

July 1991

Recording ■ Engineering ■ Production

\$4.00

REP

The Pro Audio Applications Magazine

THIS BUSINESS OF RECORDING...

- DOING THE DEAL
- DISTRIBUTING YOUR PRODUCT

F1040891000000 25 00 1
THOMAS D LAUNE REC ENGR
ARDENT RECORDINGS INC
169 S BELVEDERE (REAR)
MEMPHIS TN 38104

MACRO REFERENCE. FOR INCOMPARABLE SOUND.

The sound is incredibly transparent, unbelievably true. It's as if you were experiencing a live performance. Yet, the sound is a result of Crown's newest technological achievement. Macro Reference. A 20 bit amplification system with the essence of 20 bit digital sound.

Reference is the ultimately damped, high excursion amplifier. A dual velocity feedback system enables Reference to take its low frequency damping range to in excess of 20,000. This makes low-end response tight, well-defined and

incredibly natural. Crown has also enhanced ODEP™ (Output Device Emulator Protection) circuitry for Reference, creating precise transfer function (monitored by IOC™) and thereby accurate control of the music signal within the amplifier.

To assure that Reference can function under exacting requirements, its power supply was designed around an advanced toroid which nearly eliminates electromagnetic interference. And its revolutionary convection cooling system with computerized, proportional fan assist prevents thermal overload in high-demand situations. This makes Reference quiet enough to use in even the most discriminating environment.

Digitally ready with a dynamic range that approaches the environment in which we live, Macro Reference will be the industry Reference for years to come. But you must experience Macro Reference to truly appreciate it. Visit your Crown dealer today. Comparing apples to apples, there *is* no comparison.

Crown. Guaranteed Excellence.

Crown™ International, Inc.
P.O. Box 1000
Elkhart, Indiana 46515-1000 U.S.A.
Telephone: 219/294-8000
Toll-Free: 800/535-6289

Circle (1) on Rapid Facts Card



MACRO
REFERENCE




CROWN

Contents

Volume 22, No. 7

July 1991



10



32



44

Audio Production

The R•E•P Interview: Barney Perkins	20
From Motown to dance, jazz to pop, an industry veteran comments. <i>By: Dan Levitin</i>	
Posting Cornell's "Ida"	26
Accomplishing creative music production for a feature length video is simple. But on a university budget? <i>By: Jon L. Hilton</i>	
A&R: Understanding a Record Deal	32
How A&R departments work, what they look for and how they decide who to sign. <i>By: Dan Levitin</i>	
Independent Record Distribution: A Primer	38
It takes a hardy soul to do what it takes to succeed. <i>By: Barry Sanders</i>	
Hands On: Amek Mozart RN	53
<i>By: Jim Williams</i>	

Sound Reinforcement

Live & Direct	42
Creative Survival. <i>By: Mike Joseph</i>	
Oscar's Audio: The 63rd Annual Academy Awards	44
Extensive planning and rehearsal made this the best-sounding Oscars in years. <i>By: Rick Schwartz</i>	
All Access	49
<i>By: Mark Herman</i>	
Roadwork	51
<i>By: Mark Herman</i>	

Departments

From The Top	5
Random Access	6
Fresh Tracks	10
Sound Business	16
Digital Domain	18
First Look	60
Cutting Edge	62
Classified	66
Advertisers Index	72
Rapid Facts Cards	73
Subscriber Cards	75

On The Cover: Amek Mozart RN console at the Bakery, North Hollywood.
Photo by Ed Freeman; courtesy of Amek/TAC.

R•E•P: Recording•Engineering•Production (ISSN 0034-1673) is published monthly by Intertec Publishing Corporation, 9221 Quivira, Overland Park, KS 66215. Subscriptions rates are \$26 to qualified readers, \$30 to non-qualified readers per year in the United States, \$50 for qualified and \$60 for non-qualified per year outside the United States. Optional airmail for non-qualified readers outside the United States is also available for an additional \$55 per year. Foreign subscriptions are payable in U.S. funds only by bank check or money order. Adjustments necessitated by subscription termination at single copy rate. POSTMASTER: Send address changes to **R•E•P: Recording•Engineering•Production** P.O. Box 12960, Overland Park, KS 66212. Second-class postage paid at Shawnee Mission, KS 66202 and additional mailing offices.

Photocopy rights: Permission to photocopy for internal or personal use is granted by Intertec Publishing Corporation for libraries and others registered with Copyright Clearance Center (CCC), provided the base fee of \$2.00 per copy of article is paid directly to CCC, 21 Congress St., Salem, MA 01970. Special requests should be addressed to Cameron Bishop, group vice president, Intertec Publishing Corporation.

ISSN 0034-1673 \$4.00 + \$0.00

©1991 by Intertec Publishing. All rights reserved.

PRESENTING THE LEXICON 300

A unique digital effects processor with analog and digital inputs and outputs, time code automation, and magnificent sound.

There may be digital effects processors that rival some of the 300's features, but you'll never find one with them all. The 300 delivers precise delay and stereo pitch shifting, as well as stunning



reverb and ambience. It automates sound changes with SMPTE/EBU time code. And it inputs and outputs analog, as well as consumer and professional digital formats — in any combination. All with magnificent Lexicon Sound.

The 300 is a powerful tool in audio for video applications where time code synchronization is essential. And in digital video editing, the 300 ensures that scene changes are handled smoothly — in the digital domain. Because the 300 has digital inputs and outputs, it's the perfect choice for RDAT and CD mastering. And for music production there is an incomparable set of sounds, as you would expect from Lexicon.



Connectivity redefined

The 300 redefines connectivity standards for digital signal processors. Unique analog and digital circuits accept analog signals or digital signals in the consumer SPDIF or professional

AES/EBU formats. Whether the source is a CD player, RDAT recorder, or open reel digital deck — the 300 identifies and locks onto the incoming format.

You can then select between analog and consumer or professional output formats, regardless of the input format.

Consumer in, professional out, analog in, digital out. The 300 handles them all. You can even mix analog and digital signals.

This kind of connectivity just isn't available anywhere else.

Total MIDI control

With the 300's real time MIDI automation you can record parameter changes on most any sequencer. The 300 also includes Lexicon's Dynamic MIDI® allowing you to control the 300's effects parameters from any MIDI controller.

And of course, the sound is superb. The 300 delivers nearly unmeasurable distortion and exceptional phase linearity through the use of state-of-the-art converters.

They're so advanced you can use their outputs as a system reference.

The 300 joins the Lexicon family of digital effects processors. From the economical LXP-1 to the world renowned 480L, they all share the Lexicon Sound.

For more information about the 300 or any of Lexicon's products, call (617) 736-0300, FAX (617) 891-0340, or write Lexicon, Inc., 100 Beaver St., Waltham, MA 02154.

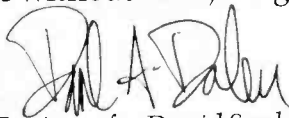


Lexicon
The Art and Science of Sound

Circle (5) on Rapid Facts Card

www.americanradiohistory.com

"I've been sold on Beta's superiority since I first tried them. I use them on vocals, drums, amps, and brass because their sensitivity and resistance to feedback make them the perfect fit for the groups I work with. And the Beta 58 Wireless is the first system I've found that gives my artists the freedom of a radio mic without sacrificing sound quality."



Paul Dalen, Sound Engineer for David Sanborn and Lisa Stansfield.



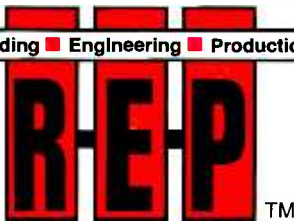
Shure Beta Microphones. Buy Them On Word Of Mouth Alone.

Before you select a microphone, listen to the leading pros who use the Shure Beta Series on stage. They'll tell you about the benefits of Shure Beta's advanced transducer design, extraordinary gain-before-feedback, and true supercardioid polar pattern, as well as its outstanding sensitivity and low handling noise. But most important, they'll tell you that nothing beats a Beta for live performance. And that's not just talk. Try Shure Beta today and get the final word for yourself. Or call us for more information at 1-800-25-SHURE. The Sound Of The Professionals®...Worldwide.

SHURE BETA

Circle (6) on Rapid Facts Card

www.americanradiohistory.com



EDITOR

Mike Joseph

MANAGING EDITOR

Dan Torchia

ASSOCIATE EDITOR

Sue Edwards

GRAPHIC DESIGNER

Liz Veternick

EDITORIAL ASSISTANT

Joe Ramsey

DIRECTORY EDITOR

Pat Blanton

GROUP MANAGING EDITOR

Tom Cook

CONSULTING EDITORS

John Monforte, Technical Consultant
David Scheirman, Live Performance
Laurel Cash-Jones, Editorial Consultant
Sarah Coleman, Washington Correspondent
Dan Levitin, Contributing Editor
Rick Schwartz, Contributing Editor
Mark Herman, Contributing Editor

GROUP VICE PRESIDENT

Cameron Bishop

PUBLISHER

Dennis Milan

PROMOTIONS MANAGER

Evelyn Hornaday

MARKETING COORDINATOR

John Newman

ADVERTISING BUSINESS MANAGER

Dee Unger

ADVERTISING PRODUCTION SUPERVISOR

Mary Birnbaum

ADVERTISING COORDINATOR

Pat Eisenman

CLASSIFIED ADVERTISING COORDINATOR

Mia Fountain

PRESIDENT

R.J. Hancock

CORPORATE CIRCULATION DIRECTOR

Sandra Stewart

CIRCULATION DIRECTOR

Challis Beach

CIRCULATION MANAGER

Doug Wilding

CUSTOMER SERVICE

913-541-6633

R•E•P is an applications-based publication targeted at professional individuals and companies active in the commercial business of studio and field recording, audio for video, live sound production and related fields. Editorial content includes descriptions and demonstrations of audio production techniques, new products, equipment application, maintenance and audio environment design.

Member, Business Publications

Audit of Circulation

Sustaining member, Audio

Engineering Society

Sustaining member of Acoustical Society of America

Member, International Communications Industries

Association

Associate member of Society of Professional Audio

Recording Services

©1991 by Intertec Publishing. All rights reserved.

From the Top

Life After Sampling

As a brief exercise, let's put on our pyramid-shaped synthetic crystal mind-projection helmets, and drift off into the not-too-distant future.

It's Nineteen and Ninetyfive. Every single movie released this year by S.O.D.M. Inc. (Sony/Orion/Disney/Matsushita) has a music and F/X soundtrack created by a single guy in a small room, sitting in front of a desktop workstation, pulling up CD track after CD track on his file server, tagging pre-recorded samples end to end. Field-captured ambience, studio ADR and Foley are all cut to disk, thanks to the proliferation of player-sized optical recorders at competitive prices. Random access is everything.

Every song, save the occasional oddball retro acoustic novelty, appearing on the nation's highly-rotational Top-20 Terrorist Radio ("Turn To Terror For Your Tunes") syndicated format, of which there is one franchise in every market, consists of songs assembled from bits and pieces of musical ideas imported from readily available, over-the-counter library disks. Most of today's composers/arrangers/producers/artists/engineers use complete phrases or licks from these sources. There are 50 such U.S. companies that create so-called Lick Libraries for licensed purchase (they are the rare few remaining with acoustic recording studios still intact).

The more adventurous end-user song-creators build up their tracks from sound element libraries, using disks of studio-recorded or synthetically generated beaters, rim shots, crashes, guitar stabs and synth swells. Even background vocals are available from disk, as modern production workstations allow pitch-shift-in-time to single frame accuracy, envelope manipulation, format remapping and component Fourier analysis and restructuring. The number one hot-shop in L.A. (38 out of the last 50 Top-20 3-inch singles) only has one microphone, a U-47, but 15.8 Gigs of disk storage space and a library jukebox to kill for.

Commercial and A for V post houses have long since gone to workstation rooms, converting their empty acoustic recording studios to much more efficient (and profitable) audio production cubes. AKG, Sennheiser and Beyer have responded to this shift in acoustic production space (can you say "leakage problems?")

by designing entire new lines of ultra-light headphones, which, instead of sitting on the ear, surround the head at a distance in four quadrants. Producers/composers get used to suffering under the new slang derogatives "Cage Head" and "Basket Brains."

The term "home project studio" has virtually disappeared, as every audio production individual, from seasoned pro to rank guitar-wanking amateur, can afford a sophisticated computer-based desktop production stack at home or at their office. Studios as unique, purpose-built facilities are disappearing rapidly.

The several audio production schools that are left have long since discontinued teaching live acoustic miking. The attraction of most students interest is invariably something that happens on a screen. A survey sponsored by an insightful Midwest-based pro-audio magazine presents the enlightening revelation that young industry entrants who grew up on Nintendo systems have an edge over those who know music, by a large percentage, in modern audio production.

In backlash, a short but dedicated waiting line exists for the 25 new student slots available each semester at the East Berlin Tonemeister Institute, a small college dedicated to preserving the "art" of acoustic music recording using analog production equipment. Graduating students find few jobs waiting.

Now, take off your pyramid helmet and jump back to the present. The scenario just stated may be a stretch, but not an impossibility. We may be guilty of only slight conjecture by suggesting that the influence and existence of samplers and desktop audio workstations is a precursor to the end of the world, as we know it. Clearly, it is having an impact. It is undeniable that computer processor-based audio manipulation and storage is demystifying, or maybe merely redefining, the "art" of audio production, opening it up to the masses of keyboard or MIDI synth-trained recording production wannabees, audio amateurs, hobbyists, etc., all trying to make an economic go of it in our professional backyard. Why? Because they can. Technology now allows it, to a quality level previously only imagined.

It might be said that our professional trade industry is becoming a consumer industry. The above considerations are good things and bad things — good because

Continued on page 65

Random Access

MONITOR AWARDS FINALISTS

It's time again for the International Monitor Awards, an annual competition that honors excellence among professionals working in such areas as editing, computer animation, video special effects and audio post-production.

The awards are sponsored by the International Teleproduction Society, consisting of post-production facilities all over the world.

We are pleased to list the finalists in the audio post-production categories. Having passed an initial screening process, these entries were judged by a blue-ribbon panel. Winners will be announced at a July 15 gala.

ENTERTAINMENT SERIES

- "American Playhouse: Into the Woods," Howard Schwartz Recording, New York.
- "Dance in America: In Motion," Sync Sound, New York.
- "Who's the Boss: Starlight Memories," the Post Group, Los Angeles.
- "Wish You Were Here: Grandpa's Village," Transcom Digital, New York.

ENTERTAINMENT SPECIALS

- "A Tribute to Roy Orbison," Howard Schwartz Recording.
- "Johnny Mathis: Chances Are," Sync Sound.
- "The Embrace of Hope — Amnesty 1990," Howard Schwartz Recording.
- "The Muppets Salute Jim Henson," Sync Sound.
- "Voices of the Heart — The Moscow Boys Choir," Anthony Potter Productions, New York.

FILM-ORIGINATED ENTERTAINMENT

- "Billy Joel Live at Yankee Stadium," Sync Sound.
- "Largo Desolato," Transcom Digital.
- "Monsters: Moving Finger," Sync Sound.
- "Parker Lewis Can't Lose" pilot episode, Fox Broadcasting, Los Angeles.
- "The Simpsons: Tree House of Horror," Fox Broadcasting.

NATIONAL COMMERCIALS

- Adjustments/Konami, Editel/Chicago, Chicago.
- Miller Genuine Draft, "Drive-In," Dennis Hayes & Associates, New York.
- Reeses Miniatures, "Christmas," Sync Sound.
- Snickers, "Living Room," Sync Sound.
- Time Warner, "The World is Getting Bigger," Mass Media, New York.

IN PROMOTIONS

- Comedy Channel IDs, HBO Studio Productions, New York.
- World League Football "Rumble" tease, USA Network, New York.

CHILDREN'S PROGRAMMING

- "Cartoon All-Stars to the Rescue," EFX Systems, Burbank, CA.
- "Drawing the Line," Jesse Vaughan Productions, Washington, D.C.
- "Pee Wee's Playhouse: Playhouse Day," the Post Group.
- "The Emancipation of Lizzie Stern," Northstar Entertainment Group, Virginia Beach.

DOCUMENTARIES

- "Comfortable Lies, Bitter Truths: Inside Gorbachev's USSR," Sync Sound.
- "Resident Alien," Sync Sound.
- "Robert Motherwell & the New York School: Storming the Citadel," Sync Sound, New York.
- "The Wild Shores of Patagonia," Videomix, New York.

INTERNAL CORPORATE COMMUNICATIONS

- "ReMITS," Soundwave, Washington, D.C. ■

LYRIC DEBATE



After years of misinformation, innuendo and exaggeration concerning recorded music and lyrics, and their effect on listeners, some common sense finally has been injected into the debate.

In early May, a federal judge dismissed a lawsuit filed against Ozzy Osbourne and CBS Records, ruling that a couple cannot prove their teenage son's suicide was caused by listening repeatedly to the singer's music. In issuing the ruling, the judge rejected the analysis of a plaintiff's expert witness who said that a 28-second instrumental break in the song "Suicide Solution" contained a subliminal message.

"Honoring [this] definition of subliminal message would mean that all rock music, or any music for that matter, which contains unintelligible lyrics could be found to contain a subliminal message, thereby subjecting an endless number of performers and producers to possible lawsuits," the judge wrote.

Osbourne's song has been the subject of at least three lawsuits; with this dismissal, there are no cases pending. Of course, the most famous case concerning subliminal messages involved Judas Priest, which last year went on trial for alleged subliminal messages in the album "Stained Class."

In that case, the judge ruled that subliminals did exist on the album; however, the judge said that the

messages were not deliberately placed, thus relieving the band of any liability.

Press reports suggested that in the Osbourne case, the family was hoping that the Judas Priest verdict would help their cause. However, Osbourne's judge additionally ruled that music is free expression protected by the First Amendment.

Also of note is a recently released study by a team of California psychologists, who surveyed teenagers to determine their perceptions of rock music lyrics.

For the study, teenagers were given printouts of lyrics to popular songs and were asked for their interpretations. The findings: few teens listen closely to a song's lyrics, remember or understand them. The meaning: if rock music has an effect on teenagers, it is more complicated and subtle than commonly argued.

In one example, concerning the AOR classic "Stairway to Heaven," a typical response to the lyrics' meaning was, "It's about going to heaven through a stairway and the stairway has problems along the way." In another example, the Sex Pistols gathered the highest score on sexual content. Although almost none of the group's lyrics concerns sex, the researchers concluded the group's name was enough to sway responses. ■

PEOPLE

We're pleased to note that two friends of R•E•P, **Laurel Cash-Jones** and **Fred Jones**, are on the road to recovery after being shot in their Las Vegas condominium during the NAB Convention. Laurel is R•E•P's editorial consultant; she and Fred write the magazine's First Look column. Because of our deadlines, the column will continue without interruption. Fred and Laurel would like to thank everyone for their concern ... Roland has formed a pro audio/video group to develop and market professional products to these industries, and has announced four appointments: **Curtis Chan**, group general manager; **Bob Todrank**, national sales and marketing manager; **Albert Dugas**, marketing administrator; and **Paul M. Young**, senior product specialist ... **Wayne Jones**, founder and former president of Amber Electro Design, has joined Audio Precision; he will be responsible for applications and technical communications for the company's product line ... **Igor Saulsky** has joined Solid State Logic as western regional sales engineer ... **Tom Anderson** has been named western regional sales manager for Mark IV Audio Canada, while **Neil Anderson** has been named national sales manager ... **Joseph Kempler**, technical director for Sunkyong Magnetic/America, was a featured speaker at the recent ITA seminar in San Diego. His topic was "Choosing the Right Tape Type for Duplication"...Bose has made two promotions. **Bruce Myers** has been named senior application and design specialist. **Reed Strutzenberg** has been named senior sales representative ... **Steve Zaretsky** has been named eastern regional manager at New England Digital ... **Chris Yalonis** has joined Passport Designs as vice president of marketing ... Three computer industry sales executives have joined Media Vision: **Leonard Backus**, international sales director, **Brenda Connery**, national sales manager, and **David Witkowski**, OEM direct sales ... **Colin Sanders** has stepped down as managing director of Solid State Logic, and has been replaced by **John Jeffrey**, the former chairman of Digital Audio Research. Sanders has become chairman of the Carlton Audio Group ... A four-block street on Nashville's Music Row has been named **Chet Atkins** Place, in honor of the producer/guitarist/record executive. ■

TREND

w R a t c D h

Consumer Electronics: How 'bout another consumer format? Sony has unveiled plans to introduce a portable, personal audio system, smaller than a Walkman, that uses 2.5-inch magneto optical disks that can hold up to 74 minutes of digital audio. Slated for a late 1992 release, the system, called the Mini Disc, is designed to combine the fidelity of CDs with the portability and durability of the analog cassette. One important difference: consumers can record with the Mini Disc, which is unique among the consumer digital formats. Sony says that the SCMS anti-copying system will be used.

Rarities: A fan has paid \$13,500 for a CD of Prince's "Black Album," one of 26 known to exist. Initially scheduled for release in 1987, Prince ordered the album's recall at the last moment.

Lawsuits: Motown has filed suit against MCA over MCA's alleged failure to properly promote and distribute Motown records. Soon after, MCA countersued, claiming that Motown's suit is a ploy by an investment group, which formed a partnership with MCA to buy Motown, to renegotiate a distribution deal. Motown founder Barry Gordy sold out three years ago.

Copyright: MTV has sued a University of Massachusetts professor who taped videos shown on the cable channel and used them in his own video analyzing the sociological and ethical content. MTV claims copyright infringement; the professor claims fair use, which allows copyrighted material to be used for purposes of review, commentary or critique. However, clouding that claim may be the fact that the professor has sold 120 copies to teachers or colleges who use it as an educational tool; proceeds are said to go into a trust fund to offset the costs of the project.

"He resents being made to realize, this late, that the songs of his life were as moronic as the rock the brainless kids now feed on ... all of it designed for empty heads and overheated hormones, an ocean white with foam, and listening to it now is like trying to eat a double banana split the way he used to. It's all *disposable*, cooked up to turn a quick profit. They lead us down the garden path, the music manufacturers, then turn around and lead the next generation down with a slightly different flavor of glop."

— John Updike, "Rabbit At Rest"

Random Access

STUDIO UPDATE

Name/Location	Details
NORTHEAST	
Acme Studios/ Mamaroneck, NY	Added the Akai DD-1000 optical disk recorder.
Milbrodt Communications/ Somerset, NJ	A 30-second anti-drug PSA, "Don't Let Drugs Pull You Down," scored by owner Bill Milbrodt, received a first-place ASTRA Award, presented by the Communications, Advertising and Marketing Association.
NFL Films Video/Mt. Laurel, NJ	Audio engineers Jerry Mahler and Vince Caputo, heads of the facility's audio department, won a Sports Emmy for "Road to the Super Bowl '90."
SOUTHEAST	
Century III/Orlando, FL	Paul Pavelka has been named sound director.
Mainstay Media/Greenville, SC	New name of Custom Recording and Sound, changed to reflect the company's business direction and its dedication to client support.
Mangum-Alford Recording Studio/ Jacksonville, FL	Has upgraded to 24-track with the addition of an MCI JH-24-24; has also added eight additional modules to its D&R 8000 series console.
Park Avenue Teleproductions/ Richmond, VA	Has opened a full-service audio suite; services include original music composition, sound effects design and audio sweetening. Eric Heiberg has been named chief producer and engineer.
MIDWEST	
Ajax Recording Team/ Fort Wayne, IN	Has purchased a pair of KRK 1302 monitors.
SOUTHERN CALIFORNIA	
Brooklyn Recording Studio/ Los Angeles	New studio owned by artist manager Freddy DeMann, emphasizing vintage analog recording gear. Bill Dooley, formerly chief engineer/general manager of the Record Plant, is director of recording. Address: 8000 Beverly Blvd., Los Angeles, CA 90048; 213-655-9200; fax 213-852-1505.
Sunset Sound Factory/Hollywood	Studio B has been upgraded, including new lighting, acoustical changes and modifications to its custom API console. Studio A827 multi-tracks have been purchased for Studios A and B.
NORTHERN CALIFORNIA	
Music Annex/San Francisco	Facility is co-sponsoring "Best of the Bay 1991" contest, which spotlights unsigned talent in the Bay Area. Other sponsors are KRQR, BAM/Microtimes and Tower Records.
NORTHWEST	
Sound Impressions/Milwaukie, OR	Has purchased a Dolby XP-24 SR rack, becoming the first studio in the Portland area to offer Dolby SR on all analog tracks.
Newton/Bard Music/Portland	Purchased a second WaveFrame AudioFrame system.
DESIGNERS	
Russ Berger Design Group/Dallas	Designed new facility for WFDD-FM, the Wake Forest University public radio station, including an on-air control room and editing suite, and a production control room with a music studio.
Walters-Storyk Design Group/ New Paltz, NY	Will design a new digital post-production suite for Howard Schwartz Recording (New York).

NEWS NOTES

R•E•P's article on the Judas Priest trial, "Subliminal Secrets: Justice and Judas Priest," published in the October 1990 issue, was chosen as a finalist in the American Business Press Neal Awards competition. The article, written by R•E•P managing editor Dan Torchia, was one of six finalists in its category, "Best Single Article." A total of 790 entries were submitted in the competition.

Bag End Loudspeaker Systems has celebrated its 15th year in business.

Soundmaster has been named the North American distributor for Raindirk consoles and Optifile console automation systems.

Effective April 1, **Audio-Technica** moved its Canadian distribution in-house. Canadian pro audio dealers should direct inquiries to Garry Elliott or Sally Fish, Audio-Technica U.S., 1221 Commerce Drive, Stow, OH 44224; 216-686-2600.

Olamon Industries, a manufacturer of zero-load cassettes owned by the Penobscot Indian Nation, has launched an international marketing campaign to music companies and duplicators. If successful, it would mark the first time a company owned by a Native American tribe has competed in the global marketplace.

The **DeWolfe Music Library** was used in the music track for a Lego Toys TV spot that won two first place awards in the recent 20th Annual Mobius Award Festival. The "George Eastman" spot won the "Best of Festival" and "Children's Toys" categories.

Scharff Weisberg has created a department specializing in R.F. and wireless equipment, which can supply wireless mics, walkie-talkies, base stations, repeaters, wireless intercoms and IFBs. For more information, contact the wireless department at 599 11th Ave., New York, NY 10036; 212-582-4705; fax 212-757-6367.

Peavey Electronics has been selected to participate in the U.S. Department of Commerce's "Japan Corporate Program," designed to enhance and promote U.S. trade to Japan. Peavey was one of 20 U.S. companies chosen. ■

The APR-24.

In a couple of years,
it will become even clearer
why you bought it today.



The Sony APR-24 Analog Multitrack Audio Recorder not only meets your production needs today, but those of the future as well.

It's a remarkable combination of reliability and advanced engineering that won't become obsolete as your requirements expand.

To provide dependability and alignment stability, we've constructed a die-cast aluminum webbed deck and tubular welded frame. And the state-of-the-art amorphous-metal heads give the APR-24 significantly longer head life and a smoother, more extended frequency response.

The APR-24's microprocessor fully integrates control of the

transport, alignment, signal routing and timecode functions. So you can take advantage of the built-in synchronizer and precise automated punch-in/punch-out operation.

Since these operations are software-based, the APR-24 can incorporate new features and performance improvements. Such as our unique serial interface that enables the APR-24 to control a Sony VTR for a video sweetening project. Or a second APR-24 in a dual 24-track music recording session.

To learn more, call us at 1-800-635-SONY. With the APR-24, it's clear today why you can look forward to the future.

SONY

Fresh Tracks

Big Daddy: “Cutting Their Own Groove”



Label: Rhino
Produced by: Big Daddy
Engineered by: Bob Wayne, Jimmy Street
Recorded at: Sunburst Recording (Culver City, CA)
Mastered by: Bob Wayne, Bill Inglot, Ken Perry
SPARS Code: AAD

Comments: One of the years' best finds. If you're not hip to Big Daddy's previous two efforts, you're missing out on something great. Big Daddy records modern hit songs in the style of 1950s hit songs. "Ice Ice Baby" is done like "Johnny B. Goode," Guns 'n' Roses' "Welcome To The Jungle" like "The Lion Sleeps Tonight." The high point of the album is "Money For Nothing" done up like Tennessee Ernie Ford's "Sixteen Tons." Big D. merge these songs skillfully and the results are classic.

Of special interest: Bob Wayne's engineering is excellent — everything is clean and clear. The record sounds modern without sounding overproduced. ■

Queensryche: “Empire”

Label: EMI
Produced by: Peter Collins
Engineered by: James Barton, Paul Northfield
Mixed by: James Barton
Recorded at: Vancouver Studios (Vancouver, British Columbia); Triad (Redmond, WA); Royal Recorders (Lake Geneva, WI)
Mastered by: Bob Ludwig, Masterdisk
SPARS Code: N/A

Comments: With "Empire," Queensryche makes a powerful and satisfying transition from speed-metal band to huge rock band. The songwriting and performances are more mainstream, while maintaining Queensryche's individuality. The guitar tones are varied and well-recorded. Geoff Tate emerges as a vocalist with great dynamic and emotional range.



Of special interest: Recordings of mondo-distorted guitars are rarely this clean, no doubt because of the ugly noises amps tend to make when they're turned up all the way. But great care on this recording is evident; gate on and offs are transparent, and all the instruments come through with spaciousness and clarity. This album should be a hugely successful AOR staple, with power ballads like "Anybody Listening?" and the Zeppelin-influenced "Jet City Woman." ■

Phil Perry: “The Heart of the Man”



Label: Capitol
Produced by: Barry J. Eastmond, Robbie Nevil, Dave Shapiro, Lee Curreri, Brenda Russell, Don Grusin, Andre Fischer, George Duke, David Garfield, Alan Hirschberg, Jeremy Lubbock, Donald Robinson
Engineered by: Earl Cohen, Howard Lee Wolen, John B. Jones, John Carter, Don Murray, Richard McKernan, Steve Sykes, David Rideaux, Alan Hirschberg, Randy Waldman, John Arrias, Al Alberts Jr.
Mixed by: Earl Cohen, Brian Malouf, Tom Vicari, Don Murray, Steve Sykes, Mick Guzauski, Alan Hirschberg, Humberto Gatica, Michael Tarsia
Recorded at: The Sandbox (Easton, CT); Soundtracks; Eastbay (Terrytown, NY); the Sound Spa, Sigma (Philadelphia); Hush Hush, Summa, Ground Control, A.E.M.P., Urban Beach Studios, Sunset Sound, Skip Saylor, Ocean Way, Take One, Skyline, LeGonks West, Conway, Mad Hatter, Zebra, Lionshare, B&J Studios (Los Angeles)
Mastered by: Wally Traugott
SPARS Code: ADD

Comments: On his debut, Perry's voice shines, sounding somewhat like a more powerful Johnny Mathis crossed with Rick Astley. The CD is a who's who in engineers and producers, offering a good sampling of what these studio heavies can do with a vocalist who knows no technical boundaries.

Of special interest: The recording boasts lots of engineering excellence. One high point is Don Murray's recording of the ballad "Woman," with his tasty use of large vocal reverb space. ■

97 LB. ENGINEER HURLS PRIMA DONNA ACROSS THE ROOM.



©1991 Roland Corporation US

Roland has the ideal way to put sopranos, guitar players, tubas, even sound effects in their place.

We're referring to the digital wonder you see before you. The Roland Sound Space Processor (RSS).

The first and only product that lets you rearrange the musical "furniture" so to speak, instead of merely adjusting the levels or adding sound effects.

With RSS, all it takes is one finger to make a guitar riff travel all around the room. And with the same finger, you could make Helga here sound even bigger than she actually is.

You see, RSS expands the overall spatial imaging of a recording. Sonically speaking, it's like opening a window you never had before.

Sound images can be easily localized — right or left, above or below — well beyond the limited space defined by two speakers.

And because RSS is encoded during the mixing process, there's no decoding to worry about.

Which means, these ear-opening results can be enjoyed by anyone who has a boom box, home entertainment system, or stereo TV.

So whether you're a recording engineer, effects editor, artist or producer, you owe it to yourself to get an earful of the remarkable Roland RSS.

For more information, call (213) 685-5141, ext. 337.

But be forewarned. Once you experience one of your mixes with RSS, you'll probably be hurling musicians around the room every chance you get.



Now you can localize sound anywhere around the room with just a sweep of your finger.

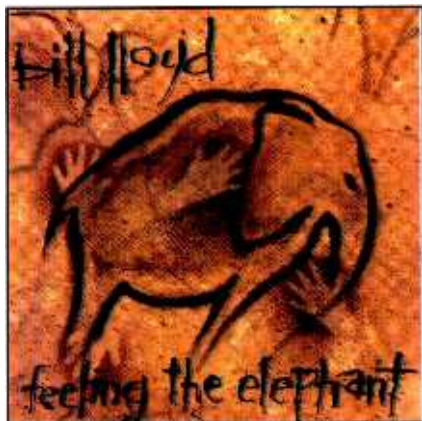
Roland[®]
Pro Audio/Video Group

RSS
Roland Sound Space[®]

Circle (8) on Rapid Facts Card

Fresh Tracks

Bill Lloyd: "Feeling the Elephant"



Label: DB Records
Produced by: Bill Lloyd
Recorded and mixed by: Bill Lloyd, Marc Owens, Bill Smith, Rick Will, Mike McCarthy, Tommy Dorsey, Giles Reaves, Larry Lee, Keith Odle
Recorded and mixed at: High Street (Bowling Green, KY); MTM Studio (Nashville); the Castle (Franklin, TN); American Sound Studios (Nashville)
Mastered by: Hank Williams
SPARS Code: N/A

Comments: This collection of pop demos predating Lloyd's country career is worthy for a couple of reasons. Historically, it shows now-established Nashville talent (Lloyd, Rick Will, Giles Reaves, etc.) at the start of their careers. Second, with the recent success of the Rembrandts' album (recorded on 1/2-inch 16-track), it's interesting to compare material recorded on earlier-generation machines as late as eight years ago. Eight of the 10 cuts were recorded on 1-inch 8-track. As with the Rembrandts, this album reminds us that ultimately, it's the skills of the participants that count most.

