortment including Elam 251s, U47s,
M49s, U67s, TLM170s, C-24s etc

Monitor Amplifiers: Perreaux

Monitor Speakers: TAD components in Augsburg type en-
closures, variety of small speakers

Musical Instruments: Yamaha 9' concert grand piano

Rates: \$2,800/day digital lock-out
Extras & Direction: The Conway grounds offer our clients a
country-club setting in the middle of Hollywood. Beautiful
tropical gardens, manicured lawns, covered patios and a
bar-b-que make us a unique oasis of tranquility amid the
chaos of the city. And, of course, ample gated off-street park-
ing for your fine European motor car. Direction: straight ahead—
full throttle

[24+] **CUSTOMCRAFT RECORDINGS**
5440 Ben Ave.
North Hollywood, CA 91607
Owner: Dean Talley
Studio Manager: Thomas D. Talley

[24+] **DAVLEN SOUND STUDIOS**
also **REMOTE RECORDING**
c/o 15445 Ventura Blvd.
Sherman Oaks, CA 91403
(818) 995-6170
Owner: Len Kovner
Studio Manager: Len Kovner

[24+] **DELIRIUM STUDIO**
870 N. Vine St.
Hollywood, CA 90038
(213) 850-5000
Owner: N. Sassover
Studio Manager: Nancy Benson

[24+] **DETROIT SOUND**
also **REMOTE RECORDING**
PO Box 43609
Los Angeles, CA 90043
(213) 299-5002
Owner: Frank H. Jackson
Studio Manager: Frank Jackson Jr

[24+] **DIGITAL SOUND RECORDING**
also **REMOTE RECORDING**
607 N. Ave. 64
Los Angeles, CA 90042
(213) 258-6741
Owner: Van Webster
Studio Manager: Adelle Gold
Engineers: Van Webster, Mariellen Webster
Dimensions: Room 1: Studio 40 x 32, control room 16 x 16.
Room 2: control room 18 x 10.
Mixing Consoles: MCI 428B 28 x 24, Stevens Interface 100 8 x
4
Audio Recorders: Sony 1610 2-track digital audio system, 3M



DIGITAL SOUND RECORDING
Los Angeles, CA

M79 24-track w/Selectake II, Studer B67 2-track, Ampex AG-440 2-track, (2) TEAC A3300S 2-track, TEAC 3340S 4-track.

Cassette Recorders/Duplicators: Akai 570D, (5) Hitachi DE11. **Noise Reduction Equipment:** Burwin DNF 1000 2-channel. **Synchronization Systems:** Adams-Smith 2600, EECO Emme 4-machine editing system.

Echo, Reverb, & Delay Systems: Yamaha REV7, Master-Room Super C reverb, Eventide Harmonizer, Eventide phaser, Effector 1024, (2) Scamp ADT flangers, Wavemaker phaser.

Other Outboard Equipment: (2) dbx 161 compressor/limiter, UREI 1176 limiter, Teletronix LA-2A tube limiter, Inovonics 201 compressor/limiter, (4) Kepex expanders, (2) Scamp 501 limiters, (2) Scamp F300 expander/gates, (2) Scamp 503 Super EQ, (4) SAE parametric EQ, Orban stereo synthesizer, Burwin DNF 1000 dynamic noise reduction system.

Microphones: (5) Neumann tubes: U47, U64, SM2; (6) Neumann FETs: U87, KM84, U47; (7) Shure: SM58, PR54D, 580S4; (7) E-V: RE15, 666, RE20; (8) AKG: 452, 451, 414, 224E; (2) AKG C60 tube; (4) Sennheiser: 421, 404, RCA 77DX.

Monitor Amplifiers: (2) SAE 2600, (2) SAE 2200, (4) JBL, Dyna. **Monitor Speakers:** (2) JBL 4341 4-way bi amplified, (2) Auratone 2-way, (2) Auratone 5C, (2) RSL 3300, HSS DB-8 8-channel direct box.

Musical Instruments: Steinway B 7' grand piano, Oberheim OBX.

Other MIDI Equipment: Yamaha REV7.

Video Equipment: (3) Sony BVU-800/850, (2) Fortel TBC, EECO Emme a/b roll editing system, full edit bay.

Other: Hitachi Z31 3 tube video camera, Crosspoint Latch 6109 production switcher.

Rates: Call for rates.

[24+] **DOLPHIN SOUND**
also **REMOTE RECORDING**
KHNL-TV 150-B Puuhale Rd.
Honolulu, HI 96819
(808) 847-3253

Owner: King Broadcasting Company
Studio Manager: Ron Klohs



DOM "O" SHANTA PRODUCTIONS, UNLTD.
Granada Hills, CA

[24+] **DOM "O" SHANTA PRODUCTIONS, UNLTD.**
17137 Index St.
Granada Hills, CA 91344
(818) 363-0636

Owner: Mark Bryan Johnson
Studio Manager: Mark Bryan Johnson
Engineers: Mark Bryan Johnson, Dennis MacKay, Jim Williams, Glenn Aulepp.
Dimensions: Studio 18 x 28, control room 13 x 15.
Mixing Consoles: Jim Williams' Electronics custom built 24 x 16 x 2, .001 THD 20-volt slew rate MIC in S/N-129.5, input to output S/N-88dB, 4 sends, 2 returns; another 8 x 2 x 1 console with same specs and two sends and returns.
Audio Recorders: Jim Williams modifications on: Sony/MCI JH-24 24-track, Tascam 38 8-track, TEAC 3340 4-track, Sony/MCI JH-110 2-track 1/2" and 1/4" formats, Tascam 32 2-track; Ampex mono Model 600.
Cassette Recorders/Duplicators: Nakamichi MR-1 Jim Williams Mods, Technics M85.
Synchronization Systems: Linn 9000.
Echo, Reverb, & Delay Systems: Live chamber 10 x 12'8", Lexicon 200; Jim Williams modifications on: Lexicon PCM70, Lexicon PCM60, (2) Lexicon PCM42 w/extended memory, Lexicon PCM41, Eventide Instant Flanger.
Other Outboard Equipment: Bob Wolstein Labs "Stereo Imaging Systems," Alembic F2-B stereo preamp (tube), Jim Williams modifications on: (2) dbx 166, Allison Research Gain Brain type gate, (3) dbx 160X, custom-built stereo synthesizer, (8) custom-built Jim Williams Electronics: (8) noise gates, (8) keyable noise gates, (4) hiss filters.

Microphones: AKG: (3) 414-EB, (2) 451-EB; Beyer: M101, M500, E-V: RE20, E-V 636, 630; PML DC-63, Schoeps: (2) omni/cardioid capsules, (2) Hypercardioid capsules, Shure: (6) SM77, SM57.
Monitor Amplifiers: (2) BGW 750-B, BGW 100, (2) Crest Model 300 "Power Line Series," Class A custom-built Jim Williams Electronics 100-watt stereo power amp.
Monitor Speakers: (2) JBL 4530, (2) JBL 4311, (2) Yamaha NS-10M, (2) Auratone QC66 3-way quality control, (2) Auratone 5C Super Sound Cube.
Musical Instruments: Steinway baby grand piano, 77 yrs. old, duplex scaling, newly rebuilt, w/MIDI mod by Jim Wilson's L.A. Piano Service; Linn 9000; Jim Williams modifications on: DX7, (2) TX cards, Jupiter 8 MIDI, Music Man bass, custom-built 5-string fretless bass; (7) custom guitars of pro quality, available upon request.
Rates: Available upon request.
Extras & Direction: Specializing in relaxed creative environment, guaranteeing the highest quality in sound and its enhancement. Mark Bryan Johnson, chief engineer, studio designer, certified acoustician by Don Davis, JBL and audio consultant for Lexicon, Linn Electronics, Yamaha, HME Wireless Electronics, Shure Bros., Don Kirschner's Rock Concerts, Grammy/Academy/AMA/Country/Miss Black America Awards shows and presidential inaugurations. As a musician, Mark is

—CONTINUED ON NEXT PAGE

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

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CRAMOLIN® is a fast-acting, anti-oxidizing lubricant that cleans and preserves all metal surfaces, including gold.

When applied to metal contacts and connectors, **CRAMOLIN®** removes resistive oxides as it forms a protective molecular layer that adheres to the metal surfaces and maintains maximum electrical conductivity.

CRAMOLIN® - USED BY THOSE WHO DEMAND THE BEST:

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Boeing	John Fluke Mfg.	Motorola	RCA
Capitol Records	McIntosh Labs	NASA	Switchcraft

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Circle #077 on Reader Service Card

—CONTINUED FROM PAGE 179

accomplished on fretless 5-string and fretted as well. He has played with Chad Wackerman and Chester Thompson. "My goal is to mix the best of modern technology with the right people and put them in the most of creative atmospheres and make beautiful music."

[24+] DYNASTY STUDIO
1614 Cabrillo Ave.
Torrance, CA 90501
(213) 328-6836
Owner: Phil Kachaturian
Studio Manager: Phil Kachaturian

[24+] ECCENTRONIC PRODUCTIONS/DESIGN
also **REMOTE RECORDING**
15907 Victory Blvd., Ste. 102
Van Nuys, CA 91406
(818) 787-9009
Owner: Eccentronics, Inc.
Studio Manager: Sharon Hively

[24+] ECHO SOUND RECORDING
2900 Los Feliz Blvd.
Los Angeles, CA 90039
(213) 662-5291
Studio Manager: Mike Williamson
Mixing Consoles: Trident 75 24 x 28 x 24, Soundcraft Series 600 24 x 8, Trident 80B 30 x 24 x 24
Audio Recorders: Sony/MCI JH-24 24-track, Otari MX-80 24-track, Otari MTR-12 2-track 1/4" and 1/2" 30 ips, (2) Fostex B-16D 16-track, (2) Otari MX-5050 2-track, Technics 1500 2-track.
Cassette Recorders/Duplicators: Yamaha C200, (4) Yamaha K1020, TEAC Z-5000
Noise Reduction Equipment: Dynaflex D-2B
Synchronization Systems: Fostex 4035
Echo, Reverb, & Delay Systems: Lexicon Model 480L digital delay processor, (4) Yamaha SPX90, (2) Yamaha REV7, Eventide H-949 Harmonizer, Lexicon Super Prime Time, Lexicon Model 93, Roland SDE-3000, (2) Furman RV-1, Ibanez HD 1000, (2) Yamaha R1000 digital reverb.
Other Outboard Equipment: (2) Aphex Aural Exciter enhancer, Aphex Dominator limiter/enhancer, (4) dbx 166 comp./lim., (2) dbx 160X comp./lim., (2) dbx 160 comp./lim., Yamaha GC2020 comp./lim., Orban 622B parametric EQ, SAE 2800 parametric EQ, UREI LA-2A comp./lim., (2) UREI 533 graphic EQ, (12) GateX noise gates.
Microphones: Neumann U87, AKG "The Tube," (2) AKG C-414, AKG 460, AKG D-224E, Crown PZM, E-V PL20, BK1, PL80, PL5, PL6, Shure: SM57, SM58, (7) Sennheiser MD-421.
Monitor Amplifiers: (2) Yamaha P2200, (2) BGW 750B, (2) BGW 150.
Monitor Speakers: (2) JBL 4430, (2) Yamaha NS-10, (2) Auratone 5C, (2) Bose.
Musical Instruments: E-mu Emulator II, Yamaha TX816 FM tone generator system, Yamaha DX7, Shaeffer grand piano, Akai AX-80, Roland Jupiter 8, Roland Juno 60, Roland GR-700, Fender Precision Bass, (2) Simmons SDS-V electric drum sets, LinnDrum drum machine, Oberheim DX drum machine.
Other MIDI Equipment: Roland MD-8 MIDI converter, Garfield sync-MIDI converter.
Rates: Reasonable, \$50-\$70/hr., block rates available.

SOUTHERN CALIFORNIA 24+ TRACK STUDIOS

[24+] EFX SYSTEMS
919 N. Victory Blvd.
Burbank, CA 91504
(818) 843-4762
(213) 460-4474
Owner: Sole proprietorship
Studio Manager: Philip Moores
Rates: Call for rates. Rates card upon request Rates are suited to your project's requirements.
Extras & Direction: Full audio post-production for music video, film and television. Our experienced staff speaks many languages, including "SMPTÉ" and "sprockets." We can guide you through the stages of production and post-production budgeting and scheduling. Let us help you meet the highest quality standards without breaking your budget. EFX is digital audio post-production for film television and video. Our award winning staff is set to give you exactly what you want at the highest level of quality that art and technology will allow. We have been creating stereo television for five years and are fully equipped for both major stereo mixing formats. Our facilities for ADR, Foley, mixing, SFX, music, dubbing and transfers are comfortable and well-equipped. Our staff is hand selected on the principle that people make the difference between a good facility and a great one. From a simple voice-over to full scale digital stereo feature film, we are committed to being the "Total Audio Complex." If you are tired of working in a conventional studio, give EFX a call.

[24+] ELDORADO RECORDING STUDIO
1717 N. Vine St., #20
Hollywood, CA 90028
(213) 467-6151
Owner: G. Gunton, A. Della Rosa
Studio Manager: Gary Gunton
Engineers: Paul Dugre, Annette Cisneros, Anthony Della Rosa
Dimensions: Studio 20 x 40, control room 18 x 20 (with 18' ceilings).
Mixing Consoles: Neve 8232 32 input/24 bus 32 x 32, Trident Fleximix 8 x 2 (8 additional inputs for mixing).
Audio Recorders: Studer A80 Mark IV 24-track, ATR-102 2-track (with 1/2" heads), Studer A80 2-track
Cassette Recorders/Duplicators: (2) Awa
Echo, Reverb, & Delay Systems: Lexicon 224 digital reverb, Ecoplate II (plate echo), Yamaha REV7 digital reverb, Yamaha SPX90 digital signal processor, Roland 3000 digital delay, Eventide 1745 digital delay, Cooper Time Cube, Lexicon Prime Time, Eventide H910 Harmonizer
Other Outboard Equipment: (2) Teletronix LA 2A limiter, (2) Teletronix LA 3A limiters, (2) UREI 1176 limiters, (2) Massenburg pre-amps, (2) Massenburg equalizers, (2) Lang tube program equalizers, (4) Kepex II noise gates, (2) Drawmer noise gates, (2) Orban parametric EQ, (3) Orban de-essers.
Microphones: Neumann U47 tube, (2) AKG C-12 tube, Telefunken 251 tube, various assortment of Neumann, AKG, Sennheiser, Sony and Shure.
Monitor Amplifiers: (2) Hafler 500s, (3) Crown D150s, Phase Linear 750
Monitor Speakers: Altec 604 "E" Super Red monitors w/mastering Lab crossovers, and Gauss sub woofers, (2) E-V Sentry 100s, (2) Yamaha NS-10s, (2) Auratone, (2) JBL 4313s.
Musical Instruments: Steinway "B" grand piano, Hammond B-1 w/Leslie, Minimoog, LinnDrum.
Rates: \$800/day (12-hour lockout) or \$75/hr

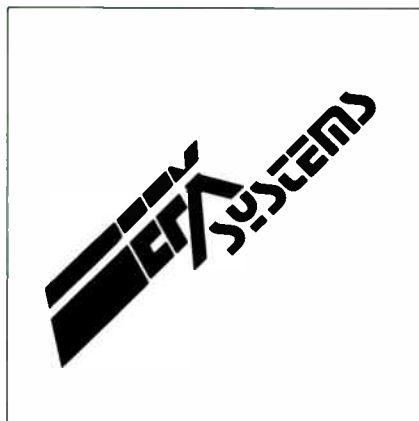
[24+] EMI AMERICA RECORDING
6920 Sunset Blvd.
Hollywood, CA 90028
(213) 461-9141, ext.307
Studio Manager: Tina Hopkins
Engineers: Jim (J.B.) Bauerlein
Dimensions: Studio 26 x 30, control room 12 x 16
Mixing Consoles: MCI JH-416 24 x 24 (modified).
Audio Recorders: (2) ATR-102 2-track, AG-440 2-track, Sony PCM-1630 2-track
Cassette Recorders/Duplicators: (7) Real time duplication available.
Noise Reduction Equipment: Dolby A, dbx 1
Echo, Reverb, & Delay Systems: Roland SDE-3000 DDL, Roland SRV-2000 reverb, EMT 140 plate.
Other Outboard Equipment: (2) Yamaha SPX90, Eventide H910 Harmonizer, dbx 900 rack w/lim/comp, de-esser, para EQ, gates, UREI 1176 limiter.

Microphones: E-V RE20, (2) Sennheiser MD-421, Neumann U87, (2) Superscope EC9P condenser mics, (3) Shure SM57, (3) Shure SM58, (2) E-V 666, misc. others.
Monitor Amplifiers: BGW 750C, Crown D60.
Monitor Speakers: (2) JBL 4315 4-way, (2) Yamaha NS-10M, (2) Auratone 5C.
Musical Instruments: Piano.
Video Equipment: Complete 1/2", Sony off-line editing system, including: Sony BVE-800 edit controller, (2) Sony BVU-800 3/4" VTRs, Sony BVU-820 3/4" VTR (plus various monitors and related equipment).
Other: Disc mastering and CD preparation available.

[24+] ENACTRON STUDIOS
5102 Vineland Ave.
North Hollywood, CA 91601
(818) 761-0511
Owner: Brian Ahern
Studio Manager: Fran Parrish

[24+] ENCORE STUDIOS, INC.
721 S. Glenwood Place
Burbank, CA 91506
(818) 842-8300
Owner: Robert M. Andreoli
Studio Manager: Billy James
Engineers: Rob Harvey, Adrian Trujillo.
Dimensions: Studio 25 x 40, control room 26 x 26.
Mixing Consoles: SSL 4040B 40 x 32
Audio Recorders: (2) Studer A800 24-track 2", (2) Studer A80 1/2" and 1/4"
Cassette Recorders/Duplicators: (3) Awa ADF660.
Noise Reduction Equipment: 24-channels of Dolby, (3) dbx de-essers
Synchronization Systems: Studer tape lock system.
Echo, Reverb, & Delay Systems: AMS digital reverb, AMS digital delay, Lexicon 224XL, (2) EMT 140TS tube echo plates, Lexicon Super Prime Time, Eventide digital delay, Eventide H949 Harmonizer
Other Outboard Equipment: (2) Inovonics compressor/limiters, UREI compressor/limiter, dbx compressor/limiter, (4) Drawmer noise gates, Roger Mayer gates, Kepex noise gates.
Microphones: Neumann, Sennheiser, AKG, E-V, Beyer, Sony, Shure, RCA, PML, tube and vintage microphones.
Monitor Amplifiers: Studer A68
Monitor Speakers: Sierra quad monitoring system, Yamaha NS-10, Auratone.
Musical Instruments: Yamaha DX7, Oberheim DX drum machine, Tama electric drums, Yamaha 9' grand piano.
Rates: Negotiable

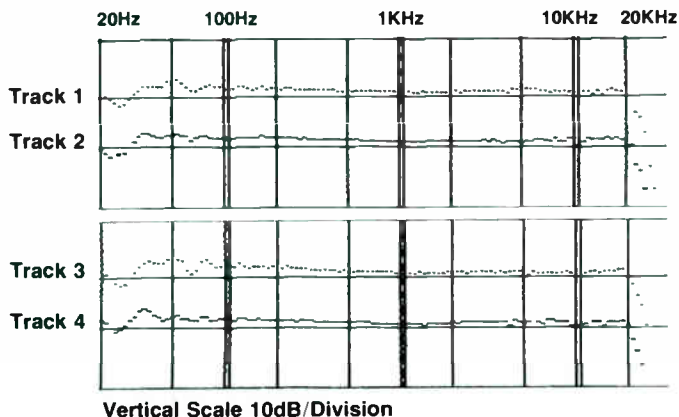
[24+] THE ENTERPRISE
4628 W. Magnolia Blvd.
Burbank, CA 91505
(818) 505-6000
Owner: The Enterprise Recording Inc
Studio Manager: Thom Brown
Engineers: Mark Wilczak, Craig Huxley, Joel Stoner, Walter Lavash
Dimensions: Room 1: studio 35 x 38, control room 30 x 35.
Room 2: control room 25 x 30. Room 3: control room 25 x 30.
Mixing Consoles: Aemek 3500 56 x 32, Aemek 2500 48 x 24, SSL 4072 68 x 32.
Audio Recorders: Studer A800 24-track, (8) Otari MTR-90MKII 24-track, (2) Mitsubishi X-850 32-track digital, (3) Mitsubishi X-86 2-track digital
Cassette Recorders/Duplicators: (4) Nakamichi, (10) Awa.
Noise Reduction Equipment: (4) Dolby SP-24s, Dolby SR-24, (2) dbx K9-24s
Synchronization Systems: (20) Lynx.
Echo, Reverb, & Delay Systems: AMS DDL, AMS RMX16, Eventide SP-2016, Yamaha REV-1 and REV7, Roland SDE-3000 DDL, TC Electronics DDL, Publison America 90, Quantec, EMT 250.
Other Outboard Equipment: You name it we've got it, if not we'll buy it.
Microphones: AKG C-24, C-12, 414, Neumann: SM69, U47, U47 FET, M50, U87, U67, Telefunken 251, Sennheiser: 451, 421, Shure: SM57, SM58
Monitor Amplifiers: Yamaha.
Monitor Speakers: (4) custom, (6) Quedsted.
Musical Instruments: Synclavier full blown towers w/all accessories and 1 billion bytes memory, Yamaha TX816, DX7, DX7II, Roland: Super Jupiter, piano mod, synth and JP8 w/MIDI, JX10, 550, D50; Linn 9000, Simmons: SDS5, SDS7; Steinway grand piano
Video Equipment: 6 x 12 screens w/Cinemabeam, projection all rooms.
Rates: Vary: video, mixing, dubbing, recording, IA, digital programming.



EFX SYSTEMS
Burbank, CA

EXCEPTIONAL FREQUENCY RESPONSE

AT 1 7/8 IPS (REAL TIME)



TEST METHOD A 40KHz to 20Hz sweep at -20dB from a Sound Technology 1510-A was recorded at 1 7/8 ips in a KABA slave deck on TDK SA tape. The tape was played back at 1 7/8 ips in the KABA master control deck and the output displayed on the Sound Technology. The curves represent the **SUM** of the record and playback response of the KABA system at 1 7/8 ips.

No. 2 of a series —

Some reasons why KABA, the ultimate in real time and 2X
CASSETTE DUPLICATION
 IS ATTRACTING SO MANY USERS (and customers to those users)

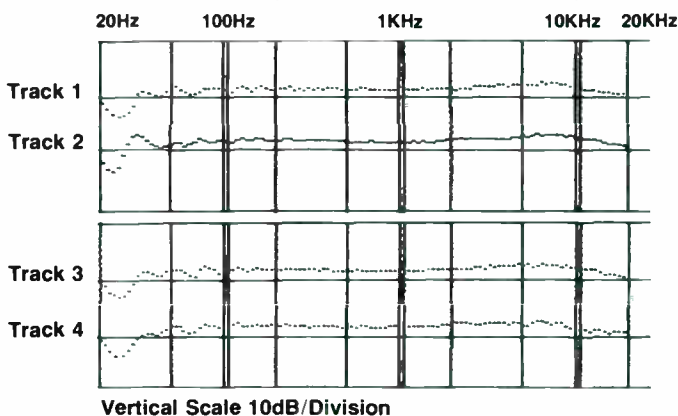


KENNETH A. BACON ASSOCIATES
 Toll Free (800) 231-TAPE

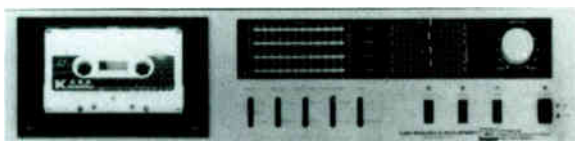
24 Commercial Blvd., Novato, CA 94947
 in CA call (415) 883-5041

EXCEPTIONAL FREQUENCY RESPONSE

AT 3 3/4 IPS (DOUBLE TIME)



TEST METHOD Same as above except the sweep was recorded at 3 3/4 ips on the KABA slave deck and played back at 1 7/8 ips on the master control deck. Highest frequency on playback was 20KHz so there is no response beyond 20KHz.



RTDS-4TM MASTER CONTROL DECK
 FOUR TRACK REAL TIME AND 2X DUPLICATION SYSTEM

RTDS-4TS DUAL TRANSPORT DECK



**EVERGREEN
RECORDING STUDIOS**

EVERGREEN RECORDING STUDIOS
Burbank, CA

[24+] EVERGREEN RECORDING STUDIOS

4403 W. Magnolia Blvd.
Burbank, CA 91505
4024 Radford Ave.,
Studio City, CA 91604
(818) 841-6800

Owner: Charles Fox, Gayle Levant, Arlie Butler
Studio Manager: Rick Winquest

Engineers: John Richards, Rick Ricco, Murray McFadden,
Marc Gebauer

Dimensions: Room A: studio 46 x 70, overdub room 12 x 17,
rhythm stage 16 x 8, control room 20 x 26 Room B: studio 35 x
35 and drum booth, iso room 14 x 27, control room 20 x 26
Radford: studio 130 x 70 x 30.

Mixing Consoles: Studio A: Harrison (custom) 4832 48 x 32,
Studio B: Harrison (custom) 4032 40 x 32, Radford: Harrison
(custom) 54 x 32

Audio Recorders: (3) Ampex MM1200 24-track, (5) Ampex
ATR-104 4-track, (5) Ampex ATR-102 2-track (with 1/2" head-
stack capability), (2) Magna-Tech w/6- 4- or 3-track overdub,
(3) Magna-Tech 3- or 1-track dummies, (2) Magna-Tech 3- or
1-track recorders, (2) Magna-Tech PR635 hi-speed projec-
tors w/, Xenon lamps, Radford; Studer A80 24-track

SOUTHERN CALIFORNIA

24+ TRACK

STUDIOS

Echo, Reverb, & Delay Systems: (2) live chambers, (2) EMT
140 stereos, Lexicon 224, Lexicon 220, Radford: (3) EMT, (2)
digital, (2) lives.

Other Outboard Equipment: Eventide Harmonizers, Lexicon
Prime Times, Kepex IIs, Dolby, UREI, Inovonics, plus, EECO
sync (B), Adams-Smith sync (A), Shadow sync (Radford), Com-
plete transfer facilities: mag, reel-to-reel, cassettes, projection
in all rooms.

Microphones: All standard makes and models.

Monitor Amplifiers: Crown PSA-2 in control rooms and for
playback in studios.

Monitor Speakers: UREI Time Aligned, JBL 4311s, Yamaha
NS-10s, Hitachi, Auratone, Radford: custom Evergreen compo-
nents (LRC monitoring).

Musical Instruments: Yamaha grands.

Video Equipment: (3) 1/4" VCRs w/monitors for control rooms
and studios.

Rates: Film scoring and record rates: call for information.

[24+] FANFARE RECORDING STUDIOS

120 E. Main St.
El Cajon, CA 92020
(619) 447-2555

Owner: Ronald L. Compton

Studio Manager: Carol A. Compton

Dimensions: Studio 25 x 30, control room 17 x 20. Isolation
room 1: 10 x 12. Isolation room 2: 7 x 7.

Mixing Consoles: MCI 636 36 x 36 (full mixing automation),
Audio Recorders: MCI JH-24 24-track, MCI JH-16 16-track,
MCI JH-100 2-track, Ampex 440B full-track, Ampex 44B 2-
and 4-track, (3) Revox A77 2- and 1/4-track.

Cassette Recorders/Duplicators: (2) Akai, Otari high speed
duplicator

Noise Reduction Equipment: (2) Dolby A-361, (2) DNR Dy-
namic Noise Reducers.

Synchronization Systems: Adams-Smith Zeta Three w/MIDI

sync for 16- and 24-track machines.

Echo, Reverb, & Delay Systems: EMT stereo plate, Lexicon
224 w/all programs and non-volatile memory, Yamaha REV7,
(2) Yamaha SPX90s, Alesis MIDVerb, Alesis Microverb, Even-
tide Harmonizer, DeltaLab digital delay.

Other Outboard Equipment: (2) dbx compressors, (4) UREI
LA-3A compressors, UREI 1176LN, (2) Gain Brains, (4) Orban
Parametric EQs, Orban sibilance controller, UREI digital met-
ronome, (8) Kepex and Furman noise gates.

Microphones: Neumann: (4) U87, (4) KM86, KM84, U47 origi-
nal w/tube, AKG: (4) 414, 202E, 119, (8) Shure SM57, E-V
RE10, (4) Sony 337s, Altec, RCA, over 50 mics to choose from.

Monitor Amplifiers: (4) BGW, (8) Crown.

Monitor Speakers: (4) JBL large monitors, (6) Auratones, (2)
Bose, (2) Yamaha NS-10M.

Musical Instruments: Emax digital sampling keyboard w/ex-
tensive software library, Mirage digital sampling keyboard,
Yamaha C7 conservatory grand piano, Hammond B3 organ
w/tube Leslie speaker, Ludwig traps set w/concert toms,
Yamaha RX5 drum computer, Roland Octapad, Casio CZ101
w/computer interface librarian, Roland 757 drum machine,
Yamaha FB01 synth module, congas, orchestra, bells, chimes,
percussion devices.

Other MIDI Equipment: Yamaha QX5 sequencer.

Video Equipment: JVC VHS, video monitors.

[24+] FAST FORWARD RECORDING

6520 Selma, #1234
Hollywood, CA 90028
(213) 465-3457

Owner: Michael Kerns, Nick Future
Studio Manager: Greg Davis

[24+] FAST TRACK

also **REMOTE RECORDING**

1434 El Prado
Torrance, CA 90501
(213) 534-9729

Owner: Don Bishop
Studio Manager: Don Bishop

[24+] FIDDLER'S RECORDING STUDIO

7430 Melrose Ave.
Hollywood, CA 90046
(213) 655-6087

Owner: Mike Claussen
Studio Manager: John "X" Volaitis

[24+] FIDELITY STUDIOS, INC.

4412 Whittett Ave.
Studio City, CA 91604
(818) 508-3263
(818) 508-FAME

Owner: Arlie & Phyllis Ripp
Studio Manager: Violet Ripp
Engineers: Cliff Zellman, Bob Bridges, Larry Elliott, Steve
Zipper

Dimensions: Room 1: studio 23.5 x 16, control room 18 x 13.
Room 2: studio 23 x 16.5, control room 16 x 12.

Mixing Consoles: MCI JX500 automated 42 x 32 (studio A),
Aengus/B&B custom 24 x 8 (studio B).

Audio Recorders: (2) Ampex MM1200 16- and 24-track Heid-
er/Butt modified (studio A), Stephens 821B-40 16-, 24-,
and 32-track (studio B), (2) Ampex ATR-104 2- and 4-track, (2)
Ampex ATR-102 2-track (1/2" and 1/4").

Cassette Recorders/Duplicators: (5) Sony TC-K81, Otari DP-
4050 C2 high-speed duplicator, (2) Dual.

Noise Reduction Equipment: (2) Dolby 361, (24) Dolby M-
Series.

Synchronization Systems: (2) BTX Softouch, (3) BTX Shad-
ows, (2) BTX Cyphers.

Echo, Reverb, & Delay Systems: Publison America Infernal
90 stereo audio computer, AMS DMX-80s stereo delay/pitch
changer, EMT 250 digital reverb, Roland SRV-2000 MIDI
digital reverb, Lexicon 224 digital reverb, (2) EMT 140 plate
reverbs, Lexicon Prime Time digital delay, (2) Eventide H910
Harmonizers, Marshall Time Modulator.

Other Outboard Equipment: (2) Teletronix LA-2A leveling am-
plifiers, (4) UREI LA-3A leveling amplifiers, (4) UREI 1176LN
peak limiters, (2) dbx 160 compressor/limiters, (2) Neve
2254A limiter/compressors, Orban dynamic sibilance control-
ler, ADR Vocal Stresser, Aphex II Aural Exciter, (2) Pultec
EQP-1R parametric equalizers, (8) Kepex II gates.

Microphones: AKG: 414-P48, 451EB w/pads, C-24, C-12,
C-60, Neumann: U87, U67, M49, KM56, Sennheiser: MD-
421, MD-441, Sony: ECM-22P, ECM-250, C-500, C-37A, C-
38, E-V: RE20, RE666, Shure: SM56, SM57, 545; PZM.

Monitor Amplifiers: Haller, BGW, Phase Linear.

Monitor Speakers: UREI B13 time align (studio A), JBL 4311
(studio B), Yamaha NS-10M, Auratone Super Sound Cubes,
Tannoy Super Reds.

Musical Instruments: Yamaha grand piano (studio A), Mason
& Hamlin grand piano (studio B), Roland JX-3P MIDI synthe-
sizer.

