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# MIX

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THE RECORDING INDUSTRY MAGAZINE



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on the Road to  
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World Radio History

# MIX

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SEPTEMBER 1990, VOLUME 14, NUMBER 9

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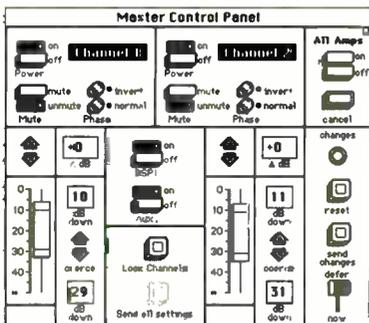
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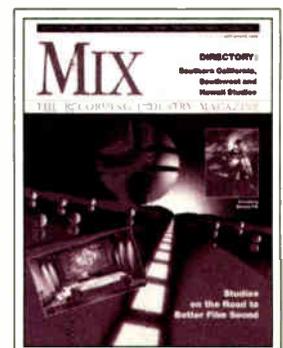
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Cover: Pictured against a futuristic landscape is the dubbing stage at SoundWorks West (formerly Motown/Hitsville studios) in Hollywood, which was designed within Lucasfilm THX specifications by Peter Mauer and Ron Lagerlof. The room features a 16-foot screen for 16/35mm and video projection. Photo: Ron Bennett/Cosmic Muffin. (Background photo): Michel Tcherevkoff. RoboCop II image: Deana Newcomb/Orion Pictures.

## DIRECTORY

- 147 **Recording Studios of Southern California, the Southwest and Hawaii**



# POWER. PERFOR

What do you really need in a digital audio hard disk system? Simple operation, total creative control, a high level of recording and editing power, and lower cost?

Yes, Studer Dyaxis exactly.

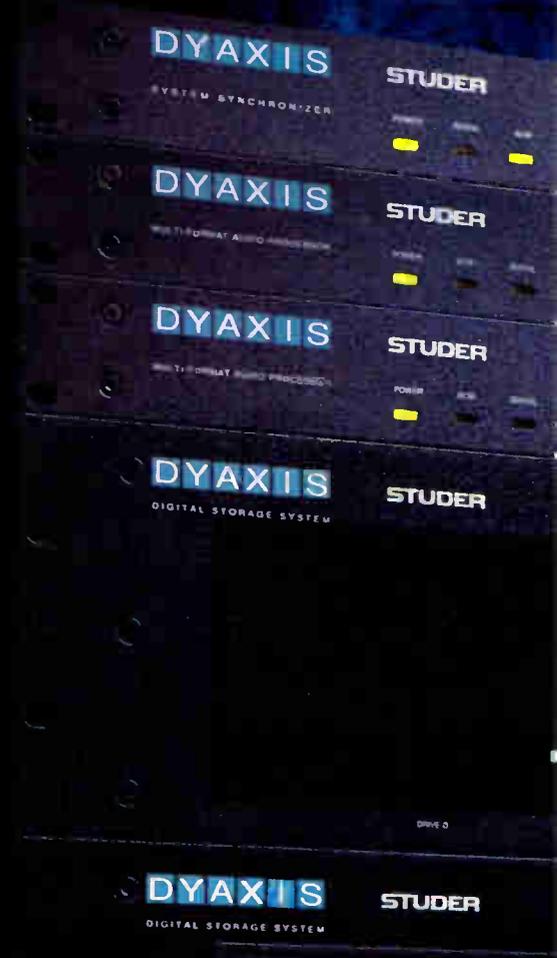
**The New Dyaxis 2+2.** Building upon the original Dyaxis' overwhelming and continuing success, Dyaxis 2+2 is now providing 4-channel simultaneous playback and many new advanced features, such as overdub, multi-take record and programmable in/out, making it the ideal tool for production and post facilities where multichannel applications are required. (Original Dyaxis owners can upgrade!)

**Synchronization Is Easy.** With the System Synchronizer and Timecode option, Dyaxis (and Dyaxis 2+2) is a "master" of sample accurate timecode-based slave applications. By a simple click of the mouse, Dyaxis is ready to lock to SMPTE, EBU, VITC, video, and film tach. Never before has synchronization of audio been so easy.

**Superb Audio Quality.** Dyaxis has achieved a reputation for the best sound quality of any digital audio hard disk system. Through Studer Editech Corporation's own proprietary A-D/D-A convertor implementation, anti-aliasing filter and analog circuit designs, Dyaxis maintains the superb audio quality that you've come to expect from Studer products.

**RDAT Backs Up More.** While others may lose necessary editing and control information by using consumer RDAT units for back-up, Dyaxis' integrated data RDAT subsystem stores all soundfiles along with their precise editing instructions. When restored to disk, Dyaxis users may resume the project exactly where they left off, without the need to re-record soundfiles or re-create critical editing information, or to load in additional instructions from other media.

# STUDER



# In an age of disk and digital, why buy analog?

We know there are some applications where our 32-channel digital machine, the DTR-900, is the only answer. But if your business is such that you can do anything you want to do in the analog domain, and at the same time do less damage to your budget, then our brand new analog 24-channel MTR-100A may be the perfect machine for you.

When you consider that the MTR-100 will literally *change forever* the way engineers interface with audio machines, and



*The MTR-100's auto-alignment saves you hours of time by eliminating constant tweaking and re-tweaking between sessions.*

that this new way will save you hours spent in non-productive time, the analog choice begins to make even more sense. You see, the MTR-100 features full Auto-Alignment that allows total recalibration of the record and reproduce electronics. This means you can compensate for different tapes in a *fraction* of the time that it previously took, and your studio is not bogged down with constant tweaking and re-tweaking between sessions.

And if you think digital machines have a corner on high performance transports, think again! The MTR-100's new transport incorporates reel motors that approach one horsepower—you'll get fast wind speeds of up to 474 inches per second! Of course, the

transport is pinchrollerless to give you the legendary tape handling ballistics of our MTR-90.

What's more, with its optional EC-103 chase synchronizer, the MTR-100 maintains frame-lock in forward and reverse from 0.2X to 2.5X play speed, and will typically park with zero frame error.

Then, there's the sound. New cylindrical-contour heads built by Otari especially for the MTR-100 result in remarkably low crosstalk and outstanding low-frequency performance. Pre-amps are located directly beneath the heads to further improve frequency response, and HX-Pro\* is built-in for enhanced high frequency headroom. (An optional internal noise reduction package houses Dolby\* SR/A.) Add all these features to gapless, seamless, punch-in, punch-out, which is also built-in, and your

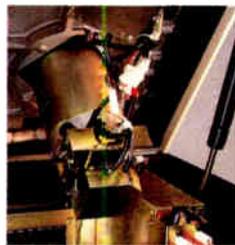
MTR-100's sonic performance will rival, or beat any digital machine in the world.

So there you have it. With these powerful benefits available in analog, does it make sense to go digital? Sure, for some applications. But analyze your needs carefully before you buy. For many applications, a hot

analog tape machine like the

MTR-100 is the right choice.

And because we can see both sides of the question, put us to work. We have information that can help you make the right decision. Call Otari at (415) 341-5900 for the "Technology You Can Trust".



*Reel motors that approach one horsepower are driven by pulse width modulation amplifiers to tape speeds up to 474 ips.*

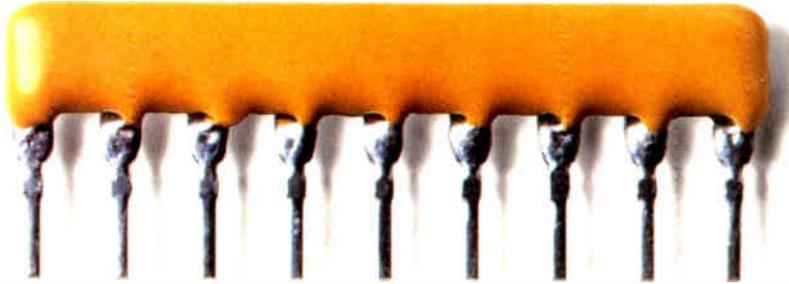
## OTARI



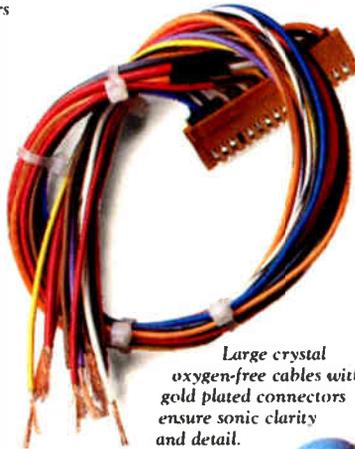
\* Trademark Dolby Laboratories Licensing Corporation

# They make beautiful music together.

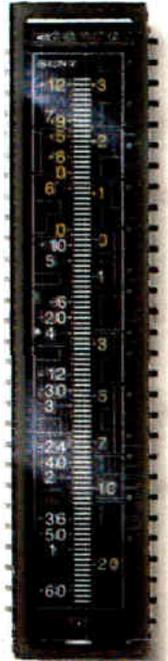
Laser-trimmed resistor packs and 18-turn trim-pots maintain precise circuit tolerances.



Audiophile-grade capacitors maximize sonic accuracy.



Large crystal oxygen-free cables with gold plated connectors ensure sonic clarity and detail.



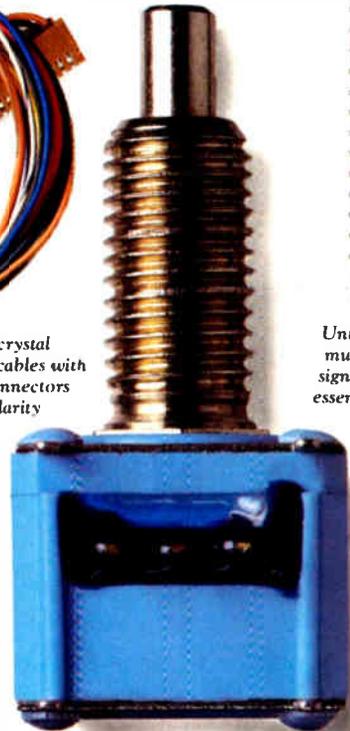
Unique vacuum-fluorescent multi-scale metering shows signal levels as low as -60dB, essential for digital recording.



A wide variety of preamp and EQ modules allows you to easily configure the console to your needs.



Sony's own hybrid circuitry makes these consoles among the quietest in the industry.



Sealed, steel-shaft potentiometers deliver reliable performance for years.

Sony marries superior components and intelligent engineering to create the MXP-3000 series consoles.

The result is consoles that offer the same high level of sonic excellence as our digital multitrack recorders, as well as unsurpassed reliability.

To achieve this, we selected only parts that meet the highest standards. Often, this required creating unique components.

This dedication to quality extends throughout the MXP-3000 series.

From our "minimal signal path" architecture to our advanced metal frame

construction. It's why the MXP-3000 delivers performance that satisfies even the most critical users in hundreds of facilities worldwide.



Call us at 1-800-635-SONY, to learn how you and the MXP-3000 series can make beautiful music together.

## SONY

PROFESSIONAL AUDIO

# CURRENT

## The Future of Radio?

Jerrold Communications, a division of General Instrument Corp., recently unveiled Digital Cable Radio with the slogan "Digital Cable Radio does for stereos what cable does for television." The boasting may be a bit premature, but one thing is certain: Radio is changing.

DCR sends commercial-free, CD-quality audio via satellite to local cable operators (16 cable companies are lined up as of press time, including Cox, Continental and ComCast), which in turn pass it on to subscribers through the same cables used for television. A DCR tuner now allows access to 28 radio "channels," including jazz, rock, classical, country, television simulcasts and others; the goal is to have 250 channels, including 40 for sports and 100 in foreign languages. Currently, more than 60 million American homes are wired for cable.

Because the signal travels through cable lines, DCR did not have to wait for FCC approval or apply for a bandwidth. The satellite feed comes from Staten Island, N.Y., and plans include expansion into South America and Europe, where the company will compete directly with direct broadcast satellite (DBS) services.

"What we ultimately will do is cable-ize audio," says Jerrold Communications VP David Del Beccaro, "and local AM and FM stations are a critical component. In our system we can take a local station's feed, digitize the signal, then broadcast it nationally. We can provide niche services to small markets."

The National Association of Broadcasters has taken an official position in support of land-based digital radio services and believes

that DBS or any use of a hybrid satellite/terrestrial system poses a threat to local community service. A NAB task force has been set up to study land-based proposals, which presumably would be free to consumers and could be received in autos or portable radios.

## TEC Announces Presenters

The Mix Foundation for Excellence in Audio recently announced the master of ceremonies and a partial list of presenters for the sixth annual Technical Excellence & Creativity Awards, to be held Sunday, September 23, at the Biltmore in Los Angeles.

The event will be emceed by Fire-sign Theatre's Phil Proctor and *Mix* magazine's Mr. Bonzai. At press time, presenters include renowned musicians Walter Becker, Hal Blaine and Ray Manzarek; Stephen Paul; MTV VJ Nina Blackwood; engineers Bruce Swedien, M.L. Proclise and Roger Nichols; SPARS president Pete Caldwell; NARAS president Mike Greene; and *Mix* editor Stephen St. Croix.

Tickets are still available. For more info, call Karen Dunn at (415) 420-0144.

## Convention News

It looks as if everybody can go to AES and SMPTE this year. The 89th Audio Engineering Society convention will be held September 21-25 at the Los Angeles Convention Center. Workshop sessions and technical paper presentations begin on Friday; more than 225 exhibitors are expected for the floor show beginning Saturday morning.

The theme for this AES convention is "Creating Illusions in Sound—The Fusion of Art, Technology and Imagination." For more information, call the AES at (212) 661-8528; the toll-free hotline for advance registration is (800) 541-7299.

Meanwhile, the Society of Motion

Pictures and Television Engineers will hold its 132nd Technical Conference and Exhibit October 13-17 at the Jacob K. Javits Convention Center in New York City. This year's theme: "Film and Television—One World?"

More than 250 companies are expected to exhibit. Program chairman Kerns Powers expects the two sessions on film/electronic interface to be among the highlights. For info, call Alan Ehrlich at (914) 761-1100.

## IEP Survey 1990

If you are an independent engineer/producer, you're about 32.9 years old, male and a college graduate. You've been an engineer for eight years and three months, and you work on an average of 7.5 projects per year. Most make under \$45,000 a year, but spend more than \$10,000 on equipment. Sound like anybody you know?

In early 1990, *Mix* commissioned an independent research firm to conduct a direct mail survey of independent engineers and producers. More than 1,100 questionnaires were returned, offering valuable insight into the work patterns of the independent.

For instance, 69.8% have experience in live sound and 63.2% are familiar with audio editing. More than 75% work full-time in the music business, and 60% are self-employed. Three-quarters of those surveyed own a private recording studio.

The October issue of *Mix* will carry a complete rundown of the survey results. In the meantime, if you would like a copy of the four-page questionnaire, with results, call Jane Byer at (415) 653-3307; fax (415) 653-5142.

# INDUSTRY NOTES

**Electro-Voice** promoted **Paul McGuire** to president; he'll work out of the Buchanan, MI, headquarters...In Cupertino, CA, **Apple Computer** brought **Robert Puette** onboard as president of Apple USA after a distinguished career at Hewlett-Packard...**Nakamichi** (Torrance, CA) hired **Leonard Provost** as director, mobile sound sales, and promoted **John Paul Lizars** as director, specialty audio sales...**JVC** (Elmwood Park, NJ) hired **John Greene** as district sales rep for parts of the East Coast...**Otari Corp.** promoted **John Carey** to VP, sales and marketing, in Foster City, CA...**Peter Lewis** and **Stephen Morris** will handle field service for **Neve** and **Mitsubishi** products out of the NY office, and **Vincent Pietrorazio** will specialize in support for the Mitsubishi line in Bethel, CT...**Gary Stanfill**, president of **Vega**, was named VP of **Mark IV Audio** in Buchanan, MI...The **Society of Motion Picture and Television Engineers** has called for papers for the February 1991 meeting entitled "A Television Continuum—1967 to 2017." Submit a 500-word synopsis to SMPTE Headquarters, 595 W. Hartsdale Ave., White Plains, NY 10607...**GMI** appointed **Adriane Benacquista** as sales and marketing administrator in Van Nuys, CA...**Klark-Teknik** moved to a larger location at 200 Sea Lane in Farmingdale, NY; **Tony Marra** joined as customer service manager...**Sunkyong Magnetic/America** moved from Carson, CA, to larger quarters in Long Beach...**Paul V. Hugo** was promoted to marketing and sales director at **Gauss Loudspeakers** in Sun Valley, CA...**Digidesign** appointed **M3 Sweatt** as director of international sales and marketing in Menlo Park, CA...**AKG Acoustics** relocated to 1525 Alvarado St., San Leandro, CA 94577. **David W. Roudebush** now holds the title of U.S. marketing and sales manager. **Jesse Maxenchs** is now regional manager, Western Hemisphere...**American Interactive Media** (L.A.) appointed **Dr. Judy N. Chiswell** to staff producer...Also in L.A., **Grove School of Music** added **Steve Houghton** to its Percussion Program faculty...**John P. Warrington** joined **Ediflex Systems** as digital audio engi-

neer in Glendale, CA...In L.A., former members of Peter Maurer & Assoc., including Peter Maurer, formed an acoustical engineering and design company called **studio bau.ton**...**Rick Porter**, former member of Arizona's Lunar and Planetary Lab, joined the audio world as part of **Apogee Electronics'** electronic team (Santa Monica, CA)...**Adams-Smith** (Hudson, MA) opened a demo room in midtown Manhattan. **Allan Nichols** now holds the title of North American sales manager...**American Helix** announced new job slots filled: **Michael Dillingham**, production control manager; **Al Thornburg**, engineering manager; **Tracy Smith Files**, sales coordinator...**RPG Diffusers™** named **AudioTechniques** (NYC) as its exclusive Northeast dealer...The **National Academy of Recording Arts & Sciences** plans to publish the *NARAS Journal* twice a year. For info, contact Publications Director, NARAS, 303 N. Glenoaks Blvd., Burbank, CA 91502...**David L. Adams Assoc.**, based in Denver, acquired **Darby & Assoc.**, an acoustical consultant firm based in Oahu, HI...In San Diego, **Georgene Boyd** was hired by **Digital Arts** as sales specialist...The theme for this year's **International Multimedia Conference** is "Converging Industries: Computing, Video, Publishing and Telecommunications." Stop by the Jacob K. Javits Convention Center from September 11-13 to hear about interactive media products for these fields...In Boston, **David Malekpour**, former sales manager at E.A.R.S. Inc., started a pro audio and video sales, design and installation company called **Anything Audio**...Console and amp manufacturer **Hill Audio** of Tucker, GA, made an agreement with **Bencsik Assoc.** to be its sales rep in Florida...**Microsoft Corp.** has rescheduled the **Sixth International Conference on Multimedia and CD-ROM** to March 18-20, 1991. The site has also changed to the San Jose Convention Center in San Jose, CA. For info, phone Denise DeAndrea at (203) 352-8297...**Telemation/Seattle** changed its activities from production business to video- and film-oriented services. ■

# FEEDBACK

## Dear Mix,

It is always a pleasure to see service-oriented articles appearing in *Mix*, as it can only help customers become more familiar with the products they own. However, "Using DAT—A Maintenance Point of View" (July 1990) contained some misleading points that need clarification.

First of all, Sony does not encourage the maintenance/repair of its products by non-professionals, which would void the warranty.

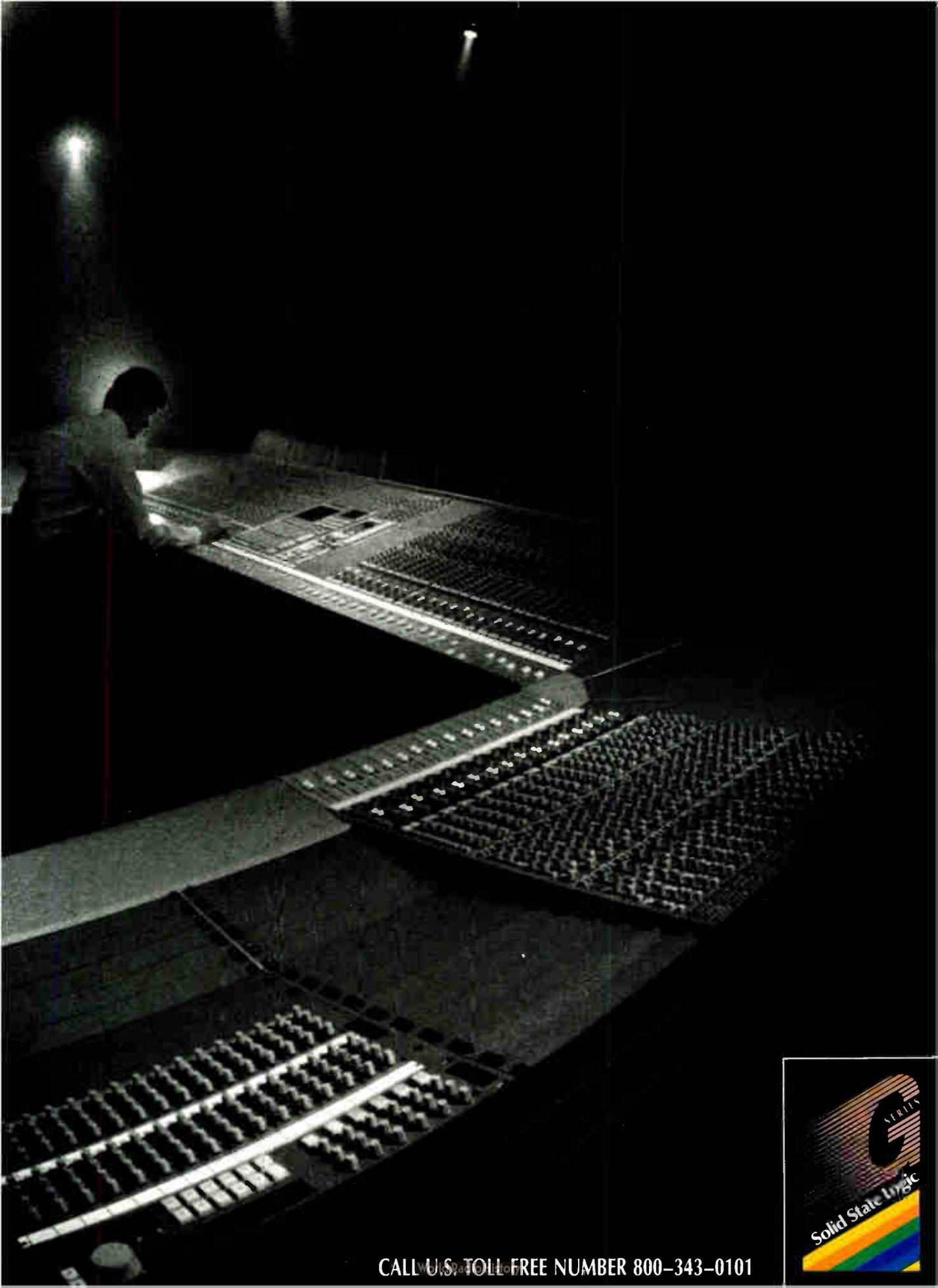
The author states that the capstan, pinch roller and tape guides can be cleaned with a standard 3-inch cotton swab soaked in Freon or another light solvent.

A cotton swab—which may leave fibers on the components—should *never* be used. A chamois cloth or stick, or a lint-free lens cleaning cloth are acceptable. Freon-TF liquid or Sony head cleaning fluid are recommended for metal parts, including the head drum. Use a non-detergent household cleaner on the pinch roller. Freon-TF or alcohol should *never* be used on the pinch roller, as these remove moisture from the composition, distorting its shape. Also, do not allow cleaners to enter the bearing area of moving parts, as this will require relubrication or replacement of the contaminated part.

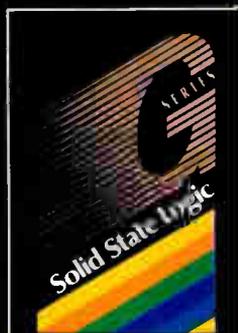
In the author's discussion of causes for dropouts and digital glitches, he does not mention tape formulation. Certain brands of tape "shed" more than others, resulting in head clogging. If this occurs, try switching tape brands.

Finally, it is stated that "...it takes Muzak up to three months to get spare parts from Sony." Readers should know that this situation is not typical. While, at times, we have temporarily been out of some PCM-2500 parts, most are "stock" items that are readily available. Problems can arise when a user such as Muzak (with nearly 100 DATs) orders large quantities of parts at one time. Our parts center is now working to align Muzak's maintenance schedule with the lead time requirements for the production and import of the needed parts.

Ron Remschel  
Sony Service Planning Manager ■



CALL US TOLL FREE NUMBER 800-343-0101



# Roland breaks th

Roland S-770 DIGITAL SAMPLER



If we were to tell you that our new S-770 is the best digital sampler in the world, you'd probably mutter something about truth in advertising and go on about your business. When, as you'll discover momentarily, it's absolutely true. And, as you'll also discover momentarily, the reason for it has less to do with any one feature in particular than it does with several features working in conjunction.

Such as the fact that the Roland S-770 is equipped

with AES/EBU Digital I/O, so it's actually possible to set up a fully integrated digital production facility.

We've also equipped our S-770 with both 20 bit D/A conversion and Differential Interpolation, thereby giving it higher resolution than any other stereo sampler.

And while we're making comparisons, allow us to offer another one. With 24-voice polyphony, the Roland S-770 has more voices than any other comparably-priced sampler. So you're not only assured of getting

# e sound barrier



extraordinary sound but the flexibility to go along with it.

Before we forget, the S-770 is also blessed with an elephant-like internal memory. It can be expanded to 16 megabytes which, for those of you without calculators nearby, translates to 83.5 seconds of continuous stereo sampling time at 48 kHz—twice as much as any sampler in its price range.

While we're on the subject of price, there's one more thing we should mention. On many samplers

you have to add a slew of peripherals. On our sampler, you don't. Things like a 40 megabyte hard disk drive, SCSI port, Digital I/O and RGB video monitor output all come standard.

Of course, these are just the highlights. For the rocket-scientist information, write us at the address below or call (213) 685-5141.

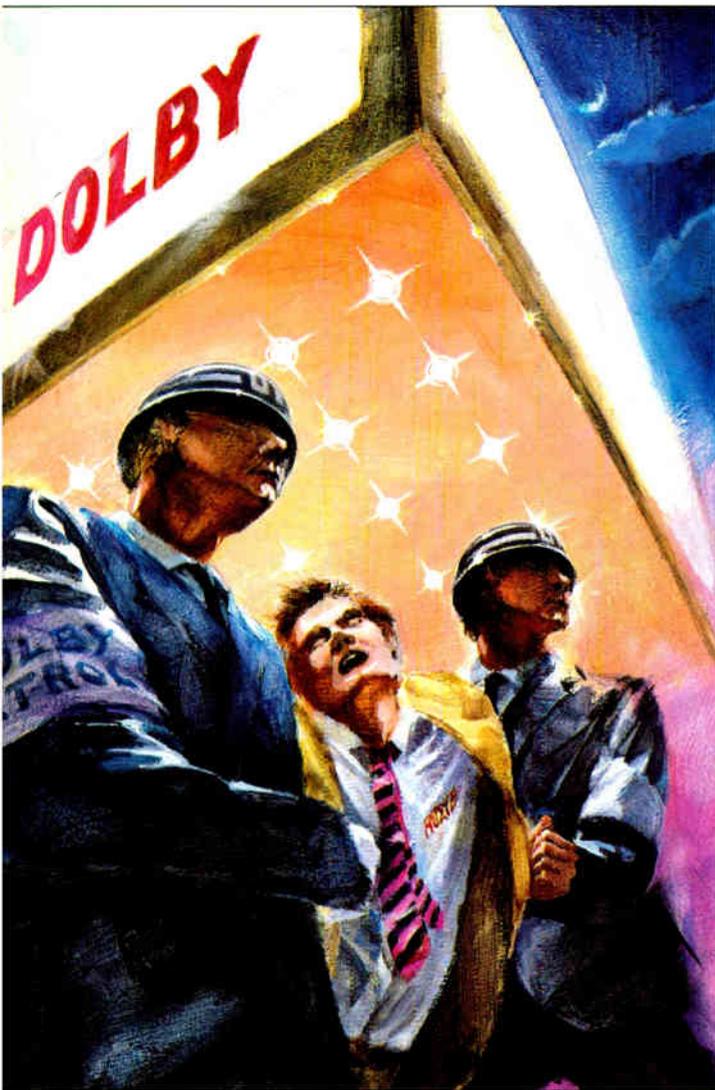
And as far as the sonic boom is concerned, that comes later. When you hear the S-770 being played live.

**Roland®**

RolandCorp US, 7200 Dominion Circle, Los Angeles, CA 90040-3647

by Stephen St. Croix

# MONGREL DOGS AT THE MOVIES



**B**itch! Okay, now you have a pretty good handle on the drift of this month's column.

I went out last night to see Arnie's newest movie, *Total Recall*. Yes, like many of you, I am a secret admirer of fine cinematic art. A closet connoisseur, as it were, of the cream of the crop when it comes to capturing sensitivity on film.

I live in an East Coast metropolis, which I'll call Gotham City for now. You must understand that it is neces-

sary for me to change the name of the actual city, and the theaters contained therein, in order to protect the guilty (which I am about to bash).

I don't go out to the movies very often, not because I don't want to, but because of my 15 years of extremely effective aversion training.

I used to go to a *lot* of movies, and with few exceptions I left frustrated and disappointed, often ten minutes after the film started. I was usually pretty satisfied with the general content, the acting, the plot (when present) and even the special effects, but it usually wasn't enough.

Things eventually got so bad that only my closest friends would dare venture out to a theater with me, and then only if they were emotionally prepared for the possibility of turning right around to go home during the opening scenes. It is fair to say I have probably demanded my money back almost as many times as I have stayed. My favorite theaters to walk out on and demand refunds from are the ones that have little signs hidden in the corner stating "no refunds."

"Why," you might ask, "does he do this, and why does he *admit* it? Does he have some sickness that causes him to flagrantly display his jerkdom in his column?" Well, maybe...but that's not the point. The point is *sound*, or in this case the lack of it.

I stopped going to movies because I didn't need the aggravation of getting in the car, traveling for 40 minutes, trying to find a place to park, standing in line (a favorite pastime of mine), paying twice last year's price for a ticket, only to sit down in a theater that ran a full-page ad promising *The End of Earth and Several Other Small Planets* in Dolby 6-track surround...to hear mono audio, from the left front corner of the theater only, with 34% distortion and a bandwidth of 700 to 4,100 Hz. *No way*. No more.

ILLUSTRATION: DAVE MARRS

I really don't *care* if the theater got a fantastic deal on 35-year-old, metal drive-in movie car speakers, or if the owner likes to build 30-watt Heathkit power amps.

What I do care about is that the theater perform as advertised and implied.

I have sampled theaters all over America (and the world), and I can tell you this: Within the U.S., you have the best chance of actually getting close to what you pay for in Los Angeles or San Francisco, followed by New York, then Dallas or Chicago, and then probably Miami. The worst of the lot, the bottom of the barrel, has to be Baltimore. There is one old, magnificent theater called the Senator (the name tells a lot, doesn't it?). Some insane person decided to revamp it and install an impressive, subwoofed Dolby 6-channel system, and he or she did it right. This is the only known example in Baltimore.

Anyway, back to the Arnie movie. It was showing at a brand-new theater, which I chose over the other four that were running it because there may not have been time yet for the speakers to be fried, and because it advertised Dolby Stereo.

I lost. The two-month-old theater had already killed several of its speakers, and it was *not* showing the film in Dolby Stereo.

In a movie that is basically meaningless sci-fi, big budget, production-type entertainment, the sound system should be able to image properly, and there should *definitely* be some sort of suitable subwoofer system so that you can feel (that is the operative word here) involved.

In this case, not only was it mono, but the poor little amp was so weak it was breaking up on spoken dialog! When Mars blew up, the visual was accompanied by a wimpy sort of dirty "pithh" sound over some mild grumbling at about 500 Hz. Nice. Why do I feel that it might not have actually been *recorded* that way?

The high end was lopped off so early—about 2 kHz—that the dialog was difficult to understand, Arnold Schwarzenegger notwithstanding.

This is not an isolated experience. This is the *usual* situation, not the exception.

Movie theaters with inept audio systems abound in America. Ripped speakers often remain in use for years. Tweeters blow...for life. Subwoofers? We don't need no steenkin' subwoofers.

Now I know Ray Dolby, and he is a

pretty cool guy. As you can imagine, he doesn't have to actually show up for work everyday anymore. Maybe he has a bit of free time now that he has managed to get his name stuck on almost every cassette deck on Earth, and on a good percentage of the theaters.

Maybe he could call his old company and suggest starting a "Dolby Police" force.

Here's how it would work: The Dolby Police would travel across the U.S. and check on each theater that advertises Dolby Stereo. They'd investigate not just at the initial installation,

but *every year or two*. If the facility meets a certain minimum requirement, it is recertified. A higher licensing fee would cover the expenses. This is the only way theaters could advertise they run Dolby Stereo films. Yeah, that's what we need!

Then, when we want to go to a movie, and it happens to be one of those rare occasions when we want it to *sound* good, we can look in the paper and see the double D logo and *trust* it. We pay five, six and seven bucks a pop now anyway. For that kind of money, I want *audio*-visual entertainment, the way it was meant to be heard by those of us who recorded and

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mixed it.

This return to the dawn of talkies is upon us simply because many of you seem to be too tired to actually complain when you get ripped off by a movie theater that claims to be showing a film in Dolby 6-track (or even stereo), but actually shows it in mono or stereo with one channel totally messed up. Or 6-track with decoder completely out of alignment, or with \$60 speakers that can only deliver 90dB SPL at 400 to 3,000 Hz.

If you don't complain, and then we don't get the Dolby Police, the theater owners sure won't fix it!

I remember other times when I have gone to other fully functional theaters (for exactly the same price as the dysfunctional ones) and fully enjoyed the experience. I saw *Ghostbusters* (you can see that my taste clearly runs toward the classics) at Grumman's Chinese in Hollywood. The theater (and my entire rib cage) literally shook with low-frequency energy when they first turned on their anti-bad-spirit guns in the elevator, as it should be. Left stuff came from—you guessed it—the left! Right from the right, rear from the rear. THX™ can work.

The opening scene in the first *Star Wars* shook the very souls of anxious moviegoers (those who went to the right theaters, anyway). We were immersed in a grandiose score (no doubt reduced to something of a joke in places offering only "wimpoid" mono).

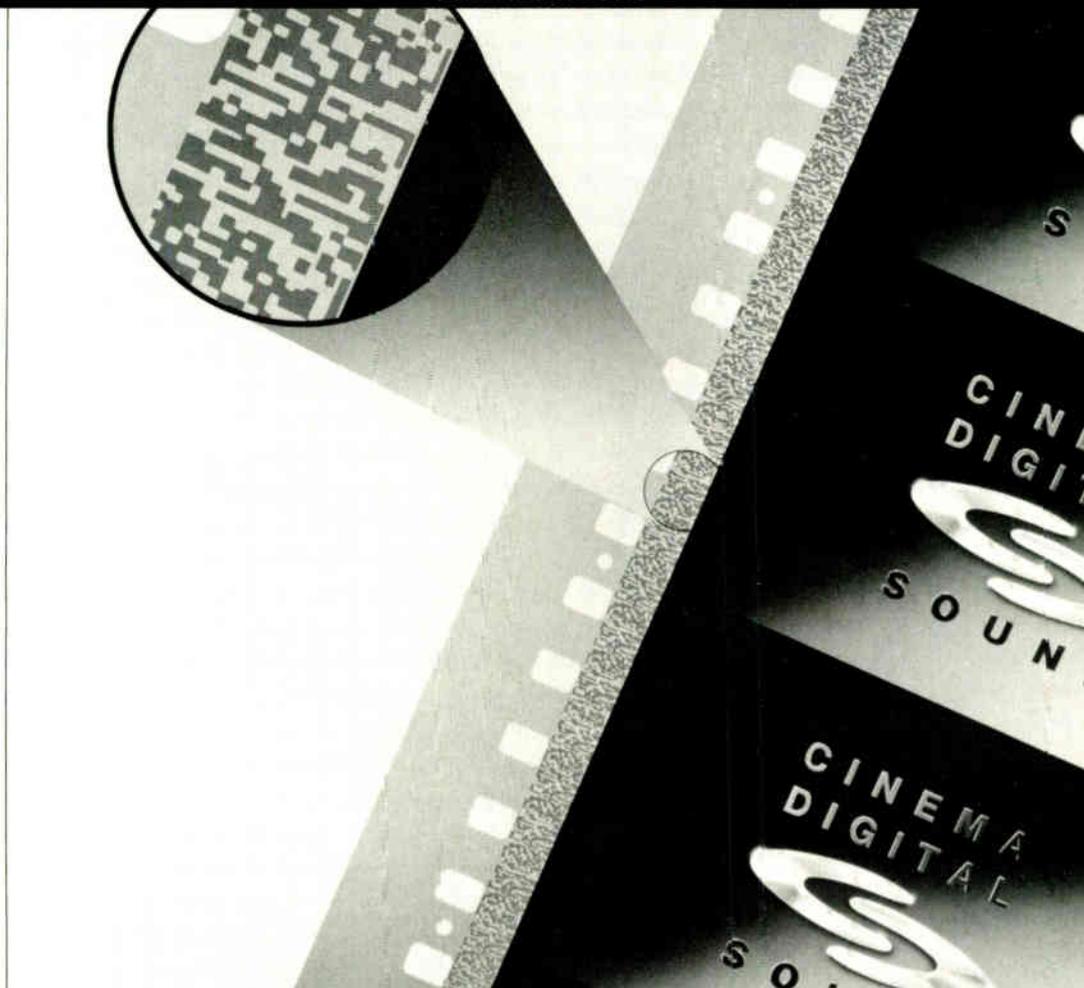
Any special effects extravaganza worth its weight in film needs serious audio, and any normal film with a score other than disco deserves no less. Simply hearing the bad guy enter the room from behind (along with the actors) is reason enough for good surround sound.

With today's new mini-micro theaterettes, it is easier than ever to build a solid surround image for the entire audience.

The way I see it, what we hear today should be gone tomorrow. Let's get out there and cast our votes for real audio in movie theaters, now.

Come on. Stand up and say, "The ayes have it, and maybe it's time the ears got a little, too." ■

*Contributing editor Stephen St. Croix just wants to see the work of his fellow mixers accurately represented to the ticket buyer.*



by Mel Lambert

# DIGITAL AUDIO FOR FILM

## THE CINEMA DIGITAL SOUND PROCESS FROM KODAK/ORC

**T**here's no denying that the sheer visual and sonic magic of a blockbuster film, experienced in a well-equipped first-run house, is pulling audiences back to the movies. Although it's a well-known fact that most theater owners make more money from the popcorn and soda concessions than ticket sales, several new marketing dimensions are helping to attract larger audiences. Dolby Stereo provides a high-quality LCRS (left-center-right-surround) soundtrack from both matrix-encoded

35mm optical and 6-channel 70mm magnetic formats, while Lucasfilm's THX™ replay-system specifications have virtually standardized the types of amplifiers and speaker hardware necessary to extract the finest details from a carefully crafted soundtrack.

But Dolby Stereo and THX are just two factors in the convoluted audio chain from the recording and post-production of a film soundtrack to its reaching the intended audience in the same pristine state. Optical 35mm and

***The Cinema Digital Sound process involves printing 5.5 million bits of information per second to provide six discrete audio channels for 70mm playback.***

magnetic 70mm suffer from frequency response, distortion and noise problems inherent to any analog-based system. It's not all bad news, however; an exciting new joint development from Eastman Kodak Co. (Rochester, N.Y.) and Optical Radiation Corp. (Azusa, Calif.) is set to extend the capability of film sound, by providing 6-channel digital playback from both 35mm and 70mm release prints.

Unveiled to the Hollywood community during a special presentation at the Screen Directors' Guild in early May, the new Cinema Digital Sound process involves the optical printing of a special digitized soundtrack down the side of the picture area, in the same space currently occupied by the analog optical or magnetic stripes (see Fig. 1). A modified projector with a digital replay head will decode the material encoded within the 0.1-inch-wide soundtrack, and output five full-range channels, plus a separate bandwidth-limited, subwoofer channel (see Fig. 2).

In its initial format—and to retain a semblance of compatibility with existing 35mm LCRS and 70mm "babyboom" formats—the system allocates the five full-bandwidth channels as left, center, right and split (left and right) surrounds, while the sixth, bandwidth-limited track feeds a 100Hz subwoofer channel. Quoted specifications for the CDS system include 96dB dynamic range; 0.01% THD; 100dB channel separation and a frequency range of 20 to 20k Hz (compared to "Academy" mono's 30 to 6.3k Hz, Dolby Stereo's 40 to 12.5k Hz, and 70mm mag's 30 to 14.5k Hz).

According to Howard Flemming, Optical Radiation's program manager, the patented system has been in development now for over five years. "We must have spent close to \$5 million developing and refining the system, in addition to significant contributions from Eastman-Kodak, which developed a new fine-grain negative mastering stock, Kodak 2374." Standard emulsions are used to contact-print the positive release prints.

As will be readily apparent, the encoding of such large amounts of digital audio onto a medium running at 24 frames per second (18 ips at 35mm) in the hostile environment of a projector housing is not without its own set of inherent difficulties. As Flemming explains, "We use a sampling frequency

of 44.1 kHz, and a highly modified, hybrid Delta Modulation System to carry 5.5 million bits per second to make up the digital soundtrack. Because of film weave and physical changes, we use a run-length limited

ers" to error correction locations within the data. "Following error decoding and correction," Flemming says, "the data are passed through a 1MB memory module, where we adjust and/or correct for the data interleave

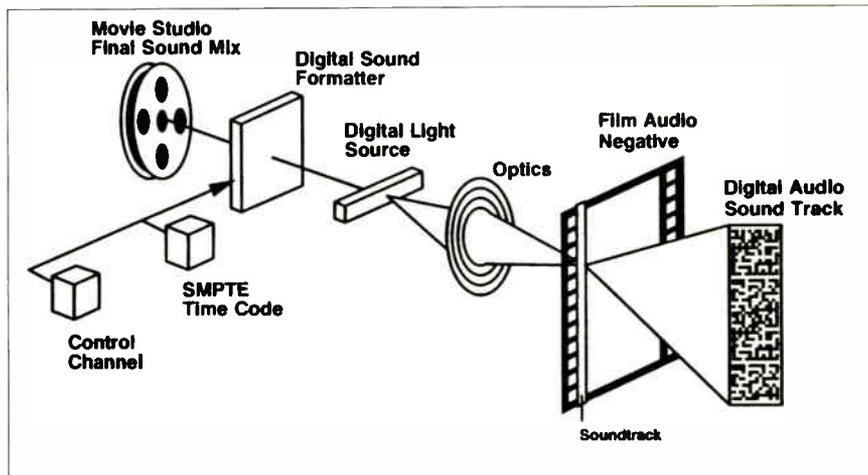


Figure 1: The CDS encoding process

code in the vertical and horizontal directions as part of the encoded bitstream to achieve tracking and ensure reliable word-clock synchronization for the D-to-A stages.

"The encoding process utilizes a Reed-Solomon Code and other redundancies that result in a 34 percent overhead. Initial tests have shown that our raw bit error rate runs to around four errors in 10,000; we can encounter error rates as high as 1 in 100 and still recover full-fidelity, 16-bit digital

used to alternate odd and even samples by four frames, and for powerful look-ahead error concealment algorithms. The overall encode/decode process for the six soundtrack channels is incredibly robust." The proprietary error detection and correction system was developed by Cyclotomics, a Kodak-owned company that specializes in burst-error correction systems, and the design of customized ICs to implement these algorithms.

The memory system also corrects

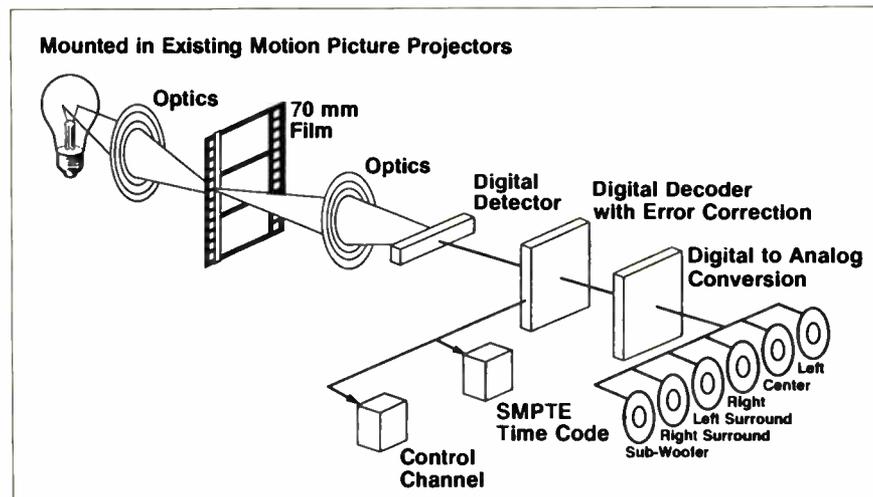


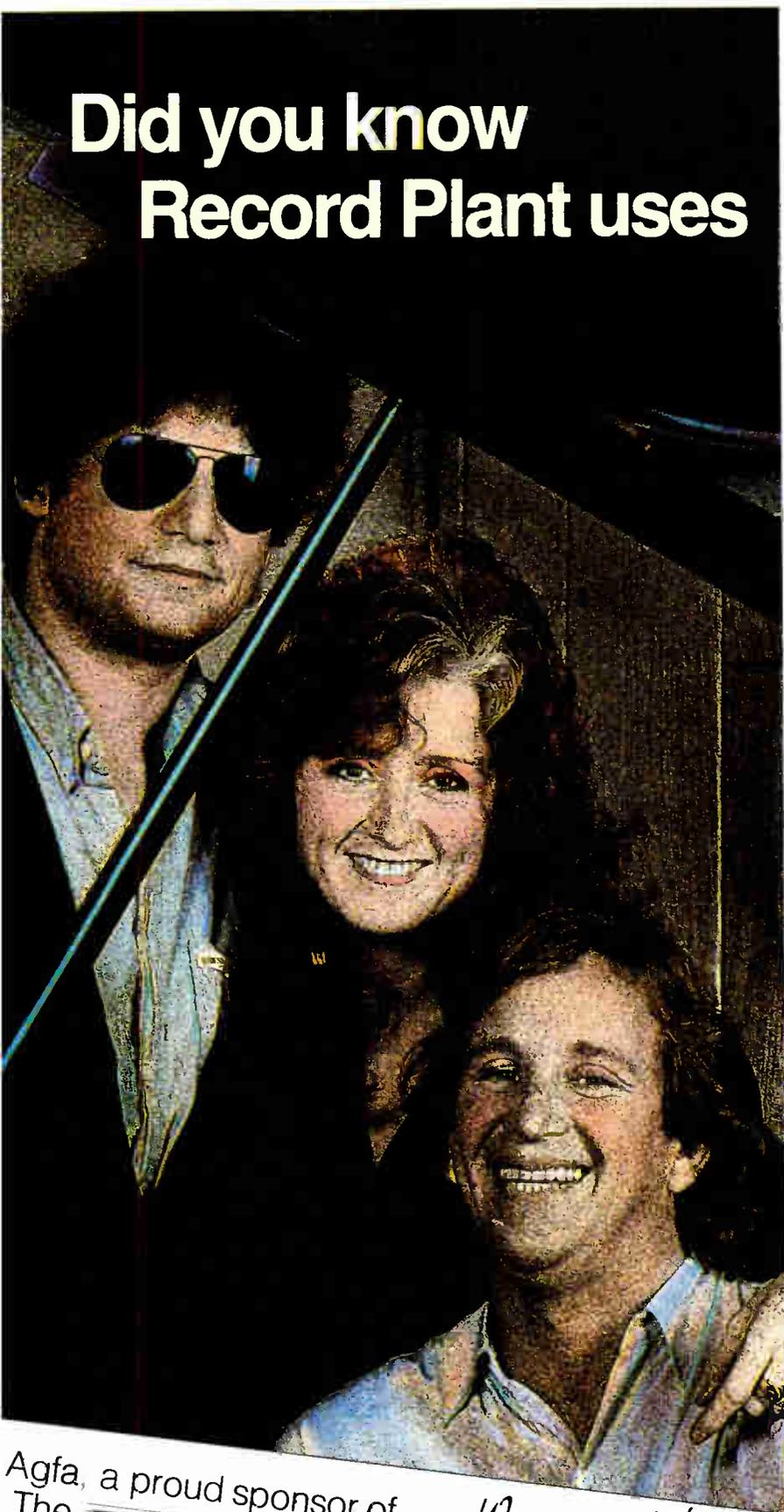
Figure 2: The CDS decoding process

audio."

Because of the optical medium being used, it is necessary to increase the robustness of the Reed-Solomon Code. The horizontal, run-length-limited coded bitstream provides "soft point-

for any delay between the read head location and film gate. "Currently, the soundtrack is printed adjacent to the image," Flemming explains, "but we can preset up to 75 frames of audio/video offset via the onboard RAM."

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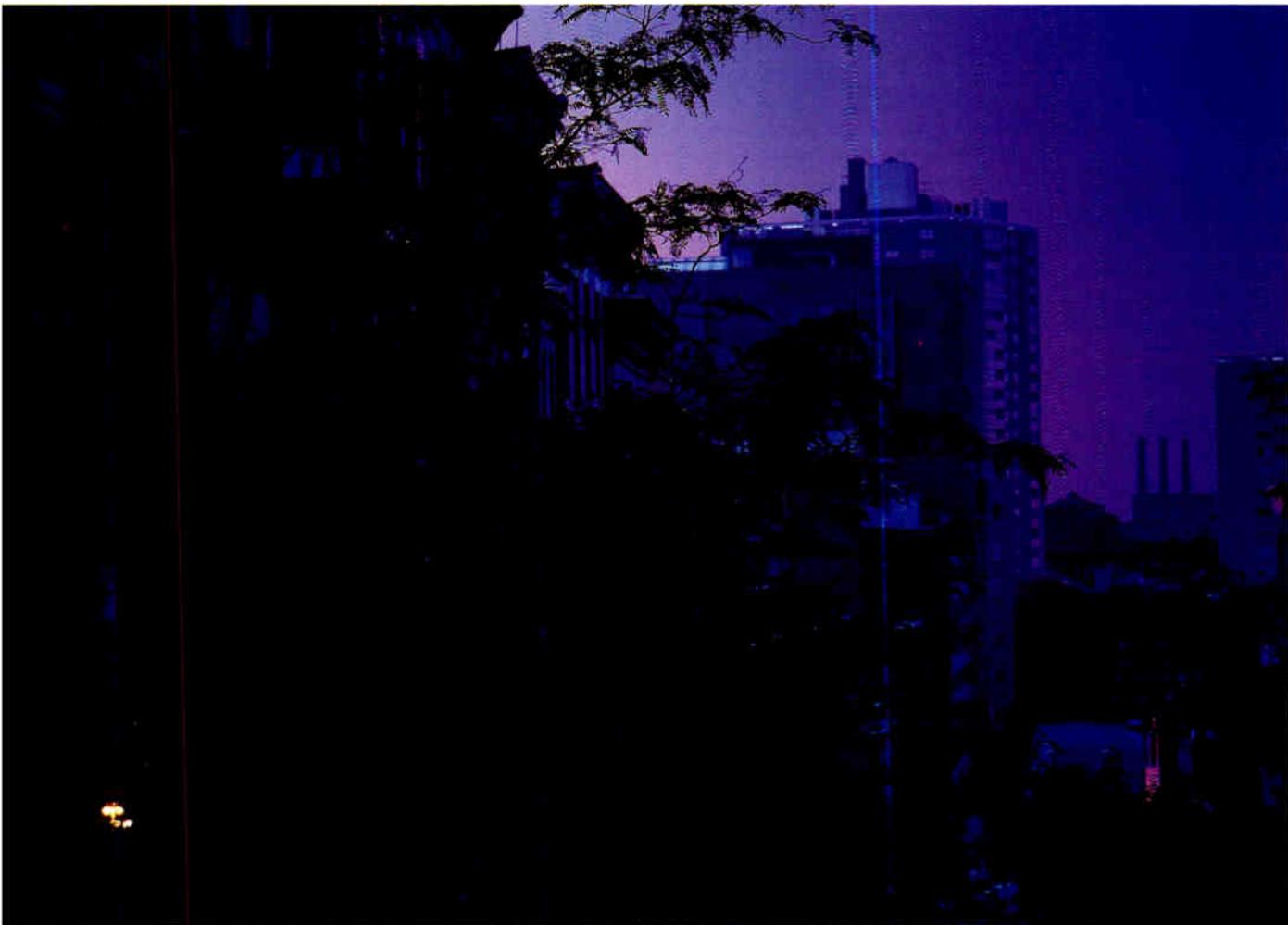
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Left to right: Don Was-Producer Bonnie Raitt-Artist Ed Cherney-Engineer

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The digital data are output via a customized bank of D-to-A converters developed by Apogee Electronics. "We designed the system with 18-bit, eight-times oversampling DACs," notes Apogee president Bruce Jackson. "Special anti-imaging filters are tailored to provide a rolloff to -93 dB at 332.8 kHz. We found that other filter designs for D-to-A converters severely upset the sound by extending the overall bandwidth into the megahertz range, where they can cause problems in subsequent analog stages. The analog filters are flat to less than 0.1 dB with linear phase response to a fraction of a degree.

"Our design brief was to develop a full-function conversion system that would accept data from ORC's proprietary data bus, and convert them into clean, high-quality audio outputs. The signal path is coupled without capacitors, using special servos to remove any residual DC from the output. Each of the six channels features a custom Apogee digitally controlled analog attenuator—no VCAs—to facilitate remote control from the projection

booth, or via data encoded onto the film soundtrack."

In addition to the six audio channels, Flemming explains that a full MIDI channel, time code track and ID

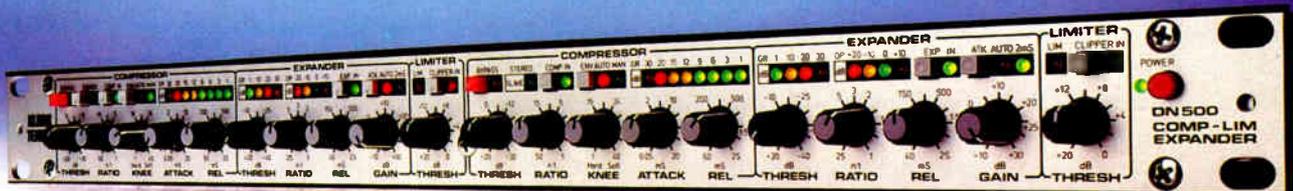
**Around the  
Hollywood  
post-production  
community,  
interest in CDS  
is running very  
high.**

data fields are also carried within the bitstream. The MIDI information can be used, for example, to control external signal processors and other units. "We have even incorporated a digital audio bus into the replay processors, so that digital-capable units can be connected directly. Currently we interface digitally with the Yamaha DEQ7; other interface formats will be made available in the

near future."

The MIDI data and time code track could also be used for various control purposes. "One application that springs to mind," Flemming says, "would involve the use of automatic lineup and level adjustment tones recorded at the head of each film. In this way, the replay system could be set up according to the sound level specified by the film's director, and adjusted in real time to compensate for sound absorption by the audience, temperature and humidity changes, and so on. Alternatively, the time code track could be used to trigger signal processing effects, or to automate a whole host of routine projection-booth functions."

Other applications envisioned for MIDI include the selection of multiple language channels. "We are looking at various data-companding techniques that would allow us to simultaneously encode maybe three languages into the central channel. Then, upon playback, the movie house could select (via MIDI) the appropriate language for the audience, and have it routed to the center channel, while the other channels continue to carry the normal music and effects tracks."



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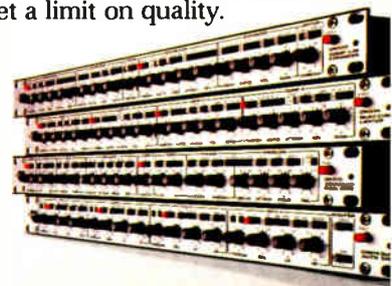
Most importantly, it delivers all the clean, quiet sound quality and reliability you'd expect from Klark-Teknik.

The same high standards are common to all Series 500 products — from the compact DN504 Quad Compressor/Limiter, to the flexible DN510 Dual MIDI Noise Gate and DN514 Quad Auto Gate.

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It is estimated that the cost to upgrade a conventional projector to handle the new Cinema Digital Sound format will be between \$15,000 and \$20,000. Eastman-Kodak and ORC expect to have some 150 70mm movie houses online by the end of this year. The analog system outputs, of course, are directly compatible with any existing, high-quality 6-channel sound system. The 35mm version is expected to be made available by early 1991, with the first films released in that format by April/May 1991.

The cost of shooting a DSC optical negative is said to be "comparable" to that of making a 35mm Dolby Stereo negative. With 6-track magnetic 70mm prints costing around \$12,000, the savings offered by an optical alternative would be significant. (Some 250 70mm prints were made for the worldwide release of *Return of the Jedi*, at a total cost of around \$3 million!)

At press time, six 70mm CDS prints were prepared for the premiere of *Dick Tracy*; and competition was heating up regarding which of this summer's major releases will be offered with Cinema Digital Sound. Disney is said to be looking at the possibility of using the process to replace synchronized laserdisc players now being used to provide soundtrack playback for its "Captain Eo" presentation at Disneyland.

Around the Hollywood post-production community, interest in CDS is running very high, primarily because the format will allow high-quality soundtracks to make the successful transition from dubbing stage to the movie theater. It has also been stated that the format is virtually immune from physical degradation during routine handling, even after multiple passes through a projector: a major improvement over the relatively fragile 70mm magnetic prints.

While I applaud the potential of providing six discrete channels via a CDS-encoded 35mm optical print—and bypassing the technical limitations inherent in any phase-sensitive, matrix-encoding system—I have one reservation that stems from the 6-channel format used during the initial demonstrations. As many film mixers already realize, there is seldom time to perform a separate pass for the 70mm soundtrack. Having spent several weeks working on the Dolby Stereo mix, including careful checks of how the 4:2:4 matrix encode/decode proc-

ess will handle the final 2-channel left/right mix printed to the film, the 70mm is usually prepared by transferring across the LCRS submix stems, while extracting low-frequency information that is printed to channels 2 (inner-left) and 4 (inner-right): the so-called "babyboom" format.

Compatibility considerations aside, there is an alternate mixing format that ensures dramatically enhanced realism in the movie house, and provides far greater creative freedom to the re-recording engineers. The 6-channel discrete format features five behind-the-screen channels, plus a mono surround channel. With discrete-six, which was used to prepare some of the film industry's most innovative soundtracks, it is possible to pan effects and dialog through narrow angles, without risking their being lost between loudspeaker channels.

In addition, it is accepted that the inner left and inner right channels of a 6-channel system are the ideal positions for the music mix, freeing up the center channel for dialog and primary effects, and the hard left/right stereo pair for wider ambiances and panned effects. Few mixers consider the surround channel to be appropriate for ambiances and heavily processed effects plus "gyroscopic" effects across the dubbing stage; stereo surrounds are thought of, in the main, as representing little more than an overused, often-distracting gimmick.

Against this background, it is unfortunate that the format being advocated—at least initially—for Cinema Digital Sound should be so creatively limiting. Of course, subsequent systems could be reconfigured to any format the film director cares to specify. However, based on past experiences, movie executives take a long time to accept a new technology. While the first incarnation of this brilliant development has little to offer the innovative moviemaker beyond a quality increase, something tells me that in this day and age, an exciting surround-sound mix can do as much to attract audiences as a new logo on the movie house marquee heralding a new technical feature. Time will tell. ■

*With over a dozen years of active involvement with professional audio on both sides of the Atlantic, Mel Lambert now heads Media&Marketing, a high-tech consulting and marketing service for pro audio firms and facilities.*



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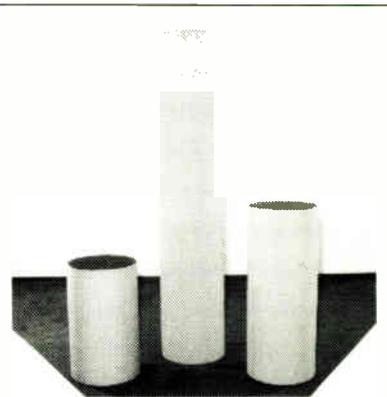
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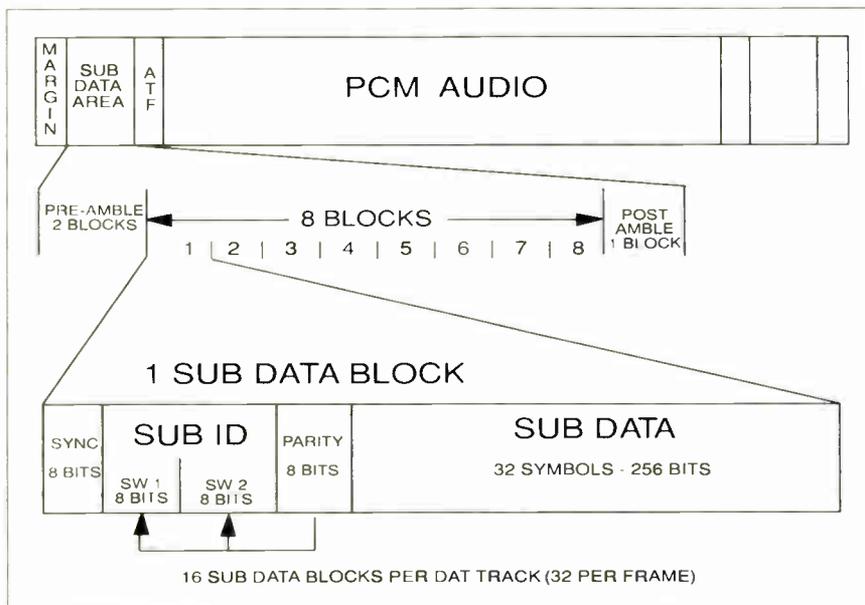
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by Ken C. Pohlmann

# INSIDE DAT TIME CODE

**A**fter a transitional period of reworked consumer DAT designs, the professional world is ready for fully professional DAT designs. These models should arrive late this fall, and be in good supply early next year. The nagging problems that continue to surround DAT, including compatibility and reliability, should be laid to rest when these infinitely more serious machines come to market. If nothing

coders bring new excitement to the game, including features such as tape monitoring; parallel and serial remote interfaces; external synchronization; memory start; fader start; high-speed search suitable for automation; assembly and insert editing; and time code. Time code, of course, is the magic bullet that solves professionals' problems, and makes DAT workable in film and video recording posting, au-



**Figure 1: Subcode data structure**

else, their higher price tags might correlate to renewed vigor in their internal engineering. On the other hand, it should be remembered that DAT began its life as a strictly consumer product, and there will certainly be a limit to the extent of expectations it can fulfill. Even the new pro DATs will remain only a step ahead of semipro units, and should never be confused with their higher-priced digital audio forerunners. In other words, pro DAT is a low-cost digital audio alternative, not the answer to all prayers.

Nevertheless, the new pro DAT re-

corders bring new excitement to the game, including features such as tape monitoring; parallel and serial remote interfaces; external synchronization; memory start; fader start; high-speed search suitable for automation; assembly and insert editing; and time code. Time code, of course, is the magic bullet that solves professionals' problems, and makes DAT workable in film and video recording posting, au-

dio sweetening, broadcasting, CD premastering and other environments. However, it was the problem of writing time code to DAT tape that delayed the introduction of pro DAT. The task of adding time code yet retaining compatibility with the existing R-DAT standard presented a considerable challenge to engineers.

One look at the tiny DAT cassette convinces you that a lot of data is being stored in a small space. In fact, with a density of over 114 Mb per square inch, DAT is one of the highest density magnetic media around. The helical

	B7	B6	B5	B4	B3	B2	B1	B0
PC1	Pack item							
	0	0	1	1	1	0	SPI 1	SPI2
PC2	F1	F0	T2	T1	T0	(MSB)		
PC3	11-BIT TIME CODE MARKER						(LSB)	
PC4	HOURS (RH)							
PC5	MINUTES (RM)							
PC6	SECONDS (RS)							
PC7	FRAMES (RF)							
PC8	Pack Parity							

**Figure 2: Pro R-Time pack structure**

scan data tracks are 13,591 microns wide—about one-tenth the thickness of a human hair. Altogether, 2.77 Mb per second are recorded on the 1/8-inch wide tape, traveling at a linear speed of 1 1/4 ips. A two-hour tape stores over 2.2 gigabytes of data.

Understandably, the idea of adding more information to the tape gave engineers the willies. Moreover, SMPTE time code clocking has no integral relationship with the DAT recording format. But the clear demand for time code on professional DAT recorders set engineers searching for a solution.

One possibility presents itself immediately. The DAT tape format has optional longitudinal tracks along both outer edges. Moreover, these have no compulsory assignment; they are free and clear. This might seem to be the ideal place to record time code. This solution has a few problems. First, the slow linear tape speed makes it difficult to record full time code data. To make things worse, the short recorded wavelength (less than a micron) and the need for correspondence between record and playback makes the alignment of a stationary record/playback head critical. In addition, the fast winding speeds of DAT (greater than 200-times normal speed) would make fast reading of a longitudinal time code track extremely difficult. Finally, these areas are prone to edge damage, even with the protective DAT shell.

Engineers thus focused on the helical scan data tracks themselves. While it was impossible to reduce the amount of audio, track following and error-correction data being recorded, considerable area remains on these tracks that could accommodate additional time code data. In particular, the vast amount of subcode data (four times

**Figure 3: Pro-binary pack structure**

	B7	B6	B5	B4	B3	B2	B1	B0
PC1	1	0	0	0	0	0	SPI 1	SPI2
PC2	SUB DATA FIELD SMPTE/EBU USER BITS OR AES/EBU STATIC CHANNEL STATUS DATA							
PC3								
PC4								
PC5								
PC6								
PC7								
PC8	Pack Parity							

that carried on CDs) presents possibilities. Because only a small portion of DAT subcode is assigned, and time code would consume only a portion of what remains, the solution seems easy.

It isn't. The frame rate of DAT is 33.333 fps. The time code we wish to record uses rates of 24, 25, 29.97 and 30 fps. To marry them is problematic. Two mutually incompatible methods were devised, but after considerable deliberation the IEC will approve the one advanced by Sony and Matsushita. Here's how it works: Fig. 1 shows that DAT data area is divided into blocks, each containing 360 channel bits. A track contains 196 blocks, of which 16 are devoted to subcode. As shown in the figure, the subcode area is divided into two areas, each with eight blocks.

The blocks contain SUB ID information given to ID marks such as skip ID and start ID. The blocks also contain SUB DATA information, in which blocks are organized into groups of two, and within each group of two blocks SUB DATA is divided into a maximum of seven divisions known as "packs." Each pack contains 52 bits of data and may be used for a variety of purposes. For example, in the consumer DAT standard, some packs contain R-Time: a running time that continuously increases. Other packs contain program time, TOC, date, catalog number, ISRC, absolute time.

etc. In all, 16 types of packs are possible, but only a maximum of seven may be recorded within any two-block group. This is where and how SMPTE time code can be fitted into the R-DAT standard.

In the pro DAT format, the R-Time pack is modified to form a Pro R-Time pack. In addition, an entirely new pack, Pro Binary, was established. Incoming time code of any flavor is converted to pro DAT time code (called "pro-running time") according to defined frame rate conversion algorithms. Ultimately, time is recorded as equivalent DAT

frame numbers. The pro-running time is converted back to time code on playback. Pro R-Time is then recorded in the same pack as R-Time. This is shown in Fig. 2. In addition to the frame number conversion, the absolute phase relationship between the DAT frame edge and the incoming time code frame edge must be maintained. The difference is expressed as a number of samples and is recorded along with the Pro R-Time as an 11-bit binary code, known as the "TC MARKER." In this way, phase accuracy between audio and time code can be re-created to sample accuracy during playback.

The system essentially converts real

time to real time. This is a more complex approach, but highly beneficial. The recorded pro DAT code is unique. Every pro machine can read it and convert it to SMPTE/EBU frame rates, and the original time code frame rate can be ignored. The playback hardware can select the playback time code frame rate, making a universal time code conversion method inherent in the pro DAT system. Using standard algorithms defined in the pro DAT format, various SMPTE/EBU time codes can be transcribed successfully and recorded onto DAT, as can the time code information in the channel status bits (sample address code) of the AES/EBU interface. Theoretically, any type of time code can be converted to pro DAT time.

Time code and interface standards include auxiliary data. For example, the AES/EBU interface contains 16 bytes of information in the channel status blocks, and the SMPTE/EBU interface contains user bits as well. The pro DAT standard can record all this using the new PRO-BINARY pack, shown in Fig. 3.

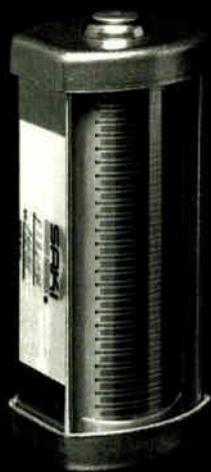
While figuring out the time code question, engineers established a few other general rules for professional DAT machines. Pro DATs can record only in the 16-bit linear mode. Pro DATs must use only simultaneous-channel A/D sampling (as opposed to time-shared sampling with one A/D), thus eliminating the need for a message in the subcode. Finally, pro DATs cannot use the wide track pitch established for consumer pre-recorded tapes. Otherwise, the PCM area is identical to that on consumer DAT.

The solution to the problem of adding time code to the R-DAT standard is inelegant, to say the least. That's because R-DAT was never supposed to have time code. Frankly, given the existing complexity of the R-DAT standard, we are lucky to have time code at all. Although it is clearly a kludge, it will do the job. The IEC is entirely correct in ratifying this time code modification to the R-DAT standard. Most users will never even suspect the inside cutting and pasting that permits them to run DATs in sync. ■

*Ken Pohlmann is director of music engineering at the University of Miami, and has recently bet his entire life savings on the Hurricanes winning another national championship.*

## How To Upgrade Your Studer A-80 (A-800)

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# Audilia

## for Video & Film

### What Makes Your Facility Unique?

It seems everybody is getting into audio-for-video, which means increased competition for post work, scoring and transfers, especially in Los Angeles. We asked a number of Southern California and Southwest U.S. film and recording studios what they've done to stand out from the crowd. Here's what they say.

#### **Soundelux, Hollywood** **Wylie Stateman, chief operating officer**

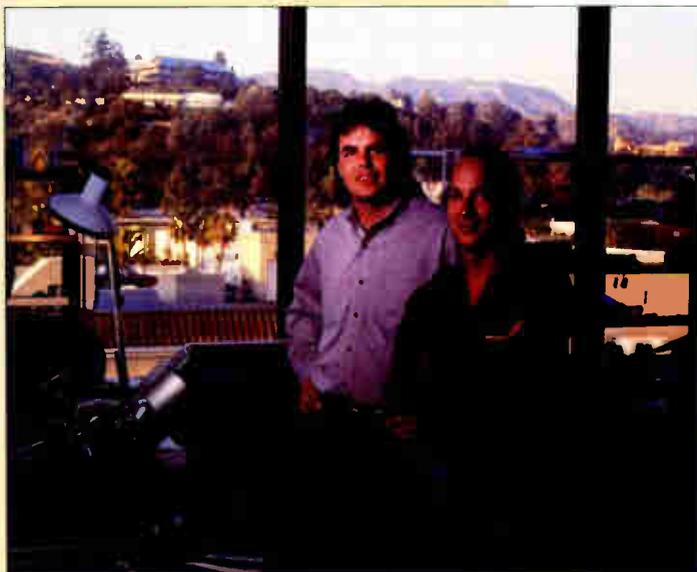
Over the past few years, Soundelux has worked on sound for *Glory* (Academy Award winner), *Born on the Fourth of July*, *Honey, I Shrank the Kids* and *Steel Magnolias*, to name a few. The company recently purchased 72 tracks of Dolby SR for its five multitrack rooms, but it is workstations that have captured Wylie Stateman's and the Noise Boys' attention.

"We've beta-tested the Hybrid Arts ADAP system,

which is a LAN disk-based device built around the Atari computer," says

Stateman. "We had a WaveFrame AudioFrame from early on in its history. I think the WaveFrame is a very clean- and accurate-sounding device. It's a wonderful piece of outboard

#### **Soundelux, Hollywood**



gear as well as the primary editing and sound manipulating device for one of our sound design rooms.

“Sound editing in the mid-’70s was sort of the primitive art of managing small and independent sound elements. With the onslaught of the new technologies, we’re able to work with more than one sound at a time.

“Previously, if you wanted to create a sound moment, you might have to deal with up to 30 sound elements, imagining how they would come together to form one particular sound. With the current technology, we can hear how the various pieces come together, and we can maximize their effect long before we get to the final mix. It brings clarity to the creative process.”

### **Digital Services, Houston** **John Moran, owner**

The most interesting credit for Digital Services over the past year is a Houston Symphony production of Liszt’s *Hexameron*, believed to be the first recording of the composer’s complex piece. Three trucks, six cameras, 48-track digital, and when it gets to television, historical footage and interviews. “That’s a helluva project,” says John Moran.

“We’re up in the air right now as to whether we’re going to go dual 3324 or mix the individual music segments into ScreenSound,” Moran continues. “ScreenSound is killer. Early on we looked at Synclavier and Fairlight, and ended up acquiring a Fairlight. We got more heavily into audio-for-video post, so we set out in search of the holy grail. We looked at NED, Lexicon Opus, AudioFile, AudioFrame, Dyaxis and ScreenSound. Chris Risinger and I went through the learning curve of each machine. ScreenSound’s guy had it set up in 30 minutes. In two hours we were doing a project—a complex ten-minute film that took us three days



**Digital Services, Houston**

to build the first minute. On our first afternoon on ScreenSound we rebuilt it in three hours. It never left the room.”

However, Moran warns those who want to enter audio-for-video post work simply because equipment is now affordable: “Toys and equipment help you to position yourself in the market. But you’ve also got to be bloody good at what you do in terms of personnel. And you’ve got to entertain the faith of the clients you want.

“That’s real tough, because TV and ad guys are like: ‘Hey, Large Industries Inc. has been my client for the last five years. They like what I do. I like what I’m getting. Why should I risk my client just to try your studio?’ And that’s a valid point. You’ve got a tough sell job to try to make them shift. You’d better sell them something that’s going to make them jump up and down. That’s a lot tougher than going out and buying synchronizers or video machines.”

### **West Productions Inc., Burbank, Calif.** **Dave West, co-owner/president**

Recent TV and film credits for West Productions include Peter Weller’s *Rainbow Drive* and a made-for-TV movie called *Dreamer of Oz*, based on the life of Frank Baum. This also marks the company’s fourth season of post work for the

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is the way the film industry is set up in Hollywood. You can walk right down the street if you need something. When it's all digital everything can go through the phone lines, and it will be a different story. But then, of course, you'll be

able to do it all in your home."

Which is just what Dragon has done with a film score for *Payback*, a movie starring Cory Eubanks, produced by Bob Eubanks. Twenty years after his last scoring date, Dragon composed 50

minutes of music on an Ensoniq VFX<sup>SD</sup> and Mac IIcx with Mark of the Unicorn Performer—in three weeks; 30 minutes was used in the film.

"I was able to store all the sounds on the VFX and then lock up the se-

## EFX Systems: A Commitment to Digital

With the increasing popularity of stereo video systems in the home, the advent of CDS (Cinema Digital Sound—see this month's "Juxtapositions" column for more details) and the numbers of THX<sup>TM</sup>-equipped theaters on the rise, audiences are demanding superb soundtracks to accompany the razor-sharp, onscreen optical effects.

Well aware of the marketability of high-quality audio, EFX Systems of Burbank, Calif., has been a major advocate of the use of digital technology in the conservative field of motion picture sound. Today, the EFX digital arsenal includes seven New England Digital workstations,

nine Sony digital multitracks and the Audiflex digital dialog editing system, which has been used extensively on *thirtysomething*. Other regular EFX clients include *Freddy's Nightmare* (which completed its second season at EFX) and Valerie Harper's *City*, an MTM production that was the first half-hour sitcom to go all-digital in post.

An interesting recent post project at EFX was *Frankenstein Unbound*, marking horror master Roger Corman's return to the director's chair after a 19-year absence. EFX sound designer Harry Cohen designed and created all of the digital effects used in the film. After hours of synth programming in his home studio, Cohen transferred the sounds into a Synclavier<sup>®</sup> at EFX for further processing. Other effects—such as the vor-

tex ray beam—were created entirely on the Synclavier, while some sounds required field excursions with a portable DAT deck, capturing the buzz made by acres of power poles at a giant electrical plant.

One of the more difficult effects in the film was the sound of a futuristic turbine car, and Cohen eventually combined more than 100 sonic elements to get the final effect. When asked why he didn't use stock sound effects, Cohen remarked, "Existing sounds didn't fit in with the quality of sound that we are using now. Once we started building a digital track, the difference in sound quality between the new sounds and the older analog stock sounds was just not acceptable."

—GP

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## Buena Vista Sound: A Half-Century of Excellence

Buena Vista Sound officially opened in January of 1940. Over the years, the facility grew into four stages: A and D were dubbing (film mixing stages), C was used for recording sound effects for shorts and animated films, and B (known as the dialog stage) was the site where the character voices for animated classics such as *Alice in Wonderland*, *Peter Pan*, *Lady & the Tramp*, *Cinderella* and *The Jungle Book* were recorded.

The most noticeable change over the years has been the steady stream of outside projects that partake of Buena Vista Sound's dubbing, Foley, ADR and transfer services. Stephen J. Cannell's *Hunter* and *Wiseguy* series are regularly mixed at the facility, which has also been used for the productions of *The Little Mermaid*, *Pretty Woman* and *Arachnophobia*.

Last year, Buena Vista Sound completed a major renovation of the A and D mix rooms; the trend continued with a multimillion dollar redo of the B and C stages earlier this year. The B room is still designed for video or 35mm ADR, Foley or effects recording, while studio C has been rechristened as a dubbing stage for stereo television and feature film mixing. Stage C is equipped with a custom-configured SSL 5000 Series console with G Series automation, and plans to retrofit the Harrison PP-1 boards in stages A and D with GML moving fader automation (along with eight automated module switching functions) began last month. Stage E, a second Foley studio, has been incorporated into the Disney master plan for upgrading the entire studio lot and should be online in about 18 months.

One of the most ambitious projects facing Buena Vista Sound has more to do with the past than with its future. "We will be archiving all the soundtracks for everything we've produced over the past 50 years," explains audio manager Christopher Carey, "to both digital

—CONTINUED ON PAGE 112

quencer, mark each cue and perfect each line without having to press Record." Dragon says. "Even if you erase, which did happen by mistake, you just turn on the computer and load it back on tape."

### Dallas Sound Lab

#### Dallas

#### Russ Whitaker, owner

Music composition for film and video is an area Russ Whitaker sees his company moving toward. Though recent



**Studio 3 at Larson Sound Center in L.A., featuring a custom Otari/Sound Workshop three-position console and four MTR-90 recorders. Larson contains three film/video suites, two ADR/Foley stages, seven sound effects and dialog editing rooms and a transfer room. Recent clients include the television series Cheers, Designing Women, Matlock and Tour of Duty.**

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credits include dialog replacement and transfers for *RoboCop II*, transfers for *Born on the Fourth of July*, and music work on *True Stories*, it's radio and television commercials that provide steady business.

To address that market, Dallas Sound Labs recently added a 24-track music production room, complete with NED Synclavier, to the three-studio complex. Control room A houses a 48-channel SSL with Sony 24-track digital; studio B is a radio production room; studio C is for 24-track video sweetening (mainly corporates and regional TV spots); and studio A can house a 65-piece orchestra. In-house composers can tie into any room.

Right now, the Synclavier is used only for music production, not as an editing workstation. "As far as multi-track synching to video, it's kind of scary at this point. You have to have a multitrack there anyway to dump to real quick."

### Group IV Recording Hollywood, Calif. Angel Ballister, owner

Group IV Recording credits for the past year include network TV (*Wiseguy*, *Hunter*, *Cheers*), commercials (Butterfinger with Bart Simpson) and major feature films (work with *Back to the Future III*). Transfers and computer-based electronic streamering are commonplace. For post-production, Angel Ballister likes his effects live with a touch of MIDI. "In my MIDI room I have a Macintosh IIX, Atari, Emulator II, Korg, Prophet, E-mu Proteus, you name it," he says, "but we generate a lot of effects live because it just works visually.

"We just did a shoot on the Beach Boys for a picture called *Problem Child*," he continues. "It was all shot in studio A, then sweetened and dubbed in studio B. All the effects were done on the spot. We hacked them up on the Emulator II, and it worked wonderfully. Just like cutting cake.

"Our emphasis is on post-production packages. You record music in A, do Foley and ADR, then walk into B and dub and sweeten it, and go back at any point without having to shut down to go across town. Group IV functions really like a small lot. Except for optical and video editing, there isn't any aspect of audio for film that we can't handle."