Of special interest: The nature of demos dictate that no one's going to mistake these for full-blown productions. However, despite the financial and technical constraints that must have been present during these sessions, the production always manages to be inventive, as on the title track and "Everything's Closing Down." The performances are spirited, and Lloyd's songwriting, as always, is first-rate. ■

Lenny Kravitz: "Mamma Said"

Label: Virgin Records America
Produced by: Lenny Kravitz
Engineered by: Henry Hirsch and David Domanich
Mixed by: Henry Hirsch
Studios: Waterfront
Mastered by: Greg Calbi, Sterling Sound
SPARS Code: N/A

Comments: Forget the hype about Lenny Kravitz. Pay no attention to the 1960/70s revival that you've heard permeates his latest album. Instead, concentrate on the artist's and engineer's complete abandonment of popular recording techniques. The results yield a refreshing production, free from the gizmos and gadgets that clutter today's studios and airwaves. The judicious use of digital delay (particularly on vocals with respect to both delay time and wet vs. dry mix amounts) is uncharacteristically idiosyncratic, yet the idiom of Kravitz's work is well supported by these outdated "stunts."



Of special interest: If you think you've heard every guitar sound ever recorded, you'll be surprised at the variations found on this recording. Don't get us wrong: some of them are rather thin, brittle and harsh. In particular, the use of multiple tap delays (or could it be the right acoustical environ?) lends the perfect edge to the near-perfect performances. Even with the blatant sonic neglect, each track is unique and worth checking out. ■

Todd Rundgren: "2nd Wind"



Label: Warner Bros.
Produced by: Todd Rundgren
Engineered by: Todd Rundgren
Mixed by: Todd Rundgren
Recorded live at: The Palace of Fine Arts Theatre (San Francisco)
Mastered by: Greg Calbi, Sterling Sound
SPARS Code: DDD

Comments: Don't tax yourself categorizing this one — you'll get a headache trying. Rundgren's latest collection draws from many domains, including his recent Off-Broadway excursion (the musical "Up Against It"). With stellar live performances, the engineering talents are remarkable.

Of special interest: The mix yields the individualistic "Rundgrenesque" wall of sound; sound sources aren't panned to give spatial depth or stereo positioning. Instead, digital FX are used to widen the mix. Equally evident, the dramatic plane on which the balance of tracks plays out takes full advantage of the noise-free and spaciouly quiet Sony 48-track digital medium on which the project was tracked and mixed. ■

We built our woofer and tweeter a better home.



DMT AND TRANSDUCER HOUSINGS —

All Cabinets used in the new Tannoy Monitor Series represent considerably more thought and design than the average 'chipboard cabinet of the correct volume'.

Cabinets are constructed from a high density space-frame with rounded corners and edges, supporting MDF/high pressure twin laminated walls

Rounded corners and edges greatly inhibit sound reflections and diffractions from cabinet boundaries. These can be major sources of irregularities in the reproduced sound, particularly in terms of the perceived placement of instruments within the sound stage. For the high frequency unit to make an effective job of launching all the detail that it can generate into the listening space, it must be held rigidly in the cabinet throughout its operational frequencies.

This is the key to the Tannoy cabinets. If a 'rigid' cabinet

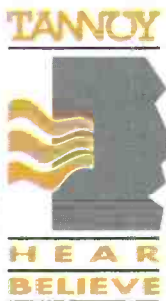
is used, the redundant energy from the rear of the bass unit and frame cause endless resonance problems within the cabinet. Differential Material Technology provides the answers by using a variety of different adhesives between the rear of the drive unit and brace, the cabinet walls and the brace and within the layers of the MDF laminate.

The lossy couplings effectively transmit and absorb energy in a frequency selective way. Put more simply, at low frequencies the drive unit sees the cabinet as a rigid structure and at higher frequencies as a resonance absorbing/damping structure.

DMT provides an ideal cabinet solution for the complete frequency range, eliminating unwanted loudspeaker biases.

The overall result is a true representation of the mix, unequaled referencing capability, guaranteeing what you hear is what you get — *every time*.

Tannoy / TGI North America Inc. • c/o Bill Calma • 300 Gage Ave., Unit 1, Kitchener, Ontario, Canada N2M 2C8 • (519) 745-1158 • Fax (519) 745-2364



Not your average woofer and tweeter.

Circle (9) on Rapid Facts Card

www.americanradiohistory.com

The Law



Label: Atlantic
Produced by: Chris Kimsey, Paul Rodgers, Kenney Jones (Additional production by Ahmet Ertegun and Shane Keister)
Engineered by: Christopher Marc Potter
Mixed by: Christopher Marc Potter
Recorded at: Parsifal, Westside, Olympic (London)
Mastered by: Bob Ludwig, Masterdisk
SPARS Code: DAD

Comments: Paul Rogers' new group with Kenney Jones creates classic rock radio sounds. Rogers' singing is outstanding, the best it's been in 20 years. Jones' drumming is spare and tight.

Of special interest: "Laying Down The Law" has a Bad Company-style opening guitar riff; "Nature of The Beast" is written by Bryan Adams and Jim Vallance. "Stone," written by Chris Rea, features some interesting, reverb-drenched guitar sounds. The guitar tones recall some of the best of Rogers' previous associations with Bad Company and Free, and Jones' with Small Faces and the Who. Rogers explains, "We tried to make an album that would satisfy all of the people who have followed us throughout the years and an album that was true to our real nature." ■

Dan Levitin is a contributing editor to R•E•P and an engineer/producer based in Stanford, CA.

FOCUS:

PAUL ROGERS and KENNEY JONES, The Law

R•E•P: Did you play with a click track?

KJ: Yes, on some of it.

R•E•P: You must have used click tracks when you were with the Who, as well ...

KJ: Yes, both on stage and in the studio, I would play to a sequencer.

R•E•P: How do you get a click loud enough so you can hear it over the band?

KJ: You pick the worst thing you could possibly imagine for a sound and you turn it up loud. In my case, I always use a cowbell, so it goes "donk" on my brain. It's very loud and it's such a distinctive noise that it will cut through all the other stuff.

R•E•P: Paul, how do you get the intensity of vocals that you do? They always sound like you're just flat out singing live. Do you sing to the band coming through in speakers or do you sing in headphones?

PR: I did a bit of both, actually. We did some preproduction and rehearsed the material in order to organize the keys, the tempo and the arrangements. We recorded those rehearsals and ended up keeping some of them.

R•E•P: How did you get the vocal sound on "Nature of the Beast?"

PR: That was one of those happy accidents. We had a new tape-op, and we had just finished putting some guitar overdubs on and they had the guitar through all sorts of compression. When I stepped up to do the vocal, he accidentally had me going through that same compression, and I just sort of let it rip. When they stopped the tape they said, "We'll have to do that over, there's something strange with the vocal sound. You can't use that, it's the guitar sound." But I thought it sounded great! Chris Kimsey agreed, so we kept it.

R•E•P: How do you get the energy you do in phones?

PR: I psych myself up — I imagine that I'm playing at Madison Square Garden and the place is packed, and that's how I get the atmosphere.

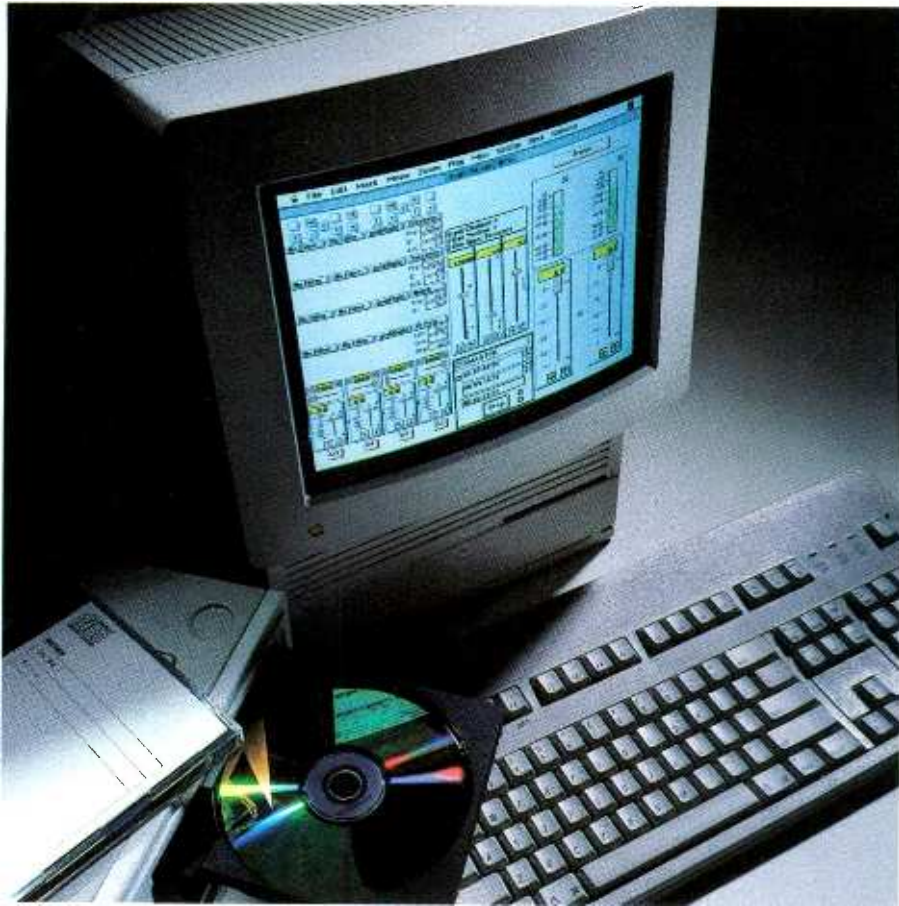
KJ: It's also good to have a good ambient sound in the cans because that creates an atmosphere.

PR: There's another thing as well. I like to hold the microphone. Engineers will tell you this is not always practical in the studio, some mics aren't meant to be held and so on. But if the mic is stationary, you have to move your whole body to vary the distance to get the mic techniques you want. Whereas if you're holding the mic you only have to move the hand with the microphone in it and you get an amazingly different sense of delivery that way.

Distance is very important to my mic technique — you can get light and shade into your performance that way. Also if the mic is stationary, you can't be moving around as much, and that makes a big difference.

R•E•P: Did you two demo up these tunes before you went in the studio?

PR: Yes, we did a lot of demos. We both have demo studios in our homes with pretty similar equipment — Soundcraft 24-track machines and desks. I played a bit of bass, guitar, just for the sake of filling out the sounds. Later we decided to get in a proper guitarist and a proper bass player to do it right, and that's how the Law was born. ■



Like no other.

No other digital workstation fits this picture because no other system matches the flexibility and productivity of the Sonic System.

The Sonic System offers a series of "firsts." The first (and only) digital audio workstation that can record directly to a compact disc. The first to offer background loading and unloading to hard disk. And no other system gives you from 16 to 24 bit audio at such a reasonable price.

The Sonic System offers unprecedented ease, speed, and power. All editing and mixing can be previewed in real time, so there's no waiting for the system to compute edits and write them to the hard disk.

EDITING - We surrender complete control over crossfades, allowing you to make smooth edits which are impossible on other systems. All editing is "non-destructive," so you can make changes quickly and save multiple versions for those finicky producers.

MIXING - Our Mixing Desk includes a broad array of filters, dynamics, and full automation. You can change filter settings and audition your EQ in real time.

NoNOISE® - The **NoNOISE** system has restored thousands of recordings. Now you can add any **NoNOISE** "tool" for de-clicking and noise reduction to the Sonic System.



Whether you edit or mix music, dialog and sound effects, or multi-track recordings, chances are there is a Sonic System package that could enhance your productivity without breaking your budget.

Call us for more information:

Sonic Solutions

1902 Van Ness Avenue
San Francisco, California 94109
Tel (415) 394-8100
Fax (415) 394-8099



Circle (10) on Fast Facts Card

www.americanradiohistory.com

The Southern Perspective

By John Fry

There is a rich history of recording in the South, one that has evolved with distinct differences from other regions of the country. To understand this evolution, which continues with dramatic changes to this day, I'd like to take a look back at our roots and offer a perspective on the shape of things to come in the 1990s.

When SPARS was founded 11 years ago, recording in the southeastern United States still consisted almost entirely of activity related to the consumer music industry (or as we used to call it, the record business). There were, of course, several established firms producing jingles, IDs, and library services, but the scoring and post-production activity that today thrives in the South's big new media centers (Nashville, Atlanta, Orlando) was in its infancy. Because most of my own experience and current work is related to the record industry, I will confine the scope of this article primarily to the history and current state of this activity.

Record labels first came south searching for unique regional and ethnic performers as early as the days of acoustic recording. Permanent recording studios were almost non-existent, recording conditions were primitive. However, the powerful, compelling quality of blues, jazz, gospel, bluegrass and country artists was not to be captured elsewhere. WSM radio broadcasts of the Grand Ole Opry were a magnet drawing the top country performers to Nashville, as well as a beacon spreading awareness of their music far beyond its region of origin.

The resulting concentration of talent in a single city led to the early establishment of a permanent studio and A&R presence by major record labels. Later, a complete entertainment industry infrastructure developed. Today, Nashville is the only U.S. city other than New York and Los Angeles having such a breadth and depth of music industry related services and business activity.

John Fry is president of Ardent Recording, Memphis, TN, and a member of the SPARS board of directors.

STUDIOS FOLLOW LABELS

The establishment of a large number of studios diffused throughout the region paralleled the development of independent record labels in the area. Although a few independents existed in the South earlier, the mid-1950s through the mid-1960s brought the explosive growth of the southern independent labels. With them came a wave of studio construction. These companies were founded by maverick entrepreneurs determined to validate their musical discoveries in the marketplace. Often, they were able to create astonishing new sounds by merging styles previously isolated by cultural and racial barriers.

Among the best known examples are Sam Phillips' early Sun records by such artists as Elvis Presley, Carl Perkins, Roy Orbison and Johnny Cash, which combined country and blues influences to produce what arguably was the birth of rock music. Similarly, the producers and artists of labels such as Stax applied an increasing sophistication of instrumentation and production to the solid foundation of southern rhythm and blues.

The role of the studio in these rapidly changing times was that of a means to an end for the label operators. They came to their calling with little capital or technical background. Studios affiliated with independent labels were rapidly improvised affairs, often consisting of a few RCA microphones, one or more Ampex mixers and an Ampex 300 series tape recorder. Engineers were often musicians who learned their trade on the job, and maintenance and alignment were often neglected.

By contrast, the major label studios (confined to Nashville) were generally fully equipped with properly installed modern equipment in an acoustical environment that was reasonable by the standards of the time. Both operating and maintenance personnel were plentiful and generally competent, although often encumbered by a unionized bureaucracy otherwise foreign to the region.

As some of the independents prospered, a desire to improve product quality prevailed, combined with the availability of capital to produce better facilities. However, the procurement of trained technical staff often continued to lag behind the sophistication of consoles and multitrack recorders that had rapidly entered the scene.

Before the mid-1960s, label- and producer-operated studios predominated,

and the high quality, full-service rental studio facilities common to the North and West were rare in the South. However, there now began to emerge a new generation of studio entrepreneurs who saw a business opportunity in providing technically sound, properly staffed recording facilities. These studios would serve the needs of major label A&R departments that had moved to secure their share of the southern talent that (outside of Nashville) had previously been monopolized by the independent labels.

With a client base of major labels, independent producers, independent labels without adequate facilities, management companies and publishers, the professional rental facilities were able to grow and prosper through rapid technological advances from the late 1960s onward. Soon, every major population center in the region was able to support at least one such first-class operation. Those cities with a substantial music tradition often had several. With the presence of the country music division of every major label and offices of large music publishers, Nashville remained the unquestioned leader with a studio population that had reached an estimated 195.

The prosperity of the independent labels peaked in the early 1970s; by the mid- to late-1970s, most of them were gone. The independent wholesale distribution system, with its chaotic credit-and-return policies, simply could not provide stability for the continued growth of the industry. There were business failures among the independents, and many sought shelter through distribution arrangements or outright buyouts by the financially stable majors.

Today, many independent labels continue to play an important role in the region, but the successful firms are carefully defined niche-marketers specializing in such areas as gospel, blues or alternative music.

Today the function of discovering and developing regional talent is largely in the hands of managers, independent producers and production companies, many of the latter associated with studios. It is my opinion that the most successful regional studio operations in the 1990s will be those that are associated with production companies and groups of active independent producers. Studios outside major music centers must offer a comprehensive approach, rather than just providing technical facilities if they are to remain in the

Continued on page 64



“...performance that rivals digital, without the expense.”

If you're wrestling with the analog/digital question, these reports from Bill Koepnick, Emmy Award winning Sound Effects Designer, and Jim Hodson, Emmy Award winning Re-recording Mixer, both with *Advantage Audio* in Burbank, California, may help you with the answer.

Jim points out, “*Otari's MTR-100A gives me total flexibility in the audio post environment. From its auto alignment feature and responsive synchronization, to its sonic transparency and built-in Dolby* noise reduction, the choice is very clear.*”

Bill says, “*We were looking for digital audio quality without the expense associated with going digital. The MTR-100A with its integral Dolby SR/A satisfied all of our criteria.*”

Together, the MTR-100A and Otari's Series 54 audio console deliver the performance, flexibility and sonic clarity that lets *Advantage Audio* and other studios around the world provide their clients with the ultimate audio environment.

The MTR-100A. *Just listen to it.*

*Trademark Dolby Laboratories Licensing Corporation.



Burbank, California • (818) 566-8555

Circle (11) on Rapid Facts Card



Foster City, California • (415) 341-5900

Software Solutions, Part 1

By Rick Schwartz

It's hard to find a recording studio these days without at least one computer in it. It's often said that a computer is only as good as the software inside of it. Here are 10 great software packages for the Apple Macintosh that no studio should be without.

NETWORKING SOFTWARE

Most studios have several computers in them. Very few network them. Why? If you have computers in your studio and you want to connect them, all you need is an inexpensive network connector. The computer uses an unused pair of wires on your phone jack, so no additional wiring is needed. Not only will networking allow all of your users to share resources like a laser printer or a network modem, but with software like AppleShare or Tops, you can even share files across the network.

For example, let's say you have a great library of drum samples. Instead of copying disks for every studio, you could share the same samples in every studio. That way, if someone improves a loop or creates a new sample, all of the rooms can use it immediately, without someone having to update each disk.

ELECTRONIC MAIL

Electronic mail software like QuickMail lets you communicate with other users on your studio's network without wasting paper. In many ways, it's more efficient because you can leave someone a message at any time. You don't even have to be in the building. Using a modem, I check my messages every day from home before I go into the office. By clicking on an RSVP flag, your computer will let you know when the recipient read the message. E-mail is great when you really want to get something done without letting it slip through the cracks.

For example, say you notice a piece of signal processing gear has a problem. You could leave E-mail for the technical department alerting them to the problem. While you're at it, why don't you carbon

copy the message to the studio manager and the owner? It is amazing how fast things get fixed when this happens.

PRODUCTIVITY ENHANCEMENT

QuickKeys 2.0, Tempo II and OnCue are three examples of productivity enhancers. Many of the things we do every day are repeated. Macro software saves you time by making sure that you only need to do something once. For example, a macro will open your word processor, select your favorite font, place your logo in the upper left-hand corner of the page, enter your address, the date and your name, etc. All you do is tell the computer to watch what you do by starting its macro recorder. When you're done, just assign a key to the function and play it back.

THE ELECTRONIC ROLODEX

Most studios keep lists of clients, suppliers, engineers and even restaurants. Why not enter all of this info into a specially designed database that will find something in a flash and even dial the phone number for you. A hungry client could type in a keyword like sushi and step through a list of choices.

Examples of popular programs are TouchBase and Quickdex. Both are lightning-fast and easy to use. TouchBase also has excellent label printing capabilities that support most major Avery labels. Its custom fields allow the user to add their own fields — things like dependent names, car phone, home phone, extension numbers and other personal information.

STUDIO MANAGEMENT SOFTWARE

Archie 3.5 is a relational database software that uses Double Helix and is specially designed for studio management. Engineers fill out time sheets; Archie will generate all of your invoices and will even tell you which ones haven't been printed out yet. Archie keeps track on tape usage and tells you when to reorder stock. There are several different security levels, so different users have access to different information. In addition, the software prints out track sheets and will trace masters for you.

Best of all, Archie keeps track of each client's special rates for each different studio and different type of work. Very little typing is needed — users pick from lists of tape supplies and client numbers. In addition, Archie provides a complete maintenance history of every piece of equipment you own. Multi-user versions are available for larger facilities.

DISK UTILITIES

Programs like Norton Utilities and Symantec utilities are an essential for any hard disk user. They will optimize your disk to improve performance, undelete lost files and even tell you when your hard disk needs to be reformatted. If your computer ever fails to boot or your hard disk crashes, these programs are lifesavers.

DESKTOP PUBLISHING

Desktop publishing made the Macintosh a household word. You don't have to be a graphic designer to design your own rate cards, brochures and advertising. You don't have to be artistically inclined either. Clip art is available on floppy disks and CD-ROM. Quark X-press, Pagemaker 4.0 and WordPerfect 2.01 are three programs you can't go wrong with.

LABEL MAKING SOFTWARE

All studios need cassette and tape box labels. Most of us would agree that this is easily the least glamorous part of studio life. There are programs that will make labels and even companies that will print your company logo on blank stock.

SAMPLE EDITING SOFTWARE

Sample editors allow you to take a sample from one instrument and convert it to another. Other useful features are the ability to optimize gain for maximum output and boost high frequencies without adding hiss. You can even time-compress a vocal line to make it fit better.

In the past, people would chose a studio because of their microphone collection or outboard effects gear. In the future, I think we will see more studios creating their own sound libraries.

TAPE LIBRARY SOFTWARE

Intramedia distributes a program called The Vault Manager that automatically tracks each tape. Tapes are quickly entered into the computer using a low-cost bar code scanner. Every time a tape enters or leaves your studio the computer automatically dates, time stamps and records its destination. A computerized tape tracking system can almost eliminate lost tapes. ■

Rick Schwartz is a contributing editor to R+E+P and director of post-production for Music Animals, Los Angeles.

The Alesis 3630...

a compressor that sounds great,
does everything and is affordable



When we blueprinted the new
Alesis 3630 Compressor Limiter
we had a hard time cutting out features.
So we left them all in.

Threshold, attack and release controls.



Hard knee or soft knee, and peak or RMS
compression. All the options you need to
custom configure the 3630 for any record-
ing application... especially necessary for
digital recording.

A great metering system tells you
exactly what's happening to the signal,
with separate meters for gain reduction
and input or output. The 3630 uses the
industry standard VCA for low noise and
great sound. There's a
side chain for keying and
ducking, adjustable noise
gate, -10 or +4 dB operation. All this for a
price that's like getting one channel free.

Retail price of the 3630 is \$299.*
Read the headline again. Then go hear
the 3630 at your Alesis dealer today.

*Slightly higher in Canada



LOS ANGELES: Alesis Corporation • 3630 Holdrege Avenue • Los Angeles, CA 90016

LONDON: 17 Letchworth Point • Letchworth, Hertfordshire SG6 1ND

Circle (12) on Rapid Facts Card

www.americanradiohistory.com

Barney Perkins

By Dan Levitin

Although his name may not be widely known, Barney Perkins' achievements speak for themselves. As an engineer during Motown's glory years, Perkins engineered the greatest of Holland-Dozier-Holland's work. In the 1970s, he worked with Jim Croce and Steely Dan.

However, his career is not mired in the past. Most recent projects include Anita Baker, *After 7* and many artists produced by L.A. Reid. He has branched into producing as well, with such acts as Jamm and Pebbles.

A hallmark of all of his work is his ability to let the songs stand on their own, without excessive processing. His goal is to let "as much of the natural feel of the music come through as is possible."

Dan Levitin is a contributing editor to R•E•P and a producer based in Stanford, CA.

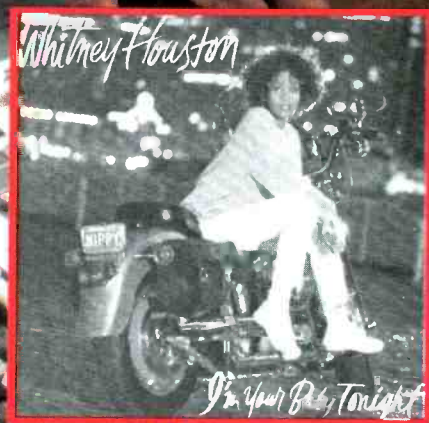
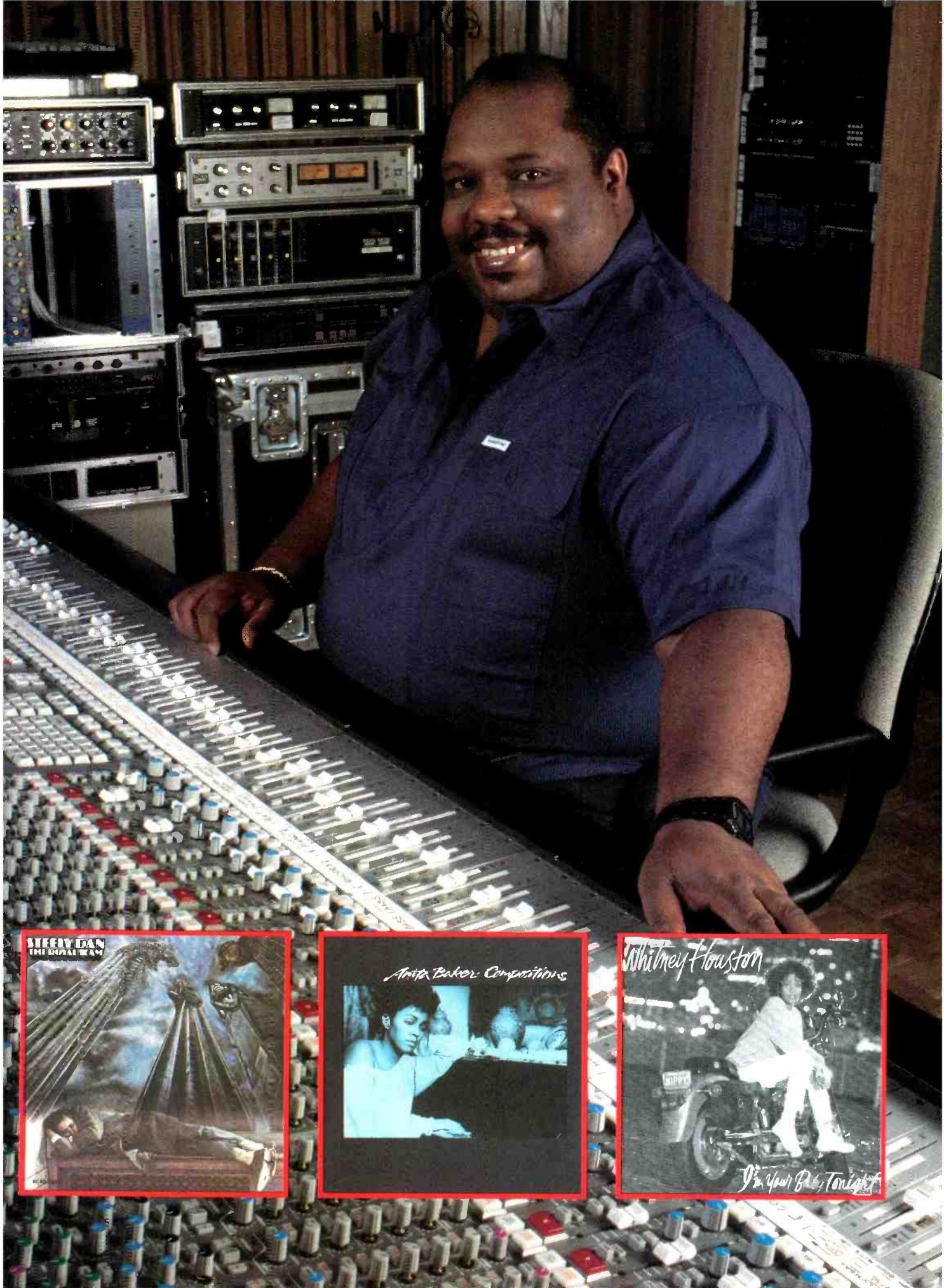
R•E•P: Where did it all begin?

BP: I started out at Motown working for Holland-Dozier-Holland. I engineered records by the Supremes, the Temptations and the Four Tops. In the earlier days of Motown, they did not list the production people on the records, they gave them codes. On a lot of the earlier albums, you don't see names, you see things like "B1" or "C4." Initially, Barry Gordy did not want to list people by name for fear of losing them to the competition. I don't know exactly when it changed and they started listing my name on the records. But whatever Holland-Dozier-Holland did for Motown, that's what I worked on.

R•E•P: What were they like to work with?

BP: Just great. I owe a good 67% of my engineering career to Brian Holland, for teaching me all the creative parts of mixing and recording.

From Motown to dance, jazz to pop, an industry veteran comments.



R•E•P: Was he an engineer?

BP: Yes, he was. I started as a second engineer under him and then began firsting. What I got from Brian was an enthusiasm and a motivation because of what he displayed for the music. He had such an affection for mixing, it rubbed off on me. He wouldn't stop until he felt something was right.

It was this part of the process I got from him, not necessarily the technical aspects, but the aesthetic ones: the creative sense and the drive to see something through. He did teach me how to edit more musically. Up until that point, I knew how to edit the technical way, but he taught me how to do things the musical way.

R•E•P: You must have had to do a lot of edits during a mix ...

BP: Definitely. That was the only way to do it; there was no automation in those days, of course. Our console at the time had 14 faders, and that was it.

After Motown, ABC hired me in 1973 as a first engineer.

R•E•P: A lot of people don't know this, but you did some mixing on Steely Dan's "The Royal Scam."

BP: I mixed two or three songs for that, including the title track. It was a lot of fun.

R•E•P: How were they to work for? Did you find them demanding?

BP: Only to the point of perfectionism; the demands were creative demands, which I love. The demands were not unreasonable, and they were very nice people to work for.

R•E•P: You did this as part of being a staff engineer for ABC?

BP: Yes. I also worked for Jim Croce during that period, although a few years before the Steely Dan album. This was when quadrophonic was around, and I remixed all of his albums into quad.

R•E•P: Who did you learn the most from while you were working at ABC?

BP: I would have to say Steely Dan. At that time, they were one of the most prominent acts that were out. I worked with a lot of the jazz guys at ABC — Keith Jarrett, Stanley Clarke, Ray Charles. There was one particular jazz producer, Esmond Edwards, who was the head of Impulse! at that time. He liked my work, so he requested me on a lot of his records.

R•E•P: You were working on Marvin Gaye's last album when he died.

BP: Yes. Smokey Robinson was helping produce it and he had everything ready to go. All the backing tracks were done and Marvin was going to come in that day

to put on his vocals. I was sitting there in the studio waiting for him to show up, and then Smokey called and said he wouldn't be coming in.

R•E•P: I read that you were the first American engineer to use the SSL.

BP: Yes. At the time, I was working very closely with the studio owner/builder Kent Duncan, Kendun Recorders. We were building a particular room at Kendun for me, so Kent and I went to Europe in search of new consoles. We did not want to put in the Harrison or the MCI. And there were some British consoles popular at the time that I didn't like. This was about 1977.

We went to London and we were going after a console at that time called Cadac. But when the rep met us at the hotel, he informed us that they were having money problems, so we decided it might not be a good idea to go with them. We heard about this guy who built these new consoles, but no one knew where to find them except that Shady Lane, outside of Munich, had one. So we jumped on the plane and we saw this console that he had shoved into his bedroom. It was a prototype of an SSL. He told us where to find the builder — in Oxford — so we got back on the plane, met with him and bought one.

"I'd rather be remembered for things that are going to be around for a long time than for some trendy sound that only took place for six weeks."

R•E•P: A lot of people enjoy them because they're easy to use, but a lot of engineers comment on the "sharper" sound quality.

BP: That may be true in a partial sense, but the other British consoles sound too warm, or too soft, to me. I get the edge that I want out of the SSL. Although I own some outboard Focusrite EQs that I use if I want to warm things up, I really like the punch and the edge of the SSL. Most of the people I work with want that, too.

R•E•P: You're talking about the EQ?

BP: Yes. And especially on the G series. I think the G is sonically one of the cleanest sounding consoles there is. The transparency, the openness, the punch, everything.

R•E•P: Do you use your Focusrite as a mic pre-amp too?

