

MIX

Digital Compact Cassette: DAT's New Competitor

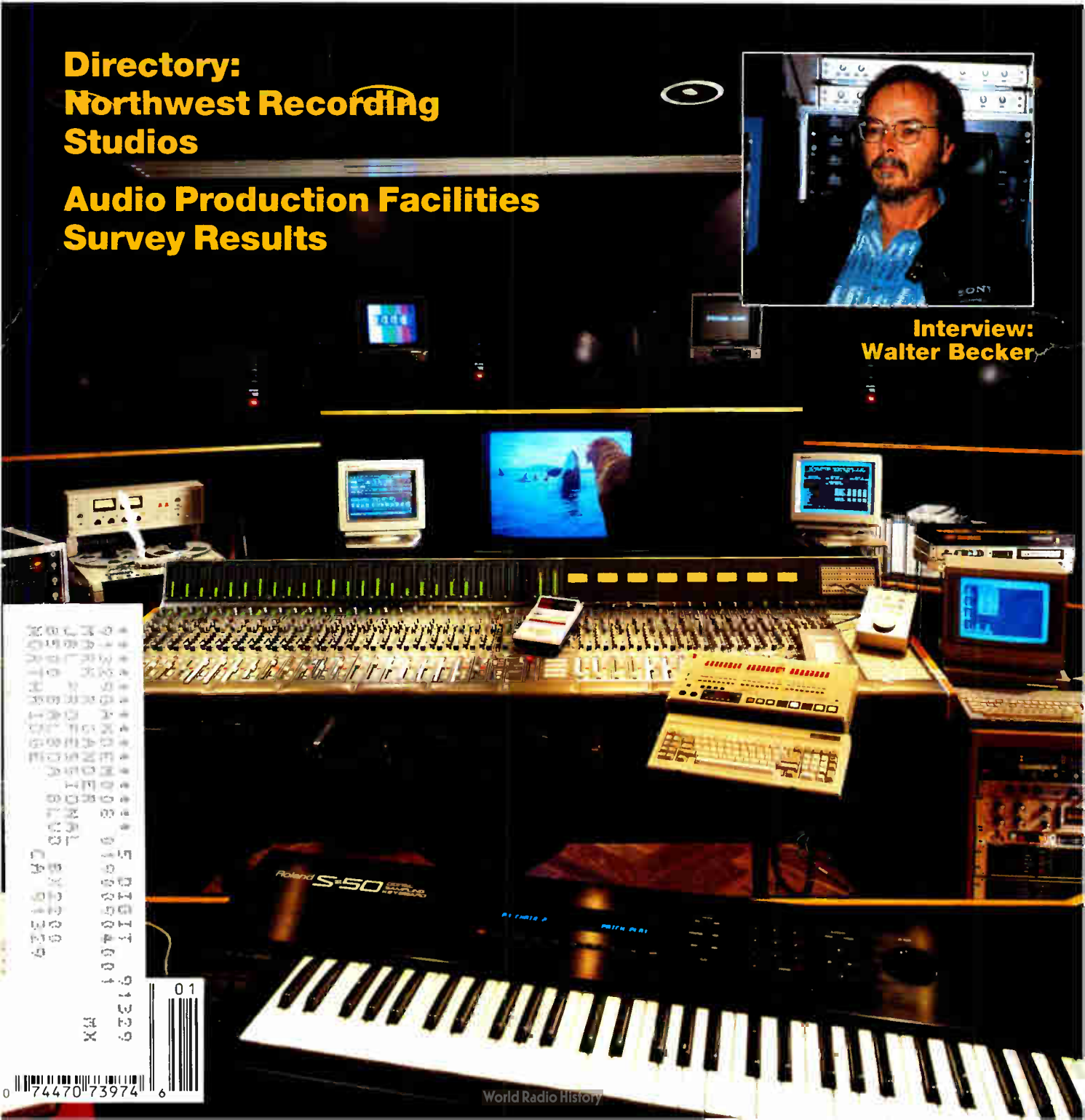
SR Engineers on "How Loud Is Too Loud?"

**Directory:
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**Audio Production Facilities
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**Interview:
Walter Becker**



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MIX

PROFESSIONAL RECORDING • SOUND AND MUSIC PRODUCTION

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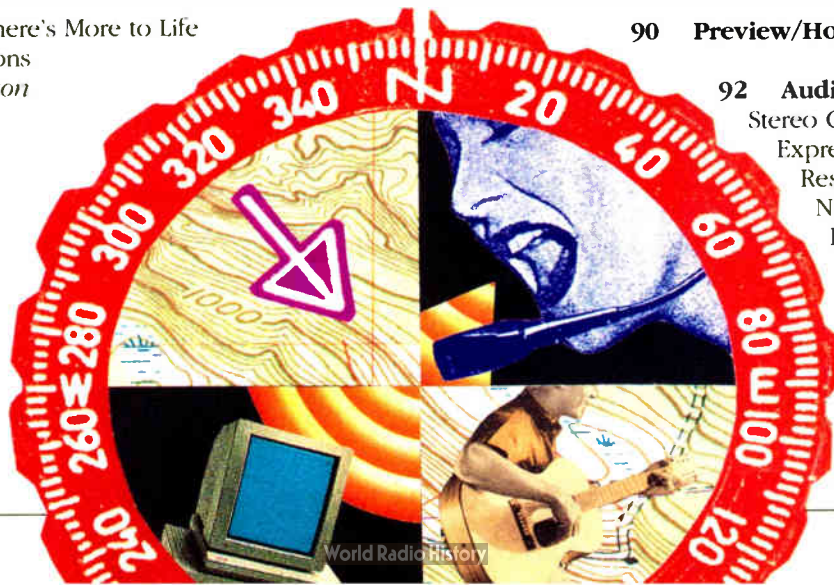
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Cover: Control Room A at Focused Audio in San Francisco is fitted with a Sound Workshop Series 34 console. This Dolby Surround mix room was designed to Lucasfilm THX specifications by Carl Yanchar of Lakeside Associates. Four control rooms and three recording spaces provide a full range of audio services for film and video post-production.

Photo: Brian Healy.



48-TRACK TECHNOLOGY:

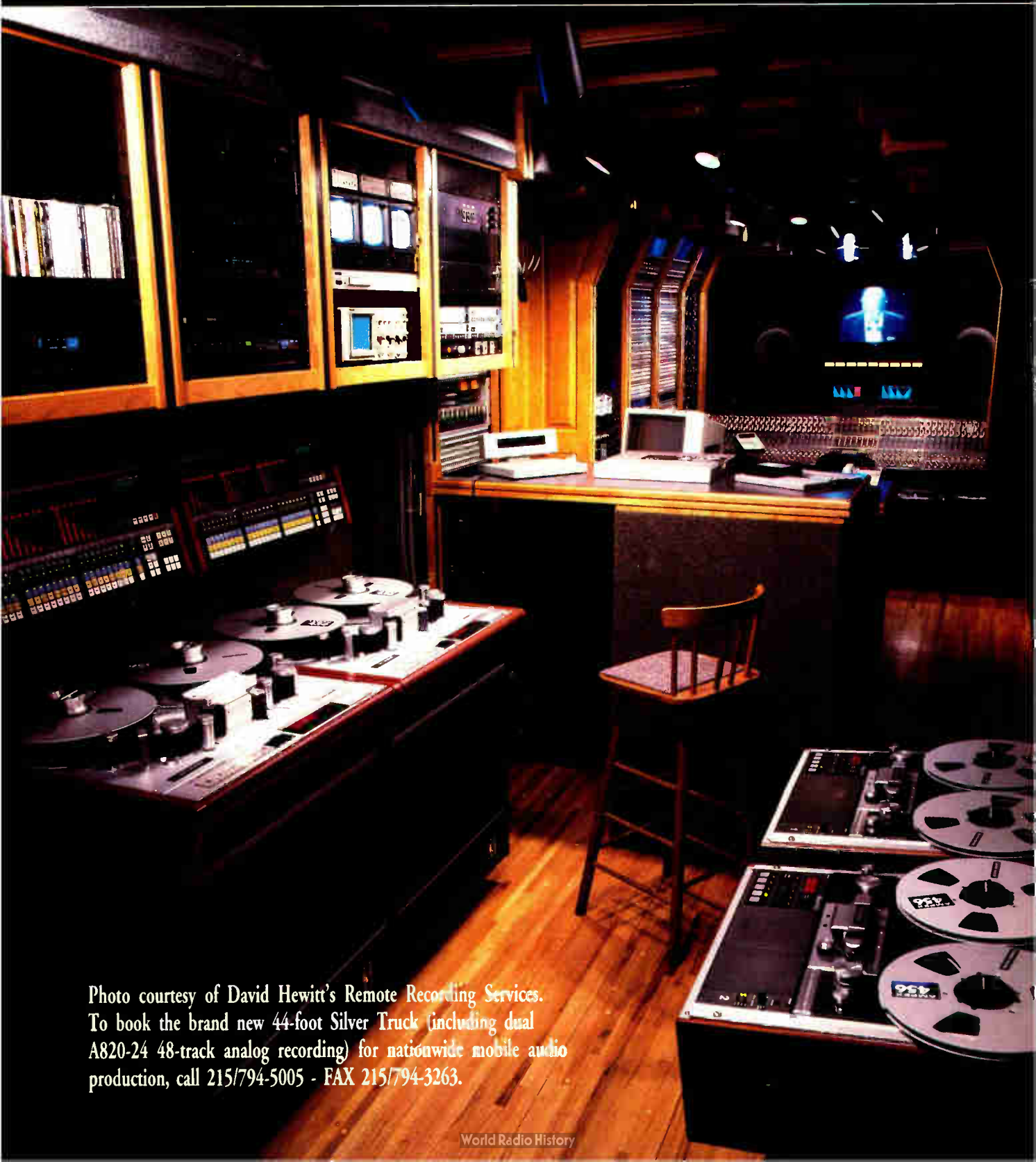


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FROM THE EDITOR

Did you notice something different about our cover this month? More to the point, did you notice something missing? Well, it's true. "The Recording Industry Magazine" moniker that has subtitled *Mix* on our cover for nearly ten years has finally proven a little too limiting for the current goings on within this magazine. So for our first issue of 1991, we've added something less.

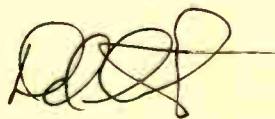
Sharp eyes will notice, however, that on the spine of the issue and on the contents page a new description appears: "Professional Recording • Sound and Music Production." While we feel this is too big a mouthful to run under the logo, we think it does a better job of describing what is between the confines of our covers these days. We feel it also says what our readers are up to.

Once upon a time there were recording engineers who hung around in dingy recording studios. In another world far away, live sound mixers were engineering sound for concerts and stage pre-sentations. In still another dimension, film and television engineers were putting sound together with pictures. Then, all of a sudden, in a miraculous display of colliding worlds, these people began discovering each other and all they had in common. And now they all live in harmony, occasionally bumping into each other, but mostly talking about standards and how they can make their lives all work a little better.

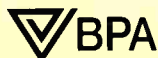
In recent surveys and questionnaires we've circulated, we've found that not only is *Mix* read by all of these different types of sound engineers, but that increasingly, sound professionals are broadening their own skills to compete in many different fields of *professional recording, sound and music production*.

We hope some of our readers who might have felt left out by the qualifier of "Recording Industry Magazine" now feel more a part of things. And to our core studio readers, we hope in this case that something less means something more.

Keep reading,



David Schwartz
Editor-in-Chief



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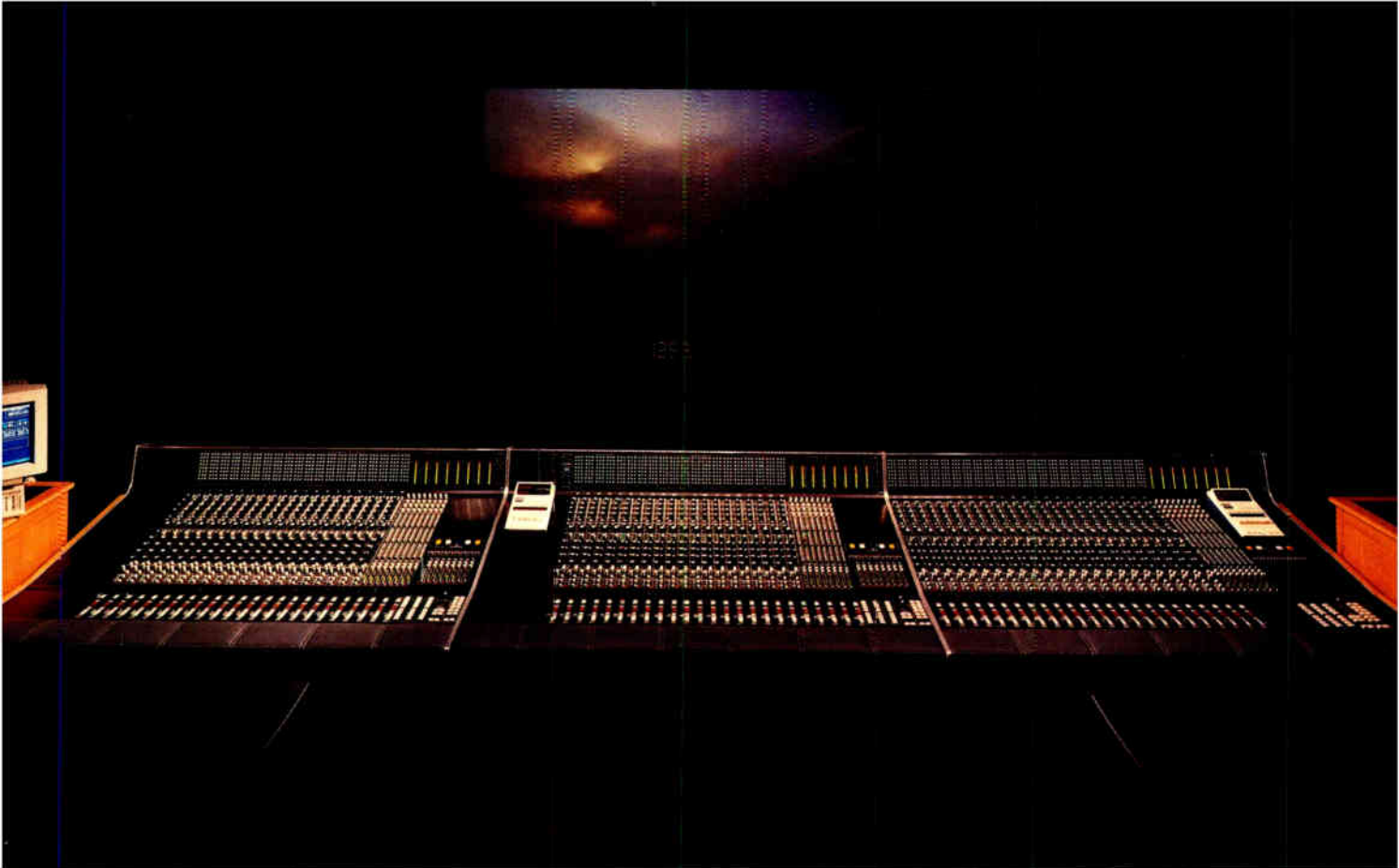
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Saul Zaentz Company expands... with Otari!

The Saul Zaentz Company Film Center has just completed a major expansion featuring Otari's *Premiere* film post-production console for dub stage 2.

The *Premiere* is the result of extensive collaboration between The Saul Zaentz Company and Otari, and was designed to meet the needs of the Center's new dubbing stage.

The *Premiere* was designed and built especially for film mixing, and is configured for easy operation by one to three Sound Mixers. In addition to

Otari's *Virtual Monitor System*, the *Premiere* features the new DISKMIX 3 Film Moving Faders automation system, providing fader level, mute, and switch automation on each input. This system, while using SMPTE internally, displays cinematic increments of feet and frames, allowing the sound mixer to easily work directly from a film cue sheet or edit decision list.

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CURRENT

Microphone Moves

German microphone manufacturer Sennheiser Electronic has purchased German microphone manufacturer Georg Neumann GmbH for an undisclosed sum. The agreement was signed the last week in November and takes effect January 1. At the same time, Sennheiser Electronic is acquiring its U.S. distribution operation, Sennheiser Electronic Corp., Old Lyme, Conn. See next month's "Current" for a complete update.

InterTainment '90

InterTainment '90, the third annual conference on interactive entertainment, offered a heady glimpse into the future of fun at the Marriott Marquis Hotel in New York City, October 29-31. The gathering afforded an opportunity to see the first generation of interactive products in action—the combination of hardware and software that is poised to revolutionize the home entertainment and educational marketplaces in the 1990s.

Interactive programming, which combines computer technology with full- or half-motion video, was first promised in the mid-'80s, but unforeseen delays hindered the first hardware introductions until now. These hardware delays, in turn, pushed back the initial software releases.

A key component of interactive programming is the integration of high-quality audio (particularly life-like speech) with high-powered digital music and special effects, whether this programming is based on CD-I, DVI, CD-ROM or any of a host of other platforms.

David Riordan, vice president of product development at CinemaWare Corporation, Westlake Village, Calif., explained that interactive software offers a powerful and unique combination of entertainment forms—film and television,

games and high-quality audio. He noted that these four entertainment genres have never been joined together, adding that interactivity offers many unique possibilities for speech, music and sound effects.

William Volk, director of research and development at Mediagenic, Menlo Park, Calif., explained that the latest version of the company's interactive fantasy exploration program, "Manhole," will include CD-quality digital audio. He added that Mediagenic has always stressed audio quality, noting that previous versions of "Manhole" used studio-quality audio rather than sound effects libraries for the audio tracks.

In a panel entitled "Breaking New Ground In Interactive Children's Programming," Sarina Simon, vice president of product development at American Interactive Media, Los Angeles, demonstrated a new cartoon program that combines CD audio and high-quality video. This program enables a child to hear any of ten different songs in a variety of languages, including French, Spanish and English, with accompanying graphics and lyrics.

Children's Television Workshop, New York City, has developed an interactive *Sesame Street* program that uses the actual voices of Big Bird and other characters to teach children to recognize letters and spell words. Seth Meyers, director of production for interactive technologies at CTW, added that the company has also produced the first talking Nintendo cartridge.

These are just a few of the products that will be changing our lives in the years ahead as the burgeoning interactive marketplace develops and matures. Audio, specifically CD-quality digital audio, promises to play a vital role in guaranteeing the realism so crucial in the world of interactivity.

—Randolph P. Savicky

Mark IV Audio Buys K-T

Mark IV Industries' cash tender offer of \$22.4 million for the acquisition of Klark-Teknik has been accepted, indicating that there is no slowdown in the move toward consolidation within the pro audio industry.

"Our strategy has for several years called for the development of a full line of product offerings to professional audio," says Robert Pabst, president of Mark IV Audio. "In recent times we have done this largely through acquisitions, which will most likely continue to be the case for some time."

Klark-Teknik, the British manufacturer of high-end signal processing equipment, mixing consoles and P.A. systems, posted sales of \$20.7 million for the fiscal year ending July 31, 1990. The acquisition includes the K-T, Midas and Celco lines in the UK, and Klark-Teknik Electronics Inc., the Farmingdale, N.Y., distribution company for K-T, DDA, Midas, Celco, Electra-Lite and Milab.

Mark IV Audio, Buchanan, Mich., now includes Dynacord, University Sound, Electro-Voice, Altec Lansing, Gauss, Electro Sound and Ivie.

—CONTINUED ON NEXT PAGE

Reader Service Change

Effective with this issue of *Mix*, Reader Service numbers will no longer appear on advertisements. Instead, they will be listed next to the advertiser's name in our Ad Index. To request information about a product or service, refer to the Ad Index on page 184, locate the Reader Service number and circle the corresponding number on the Reader Service card. We hope this new system will be convenient for our readers, and we invite your comments and questions.

INDUSTRY NOTES

The Don Muro Workshop series for music educators continues: Workshops are scheduled at the Convention Center in Tampa, FL, from January 10-12 (Florida Music Educators Association), and at the Tan-Tar-A Resort in Osage Beach, MO, from January 17-19 (Missouri Music Educators Association)...SMPTE has a new president. Blaine Baker of MPL/PostMasters Inc. takes over the top post for two years. Newly elected officers are executive vp Irwin W. Young, editorial vp Frank J. Haney and secretary/treasurer Bernard L. Dickens...Vista, CA, is now home for the corporate headquarters of Time-Line...There's a new vp of media relations at the National Association of Broadcasters: Lynn E. McReynolds, formerly director of public affairs and special projects at the National Cable Television Association...Benchmark Media Systems Inc. remains in Syracuse, NY, but has moved to a new facility almost three times as big...Mark IV Audio Canada has promoted Michelle Woods to sales service manager...The Los Angeles office of Windham Hill has moved to a new Burbank address. They may now be reached at 3500 W. Olive Ave., Suite 1430, Burbank, CA 91505...Ron Chubb was named district sales rep for JVC Professional Products Company...Berklee College of Music honors: record producer Joe Mardin was named Distinguished Alumnus for 1990, and jazz educator William Stanley, Voice of America announcer Willis Conover and jazz drummer Jack DeJohnette were all given honorary degrees of Doctor of Music...Conneaut Technologies has changed its name to CTI AUDIO INC...EFX Systems of Burbank, CA, has added Sue Coplin as director of sales...Diana Cecchini is the new assistant controller for Korg USA...Lexicon, of Waltham, MA, has named Will Eggleston as product development manager...Greg Hockman of Seabridge Audio Marketing is now a manufacturer's rep for RPG Diffusor Systems'

California, Nevada and Arizona markets...In Torrance, CA, Anchor Audio appointed David Jacobs president and CEO. Jacobs was once president of Colony Capital...Teleport Communications Group has signed a purchase agreement with Artel Communications Corporation...Joe Ogburn is a new chief engineer at Video Post and Transfer (Dallas)...Young Chang has added four district sales managers: Tom Bunker (Rocky Mountain states), Ed Cornett (Southern California), Patrick Gallagher (Ohio Valley and Northeast), and Gary Peters (Southern states)...Sam Paulos has purchased the Dallas recording studio and cassette duplicator Crystal Clear Sound. Keith Rust will continue as studio manager and chief engineer...Plitek Inc. of Elk Grove Village, IL, was given the 3M 1990 Certified Vendor Award. Plitek is a manufacturer of precision specialty-fabricated film, foil and plastic products...Music equipment moving and storage business Corner Cartage Company of Berry Hill, TN, will now be called Music Movers Inc. and has been acquired by Rick Horton of Nashville, TN...Studer Revox and Studer Editech have expanded their staffs. Studer Revox added Thorsteinn Thorsteinsson as Northeastern region technical support engineer, Tom Knox as senior test engineer, Anita Giacalone Martino as sales assistance/office manager and Gail Bush as secretary/administrative assistant. Studer Editech welcomed Kerwin P. Yuen as director of manufacturing, Synthia Petroka as software engineer, Al Wegner as senior DSP engineer, Bill Woods as technical support, Deanna Moore as office manager and Andreas Koch as director of product planning...Mark Valenti has joined Synergistic Technologies (Pittsburgh). His duties include facility acoustics and audio system design...Donald Meehan was promoted to the newly created position of vp of corporate development at Telex Communications Inc. ■

Taking It to the Schools

In October we reported on the National Commission on Music Education (NCME), a coalition formed by NARAS, NAMM and the Music Educators National Conference. Citing statistics such as the decline in California students playing in high school bands from 1982-1986 of 124,000 to 64,000—due in part to Proposition 13 funding cuts—NCME has created a program called "Music Makes the Difference," with the goal of restoring public funding to music education in the U.S. public school systems.

Part of that effort is a petition drive to gather names to present to Congress and the Bush Administration on March 6, during a national symposium on "America's Culture at Risk" in Washington, D.C. A copy of the petition appears on the last page of this issue. Photocopy it and send it to make your voice heard! For more information, and additional petition forms, contact NCME, 1902 Association Dr., Reston, VA 22091; (203) 860-4000; fax (203) 860-1531.

Convention News

The 90th AES convention will be held in Paris, February 19-22, at the Palais des Congres Port Maillot. Contact the AES for more information: (212) 661-8528; fax (212) 682-0477.

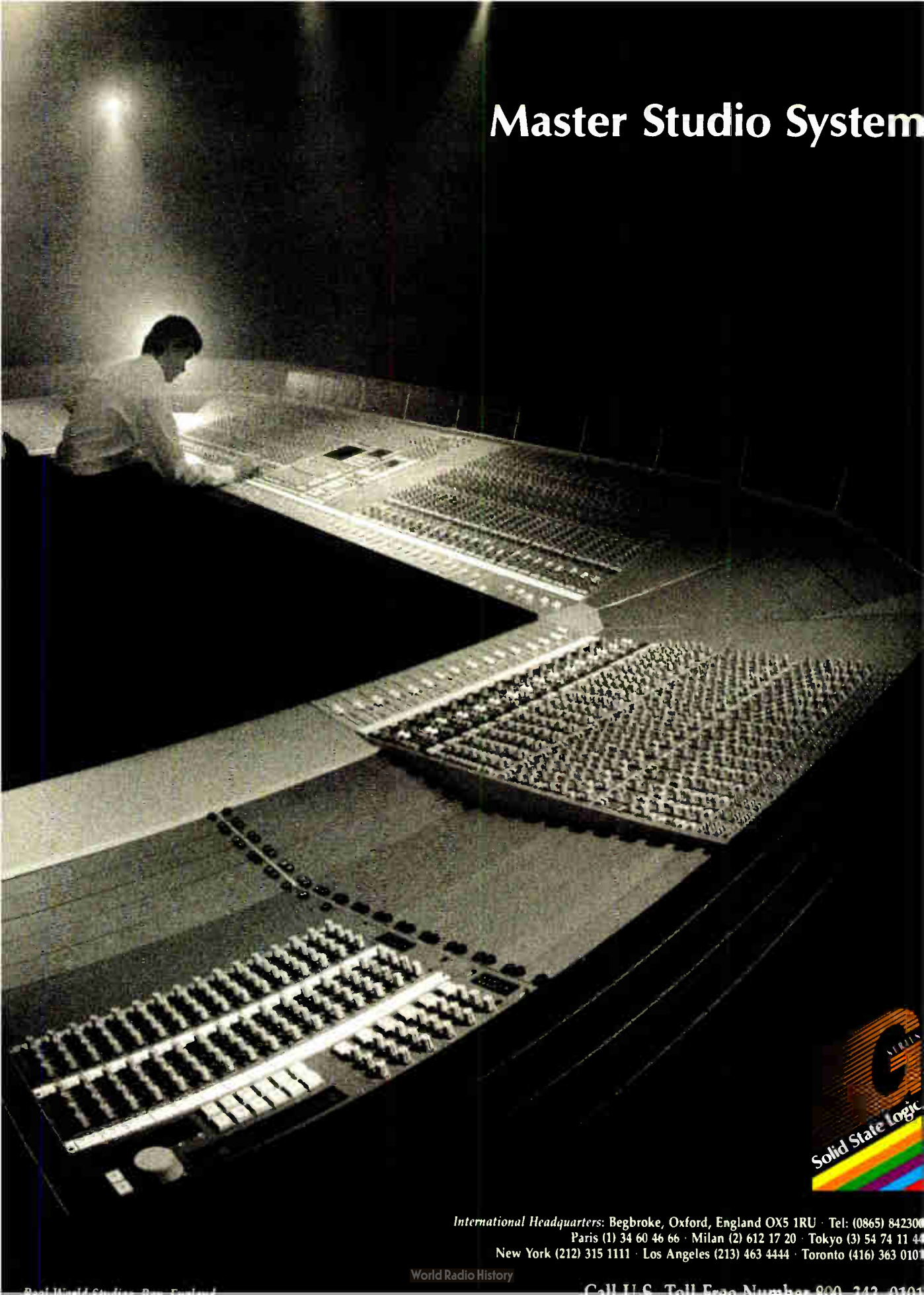
Ray Pohlman, 1930-1990

Ray Pohlman, the L.A. session bassist behind countless hits from the '50s and '60s, including most of the Phil Spector "Wall of Sound" productions, died on November 15 of heart failure in his Santa Fe, N.M., home. He was 60 years old.

Pohlman broke into session work in the late 1950s with his pioneering use of the electric bass, and he played on hundreds of top records for the next two decades, including tracks by the Beach Boys, Jan & Dean, Frank Sinatra, the Everly Brothers, the Ronettes and The Monkees.

Pohlman is survived by his wife of 36 years, Barbara, and two sons, Guy and Eric. ■

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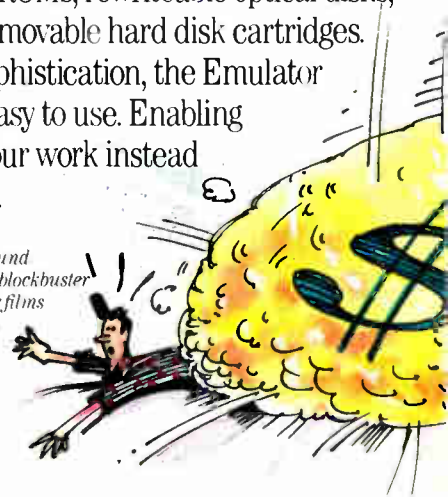
For the audio professional, the Emulator III is a complete, affordable digital sound factory. More precisely, a 16-bit audio computer and SMPTE-based event sequencer that records, edits, and plays back multiple sounds simultaneously in stereo with CD quality. Producing a system so versatile, it's the perfect choice for soundtracks, sound effects, and digital Foley.

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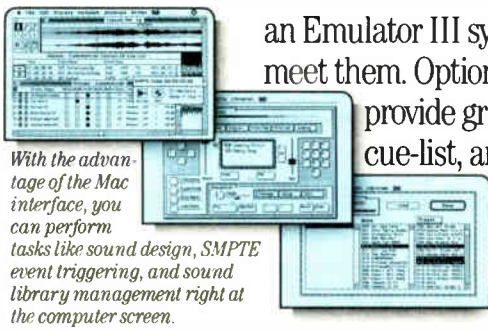
For all this sophistication, the Emulator III is amazingly easy to use. Enabling you to focus on your work instead of the equipment.

The Emulator III digital sound production system created blockbuster music and sound effects for films like Batman, Dick Tracy, and The Hunt for Red October.



With our Remote Controller, you can completely operate one or more Emulator IIIs from the Apple® Macintosh®. Anything you want the system to do — trigger sounds, edit them, layer or change them — is handled by an on-screen control panel or computer keyboard. And pop-up menus make everything as fast and intuitive as the Mac® itself.

There's another incredibly powerful facet to the Remote Controller. A Librarian that locates and retrieves any sound on any media in your library in seconds. So you no longer waste hours cross-referencing log books to locate a particular sound or effect. The Librarian is also smart enough to update itself and print out a current catalog at any time.



With the advantage of the Mac interface, you can perform tasks like sound design, SMPTE event triggering, and sound library management right at the computer screen.

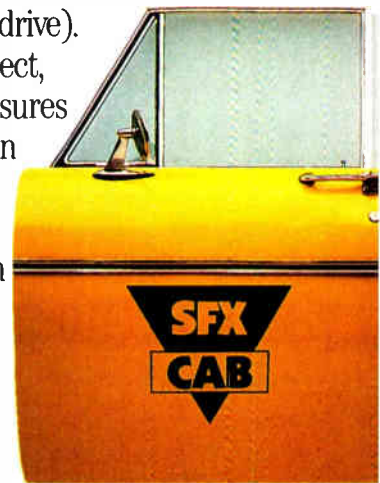
an Emulator III system can be configured to meet them. Optional Mac hardware and software provide graphic wave-form editing, SMPTE cue-list, and direct-to-disk recording. There are also a number of flexible storage solutions (including a 600MB rewriteable optical drive).

No matter what you select, E-mu long-term support ensures the Emulator III system can adapt as your needs and technology evolve.

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Frank Serafine is just as enthusiastic: "I rarely go to tape or multi-track anymore. Every sound effect I created in *The Hunt for Red October* came from my Emulator III."

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by Mel Lambert

ARCHIVING FORMATS & COMPATIBILITY

ADVANCES BEING MADE BY STANDARDS COMMITTEES

If workstations are to live up to their promise of enhanced sound quality, creativity and user convenience, exchanging data between units of the same or different brands should be as simple and transparent as possible. Otherwise, as a growing number of users of first-generation designs are now finding, it can take almost as long to set up a workstation for a session—loading dialog, music, effects and other files, plus EDL and related information—as it does to perform the various editing, processing and mixing functions.

Digital systems generate large amounts of data—around 5.29 MB per channel per minute at a sampling rate of 44.1 kHz. Add the information that defines the time code-based in-out points and crossfade profiles for each edit location, together with additional data defining level adjustment and signal processing information, and it becomes clear that some workstations are capable of outputting a considerable number of megabytes—even gigabytes—of data per session.

At the end of a project, we need some way of purging or archiving this data from a random-access workstation so that material for the next session can be loaded. (Music and sound effects libraries stored on WORM, DAT or erasable magneto-optical drives might remain online between sessions, but most material will be loaded in fresh for each editing/processing session.) And what if a project needed to move

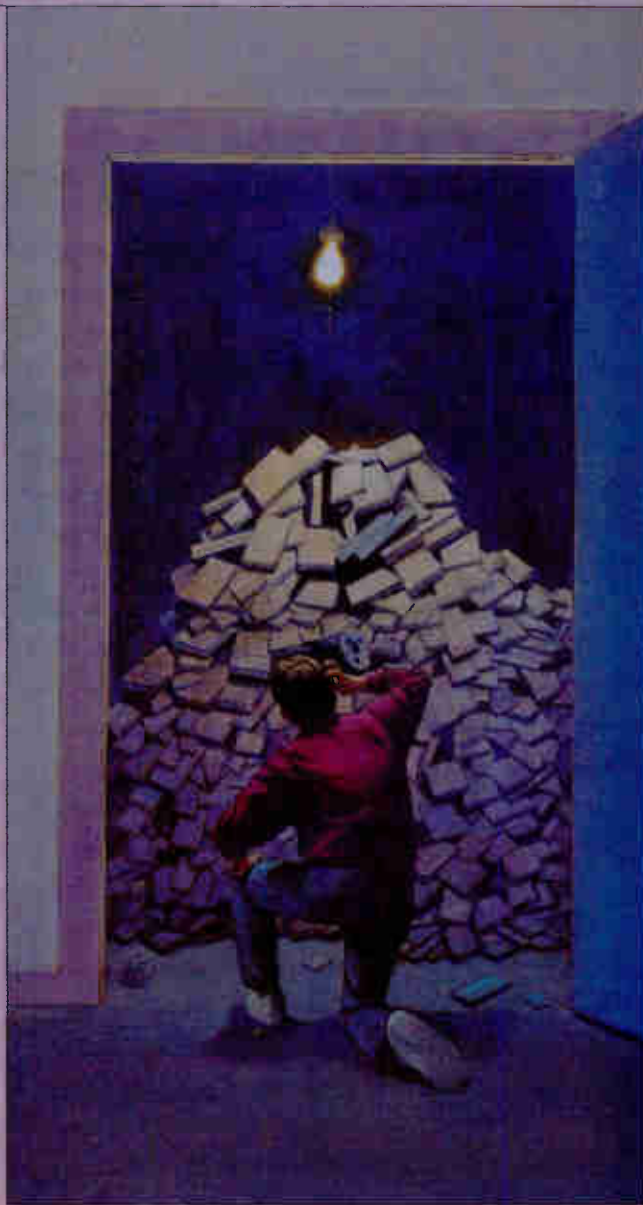


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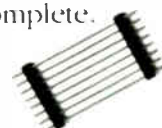
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across town for updating on a similar or different platform?

For these reasons, workstation manufacturers are giving some serious thought to providing user-transparent techniques for transferring standardized data files among systems. Data exchange has become a hot subject of discussion in the R&D departments of an increasing number of firms around the world.

Significant progress has already been made by two technical committees toward developing standards

for both the data structure and media format of the sound files, edit pointers, sound-processing profiles and level-control information generated by today's upwardly mobile species of workstation. In essence, the discussions are focused on three primary areas:

➤ Which sort of information needs to be off-loaded from a workstation? In addition to the production dialog, ADR, Foley, music, effects and ambience sound data files, standardized formats need to be devised for the various time code-based edit in/out/crossfade, processing and level in-

formation. (Here we are considering a more complex post-production session; music editing might involve as many gigabytes of data, but the material would comprise simple 2-channel takes from the album or scoring dates.)

➤ How should the information be archived? To ensure complete data exchange between different workstations, manufacturers need to agree on a standardized 16/20/24-bit format for sound files (maybe fully compatible with existing AES/EBU- or MADI-format bitstreams), as well as formalized edit decision lists.

➤ Where should all this information be archived? The alternatives include time code-stamped, 2-channel files with standardized labeling formats streamed to conventional audio or "Data" DAT and Exabyte data cartridges, on up to multichannel files output to removable, high-speed magneto-optical disks.

Ideally, such data transfers should be performed in greater than real time, simply to prevent the inevitable bottlenecks and inefficiencies involved in tying up a workstation for hours while off-loading and re-loading data files. (Some current designs are capable of performing such tasks in background mode, although users are always looking for enhanced speed performance.)

AES Subgroup

As I mentioned in my October column, at least one group of industry professionals is examining the technical and operational parameters of various high-capacity/high-speed storage formats. Chaired by Bill Hogan of Sprocket Video, Burbank, Calif., the AES Subgroup on Operational Requirements for Disk Recording is currently discussing a format for exchanging digital audio data between systems, and examining the operational parameters of various magneto-optical formats.

Hogan's AES group has issued an eight-page draft document. It incorporates the following goals:

1. That the file system be media-independent. (However, a suitable media does need to be identified to at least allow subsequent "recommended" formats for data exchange.)
2. That the system supports the recording and replay of contiguous (sequential) files in real time.
3. That the system supports ran-

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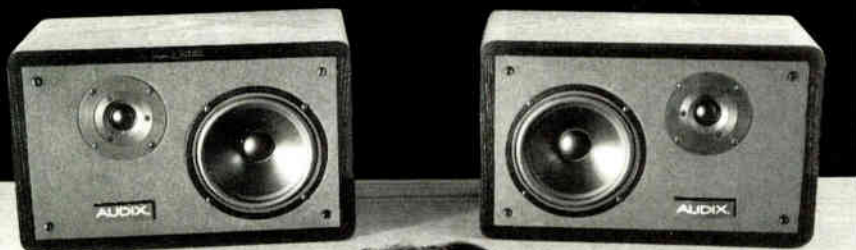
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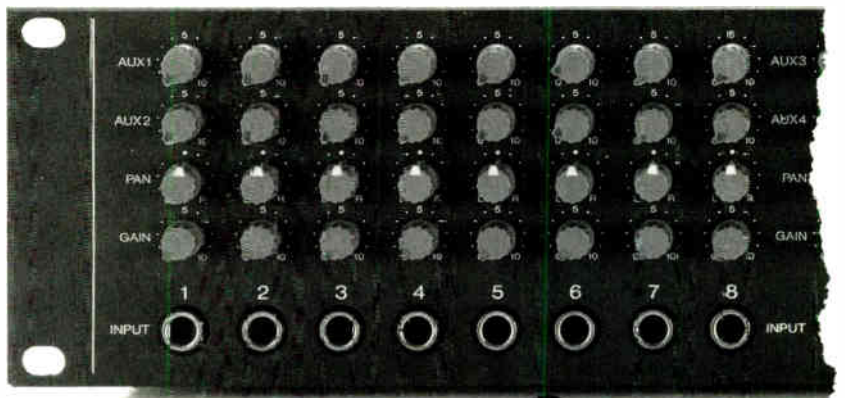
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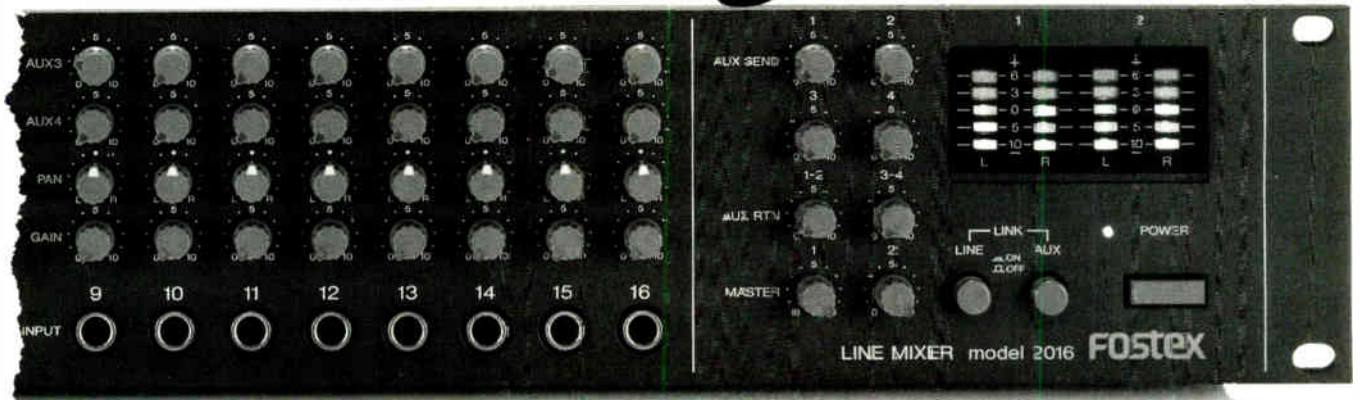
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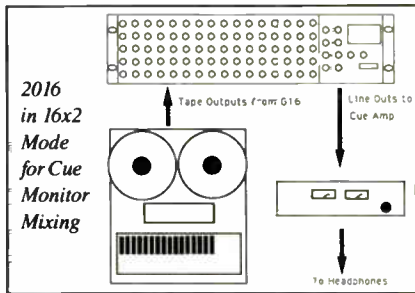
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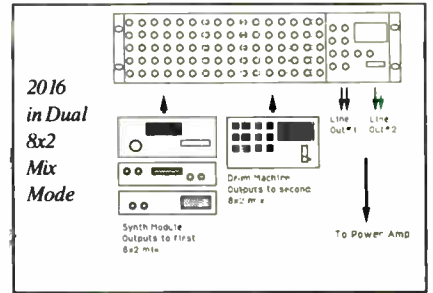
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domly ordered, synchronous playback of contiguous files via a "playlist-type" format.

4. That the system allows differing file types to coexist on the media (with, for example, varying sample rates, interleave formats, etc.).

5. That the file system provides for the storage of various types of non-audio data within audio data files.

6. That the file system accommodates several levels of complexity, with recommended minimum levels of implementation (to ensure that, for example, at least audio material can be transferred between units, even if they cannot handle edit in/out data, etc.).

"This 'Straw Man Proposal,'" Hogan says, "is simply a draft document that allows us to explore ways in which the information should be organized. We also thought that we would have to write a file directory structure from scratch, but it turns out that there are some ongoing ANSI and ISO deliberations aimed at both WORM and erasable media; hopefully, we are going to be able to draw on that

existing work.

"After all, a great deal of work already has been done toward standardized data and media formats for storing large amounts of information on such materials as 5.25-inch, 650 megabyte MO drives. Now, having identified the main parameters that need to be contained within the directory structure, the subgroup will be dividing itself into several smaller groups to decide what specific data should be included within the bitstream and how it should be organized on the media."

The group's draft specification, now being circulated for discussion, lists a number of parameters, including location of the Disk Identification Blocks (the first readable disk sector, block #0); Directory Locations (second readable sector, block #1); Directory Size (variable, but specified within the Disk ID block); Byte and Word Ordering (MSB first); Sample Size, Rate and Interleave Format (specified within the File Data header); Units of Storage (512 or 1,024 bytes); Data Scaling (linear, two's complement, etc.); and Audio File Structure.

The proposed file name used to identify each sound file recorded onto the media is 32 bytes long, yielding either 16 or 32 directory entries per block. This data would include a 16-character file name, 3-character file type, a time stamp (number of seconds past midnight), a date stamp, as well as pointers to the location on the media of the first and last blocks of the corresponding sound file.

The subgroup has proposed that the AES consider adopting an optimized version of AIFF (Audio Information File Format), a structure based on EA IFF85 and used by a variety of companies, notably Apple Computer, as a standardized format for sampled sound files. AIFF specifies a number of predefined data "chunks," many of which can be incorporated directly into any new data interchange standard. Other currently undefined chunks will need to be added, including time code sync plus additional source and destination data. (Sync data will include starting and ending time code, sample frame offset of starting time code, frame rate

—CONTINUED ON PAGE 23

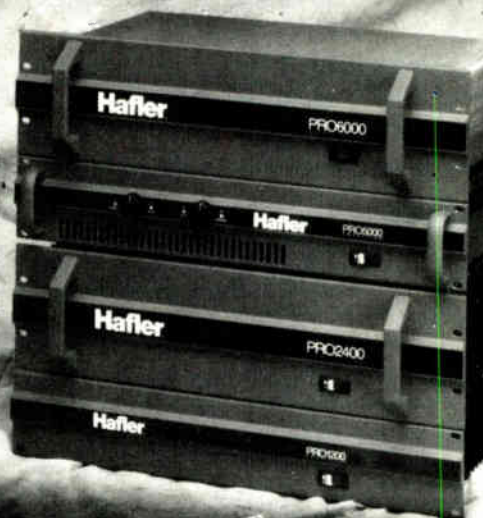
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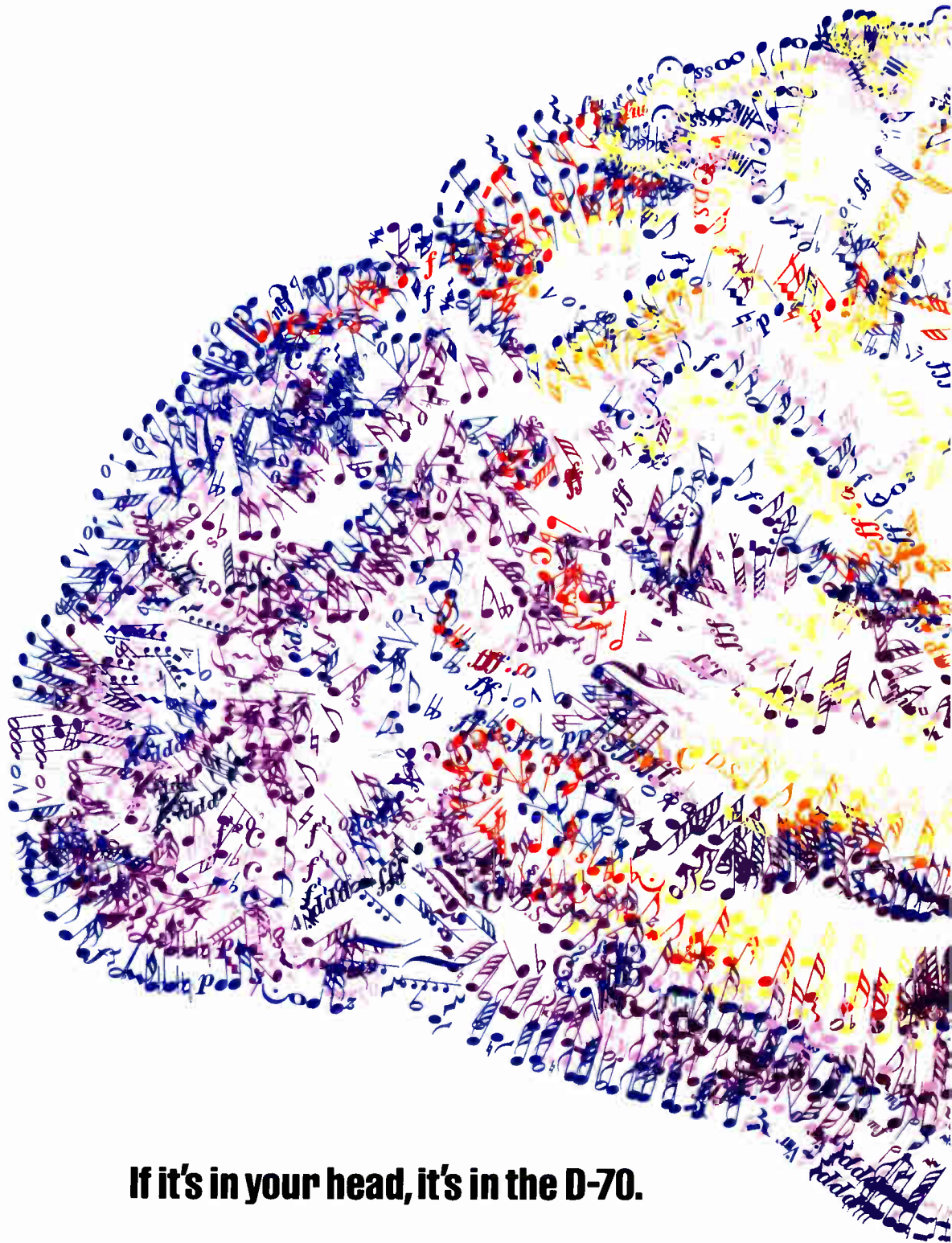
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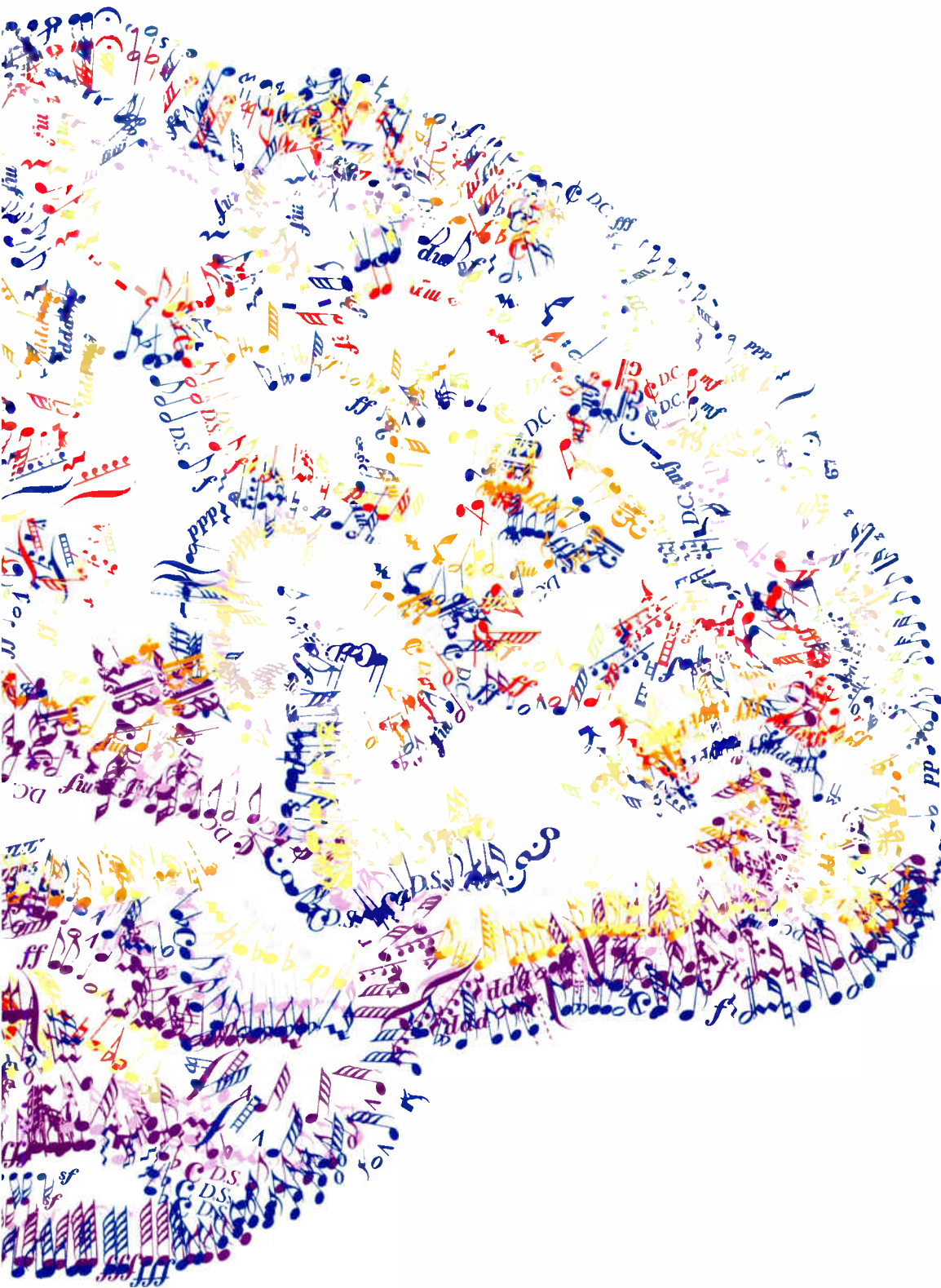
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**ALLEN
&
HEATH**

—FROM PAGE 18

and accuracy, as well as sample rate numerator, divisor and interleave.)

In terms of application-specific information, it is proposed that a PlayList be defined that contains a list of audio data files to be played in specific synchronization. Because such information will obviously refer to more than one audio sample, it is suggested that the PlayList be stored as a separate file within the Media Directory, rather than being embedded in an audio file. The PlayList might contain such information as Target Filename; Start Time code; Duration; Offset into the audio section of a Target File; Output Channel; and Crossfade Specifications.

Reaction to the draft document so far has been "quite positive," Hogan says. "There's nothing mandatory about participation in the group, after all; it is in everybody's interest to share ideas and implementations, rather than having to develop a file format of their own. Most firms are willing to follow an agreed-to standard, just so long as it does everything that the user wants it to do."

SMPTE Working Group

In terms of the actual data that might be included to describe a particular sound file and any accompanying data, I am particularly impressed with the ground breaking work of a SMPTE Engineering Committee. Chaired by Larry Blake of Reveille Press (and sound editor/mixer at Weddington Productions, North Hollywood), SMPTE Working Group A12.94 on Sound Library Databases has now published a first draft of its database structure specifications.

The document defines standardized field structures for computer sound databases, so that descriptions of various effects, music, dialog and other materials can be identical in all hardware that utilizes such sound files. In other words, our industry might now begin to agree on standard ways of categorizing sound cues, which makes it easier to sort through a library of effects or music cuts, but also ensures that compatible data will be stored with each cue. In this way, different manufacturers can ensure compatibility of files and user-familiarity between different editing systems and work-

stations.

According to Blake, who is also a member of Bill Hogan's group, such deliberations "could bring to digital workstations and other random-access systems the same intuitive feel from material stored on optical, magnetic and other media that we now enjoy with mag and analog tape. In the future, there will be mass storage areas in most post facilities, and users will almost never need to touch the media: We will access data via a computer terminal. Given that restraint, systems should be set up so that independent editors, for ex-

ample, could move from studio to studio and find the same nomenclature used to describe the same material."

For further information of the current progress being made by these groups, contact: Bill Hogan, Sprocket Video, (818) 566-7700/fax (818) 566-4477; and Larry Blake, Reveille Press, (818) 766-9422/fax (818) 980-7832. ■

Mel Lambert is the principal of Media&Marketing, a high-tech consulting and marketing service for pro audio firms and facilities.



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by Ken C. Pohlmann and Guy DeFazio

HOLLYWOOD CONNECTION

THE PROPOSED MULTIPIN STANDARD FOR RECORDERS & CONSOLES

This month's column is addressed specifically to anyone who wears a plastic pocket protector. Even if you don't wear a protector, you know who you are. What the hell, studio owners can read this, too; anything that takes time costs you money, so you should know about this. The rest of you can just sit this one out.

Okay, let's talk interconnections and the royal pain involved in configuring a hookup when nobody is using the same type of connector. Back in the old days, when it came to interfacing multitracks and multichannel equipment, XLRs got the job done, even if you had to labor through 192 of them to connect two 24-track Dolby racks. But today, the XLR-to-XLR harness has all but disappeared. Multiconductor cables with multipin connectors have become widely accepted as a fast and efficient alternative. Multipin cabling translates into less changeover work for you between sessions, as well as lower cable construction costs, because multipin connectors are cheaper than an equivalent number of XLR connections. So, if your studio is in the process of upgrading from XLRs to multipin connectors, or if you're building a new room and have decided to use multipin connectors for interfacing your multitrack equipment, great. Go for it.

But think before you sniff that resin core. What kind of connector and what pin configuration should you use? A chat with studios or local rental companies will reveal that most of their connectors are not alike, which results in compatibility problems when clients bring in multichannel equipment from rental companies or other studios. For busier studios, incompatibility can be an

everyday occurrence.

Moreover, the problem of equipment shuffling in studios is getting worse. The increasing variety of rented analog and digital multitrack recording formats (12-, 16-, 24-, 32- and 48-track), availability of low-cost racks of outboard equipment, increasing popularity of analog noise reduction racks, and the trend toward multiple producer/engineer productions all conspire to complicate your life. Finally, as new recording formats emerge, the overhead required to equip studios with everyone's *favorite* format will become prohibitive and will cause increased reliance on audio rental companies.

Recently an ad hoc technical committee made up of HARP (Hollywood Association of Recording Professionals) member studios surveyed the multipin audio connector designs currently used in the local studio community. Based on that survey, they have recommended a multipin connector standard that is fast becoming accepted among L.A. studios and rental companies.

The HARP connector standard (Fig. 1) uses a 120-pin Elco connector with a wiring scheme that has been in practice in various forms since the introduction of Elco connectors over ten years ago. According to Jay Antista, technical director of Lion Share Studios and a member of the HARP technical committee, "Elco connectors were chosen for the HARP standard because they are the most widely used and have proven their reliability." Although the wiring scheme chosen by HARP has been in practice in many local studios, the combination of connector size, total number of audio sig-

nals and direction of those signals has varied considerably from studio to studio.

Denny Thomas, technical engineer at Capitol Records studio, notes, "This wiring layout is totally visual and intuitive. The spare pins conveniently align, and the intuitive pin-out makes for easy assembly or repair."

The simplest way for studios and rental companies to conform to HARP's proposed standard is to build adapters to interface their present

size and pin-out of the connector, the HARP standard calls for all output connectors to be male and all inputs to be female. The male/female configuration applies to panel-mount as well as cable-mount connectors. Furthermore, HARP's technical committee has a suggested panel layout that is currently in use in several studios (Fig. 2). HARP expects all of its 20 member studios to convert to the new standard within the next two years. According to

connector [in New York] is the DL-2, pinned to the SSL standard, but they are too dense and too fragile. Elco is a far more rugged connector. HARP's recommendation is a good idea if everybody agrees with it."

Jim Flynn, owner of The Rental Company, a New York-based studio equipment rental company that supplies a variety of multichannel audio equipment, notes, "The problem we have in New York is that nobody follows a standard. We found it too expensive to build adapter harnesses for all of our clients. We use Elco connectors on our equipment and fan out our harnesses to XLRs. Trying to find Elco parts in New York is tough."

Manufacturers of professional audio recording consoles and tape machines have been incorporating multipin audio connectors in their equipment for many years. Neve, Sony, SSL and Studer are just a few of the manufacturers who supply multipin connectors (from Amphenol, Tuchel and others) as standard equipment. Unfortunately, they all use different-style connectors. Neve, the only one of the above to use Elco-style connectors, recently converted from XLR to 56-pin Elco connectors for interfacing their audio I/O. Dave Clark, technical engineer for Neve L.A., explained that Neve's selection of 56-pin Elcos centered around the fact that Neve consoles are divided into groups of 12 modules, each group requiring 36 conductors (12 x 3 for high, low, shield). Clark said, "We use 36 of the 56 pins. We use 12 because the channel buckets are in 12. Neve chose Elco connectors because the Varicon contact [used by Elco] is more solid than DL's, and Neve considers it a superior connector for audio."

Elco's rack and panel connectors use a fork-like Varicon or Varilok hermaphroditic contact design. The mating surfaces provide a gas-tight connection and resist corrosion caused by unfriendly environments. This seal is made possible by the spring-like properties of the Varicon contact and by the smoothness of the mating surfaces. During mating and unmating of plug and receptacle, their sliding and wiping action

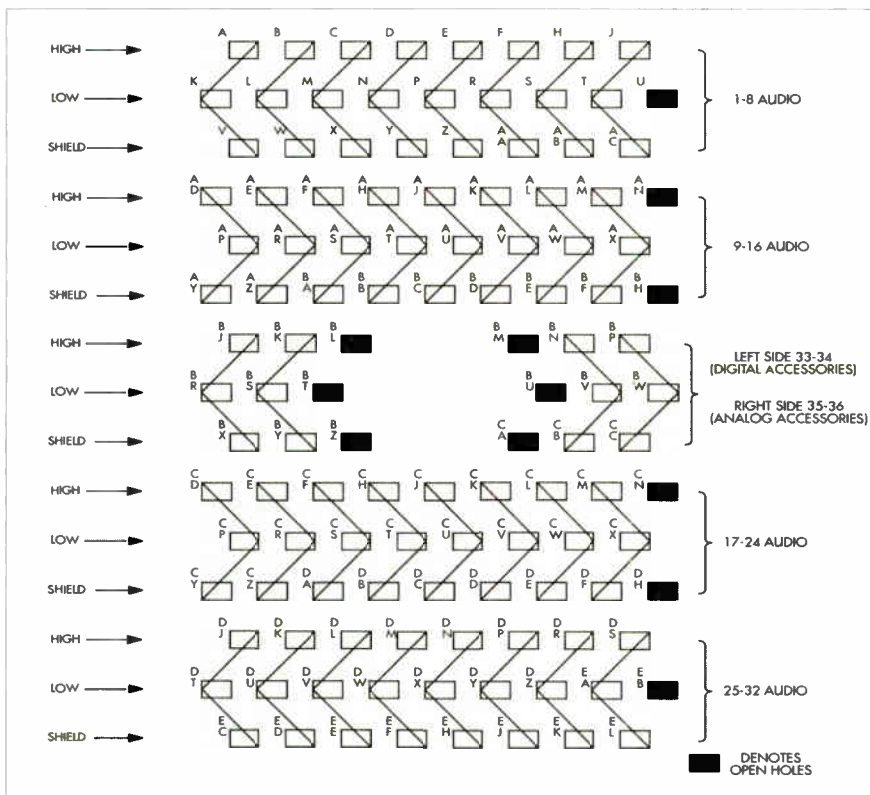


Figure 1: HARP recommended Elco 120-pin standard (contact side up)

connectors to the recommended 120-pin Elco. That way they'll save the expense of extensive rewiring and can still benefit from their current panels and harnesses. Building adapter cables is nothing new for many rental companies. "I already have premade Elcos for various studios," states Bob Webb of Moonbeam Productions. "For rental companies like mine [that have built their own adapters], a new standard will take away some of the edge we've had over other rental companies. But if most studios go to the HARP standard, it will save us all from having to continually build new adapters."

In addition to specifying the type,

Gary Skardina, chief engineer of Music Grinder Studios and a member of HARP's technical committee, "If you don't use [the HARP standard], that's fine, but if you want to you can. There needs to be a standard available to those who want to benefit from it."

While Elco connectors seem to have cornered the multipin connector market in L.A., the Cannon-DL connector has become a popular favorite of many studios and rental companies in New York. Cannon-DL connectors come as standard equipment on all SSL consoles. According to Don Cuminalli of Editel N.Y., "On a generic basis the most widely used

burnishes the surface, reducing constrictive resistance caused by oxidation or any other buildup of airborne contaminants, certainly a justified concern in L.A.

The most commonly used Varilok contact is a crimp-terminated, insertable/removable, solderless connection that also incorporates a strain relief for the wire. All equipment needed to crimp, insert or extract Varilok contacts is available through Elco—from small, inexpensive hand tools to heavy-duty crimping machines for production-line assembly. If quick contact replacement is necessary and no Elco tools are available, a small screwdriver and needle-nose pliers can get the job done in a hurry, but this is not recommended practice.

Elco connectors are available in a variety of sizes, from two to 165 contacts, as well as a variety of insulator (connector shell) materials: glass-filled dialyl phthalate, polycarbonate, and nylon and polyester with or without glass fill. The 120-pin configuration recommended by HARP incorporates

a U.L.-recognized dialyl phthalate material and a polycarbonate thermoplastic. This Elco connector (Series 8016) has an 8.5 amp current rating, 6

Elco harness, the decision to connect XLR pin 2 or pin 3 to the high pin on the Elco can be determined according to which pin the connecting gear

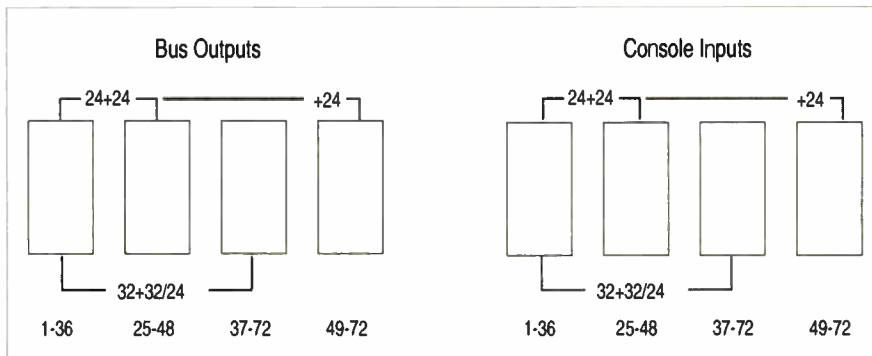


Figure 2: Recommended panel layout

milliohm contact resistance, a phosphor bronze contact material, and a gold/nickel contact plating.

To allow for wiring flexibility when connecting to various manufacturers' equipment, as well as differing studio grounding designs, HARP's technical committee chose to limit the specifications of its recommended standard to type of connector, size of connector and wiring pin-out. For example, when wiring an XLR to

uses as its high pin. Similarly, the decision to carry the shield through will be determined by the studio or rental company's overall grounding schemes. Wouldn't it be great if connector polarity and grounding schemes could be standardized, too? All right, one monumental task at a time. ■

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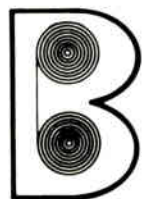
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FINDING YOUR NICHE...ALL OF THEM

Northwest Studio Owners on

Business Diversification

If you're operating a recording facility in New York or L.A., you can find a niche and comfortably fill it. One studio might do only Latin recording. Another might specialize in radio spots. But if you do business in a second-tier market, you don't have that luxury. Sometimes you have to be all things to all people just to keep the doors open. Other times you can pick and choose the type of

job. It all depends on the local economy and the local market.

Since the Northwest U.S. is composed of a number of second-tier markets, we decided to find out what services recording studios offer to fulfill current market demands. Here are some thoughts on business diversification.

**Surreal Studios,
Anchorage, Alaska**
Kurt Riemann, owner

◀ North to Alaska. Where at this time of year most of the recording takes place at night, and many of the big-budget jobs go to the Lower 48. But Kurt Riemann, who offers the only 24-track capability in Anchorage, keeps busy by doing a little bit of everything.

"I didn't really know what it meant to be a niche," he says, thinking back to 1985 when he built the facility. "I didn't know there were places that only did this one particular thing—only did demos, or only did Latin music. There's so much up here that you have to do in order to keep the studio open."

What does Riemann do? He's mixed and produced about 50 albums, mostly locals (with the occasional Samoan church choir LP); recorded jingles for McDonald's, Gold's Gym, Arco, and



PHOTO: JIMMIE FROELICH

just about every business in town; scored videos for Arco, Shell and all of the video producers in town; Foley; digital editing of other studios' DATs; music transcription; MIDI pre-production; effects for radio IDs and for theater productions; slide show scoring; pageant music composition; high-speed duplication for small runs; and he's an Ampex dealer. He will no longer do vocal removal.

"There's a high-end jingle market up here that is extremely hard to capture," Riemann says. "There's a local-hire argument that goes on and on, trying to keep the business in town. We're scrambling for all this low-end stuff, and it makes it difficult to go after the big budgets, like the \$5,000 to \$6,000 tourism packages."

MacDonald Recording, Seattle

Terry MacDonald, owner

While most recording studios are involved in music and have been adding production work, MacDonald Recording is a production facility that's trying to pick up music dates. "We do a lot of CD prep and have recorded a couple of CDs," MacDonald says, "but we have

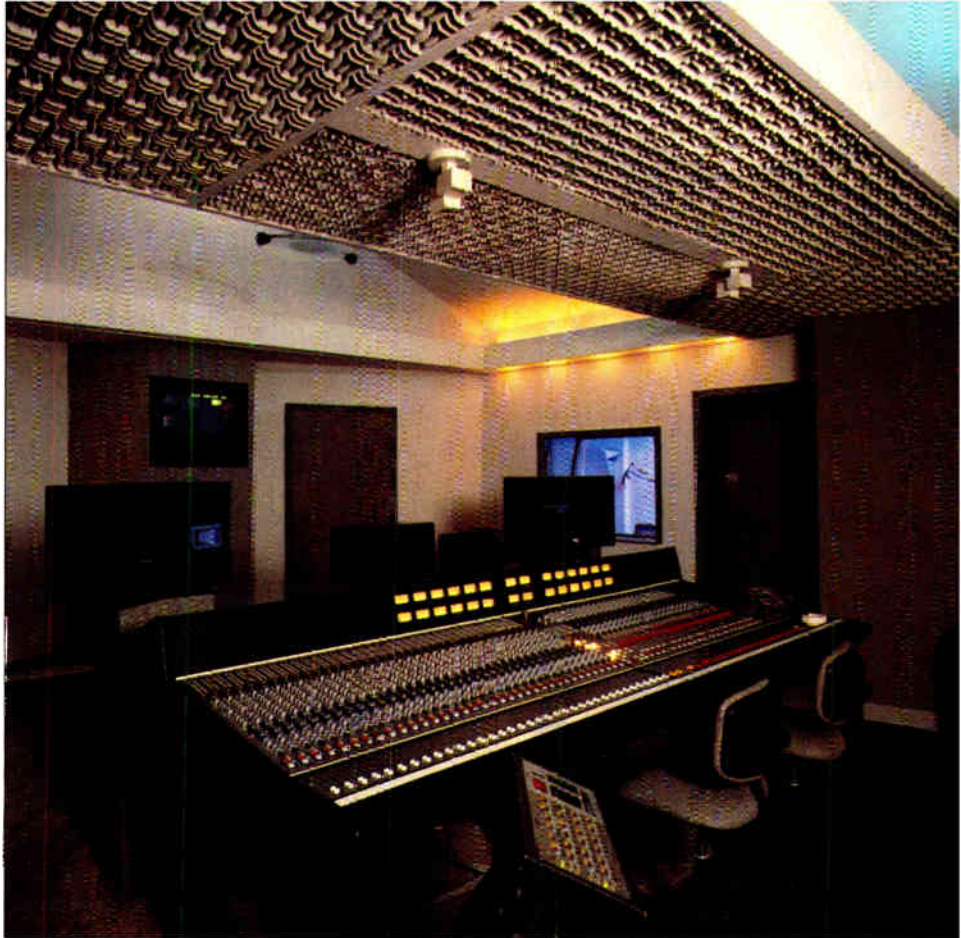


PHOTO: PHIL BRAY

Avalanche Recording, Northglenn, Colorado ▼



PHOTO: CHUCK EDWARDS

not historically been large enough to do music production. It's not that I haven't been interested in music; it's just been the fact that we're a mom and pop recording operation, and I've only now gotten the facility [in June] that will make me competitive."

The new facility was designed by Tom Brown, formerly of MasterMix in Nashville, with the idea of the AMS Logic One console arriving this spring. The digital EQ and processing, MacDonald hopes, will make his facility the CD prep capital of the Northwest. Already he owns two AMS AudioFiles,

which he strapped together recently to simulate a 48-track recording for a CD of lullabies by local TV personality Cliff Lenz.

While waiting for the music to come, MacDonald finds plenty of diversity within the production environment. Radio spots, video sweetening, a lot of corporate soundtracks and two to three national spots a month pay the bills. Gigs like the audio for the Microsoft Windows 3.0 kickoff in Las Vegas helped finance the move to a larger facility.

Currently, MacDonald is working on an Ambisonic surround sound project for Nike in Portland, Ore., which is opening

a retail outlet with 14 different environments, all with Ambisonic surround—"real 21st century stuff," MacDonald says. Another project is sound for a Japanese-financed HDTV project with Rebo Video in New York, called "War and Peace." The project was taped during the Goodwill Games when

PHOTO: DARRRELL PETERSON

The Plant, Sausalito, California

the Kirov Opera and Seattle Opera performed jointly. Sound was gathered by a single Calrec SoundField mic. Look for the four-CD set, or watch for the touring 18-wheeler that is going around the country using it as an HDTV demo.

The Music Source, Seattle

Peter Barnes, studio manager

In 1969, Jim Wolfe needed a place to write songs, so he opened up The Music Source. Soon after, he teamed up with Jim Bredouw (L.A. Studios, Margarita Mix), hired some nighttime engineers, and began working on music for com-

MacDonald Recording, Seattle ▼



mercials while the others rocked at night.

From the beginning it was a facility that welcomed independent engineers. "We have different engineers who sort of specialize, and that's part of how we're able to diversify," says Peter Barnes, studio manager. "I do most of our looping (recent credits include *Sea of Love*, *Dog Fight* and the TV series *Northern Exposure*) and a lot of the radio and TV mixes. We have a guy who pretty much specializes in corporate video. Another guy for music projects. We do a lot of CD mastering on the two AudioFiles, and we have a fellow who comes in at night and that's all he does—CD mastering. I wouldn't say we've attempted to diversify. We've attempted to be able to do whatever anybody wants us to do."

The Music Source just purchased a Euphonix console and is considering adding an offline edit suite, "so video guys can come in and pull music tracks while they're doing their offline."

Business is also kept lively through an informal referral relationship with Martin Audio and wholesale bookings to next-door neighbor Audisee, a sound design company. The oddest request: a woman who wanted subliminals planted on a tape so that her husband would leave her. "I wouldn't touch that with a ten-foot pole," Barnes says.

**Musicon,
Wilsonville, Oregon**
Bill Berry, owner

Bill Berry was born and raised in central Oregon, and moved to San Diego eight years ago to work for a studio there. "Eventually I went freelance as a composer, and people started asking me to make cassette copies for them," he

**FTM Studios,
Denver, Colorado**



PHOTO: STEVEN SUNDBERG



PHOTO: MARION GRAY

A Poolside Studios, San Francisco

says. By the time he moved up to Oregon last January to build a brand-new facility, his cassette duplication business had grown to half a million cassettes per month. He does international distribution for his largest clients, and so he didn't feel it was necessary to stay in San Diego.

Says Berry, "We wanted a studio in-house for our own projects, whether we went after outside business or not. We decided to relocate to Wilsonville, south of Portland, and really scale it up. We bought a 60-input DDA AMR console with Uptown moving fader automation, a Studer Dyaxis, brand-new Studer tape machines with 24-tracks of SR, and you name it, outboard-wise."

When Berry first heard that Gloria Monte was considering building a television production facility in Wilsonville, he told her he'd like to handle any of her audio needs. "Her people and our people have been talking for about six months, and we'll start providing audio for her programming in January—everything from location audio to video sweetening and final mixing. We'll be doing that in our facility until her 100,000-square-foot facility is completed. At that time they will allot us 5,000 square feet in that building for audio production. There will be a tracking room and a mixing room on our site, with two sweetening rooms and a mixing stage on her site. She expects to produce her first programming in May for ABC."

Berry says the move has proved to be a very good thing. "The tape dupe department, which is our main profit center, isn't so dependent on a particular location," he says. "But with a studio you have to do some serious thinking about

whom you'll be doing business with. With Gloria we chose an angle that we could fill that would be pretty much guaranteed business, and then we built everything around that."

**The Plant,
Sausalito, California**
Bob Skye, co-owner

Much has changed at The Plant since Bob Skye purchased the facility in 1986. The Doobie Brothers were just in studio B, and producer/performer Walter Afanasieff spends most of his time in A, so there's still plenty of music. But with last year's conversion of studio C into Synclavier-based StudiO1, the construction of Boomtown for the Keller & Cohen commercial team, and the redesign of A (a new SSL 4064), Skye and his partner Arne Frager have made a major commitment to audio-for-video and jingle work. And they built with the foresight to accommodate any type of project.

"Audio is audio," Skye says. "Boomtown was not built any differently from a music room from an acoustic standpoint. I make sure the room works acoustically. If a room is designed properly, it can do many different things. It's just a matter of deciding what equipment you want to put in."

"When we put Boomtown together, we said we wanted to go as far into the visual world as 3/4-inch video and we wanted to do it well. So across the back wall we have 24-track, 4-track, 2-track with center-track time code, an extra 2-track, 3/4-inch VHS and all the sync equipment. There are SMPTE and video outlets all over the rooms, so you can come in with your sequencing software, sit down at the table, lock everything

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up and do a big MIDI music deal if you want. There are MIDI lines in the panels on the wall. You can tie in at any part of the room."

Though Boomtown is occupied by Keller & Cohen most of the week, a stable of freelance engineers from both the Bay Area and L.A. are available to match a client's needs. Skye also brought Rover (a remote bus) from the East Coast when he returned West in 1986. "Rover's probably the most diverse of all," Skye says.

**Fantasy Studios,
Berkeley, California**
Roy Segal, executive VP

Over the last few years, Fantasy Studios has seen a marked increase in audio-for-film work. Last August, the closely affiliated Saul Zaentz Film Center opened Dub Stage 2, added eight editing rooms (for a total of 30) and built a 46-seat Dolby Surround screening theater. "That expansion was for film work only," Segal says, "but the process of increasing our film work has increased the support services that we're providing from our music studios.

"We've improved our ADR and Foley capacity with the permanent installa-

tion of equipment in Studio C, one of our music studios," Segal continues. "We built 12 Foley pits directly into the floor, which when closed make an all-wood, oak stage. We've added a high-intensity video projector—very, very sharp picture—and a motorized screen that comes out of the ceiling." Studio D, the flagship Fantasy music studio, is convertible to a film-mix room by bringing in a portable Dolby Surround monitoring system and video monitor. "This gives us the capacity to mix episodic video, TV films and low-budget films that can't afford to go into a full-blown mag stage," Segal adds.