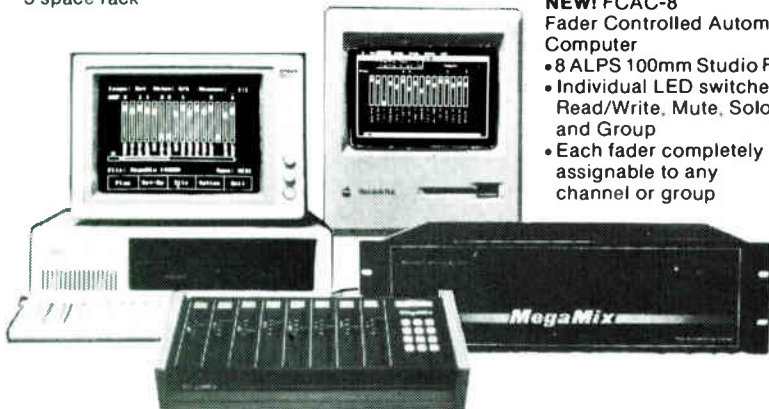
Video Equipment: (2) Sony BVU-800 1/4" U-matic VCRs, (2)
VHS VCRs (including Hi-fi stereo JVC), Quasar 40" rear-

MegaMixTM

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- NEW! FCAC-8 Fader Controlled Automation Computer**
- 8 ALPS 100mm Studio Faders
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516 864-1683

Circle #079 on Reader Service Card

projection color monitor, RCA Colortrack 2000 and JVC color monitors, Panasonic 10" color monitor, (2) Hitachi 7" black & white monitors, Bell & Howell broadcast sync generator.

Other: Denon direct drive quartz lock turntable, Technics CD player.

Rates: Call.

Extras & Direction: Fidelity features an extensive library of finished controlled masters and songs available for film, video, television and commercial productions, as well as a complete Sound Ideas sound effects library on CD. Long and successful relationships with major distribution companies allow us to provide the liaison and exposure necessary to secure recording, motion picture, television and home video arrangements for your production. Additionally, we can provide complete music clearance services from the #1 record on down, including copyright, writer/publisher clearances and licensing. Having its own in-house publishing and production companies, Fidelity is fully staffed with composers, musicians, arrangers and producers for all your music needs. Be sure to check out our new video editing suite! Fidelity is the only complete creative sound and music service facility in Los Angeles to serve your post-production needs for film, TV, video or commercial productions. With complete ADR, Foley, Sound EFX and 24-, 32- and 48-track automated mixing. We are proud of our warm, creative atmosphere and technical expertise that serve a wide spectrum of clients from all areas of the entertainment and communications industries.



41-B
Westlake Village, CA

[24+] 41-B

41-B Duesenberg
Westlake Village, CA 91360
(805) 494-3613

Owner: Bruce Jackson

Studio Manager: Robb Klein

Engineers: Bruce Jackson, Ron Capone, Robb Klein, Chuck Rosa

Dimensions: Room 1: Studio 48 x 43, control room 30 x 26, three iso booths. Room 2: (under construction) control room 24 x 23.

Mixing Consoles: Trident 80B 40 x 24 x 64, SSL 6000E 72 x 48 on-line 11-1-87.

Audio Recorders: Otari MTR-9011 24-track, Otari MTR-12 4- and 2-track 1/2", Otari MTR-12 2-track 1/4"

Cassette Recorders/Duplicators: (2) Nakamichi MR1.

Noise Reduction Equipment: Available on request.

Echo, Reverb, & Delay Systems: Lexicon 200, (2) Yamaha REV7 digital reverb, (2) Yamaha SPX90, 01 digital reverb, Alexis XT-C digital reverb, Eventide 949 Harmonizers, (2) Eventide 910 Harmonizers, Lexicon PCM42, Lexicon PCM41, Lexicon Prime Time, E-V Plate III, (2) ART digital delay lines.

Other Outboard Equipment: dbx 900 rack with (4) noise gates, (2) parametrics, (2) de-essers, Aphex Aural Exciter, EXR Exciter, (4) UREI 1176 limiters, (2) dbx 160X, (2) dbx 160, dbx 165A, dbx 162 stereo limiter, Symetrix comp/limiter, Ashly stereo parametrics, (2) White 4400 1/3-octave EQs.

Microphones: Neumann: U87, KM84; AKG: C-452s, C-414s; Sennheiser MD-421s, Shure: SM57s, SM7s, Sony ECM-33Fs, E-V RE20s.

Monitor Amplifiers: Crown DC-300

Monitor Speakers: JBL 4333

Musical Instruments: Steinway 6' grand piano, Fender Rhodes electric piano, D-6 clavinet, ARP Omni, ARP Odyssey synth, Fender Twin Reverb amp, Steinway grand.

Rates: Call for rates. We encourage block booking.

[24+] FIESTA SOUND & VIDEO

also REMOTE RECORDING

1655 S. Compton Ave.

Los Angeles, CA 90021

(213) 748-2057

Owner: R.G. Robeson

Studio Manager: Rick Robeson

Engineers: Octavio Villa, Quico Cadena, Jose Grajeda.

Dimensions: Studio 30 x 60 plus isolation rooms, control room 25 x 15.

Mixing Consoles: MCI 428 24 x 24.

Audio Recorders: MCI 24-track, MCI 2-track, Otari 2-track Echo, Reverb, & Delay Systems: Lexicon 200 digital reverb, Eventide H969 Harmonizer, Lexicon DDL, Master-Room III echo, Yamaha REV7, Yamaha SPX90.

Other Outboard Equipment: UREI graphic EQs, 31-band EQ, Dolby, 1176, dbx 160 compressor/limiter, Orban 424 comp/limiter.

Microphones: Neumann: U87s, KM84s; AKG: C-452s, C-414s; Sennheiser MD-421s, Shure: SM57s, SM7s, Sony ECM-33Fs, E-V RE20s.

Monitor Amplifiers: Crown DC-300

Monitor Speakers: JBL 4333

Musical Instruments: Steinway 6' grand piano, Fender Rhodes electric piano, D-6 clavinet, ARP Omni, ARP Odyssey synth, Fender Twin Reverb amp, Steinway grand.

Rates: Call for rates. We encourage block booking.

[24+] FOOTPRINT SOUND STUDIOS

13216 Bloomfield St.

Sherman Oaks, CA 91423

(213) 872-1854

Owner: Jerry Fuller

Studio Manager: Annette Fuller

Engineers: Brian Friedman, Neil Hopper.

Dimensions: Studio 27.5 x 16.5 w/20' high string room plus isolation booth, drum booth and projection room/loft. Control room 10 x 12.

Mixing Consoles: Trident Series 80 w/ mixing capabilities up to 56 tracks.

Audio Recorders: Ampex MM1200 24- and 16-track, ATR-100, Ampex 350 2-track, (2) Sony various 1/4-track.

Cassette Recorders/Duplicators: (2) Technics cassettes.

Echo, Reverb, & Delay Systems: AKG BX-10, Orban dual reverb, Eventide DDL, Lexicon Prime Time, Ecoplate, (2) Harmonizers, DeltaLab Effectron, Yamaha REV7.

Other Outboard Equipment: UREI 1176, LA-3A, dbx 160 comp./limiters, GT-4 noise gates, UREI 527-A and Spec Acoustics graphic EQs, Orban parametric EQ, UREI digital metronome, Orban de-esser, Sync Pulse.

Microphones: Neumann, AKG, E-V, Shure, Jerry Fuller, Sennheiser, Crown PZM.

Monitor Amplifiers: SAE, Crown, Yamaha P2100, (2) Hafler 225s.

Monitor Speakers: MDM-4s Time Aligned, Auratones, Yamaha NS-10M, JBL 4411s.

Musical Instruments: Complete 7-piece drum set, Yamaha 6' grand piano, Yamaha DX7 w/ROM carts, Sequential Circuits Prophet 5, Iso-box, Fender bass/guitar amps, Rockman amps, percussion, Yamaha RX11 drum machine, all keyboards MIDIed.

Rates: 24-track from \$55/hr. to \$95/hr. plus special rates (all equipment included).

Extras & Direction: Production assistance available. Musicians' lounge, coffee, tea, refreshments, swimming pool, basketball, nearby restaurants, liquor store/market, guest room available. Quality, affordable product in relaxed environment.

Clientele: Glen Campbell, Tanya Tucker, Jerry Fuller, Johnny Mathis, Kimberley Springs, Irene Cara, James Ingram, Cliffe Stone.

[24+] FOSS SOUND SYSTEMS PRODUCTIONS & VIDEO

also REMOTE RECORDING

PO Box 414

Yorba Linda, CA 92686

Owner: Thomas A. Foss

Studio Manager: Ryan Dailly

[24+] FRONT PAGE RECORDING

251 Avocado St.

Costa Mesa, CA 92627

(714) 548-9127

Owner: Front Page Productions

Engineers: Dan Humann, Charles Watts.

Dimensions: Trident: studio 25 x 30, control room 13 x 17 Neve studio 10 x 12, control room 15 x 25.

Mixing Consoles: Trident Series 80B 30 x 24 w/monitor EQ, Neve 8128 56 x 48 w/Neve 96 faders.

Audio Recorders: (2) MTR-90 MRK II 24-track, MTR-12 2-track 1/2", Sony PCM-F1 2-track digital.

Cassette Recorders/Duplicators: (4) Aiwa F770.

Noise Reduction Equipment: (2) Dolby SR.

Synchronization Systems: Otari EC-101 w/remote.

Echo, Reverb, & Delay Systems: Lexicon 480L digital effects/reverb, Lexicon 224XL digital effects/reverb, AMS DMX 1580s digital delay/sampler, Lexicon PCM70 digital effects/reverb, Yamaha REV7 digital reverb, Roland SRV-2000 digital reverb, (2) Eventide H949 Harmonizer, (4) Roland SD-3000 DDLs, (4) Yamaha 2400 DDLs, ADA stereo tap delay, various other delays.

Other Outboard Equipment: LA 2A tube limiter, (4) dbx 160 limiter compressors, (4) dbx 160X limiter compressors, Aphex Studio Compellor, Aphex studio dominator, (36) Symetrix expander gates, dbx 9000 rack EQs de-essers, Valley People rack, Kepex IIs, Gain Brain IIs, (2) Pan Scans, much more. Microphones: Neumann 47 tube, AKG tube, Telefunken SM69 stereo tube, (2) AKG 414 EB, (10) SM57, Sennheiser 421, (6) AKG 452s, much more.

Monitor Amplifiers: Perreux 8000C.

Monitor Speakers: Main: custom, TAD, JBL 4435, JBL 4430, JBL 4406, Auratone T6, Yamaha NS-10M, Tannoy

Musical Instruments: (2) Linn 9000 seq. drum mach., Super JX, Vector synth, TX816 rack, Super Jupiter, Emax sampler, Roland piano.

Other MIDI Equipment: Macintosh computer w/MIDI

Other: Neve stereo limiter/compressor

Rates: On request—feel free to inquire.

[24+] FUTURE SOUND

also REMOTE RECORDING

1842 Burlstone Ave.

Thousand Oaks, CA 91360

(805) 496-2585

Owner: Randy Dew

Studio Manager: Randy Dew

[24+] GATEWAY STUDIOS

6381 A Rose Lane

Carpinteria, CA 93013

(805) 684-8336

Owner: Jim Messina

Studio Manager: Amy Foster

Engineers: Peter Bergren, independents.

Dimensions: Studio 23 x 27, control room 18 x 23, piano isolation 11 x 16, vocal isolation 11 x 13.

Mixing Consoles: Soundcraft Series 2400 28 x 24.

Audio Recorders: Studer A80 24-track, Studer A80 2-track 1/2", Scully 4-track 1/2", Scully 2-track 1/4", Otari 2-track 1/4", 1/4" stereo cart rec/reproducer.

Echo, Reverb, & Delay Systems: AMS DMX15 80S stereo digital delay, AKG BX-20E1 spring reverb, Lexicon 480

Other Outboard Equipment: Valley People Trans-amps, Drawer dual gates, Pultec: EQP-1, EQP-1A3, +EQ-MEG-5; UREI limiters: 175, 175A, 1176; Teletronix and leveling amps, UREI EQs, Langevin 252-A, Altec 9073A graphic EQ.

Microphones: AKG, Beyer, Neumann, Crown, RCA, E-V, Schoeps, Sennheiser, Shure, Sony, B&K.

Monitor Amplifiers: Phase Linear 700B

Monitor Speakers: Altec 604E w/Mastering Lab crossovers and Super Red 15" sub-woofers.

Musical Instruments: JX10 w/programmer and Juno 106, Yamaha DX7FD, Yamaha C7E grand piano, Oberheim controller keyboard, Minimoog, Apple IIe w/DX Pro software and MIDI Soundflir, Linn 9000 w/digital sampling, drums, Seymour Duncan amps. Guitar rentals: Fender, Gibson, Dobro, Martin etc.

Video Equipment: Video monitoring w/BNC connector for hookups.

Rates: Call for rates

[24+] GOLD RUSH STUDIOS

8800 John Ave.

Los Angeles, CA 90002

(213) 589-0248

Owner: W. Vaughn

[24+] GOLDEN GOOSE PRODUCTIONS

2074 Pomona Ave.

Costa Mesa, CA 92627

(714) 548-3694

Owner: D. & E. Rose

Studio Manager: D.P. Rose

Engineers: D.P. Rose, Mark Madden, Ken Rains, John Goetz, Rick DeLong, David Jones.

Dimensions: Studio 20 x 22, control room 18 x 17.

Mixing Consoles: Custom in-house design/Spectra Sonics, API 40 x 40.

Audio Recorders: Ampex MM-1100 24-track, Ampex MM-1100 16-track, Ampex ATR-100 2-track, Ampex AG-440C 2-track, Hitachi PCM-V 300s 2-track digital audio rec., Sony PCM-1 2-track digital audio processor.

Cassette Recorders/Duplicators: Nakamichi 600, Ken A Bacon Associates duplication—real time and two-speed, A/W/A WX10 2x and real time duplication.

Synchronization Systems: EECO BE 450 synchronizer SMPTE.

Echo, Reverb, & Delay Systems: (2) Ecoplate III, Lexicon PCM60 digital reverb, Yamaha REV7 digital reverb, (2) Lexicon PCM40 DDL, Yamaha SPX90 DDL, DeltaLab ADM64 Effectron DDL, DeltaLab ADM 4096 Echotron DDL/sampler, Marshall Time Modulator, AKG BX10 reverb, Eventide H910 Harmonizer.

Other Outboard Equipment: (4) dbx 160 Complimenter, Orban Parasound parametric EQ "stereo", (2) Altec Acoustavoce 1/3-octave EQ, Altec octave graphic EQ "Passive," Allison Gain Brains, (2) Allison Kepexs, UREI Universal Audio

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digital metronome, (4) API 550A equalizers, (6) UREI dual band EQ, mic pre amp, "extra clean 30 dB of headroom, API filter set HP/LP

Microphones: Neumann U47, Sony C-500, (2) AKG C-414E, (2) AKG C-414EB, (2) AKG C-451E, (2) Neumann KM84, (2) RCA 77DX, (2) Beyer M160 dual ribbon, E-V 666, E-V RE20, Sennheiser 421, Sony ECM-22D, Sony ECM-250
Monitor Amplifiers: Great American Sound, BGW 500b, (2) Marantz 240.

Monitor Speakers: (2) Control room main UREI 813 W604E, secondary JBL 4311 and custom near field, (2) Sound Altec 604 E w/custom crossover

Musical Instruments: Steinway studio grand piano, Hammond M10 organ, Micromoog synth, Fender Rhodes 88-key elec piano, Fender P bass, Gibson Les Paul custom guitar, Guild jumbo acoustic guitar, Jose Ramirez Flamenco guitar, Oberheim DMX drum machine, Roland PV guitar synth, Fender Twin Reverb amp, Roland Jazz Chorus 70 amp, Tom Scholz Rockman, misc. Latin Percussion instruments

Video Equipment: 25" monitor, Panasonic stereo audio VHS VCR, Magnavox VHS VCR, Panasonic camera w/tripod
Rates: Call for rates (714) 548-3694 10am till 10pm.

[24+] GOLDMINE RECORDING STUDIO

1393 Callens Rd.
Ventura, CA 93003
(805) 644-8341

Owner: Goldmine Productions

Studio Manager: Tim Nelson

Engineers: Jeff Cowan, Tim Nelson

Dimensions: 40 x 26 x 12; (2) iso 26 x 16 x 12, 9 x 10 x 12
Control room 18 x 16

Mixing Consoles: NEOTEK w/Jensen 990s Series II, 28 x 24.
Audio Recorders: Otari MTR-90 24-track, TEAC 80-8 8-track, Otari 5050B 2-track, Technics 1506 2-track

Echo, Reverb, & Delay Systems: Prime Time DDL, MXR DDL, DeltaLab Effectron, H910 Harmonizer, Yamaha REV7 and Roland SRV 2000 digital reverb, Ecoplate II

Other Outboard Equipment: LA-2A limiters, UA 175 limiters, dbx 161s, Valley People noise gates, Omni Craft gates
Microphones: Neumann, Sennheiser, Sony, AKG, Shure, PZMs, E-V

Monitor Amplifiers: Haller DH500, Fostex 600, Phase Linear 700B

Monitor Speakers: UREI 813, Yamaha NS-10s, "All Tones."

Musical Instruments: Yamaha C7 grand piano, Yamaha DX7, Yamaha CP80, Yamaha PF15 piano, Linn Drum, "Cooper" drum chest, Marshall guitar amp.

[24+] GROUND CONTROL

1602 Montana Ave.
Santa Monica, CA 90403
(213) 453-1255

Owner: Paul Ratajczak

Studio Manager: Lisa Roy

Dimensions: Room 1: studio 60 x 23, control room 23 x 24.
Room 2: studio 10 x 21, control room 15 x 25

Mixing Consoles: SSL 4060E 60 x 48 w/Total Recall (studio A), Amek M3000 36 x 24 (studio B).

Audio Recorders: (2) Studer A820 24-track, Studer A800 24-track, Otari MTR-90 24-track, Studer A820 2-track, Studer A80 2-track, ATR-100 2-track

Cassette Recorders/Duplicators: (4) Aiwa, (2) Sony 777

Noise Reduction Equipment: Dolby SR 48 channels available for A820 24-track machines.

Synchronization Systems: (4) Lynx modules.

Echo, Reverb, & Delay Systems: Lexicon 480XL, Lexicon 224XL, (4) Lexicon PCM70s, (2) Eventide 2016, (8) Yamaha SPX90, (4) Yamaha REV7, (8) Roland SRV-2000, AMS RMX-16, 7" Ecoplate, AKG BX-20E

Other Outboard Equipment: (4) UREI 1176, (4) Allison Gain Brains, (3) dbx 165, (3) dbx 902 de-essers, (2) Dyna-Mites, (2) dbx 160, (2) MDB window recorders, (4) SRV-3000s, (2) Pultec EQPs, (2) Eventide 949 Harmonizers, AMS DMX 15-805, Aphex II System, (2) MXR Delay IIs, (2) Massenberg EQs, (2) Massenberg mic preamps, (2) MXR phasers and flangers, Marshall Time Modulator, (4) Strat gates, (4) Kepex II, (4) Galax, (2) MICMIX flangers

Microphones: Neumann U67, U87, KM84, U47F, Cinc Church, AKG: C-12, D-12E, 451s, PML DC-63, 414s, C-60s, Telefunken 251, RCA 77, E-V 666, Sennheiser 421, Altec 195, Shure SM57s

Monitor Amplifiers: Perreux: 2150B, 1850, 8000; Threshold, Hill, Haller

Monitor Speakers: TAD TSM-1 w/third center-channel (studio A), TAD TSM-2, Yamaha NS-10, Tannoy NFM-8, Tannoy NFM-10s, Fostex RM780, Visonik David 9000, Sony APM-700, Dahlquist DQ-10 and Stax electrostats.

Musical Instruments: Yamaha C7 grand piano, Fender Rhodes 88 electric piano, ARP 2800, Hammond B-3 organ, selection of electric and acoustic guitars

Video Equipment: Sony BVU-800 ¾"

Rates: Available upon request

Extras & Direction: The power of Studer and SSL with total recall is augmented by a huge range of outboard gear. Both rooms are equipped for synchronization to video, and studio A includes audio monitoring with center-channel capability through three bi-amped TAD TSM-1s for Dolby Matrix film

SOUTHERN CALIFORNIA

24+ TRACK

STUDIOS

mixing. Ground Control is not only a world-class recording facility, but a total creative environment designed to nurture the music and the musician. We are located minutes from the Pacific Ocean in a quiet, secluded setting with access to restaurants and shops. Our staff of engineers, technicians and secretarial personnel is totally dedicated to the success of each and every project.



GROUP IV RECORDING, INC.
Hollywood, CA

[24+] GROUP IV RECORDING, INC.

1541 N. Wilcox Ave.
Hollywood, CA 90028
(213) 466-6444

Owner: Angel Balestier, Dennis Sands

Studio Manager: Elissa Kline

Extras & Direction: Group IV Recording has set the pace for film scoring studios in Hollywood. Founded a decade ago by co-owners Angel Balestier and Dennis Sands, Group IV has contributed to the scores of such box office hits as *Back to the Future*, *Flashdance*, *On Golden Pond*, *Outrageous Fortune* and *The Predator*, just to name a few. In addition to music scoring for television and film, Group IV has facilities allowing full audio production and post-production services. As Group IV enters its second decade in the audio business, it does so as an established leader in the field, capable of lending considerable talent and expertise to any project.

[24+] HALLSMARK RECORD

also REMOTE RECORDING
11684 Ventura Blvd., #5074
Studio City, CA 91604

Owner: Rich Hall

Studio Manager: Sketter Topkins

[24+] HANGING ROCK STUDIO

9994 Reevesbury Dr.
Beverly Hills, CA 90210
(213) 275-2086

Owner: Franklin H. Unruh

Studio Manager: Franklin H. Unruh

[24+] CRAIG HARRIS MUSIC

11285 Laurie Dr.
Studio City, CA 91604
(818) 508-8000

Owner: Craig Harris

Studio Manager: Miles Joseph

[24+] HEADWAY STUDIOS
(PREVIOUSLY GOPHER BAROQUE)

7560 Garden Grove Blvd.
Westminster, CA 92683
(714) 891-8548

Owner: Steve McClintock

Studio Manager: Catherine Enny

Engineers: Steve Kempster, Michael Mikulka, Dave Edwards, Marcee McNeil, J.B. Lawrence, independents welcome.



HEADWAY STUDIOS

HEADWAY STUDIOS (PREVIOUSLY GOPHER BAROQUE)
Westminster, CA

Dimensions: Room A: studio 45 x 22 x 18, control room 20 x 15, live and dead areas + 2 iso rooms, Room B: studio 16 x 12 x 12 + iso booth, control room 16 x 12

Mixing Consoles: Trident Series 75 28 x 28 x 24, Tascam M-16 24 x 16 x 16

Audio Recorders: Otari MTR-90II 24-track, Tascam 8516B 16-track, Tascam 8-, 4- and 2-track, Ampex ATR 2-track
Cassette Recorders/Duplicators: Technics, TEAC

Synchronization Systems: Fostex

Other Outboard Equipment: dbx compressors, limiters and gates, Valley People compressors, limiters and gates, Aphex and Barcus-Berry Electronics exciters, parametric EQs

Microphones: Neumann, Telefunken, AKG, Sennheiser, Shure, E-V, PZM, PML

Monitor Amplifiers: BGW, Haller, Crown, QSC

Monitor Speakers: JBL 4435, JBL 4311, Yamaha NS-10M, Auratone T-6, Auratone 5C

Musical Instruments: Pearl drum set, 7' grand piano, B-3 w/Leslie, Yamaha DX and TX, PPG, Prophet sampler, Moog and Casio synths, Linn, E-mu, Roland drum machines, Macintosh and Commodore computers for programming and sequencing, staff keyboard programmers upon request

Video Equipment: Upon request

Rates: Please call for info

Extras & Direction: Two lounge areas, kitchen area, showers, lots of creative space for the artist. Also, real time tape duplication room, full time maintenance staff, independent production co., jingles-to-records, film scoring, commercial photography, studio stylists, vocal instruction studio, full-service music publishing co., talent agency, management co., full-facility rehearsal studios three minutes away! "The Headway Group" is a very unique and very innovative entertainment complex that was created for the inspiring and aspiring artist. Our complex is maintained by a professional and conscientious staff, doing what we can to make our clients feel comfortable, welcomed and happy.



HIT CITY WEST
Los Angeles, CA

[24+] HIT CITY WEST

6146 W. Pico Blvd.
Los Angeles, CA 90035
(213) 852-0186

Owner: Jason Bell

Studio Manager: Jason Bell

Engineers: Jason Bell, Ron McCoy, Kevin O'Connor, Wesley Craft, Richard Schweitzer

Dimensions: Room A: studio 18 x 30, control room 16 x 15
Room B: 13 x 5, control room 13 x 15

Mixing Consoles: Soundcraft Series 2400 28 x 52 x 24 ("A"), Soundcraft Series 600 24 x 6 ("B").

Audio Recorders: MCI JH-114 24-/16-track w/autolocator (transformerless), Tascam 85-16B 16-track w/dbx noise reduction, Otari 4-/2-track, Ampex ATR-102 2-track (transformerless), MCI JH-110 2-track, Akai GX 624 ¼-track.

Cassette Recorders/Duplicators: Aiwa and NAD decks.

Echo, Reverb, & Delay Systems: Lexicon 224X digital reverb, EMT Gold Foil, (2) Yamaha REV7 digital reverbs, Lexicon PCM70, Master-Room Super C, Master-Room XL-305 stereo reverb, Ursa Major Space Station, Countryman flanger/phaser, DeltaLab DL-2 Acousticcomputer, Eventide 910 Harmonizer, Eventide 949 Harmonizer, Eventide instant flanger, Lexicon Prime Time and Prime Time II, Roland SDE-300 digital delay, (2) SPX90s.

Other Outboard Equipment: UREI Model 545 parametric EQ, UREI Model 537 1/3-octave graphic EQ, Technics Model 9010 parametric EQ, dbx 160, dbx 165, dbx 160X, UREI 1176, Allison Gain Brains, Orban de-esser (5 channels), EXR SPI psychoacoustic projector, UREI digital metronome, Dramer noise gates, Allison Kepex gates, ADR Vocal Stresser.

Microphones: AKG, RCA, Beyer, Countryman, Crown, Neumann, Sennheiser, Sony, Telefunken.

Monitor Amplifiers: HH Electronic, Crown, SAE, Technics.

Monitor Speakers: JBL custom monitors w/wood horns, TAD and JBL drivers, Yamaha NS-10M and Auratone.

Musical Instruments: Knabe grand piano, Casio 101, Prophet 2000 sampling keyboard, Emulator SP-12 drum machine w/sampling.

Video Equipment: Lynx TimeLine synchronization system, JVC CR 6650U ¾" video recorder/player, Sony monitors.

Other: (2) cart machines, CD player and sounds on CDs.

Rates: Call for rate information.

Extras & Direction: Producer's lounge w/piano, full real time tape duplication, sound effects and music library. Bobby Womack, Wall of Voodoo, Motley Crue, Babylon Warriors, The Dillards, Freddy Hubbard, L.L. Cool J., Dwight Yoakam, Mojo Nixon, Honeymoon Suite, The Alarm, Slayer, Red Hot Chili Peppers and major advertising agencies are among the clients who have found that our experienced, knowledgeable staff, the professionally designed state-of-the-art studios and comfortable working environment make Hit City West an ideal place to bring their projects. New studio coming soon to Hit City West! We are expanding eastward to enlarge the studio and provide another large facility and live room.

[24+] HIT MAN RECORDING

815 N. Fairfax
Los Angeles, CA 90046
(213) 852-1961
Owner: John Smith
Studio Manager: Debbie Watkins

[24+] HIT SINGLE RECORDING SERVICES

College Grove Center-LC #4
San Diego, CA 92115
(619) 265-0524
Owner: Scottman LTD
Studio Manager: Randy S. Fuelle

[24+] HITSVILLE RECORDING STUDIOS

7317 Romaine St.
West Hollywood, CA 90046
(213) 850-1510
Owner: Motown Record Corp.
Studio Manager: Mark Koffman
Engineers: Russ Terrana
Dimensions: Room 1: studio 34 x 36, control room 18 x 24
Room 2: studio 18 x 21, control room 20 x 20, Room 3: studio 12 x 13, control room 19 x 18.
Mixing Consoles: Neve 8078 40 x 32 w/Necam 96 (three rooms).

Audio Recorders: Ampex ATR-124 24-track, Ampex ATR-102, 104 2- and 4-track, Sony 1610, Sony PCM-F1.

Cassette Recorders/Duplicators: Hitachi and Technics.

Noise Reduction Equipment: Dolby M16, 361.

Synchronization Systems: Q.Lock and Adams-Smith.

Echo, Reverb, & Delay Systems: Live chamber, Yamaha REV7, Roland SRV-2000, Yamaha SPX90, Eventide 1745 M, Lexicon PCM70, Lexicon Prime Time, Lexicon 224XL.

Other Outboard Equipment: Aphex Dominator, Aphex Compellor, Drawmer noise gates, Pultec EQP-1A, Kepex noise gates, Eventide H910 Harmonizer, UREI 1176LN limiters, UREI LA-4, Pultec MEQ-5, Orban 516EC silbance controller.

Microphones: U67, U87, U47 tube, 414s, 451s, KM84s, KM86s, C24 tube, SM57s, RE20s, 421s, 441s.

Monitor Amplifiers: UREI 6500, Macintosh 2100.

Monitor Speakers: Yamaha NS-10s, E-V Sentry 100s, UREI 813A.

Musical Instruments: (2) Synclavier, DX7, OB-8, Linn 9000, 360 Systems, Minimoog, (2) Steinway grand pianos.

Video Equipment: BVU 800, Panasonic AG-6300 VHS, JVC BR-8600U and editing system, JVC CR-6600U ¾".

Other: Sony DAE-1100A digital editing system, Magna-Tech 4-track recorder, Magna-Tech 4-track player, Magna-Tech single stripe recorder.

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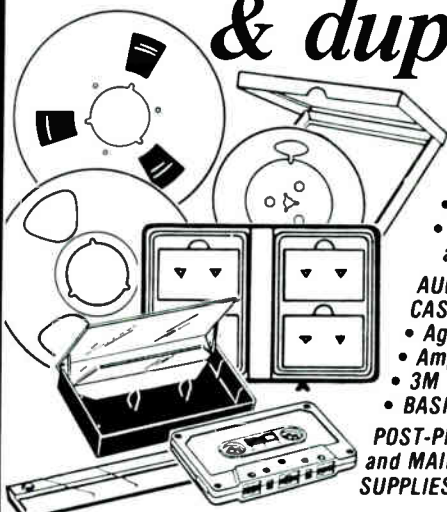
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[24+] H.Q./HARLEQUIN

19347 Londelius St.
Northridge, CA 91324
(818) 993-4778

Owner: Paul & Jeff Stillman

Studio Manager: Michael Alan Rosen

Engineers: Steve Brenner, Scott Ross, Michael Rosen, Craig Ingraham and others.

Dimensions: Room 1 studio 20 x 30, control room 14 x 22. Iso room: 12 x 12. Video stage: 30 x 45, control room 12 x 20.

Mixing Consoles: Tangent 3216 32 x 24 (modified and expanded).

Audio Recorders: Stephens 821 B-24 24-track w/autolocator, Tascam 38 8-track, (2) 3M M64 2-track 30 ips/15 ips, Otari 5050-B 2-track, TEAC 3440 4-track, Technics RS-1500 2-track.

Cassette Recorders/Duplicators: Technics RSB 100, Fostex 250 4-track cassette

Synchronization Systems: Lynx TimeLine synchronizer.

Echo, Reverb, & Delay Systems: Lexicon 200 digital reverb (all programs), Lexicon PCM70, (2) Yamaha SPX90s, 01 digital reverb system, Lexicon PCM42 delay, DeltaLab DL2 delay, DeltaLab Effectron, ADA 250 delay, Alesis Microverb, MXR delay.

Other Outboard Equipment: UREI LN 1176, (2) dbx 161, Fostex 3070 compander gate, Valley People GateX (4-channel), Williams custom noise gates (4-channel), (2) Deltagraph 10-band EQs, (8) Sphere microphone pre-amps, (2) Sphere 10-band EQs, (2) Williams custom parametric EQs, EXR Exciter (2-channel)

Microphones: Neumann 47, 87s; AKG: 414s, 451s, 452s, Sennheiser 421s, 441s, Schoeps, Calrec CB 21C, Beyers, full complement of Shures and E-Vs.

Monitor Amplifiers: (3) Hatler P-5000s, Hatler 200, Hatler 220. Monitor Speakers: JBL 4435 (bi-amped), Yamaha NS-10s, Auratone 5Cs

Musical Instruments: Korg DSS11 w/excellent library (digital sampler), Emulator I w/excellent library (digital sampler), Roland JX10, Yamaha DX7, Korg DDD 1 drum machine, Sequential Circuits Drumtrax, Gabler 7" grand (acoustic piano), Fairlight available, drums/amplifiers.

Other MIDI Equipment: IBM XT w/Sequencer Plus, Roland MC500 sequencer.