BP: No, I just use it as outboard EQ. I've found the mic pre in the G is just as clean as any other outboard mic pre. There was a company that wanted \$4,500 for one module of a mic pre and an EQ. They brought one in and I put up a test, ran a mic to that and the SSL G and made a comparison. There was a noticeable difference, I'll admit. But not enough to warrant spending \$4,500 per module. I thought the lower frequency response of their unit was cleaner, but overall, the G was very close.

R•E•P: How would you describe your approach to mixing?

BP: When I'm mixing, I have to feel things. Some mixers are more like effects-type mixers, they like to use a lot of effects, delays — gimmicks — if you want to call it that. I'm more of a feel-type mixer. If I can't feel it, I don't like it yet. I have to keep at it until I feel it.

R•E•P: The interesting thing about all those Motown records we discussed is that they were absent of those kinds of effects you're talking about — they were all just energy.

BP: Right, it was basically just good songs, good recordings and good mixing. And I still think that applies today. You've got to start with a good song. Gimmicks ain't gonna make you a hit record. Now I think effects are important, I just don't think they should take first priority. I think they should be like a color, another facet of the mix, but not put in a position where they take the foreground.

R•E•P: What about dance mixes?

BP: That's a different thing. I think they are fine, the club mixes that start out with double kick drum and effects and so on. That's a whole different thing and there's a place for that. But when you're doing a mix that the masses are going to have to listen to over and over again, you should do something more basic. If you notice, all the hit records are very simple. Because a hit record is going to be played constantly, over and over again, and if the thing is too nervous or congested sounding, people aren't going to want to listen to it over and over again.

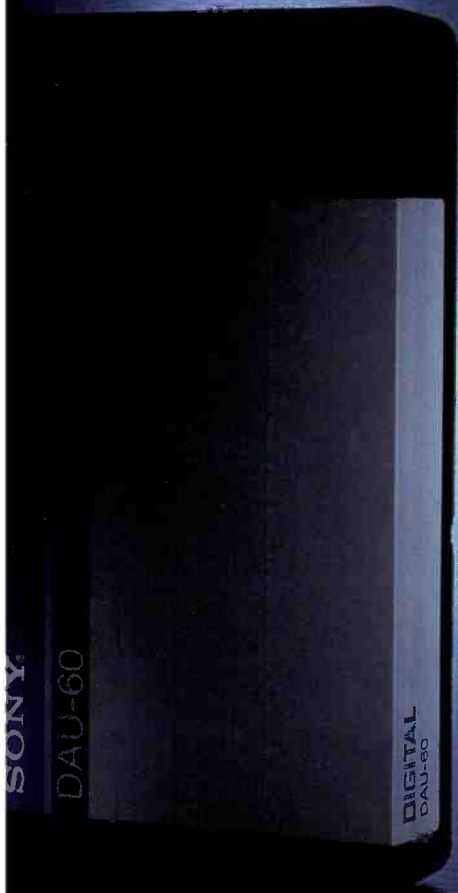
R•E•P: Do you have your own room at Encore?

BP: Well, I keep it booked approximately 300 days of the year.

R•E•P: What equipment do you like to use?

BP: Focusrite EQs, dbx 160X compressors, the TC units. We have at least one of

THE MOST IMPORTANT DIGITAL EQUIPMENT ISN'T WHAT YOU THINK IT IS.



It's the tape.
And it's why Sony™ is so totally in-sync with every aspect of digital recording.
Because we pioneered virtually every major digital tape format: 1630. FI. DASH. DAT.
And since we also developed the digital hardware they perform on, we didn't merely
learn each tape's parameters through trial and error.

Moreover, each Sony tape is designed to capture the ultimate in digital sound.
Which is precisely why we're as committed to digital audio tape as we are to digital
recording itself.

So if you're committed to the quality of what people hear, just think Sony.
The Leader In Digital Audio.™

SONY
PROFESSIONAL TAPE

Circle (16) on Rapid Facts Card

www.americanradiohistory.com

OUR MACINTOSH AND IBM SOFTWARE MAKES POST PRODUCTION AN EASY PRODUCTION.

M&E LIBRARY

- Database application program to search and locate Production Music and Sound Effects.
- Organizes CDs, Tapes & DATs etc.
- Searches by Word, Category, Synonym, Style, Catalog number or Description.
- Cross Referencing easily identifies the library source, CD#, length of time and Track/Index #.

M&E ORGANIZER

- Controls the playback of Sony CDK 006 Auto Disc Loaders and others.
- Creates an automatic transfer to Hard Disk Recorders such as the AMS Audiofile.
- Multi M&E networks between all rooms.

TRACKWRITER

- Spotting & ADR (Auto Dialogue Replacement) software.
- Reads time code from video and transfers it automatically to the IN and OUT columns.
- Sorts by character, loop#, channel # and timecode numbers.
- Direct Cut and Paste of effects descriptions from the M&E Library program.
- Conversion to Feet/Frame.
- Generates spotting or ADR printouts.

TRACKPLANNER

- Software program to create and print film style cue sheets for sound effects and dialogue editing.
- Reads VITC/LTC timecode.
- Accommodates 24 tracks of information.
- Screen layout is patterned after ordinary cue sheet paper.
- Import of EDLs from AMS Audiofile.
- Real time playback where the screen follows timecode.

SOUND EFFECTS LIBRARIES

- We have the most comprehensive list of sound effect libraries on CD for sale. In stock.

NEW ADDRESS

GEFEN SYSTEMS
6261 VARIEL AVENUE #C
WOODLAND HILLS CA 91367
818-884-6294 • 800-545-6900
FAX: 818-884-3108



Circle (14) on Rapid Facts Card

everything that's on the market in the studio.

R•E•P: Your mixes sound like you're using a bit of Eventide Harmonizer on the vocals.

BP: I like the H3000. Just a little bit — I love that sound. Let me put it this way: I use effects, probably sparingly, but I do use them. The point of all this is, I'd rather be remembered for things that are going to be around for a long time than for some trendy sound that only took place for six weeks.

R•E•P: What about digital?

BP: I vacillate on that. At one point I liked it; now I'm back at a point where I don't like it. There's something about it right now that I'm not really comfortable with. The one I like best is the Mitsubishi 86HSV, the 2-track. Multitrack digital I still don't like. I've mixed down on both the Sony and the Mits, I've recorded multitrack on both of them, and I still don't like them. I can't get the depth of field in the mix that I like with the digital equipment.

R•E•P: Nearly all of your records have a lot going on in them, particularly in the midrange. How do you keep the vocals so consistently clear? They always cut through.

BP: Basically I do rides on the leads during mixing, I don't rely on the compressor to hold the leads there. I even out all the high spots and low spots so that when I place it in the music, it stays there. I don't ride it when it's going to tape, of course, because I don't know what the next phrase is going to be. But I try to get it on tape, with just a minimum of compression to help me catch the hot parts that might leap out.

R•E•P: Isn't there more to it than just riding the level?

BP: Not really. If you take a lyric sheet and you sit there and you work on the track to make sure that every word and every phrase is perfect, then you've got it. I learned this from Phil Ramone. I was working several years ago in the same studio where he was doing Barbra Streisand.

She was doing a film out in the Mojave Desert while they were mixing her album, and they would have to do a mix, take it someplace, bounce it off a microwave dish out in the desert for her to listen to, and she would phone back her comments. Every comment she would phone back was not about the music; it was always about the level of her voice. And Phil kept at it until it was perfect.

Once they got it you could hear the difference: There was now a harmony between the music and the voice that was

just right. So I learned that then. This is really important to me. I listen to some people's records and the voice is there, then all of a sudden it disappears or it gets too loud; I don't think that should happen.

Selected Discography

- After 7: "After 7."
- Anita Baker: "Rapture," "Songstress."
- Natalie Cole: "Thankful," "Cole Live."
- Jim Croce: (all of the quadrophonic remixes).
- DeBarge: "All This Love," "In A Special Way."
- El DeBarge: "Who's Johnny?"
- Isaac Hayes & Dionne Warwick: "A Man and A Woman."
- The Honeycomb: "Want Ads."
- Whitney Houston: "I'm Your Baby Tonight."
- Keith Jarrett: "Impulse Collection."
- Pebbles: "Always."
- Smokey Robinson: "Essr."
- Steely Dan: "Royal Scam."
- The Temptations: "Cloud Nine," "I Wish It Would Rain."
- Barry White: "Love Unlimited Orchestra."
- Bobby Womack: "The Poet." ■

R•E•P: You're producing more these days, right?

BP: Yes. There's a group called Jamm that came out on Island records in January, I co-produced that. I'm going to Atlanta to work with Pebbles. After that I've got Jennifer Holliday and then Gladys Knight — we just got through tracking. I've been working with Gladys since she was at Motown with the Pips. I'm doing some songs with Angela Bofill and also for L.A. Reid's new group. I've been lucky to do a lot of work for L.A. I recorded After 7, Babyface's little brother, the songs "Ready or Not" and "Can't Stop."

R•E•P: Who are your favorite engineers?
BP: Bruce Swedien. I think he's a phenomenal engineer; I look up to him a lot.

R•E•P: What technical advice do you have for engineers about mixing?

BP: Don't over-EQ. And in general, don't overprocess the material; let as much of the natural feel of the music come through as is possible. ■

The HD-1 in Music Recording

The solo kills. The vocals are locked. The tracks are perfect. The last thing you need is to find out that the side isn't happening when you take the mix home.

You need the HD-1 High Definition Audio Monitor.

More and more, top engineers and producers are turning to the HD-1 because they trust it. They hear every nuance. They know the bass is accurate. And their mixes translate perfectly.

*In fact, the HD-1's reputation is so outstanding that it's already been named "the reference for the 1990's"**

And that pretty much makes the HD-1 a sure thing.



Meyer Sound Laboratories, Inc.
2832 San Pablo Avenue
Berkeley, CA 94702
(415) 486-1166
FAX (415) 486-8356

*Prosound Japan, February, 1990

© 1991 Meyer Sound

MEYER SOUND

Accomplishing creative music production for a feature length video is simple.

But on a university budget?



Author Jon Hilton in his studio during the post-production of "Princess Ida."

POSTING CORNELL'S "IDA"

By Jon L. Hilton

The way it started with "Ida" and me was through my connection with Cornell University's Betacam crew. I run a small 16-track MIDI/SMPTE studio in my house for film scoring, audio post and production.

Last year, Cornell producer Daniel Booth had the idea to make a screen musical of a Gilbert and Sullivan operetta, using the Cornell campus as a setting. In short order, he was able to secure the support and talents of the University's Educational Television Center and the G & S troupe, the Savoyards.

The show was "Princess Ida," and it would be one of the biggest productions I'd been involved in.

Jon L. Hilton is the owner of Hiltronex Sound Production Studios, Ithaca, NY.

Although it was an unusual project, "Ida" presented some familiar challenges if you do lower-end audio post — a big-scale production with a low budget, a lack of commercial production facilities and the need for high-quality results.

"Ida's" plot revolves around the problems of a romance between long-separated lovers; Ida's production revolved around the problems of separation between the video and audio processes. Dan Booth's decision to stage the opera outdoors was the key to my plans for the sound. It meant the sound would have to be produced in the studio and the singers and chorus would lip-sync during the shooting.

My strategy was to produce an audio production master of the on-location video sound and combine it later with the

music master produced in my studio. It was the natural result of trying to figure out how to get the most out of matching the Cornell equipment with the equipment in my studio.

The basic equipment for the project would be the Fostex E-16 and E-2 tape machines, and associated synchronization gear; a Toshiba VHS-PCM machine; Tannoy PBM 6.5 monitors; a TAC Scorpion II 24x8 console; and Schoeps and AKG microphones. I would do the processing with the first-generation Alesis Midiverbs, DeltaLab delays and a Lexicon LXP-1. While processing, I would have to take into consideration out-of-polarity (L-R) information that would appear in surround channels.

Most studios use $\frac{3}{4}$ -inch U-matic cassettes as work tapes. I've used both $\frac{1}{2}$ -inch VHS and $\frac{3}{4}$ -inch and found that a

SOUNDTRAX RECORDING and POLK AUDIO MONITORS



**SOUNDTRAX
RADIO, TELEVISION, PRODUCTION SUITE**

...THE PERFECT COMBINATION!!!

“

Polk Audio has given my company unsurpassed service! It's nice to know you have a company that is behind you and their product instead of credit card first, or cash then service...

I want to thank all those at Polk Audio for their superior speakers! "You too Matthew".

Richard Hinchman

”

When you want the very best . . . choose Soundtrax Recording! Located in the mountains of East Tennessee, Soundtrax is the premier, one-stop shop for 24-Track Digital Recording and Music Publishing (Affiliated with BMI & ASCAP).

Utilizing the latest in studio technology, our clients love using our Sony, Lexicon, Eventide, T.C. Electronics, Neotek, Crown, Yamaha and Neumann products. Time after time, we get raves about our Polk Monitors. The dynamic capability, detailed midrange and the ability to handle any amplifier makes it a favorite!

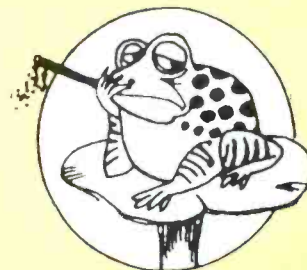
Polk Audio Monitors, like Soundtrax, can provide you with the perfect, state-of-the-art combination for your next production. Call or write us today for more information.



PHOTO BY JIM DONALDSON

SOUNDTRAX RECORDING

Croaky Frog BMI	800-776-7402
Cameroon Records	
Sunshine Productions	615-929-0402



**CROAKY FROG MUSIC
BMI ©1990**

Route 2, Box 435 • Johnson City, TN 37601

— A SOUNDTRAX INC. COMPANY —

Circle (13) on Rapid Facts Card

www.americanradiohistory.com

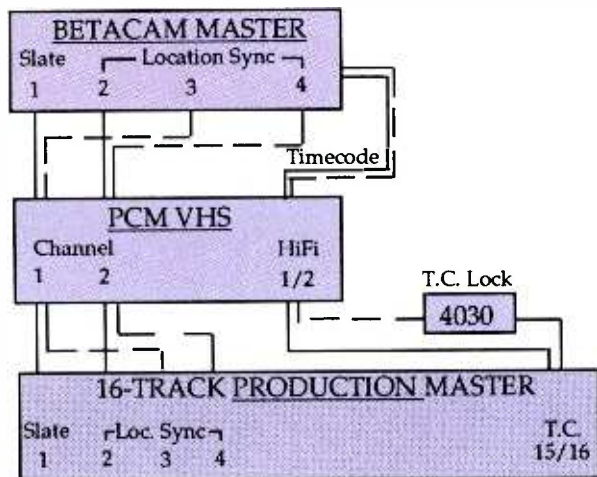


Figure 1. First pass bounce to PCM, then transfer to production master. Time code from Betacam transfers from production master tracks 15 and 16. Second pass, tracks 3 and 4 bounce to PCM, then transfer to production master tracks 3 and 4.

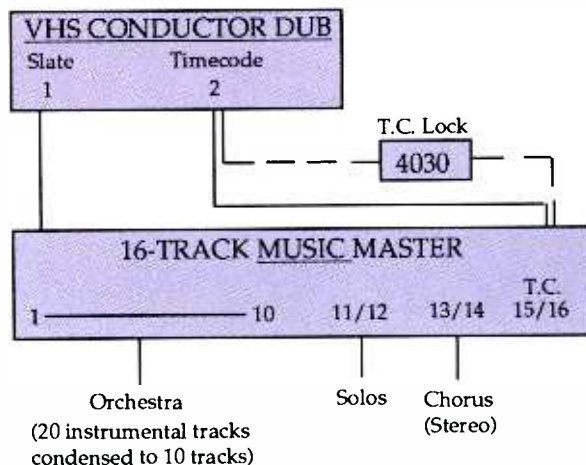


Figure 2. At this stage, a VHS dub was made of the conductor video. Time code and slate were copied to the 16-track music master. The chorus, solos and orchestra parts were added while watching the VHS conductor dub (the 16-track chases/locks to VHS).

well-prepared VHS tape with clean time code on the Hi-Fi tracks is just as accurate as $\frac{3}{4}$ -inch tape and faster in search mode. VHS machines can be fitted with tach pulse counters, so synchronizers can chase tape shuttle even with no time code present. However, I've found the Fostex setup to be so quick to lock-up that there's little lost time, and I can use any unmodified high-quality VHS Hi-Fi machine for playback. Units that burn in time code windows are also inexpensive, so laydown operations can be done almost anywhere, anytime.

TIME CONSTRAINTS

Ideally, with a production plan like the one for "Ida," you would complete the music tracks before going on location. However, we needed to shoot quickly because the unpredictable upstate New York weather would threaten to close in on us. We therefore had to work in reverse. Before we began shooting the video, we created a rough slate/timing audio track of the operetta recording on Betacam, consisting of the lead singers and chorus with a piano.

At the same time, we made a simultaneous video of the conductor, so that later, when it came time for constructing the musical tracks, we could use the conductor as a reference. About a quarter of the solo vocals were recorded on AFM tracks with metal Betacam tape. These were eventually used in the final mix.

The next step was to head off to cam-

pus with senior videographer Eric Gasteiger and location soundman Eric Humerez to begin the location shooting with Sony Betacams. While the singers and chorus were acting out the opera, we played back the slate track on VHS — to maintain speed accuracy — and the singers used this for lip syncing. Our shooting in the field left us with 25 hours of original footage. Back in Cornell's Betacam edit suite, video editor Rob Eaton and sound editor Bertrand Reed helped us edit the 100-minute program, based on Dan's off-line VHS edit.

Although it was an unusual project, "Ida" presented some familiar challenges if you do lower-end audio post.

We dedicated four channels of sound: channel 1 was the slate channel, used as a reference, and channels 2, 3 and 4 were used for sync on-location sound (see Figure 1). This process was not as straightforward as it might sound, because the video edit suite and my studio were at different locations. The big problem was

how to maintain sync and the highest possible sound quality during the transfer from the Betacam master to the 16-track audio production master.

I solved the issue by transferring the four channels of audio to two separate PCM VHS tapes as follows: On the first VHS tape, channels 1 and 2 were transferred to PCM 1 and 2 and the time code to the Hi-Fi tracks. Using the same approach on the second VHS tape, channels 3 and 4 were transferred to PCM tracks 1 and 2 and the time code to the Hi-Fi tracks. The two VHS tapes then contained the digital masters of all the audio tracks recorded in the field, with matching time code.

Back in my studio, I began by transferring VHS PCM channels 1 and 2 to tracks 1 and 2 of the 16-track production master and moved the time code from the same VHS tape to tracks 15 and 16. By locking the E-16 to the time code of the second VHS tape, I transferred channels 3 and 4 to tracks 3 and 4 of the production master. I was able to maintain sync because the time code was exactly the same for each transfer from VHS to the 16-track master. Using the digital format made any loss of sound quality undetectable.

RECORDING THE CHORUS

We began work on the music master by recording the chorus (see Figure 2). Their singing was cued by the original slate track and the video of the conductor. Each singer had headphones to listen to the

NO AUDIO TAPE HAS EVER GONE SO HIGH. SO LOW. SO HOT. SO QUIETLY.



Introducing 3M 996 Analog Audio Mastering Tape. It's the first tape that lets you record as hot as you want (level +9), capturing the highest highs and lowest lows with virtually no distortion or print through. From its consistently clear sound, to its protective TapeCare™ Library Box, 3M 996 audio tape takes analog recording where it's never been before. Call 1-800-245-8332 for more information. We won't be satisfied until you are.

3M Professional Audio/Video Products Div.
3M Center, St. Paul, MN 55144



Circle (17) on Rapid Facts Card

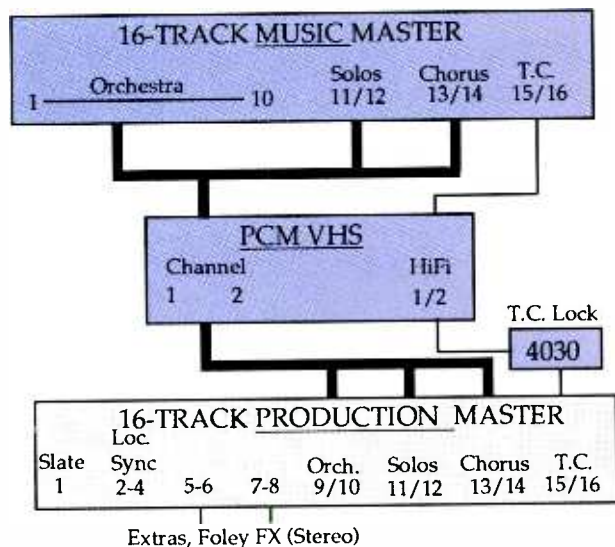


Figure 3. In three passes, the 16-track music master is mixed to PCM, then to the production master with time code offsets.

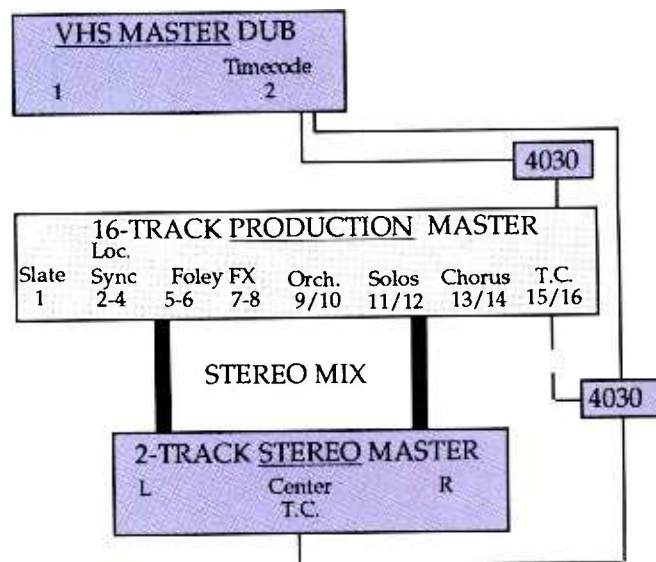


Figure 4. The final mix from 16-track production master to 2-track stereo master.

slate track and could see the playback of the conductor. I miked the chorus in stereo and recorded on tracks 13 and 14 of the 16-track music master. The time code on the music master matched the code on the conductor's video. Most of the solo voices — the ones that were not taken off of the original AFM tracks — used the same procedure with the slate track and conductor video, recorded on tracks 11 and 12 of the music master.

Because of budget limitations, we had to record the orchestral portions of the operetta score without the benefit of an orchestra. Because the orchestra for light opera is not elaborate, a common solution is to render the orchestra parts on piano. Producer Daniel Booth thought we could create a block reading of the orchestral parts on synthesizer. Not entirely satisfied with this approach, I experimented with Denes van Parys, a brilliant and patient keyboardist, who created the sounds of individual orchestral instruments on the Ensoniq Mirage digital sampler. We were able to get what we thought were credible substitutions for the instruments. During the next three months, Denes went through the laborious process of laying down the tracks for each of the 20 instruments scored for the operetta and for each of the 27 different pieces of music in the show.

Maintaining sync required Denes to perform the music while listening to the piano on the slate track and watching the conductor video. By the time we finished, we had bounced and overdubbed the 20

instruments parts down to tracks 1 through 10 of the music master.

MATCHING THE MASTERS

With the music master finally complete, we had to respond to the challenge of how to synchronize that master with the production master, which matched the finished Betacam video master (see Figure 3). Time codes on the three Music Master tapes matched the original audio slate tapes, and the time code ran consecutively from one number through the next. The catch was that on the final video, the music and songs would be interrupted by dialogue and action. So for each piece of music, we had to make careful offset calculations for the time code to match the video lip-sync.

I've found that a well-prepared VHS tape with clean time code on the Hi-Fi tracks is just as accurate as 3/4-inch tape.

In the best of worlds, I would have had a 32-track digital machine onto which to assemble the whole production — or even

two 16-track machines to mix from one to the other. But I didn't, so I used the PCM VHS again. This time, I mixed the orchestra to two channels of PCM while laying off the time code from tracks 15 and 16 of the music master to the Hi-Fi tracks of the VHS tape. Then I transferred this mix to the final 16-track production master. Here it got a little tense, because this was the point when the offset calculations for the time code were tested. The time code on the slate track had to match the final locations of the music on the 16-track production master — which, in turn, matched the Betacam master.

I used the same technique to transfer the solos on tracks 11 and 12 and the chorus on tracks 13 and 14 to the production master, and while watching the VHS window dub of the edited Betacam master, I recorded the actors' extra dialogue and looping directly onto tracks 11 and 12 of the production master.

At this point, the tracks on the production master were dedicated as follows:

- 1: Slate track.
- 2-4: Location sync sound.
- 5-8: Empty — open for stereo SFX/Foley.
- 9-10: Orchestra mix from music master.
- 11-12: Solos from music master, extra dialogue, looping.
- 13-14: Chorus mix from music master.
- 15-16: Time code matching the Betacam video master.

I had two tracks left for incidental music or transitions and two tracks for stereo FX. Dan Booth and I spent two days

laying in sound effects — Foley sword fights, clanking armor and so forth — and I filled in any holes in ambience by creating white noise on the synthesizer and filtering to match the original “air” in the scene. Often there are gaps in the sync sound, and big holes between scenes or during dissolves. Most “air” is simply white noise (which older synthesizers like the Roland JX-3P can generate perfectly). By tuning the resonance and frequency of the noise, it’s possible to match the background “air” to fill in the holes. So the transitions from scene to scene were seamless.

Finally, five months after we began production, we were ready to do the mix, and it came together in three long days (see Figure 4). The main thing I wanted to do with the mix was to emphasize the solos and chorus by using EQ and volume to bring them a little more forward in the mix than normal. This was to help the audience catch the humor in the rapid-fire lyrics, which are often missed in live productions. To give the effect of singing on location, I used digital delays and reverb to carefully match room tones between on-location sound and studio vocals. Then to fill in additional background ambience, I used the Hollywood Edge SFX collection in stereo.

Everything was mixed to the Fostex E-2 on 1/4-inch Ampex 457 tape in 2-track stereo with center-track time code. I then transported the E-2 and a 4030 synchronizer to lay back the mix directly to the master Betacam tape at Cornell’s edit suite.

“Ida” demonstrated the capabilities of smaller studios to produce broadcast-quality, feature-length post-productions.

The entire production lasted about an hour and 40 minutes. To minimize reel changes, I made the two sets of three tapes on 1.0 mil Ampex 407 1/2-inch tape. Ampex is the only manufacturer that makes 1.0 mil 1/2-inch tape. The 407 is a fairly close match to the Ampex 456/457 series recommended by Fostex. Occasionally, near the end of each 16-track reel, the

thinner tape would slip through the pinch roller, which caused an unacceptable amount of speed drift while chasing the video time code. Normally, both the E-16 and the E-2 are locked to video time code, so when the drift occurred, it was a real problem. The way I solved it was to lock the E-2 to the E-16, which in turn was locked to the video (see detail in Figure 4). This meant any speed changes in the program and time code coming off the E-16 were chased exactly on the E-2. After the mix, the E-2 was again locked to the video, and because the speed drift had already been compensated for, it didn’t show up again.

“Ida” was a kind of Cecil B. DeMille production on an academic budget. Most people seem to feel that you can’t do film or broadcast audio-post without 3/4-inch U-matic machines, sound stages, MagSynchs, 48-track machines and 3-person megaconsols. But I think “Ida” demonstrated the capabilities of smaller studios to produce broadcast quality, feature-length post-productions. If you’re an experienced audio person, there’s no reason why you can’t get excellent results with carefully selected equipment. Evidently, Cornell agrees. “Ida” has been scheduled for release on regional PBS stations. ■

Hill Audio
A U D I O

Chameleon POWER AMPLIFIER

Expanding upon the successful DX Series Power Amplifiers, we have created an amplifier which produces a full 2000 watts of sonically transparent audio power in a housing only one unit high. Like its namesake, Chameleon can instinctively adapt to an altered environment, optimizing its power to suit the workload. A new era in professional audio amplification has dawned — the parameters have all changed. **THERE IS NO GOING BACK!**

TOTAL PROGRAM POWER* (RMS 10ms/100ms):	8Ω dual channel	: 1200W
	4Ω dual channel	: 2000W
	8Ω bridge mono	: 2000W
SINEWAVE POWER PER CHANNEL (RMS):	8Ω single channel	: 500W
	4Ω single channel	: 800W
	8Ω both chs. driven	: 400W
	4Ω both chs. driven	: 600W

*Program Power is an indication of Chameleon’s undistorted power capability when amplifying a music or speech source.

**Hill Audio • P.O. Box 2344 Fort Worth, TX 76113
Ph. (817) 336-5114 Fax: (817) 870-1271**

Circle (18) on Rapid Facts Card



How A&R departments work, what they look for and how they decide who to sign.

By Dan Levitin

Producers and engineers are called upon to play many roles in the studio, some of which were anticipated, others were not so obvious: manager, psychiatrist, mom, musical arranger, waitress and diplomat, often at the same time. Engineers are asked to produce, or have to produce by default. Producers often find themselves inextricably bound up in engineering. To add to all the confusion, bands often look to their producers and engineers for career advice about how to shop their tape, cultivate a following and get a record deal. Among record companies each A&R department is different and works by different rules.

A&R, of course, stands for "Artists and Repertoire." The labels' A&R departments are responsible for finding new artists and signing them. Once this is done, A&R reviews material and helps artists decide what to record. The A&R person also has responsibility for choosing a producer, setting up a budget and supervising the flow of activities surrounding the making of a

record. Publishers have A&R departments, too, as do some of the larger management companies.

How do they decide who to sign? All the A&R people I know have signed bands that they really like, bands that they are *crazy* about. And with rare exceptions, they sign bands that have already proven that they can attract a following of people. Being signed to a label involves a substantial financial risk on the part of the record company. Like all good businessmen, A&R people want to minimize the risk. The best way to get signed is for a band to *prove* to a record company that they are marketable by selling their own record, or at the very least, by building a strong base of fans in their area. Whether the band is from New York or East Cupcake, WY, if their following is genuine and enthusiastic, people at record companies will be more interested.

R•E•P spoke with three top A&R people to find out how they view the A&R process and see what advice they had.

BOB SKORO,
SENIOR VICE PRESIDENT,
MERCURY A&R

Skoro has signed LA Guns, Darling Cruel and Material Issue. He has handled publishing for Ratt, Cinderella, Journey, Cheap Trick, Bernie Taupin, Elton John, Hall & Oates, Barry Mann, Cynthia Weill, Carole King and Gerry Goffin.

R•E•P: How does a band get signed, particularly if they're not in a major market?
BS: I actually think it's healthier to get signed if you're not playing in Los Angeles, New York or Chicago. The problem with bands there is that there's too many people picking over them for the bands to ever have a chance to develop; a band doesn't understand that, though. All a band thinks about is how they're as good as a band whose record they just heard, and they should be making records, too. They want to get signed and then develop, but they always lose that way.

Look at all the bands that don't happen. A big part of the reason is that they get signed too early. There's too much money invested and there's too much pressure to get them out into the marketplace before they're really ready to compete. They end up getting in the hole real quick. We could go down the list of bands who spent a lot of money and are in trouble now, not because of lack of talent, but because they spent too much money to have a reasonable expectation of making it back.

R•E•P: What percentage of the bands that get signed end up making it?

BS: I would say less than 1% of the bands who have records come out actually "happen," become successful recording artists who make a third or a fourth record.

R•E•P: What advice would you give to a band?

BS: My advice is to do music. Just keep doing it. If they get great in their town — I don't care where they are — word gets around. In every city of the country, there is some representative from a record company, trying to get one of his company's records played on the local radio station. Even though there may not be 10 or 20 A&R guys running through that small town, there's still activity. Engineers and producers are in a good position to get tapes to these people.

Building a regional base is important. If they can't sell their sound in their own back yard to people who are seeing them perform live, how is the record company

Dan Levitin is a contributing editor to R•E•P, an engineer/producer based in Stanford, CA, and the former head of A&R for 415/Columbia Records.

*On Your Next Project... Consider **SOUNDTRAX***



WE CAN DO IT FOR YOU!

Professional, World Class Digital Recording Service

RADIO • TELEVISION PRODUCTION • PROMO'S • LINERS • STATION ID'S

Located in the Eastern Tennessee Mountains

We are the one-stop shop for digital recording and music publishing using our 24-Track SONY and 16-Track analog equipment. For specific information contact:

**Rick Monday at SOUNDTRAX
(615) 929-0402 or (800) 776-7402
or FAX us anytime at (615) 926-9376**

SOUNDTRAX RECORDING

Croaky Frog BMI • Cameroon Records • Sunshine Productions

— A SOUNDTRAX INC. COMPANY —

ROUTE 2, BOX 435 • JOHNSON CITY, TN 37601 • (615) 929-0402 • (800) 776-7402

Circle (19) on Rapid Facts Card

www.americanradiohistory.com

going to sell them to people across the country who have never seen them?