—CONTINUED ON PAGE 112

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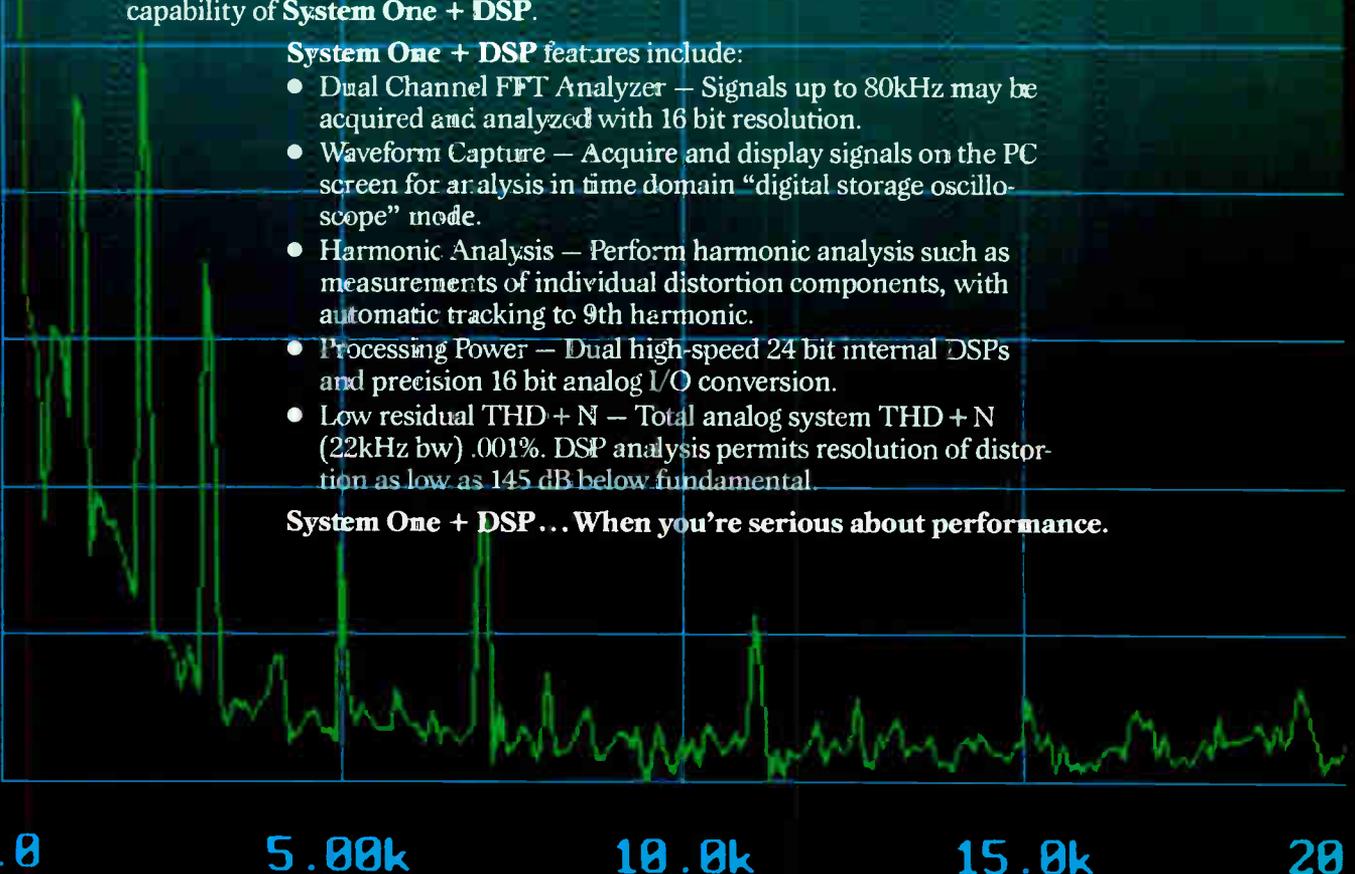
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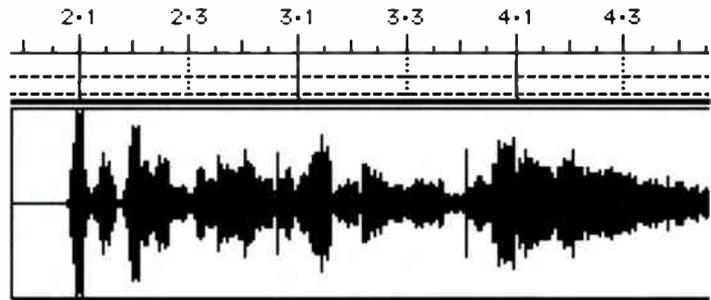
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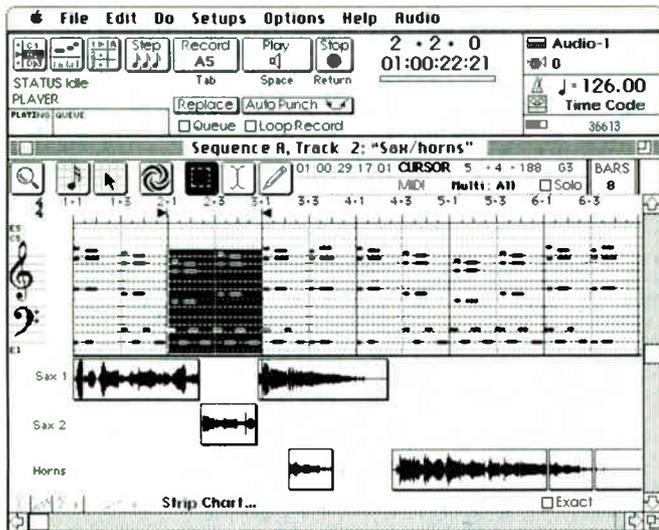
# Opcode Now Gives

## Introducing Studio Vision

Opcode's Vision sequencing program for the Macintosh was voted "Best Music Software Innovation of the Year" by the readers of Keyboard Magazine. Wait'll they check this out. Studio Vision combines all the features of Vision with the ability to record CD-quality audio direct to disk along with your MIDI data. Studio Vision works in conjunction with Digidesign's Sound Tools Digital Recording System and runs on any Macintosh II series computer or the SE/30.



Studio Vision has non-destructive editing of the 16bit digital



The control bar and graphic editing screen of Studio Vision.

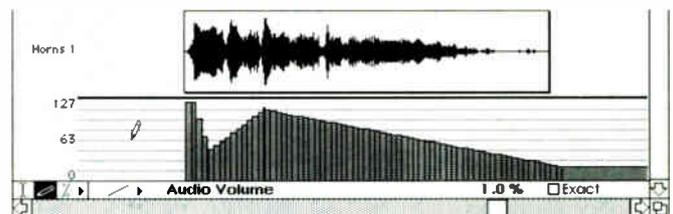
Using Studio Vision and Sound Tools, you can play back two mono digital audio channels simultaneously — with the ability to record as much audio as your hard disk space allows. The program incorporates the speed and convenience of non-destructive editing of the digital audio right along with the MIDI — use commands such as cut, copy, paste, clear, merge, and strip silence. Studio Vision includes SMPTE synchronization and full automated mixing of the digital audio tracks with pan and volume control. Add Digidesign's DAT I/O digital interface for compatibility with most professional digital audio tape recorders. For a simpler setup, Studio Vision also works in conjunction with Digidesign's Audiomedia card. The power of Studio Vision with either hardware system eliminates most multitrack syncing situations when combining MIDI and "live" tracks.

## Record Vocals Too!

Studio Vision is the future of computer music recording. It's not just for MIDI keyboards, it's for any "live" instrument — guitar, saxophone, or vocals! Recording artist Thomas Dolby says: "You've got the best sequencer and the best recorder combined into one... you have an idea and ten seconds later you hear it... your creativity as an artist is not trampled on by technology slowing you down."

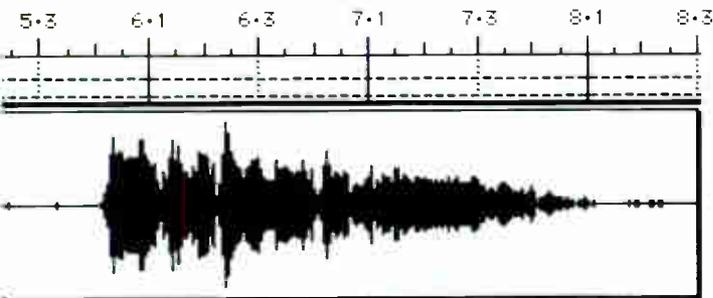


Use your standard MIDI instruments to record "basic tracks" like drums, bass, and keyboards. Then use the digital audio tracks to record the guitar, vocals or sax solo. Record a few takes of the sax solo and cut and paste from each of them to get the perfect take. Record one great chorus and paste it at each chorus in the song. Merge and offset background vocals for richness. Studio Vision's extraordinary flexibility allows you to record separate takes of digital audio onto any number of tracks.



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audio channels, plus all the editing commands in Vision!

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And Studio Vision is ready for the next steps in technology: as the Macintosh and DSP (Digital Signal Processing) hardware get faster, Studio Vision will play back more than two channels at once.

## Post Production

For post production, Studio Vision combines MIDI sequencing with the ability to record "voice overs" integrated with the music. Using SMPTE sync you can immediately check audio and video, and perform intricate audio edits instantaneously. Cut out a cough or noise here, swap sentences there, and adjust the music to fit the contour of the dialog all on the same screen. Isn't it nice to use just one computer keyboard?

Audition sound effects stored on hard disk before opening them, choose the one you want and place it on a specific SMPTE number, then lock up to video. Convenient.

Track A1: "Sound EFH"			
▶	3 · 3 · 112	01:00:25:06.14	[MIDI Note]
◀	11 · 3 · 58	01:00:40:11.57	[MIDI Note]
	4 · 1 · 0	01:00:26:01.33	4 Events
•	1 · 2 · 237	01:00:21:01.27	Gun Shot 8 1
•	1 · 4 · 128	01:00:21:26.53	Door Slam 8 3
•	3 · 2 · 412	01:00:25:00.66	Car By 1 8 1
•	3 · 3 · 112	01:00:25:06.14	Tires scrch 3 8 2

List editing with SMPTE times of digital audio sound effects.

## What Price Perfection?

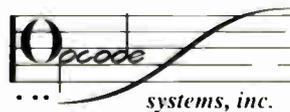
You may be thinking this is awesome—but how much? With a Macintosh II (or SE/30), Opcode's Studio 3 (or any MIDI interface), Digidesign's Sound Tools or Audiomedia, and a hard disk, you're up and running with Studio Vision. And for an integrated MIDI setup, Studio Vision works closely with Galaxy, Opcode's universal librarian.

So if you've been waiting for that really big breakthrough in music technology, or if you're still using that same old MIDI sequencer synced to tape—think smart and go to your local Opcode dealer and hear how Opcode has brought voice to the Apple Macintosh with Studio Vision. Call Opcode for a free brochure and the name of your nearest dealer.

# Studio Vision™

## Specs

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- Full automated mixing of digital audio and MIDI tracks
- Compatible with all digital audio formats
- Digidesign Sound Tools or Audiomedia owners need only purchase Studio Vision
- SMPTE synchronization (except with the Audiomedia card)
- Upgradable from Vision



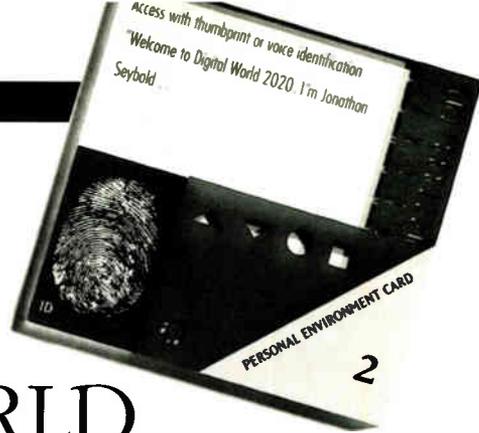
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by Paul Potyen

# SEYBOLD DIGITAL WORLD

## ARE WE MERGING OR COLLIDING?



“We don't actually have a critical mass of products, and we're not even sure what our market is, but it sure is exciting!”

This comment, made by one of the participants at the first Seybold Digital World Conference held in late June at the Hilton Hotel in Beverly Hills, Calif., was one of the few things during the lively three days that everyone seemed to agree with. (It was announced at the end of the event that the second such conference will take place in June 1991.) The event was organized on the following premise: We are rapidly moving toward a world in which most information and entertainment will be prepared and delivered in digital form. We are most of the way there with text and sound. Drawings, illustrations, still

images and 3-D graphics are moving in the same direction. Motion images are next. This changes everything. Everyone involved in computers, publishing, education, broadcasting, entertainment and telecommunications will be affected. And what each of us does (or does not do) will affect all the others.

It's a premise that attracted more than 300 developers, strategic thinkers, implementers and window shoppers, including NeXT founder Steve Jobs; Stan Comyn, head of Warner New Media; computer visionary Ted Nelson; Robert Winter, professor of music at UCLA; and other leaders from the computer, video, communications, graphics and business communities. A staggering variety of topics were ad-



**Above:** The “pocket accessor”, Paul Brainerd’s vision of the computer of the future. **Left:** Radius TV features a video processing engine, an external audio/video input processor and television tuner that allow display and digitizing of live 16-bit video images at 30 fps on Mac II computers.

dressed in an intense three days of discussions, presentations and debates. Following introductory remarks by Jonathan Seybold, Steve Jobs, Stan Cornyn, and authors Michael Crichton and Douglas Adams, a session on digital video with William Pratt of Sun Microsystems and Gary Demos of DemoGraFX touched on the HDTV quagmire and the most talked about approaches to image compression—a critical element in the storage in digital video.

Reese Jones of Farallon Computing opened the session on coping with data by comparing the state of digital communications in the U.S. with that of Japan and Europe. In case you didn't know, we're behind in implementing the technology. He discussed the advantages of and stumbling blocks to implementing the ISDN telecommunications standards in this country—among the latter are political and regulatory issues, a complex sales cycle and lack of beneficial applications at the desktop.

Geoffrey James of Digital Equipment Corp. and Max Whitby of BBC MultiMedia Corp. offered their views on information access and document retrieval from large databases. An interesting concept was the use of "guides" to help novice users through the continually mounting "steaming pile of available digital information." The audience got a sneak preview of the BBC production of *Hyperland*, Whitby's engaging and imaginative vision of information navigation solutions. Look for it on PBS this fall.

A panel discussion on education focused on possible interactive digital technology solutions to the crisis in American education, and the formidable obstacles (funding, bureaucratic inertia, etc.) to be overcome if such solutions are to be implemented. Robert Winter of the UCLA Department of Music and The Voyager Co. demonstrated Stravinsky's *Rite of Spring* on CD-ROM and talked about the design philosophy behind the production. Bob Abel of AND Communications demonstrated "Ulysses," a powerful interactive learning environment based on the Emerson poem. Helen Kelly of the Los Angeles Unified School District graphically illustrated the impediments to using the technology in the educational system effectively; among them lack of money, lack of understanding on the part of the administration, woefully inadequate

electrical requirements in the classroom, and theft and vandalism—a sobering commentary.

In the session on business applications, Peter Blakeney of IBM and Tyler Poppel of Apple Computer presented their companies' divergent views of how the new media can be used to help address the business community. Blakeney talked about using IBM's InfoWindows systems in the work environment to help the unemployed find jobs and to help mechanics service Ryder Trucks. Poppel emphasized Apple's commitment to helping create unique solutions to problems in individuals' work environments. He illustrated his point with Kubrick, a video editor being developed by Farallon Computing that is designed to be used with a VCR in the workplace.

In one of the most animated sessions, Marc Cantor of MacroMind, an avid evangelist of multimedia, squared off with Dick Brass, avowed buzzword basher, in a spirited debate on the viability of that industry. To answer his own question, "Are multimedia producers making money?" he demoed a five-minute Club Med promotional

program developed using MacRecorder and Director. Brass countered by listing his view of some of the problems the industry faces: CD-ROM sales continue to be sluggish; programs like Director and HyperCard don't use a consistent front-end user interface; and there is no critical mass of multimedia titles.

A session on publishing began with Seybold Publications' Mark Walter, who talked about what is being done to establish common interchange standards for digital text and graphics in the U.S. and Europe. He was followed by Charles Brady of the Advanced Systems Group of Dow Jones, who described that group's first product, DowVision. It's a broadcast and interactive business information service that provides collection, creation and distribution of the information.

The panel discussion on the entertainment industry included Steven Mayer, Digital F/X; Linda Rheinstein, The Post Group; David Riordan, Cinemaware Corp.; Mark Dillon, Conversant Media Group; and Bill Smith, Demand Video Systems. Topics included trends in video games, key elements in producing interactive

—CONTINUED ON PAGE 42

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## Chip Shots

**Passport Designs** has enhanced *Alchemy*, its sample editing program for the Mac. The enhancement increases the number for digital samplers supported to include the Akai S950, the E-mu Emax II and Digidesign's Audio Media card. Also shipping is *Sound Exciter*, the first of a new line of multimedia software from Passport. *Sound Ex-*

*outbound shipping log*, and a simplified customer file for maintaining addresses and special shipping instructions. An optional bar code module permits users to incorporate any standard bar code format on their label, or to print separate bar code labels for automation equipment. Powerful searching and sorting options are also provided. **Phoenix Systems**, Potomac, Md., (301) 983-5040.

**E-mu Systems** announced the



## MOTU's Video Time Piece and Video Distribution Amplifier

*citer* acts as a multiimbral sound generator that can play up to eight dynamically allocated, sampled sounds on eight MIDI channels, using the Mac's internal speaker or an external amplifier. It uses sound files compatible with Farallon's *MacRecorder* and its own *Alchemy*.

*Sound Apprentice* is a sample editing and librarian program for the Mac also available from Passport. The program works with sounds created by *Mac Recorder*, *HyperCard*, *MacroMind Director* and *SuperCard* as well as Apple *SNDResources*. *Sound Apprentice* also works with mono or stereo samples created by nearly all MIDI samplers and sounds from CD-ROM sound libraries. The company has also announced that *Encore*, its music composing software, is now available on the Atari ST and IBM computers, as well as on the Macintosh. **Passport Designs Inc.**, Half Moon Bay, Calif., (415) 726-0280.

**Digidesign** has announced the release of *DATA*, a software application that backs up Atari *Sound Tools* files to digital audio tape. **Digidesign Inc.**, Menlo Park, Calif., (415) 688-0600.

**Phoenix Systems**, publisher of *Studio Management Software*, has announced the release of *LMS 1.0*, a Macintosh software package for automated library management. It contains a library management database, a label-making module that supports industry-standard label layouts for all video and audio tape formats, an integrated inbound and

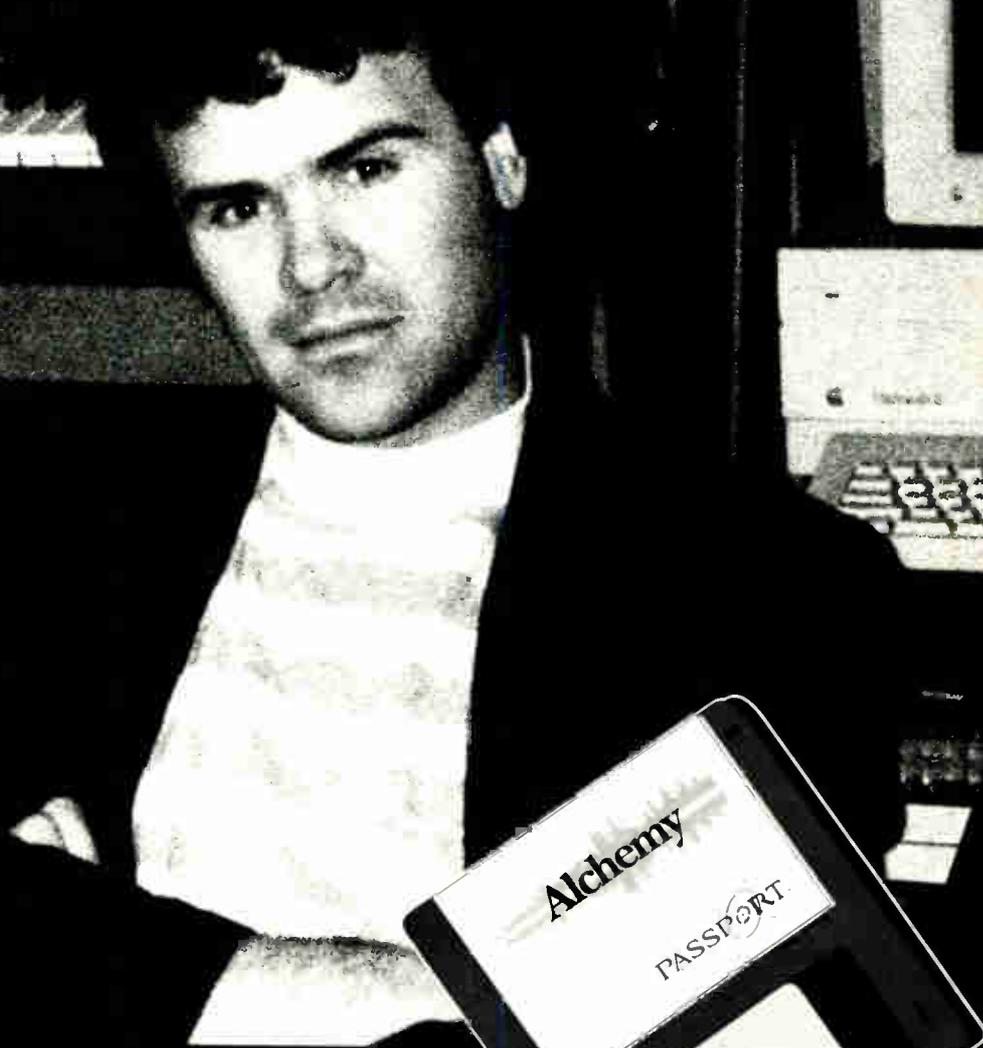
addition of 128 new presets to its *Proteus/1 XR* module. They are now included in every shipment of *Proteus/1 XR*. Current *XR* owners may take their unit to their local E-mu dealer and receive the new presets, via MIDI, at no charge. Additionally, the presets are available on computer disk for *Opcode's Proteus Editor/Librarian*. **E-mu systems**, Scotts Valley, Calif., (418) 438-1921.

In last month's column I mentioned that **Mark of the Unicorn** had unveiled its *Video Time Piece* at the summer NAMM show. The single-rackspace unit makes possible low-cost VITC/MIDI SMPTE synchronization and character generation for audio-for-video production. The character generator allows the device to "burn in" SMPTE time code, generate streamers and conductor crawl lines, and download graphics from a computer onto any video. **MOTU's Performer** sequencer will automatically download sequence markers through the *Video Time Piece* to view hit-points as moving, onscreen streamers. The device, controlled via an accompanying DA on the Mac, will also work with other sequencer programs.

Also at the show was **MOTU's Video Distribution Amplifier**, a 3 x 15 video signal routing device for video production. Both the *Video Time Piece* and the *Video Distribution Amplifier* are now shipping. **Mark of the Unicorn Inc.**, Cambridge, Mass., (617) 576-2760.

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— Frank Serafine  
*Composer/ Sound Designer*

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—FROM PAGE 39

multimedia vs. linear media; the difference between entertainment and recreation; and some sinister implications that could follow from the prediction that in the future it will be difficult to tell what is live from what is virtual simulation. One speaker predicted the day when an altered videotape could be presented in court showing the judge as the driver of the speeding vehicle.

Turner Whitted, Numerical Design, and Efraim Arazi, Electronics for Imag-

erated images, which reviewed the current state of the art and made predictions for the '90s. Another topic that generated lively debate—and one in whose jaws the audio industry continues to look—was the area of content and intellectual property. A five-member panel that included an attorney in entertainment law, representatives from computer hardware and software companies, and the executive producer of ABC News Interactive wrestled with the legal issues created by the digital technology. Imaginative proposals were made for addressing those issues. One solution was along the lines of Ted Nelson's Xanadu con-

cept, where the user paid participating copyright owners of digital information a royalty rate on a per byte basis (billed automatically).

Another spirited panel discussion was on computers vs. consumer electronics. What will happen when two industries with different product philosophies and traditions, distribution channels, and cultures vie for increasingly overlapping markets? Will we have a "den computer," as Xiphias' Peter Black predicts? Will we have an appliance, rather than a computer, as Jean-Pierre Isbouts of Philips Interactive Media Systems asserts? Must you open the architecture of consumer products like VCRs to allow the development of "smart, interactive consumer products," as Mitch Kapor of ON Technology insists? Will the two industries continue to coexist without merging, as Sony's Olaf Olafsson suggests?

The final session included an original view of the world in 2020 by Paul Brainerd, president of Aldus Corp. In his vision, Americans had yen in their wallets and "accessitors" in their pockets.

Another aspect of the conference was the demo rooms, manned by Apple, Sun Microsystems, NeXT, Radius, Grass Valley Systems and other high-tech companies. Attendees were invited to experience the latest products on a hands-on basis. Among the new products announced at the conference were Apple's HyperCard 2.0; Warner New Media's Magilla, a prototype multimedia player that uses laserdiscs; Radius TV, a full motion video DA for the Macintosh; VoiceLink; and a voice and sound input device for the Mac with voice messaging and editing software.

It was an amazing three days where a great many topics were discussed with eloquence and humor by an impressive collection of professionals. Interactivity between the audience and the presenters played an important role throughout the sessions. The issues of digital standards and ethics were particularly complex and thorny ones. It's clear that these issues will take a lot of time, patience and creative minds to address fairly and completely. And the Digital World Conference was an excellent beginning to that end. ■

*Associate editor Paul Potyen lives with his lovely wife, Cate, a dog and a cat in a cottage in a forest by the Pacific Ocean near San Francisco.*

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## The Unseen Actor in "Red October"

HOLLYWOOD HAS ALWAYS reflected public sentiment on the screen, and *The Hunt for Red October* is the first big film of the glasnost-era to express the wave of disenchantment washing through the communist world. It also marks one of this year's first major undertakings in film sound.

As Marko Ramius, Sean Connery gives voice to the Soviet Union's prize submarine captain who, with no remorse, deserts the government that



*At Paramount  
with supervising  
sound FX editors  
Cecelia Hall and  
George Watters.*

B Y F R A N K S E R A F I N E

deserted him. Given the pride of the Communist party, defection is the deepest wound a Soviet officer can inflict. This time, the knife was 650 feet long and weighed 30,000 tons. Ramius' instrument of insurrection was Red October, the largest nuclear submarine in the world.

Along with enough firepower to destroy 200 cities, this submarine had one feature that captured attention in theaters and the Paramount soundstage: a silent drive. This propeller-less propulsion system made it easy for Ramius to sneak across the Atlantic, but made it challenging for us sound people. We now had on our hands a major film whose plot pivoted around sound.

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### Capturing the Real Thing

Authenticity was a chief concern for Paramount supervising sound editors Cecelia Hall and George Watters II, but accuracy alone does not excite audiences. *Red October* was filmmaking on a grand scale. It was in this "bigger than life" quality that Hall and Watters recognized the need for a sound team that could go "where no man has gone before." They called Alan Howarth and myself, reuniting the team that created the warp drive stretch/suck/explosion for the *Enterprise* and other sounds for the *Star Trek* movies.

A lot of imagination would go into the making of *Red October's* sound, but first we had to hear the real thing. John Paul Fasal traveled with Hall and Watters to Connecticut where they spent a week on a nuclear submarine called The Shark. There they were given free license by Captain Russell Carr to record anything, except certain classified areas. Ron Patton and Bob Smith, representing a company called Sonalysts, were our consultants on all questions of naval authenticity. The Shark sessions yielded 45 1/4-inch stereo Nagra and DAT tapes.

The Navy was very cooperative. They fired "water slugs" by flooding and pressurizing the torpedo tubes and then

blowing them out. A water slug is a torpedo launch without the torpedo, coming from a large tank of extremely high air pressure. The recordings testify to the power of this air release, which shakes the entire sub. Fasal recalls how "you

can feel it no matter where you are in the sub." This sound came to be used for the countermeasures, which act as torpedo decoys by distracting the weapon off its homing path. The Shark recordings also helped with Foley. The

crew ran different alarms and helped make periscope recordings. Every aspect of the various pieces of equipment was recorded: the periscope handles slapping up and down, the periscope rising and the sheath that goes around it.

### Sonar: The Hunt for the Right Ping

Given the film's attention to visual detail and military authenticity, we couldn't just fill the soundtrack with the usual sonar "blip" or ASDIC pulse (as the British refer to it). We had to find high-tech sounds as distinctive as the movie's cutting-edge Navy look. Although the appropriate sonar wasn't in anyone's sound effects library, there was nothing inherently difficult about creating it ourselves. Howarth and Hall made an earlier attempt at some sonar pings with sine waves, to which director John McTiernan responded, "No, that's not it." It was extremely involved and as Hall remembers, "We must have created 500 different pings." Being

### Frank Serafine behind the scenes at Disneyland

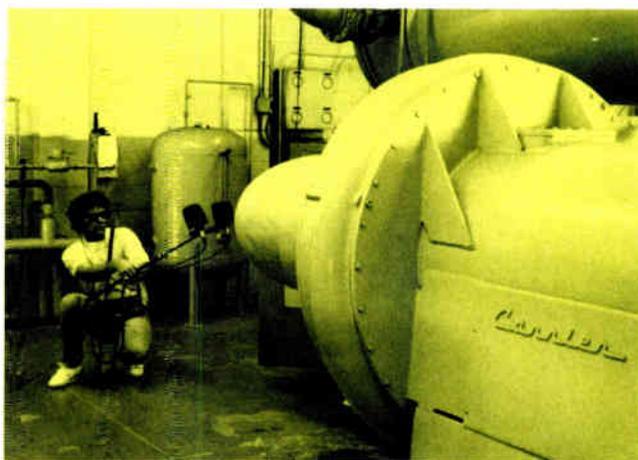


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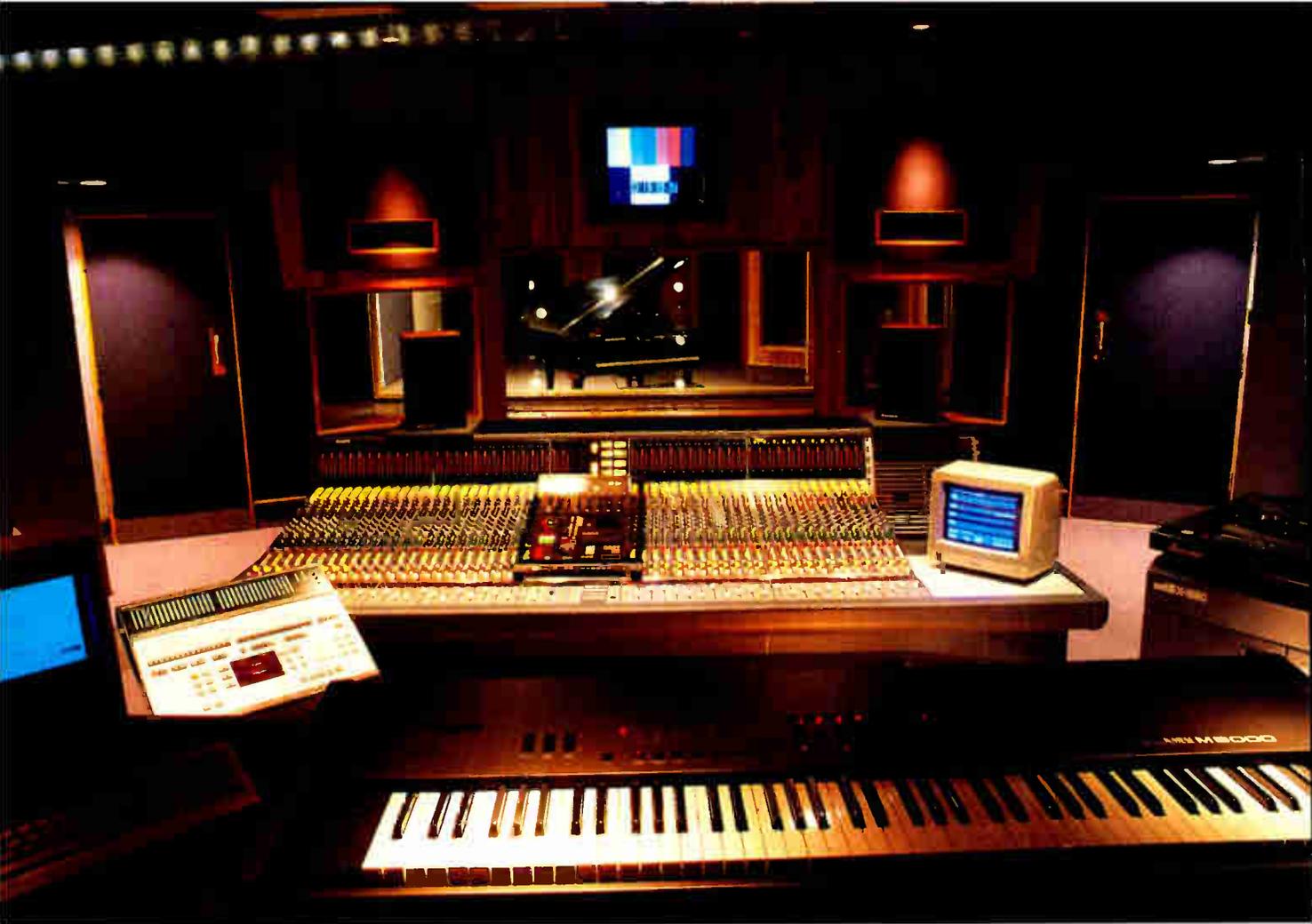


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familiar with the sound, Ron Patton, a consultant to nuclear power plants and a sub specialist, made some examples with an oscillator and a reverb unit to show us what real sonar sounded like. These, like many, came close, but McTiernan felt we had yet to hit the target.

Early on, this search led to Hall's swimming pool, where we amplified various versions of sonar, put them through an underwater speaker at one end of the pool, and re-recorded them from the other end, 42 feet away. This use of "nature's reverb" yielded the sonar sound for the little DSRV (Deep Submergence Rescue Vehicle), but finding the right pings for the big Russian and American subs took much longer.

Howarth's Synclavier proved useful for its ability to digitally recall previous EQ settings. Patton, Howarth and Fasal (who contributed a crucial sonar element) finally ran one of the sonar pings through an Eventide 949 Harmonizer along with many closely spaced delays from a Yamaha SPX90. When this sound was sampled into the Synclavier and played back at an interval just under a fifth, we found the Russian (and, later, American) pings. The resulting sound is heard when Red October is avoiding the homing torpedo in the rocky undersea channel known as "Red Route One."

Once we had the exact sound we needed, the blips had to be synched to picture so the rate would increase as torpedos and other objects came closer. Accomplishing this dramatically for some of the suspenseful scenes was not simply a matter of speeding up the ping tempo. It had to have feeling, so instead of sequencing, Howarth turned to his Synclavier, which can provide the same accelerando but with a manual (arpeggiator) control for the subtle rate variation.

Finding the right sonar sound turned out to be an epic task that went on for months, but was justified in terms of the believability and authenticity it added to the overall project.

### The Blades

In the final theater mix, a flowing, watery sound comes from the front-left of the theater as we first glimpse the massive underbody of Dallas, the American sub. From the right-rear side of the theater, a lower, more aggressive pulsing sound promotes a feeling of traveling through water. The main sound elements used for this shot came from Howarth's recordings of tankers off Long Beach, Calif., and the sounds I created between Hall's pool and my studio. My job was to connote the massive, water-displacing motion of the propeller blades.

The tanker recordings were made with a Nagra recorder and balloon-covered mics. At depths of approximately 100 feet, these recordings picked up the higher frequency sounds associated with shaft rotation. Given the immense size of Dallas' propeller on the screen, we had to come up with something to represent these great surfaces twisting through the water. At Hall's pool, I did cannonballs off the diving board, which we captured from various acoustic perspectives. I built one mic by taping a Crown PZM capsule inside a 35mm film can. I filled it with 40-weight oil, then sealed it with epoxy and suspended it in the water. The oil can picked up the low-end sounds and an air-can mic was used to capture higher frequencies. Several studio mics sealed in condoms were placed throughout the pool. A Crown SASS mic, placed just above the water, yielded additional ambience.

Once we had the sound we wanted, I slowed the cannonballs and triggered

them rhythmically on an Emulator III so that one cannonball would equal one "rev" of the propeller blades. This "whooshing" sound was combined with a water-churning element from a paddle boat. Watters and Fasal added this effect, which contributed a "chugging" sound. On the soundstage, the large motor and shaft rotation sounds from the tanker sessions were merged with the paddle boat element and the watery sound of the prop blades as they muscle through the water. Together, these sounds fulfilled the technical and dramatic needs of this and many other exterior submarine shots.

### Nuclear Reactor Failure

Back on dry land, I searched for the right sound for the nuclear reactor that powers the silent drive. I spent a full day making field recordings at Disneyland. The park's massive air-conditioning turbines helped us create an effect that audiences would perceive as a nuclear reactor failure. One of the world's largest air-conditioning facilities, these "chiller wind-ups," as they're called, cool the entire park. I used a Crown SASS and an Electro-Voice ND309 mic with my Technics DAT recorder to record the turbines.

Although I knew I had a useful sound from the start, it's important to record the sound from several perspectives. I walked around the units looking for the exact position where the mics could capture the "winding" at its gargantuan best. Once I had the raw sound, we layered it with other elements and slowed it down in time with the picture. In the theater, what you hear is a massive nuclear power failure. I used the Emulator III to access the field recordings from a Pinnacle 650MB read/write optical drive. With the E-III, I was able to "decelerate" the turbines to a halt, even though the original DAT recording never slowed from its steady, functioning status.

### Imagined Ambience

As we learned with our attempts to capture deep-ocean ambience, sometimes "the real thing" is not enough. Hall states, "Underwater ambience is very difficult. You have to make it

**Scoring (l to r) at Image Recorders are director John McTiernan (Die Hard, Predator), engineer Tim Boyle, and composer Basil Poledouris (RoboCop, Lonesome Dove). Technical supervision, synchronization and equipment rentals were provided by Audio Intervisual Design.**





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up, because the actual ambience underwater is this rather unattractive crackling sound that's there all the time. So you go down in the middle of the ocean and you get this—it sounds like telephone static—which is not very ominous and not very exciting. You have to invent it to match what people expect it to sound like."

Even when working on sound for a film with a strong reality base, you have to embrace the fact that people will not be going to see a documentary on nuclear submarines. Fantasy plays a part in all aspects of moviemaking and sound is no exception to the rule. For every underwater shot, we needed that ominous ambience that places you deep below the ocean surface. Capturing this atmosphere was one of the goals of the Catalina Island session. At 150 feet, the mics picked up a tanker about five miles away, which was used for underwater ambience and as a background submarine presence. A closer-range recording of a tanker sitting idle was used as a submarine atmosphere for exterior shots.

About ten total elements went into the underwater ambience, some of which came from slowed-down bubbles and water entering Hall's pool through a garden hose. Mixed with Basil Poledouris' powerful music, our deep-ocean ambience had to match and magnify the ominous character of the visuals and music. We heard how real deep-sea sound lacked feeling, so we made our own. As McTieman says, "You have to take license in movie-making because you are going for the emotion."

### Bringing Emotion to Cold Steel

One particularly strong match between sound and picture occurred in the scene where Red October is traveling at 26 knots through Red Route One. As the ship's navigator daringly maneuvers past canyon walls and jutting ledges, the homing torpedo closes in furiously. The shot of the weapon heading straight at the camera is intense, and our job was to let it scream—to give it a war cry without losing authenticity.

The core element, as with all the other torpedos, came from speedboat "pass-bys" at Lake Castaic. We needed an underwater character to the sound, something that had a propeller and a mechanical sound. An outboard motor seemed like a natural candidate. The nice thing about an outboard engine is that its gear case is immersed in water,

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with most of the engine above water. Fasal and Watters made actual underwater recordings of the boat passing by. Given the increased speed and range of sound underwater, the depth of the mics didn't seem to make much of a difference: As long as they were submerged several feet, they wouldn't pick up surface noise.

They started recording from a stationary boat, but recordings made from a boat always pick up unwanted sounds like water slapping the bow. Fasal eventually recorded from shore, where he "waded way out into the water with someone holding onto my belt to help me balance an 8-foot boom extended out and a Nagra on my shoulder." He recalls how he made absolutely sure that he "didn't slip on the slimy rocks." Once again practicing "safe sound," we placed two condoms around each mic with a rubber band to seal the back.

Any time you put any membrane between the mic and the medium, you don't get the same frequency bias you would from a direct recording. Condoms work well because they emphasize certain frequencies, so the motor sounds like it's not from the surface but from below. With all the

reflections underwater, you start getting phase cancellations and boosts at certain frequencies. You have a lot of resonance. Since some frequencies build up and tend to resonate, it becomes tricky. But we got enough out of the Lake Castaic session that it became the basic element of the torpedo.

The final torpedo pass-by was sampled and pitch-bent at Howarth's studio to give a Doppler effect. This core element provided us with a foundation of credibility over which we could layer our "emotional sweeteners." Animal growls and shrieks, a Ferrari and a screeching screen door spring were added in just the right mix to produce a credible torpedo sound, which seems to have a vengeful purpose of its own.

### The DSRV Motors: "Magnifying" Reality

Typically, a film mix requires sounds that simply don't exist; often, our goal is to transform real sounds into something bigger than life. This was the nature of the work we did on the DSRV motors. At Hall's pool, we recorded a lot of submersible power tools and air drills for the motors. The script mentioned that the DSRV sub was going to

be shown driving and maneuvering in various shots.

When you're doing field recording to gather raw sound material for that kind of sequence, you try to cover yourself by doing "starts," "stops" and "steadies." The resulting sounds were mixed with effects I made when commissioned by the Pentagon to create sounds for the Army's new M1 tank operations simulator. The M1 and the DSRV share the acoustic characteristics that come with small, enclosed metallic spaces. There were a lot of sounds to manage. I loaded all the field sounds from my Technics DAT onto the Pinnacle optical disk, where they could be stored in 16-bit stereo an hour at a time on my Dyaxis and brought up graphically on the Mac for editing. With more and more theaters installing high-quality sound systems, it is important to stay in the digital domain. The combination of all these elements is more dramatic than submersible motor sound, and yet it's entirely believable onscreen.

### Hull Stress Sounds

Through feedback from Ron Patton, we came up with ship stress sounds that communicated the shuddering and hull pops that a nuclear submarine goes through when diving or undergoing strong changes in momentum. Patton listened to a number of metal hits, knocks and scrapes, a variety of which came from my studio construction site and Disneyland recordings. He then picked out those closest to what he had heard on actual nuclear submarines. Having heard ship stress sounds over years of nuclear sub dives, he had specific characteristics in mind, and, in the end, we used only about ten hits out of 100.

The beauty of film sound is that it can sometimes have an even more subliminal effect on audiences than the music. In the dialog, the final statement on world peace is made between Sean Connery and Alec Baldwin, who share a nostalgic longing for "the peace of fishing." For me, however, the last word goes to the serene lapping of water up the smooth hull of Red October as it mills down the flat Penobscot River in Maine. This is the unseen actor that closes the film without a word...just sound. ■

*Frank Serafine is a composer, synthesist and sound designer whose film credits include Tron, the Star Trek movies and many others.*



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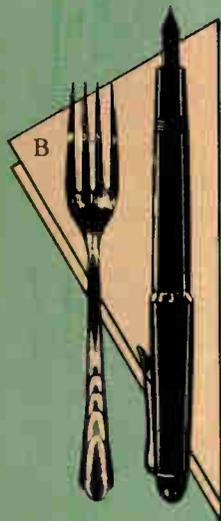
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by Mr. Bonzai

# ALLEN SIDES

## THE OCEAN WAY



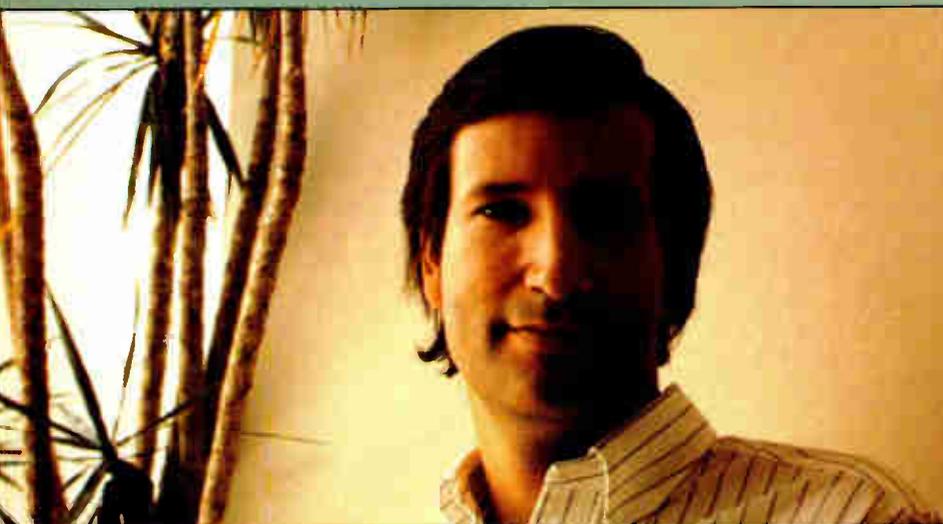
There are few true grand cathedrals of recording left in the world today. Some think that the powerful architecture of sound can be simulated electronically and that 1990 gadgetry is pure progress. But Allen Sides has bucked the trend, and interestingly, the bucks have rolled his way. He's tracked down the best, and he tracks with vintage mics in legendary rooms, with good ol' customized consoles, and his own brand of monster monitors. He's an ace engineer weaned on big, live sessions, and he owns it all. Ain't it encouraging when artful care shows a profit?

As a teenager, Sides landed a part-time job in a hi-fi store, which gave him

Along the way, he started a collection of old tube mics, which would grow to be one of the world's largest.

In 1978, Sides moved Ocean Way to the back room of United Studios on Sunset Boulevard, part of the United Western Studios designed by Bill Putnam in the mid-'50s. Walk across the old linoleum floors today and you walk in the footsteps of a '50s Frank Sinatra and a '90s Bob Dylan. Today he owns and operates five rooms in the Ocean Way group of buildings and two more rooms in the recently acquired Record One.

After meeting for a lunch of salmon broiled with lime and tarragon at a nearby bistro, we entered the studios to find every room booked. Sides respects the sanctums of the stars, so we postponed a tour and found a quiet workshop for our conversation. I could hear the faint shadow of a vocalist running through the scales. "That's Michael warming up," Sides told me.



early access to the tools of his lifetime trade. When a local movie theater closed down, he installed the abandoned 7-foot speaker cabinets in his bedroom while his parents were away. At 17, he set up his first studio in the basement of a nightclub in exchange for building the house P.A. While in college, he was a partner in a 4-track studio and by 1974 had rented a garage near the beach for his 16-track Ampex M1000 and 24-input tube console. His monitors were the theater system he started with, judiciously modified.

**Bonzai:** You've got a reputation as a great engineer and as a very sharp businessman—which comes first in your life?

**Sides:** I love to engineer, as an art form. I used to be a musician, which I enjoyed very much, and I really love recording. Most of all, I love to do large productions live-to-2-track. I get a kick out of a session that would normally require multitrack recorders. It's difficult to do, but I get the most satisfaction when the musicians can walk right into the control room and hear a finished record. I also enjoy doing

PHOTOS: MR. BONZAI

symphonic recordings, big bands and orchestras.

**Bonzai:** I've heard that you do quite a lot of buying and selling of studios.

**Sides:** Well, in the last two years I bought RCA in Hollywood, Wally Heider, International Automated Media in Irvine, Pierce Arrow studios in Evanston, Ill., and about five other studios. The only reason I do it is because I am looking for particular items, such as esoteric outboard gear, certain tube mics, and other things I need. I will buy the large package in order to get the items I want. Sometimes I buy the real estate, sometimes I buy the equipment, sometimes as a package, and it's been a very profitable venture for me.

**Bonzai:** From the outside, Ocean Way looks like any other dump on Sunset Blvd. It isn't what you would expect of a studio that has such high-caliber artists.

**Sides:** Ocean Way is very much a working studio. It isn't fancy, but I believe we're one of the most profitable studios in Los Angeles by a fairly dramatic margin. I hate to come off as arrogant, but your typical studio has all the stock stuff, and there are 50 other rooms that have all the same equipment. There is nothing unique about most of the rooms in L.A.

**Bonzai:** But isn't that one marketing stance—be a standard room so you can take care of just about anybody?

**Sides:** It's one way to do it, but there are so many of those rooms competing for the same business. Unless you have something unique to offer, it's too tough a town to compete in. I'm a very lucky guy. I walked into United Western Studios, which had some of the largest, liveliest, best-sounding rooms in this city. I can't take responsibility for that—Bill Putnam built those rooms.

**Bonzai:** Have you kept them intact as Ocean Way?

**Sides:** Oh, yes—exactly the same. All we did was build new control rooms. The studios were spectacular, and in that regard I have very little competition in this town, because there are very few big live rooms. Four of my rooms are really huge, with high ceilings and beautifully smooth decay. You walk in the room and listen to a large orchestra playing live, and the balance is perfect. You could put up a single pair of microphones, pull up two faders and you'd almost have a mix.

**Bonzai:** You have quite a collection of

microphones...

**Sides:** In the last ten years, I've probably bought well over a thousand tube mics from Europe. About eight years ago, a lot of the broadcast companies in Europe decided to update with transistor microphones, and they bought the best available at the time. A tremendous number of wonderful tube mics hit the market, and I bought



**Allen Sides at home in Studio A**

everything I could get my hands on.

The sad thing is that a lot of the studios here, as well as there, decided to get rid of their tube mics, not knowing what they were losing. In an English studio, it can be tough to find a couple of C-12s. I think they are more rare there than here now.

There is nothing currently made today that approaches the great tube mics. I probably have the largest collection in the U.S. Not only that, I sat there with my electrostatic headphones A-B-ing microphones, because they all vary a little. I wanted the best C-12s, the best M50s, the best U67s, so I picked the best of each lot. If an engineer comes into our studio and wants six C-12s, or eight 67s...we have virtually unlimited quantities of all the great microphones at no extra charge.

**Bonzai:** What else determines quality in your studios?

**Sides:** We have some amazing live echo chambers that Bill Putnam designed. There are very few live chambers around anymore. Capitol is one of the few studios that has good live chambers.

**Bonzai:** What is so special about a real echo chamber as opposed to an elec-

tronic one?

**Sides:** The live chamber tends to be more personalized and gives a unique character to everything you put into it. The live chamber has a real room sound. And there is no degeneration—it's like a first-generation source. But I am also very fond of tube stereo EMT plates. They vary tremendously from unit to unit. I've bought about 100 EMTs over the last 15 years and picked the best. I've got every digital reverb

you can think of and none approach my best EMTs for impressive, straight echo.

**Bonzai:** With all these facilities, do you still keep your hand in as an engineer?

**Sides:** Yes, quite a bit. The last Top 10 recording I made would be the Linda Ronstadt and James Ingram duet for *An American Tail*. But I tend to do things more for my own enjoyment. I've been asked to do a number of pop projects, but the problem is that six months is a minimum commitment. I can't devote that much time anymore. I prefer to go in for a few days or a week and do it in a live situation.

**Bonzai:** Is there a trend toward more live session work?

**Sides:** Definitely. A good example is Don and David Was producing the new Dylan album at Ocean Way. Don's a unique talent. I first worked with him on a very amusing song with Frank Sinatra Jr. for Was (Not Was). For this recent Dylan project, Don and David assembled a remarkable group of players, including Bruce Hornsby, Elton John, George Harrison, Kenny Aronoff, Randy Jackson, Waddy Wachtel and David Lindley. It was an

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amazing rhythm section. Everybody plays together, they get something going and then just roll tape. Bob certainly has the charisma, and Don has come up with some tracks that define the right vehicle that can make him work in the pop market today.

**Bonzai:** What is the most delicate piece of equipment you own?

**Sides:** Well, some of the oldest and rarest tube mics. And we have some vintage outboard gear. Certain things have become very popular, such as the old Fairchild 670 stereo limiter. It's a must in the rock 'n' roll world. It's a unique-sounding device. We have seven of those now, one for every room. And even in the digital world there are a few items that have become classics—they made them for a while and they produce a unique sound. The EMT 250, the original, is an incredibly popular unit. It's selling for as much now as when it was new. I look specifically for that rare item that produces something unique.

**Bonzai:** Can you recall the first session you attended?

**Sides:** The first big session I attended was at RCA Studios. Sonny Burke was producing and invited me down for a Henry Mancini date. Mickey Crawford was engineering. I was 16.

**Bonzai:** Did you suddenly see your future in front of you?

**Sides:** What got me going before that was a hi-fi friend of my brother. I was 10 years old, and he put on a record and played the overture to the film *Robin and the Seven Hoods*, with Nelson Riddle and his orchestra. I was so absolutely knocked out that I never recovered.

I was just talking with Lee Hirschberg, who recorded a lot of the Sinatra records, also "Short People" with Randy Newman and the Rickie Lee Jones albums, to name a few. He's had a phenomenal career. We were reminiscing, and he was second engineer on this recording with Bill Putnam engineering Frank and Sammy and Dean. The record has some of the most amazing performances that you will ever hear. Frank does a "My Kind of Town" that is unbelievable. His voice was at its peak and the recording is incredible.

**Bonzai:** It's amazing to me that some of these early recordings really can't be topped. Would you suggest to engineers that they go back and listen to

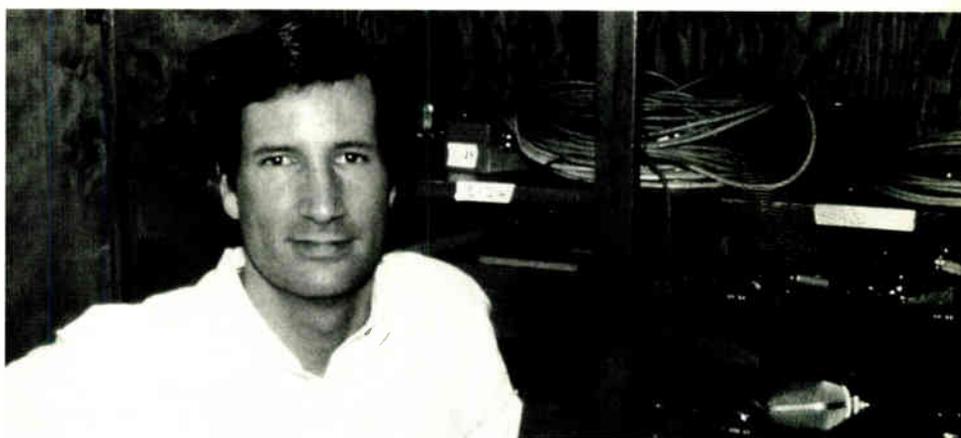
some of the old great recordings?

**Sides:** Oh, yeah. And I've made it a point to go back and talk to the engineers. I was lucky enough to attend a lot of sessions, some of the great Sinatra sessions. And later on, I got to record Frank.

**Bonzai:** Do you often go back and listen to old records?

**Sides:** Not as much as I would like to, but I have a great collection of old master tapes of phenomenal recordings. One of my favorites is *My Fair Lady* with Jack Sheldon, Shelley Manne and arrangements by John Williams. A friend of mine, John Crouse, engineered it at Capitol live-to-2-track, and it's unbelievable—a spectacular big band session.

**Bonzai:** What do you think of digital audio now, looking back on ten years of digital history?



**Sides in one of his microphone vaults**

**Sides:** We are in a place where things could improve greatly, but at this moment I am a little disappointed with digital. I recorded the first commercial digital release, Diahann Carroll and The Duke Ellington Orchestra, on the Soundstream system. Although it suffered from a few problems, it was a good-sounding machine. We've seen different systems come along, and some improvements. I always ask, does it sound like the source or does it sound different? None sound as good as the source, but some are closer than others.

**Bonzai:** Do you have better results with analog?

**Sides:** Generally, yes. There are losses in both, but to me, the losses in digital are more severe in respect to overall resolution. It's like looking at a photo in the newspaper and seeing all the dots vs. a high-resolution negative. You lose a lot and you gain some

things. Noise level is less, but along with that a lot of low-level, high-frequency material tends to disappear. You get no noise, but you get less music.

**Bonzai:** Is it easy for engineers to slip into your studios?

**Sides:** Well, we have a number of engineers and producers who like our approach. One of our best clients is Glyn Johns, who just did the new John Hiatt record with Jack Puig, an incredible piece of work. Another client who I like very much is Elvis Costello, who appreciates what we do. In fact, his engineer, Kevin Killen, recorded the *Spike* album in Studio 2 at the Western building. They mixed in London, but decided to come back and remix the entire album here on an old Class A discrete Neve console with all our modifications. And now Kevin is mix-

ing the new Mr. Mister album in our Studio A. T-Bone Burnett is another friend, and Ry Cooder does all his film soundtracks with us.

**Bonzai:** In the history of recording, who are the engineers you admire the most?

**Sides:** I really respect Bruce Swedien. In 1959 he made one of the definitive classical recordings—the 2001 theme, "Also Sprach Zarathustra," with Fritz Reiner and The Chicago Symphony. A remarkable classical recording that still stands out today as incredible. And here is the same man who recorded Michael Jackson's *Thriller*, which brought an entirely new sound and set a standard that hadn't been heard before. He's a gentleman who has been at this for a long time but is still current.

Another man I have a tremendous amount of respect for is Bill Schnee. I feel that the most difficult form of

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## LUNCHING WITH BONZAI

recording is direct-to-disc, and Bill did some exceptional records, such as the one with Thelma Houston. For me, it's the most fun trying to do a record like that, live. Live-to-2-track is infinitely simpler because you can edit between takes.

And Lee Hirschberg, who did most of the great Sinatra records. He's been in the business for a very long time, and he's still as good as ever.

**Bonzai:** Were your sessions with Sinatra enjoyable?

**Sides:** Yes, a lot of fun, with Quincy. We had large orchestras, and it was interesting for me as an engineer, because the whole band was rehearsed, and I had plenty of time to get a sound. I had a mic set up for Frank with a few baffles around the side, because he doesn't like to be in an isolation booth. I was very happy with the orchestra sound, and I had some stand-ins for Frank to set the levels as close as I could guess.

Frank came in, walked up to Quincy and said, "Let's take it." He goes over to the mic and I haven't even heard him yet. No chance to set levels, no

chance to set anything. And with Frank, it has to be right. We started recording and halfway through the first take, Frank said to stop, he didn't like what he was doing. "Quincy, let's just pick it up right here." They counted it off and finished the song. Frank says, "Next song." That's it.

**Bonzai:** Any other big names that stand out in your memory?

**Sides:** Well, I did the last two Count Basie albums before he died. Those were tremendous fun. I had recorded albums with him before—one of the nicest people I ever worked with, and I felt privileged to do those albums. And I remember a very special album with Ella Fitzgerald and Nelson Riddle. She came in and her pitch and performance were so incredible. I also remember working with Rosemary Clooney and Woody Herman. Killer performances.

**Bonzai:** What about producers? What makes a great one?

**Sides:** I tend to like working with musical producers, people who are knowledgeable and involved in that respect. Some producers tend to be executive producers, putting people together to create something.

**Bonzai:** Anything else on your mind?

**Sides:** There is something very important that I think has become a bit of lost art. For me, being able to walk into a control room and bring up microphones and have it sound great and accurate on the big speakers is very important. When all the musicians come in for that playback, you want to have an impressive sound, but it must have a semblance of reality.

The better the system is, the better a great recording sounds and the worse a bad recording sounds. The hi-fi audiophiles spend more and more money, and there are only a few great recordings that sound better. The average recordings sound worse and worse. The better recordings are few and far between.

If there is any one thing that separates Ocean Way from other studios, it's the monitors. Most of the engineers at our studios mix on the big speakers. They may have a mix, and say they balance out the whole thing on a set of Yamaha NS-10s. Sounds fine. Now, you go up to the big speakers. "Too much sibilance on the lead vocal, hi-hat is a little harsh, the low end of the kick drum isn't quite right." So you

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rebalance to correct those things. Go back to the Yamahas and it hasn't changed.

The Yamaha is a great speaker for determining vocal balance, instrumental balance, but there are a lot of things that get by you. A pair of good, high-resolution speakers makes for a much better recording.

Another thing that is difficult to determine is the actual size of the mix, how big it is. If you put it up on the big speakers, you balance so that it is impressive, has impact, low-end punch—everything is defined, every-

thing is clear. Go back to the Yamahas and it sounds great. It's smaller, but it sounds great. It's possible to get a median line that sounds great on both speakers. And if it does sound great on both systems, then you're set.

**Bonzai:** What is the key to your monitor systems?

**Sides:** Difficult to describe, because I've been working on it for 20 years. I think I've come up with something unique. The hardest thing to do is to get a set of speakers that sounds great at a low level, but also sounds great at a loud level. And you need a system that can tolerate the abuse that goes on in a typical studio situation. You get

one engineer who monitors at jet engine roar levels, staggering beyond imagination. And we do such a variety of dates. One day it's straight-ahead rock 'n' roll, the next day it's a string quartet, followed by a 70-piece orchestra date. We have to have monitors that can cover all that territory and hold up under duress. That has taken a lot of work.

**Bonzai:** What dramatic differences do you see in the future?

**Sides:** I am intrigued with the 20-bit digital machine. Right now we have a 16-bit, 44.1kHz standard in the CD. I am hoping for a dual standard CD, just like VHS and S-VHS—a player that would play a multi-standard CD, one with higher resolution and higher quality. As an engineer, I am continually frustrated that I have this master tape and I end up with a CD that is not comparable, not as good. Not that it's bad—and no one can argue about the convenience and the reliability of a CD. It's a remarkable format. I don't buy LPs anymore, although the first couple of cuts on vinyl are capable of sounding better than a CD. After that, it's all over, because of the inner-groove distortion and high-frequency roll-off and other problems in the medium, and the format is so crude. But it is true that the first few cuts on a good system will blow away a CD if it's all done right and the pressings are great. But how many plays is it good for? I'd like to see us go from 16-bit to 20-bit digital.

**Bonzai:** Sounds like you're calling for a major overhaul in the industry.

**Sides:** Well, let's keep the present format and have another for those who want to pay extra for a multiformat player. And I'm hoping that we can up the performance of the multitracks. George Massenburg and I have been doing some research and consulting. What is intriguing, and this is my understanding, is that on a regular 16-bit CD, the quality is rarely better than 14-bit. But if you record in a 20-bit format and transfer to a 16-bit format, you end up with a full 16-bit CD, and a better-sounding finished product. It is a way to improve the consumer product without changing the format. That is remarkable. I think a 20-bit machine will be the next big improvement. ■

# Do You Know these terms?

**Monitor** — a reference loudspeaker system for the mixing and mastering of recorded music.

**Standard** — a reference from which qualitative judgements can be made.

**Tracks** — (noun) channels on a multi-track recorder (verb) accurately reproduces the audio qualities of another transducer.

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*When told Michael was next door, Mix contributing editor Mr. Bonzai responded "Michael who?"*



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# MULTITRACK

Radio Production at  
the Crossroads

# RECORDING

**TWENTY YEARS AGO, A CUTTING-EDGE RADIO PRO-**duction studio consisted of a 12-channel stereo console with no effects sends, returns or EQ, a few 2-track reel-to-reel machines, three turntables, a dynamic microphone, and two or three cart (tape cartridge) machines. Sophisticated production in such a studio often involved gratuitous dubbing, resulting in several generations of tape noise and distortion.

While such audible side-effects of the production process were tolerable when AM was king, the ascent of FM, the increased quality-consciousness of listeners, and the emergence of digital recording and the compact disc have pressured radio stations to increase the flexibility and sound quality of their production studios. Many radio station

by **Tony Thomas**

production studios now reflect the technological advances of the last decade and the audio quality made available by the new digital media.

But it's difficult for radio stations to keep up with recording studios in terms of equipment. A massive load of debt service was incurred by many stations as the prices of radio properties spiraled upward during the '80s and deals were funded by Wall Street speculators. As balloon payments for those properties become due, many stations are forced to look at their balance sheets.

In fact, that trend has already begun. One frustrated major market broadcast engineer confides: "What has happened in radio today is that you have a lot of people looking at the

bottom line so hard that they shoot their foot off. As a result, it is very difficult to sell [digital] technology to management." Still, some stations have been able to keep up with the emerging technology by considering it an investment in their station's sound.

### WQHT-FM, New York

WQHT-FM is one of New York City's top-ranked Contemporary Hit Radio stations. Situated in the most competitive radio market in the country, WQHT has its equipment arsenal stocked with sonic weapons, that will keep it at the front

of the pack. Among these is the New England Digital PostPro™ 8-track Direct-to-Disk® recording system with two-and-one-half hours of disk storage, three-and-one-half minutes of RAM, 32 voices, optical disk and four Winchester drives, a Trident 24 console and an Otari MX-70 8-track.

According to WQHT production director Rick Allen, "The intent of putting a leading-edge studio at our station was not as a profit center, *per se*, as much as it was to keep on the forefront of technology in a market where one ratings point can translate into millions of dollars of revenue. If we can



Saturday night production of real-time radio drama, completely produced by workshop participants. The show is open to the public; roughly 350 people catch it live from the historic Missouri Theatre.

From a mixer's point of view, the demands of live radio theater are enormous. There's music from a live band, voices (high and low), live effects, tape effects and, now, sampled effects. Jane Pipik, engineer at WGBH Radio in Boston and technical director at MRTW, says the most nerve-racking aspect of live radio drama is the "unpredictability of everything from the actors to the audience to equipment failure. *Nothing* is taken for granted when it's live."

"Live" means live to the house and live to public radio station KOPN in Columbia via satellite feed, both of

## You're on the Air!

### MIXING FOR LIVE RADIO THEATER

BY TOM KENNY

There was a time, long before *Cosby*, *Roseanne* and *The Simpsons*, when radio was king. There was no video. It was simply sound and the listener's imagination. Families followed the adventures of Fibber McGee and Molly, the Lone Ranger, The Shadow and other heroes from largely forgotten radio dramas.

But not everybody has forgotten. A small group of self-proclaimed radio junkies meet for five days each September in Columbia, Missouri, to put on the Midwest Radio Theater Workshop. Their efforts culminate in a live,



which require a separate submixer. Six submixers, in fact, are ganged around the main 35-input Soundcraft 200B: broadcast, music, ambience, communications, effects and house. Outboard effects are added at the main desk, with a stereo feed sent to the broadcast mixer.

This past year marked the first time the performance was recorded to multitrack, enabling more precise post work for a satellite link to NPR stations across the coun-

—CONTINUED ON PAGE 63

**(Top photo): A stage-wide view. (above): Isolation booth on stage; director in the pit. (left): The live Foley table.**



PHOTOS: PETER ANGER

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do something to keep the attention of the listener and increase the time spent listening, it's worth it for us in the long run. Plus, our parent company, Emmis Broadcasting, is really good about giving us the tools we need to fight the battle. In fact, it wasn't even my idea to put the Synclavier in. Top management came to us and gave us the option."

WQHT bucks the trend established by most large stations by not airing compact discs—fast becoming the music medium of choice. "We don't use CDs on the air because we take the

eight- and nine-minute dance mixes of songs and edit them down to single-length—four or four-and-a-half minutes," says Allen. "As a result, we can't pull off of the CD. We go from CD to the Direct-to-Disk to tape cartridge. Of course, that will change as soon as they perfect the recordable CD. In fact, our corporate chief engineer won't even let us invest in DAT for that reason. He feels that the recordable CD is just around the corner."

The use of custom remixes has also given radio stations like WQHT a

competitive edge. It breeds listener loyalty because a popular remix can be heard on only one station in that market. It also demonstrates the station's creativity and ability to track the musical tastes of its audience.

Because radio stations have moved from 2-track production to multitrack within the last decade, Allen had to relearn tasks once performed with razor blades and splicing tape. "I had a real hard time adjusting to digital editing since I did razor-blade editing for 15 years," Allen says. "Now that I'm

—FROM PAGE 61, LIVE RADIO THEATER try in April.

Pipik says, "We've incorporated a lot more technology in the five years I've been here. We didn't use to use any sampled effects, and now we have a sampler player named Leo Weatherell. That's in addition to tape playback, in addition to a whole area set up for live effects. Rather than get simpler, I think our job has gotten more complex."

Since there really is no MRTW equipment budget, all the gear is begged and borrowed from participants, local studios, sound companies and a few manufacturers, including Studer Revox and Beyer Dynamic. Setup, blocking and technical run-through take place within 36 hours. Dress rehearsal is the morning of the show. Dave Taylor, station manager at KDHX (St. Louis) and tech consultant at MRTW, says, "We're basically wiring a major league studio in an old, funky theater in the course of 24 hours."

Taylor is also responsible for the effects mix, which includes a live Foley table and MIDI keyboardist onstage, and tape playback effects in the booth. "We try to do as many of the standard sounds as possible live onstage," Taylor says. "That's everything from footsteps to breaking glass to doors opening and closing."

The Foley table, a favorite with the kids in the crowd, is miked on top with a Shure SM53 condenser to gather a good high-end. It's miked below, where the footsteps fall, with a Sennheiser MD-421 or Shure SM57. Horse hooves are still done with coconuts, cigarette-package cellophane sounds like a crackling fire, and thunder...well, at MRTW,

thunder comes from a punching-bag balloon filled with BBs, shaken close to the mic then rolled off.

Tape playback effects are gathered in stereo on a Sony D10PRO DAT machine the week of the show. Ambience effects like crickets and birds are gathered live. This past year, the play *Film at Eleven* even required a trip to a local Burger King to record sounds that could be edited later for background.

Still, there are many possibilities for playing around with natural effects. "We like to do the natural part live and then embellish with all kinds of different processes—not just MIDI and tape playback, but all the standard tricks like EQ, reverb, room ambience," Taylor says. "Harmonizers are great for adding multiple layers of voices. But it can get overdone. I come from the old school that allows for a lot of imagination and creativity on the part of the listener. It's amazing how little you really need."

The same can be said of the house mix, where Dave Bartlett, house mixer and owner of Entertainment Technologies in St. Louis, intentionally downplays the house in favor of the broadcast. A single monitor stack, stage left, covers the house.

"It was a vaudeville hall," Bartlett says of the Missouri Theatre, "with an average reverb time of 1.8 seconds. It's extremely live, and I'm into super minimal. I used the four-way all horn-loaded P.A.—4560s, the old radio horn and 2350s—all JBL. The idea was a high-directivity P.A. focused specifically into the audience area. As far as I'm concerned, I'd just like to turn the P.A. off, but nobody will let me do that."

As can be imagined, technical

cues play a pivotal role in producing any radio drama. Steve Donofrio, production trainer at KOPN and tech consultant to MRTW, is responsible for the communications mixer. He sets up onstage and makes sure the right people can talk to the right people. A Clear-Com system takes care of the "grease" channel, or active channel, and a secondary system handles the "brief" channel, which monitors any technical mishaps while the show is running.

Donofrio is also partly responsible for gathering equipment and setting up the stage. He runs what is known as the "tech bar," for people to check equipment, and he helps arrange the 22 mics onstage. To help minimize leakage, an isolation booth with a window sits center stage. When David Ossman of Firesign Theater fame brought back the character George Tirebiter as the voice of God in a 1988 production, "God" sat in the iso booth and his voice went through a Lexicon PCM70 reverb.

Now in its 11th year, MRTW is the country's longest-running contemporary radio theater project. The 1989 production, which included a David Ossman adaptation of Frank Corwin's 1941 classic *The Odyssey of Runyon Jones*, won a National Federation of Community Broadcasting Gold Medal award for live radio drama.

MRTW 1990 will take place in Columbia, Missouri, from September 17-22. Call Diane Huneke at (314) 874-1139 to see what's on tap for this year. ■

*Thanks to Richard Fish, performance director at MRTW and long-time radio head.*

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used to it, I love it! It gives you the chance to go for a really creative edit that you wouldn't have the guts to do with a razor blade, especially considering the time constraints you are under in radio. The mere thought of having to make a splice just to try it and then having to put it back together if it doesn't work is too time-consuming. With the digital system, I can try something, and if I don't like it I just hit 'paste' and it's right back the way it was.

"However," Allen adds, "most of the digital systems are not quick enough to replace analog tape for routine production tasks. When the program director hands you a piece of copy and says, 'This has to be on the air in 15 minutes,' you don't have time to load the voice track, load the music track and line up events on a sequencing page. A simple voice-over music piece that takes two minutes to produce on analog takes 25 minutes to do on a digital system. They're going to have to write software that is radio-specific before digital workstations will really take off."

### **WGCI-FM, Chicago**

WGCI-FM in Chicago also opted for the PostPro system. As an Urban Contemporary station in one of the black music centers of the U.S., WGCI felt a need to remain technologically competitive. According to Jeff Andrew, WGCI's chief engineer, "Gannett [WGCI's owner] was looking at the Synclavier system for KHS-FM in Los Angeles and for our station. We looked at the cost of building an analog room and discovered that for a little more we could have a full-blown digital system. We are the only Midwest radio station with the PostPro."

In addition to the 8-track PostPro, WGCI has a Yamaha DMP7 automated mixer, Harris XD-001 DAT machines for mixdown, an Otari 5050, several processors and an array of MIDI gear. With all this high-tech equipment, WGCI faced the challenge of finding the talent needed to make the investment pay off.

"One of the big problems with the digital system is it is difficult to find the right kind of person to actually run it," Andrew says. "You generally have to find a recording studio engineer with a music background. Most production people can provide voice-over talent as well as operate the equipment, but with the digital system, you need both an engineer and an announcer."

Despite the talent crunch, Andrew

is quick to point out the benefits of multitrack, digital multitrack in particular. "In radio, everything has gone multitrack. There aren't too many stations that don't have at least a 4-track machine. With 8-tracks, it's just so much easier to lay down everything on a separate track. With our digital room, we are able to use a much smaller room than for analog recording since we don't use a huge console. Plus, we can store all our jingles and sound effects on the hard disk.

"We have somebody here who does customized jingles for clients. We'll do a package in which somebody writes the spot, produces the custom jingle and then voices the spot. We do all the production from head to toe," Andrews adds. "It's starting to become a profit center for the radio station, and we've only had the system together for the past six months."

Like WQHT, WGCI takes the time to custom-remix records. "There is a lot of rap music we have to remix because of lyrics," Andrews says. "We also remix a lot of records in cases where we aren't satisfied with the original mix."

### **WBLS-FM, New York**

The station that many believe has defined the Urban Contemporary sound nationally is WBLS-FM. Remix masters such as Shep Pettibone and Jellybean reportedly got their start by remixing dance hits for the station. Program director Frankie Crocker was so popular that he used to commute weekly to WBLS' former sister station in Los Angeles. In addition, the station is tied to the history of black music through its ownership of the legendary Apollo Theatre in New York City.

Anthony Richards, WBLS production director, details the genesis of the station's dance mixes: "We do specific mixes. What usually happens is that one of the DJs will come in with his or her 1/2-inch master. We edit it down, throw in sound effects by locking it up to the 4-track. We've even done a couple of records here. One of them was 'The Poem' by Bobby Konders." Making records at a radio station is not a new phenomenon. In fact, many classic sides by James Brown, Ray Charles and Little Richard were recorded at radio stations 30 or more years ago.

The station's production studio includes a Ramsa 8428 console, Otari 4-track machine, two Mitsubishi VHS Hi-fi machines, two DAT recorders, an Eventide H3000 Ultra-Harmonizer,

three Otari MTR-10 1/2-track machines and a wide selection of MIDI gear and digital effects.

Although Richards maximizes the equipment at his disposal, he plans to upgrade some of the station's gear soon. "We've outgrown the 4-track," he says. "I really would like to get a 24-track machine in the near future." The station is also reportedly planning to take delivery of the \$25,000 Yamaha CD recording system later this year.

#### **KIIS-FM, Los Angeles**

One of the stations that established the primacy of the CHR format nationally is KIIS-FM (pronounced "kiss"). With the zany antics of its nationally known morning man, Rick Dees, and its eclectic blend of rock, dance and pop, the station rose from obscurity to dominate L.A. radio. The station's production tools reflect its high-energy format. To handle the workload, the station uses a Studer Editech Dyaxis 2-track digital workstation with a 350MB hard disk, an Emulator III, an Otari MX-70 8-track machine and an arsenal of effects.

According to KIIS production director Ron Shapiro, the Dyaxis system is used primarily for storage of the station's jingles and sound effects, while the Emulator serves a different purpose. "I use the E-III mostly for voice effects and sometimes for sound effects," he says. While it may seem like overkill to use an expensive sampler like the E-III for voice manipulation, the density of CHR promos can be overwhelming.

"Most of the promos we do here have so many effects, sounds and music changes that it would be close to impossible to do it 2-track," says Shapiro. "It would take four to five times longer than with the 8-track. I would like to have 16 tracks."

Shapiro is quite pragmatic about his criteria for equipment selection. "The biggest factor in choosing new equipment is whether or not it will help the sound of the station. Other factors we consider are the cost and whether it will fit into the budget," he says.

#### **KQLZ-FM, Los Angeles**

KIIS-FM's crosstown rival, KQLZ-FM (known as Pirate Radio locally) attempted to stack the deck by hiring former Z100 (New York) morning man and "Morning Zoo" creator Scott Shannon for the PD and morning shift posts. He is sometimes credited for taking the New York station's ratings

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from "worst to first" in a single rating book. The station is known for its blend of rock, CHR and new music, as well as its highly produced sound. The station uses a Studer/Revox 900 Series console, Otari MX-70 16-track, a Lexicon 480L, Eventide H3000 and an array of MIDI equipment and effects gear.

The station maintains two separate production studios, as was the case with many of the stations I talked to. A small, bare-bones 4-track studio is used by the station's on-air staff for routine production, while its 16-track studio is used predominantly for station promos, music beds, drops and liners.

One of the interesting things about the station is its massive investment in Dolby SR processing. According to the station's assistant chief engineer, Kevin Scott, "We have Dolby SR on all the cart machines. Eventually, we'll have SR on every tape machine in the radio station. I would guess that we have \$60,000 in Dolby SR alone. When you don't want CDs messing up on the air and you want that quality, it is worth the investment."

#### **WABB-FM, Mobile, Ala.**

To see what is happening in smaller markets, we contacted Chip Maples, production director of CHR-format WABB-FM in Mobile, Alabama. The station's production studio is outfitted with a customized MCI console, Otari 5050 8-track, Scully 2-track, a wide range of MIDI gear including a Roland S-50 sampler, and outboard effects.

While Maples is swamped with station promos and commercial production and has little time for the remixes commonly done by his big-market counterparts, he still sings praises for the power of multitrack recording: "I can keep the basic elements of my promos on the multitrack and then add the changing elements of the promo," he says. "Multitrack also helps when we have rotating sponsors. I can easily swap out sponsors' names without destroying the commercial."

#### **Back to the Future**

While digital equipment will have a definite effect on the quality of radio production in the future, these digital tools will be used in much the same way as cart machines, turntables and tape decks were in the past—to combine voice, music and sound effects into jingles, music beds, sweepers and commercials. It remains to be seen whether manufacturers will adopt these metaphors to make their systems

more user-friendly to the broadcast production professional.

WQHT's Rick Allen paints an interesting picture of how a radio station may look in the future: "If digital memory comes down low enough, we may see a completely digital radio station. There will be a computer screen in the program director's office, one in the music director's office, one

in traffic, one in production and one in the air studio tied to a system containing the format, music and commercials." ■

*Formerly a studio owner in the Los Angeles area, Tony Thomas is currently an engineer, disc jockey and ad agency owner in Cleveland, Ohio. He is a frequent contributor to Mix.*

## **MIDI on the Air**

In their efforts to maximize production power while watching the bottom line, many radio stations have discovered MIDI equipment and low-cost digital effects. MIDI gear gives those stations that cannot afford the most expensive digital toys a considerable amount of flexibility.

Samplers and sequencers, in particular, can emulate many of the functions and features of high-priced digital workstations, albeit without the memory and fidelity. A single sampler can replace several CD players, turntables and cart machines, especially when used to store sound effects, musical "hits" and short voice "drops."

"MIDI was one of the things that gave me a leg up on other folks in this business," says WQHT-FM's Rick Allen, who also owns a home-based radio production firm active in 60 markets. "I actually got out of radio production for a while about five or six years ago and worked in sales for a jingle production company in the Midwest. The owners of the business were getting into MIDI just when it was starting to happen. I would hang around the studio and learn how to operate the MIDI gear. When I got back into radio production, I was fortunate to understand MIDI as soon as it started to take off.

"MIDI has allowed me to tie a lot of gear together and get a sound that is a lot bigger and thicker in less time. MIDI also gave me the chance to goof around and try things musically that I never would have tried before. I was especially interested in samplers even before the 'stutter' effect got big in radio. I used to have an Akai S612 sampler and load a bunch of sound effects onto those little Quick Disks. That is when most guys were putting their sound effects on cart. Now, I have an Akai

S1000 at home, and I lay an entire car sound effects disc, for example, across the keyboard. I do the same thing with the Synclavier here at the station.

"At home, I lay a SMPTE track on one track of my 8-track. You can get super-precise laying in sound effects as events using MIDI time code. That is something I think will open up more once stations add more tracks."

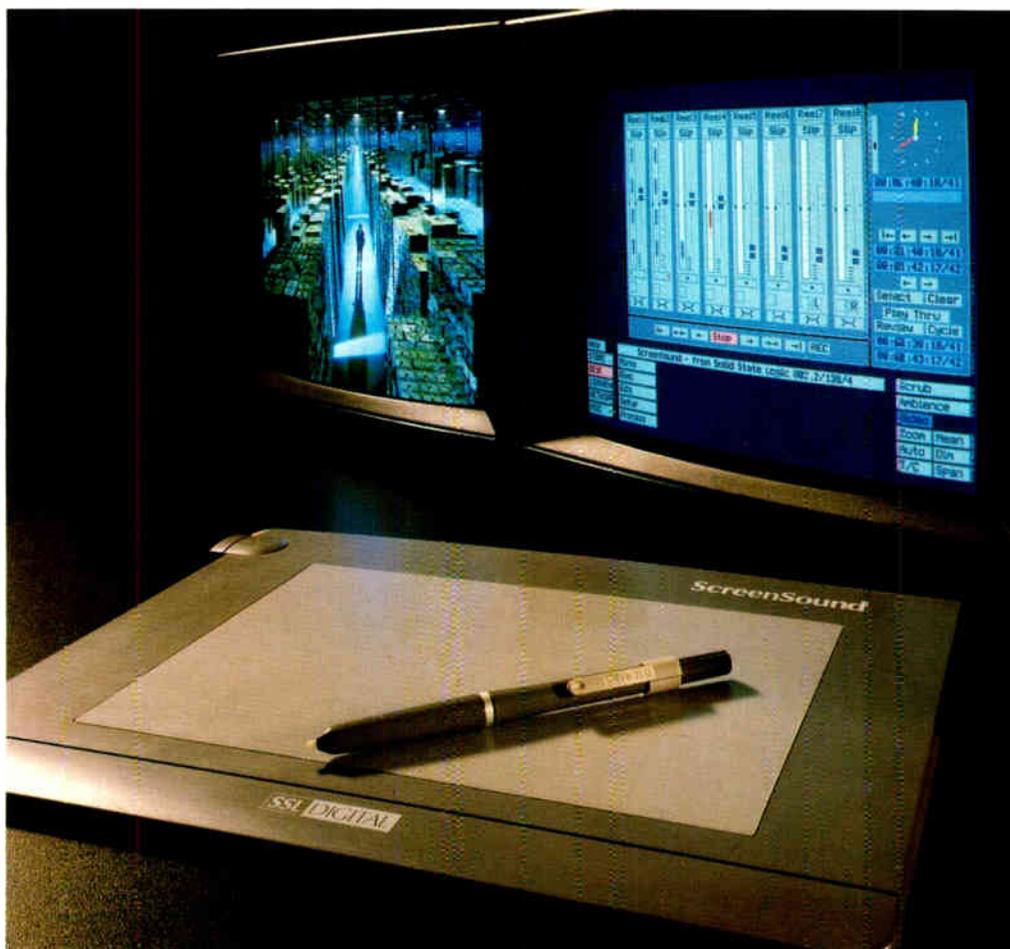
WBLS' Anthony Richards uses his MIDI setup to supplement his four tape tracks. "I use MIDI primarily for sound effects. I have a number of sound effects on disc that I will bring up on the Casio FZ-1 keyboard," he says. "Sometimes I will also sample the voice into the sampler along with sound effects to double the effective number of tracks and lock my sequencer to the 4-track using FSK. With the sequencer, it is very easy to edit and move things around."