Video Equipment: (2) Sony BVU-8000 3/4", Sony BVU-5800 3/4", EECO Ives II edit controller, (3/4" cuts edit system), JVC KM2000 switcher w/EFX and chromakey, 30 x 45 x 16 insert stage, w/Ltg grid, coving, 50k power, dressing rooms. Other: All cameras and formats available and A/B roll editing

SOUTHERN CALIFORNIA

24+ TRACK

STUDIOS

[24+] IGNITED

1645 N. Vine St., #614
Hollywood, CA 90028
(213) 461-0734

Owner: Tom Appleton, Jr.

Studio Manager: Jefferson Chitouras

Dimensions: Studio 12 x 14, control room 25 x 30.

Mixing Consoles: Neve 8058 28 input, Wolstein Labs 32 input.

Audio Recorders: (2) Studer A800 wired for 32-track.

Cassette Recorders/Duplicators: Yamaha, (2) Technics.

Synchronization Systems: Adams-Smith 2600, Master Beat, FriendChip SRC.

Echo, Reverb, & Delay Systems: Lexicon PCM70, Roland SRV-2000, Roland DEP-5, Yamaha REV7, EMT 240 Gold Foil, (2) Roland SDE-3000, Roland SDE-1000, (2) Yamaha SPX90, MXR Delay II.

Other Outboard Equipment: (2) Marshall Time Modulators, (5) Drawmer DS 201, LA-2A, dbx 166, (2) UREI LN 1176, (2) Rocktron Hush 11C, (3) Kepex, Wolstein Labs Pro Imager, (2) Massenburger EQs, (4) Massenburger pre-amps.

Microphones: Neumann: (2) M49, (2) U87, (2) KM88, U47, U67, AKG 414, RCA DX77, (3) Shure SM57.

Monitor Amplifiers: Times One, BGW, Hill.

Musical Instruments: Fairlight III, Fairlight IIX, Yamaha KX88, Yamaha DX1, (2) Yamaha DX7s w/Grey Matter Response, Emulator II+, Matrix-12, PPG 2.2 w/MIDI, Minimoog w/MIDI, TX816, Prophet-T8, Prophet-10, Photon guitar, CZ-1000, Oscar, Korg EX-8000.

Other MIDI Equipment: Roland MXS-20, MKS-80, MPG-80, Akai S900, Linn 9000, Emulator SP-12, Ensoniq Mirage

Video Equipment: Sony BVU-800, Panasonic 1/2", Sony XBR 36" monitor

Other: Macintosh Plus w/Bernoulli box 40 meg hard disk, Syco Logics 16 x 32 MIDI switcher.

[24+] IMAGE RECORDING STUDIO B

1020 N. Sycamore
Hollywood, CA 90038
(213) 850-1030

Owner: T. Seufert, H. Maslin, J. Van Nest
Studio Manager: Nina King

[24+] INDIAN HILL RECORDING

also REMOTE RECORDING

224 N. Indian Hill Blvd.
Claremont, CA 92346

(714) 864-3333

Owner: Charles Whittington

Studio Manager: Terry Dwyer

Engineers: Jeff Kopang, Marc Dietrich, Debbie Robertson

Dimensions: Studio 32 x 27, control room 18 x 22

Mixing Consoles: Neve custom 24 x 28 w/DC grouping.

Audio Recorders: Ampex MM12000 24-track, Ampex ATR-102 2-track, Ampex AG-350 2-track.

Echo, Reverb, & Delay Systems: Lexicon 224, Ecoplate II, Yamaha REV7, live chamber.

Other Outboard Equipment: Eventide Harmonizer, Pandora DDL, CompuEffectron, UREI 1176, dbx 160s, UREI LA-4, Valley People Dyna-Mites, Orban 622 parametrics, etc.

Microphones: Neumann: U87, KM84; AKG: 451, 414; Sennheiser: 441, 421; Shure SM7, E-V RE20, Crown D150s, (5) AB Systems.

Monitor Speakers: UREI 813s, JBL 4311s, Auratone, Altec 604s.

Musical Instruments: Yamaha C5 grand piano, Fender Rhodes, LinnDrum, Prophet 2000.

Video Equipment: JVC CR-8250, 5550 decks, VE92 editor, Panasonic WJ4600-C SEG, Hitachi VE-102, FP-1010U, 1020U. Rates: We're competitive!

[24+] INDIGO RANCH RECORDING STUDIO-MALIBU

PO Box 24-A-14
Los Angeles, CA 90024
(213) 456-9277

Owner: Richard Kaplan, Michael Hofmann

Studio Manager: Michael Hofmann

Engineers: Chris Brunt, Richard Kaplan.

Dimensions: Studio 22 x 30 plus iso rooms, control room 20 x 20 (keyboard player's dream).

Mixing Consoles: "Deane Jensen"/Aengus custom 32 x 24 fully automated plus eight echo returns and 14 sends.

Audio Recorders: 3M M-79 24-track, 3M M-79 2-track 1/4", 3M M-79 2-track 1/2" or 1/8", Stephens 821 4-track 1/2".

Cassette Recorders/Duplicators: (3) Sony 777, (2) Technics M-65, Technics M-85.

Echo, Reverb, & Delay Systems: EMT 25, (3) EMT plates, Publison Infernal 90 and AMS available upon request, MXR 01, Ursa Major, Telefunken reverb, MICMIX Master-Room reverb, Loft flanger, Roland 3000, MXR DDLs, (2) Eventide DDLs, (3) Eventide Harmonizers, Marshall Time Modulator, Cooper Time Cube, Eventide instant phaser, (2) Yamaha SPX90

Other Outboard Equipment: Teletronix: LA-1, LA-2, LA-2As; ADR stereo comp./limiters, ADR stereo selective processor, Pultecs, Lang, Fairchild, UA175s, UA176s, Collins 26, RCA BA6A, UREI 1176s, dbx 160s, Gain Brain limiters, Orban parametric, API, B&B, Aengus EQs, Kepex and RM noise gates, UREI Little Dippers.

Microphones: AKG: C-12, C-12A, C-28, C-60, C-61, C-451, C-456; Neumann: U47, M49, KM53, KM54, KM56, U67, U64, KM64, KM84, KM86, U87; Sony: C-37A, C-37P, C-57, C-107, ECM-22, ECM-54, ECM-56, C-500, Schoeps, E-V, Altec, Sennheiser, (2) Telefunken Model 250 (vacuum tube), over 250 mics to choose from, most in sets of four or more, over 100 vacuum tube mics!

Monitor Amplifiers: H&H custom bi-amp 1600 watts per side, Crown DC 300As, EA-31s.

Musical Instruments: Steinway grand piano, (2) ClapTraps, guitar accessories, etc, most things available on request.

Video Equipment: The Indigo Ranch Studios support facilities and grounds (orchards, mountains, canyon, and ocean view) are very picturesque, private and conducive for film and video production.

Rates: Ask about our block booking rate with free day. Extras & Direction: Secluded 60-acre ranch, with satellite TV, minutes from beach, living and cooking facilities. Great for artist from out-of-town and a wonderful retreat for those living in the Southern California area. Indigo Ranch provides a unique environment conducive to musical creativity in a home-like but professional setting. Located in the Malibu Hills overlooking the Pacific Ocean, Indigo ranches top recording artists from all over the world. The 60-acre ranch offers sleeping accommodations, kitchen facilities and a gourmet cook (on request). The ranch and its fully-equipped, state-of-the-art studio are beautifully maintained by an experienced and conscientious staff, doing its utmost to make clients feel welcome and comfortable. We are pleased to announce that Indigo Ranch Studios is entering its second decade of continuous service to the musicians, producers and engineers of Los Angeles and the world.

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[24+] JCI
5320 Derry Ave., Ste. V
Agoura Hills, CA 91301
(818) 889-9022
(818) 991-1266
Owner: JCI
Studio Manager: Steve McDonald

[24+] J.E. SOUND PRODUCTION & ENTERTAINMENT
11323 Santa Monica Blvd.
West Los Angeles, CA 90025
(213) 479-7653
Owner: John E. Goodenough
Studio Manager: John Goodenough
Engineers: John Goodenough, Bob Schwartz, Ely Martin
Dimensions: Studio 28 x 24, control room 24 x 12.
Mixing Consoles: Trident Series 65 36 x 24.
Audio Recorders: Otari MTR-90 24-track, Otari MTR-12 2-track 1/2" and 1/4", Otari MX-70 16-track 1"
Cassette Recorders/Duplicators: (4) Fisher, Nakamichi.
Echo, Reverb, & Delay Systems: Roland SDE-1000, Roland SRV-2000, Lexicon PCM70, Lexicon PCM60, Lexicon Prime Time, (2) Yamaha SPX90.
Other Outboard Equipment: (2) dbx 160X, (2) dbx 165A, dbx gates and de-essers.
Microphones: (2) Neumann U87, (5) Sennheiser 421, (2) Sennheiser 441, (2) AKG 414, (2) AKG 1000, (4) Audio Tech, (4) E-V, (2) Shure, (2) Shure 58, (2) Shure 56.
Monitor Amplifiers: BGW 8000, BGW 7500.
Monitor Speakers: JBL 441, JBL 4430, Toa RS-21M, Yamaha NS-10M.
Musical Instruments: Yamaha DX7, Roland JX-3P, Linn 9000 digital drum and MIDI sequencer and sampling.
Rates: As low as \$35/hr blocks.

[24+] JEPHTHA STUDIOS
also REMOTE RECORDING
28561 Front St., #94
Temecula, CA 92390
(714) 676-8371
Owner: Jeff Dykhouse
Studio Manager: Jeff Dykhouse

[24+] J.E.R. STUDIOS
RECORDING & REHEARSAL COMPLEX
214 Anacapa St.
Santa Barbara, CA 93101
(805) 966-4222
Owner: J.E.R. Inc.
Studio Manager: Rich Veltrop, John Esparza

[24+] JINGLE BELLS PRODUCTION CO.
1260 N. Havenhurst Dr., #104
West Hollywood, CA 90046
(213) 656-3990
Owner: Michael Hurwitz
Studio Manager: Michael Hurwitz

[24+] FRED JONES RECORDING SERVICES
6565 Sunset Blvd., #211
Hollywood, CA 90028
(213) 467-4122
Owner: Fred Jones
Studio Manager: John Brady

[24+] JUNIPER APV
719 Main St.
Burbank, CA 91506
(818) 841-1244
Owner: Geoff Levin
Studio Manager: David Bolger
Engineers: Steve Sharp, Jimmy Emrich, Bruce Chianese, Brent Halern.
Dimensions: Studio 24 x 16, control room 19 x 19.
Mixing Consoles: Amek TAC "Matchless" 32 x 32 transformerless.
Audio Recorders: MCI 24-/16-track w/Autolocator II+, Qior, MCI JH-10 C2 2-track 1/2-track, Otari 4-track, TEAC 4-track, Sony/MCI 1" layback machine.
Cassette Recorders/Duplicators: Aiwa 3-head, (2) Hitachi 3-head
Synchronization Systems: (3) Fostex 4030 synchronizers w/4050 controller, Fostex 4010 time code generator w/jam sync, Aiwa CD player w/26 sound effects discs.
Echo, Reverb, & Delay Systems: Lexicon 224X digital reverb w/LARC, SPX90 digital reverb and effects, (2) Roland SPV-2000 digital reverbs, (3) Korg programmable digital delays.
Other Outboard Equipment: MXR pitch transposer, (2) UREI LA-3 limiters, dbx 160 compressor, Aphex "Compeller" leveler, (2) Furman parametric EQs, Valley People "Dyna-Mite" dynamic controller, (8) noise gates, Aphex Aural Exciter II.

Microphones: Neumann U87, AKG 414, 414EB, 451, D-25; Sennheiser: 441, 421; Sony: C-37P, 22-P, C-33P, 56P-C; Shure: SM57, SM81; E-V 666, Superscope P-9.
Monitor Amplifiers: BGW, Nikko, Accuphase.
Monitor Speakers: JBL 4430s, Auratone, E-V 100, Yamaha NS-10s.
Musical Instruments: Steinway "A" grand, Minimoog, Pearl drum kit, DX7, heavy-duty keyboard rack.
Other MIDI Equipment: Roland SBX-80 SMPTE-to-MIDI converter.
Video Equipment: Sony 5850 3/4" video deck, Sony 1" video 3-track recorder.
Rates: 2- to 16-track \$40-42/hr. 24-track \$45-47/hr. w/engineer. Video sweetening \$75-125/hr. w/eng.

[24+] KINGSOUND STUDIOS
7538 1/2 Woodley Ave.
Van Nuys, CA 91406
(818) 997-1353
Owner: Eddie King
Studio Manager: Lisa

[24+] KREN STUDIOS, INC.
6553 Sunset Blvd.
Hollywood, CA 90028
(213) 461-5781
Owner: Ken Suesov, Kris Clark, Chuck Plotkin
Studio Manager: Ken Suesov
Engineers: Squeak Stone, Joe Hall, Ken Suesov.
Dimensions: Studio 25 x 35, control room 22 x 25.
Mixing Consoles: Mitsubishi/Westar 44 x 88, w/Compumix automation.
Audio Recorders: Mitsubishi X-850 32-track digital, MCI JH-16 24-track analog, ATR-102 2-track, Studer A80 2-track, Sony PCM-F1 2-track digital.
Cassette Recorders/Duplicators: (3) Technics.
Echo, Reverb, & Delay Systems: EMT 250, Publison, (2) REV7s, (2) SPX90s, Ecoplate, Lexicon Prime Time, Eventide DDL, T.C. 2290.
Other Outboard Equipment: Teletronix LA-2, (2) UREI LA-3A, (3) 1176LN, (2) EMT PDM 156 limiters, Eventide Omni-Pressor, (8) Kexep noise gates, (2) Eventide and Bell flangers, Eventide Harmonizer, (6) assorted graphic equalizers.
Microphones: U47 (tube), U48 (tube), (3) U67 (tube), (2) U87, (2) KM86, (2) AKG C-12A, (4) Sony C-37, (4) 414, (2) RCA 44 (ribbons), plus E-V, Shure, Beyer, (6) Sennheiser, Sony, and assorted mics, (2) Sony C-500.
Monitor Amplifiers: (2) Perreaux, (2) Hafler, (2) Crown.
Monitor Speakers: Lakeside monitor system, (2) Yamaha NS-10, (2) E-V Century 100-A, (2) Advent, (2) UREI 813 Time Aligns, (2) JBL 4311.
Musical Instruments: Steinway 1929 B grand piano.
Rates: Call for information.

[24+] LAHAINA SOUND RECORDING STUDIO
840 Wainee St., Lahaina Square, H-2
Lahaina, Maui, HI 96761
(808) 667-2587
Owner: George Benson
Studio Manager: Amos Daniels



LARRABEE SOUND STUDIO
West Hollywood, CA

[24+] LARRABEE SOUND STUDIO
8811 Santa Monica Blvd.
West Hollywood, CA 90069
(213) 657-6750
Owner: Keda Enterprises
Studio Manager: Kevin Mills
Mixing Consoles: (2) SSL 4000E G Series 56-input computer w/Total Recall, plus four stereo modules.

—CONTINUED ON NEXT PAGE

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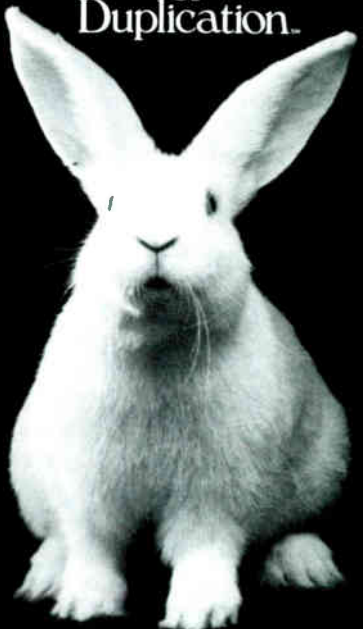
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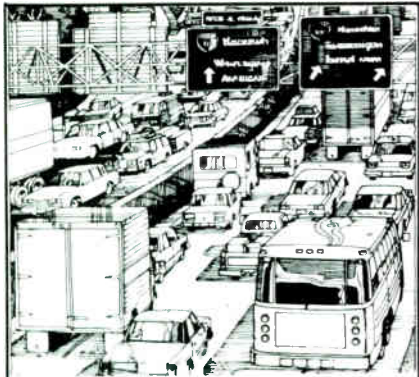
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SOUTHERN CALIFORNIA 24+ TRACK STUDIOS

—CONTINUED FROM PAGE 187

Audio Recorders: (4) Studer A800 MKIII 24-track, (2) Studer A-820 2-track, (6) Ampex ATR 2- and 4-track, Mitsubishi X-80 2-track digital

Noise Reduction Equipment: Dolby, 48 tracks.

Synchronization Systems: (5) Lynx synchronizers.

Echo, Reverb, & Delay Systems: (4) AMS DMX stereo sampling, (3) AMS RMX, Lexicon 480L, Lexicon 224XL, (2) Yamaha REV-1, (2) EMT 252, (2) Lexicon 200, (2) Lexicon Super Prime Time, (2) Lexicon PCM70, (5) Lexicon PCM42.

Other Outboard Equipment: (8) Focusrite equalizers, (16) API 550A EQs, large selection of compressors, limiters and noise gates

Microphones: Large inventory of tube, condenser and ribbon microphones.

Monitor Amplifiers: BGW and Bryston.

Monitor Speakers: Custom design w/TAD components.

Musical Instruments: Kawai grand piano.



LION SHARE RECORDING STUDIOS
Los Angeles, CA

[24+] LION SHARE RECORDING STUDIOS

8255 Beverly Blvd.

Los Angeles, CA 90048

(213) 658-5990

Owner: Terry Williams, Jay Antista, Donn Chickering

Studio Manager: Terry Williams

Engineers: James Goforth, Paul Bassett, Laura Livingston, Ray Pyle, Karen Siegel

Dimensions: Room 1: studio 20 x 36, control room 18 x 13.

Room 2: studio 17 x 18, control room 13 x 15. Room 3: studio

18 x 20, control room 17 x 20.

Mixing Consoles: A: Neve 8'08 56 x 48 w/Necam I, B: Neve

8128 48 x 32 w/Necam II, C: API/DeMedio 36 x 24.

Audio Recorders: Mitsubishi X-850 32-track, (3) Mitsubishi

X-80 2-track, (5) Studer A800 24-track.

Cassette Recorders/Duplicators: (8) Studer.

Noise Reduction Equipment: Dolby, 48 tracks.

Synchronization Systems: Studer TLS 2000, BTX Softouch.

Echo, Reverb, & Delay Systems: (3) live acoustic chambers

stereo, (6) EMT plates, (3) Lexicon 224LX w/LARC, (3) AMS

RMX 16 reverb, (3) AMS DMX 15-80 DDL, EMT 250 reverb,

Quantec Room Simulator, (3) Yamaha REV7, (4) Yamaha

SPX90

Other Outboard Equipment: Publison DHM 89-B2, 6ML Mas-

senburg dual limiter, 6ML equalizer, Lexicon Prime Time,

Super Prime Time, Limiters: dbx: 160, 160X, 162, 165, Neve

limiters, UREI LA3A, Teletronix LA-2A.

Microphones: Neumann: M49 tube, U48 tube, U47 tube, U67

tube, U87, 47, KM86, KM84, KM88; Shure: SM81, SM7, SM57,

SM56, 546, Sennheiser: 416, 435, Binaural: 2002, 421, AKG:

412, 414EB, 452, C24 tube; E-V: RE20, RE15, Telefunken 250

tube

Monitor Amplifiers: H&H amplifiers, Bryston amps

Monitor Speakers: JBL custom, Yamaha NS-10, Yamaha 1000,

Auratone T66, T6

Musical Instruments: LinnDrum machine, Bosendorfer piano,

(2) Steinway grand piano, Fender Rhodes Eddy Reynolds 88.

Other MIDI Equipment: Bosendorfer grand piano (MIDI), Ham-

mond B-3 organ MIDI—dual keyboards.

Video Equipment: Ampex UPR2B 1" tape recorder, Sony

BUV-800, Sony BUV-200, Sony Beta 1/2" and Panasonic VHS

1/2"

Rates: Available upon request.

[24+] LUCAS TELEPRODUCTIONS

4106 W. Burbank Blvd.

Burbank, CA 91505

(818) 845-1700

Owner: Jan Lucas

Studio Manager: Reed Miller

[24+] LYON RECORDING STUDIO

also REMOTE RECORDING

2212 Newport Blvd.

Newport Beach, CA 92663

(714) 675-4790

Owner: Curt Lyon

Studio Manager: Naomi Davis

[24+] MAD DOG

1717 Lincoln Blvd.

Venice, CA 90291

(213) 306-0950

Owner: Michael Dumas, Dusty Wakeman

Studio Manager: Jimmy Cull

Engineers: Eric Westfall, Don Tittle, Jerry Pacher, Rickey Reynolds, Terry Howard.

Dimensions: Studio 25 x 18, control room 20 x 15, iso room 25 x 25.

Mixing Consoles: Neve 8'08 28 x 32 w/Necam computer-assisted mixdown.

Audio Recorders: Studer A800 24-track, Ampex ATR-102 2-track, Otari MX-5050B 2-track.

Cassette Recorders/Duplicators: (12) Denon.

Noise Reduction Equipment: On request.

Synchronization Systems: On request.

Echo, Reverb, & Delay Systems: (2) Yamaha REV7 digital

reverbs, (3) Yamaha SPX90 digital reverbs, Lexicon PCM70

digital reverb, Lexicon PCM60 digital reverb, Master-Room

MICMIX spring reverb, (2) Roland SDE-3000E digital delays,

Korg SDD-3000 digital delay, Eventide FL201 instant flanger,

Lexicon Prime Time digital delay, EMT 140 plate reverb.

Other Outboard Equipment: (2) Drawmer DS-201 noise gates

(dual channel), (2) Galax noise gates (4-channel), (2) dbx

165A limiters, (3) dbx 160X limiters, (2) UREI LA-4 limiters,

UREI 546 dual parametric EQ, (2) UREI 537 1/3-octave graph-

ic EQ, (2) White 1/3-octave EQ.

Microphones: Neumann U47 tube, Neumann U67 tube, Neu-

mann U87, (2) AKG 414, (2) AKG 451, AKG D-12E, E-V RE20,

(6) Shure SM56, Shure SM77, (3) Sennheiser 421, Crown

PZM.

Monitor Amplifiers: (2) Crown Micro-Tech 600, Crown PSA-2,

BGW 500.

Monitor Speakers: (2) Westlake BBSM-12, (2) Yamaha NS-10,

(2) Auratone 5C

Musical Instruments: LinnDrum MIDI, Robin Custom Ranger

guitar, Robin bass, Fender '61 P-bass, Turner bass, (2) Fender

Twins, Yamaha C7 grand piano.

Other MIDI Equipment: On request.

Video Equipment: On request.

Other: Fostex and AKG headphones, Countryman and Ses-

com direct boxes, monitors wired w/Monster cable, mic lines

wired w/Mogami cable.

Rates: Call for rates.

[24+] MAD HATTER STUDIOS

2635 Griffith Park Blvd.

Los Angeles, CA 90039

(213) 664-5766

Owner: Chick Corea

Studio Manager: Ron Moss, Evelyn Brechtlein

[24+] MAGNOLIA SOUND

5102 Vineland Ave.

North Hollywood, CA 90068

(818) 761-0511

Owner: Brian Ahern

Studio Manager: Fran Parrish

[24+] MAMA JO'S RECORDING STUDIO

8321 Lankershim Blvd.

North Hollywood, CA 91605

(818) 982-0305

Studio Manager: Terry Piro

Engineers: Steven Bradley Ford.

Dimensions: Studio 23 x 22 w/15 x 10 alcove, control room 23

x 20. 1st iso booth 16 x 12, 2nd iso booth 12 x 10.

Mixing Consoles: Trident Series 80 w/input mixing, GML mov-

ing fader automation system.

Audio Recorders: (2) MCI JH16-24 2-track w/autolocators, (2)

MCI JH-10A 2-track with 1/4" and 1/2" assemblies.

Noise Reduction Equipment: Dolby MH-24 noise reduction

units.

Synchronization Systems: BTX Shadow, Lynx.

Echo, Reverb, & Delay Systems: EMT 250, EMT 251, AMS

RMX-16, Yamaha REV7, (2) EMT stereo plates, AMS 15-80S

DDL, (3) Roland 3000 DDL, DeltaLab DL2, (2) SPX90s

Other Outboard Equipment: EQs: API 550A, B&B, UREI 545,

Klein & Hummel UF 400, Langevin 251, Pultec; Limiters:

UREI LA-2A, UREI LA-3A, UREI 1176LN, Fairchild 660 mono,



MAMA JO'S RECORDING STUDIO
North Hollywood, CA

Fairchild 670 stereo limiters, Inovonics 201; Gates: Allison Kepex II, Drawmer noise gates, Aphex CX-1, tube mic pre-amps, Lexicon Prime Time, Eventide 949 Harmonizers, Eventide DDL w/pitch card, Lexicon PCM70 digital effects processor, Massenburg EQs, (2) dbx de-essers.

Microphones: Telefunken 250s, Telefunken 251s, Neumann U47s, M49s, U67s, U87s, KM56s, KM54s, KM84s, KM88s, AKG: C412s, C-414s, C-451s, C-452s, C-12A, C-24s and many more

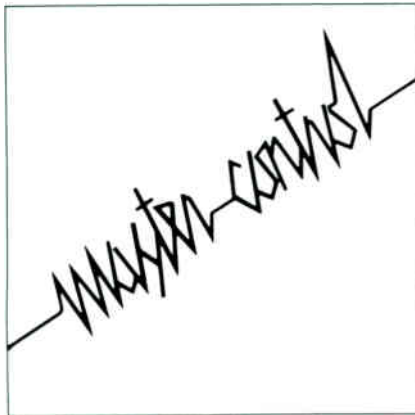
Monitor Amplifiers: "NOYB" amp.

Monitor Speakers: Custom 604-E w/Mastering Lab cross-overs.

Musical Instruments: Yamaha C7 grand piano, Hammond B3 w/Leslie, Prophet-5, DMX drum machine

Other: AMS DMX 15-80 DDL, Pultecs, Fairchild 663 mono limiters, Fairchild 470 stereo limiter, UREI LA 2 limiter, Prophet-5, DMX drum machine, BTX Shadow Unit, SMPTE transfers. Rates: Please call for studio rates. Special rates on block bookings

Extras & Direction: We have made a "commitment to excellence" so we are constantly pursuing the best in equipment whether it's new or old vintage type. The studio gives an at-home feeling w/a full kitchen area and comfortable lounge. We have recently done work on LP projects for George Duke, Howard Hewitt, Stephanie Mills, Jennifer Warnes, Sadao Watanabe, Brenda Russell, Sherrick, Royalty, Randy Stonehill, Deniece Williams, Diane Reeves, Bert Robinson, Twila Paris, Dale Bozzio, Pat Benatar, Al Jarreau, Wilton Felder, Maranatha Praise, Hideki Saijo, David Meece, Bill Gaither Trio, Ziggy Marley, Jody Watley, Wang Chung, Richard Souther, Terry Talbot, Lee Aaron, Leslie Phillips; Soundtracks: *Golden Child*, *Beverly Hills Cop II*, *Hunk*, *Miami Vice*.



MASTER CONTROL
Burbank, CA

[24+] MASTER CONTROL
3401 W. Burbank Blvd.
Burbank, CA 91505
(818) 842-0800

Owner: Aseley Otten, Steve Catania

Studio Manager: Aseley Otten, Steve Catania

Engineers: Steve Catania, Aseley Otten, Michael Frondelli, Dan Nebenzal, independents.

Dimensions: Main room 58 x 24, iso room 14 x 18, vocal booth 7 x 8, control room 20 x 24

Mixing Consoles: SSL 4048E 52 x 32 w/primary computer and Total Recall

Audio Recorders: Studer A80 VU-KI III 24-track, Studer A80

—CONTINUED ON NEXT PAGE

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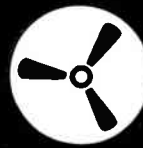
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Circle #086 on Reader Service Card

—CONTINUED FROM PAGE 189

RC-MK II 2-track (1/4" and 1/2"), Revox PR-99

Cassette Recorders/Duplicators: Studer A710

Noise Reduction Equipment: Available upon request.

Synchronization Systems: Lynx TimeLine synchronizer.

Echo, Reverb, & Delay Systems: Lexicon 224XL, Lexicon 200, Lexicon PCM70, Lexicon PCM42, AMS RMX-16 digital reverb, AMS DMX 15-80s, (2) Yamaha REV7, Eventide 949 Harmonizer w/de-glitch, (2) Roland SDE-3000, Effectron II 1275 DDL.

Other Outboard Equipment: UREI LA-2A, (2) UREI 1176 limiter, (2) dbx 160X limiter/compressor, Valley People 430, Dynamite limiter/gate, (2) CBS Audimax II RZ limiter, (2) API 560 graphics, Pultec: EQP-1, EQP-1A, EQP-1-S, EQH-2, MEQ-5, HLF-3C filter, Drawmer gates, Eventide Instant Phaser, Klark-Teknik DN332 graphic EQs.

Microphones: AKG: "The Tube", 414/P48, 451; Beyer M160, Crown PZM, E-V: 665, 666; Neumann: U87, U471et, KM84, KM85; RCA 77-DX, Sennheiser: 421, 441; Shure SM77, Countryman, Westlake and Jensen DI boxes.

Monitor Amplifiers: Crown PSA-2, Eagle 2A, Studer A-68, Crown 150, Crown 75.

Monitor Speakers: JBL 4435, JBL 4311, Tannoy SRM12B, Yamaha NS-10M, Auratone 5C, Realistic Minimus 7.

Musical Instruments: Steinway C grand piano, Hammond B-3 w/Leslie, LinnDrum and others upon request.

Video Equipment: 26" SVT, NTSC, PAL, SECAM color monitor
Rates: \$145/hr. Call for block bookings.

Extras & Direction: Credits include: Madonna, Lover Boy, Cock Robin, REM, Bernie Taupin, Crystal Gayle, Stephen Bishop, Stryper, Eddie Rabbit, Kenny Rogers, Poison, Juice Newton, Sergio Mendes, David Carradine, Red Hot Chili Peppers, Bobby Vinton, Dream Syndicate.



MAXIMUS RECORDING STUDIOS
Fresno, CA

[24+] MAXIMUS RECORDING STUDIOS

also REMOTE RECORDING

2727 N. Grove Industrial Dr.,
Ste. 111

Fresno, CA 93727

(209) 255-1688

Owner: Jeff Hall

Studio Manager: Leigh Ratliff

Engineers: Jeff Hall, Eric Seaberg, Nye F. Morton, Loyd Clift, independents.

Dimensions: Room A: studio 28 x 34, control room 24 x 19 w/machine room, iso room 16 x 21. Room B: studio 21 x 29, control room 24 x 18, iso room 12 x 15. Room C: studio 9 x 10, control room 16 x 10. Studio D: keyboard/MIDI suite, 22 x 12. Mixing Consoles: Harrison MR-3 48 x 24, Harrison MR-332 x 24, Sound Workshop Logex 8 12 x 8.

Audio Recorders: Studer A800 MKIII 16- and 24-track, Studer A80 B- and 16-track, (5) Studer 810 and A80RC 2-track, (5) Revox PR-99 2-track, Nagra IV-S 2-track w/sync, Otari 5050 B 2-track

Echo, Reverb, & Delay Systems: Lexicon 224X w/LARC, Ecoplate III, Orban Parasound, live room, Yamaha, Lexicon, Lexicon Prime Time II, Super Prime Time, Eventide 949, more.

Other Outboard Equipment: UREI, Orban Parasound, dbx, EXR, limiting, Aural Exciters, noise reduction, etc.

Microphones: AKG 414EB P-48, AKG 460, AKG C-34, AKG D-12, E-V RE20, Sennheiser 421, Sennheiser 441, Wahrenbrock PZM, Beyer, Audio-Tecnica, etc.

Monitor Amplifiers: Crown DC-300, Crown DC-75, Crown PS-200.

Monitor Speakers: Augspurger custom, E-V Sentry 500, E-V Sentry 100, Auratone.

Musical Instruments: Emulator II, Yamaha DX7, Oberheim Xpander, E-mu SP-12, Yamaha QX1, Yamaha TX7, 360 Systems MIDlbass, Korg Poly 61-M, Yamaha SPX90, Rockman, Drumulator, Yamaha grand piano, Kawai grand piano, Prophet-5, Fender Rhodes piano, Marshall, Fender, State, Road, Peavey instrument amps, Tama drum kit.

Video Equipment: Full synchronous lock-up to 1" or 3/4" video

SOUTHERN CALIFORNIA

24+ TRACK

STUDIOS

production, scoring, SFX, audio post-production, sweetening. Rates: Rates start at \$50/hr. (includes engineer) Block discount available.