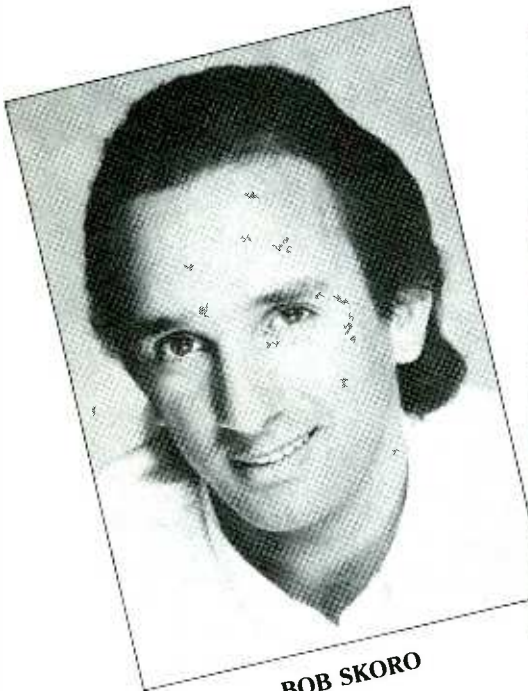
A band should build a credible local following in their home town, then get in their truck, and drive 50 or 100 miles to the next big city or town and get a following there. Building a regional base is important. If they've done that, then they can press a record for a couple of thousand bucks and sell the record locally. If that happens, ultimately it will surface and it will become something that people like

record companies. This has gone on for decades — Billy Joel, the Stones, Michael Jackson — there's always someone out there who claims he wrote this hit song and that the record company ripped him off. But the reality of it is, there are tons of small independent record companies around the country that can be used as a building block. You shouldn't try to take on Wall Street the first time out; it's better to start somewhere and build. And to learn as you build.

**DAVID KAHNE,
SENIOR VICE PRESIDENT,
COLUMBIA RECORDS**

Kahne has produced Fishbone, the Bangles and the Outfield.

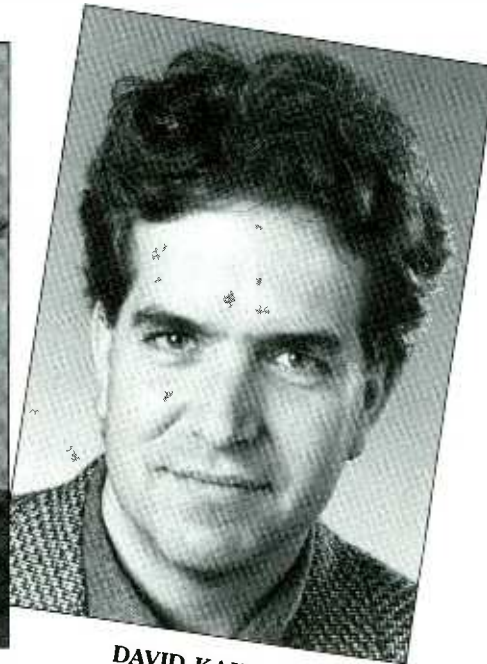
R•E•P: What advice would you give to someone who's working with a band who wants a record deal, and can't get to a club



BOB SKORO



RUSSELL ZIECKER



DAVID KAHNE

myself will hear about. Bands from "other places" get signed all the time. I would rather sign a band from Overland Park, KS, than Los Angeles for one reason: in L.A., they're going to get too much attention too fast and they're not going to be able to develop.

R•E•P: What do you look for?

BS: The thing I look for most in music is integrity, whether it be Guns 'n' Roses, Tracy Chapman or Paula Abdul. You have to be true to who you are. Paula Abdul is a choreographer, a quasi-singer, but she is true to who she is in her music, as are Guns 'n' Roses and Tracy Chapman. Those artists have the best shot at becoming something, as opposed to the artists who are looking at the Hot 100 and trying to copy the style of the week. That's not what any of us are looking for.

R•E•P: Do you listen to unsolicited tapes?

BS: No. Most record companies don't. There's too much liability involved; some of those people sending in tapes try to sue

Publishers are a great avenue. Local rags are great, too. A regional independent label is going to be talking to the local newspaper to get coverage for their artists, and the newspaper may mention local bands to them. My staff gets local entertainment magazines from all over the country, just so they can read up on all the local bands.

People are thinking, "How can I get a tape to an A&R guy?" In my opinion, they're totally missing the point. I don't want their tape. I want them to make music. I would tell them: don't waste your time trying to get to A&R people. If you make music that is really great, pretty soon you'll build up a following of a few thousand people. Ultimately there are a lot of people in the business, whether they're publishers, agents, lawyers, radio guys, managers, whatever. And they're always looking for something special and new. If a band is doing something that's so fantastic and new and fresh that they deserve to be signed, they don't worry about finding me, I will find them. If they have to find me, they aren't there yet.

where you can see them showcase?

DK: Most of the bands that make it have put out independent releases. The thing to do is try to get a review in *CMJ* or other magazines, or get enough college radio play that you're charting. My staff receives printouts of independent bands who are getting played. If they can sell 2,000 copies of their record and chart in *CMJ*, they'll definitely get noticed by us — we'll call them. We have regional A&R people now, too. There are six of them out across the country, and they keep good tabs on retail and clubs.

R•E•P: Should bands make demos or just concentrate on live performance?

DK: Bands should definitely make demos. Part of their development is learning how to record. Recording can be relatively inexpensive. They should play a few gigs and save up enough money to record for a day or two. Learning to get their sound on tape takes some time, and it's part of the process leading up to getting signed. A lot of records put out these days are just

what other people would call demos.

R•E•P: What about publishing deals? Is that a good way for bands to get a contact, a line into the industry?

DK: I wouldn't get one myself. It's like selling your children to feed your children. Your publishing is worth money after you have hits, and that's when you want to have it together. I don't think you want to give it away.

R•E•P: It seems like a lot of bands get signed, their record comes out but then you never hear from them — it's not in the stores ...

DK: We have our records in the stores. We've developed some pretty deep systems in retail. Our distribution is really good right now.

R•E•P: The thing is, it seems that sometimes big labels just drop a record after a short time.

DK: We haven't done that. It's my intention not to put out a record unless we're going to work it; not to sign bands unless we're going to follow through.

R•E•P: It seems sometimes that other labels don't follow through like that.

DK: I think we all try to. I don't think anybody has the intention to just sign a band and then bury them. There's just so much stuff. I counted up the number of acts there are on the major labels and there are 1,875. That's a lot. That's not even counting Hollywood, Morgan Creek, East/West, Giant. So a good marketing plan is important. Things like trying to let a record get developed inside its format before crossing it over.

R•E•P: Does Columbia have a label identity, a sound or image you try to cultivate?

DK: No, and I don't think Columbia should. Our new Firehose record is doing really really well, as are Fishbone and Mariah Carey. I don't see why that's not possible. Ray Conniff was selling millions of records at the same time Big Brother and the Holding Company were, both on Columbia, and Moby Grape and Mrs. Miller ... I don't see why that's not possible now.

**RUSSELL ZIECKER,
DIRECTOR OF CREATIVE AFFAIRS,
VIRGIN MUSIC**

Ziecker signed Slaughter and Sea Hags. He has worked with Sea Hags, Babylon A.D., Indigo Girls, Jellyfish and Sparks.

R•E•P: How do bands who are not in the

major music cities get deals?

RZ: Well, it's funny: I've lived in New York and Los Angeles, but I always tend to go for the bands who are on the outskirts.

I'm like you were when you were doing A&R: I'm into finding things no matter where they came from. I think it's a mistake for the record industry to ignore all the bands out there who are "unsolicited."

The typical record company thing would be if an attorney sends me a tape, I'd put it in my A pile, a manager sends me a tape

I'd put it in my B pile, and all the rest would go into the C pile, which I'd never get to. I think that's wrong, and it's not the way I work. I hate that way of doing business. To me, they all come from the garage, no matter whether they're represented or not. I still listen to unsolicited things.

Right now I get 35 a week and I listen to every one of them. There's nothing on my desk that hasn't been listened to.

R•E•P: What about the arguments against listening to unsolicited tapes? The lawsuits, for one thing, but also just the statistics. You have to figure you're 10 times more likely to find something you're interested in from someone who is connected to the business and has past successes. Unsolicited tapes must have a much greater range of quality than the represented ones, meaning you have to listen to a lot more garbage before you get to the good stuff.

RZ: I've personally never seen a lawsuit from an unsolicited tape claiming to have written someone else's song. I can see the argument about the statistics of unsolicited tapes, but I've found things that way and later made them happen, the Waterlilys, for example. They are based in New York and they sent me a tape totally out of the blue. I liked their sound, helped them put a band together, recorded their stuff and signed them to a publishing deal.

This is a good argument for a band getting a publishing deal first. The publisher will work with you, help you make a tape, and then shop it to the labels for you. As an A&R man so succinctly put it to me the other day, "development is your job," meaning the publisher's. "It's my job to just sign them when they're ready," he said. The Waterlilys ended up signing with Sire, and they've just started recording their record.

A similar thing happened with a band from Belfast called Ghost of an American Airman, except I didn't hear their tape first, I just happened to accidentally catch them at a club in New York. I really liked

them, and eventually I went to Ireland and rehearsed with them in Hull. We cut a demo at AIR Studios in London, and then I brought them out to the New Music Seminar and got them a deal with Atlantic. After it was finished, Atlantic shelved it for six months, decided they wouldn't put it out, and Hollywood just bought the rights to it.

So those are two arguments for going to a publisher first.

R•E•P: What is a typical deal like?

RZ: Every deal is different, and each deal is complicated by individual circumstances, like how much risk Virgin is taking, what their past successes have been and so on. We usually do co-publishing deals that basically split the publishing side of the band's earnings in half, leaving their copyrights intact. So the net effect is of a 75%-25% deal, with Virgin taking the 25%. With a baby band — a new band — we might give them \$15,000 to \$20,000 as an advance on signing. I'm fond of doing step deals, where both parties participate, and as the band gets better they get more money.

R•E•P: When I think of publishers, I think of songs with a capital "s"; that is, songs that will be coverable by other artists.

RZ: Not so with me. I think more like an A&R person. And I go to all the Virgin Records A&R meetings. I'm interested in image, overall sound and everything.

"I can see the argument about the statistics of unsolicited tapes, but I've found things that way and later made them happen."

R•E•P: So if there is a band that writes songs that work for them as a band, but which would be difficult to sell to other artists, you're still interested?

RZ: We signed Jane's Addiction before the record deal. Cocteau Twins — where are you going to place their songs? We're interested in good music, bottom line.

R•E•P: What's your advice to bands out there?

RZ: Independent labels are becoming more important. It doesn't free them from



their day jobs, but it gets their product on the street. You know this — you had one of the good independents in the 1980s.

2: You have to set realistic goals.

3: Publishers are a means to an end. Certain publishers direct their attention to talent acquisition and talent development and to furthering the bands' career. Those are the ones you want. This is an industry of networking and relationships, so if I don't love your band but I think you're an unbelievable producer, I'm going to make a ton of calls on your behalf.

R•E•P: Should bands work on their demos and their live show with the same amount of energy?

RZ: Well actually, I'm confused about this. The A&R men in town all say "Love the tape — let's go see them live." But I think that's a stall tactic. If you're a genius, I can tell if you're sitting in my canvas chair over here or if you're on stage. I take live shows with a big grain of salt. I signed Slaughter, and they didn't tour until they had sold a quarter of a million records. So for an A&R department to put as a prerequisite how good they are live, doesn't always make sense to me. ■



There are several books that list record company A&R people's names and addresses. The most complete is the "Record Industry Sourcebook," which also lists producers, engineers, studios and other industry numbers. For ordering information call 800-472-7472 or 213-472-7472.

A good magazine for keeping up on A&R is *Music Connection*, published every two weeks in Los Angeles. The magazine interviews A&R people and a column, A&R Report, discusses current trends and signings. For more information, call 213-462-5772. ■

PHIL RAMONE ON A&R EXECES

R•E•P: It seems like most of the really great songwriters started out on CBS. Not just Bob Dylan, Paul Simon and Bruce Springsteen, but Miles Davis, Johnny Cash, Leonard Cohen, Billy Joel, Elvis Costello ... way out of proportion from the other labels. Is that all [A&R man] John Hammond's doing?

PR: I think that he was an attraction and a magnet, but also artists themselves become magnets. In other words, if Paul Simon or Miles Davis is on a label, every artist is going to try and get an audition there. I think you need the scope of a John Hammond.

R•E•P: Do you know of other A&R people today who have his vision?

PR: I think we have some of them now; others are in the development stage. Like Steve Ralbovsky [Elektra] and Patrick Clifford [Chrysalis] are rising elements for sure. Benny Medina [Warner Brothers] and Tim Carr [Warner Brothers] are incredibly talented and insightful, as are Paul Atkinson [MCA], Jamie Cohen [Private Music] and Bennett Kauffman [RCA].

64 CHANNELS. CABLE READY.

Sometimes it seems like you can't get there from here. You've got a thousand great ideas, and just about as many plugs in your hand. What you don't have is enough input channels.

Well, allow us to give you some input about a new way to solve your dilemma. It's a Tascam M3500 in-line mixing console. Choose either the 24 or 32-track mixer and by simply flipping a switch, you can double it to 48 or 64 mix positions.

And, with a suggested retail price of \$7,499 for 24 inputs or \$8,499 for 32, it won't take up a lot of your budget, either.

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

It just may be that you don't need a huge console to enlarge your capabilities. The M3500 offers you a new, more effective approach to traditional mixing that is both compact and low cost. And when you need more inputs, all you'll have to do is switch channels. From 24 to 48. Or from 32 to 64.

TASCAM®

© 1990 TEAC America, Inc., 7733 Telegraph Road, Montebello, CA 90640, 313/726-0303

Circle (20) on Rapid Facts Card

R•E•P: For any specific signings?

PR: No, it's really not a matter of that. It's a matter of how I talk to them and the sense I get of what they're saying. Who do you think?

R•E•P: Well, I'd say Howard Thompson at Elektra.

PR: I've never met or dealt with Howard, but I've heard good things about him.

R•E•P: He signed the Sugarcubes, Happy Mondays and 10,000 Maniacs, and years ago he produced the Psychedelic Furs. I'd also say Seymour Stein [president of Sire].
PR: Well Seymour's a legend. Now you're talking about something entirely different. Seymour Stein encouraged highly alternative, non-commercial artists such as the Ramones, Madonna and Talking Heads. He has made a tremendous impact.

Obviously, Clive Davis is in the same category. Along with new discoveries, he also offered longevity for artists like Aretha Franklin and Dionne Warwick by maintaining the high standards of their careers. He gives artists the space and time to do their thing, whatever that may be.

R•E•P: By longevity, you mean that a great A&R person understands that some



PHIL RAMONE

artists are worth developing, that it sometimes takes time to see a profit, and they have to see the bigger picture ...

PR: Right. Whether it's Tony Martel [Epic] bringing in Joan Jett and saying, look, we need three years — they just signed Judy Collins at Epic. That was David Novick's project and my hat's off to him. He heard

the fact that she created good songs and said, we have to have her. The record business owes it to itself to sign people just because they are deserving of being heard. And they may not put a double platinum on the wall, but ...

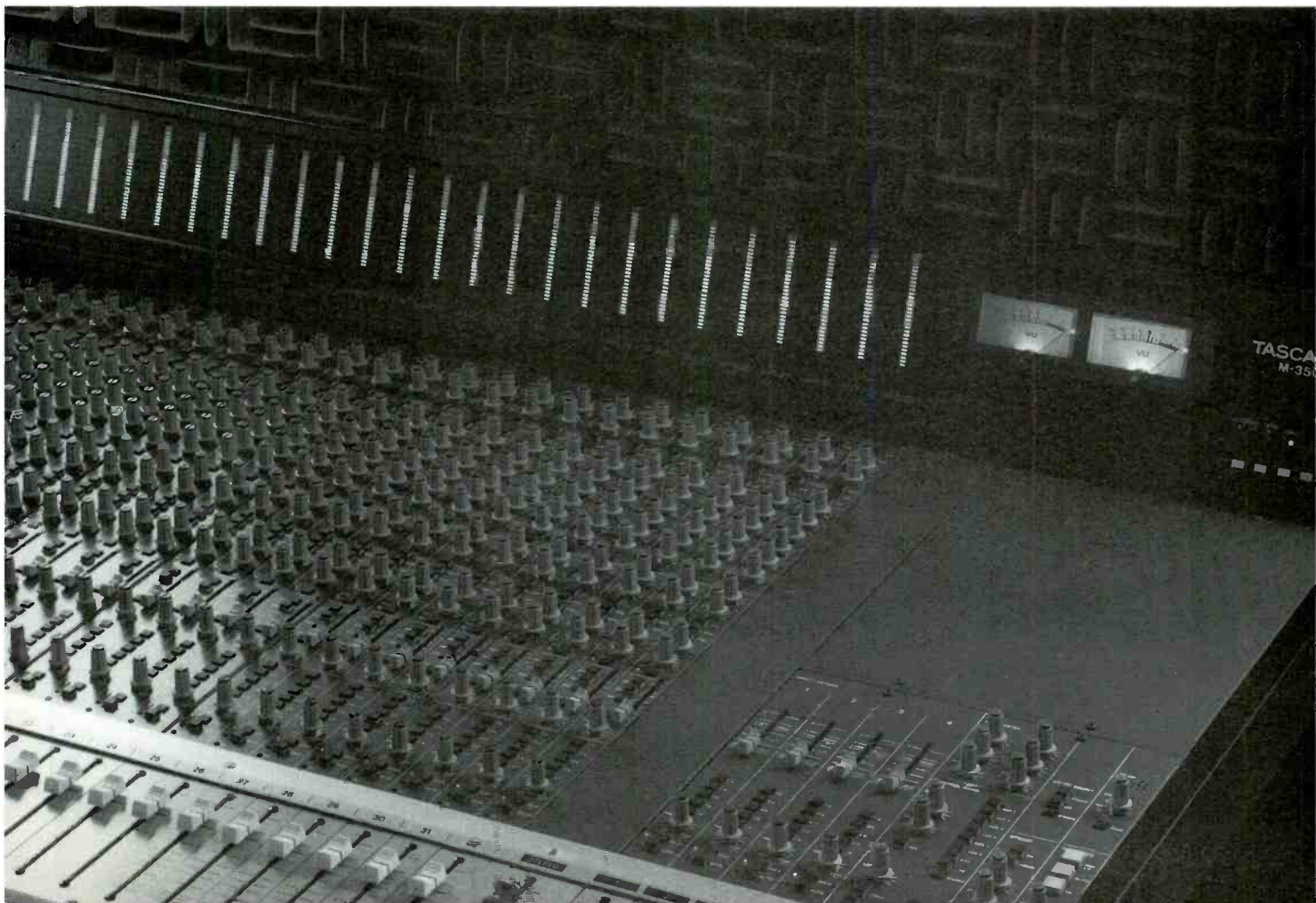
R•E•P: But they're integrity signings ...

PR: They're integrity signings, but also, they attract the next Dylan of your time. It takes A&R vision ...

R•E•P: Like Bob Pfeiffer signing Ornette Coleman to Epic.

PR: Exactly. I think that's what Ahmet and Nesui Ehrtegun brought to Atlantic. When you realize those were the records, that was the label where Aretha and Ray Charles came from. They are a diverse pop, jazz and R&B label. If you were a band today, you might go with Giant Records, Irving Azoff's new label, because you know he broke so many great bands from the beginning.

The 1990s will be exciting because with the expansion of new divisions within the majors, the doors will now be open for the art of rap and alternative music to grow. The artists will have a much better chance of being heard. It feels like the A&R departments are back to nurturing talent. ■



Independent Record Distribution:

A PRIMER

By Barry Sanders

At some point in our professional lives, most of us have come across a project that we felt was deserving of release and had the potential to bring in a profit. But how do you get that idea into the marketplace where it can be purchased without losing your shirt? Is it possible for small studio operators or independent producers to compete with the big boys in the record store arena?

The answer is yes, if you have a product that is truly undeniable, and the cast-iron stomach needed to reach your goal. There are alternatives to the traditional route of pursuing a major label deal to get your music into the stores. However, it takes a hardy soul to do what it takes to succeed (read: get paid). The key is to have a well-packaged product that is in demand and a tie-in to a network to get it out. Independent record distributors are one such answer. The acceptance of independent releases is growing; indy releases are selling well, and consumers seem willing to give new product a shot.

The question is: How to get started? This article is intended as a primer to the steps involved in setting up an independent distribution network for your product. Remember at all times that this is a business driven by supply and demand, and it is known for loose and sometimes shady business practices. There are few hard guidelines out there for you to follow. Play your cards close to the vest and pay attention. There may be sharp rocks just beneath the calm surface of the water.

Barry Sanders is an engineer/producer and studio manager of Sixteenth Avenue Sound, Nashville.

*It takes a hardy soul
to do what it takes to
succeed.*

For the purpose of this article, we will assume that your product is manufactured in its final form, looks professionally packaged and has been bar-coded. All independent distributors are requiring bar coding on product to facilitate inventory controls and pricing. A bar code number must be applied for from the Uniform Code Council, and must appear on all product. This needs to be on the film for your J-cards and CD books prior to printing.

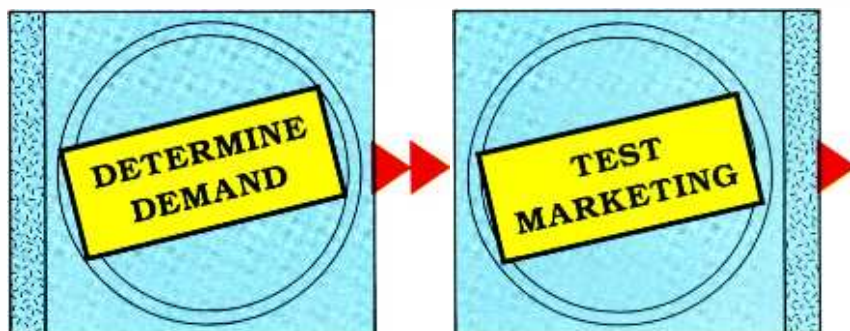
STEP 1: DETERMINE DEMAND

First, assemble a release kit that contains a copy of the release, bio and photo of the artist, any appropriate reviews or

press, and a tour schedule highlighting upcoming dates. This package will be used for generating interest in the release and for review by local media. Target the most logical areas for your sales. Begin with your strengths. If the act is popular in its home town, start there. Cover the areas that the artist tours regularly and gets good response. Continue down the list until you have covered all areas where the act is known.

STEP 2: TEST MARKETING

Contact the independent music buyer at key record stores and the music director at radio stations playing the same genre of music as your artist in the targeted areas, and ask for their review of your release. Then send your release kit to all interested people. Give them at least two weeks to listen, and then contact them for their reaction. Ask if they feel that the release is marketable for them. Use this information to determine the scope of your efforts and begin drawing up a hit list of



THE NEXT GENERATION OF COMPRESSORS.

Drawmer
Ingenuity

THE DL241 'AUTO-COMP'

- **AFFORDABLE!**
- **Auto/Manual Attack/Release**
- **Program Adaptive Expansion™**
- **Complete Metering: Gain, Input, Output**
- **Renowned Drawmer Studio Quality Sound**
- **Peak-Level with Zero Overshoot/Response Time**

A new dual channel gated compressor/limiter from Drawmer.
For more information on your local dealer, contact:

DISTRIBUTED IN CANADA
EXCLUSIVELY BY
HEAD-WATER INDUSTRIES
635 CARON AVENUE
WINDSOR, ONTARIO N9A 5B8
TEL 519-256-2454 FAX 519-256-2522

DISTRIBUTED IN THE USA
EXCLUSIVELY BY
QMI
15 STRATHMORE ROAD
NATICK, MA 01760
TEL 508-650-9444 FAX 508-650-9476

Drawmer Distribution, Charlotte St. Business Centre, Charlotte St., Wakefield, W. Yorks., WF1 1UH, England. Tel: 0924 378669 Fax: 0924 290460

Circle (21) on Rapid Facts Card

locations that would be willing to stock your release.

If you opt to self-distribute, you may want to contact the most interested stores on your own at this time to set up a COD or consignment program, but save this option for later if you are interested in working through a distributor. For a project that is strictly local in scope, your best bet is to sell to stores directly and cut out any potential problems with the middleman.

STEP 3: DISTRIBUTION NETWORK

Your distributor will be the channel for your artist into the record stores. The distributor orders the finished product from you, promotes, markets and delivers your release to its specific record outlets, collects revenues, hopefully mails you a check and returns unsold copies back to you for credit. Access to most retail stores on anything other than a local level requires connection with a distributor.

STEP 4: CHOOSING YOUR COMPANY

Distributors come in all shapes and sizes, and choosing the right one is no easy task. Fortunately, there is an organization to contact for help in getting started. NAIRD, the National Association of Independent Record Distributors & Manufacturers, is there to help. Founded in 1972, NAIRD is a trade association of companies in the independent sector of the music industry. Its purpose is to facilitate communication between the indy labels and the people that distribute their product.

NAIRD sponsors an annual convention where labels and distributors meet face-to-face to conduct business, air grievances and generally stay in touch with each other. At this stage of the process, you should be most interested in the Membership Directory, which has listings of all member distributors by business type, and the Reference and Resource Guide, which has listings of associations, pamphlets, books and publications on the indy industry, both available from NAIRD for a small fee.

Membership in NAIRD is of great benefit to the independent, because it offers an

excellent opportunity to rub shoulders and network with other more experienced companies. You must be a NAIRD member to attend the conventions and get the full benefit of its services.

Use the NAIRD membership list to sort through the various companies and find who covers the areas you are targeting. Once you are armed with your master list of distributors and your potentially hot sales areas, contact them all to let them know your release kit is on the way. Give the distributor at least two weeks to review your package before you call for feedback. Use those two weeks to do a little research on your potential distributor.

Remember, you are in the process of setting up a long term business relationship with this company. Be as organized and professional as you can. You will want to ask for and check their references. Contact other independent labels that they service to see how the company is working for them. Ask about how well they are paying, how long their payment cycle actually runs, how their service is, how effectively their company is represented on the distributors tip sheets, and how their product is moving.

Don't be shy about asking; this is information that you need to know about your potential new partner. You will also want to ask all interested distributors how long they have been in business and if they operate an in-house record label. In general, it is a good idea to avoid most distributors operating their own labels, because of the potential for conflict between their product and yours.

STEP 5: DISTRIBUTION AGREEMENT

Once you have found a distributor that is willing to carry your product, you will need to come to an agreement on a few major points. First, you and your distributor must agree on a price for your product. Your prices to the distributor will be lower than the list price at the store. Ballpark prices to distributors are \$2.25 for 12-inch singles, \$4.30 for a cassette album, \$7.55 for CD, and \$4.30 for an LP. Keep in mind

that most distributors will not stock much vinyl these days. The distributor will make his money on the mark-up he adds to your product, usually around 15% to 20%.

Next, discuss their payment schedule. Most distributors operate on a 60-day net basis, meaning that you won't see payment for your product until 60 days after the invoice is received. Try to negotiate a shorter schedule, such as 30 days, or offer a small discount for early payment. Do not agree to any payment period beyond 60 days.

Next, discuss the initial order amount. You need to ship enough copies to supply the stores, and a copy per store for in-store play, so rely on the distributor for the initial amounts needed to cover their customers. Use common sense; don't start shipping thousands of copies right off the bat. Any reputable distributor will start with a reasonable quantity, possibly five copies per store.

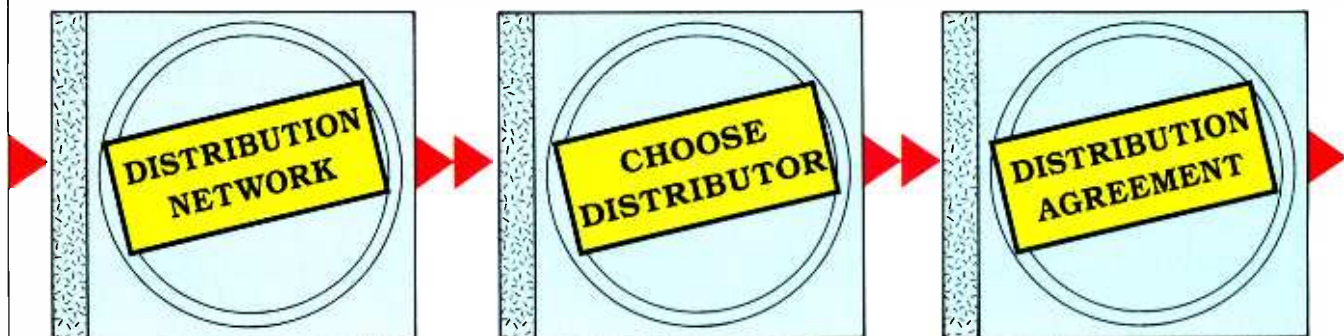
Try to get the company to pay shipping costs both there and back to limit over-ordering and excessive returns. Keep your right to sell direct to retail customers (on a COD basis) that the distributor doesn't service. Use your head and think about what you are doing. Don't try to cut your distributor out of his current market, but don't give away your right to pursue stores that may be too little or outside of his reach.

STEP 6: SHIPPING PRODUCT

Be sure your packaging is sturdy and ship by a reputable carrier. Keep receipts that show proof of delivery from your carrier. Keep in contact with your company to be sure the product has arrived safely. Include a detailed invoice with the shipment.

STEP 7: FOLLOW-THROUGH

Keep the lines of communication open with your distributor. Call once a week and ask for an inventory count. Send an accurate statement of their account every month and get to know the people in accounts payable. It is always easier to get



paid if you know the people writing the checks. Do not let time slide by if you have not been paid.

Always remember that you are a small fish in this pond, and until your product is in high demand you can't be lax in collecting your money. As a matter of fact, you can never be lax about collections! You may find that sometimes you have to resort to creative and even legal measures to get paid.

When the checks do come, deposit them promptly and verify that the funds have been received by your bank before shipping new product. Make a call to the book-keeping department of your distributor's bank to verify that the funds are there to cover your check. Do not re-supply product without payment being up to date! However, do ship promptly to all companies in good standing.

Continue to supply your distributor with current tour schedules, press, lists of stations currently playing your release and any promotional materials that you feel are helpful. Once you have established a solid working relationship, investigate co-op advertising with your distributor. Stay in touch with your people, and ask for their advice.

One last point: All distributors will expect you to take back 100% of their returns, so be sure to verify the count when shipments come back.

STEP 8: NEW MARKETS

Don't limit the scope of your efforts. The world market is growing and open to independent releases from the States. Your best bet to connect with the various markets is through MIDEM, the annual music business conference held each January in Cannes, France, attended by music business movers and shakers from all over the world.

Everyone from classical to rock, publishers to merchandisers, record labels and even countries touting their artistic climates can be found. MIDEM is the best place to get response from companies ranging from the Far East to behind the

Iron Curtain and beyond, all in one location. Besides the obvious business opportunities, MIDEM is a great chance to simply learn how the music business is done the world over.

However, beware! There is much opportunity at MIDEM, but the risks to the independent are even greater than domestically, if only due to the vast distances between you and your representatives. Follow the same general rules as you would here in the States, but watch all activities very closely. It can be very tricky to haggle over a "misplaced" shipment of records over a bad transatlantic line with someone who has a limited grasp of English.

Can't afford to fly to France for a week? Then check out the New Music Seminar, held every July in New York. Although slightly smaller than MIDEM in scope and attendance, NMS is heavily attended and a good place to make contact with companies outside the U.S.

Always remember to take care of your own business, and keep your eyes open.

As you can see, getting your record distributed can be an involved process. Getting paid for your sales can be an even bigger job. While it is possible to make a go of releasing your own product in our current market, always remember to take care of your own business, and keep your eyes open. You are stepping into an area of high expectations, potentially great demand and a strong element of risk. Set up your network carefully and you increase the chances of your project doing well. ■

RESOURCES

National Association of Independent Record Distributors and Manufacturers
P.O. Box 568
Maple Shade, NJ 08052
609-547-3331
Fax: 609-547-4762

Uniform Code Council
8163 Old Yankee Road
Suite J
Dayton, OH 45459-4294
513-435-3870
Fax: 513-435-4749

MIDEM-NY
475 Park Ave. S.
New York, NY 10016
212-689-4220
Fax: 212-689-4348

New Music Seminar
632 Broadway
New York, NY 10012
212-473-4343
Fax: 212-353-3162

Acknowledgement: Thanks to Laura Fraser of Carlyle Productions, Nashville, for her assistance with this article.



Live & Direct

Creative Survival

By Mike Joseph

This year's National Sound & Communications Association (NSCA) show in Cincinnati was very interesting for many reasons. Although the organization was originally begun to support companies which manufactured goodies like ceiling speakers and 70V line amplifiers, it was surprising to see the number of touring sound-related companies showing product.

Soundcraft rolled out its gorgeous new PM-3000 killer, named the Europa. Yamaha demo'd its servo-processor driven reinforcement speakers, downplaying the existence of a prototype PM-4000 shown to a select few in a back room. Other trapezoid box manufacturers typically associated with touring showed their full lines, hoping to capture larger segments of the rigged and flown installation market. Apogee, Klipsch, Martin, EAW, Adamson, Community and OAP, among others, spun discs and/or shuffled spec sheets.

Even Clair Brothers had booth space, showing its self-manufactured, super lightweight, brilliantly packaged floor monitor system. Clair Brothers! Manufacturing speaker systems for retail sale! Showing at a contractor's show! What can this mean?

Clearly and simply, it merely reinforced what we've been saying all along — that the industry is shifting and changing, and innovative companies that want to stay active in the same line of business (as opposed to, say, selling floor cleaning solutions), are looking at their activities in a new way.