Fantasy and chief mastering engineer George Horn have established a national reputation in LP and CD mastering projects for independent labels. Scott Levitin was brought in to join Joe Tarantino in running the new Sonic Solutions NoNoise suite. Meanwhile, Fantasy Records continues the remastering of their own back catalogs, and the company recently purchased Specialty Records, to go along with the already-owned Milestone, Prestige, Stax, Contemporary, Galaxy and other labels. "We are in the music business and we're not leaving," Segal says.

**Coast Recorders,
San Francisco**
Dan Alexander, owner

Coast Recorders has been providing music recording and voice-over capabilities to the San Francisco advertising community for more than 18 years. It has also provided a recording base to record labels such as Concord Jazz. The original facility was built and owned by Bill Putnam, who sold it to Dee Austin about five years ago. In 1988 Dan Alexander, recognizing the potential of the main room, took over the business.

Says Alexander, "The main recording room has that property that Bill's rooms had of being natural-sounding. [When I took over], the facility had not had the amount of attention it needed to be competitive. Although we're still in the process of upgrading, now we're to the point where the room is able to fulfill its potential. The reason I'm doing all this is to diversify. While it is extremely important to me to continue to service the ad agency business, I want to augment that business with more record recording. We're putting in a 44-input Neve console with Necam 96 automation, Adams-Smith synchronization, an Augspurger speaker system and Studer A80 24-



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"When the facility is completely finished we expect that audio-for-video will also be an important part of the picture. I want to get that work into one of the smaller studios. I still see the main studio being used primarily for music."

Hyde Street Studios, San Francisco

Susie Foot, studio manager

This San Francisco facility has a long history dating back to 1968 when Wally Heider opened it as Heider Studios. It was a premier recording studio for more than 11 years, hosting Jefferson Airplane, Creedence, the Pointer Sisters and others. In 1980 the facility was re-opened as Hyde Street Studios and encompassed the entire building. Today Hyde Street studios runs two of the four recording rooms. Alpha & Omega Recording uses the other two for project studio work.

"Studio B has been a MIDI room for about a year," says studio manager Susie

Foot. "We've continually upgraded the equipment during the last five years in order to attract recording artists and labels. That includes upgrading Studio D to an automated Amek 2500 board about 1-1/2 years ago. We also bought a Studer MkIII A800 multitrack with 24 tracks of Dolby SR to provide the best quality analog recording.

"The studio has had a reputation for jingle work and alternative rock," Foot continues. "I don't want to lose that, but I'm aiming for album projects for world beat and reggae music because percussion sounds really good in our room. In the long term I'm also trying to attract more major label work."

Another feature of the studio that attracts clients is the presence of audio, video and MIDI tielines between the MIDI room and the 24-track room. Pre-production can take place downstairs, and then everything can be patched to the 24-track room. Hyde Street has also developed a good working relationship with an audio-for-video and film production company in the building. "If we think a potential client can be better accommodated by them, we send the client to them, and vice-versa," Foot explains. "Sometimes projects go back

and forth between facilities—it gives us both flexibility to accommodate client needs."

Poolside Studios, San Francisco **Dave Nelson, co-owner**

One successful exception to the "diversify or die" axiom of studio management is Poolside Studios, which has carved out a niche in serving the sound needs of the Bay Area's local film/video community. Opened in 1986, Poolside made some serious upgrades last year with the addition of a 24-track and the Euphonix Crescendo, a totally automated, digitally controlled analog console. Recent film projects include award-winning documentaries, such as *The River People*, and a series of videos for Japanese release.

"We started out doing mostly band demos, and later moved into the video/film scoring, sound effects and post-production areas," recalls Nelson, an accomplished synthesist, engineer/producer and sound designer. "We still do music projects, but we've changed the entire focus of the studio. Now we're working with higher-end clients; we're out of that bargain basement world of

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Investing in the 24-track proved to be a wise move, according to Nelson. "If there's any common denominator left in this industry, it's 2-inch, 24-track tape. So now we can work with the smaller independents doing documentaries and PBS stuff, while bigger films can track their sound effects here and take the final tracks to a film mix theater, such as Fantasy, to complete the project."

Russian Hill Recording, San Francisco

Jack Leahy, co-owner

"The independent film business has taken somewhat of a dip from what it was a few years ago," observes Jack Leahy. His facility is a multiroom studio catering to both film/video post clients (including ADR sessions on *Godfather III*, *Midnight Caller*, and scoring/ADR work on Phil Kaufman's *Henry and June*) and music projects (like the new John Lee Hooker CD and the Franciscan Chamber Players with guest soloist Stephane Grappelli). "We still do somewhere between 12 and 18 records a year," Leahy explains, "but compared to the volume of other work we do here,

it's not that significant.

"Seventy-five percent of what we're doing lately is media, with most of our work in television commercials," continues Leahy, whose studio has recently played host to commercials for Taco Bell, Cheer, Chevron, Toyota, Hewlett-Packard and Orville Redenbacher popcorn. "There's a recent trend toward more film-like soundtracks for spots—more Foley, more effects and more detail—with bigger budgets for the sound than ever before. We've been looking at the possibility of adding another room, a bigger, fancier, top-of-the-line L.A.-style mix suite, which is where the demands are going. It would be very hard for us to survive doing music projects alone."

Tiki Recording, San Jose, California **Grady O'Neal, owner**

Founded in 1967, Tiki Recording is probably the oldest studio in the Bay Area. In addition to operating a 24-track music recording facility, Tiki also opened a cassette duplication service last year. "We're not locked into doing just country and rock 'n' roll groups," notes O'Neal, beaming about Tiki's suc-

**"IT WOULD BE VERY
HARD FOR US TO
SURVIVE DOING MUSIC
PROJECTS ALONE."
—JACK LEAHY**

cess in attracting business from other musical genres. "We do a tremendous amount of gospel albums, as well as Vietnamese, Portuguese and Spanish language projects."

Tiki also has an in-house production company that is involved in commercial music for clients ranging from theme parks throughout the country to pizza restaurant chains, as well as providing services for artists recording at the studio. Complete Latin, country and pop rhythm sections are on-call for client requests.

Obviously, Tiki's diversification and attention to new market opportunities has paid off. "With all the competition in the studio business, we're lucky," O'Neal concludes. "Right now, album projects

—CONTINUED ON PAGE 128



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THE
STORY
OF
DAVID PORTER
AND
THE MUSIC ANNEX

You probably know someone like him. Here's a guy, a woodwind player, who builds a home studio to produce and record his own projects. He becomes seduced by the technology, sells studio time to court his new love, and ends up a businessman running an audio facility. This guy, though, is so good at it that he winds up with a veritable audio empire.

In 1972 this musician and his band, a successful pop outfit from Oregon, were hired to cut tracks in Washington for a commercial. It was the first time the player had seen a real recording studio. It was love at first track. So impressed was he with multitrack that he decided to build a studio to record his complicated, artsy, orchestral compositions. The following year, he bought a house in the San Jose foothills some 60 miles south of San Francisco, where he built a 4-track TEAC recording studio with San Jose's first Tascam Model 10 console. He named the studio Music Annex.

The technology bug chomped hard on this musician, David Porter (you may recognize him as the outgoing president of SPARS). To support his growing habit, Porter sold studio time to bands. "I put the composing further and further back in my priorities," he says. "The studio became all-encompassing; the technology became the driving force." To make the house payments, Porter worked for a tape duplicator, making bin-loop masters. He built up Music Annex by night. By

1975 the studio was 8-track and thriving, and—no longer willing to withstand “musicians urinating on my bathroom floor”—Porter rented a commercial building in San Jose. There he built a 2-inch, 16-track studio to run sessions all night after duping all day.

In 1977 Porter joined forces with Harn Soper, who worked in audio-for-video and film. “On the day Elvis Presley died, we found a 12,000-square-foot building in Menlo Park [about 40 miles south of San Francisco] and bought it,” he recalls. “Scared the hell out of me. I was 27. Harn and I built two rooms—studio A for my music clients, and B, the media room, for Harn’s clients. David Elder, who managed bands, built a rehearsal studio in what is now Studio C. By April ’78 it was all built; I used charge cards, borrowed money, did it on a shoestring. Russell Bond, who helped us build the studio, became our second engineer. Shortly thereafter, Roger Wiersema, an aeronautical engineering student, showed up to help wire Studio A. Both have been with us ever since.”

Music Annex grew. Sixteen tracks became 24. Then, in 1982, Soper left to develop his Soper Sound Music Library. A silent partner bought him out, leaving Porter to run the business and oversee seven employees. Porter is a quiet man, who characterized himself at that time as “the tech-nerd musician in the back room. Harn had been the one out there gripping the flesh.” That’s when Keith Hatschek joined Porter at Music Annex. With his easy-going nature and considerable marketing savvy, Hatschek helped expand the business in new directions. One afternoon he was asked by a small, nearby company if Music Annex could create an audio cassette. The company was Apple Computer; the tape was the first interactive tutorial for the new Macintosh computer.

In January 1984, when Apple asked

DAVID PORTER:
“On the day Elvis Presley died, we found a 12,000-square-foot building in Menlo Park and bought it. Scared the hell out of me. I was 27.”

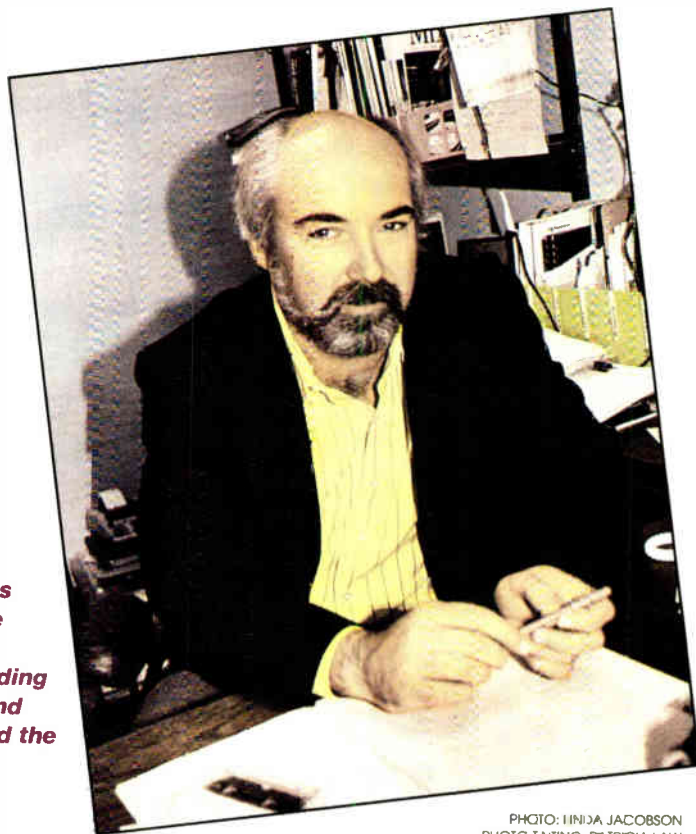


PHOTO: IINIJA JACOBSON
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if Music Annex could dupe cassettes—40,000 per month—the studio became a high-speed cassette duplicator overnight. Within two months it could churn out 100,000 tapes monthly on a system of Otari DP-80s and King Winders. Apple became Music Annex’s biggest client. By 1985 business was brisk. Sessions for indie rock, jazz and new age labels, including Windham Hill, kept Music Annex busy, as did corporate audio cassette and post work. A new Amek 2500 console resided in Studio C, complementing the Neve 8036 in Studio A, and tape-duping capacity grew to 150,000 units per month.

It was then that Porter realized the

Silicon Valley suburb of Menlo Park, a great location for industrial/corporate work, was too far from the Golden Gate city to attract big-time ad agencies. In early 1986 he decided to add a room in downtown San Francisco. “We were just going to build one little audio post studio,” Porter says. “Then we learned about economy of scale: It was impractical [considering real estate costs] to build a one-room facility. In our infinite lack of wisdom, we thought that *two* rooms in about 3,000 square feet would be perfect to support an office person and a couple of engineers.”

It did—for a while. Music Annex set up shop within eight blocks of 11 of the 12 busiest ad agencies. Account execs could trot over to Music Annex with last-minute copy changes; engi-

**Before (1973);
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COLLABORATING ON AUDIO-FOR-VIDEO

*Western Images and Music
Annex, San Francisco*

by Lee Lusted

The specialized nature of work being done at video effects/post-production houses and audio post-production facilities continues to increase. Add to this the difficulty of providing highly experienced personnel and different working environments for both audio and video under one roof, and it becomes clear that collaborations between audio and video facilities make a lot of sense. Just such a collaboration is underway between Western Images and Music Annex in San Francisco.

Western Images was formed in 1985 when a Quantel Harry system, the first in California at the time, was brought into what was then called Western Videotape Production. Today Western Images has two graphics suites, each with Harry, Paintbox and Encore. The complete system allows digital video editing, compositing, painting and DVE (digital video effects). In addition, Western now has a digital online suite utilizing D2 technology.

Music Annex in San Francisco, the sister facility to Music Annex Recording Studios in Menlo Park, was formed in 1986 in response to the growing need for high-quality audio post-production for video and film. Current projects include work for ad agencies, corporate communications, film and radio, 80% of which is audio-for-video and film. Starting with two studios, Music Annex now has four rooms, each providing a different environment. As well as multitrack analog systems, Music Annex has New England Digital PostPro and Synclavier 9600 systems, and the Studer Editech Dyaxis. The newest studio is a hybrid 24-track mixing suite, with stereo surround capability, that is equally suited to working to 16mm and 35mm film or videotape. Lock to video

—CONTINUED ON PAGE 40

neers working on the NED PostPro and Synclavier could drop in new lines in minutes.

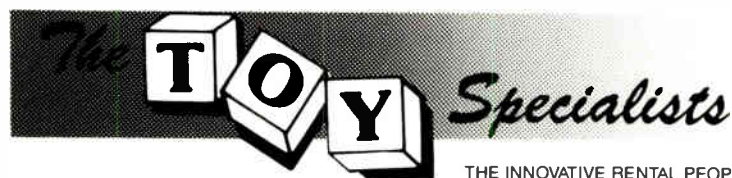
Those account execs showed up often; so often, in fact, that two years ago Porter signed an option on the building's basement, where he built two more post rooms. "We ended up with a little too much real estate for the amount of work we had," he says. "The only way to fill it was to buy another company and put it in there to make sure we had the right amount of work and market share." Music Annex bought out SRO, a small, successful film sound company that developed its own San

Francisco market niche handling CMX EDL-style audio post and film transfers. Porter kept SRO's gear and mixing staff.

"Now our theory is that four studios support about 11 people; that has the right ratio of maintenance and management to engineers," Porter says. "But the key element is *skill*. Hiring people who know what they're doing. *People* are what matter."

Meanwhile, the Menlo Park facility started to feel like a sardine can. In 1989 Porter leased commercial property across the Bay in Fremont, east of Menlo Park, to properly set up and

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house Music Annex cassette duplication and CD brokerage. He also adapted the Menlo Park studio to a market that's tighter than ever because of the proliferation of home studio technology. "What's gone [from the S.F. Bay Area marketplace] is the middle-class, work-a-day studio that used to just cut tracks, what the Menlo Park studio used to be," says Porter. "So I took it down. I made it a K-mart. It has a high-end mixing environment supporting two large, inexpensive tracking rooms for acoustical recording that can't be done in home studios." Porter further sealed his hold on music recording in

the South Bay by buying the assets of Dragon Studios; its owner, Charlie Albert, stayed on as studio manager.

Adhering to the SPARS credo "diversify or die," Porter added two more services to Music Annex Menlo Park and San Francisco: inventory control and fulfillment for small, independent record companies ("We manufacture their tapes in Fremont and send them to Menlo Park for fulfillment"), and sound design and music scoring services through a new subdivision, Green Street Music & Sound.

Today, Music Annex inhabits more than 40,000 square feet in three loca-

—FROM PAGE 39, AUDIO-FOR-VIDEO

in all rooms is available as well as layback to 1-inch C format or D2. Staying digital throughout a project—including layback to D2—is an objective in the collaboration between Western Images and Music Annex, but the synergy of the two facilities' personnel seems to be the real key.

Recently I sat down with Jerry Castro, operations manager of Western; Keith Hatschek, vice president of sales and marketing of Music Annex; and Roger Wiersema, chief engineer of Music Annex, to discuss how they work together on projects.

Wiersema describes the progression of events in a project: "The arrangement works out best when it's just in pencil test. Western sends us a 3/4-inch tape with a pencil test on it, and we start to work on sounds at that stage. As it gets nearer to the online, we get a rough D2 that's got things more in the right place and with more actual picture than pencil test. As it progresses we keep putting sounds into the NED system, so we're building the track as the project continues. By the time they do their final online, 90% of the audio is already in our system. It's then a matter of nudging things a little bit and mixing it."

Castro further elaborates on project details and the convenience of having a direct working relationship with Music Annex: "If there's a quick change we can make a 3/4-inch window dub or D2 and send it over and know they can take a look at it and make some changes. If they have something loaded in their digital systems, it's a matter of minutes before they can show something to the clients and say, 'Okay, here's your change or eight versions of your change.' That's really important—it certainly raises the client's comfort level. So we're able to use the technology to establish that dialog and avoid having to ask the client to wait till next week. We are able to establish immediacy for the client...they want it now."

In describing the ongoing

—CONTINUED ON PAGE 42, AUDIO-FOR-VIDEO

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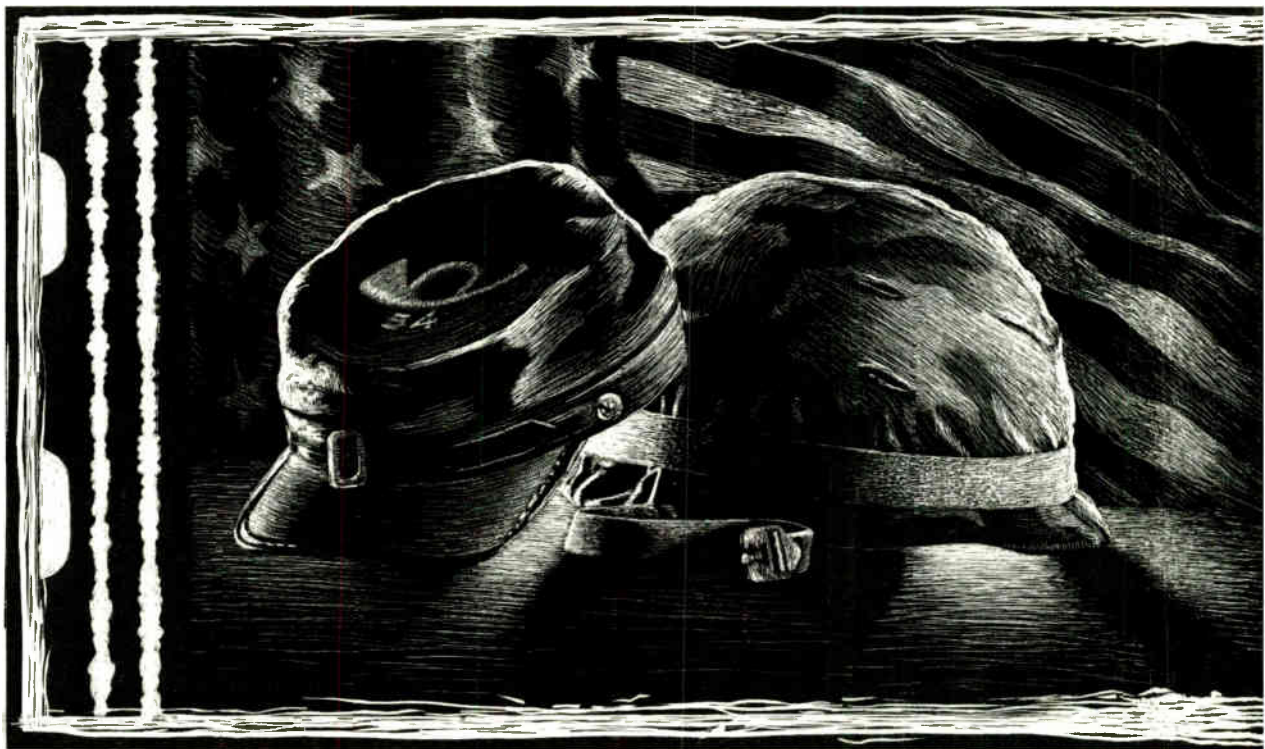
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tions, supports 61 full-time employees, and houses six 24-track studios, two 8-track production rooms, a cassette mastering facility, and a cassette duplication plant that can produce nearly a half-million tapes each month. And in the future? "We're looking for proprietary products," Porter reveals. "Maybe educational/training tapes, tutorials, perhaps audio tapes for commuters. We're going to develop our own ideas,

things we can develop in our studios, manufacture in our plant and ship from our fulfillment company. We want to be our own best customer."

How does an artsy musician and tech-nerd learn how to operate a recording business? "By being around people who know what they're doing, and not being afraid to admit you don't know something," answers Porter. "When things started to percolate at Music Annex around 1984, we could have taken many directions. So I went to Universal Recording in Chicago, and—I'll admit this publicly—I paid Murray Allen \$1,000 to talk. I went through their entire studio management system and asked every question and got as much information as I could. Murray told me I could get all this information [about running a studio] by joining SPARS. You talk to other members about policies, ways of paying employees, financial ratios, booking time, promotion. We're all in different markets so it's non-threatening. Only three of us locally belong to SPARS—Roy Segal from Fantasy, Tom Kobayashi from Lucasfilm, and myself—and we talk on the phone all the time. But I would like to see more local

participation in SPARS."

Porter not only joined SPARS, he eventually became its president, taking the helm from October 1989 through last September. Now he serves as chairman of the board and a member of the Past Presidents Club. "SPARS is a great place to take everybody's pulse," smiles Porter. "We have meetings about four times a year where you put out a big net and scoop up information and filter out what you want. That's what those meetings are like for me—dredging for ideas. What you get out of it is directly proportional to how you participate."

Porter says SPARS provided him and Music Annex with greater visibility, which helped increase his national business. "It also gave me a nationwide perspective about the business and access to the media, so I could talk about professionalism and the need for skill, and dispel the myth that the market is growing exponentially. The reality of the recording market is that it's steady-growing, but slow-growing. So many people are buying all this equipment and pretending that business is there that isn't there."

Porter doesn't engineer any more,

—FROM PAGE 40, AUDIO-FOR-VIDEO

trend toward more complex projects and more specialized techniques needed in video and audio post-production, Hatschek says, "Customers are going to need more service and they'll need more technical questions answered. They will push the envelope, especially in commercial production where people want to be unique or different and state their message in their own way. So it's up to us to keep up with them and keep finding ways to get their needs met using whatever technology we can get in here to do it with." ■

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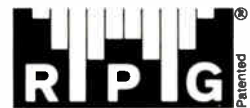
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or play his clarinet. He runs a company and enjoys his family. He gets his creative ya-yas out by building studios, putting together deals, working with his staff, evaluating and selecting new technology for Music Annex, and tracking—and seizing—new opportunities in audio.

Now that he's achieved success as an audio entrepreneur, will David Porter start consulting with erstwhile studio owners for \$1,000 a week? "No—it's free. Free through SPARS." ■

DAVE PORTER'S TOP SIX RULES OF BUSINESS

1. Gross in 12 months what your facility or new room cost to build or buy. If you buy new equipment, it should increase revenue in the next year by the purchase amount, less depreciation. This formula should keep you out of trouble if you're financing equipment with five-year money. As a basis for this calculation, Porter uses the last five years of "cost to build" (equipment plus lease holds) with no provision for depreciation.

2. If you finance with five-year loans or leases, be careful when total debt service (principal plus interest) is greater than 10% of gross sales.

3. From Porter's unscientific poll of studios, it appears that engineers make approximately 20% of what they bill, in studios everywhere in the country.

4. Somewhere between 33% and 40% of studio gross goes toward labor costs.

5. If your marketplace can't afford a \$400,000 console, don't fool yourself into thinking it can.

6. If you're considering extending credit, the client's credit report should include three vendor evaluations, a report from the client's bank, company structure, federal ID number, resale license number, and names, addresses and social security numbers of the principals. Ask clients to fill out a bank information release form that lets their bank tell you how they manage their account. Know the company's hierarchy so your invoices won't wait in "A/P purgatory" for approval. ■

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Occupation

Producer, keyboardist, songwriter.

Recent credits

Produced and/or co-wrote albums for Madohna, Julian Lennon, Bryan Ferry and many others. Composed film scores including "At Close Range", "Nothing in Common", and "Nameless" (due in early '91). And recently released "Toy Matinée", his own band project.

On what he does

"I like it all, I have to do it all. I feel a need to challenge myself in areas I haven't entered before."

On his technique

"I find the air and space around the principal elements in a recording are becoming more important to me. The music becomes more centered, with less need for effects and layering."

On Dolby SR

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David Cook *Dreamland Studios*

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by Brad Leigh Benjamin

WALTER AFANASIEFF

"I LIKE TO DO EVERYTHING"

Possessed of a friendly and humorous disposition, Walter Afanasieff is a humble guy who just can't say enough about the people with whom he works and shares his passion for music. But just beneath his good-natured demeanor looms a perfectionist: a dedicated producer who takes his work most seriously.

His keyboard and arranging skills have contributed greatly to the success of several major hits recorded by Whitney Houston, Aretha Franklin, Starship, Gladys Knight and Kenny G., to name a few. With the success of Michael Bolton's "When I'm Back on My Feet Again" and "How Can We Be Lovers," both remixed by Afanasieff, he is starting to receive some of the credit he so richly deserves. Afanasieff has just completed producing and co-writing Bolton's newest album, as well as producing and co-writing the new Peabo Bryson album. Currently, he is in the studio with Mariah Carey, co-writing and producing her second album, after having produced her Number 1 hit "Love Takes Time."

Afanasieff is not content

merely to take these artists from studio to CD in just a production role: "Some producers prefer to work with full bands and leave it up to the musicians to supply the music and the arrangements," he says. "Well, I like to do *everything*. I'll create the rhythm, the drum parts, the bass lines, the keyboard parts, the string arrangements, the horn arrangements and the vocal arrangements. Even when the guitar players are in doing their parts, I'll be in their face every minute, every second, making sure they're giving me exactly what I want them to play. I like being responsible for every note on the

record, which I suppose classifies me more as a producer/arranger."

He's also an accomplished songwriter, having



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ing penned such hits as Kenny G's "Don't Make Me Wait for Love" and Gladys Knight's "License To Kill." And he's paid his dues on the road (touring with jazz fusion violinist Jean-Luc Ponty) and in the studio, where his keyboard wizardry has graced the recordings of Lionel Richie, George Benson, Patti LaBelle, the Four Tops, the Pointer Sisters, Natalie Cole, Barbra Streisand, Regina Belle, Mariah Carey, Brenda Russell, Michael Bolton, D'Atra Hicks and Eddie Murphy.

On movie scores, his credits include keyboards and writing for the soundtracks of *9-1/2 Weeks*, *Beverly Hills Cop II*, *License to Kill*, *Mannequin*, *Innerspace* and *Everybody's All-American*. TV credits include writing for "Max Headroom," as well as ad spots for Levi's, California Raisins, Taco Bell and a host of others.

Afanasiyev recently signed a major production deal with CBS Records that will allow him to produce and write for the cream of the CBS crop, as well as score movies for Columbia Pictures.

Mix: So where does it all start for you, Walter? Where do your productions begin?

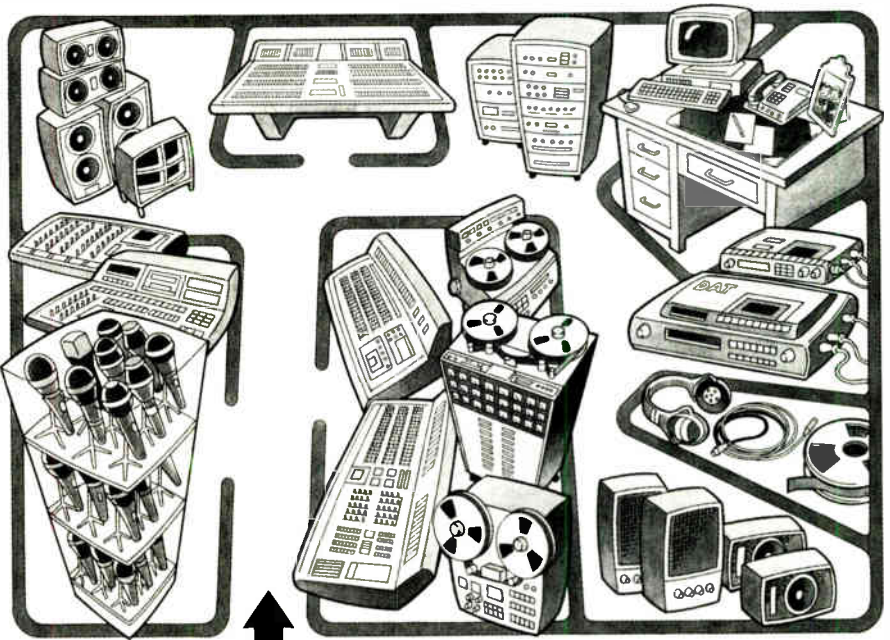
Afanasiyev: Definitely on the computer. We like to use Mac IIs with Vision or Performer, depending on who's actually running the program. I'm a big fan of sequencing technology. We usually program for a couple of days first, get the arrangement down, and then go to tape. Tape is the very last step, though, after the arrangement is exactly as I want it. Because sometimes I'll prepare arrangements for artists and if they decide to change keys...well...if you're already on tape, you're cooked—no way to transpose without re-recording. I like computers and hard disks, the digital domain. No fuss, no muss, easy to transpose. No analog punch-ins or razor blades.

Although we rely heavily on sequencers, we always go for that real "live" sound. There's a lot of straight-ahead keyboard playing on all of my projects. We always program in real time, never in step time. Real performance lends itself to the live feeling of the track, and we don't even quantize those parts. Generally, the only parts we quantize are some of the most basic rhythm tracks, but

never the fills or embellishments.

I like to start with the drums. We have a huge arsenal of synths and samplers, a Synclavier, Akai S1000s, a Roland S-770 and everything in between. We start from the ground up and get the best drum sounds for the particular song. I'll go through and pick out the most interesting kick drum, and then we'll get the snare or maybe two snares, the toms, hi-hats, etc. We'll just work our way up individually, locating each sound as we need it in the mix. Each and every sound has its own place, its own time. I'll sit there and put it all

together as a puzzle. I don't like to be redundant with parts or sounds: I don't like the same instruments or percussion continually playing on the same beat. If the snare is playing on two, sometimes I'll add a tambourine with it on four. If the beat is driving, I'll put the kick on all four beats. If there's a cowbell part, congas or TR-808 drums, then you find a slot for every percussion instrument you've selected and make it work. To try to fill the slots up as interestingly as possible I start creating sound ideas. Instead of a handclap, maybe I'll use a tambourine tuned two or



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three octaves down, or maybe use a hard anvil or pipe sound, or a backward effect and put them here and there, filling the rhythmic slots.

After that we sequence bass parts, fill in with the keys and then go back to bass and drums on the outro, letting them both add more fills. Gradually, the strings, horns and other parts all come together. Then we go to tape or direct-to-hard disk. **Mix:** I notice you mention the word "we" a lot. Do you have a regular production staff or other players with

whom you work on a regular basis? **AfanasiEFF:** Yes. While I am the sole producer on my projects and play most of the parts, I also have a great crew that works with me.

I have Ren Klyce, who handles all of the Akai and Fairlight sound programming. He is one of the most incredible sound designers around, as well as being a great musician. I also use Ren on the road with me whenever we play live dates. Then I have Gary Ciramelli, who does all my Macintosh sequencing and Synclavier work. Gary is also a gifted singer whom I use on my demos and

background vocal sessions. I have also used Louis Biancaniello, who is a great keyboardist. Louis does a lot of work for Narada Michael Walden. I also have Dana Jon Chappelle and his assistant Manny La Caruba: They are always there for me, day or night.

Mix: I see you're a big fan of the various synth and sampling technologies. Are there any instruments that you use on a consistent basis to get specific tones or sounds?

AfanasiEFF: Among the three of us, we have just about everything out there. The Peavey DPM3 is an incredible instrument. I've been involved a little bit in the development of this keyboard. It's got this enormous bottom. We're using it more and more for drums, pianistic chords with good low end, and keyboard bass. We use all kinds of samplers—everything from a Roland 330 up to a NED Synclavier—at The Plant where I do most of my work. I usually go first to the Korg M1 for the more ethereal, voicey, maybe bell-like kind of pad sounds, and then the Roland D-50 for texturing and layering bells and string pads. For crisper, more percussive sounds I use the Yamaha DX7II, TX802 and the TX816 rack for little tick-tock sequence parts, for adding punch to bass parts and bite to bell parts. The Yamaha MIDI Grand is exciting. It's such an incredible instrument. Push down the pedal and you can have any blend, any sound you want coming out of the speakers. It's really conducive to film scoring. Eventually, I believe we'll see just one keyboard/controller and a computer capable of generating all these sounds, or even everything in one box like a mini-Synclavier.

Mix: You've made a reference to film scoring. Rumor has it that as part of your deal with CBS, you'll be scoring some films for Columbia Pictures. Does film scoring hold the same intrigue for you as writing pop music?

AfanasiEFF: Absolutely. It's something I look forward to doing more and more. The days of the composer sitting in a little house in the streets of Paris, getting drunk as hell, writing concertos and throwing them out the window or using them to wrap fish, well, those days are over, but the medium into which that sort of music goes is the movies. To sit at home and compose three or four hours of avant-garde, jazz or symphonic music every day, well, the

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only way for me to express it is through the film medium. It's not always the sort of music that works on contemporary hit radio, so yes, I'm really looking forward to doing some feature films.

Mix: You mentioned something about working at The Plant in Sausalito, Calif. Do you work there often?

AfanasiEFF: Yes. I especially love working in Studio A. When I'm sitting in A, listening on the big speakers to a track that I did, I can hear every single instrument, every single sound, with perfect clarity. In many of the other rooms I've worked in, the big speakers don't really give me what I want, and so I end up only using the smaller near-field monitors. But in Studio A at The Plant, the big speakers are perfectly tuned, so I use them a lot to get the full power of what I'm doing.

The speakers are based on a Tom Hidley design. It's a custom-built, two-way system utilizing a TAD 4001 HF driver, a TAD 1601A LF driver, and a White Series 4000 electronic crossover. The LF driver is powered by a Perreaux 800C and the HF driver is powered with a Bryston 4B.

Mix: How big an influence do specific consoles have on your work?

AfanasiEFF: Well, the board has a big influence on anybody's work. They all have their characteristic sound. The SSL is clean and brisk, while the Neves are a little warmer to me. Some producers are partial to the Neve consoles, but I personally love the SSL. I love the clean sound and the automation. The recall systems on both consoles allow you to move through several setups in an hour or in a day and work on various mixes.

Mix: Is there a particular multitrack format you prefer to work with?

AfanasiEFF: I try to program, edit and experiment in the digital format wherever possible, but I also like the sound of tape for lots of projects. Also, sometimes if you want to work on a mix later, it's good to have it on tape, especially if your sequencer and boards aren't set up in the studio or within easy reach and you need to remix something on really short notice. The Otaris, Studers, they all have their own sound. Even DAT machines have their own characteristic sounds. Sometimes I'll work on

—CONTINUED ON PAGE 132

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by Vince Werner

HARD DISK TECHNOLOGY WINS THE BATTLE FOR EFFICIENCY

War is hell. Its audio re-creation in quad digital isn't necessarily any picnic, either. At Lawson Productions in Seattle, I recently worked on the soundtrack of a 35-minute, 42 projector, multi-image re-creation of the Battle of San Jacinto, a key battle in the history of Texas. Working alone with only part-time assistance, I was able to create this soundtrack in under 100 hours, a testament to the efficiency of random access technology. The entire project was edited, built and mixed on hard disk.

When Charlie Watts of the award-winning multi-image and video production company Watts/Silverstein approached me about the soundtrack for *Texas Forever*, I was a little apprehensive. Charlie was looking for a



PHOTO: CELIA CONGDON

Left: Engineer Vince Werner goes over some notes with producer Charlie Watts before working on the PostPro in Studio D at Lawson Productions. Bottom: Watts/Silverstein stages the Battle of San Jacinto and shoots it on motion picture film using authentic weaponry.

major motion picture-type soundtrack—on a multi-image budget.

The show was designed for permanent installation at the base of the monument commemorating the defeat of Santa Ana by General Sam Houston. It soon became apparent that this was to become one of the most visually elaborate multi-image shows ever produced, and the audio had to support it.

The first step was to establish a SMPTE reference, because the two New England Digital PostPros and

Diskmix automation I would be using had to be in sync with the 42 slide projectors driven by a Multivision programming computer. I created a DAT containing the proprietary Multivision sync code on channel one and SMPTE time



PHOTO: WATTS/SILVERSTEIN

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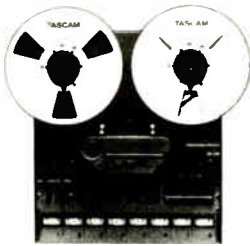
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POST SCRIPT

code on channel two. Next, I prestriped a reel of 1/4-inch tape with the same time code as the DAT. This slave reel would come in handy later. In the meantime, Charlie went to work with composer Joe Hadlock, producing 30 minutes of original music for the show. Charlie had recorded a scratch version of the narrative with appropriate pacing. Using that and a storyboard

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as guides, Joe went to work.

When the music was complete, I loaded the finished stereo mixes into PostPro 1, which was configured for 16 tracks. Charlie read a revised scratch narration into the PostPro. Using this as a guide, we constructed the music bed for the show. I then used the SMPTE-stripped, 1/4-inch slave reel to drive the PostPro, and dumped the scratch read to the other track of the slave reel. This done, I could clear off the precious hard disk space I had used to record Charlie's scratch track. Until the final narration was placed, I would simply drive the PostPro with the slave reel and bring up the scratch read off of tape. Next, I began to gather and load sound effects. I tapped our rather extensive libraries, but found them to be lacking in authentic period weaponry. Fortunately, Charlie and crew came back from Texas, where they had been shooting elaborate battle re-creations with DAT recordings of authentic muskets, pistols and cannons.

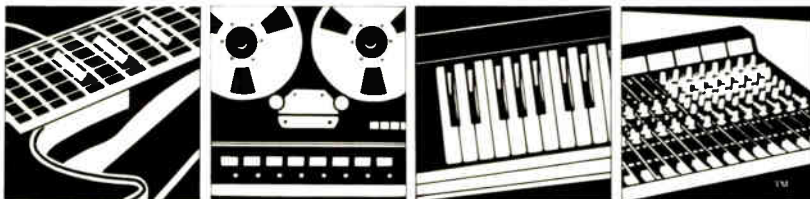
Charlie was able to secure the services of a famous actor to supply the narration. In keeping with the unusual nature of the project, the famous actor, noted for his patriotism as well as his film portrayals of Old Testament heavyweights, agreed to donate his services. His only requests were that his name not appear in print and that he be recorded in his L.A.-area home. I arranged for engineer Randy Yount from

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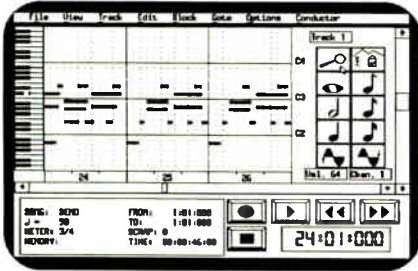
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L.A. Studios to meet Charlie at the actor's home for the recording. Charlie then flew on to Dallas to record Spanish- and English-speaking actors. No fake Seattle/Texas accents in *this* show. Afterwards, Charlie returned to Seattle with the session DATs, and he and I went to work transferring takes to the PostPro for editing. Using the scratch/time code reel as a guide, we began to place narration and dialog against the music.

At this point, we were faced with some final revisions and adjustments that required changing the length as well as the order of the show. This is where the hard disk really excelled. The music was available instantly for scrub editing, looping, crossfading or whatever. We restructured the timing of the show, fine-tuned segues and tweaked the placement of the narration, all in one afternoon.

I then made a rough mix of the music and dialog so that Watts/Silverstein's slide programmers could get to work. Driving the PostPro with my time code/Multivision reference DAT, I printed stereo audio on tracks 1 and 2 of a 1/4-inch, 4-track reel with the time code going to track 3 and the Multivision sync to track 4.

Satisfied that the music was in its final form, we recorded it checkerboarded across four tracks of PostPro 2, configured for 8 tracks. I took the 1/4-inch slave reel and replaced Charlie's scratch narration with a mono mix of the music. I was then able to erase the music from PostPro 1 to free up hard disk space and tracks for more sound effects and submixes. I used the slave reel to drive PostPro 1, avoiding tying up both PostPros until the final mix.

Back at Watts/Silverstein, Multivision programming was nearly complete. Bruce Silverstein set up an HI-8 camcorder in the back of the programming theater and made a video of the show, recording the time code from track 3 of the 4-track reel onto the camcorder's audio track. From this, a 3/4-inch video with regenerated time code was made. This became my visual reference for placing sound effects.

THE PROJECT WAS A
TESTAMENT TO THE
EFFICIENCY OF RANDOM
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Finally, it was time to mix. Lawson Productions is a multiroom complex, with rooms specialized for production and for music. Ironically, it was the music heritage of the facility that made this project possible. Before Lawson Productions came along, Kaye Smith Productions' Studio B was where Heart, Steve Miller, BTO, The Spinners

and others did a lot of work in the '70s. State-of-the-art at the time, the room featured a wonderful quad API board and quad Westlake monitoring. We enhanced and updated the API board, swapped some driv-

ers and changed power amps when we moved in about a year ago. We chose to leave the quad capacity intact. Now it was time to blow the dust off those rear speakers.

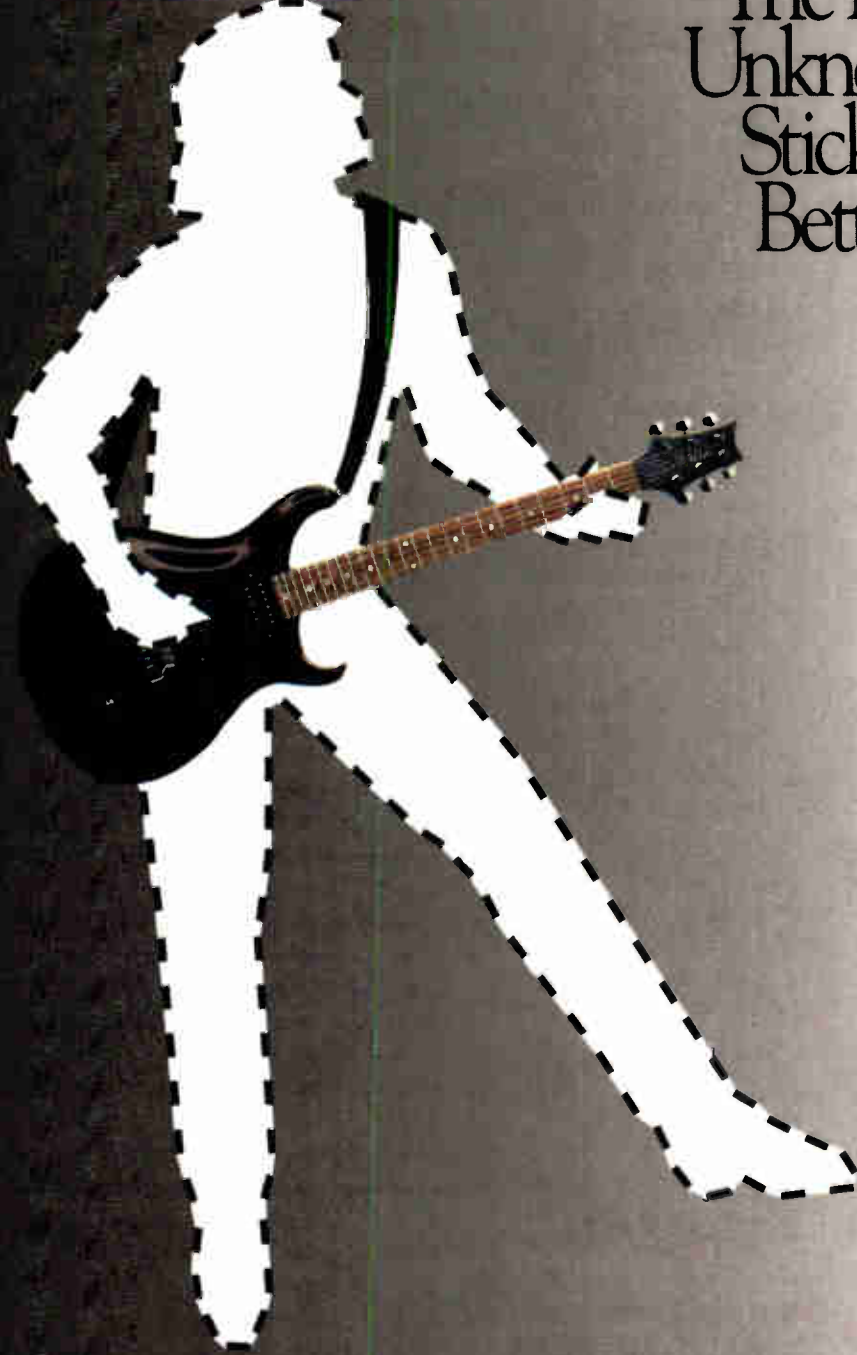
The mix tied up three rooms. The 16-track PostPro is located upstairs in production room D with the 8-track PostPro around the corner in room C. Using a serial data tieline, I located the Mac II terminal in Studio B and was able to control the PostPro in D. It was now a simple matter of multing time code to the PostPros and Diskmix and sending audio through tielines from Studios C and D into B. The destination of the final quad mix was the four empty tracks of PostPro 2. From here I could easily make multiple copies onto 8-track analog for playback at the museum theater. With the PostPro chasing my original reference DAT, I printed the quad mix on tracks 3 to 6 and the Multivision sync from the DAT onto track 8 of the 8-track analog machine.

The result was a highly effective complement to the stunning panorama of images created by the 42 projectors. Given the timeline and budget, the project was a huge success. More than any other project I've worked on, this job demonstrated the impact that random access digital technology is having on the audio industry. Now my clients get more for their money, and I often get home in time for dinner. ■

Vince Werner has been an audio engineer at Lawson Productions since 1984, and he's won many, many awards.



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by Paul Potyen

ARTICULATE SYSTEMS' VOICE NAVIGATOR

Several years ago I saw *Star Trek IV: The Voyage Home*, an entertaining film where, among other things, the heroes of the Starship Enterprise find themselves in San Francisco in the late 20th century. I remember an amusing scene where Scotty and the crew marvel at the stupidity of a Macintosh computer that can't even respond to voice commands.

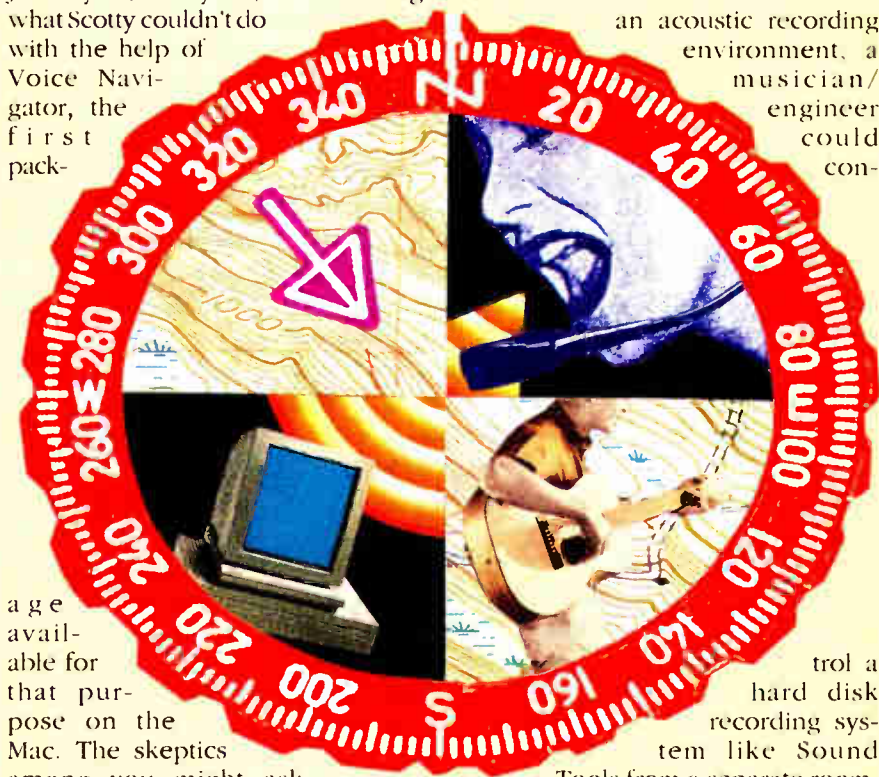
So here it is, October 1990 (or January 1991 for you), and I'm doing what Scotty couldn't do with the help of Voice Navigator, the first pack-

age available for that purpose on the Mac. The skeptics among you might ask, "Who would want such a thing? After all, I know how to type, and I can manage just fine with my mouse or my trackball." Well, aside from the obvious benefits it provides to those with impaired motor skills, voice navigation offers the long-range promise of more direct, intuitive communication with computers.

More to the point, such a system

offers advantages to many of us in the recording industry *right now*. Here are a few examples: In a MIDI tracking or overdub environment, musicians could keep both hands on their instrument, while they use voice commands to operate a sequencer. In mixing mode, an engineer could easily play, rewind or fast forward a sequence using voice commands, while using both hands to control the board or the 2-track recorder. In

an acoustic recording environment, a musician/engineer could con-



trol a hard disk recording system like Sound

Tools from a separate room, isolated from the noise of the Macintosh and peripheral equipment. And I'm sure the more imaginative of you out there will have your own ideas about its usefulness, ideas not thought of by myself or Articulate Systems.

The Cargo

In theory, it's a relatively simple idea; in practice, it's not a trivial matter to

Chip Shots

Opcode Systems has released Studio Vision, a special edition of Vision, Opcode's sequencer for the Macintosh that includes digital audio recording, editing and playback, along with recording and editing of MIDI information. It uses Digidesign's Sound Tools (AD In box and Sound Accelerator card) or AudioMedia card to record and playback 16-bit CD-quality sound. Digital audio can be edited in Sound Designer II Version 2.0 interactively with Studio Vision, allowing the user to automate mixing of digital information via software faders and graphic mix controls. The program also fully supports SMPTE. The retail price of Studio Vision is \$995 (not including the DSP hardware, which is available from Digidesign). Upgrades from Vision are \$500. Opcode Systems Inc., Menlo Park, Calif.; (415) 369-8131.

The newest members of the **Macintosh** family of

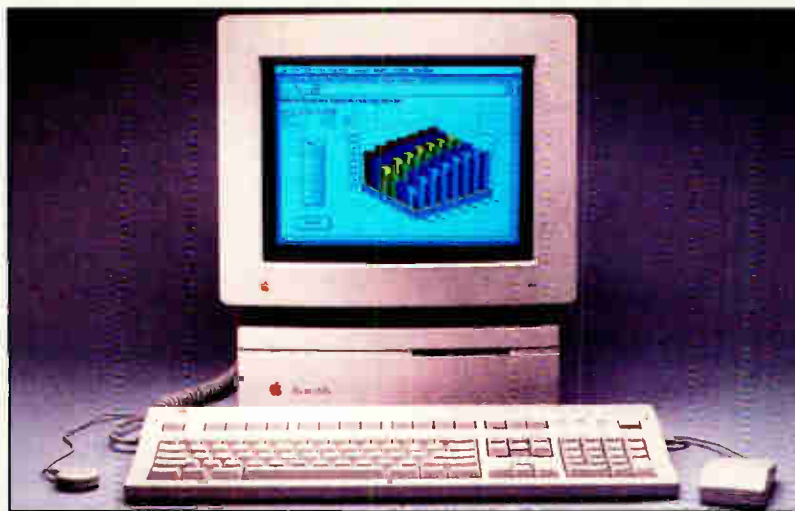
computers announced in October are the Apple Macintosh Classic, the lowest-cost Mac; the Apple Macintosh LC, the lowest-cost color Macintosh; and the Apple Macintosh IIsi, the lowest-cost Mac II.

The Mac IIsi offers built-in support for any of four different monitors and up to 256 colors or shades of gray. It features a 20MHz 68030 microprocessor, 2 MB of RAM (expandable to 17 MB), a NuBus or 030 slot, and a 40MB hard drive, at a suggested retail price of \$3,769. The LC is available for \$2,499, and the Classic is priced at \$999. Both the LC and the IIsi feature built-in sound input and output for adding voice comments to word processing documents, presentations, spreadsheets and electronic mail messages. Apple Computer Inc., Cupertino, Calif.; (408) 996-1010.

Coda Music Software has an-

nounced Version 2.0 of its MusicProse music notation software package. The major upgrade features an expansion to 32 staves, a utility for extraction of parts into separate files for layout and printing, and MIDI Manager compatibility. Registered MusicProse users can purchase the upgrade for \$49; the suggested retail price of MusicProse 2.0 is \$399. Coda Music Software, Bloomington, Minn.; (612) 854-1288.

Spectrum Signal Processing Inc. has introduced its DSP96002 System Board for developing PC-based applications using the



Mac IIsi with 13-inch RGB monitor

Motorola DSP96002 Media Engine. The board provides the most memory of any system board yet available using the DSP96002. Also included on the board: a pair of 16-bit delta-sigma D/A and A/D channels designed to address the high-quality requirements of most DSP applications. Spectrum Signal Processing Inc., Burnaby, British Columbia; (604) 438-3046.

Digidesign Inc. announced a major upgrade to Sound Designer II, the software portion of its Sound Tools Digital Recording and Editing System for Macintosh computers. Among the new features are: compressor/limiter/expander/noise gate, pitch shifting with time correction, data compression and enhanced editing tools. Version 2.0 is available directly from Digidesign for \$195. Customers who can verify that they purchased the system after August 1,

1990, will receive the upgrade at no charge.

In other Digidesign news, Pro Store is a 660-megabyte, high-speed, SCSI rack-mount hard disk drive available through Digidesign dealers. The 2U device is designed for use with its Sound Tools and AudioMedia products, and is priced at \$3,995. Digidesign Inc., Menlo Park, Calif.; (415) 688-0600.

Mark of the Unicorn Inc. has come out with yet another piece of rack-mount gear. The MIDI Mixer 7s features seven stereo inputs with bass, treble, pan and stereo effects sends on each channel. The 1U device operates via MIDI controller messages to give users the ability to control and automate mixes of audio sources from any MIDI sequencer or controller. Designed for mixing stereo sound modules, effects units or even tape recorder and microphone outputs, the MIDI Mixer 7s also has

a stereo auxiliary input and master noise gate with adjustable attack and release time. Suggested retail price is \$595. Mark of the Unicorn, Cambridge, Mass.; (617) 576-2760.

Computer Music Consortium Inc. has released ScoreMaster Production Music Index & Audition Software for the Macintosh. The system includes a complete catalog of six popular music libraries classified into ready-to-use categories; a user-customizable music index; music tracking and license printing; and the ability to preview up to 18 seconds of any selection via CD-ROM. Customers can buy the system with one to six library indexes, with or without the CD-ROM player. Prices vary from \$350 to \$2,850. Computer Music Consortium Inc., New York, N.Y.; (212) 629-4365.



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teach a Mac (which Scotty accurately observed to be a pretty dumb thing) to understand what you're saying and then respond correctly. Articulate Systems provides the following items in its Voice Navigator II package to accomplish that goal: one Voice Navigator II SCSI device with its own 9-volt power supply and SCSI cable, a 78-page "Quick Start" manual, a more comprehensive 400-page "Owner's Guide," a bunch of software, and your choice of microphones. The software consists of three parts: the Voice Navigator Program; VoiceWaves, which contains voice navigation commands for commonly used applications like Word and Excel; and Voice Record, a sound recording and editing desk accessory that can save files in any of the common sound file formats. You may choose between the custom-designed desktop microphone, recommended for office and home, or the headset mic, a Shure SM10A dynamic cardioid mic, recommended for recording studios and other environments where there is a lot of ambient noise.

An accessory worthy of special attention is VoiceWaves Plus, a software package of voice navigation commands for MIDI, desktop media and desktop publishing applications. Priced at \$69, the disks include preprogrammed voice commands and voice macros for Performer, Master Tracks Pro, Vision, Q-Sheet A/V, HyperCard, SuperCard, Director, PageMaker, Quark and many other applications. Also available for \$229 is a Nady remote wireless mic with either a lavalier or handheld transmitter.

Setting the Sails for Navigating

Setting the system up on my Mac II was straightforward, and made even easier by the readable "Quick Start" manual. Both the Voice Navigator II and the custom SCSI cable have 25-pin-to-25-pin connectors, making it difficult to connect to the computer in any other way than the recommended configuration as the first SCSI device in a daisy chain. The headset mic (with its 6-foot cord and 10-foot extension cord) plugs into the SCSI device, which has an LED-type VU meter.

Software installation is equally simple, and the "Quick Start" tutorial does an excellent job of familiarizing

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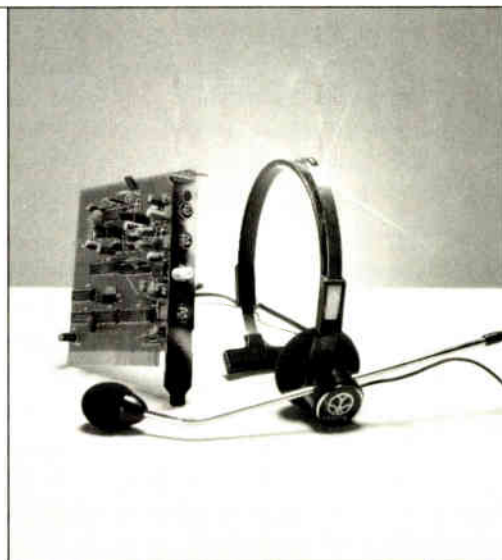
you with the concepts involved in voice navigation. Briefly stated, for each application there is a language

VOICE NAVIGATION ON THE IBM PC

Covox Inc. (Eugene, Ore.) has released an upgrade to its Voice Master speech processor for the IBM PC and compatibles. Up to 1,024 voice commands with user-defined keyboard macros can be added to virtually any existing DOS application. With expanded memory, Voice Master requires less than 8K of DOS memory, which keeps it compatible with memory-hungry applications. The user interface features pull-down and pop-up menus, mouse support, help files and extensive editing capabilities.

The circuit board uses direct memory access for recording and playback. Sound files can be recorded directly to hard disk at sampling rates up to 20 kHz. Programming tools and libraries for voice recognition, sound digitiz-

ing and multipart music are also available for custom and OEM applications. Suggested list price is \$189.95. Contact Covox Inc. at (503) 342-1271 for further information.



ing and multipart music are also available for custom and OEM applications. Suggested list price is \$189.95. Contact Covox Inc. at (503) 342-1271 for further information.

and at least one corresponding voice file. A language is a predefined but customizable set of commands—not unlike a set of macros that have been created for you. The voice file is used to create your own voice print that will execute a selected command in that language.

“Quick Start” takes you through the process of training the Mac to understand your voice in order to execute some commands in the Finder, like “View,” “By Name,” “Empty Trash” and “Close Window.” It’s important to remember that if *you* train the Mac to respond to your saying “Empty Trash,” it’s a good bet that it won’t respond to your second engineer saying the same thing. That’s why you create a separate voice file for each person using the computer.

Having mastered the basic concepts in Finder, I proceeded to try to use my voice to control Mark of the Unicorn’s Performer 3.5 sequencer. It turned out to be a good lesson on the customizability of VN. I opened Performer and then selected VN’s “Voice Options” dialog box. (It can be selected either from the Control Panel via a key command, or by

problems. I selected the Performer 3.3 language and was presented with a list of voice commands to control that program, such as “Play,” “Stop,” “Record” and so on. Hundreds of commands are available, and it’s up to you to train your voice to as many as you wish. I picked “Play” to start with. Voice Control asked me to say “play” three times and averaged the data. Then I went to Performer to see if it worked. The computer recognized my command, as evidenced by a display of that voice command on the right side of the menu bar. But Performer didn’t respond because the macro created in Performer 3.3 was a mouse movement that no longer corresponded to the new Performer 3.5 screen.

Check Coordinates, Mr. Sulu

It was time to enter editing mode. Languages can be edited in two basic ways: through voice commands, or by using a DA called LanguageMaker. The former method uses edit mode to allow you to change the name of the command and/or its output. If you want to change the output, you will want to familiarize yourself with

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the VN command language—a little like HyperTalk. LanguageMaker gives you these same options and more, like the ability to create new commands and the ability to use the mouse and keyboard to create macros for those commands, much like Quick Keys or MacroMaker. (In fact, you can create voice commands to execute macros you have previously created using these other programs.) In addition, LanguageMaker gives you the powerful option of creating a set of commands automatically for any application that is not supported by VoiceWaves or VoiceWaves Plus. The downside to using LanguageMaker is that if you want to verify a new command, you must first compile the edited language, which can take up to several minutes.

Having modified the output of the "Play" command in the Performer language, I verified that Performer responded as desired. After creating and modifying a number of my most commonly used commands, I transferred into Vision, opened the Vision language file provided by VoiceWaves Plus and was pleased to note

that the same "Play" voice command I created for Performer worked to control the play command in Vision. Commands such as "Rewind" that didn't exist in the Vision Language were ignored. Finally, I opened Sound Designer II and used LanguageMaker to create a set of commands for this application. I created a new command called "Play," which consisted of a mouse click and hold on the speaker icon in Sound Designer. Voila! Sound Designer was now slaved-to-voice.

I don't mean to make this process seem trivial. On the contrary, it can be a very elaborate and time-consuming procedure to fine-tune your files to minimize false triggering of some commands and consistent recognition of others. VN II provides many adjustments and many ways to accomplish these tasks, which means that the waters get deep pretty quickly. You must be aware of the hierarchical nature of the commands—for example, if you say "By Name" without first saying "View" while in the Finder, your command will be ignored.

Transmission Problems

The use of the headset microphone

is a must in most music and recording environments. Even with it, you must be aware that if you're talking to someone else or prone to mumbling to yourself, you're open to unpredictable false triggering of commands. Even the best close-range directional mic can cause the same problems in an environment full of other sounds. There are some things you can do to minimize false triggers when teaching the computer to recognize your voice commands. First, record your voice commands with typical ambient background noise, such as playing tracks at a typical level in the room. Another trick is to record coughs, sneezes and your favorite profanities as commands having no output.

Voice Navigator II is available now from Articulate Systems, Cambridge, Mass., for \$795. The phone number is (800) 443-7077. Speaking of phone numbers, their technical support is the best I've experienced for any Macintosh product. ■

Mix associate editor Paul Potyten used Voice Navigator to create the voice command "Beam me up, Scotty," but he's still working on the output.

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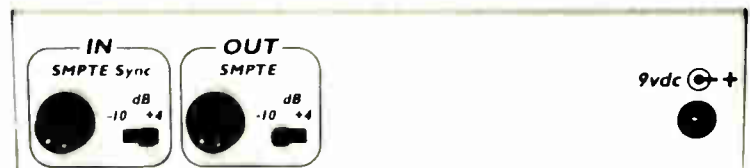
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by Dan Daley

LAVSKY MUSIC

THE ULTIMATE PROJECT STUDIO?

Project studios are here to stay. The proliferation of media outlets, especially cable, and the tightening of budgets has made this new middle class a viable alternative to the traditional music house, recording studio sequence for advertising agencies and others who need commercial audio.

The widely held view of project studios as a rack of synthesizers and some outboard gear hooked to a computer in someone's bedroom becomes more inaccurate each week. As the better ones get more work, they move into dedicated spaces, expanding the middle of the industry.

How far can a project studio go?

chronization gear comes off assembly lines. Digital technology is blurring the line between signal processors that cost less than \$1,000 and ones that cost ten times that. And one of digital recording's fastest growing aspects is small yet sophisticated 2- and 4-track tapeless systems, such as the Studer Dyaaxis.

Take It to the Limit

Just how far a project studio can be taken is shown by Manhattan's Lavskymusic, founded and presided over by Richard Lavsky. A pair of Synclaviers occupy two of the facility's three rooms; another Synclavier room



There are more 24-track operations around than you might think, aided and abetted by a healthy used equipment market. A few multiroom project facilities exist in larger markets, usually with a split of multitrack and 2- or 4-track decks. Video is an integral part of the new middle class, as less expensive and less complex syn-

is under consideration. One of the Synclaviers is, at least at this writing, the world's largest, with 64 sampling voices, 32 FM synthesis voices, 64 megabytes of RAM and eight tracks of Direct-to-Disk™ recording. (This Synclavier, built specifically for Lavskymusic, became the prototype for New England Digital's 9600 Series

**Lavskymusic
principal
Richard Lavsky
at the
Synclavier**

STUDIO VIEW

Synclavier edition.) Otari MTR-90 and Ampex 1200 24-tracks are present but rarely used.

The company is one of the industry's earliest examples of a project studio. It opened in 1967 as Dick Lavsky's Music House, a cluttered downtown location filled with Moviolas for Lavsky's film and commercial audio work. Three years later he moved to 42nd Street near Fifth Avenue. An early Lavsky acquisition was one of the first three Moog synthesizers built by the venerable Robert Moog. "I still have it," Lavsky beams. "It's a great paperweight." It probably is, since it required a separate oscillator card for each key on the keyboard.

Over the last 20 years, Lavskymusic slowly built its recording capabilities—from eight tracks to 24 to the 200 virtual tracks in the Synclavier—as business increased for Lavsky's audio and compositional talents. Today, 14 Clio Awards greet visitors in the lobby area. Lavskymusic's client list includes most of the major agencies in town, and some of his more familiar work are the themes

from *ABC World News Tonight with Peter Jennings* and the cute-but-maddening "Chow, Chow, Chow" campaign of a few years ago for Purina.

The term "project studio" hardly seems applicable to the \$4 million facility, but under the relatively rigorous definition employed in this space, it is: Lavskymusic doesn't rent itself out on a time basis, and all its revenues are derived from in-house productions. The few experiences Lavsky had with studio time rentals earlier in his career soured him on it, and he claims to have been turning away enough business in the last few years to not have to contemplate that possibility any further.

Still, in an environment in which Korg M1s and Yamahas dominate equipment lists, it appears to be a stretch to conceive of Synclavier-loaded project studios. However, notes Lavsky, his studio is simply the trend of the future taken to the technology's current limits. He readily acknowledges that smaller and less expensive 2- and 4-track digital tapeless systems being installed in other project studios have him looking over his shoulder. "That sort of thing

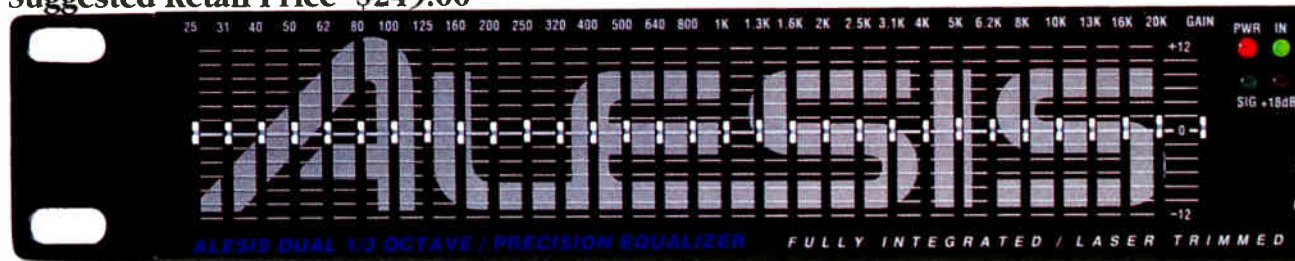
will pull business away from us at some point," he concedes. "As time goes on we'll need to push ourselves harder, otherwise we can be undercut by the technology, because other places will be able to operate less expensively than we can."

New Technology, Vintage Attitudes

But there's more to the equation here than simply technology. Few people without a history and base in the industry could go out and convince a banker to lend the kind of money Lavsky put into his facility to build it from scratch. Getting to the point where such an investment is feasible means you've been around the block long enough to know how the advertising business works. So, part of Lavskymusic's success is attributable to an interesting blend of traditional attitudes toward the advertising world, and a healthy risk-taking mentality when it comes to investing in new equipment.

After 20-plus years in the jingle game, Richard Lavsky knows how to get a guitarist to play less "busy" (put a chart in front of him or her) and how to handle a client who asks for

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a piece of music to be played an octave slower (say nothing, smile, nod, offer a croissant or ask about the kids). Certain things simply don't change in that business. However, he is acutely aware that the landscape on which his business is built is changing, especially in New York, as agencies buy each other out and merge, responding to a shifting media marketplace and demands for new sounds. Lavskymusic, like other project studios dependent upon steady clients, has to do all it can to keep relationships in place during unsteady times.

Add to that the fact that not everyone in the jingle world is completely sold on digital recording. "Sometimes it's a struggle when clients don't want to take a chance," Lavsky says. "They say they want to, but when you come right down to it, they're scared to change. It's understandable since entire careers ride on decisions like that."

Lavsky is convinced that project studios, both techno-palaces like his and smaller ones, will co-exist in the future with commercial facilities. "People are getting tired of the synthesizer sound in general," Lavsky

explains, "and that guarantees the survival of a certain number of larger commercial studio-time facilities. Acoustic sounds are more important, and for those you need a recording room. People will go to facilities that can offer that, or they'll have to build them themselves." And the client's desire for a *bit* of excess means that nice-looking places will still be needed. "You can do a lot with some equipment in a bedroom," says Lavsky, "but you still can't take the client there."

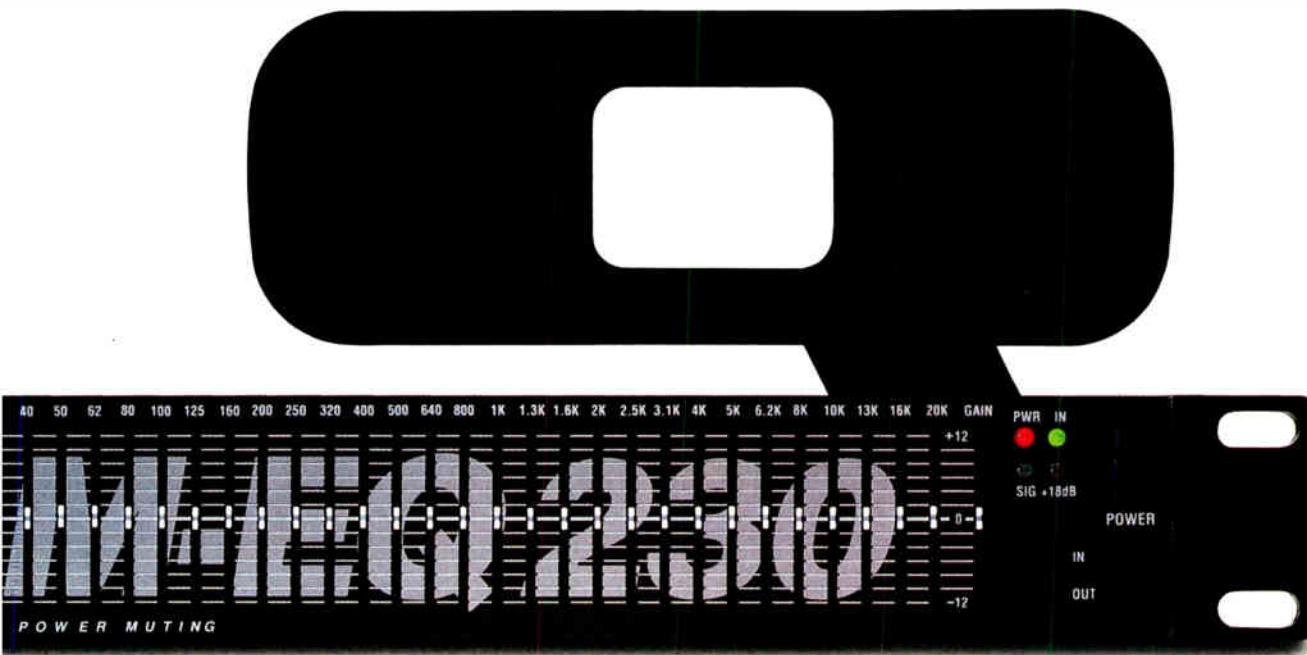
Lavskymusic has enough recording space and digital technology, as well as a relatively sumptuous ambience, to keep the old-fashioned agency heads satisfied. However, Lavsky acknowledges, some of the younger gray-flannel types prefer the grungier environs of downtown and the less plush studios congregated there.

There's little likelihood that many project studios as highly equipped as Lavskymusic will appear in the future, and those that do appear will probably be mutations of existing project studios. Despite the appearance and proliferation of smaller tapeless recording systems on the

market, the costs of comprehensive and complex systems like the Synclavier aren't coming down substantially. "If I was starting out cold today, I couldn't do this," concedes Lavsky. "I'd have a bedroom studio myself."

While Lavsky is optimistic about the future (you would be, too, if you were that heavily capitalized), he is aware that changes in the advertising world and an impending recession could adversely affect his studio. Certain expenses, like debt service and rent, can't be cut back. "I could back off on some of my own advertising, I suppose," he states, "but in the long run I don't think that would be too smart." Lavsky maintains a "lean" staff of writers and has relationships with several freelancers. "Those would be the first to be cut," he says. "You need to go by gut feel. That's the way it's always been in the studio business, and that's one thing I don't think will change, no matter how the business or the technology changes. You have to go, in the end, by your instincts." ■

Dan Daley is a Mix contributing editor.



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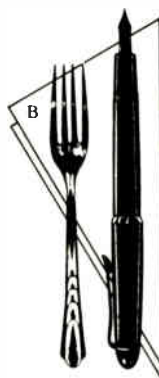
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**Slightly higher in Canada*

by Mr. Bonzai

WALTER BECKER

STEELY MAN



Steely Dan is an endless kiss, a cool fingersnap, a slow dance, a fresh squeeze. Walter Becker and Donald Fagen give you a liquid kaleidoscope of Bodhisattvas, Babylon Sisters, Bad Sneakers and FM—with Santa Ana winds and no static at all. You may not understand it all, but you probably don't care. This is first-rate stuff, and it just gets better with age.

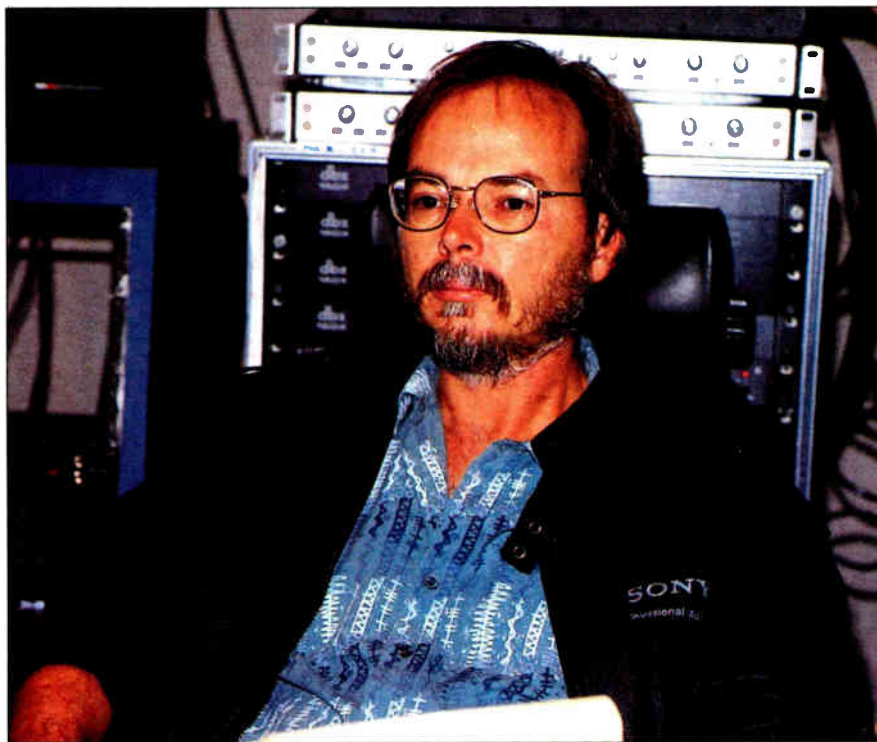
As co-honcho of Steely Dan, Walter Becker has created some of the most

"Okay, it's a deal," he said. "I'll be back again from Hawaii in a few weeks."

Becker and Fagen launched Steely Dan in 1972 with their debut *Can't Buy a Thrill*. At a leisurely pace, they turned out masterpieces for the following decade. Fagen has done some exemplary solo work, and Becker has been producing. His recent efforts include Rickie Lee Jones' *Flying Cowboys* and the upcoming *Blue Pacific* from Michael Franks.

And the good news is that Fagen, Becker and engineer Roger Nichols are once again in the back room cooking up some new juice.

I arrived early at SoundWorks West and was invited into the studio to listen to a few Bob Shepard tunes produced by Becker for Windham Hill Jazz. Nichols, the stalwart engineer, cranked up the sound, and I cooled off with the superbly articulated jazz. Becker arrived and we retired to



striking collisions of music and language in modern popular culture, as well as taken his guitar and bass where few have dared to party. I ran into Becker at the AES convention last fall and suggested we have a chat for the record. "Do you really have lunch?" he asked.

"Hey, I've got the food-splattered silk shirts to prove it," I explained.

the patio.

I set down a little *obento* lunchbox packed by Mrs. Bonzai—some *tonkatsu* pork cutlets, rice balls laced with purple *shiso* spice, pickled turnips, and garlic cloves packed in plum paste. Becker unfolded the Bird of Paradise leaves from the Bonzai garden and we began to chew the fat.

Bonzai: Let's start at the beginning. What's the first music you heard?