Even non-musicians can use MIDI gear for production tasks. As WABB's Chip Maples explains, "We use MIDI for promo beds. I lay down the basic tracks on the 8-track and then overdub effects from our S-50. I am not a musician and am generally looking for non-melodic, rhythm-based beds that don't distract from the promo. I keep sound effects, sweepers and some voice effects in the sampler and lay them into the mix."

For most stations, an entire MIDI studio can be purchased for much less than a broadcast console, and in some cases, even less than a few quality cart machines. The potential of samplers as low-cost digital workstations has barely been explored. As radio producers continue to unlock the power of MIDI, the result will be more sophisticated production available to radio stations with less-than-megabuck budgets.

—Tony Thomas

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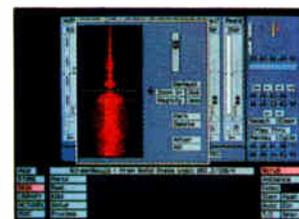
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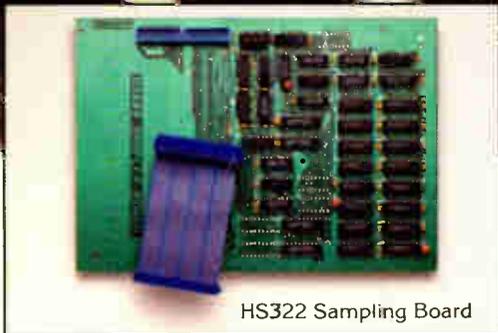
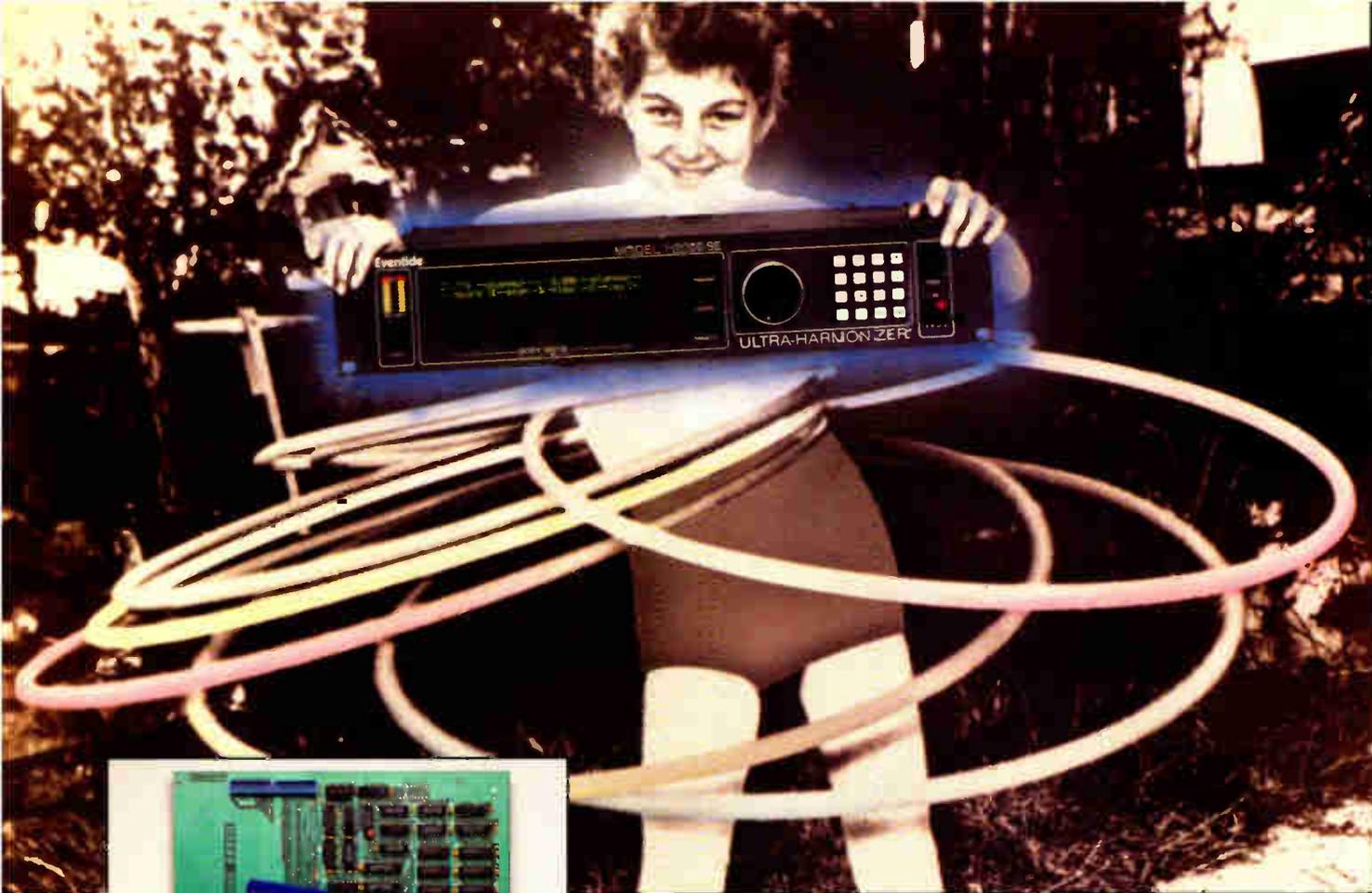
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by Dan Daley

# THE NEW MIDDLE CLASS

## JEFF LAYTON REINVENTS HIS WORLD

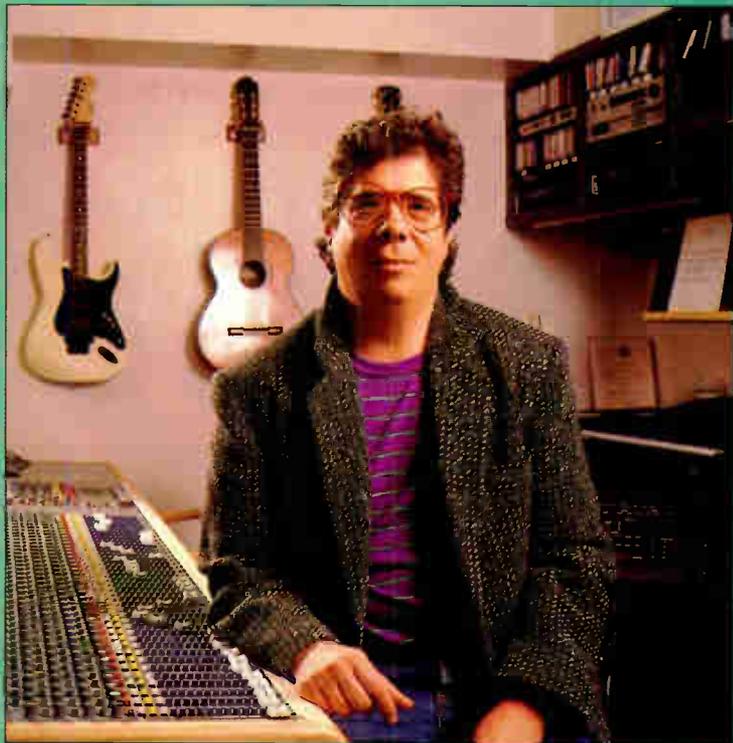
Jeff Layton is not one of those jaded jingle guys who have permeated the New York session scene since the Pleistocene era—the type that bitches and moans about 9 a.m. calls for Sugar-Coated Toxic Widgets dates while plotting on picking up a pair of iguana-hide cowboy boots later in the day with that morning's double-scale check. One gets the sense that Layton actually enjoys the challenge of being creative in what might be the music business' most frustrating division.

But Layton admits that after 15 years on the morning circuit, holding afternoons and evenings open for record dates with artists like Maynard Ferguson and Janis Ian, he sensed impending burnout. He recently put \$100,000 into expanding his personal project studio—doubling the existing investment—in his Chelsea apartment. Surveying the results, he reflects, “The feeling of just loving to play the guitar for its own sake is just starting to come back. You can't be totally vulnerable from an artistic point of view and be a session player; you need to have tough skin. You can't really create under those circumstances as well as when you work on your own.”

It's not that Layton was looking to chuck the commercial world; rather, he sought to twist it to accommodate his own evolution as a player, busi-

nessman and person.

An early dabbler with the open-reel 4-track format, Layton moved up to a Tascam 8-track several years ago before making the big leap to his own dedicated facility. He took over an adjacent apartment in his building in January and, with business manager



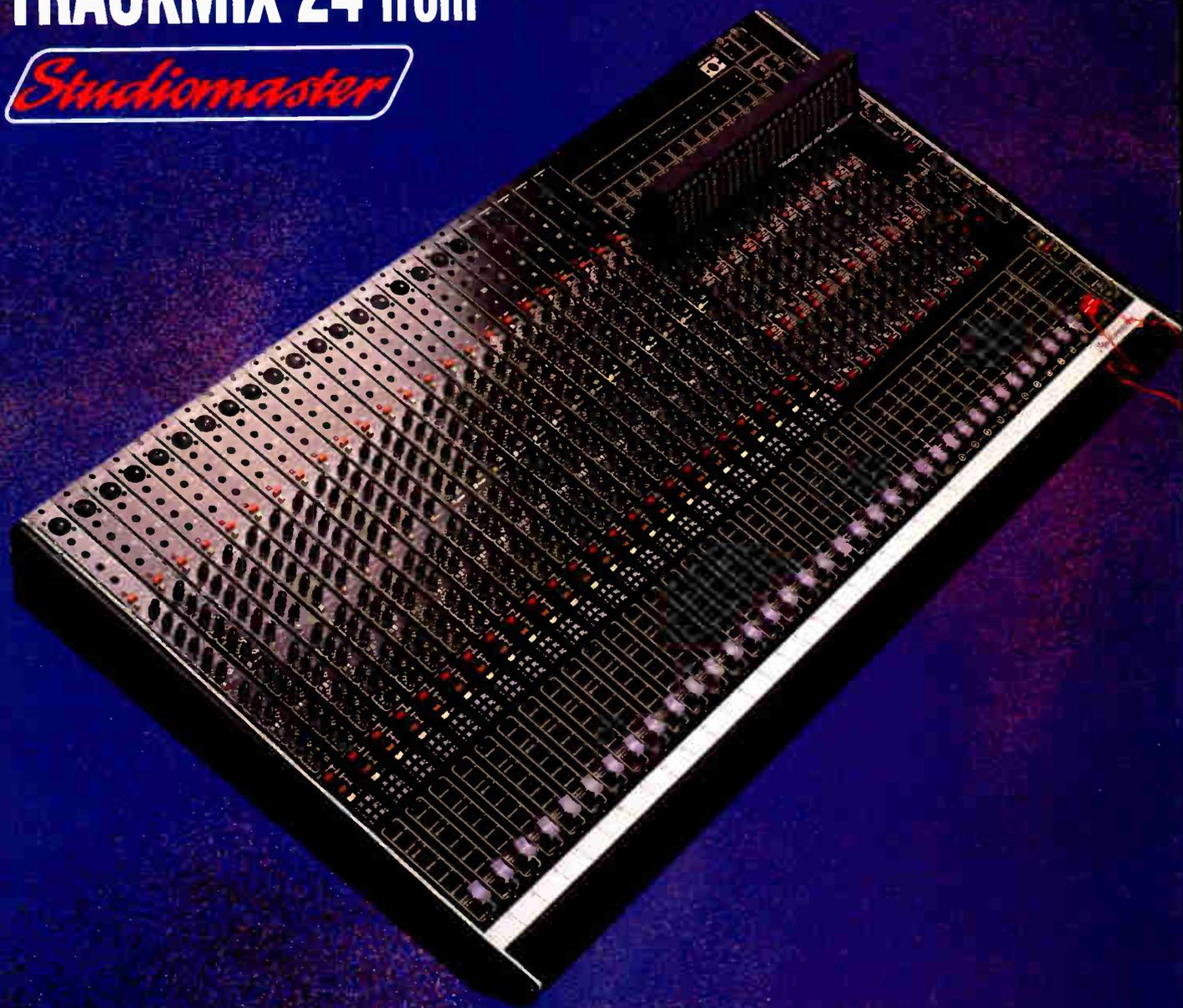
Barbara Soehner, designed a control room and isolation booth. Both rooms were built by local constructionist Leonard Manchess.

Large-paned windows and a skylight prevent the notorious New York “studio tan.” A combination of pale pink walls, white ceilings and deep-green, marbled laminate cabinetry combine to make Jeff Layton Productions comfortable and familiar to both sneaker and wing-tip wearer. That's good, because Layton aimed squarely

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at his old business to support his new venture. Since expanding earlier this year, JLP has handled jingles for Prudential, Miller Genuine Draft, Dole, Arrid and Milky Way, as well as underscores for Hyundai, Miller, Xerox, M&M's and Campbell's, among others. Layton also writes and arranges for projects.

The main features of the facility are the 40-input, 56-fader Trident 24 console and the Akai A-DAM digital 12-track recorder. "I felt a bit lonely when I bought the Akai 12-track," recalls Layton. "Mine was one of the first ones around here. I had to think about what format I would be comfortable with. On one hand, I knew that things were going digital and I had to follow suit; on the other hand, I was familiar with tape and knew that the DAT format was working well. So I decided to go for the 8mm Akai format and do my mixdowns to a [Sony 2500] DAT deck. This way, I'm working with tape and staying in a totally digital format for a reasonable price."

Other JLP equipment includes Otari MX-5050 2- and 4-track decks, a Sony VO-9850 3/4-inch deck, an Adams-Smith Zeta-3 synchronizer, and Lexicon, Yamaha and Alesis signal processing. Despite being known as a guitarist, Layton studied trumpet at the Manhattan School of Music and has plenty of keyboard chops. His array of synths include a Korg M1R, Emu Proteus, Yamaha TX802, Roland D-50 and a Korg P3 piano module. A Mac Plus with an Opcode Studio Plus Two Interface runs Performer, Professional Composer and Passport's Clicktracks, among other programs.

Layton's role as a jingle sideman is what provided the client base he needed to move out on his own. "I got to know the music producers at the agencies over the years," he explains. "I approached them first about arranging some jingles, and then moved into writing and producing them as well. I wasn't just walking in off the street in terms of looking for business for this studio; you can't do that and expect to succeed. I feel for anyone trying it that way; New York is simply too competitive for things to work like that."

New York's competitiveness hasn't changed, but the rest of the jingle and studio scene has, as Layton readily

acknowledges. Citing the demise of a number of well-known and seemingly invincible rooms over the last 18 months, he says, "It was no longer feasible [for agencies] to hire studios and musicians for jingle demos, and in many cases even for the finals, even though it took them a long time to realize that. The fees weren't in line with the escalating costs. I don't know if the technology alone would have caused these changes or if cyclical variations in the economics of commercials would have done it, but certainly the two of them together have made some definite irreversible

changes in the industry."

The movement of the jingle industry from commercial studios to project studios is due to economics (most notably cable television and New York real estate prices) and personal recording technology. It will leave Manhattan and other major recording centers with fewer, but stronger, commercial audio facilities and a plethora of project and artist studios. The facts have been speaking, loudly and assertively, for some time. But the human elements of this revolution are less easy to document. Coffee and

—CONTINUED ON NEXT PAGE



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croissants (paid for by the agency, of course) while the engineer was setting up became a social ritual for session players on jingles. What becomes of this rite in the age of personal recording environments?

The control that the technology affords to composers, arrangers and musicians is enormous, but much of it occurs in an increasing vacuum. You may find that doing solos in your underwear is liberating, but if a ninth chord falls in the forest and no one else hears it, does it really make a sound?

The use of personal audio technology in the project studio, coupled with the need to produce a commercial product, seems to solve the social issue to a degree by transforming the home studio into an electronic fireplace for musicians.

Layton affirms, "Jingles are the number one priority for JLP right now: They cover the nut. I've worked on a few personal projects and on some for a few friends there, but it has come to take on a life of its own. And I don't mean to imply any negative

connotations in that. It's not a monster that needs to be fed, but rather an extension of my relationships with other creative people."

However, Layton wonders aloud whether or not the decline in the everybody-at-once jingle tradition might be deleteriously affecting the level of studio players. "Guys won't be out there doing 15 dates a week and staying real sharp," he says. "The studio musician's skills might go the way of the blacksmith's. That's my main concern about losing [commercial] studios: losing the interaction between players. I think musicians are compensating for that by doing more live playing. Studio players are out there now doing club dates and other live performances—players who at another time wouldn't have considered doing anything but studio work."

Layton also acknowledges that project studios might be hitting a saturation point in the Manhattan market. The technology now provides less of an edge than it once did by virtue of its ubiquity. The result is an increasingly level playing field for project studio owners, "a democrati-

zation process in which good musicians and writers and producers have an equal shot at getting the account."

For anyone who has been following the home studio/commercial studio controversy that erupted on the left coast last year, that democratization carries other, more ominous implications. Layton admits to a reluctance to discuss the specifics about his studio/living arrangements, other than to state that he has his landlord's blessings. JLP doesn't advertise, and Layton says he hasn't and doesn't intend to rent time to outside clients. Besides underscoring the vagaries of local zoning ordinances, this highlights the importance of having as secure a client base as possible, one that brings in a reasonable proportion of money to that invested in the project studio. "I don't want this to become so much a facility as a hub for other writers and producers and musicians who I can work with on projects," says Layton. "But the bigger and busier it gets, the more important every decision becomes." ■

*Dan Daley is a Mix contributing editor.*

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# NEW PRODUCTS

## GEFEN MAC TRACKWRITER

Gefen Systems (Woodland Hills, Calif.) has unveiled a new version of its Trackwriter™ software for Macintosh computers. Previously only available for the IBM PC, Trackwriter reduces the hassles and paperwork of an ADR session and features the automatic entering of VITC or LTC time code numbers, feet/frames to time code (and vice versa) conversions, and frame insert/delete with automatic adjustment of the ADR list. The program can export to CMX-compatible EDLs and can control TimeLine Lynx, Adams-Smith Zeta 3 or Cipher Digital Phantom II synchronizers. Currently under development is a new version of Trackmaster for the IBM PC, operating under the Microsoft windows environment.

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## SMPTE TIME WINDOW ▲

From MIDIman of Pasadena, Calif., comes the SMPTE Time Window, a compact (6x3x1.5-inch) SMPTE time code reader/generator/writer/regenerator priced at \$299.95. The unit handles any SMPTE format (24, 25, 30 and 30 drop-frame), and features switchable -10/+4dB operation and SMPTE offset striping. It reads in forward, reverse and reel-rock rates; can record and recall up to eight SMPTE "hit" points; and has a built-in stopwatch function.

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## NEUMANN GFM 132 BOUNDARY MIC



Distributed by Gotham Audio of New York City is the GFM 132 boundary mic, offering uniform frequency response in the diffuse and free fields. The phantom-powered mic uses a new 10mm condenser capsule and features the transformerless circuitry of Neumann's TLM170 microphone. Its computer-designed triangular-plate is said to eliminate angle-dependent coloration in the vertical and horizontal planes, and provides a consistent, frequency-independent hemispherical pickup pattern. A clip-on windscreen is optional.

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## SPATIALIZER 3-D PROCESSOR

The Spatializer™ (distributed by Audio Intervisual Design of Los Angeles) is a psycho-acoustical processor that works in real time, producing a three-dimensional sound field from up to eight sources. The system includes a controller with eight joysticks (called Actionators™) allowing the user to locate mono sources (mic inputs, tape tracks, etc.) within a 3-D space. The Spatializer can be expanded to 16 or 24 Actionators. The 3-D image is said to be effective with headphones, portable and home stereos, and stereo radio and television broadcasting.

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## AVALON AUDIO E5

Made by Avalon Audio of New South Wales, Australia, (U.S. offices are in West Los Angeles) is the E5, a 4-band equalizer/mic preamp that uses a symmetrical Class-A design with fully discrete circuitry. Priced at \$4,200, the single-channel E5 features line- and transformer-balanced mic inputs, variable high/low-pass filters, dual independent signal path operation, phantom powering, external DC power supply, and Soft-Curve™. The latter is a tone-shaping network incorporating a variable mix of pre- and post-equalized signals, acting as an extension of the conventional EQ bypass function and adds a new dimension to the equalization process.

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## PARADIGM 3SE MINI MONITORS

Designed for close-field listening is the 3SE Mini from Paradigm Electronics of Weston, Ontario, Canada. The 3SE Mini is a two-way design combining a 1-inch polyamide dome tweeter and 6.5-inch die-cast aluminum frame woofer in a 14.75x8.25x9.25-inch bass reflex cabinet. The speakers, priced at \$300/pair, are available in walnut or black vinyl veneer. Stated specs include a frequency response of 55 to 20k Hz (±2 dB) and a power handling of 15 to 80 watts.

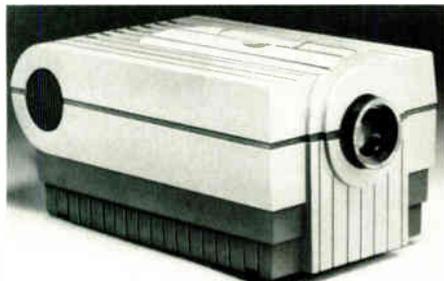
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## BBE MODEL 322

An intelligent audio processor designed to provide BBE signal enhancing is the BBE Model 322 from BBE Inc. of Huntington Beach, Calif. The BBE process applies different phase-correction algorithms to three separate frequency bands. The 322 (\$259 retail) is a single rackspace device for unbalanced, -10dB level systems, such as musicians' racks, tape duplication, sound reinforcement and small studios. It can be used as a stereo or dual mono channel device. ▼

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**ALESIS MICROVERB III**

The Microverb III from Alesis (Los Angeles) offers 256 stereo effects—112 reverbs, 32 gated/reverse programs, 80 delays, 32 multitaps and special effects—into a full rack-space unit. Features include 16-bit resolution, 15kHz bandwidth, 2-band shelving EQ controls, three-stage signal overload LED, defeat footswitch jack and 1/4-inch inputs/outputs.

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**TELEX VIDEO PROJECTOR**

Based on single lens, liquid crystal display technology is the MagnaByte 2001 from Telex Communica-

tions of Minneapolis. Priced at \$2,495, the 2001 connects to any video source via a standard NTSC RCA jack and requires no technical or convergence adjustments other than focus. Throw distance ranges from three to 20 feet, providing a 60-inch diagonal picture at eight feet. Lamp life is 75 hours from a standard ENX bulb.

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**SANKEN COS-11 LAVALIER**

Featuring a vertical placement of the diaphragm for a greater effective area is the Sanken COS-11, distributed by Audio Intervisual Design of Los Angeles. This omnidirectional mic is said to be the world's smallest lavalier microphone. The result of a joint effort between Sanken and NHK, it measures 4x16mm, has a frequency response of 40 to 12k Hz, and includes a removable metal wind-screen for outdoor use.

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for studio or live sound applications. The unit is based on a new VCA that is said to provide 15dB dynamic range at less distortion than other VCAs. Balanced inputs/outputs are standard, as is the use of 45 LEDs for status monitoring (including 21 LED gain control metering), external detector loop (for gating, keying or ducking) and a stereo auto detect circuit.

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**ART MDC-2001**

New from Applied Research & Technology (Rochester, N.Y.) is the MDC-2001, a 2-channel processor offering compression, limiting, gating, de-essing, exciting and sibilance control functions

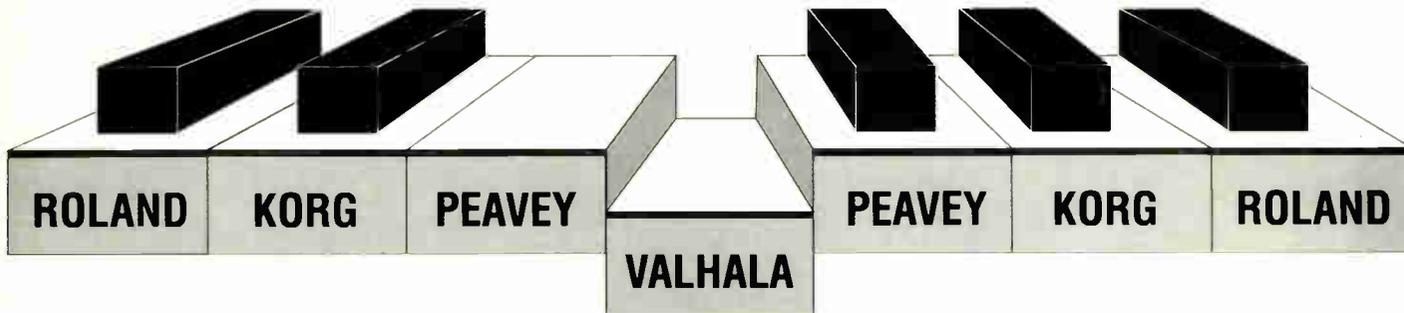
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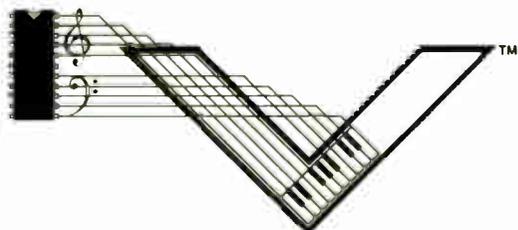
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by George Petersen

# PRODUCT

## CRITIQUES AND COMMENTS

**T**ascam DA-30 DAT Recorder  
Unveiled at the winter NAMM show in Anaheim last January, Tascam's DA-30 was greeted with much anticipation by audio dealers and the press alike. Offering full-function studio features at a rock-bottom retail price of \$1,899, it's no wonder that this DAT machine has generated so much interest.

The DA-30 has AES/EBU and coaxial (RCA-type) digital inputs and outputs; a full-function hardwired remote control; balanced (+4dBm) XLR and unbalanced RCA (-10dBV) analog inputs and outputs; 44.1 or 48kHz sampling rates (plus playback of 32kHz tapes); comprehensive start ID and autolocation capabilities; and 64-times oversampling A/D converters (using delta-sigma modulation) with 18-bit dual D/A converters. It's all contained in a solid rack-mount package. You never have the feeling that this is just some regurgitated version of a consumer DAT deck. The DA-30 is a serious contender in the realm of professional recording tools.

The first thing you notice about the DA-30 is its highly visible display window, with its large peak level meters and multicolor indicators of operating status, ID points and time displays (switchable to show running time in

hours/minutes/seconds, track time, time remaining on the tape or as a numerical tape counter display). Rather than use a standard peak hold-type display, the DA-30 has a "margin" function that shows the available headroom before clipping (from -39 to 0 dB) while recording. The margin display can be reset at any time during the recording and is a feature that I found to be highly useful.

Exceeding the 0dB mark on the meter did not prove to be disastrous, as in most cases I could go over the zero point by 2 to 3 dB before digital distortion occurred, especially with fast transients. With a bit of practice, you soon get a feeling for how far this saturation point can be pushed. It depends on the program material and your own techniques. On the minus side, the meters only function when the deck is in the record or record/pause modes, which is inconvenient in those situations where you want to check levels before recording, without having the tape heads engaged. However, the meters are bright, fast and easy to read, even from across the control room.

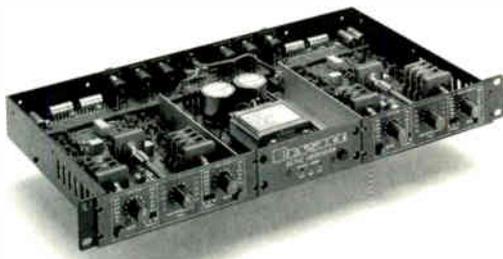
The DA-30's front panel is laid out in a straightforward manner. Switches and controls are provided for search and ID modes, transport functions and



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This new twenty year warranty is also retroactive. It includes all audio products previously manufactured and sold under the Bryston name. This warranty is also fully transferable from first owner to any subsequent owners.

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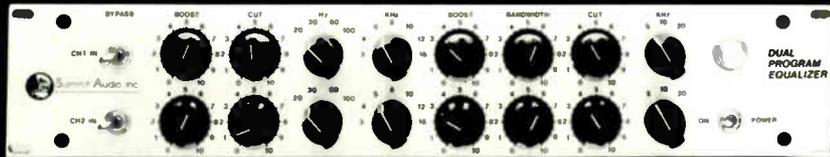
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Circle #076 on Reader Service Card

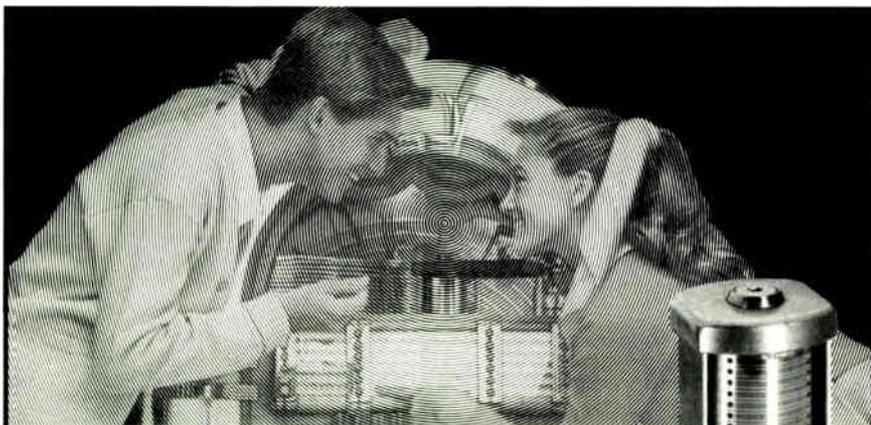
for selecting from a variety of analog and digital input sources. I punched the tape "open" button, dropped a DAT cassette into the drawer and pushed the "close" key, whereupon the door stopped with the back of the cassette jammed in a half-closed position. After repeating the sequence a few times, I achieved success by sliding the cassette to the left-most edge of the drawer. This proved to be only an occasional quirk with certain cassettes, and when it occurred I could avoid the problem by following this procedure.

I was impressed with the DA-30's audio performance. It seems that Tascam has taken the best aspects from its earlier DA-50 (a great-sounding, but—at \$3,995—overpriced model) and incorporated this sterling approach to sound into the DA-30. When recording from analog sources—say, copying CDs—the output sounded damn close to the original: obviously, the ADCs and DACs are doing a fine job. I also made a digital clone copy of a CD by connecting the digital output from a top-of-the-line Revox B226-S CD player to the DA-30, with fine results. Another test was a CD premastering project, where I was transferring PCM-F1 format data (the processor was modified for digital I/O) to and from the DA-30, making some level and subtle EQ changes via the AES/EBU and coaxial digital ports on a Yamaha DMP7D mixer, while keeping the project entirely within the digital domain. The DA-30's digital I/O connections worked flawlessly, and the DMP7D is ideally suited for such applications.

The DA-30's construction is clean and of high quality, both internally and externally. The transport seems durable and is reasonably fast: For example, entering the record mode from the "stop" position occurs in less than two seconds; going into record from "pause" requires six-tenths of a second.

The manual could stand some tweaking. At least two-thirds of the text rambles on about the interworkings of the programmed play, start/skip indices and location functions. The manual makes these seem far more convoluted than they really are, and with the DA-30's large status display they are simple to use once you become accustomed to them.

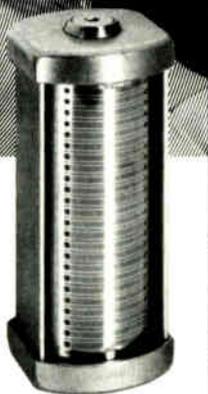
One easily overlooked aspect is an unassuming 15-pin parallel control



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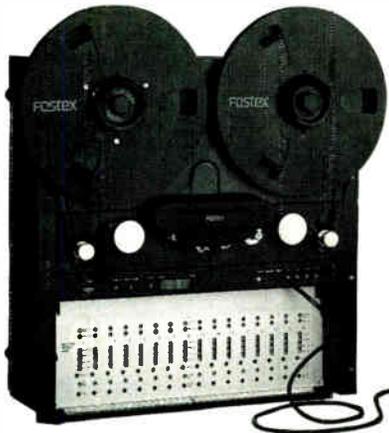
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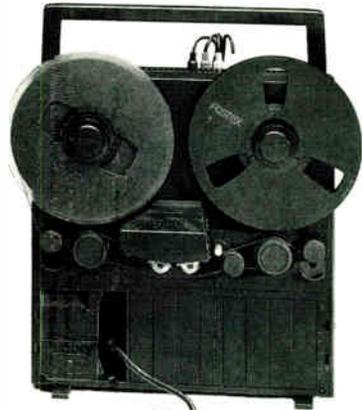


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\* The 280/MTC-1 interface does not offer all of the functions available with the open reel interface. • Atari and Macintosh are registered trademarks.

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The Macintosh software works with Performer and Master Tracks Pro. The Atari software works with Master Tracks Pro and Dr. T's KCS.

Steinberg's Cuebase sequencer has a device driver for the MTC-1 and 8330 built-in, so you don't need MidiRemote software with it.

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## AUDITIONS

connector on the back panel. It offers remote access to transport controls for any number of applications. Among the possibilities are: remote record start of multiple DA-30s in a real-time duplication chain, or external control from event relays, GPIs, fader starts and other custom installations.

The Tascam DA-30 would be a fine addition to any recording, broadcast or mastering facility, large or small. It's solid, priced right, loaded with useful features and sounds great. All characteristics that should appeal to the audio professional.

Tascam, 7733 Telegraph Road, Montebello, CA; (213) 726-0303.

### Lucasfilm Ltd. Sound Effects Library

In 1980, Canadian company Sound Ideas began producing sound effects collections and pioneered the use of the compact disc medium for SFX libraries with the Series 1000, a comprehensive 28-CD set that was nominated for a *MixTEC* award in 1986. Since that time, Sound Ideas has expanded its offerings to include the Series 2000 (22 digitally recorded SFX CDs), Series 3000 (12 CDs of long background ambiances), Series 4000 (a five-CD set

of "Hollywood," cartoon and motion picture effects), a production music library and a collection of sounds for samplers.

A recent co-production agreement between Sound Ideas and Lucasfilm—the good folks who have brought us a host of enormously successful adventure epics, including the *Star Wars* series and Indiana Jones films—has resulted in the release of a new six-CD sound effects library. Simply titled the *Lucasfilm Sound Effects Library*, this \$595 set consists of three CDs produced by Skywalker Sound (the elite post-production group at Lucasfilm) that feature animal sounds, industrial/mechanical noises and sounds of nature (water, weather, etc.). The other three CDs were recorded by Sound Ideas. They include U.S. aircraft carrier, helicopter and jet effects, and high-performance car and speedboat sounds.

The library is a diverse collection. "Animals" (disc 1) includes not only the usual dogs, cats, monkeys, insects, horses and farm animals, but also the exotic: badgers and fruit bats, camels and cougars, walrus and killer whales, marmosets and dwarf hamsters, to name a few. At the same time, "aviation" (disc 5) focuses only on the Bell 212 helicopter and the Cessna Cita-



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## AUDITIONS

tion. "Industrial" (disc 3) has a bit of everything, from power tools, light/heavy machinery, gears, clanks and motors (of the steam, gas, diesel and electric varieties) to factory ambiances. While "aircraft carrier" (disc 4) may seem to be a bit over-specialized, it actually contains a good selection of effects—alarms, hatch closures, aircraft and ambiances (machine room, mess hall, interior rumble, etc.)—that could be useful in many situations.

The audio quality of both the analog-recorded Lucasfilm sounds and the digital effects on the Sound Ideas discs is consistently high throughout. The stereo imaging on many of the selections is quite nice. For example, the "spooky night forest" (disk 1, cut 93) has a wonderfully mysterious feel to it, and the stereo really heightens the effect of this ambient track.

Many of the cuts in the library are fairly long—with most in the 20-to-50-second range—which simplifies looping, but also gives the user a broad range for selecting individual elements within. There is no scrimping on the length of cuts: the Corvette and Porsche

911 pass-bys on "high performance autos" (disc 6) are 50 seconds long, with plenty of time for the vehicle approach and exit.

Since none of the discs contains over 99 tracks, no subindexing is required for cueing tracks; just punch in the program number and go. The library's contents are printed on the last seven pages of the 130-page Sound Ideas Library catalog, which, albeit a thorough listing of all of the company's SFX offerings, is not as convenient to use as some sort of quick reference chart. The usefulness of such a chart is made more necessary because this information is not included on either the back flap on the jewel boxes or the discs themselves. After using this library for a few weeks, I eventually just photocopied the seven Lucasfilm pages and stored these sheets with the CD storage case included with the library.

With over 440 sound effects, *Lucasfilm Sound Effects Library* may be just the thing for spicing up an existing sound effects library. However, this is designed as an adjunct to—and not a replacement for—a more complete sound effects collection. But this first

offering from the Lucasfilm/Sound Ideas is a great beginning that leaves this listener clamoring for more.

Sound Ideas, 105 West Beaver Creek Road, Suite #4, Richmond Hill, Ontario, Canada L4B 1C6; (416) 886-5000, (800) 387-3030.

## Audix HR-2 Studio Monitors

Audix, the California-based company known primarily for its microphones, has introduced the HR series of studio monitors, designed for listening in the near-field. The speakers are made in the USA, and models include the HR-1 (6.5-inch bass/mid-driver and 1-inch tweeter), the HR-2 and the HR-3, which is similar to the HR-2 but uses a high-performance HF driver. The HR-3 will be unveiled at this month's AES show in Los Angeles.

Priced at \$649/pair, the HR-2 features dual 6.5-inch cast frame bass/mid-drivers with a 1-inch polyamide dome tweeter. The latter is incorporated into a recessed structure giving it the characteristics of a wide flare, conical horn. The crossover is a steep 24dB/octave type at 3kHz. Other specs include a nominal impedance of 4 ohms (not surprising for a dual LF

# Maxell has the classics.



monitor), a sensitivity of 94 dB (1W/1M), and a rated frequency response of 47 to 18k Hz ( $\pm 2$  dB).

One interesting aspect about the HR series is that the monitors include a thick neoprene slab that covers the front surface to eliminate unwanted reflections and diffraction effects. Another standard feature is removable grilles; these can be removed and stored in a back room once the speakers are unpacked.

The HR-2s are designed to be used either horizontally or vertically, although most users would find a horizontal placement to be more convenient. At 29 pounds each, some caution should be used before you slam these atop your meter bridge.

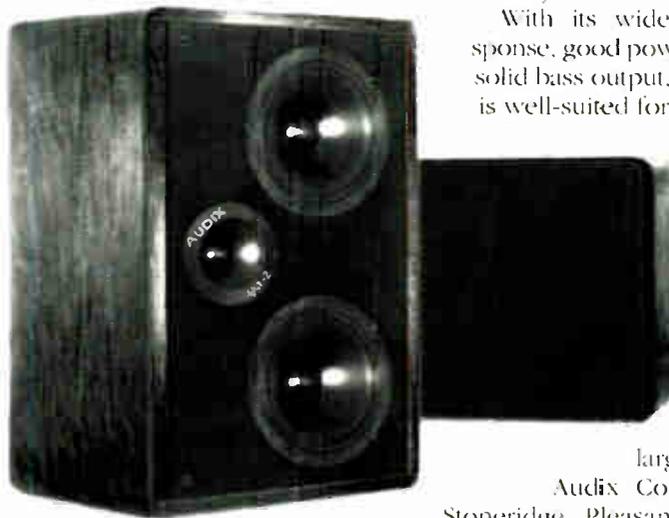
I used the HR-2s in tracking, overdubbing and mixing on a variety of projects over several weeks. I became accustomed to their sound rather quickly, although some caveats are in order. Due to the horn-like design of the tweeter element, the HR-2s have a definite sweet spot, and high-frequency performance begins to taper off significantly if you are listening more than 35° to 40° off-axis. Therefore, in a typical near-field listening

environment, the speakers should be arranged so they are angled slightly inward toward the listener, with the tweeters as close as possible to ear

wave from the Prosonus Studio Reference Disc CD, although certainly at a reduced level. Midrange performance was right on the money, and mixes made to the HR-2s translated well to other systems.

With its wide frequency response, good power handling and solid bass output, the Audix HR-2 is well-suited for studio listening applications, either as a primary system for project or electronic music studios, or as a reference monitor for independent engineers or larger facilities.

Audix Corporation, 5643 Stoneridge, Pleasanton, CA 94588; (415) 463-1112. ■



level.

The most impressive aspect of the HR-2 is the low-frequency response, which is relatively flat to about 50 Hz. The speakers even did a respectable job of reproducing the 31.05Hz sine

*When not writing for Mix, George Petersen composes music, produces records and dreams of someday discovering that warm sound of a tube digital workstation.*

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MAGI II External System

a very complicated mix to be quickly constructed, edited, and refined in real time or off-line with absolute accuracy. In addition, these mixes can be saved to disk for future use.

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Other manufacturers would like you to believe that an automation system must have a high price tag to be on the cutting edge. The MAGI II dispels that myth. The MAGI system with its wealth of professional features starts at just \$5,000.00, and it works! That's the bottom line.

MAGI is being used in a number of applications from

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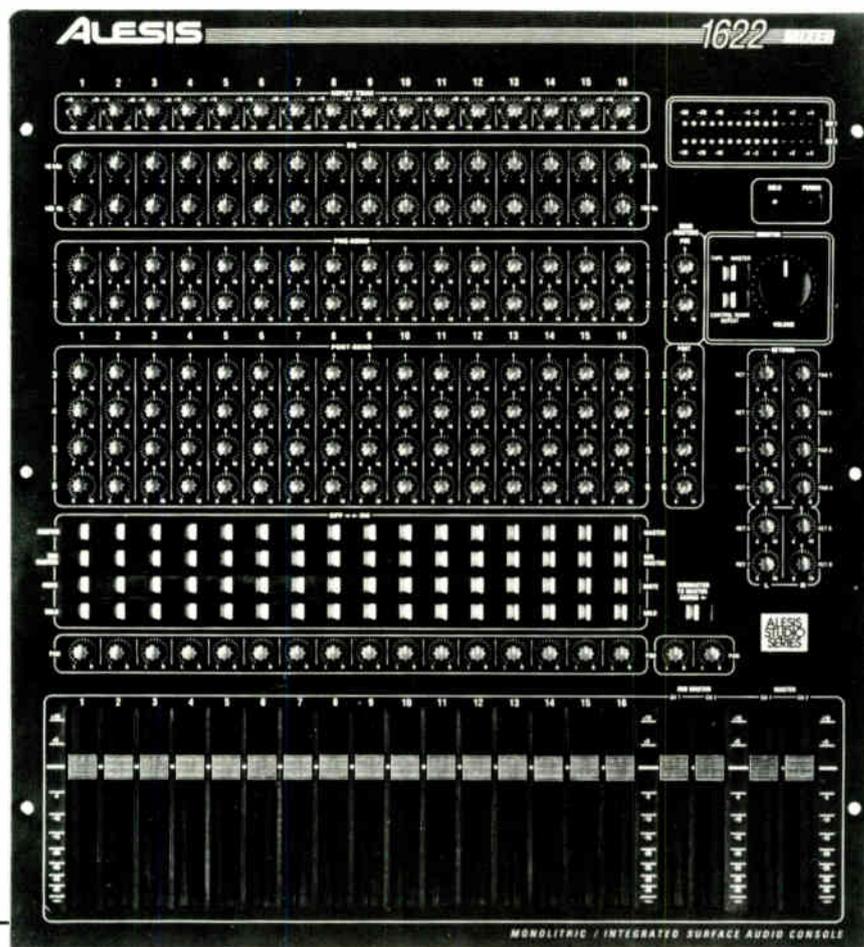
by Larry Oppenheimer

# ALESIS 1622 MIXER

**A**lthough mixing consoles have improved with time and technology, the dramatic advances in mixing technology have not proliferated as widely into the mainstream as have advances in signal processing or recording technology. The Alesis 1622 represents perhaps the first major technology-driven innovations in price/performance ratio to reach the broader section of the market. The 1622 uses a new and inexpensive manufacturing technique in which the conductive elements of all the switches and pots are integrated into the surface of a multi-layer printed circuit board. The wipers and knobs are mounted on the front panel, which, when mated in

a "sandwich" configuration with the motherboard, completes the switch or pot. The result is that the Alesis lists the 1622 at a \$899 retail price, which makes this mixer a potent contender in its intended markets: home studios and small-scale sound reinforcement.

The model number refers to the product's 16x2x2 configuration: 16 input channels, two submasters and two master outputs. But this is just the beginning of the story. Each of the 16 channels has a 1/4-inch phone line input, 1/4-inch TRS insert jack,  $\pm 12$ dB shelving EQ controls for treble (10 kHz) and bass (100 Hz), six aux sends (two prefader, four postfader), switches for assigning the channel to



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### FIELD TEST

the submasters and/or master output buses, mute and solo switches, pan pot, and a 100mm fader. The first eight channels have balanced XLR microphone inputs (all other inputs and outputs are unbalanced) and 1/4-inch phone direct outputs.

The master section has two submaster faders, each with a pan pot, and a switch that assigns the submasters to feed the master outputs. Next to these are the master faders. In line with each row of channel aux send pots is the master for that send. There are eight aux returns, each with its own level pot. Four of the returns have pan pots, while the other four are in hard-wired stereo pairs (5/6 and 7/8). Because the 1622 is intended for use in small studios, separate facilities for control room or headphone monitoring are provided, specifically: a monitor level pot (this feeds a pair of monitor out jacks on the rear panel), a tape/master monitor select switch (which switches between the master outs and a pair of tape in jacks on the rear panel), and a control room monitor defeat switch, which disconnects the monitor out jacks while still feeding the monitor signal to the headphone jack. Status indicators include power and solo LEDs and a pair of 15-segment LED ladders for level metering.

The rear panel has jacks for channel line inputs, mic and direct outs for channels 1 through 8, channel insert, submaster inserts and outputs, master inserts and output, aux sends 1-6 and returns 1-8, monitor outs, tape ins, headphones out, and the DC power connector that mates with the external transformer. Finally, there is the power switch and a +4/-10 switch for selecting master output levels.

I used the 1622 both for live sound reinforcement and in my home MIDI studio. Of the two, the live environment was by far the most challenging, as the inputs to the mixer consisted of vocals, two electric violins, mandola (which is to a mandolin as a viola is to a violin) and bodhran (an Irish side drum)—all rather difficult sources. Before discussing my impressions, remember that this mixer is very inexpensive for the features it offers. However, you don't get something for nothing, and the 1622 does have some shortcomings and corners cut. You could certainly do better in quality in some areas, but not anywhere near this

price. Thus, it is worth overlooking some things in view of the price. In short: what do ya want for \$900?

Anyway, the review. First, the sound: It was clean, it was quiet. Alesis has done an excellent job with the audio fidelity of this unit. In terms of features and performance the unit had its moments to shine and its moments of shame. Prior to working with the Alesis, my hand was using a console that did not have insert jacks, which made it difficult to eliminate the boominess that the bodhran can have, the boxiness that the mandola pickup has, or the unevenness of the lead vocal. I was delighted to be able to patch in my outboard processing to deal with these problems.

Unfortunately, there is no standard among manufacturers regarding the wiring of TRS insert jacks. The system Alesis has chosen (with the tip as the send and the ring as the return) makes less sense to me than the other way around. In a pinch, a signal can be injected into the channel using a standard 1/4-inch guitar cable, if the tip is wired as a return. When using outboard gear with 1/4-inch jacks, this isn't much of a problem, just reverse the plugs at the outboard gear end. Since most of my outboard processing has XLR in and out, I had to custom-build insert cables for use with the 1622.

Soloing on the 1622 is non-destructive, that is, it does not interrupt the master outputs, ideal for live work where an engineer needs to check individual sounds mid-song. In fact, it is necessary in this case, since the 1622 has no metering for individual channels (even a clip LED would be sufficient), forcing one to solo a channel in order to check its level. Set your levels carefully before starting and leave yourself a little headroom in order to avoid inadvertent clipping.

The onboard 2-band EQ sounds good as far as it goes, which is not very far. If you're using synths where you can get the sound you want from the instrument, this is not a problem, otherwise you may need to use those insert jacks with some outboard EQ. Fortunately, there are inexpensive half-rack parametric EQs available (from Alesis and Symetrix, for example) that would do this job nicely. As frustrating as it is to have such minimal EQ facilities, better EQ would raise the price significantly.

The unit is extremely light (about 14 lbs.), which is truly wonderful. The

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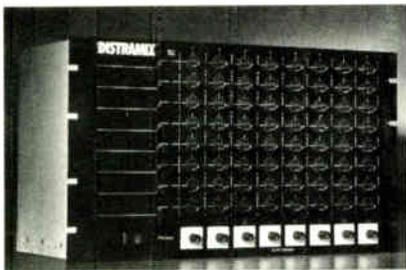
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rack you mount it in will probably weigh twice what the mixer itself weighs. Speaking of rack-mounting, I don't really like a power switch mounted on the rear of a rack-mountable piece of gear; it can be rather a pain to reach it.

Neither the XLR mic connectors nor the DC power connector lock. I did not find this a problem with the mic connectors: They didn't fall out or get pulled out too easily. The power connector, on the other hand, was a major pain. It falls out easily and that's not good in a live situation. Not only did we have the sound die entirely in the middle of a song, but a loud pop was clearly audible when it was plugged back in. Furthermore, the connector is labeled "up" with an arrow to ensure proper orientation when plugging into the mixer's power input; unfortunately, the review unit had this marking on the bottom of the plug.

I like Alesis' "lump in the line" approach to external transformers, where an in-line transformer is used (with a cable on either side of the lump), rather than having an unwieldy transformer right at the wall receptacle. On the other hand, it uses a two-wire AC plug, which is not the best for a mixing console (the connection center and often the main grounding point for an audio system). Neither is there any grounding post anywhere on the plastic case.

The Alesis manual offers some suggestions about grounding, but not all ones that I endorse. Although it is commonplace in the real world for people to lift third-pin grounds to eliminate ground hums, it is neither a safe solution nor the only one, and I disapprove of a manufacturer lending legitimacy to an unsafe technique by recommending it in an owner's manual. There are other statements in the manual with which I disagree, but overall it contains a lot of useful information written in an accessible style.

In my home studio, which is a more controlled environment than live use, the 1622's limitations were less of a problem. The product sounded excellent with synthesizers, as long as the channels were set with adequate headroom. The large number of inputs and returns nicely accommodated the multitude of sources (instruments, outboard gear and tape returns) found in even the smallest MIDI studios. The

full 100mm faders were useful for mix moves (fades, ducking, etc.) and are an appreciated touch.

There are a couple of questions that I was unable to answer in the course of this review. First and foremost is: How sturdy is this construction? Although the pots and switches function fine now, they don't have a good feel, and I wonder if they are more susceptible to smoke and liquids because they are not encased. Alesis, I am told, has made a demonstration video to address this question, wherein the board is abused but it keeps on ticking. The reviewers

---

**Remember**  
*that this mixer is  
very inexpensive  
for the features  
it offers.*

---

at *Electronic Musician* (Mix's sister publication) apparently attempted to replicate this with their own "Pepsi Challenge." My feeling is that time and only time will tell how long the 1622 will stand up to the rigors of daily use. Once again, it is important to keep in mind the \$899 list price: At that price, how long does it have to last to be worth it?

The Alesis 1622 is an interesting new entry in the mixer market and a gauntlet thrown down for other manufacturers. It offers a superb set of features for the price, although corners have been cut. The cut corners are generally livable, but there are some minor design quirks. The sound of the unit is acceptable for professional work, but it is not clear how long the unit will stand up to constant wear and tear. The 1622's strong points, such as the number of inputs and outputs, are important ones in the arena at which the 1622 is aimed. If the 1622's few shortcomings are not in areas that are critical to you, I definitely recommend it. ■

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*Larry "The O" Oppenheimer is a musician, audio engineer and consultant based in San Francisco. He performs with the Celtic fusion band Phoenix and is currently producing their first album.*

---

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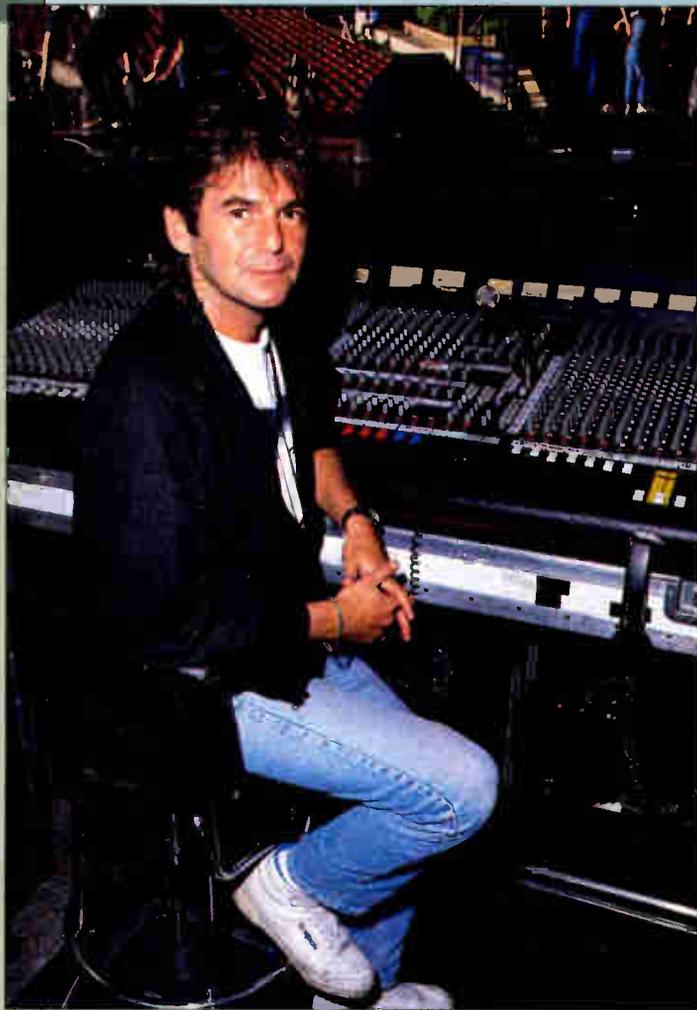
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World Radio History

by Mark Herman

# SOUND REINFORCEMENT NEWS



**Seth Goldman, monitor mixer for David Bowie's recent American tour, is shown at a Ramsa WR-S840 40 x 18 monitor console during the band's California swing.**

Speeda's main system is based on 72 EAW KF550 cabinets with accompanying subs. The boxes are packaged three high on a dolly and loaded into a truck trailer three wide for quick truck packing and show setup. Other equipment includes EAW 253 full-range near-field boxes and several smaller speaker systems. Speeda uses AB 900 and AB 1100 amplifiers and recently bought several of the new fully modular AB 1200Cs for subwoofers. King says, "The new AB 1200C amp is a real monster. It does at least 2000 watts per channel at 2 ohms and sounds tremendous. We own nearly 200 AB amplifiers and have been using them for 12 years. They sound good and are always reliable." The recent equipment purchases of Yamaha PM3000 and Ramsa WR-S840 mixing consoles add to the inventory of various Wheatstone/Audioarts and Yamaha consoles.

King states, "We work throughout California and some of the surrounding states. By choice, we are not involved with extensive concert touring. Too many consecutive days spent on the road is bad for one's personal attitude and family relationships. We promote the idea that family and reasonable work patterns are important. Many of the people working for me have been here for quite a long time. I am geared toward taking care of the employees who want to enjoy the work and be involved. We even have a pension profit-sharing program going for our company; this helps ensure that my employees will have something years from now."

**Electrotec Productions** (Canaoga Park, Calif.) was busy keep-

**Mike King**, president of **Speeda Sound Inc.** (Fresno, Calif.), is undisputedly the sound reinforcement king of California's vast Central Valley. Speeda provides concert sound production for the majority of the region's audio events and stays busy doing national one-offs, regional tours and county fairs. King states, "We probably do close to 30 fairs a year. And when we

work a fair we provide everything from paging, Motorola radios, complete backline gear to concert audio production." Part of Speeda's market is with the expanding Hispanic music scene. Recent acts include **Los Bukis** and **Chayanne**. King recently purchased a 9,000-square-foot facility in Fresno to house Speeda's growing business that also includes installations and equipment sales.

ing six systems working through the summer. Hardworking **Pierre D'Astugues** updates Electrotec's tour schedule: **Rush** continued their extravagant production with **Robert Scoville** mixing house and **Bill Chrysler** on monitors... **Cher**'s tour is one of this year's top grossing acts. **Dave Zammit** is mixing house with a full 72-box arena system along with **George Barnes** onstage... **Barry Manilow** finished touring late June after two years on the road... **Randy Travis** continued his world tour... **Tesla**, opening for Motley Crue, carried monitor and house electronics... Electrotec was subcontracted by **Showco** to provide a system for one leg of the **Milli Vanilli** tour... **Lenny Kravitz** finished touring Europe; the system was then used for **Alice Cooper**'s

European tour that began in July... **Billy Idol**'s rehearsals and large arena tour began in early August. Idol will do about three months in North America before heading to Europe for the winter... Electrotec was there for **Alabama**'s annual "June Jam" charity event that raises money for the local community in the band's home town of Fort Payne, Ala. A large system with four delay towers provided sound for many national acts that donated their performances.

Canadian speaker manufacturer Adamson Acoustic Design Corp. (Pickering, Ontario) reports steady sales of its innovative main loudspeaker system that features a midrange compression driver mounted on an acoustic waveguide. Without exception, all the sound companies I have spoken to that use the Adamson cabinets continually rave about the clarity, re-

sponse, ease of handling and precise coverage of the two-box system. Cabinets have been recently sold to **Great Lakes Sound**, **Gould Vibrations**, **Masterplan Productions**, **Showtec Productions**, **Eastern Audio**, **Max Technique**, **GSD Productions**, **Audio Arts** and **Wall Sound**. Adamson also made its first European sales to Sweden's **SPL Produktion AB** and Spain's **Jolper Musica**. Sound systems were installed in Toronto hotspots El Macambo and The Diamond Club. A 40-box main house system and several delay stacks are now being installed in the large, new **Westside Amphitheatre** in Phoenix. The MH225 and B218 loudspeaker cabinets were specified by audio consultants **Jaffe Acoustics**... Due to increased production demands, Adamson has

# ON THE ROAD

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

Artist Sound Company Tour Dates Region	House Console #1 House Console #2 Monitor Console #1 Monitor Console #2 House Crossover	Main Speakers Main Speakers Subwoofers Monitor Speakers Monitor Speakers	Main Amplifiers Main Amplifiers Sub Amplifiers Monitor Amplifiers Monitor Amplifiers	Engineers: (B) = band (H) = house (M) = monitor (T) = tech (a) = assistant (C) = crew chief
Harry Belafonte Audlowest July-September North America	Yamaha PM3000 40x8x2 — Ramsa WR-S840 40x18 — EAW MX 800-8T	(8) EAW KF850 (8) EAW SB850 — Audlowest Custom	Crest 4001, 8001 Crest 4001, 8001 — Crest 4001	Craig Roush (B, H) Glenn Hatch (M) John Fassett (T) Malcolm Weldon
Jackson Browne Sound Image June-August U.S.	Soundcraft Series 4 40x16x2 — Ramsa WR-S840 40x18 — BSS FDS360	(10) Phase-Loc Series V (6) Phase-Loc Series V Lo — Phase-Loc 2x12	QSC 3350, 3800 QSC 3800 — QSC 3350, MX2000	Mike Adams (H) Bill Szocska (M)
L.A. Guns Naked Zoo June-July U.S.	Yamaha PM3000 40x8x2 Yamaha PM2000 32x4x4 Ramsa WR-S840 40x18 — BSS FDS360	(8) NZ 4W (8) NZ 2W (8) NZ Low NZ LoPro NZ 2W, Low	Carver 1.5 Carver 1.5 Carver 1.5 Carver 1.5 Carver 1.5	Gary Whitelock (B, H) Mike Gonzales (B, M) Jim Quiggle (aH) Paul Tillman (aM)
Richard Marx Audio Analysts June-August North America	Soundcraft Series 4 40x16x2 Soundcraft 500 40x8x2 Soundcraft Series 4 40x16 — BSS FDS360	(36) AA HDS-4 — — AA 2x15	Crown MA2400 Crown MA1200 — Crown custom MA2400/600	Bill Philput (B, H) Michael Mulé (M) Matthew Tonges Dave Goodrich
Steve Miller Clair Bros. June-September North America	ATI Paragon 40x16x12 Yamaha PM3000 40x8x2 Ramsa WR-S840 40x18 Ramsa WR-S840 40x18 Clair Custom	(30) Clair C-4 — — custom wireless	Carver/Clair 2.0 — — custom wireless	Steve Wiese (B, H) Blake Sulb (M) Jim "Boom" Bang (aH) Corey Stone

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recently moved into a larger facility and acquired three state-of-the-art computer-controlled production machines.

Most people do not know that Adamson is also active in digital technology research. For several years the company has worked closely with the University of Toronto's internationally acclaimed Electrical Engineering Department. Adamson has also reached a significant research funding agreement with a major international mining and resource company. Adamson sales manager Jerry Placken says, "The Kidd Creek Division of Falconbridge Limited is now involved with us, to the tune of more than a million dollars spread over three years, to do research in the digital signal processing domain. We're working on certain hardware and software technology for specific industrial applications."

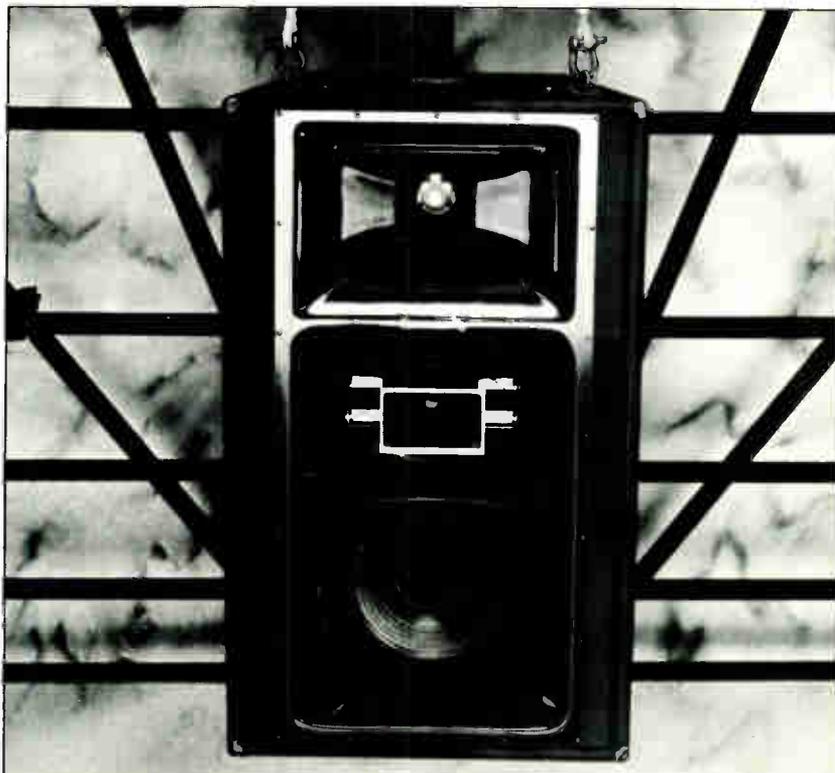
**Delicate Productions** (Camarillo, Calif.) fielded three impressive Martin F2 systems this summer, and 12 new Martin F2 main cabinets highlighted recent equipment purchases. Concert systems were out with **Basia's** first tour leg (late June until late August, with Yamaha PM3000 in the house and Soundcraft Series 4 40x16 onstage)... **Peter Murphy** started late June and finished in mid-August (32 F2 boxes and eight Delicate 218 subs, Yamaha PM3000 in the house and TAC Scorpion 40x12 onstage)... **The Church** went out in May and finished mid-July (24 F2 boxes, Yamaha PM3000 in the house and Soundcraft Series 4 40x16 onstage)... The **Gipsy Kings** carried 42 F2s for their June and July West Coast dates.

When asked about Delicate's corporate business, **Smoother Smythe** replies, "Excellent. We did a big thing down at the Bren Event Center, in Irvine on June 8-11, for Robbins Research with one of our Apogee A-5 systems. We're also now permanently keeping a corporate system in Hawaii in conjunction with **Showtech**. We also provided sound and lights for a large movie premiere party for *Back to the Future III* at Universal Studios' western lot."

This year **Sound Chek** (Metairie, La.) played a prominent part in the prestigious New Orleans Jazz and Heritage festival. They handled the Jazz Tent stage and over the course of the festival worked with a wide selection of mainstream, national jazz artists. Co-owner **Chris Brown** says that this summer Sound Chek provided sound for the Latin American Mensaje festival for nearly 100,000 people, the Carnival Inter-Americano on the New Orleans' Riverfront and a variety of local work. Sound Chek also has been active in Honduras installing

complete sound systems for five churches in this audio-starved country. Co-owner **Michael Paz** is now designing a sound system installation for a World Exposition exhibit in San Pedro, Honduras, and in his spare time he produces a well-received jazz radio show.

**Naked Zoo** (Minneapolis, Minn.) is a full production company with sound, lights, trucks and 18 years of experience. Technical director **Greg Longtin** says the company handles a wide range of production events across the United States.



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such as figure skating shows and international ski events, occasional national and regional concert tours, many fairs and festivals, industrials and sporadic national one-offs. Recent tour clients include **L.A. Guns** (see "On the Road") and **Roger Whittaker**.

Naked Zoo can put out three complete systems and boasts over 175 Carver 1.5 amplifiers to power all main and monitor cabinets. The main P.A. systems have either a four-way, full-range cabinet similar

to an Clair S-4 in appearance, or a two-box setup with a two-way, front-loaded trapezoid high box loaded with JBL 10-inchers and the 2-inch 2450. A separate low box has two JBL 18-inch woofers crossed over at 160 Hz. The monitors consist of various proprietary enclosure designs. Mixing consoles included three Yamaha PM-3000s, a PM2000, two Ramsa WR-S840s and a TAC Scorpion 30x12.

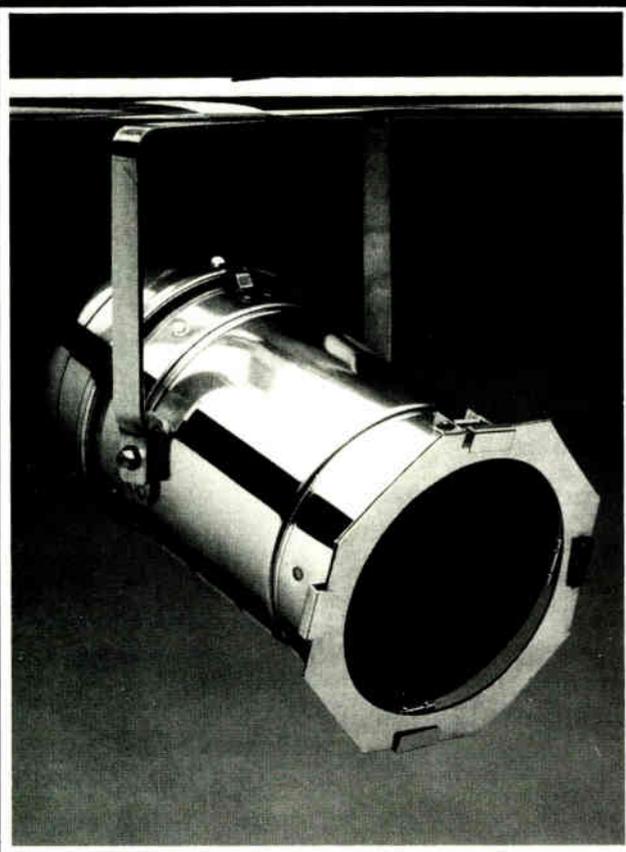
**Crystal Taylor Systems** is a large regional production company with audio, lights, staging and backline gear. Located just north of Philadel-

phia in Bensalem, PA, owners **Marty Garcia** and **Carl Taylor** have quickly developed this 5-year-old company into a respected business serving the concert, corporate and industrial markets. As far as concert sound goes they work a large number of national one-offs and occasional regional and national tours. Regular clients include **Grover Washington** (during August), **Joan Jett** and **Miles Davis**. Recent work included a small national tour with the **Alvin Ailey** dance company, **John Denver's** Northeastern dates in July, and a national spring tour with **Najee**.

Crystal Taylor has three large main systems as well as several smaller 16- and 24-channel systems. The larger systems are based around 60 Turbosound TMS-3 mains and TMS-4 subs. Also in stock are many of the small trapezoidal MacPherson M2 enclosures for various situations. Carl Taylor states, "The M2s have worked out excellently. They're very versatile, cost-effective and really put out a lot." Monitor cabinets are Turbosound TMW-215s and TFM-2s, as well as additional proprietary, two-way, JBL-loaded enclosures. Power amplifiers are QSC 3800s for the house and MX1500 and 3800s onstage. "We've had virtually no failures with the QSC amps; they have been very reliable. We are now also interested in the new QSC MX4000 high-output amplifier," Taylor adds. House consoles are two Yamaha PM3000 40Cs and a 32-channel PM3000; monitor consoles are a TAC Scorpion 40x12 and a Soundcraft 800B 32x10. Signal processing is composed of Drawmer gates and dbx compressors, Klark-Teknik DN360 EQs and BSS FDS 360 crossovers.

(Note: Some of the data in this column and in "On the Road" is based on information provided by the companies. Address all correspondence and photos to Mix Publications, Sound Reinforcement Editor, 6400 Hollis Street, Suite 12, Emeryville, CA 94608.) ■

*Mix sound reinforcement editor Mark Herman operates a company specializing in console rentals for live sound and touring applications.*



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REV: DIAPHR = 100%
- URBAN FLANGE  
7 - CHORUS = 150%
- NIGHT DEMON GTR  
7 - BASS = 150%
- TRICKLE = 176 CHOR  
MODWHEEL = 001: 050

A short time ago, A.R.T. stunned the recording world with the release of the SGE Mach II. Offering 12 simultaneous effects and a 400% more powerful processing section, the Mach II offered spatial realism that defied description. The all new DRX uses that same processor and is expressly designed for studios and live sound applications. The DRX will do 10 simultaneous audio functions and features an exciter, compressor, limiter, noise gate, expander, envelope filter, 24 different reverb algorithms, 21 different delays, sampling pitch transposing, panning, equalization, leslies, stereo flange and chorus and more—over 60 effects to choose from with bandwidth to 20 KHz! The creative power is astonishing. The noise gate can gate off microphones so the wash from live drums doesn't trigger your effects buss. The compressor can smooth out wild dynamic swings on vocals. The exciter will increase the edge and clarity of any type of material. The noise gate can "turn-off" noisy guitar amps in between songs or allow you to run higher gain levels without feedback on vocal and drum mics. The limiter can hard limit any source so that clipping can be totally prevented. And you can pick and choose effects and mix and match at random into 200 memories!



- SHIMMERING VOICE  
7 - BASS = 150%
- BRITISH THUNDER  
PTR: PITCH = -12
- PITCHBEND = 224 CHOR  
LSB = 126 MSB = 127

The all new Multiverb III uses the same revolutionary processor as the DRX and offers more than 50 effects to choose from! The Multiverb III features everything the DRX does except the dynamic effects section (comp/limit/gate). It will do four simultaneous effects and unlike other units allows you to pick and choose effects at will and change their locations—you're not limited to confusing configurations. Like the DRX, it features a Midi Data Monitor that allows you to see the digital midi data stream—simply connect a keyboard, foot controller or any other midi device and the LCD will give you a real time readout of channel pressure, patch change or any other midi info! And the sound and spatial realism of the Multiverb III is absolutely stunning.



The Multiverb LT offers the power of the Multiverb III in an ultra simple format. It will do 3 simultaneous effects and contains 192 of the finest studio effects combinations ever created. Lush reverbs, delays, flange, chorus, and special effects combinations are available at the touch of a button! The sound for the price is unbelievable—and midi addressable. The NEW X-11 Midi Foot Controller works with all midi effects units—at a great low price.

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## SOUND REINFORCEMENT NEW PRODUCTS

**KLIPSCH SUBWOOFER**

Klipsch & Associates (Hope, Ark.) has unveiled the KP-115-SW, a single-15 subwoofer in a vented enclosure. The unit has a frequency response of 40 to 2,000 Hz ( $\pm 4$  dB), with a maximum power output of 125 dB from a 300W input. The 3/4-inch ply cabinet has a furniture-grade birch veneer and is available with or without textured black paint. Its 24.5-inch width allows stacking with most popular two-way cabinets, and the box is pre-drilled for Omnimount brackets to facilitate cluster installations. Options include a metal grille, handles and a top socket that accommodates mounting an upper main system without a tripod.

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**CORRECTION**

The June *Mix* product announcement for Shure's line of new L Series VHF wireless microphones included a price range of \$532 to \$748. These prices are for *complete* wireless systems (transmitter and receiver), not just the L2 transmitters, as implied.

**JBL SR4700 SERIES**

Offering new technology in a high-powered, lighter-weight design is the SR4700 Series from JBL Professional (Northridge, Calif.). Replacing the Cabaret Series, the new line incorporates advancements such as titanium-diaphragm compression drivers, Bi-Radial™ horns and Vented Gap Cooling™ transducers for high reliability, low distortion and reduced power compression. The six models in the series (ranging from 12-inch/two-way to 18-inch/three-way and an 18-inch sub-cabinet) feature passive crossovers—switchable for multi-amp powering and a trapezoidal design for grouping in arc arrays.

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**TASCAM M-1016/M-1024**

Designed specifically for sound reinforcement are the M-1016 and M-1024 from Tascam (Montebello, Calif.). The M-1024 (\$1,899) has 16 mono (with XLR mic inputs) and four stereo input channels; the M-1016 (\$1,299) has eight mono and four stereo input channels. Other features include six aux sends (four post-fader and two pre/post-switchable), six aux returns and switchable phantom power on the mic inputs.

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**PEAVEY PC4-X DIGITAL CROSSOVER**

New from Peavey (Meridian, Miss.) is the PC4-X™, a totally programmable, digital crossover that can be configured as two-way, three-way, four-way, two-way stereo, or three-way with an additional low-, mid-, high- or full-range output. Up to 650ms of delay can be applied to the balanced inputs, with up to 10ms of driver alignment delay—adjustable in 20.8 $\mu$ s (1/4-inch) steps at each of the four outputs. Filter selections are 4th- or 8th-order Linkwitz-Riley or linear phase. In addition to its crossover functions, the unit also operates as a multitap delay with high and low filters. Features include 24-bit internal processing, 64-times oversampled A/D, 48kHz sampling rate, memory for 99 setups, LCD status display, access code security lock and remote operation via MIDI. A similar unit, the CEX-4, is offered by Peavey's Architectural Acoustics Division.

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**SOUND SYSTEMS FOR WORSHIP**

The *Yamaha Guide to Sound Systems for Worship* is a "how-to" guide for churches, synagogues, temples and other places of worship. Presented generically, and written for ministers and other church personnel, the 200-page book covers speech, vocal and instrumental music reinforcement and troubleshooting. Also included are sections on the recording and broadcasting of worship services. Published by Hal Leonard Publishing, the \$24.95 text is available through Yamaha Pro Audio dealers, religious bookstores and Mix Bookshelf.

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# IQ System 2000

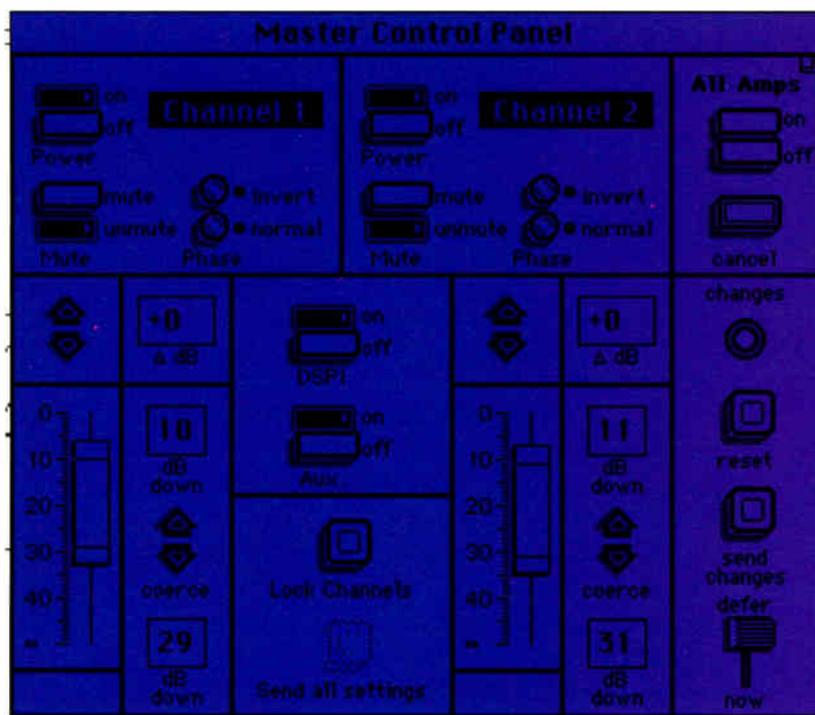
**J**ethro Tull, most widely known by thirty-suffering-types for chart-busting hits such as "Aqualung," "Thick as a Brick" and "Locomotive Breath," went on tour following their *Rock Island* release and covered 60 cities across Europe and North America. Sound reinforcement for the North American leg was provided by Cleveland-based Eighth Day Sound, which made this one of the first major tours to use computerized amplifier control and monitoring.

"Despite the popularity of their new music, you can't come to see a Tull show without hearing some of the old classics," says Rod Price, the tour's chief audio engineer. "As for the sound system, I'll gladly pass on the 'classic' way of doing things and admit I couldn't see doing another show without computer automation."

The amplifier control and monitoring technology that has cast its spell upon Price is the IQ System 2000, which was supplied by Elkhart, Indiana-based Crown International. Up to eight different serial loops can be con-

**Hits  
the  
Road  
with  
Jethro  
Tull**

**by Greg DeTogne**



*A view of the master control panel in the IQ 2000 System is pictured at left. Below are some of the core elements of the system: the Crown system interface, the 2-channel input board and the system application.*



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World Radio History  
Circle #170 on Reader Service Card

nected to 250 amplifiers, providing control of 2,000 amplifiers in any one given system, hence the name. Three main components lie at the heart of IQ 2000—a host computer, an IQ-P.I.P. Card and a system interface—and the system is powered by custom software that enables remote monitoring and control.

Ten major monitoring functions are inherent in the IQ System, along with six control features. Included among the monitoring functions are the ability to review the on/off status of each amplifier channel, input and output, and Crown's IOC (input/output comparator) and ODEP (output device emulator protection) signals. With the control functions you can turn any channel's high-voltage supplies on or off, decrease or increase the input-level attenuation in increments of 1 dB, and turn on or off any device connected to the auxiliary control line.

As used by Jethro Tull, the IQ System 2000 was interfaced with the overall sound system set up by Price and fellow Eighth Day Sound engineer Mark Brnich. Loudspeaker power for the tour was supplied by six subwoofers and 24 full-range cabinets per side, based around Turbosound's TMS-

3 enclosures. In most venues, 20 of the full-range cabinets were flown, while the ground stack held six subwoofers with four of the TMS-3s resting on top. Featuring a power rating of 68,000 watts, the system's 42 Crown Macro-Tech 2400 and two Macro-Tech 1200 amplifiers were housed in three standard-size house racks and a smaller subwoofer rack. During system operation, a host computer located at the house mixing console controlled and monitored each amp.

Price says the IQ System has saved him hours of labor and provided a dimension of control and monitoring capability that truly amazed him. It allows him to perform troubleshooting functions almost instantly and has also dramatically decreased setup and load-out times.

"In a touring situation the IQ System 2000 will pay for itself in setup time alone," he says. "Now, when we balance the system before a show, I simply walk around the room and make notations on the various hot spots and so forth. Then I walk back to the computer and adjust each amp accordingly, right from the computer screen. Before, it was like a continual 400-yard dash, running back and forth between

the amp racks and the house floor. What used to sometimes be a two-hour job can now be accomplished in two or three minutes."

Price has also used the IQ System's control features to create special audio effects quickly by changing the polarity of different combinations of loudspeakers; he enjoys being able to turn all 42 amps in the system on or off with one simple command.

To eliminate the chance of the racks overheating, fans were attached to the lead amplifier on each rack and operated from the auxiliary control feature. "Once the fans were added, I was able to control them from the console-mounted host computer," Price recalls. "I checked for overheating conditions by monitoring the ODEP level. If I saw that it was running above 50 percent, I knew instantly that the rack was heating up, so I'd turn on the fans. Once they were operating, I could watch on the screen as the ODEP level dropped below 10 percent. At that level, I could see that everything was safe, and I monitored the whole process without ever leaving the house mix position."

Troubleshooting on the Tull tour was about as simple as tying your shoe.