Some rental companies are having new opportunities thrust upon them. For example, if you're the only competent shop in town when the high school auditorium sound system comes up for a rebuild, you better learn the local installation code standards and get bonded. Others are forced to explore new options, often after getting caught in the competition crunch — discovering how low they can drop your

rates to beat out the eight other companies bidding on a tour leg, yet still stay in business.

It's not only the touring companies getting into contracting, or the manufacturers supplying contractors and installers. Other solutions are starting to appear. For example, innovative tour packaging is occurring around the country. This summer we've heard of shows where the promoter packaged up several widely differing acts with single sound, stage and lighting rental companies. The tech all goes in on a Friday, and the first pair of acts do their show that night. Instead of sound and lights coming out, the set stays through Saturday, when the next very differently themed show plays the same venue.

Production costs come way down, profits go up. Traveling logistics are simplified and everyone is happy. In one case, a second production crew leap-frogged onto the next venue to pre-hang rigging and trusses for a rapid turn-around. It makes business sense.

Some smaller sound companies are finding that setting up golden relationships with other organizations, such as lighting rental houses and their affiliated lighting designers, or stage and set design folks, is a way to expand the potential business base available to them, while providing a valuable service to their customers: one-stop shopping.

Although not a new idea, many sound companies have discovered that adding a full-time sales person who cleans up nicely

(i.e.: can do the corporate thing), is a valuable asset to capturing and developing new business. Fashion shows at a Macy's, Dillard's or Ayers can prove to be good bread-and-butter income, using only a small, tightly packaged system and a single person. The only real trick is keeping the boxes clean (read: freshly painted) and learning how to dress everything in Velveteen. Department store managers hate the sight of gear.

Packaging up that equipment sitting in the warehouse for over-the-counter rental to corporate media departments, city and county organizations, YMCAs, and other neophyte users is a real and valuable potential source of income. Corporate sales meetings, new product roll-outs, multi-media support and other non-typical avenues exist for creative sound company managers with an ear for the unusual. All it takes is putting the need together with the method of achievement, and anything can happen. If you've got the gear in stock, find it a home.

Important to achieving success in this way is letting your potential customers know that you offer this service, whether via ads in the appropriate local paper, or judicious use of the telephone for sales. A well-scripted brochure doesn't hurt, either.

No doubt there are many more ways to succeed in business if you're willing to flex and develop new ways of addressing the audio marketplace. The mark of success will be survival into the next decade, which isn't a bad goal at all. ■



Contractors and suppliers walking the floor of the 1991 NSCA show in Cincinnati.

Mike Joseph is editor of R•E•P.



Total versatility with the Midas touch

To get full house and monitor capabilities from one console, you'd expect to make a few compromises.

Not so with the Midas XL3.

Midas and Klark-Teknik's designers have achieved a new kind of versatility with a desk engineered equally for live sound, theatre and broadcast.

The secret is in its sheer flexibility.

For each input channel, no less than 18 sends can be individually routed to 16 fader controlled

XL3 LIVE PERFORMANCE CONSOLE

outputs which function either as sub groups or aux send masters assignable via 2 VCA output groups into stereo masters. In addition, any input can be assigned directly to stereo masters and 8 VCA sub groups. That's why the

XL3 is the only console that can give you a 40 channel front of house mix one night and 40/18 channels of monitor mix the next.

Add to this outstanding versatility, a crystal clear, logical control surface, plus Klark-Teknik's renowned electronic design and the result is a console with superb sonic performance that's pure joy for the engineer.

Call Midas today and be in touch with a major step forward in live console design.



MIDAS

DESIGNED FOR A PURE PERFORMANCE

Klark-Teknik Electronics Inc.
200 Sea Lane Farmingdale, N.Y. 11735, USA. Tel: (516) 249 3660 Fax No: (516) 420 1863

Klark-Teknik Research Limited
Klark Industrial Park, Walter Nash Road, Kidderminster, Worcestershire DY11 3HJ, England
Tel: (0562) 741515 Telex: 339821 KLARK G Fax No: (0562) 745371

Klark-Teknik (Singapore) Pte Limited
7500A Beach Road, 04-308 The Plaza, Singapore 0719. Tel: 293 9736 Fax No: 293 9738

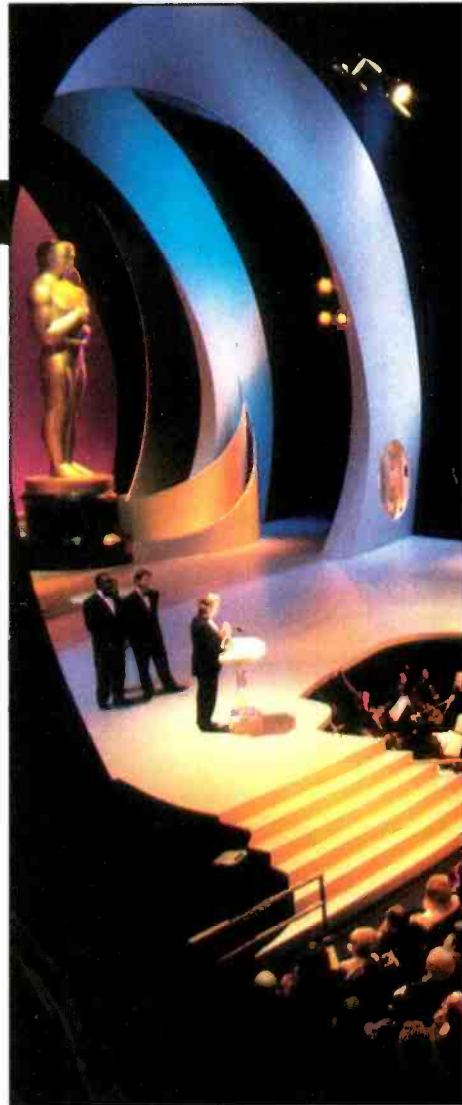
Circle (23) on Rapid Facts Card

Sound
Reinforcement

The 63rd Annual Academy Awards

OSCAR'S AUDIO

**Extensive planning and rehearsal made this
the best-sounding Oscars in years.**



Live from Los Angeles, the Academy of Motion Picture Arts and Sciences presented the 63rd Annual Academy Awards. Broadcast live to an estimated 1 billion viewers, the show opened in the Paris theater where the first motion picture was shown. Using blue screen techniques and computerized switching, dancers spilled off of the screen and onto the stage.

Anyone who has ever worked live television knows how many things can go wrong. It takes extensive planning and preparation to work out all of the details before the show. It also takes a special breed of audio professional. Bo may know baseball, but Bruce Burns knows television production. In the past year alone, Burns Audio has done sound for the Grammy Awards, the Academy of Country Music Awards, the Golden Globe Awards, the Kennedy Center Honors and the Soul Train Awards.

Rick Schwartz is a contributing editor to R•E•P and director of post-production at Music Animals, Los Angeles.

On a production of this magnitude, preparation begins long before the show. There are extensive rehearsals, one night of orchestra balance, days of acceptance speech rehearsals with stand-ins, presenter rehearsals, dress rehearsals with performers and a full show run-through. This year, all five nominees for best original song performed live for the first time, which kept audio personnel on their toes throughout the show.

The house mix position was located in the center of the Shrine Auditorium, in front of the balcony seats. To get much closer, you would have to be accepting an award. Behind the large mixing console sat house engineer Patrick Baltzell, carefully studying the show script, a document several inches thick.

"Of course there's always some pressure at the downbeat of any live show," Baltzell said between rehearsal numbers. "Rehearsals are useful for setting levels on delicate things like lavalier microphones. I make settings and write them down in the script." Baltzell says that, unlike oth-

er award shows, all of the "play-ons" and "play-offs" for the Oscars are done live with an orchestra — so orchestra balance is very important.

"Although only about 20% of the sound from pit bleeds into the room, the sound which reaches the console is not well balanced and needs to be filled in," he says. "Placing drummer Harvey Mason and the rest of the rhythm section under the walkway helps to control leakage and makes it easier to achieve proper balance at reasonable levels. This type of audience is pretty sensitive to levels."

According to Baltzell, mixing in the Shrine is difficult, because the majority of the seats are located behind the house mixer in the balcony, which is very reverberant because of its stone walls and hard plaster ceiling. On the other hand, floor seating is surprisingly dead, creating two entirely different acoustical spaces with very different requirements.

"Our approach is to subdivide the room into zones," he says. "I have individual control of each zone at the house mix posi-



By Rick Schwartz

er and a $\frac{1}{3}$ -octave graphic EQ that the mixer tweaks before a show," DeLoria says. "Our system requires a dedicated operator, who normally remains for the entire show. Because the equalization we perform is very precise and narrow in band, it needs to be monitored for changes during a show. A typical notch could be as deep as 12dB at the primary resonance mode, and most notches are less than $\frac{1}{3}$ -octave in width."

When tuning a room, DeLoria starts with a primary reference system, which in this case was the two outside speakers of the central cluster. These speakers provided a flat, direct sound to the majority of seats, without over-exciting the room. Once the main cluster was set, DeLoria added in other zones. Before even turning on the underbalcony speakers, he looked at the response curve of its microphone with only the main cluster on. Then he built a response curve allowing the underbalcony speaker to fill in only what was missing from the main cluster. Normally he needs to add only high frequencies, because low frequencies easily diffract under the balcony. DeLoria's approach is somewhat unique, because he doesn't intend to make each speaker flat, which keeps overall room excitation to a minimum.

Normally, he will spend about 20 minutes on the main cluster and then move on to the next zone, while continuing to work with the analyzer. According to DeLoria, the second most important zone at the Oscars was the orchestra left and right speakers. A vertical stack of three speakers is not a typical configuration. Only the lower of the three was used throughout the whole show. The upper speakers were only turned on for additional horsepower during the rock 'n' roll numbers.

"The balcony zone was also very important, because it's about 90% of what the people in the upper seats heard," DeLoria says.

He continues, "During a show I play several roles. For the first 10 or 15 minutes, I carefully track my filter positions, often tweaking the band centers up slightly to compensate for room displacement. I would frequently walk the house during the show and carry a sound level meter to trim things out. Sometimes I will even set-up equalizer cues.

tion using the output matrix section on the Ramsa console. Splitting the room into zones provides better coverage while minimizing the risk of feedback."

To get proper coverage, speakers are placed at strategic places all over the large hall. Although the center cluster is the primary source of level, there are speakers for both podiums, orchestra left and right speakers, balcony, near, far and side speakers, front fills, rock 'n' roll stacks with subwoofers, under balcony speakers, a central cluster, and even speakers on the lighting truss for the upper balcony. Burns used a Crest-powered, all Apogee speaker system consisting primarily of 3x3s, AE-2s, AE-3s and AE-5s.

The purpose of multiple zones is to get good coverage without deafening people with levels. Apogee Sound has developed a technique that minimizes the collective contributions of all speakers, to make the room sound as small and dry as possible.

According Ken DeLoria, president of Apogee, "The ultimate objective is to create a situation where the room is dry

enough that the mixer can even add reverb if he or she wishes. Reducing the perceived reverberation time of the room creates a more controlled-sounding production that's intimate, but doesn't sound canned."

TUNING UP

With difficult room acoustics, room tuning plays an important part in the overall sound. Burns utilizes precision room equalization techniques pioneered by Apogee Sound, which take into account changes in temperature, humidity and the effect the audience has on a room (most rooms decrease in effective volume as people enter and displace the air). The company's CORREQT system (Computer Optimized Room Resonance Equalization Technique) uses sophisticated electronics to display changes in room acoustics during a performance, so the operator can make necessary changes to ensure a consistent sound (see R•E•P, June 1990).

"Normally, when people think of room tuning, they think of a spectrum analyz-

"For example, I might take out the low-end filters to get a disco effect for a rap band and then insert them before the orchestra starts playing. It's almost like mastering. There are times when I can contribute subtle improvements, because the mixer is so busy, but I would never create a situation where the mixer would have to correct a change that I made. You have to be extremely subtle about the changes you are making."

FROM THE HOUSE

For the Oscars, Burns chose a 40-input Ramsa WR-S852 mixing console in the house. Because of the quick pace of the show, Baltzell received post-fader, pre-limiter orchestra submix returns from the broadcast audio music truck. Subgroups included brass, woodwinds, strings, choir, rhythm and percussion. Individual control of each drum mic and the piano proved to be essential for the Sondheim number that Madonna performed. The house and monitor mix console are very similar. They can be expanded to 52 inputs using a submix module, which is a plain-vanilla but high quality 8-input mixer. The additional inputs are useful for mixing things like strings and drums, or things like keyboards, where the EQ is set by the performer.

According to Baltzell, "Ramsa consoles were chosen because of their quietness and headroom." When host Billy Crystal worked the front edge of the stage, Baltzell was able to pull down the matrix send for the center cluster and compensate by bringing up the orchestra left and right stacks. Because of the room acoustics and the quick pace of the show, signal processing was kept to a minimum. All three podium mics were compressed using dbx 160X compressors, set to a 3:1 ratio (over-



Monitor mixing with a front row seat.

easy). Baltzell used a digital delay and a Yamaha SPX-900 as an instrument reverb. "When the room fills up, you can actually hear reverb and digital delay. I dedicate an output group on the console to effects and add more reverb to the speakers on the floor than I do in the balcony," says Baltzell.

Anyone who has ever worked live sound knows that making every performer happy is no easy task. Stars are clearly no exception to this rule. An automatic-stand mic needed to be moved because a certain blonde singer didn't like the position where it came up in the stage. (In the end, the person in charge of the elevator forgot to raise the mic anyway.) When she wanted to hear a "sexier" mix out in the house, it meant she wanted lots of drums, especially crash cymbals and toms.

She wasn't the only one with special requests: During rehearsals Bon Jovi requested additional stage monitors, which were supplemented with Apogee 3x3s used as sidefills. To eliminate excess leakage, it's common for drums to be deadened. Sheets of linoleum are cut to muffle drum heads and cymbals are glued together to minimize ring. A Summit leveling amp was brought in for the band's performance mics to keep their vocal sound as warm as possible. A 125ms single repeat echo was used on Jon Bon Jovi's vocal mic in the house and a 420ms slap echo was requested in the monitors.

Baltzell says, "In a show like this, although music is important, it's secondary to the podium mics. If you broke the show down into percentages, it would be 80% podiums, 5% film clips and 15% music." Burns Audio worked closely with the art director to create adjustable podium microphones, which moved up and down on a stem. Each podium was outfitted with two Schoeps microphones fitted with MK-41 hypercardioid heads. To reduce clutter, Burns ran a single 8-pair shielded cable to each podium. Each podium mic was equalized separately on an insert bus and hi-passed at 150Hz.

According to Baltzell, "The lavalier mics are also equalized separately, because their omnidirectional elements are highly susceptible to feedback. I work closely with Mike Abbott, who mixes monitors, so stage levels are not a problem. We always try to get the side fills in as close as possible to the stage and I ask him not to use them for things such as film-clip playbacks and announcer voice-overs."

Mike Abbott was in charge of all on-stage mixes. He used a Soundcraft 500 slaved to a Ramsa WR-S840F monitor mixing console. The Ramsa console provides



Patrick Baltzell tweaking the FOH Ramsa console a moment before shouttime.

18 different discrete mixes, the last eight can be turned into stereo monitor mixes for side fills or other applications. For the Oscars, he used up to 11 discrete mixes, each with its own Klark-Teknik or Yamaha 1/3-octave equalizer on it. Each speaker was "rung-out" before the show and there wasn't a hint of feedback during the show, although several of the acts worked at ear-splitting levels.

The 40-input frame had control of eight RF hand-held lavalier microphones and four production hard-liners. In addition, Abbott had control over a high-level back feed from both video playback and audio tape machines. Abbott had at least three different monitors set up, so that he could hear each separate mix exactly as the artist did.

AUDIO ON WHEELS

Much of the equipment that brought the sound to the home viewing audience was housed in large trailers parked in back of the Shrine. The Greene/Crowe and Co. truck acted as the master control facility for the show and housed many of the top audio and video personnel, including the show's director. Communication between technical personnel is essential on a show of this size. ABC used a 16-channel RTS system with a number of feeds, including an audio circuit and an isolated fold-back circuit for RF headsets onstage. In addition, there was a dedicated "iso" between the mixers and the trucks and a private "iso" from the orchestra mixer and the conductor.

The videotape room in the Greene/Crowe truck housed four 1-inch Type C machines, which played back nominee pieces and other show elements. Most of the animation also came from those machines. Ron Cronkhite, an ABC mixer, created the final audio mix from the back of this trailer. Cronkhite, who has been mixing the show since 1981, used a 48-input Audiotronics console.

According to engineer Dave Crevelli, "Although the orchestra mix normally includes vocals, this time Ron combined the orchestra mix (from the music truck) with the hand-held vocal mics. The production mixer has control over a number of sources, including RF and hard-wired performance mics, the announcer and videotape machines from both of the trucks. There were also two remote audio feeds from New York and Paris."

In addition to the primary left and right stereo feeds, Cronkhite also created a camera headset feed, an orchestra truck feed and a conductor's headset feed, which didn't include orchestra.

"There was even a mix-minus New York and Paris, so they wouldn't get a 'round robin' of themselves. We also created an

international mix, which was basically a stereo mix minus the announcer, so other countries could add their own announcers to the signal," Cronkhite says. He used a total of eight audience mics, including four Sennheiser 416s and four Countryman hypercardioids. All audience mics were fed into a Yamaha rack-mounted sub-mixer, so he could adjust individual levels as needed. Cronkhite used a foot pedal to control audience levels, which left his hands free.

Cronkhite used a set of USCO Audio

close-field monitors with a 6.5-inch down-firing woofer as his primary reference. He believes they are ideally suited for television mixing because of their accuracy. The soffit also housed a pair of Meyer HD-1s, which he feels are great speakers, but are almost too good for television because he believes you hear much more than you would hear at home.

THE BIG SQUEEZE

The production audio truck housed an impressive arsenal of signal processing

A Sound Investment

Maximize profits with equipment that offers -

- Audiophile quality. Enhance your image, attract repeat and referral business.
- Economical expandability.
- Rugged industrial duty construction. Trouble-free operation.
- Flexibility to interface with all master formats.

A proven leader in audiophile duplication equipment, KABA now adds supply and production support for our customers.

The KABA "Profit Package" includes:

- A 4-position duplication system.
- Shrinkwrap L-Sealer, heat gun & film.
- 500 custom loaded & imprinted chrome cassettes with Norelco boxes.
- A supply of pre-recorded demo cassettes and imprintable sales aids to support promotion of your business.

Save Over \$1,100.00

Only \$5,385

(limited time offer)



KABA
Research & Development

24 Commercial Blvd., Novato, CA 94949 (415) 883-5041
1-800 231-TAPE FAX (415) 883-5222

For more information
on this or larger
packages call:

gear. A Dolby Cat 43 was used on all podium and performance mics to make the room sound tighter, by removing some of the ambient sound from the room. Because the unit has four different bands, the operator can focus in on air conditioning noise and quiet the room using its single-ended noise-reduction process.

Because of broadcast limitations, gain control is essential. Podium mics were compressed using one side of an Aphex Compeller, while the announcer's mic and vocal performance mics were compressed using a dbx 165A compressor. During Madonna's segment, the 165A was set to a 6:1 ratio, over-easy, with gain reduction of up to 12dB. Dbx 166 compressors were used to control audience mics. Videotape elements were slightly compressed using a UREI 1176. A Lexicon 200 digital reverb was used on all vocal mics set to a plate preset with 72ms predelay and 2.6-second reverb time.

IS IT LIVE OR MEMOREX?

Behind Cronkhite sat Joyce Grossman, now in her seventh year with the show. Joyce was responsible for all of the audio playback numbers in the show. There were three musical production numbers in addition to the mixed track that Jon Bon Jovi and his band played to.

According to Grossman, the Bon Jovi track had to be remixed numerous times before they found a mix that was right for television. The band brought in their production audio on a DAT, which was transferred to an Otari MTR-10 1/2-inch 4-track, for ease of cuing. Grossman cues the machine to a half second before start of program and "goes" on the director's cue. All tracks are recorded stereo, without time code. When they need something synced to picture, they generally take it from a videotape source. Sound effects, like the car alarm used for Billy Crystal's horse, were triggered from one of four cart machines.

An ABC video trailer sat next door to the Greene/Crowe trailer and was used for several different things. The videotape area supplemented the videotape machines in the Greene/Crowe production trailer. All win clips came from the ABC truck, while nominee clips came from the Greene/Crowe truck. When it actually came time to chose the winner, an operator rolled all five Betacam machines and the technical director selected the winner. The ABC trailer was also used for projection feeds and received all camera feeds, which included 14 show cameras and five outside cameras.

THE ORCHESTRA MIX

Several trailers down sat the Remote Recording Services Silver Studio. Music mixer Lee DeCarlo worked closely with con-

1991 ACADEMY AWARDS MICROPHONE PATCHING CHART

1	Floor Tom	Sony 536
2	Rack 1	Shure SM-57
3	Rack 2	Shure SM-57
4	Rack 3	Shure SM-57
5	Sock	Sony EM-50
6	Kick	AKG D-112
7	Snare	Shure SM-57
8	Bass (DI)	Countryman T-85
9	Guitar	Shure SM-57
10	AC Guitar	Sony 536
11	Synth 1L	Countryman T-85
12	Synth 1R	Countryman T-85
13	Synth 2L	Countryman T-85
14	Synth 2R	Countryman T-85
15	Woodwind 1	AKG 451
15	Woodwind 2	AKG 451
16	Woodwind 3	AKG 451
17	Woodwind 4	AKG 451
18	Woodwind 5	AKG 451
19	Woodwind 6	AKG 451
20	Woodwind 7	AKG 451
21	String Bass	Sony C-38B
22	Harp	Shure SM-81
23	Vox 1	Shure SM-87
24	Vox 2	Shure SM-87
25	Violin 1	AKG 414
26	Violin 2	AKG 414
27	Violin 3	AKG 460
28	Violin 4	AKG 460
29	Violin 5	AKG 460
30	Viola	AKG 460
31	Cello 1	AKG 460
32	Cello 2	AKG 460
33	Trumpet 1	Sony 535
34	Trumpet 2	Sony 535
35	Trombone 1	Sony C-48B
36	Trombone 2	Sony C-48B
37	Horn 1	Sony 535
38	Horn 2	Sony 535
39	Percussion	Shure SM-81
40	Percussion	Shure SM-81
41	Tympani	Shure SM-81
42	Conductor	AKG-441
43	Percussion Whistle	AKG 460
44	Harry Connick Jr.	Music Truck Submix L
45	Harry Connick Jr.	Music Truck Submix R

ductor Bill Conti to create the orchestra and the Harry Connick Jr. mix. DeCarlo mixes on an all-discrete API console with GML moving faders and a computer-controlled input/output matrix, which allows easy recall of complex signal routing. The console has 10 sends and three stereo buses feeding a grand master. Almost all of the 48 inputs were used for the show because of the extensive miking which was done on the orchestra (See Chart 1 for mic input assignments).

"The API console is very flexible," says David Hewitt of Remote Recording Services. "Although the basic design was very close to our needs, we did a certain amount of customization." The console was fitted with API-560 graphic equalizers on every module because they're quiet and EQ settings are easy to keep track of. DeCarlo likes to use graphic EQs because their sliding band controls are more easily reset than parametric style band selectors.

The difference in monitoring levels between the production truck and the music truck was surprising. Lee mixed the

show on large KRK monitors at reasonably loud levels. Because of the large number of inputs needed in a production of this scope, DeCarlo used an Audioscope 9000 computerized meter bridge that interfaced with the meter circuitry on the API. The Audioscope is an Italian device that uses a 286 computer to provide simultaneous VU and peak metering.

The production audio mixer is the last artist in the chain. Beyond that point it hits transmission distribution gear, where the signal goes out to telco and along its various transmission paths. After it leaves the ABC transmission facility, Pacific Bell multiplexes the signal and sends it out via microwave.

The show went smoothly, with no technical glitches and no feedback. This is not to say it was easy. There is always an incredible amount of pressure on a show like this. Make a mistake and a billion people are your witness. ABC was happy too — they captured a 48 market share to rack up the highest rating of any entertainment special this season. ■

All Access

By Mark Herman

SCORPIO SOUND SYSTEMS,
WEST BRIDGEWATER, MA

Headline Act:
Meatloaf

Dates: Feb. 29—April 28
Region: Northeast

HOUSE SIGNAL PROCESSING

Equalizers: Klark-Teknik DN360
Crossovers: BSS 360
Reverb: Lexicon 224XL, Lexicon PCM70,
(2) Yamaha SPX 900, Yamaha REV-5
Delay: Yamaha D-1500
Gates: (4) Drawmer 201, dbx 904
Compressor/Limiters: (3) BSS 402, dbx
903
Intercom System: HME
DAT Machine: Sony
Cassette Machine: Tascam
CD Player: Sony
Headphones: Sony MDR-V6
Analyzer: Klark-Teknik DN-60
Power Conditioner: Juice Goose

ONSTAGE SIGNAL PROCESSING

Equalizers: Klark-Teknik DN360
Gates: Drawmer 201, dbx 904
Compressor/Limiters: dbx 903
Analyzer: Klark-Teknik DN-60
Headphones: Sony MDR-V6

MICROPHONES

Main Vocals: Shure SM 58
Background Vocals: Electro-Voice 757
Kick: Beyer M-88
Rack Toms: Electro-Voice 408
Floor Toms: Electro-Voice 408
Overheads: AKG 460
Snare Top: Shure Beta 57
Snare Bottom: Shure SM 57
High Hat: AKG 460
Guitar No. 1: Electro-Voice 408
Guitar No. 2: Electro-Voice 408
Keyboards: Whirlwind Director DI
Bass: BSS DI

CABLING

Snake: 52-pair with Mass multi-pin, 12-pair
return with Elco multi-pin
Stageboxes: Scorpio 12-pair with Elco
multi-pin
Splitter: 2-way passive ■

PERSONNEL

House Mixer: Carl Gagnon
Monitor Mixer: George Wehrlin

CONSOLES

House: Soundcraft Series 4, 40×16×2
Monitor: Soundcraft Series 4, 40×24

AMPLIFIERS

Main FOH: Crest 8001
Lows/Subs: Crest 8001
Monitors: Crest 7001, 6001, 4801
Sidfills: Crest 7001, 6001, 4801

MAIN LOUDSPEAKER CABINET

Manufacturer/Model: (18) EAW KF550
Manufacturer/Model: (6) EAW MH 102

ONSTAGE MONITOR WEDGES

Manufacturer/Model: (2) Scorpio Sound
2212 (2×12" JBL 2206, 1×2" TAD 2001)
Manufacturer/Model: (8) Scorpio Sound
2115 (1×15" JBL 2226, 1×2" JBL 2450)
Manufacturer/Model: (2) Scorpio Sound
2215 DF (2×15" JBL 2226, 1×2" JBL 2450)
Crossover: BSS 360

ONSTAGE SIDEFILLS

Manufacturer/Model: (2) Scorpio Sound
2212SF (2×12" JBL 2206, 1×2" JBL 2445,
1× JBL Slot)
Manufacturer/Model: (2) EAW BH 550
Crossover: BSS 310

Mark Herman is a contributing editor to R•E•P and the president of Hi-Tech Audio Systems, a sound reinforcement equipment rental company based in South San Francisco.

DELICATE PRODUCTIONS,
CAMARILLO, CA

Headline Act:
Janes' Addiction

Support Act: Happy Mondays
Dates: April 23—May 30
Region: U.S.

PERSONNEL

House Mixer: Tracy Kunstmann
(independent)
Monitor Mixer: Gerry Georgetti
(independent)
Support House Mixer: Simon Machan
(independent)
Support Monitor Mixer: Eddy Hallam
(independent)
Head System Engineer: Steve Venezia
Technicians: Steve Dabbs, Graham Thorn-
ton, Mike Horn, Jens Mcvov

CONSOLES

House: Yamaha PM3000, 40×8×2



All Access

Monitor: Soundcraft Series 4, 40x16
Support House: Yamaha PM3000, 40x8x2
Support Monitor: TAC Scorpion, 30x12

AMPLIFIERS

Main FOH: Crest 8001, 6001, Carver PM1.5
Lows/Subs: Crest 8001
Monitors: Crest 6001, Carver PM350
Sidefills: Crest 8001, Carver PM1.5

MAIN LOUDSPEAKER CABINET

Manufacturer/Model: (44) Martin Audio F2
Manufacturer/Model: (44) Martin Audio F2L

ONSTAGE MONITOR WEDGES

Manufacturer/Model: (12) Martin Audio LE600
Crossover: Carver PMX
Manufacturer/Model (drums): (2) Martin Audio F1
Crossover: Martin Audio MX4

ONSTAGE SIDEFILLS

Manufacturer/Model: (4) Martin Audio M1
Crossover: Martin Audio MX4

HOUSE SIGNAL PROCESSING

Equalizers: Klark-Teknik DN27
Crossovers: Martin Audio MX4
Reverb: Lexicon PCM70, Yamaha SPX 900 & SPX1000
Delay: Lexicon PCM42, Roland SDE3000
Gates: BSS 502
Compressor/Limiters: dbx 160X
Intercom System: Chaos Audio
Cassette Machine: Technics
CD Player: Sony
Headphones: Sony MDR-V6

ONSTAGE SIGNAL PROCESSING

Equalizers: Klark-Teknik DN360
Effects: Yamaha SPX 90-II
Gates: dbx 904
Compressor/Limiters: dbx 903

MICROPHONES

Main Vocals: Shure SM58
Background Vocals: Shure SM58
Kick: Electro-Voice RE-20
Rack Toms: Ramsa 55
Floor Toms: Sennheiser 421
Overheads: AKG 460
Snare Top: Shure SM57
Snare Bottom: Shure SM 57
High Hat: Sennheiser 421
Guitar No. 1: Shure SM57
Guitar No. 2: Shure SM57
Bass: Sennheiser 421
Direct Boxes: Countryman

CABLING

Snake: 69 lines with AMP multi-pin
Splitter: 3-way

Knock Out NOISE



AZ-USA delivers the Knock Out punch to noise. **AZ-USA**, the sound control experts offer...

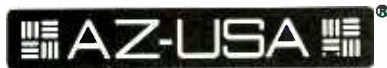
LOWER prices,
FASTER delivery,
FRIENDLIER service,
BETTER performance,
IMPROVED designs.

We are the sound control champions. Let us help you fight your sound control problems.

SATISFACTION GUARANTEED

Call AZ-USA Toll Free for a FREE brochure.

1-800-842-9790



Ultimate Sound Absorption
 Dealer Inquires Invited. Ask for Ext. 40
 Circle (25) on Rapid Facts Card

1401 W. 76th St.
 Minneapolis, MN 55423
 Phone: 612 861-2290
 Fax: 612 861-2103
 © 1991. AZ-USA, Inc.

PRODUCTION

MUSIC

THE MOST COMPLETE PRODUCTION MUSIC AND SFX LIBRARY AVAILABLE

OVER 300 CDs



PROMUSIC
1-800-322-7879

Call for our FREE demo and information package. CDs available for review.

Circle (26) on Rapid Facts Card

Roadwork

By Mark Herman

Located 45 miles south of San Francisco in the heart of the Silicon Valley is the Cupertino branch of **Cogswell Polytechnical College**. A special music engineering program has been created in response to industry needs for fully trained and educated scientists and engineers needed in the merging fields of electronics, music and technology.

Paul Schreivogel, director of admissions says, "The idea of this degree is to get people full-time careers in technical music engineering. The emphasis is not on the music; it is on the engineering. They come out as a true engineer with a minor in music engineering. This is the only bachelor of science of music engineering degree of its kind in the country; it's the engineer/artist combination for the student who likes computers, music, math and science. It is not a performance degree."

This program is directed toward those seeking a career in fields such as equipment design, software development, serv-

ice and repair, computer engineer, systems design, audio engineer and recording studio design. Courses include digital signal processing, MIDI fundamentals, sound analysis and design, TV studio production, C programming, acoustics and sound reinforcement. Out of the 130 units required, 90 units are technical, applied engineering-oriented.

The courses are combined with music production, real world engineering internship programs, new product testing and practical experience. After completing the program graduates are well versed in advanced sound design, digital recording, digital audio workstations, multiple tape environments and computers in music. Eric Petersen, music technology director says, "We want to see them become a large picture technician heading up design teams — doing the real stuff." The program started in February 1988 and costs \$3,120 per semester. I think it is highly commendable that this program is turning out

knowledgeable and highly educated key technical people for the pro audio industry. For more information contact Cogswell Polytechnical College, 10420 Bubb Road, Cupertino, CA 95014; 408-252-5550.



ATS Corporation (Avon, MA) is a regional Boston-area sound company that does a lot of country, Vegas and MOR acts, a few industrials, country fair main stages and festivals in New England. The company started in 1978 and now travels as far as upstate New York and parts of Pennsylvania. "Most of the acts we work with can't support long term production. We get a lot of three or four block dates as acts come through the New England area," says owner Rick Mansur. Last summer ATS put together a unique Community 880-based main system with ATS enclosures. "We took Community's entire 880 system and removed the cabinet, so to speak,"

F22

SMPT E Time Code

- Generator
- Reader
- Character Inserter

\$995.00



"Window Dubs" time code on video

SMPT E to MIDI Conversion

- Regenerates and Jam Syncs to existing code
- 1/30 to over 10 times play speed
- Forward and reverse
- Automatic error bypass
- Preset hours, minutes, seconds
- User Bits

Call **Fast Forward Video**

1-800-755-TIME (8463), 1-714-852-8453
for a dealer near you

Dealer Inquiries Invited.