Becker: The first music that I remember hearing is '50s pop music. Rosemary Clooney comes to mind. I remember being in the back seat of my father's car, driving down the Westside Highway in New York City, reading the beer billboards for Rheingold, Knickerbocker, and hearing this music coming from the radio. Big band stuff, cheesy little songs. I also remember going through all these 45s at home and finding one by Nina Simone: "Love Me or Leave Me" with "I Loves You Porgy" on the flip side. That's my primal recollection of music.

Bonzai: Did you feel early on that you would be a musician?

Becker: I didn't really feel that I was going to be a musician until I started listening to jazz when I was 11. That's when I got interested in playing. My father got himself a hi-fi and he had a Dave Brubeck record. It was recorded live, so it didn't have so much of the weird time signature stuff. Just a blowing thing, and Paul Desmond was incredible. I listened to this over and over again until I

knew every note, every solo. I thought it was the greatest thing in the world.

Bonzai: Your first instrument was saxophone?

Becker: I did try to play the sax and it was a big failure.

Bonzai: I tried the trumpet for a year and gave it up.

Becker: These instruments make your mouth hurt; they're very crude. They don't play in tune unless you make them play in tune.

Bonzai: What came next?

Becker: Guitar. This was around 1966, and more interesting things were starting to happen in pop music. I got a Bob Dylan record and had friends who played guitar. I thought, "This is great—pretty easy. I can do this right off the bat."

Bonzai: Were you self-taught?

Becker: Yeah. I learned informally from other people playing, but had no academic training.

Bonzai: What have you learned from Donald Fagen?

Becker: I learned so much from Donald over the years. I think it would be impossible to work with

somebody, the way that he and I work together, without learning something almost every day. When I started working with Donald, I watched him and got the idea of how you could play piano and write music, which I can just barely do now. Nevertheless...I also learned a tremendous amount about harmony and songwriting from Donald—the ways of constructing songs. And I think there were many things that we learned together. Having an ongoing writing collaboration process is a great growth experience. If it works, it accelerates your trial and error tremendously. You have someone there to say, "Yeah, that's great," or "Failure." You come to a consensus more quickly.

Subsequently, I found out that when you're working by yourself it's a lot harder to sort out what's going on. When you are writing with someone, you not only have a partner, you have an audience for ideas. That is tremendously valuable. You don't wander in the desert for quite as long. I couldn't begin to tell you the scope of things that I learned from working with Donald over the years.

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When you're writing alone, you have to be much more rigorous in the pursuit, because there is no one else to keep you entertained, and to keep you going when your momentum sags. There is no one else to pick up the ball and move with it.

I've discovered that if you are writing alone, if you can get yourself to that spot where you are actually sitting down and going to do it for a couple of hours, then you are already halfway there. If you've made the compact with yourself to confront the creative process on a regular, ongoing basis, you're on your way. It's amazing how much time can be spent with the gyrations that go on in one's life to avoid that point of just sitting down and getting on with the work. A songwriter will tell you, "This is my life, my work," but it's incredible the lengths he will go to avoid it.

Bonzai: Is one of you more predominant in the lyric writing, and the other in the music?

Becker: Well, in terms of music, Donald was always more able to articulate things because of his keyboard technique and his harmonic sophistication. The two of us developed a way wherein I could participate in that process by getting him to play certain things, which I never learned to do myself. Subsequent to our collaboration, I've had to go back and learn more. I became so adapted to this partnership that in some ways I didn't pursue things independently to the point where I was really able to do things that I wanted to do.

As far as lyrics go, we usually had some kernel of an idea and we sat down and thrashed it out together. In some cases, one of us wrote most of the lyrics, but for the most part it was just the two of us sitting around like the two of us are sitting around now. Trying to think up words that fit the rhythm and the melody.

Bonzai: Steely Dan songs had such great images—crisp snapshots. You can listen again and again, but in some cases, I can't figure out what's going on.

Becker: Me neither, sometimes. [Laughs]

Bonzai: Like clips from a story. I don't see the whole story, and I have to put it together from the images

that are presented.

Becker: When you think about it, if you try to tell little unusual stories in pop songs—and then actually sit down to write them—you have just a very few words to work with. You have to be willing to settle for alluding to things and trying to invoke familiar things, because there is just not enough space—unless you are going to write a different kind of song than the ones we were writing, where you don't have concise, well-defined melodies...songs with more of a Dylanesque outpouring of verbiage.

We ended up with these fragmentary effects just because they had to be so concise and we were trying to avoid the same story over and over again. It's hard to write a successful song that's not a love song, or one of the seven types of pop songs that have been written to death. Sometimes you can only partially accomplish what you set out to do.

Bonzai: And now you've reunited with Donald and Roger?

Becker: I'm co-producing Donald's album. He's been writing for quite a while. We started in New York, worked for about five weeks, and now we're going to work on a couple of tracks in Hawaii at my place. It's been delightful. I always have a great time working with Donald. We enjoy each other's company, and over the years we've developed our own little corner of the marketplace where we set up our tent. Even if we haven't been together or talked a lot, we immediately have a rapport and fall right back into a routine.

Bonzai: Yes, I think there is a Steely Dan territory that no one else has touched.

Becker: Or would even want to, really. [Laughs] I always figured it was like some little side street. There was something wrong with it, or nobody was there. So we got this little shop there, and we built up our little trade.

Bonzai: I imagine a lot of people wonder why Steely Dan dissolved. What happened?

Becker: It kind of started dissolving almost the moment we got it together. It was one of those things. It was never a stable configuration. I think the most stable period was at the point when it was just Donald and myself. Various bandmembers started to drop out, then for the last

few years it was just the two of us. What really happened was we had been doing it for a long time. Maybe it seemed like we were joined at the hip. And even more important than that, to be quite candid with you, there were a number of personal problems in my life. It made it impossible for anyone to collaborate with me for a period of years. It just got worse and worse, to the point where it was not possible anymore. Drugs are basically what we are talking about. So, that's what happened.

But I feel that it was something that needed to happen anyway. We would have grown apart in some other way as well. Donald needed to do what he does. He's so talented, and to have to feel obligated to collaborate with me was not right for him. As it turned out, it began a whole new chapter in my life. I ended up moving to Hawaii and doing things that I needed to do for my own well-being.

That can get neglected when you are involved in this intense work process. It's easy to forget everything. As you know, people are famous for being locked away in studios and everything else goes to hell.

Bonzai: It's a weird life.

Becker: It's a very weird life. Last night we got out of here around 3 a.m., and I had completely forgotten about the larger world. Been in this building for three days. It seemed fine.

Bonzai: You two were notorious for spending a lot of time in the studio on your albums. Of course, it takes as long as it takes.

Becker: That's true. You know, I finally realized something after moving to Hawaii and not doing anything professionally for a number of years and being perfectly happy with my life. Suddenly, I woke up with this craving to get back into a recording studio.

I realized that the recording studio is just about the best place to be on an afternoon. You've got your couch, your air-conditioning, all those knobs, great speakers. There is no hi-fi after you've worked in a recording studio. It's never going to sound as good as it sounds when you are hearing a master tape.

At this point, Roger Nichols walks by to shut the gates to the studio patio.

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Bonzai: There's a guy you've spent some time with in the studios.

Becker: I was going to say, the neighborhood seems to be deteriorating...at a rapid clip.

Bonzai: Get outta here, Roger. We're going to talk about you.

Nichols: Just thought I'd shut this gate so the transvestites couldn't get in.

Becker: [Laughs] Good idea.

Nichols: Maybe I should leave it open.

Nichols smiles and returns to the studio.

Bonzai: I imagine that most of your records were created with overdubs and elaborate production, but they sound so tight and live, with such a solid groove. How did you accomplish that?

Becker: This is something that has always amazed me—that you record all these little bits and pieces, layer upon layer, and then you play it back and it sounds like it happened at the same time. All I can say is to make

that really work well, like so many other things, it depends on the choices that you make as to what is a good overdub, or what the tracking needs.

We were working with 24-track recorders for years, and for the most part we would record until all of the tracks were filled. Then we would stop and mix the tunes. I can't remember too many times when there were open tracks. If there had been 32-track recorders, the records probably would have had tons more junk on them and not sounded as good. I would say that it was a lucky break for us.

Bonzai: Let's touch on the technology now. What's your latest toy?

Becker: Well, they're delivering the WaveFrame digital workstation today, and I'm looking forward to using that. I think that the technology in the studio has gotten so good that it enables you to work in much more exciting ways than in the past. If what you do involves editing, the random access hard disk is great, as is the system that they have here at SoundWorks with the two Sony 48-tracks. I did a project here not too long ago with Michael Franks. Al-

most all of the playing on the record was live tracks, and we did very little in the way of overdubs. But, we were able to do extensive editing so that we could get the best stuff from different takes and gather it together.

The system with the two digital machines is so well-designed for that. It makes it easy to do what would have been so oppressively difficult in the past that you wouldn't even have attempted it. That, to me, is a real advance. When you get some infinitesimal improvement in audio quality, it's good, but I'm impressed with something that really allows you to capture and record better music, get fresher things on tape. It makes the quality of what you're doing musically better, rather than sonically more pristine. I think that is meaningful, and that's what I look for in the technology.

Something that has changed the way I work as a writer is using computers and sequencers. It allows you a level of spontaneity that is important. You don't even have to think about what you're doing when you start. You can just play something in and then assemble and edit, save

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the good parts, throw away the garbage and work from there. It has created a very effective and intuitive writer's system for me. But I'm sure that different people get different results, depending on how they use them.

Bonzai: As a writer, I love the word processor, but I'm glad that I learned with a manual typewriter and moved up to electric. Do you feel that way about the progress of your career and the technology?

Becker: Absolutely. It's very easy to get lost in the technology. There are a lot of people who have done that, who are overwhelmed by the possibilities because they really haven't learned how to do what it is they want to do in the first place without technology. For example, you have a sequencer program—I use Vision—and you can do anything. You have so many choices that if you don't have an initial idea of how you want to work, you'll spend all your time making choices. And you will never find an effective work rhythm. You'll just be wandering around in the wilderness of possibilities. But if you know how to write, and what is important in the writing stage, you



Nineteen years and counting: Walter Becker and Roger Nichols continue to collaborate, now working on Donald Fagen's new album.

can go straight to it.

Bonzai: Let's shine the light on Roger Nichols, a guy who has been through it all with you and Donald. What has

he contributed?

Becker: I was just thinking about this last night as we were working. Roger and Donald and I worked



LUNCHING WITH BONZAI

together for so long that we became specialized parts of an integrated system. Roger made it possible for us to do things that we couldn't possibly have done otherwise. He made it possible for us to not think too hard about how things would get done. To this day, when I am working with Roger—mixing, tracking, overdubbing—and I want to do an EQ change or something with the board, I tell Roger what it is I want rather than going and touching the knobs myself. In all probability, I would turn the wrong one or screw something up. I let Roger do it because we are able to communicate so clearly. He's so talented at what he does; I don't muck about in his arena.

This may not be common, because I often see producers all over the console doing this and that. There's nothing wrong with that, but it's not the way of working that has evolved for me. In general, Roger does these things so well, and so effortlessly, that it allows me to keep the creative flow going in terms of musical ideas. That, to me, is most valuable.

Bonzai: Has it ever reached an ESP level of communication?

Becker: From the very outset. That's why Don and I started working with Roger in 1971 at ABC. We were used to discussing what we wanted and then telling the engineer what it was. With Roger, by the time we had decided, he already knew. We very rarely had to tell him anything. And still today, that's what he does. Also, as things progressed, Roger always learned what he needed to learn—reading music, developing some new technology. When we needed something, he would invent it.

Bonzai: I'd like to hear about some of the musicians you've worked with. Tell me about Victor Feldman.

Becker: I remember when we first started working at ABC Studios and seeing these trunks with his name on them. Don and I knew about Victor Feldman from his work with Miles Davis, Cannonball Adderly and other greats. He was a master musician with so many instruments. His most interesting quality as a percussionist was his ability to sync into the overdub process and play something that sank perfectly into the existing ma-

trix. There are only a few who are able to do that well.

In those days, you would often have a track that wasn't perfectly steady—to put it charitably—and Victor was able to smooth out the rough things in a track. Most musicians who come in to play on a track that has problems will make it sound worse. "How can I play when it slows down here and speeds up?" Victor found ways to tie one moment to another moment smoothly.

And as a jazz player, Victor had real insight into what we were trying to do with these pop songs. He was such a great improviser—always perfect and always interesting. Victor was a real gentleman and is sorely missed.

Bonzai: Jeff Baxter has cut some memorable tracks with you guys.

Becker: I'd say he's cut a bloody swath! [Laughs]

Bonzai: How did it work? Did he come in with the stuff, or did you pull it out of him?

Becker: Jeff is a musical party waiting to happen. We just had to drop the hat and he did it. He's like a force of nature, with tremendous energy and a wide range of styles. He was

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coming from a musical background that had elements which were fairly unfamiliar to Donald and myself. He was able to make a real contribution, especially with the pedal steel guitar and that real chicken pickin' guitar approach. We had a place for him to sit and that was all that was needed. A few beers maybe.

Bonzai: Jeff, of course, likes to perform live, but you seem to have stayed away from the stage. How much touring did you do?

Becker: About two years. Don and I wanted to write songs and make records. While we were writing songs, Jeff and some of the other guys were waiting around, or playing with other bands. There was a conflict with touring. Don and I couldn't get any writing done, and we didn't want to be flying around and doing shows.

Bonzai: Do you still feel that way?

Becker: Well, I haven't performed in public for many years. Donald is doing some tours now, and I think he's enjoying it. You have to remember, we wanted to make records and suddenly we were in *show business*. There is a difference between being a musician and being in

show business. Donald and I didn't want to be in show business.

Bonzai: The name Steely Dan comes from a novel by William Burroughs. Who picked the name for the group?

Becker: We had an old song that mentioned a Steely Dan, and we needed a name for the group. We had a record coming out and it sounded good. Here was Jeff with this steel guitar, and it seemed like a neat little joke at the time.

Bonzai: I find that some people still don't realize it refers to a dildo. How does it feel to have a major part of your life identified with a dildo?

Becker: I'm proud. [Laughs] I can't think of any marital appliance I'd rather be identified with.

Bonzai: Do you know any business tricks that would be useful to those struggling to save their butts in the music business?

Becker: Hmmm. You know, it's just not my long suit. Our motto has always been: "Lose money on every deal; make it up in volume."

Bonzai: If you could choose anyone to produce, who would it be?

Becker: As a producer, I'd like to work with new artists, and with

bands who write their own material. Many established artists have it covered in the studio and know how to do it. I'd like to work with people on their first albums, with artists who need someone to help them capture it.

Bonzai: What is the biggest quirk of the Becker nature?

Becker: In any social milieu or setting, I always feel as if I don't belong there. That's how I fit into social settings, as an outsider. I don't know why that is, but as long as I can remember, I have felt like that.

Bonzai: You live in Hawaii—seems like you're sittin' pretty these days.

Becker: That's one of my big problems. Complacency. In some ways, I am sitting pretty. It would be easy enough to just sit back and enjoy life, which I did for a while. But I'm actually happier when there is some sort of struggle. Most of the people I know in the arts, and in music, feel like that. We need something—a big boulder to push uphill. ■

In honor of William Burroughs, this month's column is hereby dubbed "Naked Lunching with Bonzai." Film at 11.

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World Radio History



Audio Production '90

A FACILITIES SURVEY

Mix's annual Audio Production Facilities report is an industry study about studios and other facilities offering recording and post-production services. Although the most common business activity of these facilities is audio recording and production, other services such as video and film post-production, live sound reinforcement and tape duplication are also represented.

The most significant business concern cited by the facilities in this study is finding new business (63% of respondents). Overall, respondents reported that their revenues have risen during the past year, and that they expect revenues to increase even further during the next 12 months.

Survey Respondents and the Work Environment

The facility owner/managers participating in the survey are located in 41 states and territories across the United States. The greatest numbers of participants are from California (21% of respondents) and New York (13%).

On average, the facilities have 5.2 full-time and 3.3 part-time employees, but most have fewer. Fifty-nine percent have between one and three full-time employees; 38% have between one and three part-time employees. The average gross monthly salary of full- and part-time employees ranges from \$1,125 to over \$2,300, depending upon job title and function.

The typical facility consists of one to two control rooms, studios or stages, and isolation booths, and often includes an additional specialized work area or room—for example, a MIDI production room. The average size of studios and stages is 1,239 square feet.

Forty-eight percent of facilities have been in business between four and ten years, with an average of 8.8 years and a median of 7.1 years. The main business activity of almost 60% of all facilities surveyed is commercial music recording and production.

The services most frequently made available are studio recording and mixing, creative services (producing, artist management, graphics, etc.), MIDI pre-production and audio post-production for video.

Forty-three percent of survey respondents plan to offer additional services over

the next 12 months, the most common being audio post-production for video (37%), MIDI pre-production (23%) and tape duplication (23%). Only 7% plan to discontinue some services during the same period.

Equipment and Resources

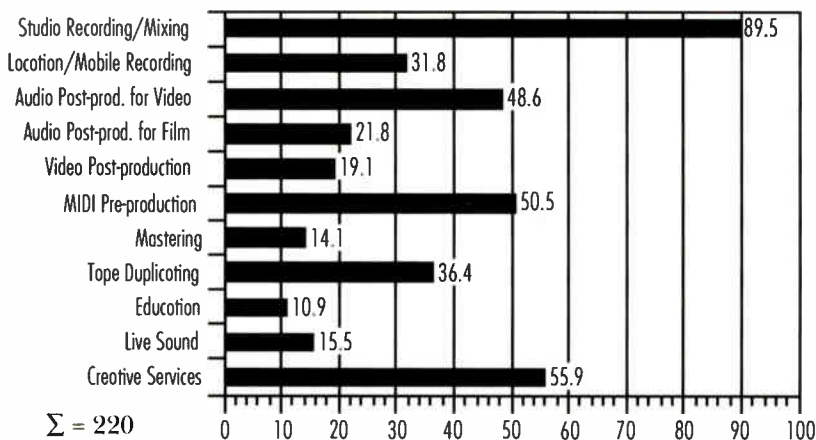
Fifty-nine percent of the facilities surveyed spent between \$5,000 and \$20,000 on audio equipment over the past 12 months. Seven percent more facilities plan to spend over \$10,000 in the next 12 months than spent this amount in the past year.

A minority of facilities account for the majority of video and film equipment purchases. Approximately 37% of all survey respondents indicated their facility's expenditure on video or film production equipment for the past 12 months; 13% of these respondents spent between \$50,000 and \$500,000, and 11% spent over \$500,000.

Sixteen percent more facilities plan to purchase video/film equipment in the next 12 months than bought equipment in the past year. Of the respondents to this question, 53% plan to spend less than \$20,000.

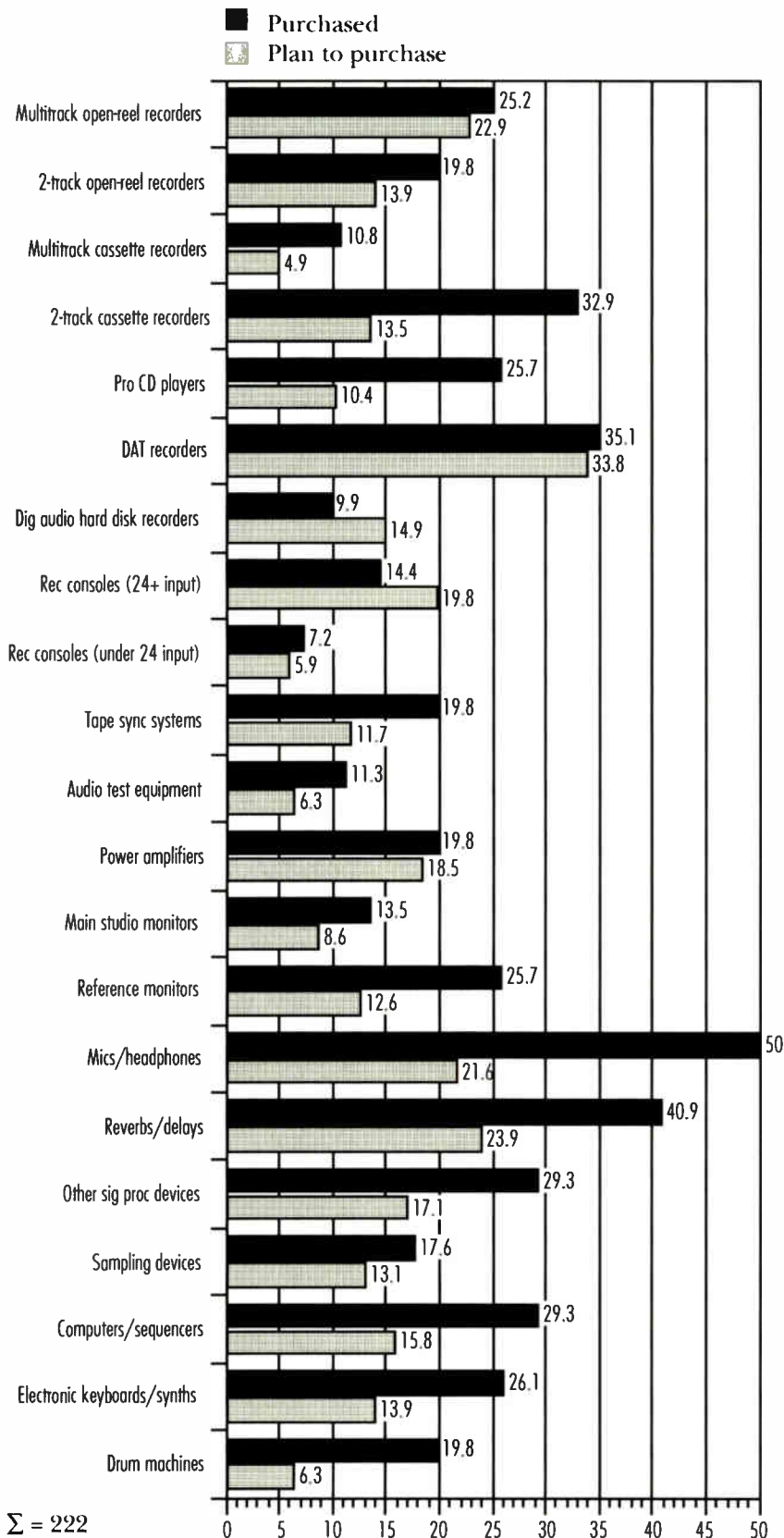
Types of Services Currently Offered:

Please indicate the types of services this studio/facility currently offers. (Multiple response question)



Audio Equipment Purchased/Plan to Purchase:

Please indicate the types of AUDIO PRODUCTION equipment this studio/facility PURCHASED over the PAST 12 months and PLANS TO PURCHASE over the NEXT 12 months. (Multiple response question)



Assessment of Market and Revenues

Most of the facilities surveyed are fairly small businesses. Thirty-one percent of respondents report total revenues of under \$25,000 for audio production services in the past 12 months. Twenty-one percent of respondents had revenues between \$100,000 and \$250,000, and 20% had revenues in excess of \$250,000.

Fifty-seven percent of the facilities that provide video or film post-production services report an annual sales volume of under \$25,000 for these services. However, 24% had sales totaling more than \$100,000.

Most participants in this study are optimistic about their facility's overall business performance. Sixty-five percent of respondents indicate that revenues from the past 12 months showed slight to substantial increases, and 80% expect revenues to increase further in the next year.

— Charts continued on next page

Methodology

The Audio Production 1990 survey was conducted by RESOURCE: Market Research, La Selva Beach, Calif. A mailing list of 1,000 names of facility owner/managers was compiled from the circulation galley of *Mix* magazine on a randomly stratified, *Ntb*-name basis. The survey consisted of a four-page questionnaire, a cover letter and a postage-paid return envelope. A \$1.00 donation to a respondent-designated, charitable, non-profit organization was offered as an incentive.

A total of 222 usable questionnaires were received at *Mix* by the survey deadline of July 30, 1990, for a response rate of 22.2%. RESOURCE: Market Research tabulated the results.

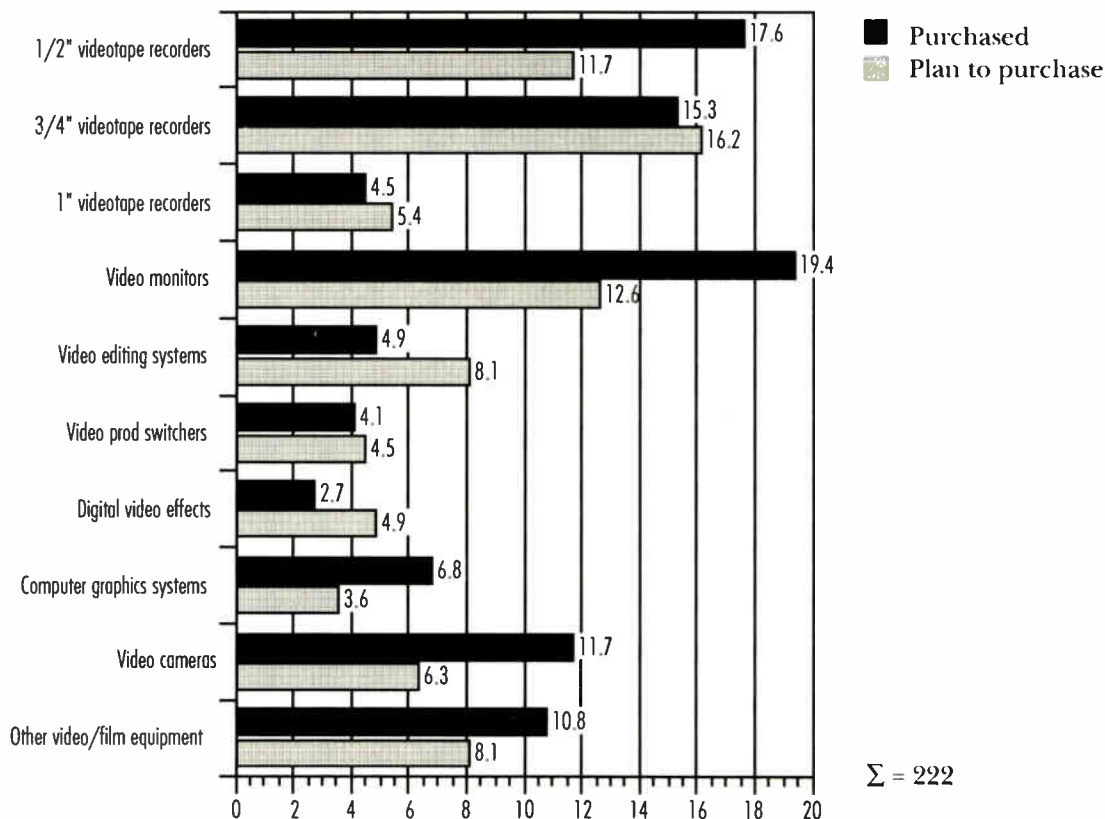
Please note that not all respondents answered every question in the survey. Each question identifies its response universe by the symbol Σ= (number). This number is the sample size from which each graph or data table in the report was created.

Call Elise Malmberg at (415) 653-3307 for a complete copy of the questionnaire and results.



Video/Film Equipment Purchased/Plan to Purchase:

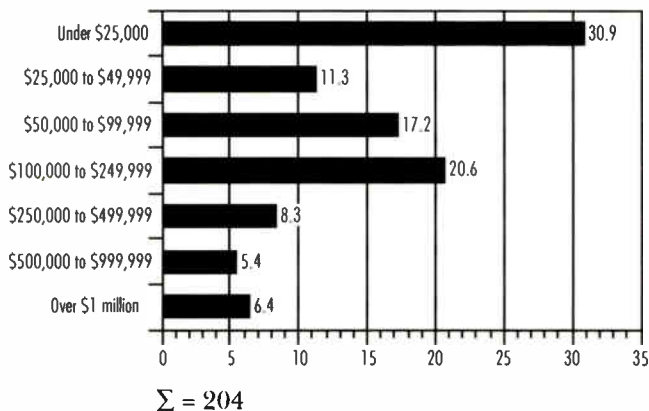
Please indicate the types of VIDEO/FILM equipment this studio/facility PURCHASED over the PAST 12 months and PLANS TO PURCHASE over the NEXT 12 months. (Multiple response question)



Sales Volume for Audio Production Services in Past 12 Months:

Please indicate this studio/facility's approximate gross sales volume/turnover for AUDIO PRODUCTION services over the last 12 months.

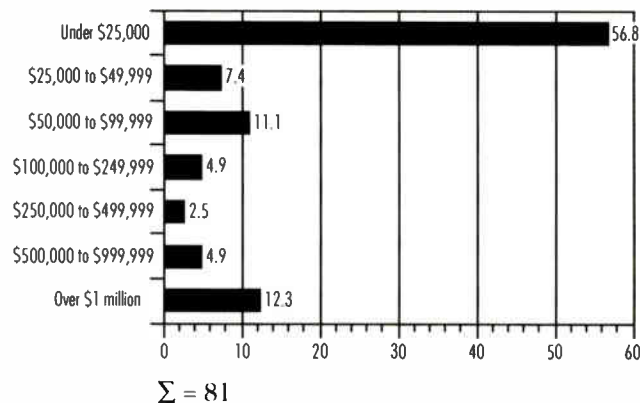
Average revenue: \$244,179
Median revenue: \$53,522



Sales Volume for Video/Film Post-Production Services in Past 12 Months:

Please indicate this studio/facility's approximate gross sales volume/turnover for VIDEO/FILM POST-PRODUCTION services over the last 12 months.

Average revenue: \$325,154
Median revenue: \$21,739



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World Radio History

by Larry Oppenheimer

FOSTEX G-16 MULTITRACK RECORDER



My first experience with Fostex machines was with one of their earliest 4-track cassette recorders, which left me somewhat less than impressed. However, having spent a couple of years doing film and video post-production on Fostex machines in a small studio, my opinion became quite the opposite. The longer I worked with the machines, the more I was impressed with their performance (considering price and format). Thus, I jumped at the chance to review the G-16, Fostex's newest

generation 1/2-inch, 16-track. I was not disappointed with what I found. Simply stated, the G-16 was one of the most fulfilling products I have ever reviewed: It does what it claims and does it damn well.

The G-16, like its predecessor the E-16, is a two-head design featuring onboard Dolby C noise reduction with a single speed of 15 ips, but it can accept reels as small as five inches. It also shares some features with the R8, Fostex's 1/4-inch, 8-

track. For example, most of what appears to be the front panel is actually a removable controller that can be used as a remote via an optional cable. Another worthwhile option, the 8330 synchronizer card, not only enables the G-16 to be synchronized to SMPTE time code, but also provides complete MIDI control over the unit. (The review unit was equipped with this card.)

Let's start with the controller. The 12-segment LED bar graph meters are prominently featured, each with a status LED and safe/ready switch for the corresponding channel. Under the meter area is a standard ten-key pad, along with ten command keys (such as "store," "recall" and "clear"). In addition to the usual transport controls (varispeed, record, play, etc.), there are locate and locate-zero combinations to control the autoretun and autopl原因 functions. Two eight-character, seven-segment LED displays are provided: one indicates tape position, the other is the memory display. Each of these also contains several status LEDs.

Everything I've just described can be detached and used remotely. Detaching is a simple process. The hinged controller panel swings up easily. This is useful even if you are *not* removing the panel, as it can lock at several angles up to 90 degrees, allowing the panel angle to be optimized for best visibility. Best of all, the calibration electronics are located behind the panel, a major improvement over the E-16, where the calibration pots could only be accessed by laying the deck on its back and removing the bottom panel.

In the event that you remove the controller, Fostex has anticipated the need for some amount of control at the deck by duplicating the primary transport controls on the front panel. In addition, the front panel hosts the power switch, an edit jog wheel and spot erase controls.

The rear panel is somewhat simpler. All inputs and outputs on the G-16 are unbalanced RCA connections (ya gotta cut corners somewhere). Since many G-16 owners will probably use channel 16 for time code, Fostex has thoughtfully provided parallel "loop-through" jacks for both its input and output. Directly above these are the synchronizer connec-

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tions (if the card is installed), which consist of MIDI in/out/thru, a 4-pin accessory connector whose function is unclear, a 9-pin D connector for "future use," transport control connector, time code in/out jacks for the G-16 (i.e., slave code in and generator/reader out), and master time code or video in and loop-through jacks. There is also a pot that sets the level of time code coming out of the code out jack.

Also provided on the back panel are two 1/4-inch jacks for punch-in/out and play/locate control via optional footswitches, an accessory jack for connecting external synchronizers (if you don't have the onboard card) and the Dolby NR switch. The latter provides a choice of Dolby in/out or Dolby on channels 1-15 only (if you're using 16 for time code).

This probably sounds like quite a package—it is. The compact, rack-mountable G-16 weighs a hefty 70 pounds. On the other hand, when you compare it to the weight of any 2-inch, 16-track...

The G-16 has so many features I couldn't come close to describing them all in the amount of space I have here. It is a tweaker's paradise, although some will not be excited by the ability to set tape thickness (to ensure proper zone operation) or the cumulative play counter that shows how many hours of wear you've put on your G-16 since you got it. But let's talk about some more significant features. I was bowled over by the selection of professional touches, like the jog wheel, zone limits, spot erasing, preroll and slow wind-off when a reel nears the end. The meters can be set to hold peaks (for a second or until a higher peak occurs) or to have smaller range and greater resolution (great for calibration). Input monitoring can be set so that an armed channel stays in the Input mode during fast wind or so that punch-in rehearsals can be performed. (This automatic switching to input monitor without going into

record was only possible on the E-16 with a modification). The G-16 also offers ten memories for storing location points.

The 8330 synchronizer card adds another host of features. In addition to the obvious (synchronization to SMPTE time code with offset capabilities), the 8330 reads and writes any format time code and offers professional features such as play to park, post-roll, park and start (that is, if the G-16 is ahead of the master it can be made to wait for it instead of chasing), selection of lock modes (frame, phase or auto), and more.

Let's not forget MIDI. With the 8330 card, any aspect of the G-16 can be controlled remotely via MIDI. I'm talking about transport, arming tracks, sending locate, punch and looping points, setting and starting the generator—literally anything. Most functions are controlled

The G-16 is full of features, many of them normally found only in high-end machines.

by MIDI note messages, which are defined in the manual. According to Fostex, a version of the MIDI Remote software for the Macintosh or Atari (now available for the R8) will soon be available for the G-16.

The 8330 supports both Direct Time Lock (for Mark of the Unicorn's Performer) and

MIDI Time Code, including the MTC Setup message (I am unaware of any other product that yet supports this most powerful part of the MTC spec). The G-16 also supports device IDs, which could be handy in a large installation with a number of machines. It can even respond to a sys ex identity request, which causes it to give its name, rank and model number.

I had ample opportunity to evaluate the G-16 in three completely different situations. First, I used it in my home studio with my MIDI sequencing setup. Then, I applied it during post-production for *Amazonia*, a 65-minute documentary film that I engineered. Finally, I used it during production of *Keepers of the Flame*, the debut album from my Celtic fusion band, Phoenix. Each situation presented different demands

on the G-16 and revealed different aspects of its performance.

But before I get too deep in featureland, let me tell you about the basic performance of the G-16: in a word, great. The deck sounds excellent. It appears to me that the engineers must have fit their design to the idiosyncracies of Dolby C, because the noise reduction is transparent to my ears. The frequency response is smooth and wide, the dynamic range substantial; I tried hitting the levels pretty hard and the G-16 dealt with it gracefully. Punching was as seamless as I could ask for. (Please keep in mind that I am not comparing the G-16 to a high-end, 2-inch, 24-track—it's not *that* good. But I do not hesitate to say that it is of sufficient quality to do fully professional work.) I also liked the G-16's tape handling; I never feared for the life of my master. The fast wind is quite speedy (and programmable), the slow-to-park is even, and I love that slow wind-off function.

The accessibility of the calibration pots is a godsend that eliminates one of the hassles of maintenance on this machine. The main maintenance difficulty, however, is inherent. Since it is a two-head design with a very small track width, head alignment is a major ordeal. You must tweak channels 1-16, then recheck channel one and continue the process until a suitable compromise is reached—a four-to-six-hour process. On the plus side, my experience with the E-16 was that it held alignment faithfully for months, even when the deck was moved around. I didn't have the G-16 long enough to find if the same was true, but I imagine the head block design is not that different.

In my home studio I locked my sequencer to the G-16 and then overdubbed synth parts a few at a time. All I had to do was connect channel 16 (with time code) to time code in, enable the G-16 to send MTC, then lock the sequencer to that. Well, it wasn't quite that simple. Most of the G-16's sophisticated features must be accessed through a second function mode or from MIDI. Stripping the tape involved delving into the second function mode to set the generator rate and mode, then patching into channel 16. Not too bad. However, one problem crops up when you have to do several consecutive operations in Second Function mode.

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As soon as you set a value for one function and store it, the G-16 exits Second Function mode, and you have to do the keystroke combination to access it again. This can add up to a lot of keystrokes if you're poking around to check status on a few parameters and set a few others. If there is a Latching mode, where the G-16 stays in Second Function until exited, I didn't find it. I was also somewhat puzzled to find, when I went to set the generator frame rate, choices for 24, 25 and 30 fps, plus drop-frame *and* non-drop frame.

Anyway, now that my tape was striped, I thought all I had to do was enable MTC and I was off. Not quite. The G-16 must first be set to a MIDI channel, then enabled to be operated remotely from MIDI, then have MTC enabled. Only the first of these functions can be done from the front panel; the other two must be done through MIDI. You can't get the thing to run from MIDI until you tell it to via MIDI. Got that?

Just to complicate life, Fostex states the appropriate MIDI notes to execute these functions in terms of MIDI note numbers—a quite unequivocal method. Unfortunately, my sequencer (like many others) uses note names, so you may need to get a chart that correlates the two. It seems to me that it should be possible to enable MIDI remote control and MTC/DTL on/off from the front panel, or, at the very least, there should be a clear listing of the procedure to be followed to do this enable. When I mentioned this to Fostex, they agreed and said they would query Japan about it. By the time you read this that may already have been changed. Once I got it figured out, it worked like a charm, and my sequencer (Opcode's Vision) chased happily as I rolled the deck back and forth.

The G-16 has an LED to indicate when the synchronizer senses time code from the deck. This is helpful, but there is no indicator that MIDI data is being received, which makes it difficult to troubleshoot the system if things aren't working right. I believe that every MIDI-controllable device should have some sort of indication that MIDI is being received. It would be nice if the user could arbitrarily map MIDI messages

to G-16 commands instead of being stuck with Fostex's choices of notes.

I also wish that the G-16's jog wheel could be operated from controller messages. This would make it possible to crawl a MIDI sequence and the deck together. In the near future, you could conceivably crawl a sequence, the deck and audio on hard disk together using a system such as StudioVision, the Opcode/Digidesign collaboration.

I am excited by the G-16's ability to receive and use MTC setup messages. Now, all I have to do is find a sequencer that supports them and I'll begin using a distributed intelligence system, which will ease datastream clogging problems that can result when a lot of controller data is used. To sum up, the G-16 did well in a MIDI system and sounded good with synths.

My next use of the machine was for jungle ambiances for *Amazonia*. This application tested the G-16's noise performance (ambiances can get extremely quiet at times) and punch-in ability. I striped most of the ambiances from one end of the tape to the other, but the originals ranged in length from three minutes to less than one, necessitating laying them in repeatedly and punching in. In the mix, the G-16 ran continuously, so that we could pull up console faders at any time and have ambiances. It took me awhile to figure out how to correctly set the autoreturn function so that the tape would loop, but, once the procedure was deciphered, it worked beautifully and the fast rewind time was appreciated.

I suspect that the manual was written in Japanese and poorly translated. Why have Japanese companies like Fostex, which for years have been selling large amounts of product in English-speaking countries, *still* not figured out that they need a native English speaker to write the English version of the manual? Sales volume certainly justifies the expense, and as equipment becomes increasingly sophisticated, badly translated manuals hinder the ability to use the gear in a time-pressured production environment. At least most of the information was actually in the G-16 manual, if difficult to find and understand. How about more graphics, more examples, more procedure summaries, better organization, better indexing and



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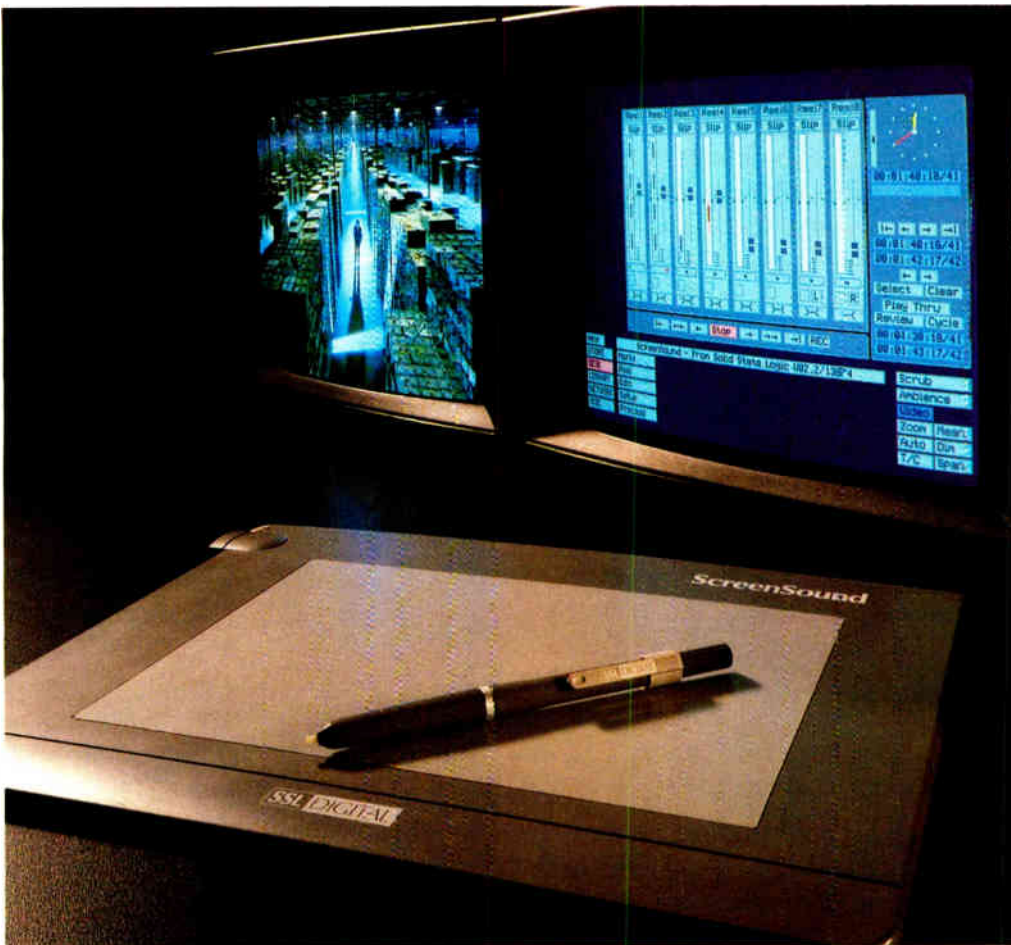
My final application for the G-16 was for sound effects. This time, though, I had to lock the G-16 up to time code for the first time. Lacking a transport control cable, I enabled the synchronizer and code-only master functions (more second functions), plugged in the master time code, pushed the lock enable switch on the controller twice (to put the deck in chase lock) and off we went. The G-16 locked up like a dream. Without transport tallies from the master, the G-16 had to wait for time code after the master was re-wound, but it only had to see a few frames and it was off and running. Once located, it locked reliably in a few seconds.

I did find that some functions required more keystrokes than I think are necessary. For example, in order to grab time code on the fly and store it to memory, I had to hit the "hold" button to grab the code, hit it again to transfer it to the memory display, then press "store" and the number of the memory. For a real-time operation, that's a lot of strokes: What if I wanted to grab a few times in one pass? A better system might be to arm the "grab" function by pressing "hold" while holding down "store," then simply hit the number of the desired memory to grab the current time code and store it. Hitting "clear" could disable the function. Hopefully, Fostex will update the software with an improved operating system.

The Fostex G-16 is an exciting advance. In fact, it is one of the most exciting products I have reviewed: It is full of features, many of them normally found only in high-end professional machines. It sounds great, it functions flawlessly, it is an order of magnitude better than its predecessor, and it is priced reasonably for the level of performance it offers. I highly recommend the 8330 synchronizer card option. It works as well as any other synchronizer I have used and the MIDI control is wonderful. This machine is a gem. If you are in the market for a 16-track deck, don't buy anything until you check this out. ■

When not performing with Phoenix, Larry Oppenheimer works as a consultant and sound engineer in the San Francisco Bay Area.

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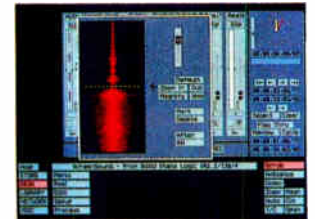
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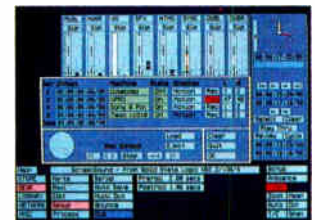
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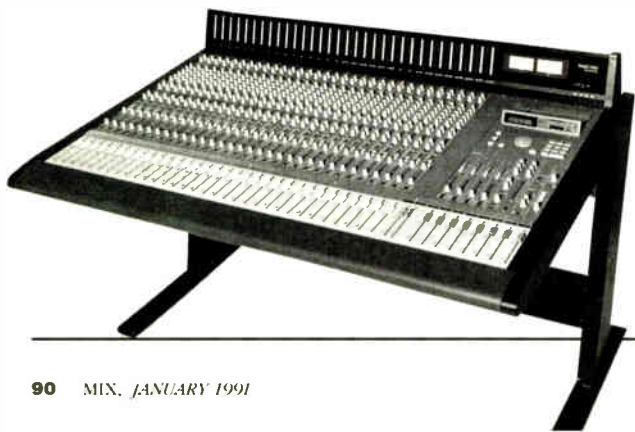
Unveiled at AES by Harrison/GLW of Nashville is the Series 10B, the update of the Series 10, the 100% automated mixing console for music and video/film post-production applications. The new version's Macintosh II-based automation allows the storage and retrieval of all console settings in under two seconds, and features snapshot automation and dynamic automation of all major functions. Other enhancements include a new mix editor with improved mix/merge utilities, and the ability to interface with Harrison's new ARS-9 audio routing switcher. The ARS-9 is an expandable, automated router that can instantly reconfigure up to 256 inputs and 256 outputs.

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TASCAM M-3700 ▼

From Tascam of Montebello, Calif., is the M-3700: a console featuring recallable, dynamic automation of levels and signal routing (as well as automated muting of monitors, aux sends, main channel and EQ), with internal SMPTE reader generator and disk drive for storing automation data. The M-3700 also offers dual signal paths (that double the number of inputs), six aux sends, eight group buses and 4-band EQ. Deliveries should begin next month with the 32-channel M-3700/32 priced at \$13,999; the 24-channel version is \$11,999.

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ALESIS 3630 COMPRESSOR/LIMITER

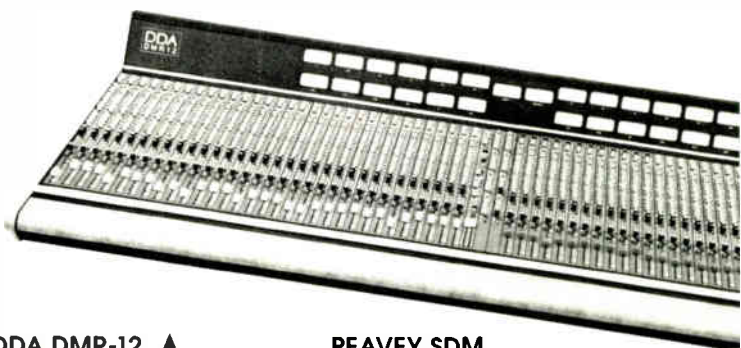
The 3630 from Alesis of Los Angeles is a dual channel, stereo-linkable compressor/limiter featuring switchable RMS/peak and hard knee/soft knee operation, with variable attack and release in peak mode. Priced at \$299, this one-rackspace unit also offers two independent noise gates, sidechain inputs and two 12-segment LED meters on each channel to display gain reduction and input or output level.

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DAR SOUNDSTATION DSP

The new 16-channel SoundStation DSP from Digital Audio Research (Cheshington, Surrey, England) incorporates all of the disk-based recording, editing and production features of the SoundStation II and adds Segment Based Processing. The latter allows the editor to instantaneously process any of the system's 16 channels with 4-band digital parametric EQ, or alter gain or panning in real time. The DSP 16-channel system also supports DAR's WordFit and magneto-optical disk SoundStation options. Current SoundStation II owners can upgrade to the DSP functions.

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DDA DMR-12 ▲

The DMR-12 from DDA (Farmingdale, N.Y.) is designed for 24-track production and is available in two frame sizes to accommodate 56- or 44-input/output modules. Each input module features one mic and two line inputs and eight stereo aux buses, so a 56-module console (only 89 inches wide) could mix 112 inputs, or be configured as a 32x12x24 board when tracking. MIDI mute and VCA automation are available. Pricing on the 56-channel frame is \$41,500.

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PEAVEY SDM 5200 NEODYMIUM MICROPHONE

The SDM 5200 from the AMR Division of Peavey (Meridian, Miss.) is a large-diaphragm, cardioid microphone designed for recording vocals, drums, brass and woodwind instruments. The unit uses a neodymium magnet and titanium-laminate diaphragm, and is said to maintain its cardioid pattern below 100 Hz for improved miking of low frequency instruments. The SDM 5200 retails at \$399.99.

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Focusrite and API consoles, as well as high-end options on Sony MXP-3056 and Soundcraft 3200 consoles. Call GML at (818) 781-1022...The **MIDIman RackRelease** (\$14.95) is a set of hardware pieces that permits the installation or removal of rack gear in seconds. Call (818) 449-8838 for details...**JRF Magnetic Services and Professional Audio Works** have adapted the Otari TC-50 time code/pilot tone adapter to fit Sony/MCI JH-110, Ampex ATR-100 and Studer A80 2-tracks. Call (201) 579-5773 for details...“Wheels” is a **20-CD set of automobile sound effects**, both modern and vintage (with over 74 minutes per vehicle) as well as van and motorcycle effects. Call

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by George Petersen

PRODUCT CRITIQUES AND COMMENTS

Beyer MC 742 Stereo Condenser Microphone

First introduced in 1986, Beyer's top-of-the-line MC 740 has gained acceptance among recording pros as a precision condenser microphone, suitable for just about any application requiring a quality, large-diaphragm, multipattern (omni, cardioid, wide-cardioid, hypercardioid, figure-8) studio mic. Now, some four years later, Beyer has unveiled the MC 742, utilizing the same 21.5mm (0.86-inch) capsules, but in a versatile stereo configuration.

The MC 742 is available in

Physically, the MC 742 is substantial: It's 11.5 inches long, with a 1.5-inch body diameter, and weighs in at just over 22 ounces. Inset thumbwheel switches in the mic body are provided for a -10dB pad and for the selection of polar patterns for each capsule. These switches have a solid feel, and it is unlikely that they could be accidentally nudged into the wrong position during mic placement. The pattern switch for the right (upper) capsule is marked in red; the left switch is marked in a gold color, which is difficult to read, especially in dim

studio lighting. The



three versions: the MC 742.00 (\$3,195 retail) is the mic along with a mic clip; the MC 742.01 (\$3,495) includes an effective, heavy-duty shock-mount and travel case; the \$3,995, deluxe model MC 742.02 (which we tested) includes a shock-mount, travel case, 25-foot, 7-pin mic cable and the MSG 740. The latter is an AC-powered electronics pack that supplies 48VDC phantom power and allows the selection of polar patterns by remote control. The 00 and 01 mics have 5-pin XLR outputs and include dual XLR-3M adapters for use with standard consoles and preamps. Presently, the deluxe 02 model *must* be used with the MSG 740 remote controller—this means the mic can only be used where AC power is available. It seems to me that with a little ingenuity, a suitable adapter could be fashioned. Perhaps Beyer could offer one with the deluxe models in the future.

upper capsule can be rotated up to 360°, and positioning is marked in 10° increments.

The EA 742 suspension mount (supplied with the MC 742.01 and 02) does an excellent job of isolating the mic from stand noise, external vibrations, etc. The mount is stable and is a great improvement over the performance of the shock-mount provided with the mono MC 740 version.

Beyer MC 742 stereo condenser microphone with remote pattern control capability and EA 742 shock-mount

Currently, no windscreen is available for the MC 742 Series. While this proved to be no problem while miking studio vocals (where I use a variety of nylon stocking-type screens), my past experience making field recordings with the mono MC 740 indicates the critical need for this accessory when using an MC 742.01 or 02 outdoors. At press time, I spoke to a Beyer representative who informed me that the company is working on this situation.

Operationally, the MC 742.02 is simple. Set the mic up, switch the pattern selectors on the mic body to "R" (for the remote control position), connect the MSG 740 and go. Since the MSG 740 connects to the mic via a 7-pin cable, I wasn't able to merely sit behind the console and leisurely audition different combinations of polar patterns by remote control, although this probably could be accomplished by building a custom adapter that would route the signals from the 7-pin output to three XLRs in the studio. In the control room, these could be recombined for inputting to the MSG 740 remote controller. Despite this minor glitch, I enjoyed the luxury of remote pattern control, especially where the mic was used on a high boom or hung from an overhead beam. I like using MS (mid-side) miking, and having an assistant remotely switch mid-mic patterns from cardioid to hypercardioid to wide-cardioid while I listened to various combinations was cool.

From a sonic standpoint, the MC 742 is virtually identical in performance to the MC 740 that we reviewed in the December 1986 *Mix*. As a large-diaphragm condenser with a fairly flat response, it excels on lead and ensemble vocals, stringed instruments, brass and as a stereo ambience mic. And with a maximum sound pressure level capacity of 144 dB (with the pad switched in), it's a natural for drum overheads. Since the capsules are spaced as a coincident pair, the 742 is obviously best suited for XY, MS and Blumlein (crossed figure-8) pairings. If your choices in stereo miking include A-B widely spaced pairs, ORTF (the French broadcasting standard: 17cm apart, 110° outward) or NOS (Dutch broadcasting standard: 30cm apart, 90° outward), you may do well to consider getting two of the mono MC 740s.

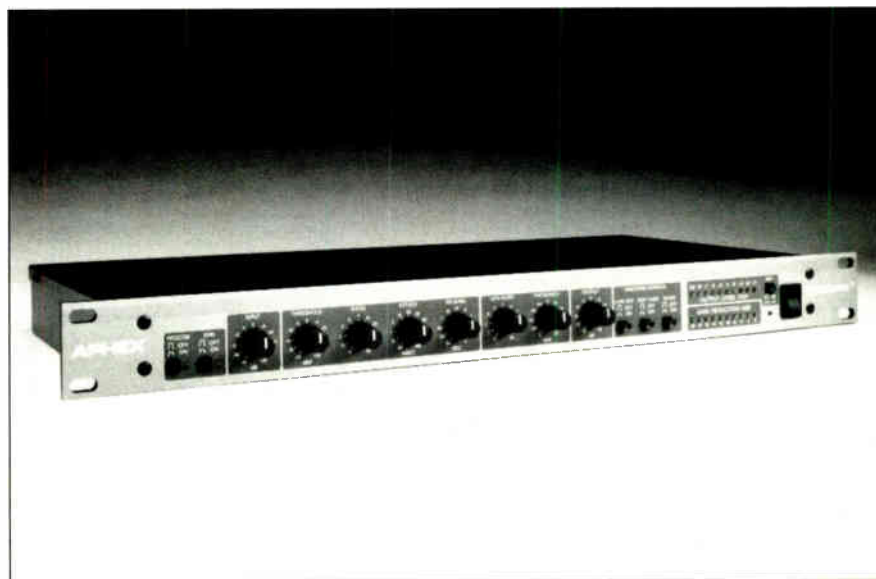
Overall, the Beyer MC 742 is a solid performer, well-designed and worthy

of consideration by the serious pro. It's obviously not inexpensive, but if money is tight, you could save \$500 to \$800 by going with one of the non-remote versions. Either way, you're not likely to be disappointed.

Beyer, 5-05 Burns Avenue, Hicksville, NY 11801; (516) 935-8000.

Aphex Expressor Model 651

Aphex has always been interested in new ideas and new approaches to traditional devices, and the Expressor is a good example of the Aphex philosophy at work. The Expressor Model 651 is a single-channel compressor/limiter, which, in addition to



Aphex Expressor Model 651

the usual dynamics control capabilities, also offers High Frequency Expansion (HFX) and the Spectral Phase Refractor (SPR) processing that was first offered on the Aphex Aural Exciter Type III.

The Expressor is fairly straight-ahead with no surprises. The single-rackspace front panel provides all the basic dynamics control knobs you'd expect on any pro comp/limiter: input/output gain, threshold, ratio, attack, release and hardwire audio bypass, along with two LED meters for displaying output level and gain reduction. Sidechain controls allow the user to select "soft-knee" on/off, 6dB/octave low-cut filter at 80 Hz, and a slave on/off switch for linking up to three Expressors.

The rear panel is simple, yet offers all the necessities: 1/4-inch jacks for sidechain send, return and stereo

link, and electronically balanced XLR input and output jacks. Regarding the latter, the unit maintains equal polarity from input to output, so the Expressor can be used with balanced systems wired for either pin 2 or pin 3 as "hot"; with proper adapters, operation with unbalanced systems is also possible.

Used over a period of months, the Expressor did an admirable job of dynamics control in a wide variety of studio sessions, both instrumental (drums, bass, percussion, guitar) and vocal (lead and background voices, spoken word narrations). Compression and limiting effects were smooth and free of any unnatural "pumping" artifacts. However, what really sets

the Expressor apart from its competition is the SPR and HFX processing.

Placed directly after the input stage, SPR is designed to delay a program audio signal so that bass frequencies (up to 150 Hz) are placed just ahead of the MF/HF components. This corrects the phasing of bass frequencies that might have been lost during the various stages of recording and reproducing sound. On a variety of program material, the effect ranged from unchanged to worsened bass response, but one-fifth of the cuts I listened to exhibited an increase of level and bass clarity with the SPR engaged.

The HFX processing is another nice touch, and works by adding gentle 6dB/octave shelf equalization (variable from 2 kHz to 20 kHz) at a level dependent on the amount of gain

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reduction. This counteracts the dulling effect of high compression ratios (the Expressor can go as high as 50:1), without adding noise to low-level passages that are below threshold.

Priced at \$495, the Aphex Expressor is an affordable studio unit that handles the usual compression and limiting chores cleanly and professionally. However, its SPR and HFX processing capabilities clearly set it apart from the rest of the "me-too" devices in its price range.

Aphex Systems, 11068 Randall Street, Sun Valley, CA 91352; (818) 767-2929.

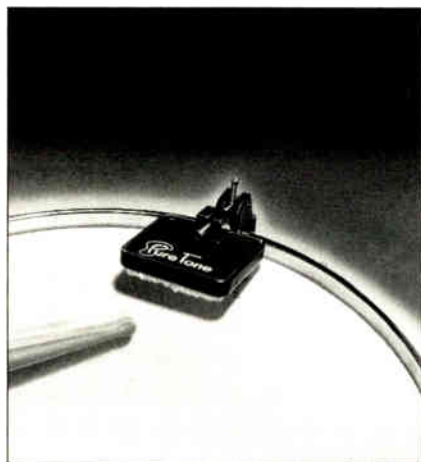
Pure Tone Drum Resonance Eliminators

Sometimes I wonder if I'm the only person left who still records *real* drums—you know, loud, thrashing instruments with wide dynamic range and frequency response requirements. Getting a great drum sound is

pedal, the wallet or sanitary pad taped to the snare head. And to augment these touches, there's always the EQ knob to tighten the boomy kick sound, noise gates to keep the snare out of the tom mics, *et cetera*, *et cetera*.

Recently, Pure Tone of Warren, Mich., released a clever set of tools known as "Drum Resonance Eliminators," small, removable devices that attach to drum rims and can be adjusted to lightly touch the drum head. The units pivot freely, so their dampening action occurs *after* the drum is struck. This avoids the "choked" sound common to other devices (such as most drum's internal "tone" control mufflers), while letting the engineer or player eliminate the unwanted "ringing" effect. Each DRE has a small surface area (2x2 or 3x3 inches) of long-pile carpet; an adjustment screw allows the unit's effect to range from heavy dampening to a subtle touch.

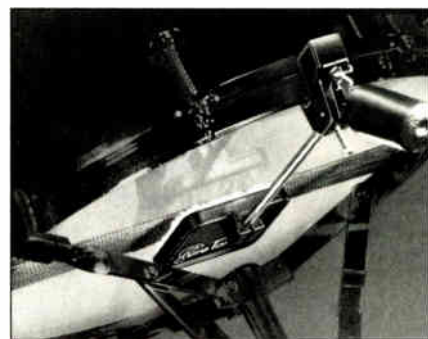
In actual sessions, the DREs performed well; they attached easily, and the tough ABS plastic parts were impervious to damage from stray drum hits. The "Bottom Line" (lower-head) units for snares or toms are counterweighted to permit a wide range of dampening effects. Actually, the best thing about the under-snare model is its ability to reduce the unwanted snare buzz that results from sympathetic vibrations when the toms are struck or when a bass guitar or other low-pitched instrument is played near the drum kit. I find this to be a frequent problem in direct-to-digital 2-track recording.



Above: Pure Tone Drum Resonance Eliminator; below: "Bottom Line" under-snare model.

no easy thing. You have to have good mics, a good room, a good board and (hopefully) well-tuned quality drums to work with. Of course, a good drummer would be nice, but this is something that we engineers usually have no control over.

Most of us work with decent mics, decent rooms and decent consoles. The real problem comes when the drummer's kit rings, buzzes, flops and groans. Yuk. Over the years, we've all developed our favorite tricks for getting a passable sound out of a stinko drum set: the blanket in the kick drum, the gaffer's tape on the rattling bracket, the axle grease (no WD-40, please!) on the squeaky kick



Fortunately, the Bottom Line works, and it does a remarkable job of reducing the annoying buzz without choking the snare. The only draw-

—CONTINUED ON PAGE 156

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AND WE QUOTE:

"We also tested this monitor for each of its EQ settings. The EQUALIZED mode for the PRM 308S was very strong in the rock and dance music categories, proving the **highest scores in the gestalt, clarity, and depth areas of the dance music categories.** On top of these honors, the 308S monitors were felt to have some of the **best bass extension of any monitors tested.** In the EQUALIZED mode, they were smooth and provide a very deep stereo image that must be heard to be appreciated.

In REFERENCE mode, the PRM 308S took **first place as the best-liked speaker of any tested.** In this mode they were thought to possess the **clearest and most musical sound** for all three types of music. The main difference between the two EQ settings lies in the frequency balance characteristic, where the REFERENCE mode is much more even sounding than the EQUALIZED mode. Many of the near-field monitors tested had a light midrange feel to them, so it's nice to be able to flip a switch to get an idea of how your music sounds in an alternate environment. **The PRM 308S system is truly wonderful and must be heard to be believed!**"

Rolf Hartley • Audio Consultant/Journalist • EQ Magazine*

"I read with interest The Electric Near Field Monitor Test in your premier issue. I spend most hours of my rapidly dwindling life in front of the little beasties and don't have the time or the money to buy every speaker you reviewed. On the basis of your admittedly subjective evaluation I acquired, against my better judgement, a pair of Peavey PRM 308S's. I mean, just the logo, you know?"

Boy, was I wrong. As you say, **the speakers have to be heard to be believed.** So far I've mixed two albums through them (Steve Earle and Colin James, both to be released in June) and **neither I nor the artist could be happier with the results.** Thanks for the tip and, if you're in the market for several pairs of NS-10s, please give me a call."

Joe Hardy • Ardent Recordings • Memphis, TN



Peavey Audio Media Research™ 308S™ Phase Reference Monitors

From the 14 models of near field studio monitors tested by GPI Publications in *EQ Magazine*, the Peavey Audio Media Research™ PRM™ 308S ranked number 1 in Reference Mode*. In categories such as stereo imaging, spectral balance, transient handling, clarity, and gestalt, the 308S was picked as the best-liked of those tested. . . If that isn't enough, it also placed third in the Equalized Mode.

The PRM 308S features a unique foam blanket surrounding the high frequency and midrange components to provide more accurate "imaging" and "transparency." A highly desirable reference/equalization response mode switch is provided, simulating different listening environments . . . tracking or mixdown.

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**GPI Publications, EQ Magazine MAR/APR 1990 "The Electric Near-Field Acid Test"*



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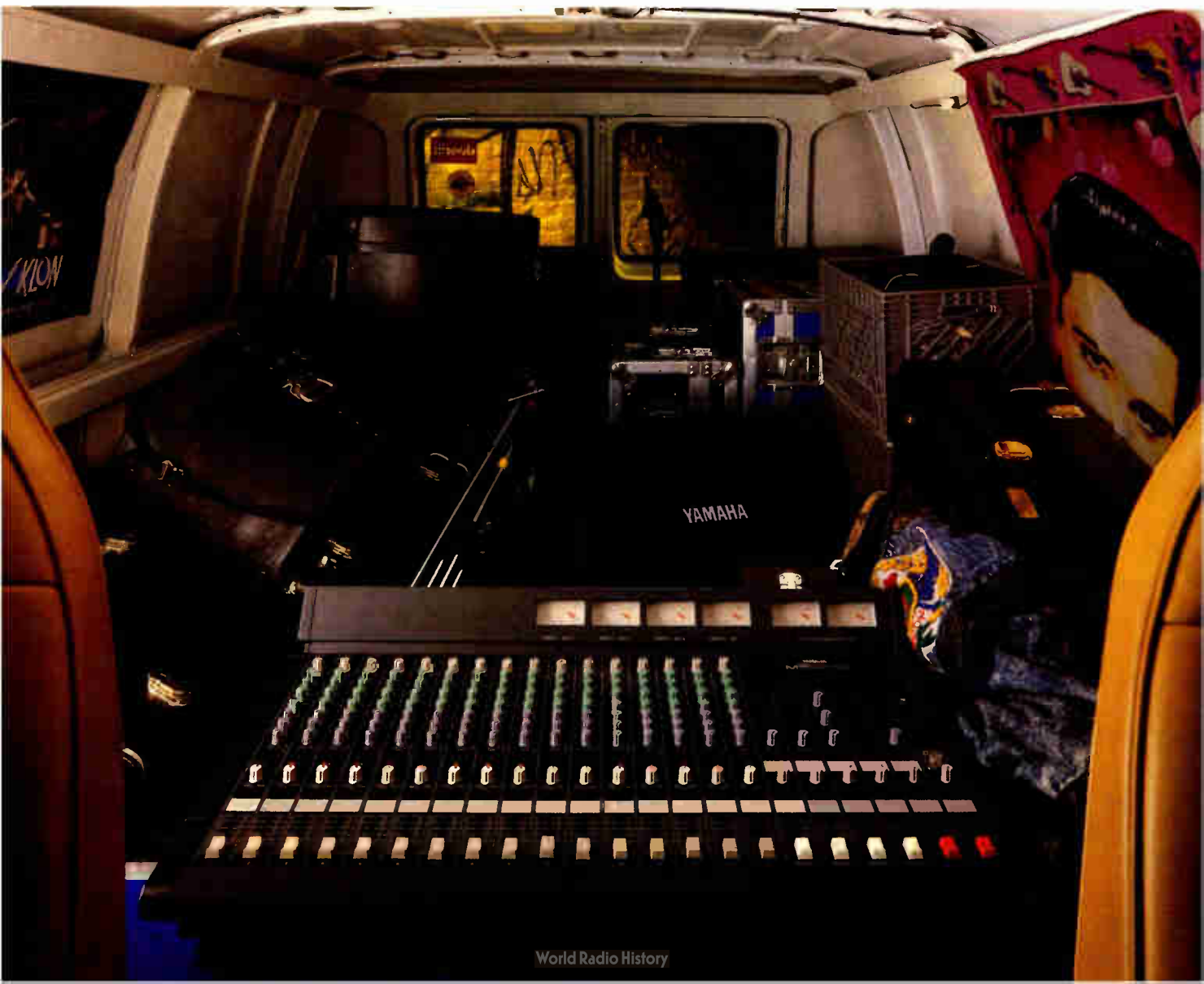
The MR Series Professional Mixing Console. When you start going places, it'll show you the way. Check one out at your Yamaha Professional Audio dealer.

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Tonight, this console hits the road. Tomorrow, it'll make tracks.



by Linda Jacobson

CONCERTS SHOULD BE SEEN AND NOT HURT

How loud is too loud? That's the question lots of us are asking lately, thanks to the unprecedented power of modern sound technology. Everyone seems to agree that before tour agencies, if not government agencies, start policing the ranks of rock concert mixers, mixers had better do it themselves.

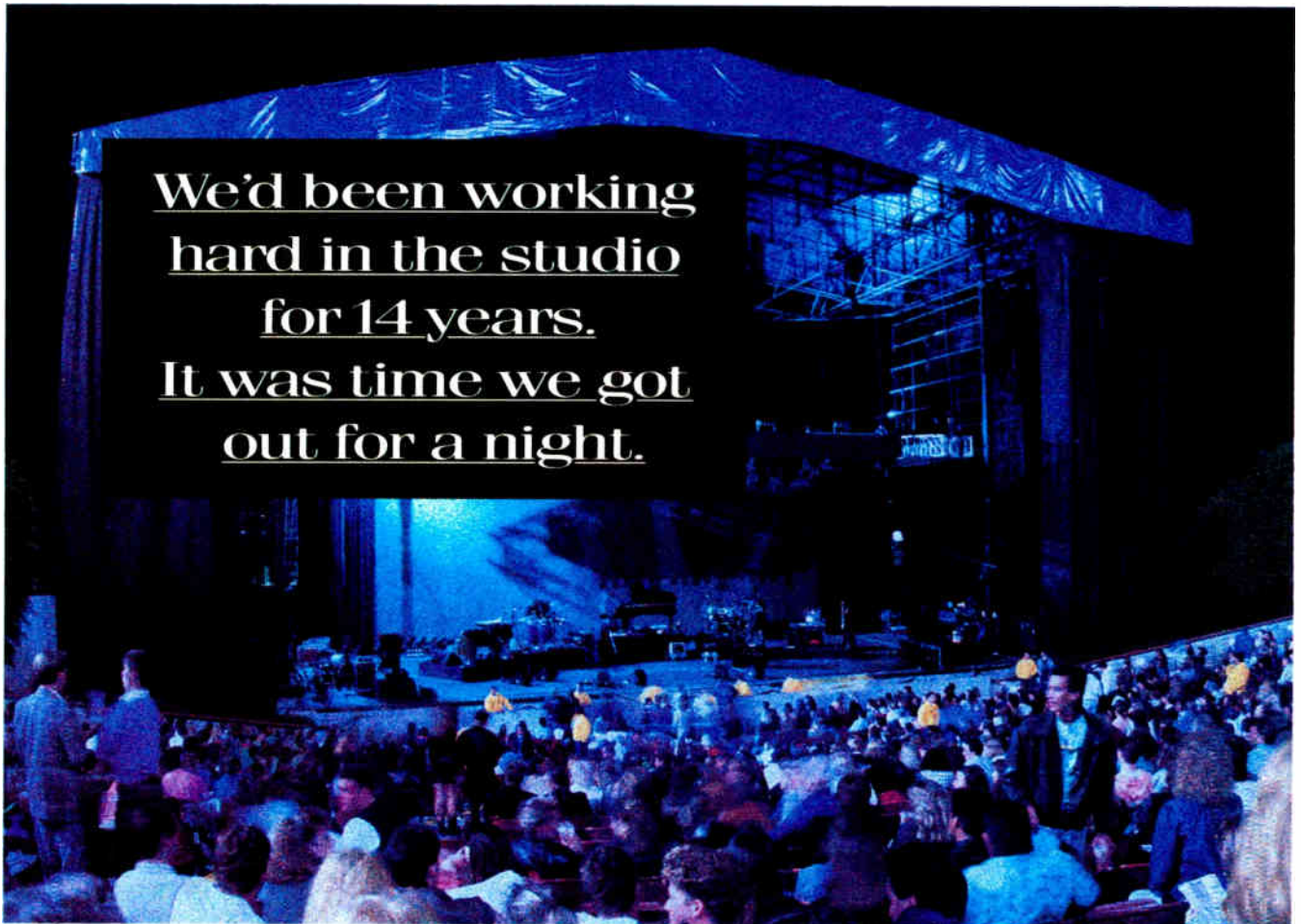
With this in mind, we asked several busy rock sound engineers, "How do you set levels? What are your criteria?" We also asked each soundman if his company issues any written volume guidelines to its

new engineers. The answer from all was "no." Maybe it's time. The only guidelines are those ancient unwritten tenets. "If it's too loud, you're too old" (regarding indoor concerts and sound control) and "If the neighbors can hear it, it's too loud" (regarding outdoor concerts and noise abatement). The outdoor sound subject is a touchy matter that's gone public, one that engenders legal involvement (in NYC, city officials determine sound levels at outdoor shows; in Austin, Texas, local law officers attend concerts with decibel meters in hand). Before the law gets involved inside the halls of rock, we want to know, when is loud *too* loud?

Judas Priest soundman Gungi Paterson: "I tend to set levels by the amount of system—lows, mids and highs—and coverage, rather than dB level. You can make it too loud. But I like to mix powerfully; I don't want the audience to know how loud it is until they leave! The bass drum needs to be caving your chest in; you use power to mask harshness and to give a big sound without giving people headaches. But I think [over-loud sound level] is going to come back to bite us. We'll have to come up against it with more coverage rather than pure power." Paterson, who has his hearing checked "occasionally," says, "I do have a little hole at 4 k on one side, but it was caused by doing monitors, not what I'm doing now."



PHOTO: JAY BLAKESBERG



Spending years on end cooped up in small, dark rooms with a bunch of engineers takes certain special qualities. Durability, for one. We've always been known for that. Of course, clear, uncolored sound quality doesn't hurt, either. Or hand-assembled components, with gap precision to plus or minus one-millionth of an inch.

These features got TAD speakers into studios like Record Plant, NOMIS and Masterfonics. And the same features are now getting us out of them.

See, we had this funny idea that if TAD could make music sound terrific in a small room, we could make music sound terrific in a huge arena. And every outing we've had with Maryland Sound has proved us right.

Not that we won't still work our woofers off in studios from L.A. to London all day. But, at night, we'd like to get out and jam more often.

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**Mick Whelan, Electrotec,
Canoga Park, California**

Billy Idol's on tour these days, and in Southern California Electrotec handles his sound. Mick Whelan says, "I don't know anyone who wants to go out there to hurt people, but things do get out of hand. Yet you're not going to turn down the sound for 19,000 people just because one person complains. Before our engineers become head engineers, they have a great deal of common sense. When a band wants a lot of P.A., they can generally come to an agreement that the sound needn't be that large.

"I'm concerned with it being too loud in auditoriums, even though most P.A.s today are flown to prevent sound pressure levels from being immediately in the ear. However, if you look at New Kids on the Block, the level of the screaming girls is louder than the P.A. It would be hard to pass an ordinance to stop the screaming; that's why they buy tickets! The Hollywood Bowl has a stringent ordinance that has detailed sound level requirements for given time durations, using a level measuring system that's weighted and looks at average levels. They charge \$1,000 per infraction, which is paid by the artist. When we were there last year with Rod Stewart, the applause exceeded the level of the P.A. by over 6 dB! We don't want to pay for people applauding! The [Hollywood Bowl managers] understand; what can you say to the audience, 'We can play louder if you don't applaud?'"

**Andy Diraddo, L.D. Systems,
Houston, Texas**

L.D. Systems of Houston handles concert sound in the Southwest, including Austin music festivals and shows at Woodlands Amphitheatre (near Houston), where crowds turn out to see David Bowie and other top artists. Andy Diraddo, who heads L.D. Systems' production services, comments, "For indoor concerts, there really has been no set limit. You set it as loud as you can without blowing up the sound system. People want it loud for certain shows,

like heavy metal. Sometimes the loudness level in smaller halls is dictated by the artists. When they have enough horsepower onstage to dominate the P.A., they dictate how loud the P.A. must be turned up to get a good mix. As the soundperson, your bottom-line criteria is to make sure the vocals are heard and understood. If the audience can understand the words, that means they can hear. When the vocals have to be heard over screaming guitar, you have to push them louder than you want.

"After you set up your sound system, the [band's] engineer gets into that seat. The one thing on your mind is, 'Forget *art*. You make it any louder and it's going to blow up my system!' So sometimes we carry a simple decibel meter. And most RTAs give a sound pressure level reading. The tricky thing about [SPL readings] is the different scales. If someone says you can't turn it up past 95 dB, you have to ask, 'Peak or average? Measured

—CONTINUED ON PAGE 108

The shape of pure sound...

Community's design philosophy has always been a little unconventional.

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by Linda Jacobson

NEWS FLASHES

Portable Concert Pavilion To Tour Big Apple

This spring sees the road debut of the Carlos Moseley Music Pavilion, a state-of-the-art portable stage designed to house New York Philharmonic and Metropolitan Opera concerts. The Pavilion's design incorporates a band shell and stage, computerized lighting system, 16-foot projection screen, and 24 15-foot speaker towers. This spring the Pavilion will set up at 24 parks throughout the Big Apple's boroughs, helping to bring free classical music and opera to New Yorkers.

The mobile sound system for the Music Pavilion is almost completely wireless, with intense signal delay, designed to give listeners the impression that they're hearing music from the

stage instead of the speakers. Each retractable tower holds 15 speakers set up in three groups; the main set projects music from the stage forward; a second group, aimed *toward* the stage, puts out slightly delayed ambient sound, creating the illusion of reverberation off a back wall; a subwoofer reinforces the low end. The system uses a mixture of pro equipment, primarily EAW speaker components, and esoteric, battery-powered amplifiers made by Linear Power (manufacturer of hand-built mobile amps). Maryland Sound built the system under the direction of Norwalk, Connecticut's Jaffe Acoustics. (Christopher Jaffe designed the acclaimed electronic acoustics in the Eugene, Ore., concert hall.)