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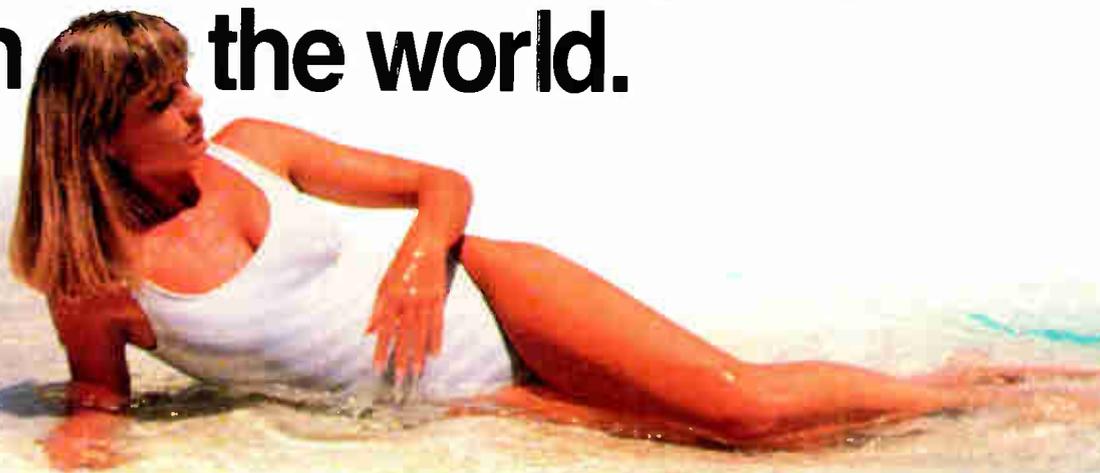
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*Digital recording technology, advanced noise reduction techniques and the extensive use of Dynamics processing has done much to eliminate unwanted and residual signals.*

*Much less thought has gone into creating devices which can be used to enhance the inherent quality of signals, particularly through the medium of analogue processing which is still unsurpassed in the finesse and subtlety of its capabilities and probably will remain so into the next century.*

*Throughout my career I have been dedicated to obtaining what I regard to be the ultimate in equalization. The circuitry required to reach such a result cannot be separated from the highest standards in noise and distortion performance.*



MR RUPERT NEVE

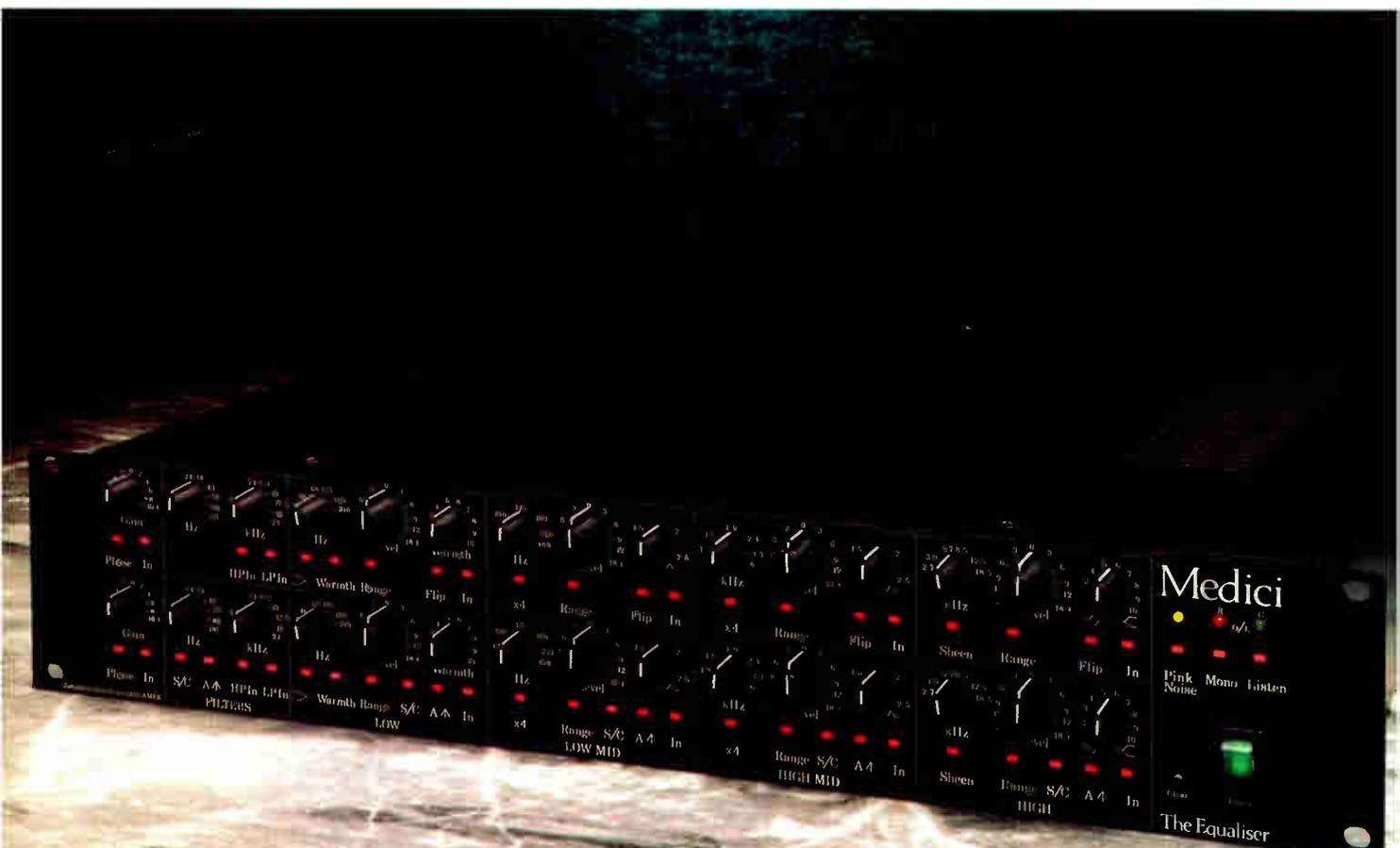
*The Medici Equalizer is my newest creation. The curve shapes, slopes and turnover frequencies have been chosen most carefully, the result of many years experience, of listening to and serving the needs of top producers and engineers in the professional recording and music industry. My new Warmth control, as the name suggests, adds that elusive quality of fullness and presence without colouration.*

*On top of this accumulated knowledge, a years' further research and design work has gone into the development of this product. However the enthusiastic backing and resources of the AMEK team, who developed the digital control elements, was indispensable in bringing this product into being.*

*As a result, we believe the Medici Equalizer provides the most powerful yet subtle and musical sounding creative tool yet available".*

The Medici Equalizer is manufactured in the UK by AMEK

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# Medici

World Radio History

# AMEK

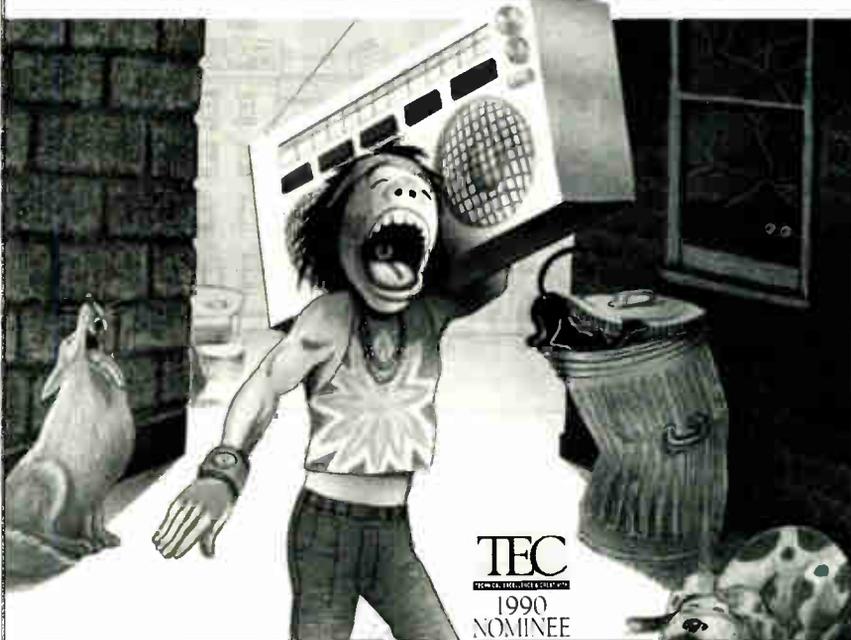
In one situation, a dead short developed in one of the loudspeakers and caused an amplifier to malfunction. Seated at the house console next to the host computer, Price noticed it immediately. "During any show, I use the IQ System's scan feature to check on the amps from time to time. In this instance, as I was watching the monitor, the display for the amp at fault began to flash, which immediately let me know something was wrong. In the past I probably never would have known about the offending amp until the next day's soundcheck. Then it would have taken another 30 minutes to two hours to find it and remedy the situation. With the IQ System, each amp has its own address and can be identified instantly."

The most unique effect Price ever designed with the IQ System came about virtually by accident. As he remembers, "We were looking for a sweeter sound than what the Turbo-sound cabinets start out with. I especially wanted to tone down the harsh, nasally midrange we were experiencing, because what was coming out of the P.A. wasn't what the band really sounded like. By experimenting a little with the amp settings, we found that if we threw half of the midrange amps either out of phase or turned every other midrange amp down 3 dB, the system opened and became smooth and musical. All this was done with the computer's control window functions one afternoon during a soundcheck. To be honest, I don't think we would have ever come up with the idea or the right combination of settings if the computer hadn't been there. It's just not something you could do without the control being right at your fingertips."

Price is eagerly awaiting his next outing with the IQ System, now that he's discovered the power of the computer and the Tull tour has come to a close. To make his life that much easier next time, he wisely stored on disk the sound system settings for major venues all across North America. That should save some time, and who knows, with future software upgrades, perhaps Price's life will become so easy that he and his trusty computer will be able to get in a few rounds of Nintendo between the soundcheck and the evening show. ■

*Gregory DeTogne is a longtime Mix correspondent based in the Chicago area.*

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by Craig Anderton

# THE INCREDIBLE SHRINKING NAMM SHOW

**L**ast year's summer NAMM (National Association of Music Merchants) trade show was so slow that many attendees referred to it as "the wake on the lake." This year, the number of manufacturers and square footage was down by almost 40%; although the summer show usually fills two floors of Chicago's McCormick convention center, this year it didn't even fill one floor.

Notable by their absence were Akai, Apple, Commodore, J.L. Cooper,

Was the industry sick, or was NAMM? Before that question can be answered, a little historical perspective is in order about the two shows (summer and winter) that NAMM sponsors. A decade ago, the summer show was *the* event, and the winter show (in Anaheim, Calif.) was a secondary and much smaller exhibit for the benefit of West Coast dealers. But that was before the Japanese, and the American microcomputer industry, invaded the world of musical technology. Japanese

*What's happening  
at NAMM shows reflects  
the state of the country as  
well as the music  
industry.*

Digidesign, Ensoniq, Korg, Lexicon, Opcode, Passport, Peavey, Roland and many more. In addition, several booths were empty: Exhibitors had decided to cut their losses and not send any personnel.

companies such as Fostex, Kawai, Roland, Tascam and Yamaha were based in Southern California, while the microcomputer revolution was centered in Silicon Valley, a few hundred miles to the north. Out of the micro-



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computer world came companies such as Digidesign, E-mu Systems, Opcode, Passport, Sequential and many others.

Meanwhile, the media was also strengthening on the West Coast. The GPI family of publications dominated the market for serious musicians, while *Mix* dominated the world of pro audio. In the middle of the decade *Electronic Musician* successfully targeted the newly emerging computer musician,



and the Music Maker family of magazines was also based on the West Coast. Around the same time, the American heartland was turning into what some economists called "the rust belt" for its decaying industries and changing demographics.

As a result, the winter show in Anaheim increased in importance and attendance while the summer show lost momentum. Anaheim became the main place for new product introductions. Those who feel the decline of the summer show spells gloom and doom for the music industry should look at the attendance figures for Anaheim over the past few years: What we're witnessing is a shift in the balance of demographic and economic power. Granted, the music industry has been slowing down; and granted, technology, oversold by manufacturers and underexploited by musicians, has lost some of its shine. But what is happening at NAMM shows reflects the state of the country as well as the music industry.

Some people feel NAMM is a factor in the declining attendance at the summer show because it has not been able to get dealers excited about the concept. After all, NAMM is a dealer organization and the show is put on for their benefit; if dealers don't want to come (or more likely, can't afford to

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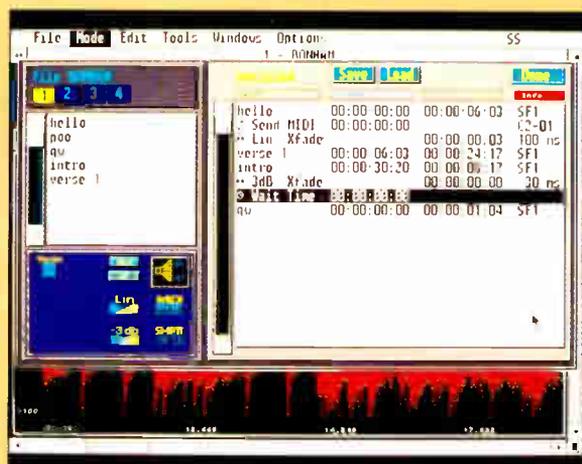
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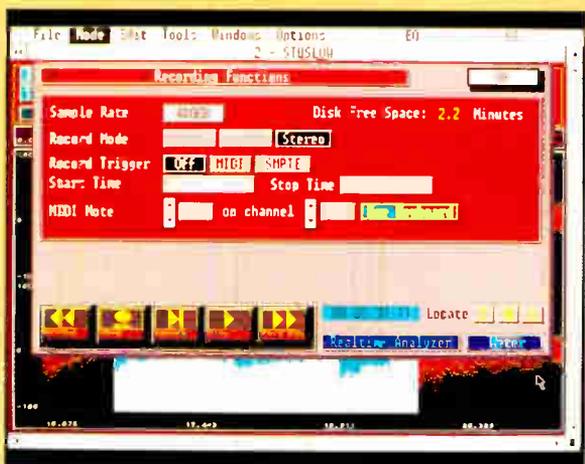
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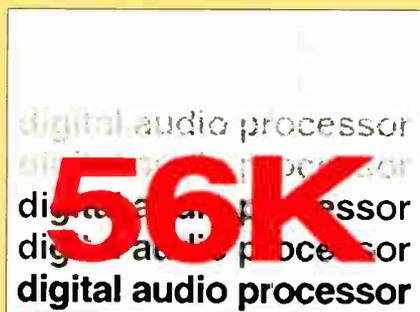
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come because business is slow), then the show is considered less successful by manufacturers, whose main reason for going to NAMM is write up bunches of orders for new gear.

Not that NAMM didn't try other enticements. Since the possibility of new product introductions didn't seem to be enough to attract dealers, NAMM tried a different tack, putting on an array of business-oriented seminars concerning sales, motivation, bar coding, and so on; yet reactions to the change was mixed. The summer show, a victim of changing times and changing economic trends, came close to being a non-event.

Nonetheless, the mood was much more positive than I would have expected. First, people had low expectations for the show, and so they weren't too surprised when those expectations came true. Second, it appeared that the companies that did attend liked having the spotlight all to themselves. Even the funky little booths that normally get lost in the basement of the convention center were right up on the main floor. Showgoers only have X amount of attention; divided by the smaller number of manufacturers, each exhibitor got much more attention than they would have otherwise. In fact, some exhibitors were very pleased with the amount of business they did at the show, adding that the number of serious buyers was substantial despite the smaller attendance. The manufacturers who scaled back, had small booths and targeted specific new products seemed to do at least well enough to justify the expense of exhibiting.

For the first time in years, I felt I actually saw most of what was to be seen. Showgoers spent 15 minutes talking with people instead of five, and had the time to catch complete demos of products. The feel reminded me of Anaheim shows in the early '80s: compact, friendly and as much a social event as a marketing slugfest.

So where do we go from here? To Anaheim in January, with a show that has been lengthened from three days to four, and that will take advantage of a larger venue, due to expansion of the Anaheim Convention Center. The next Summer NAMM is scheduled for the Jacob Javits Center in New York next July, and the last day will be open to consumers. Yes, NAMM has finally

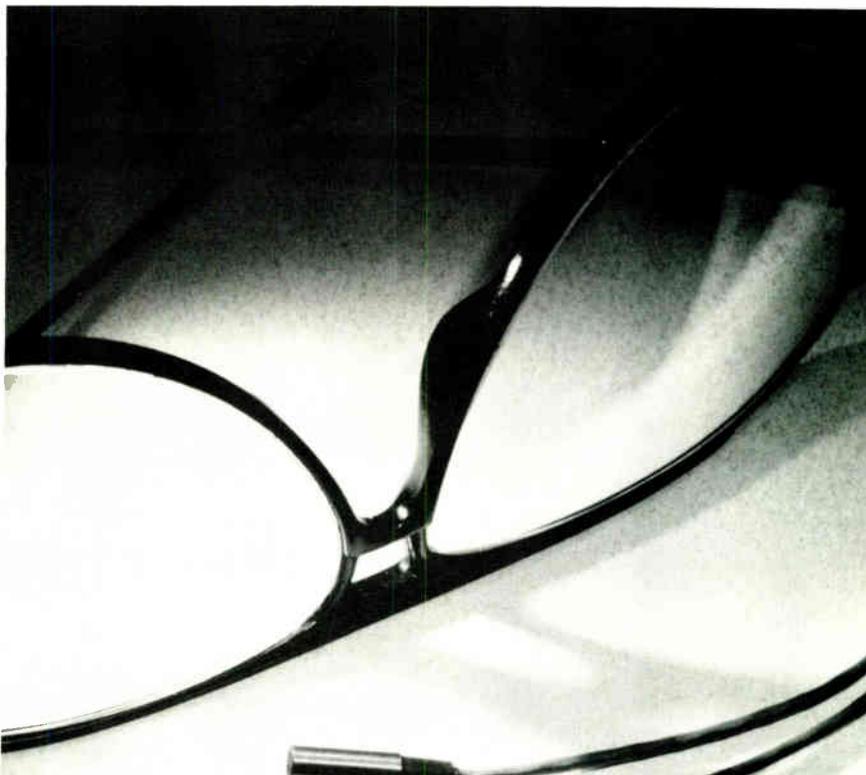
taken the plunge and decided to see if a consumer day will fly.

I thought showgoers would consider this decision at least forward-thinking, but a non-scientific, random sampling of attendees didn't show a lot of enthusiasm. Complaints included New York in July has been known to approximate hell (pray that there's not a garbage strike!), the main hotels are far away from the convention center, load-in and load-out is a major hassle, and a consumer day would wipe out everything that was not nailed down. Some, however, felt that the opportunity to talk to the people who actually shell out cash and buy musical prod-

ucts will make the show worth attending and boost the industry. Whether the consumer day will affect any of the local East Coast trade shows put on by music stores (or vice versa) remains to be seen.

Anyway, back to our current reality. Some really interesting new products debuted in Chicago. We'll check out these unveilings next issue; stay tuned...

*Craig Anderton is a musician, author and lecturer. His latest recording is Forward Motion; his latest book is Power Sequencing with MasterTracks Pro/Pro 4.*



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—FROM PAGE 34, AUDIO FOR VIDEO & FILM

## **Jim Brady Recording Studios Tucson, Ariz.**

### **Jim Brady, owner**

MGM/UA has been a regular client of Jim Brady Recording Studios recently. All the ADR for *Young Riders*, the ABC Western drama series, is done in the Tucson facility near where shooting takes place, a service Jim Brady is hoping more of Hollywood will notice. The company also provided ADR for Christian Slater's *Tales from the Darkside*.

"It's convenient to have looping done locally, rather than fly the actors back to L.A. once a week," says Brady. "We have a fairly comprehensive ADR setup. We're the only place in town with a 1/2-inch 4-track for lockup, which is still fairly standard in Hollywood, and we have that interlocked with the 3/4-inch. Once we knew the need existed, we developed a Hollywood-style ADR setup.

"It's not like we have the newest of everything here, but we're well-equipped," Brady continues. "The Trident 80 (40-input) console used to be in a post-production house in L.A., Sun West. We've gone for a fairly high level of sophistication, but not ne-

cessarily buying brand-new stuff all the time. Similarly, you can't go out and get garbage or you have downtime."

The company recently purchased two more 24-track recorders (Ampex 1200s), hoping to attract a full-blown, low-budget movie. National TV spots for Dole, with Kenny Rogers, and singing tags for Adult Tylenol and Mueslix have helped increase the facility's visibility to the point that more

—FROM PAGE 33, BUENA VISTA

multitrack and analog with Dolby SR encoding. The tapes will be stored in two different locations: The digital will be used here for later retrieval and restoration, and the analog will be stored offlot, as a backup. It's a six-year project—just to archive everything in the library. We're having a special room built adjacent to the vault, so transportation will be kept to a minimum, and we're preparing the film rolls in a clean-room environment. We're very concerned, because the acetate film is beginning to deteriorate, and we're losing a little bit more as each month goes by."

—George Petersen

than 30% of the gross is attributed to clients from outside the Tucson area.

## **Chaton Recordings Scottsdale, Ariz.**

### **Marie Ravenscroft, co-owner**

The big event of the past year for Chaton Recordings was a Paul McCartney music video shoot for the single "Stranglehold." On a recommendation from Phil Ramone, the McCartney crew brought in cameras and loads of equipment. The 24-track Chaton mobile unit was used as command central. The three-day shoot resulted in 24 reels of 2-inch tape.

"Our main purpose for the unit is to go directly onto multitrack and digital for video," Marie Ravenscroft says. "From there they go with a rough cut, one channel of audio, maybe a stereo mix to the video. Then they at least have their SMPTE code and their soundtrack. Everything is locked up; then they can go back in the studio and remix, and later relay audio onto video."

The 28-foot mobile home was purchased in 1981. It contains three video monitors, Tannoy speakers, a Soundcraft board and an Otari 24-track recorder, with 24 channels of floating

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If you're planning to build a 24-track development studio, here's another advantage: The M3500 is the perfect match for the MSR-24, Tascam's one-inch 24-track recorder. Together, they make the most cost effective studio available.

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World Radio History

Dolby SR. No mixing in the truck, however. Everything is compatible with the 48-track main Trident studio in Scottsdale.

Other clients at Chaton include the TV series *B.L. Stryker* (music), Anheuser-Busch (music with George Strait) and Pacific Video (various projects). Commercial composition is handled in-house in the 24-track MIDI room; ADR for sitcoms is also common. Every other Tuesday and Wednesday brings a complete maintenance check.

**Devonshire Audio & Visual Studios  
North Hollywood, Calif.**

**Dee Mancini, owner;  
Greg Beaumont, technician**

Movies, music, sitcoms, commercials and cartoons all pass through Devonshire. In fact, the facility won two Emmys, two years in a row, for effects work on the cartoons *Alf* and *The Real Ghostbusters*. And it's the effects, particularly the custom library of sounds, that Dee Mancini likes to talk about.

"We have live Foley pits in the ground," she says, "along with big tubs of running water and faucets. We have computer Foley, along with CD and



**Studio 1 at Devonshire audio and video studios, featuring a Neve V-60 console**

computer disk and 1/2-inch coated.

"Five years ago we thought that to stay alive, we had to diversify into post work," Mancini continues. "We started with the Mac and Emulator II. Now sound effects crews sample in the field, archive to DAT, plug into the Mac II (with Alchemy) tied to an Emulator III and Pinnacle optical system, then fire via SMPTE."

"We're 16-bit stereo on all post-production, with full VITC encoding," adds Greg Beaumont. "All D-to-D. It's faster, more efficient, less electricity."

The company recently purchased the newest Adams-Smith A-V editor and 92 channels of Dolby SR. Maintenance engineer Fred Deiter keeps it all running. By November, a tapeless stu-

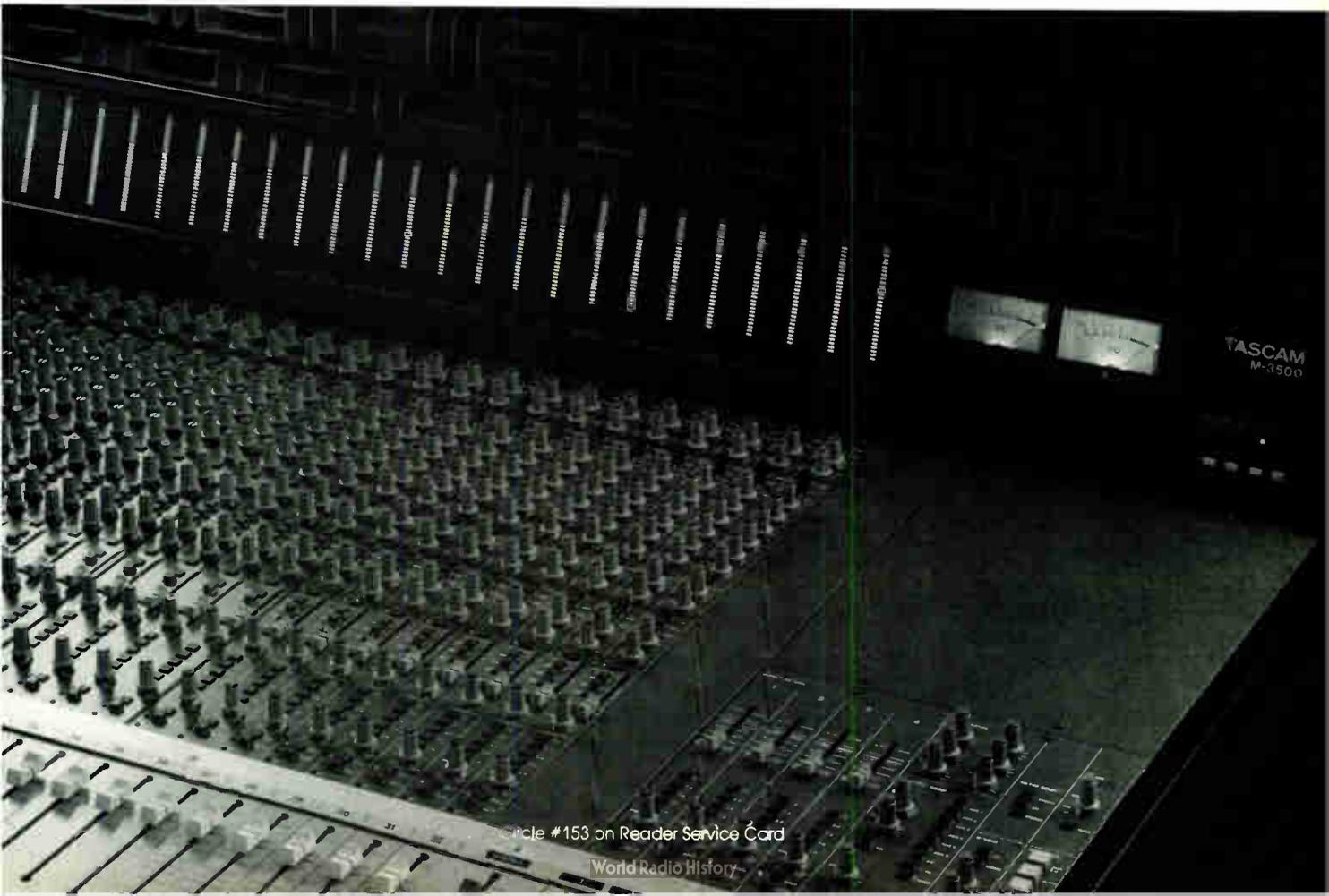
dio across the street should open, adding an SSL with ScreenSound to the three Neves already in use.

**Skywalker Sound South  
Santa Monica, Calif.**

**Bruce Markoe, general manager**

You knew George Lucas couldn't physically stay away from Hollywood forever. Skywalker Sound South, a division of LucasArts Entertainment, has been operating out of the old Lion's Gate facility since October (renamed the Bundy facility), and an all-new building is coming in November. Two stages will be dedicated to film post work, and two will be dedicated to television work.

"Our sound editorial work is going



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to concentrate on television," states Bruce Markoe, "with low-budget features, movies of the week, cable movies and some episodic. There is a division of Lucasfilm getting into the television production market, but our facility is a rental facility like any other place; it's not designed to work on Lucasfilm projects. If Lucas has something we're working on, it'll be handled, booked and scheduled just like any other outside client. In all honesty, any Lucasfilm features will be posted up north at The Ranch. The L.A. facility is a true, independent sound house."

According to Markoe, Skywalker Sound South will place an emphasis on post-production packages for long-format television: sound editorial, prelay, mixing, tape laydown and layback. All the facility's listening rooms will be outfitted with Lucasfilm's THX™ repro system and Otari Premiere consoles. New England Digital PostPros™ should be in place soon. The company has also begun redevelopment of the SoundDroid editing system in association with NED. ■

Tom Kenny is an associate editor at Mix.



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—FROM PAGE 31, SYNCHRONIZATION  
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**West Productions, Dave West:**  
"I was a severe, avid Q.Lock fan. It was very hard for me to break away, because it did what I wanted. Most people who come from the film-style of re-recording want a box that will go forward and stop. They don't want to have a CMX auto assembly; they want motion control. The Q.Lock was the only device that really answered that problem elegantly. And now the Lynx is doing it very well."

— George Petersen

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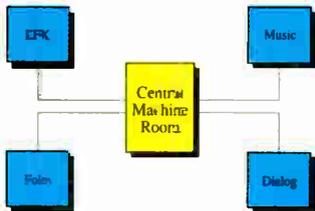
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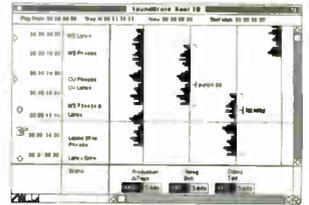
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by Blair Jackson

# WHAT'S THAT SOUND?

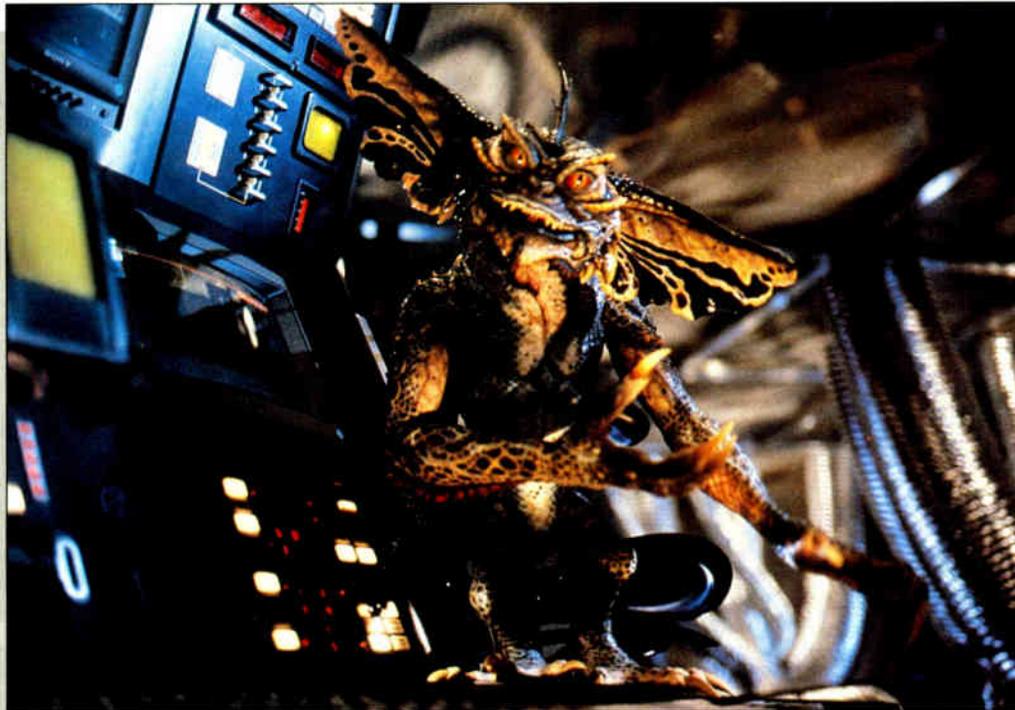
## It Takes Big Work to Make Even the Smallest Movie Sound Effects

P

lungers. Toilet plungers. For some reason that's not the answer I was expecting when I asked sound effects specialist and Foley mixer Greg Orloff about how he created the sound of galloping horses for the film *Back to the Future III*. "Gee," I said, "why not just use coconuts like the 'horses' in *Monty Python & the Holy Grail*?"

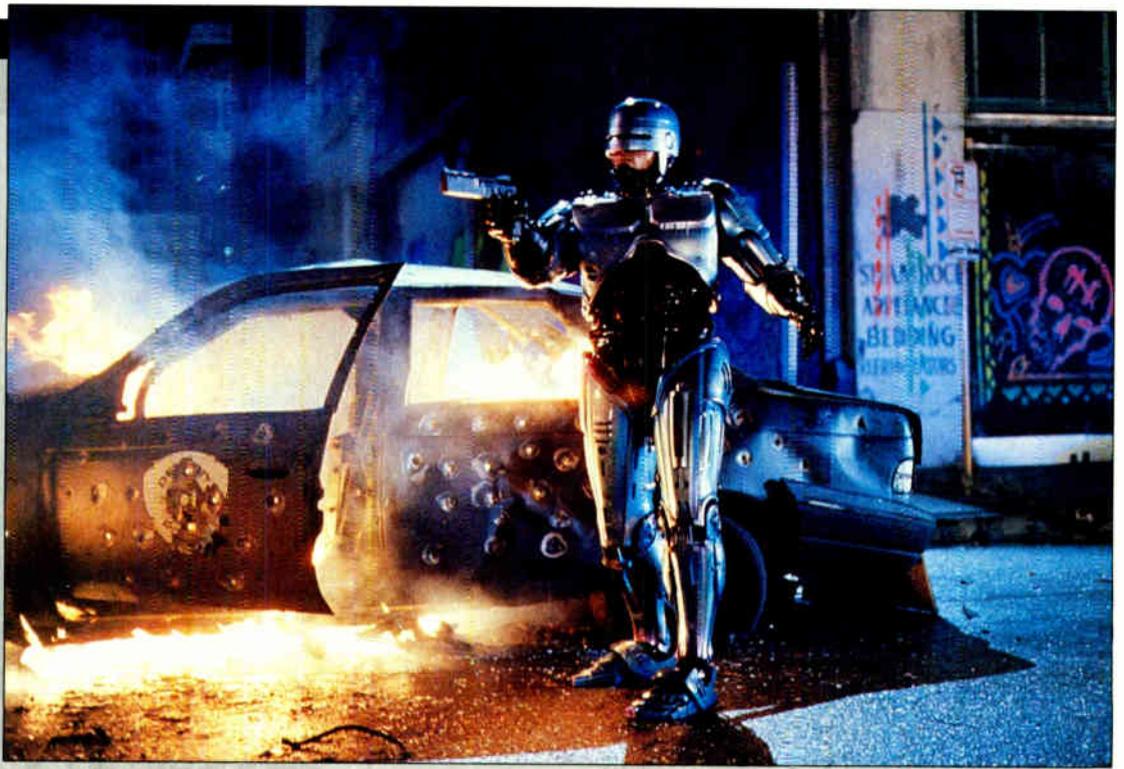
"Oh, coconuts are pretty good, too," was his deadpan reply.

See, when I started this story I thought it was going to be about sound wizards using samplers and digital workstations in conjunction with the latest outboard whiz-bangs to make incredible sci-fi noises.



A scene from  
"Gremlins 2,  
The New Batch"

PHOTO COURTESY OF WARNER BROS. INC.



**RoboCop 2**

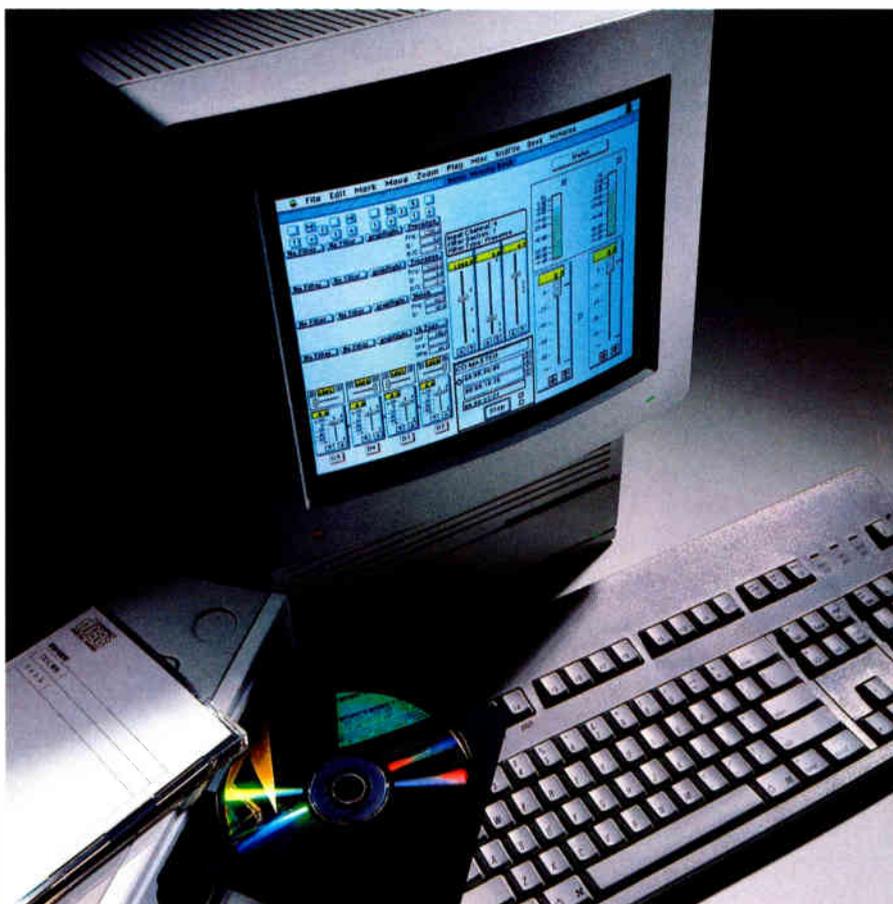
And I suppose that stuff is in here to a degree. But more than that, this is a tale about the incredible amount of work that goes into creating sound effects that, as viewers, we probably take for granted. What? You mean you're surprised that it took *eight days* to work up the sound for RoboCop's legs?

Yes, we're talking obsessive pursuit of perfection

here. But the bottom line is that sound effects work is a craft, not just a job, and the people who work in the field are there because they love it. They'd better, because the hours are lousy, the pressure's intense and there's always the chance that the sound they slaved over for days on end is going to be buried under some overzealous composer's drippy score.



**Doc (Christopher Lloyd) and Marty (Michael J. Fox) in "Back to the Future III."**



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Would you or I ever know if the gunshots in the Civil War film *Glory* were taken off a sound effects record of World War II battle noises. Probably not. What the hell do *we* know? But Lon Bender, whose job it was to come up with those Civil War gunshots, got *into it*—deeply into it—and all of a sudden we're sitting in a darkened theater, wincing at every musket report, thinking, "Holy shit, this probably is what it was like!" That's the sound designer's art: the creation of a convincing reality—even if it's all just smoke and mirrors...or plungers and samplers.

One more thing before we get into these four short tales. Sound effects people are listed under a hundred different titles in film credits: sound designer, special effects supervisor, supervising sound editor, you name it. There are shades of differences in those, I guess, but they don't really tell the story. I liked Mark Mangini's tongue-in-cheek description of his job: "sound swami."

#### Horsing Around with Greg Orloff

Although the past decade has seen a move toward the use of increasingly sophisticated technologies in sound effects work, the Foley stage, with its "actors" tapping real footsteps or slamming car doors or breaking panes of glass, remains a vital part of the filmmaking process. Until he went to work for Lucasfilm in July, Greg Orloff was a principal Foley player/editor at Taj Filmworks in Los Angeles. Taj's credits the past couple of years include such mega-budget features as *The Abyss*, *The Little Mermaid*, *Back to the Future II* and *III*, *Young Guns II* and *Die Hard 2: Die Harder*. (Lawdy, what would Hollywood do without sequels?) Orloff talked about the process of dubbing horse gallops for *Back to the Future III*, much of which takes place in the Old West.

"In a way, *Back to the Future* was like four shows in one for us. It was human footsteps; human props; all the horses and whatever they pull—stagecoaches and things like that; and then the futuristic stuff, machines. A lot of that was done in Foley.

"I think most of the time you hear horses in a film you're probably hearing something created in Foley," he continues. "And what we like to use are plungers on different types of surfaces. The advantage of this method is you can actually do it to sync instead of

having an editor cut in each individual horse footstep. To get a large group of horses, you usually need at least five or six channels just for the group, and then you might augment that with thundering horses [from SFX libraries] and any specific horses that jump out. We've used up to 20 channels just for the horses and their equipment. You try to get different ranges. Like if it's a cavalry charge or a stampede, you try to get a lot of low rumbling stuff. In streets, the foreground horses might be kind of low and the background horses kind of high, with more of a clip-clop sound. So that affects what surface you clop on and maybe what you're clopping with. Occasionally, an editor has picked out specific horses he wants you to cover in addition to the group, so you work up something that lets it stand out a little more. Microphone perspective and equalization comes into it, too.

"I try to mike differently for each visual perspective; I've never felt this could be done on fader alone. It's much better recorded that way. So that's what we try to do for everything we record, whether it's with props or whatever. For the horses in *Back to the Future III*, I used mainly Neumann KMR-82s.

"Sometimes we might do a mix for a temp dub, but we generally transfer it singly so [the editors] have as much control over things later. They're working with an amazing amount of material: *Roger Rabbit* was 40 tracks of Foley per reel, as was *Die Hard 2*. A lot of the major action films seem to be about 40 channels per reel, just for Foley. Then there might be anywhere from 40 to 120 channels of sound effects in a reel.

"With something like the horses, the sound editor usually tries to treat them as a single track, then cut them to whatever other sound effects and Foley and dialog he has. Chuck Campbell had that job [on *Back to the Future III*], and he'd probably be the first to tell you it's a monumental task; no question about it."

#### The Many Voices of Mark Mangini

Mark Mangini is one several sound effects aces—including Steve Flick and Richard Anderson—who make up Weddington Productions (soon to be renamed Bang, Zoom, Kapow) of North Hollywood. Widely regarded as one of the top sound houses anywhere, the Weddington group snares

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**The soldiers of the 54th Regiment of Massachusetts Volunteer Infantry parade through the streets of Boston in "Glory."**

work on many of the big Hollywood films each year—*RoboCop 2*, *Total Recall*, *The Exorcist* and *Gremlins 2* are just a few of the crop of movies transformed by the company's sound designers. Mangini shares some of the techniques he used to make the Gremlins in *Gremlins 2* sound as weird and nasty as they do.

"I created all the Gremlin voices for

*Gremlins 2*," he says. "That was one of my specific tasks. I did the original *Gremlins*, also. Actually, this particular job didn't require too much in the way of nifty gadgets. Most of it involved altering voices. So we had an ADR studio—actually Paramount's Stage L, their looping stage—modified so that a film projector could run varispeeeded in interlock with a film recorder. Fre-

quently, when the [Gremlin] puppets are filmed, they're undercranked, so later you get this speeded up action: trying to lip sync to these guys at 24 frames a second is difficult for the actors. So we slow down the projector and interlock it with the recorder so it's easier to lip sync to. That also means that when we come back up to sync speed, the voice has a slightly speeded

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You know the sonic and performance excellence of the Panasonic SV-3500 DAT. Who in the industry doesn't? The new SV-3700 incorporates significant advances in analog-to-digital converters, digital-to-analog converters, transport accuracy and reliability plus control and interface technology. In the SV-3700, one bit A-D converters bring dramatically improved performance and linearity compared to conventional successive approximation A-D converters. These high-performance one-bit ADCs reduce both signal and zero cross distortion producing cleaner, clearer audio at low as well as high levels.

Subjectively, these technical advances translate to accuracy in the spectral balance, ambience, and "space" around instruments that form the most important part of natural musical and "correct" sound.

Oh yes, there's another very important improvement in the SV-3700. Price. When you visit your dealer, you'll find that in professional applications you can't afford anything less than the SV-3700. And you certainly don't have to spend more.

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Professional Audio Systems



## Inside the SV-3700

The transport of the SV-3700 is built on a massive die-cast chassis that ensures stability and accurate dimensional tolerance. Built almost entirely by robots for consistency and reliability, this proprietary transport and head assembly provides superior performance compared to traditional hand assembled bent metal construction transports.

Considerable investments were made to improve the price/performance/reliability of the SV-3700 over that of the highly successful SV-3500. Development of VLSICs specifically for the Panasonic DAT reduced the number of components and PC boards to a minimum. One main PC board carries all of the functions that previously required four. The consequent reduction in components, manufacturing stages, and adjustments markedly improves performance and reliability.



The conversion of digital data to audio information is accomplished by high resolution DAC systems. Four of these high-precision DACs, two per channel, ensure optimum replay quality by effectively removing zero cross distortion and enhancing linearity.

## Real World Engineering

The SV-3700 has instrumentation quality input and output circuitry designed with an understanding of "real world" cabling, grounding, and RF interference problems and how these degrade audio quality. One of the traditionally weak areas in pro audio has been interface technology. All too often basically good equipment is marred by bad design of input and output circuits. Unstable output stages intro-



duce severe coloration and inputs that hum, buzz and perform as CB and RF tuners, and cause mushy bass or colored highs, through grounding and capacitance crosstalk. Utilizing experience gained in the development of top quality studio and touring sound equipment, our engineers have designed input and output

circuitry that can interface with the widest variety of devices in all applications while maintaining the utmost quality and integrity of the signal.

## Industry Standard Digital I/O

AES/EBU Professional Format and IEC 958 Consumer Format Digital Inputs and Outputs provide direct interfacing with compact disc players, digital audio workstations, and other components in a recording studio or production facility.

A comprehensive display includes program numbers, Absolute Time, Program Time, Remaining Time and Table of Contents. TOC displays Total Recorded Time and Total PNO count for commercial prerecorded DAT tapes.

Sampling rates are selectable in record mode from the analog inputs at 44.1kHz and 48kHz. Recording from the digital inputs, the SV-3700 automatically clocks to incoming frequencies of 32kHz, 44.1kHz or 48kHz.

## Controllability

The infrared Wireless Remote Controller enables remote operation of all front panel functions. The Shuttle Wheel has two variable speed ranges, allowing program material to be auditioned at slow or high speed in forward and reverse.

A high speed transport with up to 400 times Fast Forward/Rewind and Search speeds ensures access to any point on a two-hour DAT tape in approximately 27 seconds. A new straight line DAT feed system simplifies loading for low maintenance.

The SV-3700 will display the Serial Copy Management System (SCMS) status during recording and playback. Rear panel DIP switches can be used to preset SCMS ID 6 status during a recording via the AES/EBU Professional Digital Inputs.

Error correction rates can be displayed during replay by simultaneously pressing the front panel Counter Mode, Reset and Pause buttons, then pressing the Mode switch a second time. The time display window now shows the combined error rate for the A and B heads. Pressing Counter Mode again displays the error rate for the A head alone. Normal mode is restored by pressing the Reset again.

Ramped Record mute and unmute with three second fade in and five second fade out provides automatic level changes at the start and end of a recording.

## SV-3700 Specifications

### Signal Format

Recording System	Rotary head type DAT
Sampling frequency	48kHz/44.1kHz (analog/digital inputs) 32kHz (digital input only)
Recording	48kHz/44.1kHz/32kHz (selected automatically)
Playback	48kHz/44.1kHz/32kHz (selected automatically)
Modulation Method	8-10 Conversion
Encoding, Decoding	16-bit Linear PCM, two channels
Error Correction	Double encode Reed-Solomon Code

### Transport

Record/Playback Heads	Amorphous Ferrite-composite type
Cylinder Diameter	50 mm
Cylinder Rotation Speed	2,000 rpm
Tape Speed	8.15 mm/s and 12.225 mm/s (selected automatically)
Track Pitch	13.6 µm
FF/Rewind Time	Approx. 27 seconds for a 2 hour DAT tape
FF Rewind Speed	Up to 400 times normal playback speed
Search Speed	Up to 250 times normal playback speed
Shuttle Speed	Between 0.5-15 times normal playback speed

### Audio

Number of Channels	Two (stereo)
Frequency Response	At 48 kHz Sampling Freq. 10 Hz to 22 kHz (± 0.5 dB) At 44.1 kHz Sampling Freq. 10 Hz to 20 kHz (± 0.5 dB) At 32 kHz Sampling Freq. 10 Hz to 15 kHz (± 0.5 dB)
Signal to Noise Ratio	Greater than 92 dB, DIN weighted (22.4 Hz to 22.4 kHz bandpass)
Total Harmonic Distortion	Less than 0.05% (1 kHz; +4 dBu) Less than 0.007% (1 kHz; +22 dBu)
Cross Talk	Less than 80 dB (1 kHz)
Headroom	18 dB
Wow and Flutter	Unmeasurable

### Analog Input/Output Characteristics

Input Connector	XLR-3 type
Input Impedance	10 k ohm balanced
Nominal Input Level	+4 dBu (-18 dB record level)
Maximum Input Sensitivity	-14 dBu (-18 dB record level)
Maximum Input Level	+26 dBu
Output Connector	XLR-3 type
Actual Output Impedance	75 Ohms balanced
Maximum Load Impedance	600 Ohms
Nominal Output Level	+4 dBu/-10 dBu (switch selectable)
Maximum Output Level	+22 dBu
Headphone Connector	TRS Phone Jack
Maximum Headphone Output	50 mW/32 Ohms

### AES/EBU Digital Input/Output Characteristics

Input Connector	XLR-3 type
Input Impedance	100 Ohms balanced
Nominal Input Level	3-10 Volts peak to peak
Output Connector	XLR-3 type
Actual Output Impedance	20 Ohms balanced
Maximum Load Impedance	100 Ohms
Output Level	5 Volts peak to peak

### IEC 958 TYPE-2 "S/PDIF" Digital Input/Output

Input Connector	RCA Phono type (coaxial)
Input Impedance	75 Ohms
Nominal Input Level	200-500 millivolts peak to peak
Output Connector	RCA Phono type (coaxial)
Actual Output Impedance	75 Ohms
Maximum Load Impedance	75 Ohms
Output Level	500 millivolts peak to peak

### Wired Remote Control Input

Input Connector	8 Pin DIN
Wiring Type	Parallel, connect to ground
Functions Controlled	Play, Stop, Rec. Pause, FF, Rew., F-skip, R-skip

### Infrared Remote Control Input

Functions Controlled	All Deck Functions and Programming (except Shuttle Wheel)
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### General

Power Supply	120 Volts AC, 60 Hz
Power Consumption	35 Watts
Dimensions (WxHxD)	16 7/8 x 4 3/4 x 12 1/4 inches (430 x 122 x 315 mm)
Weight	13.5 Pounds (6.14kg)
Included Accessories	AC Power Cord Infrared Remote Control Rack Mount Kit Cleaning Tape (RT-RCLP)
Optional Accessories	Wired Remote Control (SSE44)

Specifications subject to change without notice © 1990

## Panasonic

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up chipmunk effect. We can vary the speed of the projector to taste, to suit different variations.

"Then there was a whole variety of specialty Gremlin voices that were done from those original recordings. The making of the Gremlin voices was partially actors reading lines and making noises and things, speeded up later, and some of them were processed with electronic outboard gear and then augmented with animal recordings. We made a bat Gremlin who was kind of interesting. It all seemed so simple when I did it, but looking back on it, it was fairly complex.

"I did some sampling, but most of it was done as live performance or with conventional editing techniques. I put together this rack of samplers and a mixer and a sequencer that I called 'The Rack of Doom,' and I brought it to the stage. It consists of two Roland S-550 samplers, a little 16-input rack-mounted mix console, some rack-mounted reverb devices—SPX90-type things—a MIDI-to-SMPTE interface and a Macintosh with Performer [Mark of the Unicorn's MIDI sequencer]. I've adapted Performer to allow me to work with it in 'feet' and 'frames,' which is not a function it normally has; I've managed to convert 'bars' and 'beats per minute' into 'feet' and 'frames.'

"I presampled a ton of sound effects. I basically created a sample library of sound effects and Gremlin voices, and as we'd be mixing, the director would inevitably say, 'Gee, we need this here,' and it wasn't something we'd anticipated in sound effects editing. Since I had the sample library, it allowed me to quickly load something, lock it to picture, perform it to picture and give the director not just a sound, but the ability to massage it. You can spread it across a keyboard, play it around, process it a million different ways, and basically sound design on the spot. It turned out to be very efficient. It really pleased everyone, because we had sound effects at our beck and call, whereas in the past you'd have to go to the back room and loop or call back to the shop and get something transferred to mag, get it cut and wait hours for it.

"If there was a sound effect we didn't have on disc or mag, we could record it live directly into a sampler, frequently doing it vocally. We did dozens of effects that way to augment things. We did squishes, pops, drips and even Gremlin voices on the spot.

We'd sample it, then trigger it locked to picture.

"So the Rack of Doom actually functioned as what we call a 'wild recorder'—a lot of soundstages have one. When we're dubbing, we use up our usual allotment of three recorders to create our dialog, music and effects stems, so you don't have an extra recorder when you're there on the spot. The samplers functioned as our wild recorder and allowed us to sample things and save them on disk, and give them address points so they could be used easily later."

#### **Lon Bender's High-Tech Civil War**

*Glory* is not exactly a new film at this point, but it did win an Oscar for sound, and if you saw the film, no doubt you, too, were astounded by how real those gunshots and cannon blasts sounded. How were they done? I called Lon Bender of Soundelux in Hollywood to find out. Not only is Soundelux one of the most successful sound effects operations on the Hollywood scene (they also worked on *Born on the Fourth of July*), the company's new Hollywood Edge sound effects library on CD has been drawing raves from effects specialists and audio types alike. (*Mix* reviewed it last month.) Bender spoke during a break from his sound effects work on the upcoming political thriller *Air America*.

"One of the most interesting things we did on *Glory*—and it's already being sought after by other sound designers—were the bullet whizzes and the incoming cannonballs," Bender says. "For the bullet whizzes, we had about 30 Civil War re-enactors come up to my ranch in Frazier Park [near L.A.] to record gunfire. We actually wanted to get the sound of real Civil War bullets being shot through the air, because we knew the velocity would not be the same as an M-16 or an AK-47; it would be slow enough to actually make an air whizz-by. So one of our guys got downrange in a gully about 400 yards away, and we actually shot live rounds at him—or at least near him. That's how we recorded them, and they were very, very effective. We used a DAT machine with a Neumann single-point stereo mic. The sounds were easily isolated, so then we put them on the Synclavier and that gave us a lot of flexibility in terms of how we could use the sound.

"We also went to Mississippi to

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record cannonballs. There we had a couple of DAT recorders set along a road on a private ranch 250 yards downrange and a quarter-mile downrange. I wanted the recorders to be far enough downrange that the initial explosion wouldn't contaminate the sound of the actual projectile going by. It's a matter of milliseconds, but it's important. This was wild—the re-enactors made up 50 real cannonballs out of iron. These guys are hardcore—they make their own cannons, too, actually forge them. Anyway, from a whole day of shooting these things off, we only got one recording of a cannonball whiz-by, because you couldn't aim them very well. That's the price you pay for having realistic cannons, I guess. In the end we discovered that when the bullet whiz-bys were manipulated—played in reverse on the Synclavier and slowed down—they sounded like the cannonball whiz-bys we spent a whole day trying to record.

"Once we had what we wanted, we worked very hard to make the barrages interesting in the actual film, panning back and forth, working with levels and placement so it wasn't static. We cut on an AMS AudioFile, and I think

there were upward of 200 tracks of just guns and weapons. The great thing about having the AudioFile and the eight simultaneous tracks you can cut with, you're able not only to manipulate sound, but to hear all the things in sync with one another, so the incoming whizzes relate directly to the explosion, the bullet whizzes relate directly to the gunshot, and so on, and you can lay them out in groups before you mix.

"A group of us worked for a month from 7 p.m. to 4 a.m. doing effects redubbing. It was hard work, but obviously it was worth it. I'm very happy with how it all came out."

#### **Alan Howarth: Story of a Leg Man**

A top independent sound designer, Alan Howarth has worked on such recent special effects extravaganzas as *Back to the Future III*, *Die Hard 2: Die Harder*, *Total Recall*, *Firebirds* and *RoboCop 2*. His Electric Melody Studio in Glendale, Calif., is equipped with an automated Soundcraft console, a variety of different recorders and the requisite outboard gear to be competitive. We chatted about the work he

did on *RoboCop 2*, a film that seems to have used just about every effects person in Hollywood at one time or another.

"I got involved with *RoboCop 2* in the second go-around, actually," Howarth says. "There was a whole design that went into the big Kane monster [RoboCop's arch enemy in the film] that Steven Flick, the sound designer/editor, did. He thought he had it covered, but when he played it for the director, he didn't like it for some reason. Directors do that kind of thing sometimes. So what happened was the robot got split up into different parts for different people to work on, because time was getting short. I handled the lower torso and the leg servos; Joel Valentine of Todd AO/Glen Glenn did the upper torso; John P., one of the original guys on it, had the arms; and the footsteps they kept from the original. It sounds like that could be problematic, but actually it worked out well. Because each guy took his own approach, there was a lot of variety to the sounds. If I or someone else had done the whole robot, it might have turned out more homogenous. Mine was like ultrarealistic servos and clinking; Joel's

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was more sci-fi comedic, with synth sweeteners and things like that; and John P. had a combination of servos and synth sweeteners.

"I worked up probably ten different versions of the leg and showed them to Steve Flick. The one we went with was a DAT recording of the servo on a 1968 LTD convertible top. I used Sennheiser 441s on it. It had a nice bass: *gub-eeeshh!* So each time the robot would move, you'd hear this great servo sound, and we had big, clunky footsteps to go with it; it was a nice contrast. At the same time, I had some other servos and I only used the end clink—when a servo goes to the end of the travel it sort of buckles up against whatever the mechanism is. So I used that. It was a combination of events that became the movement.

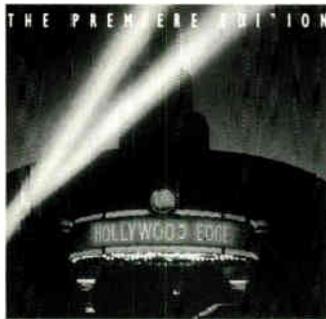
"Then the trick was to come up with about seven different lengths of this movement, because we didn't want them to all sound the same. We wanted different-sized steps and different rates. So I went into the Synclavier and chopped up the effect. Basically, I pulled the center out of the servo travel from the original, which was maybe four seconds long, down to one that was maybe a half-second long. From there, [the effects editors] gave me the cut track of the footsteps transferred to a 1/2-inch 4-track with time code. I got my old LinnDrum, took an audio trigger off the down of the footstep, and got myself a MIDI hitlist that I put on one track of the Synclavier. Then I dragged all the hits to the right-sized servo footsteps. After a while we got pretty good at manufacturing this walk. Then I split it into left and right footsteps, which you needed for some close-up shots.

"So there was a batch of effects from me for the legs, a batch for the upper torso, more for the arms. Then some guy had to sit at a Moviola and make the little one- and two-frame corrections to get it all to work, because it had to be coordinated with everything else—the torso had to move with the legs and all. That can drive you crazy. My part alone took about eight days, though I did a few other sounds during that time, too. When they suck RoboCop up with a giant electromagnet—that was mine, too. That's another story."

Mix managing editor Blair Jackson wonders how they made the sound of the spear going in the cyclops' eye in *The Seventh Voyage of Sinbad*.

## "The Hollywood Edge ... the best sound effects library, without a doubt!"

**Oliver Stone, Director**  
(Born on the Fourth of July, Platoon)



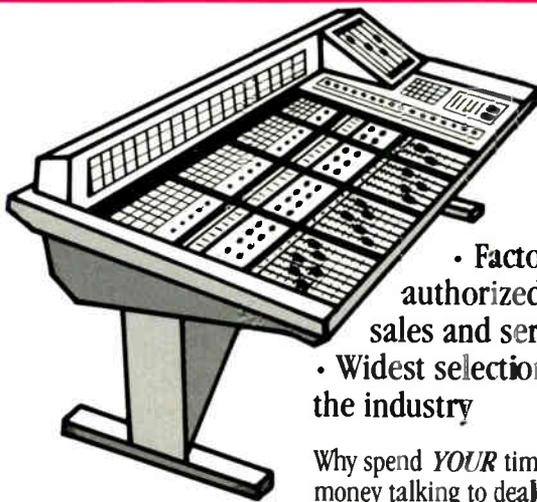
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by Philip De Lancie

# ITA CASSETTE SEMINAR, PART II



**Pete Norton, Andy Isakson, Richard Clark and Bob Farrow of Concept Design and AMI provided an impressive demonstration on the need for 16-bit, high sample rate systems for digital bin-loop duplication.**

Last month's look at the ITA's fifth annual "How and Why Seminar" on audio cassettes covered some of the issues raised in the areas of duplication chain calibration, azimuth adjustment on consumer decks and the outlook for Dolby S-type noise reduction. Much of the discussion was on quality as a factor in extending the life of the analog cassette through the '90s. Quality isn't the whole story, of course. Convenience, portability and recordability all enter into consumer buying patterns. And, perhaps most

important, there is the question of price. As CD prices fall, the cassette begins to lose one of its main competitive advantages. So it may not be enough for duplicators to produce excellent-sounding cassettes. They have to be able to do so at a price that continues to make the CD seem expensive. The challenge, then, is to simultaneously improve both quality and productivity.

One sign of the emphasis on increased throughput is the trend toward longer and longer pancakes. In a presentation on the use of "super-

length" (over 10,000-foot) stock, Wayne Desmond of Agfa compared 12,300-foot pancakes to 8,200-foot lengths. He concluded that using the longer stock reduces both material handling and slave down time by 33%, and similarly reduces the volume of QC checking required to verify every pancake. While acknowledging the view that these productivity gains are erased by an increased incidence of hub drops (tape falling off the hub), Desmond set forth a number of relatively straightforward

ward guidelines for eliminating that problem. Stock should not be stored against exterior walls and must acclimate to the production environment for at least 24 hours before duplication. Duping and loading should be in the same temperature range (68° to 72° F), with duping never warmer than loading, which should follow duping as soon as possible. Ramp up and down times on loaders need to be adjusted for the weight of long pancakes. And staff need to be extra careful to use only the hub when handling and seating pancakes.

Even with these precautions, the use of super-length tape may involve some trade-offs, as pointed out in the Q&A following Desmond's presentation. Some loaders simply won't accept the larger pancakes, and those that do may suffer from the stress that extra mass places on their reel motors. Further, the increase in footage duplicated between head cleanings on slaves could be a problem when using stock that runs a bit dirty. Still, the advantages from a productivity point of view are significant enough that a move toward longer lengths seems inevitable. In fact, some tape suppliers are already investigating taking the idea to its logical extreme, which is to maximize pancake footage by using thin tape, like that used in C-90s, for all duplication regardless of program length. The practice, already common in Europe, was the subject of two lively panels at the seminar.

#### **C-90 Tape Only?**

Terry O'Kelly of BASF began the supplier's panel by outlining the reasoning behind the proposed change. Assuming a practical diameter limit of 11.5 inches, a pancake of 12-micron tape (total thickness including oxide and base) would run about 18,000 feet, maximizing all the advantages of super-lengths outlined above. But perhaps the greatest benefit would be the elimination of down time currently devoted to setting up production lines when switching back and forth

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between C-60 and C-90 stock. Thinner tape would also mean better compliance, giving better tape-to-head contact. And stocking of materials would be simplified, while packaging waste would be reduced. According to Ampex's John Ostertag, the move would also have benefits in tape manufacturing, where it would make it easier to maintain consistency.

On the downside, O'Kelly mentioned poorer winding with more rejects and thus lower yields. And if a super-length pancake fails, it takes more time and material to redo. If the C-90 tape has thinner oxide than the C-60, MOL will be lower. And increased print-through could also be a problem. As pointed out by Joe Kempler of Sunk-yong, the frequency of greatest print with C-90 tape is around 680 Hz compared to 460 Hz with C-60, and the higher frequency may be more noticeable.

Kempler also brought up the risks of thinner base tapes in the field. Lacking the edge rigidity of C-

60 tape, the C-90 stock is more likely to ride up over guides in the cassette, leading to creasing, fluting and, eventually, jamming. And this reduced mechanical stability, noted Agfa's Andrew Da Puzzo, makes the C-90 tape less phase-stable as well.

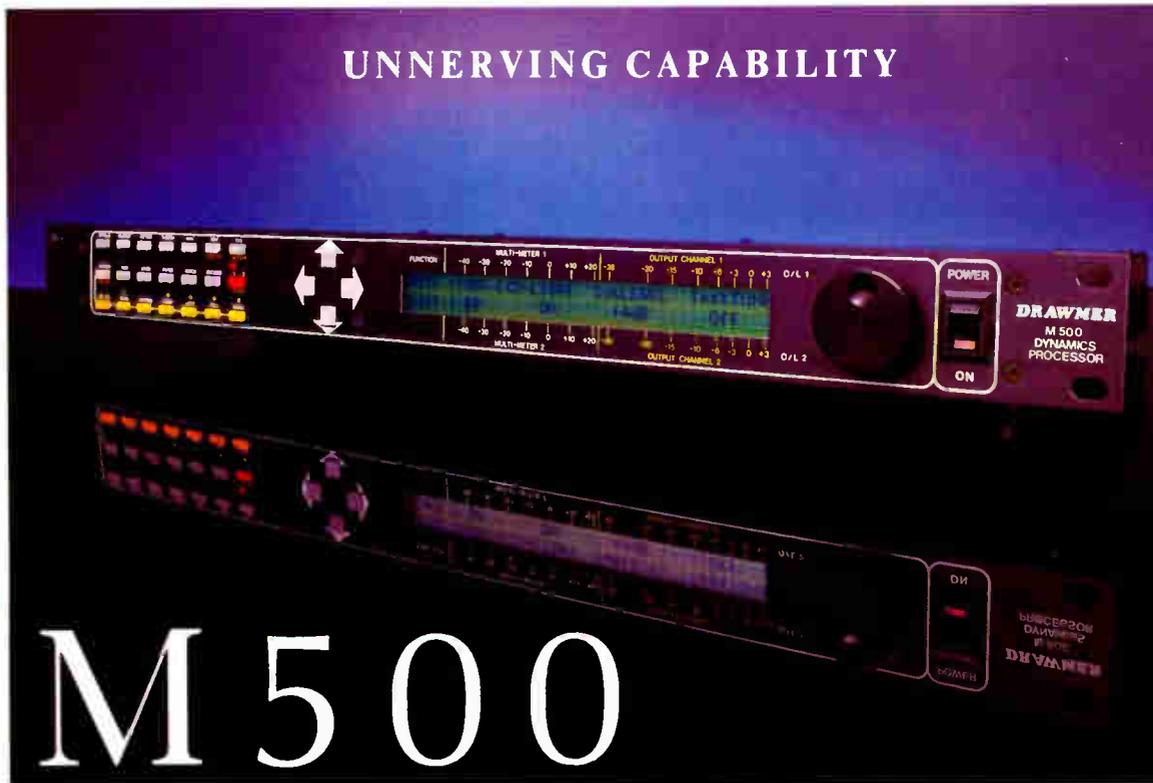
Most of these specific points, both positive and negative, were accepted without much argument among the panelists. But there was strong disagreement about which points were important or relevant, and what conclusions to draw from the facts. Da Puzzo was most emphatic in his rejection of the idea, warning that any compromise in quality or durability will serve only to weaken the cassette in its struggle to hold market share against the CD. At the other end of the scale was Doug Booth of TDK, who mentioned his company is already selling 70% of its duplicator stock in C-90 form (as compared with 25% to 40% for the other companies). Despite the mechanical differences, he said there is no evidence that the C-90 stock already in use is actually causing any problems to consumers in the field. None of the other panelists had heard

of any problems either, and the general view seemed to be that if the duplicators want all C-90 tape, then the suppliers will meet their demand.

Is there any interest among duplicators in switching to a single, thinner tape for all products? To find out, ITA executive VP Henry Brief put together a panel representing the duplicating arms of the major labels. Several of the companies had looked into the matter, and most of the same advantages and disadvantages brought up by tape suppliers were repeated by the dupers. Julio Suarez of CBS was strongest in his conclusions, saying that CBS is definitely against the use of C-90 stock for short programs. Others were less definite, but the consensus of the panel seemed to be that any productivity gains would be offset by increases in maintenance and rejects costs. This conclusion was challenged from the audience by Richard Clark of American Multimedia, who reported that his own experiments using TDK C-90 stock had shown

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no increase in production problems. But Pat Shevlin of Specialty said TDK is a premium product that doesn't accurately reflect the average stock in the "real world."

One possible benefit of the thinner stock debate is the influence it may have on the development efforts of tape suppliers. Ampex's Ostertag suggested during the supplier's panel that it might be possible to develop a "C-75" tape that combined the advantages of C-60 and C-90. Such a tape, also suggested by Charles Johnson of Sonopress during the user's panel, would need stiffer film and more print-resistant particles than now used in C-90 tape. But if, like C-90 tape, it costs more than C-60 stock, it might still be a hard sell for use on shorter-length programs. Many panelists noted that a price difference as small as \$.01 per 100 feet can quickly add up to a significant loss of margin.

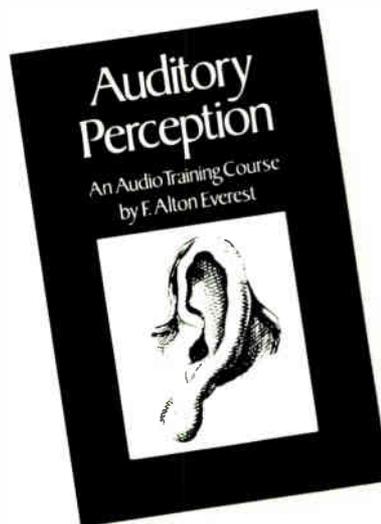
The relationship between materials cost, productivity and profit was also explored at the seminar in a presentation by Harold Canning of duplicator ICCA entitled "Cheap Is Cheap; Quality Pays Off." Canning described a scenario in which a hypothetical company buys "inferior" as opposed to "qualified" material. While material costs go down, increased rework and scrap rates reduces net throughput and thereby lowers potential annual sales. In the short term this negates the effect of lower material cost on profits. In the long term it drives away the customers to whom delivery is delayed due to production slowdowns. Canning's message was that inferior materials, while they may sound like a good deal at first, are counterproductive as far as improving long-term competitiveness. Instead, companies should set reasonable profit goals to live within, and channel any excess revenues into quality improvements that will promote perception of the cassette as a high-quality product. If quality materials are used, he believes, the cassette can offer the consumer as good a value for the money as the CD can.

### Digital Technologies

Throughout the seminar, mention of the CD as both a quality standard

and a long-term threat was common. As a bastion of analog in an increasingly digital world, it's no surprise that the duplication business has mixed feelings about digital technologies. DAT, for instance, is widely accepted as an improved medium for production masters, while at the same time feared for its potential impact on the consumer market for cassettes. So far, the DAT consumer market hasn't been a factor in the U.S., but that could change if Sony and other hardware concerns have their way. In a panel on the current status of R-DAT, Sony's Jim

Geitz reiterated the company's belief in the format. The potential market is seen as high-end (over \$500) cassette deck buyers and the 19 million households with CD players. Units should be available for home, portable and auto markets in the U.S. by early next year, and Sony Classical will be distributing software through hi-fi stores at an initial price of \$20 to \$24/unit. Geitz said other leading hardware manufacturers are similarly committed. Once the players begin to sell, he believes that software will



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follow.

Demand for software would be great news for two of the other panelists, Rob Loranger of Loran Cassettes and Scott Bartlett of Sony-owned DADC. Both companies tried to get in on the ground floor of a new market by buying real-time DAT duplication equipment. But with political problems holding up importation of the machines into the U.S., there hasn't been much return on investment so far. Both remain optimistic that eventually there will be a need for their services, even if demand is on a limited rather than mass scale. At DADC, DAT duping is seen as a natural complement to the company's primary business of optical disc replication. Loranger, meanwhile, feels the cassette market is leveling off, and that DAT's combination of fidelity, convenience and recordability will appeal to consumers.

Balancing his positive view of the format, Loranger noted some problem areas that have turned up in experimentation in his compa-

ny's lab. In particular, exposure to temperatures of 113° to 135° F, which one might find in a car on a hot day, created problems with high errors. And drop tests revealed that shells need strengthening. Durability concerns were also expressed by Mark Mekker of Eastern Standard Prod., who complained that tape and shell quality seem to vary widely. ESP also found that tapes more than two years old play with high errors. Loranger said that the increasing use of DAT in the computer industry may force a resolution of some of these issues. But in addition to the robustness of the tapes, Mekker raised questions about the hardware by relating problems with head life. ESP experience has been that heads with over 800 hours are subject to non-repeatable drop-outs or noises. So, the company no longer does its real-time duplication directly from DAT.

Problems with DAT, of course, don't negate the utility of the format for many production tasks. Nor do they rule out the incorporation of other digital technologies into the duplication chain. Concept Design's DAAD

"digital bin-loop," for example, is in use at a few major plants. But digital prices are so far prohibitive to all but the best capitalized duplicators. A DAAD system goes for around \$150,000, depending on storage capacity. Since the major expense in building such a system goes into the memory chips, the most obvious way to cut costs would be to reduce the sampling rate or the bit resolution (or both), thereby reducing the amount of data to be stored per time unit of program. In an impressive demonstration segment, Concept Design's Bob Farrow and Richard Clark of AMI (Concept Design's parent company) showed how such compromises might affect signal fidelity.

The first part of the presentation involved monitoring a cassette deck's repro head during recording, and viewing the deck's amplified output on a noise meter. A 1kHz tone was fed to the deck at slowly increasing amplitude. The tone was clearly audible long before it had any visible effect on the noise meter. The point was that

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some noises, like digital granulation or quantization noise, may stick out even when below the noise floor of the cassette. So the 90dB dynamic range of a 16-bit system like DAAD is justified even though cassette signal-to-noise ratio is far less.

Another reason 16 bits are utilized in DAAD is to minimize distortion of low-level signals. This was demonstrated using a PCM-1630 processor modified to allow bits 13 through 16 of the D/A converter to be disabled individually. A program from a CD player was attenuated and fed through the 1630. This low-level signal was recorded on the cassette deck, the repro output of which was boosted and monitored. As the output resolution of the 1630 was switched progressively from 16 on down to 12 bits, signal degradation was dramatic. The greatly increased distortion and noise at 14 bits and below was not masked by the cassette noise floor.

Having shown the pitfalls of economizing on bit resolution, Clark and Farrow turned to the possibility of reducing sampling rate to 32 kHz. This would bring down bandwidth to 14.5 kHz, which one might think would suffice for cassette. Clark and Farrow set up a high-frequency driver and sent it the output of the cassette machine fed through a filter passing only 10 kHz and above. Then, to simulate the effect of switching to a 32kHz sampling rate, they inserted a 36dB/octave lowpass filter, leaving signal only from 10 to 15 kHz. The information lost in the 15 to 20kHz range was definitely missed, which showed how a reduced sampling rate would compromise quality.

Jeff Binder and Bob Scheffler of rival digital bin maker Duplitrronics had the unenviable task of following the Clark/Farrow team with a presentation of their own, the last event of the seminar. As an audio industry newcomer with no machines actually placed in the field, it was an important opportunity for the company. Binder agreed with Concept Design's conclusions on the importance of bit resolution, but he went on to emphasize that not all 16-bit systems yield equally linear conversion.

Duplitrronics has developed an 18-bit D/A converter that it claims will provide true 16-bit linearity at the super-high conversion speeds required of a digital bin. The company's existing prototype bin, however, uses 14-bit converters, which may explain why Concept Design chose to highlight the benefits of 16 bits. Duplitrronics returned the favor by demonstrating its high-speed load, a capability that DAAD lacks. Scheffler showed how a 60-minute program may be loaded into bin memory in about two minutes, using a specially prepared tape

that would be created in a facility's mastering area. DAAD, on the other hand, so far loads only in real time, which greatly increases the down time associated with loading the bin. As far as cost, differing features make direct comparisons misleading, but with prices approaching \$500,000, duplicators may find Duplitrronics more than a bit too steep. ■

*Tape & Disc editor Philip De Lancie is a mastering engineer at Fantasy Studios in Berkeley, Calif.*

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by Philip De Lancie

# TAPE & DISC NEWS

It's "business as usual" at Agfa despite plans unfolding in Germany that would place the company's worldwide magnetic tape operations in the hands of rival manufacturer BASF. "We really don't know how things will turn out yet, if and when the sale is actually approved," says Agfa national sales manager Andrew Da Puzzo. The two companies, who jointly account for the lion's share of the U.S. duplication tape market, are awaiting approval of the German government's anti-trust agency for the transaction.

Meanwhile, according to John Matarazzo, Agfa's national technical manager, the company has been working on two new tape products: a cassette tape targeted for duplicators using the DAAD digital bin master and an archival mastering tape. Another industry source says the company has three additional products up its sleeve, all duplication-oriented. These are said to include a premium all-chrome videotape for TMD applications. Ma-

for announcements confirming these developments are expected at the AES convention in Los Angeles. It's unclear if or how the proposed sale will affect the company's new wares.

♦ ♦ ♦

Philips' new stationary-head digital audio tape format, referred to as Digital Compact Cassette (DCC), has been making headlines well before the company has even acknowledged its existence. Rumors have been circulating for some time about the development, and Philips was invited to explain the technology at May's IFA audio cassette seminar. The company declined the offer, but a brief discussion of the topic at IFA provided a tentative glimpse of what Philips has come up with.

It looks like DCC will be a digital record/play system

utilizing cassettes that are physically compatible with analog audio cassettes. Consumers will be able to play both analog and DCC tapes on the same machine. But the word at IFA was that DCC would be a 12-bit system, with fidelity not comparable to that of R-DAT. Subsequent mentions of the new format in *Billboard* and *AudioWeek* have not referred to the 12-bit limitation, and Philips has no public comment on DCC.

The company's reticence is somewhat absurd, because DCC is already a matter of public record. In June hearings on DAT legislation before the Communications Subcommittee of the Senate Commerce Committee, RIAA president Jay Berman testified that Philips had informed the RIAA of DCC developments. Berman asked that the Digital Audio Tape Recorder Act, which mandates inclusion of SCMS digital copy-prohibition circuitry in DAT recorders, be amended to allow the Secretary of Commerce to extend the SCMS requirement to DCC, which was still secret when hardware and software representatives worked out the SCMS plan in June 1989.

OCC, and the RIAA's response to it, have further delayed congressional action on the DAT bill, which had been inching along through hearings in various committees that claim jurisdiction. As of June 19, crucial hearings in both the House and the Senate had been postponed indefinitely, and it appears unlikely that the matter will be taken up again this year. Influential legislators have urged the



**Versadyne International has upgraded its Series 1500 duplicator system. See page 135.**

various interested parties (according to *Billboard*) to reassess their positions in light of DCC developments, and to settle their differences through further intra-industry discussion.

Adding to the RIAA's legislative difficulties is the possibility that some hardware manufacturers may see Berman's call for a DCC amendment as an affront to the fragile alliance they've made with him in support of the DAT legislation. If the alliance crumbles, it would leave the RIAA in the ironic position of defending SCMS alone. For years the group tried in vain to persuade Congress to impose home taping "royalties" on hardware and blank tape. SCMS was a compromise it accepted only reluctantly, seeing the idea as the sole means of getting hardware makers to drop their opposition to any legislative acknowledgment of home taping as a problem. But now the Copyright Coalition of songwriting and publishing interests, opposed to the DAT bill because it doesn't address the royalty issue, is reportedly getting a friendlier congressional reception than the RIAA.

While the factions wrangle in Washington, consumer DAT machines are already available in U.S. hi-fi stores, though the coalition has threatened to file suit to stop importation. Sony dealers began selling the DTC-75ES and DTC-700 models in mid-June for about \$950 and \$900, respectively. These machines, and those of other brands expected in the U.S. market soon, are SCMS-equipped. It's anybody's guess how long hardware makers would continue to voluntarily include SCMS circuitry if the DAT legislation fails to make it through Congress.

♦ ♦ ♦

A few months ago, some record retailers were complaining that the major labels were killing off vinyl prematurely with their policies on returns and back-orders. Apparently, their concerns have fallen on deaf ears. A survey conducted by *Billboard* on major label release configurations shows the companies accelerating the trend toward vinyl's demise. BMG is alone in re-



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## TAPE & DISC

leasing vinyl on nearly all new product, while WEA and MCA release vinyl on 80% to 85% of new titles. PolyGram is down to about 50%, and CBS leads the retreat (or charge) with only 40%. According to the magazine, the configuration's decline varies by genre. Pop rock shows the sharpest drop-off, while jazz and "black" music (like George Michael?) continue, for the moment, to have some vinyl fans. The consensus among those surveyed seems to be toward releasing vinyl on a case-by-case basis, rather than setting a date for complete abandonment of the format.

### SPLICES

Competition is stiffening in the New York mastering market following the opening of **Digital SoundWorks** in Manhattan. The company, with Elliot Federman at the helm, offers CD mastering, digital editing and tape duplication in a two-studio facility featuring the Sonic Solutions hard disk premastering system and Apogee-equipped PCM-1630s...

**Prosonus** of North Hollywood, Calif., is now able to provide reference CDs on a same-day basis in conjunction with its CD master tape preparation services...

**Fantasy Studios** in Berkeley, Calif., has purchased Sony's new digital mastering console. The SDP-1000 is up and running in Fantasy's mastering room, complemented by a new Mitsubishi X-86C recorder (X-80 playback-compatible) and Sony sampling frequency converter. The facility's digital transfer room, meanwhile, features a Sonic System with NoNoise™ and sampling rate conversion by Harmonia Mundi Acustica. Both rooms are 1630- and pro DAT-equipped...

**Rocket Lab** is now open for business in San Francisco. Mastering engineer Paul Stubblebine handles CD mastering and digital editing for the new facility, outfitted with a 960MB Studer Dyaxis and a PCM-1630 with Apogee filters... **Digital House** has become a member of the



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National Association of Independent Record Distributors to underscore its commitment to the needs of independent labels. The New York-based CD and cassette production service has also announced the addition of Don Burkheimer, 30-year RCA veteran, as VP of marketing.

**Versadyne International** (Campbell, Calif.) has upgraded the tape bin design on its Series 1500 high-speed duplicator, incorporating an adjustable drag post for improved tape handling of short master tapes. The modification allows an adjustment range of three inches for adapting tape flow to any master length...The CA-20 on-cassette printer has been introduced by **Apex** of Fort Lauderdale, Fla. The printer features Apex 300 print heads, which may be fine-tuned rapidly using an automatic phasing device. A complete system, which includes automatic in-feed, one- or two-color dry offset printing, UV dryer and auto stacker, operates at up to 120 parts per minute. **Harmonia Mundi Acustica** has added a new plug-in module to its BW 102 system. The BW 102/50 takes signals from asynchronous sources and synchronizes them to a system clock...The Copymaster 500 video duplication system is now available from **Dwight Cavendish Company** in Chicago. The system combines signal routing, group distribution, audio switching and operator monitoring, and offers seven-function remote control of unlimited slave VCRs.