Circle (34) on Rapid Facts Card



- DESIGN • SALES
- SERVICE • PARTS
- INNOVATIVE FINANCING PLANS
- RUSH DELIVERY

P R O F E S S I O N A L

INNOVATIVE SOLUTIONS FOR PROFESSIONALS



AKAI A.D.A.M. 12-TRACK DIGITAL AUDIO RECORDER

NEW YORK'S LARGEST PRO AUDIO INVENTORY

- PROCESSORS BY EVENTIDE, LEXICON, DBX, SYMETRIX, VALLEY PEOPLE, ALESIS, T.C. ELECTRONICS & AUDIO LOGIC • D.A.T. FEATURING SONY, TASCAM, CASIO AND OTHER LEADING PROFESSIONAL BRANDS • SAMPLERS FEATURING THE AKAIS-1000 & S1000HD, THE ROLAND S-770, S-550, & S-330, THE EMU EMAX II, EIII & PROTEUS • INTRODUCING D.A.R. DIGITAL WORKSTATION—POSTPRODUCTION POWER TOOL.

A FEW EXAMPLES:

- SOUNDTRACS II48/ERIC/CMX/MRX STUDIO CONSOLES • AMEK MAGNUM/TAC SCORPION II/BULLET CONSOLES • C.A.D. 16 TO 48 INPUT, DC SERVO POWERED MIXING CONSOLES • EVENTIDE H-3000S & B • T.C. ELECTRONICS DEALER FEATURING THE T.C. 2290 • AKG ADR 68K DIGITAL REVERB • ROLAND R-880 DIGITAL REVERB & E660 DIGITAL EQ • CONDENSOR MICS BY JOSEPHSON, AKG, CROWN, NEUMANN, SONY & SENNHEISER • APPLE MACINTOSH COMPUTERS (NY'S ONLY APPLE MUSIC DEALER) • SOUNDTOOLS DIGITAL AUDIO RECORDING & EDITING SYSTEM • TASCAM MSR-24 1" 24-TRACK BREAKTHROUGH PRICE RECORDER • MONITORS BY ANNOY, EV, JBL & UREI



TASCAM ATR-80 JAPAN'S FINEST 2" 24-TRACK

723 SEVENTH AVENUE (THIRD FLOOR)
NEW YORK CITY • 10036 • (212) 719-2640

Circle (35) on Rapid Facts Card

Roadwork

Mansur says. "All of the drivers are mounted on a 1-piece molded insert. We took this molded insert direct from the factory and put our own wood around it while still remaining faithful to Community's design. We made several adjustments for our own special requirements, but it is still entirely a Community system in its sonic operation. We have been really happy with the 880 speaker system. It works very well and our clients like the performance."

ATS's 12 880 mains and four Community VBS415 subs are powered by Carver 1200 and Crest 8001 amplifiers. Proprietary monitor wedges are loaded with a JBL 15-inch and a TAD 1-inch driver. ATS has just developed a new wedge with a 12-inch and a 2-inch driver. The stage is powered by Carver 1200 and 900 amps. Mixing consoles are a 32-channel Soundcraft 600 for the house mix and a recently purchased (used) 800B 32x12 for the stage. Main vocal microphones are the Shure Beta 58 and

standard 58. Additional main P.A. cabinets include some older EAW B215 and 2x12 cabinets.

Sound and lighting company See Factor (Long Island City, NY) provided audio for this year's 10-week U.S. Reggae Sunsplash tour. The main system featured 24 Meyer MSL-3 and 12 Meyer 650 subwoofers, plus additional Intersonics SDL-5 Servodrive subwoofers. See Factor then airfreighted all of the gear to Jamaica for additional Sunsplash 1991 dates. Headliner was Maxie Priest. See Factor also supplied sound and lights for a small theater tour with comedian Howie Mandel.

Odds & Ends ... Showco (Dallas) is bucking the general slow work trend. They currently have, or recently had, tours out with ZZ Top, Winger, INXS, Living Colour, Reba

McEntire, the Beach Boys, Steve Winwood and Rock in Rio ... Audio Analysts (Plattsburg, NY) bought a T.C. Electronic TC 6032 remote equalizer system ... Brazil's Instalson purchased (40) EX4000, (40) MX2000, (20) MX1500 and (20) MX700 QSC amplifiers to power its E-V MT-4 main PA ... Crystal Taylor Systems (Bensalem, PA) switched its QSC 3800s for new EX4000 amplifiers to power a Turbosound TSW124 subwoofer system. Crystal is running one cabinet per amp channel ... Platinum Sound Productions (Tampa, FL) bought (18) EX4000 and (4) MX1500 QSC amps to power a Turbosound main system ... SSE Hire (Birmingham, England) had E-V MT-4 main P.A. systems out touring the U.K. with Soul II Soul, the Pogues, Prince's Trust and World Party. ■

Mark Herman is a contributing editor to R+E+P and the president of Hi-Tech Audio Systems, a sound reinforcement equipment rental company based in South San Francisco.

STUDIO QUALITY

Direct-To-Disk Audio Editing
on PC/ATs with

MICRO SOUND™

- 2 or 4-track analog 16-bit A/D and 18-bit D/A 64x/8x oversampling converters
- Direct-digital transfers to/from DAT or CD
- Windows 3.0 based graphic waveform editor
- Record from 8KHz to 48KHz rates
- Rearrange segments in any order using crossfading or butt-splicing for linear arrangements playing in real-time
- Disk-Layering™ will mix overlapped segments with unique fade/gain settings, from up to 20 files to play 4, 6, 8...32-track simultaneous mixes
- Zoom from sample level to track-hours to make edits (undoable anytime)
- Hear edits using Play mark, Scrub, Audition and more
- SMPTE/MIDI Chase-Lock to incoming timecode, locking and playing within 1 second
- Overdubbing optional
- Ready-to-use MicroSound™ WorkStations also available



You CAN
have a
Digital
Audio
Studio
NOW!

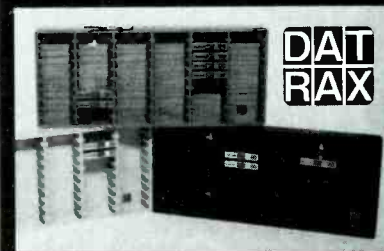
To
find
out
how -
CALL
WRITE
or FAX
today - for
a free
brochure
that
explains
how to
meet your
audio
needs.

MTU
Micro Technology Unlimited

156 Wind Chime Court
Raleigh, NC 27619
Phone: (919) 870-0344
Fax: (919) 870-7163

Circle (36) on Rapid Facts Card

DATRAX 60



Store your DAT tapes in a
beautiful, contemporary
wall/table mountable unit
that holds up to 60 tapes.

AVAILABLE IN SOLID AND BLACK OAK
NEW PLASTIC LINE

- DATRAX-40/SAME LOOK AS DATRAX-60
- VHS 8mm RAX/HOLDS 36 TAPES

ALSO AVAILABLE:

DAT Tape Carrying Cases

DAT Custom Flight Cases

For information or to order ▼

CALL: 1-800-9-DATRAX

TEL: 818-783-9133 FAX: 818-783-9318

BRYCO PRODUCTS, 13444 Moorpark St.,
Suite 23, Sherman Oaks, CA 91423

BRYCO

Circle (37) on Rapid Facts Card

HANDS ON:

AMEK MOZART RN



By Jim Williams

Last year the buzz was all around that Amek Systems had lured the talents of Rupert Neve into designing consoles once again. After the Focusrite debacle, no one was sure we'd see Mr. Neve actively involved in design work again. Amek commissioned him to design an outboard equalizer (the *Medici*), and to redesign an input module for the Mozart console. The new module, called the MZ15 RN, contains some unique features, and is the version that will be reviewed here.

The Mozart is a 32-bus in-line console, offered in a 40-, 56-, and 80-input frame size, and can be fitted with standard MZ10

all-input, MZ11 in-line, MZ12 stereo input, or the Neve-designed MZ15 in-line modules. Each console is fitted with four MZ20 triple stereo effect return modules handling the 12 stereo effects returns. A master aux mix module and a grouping computer module are fitted as standard features. Also fitted are monitor source selection switches, an oscillator and a computer keyboard with built in trackball control. The patchbay can be remotely mounted, if necessary.

The Neve in-line module is similar to the standard in-line module, but features enhanced mic pre-amps, EQ and routing systems. The multitrack routing switches feed the 32 channel buses and stereo buses. An extra switch labeled Aux 7+8 breaks the channel bus feeds and assigns aux 7 and aux 8 to any one of the 32 channel buses. This feature allows access to a total of 42 aux sends off of each module.

Next down are the mic-line input trims and switches. The mic pre uses a 12-position switch and a fine trim to adjust the gain over a 70dB range, and the line-in and the tape/bus level is adjustable over a 20dB range via a dual concentric pot. The mix switch sets the mode or routing. When switched up, or to record, the mic/line inputs feed the multitrack buses, and the tape/bus inputs feed the monitor mix section.

When depressed, the mix switch inverts these feeds, allowing the mic/line inputs to feed the stereo bus through the monitor path. This mode makes the module "dual input," effectively doubling the number of inputs assignable to the stereo mix. The input reverse switch flips the mic/line and tape/bus inputs between the channel and monitor paths, but is overridden by the position of the mix switch.

The filter section utilizes tunable high-

Jim Williams is the owner of Audio Upgrades, a component-level upgrade design and consulting service based in Los Angeles.

and low-pass sections with a claimed slope of 20dB/octave. Because most filters are designed with 6dB increments (6, 12, 18, 24, etc.), a 20dB slope is unusual, as would be the phase response. The filter section can be switched between the channel and monitor paths. The EQ section consists of a fully parametric 4-band design with adjustable bandwidth and switchable shelving modes on the high and low bands. The frequencies are: LF= 33-950Hz, Low Mid= 55-1.5kHz, High Mid= 500-15kHz and HF= 800-20kHz. The bandwidths are adjustable from 1.5 to a wide five octaves.

The EQ can be switched into the monitor path in two sections, one switch places the low and high mids, and another places the two high and low bands into the monitor path. This "split EQ" is useful when using the dual input configuration. Both channel and monitor paths have access to EQ, and can cover a full frequency range.

There are 16 aux sends arranged as eight mono sends on dual concentric pots, and two stereo sends with level and pan. The remaining four sends are switchable stereo sends off of stereo sends 5/6 and 7/8. Pre- and post-fader switching and channel/monitor assignments are provided for each pair of sends. Sends 7 and 8 have mono switching capability and a

small fader-to-aux switch. This assigns the short fader to aux 7 and 8, and if the fader reverse is selected, aux sends 7 and 8 can be placed under automation control through the main fader.

The Amek folks have cleverly added a complete dynamics section, where the controls are displayed on the computer screen.

The monitor section contains the usual small fader and associated pan pot and mute. The meter off channel switch sources the 30-segment LED meter from the tape/bus return to the channel input. This allows metering of the mic/line/DI input levels and is taken after the insert and EQ sections to show level changes in these sections. Other features include a VCA bypass indicator, insert switch, auto-

mation LEDs and solo switching. A record ready switch can be tied to the tape machine's ready switch, allowing console control of the machine's record logic circuitry. When switched, an indicator appears above the channel's light meter.

The aux masters module contains the 16 aux sends, and also adds two cue sends that can be fed from auxes 5+6 or 7+8, or from the studio monitor's source or an external patch (like a cassette playback).

The triple stereo effects module has provisions for three stereo effects returns, as well as routing to the multitrack and alternative aux buses. Four modules are fitted for a total of 12 stereo effects returns. A stereo subgroup fader is assignable to each of the four modules and can be accessed by assigning signals to buses 25 through 32. If subgrouping is not selected, one of the three stereo returns under the module can be assigned to the long-throw stereo fader.

The master monitor section has the usual studio and control room feeds, and also contains the communications and talk-back controls. On the left is the grouping computer module, which contains the master status control, and the group and switching assignments. The top of the module has window displays for scrolling

M-1

MICROPHONE PREAMPLIFIER

SUPERIOR SOUND QUALITY. RE-DISCOVER YOUR MICROPHONES!

(ACTUAL SIZE)

- THE BEST JENSEN INPUT TRANSFORMER: THE JE-16-B.
- THE BEST OP-AMP: THE 990 DISCRETE OP-AMP.
- DC-SERVO ELIMINATES ALL COUPLING CAPACITORS.
- THE BEST JENSEN OUTPUT TRANSFORMER OPTION: THE JE-11-BM.

- ILLUMINATED SWITCH BUTTONS.
- TOROIDAL POWER TRANSFORMER.
- UNIVERSAL POWER SUPPLY.

THE JOHN HARDY COMPANY

P.O. Box AA631
Evanston, IL 60204

Telex: 910-390-4670
(JOHN HARDY CO)

DISC MAKERS

Complete manufacturing for the audio industry.

COMPLETE PACKAGES FOR:

- Cassette Duplication
- Record Pressing
- Compact Disc Replication

SAVE MONEY
Deal Directly With The Manufacturer

In-house art department for design, type-setting, film work, and printing. In-house mastering department for a great sounding product.

CALL FOR OUR FREE FULL COLOR CATALOG.

1-800-468-9353
(In PA: 215-232-4140)

DISC MAKERS

1650 Broadway, Suite 1010
New York, NY 10019
(212) 265-6662

Circle (27) on Rapid Facts Card

Circle (28) on Rapid Facts Card

through the channels to select groups or switch changes, and the rest of the module has push switches to automate a number of functions on each input module. Choices include VCA bypass, A/B switching, mix, EQ insert, and the muting of the aux sends. Below are eight muting group switches, allowing the set-up of up to eight mute groups.

The automation package designed for the Mozart is the Supertrue system, jointly developed by Amek and Steinberg. It is a VCA-based system operated from an Atari ST computer. Also included is a Steinberg TimeLock SMPTE processor for SMPTE lock-up, and a 30Mbyte hard drive and monochrome monitor. Unlike "faders only" automation, the Steinberg offers a total studio control capability, effectively automating every function in the studio environment. Besides standard fader control, up to 15 switches per module can be automated, and 16 subgroups can be run. Mixes can be spliced, merged, trimmed, swapped, shifted and copied, just like a good food processor.

A screen pops up with 20 fader moves graphically displayed, or you can draw your own with the trackball. A large cue list is provided, and you can write in against SMPTE a list of every event as the

mix proceeds, including group numbers, switch changes, and MIDI events — yes, this reads and writes to MIDI too. The cue list can show the MIDI device, patch and channel numbers, and what happens all against the SMPTE time code. Note that on, off, controller change, and sequence on and off can all be locked-up to 1/4-frame accuracy. Also included are several graphics screens like track sheets, fader movement displays and help screens. Another nice feature is the time calculator menu screen. You can calculate the tempo of a song from the SMPTE start and stop times, and convert SMPTE frames to milliseconds, a clever and helpful feature.

Amek's Supertrue also offers complete machine control from automation. Using an Adams-Smith Zeta 3 synchronizer, the Superlock system can lock-up two machines to SMPTE, which lets the engineer run both machines from the transport keys on the Mozart control section. Record ready for the multitrack can be switched from each input module, and a complete locator function is displayed on the computer monitor. With this much control you can just about pack your multitrack's locator in a closet and enjoy the space created by removing it from the control room. All you film/video mixers haven't been for-

gotten either: you can lock-up five machines to this system by fitting in the Motionworker synchronizer interface. All the machines are then displayed on the autolocator control window.

Another feature is the deferred record settings window. Any one of the locked-up machines can have the record enable function placed under computer control, all timed to SMPTE. Record punch in/out can be manually rehearsed and when ready can be punched in and out by the computer, or you can determine the punch times against SMPTE code and then audition the punches before committing to the computer punch in.

Perhaps the most innovative option of the Supertrue system is the Digitally Controlled Dynamics System. We've all seen the dynamics section in high-end SSLs and Neve Vatican consoles, but these are no more than a hardware-based compressor/gate, not dissimilar to many outboard units. The Amek folks have cleverly added a complete dynamics section, where the controls are displayed on the computer screen, rather than clutter up the input module surface with extra hardware knobs and switches.

Although an extra circuit board is mounted in each module, it is only a con-

You Can Hear The Difference

For More Info on Our Production Music Library Call

800-227-1954 212-333-5766

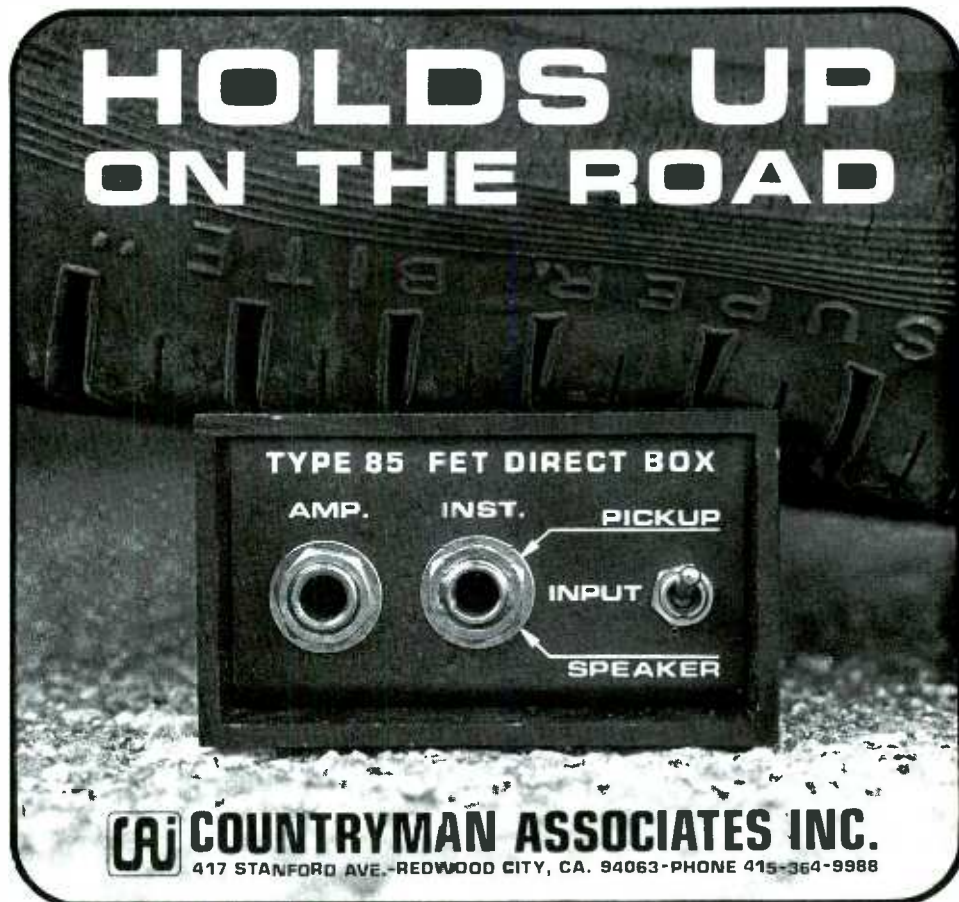
FAX 212-262-0814



MANHATTAN
PRODUCTION MUSIC
311 West 43rd St.: Suite 702; NY NY 10036

Circle (29) on Rapid Facts Card

HOLDS UP ON THE ROAD



COUNTRYMAN ASSOCIATES INC.
417 STANFORD AVE. - REDWOOD CITY, CA. 94063 - PHONE 415-364-9988

Circle (30) on Rapid Facts Card

control board, as the gain control element is the same VCA that's used for fader automation. Because the VCA is the familiar dbx unit, quality of sound is preserved. Several dynamics functions are available including a noise gate, advanced noise gate, easy and simple compressors, advanced and dual slope compressors, a ducker, limiter and an auto panner. For example, the advanced compressor features adjustable threshold, attack, hold, release, ratio, hard to soft knee and output controls.

Because all control functions are software-based, an infinite number of dynamic control designs are possible. I can imagine software revisions being able to emulate the dynamics control of favorite outboard units like the UREI 1176 and LA-4, and maybe some dbx and Aphex gear. Keep in mind that although it is possible to copy the dynamics of an LA-2, a dbx VCA isn't going to sound like a tube! I hope Amek will provide the capability for Mozart users to be able to write their own dynamics programs, or to be able to modify them.

One last feature of the dynamics system is a MIDI in/out jack-field fitted to the rear of the console. Each group of eight input modules is assigned to a MIDI In and Out jack. These are separate MIDI jacks from the main system MIDI jacks, which are located in the Atari computer. The dynamic's MIDI allows outboard sequencers to run the dynamics control, or the dynamic's MIDI-out can run outboard MIDI effects, keyboards and sequencers.

THE LAB TESTS

Testing was done on a newly installed Mozart RN at the Bakery studios, North Hollywood. This is the second Mozart installed at the Bakery, but it's the first with the Rupert Neve-designed modules. The test equipment used was the Audio Precision System One. All tests were made with the automation VCAs switched off.

First are the frequency response sweeps. Figure 1 plots frequency response of the line input to the stereo mix output. High frequencies are rolled off 3dB at about 65kHz, and the low-end is off -2dB at 20Hz. Tape inputs are similar, but with a little less high-end bandwidth. The 2dB rolloff at 20Hz is disturbing, although it is typical of consoles manufactured by Amek. Some users may find this console a little weak in the low end compared to Neves and Tridents, something which could be easily corrected by replacing the circuit's coupling capacitors with larger valued units.

Figure 2 shows the related phase vs. frequency plot. Phase shift is about 30° at 20kHz, and 66° at 20Hz. There is a 2.5° deviation from linear phase only in the low end which can cause a phase/

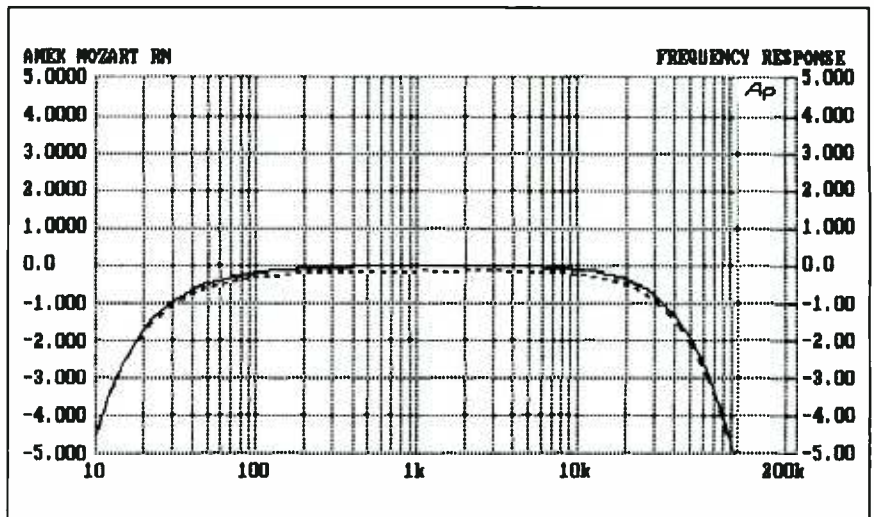


Figure 1. Frequency response, line in to main mix out.

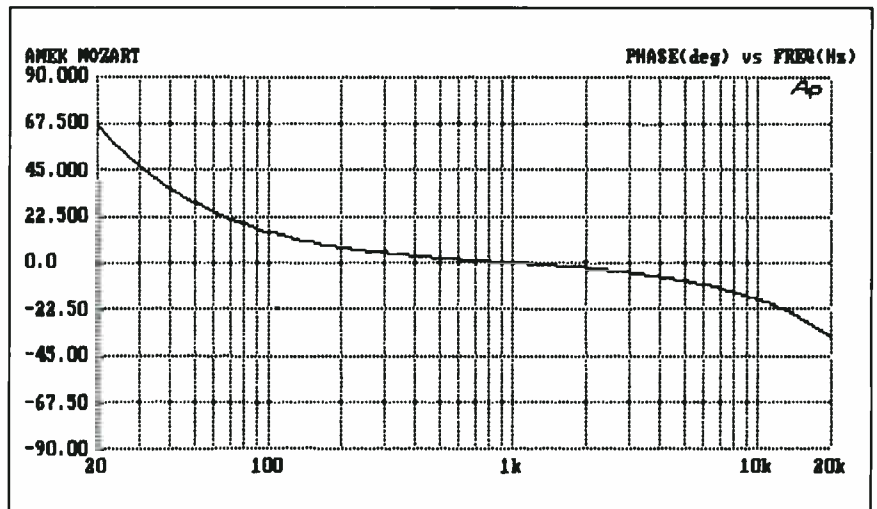


Figure 2. Phase, input A to B, line in to main mix out, stereo.

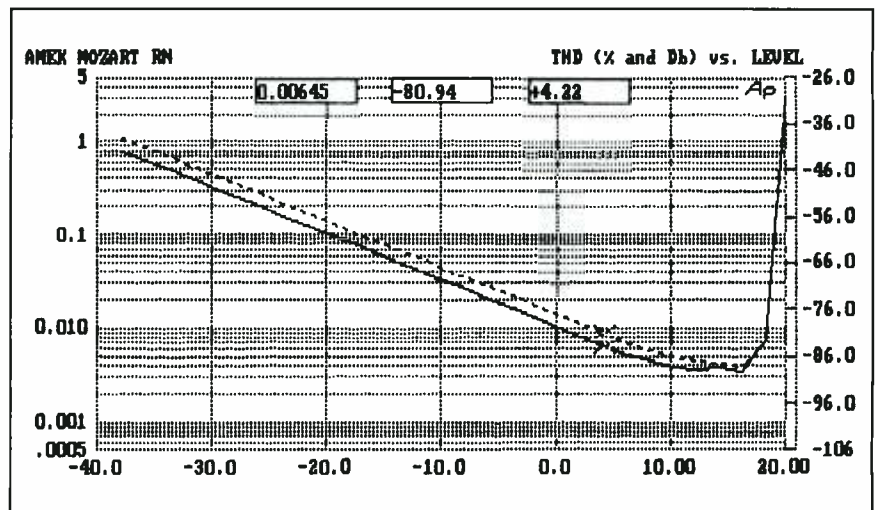


Figure 3. THD plus noise vs amplitude, line in to main mix out.

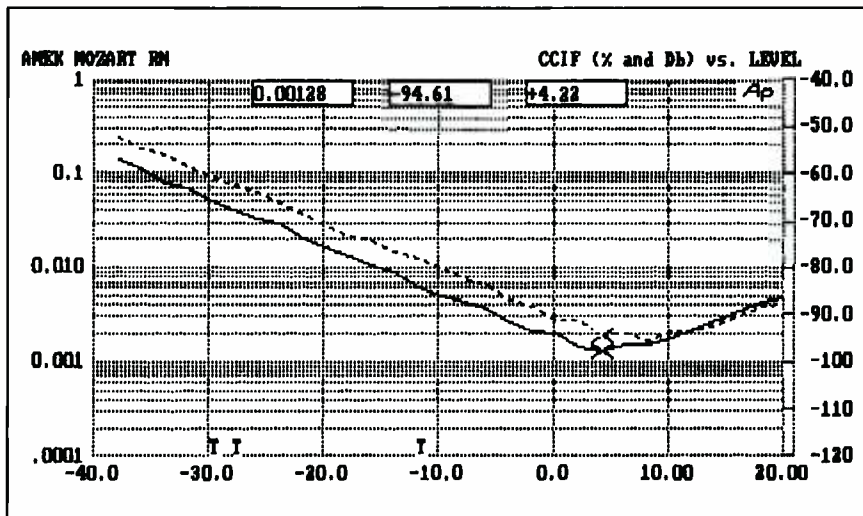


Figure 4. CCIF distortion vs amplitude, line in to main mix out.

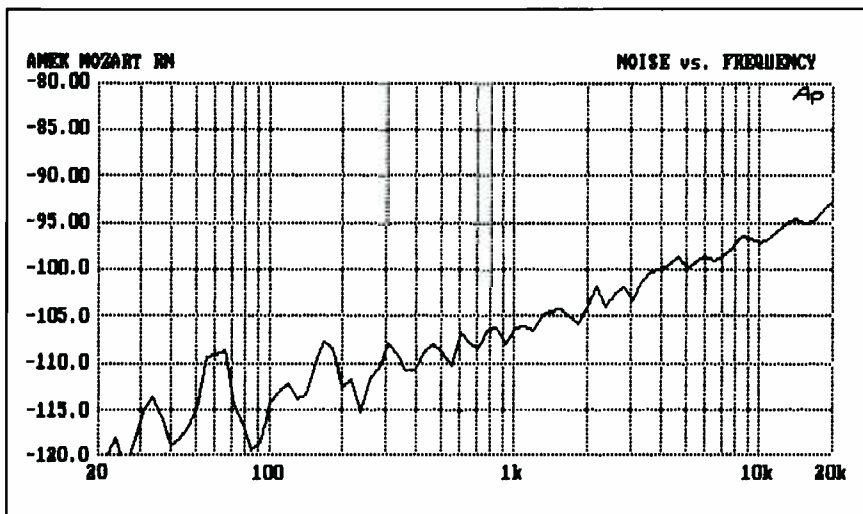


Figure 5. Residual noise spectrum, stereo bus, one channel, +4dB.

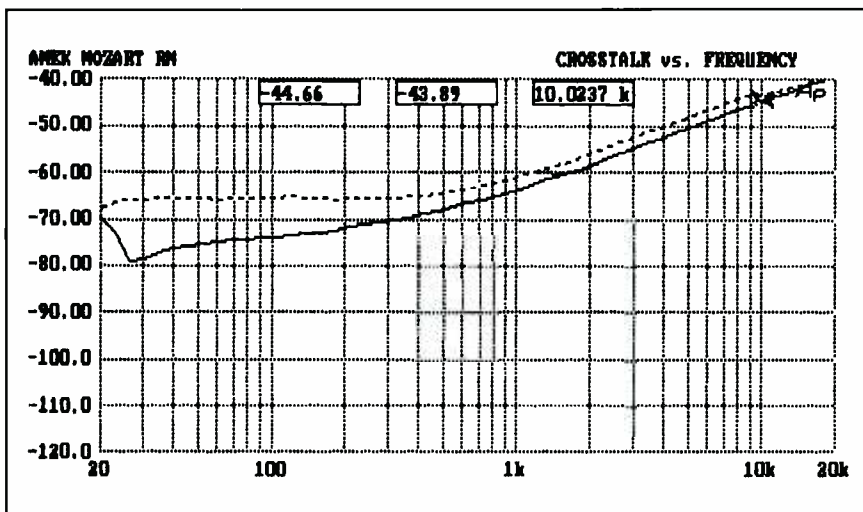


Figure 6. Crosstalk, stereo bus.

frequency nonlinearity in the bass. This is not desirable, and interested readers should read Deane Jensen's excellent paper on the subject published through the Audio Engineering Society.

Figure 3 shows THD vs. amplitude of the stereo bus. At +4dB, THD is a respectable 0.006%, and this holds from 20Hz to 20kHz. SMPTE intermodulation distortion is identical to the THD levels. Figure 4 shows the European CCIF intermodulation distortion plot. This test reads lower than the THD test because the noise is factored out of the measurements, giving a truer pure distortion reading. Note that the Mozart's CCIF distortion is in the 0.001% zone at the +4dB level.

Figure 5 is the stereo bus noise vs. frequency graph, and with one channel assigned the noise is down -95dB at 10kHz. This is an excellent reading and shows that the noise is all clean hiss with no hum components. Unweighted signal-to-noise was -80dB with one channel assigned. Figure 6 is the stereo bus crosstalk graph. Crosstalk (or leakage) is a poor -44dB at 10kHz, the most problematic crosstalk frequency. Interestingly, the stereo mix and monitor sections of the Mozart are the poorest performing sections of the console, where the Neve designed sections are completely different and vastly superior in specifications. (Fear not, readers; after reviewing the test results Amek has commissioned the redesign of the output section, the one part Mr. Neve didn't have an opportunity to re-work.)

On to the Neve designed input module. The frequency response of the module is plotted in Figure 7, and displays the line input to group output response. The low-end is down less than 1/2dB at 20Hz, and there is an interesting rise in response above 40kHz. Since the analyzer tests stop at 200kHz, I don't know how far above 200k the boost goes. Regardless, it shouldn't be there at all. The high frequency rise doesn't happen with the mic-to-group, nor does it happen with either mic- or line-to-insert outputs. Figure 8 shows crosstalk from group 31 to group 32. The balanced bus topology proves it's worth with an incredible -100dB crosstalk at 10kHz.

The next tests focus on the Neve-designed mic pre-amp. The Mozart mic pre is a hybrid transformerless design, which is a departure from Neve's traditional transformer-coupled designs. It is a typical "two transistors in the feedback of an opamp" design modeled after Paul Buff's original Trans-Amp mic pre. That mic pre had its gain adjusted via an 11-position switch coupled to a pot for final ± 10 dB adjustment. This mic pre has such a wide gain range, it has no pad switch, nor does it need one. It does have a DI switch intended to interface to electric guitars, key-

boards and drum machines. The switch loads the mic inputs to a 130kΩ input impedance, which is fine for electronic keyboards and the like. But it is still too low for passive electric guitars and basses, which require a much higher input impedance, like 1 million ohms, so don't throw out those Countryman DIs just yet.