The Pavilion's stage platform

incorporates built-in mic wiring. Signals are transmitted, wireless, to the sound towers placed in concentric circles throughout the audience. The receivers in the towers are 2-channel Sennheiser EM-2003s, although the music mix is mono. A Brooke-Siren 360 crossover feeds the four Linear Power 5002 amplifiers (250 watts per channel) in each tower, and six marine batteries power the tower's overall system. A custom control system feeds the towers, providing direct access to the electronics, with a Ramsa WR-C900 console controlling the mix. The digitally delayed distribution allows any tower to replace any other tower, so they don't have to be placed in the same location each time out.

The Pavilion's sound and lighting designer, Peter Wexler, recently told *The New York Times*, "The problem with the old [park performance sound] system was that with two speaker towers at the sides of the stage, basically all we could do was make it loud and hope that the 200,000th person at the back of the park could hear. For the people at the front, it was too loud... We want to get as close as we can to the sound of a real hall." Toward that end, the Pavilion also features a saddle-shaped plastic tension membrane over the stage that offers weather protection and some acoustical projection; sound is also reflected by five semicircular acoustic reinforcement panels at the back of the stage.

The Carlos Moseley Music Pavilion

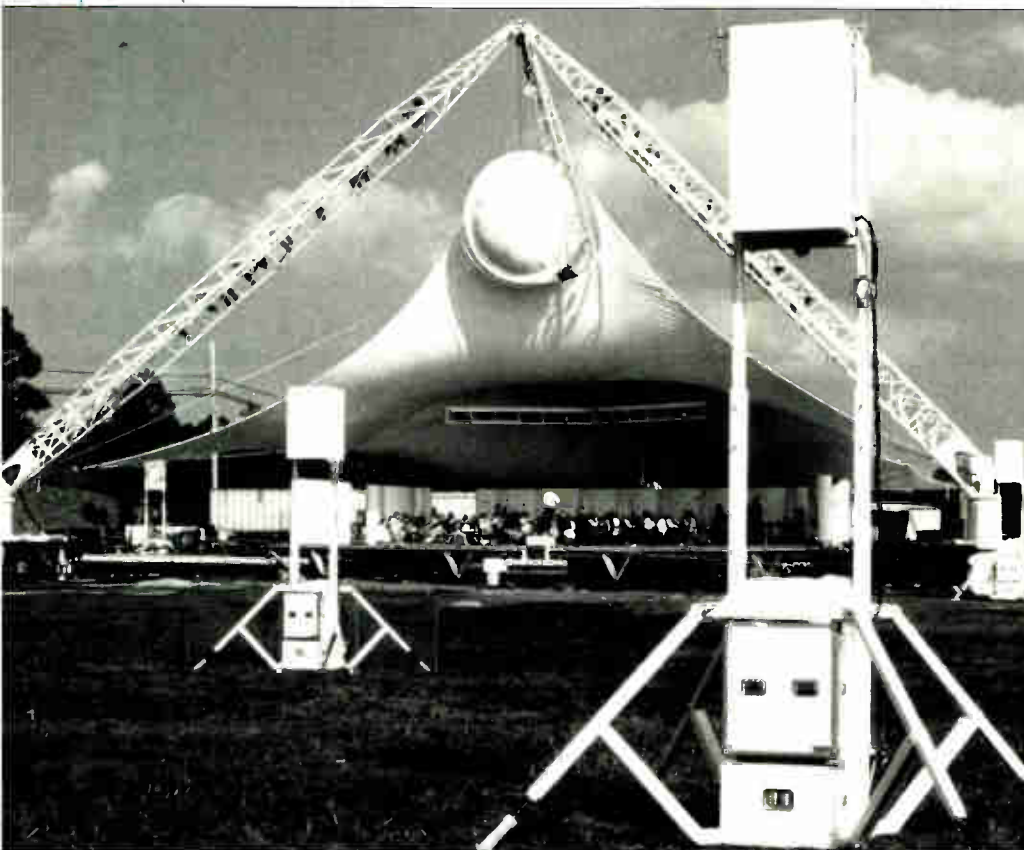


PHOTO: CHRIS LEE

Community RS220 System ▶

New from Community Light & Sound (Chester, Pa.) is the RS220 system, designed for applications requiring compact, high-power flying arrays. Incorporating a proprietary Wavefront Coherent design, the 3-way RS220 features two 8-inch, ferrofluid-cooled, dual spider woofers, an M-200 2-inch throat compression driver handling mids, and a 1-inch, titanium-diaphragm compression driver crossing over at 3 kHz. RS220 specs include an operable 100-18k Hz frequency range, sensitivity of 107 dB at 1W/1m, and power handling of 200W pink noise or 500W program material. The VBS210 sub uses twin 10-inch drivers operating from 60-150 Hz when used with the 220 System Controller, which provides system protection with IntelliSense™ continuous monitoring and dynamic equalization. The RS220, VBS210 and 220 System Controller are priced respectively at \$995, \$595 and \$690.

Circle #286 on Reader Service Card

Martin PM3 Wedge

The PM3 from Martin America (Chatsworth, Calif.) is a bi-amped, 3-way monitor featuring a 15-inch woofer, horn midrange and 1-inch HF compression driver. Designed as a multipurpose monitor, the PM3 uses a quasi-trapezoidal cabinet with five rigging points, making the monitor equally suitable for music playback or corporate presentation applications, or as a high-level stage monitor for touring or club use.

Circle #287 on Reader Service Card

Ultimate Liberty Mic Stand ▶

Ultimate Support Systems (Fort Collins, Colo.) has unveiled Liberty, a mic stand design that lets up to six stands be stacked or stored in the footprint of a single stand. Retailing at \$29.99, Liberty weighs nine pounds, sports a black matte finish and fits standard U.S. or European mic clips.

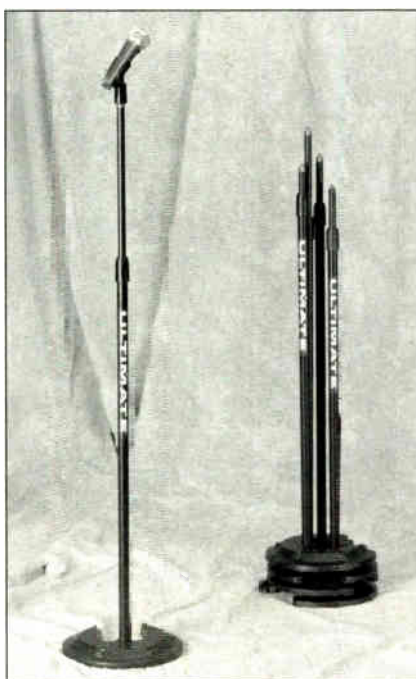
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Meridian DISTRAMIX™

DISTRAMIX, from Meridian Communications (Alameda, Calif.), is an expandable 8x8 distribution amplifier/mixer combination that provides the operator with a versatile line-level mix matrix. Applications include adding additional aux, send and returns to existing recording, monitor and house consoles, matrix mixing for feeding multiple sources, mix-minus teleconferencing and studio headphone mixing. DISTRAMIX features balanced (XLR) and unbalanced 1/4-inch inputs/outputs, LED metering and output mute capability.

Circle #289 on Reader Service Card



New Atlanta Nightclub Goes High-Tech

Atlanta's R&R Nite Club, located in the Ramada Renaissance Hotel, is now open after undergoing a half-million dollar renovation. After its interior was completely demolished, the club was rebuilt to contain three levels, a dance floor beneath a video wall of 16 26-inch monitors and a custom lighting system. Independent sound engineer Murray Noonan, based in Atlanta, oversaw the sound system installation.

Noonan, who runs sound for R&R's house band, Torch ("Atlanta's top-paid house band"), provided his own gear for the club P.A., augmented by amps, speakers and snakes purchased by the club, and stage mics and monitors supplied by the band. Noonan's system contains a 40-channel Soundcraft Series 500 board running Clark DN27 equalizers, Symetrix, Ashly and Loft gates, a Gold Line RTA, and 27 compressors (by Symetrix, Ashly, Audiologic and Yamaha). "I like to compress all channels individually going into the console," Noonan says. "Each compressor attacks each vocal without affecting the other vocals." Six Yamaha SPX90II units are used for effects.

The club's P.A. is a 4-way JBL system with four 18-inch 600W JBL scoops, two JBL 4560 low/mid enclosures, two JBL 2445 2-inch horns and two JBL 2426 1-inch horns. The snake is a 150-foot, 32-channel beast with a 24-channel, 75-foot monitor split feeding a 24x8 Peavey MkIV monitor mixer. The system works with an Ashly 4-way mono crossover, the XR80E. Stage monitors are JBL 15-inch and horn combos, with Clark EQ on the monitor mix.

When the band's not playing, the DJ employs a Rane MP24 program mixer/preamp. The DJ's sound is mixed through Noonan's P.A. system for now, and while mono is the current limit, the club intends to add surround sound this year. The goal isn't necessarily splendid sound, but multi-level control. According to the hotel's chief engineer, Marc

Valera, "We want to be able to control the sound levels on each of the three levels so it's quieter in the upper seating area and bar area, while louder on the dance floor. And we want to try out some strange effects!"



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**VGS Rack Mount ▲
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VGS of Sun Valley, Calif., has introduced a CD drawer in a four-space rack configuration. The unit is 18 inches deep, providing storage for up to 69 CDs. Options include a locking security cover. Circle #291 on Reader Service Card



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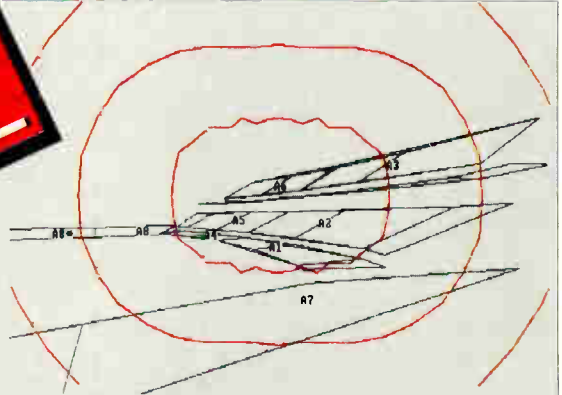
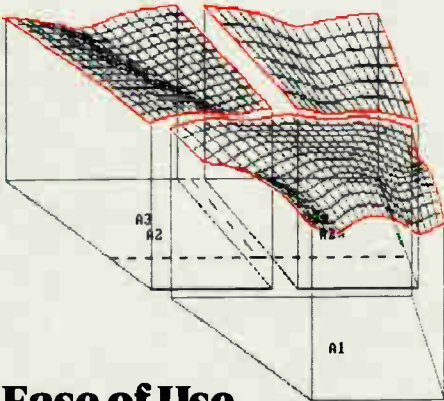
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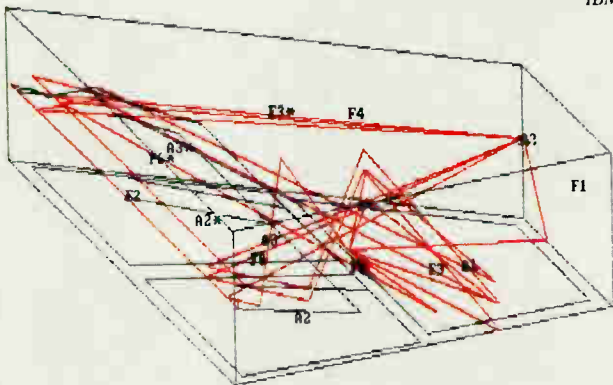
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SOUNDCHECK

Monday-night couch potatoes probably know that Denver's 76,000-seat Mile High Stadium is home to the Denver Broncos, but do they know the stadium is newly equipped with a sound system to amplify the Bronco Band? **Yorkville Sound** (Niagara Falls, NY) supplied an Audiopro SP-12 mixing console and four Elite MX-1000 speaker enclosures, each working in tandem with M-600 enclosures...TEC Award-winning **Clair Bros.**, based in Lititz, PA, recently outfitted Detroit's Joe Louis Arena and set up shop in Oxford, England: Clair Bros. Audio Systems Ltd. installs arena, theater, stadium and nightclub sound systems. The company's first UK project was a London theater installation. Clair Bros. and TC Electronic (Denmark) inked a contract for joint development of the TC 6032 EQ motor-fader remote control (TC

Electronic is the only distribution source for this new device)...Expecting a heavy winter concert schedule, **Scorpio Sound Systems** (West Bridgewater, MA) recently expanded its inventory to include a Soundcraft Series IV 40/24 monitor board and more speaker system components from Eastern Acoustic Works...Some concert SR firms that added JBL boxes to their equipment arsenals include: **Silver Star Productions** (McBee, SC), which unpacked four SR 4732 12-inch, 3-way systems and four 4718 18-inch, subwoof/bass systems; **On Cue Systems** (Phoenix, AZ), which now uses 24 SR 4732 speakers; and **Up With People** (Tucson, AZ), proud owners of 24 SR 4725 (15-inch, 2-way) and six Soundcraft 200 Delta consoles...Night-lifers in New York know the Palladium as a dance palace and purveyor of live music; they also may know that the nightclub just ordered two TAC Scorpion II consoles...Ever-busy **Audio Analysts** just picked up the

contract to support the U.S. tour of the Whispers; through December they also took to the road with the mighty Teenage Mutant Ninja Turtles...Doing things the Texas way (big), Dallas-based **Showco** is handling sound in Europe for INXS and Level 42, and touring the States with Living Colour and ZZ Top...The symphony-savvy **RCI Sound Systems** enjoys new, spacious headquarters in Rockville, MD, ten miles from Washington, D.C.; the address is 5615 Fishers Lane, Rockville, MD 20852; (301) 984-1800, fax (301) 984-1680...The "UL-listed" label now appears on **Oxmoor Corp.**'s MDA-16 and MDA-26 distribution amps and RMX-44 and RMX-62 mixing matrix amps. Update your Rolodex: Oxmoor moved to larger digs at 2111 Parkway Office Circle, Birmingham, AL 35244; (205) 985-7040...Lots of tours are using Electro-Voice's N/DYM microphones, including country artists K.T. Oslin, Earl Thomas Conley, Lee Greenwood and

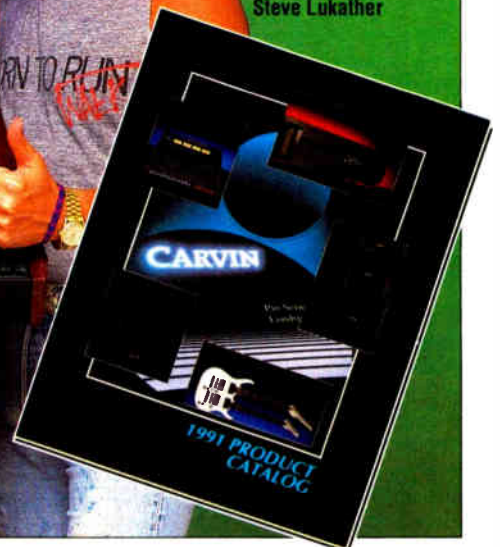
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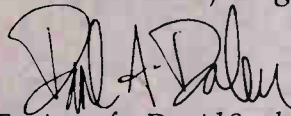
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*In case you were reading too fast, we wanted to remind you that this ad is about UHF, not VHF wireless. †As long as you are reading our ad this closely, we thought we'd tell you who they are: Yukinaga Koike, Doug Bryant, Takao Horiuchi, Susumu Tamura. †dbx is a registered trademark of Carillon Industries.

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LIVE SOUND

Rodney Crowell...Speaking of E-V, Mark IV Audio appointed Ronald Graham as a vice president, primarily responsible for overseeing human resources for all Mark IV Audio companies (Electro-Voice, Altec Lansing, Gauss, Vega, Electro-Sound, University Sound, Dynacord)... And speaking of **University Sound**, the Sylmar, CA-based firm recently installed a slew of CDP horns in stadiums around the nation, including New York's Shea and Yankee Stadiums, and also outfitted a power-generating plant in New York with 56 wide-angle Cobratlex III horns and 24 compact PH re-entry horns... Mark IV Audio Canada promoted Michelle Woods to sales service manager.

Sound reinforcement professionals: Keep those cards and press releases coming (photos appreciated, too)! Send them to *Mix*, Sound Reinforcement editor, 6400 Hollis St., #12, Emeryville, CA 94608, or fax (415) 653-5142.

**SPOTLIGHT ON...
Gordon "Gungi"
Paterson
On Tour
With Judas Priest**



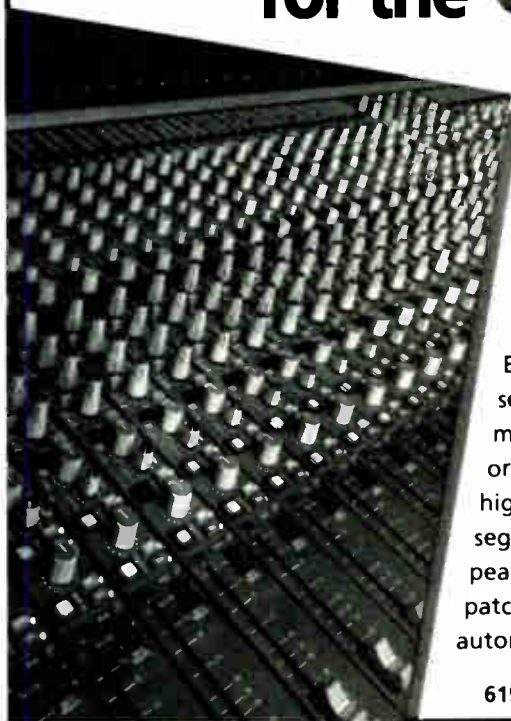
Gungi Paterson is perhaps the world's tallest sound mixer—nearly seven feet, not including hair. His stature may not have anything to do with his success, but, he admits, "It does let me mix on a lower riser, which promoters like because they can save sightlines and sell more tickets!" Affiliated with the London- and L.A.-based Tasco SR firm, this independent mixer recently worked shows by Whitesnake and Deep Purple. But most often he mixes for Judas Priest; he's handled hundreds of shows for the metalmeisters, having toured the globe with them since 1982.

Born in St. Andrews, Scotland, Paterson lives in Maui between tours. The current tour includes

the first production model of the Midas XL3, a 40-input mixer with eight VCA subgroups and 16 aux sends. Paterson says, "Since Klark-Teknik bought Midas, they've really made progress. This new board can be a front-of-house console or monitor board; I'll use it as my main board after our shows in L.A., but until then I'm using it for drum, vocal, and effects subgroups. I use eight aux sends as analog subgroups, the other eight as effects sends. Judas Priest are heavily into vocal effects."

The loudspeaker system is a Tasco creation; components are two 15-inch Gauss low-end enclosures, two E-V 12-inch low/mids, and, for mid/highs, two JBL 2245s and four JBL Bullets. Sub-bass is provided via Meyer 650 cabinets. "It comes out at about 55,000 *real* watts," says Paterson. ■

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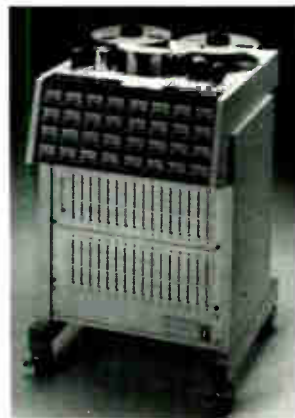


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—FROM PAGE 99, CONCERTS

at the back fence or the mixing console? Generally, you can't go up above 95 dB at the mixing console. And that's generally determined by the facility. But no one's ever held a meter to me, or to my employees."

**Albert Leccese,
Audio Analysts,
Plattsburgh, New York**

"You can't just set a maximum SPL figure, because that number is irrelevant of circumstance, musical style or band. The SPL gets up there for bands that are not considered loud. Billy Joel's not 'loud,' but his SPL gets to 116 dB at the mix position. This isn't continuous all night, but some tunes and refrains get up there. Some metal acts go to 120dB SPL at the mix position. Metal acts aren't the only ones; the so-called midline rockers, like Van Halen, want it just as loud.

"So the idea to police ourselves is a good one. It's up to the P.A.

company and system engineer to say to the band's manager, 'Don't you think it's a little too loud?' But if the manager says 'Turn it up,' well...we *are* a service company. At what point is [level-setting] a value judgment, and at what point is it a safety judgment? Who are *we* to tell the band it's too loud? We don't know them. Our responsibility, as far as service, is to give them the maximum SPL and flattest response at the lowest distortion. Once that's achieved, it turns into a value judgment.

"If sound engineers value their hearing, *please* don't mix with earplugs. If you have to wear earplugs, what about the 20,000 people there? If you have to wear earplugs, turn it down. Basically, 116 dB at the mix position is a comfortable loud level. Up above 120 it starts getting ridiculous. 105 to 110 dB gives you reasonable dynamic range and doesn't hurt anybody in the audience. A rock band playing two or three hours at that level is no worse than people who work in industry who

are subjected to heavy machinery for eight hours."

**Trip Khalaf, Clair Bros.,
Lititz, Pennsylvania**

"There are lots of dynamics in Madonna's show, which I just finished on the road. There are some very quiet pieces. At her show there are a lot of 15-year-old girls in the audience. They don't want to be deafened. And they're all there with their mothers, and *they* don't want their brains blown out! You need to gauge your audience. The secret there is to turn down the level of the P.A.—the girls will stop screaming. Don't turn up the P.A. to go over the screaming; they'll just scream louder! I also just finished a year-and-a-half mixing Elton John's show. If you start blowing heads off when the audience has stockbrokers in it, and the demographics are ages 15 to 50, half the audience will demand their money back. For the good of the artist, you must gauge the tolerance of the audience.

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"Our job is to bring the artist's music across as best we can and *also* make people think they enjoyed it so they buy tickets again. When I'm setting up, I arrive at a certain physical sensation, and that's as loud as it's going to get. Then I do dynamics down from there. There's a certain amount of satisfaction in feeling that kick drum in your chest and having your pancreas move around—transcending audio from the aural to the physical. But there is a point of diminishing return, as in, 'It was very pleasant, but the patient died.'"

Kaj Kline, Linear Sound, Oakland, California

Rapper MC Hammer recently performed for his hometown crowd at Oakland Coliseum, and Kaj Kline worked the sound. "I was out front, about 150 feet [from the stage]," Kline notes, "and it was somewhere in the neighborhood of 126 dB. That's how the artist wants it. When it becomes painful, it's too loud. If the show's not enjoyable, you've defeated the purpose of having it. It's the sound company's job to make sure it sounds good throughout the venue. But we're at the mercy of the [band] engineers. They make that [volume] decision; the system is there for them to drive. I do put a limiter at the top end of our system, so the overall system limiting and compression lets the engineer take the system to the edge, then puts the brakes on and stops when the system is up so loud. But when it's there, it's already well past the threshold of pain, because our system red-lines at a much higher level.

"I think it's appalling, but it's not up to me, it's up to the artist. At some point in the show we do try to let the engineer know what's going on, level-wise. About a quarter-way through the MC Hammer set, the soundman did bring it down. If you make it too loud, people won't buy tickets, so

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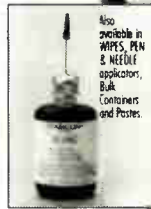
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you're cutting off your nose to spite your face. But at what point does the sound company make that artistic decision? Sometimes the band feels high volume is part of their artistic expression."

Dave Kob, Clair Bros.

"I just returned from South America, where I did two shows with Sting. I get to work with bands that are more interested in high fidelity than in pinning people's heads to the back wall of the hall. Sting's more jazz-oriented, but even when he does Police songs, I don't want them to hurt me at the board. I mix about 125 feet from the P.A. in indoor coliseums. I spend lots of time turning down amps on the sides where people are real close to the speakers. I always know how loud it is and can tell how loud the show should go: peak [SPLs] at the console at 110 dB, averaging around 100, 105, maybe peaks 10 dB higher. Ballads are in the 90s.

"But usually figures are pretty meaningless, because what matters is duration, frequency and level all together. A kick drum at 130 dB doesn't hurt your ears, but a 5kHz oscillator tone can hurt pretty bad. The shows I work have dynamics, where the artist performs a loud song, then a softer one like a ballad at half the volume. Your ears need the rest.

"I've heard [band] management telling engineers to turn up the P.A. until it hurts people. If you're a sound mixer and the manager tells you to do that and you say, 'Get lost,' then you're fired and you go home. Luckily, I'm not required to push levels to pain level. I've been doing this five days a week for 19 years. I don't want to hurt myself. I want to keep on working." ■

Journalist Linda Jacobson also runs Wordswork, providing high-tech writing, editing and publishing services to businesses in the San Francisco area.

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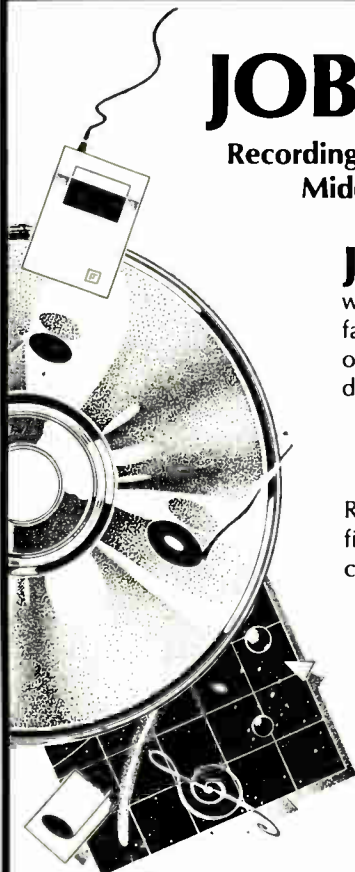
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Crystal Harmony

A STUDY IN SOUND SEAMANSHIP

The audio systems in most cruise ships, even in the showrooms and entertainment lounges, at best represent an attempt to shoehorn modern sound reinforcement technology into vessels built when passenger/audience expectations were more modest. Management for Crystal Cruises, a new line out of San Francisco, knew that the kind of clientele they wanted—travelers who could afford the fares on a first-class cruise ship (\$2,940 to \$11,400 per person for the Crystal Harmony's inaugural 12-day Alaska/Canada cruises from San Francisco, for example)—would have experienced the showrooms of Las Vegas, Lake Tahoe or Atlantic City. Therefore, they would be used to professional shows and top-notch production values.

So, just past the initial construction stage and fully two years before the ship was scheduled for delivery, Wavelength Systems Design in El Segundo, Calif., was called upon to supervise the sound system installations in the entertainment rooms. Wavelength brought to Nagasaki the combined experience of its staff, who have worked as musicians, DJs, sound and lighting

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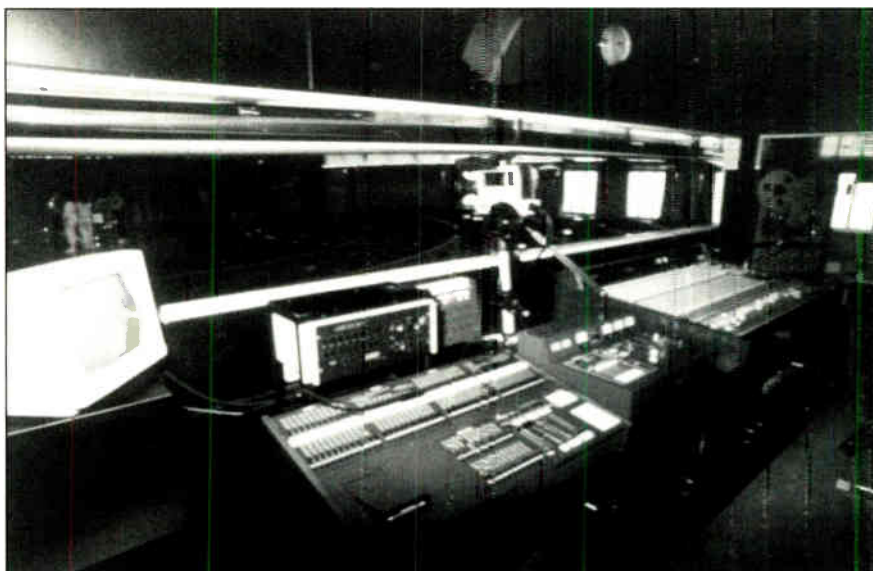
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The control booth at the back of the Galaxy Lounge features a TOA 8100 mixer and a 48-channel Strand Lightboard M.

designers, and set designers. This diversity and ability to see "the big picture" has kept the firm busy with installations in hotels, convention centers, amusement parks and, now, cruise ships.

The management of Crystal Cruises found sound and light director John Leposa working for another cruise line. Leposa, originally from New Jersey, graduated from college with a degree in computer science, but his interest in music and electronics led him to enroll in New York's Institute of Audio Research. While working as a maintenance engineer at a 24-track studio in NYC, he saw a listing in one of IAR's career opportunity bulletins for sound engineer on a cruise ship. Leposa applied and got the job. His on-shore audio work and training, plus his cruise ship entertainment experience, attracted the eye of Cliff Petty, Crystal Cruises' vice president in charge of entertainment.

Leposa supervises a technical crew



of two, with other production chores like spotlight operator handled by crew members from other parts of the ship. Budget and limited crew space mean that even on the latest in cruise ships, nearly every one has to double-up on assignments.

During the course of a typical 12-day cruise, Leposa is responsible for 30 to 35 live presentations of one sort or

another. Cabaret acts, dance bands, jazz combos, puppeteers, magicians and variety acts perform in all of the ship's live music venues.

The 520-seat Galaxy Lounge presents the most elaborate productions onboard, including three large-scale shows in rotation during each cruise: "Give Our Regards to Broadway," "Irving Berlin, A Man and His Music," and

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"The World in Harmony," the latter featuring a number of large and fantastically elaborate puppets. The shows combine a seven-piece live band with prerecorded music tracks and a company of ten singers and dancers.

Leposa mixes these shows from a spacious (even by on-shore standards) control booth at the back of the showroom. Like live mix engineers on dry land, he had a little difficulty explaining to the designers that no, he did *not* want a window separating him from the showroom action. The audio centerpiece of the control room is a TOA 8100 mixer. A thoroughly up-to-date, 32-input desk with eight subgroups, stereo outs, 4-band EQ and eight auxiliary sends on each input, the 8100 isn't yet being marketed in the U.S. The 1/3-octave graphic equalizers, cross-overs and power amps are also by TOA. The racks hold five Yamaha SPX900 digital effects units.

Leposa says that the prerecorded musical tracks, arranged and prepared by Edo Guidotti at JEL Studios in Newport Beach, Calif., and the live band arrangements by Crystal Cruise music director Brett Bullock, although complementary, can be used inde-

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pendently. This means that if either the band is unable to perform or for some reason the tracks can't be used, the show *can* go on. Of course, the overall effect is much more satisfying when all the audio elements are present, but it's nice to have options, especially when technical support is hundreds of sea miles away.

The prerecorded tracks are fed to the mixer from a Tascam ATR-80, where they are blended with the band inputs from the stage and as many as eight wireless microphones at one time. Principal wireless systems are Sony WRT-810 transmitters broadcasting to Sony Model WRR-840 dual-diversity receivers.

The main sound reinforcement speakers in the Galaxy Lounge are two pairs of Pioneer Electronics' TAD division TSM-2 studio monitors. A bi-amped, two-way system with a 15-inch woofer and 2-inch high-frequency driver, they are installed two on either side, mounted in the wall flanking the stage opening, stacked with their radial horns together.

According to Leposa, the TAD monitors demonstrate a controlled, even dispersion and flat frequency

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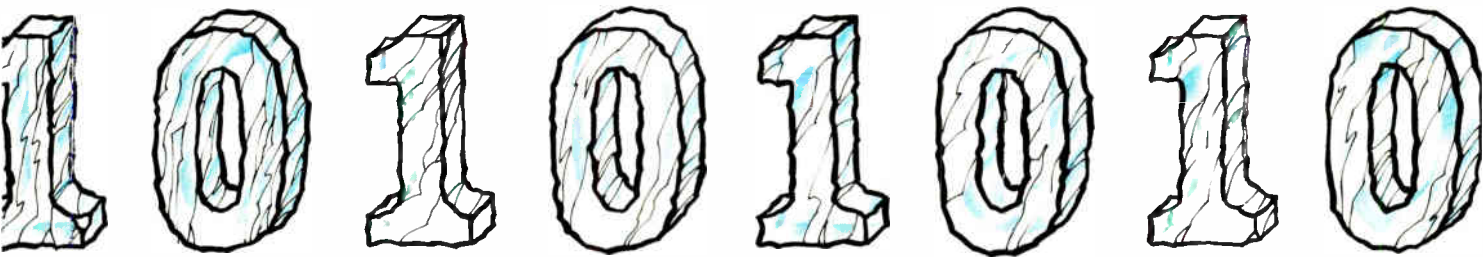
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response. This is especially important in the Galaxy Lounge layout because only the band is on the stage proper. The singers and dancers work on the thrust stage, with the audience seated on three sides. (This stage doubles as a dance floor when hydraulically lowered to floor level.) With most of his live vocal mics well in front of the house speakers, Leposa needs all the help he can get to secure enough gain before feedback. The TADs' smooth response save him from having to resort to radical and unnatural-sounding equalization.

The stage layout poses other problems. Due to a relatively low ceiling in the showroom, the main speakers can't be mounted high enough to be over the heads of the "in close" audience. Leposa has to find a balance between adequate sound levels at the rear of the house and risking "blowing away" the patrons down front. In finest Murphy's Law tradition, it seems that the people most unaccustomed to even lounge/showroom SPLs are *always* seated right in front of the speakers. Also, the demographics of luxury cruise passengers just don't lend themselves to "rock 'em" volume levels, and you begin to realize why diplomatic skills are just as important sometimes as engineering chops.

The booth also contains the controls for the showroom's comprehensive lighting system. A 48-channel Strand Lightboard M controls a total of 72 dimmers and their associated lights. For additional razzle-dazzle, there are six Varascan laser simulators for special effects.

The smaller show lounge, Club 2100, features live music for dancing, cabaret shows and special "theme night" parties. Audio gear includes a TOA RX7 mixer, Tascam TSR8 8-track machine for playback, and two Yamaha SPX900s. The main speakers in Club 2100 are a custom design by Pioneer/TAD. They are horizontally oriented with two 15-inch woofers flanking an unusual asymmetrical high-frequency horn. Adding to the speaker mysteries of Club 2100, the disco system and stage monitors all feature a name on their grilles not usually found on sound reinforcement speakers...Pioneer.

The 250-seat Hollywood Theater has the capability to show both 16 and 35mm films—and has a dedicated large screen for its Panasonic High Definition Television (HDTV) projection system.

The theater is equipped for double

duty as a lecture hall and conference room. Reflecting the international intent of the Crystal Harmony, its conference facilities include headset hook-ups and vocal booths for a four-language simultaneous translator system.

Main sound reinforcement for both cinema and conference use is provided by a pair of the same TAD TSM-2 monitors used in the Galaxy showroom, with smaller Pioneer speakers used for fill and surround sound effects.

The attention to sound quality on the Crystal Harmony carries through to every public space. Nearly every cocktail bar is equipped with its own local background/foreground system based around a TOA CX1 mixer-amplifier and a Panasonic CD player. Three of the bars even have SPX900s for effects!

On the video side, Crystal Harmony has an elaborate video broadcast room and production facility. The installation was supervised by Parker Fleming Productions of Boca Raton, Fla. Every penthouse and stateroom is equipped with Panasonic color televisions on which passengers can choose from 14 onboard channels. Three channels of movies are on at all times, fed from racks of 1/2-inch Panasonic pro decks. CNN and sports are also "on the dial," as are three music channels that feature (as their "visual") a camera broadcasting from the prow of the ship. Finally, the ship's video library provides movies to play on the videotape player installed in every accommodation.

Onboard production capabilities incorporate Panasonic S-VHS cameras and VCRs, Sony 1042 QM slide-to-tape projectors and 1/2-inch editing decks. There are even plans to tape interviews with celebrities and onboard guest speakers for broadcast on the ship's own channel. Can "Good Morning Crystal Harmony" be far off?

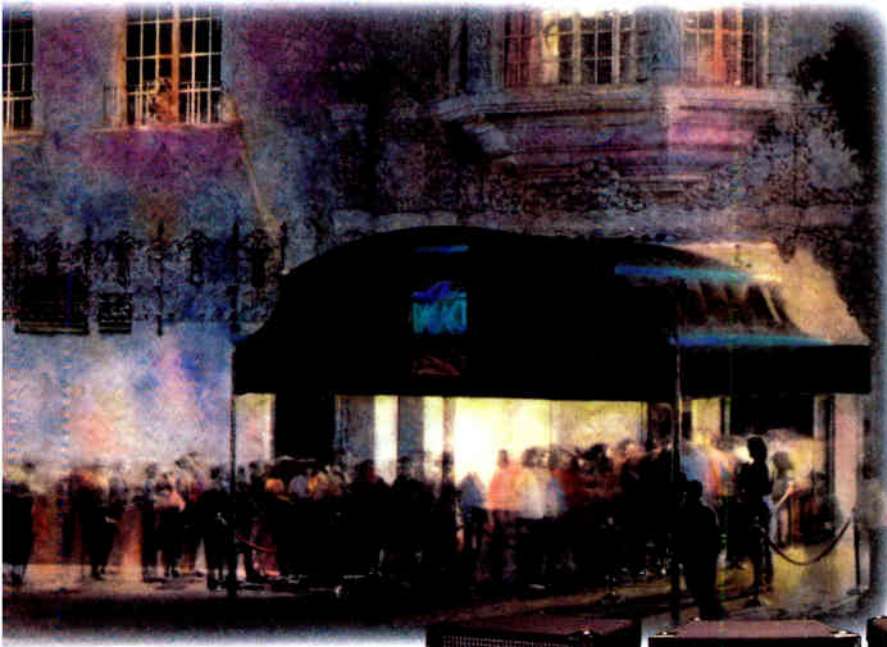
From its earliest planning stages, Crystal Harmony was meant to be special, a state-of-the-art approach to luxury cruising for the 1990s and beyond. Its owners were willing to dispense with old notions about "good enough" and "the way it's always been done" and bring in top professionals from all over the world to design, install and operate its sound and video systems. ■

Lee Brenkman is a live sound reinforcement and recording engineer with over 23 years "in the trenches" experience, including 15 years as technical director of San Francisco's Great American Music Hall.

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by Bruce Pilato

A TORNADO BLOWS IN FROM TEXAS

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ou'd never know it by hearing or looking at them, but Tex-Mex superstars the Texas Tornados actually have something in common with the likes of The Monkees and New Kids on the Block. Though this grouping of seasoned veterans features some of the best musicianship, vocalizing and songwriting this side of the Alamo, the fact remains: The Texas Tornados are the result of a planned music industry strategy.



Clockwise from left: Doug Sahm, Freddy Fender, Flaco Jimenez and Augie Meyer

It was the brainstorm of Warner/Reprise A&R whiz Paige Levy that Tex-Mex could cross over into the mainstream record-buying public. She assembled *the* quintessential Tex-Mex lineup, and when it was finally together, the Texas Tornados were born.

From Texas come Doug Sahm and Augie Meyer—class A gringos—who together in the Sir Douglas Quintet have left a rock 'n' roll legacy that includes "She's About A Mover" and "Mendocino." From Mexico come Grammy Award-

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winning accordion player Flaco Jimenez (also known for his work with Ry Cooder and Dwight Yoakam) and country music superstar Freddy Fender, who has topped the country charts on his own more than once.

The group's debut album, *The Texas Tornados*, has been getting rave reviews, garnered more radio airplay than any of these four guys has had in years, and sold a whopping 50,000 copies its first week out.

"I believe that us getting together could be interpreted as a deliberate attempt to manufacture a band that would take Tex-Mex to large, white audiences very easily," says Fender, rolling a swatch of chewing tobacco around the inside of his cheek. "But once you hear the album, all of that goes out the window. You realize that it's the real McCoy."

"I had been thinking about putting this lineup together for a long time," says Sahn, backstage at a recent SRO gig at Los Angeles' Palomino Club. "But, quite frankly, I never thought it would actually happen until Paige Levy convinced me that we had to try it."

"I always wanted to put something out like this, too, but I never thought it would get done," echoes Fender. "Once in a while we would get together [in various combinations], but my career was always somewhere else—not too close to what these other three guys were doing. With Flaco and Augie and Doug all living in San Antonio, it was inevitable that these three guys would join up. Eventually I hooked up with them, too."

But even when the band played its first gig, an impromptu appearance in San Francisco in December of 1989, Fender remained skeptical of anything long-term.

"I figured the thing that we have here was too damn Mexican/south Texas to be any kind of mainstream. This was the kind of music I used to hear when I was shining shoes in the beer joints down in San Benito. There is no hope here, and it's certainly not overproduced. If there ever was an example of simplicity, this is it."

Fender is speaking of the album's totally honest approach, not only to music but to the recording process. *The Texas Tornados*, from its first pre-production meeting to its final mixing session, was put together in only nine working days. It was recorded mostly in San Marcos, Texas,

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at The Fire Station. Additional recording was done at Sound Emporium in Nashville.

Co-produced by the band and legendary producer/engineer Bill Halverson (best known for his work with Cream, Eric Clapton, CSNY, and recently, Jo El Sonnier), the album is party to what appears to be a growing trend in the music industry: Lay it down fast and keep the music real.

"These are the kind of recordings they used to make in the real rundown studios in the valley for \$25, man," Fender says. "Here we are, recording some of the stuff that we would record for nothing back then, for Warner Bros. Records! My God, here they are really putting their heart and soul into what we're doing."

It was Sahm's manager, Cameron Randle, who contacted the Nashville-based Halverson and offered him the project. Halverson agreed to sign on after hearing tapes of the proposed material and getting assurances from Levy that the album would not be forced into a country-only direction.

"I did not meet the band until the day before we went into the studio; I had never met any of them," says Halverson, who credits the album's success to the professionalism everyone displayed.

"We had a five-hour pre-production meeting in the actual studio that we did the album in on a Sunday afternoon. Then we went over the songs with a boom box, an acoustic guitar and a squeeze box. And that was it. We started the next day, and nine days later I left Texas with an album."

Making records quickly is what most of the Tornados know best. "I had an album that I recorded in Monterey, Texas, back in 1957, with me on guitar, a bass player and a drummer. We did that whole album in three hours," Fender says before laughing. "Mainly, because I only had enough money to pay for three hours!"

Halverson and the band employed three different rhythm sections for the album, alternating between what was primarily a blues-oriented rhythm section and one that was country. All had played with the bandmembers in various combinations.

The first few days, Halverson spent considerable time on drum sounds and played with various live and direct combinations for the bass and 12-string guitar. Virtually nothing was



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done on a technical level other than simply recording the band while it played.

"It became very obvious in the beginning that this was going to be a feel record," Halverson says, "so I just set a lot of mics up and got the band set up in a circle and let them play."

Halverson was chosen, in part, because of recent work with country accordion ace Jo El Sonnier. Since Jimenez's accordion is central to the Tornados sound *In the 1930s his father, Santiago Jimenez Sr., essentially invented what is now known as conjunto music—Ed.*, it was thought Halverson's previous work with the instrument could bring the record to its full potential.

"Having just done a lot of accordion with Jo El, I thought, 'Oh no, not more accordion,'" Halverson says, "but it was such a different sound that I really enjoyed it. On a lot of stuff with this band, Flaco's rhythms are so unique—he plays in between the verses and stuff like that. He just plays and nods when the band comes back in. I had everyone out in the room, and I had a C-12 on him, and he would just wander up to it. It worked wonderfully."

For vocals, Halverson used primarily Telefunken U-47s and U-67s. "In some cases it would be an either-or situation. They're really professional, and they would always blend themselves on one mic. Freddy would be singing, and Doug would just lean over his shoulder and start singing the backup."

"You probably have a clue as to the inner happiness the four of us had recording stuff that we'd played all of our lives," says Fender. "I would love for Tex-Mex to become part of what's happening on the music scene. It sure deserves it. This music has been around for a long time. It's not a lambada. It's been around since grandpa was gettin' drunk off his ass."

From the infectious Sahn-sung first single, "Who Were You Thinking Of," to Jimenez's Spanish-sung ode to his father, "Soy De San Luis," *The Texas Tornados* beams with the joy of four longtime Tex-Mex veterans finally getting their chance to make music that really matters. ■

Bruce Pilato is a contributing editor to Mix who lives in Webster, N.Y., with his wife and three sons.



ROGER MASTERED DIGITAL TEN YEARS AGO, AND THE DD1000 OVERNIGHT.

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—FROM PAGE 34, NORTHWEST STUDIOS

are our biggest clients, but we also have ASCAP and BMI publishing companies that are very successful—getting those quarterly checks really helps.”

Brilliant Studios, San Francisco

Norm Kerner, owner

San Francisco's newest recording facility is also its largest—in cubic feet, at least. The 24-track Brilliant Studios, located in the artsy South of Market area near downtown, is the domain of producer Norm Kerner, who has earned an enviable reputation for his work with local bands; many also know him as the founder of Starlight Sound across the Bay in Richmond.

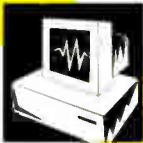
Brilliant Studios, which features a Trident Series 80 board, Studer A80 recorder, and Meyer 833 and HD-1 monitors, is a huge, airy room in an old brick industrial building, an historic landmark. “It's a great big tracking room,” Kerner says, “for my own productions. People are using the place for everything from simple overdubs to tracking drums. It's a room for recording that we're not looking to book commercially, but for me to produce records and sign development deals with local acts I find and fall in love with.

“I mostly produce alternative folk rock and hard rock, but I also do a large amount of black music and rap and dance work,” he continues, naming the reason for the construction work in Brilliant's basement, future home of an 8-track MIDI production room. “Those types of projects are good to live with on an 8-track level. You don't need to waste 24-track time to do a great hip hop dance track that you might not even have an artist for. We're constantly working up tracks here that don't have an artist yet, but it's stuff we're working on for clubs and DJs. The idea is to just keep the kids dancing, find out what's happening, what bpm's the DJs are spinning this week. It's like putting together building blocks. It involves a different side of the brain than working with a band that's all beautiful moments you try to capture on tape. Dance music is business.”

Avalanche Recording, Northglenn, Colorado

Harry Warman, owner

Since opening in a basement in 1979, Avalanche has recorded its share of big names, including the Pretenders' “My Baby” and Camper Van Beethoven's single “I Was Born in a Laundromat.” But



A SUPPLEMENT TO

MIX

AUDIO PRODUCTION

'90 AN ANNUAL SURVEY OF
U.S. AUDIO PRODUCTION
FACILITIES

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Introduction and Methodology:

Mix's annual Audio Production Facilities report is presented as a source of industry information about studios and other facilities offering recording and post-production services. Although the most common business activity of these facilities is audio recording and production, other services such as video and film post-production, live sound reinforcement and tape duplication are also represented.

An overall view of the facilities surveyed for this report indicates that most studios are small businesses with five or fewer full-time employees. The average studio offers a variety of services; this diversification creates an advantage in a highly competitive field and also provides more potential revenue sources. Some of the areas facilities are branching into are audio-for-video, film post-production, creative services such as artist management and graphics, tape duplication, and MIDI pre-production. The most significant business concern cited by the facilities in this study is finding new business (63% of respondents). Overall, respondents reported that their revenues had risen during the past year, and that they expect revenues to increase even further during the next 12 months.

The survey on which this report is based was conducted by RESOURCE: Market Research, La Selva Beach, CA. A mailing list of 1,000 names of owner/managers was compiled from the circulation galley of *Mix* magazine on a randomly stratified, *N-th* name basis from the following categories:

<u>Survey Category</u>	<u>Total Names by Category</u>	<u>% of List</u>
8 & 16 track recording studios	375	37.5%
24+ track recording studios	370	37.0%
Digital recording studios	43	4.3%
Remote trucks	17	1.7%
MIDI/Music production facilities	51	5.1%
Post-production facilities	132	13.2%
Mastering facilities	12	1.2%

The survey consisted of a four-page questionnaire, a cover letter and a postage-paid return envelope. A \$1.00 donation to a respondent-designated, charitable, non-profit organization was offered as an incentive for the completion and return of the survey.

A total of 222 usable questionnaires were received at *Mix* by the survey deadline of July 30, 1990, for a response rate of 22.2%. The surveys were subsequently delivered to RESOURCE: Market Research for tabulation. Copies of the questionnaire are available on request.

Please note that not all respondents answered every question in the survey. Each question is identified with the value of its response universe by the symbol $\Sigma =$ (number). This number is the sample size from which each graph or data table in the report was created.

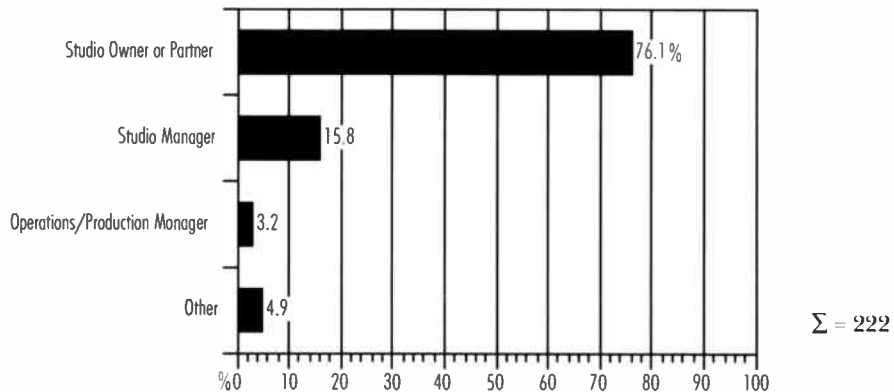
Part One: Survey Respondents & The Work Environment

The facilities participating in the survey are located in 41 states and territories across the United States. The greatest numbers of participants are from California (21% of respondents) and New York (13% of respondents), the two geographical areas likely to have the most facilities.

Job Titles of Survey Respondents:

The majority of respondents to the 1990 survey are in positions of responsibility at their studios or production facilities. Seventy-six percent of survey respondents are studio/facility owners or partners. Eighty-two percent authorize equipment purchases.

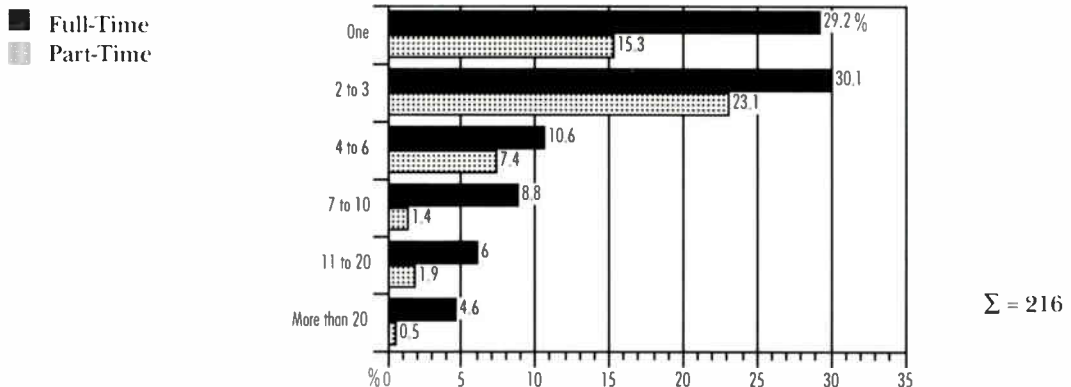
What is your title?



Number of Full- and Part-Time Employees:

The average facility has 5.2 full-time and 3.3 part-time employees. Fifty-nine percent of facilities have between one and three full-time employees; 38% have between one and three part-time employees.

How many full and part-time employees work at this studio/facility?



Average Salaries:

The average gross monthly salary of full- and part-time employees ranges from \$1,125 to over \$2,300, depending upon job title and function.

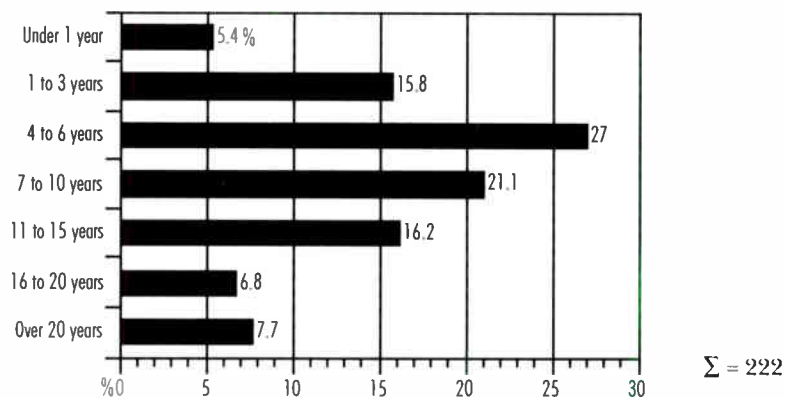
Please indicate the gross monthly salary for this studio/facility's full and part-time audio production employees by title/position.

Booking/Traffic/Scheduling	\$1,731	
Maintenance/Technician	\$2,156	
Trainee/Intern	\$1,125	
Assistant/2nd Engineer (includes Tape Ops.)	\$1,344	
Recording Engineer	\$2,321	$\Sigma = 161$

Years In Operation:

The typical studio or facility was established within the last decade. Forty-eight percent of facilities have been in business between four and ten years, with an average of 8.8 years and a median of 7.1 years.

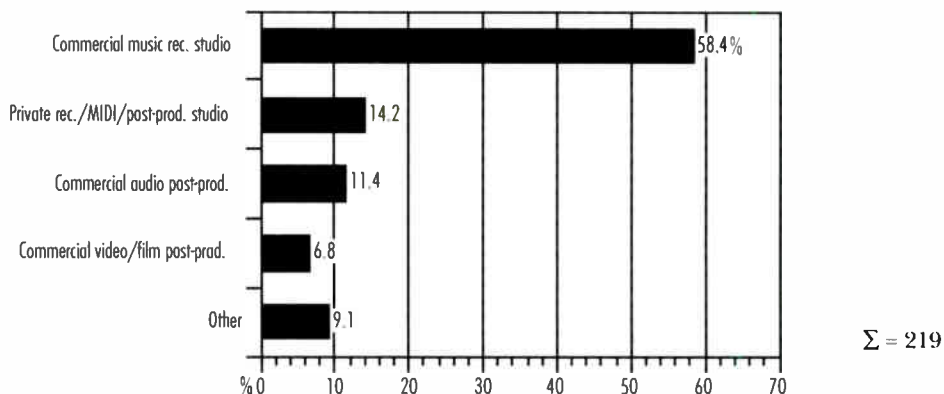
How many years has this studio/facility been in operation?



Main Business Activity of Studio/Facility:

The main business activity of almost 60% of all facilities surveyed is commercial music recording and production.

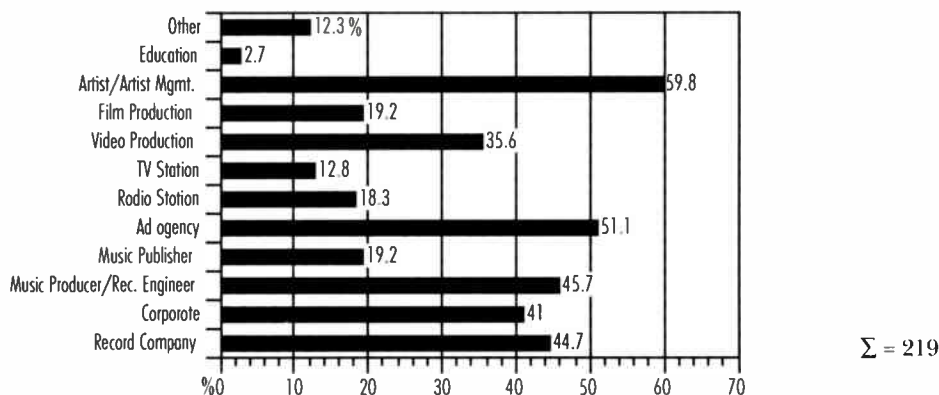
Please choose the ONE category which best describes this studio/facility's MAIN business activity.



Types of Clientele at Studio/Facility:

The most commonly reported client categories at the audio production facilities surveyed include artists or artist management, ad agencies, music producers and recording engineers, record companies, and corporate clients.

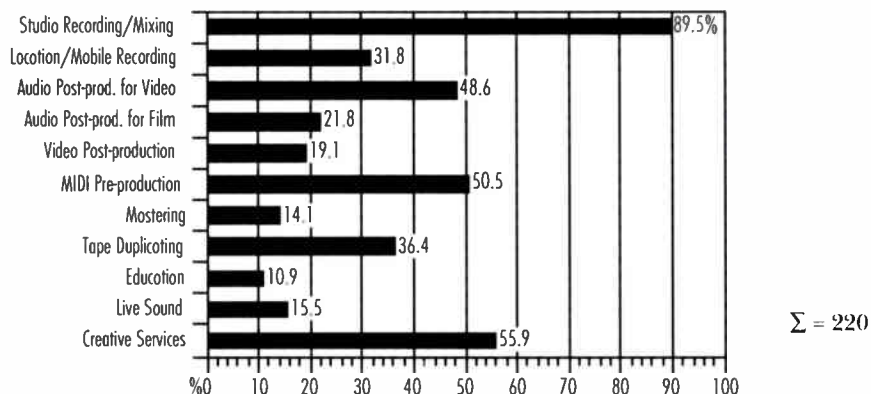
*Please check all types of clientele which contribute to your studio/facility's overall revenues.
(Multiple response question)*



Types of Services Currently Offered:

On average, the facilities surveyed currently offer four types of services. The services most frequently offered are studio recording and mixing, creative services (producing, artist management, graphics, etc.), MIDI pre-production, and audio post-production for video.

*Please indicate the types of services this studio/facility currently offers.
(Multiple response question)*



Forty-three percent of survey respondents plan to offer additional services over the next 12 months, but only 7% plan to discontinue some services during the same period. Among those planning to expand their services, the most common additions are audio post-production for video (37%), MIDI pre-production (23%) and tape duplication (23%).

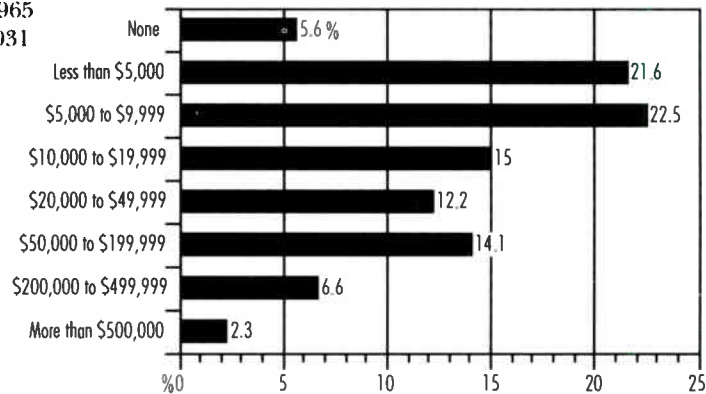
Part Two: Equipment and Resources

Fifty-nine percent of facilities spent between \$5,000 and \$20,000 on audio equipment in the past 12 months. Seven percent more facilities plan to spend over \$10,000 in the next 12 months than spent this amount in the past year.

Total Amount Spent on Audio Equipment in Past 12 Months:

Please estimate the total amount this studio/facility has spent on ALL TYPES of AUDIO EQUIPMENT over the past 12 months.

Average expenditure: \$61,965
 Median expenditure: \$12,031

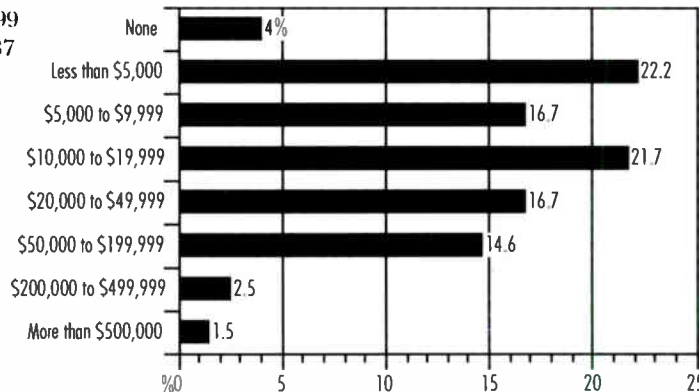


Σ = 213

Total Amount Plan to Spend on Audio Equipment in Next 12 Months:

Please estimate the total amount this studio/facility PLANS TO SPEND on ALL TYPES of AUDIO EQUIPMENT over the NEXT 12 months.

Average expenditure: \$43,099
 Median expenditure: \$11,487



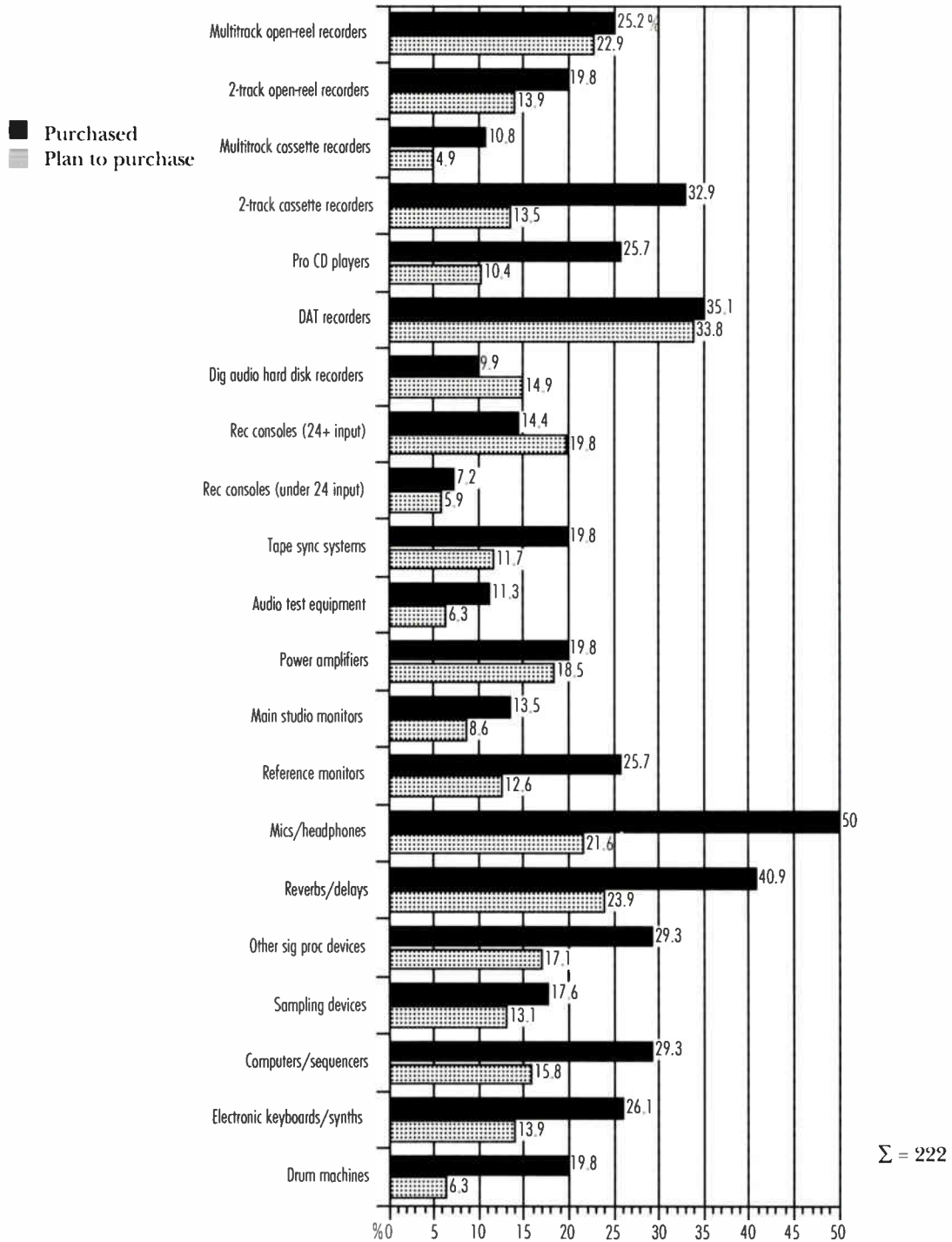
Σ = 198

Audio Equipment Purchased/Plan to Purchase:

Microphones and reverb/delay units were the most common audio equipment purchases over the past 12 months, followed by DAT recorders, 2-track cassette recorders, computers and sequencers. Over one-third of all respondents purchased DAT recorders in the past

year, and 34% plan to buy one within the next 12 months. Intent to purchase digital audio hard disk recorders and 24+ input recording consoles is also high in comparison to the past year's purchases.

Please indicate the types of AUDIO PRODUCTION equipment this studio/facility PURCHASED over the PAST 12 months and PLANS TO PURCHASE over the NEXT 12 months. (Multiple response question)



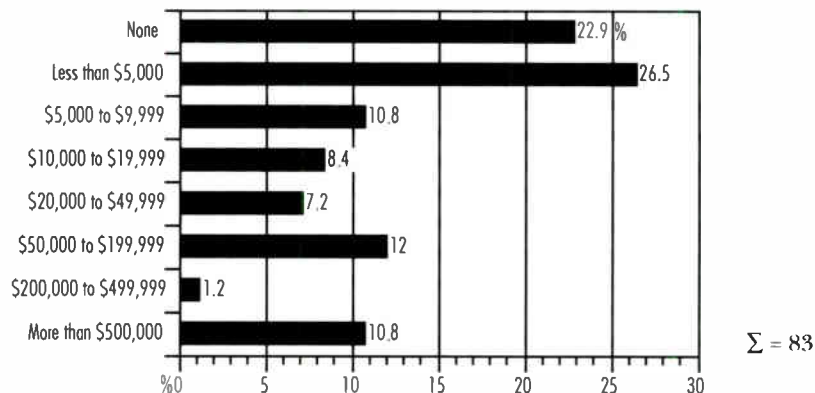
Total Amount Spent on Video/Film Equipment in Past 12 Months:

A minority of facilities account for the majority of video and film equipment purchases. Approximately 37% of all survey respondents indicated their facility's expenditure on video or film production equipment in the past 12 months; 23% of these respondents did not purchase equipment at all, and 46% spent less than \$20,000.

Please estimate the total amount this studio/facility spent on ALL TYPES of VIDEO/FILM equipment over the past 12 months.

Average expenditure: \$97,226

Median expenditure: \$10,714



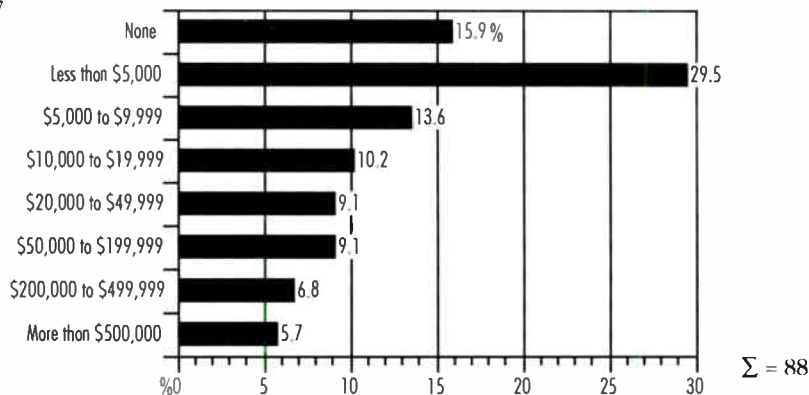
Total Amount Plan to Spend on Video/Film Equipment in Next 12 Months:

Sixteen percent more facilities plan to purchase video/film equipment in the next 12 months than bought equipment in the past year. Of the respondents to this question, 53% plan to spend less than \$20,000, and fewer facilities plan to make large investments in video/film equipment in the coming year. The average planned expenditure among respondents is \$77,567; the median is \$6,381.

Please estimate the total amount this studio/facility PLANS TO SPEND on ALL TYPES of VIDEO/FILM equipment over the NEXT 12 months.

Average expenditure: \$77,567

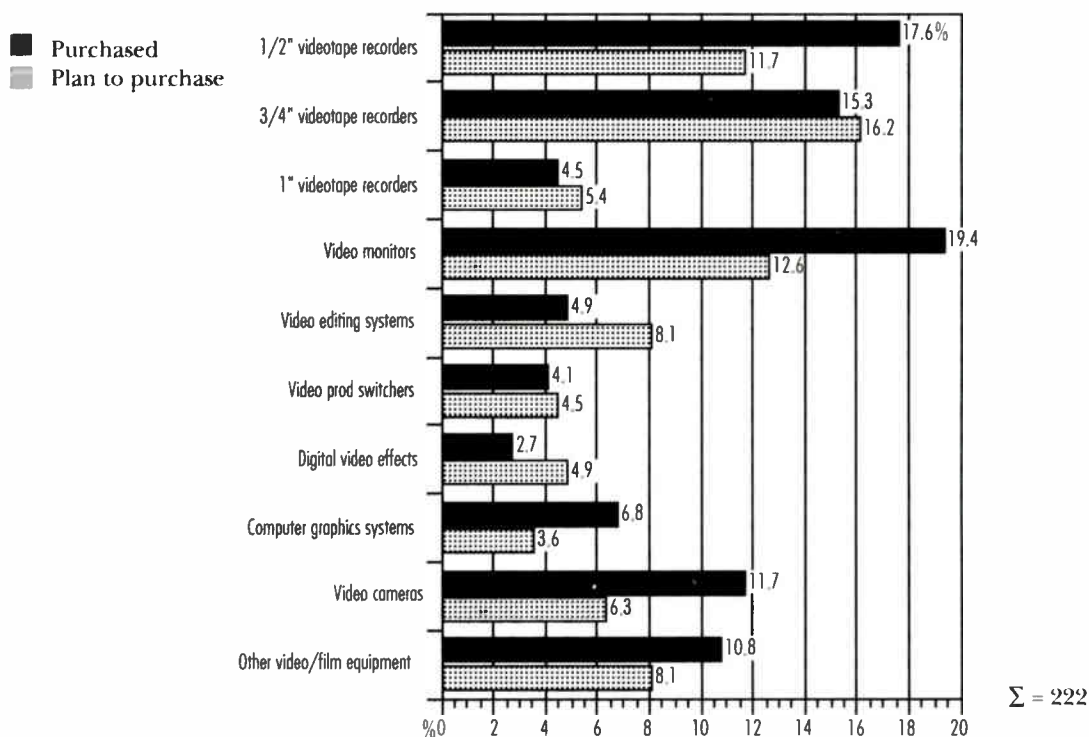
Median expenditure: \$6,381



Video/Film Equipment Purchased/Plan to Purchase:

The most common video/film equipment purchases among all survey respondents in the past year were video monitors, 1/2" videotape recorders, and 3/4" videotape recorders. Sixteen percent of all facilities surveyed plan to buy 3/4" videotape recorders in the next 12 months.

Please indicate the types of VIDEO/FILM equipment this studio/facility PURCHASED over the PAST 12 months and PLANS TO PURCHASE over the NEXT 12 months. (Multiple response question)



Production Rooms and Studios Per Facility:

The average facility consists of one to two control rooms, studios and isolation booths, and often includes an additional specialized work area or room.

From the following list, please specify how many types of studios/production rooms this facility offers.

Average number of control rooms: **1.5 (325 total)**

Average number of studios/stages: **1.0 (234 total)**

Average number of MIDI/Music prod. rooms: **0.5 (113 total)**

Average number of machine rooms: **0.6 (136 total)**

Average number of vocal/instrumental booths: **1.2 (256 total)**

Average square footage of studio/stage: **1,239**

Σ = 218

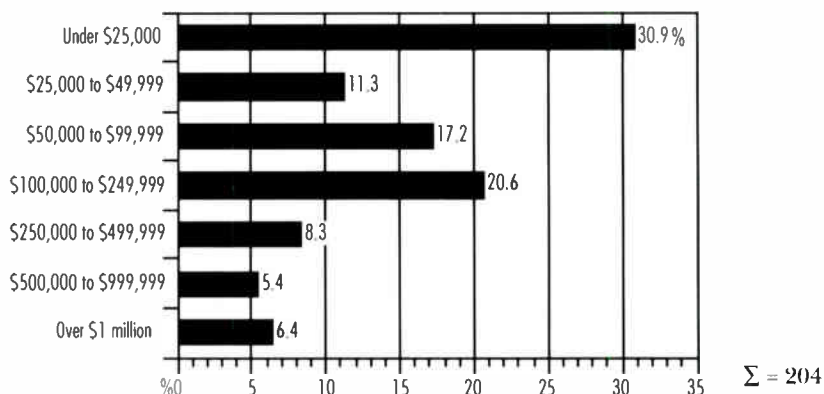
Part Three: Assessment of Market and Revenues

Sales Volume for Audio Production Services in Past 12 Months:

Most of the facilities surveyed are fairly small businesses. Thirty-one percent of respondents report total revenues of under \$25,000 for audio production services in the past 12 months. Twenty-one percent of respondents had revenues between \$100,000 and \$249,000, and 20% had revenues in excess of \$250,000.

Please indicate this studio/facility's approximate gross sales volume/turnover for AUDIO PRODUCTION services over the last 12 months.

Average revenue: \$244,179
Median revenue: \$53,522

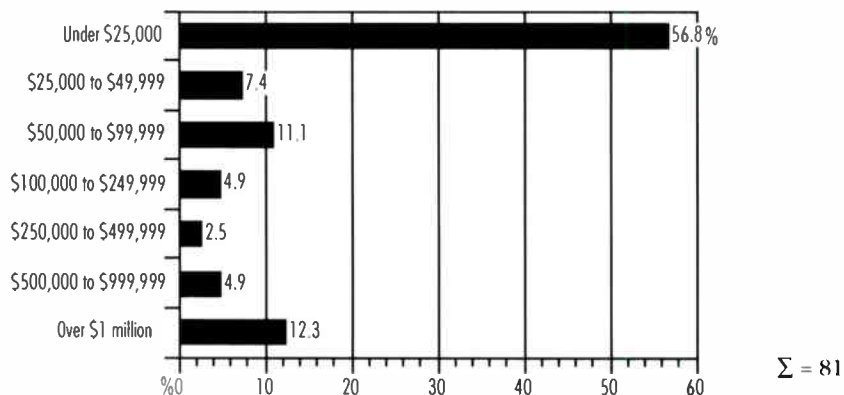


Sales Volume for Video/Film Post-Production Services in Past 12 Months:

Fifty-seven percent of the facilities which provide video or film post-production services report an annual sales volume of under \$25,000 for these services. However, 24% had sales totaling over \$100,000.

Please indicate this studio/facility's approximate gross sales volume/turnover for VIDEO/FILM POST-PRODUCTION services over the last 12 months.

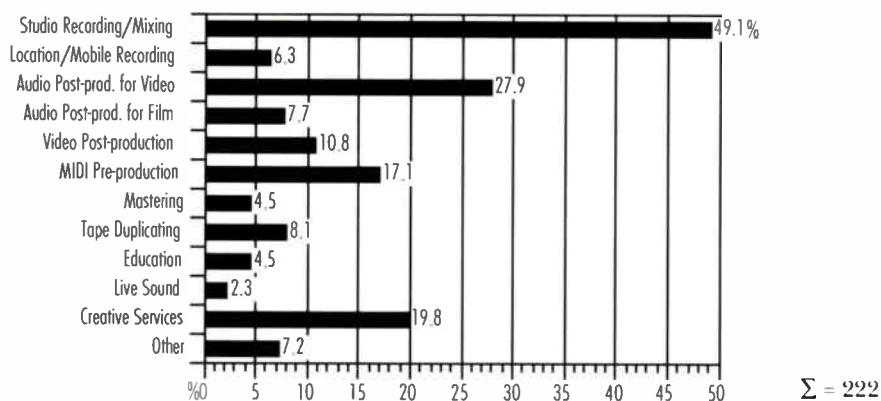
Average revenue: \$325,154
Median revenue: \$21,739



Areas of Anticipated Revenue Increase:

Almost half of all respondents expect revenues from studio recording and mixing to increase over the next 12 months. Twenty-eight percent also expect more revenue from audio post-production for video, and approximately 20% anticipate an increase in revenues from creative services.

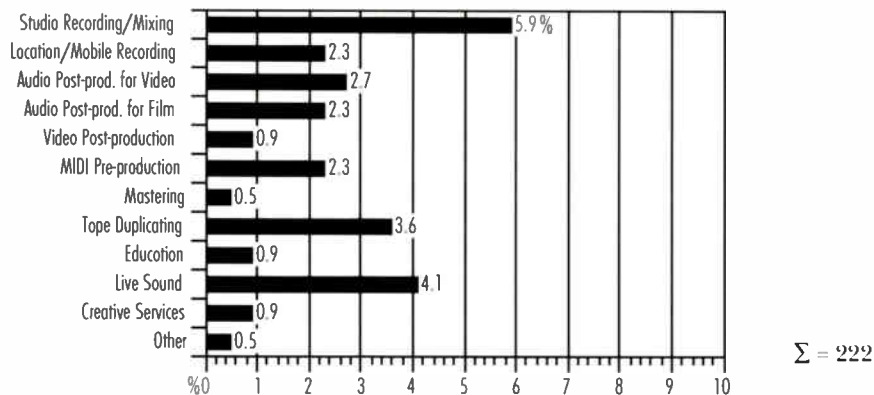
If you anticipate this studio/facility's revenues will INCREASE over the next 12 months, please indicate which service(s) you expect to contribute the most significant amounts. (Multiple response question)



Areas of Anticipated Revenue Decrease:

Only 21% of all respondents anticipate revenue decreases over the next 12 months, which can be broken down according to the following graph. According to these respondents, the areas in which revenue is expected to decrease the most are studio recording/mixing, live sound reinforcement, and tape duplication.