In an effort to improve productivity and worker safety, **Agfa** has unveiled new packaging for its audio and video pancakes. Tape may now be accessed without the use of a razor blade...**Fuji Photo Film** (Elmsford, N.Y.) has launched UH-400, a duplicator pancake tape us-

ing two separate layers of magnetic particles. A 3.5-micron Beridox DC-A layer, optimized for longer-wavelength audio signals, is overcoated with a 0.5-micron top layer of new super-fine Beridox DC-V particles designed for short-wavelength video signals. **Shape** continues to move ahead with its bankruptcy reorganization. The company has merged with its former subsidiary, Gage Molding, and announced the payback in full of creditors. Shape's video division has also been in the news, receiving the annual "Quality First" award for vendors from Technicolor Videocassette, a leading duplicator...**TDK** has added SD-100 to its line of cassettes designed for recording CD-length programs. The company describes the tape as an "entry-level Type II formulation."

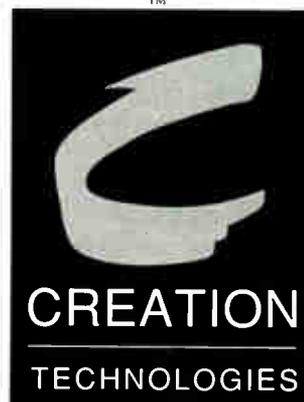


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**Global Publishing** (Scottsdale, Ariz.) has expanded capacity with added slaves and loaders. The company's Versadyne 1500-based system now includes six slaves and two King loaders, with the addition of six more slaves likely soon...**Rank Video Services** of Northbrook, Ill., has acquired eight T-700 Mk-II high-speed video duplicators from Otari. The new equipment brings the number of TMD machines at the company's facility to 16...**Microsoft** has announced that its Sixth International Conference on Multimedia and CD-ROM will be held in San Francisco January 22-24, 1990. "Multimedia" has been added to the event's title in response to the increased interest shown in that area at last January's conference. Prospective attendees and exhibitors call (203) 352-8224 for further information. ■

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# C O A S T

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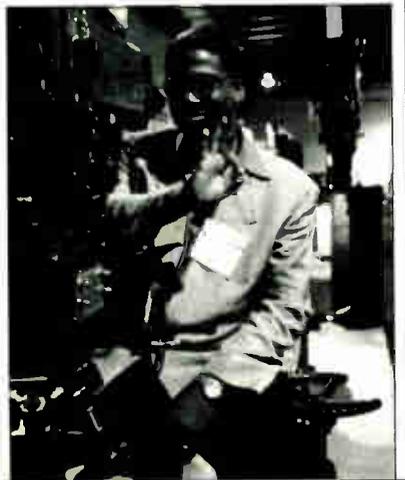
by Amy Ziffer

June in Los Angeles is not a bad time of year; the jacarandas are in bloom. Despite the seasonal haze, it's still reasonably cool (some days, at least), and even the wretched mugginess is a pleasant respite from the usual desert climate. Another June attraction I've just discovered is the Show Biz Expo. The first weekend of June, Los Angeles played host to the Seventh annual expo, which the promoters billed as a World's Fair of tools, concepts, technologies and services used in film and video production.

Filling the north hall of the Los Angeles Convention Center, the 1990 show was the largest ever. Over 250 exhibitors, from camera and lighting manufacturers to Bill Rivers Movieland Animals to city and state representatives trying to add film- and videomaking dollars to their local economies, packed the floor, but the heart of the show was a series of information-intensive

—CONTINUED ON PAGE 139

**Composer Herbie Hancock gets into the action at Show Biz Expo 1990.**



## SESSIONS & STUDIO NEWS

### SOUTHWEST

In Phoenix, **Lambchops Studios** completed several projects for local and national clients. Owner and staff composer **Rick Lamb** produced three jingle packages for California-based Angeles Corp. Lambchops' newest staff composer, **Rick Morgan**, handled musical duties on a series of promotional videos for the Phoenician Resort and a hard-rocking theme for Air France's annual corporate meeting...**Cook Sound and Picture Works** of Houston did the original music score and audio post for a three-part series of industrial videos for Conoco.

### SOUTHERN CALIFORNIA

**Ray Charles** was at **Devonshire** (N. Hollywood) doing vocals with producer **Quincy Jones** in Studio 1, while **Ozzy Osbourne** was cutting tracks with engineer **Mikey Davis**... In Honolulu, guitar greats **Henry Kaiser** and **Richard Thompson** were at **Audio Resource Honolulu** to record with legendary slack key guitarist **Raymond Kane**. **Milan Bertosa** engineered the recordings, which will appear on Kaiser's next album... CBS artist **Martika** was tracking and overdubbing at **Control Center Studios** (Hollywood) with **Frank Blue** and **Les Pierce** engineering and producing... At **Westlake Audio** of L.A.: Warner artist **Sheila E.** was in tracking, overdubbing and mixing with producer **Peter Michael** and engineer **Jess Sutcliffe**. Arista artist **Whitney Houston** was mixing with **Russ Terrana** at the Neve V console with producer **Michael Masser** and assistant **John Fundingsland**... **Chicago** mixed some of the soundtrack for *Days of Thunder* at **Amerycan Studios** of North Hollywood with engineer **Tom Lord-Alge** and **Ross Donaldson**

assisting... At **Paramount Recording Studios** in Hollywood, **Cheers'** **Woody Harrelson** tracked his new album project with producer/engineer **Barry Conley**... **Danny Kortchmar** finished **Jon Bon Jovi's** solo album: *Young Guns II, The Blaze of Glory*. Using Room D at **A&M Studios** (L.A.), guest musicians included Elton John, Jeff Beck, Little Richard and a 31-piece string section... Artist/writer/producer **Gillis** was recently at **Village Recorder Studios** (West L.A.) mixing singles for his debut album with engineer **Magic Moreno**... At **Sunset Sound of Hollywood**, **Barry Manilow** was working on his Christmas album, produced by **Eddie Arkin**, engineered by **Don Murray** and assisted by **Mike Kloster**... **Keith Cohen** was in at **Larrabee Sound** mixing **Was (Not Was)** on "Papa Was a Rolling Stone" with producer **Don Was**...

### NORTHWEST

**Pacific Mobile Recorders** of Sacramento, CA, recorded tracks for a live album of **Little Charlie and the Nightcats**. **Jim Hibbard** and **Matt Flynn** engineered the Alligator Records' project... **Quarterflash** returned to **Spectrum Sound Studios** in Portland, OR, to record "Where I Stand" for their upcoming album. **Charlie Midnight** produced, while **John Rollo** and **Mike Moore** engineered... At **Different Fur Recording** (San Francisco), **The Limbomaniacs** recorded and mixed tunes for their soon-to-be-released album, with engineering on the tracks shared by **Howard Johnston** and **Steve Linsley**. **Dave Jerden** produced the session with **Ron Rigler** assisting... At **Ironwood Studio** in Seattle, engineer **Myron Partman** was busy with rappers **Twice The Hype**, while engineer **Rod Johnson** was working with rock group **Nuance Streamliner** and producer **Steve Adamek**...

# C O A S T

## NORTH CENTRAL

**Chuck Berry** began recording his latest album at his new studio after a fire consumed his previous facility. **SG Audio** of Chicago installed the new equipment, which includes a Neotek Elan console...At **Chicago Trax Recording**, the **Men of Lard** were in the studio working on their latest album for the San Francisco-based label Alternative Tentacles. The main collaborators were Al Jourgensen, Paul Barker, Jeff Ward and Jello Biafra. **Jeff Newell** was at the console...The **Chicago Recording Company** (Chicago) recently completed remixes for **Janet Jackson** and used the new Studer A827 on a new album for **Styx**...**The Disc Ltd.** of East Detroit, MI, reports: **Al Hudson** was working on a solo album; Arista artist **Kiara** completed their soon-to-be-released album; and **The Dramatics** were working on their next album with **Dave Roberson** producing and **Greg Reilly** engineering...Up in Vancouver, Canada, industrial dance band **Skinny Puppy** was at **Mushroom Studios** recording their seventh album. The project was produced and engineered by **Dave Oglivie**...In Toronto, Canada, **Comfort Sound** sent their Comfort mobile to tape a festival in Barrie featuring the **Jeff Healey Band** and the **Killer Dwarves**...

## NORTHEAST

Activities at **Rawlston Recording** of Brooklyn, NY, included the legendary **Mighty Sparrow** recording "Invade South Africa" and "The Slave": the two songs he played for Nelson Mandela at Yankee Stadium; and rap artists **Whodini** recording their debut album for MCA...At **Power Play Studios** (Long Island City, NY): **Sinead O'Connor** was in mixing her latest single with producer **Bill Coman**; and producer **KRS-ONE** put the finishing touches on **Ziggy Marley's** new 12-inch single, "All Love," with **Dwayne**

**Sumal** engineering and **Chris Conway** assisting...At **Electric Lady Studios** (NYC), producer **Junior Vasquez** mixed a track written by **Prince** for the upcoming film *Graffiti Bridge*. **Mark Plati** engineered the mixes and programmed keyboard with the assistance of **Michael White**...**The Toyz** recorded a self-produced demo at the **Recording Club** of Collegeville, PA. **Jim Femino** engineered with the assistance of **Tom Simpson**...**Girls Club** was recording and mixing their dance single "Have the Heart" at **Giant Recording** (NYC). **Vito Bruno** produced, **David Sussman** engineered and **Kevin Thomas** assisted...**Eastside Sound** (NYC) completed recording and mixing for the upcoming HBO movie *Criminal Justice*. **Eliot Goldenthal** scored and produced with **Joel Iwataki** and **Nick Prout** at the board...

## SOUTHEAST

**Chet Atkins** and **Mark Knopfler** were working together on a duet album at **Sound Emporium** (Nashville, TN) with **Mike Poston** engineering...At **Cheshire Sound Studios** of Atlanta, **Bobby Brown** and **Dennis Austin** tracked cuts on *Smoothe Sylek* and *Dee*. **Thom Kidd** engineered with assistant **Mike Alvord**...In Memphis, TN, **Greg Archilla** mixed three songs for **Efrem Payne** that were produced by **Michael Allen** at **Kiva Recording Studio**...Southern rockers **.38 Special** were working on their new album at **Soundscape Studios** of Atlanta. The band produced, and **Rodney Mills** and **Ed Miller** engineered...**Criteria Studios** of Miami reports: Brazilian superstar **Roberto Carlos** continued work on his next release with producer **Roberto Livi** and engineer **Eric Schilling**; Argentine rock band **Soda Stereo** tracked their eighth LP with producer **Peter Baleani** and engineer **Mariano Lopez**; and **Julio**

—CONTINUED ON PAGE 144

## N.Y. METRO REPORT

by Randy Savicky

Like its recent predecessors, the New Music Seminar 11 at the Marriott Marquis Hotel attracted the full range of players in the music industry—artists, record labels, producers, managers, DJs, lawyers, etc.—you name it, they were there. Not to be outdone, the studio industry and the technical side of the industry were also well represented; in fact, more so than usual. While exhibitors like Agfa, Sonocraft and the Institute of Audio Research attracted crowds during exhibit hours, the tech and industry panels drew full houses, too.

The panels offered a glimpse into a number of diverse areas—engineering, production teams, remixing, music business education and the recording studio. For example, SPARS sponsored a panel entitled "The State of the Recording Studio."

This panel featured an equal balance of studio executives from leading New York studios: Bob

—CONTINUED ON PAGE 142

**Peter Walsh (seated) and O-Positive guitarist Ai Petitti at White Crow Audio, Burlington, Vermont. Dave Herlily looks on.**



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—FROM PAGE 136, L.A. GRAPEVINE

conferences and exhibitor-sponsored sessions on topics as diverse as "Directing Commercials and Complying with Code Requirements for Portable Power" and "Power Distribution and Lighting Equipment."

One area, designated the Exploratorium, delivered a high-tech arcade of advanced graphics, sound and video editing systems, and unusual production services and equipment. Since the show wasn't strictly equipment-based, it attracted an interesting blend of creative, technical and support people and provided a forum for them to better understand each others' roles. Easterners, don't despair: Founders and organizers Nalini and Bob Lasiewicz are planning an East Coast Show Biz Expo for the fall of 1991.

Music Grinder Studios recently moved into the '90s, leaving its 4,500 square-foot Melrose Avenue location behind for a new Hollywood Boulevard location with 10,000 square-feet and security parking. The new studio has a warehouse-sized (60x35) recording area (as the Melrose facility had), but with a much larger control room designed by Vincent Van Haaff. The studio is outfitted with a Neve 8108, Studer A800 MkIII and Studer 827. Music Grinder said goodbye to Melrose Avenue with a w/rap party for RATT, the last client at the old location. In attendance were Jon Bon Jovi, producer Desmond Childs, CC of Poison, Mark Torien from Bullet Boys and many other familiar faces. A new phone number comes with the rest of the package: (213) 957-2996.

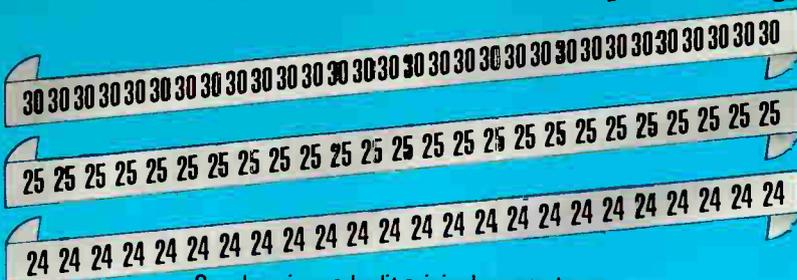
Eldorado Recording Studio took over the old Marvin Gaye (and most recently, Kren) complex at 6553 Sunset Boulevard in Hollywood. Eldorado was near Hollywood and Vine since 1956, but was forced out of that location as the building owner would not comply with the necessary seismic work required by building and safety codes (just another one of those thrills that distinguishes the L.A. market). Owner and manager Gary Gunton chose the Marvin Gaye facility because he thought the basic studio shell was one that lent itself to renovation, not to mention the great Hollywood location.

The renovation took twelve weeks; the main objective was to make the studio larger, harder and brighter. The studio is now 24x35x16, finished in plaster and hard maple throughout, with partially carpeted concrete floors

—CONTINUED ON THE NEXT PAGE

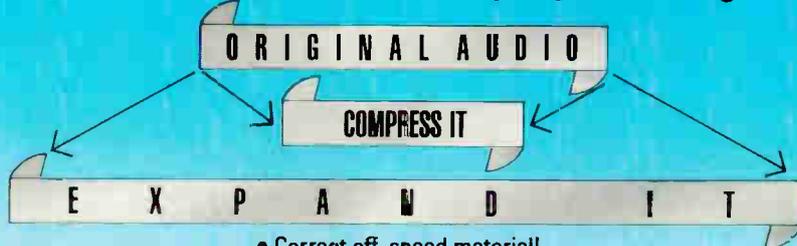
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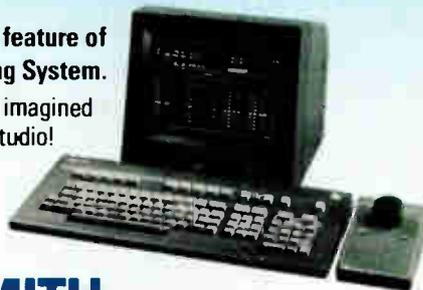
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and four iso booths equipped with sound locks; the control room is 22.5x20. "In this town you've got to have a Neve V Series to stay competitive," Gunton states, so he's gone with a V-3/Studer A827/Mitsubishi X880 combination. Eldorado can be reached at (213) 467-6151.

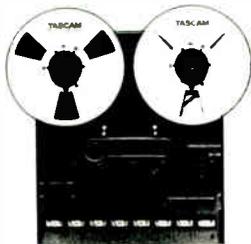
Old-timers (that is, anyone over 35) still talk with reverence about certain L.A. studios gone the way of the dinosaur. I have an engineer friend who gets nostalgic every time he walks past the corner Gold Star occupied, or tells the story of how he went to school with Stan Ross' kids. Many of these classic facilities have ended their days as little more than wasted shells. Not so with Radio Recorders, however; 7000 Santa Monica Blvd. seems to have a life of its own (maybe all the classic eating establishments nearby have something to do with it: the Formosa, Oki-Dog, Lou's Quickie Grill, etc.).

The studio, out of which came a bunch of '50s hits, has undergone reincarnations several times. Two years ago it became Studio 56, which has now completed an expansion to three rooms. A Neve VR 60-input board with Flying Faders automation and two Studer A820s provide the backbone of the equipment roster in Studio A; a Trident 80B and two Otari MTR-90iIs inhabit the MIDI room (Studio B). A third studio is reserved for in-house productions, and construction on a fourth will begin this fall. The telephone number is (213) 464-7747.

In the continuing education department, Mr Bonzai, *Mix* magazine's editor-at-large, will host a four-evening series at the University of California at Los Angeles this fall. The program is entitled "The School of Hard Rocks: Personal Views of Success in the Music Industry." Subjects to be covered include "The Artist and the Tools," "Movie Music," "Session Work" and "The New Breed." (That's right, scientists have finally isolated the gene that causes youngsters to spend 2.4% of their teen years in the den with headphones on and to grow up to be rock stars.) Guests scheduled to share their insights include Ray Manzarek, Jeff Baxter (man, this guy gets around!), Don and David Was, Ed Cherney, Van Dyke Parks, Stephen Paul, Hal Blaine, Jim Keltner, Tommy Tedesco, Steve Lukather, Chris Stone, Joel Moss and *Mix* editor-in-chief David Schwartz, among others. Class begins October 30. For more information, contact the UCLA Extension at (213) 825-9064. ■

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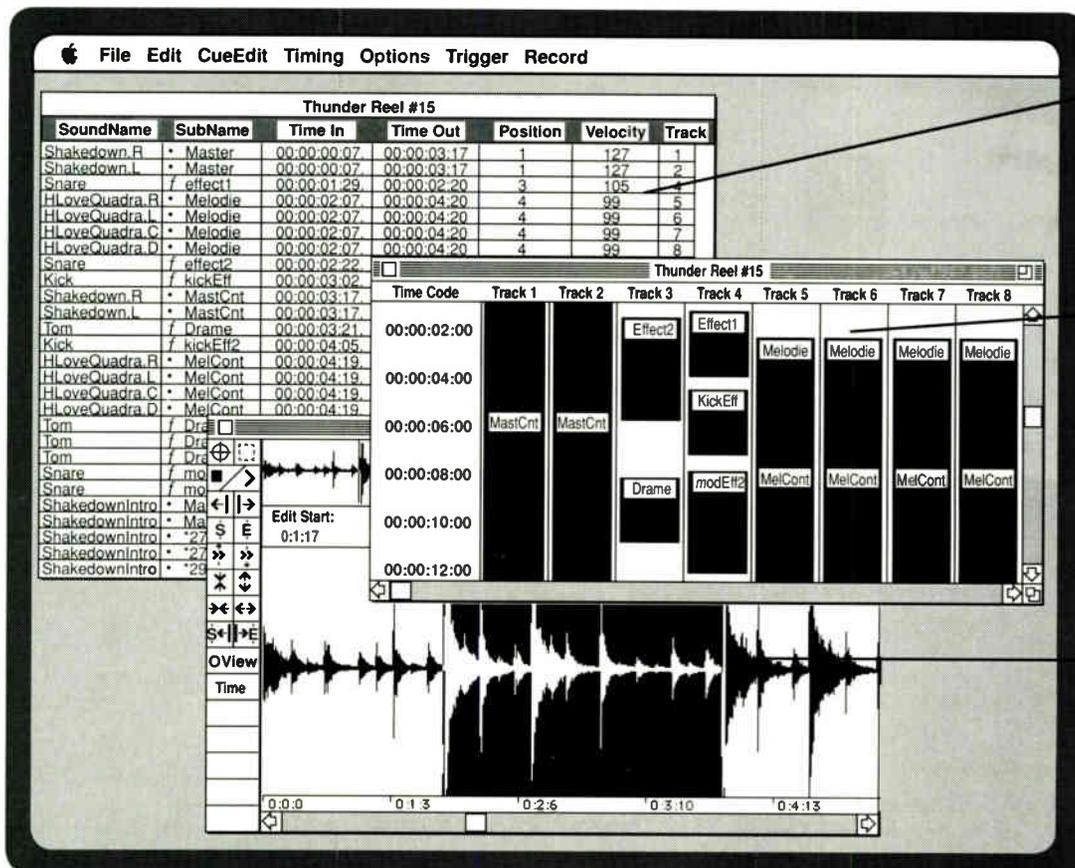
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—FROM PAGE 136, N.Y. METRO REPORT

Walters of Power Station, Maxine Chrein of Master Sound Astoria and Richard Kessler of Platinum Island, with some studio execs from the rest of the country: John Dressel of Paisley Park (Chanhassen, Minn.), Jody Stephens of Ardent Recordings (Memphis, Tenn.) and Gary Platt of Platinum Post (Winter Park, Fla.). Dave Teig of SPARS moderated.

Topics spanned the breadth of the business, including marketing a studio ("One on one contact is best, but publicity is very important," Stephens), tape storage ("A nightmare, I hope all 1/2-inch tape will disappear, replaced by smaller storage media, like digital audio tape," Chrein), staying viable in the face of changing technology ("Studios should address changes in the marketplace to compete better, like offering the ability to interface outside racks efficiently into the studio," Kessler), education ("The '80s trend of freelance engineers will taper off because of the demand for excellent in-house engineers who are up-to-date with the latest, most in-demand gear," Platt), getting paid ("You don't have a client unless you get paid," Walters), and service vs. technology ("Not ev-

erybody can buy top equipment, but we must fulfill the needs of each client, no matter what the budget is," Dressel). The standing-room-only crowd included a few studio owners and many would-be engineers, just about everybody in the audience had his or her own home studio.

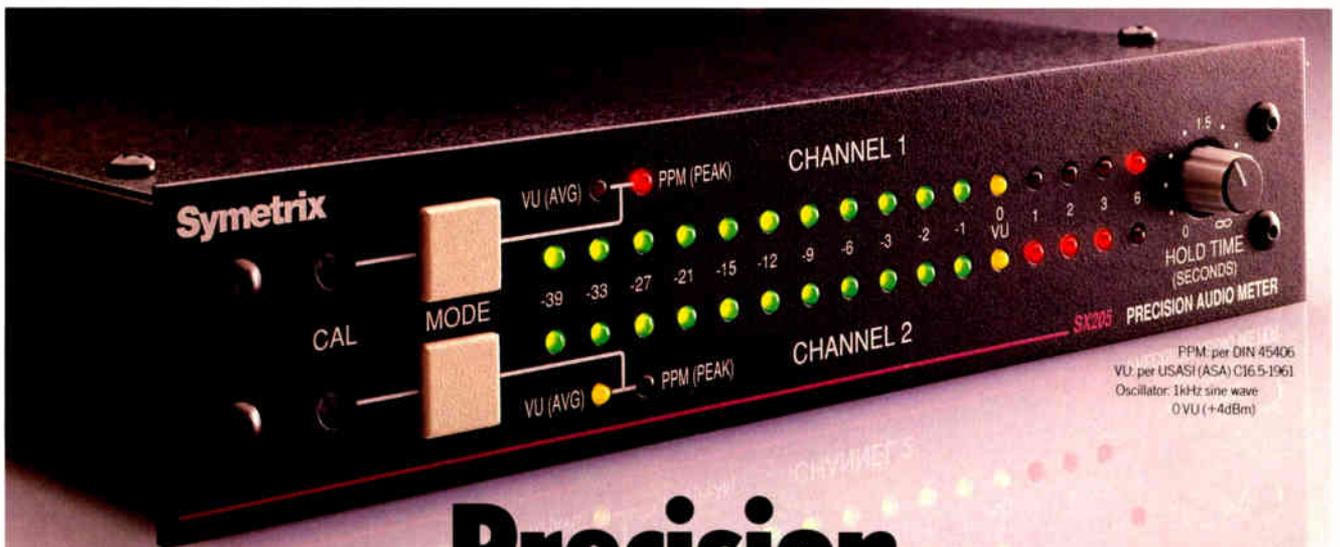
Trans American Video Services used the seminar to launch a Music Services Division featuring "one-stop shopping" for the music industry. A division of AME, with facilities in New York, New Jersey and California, TAVS offers a production studio/soundstage, sweetening, film-to-tape transfer, standard conversions, duplication and distribution/fulfillment.

AudioTechniques opened a new 10,000-square-foot facility at 1600 Broadway, a few doors down from its old office. The company, a division of Manny's Music, celebrated with free clinics and seminars, special prices and weekly drawings for pro audio equipment. In related news, AudioTechniques was named the exclusive Northeast dealer for RPG Diffusor Systems.<sup>TM</sup>

SSL and the Institute of Audio Research have two events for engineers and studio employees: a one-day as-

sistant engineer's course and a five-day maintenance engineer's course. In addition, SSL and TimeLine cooperated on an open house at SSL's New York headquarters. At SSL's first open house, the one-day event presented SSL's ScreenSound digital audio-for-video editor, TimeLine's Lynx SSL Interface and Lynx Time Code Modules, and the SSL G Series console and studio computer.

Here's a roundup of other recent news of note: Master Audio Productions captured first place in the radio commercial category at the 22nd Annual Jersey Awards. The Magic Shop added a Neumann U48 tube mic, Pultec and Lang EQs, a UREI 1176 limiter and an 1963 Epiphone Ensign tube guitar amp. Video Tape Distributors opened a new office at 423 W. 55th St. Music Animals is renovating its facilities to include five audio-for-video post suites. Eaton Sales and Marketing was formed to serve the upstate New York territory for DOD, Fostex, Gallien-Krueger, Anatech, Raxxess and Mackie Design. The 18th Regional Convention of the Society of Broadcast Engineers will be held in Liverpool, N.Y., September 14. Call (315) 437-5805 for more information. ■



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# SPARS



## BEAT

by Pete Caldwell  
SPARS at AES

For recording studio people, the annual Audio Engineering Society show is the *must* show. Sure, some of us go to NAB, SMPTE and NAMM and heaven-only-knows what else, but AES is kind of, well, "it." Sure, it is exhausting, chaotic and less than a perfect forum for information exchange, but it is still the most "on target" show we have. This is why SPARS is an active player every year at AES. SPARS knows that if there is one chance to catch all these studio guys and gals in one place at one time, AES is it.

Last year in New York, SPARS chose the AES show as the place for a tenth anniversary celebration. Every year at AES, SPARS holds a general membership meeting and numerous board and committee meetings. This year in Los Angeles will be no exception. The following is a partial listing of SPARS activities planned for the September AES show:

### SPARS Meetings

A general membership meeting for all SPARS and prospective members will be held on Saturday morning, September 22, at SoundWorks West, 7317 Romaine St., Hollywood, CA 90028. After an early breakfast, formal proceedings will begin with reports from various SPARS committees and officers, and discussions on all the programs and activities. The meeting will conclude with the election of officers for 1990-1991. Immediately following will be a meeting of the new board of directors.

### The SPARS Booth and Seminar

The SPARS booth on the AES show floor will be number 432. Please make an effort to drop by! The booth will offer info on SPARS membership, programs and activities, and updates concerning tapes, white papers and seminars. The SPARS booth is a good place to just talk the talk. The AES has asked SPARS to conduct a seminar at the 1990 show. This year a SPARS panel will discuss "Business Aspects of the Recording Industry: Market Segmentation." ■

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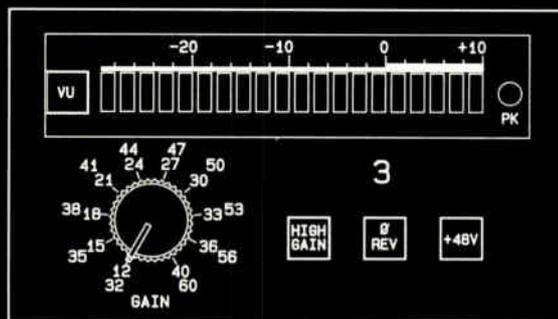
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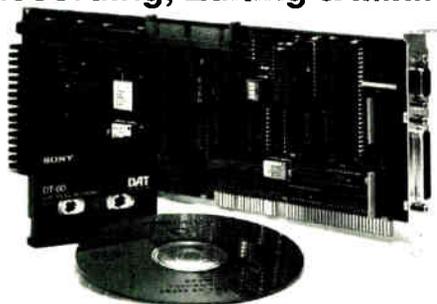
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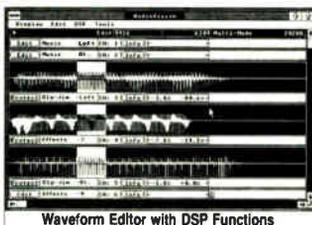
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—FROM PAGE 137, SESSIONS AND STUDIO NEWS

**Iglesias** recorded vocals for his upcoming English release...**RM Audio** (Chamblee, GA) supplied recording services for the filming of the Reebok National Aerobics Championships for ESPN at the Georgia World Congress Center...**Soundworks Studio** in Macon, GA, reports: female vocalist **Kid Gloves** and Motown artist **AC Black** were in working on tunes; both groups were produced and engineered by **David Norman**...

## STUDIO NEWS

The **University of Texas, San Antonio**, purchased a Tascam ATR-60/8 1/2-inch 8-track recorder and the ATR-60/2N 1/4-inch 2-track master recorder. Instructors will use the equipment to teach recording techniques in the university's music lab...**TSR Studios** of Studio City, CA, installed a 44-input Soundcraft console for mastering work...**Ardent Recordings** of Memphis, TN, recently acquired a digital Dyaxis...**Mixmasters** of San Diego installed a DDA AMR 24 console and an Otari MTR-90 in Studio A and Neotek Elite console in the 24-track Studio B...**Windmark Recording** recently opened in Virginia Beach, VA. The recording complex, created by **Steve Durr**, features an SSL 4040E G Series console. Windmark's president **Michael Marquart**, former drummer for Flock of Seagulls, built the studio from the client's point of view: "I spent my life traveling and playing in studios, so I know what a musician wants."...**River North Studios** has undergone a major redesign. Located in downtown Chicago, the five-studio facility now has a DDA DCM 232 console along with Klark-Teknik reverbs...**Multi Sound Images** of Allentown, PA, is a new music production company providing advertising jingles and original soundtracks for film and video...**Creation Studios** is moving its 24-track North Vancouver operation to 7490 Edmonds St., Burnaby, BC. The space, formerly occupied by Inside Trak Studios, was renovated to provide a two-studio complex. **Lisa Barton** has come onboard as Creation's studio manager...City of Visitation Enterprises opened **The Cove**, a 24-track audio recording, production and pre-production facility located in Brisbane (San Francisco). The Cove has extensive drum and percussion capabilities offered by its owner, Kaleidoscope recording artist **Erik Nielson**. ■



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P R O F E S S I O N A L

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Pros worldwide use the MidiTap live and in their studios. They love it, and we think you will, too. Because making it fun is what it's all about. Here's to your music!

## The MidiTap.

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# SO. CALIFORNIA HAWAII & SOUTHWEST STUDIOS

Information in the following directory section is based on questionnaires mailed earlier this year and was supplied by those facilities listed. *Mix* claims no responsibility for the accuracy of this information. Personnel, equipment, locations and rates may change, so please verify critical information with the companies directly.



Studio B at Echo Sound of Los Angeles has been fitted with a Trident 80C 32-input console with Digital Creations automation. Additionally, a new Studer A827 24-track tape machine has been added to the room. Photo: Kristen Dahline.

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*Mix* listings procedure: Every month, *Mix* mails questionnaires to recording studios and/or other vital facilities and services for the recording, sound and video production industries. There is a nominal charge to list a **Boldface Listing** (name, address, contact) and an **Extended Listing** (equipment, credits, specialization and photo or logo). If you would like to be listed in a *Mix* Directory, write or call the *Mix* Directories Department, 6400 Hollis Street # 112, Emeryville, CA 94608; toll free 800-344-LIST!

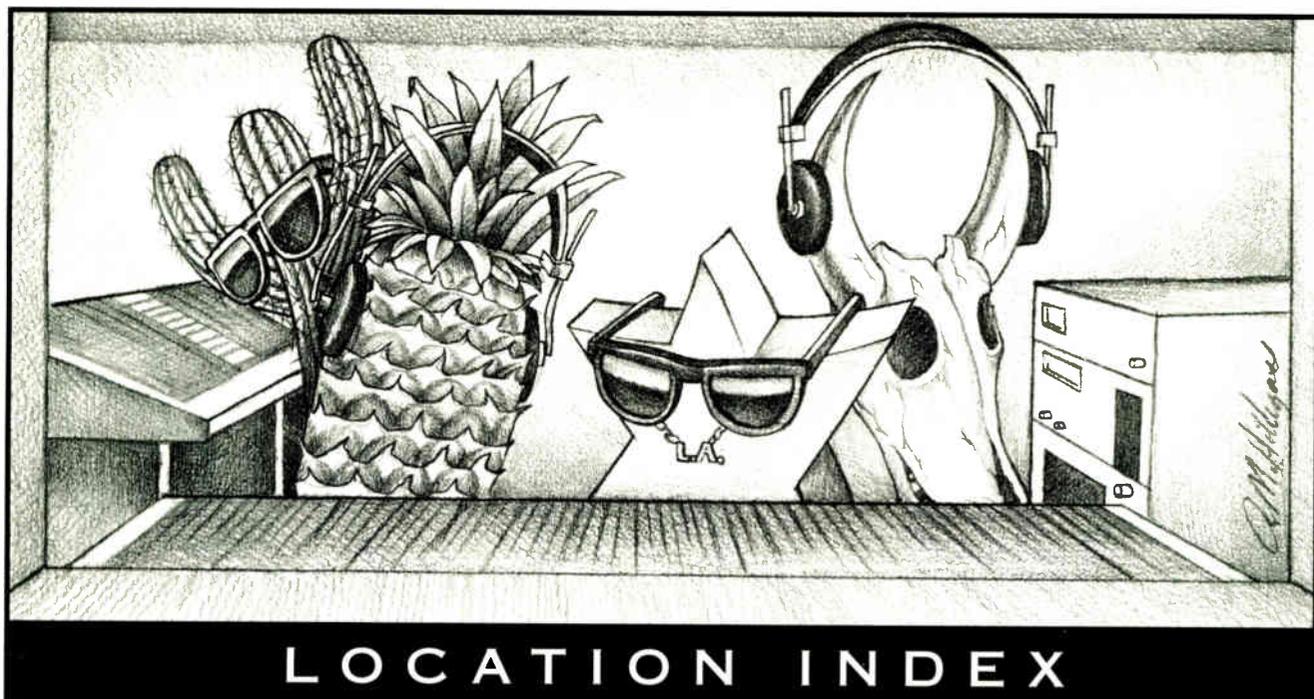
### Upcoming Directory Deadlines:

Mastering, Pressing & Tape Duplication Facilities: **September 17, 1990**

Northwest Studios: **October 17, 1990**

Independent Engineers & Producers: **November 16, 1990**

European Production Facilities: **November 16, 1990**



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All studio information listed has been supplied to *Mix* by studios responding to questionnaires mailed in April 1990. People, equipment and locations change, so please verify critical information with the studios directly. *Mix* does not take responsibility for the information supplied to us by the studios.

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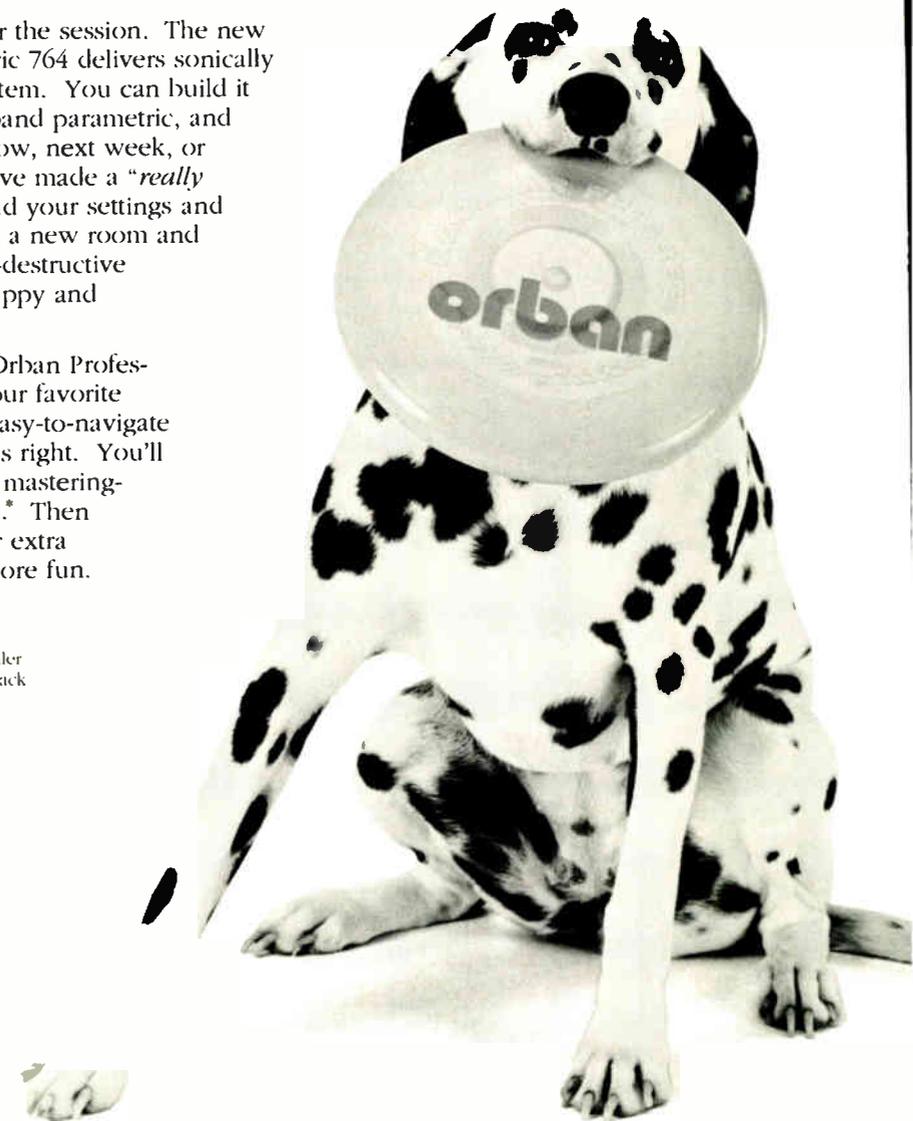
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# 24+ TRACK

STUDIOS

[24+] **J&M STUDIOS**; 1416 N. La Brea Ave.; Hollywood, CA 90028; (213) 469-5181. Owner: PolyGram, NV. Manager: Mark Harvey.

[24+] **A & R RECORDING SERVICES**; 71906 Hwy. 111; Rancho Mirage, CA 92270; (619) 346-0075. Owner: Scott Seely. Manager: C. Crain.

[24+] **A TO Z STUDIOS**; 680 Arrow Hwy.; La Verne, CA 91750; (714) 599-1301. Owner: Dick Zahniser. Manager: Ann Thomas. Engineers: Shawn Michael, chief eng., Glenn Diekmann. Dimensions: Studio 25 x 27, control room 25 x 20. **Mixing Consoles**: Trident Series 80B w/Neve Flying Faders. **Audio Recorders**: Sony APR-24 24-track, Studer A80 2-track 1/2" and 1/4". (2) Sony 2500 Pro DAT. Echo, Reverb & Delay Systems: AMS RMX 16, Yamaha REV5, Aphex Aural Exciter II, Yamaha SPX90II reverb/delay, Eventide 949, Alesis Quad-verb, Summit Audio TLA100A comp, UREILA-4A comp, dbx 902 de-esser, Aphex 612 gate, Sontec 250EX EQ, Summit Audio EQP-200 EQ. **Microphones**: AKG The Tube, AKG 414, AKG 452, Neumann U87, Neumann KM84, Beyer MC740, Sennheiser 421, Shure SM57. **Monitor Amplifiers**: (2) Boulder 500, Crown PS-200, Crown D-150, Crown 300, Crown 75. **Monitor Speakers**: Tannoy SFMU, JBL 441, Yamaha NS-10 near-fields, Tannoy PBM-8 near-fields. **Musical Instruments**: Kurzweil K1000, Yamaha C7 studio grand piano, Yamaha KX88 controller, Yamaha DX7 synth, Korg M1R, E-mu Proteus I, Akai S950, Ensoniq ESQ-1, Roland D-550, Roland M-160 keyboard mixer, Roland U-220, Roland R-8, Akai ME30P MIDI patch bay. **Other MIDI Equipment**: Macintosh SE30 w/Opcode Vision, Opcode Studio II.



**AZTEC RECORDING AND TAPE DUPLICATING, INC.**  
Phoenix, AZ

[24+] **AZTEC RECORDING AND TAPE DUPLICATING, INC.**; also REMOTE RECORDING; 1110 E. Missouri, Ste. 400; Phoenix, AZ 85014; (602) 279-0808; (800) 356-5871. Owner: Ron Briskman. Manager: Venus Villamagna. Engineers: Michael Jones, Tim Clarke, Wayne Vican, Mark Cross. Dimensions: Room A: studio 9.5 x 12.5, control room 12.5 x 16.5. Room B: studio 7.5 x 8.5, control room 12 x 22. MIDI room: 14 x 11.5. **Mixing Consoles**: Ramsa WR-T820B, Tascam, TEAC, Yamaha. **Audio Recorders**: Otari MX-80 24-track w/remote, Fostex E-16 16-track w/remote, Fostex E-2 2-track w/remote, Sony 300ES DAT, TEAC 40-4 4-track w/dbx module, Tascam 234 4-track, Fostex A Series 8-track 1/4". **Cassette Recorders/Duplicators**: KABA 4-track real-time, King/Concept Design cassette loader, (10) Sony CP-110/112 high-speed. **Synchronization Systems**: Adams-Smith Zeta-3 controller, Fostex 4035, Fostex 4030, Roland SBX-80. Echo, **Reverb & Delay Systems**: Eventide H3000 Ultra-Harmonizer, ART MultiVerb, ART SGE digital Super-Effector/pitch transpose, (2) Yamaha SPX90, Aphex Aural Exciter Type C, Rane DC-24 dynamic controller, (2) TC Electronic parametric EQ, (2) Dyna-Mite dynamics controller, Valley International GateX 4-channel gate/expander, dbx 160X comp/lim, (2) dbx 263X de-esser, Lexicon LXP-1 reverb w/MRC MIDI remote controller, Ashly Audio stereo 15-band graphic EQ, Roland SDE-1000 digital delay, Alesis Microverb, Alesis MicroEnhancer, Alesis Microgate, Alesis Microlover, (this is just a partial list

of our outboard inventory). **Other Outboard Equipment**: Symtelix TI-101 telephone interface. **Microphones**: Neumann, AKG, Sennheiser, Beyer, Shure, Audio-Technica, Sony. **Monitor Speakers**: (2) Yamaha NS-10M, Yamaha NS-200M, Tannoy PBM-6.5. **Musical Instruments**: (2) Ensoniq EPS sampler keyboard, Yamaha DX7 digital synth, Roland D-50 linear synth, Korg Poly-800 synth, Roland D-110 sound module, Kurzweil 1000SX string expander, Akai MIDI digital sampler, Roland TR-626 drum machine, Roland Octapad II Pad-80 MIDI controller, Yamaha TX7 FM expander, guitars and drums available. **Other MIDI Equipment**: IBM computer w/Texture multitrack sequencer software. **Video Equipment**: JVC CR-6650U 3/4" professional recorder. Other: Sony PCM-601-ESD digital audio processor. **Specialization & Credits**: Phoenix, Arizona, boasts one of the Southwest's fastest growing recording studios and cassette duplicating facilities. Aaztec offers full production 24 hours a day, seven days a week. Rates are very competitive, and we offer two complete recording studios, custom music and jingles, full production of radio commercials and TV voice-overs, MIDI production, an extensive music and sound effects library, phone patching, complete audio cassette, real-time, double-time and high-speed duplication, computerized voice and musician casting, and award-winning engineers. We produce commercials for over 300 advertising agencies in 35 states, and our custom music is regularly heard on movie tracks, industrials and commercials nationwide. Aaztec is very proud of the work that is created in its facility and our number one priority is customer satisfaction. Our most effective advertising comes by word of mouth from satisfied customers to prospective customers.

[24+] **ACCESSIBLE SOUND**; 8964 Kirby; Houston, TX 77054; (713) 667-9000. Owner: Kenneth G. Bujnoch. Manager: Herman A. Teale.

[24+] **ADAMOS RECORDING**; also REMOTE RECORDING; 16571 Higgins Cir.; Huntington Beach, CA 92647; (714) 842-2668. Owner: Jerry Adamowicz. Manager: Jerry Adamowicz.

[24+] **AMERICAN RECORDING CO.**; 22301 Mulholland Hwy.; Woodland Hills, CA 91364; (818) 347-9240. Owner: Richard Podolor. Manager: Bill Cooper.

[24+] **AUDIO ACHIEVEMENTS RECORDING STUDIO**; also REMOTE RECORDING; 1327 Cabrillo Ave.; Torrance, CA 90501; (213) 320-8100. Owner: Audio Achievements, a Cal. Corp. Manager: Donovan.



**AUDIO RESOURCE HONOLULU**  
Honolulu, HI

[24+] **AUDIO RESOURCE HONOLULU**; also REMOTE RECORDING; 1750 Kalakaua; Honolulu, HI 96826; (808) 944-9400. Owner: Tony Hugar, Milan Bertosa.

[24+] **AUDIO SUITE**; 1110 A W. Glenoaks Blvd.; Glendale, CA 91202; (818) 241-9090. Owner: Eric Sclar. Manager: Kevin Lange.

[24+] **BCD PRODUCTIONS INC.**; 3198 Royal Lane; Dallas, TX 75229; (214) 350-6945. Manager: Bob Pickering.

[24+] **GARY BECK'S RECORDING STUDIO**; also REMOTE RECORDING; 4817 Karchmer; Corpus Christi, TX 78415; (512) 854-7376. Owner: Gary Beck.

[24+] **BLUE MOON STUDIO**; 28205 Agoura Rd.; Agoura Hills, CA 91301; (818) 889-8920. Owner: Joe Vannelli, Gino Vannelli. Manager: Diane Ricci.

[24+] **JIM BRADY RECORDING STUDIOS**; 25 E. Glenn St.; Tucson, AZ 85705; (602) 791-3884. Owner: F. James Brady. Manager: Diane J. King.

[24+] **WALLY BURR RECORDING**; 1126 N. Hollywood Way, Ste. 203; Burbank, CA 91505; (818) 845-0500. Owner: Wally Burr. Manager: Ellen Burr.



**CAPITOL RECORDS STUDIOS**  
Hollywood, CA

[24+] **CAPITOL RECORDS STUDIOS**; also REMOTE RECORDING; 1750 N. Vine St.; Hollywood, CA 90028; (213) 462-6252. Owner: Thorn-EMI. Manager: Sharon Swab. Engineers: Peter Doell, Charlie Paakkari, Leslie Ann Jones, Ray Blair, Wally Traugott, Ron McMaster. Dimensions: Room 1: studio 47 x 44, control room 25 x 25. Room 2: studio 33 x 31, control room 22 x 20. Room 3: studio 12 x 10, control room 18 x 22. **Mixing Consoles**: Neve VR Series 60 x 48 w/Flying Fader automation, Neve 8068 32 x 24, Neve 8108 48 x 32, Studer 900 12 x 4, (2) Sony 1105-K 8 x 12 digital, (2) Sony MXP-2000. **Audio Recorders**: Studer A800 24-track, Studer A80 24-track, (3) Studer A820 2-track, (12) AmpeX ATR-100 4-track 2/4-track 1/4" and 1/2", (8) Sony BVU-800 2-track digital, (6) Sony DMR-4000, Pro 2-track DAT, (12) Panasonic SV-3500 Pro DAT, Mitsubishi X-880 32-track, Mitsubishi X-86 2-track, (4) Studer A827 24-track. **Cassette Recorders/Duplicators**: Yamaha C300, Aiwa 660, Aiwa 770. **Noise Reduction Equipment**: (4) Dolby A, (8) Dolby SR. **Synchronization Systems**: TimeLine Lynx, Lynx video controller. **Echo, Reverb & Delay Systems**: (8) Live echo chambers, EMT 250, (4) Yamaha REV7, (2) AMS DDL, (2) AMS reverb, (3) EMT 140 plate, (2) Lexicon Super Prime Time, (3) Roland 3000, (2) Roland SRV-2000, (2) Yamaha SPX90, (2) Yamaha SPX90II, (3) Eventide 949, Eventide 910, TC Electronic 2290, (2) Roland DEP-5, Lexicon 480L, Lexicon PCM70. **Other Outboard Equipment**: Various tube and solid-state limiters, (2) Studio Technologies stereo simulator, Valley People Kepex II gate, Drawmer gate, ITI parametric EQ, (2) Trident parametric EQ, (5) Neve 8078 EQ w/mic pre, dbx de-esser, (7) Pultec EQ, Neve stereo compressor, (8) Summit Audio tube EQ, (4) Summit Audio tube limiter, (4) JBL/UREI 7110 limiter, dbx 900 w/902, 903, 904 & 905 mods. **Microphones**: Over 200, including Neumann, AKG, Sennheiser, Shure. **Monitor Amplifiers**: Hafler modified. **Monitor Speakers**: UREI, TAD, JBL custom 2-way, Yamaha NS-10, Auratones. **Musical Instruments**: Yamaha 9' concert grand piano, Steinway 7' grand piano, Hammond B-3, (3) Roland 300A, Roland R-880, Yamaha SPX1000, Eventide H3000S Harmonizer, Wurliizer electric piano, Marshall guitar amp. **Other MIDI Equipment**: Macintosh II w/Performer, Vision, Galaxy. **Video Equipment**: 1/2" and 3/4" video duplication capability. **Specialization & Credits**: We have completed a multimillion dollar remodeling, including the complete renovation of Studio A. Equipped with a Neve VR-60 console with Flying Fader automation, the new Studio A is 1,400 square feet and features multiple isolation areas, including expansion into Studio B by opening the isolation partitions. The control room incorporates MIDI, video and computer distribution lines as well as ultra-low capacitance audio wiring and both high-power cue and self-mix cue capability. In addition to main performance area, Studio A also includes a 25' x 25' super live room, which can be utilized for recording or can be converted to a private lounge for your session. Capitol Studios also offers disc mastering and complete digital editing facility including Sonic Solution editing and CD refs. Located in famous Capitol Records Tower in the heart of Hollywood. Call us for rates and availability.

[24+] **CARAVAN OF DREAMS RECORDING STUDIO**; 312 Houston St.; Ft. Worth, TX 76102; (817) 877-3000. Owner: Caravan of Dreams Inc. Manager: Kenny Bergle. Engineers: —LISTING CONTINUED ON NEXT PAGE

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## 24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

Kenny Bergle, Conan Reynolds, Edward Trænkner. **Specialization & Credits:** Caravan of Dreams Performing Arts Center's Recording Studio specializes in state-of-the-art recording of live performances in our world-class nightclub (capacity 325). The all-MCI studio is online and three floors up from the opto-isolated splitter mic box on the nightclub stage. Video monitoring from the stage allows viewing in the sound-isolated control room. Many international recording artists have expressed great satisfaction at both the quality of their performances in the nightclub and recordings of their performances. Such artists include Ornette Coleman, James Blood Ulmer, Eartha Kitt, Michael Brecker, Dr. John, Loudon Wainwright III, Ronald Shannon Jackson, New Bohemians, Gatemouth Brown and many others. Record labels using our beautiful facility include CBS, MCA, Sparrow Records, Caravan of Dreams Productions and many others. We master to digital 2-track for DDD CD production and digital or analog 24-track is available. Full video production and post-production is available, as well as an in-house audio broadcast facility.

[24+] **THE CAVERN RECORDING STUDIOS;** also REMOTE RECORDING; 3305 N. Dodge Blvd.; Tucson, AZ 85712; (602) 881-1212. Owner: Bill Cashman. Manager: Bill Cashman.

[24+] **CEDAR CREEK RECORDING;** 5012 Brighton Rd.; Austin, TX 78745; (512) 444-0226. Owner: Austin Media Productions, Inc. Manager: Fred Remmert.

[24+] **CEREUS RECORDING, INC.;** also REMOTE RECORDING; 1733 E. McKellips #7; Tempe, AZ 85281; (602) 990-8163. Owner: Alien & Dianne Moore. Manager: Phoenix Regallon.



**CHASE POST SOUND**  
Hollywood, CA

[24+] **CHASE POST SOUND;** 7080 Hollywood Blvd., Ste. 515; Hollywood, CA 90028; (213) 466-3946. Owner: Rick Chase. Manager: Tom Hilbe.

[24+] **CHATON RECORDINGS;** also REMOTE RECORDING; 5625 E. Nauni Valley Dr.; Scottsdale, AZ 85253; (602) 991-2802. Owner: Ed and Marie Ravenscroft. Manager: Marie Ravenscroft. Engineers: Steven Escallier, chief engineer; Ed Ravenscroft; David Nelson; Andy Seagle; Kevin Stoller, keyboard/MIDI specialist. Dimensions: Studio A; room 1: studio 13 x 24, control room 13 x 24. Room 2: studio 13 x 15. Studio B: 20 x 20, control room 15 x 18. Remote truck: control room 8 x 15. **Mixing Consoles:** Trident 80C 32 x 24 w/48 w/Diskmix moving fader automation, Trident 80B 30 x 24 x 24, Soundcraft 800 30 x 8 x 24. **Audio Recorders:** Otari MTR-401 124-track, Otari MX-70 1" 8-track, Otari MTR-90 16/24 tracks, (2) Otari MTR-10C w/center track SMPTE, Otari MX-80 24-track, (2) Otari MTR-12, Otari MTR-1211 1/2", (2) Otari MX-5050B, Sony PCM-F1 w/JVC VHS VTR, Nakamichi DMP-100 w/JVC VHS VTR, (2) Tascam DA-30 R-DAT, (10) Tascam 122 MkII. **Noise Reduction Equipment:** Dolby SR 54 channels. **Synchronization Systems:** (4) Adams-Smith Zeta-3 w/remote auto-locator. **Echo, Reverb & Delay Systems:** Lexicon 480L w/LARC, Lexicon 224X w/LARC, Lexicon 200, (7) Lexicon PCM42, (4) Lexicon PCM70, Eventide H949 w/keyboard, (4) Yamaha SPX90II digital effects processor, (2) UREI LA-4 compressor. **Other Outboard Equipment:** (2) Valley People DSP, (2) TC Electronic 2240 Para EQ, Valley People Maxi-Q, dbx 900 rack w/assorted comp/limiters, gates, Aphex C line mixers, UREI 1178 compressor, (4) Valley People Kexep II gate, (2)



**CHATON RECORDINGS**  
Scottsdale, AZ

Drawmer dual gain. **Microphones:** AKG, Neumann, Sennheiser, Shure, Beyr, Sony, Crown PZM, PML. **Monitor Amplifiers:** Bryston, Crown, UREI, BGV, Monitor Speakers: Tannoy FSM w/PIM-ACT dividing network, Tannoy PBM-6.5, Tannoy LGM, Yamaha NS-10M. **Musical Instruments:** Gretsch drums, Kurzweil 250 RMX, E-mu Emax-HD, E-mu SP-12, Roland S-550+HC, (2) E-mu Proteus, Yamaha TX816 FM racks, Kawai K1, (2) Baldwin grand piano 7' and 5'3". **Other MIDI Equipment:** Macintosh SE +20MB -D, Roland Octapad, Yamaha KX88 con.roller, complete line MIDI software. **Video Equipment:** Ikegami monitor, JVC BR-7700 1/2", JVC CR-85CU w/remote, Mitsubishi 1/2" VHS, Sony & Videotek monitors. **Other:** Complete SFX/music production libraries, Symetrix phone patch. **Specialization & Credits:** 48-track capability, automated mix, multitrack Dolby SR, PCM digital processors. R-DAT digital mastering, full audio/video/MIDI lockup capabilities, 24 to 24-track 2" transfers, audio post-production for video, A.D.R., "C.A.T.", 24-track mobile unit full creative production and scoring, including support services; offering the finest in state-of-the-art recording by a dedicated and experienced staff. For further information call Marie Ravenscroft at (602) 991-2802. Credits include Paul McCartney, Lyle Lovett, George Strait, Johnny Rodriguez, Randy Travis, Phil Ramone, Ray Herndon of McBride and the Ride, Charis Byrd, Glen Campbell and daughter Debby Kay, Alice Cooper, Judas Priest, Icon, John Gary, Doc Severinsen, Dick Van Dyke, Pat Metheny, Louis Bellson, Dave Brubeck, The Phoenix Symphony Orchestra, Emanuel Ax, James Galway, Alicia de Larrocha, Midori, Itzhak Perlman, Isaac Stern, also audio for B.L. Stryker, ABC Mystery Movies, Don Bluth Productions, Fisher-Price, A.G. Communications.

[24+] **CHEROKEE RECORDING STUDIOS, INC.;** 751 N. Fairfax Ave.; Los Angeles, CA 90046; (213) 653-3412. Owner: The Robbs. Manager: Susan Doraldson. Engineers: Dee Robb, Joe Robb, Bruce Robb. Dimensions: Room 1: studio 32 x 52, control room 32 x 23. Room 2: studio 14 x 14, control room 44 x 15. Room 3: studio 23 x 16, control room 13 x 33. Room 4: studio 12 x 8, control room 16 x 12. **Mixing Consoles:** Custom Cherokee 72 x 24, Neve VR w/Recall and Flying Faders automation, (2) Trident "A" range 60 x 24. **Audio Recorders:** (5) Otari MTR-90 MkII, (6) Otari MTR-12 1/2" and 1/4", Mitsubishi 660 32-track. **Cassette Recorders/Duplicators:** (10) Aiwa 660. **Noise Reduction Equipment:** (3) Dolby M24H, (4) Dolby 361. **Synchronization Systems:** BTX Shadow, TimeLine Lynx, Echo, Reverb & Delay Systems: (4) EMT 140, Echoplex, AKG BX-20, (4) TC Electronic 2290 delay/sampler, (3) Eventide 1745M, (5) Lexicon PCM70, (2) Lexicon 200, (3) Lexicon Prime Time, (8) Yamaha SPX90, (4) Delta-Lab D-2, (4) Ro and S/E-3000. **Other Outboard Equipment:** (1) UREI 1178Limiter, (6) UREI LA-3A limiter, (6) UREI LA-2A limiter, (6) Ironcons 201 limiter, (12) Pultec EQP-1A equalizers, (6) Pultec MEQ-5, (4) UREI LA-4A, Fa-child tube limiter (stereo), UREI 1178Limiter, (20) Valley People Kexep, (10) Gain Bran, (6) Drawmer stereo gate, (2) Cherokee A Range mic pre EQ module, (2) ADR Vocal Stresser. **Microphones:** (7) Neumann U87, (4) Neumann U47 FET, (4) Neumann KM84, (3) Neumann U67, (2) Neumann M49, (2) Neumann KM54, (3) Neumann KM86, (5) AKG 451, (2) AKG 412, (2) AKG 414, (2) AKG C-12, (2) AKG C-24, (2) AKG D-202, (2) AKG D-58, (10) Sennheiser 421, (2) Sennheiser 441, (5) Shure SM57, (4) Shure SM56, (2) Norelco C60, (2) Shure SM53, (4) Electro-Voice RE20, (3) Shure SM58, (2) Sony ECM 22P, (4) Sony ECM-33P, (12) Sony C-37, (4) Vega S-10. **Monitor Amplifiers:** (16) Perreux 6000-8000 man, **Monitor Speakers:** (4) Custom Cherokee w/JBL components, (5) Yamaha NS-10M. **Musical Instruments:** Yamaha grand piano, Hammond B-3 w/Leslie.

[24+] **COMMERCIAL RECORDING, HAWAII;** 333 Cooke St.; Honolulu, HI 96813; (808) 536-5439. Manager: Donn V. Tyler.

[24+] **THE COMPLEX;** 2323 Corinth St.; West Los Angeles, CA 90064; (213) 477-1938. Owner: S-1 Corporation. Manager: Nick Smerigan. Dimensions: Studio B: studio 22 x 32, control room 20 x 25. Studio C: studio 26 x 20, control room

20 x 26. Stage 1: 66 x 44 x 30H. Stage 2: 60 x 42 x 22H. Mixing Consoles: (2) GML 7900 48 x 12 x 24 w/current automation, GML 7900 25 x 10 monitor mixer. Audio Recorders: (2) Panasonic VS-3500 DAT, (3) Ampex ATR-124 24-track, (6) Ampex ATR-100 2/4-track. **Cassette Recorders/Duplicators:** (3) Nakamichi MR-1. **Noise Reduction Equipment:** (2) Dolby 363 A/SR, GML 7900 24-channel frame w/CAT.22. **Synchronization Systems:** TimeLine Lynx time code. **Echo, Reverb & Delay Systems:** (2) EMT 140 tube, (2) EMT 250, (2) Yamaha REV5, (2) Yamaha REV7, (2) TC Electronic 2290, (2) 2016, (2) 480L, (3) AMS DMX 15-80S, (2) AMS RMX 16, Eventide H3000. **Other Outboard Equipment:** (2) Fairchild 670 (mint), Valley People Kepex gate/Gain Brain, dbx 900 rack de-esser/comp/gate/flanger, (10) GML stereo EQ, (2) Sax LA2A, (6) GML stereo limiter. **Microphones:** B&K, AKG, Sennheiser, Crown PZM, Shure, Schoeps, Neumann. **Monitor Amplifiers:** (6) Sax Thermanic 200, Bryston, BGW, UREI, Marantz. **Monitor Speakers:** Yamaha NS-10, Custom Complex w/GML x-over, Custom T.O.C. Complex custom, Tannoy SGM 10". **Musical Instruments:** Yamaha C-7 grand piano, Linn 9000, Marshall 100W w/(2) 4 x 12. **Video Equipment:** Proton 19" monitor, Sony BVU-800. **Other:** Complete GML P.A. w/sidefills and wedges. **Rates:** \$160/hr. **Specialization & Credits:** The Complex specializes in multimedia applications. Our stages feature full rigging capability, with five motorized trusses in the large room. Three isolated 3-phase power feeds of 600A, 600A and 100A are available to accommodate almost any need. A 3-phase, 150A feed is available to service a video truck, as well as audio and telco tielines. Large doors throughout enable easy loading. Full grip packages are available for a charge. Tielines connect the stages to any of our control rooms, all music recording with audience, or orchestras up to 50 pieces.

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**CONTROL  
CENTER**

CONTROL CENTER  
Los Angeles, CA

[24+] **CONTROL CENTER**; 128 N. Western St.; Los Angeles, CA 90004; (213) 462-4300; (213) 413-2522. **Owner:** Aseley Otten, Rick Novak. **Manager:** Aseley Otten, Rick Novak. **Engineers:** Aseley Otten, Rick Novak, Frank Blue Spasato, 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:** Studer A80 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 200, Lexicon LXP-1, Lexicon LXP-5. **Other Outboard Equipment:** (2) dbx 161 compressor, (2) UREI 1176LN limiter, (2) Valley People Dyna-Mite, (2) dbx 166, (4) Valley Audio Gatex, BBE. **Microphones:** AKG 414, AKG 451, Neumann U87, Sennheiser 421, Sennheiser 441, Shure SM57, Shure SM77, AKG V-2. **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:** \$75/hr. Call for block rates and off-hours. **Specialization & Credits:** Clients include Los Lobos, Earth, Wind & Fire, CBS artist Louie, Louie, John Mayall, John Adams, Gene Clark, Long Ryders, Green on Red, Dream Syndicate, Textones, Rappin' Duke, Heavy Traffic, Malice, Taxxi, Pat Boone, Holland-Dozier-Holland, Henry L Mike Huey, Steve Barri, Tony Peluso, Jimmy Haskell, PolyGram, A&M, Warners Bros., MCA, Atlantic, Dunhill, Rhino, Slash, Enigma, Bug, Demon, Down There, etc.

[24+] **CONWAY RECORDING STUDIOS**; 5100 Melrose Ave.; Hollywood, CA 90004; (213) 463-2175. **Owner:** Buddy and Susan Brundo. **Manager:** Jill Pearlman. **Engineers:** Mick Guzauski, Daren Klein, Richard McKernan, Marrie Riley, Bryant Arnett. **Dimensions:** Room 1: studio 30 x 60, control room 26 x 25. Room 2: studio 10 x 20, control room 25 x 28. **Mixing Consoles:** Neve VR-60 60 x 48 w/Massenburg automation and recall, Neve VR-72 72 x 48 w/Massenburg automation and recall. **Audio Recorders:** (3) Mitsubishi X-880 32-channel digital, (3) Studer A827 24-channel analog, (2) Mitsubishi X-

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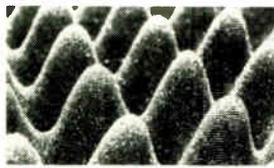
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# 24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

86HS 2-channel 96kHz sampling digital, (3) Ampex ATR-102 2-channel analog. **Cassette Recorders/Duplicators:** (4) Revox B215, (3) Panasonic SV-3500 DAT. **Noise Reduction Systems:** Dolby Type A or Type SR. **Synchronization Systems:** (5) TimeLine Lynx. **Echo, Reverb & Delay Systems:** (2) EMT 250 reverb, (4) Eventide 2016 reverb, (2) AMS RMX 16 reverb, (2) AMS 15-80S delay, (2) Lexicon 480L reverb/delay, (2) TC Electronic 2290 delay/sampler, (4) Lexicon PCM70. **Other Outboard Equipment:** Just about everything else. **Microphones:** (3) Telefunken ELAM 251, (2) Neumann U47, Neumann M49, (3) Neumann U67, (2) Neumann TLM170, AKG C-24, large assortment of common mics. **Monitor Amplifiers:** Perreux. **Monitor Speakers:** TAD components in custom Brundo enclosures, Yamaha NS-10, Tannoy SRM-10B, Auratone and others. **Musical Instruments:** Yamaha 9' concert grand piano.

**[24+] COOK SOUND AND PICTURE WORKS; 4801 Woodway #335W; Houston, TX 77056; (713) 960-8222. Owner: Dwight L. Cook. Manager: Bill Wade.**

**[24+] CORNERSTONE RECORDERS; 9626 Lurline Ave., Unit K; Chatsworth, CA 91311; (818) 341-1358. Owner: Preferred Sound Inc. Manager: Matthew Spindel. Engineers: Matthew Spindel, John Paterno, Scott Campbell, Joe Barressi. Dimensions:** Studio 30 x 25, control room 25 x 25. **Mixing Consoles:** Neve VR-60 w/Flying Faders automation. **Audio Recorders:** Otari MTR-9011 multitrack, Studer A80VU 2-track, Studer A810 2-track, ATR 104 4-track 1/2", Panasonic 3500 DAT, Studer A820 multitrack. **Echo, Reverb & Delay Systems:** AMS RMX 16 digital reverb, AMS 15-80S DDL, Yamaha REV5, Yamaha REV7, (2) Yamaha SPX90L, SRV-2000, Roland SDE-3000, (2) Lexicon LXP-1, Eventide H3000, (2) TC Electronic 2290 (32 sec. sampling/fast trigger), Lexicon 480L/3.0 software, EMT 240 gold foil, (2) Yamaha SPX90 I, Lexicon PCM70, H910. **Other Outboard Equipment:** Valley People de-esser, (3) dbx 165, UREI 1176, Lang EQ, (2) Drawmer gate, (2) Simon DI box, Summit Audio audio stereo mic pre, (2) Summit Audio audio compressor/limiter, Summit Audio audio stereo program EQ, BBE 812 exciter, Ampex 612 expander/gate, Rockman. **Microphones:** Full complement of tube, condenser and dynamic. **Monitor Amplifiers:** Perreux/H & H bi-amp system. **Monitor Speakers:** (2) TAD TSM-1b playback system. **Video Equipment:** 3/4 videolockup. **Other:** 35' x 30' x 13' expansion-design live room, (2) 10' x 10' iso booths w/video lines.

**[24+] CRYSTAL CLEAR SOUND; 4902 Don Dr.; Dallas, TX 75247; (214) 630-2957. Owner: Merle D. Baker. Manager: Keith Rust. Engineers: Keith Rust. Dimensions:** Studio 35 x 45, control room 23 x 17. **Mixing Consoles:** MCI JH-636 30 x 24 automated. **Audio Recorders:** JH-24 24-track, Sony 5002 2-track 1/2" and 1/4", Studer A810 2-track, MCI JH-110B 2-track. **Cassette Recorders/Duplicators:** (30) KABA real-time, Panasonic SV-3500 R-DAT. **Noise Reduction Equipment:** (24) Dolby A 24 channels, Dolby A in 361 rack. **Echo, Reverb & Delay Systems:** (2) AKG 68K, Eventide H3000, Lexicon 200, Yamaha SPX90, Lexicon PCM41, Korg SDD-3000, Eventide H910 pitch changer/DDL. **Other Outboard Equipment:** API 5502 2-channel 4-band EQ, (2) Tube-Tech PE1B 2-channel tube EQ, (2) JBL 7110 comp/firm, Summit Audio LA-100 tube comp, (6) Aphex 612 expander/gate, Aphex Compellor stereo gain control, (2) dbx 165 comp/lim, dbx 160X comp/lim, Orban 622B stereo parametric EQ, (2) Orban 526A de-esser. **Microphones:** Neumann U87, Neumann KM84, AKG 414ULS, AKG D-112, AKG 452, Shure SM81, Shure SM57, Sennheiser 421, Sennheiser 441, Yamaha MZ205BE, E-V RE20. **Monitor Amplifiers:** Crown, BGW. **Monitor Speakers:** UREI 811, Yamaha NS-10M, JBL 4311, Auratone T-5. **Musical Instruments:** Baldwin SD-10 concert grand, Hammond B-3 w/Leslie cabinet, Ensoniq VFXSD MIDI workstation. **Other MIDI Equipment:** Tanna The Cat (analog). **Rates:** Very competitive. Please call.

**[24+] DALLAS SOUND LAB; 6305 N. O'Connor Blvd.; Irving, TX 75039; (214) 869-1122. Owner: Russell Whitaker. Manager: Don Seay. Engineers: Tim Kimsey, David Rosenbad, Thom Caccetta, Michael Vasquez. Dimensions:** Room 1: studio 46 x 52, control room 24 x 21. Room 2: studio 10 x 8, control room 16 x 14. Room 3: studio 24 x 12, control room 28 x 16. Room 4: studio 24 x 18, control room 20 x 16. **Mixing Consoles:** SSL 6056 48 x 24 automated w/Total Recall, MCI JH-636 24 x 24, MCI JH-536 28 x 24 automated. **Audio Recorders:** Sony PMC-3324 24-track digital, Otari MTR-90 24-track, MCI JH-114 24/16-track, MCI JH-110 3-track 1" video layback, (2) Otari MTR-10 4/2-track, (2) MCI JH-110 4/2-track, Tascam ATR-60 24-track, Tascam ATR-80 2-track center stripe, Sony PCM-F1, Panasonic SV-3500 R-DAT. **Cassette Recorders/Duplicators:** Studer Revox B710, Sony TC K4444, (8) Sony TCX-45. **Noise Reduction Equipment:**



**DALLAS SOUND LAB**  
Irving, TX

Dolby 56 channels, dbx 24 channels. **Synchronization Systems:** BTX Softouch, Audio Kinetics Q.Lock 3.10. **BTX Maxipad/shadow, Tascam ES-50, Tascam ES-51. Echo, Reverb & Delay Systems:** AMS RMS 16 digital reverb, AMS DMX 15-80S digital delay/harmonizer/sampler, Lexicon 224 digital reverb, (2) Yamaha SPX90 digital processor, Yamaha REV7 digital reverb, Lexicon PMC41 digital delay, Lexicon PCM42, Lexicon PCM70 digital delay, Lexicon PCM70 digital reverb, Lexicon PCM60 digital reverb, Quantec room simulator. **Other Outboard Equipment:** Compressors, limiters, gates, expanders, EQ, exciters by: UREI, Allison, dbx, SSL, Valley People, Dietz, Aphex and Yamaha. **Microphones:** Full array of mics by: Neumann, Sennheiser, Sanken, AKG, RCA, E-V, Sony, Crown, Beyer, Shure. **Vintage tube mics by:** Neumann, AKG, RCA. **Monitor Amplifiers:** Crown Omega 200, assorted amps by: Yamaha, Crest, Crown and BGW. **Monitor Speakers:** (2) UREI 813B, (2) Sierra, (8) Yamaha NS-10, (2) Tannoy SRM-12, (6) Auratone 5C, (2) JBL 4330, (6) JBL 4673, (2) JBL 4401, (2) Fostex SM6000. **Musical Instruments:** Synclavier digital production system, Steinway 9' concert grand, Kurzweil 250, Hammond B-3 w/Leslie, Yamaha DX7IIFD, Yamaha DX7, Yamaha QX3, Yamaha RX5, Yamaha TX7, Yamaha TX816, Yamaha REX50, Roland MKS-20, Roland D-50, Roland MT-32, Oberheim Xpander, Linn 9000, Sequential Circuits Prophet-5, Moog MiniMoog. **Video Equipment:** Monitors by: Sony, NEC, MGA, Barco. **Other:** 16/35mm high-speed projectors, dubbers and master recorders by MTM. **Specialization & Credits:** Studio A: up to 48-track digital/analog recording with interlock to video or film. Services include 40-piece capacity orchestra scoring to picture, video sweetening, and album/jingle production with audio and video lines to three soundstages (15,000/6,000/3,000 sq.ft.) for live TV shows, concerts, etc. Studio B: 2/4-track voice-over and SFX production studio. Studio C: 24-track digital/analog post-production control room interlocked to video or film with a large isolation booth for ADR (looping), SFX assembling and mixing to picture. Studio D: 24-track studio with video interlock. Studio E: 16-track MIDI production studio with SMPTE/video interlock. Dallas Sound Lab is designed to meet the complete clientele dealings regarding any aspect of audio production from simple voice-over recording to complex 48-track digital/analog recording to video or film.

**[24+] JIM DAVID'S ONE ON ONE STUDIO; 5253 Lankershim Blvd.; North Hollywood, CA 91601; (818) 761-3882. Owner: James David. Manager: James David.**

**[24+] DEVONSHIRE AUDIO/VIDEO; 10729 Magnolia; North Hollywood, CA 91601; (818) 985-1945. Owner: David and Dee Mancini. Manager: Kelle Creamer. Engineers: Mike Mancini, Larry Goodwin, Scott Gordon, Mike Bosley. Dimensions:** Room 1: studio 20 x 35, control room 20 x 26. Room 2: studio 17 x 22, control room 14 x 12. Room 3: studio 30 x 45, control room 26 x 20. Room 4: studio 15 x 24, control room 15 x 24. **Mixing Consoles:** Neve V 60 x 48 GML automation, Neve 8128 56 x 48 NeCam 96, MCI 538 38 x 32, Ramsa VFR-8428. **Audio Recorders:** (2) Sony PCM-3324 w/Apogee filter 24-track, (2) Otari MTR-90 II 24-track, Sony/MCI JH-24 24-track, MCI JH-16 24-track, Tascam ATR-80 24-track, (3) Otari MTR-20 4-track 1/2", Sony PCM-3402 2-track digital, Ampex ATR-100 2-track 1/2" or 1/4", (2) MCI JH12-track 1/2" or 1/4", Studer A80RC 2-track 1/2", (2) MCI 2-track 1/4", Studer A80RC 2-track 1/2", MCI JH-110 2-track 1/2", MTM 16/35mm 1/3/4-stripe mag, Studer A820 1/4" or 1/2" 2-track, Studer A827 24-track, (2) Panasonic SV-3500 DAT. **Cassette Recorders/Duplicators:** (2) Nakamichi MR-1, Nakamichi ZX-9, (2) Sony TC-WR730, (2) Yamaha C300. **Noise Reduction Equipment:** (5) Dolby A M24 rack, (25) Dolby SR CAT 280 card, (10) Dolby 361, (2) Dolby CAT 43, (48) dbx K9-22 card, (4) Dynaflex DX2, (2) dbx 363 dual SR4. **Synchronization Systems:** (6) Adams-Smith 2600 w/compact controller, VITC compatible, Adams-Smith 2600 AV editor w/c-sound. **Echo, Reverb & Delay Systems:** (2) Lexicon 480L, (7) Lexicon PCM70, Publison Infernal 90, AMS RMX 16, (2) EMT 240 gold foil plate, (6) Yamaha SPX90 II, (4) TC Electronic 2290 fully loaded, Eventide H3000SE, Eventide SP2016, Yamaha REV5, Yamaha SPX1000, Yamaha SPX900, very extensive, call for list. **Other**

**Outboard Equipment:** Very extensive, call for list. **Microphones:** Very extensive, call for list. **Monitor Amplifiers:** (2) Boulder 500, (2) Carver PM-1.5, (2) HH Electronics VX 1200, (4) Phase Linear 700, (3) Phase Linear 400, (3) Carver PM-175, (2) SAE P250. **Monitor Speakers:** (6) George Augspurger custom w/TAD TL1603/4001, (8) Tannoy LGM 12", (8) Yamaha NS-10, (8) Tannoy NFM 8", (8) Auratone. **Musical Instruments:** (2) Yamaha grand piano, Emulator II w/20MB HD, Steinway grand piano, Hammond B-3 organ. **Other MIDI Equipment:** Opcode Studio +2 MIDI interface, Macintosh SE w/Q sheet. **Video Equipment:** Sony BVH-2000 1" recorder, (5) Sony BVU-850 3/4", (4) large-screen projector, VTR transfer room w/24- and 4-track, etc. **Other:** 4,000 cubic foot live echo chamber. **Rates:** Call for rates.

[24+] **DIGITAL INNOVATIONS;** 1680 N. Sycamore Ave.; Hollywood, CA 90028; (213) 465-5121. **Owner:** Michel Rubini. **Manager:** Brian Vessa. **Specialization & Credits:** We are a fully equipped scoring and recording facility centrally located in Hollywood. Featured is the Synclavier Digital Music System with the West Coast's largest digital music library on optical disc, full SMPTE lockup of audio and video, lots of synthesizers and outboard gear and a 20 x 40 live recording room. There is also a secured parking lot for 40 cars. We have integrated the entire system to be fast and easy to use, with no headaches or unsightly cables. A Macintosh computer holds the library of synth sounds and also serves as a MIDI sequencer for composers wishing to bring in their composition on micro-floppy. Some of our satisfied clients are Kenny Loggins and Gene Page. Recent projects include Michael Mann's films *Manhunter* and *Band of the Hand*, NBC miniseries *Hands of a Stranger*, NBC movie *Moving Target*, and CBS movie *Unholy Matrimony*. We hope to hear from you!

[24+] **DIGITAL SOUND & PICTURE;** 2700 La Cienega Blvd.; Los Angeles, CA 90084; (213) 836-7688; FAX: (213) 836-7499. **Owner:** John Ross. **Manager:** Nancy Ross. **Engineers:** Josh Schneider, John Cevetello, David Grant. **Dimensions:** Room 1: studio 48 x 29, control room 20 x 25. Room 2: studio 29 x 20, control room 16 x 12. Room 3: studio 17 x 16. **Mixing Consoles:** Euphonix Crescendo 56-input fully automated digital, Trident Series 80B 32 x 24 x 24. **Audio Recorders:** Sony APR 24, Otari MTR-90 II, (2) Otari MTR-12 w/headstack configurations, Panasonic SV-3500 DAT. **Cassette Recorders/Duplicators:** Yamaha 1020, Awa Noise Reduction Equipment: Dolby 363 SR/A reduction. **Synchronization Systems:** (3) Fostex 4030, Fostex 4010, Fostex 4011, Fostex 4035. **Echo, Reverb & Delay Systems:** Lexicon 480L, Lexicon 224XL, Lexicon PMC60, Lexicon PMC70, (2)

Lexicon LXP-1, Lexicon MRC, Eventide H3000, TC Electronic 2290, Eventide Omnipressor, Drawmer M500, dbx 166, dbx 160X, Roland SDE-1000, Efectron, Symetrix 522, Aphex Exciter, Yamaha SPX1000. **Other Outboard Equipment:** ART MI graphic EQ, ART smart EQ, (4) Rover Meyer gate. **Microphones:** (3) Neumann U87, (2) AKG 414, AKG 451, Shure SM58, Fostex M88, (6) Sennheiser 421, various dynamic and condenser mics. **Monitor Amplifiers:** (2) Ramsa 9440, (2) Ramsa 9240, (2) Ramsa 9150, custom quad amp. **Monitor Speakers:** (2) Tannoy FSM-U, (2) Tannoy SRM-15, (2) Tannoy SRM-15B, (4) Tannoy 10B, (4) Yamaha NS-10M, (6) Boston Acoustics acoustic surround sound. **Musical Instruments:** (2) Fairlight Series III w/gigabyte of hard disk space, Kurzweil 250, Kurzweil MIDI board, Kurzweil 1000-PX, Kurzweil SX 1000, Kurzweil GX 1000, Yamaha TX816, Roland D-550, Korg DSM1 sampler, Yamaha DX7, (6) Linn Electronics 9000 drum machine. **Video Equipment:** Sony BVH 1100 1" video machine w/Ampex TRC, (2) JVC CR850 U 3/9" video machine, JVC CR1000 1/2" VHS Hi-fi video machine, Kloss Novabeam overhead video projector, (4) Hitachi 19" video monitors, Mitsubishi 52" video monitors, Mitsubishi 35" video monitors. **Other:** DAWN disk-based 8-track workshop.