Figure 9 shows the frequency response of the mic pre only. Note the excellent bottom and top end, down 1dB at 200kHz. The mic pre's THD vs. frequency were a low 0.001% at a gain of 6dB, and less than 0.05% at +60dB. Typical noise measured -127.6 EIN with a 150Ω source. This mic pre has the sock and air of a high quality outboard unit, and it is capable of very high resolution recordings. Interestingly, the mic pre is much better patched out of the insert point, than run out of the group or direct outputs.

The last section of the module is the Neve designed equalizer. Typical boost and cut curves for a middle band are shown in Figure 10. Minimum Q, or bandwidth, is on the order of 1.5 octaves, which is half again wider than one slider of a 10-band graphic equalizer. Maximum Q is a wide five octaves; this corresponds to half of the total bandwidth of the average human ear (not including live sound mixers!). I found the large Q values too broad for practical use. For example, if I boosted 1k with the maximum Q, everything from 100Hz to 10kHz was lifted. The narrower Q ranges are very useful and musical. I would like to see narrower Q ranges on the order of 1/3 octave for notching out unwanted frequencies.

The high and low shelf curves are shown in Figure 11. Note that the high band is a typical smooth shelf like any standard state variable filter will provide. The low band is different; note the "hard knee" at maximum boost and cut. This is similar to the "format spectrum equalizer" curves from the 81-82 series Neve consoles. Figure 12 plots the high and low cut filters with the turnover frequencies set at 10kHz and 100Hz. Although the literature claims a 20dB/octave rolloff, the filters are actually third-order 18dB/octave slopes.

THE LISTENING TESTS

When auditioning the Mozart RN, you can't avoid making comparisons to other Neve consoles. After all, this is a Neve console, at least when compared to any other Amek model. The first thing I noticed was that the soffeted Tannoy monitors had a boomy bottom, which prevented an accurate listening of the -2dB low end roll-off. It sounded as if there was a +2dB rise at 50Hz rather than any loss. The rest of the listening was done through the venerable Yamaha NS-10s. The bass was not as tight as a Neve 8108, this can be attributed to the large phase shift and phase non-linearity. The high-end fares better with

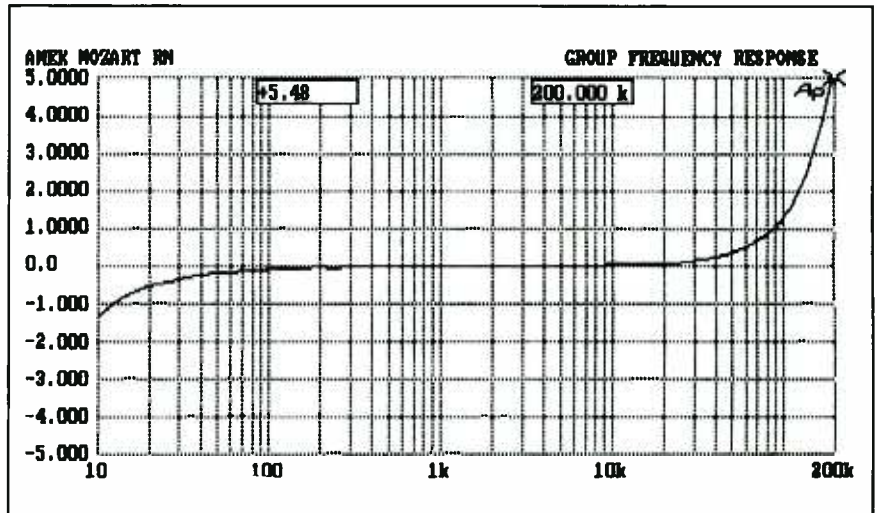


Figure 7. Amplitude vs frequency, line in to group output.

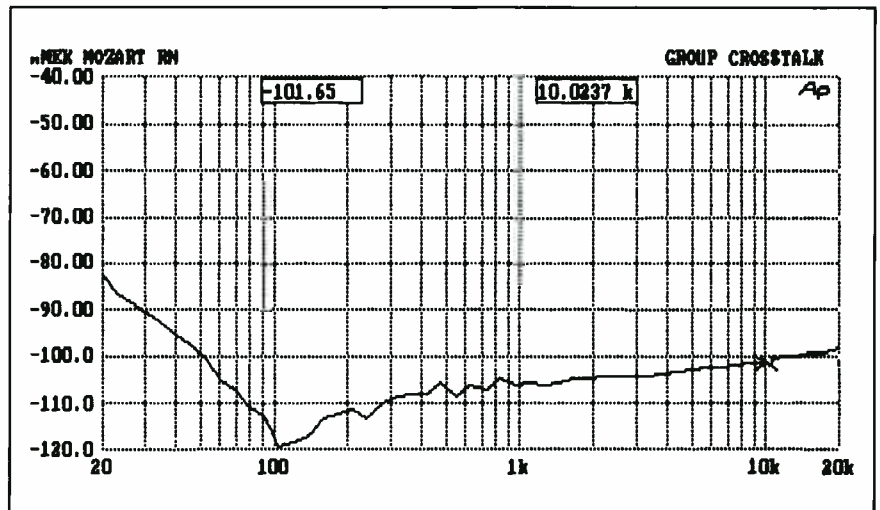


Figure 8. Crosstalk, group bus.

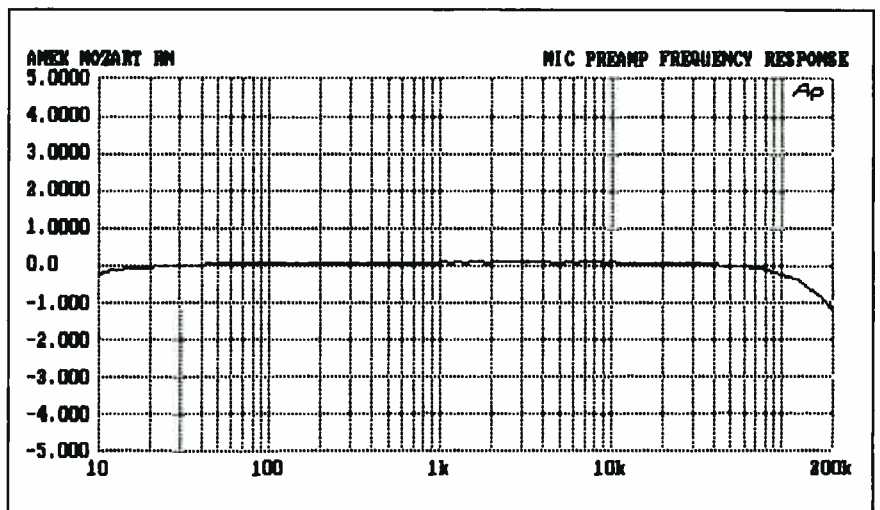


Figure 9. Amplitude vs frequency, mic in to insert out.

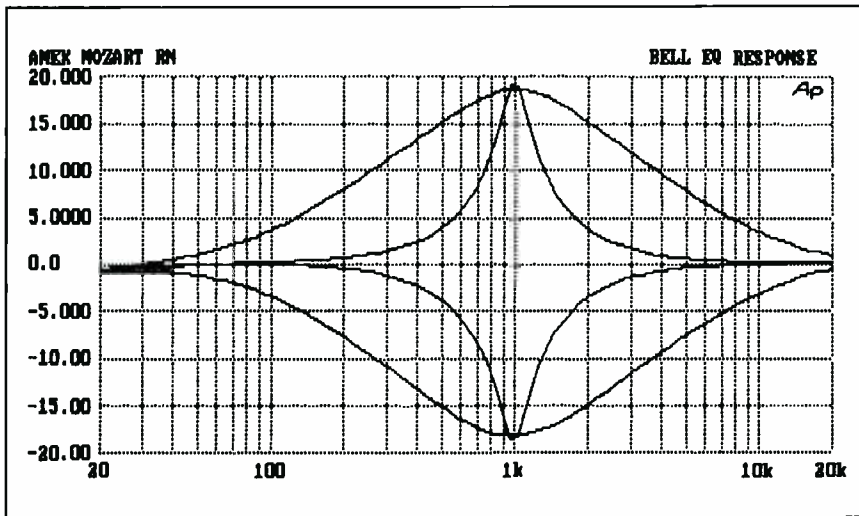


Figure 10. EQ curve: High mid at 1kHz. Minimum and maximum bandwidth (Q).

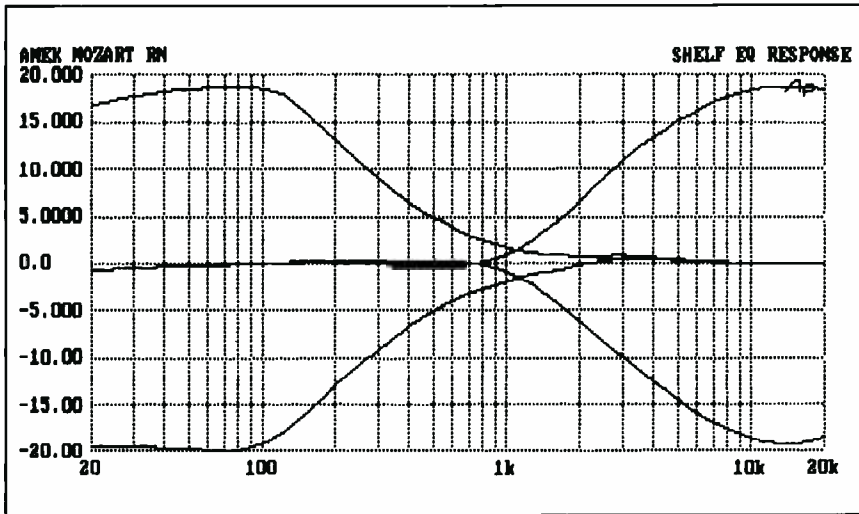


Figure 11. High and low EQ shelf mode curves, amplitude vs frequency.

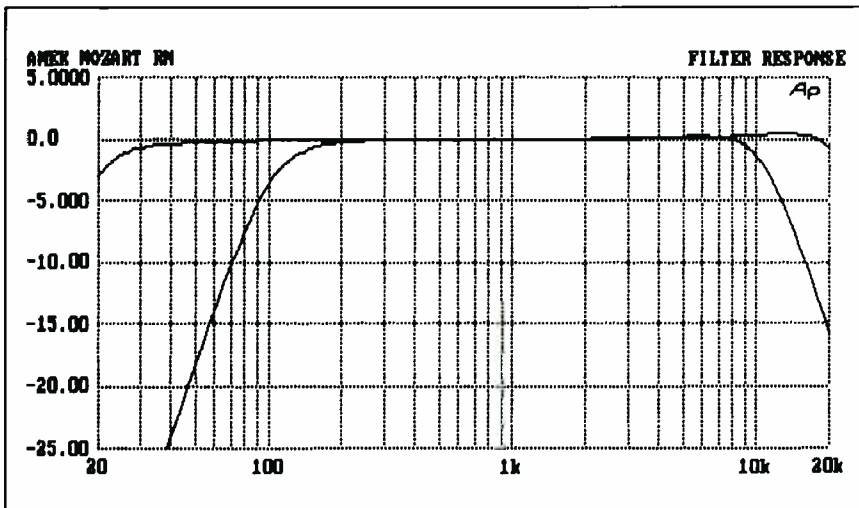


Figure 12. High and low filters, amplitude vs frequency.

a clean and crisp attack. The high-end also specs out better than the lows and is much better than the soft highs of the Neve 8108 model.

The high-end sounded fine despite the fact that the monitor section is the weakest part of the console. While listening, I couldn't help wondering how much signal from the superior RN input module was lost going through the monitor section. The EQ is very musical, and because of the large Q values, it exhibits no nasal or ringing characteristics.

The Mozart at the Bakery is fitted with the Supertrue automation, but at the time of this review had not been fitted with the optional machine control or digital dynamics sections. Although I didn't have the opportunity to use the automation, the menus seemed very easy to learn and operate. Even though I prefer a moving-fader system, the Supertrue is one of the best VCA systems around. I would like to see a choice of VCAs available, because some individuals like VCAs from Aphex, Valley International and SSM better than the dbx. Amek does offer the Massenberg moving fader system as an option. However, the Supertrue won't talk to the Massenberg and the Massenberg won't run the Supertrue. I would like to see the two systems intergrate and run together. (While I'm on the subject, I must say that there are too many of these incompatible systems around today. An SSL file should play on Necam, which should play on Supertrue, which should play on Flying Faders, which should play on Massenberg. Come on, hackers, let's solve this problem. After all, SMPTE and MIDI did.)

Construction of the Mozart RN is first-rate, with quality pots, metal film resistors, and low noise I.C.s. The console uses Signetics 5532 and Motorola 33078 op-amps, and there are no TL072 BiFet opamps in the audio circuitry. The colors are light, and the control markings are easy to read. The Bakery has a very quiet control room, but the noise of the computer's hard drive under the console was distracting. Perhaps Amek can find a way of remotely locating it. U.S. price for a 40-input RN with the Superlock and Dynamics options is \$179,699.

The Mozart RN is an impressive performer if you consider the RN modules, the Supertrue automation, 32 balanced buses and the magic touch of Mr. Rupert Neve. I am looking forward to hearing the Neve-designed monitor module in the future. ■

Circle (100) on Rapid Facts Card

Acknowledgement: Thanks to Andy Waterman and John Baker of the Bakery for the loan of studio time, and thanks to Sue Jones and Ray Dillfield of Amek/TAC for their assistance and technical support.

Ready or Not, Here They R

By Laurel-Cash Jones and Fred Jones

It was at the NAB show in fabulous Las Vegas that *everyone* who had one decided to unveil their new CD-R compact disc recording systems. Denon, Studer and Yamaha came prepared to duke it out with shiny hardware guaranteed to please. Without further ado, we'll start with the latest offering from Yamaha and continue in reverse order, just to be different.

YAMAHA YPDR601

Yamaha's YPDR601 is a WORM-type CD recorder that conforms to the Orange Book standards. Like all of these type of recorders, it produces a disc that is compatible with the Red Book standard. In plain English, this means that it will make CDs that will play back in almost any standard CD player (provided it isn't broken).

Primarily aimed at the broadcast market, Yamaha claims that this unit is perfect for transferring such items as commercials, jingles and station IDs. But we know that everyone who owns a studio will want one, enabling them to make instant refs that the client can take home to listen to.



Whatever the motivation, the YPDR601 has some interesting features that may make it an ideal addition to your facility. First, up to seven units can be slaved together, so you can make multiple copies, all with the same track and index information recorded in the table of contents.

It also has a unique feature that allows you to record the TOC before or after the

Laurel Cash-Jones is R•E•P's editorial consultant and a Los Angeles-based free-lance writer. Fred Jones is an audio industry observer and a Los Angeles-based free-lance writer.

disc is written. Because of this, Yamaha has been able to add a record pause feature, which is very handy. When recording a disc in the pre mode, you can record something on a disc, take it out of the YPDR, and play it on any player. You can then resume recording on the very same disc at any time you want to add something to it. Handy for the guys in radio.

Folks in the studio world will probably use the After TOC mode. This allows you to record as much as you want on a disc, but not be able to play it on any other player until you are finished with the disc. However, you can play it back on the YPDR while recording.

It also has a "confidence head," so that you can listen to the actual disc while you are recording. Yamaha claims that it is using the same laser beam, just reading the reflection while recording. Sounds interesting.

The YPDR can record 5-inch and 3-inch discs, and can record up to 63 minutes on a YOC063 disc (available from Yamaha); the company claims that a 74-minute disc is not far away.

The unit accepts digital via either S/PDIF or AES/EBU, and standard analog via rear mounted XLR connectors. Remote control is available, so you can start recording using a standard GPI interface. The protocol is compatible with the Sony BVE series of components.

Yamaha says the unit is now available; those poor lost souls who want one can find happiness at their local Yamaha professional audio dealer.

Circle (101) on Rapid Facts Card

BUT WAIT, THERE'S MORE!

Next is Studer (remember, reverse order); its offering is also an Orange Book-compatible WORM-type recorder. The D740 is a single unit, rack-mountable system that will be available in late summer.

It is designed to be easily operated from the front panel, allowing easy access to all facilities. The D740 features a built-in PQ editor that automatically generates a table of contents. (All units mentioned in this column are similarly equipped.) This unit writes the TOC after recording on the disc is finished.

Analog input is via transformer-balanced XLR connectors on the rear panel, and it accepts digital input from both AES/EBU and S/PDIF. It also has a parallel remote that allows the D740 to be used with a fader start connector.

The D740 boasts a suspension system that is said to be virtually shockproof. To

combat long-term wear-and-tear, the D740 is built utilizing a highly rigid die-cast aluminum chassis.



Circle (102) on Rapid Facts Card

DENON DN-7700R

(Do you have any idea how difficult it is to make a joke using the word Denon?) The most unique aspect about the DN-7700R CD Cart Recorder is that it uses a cart-like case to house the CD while it is being recorded. This cart is also used by the professional Denon DN-970 CD Cart player so that disc jockeys don't get their dirty fingers on the discs. Discs are easily removed from the protective cart for playback in other players.

This unit is also a two-piece system. However, unlike the others available, the audio electronics and A/D and D/A converters are housed in the BU-0170A Audio Interface Unit. You may connect up to 10 CD recorders and daisy-chain them using one of these interface units, so you don't have to purchase unnecessary equipment.

On the compatibility side, the Denon Cart player (DN-970) or the recorder can play discs that have been recorded on the DN-7700R *before* you record the TOC, which allows you to use it in a closed environment and continue to add material to a disc until it is full. However, you may not play this disc without a TOC on any standard CD player. The TOC may be recorded at any time, but you will no longer be able to continue to record on the disc once you have done so.

This unit provides a digital input of the AES/EBU format only, and the sampling clock can be synchronized either internally or externally. ■

Circle (103) on Rapid Facts Card

If Only More Expensive Consoles Performed As Well.



For a 16 or 24 track studio owner, the future looks very good.

With MIDI systems and digital outboard gear, you're faced with extremely sophisticated productions. But it's very hard to find a recording console to match the requirements without spending a small fortune.

That's precisely why we've developed the new Series 6000, an evolutionary design that clearly demonstrates the forward thinking of Soundcraft. Behind the classic layout is a revelation in performance and capability.

For one thing, it's equipped with enough busses and routing options to make adventurous productions a pleasure, not a nightmare. The 6000 is a full 16 or 24 buss console with six auxiliary sends per channel. The split format of the 6000 means each of the tape returns will double as extra inputs, with EQ.

We've also provided each input with push-button routing, EQ by-pass, and programmable electronic muting that eliminates the clicks produced by ordinary switches. You even get true solo-in-place, sadly lacking on more expensive consoles.

But it's the 6000's sonic performance that really sets it apart from the competition. Our revolutionary input design gives you 2dB to 70dB gain without a pad and virtually unmeasurable distortion, crosstalk, and noise.

Our new grounding system yields superb hum immunity and a routing isolation of 110dB (1kHz). And our active panpot comes close to theoretical perfection, exceeding our competitor's performance by a full 25dB.

The Series 6000 input module gives you programmable electronic muting under optional MIDI control, solo-in-place to get a clear picture of your progress, and a patented active panpot with isolation of 90 dB (1kHz).

To give you the subtle control it takes to achieve dramatic results, you also get four-band EQ with mid sweeps on each input channel.

When you specify Soundcraft's Series 6000, with options including 16 to 56 channels, stereo input modules, and built-in patchbay, you'll find it an affordable slice of progress. Series 6000, simply the most comprehensive production console in its class.

Soundcraft 6000

Soundcraft USA/JBL Professional
8500 Balboa Boulevard
Northridge, CA 91329

© 1988 - JBL Incorporated, A Harman International Company

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

Oliver Stone, Director

*(Born on the Fourth of July,
The Doors, Platoon)*

"Excellent!"

Martin Scorsese, Director

*(Goodfella's, Raging Bull,
Taxi Driver)*

**"Nothing else even
comes close!"**

Shadoe Stevens

(American Top Forty)

Listen for yourself -

**If you buy sound effects
for your Company,**

**Call us for a
FREE SAMPLE DISC.**

**(That's over 80 production-
ready effects, FREE!!!)**



**Call Toll Free
800-292-3755**

**In CA Call
213-466-6723**



**Comprehensive sound effects
packages starting under \$300.**

7060 Hollywood Blvd. • Hollywood, CA 90028

Circle (32) on Rapid Facts Card

Cutting Edge

NEVE 44 SERIES CONSOLES

The 44 Series consoles, designed for broadcast and video post applications, feature stereo and mono input modules with two main stereo outputs; individual mic and line inputs on the mono, and an electronically balanced line level input on the stereo module; selectable 3-frequency high pass filter with a 3-band equalizer



with sweepable mid-bands; and gold plated switches and connectors for all signal circuits. They are available in two frame sizes: a 19-inch rack-mount version with 12 inputs and two stereo outputs, and a table-top version with 26 modules (20 inputs, four groups and two outputs). The desk size (35" x 21") makes it suitable wherever space is at a premium.

Circle (106) on Rapid Facts Card

SSL ULTIMATION

Solid State Logic's Ultimatum is an integrated console automation system that can work as a dedicated VCA system, a dedicated moving fader system or can combine features of both. A VCA element

and an analog path through the fader element allow it to update moves without resorting to complex subgrouping software. It is able to read G Series mix data, and will be available as a standard option on all new G Series consoles, and as a retrofit to any board using the G Series computer.

Circle (104) on Rapid Facts Card

MITSUBISHI X-86E

The Mitsubishi X-86E 2-channel PD recorder offers automatic crossfade times of 2.7ms, 5.3ms and 10.3ms. Cuing by hand is improved by permitting reproduction from 2% of nominal playback to 25x, with a dynamic range of more than 35dB. The digital recording method of the PWM system reduces the effects of tape noise and narrow track width, and a clock selector allows synchronization with external equipment. An internally generated SMPTE/EBU time code makes it compatible with NTSC, PAL and SECAM television standards.

Circle (109) on Rapid Facts Card

SOUNDCRAFT SAPPHIRE CONSOLE

Designed for the mid-level recording market, the Sapphire features I/O modules with individual noise gates, 4-band EQ and a dual-line input option. Its eight subgroup buses can be used as "virtual patchcords," allowing re-routing of signals with the press of a button. Available frame sizes are 20, 28, 36, or 44 I/O modules, each with six stereo effect returns. A meter bridge

SPIKE and MIC

All this talk about
DAT and MIDI
is making me
nervous.
I feel so
inadequate.

Maybe I should learn
a second skill—
like typing

Hey you guys!
Cheer up!
It will
never happen
to us!



ENGINEERS AT THE BAR

Hardware and Software Updates

OTARI MX-5050

Otari has developed updated versions of the MX-5050 recorders, including 1/4-inch, 2-track; 1/4-inch, 4-track; and 1/2-inch, 2-, 4- and 8-track. All feature improved HF response, greater S/N ratio, more sophisticated microprocessor controls, chase synchronizer capability and improved remote capability.

Circle (137) on Rapid Facts Card

FLYING FADERS AUTOMATION RETROFIT

Neve's Flying Faders automation system can now be retrofitted on the Solid State Logic 4000 series console. All OEM systems use standard faders, with the fader top-plate individually designed to fit the console; Master Control uses only a single fader slot. In most cases, the servo rack can be installed under the console. Flying Faders can be retrofitted on desks from the following manufacturers: DDA, Harrison, Neve, Quad Eight, Sony, Focusrite, SSL and Trident.

Circle (138) on Rapid Facts Card

APHEX COMPELLOR

The Compellor compressor/leveler/limiter is available in a new version, model 320, which features dual-mono circuitry that can be linked in two ways for stereo operation: with a leveling link, or a compression and leveling link. (The previous model was available as a stereo unit only.) Other features include reference level switching from the rear panel, level speed switchable from the front panel, peak limiter defeatable from the front panel, bypass relays with remote control capability and an improved I/O circuit. Suggested user price is \$1,350.

Circle (141) on Rapid Facts Card

HARRISON SOFTWARE UPDATE

Harrison's Series Ten B automation system has been updated, allowing the editing of different mix data within an individual channel, in addition to basic automation functions. Information is copied to a clipboard and pasted onto the desired segment. The package is available to owners of the Apple Macintosh II-based system, which interfaces with the console.

Circle (143) on Rapid Facts Card

AUDIOFILE PLUS SOFTWARE

Software update D-8 8.14 + Issue 02 is compatible with 2-input Audiofile PLUS systems operating with software issue 05. The following features are available: improved ADR page; capability to name a recording while in Record; easier selection of system defaults; new CUT SEG softkey (cut and splice page), offering the capability to split an event into segments without using a window; RUB SEG softkey (filing system), allowing inspection of Event Lists with absent cues; and compare disk and copy disk facilities; the update fully supports AES/EBU interface.

Circle (146) on Rapid Facts Card

DYAXIS MO DRIVE

Studer Editech's Dyaxis is now available with an optional 640 Mbyte removable magneto optical hard drive. The MO allows files to be exchanged with several Dyaxis systems without rerecording or reloading soundfiles, and long-term storage of large amounts of data such as libraries. Also new is the MacMix Version 3.2 software upgrade, which allows users to choose different EQ settings for each soundfile within any given mix or tracklist. Multiple EQ level setting may be assigned within an individual soundfile.

Circle (147) on Rapid Facts Card

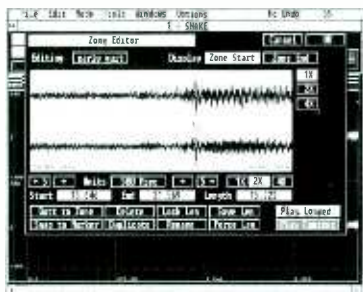


The Best Gets Better!

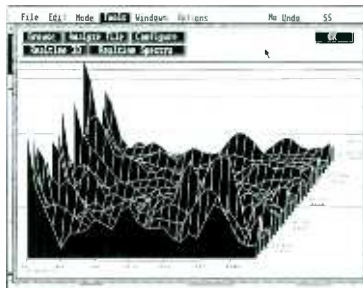
The feature list has doubled, but *the price remains the same*. Turtle Beach Systems is now unveiling version 1.2 of our SoundStage software for the 56K Digital Recording System.

If you want to edit CD-quality sound on an IBM computer, there is no better system, no better price, no better choice than the 56K!

New Features



The New Zone Editor



The 3-D Frequency Analysis

- Sample Rate Conversion
- Time Compression/Expansion
- Scrubbing
- 3-D Realtime FFT
- Reverse/Invert
- Mono record left, right, or mix of both channels
- SMPTE Chase Lock
- Record under sampling support (2X, 4X)

We've improved existing functions by adding: realtime playlist scrolling, the ability to define zones and markers "on the fly" during record and playback, a new zone editor, and an assignable playlist preroll. No price improvement was necessary. Still \$2689.00.

Call for a free demo disk or \$15 video.



PO Box 5074, York, PA 17405 717 843 6916 Fax 717 854 8319

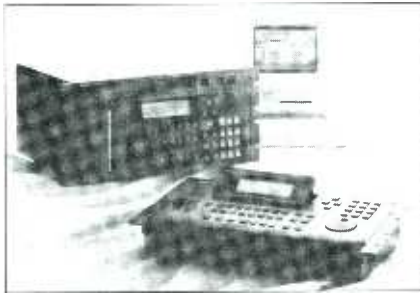
Circle (38) on Rapid Facts Card

Cutting Edge

with individual 20-segment LEDs for each I/O and a comprehensive solo in-place system complete the package.

Circle (111) on Rapid Facts Card

AKAI DL1000 REMOTES



With two additional slider controls for real-time manipulation of audio levels, the Akai DL1000 full-function remote duplicates the front panel of the DD1000 and can simultaneously control up to seven DD1000s. It includes time code read and write capabilities and a printer port, and a VITC interface can be installed. Designed for the Macintosh SE or higher model, the DD-F Mac V1.0 and DD-QMac V1.0 software emulate the user's action on the DD1000. The DD-QMac V1.0's features large waveform displays with variable zoom and magnification. Suggested retail price for the DDF-Mac is \$160; DD-QMac, \$700; and the DL1000, \$2500.

Circle (107) on Rapid Facts Card

DDA DMR-12 CONSOLE

The DMR-12 console's input modules feature one mic and two line inputs with eight auxiliary buses that have controllable direct output facility. It has the capacity to provide 56 effects sends, 56 line in-

puts, 56 effects returns and the auxiliary buses simultaneously. It is available in two sizes: 44-in/12-out (providing 32/12/24 when recording or 56/12/2 when mixing), or 44 I/Os with space for two effects returns or stereo inputs (88 inputs can be mixed using the stereo aux bus). Suggested list price for the 56-channel frame is \$45,500.

Circle (118) on Rapid Facts Card

BRUEL & KJAER APE ATTACHMENT

The Acoustic Passive Equalizer (APE) is an attachment exclusively for the omnidirectional Series 4000 microphones. As a passive acoustic processor, the attachment functions as a spectral and directional equalizer, using diffraction to modify the sound field near the microphone diaphragm to change the frequency and polar response of the sound field. Features include a new palette of spectral and spatial responses; increased directivity at higher frequencies; a new smooth shape and balanced weight; and an easy-to-attach addition to a microphone toolbox.



Circle (113) on Rapid Facts Card

SOUND BUSINESS

Continued from page 16

mainstream in this decade.

1980s: STANDARDIZATION

The 1980s brought a greater standardization of studio technology than ever previously known in the industry. A control room in Miami was expected to house items identical to those in a studio in London. Pluralism was to be tolerated in matters of taste but not in matters of science, and geography could no longer provide any excuse for substandard technical practices. Southern studios were substantial purchasers of advanced technology in the 1980s and 1990s, and the Nashville/Memphis areas were notable for early acceptance of digital multitrack recording, with scores of systems operating in Nashville and eight systems in the relatively smaller Memphis market.

Just as technical developments have moved us toward a universal level of expectation as to quality standards, the communication, media and information explosion of the 1980s started a significant erosion of the differences in regional musical styles, particularly among younger performers. No longer can I easily identify the geographic origin of a music recording just by listening to it as I could usually do with great accuracy in the 1960s and 1970s.

This blurring of cultural distinctions has both negative and positive aspects. You can no longer be assured of discovering new styles and sounds simply by turning over rocks in a previously unexplored area. But the opportunity is now open to artists, producers and engineers to achieve their full creative potential in any chosen style or direction without conforming to regional stereotypes or technical limitations.

SPARS is an organization which among many useful activities promotes improved communication and exchange of ideas and information across regional boundaries. If you are an industry professional who wants more contact with colleagues from all areas, I encourage you to consider joining the SPARS network. ■

The Society of Professional Audio Recording Services is the industry's best source of business information. For details on membership or activities, contact SPARS at 4300 10th Ave. N., Suite 2, Lake Worth, FL 33461; 407-641-6648; fax 407-642-8263.



HRS MIN SEC FRM

DENECKE™ Studio Time Code Readers

Reads SMPTE/EBU longitudinal time code with large 4" LEDs

DENECKE, INC.

5417-B Cahuenga Boulevard
N. Hollywood, California 91601
(818) 766-3525 or FAX (818) 766-0269

TC-MAXI \$1,650
8 digit

TC-MAXI \$1,550
6 digit

TC-MIX \$1,450
4 digit

MIN SEC



Circle (39) on Rapid Facts Card

FROM THE TOP

Continued from page 5

they bring the act of creation to the masses; bad because they may cause the professional, industry-active engineers, producers and technicians the eventual loss of their jobs, or better said, the loss of a place to work and things to do. It is not hard to project the day that seasoned pros will be extra clutter in the compositional environment. Heresy, you say? Over reaction? Anti-technology sentiment? Nay, we say.

We at R•E•P, along with the many we have spoken to out in the field, are frankly *amazed* at the ease with which sampling (the concept and the act) has taken over so many corners of the audio production industry, with no seeming outcry from trained, acoustically adept recording professionals. Sure, we acknowledge the inevitable growth of technology and its penetration into our field — the Mac stack in front of me, with its two screens, multiple format external disk drives, audio accelerator card, video accelerator board, math co-processor, hardware-based lossless data compression card, scanner, rack mount digital and analog audio interfaces, laser printer, modem, etc., could sink a small day sailer.

R•E•P is in the forefront of promoting and supporting the development and use of new techno-tools. We also acknowledge the clear and present advantages in cost savings that desktop production affords in the hands of an audio professional.

However, let's talk about art, as it influences commerce. Follow this reasoning: The shift toward lifting material off of disk as a way of project life (more on this in a moment!) will surely ring the death knell for *recording*, as in *studios*. When studios are forced to shut down specifically because the majority of the work they used to get now goes to one-man shops that can pre-guarantee the quality of the finished product (its elements are already on the disk), with no copyright or ownership issues, for a fraction of the previously delivered price, well, it's simple economics. Bye bye acoustics. Hello production office.

Strong words? Not strong enough. A good argument can be made for studios which see traditional acoustic recording work dwindling, concentrating their energies on becoming contributors to the disk library phenomenon — recording acoustic sounds with live musicians for raw sound bytes, as well as composed sting elements (vamps, fanfares, phrases, etc.) des-

igned for disk distribution, therefore supporting the valid and bonafide sampling production world. Starting a production company to create these libraries themselves makes sense. This is acknowledging the inevitable and staying alive in a spinning industry.