If you anticipate this studio/facility's revenues will DECREASE over the next 12 months, please indicate which service(s) you expect to show the most significant decrease in revenue(s). (Multiple response question)



Overall Business Revenue Performance:

Most respondents are optimistic about their facility's overall business performance. Sixty-five percent of respondents indicate that revenues from the past 12 months showed slight to substantial increases, and 80% expect revenues to increase further in the next year.

Please indicate the ONE statement which best describes this studio/facility's OVERALL BUSINESS REVENUE PERFORMANCE over the last 12 months as well as your revenue expectations for the next 12 months.

	Last <u>12 mos.</u>	Next <u>12 mos.</u>	
Revenue up substantially	24.4%	32.9%	
Revenue up slightly	40.8%	47.4%	
Revenue about the same	22.5%	15.5%	
Revenue down slightly	9.4%	3.8%	
Revenue down substantially	2.8%	0.5%	Σ = 213

Part Four: Information Sources and Influences

Survey respondents rely on a variety of industry information sources to help them make purchase decisions. Some of the most important influences cited are magazine articles and advertisements, the advice of colleagues, friends and other studio owners, and product demonstrations.

From the following list of typical SOURCES OF INFORMATION about audio production equipment, please rank each item according to its importance to your equipment purchasing decision-making. (Multiple response question)

	Very <u>Important</u>	Somewhat <u>Important</u>	Not <u>Important</u>	
Magazine articles	40.4%	54.5%	4.0%	
Magazine ads	10.5%	55.0%	30.0%	
Colleagues/friends	55.0%	38.2%	2.3%	
Other studio owners' exp.	50.0%	39.5%	7.3%	
Trade show demos	10.5%	52.3%	33.0%	
Dealers/dists./rental co's.	10.0%	42.3%	39.5%	
Mfr's sales personnel	4.5%	40.0%	49.0%	
Client recommendations	19.5%	51.8%	23.2%	
Product brochures	15.0%	56.8%	22.3%	
Product demos	32.3%	49.5%	14.0%	Σ = 220



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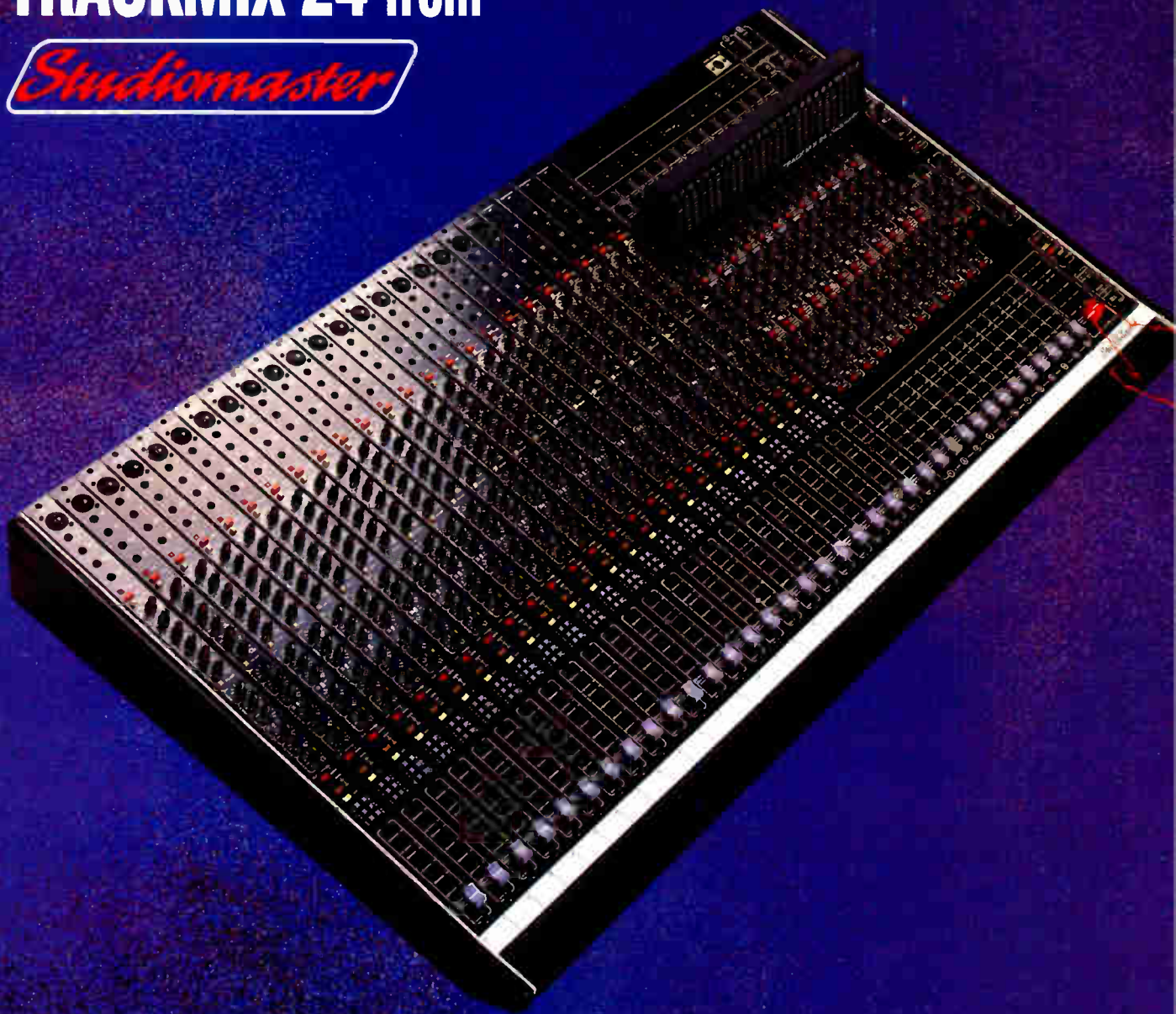
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StuDiomaster

the sound experience

Denver is not considered a major market, and unless a local band makes it big, as Highway 101 did after tracking demos at Avalanche, the chances that a label will come shopping are slim. However, according to owner Harry Warman, a number of labels are trying to get new bands from outside of L.A. for their first record, and the Rocky Mountain region is loaded with fresh talent. "Right now we're trying to upgrade to appease producer's needs," he says. "Putting a Neve in is the final thing we need to do."

Warman considers Avalanche a music house primarily, though the emphasis changed considerably six years ago when they moved into their present facility. "The first thing we did [upon moving in] was gear up for audio-for-video," he says. "We were one of the first in town to go with lockup and an automation system. We got a couple of feature length movies [including *Kid Coulter*], spots for the Bureau of Reclamation, some regional TV spots, and a national spot for St. Ides beer with the Four Tops. We're currently working on the soundtrack for *Pools of Anger*, a film about teenage suicide.

"We also took a different approach to MIDI," he continues. "All of our com-

petitors load up on MIDI equipment to watch it turn obsolete the following year. We work with three different programmers and leave it up to them to stay current. We don't have a MIDI room because you can do pre-production outside the studio, with the programmer. The client saves money and stays happy."

**FTM Studios,
Denver, Colorado**
John Sundberg, owner

When FTM opened in 1968, it wasn't even a studio. John Sundberg was strictly on the lecture circuit, providing P.A. and reel-to-reel copies of talks by doctors, lawyers and other speakers. Reel-to-reel duplication was followed quickly by cassettes, and then people began asking if he had a place to record. In 1984 he built a facility, and he built for diversification.

"We figured that we needed to build three rooms to provide enough volume to make up for the depressed studio rates around town," Sundberg says. "If you're not making \$120 an hour, then you need to make up for it in volume, and I couldn't do it in a single room. Plus, I needed to run my duplicating room

separately."

Sundberg also decided that he needed to offer as many audio services as possible to keep the rooms filled. Multitrack mixing, SMPTE lockup, custom music libraries, duping services (including shipping and labeling), location recording for churches, choirs, recitals, weddings and funerals, radio production, CD premastering on the WaveFrame, TV sound—FTM is even an Ampex and Agfa dealer. His most unique service: custom filtering for courts, which means he cleans up audio evidence on drug sales, threats and stuff that's been garbled through phone taps.

The facility is currently working on a laserdisc version of the 1917 classic *Birth of a Nation* for LumaVision, redoing all the music on the WaveFrame. The source is a 3/4-inch master. And they just finished mixing Philip Bailey's new gospel album for Atlanta International Records, which involved a six-person rhythm section and a 100-voice choir.

"We had to build rooms large enough for choirs, orchestras, big bands and grand pianos," Sundberg says. "At the same time, we wanted to provide budget 24-track anytime. It's important for us not to lose those people." ■



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PRODUCER'S DESK

—FROM PAGE 50

the NED Synclavier and do everything direct-to-hard disk and then edit the data and assemble the tune. One day we may exclusively see hard disk multitrack recording, editing and mixdown.

Right now, I'm working with the SSL, the Synclavier Direct-to-Disk system and the Otari MTR-100 multitracks. The Otaris are doing a great job for us, but I also love working on the Studer 800s, as well. Once the tape machines start rolling, I feel the need to move quickly. The better things are worked out beforehand on the computer's sequencer, the less likely we'll get bogged down while tracking, and that's the way I like it. However, going to tape and capturing what you have at various stages of the arrangement is also good, because while you're working on an arrangement on the computer, you may lock onto something really good. At that point, sometimes parts and patches are still being modified or reprogrammed, and unless you've got *that* particular version of the arrangement on tape, it could be lost forever.

Mix: How about effects? Are there any particular effects you like to use on your projects?

Afanasiieff: Well, we do lots of direct recording, so, of course, the instruments need spatial enhancement. A lot of these keyboards and modules are capable of generating their own effects, which are sometimes strong enough to stand on their own. My approach is to first make the instrument give you the sound you want, modify it if necessary, and then add effects through your outboard gear if needed. In all honesty, Dana handles the settings on the outboard gear better than I do. We've been working together so long that he just knows what I like. On every session he takes it upon himself to document all settings and configurations of the synths, including the patches, effects settings and modified parameters. He also documents the outboard and console settings, although the SSL does a lot of that for us.

I love the AMS, the Lexicons and the Eventides. We use all sorts of configurations of reverbs, but I particularly love the AMS reverbs for most everything.

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I'll go to the Lexicon PCM42 for my delays, plus other Lexicon reverbs and the Eventides to create additional effects and the overall coloring of the track.

Mix: How does it feel to be stepping out from behind the shadow of producer Narada Michael Walden?

AfanasiEFF: I've learned a great deal from Narada, but now it's time to leave the nest and set up my own shop. I will always draw upon what I've learned from him; however, I've been anxious to be doing things on my own for a while, and now's a great time for me to move on. We'll always remain great friends, and now we'll also be working neighbors. He's a great guy and incredibly talented.

Mix: What have you been working on recently?

AfanasiEFF: I just finished working with Michael Bolton on his new album. I'm fortunate to have been asked by Michael to produce his whole album. It's one of the best projects I've ever had the pleasure of working on, and Michael is certainly, in my opinion, going to be the next big male star in the world. His voice speaks for itself. I'm also starting Mariah Carey's new album, which I will be co-writing and producing. Mariah, to me, is the greatest female vocalist around. She will go a long way.

Mix: Any plans for the future? Will you stay in the San Francisco Bay Area or move to L.A.?

AfanasiEFF: Oh, I'm here to stay. My family, as well as my wife Corinne's family, is here. Corinne is expecting a baby in April, which will keep us busy for a while. I have set up shops at home and at The Plant. I have some ideas for developing new talent, maybe starting a record label or something. I'd like to be the force behind the next big San Francisco Bay Area rock band. I'd write with them, produce a record and hopefully they'd be a great success. They'd have the raw power of Led Zeppelin and the intelligence of Toto: just the ultimate *musical* rock band. I'm also looking forward to scoring and writing for and producing as many artists as I can.

The Bay Area has given me everything I have up until now. I definitely plan to stay here, improve on what I've done, and take it all the way. ■

Brad Leigh Benjamin is a freelance writer residing on the West Coast.

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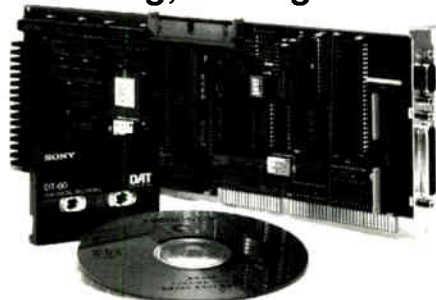
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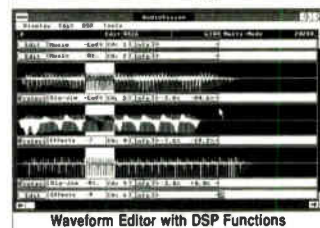
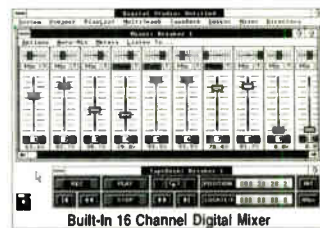
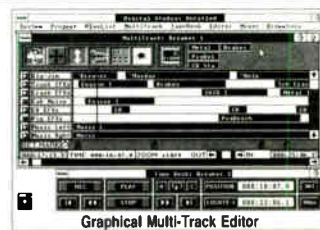
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by Craig Anderton

THERE'S MORE TO LIFE THAN WORKSTATIONS

As promised, this month we'll look at some products of interest at the 1990 AES show in Los Angeles. We'll mostly avoid the digital workstation wars—you all know what's happening there if you read *Mix* on a regular basis (although Korg entering the market was some genuine news). Instead, we'll look at some other products announced or introduced at AES. Listings are alphabetical by manufacturer, and as you surely know by now, lots of cool products get left on the cutting room floor in reports such as this.

version is \$2,995, or you can install your own Mac-style RAM.

Digital Audio Labs jumped into the digital audio mastering fracas with The CardD (\$795), a direct-to-hard disk audio-recording bus card for AT and compatibles. Featuring 16-bit A/D conversion and 18-bit D/A playback, the card supports 48, 44.1 and 32kHz sample rates. The companion EdDitor software (\$250) provides stereo waveform display and supports EGA, VGA and Hercules graphics. Completing the product line, the I/O CardD (\$295)



Akai's S1100 stereo digital sampler improves on the S1000 by offering onboard processing (reverb, chorus/flange, pitch shifter, echo) and a built-in SMPTE reader/generator with cue list. Perhaps most interestingly, the upcoming 2.0 software release will supposedly allow direct-to-optical disc recording in conjunction with a 650-megabyte optical drive.

Digidesign had a certified "hit of the show" with SampleCell, a 16-voice, 8-output, stereo sample playback card for the Mac II family. It doesn't sample *per se*, but it can grab samples from CD-ROM (a 600-megabyte, CD-ROM sound library comes with SampleCell) or a sampler via a custom version of Sound Designer II software. Each board can hold up to 8 megs; boards can be cascaded for more voices and RAM. The basic system (no RAM) is \$1,995. An 8-meg

provides digital I/O (SPDIF format).

Fostex's Model 8310, a plug-in card for its D-20 DAT recorder, allows for audio assembly editing via a video editor (CMX, Sony, etc.) or via Mac/Fostex software (DES, which can read CMX EDL files in MS-DOS format, or FAME, which can run multiple DATs and VTRs). The new 1-inch, 24-track analog tape recorder, the Fostex G-24S, features an integrated synchronizer, Sony VTR emulation (BVU-950 and BVH-2000/3000), Dolby S noise reduction and MIDI transport control.

J.L. Cooper, known for useful accessories, presented the CS-1 Control Station (\$599.95). It's basically a hardware interface, consisting of large pushbutton switches and a jog wheel, which controls functions normally handled by mouse movement. Templates are provided for controlling

Mark of the Unicorn's MIDI Mixer 7s

New! Equipment Protection Plan

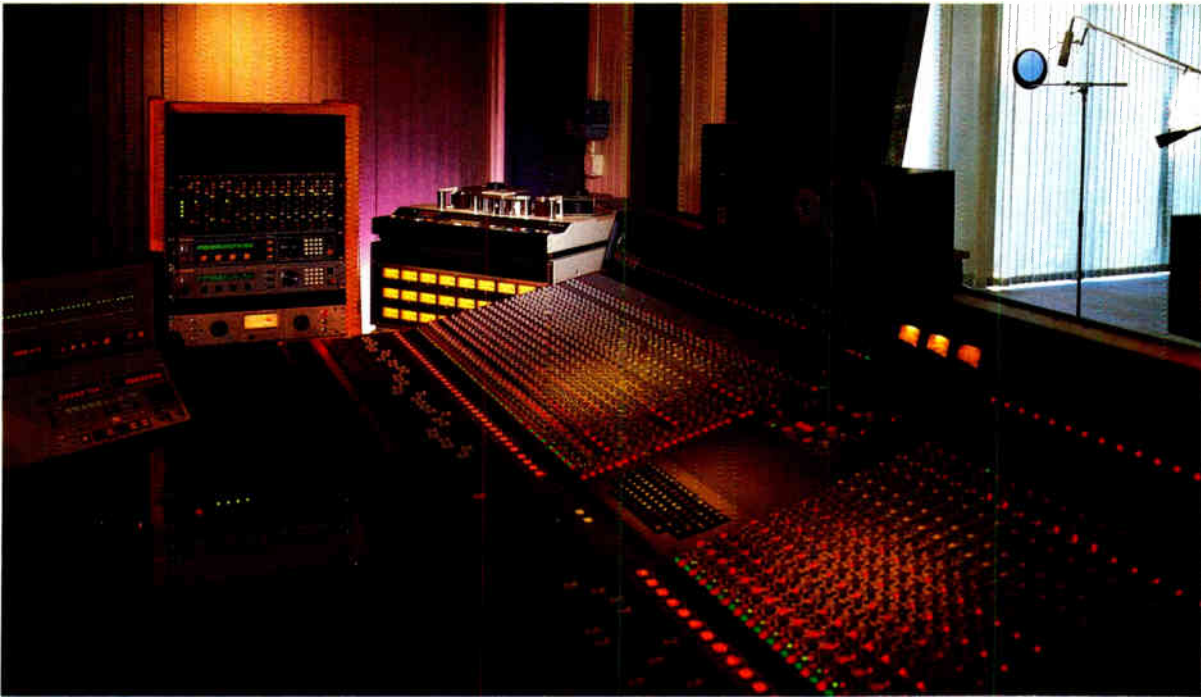


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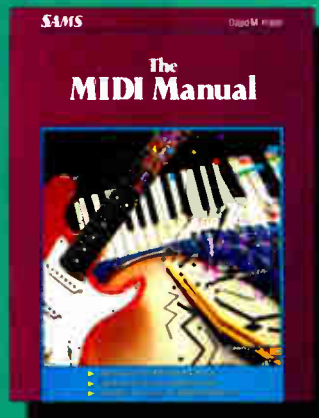
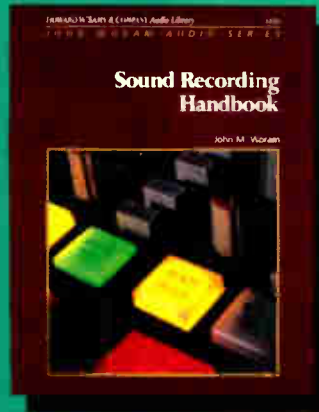
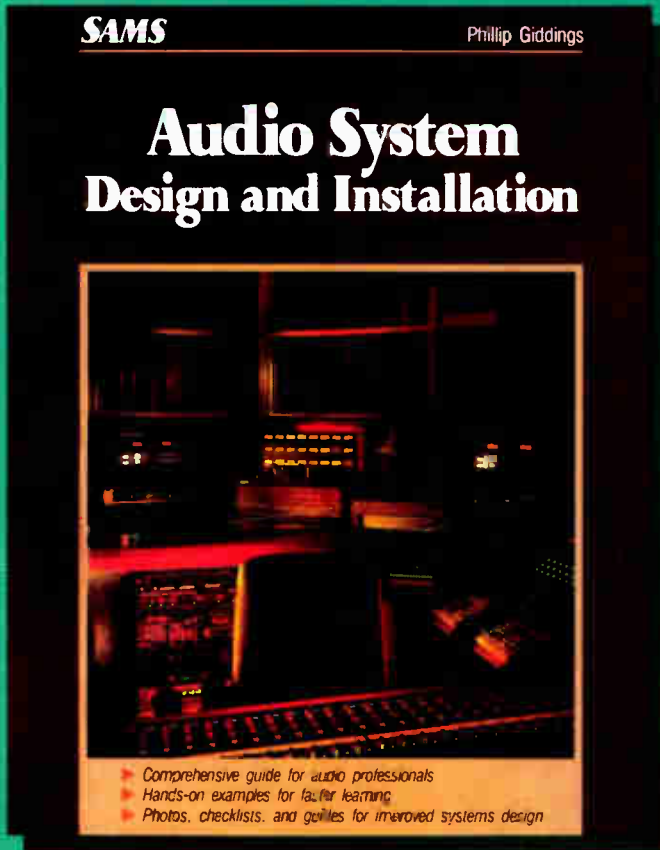


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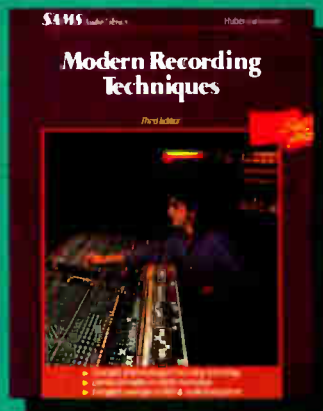
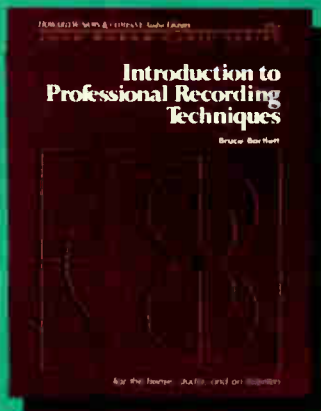
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MI UPDATE

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Lexicon's latest multi-effects unit, the LXP-15, offers pitch shifting, stereo delays, reverberation and similar time-based effects. There are 128 ROM and 128 user effects. Unlike the



Lexicon LXP-15 digital effects

lower-cost LXP-1 and LXP-5, the LXP-15 includes a soft-key controlled display along with a switch and knob to allow for front-panel programming. Although parameters can be controlled remotely via MIDI, the LXP-15 also includes five inputs for external switches or pedals that can supplement MIDI control.

The Lexicon 300 Digital Effects System is an upscale, time-based signal processor that includes a time code reader and event list. Processing changes can be linked to time code, analog and digital (SPDIF or AES/EBU) inputs and outputs, 64-times oversampling A/D converters, and real-time MIDI control.

Mark of the Unicorn continued its hardware forays with the MIDI Mixer 7s. It has seven stereo inputs, two stereo effects sends/returns, bass/treble EQ, noise gate, peak LEDs, channel trims, 1U size, and, of course, MIDI control—all for \$595; multiple units can be “stacked” for additional inputs. Also from MOTU: Version 3.5 of Performer, with a bunch of new features including a “tracks overview” window.

Motorola announced several goodies for solderheads, including an AES/EBU/CP-340 Digital Audio Transceiver. Combining it with a DSP56000 provides a two-chip DSP subsystem for digital audio applications; using it with two DSP56ADA16s

allows for an analog-to-AES/EBU and AES/EBU-to-analog system. The transmitter and receiver can be synchronized or independently clocked.

The DSP56200 is a digital filter chip whose primary functions are finite impulse response (FIR) and adaptive FIR digital filtering. The chip allows for virtually unlimited cascading if an application re-

quires a larger number of filter taps or higher sampling rates.

DAT was big at the show, and now Otari has joined the fray with a pro-level (approx. \$6,000) DAT machine. Main features are head drum bearings and motors originally developed for the computer data industry (rated at 10,000 hours of life), SMPTE/EBU time code record/reproduce, variable speed ($\pm 12.5\%$), AES/EBU digital interface and seamless punch-in/out.

Peavey has enhanced the DPM-3 with sample editing software; current DPM-3s can be upgraded to the SE model for about \$50. Also shown: the SX rack-mount sampling front end for recording sounds, digitizing them, and sending them to the DPM. The SX is expandable to 16 megs of RAM and includes a SCSI port, so Peavey presumably has other applications in mind.

Roland's DM-80 hard disk recorder was originally slated to be in produc-



Roland's Boss SE-50

tion by AES and sell for \$4,000. The bad news is that neither event came to pass, but the good news is that the DM-80 has grown beyond its original specs. It's expandable to eight tracks, provides a data backup system using DAT

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and offers two SCSI ports—one for adding hard or optical disks to extend storage time, the other for interfacing to personal computers for software-based editing. MIDI and SMPTE time code are also supported.

Roland's RSS Processing System is a 3-D sound-localization encoding device (no special playback hardware is required) that can place sounds within a three-dimensional sound space. I heard it and it works, but the price is steep (projected to be in excess of \$25,000). At the other end of the spectrum, for just under \$500, the Boss SE-50 gives stereo reverbs, multitap delays, stereo pitch shift, four-part stereo pitch shift, vocoding, stereo enhancement and other effects, with MIDI parameter control thrown in. Just think how much that would have cost ten years ago. Also worth noting: the six-rackspace JM-480 line mixer with 48 inputs; the smaller (four-unit) M-240R offers 24 inputs.

Yamaha announced the DMC1000 digital mixing console with eight mono input channels, three stereo input channels, eight monitor (tape return) channels, eight program buses, one stereo bus, and four aux buses. The DMC1000 includes motorized faders, and, as you might expect from a digital mixer, every parameter can be automated.

◆ ◆ ◆
My original assignment for "MI Update" was to cover new musical products and to keep readers current on significant MI developments. However, with so much "pure" MI coverage elsewhere and such a concentrated recording-oriented readership at *Mix*, it seems like a good time to shift the focus of this column a bit. In the months ahead, we'll look more at applications and technology that bridge the worlds of music-making and recording. Although new product reports will appear when appropriate, these too will focus on gear the two fields have in common. As always, any comments or topic suggestions are not just welcomed, but encouraged. ■

Craig Anderton is a producer, engineer, inventor, recording artist and author whose writings include more than 200 magazine articles over the years. His latest book is Power Sequencing with Master Tracks Pro and Pro-4.



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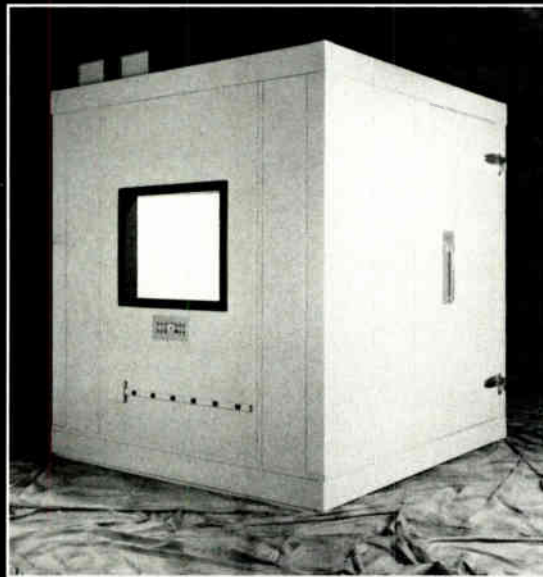
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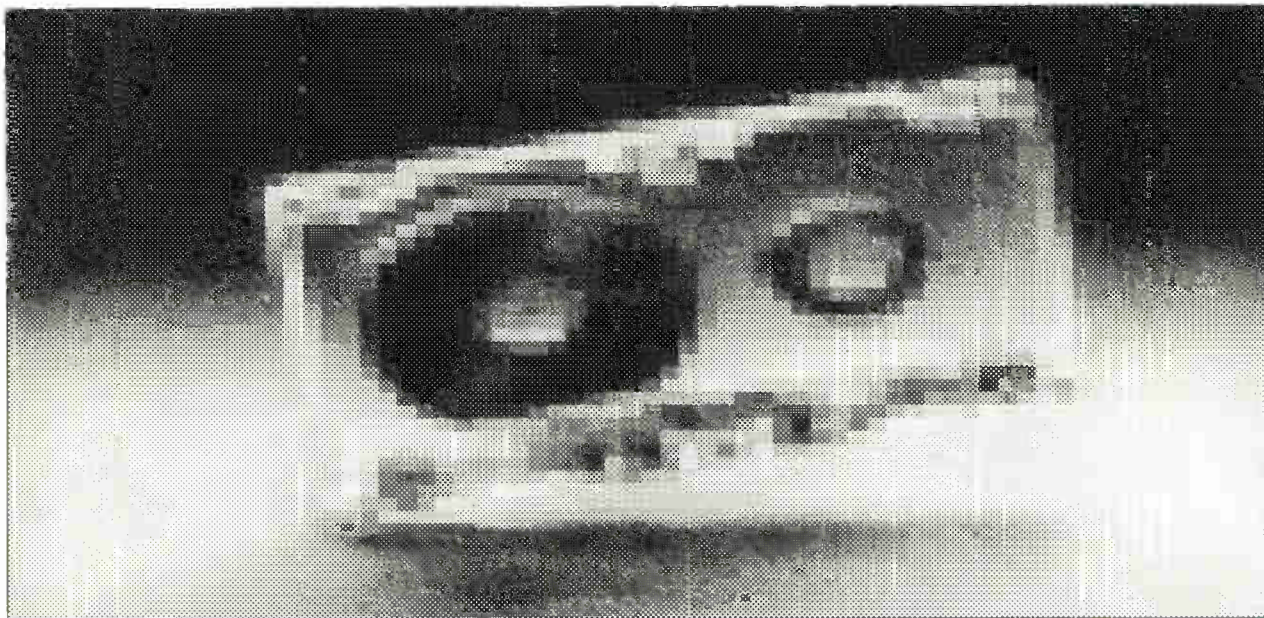
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by Philip De Lancie

DCC

DAT'S CAPABLE COMPETITOR



Five years or so ago, when consumer electronics manufacturers worldwide lined up in support of a standard for rotary-head digital audio tape recording, few could have anticipated the trials that awaited the seemingly promising new technology. By presuming to offer consumers an amazing value—professional fidelity recording at consumer prices—the proponents of R-DAT unwittingly invited endless wrangling over their alleged contribution to the problem of home taping. Though the machines are finally being sold to U.S. consumers, the outcome of ongoing judicial and legislative battles over the issue remains in doubt.

The impact of all the lengthy maneuvering on R-DAT's future, however, is fairly clear. At the time of its initial acceptance, R-DAT was the only feasible game in town, largely because of its heavy reliance on tried-and-true video recording techniques. But time waits for no format, and the delays in bringing R-DAT to market have done nothing to slow development work on al-

ternative digital recording configurations. As prototypes develop from once-theoretical approaches, R-DAT's crucial headstart has all but slipped away.

Recordable CDs are already with us in various professional applications, though a truly erasable format (probably magneto-optical disc) at consumer price levels remains some ways off. A more immediate challenge to R-DAT comes from a tape-based alternative offered by Dutch consumer electronics giant Philips. Dubbed Digital Compact Cassette, or DCC, the format was designed for digital cassettes of the same shell size as analog cassettes, using a single transport and well that allows playback of both configurations.

While DCC is a stationary-head design, its coding, tape formulation and mechanism differ significantly from S-DAT, an alternate configuration passed over at the time of R-DAT standardization. Philips began DCC development efforts after new technologies for digital tape recording were presented to associates of Jan Timmer, the former head

of Philips' Consumer Electronics division. Timmer, who now chairs the parent company, was apparently receptive to the idea of finding a successor to the analog cassette that suited the needs of record companies. Last year, as Philips became convinced that its efforts could bear commercial fruit, the company began private demonstrations to selected U.S. record industry representatives.

It didn't take long for leaks to spring in industry circles, and by the conclusion of last summer's congressional hearings on consumer digital recording legislation, DCC had become a matter of public record (see "Tape & Disc News," September 1990). Still, Philips maintained its policy of refusal to comment, holding off official announcement of the format's existence until October. Soon thereafter, *Billboard* reported that DCC had received conditional support from four of six major record label groups: PolyGram (no surprise—it's 80% Philips owned), EMI, BMG and Warner. Yet to be heard from on the

issue at press time are both MCA and Sony-owned CBS Records, whose previously Beta-burned parent has been the most aggressive backer of DAT.

Record company endorsements proclaiming DCC as the best vehicle for transition to an all-digital era in prerecorded music deal DAT a heavy blow. Ironically, DCC offers no breakthrough when it comes to the copyright concerns that, publicly at least, justified label opposition to DAT. Several of the endorsees noted that their full support for DCC would be contingent upon resolution of outstanding copyright issues.

With all the tight control that has been exercised over DCC publicity, there has been some concern within Philips about inaccurate speculation flourishing in an information vacuum. Thus, although the official announcement of DCC was short on specifics and access to technical detail remains limited, a company source (who requested anonymity) consented to share with *Mix* readers a good deal of previously unreleased information on the format...

Let's begin with a look at the system's performance specifications.

When recording from a digital source, the format can operate at a 48, 44.1 or 32kHz sampling rate, with corresponding frequency response out to 22, 20 or 15 kHz, respectively. The preferred mode when recording from analog to digital is 44.1 kHz, which is also the mode in which we plan to release prerecorded software.

The signal-to-noise ratio is probably 90 to 92 dB, depending on the components you are using. But because you have many ways to measure signal-to-noise, dynamic range is probably a better figure to work with. The potential dynamic range of the system is 110 dB, if you

use maximum resolution, which would be 18 bits. Of course, if you were to record digitally from the digital software that is offered today, which is 16-bit resolution, you wouldn't get the full 110 dB. When recording from an analog source, the resolution will depend on the converter, most of which are currently not capable of more than 16 bits. But if you make a very top-quality converter, you can go up to 18-bit, and then the DCC system itself is at its maximum resolution. So the capacity of the channel, as we call it, is at its limit at 110 dB, or 18-bit.

Does DCC employ any kind of data compression?

Yes, though we prefer to describe our system more accurately as an alternative coding system, because there are a lot of data compression systems in use or being worked on at the moment that are entirely different. Ours is a new way of coding, though it is related to sub-band coding such as that used in digital transmission of satellite signals.

Because the term "data compression" is not well understood, it is often assumed that it involves lower fidelity. What people do not realize is that it is not necessary to start with CD quality and compress from there. You can start with a higher quality, and if you apply this new coding system, it's even possible, in theory, to exceed CD quality. I say "in theory," because after extensive testing we have a lot of statistical proof that, in practice, human beings are absolutely incapable of saying if they are listening to a CD, a DAT or a DCC. So it's not as if we now claim that CD quality is obsolete.

The difference between coding systems relates to a phenomenon in music that we call masking, which

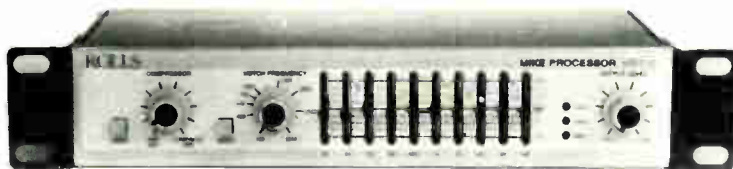
makes it impossible to distinguish between tones that are close to each other but differ substantially in loudness. The loud tones mask the soft ones. What we do in CD-type coding is to code everything with an average 16-bit refinement level, and by so doing we record a lot of stuff that is totally masked. In the end, this takes away from the degree of refinement achievable in the audible parts.

With the new system, we code the audible parts of the music with maximum refinement, instead of coding everything with slightly less refinement. There is a dynamic threshold which is frequency- and loudness-dependent, and an algorithm through which the incoming signal is analyzed. Those tones clearly below the threshold are not coded, while those over the threshold are coded with maximum refinement. This complex evaluation of the musical content requires very powerful VLSIs (very large-scale integrated circuits). The algorithms are far more complex than those involved in 16-bit PCM coding. The whole coding and decoding system involves rather advanced new chips, while the rest of the electronic circuitry is regular stuff that you already see in technologies like CD and DAT.

Describe the DCC tape.

The width of the tape is the same as that for analog cassettes. The best tape formulation to compare it to is that of the chromium tape used in video. There will probably be a family of tapes made by different manufacturers with the appropriate coercivity, which is the same for both real-time and high-speed recording. We will manufacture the tape ourselves at Philips, and, while I can't speak for anyone else, I expect that in due time many other

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The ROLLS HR11C mike processor is ideal for DAT applications requiring a lot of control. It combines compressor, 10 band EQ, and notch filter in a small half rack package with 1/4" and XLR outs. Inputs are line level 1/4" and mike level XLR with phantom power. The HR11C follows the half rack standard so two may be joined for stereo in a single rack space.

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manufacturers will make it as well. Maximum playing time, for both blank and prerecorded tapes, will initially be 90 minutes. I would expect that 120-minute tapes could eventually be accepted, but only when they can be made sufficiently reliable.

The shell is generally the same size and shape as existing cassettes, but it has a slider similar to those seen on 3.5-inch floppy disks. So when the cassette is not in the machine, the tape is constantly protected. The top side is completely closed, meaning the only holes for the reel spindles are on the bottom (these are covered by the slider when the cassette is removed from the machine). So it is possible to have a maximum area on top for art work.

What about the DCC machines?
The DCC player/recorder uses an ordinary compact cassette transport. An auto-reverse mechanism is used to play the tape in two directions without being turned over. The tape speed is the same as for the analog cassette, 1-7/8 ips.

In the digital mode, there is a kind of memory chip, which is loaded from tape. A DC feedback to the motor of the deck makes sure that this memory is kept at nominally half-full. If the machine is running too fast, and too much is being supplied to this memory, it will be slowed down. And when the transport goes too slow, it is speeded up. The readout of the audio data is clocked to a crystal, which makes the system totally independent of wow and flutter or other inaccuracies.

The design requires only a single stationary head, which contains a special portion for playing back analog tapes. Combining both digital and analog in one head is the most economical approach. No erase head is needed for DCC recording, because, similar to DAT, you write over the previous track.

So the same head that records and plays digital signals also

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TAPE & DISC

handles analog playback. Should the consumer who buys a DCC machine expect that his or her existing collection of analog cassettes will sound as good as they do on a high-quality analog-only player?

Yes. The analog part of the head meets hi-fi standards.

To what types of machines will this technology eventually be applied?

In time, DCC should be capable of replacing the analog cassette in all its applications, including auto and portable systems.

Might we expect to see DCC machines that not only play analog cassettes but record them as well?

That is, in principle, an option that is up to the manufacturers. It's important to keep in mind that what we are talking about with DCC is a system standard; it's the individual manufacturers that determine the kind of products that are actually made with it. It would be possible to include separate analog erase and record heads, though it would make the mechanical setup more dense and complex. For that reason, it might be cheaper to go to a dual-well layout for analog recording. But again, that is a matter of product design rather than format standardization.

What are Philips' current expectations as far as pricing and availability of DCC machines and tapes?

At first, prices for hi-fi decks in the U.S. might be in the \$500 to \$600 range, which is the typical price range of a high-end cassette deck. But prices are always dependent upon the kind of hardware, who is making it and at what point in time. The timetable for Philips introducing the hardware into different markets is not yet decided, but we expect products to be available to consumers by early 1992.

As far as the blank tape, if you look at the ingredient cost of putting this video-type chrome formulation on a cassette-size base film, there is no reason it should be priced significantly different from cassette tapes being made today. But that is a different question from what people are actually going to

charge. The shell will be more expensive, though not significantly, because it is better done. I think the figures that have appeared in the press are based on the view that it is probably not realistic to offer cassette products in the market at over a \$5 to \$8 price level. Regarding prerecorded tapes, their pricing depends entirely on what the record companies want to charge for their product.

It's recently been reported that several major record companies have expressed positive interest in DCC. How did this come about?

We have an ongoing dialog with the music labels over many subjects. So before we considered setting up a new music format, which would obviously involve their support and cooperation, we asked their opinion. And they are actually quite enthusiastic to make this whole DCC thing happen as a kind of successor to the analog cassette. So, as we did with CD, we have involved them at an early time in the development of the specifications of the system. Because, if we want the system to be successful in the market, it is of prime importance that the music industry can handle the format and see the business interest in releasing DCC product.

How does Philips intend to address the concerns of the copyright holding interests, including record companies, whose aversion to consumer digital recording has proven so problematic for DAT?

A real solution would involve banning home copying, but that is simply impossible now that the practice has been adopted by every consumer. The more realistic goal is to influence consumer behavior toward buying more pre-recorded music and copying less. One of the ingredients of this approach involves the technical measures already introduced in relation to DAT. It is very likely that since we first suggested that the Serial Copy Management System be included in DAT recorders, we would do the same thing in DCC recorders. The necessary technical provisions are included in the system so that there would be no problem to implement SCMS.

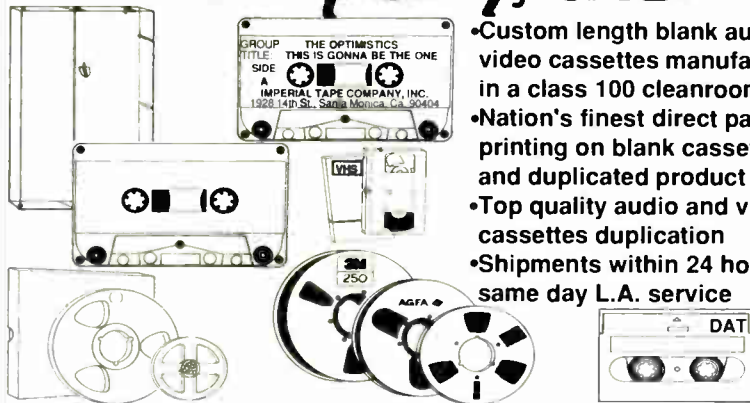
In the U.S., the current text of the draft bill on digital recording introduced in Congress refers to digital audio tape systems, rather than to DAT exclusively. So, despite questions raised because DCC was not public knowledge when the bill was drafted, DCC machines would be required under that bill to include SCMS. The bill, however, is on hold because of strong opposition from writers and publishers, because it failed to deal with their request for royalty or levy compensation. People have been asked to start negotiating on that issue, but that still has to take place. Royalties can only be applied if there is a legal system in place to collect them, which is beyond our control.

Apart from the U.S., of course, we have to deal with the situation in Japan and in Europe. I've been informed that it's very likely that the European Community will issue a directive requiring us to install SCMS in all digital recording systems, together with some kind of royalty compensation system. In Japan, the government has directed that SCMS be installed in DAT, and we expect that this will apply also to DCC.

But is there anything about DCC that makes it less threatening than DAT to the copyright community?

With DAT it won't make much difference to the consumer whether he has a prerecorded tape or a copy, but with DCC, the prerecorded cassette will offer a lot more. The artwork is buried under the plastic of the cassette in a very attractive way. There is a sophisticated directory for quick access to any track. And there are provisions for the storage of text, like titles, lyrics or recording information, that could be displayed in a window on the player. The implementation of these features, of course, depends on the software suppliers. But, for technical reasons, the non-musical information cannot be transferred to a copy. So the record companies will be able to load the cassette with

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It's been reported that Tandy is working closely with Philips on DCC, with plans to produce machines and sell them through their Radio Shack outlets. Has Philips also won the support of other consumer electronics manufacturers for DCC?

We prefer that you ask them. We don't think it is up to us to speak for other companies about their involvement if they haven't already publicized it on their own. So far, we have not seen any press releases from anyone other than Tandy.

What efforts have been made so far to build support for DCC in the retailing community?

Some of the record company interests have very close links to retailers, but I don't know exactly what they have done. It's a bit early in the development program. Typically, at this point the hardware people have to consult their retail outlets, and involve them, and before you can do that you have to make your first official press announcements, which we have just done. We need to consult with the music retailers to be sure that our packaging fits their rack and shelf space, and plan how to introduce the system. So I am convinced that in due time there will be extensive contacts with the retailers, but it hasn't happened yet.

It's been said by some in the record industry who have been briefed on the system that duplication of pre-recorded product for DCC would be far less of an obstacle than for DAT, and that some existing high-speed cassette duping gear may be modified for DCC applications. How does Philips envisage the DCC duplication process?

In principle, the same facility, the same setup may be used, but it depends on the kind of equipment actually in use. We have seen that much of the industry is operating with rather old equipment. But you should be able to use the slave recorders, with their existing transports, by equipping them with

special new heads and electronics, and adjusting the tape path a bit.

Then you need to feed the slaves with digital signal. Most of the industry that we have been dealing with is now planning to set up digital bin systems for use with DCC. Since these systems are just a kind of solid state memory, you can put in whatever sort of digital data you want. Then you read out the digital signal at high-speed, 64-times real time, to the slave recorders. The slaves write digital bits, coming directly from the digital bin, onto the tape.

The available digital bins are different; some are more or less flexible in terms of addressing. If you are going to use them for different data formats, you have to be able to adapt your addressing. But the basic requirement is for a solid state memory with some control and addressing facilities built around it.

EQ'd production masters generated by mastering houses for cassette duplication are generally recorded on 16-bit PCM systems. Will there be any problem using those types of tapes as masters for DCC duplication?

All you need is something to change the CD coding into DCC coding. In principle, it's the same kind of circuitry that you would use in the home DCC recorders for recording from CDs, though you could build more extensive machines for industrial applications.

Where would potential duplicators go for the special equipment they will need to get into DCC duplication?

Philips is not specifically in the business of building that kind of equipment, but we could provide technical assistance to those who are interested in doing so. Some of the duplicating companies build their own equipment; others buy from third parties. So it will involve a mixture of things, but companies are tooling up for this, including PolyGram, which is already setting up a duplication plant for DCC. ■

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

by Philip De Lancie

TAPE & DISC NEWS

BASF-Agfa Deal OK'd

A major step forward has been taken in BASF's efforts to acquire the magnetic tape business of Agfa-Gevaert. The two German companies have been authorized to proceed with the deal by that country's Federal Cartel Office. Providing the corporate boards of both firms give final approval, former Agfa-owned sites in Munich and Berlin as well as in Avranche, France, will start 1991 under BASF control. For the time being, BASF plans to continue to offer existing Agfa products in the U.S. with current part designations, but under the BASF label. The companies' U.S. sales and marketing operations will be consolidated.

RIAA Reports Healthy Sales

In mid-1990, when the RIAA released its figures on 1989 prerecorded music shipments by its member companies,

many in the cassette duplication industry were glum. With 1989 cassette sales virtually unchanged from 1988, some feared that the format's dominant position in the U.S. market had peaked. But figures released for the first six months of 1990 illustrate the pitfalls of predicting trends based on a single reporting period. Showing signs of renewed vigor, net unit shipments of cassettes moved up by 5% over the same period in 1989, to about 383 million. Dollar value at list price of the cassette shipments rose more than 7% to top \$1.6 billion.

The industry's positive performance wasn't limited to cassettes; net shipments for all configurations combined were up nearly 11% to 424 million units for the six months, with list value climbing to \$3.5 billion. Part of the gain is attributable to a healthy surge for music video products (up 77% in shipments; 41% in value), included in the combined totals for the first time with this report. But CDs also

continued their strong performance with gains of 36%, comprising close to one-third of all units shipped. And cassette single shipments jumped almost 40%, the greatest percentage increase among audio-only formats. Vinyl singles, on the other hand, slipped 35%, while LP shipments declined 68%.

Overall, the figures are reassuring for all except those whose fortunes are tied to vinyl configurations. But a number of factors have changed since the period covered by the report. The upward pressure on oil prices resulting from the "crisis in the Gulf" means higher costs for the petroleum-based materials that go into prerecorded music products. With the U.S. economy generally conceded to be growing very slowly, if at all, and recession forecasts being sounded in many quarters, it's not a good time to have to raise prices to recoup those expenses.



**Above: Dwight Cavendish
Copymaster 250; see "Splices"**

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**DAT Dispute:
No End in Sight**

Philips' official acknowledgment of DCC (see "DCC: DAT's Capable Competitor," on page 140) underlines the fact that proponents of DAT, led by Sony, have scant time (if any) left to establish the format as a viable vehicle for music distribution to consumers. They may have little fear of ultimately losing the suit launched against them by songwriters fronting for the National Music Publishers Association (NMPA), charging them with contributing to copyright infringement by bringing DAT machines into the U.S. But until it's resolved, the action reinforces doubts about DAT, damaging its prospects regardless of the eventual legal outcome.

Before the suit was filed, congressional participants in last summer's hearings on home digital taping had prodded the concerned parties to work things out through negotiations. Then the litigation was initiated, reportedly in part to spur hardware manufacturers into seriously considering NMPA demands for compensation for revenues claimed lost through home taping. Though discussions were subsequently planned, with the RIAA involved as a go-between, the NMPA is, as of this writing, unwilling to comment on their content or progress.

That leaves the suit as the only accessible indicator of where this latest DAT tussle is headed. The plaintiffs were granted a motion for expedited discovery in August, but since that time there's been no further in-court activity, nor is any scheduled. "In the federal courts," says Charles Sanders of the NMPA, "it's really hard to predict what's going to happen when. As of yet, the plaintiffs have held in abeyance their option of moving for injunctive relief, so no restraining order against sale of the machines has been issued. But they have been monitoring very carefully what's coming into the country and what's being sold in the stores."

Sanders also notes that while Sony was the only defendant initially named, the company has not been singled out. "Sony was

the first company to ship machines in large numbers. So far we haven't seen others importing in any significant way, but if they do we might see the plaintiffs being advised by counsel to expand the scope of the suit by adding defendants."

As for DCC's acceptability to the anti-DAT Copyright Coalition, of which NMPA is a leading member, Sanders says it arouses the same concerns as DAT. "What's called for is a comprehensive approach, meaning technological copying limitations and royalties that apply to all digital audio media, rather than having to go to Congress every time a new technology comes down the pike." Certainly, some form of long-term resolution would be a relief to all concerned, especially since Sanders' statement implies that the controversy is likely to continue until the NMPA's goals are realized. As for the near term, it looks from the outside as if faith in providence might be the sole basis for hope. "Everybody is keeping an open mind," says Sanders. "All the various sides realize that this is a problem that needs to be solved, and hopefully it will be." Amen.

**ITA Seminar
Dates Set**

The International Tape/Disc Association has settled on San Diego as the site of its sixth annual "How and Why Seminar," focusing on continued quality improvement in prerecorded analog cassettes. Scheduled for May 6-9, 1991, the meeting will feature an opportunity to tour Cintas VAC tape manufacturing facilities in nearby Tijuana, Mexico. Further information on this event and the ITA's 21st Annual Seminar (March 20-24, Tucson, AZ) is available from the association, which can be reached at (212) 643-0620.

**Major Moniker
Mods**

With all the takeover and consolidation activity involving major label distribution companies in recent years, it's been increasingly difficult to keep track of who's owned by whom and what they are calling themselves these days.

For instance, our November feature interview with Ed Outwater referred to distribution company WEA as the parent of his company, Warner Bros. Records. Actually, the two companies (along with also-mentioned Warner New Media) exist at the same level within Warner Music Group. That group, part of Time-Warner, is the company of which Sheldon Vogel is VP, not, as incorrectly stated, Warner Communications, which no longer exists. Further, the digital bin duplication process mentioned in the article should be spelled "Digalog" (instead of "Digilog"), and Outwater worked for MGM Records rather than MCA.

We regret the confusion, but at least it provides an opportunity to bring up MCA, which is the object of a takeover bid by industrial giant Matsushita, whose lines include Panasonic and Technics. Following MCA shareholder approval, Warner is left as the last of the six majors under U.S. ownership, and MCA will become the second under Japanese control. The first was CBS Records, whose foreign ownership becomes all the more obvious as it begins 1991 with a new name, Sony Music Entertainment. According to *Billboard*, the company's U.S. label names (Columbia, Epic and CBS, among others) are not altered by the change, made in compliance with the 1988 takeover agreement.

SPLICES

Shape Inc. has announced that its Shape South subsidiary in Dadeville, AL, is upping jewel box manufacturing capacity to over 120 million units annually. The expansion should be complete by February...**E Media** is now capable of producing more than 5 million units per year of its CD RackPack. The announcement comes as U.S. retailers and record companies ponder whether to trash the cardboard CD long box, already abandoned abroad. Touted as ecologically responsible alternative packing, the 6-inch x 12-inch RackPack is a recycled plastic frame for retailing that converts to CD storage in the consumer's home. The Kennebunkport, ME, company claims that the pack is

already widely used in Canada... Sony confirms its faith in the future of the Laserdisc format with the announcement of further expansion at the Terre Haute, IN, plant of its subsidiary **Digital Audio Disc Corporation**. Output of the 12-inch videodiscs is slated to triple to 300,000 monthly by mid-1991. A new mastering lab will be added to expedite production...**Lion Recording Services** (Springfield, VA) and **Miami Tape** (Hialeah Gardens, FL) have both expanded cassette duplication capacity with recent installations based around the Versadyne 1500 Series audio duplication system. Versadyne's Bob Kratt reports that "sales of new systems are up nearly 75%" for 1990, with delivery as of AES of 13 systems worldwide...**Dwight Cavendish Company** of Chicago has introduced the Copymaster 250, a video duplication system for control and QC monitoring of up to 250 slave VCRs. The system allows simultaneous duplication of two programs from any standard source...**Artisan Sound** (Hollywood, CA) reports that mastering engineer Greg Fulginiti has recently wrapped up work on projects for the Scorpions, Soul Sister and 9.0...Ever sensitive to the controversy surrounding home taping, **TDK** has introduced its "Ultimate Guide to Recording from CDs," a 71-minute CD "designed to teach novice home recordists how to make perfect recordings every time." Featuring a "breezy monologue" by VH-1 "veejay" Bobby Rivers, the disc covers maintenance and set-up procedures and includes seven full-length sample selections from new recording artists. It also provides a series of tones selected by TDK for optimizing record levels depending on tape type and musical genre. The disc is being distributed free with some TDK cassettes, or for \$3 from DBA Productions in New York City...Members of the **Electronics Industries Association** have donated 11,300 portable radios and 17,400 batteries to the USO for distribution to U.S. military personnel serving in the Persian Gulf. Contributors to the effort include Sony, Tandy, Aiwa and Dynascan. ■

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C O A S T

L.A. GRAPEVINE

By Amy Ziffer

While the rest of the country shivers, we here in L.A. are still withering from the heat. It's warm enough to barbecue, and that's just what they did over at Red Zone, where Dorian Gray (a hot band on the Strip) was in with producer Chris Spelling, engineer Scott Ross and second engineer Sean O'Dwyer. The barbecue was in honor of the band and their label, Polaris Records, but the BIG party Red Zone threw in October - their central courtyard was jam packed with over 350 industry people - was in celebration of a new arrival: a Neve console with Necam 96 automation to replace an Amek Angela, which has already been sold to a private West Valley studio. "A lot of people are coming here because they know and like Necam 96," says co-owner Denis Degher. The studio's Tom Hidley design has remained largely intact over the years and its future seems secure. For this project, Spelling tracked an 18-piece orchestra and was very pleased with the outcome. Now if only they would dig a tunnel into nearby Martino's Bakery for those late-night munchie runs.

A few months ago I told you about Music Grinder's moving to Hollywood Boulevard, but little did I suspect how beautiful the new facility would be. I was finally treated to a tour of the old 1921 building with exposed brick, a huge skylight, and an ultra-modern interior, and I can sum it up with one word: Wow! Partner

—CONTINUED ON PAGE 152

SESSIONS & STUDIO NEWS

NORTHWEST

Ah, the Pacific Northwest: the scenery, the salmon...the sound. In the past, Northwest musicians such as Jimi Hen-

such produced the project. Ironwood has two 24-track consoles, a soundstage and a video-editing suite. What about remote capabilities? Ironwood's Myron Partland has been covering the Trans Borneo Race—off-road vehicles through the jungles of Borneo. Con-



Stephane Grappelli solos with the Franciscan Chamber Players at San Francisco's Russian Hill Recorders.

drix and Quincy Jones had to travel south to L.A. or east to NYC to get recognition; now big record labels are starting to notice Northwest talent—see Robert Cray, Queensryche and Mudhoney—while the mild climate and livable urban areas are attracting some producers.

Up in Seattle, jazz has been hot at Ironwood Studio. Engineer Paul Scoles notes, "We have Japanese jazz bands coming in with their engineers. The rates are half of Tokyo's, and they get a vacation." Seattle native and jazz guitarist Bill Frisell completed his album *Is That You* for Elektra/Nonesuch at Ironwood; Wayne Horvitz of None-

tracted by the government of Malaysia to document the event for broadcast on ESPN, Partland brought along "Betacams and 500 lbs. of assorted gear." Think of Myron camping out in the deep forests of Borneo with his Betacams and bug repellent.

Also in Seattle, a lot of demos, albums and video work are done at Crow Recording Studio. Recently, producer John Leckia (Stone Roses, XTC) came over from England to record the Posies (Geffen) on the Tangent 24-track console. Chief engineer and owner John Nelson states, "Work is a mix of local and national clients with a small percentage of commercial work."

PHOTO: MICHAEL JANG

C O A S T

Recent sessions include the Anzanga Marimba Ensemble, consisting of nine marimbas. The Skatalites, complete with two horn players (Roland Alfonso and Tommy McCook) who worked with the original Wailers, were in "blowing" tracks. Big band Roadside Attraction just put out a CD. Nelson used "at least two condenser mics per section with a little compression on the bass and rhythm section. The room is one of our strengths: It's a lot

easier to get the sound out of the room instead of a black box."

Up in Portland, OR, where the debate over the spotted owl rages along the Willamette River, engineer Michael Carter works out of Russ Berger-designed Spectrum Studios. Recent projects include a TV Halloween special by Will Vinton Productions (claymation, with audio handled by engineer Andy Wiskes); music by the likes of jazz fusionist Cal Scott, R&B

N.Y. METRO REPORT

by Dan Daley

Welcome to the recession. According to a report in the *Daily News*, the number of commercials produced in New York dropped 10% between 1987 and 1989. The statistics, however, which were provided by the mayor's office and SAG, may not reflect the real extent of the decline, which the paper reported could be as much as 30%. A source at the American Independent Commercial Producers Association said that about 40% of commercials are now being shot in town, down from 60% to 70% in 1980. Fewer commercials being shot here could mean less audio post. Nonetheless, the rooms that depend on jingles aren't reporting serious problems at this juncture.

There is a fairly widespread belief that the entertainment industry will weather a recession well, and that commercial and industrial production and the audio post that goes with it will ride out the storm equally well. Others, however, aren't as sanguine. Howard Schwartz of Howard Schwartz Recording said that what he expects to be an 18-month economic downturn, combined with the increased use of in-house studios by music houses and agencies, could have serious effects on the commercial studio business. In light of this, Schwartz said he is looking to further diversify his client base by including more film and industrial audio-for-video. "Audio-for-video dollars aren't up from four years ago, and they're going to a larger

—CONTINUED ON PAGE 153

Brian Eno was making his way through the Northwest recently, stopping in at Alpha & Omega of San Francisco to record with S.F. locals D'Cuckoo and engineer David Plank, then travelling onto Seattle where he went to Lawson Productions to record vocal and keyboard tracks with Seattle locals The Walkabouts and engineer Ed Brooks. Eno is shown here at Lawson's Studio B with the Walkabouts' Chris Eckman.



PHOTO: CARLA TORGERSON

rockers Terry Robb and Ike Willis (*Jelly Behind the Sun* for House Records), bluesman Curtis Salgado, and the rock group Nu Shooz; and national radio spots for Avia tennis shoes. "The music business is counter-cyclical," Carter says. "We just had a record month. More producers and video production will be moving to Portland area in the '90s, and we'll just keep growing."

Meanwhile, in Eugene, OR, 24-track Gung-Ho Studio continues to keep busy with music projects. Recent releases include those from the ever-controversial Cherry Poppin' Daddies, Portland's rockin' Blubinos, and the University of Oregon's Green Garter Band. The Garter Band posed unique challenges for chief engineer Billy Barnett: "There were so many trombones in the room that we were sixty-nining them around various 414s and U87s in figure eights to avoid head injuries from the slides!" Current album projects include regional favorites *Nine Days Wonder* with slide guitar help from Steve Kimmock of the Bay Area's Zero.

Closer to *Mix*'s home base, Live Oak Studios of Berkeley, CA, reports newcomer Nikita Germaine working the R&B grooves, with Live Oak owner Jim Gardiner engineering and producing.

Across the San Francisco Bay in Sausalito, Joel Jaffe at Studio D reports the following projects: the new Huey Lewis album with Bill Schnee engineering; Geoffrey Workmen (Queen, Foreigner and Journey) producing Geffen band I Love You; and a direct-to-digital film project in honor of Hal Wilner (music director for *Saturday Night Live* and *The David Sanborn Show*). Recorded for the Mill Valley Film Festival, the Wilner documentary included session work from Garth Hudson, Michelle Shocked, Syd Straw, Marianne Faithfull and Todd Rundgren. Ralph Carney was the director of the band.

On the comeback circuit, Different Fur Recording of San Francisco hosted Donny Osmond's playback party for his new *My Love is Fire* compact disc. Crosby, Stills and Nash were in Different Fur to perform live over KRQR's "Rockline," engineered by Stan Johnston and Howard Johnston...

NORTH CENTRAL

Laurence Beall and The Sultans were recording their latest album *Sultanic Verses* at Miami Street Studios of South Bend, IN, with Jack Burke and John Nuner engineering... Paragon Record-

ing Studios of Chicago reports the Dennis Smith Band finished seven songs for their demo. Players included Paul Wertico of the Pat Metheny Band on drums, and Dennis Johnson of Survivor on bass. Jim Franke engineered the session... LaBov & Beyond Music Productions of Fort Wayne, IN, reports the recording of "I Saw Red" off Warrant's current album. The tune was engineered and mixed by LaBov's Chris Parker. Production assistants on the session were Dick Swary and Dan Hogan...

NORTHEAST

On-xyz, a Detroit-based funk/reggae/rock band, visited Pyramid Recording Studio in Orange, NJ, to work on a promo/demo project with vocalist David Sage. Bandleader Khalid A. Shakoor produced and Pyramid's Dennis Haklar engineered. After finishing up at Pyramid, On-xyz crossed the Hudson River to Stone City Recording in Bronx, NY, to do overclubs and remixes with engineer Jazzy Jay... Philadelphia's Beat Clinic is prescribing their new CD, *Same Bed, Different Dream*, as a remedy for rock 'n' roll boredom. The "therapeutic" sounds were recorded and engineered at Target Recording Studio

—FROM PAGE 150, L.A. GRAPEVINE

Gary Skardina showed me a second studio currently under construction and divulged possible plans for a third, as well as a small pre-production room. We also traded stories of clients whose idea of making themselves at home is grinding cigarette butts into the carpet, and I've decided to start a collection. Send your favorite abusive client stories to me NOW!

In the media market, Fred Jones Recording Services has been sold to a consortium of private investors, half of whom are staff members. FJRS has more than doubled in size over the last two years. With seven studios, they are now the second largest media studio on the West Coast. They've also made improvements to the original three rooms. Fred, to whom everyone should be grateful for the magic he created on years of Firesign Theatre recordings, will be pursuing other interests.

Producer and composer Steve Bray, along with Michael Blum (producer of Redd Kross on Atlantic), have just gotten Saturn Sound

up and running. The complex, which has been under construction for nine months, is home to three rooms. Studio A, which is the only one going by the name "Saturn," is the centerpiece, featuring what is perhaps the most elaborate multi-user MIDI setup anywhere, with centralized control from a Mac II or Akai MPC60. The Neve V60 with Flying Faders, MTR-90 II and MCI JH-24 tape machines, and custom TAD monitors are about to be broken in by CBS Italia recording artist Spagna, with Mike Berdick engineering. Morgan Martin and Lawrence Construction did the hybrid live end/dead end™ control room design, while consultant Mark Mann, Steven Bray and Martin Morgan did the MIDI system design based around J.L. Cooper Synapses and a Mark of the Unicorn MIDI Time Piece. More than 80 devices, not including signal processing, are accessible through MIDI patchers from local and remote locations in the studio. The main room shares a large, live recording area with Studio B (known as "Titan," that being

the largest moon of Saturn—clever, huh?), which has a Soundcraft TS 24, and also shares an iso booth with the third room (as yet unnamed), home to a Soundcraft Series 1600.

There are two firsts over at Advantage Audio: the studio itself, and an Otari/Sound Workshop Series 54 console, the first to be installed in a Los Angeles studio. Advantage has a dubbing stage, Foley/ADR stage and digital sound design/editing suite, and will be expanding over the next year. Owners Jim Hodson and Bill Koepnick have a long history of post-production work, having done "hundreds of hours of animation programming" as well as features such as *Spaced Invaders*. Advantage is geared up for feature film and commercial work as well as cartoons. They are located at 1026 Hollywood Way in Burbank, tel: (818) 566-8555.

Send studio news to Amy Ziffer, c/o *Mix* magazine, 19725 Sherman Way, Suite 380, Canoga Park, CA 91306, or call (818) 567-1429 or fax (818) 709-6773. ■

of Newark, DE, by Marc Moss... Jersey boys **Bon Jovi** were back at Studio 4, Philadelphia, mixing live tracks for an upcoming video with engineer **Obie O'Brian** and assistant **Craig Caruth**... Chestnut Sound Inc. of Philadelphia had producers **Joe Alfonsi** and **Charlie Kendall** in the studio with Philly's own **Mama Volume**, engineered by **Michael Harmon** and **Chris Gately**, assisted by **Leff Lefferts**... At **Wish Enterprises Inc.**, a 24-track studio in Manhattan, **Little Steven** (Van Zandt, that is) produced **The Prostitutes**, a NYC favorite. The session was engineered by **Zowie**...

SOUTHERN CALIFORNIA

At **Scream Studios**, Hollywood, Columbia artists **Suicidal Tendencies** were in with engineer **Simon Hanhart** doing a 24-track mix for their upcoming video "War Inside My Head."... **George Clinton** brought his funkentellechy to **The Enterprise** (Burbank) to complete work on an upcoming soundtrack for the HBO series **First and Ten**. Engineer **Joel Iwataki** used the facility's **Synclavier** and **Direct-to-Disk™** on a session that nearly "tore the roof off the sucka."... **Gladys Knight** visited **Paramount Recording Studios** (Hollywood) to record a 115-voice choir for the **Motown 30th**

anniversary television special... Over at **Studio Masters** (L.A.), **Paula Abdul** was doing vocals for her upcoming LP for **Virgin** with producers **Peter Lord** and **Jeff Smith**. The project, slated for a February 1991 release, was engineered by **Greg Rainy** and assistant **Wolfgang Aichholz**... Across the Pacific on the island of Maui, **Kenny**

Loggins was working with **David Kershenbaum** at **Lahaina Sound**. **Loggins** recorded new tracks, overdubs and vocals with engineer **Terry Nelson** at the remote...

SOUTHWEST

In Dallas, **Future Audio** had rap group **P.I.D.** in recording tracks for their up-

—FROM PAGE 151, N.Y. METRO

number of facilities," he said.

Providing another point of view, **Jay Berliner**, international secretary of the **Recording Musicians Association (RMA)**, a quasi-official conference within the **American Federation of Musicians (AFM)**, indicated that the number of sessions has dropped from the players' point of view, but longer sessions, driven by expanded synthesizer capabilities, have kept musician revenues relatively steady. **Berliner** said that this is being offset by jingles being run more intensely during the initial 13-week period in which no residuals are paid.

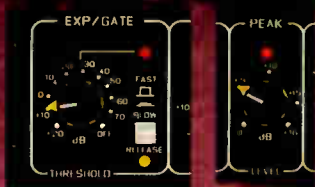
What recession? **Sync Sound** president **Bill Marino** said the last of

five new rooms at the facility will come online by late January. Two of the rooms will hold **AMS AudioFiles**; another will house a **PostPro SD** system; the remaining two rooms will be combination equipment and dubbing rooms, with voice-over capability and a computerized spotting room. **Marino** pegged the expansion's cost at \$1 million-plus and said that client demand is driving the expansion. "True, commercial work is declining in the region," he acknowledged, "but the film and television business in the area is doing well enough, and though budgets have been decreasing, the market itself is expanding. We're going through with it, recession or no recession." ■

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coming Frontline Records release, with Gerard Hairston and Randy Adams engineering... Austin's Arlyn Studios had the Texas Tornados in to overdub Spanish lyrics onto their Reprise album, and the Arlyn remote went to record a live gig by the Indigo Girls... Also in Austin, Reelsound Recording Co. sent its remote 48-track unit to Antone's nightclub to record Lavelle White, Snuff Johnson and Marcia Ball. Reelsound was contracted by the BBC to record the event for a special on Texas music. Engineering was handled by Malcolm Harper, Greg Klingensmith, Mason Harlow and Gordon Garrison, with Bruce Gallaway and Chris Round of the BBC...

SOUTHEAST

Joseph Bennett completed work on his new album *Gone to The Country* for Henderson Group Music at White Oak Studios of Spartansburg, SC. The album was mixed down to digital by engineer/producer Dr. Barry Henderson... At Cheshire Sound Studios of Atlanta, Gene Griffin was in Studio B producing tracks of Motown artist Pretty in Pink. Thom Kidd engineered and Mike Alvord assisted... Kenny Rogers

was in Nashville's Sound Emporium doing overdubs on his upcoming Warner album with producer Jim Ed and engineer Eric Presige... The original cult band from Athens, GA, is back with a new album: Pylon went into Reflection Sound Studios of Charlotte, NC, to capture their energetic essence on a new album, *Chain*. Gary Smith produced and Steve Haigler engineered... New Memphis Music's engineer Niko Lyras completed mixes from the live recordings of the 1990 Blues Awards, featuring blues legends Koko Taylor, Ruth Brown, Charles Brown, Charles Musselwhite and Little Milton...

STUDIO NEWS

Soundtrack Recording Studios (NYC) purchased a second SSL ScreenSound system to help meet post-production demands... Synergy Productions of Manhattan announced the opening of its renovated studio, equipped with Macintosh-based sequencing, an 8-track Tascam ATR-60-8 tape machine, and a wide variety of synths and samplers... Jim Ebert, winner of the Washington Area Music Association's "Best Engineer" Award in 1990, formed his own production company: E.S.P.

Audio Services will be located at Cue Recording in Falls Church, VA... Gung Ho Studio in Eugene, OR, added a rack full of Summit and Drawmer tube preamps, limiters and EQs with the assistance of Mike Papp of Summit Audio. Another new addition at Gung Ho is Michael Edwards, a talented L.A. transplant... Echo Sound Recording (Los Angeles) completed remodeling Studios A and B. Their recent upgrades include Westlake control room monitors, a 48-track Studer lockup, and Mac and IBM-based sequencing systems... Blank Productions (Stamford, CT) installed an Akai A-DAM 24-track digital recording system... Sear Sound of New York City added a new isolation/drum booth adjacent to their Studio A. Sear also added Fred Kevorkian as an engineer/assistant... In the Back Bay section of Boston, Lance Duncan and Jim Anderson opened Sound Techniques Inc., a three-studio complex featuring SSL Screensound and Meyer monitors.

Send your recent sessions and studio news to sessions editor Jeff Forlenza, c/o *Mix* magazine, 6400 Hollis Street #12, Emeryville, CA 94608. Or fax your trax to (415) 653-5142. ■

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AUDITIONS

—FROM PAGE 94

back to the lower-head units is that the counterweight sticks out three inches from the bottom rim, so it can be a little tricky to get into place, particularly in a crowded kit with lots of mics.

Priced from \$19.95 to \$26.95, Pure Tone's Drum Resonance Eliminators do a fine job of improving the sound of any drum kit. They also can "tighten" a drum's attack when using acoustic drums to trigger external devices. However, the "Eliminator" part of the product's name is misleading—they do not *eliminate* a drum's natural resonance, but instead offer a way to keep it under control. Perhaps the moniker "Drum Resonance Controllers" would have been more appropriate.

Pure Tone, 29504 Dover, Warren, MI 48093; (313) 751-2097.

Northstar/Hollywood Edge Premiere Edition Library for the Emulator III

This product results from one of those rare circumstances when several good ideas come together into an unbeat-

able combination. Let me explain.

About a year ago, we first heard about E-mu's Remote Controller/Librarian software that allows you to control an Emulator III from a Macintosh computer. We checked this out in the May 1990 issue of *Mix* (page 102) and found it to be a useful

presets in a total of 361 banks make access quick and easy, especially due to Northstar's logical category system and the straightforward operation of E-mu's librarian. Northstar has done a fine job of looping the ambience sounds, which conserves memory and gives the user endless



Jeanius Electronics Russian Dragon

accessory. Last August, we reviewed the Hollywood Edge Premiere Edition sound effects library on CD—it's a superb collection, attractively priced and full of great sounds.

Now the samplemeisters from Northstar Productions have collaborated with the Hollywood Edge people to bring the best of the Premiere Edition out on two CD-ROM or magneto-optical discs for use with the Emulator III. Each volume contains 560 MB of data and is priced at \$995. Over 1,800 samples and 4,000

hours of indoor and outdoor ambiences at the touch of a key.

Best of all, it sounds wonderful: The E III's 44.1kHz, 16-bit sampling spotlights the top-notch sound quality in the Premiere Edition, and having instant access to the E III's SMPTE triggering, onboard filtering, pitch shifting and analog processing capabilities really makes life easier for the post-production professional.

Northstar Productions, 13716 S.E. Ramona, Portland, OR 97236; (503) 760-7777.

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Russian Dragon

This ain't your usual name for a piece of audio gear—but then again, the Russian Dragon ain't your typical piece of audio gear. It's a rack-mount meter for measuring the timing accuracy of two signals that are meant to happen simultaneously (such as a



drummer and a click track, acoustic drum and triggered replacement, MIDI timing, etc.). The difference is shown on a large LED display that instantaneously indicates which is rushing and which is dragging—hence the name.

The device is a single-rackspace box with 1/4-inch RTS balanced/unbalanced inputs (thoughtfully provided on the front and back panels) for the click/reference signal and the signal to be checked. Normally, the system display is ± 12 ms; however, the resolution can be varied to show differences as long as 168 ms (in 12 steps of 14 ms each). When two signals occur within 0.1 ms of each other, the display shows "snake eyes," with the two LEDs on either side of center lit.

The Russian Dragon is logically laid out with front panel input sensitivity pots, signal presence LEDs, and controls for clear mode and adjusting the resolution of the time window. As a drummer, I liked the idea of visually monitoring the LED display, with the unit set up near the studio drum kit, so I could check my timing at a glance when playing to a headphone click track. Overall, the Russian Dragon is an invaluable tool in all sorts of studio situations, and besides checking MIDI timing accuracy, the device could also be useful for setting delay times in a sound reinforcement system. At \$495, this versatile device is well worth checking out.

Jeanius Electronics, 2815 Swandale Drive, San Antonio, TX 78230; (512) 525-0719. ■

Besides writing for Mix, George Petersen produces records and operates a Third World-class recording facility in the San Francisco area.

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World Radio History

Control Panel

NORTHWEST STUDIOS

Information in the following directory section is based on questionnaires mailed earlier this year and was supplied by those facilities listed. *Mix* claims no responsibility for the accuracy of this information. Personnel, equipment, locations and rates may change, so please verify critical information with the companies directly.



Producer/engineer Norman Kerner's Brilliant Studios claims the largest, livest tracking room in Northern California at 40 feet x 45 feet, with 35-foot ceilings and exposed brick walls. The control room (inset) at the recently completed San Francisco facility is a Mack Clark-designed "reflection-free zone" measuring 25 feet x 17 feet and is equipped with a Trident console and Studer deck. Photo: Pat Johnson Studios.

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Mix listings procedure: Every month, *Mix* mails questionnaires to recording studios and/or other vital facilities and services for the recording, sound and video production industries. There is a nominal charge to list a Boldface Listing (name, address, contact) and an Extended Listing (equipment, credits, specialization and photo or logo). If you would like to be listed in a *Mix* Directory, write or call the *Mix* Directories Department, 6400 Hollis Street #12, Emeryville, CA 94608; toll free (800) 344-LIST!

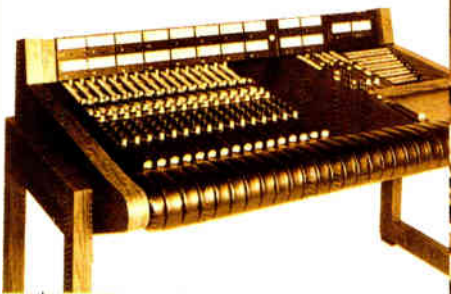
Upcoming Directory Deadlines:

Video Production/Post-Production Facilities: **January 15, 1991**

Northeast Recording Studios: **February 15, 1991**

Southeast Recording Studios: **March 15, 1991**

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MIX

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24+ TRACK

STUDIOS

[24+] AKASHIC RECORDS GROUP; also REMOTE RECORDING; PO Box 395; Danville, CA 94526; (415) 837-7959. Owner: Stephen Jarvis. Manager: Stephen Jarvis. Specialization & Credits: Now available: 48-track Dolby SR system (9 XP-24 frames) with auto-switching interface for Studer A80/800/820/827, MCI JH-24 (XLR or Tuchel), Sony APR-24, Otari MTR-100/90 (II and I), MX-80, Ampex, ATR 124, 3M M79 and manual switching panels. Shipping available throughout the Western United States. 280 SR cards, stereo pair SR and A 361 and 363 Dolby systems, George Massenburg Lab mic preamps, parametric EQ, limiter/compressors, API mic preamp/mixer, Focusrite ISA 115HD and 131, Panasonic SV-3500 Pro DAT, DCS 900 A to D converters, Sony PCM-F1 with Meyers correction filter, Hitachi portable VHS VCR, tube mics, tube direct boxes, Sonosax and MCI JH-800 portable consoles, API 24-track monitor section, B&K 4003/411/4012 mics, AKG C-12A, Neumann U87 (modified by Klaus Heyne) and more. Rentals by day, week, month and project. Please call for rates.