[24+] **DIGITAL SERVICES RECORDING STUDIOS;** also **REMOTE RECORDING;** 5805 Chimney Rock; Houston, TX 77081; (713) 664-5258. **Owner:** John Moran. **Manager:** K T White. **Engineers:** Larry Greenhill, John Moran, Keith Risinger, Roger Tausz. **Dimensions:** Room 1: studio 35 x 30, control room 25 x 30. Room 2: studio 60 x 45, control room 8 x 19. Room 3: control room 15 x 13. Room 4: studio 30 x 50. **Mixing Consoles:** SSL 6056E w/Total Recall 48 x 32, MCI 636 w/JH-50 40 x 24, MCI 628 32 x 24, (2) Neve 5442 10 x 4. **Audio Recorders:** (2) Sony PCM-3324 digital multitrack, Otari MTR-90 II analog multitrack, (2) Sony PCM-1610 digital 2-track, (3) Sony PCM-F1 digital 2-track, Otari MTR-12 1/2" 2/4-track, Otari MTR-12 1/4" 2-track, Otari MX-55 1/4" 2-track, Otari MX-5050 1/4" 2-track, DAT. **Cassette Recorders/Duplicators:** (3) Sony various models. **Synchronization Systems:** (5) Adams-Smith 2600, (3) TimeLine Lynx, TimeLine Lynx keyboard controller. **Echo, Reverb & Delay Systems:** Lexicon 224XL w/LARC reverb, (6) Lexicon PCM70 reverb, Lexicon PrimeTime, Lexicon PrimeTime II, (2) Lexicon LXP-1, Eventide 969 Harmonizer, Eventide H3000 reverb/harmonizer/processor, AMS DMX delay/sampler/harmonizer, DeltaLab ADM 1020 delay, Yamaha REV7 reverb, Yamaha SPX90 effects processor. **Other Outboard Equipment:** (4) Tube-Tech mic preamp, (2) Tube-Tech compressor/limiter, (2) Tube-Tech EQ, Audio & Design Vocal Stresser, (4) UREI 1176 limiter, (2) UREI Little Dipper Filter Set, (6) dbx 160x compressor, (2) Orban stereo

parametric EQ, (2) Klark-Teknik stereo graphic EQ, (4) Audio & Design Scamp compressors, (8) Audio & Design Scamp noise gates, (2) Audio & Design Scamp de-esser. **Microphones:** (2) Neumann TLM, (2) Neumann 87, (2) Neumann 89, Neumann 69 stereo mic, (6) Sennheiser 421, (4) Sennheiser 441, (2) AKG 414, (4) E-V PL-20, (6) Shure SM57, (4) Shure SM81, (4) Shure SM58, (2) Crown GLM, (3) RCA 77-DX. **Monitor Amplifiers:** (3) Crown PSA-2, (3) Crown D-75, (5) OSC 3500. **Monitor Speakers:** (2) Meyer Sound Labs 833/834, (8) Yamaha NS-10M, (2) JBL 4411, (2) JBL 4311. **Musical Instruments:** Fairlight CMI Series 3, 14M6 RAM, 16 voices, 190 MB drive, Yamaha DX7II-FD synthesizer, E-mu Emulator II+, E-mu SP-12 drum machine, Yamaha TX816 synthesizer. **Other MIDI Equipment:** DSR steam-powered Hoo-Do. **Video Equipment:** (2) Sony BVU 800 3/4". **Other:** Solid State Logic ScreenSound 4-hour system 1.2 gigabyte HD. **Rates:** All services and equipment are free to qualified clients.



DIGITAL SOUND RECORDING  
Los Angeles, CA

[24+] **DIGITAL SOUND RECORDING;** also **REMOTE RECORDING;** 607 N. Ave. 64; Los Angeles, CA 90042; (213) 258-6741. **Owner:** Van Webster. **Engineers:** Van Webster. —LISTING CONTINUED ON NEXT PAGE

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# 24+ TRACK

STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

**Dimensions:** Studio 40 x 32, control room 16 x 16. **Mixing Consoles:** MCI 428B 28 x 24, Stevenson Interface 100 8 x 4. **Audio Recorders:** Sony 1610 2-track digital mastering, 3M M79 24-track w/Selectate II, Studer B67 2-track, (2) Ampex AG440 2-track (2) TEAC A3300S 2-track. **Cassette Recorders/Duplicators:** Nakamichi BX-300. **Noise Reduction Equipment:** (2) Daltby 361, (2) Burwen DNF1000 2-channel noise filter. **Synchronization Systems:** (3) Adams-Smith 2600, EECO EMME 4 mach video/audio editing system. **Echo, Reverb & Delay Systems:** Yamaha REV7, Master-Room Super C reverb, Eventide 910 Harmonizer, Eventide phaser, Efectron 1024, (2) Scamp ADT flanger, Wavemaker phaser. **Other Outboard Equipment:** (3) Orban sibilance controller, (2) Burwen DNF100 dynamic noise reduction, (2) dbx 161 compressor/limiter, UREI 1176 limiter, Teletronix LA-2A tube limiter, Inovonics 201 compressor/limiter, (4) Kapek expander, (2) Scamp 501 limiter, (2) Scamp F300 expander/gate, (2) Scamp 503 Super EQ, UREI Little Dipper, (4) SAE parametric EQ, Orban stereo synthesizer. **Microphones:** Neumann U47 tube, (2) Neumann U64 tube, Neumann SM2 tube stereo, (2) AKG C-60 tube, (2) Neumann U87, Neumann U47 FET, (3) Neumann KM84, (2) Shure SM58, (4) Shure PE54, (2) E-V 666, (3) E-V RE20, (2) E-VRE15, (3) AKG 414, (3) AKG 451/2, (2) AKG 224E, (3) Sennheiser 421, RCA 77DX. **Monitor Amplifiers:** (2) SAE 2600, (2) SAE 2200. **Monitor Speakers:** (2) JBL 4341 4-way bi amplified, (2) Auratone 2-way, (2) Auratone 5C. **Musical Instruments:** Steinway B 7' grand piano. **Video Equipment:** (3) Sony BVU-800/850 3/4" recorder, EECO EMME computer video editor, DSC Illusion digital video effects, (2) Fortec TMK base corrector, DSC Frame File, Hitachi Z-31 3-tube color camera, extensive lighting/grip equipment, Ampex CVR Betacam SP record/reproduction, A.C.E. Arena 6-level video switcher, Sony BVU-110 portable video recorder, JVC BR-7030 U VHS duplicator. **Specialization & Credits:** Digital Sound Recording, a division of Webster Communications, is a full-service production facility for audio and video. Our large room can handle acoustic recording. We are also especially

well-suited for production recording, sweetening, video editing and spot production. Call us for those challenging projects.

[24+] **DOLPHIN SOUND/KHNL-TV;** also **REMOTE RECORDING;** 150-B Puuhale Rd.; Honolulu, HI 96819; (808) 847-3246. **Owner:** King Broadcasting Co. **Manager:** Ron Kichs.

[24+] **DUBMASTER;** 11110 Magnolia; N. Hollywood, CA 91501-3812; (818) 980-8318; (818) 787-6004. **Owner:** Dubmaster Productions. **Manager:** Conrad Gleich.

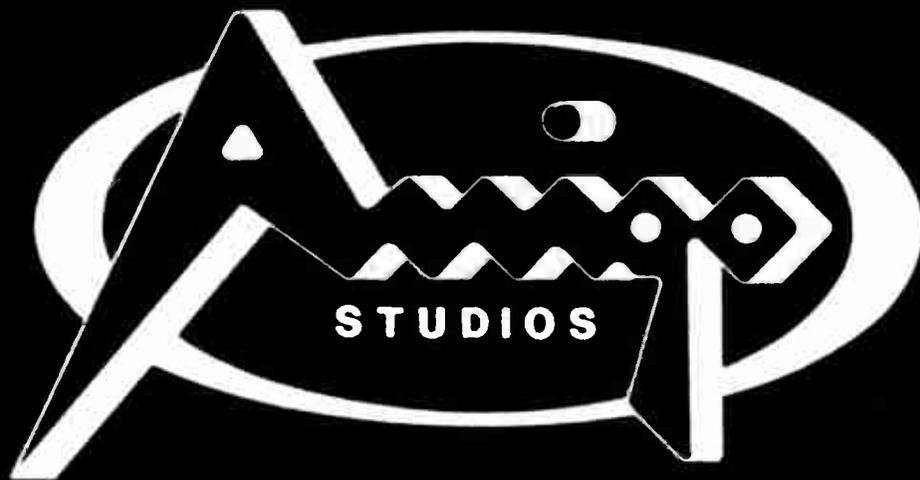
[24+] **EAGLE MOUNTAIN RECORDING STUDIO;** only **REMOTE RECORDING;** PO Box 699; Newark, TX 76071; (817) 489-2226. **Owner:** Kenneth Copeland Ministries. **Manager:** Win Kutz.



**ECHO SOUND RECORDING**  
Los Angeles, CA

[24+] **ECHO SOUND RECORDING;** 2900 Los Feliz Blvd.; Los Angeles, CA 90039; (213) 662-5291. **Manager:** Mike Williamson. **Dimensions:** Room 1: studio 18 x 18, control room 20 x 18. Room 2: studio 26 x 27, control room 18 x 16. **Mixing Consoles:** Trident 80C 32 x 24, Trident 80B 30 x 24 x 24,

Aries 24 x 16 x 8, Yamaha DMP7 8 x 2 submixer, DiskMix Arms II 32-channel automation. **Audio Recorders:** Sony/MCI JH-24 24-track, (2) Fostex B-16D 16-track, Sony APR-5003 2-track, Otari MTR-12 2-track, TEAC A3440 4-track, Sony PCM-2500 digital, Studer A827 24-track. **Cassette Recorders/Duplicators:** (4) Yamaha K1020, (2) Yamaha C200, Studer A721. **Noise Reduction Equipment:** Dynafex D-2B 2-channel. **Synchronization Systems:** Fostex 4035/4030, Jam Box 4. **Echo, Reverb & Delay Systems:** Lexicon 480L, AMS 15-80S, (2) Yamaha REV7, (2) Yamaha REV5, (8) Yamaha SPX90, (2) Aphex Aural Exciter, (2) dbx 166 comp/limiter, (5) dbx 160X comp/limiter, (5) dbx 160 comp/limiter, (3) dbx 903 comp/limiter, (3) dbx 904 noise gate, (2) dbx 902 de-esser, (2) Eventide H949 Harmonizer, Lexicon Super Prime Time, (2) Lexicon Model 93 digital delay, Roland SDE-3000 delay, Yamaha R1000 reverb, Aphex Dominator limiter, Eventide Omnipressor comp/limiter, (2) Orban 622B parametric EQ, dbx 906 flanger +, Eventide H3000S, TC Electronic TC 2290. **Other Outboard Equipment:** UREI/Teletronix LA-2A, (4) Gatex noise gate, Drawmer DL231, dbx F900 rack. **Microphones:** Neumann U87, (2) Neumann TLM170, (2) AKG C-414, (3) AKG C-460, (7) Sennheiser MD-421, AKG The Tube, (4) Shure SM57, (5) Shure SM58, (4) E-V PL80, (2) E-V BK-1, E-V RE20, Crown PZM 30-GPB, (2) Sennheiser MD-409. **Monitor Amplifiers:** (2) BGW 750B, (2) Yamaha P2200, Crest 7001, Crest FA800. **Musical Instruments:** LinnDrum drum machine, Linn Electronics 9000 drum machine/sequencer, Emulator II keyboard sampler, Roland D-50, Yamaha DX7, Schafer & Sons grand piano, Simmons drums, Yamaha TX816 MIDI modules. **Other MIDI Equipment:** Southworth Jam Box/4 MIDI interface, Macintosh Mac Plus sequencer, Mark of the Unicorn Performer. **Specialization & Credits:** Echo Sound provides professional-quality, cost-efficient recording services. Studio A: 16/24-track; studio B: 16/24-track with new Trident 80C console with 32 channels of DiskMix Arms II console automation and Studer A827, 24-track; studio C: MIDI and 16-track production. We have provided recording services for Capitol Records, Arista Records, A&M Records, Ice Capades, Phantom of the Opera, various independents and trade shows. Our new addition, studio C, is a MIDI production facility offering the producer, arranger and songwriter the latest Mark of the Unicorn Performer sequencing software and a selection of MIDI sound sources complete with Fostex 16-track recorder, console and outboard effects, in-house arranging and production services. Sequenced tracks may also be transferred and/or sync-locked with studio A/B, 24-track rooms. Echo Sound Recording provides a professional, creative, comfortable studio environment conveniently located in the Griffith Park area with secure off-street parking. Our experienced staff engineers strive to have



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clients work comfortably and efficiently, with emphasis on technical expertise and client satisfaction. We invite you to please call so that we may discuss your project requirements and arrange for a tour of our facilities.

**[24+] EDENWOOD RECORDING STUDIOS; 7319-C Hines Pl.;** Dallas, TX 75235; (214) 630-6196. Owner: Jerry W. Swafford. Manager: Jerry W. Swafford.



**ELUMBA RECORDING STUDIO**  
Hollywood, CA

**[24+] ELUMBA RECORDING STUDIO; 1538 N. Cahuenga Blvd.;** Hollywood, CA 90028; (213) 461-4515. Owner: Marie Josephine Dabany. Manager: Adrienne Dixon, traffic mgr. Engineers: Toni Greene chief engineer, Rick Caughron, staff engineer. Mixing Consoles: Solid State Logic 6056E w/G Series computer. Audio Recorders: Mitsubishi X-8520 digital 32-track, (2) Studer A800 MkIII 24-track, Studer A820 2-track, Ampex ATR-102 2-track, Akai DAT digital. Cassette Recorders/Duplicators: (2) Studer 710. Synchronization Systems: (2) TimeLine Lynx. Echo, Reverb & Delay Systems: AMS RMX, AMS SDMX, Lexicon 480L, Lexicon PCM70, Lexicon Prime Time II, Publison Infernal machine 90, TC Electronic 1210, Eventide 2016, Eventide H3000 Ultra-Harmonizer, (2) Yamaha SPX90, (2) Yamaha REV7, Roland SDE-3000, EMT 162 plate, Eventide 910 Harmonizer. Other Outboard Equipment: (6) API 550A EQ, (2) API 560B EQ, Sontec 250C dual parametric EQ, (2) dbx 905 parametric EQ, Orban 622 dual parametric EQ, (2) dbx 165 compressor, (2) dbx 160X compressor/limiter, (2) Inovonics 201 compressor, (2) Summit Audio tube limiter, Teletronix LA-2A, Aphex Studio Dominator, Drawmer DS-201 dual gate, (2) Valley People Kepex II, Barcus-Berry 802, Dynatronics FS-1 cyclostyled panner, Aphex Exciter Type C. Microphones: Neumann, AKG, Sennheiser. Monitor Amplifiers: (2) Bryston 3B pro. Monitor Speakers: (2) Yamaha NS-10M, (2) Augsberger custom design w/TADs, (2) Yamaha NS-10M, (2) Auratone 5C, JBL 4430. Musical Instruments: E-mu Emulator II HD, Yamaha DX7 HD, Roland Super Jupiter MKS-80, Akai S-900, Sequential Circuits 440 drum machine.

**[24+] EMERALD STUDIOS; also REMOTE RECORDING;** 2411 NE Loop 410, Ste. 132; San Antonio, TX 78217; (512) 656-2427. Owner: Mitchell Markham. Manager: Sunny Markham.

**[24+] ENCORE STUDIOS INC.;** 721 S. Glenwood Pl.; Burbank, CA 91506; (818) 842-8300. Manager: Darryl Caseine, Joan Silvas.

**[24+] THE ENTERPRISE RECORDING STUDIO; 4620 W. Magnolia Blvd.;** Burbank, CA 91505; (818) 505-6000. Owner: Craig Huxley. Manager: Thom Brown.

**[24+] ENTOURAGE STUDIOS; 11115 Magnolia Blvd.;** North Hollywood, CA 91601; (818) 505-0001. Owner: Guy Paonessa. Manager: Keith Blake. Dimensions: Room 1: studio 37 x 25, control room 26 x 25. Room 2: studio 13 x 28, control room 26 x 25. Mixing Consoles: (2) Harrison C Series 32 x 32. Audio Recorders: (2) Studer A80 24-track, (3) Studer A80 2-track, Studer A80 4-track, 3M 79 2-track. Cassette Recorders/Duplicators: Nakamichi MR-1, Nakamichi MR-2. Studer A710, Yamaha C300. Noise Reduction Equipment: Dolby A M16 rack 24-channel encode/decode, Dolby A 4-channel rack. Synchronization Systems: (2) TimeLine Lynx, Black signal generator. Echo, Reverb & Delay Systems: Lexicon 224XL, Roland SRV-2000, (3) Yamaha SPX90, Yamaha SPX90II, Yamaha REV7, Roland SDE-3000, (2) Lexicon PCM70, (2) Lexicon LX-P1 w/MRC-1, (2) Aphex stereo gate, Kepex II rack w/(4) gate, (2) Gain Brain, (2) Maxi-Q, (4) dbx 166, dbx 160X, (4) EMT 140 stereo plate reverb, (8) UREI 1176, (2) Teletronix LA-2A, (2) UREI LA-4, (4) Eventide Omnipressor. Microphones: (2) Stephen Paul-modified Neumann U87, Stephen Paul-modified Neumann 47 FET, (5) Neumann U87, (3) Neumann 47 FET, (5) AKG 414, (2) AKG 460, (2) Neumann KM84, (2) Sennheiser MD-421, (4) E-V RE20, (7) Shure SM56, Shure SM7, (2) Sennheiser MD-402U, (4) Sony ECM-22P, (2) E-V 666. Monitor Amplifiers: (2) Perreux 900B, (3) Hafler, (4)

JBL 6233, Crown D-75. Monitor Speakers: (4) UREI 813 w/JBL 611, (6) Yamaha NS-10M, (6) Auratone, (2) Mitsubishi DS-35B. Musical Instruments: Yamaha 9' concert grand piano, Yamaha 6' conservatory piano. Video Equipment: (2) Toshiba color monitor, Panasonic satellite monitor, JVC CR-600U 3/4" video machine. Other: Macintosh Plus, drum iso booth, (20) AKG K-240 headphones, (13) Beyerd DT102 single earphones, (13) Culver MFH single earphones.

**[24+] EVERGREEN RECORDING STUDIOS; 4403 W. Magnolia Blvd.;** Burbank, CA 91505; (818) 841-6800. Owner: Charles Fox, Artie Buller, Gayle Levant. Manager: Sandra Smart. Engineers: John Richards. Dimensions: Room A: studio 46 x 70, control room 20 x 26. Room B: studio 35 x 36, control room 20 x 26. Radford: studio 150 x 70, control room 24 x 24. Mixing Consoles: (3) Harrison customized. Audio Recorders: (2) Studer A27 24-track, Studer A800 24-track. Synchronization Systems: (3) Adams-Smith 2600 w/remote compact controller. Echo, Reverb & Delay Systems: UREI 813, EMT 140, echo plates, live chambers, Lexicon 200, Yamaha SPX90II (rental only). Other Outboard Equipment: UREI 1176 limiters, Inovonics, dbx 165, Valley People Kepex noise gates, Lexicon Prime Time, Eventide 949 Harmonizer. Microphones: Most standard brands and models. Musical Instruments: (3) Yamaha grand pianos. Video Equipment: (6) JVC 3/4" VCR w/monitor for control room and studio. Other: Complete transfer facilities for 1/4" and 1/2" cassettes and MAG.

**[24+] FANFARE STUDIOS; 120 E. Main St.;** El Cajon, CA 92020; (619) 447-2555. Owner: Ron Compton. Manager: Carol Compton. Dimensions: Studio 25 x 30, control room 17 x 20, iso room 10 x 12. 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 440B 2/4-track, (3) Revox A77 2- and 1/4-track, (2) Sony DAT. Cassette Recorders/Duplicators: (2) Aiwa, Otari high-speed duplicator. Noise Reduction Equipment: (2) Dolby A-361, (2) DNR Dynamic noise reducer, (4) Kepex noise gate, (4) Furman noise gate. Synchronization Systems: Adams-Smith Zeta-3 w/MIDI and for 16/24-track machines. Echo, Reverb & Delay Systems: EMT stereo plate, Lexicon 224 w/all programs and non-volatile memory, Alesis Quad-verb, Yamaha REV7, (2) Yamaha SPX90, Alesis Microverb, DigiTech DSP 128, Eventide Harmonizer, DeltaLab digital delay. Other Outboard Equipment: (2) dbx 165 compressor, (4) UREI LA-3A compressor, UREI 1176LN limiter, (2) Gain Brain compressor, (4) Orban parametric equalizer, (2) Orban sibilance controller, UREI digital metronome, (2) dbx 166 compressor. Microphones: (4) Neumann U87, (4) Neumann KM86, Neumann KM84, Neumann U47 original w/tube, (4) AKG 414, AKG 202E, AKG 119, (8) Shure SM57, E-V RE10, (4) Sony 337, (2) RCA 44BX, Altec condenser, over 50 mics to choose from.

Monitor Amplifiers: (4) BGW, (8) Crown. Monitor Speakers: (4) JBL large monitor, (2) Yamaha NS-10M close-field, (6) Auratone small monitor, (2) Bose small monitor. Musical Instruments: E-mu Emax II digital sampling keyboard, E-mu Proteus, Oberheim Matrix-1000, Yamaha C7 conservatory grand piano, Hammond B-3 organ w/Leslie speaker, Ludwig trap set w/concert toms, Alesis HR-16 drum computer, Yamaha RX5 drum computer, Roland Octapad 8, Casio CZ-101 w/interface librarian, Roland TR-707 drum machine, Yamaha FB-01 synth, (2) congas, orchestra bells, (25) hand percussion. Other MIDI Equipment: (2) Macintosh SE w/Performer sequencer, Yamaha QX5 sequencer. Video Equipment: Sony VO-5600 3/4" U-matic recorder, (2) monitor.

**[24+] FIESTA SOUND; 1655 S. Compton Ave.;** Los Angeles, CA 90021; (213) 748-2057. Owner: R.G. Robeson. Manager: Rick Robeson, Ed Contreras. Engineers: Octavio Villa, Victor Flores, Salvador Sandoval. Dimensions: Studio 30 x 60 plus isolation rooms, control room 25 x 15. Mixing Consoles: MCI 428 32 x 24. Audio Recorders: MCI 32-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, UREI 1176, dbx 160 compressor/limiter, Orban 424 comp/limiter. Microphones: Neumann U87, Neumann KM84, AKG C-452, AKG C-414, Sennheiser MD-421, Shure SM57, Shure SM7, Sony ECM-33F, E-V RE20. 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+] FLYIN' HAWAIIAN PRODUCTIONS/SYSTEMS EXCLUSIVE RECORDING; 4942 Likini St.;** Honolulu, HI 96818; (808) 839-5431. Owner: Lester Gantan/Flyin' Hawaiian Productions. Manager: Lester Gantan. Engineers: Lester Gantan, Milan Bertosa. Mixing Consoles: Trident Series 65Mk III 32 x 16 x 2 w/patch bay and custom modifications. Roland M-16 E 16 x 2. Audio Recorders: Sony/MCI JH-24 24-track, Otari MX-70 16-track 30/15 ips. Sony/PCM-5003V 2-track w/center-track time code. Sony PCM-2500 R-DAT (available upon request). Sony TC-R503. Echo, Reverb & Delay Systems: (2) Lexicon PCM70 w/3.0 software, (2) TC Electronic 2290 delay w/4-sec. sampling, Sony MU-R201 reverb, Alesis Quadverb, Roland SRV-2000 reverb, Roland SDE-1000 delay. Other Outboard Equipment: Valley International

—LISTING CONTINUED ON NEXT PAGE



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# 24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

Model 440 limiter/compressor/expander/dynamic sibilance processor, (2) Symetrix 522 comp/limiter/expander/gate/ducker. **Microphones:** Neumann U87 Ai, Neumann KM85i, Shure SM57, Shure SM58, other microphones available upon request. **Monitor Amplifiers:** Hafler P-230 BR, (2) Hafler P-125 BR, Rane H6 headphone. **Monitor Speakers:** (2) Professional Audio System SM-1, (2) Yamaha NS-10, (2) Auratone. **Musical Instruments:** E-mu Emax SE w/internal HD, E-mu Emax, Roland D-50, Roland D-550, Roland R-8 drum machine, Roland TR-909 drum machine, Oberheim Xpander, Korg M1, Yamaha TX802, Yamaha DX7, Roland Axis MIDI remote keyboard. **Other MIDI Equipment:** Macintosh Plus w/2.5MB RAM, Mark of the Unicorn Performer 3.4/Composer 2.0, Mark of the Unicorn MIDI Time Piece MIDI/SMPTe interface, Southworth Jam Box 4+ MIDI/SMPTe interface, 360 Systems 8 x 8 MIDI patcher, Alchemy 2.21, Coda Finale 2.0, Passport Designs Encore 1.0.7, Digidesign Sound Designer Universal and Emax 1.12, Opcode editor/librarians for DX/TX, D-50/550, Xpander; 200,000+ sound library for Emax, DX/TX, D-50/550, Xpander and R-8; Roland Octapad, Simmons pads, DW kick trigger pedal. **Other:** Sony CD player. **Rates:** 24-track \$65/hr.; 16-track \$50/hr.; block-out, MIDI only, and production rates available upon request. Video interlock and Sound Tools digital editing also available upon request.

[24+] **FOOTPRINT SOUND STUDIOS;** 13216 Bloomfield St., Sherman Oaks, CA 91423; (213) 872-1854. Owner: Jerry Fuller. Manager: Annette Fuller.

[24+] **FOR THE RECORD;** 833 W. Collins, Orange, CA 92667; (714) 771-1410. Owner: Eric Garten, Robert Hayes. Manager: Eric Garten.

[24+] **FORTUNATE SUN STUDIO;** 720 Iwilei Rd., Box 1; Honolulu, HI 96817; (808) 531-5744. Owner: David Tucciarone. Manager: David Tucciarone.

[24+] **41-B STUDIOS;** 41-B Duesenberg Dr., Westlake Village, CA 91360; (805) 494-3613. Owner: Bruce Jackson. Manager: Robb Klein.



4TH STREET RECORDING  
Santa Monica, CA

[24+] **4TH STREET RECORDING;** also REMOTE RECORDING; 1211 4th St.; Santa Monica, CA 90401; (213) 395-9114. Owner: 4th Street Recording Inc. Manager: Rod Clark, Jim Wirt. Engineers: Keith Wechsler, Jim Wirt, Rod Clark, Richard Jallis, David Blade, Steve Barnard, Robin Lambie. Dimensions: Room 1: studio 32 x 14, control room 14 x 16, front room (iso) 12 x 8, iso booth 4 x 4. **Mixing Consoles:** MCI JH-428 28 x 24 modified w/Aphex VCA DC, subgroups and mutes and J.L. Cooper MIDI automation, Allen & Heath 12 x 4 x 2 Scepter effects mixer. **Audio Recorders:** MCI JH-114 8/16/24-track w/AL and V50 Fostex autolocator, Ampex ATR-102 2-track 1/2" and 1/4", Ampex ATR-104 4-track 1/2" and 2-track 1/2" and 1/4", MCI JH-110 1/2-track w/VSO, Technics 1500 1/2-track, Sony TC-854 4-track. **Cassette Recorders/Duplicators:** (3) Nakamichi MR-1, Nakamichi 6802X. **Noise Reduction Equipment:** (1) Dolby A/SR 2-channel. **Synchronization Systems:** Fostex 4010 SMPTe reader/generator, Fostex 4030, Fostex 4035 controller. **Echo, Reverb & Delay Systems:** Lexicon 224X LARC 8.2 digital reverb, (2) Yamaha SPX90, (2) Lexicon PCM60 reverb, Roland SRV-2000 MIDI reverb, EMT 140ST stereo tube plate reverb, Echoplate III reverb, AKG BX-10E reverb, (2) Lexicon Prime Time delay, Roland SRE-555

tape delay, DeltADM 1024, Marshall time modulator, AMS gear at additional cost. **Other Outboard Equipment:** Aphex Studio II Aural Exciter, (2) UREI 1176LN limiter, (2) UREI LA-3A limiter, (2) dbx 160X limiter, (3) Drawmer DS-201 dual-channel gate, (2) Orban 622B dual-channel parametric EQ, Orban 3-channel de-esser, Klark-Teknik DN-27 and other graphic EQs, Trace Elliot GP11 bass preamp, Rockman guitar preamp, Systech flanger. **Microphones:** Over 50 including Neumann, AKG, Sennheiser, RCA, E-V, Shure, Sony, etc., tube and ribbon and Steven Paul modifications on U87s and 414s. **Monitor Amplifiers:** Bryston 4B bi-amp low, Bryston 2B bi-amp high, (2) Custom tube (alt. high), (2) Hafler P-230, BGW 100B (cue). **Monitor Speakers:** PAS TOC studio 1 w/Mastering Lab crossover, Yamaha NS-10M, Sony APM-700, Auratone. **Musical Instruments:** Yamaha C7 7'4" grand piano, Yamaha DX7, Roland JX-10, Roland S-330, Roland D-550, Ensoniq ESQ-M, Linn 9000, Linn LN2, Moog MIDlmoog, Moog Minimoog, many guitars, basses and misc. percussion, Fairlight, Synclavier and Emulator at additional cost. **Other MIDI Equipment:** Macintosh SE/30, Macintosh SE w/various software, Southworth Jam Box 4+. **Video Equipment:** Sony V5800 3/4", Sony Beta, NEC Hi-fi VHS, NEC 26" rec/mon, NEC 20" rec/mon. **Specialization & Credits:** 4th St. Recording, formerly Sound Solution Recording, has been providing recording services in Santa Monica for over ten years. Located four blocks from the beach, 4th St. is within walking distance of hotels, shops, clubs and dozens of restaurants and bars. Producers, musicians, arrangers, programmers, as well as world-class engineers are available to provide the highest level product for album, film, TV and radio. Our location, fun, unpretentious personnel, great equipment and years of experience make 4th St. Recording a welcome alternative to the Hollywood/Los Angeles recording scene. Then there's the price—we don't cost an arm and a leg. Past clients/projects include: The Beach Boys Kokomo, *Make it Big*; Brian Wilson; Simon & Schuster; George Clinton; Little Richard; Fat Boys; *Tracy Ullman Show*; *Cocktail*; Stanley Clark *Free Flight*; ABC; CBS; Electra Records; Ferde Grofe Films; Housaton Films.



FUTURE AUDIO  
Dallas, TX

[24+] **FUTURE AUDIO;** 7700 Carpenter Freeway, Ste. 1000; Dallas, TX 75247; (214) 630-8889; FAX: (214) 630-9433. Owner: Marcos Rodriguez. Manager: Randy Adams. Engineers: Tony Rodriguez, Randy Adams, Doug Phelps, Conan Reynolds, Gerard Hairston, independents. Dimensions: Room 1: studio 42 x 51, control room 34 x 37. Room 2: studio 10 x 18, control room 10 x 18. Room 3: 20 x 35. **Mixing Consoles:** Mitsubishi Westar 44 x 24 w/Diskmix automation, Neotek Series III custom 28 x 24 w/Megamix automation, Tascam 16 x 8. **Audio Recorders:** Otari MRT-9011 24-track, Stephens 821B 24-track, Tascam 80-8 8-track, Ampex ATR-102 2-track, Panasonic SV-3500 DAT. **Cassette Recorders/Duplicators:** (3) Nakamichi MR-2. **Synchronization Systems:** (2) Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems:** Yamaha REV5, (2) Alesis MIDlverb II, Lexicon LXP-1, Lexicon PCM70, Roland SRV-2000, Roland SDE-3000, BBE 882 processor, (4) UREI LA-4A, UREI 1176, Aphex 303 Compeller/Exciter, Aphex Dominator, Aphex Aural Exciter, (2) ADR stereo pan, (2) ADR comp/limiter, ADR parametric EQ, Lexicon 97 Super Prime Time, (2) Yamaha SPX90. **Microphones:** (3) AKG 414EB, AKG C-24 stereo tube, (2) Beyer MC740, (7) Sennheiser 421, (4) Shure 57, AKG D-12E, (5) AKG 451, Wright condenser, (8) Countryman DI, Innovative Audio tube DI, Neumann U87, (2) Crown PZM, Beyer 201. **Monitor Amplifiers:** UREI 6500, Crown PS-200, Crown D-75. **Monitor Speakers:** (2) UREI 813B, (6) Yamaha NS-10M, (2) Auratone, (2) Yamaha NS-1000, (2) JBL 4311, (2) UREI 811. **Musical Instruments:** Kawai 7'4" grand piano, Yamaha KX88 controller, Roland D-50, Casio FZ-1 sampler, E-max sampler, (2) Yamaha TX, Alesis HR-16 drum machine, Emulator SP-12 turbo, Roland Octapad, Sequential Circuits Prophet-5, Sequential Circuits Drum Traks. **Other MIDI Equipment:** Mac Plus w/Performer, IBM clone w/Voyetra. **Video Equipment:** (2) Sony 2850 3/4" VTR, Sony 5800 3/4" VTR, Sony 3/4" editor, (2) Mitsubishi monitor. **Other:** Complete radio production suite w/CD music and FX library. **Rates:** Available on request.

[24+] **GALAXY SOUND STUDIOS;** 1635 N. Cahuenga Blvd.; Los Angeles, CA 90028; (213) 461-1971. Manager: Nyssa F. Lark. Engineers: Nyssa Lark, Keven Kadel. **Mixing Consoles:** SSL 56 x 56 w/Total Recall. **Audio Recorders:** (2) Studer A800 MkII 24-track, Studer A80 2-track, Studer A800 2-track. **Cassette Recorders/Duplicators:** Nakamichi MR-1, Nakamichi MR-2, (2) Aiwa. **Noise Reduction Equipment:** Dolby 24 rack. **Synchronization Systems:** (2) TimeLine Lynx. **Echo, Reverb & Delay Systems:** (2) EMT stereo plate, (2) AMS RMX 16 reverb, (2) AMS DMX 15-80S, Lexicon 224XL digital reverb, Lexicon Super Prime Time, (2) Lexicon PCM70, (3) Yamaha SPX90, (3) Yamaha REV5. **Other Outboard Equipment:** Aphex II Aural Exciter, Orban Parasound sibilance controller, (6) Drawmer gate, Eventide 949 Harmonizer, (2) UREI 1176 tube limiter, (2) UREI LA-3A limiter, (6) dbx 902 de-esser rack. **Microphones:** (4) Sennheiser 441, (3) Neumann KM84, (5) Neumann U87, (4) AKG 414, (3) Neumann U89, (6) AKG C-460, (3) Crown PZM, (4) Shure 57. **Monitor Amplifiers:** (4) BGW 250, (2) BGW 750. **Monitor Speakers:** JBL custom Augsburgger main, (2) Yamaha NS-10M, Auratone, Tannoy. **Video Equipment:** Sony VCR camera, Sony VCR camera. **Other:** (12) AKG 141 headphones, Stewart DI boxes, Mini Cube DI boxes. **Specialization & Credits:** Music (album) recording mixing, Sweetening for video, post-production and pre-production. Credits include: Paula Abdul, The Boys, Baby Face, Sheena Easton, Passion Fodder, Kim Carnes, Karyn White, Pebbles, Midnight Star, *Lambada*. Full rehearsal space for video dance rehearsals and auditions; clients include: Johnny Gill, Madonna, Barry White, En Vogue, Sinbad, After Seven, McTrouble, The Calloways, Tina Turner.

[24+] **GATEWAY STUDIOS;** 6381A Rose Lane; Carpinteria, CA 93013; (805) 684-8336. Owner: Jim Messina. Manager: Amy Foster.

[24+] **GOLDEN GOOSE RECORDING;** 2074 Pomona Ave.; Costa Mesa, CA 92627; (714) 548-3694. Owner: D. & E. Rose. Manager: D.P. Rose.

[24+] **GOLDMINE RECORDING;** also REMOTE RECORDING; 1393 Callens Rd.; Ventura, CA 93003; (805) 644-8341. Owner: Goldmine Productions. Manager: Jeff Cowan. Engineers: Mick Young, Jeff Cowan, Mike Horn, various independents. Dimensions: Studio 66 x 26, control room 18 x 16. **Mixing Consoles:** Neotek Series II 28 x 24 w/Jensen 990S. **Audio Recorders:** Otari MTR-9024 2-track, Tascam TSR-824-track, Otari 5050B 2-track, Technics 1506 2-track, Panasonic SV-3500 2-track digital. **Cassette Recorders/Duplicators:** (2) Sansui SC-1110, (2) Aiwa F770, (2) KABA duplication system. **Synchronization Systems:** TimeLine Lynx. **Echo, Reverb & Delay Systems:** Lexicon Prime Time DDL, MXR DDL, DeltaLab Effectron, Eventide H910 Harmonizer, Yamaha REV7, Yamaha REV5, Korg DRV-3000, Roland SRV-2000 digital reverb, Ecoplate II, TC Electronic 1280 DDL, Yamaha SPX90 II. **Other Outboard Equipment:** (2) UREI LA-2A limiter, UREI 175 limiters, (2) dbx 161, (2) Valley People noise gate, (4) Omni Craft gate. **Microphones:** (9) Neumann, (4) Sennheiser, (4) Sony X, (6) AKG, (4) Shure, (2) Crown PZM, (2) E-V, (2) RCA. **Monitor Amplifiers:** Hafler DH-500, Fostex 600, Phase Linear 700B. **Monitor Speakers:** (2) UREI 813, (2) Yamaha NS-10, (2) Auratone. **Musical Instruments:** Yamaha C7 grand piano, Yamaha DX7, Yamaha PF15 electric piano, E-mu Emulator SP-12 drum machine, Akai 900, Roland D-50. **Video Equipment:** JVC 3/4" U-Matic, Sony video monitor. **Rates:** \$55/24-track, \$40/8-track, \$35/2-track, call for block rates.

[24+] **GOODNIGHT AUDIO, INC.;** 11260 Goodnight Ln.; Dallas, TX 75229; (214) 241-5182. Owner: Gordon Perry.

[24+] **GROUND CONTROL;** 1602 Montana Ave.; Santa Monica, CA 90403; (213) 453-1255. Owner: Paul Ratajczak. Manager: Lisa Roy.

[24+] **GROUP IV RECORDING, INC.;** 1541 N. Wilcox Ave.; Hollywood, CA 90028; (213) 466-6444. Owner: Angel L. Balester. Manager: Lisa Burrows. **Specialization & Credits:** Long recognized as one of Hollywood's leading film and TV scoring studios, Group IV has established itself in the area of audio post-production and film/TV sound packaging. While continuing to contribute to the musical scores of box office hits such as *Back to the Future* trilogy and *Who Framed Roger Rabbit*, Group IV handles many types of post-production needs for a wide variety of projects, from features and series to radio/TV spots. A new computer-based MIDI room is available for customized digital sound effects as well as for writing and assembling music. The facility is equipped for ADR, Foley, dubbing, video sweetening (1" video capability), telecine, electronic streaming, and transfers. Group IV has also upgraded its Studio A with a 60-input Neve V Series console with GML automation. The installation was completed mid-July 1990.

[24+] **HALLMARK PRODUCTIONS;** 31320 Via Colinas, Ste. 118; Westlake Village, CA 91362; (818) 991-4857. Owner: Steve Hallmark. Manager: Steve Hallmark. Engineers: Steve Hallmark, Terry Bower, Curt MacDonal, various independents. Dimensions: Room 1: studio A 10 x 11, studio B 10 x 14, control room 14 x 17. Room 2: video/editing 10 x 12. **Mixing Consoles:** Soundcraft 2400 28 x 24 (52 in remix). **Audio Recorders:** MCI JH-110 1/2" & 1/4" 2-track & 1/2" 4-track, Otari 5050BII 2-track, Otari MX-80 2-track. **Cassette Recorders/Duplicators:** Yamaha C200, Aiwa 6900, Panasonic SV-3500 DAT 2-track. **Synchronization Sys-**

tems: Adams-Smith Zeta-3 B w/remote Echo, Reverb & Delay Systems: Lexicon PCM70 w/3.0 software, Yamaha REV7, (2) Yamaha SPX90, Alesis Quadraverb, (2) Roland SDE-3000 DDL, (2) ADA 1280 DDL. **Other Outboard Equipment:** dbx 166 comp/lim gate (stereo), Symetrix 155 comp/lim gate (stereo), (2) Symetrix quad noise gate, Barcus-Berry BBE-202R, Aphex Type B. **Microphones:** AKG 414EB-P48, Sony C-48, (2) Sony C-36P, E-V RE20, (4) Shure SM77, (2) Neumann U87A, Sennheiser MD421. **Monitor Amplifiers:** (2) Crown, Symetrix, AB Systems 300, Hafler, Fastex. **Monitor Speakers:** JBL 4411, Tannoy NFM 8, Yamaha NS-10M, Auratone 5C, Digital Design. **Musical Instruments:** Korg M1R, Roland MKS-20 digital piano, Roland MKS-70 Super JX, Roland MKS-80 Super Jupiter w/programmer, (2) Roland D-550 LA synth, Yamaha TX816 FM synth, Roland A80 keyboard controller, Oberheim DPX-1 sampler player, (2) Akai S900 sampler, Kurzweil 1000-PX, 360 Systems Pro MIDI bass, Sequential Circuits Prophet VS, Roland Octapad MIDI drumpads, E-mu Proteus RX, Roland Jupiter 6, Ibanez electric guitar, Ibanez bass guitar, Washburn acoustic/electric guitar, Synclavier 9600 w/64 voices & 56-meg RAM, MIDinet, Oberheim 1000 analog synth, Kurzweil 1000-SX. **Other MIDI Equipment:** Macintosh SE w/4MB RAM and 40MB HD (internal), Opcode Time Code (SMPTe sync), Garfield Time Commander, J.L. Cooper MSB-16/20 MIDI patch bay, Opcode librarians for MKS-80, D-550, DX7, DX7II, M1, Mark of the Unicorn MIDI Time Piece Mac interface/SMPTe sync, Performer Sequencer 3.42. **Video Equipment:** Panasonic synchronizable VCR 1.2", Sony VO-5800 3/4" VCR, Sony 25" monitor. **Rates:** Please call for rates

[24+] **HAMMERSOUND RECORDERS; 9612 Lurline Ave., Unit N; Chatsworth, CA 91311; (818) 998-9641.** Owner: Christopher Aphthorp. **Specialization & Credits:** After 14 years in Chatsworth, we have completely remodeled and tuned our control room and upgraded our equipment. The facelift has left the ambience of our studio and iso booths unchanged. Our clients loved them then and still love them today, so will you. Our equipment includes a Amek-TEC Matchless console, Otari MTR-90 24-track, gobs of outboard gear and a full complement of microphones. While we are equally adept at all types of projects, the acoustical environment at HammerSound was originally conceived as a studio for music that needs air to breathe. All types of acoustic music—bluegrass, country, roots-based rock bands, traditional jazz—will find magic in the sound of this room. HammerSound is part of a trio of studios including Cornerstone Recorders and its Neve VR w/ Flying Faders, so whatever your project, we are ready to serve.

[24+] **HEADWAY STUDIOS; 7560 Garden Grove Blvd.; Westminster, CA 92683; (714) 891-8548.** Owner: Steve McClintock. **Manager:** Holly McClintock.

[24+] **HIT SINGLE RECORDING SERVICES; 1935C Friendship Dr., El Cajon, CA 92020; (619) 258-1080.** Owner: Scottman Ltd. **Manager:** Randy Fuele.

[24+] **THE HOOK RECORDING STUDIO; also REMOTE RECORDING; 10700 Ventura Blvd., Ste. A; Studio City, CA 91604; (818) 980-4396.** Owner: Mike Frenchik. **Manager:** Mike Frenchik. **Engineers:** Carl Lange, Mike Frenchik, Dave Pensado, Todd Chapman. **Dimensions:** Room 1: studio 14 x 16, control room 14 x 18. Room 2: control room 16 x 9. **Mixing Consoles:** Neve 8128 32 x 24 x 32, Trident Series 70 28 x 16 x 24. **Audio Recorders:** MCI JH-114 24-track, MCI JH-110 B 2/4-track, MCI JH-110 C 2-track, Tascam DAT-50 44.1 and 48.0 kHz, Studer A827 24-track. **Cassette Recorders/Duplicators:** (2) Technics RSM-85 MkII. **Noise Reduction Equipment:** (2) Dolby A and Dolby SR on 2-track. **Synchronization Systems:** (2) TimeLine Lynx and TimeLine Lynx keyboard. **Echo, Reverb & Delay Systems:** (2) dbx 165 A compressor/limiter, (4) Drawmer DS 201 noise gate, (2) Valley People Dyna-Mite gate, DeltaLab 1024 DDL, Eventide H-910 Harmonizer, Lexicon 200 reverb, Lexicon 224 reverb, MXR flanger/doubler, (2) Roland SDE-2000 DDL, Roland SDE-3000 DDL, Tube-Tech MP1A pre-mic, Tube-Tech CL1A compressor, Tube-Tech ME1A mid-EQ, Tube-Tech PE-1B program EQ, (2) UREI 1176LN limiter, (2) UREI 527 graphic EQ, Yamaha REV7, (2) Yamaha SPX90 II. **Other Outboard Equipment:** Symetrix T-101 telephone patch. **Microphones:** (2) AKG 414ED condenser, AKG The Tube, AKG C-12 tube, Electro-Voice RE20, Neumann U47 tube stock, Neumann U47 tube modified, (3) Neumann U67 condenser stock & modified, Neumann U67 tube modified, Sennheiser MD-421 condenser, Sanken CU 41 condenser, Telefunken E1am 251 tube. **Monitor Amplifiers:** Hafler DH-200, Yamaha P-2200. **Monitor Speakers:** (2) Auratone 5C, (2) Tannoy K3808 15" coaxial, (4) Yamaha NS-10T. **Musical Instruments:** Roland MKS 20 piano module, Yamaha DX7 synth. **Video Equipment:** JVC CR-600U 3/4" video recorder, JVC C-1336 color monitor, Sony 5600 3/4" video recorder. **Other:** First Com Digifects CD sound effects (18 CD), (8) AKG K-141 K-240 headphones, Electra CD sound effects (3 CD). **Rates:** \$50-\$125.

[24+] **IMAGE RECORDING; 1020 N. Sycamore Ave., Hollywood, CA 90038; (213) 850-1030; FAX: (213) 850-0895.** Owner: Harry Maslin, John Van Nest. **Manager:** John Van

Nest. **Engineers:** Harry Maslin, John Van Nest, Tally Sherwood, Jason Roberts. **Dimensions:** Room 1: studio 40 x 20, control room 18 x 15, Room 2: studio 15 x 10, control room 18 x 14. **Mixing Consoles:** SSL 4056E 60-input w/G computer and Total Recall, Trident A Range. **Audio Recorders:** (2) Ampex ATR-102 2-channel, (3) Studer A827 24-track. **Cassette Recorders/Duplicators:** (2) Awa, (2) Tascam, (2) Nakamichi MR-1. **Noise Reduction Equipment:** Dolby M-24 24-channel rack. **Synchronization Systems:** (4) TimeLine Lynx. **Echo, Reverb & Delay Systems:** EMT 140 plate reverb, AMS RMX digital reverb, Lexicon 480L, (3) Lexicon PCM70 digital reverb, (2) Yamaha REV7 digital reverb, (5) Yamaha SPX90 II, (2) LXP-1 digital reverb, Roland SRV-2000 reverb, TC 2290 AMS DMX delay/harmonizer, Roland SDE-3000 delay, Lexicon Delta T, Marshall tape eliminator analog delay. **Other Outboard Equipment:** (2) AMS flanger/phaser, Eventide HARM Harmonizer, Cyclosonic panner, Panscan, (2) Neve 1064 mic pre-equalizer, (8) Neve 1073 mic pre-equalizer, (2) Trident A Range, (2) Teletronics LA-2A limiter, (4) UREI 1176LN limiter, (4) dbx 160X limiter, (6) dbx de-esser, (4) dbx gates, (6) Drawmer noise gate, (24) Neve 1059 mic preamps, (2) Tube-Tech tube equalizers, (2) Lang PEO-2 tube equalizer. **Microphones:** (60) Neumann, Akai, Sennheiser. **Monitor Amplifiers:** (2) Yamaha 2200M, (2) McIntosh 2300. **Monitor Speakers:** (2) UREI Time Aligned, (2) Yamaha NS-10M.

[24+] **INDIAN HILL AUDIO/VIDEO RECORDING; also REMOTE RECORDING; 224 N. Indian Hill Blvd.; Claremont, CA 91711; (714) 625-2396; FAX: (714) 625-2397.** Owner: Indian Hill Prod. Inc. **Manager:** Terrance Dwyer. **Engineers:** Terry Dwyer, Tom Orsi, Adam Falk. **Dimensions:** Studio 22 x 37, control room 18 x 22, video suite 12 x 12. **Mixing Consoles:** Neve custom w/Necam automation. **Audio Recorders:** Ampex ATR-102 2-track, (2) Nakamichi DMP-110 F1, Sony JH 24 MkIII 24-track. **Echo, Reverb & Delay Systems:** Lexicon 224, live chamber, (4) AKG BX10, Ecoplate, TC Electronic 2290 32-sec. sampler, Eventide Harmonizer, QuadraVerb, Microverbs. **Other Outboard Equipment:** Summit Audio Tube Limiter, LA-4, (2) dbx 160, (2) dbx 160X, UREI 1176, (2) Allison Research Gam Brain, Valley People Dyna-Mite, (2) Valley People Kepex gate, (4) various delays, Boulder mic preamp. **Microphones:** AKG C-12A tube, (3) RCA 77 DX, RCA 44 BX, Neumann U87, (2) Neumann U47 FET, Neumann U47 tube, (2) AKG 451, (2) AKG C914, E-V RE20, (4) Sennheiser 421, Sennheiser 441, Shure SM7, (2) Shure M57, Sony C38, AKG D 112. **Monitor Amplifiers:** McIntosh, Hafler. **Monitor Speakers:** (2) UREI 813, (2) Yamaha NS-10M, (2) JBL 4311 (video suite).

—LISTING CONTINUED ON NEXT PAGE

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# 24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

**Musical Instruments:** Yamaha 7' grand piano, (3) drumsets, (12) kinds of keyboard, drum machines, samplers, etc., PC MIDI system. **Video Equipment:** Complete location video pkg., Chyron VP2, (2) Sony VO-6850 portable U-matic, Ampex VPR 80 1" w/TBC 6, Ampex ACE 25 A/B roll editing system, Echolab DV-5 video switcher, Ampex ADO-100, (2) Ikegami 730 cameras, A/B roll broadcast 1" video suite, Sony BVU. **Other:** Digital 2-track location pkg.

**[24+] INDIGO RANCH RECORDING STUDIO-MALIBU; PO Box 24-A-14; Los Angeles, CA 90024; (213) 456-9277; FAX: (213) 456-8474. Owner:** Richard Kaplan, Michael Hofmann. **Manager:** Michael Hofmann. **Engineers:** Richard Kaplan, Chris Brunt, Chuck Johnson, Thom Panunzio, Chris Kupper. **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 8 echo returns and 24 mon/line returns and 14 sends. **Audio Recorders:** 3M M79 24-track 1/2" and 1/4" stereo, Sony 3324 digital, Mitsubishi X-850 digital, Mitsubishi X-86 digital, NED Synclavier DAT VHS and 3/4" PCM. **Synchronization Systems:** Lynx and Q-Lock available on request. **Echo, Reverb & Delay Systems:** EMT 140S plate, EMT 250 digital reverb, AMS and Publison Infernal 90 available on request, Lexicon 224 digital reverb, Yamaha SPX90, Roland SRV-2000, Roland SDE-3000, Alesis XT digital reverb, MXR 01 digital reverb and DDL, Ursa Major Space Station digital effects. **Telefunken reverb, Eventide Harmonizers, DDLs and instant phaser, Loft delay/flanger, Marshall lime modulator. Other Outboard Equipment:** Teletronix LA-2, Teletronix LA-2A, Pultec EPQ-1A, Pultec EQH-2, Pultec MEQ-5 equalizers, ADR stereo compex limiters and selective stereo processors, UREI 1176, UREI UA175, UREI 176 tube limiters and Little Dippers, Fairchild tube limiters, API, Aengus and B&B equalizers, Valley People Kepex IIs, Gain Brain, Drawmer ElectroSpace Strate Gate, Orban parametric equalizer, EXR, Aphex Exciters and stereo enhancers, RCA BA6A tube limiters, Collins 26 tube limiter, dbx 900 rack w/de-esser, dbx 160 limiter. **Microphones:** Huge collection of new and vintage tubes: Neumann M49, Neumann KM53, Neumann KM64, Neumann U47, Neumann U67, Neumann U87, Neumann SM2, Neumann SM23, Neumann SM69 and others, Telefunken Elam 250, Telefunken Elam 201 classic tube, AKG C-12, AKG C-12A, AKG C-24, AKG C-28, AKG C-60, AKG C-452 and others including Schoeps, Sony PML, etc. **Monitor Amplifiers:** HH Electronic custom bi-amp 1,600 watts per side. **Musical Instruments:** Steinway grand piano, (2) ClapTrap, guitar accessories, most things available on request. **Video Equipment:** Indigo Ranch Studio's support facilities and grounds (orchards, mountains, canyon and ocean view) are very picturesque, private and conducive to film and video production. **Rates:** Ask about our block booking rates. Daily, weekly, weekend and monthly lockouts. **Specialization & Credits:** Secluded 60-acre ranch, with satellite TV, minutes from beach; living and cooking facilities. Great for artists 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 homelike but professional setting. Located in the Malibu Hills overlooking the Pacific Ocean, Indigo services top recording artists from all over the world. The 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 their utmost to make clients feel welcome and comfortable. We are pleased to announce that Indigo Ranch Studios is entering its 17th year of continuous service to the musicians, producers and engineers of Los Angeles and the world.

**[24+] INSIDE TRACK STUDIOS; also REMOTE RECORDING; 313 N. Locust; Denton, TX 76201; (817) 566-2367. Owner:** Jay Miller, Jim Vincent. **Manager:** Jim Vincent. **Engineers:** Jim Vincent, Terry Slemmons. **Dimensions:** Studio 20 x 30, control room 17 x 14. **Mixing Consoles:** Trident Series 70 28 x 24. **Audio Recorders:** Studer A80 24-track, Sony PCM-2500 2-track DAT, Sony 701-ES2-track digital, Otari MX-5050 MkIII-22-track. **Cassette Recorders/Duplicators:** Akai VX-912, (2) Tascam 122B. **Synchronization Systems:** Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems:** Lexicon 200 digital reverb, Yamaha REV7, Lexicon PCM60 digital reverb, Yamaha SPX90, Effectron 1024, Effectron 256, Korg SDP-3000. **Other Outboard Equipment:** Orban "Optimod" stereo comp/lim/de-esser, (2) UREI LA-4A, (2) dbx 160 comp, (2) dbx 160X comp/limiter, dbx 900 noise gate rack, Aphex Aural Exciter, Ashly Audio SC-66 stereo parametric EQ, Eventide H910 Harmonizer. **Microphones:** Neumann, AKG, Sennheiser, Crown PZM, Beyer, Shure, TEAC, E-V. **Monitor Amplifiers:** Crown, Akai, Hafler, Carver, NAD. **Monitor Speakers:** UREI 813, Yamaha NS-10M studio, JBL 4312, Auratone, JBL 4425. **Musical Instruments:** Kawai 6' grand piano, Linn 9000 drum comp/sequencer, Yamaha DX7, Oberheim Xpander,

Ensoniq Mirage-DSK, Roland D-50, Roland MTR-32 sound module. **Other MIDI Equipment:** Atari 1040ST w/full MIDI package and SMPTE, Yamaha DX Pro software. **Video Equipment:** JVC 6650 3/4", Beta and VHS 1/2", Sony KX-2501A 25" monitor.

**[24+] INTERSOUND INC.; 8746 Sunset Blvd.; Los Angeles, CA 90069; (213) 652-3741. Owner:** Ahmed Agrama. **Manager:** Kent Harrison Hayes.

**[24+] INVINCIBLE PRODUCTIONS; 7898 Ostrow St., Ste. 1; San Diego, CA 92111; (619) 569-8581. Owner:** Vince Lubinsky. **Manager:** Pam Lubinsky.

**[24+] JAMLAND STUDIOS; 10988 Noble Ave.; Mission Hills, CA 91345; (818) 361-2224. Owner:** Roger Curley. **Manager:** Roger Curley.

**[24+] J.E. SOUND PRODUCTION AND ENTERTAINMENT; 1680 Sycamore Ave.; Hollywood, CA 90028; (213) 462-4385. Owner:** John E. Goodenough. **Manager:** John E. Goodenough.

**[24+] JUNIPER STUDIOS; 719 Main St.; Burbank, CA 91506; (818) 841-1244. Owner:** David Bolger. **Manager:** David Bolger.

**[24+] KEY PRODUCTIONS; 13624 Sherman Way, Ste. 221; Van Nuys, CA 91405; (818) 994-4849. Owner:** Bruce K. Monical. **Manager:** Bruce K. Monical.

**[24+] KINGSOUND STUDIOS; 7635 Fulton Ave.; N. Hollywood, CA 91605; (818) 764-4580. Owner:** Eddie King. **Manager:** Steve Cormier. **Engineers:** Eddie King, Steve Cormier, Rob Ruscoe. **Dimensions:** Room 1: studio 40 x 24, control room 27 x 19. Room 2: control room 12 x 12. **Mixing Consoles:** Amek Angela 28 x 24 w/extensive modifications. **Audio Recorders:** Otari MTR-90 II 24-track 2", Otari MTR-10 2-track 1/4", Otari MX-5050 2-track 1/4". **Cassette Recorders/Duplicators:** (2) Akai GX-8 3-head. **Synchronization Systems:** (2) Adams-Smith Zeta-3, Adams-Smith Zeta remote. **Echo, Reverb & Delay Systems:** Lexicon 480L digital effects unit, Lexicon PCM70, Lexicon PCM41 digital delay, Roland SDE-3000, Yamaha SPX90 digital effects, Effectron 256 digital delay, TC Electronic 2290 digital delay. **Other Outboard Equipment:** Aphex Aural Exciter Type III stereo, Aphex Compellor stereo, Summit Audio TLA 100 tube leveler, BSS 402 stereo compressor/limiter/de-esser, dbx 165A compressor, dbx 165 compressor, (2) Valley People Gain Brain compressor, Valley People Kepex II gate, Valley People Maxi-Q equalizer, Valley People 610 stereo compressor/gate, Drawmer DS-201 dual gate, BBE 822 Sonic Maximizer stereo, Garfield Digital Click. **Microphones:** (2) Neumann TLM170, (4) Neumann KM100, Neumann U89, Neumann U47 FET, AKG 414TSL transformerless, AKG C-460 w/CK 1S, (2) Schoeps CMC-5 cardioid, (2) Sennheiser 421 cardioid, Sennheiser 441, (3) Shure SM81, Shure SM57, (3) Crown PZM, E-V PL20, Sony C-37P, (2) Countryman Isomax. **Monitor Amplifiers:** Briston 4B, Briston 3B, Briston 2B, Carver 1.5T, Eagle 2, Acoustat TNT200. **Monitor Speakers:** Auratone 5C, Yamaha NS-10M Studio, Custom 3-way tri-amp w/TAD components, Tannoy Little Reds 12". **Musical Instruments:** Yamaha C5 grand piano, Roland JX-3P, Ampeg Reverb Rocket. **Video Equipment:** Sony 9850 3/4" machine w/address track. **Other:** Hybrid Arts ADAP II digital editor w/92-min. stereo. **Rates:** Call for rates.

**[24+] KIRKWOOD STUDIO; 7027 Twin Hills; Dallas, TX 75231; (214) 692-8332. Owner:** Rick Woodul. **Manager:** Rick Woodul.



KNIGHTLIGHT STUDIO  
Dallas, TX

**[24+] KNIGHTLIGHT STUDIO; 1609 Tantor Rd.; Dallas, TX 75229; (214) 506-9162. Owner:** Tim Miner. **Manager:** John Wirtz. **Engineers:** John Wirtz, Leland Bennett. **Dimensions:** Room 1: studio 45 x 58, control 24 x 28. Room 2: studio 26 x

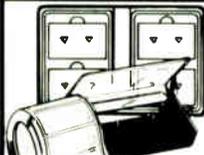
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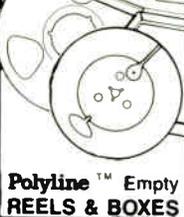
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35, control 14 x 18. **Audio Recorders:** Otari MX-80 32-track, Otari CB-120 auto locator, (2) Otari CB-123 remote control unit, Panasonic 3500 DAT, Casio DA-2 DAT, Tascam 32 23-track. **Cassette Recorders/Duplicators:** Nakamichi MR-1, Nakamichi BX-100, JVC KDV-100. **Synchronization Systems:** (2) Sonus SMX2000 SMPTE lock. **Echo, Reverb & Delay Systems:** Yamaha SPX1000 processor, Roland R-8M, AMS RMS 16 reverb, (2) Alesis Quadraverb, Alesis MIDiverb II, Alesis Microverb, (2) dbx 160 comp/lim, Roland SRV-2000, Yamaha SPX90. **Other Outboard Equipment:** Korg DT-1 pro tuner. **Microphones:** Neumann U47, (2) Beyer M160, Sennheiser 409, AKG 140, Neumann U67, E-V RE20, Sennheiser 421, AKG D-12, Beyer M500, E-V 667, (2) E-V 635, (2) Sony ECM22, (5) Shure SM57, (3) Shure SM58. **Monitor Amplifiers:** Perreux PMF5150B, Crown P5-400, QSC 1400. **Monitor Speakers:** (2) UREI 813B, (2) Fostex RM780 (near-field), (2) Yamaha S2115H II wedge, (2) Acoustic PA5115. **Musical Instruments:** Korg M1R, Roland D-550, Roland D-50, (2) Roland D-110, Midimoo (rack-mount), Yamaha TX16W sampler, Akai S1000 sampler, (2) Akai S-900 sampler, Akai S1000PB sampler, (2) Yamaha 8 x 16, Korg A3, Korg EX-8000, Roland Planet-5, MIDI bass, Roland R-8M, Yamaha Recording Series drumset, Strat Plus guitar, Ibanez guitar, Fender Jazz bass, Ovation 12-string. **Other MIDI Equipment:** Macintosh Plus, (2) Yamaha KX76 controller board, Roland PM-16 pad MIDI interface, Roland Octapad MIDI interface, Akai ME15F dynamics controller, Akai PEQ-6. **Other:** AKG K-240 headphones, Dunlop Crybaby pedal. **Specialization & Credits:** Knightlight Studios is a 3-studio facility specializing in creating, recording and producing hit tunes for both the contemporary Christian and mainstream markets. We are a self-contained company incorporating a full staff of songwriters, musicians, engineers and producers. Located in Dallas, TX, the amenities available for leisure time are endless. Technically, we are a state-of-the-art facility. From our computerized MIDI rooms to our automated mix room, nothing is out of reach of the imagination, and if the session gets a little too tense, take a break and relax with some ping-pong, football, billiards, or just play a few video games. We also have an on-site kitchen facility for the dinner break. Knightlight Studios is a company that takes pride in its work. We work hard and play harder. Credits include numerous hits with Capitol, Geffen, Warner, Myrrh, Sparrow, Word and Frontline.

[24+] **LAHAINA SOUND RECORDING STUDIO;** 840 Waianae St., H-2; Lahaina, HI 96761; (808) 667-2587. Owner: George Benson. Manager: Amos Daniels.

[24+] **LARRABEE SOUND;** also *REMOTE RECORDING;* 8811 Santa Monica Blvd., West Hollywood, CA 90069; (213) 657-6750. Owner: KEDA Enterprises. Manager: Kevin Mills. **Mixing Consoles:** SSL 4072 G Series Total Recall, SSL 4056E w/G computer Total Recall. **Audio Recorders:** (4) Studer A800 24-track, (2) Studer A820 2-track, (6) Ampex ATR 2-track w/SSI transformerless module, Mitsubishi S-80 2-track digital w/Apogee filters, (4) Studer A-827 24-track. **Cassette Recorders/Duplicators:** (10) KABA system, (3) Sony Pro-DAT. **Noise Reduction Equipment:** Dolby A 48-track. **Synchronization Systems:** (6) TimeLine Lynx. **Echo, Reverb & Delay Systems:** (3) Lexicon 480L, (2) EMT 252, (2) Yamaha REV1, (4) Yamaha REV5, (4) Lexicon PCM70, (2) Yamaha SPX1000, (4) Yamaha SPX90, (2) Yamaha REV7, (2) Eventide H3000, Sony DRE-2000, (12) Lexicon PCM42, (4) AMS 15-80 sampler, (4) AMS RMX 16, (3) TC Electronic 22900 11-sec. fast trigger, (2) EMT 240, Publison DHM89B harmonizer, (2) Lexicon 200, (2) Lexicon 224XL, Lexicon 480L, Roland SRV-200, Roland SDE-2500, Roland DEP-5. **Other Outboard Equipment:** (3) UREI LA-2A, (8) Focusrite ISA 851100 EQ, (2) Focusrite ISA 12 dynamic module, (12) Pultec EQP-1/EQP-1A tube EQ, (18) API 550/550A EQ, (6) Lang PEQ-5 EQ, GML Dual EQ, (4) dbx 160, (8) dbx 160X, (5) UREI LA-4A, (8) UREI 1176, (2) Inovonics 201 comp/limiter, (2) Valley People 610 comp/limiter, (16) Valley People Kepex II, (4) Drawmer D5201 dual gate, (2) Aphex expander gate, (2) TC Electronic 1210 spatial expander, (2) dbx 900 rack (902, 906, 929), Roland Dimension D, Marshall time modulator 5002, Ursa Major Space Station 282, FS-1 Cyclosonic Pan Scan, Barcus-Berry 202R, Studio Technologies AN-2 stereo simulator, Audio & Design Scamp rack, (2) Aphex Aural Exciter, Aphex CX-1 compressor, (2) API comp/limiter, Barcus-Berry 202R, (2) dbx 165A, dbx 263X, Drawmer 1960 tube compressor, Loft 410 comp/limiter, Motown Hiltville custom EQ, (4) Pultec MEQ-5, (2) UREI LA-3A.

[24+] **LIGHTHOUSE RECORDERS INC.;** 12438 Magnolia Blvd., North Hollywood, CA 91607; (818) 506-8942. Owner: Eduardo Fayad. Manager: Patty Nichols. Engineers: Kevin Becka, James Goforth. Dimensions: Studio 28 x 25, control room 23 x 18. **Mixing Consoles:** Studer 905 Series 62 inputs w/custom-made 24 monitor inputs. **Audio Recorders:** (2) Studer A820 24-track, Studer A820 2-track, Mitsubishi X-80 digital 2-track. **Cassette Recorders/Duplicators:** Sony PCM-2500 A digital, (2) Aiwa. **Noise Reduction Equipment:** Dolby SR 24 cards, Dolby SR 2-track and rack. **Synchronization Systems:** Studer. **Echo, Reverb & Delay Systems:** (2) Lexi-

con PCM42 delay, Lexicon 224XL w/LARC, Yamaha SPX90, Lexicon PCM70 Version 3.01, AMS delay, EMT 250, Eventide H3000. **Eventide 2016. Other Outboard Equipment:** (2) Teletronix LA-2A tube comp/lim, (2) UA-175 tube comp/lim, (2) UREI 1176 comp/lim, Inovonics 201 comp/lim, Sontec 202 stereo comp/lim, (4) dbx 160 comp/lim, (3) dbx 903 comp/lim, (6) dbx 902 de-esser, (7) Drawmer DS-201 stereo gate, (9) Kepex II, (10) API 550 A EQ, GML 8500 stereo EQ, Sontec EQ, custom-made preamp. **Microphones:** (4) Neumann U87, (2) Neumann U89, Neumann U47, (3) AKG 414 EB, (4) AKG 452 EB, (2) AKG 460E, (2) AKG D-12 E, (2) PML DC 63, (2) Crown PZM, Shure SM7, (5) Shure SM57, Shure SM53, (2) Shure SM81, Schoeps CMC 80, (2) Sennheiser 421, (2) Sennheiser 441, (2) Sony C-37P, (2) Sony C-38, Neumann U47 tube, M49 tube, C-12 tube. **Monitor Amplifiers:** Boulder. **Monitor Speakers:** (2) custom monitor w/JVC components, (4) Yamaha NS-10. **Other:** GML moving fader automation. Rates: Available upon request. **Specialization & Credits:** The Lighthouse offers state-of-the-art equipment including the only custom-made Studer board in the U.S. and GML moving fader automation. Recent clients include: Michael Bolton, Billy Idol, Quincy Jones, Paula Abdul, Kenny G., Earth, Wind & Fire, Aretha Franklin, Dianne Warwick, Jeffrey Osborne, Natalie Cole, Gladys Knight, Siedah Garrett, Stephen Bishop, Dianne Reeves, George Duke & Stanley Clarke, Ame Lorraine, Amy Grant, Pretty in Pink, and Senri Oe.

[24+] **LIMELIGHT RECORDING STUDIO;** also *REMOTE RECORDING;* 5116 34th St.; Dickinson, TX 77539; (713) 337-1272. Owner: Don Westmoreland. Manager: Don Westmoreland.

[24+] **LION SHARE RECORDING STUDIOS;** 8255 Beverly Blvd.; Los Angeles, CA 90036; (213) 658-5990. Owner: Terry Williams. Jay Antista. Manager: Terry Williams.

[24+] **LOMA RANCH STUDIO;** Rt. 1, Box 97A3; Fredericksburg, TX 78624; (512) 997-3521. Owner: John & Laurie Hill. Manager: John Hill.

[24+] **LYON RECORDING STUDIO;** also *REMOTE RECORDING;* 2212 Newport Blvd.; Newport Beach, CA 92663; (714) 675-4790; (213) 962-6117. Owner: Curt Lyon. Manager: Naomi Davis.

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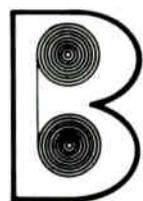
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# 24+ TRACK STUDIOS



MAD HATTER RECORDING STUDIO  
Los Angeles, CA

[24+] **MAD HATTER RECORDING STUDIO**; 2635 Griffith Park Blvd.; Los Angeles, CA 90039; (213) 664-5766. Owner: Chick Corea. Manager: Dee Dye. Engineers: Larry Mah, Bernie Kirsh, Darren Mora, Robert Read, Bobby Jones, Frank La Rosa. Dimensions: Studio 38 x 26, control room: 18 x 22. **Mixing Consoles**: Neve 8078 4C inputs 32 monitor, 24 buses w/GML automations. **Audio Recorders**: Studer A80C MkIII 24-track, Studer A80 24-track, (2) Studer A80RC 2-track stereo (1/2" or 1/4"), Otari MTR-12i 4-track 1/2". **Synchronization Systems**: (2) TimeLine Lynx **Echo, Reverb & Delay Systems**: AMS 15-80S DDL, EMT 140 stereo plates, EMT 240 Gold Foil reverb plate, Lexicon 224XL digital reverb, Lexicon Super Prime Time, (4) Yamaha SPX9C, Eventide 949 Harmonizer, (2) Teletronix LA-2A compressor/limiter, (2) UREI 1176 limiter, (2) dbx 160X limiter/compressor, ScaTec stereo EQ, (4) API 550A EQ, (2) Drawmer dual gate. **Other Outboard Equipment**: (4) KepeX noise gate. **Microphones**: (1) Schoeps CMC3, (4) AKG 414EB/P48, (2) Neumann U87, (2) Sanken CJK2, (4) Bruel & Kjaer omni, (4) Shure SM57, (6) Sennheiser 421, (2) AKG C-12, (2) AKG C-12A, (2) Neumann U87, (5) AKG 414, Neumann M49, Neumann KM84, AKG D-12E. **Monitor Amplifiers**: Hafler 50J, Hafler 2C0, (2) Eyryston. **Monitor Speakers**: Yamaha NS-10, Tannoy SRM-10B, Auratone, Vincent Van Haaf custom. **Musical Instruments**: Bosendorfer 9' concert grand w/M.D.I., Steinway D 9' Hamburg concert grand. **Video Equipment**: JVC CR690 3/4" recorder/playback, NEC 26" monitors, JVC VHS Hi-Fi video recorder Toshiba 19" video. **Other**: Doctor Click metronome, CD player. **Rates**: Upon request. **Specialization & Credits**: "The building of Mad Hatter Studios is the realization of a place where musicians could make music in a free, easy atmosphere. Our technical concept is clarity of sound. Our musical concept is the artist's vision realized." —Chick Corea. Our clients include: Prince, Robert Palmer, Pau McCartney, Chick Corea, Pebbles, Wayne Shorter, Lavett, Maynard Ferguson, Chico DeBerge, Los Lobos, Teena Marie, Jennifer Warnes, Warren Zevon, Madame X, Robben Ford, Jean Luc Ponty, Yellowjackets and Billy Crystal. **Movie soundtracks and TV credits include**: *Quantum Leap*, *Dad's a Dog Pilot*, *Anything for Laughs*, *Teenage Mutant Ninja Turtles* soundtrack, *Nightmare on Elm Street*, *Surrender*, *The Principal*, *Deathwish 4*, *School Daze*, and our commercials include: Budweiser, Bud Dry, McDonalds, Rosarita, Coors, Coors Lite, Gatorade Lite.

[24+] **MARTINSOUND RECORDING STUDIOS**; 1151 W. Valley Blvd.; Alhambra, CA 91803-2493; (818) 281-3555; FAX: (818) 281-3092. Owner: A.J. Martinson. Manager: Annette Martinson. Engineers: Anthony Sripitawat, independent engineers welcome. Dimensions: Room 1: studio 45 x 47, control room 15 x 35. Room 2: studio 23 x 14, control room 13 x 14. **Mixing Consoles**: Trident Series 80 w/40 tracking-68 mix/26 bus/5 aux., Flying Faders automation, MCI JH-416 24 x 16. **Audio Recorders**: Sony/MCI 24-track. **Noise Reduction Equipment**: Dolby 24-track, Dolby 4-track, Dolby 2-track. **Synchronization Systems**: (3) TimeLine Lynx, house sync, pacer backup. **Echo, Reverb & Delay Systems**: AMS, (2) Yamaha REV7, (2) Lexicon SPX90, EMT echo plates. **Other Outboard Equipment**: Misc. EQ equipment, KepeX hi noise gate, digital delay line UREI LA-2A (modified). **Microphones**: Over 60 tube and condenser. **Monitor Amplifiers**: Eubolder. **Monitor Speakers**: UREI Time Align w/Yamaha NS-10M mini monitors, JBL 604 w/Yamaha NS-10M mini monitors. **Musical Instruments**: Yamaha 7' grand, Steinway 7' grand. **Video Equipment**: Sony 3/4" U-matic deck, (2) Sony color monitor, TimeLine Lynx lockup. **Other**: Digital metronome, Silent Clock.



MASTER CONTROL  
Burbank, CA

[24+] **MASTER CONTROL**; 3401 W. Burbank Blvd.; Burbank, CA 91505; (818) 842-0800. Owner: Aseley Otten. Manager: Aseley Otten, Scott Sheets. Engineers: Aseley Otten, Andrew Ballard, Scott Blockland, 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/G Series computer and Total Recall. **Audio Recorders**: Studer A80 VU-KI III 24-track, Studer A80 RC-Mk II 2-track (1/4" and 1/2"), Revox PR99, ATR-104 4-track 1/2" & 1/4", Panasonic PV-3500 R-DAT. **Cassette Recorders/Duplicators**: Studer A710, Revox B215, Studer A725 CD player. **Noise Reduction Equipment**: Dolby 363/2 channels SR or A noise reduction. **Synchronization Systems**: TimeLine. **Echo, Reverb & Delay Systems**: Lexicon 224XL, Lexicon 200, Lexicon PCM70, Lexicon PCM42, AMS RMX 16 digital reverb, AMS DMX 15-80, (2) Yamaha REV7, Eventide 949 Harmonizer w/delay, (2) Roland SDE-3000, Effectron II 1275 DDL, Eventide H3000 Ultra-Harmonizer. **Other Outboard Equipment**: UREI LA-2A, (2) UREI 1176 limiter, (2) dbx 160X limiter/compressor, Valley People 430, Valley People Dyna-Mite limiter/gate, (2) CBS Audimax II RZ limiter, (2) API 560 graphics, Pultec EQP-1, Pultec EQP-1A, Pultec EQP-1S, Pultec EOH-2, Pultec MEQ-5, Pultec HLF-3C filter, Drawmer gates, Eventide Instant phaser, Klark-Teknik DN332 graphic EQ, Trident A Range input EQ module, UREI LA-3A, Inovonics 201 limiter, Aphex II Exciter, dbx 902 de-esser, Massenburg EQ. **Microphones**: AKG "The Tube," AKG 414/P48, AKG 451, Beyer M 160, Crown PZM, E-V 665, E-V 666, Neumann U87, Neumann U47, Neumann KM84, Neumann KM85, RCA 77-DX, Sennheiser 421, Shure SM77, Countryman, Westlake and Jensen DI boxes, Shure SM81. **Monitor Amplifiers**: Crown PSA-2, Eagle 2A, Studer A68, Crown 150, Crown 75, Hafler P-500, Hill 3000. **Monitor Speakers**: JBL 4311, Tannoy SRM12B, Yamaha NS-10M, Auratone 5C, Realistic Minimus 7, Westlake BBSM-4, George Augspurger custom w/TAD components. **Musical Instruments**: Steinway C grand piano, Hammond B3 w/Leslie. **Video Equipment**: 26" SVT, NTSC, PAL, SECAM color monitor. **Rates**: \$145/hr. Call for block bookings. **Specialization & Credits**: Credits include: Madonna, Loverboy, Cock Robin, R.E.M., Bernie Taupin, Crystal Gayle, Stryper, Eddie Rabbit, Kenny Rogers, Poison, Juice Newton, Sergio Mendes, Dream Syndicate, Reckless Sleepers, Hunters & Collectors, Devo, Robert Tepper, Eurythmics, Lords, Herbie Hancock, Bus Boys, Cheech Marin, Dream Academy, Alice Cooper.

[24+] **MASTER PRODUCTIONS RECORDING STUDIO**; 307 S. Missouri St.; Weslaco, TX 78596; (512) 968-5777. Owner: Jose A. Leal. Manager: Jose A. Leal.

[24+] **MAXIMUS RECORDING STUDIOS**; 2727 N. Grove Industrial Dr. #111; Fresno, CA 93727; (209) 255-1688; FAX: (209) 255-1755. Owner: Jeff Hall. Manager: Leigh Ratliff.

[24+] **MIDCOM REMOTE SERVICES**; only REMOTE RECORDING; 3 Dallas Comm. Complex, Ste. 108; 6311 N. O'Connor Rd., LB-50; Irving, TX 75039; (214) 869-2144. Owner: Mike Simpson. **Mixing Consoles**: Soundcraft TS 24 32-channel console w/custom 8 stereo/16 mono submaster routing system 32 x 24 x 16 x 2 x 1, Amek/TAC Bullet 10 x 4 x 2. **Audio Recorders**: Otari MTR-90 II 24-track, Studer A-810 2-track w/center-track time code, Panasonic SV-3500 R-DAT. **Cassette Recorders/Duplicators**: Nakamichi MR-1B. **Noise Reduction Equipment**: TTM 24-channel frame will accept Dolby, dbx, Telcom. **Synchronization Systems**: Cipher Digital Shadow II w/Shadowpad, Cipher Digital Cipher time code reader/generator. **Echo, Reverb & Delay Systems**: Lexicon 480L digital effects processor, Lexicon 224XL digital reverb, Lexicon 95 Prime Time II, Lexicon PCM70 digital effects processor, Eventide H910 Harmonizer, dbx 900 frame w/903 comp/limiter, 904 noise gate MICMIX dynalex/exciter cards. **Other Outboard Equipment**: (2) dbx 160X comp/limiter, Aphex stereo Compeller. **Microphones**: (2) Neumann TLM170, (2) Neumann U89, (6) Neumann KM841, (4) AKG D-414EB, (2) Sennheiser MD-441, (6) Sennheiser MD-421, (4) Beyer M69, (2) Beyer M88, (6) Beyer MC734, (12) Shure SM57, (4) Shure SM81, (6) Crown PZM GPB30, (2) Crown PZM 2LV, (3) Vega



**MIDCOM REMOTE SERVICES**  
Irving, TX

R42 handheld & lavalier wireless available at extra charge. **Monitor Amplifiers:** (2) Hafler P-505, Hafler P-230. **Monitor Speakers:** (2) JBL 4430 biradial bi-amped w/White 1/6-oct. EQ and crossover, (2) Westlake BBSM-6, (2) Auratone 5C, (2) Tannoy NFM-8. **Video Equipment:** Sony VO-5800 3/4" U-matic, Panasonic AG-6800 1/2" VHS Hi-fi, Sony CVM-1900 19" NTSC monitor/receiver, (3) Panasonic BMV-5 5" monitor, (2) Panasonic 12 x 1 routing switcher, (3) ADC Humbuckers. **Other:** Panasonic S1-4300 CD player w/balanced outputs, Clear-Com 2-channel intercom system, RTS 2-channel intercom system, 10 line key telephone system, RCC & cellular mobile telephone, Benchmark audio distribution system, (2) RTS 414 D.A., (3) RTS 416 D.A., (4) custom 1 x 1 line buffer capable of +28dBm, Telco resistive termination and/or capacitively coupled interface (48-pair), RDL auto-answer interface for standby program, 175' power snake on motor-driven reel, 400' 42-pair audio snake on motor-driven reel, (2) 200' 9-pair audio/communications snake, 50' audio-to-video truck snake (video & audio pairs), custom FM full duplex communication repeater interfaced to all intercom as well as business band and motion picture remote radios. **Specialization & Credits:** Past projects include: the Cure 1989 "Prayer" tour, Marcus Roberts "Deep in the Shed" music video, 1989 Miss

USA Pageant Mobile, AL, for CBS TV; *Aida, Nixon in China, The Aspern Papers, Great Performances Series* for PBS, *Dolly ABC-TV* prime time; "The Texas Debates" presidential debates for American Public Radio; Metallica live broadcast for Z-Rock Radio Network; George Strait, MCA Home Video; 7th Van Cliburn Competition, American Public Radio; Benjamin Lees' *Memorial Candles*, American Public Radio; score for *Texas, Dramaflex* production at Palo Duro, Duro Canyon; *Fashion Hit Revue*, Sanger Harris live TV special; Mary Kay Cosmetics seminars 1985-1990, League of Women Voters, 1989 *Democratic Presidential Candidates Debate*, PBS network special; Bob Banner Associates' *Face of the '80s* syndicated TV special; ACTS TV Network, *Country Crossroads*, two 13-week series; Bob Stwers Productions' *Stars Salute the U.S. Olympic Team*, NBC prime time special; Bugs Henderson live LP project; two live albums for The Vocal Majority; and more.