Extras & Direction: Maximus is located near air terminal and hotels. We can arrange transportation and accommodations for out-of-town clients. On-staff arrangers, producers and writers. "What's a nice studio like you doing in a place like Fresno?" you may ask. Well, we're glad you did. We decided that it would be a far better thing we do by providing a relaxed environment where we (and you) can work our creative buns off while not suffering a heart attack or braindeath. Actually, Maximus continues to win awards and service a growing list of national clients who find that working in Fresno is convenient, cost-effective and enjoyable. Join the countless millions who "take their talent to the Max." Call now, operators standing by to take your order.

[24+] MCA WHITNEY RECORDING STUDIO

1516 W. Glenoaks Blvd.

Glendale, CA 91201

(213) 245-6801,

(818) 507-1041

Owner: MCA Records, Inc.

Studio Manager: Donna Welch

[24+] MEDIA RECORDERS

748 N. Seward St.

Hollywood, CA 90038

(213) 463-5000,

(213) 467-1499

Owner: Charles B. Heinen

Studio Manager: Arlene Palkay

[24+] METROPOLIS RECORDERS INC.

11616 Ventura Blvd.

Studio City, CA 91604

(818) 505-0755

Owner: Metropolis Inc.

Studio Manager: Patti McKenna

Engineers: Jeff Goodman, Benny Faccone, Troy Johnson, Paul McKenna.

Mixing Consoles: Trident TSM 40 x 32.

Audio Recorders: (2) MCI JH-24 24-track, Studer 820 2-track 1/2", Scully 280 2-track 1/4", Scully 280 mono, Technics 1500 2-track.

Cassette Recorders/Duplicators: (2) Yamaha 2000.

Synchronization Systems: BTX.

Echo, Reverb, & Delay Systems: AMS RMX16, AMS DMX 1580S, (3) REV7, (3) SPX90, (4) Roland SDE-3000, Klark-Teknik 780, Eventide 910 Harmonizer.

Other Outboard Equipment: GML EQ, (2) Orban EQs.

Monitor Amplifiers: McIntosh

Monitor Speakers: UREI 813B, Yamaha NS-10, JBL 4311, ROR Minis.

Musical Instruments: LinnDrum, Fender Rhodes, Chroma, DX7, Yamaha QX1, Yamaha MK80, Juno-106.

Extras & Direction: Credits include: Janet Jackson, Morris Day, Brothers Johnson, Club Nouveau, Irene Cara, Philip Bailey, Dale Bozzio, "X", Vesta Williams, Herb Alpert, Lani Hall, Dynasty, Joe Cocker, Tamara & The Seen, Michael Sembello, Sly Stone, Valentine Bros., Luis Miguel, Maria Conchita, Shaunice Wilson, Thin White Rope, Wild Kingdom, Trash Puppies.

Films: *Soul Man, Born In East LA, I Fresh.*

[24+] MIXMASTERS

also REMOTE RECORDING

4877 Mercury St.

San Diego, CA 92111

(619) 569-7367

Owner: Charles DeFazio

Studio Manager: Garth Hedin

Engineers: Terry Cox, Vince Del Santi, Garth Hedin, Mike Harris, independents.

Dimensions: Room 1: studio 28 x 26, control room 20 x 18. Room 2: studio 15 x 13, control room 15 x 15.

Mixing Consoles: NEOTEK 3C 36 x 32, Yamaha RM1608 16 x 16.

Audio Recorders: Otari MTR-90II 24- and 16-track, Otari MX-80 24-track, Otari MKIII-8 8-track, (2) Otari MTR-12 2-track, Otari MKIII-2 2-track, Tascam 44 4-track, Fostex E-16 16-track.

Cassette Recorders/Duplicators: Nakamichi MR-1, (3) Nakamichi BX-100, Technics 253.

Noise Reduction Equipment: dbx 150 2-channel, 16 tracks of Dolby C built-in on Fostex E-16.

Synchronization Systems: Adams-Smith System 2600

Echo, Reverb, & Delay Systems: Lexicon 224, (2) Lexicon 200, (3) Yamaha SPX90, Ursa Major Space Station, Lexicon Super Prime Time, (3) Lexicon Prime Time II, DeltaLab Super Time Line.

Other Outboard Equipment: Eventide H949 Harmonizer, Aphex Aural Exciter, (2) Valley People KepeX, (2) Valley People Gain Brains, (2) dbx 902 de-esser, (3) dbx 903 limiters, (4) dbx 904 gates, (2) dbx 160X compressor, Drawmer dual-channel gate, (2) Orban 622B parametric EQ.

Microphones: (2) Neumann U89, (2) Neumann U87, (2) Beyer MC740, (2) AKG C-414, (2) Neumann KM84, (6) Sennheiser MD-421, (2) AKG C452, (3) Shure SM57, E-V RE20, Sennheiser MD-441.

Monitor Amplifiers: (2) Hafler P500, (4) Hafler P225, (3) Crown: PS200, PS400, DC300.

Monitor Speakers: (2) JBL 4435, (4) Auratone 5C, (4) MDM-4, (4) Yamaha NS-10M, (2) Tannoy SRM-10.

Musical Instruments: LinnDrum II, Yamaha DX7, Yamaha C7 grand piano, Fender Rhodes, Les Paul standard guitar, Yamaha 12-string guitar, Gibson 6-string acoustic.

Other MIDI Equipment: Apple IIe w/DX-Pro software

Video Equipment: Sony 5850 3/4" video recorder, NEC CT2501 monitor.

Other: Sony PCM-501 analog-to-digital converter.

Rates: Graveyard as low as \$40/hr, prime-time \$65/hr., video lock-up extra.

[24+] MORNING STAR RECORDERS

also REMOTE RECORDING

4115 N. Maine Ave.

Baldwin Park, CA 91706

(818) 960-7308

Owner: Steve & Becky Brown

Studio Manager: Steve Brown

[24+] MOTOWN/HITSVILLE

7317 Romaine St.

West Hollywood, CA 90046

(213) 850-1510

Owner: Motown Records

Studio Manager: Mark Koffman

[24+] MUSIC BOX RECORDING STUDIO

1146 N. Western Ave.

Hollywood, CA 90029

(213) 462-7761

Owner: Edward Perry

Studio Manager: Socorro Lanzas

[24+] MUSIC GRINDER RECORDING STUDIO

7460 Melrose Ave.

Los Angeles, CA 90046

(213) 655-2996

Owner: Ron Filecia, Gary Skardina

Studio Manager: Ron Filecia, Gary Skardina

[24+] MUSIC LAB, INC.

1831 Hyperion Ave.

Hollywood, CA

(213) 666-3003

Owner: Chaba Mehesh

[24+] NEW YAWK RECORDING STUDIO

868 E. Mariposa

Altadena, CA

(818) 791-9767

Owner: George Kelly, Jody Sims

Studio Manager: Jody Sims

[24+] NON-STOP MUSIC PRODUCTIONS

14711 Gledhill St.

Panorama City, CA 91402

(818) 891-1030

Owner: George Seymour, Tom Warren

[24+] ONE ON ONE RECORDING

5253 Lankershim

North Hollywood, CA 91601

(818) 761-3882

Owner: James David

Studio Manager: James David, Joel Soifer

[24+] ORCA STUDIOS

4644 Balboa Ave.

Encino, CA 91316

(818) 788-6722

Owner: Richard Feldman

Studio Manager: Zedg Montoban

[24+] PACIFIC RECORDING

9626 Lurline, Unit K
Chatsworth, CA 91311
(818) 883-6922
Owner: Scott Borden
Studio Manager: Mathew Spindel
Engineers: Mathew Spindel, Robert Stamps, Scott Campel
Dimensions: Studio 35 x 30, control room 25 x 30
Mixing Consoles: Anek Angela 36 x 24
Audio Recorders: Otari MTR-90MKI 24-track, Studer A80 2-track, Studer A810 2-track
Cassette Recorders/Duplicators: Yamaha Echo, Reverb, & Delay Systems: EMT 240 "Gold Foil," Yamaha REV7, (2) Yamaha SPX90, Roland SRV-2000
Other Outboard Equipment: dbx compressors, UREI compressors, Drawmer gates, Roland SDE-3000
Microphones: AKG C-12, Neumann M49, Neumann U47, Sennheiser, AKG, etc
Monitor Amplifiers: Hill D-1000, Acoustat
Monitor Speakers: JBL 4435, Yamaha NS-10, Auratone
Rates: Call for rates, block rates available



PACIFIQUE RECORDING STUDIOS
No. Hollywood, CA

[24+] PACIFIQUE RECORDING STUDIOS

10616 Magnolia Blvd.
No. Hollywood, CA 91601
(818) 761-8042
Owner: Vasken Inc
Studio Manager: Joe Deranterasian
Engineers: Ken Deranterasian, Dennis Moody
Dimensions: Room A studio 34 x 35, control room 24 x 25
Room B studio 20 x 19, control room 24 x 25
Mixing Consoles: (2) Trident 80B 32 x 24
Audio Recorders: (2) Otari MTR-90II 24-track, (2) Otari MTR-12C 1/4", (2) Otari MTR-12H 1/2"
Cassette Recorders/Duplicators: (2) Nakamichi MR1 Echo, Reverb, & Delay Systems: Lexicon 224XL, (2) Yamaha REV7, (3) Roland SRV-2000, (2) Roland SDE-3000, (4) Yamaha SPX90, Lexicon Prime Time 95, Lexicon PCM70
Other Outboard Equipment: (5) Kepex II gates, (4) Drawmer gates, (4) dbx 160X, (2) UREI 1176, (2) dbx 165A
Microphones: (2) Neumann TLM170, Neumann U89, (2) Neumann KM84, (12) Sennheiser 421, Sennheiser 441, (8) AKG 414, (4) AKG 460, (2) AKG D12, AKG 224, (10) Shure SM56, (2) Shure SM81
Monitor Amplifiers: (2) Crown PSA 2, (2) Crown 300A, (2) Crown 75D
Monitor Speakers: Room A JBL 4435, 4411, NS-10 and Auratone 5C Room B Lakeside custom design monitor, TAD comp., Tannoy, NS-10 and Auratone 5C
Musical Instruments: Yamaha C7D grand piano, Yamaha C70B electric grand piano, Yamaha DX7, Korg CX3, Yamaha RX5 drum machine, Roland Vocoder
Rates: On request
Extras & Direction: Studio B will be in operation starting August 1987, custom designed by Lakeside Associates studio A and B

[24+] PALADIN PRODUCTION
FULL SPECTRUM AUDIO CONSULTANTS

1002 Prospect, Ste. #1
Honolulu, HI 96822
(808) 538-3094
Owner: Richard Stanley
Studio Manager: Anna Han

[24+] PASHA MUSIC HOUSE

5615 Melrose Ave.
Hollywood, CA 90038
(213) 466-1600
Owner: Spencer Proffer

[24+] PLATE VOLTAGE CLUB

1740 N. Gramercy Pl., 101
Hollywood, CA
(213) 465-1762
Owner: Dubious Jamfactor
Studio Manager: Jeff McLane



POST LOGIC
Hollywood, CA

[24+] POST LOGIC

6363 Sunset Blvd., Ste. 830
Hollywood, CA 90028
(213) 461-7887
Owner: Miles Christensen, Michael Busby
Studio Manager: Charlotte Bowen
Engineers: Miles Christensen, Tom Davis, Jesse Peck, Andy Harper
Dimensions: Control room 19 x 23
Mixing Consoles: SSL SL-6000E 48 x 32 w/Total Recall and automation
Audio Recorders: (2) Otari MTR-90 24-track, Otari MTR-20 4-track 1/2", Otari 5050 2-track 1/4", Otari MTR-20 2-track 1/2"
—CONTINUED ON NEXT PAGE

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Circle #088 on Reader Service Card

SOUTHERN CALIFORNIA

24+ TRACK

STUDIOS

—CONTINUED FROM PAGE 191

Cassette Recorders/Duplicators: Awa 660, Awa 520
Noise Reduction Equipment: Dolby SR, (3) Dolby 361s w/CAT 22s

Synchronization Systems: Adams-Smith 2600 Series w/5-machine lock-up capability

Echo, Reverb, & Delay Systems: AMS DMX-15-80S, AMS RMX, Lexicon 224XL, Lexicon PCM70, (2) Yamaha REV7, (2) Roland SDE-3000, Eventide SP2016, AMS reverb

Other Outboard Equipment: Publison Infernal 90, UREI filter set, (2) Drawmer gates, Dynafex, Akai S900, (2) dbx 160X, UREI LA-3A, (2) dbx 902, dbx 903, Drawmer vacuum tube limiter

Microphones: "Secret"
Monitor Amplifiers: Audire, Yamaha, Crown

Monitor Speakers: Custom-built Aura system, Sentry 100A, NS-10Ms, Anchor M 1000, Augspurger designed TAD component system

Musical Instruments: Linn 9000 w/sampling, Super Jupiter, Yamaha DX7, Emulator IIHD

Video Equipment: Ampex VPR6 1" video, Sony BVU-800 ¾" video, NEC VHS unit

Rates: Available upon request

Extras & Direction: Post Logic's design is aimed at all aspects of production and post-production. Projects include TV shows, promos, trailers, commercials, music videos, soundtracks, electronic scoring and albums. Clients include ABC, NBC, CBS Records, Atlantic Records, Bob Banner & Associates, Columbia Pictures, Cannon Films, The Company, Island Records, MTM Productions, MCA Records, Merv Griffin Ent., Twentieth Century Fox, Walt Disney, Warner Bros. TV & Records, Hancock Music. We offer complete professional service and a no-compromise attitude to deliver the best audio possible

[24+] POST SOUND CORPORATION

6500 Sunset Blvd.
Hollywood, CA 90028

(213) 462-0000
Studio Manager: Janja Vujovich

[24+] PREFERRED SOUND

22700 Margarita Dr.
Woodland Hills, CA 91364
(818) 883-9733

Owner: Scott Borden
Studio Manager: Mathew Spindell
Engineers: Mathew Spindell, Robert Stamps, Scott Campel, various independents

Dimensions: Studio 18 x 23, control room 16 x 18, booths 9 x 10 and 11 x 12

Mixing Consoles: Trident 80B 30 x 24 w/54 remix channels
Audio Recorders: Otari MTR-90 MKII 24-track, Studer A80 2-track, Sluder A810 2-track

Cassette Recorders/Duplicators: (2) Hitachi D2200M
Echo, Reverb, & Delay Systems: AMS RMX 16 digital reverb, Lexicon 224 digital reverb, Cunningham Ecoplate II, AMS DMX 1580S digital delay and pitch, (2) Lexicon Prime Time, Roland SDE-3000 digital delay, Eventide Harmonizer, Yamaha REV7

Other Outboard Equipment: (4) Kepex lls, (2) 1176 limiters, LA-4 comp/limiter, (2) dbx 165 limiters, Teletronix LA-2A tube limiter, UREI digital metronome, MXR flanger/doubler, Roland stereo flanger, (8) Simon Systems RDB-400 integrated direct boxes

Microphones: Neumann Tube 47, 87, KM84, KM88, AKG: 414s, D-12E, C-451E, Shure SM57s, SM58s, SM81s, Sennheiser 421, MKH-405, 441, Sony: ECM-22P, C-37A, Crown PZMs, Beyer M88, M500s, E-V RE20s, etc

Monitor Amplifiers: Acoustat, SCS
Monitor Speakers: UREI 811 Time Aligned, Yamaha NS-10M, JBL 4401, Auratone

Musical Instruments: Ampeg B-15 bass amp, Fender guitar amp, Kawai baby grand piano, various percussion instruments, numerous guitars and amps available through Norm's Rare Guitars

Rates: Call for rates, block rates available

[24+] PRESENT TIME RECORDERS

5154 Vineland Ave.
North Hollywood, CA
(818) 762-5474

Owner: Bob Wurster
Studio Manager: Bob Wurster

[24+] PRIME TRACK RECORDING & PRODUCTION STUDIO

7437 Laurel Canyon Blvd.
North Hollywood, CA 91605
(818) 765-1151

(213) 469-7664
Studio Manager: Danny Tarsha

[24+] PRODUCE SOUND

8932 E. Beverly Blvd.
Pico Rivera, CA 90660
(213) 692-3230

Owner: Michael Montoya
Studio Manager: David Flores

[24+] PRODUCERS I & II RECORDING STUDIOS

6035 Hollywood Blvd.
Los Angeles, CA 90028
(213) 466-7766

Owner: MahJong Music Inc.

[24+] QUAD TECK STUDIOS

4007 W. 6th St.
Los Angeles, CA 90020
(213) 383-2155

Studio Manager: Joani Waring

[24+] RADIO TOKYO

PO Box 5040
Santa Monica, CA 90405
(213) 399-0317

Owner: Ethan James
Studio Manager: Richard Andrews

[24+] RAIN RECORDING

also REMOTE RECORDING
PO Box 297
Mountain View, HI 96771
(808) 968-6346

Owner: Ken Chikasuye
Studio Manager: Ean Chikasuye

[24+] RECORD ONE

13849 Ventura Blvd.
Sherman Oaks, CA 91423
(818) 788-7751

Owner: Val Garay
Studio Manager: Art Kelm



RECORD PLANT INC.
Hollywood, CA

[24+] RECORD PLANT INC.

also REMOTE RECORDING
1032 N. Sycamore Ave.
Hollywood, CA 90038
(213) 653-0240

Owner: Chris Stone
Studio Manager: Nanci Boykiss
Extras & Direction: Record Plant is in its new location with all new video, film, record, recording studios, plus two remote trucks. In addition, we continue Academy Award-winning film scoring at our 100-person room at Paramount Pictures Stage M. We also offer the finest equipment available for rent through Livingstone Audio and specialize in the sale of digital equipment through Audio Interval Design (A.I.D.), both of which are located in our new Sycamore building. Our new Tom Hildley control rooms measuring 29 x 32 are designed for synthesizer recording and feature 35mm and video projection, as well as 56-input SSL Total Recall-equipped consoles.

Studer analog and Sony digital tape machines. Our remote recording division continues to provide faultless audio for award shows such as *The Grammys* as well as live recordings for the world's most successful artists.



RECORDING SERVICES COMPANY/RSC
Burbank, CA

[24+] RECORDING SERVICES COMPANY/RSC

also REMOTE RECORDING

2414 W. Olive Ave.
Burbank, CA 91506
(818) 843-6800

Owner: Recording Services Company, Inc.

Studio Manager: Jim McIntosh

Engineers: On request

Dimensions: Room 1: studio 14 x 8, control room 22 x 16.

Room 2: studio 10 x 8, control room 20 x 14.

Mixing Consoles: Soundcraft 2400 28 x 24, NEOTEK Series II

28 x 8, Audionics 501 28 x 24 in remote truck.

Audio Recorders: Otari MTR-90 MKII 24- and 16-track, Otari

MX-70 16-track 1", Ampex ATR-100 4- and 2-track, Ampex

MM-1200 24-, 16- and 8-track, Otari MX-5050MKII 8- and

4-track 1/2", Otari MX-5050 4- and 2-track 1/4".

Cassette Recorders/Duplicators: Sony TCD-5M

Noise Reduction Equipment: Dolby SP-24, Dolby M-24, Dolby

SIR, dbx K-9.

Synchronization Systems: BTX Softouch synchronizer, Q.Lock

3, 10.

Echo, Reverb, & Delay Systems: Lexicon 224X w/LARC,

Lexicon 200, Yamaha SPX90, Lexicon Super Prime Time.

Other Outboard Equipment: Dolby Cat 43A film processor,

UREI: LA-2A, LA-3A, LA-4, 1176LN, dbx 160, Orban 622B

parametric EQ, Valley People Kepex II, dbx 902 de-essers,

Yamaha CD player, Technics turntable, ITC cart player.

Microphones: Sennheiser: 416, 421, 441; Shure: SM57, SM58,

5M59, AKG: 414, 452; E-V RE20; Sony ECM-50.

Monitor Amplifiers: BGW 750, BGW 250, Crown D-60.

Monitor Speakers: UREI 813A, JBL: 4311, 4411, Yamaha NS-

10M, Auratone.

Musical Instruments: Roland S-50 sampling keyboard, Rol-

and Juno-106, Yamaha DX7, Yamaha FB-01 FM sound gener-

ator, Korg EX-800 synth module, Akai S612 sampler, Roland

TR-707 drum machine, Roland Octapads, E-mu E-Drum, 360

Systems MIDIbass

Other MIDI Equipment: IBM PC/XT computer, Texture II 24-

track sequencing software, Roland MPU-104 MIDI switcher.

Video Equipment: Ampex VPR-1C 1", Sony BVU-800 3/4", JVC

450U 3/4", JVC VHS Hi-Fi.

Other: Sound Ideas Sound Effects library, BTX Cypher event

controller.

Rates: On request, call Jim McIntosh.

Extras & Direction: RSC specializes in remote recording and

audio post-production for film and video. Our services include

2- to 24-track on-location recording, audio sweetening, mix-

ing, video laydowns, laybacks and tape transfers in all formats.

We have the BTX Cypher event controller configured to pro-

vide pre-programmed frame accurate sound effects from CD,

2- and 4-track or cart machine. RSC is proud of its multi-track

remote recording truck built especially for stereo television

audio. In its normal configuration, the RSC truck accommo-

dates 50 microphone inputs and two 24-track recorders. Our

equipment inventory makes reconfiguring the truck for your

special requirements quick and easy. Our newest room fea-

tures an IBM PC-based MIDI studio with 24-track sequencing

software. Our complete selection of synthesizers, drum ma-

chines and effects provides a very flexible MIDI system.

[24+] RED ZONE STUDIOS

623 S. Glenwood Pl.

Burbank, CA 91502

(818) 955-8030

Owner: Denis Degher, Frank Riesen

Studio Manager: Darvis Degher

[24+] RITESONIAN RECORDING STUDIO

7454 Vista Delmonte

Van Nuys, CA 91405

(818) 989-5373

Owner: Benjamin F. Wright Jr.

Studio Manager: Benjamin F. Wright Jr.

[24+] RIVERTON PRODUCTIONS

4222 Lankershim Blvd.

North Hollywood, CA 91602

(818) 505-0181

Studio Manager: Alan Lindley

Engineers: Ed Biggs.

Mixing Consoles: Soundcraft Series 600 24 x 8, Soundcraft

200 8 x 4.

Audio Recorders: Sony JH-24, Ampex ATR-800 2-track 1/4",

Ampex 440C 2-track 1/4", Ampex 440B 2-track 1/4", Ampex

440B 4-track 1/2", Sony 5800 3/4" videocassette PCM F-1

digital, Sony LB-110 1" layback machine, Nagra 4.2.

Cassette Recorders/Duplicators: Studer B-710 MKII, Naka-

michi MR-1, Technics M63, Sony TC-D5.

Synchronization Systems: Cypher Softouch, (3) Shadows.

Echo, Reverb, & Delay Systems: AKG BX-10, Yamaha SPX90.

Other Outboard Equipment: (2) UREI 1176 limiters, dbx Over

Easy compressor, Yamaha SPX90.

Microphones: Sennheiser MKH 40, 415, 421.

Monitor Amplifiers: HH Electronic mostet V500, BGW 85,

BGW 250C, Yamaha P2100.

Monitor Speakers: Westlake BBSM, E-V Sentry 100A, Aural-

tones.

Other: MTM 35mm 6-, 4-, 3-, 1-channel playback and 4-, 3-,

1-channel recorders, convertible to 16mm recorders, JVC 3/4"

offline editing room, Sony 3/4" videocassette Master playback,

interlock to picture, Cypher time code generator, Gray Engi-

neering character inserter, Studer (directors phone patch

hook-up), UREI 565 filter set, (2) Sony 5850 3/4" videocassette,

Magna-Tech 16/35mm optical playback, JVC BR6400U VHS

videocassette recorder, Sony monitor.

Extras & Direction: Riverton Productions prides itself on serv-

ice. Personal attention to every detail from pre-production

planning, communication throughout production concerning

dailies and all film sound transfers, through post-production

video sweetening, to the Broadcast Master. All forms of post-

production sound. Feature films, film trailers, TV spots, radio

spots, industrials are all handled with care. Our sweetening

room can interlock with 3/4" matching time code picture, 24-

track, 1" "C" format video layback, MTM 4-stripe recorder,

6-stripe playback. The growth of our company has come

about through our clients passing on the good word.

[24+] ROCK STEADY

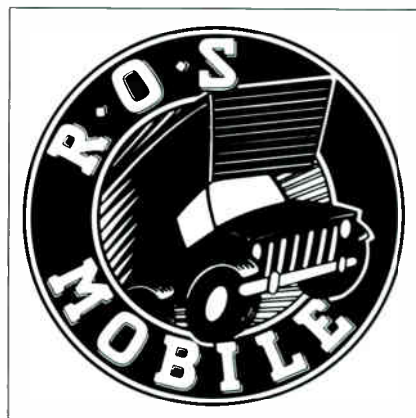
7000 Santa Monica Blvd.

Hollywood, CA 90038

(213) 464-7747

Owner: Ring-Eaton

Studio Manager: Timothy Eaton



R.O.S.
Woodland Hills, CA

[24+] R.O.S.

also REMOTE RECORDING

22249 Dolorose St.

Woodland Hills, CA 91367

(818) 716-1264

(818) 789-9340

Owner: James Hopkins, Mike Smith

Studio Manager: James Hopkins, Mike Smith

Engineers: Mike Smith, James Hopkins, various independ-

ents.

Dimensions: Room 1: studio 22 x 35. Room 2: studio 20 x 30.

Room 3: studio 20 x 40. Control room: inside mobile truck 9 x

33

Mixing Consoles: APSI 3000 24 x 28.

—CONTINUED ON NEXT PAGE

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—CONTINUED FROM PAGE 193

Audio Recorders: 3M 79 24-track, Otari MTR-12 2-track ½", Otari 5050 2-track ¼"
Echo, Reverb, & Delay Systems: 224X w/LARC, (2) REV7, (2) PCM70, MICMIX, MXR DDL, DeltaLab, etc
Other Outboard Equipment: (12) Kepelex noise gates, UREI compressors
Microphones: Neumann, AKG
Monitor Amplifiers: BGW
Monitor Speakers: Tannoy, Yamaha, Auratone
Musical Instruments: Vintage Fender guitar and bass, 1959 Gibson 335 dot neck
Video Equipment: Standard 1 camera for mobile
Rates: \$55. Varies on mobile

[24+] LISA ROSE PRODUCTIONS
19725 Sherman Way, Ste. 10
Canoga Park, CA 91306
(818) 709-4662
Owner: Ken Rose
Studio Manager: Randy Alberts, Drew Fuss

[24+] RUBY STUDIOS
1212 Brookhurst, Ste. 11
Garden Grove, CA
(714) 636-4771
Owner: Chuck Coffey, Wayne Smith
Studio Manager: Jaime Browning, Joe Gallo

[24+] RUMBO RECORDERS
20215 Saticoy St.
Canoga Park, CA 91306
(818) 709-8080
Owner: Daryl Dragon, Toni Tennille
Studio Manager: John Carsello
Engineers: Julian Stoll, Todd Wilson, Andy Udoff
Dimensions: Room 1 studio 2,500 sq ft., control room 500 sq ft. Room 2 studio 1,000 sq ft., control room 400 sq ft. Room 3 studio 150 sq ft., control room 150 sq ft.
Mixing Consoles: Neve 8088 56 x 48 w/Necam, Trident 80 56 x 24 modified, Quad Eight 36 x 4
Audio Recorders: (2) Studer A800 MKII w/MKII updates, (2) Otari MTR-90 MKII, Otari MTR-90 MKI, (2) Ampex ATR 104, Ampex ATR-102, (2) Studer A80RC
Cassette Recorders/Duplicators: (5) Yamaha K1000, (4) Aiwa F-660, (2) Technics RM-85
Noise Reduction Equipment: (24) Dolby CAT 22, (6) Dolby 361

Synchronization Systems: Q.Lock 210, Fostex 4030/4035
Echo, Reverb, & Delay Systems: (2) Ecoplate (tube), (2) EMT-140, Lexicon 224, AMS RMX-16, Lexicon Super Prime Time, (2) Yamaha REV7, Lexicon PCM70, (2) Yamaha SPX90s
Other Outboard Equipment: (2) LA-2A limiters, (6) LA4 limiters, (4) dbx 160 comp/limiters, (4) dbx 160X comp/limiters, (2) Tube-Tech PEQ-1A tube EQs, (4) UREI 1176LN limiters, (2) Scamp racks (loaded), (4) API 560A EQs, (2) API 550A EQs, TC2290 sampler delay (This is just part of our outboard inventory)
Microphones: U49 tube, (4) U47-FET, (2) Neumann U87, (2) Neumann U89, (10) AKG C414, (10) C451, (2) Neumann KM84, (2) Neumann M49, (6) Sennheiser MD-421, (12) Shure SM57. (This is just a sample, more available.)
Monitor Amplifiers: (12) Yamaha P2200, (8) Yamaha P2100, (4) Yamaha P2201
Monitor Speakers: (2) custom Gauss/Fostex LS-4 encl. (2) custom Gauss/TAD 4001 system, (6) Yamaha NS-10, (2) Tannoy SRM-123, (4) Altec 604-E, (4) JBL 4311WX
Musical Instruments: (2) Yamaha C-7 grand pianos, Hammond A-100 w/147 Leslie, Hammond B-3 w/122 Leslie, Linn-Drum, Oberheim DMX drum machine, almost any synth available upon request, vintage guitars available
Video Equipment: All rooms wired for video
Other: A selection of vintage guitars and bass amps
Rates: Available upon request
Extras & Direction: Both studios A and B have large comfortable lounges. Studio A's lounge also has a full kitchen along with a private patio with tiki lamps and barbecue facilities for those warm summer evenings. As well as a regulation basketball half court. Studio D is an excellent choice for pre-production due to its large control room, allowing a single operator to manipulate all aspects of the recording environment. The staff and atmosphere at Rumbo is very professional yet personal making it a very comfortable and enjoyable place to work.