[24+] ALPHA & OMEGA RECORDING STUDIOS; 245 Hyde St.; San Francisco, CA 94102; (415) 885-4999. Owner: Sandy Peariman. Manager: Laura Clark. Engineers: Marc Senasac, David Plank, Anne Maria Scott, Ulrich Wild, Paul Mandl, Peter Steinbach. Dimensions: Room A: studio 18 x 34, control room 14 x 19. Room C: studio 21 x 36, control room 17 x 20. Mixing Consoles: API 48 x 36 w/ARMS moving fader automation, API 40 x 24 with 560 graphic EQs. Audio Recorders: Studer A820 24-track, Otari MTR-90 24-track, Ampex ATR-124 24-track, (2) Ampex ATR-124-24 w/16 track heads, (2) Ampex ATR-102 1/2-1/4 heads. Cassette Recorders/Duplicators: (3) Tascam 122 Mark II, Panasonic R-DAT. Synchronization Systems: (4) TimeLine Lynx. Echo, Reverb & Delay Systems: (2) Lexicon 480L, (2) Lexicon PCM42, Lexicon Prime Time II, AMS 15-80S, AMS RMX 16, Eventide SP 2016, (2) Eventide H3000, Eventide 969, Eventide Phaser, TC 2290, TC 1210, Publison DHM89B2, EMT 140ST plate, Quantec Room Simulator. Other Outboard Equipment: (2) Massenberg stereo limiters, Trident stereo limiter, (2) Drawmer 1960 tube stereo compressor, (4) dbx 160 limiter, (2) API 525, NTP limiter, Fairchild 660, Fairchild 670, (2) UREI LA-2A, (3) UREI 1176, (4) EAR 680, (6) Sontec DRC202, Valley People 415 EMT PDM 156, (10) Kepex II, (6) Aphex 612 gate, (8) Drawmer DS201, Massenberg EQ, (4) API 560 (2) EAR 822Q, Pultec MEQ, Pultec EQP-1A, Pultec HLF filter, Sontec parametric EQ, (10) Massenberg preamp, API 512, Aphex Aural Exciter II, EXR exciter, BBE exciter, Ear mic preamp. Microphones: Neumann U89, Neumann U87, Neumann TLM170, Neumann KM100, AKG 460B, AKG C-414, AKG D-112, Sennheiser 421, Beyer MC740, B&K 4011, B&K 4007, Shure SM57, Shure SM56, Shure SM81. Monitor Amplifiers: Bryston, Marantz tube, Phase Linear. Monitor Speakers: TAD MSI, (2) Yamaha NS-10M. Musical Instruments: E-mu SP-1200 disk drive drum machine, Baldwin 6' grand piano, (2) Marshall JCM-800 w/Celision speakers, (2) Marshall JCM-800 head.

[24+] ART OF EARS; 1217 A Fell St.; San Francisco, CA 94117; (415) 864-4641. Owner: Andre Ernst. Manager: Nancy Urquidez.

[24+] AUDIO PRODUCTION GROUP; 3100 Fite Circle, Ste. 105; Sacramento, CA 95827; (916) 362-2540; FAX: (916) 368-4133. Owner: Ralph and Diane Stover. Manager: Diane Stover. Engineers: Ralph Stover, Cecil Ramirez. Mixing Consoles: Neotek Elite 32 x 24 w/MIDI mute automation. Audio Recorders: AMS AudioFile digital recording/editing system, Studer A80 MkIV 24-track, Studer A812 2-track, Otari MX-5050, Panasonic SV-3500 DAT, Akai G9912, NAD. Noise Reduction Equipment: (2) Dolby SR. Synchronization Systems: (3) TimeLine Lynx time code module, Opcode, Southworth. Echo, Reverb & Delay Systems: Lexicon 480L w/LARC, Lexicon PCM70, TC Electronic delay and effects, Yamaha REV7, Yamaha SPX90, Alesis MIDiverb II, ART Multiverb, Alesis Microverb, Yamaha R1000. Other Outboard Equipment: (4) dbx 903 compressor, (4) dbx 904 Kepex, dbx 902 de-esser, Eventide Harmonizer, Microphones: AKG Tube, Neumann U89, (2) Neumann KM84, AKG C-414, Beyer M380, Neumann U87, (2) AKG Dynamic. Monitor Amplifiers: QSC, Perreux, (2) Rane headphone amp. Monitor Speakers: (2) Westlake BBSM-8, (2) Yamaha NS-10M. Musical Instruments: Emulator II w/CD-ROM and OMI w/Mass Micro 45MB removable, Emulator II w/CD-ROM and OMI, E-mu SP-1200, E-mu SP-12 w/DrumFile, Roland MKS-80 Super Jupiter, Roland MKS-20 digital piano, Roland D-50, Oberheim DPX-1.



AUDIO PRODUCTION GROUP
Sacramento, CA

Yamaha TX802, Yamaha TX816 rack w/8 modules, Ensoniq ESQ-1, Steinway grand piano, Yamaha KX88, Alesis HR-16, Yamaha DX7HFD. Spectator bass guitar, Steinberger w/Roland synth electronics, Fender bass guitars. Other MIDI Equipment: Sycologic 16 x 32 MIDI switcher, Macintosh SE, Mega-Mix automation system, Performer 2.41, Digidesign sampling and Q-sation, Macintosh Plus, Opcode Cue, Opcode librarian JVC digital VHS. Sony color monitor. Video Equipment: JVC CR850 3/4" w/remote. Sigma Electronic color sync generator, JVC digital VHS, Sony color monitor. Other: Yamaha MJC8. Rates: Please call. Specialization & Credits: Audio Production Group is a full-service commercial production facility specializing in audio post-production and music scoring. We handle all aspects of audio post-production for motion pictures and video productions, with complete Foley, ADR, SFX and mix facilities. We also specialize in music scoring and jingles as well as spot work for radio and television commercials. Our experienced staff of engineers, composers, arrangers and technicians will help you complete your project on time and within budget in a relaxed and creative atmosphere. For any questions regarding our services, please call Diane.



AVANCHE RECORDING STUDIOS
Northglenn, CO

[24+] AVANCHE RECORDING STUDIOS; 10650 Irma Dr. #27; Northglenn, CO 80233; (303) 452-0498. Owner: Avalanche Recording Studio. Manager: Linda Warman. Engineers: George Coumas, Harry Warman, Bill Thomas, Steve Forgy. Dimensions: Studio 44 x 30, control room 20 x 30. Mixing Consoles: Soundcraft 2400 52 channel w/SMPTe-based automation. Audio Recorders: Sony/MCI JH-24 24-track, Sony/MCI JH-24 16-track, Sony/MCI JH-110C 1/2/4-track 1/2" or 1/4", Studer Revox P999 2-track 1/4", Studer Revox A77 2-track 1/4", Sony PCM-2500 DAT. Cassette Recorders/Duplicators: Technics RSB100. Noise Reduc-

tion Equipment: (2) Dolby SR. Synchronization Systems: (3) TimeLine Lynx. Echo, Reverb & Delay Systems: Lexicon 92, Lexicon 480L, Lexicon PCM42, (2) Lexicon PCM70, Lexicon 95, Audience RFS-2 plate reverb, MXR flanger/doubler, Eventide H3000 Ultra-Harmonizer, Roland Stereo Chorus, Ecoplate II, Lexicon PCM41, TC Electronic 2290 (12 sec.), Eventide 949 Harmonizer. Other Outboard Equipment: (2) Aphex CX1 compressor/expander, (2) B&B F-2EQ, (2) dbx 160, (3) UREI 1176LN, dbx 263X, dbx 166, UREI 546 parametric EQ, Aphex Type B Aural Exciter, (2) Symetrix 522 stereo expander gate, (2) Pultec EQ (tube), (2) Electroscap Strate Gate, TC Electronics 1128 programmable EQ. Microphones: (2) Neumann U87, (2) Neumann U47, Neumann U48 tube, Neumann U67 tube, (4) AKG C-414, (5) AKG C-451, AKG D-112, (2) Telefunken ELAM 251 tube, (2) Sony C-37A tube, Sony C-37P, (6) Sennheiser 421, Sennheiser 441, RCA 77, (2) Electro-Voice RE20, (2) Crown PZM-30GPB, (2) Beyer M260, (5) Shure SM57. Monitor Amplifiers: UREI 6500, Hafler 200, Phase Linear 400, Technics SE-9060. Monitor Speakers: (2) JBL 4430, (2) Yamaha NS-10, (2) Tannoy SRM-12, (2) Auratone cube. Musical Instruments: Yamaha C7 grand piano, Hammond B-3 w/Leslie 147, Korg M1 sampling keyboard, Yamaha RX11 drum machine, Fender 1965 P bass, Fender 1965 Telecaster. Other MIDI Equipment: Programmers available w/ various equipment. Video Equipment: JVC 3/4" recorder, Panasonic CT-1930 19" color monitor. Other: Seymour Duncan 100-watt convertible (all modules), Fender Bassman 10. Rates: Upon request. Rate card and color brochure available. Specialization & Credits: We are pleased to offer our clients a complete sound effects and music library. Up to 40-track capability with automated mixes also available. Our 1990 upgrade in equipment will include a Neve 8128 console. Accommodation service for mountain retreats or Denver's best hotels with transportation arrangements available. Less than an hour drive to Rocky Mountain serenity. Top studio musicians, producers, arrangers and composers. Digital 2-track mastering, synchronized lockup and additional equipment available upon request. Credits: Camper van Beethoven, J.B. Allstars, Kip Winger, Kenny Loggins, Fiona, The Pretenders, The Winans, Michael McDonald, The Four Tops, Leon Russell, Jock Bartley, INXS, TNT, Highway 101, Flash Cadillac. Producers: Paul Worley, Beau Hill, Bill Porter, Geoff Workman. We continue to offer our clients the best in state-of-the-art equipment, engineers and personal service. Avalanche has a highly creative and comfortable atmosphere and total privacy.

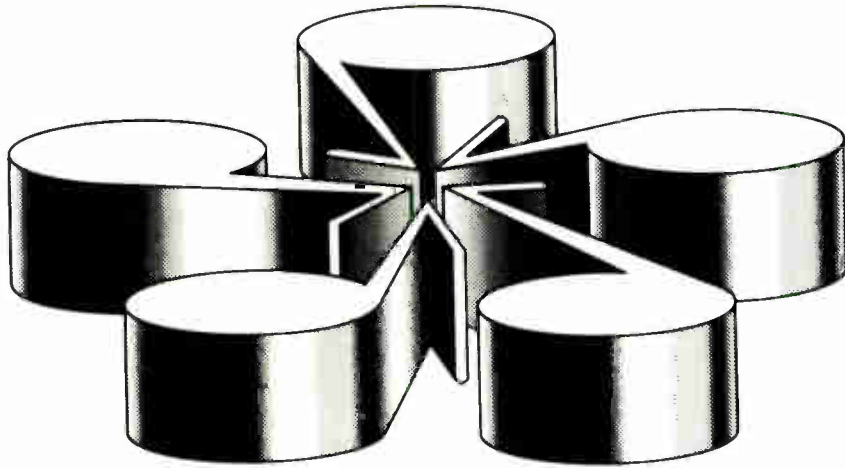
[24+] THE BANQUET SOUND STUDIOS; also REMOTE RECORDING; 5408 E. Todd Rd.; Santa Rosa, CA 95407; (707) 585-1325; FAX: (707) 585-1330. Owner: Warren Dennis. Manager: Remy Gervais.

[24+] BAY RECORDS; also REMOTE RECORDING; 1741 Alcatraz Ave.; Berkeley, CA 94703; (415) 428-2002. Owner: Michael Cogan. Manager: Michael Cogan. Engineers: Robert Shumaker—chief, Michael Cogan, David Pontecorvo, Bill Thompson, David Julian Gray. Dimensions: Studio 32 x 34, control room 15 x 20. Mixing Consoles: BMIX 20 x 16, Bi-amp 1604. Audio Recorders: Otari 24-track MX-80, M79 16-track, Ampex ATR 800, M79 8-track 1", Studer B-67, Ampex AG440-4, (2) Panasonic DAT. Cassette Recorders/Duplicators: Onkyo. Noise Reduction Equipment: (2) Dolby A and SR. Echo, Reverb & Delay Systems: MICMIX Super C reverb, Yamaha SPX90, Lexicon 200 reverb, Effectron, Lexicon LXP-1/MRC. Other Outboard Equipment: dbx 160, (2) UREI 1176LN, Complex. Microphones: (4) Neumann U87, Neumann SM69, (4) Neumann KM83/B4, Neumann KM86, RCA 77DX, (4) AKG C451, (20) various dynamic. Monitor Amplifiers: (3) Hafler. Monitor Speakers: (4) TA-2, (2) JBL 4310. Musical Instruments: Yamaha C7D concert grand. Other MIDI Equipment: E-mu Emax SE, Roland MKS-7, Yamaha TX81Z, Aphex studio clock, I/VL Pitchrider 4000 MkII, Roland MKB-300, Macintosh IIcx, Digidesign Sound Tools II. Rates: \$65/hour for studio, \$45/hour MIDI prep room. Specialization & Credits: Bay Records Studio is proud to announce the addition of <studio.h>, a full-scale MIDI prep room with hard disk digital music editing. Also added to our staff are MIDIician Bill Thompson and computer music expert David Julian Gray. Recent clients include ROVA, Henry Kaiser, Merl Sandagers. We still do complete CD, cassette and even LP packages.

[24+] BAYVIEW STUDIO; 1368 S. 49th St.; Richmond, CA 94804; (415) 237-4066. Owner: Robert Hall, Stephen Suda. Engineers: Tom Anderson, Jack Crymes, Robert Beaton, Pete Carlson. Dimensions: Studio A 45 x 20 x 17, studio B 19 x 16 x 17, control room 14 x 18 x 8. Mixing Consoles: Soundcraft TS24 40 x 24. Audio Recorders: Studer A800 MkIII 24-track, Ampex ATR-102 2-track, Studer A80 MkIV RC 2-track 1/2", Panasonic SV-3500 R-DAT. Echo, Reverb & Delay Systems: (2) EMT 140 stereo plate, Yamaha REV7, Roland SRV-2000, Yamaha SPX90, Yamaha SPX90II, Roland SDE 1000. Other Outboard Equipment: Eventide 949 Harmonizer, Lexicon Prime Time II, UREI 1176, (2) UREI LA-4A, Telatronix LA-2A, dbx 160, Valley People Dyna-Mites, Pultec MEQ-5, Dolby 361, TC Electronic sampler, Dolby SR, Aphex 612 expander/gate, Symetrix 544 gates. Microphones: AKG 414EB, AKG 414EB-P48, C-451E, 452EB, C-422 stereo, C-460B, Telefunken Elam 251, Sony C-37A, Neumann U87, Neumann KM84, Neumann U47 FET, Neumann M49B, Crown PZM, E-mu RE20, Shure SM57, Shure SM7, Sennheiser 421, Sennheiser PML DC-73, Countryman Iso-mac, Countryman direct boxes, Sony ECM-50. Monitor Amplifiers: Hafler. Monitor Speakers: Meyer

—SEE LISTING AND PHOTOLOGO ON PAGE 164

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NORTH WEST

24+ TRACK STUDIOS

—LISTING CONTINUED FROM PAGE 162



BAYVIEW STUDIO
Richmond, CA

Sound Labs 833, Yamaha NS-10, JBL 4311, Auratone 5C, Ed Long MDM-4, Meyer HD-1. **Musical Instruments:** Gretschan Yamaha "R" Series, Simmons drums available by arrangement. Fender basses and guitars (vintage), Martin guitars, Gretsch guitars, Fender amp (old), Ampeg B-15 bass amp also available by arrangement, Steinway B grand piano built in 1929. Hammond B-3 organ w/Lesslie unit, Roland Juno 106. **Rates:** Please call for rates.

[24+] BEAR CREEK RECORDING AND MUSIC PRODUCTION; also REMOTE RECORDING; 6313 Maltby Rd.; Woodinville, WA 98072; (206) 481-4100; FAX: (206) 486-2718. Owner: Joe Hadlock. Manager: Manny Hadlock.

[24+] BRIGHAM YOUNG UNIVERSITY (BYU FINE ARTS STUDIO); also REMOTE RECORDING; C-550 Harris Fine Arts Center; Provo, UT 84602; (801) 378-2584. Owner: BYU Music department. Manager: Jon Holloman.

[24+] BRILLIANT STUDIOS; also REMOTE RECORDING; 444 Natoma St.; San Francisco, CA 94103; (415) 543-4262; (415) 543-4586. Owner: Brilliant Studios Inc.. Manager: J. Sciarra. Engineers: Norman Kerner & the Bay Area's top indep. engineers, Greg Renillars—chief asst. engineer, Mack Clark—chief tech engineer. **Dimensions:** Room 1: studio 40 x 45. Vocal room: 18 x 24. Isolation booth: 10 x 12. MIDI room: 15 x 15. **Mixing Consoles:** Trident mod. Series 80. **Audio Recorders:** Studer A-80A MKIII 24-track, Ampex ATR-102 2 track with 1/2" and 1/4" heads, Panasonic SRV-3500 DAT. **Cassette Recorders/Duplicators:** Nakamichi MR-2B, Aiwa 780. **Noise Reduction Equipment:** Dolby SR 2-channels. **Echo, Reverb & Delay Systems:** Lang PEQ-2A EQ, (2) UREI Tektronics LA-2A tube compressors, (2) Pultec EQH-2 tube EQ, (2) Neve 1073 modules/pre-amps and EQ, (2) Trident A-range modules /pre-amps and EQ, MXR original instant flanger & phaser module, Eventide H3000 SE Ultra-Harmonizer, (2) Lexicon PCM70 digital reverb, (2) Lexicon PCM42 digital delay, Massenberg Model 8200 stereo program EQ Ser. III, (2) UREI LA-4 comp/limiter, (2) DEX 165A comp/limiter, Aphex expessor, Aphex expander/gate, Aphex Type III Aural Exciter, Drawmer DS201 dual gate, (2) Valley People Dyna-Mite expander/gate, Valley People 415 de-esser, Alesis Quadraverb, Wendell Jr. drum trigger. **Microphones:** (2) Neumann U67 tube—Klaus Heyne modified, Neumann M49 tube, AKG C-414/EB CL 12 brass capsules, Neumann U87 condenser, (4) Neumann KM84 condenser, (8) Shure SM57 dynamic, (6) Sennheiser HD-421 dynamic, AKG D-112 dynamic. **Monitor Amplifiers:** Hafler P-230. **Monitor Speakers:** Meyer Sound Labs 833 studio mains complete system w/834 sub-woofer and CP10 processor, Meyer Sound Labs HD-1 near field, Yamaha NS-10 near field. **Musical Instruments:** Yamaha recording series drums, Roland MKS-20 piano module, various vintage and modern guitars, basses and amp. **Other MIDI Equipment:** Kawai M-8000 88-key weighted MIDI keyboard controller, Macintosh Apple SE 30 w/ 40 Meg hard disk, Mark of the Unicorn Performer sequencer software, Opcode Vision sequencing software, E-mu SP 1200 drum machine, Alesis HD 16 drum machine. **Specialization & Credits:** Brilliant Studios is the new home of Norman Kerner's Brilliant Productions, a long standing producer of records in the Bay Area. Built in the Kingswell Brother's Forge building (1864), Brilliant now offers the largest and best recording room available in Northern California. Studio manager J. Sciarra is extremely interested in hearing from qualified engineers and producers who might wish to use this extraordinary facility. Call J. for a tour and further information.

[24+] KEN CARLTON RECORDING; also REMOTE RECORDING; 11240 Hwy. 41; Madera, CA 93638; (209) 431-5275. Owner: Ken and Marilyn Carlton. Manager: Ken Carlton. Engineers: Ken Carlton, Donovan Dear. **Dimensions:** Studio 20 x 22, control room 14 x 17 w/8 x 8 piano alcove, iso room 9 x 10, vocal booth 5 x 10, equipment room 22 x 18. **Mixing Consoles:** Sound Workshop Series 34 32 x 24 w/Diskmix II. **Audio Recorders:** Otari MTR-90 16/24-track, Otari MTR-12C-2 w/cltc, Otari MTR-10 1/4" and 1/2" heads, Panasonic SV-250 DAT, Pioneer RT505 1/4-track. **Cassette Recorders/Duplicators:** (2) Akai GX-912, (11) Hitachi DE-7. **Noise Reduction Equipment:** Dolby SR (2 channels), Dynafex. **Synchronization Systems:** Soundmaster 5 (3 machine system w/shuttle and GPI to CD player). **Echo, Reverb & Delay Systems:** Lexicon 224XL digital delay, Lexicon PCM70 digital delay, Ecoplate II, DeltaLab DL-3 DDL, Eventide 949 Harmonizer DDL, Marshall 5402 Time Modulator, Eventide H3000 Harmonizer DDL. **Other Outboard Equipment:** (2) dbx 165 comp/lim, ADR Vocal Stessor, ADR Stereo Express com/lim/exp, (2) UREI LA-4, (2) UREI 1176LN, Drawmer DS201 stereo noise gate, Orban 622B parametric EQ, Aphex Aural Exciter, Aphex stereo Compellor, Gatec noise gate. **Microphones:** Neumann TLM170, (2) Neumann U87, (2) Neumann U89, Neumann KM86, (2) AKG 414EB, (7) AKG 451EB, (2) Sennheiser 441, (9) Sennheiser 421, (2) E-V RE-20, E-V RE-16, Neumann RSM190 stereo/MS, (2) Crown PZM, Shure 56, (8) Countryman FET 85 DI. **Monitor Amplifiers:** (3) Bryston 4B, Hafler, (2) Symetrix headphone amp. **Monitor Speakers:** JBL 4430 w/TAD drivers bi-amped (control room), Yamaha NS-1000 (studio) Yamaha NS-10M Studio (control room), Auratones. **Musical Instruments:** Kurzweil 250 fully loaded, Linx 9000 drums, Yamaha TX802, Yamaha C7 grand piano, Moog synth, Roland MKS-70, Roland D-550, Roland Juno-106, various guitars and effects. **Other MIDI Equipment:** Macintosh Plus w/Mark of the Unicorn Performer and Coda Finale, Opcode Studio 3 interface. **Video Equipment:** JVC CR8250 3/4" w/shuttle, Sony V0-5600, VP-5000, Fostex 4010 SMPTE generator/reader, Horita Micro-window, Sigma sync generator, (3) Sony monitor. **Other:** Studer CD player, Sound Ideas SFX libraries. **Rates:** Please call for rates.

[24+] CLOUD NINE STUDIOS; 275 Fairchild Ave., Ste. 101A; Chico, CA 95926; (916) 342-7794. Owner: Rich Cavanaugh. Manager: Rich Cavanaugh. Engineers: Rich Cavanaugh, Jim Simon (ind.), independents. **Dimensions:** Room 1: studio 30 x 18, control room 20 x 18. Room 2: control room 15 x 13. **Mixing Consoles:** Amek/TAC Matchless 26 x 24 VUs 60 inputs at mixdown, Allen and Heath System B 24 x 8 x 16. **Audio Recorders:** Ampex MM-1200 24-track, Fostex B-16D 16-track w/A.L., Ampex AG-440 2-track 1/4" 15-30ips, Fostex Model 20 2-track 1/4" w/center-track time code, R-DAT. **Cassette Recorders/Duplicators:** Akai GX-912. **Noise Reduction Equipment:** Dolby C/Fostex B 16D, dbx Type II 2 channels. **Synchronization Systems:** Jam Box/4+. **Echo, Reverb & Delay Systems:** Eventide H3000 Ultra-Harmonizer, Lexicon PCM60, Lexicon PCM42, (2) Roland SRV-2000, Roland DEP-5 multi-effects processor, Yamaha SPX90II, Yamaha R1000, Ibanez DM-2000. **Other Outboard Equipment:** (2) UREI 1176 limiter, dbx 166 comp/limiter/gate, Aphex 612 exp/gate, Symetrix 511 n.r./exp, BBE 822 processor, Aphex Type C exciter. **Microphones:** Neumann U87, AKG C-414BULS, (2) AKG C-451, (2) AKG C-747, (2) Sennheiser 421, E-V PL20, AKG D-112, (4) Shure SM57. **Monitor Amplifiers:** QSC 1400, QSC 1200, Crown DC-300A, QSC MX-700, USAudio headphone amp system, Rane HC-6 headphone amp. **Monitor Speakers:** JBL 4430 bi-amped, JBL 4411, Yamaha NS-10M. **Musical Instruments:** Yamaha DX7, Roland D-50, Akai S-900 sampler, Roland MKS-20 digital piano, E-mu Proteus XR, E-mu SP-12 turbo drum sampler, Gibson 335, Strat, P-bass, Martin D-16, Mesa/Boogie studio preamp, Roland Jazz Chorus, Fender Tweed Deluxe, Scholz Rockman, Scholz Bass Rockman, Tubeworks Real Tube preamp. **Other MIDI Equipment:** Macintosh SE w/40MB HD, Southworth Jam Box/4+ SMPTE/MIDI interface, Digital Music MX-8 MIDI patch bay, Mark of the Unicorn Performer, Blank Drumfile. **Other:** Simon direct box, Steward D.I., (10) headphones (AKG, Sennheiser), Denon DCD-810 CD player, Sound Ideas sound effects and music production libraries on CD. **Rates:** Call for pleasant surprise

[24+] COAST RECORDERS; also REMOTE RECORDING; 1340 Mission St., San Francisco, CA 94103; (415) 864-5200; FAX: (415) 864-7541. Owner: Dan and Kitty Alexander. Engineers: Steve Atkin, Bob Pruitt (technical), Bob Lindner, independents. **Dimensions:** Room 1: studio 45 x 25, control room 25 x 20. Room 2: studio 25 x 15, control room 22 x 18. Room 3: studio 10 x 6, control room 10 x 10. **Mixing Consoles:** Neve 44 inputs all discreet w/Necam 96, Harrison 3632, Neve production desk 20 inputs. **Audio Recorders:** Sony APT-24, Studer A80 Mark 4, Ampex ATR-102, (8) MCI JH-110 2- and 4-track, (2) Otari MTR-10 2-track, (2) Panasonic SV-3500 DAT. **Cassette Recorders/Duplicators:** Complete Real time, high speed and tape dups. **Noise Reduction Equipment:** Dolby A 24-track, Dolby stereo SR. **Synchronization Systems:** Adams-Smith 2600, Audio Kinetics 3.1. **Echo, Reverb & Delay Systems:** EMT 250 digital reverb, (2) EMT 140 stereo plate, Eventide H3000 Harmonizer, AKG 68K digital reverb, Eventide SP2016 digital processor, (3) Yamaha SPX90, (3) Yamaha REV7, (6) UREI 1176 LN, (3) UREI 1178, (2) Fairchild 666 tube limiter, (6) ITI parametric, (6) Valley People Peak II, (10) Drawmer gates, (10) Aphex gates, Roland SDE 3000, Eventide H969 Harmonizer, Songbird tri-stereo chorus, Studio

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Technologies AN2, ADR vocal stressor, (2) Neve 2254 limiters, Pultec EQ, GML limiter (stereo), (3) Symetrix phone patch, (4) Levy tube EQ, Aphex Studio Exciter, BBE, Roland Dimension D, ADR vocal stressor, Inovonics 201 limiter, Teletronics LA2, (2) dbx 165 limiters, Eventide H949. **Other Outboard Equipment:** (40+) many other goodies. **Microphones:** Neumann U47 tube, (2) Neumann U67, (4) Neumann U87, Neumann TLM170, (6) AKG C-12A tube, (4) AKG 414, (8) AKG 451/452, (4) Schoeps M221 tube, AKG C-24 stereo, (2) Neumann KM150, (10) Shure SM56/57, (5) E-V RE-20, (3) Neumann KM54, Neumann M367, Telefunken Elam-251. **Monitor Amplifiers:** (6) UREI, (2) Phase Linear. **Monitor Speakers:** (4) UREI 813, (8) UREI 809, Augspurger w/ TAD components, (2) Genelec S30 NF, (2) Genelec 1022A, (4) Yamaha NS-10. **Musical Instruments:** Steinway Model B grand. **Video Equipment:** JVC 8500U VCR, JVC 850, Sony 30" monitor. **Rates:** Please call for rates.

[24+] **COLOR BLIND MUSIC™**; 1320 W. 2nd Ave., Eugene, OR 97402; (503) 342-2844. Manager: Michael Pfohl.



COLORADO SOUND RECORDING
Westminster, CO

[24+] **COLORADO SOUND RECORDING**; 3100 W. 71st Ave.; Westminster, CO 80030; (303) 430-8811. Owner: Kevin Clock. Manager: Kevin Clock. Engineers: Kevin Clock, Tom Capek, John Macy. **Dimensions:** Room 1: studio 550 sq. ft., control room 500 sq. ft. Room 2: studio 450 sq. ft. **Mixing Consoles:** Trident TSM 29 x 24 x 2 w/moving fader automation. **Audio Recorders:** Otari MTR-9011 24/16-track, Ampex ATR-104 2/4-track 1/4" and 1/2", Studer A80 2-track 1/4" center time code and 1/2", Revox PR99 2-track 1/4", Panasonic SV-3500 DAT. **Cassette Recorders/Duplicators:** Nakamichi MR-2, (2) Technics RSB100. **Synchronization Systems:** Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems:** AMS RMX 16 digital reverb, Lexicon PCM70, Lexicon H3000 Ultra Harmonizer, (2) Yamaha SPX90II, (2) TC 2290 digital processor, DeltaLab 1024, Echo Plate II. **Other Outboard Equipment:** (2) API 55D EQ, Teltronix LA-2, (2) UREI LA-3A, (2) UREI 1176, (2) UREI LA-4A, BBE 802, (2) dbx 160, (2) dbx 902 de-esser, (4) Valley People Dyna-Mite, Aphex Aural Exciter, Altec 436C tube compressor, Sontec mic pre-amps. **Microphones:** AKG C-24 stereo tube, (4) AKG 414, (2) AKG 451, AKG C-33 stereo, Neumann U48 tube, (2) Neumann U47, (2) Neumann U87, Neumann U89, Neumann KM84, Neumann KM86, (4) Sennheiser 421, (2) Sennheiser 441, (2) Shure SM81, (4) Shure SM57, Crown PZM. **Monitor Amplifiers:** UREI 6300, Crown DC-300, Yamaha. **Monitor Speakers:** UREI 813, Yamaha NS-10, UREI 809. **Musical Instruments:** Yamaha C7 grand piano, Hammond C-3 organ w/Leslie. **Other MIDI Equipment:** Macintosh computer w/Mark of the Unicorn Performer/Composer, Mark of the Unicorn Midi Time Piece, Southworth Jam Box/4+, (5) Opcode editor/librarian, Sound Designer sampling editor software. **Video Equipment:** Panasonic AG7500A videodeck, NEC 19" monitor, (3) Sony 13" monitor, Toshiba DX900 videodeck.

[24+] **CROW RECORDING STUDIO**; also REMOTE RECORDING; 4000 Wallingford Ave. N.; Seattle, WA 98103; (206) 634-3088. Owner: John Nelson. Manager: John Nelson.

[24+] **DIFFERENT FUR RECORDING**; also REMOTE RECORDING; 3470 19th St.; San Francisco, CA 94110; (415) 864-1967. Owner: Susan Skaggs. Howard Johnston. Manager: Susan Skaggs. Engineers: Howard Johnston, Ron Figler, Mark Slagle, Matt Murman, Mack Clark. **Dimensions:** Studio 25 x 35, control room 17 x 21. **Mixing Consoles:** SSL 4056E 48 x 48 w/Total Recall, G Series computer. **Audio Recorders:** Studer A80 VU MkIII 24-track, Sony 3324 digital, Studer A80 VU MkIII 2-track 1/2" and 1/4", MCI JH-110A 2-track and/or 4-track, Sony R-DAT 1000ES, Panasonic R-DAT SV-3500, Sony PCM-F1. **Cassette Recorders/Duplicators:** (5) TA-2700 Integra Onkyo. **Noise Reduction Equipment:** Dolby SR 26 channels, Dolby A 2 channels. **Synchronization Systems:** (3) Lynx. **Echo, Reverb & Delay Systems:** Lexicon 480L digital reverb, Lexicon 224 digital reverb, AMS RMX 16 digital reverb, (3) Lexicon PCM70, Yamaha REV7, (2) Yamaha SPX90, EMT 240 Gold Foil, Eventide DDL, (2) Lexicon Prime

DIFFERENT FUR RECORDING

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DIFFERENT FUR RECORDING
San Francisco, CA

Time, Eventide 910 Harmonizer, PCM 42. **Other Outboard Equipment:** GML mic pre and EQ, (2) Drawmer gate, Aphex Compellor, (6) Kepex, (2) RM noise gate, (6) Gain Brain, (2) 1176, (2) LA-4A, White 1/6-octave spectrum analyzer w/software processing. **Microphones:** Neumann SM69 stereo tube, Neumann 269, (2) Neumann 254, (7) Neumann U87, (2) Neumann U47, (3) Neumann KM84, (9) AKG 414/452, Beyer, (8) Sennheiser, (3) Sony, (7) Shure. **Monitor Amplifiers:** Crown, BGW, Spectra Sonics, Phase Linear, Yamaha. **Monitor Speakers:** Westlake TM-1, JBL 4310, JBL 4311, Yamaha NS-10, Auratone, Tannoy NFM-8. **Musical Instruments:** Yamaha C7B grand piano. **Other MIDI Equipment:** "MIDI FUR" Synclavier 3200, Kurzweil, Roland D-550, Emax. **Video Equipment:** Sony 25" monitor, Sony 19" monitor, JVC 8250 3/4" U-Matic tape machine. **Other:** Sonic Solutions: digital mastering, NoNoise and CD maker systems, compact disc and cassette brokerage services. **Rates:** \$125/hr, \$1,500/12-hour lockout. **Specialization & Credits:** Complete seclusion and custom service in a very private atmosphere. Spacious lounge, kitchen, sauna, showers, washer/dryer, 26" cable TV and off-street secured parking. Recent clients include Phil Collins, Tuck & Patti, Kronos Quartet, Bobby McFerrin, Mr. Bungle, Bobby Brown, Primus, Limbomaniacs, George Winston, Erasure, The Residents, Exodus, Starship, Stevie Wonder, Windham Hill artists, Penelope Houston, Voltage and Smoking Section, 1989 Grammy Award for Best Children's Story "Pecos Bill" with Robin Williams and Ry Cooder.

[24+] **DOG FISH SOUND**; also REMOTE RECORDING; 17385 NE Hillboro Hwy.; Newberg, OR 97132; (503) 538-5638; (503) 636-8080. Owner: Drew Canulette and Norm Costa. Manager: Drew Canulette. **Mixing Consoles:** Harrison Raven 43 channel w/ MasterMix automation, Ampex MX119, Biamp 1542. **Audio Recorders:** Otari MTR-9011 24-track, Otari MX-70 16-/8-track, Technics 1500RS. **Cassette Recorders/Duplicators:** Nakamichi MR1. **Noise Reduction Equipment:** (9) dbx 150X. **Synchronization Systems:** EC101/MTR 90 II. **Echo, Reverb & Delay Systems:** Lexicon 244XL, Eventide H3000. **Other Outboard Equipment:** Teltronix LA-2A, (2) UREI LA-4, (2) Symetrix comp/limiter, Valley People 440 comp/expander, UREI/JBL 7110 compressor, Aphex compellor, BBE exciter, dbx 700 digital encoder/decoder, Symetrix quad gate (2) Scamp S100 gate, Altec 435C compressor, (2) Scamp P300 gate, (2) Scamp comp/limiter, Rane SE15, Klark-Teknik octave graphic EQ, ADR compex limiter. **Microphones:** (2) Neumann U89, (4) AKG 414-EB, (3) Sennheiser 421, (2) Sony C-37A tube, (5) Shure SM57, (2) Crown PZM 305P, (2) Sennheiser 441, (2) E-V RE-20, (2) Sennheiser 441, (2) Sony ECM-33P, (5) AKG C-451EB, AKG D-12E, Shure CR8, Turner dynamic. **Monitor Amplifiers:** (2) Crown, JBL, QSC, BGW. **Monitor Speakers:** JBL 4435, Rogers L535A, (2) JBL 4408, (2) Auratone. **Musical Instruments:** Yamaha 6-piece drums, Chickorine acoustic piano, Kurzweil 100C, Alembic bass (fretless), Martin acoustic guitar, Seagull acoustic guitar, Fender Telecaster semi-hollow, Boogie Bodies custom guitar, Pearl DMX 4 piece, Boogie Body bass solid ebony neck. **Video Equipment:** JVC 8500U 1/2" deck. **Other:** Remote recording truck 1982 Ford w/22" box, 350 Systems 36 channel mic snake w/transformer split, (14) K240M headphones. **Rates:** Call for rates.

[24+] **PHIL EDWARDS RECORDING**; also REMOTE RECORDING; 1522 W. Winton Ave.; Hayward, CA 94545-1311; (415) 784-1971. Owner: Phil Edwards. Manager: Phil Edwards. Engineers: Phil Edwards, Ryan Kallas, Chris Coon. **Dimensions:** Truck: 20 x 8 x 10. **Mixing Consoles:** API De Medio 4024 40 x 24. **Audio Recorders:** (2) 3M M79 24-track, (2) DTC 1000 DAT, (2) F-1 PCM, MCI 110B 2-track, Ampex 440C 2-track. **Cassette Recorders/Duplicators:** (3) Denon DRM 700. **Noise Reduction Equipment:** Dolby M24 "A" and "SR", (4) Dolby A361. **Synchronization Systems:** Adams-Smith 605B three-machine synchronizer. **Echo, Reverb & Delay Systems:** Lexicon PCM70, Yamaha SPX90II, Yamaha REV5. **Other Outboard Equipment:** (5) UREI 1176LN, (2) UREI LA-3A, (2) Orban parametric EQ, Orban 516 de-esser, (4) Valley People noise gate, (4) Sony SLO 323 and SLHF 1000 Beta

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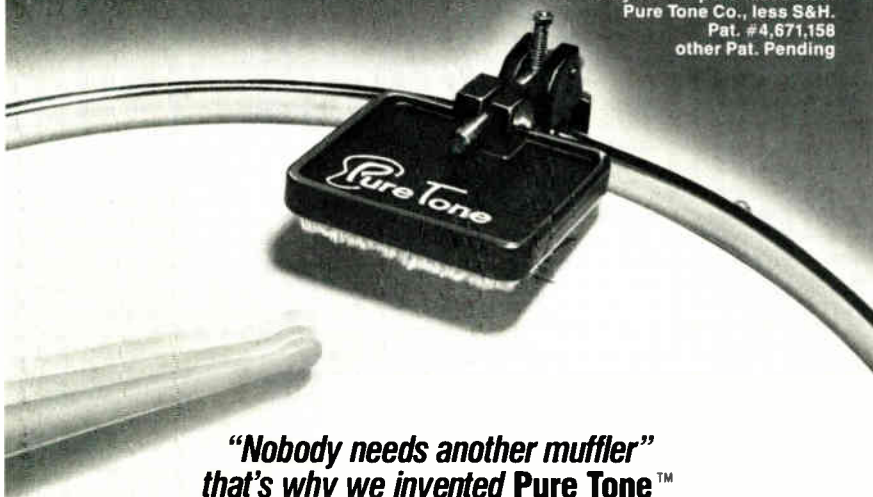
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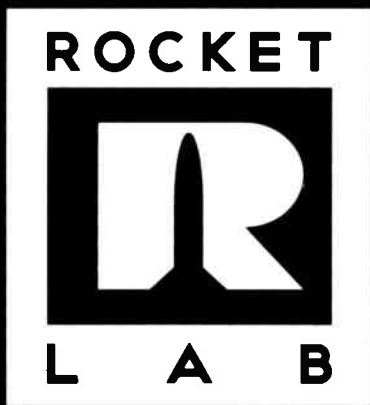
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STUDIOS**

—LISTING CONTINUED FROM PREVIOUS PAGE

PER

PHIL EDWARDS RECORDING
Hayward, CA

decks, Panasonic VHS deck. **Microphones:** (6) Neumann U87, Neumann U89, (2) Neumann U47 FET, Neumann KM84, AKG 414, (2) AKG 451, (25) Shure SM56, Shure SM58, (2) Shure SM85, (2) Shure SM87, (4) E-V RE15, (2) E-V 1761, (6) Sennheiser 421, Sony ECM-22P, (2) RCA 77-DX, (5) Countryman FET 85 DI C-tape stereo transducer. **Monitor Amplifiers:** Crown DC-300A, (2) McIntosh MC2100, McIntosh MC250. **Monitor Speakers:** (2) UREI 811A, (4) Auratone 5C, (2) KLH CL4, (4) Dolby Pro-logic surround system. **Video Equipment:** Sony KX-1901 video monitor, Sony KX-1201 video monitor, Sony Trinitron 220 color camera. **Rates:** Studio hourly rates from \$60; truck daily rates from \$1,400. **Specialization & Credits:** Simultaneous live broadcast and multi-track recording a specialty. Clients this year include Concord Jazz (Mel Torme, George Shearing, Tito Puente, Mongo Santamaria, Scott Hamilton, Ray Brown, Gene Harris etc.), Todd Rundgren, Rounder Records, KFOG, NPR (Bobby Hutcherson). Write or call for brochure.

[24+] ENGLAND DESIGN AUDIO (E.D.A.): 2115 N. Vancouver Ave.; Portland, OR 97227; (503) 287-1662. **Owner:** Carl England. **Engineers:** Carl England, various independents. **Dimensions:** Studio 32 x 20, iso room 9 x 10, control room 12 x 16. **Mixing Consoles:** Harrison MR-4/ Raven 32 x 24. **Audio Recorders:** Otari MTR-90II 24-track, Otari MTR-12IIC 2-track w/resolver, Panasonic SV-3500 DAT. **Cassette Recorders/Duplicators:** Nakamichi MR-1, Akai 6X912. **Echo, Reverb & Delay Systems:** Lexicon 224X w/LARC, Lexicon PCM70, (2) Lexicon LXP-1 w/MRC, Yamaha REV7, (2) ART Delay System VII. **Other Outboard Equipment:** Aphex Compellor, BBE B22 exciter, Eventide H3000B Ultra-Harmonizer, Orban 642 parametric EQ, (2) Rane SP15 parametric EQ, (3) Aphex 612 gate/expander, (2) UREI LA-4 compressor/limiter, (2) Valley 430 compressor/limiter. **Microphones:** (2) Neumann TLM170, AKG C-414BULS, (2) AKG C-460ULS, (2) Beyer Dynamic M201, (2) Sennheiser MD-421U, (4) Shure SM57. **Monitor Amplifiers:** UREI 6500, Yamaha P2100, Ramsa WP-9055. **Monitor Speakers:** (2) UREI 811C, (2) Tannoy PBM-6.5, (2) Custom studio monitor. **Musical Instruments:** Yamaha C7 grand piano, Emulator III w/40MB HD and 1,300 presets, Roland Octapad. **Other MIDI Equipment:** Macintosh Plus w/ 20MB HD and MIDI transport, Master Tracks Pro and Encore. **Other:** Technics SL-P999 high-res. 20-bit CD player, Valentino SFX library. **Rates:** (503) 287-1662 is the number to call to get all your questions answered!

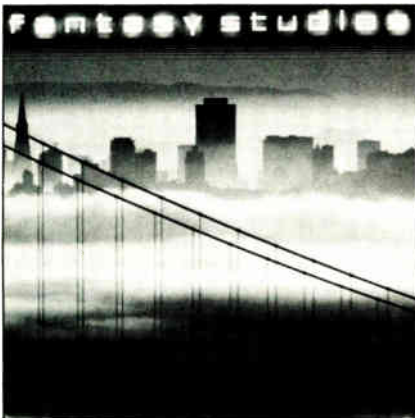
[24+] ENHARMONIK STUDIOS; also REMOTE RECORDING; PO Box 22243; Sacramento, CA 95822; (916) 443-0373. **Owner:** Mad Rover Records. **Manager:** John Bacigaluppi.

[24+] FANFARE RECORDING STUDIOS; 5142 Quaker St.; Golden, CO 80403; (303) 279-2334. **Owner:** Guy Bianchini. **Manager:** Guy Bianchini. **Engineers:** Mark Derryberry, Guy Bianchini. **Dimensions:** Studio 16 x 35, control room 17 x 15. **Mixing Consoles:** Trident 24 Series w/64 inputs in mixdown. **Audio Recorders:** Studer A827-24 24-track, Otari MTR-10CT 2-track 1/4" with center track, Sony PCM-2500 R-DAT. **Cassette Recorders/Duplicators:** Nakamichi MR-2, Technics RS-B905. **Noise Reduction Equipment:** (2) Dolby SR. **Synchronization Systems:** Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems:** Lexicon PCM70, (2) Lexicon LXP-1, Lexicon 200, (2) Yamaha SPX90II, ADA D1280 digital delay. **Other Outboard Equipment:** (2) dbx 160, (2) Valley People Gain Brain, (5) Valley People Kepex II, Valley People DSP-815 de-esser, Audioarts 4200B 2-channel 4-band parametric EQ,



FANFARE RECORDING STUDIOS
Golden, CO

Klark-Teknik DN360 graphic EQ, Aural Exciter Type B, White 4700 programmable graphic EQ. **Microphones:** AKG Tube, (2) AKG C-414, (4) AKG C-460 w/CK61 and CK62 capsules, (2) Sennheiser 441, (4) Sennheiser 421, E-V RE20, (2) Shure SM57, (2) Shure SM59, (2) E-V PL95, (2) Neumann U87, Neumann 269C. **Monitor Amplifiers:** JBL/UREI 6290, (2) Crown D-300A, (2) Yamaha P2200, Crest 1501A, Ramsa WP-9055. **Monitor Speakers:** Gauss 15" co-axial custom made, Yamaha NS-10M, JBL Control 5, JBL Control 1, Auratone Cubes. **Musical Instruments:** Yamaha C7 conservatory 7" grand piano with Krystal synth MIDI modification, E-mu Emulator III, Marshall amp 50 watts, E-mu Emax SE, Prophet 600 synthesizer, Gon-Bop congas. **Other MIDI Equipment:** Mac SE w/Performer, Master Tracks Pro and other assorted software, Southworth Jam Box/4+ MIDI interface, J.L. Cooper MSB+ REV2 MIDI patch bay. **Video Equipment:** JVC CR600U 3/4" VCR, JVC BR7700U Hi-fi VHS VCR, fast-forward video F21 SMPTE time-code character inserter, Adams-Smith Zeta-3 will lock up all audio and video machines. **Other:** A full assortment of sound FX and music production libraries. **Rates:** Call for brochure and rates. **Specialization & Credits:** A new air-conditioned facility with 2 large overdub rooms and a vocal booth as well as studio recording room. Fully equipped MIDI pre-production room at reduced rates. Quality audio-for-film, video and radio as well as records and demos. Quiet country setting on more than an acre along the Rocky Mountain foothills, only 20 minutes from downtown Denver or the airport. Amenities include a lounge with cable TV and a basketball court. Professional engineers and programmers to assist you in your direction. Composers, arrangers and studio musicians available upon request.



FANTASY STUDIOS
Berkeley, CA

[24+] **FANTASY STUDIOS;** 10th & Parker Sts.; Berkeley, CA 94710; (415) 549-2500. **Owner:** Fantasy Inc. **Manager:** Nina Bombardier. **Engineers:** Dave Luke, Michael Semanick, Eric Thompson, Vincent Wojno. **Dimensions:** Studio A 30 x 50, control room 20 x 16. Studio B 21 x 26, control room 15 x 17. Studio C 24 x 37, control room 18 x 16. Studio D 30 x 50, control room 25 x 22, string room 18 x 30. **Mixing Consoles:** SSL 4056G 56 x 32 w/Total Recall automation, Neve 8108 56 x 48 w/Necam automation, Neve 8108 32 x 24 w/Necam 96 automation, Trident Series 8032 x 24 x 32. **Audio Recorders:** (5) Studer A800 24-track, (5) Studer A80 2-track 1/2" and 1/4", Studer A80 4-track 1/2", Mitsubishi X-850 32-track digital, (6) Mitsubishi X-80 2-track digital, MCI 110C 4/8-track, (2) PCM-1630 2-track digital w/D4000, (3) Sony PCM-F1 2-track digital. **Cassette Recorders/Duplicators:** Sony. **Noise Reduction Equipment:** Dolby A, SR, dbx. **Synchronization Systems:** Studer TLS-2000, Audio Kinetics Q-lock, Timeline Lynx. **Echo, Reverb & Delay Systems:** (5) live chambers, (3) EMT

140, Ecoplate, (2) AMS reverb, EMT 250, Lexicon 224XL, Lexicon 200, PCM60, (2) Bel DDL, Eventide DDL, Lexicon PCM42, AMS 15-80S DDL, Yamaha SPX90 reverb. **Other Outboard Equipment:** (2) Eventide 910 Harmonizer, (2) Eventide 949 Harmonizer, Lexicon Prime Time, Dyna-Mite gates, Drawmer gates, Space Station, dbx 160 limiters, Orban de-esser, Scamp rack, (2) Lexicon PCM70, Kepex racks, EchoPlex, much more. **Microphones:** (174) vintage tube, ribbon, dynamic, condenser and PZM. **Monitor Amplifiers:** Crown, McIntosh. **Monitor Speakers:** Sierra-Hidley, UREI TimeAlign, Yamaha NS-10, Auratone, Visonik, MDM, JBL 4311. **Musical Instruments:** Steinway 7", Yamaha 9" grand piano, Yamaha 7" grand piano, Baldwin 5" piano, Hammond B-3 organ. **Video Equipment:** Sweetening, SMPTE code, window dubs, 3/4" to VHS or Beta 1/2" transfers. **Rates:** Call for Nina, Casey or Roy. **Specialization & Credits:** In addition to our 4 recording studios we offer the following: a keyboard room that features Kurzweil 250, Roland S-550, Korg M1, Linn 9000 drum machine, Roland D-5, (4) DX7, Soundcraft Series 600 38-input/24-track console and much more for your pre-production needs. A tape-copy room accommodates 1/4" and 1/2" analog, DAT, Mitsubishi X-80 digital, F1 and real-time cassette copies. A full mastering facility for LP, cassette and CD mastering features Neumann lathe, Zuma audio computer, Studer analog, Mitsubishi X-80, F1 digital, DAT and Sony 1630. And a CD room prepares your tapes for CD manufacturing including Sony 1630, Harmonia-Mundi, digital sampling converter, Mitsubishi X-80,

F1 and DAT formats, Sonic Solution NoNoise™ system for digital editing or removal of any type of noise problem.

[24+] **FOCUSED AUDIO;** also REMOTE RECORDING; 544 Natoma; San Francisco, CA 94103; (415) 777-3108. **Owner:** Jeff Roth. **Manager:** Jeff Roth. **Engineers:** Jeff Roth, independents. **Dimensions:** Room 1: studio 10 x 20, control room 20 x 20. Room 2: studio 6.5 x 8.5, control room 12 x 16. Room 3: studio 6 x 5, control room 10 x 14.5. Room 4: studio 11 x 12. **Mixing Consoles:** Allen and Heath 16 x 16, Sony 636 w/ DiskMix. **Audio Recorders:** Otari MX-80 24-track, Fostex E-16 16-track, Otari MTR-102-track center time code, Fostex E-2 2-track center time code. **Noise Reduction Equipment:** Dolby SRXP24 for 24-track, (3) Dolby SR 361 rack and card. **Synchronization Systems:** (2) IBM computer w/Kelly Quan software, (6) Cipher Digital Shadow. **Echo, Reverb & Delay Systems:** Call for current list. **Other Outboard Equipment:** Call for current list. **Microphones:** (2) Sennheiser 441, (3) Sennheiser 421, (3) Electro-Voice PL20, Neumann U87, (3) Neumann KM84, RCA 77-DX, Schoeps CMC4-UK, AKG C-414, (2) AKG 451. **Monitor Amplifiers:** (3) Sony P-100 and various. **Monitor Speakers:** JBL 4425/4430/4435, (5) Yamaha NS-10, (3) Yamaha NS-40M. **Musical Instruments:** Call for current list. **Other MIDI Equipment:** Call for current list. **Video Equipment:** JVC CR850 3/4" deck w/time code, Magnavox monitor, (2) JVC BR8600U VHS VCR w/Jog Knob. **Other:** (2) —SEE LISTING AND PHOTO/LOGO ON NEXT PAGE

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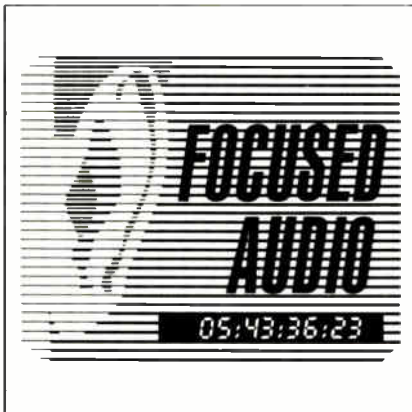
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MIX

NORTH WEST

24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE



FOCUSED AUDIO
San Francisco, CA

Technics P1200 CD player, Digidesign Sound Tools and editor, CD effects, adap digital editor. **Specialization & Credits:** Focused Audio continues to be a leader in creative audio. Having produced over 100 soundtracks for broadcast and cable television, as well as numerous feature documentaries, Focused has moved into the '90s with a brand-new facility. Four control rooms and three recording spaces have been carefully designed and equipped with the best audio tools available today. All rooms are SMPTE-locked to picture and can access any of our available recording formats: 24-track w/Dolby SR, 16-track or digital hard disk. Through our main machine room, the appropriate control room, recording space and recording format can be configured easily for any project. Engineers with expertise in feature film and television sound, CD-I, music and radio work are available to put this facility to work for you.



FTM STUDIOS
Denver, CO

[24+] **FTM STUDIOS**; also **REMOTE RECORDING**: 1111 S. Pierce St., Denver, CO 80226; (303) 922-3330. **Owner:** John and Diane Sundberg. **Manager:** John F. Sundberg. **Engineers:** John Sundberg, Steve Sundberg—digital engineer, approved independents: Steve Avedis, Kerry Conner, Scott Meade, Jeff Shuey. **Dimensions:** Room 1: studio 2,200 sq. ft. w/5 isos, control room 550 sq. ft. Room 2: studio 1,500 sq. ft. w/4 isos, control room 450 sq. ft. Room 3: 550 sq. ft. w/iso, control room 350 sq. ft. **Mixing Consoles:** Custom 28 x 24 x 24, Custom 24 x 24 x 24, WaveFrame w/Automation, Tascam 15 24 x 16 x 8 customized and modified. **Audio Recorders:** (2) Otari MTR-90 24-track w/autolocator, (2) Soundcraft 760 24-track w/autolocator, Otari MTR-10 2-track 1/2" and 1/4" w/center-track, (3) Otari MkIII 2-track 1/4", Otari MkIII 4-track 1/2", (2) Ampex ATR-700 2-track 1/4", Tascam Senes 70 4-track 1/2", Tascam 80-8 8-track 1/2", Otari 5050B 8-track 1/2", (2) Otari 5050B 2-track 1/4", WaveFrame digital hard disk multi-track, Panasonic SV-2500 R-DAT. **Echo, Reverb & Delay Systems:** EMT 140 plate, Audi-ence plate, Quantec QRS, AMS RMX 16, (2) Lexicon 200 w/6 programs, Roland SRV-2000, AKG BX-10, (2) Scamp stereo, (2) Lexicon Prime Time II, Lexicon Prime Time, (3) DeltaLab, Eventide 949 Harmonizer, Eventide 910 Harmonizer, (2) 1024 Effectron II, MXR pitch transposer, DL-5 pitch transposer, Ursa Major Space Station,

Lexicon PCM70, (4) Yamaha SPX90, TC Electronic 2290 w/16-sec 18-bit sampler, (2) Eventide H3000SE Ultra-Harmonizer Studio Enhanced. **Other Outboard Equipment:** Full Scamp rack, limiter and EQs by dbx, Symetrix, UREI, Orban, Sontec, Valley Audio, Audio Arts stereo parametric. **Microphones:** Variety including AKG, Neumann, Shure, E-V, Sennheiser, Crown PZM, Countryman Pressure Zone. **Monitor Amplifiers:** Crown Delta Omega, (8) Hafler 500, Crown D-300, Crown D-150, Crest 3501. **Monitor Speakers:** UREI 813C, E-V 500, Yamaha SP10, Auratone, Tannoy 12B, Tannoy NS-10B, E-V 100. **Musical Instruments:** Steinway 9" concert grand and artist, WaveFrame digitally sampled instruments, Kawai 7'4" grand piano, Kawai US50, Kurzweil 250 w/all block and sampling, Oberheim OB-Xa, Oberheim DSX, Rhodes, Korg C-30 organ, ARP Odyssey, Korg DW-8000, Yamaha TX7, Yamaha RX5. **Video Equipment:** Adams-Smith 2600 SMPTE/EBU, JVC CR850U 3/4" stereo recorder, NEC 25" high-resolution monitor, (2) 1/2" VHS. **Rates:** (1) \$65 w/eng.; (2) \$45 w/eng.; (3) \$15 w/eng. Block rates available. **Specialization & Credits:** Large lounge w/big-screen TV, kitchen and meal table. Conference room with high ceilings for practice and relaxing. All rooms acoustically designed. Constructed from the ground up. Studios 1 & 2 with RPG diffusers on rear walls. Real-time cassette duplication, CD sound effects and music libraries. 48 tracks available, commercials, jingles, audio sweetening, film scoring, Digital Foley Stage, Macintosh computer w/Performer arranging and sequencing to our Kurzweil 250. Arrangers and producers are available. CD mastering with digital EQ, sequencing and crossfades. We have worked with labels including CBS, MCA, Sparrow and PolyGram. One of nation's finest studios. Located on the west side of Denver. Near summer mountain activities and winter skiing.

[24+] **PHILIP (ROSCOE) GALLO PRODUCTIONS**; 3112 Laguna, San Francisco, CA 94123; (415) 563-8223. **Owner:** Philip L. Gallo. **Manager:** Roscoe Gallo.



GUNG-HO
RECORDING STUDIO
Eugene, OR

[24+] **GUNG-HO RECORDING STUDIO**; 86821 McMorott Ln., Eugene, OR 97402; (503) 484-9352. **Owner:** Bill and Julie Barnett. **Manager:** Bill Barnett. **Engineers:** Bill Barnett, Michael Edwards, independents. **Dimensions:** Studio 20 x 30, control room 14 x 17. **Mixing Consoles:** Trident Series 65 24 x 16 x 2 3M Automation with El Marko software. **Audio Recorders:** Otari MX-80 24-track, Otari 5050B II 2-track w/Dolby SR, Panasonic SV-3500 2-track digital, Studer Revox A-77 2-track Cassette Recorders/Duplicators, (5) Nakamichi MR 2-B. **Noise Reduction Equipment:** (2) Dolby 361 SR, (2) dbx 180/150. **Echo, Reverb & Delay Systems:** Lexicon 480L, Lexicon PCM70, Eventide H3000 Ultra-Harmonizer, T. C. 2290 w/fast trigger and memory exp., Yamaha SPX90, ART DR-I, Lexicon PCM41, DeltaLab ADM-1024. **Other Outboard Equipment:** Summit TPA-200 dual mic pre (tube). Studio Technologies dual mic pre, Drawmer 1960 dual mic pre-compressor (tube), Summit TLA-100A tube compressor, UREI/JBL 7110 comp/limiter, (2) dbx 160X compressor/limiters, Symetrix 525 dual gates/comp, Aphex stereo Compellor, Summit EOP-100 full-range tube EQ, Summit EOP-200 dual program tube EQ, Klark-Teknik DN-405 parametric, BASE 1, (2) Aphex 612 dual exp/gate, Valley Auto-gate (dual), (5) Valley GateX 4-channel exp/gate, Orban 536 de-esser, Aphex A Exciter. **Microphones:** (2) Neumann U87, Nuemann U87 3 micron Stephen Paul Mod., Neumann KM140, Neumann KM84, (2) AKG 414EB, (2) AKG 451, AKG D-112, AKG D-12E, (2) Sennheiser 441, (4) Sennheiser 421, (5) Shure SM56/Shure SM57, (2) Shure SM58, Beyer M-422, (2) Crown PZM custom, etc. **Monitor Amplifiers:** Hafler 220, McIntosh 6100, Rane HC-6 headphone. **Monitor Speakers:** JBL 4411, Tannoy PBM-6.5, Yamaha NS-10M, Auratone 5C, Eclipse. **Musical Instruments:** Fender 1959 P-Bass, Fender 1967 Telly w/Bigsby, Yamaha 6' 1" conservatory grand piano, 1946 Martin 0018, 1976 Fender fretless P-bass, Ampeg B-15N amp, Ampeg SVT amp, Scholz Rockman. **Other:** (7) AKG 240 phones, (4) Fostex T-20 phones, Sony CD player, (10) ASC Tube Traps, Mr. Coffee 10 cup version. **Rates:** Reasonable, please call.



JOE HOFFMANN STUDIOS
Occidental, CA

[24+] **JOE HOFFMANN STUDIOS**; also *REMOTE RECORDING*: PO Box 840; Occidental, CA 95465; (707) 874-2278. Owner: Joe Hoffmann. Manager: Sally Schaeffer. Engineers: Joe Hoffmann, Brian Walker, Stephen Hart, John Altmann, Gary Mankin. Dimensions: Room 1: studio 23 x 26, control room 16 x 21. Room 2: studio 10 x 14. **Mixing Consoles**: Neotek Series II 28 x 24, Ramsa 8210A 10 x 4. **Audio Recorders**: Otari MTR-90 16/24-track, Otari MX-5050 MkII 8-track, TEAC 3340S 4-track, Otari MX-5050B 2-track, Otari MTR-12 2-track, Panasonic SV-3500 DAT, Panasonic SV-255 portable DAT. **Cassette Recorders/Duplicators**: Denon DR-M14HX, (5) TEAC V25V307 for real-time dubs. **Noise Reduction Equipment**: (24) Dolby B, (4) Dolby C, (2) Dolby SR, (8) dbx Type I. **Echo, Reverb & Delay Systems**: Klark-Teknik DN780, Lexicon 60, Lexicon 70, Lexicon 200, Roland DEP-5, Roland SRV-2000, Ibanez SDR-1000, MasterRoom XL-305. **Other Outboard Equipment**: (2) dbx 263X de-esser, dbx 1631P 1/3-octave graphic EQ, Symtrix 522 (5-function stereo), Symtrix SG200 stereo gate, (2) Symtrix 501 comp/limiter, (2) UREI LA-4 comp/limiter, (2) Phase Linear E51 parametric EQ, Denon CD player. **Microphones**: (2) Neumann KM84, (4) B&K 4006, (2) Sony C-48, (3) AKG 460B/GK1, (2) Shure SM81, (3) Sennheiser 421, Shure SM57, Electro-Voice RE20, Tascam PE250, Shure SM85 vocal, AT 814, AKG D-12, Beyers M88, Beyers M130, Beyers M160, Beyers M260, AKG C-451EB, AKG C-535. **Monitor Amplifiers**: Denon POA-800, Carver 1200, JBL 600, Carver C-2 preamp, Rane HC-6 (cue). **Monitor Speakers**: JBL 4408, Yamaha NS-10, KEF 105/2, KEF 104/2, Toa 312-ME, Auratones. **Musical Instruments**: Steinway 9' concert grand piano (1956). **Video Equipment**: Magnavox VHS-HQ 1/2" camcorder, 3/4" video by arrangement for live session shooting. **Other**: Wheelchair accessible. **Rates**: Call for information or to arrange a visit. **Specialization & Credits**: Dedicated to the highest quality sound and service. Hoffmann Studios specializes in album projects—acoustic, jazz, folk, fusion. Our Steinway concert grand is a favorite for many area pianists. We also produce spoken and instructional tapes and videos, live or studio. Hoffmann Studios is a custom-built, beautiful acoustic space in a beautiful setting. Located just 80 minutes north of San Francisco in the rolling hills of Sonoma County, close to the Russian River and wine country. Album credits include: Metamora, Carnahan and Petrie, Patrick Ball, Crystal Wind, Chaskinaky, Susan Sutton Trio, Allaudin Mathieu, Ira Stein and Russel Walder, Carol McComb, Solid Air, Platero, G.S. Sachdev, Betsy Rose and others. Please call for rates or to arrange a visit.

[24+] **HYDE STREET STUDIOS**; 245 Hyde St.; San Francisco, CA 94102; (415) 441-8934. Owner: Michael Ward. Manager: Susie Foot. Engineers: Mark Needham, Larry Schalit, Matt Kelley, Tom Doty, Marc Samuels. Dimensions: Studio 31 x 20, control room 20 x 18, MIDI room 14 x 14. **Mixing Consoles**: Anek 2500 48 x 24 x 48 automated/MasterMix disc-based (studio D), Biamp Legend 28-input w/8-track Cooper MixMate (MIDI room). **Audio Recorders**: Studer A800 24/16-track w/autolocator, Otari MTR-12 2-track 1/2", Otari MTR-10 2-track 1/4", Otari MX-5050B 2-track 1/4" (optional 1/4-track playback), Scully 280 4-track 1/2". (2) Aiwa AD-F870U cassette, Sony DAT DRC-1000ES, Otari 5050 MkII 8-track w/remote, Panasonic SV-3500 Pro-DAT. **Noise Reduction Equipment**: Dolby SR-XP 24-channel, (2) Dolby 361 SR or A. **Synchronization Systems**: Adam-Smith 2600. **Echo, Reverb & Delay Systems**: Acoustic chamber, Lexicon 480L w/LARC and 3.0 update, Lexicon PCM70 w/3.1 update, Lexicon PCM60, Lexicon PCM42, Lexicon PCM41, Eventide H3000 Ultra-Harmonizer with HS322 internal sampling board, Eventide 949 Harmonizer, TC 2290 w/12 seconds of sample memory, Yamaha REV7, DeltaLab DL-2. **Other Outboard Equipment**: (2) Massenburg 8200, Focusrite ISA 115HD, (2) Teletronix LA-2A, (3) UREI 1176LN, (2) dbx 165A, Aphex Studio Deminor, (6) Drawmer noise gate, (5) Dyna-Mite, Lang PEQ-1, (2) Klark-Teknik DN27 1/3-octave graphic EQ, White 4100A stereo octave EQ, White 4001 1/3-octave EQ. **Microphones**: Neumann 47 FET, Neumann 47 (tube w/optional omni capsule), (2) Neumann KM54 (tube), Neumann M49 (tube), Neumann U67, Neumann U87, AKG C-12 (tube), (4) AKG C-12A (tube),

(2) AKG 460B, (2) AKG 414EB, (2) Pearl DC-63, (9) Sennheiser, (9) Beyers, (6) Shure, Crown PZM, etc., (6) Countryman direct box. **Monitor Amplifiers**: Meyer, (2) Haller, (4) Crown, Bryston. **Monitor Speakers**: Meyer, Tannoy PBM 6.5, Yamaha NS-10M, Tannoy LGM. **Musical Instruments**: Steinway 9' grand piano, Hammond B-3 organ w/Leslie, Seymour Duncan 100-watt convertible amp, Roland D-50. **Other MIDI Equipment**: Atari ST computer (2MB RAM) w/C-Lab Creator, Akai S900 16-bit sampler (60MB HD), Korg MR-1 music workstation, Video Equipment: Sony VO-5800 3/4" video deck w/address-track modification, Proton 602M 26" monitor, JVC 27" high-resolution monitor. **Rates**: Call studio for rates.

[24+] **HYPED RIGHT STUDIO**; 8756 Amigo Ave.; Northridge, CA 91324; (818) 701-6624; FAX: (818) 701-5913. Manager: Paula Kuhn. Engineers: David Sheidene, Mike Azam, Annie Catalino. Dimensions: Studio 15 x 24. **Mixing Consoles**: Soundcraft TS-24 40-channel 96 inputs on re-mix Uptown Automation, IBM 386 computer for automation. **Audio Recorders**: Sony JH-24 with modified head amp, Studer A-80 1/2" transformerless, Studer A-810 w/center track time code, (2) Panasonic SV-3500 DAT. **Cassette Recorders/Duplicators**: (2) Nakamichi MRI, (2) Aiwa F-990, Adcom CD player, (3) KABA duplicators. **Noise Reduction Equipment**: Dolby XP 24 SR 24-channel, Dolby 363 SR/A modified, (3) dbx 929. **Synchronization Systems**: Adams-Smith Zeta-3, Roland SBX-80, Doctor Click 2. **Echo, Reverb & Delay Systems**: Lexicon 224XL, (2) Lexicon PCM70, (2) Lexicon PCM60, (2) Lexicon PCM42, AMS DMX 15-80, AMS RMS 16, (2) TX-2290 w/full memory upgrades, Eventide H3000 SEB w/full upgrades. **Other Outboard Equipment**: Yamaha Q2031 stereo 31-band EQ, Rane SP-15 parametric EQ, EAR 822Q tube EQ, BBE 802, dbx 120X boom box, dbx 116X stereo comp/limiter, (3) dbx 160X compressor, (4) dbx 904 noise gates, (2) dbx 902 de-essers, (2) Aphex 612 expander/gates, Aphex Aural Exciter type III, Aphex Compellor, UREI 1178 dual peak limiter, UREI/JBL 1110 limiter/compressor, Teletronix LA-2A tube compressor, Drawmer DS-201 noise gate. **Microphones**: Neumann TLM170, AKG 414, Beyers 710, Milab DC-96, Shure SM57, Shure SM58, RCA 77. **Monitor Amplifiers**: (3) JBL 6920, BGW 750B, BGW 550, White Instruments 1/6 octave EQ. **Monitor Speakers**: (2) JBL Pro-3, (2) Yamaha NS-10M, (2) JBL 4435. **Musical Instruments**: Akai S1000 sampler, Korg M1R, Roland MKS-20 digital piano, (2) Roland MKS-70 Super JX, (2) Akai S900 sampler, (6) Roland D-50, (2) Roland S-550, Prophet 2000, (2) Roland Jupiter-8, (2) Roland Juno-8, (3) Roland JUNO-2, (2) Roland Super JX-10, (2) Yamaha DX7 II, (10) Linn 9000, (3) Akai MPC-60 drum, Roland JX-8P.

[24+] **INFINITE STUDIOS**; also *REMOTE RECORDING*: PO Box 1709; Alameda, CA 94501; (415) 521-0321; FAX: (415) 521-0638. Owner: Michael Denten. Manager: Michael Denten.



IRONWOOD STUDIOS
Seattle, WA

[24+] **IRONWOOD STUDIOS**; 601 NW 80th St.; Seattle, WA 98117; (206) 789-7569; FAX: (206) 784-2880. Owner: Paul Scoles. Manager: Myron Partman. Engineers: Jay Follette, Steve Adamek, Paul Scoles, Rod Johnson, Myron Partman, Adam Kasper. Dimensions: Room 1: studio 34 x 28, control room 16 x 14. Room 2: studio 36 x 34, control room 22 x 18. **Mixing Consoles**: Harrison Raven 32 x 24 automated, Harrison MR-3 28 x 24 automated. **Audio Recorders**: (2) Sony JH-24 24-track, (2) Sony JH-110C 2-track 1/2" and 1/4", Tascam ATR-60 2-track 1/4" w/center time code, Sony JH-110C ** layback. **Cassette Recorders/Duplicators**: (6) Technics. **Synchronization Systems**: Audio Kinetics Q.Lock 4.10, Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems**: Lexicon 480L w/LARC, Lexicon 224X w/LARC, Lexicon 200, Lexicon PCM70, Lexicon Super Prime Time delay, (3) Yamaha SPX90, DeltaLab DL-2 delay, Roland SRE-555 tape echo. **Other Outboard Equipment**: dbx 900 rack w/gates/compressors/de-essers, Aphex Type E Exciter, Teletronix LA-2A compressor, (2) UREI 1176 limiter, (2) Symtrix parametric EQ, MXR pitch transposer, Audioarts parametric EQ, UREI 527A EQ, (2) Symtrix compressor, (2) Symtrix gate, (2) Roland Dimension D, Roland flanger. **Microphones**: Telefunken U47

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24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

(tube), Neumann U67 (tube), (5) Neumann U87, Neumann U47 FET, (2) Neumann KM56 (tube), (2) Neumann KM84, AKG The Tube, (4) AKG 451, AKG D-12E, (2) Sennheiser 441, (2) E-V RE20, (2) E-V RE16, (2) Sony C-37A (tube), Sony C-500, (2) AKG 414, (4) RCA 770X, (2) American D-330 ribbon, Beyer M500 ribbon, (2) Norelco C-60 (tube), (3) Shure SM57. **Monitor Amplifiers:** (2) Hafler P-500, (2) Yamaha P2050, (3) Crown D-60, McIntosh 240, BGW 100. **Monitor Speakers:** (2) JBL 4430, (2) Yamaha NS-10, (2) Auratone 5C. **Musical Instruments:** Yamaha 7'4" grand w/torte MIDI, Korg M-1 MIDI workstation, Korg DSS-1 digital sampling synthesizer, Roland JX-10 synthesizer, LinnDrum w/MIDI, Hammond M-3 w/Leslie. **Other MIDI Equipment:** Yamaha QX 5 sequencer. **Video Equipment:** Sony JH-110C 1" layback recorder, (3) Sony VO-5600 3/4" VTR, (3) NEC monitor. **Other:** Digital Creations DiskMix console automation. **Rates:** Please call for rates.

[24+] JENSEN SOUND PRODUCTIONS; 363 Brannan St., San Francisco, CA 94107; (415) 543-7095; FAX: (415) 543-7098. Owner: Eric Jensen. **Manager:** Eric Jensen. **Engineers:** Eric Jensen, Gary Mankin. **Dimensions:** Studio 5' 11" x 15' 6", control room 18' 7" x 13' 4". **Mixing Consoles:** Sound Workshop Series 34 w/Disk Mix automation 32 x 24 x 8 x 2. **Audio Recorders:** Otari MTR-90 24-track, Otari MTR-12C 2-track with center track, Sound Tools hard disk recording system, Panasonic SV-3500 DAT. **Cassette Recorders/Duplicators:** Denon DRM30 Hx, Nakamichi CRZ, Sony TCDS. **Noise Reduction Equipment:** Dolby SR noise reduction available upon request. **Synchronization Systems:** Otari EC-101, Fostex 1040 SMPTE reader/writer/regenerator, Echo, Reverb & Delay Systems: (2) Lexicon PCM70 effects processor, ADA STD-1 tappel delay, ART Multiverb EXT multi-effect processor, Lexicon PCM60 digital reverb, Lexicon PCM41 digital delay, Roland SDE-3000 digital delay, Roland SRV-2000 digital reverb. **Other Outboard Equipment:** (2) dbx 160X compressor/limiter, Valley People Dyna-Mite model 430, Groove Tubes speaker Emulator, Groove Tubes STP-G guitar preamp, Mesa/Boogie studio guitar preamp, ADA MP-1 guitar preamp, (2) Scholz Rock Modules. **Microphones:** AKG 414EB P-48, Neumann U67, Beyer M500, Sennheiser MD-412, Shure SM57, (2) Sony ECM 33. **Monitor Amplifiers:** Hafler P505-A. **Monitor Speakers:** UREI 809, Auratone 5C, Rogers LS 6, MINIMUS 7. **Musical Instruments:** Emulator III digital sampler 8 meg, Oberheim Xpander, Prophet VS, Roland MKS 70, Kurzweil 1000-PX, Oberheim Matrix 6, Oberheim Matrix 1000, Roland D550, Roland U220, Yamaha G10 MIDI guitar, Roland GM-70 MIDI convertor, various electric and acoustic guitars, Yamaha TX802. **Other MIDI Equipment:** Mark of the Unicorn Performer software, Opcode Vision software, Coda Finale software, Opcode Cue software, (2) Mark of the Unicorn MIDI Time Piece, Digidesign Turbosynth software, Opcode Galaxy software, Upbeat software, "M" software. **Video Equipment:** JVC 8250 3/4" video editing deck, Magnavox VHS Hi-Fi video deck. **Other:** Macintosh II, Duncan Convertible amp, Mesa/Boogie Mark IIB amp, Music Man RDSO amp, Carvin X-60 amp. **Rates:** Rates available upon request.

[24+] JINGLE BELLS PRODUCTION CO.; 2873 Lyon Cir., Concord, CA 94518; (415) 671-2800; FAX: (415) 671-2327.



KLUB KEIV'S RECORDING COMPANY
Seattle, WA

[24+] KLUB KEIV'S RECORDING COMPANY; 3177 NE 82nd; Seattle, WA 98115; (206) 527-2250. Owner: Kevin G. Boyd. **Manager:** Scott Spain. **Engineers:** Scott Spain, Lloyd Cable, Enc Janko. **Dimensions:** Room 1: studio 12 x 15.5, control room 11.5 x 14.5. Room 2: studio 11 x 15. **Mixing Consoles:** Neve 8232 with DiskMix 3.03 moving fader auto-

mation. **Audio Recorders:** Otari MX-80 24-track, Otari MX-70 16-track, Otari MTR-12 2-track, Otari MTR-12TC 2-track w/center track time code, Sony PCM-2500 R-DAT. **Cassette Recorders/Duplicators:** (2) Nakamichi MR-1, (2) Tascam 122 Mk II-B. **Noise Reduction Equipment:** Dolby XP rack w/SR cards 24 channels, Dolby 363 rack w/SR cards 2 channels. **Synchronization Systems:** Adams-Smith Zeta-3, Opcode System Studio 3. **Echo, Reverb & Delay Systems:** AKG 68K digital reverb, (2) Klark-Teknik DN-780 digital reverb, Yamaha REV7 digital reverb, (2) Ibanez SDR-1000+ digital reverb, TC Electronic digital delay, Eventide H3000B Harmonizer. **Other Outboard Equipment:** dbx F900 System w/929 SENR, (2) 902 de-esser, (6) 904 noise gate, dbx RTA-1 real-time analysis system, dbx 165 compressor/limiter, dbx 166 stereo compressor/limiter, (2) UREI LA-4A stereo compressor/limiter, (2) UREI 1176LN peak limiter, (2) UREI 1178LN stereo peak limiter, (3) Drawmer M-500 dynamic processor. **Microphones:** AKG Tube, AKG 426B, (4) AKG 452 cardioid, omni, bidirectional capsules, (2) AKG D-12E, Neumann TLM170, (2) Sennheiser 441, (4) Sennheiser 421, (2) Electro-Voice RE20, Electro-Voice PL10, RCA BK-11, RCA BK-44, Beyer M380. **Monitor Amplifiers:** (5) Crown MT-1200LX main, aux and cue system. **Monitor Speakers:** (2) Westlake BBSM-12VF, (4) Yamaha NS-10M. **Musical Instruments:** Kurzweil 250, Kurzweil 1000PX, Kurzweil 1000SX, Kurzweil 1000HX, Roland D-550, Yamaha DX7IID, Yamaha RX5 drum machine, Oberheim OB-X, Moog MicroMoog. **Other MIDI Equipment:** Macintosh SE computer w/45Mb HD running Performer 3.42, plus editor Librarian programs for Yamaha and Roland synthesizers. **Rates:** We prefer to quote "by the day or by the project." Hourly rates are also available. **Specialization & Credits:** KKRC is a private world-class audio production/mixing suite. Located in North Seattle, designed and built with technical excellence and craftsmanship, we offer music professionals unsurpassed recording quality. Managed by Scott Spain with 20 years in the music business, the atmosphere is comfortable, affordable and productive with outstanding acoustics. Call (206) 527-2250 for rates and booking information.