**[24+] MIDILAND; 1615 Rancho Ave.; Glendale, CA 91201; (818) 507-7982. Owner: Chris Page. Manager: Scott Cochran. Engineers:** Scott Cochran, David Hentschel, Chris Page. **Dimensions:** Studio 12 x 24, control room 20 x 20. Studio B: iso booth 24 x 12, control room 18 x 14. **Mixing Consoles:** Trident Series 65 40 x 24 w/custom patch bay, Hill 16 x 16 w/4 effects sends, Roland 16 x 16 w/4 effects sends, Neotek Series III. **Audio Recorders:** MCI 24-track w/Autolocator III, Studer B67 2-track 1/4", Ampex 4-track 1/2" (on request), Sony 500 DAT, Otari MX-80. **Cassette Recorders/Duplicators:** (2) Aiwa F770. **Noise Reduction Equipment:** (2) Dolby SR (on request). **Synchronization Systems:** Fostex. **Echo, Reverb & Delay Systems:** AMS DMX 15-80 digital delay, AMS DM 2.20 stereo flanger, Lexicon 224 digital reverb, Lexicon PCM70, Yamaha SPX90, Yamaha REV7, Korg SDE-3000, DeltaLab DL5 harmonizer, Dytronic CS5 stereo tri-chorus, Marshall 5002 times modulator, Barth Vocoder, Dynachord DRP-20. **Monitor Amplifiers:** BGW. **Auditorics. Monitor Speakers:** (2) UREI 809A, (2) Yamaha NS-10, (2) Auratone. **Musical Instruments:** Yamaha C7EPE 7'4" MIDI concert grand piano, Greengate DS4 16-bit sampler w/24 secs of memory, Roland S-50 sampler, E-mu Emulator sampler, Yamaha DX7, (2) Yamaha TX7, Roland Jupiter-8, Roland D-550, Sequential Circuits Prophet-VS, Roland MKS-70, Roland MKS-20, 360 Systems Midi Bass, LinnDrum II w/MIDI and 32k chips, Korg M-1, Kurzweil PX+, Kurzweil SX1000, Moog MIDmoog, Ensoniq EPS sampler, Roland R-8 drum machine, Roland Octapad II. **Other MIDI Equipment:** Macintosh SE (radius 80-meg HD) Performer, Linn sequencer, (2) Zaphod 4 x 8 MIDI switchers, Garfield Dr. Click. **Video Equipment:** JVC VR-7700, Fostex 4030/4035 (sync lockup), Mitsubishi 26" monitor.

**Other:** Extensive sound libraries for all computers and synths. **Rates:** Please call for rates. Chris Page resident producer/composer.

**[24+] MODERN SOUND; 6363 Sunset Blvd.; Hollywood, CA 90028; (213) 463-3373. Owner: Moshe Barkat. Manager: Susan Pierson.**

**[24+] MUSIC GRINDER STUDIOS; 5540 Hollywood Blvd.; Los Angeles, CA 90028; (213) 957-2996. Owner: Ron Fiecia, Gary Skardina. Manager: Ron Fiecia.**

**[24+] MUSIC LAB INC.; 1831 Hyperion Ave.; Hollywood, CA 90027; (213) 666-3003. Owner: Chaba Mehes. Manager: David Missal.**

**[24+] NOMOUNTAIN RECORDING; also REMOTE RECORDING; PO Box 9866; Midland, TX 79708; (915) 682-9673. Owner: Nick Carlton. Manager: Diane Carlton (T.C.B.). Engineers:** Nick Carlton. **Dimensions:** Studio 40 x 40, control room 28 x 17. **Mixing Consoles:** Neotek 28 x 24. **Audio Recorders:** Sony/MCI JH-24 24-track, Ampex ATR 2-track 1/2" Saki heads, Otari 5050 2-track, Sony 2500 R-DAT. **Cassette Recorders/Duplicators:** Nakamichi MR-1, (4) Nakamichi MR-2 w/remote control. **Echo, Reverb & Delay Systems:** Lexicon 224, Lexicon PCM70 (3.0), Lexicon PCM60, Ibanez SDR-1000, MICMIX 305, Effectron I, MXR DDII, DeltaLab CompuEffectron, DeltaLab HarmoniComputer, MIDverb, Quadreverb. **Other Outdoorboard Equipment:** UREI LA-4, dbx 162, Valley People Dyna-Mite, Eventide 949, EXR exciter, Aphex C, Audioarts 1202, Crown RTA-2, UREI 539 graphic EQs, GateX, Summit Audio tube compressor, "Tube" active direct boxes. **Microphones:** AKG C-12, Neumann U87, Neumann U64, Sennheiser 414, Sennheiser 441, Sennheiser 421, Sennheiser 451, AKG D-112, AKG D-12, Neumann TLM170, Crown PZM, Shure SM57, Shure SM58, Shure SM85, Shure SM81, Telefunken U47 tube, Neumann U47 tube, M249 tube, AKG C-24 tube. **Monitor Amplifiers:** BGW 750E balanced, (2) BGW 100 balanced, Crown 150. **Monitor Speakers:** (2) JBL 4435 bi-radial, (2) Yamaha NS-10M, (2) Klipsch Cornwall. **Musical Instruments:** Linn, Gretsch drums, Mesa/Boogie semi-class, (2) Peavey 130 special, Kimball baby grand, Ensoniq Mirage, Yamaha DX7, Roland Juno-60, Roland MKS-20, Scholz rack-mount, Marshall Stack, Roland R-8. **Rates:** For the poor and hungry. **Specialization & Credits:** Specializing in album projects w/national distribution. No rental fee on any instrument. Best set of drums in Texas, used to belong to Nitty Gritty Dirt Band. Credits: Clint Black, Jimmie Fadden, Nitty Gritty Dirt

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# 24+ TRACK STUDIOS

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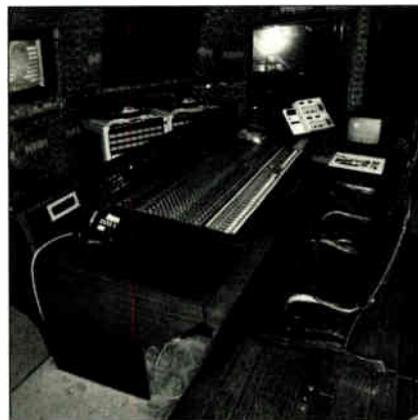


NOVASTAR  
Hollywood, CA

[24+] **NOVASTAR**; 6430 Sunset Blvd., 14th Fl.; Hollywood, CA 90028; (213) 467-5021; FAX: (213) 465-8750. Owner: Greg Geddes, Bob Sky. Manager: Greg Geddes.

[24+] **NRG RECORDING SERVICES**; 3960 Laurel Canyon Blvd., Ste. 106; Studio City, CA 91614; (818) 760-7841. Owner: Jay C. Baumgardner. Manager: Jay C. Baumgardner.

[24+] **OMEGA SOUND**; 1112 Garrison; Fort Smith, AR 72901; (501) 783-1131. Owner: Randy McFarland. Manager: Randy McFarland.



OMEGA AUDIO AND PRODUCTIONS, INC.  
Dallas, TX

[24+] **OMEGA AUDIO AND PRODUCTIONS, INC.**; also **REMOTE RECORDING**; 8036 Aviation Pl.; Dallas, TX 75235; (214) 350-9066. Owner: Paul A. Christensen, Charles R. Billings. Manager: Donna Christensen, Engineers: Philip Barrett, David Buell. Dimensions: Room 1: studio 35 x 40. Room 2: studio 12 x 15, control room 22 x 20. Remote recording truck: 8 x 20. Mixing Consoles: Artek M2500 36 x 24, custom 24 x 24, API 2098 32 x 16 x 24. Audio Recorders: (3) Otari MTR-90 24-track, (4) Otari MTR-10 2/4-track w/CSTC, Mitsubishi X-80 digital, Sony PCM-1630 w/DMM 4000 digital master, Harmonia Mundi Acoustica digital conversions interface (PCM-F1/501/701/1610/1630/X-80), Audio & Design Recording Pro PCM-701, (2) Otari MX-5050B 2-track. Cassette Recorders/Duplicators: Eumig, Technics, Autogram stereo cart. Echo, Reverb & Delay Systems: Lexicon 224X digital reverb w/LARC remote, (2) Yamaha SPX90, LP140 reverb plate, Master-Room reverb, (2) MXR digital reverb, DeltaLab DL-2 digital delay, (4) DeltaLab 2048. Other Outboard Equipment: CMX CASS I audio editing system, w/disk-based mixing console automation, Eventide H949 Harmonizer w/De-Glitch card, Scamp rack

w/17 modules, Gotham TTM NR rack w/dbx K9-22 cards or Dolby K9-22 cards, UREI 565T Little Dipper, UREI digital metronome, RTS stereo phone preamp, Denon DP110 turntable, Aphex Compellor, BBF exciter, Technics compact disc players. Microphones: Neumann U87, Neumann U47, Neumann KM84, AKG C-12A, AKG 414, AKG 451, AKG D-12E, AKG CK-8, Shure SM81, Shure SM57, Shure SM53, Shure SM58, Beyer M201, Sennheiser 441, Sennheiser 421, E-V RE20, Sony 22-P, Sony ECM-50, Sony ECM-21, Crown PZM. Monitor Amplifiers: (2) Crown PSA-2, (4) Crown D-150A, Crown D-40, (2) Yamaha 2200. Monitor Speakers: JBL 4435 Bi-Radial, JBL 4430, JBL 4313, JBL 4311, Visonik David, Auratone, Yamaha NS-10. Musical Instruments: Baldwin 7' grand, full range of instruments available by special arrangement, MIDI room available. Video Equipment: Co-located and interlocked with Video Post & Transfer, state-of-the-art 1" CMX, video editing and film transfer facility, Omega offers CMX 46-track interlock to picture for computerized audio editing and mixing to picture. Rates: Studio: audio only 24-track \$125/hr., 48-track \$175/hr.; audio/video interlock 24-track \$150/hr., 48-track \$200/hr.; CD mastering: quoted per project; remote recording: \$2,400/day for 48-track plus expenses. Specialization & Credits: Four RIAA certified platinum albums, eight RIAA certified gold records, three Grammy nominations, two Ampex Golden Reel awards, three Dove awards; partial credits: U2, Little Feat, David Bowie, Anderson, Bruford, Wakeman, & Howe, Dr. John, Neville Bros., Ramsey Lewis, Dirty Dozen Brass Band, B.B. King, Kris Kristofferson, R.E.M., Lynyrd Skynyrd, Joe Walsh, Gladys Knight, Talking Heads, Prince, Helen Reddy, Anne Murray, Al Jarreau, Spyro Gyra, Willie Nelson, The Oak Ridge Boys, Quarterflash, Hall & Oates, NBC-TV, CBS-TV, PBS-TV (WNET), New Edition, Ray Charles, Paul Shaffer, Roy Orbison, Molly Hatchett, Cameo, Joe Jackson, Rita Moreno, Amy Grant, Johnny Cash, Bob Hope, Dizzy Gillespie, Emmylou Harris.

[24+] **PACIFIQUE RECORDING STUDIOS**; 10616 Magnolia Blvd.; North Hollywood, CA 91601; (818) 761-8042. Owner: Vasken Inc. Manager: Joe Deranteriasian. Engineers: Ken Deranteriasian, Gary Dobbens, Randy Long. Dimensions: Room 1: studio 35 x 30, control room 25 x 25. Room 2: studio 20 x 21, control room 25 x 25. Mixing Consoles: Neve VR72 72-input w/Flying Fader Automation, Trident 80B 32-input. Audio Recorders: (2) Studer A820 24-track, Otari MTR-90 11 24-track, Studer A820 2-track 1/2", Otari MTR-12 2-track 1/2", Otari MTR-12 2-track 1/4". Cassette Recorders/Duplicators: (2) Nakamichi MR-1, Studer, Aiwa, (2) Panasonic SV-3500 DAT. Synchronization Systems: (2) Adams-Smith 2600. Echo, Reverb & Delay Systems: Lexicon 224XL, AMS RMX 16, AMS DMX 1580, (3) Eventide H3000, (2) TC Electronic 2290, (3) Lexicon PCM70, (2) Lexicon PCM42, (4) Roland SRV-2000, (2) Roland SDE-3000, (2) Yamaha SPX900, (2) Yamaha SPX900i, Yamaha REV7, Lexicon Prime Time, Eventide 2016, Lexicon 480L. Other Outboard Equipment: (5) Kepex II noise gate, (6) Drawmer 201 noise gate, (6) dbx 160X, (4) UREI 1176, Teletronix LA-2A, Neve compressor, (2) Summit Audio program EQ, (4) API 550A EQ, dbx 165A, TC Electronic 1210, (2) Aphex Aural Exciter, (4) dbx 902 de-esser, Inovonics 201 limiter, dbx 120 boom box. Microphones: Neumann TLM170, Neumann M49 tube, (2) Neumann U87, Neumann U89, (2) Neumann KM84, (6) AKG 414, (4) AKG 460, (2) AKG D-12, AKG 224, (2) E-V RE20, (12) Sennheiser 421, (2) Sennheiser 441, (2) Shure SM81, (6) Shure SM56. Monitor Amplifiers: (2) Crown PSA-2, (3) Perreaux, (3) Audier-Forte, (2) Bryston. Monitor Speakers: JBL 4435, TAD custom, Yamaha NS-10M, Tannoy SGM-10. Specialization & Credits: In the five years we've been open, we have managed to attract some of the world's finest recording artists, including: The Jets, George Benson, The Desert Rose Band, Maurice White, Brandon Fields, Free Flight, Fowler Brothers, Osamu Kitajima, Ute Lumper Jun Yamagishi, The Temptations, Tracy Spencer, By All Means, Van Dyke Parks, Carl Anderson, Russ Freeman, Pointer Sisters, Gerald Alston, Andre Fisher, Chuck Norris, Nancy Wilson and Jack Nicholson's movies.

[24+] **PARAMOUNT RECORDING STUDIOS**; 6245 Santa Monica; Hollywood, CA 90038; (213) 465-4000. Manager: Adam Beilenson, Mike Kerns. Dimensions: Room 1: studio 10 x 10, control room 20 x 22. Room 2: studio 12 x 15, control room 15 x 25. Room 3: studio 45 x 45, control room 25 x 20. Room 4: studio 12 x 12, control room 13 x 20. Mixing Consoles: SSL 4040EB, SSL 4040E w/E Series studio computer, Neve 8068 custom, MCI 528. Audio Recorders: (3) Ampex MM1200 24-track, Studer A80 MkIV, (2) Ampex ATR-102 2-track, Ampex ATR-104 4-track, (2) MCI JH-110 2-track, Panasonic 3500 DAT machine. Cassette Recorders/Duplicators: (4) Aiwa 750. Noise Reduction Equipment: Dolby SR. Synchronization Systems: TimeLine Lynx. Echo, Reverb & Delay Systems: AMS RMX 16 reverb, AMS 1580 delay, Lexicon 224XL, Eventide HD3000, TC Electronic 2290, Lexicon 200, (4) Lexicon PCM70, (2) Lexicon PCM60, (2) Lexicon Super Prime Time delay, (2) Lexicon Prime Time delay, (7) Yamaha REV7, (6) Yamaha SPX90, (3) Roland SDE-3500, (3) Roland SDE-2500, (3) Lexicon PCM41 delay. Other Outboard Equipment: (6) UREI 1176 comp, (5) UREI LA-4A comp, (2) UREI LA-2A comp, (4) dbx 160X comp, (3) dbx 165 comp, (6) Drawmer 501 gate, (12) Kepex gate, Lang PEQ2, UREI 545, (10) Neve 1054 3-band. Microphones: Telefunken Elam 251, AKG C-24, (6) Neumann U87, (2) Neumann U47 FET, (6) AKG 414, (6) AKG 451, (8) Sennheiser 421, (2) Sennheiser 441, (2) Electro-Voice RE20, (12) Shure SM57. Monitor Amplifiers: (4) QSC 1700, (4) Yamaha 2200, (4) BGW 750. Monitor Speak-



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Building a Mix

**M**ixtracks the recording scene across the North Central U.S. and into Canada in November, with a special look at new recording rooms in Toronto, Montreal and Vancouver. Read about the Canadian Music Awards and Audio at the Goodwill Games.

Also, George Petersen looks at 24-track recording consoles in the \$100,000 price range, and Larry Oppenheimer field tests the Neve Prism. Plus, Bob Clearmountain on building a mix!

Ad Closing: September 7  
Materials Due: September 14

ers: (2) UREI 813, UREI E15, (4) Yamaha NS-10M. **Musical Instruments:** Yamaha C7 grand piano, Roland D-50, (2) Roland Juno-1, (2) Yamaha DX7, (2) E-mu SP-12 drum machine, (2) Akai S900 sampler, (2) Macintosh Plus. **Other MIDI Equipment:** Performer sequencing software, Alchemy sampling software, DZ7 patch librarian, D-50 patch librarian. **Video Equipment:** Sony BVU-300 3 1/4".



**PLANET DALLAS STUDIOS**  
Dallas, TX

[24+] **PLANET DALLAS STUDIOS**; PO Box 191447; Dallas, TX 75219; (214) 521-2216. **Owner:** Rick Rooney. **Manager:** Marian Ross. **Engineers:** Rick Rooney. **Dimensions:** Studio 40 x 45, control room 20 x 15. **Mixing Consoles:** MCI JH-24 24-track, Sony JH-110 2-track, Tascam 42 2-track. **Cassette Recorders/Duplicators:** (2) Tascam 122, Panasonic SV-500 DAT. **Noise Reduction Equipment:** Dolby SR/A 362 2 channels. **Echo, Reverb & Delay Systems:** Master Room XL305 reverb, (2) Lexicon PCM40 reverb, (2) Yamaha REV7, (2) Yamaha SPX90II effects processor, DeltaLab DL-4 delay, Lexicon Prime Time delay, AKG ADR-68K processor, Yamaha SPX900. **Other Outboard Equipment:** (2) Valley People Cyna-Mix stereo comp/lim, (2) Orban 622B stereo parametric EQ, (3) dbx 160X comp/lim, Dietz stereo



**PLANET DALLAS STUDIOS**  
Dallas, TX

parametric EQ, Brooke-Siren dynamic processor, Eventide H3000 Ultra-Harmonizer, (2) UREI 1176 comp/lim, BASE, Biamp stereo graphic EQ, BBE 822 sonic exciter, (2) White Instruments 4400 graphic EQ. **Microphones:** Neumann U87, (3) AKG 414, (2) AKG D 12E, (3) AKG 461, (2) Sennheiser 441, (8) Sennheiser 421, (8) Shure SM57, (2) E-V DS35, E-V RE20, (2) Beyer 500, Neumann U47. **Monitor Amplifiers:** Yamaha 2002 Pro Series PC, Crown D-150, Crown D-150A, Crown DC-300A, Nikko Alpha 130. **Monitor Speakers:** (2) Lakeside custom w/TAD components, (2) Yamaha NS-10, (2) Auratone cube, (2) Quadralflex 204L. **Musical Instruments:** Yamaha recording series 8-piece drum kit, Yamaha BB300 bass guitar, Oberheim DMX drum machine, Gibson Les Paul custom 6-string guitar, Kramer Pacer series 6-string guitar, Ensoniq Mirage, Casio CZ, Korg DDD-1 drum machine, Alesis HR-16 drum machine, Roland RD-300 digital piano w/weighted keys, Ensoniq ESQ-1. **Specialization & Credits:** Russ Parr (Priority/Capitol Records), Nemesis (Profile Records), George Gimmarcs' Rock and Roll Alternative syndicated radio program with The Smithereens, The Rainmakers, The BoDeans, Winter Hour, Mojo Nixon and XTC, Bang-Bang, Shock Tu, Princess Tex (Horse Head Records), The Daylights (109 Records), The Uptown Girls (Oak Lawn Records), The Trees, Shallow Reign,

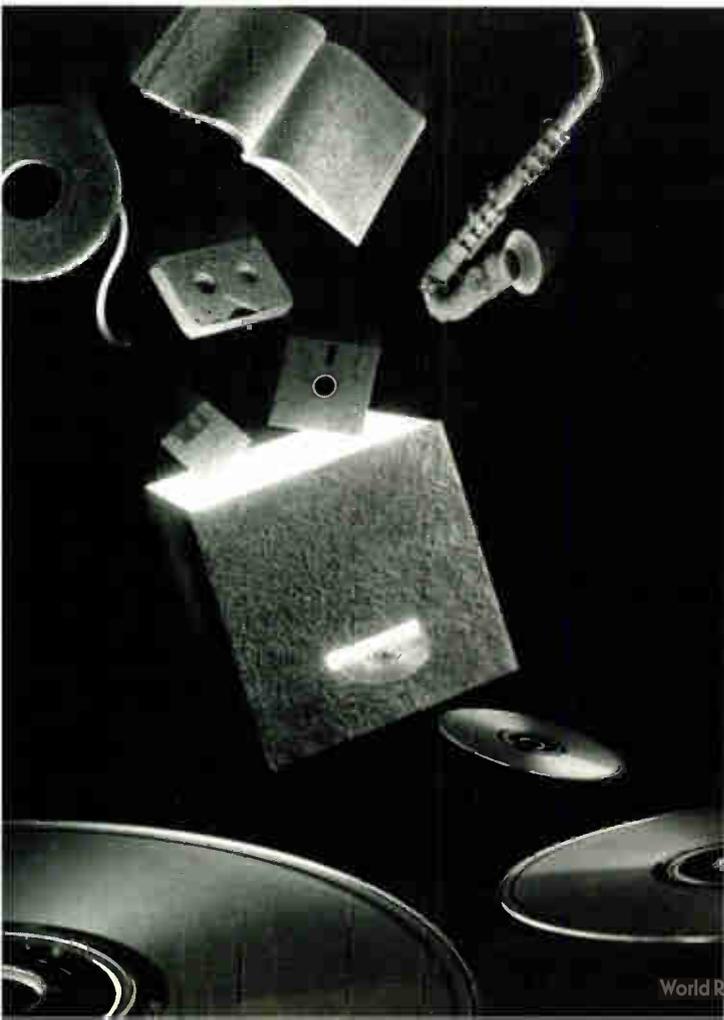
Bone Circus, Look-See, Intimate Acts, The Matt Iddings Band, Lesson Seven (Oak Lawn), The Spin (Deviant Hair Records), Ron "C" (Profile), Gregory "D" and Mannie Fresh (Yo Records), Devo-X (Yo Records), XXX, Kent Henry Ministries Rodeo Love Gods, DT Rocks, Mystics, Michelle Shocked.

[24+] **POWERHOUSE AUDIO/VIDEO STUDIOS**; also **REMOTE RECORDING**; 19347 Londelius St.; Northridge, CA 91324; (818) 993-4778. **Owner:** Paul and Jeff Stillman. **Manager:** Paul and Jeff Stillman.



**POWERHOUSE RECORDING**  
Las Vegas, NV

[24+] **POWERHOUSE RECORDING**; 3111 S. Valley View Blvd.; Las Vegas, NV 89102; (702) 871-6200. **Owner:** Paul Badia. **Manager:** Rulona Badia. **Engineers:** Paul Badia, Tom Jeffries. **Dimensions:** Studio 35 x 30, control room 18 x 22. **Audio Recorders:** Stephens 821 24-track, Scully 280B 2-track, Ampex 700 2-track. **Cassette Recorders/Duplicators:** (2) Nakamichi. **Synchronization Systems:** Adams Smith Zeta-3. **Echo, Reverb & Delay Systems:** Scamp rack, Lexicon 93, Roland SDE-300, Korg SDD-2000, EMT 240 Gold Foil, Yamaha REV7, AKG 68K. **Other Outboard Equipment:** —LISTING CONTINUED ON NEXT PAGE



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# 24+ TRACK

STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

Eventide 910 Harmonizer, Scamp rack w/noise gates, auto pan, comp/lim, Fairchild and Spectra Sonics comp/lims, API 550 and 560 EQs, Orban de-esser, Aphex Aural Exciter. Microphones: Neumann, AKG, Telefunken, RCA, Sennheiser, Crown PZM. Monitor Amplifiers: BGW, Crown. Monitor Speakers: Fostex LS-3, Auratone. Musical Instruments: DX7, Kurzweil K-1000, Korg MS-20 Memorymoog. Other MIDI Equipment: IBM w/hard drive, Cakewalk 3.0 sequencer, MOX-32 MIDI interface. Video Equipment: Sony VO-5850 3/4". Specialization & Credits: We are a full-service facility dedicated to the clients that serve. Our clientele includes, The Four Tops, Albert Hammond, B.B. King, Steve Dorff, Englebert Humperdink, ABC Television and all the ad agencies and production houses in our region.

[24+] **PREMORE, INC.**; 5130 Klump Ave.; North Hollywood, CA 91601; (818) 506-7714.

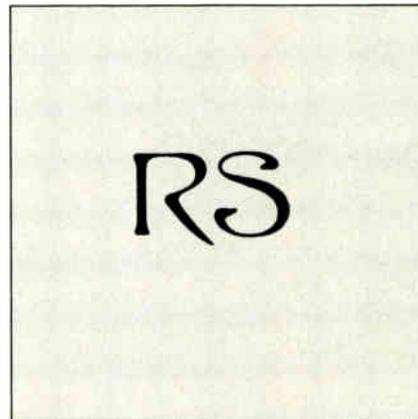
[24+] **THE PRODUCTION BLOCK**; also REMOTE RECORDING; 906 E. Fifth St.; Austin, TX 78702; (512) 472-8975; FAX: (512) 476-5635. Owner: Joel Block. Manager: Lainie Whiddon. Specialization & Credits: The Production Block specializes in audio for advertising, broadcast, and industrial application, voice-over, jingles, post-scoring, duplication, and audio-for-video sweetening. Phone-patch capability, music/SFX libraries, DAT mastering, FAX service, a pre-production listening room, and engineers who aren't just button-pushers. In its 16 years, The Block has built a solid reputation for its attention to detail, quality work, and its ability to deal with impossible deadlines. 24/16-track recording, with gear from TAC, Sony/MCI, AKG, Adams-Smith, Eventide, Yamaha. Low-cost, after-hours music packages available. Our brochure, rate structure and demo are available on request.

[24+] **PUBLIC RECORDING**; also REMOTE RECORDING; 1220 Pioneer I; Brea, CA 91766; (714) 526-0323. Owner: David J. Longueay. Manager: David J. Longueay.

[24+] **PYRAMID TELEPRODUCTIONS**; 6305 N. O'Connor LB6; Irving, TX 75039-3510; (214) 869-3330. Owner: Lee Martin, Bob Schiff. Manager: Nick Nicodemus. Engineers: Gary French, Olfert Kempff. Dimensions: Studio 28 x 35, control room 25 x 27. Mixing Consoles: SSL 4000E 34 x 32, (2) Sony/MCI 618, Studer 169, Graham Patten 612, Soundcraft Series 800 16-channel, (2) Ward Beck 12-channel. Audio Recorders: Studer A800 24-track, (2) Studer A800 8-track, (3) Studer AB10 2-track center time code, Studer A820 2-track center time code, (4) Technics 2-track, (2) Otari 2-track. Cassette Recorders/Duplicators: Nakamichi MR-1. Noise Reduction Equipment: Dolby SP 24-channel, (14) dbx 411 module, (5) Dolby 361. Synchronization Systems: (4) TimeLine Lynx, (3) Cipher Digital/BTX Shadow, Alpha Audio Boss 8400 and Boss II controllers. Echo, Reverb & Delay Systems: (2) Lexicon 224XL, Lexicon PCM60, (2) Lexicon 97MEO, DeltaLab CE1700. Other Outboard Equipment: (6) dbx 902 de-esser, (2) dbx 903 compressor, (2) dbx 904 noise gate, (3) dbx 905 parametric EQ, (2) Aphex 9001 Exciter, Dolby Cat.43, (3) UREI 565 DipFilter, (2) UREI 535 graphic EQ, (2) Studio Technologies AN-2 stereo simulator. Microphones: (2) Neumann U87, (4) AKG C-414EB/P-48, (4) AKG C-460-CKI, (6) Beyer M201, (2) Sennheiser 416, (2) Crown PZ-6LPG, (4) Crown PZM 65, (2) Sennheiser ME-88/ME-80 /ME-40, (2) Beyer M88, (2) Tram TR-50. Monitor Amplifiers: (9) Crown Micro-Tech 1000, Crown DC-300A, (2) Crown 150, (2) Crown D-75, (2) Crown D-60. Monitor Speakers: SOTA (Claude Fortier), MDM TA3 time align, Westlake BB5M-6, JBL 4425, Auratone 5C. Video Equipment: (6) interformat edit suite, (3) Sony DVT-10 (D2), (3) Ampex VPR 300 (D2), (11) Sony BVH-2000/2500 VTR, (7) Sony BVU-800/820 CTR, (2) Sony BWV-10/40 VTR, (3) Ampex CVR-75, Telecine, Wavefront dynamic imaging 3-D graphics system, Quantel Paintbox, Ava-3 paint system, Dubner 2-D graphics. Other: Studer A725 CD player, (2) Dynamax DTR-100 broadcast cart, Foley SFX setups, Magna-Tech 600 16/35mm mag dubber, 1/4-track. Rates: \$160/hr. w/picture; \$130/hr. w/out picture; \$80/hr. voice. Specialization & Credits: Unsurpassed in client service and attention to detail, Pyramid Teleproductions is the largest production facility in the Southwest. We specialize in production and post-production facilities, including our 32-track mix/record suite. There, you'll benefit not only from the state-of-the-art SSL 4000E Series console with Total Recall but from the talents of the best mixer in the business, Gary French, and the expert listening/recording environment designed by two-time TEC Award winner Russell Berger. Credits include sound assembly and mixing for a variety of national and regional spots, including The Richards Group's "T.G.I. Friday" spots, Tracy-Locke's "Tostitos" and Tracy-Locke/Post Op "Pepsi" and

"Embassy Suite" spots, Bozell/First Cut "Long John Silver's," and G.S.D. & M.'s "Southwest Airlines" spots. Corporate projects include Dow Chemical's "Environmental Theatre," Texas Instruments' "Business Development for Minorities" and EDS' "Image Show." For further information, contact Cary Sherman.

[24+] **QUAD TECK STUDIOS**; 4007 W. 6th St.; Los Angeles, CA 90020; (213) 383-2155. Owner: FDS Labs Inc. Manager: Joani Waring.

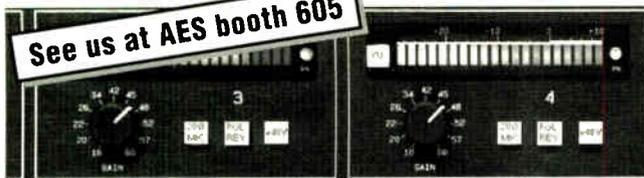


RAMPART STUDIOS  
Houston, TX

[24+] **RAMPART STUDIOS**; also REMOTE RECORDING; 6105 Jessamine; Houston, TX 77081; (713) 772-6939. Owner: Steve Ames. Engineers: Steve Ames, Dan Yeany. Dimensions: Studio 40 x 24 (drum room, vocal booth, iso room), control room 12 x 18. Mixing Consoles: Soundcraft 1624 56-channel remix (automated). Audio Recorders: Sony JH-24 24-track, Sony 2-track (1/2" and 1/4"), Panasonic 3500 DAT. Cassette Recorders/Duplicators: Nakamichi. Echo, Reverb & Delay Systems: Lexicon 200 digital reverb, EMT 140 plate, Lexicon PCM41, Lexicon 91, Lexicon PCM60, Korg SDD-2000, (2) Yamaha SPX90. Other Outboard Equipment: Aphex Aural Exciter, Aphex CX-1, Aphex Expressor.

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UREI 1176 comp/lim, UREI comp/lim, Orban para EQ, Orban de-esser, dbx noise gate, GT-4 noise gate, Goldline RTA, Dyna-Mite exp/comp, Crown SL2 preamp, Sony CD player, Denon T.T. Microphones: Neumann U87, Neumann KM84, AKG 414, AKG 451, AKG Tube, Sennheiser 421, Sennheiser 441, E-V RE20, Bayer 201, Sony 22P, RCA 77. **Monitor Amplifiers:** Crown. **Monitor Speakers:** JBL 4430, Yamaha NS-10M. **Musical Instruments:** Kawai grand piano, Yamaha DX7, Yamaha TX7, LinnDrum, Yamaha drums, Fender amps, percussion, etc. **Other MIDI Equipment:** Sonus software, Commodore SX64, Oberheim Prommer. **Video Equipment:** Scoring, sweetening, etc. **Specialization & Credits:** Rampart is a creative environment for both artists and producers, with an experienced, professional staff. Specialists in record, jingle and demo projects. Clients include ZZ Top, Kings X, Helstar, the Judy's Shake Russell, Megaforce, Metalblade, Galactic Cowboys, Atlantic, Geffen and Columbia Records.

[24+] **RCM STUDIOS; 700 Kimlin Dr.; Glendale, CA 91206; (818) 845-1760. Owner: Ritchie Carbajal.**

[24+] **RECORD PLANT; also REMOTE RECORDING; 1032 N. Sycamore Ave.; Hollywood, CA 90038; (213) 653-0240. Owner: Chrysalis Group PLC. Manager: Rose Mann. Engineers:** Bill Dooley, chief recording eng., Jim Mitchell, Norm Dlugatch, chief tech. eng., Buzz Burrowes, Allen Abrahamson. **Dimensions:** Room 1: studio 40 x 35, control room 30 x 25. Room 2: studio 14 x 22, control room 30 x 23. **Mixing Consoles:** SSL 4064 G Series, Neve V60, (2) API custom remote 44-input. **Audio Recorders:** (4) Studer A800 MkIII 24-track, (2) Otari MTR-90 24-track, (2) Studer A820 2-track 1/2" and 1/4", (4) ATR 102 2-track 1/2" and 1/4", (3) ATR 104 4-track. **Cassette Recorders/Duplicators:** (12) Sony C-700ES. **Noise Reduction Equipment:** (50) Dolby A, (30) Dolby SR. **Synchronization Systems:** (12) TimeLine Lynx. **Echo, Reverb & Delay Systems:** Lexicon 480, EMT 250, EMT 251, EMT 140, (4) Lexicon PCM70, (3) Eventide 2016, (3) Eventide 949, (2) Eventide 910, (4) AMS DMX 16 stereo sampling, (4) AMS RMX 15, (8) Yamaha SPX90, (4) Yamaha REV7. **Other Outboard Equipment:** (20) UREI 1176 comp compressor, (6) UREI LA-3, (4) UREI LA-4, (8) dbx 160, (4) Pultec EQP-1A, (8) Pultec EQP-1A3, (6) Pultec MEQ-5, (2) GML stereo EQ, (4) Focusrite EQ, A&D comp/lim, Aphex Compellor, (10) Drawmer 201 gate. **Microphones:** Neumann U47 tube, (12) Neumann U67, (4) Neumann SM69, (30) Neumann U87, (4) Neumann U47 FET, (12) Neumann TLM170, (3) AKG C-24, (10) AKG 414EB, (12) AKG 452, (3) AKG 224, (4) AKG D-12, (2) AKG D-112, (2) Sanken CU41, (20) Sennheiser 421, (6) Sennheiser 441, (6) Sennheiser 416, (2) Sennheiser 812, (3) Shure SM7, (30) Shure SM57, (4) Shure SM81, (4) RCA 44BX, (6) RCA 77DX, (4) RCA 10001, (6) E-V RE20, (6) E-V RE15. **Monitor Amplifiers:** (8) BGW 750, (8) Studer A68, (2) Phase Linear 700. **Monitor Speakers:** (6) Hildy Kivoshita TAD 2-way, (16) Yamaha NS-10M, (2) Tannoy SGM10. **Video Equipment:** Sony BVU-800 3/4", JVC 6650, (2) Sony VP-2030 monitor.

[24+] **REELSOUND RECORDING CO.; REMOTE RECORDING ONLY; 2304 Sheri Oak Ln.; Austin, TX 78748; (512) 282-0713; (512) 472-3325. Owner: Malcolm H. Harper Jr.**

[24+] **RMS RECORDING STUDIOS (RELATED MUSIC SERVICES, INC.); 4620 W. Blue Diamond Rd.; Las Vegas, NV 89118; (702) 361-1559. Owner: Lou & Joe Carto. Manager: Lou Carto, Jr.**

[24+] **RPD SOUND; also REMOTE RECORDING; 1842 Burleson Ave.; Thousand Oaks, CA 91360; (805) 496-2585. Owner: Randy Dew. Manager: Randy Dew.**



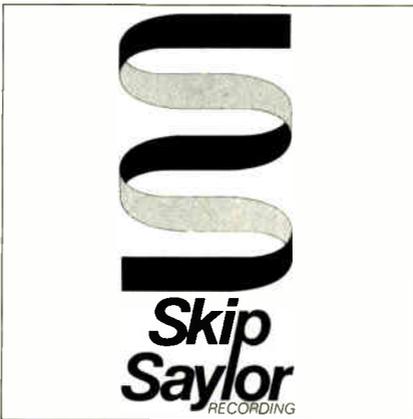
**RUMBO RECORDERS**  
Canoga Park, CA

[24+] **RUMBO RECORDERS; also REMOTE RECORDING; 20215 Satcoy; Canoga Park, CA 91306; (818) 709-8080. Owner: Daryl Dragon, Toni Tennille. Manager: Vicky Camblin. Engineers: Shawn Berman, Marty Bolin, Mike Gunderson, Gina Immel, Jim Mancuso—chief eng., Andy Udoff. Dimen-**

sions: Room 1: studio 58 x 38, control room 28 x 25. Room 2: studio 38 x 33, control room 26 x 22. Room 3: studio 25 x 20, control room 25 x 20. **Mixing Consoles:** Neve V Series 60-input w/Flying Faders, Trident 80C 40-input, Trident Series 80 32-input. **Audio Recorders:** (2) Studer A800 24-track, (3) Otari MTR-90 24-track, Studer A820 2-track 1/2", Ampex ATR-102 2-track 1/2" or 1/4", (2) Ampex ATR-104 2/4-track 1/2" or 1/4". **Cassette Recorders/Duplicators:** Sony PCM-2500 DAT, Panasonic SV3500 DAT, (2) Studer A721, (2) Tascam 122 MKII. **Synchronization Systems:** (2) TimeLine Lynx, Fostex 4030/4035. **Specialization & Credits:** Rumbo has always maintained a client base made up primarily of artists and producers affiliated with album projects. Comfort is a top priority: separate lounges, patios and kitchens make Rumbo "—lone Away from Home." The control room in Studio A has been remodeled with the electronic equipment totally updated. The main studio has also been acoustically redesigned to enhance natural reverb. With its huge main room and four oversized isolation booths, Studio A is ideal for tracking and mixing. Studio B remains a very popular recording room because of its great sound and reasonable rate. Studio B has had a new Trident 80C 40-input console installed. Rumbo's new addition, Studio C, completed in July, has 600 sq. ft. It has the Trident 80 console. The room is for long-term overdub and MIDI projects.

[24+] **RUSK SOUND STUDIOS; 1556 N. LaBrea Ave.; Hollywood, CA 90028; (213) 462-6477. Manager: Elton Ahi.**

[24+] **SALTY DOG RECORDING, AKA SDR STUDIOS; 14511 Delano St.; Van Nuys, CA 91411; (818) 994-9973. Owner: Fred J. Munch, Larry Cook.**



**SKIP SAYLOR RECORDING**  
Los Angeles, CA

[24+] **SKIP SAYLOR RECORDING; 506 N. Larchmont Blvd.; Los Angeles, CA 90004; (213) 467-3515. Owner: Skip Saylor. Manager: Nicole Slovinsky. Engineers: Mitch Robertson—chief eng., Joe Shay, Chris Puram, Liz Sroke, Mike Stanger, independents. Dimensions:** Room 1: studio 9 x 12 (overdub booth), control room 22 x 20. Room 2: studio 18 x 20, control room 20 x 22. **Mixing Consoles:** SSL 4000 72-input frame 56 mono and 5 stereo-loaded, E & G Series computers, API 32 x 64 w/Necam automation. **Audio Recorders:** (2) Studer 800 24-track, (2) Ampex ATR-102 2-track 1/4" or 1/2", (2) Ampex ATR-104 2/4-track, digital 32-track available for rental upon request. **Cassette Recorders/Duplicators:** (4) Nakamichi MR-1, Sony PCM-2500 Pro DAT. **Noise Reduction Equipment:** Dolby SR or A available for rental upon request. **Synchronization Systems:** (3) TimeLine Lynx. **Echo, Reverb & Delay Systems:** AMS digital delay (9.2 sec.), AMS digital reverb, (2) TC Electronic 2290 (32 sec.), Lexicon 480L, Lexicon 224XL, (4) Lexicon PCM70, Lexicon PCM60, (3) Lexicon PCM42, Lexicon Super Prime Time, (2) Lexicon Prime Time II, (2) Lexicon LXP-1, Yamaha REV7, Yamaha REV5, Yamaha SPX90, Eventide SP-2016 processor, Eventide H3000 Ultra-Harmonizer w/sampler, Eventide 910 Harmonizer, Eventide 949 Harmonizer, (2) Roland SRV-2000 reverb, (2) Roland SDE-2000, Roland SDE-3000, Ibanez SDR-1000, Effectron III. **Other Outboard Equipment:** (10) Neve Prism EQ rack, (10) API 550A EQ, (6) B&B parametric EQ, (2) Pultec EQP-1A, GML 8200 parametric EQ, (2) Focusrite EQ rack, (2) Valley People Maxi-Q, Orban parametric EQ, (3) LA-2A limiter, Summit Audio tube limiter, (5) UREI 1176LN limiter, (4) dbx 160X limiter, (2) dbx 903 limiter, UREI LA-4 limiter, (4) Drawmer gate, (6) dbx 904 gate, Kepex rack, (6) dbx de-esser, (2) Dynaflex noise eliminator, Aphex Exciter, Roland phaser, Roland flanger, Roland Dimension D, dbx flanger, UREI Little Dipper, (3) Studio Technologies stereo expander, UREI digital metronome. **Microphones:** AKG, Neumann, Shure, Sennheiser, Electro-Voice and Beyr. **Monitor Amplifiers:** Perreux, Crown. **Monitor Speakers:** TAD, Yamaha NS-10, Auratone Soundcube.

[24+] **SCORE ONE RECORDING, INC.; 5500 Cahuenga Blvd.; North Hollywood, CA 91601; (818) 762-6902. Owner: Al Johnson.**



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# 24+ TRACK STUDIOS

[24+] **SCREAM STUDIOS; 11616 Ventura Blvd.; Studio City, CA 91604; (818) 505-0755; FAX: (818) 505-6405.** Owner: McKenna-Badaz. Manager: Craig Doubet. Mixing Consoles: SSL 4056 Total G Series w/Total Recall and 4 stereo faders. **Audio Recorders:** Mitsubishi digital 32-track w/Apogee filters, Mitsubishi digital 2-track w/Apogee filters, Studer 24-track analog, Studer 2-track analog 1/2", Panasonic SV3500 DAT. **Synchronization Systems:** Zeta-3. **Echo, Reverb & Delay Systems:** Lexicon 480L, (2) Lexicon PCM70, AMS reverb, AMS 1580S digital delay, Lexicon Prime Time digital delay, (2) Yamaha SPX90, (3) Yamaha REV7, Eventide H3000SE Harmonizer, (4) Roland SDE-3000 digital delay, LA-2A limiter, (2) UREI 1176 limiter, (2) Inovonics limiter, (4) dbx 160X limiter, (3) dbx de-esser, (2) Drawmer gate. **Other Outboard Equipment:** (2) Focusrite mic preamp and EQ, (4) GML equalizer, TC Electronic 1210 spatial expander, (2) Wendel drum replacement system, Forat F-16 8-channel 16-bit drum sampler, Marshall time modulator, Magnavox CD player. **Other:** Olhausen championship pool table, patio w/gas barbecue. **Specialization & Credits:** Janet Jackson, Skid Row, Pointer Sisters, Sting, Extreme, Desmond Child, New Edition, Johnny Gill, Faith No More, Johnny Colette, Michael Wagener, Jellybean Johnson, Soundgarden, Richard Perry, O'Bryan, David Kerstenbaum, The Origin, Marshall Crenshaw, Jeffrey Osborne, Dave Stewart, Bell Biv DeVoe, Howard Hewlett, Matt Wallace, Bryan Loren, Levisseacer, Kane Roberts, Grayson Hugh, James McMurty, Michael Wanchic, Patrick Swayze, Ralph Tresvant, Steve Jones. We are located within a mile of 35 different restaurants and 12 are within a couple of blocks. We are also in earshot of CBS Studios, the Burbank Studios, Disney and Universal Studios, PolyGram, Geffen, Warner Bros., MCA, IRS, Atlantic and A&M Records and many other film and music companies. We also have a purple championship pool table and Nintendo games. There is a patio with a gas barbecue. We are cozy and private and technically state-of-the-art. **Scream Studios** is owned and operated by two musicians.

[24+] **SEA-WEST RECORDING STUDIOS/HAWAII; also REMOTE RECORDING; PO Box 2063; Pahoa, HI 96778; (808) 965-8841; FAX: (808) 965-8853.** Owner: Sea-West Corporation. Manager: Donna-Alexa Keeler.

[24+] **7TH STREET SOUND; 688 S. Santa Fe #105; Los Angeles, CA 90021; (213) 627-5392.** Owner: Ed Sanders. Manager: Ed Sanders.

[24+] **SF AUDIO SOUND & RECORDING; 5290 E. Hunter Ave.; Anaheim, CA 92807; (714) 779-6677.** Owner: Steven W. Forster. Manager: Steven W. Forster. Engineers: S. Forster, Brian Willie, independents. **Dimensions:** Room 1: studio 35 x 35, control room 12 x 35. Room 2: studio 12 x 15. **Mixing Consoles:** Rammsa WR-8428 32-input, 56-input for mix. **Audio Recorders:** Otari MX-70 16-track 1", Panasonic SV-3500 DAT, Tascam 42 2-track 1/4" w/dbx Type II. **Cassette Recorders/Duplicators:** Nakamichi MR-2, Nakamichi 480-2, Aiwa WX-220 duplicator. **Echo, Reverb & Delay Systems:** Lexicon PCM70, Lexicon LXP-1, Lexicon LXP5, Yamaha REV7, Alesis MIDiverb II, (3) Alesis Microverb II, DigiTech DSP-128+, Ibanez DM-2000 digital delay, Roland SDE-2500 digital delay, Aphex Aural Exciter Type B. **Other Outboard Equipment:** (6) dbx 166 comp/lim/noise gate, (6) Symetrix 544 noise gate. **Microphones:** (2) Neumann TLM170, (2) AKG D-112, (4) Sennheiser MD-421, (2) E-V PL20, (4) Audio-Technica ATM33R, Audio-Technica ATM63, (4) Shure SM58, Shure SM57, (2) Audio-Technica AM10; if we don't have it we can get it. **Monitor Amplifiers:** BGW 700, Rane HC6 headphone amp. **Monitor Speakers:** Tannoy Little Gold, Tannoy PBM-6.5, E-V Sentry 100A, Yamaha NS-10M, AKG, Sennheiser and Fostex headphones. **Musical Instruments:** Tama Artstar 5-pc. w/Zildjian platinum cymbals, Roland R-8 Human Rhythm Composer, Roland D-50, Ensoniq ESQ-1, Crate 150-watt stack, Marshall MOSFET half-stack, extensive array of guitars available. **Other MIDI Equipment:** Macintosh SE, Sonus MacFace, Sonus SMX-2000 SMPTE/MIDI time code reader/writer, Lexicon MRC. **Rates:** Upon request. Call for color brochure.

[24+] **SIDEWAYS RECORDING; also REMOTE RECORDING; 2931 W. Central #H; Santa Ana, CA 92704; (714) 545-9849.** Owner: Jim Hahn. Manager: Jim Hahn. Engineers: Jim Hahn, Gary Druilhet, independents. **Dimensions:** Studio 23 x 20, control room 20 x 15. **Mixing Consoles:** Amek TAC Magnum 36 x 24 w/Mice automation. **Audio Recorders:** Otari MX-80, Tascam MS-16 w/dbx and autolocator, (2) Panasonic SV-3500 DAT w/remote, Tascam 32 2-track 1/4" w/remote. **Cassette Recorders/Duplicators:** Yamaha C300, (3) Awa F-780, Tascam 112. **Synchronization Systems:** Adams-Smith Zeta-3B w/remote. **Echo, Reverb & Delay Systems:** (3) Lexicon PCM70, Lexicon PCM60, (4) Lexicon LXP-1 w/MRC remote, (2) Lexicon LXP-5, (2) Yamaha SPX50, DigiTech IPS-33 harmonizer, DigiTech DSP-128+, DigiTech DSP-128, Roland SDE-1000. **Other Outboard Equipment:** Aphex Compellor, UREI 7110 compressor, Aphex 651 expessor, Yamaha GC-

8080 comp, UREI 1176LN comp, (6) Audio Logic MT-44 quad gate, BBE mono-sonic maximizer, BBE stereo-sonic maximizer, (8) White Instruments 4400 1/3-octave EQ, TC Electronic stereo parametric EQ, Roland E-660 digital parametric EQ, stereo 12-band spectral display, Alesis MIDiverb II. **Microphones:** (40) Neumann, AKG, Sennheiser, Shure. **Monitor Amplifiers:** Hafler P-505, Rane HC-6 headphone amp. **Monitor Speakers:** Tannoy SGM-15B control, Tannoy PBM-6.5 near-field, Auratone Super Cube. **Musical Instruments:** Pearl MCX 9-piece w/custom rack and May EA miking, Kurzweil K-1000 keyboard, Roland D-110 tone module, Roland U-110 tone module, Alesis HR-16 drum machine, Alesis HR-16B drum machine, Lexicon PM-16 trigger-to-MIDI converter, (20) assorted acoustic instruments. **Other MIDI Equipment:** Macintosh Plus, (24) J.L. Cooper MIDI mutes, Sonus MacFace MIDI interface. **Other:** Performer software, Technics 12-disc CD changer w/infrared remote, sound FX library, Mogami wiring throughout. **Rates:** Call for rates and updated equipment list (HARP member).



**SIGNATURE SOUND**  
San Diego, CA

[24+] **SIGNATURE SOUND; 5042 Ruffner St.; San Diego, CA 92111; (619) 268-0134.** Owner: Signature Sound Inc. Manager: Mario Lasgbarit.

[24+] **SILVERLAKE SOUND STUDIO; 2413 Hyperion Ave.; Los Angeles, CA 90027; (213) 663-7664.** Owner: Steve Millang. Manager: Walter Spencer.

[24+] **SMOKETREE; 9752 Baden Ave.; Chatsworth, CA 91311; (818) 998-2097.** Manager: Sheryl Stone.



**SOUND ARTS RECORDING STUDIO**  
Houston, TX

[24+] **SOUND ARTS RECORDING STUDIO; also REMOTE RECORDING; 2036 Paskett Ln.; Houston, TX 77092; (713) 688-8067.** Owner: Jeff Wells. Manager: Joy Wyndham. **Mixing Consoles:** Trident Series 80B 30 x 24 for 54 channel in remix. **Audio Recorders:** Ampex MM1200 24-track, 3M 2-track, Sony 2-track DAT. **Cassette Recorders/Duplicators:** Nakamichi MR-2, Yamaha C300. **Noise Reduction Equipment:** Symetrix 511A. **Echo, Reverb & Delay Systems:** Lexicon PCM70 digital reverb, (2) Alesis MIDiverb II, Alesis MIDiverb II, Alesis Quadriver, (3) Yamaha SPX90, MXR pitch shift doubler. **Other Outboard Equipment:** (2) UREI 1176 comp/lim, Symetrix 525 gated comp, Symetrix 501 comp, Audio Logic 8 channels noise gate, BBE 822 Sonic Maximizer, Alesis Micro gate, Alesis Micro compressor, Alesis Microverb. **Microphones:** (2) Neumann U87, (2) Neumann KM84, (3) AKG C-414, (3) AKG C-451EB, AKG D-12, AKG D-112, (2) Sennheiser MD-421, (2) Sennheiser MD-441, (3) E-V PL20, (5) Beyers M69, Beyers M500, Beyers M88, (3) AKG 501, (5) Shure SM57,

(3) Shure SM58. **Monitor Amplifiers:** (3) Crown DC-3001I. **Monitor Speakers:** Altec 605 8G system w/stereo 31-band White EQ, Yamaha NS-10, JBL 4312. **Musical Instruments:** Yamaha 6' grand piano, Roland W-30 sampler, Roland D-50 synthesizer, Roland S-106, Roland MKS-50 synth, Roland MKS-70 Super JX synth, Yamaha TX-802 synth, LinnDrum w/J.L. Cooper MIDI, Tama Superstar drum set, Fender Precision bass, Marshall amp. **Other MIDI Equipment:** Roland MC-500 MkII sequencer, Roland Octapad, Atari ST-1040 w/several MIDI software packages. **Video Equipment:** JVC Hi-fi stereo 1/2" VCR, Panasonic 1350 color monitor. **Other:** Rane 27-band real-time analyzer. **Rates:** Call for brochure and rates. **Specialization & Credits:** Sound Arts Recording Studio is conveniently located three blocks from the northwest corner of Houston's 610 Loop. A new air-conditioned facility with a new Trident 80B, 54-channel console, complete with an arsenal of outboard equipment and MIDI synthesizers. A Yamaha G3 6' grand piano. Fully equipped MIDI pre-production room at reduced rates. Relaxed, creative, professional atmosphere. In the midst of Houston's city life, we have created a beautiful outdoor garden setting with waterfall, pond, and barbecue pits. Experienced engineers and producers to help you complete your project, on time and within budget. Composers, arrangers and studio musicians available upon request. Other services include BMI music publishing and recording engineering classes. We personally invite you to come visit us and listen to our quality productions. Call (713) 688-8067 for brochure and affordable rates. Thanks.

[24+] **SOUND CHAMBER RECORDERS; 27 S. El Molino Ave.; Pasadena, CA 91101; (818) 449-8133.** Owner: Richard McIlvery. Manager: Mary McIlvery. **Dimensions:** Studio 18 x 38, control room 18 x 17. **Mixing Consoles:** Solid State Logic SL4040E 40 x 32. **Audio Recorders:** Studer A827 24-track, Ampex ATR-100 2-track 1/4" and 1/2", Panasonic SV3500 2-track DAT. **Cassette Recorders/Duplicators:** (2) Yamaha C300. **Noise Reduction Equipment:** (2) Dolby A. **Synchronization Systems:** (2) TimeLine Lynx. **Echo, Reverb & Delay Systems:** Lexicon 480L, (2) Lexicon PCM70, (2) Lexicon PCM42, Lexicon Prime Time II, AMS RMX 16, (2) Yamaha SPX900, Eventide H949, Roland SVR-2000, (2) EMT 140 stereo plate reverb. **Other Outboard Equipment:** (2) UREI 1176 limiter, (2) Teletronix LA2A limiter, (2) UREI LA-4, (4) Aphex CX1 gate compressor, (2) Drawmer DS-201 gate, (2) Drawmer DF-320 noise filter, (2) Aphex EAF equalizer. **Microphones:** (2) Neumann U87 (Stephen Paul mods.), (2) Neumann KM84, (2) AKG C-414EB, (2) AKG C-60, (2) AKG C-452, (2) Sennheiser MD-421, (7) Shure SM57, Sony C-37. **Monitor Amplifiers:** HH Electronic V1200, Metron 4000. **Monitor Speakers:** (2) UREI 813C, (2) Yamaha NS-10, (2) JBL 440, (2) JBL 4311. **Musical Instruments:** Yamaha C7 grand piano, Hammond B-3 w/Leslie. **Video Equipment:** JVC CR850 3/4" U-matic, Sony XBR-25 monitor, Sigma House sync generator. **Other:** Dyaxis digital editor.

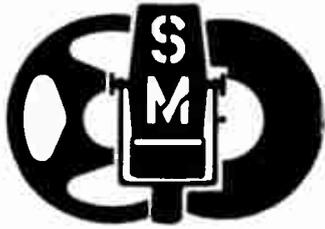
[24+] **SOUND CITY, INC.; 15456 Cabrito Rd.; Van Nuys, CA 91406; (818) 787-3722; (213) 873-2842.** Owner: Joe Gottfried, Tom Skeeter. Manager: Paula Salvatore. Engineers: Bruce Barris, David Eaton, Allen Isaacs, Brian Jenkins, Bret Newman, Joe Barresi, Max Smith, Trace Ritter. **Dimensions:** Room 1: studio 40 x 50, control room 26 x 20. Room 2: studio 40 x 30, control room 20 x 20. **Mixing Consoles:** Neve 8028 28 x 24 w/Necam I automation, Neve 8068 32 x 24. **Audio Recorders:** Studer A800 24-track, Studer A80 MkII 24-track, Studer A80 2-track 1/2", Studer A80 2-track 1/4", (2) Studer B67 2-track 1/4". **Noise Reduction Equipment:** Dolby M24, Dolby 361, Dolby 301. **Echo, Reverb & Delay Systems:** EMT, AKG, Lexicon, DeltaLab T digital delay, (2) Eventide 949 Harmonizer, Eventide flanger, Orban de-esser, Eventide digital delay, AMS RMX 16 digital reverb, Yamaha REV7, Yamaha SPX90II. **Other Outboard Equipment:** dbx 165A, Pultec EQ, Lang EQ, Teletronix LA-2A limiter, Neve limiter, (4) UREI 1176, Audioarts engineering parametric EQ, GML mic preamp, (8) Valley People Kepex II gate. **Microphones:** Neumann U47 FET, Neumann U89, Neumann U87, Neumann KM84, Neumann KM86, Neumann M49, AKG 541E, AKG C-451E, AKG C-24, AKG 460, E-V RE20, E-V RE15, E-V 635, Shure 545, Shure SM57, Shure SM58, Sennheiser MD-421, Sony C-37, Sony EC-50, Sony Shotgun. **Monitor Amplifiers:** HH Electronic, Eagle, Yamaha P2201. **Monitor Speakers:** (2) JBL bi-amped system (designed by George Augspurger). **Musical Instruments:** (2) Steinway grand piano, Hammond C-3 w/Leslie.

[24+] **SOUND DESIGN; 33 W. Haley; Santa Barbara, CA 93101; (805) 965-3404.** Owner: Affiliated Concepts Corp. Manager: Dom Camardella.

[24+] **THE SOUND FACTORY RECORDING STUDIOS; 1120 S. Highland; Tucson, AR 85719; (602) 622-1265.** Owner: Steve English. Manager: Kimberly English.

[24+] **SOUND MASTER AUDIO/VIDEO STUDIOS; also REMOTE RECORDING; 10747 Magnolia Blvd.; North Hollywood, CA 91601; (213) 650-8000.** Owner: Brian D. Ingoldby. Manager: Barbara Ingoldby. Engineers: Brian Ingoldby, Ian Ingoldby, Dan Shimaie, Ken Ingoldby. **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 36 x 36 Quad Eight automated, TAC Scorpion 28 x 24. **Audio Recorders:** (2) Sony/MCI JH-24 24-track, 3M 79 24-track, 3M 79 16-track, (3) Sony JH-110 4-track, (12) Ampex 2-track, Sony/

# SOUND MASTER



## Audio/Video RECORDING STUDIOS

SOUND MASTER AUDIO/VIDEO STUDIOS  
North Hollywood, CA

MCI 2-track, Otari 2-track, (2) 3M 56 8-track. **Cassette Recorders/Duplicators:** (2) Awa, (2) Technics, (2) Fealistic. **Noise Reduction Equipment:** (56) dbx, (28) Dolby, (16) dbx 2-track, Dolby 2-track. **Synchronization Systems:** (2) Lynx. **Echo, Reverb & Delay Systems:** Lexicon 224, (2) Yamaha REV7, Yamaha SPX90, Roland SRV-2000, Lexicon Prime Time, Ursa Major, Lexicon PCM41, (3) Advance Audio D-250, (8) MXR, TC Electronic 2290. **Other Outboard Equipment:** D250 Advanced Audio Design, (40) limiter, (57) misc. effects devices, phasers, flangers, harmonizers, etc., Orban de-essers, Autolocator 3, Lexicon Prime Time, Lexicon PCM41, Eventide Harmonizer, 265 Dynaflexer, dbx 165 limiter, UREI 1176 limiter, dbx161, Quad Eight compressor/expander, Quad Eight de-esser, (16) Quad Eight noise gate, (16) Kepex noise gate, Orban parametric, UREI 527A MXR phaser, Eventide instant phaser, Eventide DDL 1745, (2) CDT MC-8, UREI 1/3-octave EQs. **Microphones:** (59) AKG tube, Neumann, Altec, (100) Dynamic, (15) ribbon, Beyer, RCA, (30) condenser, (20) PZM, (10) wireless. **Monitor Amplifiers:** (10) Soundcraft, (14) Carvin, (6) BGW. **Monitor Speakers:** (4) Custom Sound Master, (38) Carvin/EV, (2) Renkus-Heinz. **Musical Instruments:** Steinway "B" 7'7" grand, Yamaha grand, Hammond B-3 w/Leslie, string machine, channel chimes, vibes, (2) drum sets, misc. hand percussion, misc. keyboards. **Video Equipment:** Hitachi C format 1", Crosspoint latch, Grass Valley, Ikegami, microwave, camera crane truck, computer A/B roll editing, Chyron, ENG and EFP trucks, (8) camera, (7) 3/4" VTR. **Rates:** Cal Barbara Ingoldsbey, studio manager. **Specialization & Credit:** On-site complete disc mastering studio with Total Recall core sole and Ortofon cutting system. In addition: complete video production 3/4" and 1" format, pre and post; 30 remote 24/48 track recording trucks; 31" remote video trucks with microwave, CD and DAT mastering. We do it all! Our aim is to provide you with professional, technical sophistication as well as personal attention.

[24+] **SOUND MIXER RECORDING;** also *REMOTE RECORDING*; 2301 E. Nutwood; Fullerton, CA 92631; (714) 738-4581. **Owner:** John Sirca & Kris Sirca. **Manager:** Kris Sirca.

[24+] **SOUNDER RECORDING;** also *REMOTE RECORDING*; 17021 Chatsworth St.; Granada Hills, CA 91344; (818) 366-0995. **Owner:** T. Brian Mann. **Manager:** John F. Slattery.

[24+] **SOUND LOGIC RECORDING;** also *REMOTE RECORDING*; 3810 Cavalier; Garland, TX 75042; (214) 276-3986. **Owner:** Danny Brown, Tim Grugle, Steve Power. **Manager:** Tim Grugle.

[24+] **SOUNDWORKS WEST, LTD.;** 7317 Romaine St.; W. Hollywood, CA 90046; (213) 850-1515. **Owner:** Soundworks West, Ltd. **Manager:** Paul Sioman.

[24+] **SOUNDWRITER STUDIO;** 1116-A 8th St., Ste. 160; Manhattan Beach, CA 90266; (213) 379-7426. **Owner:** Leigh Genniss, Patricia Yarborough. **Manager:** Leigh Genniss. **Engineers:** Leigh Genniss, Natalie Weichel, independents. **Dimensions:** Studio 8 x 16, control room 12 x 16. **Mixing Consoles:** Soundcraft 6000 52 x 24 w/auto and Total Recall, onscreen EQ, mute levels, digital creations, assignment, noise gate every channel, printout of information and storage. **Audio Recorders:** Sony PCM-3324 24-track digital w/Apogee filters, Sony PCM-2500 2-track digital w/Apogee filters, Panasonic SV-250 2-track digital. **Cassette Recorders/Duplicators:** Nakamichi MR-1, TEAC CD 401 CD player w/edit for sound effects. **Echo, Reverb & Delay Systems:** Lexicon 480L, Eventide H3000, Roland 800, DSP 256, DSP 128, DigiTech 7.6 time machine. **Other Outboard Equipment:** LA-4A, (2) UREI JBL 7110 comp/lim, dbx comp/lim, Simon Systems direct boxes, Innovative Audio tube direct box, Audio Logic stereo graphics, Audio Control SA 3050A. **Microphones:** Neumann, AKG, Shure. **Monitor Amplifiers:** JBL UREI 6260, JBL UREI 621 alternates. **Monitor Speakers:** UREI Time Align (newest revision), JBL 4412 alt., Auratone alt., Tannoy alt., Sony MDR V6 digital headphones. **Musical Instruments:** Korg M1 work-

station w/cards, Akai-Lynn MPC 60 drums, Dean Jammer guitar w/Humbuckers, Steinberger bass. **Other MIDI Equipment:** Atari 1040ST total MIDI w/printout. **Other:** Crate G120C guitar amp w/stereo line in/line out, Trace Elliott bass amp 4/10 2/15, (2) Crate keyboard amp for stereo.

[24+] **SOUTHWEST RECORDINGS;** 2031 Libbey; Houston, TX 77018; (713) 681-7565. **Owner:** Jeff Smith. **Manager:** Jeff Smith.

[24+] **SPACE STATION SOUND STUDIO INC.;** 8377 Westview; Houston, TX 77055; (713) 465-6563. **Owner:** Yves Vincent, David Baer. **Manager:** Yves Vincent.

[24+] **THE STAGG STREET STUDIO;** 15147 Stagg St.; Van Nuys, CA 91405; (818) 989-0511. **Owner:** Denton & Carpenter. **Manager:** Gary Denton.

[24+] **TIM STANTON AUDIO;** also *REMOTE RECORDING*; 1501 W. 5th, Ste. 103; Austin, TX 78703; (512) 477-5618. **Owner:** Tim Stanton. **Manager:** Jon Kennedy.

[24+] **STUDIO D PRODUCTIONS, INC.;** 1700 S. Lamar, Ste. 112; Austin, TX 78704; (512) 441-4001. **Owner:** Audio Production Services Inc. **Manager:** Ray Steward, Dennis Davis.

[24+] **STUDIO 55;** 5505 Melrose Ave.; Los Angeles, CA 90038; (213) 467-5505. **Owner:** David Kershenbaum. **Manager:** David Dubow.

[24+] **STUDIO 56 PRODUCTIONS;** 7000 Santa Monica Blvd.; Los Angeles, CA 90038; (213) 464-7747. **Owner:** Paul Schwartz. **Manager:** Claudia Lagan.

[24+] **STUDIO MASTERS;** 8312 Beverly Blvd.; Los Angeles, CA 90048; (213) 653-1988. **Owner:** Randy Wood. **Manager:** Larry Wood. **Engineers:** Wolfgang Achholz, Greg Grill. **Dimensions:** Room 1: studio 30 x 40, control room 20 x 18. Room 2: studio 25 x 20, control room 20 x 18. **Mixing Consoles:** Neve 8128 48-input w/Necam 96 automation, Neve 8248 48-input. **Audio Recorders:** (2) Studer A820 24-track w/Dolby SR on all channels. **Cassette Recorders/Duplicators:** (4) Nakamichi MR-1. **Noise Reduction Equipment:** Dabby SR, Dolby M-24, dbx. **Synchronization Systems:** Adams Smith 2600. **Echo, Reverb & Delay Systems:** AMS RMX 16 reverb, AMS DMX 15-80S digital delay, Yamaha REV7, Eventide DDL, EMT Master Room, Yamaha SPX90, Yamaha SPX90II, Roland SRV-2000. **Other Outboard Equipment:** dbx 165A limiter, UREI 1176 limiter, dbx 160X limiter, Eventide Harmonizer, API 535 EQ, Lexicon PCM70 digital effects processor, Kepex noise gate, Drawmer noise gate. **Microphones:** Neumann U67 tube. —LISTING CONTINUED ON NEXT PAGE



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6721 ROMAINE STREET, LOS ANGELES, CALIFORNIA 90038

# 24+ TRACK

## STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

(Stephen Paul modified), Neumann U87, Neumann 414, Neumann KM84, Shure SM57, E-V RE20 and others. **Monitor Amplifiers:** George Augspurger custom, HH Electronic V800, Hothouse S-400, Quicksilver tube, Crown 300A. **Monitor Speakers:** Yamaha NS-10, Auratone. **Video Equipment:** JVC CR-850U 3/4" recorder/player, 25" and 13" monitors. Sigma Master sync generator. Rates: Call for rates.

[24+] **STUDIO SEVEN;** also **REMOTE RECORDING;** 417-419 N. Virginia; Oklahoma City, OK 73106; (405) 236-0643. **Owner:** Ted Curtis. **Manager:** John Collins.



**STUDIO SOUND RECORDERS**  
North Hollywood, CA

[24+] **STUDIO SOUND RECORDERS;** 11337 Burbank Blvd.; North Hollywood, CA 91601; (818) 506-4487. **Owner:** George Tobin. **Manager:** Shivaun O'Brien. **Engineers:** Rob Russell, Chuck Hohn, Jorge Pena. **Dimensions:** Room 1: studio 40 x 35, control room 35 x 22. Room 2: studio 32 x 12, control room 36 x 23. **Mixing Consoles:** Neve VR-60 w/60-channel Flying Faders, Trident 80C 32 x 24 x 56 w/DiskMix automation. **Audio Recorders:** Otari DTR-900 32-track digital, (3) Otari MTR90 24-track w/Otari sync, (2) Otari MX66 2-track w/center SMPTE, (3) Ampex 102 2-track 1/4" and 1/2" 30 ips, Studer A827 24-track. **Cassette Recorders/Duplicators:** (2) Nakamichi MR-1. **Echo, Reverb & Delay Systems:** (2) TC Electronic 2290 w/32-sec. sample, Lexicon 224L, (2) Lexicon 480L, (4) Lexicon PCM70 3.0 software, (3) Roland SDE-3000, Lexicon Prime Time 92, Yamaha REV7, (2) Yamaha REV5, (2) Yamaha SPX90II, (3) Yamaha SPX1000, (2) Yamaha 1500 DDL, (2) AMS RMX 16, Roland 3000 DDL, Songbird tri-chorus TCS-1380S, (2) GML 8500 para EQ, (2) GML 8200 para EQ, (10) API 550-A equalizer. **Other Outboard Equipment:** (8) GML mic/preamp, vocal stressor, Eventide 910 Harmonizer, (2) Eventide H3000B Ultra-Harmonizer, (2) Adams-Smith Zeta-3, EMT 240 Gold Foil, EMT 262 Gold Foil, (2) dbx ES-902 de-esser/929 SE noise reduction, (4) dbx 160X limiter, (2) dbx 165 limiter, Drawmer stereo gate, (2) Drawmer gate, Korg DVR-3000, (2) UREI 1176LN limiter. **Monitor Amplifiers:** Perreaux. **Monitor Speakers:** UREI Time Align, Toa/Augsburger, (4) Yamaha NS-10, (3) Tannoy. **Musical Instruments:** Kawai 9' piano. **Video Equipment:** (2) Sony 5800 3/4". **Other:** Sound Tools w/Macintosh.

[24+] **STUDIO TWO;** also **REMOTE RECORDING;** 9729 Culver Blvd.; Culver City, CA 90230; (213) 558-8832. **Owner:** Studio Two Recording, Inc. **Manager:** Jason Wolchin. **Engineers:** Richard Kaplan, Jason Wolchin, various others. **Mixing Consoles:** Jensen/Aengus 56 x 24 custom, plus (12) additional tube mic preamps, IBM PC custom controls programmable mute and mix. **Audio Recorders:** 3M 79 24-track 1/4" or 1/2" transformerless, Stephens 821A 4-track 1/2", digital audio recorders: all formats with advanced notice. **Synchronization Systems:** Full feature Q.Lock. **Echo, Reverb & Delay Systems:** Publison Infernal 90 stereo audio computer (stereo sampling or (2) digital reverb), AMS available, Lexicon 480, Lexicon 224 available, EMT 140 stereo plate, EMT 250, Yamaha REV7, Yamaha SPX90, Yamaha D1500, Roland DEP-3 digital processor, Roland DEP-5 digital processor, Roland SRV-2000 digital processor, Roland SDE-3000 digital processor, Alesis XT digital reverb, MXR ART 01 digital reverb/DDL/flanger/pitch shift, Ursa Major Space Station, Ecoplate reverb, Master-Room reverb, Telefunken reverb, Eventide 1745A, Eventide 1745M dual DDL w/pitch change, Eventide H910 Harmonizer/instant phaser, Marshall Time Modulator, UREI Cooper Time Cube, Lexicon Prime Time, Loft 440 stereo

flanger, Mutron stereo bi-phase, Bel DDL flanger/doubler. **Other Outboard Equipment:** Drawmer Electro Space spanner, EXPI exciter, dbx 162 stereo limiter/boom box bass synthesizer, Teletronix LA-1 tube limiter, Teletronix LA-2A tube limiter, UREI 1178 stereo limiter, UREI 175 tube limiter, UREI 176 tube limiter, Eventide Omnipressor, Inovonics limiter, Altec 436C tube limiter, Altec 1193A limiter, RCA BA6A tube limiters, Orban de-esser, Aphex stereo ComPELLer, Pultec EQP-1A tube EQ, Pultec EQP-2 tube EQ, Pultec boosters, API equalizers, B&B equalizers, Aengus graphics, SAE graphic equalizers, Collins and Cinema Engineering EQs w/Pultec boost, (10) Mitsubishi/Wester equalizers in a rack, Drawmer Electro-Space Straite gates, Symetrix gates, Valley People Kepex, Gain Brain, RM noise gate. **Microphones:** Large selection of new and vintage tube, Neumann U47, Neumann M49, Neumann U67, Neumann U87, Neumann SM69, Neumann M269, Neumann KM53, etc., Telefunken 250, Telefunken 2214 tube classics, AKG C-12, AKG C-28, AKG C-60, AKG C-61 tubes. **Monitor Amplifiers:** Technics 44W Class A to small speakers. **Monitor Speakers:** JBL 4-way custom, JBL Control Ones, JBL 4312, Yamaha NS-10. **Other MIDI Equipment:** IBM AT w/ Roger Texture 3.1 sequencer software. **Video Equipment:** 26" monitor permanently installed for video lock, JVC 3/4" video and VHS.

[24+] **STUDIO ULTIMO, INC.;** 1900 S. Sepulveda Blvd.; West Los Angeles, CA 90025; (213) 479-6010. **Owner:** KSH Corp. **Manager:** Angele Hayashi. **Engineers:** Mitch Zeleny, Tom Biener, Gabe Moffat, Mara Bernard. **Dimensions:** Studio 49 x 35, control room 29 x 30. **Mixing Consoles:** Neve 8108 48 x 32 (modified) w/Necam automation and w/40 additional mix inputs. **Audio Recorders:** (2) Ampex ATR-124 24-track modified, Ampex ATR-104 4-track 1/2", (2) Ampex ATR-102 2-track 1/4", Ampex ART 1/2" head assembly. **Cassette Recorders/Duplicators:** (4) Aiwa. **Noise Reduction Equipment:** Available. **Synchronization Systems:** (2) TimeLine Lynx. **Echo, Reverb & Delay Systems:** AMS RMX 16, AMS DMX 15 sampling stereo processor, EMT 251 w/250 program, Eventide 949 Harmonizer, Lexicon 480L, Lexicon PCM70, Lexicon 200, Lexicon Prime Time II, Roland SDE-3000, Yamaha REV7, Yamaha SPX90. **Other Outboard Equipment:** ADR Vocal Stresser, (4) dbx 160, (2) dbx 165, (2) Drawmer stereo gate, Neve stereo compressor/limiter, (2) Summit Audio stereo EQP-200, Teletronix LA-2A, (2) UREI 1176LN, (2) Valley People Gain Brain II, (6) Valley People Kepex II, (2) Valley International DSP de-esser. **Microphones:** AKG C-12, (4) AKG 414, (4) AKG 451, (2) AKG D-12, (2) Electro-Voice RE20, (5) Sennheiser 421, (5) Shure SM57, Shure SM81, Neumann U47 tube, Neumann U47 FET, Neumann M49, Neumann U87, (2) Neumann U87, Neumann U89, (2) Neumann TLM170, Crown PZM. **Monitor Amplifiers:** (4) Bryston 4B. **BGW Monitor Speakers:** (3) Custom 3 channels 3-way design using TAD components, (2) Yamaha NS-10, Electro-Voice Sentry 100, Auratone. **Musical Instruments:** Yamaha C7 grand piano w/ MIDI. **Video Equipment:** Sony VO-5800 U-matic, Sony XBR 25" mounted monitor, RCA 31" studio monitor, (2) TimeLine Lynx synchronizer. **Specialization & Credits:** Located in West Los Angeles, Studio Ultimo caters to the needs of the TV, film and record industries. We've been able to offer our clients a luxurious environment with the personal and private services expected from a one-room studio without compromising the technical support and maintenance usually found at only larger facilities. Our control room, perhaps the largest in the world, is spacious enough for large synthesizer setups or when comfortable seating is required for many, and is equipped with three-channel monitoring and video lockup capabilities to necessitate mixing for film. Our studio's variable acoustic design and three large isolation booths provide an environment flexible enough to accommodate almost any production situation. Please call for rate and policy information or if you have any questions regarding our facility and services.



**SUMMA MUSIC GROUP**  
West Hollywood, CA

[24+] **SUMMA MUSIC GROUP;** 8507 Sunset Blvd.; West Hollywood, CA 90069; (213) 854-6300. **Owner:** Rick Stevens. **Manager:** Karen Lichtman. **Dimensions:** Room 1: studio 12 x 21, control room 16 x 28. Room 2: control room 18 x 18. **Mixing**

**Consoles:** SSL SL4000 G Series 64-input Total Recall board and computer, API/De Medio custom 36-input w/original API 550A EQs. **Audio Recorders:** Studer A820 24-track, (2) Studer A800 24-track, (2) ATR-102 2-track 1/2" or 1/4". **Cassette Recorders/Duplicators:** (2) Nakamichi MR-1, Sony DTC-1000ES DAT, Panasonic SV-3500 Pro-DAT, Yamaha K2000. **Noise Reduction Equipment:** (3) Drawmer DS-201 dual gate, (4) Valley People Kepex II gate, (2) Valley People Dyna-Mite gate/de-esser. **Synchronization Systems:** (2) TimeLine Lynx. **Echo, Reverb & Delay Systems:** EMT 140 tube plate reverb, (3) Roland SDE-3000 delay, (2) TC Electronic 2290 dynamic delay w/32 sec. sampling, Eventide H3000 Ultra-Harmonizer, TC Electronic 1210 Spatial Expander/stereo chorus/flanger, (2) AMS RMX 16 reverb, (2) Lexicon PCM70 ver. 3.0, AMS DMX 15-80S, (2) Yamaha SPX90II, Yamaha SPX90, Yamaha REV5, Lexicon 480L digital processor, Eventide H949 Harmonizer, Eventide H910 Harmonizer. **Other Outboard Equipment:** (4) dbx 160X compressor, dbx 165A compressor, (2) dbx 160 compressor, UREI 1176 comp, (2) UREI 1178 stereo compressor, (2) Teletronix LA-2A lim/comp, (2) Teletronix LA-3A lim/comp, (3) Pultec EQP-1A EQ, Pultec MEG-5 EQ, (2) API 550B 4-band EQ, (2) API 560B graphic EQ, (2) API 525 comp, (2) Focusrite 15A 115HD EQ, (2) BBE 802 EQ, GML 8200 parametric EQ. **Microphones:** Neumann U87 (modified by German Masterworks), (2) AKG 421, (2) AKG 414, (2) Sennheiser 451, (2) Shure SM57. **Monitor Amplifiers:** (2) Perreaux 9000B, Perreaux 5000B, Boudier 500, (6) JBL 6260, BGW 250D, Crown DC-300A. **Monitor Speakers:** (4) George Augspurger custom main, (4) Yamaha NS-10M, (2) Yamaha NS-10 Studio, (4) Auratone Super Sound Cube, (2) Tannoy Super Gold 10B. **Musical Instruments:** Yamaha DX7, Roland Jupiter 6, LinnDrum. **Video Equipment:** Quasar Hi-fi audio HD VCR, Sony TV monitor. **Rates:** Please call for rates. **Specialization & Credits:** Summa's Studio A/SSL room is a world-class mixing/tracking studio that in the last year has attracted such clients as Heart, XTC, Pebbles, Babyface, Adam Ant. Studio A features a 64-input Solid State Logic SL4000 G Series Master studio system, SSL's newest model console and computer system. A custom main monitor system designed by George Augspurger, the finest Mogami and Monster cabling, two industry-standard Studer A800 analog multitracks, classic ART-102 2-track and a top-level array of outboard gear is available. This room includes a specially soundproofed one-way window looking out on Sunset Boulevard and the L.A. basin, because we know that the environment is important, too. Summa's Studio B/API room is a world-class overdub and MIDI studio that features a 36-input custom De-Medio API console and a Studer A820 multitrack. Original API 550A EQs, 321-5 mc preamps and P&G faders are available on all channels.

[24+] **SUNBURST RECORDING;** 10313 W. Jefferson Blvd.; Culver City, CA 90230; (213) 204-2222. **Owner:** Bob Wayne. **Manager:** Bob Wayne. **Engineers:** Bob Wayne, Jim Reeves, Damon DeGrignon. **Dimensions:** Room 1: studio 18 x 22, control room 12 x 18. Room 2: control room 11 x 16. **Mixing Consoles:** Trident Series 65 (1989) 32 x 16 (8 aux. sends/channel, 52 mix inputs). **Audio Recorders:** Mitsubishi X-80A 1/2-track 1/4" digital, Otari MX-80 24-track analog 2", Otari 5050 MkIII 1/2-track analog 1/4" (15 and 30 ips), Tascam 80-8 8-track analog 1/2" w/dbx I, Tascam 25-2 1/2-track analog 1/4" w/dbx I. **Cassette Recorders/Duplicators:** (2) TEAC C-3, Technics RS-933V. **Echo, Reverb & Delay Systems:** Lexicon 200 digital reverb, Ursa Major 8 x 32 digital reverb, Alesis MIDiverb II, ART 01a digital reverb, Orban 111-B spring reverb, Yamaha SPX90, BBE 802 exciter, Aphex Exciter, Roland DEP-3 multi-effects proc., Korg KEC-42 multi-effects proc., Eventide H910 Harmonizer, (2) DeltaLab 1024 digital delay, Roland 1000 digital delay, MXR digital delay, (2) dbx 165 comp/lim, (2) dbx 160 comp/lim, Audio Logic 4-channel noise gate, Tristech 4-channel noise gate, Orban 536A 2-channel de-esser, Orban 622B 2-channel parametric EQ, Orban 672A mono 8-band parametric EQ, (2) MXR stereo chorus, MXR flanger, Scholz Rockman guitar proc. **Other Outboard Equipment:** Technics SL-P100 CD player, Technics SL-J33 turntable. **Microphones:** Neumann U87, (2) Neumann KM84, (2) AKG 414, (2) AKG 451, AKG D-112, (4) AKG 1000, (2) E-V RE20, (2) E-V RE15, Shure SM81, (6) Shure SM57, Shure SM7, Sony 33P, Sennheiser 421, Beyer M500, Crown 30 GP (PZM). **Monitor Amplifiers:** BGW, Ramsa. **Monitor Speakers:** E-V Sentry V, JBL Decade, Yamaha NS-10, Auratone Cube, B.S.R. Cube. **Musical Instruments:** Kawai grand piano 7'4" w/MIDI, Hammond B-3 w/Leslie 122, Yamaha DX7, Roland Juno-60 w/ MIDI, ARP string ensemble, Fender Rhodes 73, Hohner D-6 clavinet, Korg M1-R, Sequential Circuits Prohet-2002 sampler, Roland MKS-70, Roland MKS-20, Roland 626 drum, LinnDrum, complete trap set w/bottom heads and 3 snares. **Rates:** Analog 2/8-track \$35, analog 16-track \$45, digital 2-track \$55. All rates include engineer and all equipment.