[24+] RUSK SOUND STUDIOS
1556 N. LaBrea Ave.
Hollywood, CA 90028
(213) 462-6477
Studio Manager: Elton Ahl
Dimensions: Studio 40 x 30, control room 17 x 16.
Mixing Consoles: Harrison 3232B/C automated w/sonic improvements and extra sends, 32 in/out plus eight echo returns, Amek Matchless 28 x 24
Audio Recorders: Ampex MM1200 W/XT24 24-track, Ampex ATR-104 4-track, (2) Ampex ATR-102 2-track ½" and ¼", (2) Otari MTR90 Mark II
Cassette Recorders/Duplicators: Yamaha

SOUTHERN CALIFORNIA 24+ TRACK STUDIOS

Synchronization Systems: Otari EC101 sync, BTX sync system w/SMPTe readers and generators, complete SMPTe synchronization system
Echo, Reverb, & Delay Systems: EMT 251, 250 digital reverb, Lexicon 224X-LARC 8 2, Ecoplate I (large EMT 140s type), classic live chamber, Lexicon PCM60, AKG BX 10, small plate, AMS 1580S, Eventide 949 and 910 Harmonizers, Prime Time, Roland SDE-3000, programmable delay, Marshall Time Modulator, DeltaLab 1024 and DL1 (3 out) delays, (3) Yamaha SPX90, Yamaha REV7
Other Outboard Equipment: Teletronix LA-2 (tube) limiter, (2) UREI 1176LN, (2) dbx 161, dbx 160, Drawmer gates 2 channels, Aphex 1-channel gate, (4) Valley People Dyna-Mites, Omni Craft 4-channel gates, Dolby 361s, dbx 154, Dynaflex, Eventide instant flanger, MXR doubler/flanger, MXR auto flanger, MXR pitch changer, Orban and Furman parametric EQs, (2) B+B EQF-1 EQs, SAE 20- and 10-band graphic EQs, Aphex Aural Exciter, Phase Linear 1000 autocorrelator, Orban 3-channel de-esser, UREI LA-3A, ADR 969 Vocal Stresser
Microphones: Telefunken 251E, Neumann, (3) U67, (3) U87, U47 FET, (4) KM84, KM85, AKG: (6) 414EB, (4) 451EB, D1000E, D190, RCA 77DX, Sony C-37A, (2) ECM-22P, Sennheiser: 441, 421, MK40, E-V RE20, RE15, 666, (2) Crown PZMs; Shure: (5) 57s, SM53
Monitor Amplifiers: Bryston, BGW, Crown, Yamaha, etc
Monitor Speakers: Sierra/Eastlake, 604Es, JBL 4311s, JBL L100s, Yamaha NS-10s, Auratones
Musical Instruments: Yamaha C7 7'6" grand piano, Yamaha DX7, Emulator II, LinnDrum, Roland JX3P, Yamaha TX rack, various guitars and amps available on request, various percussion, Roland S50, Roland D50 linear synth, Yamaha DX7FDII
Other MIDI Equipment: Macintosh computer w/Performer software
Video Equipment: Wired for video loop-throughs throughout studio, video lookup available, BTX 4500 synchronizer and 4200 SMPTe reader/regenerator, Sony 5800 ¾" tape, Sony 25" XBR, JVC 25" monitor

[24+] SABAN PRODUCTIONS
11724 Ventura Blvd.
Studio City, CA 91604
(818) 985-3805
Owner: Harm Saban, Shuki Levy
Studio Manager: Andrew Dimitroff

[24+] SAGE & SOUND RECORDING
1511 Gordon St.
Hollywood, CA 90028
(213) 469-1527
Owner: Jim Mooney
Studio Manager: Jerry Wood

[24+] SANTA MONICA SOUND
2114 Pico Blvd.
Santa Monica, CA 90405
(213) 450-2119
Owner: Scotti Brothers Records
Studio Manager: Tony Papa



SKIP SAYLOR RECORDING
Hollywood, CA

[24+] SKIP SAYLOR RECORDING
506 N. Larchmont
Hollywood, CA 90004
(213) 467-3515
Owner: Skip Saylor
Studio Manager: Andrew McCarl
Engineers: Skip Saylor, Tom McCauley, various independents
Dimensions: Room 1 studio 9 x 12 (overdub booth), control room 22 x 20 Room 2 main 22 x 20, isolation room 15 x 10 and 17 x 4, control room 17 x 11
Mixing Consoles: Room 1: SSL 4000E 72-input frame 56-channel loaded (fully loaded upon request), Room 2: Trident/Spectra Sonics customized 38 x 24
Audio Recorders: Studer 800 24-track, Sony/MCI JH-24 24-track, (2) Ampex ATR-102 2-track ¼", (2) Ampex ATR-104 2- or 4-track headstack ½", Ampex ATR-800 2-track ¼", 7.5, 15, 30 ips, 32-track digital available for rental upon request
Cassette Recorders/Duplicators: Nakamichi MR-1, Denon DR-M44
Noise Reduction Equipment: Dolby A 24-track
Synchronization Systems: Lynx synchronizers
Echo, Reverb, & Delay Systems: AMS digital reverb and delay, Lexicon: 224XL LARC, PCM70, PCM60, Prime Time II delay, Yamaha: REV7, SPX90, Eventide: SP 2016 processor, 910 Harmonizer, 969 Harmonizer, Roland: SRV-2000 reverb, SDE-3000 delay, SDE-2000 delay, SRE-555 analog chorus/echo, Ibanez SDR-1000, Effectron III
Other Outboard Equipment: (10) API 550A EQs, (2) Teletronix LA-2A tube limiters, (2) Summit Audio tube limiters, (5) UREI 1176LN limiters, (2) dbx 160X limiters (stereo), UREI LA-4 limiter, (4) Drawmer noise gates, Kepelex rack, (6) dbx de-essers, (2) dbx noise gates, dbx flanger, Dynaflex noise eliminator, Aphex rack, Survival Projects auto panner, Roland SPH-323 phase shifter, Roland SDD-320 Dimension 2, Orban parametric EQs, UREI Little Dipper, (2) API 550A hi-lo pass filters, (2) Studio Technologies stereo simulators, (2) Studio Technologies reverb processors, SMPTe & 60 HZ sync, UREI digital metronome, VSO, AKG and Koss headphones
Microphones: AKG 414s, 452s, D-12E, Neumann: U87, U47, KM88, TLM-170, Sennheiser: 421s, 441s, E-V RE15s, RE20, 666, Beyer M-400s, Shure: SM5B, 57s; and more
Monitor Amplifiers: Perreux, Crown
Monitor Speakers: TAD, JBL, Yamaha NS-10s, Tannoy SRM-10Bs, Auratone T-6s, Auratone cubes, Hemispheres
Musical Instruments: Rental equipment available
Other MIDI Equipment: Rental equipment available
Video Equipment: Rental equipment available
Other: Rental equipment available
Rates: Please call for rates

[24+] SCORE ONE RECORDING, INC.
5500 Cahuenga Blvd.
North Hollywood, CA 91601
(818) 762-6902
Studio Manager: Al Johnson
Mixing Consoles: Amek TAC Matchless 26 x 24 x 8 x 2, Hill Multmix 16 x 4 x 2
Audio Recorders: MCI JH-24 24-track, MCI JH-2416 16-track, Otari MTR-12 2-track w/center-tk SMPTe, Otari 5050 8-track, (2) Otari 5050 2-track
Cassette Recorders/Duplicators: Yamaha, Akai, TEAC
Synchronization Systems: Q.Lock 3 10C
Echo, Reverb, & Delay Systems: Lexicon 200, Yamaha REV7, Yamaha SPX90, MICMIX Master Room XL-305, Roland SDE-3000, Eventide 910 Harmonizer
Other Outboard Equipment: (2) Electrophase Gates, (2) EXR IV Exciter, (3) UREI 1176LN comp/limiter, Dynaflex MICMIX, (2) Symetrix lim/comp, Orban stereo synth, Orban sibilance controller, UREI band pass filter, (2) UREI notch filters
Microphones: Neumann, AKG, Sennheiser, E-V, Sony, Audio-Technica, Shure
Monitor Amplifiers: Yamaha, Crown, Phase Linear
Monitor Speakers: UREI 813, (2) Yamaha NS-10M, Auratone
Musical Instruments: Yamaha C7 grand piano, Ensoniq Mirage, Yamaha RX11 drum machine, guitars, amps
Video Equipment: JVC CR-850U ¾" video, Advent 3-gun 6" TV, Q.Lock 3.10c synchronizer, Otari EC-401 universal resolver
Other: Sony CD player, 16/35mm mag transfer
Rates: 8-track \$40/hr., 16-track \$60/hr., 24-track \$75/hr., video/audio \$150/hr

[24+] S.D.R. (ALSO KNOWN AS SAL)
14511 Delano St.
Van Nuys, CA 91411
Owner: David Coe
Studio Manager: Sharon Rex

[24+] SEA-WEST STUDIOS/HAWAII
also REMOTE RECORDING
Box 729
Hauula, HI 96717
(808) 293-1800
Owner: Sea-West Corporation
Studio Manager: Donna Alexa Keefler
Extras & Direction: Sea-West Studios/Hawaii is located on the beautiful North Shore of the Island of Oahu, near the Turtle

Bay Hilton Resort & Polynesian Cultural Center Sea-West is a fully equipped 24-track studio with a large assortment of outboard gear and MIDI equipment. We specialize in block bookings for record albums, and handle all details for travel, accommodations and entertainment. Sea-West's credits include RIAA gold & platinum albums for Heart and Crosby, Stills, & Nash. For more information, please phone: (808) 293-1800, or telex: 8878 SWEST HR, or cable: HITS-HAWAII. Aloha....

[24+] SEACOAST RECORDING STUDIO
926 Turquoise St.
San Diego, CA 92109
(619) 270-7664
Owner: Elliott Audio Ent.
Studio Manager: Jack Elliott

[24+] SECRET SOUND L.A.
4836 Queen Victoria Rd.
Woodland Hills, CA 91364
(818) 999-6160
Owner: Chas Sandford
Engineers: Gary McGachan, Don Smith, Daren Chadwick
Mixing Consoles: Trident Series 70 custom 76 x 16, w/8 sends per module, 8 assignable group mutes per module, in-place stereo solo, solo defeat, insert and 48V switches, 52 inputs with EQ.
Audio Recorders: Studer A820 24-track digitally controlled analog, Stephens 16-track 2", Ampex ATR-102 2-track 1/2" and 1/4", Technics 1500 2-track
Cassette Recorders/Duplicators: Revox B215, Technics RM 85MKII
Synchronization Systems: Adams-Smith Zeta 3 w/MIDI capabilities
Echo, Reverb, & Delay Systems: Lexicon 224XL w/4.4 software, EMT 140 stereo plate w/remote, (2) Yamaha REV7s, Ibanez SDR1000, Yamaha SPX90, AMS 1580 S stereo DDL w/dual pitch change and sampling 6.5 and 3.4 sec., Lexicon Delta T w/4 delay modules, Lexicon PCM41, Eventide 910 Harmonizer and 1745A DDL.
Other Outboard Equipment: Roland Dimension D, Barcus-Berry Electronics 802, (6) Drawmer gates, (4) Roger Mayer gates, (6) Pultec EQs, (2) Lang EQs, (4) API 560 EQs, (12) API 312 mic pre-amps, (8) custom parametric EQs, Neve 33609 stereo limiter/compressor, Fairchild Instruments 660 limiter, (2) Teletronix LA-2A, UREI, (2) LA-3, (2) LA-4, dbx (2) 160, (2) 160X, (4) UREI 1176, Eventide limiter/compressors, Pultec mic pre.

Microphones: Telefunken 251 tube mic, AKG C-24 tube mic stereo, Neumann U67 tube mic, Neumann SM2 stereo tube mic, assortment of AKG, Neumann, Shure and Sony condenser mics, AKG, Beyer, E-V, Sennheiser, Shure dynamic mics. Monitor Amplifiers: Haller, HH Electronic, Yamaha power amps, White 28-band monitor EQs.
Monitor Speakers: Tannoy Big Reds, Fourier 2-way monitors, Yamaha NS-10s, JBL 4311s, Auratones
Musical Instruments: LinnDrum w/many mods, Emulator II+ w/extensive library, Mac + w/Digi-design, Softsynth software, Yamaha DX7 and TX7, Mirage sampler, Oberheim, (12) assorted electric, acoustic and 12-string guitars, Fender bass, (6) amplifiers (Boogie, Seymour Duncan, Marshall, acoustic, Roland and Rockman amps), Rogers and Ludwig drum sets.
Rates: \$170/hr., \$1,500 lockout, negotiable.

[24+] 7TH STREET SOUND
688 S. Santa Fe, #105
Los Angeles, CA 90021
(213) 627-5392
Owner: Ed Sanders
Studio Manager: Ed Sanders
Engineers: Ed Sanders
Dimensions: Studio 17 x 22, control room 14 x 20
Mixing Consoles: Harrison MR-4 40 x 24 w/ARMS automation.
Audio Recorders: Telefunken M-15A 24-track, (2) Telefunken M-15A 2-track, Sony 501-ES 2-track
Cassette Recorders/Duplicators: Technics M85 MKII
Noise Reduction Equipment: TTM rack w/24-channel Dolby, Dolby 2-track
Synchronization Systems: Roland SBX-80
Echo, Reverb, & Delay Systems: Yamaha REV7, (2) Roland SRV-2000, AKG BX-10, Yamaha SPX90, Effectron II
Other Outboard Equipment: dbx 160, (2) KepeX II, (4) EMT 256 compressors, (2) EMT 258 noise filters, (2) EMT 260 high frequency limiters, (2) Valley People Maxi-Q, (3) Trident EQs, UREI 1176, GateX noise gates
Microphones: Neumann U47 tube, Telefunken U47 tube, Neumann KM254 tube, AKG 452, E-V RE20, (6) Shure SM57, (2) AKG 414.
Monitor Amplifiers: UREI 6500, UREI 6150.
Monitor Speakers: UREI 813B, JBL 4311, Yamaha NS-10, Auratone
Musical Instruments: Yamaha DX7, Yamaha TX816, Oberheim Xpander, Memorymoog, Minimoog, Prophet V, Yamaha CS80, Yamaha RX5, Yamaha RX15, Linn LM-1, Roland TR303, Martin D-28, Fender Telecaster, Fender P-Bass
Rates: \$50/hr

[24+] SHEIKA PRODUCTIONS STUDIO
6438 Ben Ave.
North Hollywood, CA 91606
(818) 762-3326
Owner: Galen L. Senogles, Ralph Benatar
Studio Manager: Galen L. Senogles

[24+] SILVERLAKE SOUND STUDIO
2413 Hyperion
Los Angeles, CA
(213) 663-7664
Owner: Steve Millang
Studio Manager: Rosa Millang
Engineers: Jon Guggenheim, Jane Mccord, Darryl Swann
Dimensions: Studio 30 x 35, control room 10 x 10.
Mixing Consoles: Trident Series 80B 32 x 24.
Audio Recorders: Otari MTR-90-II 24-track, MCI JH-110A 2-track.
Cassette Recorders/Duplicators: Sony TK-777
Echo, Reverb, & Delay Systems: (2) Lexicon PCM70, Yamaha REV7, Yamaha SPX90, Prime Time II, TC Electronics 2209 (32 sec sampling), Eventide H910 Harmonizer
Other Outboard Equipment: (4) dbx 160, (2) dbx 165A, (2) dbx 902, (2) 1176, Orban de-esser, (4) KepeX II, (2) Drawmer DS201.
Microphones: (2) Neumann U87, Neumann 47 tube, Neumann 47 FET, AKG 414 P48, (2) AKG 414 EB, (2) AKG 452, (5) Shure SM56, Sennheiser 421, (3) RCA 77, E-V RE20
Monitor Amplifiers: BGW 750, HH Electronic 500, Phase Linear 200
Monitor Speakers: JBL 4430, Yamaha NS-10M, Auratone
Rates: Please call.

[24+] SLIDES R US
also REMOTE RECORDING
Santa Monica, CA
Studio Manager: Ed Wong

[24+] SLIPPERY STUDIOS
PO Box 1126
Los Angeles, CA 90069
(213) 274-3600
Owner: Larry Belling
Studio Manager: Sydney T. Flender

ASK THE
PROS

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AUDIO INTERVISUAL DESIGN

LOS ANGELES

(213) 469-4773

Telex 315254, IMC 581

[24+] **SMOKETREE**
9752 Baden Ave.
Chatsworth, CA 91311
(818) 998-2097
Owner: Smoketree Corp.
Engineers: D. Parry, R. Raposa.
Dimensions: Studio 20 x 35 x 16, control room 17 x 23 x 12.
Mixing Consoles: Neve 8078A 76 x 24 bus w/George Mas-
senburg automation system.
Audio Recorders: (2) Studer A800 MKIII 48-track, (2) Ampex
ATR-100 2-track, Studer A820 TC 2-track, MCI JH-110B 4-track.
Cassette Recorders/Duplicators: (4) Sony K-777
Echo, Reverb, & Delay Systems: (2) EMT 140TS plates, EMT
251, Lexicon 224XL, (2) PCM70, Yamaha REV7
Other Outboard Equipment: Publison America Internal 90 (21
seconds stereo 16-bit), Drawmer gates, Scamp and Aphex
racks, (3) LA-2A, Eventide 910, 949, 1745M, Lexicon PCM42,
(2) Roland SDE-3000
Microphones: Telefunken 251, AKG C-12, 414-EB, 451E; Neu-
mann M49, U47, M269, U87, U67, KM84, 125 mics., over 30
rare tube type
Monitor Amplifiers: HH Electronic V-800 MOSFET
Monitor Speakers: Altec 604 w/Mastering Lab CX and Gauss
woofers
Musical Instruments: (2) Yamaha TX816 racks, (2) Yamaha
DX7, Yamaha KX88, Roland Jupiter 8 and JX8P, 707, 727,
SBX-80, Linn 9000, Oberheim Matrix 12, (2) Akai 612 sampler,
(2) Apple Macintosh Plus w/Hyperdrive 20, Emulator II.
Video Equipment: Sony BVU-800 3/4" video recorder, JVC
6800U 1/2", BTX Softouch controller w/(2) Shadow synchro-
nizers



SOUND AFFAIR RECORDING, LTD.
Santa Ana, CA

[24+] **SOUND AFFAIR RECORDING, LTD.**
2727 Croddy Way, Ste. G
Santa Ana, CA 92704
(714) 540-0063
Owner: Ron J. Leeper
Studio Manager: R. Leeper, M. Palmquist
Engineers: Ron Leeper, Allan Blazek, Barry Keenan, Trey
Solberg, Brian Burns, Brian Webster, Eric Mattson, Steve
Anderson
Dimensions: Room 1 studio 36 x 30, control room 20 x 18.
Room 2 studio 26 x 24, control room 18 x 14
Mixing Consoles: MCI JH-600 automated 32 x 32, Amek/TAC
Matchless 26 x 24
Audio Recorders: Ampex MM-1200 24-track, Ampex MM-
1200 16-track, Ampex ATR-102 2-track 1/2" and 1/4", Ampex
440-C 2-track 1/4", Ampex VSO
Cassette Recorders/Duplicators: Nakamichi MR-1, Nakamichi
MR-2
Echo, Reverb, & Delay Systems: Lexicon Super Prime Time,
Eventide 949 Harmonizer, Eventide SP2016 digital processor,
Lexicon PCM70 digital effects processor, Yamaha SPX90
digital effects processor, Klark-Teknik DN780 digital reverb &
effects processor, Ecoplate reverb, Lexicon Prime Time, ART
digital reverb
Other Outboard Equipment: Goldline RTA 1/3-octave, UREI
dual 10-band graphic equalizer, Barcus-Berry aural exciter,
Scamp noise gates, limiters, time shape-modules, de-esser,
auto-panner, Teletronix LA2 tube limiter, UREI 1176 LN peak
limiter, UREI LA-4A stereo comp/limiters, dbx 166 dual comp/
limiters, Hewlett Packard 1208B XY display, Furman param-
etric equalizer, EXR Exciter, Drawmer DS 201 dual noise
gate, Eventide instant phaser, Brooke-Siren FDS 320 cross-
over, Klark-Teknik dual 30-band 1/3-octave graphic room
equalizer
Microphones: AKG 414, 451, 452, D-112, D-12E, Neumann:
U48 (tube), U87, U89, KM84, KM83; Sennheiser: MD441,
421, MKH405, Crown PZM; E-V RE20; RCA 77-DX; Altec
195-A; Sultan V-200, Shure: SM56, SM57, SM60; Calrec CC-
56
Monitor Amplifiers: UREI power amps: 6500, 6250, 6150;
BGW 210 power amp

SOUTHERN CALIFORNIA

24+ TRACK

STUDIOS

Monitor Speakers: JBL 4430 Bi-Radials, Tannoy SRM-12B,
Yamaha NS-10Ms, Auratone 5Cs, JBL 4312s, JBL mini moni-
tors and UREI 809 Time-Aligns.
Musical Instruments: Yamaha C-7E 7'4" grand piano, Yama-
ha DX7 synthesizer, Linn 9000 digital drum machine, Fender
Rhodes electric piano, Rogers drums, percussion kit.
Rates: Please call or write for brochure.
Extras & Direction: In November, Sound Affair will be celebrat-
ing our tenth year of operation. We are known to be one of
Southern California's finest and auspicious studios. This year
has been one of our best yet. Some of those who turned out
great projects include Adam Ant, Greg Allman, Elvin Bishop,
Jose Feliciano, Dirk Hamilton, George Butts, Cornelius Bump-
as, Mo Jo Nixon, L.A. Rams, The Joneses, Undercover, Mike
Reilly Band, Walking Wounded, Capitol, Enigma, Red Label,
PolyGram and Restless Records.

[24+] **SOUND CHAMBER RECORDERS**
also **REMOTE RECORDING**
27 S. El Molino Ave.
Pasadena, CA 91011
(818) 449-8133
Owner: Richard McIlvery, Randy Farrar, Tim Kenefick
Studio Manager: Richard McIlvery

[24+] **SOUND CITY INC.**
15456 Cabrito Rd.
Van Nuys, CA 91406
(818) 787-3722
(818) 873-2842
Owner: Joe Gottfried, Tom Skeeter
Studio Manager: Paula Salvatore
Engineers: John Hanton, Bruce Barris, Dave Eaton, Allen Isa-
acs, Maintenance: John Hanton, Bret Newman.
Dimensions: Room 1: studio 40 x 50, control room 26 x 20.
Room 2: studio 40 x 30, control room 20 x 20.
Mixing Consoles: Neve w/Necam computer mix, 28 x 24,
Neve 32 x 24
Audio Recorders: Studer A800 24-track, Studer A80 MK II
24-track, Studer A80 1/2", Studer A80 1/4", (2) B67 2-track,
Revox/Sony 1/4-track.
Echo, Reverb, & Delay Systems: EMT, AKG, Lexicon, Delta-T
digital delay, (2) Harmonizer 949, Eventide flanger, Orban
de-esser, Eventide digital delay, AMS RMX-16 digital reverb.
Other Outboard Equipment: Parametric EQ, dbx 165As, Pultec
EQs, filters, Teletronix LA-2A limiters, Neve limiters, UA 1176,
Dolbys.
Microphones: Neumann: U47, U67, U47 FET, U84, U86, U87,
KM84, KM86, M49; AKG: 541Es, C-451E, C-24, C-12A, 460s,
M49, E-V: RE20, RE15, 635s, Shure: 545s, SM57, SM58;
Sennheiser MD-421; Sony: C-37s, EC50.
Monitor Amplifiers: Crown DC-300 for the Q system, Yamaha
P2200.
Monitor Speakers: JBL (custom designed and tuned by
George Augspurger and Steve Brandon).
Musical Instruments: Hammond C-3 organ w/Leslie, (2) Stein-
way grand pianos.
Rates: Call for rates.

[24+] **SOUND DESIGN**
33 W. Haley
Santa Barbara, CA 93101
(805) 965-3404
Owner: Affiliated Concepts Corp
Studio Manager: Dom Camardella
Engineers: Terry Nelson, David Mendenhall, Danie! Protheroe.
Dimensions: Room 1: studio 1,400 sq.ft. w/22' ceiling, control
room 400 sq.ft., with two iso. booths. Room 2: MIDI room 300
sq.ft.
Mixing Consoles: Neve 8038 36 x 24 monitor/16 bus, custom
desk, Tascam 520 20 x 16 monitor/8 bus, Yamaha MV802 8 x
2 aux mixer.
Audio Recorders: Sony 3324 24-track digital, Studer A80
MarkIII 24-track w/Audio Kinetics autolocator, Studer A80 RC
2-track, Sony 3202 2-track digital (SMPT E w/chase), (2) digi-
tal, (2) analog, time code, Tascam 80/8 8-track (15,30 ips)
w/Tascam autolocator, Tascam 80HS 2-track 1 center-track
time code.
Cassette Recorders/Duplicators: Sony TC-K81, (3) Onkyo.
Noise Reduction Equipment: (24) Dolby MBXH-24 Type A, (4)
Dolby 361.
Synchronization Systems: Roland SBX80 sync box (SMPT E,
MIDI), (2) Tascam chaselock/sync box (ATRS, VTRS).
Echo, Reverb, & Delay Systems: EMT 140ST, Lexicon 200,
Eventide SP2016, (2) Lexicon PCM70, Lexicon Super Prime
Time, (2) Yamaha REV7, Yamaha SPX90, Roland SDE-2500.

Roland SDE-1000, Roland CE-300 Super Chorus, Eventide
910.
Other Outboard Equipment: Pultec EQP1A, Lang PEQ1, Son-
tec stereo EQ, UREI 1178, Teletronix LA-2A, Universal Audio
LA-3A, (2) RCA tube limiter, (4) Valley People Kepex gates, dbx
160 compressor/limiter, dbx 463X noise gate, dbx 263X de-
esser.
Microphones: Neumann U47, (2) Telefunken U47, (3) Neu-
mann U87, Neumann U67, (4) AKG 414, AKG C60, (5) Neu-
mann KM84, (2) Beyer MKB301, AKG C24 stereo tube, (2)
AKG C12A, (5) AKG 452, Sony C500, (2) Sony ECM50, (3)
Sennheiser 421, Sennheiser 441, (4) E-V RE20, E-V RE15,
Shure 58, Shure 57, (2) Shure 545.
Monitor Amplifiers: (8) Accuphase (3-M300, 5-M60), Phase
Linear 700B, Roland SRA-2400.
Monitor Speakers: (2) UREI 813, (4) Yamaha NS-10, (2) JBL
4310, (2) JBL 4311, (2) Auratone, (8) Fostex T-20 headphones.
Musical Instruments: Yamaha C3 grand piano, Fairlight Series
III computer musical instrument, E-mu Emulator II, Yamaha
DX7, Yamaha TX816, Roland Super Jupiter w/programmer,
Roland JX8P, Roland MKS-30, E-mu SP-12 w/turbo drum
machine, Hammond B3 organ w/Leslie, Roland Octapad,
Moog Minimoog, Roland TR-707, Roland TR-727 drum ma-
chine, Roland MKB-300 controller keyboard.
Other MIDI Equipment: (2) Megamax automated mixing sys-
tems, (total: 32 channels) PC based, Simmons MTM (Trigger,
MIDI) processor, IBM PC clone w/Texture, Roland MPS, Jim
Miller software, Yamaha MIDI expander (2 MIDI in, 8 MIDI out).
Video Equipment: Mitsubishi TV (studio A), Sony TV (studio B).
Other: Tascam CD-501 (CD player plus 4 output), and remote,
Macintosh, Apple computer w/Composer and Performer soft-
ware and MIDI interface.
Rates: Call for brochure or inquiry.

[24+] **SOUND IMAGE STUDIO**
6556 Wilkinson
North Hollywood, CA 91606
(818) 762-8881
Owner: Sound Image Entertainment Inc
Studio Manager: Chuck Kopp

SOUND MASTER



RECORDING STUDIOS®

SOUND MASTER AUDIO/VIDEO STUDIOS
North Hollywood, CA

[24+] **SOUND MASTER AUDIO/VIDEO STUDIOS**
also **REMOTE RECORDING**
10747 Magnolia Blvd.
North Hollywood, CA 91601
(213) 650-8000
Owner: Brian Ingoldsbey
Studio Manager: Barbara Ingoldsbey
Engineers: Brian Ingoldsbey, Ken Ingoldsbey, Dan Shimiaei, Ian
Ingoldsbey.
Dimensions: Room 1: studio 35 x 40, control room 30 x 30.
Room 2: studio 35 x 40, control room 20 x 25. Room 3: studio
15 x 15, control room 25 x 25
Mixing Consoles: Mitsubishi/Quad Eight 42 x 42 automated,
Amek 32 x 32.
Audio Recorders: (2) Sony/MCI JH24 24-track, (2) 3M 3M79
24-track, 3M 3M79 16-track, (3) Sony JH-110 4-track, (12)
Ampex, Sony/MCI, Otari 2-track, (2) 3M 3M56 8-track.
Cassette Recorders/Duplicators: (6) Awa, (2) NA
Noise Reduction Equipment: (96) dbx, (48) Dolby, (16) dbx
and Dolby 2-track.
Synchronization Systems: (8) Lynx.
Echo, Reverb, & Delay Systems: Lexicon Lark, (2) Lexicon
224, (10) Yamaha REV7, (5) Lexicon SPX90, (5) Roland RS-
2000, (4) Prime Time, (4) Ursa Major, (4) Lexicon PCM41, (4)
Advance Audio D-250, (8) MXR, etc.
Other Outboard Equipment: (40) limiters, (57) misc. effects
devices phasers, flangers harm., etc., Orban de-essers, 26
channel of Dolby, 32 channels of dbx noise reduction sys-
tems, SMPT E time code JH45, Autolocator 3, Prime Time,
Lexicon PCM41, Eventide Harmonizer, D250 Advanced Au-
-

—CONTINUED ON PAGE 198

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(415) 843-7901

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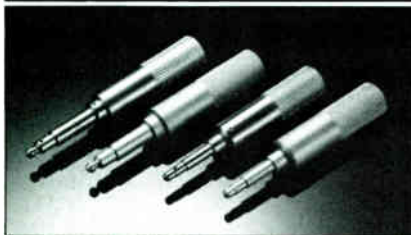
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SOUTHERN CALIFORNIA

24+ TRACK STUDIOS

—CONTINUED FROM PAGE 196

dio Design, 265 Dynafinger, Limiters: dbx 165s, UREI 1176s, dbx 161s, Quad/Eight compressor/expanders, Quad/Eight de-essers; Noise gates: (16) Quad/Eight and Kepex, Orban parametric, UREI 527A, MXR phaser, Eventide instant phaser, Marshall time modulator, Eventide DDL 1745

Microphones: (59) AKG tube, Neumann, Altec, etc., (397) Dynamics all makes, (149) Ribbon, Beyer, RCA, etc., (151) condenser (all makes), (31) PZMs, (41) wireless mics (all makes).

Monitor Amplifiers: (27) Soundcraft, (114) Carvin, (31) BGW Monitor Speakers: (87) custom Sound Master, (29) JBL, (38) Carvin/E-V, (27) Renkus-Heinz, (10) Goodman, (30) ESS/Heil, etc.

Musical Instruments: Steinway "B" 7'7" grand, Yamaha grand, B-3w/Leslie, string machine, channel chimes, vibes, (2) drum sets, misc. hand perc. instruments, misc. keyboards.

Video Equipment: Sony C Format 1", Crosspoint latch, Grass Valley, Ikegami, microwave, Lynx, camera crane truck, computer A/B roll editing, systems, DVE, Chyron, ENG, EFP, etc., (8) cameras, (5) 1" C format VTRs

Other: Complete disc mastering service, mobile recording trucks, 24- and 48-track, sound reinforcement, complete production video trucks w/microwave.

Rates: Call Barbara, studio manager

Extras & Direction: On-site disc mastering studio with Total Recall console and Ortofon cutting system. Also, 30' remote 24- and 48-track recording trucks, 31' remote video trucks. Our aim is to provide you with professional technical sophistication as well as personal attention

[24+] SOUND SERVICES, INC.

7155 Santa Monica Blvd.
Los Angeles, CA 90046
(213) 874-9344

Extras & Direction: Our award winning radio, film and video post-production facility can service all of your audio needs utilizing our three multi-track studios for ADR, VO and mixing featuring our new video post-production suite with automated Soundcraft TS-24, Alpha Audio "BOSS" edit controller, 1" and 3/4" video formats, mag film elements, time code transfers, Westlake designed high speed mag film dubbing stage with 35mm or video pix for mono/stereo mixing, an extensive library of over 20,000 sound effects; three audio transfer bays for 35/16mm mag from any sync sound source; Bosch CCD 35/16mm Telecine print/negative transfers to video with Pan-Scan, auto color correction and grain reduction. Join the many international production companies and advertising agencies that depend on our reliable sound production services

[24+] SOUND SOLUTION RECORDING

also REMOTE RECORDING

Office: 1543 7th St.
Studio: 1211 4th St.
Santa Monica, CA 90401
(213) 393-5332

Owner: Solutions Enterprises, Inc.

Studio Manager: Keith Wechsler

Engineers: Keith Wechsler, Steve Barncard, Richard Jallis, David Blade, Jim Burnett, Rod Clark

Dimensions: Studio 32 x 14, control room 14 x 16, plus iso booth 4 x 8.

Mixing Consoles: MCI JH-428 modified 28 x 24 w/Aphex VCA DC subgroups and mutes, Biamp 8 x 2 effects mixer

Audio Recorders: MCI JH-114 24-, 16- and 8-track w/A.L. & VSO, Ampex ATR-102 2-track 1/2" and 1/4", MCI JH-110 1/2-track w/VSO, Sluder/Revox A700 2-track, Sony TC-854 4-track

Cassette Recorders/Duplicators: (3) Sony TCK-777, (3) JVC KDV-400, Sony TC-D5M.

Echo, Reverb, & Delay Systems: Lexicon 224X LARC 8.2 digital reverb, Yamaha SPX90 digital reverb/effects, EMT 140ST stereo tube plate reverb, Ecoplate III reverb, AKG BX-10E reverb, (2) Lexicon Prime Time M93 digital delay, Delta-Lab ADM 1024II digital delay, Marshall Time Modulator, Roland 555 chorus echo.

Other Outboard Equipment: (2) dbx 160X limiters, (2) UREI 1176LN limiters, (2) UREI LA-3A limiters, (3) Drawmer 2-channel gates, (2) Orban 622B dual-channel parametric EQs, Klark-Teknik DN27 and DN22 graphic EQs, Systech flanger, Orban 3-channel de-essers.

Microphones: Over 100 mics Neumann, Sennheiser, Shure, Sony, E-V, RCA, AKG, Crown, etc. (including tube and ribbon types).

Monitor Amplifiers: (4) Hafler P-225, BGW 100B, QSC MX-1500

Monitor Speakers: Altec/Mastering Lab 604Es, Yamaha NS-

10M, Sony APM-700s, Fostex RM-780s, Auratones.

Musical Instruments: Yamaha C7 7'4" grand piano, Yamaha DX7 digital synth, Minimoog, LinnDrum computer w/chip library, Yamaha, Fender and Gibson guitars, bass and amplifiers, Rockman X-100, misc. drums, cymbals, hand percussion, etc., misc. effects pedals, Fairlight CMI and Emulator II available at additional cost.

Video Equipment: 3/4" video lock-up available.

Rates: Basic rate includes all equipment, instruments and house engineer. Please call for specific quote.

Extras & Direction: Producers, musicians, arrangers, composers, programmers and rentals of any type available. Our primary focus is service and the satisfaction of our clients. We are located four blocks from the beach in sunny Santa Monica. Free Parking. The purpose of Sound Solution Recording is to provide an environment where people are inspired to perform to their absolute limits and beyond—effortlessly. Recent album, film and TV projects include: Beachboys/Fat Boys, George Clinton, Tony Elman, Otis Day & the Knights, Opal, Survival Quest, Midnight Star, Little Richard, Tachheads, *The Tracy Ullman Show*, *The Telephone*, Beach Boys ABC Special *25 Years Together*.