[24+] ROBERT LANG STUDIOS; 19351 23rd NW; Seattle, WA 98177; (206) 542-1041. Owner: Robert Lang, Rick Eaks. **Manager:** Rick Eaks.



LAWSON PRODUCTIONS INC.
Seattle, WA

[24+] LAWSON PRODUCTIONS INC.; also REMOTE RECORDING; 2212 4th Ave., Seattle, WA 98121; (206) 443-1500; FAX: (206) 441-2910. Owner: Steven Lawson. **Manager:** Reed Ruddy. **Engineers:** Reed Ruddy, Ed Brooks, Vince Werner, Brett Eliason, Jim Wilson, Ella Brackett. **Dimensions:** Room A: studio 32 x 25, control room 25 x 25. Room B: studio 29 x 19, control room 18.5 x 19.5. Room C: studio 16 x 19, control room 8.5 x 8. Room D: studio 12 x 9, control room 19.5 x 18. **Mixing Consoles:** API w/DiskMix Moving Fader automation (Studio A), API w/ARMS DiskMix automation (Studio B), (2) JH636 w/DiskMix automation (Studios C and D), Tangent 3216 (Studio E). **Audio Recorders:** (2) JH-24 24-track, MM1200 24/16-track, (2) ATR-102, New England Digital Pro 16- and 8-track, (2) JH-110 8-track, (5) JH-110 2- and 4-track or layback, Sony PCM-500B DAT, Sony TCD-10 DAT, Sony APR-5000 w/center track, Panasonic 3500 DAT. **Cassette Recorders/Duplicators:** Kaba duplicators. **Noise Reduction Equipment:** (48) Dolby A-two 24-track units, Dolby A and dbx on all 2-track recorders. **Synchronization Systems:** Adams-Smith Zeta-3 (available to all studios), O-Lock (in Studio B and C), BTX shadow (studio A). **Echo, Reverb & Delay Systems:** Lexicon 480L, Lexicon 224X, (2) Live echo chambers, (2) EMT 140, (2) Yamaha SPX-90, (2) Klark-Teknik DN780, (2) Eventide H949, AMS RMX 16, (3) Lexicon PCM 70, (3) Lexicon PCM42, (5) Prime time/Super Prime time. **Other Outboard Equipment:** (9) LA-2A, (8) LA-3A, ADR Express Limiter, (6) 1176, (4) 1178, (8) Gain Brain, (4) Pultec EQP-1A3, (2) Pultec MEQ-5, (5) Urei 545, (2) ITI (Massenberg) EQ, (16) Kepex Gates, (24) Rodger Meyers Gates, (4) Mic Pre's by Summit Audio, Summit Audio EQ, Pultec EQH-2. **Microphones:** Over 100 mics by Neumann, Electro-Voice, Shure, Beyer, Sennheiser, RCA, AKG. **Monitor Amplifiers:** Crown, Hafler, UREI. **Monitor Speakers:** Westlake, Tannoy, UREI,

Yamaha NS-10, Auratone. **Musical Instruments:** (2) Yamaha grand piano, Hammond B-3 w/Leslie, (2) drum kits by Tama & Ludwig. **Video Equipment:** Sony BVU-800, JVC CR-850, CR-650. **Other:** Fully equipped MIDI production studio w/E-mu E III, D-50, and twenty other sound modules. Sound stage (60' x 54' x 16') for audio or video recording, in-house music production, professional yet comfortable atmosphere in scenic Pacific Northwest. **Rates:** Call for rates. **Specialization & Credits:** The Posies, Brian Eno, Dee Daniels, Brothers Four, Ann and Nancy Wilson, Steve Miller, Hall Allame, The Walkabouts, Kodak, Boeing, Safeco Insurance, Weyerhaeuser, Memorex. We've taken ten years of experience and put together a facility that deals with the real needs of our clients. We've designed our rooms from top to bottom to be working, creative environments. Our new 15,000-square-foot facility offers 16- to 48-track music production. The entire facility is cross-connected to allow producers instant access to any and all of our services, including our 3,200-square-foot soundstage. We recognize that people are the most important element in making your production come to fruition. Working efficiently allows you to concentrate on the creative aspects. To that end, we have a diverse engineering and professional support staff. Enjoy the beauty and recreational opportunities the Northwest offers while recording your project in a relaxed and professional atmosphere. Call for rates and further information.



LIVE OAK STUDIO
Berkeley, CA

[24+] LIVE OAK STUDIO; 1300 Arch St.; Berkeley, CA 94708; (415) 540-0177. Owner: Jim and Priscilla Gardiner. **Manager:** Priscilla Gardiner. **Engineers:** Dale Everingham. **Mixing Consoles:** MCI JH-636 w/ARMS II DiskMix automation, Sound Workshop Series 34C 32 x 24 automated, Yamaha DMP7 digital. **Audio Recorders:** (2) MCI JH-24 16/24-track, Otari MTR-10 2-track 1/2" and 1/4", Sony PCM-F1 2-track digital, IMS Dyaxis digital workstation/editor, Technics DAT, Pioneer DAT. **Synchronization Systems:** C.Lock 4.10-E w/Eclipse editor. **Echo, Reverb & Delay Systems:** Lexicon 224XL, Lexicon Prime Time II, Lexicon PCM42, Publison Infernal Machine 90 w/controller, Yamaha REV7, (4) Yamaha MIDlverb II, Publison Fullmost exciter (stereo). **Other Outboard Equipment:** Scamp rack (full), vocal stroller, (2) Drawmer DS-201 gate, UREI LA-2, (2) UREI LA-3A, UREI 1176, Spectra Sonics 610, Publison vocal exciter, Publison CL20C, Symetrix 544, dbx compressor/limiter, Eventide Ultra-Harmonizer. **Microphones:** (24) Full selection, AKG Tube. **Monitor Amplifiers:** Bryston, Yamaha, Crown, Crest, UREI. **Monitor Speakers:** JBL 4430 bi-radial, JBL 4401, Yamaha NS-10, TOA 265ME, (2) Auratone. **Musical Instruments:** Kurzweil 250 w/50kHz sampling option, Emax SE w/HD, Yamaha TX816 rack system w/8 DX7s, Oberheim Matrix-12 (rentable), Korg MI (rentable), E-mu SP-12 drum machine (rentable), Alessis drum machine, (2) Macintosh computers. **Video Equipment:** JVC 8250 3/4" U-VCR, Sony color projection system w/100" screen, Sony 13" color monitor. **Specialization & Credits:** Artists' lounge with spectacular views of the bay. Private garden with redwood decks and brick patios. Complete pre-production services available using top-of-the-line synthesizers and computer programs. Live Oak Studio is designed for the artist/composer or producer who wishes the highest quality recording tracks for his or her project. We are equipped to produce albums or to record tracks for movie scores or video work. We have the very latest synchronization gear, a computer-automated mixing console and an outstanding collection of outboard gear including the Publison Infernal Machine 90. We have a long list of satisfied clients who enjoy the beautiful and peaceful, private atmosphere. If you need a producer for your project, Jim Gardiner is available to help you get the best product.

[24+] LONDON BRIDGE STUDIOS INC.; 20021 Belinger Way NE, Ste. A; Seattle, WA 98155; (206) 364-1525. Owner: Rajan and Rick Parasher. **Manager:** Rajan Parasher. **Engineers:** Rick Parasher, Don "The King" Gilmore, Ron Ganges. **Dimensions:** Room 1: studio 35 x 55, control room 40 x 30. Room 2: studio 15 x 25, control room 20 x 25. **Mixing Consoles:** Trident series 65, Neve 8048 w/1081 EQs. **Audio Recorders:** Studer A800 24-track, Akai A-DAM 12-track digital,

Sony APR-5000 1/4" or 1/2" 2-track, (2) Aiwa DAT. **Cassette Recorders/Duplicators:** (5) NAD. **Synchronization Systems:** Adams-Smith Zeta. **Echo, Reverb & Delay Systems:** Lexicon 224XL, Eventide H-3000 SE Harmonizer, Lexicon LXP-1, large assortment of reverbs and delays. **Other Outboard Equipment:** Klark-Teknik gate, (2) Teletronix LA-2A, (3) Neve onboard compressor, wide selection of compressors and limiters, full Scamp rack, UREI 1178, dbx 160X. **Microphones:** (6) Neumann, (12) AKG, (6) Sennheiser. **Monitor Speakers:** JBL 4435, (2) Yamaha NS-10, Yamaha NS-40. **Musical Instruments:** Wide selection of synthesizers, Yamaha C7E grand piano (7'). **Other MIDI Equipment:** Macintosh with Vision andAlchemy. **Video Equipment:** Sony VO-9800 3/4". **Rates:** Upon request.

[24+] **MICHAEL LORD PRODUCTIONS; 9508 17th Ave. NE; Seattle, WA 98115; (206) 527-9002. Owner: Michael Lord. Manager: Michael Lord.**

[24+] **MACDONALD RECORDING CO.; 2908 First Ave; Seattle, WA 98121; (206) 728-6300; FAX: (206) 728-1433. Owner: Terry and Karen MacDonald, Manager: Karen MacDonald. Specialization & Credits:** Duplication: Highest standard real-time multiple duplication from digital or analog + DAT-to-DAT. Editing: Seamless/digital sound editing from digital or analog sources using the AMS AudioFile. The world standard in the 90s. CD prep and digital music editing is our specialty. Layback: All formats available. Custom Sony 1", 3/4", 1/4", CTT, Beta SP and D2 from AMS AudioFile, so your master is first generation from digital quality. Music libraries: 8 full CD music libraries + 4 full CD sound effect libraries. Looping/ADR/Foley: The best looping software in the world is in the AMS AudioFile. Music producers: Seattle's hottest new facility, designed acoustically to perform to surpassing levels by Tom Brown, recently of Master Mix, Nashville. Sound designers. Sound for film. Sound sweetening for video. We've won major awards for our super-satisfied clients and done so well we had to triple our space. Come put sound to picture digitally. Voice-over: The best-sounding mic rooms in the Northwest. We built our reputation doing voice-overs. Beyond technoids. Faster than any other living digital practitioners. Want to work with the best? We're all ears. Terry MacDonald. Jason Brown. David Roke.

[24+] **MASTER TRACK PRODUCTIONS; 1524 W. Winton Ave.; Hayward, CA 94545; (415) 782-0877; FAX: (415) 782-6280. Owner: Don Enns. Manager: Dan Norton. Specialization & Credits:** For over 18 years we've been producing music products in the fields of contemporary and traditional

gospel, jazz, rock and other styles with an emphasis on gospel music. Our facility is a completely professional, fully equipped 24-track studio with spacious rooms and high ceiling, plus a wide assortment of microphones and signal processing gear. We deliver quiet and sonically superior recordings with our transformerless 32 x 24 Neotek Series IIIc console and Studer multitrack recorder. We also include 30 ips Studer A80 2-track recorders and Dolby A and SR noise reduction systems. Our engineering staff is experienced, knowledgeable and helpful with a long list of album and radio credits. Their combined expertise in the fields of musical performance and technical production assures a high level of excellence and understanding of each client's needs. MTP is also a complete, high-volume cassette duplication and packaging plant. Please call for additional information.

[24+] **MILLTREE PRODUCTIONS; PO Box 70322; Seattle, WA 98107-0322; (206) 782-3115. Owner: Milltree Productions Inc. Manager: Claude Autry.**

[24+] **MIRAMAR RECORDING STUDIOS; PO Box 70127; Bellevue, WA 98007; (206) 747-5233. Owner: Miramar Images Inc. Manager: Paul Speer.**



MOBIUS MUSIC
San Francisco, CA

[24+] **MOBIUS MUSIC; also REMOTE RECORDING; 1583 Sanchez St.; San Francisco, CA 94131; (415) 285-7888. Owner: Oliver DiCicco. Manager: Janet Stark Krick. Engineers: Oliver DiCicco, Jane Scolieri, Ken Kessie. Dimensions:** Studio 17 x 38, control room 17 x 14. **Mixing Consoles:** Neve 8068. **Audio Recorders:** Studer A827 24-track, Studer 820A 2-track, MCI JH-110 2-track. **Cassette Recorders/Duplicators:** (3) Sony FX44. **Noise Reduction Equipment:** (2) Dolby SR, (24) Dolby SR (available as rental). **Echo, Reverb & Delay Systems:** Lexicon 224 reverb, Eventide H3000 SE Ultra-Harmonizer, Yamaha REV7 processor, Yamaha SPX90 processor, DeltaLab DL-4 delay, Master-Room MR3 reverb. **Other Outboard Equipment:** Lang program EQ, (2) dbx 160 compressor/limiter, (2) UREI LA-4 compressor/limiter, (2) Dyna-Mite expander/gate, (2) Kepex gate, Orban 622 parametric EQ. **Microphones:** (2) B&K 4006, Neumann U47 tube, (2) Neumann KM54 tube, (2) Neumann U87, (4) Neumann KM84, (6) Sennheiser 421, Sennheiser 402, (2) Shure SM57, Beyer M500. **Monitor Amplifiers:** Hafler 500, Crown D-150, Crown D-60. **Monitor Speakers:** (2) UREI 811, (2) Auratone, (2) Yamaha NS-10, (2) Altec 604 w/Mastering Lab crossovers. **Musical Instruments:** Yamaha C3 6' grand piano, Radio King drums. **Video Equipment:** Available as rental package. **Other:** Available as rental package. **Rates:** On request, lockout rates available.

[24+] **MOON RECORDING INC.; 156 Otto Cir.; Sacramento, CA 95822; (916) 392-5640. Owner: George Whyler. Manager: George Whyler. Engineers: David L. Houston, Pete Clemente, Gary Woltmon. Dimensions:** Studio 22 x 34, control room 17 x 18. **Mixing Consoles:** MCI JH-636 32 x 24 automated. **Audio Recorders:** Otari MTR-90 24-track, Otari MkIII 8-track, Otari MTR-10 2-track, Sony PCM-2500 DAT. **Cassette Recorders/Duplicators:** (2) Tascam 122B. **Echo, Reverb & Delay Systems:** Lexicon Prime Time II, Lexicon PCM70, Lexicon PCM60, Lexicon PCM42, DeltaLab CompuEffectron, Yamaha REV7, Yamaha SPX90, Eventide Harmonizer, Echoplate II. **Other Outboard Equipment:** (2) UREI LA-3A limiter, UREI 1178 comp/limiter, Orban 424A comp/limiter, (2) dbx 160 comp/limiter, Aphex Dominator, Aphex B Aural Exciter, Barcus-Berry 802 processor, (2) Valley People Maxi-Q, (2) Valley People Gain Brain II, (6) Valley People Kepex II, (2) Drawmer 201 noise gate, Furman QN4A noise gate. **Microphones:** (2) Neumann U87, (2) Neumann U67, Neumann KM84, (4) E-V PL20, (5) E-V RE15, (2) Sennheiser 441, (3) Sennheiser 421, (2) AKG 451, AKG 414, (2) Crown PZM 315, Sony ECM-56F, Shure SM53. **Monitor Amplifiers:** UREI 6300, JBL/UREI 6290, Crown 1200. **Monitor Speakers:** UREI 813B.

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NORTHWEST 24+ TRACK STUDIOS

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JBL 4435, Yamaha NS-10M, Auratone Soundcubes, (13) AKG 240 headphone, (2) Fostex T20 headphone. **Musical Instruments:** Emulator III, E-mu SP-1200 drum machine, Yamaha DX7, (8) Yamaha 816, MiniMoog. **Other:** Sony PCM-701 digital processor, Sony 2710 Beta. Sound Ideas sound effects library. Rates: Please call. Block rates available.

[24+] MUSIC ANNEX INC. AUDIO POST-PRODUCTION DIVISION: 69 Green St.; San Francisco, CA 94111; (415) 421-6622. **Owner:** Music Annex Inc. **Manager:** Michelle Le Comte. **Engineers:** Randy Bobo, Patrick Fitzgerald, Jon Grier, Roger Wiersema, Mary Ellen Perry, Linda Lew, Will Harvey. **Dimensions:** Room 1: studio 12 x 16, control room 23 x 28. Room 2: studio 13 x 11, control room 17 x 14. Room 3: studio 12 x 10, control room 20 x 25. Room 4: control room 20 x 25. **Mixing Consoles:** Amek 2500 36 x 24 w/Master Mix automation, Amek 2500 36 x 24, TAC Scorpion 16 x 8, Amek GS2520 40 x 24 w/Mastermix automation. **Audio Recorders:** Otari MTR-9024-track, Otari MX-8024-track, MCI JH-11424-track, Otari 5050 MkIII 8-track, Otari MTR-10 4-track, (3) Otari MTR-12 2-track w/center track time code, (8) Otari 5050 2-track, New England Digital Post Pro direct-to-disk tapeless recorder/editor, multitrack magnetics 35mm and 16mm record. **Cassette Recorders/Duplicators:** (10) Tascam 122, Otari C-2. **Noise Reduction Equipment:** (3) Dolby M-24 Type A, (2) Dolby 363 SR/Type A, (6) Dolby 361 SR or Type A, Dolby CAT 43/361, (3) Symetrix 511, dbx Type I 12 channels. **Synchronization Systems:** (2) Audio Kinetics Q.Lock 4.10 w/3-machine lock, Audio Kinetics Q.Lock 4.10 w/Eclipse editor 4-machine lock, Soundmaster. **Echo, Reverb & Delay Systems:** (2) Lexicon 480 LARC, (3) Yamaha SPX90, Eventide 949. **Other Outboard Equipment:** Scamp rack (EQ, gates, comp.), (6) dbx 160X, (2) UREI 1176, (3) Symetrix T101 phone patch, (2) dbx 900 rack. **Microphones:** Neumann, AKG, E-V, RCA, Beyer. **Monitor Amplifiers:** Yamaha, Hafler, Crown, Symetrix. **Monitor Speakers:** KRK, Tannoy, JBL, Auratone, Yamaha. **Musical Instruments:** (2) E-mu E-3, Korg M1-R, Roland D-550, Roland R-8, (2) Macintosh II, N.E.D. Synclavier 9600. **Other MIDI Equipment:** (2) Opcode Studio 3 MIDI/SMPTe conv. **Video Equipment:** Sony DVR-10 digital video, Sony BVH-110 1" C type, (4) Panasonic VC-CR850 3/4" U-matic, FLS fiber-optic MIDI link, Skoter time code window generator w/UTC, Datametric time code window generator, Sigma Black generator, (6) Sony color monitor, (2) Sharp color monitor. **Other:** (2) Technics SL-P1200 CD player, Technics SL-P500 CD player, Technics SL-P300 CD player, (2) Technics SL-1200 turntable. Rates: Available upon request.



MUSIC ANNEX RECORDING STUDIOS
Menlo Park, CA

[24+] MUSIC ANNEX RECORDING STUDIOS; also REMOTE RECORDING; 970 O'Brien Dr.; Menlo Park, CA 94025; (415) 328-8338. **Owner:** Music Annex Inc. **Manager:** Charlie Albert. **Engineers:** Russell Bond, Tom Carr, Pat Coughlin, Mike Hersh, Robert Iriartborde, Bruce Kapchan, Tom Murphy, et al. **Dimensions:** Room 1: studio 28 x 25, control room 22 x 25. Room 2: studio 16 x 13, control room 21 x 18. Room 3: studio 16 x 14, control room 27 x 19. Room 4: studio 40 x 33, control room 25 x 19. **Mixing Consoles:** Neve 8036, Soundcraft 3200 56 channel w/DiskMix automation, MCI JHS-636 36 x 24, Amek TAC Scorpion 16 x 8. **Audio Recorders:** Studer A827 24-track, (2) Studer A80 16/24-track, (6) MCI JH-110B 2-track, Otari MRT-10 2-track, Otari 5050B MkIII 8-track, Ampex AG440C 2/4-track, Sony 2500 DAT, Sony 1000 DAT, Sony 700 DAT, Aiwa XD-001 DAT. **Cassette Recorders/Duplicators:** (10) Nakamichi BX-100, (4) Nakamichi MR-1/MR-2 (6) Tascam 122B, Otari C-2 duplicator CR1A. **Noise Reduction Equipment:** (4) Dolby SR/A 2 channel. **Echo, Reverb & Delay**

Systems: Lexicon 480L, Lexicon 224XL, (3) Lexicon 224, Quantec ORS room simulator, Eventide HD3000, (4) Lexicon PCM70, Lexicon PCM60, (4) Korg and others digital reverb, (3) Lexicon Super Prime Time DDL, Lexicon LXP-1, LXP-5 w/MRC, (5) Lexicon PCM42MEO, PCM41 and other DDL, (5) Roland and other DDL, EMT Gold Foil plate. **Other Outboard Equipment:** (8) UREI 1176LN limiter, (2) UREI 1178 stereo limiter, (2) UREI LA-4 limiter, (4) dbx 160X compressor/limiter, ADR Vocal Stresser, Aphex Compellor, Summit audio tube limiter, (2) Aphex Exciter Type C, Baurus-Berry BBE processor, (8) Drawmer DS-201 gate, (4) Valley People Dyna-Mite, (2) Valley People Gain Brain, (2) Scamp rack w/gate/EQ/limiter, (6) UREI 546 parametric EQ. **Microphones:** Neumann U67 tube, (5) Neumann U87 tube, (2) Neumann U47 FET, (4) Neumann KM84, AKG C-12A tube, (6) AKG C-60/C-61 tube, (3) Accurate Sound CR-3A, (8) AKG 452/460/451, AKG D-12, (12) Sennheiser 421/441, (6) E-V RE20/RE16, (18) Beyer, Sony, Countryman, Calrec, Audix, etc. **Monitor Amplifiers:** (19) Hafler, Crown, BGW, Yamaha, Symetrix, AB, etc. **Monitor Speakers:** UREI/JBL 813C/813 Yamaha NS-10 studio, Auratone, etc. **Musical Instruments:** Yamaha C7 grand piano, Gretsch/Ludwig/Paiste/Zildjian drum set, (6) Yamaha and other synths. **Other MIDI Equipment:** Macintosh w/Opcode, Vision and Performer. **Video Equipment:** Sony color monitor, (2) Beta and VHS VCR. **Other:** Sony PCM-701, Sony 2860 3/4" U-matic, (2) SMPTE based automation system. **Specialization & Credits:** Music Annex has an eighteen-year history of studio development, success and growth. With credits that include Gold, Platinum and Grammy-winning albums, our staff knows how to make great recordings. Our five recording studios include two 24-track rooms recently upgraded to offer the latest in studio acoustical design and technology. Knowing that everyone has a different budget for their project, we offer a wide range of studios and services priced for any budget. Services include complete copying services for all formats, audiophile cassette duplication and full time in-house tech support. Music Annex also owns and operates four audio post-production studios in San Francisco (see adjacent listing) and a complete cassette duplication plant with CD replication services in Fremont. For affordable professional recording and support call Music Annex. Musician-owned and staffed, we'll deliver what your're looking for.

[24+] MUSIC ARTS RECORDING STUDIO (MARS); PO Box 1838; Aptos, CA 95001; (408) 688-8435. Owner: Ken Capitanich. **Manager:** Heather Capitanich. **Engineers:** Ken Capitanich, Ken Kraft, David Gibson, Eric Bates. **Dimensions:** Studio 16 x 20, control room 14 x 16, ISO booth 12 x 8.5. **Mixing Consoles:** Soundcraft TS 24 32 x 24. **Audio Recorders:** Ampex MM1100 24-track, Tascam 80-8, Ampex 440-C 2-track, Otari 5050 2-track. **Cassette Recorders/Duplicators:** (3) Sony TC-K81. **Noise Reduction Equipment:** (8) dbx. **Echo, Reverb & Delay Systems:** Lexicon 200, Ecoplate II, EMT 140, Lexicon Prime Time 93, Eventide Harmonizer, MICMIX XL-305, ADR Time Module, Yamaha SPX90. **Other Outboard Equipment:** (5) ADR (Scamp) expander/gate, (5) ADR (Scamp) comp/limiter, (2) ADR (Scamp) parametric, Aphex Exciter, dbx 165 compressor, dbx 162 compressor, (2) TLA 100 tube limiter, (2) TPA 200 tube preamp, Pultec tube EQ. **Microphones:** (2) Neumann U47, (4) AKG C-414, (2) Sennheiser MD-441, Sony C-37P, (2) Shure SM54, (2) Neumann U87, (5) Beyer M500, Neumann U67, Electro-Voice RE20, (2) Electro-Voice 666, (2) Electro-Voice C515, Electro-Voice RE16, Electro-Voice DS35, (2) Shure SM56 (4) Shure SM57, (2) Shure SM545SD, (3) AKG C-451, (2) AKG 330BT, AKG D-112, AKG D-12E, (4) Sennheiser MD-421, Sony ECM-22, Equitek II. **Monitor Speakers:** (2) UREI 811, (2) MDM-4, (2) JBL 4313B, (2) Auratone, (2) Yamaha NS-10M. **Musical Instruments:** Chickering 6'6" grand piano, Hammond B-3 with Leslie, Yamaha DX7II FD, Oberheim DMX, various drums, cymbals and toys, Ampex amp. Rates: Rate sheet available upon request.

[24+] THE MUSIC COMPLEX; also REMOTE RECORDING; 348 Broadway; Millbrae, CA 94030; (415) 697-4488. **Owner:** Pat Maciejewski, Kelly Bryarly. **Manager:** Kelly Bryarly.

[24+] THE MUSIC SOURCE; 615 E. Pike; Seattle, WA 98122; (206) 323-6847; FAX: (206) 323-6896. **Owner:** Jim Wolfe. **Manager:** Peter Barnes. **Engineers:** Peter Barnes, Glenn Lorbiecki, Carol Howell, Dave Cruikshank, Steve Fisk, John Goodmanson, Barry Dowsett. **Dimensions:** Room 1: studio 27 x 24, control room 27 x 18. Room 2: studio 15 x 13, control room 15 x 21. Room 3: studio 11 x 12, control room 15 x 15. **Mixing Consoles:** MCI 636 36 x 44 automated, MCI 636 36 x 36 automated, MCI 636 28 x 28, Yamaha DMP7 digital mixer, fully automated Euphonics 48-i put console on order, ETA 6/91. **Audio Recorders:** (2) AudioFile digital 8-track hard disk, (3) MCI JH-24 48-track in room A, MCI JH-24 24-track in B, MCI JH-114 24-track in C, (3) Sony/MCI JH-110 24-track, (2) Tascam ATR-62 center-track time code, (3) Panasonic DAT, Sony 1" layback video, Magna-Tech 16/35mm Mag film recorder/reproducer, Sony PCM-F1 digital. **Cassette Recorders/Duplicators:** (13) Nakamichi. **Noise Reduction Equipment:** dbx 8 channels, all other formats available. **Synchronization Systems:** (2) Adams-Smith 2600 with compact controller, (1) Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems:** (2) Lexicon 224X w/LARC, Lexicon Prime Time, Super Prime Time delay, (3) Yamaha SPX90, Yamaha REV7, (2) Eventide Harmonizer (910 & 949), Lexicon LXP-1 and LXP-5 w/MRC, AKG BX-10 analog reverb, various Alessis and Roland processors. **Other Outboard Equipment:** (2) Scamp



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rack, (2) UREI 1176 limiter, (2) Spectra Sonics limiters, (2) dbx 162 stereo compressor, dbx 160X compressor, (2) UREI 1/3-octave graphic EQ, UREI stereo parametric EQ, Aphex and EXR exciters, Barcus-Berry BBE-802, Roland Vocoder, (3) Symetrix Magna-Tech 16/35 voice processors, various other compressors and EQs, Gaggia Espresso. **Microphones:** Neumann U67 tube, AKG "the Tube," (2) Neumann U87, Milab DC-96, Sony tube condenser, RCA DX-77 ribbon, AKG 414, (2) AKG 451, E-V RE20, Sennheiser 421, AKG 460, AKG D-12, Shure SM57. **Monitor Amplifiers:** UREI, Crown, BGW, Carver. **Monitor Speakers:** JBL 4430, Yamaha NS-10M, UREI 809, Auratone cube. **Musical Instruments:** Yamaha drumset, Kawai 9' concert grand, Oberheim OB-Xa, MiniMoog, Leslie speaker cabinet, awesome vintage Marshall 1/2 stack, Kramer bass guitar, Ovation classical guitar. **Other MIDI Equipment:** Macintosh with Performer, Vision and Galaxy software, Kurzweil 250 with full ROM package, E-Mu Proteus Roland U-220, Korg M3R, Yamaha DX7 and TX812, Alesis HR-16 drum machine, Yamaha RX-5 drum machine, (2) Emax samplers, Garfield Master Beat MIDI/SMPTE interface and Garfield Drum Doctor MIDIdrum trigger, Opcode Studio 3 MIDI/SMPTE interface, Simmons electronic drums, Roland Octapad. **Video Equipment:** Sony layback (1"), Sony 5850 3/4" w/address track, (3) JVC 3/4" w/address track, Magna-Tech Mag-film recorder/reproducer (16/35mm). **Rates:** \$40-\$250/hour. Rate card available upon request.

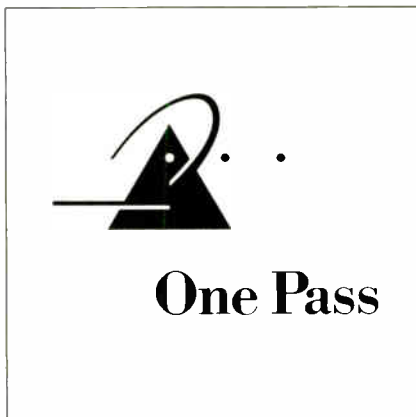


MUSICON
Wilsonville, OR

[24+] MUSICON; also REMOTE RECORDING; 27501 SW 95th Ave.; Wilsonville, OR 97070; (503) 682-8668; FAX: (503) 682-3043. Owner: Bill Berry. Manager: Duane Scott. Engineers: Duane Scott, Mike Newman, Jim Rogers—technical director, David Cohen. Dimensions: Studio 40 x 24, control room 20 x 24. Control room 2: 12 x 16. **Mixing Consoles:** DDA AMR-24 36/24/24 (60 mixing inputs) with Uptown moving fader automation. **Audio Recorders:** Studer A827 24-track with autolocator, Studer A807 1/4" 2-track with time code, Otari MTR-12 1/2" 4-track with HX Pro, Technics 1520 1/4" 2-track, JVC DS-DT900U DAT w/time code. **Cassette Recorders/Duplicators:** Nakamichi, Studer, Versadyne 1500 high-speed duplication system with (6) King 790 loaders. **Noise Reduction Equipment:** Dolby SR/A, Dolby MT24 24-channel SR/A auto-aligning mainframe. **Synchronization Systems:** Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems:** Lexicon 480L digital effects w/LARC, Eventide H3000SE Ultra-Harmonizer, (2) Yamaha SPX900 digital effects, TC Electronic 2290DDL, R-16 digital reverb. **Other Outboard Equipment:** GML 8200 parametric EQ, Summit Audio EQP-200 EQ, TC Electronic 2240 2-channel EQ, Klark-Teknik DN410 EQ, Summit Audio TLA100 2-channel tube limiter, (2) UREI LA-4 limiters, BSS DPR-901 dynamic EQ, TC Electronic 1210 special effects, Klark-Teknik AN514 quad noise gate. **Microphones:** Complete assortment of microphones. **Monitor Amplifiers:** Briston. **Monitor Speakers:** Tannoy DMT-215, Yamaha NS-10 near-fields, Meyer Sound Labs HD-1 near-fields, E-V 100A near-fields. **Musical Instruments:** Steinway D9 grand piano. **Other MIDI Equipment:** Yamaha SY77 synth with huge sound library, Korg M1 synth with huge sound library, Oberheim Xpander, E-mu Proteus, Roland R-8 drum machine, Macintosh IIcx with Vision sequencing software. **Other:** Studer Dyaxis 2+2 digital workstation w/DAT backup. **Specialization & Credits:** We specialize in start-to-finish service. Our clients record in our state-of-the-art studios, have our huge duplication department produce their cassettes, and we distribute the tapes all over the world for them. We have a duplication plant with a capacity of over 1 million cassettes per month. From digital mastering to chrome duplication, the highest quality and the finest service is what we strive to deliver. Please call for a quote on your next project. With the premier facility in the Northwest and the finest engineers at its controls, your production dollar could not be better spent. We are, very simply, the premier recording and duplicating facility in the Northwest.

[24+] OLD WEST RECORDING; 1137 Howard St.; San Francisco, CA 94103; (415) 431-8103. Owner: Peter Eckart. Manager: Lisa Klein. Engineers: Peter Eckart, James Schaefer, David Denny. Wally Sound. Dimensions: Room 1: studio

30 x 30, control room 20 x 12. Room 2: studio 10 x 12, control room 20 x 12. **Mixing Consoles:** Sound Workshop 34-36 inputs with Discmix Automation. **Audio Recorders:** Otari MX-80 24-track, Fostex E-16 16-track, (2) Panasonic SV-3500 DAT, Otari MX-5050 1/4" Cassette Recorders/Duplicators: (3) Onkyo TA-2000, Akai GX-912. **Synchronization Systems:** Opcode Time Code Machine. **Echo, Reverb & Delay Systems:** Eventide H3000 Ultra Harmonizer, (2) Lexicon LXP-1, Roland SDE-3000A, Korg SDD-2000 sampling delay, Alesis Quadverb, (2) Alesis MIDverb II, (2) Alesis Microverb, Yamaha SPX90, Lexicon PCM60, Orban U1B spring reverb, DeltaLab Effectron II. **Other Outboard Equipment:** Drawmer 1960 vacuum tube compressor amp, Studio Technologies mic pre-eminence, (2) UREI LA-4 compressor, (2) Aphex expander/gate, (4) Ashly Audio SG35 noise gate, BBE Sonic Maximizer, Aphex Aural Exciter type C, UREI graphic EQ 530, dbx 263X de-esser, Audioarts 1200 compressor/limiter, Sony CDP-370 CD player, Marshall time modulator model 5002. **Microphones:** Neumann U87, AKG tube, (3) AKG 414B-ULS, (2) AKG D-112, (4) Sennheiser 421, AKG D-12E, (4) Shure SM57, Shure SM58B, (2) AKG C-452 EB, (2) Shure 849, (2) Neumann KM84. **Monitor Amplifiers:** Crown PS-4000. **Monitor Speakers:** (2) UREI 809, (2) Yamaha NS-10 nearfield, (2) Tannoy PBM 6.5 nearfields, JBL 4412. **Musical Instruments:** Tama Superstar drumkit (maple shell), Zildjian cymbals, Akai-Linn MPC 60 drum machine, Yamaha PTX8 electronic drum kit, Korg M1R, Yamaha DX7, E-max SE, Korg DW-8000, Akai S-1000, Steinway Series O grand piano 1911, Roland D-10, Roland R-8, Casio FZ-20M, Roland D-550. **Other MIDI Equipment:** Akai ME-30P II MIDI patch bay, Macintosh IICX with 640Mb hard drive, Digidesign Sound Tools digital recording and editing, Mac Plus with Performer. **Video Equipment:** JVC CR8250 V 3/4" video editing cassette recorder. **Other:** (8) Pro Co direct boxes. **Rates:** Rates available upon request.



One Pass

ONE PASS FILM & VIDEO
San Francisco, CA

[24+] ONE PASS FILM & VIDEO; One China Basin Bldg.; San Francisco, CA 94107; (415) 777-5777. Engineers: Jay Shilliday, Vance Walden. Dimensions: Studio 10 x 17, control room 19 x 17. **Mixing Consoles:** Sony MXP-3036VF console with Diskmix moving fader automation 36 x 24. **Audio Recorders:** Otari MTR-90 Series II 24-track, Studer A808/4-track, Studer A820 2-track center-track TC, Otari MTR-12 2-track center-track TC, AMS AudioFile, Panasonic R-DAT. **Cassette Recorders/Duplicators:** Nakamichi HR-1B. **Noise Reduction Equipment:** Dolby SR 34 channels, Dolby A 8 channels. **Synchronization Systems:** Lynx keyboard controller and system supervisor, (5) Lynx/SAL module. **Echo, Reverb & Delay Systems:** Klark-Teknik DN780 digital reverb, (2) Lexicon PCM70 digital reverb, TC Electronic 2290 digital delay, Yamaha SPX90II multi-effects unit, Roland DEP5 multi-effects unit. **Other Outboard Equipment:** Eventide 3000B Ultra-Harmonizer, (2) Dolby CAT 43, various dbx compressors/limiters, gates/de-essers, Aphex Aural Exciter, Aphex studio Dominator, Aphex Compellor, (2) UREI 565T "Little Dipper," (2) Valley People Kexep II gate. **Microphones:** Beyer Dynamic MC740, Neumann 1905i stereo mic, Neumann U87, (2) Sennheiser 416, (2) AKG 414EB. **Monitor Amplifiers:** (2) Perreux 6200B and 3000B, (4) Briston 3B & 2B-L. **Monitor Speakers:** (2) JBL 4430 (bi-amped), (2) Auratone 5CV. **Musical Instruments:** Emulator III (300MB external HD, 8MB RAM) with Macintosh II computer interface. **Video Equipment:** Sony BVU-800 3/4" U-matic, Sony BVH-1100 1" C format, Sony BVW-75 Betacam-SP, Sony DVR-100 digital video with PCM audio, Sony DVR-1000 digital video with PCM audio. **Other:** MTM series 200 dual recorder/reproducer magnetic film recorder (4/3/1-track heads), MTM series 600 magnetic film reproducer (3/1-track heads), Gefen M&E organizer system with (2) Sony CDK-006 CD units (120 CDs). **Rates:** Call for information.

[24+] OTR STUDIOS; also REMOTE RECORDING; PO Box 874; Belmont, CA 94002; (415) 391-9861; FAX: (415) 598-0915. Owner: Cookie Marengo. Manager: Amy Yamamoto. Dimensions: Room 1: studio 23 x 14, control room 23 x 17, Room 2: studio 27 x 17, control room 11 x 12. **Audio Re-**

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para vin. (2) TC Electronic 1128 RTA real-time analyzer, (2) White Instruments 1/3-octave EQ, (6) 80 series discrete neve preamps. **Microphones:** Neumann: Tube 47, M49, U67, KM54, KM84, AKG: C12A, C61, Schoeps stereo pair, Neumann: U87, AKG 414, 451L, D330, Sennheiser: D-25, 441, 421, E-V: RE20, 665, 666, Beyer, Shure, Fostex, PZM, Sony, Nakamichi. **Monitor Amplifiers:** (3) Crown Micro-Tech 1200, McIntosh 2300, UREI 6500, Yamaha P2100. **Monitor Speakers:** Big Reds, Genelec 1022A, JBL 4311, MDM 4 Ed Long, (2) UREI 811B/13B, Wharfedale Diamonds, (2) Yamaha NS-10M. **Musical Instruments:** E-mu Emulator II, Hammond B-3 w/122, Kimball 7' grand piano, Korg M1 8-voice MIDI keyboard, Pearl MLR Maple recording series drums, (8) various guitar and bass. **Other:** Roland JC-100 and other amps (2) Macintosh Plus w/Jasmine HD, Sound Designer and Performer, J.L. Cooper Magi II automation system. Rates: Please call.

[24+] PROFESSIONAL SOUND AND RECORDING INC.; only REMOTE RECORDING; 3100 W. 71st Ave.; Westminster, CO 80030; (303) 426-7819. **Owner:** Chris Mickle. **Manager:** Phil Crumrine. **Engineers:** Kevin Clock, Mickey Houlihan, Phil Crumrine. **Mixing Consoles:** Soundcraft 1624 24 x 16 x 24, Rowland Research Audiophile 8 x 2. **Audio Recorders:** Stephens 1824A 24-track recorder, (2) Nakamichi DMP-100 PCM digital 2-track, Revox PR99 2-track analog. **Cassette Recorders/Duplicators:** (10) TEAC V-2RX cassette decks. **Echo, Reverb & Delay Systems:** Yamaha REV7 effect, PCM60 Lexicon reverb, ADM 1024 delay. **Other Outboard Equipment:** UREI LA-3 compressor, (2) Symetrix 501 comp/limiter, (2) Symetrix 522 comp/limiter/gate, dbx 900 rack w/(2) parametric, (4) compressor, (3) gate, Barcus Berry BBE-202. **Microphones:** (2) AKG C-414EB P-48, (2) AKG C-451 shotgun, Schoeps CMTS 301 stereo, (4) Schoeps CMC-3, AKG C-33 stereo, (2) Sennheiser MD-421U, (3) Shure SM81, (2) Countryman Lavalier, 2) pre-Crown PZM, E-V RE20. **Monitor Amplifiers:** Rowland Research model 5, Hafler DH-200. **Monitor Speakers:** Yamaha NS-10M, B&W DM100, E-V Sentry 100. **Video Equipment:** Canon VC-20A camera, Panasonic AG-6400 Hi-fi VHS stereo VCR, (3) color monitor. **Other:** 1984 Winnebago Centauri Van 20', air conditioning, Mogami wiring, isolation transformer.



"THE RANCH"
Westcreek, CO

[24+] "THE RANCH"; 15849 Stump Rd.; Westcreek, CO 80135; (303) 647-2482. **Owner:** Flash Cadillac. **Engineers:** Jody Stewart, Duane Scott, Sam McFadin, Linn Phillips, Dan Bernhelot. **Dimensions:** Room 1: studio 20 x 20, control room 18 x 16, Drum room 10 x 10, piano room 18 x 10, iso booths 25 x 8 and 7 x 10. **Mixing Consoles:** Sony MXP-3036 36 x 36, 4-band parametric EQ, 6 cue sends, optional EQ L.C. type MXBK-EQ34, CAF 3000 fader automation system, dbx VCA system. **Audio Recorders:** MCI JH-24 24-track, MCI JH-110C 2-track 1/2" headstack w/Dolby SR, MCI JH-110B 4/2-track. **Cassette Recorders/Duplicators:** Technics RSB100. **Noise Reduction Equipment:** Dolby SR. **Echo, Reverb & Delay Systems:** Lexicon 224, Yamaha SPX90II, Yamaha REV7, Lexicon PCM70, Alesis MIDverb II, Harmonizer 910, (2) Lexicon PCM42. **Other Outboard Equipment:** Aphex Aural Exciter, dbx 165A overeasy, dbx 904 noise gate, dbx 903 limiter/compressor, UREI 1176 limiter, rack-mounts, Ibanez multi-effects, Hush II, Sontec stereo parametric EQ. **Microphones:** AKG, Neumann, Sennheiser, Shure, Sony, Beyer, Electro-Voice, Neumann tube mics. A complete selection of microphones is available. **Monitor Amplifiers:** Meyer MS-1000 amps, Spectra Sonics 701 series. **Monitor Speakers:** Meyer 833 sound monitor system, Yamaha NS-10T, Visonik David 7000, JBL 4333A (studio). **Musical Instruments:** Roland R-5, Octapad 2, Roland DDR-30 MIDI drums, Kurzweil K-1000, Kurzweil HX-1000, Alesis drum machine, Linn drum machine, acoustic drums (two full sets), 1930 Mason Hamlin acoustic grand piano, church pump organ, Hammond with Leslie, Leslie speaker with all JBL components, Sho-Bud pedal steel, Casio M6510 MIDI guitar, Korg with TX rack, (2) Yamaha DX7, Fender amps, Vox amps, Marshall amps, Gibson acoustic Hummingbird, Gibson acoustic 2-50, Martin acoustic D28, Rickenbacker 6- and 12-string guitars, 1950 Fender Broadcaster, 1957

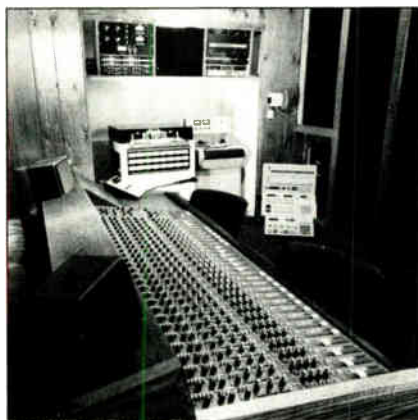
Gretsch, Dean Bel-Air with Floyd Rose tremolo, Mosrite 12-string w/tremolo, Jacksons, 1955 and 1958 Stratocasters, 1958 Precision bass, Hofner "Beetle" bass. **Other MIDI Equipment:** IBM-compatible (AT) system, Roland S-550 digital sampler, J.L. Cooper MIDI patch bay, Patch Master Plus, Sequencer Plus Mark III Version 3.0. **Video Equipment:** Available upon request. Rates: \$1,000 a day (lodging included). **Specialization & Credits:** Located near Pike's Peak, just 45 minutes from Colorado Springs and 90 minutes from Denver, you will find Flash Cadillac's Ranch. This beautiful recording complex in the Rockies is located on 120 secluded acres surrounded by Pike National Forest. The Ranch blends computerized 24-track recording and high-technology with vintage acoustic and electric instruments. The Ranch's vaults contain a large library of classic rock 'n' roll songs from the '50s through the '90s for your film, video or commercial needs. Flash Cadillac has used their 20+ years of experience in recordings, movies, television and live concerts to design this industry-standard recording studio. Relax in the beautiful surroundings of The Ranch, fish in the trout ponds, shoot some hoops, or just escape into the woods. Lodging is provided in a 2-story, 5-bedroom ranch house, complete with moss-rock fireplace, fully equipped kitchen and wide-screen TV. The studio and lodging are yours 24 hours a day without interruptions. Meanwhile, back at The Ranch... a perfect situation to get away from it all and concentrate on your music and recording project.

[24+] RECIPROCAL RECORDING; 4230 Leary Way NW; Seattle, WA 98107; (206) 782-6411; FAX: on request. **Owner:** Chris Hanszek. **Manager:** Chris Hanszek.

[24+] THE RECORDING STUDIO INC.; 1016 Morse Ave #17; Sunnyvale, CA 94089; (408) 734-2438. **Owner:** J. Scott Smith. **Manager:** Scott Smith, Lare Garcia.

[24+] REDOWN SOUND PRODUCTION; 100 Fifth Ave.; Redwood City, CA 94062; (415) 366-9021. **Owner:** Brett Brown.

[24+] REX RECORDING CO.; also REMOTE RECORDING; 1931 SE Morrison; Portland, OR 97214; (503) 238-4525; FAX: (503) 236-8347. **Owner:** Sunny Day Productions. **Manager:** Russ Gorsline. **Engineers:** Russ Gorsline, Ken Bladow, John Lansing, Dave Grafe. **Dimensions:** Room 1: studio 25 x 25, control room 15 x 18, Room 2: studio 11 x 7, control room 14 x 11, Room 3: control room 12 x 12. **Mixing Consoles:** Amek Angela 28 x 24, Tascam. **Audio Recorders:** Digital Dynamics ProDisk 464 8-track, MCI JH-24 24-track, 3M M-79 16-track, Sony 110 1" audio layback, Otari MTR-10 with SMPTE, Scully 280-B 2-track, (5) Technics 1500 2-track, Otari 5050 Mk III 8-track, Tascam 80-8 8-track, (2) Nagra 4.2. **Cassette Recorders/Duplicators:** (30) Technics RS-B605. **Noise Reduction Equipment:** (7) dbx Type I. **Synchronization Systems:** Q-Lock 4.1. **Echo, Reverb & Delay Systems:** Lexicon PCM70, Yamaha SPX90, Alesis MIDverb, (2) Alesis Microverb, (2) EMT 240 reverb. **Microphones:** Neumann U87, Neumann U67, (2) Sony C-500, (2) Shure SM81, (2) Shure SM47, AKG C-414. **Musical Instruments:** Yamaha DX7, Roland U-20, E-mu Emax, Alesis HR-10 drum machine, SMPTE track sequencing software. **Video Equipment:** JVC 8250 3/4" U-matic. **Specialization & Credits:** Rex Recording is a collection of exceptional individuals offering the finest services for video, radio and music production. Our staff has won numerous awards. The recent addition of our ProDisk digital audio workstation has further enhanced our capacity for outstanding work. Rex Recording is—good people helping you sound great.



R.O. STUDIOS
Concord, CA

[24+] R.O. STUDIOS; also REMOTE RECORDING; 3359 Walnut Ave.; Concord, CA 94519; (415) 676-7237; FAX: (415) 676-5132. **Owner:** Henry Brothers. **Manager:** Ralph Henry. **Engineers:** Rick Henry, Tom Size, independents welcome. **Dimensions:** Room 1: studio 25 x 16, control room 18 x 16, Room 2: 12 x 12. **Mixing Consoles:** Otari Series 54 40 x 24 fully automated w/moving faders and high-resolution

—LISTING CONTINUED ON NEXT PAGE

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NORTHWEST

24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

metering w/80 inputs. **Audio Recorders:** Otari MTR-100 24-track w/self-align and self-bias, Otari MTR-10 2-track 1/4" mastering, Panasonic SV 3500 DAT 2-track. **Cassette Recorders/Duplicators:** Nakamichi MR-1, Denon DRM-3, Onkyo TA-2058. **Noise Reduction Equipment:** UREI LA-4 limiter, (2) UREI 1176LN peak limiter, UREI 1178 dual peak limiter, (4) Valley People Dyna-Mite 430 limiter, Drawmer DS-201 dual gate, RSP Hush-2000 multiband stereo. **Synchronization Systems:** SMPTE-computer RAN Echo, Reverb & Delay Systems: Lexicon 480L digital reverb/processor w/LARC, (2) Lexicon PCM70 digital reverb/processor, Lexicon LXP-5, Lexicon LXP-1 digital reverb w/MRC controller, TC Electronic TC-2290 dynamic digital delay/effects processor, TC Electronic TC-1210 spatial expander/stereo chorus/flanger. **Other Outboard Equipment:** Pultec EQP-1A equalizer, Studio Technologies stereo mic preamp, BBE Sonic maximizer. **Microphones:** (2) Neumann U87, Neumann U47 vocal mic, (2) AKG 414, (2) AKG 452, (2) Sennheiser 421, (4) Sennheiser 421, Electro-Voice RE20, (6) Shure Beta-57, Hafler DH-500, Hafler P-230, Bryston 3B. **Monitor Amplifiers:** Hafler DH-500, Hafler P-230, McIntosh 2105. **Monitor Speakers:** Professional Audio Systems bi-amp system T.O.C., (2) Mastering Lab time offset correction/crossover, (2) Yamaha NS-10 close range, (2) KEF listening speaker, Auratone T66. **Musical Instruments:** Linn 9000 drums/sequencer w/SMPTE, Kurzweil 1000-PX sampled keyboard expander, Kurzweil 1000-SX string expander, Kurzweil 1000-HX horn expander, E-mu Proteus/1 sampled keyboard expander, 360 Systems Pro-MIDI sampled bass sound expander, Roland D-50 keyboard, Sequential Circuits VS keyboard, (2) Rocktron Pro-Gap guitar preamp, (2) Kasha Amplifiers Rockmod-2 guitar preamp, Macintosh Plus w/Sound Designer and Performer software, guitars, bass, drums, etc. **Other MIDI Equipment:** KMX MIDI 16-channel patch bay. **Rates:** Available upon request. Block rates available. **Specialization & Credits:** Swimming pool, full lodging w/ 2 bedrooms, kitchen, shower, laundry room, TV and listening room and a relaxed atmosphere. We would like to thank our clients: Eddie Money for the last three albums, thanks Eddie, we love you, Work Force for their great debut album on Scotti Bros./CBS Records, The Make, Red Dirt Band, and all the rest of our clients—thank you. To the producers: Richie Zito, David Kershenbaum, Tom Dowd, The Henry Brothers, along with our clients, we would like to thank you for keeping us busy and for the support in growth here at R.O. Studios. Happy new year to all and God bless. Here at R.O. we pride ourselves in keeping a state-of-the-art facility at the edge of technology. Come and work with the best for less.

[24+] **ROCKY MOUNTAIN RECORDERS;** 1250 W. Cedar Ave.; Denver, CO 80223; (303) 777-3648; FAX: (303) 777-3923. Owner: Paul Vastola, Gannon Kashiwa. **Manager:** Guila Montoya.

[24+] **ROXOUND STUDIOS;** also REMOTE RECORDING; 9804 Lake City Way NE; Seattle, WA 98115; (206) 522-ROXX. Owner: Mark Angelesdes. **Manager:** DeLana Scoville. **Engineers:** Mark Angelesdes, Tony Elzmer. **Dimensions:** Room 1: studio 12 x 30, control room 17 x 15. Room 2: studio 10 x 12. **Mixing Consoles:** Amek/TAC Scorpion II 28 x 12 x 24, TEAC Model 5 8 x 4 x 2. **Audio Recorders:** Tascam MCR-24 24-track, Tascam Series 70 8-track. **Cassette Recorders/Duplicators:** Tascam DA 30 DAT, Technics, (2) Marantz PMD 430. **Echo, Reverb & Delay Systems:** AKG 68K V, 4.0 digital reverb and effects, Klark-Teknik DN410 dual parametric EQ, Klark-Teknik DN504 quad comp/limiter, Klark-Teknik DNS14 quad auto gate, Rane ME15 graphic EQ, Rane HC6 headphone console, BBE 422A Sonic Maximizer, Roland SDE-1000 digital delay, Alesis MIDIVerb, Alesis MIDIFlex. **Other Outboard Equipment:** Many assorted guitar effects. **Microphones:** Sanken CU-41, Sanken CU-31, AKG D-112, AKG D-1000E, Beyer M500 ribbon, Shure SM57, Audio-Technica Pro 5. **Monitor Amplifiers:** Phase Linear 400. **Monitor Speakers:** (2) Klark-Acoustic Jade II, (2) Yamaha NS-10M, (10) Sony and Stanton headphones, (2) Sunn AX110. **Musical Instruments:** Alesis HR-16 drum machine, Roland Pad 80 MIDI pad controller, Ludwig/Pearl/Spike 12-piece drum kit, Fender 57 re-issue Strat, Moserite elec. guitar, Washburn elec. guitar, Washburn 12-string acoustic/electric, Charvel bass, Peavey bass, Yamaha CP70 electric grand piano, Korg Poly-61 synth, Vox AC30 amplifier, Peavey Backstage 30 amplifier, Peavey monitor amplifier, Sunn SX6350 mix/amp. **Video Equipment:** Amiga HD2000 computer, (2) JVC BR-8600 edit recorder, JVC C-1483UM monitor, (2) JVC BR-1600U video recorder, JVC RM-86U edit controller, Panasonic CT-500V monitor, Panasonic WV-6000Si camera, RCA Newwicon camera. **Other:** Gravitar! **Rates:** \$55/hour, package and block rates available.

[24+] **RUSSIAN HILL RECORDING/RUSSIAN HILL FILM-TO-TAPE;** 1520 Pacific Ave.; San Francisco, CA 94109; (415) 474-4520. Owner: Jack Leahy, Bob Shottland. **Manager:** Cindy McSherry. **Engineers:** Samuel Lehmer, Jack Leahy, Gary Clayton, Jeff Kliment. **Dimensions:** Room 1:

studio 20 x 30, control room 15 x 24. Room 2: studio 18 x 28, control room 13 x 22. Room 3: studio 12 x 14. **Mixing Consoles:** SSL 4040E 32 x 32, Neotek Series II 28 x 24, Soundcraft 600 24 x 16. **Audio Recorders:** Otari MTR-100A 24-track, Otari MTR-90II 24-track, MCI JH-114 24-track, (4) MCI JH-110 2/4-track, Otari MX-55 center channel SMPTE, (2) Fostex E-16 16-track, Fostex E-2 center channel SMPTE, Otari MX-5050 2-track, (2) Sony R-DAT, (2) Sony F-1. **Cassette Recorders/Duplicators:** (2) Aiwa. **Noise Reduction Equipment:** (2) Dolby SR 24-channel rack, (2) Dolby A 24-channel rack, (6) Dolby SR/A 361. **Synchronization Systems:** (2) Q.Lock 3, 10, Fostex 4035, Kelly Quan SC610. **Echo, Reverb & Delay Systems:** (4) Lexicon PCM70, (2) Lexicon PCM60, EMT plate, Lexicon 224, Lexicon Prime Time. **Other Outboard Equipment:** Anything currently available, if not in-house, we'll rent it. **Microphones:** Neumann, AKG, RCA, Sony, Sennheiser, Crown, Shure, Countryman, Beyer, etc. **Monitor Amplifiers:** Hafler, McIntosh, QSI. **Monitor Speakers:** UREI 813TA, JBL 4311, Yamaha NS-10, Auratone. **Musical Instruments:** Yamaha C5, Yamaha G2. **Emulator II, DX7, various synths and drum machines.** **Other MIDI Equipment:** Macintosh-driven systems, various MIDI interfaces. **Video Equipment:** Film-to-tape transfer, double system 16 and 35mm to 3/4" VHS and Beta, sync audio for video in all studios, big-screen projector. **Other:** Mixing to all film-release formats (mono to 6-track surround) on custom SSL console. **Rates:** Brochure on request.

[24+] **SAGE ARTS;** also REMOTE RECORDING; Littlefield Farm; 14311 Stehr Rd.; Arlington, WA 98223; (206) 691-5203. Owner: Edmund W. Littlefield, Jr. **Manager:** Warren Argo. **Engineers:** Ed Littlefield, Jr., Daniel Protheroe, Paul Speer, Matthew Sutton, Danny Wheelman, Neville Pearsal, Julian Adamaitis. (Other qualified engineers are welcome.) **Dimensions:** Studio 25 x 35 x 10, control room 12 x 12.5 x 8. **Mixing Consoles:** Sony MXP-3036 w/Sony hard disk automation. **Audio Recorders:** Sony PCM-3324 24-track digital w/Apoogee filters, Sony PCM-3202 2-track digital w/Apoogee filters, Sony R-DAT 2500 w/Apoogee filters, Sony/MCI JH-24-16 16-track, Sony/MCI JH-112 w/1/2" or 1/4" heads, Nagra I/VS, (3) Sony F-1. **Cassette Recorders/Duplicators:** (4) Nakamichi MR-1. **Echo, Reverb & Delay Systems:** Lexicon 480L, Lexicon PCM70, Lexicon 41, Lexicon LXP-1, Ursula Major 8 x 32 MkII, LXP-5. **Other Outboard Equipment:** GML stereo equalizer, (2) Summit Audio TPA/200 dual tube preamp, (4) Jensen-Hardy preamp, Mesa/Boogie Quad tube preamp, Mesa/Boogie Studio preamp, (2) API EQ, (4) Summit Audio EQP/200 tube stereo EQ, (2) Summit Audio TL4/100 tube leveling amp, (2) UREI Teletronix LA-3 limiter, (2) Gain Brain limiter, (4) Kepex noise gate, (2) Yamaha DEQ7 digital EQ, Klark-Teknik spectrum analyzer. **Microphones:** (6) Bruel & Kjaer 4003, (2) Bruel & Kjaer 4004, (2) Bruel & Kjaer 4006, (2) Bruel & Kjaer 4007, (2) Bruel & Kjaer 4011, (2) Bruel & Kjaer 4012, (2) Neumann TLM 170, (2) Schoeps, AKG "the Tube," (4) Countryman Isomax, (4) Sennheiser 421, (2) Sennheiser 441, Beyer M500, RCA 77-DX, (2) CAD-Equité II. **Monitor Amplifiers:** (4) Yamaha PC2002, Yamaha PC2001, UREI, Bryston 4B. **Monitor Speakers:** Nestorovic, Tannoy, MDM-20, Westlake Audio, Auratone, Meyer HD-1. **Musical Instruments:** Steinway D 9' 1982, Steinway B 7' 1914, Yamaha KX88 MIDI keyboard, Kurzweil K-1000, Emax, SP-1200 drum machine, Oberheim DMX drum machine, Yamaha DX7. **Other MIDI Equipment:** Lexicon LARC, Lexicon MCR. **Video Equipment:** (4) Betamax. **Other:** (2) Macintosh Plus, Apple LaserWriter II printer, (6) Mesa/Boogie speaker cabinet, great collection of cameras and lenses, Leica, Nikon, Hasselblad, Linhof, Deardorff, Leitz, Zeiss, Schneider, Nikkor, Rodenstock, Calumet 3000 w/electronic flash. **Rates:** Call. **Specialization & Credits:** Sage Arts is located an hour's drive north of Seattle. We specialize in providing a relaxed environment conducive to the production of highest quality recordings. The studio has a warm, living-room feel, fine library, stone fireplace and a view of Deer Mountain. We can provide quality photographic services and album cover design. Traditional music is one of our specialties. Our superb Steinways are maintained by Ed McMorrow. Call for more details concerning our unusual collection of fine instruments including Alembic, Martin, Gibson, Matlin, Sierra, Dobro; super guitars by Robert Girdis. Please write or call for more information. Credits include: *First Generation*, Bertram Levy & Peter Ostroushko; *New Melody Stomp*, How's Bayou; *Box Lunch*, Sandy Bradley & The Small Wonder String Band; *Desert Visions*, Paul Speer & David Lanz; *Haunting Melodies*, Marley's Ghost; *Sweet Rural Shade*, Boys of the Lough; *Moose On The Roof*, Norrskan; *Timepieces*, Larry Edelman; *Singing a Glad Noel*, Seattle Symphony Choral; *Cataract*, The Walkabouts.

[24+] **THE SITE;** 4286 Redwood Highway #365; San Rafael, CA 94903; (415) 662-2046; FAX: (415) 662-2386.

[24+] **SKYWALKER SOUND NORTH;** PO Box 3000; San Rafael, CA 94912; (415) 662-1000; FAX: (415) 662-2429. **Manager:** Kate Coombs.

[24+] **SOMA SYNC STUDIOS;** 372 Brannan St.; San Francisco, CA 94107; (415) 546-1374; FAX: (415) 546-1433. Owner: Salvage Prod. Inc. **Manager:** Steve Savage. **Engineers:** Kevin Casey, Larry the O, Karl Derfler, Brian Ringer. **Dimensions:** Studio 21 x 20, control room 22 x 20. **Mixing Consoles:** SSL 4040 w/G Series computer and electronics. **Audio Recorders:** Otari MTR-90 Series II w/locator, Otari MTR-122 1/2", Otari MTR-102 2-track 1/4" w/center track time code. **Cassette Recorders/Duplicators:** Nakamichi MR-2, Akai GX-912. **Synchronization Systems:** EC101 for MTR-90,



SOMA SYNC STUDIOS
San Francisco, CA

Cipher Digital Shadow for JVC CR850, Opcode Time Machine SMPTE and MTC reader/writer. Echo, Reverb & Delay Systems: Lexicon 480L digital effects, Yamaha REV5, Lexicon 200 reverb, Lexicon PCM70, (2) Lexicon PCM42. Other Outboard Equipment: Eventide H3000 Ultra-Harmonizer, (2) Neve 2254 compressor, Aphex Compellor, Aphex 612 stereo gates, Drawmer DS-201 stereo gate, (2) UREI LA-4 compressor, Pultec EQH-2 tube EQ, (2) EAR 882Q tube EQ, EAR MP2 stereo mic pre, EAR 660 tube compressor. Microphones: Neumann M49 tube, (2) Neumann U87, (2) AKG 414, (2) AKG 451, (2) Schoeps M221 tube, (6) Sennheiser 421, Electro-Voice RE20, (2) Beyers M69, (2) Shure SM57, (2) Sennheiser 406, (3) Nakamichi CM-100. Monitor Amplifiers: Crown PSA-2, (2) Crown PS-400, Crown PS-200. Monitor Speakers: PAS Time Offset Correction (TOC) w/Mastering Room crossovers, Yamaha NS-10M studio, JBL 4411, Auratone. Musical Instruments: Yamaha C3 baby grand w/fiber optic MIDI interface, Roland D-50, Kurzweil K-1000, Akai S900 sampler w/trigger inputs. Other MIDI Equipment: Macintosh SE computer, Opcode Studio Plus Two MIDI interface, Performer and other sequencing and librarian software, 360 Systems MIDI patcher. Video Equipment: JVC CR850 3/4" deck, Kelly Quan audio editing system, JVC 26" monitor, Fostex 4010 time code generator, Sigma BSG 100A house sync reference. Other: Sony CD player, Denon turntable. Rates: Please call for rates. Specialization & Credits: Soma Sync Studios is a newly constructed recording facility designed to satisfy the needs of the contemporary recording process. Construction features a spacious control room and the finest in modern audio design concepts including variable studio acoustics. Soma Sync is a fully equipped 24-track studio offering the latest state-of-the-art technology including the new Solid State Logic console with G Series computer and electronics. The studio is also equipped for complete video and film post-production work. Located in San Francisco's colorful South of Market area, Soma Sync is conveniently within walking distance of numerous restaurants, cafes and nightclubs, and the studio contains a comfortable lounge area. Package rates including living quarters are available for out-of-towners.

[24+] SOUND CAT SOUND AND MUSIC DESIGN; 832 Sansome St. 3rd Fl.; San Francisco, CA 94111; (415) 986-0992; FAX: (415) 986-6894. Owner: Peter Scott/Penny Riker Jacob.

[24+] SOUND IMPRESSIONS; also REMOTE RECORDING; 4704 SE View Acres; Milwaukie, OR 97267; (503) 659-5953. Owner: Daniel Decker. Manager: Bob Stark. Engineers: Bob Stark, Geoffrey Ruba, Tony Lash, Kelly Berry. Dimensions: Studio 22 x 24, control room 18 x 20. Mixing Consoles: Amek Matchless 26 x 8 x 2 (72 inputs for mixdown). Audio Recorders: Otari MX-80 32-track (24-track heads available) CB 120 locator, Otari MTR-12 center track time code (2-track), Tascam 52, Panasonic SV-3500 R-DAT. Cassette Recorders/Duplicators: Nakamichi MR-1. Noise Reduction Equipment: Dolby SR (2-channels). Synchronization Systems: Adams-Smith Zeta-3 (computer controlled), Kelly Quan audio editing software w/386 PC. Echo, Reverb & Delay Systems: Lexicon 480L, (2) Lexicon PCM70, Lexicon LPX-1, Lexicon PCM41, (2) Yamaha REV7, Ibanez SDR-1000, Eventide H3000 Ultra-Harmonizer, DeltaLab 1024, DeltaLab 64, Roland SDE-3000. Other Outboard Equipment: (2) Symetrix CL-501, (2) Symetrix CL-100, Symetrix CL-150, (2) Symetrix 544 quad gate, Audio Logic quad gate, Aphex Compellor, Aphex Type B Exciter, Aphex II Studio Exciter, Aphex 612 stereo gate, Orban 672A parametric equalizer, Orban 622B parametric EQ, UREI 527 31-band graphic equalizer, NIH PE-30 parametric equalizer, JBL 7110 compressors, B.A.S.E. processor. Microphones: AKG "The Tube," (2) AKG 414, (2) AKG D-12, AKG 460, (2) AKG 451, (2) AKG 330, AKG 320, (2) Tascam PE250, E-V RE20, E-V PL76, (7) Shure SM57, (7) Audio-Technica ATM63, (2) Neumann KM100. Monitor Amplifiers: Ramsa, (2) Biamp TC-120, (2) Crown DC-75. Monitor Speakers: (2) UREI 813, (2) Yamaha NS-10, (2) Auratone, (10) Fostex T20 Headphones. Musical Instruments: Huge collection of vintage guitars and bass, various vintage & late model guitar & bass

amplifiers. Other MIDI Equipment: Mark of the Unicorn performer 3.5 w/MIDI time piece, Macintosh IICX computer, Digidesign sound tools w/pro I/O and Q-sheet AV. Video Equipment: Sony 2610 U-matic. Other: CD player, massive sound effects library; custom CD & R-DAT. Rates: Available upon request. Block rates available.

[24+] SOUND SOUND/SAVAGE FRUITARIAN PRODUCTIONS; also REMOTE RECORDING; 2515 E. Union; Seattle, WA 98122; (206) 322-6866. Owner: Tom Fallat. Manager: Tom Fallat. Engineers: Tom Fallat, Jon Kellehor, M. "Duckie" Woo Hing. Dimensions: Studio 20 x 30. Mixing Consoles: Tascam M-3500 32-channel in-line with full meter bridge. Audio Recorders: Tascam MSR-24 1" 24-track with dbx I NR, Tascam DA-30 DAT 44.1 48kHz sampling rate, Sony D-10 Pro portable DAT, Studer A77 1/4" 2-track. Cassette Recorders/Duplicators: Tascam 112-Mk II with Dolby B & C & HxPro, Sony D-5M. Noise Reduction Equipment: dbx 224 2-channel Type II. Synchronization Systems: Tascam MTS-1000 MIDizer-synchronization and control unit. Echo, Reverb & Delay Systems: Eventide H3000 SE Ultra Harmonizer, Klark-Teknik DN780 MIDI controllable reverb and DDL w/remote, Aphex 612 dual noise gate, Aphex Compellor, Klark-Teknik DN410 10 stage parametric EQ, Rane MPE14 dual 2/3-octave MIDI programmable EQ. Other Outboard Equipment: Furman AR-117 line conditioner, Aerco MP-2 portable stereo mic preamp w/Jensen components. Microphones: (2) Bruel & Kjaer 4006 phantom powered Omni w/nose cone, (2) Audio-Technica 4051, (2) Sennheiser MD 4210, (2) Neumann KM140, AKG C-410, (3) Nakamichi CM-300. Monitor Amplifiers: Bryston 4B Pro 240 watts/channel, Marantz 2270 70 watts/channel, Rane HC6 headphone amp. Monitor Speakers: (2) Westlake BBSM10, (2) Tannoy NFM-8, (2) Bose 901. Musical Instruments: Wuritzer (1929) 5 1/2' grand piano, Ludwig 6 piece drumset w/Zildjian and Sabian hi-hat cymbals, (3) Valje conga drums (oak), Drumkat MIDI percussion controller and lots more percussion, rare national steel guitar (circa 1930) mint condition, Folksroots D-50 mountain dulcimer, Flegal vintage 4-string banjo (1930), violin, Capiot accordion, Gibson GA35RVT vintage tube guitar amp, Roland S-770, Korg T-1, Roland A-50, Yamaha DX100, Roland R-8 drum machine, Roland TR-505 drum machine, ARP Odyssey. Other MIDI Equipment: Macintosh laptop 2 meg, Opcode Vision, Opcode Galaxy librarian, Coda Finale 2.0 Notation software, J.L. Cooper MSB Rev II MIDI patch bay, Opcode Studio 3 MIDI interface. Other: Tascam CD-401 CD player, Yamaha MT1X portable 4-channel cassette studio. Rates: Contact us to discuss our affordable rates for your CD, demo, location recording or music composition and production projects.

[24+] SOUNDTEK STUDIOS; also REMOTE RECORDING; 85 S. 2nd St.; Campbell, CA 95008; (408) 370-3313. Owner: Robert Berry. Manager: Peter Roberts.



SPECTRUM SOUND STUDIOS
Portland, OR

[24+] SPECTRUM SOUND STUDIOS; also REMOTE RECORDING; 1634 SW Alder St.; Portland, OR 97205; (503) 248-0248. Owner: Michael Carter, Lindsey McGill. Engineers: Mike Moore, Doug Durbrow, Chris Douthitt, Rob Perkins, Jim Baer, Terry Hoffman, Duane Scott and Jim Rogers—chief engineer. Dimensions: Room 1: studio 38 x 30, control room 25 x 23. Room 2: studio 27 x 19, control room 21 x 22. Room 3: studio 17 x 16, control room 20.5 x 22. Room 4: studio 11.5 x 17, control room 20.5 x 22. Room 5: control room 22 x 15. Mixing Consoles: SSL 6056E-TR 40 x 32, MCI JH-536 36 x 32, (3) Spectrum custom 16 x 8. Audio Recorders: (2) Otari MTR-9011 24-track, Mitsubishi X-86a 2-track w/Apogee filters, Ampex MM1100 16-track, Ampex ATR-102 3-track CTTC, (2) Ampex ART-104/1C2 4/2-track, (18) Scully 280B 4/2/1-track, Panasonic SV-3500 DAT. Cassette Recorders/Duplicators: (2) Nakamichi LX-5, (4) Technics RSB-605, (2) Tascam 133AV, (12) Tascam 124AV. Noise Reduction Equipment: (2) Dolby M24H, Dolby 361 w/2 SR and 4 A, dbx 187 and 180 and K9. Synchronization Systems: Audio Kinetics Q.Lock 3.10, (2) TimeLine Lynx. Echo, Reverb & Delay Systems: Lexicon 224XL, (2) Lexicon PCM70, Dynacord DRP-20, Roland SRV-

—LISTING CONTINUED ON NEXT PAGE

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24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

2000, (4) Yamaha REV7, (2) Yamaha SPX90II, EMT 140S plate, (2) Alesis MIDVerb II, TC 2290 sampler/processor, Eventide H3000 Ultra-Harmonizer, Lexicon Prime Time II delay, Lexicon PCM42 delay, Roland SDE-3000 delay, Eventide H910 Harmonizer. **Other Outboard Equipment:** Summit EOP-200 2 ch. tube EQ, (2) Summit TL-100A tube limiter, (4) UREI 1176 limiter, (5) UREI LA-3 limiter, (5) dbx 160/162/166 limiter, Fairchild 660 tube limiter, (2) Barcus-Berry 802 Exciter, (2) Aphex 610 gate/expander, Eventide flanger, UREI Little Dipper, UREI 527A graphic EQ, (3) ADR Vocal Stresser, Ursa Major SST Space Station. **Microphones:** Neumann TLM-170, Neumann U87, Neumann U47 FET, Neumann KMR8 I, AKG C-414, AKG C-451, Sennheiser MD-421, Shure SM57, RCA 77-DX, misc. ribbon, dynamic lavs. **Monitor Amplifiers:** (2) UREI 6500A, (6) Yamaha PC2002, (4) Yamaha PC1002. **Monitor Speakers:** UREI 813C (A & B studios), UREI 811C (C & D studios), Tannoy NFM-8, Yamaha NS-10, Auratone 5C. **Musical Instruments:** Steinway B grand piano, Akai X-7000 sampling keyboard. **Other MIDI Equipment:** ADAP I digital audio workstation. **Video Equipment:** Sony BVH-1100a 1" w/Dolby NR, Sony BVU-800 3/4" VCR. **Other:** Nagra IVs TC, 4.21. **Rates:** Daily lockout and block rates available. Prices on request. **Specialization & Credits:** Spectrum is the only SSL studio in the Northwest. Designed by Russ Berger of Dallas, Texas. This five-room complex is three years old. Ultra-quiet studios with 18' ceilings allow great digital acoustic recordings. Large control rooms have excellent imaging. Central tech room for SSL computers, power supplies, power amps, grounding. Two video lockup systems, audio and MIDI interfaces, ADAP digital audio workstation and Akai keyboard for sound design work. In the very livable city of Portland, Oregon.

[24+] **STARLIGHT SOUND; 617 S. 13th St.; Richmond, CA 94804; (415) 233-7140. Owner:** Bill Thompson, Neil Young. **Manager:** Kay Arbuckle. **Engineers:** Bill Thompson, Sean McMahon, Steve Counter, Lynn Levy, Darrin Harris, Kay Arbuckle. **Dimensions:** Studio 30 x 20, control room 20 x 16. **Mixing Consoles:** Harrison MR-4 w/Disk Mix II automation. **Audio Recorders:** Studer A800 24-track, Ampex ATR-102 2-

track, (2) Panasonic DAT, Sony F1 digital 2-track. **Cassette Recorders/Duplicators:** (2) Nakamichi Noise Reduction Equipment; (2) Dolby SR (2-track only). **Synchronization Systems:** J.L. Cooper PPS w/SMPTE gen/reader, Echo, Reverb & Delay Systems: Lexicon 224X digital reverb, (2) Lexicon PCM70, (2) Lexicon LXP-5, Lexicon PCM60, Lexicon LXP-1, Roland DEP-5, (2) Yamaha SPX90, MXR flanger/doubler, (3) Efectron DDL I, Lexicon PCM42 DDL, Roland SDE-1000 DDL, Ultra Harmonizer, 610 Harmonizer. **Other Outboard Equipment:** FXR exciter, (2) Valley People Dyna-Mite gate/comp, (2) Drawmer gate, (3) Symetrix gate, (4) Gatec, (3) dbx 160 comp/limiter, UREI 1176 comp/limiter, (2) UREI A-4 comp/limiter, (2) Audionarts parametric EQ, (2) Biamp graphic EQ. **Microphones:** Neumann U47 tube, Neumann U87 (with mod.), (2) Neumann KM250 tube, Neumann KM69 stereo tube, (2) Neumann KM253 tube, (2) AKG 414, AKG 451, Neumann KM84, (4) Sennheiser 421, (6) Shure SM57, Sennheiser 441, Crown PZM, (4) Beyr D100 ribbon, RCA 77 ribbon. **Monitor Amplifiers:** (3) Micro-Tech 1200, Crown C1W. **Monitor Speakers:** UREI 813 Time Align, Yamaha NS-10, Auratone. **Musical Instruments:** Rogers drum kit, Yamaha C7 grand piano, Yamaha DX7, Oberheim D-6, Prophet-2000 sampler, Akai 612 sampler, Kawai K1 modular synth, Yamaha DX100, Linn drum, Roland U110 synth, Sanson wireless transmitter, E-mu Proteus 1 synth. **Other MIDI Equipment:** (2) Atari 1040ST computer with Q-Base and Pro software, Akai ME35T audio-MIDI trigger. **Specialization & Credits:** This year at Starlight Sound has seen 8 gold and platinum records placed on the wall. With a brand new 40-input Harrison MR-4 console outfitted with Disc Mix II automation, a complete rewiring and revamping of the control room and a slew of new outboard gear Starlight is ready for the 90s. And we've still got the lowest rates of any studio in our class. Please call for rates and a studio tour.