[24+] **SUNSET SOUND;** 6650 Sunset Blvd.; Hollywood, CA 90028; (213) 469-1186. **Owner:** Paul Camarata. **Manager:** Craig Hubler. **Engineers:** Mike Kloster, Brian Soucy, Neal Avron, Tom Nellen, Mike Piersante, Steve Hogg. **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 Industries custom 56 x 56 w/GML automation, Amek APC1000 64 x 64 w/GML automation, Sunset Industries custom 32 x 24, 8/12-channel console. **Audio Recorders:** Studer A820 24-track multitrack, (3) Studer A800 MkIII 24-track, Studer A827 24-track, Ampex MM-1200 8/16/24-track headstacs, (7) Ampex ATR-100 2-track, Ampex ATR-104 4-track, (2) Otari DTR-900 32-

track digital. **Cassette Recorders/Duplicators:** Panasonic SV-3500 Pro-DAT, (2) Sony DTC-300ES DAT, (6) Aiwa F-780, (6) Aiwa F-660 (float). **Noise Reduction Equipment:** (72) Dolby 361-A Type, (25) Dolby SR. **Synchronization Systems:** (6) TimeLine Lynx. **Echo, Reverb & Delay Systems:** EMT 250 reverb, (3) AMS RMX 16 reverb, (3) AMS DMX 15-80S delay, Quantec QRS room simulator, (2) Publison IM-90 audio computer, (3) Yamaha REV5 reverb, (3) Lexicon PCM70, (5) Roland SDE-3000, (3) Eventide H3000SE, (3) Yamaha SPX9011, Yamaha SPX1000, (3) live echo chamber, (4) EMT 140 plate w/ TimeLord amp. **Other Outboard Equipment:** (3) Drawmer DS-201 gate, (3) Aphex 612 stereo gate, Drawmer 1960 tube limiter, (16) Pultec EQ (various models), (5) Teletronix/UREI LA-2A limiter, GML 8200 EQ. **Microphones:** (3) Telefunken 251 tube, (6) Neumann U47 tube, (7) Neumann U87 mic, (3) Neumann U67 tube, over 150 mics in all. **Monitor Amplifiers:** (6) HH Electronic, (9) BGW, (5) Crown. **Monitor Speakers:** JBL/TAD 3-way bi-amp system w/surround, (2) JBL 3-way bi-amp system, (10) Yamaha NS-10 near-field, (4) Auratone T6. **Musical Instruments:** (3) Steinway B-7 concert grand piano, (2) Steinway B-7 forte-MIDI. **Video Equipment:** Sony BVU-850SP 3/4" recorder/editor, (5) Sony/Toshiba high-resolution monitor. **Other:** Monster Cable wiring: mic panels, tape machines, monitors, (3) Kenwood 7010 CD player. **Rates:** Elevated, but sensible, yet lower than they should be. **Specialization & Credits:** Sunset Sound is ready for the 1990s! We have a new look, both inside and out! Our crack maintenance staff customized and enhanced the Artek APC1000 dynamics modules. We have a sharp new traffic manager, Nicole Terry. New office tenants include jinglemeister Richard (Dick) Marx Sr., and producer/composer Rick Neigher. Hanging about and making a name for himself is C.J. Vanston. We even have Barry Manilow as our next-door neighbor. What can we say? And wait 'til you see the new decor! Yes, that's still our building at the corner of Sunset and Cherokee in Hollywood! We still have the huge parking lot. We still give great BBQs, basketball and ping-pong. And, above all, we still have the finest engineering staff in town...maybe the country! The best studios never change, they just get better and better.

[24+] **SUNSET SOUND FACTORY; 6357 Selma Ave., Hollywood, CA 90028; (213) 467-2500. Owner:** Paul Camarata. **Manager:** Philip MacConnell. **Engineers:** Jeff Bork, Neal Avron, Mike Kloster, Brian Soucy, Tom Nellen, independents. **Dimensions:** Room 1: studio 26 x 16, control room 19 x 13, iso booth #1 20 x 13, iso booth #2 14 x 9. Room 2: studio 22 x 20, control room 18 x 16, iso room #1 9.5 x 6.5. **Mixing Consoles:** (2) API 36 x 36 custom w/programmable master mute system. **Audio Recorders:** Otari DTR-900 32-track

digital, (2) Studer A80 VU MkIV 24-track, Ampex MM1200 24-track w/16-/8-track heads, Ampex ATR-104 4-track, (3) Ampex ATR-102 2-track 1/4" or 1/2" heads, Aiwa XD-001 DAT. **Cassette Recorders/Duplicators:** (3) Aiwa F770, (2) Aiwa F780. **Noise Reduction Equipment:** Dolby A (SR cards available). **Synchronization Systems:** (2) TimeLine Lynx. **Echo, Reverb & Delay Systems:** (4) EMT 140 stereo plate, EMT 251 digital reverb, Lexicon 224XL digital reverb, (2) Lexicon PCM70, (2) Lexicon Prime Time II, (2) Eventide 949 Harmonizer, (4) Roland SDE-3000 digital delay, (2) J.L. Cooper time cube, AMS DMX 15-80S, Publison Infernal 90. **Other Outboard Equipment:** (16) Valley People Kepex II, (4) Drawmer DS-201 noise gate, (6) Lang PEQ-2, (2) Pultec EQP-1A, ITI MEP-230 PEQ, Sontec PEQ, (4) dbx 160X, (2) Teletronix LA-2A, (8) UREI LA-3A, (4) UREI 1176LN, (2) dbx 902, (4) dbx 903, (6) dbx 904, Dytronics CS-5 chorus, Drawmer 1960 stereo tube limiter, Langevin 259A EQ (high/low filter), UREI 962 digital metronome, Pultec MEQ-5 midrange EQ, (2) Pioneer PD-6300 CD player, Denon DP-30L II turntable. **Microphones:** (7) Neumann U67, (6) Neumann U87, (3) Neumann U47 FET, Neumann U47 UF-14, (2) Neumann M49, (3) Neumann KM84, (4) Neumann KM86, Neumann KM88, (3) Telefunken Elam 251, (6) AKG C-12A, (6) AKG 452EB, (2) AKG 414EB, (4) Sennheiser 441, (3) Sennheiser 421, (7) Shure SM57, (4) Shure SM53, AKG D-12, (4) Sony C-37A, (3) E-V RE20. **Monitor Amplifiers:** (4) Hill DX-1000A, Hill DX-3000A, (2) Phase Linear 700B, (2) McIntosh MC2105. **Monitor Speakers:** (4) Altec 604E w/Mastering Lab crossover, (4) Yamaha NS-10, (2) Auratone TC, (4) Auratone 5C. **Musical Instruments:** (2) Steinway B grand piano, Hammond B-3 organ w/Leslie speaker. **Specialization & Credits:** This September (1990), we will open Studio "C," a fully equipped 24-track MIDI studio with video lockup. Call for information.

[24+] **SUTTON SOUND STUDIO; 8390 Curbaril; Atascadero, CA 93422; (805) 466-1833. Owner:** Rick Sutton.

[24+] **TAKE ONE RECORDING STUDIOS, INC.; 619-B. S. Glenwood Pl.; Burbank, CA 91506; (818) 841-8697. Owner:** Steven D. Smith. **Manager:** Candace Corn.

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**THAT STUDIO**  
North Hollywood, CA

[24+] **THAT STUDIO; also REMOTE RECORDING; PO Box 958; North Hollywood, CA 91603; (818) 764-1421. Owner:** That Studio, Inc. **Manager:** Richard Holbrook, Shannon Holbrook.

[24+] **38-FRESH RECORDING; only REMOTE RECORDING; 7940 W. 3rd St.; Los Angeles, CA 90048; (213) 383-7374. Owner:** Mike Greene. **Manager:** Mike Greene.

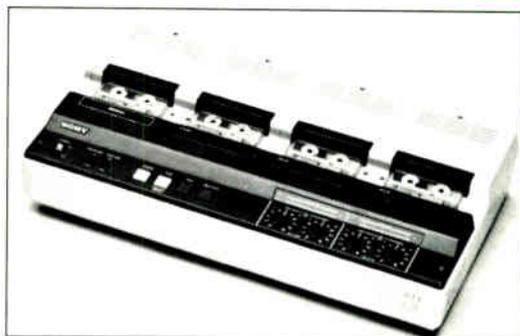
[24+] **THE TOLEDO STUDIO; 5131 The Toledo; Long Beach, CA 90803; (213) 433-2168. Owner:** Wade Wilkinson, Scott Atchison. **Manager:** Mike Malone.

[24+] **TOPANGA SKYLINE RECORDING; 1402 Old Topanga Cyn. Rd.; Topanga Park, CA 90290; (213) 455-2044. Owner:** Britt Bacon, John Eden. **Manager:** Jane Scobie. **Engineers:** Sarah Jarnan, Louis Quine. **Dimensions:** Room 1: studio 25 x 30, control room 22 x 20. Room 2: studio 16 x 20. **Mixing Consoles:** Neve V III 60-input automated. **Audio Recorders:** Studer A820 24-track, Ampex ATR-100 2-track 1/4", Otari MTR-1002-track 1/2", MCI JH-110 1/4", Sony 2500 Pro-DAT. **Cassette Recorders/Duplicators:** (2) Denon HR-44  
—LISTING CONTINUED ON NEXT PAGE

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**SONY**

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# 24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

**3-head Synchronization Systems:** Adams-Smith 2600, Adams-Smith Zeta-3, Roland SBX-80. **Echo, Reverb & Delay Systems:** (2) Teletronix LA-2A vacuum tube, (4) UREI 1176LN, Gemini Easy Rider stereo, Drawmer DL221 stereo, (2) Gain Brain II, (2) dbx 160X, (2) dbx 160, (2) dbx 161, Valley People Dyna-Mite stereo, dbx 162 stereo, AMS 15-80/w/loop edit 1.6 sec., Eventide H3000 Ultra-Harmonizer, (2) Eventide H910, (2) Drawmer DS-201 dual gate, Valley Audio 415 de-esser stereo, Orban 526A dynamic sibilance controller, (2) Kepex II, (4) Yamaha SPX90, Lexicon 480L w/LARC, Lexicon 224, Lexicon PCM70, Lexicon PCM60, Focusrite ISA115HD stereo, UREI 545 parametric EQ, EMT 140 stereo plate, Sony CDP101 compact disc, Sony F-1 w/PAL Betamax or U-matic. **Microphones:** (12) Neumann, (10) AKG, (2) B&K, (8) Electro-Voice, (11) Sennheiser, (5) Beyer, (16) Shure. **Monitor Amplifiers:** (2) FM1000, Quad 405, (2) Quad 306, (2) BGW 50, BGW 250, (2) BGW 750A. **Monitor Speakers:** (2) UREI 815 Time Align (Steve Brandon tuned), (2) Yamaha NS-10M, (2) Yamaha NS-10M-S, (2) Auratone Cube, (2) Linn Kans, (2) B&W DM1200, (2) David 9000, (2) JBL 4311. **Musical Instruments:** Kawai 7' grand piano, Fender Jazz Master, Ibanez bass, Washburn acoustic, Roland D-50, Roland MSQ-700, Roland TR-505, Atari 1040ST C-Lab software. **Video Equipment:** Sony 5800 U-matic NTSC, Sony 5630 PAW/SECAM U-matic, Sony Trinitron 27" monitor, Mitsubishi 35" PAL monitor.

**[24+] TOTAL ACCESS RECORDING; 612 Meyer Ln. #18; Redondo Beach, CA 90278; (213) 376-0404. Owner:** Allan W. Davis, Allan H. Jukes. **Manager:** Kyrsten Dunton. **Engineers:** Eddie Ashworth, Wyn Davis, Melissa Sewell. **Dimensions:** Studio 25 x 30, control room 25 x 20, live chamber 25 x 32 x 16. **Mixing Consoles:** Amek G2520 58 x 48 x 104 w/automation. **Audio Recorders:** (2) Ampex ATR-124 analog, Sony multitrack digital, Mitsubishi multitrack digital, Ampex ATR-102/4, Sony 3402 2-track digital, Sony 2500 DAT. **Cassette Recorders/Duplicators:** Nakamichi M-2. **Noise Reduction Equipment:** Drawmer 10-ch. audio gates, Aphex CX-1. **Synchronization Systems:** Lynx. **Echo, Reverb & Delay Systems:** Lexicon 480L w/sampling option, Lexicon 224XL, Klark-Teknik DN-780, AMS 15-80S, Yamaha REV7, Yamaha SPX90, Roland SRV-2000, Lexicon 95, Lexicon 93, Lexicon PCM70, EMT 240 Gold Foil, AKG BX-20, Roland SDE-3000, Eventide H3000. **Other Outboard Equipment:** Forat F-16, GML para EQ, dbx 165A, dbx 160, UREI 1176, UREI LA-3A, Teletronix LA-2A, ADR Vocal Stresser, Lang tube EQ, (12) Boulder mic preamp, (4) Jensen/Hardy mic preamp, UREI EQ, Orban EQ. **Microphones:** AKG C-12, AKG 414, AKG 451, Schoeps, Neumann U87, Neumann KM86, Neumann KM88 and others, Shure SM57, Shure SM58, Beyer, Crown PZM, many more. **Monitor Amplifiers:** (3) Boulder 500, Crown, BGW, Phase Linear. **Monitor Speakers:** Tannoy PFM, UREI 813, Canton, Yamaha, E-V, JBL, Auratone. **Musical Instruments:** LinnDrum 9000, Yamaha grand w/MIDI, Fender Strat, Gibson Les Paul, Roland synth, superb collection of vintage acoustic guitars including Guild, Gibson, Martin and others. **Video Equipment:** Beta and VHS 1/2", Sony 3/4", JVC 3/4", Sony monitor. **Rates:** Hourly and lockout rates are negotiable. Please call. **Specialization & Credits:** Total Access provides technically advanced recording systems coupled with a warm atmosphere and skilled staff. We can arrange for accommodations and anything else needed to accomplish any project. We are located one mile from the Pacific Ocean in beautiful Redondo Beach. Worldwide clientele includes Guns N' Roses, Ken Scott, Dokken, Gary Wright, Michael Wagener, Great White, Tears for Fears, White Lion, Alice Cooper, Will and the Kill, Terry Bozzio and many others. Labels include Capitol, Geffen, Enigma, Elektra, Cypress/A&M, Atlantic, MCA, IRS.

**[24+] TRACK RECORD, INC.; 5102 Vineland Ave.; North Hollywood, CA 91601; (818) 761-0511. Owner:** Thomas M. Murphy. **Manager:** Alan Morphet. **Engineers:** Tom Murphy, John Carter, Ken Paulakovich, Dave Paladino, Pete Magdaleo, Chris Hassett, Russell Anderson, Thornton Chamberlain, Brian Virtue, Darian Sahana. **Dimensions:** Room 1: studio 40 x 40, control room 20 x 22. Room 2: studio 30 x 30, control room 20 x 25. Room 3: studio 8 x 8, control room 15 x 20. Room 4: control room 12 x 20. **Mixing Consoles:** Neve VJ 80-input, Neve 8232 32-input. **Audio Recorders:** Studer 820 24-track, Studer 827 24-track, Sony JH-24 24-track, Ampex ATR-102 2-track, Ampex ATR-104 2/4-track, Otari MTR-12 2-track, Studer A800 16-track, Panasonic 3500 DAT. **Cassette Recorders/Duplicators:** (2) Awa AD-F780, Nakamichi MR-1, Hitachi D-2200M. **Synchronization Systems:** Audio Kinetics Q.Lock 3.10. **Echo, Reverb & Delay Systems:** Lexicon 224XL (w/8.3 software and LARC), Lexicon 224, Yamaha REV5, Yamaha SPX90, (2) Yamaha SPX90, (2) Roland SRV-2000, (2) Ecoplate I and II, DeltaLab DL-2, Roland SDE-3000, Bel BD80 delay w/8-sec. sampling, Roland SDE-1000, Lexicon Prime Time, Eventide H910, (Roland Dimension "D" chorus. **Other Outboard Equipment:** (3) Teletronix LA-2A, (5) UREI

1176LN, (4) dbx 160X, dbx 165A, Trident limiter 2-channel, Aitec 436C limiter, RCA limiter, Valley People Dyna-Mite 430 stereo comp/expander, Drawmer gate 6 channels, Kepex II gate 6 channels, (2) Pultec EQ-H2 tube EQ, Pultec MEQ-5 tube EQ, (2) Trident CB9066 parametric EQ, UREI 535 dual graphic EQ, dbx 902 de-esser, Barcus-Berry BBE-602. **Microphones:** (3) AKG C-12 tube, AKG "The Tube," (5) AKG C-12A tube, Telefunken U47, Neumann M49 tube, (2) Neumann KM64 tube, (5) AKG 414 (EB, EB P48, U-ULS TL), (4) AKG 451, (3) AKG 452, (3) Electro-Voice RE20, (5) Neumann U87 (incl. 1 w/Stephen Paul mod.), Neumann U47 FET, (4) Neumann KM84, (14) Sennheiser 421, (15) Shure SM56/57, Shure SM7, (2) RCA 77 ribbon, (2) Sennheiser 441. **Monitor Speakers:** TAD system also w/motion picture Dolby stereo, Yamaha NS-10M. **Musical Instruments:** Kawai 7' grand piano, Yamaha C7 grand piano, complete MIDI room w/Kurzweil 250 etc. **Video Equipment:** Complete video package incl. JVC CR665OU 3/4" VCR and (2) Panasonic monitor. **Other:** Roland CPE-800 15-channel SMPTE-based automation, (2) Technics SL-P370 CD player.



TRAX RECORDING  
Hollywood, CA

**[24+] TRAX RECORDING; 1433 Cole Pl.; Hollywood, CA 90028; (213) 856-8729. Owner:** Michael McDonald. **Manager:** Robyn Whitney. **Engineers:** Jim Bailey, Steve Cohn, Brian Camey, J.B. Lawrence, Vincent Cirilli, Michael McDonald. **Dimensions:** Room 1: studio 38 x 32, control room 18 x 22. Room 2: studio 14 x 25, control room 16 x 20. **Mixing Consoles:** Soundcraft 2400, Audioarts R-16. **Audio Recorders:** (2) Otari MX-80 24-track, Tascam 85-16B 16-track, (2) Otari/R-TEK MX-5050 2-track 15 and 30 ips, Otari MX-5050 2-track. **Cassette Recorders/Duplicators:** (2) Aiwa, (2) Technics. **Echo, Reverb & Delay Systems:** (3) Roland SRV-2000, (2) Lexicon PCM60, (2) Yamaha REV7, (4) Yamaha SPX90, Eventide H910 Harmonizer, Lexicon Prime Time II delay, (2) DeltaLab DL-4, (6) DeltaLab Effectron, Alesis MIDverb II, (2) Ecoplate III plate reverb, MIDverb II, Roland Super Chorus. **Other Outboard Equipment:** (2) dbx 160X comp, dbx 166 stereo comp, (4) dbx 160 comp, Symtrix 522 comp/gate, (4) Symtrix 56-200 gate, (2) Kepex II gate, (4) Drawmer 201 gate, (2) Orni Craft GT-4 gate, dbx 165 comp, (2) Innovative Audio tube mic preamp (stereo), (3) Innovative Audio tube direct box, Barcus-Berry 802 exciter, EXR exciter, (2) dbx 263X de-esser, Orban de-esser, Klark-Teknik DN300 stereo graphic EQ, (2) Klark-Teknik DN-27 graphic EQ, Furman stereo parametric EQ. **Microphones:** (2) Neumann U87, (5) AKG 414EB-P/U8, (5) AKG 452, Sony C-48, Sony C-48 tube, Sony C-37 tube, (2) Sennheiser MD-421, (2) Sennheiser MD-441, AKG D-12E, (2) AKG D-224E, (9) Shure SM57, (2) Crown PZM, (3) E-V RE20, (2) E-V RE11, RCA 77-DX ribbon. **Monitor Amplifiers:** (4) SCS MOSFET, (2) Crown D-60, BGW, GAS, AB Systems 210C. **Monitor Speakers:** (4) Yamaha NS-10M, (2) UREI 811 custom bi-amped w/15" subwoofer, (2) UREI 811 custom bi-amped w/18" subwoofer, (2) E-V Sentry 100, (2) Auratone 5C. **Musical Instruments:** Yamaha C7 7'5" grand piano. **Other MIDI Equipment:** Roland SBX-80 sync box SMPTE generator/reader. **Video Equipment:** 19" color monitor, Fisher VHS 1/2" playback. **Rates:** Studio B: 16-track \$33/hr. incl. eng. Studio B: 24-track \$43/hr. incl. eng. Studio A: 24-track \$53/hr. incl. eng. **Specialization & Credits:** Some of our clients include: CBS Records (Martika), Epic Records, Chrysalis Records, RCA/BMG Records, Geffen Records, Walt Disney Productions, Paramount Pictures, Roger Corman Pictures, EMI Capitol Records, MCA Records, A&M Music, Chappell Music, ABC Television, Ray Charles, The Disney Channel, Alan Thicke Productions, Famous Music, Atlantic Records, Anheuser-Busch, Warner Bros. Music, Arista Records, HBO Films, Screen Gems/EMI Music, Malaco Records, SKB Songs, PBS, ACA Records, Jobete Music, Lorimar Music, Alisha (MCA), Peer-Southern Music, Seiko Matsuda (CBS), Dick James Music, Melissa Manchester, Orpheus Records, Peter Allen (RCA/BMG), Columbia Motion Pictures, Ben Vereen, IBM and many others.

**[24+] THE 25TH TRACK; 309 E. Vicksburg; Broken Arrow, OK 74011; (918) 455-2459. Owner:** Walt Bowers. **Manager:** Walt Bowers.

**[24+] VALLEY CENTER STUDIOS; 5928 Van Nuys Blvd.; Van Nuys, CA 91401; (818) 989-0866. Owner:** Mark Antaky. **Manager:** Mark Antaky. **Engineers:** Dave Jenkins, Wade Norton, Tom Twiss, Dave Bates. **Dimensions:** Studio 15 x 20, control room 15 x 18. **Mixing Consoles:** Trident 80B 32 x 24 x 24. **Audio Recorders:** Sony JH-24, Otari MTR-12C, Panasonic DAT 3500. **Cassette Recorders/Duplicators:** (2) Tascam 122 MkII. **Echo, Reverb & Delay Systems:** Eventide HD3000, Yamaha REV7, (2) Yamaha SPX90, Alesis Multiverb II, Roland SRV-2000, Lexicon Prime Time 93, (2) Yamaha 1500 delay. **Other Outboard Equipment:** (2) JBL/UREI 7110 comp/lim, (2) Drawmer LX20 comp/expander, (2) Drawmer DF-320 expander/filter, (2) Trident comp/lim, UREI 1176, UREI LA-2A, dbx 160, (2) Aphex Compellor, Aphex Aural Exciter Type C, (4) Drawmer gate, (4) Symtrix gate, (4) API 550 EQ, (2) Aphex EQ. **Microphones:** Neumann TLM170, Neumann U87, Beyer 88, Beyer 201, Beyer 160, AKG 414B/LUS, AKG 535, (2) AKG 451 EB/CK1, (2) Sennheiser 441, (4) Sennheiser 421, (4) Shure SM57. **Monitor Amplifiers:** (2) Australian Monitor 1910. **Monitor Speakers:** (2) UREI 813B, (2) Yamaha NS-10, (2) Tannoy PBM-8, (2) Auratone. **Musical Instruments:** Roland D-50. **Other MIDI Equipment:** Aka S-900. **Rates:** \$65/yr. w/1st engineer. \$50/yr. w/2nd engineer.

**[24+] THE VILLAGE RECORDER; 1616 Butler Ave.; West Los Angeles, CA 90025; (213) 478-8227. Owner:** George Hornel. **Manager:** Kathy Konop.

**[24+] VINTAGE RECORDERS; 4831 N. 11 St., PO Box 17010; Phoenix, AZ 85011; (602) 241-0667. Owner:** Billy Moss. **Manager:** Billy Moss. **Engineers:** Paula Wolak, Gary Vitacco (tech.), Clarke Rigby, Ike Vanatta (assist.), Bob Henke. **Dimensions:** Room 1: studio 30 x 22, control room 18 x 21. Room 2: George Augspurger designed studio 36 x 15, control room 20 x 16. Room 3: studio 15 x 12, control room 15 x 12. **Mixing Consoles:** SSL 4040E/G 32 x 32 w/G computer, Trident B range (Davlen) w/Jensen mic preamps, Studer 189-080. **Audio Recorders:** Sony 3324 24-track digital w/remote, Studer A827 24-track analog, Mitsubishi X80 2-track digital, Ampex ATR-102 1/4", Ampex ATR-104 4/2-track 1/2", Studer A810 center-track time code 4-spd., Sony PCM-701ES, Tascam 85-16 16-track 1". **Cassette Recorders/Duplicators:** Revox B-215, Tascam 122. **Synchronization Systems:** Studer TLS4000. **Echo, Reverb & Delay Systems:** Yamaha REV1, Yamaha REV7, (2) Yamaha SPX90, EMT 140ST tube, Lexicon 200, Lexicon PCM70, Lexicon Prime Time gold, Eventide 949, (2) Eventide 910, UREI Cooper time cube, Alesis MIDverb II. **Other Outboard Equipment:** (2) Pultec EQP-1 tube, (2) Pultec EQH-2 tube, (2) Teletronix LA-2A tube, Klein & Hummel UE-100 tube, UREI 545 para EQ, (2) ITI ME-230 stereo para EQ, Trident A module, (4) Aphex CX-1 comp/gate, Aphex Model 602 Exciter original, (2) API 525 comp, (4) dbx 165 comp, (2) dbx 160 comp, (2) Aengus EQ, Drawmer DS-201 stereo gate, (6) Valley People 410-S stereo comp/gate. **Microphones:** (3) AKG C-12, (4) Neumann M496, (4) Sony C-37A, (2) RCA 77-DX, Sennheiser 441/421, (3) E-V RE20, Shure SM56, etc. **Monitor Amplifiers:** Perreux 8000C/3000B w/Wide 4400 and Augspurger EQ curve, UREI 6500 w/Klark-Teknik DN27 and Augspurger EQ curve, BGW 7500, Crown DC-300, Belles Research "A", Adcom GFA-1. **Monitor Speakers:** Augspurger custom bi-amped w/TAD woofs, Meyer Sound Labs 833, Westlake BBSM6, Yamaha NS-10, Tannoy 6.5. **Musical Instruments:** Yamaha CV7 7'4" grand piano, Hammond B-3 w/Leslie 122, Roland Jupiter 8 synth, Minimoog, E-mu SP-12 drum machine, Gretsch drums, Fender original '55 Strat and '64 Esquire, (5) Fender original P-bass '57 to '64, Gretsch Country Gentleman, Fickenbacker solid-body 12-string (1964), Gibson Hummingbird (1960). **Specialization & Credits:** Recent projects include: Fleetwood Mac *Behind the Mask*, Beach Boys *Still Cruisin'*, Bob Dylan *Down in the Groove*, Stevie Nicks, John McEuen, Al Jardine, The Lynch Mob *Wicked Sensation*, Bob Welch, movie soundtrack *Haunting of Morella*, TV soundtrack "B.L. Stryker."

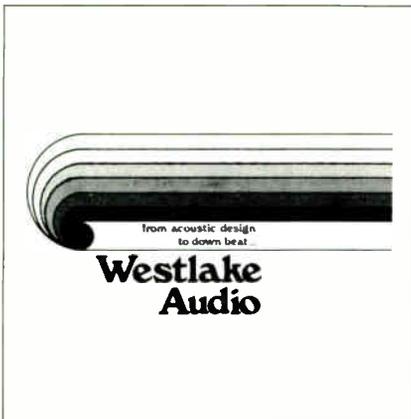
**[24+] VOICEOVER LA.; 1717 N. Highland Ave., Ste. 620; Hollywood, CA 90028; (213) 463-8652. Owner:** Evelyn Williams. **Manager:** Pat Torres. **Engineers:** Pat Torres, Tony Mederos, Stacey Michaels. **Dimensions:** Room 1: studio 15 x 14, control room 15 x 12. Room 2: studio 8 x 12, control room 13 x 12. **Mixing Consoles:** Soundcraft 1600 24 x 8 x 2, TAC Scorpion 16 x 8 x 2. **Audio Recorders:** Otari MTR-90 24-track, (2) MCI JH-110 2-track, (4) Otari MX-5050 2-track, Otari MX-5050 4-track, Otari MX-5050 8-track. **Cassette Recorders/Duplicators:** Nakamichi MR-2. **Synchronization Systems:** Alpha Audio Boss 2 w/Lynx. **Echo, Reverb & Delay Systems:** Eventide H3000 Harmonizer, Lexicon PCM70, Lexicon PCM60 digital reverb, Korg SDD-3000 digital delay. **Other Outboard Equipment:** Aphex comp/lim, (2) Symtrix T1-110 telephone interface, (2) dbx 166 comp/lim. **Microphones:** (2) Sennheiser MKH-416, (2) AKG 414B, (2) Schoeps CMC-411. **Monitor Amplifiers:** (3) Hafler P-225, (5) Symtrix A-220. **Monitor Speakers:** (2) Yamaha NS-10M, (2) JBL 441, (3) Auratone. **Video Equipment:** Ampex VPR-80 1", JVC CR-850V 3/4", JVC CR-8250 3/4", (2) Sony KR-1901A 35mm color sync generator, (2) Sony PUM-91 B&W monitor, Sigma CSG-350A color sync generator. **Other:** Technics SL-P1300 CD player, Technics SL-P500 CD player, Technics SL-P500 CD player, ESE ES-255 SMPTE time code reader.

**[24+] JOHN WAGNER RECORDING STUDIOS, INC.; 12000 Candelaria NE, Ste. E; Albuquerque, NM 87112; (505) 296-2766. Owner:** John Wagner, Laura Zachery.

Manager: John Wagner. **Specialization & Credits:** John Wagner Recording Studios is the only full-service 24-track recording studio in New Mexico capable of sophisticated SMPTE-interlocked audio post-production for video. We use the Adams-Smith SMPTE synchronizing system with compact computer controller along with a 24-channel, 16-bit Yamaha digital automated mixing console. We recently added 3,200 square feet to our facility, in which we built a new 24-track control room and studio. We have over 25 years' experience in all aspects of audio recording including: recording products for RCA, Capitol, MCA, Motown, CMH; creating numerous award-winning jingle campaigns; and recording two Grammy-nominated albums. Recent post-production clients have included Qintex Entertainment, Sunn Classic Pictures, Miss USA Pageant, Toyota, Ivory Soap, Chevron, Tetley Tea, Santa Fe Opera, University of New Mexico.

**[24+] WAVES SOUND RECORDERS; also REMOTE RECORDING; 1956 N. Cahuenga Blvd.; Hollywood, CA 90068; (213) 466-6141. Manager: Maurice Leach. Engineers:** Chris Hart, Carlos Sotolongo, Stewart Sloke, Jeff Payne. **Dimensions:** Room 1: studio 13 x 15, control room 21 x 15. Room 2: studio 8 x 12, control room 8 x 12. Room 3: studio 11 x 14, control room 20 x 14. Room 4: studio 15 x 12, control room 15 x 15. **Mixing Consoles:** Soundcraft 24 x 16, Sony MXP-3000, Sony MXP-2000. **Audio Recorders:** Sony/MCI JH-24 24-track, Sony/MCI JH-110 8-track, Sony/MCI JH-110C 2-track, Technics RS1500 2-track, Studer 810 2-track w/time code recorder, Sony DAT, Panasonic DAT, (2) AMS AudioFile. **Cassette Recorders/Duplicators:** Aiwa GX8, Sony TC-K355. **Noise Reduction Equipment:** dbx 155, (6) Dolby 361 A. **Synchronization Systems:** Audio Kinetics 3.1, TimeLine Lynx. **Echo, Reverb & Delay Systems:** Lexicon 200, Yamaha REV7, ADA D1280. **Other Outboard Equipment:** dbx 166 limiter, (3) UREI 1176. **Microphones:** (3) Sony C-48, (6) Sennheiser MD-416, Neumann U87, Shure SM58, Sennheiser 441, Sennheiser 421, Sennheiser 405, (2) E-V RE20, (2) Beyer D500, (3) Milab UM-41. **Monitor Amplifiers:** (5) Hafler, (10) Crown, (2) Symetrix. **Monitor Speakers:** (4) JBL 4412, (6) Auratone 5C. **Video Equipment:** Sony BVH-3000 1", Sony BVU-800 3/4", (2) Sony VO-5600, Barco monitor, (3) Sony VO-7600. **Rates:** Call Stacey.

**[24+] WESTBEACH RECORDERS; 1621 Vista Del Mar Ave.; Hollywood, CA 90028; (213) 461-6959. Owner: Brett Gurewitz, Donnell Cameron. Manager: Donnell Cameron.**



**WESTLAKE AUDIO**  
Los Angeles, CA

**[24+] WESTLAKE AUDIO; also REMOTE RECORDING; 7265 Santa Monica Blvd.; Los Angeles, CA 90046; (213) 851-9800. Owner: Glenn Phoenix. Manager: Steve Burdick. Engineers:** Darryl Dobson, Craig Johnson, Steve Harrison, Bill Malina, Ric Butz, John Fundingsland, Brad Aldredge, Mark Hagen. **Dimensions:** Room 1: studio 25 x 48, control room 25 x 20. Room 2: studio 20 x 35, control room 21 x 19. Room 3: studio 27 x 38, control room 23 x 19. Room 4: studio 30 x 50, control room 25 x 25. **Mixing Consoles:** (2) Neve V Series 60 x 48, Harrison/GLW Series X 88 x 32, Trident 80C 72 x 24, Harrison MR-2 custom 56 x 48 modified. **Audio Recorders:** Mitsubishi X-850 (Apogee) (rental item), Sony 3324 (Apogee) (rental item), (4) Sony APR 24-track, Studer A800 24-track, (2) Sony JH-24 24-track, Ampex ATR 2/4-track, MCI JH-110 4-track. **Cassette Recorders/Duplicators:** (2) Panasonic 3500 DAT, (2) Sony 2500 DAT, (4) Nakamichi MR-1B, (4) Yamaha C300, (2) Aiwa 770. **Noise Reduction Equipment:** (2) Dolby SR-XP Frame 24 (rental item), Dolby A. **Synchronization Systems:** TimeLine Lynx, Adams-Smith, Cipher Digital. **Echo, Reverb & Delay Systems:** Quantec QRS-XL (rental item), AMS DMX, AMS RMX 16, Publison 90, TC Electronic 2290, Eventide H3000 SE, Eventide 949/969, Eventide 2016, Lexicon 480L, Lexicon 224, Lexicon PCM70 ver. 3.0, Lexicon 200, Lexicon Prime Time II, Lexicon Super Prime Time, Yamaha REV5, Yamaha REV7, Yamaha SPX1000, Yamaha SPX901, Roland SDE-3000B, EMT 250/251/252/240/150. **Other Outboard Equipment:** dbx 165A/162/160/160X/902, Drawer gates, Valley gates, Inovonics 201, UREI 1176, UREI LA-

3, UREI LA-4, Teletronix LA-2A, GML comp, GML EQ, Sontec comp, Sontec EQ. **Microphones:** Full selection. **Monitor Speakers:** Westlake HR-1, Westlake SM-1, full selection of near-field. **Musical Instruments:** Yamaha pianos (MIDI). **Video Equipment:** Sony 5850, Sony BVU-800. **Other:** Large-screen projectors. **Specialization & Credits:** Westlake Audio specializes in all forms of digital and analog recording. All of our control rooms feature proprietary acoustic design. Control rooms are accurate, and studios offer variable acoustic environments. Our technical staff is thorough and efficient. We believe in service! Westlake Audio also rents, call for info. Direct booking inquiries to studio mgr. Steve Burdick.

**[24+] WESTWOOD RECORDING STUDIOS; also REMOTE RECORDING; 964 W. Grant; Tucson, AZ 85705; (602) 622-8012. Owner: Roger King. Manager: Thomas Minckley.**

**[24+] WESTWORLD RECORDERS; 7118 Van Nuys Blvd.; Van Nuys, CA 91405; (818) 782-8449. Owner: Robert Schreiner. Manager: Robert Schreiner.**

**[24+] THE WIZARD ELECTRIC RECORDING STUDIO; 5040 N. 62nd Ave.; Glendale, AZ 85301; (602) 939-4448. Owner: Kellan L. Fluckiger. Manager: Elizabeth A. Fluckiger. Engineers:** Kellan Fluckiger, Elizabeth Fluckiger, Jim Kinch. **Dimensions:** Studio 20 x 22, control room 14 x 23. **Mixing Consoles:** Trident Series 24 52 x 24 x 24 w/80-channel SMPTE-based MegaMix automation, (3) Yamaha DMP7 8 x 2 digital. **Audio Recorders:** Otari MX-80 24-track w/dbx, Tascam MS-16 16-track w/dbx, Tascam 48-OB 8-track w/dbx, Nakamichi DMP-100 digital converter for digital 2-track, Technics 1520US 2-track 1/4" 15 ips, Fostex E-2 2-track 1/4" 30/15 ips w/center-track time code. **Cassette Recorders/Duplicators:** Nakamichi BX-300 3-head, (3) Nakamichi MR-2 2-head. **Noise Reduction Equipment:** (14) dbx Series I 150X 2-channel. **Synchronization Systems:** Fostex 4030/4035 for audio or video. **Echo, Reverb & Delay Systems:** (2) Lexicon PCM70, (2) Lexicon PCM60, Lexicon LXP-1, Lexicon LXP-5, Yamaha SPX1000, Yamaha SPX900, (3) Yamaha SPX901I, Lexicon PCM41, DeltaLab ADM-2048, Roland DGP-5, (3) Alesis Microverb, BASE spatial enhancer, Yamaha REX50, Yamaha REV7, Yamaha REV5. **Other Outboard Equipment:** Aphex 612 gate/expander, (2) Ashly Audio quad gate, (2) Rane DC-24 2-ch. comp/gate, Studio Technologies Pre-Eminance QCN mic pre, Symetrix 511A noise reduction, Symetrix 522 1-ch. comp/gate, Aphex Compellor, (6) Symetrix SX206 comp/gate, Loft 400B quad gate/lim, (2) Aphex Type B 2-ch. exciter, (2) dbx 160X comp, BBE 422 2-ch. sonic maximizer, Orban 2-ch. parametric EQ, Tascam PEQ-40 4-ch. parametric EQ.

**Microphones:** (2) Neumann U89i, AKG 414, AKG 451, Neumann KM84i, Sony C-48, Sennheiser MD-421, AKG D-112, (5) Shure SM57, AKG 1000, (2) Crown P2M GP-30. **Monitor Amplifiers:** UREI 6290, Phase Linear Model 700. **Monitor Speakers:** (2) JBL 4412, (2) Yamaha NS-10M, (2) Auratone, (2) custom-built 15". **Musical Instruments:** Akai MPC-60 drum machine/sampler/sequencer, E-mu SP-12 sampling drums, Kurzweil MIDI board, Kurzweil K-200 rack, Roland S-550, E-mu Emulator II, Yamaha DX5, at least one dozen additional MIDI keyboards and modules, Yamaha C7 grand piano, (2) J.L. Cooper 16 x 20 and 8 x 8 MIDI switch boxes. **Other MIDI Equipment:** Macintosh SE/30 w/MIDI Time Piece and Performer, Digidesign Soundtools w/30MB HD and DAT I/O, JVC 6500 3/4" deck w/sync and address track time code. **Specialization & Credits:** We offer 40-track capability (audio) or 24-track lockup to video. We have automation on all mixing boards. We are fully equipped to do video post-production and also offer complete jingle services. We also offer a full CD sound effects library. Production services by our experienced composition/arranging and production staff are also available on request. We have full MIDI and computer music facilities and such software as Performer 3.41, Q-Sheet and Sound Designer. We have done numerous television and radio spots as well as full album production. We offer a relaxed yet totally professional atmosphere to allow maximum creativity and get first-class results. Call us—you will be amazed. You can get the whole project done on time and under budget!

**[24+] ZANBECK SOUND PRODUCTIONS; also REMOTE RECORDING; Rt. 4, Box 1249; Little Rock, AR 72206; (501) 888-7045. Owner: Chuck Bailey, Bobby Gibson, Faye Beck.**

**For Quicker Response...**

You can FAX your questionnaire to Mix Directories (415) 853-5142

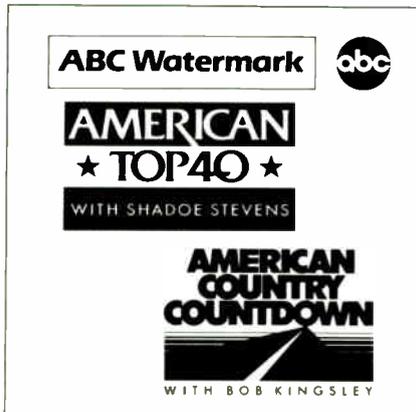
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## 12-16 TRACK

STUDIOS



ABC WATERMARK  
Los Angeles, CA

[16] **ABC WATERMARK**; 3526 Cahuenga Blvd. W., Ste. 555; Los Angeles, CA 90068; (818) 980-9490; FAX: (213) 850-5832. **Owner:** Capital Cities/ABC Inc. **Manager:** Stuart Jacobs. **Engineers:** Stu Jacobs, Michael Sullivan, Terry Tretta, Ken Halford, Don O'Connor, Brandon D'Amore. **Dimensions:** Room 1: studio 10 x 15, control room 25 x 25. Room 2: studio 10 x 15, control room 25 x 23. Room 3: control room 27 x 13. **Mixing Consoles:** Sony MXP-3036 digital w/full automation and hard drive, API 2404 24-input, Quad Eight 1604 16-input. **Audio Recorders:** Ampex MM-1200 16-track 2", (9) Studer B67 2-track 1/4", (7) MCI JH-110 2-track 1/4", (3) Scully 280 2-track 1/4", Scully SP14 2-track 1/4", New England Digital 16-track Direct-to-Disk w/14 hours recording time and 16-track upgrades. **Cassette Recorders/Duplicators:** (4) Technics M85, KABA RTDS 4-track high-speed duplicator (8 slaves), (4) Panasonic SV3500 digital. **Noise Reduction Equipment:** Dolby M16 16-track, (12) Dolby 361. **Echo, Reverb & Delay Systems:** EMT 140 stereo echo chamber, Ursula Major Space Station digital delay, (2) Eventide 949 Harmonizer, (4) dbx 160X limiter/compressor, (4) dbx 165 limiter/compressor, (3) UREI 1178 limiter/compressor, (4) UREI 1176 limiter/compressor, (2) Kepex noise gate, (2) Gain Brain limiter, dbx 929 de-hisser, Valley People 415 de-esser, Orban Parasound 622B parametric EQ, (2) Yamaha REV7, PCM SPX90, PCM SPX70, PCM SPX60. **Other Outboard Equipment:** (4) Studer A730 professional CD player, (4) Technics SP-15 turntable, (10) ITC 99 cart machine, Skybrid telephone hybrid, (4) Magnavox CDV-650 CD player, (4) ESE digital timer, Sound Ideas CD sound effects library, Hanna Barbera CD sound effects library. **Microphones:** (3) Neumann U89, (4) Neumann U87, AKG 414, (2) Electro-Voice RE20, Sennheiser 441, Sennheiser 421. **Monitor Amplifiers:** (2) Crown D-150, (12) Crown D-75, (4) Crown D-40, Crest FA800. **Monitor Speakers:** (4) UREI 813B, (4) JBL 4310, (6) JBL 4313, (8) Auratone 5C. **Musical Instruments:** New England Digital 9600 Synclavier w/32 MB RAM and 64 stereo voices w/full sound effects library, full array of analog and digital synthesizers. **Specialization & Credits:** Producers of Top 40 with Shadoe Stevens, American Country with Bob Kingsley, Jeanne Wolf Hollywood. Our new studios are designed around one of the largest digital recording and editing systems in the country. The New England Digital system allows the best production possible for any broadcast medium. We are the most sophisticated top-of-the-line facility available. Our staff includes some of the finest radio professionals in the business who have won numerous awards over the past 20 years. Call us today for information.

[16] **ARCA (AUDIO RECORDING CORPORATION OF ARKANSAS, INC.)**; 100 N. Rodney Parham Rd., Stes. 1A; 1B; (PO Box 5686, Little Rock, AR 72215); Little Rock, AR 72205; (501) 224-1111. **Owner:** Dick Marendt, Clyde Snider. **Manager:** Clyde Snider.

[16] **AUDIO CHAIN RECORDING**; also REMOTE RECORDING; 4206 B Boston Ave.; Lubbock, TX 79413; (806) 792-3804. **Owner:** Dwaine Thomas. **Manager:** Dwaine Thomas.

[16] **BEE CREEK STUDIO**; 3403 Crawford Rd.; Spicewood, TX 78669; (512) 264-1379. **Owner:** Spencer Starnes. **Manager:** Spencer Starnes.

[16] **BLACK TIE STUDIOS**; 7811-B 13th St.; Westminster, CA 92683; (714) 895-9995. **Owner:** Dan Friedman. **Manager:** Dan Friedman.

[16] **BLINDFOLD STUDIOS**; also REMOTE RECORDING; P.O. Box 253; Poway, CA 92064; (619) 486-4734. **Owner:** Gregg Brandalise. **Manager:** Gregg Brandalise.

[16] **BPL'S BANJO BRASS STUDIO**; also REMOTE RECORDING; 8088 N. 15th Ave.; Phoenix, AZ 85021; (602) 870-0351. **Owner:** Bruce P. Leland. **Manager:** Shirley Leland.

[16] **CARUMBO RECORDING**; also REMOTE RECORDING; 1301 Magnolia St.; Norman, OK 73072; (405) 329-1765. **Owner:** Michael McCarty. **Manager:** Michael McCarty.

[16] **CD SPOT STUDIOS**; also REMOTE RECORDING; 4300 Silver SE; Albuquerque, NM 87108; (505) 255-5046. **Owner:** Clifford D. Yost.

[16] **CREATIVE MEDIA**; 11105 Knott Ave., Ste. G; Cypress, CA 90630; (714) 892-9469. **Owner:** Tim Keenan. **Manager:** Tim Keenan. **Specialization & Credits:** Creative Media has been providing professional media recording for over 20 years. Our specialty is voice recording and the production involved in audio-for-video, A-V soundtracks and spots. Our facility features two control rooms, audio sweetening for video and a comfortable yet productive work environment. We provide production music and sound effects, assistance in casting voice talent, multilingual narrations, dialog replacement and the talent behind the board to bring your script to life. We serve as a sound support service for independent producers and corporate staff producers throughout Southern California. Extras include FAX and photocopy, phone-patch capability and duplication in any analog tape format. Clients include Taco Bell Corporate, Hughes Aircraft, TRW, Disneyland, Allergan, Yamaha Motor Corp., Pacificare Health Systems.

[12] **DIGITAL IMAGE RECORDING STUDIO**; 555 Cicero; San Antonio, TX 78218; (512) 656-1382. **Owner:** Jim Waller. **Manager:** Suzell Waller.

[16] **DOUBLE TIME PRODUCTIONS**; 9257 Stoyer Dr.; Santee, CA 92071; (619) 448-1717. **Owner:** Jeff Forrest. **Manager:** Suzanne Forrest.

[16] **EDITPOINT AUDIO AGENCY, INC.**; 1241 W. French; San Antonio, TX 78201; (512) 737-EDIT. **Owner:** Donnie Meals. **Manager:** Donnie Meals.

[16] **GARZA SOUND STUDIO INC.**; 802 W. Patton; Houston, TX 77009; (713) 861-3976. **Owner:** Nacho Garza. **Manager:** Nacho Garza.

[16] **ITTI STUDIOS, INC.**; also REMOTE RECORDING; 4305 S. Mingo, Ste. A; Tulsa, OK 74146; (918) 663-7700. **Owner:** Michael Brown. **Manager:** Michael Brown.

[16] **LAKE TRANSFER PRODUCTIONS & RECORDING FACILITIES**; also REMOTE RECORDING; 11215 Camarillo St., Ste. 105; N. Hollywood, CA 91602; (818) 508-7158. **Owner:** Steve Barri Cohen. **Manager:** Tina Antoine.

[16] **MASTERSOUND STUDIO**; also REMOTE RECORDING; 15571 Producer Ln.; Huntington Beach, CA 92649; (714) 891-3330. **Owner:** Bryan Foster, Robin Akins. **Manager:** Robin Akins.

[16] **PATRICK MCGUIRE RECORDING**; 1402 Rockdale; Arlington, TX 76018; (817) 467-1852. **Owner:** Patrick A. McGuire. **Manager:** Patrick A. McGuire. **Engineers:** Patrick McGuire, David Morgan. **Dimensions:** Studio 20 x 22, control room 10 x 12. **Mixing Consoles:** D&R 4000 Series 24 lines in, 48 mixdown. **Audio Recorders:** Mitsubishi X-400 digital 16-track, Sony PCM 2500 ProDAT 2-track, Otari 5050B-II analog 1/2-track. **Cassette Recorders/Duplicators:** Yamaha C300 w/HXPro, dbx, Dolby B & C. **Echo, Reverb & Delay Systems:** Eventide H3000, Yamaha REV5, Yamaha SPX90-II, ART 01a digital reverb, Alesis Quadrevb. **Other Outboard Equipment:** (2) Aphex 612 gate, (2) Symetrix 501 compressor/limiter, (2) Symetrix 528 voice processor, Rane RA27 analyzer/ equalizer 27 bands, Rane GE27 equalizer 27 bands. **Microphones:** AKG 414EB P-48, AKG 414EB, AKG D-12E, AKG D-112, Sennheiser MD-431, (2) Crown D2M-30 GP, Crown GLM-100, Beyer M422, Beyer M201, (3) Audio-Technica ATM63,

Audio-Technica ATM11R, (4) Shure SM57. **Monitor Amplifiers:** Crown DC-30CA, Crown D-150A. **Monitor Speakers:** (2) Tannoy LGM 12" dual concentric. **Musical Instruments:** Yamaha G-3 6' grand piano, Yamaha DX7-II F0, Yamaha RX5 drum machine, Alesis MMT-8 sequencer. **Rates:** \$45 per hour. **Block rates on request.**



MECA 3  
Chihuahua, Chihuahua, Mexico

[16] **MECA 3**; Vte. Guerrero #608-2; Chihuahua, Chihuahua, Mexico; (52) (14) 15-47-49. **Owner:** Adolfo Trespalacios. **Manager:** Martha Laguette. **Engineers:** Alfredo Liaguano Perez. **Dimensions:** Studio 30 x 12, control room 20 x 15. **Mixing Consoles:** Tascam M-16 18 x 16, Tascam M-1 8 x 2. **Audio Recorders:** Soundcraft 380 Series 16-track 1", Tascam 42 2-track 1/4", Revox A77 full-track, Tascam 38 8-track. **Cassette Recorders/Duplicators:** Yamaha Echo, Reverb & Delay Systems: Yamaha SPX90, Yamaha REV7. **Other Outboard Equipment:** (2) Symetrix 522 compressor/expander/duck/gate. **Microphones:** (3) AKG 414EB, Neumann U89, E-V RE20, AKG 451, (2) AKG D-224, (4) Shure SM57, Shure SM58, E-V condenser lavalier. **Monitor Amplifiers:** Hafler 110. **Monitor Speakers:** Kipsch Heresy. **Musical Instruments:** Wurflizer upright piano, Simmons SOS-9 drums, acoustic percussion, Fender Precision bass, Gibson Les Paul guitar, others. **Rates:** \$30 U.S. Call for package rates. **Specialization & Credits:** Northern Mexican music (Norteno). **Jingle production** (based in Mexican musicalization). Ask for productions in Spanish.

[16] **MELODY LINE PRODUCTIONS**; also REMOTE RECORDING; 2662 Kaliaani Circle; Pukalani, Maui, HI 96768; (808) 572-1640. **Owner:** Tom Hall. **Manager:** Tom Hall.

[16] **MOONDANCE STUDIOS**; also REMOTE RECORDING; PO Box 3318; Taos, NM 87571; (505) 758-9113. **Owner:** Morten Nielsen. **Manager:** Frank Vuotto.

[16] **NEW AGE RECORDING**; also REMOTE RECORDING; 8607 Wurzbach Rd., U-105; San Antonio, TX 78240; (512) 641-9818. **Owner:** Richard Veliz/Keith Harter. **Manager:** David Garza. **Engineers:** Richard Veliz, Keith Harter. **Dimensions:** Room 1: studio 10 x 12, control room 20 x 18. Room 2: studio 10 x 8, control room 10 x 16. **Mixing Consoles:** TAC Scorpion 24 x 16, Yamaha DMP7, Akai 12/14 12 x 12. **Audio Recorders:** Otari MX-70, Sony APR-5003, Akai 12/14, Fostex 20, Sony TCD-D10 PRO, Ampex ATR-104. **Cassette Recorders/Duplicators:** (2) Tascam 122B, (4) Tascam 32 2-track. **Synchronization Systems:** (2) Adams-Smith Zeta-3 w/Zeta remote. **Echo, Reverb & Delay Systems:** Eventide H3000, (3) Yamaha SPX90, Roland SDE-3000, Lexicon PCM60, Yamaha REV7, Alesis MIDverb. **Other Outboard Equipment:** dbx 160X, dbx 166, (2) Orban 536A, (2) Aphex Type C Exciter, (2) Ashly Audio SC-33 noise gate, Burwen noise filter, (2) White Instruments 4400 EQ, Sansui PCX11 PCM, Technics SV100 portable PCM, (2) Ashly Audio SC-50, Technics SL1200 CD player, Rockman stereo chorus delay/sustainer. **Microphones:** (2) AKG 48C ULS, (2) AKG C-414EB, Neumann U87, Neumann U47, (6) Shure SM57, (6) Shure SM58, Sony ECM-MS5, Sony DC-MS5. **Monitor Amplifiers:** Hafler XL-600, Hafler XL-280, (2) Rane HC-6, Yamaha P2201. **Monitor Speakers:** (4) Yamaha NS-10M, (4) Electro-Voice Sentry 500, (2) Auratone. **Musical Instruments:** Kurzweil 250 Sound Blocks ABCD, (2) Korg M1R EX, Korg M3R, E-mu Proteus XR, Roland D50, Roland U220, (2) Yamaha TX802, Yamaha TX316, Roland R-8, Yamaha PMC1 MIDI drum kit, Alesis HR-16 drum machine, Akai S900, (2) Roland MKS-20, (2) Roland MKS-30, MIRAGE rack-mount sampler, Korg A3 signal processor. **Other MIDI Equipment:** Mac PLUS w/Performer 3.42, Mac II, Mark of the Unicorn MIDI time piece. **Video Equipment:** (2) Panasonic TR-930 monitors, Sony V05800 3/4", Panasonic BTS-1900N color monitor, (2) Panasonic AG-1950 1/2". **Other:** Sound Ideas CD Library 1 1000-4000.

[16] **POWER HOUSE SOUND STUDIO**; only REMOTE RECORDING; 1906 Overbrook Circle; Missouri City, TX 77459; (713) 437-7037. **Owner:** Lloyd Hughes.

[16] **QUINCY STREET SOUND, INC.;** also *REMOTE RECORDING*; 130 Quincy St. NE; Albuquerque, NM 87108; (505) 265-5689. Owner: April La Monte.

[16] **RCM PRODUCTIONS;** 12478 Washington Blvd. #5503; Los Angeles, CA 90066; (213) 390-5573. Owner: Bob McNabb. Dimensions: Studio 12 x 20, control room 10 x 12. **Mixing Consoles:** Ramsa-WRT 820 20 x 8, Roland M-160 16 x 2. **Audio Recorders:** Tascam ATR-60-16 16-track 1" w/dbx, 15/30 ips, MCI JH-110A 2-track 1/4", Ampex AG-440B 4-track 1/2". **Sony PCM 2500 DAT. Cassette Recorders/Duplicators:** (2) Tascam 122B. **Synchronization Systems:** Adams-Smith Zeta-3 audio/video/MIDI with remote autolocator. **Echo, Reverb & Delay Systems:** Roland SRV-2000, Roland SDE-3000, Roland DEP-5, MICMIX Super C reverb. **Other Outboard Equipment:** Orban 622B parametric EQ, (2) UREI LA-4 compressor/limiter, Orban 245F stereo synthesizer. **Microphones:** AKG C-414EB, AKG C-33 stereo, (2) AKG C-451, AKG D-202, (2) Sennheiser MD-421, E-V RE20, Shure SM57, Shure SM58, Neumann U47. **Monitor Amplifiers:** BGW 250C. **Monitor Speakers:** JBL 4312, Auratone 5C (Ubiquitous). **Musical Instruments:** Vintage guitars, various synthesizers available. **Other MIDI Equipment:** Epson Equity w/Roland MIDI interface, Sequencer Plus MkII software. **Video Equipment:** JVC CR-8250 3/4" editor, JVC CR-6650 3/4" source recorder, JVC RM-86 edit controller, JVC BR-8600 VHS editor, JVC BR-6400 VHS source recorder, (2) Sony CUM 1270/1271 monitor, Fast Forward F-200 time code generator/character inserter, ICM VC-2000P Proc. amp, Sony DXC-1800 camera, Sony CVM. **Other:** Full CD sound effects library and production music library.

[16] **RISING STAR RECORDING;** 655 N. Berry, Ste. I; Brea, CA 92621; (714) 671-7815. Owner: Rudy Ising.

[16] **ROTUND RASCAL RECORDING;** 5654 Natick Ave.; Van Nuys, CA 91411; (818) 901-9636. Owner: Dave Pearlman. Manager: Dave Pearlman.

[16] **SATURN PRODUCTIONS;** also *REMOTE RECORDING*; 807 E. Fayle St.; Baytown, TX 77520; (713) 420-3189. Owner: Richard Cagle. Manager: Richard Cagle.



**SCOTTSDALE CONFERENCE RESORT**  
Scottsdale, AZ

[16] **SCOTTSDALE CONFERENCE RESORT;** also *REMOTE RECORDING*; 7700 E. McCormick Pkwy.; Scottsdale, AZ 85258; (602) 991-9000. Owner: Scottsdale Conference Resort. Manager: Brian Court. Engineers: Brian Court, John Haro, Mike Floor, Dave Rosenberg, Martin Dempsey, Terry Baker. Dimensions: Studio 21 x 26, control room 20 x 18. **Mixing Consoles:** TAC Scorpion 24 x 16, TAC Scorpion 16 x 8, Soundcraft 600 16 x 8, Tascam M5 8 x 4. **Audio Recorders:** Otari MX-70 16-track, Otari MTR-12 2-track w/center track time code, Otari 5050 MkII 2-track, Otari 5050B 4-track, (2) TEAC 3440 4-track. **Cassette Recorders/Duplicators:** (2) Tascam 122, Nakamichi MR-1, Tascam 234 4-track, Tascam 133 3-track. **Noise Reduction Equipment:** (8) dbx 150X Type I. **Synchronization Systems:** (2) Adams-Smith 2600 synchronizer, Adams-Smith LTC writer, Adams-Smith reader. **Echo, Reverb & Delay Systems:** Lexicon PCM42, Yamaha REV7, Eventide H949, (3) Yamaha SPX90, Lexicon 200. **Other Outboard Equipment:** (3) Gatem noise gate, (3) dbx 166 compressor/limiter, Symetrix 522, Scamp rack, Aphex II Aural Exciter, Studio Technologies AN-Z stereo simulator, (20) dbx 903 compressor/limiter, (3) Klark-Teknik DN360 graphic equalizer, (4) dbx 904 parametric equalizer, dbx 902 de-esser, (3) Rane 10-band equalizer. **Microphones:** (2) Neumann U89, Neumann U47, (4) Shure SM81, (2) Shure SM85, (2) Sennheiser 421, (2) E-V RE20, (4) Crown P2M, (30) Shure SM58, (3) Shure SM57, (2) E-V PL80. **Monitor Amplifiers:** (6) Crest 3000. **Monitor Speakers:** (2) JBL 4430, (2) Tannoy SRM-12B, (8) JBL 4401, (2) Auratone SC. **Musical Instruments:** (2) Steinway 6'6" grand piano. **Video Equipment:** Grass Valley 16001L switcher, Grass Valley DPM-100 digital effects processor, Grass Valley model 100 switcher, Convergence 204 editor.

—LISTING CONTINUED ON NEXT PAGE

# Hal Blaine and The Wrecking Crew

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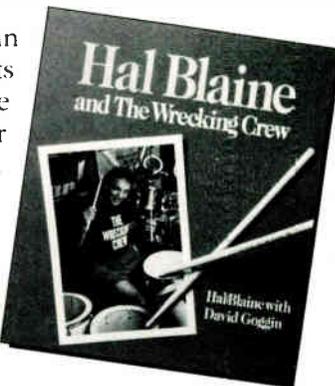
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—LISTING CONTINUED FROM PREVIOUS PAGE

Sony BVU-950 recorder, Sony BVU-920 DT recorder, (3) JVC CR-850U recorder, (3) Sony 5850 recorder, Quantafont QC6-500 graphics, Ikegami HL 79 OAL camera, Ikegami ITC-730 camera, (3) Sony DXC-M7 camera. **Other:** (30) multi-image projections, 7-watt Argon laser system, complete darkroom. **Specialization & Credits:** Specializing in original music composition, commercial production, audio/visual soundtracks, post-production audio-for-video and voice-over production. Also complete video production and industrial multi-image staging. Located in luxurious resort setting with golf, tennis, complete health spa and fitness center and easy access to Sunbelt activities.

[16] **THE SIDEWALK INC.;** 116 S. Hotel St., Ste. 205; Honolulu, HI 96813; (808) 539-9332; FAX: (808) 539-9342. Owner: G.W. Hill. Manager: Wyatt.

[16] **SMITH SOUND RECORDING;** also *REMOTE RECORDING*; 7015 Villa Del Sol; Houston, TX 77083; (713) 498-0297. Owner: Dennis Smith. Manager: Dennis Smith.

[16] **SOUNDGRAPHICS;** PO Box 91133; Long Beach, CA 90809; (213) 498-9135. Owner: David Eastly. Manager: David Eastly.

[16] **SOUNDTECH RECORDING STUDIO;** 2750 W. Osborn Rd.; Phoenix, AZ 85017; (602) 257-0444. Owner: Sarge Waldon. Manager: Jim Waldon.

[16] **SOUTH COAST RECORDING STUDIO;** 1517 S. Grand; Santa Ana, CA 92705; (714) 541-2397. Owner: Jim Dotson. Manager: Jim Dotson.

[16] **SPECTRUM STUDIO;** also *REMOTE RECORDING*; 664 Camino Campana; Santa Barbara, CA 93111; (805) 967-9494. Owner: Don Ollis.

[16] **T.E.G. PRODUCTIONS;** Anaheim, CA 92804; (714) 956-1727. Owner: Thomas Giglio. Manager: Elton LeMaster. Engineers: Elton LeMaster, Tom Giglio. Dimensions: Room 1: studio 10 x 12, control room 15 x 14. Vocal room 8 x 6. Drum room 10 x 8. Room 4: studio 4 x 6. **Mixing Consoles:** Soundcraft 600 32 x 16 w/J.L. Cooper automation. **Audio Recorders:** Tascam MS-16. **Cassette Recorders/Duplicators:** (3) Nakamichi, Sony 1000ES DAT. **Noise Reduction Equipment:** (16) dbx Echo, Reverb & Delay Systems; Lexicon PCM70, Yamaha SPX90, Alesis MIDVerb, Roland DEP-5, Alesis Microverb. **Other Outboard Equipment:** BBE, dbx 160, dbx 166, Symetrix gate, straight gate. **Microphones:** Equitec II, AKG 414, Sennheiser 421, Shure SM57, Shure SM58, AKG E12, AKG 460. **Monitor Amplifiers:** Yamaha 2500, Yamaha 2000,

HC6 headphone. **Monitor Speakers:** JBL 4412, Yamaha NS10. **Musical Instruments:** Tama Superstar w/power toms, Korg DDD-1 drum machine. **Other MIDI Equipment:** Atari ST w/C Lab Notator software. **Rates:** \$30 per hr.

[16] **TEXAS SUNRISE RECORDING STUDIO;** also *REMOTE RECORDING*; Rt. 4, Box 615; Edinburg, TX 78539; (512) 381-0077. Owner: Mike Lopez. Manager: Mike Lopez.



THETA SOUND STUDIO  
Burbank, CA

[16] **THETA SOUND STUDIO;** also *REMOTE RECORDING*; Burbank, CA 91506; (818) 955-5888. Owner: Randy Tobin. Manager: Cyndie Tobin. Engineers: Randy Tobin, Jim Latham. Dimensions: Studio 20 x 20, control room 16 x 16. **Mixing Consoles:** Ramsa 80 x 16 x 2. **Audio Recorders:** Tascam MS-16 16-track w/autolocator, Tascam 38 8-track, Tascam 34 4-track, Technics 15202-track, Sony PCM-501ES digital processor, Sony SLHF-900 Beta Hi-fi VCR, JVC HD750 VHS Hi-fi VCR. (2) Aiwa Excelia XD001 DAT. **Cassette Recorders/Duplicators:** Aiwa 660, Aiwa 770, Aiwa 390. **Noise Reduction Equipment:** dbx 28 channels. **Synchronization Systems:** Fostex 4030/4035 SMPTE, Hybrid Arts SMPTE Track II. **Echo, Reverb & Delay Systems:** Lexicon PCM70, Roland SRV-2000, Yamaha REV7, Yamaha SPX90, Lexicon LXP-5, Alesis Quadraverb, Korg and MXR digital delays. **Other**

**Outboard Equipment:** dbx, MXR, Symetrix, Valley People Dyna-Mite limiters, Aural Exciter. **Microphones:** AKG tube, AKG 414, Countryman Isomax, Shure SM57, Electro-Voice RE20. **Monitor Amplifiers:** Kenwood high-speed DC, Rane HC6 headphones. **Monitor Speakers:** JBL 4301B, Yamaha NS-10M, Auratone C5. **Sennheiser HD-414, Fostex headphones. Musical Instruments:** Roland R-8 drum machine, SCI Drumtraks drum machine, Yamaha C5 grand piano w/Forte MIDI module, Roland S-50, Roland S-550, Ensoniq Mirage sampler systems w/extensive library, Roland D-50, Roland Jupiter-8, Yamaha DX7, Casio CZ-101, Chroma Polaris synthesizers, Roland MKS-20 piano module, Korg M3R module, Casio CZ101, Roland 505, Slingerland drum set w/Camco snare, Tama hardware, Zildjian and Paiste cymbals, assorted percussion. **Other MIDI Equipment:** Atari 1040ST w/Hybrid Arts SmpTeTrack software, 16 x 24 MIDI patch matrix. **Video Equipment:** JVC 850 3/4" editing recorder, JVC 600 3/4" recorder, JVC RM86U editor, JVC TM9U monitors, Sansui VX-99 special effects generator. **Rates:** Call for rates. **Specialization & Credits:** Services: 16/8/4/2-track recording; 2-track digital recording/mastering; MIDI sequencing/recording; SMPTE lock-to-video/audio; tape editing; reel-to-reel and cassette duplication; engineering; mixing/sweetening; vocal elimination process; studio musicians; complete arrangement and production. **Art department:** Professional typeset cassette labels; typesetting and graphic design for cassette J-card inserts, cassette plates, compact disc packaging, album cover and sleeves, resumes and lyric sheets. **Live and mobile:** Live sound systems for 50 to 5,000 people; remote recording on 2- to 24-track. **Classes and consultation:** Understanding recording for singers and musicians; synthesizers, drum machines and MIDI private consultation and location engineering. **Recent Talent:** Holly Robinson, Dick DeBenedictis, Dale Gonyea, John Weider, White Collar Boyz, Charlie Fleischler, Patrik Shooting Star, Jim Bullock, Ray Manzarek. **Motto:** An environment where you can do your best.

[16] **TRIPLEX RECORDERS;** also *REMOTE RECORDING*; 3646 Gulfway Drive; Port Arthur, TX 77640; (409) 985-9550. Owner: Dr. Wayne Dyess. Manager: Dr. Wayne Dyess.

[16] **WALK ON WATER STUDIOS, INC.;** also *REMOTE RECORDING*; Rt. 2, Box 566-H; New Braunfels, TX 78130; (512) 625-2768. Owner: Kenneth D. Brazie. Manager: Kenneth D. Brazie.

[16] **WEBB SOUND;** also *REMOTE RECORDING*; Rte. 2, Box 137-D; Hope, AR 71801; (501) 777-5512. Owner: Bruce Webb. Manager: Kristi Heaton.

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# 2-8 TRACK

## STUDIOS

[2] **AARON & LE DUC VIDEO PRODUCTIONS**; also *REMOTE RECORDING*; 2002 21st St.; Santa Monica, CA 90404; (213) 450-8275. Owner: Greg Le Duc. Manager: Dennis.

[8] **AFTERHOURS RECORDING STUDIO**; 1616 Victory Blvd., Ste. 104; Glendale, CA 91201; (818) 246-6583. Owner: Bill Berkuta. Rick Stevens. Manager: William Berkuta. Engineers: William Berkuta, Richard P. Stevens II. Dimensions: Room 1: studio 13 x 15 x 24, control room 12 x 12. Room 2: studio 12 x 12.5, control room 9.5 x 10.5. **Mixing Consoles**: (2) TEAC Model III 8 x 4 x 2, OpAmp Labs 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 real-time dup., Technics M222. **Noise Reduction Equipment**: TEAC, dbx DX-8, (2) Tascam DX4D. **Echo, Reverb & Delay Systems**: DeltaLab Effector II, ADM 1024 digital delay, Lexicon PCM60 digital reverb. **Other Outboard Equipment**: dbx 166 compressor/limiter/gate, 12-band stereo EQ, 10-band stereo EQ. **Microphones**: (2) Neumann KM84, (3) Sennheiser MD-421U5, (2) Crown 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, Casio 202 synth, Crumar Performer, Estey upright grand piano, Rickenbacker 12-string electric guitar, Ibanez "Les Paul" copy 6-string, Yamaha clarinet, violin. **Specialization & Credits**: 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] **AMBIENT SOUND PRODUCTIONS**; 2733 NW 12th St.; Oklahoma City, OK 73107; (405) 949-1602. Owner: Doug Matthews. Manager: Doug Matthews.

[8] **ARCHANGEL CREATIONS**; 11181 N. Sandra; Tucson, AZ 85741; (602) 744-3305. Owner: Barney Sheridan. Manager: Scott Richards.

[8] **AT&T RECORDING/DUPLICATING**; 501 N. Larchmont Blvd.; Los Angeles, CA 90004; (213) 466-9000. Manager: Kathleen Van Booven.

[4] **AUDIOGENICS**; also *REMOTE RECORDING*; 5376 Stewart Lane; San Angelo, TX 76904; (915) 944-1213. Owner: Rick Peeples. Manager: Rick Peeples.

[8] **AUDIOVISION**; 14731 Franklin, Ste. D; Tustin, CA 92680; (714) 731-8883. Owner: William Trousdale. Manager: William Trousdale.

[8] **CARDINAL RECORDING**; also *REMOTE RECORDING*; 623 Calle Tulipan; Thousand Oaks, CA 91360; (805) 493-2718. Owner: Tom Boyce, Matt Schaffer. Manager: Tom Boyce, Matt Schaffer.

[8] **CRYSTAL RECORDING STUDIOS**; 2307 Brandon Rd.; Bryant, AR 72015; (501) 847-8215. Owner: Ray and Karen Brooks. Manager: Ray Brooks.

[2] **DIGIPREP (DIGITAL MASTERING)**; 1425 N. Cole Place; Hollywood, CA 90028; (213) 461-1709. Owner: Daniel Hersch, Warren Salyer. Manager: Warren Salyer.

[4] **52ND STREET AUDIO**; also *REMOTE RECORDING*; 1741 N. Ivar Ave.; Hollywood, CA 91324; (213) 463-5252. Owner: Neil Posner. Manager: Stu Yahm.

[8] **FOREST GLEN AUDIO**; 200 N. Montclair; Dallas, TX 75208; (214) 942-3781. Owner: Dave Hughes. Manager: Dave Hughes.

[8] **GILLETTE RECORDING SERVICES**; also *REMOTE RECORDING*; 255 N. El Cielo Rd., Ste. 466; Palm Springs, CA 92262; (619) 322-0683. Owner: Richard Brown Jr. Manager: Richard Brown Jr.

[8] **BOB GREEN PRODUCTIONS, INC.**; 7950 Westglen; Houston, TX 77063; (713) 977-1334; FAX: (713) 977-1305. Owner: Bob Green. **Specialization & Credits**: Since our beginning in 1973, we have produced many thousands of commercials and ad presentations for advertising agencies, corporations and independent producers nationwide. We are constantly upgrading to state of the art, but the technology we offer is only as good as our people make it. In our case, we are known for our talented engineer/producers; people with both acumen and judgment. Combining our staff, a superb creative working environment, the largest music and sound effects library in America, and a stable of top male and female voice-over talent, we have much to offer you. Send for our free brochure and demo tapes. There are exciting new things to hear from Houston, the city that brought you the Moon.

[8] **JAGS ENTERTAINMENT**; also *REMOTE RECORDING*; PO Box 935; Captain Cook, HI 96704; (808) 323-3315. Owner: Eric Jaeger. Manager: Eric Jaeger.

[8] **MUDSHARK RECORDING STUDIO**; Rte. 4, Box 882-B; (near) Flagstaff, AZ 86001; (602) 774-7533. Owner: Phil Gall. Manager: Phil Gall.

[8] **SOUNDS LIKE**; also *REMOTE RECORDING*; PO Box 914; Port Hueneme, CA 93044; (805) 988-9856. Owner: Tim Gillespie. Manager: Tim Gillespie.

[2] **STUDIO M PRODUCTIONS UNLTD.**; only *REMOTE RECORDING*; 8715 Waikiki Station; Honolulu, HI 96830; (808) 734-3345. Owner: Mike Michaels. Manager: Hugo Buehring.

[8] **THE TEXAS TUBE ROOM/TEXAS PRODUCTIONS**; also *REMOTE RECORDING*; PO Box 2283; Fort Worth, TX 76113; (817) 924-2525. Owner: Ed Miller. Manager: Ed Miller.

[8] **UNREEL SOUND**; also *REMOTE RECORDING*; PO Box 426, Rt. 1 Box 156; Decatur, TX 76234; (817) 62-5000. Owner: Barry Eaton, Kenneth Wilson. Manager: Barry Eaton.

[8] **VIDEOTEEL SOUND**; also *REMOTE RECORDING*; 4416 Titan Ave.; Lompoc, CA 93436; (805) 733-4416. Owner: Eric Lemmon. Manager: Eric Lemmon. Engineers: Eric Lemmon, Jonathan Wild Dimensions: Studio 19 x 22, control 12 x 24. **Mixing Consoles**: Yamaha MR-842 8 x 4 x 2, J.L. Cooper "Mix-Mate" mixdown automation unit. **Audio Recorders**: Tascam TSR-8 8-track 1/2", (2) Panasonic SV-3500 2-track R-DAT, Tascam 22-2 2-track 1/4". **Cassette Recorders/Duplicators**: Yamaha C-300, Telex stereo-copette cassette duplicator. **Noise Reduction Equipment**: dbx Type I NR 8 channels, dbx/BSR DAK-1 single-ended NR, 2 channels, dbx 563X silencer NR 1 channel. **Synchronization Systems**: J.L. Cooper PPS-100 SMPTE/MIDI. **Echo, Reverb & Delay Systems**: ART SGE digital multi-effector, Alesis Quadreverb, Digi-Tech RD5 7.6 delay/sampler, Alesis Microverb, MXR analog delay. **Other Outboard Equipment**: DigiTech IPS-33 pitch shifter/harmonizer, (2) dbx 166 dual-channel compressor/limiter/noise, dbx 163X compressor/limiter, dbx 263X de-esser, dbx 463X noise gate, Rane RE-14 real-time graphic equalizer/analyzer, Rane SP-15 studio parametric equalizer, Symetrix SX205 precision audio meter. **Microphones**: AKG C-414, AKG C-4660B, E-V RE20, (6) Shure SM58, (3) Shure 545, Shure SM10, (2) Crown PZM. **Samson Stage 22/757 wireless**, Nady 49R/SM-58 wireless. **Monitor Amplifiers**: QSC 1400, Carver PM-100S, Bogen CHS-100A. **Monitor Speakers**: (2) Yamaha S4115 H, (2) Toa SL-15M, (2) Yamaha NS-10M, (2) Videoteel custom speaker. **Musical Instruments**: Rhodes MK-80 piano, E-mu Emax synthesizer/sampling keyboard, Yamaha RX-120 digital rhythm programmer, E-mu Drumulator w/MIDI upgrade. **Other MIDI Equipment**: Studiomaster MA36 MIDI analyzer, Roland MC-300 sequencer w/super MRC, Roland U-220 RS-PCM sound module, Roland Rhythm bank percussion software, Yamaha EMT-1 sound module, Roland A-110 MIDI display, Anatek POCKET SPLIT MIDI splitter, Passport Polywriter music scoring system. **Other**: Panasonic SL-4300 CD player, Thompson VE-1 vocal eliminator, Symetrix SX204 headphone amplifier, (2) Audio-Technica ATH-910 headphone, (2) AKG K-270 headphone, Yamaha EM-150B-II integrated mixer, Fostex TT-15 tone generator, 100' snake 8-channel, 100' snake 4-channel, (3) custom/Jensen mic splitters, (3) custom/Jensen direct boxes, Heath AD-1308 real-time analyzer, (2) 1.0 kW power isolation transformers, calibration and alignment tapes for all machines.

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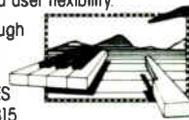
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**MIX** THE RECORDING INDUSTRY MAGAZINE

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- Harmony shifting in real time

- 128 user-definable memory locations
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- Intelligent scallic harmonies in 59 different scale types, in any interval, in any key
- Choose chordal harmonies that fit chords
- Create special harmonies
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- Independent left and right effects mixing

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- MIDI continuous control of programs, patches and parameters
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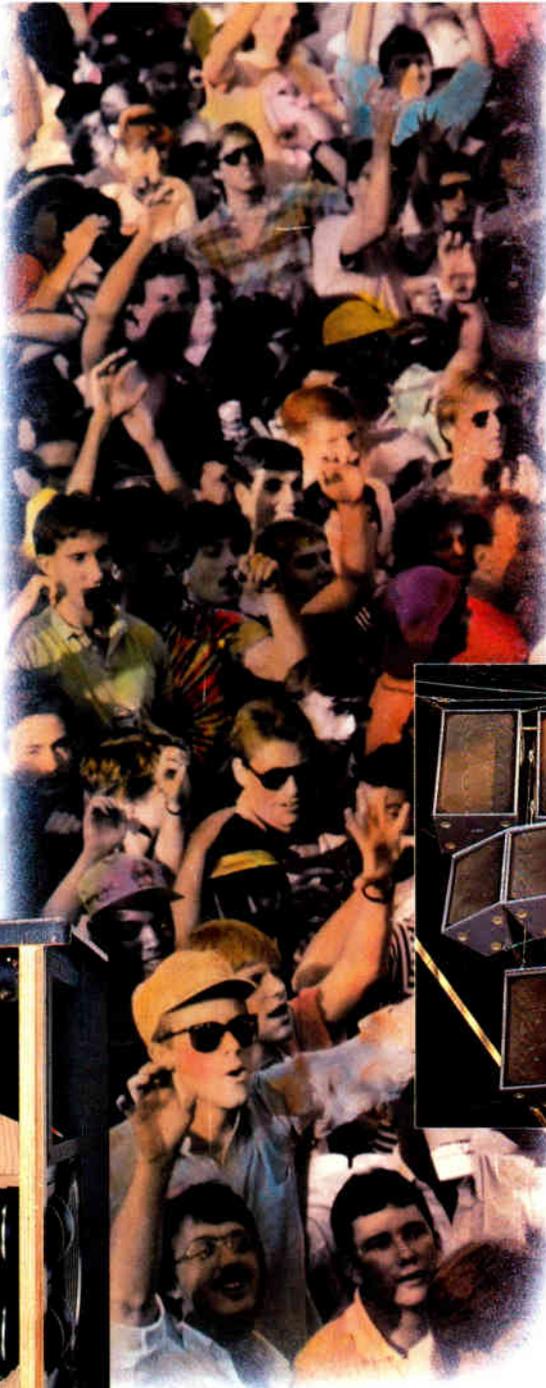
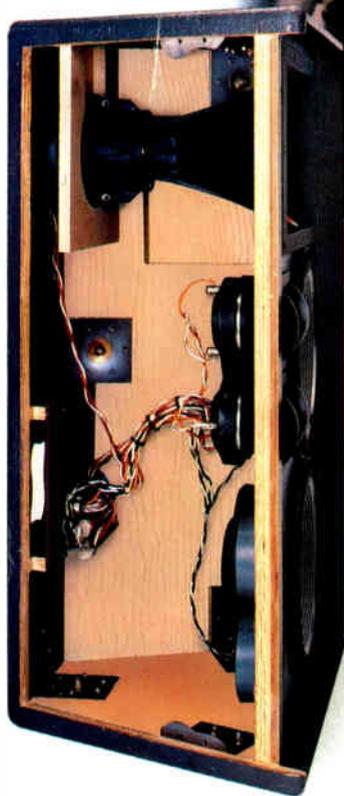
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