[24+] SOUNDCASTLE RECORDING STUDIOS

2840 Rowena Ave.
Los Angeles, CA 90039
(213) 665-5201

Owner: Buddy King
Studio Manager: Darryl Caseine

[24+] SOUNDCHASER RECORDING STUDIOS

PO Box 267
Laie, HI 96762

(808) 293-2789

Owner: Brett Butterfield

[24+] SOUNDER

17021 Chatsworth St.
Granada Hills, CA 91344
(818) 366-0995

Owner: Brian Mann, Mark Creamer
Studio Manager: John Slattery

[24+] SOUTH BAY SOUND COMPANY

1854 W. 169th St., #F
Gardena, CA 90247

(213) 538-0209

Owner: Dan Jamele, Leon Jamele

Studio Manager: Marcy Duda

[24+] STARWORKS AUDIO/FILM COMPLETION SERVICE INC.

1017-1019 N. Cole Ave., Stes.2,3,4
Hollywood, CA 90038

(213) 463-4707

(213) 461-8658

Owner: F.C.S. Inc.

Studio Manager: Chris Colymby

Engineers: Chris Colymby

Dimensions: Room 1: studio 18 x 20, control room 15 x 20, Room 2: studio 10 x 20, control room 12 x 12, Room 3: studio 20 x 30, control room 20 x 30, Room 4: studio 20 x 15

Mixing Consoles: Amek Angela 28 x 24 x 56 console, (2) Ramsa 12 x 8, Ramsa 12 x 4.

Audio Recorders: Otari MTR-9011 24-track, Otari 5050 2-track, MCI 8-track 1", MCI 2- or 4-track 1/4", 1/2", (3) MTM 3-track film dubbers, Akai 900 sampler.

Cassette Recorders/Duplicators: (2) Awa UX-220 dual, Fisher DD-280, Nakamichi MR-2.

Synchronization Systems: Otari EC-101 chase lock, Adams-Smith 5 machine.

Echo, Reverb, & Delay Systems: Lexicon 200 reverb, Lexicon PCM70 digital FX processor, Time Line 2056 DDL, Super Time 1024 DDL, Time Line 556 DDL.

Other Outboard Equipment: Aphex Aural Exciter, dbx 160 comp/limiter, dbx 160X comp/limiter, Orban stereo synthesizer, (4) Kepex.

Microphones: (2) E-V RE20, E-V RE18, E-V RE15, AKG 414, Sennheiser 421, (2) AKG 451 condenser, Beyer Dynamic 260, (2) Shure SM57, Sennheiser shotgun mc.

Monitor Amplifiers: QSC 3350.

Monitor Speakers: (4) JBL 4312s, (2) Yamaha NS-10s, (2) Auratones.

Musical Instruments: Memorymoog MIDI plus, Roland JX-8P, Roland JX-3P, LinnDrum II, P bass, GTR strat, Fender concert amp

Other MIDI Equipment: Akai 900 sampler.

Video Equipment: Sony S-600 3/4", JBL large screen projector, (2) Ikegami monitors.

Other: Technics CD player, Sound Ideas library.

Rates: Book rate 24-track \$100/hr. with engineer, block and demo rates available. Audio sweetening \$200/hr., \$250 w/engineer

[24+] STUDIO 55
5505 Melrose Ave.
Los Angeles, CA 90038
(213) 467-5505
Owner: Richard Perry
Studio Manager: David Dubow

[24+] STUDIO MASTERS
8312 Beverly Blvd.
Los Angeles, CA 90048
(213) 653-1988
Owner: Randolph C. Wood
Studio Manager: Larry & John Wood
Engineers: Tim Jaquette, Darryl Heilbrunn
Mixing Consoles: Neve 8128 48 x 32 w/Necam 96 automa-
tion, Harrison 36 x 24
Audio Recorders: (3) Ampex MM-1200 24-track, Studer A820
2-track 1/4" and 1/2" formats, (3) Studer A80 2-track
Cassette Recorders/Duplicators: (2) Technics RS-M85, (2)
Nakamichi MR-1

Noise Reduction Equipment: Dolby M-24, dbx.
Synchronization Systems: Audio Kinetics Q.Lock, Adams-
Smith
Echo, Reverb, & Delay Systems: (2) AMS RMX 16 digital
reverb, AMS DMX-1580-S digital delay, (3) Yamaha REV7
digital reverb, Prime Time digital delay, (2) Yamaha SPX90,
Lexicon PCM70, Eventide DDL, EMT, Master-Room
Other Outboard Equipment: (6) dbx 165 limiters, (6) UREI
1176 limiters, Orban parametric equalizers, (16) Kexpe II noise
gates, (3) Drawmer DL DS-201 noise gates, (4) API 535 equal-
izers

Microphones: AKG 414s, KM84s, Shure SM57s, AKG 452s,
Sony CP-37s, Neumann U67, Neumann U87s, E-V RE20s
and others
Monitor Amplifiers: H&H V800, (2) Quicksilver audio tube,
Crown 300A
Monitor Speakers: (2) Westlake TM-1, (2) George Auspurger
Other MIDI Equipment: JVC CR-850-U 3/4" video recorder,
Sigma Master sync generator
Video Equipment: JVC CR-850-U 3/4" video recorder, Sigma
Master sync generator
Other: Neumann disk mastering
Rates: Available upon request.

[24+] STUDIO ON WHEELS
also REMOTE RECORDING
339 W. Windsor Rd.
Glendale, CA 91204
(818) 243-6165
Owner: John Falzarano
Studio Manager: Brian Nemecek

[24+] STUDIO II
(Affiliate of Indigo Ranch)
9733 Culver Blvd.
Culver City, CA 90230
(213) 558-8832
Owner: Richard Kaplan, Jason Wolchin
Studio Manager: Jason Wolchin
Engineers: Richard Kaplan, Jason Wolchin, various others.
Mixing Consoles: Jensen/Aengus 48 x 24, (8) additional tube
mic preamps
Audio Recorders: Stephens 821A 24-track, Stephens 821A
4-track 1/2", 3M 79 2-track 1/4" 1/2" (transformerless), Scully 280
2-track 1/4" 15-30 ips, Scully 280B 2-track 1/4"
Cassette Recorders/Duplicators: Available to suit your needs.
Noise Reduction Equipment: Available to suit your needs.
Synchronization Systems: Available to suit your needs.
Echo, Reverb, & Delay Systems: Yamaha SPX90, AMS and
EMT 250 available, Roland DEP 5, (2) EMT 140 stereo plates,
Publison America Infernal 90 stereo audio computer (stereo
sampling or (2) digital reverbs), Roland SRV-2000 digital re-
verb, MXR-ART 01 digital reverb, (2) Yamaha REV7 digital
reverb, Alesis XT digital reverb, Ursal Major Space Station,
Ecoplate, Master-Room reverb, Sennheiser reverb, Telefunken
reverb, Eventide 1745A, Eventide 1745M, (2) Eventide
H910 Harmonizers, (2) Roland SDE-3000 digital delay, Yama-
ha 1500 digital delay, BEL digital delay/flanger, Marshall Time
Modulator, (2) Cooper time cubes, Lexicon Prime Time, Loft
440 stereo flanger, (3) MXR DDLs, MXR pitch shift/doubler,
MXR flanger doubler, Mutron stereo Bi-Phase, Eventide in-
stant phaser

Other Outboard Equipment: (8) Drawmer Electro Space Strate
Gates, EXR Exciter, Aphex, dbx 900 rack w/de-esser, Limiters:
LA1 (tube), LA-2A (tube), EMT 156 stereo, dbx 162 stereo,
Eventide Omnipressor, Inovonics limiter, UREI 175 tube, UA-
176 tube, Altec 436C tube, (3) RCA tube limiter, Orban de-
esser, EQ: Pultec SAE Graphics, APIs, B&Bs, Aengus graph-
ics, Collins and Cinema Engineering, w/Pultec boosters, Altec
filters, Gates: (4) Symetrix gates, (8) Kexpe, (4) RM noise
gates, Roland guitar pre-amp, White 140 analyzer, dbx Boom

Box bass synthesizer.
Microphones: U47, M49 tube, Telefunken 221 tube, (3) Senn-
heiser 421, Telefunken 251 tube, Neumann: U47 tube, KM53
tube, KM54 tube, KM56 tube, KM64 tube, KM84, KM86, U64
Neuvistor, U67 tube, U87s, SM69 stereo, M269 tube, AKG:
C-12A, C60, C61, C28, C451, C452, C414, E-V: RE20, 666,
CS-15, 731, 670; Calrec 1050, Sony: C-37Ps, C220, ECM-16,
ECM-22, ECM-56, ECM-65, ECM-54; Shure: SM56, SM57,
SM58, 545, 565, Altec: 22, 29A, 150A, 175A tubes, etc.
Monitor Amplifiers: BGW 750Cs, Crown DC300As, Technics
400W Class A to small speakers, Mattes 100.
Monitor Speakers: Visonik 9000, JBL Control Ones, JBL 4312,
JBL custom 4-way, Yamaha NS-10.
Musical Instruments: Prophet 600, ARP Quadra, Korg DDD-
1000 (digital drum machine), Minimoog, Fender strat, Kawai
grand piano, Peavey Decade guitar amp, Rockman, Gorilla
amp
Other MIDI Equipment: IBM AT w/Roger Powell texture 2.2,
2.5 MIDI sequencer software, Roland MPU-1 MIDI processor,
Publison 90 stereo digital MIDI sampler, and processor.
Video Equipment: (3) VHS decks, Sony BVU-4800 3/4" deck,
Sony M3X pro camera w/Canon 15:1 zoom, Sony pro monitor
9", Sony color TV 21", Sony color TV 19".
Rates: Available upon request.

[24+] STUDIO ULTIMO
1900 Sepulveda
West Los Angeles, CA 90025
(213) 479-6000

Owner: KSH Corp.
Studio Manager: Michael Schuman
Engineers: Michael Schuman, Mitch Zelezny, Dave Clark,
Brandon Arthur
Dimensions: Room 1: studio 49 x 35 (acoustically variable),
control room 29 x 30.
Mixing Consoles: Neve 8108 48 x 32 (modified), Necam automa-
tion w/40 additional mix inputs.
Audio Recorders: (2) Ampex ATR-124 24-track modified, ATR-
104 4-track 1/2", (3) ATR-102 2-track 1/2" and 1/4", digital ma-
chines available
Cassette Recorders/Duplicators: Technics, (2) Awa.
Noise Reduction Equipment: Available
Synchronization Systems: Time Line Lynx

Echo, Reverb, & Delay Systems: EMT 251 w/250 program,
AMS RMX16, Lexicon PCM70, Lexicon 200, (2) Yamaha REV7,
Yamaha SPX90, Roland SDE-3000, Roland SRV-2000, Even-
tide 949 Harmonizer, AMS DMX15 sampling stereo harmo-
nizer.

Other Outboard Equipment: Lexicon Prime Time II w/memory,
(4) Drawmer gates, (4) Kexpe II, ADR Vocal Stresser, (2) Neve
limiter/compressor, (2) dbx 160 compressor, (2) dbx 165
limiter/compressor, (2) UREI 1176 limiter, LA-2A limiter/com-
pressor, Orban de-esser, Orban stereo synthesizer, more on
the way.

Microphones: AKG: C-12, 414s, 451s, D-12s; Neumann: U89,
U47 tube, U87, U67, Shure: SM57s, SM81; Sennheiser 421s,
Crown PZMs
Monitor Amplifiers: (2) Bryston 4Bs, Bryston 3B, Bryston 2B,
BGW

Monitor Speakers: Custom system w/TAD components, (2)
Yamaha NS-10s, Visonik, (4) Auratone, E-V.

Musical Instruments: Yamaha grand piano, Fairlight available,
Simmons drums, DX7, Fender amp, many more instruments
available

Video Equipment: Time Line Lynx synchronizer, Sony BVU
3/4", Sony XBR 25" mounted monitor, other monitors, etc.
Rates: Please call.

Extras & Direction: Located in West Los Angeles, we are in the
"heart beat" of the record and movie industry, catering to the
exclusive needs of our clients. We offer the state-of-the-art
facility with excellent surroundings that provides a special
environment conducive to creativity. Our staff includes gold
and platinum record engineers and personnel that makes the
difference between a good studio and a great one! Our ele-
gant studio can provide up to four rooms of isolation and is
large enough for 40+ piece orchestra. The control room is
one of the largest in the world, offering plenty of room for
anything you could possibly want to do. Our control room is a
tracking room! So come to us with your next project, where we
have an excellent staff, the best equipment and the ultimate
sound.

[24+] SUMMA MUSIC GROUP STUDIOS
8507 Sunset Blvd., Penthouse 1
West Hollywood, CA 90069
(213) 854-6301

Owner: Rick Stevens
Studio Manager: Sandra Tanaka
Extras & Direction: A complete synthesizer specialty studio.
Features: Fairlight CMI, Sound Designer, (2) DX7, Prophet VS
Emulators, PPG Wave, TX816, DX Pro and other computer
sequencers programs. AMS and Lexicon reverb, (5) digital
delays, Massenburg EQ. The West Coast's best facility for
synthesizer recording.

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[24+] SUNSET SOUND FACTORY

6357 Selma Ave.
Hollywood, CA 90028
(213) 467-2500

Owner: Paul Camarata

Studio Manager: Phil MacConnell, Catharina Masters

Engineers: Jeff Bork, Tchad Blake, David Knight, independents

Dimensions: Room 1 studio 26 x 16, control room 19 x 13
Room 2, studio 20 x 22, control room 18 x 16 Iso rooms: #1 20
x 12.5, #2 12 x 7

Mixing Consoles: (2) API 36 x 32

Audio Recorders: (3) Ampex MM-1200 24-track, Ampex ATR-104 4-track, (3) Ampex ATR-102 2-track (1/4" and 1/2"), Technics 1500 1/4- and 1/2-track.

Cassette Recorders/Duplicators: (4) Aiwa F660

Noise Reduction Equipment: Dolby A, 36 channels

Synchronization Systems: Audio Kinetics 310 Q Lock

Echo, Reverb, & Delay Systems: (4) EMT 140 stereo plates, EMT 251 digital reverb, Lexicon 224XL digital reverb, (2) Lexicon PCM70, (2) Roland SDE 3000 DDL, (2) Lexicon Prime Time II, (2) Eventide 1745 DDL, (2) Eventide H949, (2) Cooper time cubes

Other Outboard Equipment: (10) Valley People Kepex II, (4) Drawmer DS-201, (6) Lang PEQ-2, (4) dbx 160X, (2) Teletronix LA2A, (8) UREI LA3A, (4) UREI 1176LN, ITI MEP230 PEQ, (4) dbx 902, (4) dbx 903, and much more

Microphones: (10) Neumann U67, (3) Neumann U47 FET, (2) Neumann M49, (3) Neumann U87, (3) Neumann KM84, (3) Telefunken BLAM 251, (6) AKG C-12A, (6) AKG 452-EB, (4) Sennheiser 441, (3) Sennheiser 421, (7) Shure SM57, and much more

Monitor Amplifiers: (4) Hill DX 1000A, (4) Phase Linear 700B, (2) McIntosh MC2105

Monitor Speakers: (2) Altec 604E w/Mastering Lab cross-overs, (2) Yamaha NS-10, (2) Auratone 5C, Auratone T-6, JBL 4310

Musical Instruments: (2) Steinway B grand piano, Hammond B-3 w/Leslie speaker

Rates: Call for rates

[24+] SUNSET SOUND RECORDERS, INC.

6650 Sunset Blvd.
Hollywood, CA 90028
(213) 469-1186

Owner: Paul Camarata

Studio Manager: Craig Hubler

SOUTHERN CALIFORNIA

24+ TRACK

STUDIOS

Engineers: Stephen Shelton, Coke Johnson, David Glover, Mike Kloster, Jimmy Preziosi, Brian Soucy, George Binder
Dimensions: Room 1 studio 22 x 36, control room 19 x 20
Room 2 studio 30 x 40, control room 16 x 23. Room 3 studio 20 x 50, control room 18 x 21

Mixing Consoles: Sunset Ind. 68 x 68 custom w/Necam II, Sunset Ind. 32 x 24 custom w/Necam I, Sunset Ind. 32 x 24 custom, Sunset Ind. 8 x 8 custom consolette, Sunset Ind. 12 x 16 custom consolette

Audio Recorders: (3) Studer A800 Mark III 24-track, (2) Ampex MM-1200 24- or 16-track, (7) Ampex ATR-102 2-track, Ampex ATR-104 4-track

Cassette Recorders/Duplicators: (7) Aiwa F-660, Aiwa AD-S40

Noise Reduction Equipment: Dolby A #361 72 channels.

Synchronization Systems: (5) TimeLine Lynx synchronizers
Echo, Reverb, & Delay Systems: (3) AMS RMX-16 reverbs, (2) AMS DMX-1580-S delay units, Quantec QRS room simulators, Publison America Internal 90 audio computer, (3) live echo chambers, (4) EMT 140 plates, (2) Roland SDE-3000 delay units, EMT 250 reverb, (3) Lexicon Prime Time II, AKG BX-20 spring reverb

Other Outboard Equipment: (16) Pultec equalizers, (4) Eventide 949 Harmonizers, (5) Teletronix/UREI LA-2A limiters, (14) UREI 1176LN limiters, (4) dbx 903 comp/limiters, (6) dbx 902 de-essers, (2) dbx 905 equalizers, (7) API 560 graphic equalizers, (3) Drawmer DS-201 noise gates, (17) Kepex II

Microphones: (3) Telefunken 251, (7) AKG 414, (5) AKG 451, (6) Neumann U47 tube, (10) Neumann U87, (3) Neumann U67 tube, (10) Sennheiser 421, (6) Sennheiser 441, AKG "The Tube," AKG C-12A, (9) Shure SM57

Monitor Amplifiers: (6) HH Electronic amplifiers, (9) BGW amplifiers, (5) Crown

Monitor Speakers: (2) JBL-TAD custom 3-way bi-amp monitor system (studio 1), (2) JBL custom 3-way bi-amp monitor system, (studios 2 and 3), (8) Yamaha NS-10M near-field monitors,

(8) Auratone 5-C, (2) Auratone T-6

Musical Instruments: (3) Steinway B-7 concert grand pianos, Linn Drum machine, Yamaha DX7, miscellaneous percussion
Other MIDI Equipment: (2) Steinway B-7 MIDI converted grand pianos (studios 2 and 3)

Video Equipment: Sony BVU-850 U-matic 1/4" videocassette machine, Sony KX-2510 video monitor, Sony KV-25XBR video monitor

Rates: Available upon request

Extras & Direction: 1987 marks Sunset Sound's official 25th anniversary as a commercial studio serving the world recording community. For a quarter century, Sunset Sound has provided its customers with the finest recording services, the most professional staff anywhere, and superior quality that remains unequalled and unsurpassed. We thank our many customers for their confidence and consideration. We shall continue to serve them well in the decades ahead. Extras: main lobby/game room w/snack and coffee bar and lounge; ample parking facilities, basketball court, ping-pong, barbecues, full security services; 24-hour maintenance, lounges in all studios

[24+] SUPER SCORE STUDIOS

5453 Agnes Ave.
North Hollywood, CA 91607
(818) 506-4832

Owner: Ray Colcord

Engineers: Ray Colcord, Avi Kipper

Dimensions: Control room 24 x 24

Mixing Consoles: Amek Scorpion 32 x 8

Audio Recorders: JH-24 24-track, Sony 8002 2-track, Otari 5050B 2-track, Sony PCM-501 2-track, TEAC 3440 4-track

Cassette Recorders/Duplicators: (2) JVC KD-V5

Noise Reduction Equipment: Drawmer DS201 gates, (2) Symetrix 522 gates/compressor/limiters

Synchronization Systems: (2) Lynx modules, 8002 self-contained synchronizer

Echo, Reverb, & Delay Systems: Lexicon PCM70, Lexicon PCM60, Yamaha REV7, Roland SDE-3000, (2) Roland SDE-1000, MXR delay system II

Other Outboard Equipment: Scamp, (4) EQ, (2) gates, rack, UREI 565 filter set, Songbird tri-stereo chorus, UREI 964 digital metronome, Aphex Aural Exciter, Dynacord electronic Leslie, Boss CE-300 super chorus, Korg digital voice processor-1, Dr. Click 2

Microphones: RE20, Neumann U87

Monitor Amplifiers: (2) Crown DC-300, QMI GC-500

Monitor Speakers: (2) Westlake dual 15s, (2) Yamaha NS-10s, (2) Auratones

Musical Instruments: Oberheim Matrix-12, Yamaha DX7HFD, Yamaha DX7, Yamaha TX816 rack, Emulator II, Oberheim OB-8, Memorymoog, Korg EX-8000, Roland MKS-80 Super Jupiter, Linn 9000, Fazer piano

Other MIDI Equipment: Commodore SX-64, 360 Systems mini patcher, Aunlice scoring software

Video Equipment: JVC 6650U 1/4" video deck, Sony Trinitron 25" monitor

Rates: \$70/hr

[24+] SUTTON SOUND STUDIO

8390 Curbaril
Atascadero, CA 93422
(805) 466-1833

Owner: Rick Sutton

[24+] SYNGRAM STUDIOS

16169 Sunset Blvd., #101A
Pacific Palisades, CA 90272
(213) 459-3197

Owner: Gregg Graham

Studio Manager: Gregg Graham



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[24+] TAKE ONE RECORDING STUDIOS INC.
619 S. Glenwood Pl.
Burbank, CA 91506
(818) 841-8697
Owner: Take One Rec. Studios Inc.
Studio Manager: Candace Corn

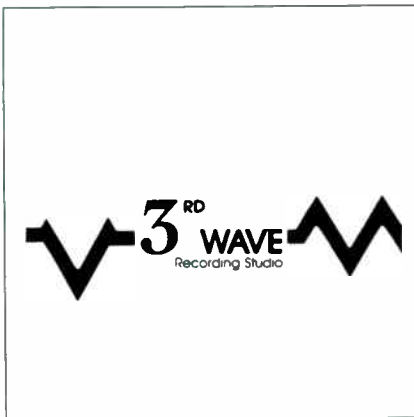
[24+] T.A.P.E. RECORDERS, INC.
1606 N. Highland Ave.
Hollywood, CA 90028
(213) 464-1106
Owner: John Bahler
Studio Manager: Shellynne Phillips, Sonia Castro



THAT STUDIO RECORDING SERVICES
North Hollywood, CA

[24+] THAT STUDIO RECORDING SERVICES
also REMOTE RECORDING
PO Box 958
North Hollywood, CA 91603
(818) 764-1421
Owner: That Studio, Inc.
Studio Manager: Shannon Seboldt, Richard Holbrook
Engineers: Richard Holbrook, Rob Pfeifer, Denny McLane,
Steve Seboldt, independents.
Dimensions: Studio 30 x 20 w/extensive trapping (live and
dead areas). Control room 14 x 9, truck control room 12 x 8.
Live isolation room/chamber 8 x 9.
Mixing Consoles: Studio: Harrison MR-4 28 x 24 (automated).
Truck: Audiotronics 110-8 24 x 8 x 2.
Audio Recorders: Otari MTR-90 24- and 16-track, Otari MTR-
12 2-track, Otari MX-5050 2-track, Otari MX-5050 8-track,
TEAC 3340s 4-track.
Cassette Recorders/Duplicators: (2) Technics M85, Aiwa
F770.
Echo, Reverb, & Delay Systems: Lexicon 224XL, 200,
PCM70, (3) Yamaha SPX90s, DeltaLab CompuEffectron, Del-
taLab Effectron 3, Lexicon Prime Time DDLs, Master-Room
MICMIX plate, Sound Workshop reverb.
Other Outboard Equipment: Eventide 910 Harmonizer, dbx
900 de-esser, dbx 160, 161, 162, 160X, Kepex IIs noise gates,
Dynatronics Trichorus, (8) GateX noise gates, dbx noise reduc-
tion.
Microphones: Neumann, AKG, Crown, PZM, Beyer, Sennheis-
er, PML, Sony, E-V, Shure
Monitor Amplifiers: Crown, BGW, Yamaha, QSC, Altec.
Monitor Speakers: JBL 4315, JBL 4313, Altec 604s, Yamaha
NS-10s, Auratones, E-V Sentry 100As.
Musical Instruments: Yamaha C7 grand piano, Hammond B-3
w/Leslies, Sonor drum kit, G&L bass guitar, Fender Rhodes
mono and stereo, assorted acoustic guitars and amps, Juno 6
synth, Yamaha DX7 synth, Roland JX8-P synth, LinnDrum, a
wide range of percussion instruments and other toys when
reserved in advance
Video Equipment: Available upon request.
Rates: Please call for color studio brochure and rate card.
Extras & Direction: Live isolation booth/small chamber for
tracking and overdubs. There is a client lounge, coffee and
kitchenette area, storage, video games and TV. That Studio
also offers a wide range of audio services, including custom
record and disc production, sound reinforcement, audio con-
sultation and installation and demo production assistance.
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[24+] 3RD WAVE RECORDING
1425 Marcelina Ave.
Torrance, CA 90501
(213) 212-0947
Owner: RLC Inc.
Studio Manager: Adrian Cook

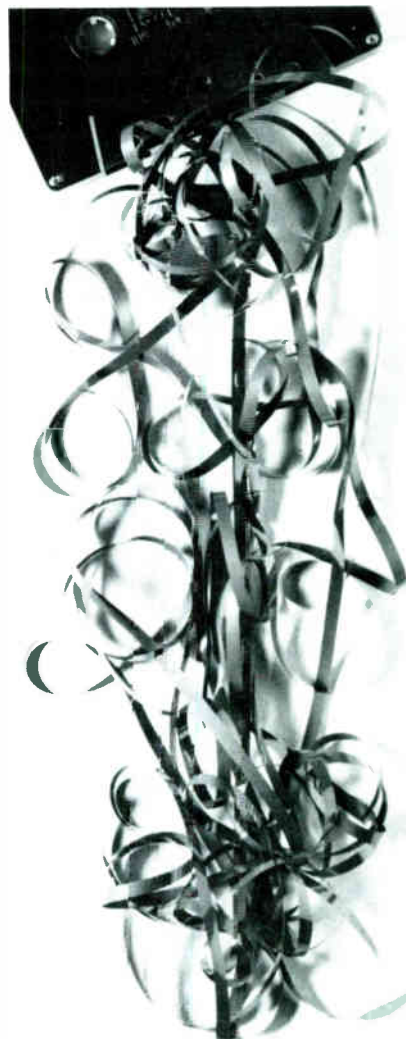


3RD WAVE RECORDING
Torrance, CA

Engineers: James B. Mansfield, Mark Jackson, Don Sciar-
rotta, Dirk Sciarrotta.
Dimensions: Room 1: studio 23 x 27, control room 19 x 24.
Room 2: studio 12 x 14. Room 3: studio 9 x 13. Room 4: studio
8 x 8.
Mixing Consoles: Harrison Raven 36 x 24.
Audio Recorders: Sony/MCI JH24 24-track, (2) Otari 5050B
2-track, Scully 280 2-track 1/2" 30 ips.
Cassette Recorders/Duplicators: (2) Nakamichi MR1, Tascam
122.
Echo, Reverb, & Delay Systems: (2) Yamaha REV7, Lexicon
PCM70, SPX90, Yamaha D1500 delay.
Other Outboard Equipment: (2) UREI 1176 limiters, dbx 166
stereo compressor/gate, (8) Quantum noise gate, Moog para-
metric EQ, Moog 10-band graphic EQ, (2) AT8511 direct boxes,
Eventide compressor.
Microphones: AKG: C414, 452, 451, D-150; Neumann: KM84,
U87, U47; Shure: SM7, SM56, SM57, SM58, SM98, drum
mount, Audio-Technica ATM-31R condenser, Crown PZM,
Yamaha MZ101, E-V RE20.
Monitor Amplifiers: Crown: (2) DC300A, DC150A, D75, Ma-
rantz 170DC.
Monitor Speakers: (2) JBL custom 4343, (2) NS-10M.
Musical Instruments: Ensoniq digitally sampled piano, Yama-
ha DX7, Prophet 600, Yamaha RX5 drum machine, Linn 9000
drum machine.
Rates: Available on request.

[24+] TIME CAPSULE RECORDING
15533 Jacana Dr.
La Mirada, CA 90638
(714) 739-9158
Owner: Herb Jung
Studio Manager: Jacqueline Jung

[24+] GEORGE TOBIN
11337 Burbank Blvd.
North Hollywood, CA 91601
(818) 506-4487
Owner: George Tobin
Studio Manager: Brad Schmidt
Engineers: John Kerns, independents: Les Brockman, How-
ard Lee Wolen, Bill Smith, Allen Hirschberg, David Koenig,
Bryan Stott, Cisco DeLuna.
Dimensions: Room A: studio 45 x 25 w/(2) isolation booths
approx 10 x 12 each, control room 20 x 20. Room B: studio 30
x 15, control room 20 x 20. (Control rooms were built to
identical specs.)
Mixing Consoles: Trident Series 80B 40 x 24, Trident Di-An 40
x 32 x 32, both w/56 auto returns.
Audio Recorders: (2) Otari MTR-90 Mark III 24-track, Ampex
MM1200 24-track, (3) Ampex ATR-102 2-track 1/2" and 1/4".
Echo, Reverb, & Delay Systems: EMT 251, EMT 240, Lexicon
224, AKG BX-10, Roland SDE-3000, Lexicon Prime Time,
Eventide 949 and 910 Harmonizers, (2) AMS RMX 16 reverbs.
Other Outboard Equipment: Pultec, Lang and Klark-Teknik
EQs, ADR Vocal Stresser, dbx, UREI and Fairchild limiters,
Drawmer gates, Kepex, Gain Brain, EXR Exciter, Orban de-
esser, (10) GML pre-amps, (4) GML parametric EQs, (20) API
550A EQs, Tri-stereo chorus.
Microphones: Telefunken 251 tube, Neumann: U47 tube, U67,
U87, KM86, KM84, AKG: 452-EB, D-12, Sennheiser: 406,
MD-416, 421, 441; E-V: RE20, RE15, RE10, RE11, 635A, RCA
77, Sony: EC-9P, ECM-50.
Monitor Amplifiers: HH Electronic M900.
Monitor Speakers: UREI 813 Time Align, JBL 4313, Auratones,
Yamaha NS-10.
Musical Instruments: Kurzweil 25 w/Macintosh computer, Ka-
wai acoustic grand piano, Hammond organ, Fender Rhodes,
Wurlitzer, Sequential Circuits Prophet, Pro 1, LinnDrum ma-
chine, Jupiter 6.
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[24+] THE TOLEDO STUDIO

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Long Beach, CA
(213) 433-2168

Owner: Don Koller. Wade Wilkinson

Studio Manager: Clayton Bybee

Engineers: Wade Wilkinson, Paul Tetreault, Clayton Bybee, Michael DeBrinkett

Dimensions: Room 1: control room 18 x 18. Room 2: studio 10

x 14. Room 3: studio 14 x 12. Room 4: studio 8 x 12

Mixing Consoles: Soundcraft Series II Discrete 36 x 36. Stephens 8 x 2 submixer

Audio Recorders: Ampex MM-1200 24- and 16-track, Technics 1500 2-track 1/2", TEAC 80-8 8-track w/remote, Sony PCM-F1 2-track digital, (2) VHS Hi-Fi, Tascam 3340 4-track w/remote

Cassette Recorders/Duplicators: JVC dubbing, Onkyo dubbing, Portastudio 4-track

Noise Reduction Equipment: dbx 150 rack

Synchronization Systems: SV 1000 mini-loc, Shadow

Echo, Reverb, & Delay Systems: (2) Yamaha SPX90s, (2)

Roland SRV-2000s, MXR 01A, British Gold Spring stereo,

Fairchild Instruments spring stereo, Biamp MR/140, DeltaLab

DL-2, Roland SDE-1000, Fostex Model 3050, AMS delay line

Other Outboard Equipment: (2) Eventide 910 Harmonizers

w/keyboard controller, (2) Valley People Dyna-Miles, Altec

Lansing 1/3-octave EQ, ADC parametric EQ stereo, (2) Valley

People Gain Brains, (2) Valley People Kepexs, (2) Valley People

Maxi-Qs, Universal Audio 1176 compressor, (2) LA-2 compressors,

dbx 163 compressor

Microphones: (2) Neumann U87s, AKG C-12A tube, (2) Neumann

KM84s, (2) Neumann U47 FETs, (2) Sennheiser 421s,

(2) Sennheiser 441s, (2) E-V PLM20s, (2) AKG D-12Es, (2)

Beyer M-500s, (2) Shure SM57s, RCA 77DX

Monitor Amplifiers: Yamaha, JBL 6060, (2) McIntosh MC60s

Monitor Speakers: (2) Tannoy 15" monitor gold, (2) E-V 100s,

(4) Altec 604Es, (2) Yamaha NS-10Ms, (2) Tannoy 10" monitor

reds, (2) ART 3-way mini-boxes

Musical Instruments: Gibson L-5S w/Kahler tremolo, Philip

Kubicki stratocaster w/shock waves, Carvin XV112, Aims

psychedelic amp, Fender Twin blonde, Washburn bass EMG

pickups, Hohner bass, active electronics and phase control,

Ovation acoustic w/pickups, Ampeg B-15 amplifier, Gallien-

Krueger 800RB bass system, 4 x 12 and 4 x 10 speaker stack,

Gauss 210 speaker cabinet, (2) Altec 15" bass speaker cabinet

Other MIDI Equipment: Apple IIe MIDI system, IBM PC MIDI

system, software library, technical library

Video Equipment: VHS Hi-Fi, Beta Hi-Fi, camera video, fluid

tripod

Other: Touring motor home w/Cal 20, sailboat, PA system,

perpetual coffee pot, (3) slide projectors, Ektagraphics computer

w/computer programmer, kitchen/cooking facilities

Rates: \$2/per track 8-track, \$16/hr., 16-track, \$32/hr., 24-

track, \$48/hr. Quotes and bids available, we can produce

bands. Substantial discounts for producers and record companies.