[24+] **STARSOUND AUDIO INC.; 2679 Oddie Blvd.; Reno, NV 89512; (702) 331-1010. Owner:** Scott Bergstrom. **Manager:** Lee Taggart. **Engineers:** Lee Taggart, Scott Bergstrom. **Dimensions:** Studio 35 x 30, (3) iso rooms 8 x 14, 7 x 10, 8 x 16; control room 15 x 25. **Mixing Consoles:** Amek Angela 28 x 24. **Audio Recorders:** Studer A80 24-track, Otari MkIII 2-2-track, Tascam 52 2-track, Panasonic SV-3700 Pro DAT. **Cassette Recorders/Duplicators:** Yamaha C200. **Echo, Reverb & Delay Systems:** Lexicon LXP-1/5, Yamaha REV7, Yamaha REV5, (2) Yamaha SPX90, SPX900, Roland SRV-2000, Roland SDE 3000, (2) DEP-5 Brick Audio 3300 plate, Alesis Quadraverb. **Other Outboard Equipment:** Aphex II broadcast, Aphex C(mod), UREI A-4, dbx 166, Valley People Dyna-Mite, Symetrix 522, 525, 528, Orban 674A parametric, Dimension D, dbx 503, Aphex compellor, Aphex impulse, MRC,

Microphones: Neumann U87, AKG 414EB, AKG 460, AKG 451, AKG 330, Sennheiser 441, Sennheiser 421, Sennheiser 409, Sennheiser 211, E-V PL20, E-V RE20, E-V RE15, E-V RE18, Shure SM56, Shure SM57, Shure SM81, Shure SM85, Sony C-37, PZM, Countryman 101. **Monitor Amplifiers:** Crown DC-300, Yamaha PC2002, Crown PS-400. **Monitor Speakers:** JBL 4425, JBL 4410, Auratone T6, Yamaha NS-10. **Musical Instruments:** Large set of Fibes drums, Simmons, Kawai 7'4" grand, E-mu SP-12, Yamaha DX7, Korg T-1, Ensoniq FPS, Roland S-550, Korg M1, Roland D-70, Yamaha SY77, Yamaha TG77, E-mu Proteus II. **Video Equipment:** (2) JVC 8250 3/4" recorder, (2) JVC 5550 3/4" players, JVC 86-U editor, Sony SFG-2000 6-camera switcher/special effects generator, Sony DCX-M-3A camera, Sony CCD-3000 chip camera. **Rates:** \$45 \$65/hr. depending on project.

[24+] **STAUNTON STUDIOS INC.; also REMOTE RE-CORDING; 5450 Coleman Creek Rd.; Medford, OR 97501; (503) 535-3972; FAX: (503) 535-6242. Owner:** Web and Karen Staunton. **Manager:** Web Staunton.

[24+] **STUDIO C/CUSTOM RECORDING; 2220 Broadridge Way; Stockton, CA 95209; (209) 477-5130. Owner:** Dr. Thomas T. Chen, M.D. **Manager:** Bryan Caldwell. **Engineers:** John Edman, Bryan Caldwell, Dr. Thomas Chen, Tony Hodson. **Dimensions:** Room 1: studio 32 x 30, control room 13 x 16, Room 2: studio 9 x 12. **Mixing Consoles:** Otari Sound Workshop Series 54 36 x 12 x 4 w/Dual Line 72 channels automated, Disk Mix 3 automation. **Audio Recorders:** Otari MX-8024-track, Otari MTR-12 2-track, Otari MTR-10 2-track, Audio Frame DR8 8-channel digital direct-to-disk recorder. **Cassette Recorders/Duplicators:** (2) Nakamichi MR-1, Denon DR-M12HX, Kaba real-time cassette duplication system. **Noise Reduction Equipment:** Dolby SR, Hush IIC, Synchronization Systems: TimeLine Lynx code module. **Echo, Reverb & Delay Systems:** Quantec ORX room simulator, Lexicon 224, Yamaha REV7, Yamaha SPX90II, (2) Yamaha SPX90. **Other Outboard Equipment:** Aphex Compellor, UREI 1178 limiter, Eventide Harmonizer, Valley People Kepex II, Valley People Gain Brain II, Valley People Maxi Q. **Microphones:** Shure, AKG C-12, 414, Neumann U67, U47, Electro-Voice, Sennheiser, Crown PZM. **Monitor Amplifiers:** Bryston 3B, Crown D75. **Monitor Speakers:** Genelec 1022A, Yamaha NS-10, MDM-4, Rogers LS3/5A. **Musical Instruments:** New England Digital Synclavier II system w/polychord sampling, music printing, SMPTE, MIDI nat, video sync, etc., Steinway 6'8" grand piano, Hammond B-3 organ, Alembic bass w/graphite neck, Oberheim DMX drum machine, Roland D-550, Roland MKS-20, Yamaha TX802, Roland MKS-70, Roland D-110, Yamaha TX802, Alembic bass w/graphite neck, assorted bass and guitar amps. **Other MIDI Equipment:** Akai MIDI trigger. **Video Equipment:** JVC 8250 3/4" VTR. **Rates:** Available upon request.

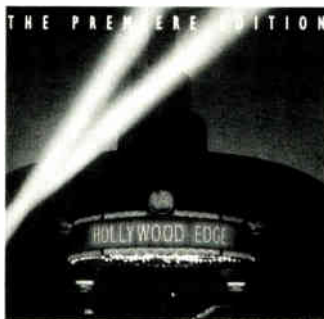


STUDIO D RECORDING INC.
Sausalito, CA

[24+] **STUDIO D RECORDING INC.; 425 Coloma St.; Sausalito, CA 94965; (415) 332-6289. Owner:** Dan Godfrey, Joel Jaffe, Fvie Thompson. **Manager:** Joel Jaffe. **Engineers:** Dr. Richie Moore, Joel Jaffe, Rick Sanchez, Bob Hodas, Karl Derfler, Waits Vereecken. **Dimensions:** Studio 30 x 36 x 20 ceilings and tunable acoustic panels and (3) iso booth 14 x 16 x 8, control room 20 x 20 w/compression ceiling. **Mixing Consoles:** Trident TSM40 x 32 x 32. **Audio Recorders:** Studer A800 MkII 24-track, Ampex ATR-102 2-track, Sony R-DAT. **Cassette Recorders/Duplicators:** Aiwa F770, Aiwa F660, Yamaha KX800. **Echo, Reverb & Delay Systems:** AMS 16 digital reverb, Roland SDE-3000 digital delay, Bel BD80 delay/sampler, Yamaha SPX90II, Yamaha SPX90, Eventide H910 Harmonizer/delay. **Other Outboard Equipment:** (4) EAR B22Q valve program EQ, Pultec MEQ-5, (2) Lang PEO-2, UREI 545 parametric EQ, Valley People International de-esser/1/3-octave EQ, (2) Teletronix LA-2A, (2) UREI 1176LN, (2) UREI LA-4A Model 165 compressor, Drawmer dual gate, (8) Aphex 612 expander gate, (4) Aphex symmetric gate, Sony CD player. **Microphones:** Neumann M49b valve, Neumann U47 valve, (2) Neumann U67 valve, (2) Neumann U87 FET, (2) Neumann U47 FET, (4) AKG C-451ER w/pads, (4) AKG C-414EB, (2) AKG C-

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451EB w/pads, (2) AKG C-452EB w/pads, AKG D-12E, (2) AKG D-200E, (6) Sennheiser MD-421U, Sennheiser MD-441U, E-V 666, E-V RE20, (6) Shure SM57, (4) PZM, (2) Beyer 201N, Sony ECM-50P, **Monitor Amplifiers:** Hafler 500, (5) Hafler 220, Custom Z-link modified. **Monitor Speakers:** Hidley custom, Yamaha NS-10M, Auratone. **Musical Instruments:** Yamaha C7-E MIDI grand, Hammond B-3 organ w/Leslie. **Video Equipment:** TimeLine Lynx modules and all VTR formats available upon application. **Other:** In-house rental items are: LinnDrum LMil, Yamaha DX7, Roland Super Jupiter w/remote programmer, MKS-80, Roland Jazz Chorus amp, Marshall JCM 800, Gallien-Krueger studio amp. **Rates:** Please call for rates. **Specialization & Credits:** Studio D Recording has become known as the Bay Area's foremost tracking facility. With tunable acoustics, 20-foot high ceilings and three big iso booths, our live ambient room sounds are unbeatable. All equipment is maintained in optimum operating condition by chief engineer Dr. Richie Moore and Dr. Gary Shaffer. We also offer clients full kitchen and bath facilities, and a comfortable lounge for that home-away-from-home environment with comfort and privacy. Studio D has had the pleasure of working with such fine clients as Huey Lewis & the News, *Small World*, Bourgeois Tagg, Bruce Hornsby, Starship, KBC Band, Will Ackerman and Windham Hill, Earth, Wind and Fire, Anita Pointer, the Four Tops, Pebbles, Van Morrison, Faith No More, The Looters, Jet Red, Gene Loves Jezebel, Leon Russell, Dan Hicks, Maria Maudauld, J.J. Cale and Hiroshi Kamayatsuo. Thanks to all.

[24+] **SUN VALLEY AUDIO; 808 Warm Springs Rd.; Ketchum, ID 83340; (208) 726-3509; FAX: (208) 726-9694.** **Owner:** Amos Galpin. **Manager:** Randy Young. **Engineers:** Randy Young. **Dimensions:** Room 1: studio 24 x 24, control room 16 x 30. Room 2: studio 10 x 20. **Mixing Consoles:** ICC 9000. **Audio Recorders:** Stephens 24, Ampex ATR-102, Ampex ATR-104, Panasonic DAT 3700, Panasonic DAT 250. **Cassette Recorders/Duplicators:** Akai GX-912, (5) Akai GX-7. **Synchronization Systems:** Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems:** Lexicon PCM60, Lexicon PCM70, Lexicon LXP-1, Lexicon LXP-5, TC Electronic 2290, Eventide 949, Eventide flanger/phasor, Echotron, Aphex 303, (4) Valley Kepex II, Drawmer M500, API Lunchbox, (2) UREI 7110. **Microphones:** AKG Tube, (2) AKG 414, (4) AKG 480B, Shure SM98, (4) Shure 849, (2) Sennheiser MD421. **Monitor Amplifiers:** (2) Hafler 225, (2) PS Audio. **Monitor Speakers:** JBL/TAD custom, Yamaha NS-10M, Auratone. **Musical Instruments:** Akai MPC60, Yamaha DX7II, Korg T3, North drums. **Rates:** \$75 per hour.

[24+] **SURREAL STUDIOS; 355 W. Potter Dr.; Anchorage, AK 99518; (907) 562-3754; FAX: (907) 561-4367.** **Owner:** Kurt Riemann. **Manager:** Kathie Dotten.

[24+] **SWINGSTREET STUDIOS; 620 Bercut Dr.; Sacramento, CA 95814; (916) 446-3088; FAX: (916) 446-3588.** **Owner:** Lauzon/Sillas. **Manager:** Larry Lauzon. **Engineers:** Martin Ashley, Darrell Joe, Larry Lauzon, Phil Sillas, Ty Juanon. **Dimensions:** Studio 34 x 37, control room 21 x 24. **Mixing Consoles:** Quad Eight Pacifica 28 x 24. **Audio Recorders:** MCI JH-16 24-track, (2) MCI JH-110B 2-track, Panasonic SV-3500 R-DAT. **Cassette Recorders/Duplicators:** (2) Technics M-85. **Noise Reduction Equipment:** dbx 28 channels, Hush IIC 2 channels. **Echo, Reverb & Delay Systems:** Lexicon 224, Lexicon PCM70, Lexicon 97 Super Prime Time, Yamaha SPX90, Yamaha D1500, AKG BX-20E, (2) Marshall Time Modulator. **Other Outboard Equipment:** (2) UREI 1176LN limiter, (2) Teletronix LA-2A limiter, (2) Allison Gain Brain limiter, (2) dbx 160 limiter, (2) Quad Eight CL-22 companders, (3) ADR/Scamp expander/gate, ADR/Scamp auto-pan, (2) Gregg Labs 2530 tri-band compressor, (2) Pultec PEO-1S equalizer, Aphex Aural Exciter, BBE 822 Sonic Maximizer, Denon DCE-800 CD player, Technics SL-1200 turntable. **Microphones:** (2) Neumann U47 FET, Neumann U67, (2) Neumann U87, Neumann KM84, (3) AKG C-414EB, (2) AKG C-451, AKG C-34, (3) Crown PZM-30, (3) Electro-Voice RE20, Electro-Voice 654A, Electro-Voice 666, Electro-Voice 667A, Sennheiser 409, (5) Sennheiser MD-421, (2) Shure SM57, (2) Shure SM81, RCA 77-DX. **Monitor Amplifiers:** UREI 6500, Yamaha P2150, McIntosh 2100. **Monitor Speakers:** UREI 813A Time Align, JBL 4333, JBL 4313, JBL 4311, Tannoy PBM-6.5, Auratone 5C. **Musical Instruments:** Yamaha C3 grand piano, Yamaha DX7, E-mu Emax, E-mu Proteus, Roland MKS-70 Super Jupiter, Casio CZ-1000, Roland R-8 drum machine, Alesis HR-16 drum machine, total instrument rental available. **Other MIDI Equipment:** Alesis MMT-8 sequencer, Alesis Data VCR drive. **Video Equipment:** Sony VO-1800 3/4" U-matic VCR, Kenwood KV-917HF VHS Hi-fi VCR. **Other:** Video security system, Lazer Tag, official regulation Nerf hoop.

[24+] **SYNCO INTERNATIONAL GROUP; also REMOTE RECORDING; 511 Sir Francis Drake C-247; Greenbrae, CA 94904; (415) 457-4852; FAX: (415) 456-0202.** **Owner:** Satoshi Suzuki, Ph.D. **Manager:** Dr. Space.

[24+] **TARPAN STUDIOS; 1925-G Francisco Blvd. E.; San Rafael, CA 94901; (415) 485-1999.** **Owner:** Narada Michael Walden. **Manager:** Janice Lee. **Engineers:** David Frazier, Marc Reyburn, Dana Jon Chappelle, Matt Rohr, Doc Shaffer (systems engineer). **Dimensions:** Studio 25 x 35, control room 19 x 18. **Mixing Consoles:** Solid State Logic 4000G 56 x 32 x 56 w/ Total Recall. **Audio Recorders:** Studer A80VU MkIV 24-track, MCI JH-24 16/24-track, (2) Ampex ATR-102 2-track w/SSI



TARPAN STUDIOS
San Rafael, CA

amp (1/2" and 1/4"), (2) Sony PCM-2500 A-DAT. **Cassette Recorders/Duplicators:** (2) Technics RS-B100, Technics RS-B50, Aiwa ADWX909, Nakamichi MR-1. **Synchronization Systems:** Audio Kinetics O Lock 3.1, Roland SBX-80 sync box. **Echo, Reverb & Delay Systems:** (2) AMS RMX 16 reverb, AMS 15-80S digital delay, Sony MU-R201, (2) Yamaha SPX90II, Yamaha SPX900, Lexicon Prime Time, Eventide 949 Harmonizer, Ecoplate I, DeltaLab DL-4 w/memory module, Marshall time modulator, ADA SD-1, anything upon request. **Other Outboard Equipment:** (2) Focusrite 110 module, NTP compressor, BBE 802, dbx 120X-DS, Aphex Compellor, (2) Drawmer gate, (2) Valley People Dyna-Gate, Orban de-esser, Teletronix LA-2A, (4) UREI LA-4 compressor/limiter, Symetrix, (4) Allison Research Kepex and Gain Brain, anything available upon request. **Microphones:** Neumann, AKG, Sennheiser, Beyer, Shure, PZM. **Monitor Amplifiers:** Crown DO-2000 w/Delta Omega module, BGW 750, Crown D-150 Series II, Crown PS-400, Crown Micro-Tech 1000, Crown Micro-Tech 600. **Monitor Speakers:** UREI 813B, Yamaha NS-10MS, Auratone, UREI 811. **Musical Instruments:** Fairlight CMI Series III w/custom library, Roland D-50, Korg M1, Roland R-8 drum machine, Roland MSQ-700, Linn drum machine, Alesis HR-16 and 16B drum machine. **Other MIDI Equipment:** Kahler Human Clock. **Video Equipment:** Mitsubishi 35" color monitor w/RGB, NEC DX-2000U VHS player. **Other:** Sony CDP-310, and CDP-550 CD players, Denon DP-30II turntable w/Shure V15 cartridge. **Rates:** Please call for rates. **Specialization & Credits:** Narada, Whitney Houston, Aretha Franklin, Eddie Murphy, Barbra Streisand, Quincy Jones, Regina Belle, D'Atra Hicks, Gladys Knight, Four Tops, Mick Jagger, Patti LaBelle, Clarence Clemons, June Pointer, Mariah Carey, Natalie Cole, Freddie Jackson, Pia Zadora.

[24+] **TELEMATION; also REMOTE RECORDING; 1200 Stewart St.; Seattle, WA 98101; (206) 623-5934; FAX: (206) 682-0353.** **Owner:** HSN Communications. **Manager:** Kurt Horn. **Engineers:** Gordon R. Glascock, qualified independent engineers available. **Dimensions:** Studio: 16 x 13. Control room: A: 12 x 20. Control room B: 15 x 13. **Mixing Consoles:** Neve 5116 24 x 24 x 4, (3) Neve 5432 8 x 2, Audio Developments. **Shure. Audio Recorders:** Studer A800 MkII 24/16-track 2" multitrack, Nagra T 1/4" center channel time code, MCI JH-110 1/4" 1/2-track, 1/2" 4-track, (2) Ampex ATR-800 1/4" 1/2-track, 1/2" 4-track, (4) Ampex high-speed 1/4" duplicator, Magna-Tech 35mm/16mm recorder. **Cassette Recorders/Duplicators:** (2) Nakamichi MR-1, (9) 3M high-speed duplicator. **Noise Reduction Equipment:** (2) Dynaflex single-ended. **Synchronization Systems:** O Lock 310 w/ADR. **Echo, Reverb & Delay Systems:** Lexicon 480L w/2 LARC controllers, EMT 190 plate reverb, Eventide H3000 Ultra-Harmonizer, Yamaha SPX90, Ursa Major Space Station. **Other Outboard Equipment:** (4) Neve compressor/limiter, Audio & Design vocal stresser, BBE 802, Orban 622B parametric EQ, Orban de-esser, (6) UREI graphic EQ, (6) UREI LA-4A, (3) time code generator, Technics turntable, Denon CD player. **Microphones:** (2) Neumann U87, (2) Neumann KM84, (2) AKG 414EB, (2) RCA 77-D reconditioned, (2) Crown PZM, E-V RE20, Sennheiser 816, Sennheiser 416, Sennheiser K2U, (4) Tram lavalier, (2) Sony ECM-50 lavalier. **Monitor Amplifiers:** BGW, Hafler. **Monitor Speakers:** Tannoy, UREI 809, Altac 604E, Yamaha NS-10M, Auratone 5C. **Musical Instruments:** Yamaha C7 grand piano, most instruments, synthesizers, sequencers and samples available. **Other MIDI Equipment:** Available upon request. **Video Equipment:** (2) 2CMX 3400A interformat edit bay, (2) Betacam recorder, (2) Beta SP recorder, (9) 1" recorder, (3) D-2 recorder, (2) Abekas A-72 character generator, ADQ, Basch FDL60B Telecine, DiVinci color correction, 38 x 60 x 16 stage w/Betacam 7 Beta SP capability, Artstar 3-D graphic and paint system, Nagra T-field tape resolution to videotape, full videotape duplication available. **Rates:** Call for quote. Special night rates available. **Specialization & Credits:** Telemation Productions offers complete production services from concept to distribution, all under one roof. We have the most extensive collection of music libraries in the Pacific Northwest, and our sound effects library includes the

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[24+] THEOCRATIC RECORDS; also REMOTE RECORDING; PO Box 15; O'Brien, OR 97534; (503) 596-2180. Owner: Karl Goldstein, Jahn Levin. Manager: Luna Dove.

[24+] TIKI RECORDING STUDIOS; also REMOTE RECORDING; 195 S. 26th St.; San Jose, CA 95116; (408) 286-9840; FAX: (408) 286-9845. Owner: Gracie O'Neal. Manager: Jeannine O'Neal. Specialization & Credits: Specializing in album and single production work in all styles of music from country, rock, heavy metal, contemporary, Christian, gospel, top 40, high energy, new age, R&B, European jazz and reggae. All styles of Mexican, Chinese, Indian and Brazilian with in-house producers, arrangers and musicians with chart-proven results. Cassette duplication (real time or high speed) and DAT. Record pressing: LP, 45 RPM singles, 12" singles and CD manufacturing available. Two 24-track recording studios. Large string-and-horn room, extra-large drum room, 9' i-bach concert grand. Publishing companies for BMI and ASCAP. Music telemarketing, recoding mailing and promotion. Radio and television commercials.

[24+] T.J. RECORDING STUDIO INC.; also REMOTE RECORDING; 2718 E. 96th St.; Tacoma, WA 98445; (206) 537-0123. Owner: Thomas J. Landon (T.J.). Manager: Debbie Landon.



**TRIAD STUDIOS
Redmond, WA**

[24+] TRIAD STUDIOS; also REMOTE RECORDING; 4572 150th Ave. NE; Redmond, WA 98052; (206) 881-9322. Owner: Full Scale Inc. Manager: Chris Middaugh, receptionist Carol Ann Rathbun. Engineers: Lary "Larz" Netzger, Tom Hall, Michael Tortorello, Dave Dysart, Gary Thompson. Dimensions: Room 1: studio 40 x 24, control room 19 x 24; room 2: studio 35 x 23, control room 16 x 19. **Mixing Consoles:** Mitsubishi Westar 52-input w/DiskMix moving fader, Neotek III C modified 36-input w/DiskMix moving fader. **Audio Recorders:** (2) Sony/MCI JH-24 24-track, Ampex 440B 4-track 1/2" w/various heads, Otari MTR-12-2 2-track w/center track time code, Sony/MCI JH-110B 2-track w/1/2" and 1/4" heads, Sony 2500 DAT, Ampex ATR-100 2-track w/1/2" and 1/4" heads, Pioneer PT-701 1/4-track 1/4". **Cassette Recorders/Duplicators:** TEAC C3X, Aiwa F660, (22) KABA real-time duplicator, Akai CX-912, (3) Nakamichi MR-1B. **Noise Reduction Equipment:** (2) Dolby SR. **Synchronization Systems:** (6) TimeLine Lynx. **Echo, Reverb & Delay Systems:** Lexicon 224XL, (2) Klark-Teknik DN780, (2) EMT 140TS plate reverb, Yamaha REV5, (3) Yamaha SPX90II, (2) TC Electronic 2290 digital delay, Lexicon PCM70, (2) Eventide H3000 Ultra-Harmonizer, (2) Lexicon Super Prime Time, (2) Lexicon PMC41 (2) Eventide H910 Harmonizer, (3) Alesis Microverb. **Other Outboard Equipment:** ADR Panscan, (2) Aphex Compellor (stereo), ADR F760X Compex/limiter, (4) dbx RM160 compressor/limiter, (2) BBE 802 Sonic Maximizer, (12) Valley People Kepex II gate, (2) Valley People de-esser, (2) Drawmer 201 gate,

(2) UREI 1176, (3) Teletronix LA-2A, (2) API 550 EQ, B&B EQF-2, Pultec EQH-2, Orban 586A de-esser, Klark-Teknik DN-60 spectrum analyzer. **Microphones:** (16) AKG, (11) Neumann, (2) B&K 4006, (5) Sennheiser, (7) Shure, (5) Electro-Voice, (3) Sony C-37A tube. **Monitor Speakers:** (4) PAS SM-1 w/Mastering Lab mods, (4) Tannoy SGM-10B, (4) Yamaha NS-10M. **Musical Instruments:** Yamaha C7D grand piano, (2) Akai S900, Roland D-550, (2) Roland MKS-70, (2) Yamaha TX802, (2) Alesis HR-16 drum machine, (2) E-mu Emulator Emax, Yamaha DX7, E-mu SP-12 drum machine, E-mu Emulator E-II, ADA MP-1, Oberheim Matrix-1000, Oberheim DPX-1, Gretsch drumset. **Other MIDI Equipment:** (2) Macintosh Plus computer w/MIDI interface, (2) Opcode SMPTE time machine, Mark of the Unicorn, Performer and Composer. **Video Equipment:** (2) Sony BVU-800 3/4" recorder, (2) NEC DX-2500U 1/2" VHS-HQ Dolby stereo VCR. **Other:** (2) Mark of the Unicorn MIDI software, Sound Ideas complete SFX library on CD. **Rates:** Our rates are reasonable and competitive. Please call. **Specialization & Credits:** Satisfied clients include Steve Miller, Denise Williams, Michael Tomlinson, Heir Apparent, Eric Tingstad, UB40, Queensryche, Randy Meisner, Uncle Bonsai, Tim Noah. Nestled in evergreens, minutes from downtown Seattle. Complete subcontracting, equipment rental and hospitality services available. Large video soundstage nearby. For nine years, we've been called the best-sounding studio north of San Francisco; our 1988 upgrade made Triad a truly world-class facility. Triad prioritizes your creative comfort in everything from the ergonomics of the MIDI workstations to the gourmet coffee in the kitchenette and lounge areas. State-of-the-art studios are balanced with warm, contemporary design elements. Award-winning rooms, outstanding engineers, sensitive support staff and attractive rates make Triad worth the trip from anywhere.

[24+] TRUE NORTH RECORDING STUDIO; PO Box 81485; Fairbanks, AK 99708; (907) 456-3419. Owner: Michael States. Manager: Michael States.

[24+] DAVE WELLHAUSEN STUDIOS; 1310 20th Ave.; San Francisco, CA 94122; (415) 564-4910. Owner: Dave Wellhausen. Manager: Janet Wellhausen. Engineers: Dave Wellhausen, Gary Mankin, John Altmann, Mark Needham, Stevie Heger, Marc Senasac, Stuart Hirotsu. **Dimensions:** Studio 25 x 15 w/iso booth, control room 15 x 15. **Mixing Consoles:** Sound Workshop 34C w/ARMS and DiskMix, 32 inputs—52 inputs in mixdown. **Audio Recorders:** MCI JH-24 w/24 and 16-track heads, Otari MTR-12, Otari MX-5050, Sony TCD-10 Pro DAT machine. **Cassette Recorders/Duplicators:** (2) Aiwa. **Noise Reduction Equipment:** (2) Dolby spectral recording on MTR-12. **Echo, Reverb & Delay Systems:** Lexicon 224XL digital reverb, Eventide H3000 Harmonizer, Eventide 910 Harmonizer, Roland DEP-5, Roland SRV-2000, Yamaha SPX90, Yamaha D1500, Lexicon Prime Time digital delay, Marshall time modulator, DeltaLab ADM 1024, DeltaLab ADM 64, Alesis Microverb, Roland SDE 3000, Roland DSE 1000. **Other Outboard Equipment:** Drawmer gate, (2) Valley People Dyna-Mite, ADR Vocal Stresser, (2) UREI 1176 limiter, (2) UREI LA-4 limiter, Aphex Compellor, (2) SAE graphic equalizer, Symetrix gates, (4) Massenburg microphone pre-amp, (2) Massenburg EQ, Aphex Aural Exciter. **Microphones:** (2) Neumann U87, Neumann KM84, (2) AKG 414EB, (3) AKG 451, (2) AKG 460B, (2) AKG D-12, (4) Electro-Voice RE20, (2) Electro-Voice RE 15, (5) Sennheiser 421, Sennheiser 441, (5) Shure SM57, Shure SM58, (4) Countryman direct box, Countryman EM101, Beyer M201, Sony C-36P, (4) Crown PZM. **Monitor Amplifiers:** Symetrix A220 (headphones), BGW 100, AB Systems Precendent Series 600, BGW 250. **Monitor Speakers:** (2) Westlake BBSM8, (2) Yamaha NS-10M, (2) Auratone. **Musical Instruments:** E-mu Emax HD sampler w/over 3,000 voices, Yamaha C3 6' conservatory grand piano, Yamaha DX7, Yamaha RX5 drum machine, Roland MKS-30, Roland TR-707 drum machine, Les Paul, Fender Precision bass, Casio CZ-101, Midi Bass, Roland Octapad. **Other MIDI Equipment:** Macintosh SE w/Performer software and SMPTE-MIDI interface. **Rates:** Call for rates.

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16 TRACK

STUDIOS

[16] **AVAST RECORDING CO.**; also *REMOTE RECORDING*; 1325 N. 46th St.; Seattle, WA 98103; (206) 633-3926. Owner: Stuart Hallerman. Manager: Stuart Hallerman.

[16] **ROBERT BERKE SOUND**; 50 Mendell St. #11; San Francisco, CA 94124; (415) 285-8800; FAX: (415) 285-8847. Owner: Robert Berke. Manager: Mark Escott.

[16] **COUNTRY REEL ENTERPRISES**; also *REMOTE RECORDING*; PO Box 99307; Stockton, CA 95209; (800) 662-4432; (209) 473-8050; FAX: (209) 473-8090. Owner: Dana C. Copenhagen. Manager: Gary Williams.

[16] **DANCING DOG RECORDING STUDIO**; 1500 Park St. #B210; Emeryville, CA 94608; (415) 655-6760. Owner: David Bryson and Lydia Holly. Manager: Damien Rasmussen.

[16] **HOME STUDIOS**; 1912 Gilmore Trail; Fairbanks, AK 99712; (907) 457-1993. Owner: Gerald Ratson. Manager: Ron "Rif" Ratson. Engineers: Rif Ratson, Jerry Ratson. Dimensions: Studio 460 sq.ft. (irregular polygon), control room 150 sq.ft. Mixing Consoles: Hill B-324 x 8 x 2, Tascam Model 3 8 x 4 x 2. Audio Recorders: Tascam MS-16 16-track, Tascam 80-8 8-track, TEAC 334DS 4-track, Technics RS1500US 2-track, Pioneer RT 1050 2-track, Panasonic SV-3500 DAT. Cassette Recorders/Duplicators: Tascam 122B. Technics. Noise Reduction Equipment: dbx, Symetrix 511. Echo, Reverb & Delay Systems: ART ProVerb. DL-2 Acoustic Computer, AKG BX-5 reverb, Yamaha SPX90. Other Outboard Equipment: Orban 622B parametric equalizer, Rane GE-27 graphic equalizer, Rane RE-27 real-time equalizer, (2) Furman LC-2 comp/limiter, Yamaha GC2020 comp/limiter, Aphex Type C Aural Exciter, Valley People 4-channel gate. Microphones: Neumann U47 tube, Beyer, Shure, Sony, AKG, Crown PZM, Audio-Technica, Toa, Calrec, Peavey, Countryman direct boxes. Monitor Amplifiers: Hafler, Crown, Rane HC-6 headphone amp. Monitor Speakers: Klipsch Cornwalls, JBL 4313, Auratone. Musical Instruments: Yamaha DX7, Yamaha QX7, Alesis HR-16 drum machine, E-drums, MIDI bass, electric and acoustic bass, guitars, upright grand piano. Other: Macintosh SE with Jam Box/4 and MidPaint. Rates: Upon request.

[16] **EMERALD CITY PRODUCTIONS**; also *REMOTE RECORDING*; 512 Lisbon St.; San Francisco, CA 94112; (415) 469-8453. Owner: Cody Gillette. Manager: Cody Gillette. Engineers: Craig Griffeath, Reine Bensaid, Bill Williams. Dimensions: Studio 14 x 19, control room 11 x 15. Noise Reduction Equipment: dbx, Dolby SR. Synchronization Systems: Performer. Echo, Reverb & Delay Systems: Lexicon PCM60, Yamaha SPX90, Roland SDE-3000. Other Outboard Equipment: Aphex Aural Exciter, MXR dual 15-band EQ, DigiTech DSP-128, Valley People Dyna-Mite, Symetrix limiter, UREI 1176 limiter. Microphones: Neumann U87, E-V RE20, AKG 460, AKG 501, Sennheiser 411/421, Sony ECM-56P and more. Monitor Amplifiers: Crown D-150A, Crown D-100A. Monitor Speakers: Tannoy, Yamaha NS-10, Auratone. Musical Instruments: Steinway 6" grand piano, Kurzweil 1000 Series, Korg M1R, Roland GP-16, S-330 sampler, Vocoder, RD-300. Other MIDI Equipment: Macintosh SE with Performer, Coda Finale, Soundtool. Rates: Please call for rates.

[16] **EYE IN THE SKY SOUND**; also *REMOTE RECORDING*; 4315 Co. Rd. 54G PO Box 642; La Porte, CO 80535; (303) 482-3947. Owner: Randy Miotke. Manager: Randy Miotke.

[16] **GLOBE STUDIOS**; also *REMOTE RECORDING*; 16 Locust Ave.; Mill Valley, CA 94041; (415) 381-1702. Owner: T. Eschliman, P. Rogers, A. Delone. Manager: Tim Eschliman.

[16] **HIGHLAND STUDIO**; PO Box 554; Los Gatos, CA 95031; (408) 353-3952. Owner: Joe Weed. Manager: Joe Weed.

[16] **HOMETOWN ARTISTS RECORDING**; also *REMOTE RECORDING*; 120 W. 5th St.; Rifle, CO 81650; (303) 625-3421; FAX: (303) 625-3421. Owner: Lee S. and Roberta M. Gillespie. Manager: Lee S. Gillespie.

[16] **MAGIC SOUND**; also *REMOTE RECORDING*; 1780 Chanticleer Ave.; Santa Cruz, CA 95062; (408) 475-7505. Owner: Alan Goldwater. Manager: Alan Goldwater. Engineers: Alan Goldwater, Merle Sparks, Richard Karst. Dimensions: Studio 16 x 20 x 12 (asymmetrical wedge ceiling), isolated drum room 12 x 14, booth 5 x 6 x 7, control room 12 x 14

x 16. Mixing Consoles: Studio A: custom 36 x 8 separate 16-track fully equalized monitor, section, full patch bay, API 550 mixboard EQ. Studio B: Allen & Heath CMC 24. Audio Recorders: Studio A: MCI/Inovonics JH-16 15/30 ips, Rockwell computer autolocator, Ampex AG440 2-track 15/30 ips, Otari MX-5050 2-track, Sony PCM-701 2-track digital, Studer Dyaxis digital workstation. Studio B: Fostex B-16 30 ips, Panasonic SV-3500 DAT. Cassette Recorders/Duplicators: (2) Kenwood KX 1060. Echo, Reverb & Delay Systems: Ecoplate II multitrack reverb, Marshall Time Modulator, Roland Space Echo, Lexicon Prime Time II, Lexicon PCM60, PCM70, PCM200. Other Outboard Equipment: (2) Universal Audio 175B tube limiter, Allison Gain Brain, Roger Mayer noise gates, (8) API 550A EQ, (2) UREI LA-4 limiter, Thorens/Rabco disc player, Eventide Harmonizer. Microphones: Neumann KM54a, Neumann U67, (2) AKG 414EB, AKG C-451, AKG D-190, AKG D-160, AKG D-12, AKG C-28A (tube), Beyer M260, (2) Beyer X1N, (2) Sennheiser MD-421, Shure SM57, Shure SM58, Shure SM81 (several each), Sony C-377, Sony C-22, Sony C-37A (tube), Al M30s (tube), RCA BK5 (ribbon), (2) AKG C-61A tube, AKG C-12 (tube), Shure SM7. Monitor Amplifiers: Hafler 250. Monitor Speakers: Altec/JUREI 811, White 4100 EQ, Yamaha NS-10M, Sennheiser and AKG headphones. Musical Instruments: E-mu E III, Drumulator, Guild F30, Danelectro and Rickenbacker 12-string guitars, Fender Princeton and Deluxe amps, Polytone amps, CB drums w/Zildjian cymbals, E-mu Drumulator w/computer sequencer. Video Equipment: Panasonic NV8200 w/computer search, Panasonic 8500 VHS editing system. Rates: \$40/hr. 16-track 2"; \$35/hr. 1/2" or block (10 hrs. or more); \$30/hr. 8-track; \$30 block; \$30/hr. 2-track and editing; 1-hour free setup. Above rates include engineer and instruments.

[16] **MEDIA WORKS**; also *REMOTE RECORDING*; (BOX 15) 1250 Huff Ln.; Jackson, WY 83001; (307) 733-1300; FAX: (307) 733-1324. Owner: Jeff McDonald. Manager: Jeff McDonald.

[16] **M.I.P. PRODUCTIONS**; also *REMOTE RECORDING*; 3013 E. Monte Vista Ave.; Denver, CA 95316; (209) 632-8415; FAX: (209) 668-7673. Owner: Gary L. Shriver. Manager: Rick Barnes.



NACNUD SOUND
Lodi, CA

[16] **NACNUD SOUND**; 6748 Hogan Ln.; Lodi, CA 95240; (209) 334-2845. Owner: Richard Duncan. Manager: Richard Duncan. Engineers: Rick Duncan, Mark Zarek. Dimensions: Studio 20 x 40, control room 22 x 12. Mixing Consoles: Soundtracs MR Series 32 x 8 x 16 x 2. Audio Recorders: Tascam MS-16 16-track w/autolocator, Otari MX-5050 1/2-track master w/remote, Sony PCM-2500 R-DAT. Cassette Recorders/Duplicators: Yamaha C3000, Nakamichi MR-2. Noise Reduction Equipment: dbx 16 tracks. Synchronization Systems: Yamaha MSS-1, Performer SMPTE. Echo, Reverb & Delay Systems: Yamaha REV5, Yamaha SPX900 w/remote, Lexicon PCM70, Lexicon Prime Time II DDJ, Eventide H3000 Harmonizer, AKG BX-20, Alesis Quadraverb. Other Outboard Equipment: Valley People rack w/Gain Brain/Max EQ/KepeX/Commander/DSP, dbx 160, Aphex Aural Exciter, Furman compressor, Crown parabolic EQ. Microphones:

Neumann U87, AKG 414, AKG 441, AKG 442, Sennheiser 421, Shure SM81, Shure SM58, Shure SM57, Sony ECM-230F. Monitor Amplifiers: Hafler D-500, Yamaha PC260ZM, Rane H-6 headphone amp, hi-watt custom 30W combo. Monitor Speakers: Westlake BB-SM10, Yamaha NS-10M, Auratone, Yamaha and Sony headphones. Musical Instruments: Yamaha KX88, Yamaha DX7II/FDE, Yamaha TX-816 rack, Oberheim Expander, Oberheim DPX-1 sample playback of Mirage/Prophet-2000/E-2, Roland D-50, Roland MKS-20 digital piano, Roland Super Jupiter, Moog MiniMoog complete w/MIDI interface, E-mu SP-12 drum machine, Emulator Proteus, Korg M3R, Korg Wavestation, complete stereo guitar rack system, Ibanez guitar, complete Yamaha rack bass system, Yamaha 7-pc recording series drums, Zildjian and Sabian cymbals, SWR studio bass system, Fender, Yamaha and Tobias basses, Rockman Pro-Gap. Other MIDI Equipment: Macintosh Plus w/Performer sequencer/editing/sound libraries, Opcode MIDI interface, Jasmine 20MB HD, Sycologic 32 x 32 MIDI switcher, Universe of Sound CD-ROM library. Rates: Available upon request. Specialization & Credits: At Nacnud Sound we specialize in custom original production. We offer producers, engineers, arrangers, musicians of only first-rate quality for the San Joaquin Valley. Our studio is located in a peaceful of nature surrounding perfect for creative endeavors. You will find a diverse selection of acoustic and electronic capabilities available to give the musician, singer, songwriter and producer the most flexible work environment in which to realize projects with a minimum of effort and cost. Nacnud Sound is a musician-owned and operated facility with a strong emphasis on musical and technical co-existence. With an emphasis on album, cassette and demo production, we have produced jazz, classical, rock, contemporary Christian, country and many other styles of music. Look for expansion in Nacnud Sound in the coming months to keep pace with our clients' ever-changing needs. We hope to work with you in the future on a most enjoyable and creative project.

[16] **NIGHTWIND PRODUCTIONS**; also *REMOTE RECORDING*; 60 Monument Plaza; Pleasant Hill, CA 94523; (415) 827-0200; FAX: (415) 827-1390. Owner: Bob Peacock, Donna Stewart. Manager: Bob Peacock. Specialization & Credits: At Nightwind Productions we offer direct-to-disk digital recording with producer and engineer services. For more extensive projects we offer MIDI and digital computer recording and editing. We produce music for television and radio commercials and can also provide budget video production services with digital stereo sound.

[16] **OREGON SOUND RECORDING**; 125 S. Central, Ste. 209; Medford, OR 97501; (503) 773-3292; FAX: (503) 779-8970. Owner: Michael McCoy. Manager: Sean McCoy. Engineers: Sean McCoy, Ray Mikota. Dimensions: Studio 13 x 12, control room 16 x 17. Mixing Consoles: Ramsa WR-T820 2-channel, Rane SM82 16-channel. Audio Recorders: Otari MX-70 16-track, Otari MX-5050B II 2-track, Otari MX-5050 2-track. Cassette Recorders/Duplicators: Tascam 1112, JVC TD-V66. Noise Reduction Equipment: dbx 180A 16-channel. Synchronization Systems: J.L. Cooper PPS-100 SMPTE-to-MIDI converter. Echo, Reverb & Delay Systems: Ecoplate II modified, Lexicon LXP-1, Alesis MIDIVerb II, DeltaLab Efectron II digital delay, Yamaha SPX90 multi-effects unit, Lexicon LXP-5, Alesis Quadraverb, Alesis Microhancer signal enhancer. Other Outboard Equipment: (2) dbx 160X, Symetrix SX206 dynamic processor, Omni Craft GT-4A 4-channel gate, Alesis Microlimiter compressor/limiter, Alesis Microgate 2-channel gate, Symetrix SX 203 telephone interface. Microphones: Neumann U87, (2) AKG 414EB, AKG 451, (2) Sennheiser 421, Beyer M160, (2) Crown PZM, Shure SM58, Shure SM94, (4) Shure SM57. Monitor Amplifiers: Carver PM600, Rane HC-6 headphone amp, Sony TAN-5550. Monitor Speakers: JBL 4311, Realistic Minimus 2.5, Boston Acoustics A40. Musical Instruments: E-mu Emax SE, Roland U-20, Yamaha DX7, Ensoniq Mirage, Oberheim Matrix-1000, Roland D-70, Kawai K4, Yamaha TX812, Alesis HR16, Kurzweil 1000PX, Roland Octapad, Korg Poly-61, Moog MiniMoog, Kawai 5'9" grand piano, miscellaneous standard and exotic percussion. Other MIDI Equipment: Alesis MMT-8 sequencer, 100+ various disk Emax system, Turtle Beach Sample Vision IBM editor, Triton sound software for Mirage. Other: (20) CDs Hollywood Edge Premiere Edition SFX library, (40) CDs Network SFX library, (60) CDs Network, APM, Omni music Libraries, Sony CDP-790 CD player. Rates: \$45/hour and down, MIDI studio included. \$35/hour straight voice-over work.

[16] **PACIFIC LUTHERAN UNIVERSITY—AUDIO SERVICES**; also *REMOTE RECORDING*; 121st and Park Ave.; Tacoma, WA 98447; (206) 535-7268; FAX: (206) 535-7799. Owner: Pacific Lutheran University. Manager: Bob Holder/Jeffrey Bruton.

[16] **PAN STUDIOS INC.**; also *REMOTE RECORDING*; 530 Communications Cir. #203; Colorado Springs, CO 80905; (719) 633-6764; FAX: (719) 633-6752. Owner: Dale Nixon. Manager: John Standish.

[16] **PLH SOUND**; 4140 Gilbert St.; Oakland, CA 94611; (415) 654-0180. Owner: Bill Lackey. Manager: Bill Lackey.

[16] **PYRAMIND SOUND—A SAN FRANCISCO AUDIO NETWORK RECORDING STUDIO**; 39 Gilbert St.; San Francisco, CA 94103; (415) 863-8565. Owner: Gregory Gordon, Keith Moreau. Manager: Gregory Gordon.

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MIX

16 TRACK STUDIOS

[16] **RAINBOW RECORDING;** also REMOTE RECORDING; 6614 SW Garden Hm. Rd.; Portland, OR 97223; (503) 246-5576. Owner: Gailen Hegna. Manager: Sean Moody.

[16] **THE RECORDING CENTER;** also REMOTE RECORDING; 118 W. Pine St.; Missoula, MT 59802; (406) 721-4172. Owner: Richard H. Kuschel.

[16] **DON ROSS PRODUCTIONS;** also REMOTE RECORDING; 3097 Floral Hill Dr.; Eugene, OR 97403; (503) 343-2692. Owner: Don Ross. Manager: Don Ross.

[16] **SOUND & VISION;** also REMOTE RECORDING; 684 Indiana St.; San Francisco, CA 94107; (415) 821-2321. Owner: Neal Brighton/Michael Molenda. Manager: Michael Molenda. Engineers: Neal Brighton, Frank Macchia, Michael Molenda, Molly Persons, Buddy Saleman, Jerry Stucker. Dimensions: Room 1: studio 39 x 15, control room 35 x 15. Room 2: control room 20 x 15. **Mixing Consoles:** Trident Model 65, Soundtracs MR Series 32-channel, Tascam MM1, Toa D4/D4E. **Audio Recorders:** Tascam M516 1" 16-track 15 ips with dbx, Tascam 80-8 1/2" 8-track 15 ips, Tascam Model 32 1/4" 2-track 15 ips, Sony PCM-501ES stereo digital processor (FI format). **Cassette Recorders/Duplicators:** (5) Onkyo TA2120. **Synchronization Systems:** Opcode Timecode machine (MIDI-SMPTE converter). **Echo, Reverb & Delay Systems:** (2) Alesis Quadraverb, Alesis MIDIVerb II, (2) ART Multiverb II, Lexicon PCM42, Lexicon PCM60, Lexicon LXP-1, Roland DEP-5, Roland SDE-3000 digital delay, Roland SDE-1000 10-track digital delay, (2) Yamaha REV7, (2) Yamaha SPX90. **Other Outboard Equipment:** Aphex Dominator, (2) dbx 166 stereo compressor, (2) dbx 263X de-esser, (2) dbx 563 Silencer, Furman Quad noise gate, (3) Symetrix 544 Quad noise gate, (2) Symetrix 522 stereo compressor/limiter/noise gate/ducker, Yamaha Q2031 stereo graphic EQ. **Microphones:** (2) AKG 414, (2) AKG 451, (2) Audio-Technica AT18, Electro-Voice RE 20, (4) Sennheiser 421, (5) Shure SM57, (2) Shure SM58, Sony ECM-33F. **Monitor Amplifiers:** AB Systems Series 600, Symetrix HA-10 headphone amp. **Monitor Speakers:** Tannoy SGM-10B Super Gold, Yamaha NS-10M, TOA 280-ME. **Musical Instruments:** Packard baby grand piano (100 years old), (3) Prophet-2002, Prophet-VS, Oberheim DPX1, Oberheim Matrix 6R, Ensoniq Mirage, Roland U-220, Roland D-550, Roland Juno 2, Rhodes Chroma, Kawai K1m, Casio CZ-101. **Other MIDI Equipment:** Macintosh with Performer sequencing software. **Video Equipment:** JVC RM-86U off-line editor, JVC BR-6400U 1/2" VHS, JVC BR-8600U 1/2" VHS, RCA 3/4", Sony VP-2011, Commodore 1702 monitor, Sony Trinitron KK-1901A. Rates: 16-track rates (studio): \$25-\$40 per hour. 8-track rates (studio): \$20-\$30 per hour. 8-track mobile (location) recording: please call.

[16] **JACK STRAW PRODUCTIONS;** also REMOTE RECORDING; 4261 Roosevelt Way NE; Seattle, WA 98105-6999; (206) 634-0919; FAX: (206) 634-0925. Owner: The Jack Straw Foundation. Manager: Charles Hamilton. **Specialization & Credits:** Jack Straw Productions is a non-profit studio complex dedicated to serving recording artists in the Northwest. We offer full-service 4- and 16-track rooms at rates that reflect our interest in serving all facets of the arts community. Studio One is one of the most attractive acoustic spaces in Seattle. It's ideal for ensemble recording and other situations that require a large, warm room. This 16-track room features equipment by Harrison, Nagra, Tascam and Eventide. Studio Two is an Otari-based 4-track room oriented towards radio production. Remote recording services are available and feature Sonosax, Parasonic, B&K and Mogami gear. Also available is an analog edit facility for pre-production. Our staff includes engineer Doug Haire and executive producer Joan Rabinowitz. Jack Straw Productions is a comfortable facility designed to serve as a focal point for the creative recording of music, drama and the sonic arts.

[16] **STUDIO CENTER SAN JOSE;** also REMOTE RECORDING; 434 S. First St.; San Jose, CA 95113; (408) 993-1040; FAX: (408) 993-1056. Owner: Corporation—Centerpoint Communications Group. Manager: Jerry McReynolds.

[16] **STUDIO 5 RECORDING;** 13400 Northup Way, Ste. 2; Bellevue, WA 98005; (206) 643-1755. Engineers: Thad Crowe—chief engineer, Bill Levey, Kirk Hulse. Dimensions: Studio 12 x 8, control room 12 x 12. **Mixing Consoles:** Amek Matchless 26 x 24 x 8 x 2, Ramsa WR-8210 monitor mixer. **Audio Recorders:** Sony MCI JH-24-16 with Autolocator III, Sony 5003V 2-track with center band time code, Otari MX-5050MK III 2-track 1/4" with CB1160 remote, Otari MX-5050B 2-track 1/4", Otari MX-5050MK 4-track 1/2". **Cassette Recorders/Duplicators:** Yamaha C-300 with remote, (2) SAE C102 with remote. **Echo, Reverb & Delay Systems:** Lexicon PCM 70 digital reverb/efx processor, Eventide 969 harmonizer, (2) DeltaLab CE 1700 Compu-effectron, (2) Symetrix 501 compressor/limiter, (2) Symetrix 522 stereo compressor/expander/gate/ducker, Symetrix SE-400 stereo parametric EQ,

Rane GE14 stereo graphic EQ, (2) Audio & Design Scamp rack. **Other Outboard Equipment:** Symetrix TI 101 telephone interface, Sony CPD 550 CD player with remote. **Microphones:** (2) Neumann U82, (2) AKG 451, (2) Sennheiser 441, Sennheiser 421, Beyer M500. **Monitor Amplifiers:** UREI 6250, UREI 6150, Hafler PRO230, Crest 901, Symetrix A-220, Rane HC-6. **Monitor Speakers:** (2) Westlake BB5M-10, (2) Tannoy PBM-8, (2) Yamaha NS-10M, (2) Auratone Cubes, (2) JBL 4408 studio monitor, (2) JBL 4301. **Musical Instruments:** Roland MPU 401, Roland Pad 8 MIDI percussion controller, Yamaha KX88 keyboard controller, (2) Roland S-550 sampler with video monitor, Roland 5-50 LA synthesizer, Yamaha TX802 8-voice 4-operator rack module, Yamaha TX16W sampler, Yamaha DX7, Yamaha RX11, Roland PG-1000 editor. **Other MIDI Equipment:** Compaq DeskPro 386 with 40 MB hard drive 1.2 Mb, Yamaha MJC8 MIDI patch bay, Voyetra sequencer plus MkIII V. 4.0, Voyetra patch master plus libranan, Voyetra Sideman DTX editor, music printer plus music scoring/publishing, Barcus-Berry TX802 editor. **Other:** AKG K-240 headphones, Technics SP-15 direct drive turntable.

[16] **TIME CAPSULE RECORDING;** also REMOTE RECORDING; 1042 Perry St.; Denver, CO 80204; (303) 534-6977. Owner: James Jackson. Manager: T. J. Jackson. Engineers: Jim Jackson, T. J. Jackson (service tech.), Kirby Orlick. Dimensions: Room 1: studio 36 x 20, control room 22 x 14, Room 2: studio 24 x 20, Room 3: studio 14 x 20, Room 4: studio 11 x 12. **Mixing Consoles:** Tascam M-520 20 x 8 x 16 x 2, Tascam M-320 20 x 4 x 8 x 2, TEAC Model 3 8 x 4 x 2, Fostex 2050 8 x 8 x 2, Shure M267 4 x 1. **Audio Recorders:** Fostex E-16 16-track, Tascam 38 8-track, TEAC 3440S 4-track, Tascam 32 1/2-track, Nakamichi DMP-100 digital 2-track. **Cassette Recorders/Duplicators:** Technics RS-B100, Tascam 122B. **Noise Reduction Equipment:** (2) Tascam DX-4D 4-channel dbx noise reduction, Tascam DX-2D 2-channel dbx noise reduction. **Synchronization Systems:** J. L. Cooper PPS-100 SMPTE/MIDI, Passport MIDI to tape sync unit. **Echo, Reverb & Delay Systems:** Yamaha REV7 reverb/effects, Lexicon PCM60 reverb, (3) Yamaha SPX900, (2) Yamaha SPX90II, Yamaha SPX50D, ADA 640 digital delay, Alesis MIDIVerb. **Other Outboard Equipment:** (6) Tascam PB-64 patch bay, (2) Orban 672A graphic parametric EQ, Yamaha GQ1031B single-channel 31-band EQ, Yamaha GQ2031B dual-channel 31-band EQ, Yamaha GE60 dual-channel 10-band graphic EQ, Rane RB-27 31-band real-time analyzer, (2) Yamaha CG2020BII dual-channel compressor, (2) Symetrix 522 dual-channel compressor, Aphex Aurel Exciter 2-channel, (2) GateX 4-channel noise gate/expanders, (2) Audio Logic 4-channel noise gate, Yamaha CP-450 CD player. **Microphones:** (2) AKG 414 B-U/LS condenser, Fostex MT-88RP ribbon, (2) E-V RE-20, (2) E-V N/D 757, (4) E-V N/D 408, (2) AKG D-112, (6) Shure SM57, (2) Sennheiser 421, (2) Sennheiser 441, (18) various others. **Monitor Amplifiers:** Yamaha M60, Yamaha C65. **Monitor Speakers:** JBL 4425, JBL 4410, Yamaha NS-10 near-field, AKG 240 headphone. **Musical Instruments:** Yamaha DX7IIDF, Kawai K4, Yamaha RX5 drum machine, Fender P-bass (1957), Fender Stratocaster, Gibson Les Paul custom, Fender slab steel (1946), Ibanez 5-string bass, Ode 5-string banjo, Fender F-330 12-string guitar, Phillip grand piano (1905), (4) Marshall and Yamaha amps. **Other MIDI Equipment:** Yamaha TX16W stereo sampler, (2) Yamaha TX812 synth modules, Amiga 500 computer w/Passport Master Tracks Pro, Apple IIe w/Passport Master Tracks Pro sequencer, Akai 8-channel audio-to-MIDI triggers, (2) Akai MIDI delays. Rates: Call for rates.

[16] **VIDEOSONIC SOUND;** 503A Divisadero St.; San Francisco, CA 94117; (415) 922-3293. Owner: Jack Cutter. Manager: Jack Cutter.

[16] **WEST SHORE RECORDING;** PO Box 3000; Lakeside, MT 59922; (406) 844-2221; FAX: (406) 844-3730. Owner: Youth with a Mission. Manager: Larry Hefty.

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2-8 TRACK

STUDIOS

[6] **ALBRIGHT PRODUCTIONS**; also *REMOTE RECORDING*; 607 W. 3rd; Ellensburg, WA 98926; (509) 962-2820; FAX: (509) 962-3127. Owner: Sam Albright.

[8] **AUDIO RECORDING INC.**; also *REMOTE RECORDING*; 4718 38th Ave. NE; Seattle, WA 98105; (206) 525-7372; (206) 623-2030. Owner: Kearney W. Barton. Manager: Kearney W. Barton.

[4] **AVID PRODUCTIONS-DIGITAL**; 235 E. 3rd Ave.; San Mateo, CA 94401; (415) 347-3417; FAX: (415) 344-2878. Owner: Henry Bilbau. Manager: Chris Craig.

[8] **BANDBOX MUSIC AND RECORDING**; 537 S. Main St.; Ukiah, CA 95482; (707) 462-5386. Owner: Frank Short. Manager: Frank Short.

[8] **EARWAX PRODUCTIONS**; 245 Hyde St.; San Francisco, CA 94102; (415) 775-8561. Owner: Partnership. Manager: Jim McKee. Specialization & Credits: Lucasfilm Ltd., Zoetrope, Cannon Films, General Motors, MTV, Levi's, Planned Parenthood, Apple Computer, Capitol Records and many others have all asked the producers at Earwax to compose music, create sound effects and produce products for them. Earwax experience encompasses all media including feature films, broadcast commercials, corporate communication videos and radio dramas. The Earwax multimedia division has produced many Laserdiscs and CD-ROMs as well. Earwax has full SMPTE, MIDI, video lock with multitrack analog recording and an additional 2 channels of direct-to-disk digital recording that also locks to picture, center cue 1/2-track mastering, 8 channels of Dolby SR, plenty of computers, samplers and synthesizers all of which are located in two comfortable studios. The producers at Earwax also have experience in surround sound, live multimedia production and film. Take advantage of the best, Earwax productions. The results will astound you.

[8] **FLAVIANI RECORDING**; 846 33rd Ave.; San Francisco, CA 94121; (415) 386-2722. Owner: Victor and Laura Flavian. Manager: Victor Flavian.



FULL MOON RECORDING COMPANY
Eugene, OR

[8] **FULL MOON RECORDING COMPANY**; also *REMOTE RECORDING*; 197 W. 12th Ave.; Eugene, OR 97401; (503) 343-1294. Owner: PHN Inc. Manager: Steve Diamond. Engineers: Steve Diamond, Jon Davie, Phil Powers, Ray Schmidt, Pat Brand. Dimensions: Room 1: studio 24 x 15 plus 2 isolation booths, control room 15 x 12. Room 2: control room 15 x 12. **Mixing Consoles**: TAC Scorpion 16 x 8, Ransia 12 x 4. **Audio Recorders**: Otari MX-70 8-track, (2) Otari MTR-10 2-track, Otari MX-5050 2-track, Ampex 350 1-track, Ampex 700 2-track. **Cassette Recorders/Duplicators**: Otari DP-4050C2 stereo high-speed w/5 slaves, Nakamichi MR-1, Nakamichi MR-2 and others. **Noise Reduction Equipment**: Dolby SR 2 channels, dbx 150X 8 channels. Synchronization Systems: (2) Adams-Smith Zeta-3 SMPTE generator/controller, Adams-Smith Zeta remote. **Echo, Reverb & Delay Systems**: Lexicon PCM70, Yamaha SPX90, Alessis QuadraVerb. **Other Outboard Equipment**: dbx 166 dual-channel comp/limiter/gate, Aphex Compellor dual-channel, Valley People Dyna-Mite 2 channels, Valley International GateX 4 channels, UHEI 533 EQ,

Valley International dynamic silencer processor, Summit Audio dual-channel tube preamplifier Summit Audio tube equalizer. **Microphones**: (4) Neumann U87, (2) Neumann TLM170, (2) Neumann U89, (4) Neumann KM84, (2) AKG 460, Beyer 500, (2) Sennheiser MD-421, others. **Monitor Amplifiers**: Hafler DH-220, Yamaha, Rane HC-6, (2) McIntosh C 60 tube. **Monitor Speakers**: Tannoy Little Red w/sync source, JBL 4315, JBL 4311, Auratone 5C. **Musical Instruments**: Many synths available. **Video Equipment**: Panasonic AG 6500, center-stripe time code for Otari MTR-10 2-track, 1" layback kit for Otari MX-70 8-track, (2) MCA monitor. **Other**: Technics SL-1200 MkII turntable, (4) Harris cart machine, (2) custom phone patch coupler, Technics SL P1200 CD player.

[8] **HANK'S BASEMENT AUDIO**; also *REMOTE RECORDING*; 5665 E. Colorado Ave.; Denver, CO 80224; (303) 756-8777. Owner: H.B. Anderson, Jr. Manager: H.B. Anderson, Jr.

[2] **HOLLICRAFT STUDIOS**; also *REMOTE RECORDING*; 1961 Rose Ln.; Pleasant Hill, CA 94523; (415) 689-3444. Owner: Ed Hollcraft. Manager: Ed Hollcraft.

[8] **JET CITY RECORDING**; also *REMOTE RECORDING*; 4033 Aurora Ave. N; Seattle, WA 98103; (206) 545-4204; FAX: (206) 632-8302. Owner: Don Carlson. Manager: Bill Heperling. Engineers: Don Carlson, Bruce Elzinga, Bill Heperling. Dimensions: Studio 21 x 19, control room 16 x 12. **Mixing Consoles**: Tascam M-52u 20 x 18 x 16. Soundcraft Series 200 8 x 4 x 8. **Audio Recorders**: Tascam TSH 8 8 track 1/2" with dbx, Tascam J4 4-track, Tascam 312 1/2 track, Otari MX 5050 1/2-track, Ampex 1/2 track 30 ips, Panasonic SV 3500 R-DAT. **Cassette Recorders/Duplicators**: (5) Onkyo Noise Reduction Equipment: Dolby A 2-channel, Dolby B 2-channel, dbx 114-channel. **Echo, Reverb & Delay Systems**: ADA 51000 digital delay, SPX90 digital FX processor, Alessis Microverb. **Other Outboard Equipment**: Symetrix 525 gate/comp/limiter 4-channel, Symetrix 511 dynamic filter, dbx 162 compressor/limiter, SAE parametric EQ, Audio Control graphic EQ. **Microphones**: Sennheiser, Neumann, Shure, E-V, Beyer Dynamic. **Monitor Amplifiers**: Crown, Phase Linear, Carver. **Monitor Speakers**: JBL 4311, Tascam CM-10, Yamaha NS-10M, Auratone. **Musical Instruments**: Akai AX60, Yamaha DX 100, Casio CZ-101, Roland TR-505, Roland TR-707, Roland Outpad, Yamaha b grand piano. **Other MIDI Equipment**: Atari 1040 ST, Mac SE-20. **Other**: Pioneer PD 6010 CD player, Panasonic VHS Hi-fi. Rates: Call or fax for rate card and get a pleasant surprise.

[8] **LEON-FORREST PRODUCTIONS**; also *REMOTE RECORDING*; 4416 SE Hwy. 101; Lincoln City, OR 97137; (503) 996-2575. Owner: L.F. Caulkins. Manager: eLF.

[4] **LITTLE WINGS AUREBETUM RECORDING**; 7534 SE Taggart Cr.; Portland, OR 97206; (503) 775-2894. Owner: Collin G. Heade. Manager: Collin G. Heade. Engineers: Collin G. Heade. Dimensions: Studio 24 x 9, control room 14 x 13. **Audio Recorders**: Tascam 40-4 with HC-170 remote controller, Otari MKII-2 with CB-116 auto locator, TEAC A-4070 1/4-track with Sanyo Plus series N5b noise reduction. **Cassette Recorders/Duplicators**: Nakamichi MR-2, Nakamichi 550. **Noise Reduction Equipment**: (2) dbx 150, dbx 150X. **Echo, Reverb & Delay Systems**: Lexicon PCM60 digital reverb, Lexicon LXP-5, Lexicon LXP-1, Yamaha SPX90II, Yamaha SPX50D, Echoplex. **Other Outboard Equipment**: (2) Symetrix SX 202 dual mic preamp, BBE 402 sonic maximizer, (2) BBE 422 sonic maximizer, Soundcraft TG 2245 twin graphic EQ, Symetrix 522A noise reduction, (3) Symetrix 544 quad expander/gate, Symetrix 535 compressor/limiter. **Microphones**: AKG C 414BULS, AKG C 1000S, (3) Nakamichi CM-300 with cardioid, omnid and shotgun capsules, (2) Shure SM57, Shure SM58. **Monitor Amplifiers**: Hafler 120, Yamaha A-1, Crown CD-150A meter bridge, Rane HC6 headphone amp. **Monitor Speakers**: (2) JBL 4311B (control room), (2) JBL 4311B (re-notes), (2) Auratone 5C tubes. **Musical Instruments**: Gibson L-5S guitar, Fender Stratocaster, Hiraeda classical guitar, cello, sitar (single gourd), mandolin, Korg M3R with RE1 remote controller, Kawai Ka, Gulbransen 5' grand Anstocrat, Alessis HR-16 drum machine. **Other MIDI Equipment**: Lexicon MRC version 3.01, Alessis MIDI-8 sequencer, Yamaha MFC1 with MIDI foot controller. **Video Equipment**: Mitsubishi AM-1301 monitor, Mitsubishi HS-400UR VHS 1/2", JVC HR-S600U S-VHS 1/2", Other: Sansui CD-M12 CD player, Sony PS-X70 turntable, (6) Furman sound patch bays, Countryman direct box. Rates: \$22/hour, \$18/hour for university music students. Compositional projects please call for rates. Apportionments only.



MCCUNE STUDIOS
San Francisco, CA

[8] **MCCUNE STUDIOS**; also *REMOTE RECORDING*; 951 Howard St.; San Francisco, CA 94103; (415) 777-2700; FAX: (415) 957-4702. Owner: McCune Audio/Visual/Video. Manager: Jim Grainger. Engineers: Craig Smith, Dan Crowe, Bob Vincent, Jim Dwyer. Dimensions: Studio 16 x 26, control room 15 x 15. **Mixing Consoles**: Amek TAC 1682 16 x 8 x 2. **Audio Recorders**: (2) Otari MX-5050 8-track, (2) MCI JH-110 2-track, Otari MX-5050 4-track, (2) Sony DTC-700 DAT, Macintosh IIfx 80 Mhz digital analog-to-digital converter. **Cassette Recorders/Duplicators**: Otari Integra 3-head, Otari DP4050 high-speed stereo duplicator. **Noise Reduction Equipment**: dbx 150X Type 1 (8 channels). Synchronization Systems: Adams-Smith Zeta III B multi-transport. **Echo, Reverb & Delay Systems**: Yamaha SPX90II, Yamaha REV7 delay/echo. **Other Outboard Equipment**: dbx 166 2-channel compressor/limiter noise gate, Orban 536A de-esser, Orban 622B parametric EQ, Frimus P VG1 noise gate. **Microphones**: (4) Neumann U87, Neumann KM84, AKG 414, AKG 451, Sennheiser C-37, Sennheiser C-4c, HCA 77, Shure SM57, Shure SM58, many others from our warehouse stock. **Monitor Amplifiers**: Hafler DH-200 (or-amped). **Monitor Speakers**: McCune SM-4B, Attec 594 w/active crossover time correction and EQ circuitry, Auratone. **Musical Instruments**: E-mu Emu II stereo 16-bit sampler 16-voice, Korg digital MIDI synthesizer with controller keyboard Alessis HF-16 drum machine. **Other MIDI Equipment**: E-Mu Proteus I 32-voice MIDI playback, Opcode MIDI interface with SMPTE, Opcode MIDI and digital sequencer, Opcode librarian. **Video Equipment**: VHS, U-matic SP and Betacam VHS's, 19" monitor, Timecode reader/generator, SMPTE window/dub generator. **Other**: Technics SL-P777 CD player, Technics SL-1200 turntable with transient noise reduction, production music and SFX library (CD and LP). **Specialization & Credits**: McCune Studios is excited to offer the latest in digital recording technology. Our services include audio-for-video: stripping existing audio off a videotape for storage/recording on an analog multitrack or a digital hard disk, generating audio edit decision list, composing, SFX recording, mixdown and layback of tracks to audio or videotape with time code. Live recording: V/O's, Music & Foley SFX. Audio enhancement: signal processing of substandard audio from source tapes. If necessary improvement of analog audio by digital processing. Make McCune the one stop for your production—from the writing of your script to the staging of your show. Call for our rates and studio tour!

[8] **OPEN DOOR PRODUCTIONS**; PO Box 8556; Berkeley, CA 94707; (415) 527-9311. Owner: Burke Trietschmann. Manager: Burke Trietschmann.

[8] **PACIFIC MEDIA GROUP**; 2024 J St., Ste. 312; Modesto, CA 95354; (209) 523-1071; FAX: (209) 523-4115. Owner: Kerr McCall. Manager: Donald Setaro.

[8] **PROJECTONE AUDIO SERVICES**; 1925 Bailey Hill Rd., Ste. G; Eugene, OR 97405; (503) 345-6004. Owner: Denny Conn, Gus Russell, Bill Shreve. Manager: Denny Conn. Engineers: Denny Conn. **Mixing Consoles**: Trident VFM 16 x 8 x 2, Tascam 4M-1 20 x 2. **Audio Recorders**: Foxtex Model 80 8-track (Dolby C), Foxtex Model 201/2-track w/center at SMPTE, Sony DTC-4ES DAT Turne Beach 56K direct to hard disk. **Cassette Recorders/Duplicators**: Yamaha KX300U (Dolby B, C and HX Froj), Synchronization Systems: Foxtex 4030, Foxtex 4035 syncremote. **Echo, Reverb & Delay Systems**: Lexicon LXP-1, (2) Yamaha SPX9C, (2) Alessis Microverb Audio Digital TC-digital delay, Roand SDE-1000 digital delay. **Other Outboard Equipment**: Symetrix 522 comp/limiter/gate/expander/duck, Alessis Micro limiter, BBE 422 Sonic Maximizer, Audibats 4110 parametric EQ, (2) Aka. PEQ06 programmable 6-channel 7-band EQ, (2) dbx 163 compressor/limiter. **Microphones**: (2) ATM 1313 condenser, (2) ATM 311 condenser, (2) Shure SM57, (3) Shure SM58 E-V PL20. **Monitor Amplifiers**: Carver PM-200. **Monitor Speakers**: (2) JBL 4408. **Musical Instruments**: Emax SE w/extensive library, Yamaha TX81Z, E-mu Proteus, Oberheim Matrix-6R, Casio CZ-101, Korg EX-40C, Korg SG-1X digital grand piano, Casio MG-510

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[8] REYNOLDS AUDIO PRODUCTION (FORMERLY SQUARE ONE); also *REMOTE RECORDING*; 104 Yosemite Ave.; Santa Cruz, CA 95060; (408) 429-6929. Owner: John V. Reynolds. Manager: John V. Reynolds.

[4] ROCKY MOUNTAIN; A/V Productions Inc.; 4301 S. Federal Blvd., #108; Englewood, CO 80110; (303) 730-1100; FAX: (303) 730-8006. Owner: Terry Talley. Manager: Rick Rutherford.

[8] RANDALL SCHILLER PRODUCTIONS; also *REMOTE RECORDING*; 1207 Fifth Ave.; San Francisco, CA 94122; (415) 661-7553. Owner: Randall Schiller. Engineers: Randall Schiller. Dimensions: Studio 12.5 x 15, drum room 9 x 9, control room 12.5 x 15. **Mixing Consoles:** Soundcraft 200B SEQ24 x 4 x 2. **Audio Recorders:** TEAC/Tascam 80-8 8-track, Otari 5050B2-track, Sony TC-8544S 4-track, Sony TC-8502-track. **Cassette Recorders/Duplicators:** Aiwa AD-F990. **Echo, Reverb & Delay Systems:** DeltaLab 2048 digital delay, DeltaLab DL-2 Acousticcomputer stereo digital delay, Eventide H910 Harmonizer, Yamaha REV7 digital reverb, Yamaha SPX90 digital reverb, Sound Workshop 242 stereo reverb. **Other Outboard Equipment:** Yamaha Q2031 31-band stereo graphic equalizer, MXR dual 15-band stereo equalizers, Orban 622 parametric equalizer, dbx 161 compressor/limiter, dbx 163 compressor/limiter, UREI 1178 stereo compressor/limiter, dbx 154 decilinear noise reduction, Crown VFX-2A stereo electronic crossover/filter, SAE 5000 impulse noise reduction, dbx 503, dynamic range expander, Technics SL-1200 MkII turntable, assorted patch bays and necessary support equipment. **Microphones:** Neumann U87, AKG C-414, E-V RE15, E-V RE20, E-V 635A, Shure SM81, Shure SM58, Shure SM57, Shure SM78, Shure 555SH, Shure SM91, Shure "Green Bullet," Sony ECM-33P, Sony ECM-33F, Sony ECM-16, Sennheiser MD-421, Sennheiser MD-431, AKG D-12, Crown PZM. **Monitor Amplifiers:** SAE A-201, SAE A-501, Crown Micro-Tech 1200LX, BGW Model 100-01. **Monitor Speakers:** JBL 4411, Auratone 5C, JBL 4412, Pioneer CS-88. **Musical Instruments:** Story & Clark console piano. **Video Equipment:** Sony SL-2700 stereo Hi-fi videocassette recorder, JVC HRD-470U stereo Hi-fi videocassette recorder. **Rates:** 8-track, \$30/hr.; 4-track, \$25/hr.; 2-track, \$25/hr. Location recording available upon request.

[2] SHYNE SOUND; only *REMOTE RECORDING*; Box 2280; San Rafael, CA 94912; (415) 459-2833. Owner: Leroy Shyne. Manager: Leroy Shyne.

[8] THE SOUNDSMITH; PO Box 1567; Monterey, CA 93942; (408) 394-6940. Owner: David Kempton. Manager: Jeremy Hertzberg.

[8] STONNELL ENTERPRISES; also *REMOTE RECORDING*; PO Box 217; Bozeman, MT 59715; (406) 586-2443. Owner: Jack Stonnell. Manager: Jack Stonnell.

[2] <STUDIO.H>, COMPUTER MUSIC FACILITY; also *REMOTE RECORDING*; 1741 Alcatraz Ave.; Berkeley, CA 94703; (415) 658-4333. Owner: David J. Gray. Manager: Bill Thompson.

[8] FRANK SULLIVAN RECORDING; also *REMOTE RECORDING*; 1390 Frank Hill Rd.; Ashland, OR 97520; (503) 482-8181. Owner: Frank J. Sullivan. Manager: Lisa Campbell.

[8] SUNSET RECORDING; also *REMOTE RECORDING*; 856 Airport Rd.; Monterey, CA 93940; (408) 375-2861. Owner: Sal Marullo.

[4] TINDERBOX PRODUCTIONS; also *REMOTE RECORDING*; PO Box 9351; Seattle, WA 98119; (206) 325-5066. Owner: Jamie Jones. Manager: Jamie Jones.

[8] VINEYARD STUDIOS; also *REMOTE RECORDING*; PO Box 69522; Seattle, WA 98188; (206) 630-3466. Owner: Roger B. Cox. Manager: Dale Stetson.

[8] XANDOR RECORDING STUDIOS; also *REMOTE RECORDING*; 407 Camino Sobrante; Orinda, CA 94563; (415) 254-9077. Owner: James Weyeneth. Manager: Jim Weyeneth.

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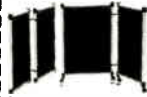
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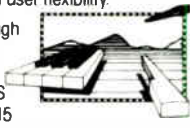
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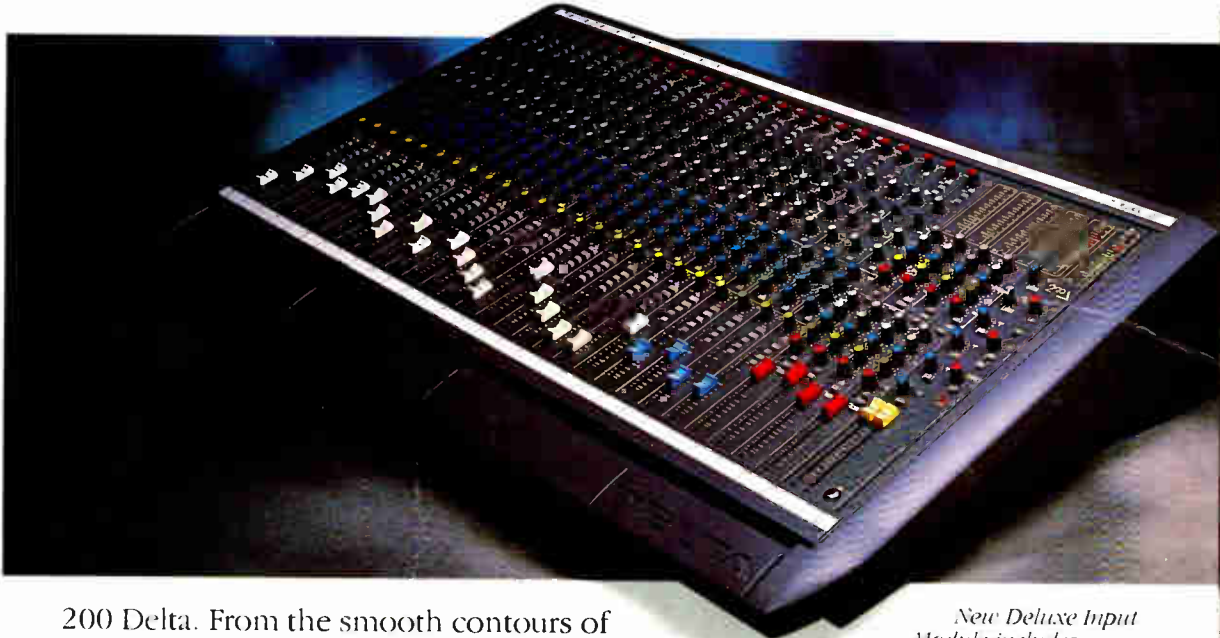
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