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independent producers and independent music projects. In

1988 we will offer video. Rates start at \$16/hr but we also

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[24+] TOTAL ACCESS RECORDING

612 Meyer Ln., #18 A, B, C

Redondo Beach, CA 90278

(213) 376-0404

Owner: Allan W. Davis, Allan H. Juckes

Studio Manager: Wyn Davis, Ty Parr

Engineers: Allan Davis, Eddie Ashworth, Mike Lardie, Wyn

Davis

Dimensions: Studio 25 x 30, control room 25 x 20, live chamber

25 x 30

Mixing Consoles: Amek G2520 52 mic inputs x 48 bus out-

puts x 104 tape inputs, w/automation, Yamaha 1608 16 x 8 aux

mixer



TOTAL ACCESS RECORDING

Redondo Beach, CA

Audio Recorders: Ampex ATR-124 24-track, Ampex MM-1200 24-track, (2) Ampex ATR-102 2-track 1/2" and 1/4", Sony F-1 2-track digital processor

Cassette Recorders/Duplicators: Nakamichi ZX-7, Nakamichi M-2

Noise Reduction Equipment: (10) Drawmer audio gates, (4) Kepex audio gates, (2) Aphex CX-1 expander gates

Synchronization Systems: QLock 4 machine system w/Alpha controller

Echo, Reverb, & Delay Systems: Lexicon 480L w/sampling digital reverb, Lexicon 224XL digital reverb, Klark-Teknik digital reverb, Yamaha REV7, Yamaha SPX90, Roland SRV-2000,

Lexicon 95 delay, Lexicon 93 delay, AMS 15-80s, EMT 240 Gold Foil

Other Outboard Equipment: AKG BX-20, (2) dbx 165A, (3)

UREI 1176, (2) UREI LA-3A, (2) UREI LA-2, Orban 4-channel

silence controller, Audio & Design Vocal Stresser, Sontec

parametric EQ 2 channels, Orban parametric EQ 2 channels,

Microphones: (5) Neumann U87, (4) AKG 414, Schoeps, (2)

Sennheiser 421, (2) AKG D-12, (10) Shure 57, (4) Shure 58, (4)

Sennheiser 441, (2) Neumann 86, (2) Neumann 84, (2) Neumann

88, AKG C-12, AKG C-24, (many more)

Monitor Amplifiers: (3) Boulder 500, (2) BGW 250C, Crown

750

Monitor Speakers: (2) UREI 813, (2) Canton Carrot 100, (2)

Yamaha NS-10, (2) Auratones, (2) JBL, (2) E-V Sentry III.

Musical Instruments: LinnDrum 9000 fully loaded, Roland,

Steinway 7" grand piano, Gibson Les Paul, (2) Fender strats,

Gibson J-200 acoustic, Martin D-35, Guild D-35, Guild 212

12-string, Gibson "Dove," Gibson J-45, various percussion

instruments, studio drum kit (mostly Gretsch)

Video Equipment: Toshiba Beta 1/2" VCR, Sony Beta 1/2" VCR,

Toshiba VHS 1/2" VCR, Sony BVU

Rates: Flexible, please call

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request

[24+] TRAC RECORD CO.

170 N. Maple

Fresno, CA 93702

(209) 255-1717

Owner: Stan Anderson

Studio Manager: Stan Anderson

[24+] TRACK RECORD

5249 Melrose Ave.

Los Angeles, CA 90038

(213) 467-9432

Owner: Thomas M. Murphy

Studio Manager: Al Morpheu

[24+] TRIANON RECORDING STUDIO

1435 South St.

Long Beach, CA 90805

(213) 422-2095

Owner: John A. Vestman

[24+] THE TRUCK MOBILE RECORDING FACILITY
only REMOTE RECORDING
PO Box 4573
Glendale, CA 91202
(818) 507-8785
Owner: Spatial Partners Creative Group
Studio Manager: Rosanne Falcone

[24+] THE UPSIDE DOWN STUDIO
PO Box 69333
Los Angeles, CA 90069
(213) 652-5837, OK-BLUES
Owner: 333 Enterprises
Studio Manager: Lynn Prince

[24+] VALENTINE RECORDING STUDIOS
5330 Laurel Canyon
North Hollywood, CA 91607
(818) 769-1515
Owner: Jim Valentine
Studio Manager: Eve Valentine

[24+] VALLEY CENTER STUDIOS
5928 Van Nuys Blvd.
Van Nuys, CA 91401
(818) 989-0866
Owner: Mark Antaky
Studio Manager: Larry Reinhardt

[24+] THE VILLAGE RECORDER
1616 Butler Ave.
West Los Angeles, CA 90025
(213) 478-8227
Owner: Georgie Hormel, Nick Smerigan
Studio Manager: Kathy Konop, Philip Mershon
Engineers: Jeff Harris, Charlie Brewer, Charlie Brocco, Jeff DeMorris, Jimmy Hoyson, Tom Beiner, Rick Caughron, Dick LaPalm, sales
Mixing Consoles: Solid State Logic 4056E 56 x 32 w/Total Recall, Neve 48 x 32 w/Necam 8108, Neve 40 x 24 w/Necam 8076
Audio Recorders: (2) Sony 3324 24-track digital, Sony PCM-1610 2-track digital, Mitsubishi X-800 32-track digital, (2) Mitsubishi X-80 2-track digital, (4) Studer A800 24-track analog, (2) Studer A80 2-track analog, Otari MTR90 MKII 24-track analog, Ampex ATR-104 4-track analog, (6) Ampex ATR-102 2-track analog
Noise Reduction Equipment: Dolby, dbx, Dynafex.
Synchronization Systems: Lynx TimeLine.
Echo, Reverb, & Delay Systems: EMT, 250, 240, 140s, Lexicon 224s w/4.3 programs, 102S Prime Time, AMS 1580s, RMX 16s, Roland SDE 3000, Eventide: 1745 M, H910, 949, Yamaha: SPX90, REV7, live chamber.
Other Outboard Equipment: UREI, Teletronix, dbx, Orban, Drawmer, Valley People, ADR Scamp, Aphex, ITI, API, Lang, Pultec, EMT, Neve 10 x 2 mixer, Kepex II
Microphones: Complete Neumann, Neumann TLM170, AKG, Beyer, Shure, RCA, Sennheiser, E-V, Sony, Telefunken, Schoeps, PZM.
Monitor Amplifiers: McIntosh, Crown PSA-2, Boulder
Monitor Speakers: Village custom design, JBL and TAD components, bi-amped 3-way
Musical Instruments: Yamaha and Steinway grands w/MIDI, Fairlight CMI, DX7, OBX.
Video Equipment: Convergence 103B controller editing bay, 3/4" interface all studios, Sony 5850s, BVU-800s, Ampex VPR2-B 1" video, Fairlight CVI, Polaroid freeze frame, a/b roll, mixed video effects

[24+] VOICE OVER L.A.
also REMOTE RECORDING
1717 N. Highland Ave., Ste. 620
Hollywood, CA 90028
(213) 463-8652
Owner: Evelyn Williams
Studio Manager: David Baker
Engineers: Pat Torres, Ira Leslie, Dairde Dolan
Dimensions: Room 1: studio 15 x 14, control room 15 x 12
Room 2: studio 12 x 18, control room 13 x 12
Mixing Consoles: Soundcraft 1600 24 x 24 x 2, TAC Scorpion 16 x 8 x 2, Blamp 1642 16 x 4 x 2.
Audio Recorders: Otari MTR-90II 24-track, Otari MX-5050 MKIII 8-track, Otari MX-5050 MKIII 4-track, (2) Otari MX-5050 MKIII 2-track, (2) Revox PR-99 mono
Cassette Recorders/Duplicators: (4) Technics RS-B100.
Noise Reduction Equipment: (2) Symetrix 511 NR
Synchronization Systems: Audio Kinetics Eclipse, Adams-Smith Zeta III
Echo, Reverb, & Delay Systems: Lexicon PCM60 digital reverb, Koig SDD-3000.
Other Outboard Equipment: (2) Symetrix TI-101 (telephone interface), (2) dbx 166 (stereo limiter),
Microphones: (3) Sennheiser MKH-416, (3) Schoeps CMC-411, Sony ECM-990 (stereo).
Monitor Amplifiers: (3) Haller P-225, (5) Symetrix A-220
Monitor Speakers: (4) JBL 4411, (8) Auratones

Video Equipment: (2) Sony KX-1901A (color monitors), (2) Sony PVM-91 (black & white monitor), JVC CR-850U 3/4" VCR, JVC CR-8250 3/4" VCR
Other: Magnasync 2200 (35mm film recorder), Sigma CSG-355A (color sync generator), ESE ES-255 (SMPTE code reader), Technics SL-P50 compact disc player, Technics SL-P500 compact disc player
Rates: Audio post-production (locked to picture) \$155/hr.
Audio recording/editing/mixing \$95/hr.

[24+] WARTHOG STUDIOS
also REMOTE RECORDING
4219 W. Olive, Ste. 117
Burbank, CA 91505
(213) 827-0505
Owner: Sam Longoria
Studio Manager: Sam Longoria

[24+] WAVES SOUND RECORDERS
also REMOTE RECORDING
1956 N. Cahuenga Blvd.
Hollywood, CA 90068
(213) 466-6141
Studio Manager: Stewart Sloke
Engineers: Rich Rauh, Tony Mederos, Chris Hartt, Stewart Sloke.
Dimensions: Room 1: studio 13 x 15, control room 21 x 15
Room 2: studio 11 x 14, control room 20 x 14. Room 3: studio 8 x 12, control room 8 x 12
Mixing Consoles: Amek Matchless 24 x 24, Wheatstone 18 x 8, Tangent 16 x 16.
Audio Recorders: Sony/MCI JH24, (2) Sony/MCI JH110-8 8-track, (6) Sony/MCI JH110-6 2-track, (3) Revox PR99 2-track, (6) Technics R51500 6-track.
Cassette Recorders/Duplicators: (11) Technics RSB100, (5) Sony TCK-555.
Noise Reduction Equipment: (2) dbx 155, (2) Dolby A.
Synchronization Systems: Audio Kinetics 4.10
Echo, Reverb, & Delay Systems: Lexicon 200, Yamaha REV7, Ecoplate III, ADA D1280.
Other Outboard Equipment: (3) dbx 166 limiters, (2) UREI 1176

Microphones: (3) Neumann U87, (6) Sennheiser 416, (2) Shure SM5B, Sennheiser 441, Sennheiser 421, Sennheiser 405, E-V RE20, Neumann U89, Beyer D-500
Monitor Amplifiers: (6) Haller, (3) Crown.
Monitor Speakers: (8) JBL 4411s, (6) Auratone 5Cs.
Video Equipment: Sony BVU-800 3/4" VCR, (2) Sony VD-5600, NEC 26" monitor, (4) Sony Trinitron 19" monitors

[24+] WEC RECORDING
4733 Lankershim Blvd.
Universal City, CA 91602
(818) 508-8931
Owner: Santino Scotti
Studio Manager: Ken Allen

[24+] WEST OAK RECORDERS
41 A N. Duesenberg
Westlake Village, CA 91362
(805) 495-0606
Owner: Bill Cobb
Studio Manager: Michelle Ward

[24+] WEST SIDE SOUND
West Los Angeles, CA
(213) 470-3437
Owner: David Schwartz
Studio Manager: David Schwartz

[24+] WESTLAKE AUDIO
7265 Santa Monica Blvd.
and 8447 Beverly Blvd.
Los Angeles, CA 90046
(213) 655-0303
(213) 654-2155
Owner: Westlake Audio, Inc.
Studio Manager: Debbie Jenkins

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[24+] WESTWORLD RECORDERS
7118 Van Nuys Blvd.
Van Nuys, CA 91405
(818) 782-8449
Owner: Robert Schreiner
Studio Manager: Robert Schreiner

[24+] WHITE FIELD STUDIO
2902 W. Garry Ave.
Santa Ana, CA 92704
(714) 546-9210

Studio Manager: Thom Roy
Dimensions: Room 1: studio 25 x 25, control room 20 x 25.
Room 2: studio 20 x 25 w/(2) isolation booths, control room 15 x 20. Video: 40 x 40 (lighting grid at 18').
Mixing Consoles: DDA 36 x 32 w/60-channel moving fader automation, Ford Audio 32 x 24 custom w/Allison automation.
Audio Recorders: Otari DTR-900 32-track digital, Stephens 821 24-track, Fostex B16D 16-track, Otari MTR-20Q 4-track, Otari MTR-20 2-track 1/2" and 1/4", (2) Ampex ATR-102 2-track 1/2" and 1/4"

Noise Reduction Equipment: (2) Dolby SR, (2) Dolby A.
Echo, Reverb, & Delay Systems: EMT 240, Lexicon 224, Ecoplate 2, Lexicon PCM60, Eventide H949, DL-2, Loft 450, Lexicon 93, Ibanez SDR-1000

Other Outboard Equipment: UREI LA-2A, UREI LA-3A, Universal 175, Universal 1176, Orban de-esser, Stephens de-esser, Roger Mayer noise gates, Kepex II, dbx: 902, 903, 907
Microphones: (34) Neumann tube mics, (5) Sony tube, (6) AKG tube mics

Monitor Amplifiers: AB Systems, Spectra Sonics, Crown 300A, Crown D150, Uni-Sync 100

Monitor Speakers: Altec 604E/Mastering Lab, Yamaha NS-10, Fostex RM 765, JBL 4311, JBL 4313, Auratone

Musical Instruments: Steinway 9' concert grand, B-3 w/Leslie, Fender Rhodes, guitar amps, drums

Video Equipment: Crosspoint switchers, Sony 3Ms, Convergence 203, Apert Herzog HZ TBC, Fortel Y688, 3/4" production remote and post-services, A/B roll edit, Chyron VP2, SMPTE, Prop Shop, 24-channel 2-scene lights, hard cove.

[24+] WIDETRACKS RECORDING
6429 Selma Ave.
Hollywood, CA 90028

SOUTHERN CALIFORNIA 24+ TRACK STUDIOS

(213) 460-6949
Owner: Widetracks, Inc
Studio Manager: Dennis Parker

[24+] WILDCAT STUDIOS
5815 Pico Blvd.
Los Angeles, CA 90019
(213) 931-3411
Owner: John Ross
Studio Manager: John Ross

[24+] EVAN WILLIAMS AUDIO/VIDEO
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1519 S. Grand Ave.
Santa Ana, CA 92705
(714) 543-6155
Owner: Evan Williams
Studio Manager: Sherry Williams

[24+] WINETREE RECORDING STUDIO
PO Box 906
Rancho Cucamonga, CA 91730
(714) 980-4242
Owner: Robert S. Dire

[24+] RICK WISE SOUND
also REMOTE RECORDING
4209 LaSalle Ave.
Culver City, CA 90230
(213) 838-7642
Owner: Rick Wise
Studio Manager: Rick Wise

[24+] YAMAHA RESEARCH & DEVELOPMENT STUDIO
1019 S. Central Ave.
Glendale, CA 91204
(818) 500-0230
Owner: Yamaha Corporation of America
Studio Manager: Norm Dlugatch
Engineers: Keith Cohen, Elliott Peters.
Dimensions: Room A: main room 30 x 26, control room 18 x 21, iso booth 14 x 15, vocal booth 12 x 10
Mixing Consoles: SSL SL4048E
Audio Recorders: Ampex ATR-124 24-track, Ampex ATR-104 4-track, Ampex ATR-102 2-track
Echo, Reverb, & Delay Systems: Yamaha REV1, Yamaha YDD2600, Yamaha SPX90, Ecoplates, EMT 251, Yamaha D1500, REV7
Other Outboard Equipment: Kepex II, Gain Brain II, Eventide H949, UREI 1176, dbx 160X, AMS DMX 15-80s, dbx 902 de-esser.
Microphones: Neumann: U87, U47, U67, KM84, KM88, AKG: 452, 414, C24, D112, Sony ECM-50, Shure: SM56, SM57, SM58; E-V: RE16, RE20, Sennheiser MD421, Crown PZM, RCA 77, Beyer: M160, M101, Yamaha MZ
Monitor Amplifiers: Yamaha P2200, Yamaha PC5002M
Monitor Speakers: Augspurger, NS-10, 4311, NS-1000, Auratones
Musical Instruments: Yamaha S400B, CFII grand pianos, TX816, TX7, QX1, QX7, KX88, CX5M computer, Apple IIe/DXI-Pro and DX Heaven (over 4,000 sounds), DX7, DX9, DX1, FX20, DX7IIIFD, RX5, FB01, TX812
Video Equipment: Lynx synchronizer for three machines, ATR-124, ATR-104 can be utilized.
Rates: Please call

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dB an additional roll-off up to 33KHz and a unique 100 dB dynamic range, the TC 2290 is very warm, transparent, crystal-clear, musical... with absolutely no noise. It has 18 bit resolution - better sound quality than a compact disc, and many new innovative effects.

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Circle #139 on Reader Service Card

—FROM PAGE 137, M.I. UPDATE

prising enough, but a list price of \$450 is nothing short of miraculous. Alesis has earned a justified reputation as delivering a lot of bang for the buck with their products, but this time they've outdone themselves. I imagine quite a few people will buy the HR-16 for the drum sounds alone, and drive it from a sequencer or with parts recorded in an existing drum machine that has inferior sounds.

MIDI for the Rest of Us

Forgive me for using the "for the rest of us" cliché, but it is apt: the show was loaded with guitar and wind controllers, which means that MIDI is definitely no longer for keyboard players and drummers only. In the guitar category, Roland was showing off their GM-70, Passac had a fast guitar-to-MIDI converter that supposedly will be available in the late fall, Vortex showed the latest rev of the Beetle guitar converter (it's still not shipping, though), K-Muse showed the latest version of the Photon controller over at the Gibson booth, and Zeta had their violin and guitar controllers. Casio (yes, Casio) showed two guitar controllers—one a dedicated controller, and one a pitch-to-voltage converter using a standard guitar—but the surprise of the show had to be the Suzuki Unisynth guitar controller. Actually, there were two models: one is more or less like their Omnichord, except that you play it like a guitar; it has a built-in "boom-chicka-boom" drum machine, auto-chords, and all those "learn guitar in seven days" type features. The second model, though, dispenses with these extras in favor of a MIDI output. The design is intriguing. The neck is not traversed with strings, but instead, there are raised ridges where the strings would normally be. Fretting the ridge with your left hand selects the note (or notes) to be played, while the right hand triggers the notes on a set of six very short strings. These provide velocity information as well. I had a chance to play with the controller for a while, and was surprised at how playable it is—in particular, fretting those little ridges wasn't weird at all, and picking on "real" strings with the right hand gave a familiar point of reference. Granted, it looks like something you'd find at a five-and-dime store, but for

\$300 it's going to give a lot of guitar players a way to access MIDI. And since it's not doing pitch-to-voltage conversion, the tracking is perfect. Overall, I would rate it as weird but definitely wonderful.

Blowin' in the Wind-To-MIDI

The big star of the show, though, was wind-to-MIDI conversion. Akai showed their EWI (Electronic Wind Instrument) and EVI (Electronic Valve Instrument), which are dedicated MIDI wind controllers. However, Akai wisely offers an analog synth module for these controllers that uses *control voltages* to drive certain strategic parameters (I hope this is the start of a trend). Sure, you can use MIDI, but volume swells sure sound a lot smoother with a VCA. I think it's about time musicians and companies recognized that MIDI, no matter how wonderful it is, does have limitations, and that many of these limitations can be overcome by the use of analog control voltage technology.

Off the soapbox and back to the show. Artisyn showed their wind controller, Roland was spreading the gos-

pel of wind-to-MIDI conversion with their VP-70 converter (not everybody wants to use a dedicated controller), and Yamaha officially unveiled their WX7 wind controller with a remarkable demo that made a TX81Z/WX7 combo sound like Jimi Hendrix. Really.

Out of space already. Next month we'll return with the latest synth doings, some thoughts on the coming of age of Atari and clone computers, software trends, and more. Until then, remember that technology exists to serve us, not the other way around. Don't assume that because something uses 16-bit technology that it's automatically better than a 12-bit whizbang, and don't forget that one good Jeff Beck solo is all you need to prove that guitar-to-MIDI is an alternative, not a replacement. ■

Craig Anderton is the editor of our sister publication Electronic Musician, and is guitarist/keyboardist for the synth band Transmitter, as well as author of numerous books and articles for MIDI users.

INSIDER · AUDIO

—FROM PAGE 22, R-DAT

growth curve in the consumer market should be flatter.

In the recording studio, in light of the expense of other professional digital recorders, I can see a market for professional R-DATs. This would be particularly true at the mid- to low-end professional analog recorder price points. However, there are two *caveats*. The error correction must be robust enough, and editing, of course, will remain a limitation. The digital audio industry has gone to great lengths to bring razor blade editing to open-reel digital audio recorders precisely because that is what professional users demanded. Without the possibility of that feature, R-DAT runs the distinct risk of languishing in the niche of another highly cost-effective, high-fidelity recorder, the F1 family. In other words, R-DAT may be a great product that unfortunately has no essential application.

Still, it is a fine tape recorder. Based on its fidelity alone, one could argue for at least a limited success, playing a role as a convenient stereo recorder, when editing is not desired. In the

long run, R-DAT may prove to be an interim product in the professional industry. While it certainly improves on analog cassette technology, it does not break new fidelity ground for digital audio, and remains of limited use because of its rotary head format. Ironically, a set of diverse circumstances may dampen R-DAT's success in the consumer marketplace, and the undeniable fact that it was designed primarily as a consumer, not professional, format will diminish its utility in the professional marketplace. If R-DAT is not the future, then in which direction will the professional recording industry head? Look toward disks—both hard, and optical.

Do you have industry or product information for Insider Audio? Send it to Ken Pohlmann, University of Miami, PO Box 248165, Coral Gables, FL 33124. ■

Ken Pohlmann is an associate professor of music and heads the music engineering program at the University of Miami in Coral Gables. He is author of Principles of Digital Audio and The Compact Disc Handbook, and a consultant to the digital audio industry.

by Philip De Lancie

NoNOISE

SOUND RESTORATION FROM SONIC SOLUTIONS

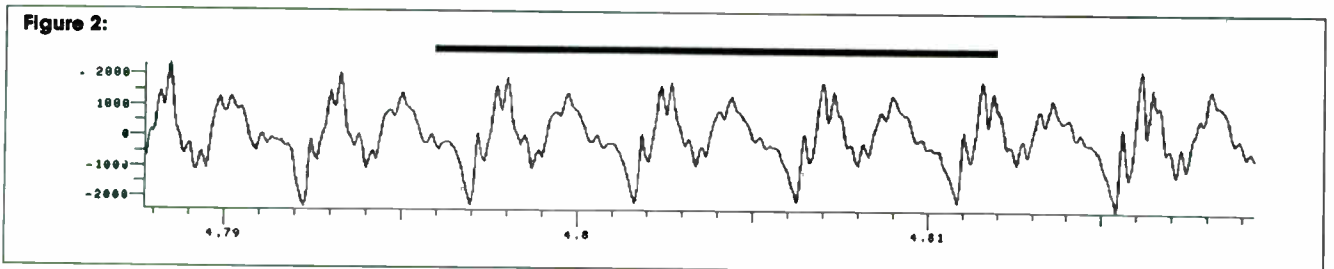
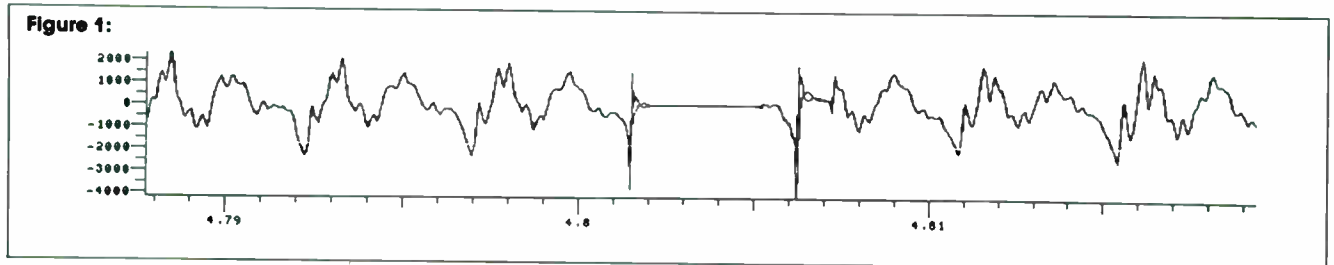
The dynamic growth in popularity of the compact disc is largely based on its superiority in the area of signal-to-noise ratio. People buy CDs in part because they are supposed to be quiet, and they expect them to be quiet even if the source material is an ancient analog recording or disc transcription. This presents a dilemma for those record companies trying to service the healthy demand for catalog releases on CD. Should classic recordings with noise problems be withheld from CD release, or should they be made available at the risk of upsetting a public that expects magic from CDs?

With the CD likely to be the primary music carrier of the foreseeable future, the option of simply keeping important material unavailable in the format is clearly undesirable. It would be self-defeating if the quality-consciousness inspired by the CD were to inhibit the flow of material for which the new format has largely created renewed demand. Eventually, therefore, most classic catalog material will probably be released on CD. The challenge for record companies is to find ways to en-

hance or repair deteriorated recordings as well as possible. Happily, for the majority of consumers who do not yet own CD players, these efforts may contribute to the improvement of the fidelity available in all prerecorded music formats.

Most common noise problems fall into two broad categories. The first includes noises that are individual and instantaneous such as clicks, pops and ticks. Traditional attempts to deal with these phenomena have been based on some kind of editing, which could be performed on a master tape, at the risk of damaging an irreplaceable recording, or on a copy, with resulting generation loss. The advent of digital recording improved things a bit. The introduction of the Mitsubishi X-80 allowed razor blade editing of digital safety copies, eliminating the generation loss problem. And sophisticated electronic editing is available for video-based digital audio systems like the Sony PCM 1630. But the editing approach has a fundamental problem in that removal of an offending noise leaves a gap in the program. Closing a

Figure 1: Browser display of waveform with clicks and dropouts.
Figure 2: Same waveform after NoNOISE signal reconstruction. Black bar shows where signal has been reconstructed.



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gap slightly alters the timing of a piece. While one or two timing shifts of 5 to 10 milliseconds may be unnoticeable to most listeners, editing is a far from ideal solution for serious click, tick or pop problems.

In the second category of noises, including hiss, hum, surface noise and other constant and steady disturbances, traditional techniques also have drawbacks. Notch filtration may be helpful in some circumstances, but common problems like hiss are generally too broadband to allow much in the way of corrective EQ without destroying the harmonic content of the program. Broadband gating is usually no help, since quiet passages and decays may fall below the threshold at which the gate must be set to do much good. Even in systems in which the gating activity varies depending on the frequency content of the signal, there is the annoying effect of noise coming in and out as the signal hovers in the area of the threshold. The greater the number of frequency bands, the less noticeable this problem may be, but ease of operation places an upper limit on the number of bands for which an operator might reasonably be expected to set thresholds.

Given these limitations on the efficacy of common noise reduction/removal techniques, it's no surprise that the search has continued for new methods. With digital audio allowing signal to be processed as data, the application of heavy duty computing power has naturally suggested itself as a promising direction. In the hands of a young San Francisco company named Sonic Solutions, the computer-based approach to signal restoration has been yielding impressive results.

Sonic Solutions was formed in early 1986 by Robert Doris, former president of The Droid Works, a subsidiary of Lucasfilm. Doris was joined in mid-1986 by former Droid Works associates Jeffrey Borish in research and development, and Mary Sauer in marketing and operations. The company's primary activity has been to develop and market their computerized "NoNOISE" service.

NoNOISE is designed to remove or reduce noises of both the individual (click) or constant (hiss) variety. The basic idea is that the system can rec-



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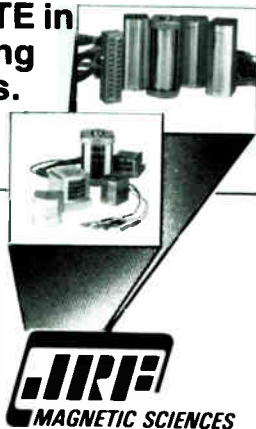
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AFTER · MIX

ognize user defined problem waveforms (specific types of noises) and perform corrective operations on them. Stored sound (a piece of music, for instance) may be searched for all waveforms like those defined by the user, and automatically corrected as instructed.

The process begins with a digital tape, usually provided by the client in Sony PCM 1630 format, containing the noisy material to be worked on. Ideally, the tape will not be tightly edited between selections, but will instead include exposed areas of the problem noise. The tape is played on the company's DMR 2000 U-matic deck into the 1630 processor. The 16-bit, 44.1k audio data then flows from digital outputs on the 1630 to the system's massive (1 gigabyte) hard drive setup, where it is stored as a "soundfile." Once loaded in system memory, a selection is returned to tape only after all NoNOISE processing is completed.

The next step is diagnosis of the material's problem or problems. The system operator listens to the soundfile, noting the various types of noises and how they might best be dealt with. Sitting at the terminal, a Sun workstation comprised of CRT, keyboard and mouse, the operator is also able to examine the soundfile visually in great detail utilizing the system's sophisticated graphics capability. Amplitude is normally displayed in vertical axis, while horizontal may be time or frequency. Pull-down menus activated by the mouse offer a multitude of functions, including allowing the user to "browse" through a segment of a soundfile on a visual search for suspicious waveforms.

In the case of ticks, clicks and pops, a sharp deviation may be seen which is clearly distinct from the surrounding signal (see Fig. 1). To manually correct a click, the operator, using the mouse, enters on the display the beginning and end points of a problem area, perhaps only a few milliseconds long. Then an "interpolation" command is selected from a menu. The offending noise is removed. But rather than leave a gap, the system analyzes the waveform before and after the removed portion, and replaces the gap with its estimation of what would be consistent with the existing material (see Fig. 2).

The power of this capability is shown off well in the demo soundfile that Doris and Sauer keep on hand for visiting journalists and other dignitaries. The soundfile contains excerpts from the vocal track of a live recording of The Doors at the Hollywood Bowl in 1968. The track was peppered with loud clicks from a bad connection on Jim Morrison's microphone cable. The problem was apparently crippling plans for a release of the material by MCA Home Video and Elektra/Asylum Records. Sonic Solutions was asked to apply their restoration techniques, and the track was salvaged.

On a visit to the company's facility, I compared before and after versions of a segment of the Morrison track. While the before had several loud, disturbing noises, the after was restored in such a way that no listener would be likely to suspect that anything had ever been wrong. Guided step by step by Doris and Sauer, I was able, with relative ease, to perform a cleanup operation of my own on a problem area of the track. Listening to the result, I could hear no trace of either the noise or the noise removal operation. Unfortunately, I did not have a chance to check out the system's signal reconstruction capabilities on material more complex and broadband than a single vocal track. But if the demo soundfile is any indication, NoNOISE is an extremely powerful weapon against ticks, pops and other short duration noises.

Of course, a system requiring an operator to manually point out and correct each and every unwanted noise would be prohibitively labor intensive. But most noises apparently fall into certain categories with characteristics that can be defined for the system. So Sonic Solutions has developed programs to search soundfiles for predefined types of noises, and to automatically perform corrective operations on them. Thus, once the operator, having auditioned the material, determines which types of noises to look for, the system is able to perform its tasks without supervision. After processing, the operator can listen to before and after versions of the material, checking for remaining noises whose characteristics may have fallen outside the predefined parameters, or for any removal of sounds that would have been better left alone.

Constant broadband noises like hiss may be handled in similar fashion. But

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instead of using generic noise definition parameters, the operator finds an exposed area of noise in the material that serves as a sample of the unwanted portion of the audio data. This noise "fingerprint" is broken by the system into 2,000 frequency bands. During processing of the soundfile, the program material is similarly divided into 2,000 bands. The content of each band is compared throughout with its band's noise fingerprint. Where there is a match, the band is attenuated. The degree of attenuation depends on the system's evaluation of various factors, including overall signal to noise relationships occurring in the program at the time of the match. Because of the sheer volume of computations required (over 53 million per second of program), de-hissing, like de-clicking, is not a real time process. After setup, the programs run without operators.

In addition to the de-noising programs, Sonic Solutions has designed programs for enhancement or corrective EQ in the digital domain. The company's workspace is not currently set up with the kind of audio monitoring environment in which most engineers or producers would feel comfortable making critical EQ decisions. But the enhancement features may prove important in the future if Sonic Solutions succeeds in placing NoNOISE systems with outside companies. Potential lessees include major record companies and video/film production houses, which can use the system to clean up location audio tracks as an alternative to costly Automatic Dialog Replacement (ADR). Leasing NoNOISE, however, is likely to be rather costly as well, feasible only for well financed companies with a high volume of material to be processed. (Exact price figures are not being discussed publicly by the company at the time of this writing.) Negotiations are underway, and Doris and Sauer hope to be able to announce at least one successful placement before autumn.

For those whose needs are occasional or resources limited, Sonic Solutions will continue to offer the processing as a service performed in-house. (Current rates are \$85 per minute of processed program). Doris views this ongoing involvement in day-to-day processing as essential for the continued refinement and extension of the system's capabilities. Advancements will

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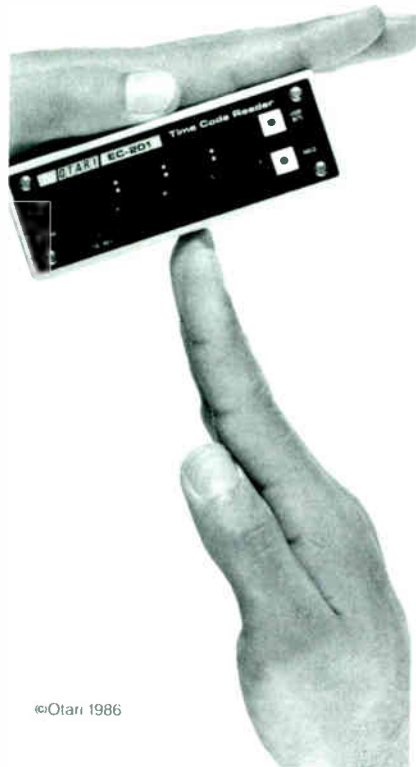
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be passed on as regular updates to those systems leased to outside companies.

In-house projects completed to date have already posed a variety of challenges that have broadened the system's processing repertoire. The credits list includes work for CBS, Disneyland, MCA, PolyGram and Warner Bros. on projects ranging from Streisand to Segovia, Liberace to the Grateful Dead, Mickey Mouse to John Mayall. One wonders, however, whether the company can recoup what may have been a substantial development investment solely by offering the in-house service. If not, survival will depend on the success of outside placement efforts, which may be hampered by the high cost of the system. Further, companies that lease the system are presumably no longer potential in-house clients, and could even, perhaps, become competitors in offering the service.

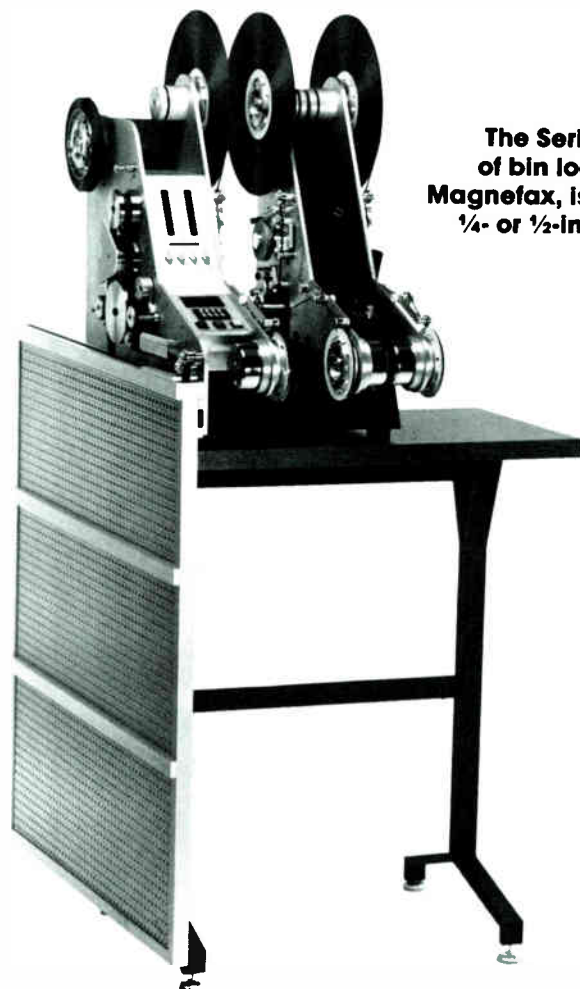
But however the economic factors pan out, Sonic Solutions appears to

have taken a big step forward in the restoration of creative works that might otherwise be nearly unlistenable. Considering the threat our recorded musical heritage faces just from the ravages of time, theirs is a significant achievement.

• • •

Magnifax International, Inc. of Rogers, AR, is introducing new additions to its line of tape duplicators. The 3800 Series machines use a common Mandrel capstan design. Two models are available, both in three-slave configuration. The 3801 uses a half-inch master, while the 3802 uses 1/4-inch. Production for both models is 125 C-60s per hour. A 7800 Series is also available, offering seven slave design and 2,400 C-60 per hour production capacity. ■

Phil's one of our resident experts on topics relating to record mastering and manufacturing, tape duplication, CD replication, storage and formats. He's also a mastering engineer at Fantasy Recording Studios in Berkeley, right across the street from the Mix offices.



The Series 3800, a new line of bin loop duplicators from Magnifax, is available in either 1/4- or 1/2-inch master versions.

FEEDBACK

Dear Mix:

Thank you! Thank you! I am referring to your June article entitled "Women in Sound Reinforcement."

I have been a professional sound engineer for over four years, and I have yet to meet another female sound engineer. I have often wondered if there really are others out there somewhere. Your article was such a relief, especially your interview with Rebecca Fields, which I could relate to very well. I have always felt that initially men tend to test my abilities, and once they find that I am capable of handling the job, I am then treated as much as possible as the guys on the crew.

I would like to add that I have been quite fortunate to have many good teachers (other soundmen) who have helped me a great deal. I believe that no formal education can totally prepare you for live mixing, and on-the-job experience is the best teacher.

I have been reading *Mix* for many years and I have always found it to be extremely informative and educating. Keep up the good work!

Best regards,
Marg Mueller
Kitchener, ONT, Canada

Dear Mix:

I have read with some amusement the article describing how Quincy Jones and Nile Rodgers bounced audio from coast to coast via satellite. It brought to mind another "bouncing" job that occurred way before the days of digital delay lines, fiber optics and satellites.

Back in the 1950s, while an audio engineer with NBC-TV, I did a show called *Wide, Wide, World*. This was a "live" show which originated in

New York City and starred Dave Garroway as the narrator. The premise of the show was that Mr. Garroway would give an introduction to an event or place in the United States and we would then cut to that location, both audio- and video-wise.

One week before Christmas, a show was designed to depict how a family in the hills of Kentucky, a French-Canadian family in Montreal, Canada and a Mexican family in Tijuana, Mexico celebrated Christmas. To end the show, children's choirs in the three locations were to sing the same Christmas carol in their native languages accompanied by an organ in the Cathedral of St. John the Divine, located on the Upper West Side of New York City. In addition to the incoming pictures and audio from the various locations, the organ audio was fed back to the locations to help the groups keep in sync with the music.

The thing to remember here is that this was in the days of transmission via microwave towers and land lines, no satellites. The groups located in Kentucky and Montreal were on the East Coast, so there was no problem in their singing along with the "live" organ. However, by the time the organ audio was received in Tijuana, Mexico, it had already been delayed on the order of three seconds. This meant the children were singing three seconds behind the organ which was arriving "live" at the control center in New York. When the children's audio signal finally arrived in New York, they were close to six seconds behind the organ.

Somehow or other, and it remains a mystery to me to this day, the conductor of the group in Tijuana

was able to anticipate the delays and remain in sync with the "live" organ. In fact, all three groups sang the last chorus together, and miracle of miracles, they were all together. It was one of those "magic moments" in the early days of live television.

Fred Christie
Power Station Studios
New York City

Note: The following is "Dr. Microphone" Stephen Paul's reply to the July 1987 "Feedback" letter from Adrian Weidmann of Bruel & Kjaer.

Dear Mr. Weidmann:

Lest we misunderstand one another, allow me to say first of all, I have always had the highest regard for your company's products, and in fact use one on a daily basis as my measurement standard. I am also aware that there are other choices I could have made for this purpose, but I have never been attracted to anything less than the pinnacle of the art, a domain in which B&K certainly reigns supreme in all the world.

My interview was given in a very casual manner and was never intended to be a science lesson in the particulars of the measurement art.

In mentioning the noise floor of the microphone, I think that I made it perfectly clear that I was talking about *absolute* 0dBa, as opposed to *reference* 0dBa. Though you will certainly be correct in insisting that there is no such animal, I think you well understand the spirit of my answer, and there should be no need to resort to cynicism. My com-

ments about enclosing the microphone in a vacuum and measuring residue current and voltage noise density should have made it amply clear that we were discussing theoretical ideals, not the real world of recording or measurement or anything else for that matter!

As for "dispelling the notion that a capsule has to be 32mm to get bass response," technically again, I stand corrected here, but once more, I must beg both yours and the readers' indulgence for the subjective evaluation which prompted this remark. I was referring to pressure gradient proximity boost in this regard. As the diaphragm diameter increases, the modulations of the membrane change their character somewhat and produce a different type of coloration than their smaller gradient brothers. This coloration is noticeable in several areas, not the least of which is the way it responds to bottom end. This difference can be heard even in the relatively minor change to a 28mm capsule such as is found in the Neu-

mann TLM-170.

I feel it is time for me to point out that I never said that B&K microphones are unexciting. In fact what I said was that it would be nice to have a boundary frequency of 100kHz, but that this does not *in itself* make an exciting sounding microphone. I think you would have to agree that there are many other factors which go into the decision to choose a particular microphone for a task, and I think it hardly behooves you to call the experiences of thousands of artists, producers, and engineers invalid and worthy of no more consideration than "old wife's tales."

I assure you, many professionals have tried your microphones, and like all others they have an incontrovertible place in the recording arsenal, and I did not mean to suggest otherwise. There are many singers, however, who require a different quality from the microphone than Jennifer Warnes does, and I think it is interesting to note that in his upcoming album, Leonard Co-

hen happens to be using an AKG C-12 on his vocals!

I would also like to point out with respect to getting "a second opinion," that to my knowledge, there is no one else in the world at this time who has successfully rebuilt and updated these older microphones, and therefore getting a second opinion might prove a daunting proposition. The films I use I sputter myself with electron beam technology, the masks and tensioning apparatus I use I have completely conceived and machined myself, and the hours of research, development and field testing in the heat of battle in the studio are my allies in this endeavor. In fact, I have followed B&K's example and the rebuilt backplates are

Correction: Our August "Interactivity" column misspelled the name of the Silicon Valley firm involved with developing the authoring workstation for the production of CD-I software. The correct spelling is: Sun Computers.

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lapped to a microfinish with flatness and parallelism which rival your own efforts in this area! I also had many talks with Dick Heyser about my efforts as I completed phases of my research, and many of his suggestions went into my work.

Sincerely,
 Stephen Paul
 President, Stephen Paul Audio
 Tarzana, CA

Dear Mix:

I read Doug McClement's article about the remote multi-track in Lagos, Nigeria with great interest, for I was the chief engineer for that project. I'm an independent producer/engineer and lately I seem to have been doing quite a bit of work in the Nigerian urban music scene.

Doug's article was succinct and to the point. However, there are a few things which anyone contemplating such a venture should bear in mind:

I spent a month in Lagos preparing for that concert, locating equipment and running interference between the artists, local management, U.S. management, promoters and the film company. I was accompanied by an ethnomusicologist, Andy Frankel, who had spent a few years living in Nigeria and was well aware of the problems of cultural interface. The main problem turned out to be that the principals were not understanding each other. Indeed, five days before the crew arrived Andy and I felt that the odds were overwhelmingly against the project. Had it not been for all of us working hard beyond our appointed tasks, there would have been no show.

Technical problems aside (which, if you have read the article were many), the production director of Nemesis made a single key error which should be an example to all: too much bribery, too quickly. There are cultural rules in Third World countries regarding the handling of underpaid officials. Granted, it is often difficult to convince people that you're on a tight budget when you're moving a half-million dollars worth of equipment through their port, but it can and must be done. The crime: "Let's just go in there and spread some money around and move it out quickly and

easily." The punishment: underscoring the fact that there is quite a bit of money involved (even if there isn't). You can't blame people for lining up for their share when they see it passing hands so freely, not even the parking lot attendant.

Somewhere in any organization there is an individual who will understand; he just has to be found. Otherwise, as in the Nemesis case, free money gets advertised to the underdogs, who can call the game quite easily. The fatal error occurs when one believes he can undo the bad-mouthing he has received from the head man's compatriot.

I don't mean to imply that bribery should be avoided. It can and does work, but it should be applied sparingly and judiciously, especially at the onset. It should also be remembered that no one *bribes* anyone! An official is paid to do his job more quickly, or more slowly, or perhaps not at all. Any suggestion of illegality can lead to serious complications and possible loss of equipment.

This is all I have to add to Doug's accurate depiction. But given all of the difficulties that we have both mentioned, why would any person in their right mind attempt such a project? The answer lies in the magic of a performance in the artist's native land for his own people. Yes, you can see Sunny Ade play in North America; a two-plus hour show of what he believes Americans want to see. A truly incredible show (I've just seen it some 40-odd times myself, never tiring of it). But to see him perform for his people, eight hours straight of material you'll never hear, not even on public radio, is simply hypnotic. Music played in the context for which it was designed is something which is indescribable; even film can barely capture the character of such an event. It is for this very attempt, against all odds, that the people of Nemesis are deserving of admiration and respect.

Charles B. Wolff
 Santa Fe, New Mexico

Please note: Also, we neglected to mention that in the *very* attractive photograph of the current *Mix* staff, missing was our crack credit manager, Ann Cuadra. Sorry about that, Ann!

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—FROM PAGE 12, SESSIONS

er **Eddie Fargason** and engineer **Tom Smith**... Island Records' compilation album detailing the music of Deep Elm (Dallas) is nearing completion at **Goodnight Dallas**. Local groups that have recorded their original works for the album include **End Over End**, the **New Bohemians**, **Three on a Hill**, the **Buck Pets**, **Reverend Horton Heat**, **DDT** and **Shallow Reign**. Engineers for the project are **Tom "Gordo" Gondolf** and Austin's **Kerry Krafton**... **Taos Rocks**, a compilation of 12 Taos, NM artists, was recently recorded at **Moondance Studios** in that city. **Greg Martin** produced, **Frank Vuoto**, **Morten Nilsen** and **Peter Miceli** engineered...

SOUTHERN CAL/HAWAII

At **Larrabee Sound**, L.A., **Shep Pettibone** overdubbed and mixed **New Order's** song "True Faith" for Warner Bros. **Steve Peck** was engineer on the project with **John Hegedes** assisting. And **Victor Flores** was in remixing **Randy Hall's** "Slow Starter" and **Walk the Moon's** "Daddy's Coming Home," both for MCA. **Keith Cohen** manned the console with the help of **Elmer Flores**... Composer **Mark Snow** was in at **Evergreen Studios** in Burbank working on the score for Orion Picture's **The In Crowd**. Engineers for the session were **Rick Riccio** and **David Marquette** (assistant)... At **Lion Share Recording** in L.A., **Julio Iglesias** and **Stevie Wonder** tracked vocals for upcoming worldwide releases. **Humberto Gatica** engineered with assistance from **Laura Livingston**... **Chaka Kahn** was in at **The Enterprise** in Burbank mixing down her project for Warner Bros. with **Tony Pratler** producing. Also, **Turner Broadcasting Corp.** is shooting **Three Dog Night** in Studio A for an upcoming television special. The results will be mixed down on the SSL 4072 Total Recall desk in Studio B... Ripe Productions' team of **Peter Bunetta** and **Rick Chudacoff** finished basic tracks and vocal sessions at Los Angeles' **Conway Recording** on **The Temptations**. **Daren Klein** engineered the sessions for the follow-up to last year's **Bunetta/Chudacoff** produced **To Be Continued**... At **Sunset Sound** in Hollywood, **Tom Waits** was in with engineer **Tchad Blake** mixing the dance single for his long awaited Island album.

Brian Soucy assisted... English recording act **Gene Loves Jezebel** and singer **Maria Vidal** were both in recently at **Secret Sound L.A.** with producer **Chas Sandford** working on tracks for their upcoming albums. Engineering was by **Gary McGachan** and assisted by **Daren Chadwick**... In at **Kren Studios** in Hollywood was the **James Quill Smith Band**, produced and engineered by **Ken Suesov**, assisted by **Russ Bracher**. Also at Kren, **Bruce Springsteen** has been recording with producer **Chuck Plotkin** and engineer **Toby Scott**, assisted by **Squeak Stone**... **Brian Wilson** produced, tracked and mixed "Let's Go To Heaven In My Car," a single for **Police Academy IV**. **Toby Wright** engineered... **Bo Diddley** was at **Studio II** in Culver City doing overdubs with **The Bonedaddys**. **Ian Gardiner** was producing and **Jason Wolchin** was at the board... At **Mad Hatter** in L.A., **Cliff Sarde**, producing himself, worked on his next **Passport Records** release, aided by engineer **Sabrina Buchanek** and assistant **Larry Mah**...

STUDIO NEWS

Audio Works of Boston has moved from Beacon Hill to a larger space at 284 Mount Auburn Street, Watertown (ten minutes from downtown Boston). They have also opened an office at 252 Newbury Street to keep in close proximity to the Boston agencies... **West Side Sound** in L.A. has expanded from 12 to 24 tracks with full MIDI setup. New equipment includes Soundcraft 2400 desk, Soundcraft 760 MkII 24-track, Otari 5050 2-track, Tannoy monitors and much more... Everything Audio, Encino, CA facilitated **Larson Technology's** purchase of seven Otari MTR-901Is. A new facility, Larson Technology specializes in audio post-production for the television and motion picture industries... **Sonic Arts** in Lake Villa, IL, recently purchased a NEOTEK Elite 36-input console through **Pyramid Audio** in South Holland, IL... **The Enterprise** in Burbank, CA, has announced the completion of Studio B, the facility's latest phase of construction. It's equipped with an SSL 4072 72-channel console with the new "G" series computer... **Charles Brown Music** has become Cincinnati's first tapeless digital audio production studio. Adding on to the studio's Synclavier Digital Audio System, the facility installed the Synclavier Direct-to-Disk Option.

—FROM PAGE 155, AMENITIES

eral sound engineers who would say "You're crazy, how could you do a thing like that?" Well, that's what we did and the person was just able to sing like crazy. I found a way to get just as good a sound but to give my client something better."

This people-first attitude was a surprisingly common theme in an industry that outwardly makes its living on having the fanciest machines. Terry Williams, studio manager for Lion Share Recording Studio in L.A., sums it up:

"Between you and me, good rooms are good rooms. I think I've got two *gorgeous* facilities here, but I can name four or five other ones in this town that are just as pretty and that get just as good noises as we do. What it boils down to is the people and whether the client is comfortable here.

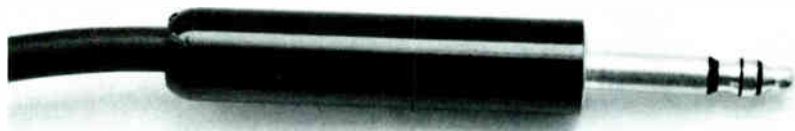
"I'm very against most of the norm in the industry. I don't want people to have to wade through 50 pounds of satin to get into a studio, to feel that they're 'lucky' to get in here. If I get any reports from clients about engineers who have attitude problems, that in many cases is grounds for termination. That's a very, very important thing, attitude and people, almost more than ability. Ability can be trained and learned, the attitude can't be."

Since Lion Share's credits read like a Who's Who of Hollywood (Michael Jackson, Barbra Streisand, Jose Feliciano, Stevie Wonder, Julio Iglesias, Kenny Loggins, Chicago, Rod Stewart, etc. etc.) it seemed natural to ask if they're more demanding of amenities than "normal" musicians.

"No—the bigger the better," Williams says. "I get half the demands from most of my clients than I do from clients who are 'kinda big,' somebody who has maybe had one hit record and has turned into a real hard-to-handle guy. It's the people who are still on their way up and maybe it's gone to their head who make rather unusual and unrealistic demands on the studio. But the clients like Streisand, Loggins and all of the normal clients—they're just dolls. We have a lot of fun." ■

Josh Gressel, a Mix editorial assistant, returned last year to the United States to do graduate work in psychology following eight years on a kibbutz in Israel. He is a Pisces, with a Sagittarian moon and a Capricorn rising.

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—FROM PAGE 50, NPR

with the PA company, dealing with power supplies, and coping with small clubs that lack sophisticated sound systems. "What if the club doesn't have a super sound system, but you do?" Glasser asks. "How do you mesh the two?" He suggests careful preparation, and visits to venues.

Glasser doesn't think a good location recording has to cost a fortune. "Mic-splitting transformers just happen to be expensive," he points out, "and there's no way around that. But you don't need an elaborate console with lots of inputs." He recommends renting equipment to "find out what really works for you." If Glasser were outfitting a public radio station, he'd build his own mic splitter, instead of purchasing a costly transformer, and include custom features. He likes to see balanced circuits in all console inputs and outputs, "especially when each remote recording takes place in a different environment, because you never know what kind of electrical situation you'll run up against." Small, accurate loudspeakers and a good power amp complete his list. "Be sure your choice of mics is compatible with the sound reinforcement company," he warns. "Otherwise, you'll make the sound reinforcement mixer's job much more difficult. That'll make the musicians unhappy, and you'll wind up with a poor performance."

Independent audio engineering and production consultant Paul Blakemore talked about remote recording to workshop participants. Although unused kitchens in nightclubs don't make optimum control rooms ("that can have an adverse effect on the mix"), he notes "there are several things you can do to give yourself a better shot at a decent recording." First, avoid headphones. He's found he never can make an accurate judgement about low frequency spectral balance in headphones, because he depends on the way his body senses sound to determine the amount of low frequency signal. "You don't get any of that body coupling, even at high volumes, with headphones," he notes. He suggests carrying around a tape of familiar, well-balanced music and listening to it while you set up so your ears can adjust to the situation.

In rooms where it's difficult to judge exact stereo localization, Blakemore cites the oscilloscope as an asset. "It doesn't have to be a fancy brand," he

says. "Even a small, cheap one can show specific information about stereo localization that you might not be able to hear. When you're getting your mix together, turn a panpot and see how it displays on the scope."

Blakemore stresses to his students that recording techniques cannot be quantified. "It's much more complicated than simply a right or wrong method," he notes. "People come in thinking they'll be told to plug in a cable, turn a knob to six, add signal processing, and get a successful recording. I'm not quite sure recording is an art, but I know there are artistic elements in it." Blakemore isn't even sure if recording engineering should be classified as "engineering," since it's not a strict engineering discipline. "Recording isn't like building bridges, where you have a mathematical formula for determining the stress on a size of steel beam. There are many things that, when combined, make a successful musical recording."

Those "things" include developing conscious, objective listening skills, a method of analytical listening, and a clearly formed notion of how you want things to sound. "It's important to have an aural imagination, and, as in any art, to know the traditions, the history of how things have been done so you can elaborate. It's necessary for the engineer or audio producer to have a very clear understanding of his tools, how they work, and their limitations, so that their aural imaginations can have realistic expectations."

At one time, NPR handled a great deal of location recording and sent it to regional member stations. Now that education is raising recording standards, and technology is improving, local stations are servicing their own communities by taping live, regional performances. "That's the function of this workshop," Pizzi reflects, "to bring collective expertise from people from the Network, as well as independents around the country, who are quality-conscious and who understand the fiscal nature of public radio stations. We concentrate on doing things right, doing them fast, without spending a lot of money, and putting them on the air." ■

Brooke, who holds degrees from UC Berkeley and NYU, spends her days involved in graphic arts and filmmaking. During her spare time, she works on expanding her Casio collection.

—FROM PAGE 46, STEPHEN HILL

of the company.

This labor of love has meant a meticulous attention to detail and quality. Over the years Hill has taken care to record each LP he programmed onto ¼-inch tape, to preserve the quality of each album. He has some 3,000 albums and claims to have an impression of what is contained on each. His studio allows him the capacity for remastering and improving the sound quality of work that is not technically perfect but that has strong "psychological content."

"I want to paint sound images that you can project yourself into," he adds. Every indication is that his listeners do just that. And afterwards, they sit down to write him letters, some 25,000 each year, or they buy something from the *Spacemusic Catalog* (that grossed over \$300,000 in mail order business last year).

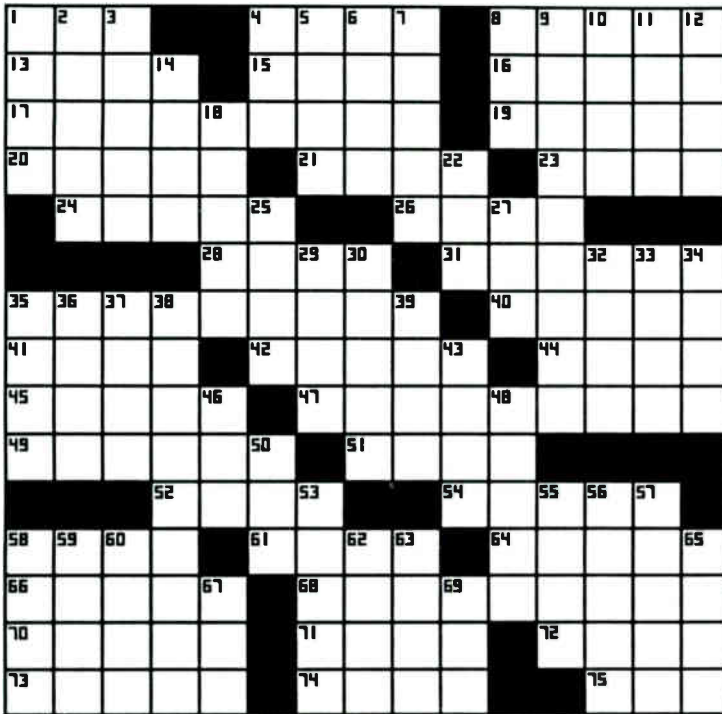
Carol Pierson, program director at KQED, believes that a great part of the program's appeal is that "people use *Hearts* as a decompression chamber between weekend activities and work." This seconds Hill's assertion about his listeners' need for the program. "It's part of their mental hygiene—to give themselves time to clean out." Pierson chuckles when she says, "I had no idea how popular the program was until I moved it to midnight and was deluged by letters and calls from irate fans."

There are detractors who call this music everything from "audio Valium" and "space elevator music," to "hot tub radio," and "yuppie Muzak." Hill does admit to dipping into a hot tub daily, but he finds the comparison with Muzak particularly misleading. "There is an obvious qualitative distinction between space music and Muzak," he bristles. "Regular Muzak is really about nostalgia and recreating for people a sense of well-being from a more active period in their lives. I don't think we need more trivial music with watered down emotions." But, as a man who is devoted to "environmental music," he does find it ironic that the new Muzak trucks bear the logo "More Than Music—An Environment." ■

Media arts consultant Morrie Warshauski lives in San Francisco. As a freelance writer, he's penned articles for such diverse publications as Videography, the SF Chronicle/Examiner and Parenting magazines.

MIX WORDS

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THOUGHT ENGINE

ACROSS

1. ___ the lights
4. M*A*S*H man
8. C.I.A. man
13. Sooner
15. Bon___
16. ___savage
17. Cheerleader's P.A.
19. Make parallel
20. Broadcasting
21. ___Islands
23. Town hall cries
24. Fund
26. Valve receiver
28. Pedro's roofing piece
31. Auto, aero, and palin suffixes
35. Bach, Bartok, etc.
40. Shoot from ambush
41. Melville novel
42. Ten-high name
44. Coming soon
45. Soil types
47. Tone-row user
49. Seized and devoured
51. Drying powder
52. Italian food favorite
54. A coming out
58. Head and sphere prefix
61. Babe
64. Lady in a sari
66. Modernist's word
68. Great memories
70. Patty Hearst nickname
71. Trafalgar square statue
72. Wrong-doings
73. Resell tickets
74. Breathing abbr.
75. 100 degrees

DOWN

1. "Pre"-recording
2. "Goodnight ___"
3. Daughter of Lear
4. Residue
5. Bird
6. Sup
7. Fields

8. Mrs., in Madrid
9. Music with multiple centers
10. Award
11. Bombshell name
12. Understands
14. Attack
18. Type or plasm
22. Incarnadine
25. Hope
27. "___longa, vita brevis"
29. Garlands
30. French decree
32. Skirt or moog
33. Iliad, e.g.
34. Forwarded
35. Ticket or chord
36. Fabled tent-maker
37. "...___than just holding
38. Record material
39. Girl's name
43. Sausage type
46. Understand
48. Sharp
50. One progenitor
53. Less capable
55. Howls
56. Loosen a shoelace
57. Heavy metal market
58. Roles
59. Civil Defense abbr.
60. "Every___King"
62. Only
63. Selves
65. Being
67. Draw upon
69. Viper

Solution to August Mix Words



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SEPTEMBER 15

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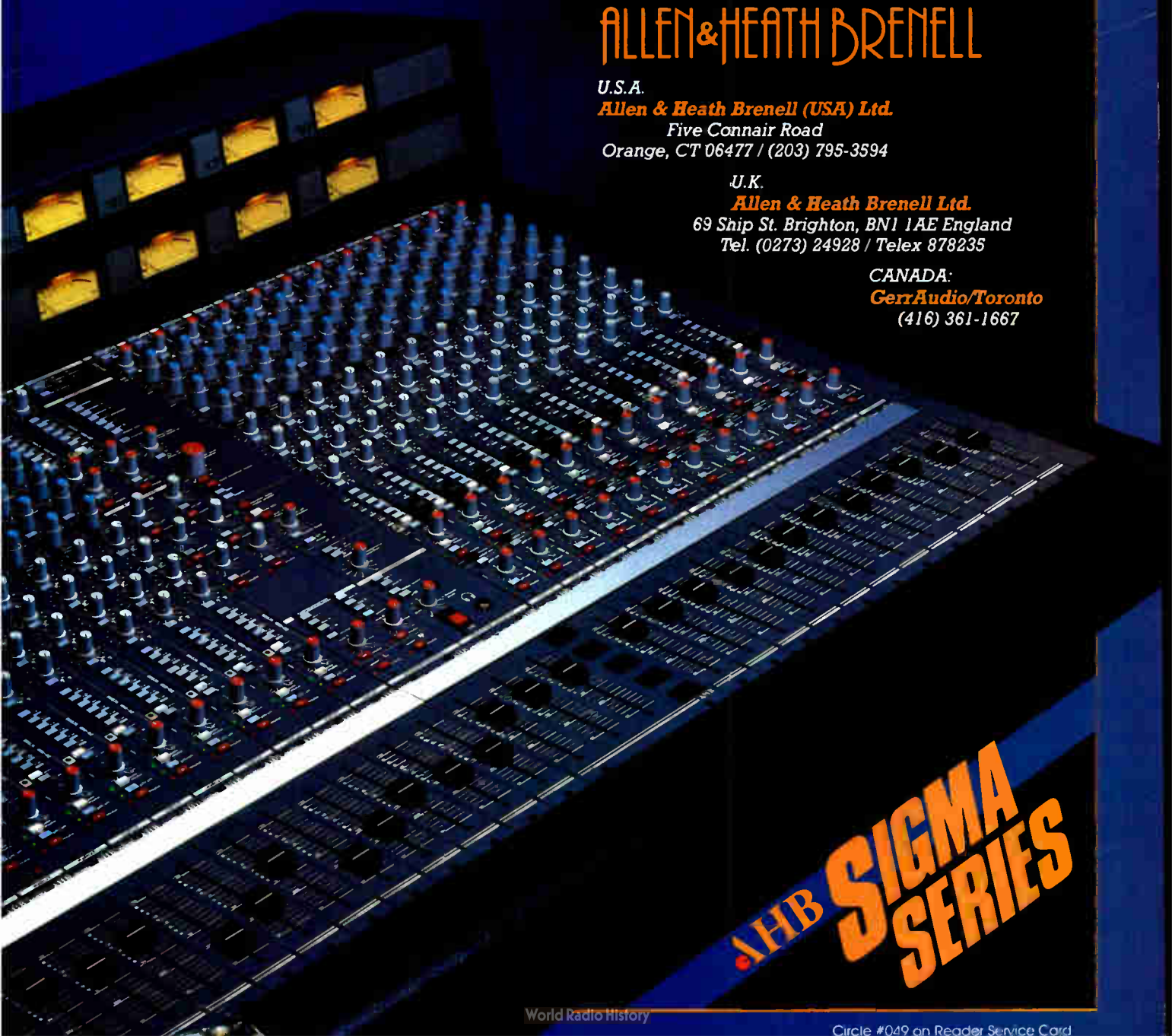
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