What is totally unforgivable is anyone in the business sampling (stealing?) *previously recorded and released material, without the appropriate original artist/producer notification and legal release*. We may as well shoot ourselves in the head. That act, the unethical and illegal use of someone else's art, not only cuts the original creation team out of the aesthetic and monetary loop, but *damages the business of recording* in every large-scale sense. If enough people recycle previous material or rely on musical or sound effect elements which are already in the can, so to speak — elements which can be assembled by one person with a computer, a CD player, a pair of headphones and a disk drive — then who needs studios? Who needs engineers, save the few lucky enough to set up the mics in 100-square-foot booths, capturing the single-shot sounds destined for libraries? What will happen to all the people who fly them if today's recording facilities go away, courtesy of modern computer and sampling technology in the hands of everyone and/or anyone?

The time has come for us, individually as production specialists and together as an industry, to take a good hard look at what we are doing right now, on the projects in front of us, courtesy of what today's technology *allows* us to do, and determine how it affects the future. Our future.

Call me crazy, but I kind of like big, sonically interesting rooms that offer total isolation from the outside world, fronted by another room with a window and a big board with lots of knobs. I like the interaction of live humans, even if assembled from a time-shifted multitrack reality, who gather together for the purpose of creating a shared, non-sterile musically interactive experience. I'd hate to see it all go away. Maybe efficiency and economics aren't everything. Maybe art and aesthetics count for something. Maybe there's life after sampling. ■

Mike Joseph
Editor

HEAVY DEALS



Over 300 top quality product lines priced so low we promised not to print them!

1-800-356-5844

AUDIO • VIDEO • LIGHTS

FULL COMPASS

Consultation: 608/271-1100

5618 Odana Rd., Madison, WI 53719

Circle (31) on Rapid Facts Card

July 1991 R•E•P 65

Classified

FOR SALE

WHAT COULD YOU HAVE IN COMMON WITH:
 HIT FACTORY-NY, HIT FACTORY-LONDON, POWER STATION, LARRABEE SOUND, BATTERY STUDIOS, GEORGETOWN MASTERS, THE TOY SPECIALISTS, DREAMHIRE, STUDIO FX (SYDNEY), STEVIE B, JON BON JOVI, AND MANY OTHER OF THE WORLD'S FINEST STUDIOS, MASTERING LABS, RENTAL COMPANIES, AND TOP RECORDING ARTISTS?



IN STOCK & WAITING FOR A NEW HOME...

FAIRCHILD 670s, 666s, TeleFunken 250s, Pultecs, Teletronix LA-2As, AKG C12, C24s, Telefunken U47s.

WE ALWAYS HAVE TUBE NEUMANNs and AKGs, TUBE COMPRESSORS & EQUALIZERS....PULTECS, LANGs, FAIRCHILD, API, NEVE, LA-2As ETC. WE BUY, SELL AND TRADE—LIST YOUR FOR SALE EQUIPMENT FREE!! WE HAVE LISTINGS ON CONSOLES AND 24 TRACKS, NEVE, SSL, AMEK, TRIDENT, API, OTARI, STUDER AND MCI.... **"this is not a problem."**

THE CONNECTION, THE SOURCE, THE PROFESSIONALS

TEL: 617-784-7610 FAX: 617-784-9244

Reliable Music

Macintosh II w/complete Sound Tools Package	\$6,187.50
E-MU E-III	\$9,997.00
E-MU Proteus 2 XR	\$1,077.00
E-MU Proteus 2	\$999.00
E-MU Proteus 1 XR	\$895.00
Tascam M520 Mixer	\$2,995.00
Tascam M-16-24 Mixer	\$4,500.00
Tascam BR-20 2 Track	\$1,855.00
Soundcraft 600-24 Mixer	\$8,500.00
Soundcraft 6000 28/24 PB Mixer	\$21,000.00
Soundcraft 200-B 8 ch. Mixer	\$1,995.00
Fostex 1240 Mixer	\$1,295.00
Akai A-DAM 12 TK Digital	\$18,750.00
Otari MX-70-16 Track	\$13,500.00
Fostex E-22 2 Track	\$1,995.00
Roland U-20 Keyboard	\$1,279.00
Korg Wavesation Keyboard	\$1,799.00
JBL 4425 Studio Monitor	\$1,445.00/pr.
Zoom 9010 DSP	\$1,200.00
Aphex Studio Clock	\$519.00
Aphex Type C	\$199.00
Aphex Impulse	\$564.00
Simmons SDSF Module Only	\$500.00
Hafler Pro 230	\$429.00
Hafler Pro 2400	\$475.00
Yamaha 2408 Mixer	\$2,495.00

Used Pro Audio Equipment Call for List
 All Items Subject to Prior Sale

704/375-8662

The Studio POP Filter

A Great Improvement on a Good Ideal



Open up the sound of your vocals and voice overs without annoying "POPS" ruining your best take!

- Standard mic stand adaptor with threaded brass insert
 - One piece plastic rims, 5" diameter—in sky blue or black
- Only \$2400**
 With optional Clamp and Goussac \$4495
 ONE YEAR GUARANTEE plus shipping

AUDIO VISUAL ASSISTANCE

565 Sherwood Road,
 Shoreview, MN 55126
 Phone: 612-481-9715



Circle (51) on Rapid Facts Card

 <p>214 Lincoln St. Suite 103C Boston, MA 02134</p>	<p>WE NEED YOUR CLEAN USED 24 TRACK !!!</p>
	<p>The oldest broker on the East Coast!</p> <p>SSL 4040, \$95K; 4056E/G, \$220K; SSL module, \$3.3K; Neve 8026, \$40K; 8068, \$65K; 8108, 28in, \$80K; Otari Series 54, 40in, auto, \$80K. CALL for prices on Trident, API, Amek, DDA, TAC, MCI, Harrison, Soundtrac & Soundcraft. List Your For-Sale Items Free !!</p>
<p>New specials on Hafler amps, Sontec Eqs, Eventide, Aphex, Tannoy, Milab, AKG & Adams-Smith. dbx noise reduction in stock. (617) 782-4838</p>	<p>Otari & Tascam authorized service 24+ Tracks; Studer A800MkII, \$42K; MCI/Sony JH24, \$19K; Otari MTR-90, \$26K; MX80, \$21K. Processing; AMS 1580S, \$2.8K; RMX16, \$4.5K; Pultec Mavec, \$1K; RCA BA6A Tube Limiter; Mics; Neumann U47 tube, \$3.5K; AKG C12A (tube), \$1.4K; C414s from \$650. Sennheiser 441, \$400.</p>
<p>Circle (53) on Rapid Facts Card</p>	<p>fax (617) 782-4935</p>

	<p>VIDEO/AUDIO/RF Buy • Sell Consign • Service Over 3000 items in inventory</p>
	<p>Burbank, CA 818.845-7000 New York, N.Y. 212.268-8800</p>

Circle (54) on Rapid Facts Card


<p>58 Nonotuck St., Northampton, MA 01060 'Your Source for Sonex Acoustical Foam' Best Prices—Nationwide Delivery 800-484-1003 Ext. 0032 413-584-7944 Order Credit Cards Accepted Fax or info</p>



ENDLESS WORD™
ADVERTISING PROMOTIONS
 O.E.M., DISTRIBUTORS AND DEALERS WANTED
 ENDLESS CASSETTES & TELEPHONE ON-HOLD SYSTEMS
MADE IN U.S.A.—OUR 14th YEAR

• Clear case allows visual inspection of tape & splice • Call and hear the audio clarity of our new On-Hold telephone line adapter in combination with our Hold-A-Call™ endless cassette player, also inquire about our new volume distributor pricing on endless cassettes and On-Hold equipment.

MANN ENDLESS CASSETTE INDUSTRIES
 P. O. Box 1347 • San Francisco, CA 94101
 (415) 221-2000 Fax: (415) 387-2425

2 Aphex Compellers
Best Offer
612-487-0263

FOR SALE, con't.

SALE! PLUS FREE ADHESIVE!

MARKERFOAM™ ACOUSTIC FOAM GIANT 54" x 54"

Immediate Shipping
2" Reg. \$29.95 Now \$19.99 • 3" Reg. \$39.95 Now \$29.99! **KILL NOISE QUICK!**
High performance, full-size sheets of super high density Markerfoam. EZ mount. Blue or gray. Super-effective sound absorption for studios. Markerfoam offers best value, looks professional & is proven in studios worldwide. Request Foam-Buyers Guide/Catalog, specs & free samples today. VISA, MC, AMEX, COD, P.O.s, QUANTITY DISCOUNTS

MARKERTEK JUMBO SOUND ABSORB BLANKETS
Heavy-duty 72"x80" padded blankets absorb sound wherever they're hung or draped. Fabulous for stage, studio & field use. Top professional quality at a super saver price! Weight 6 lbs. Black, \$19.99.

MARKERTEK BLADE TILES™
HIGH PERFORMANCE
LOW, LOW COST!
\$2.99 per tile, 16x16x2"
America's best acoustic tile value, only from Markertek! Charcoal. Also available 16x16x3" as shown, \$3.99 each

MARKERSTIK™ foam adhesive. FREE with any Foam purchase in this ad! Limited offer. A \$5.95 per tube value

SONEX
All the colors and sizes plus great prices!

Get our FREE 150-page catalog of over 5,000 exclusive and hard-to-find supplies for audio & video.

800-522-2025 America's most unique catalog for audio & video!

MARKERTEK™
145 Ulster Ave., Saugerties
New York 12477 U.S.A.
VIDEO SUPPLY

Circle (55) on Rapid Facts Card

TUBE MICS

Only the finest in tube mics bought and sold.

Call Bill Bradley

(216) 723-6494

FAX (216) 723-6595

MILAM AUDIO

"THE SOURCE"

SINCE 1967

CONSOLES
MULTI-TRACKS
MONITORS

D.A.T. • AMPS
EFFECTS • MICS
USED EQUIPMENT

1470 Valle Vista Blvd.
Pekin, IL 61554
(309) 346-3161
800-334-8187
FAX 309-346-6431

WHY GO ANYWHERE ELSE FOR ANYTHING AUDIO...

...when we carry a full range of professional audio and video equipment to match every application and budget. With a focus on personal service, and competitive pricing we can help you get the job done easily & cost-effectively. Put our team to work for you and start saving time and money today!

Take a look at some of our high quality lines...

ADAMS-SMITH • AIWA-RDAT • ALPHA AUDIO • AKAI • AKG • AMPEX TAPE • APHEX • ART • ASHLY AUDIO • AUDIO-KINETICS • BSS • BRUEL & KJAER • COMMUNITY LIGHT & SOUND • dbx • DDA • DIC DAT • DRAWMER • EVENTIDE • FOSTEX • GEPCO • GML • HAFLER • HARDY • HILL AUDIO • JOSEPHSONS ENGINEERING • JUICE GOOSE • KLARK-TEKNIK • LEXICON • MACKIE DESIGNS • MILAB • MOGAMI • MRL • NEOTEK • RANE • SENNHEISER • SOUNDMASTER • SOUNDTRACS • SONY • SUMMIT AUDIO • SYMETRIX • TANNOY • T.C. ELECTRONICS • TUBE-TECH • TURTLE BEACH SYSTEMS • VALLEY • WHITE

CALL FOR PRICES ON OUR NEW & USED EQUIPMENT SPECIALS

FOSTEX R8, G16 & G24S AVAILABLE! • SONY DAT IN STOCK! • TANNOY PBM 6.5-SYSTEM 12 IN STOCK! • DRAWMER DS201 GATES \$759 • DRAWMER 1960 STEREO TUBE MIC PRE/COMP \$2450 • TUBE-TECH PEIC, CLUB, NOW IN-STOCK! • SOUNDTRACS MRX, PC MIDI, & QUARTZ IMMEDIATELY AVAILABLE • DDA CONSOLES SPECIALS • AKAI SAMPLERS IN STOCK • SUMMIT EQUALIZERS • COMPRESSORS • MICS & PREAMPS IN STOCK

USED SPECIALS - 25 TUBE MICS IN STOCK NOW (2) TELE 251 E-LAM E MINT-CALL • (6) NEUMANN U64-CALL • NEVE 8068 32x24-CALL • SSL 4040E/RECALL-CHEAP • TRIDENT 80C-CALL • TAC SCORPIAN 36x12x24 W/BAYS \$16K • AUDIO FRAME CHEAP-CALL • (2) MCI636 30x24-AUTO-CALL • TASCAM MS-16 PKGS START @ \$5K • FOSTEX B16D \$4K • (2) OTARI MTR-90-II UNDER \$30K • AMPEX ATR-102 \$5K • MCI JH-24 W/ALIII \$22K • STUDER A800 24 TRK-CALL • AMS AUDIOFILE (LOADED) \$55K • 24 TRACK 2" MACHINES STARTING @ \$9K • (2) U67 TUBE \$4K • AKG TUBE \$19K (NEW) • LEX 480L W/SAMPLING \$9K • 61 HAMMOND B3 W/LESLIE-MINT \$3K • (2) STUDER A80 MK IV 24 TRK UNDER \$30K • HILL AUDIO DATUM CONSOLE 24x8x16 \$10K NEW • AKAI S1000 HD 4MEG \$4K • AMS RMX16 \$5K • CALL FOR LISTINGS!!!

THE DIGITAL AUDIO SOURCE

anything audio

CALL 617-426-2875

professional audio and video systems
Equipment Sales System Design Installation
LIST YOUR FOR SALE EQUIPMENT WITH US FREE!!!

FAX 617-426-2763

63 MELCHER STREET BOSTON, MA 02210

Circle (52) on Rapid Facts Card

Loudspeaker Enclosure Design for the Macintosh.
Diagrams • Frequency Response • Enclosure Size • Materials • Phase • Impedance • Group Delay
Calculators • Enclosure Orientation (Rectangular & Triangular) • Vent Dimensions
Features: Large Driver Library • Low Parameter Entry • Mask & Color or Textured Enclosures
Units Conversion • Multiple Drivers • Easy to Use • Price: \$249.00

MacSpeakerz
www.TrkLinkz.com
487 West 124th Street, Suite 122
New York, NY 10019-1923
619-480-8961

19" x 1 3/4" ADC TT PATCHBAYS
Balanced/normalised, 144 points like new.
Cost \$395.00 — Sell \$129.95 each.
4 or more \$109.95.

References available.
Call J. Patrick Green (916) 922-5060
Greensweep Productions

SONY UHF WIRELESS MIC SYSTEM

Ten frequency compatible WRT-27A True Diversity systems available. Each system includes a body pack transmitter with a Sony ECM-77b lavalier. Four of the systems come with WRT-57 and/or WRT-67 hand microphones. Each system includes two WRR-57 UHF tuners and a WRR-55 UHF diversity unit. The system includes high gain Yagi antenna's, splitters, boosters, and base units to provide distribution for the ten units. Ideally looking to sell as a whole system. Units operate in the 900.00 MHz. band. The system is in excellent condition and only 2 yrs. old.
Contact Jeff at (718) 706-3519

FOR SALE

Soundcraft 800B 40 x 8 x 8 x 2
Ray Pro Sound
215-885-8885

Soundcraft Series 600 Console

32x8x16 - \$10,500.
Call Jim at **Soundscape**.
716-884-3576

Classified

FOR SALE

D.A.T. In Stock!

BASF

- Digital Audio Tape In Stock
- Analog Tape, Audio Accessories
- Phone In Order, Ship Same Day
- Great Quality — Great Price

Call us at

(313) 662-0669

for prices on tapes & duplicating

World Class Tapes

Audio Tape Distributors & Duplicators

670 Airport Blvd., Suite 1
P.O. Box 7611

Ann Arbor, Michigan 48107

(313) 662-0669

(1-800-365-0669 outside Michigan)

Circle (50) on Rapid Facts Card

BLEVINS AUDIO EXCHANGE (B.A.E., INC.) NASHVILLE, TENN.

"SUPPLYING USED EQUIPMENT TO
THE RECORDING INDUSTRY FOR
OVER 10 YEARS"

SUMMER SPECIALS:

MCI JH542-32 VU N/A	\$14.5K
MCI JH636-28 VU/AF	\$22K
MCI JH100-16 TRK	\$6K
MCI JH24-24 W/AL3	\$23.5K
STUDER A-80 MK3 24 TRK	\$25K
NEUMANN U-87's	\$1.4K

WHOLE STUDIO PACKAGES
ADR VOCAL STRESSER \$1.2K

615-242-0596
615-242-0599 FAX
800-889-2234

Now You Can Afford THE WORLD'S FINEST AUDIO TRANSFORMERS

REICHENBACH ENGINEERING is now marketing their
Legendary audio transformers through
BAUER COMMUNICATIONS INC.
Reichenbach pioneered the technology giving you flat
group delay, and the besel response, with no over-
shoot or ringing. Our low distortion core material
eliminates that muddy bottom end.

	1	25	100
RE-115K-E	\$49.01	40.46	31.26
RE-11P-1	\$46.66	38.69	29.75
RE-MB-C	\$39.58	32.82	25.24
RE-MB-D	\$69.23	57.41	44.15

ACCEPT NO SUBSTITUTES

INSIST ON A

REICHENBACH!

 **BAUER COMMUNICATIONS, INC.**

Phone (800) 627-7277 Fax (818) 894-0715

(formerly marketed as Jensen transformers)

NEW, USED, DEMO EQUIPMENT

LARGEST SELECTION OF CONSOLES, RECORDERS AND OUTBOARD EQUIPMENT

OTARI, TRIDENT, AMEK, SOUNDCRAFT,
TASCAM, FOSTEX, AKAI, DIGIDESIGN
ADAMS SMITH 2600, DIGIDESIGN PRO
TOOLS, PANASONIC-TASCAM DAT'S,
OBERHEIM MATRIX 12, LEXICON AND
ROLAND REVERBS, TANNOY/TAD
MONITORS,

CALL FOR EQUIPMENT FAX LISTING
EQUIPMENT LEASING AND SYSTEMS
SPECIALISTS-NEW AND USED COMPONENTS

EAR PROFESSIONAL AUDIO (602) 267-0600

WHY BUY NEW? CHOOSE AUDIO UPGRADES

Replace the IC's, transistors,
and caps in your console,
tape machine and outboard gear
and achieve better than new specs!

AUDIO UPGRADES

Box 7551 Mission Hills, CA 91346
(818) 780-1222 FAX (818) 892-7785

THE BEST VALUES IN USED EQUIPMENT

Yamaha DMP7 and Sony MXP 3000 mixers
Ramsa WR8420 21 mono, 7 stereo, 4 tape
Adam Smith 2600 series, large selection Call
Akai S1000 Digital Sampler
Otari MTR9024 24 track JBL 4430 speakers
Fostex 8 & 2 trk ATRs, Sync, TC & mixers
Equalizers, compressors, amps & more!
The Best Values in quality, used audio equipment are in our
FREE catalog! Call Fax or Write today!

MICOR VIDEO EQUIPMENT

5545 N. Clark Street, Chicago, Illinois 60640-1222
312 334 4300 Telex 910 240 9449 Fax 312 334 4385

Power supplies

for almost any tube microphone.
If you want your mic to sound the very best,
get it a new power supply. From \$275.

Call Bill Bradley

(216) 723-6494

Fax (216) 723-6595

TEKCOM CORP.
SOUND REINFORCEMENT,
MULTI-TRACK RECORDING
AND DIGITAL AUDIO
SPECIALISTS
COMPETITIVE PRICES
EXPERT TECHNICAL
SUPPORT & SERVICE
DESIGN AND INSTALLATION

TekCom sells virtually every
product on the market with
mid-Atlantic exclusives on
the full line of Otari tape
recorders, Trident and DDA
consoles, Disk Mix &
J.L. Cooper automation
systems, and ProDisk direct
to disk recording/editing
system.

(215) 426-6700

1020 N. Delaware Ave.
Philadelphia PA

STUDIOS FOR SALE

Do It In Denver!

Attractive 6,000 sq. ft. facility... 25,000 sq. ft. land.
Two studios, two control rooms, ample office space,
no equipment. Centrally located with parking for 55
cars. Available for immediate occupancy. Owner may
carry.

Contact: Al Baclawski
RE/MAX Southeast

1-800-848-4912 Ext 3036

MISCELLANEOUS

AUDIO AFFECTS

STUDIO EQUIP. FOR HIRE
Technician on staff 7 a.m. - 1 a.m.

Open 7 days a week
Digital Tape Machines,

Synclavier Systems,

Effects Processors, Reverbs

(213) 871-1104 (818) 980-4006

Ask For Mark

FOR SALE, con't.

NFI **SUPERCOSTIC ACOUSTIC FOAM**

GUARANTEED LOWEST PRICES IN THE COUNTRY
WE'LL BEAT ANY DEAL.

48" x 48"

IMMEDIATE SHIPPING

2"-\$15.50
3"-\$23.50
4"-\$27.50



Medium Blue or Custom Charcoal Colors.
Stop Sound Now! With the Highest Density Polyurethane Foam available anywhere. Excellent sound proofing for all applications. Custom colors and sizes, also available.
Warning - Don't buy low density bed size mattress foam that has no sound absorbing properties or specs. Buy from the only company that specializes in foam and Guarantees satisfaction! Call now for FREE Catalog, Specs. & Samples

NATIONAL FOAM, INC.

1-800-247-4497
IN CA (213) 650-8906




6311 De Soto Ave., Suite A
Woodland Hills, CA 91367

Check C.O.D

Circle (56) on Rapid Facts Card

jensen
TRANSFORMERS, INC.

The leading maker of professional audio transformers for almost 20 years... but that's not all:

- Twin-Servo Mic Preamps
- Advanced Retrofits for Magna-Tech Reproducers
- Comtran Circuit Design & Optimization Software
- Free Circuit Design Consultation

Visitors by appointment only. Closed Fridays.

10735 Burbank Boulevard
North Hollywood, California 91601
FAX (818) 763-4574 • Tel (213) 876-0059

American Pro Audio



- Sony/MCI • Trident •
- Tannoy • Eventide •
- Yamaha • Tubetech •
- Fostex • Soundtracs •
- Beyer • Roland • Akai •
- Ramsa • Panasonic •

Mini Lease Program

New or used, trade-ins 24-60 months with buyout option \$5K-25K **no** financials required min. 2 yrs in business.

1-800-333-2172

THE RE-USEABLE WRAPPER



FAST • EASY • TIDY
Velcro Cable Wraps

RIP-TIE

800-348-7600

Seam Tech

P.O. Box 77394 San Francisco CA 94107 • FAX 415-777-9868

Circle (57) on Rapid Facts Card

SINGERS!
REMOVE VOCALS FROM RECORDS AND CD's!



SING WITH THE WORLD'S BEST BANDS!

An Unlimited supply of Backgrounds from standard stereo records! Record with your voice or perform live with the backgrounds. Used in Professional Performance yet connects easily to a home component stereo. This unique product is manufactured and sold Exclusively by LT Sound - Not sold through dealers. Call or write for a Free Brochure and Demo Record.

LT Sound, Dept. RP-3,7980 LT Parkway
Lithonia, GA 30058 (404) 482-4724
Manufactured and Sold Exclusively by LT Sound
24 HOUR PHONE DEMO LINE: (404) 482-2488

You can earn valuable rebates on every Shure SM58 and SM57 Microphone purchase between **June 2** and August 4, 1991.

BACK BACK

Call for Information 708-336-6787
Call to Order 800-522-6787

Ask for a catalog
OPUS EQUIPMENT
4262 Grand Ave. • Gurnee, IL 60031

WE'VE GOT THE GOODS!!

We offer a line of unique products described by many as the most eclectic in the industry. Many are our own design and manufacture. When you need something special, call us.

The Mic Pole Cable Keepers
AKG Boom Parts
Tall Mic Stand
RFI Trap
Boom Weight

The Mic Clamp
Super Cable Keepers
Atlas Stand Parts
Really Tall Mic Stand
Line to Mic Adapter
and so much more!!

Call or write for a free catalog!

BLACK AUDIO DEVICES

Box 106
Ventura, CA 93002
(805)653-5557

VTMP-2 TUBE MICROPHONE PRE-AMP



ALL TUBE DESIGN, TWO CHANNELS OF JENSEN 13K6C MIC TRANSFORMER INPUTS AND INSTRUMENT LEVEL INPUTS, PHANTOM POWER, VARIABLE GAIN, LOW THD (.06%), LOW NOISE (124 EIN), REASONABLY PRICED

USED BY: WALTER BECKER, HUGH PADGHAM (STING), RY COODER, ALLAN HOLDSWORTH, ANTON SANKO (SUZANNE VEGA), MICHAEL HEDGES & OTHERS

FOR INFORMATION ON THIS PRODUCT OR THE TUBE DIRECT BOX CONTACT:
DEMETER AMPLIFICATION • INNOVATIVE AUDIO
(213) 470-6426 FAX (213) 470-8817
1907 PARNELL AVENUE, LOS ANGELES, CA 90025

Circle (60) on Rapid Facts Card

Classified

FOR SALE

**WE HAVE GOBS OF EQUIPMENT
THAT NEED TO BE SOLD NOW!**

THE TECHNOLOGY TRADERS OCEAN AUDIO INC.

NEVE 8128, 32/24/32, NO AUTO, EXC CONDITION	\$67,000	SSL 4072, E/G, 66/32/66, G COMPTR, RECALL	\$330,000
NEVE 8068, 32/16/32, DISCRETE, 8 SNDS	\$78,000	SSL 4056 E/G, 48/32/48, RECALL, G COMPUTR	\$237,500
SSL 4040E, 40 FITTED, NU POTS, NO RECALL	\$95,000	TRIDENT SERIES 808, 32/24/32, NO AUTO	\$32,500
OTARI SERIES 54, 40 CHNL, 80 CHANL, DISKMX	\$92,500	SOUNDCRAFT TS-12, 28/24/28 AK AUTO	\$32,500
ODA AMR 24, 28/24/28, 36 FRAME, 52 4 BND EG	\$42,000	NEVE 5305, 20/4/4, DISCRETE 4 OV DUBS	\$90,000
NEVE 8128, 32/24/32, NO AUTO	\$67,000	C-12 MICROPHONES, LIKE NU W/PS WARRANTY	\$4,500
STUDER A-800 MKIII, 24T, LOCATOR /REMOTE	\$35,000	NEUMAN U-48 TUBE CONDENSOR VF14	\$3500
MITSUBISHI X-880, .32T DIG, METERBAG, APPOG	\$110,000	AMPEX ATR-1026 104 SEVERAL, EXC CONDITION	SASK
NEVE 8078, 40/24/32, NO AUTO, LIMTRS	\$190,000	T H D U I S A N D	
Q/B VIRTUOSO, 60/24/60, LIMTRD/GATES	\$135,000	T H D U S A N D S	
AMEK 2520, 52/24/52, DISKMX AUTO, AS NU, \$112,500		MORE	

**CALL US FOR DETAILED LISTINGS OR FAX US A LIST OF YOUR USED
EQUIPMENT FOR FREE LISTING IN THE WORLDS LARGEST DATA BASE OF USED
EQUIPMENT * FAX US AT (213) 454 6043 * OR CALL (213) 459-2743**

SERVICES

RCA MICROPHONES—Repair service on all models. Complete sound and cosmetic restoration. We also repair other ribbon types. ENAK Microphone Repair, 420 Carew Avenue, Pitman, NJ 08071. (609) 589-6186.

MAGNETIC RECORDING HEADS—RELAP/REPLACE-MENT for Audio, Video, Time Code, Duplication. 29 years of head design experience. IEM, 350 N. Eric Dr., Palatine, IL 60067; tel (708)358-4622.

JBL

LOUDSPEAKERS—EXCLUSIVE
Warranty/Non Warranty Repair.
Factory Authorized Center
Professional-High Fidelity
Four Day Turnaround For Stocked
Kits. All Work Done By Factory
Trained Technicians.

PS ★ AR

PRICE STEVENSON ACOUSTIC RESEARCH
1591 Broad Run Rd., Downingtown, PA 19335 (215) 383-1083

SERVICES

ALIGNED AUDIO INC. SUPER QUALITY

- ▶ Audiophile Record Pressing
- ▶ CD Replication
- ▶ Real Time and High Speed
- ▶ Cassette Duplication
- ▶ Direct On-Shell Imprint in Colors

COMPLETE PACKAGES

Call Today for your Free Catalogue

☎ **1-800-869-6561**
OR **1-718-788-6969**
FAX **1-718-499-0421**

Circle (58) on Rapid Facts Card

AUDIOPHILE
QUALITY...

EUROPADISK LTD.
US' MOST
COMPLETE FACILITY!

- Cassette Duplication
- Compact Disc Production
- DMM Vinyl Pressing • Custom Graphics • Mastering Studios

COMPLETE PACKAGES with state-of-the-art Neve Digital Mastering for CD, Studer & Lyrec HX-Pro Cassette Duplication, DMM Mastering for Vinyl and a complete in-house art department - design, layout, typesetting, color separation. Get THE BEST at no extra cost!

For a Complete Brochure, call or write:

EUROPADISK LTD.
75 Varick Street, New York, NY 10013
☎ (212) 226-4401 FAX (212) 966-0456



MASTERING

REPLICATION PRINTING

COMPLETE CD AND CASSETTE PRODUCTION

DIGITAL HOUSE

FOR THOSE WHO HEAR THE DIFFERENCE

GRAPHIC DESIGN ART STUDIO

TOTAL PACKAGING

PERSONALIZED EXPERT SERVICE

212-333-5950

101 WEST 57th STREET, NEW YORK, N.Y. 10019

STUDIOWORKS

Recording & Broadcast Equipment

FACTORY DIRECT PRICES

ON 3M & AMPEX TAPE

ADAMS-SMITH	LEXICON
ALLEN & HEATH	NEUMANN
FOSTEX	OTARI
HAFLER	SENNHEISER
JBL/UREI	SOUNDTRACS

J L COOPER

Over 70 Professional Lines!

SONY

Professional Audio

(800)438-5921

(704)375-1053

Sony used & demo sale

Sony 3036 loaded 32/non-auto. \$52K w/warranty.
Sony 3036 loaded 36 w/auto & hard drive \$80K w/warranty.

Full Color
Cassette Inserts
Only \$109
1-800-951-KARD
Free Catalog Anderson Graphics

BUILDING A STUDIO??

STUDIO & ACOUSTICAL DESIGN
COMPLETE STUDIO PLANS
WIRING SYSTEM DESIGN
STUDIO INSTALLS & PRE-WIRING
OTARI & TASCAM SERVICE

Have your new room or facility designed & built by audio professionals with over 20 years experience as mixers, producers, musicians & studio owners.

db ENGINEERING

Boston, MA (617) 782-0648

STUDER REVOX

FACTORY AUTHORIZED SERVICE CENTER
"SUPERLATIVE SERVICE"

Swiss trained in servicing all open reel and cassette tape recorders, CD players, and other Studer/ReVox equipment. Over 12,000 units serviced Nationwide since 1978. Fast 48-72 hour service w/90 day warranty. Huge parts inventory. Capstan shaft resurfacing & head relapping service. New & used machines available w/warranty. Visa/MC.

STUDIO-SONICS CORP.

2246 N. Palmer Dr., #100

Schaumburg, IL 60173

Phone: (708) 843-7400

FAX: (708) 843-7493

EQUIPMENT WANTED

WANTED

NEVE-SSL-API-TELEFUNKEN-SONY
NEUMANN-OTARI-MCI-PULTEC-URIE-AMS
OR ANY USED CONSOLE, TAPE MACHINE,
VINTAGE MIC OR PROCESSOR YOU WANT
TO SELL—CALL ANYTHING AUDIO
617-426-2875

Looking for equipment of
exceptional audio quality...
NEVEs, SSLs, AMEKs, Fairchilds,
LA-2As, Pultecs, Langs, etc.
Cash or Trade
"this is not a problem."
Mercenary Audio
Tel: 617-784-7610 Fax: 617-784-9244

AMPEX 620 SPKR/AMP
IN Sampsonite Case
AMPEX 350 or 351 2-Track
Stereo Tape Recorder
GRAVES RECORDING SVC
PO Box 5469 Eugene, OR 97405
(503) 345-3991

Wanted: Dead or alive
Pultec, ITI, Lang, Sontec EQs, Telefunken,
Neumann, AKG or RCA mics. UREI, dbx, UA,
Teletronix, Fairchild limiters and other gear.
Boxes or tubes; API or Neve consoles and old
guitars.
Dan Alexander
5935 Market St. Oakland, CA 94608
415-644-2363 Fax 415-644-1848

EQUIPMENT WANTED
BUY OR TRADE
YOUR USED MULTITRACK RECORDERS
AND CONSOLES
EAR PROFESSIONAL AUDIO/VIDEO
(602) 267-0600

BUSINESS OPPORTUNITIES

LET THE GOVERNMENT FINANCE
your new or existing small business.
Grants/loans to \$500,000.
Free recorded message:
(707) 448-0201.
(SE1)

FINANCING

LFCI Equipment Leasing

- Up to \$75,000 with credit application only
- Provides:
Off-balance sheet financing
Tax benefits
- New & used equipment
- Generate capital by selling & leasing back equipment
- Nationwide
- Dealers welcome
- Over 10 yrs in the A/V industry

Apply by phone
(800) 626-LFCI

RENTAL EQUIPMENT

A TOTAL EFFECT

Eventide H-3000 SE	<New
T.C. 2290 (32 sec.)	
T.C. 2290 (32 sec.)	Includes
T.C. 1210 spatial ex.	remote
Publison Infernal 90	patchbay.
AMS S-DMX	24 hr.
AMS RMX-16	service
Eventide SP 2016	7 days
Lexicon 480L	a week
480L Larc & Manuals	

All for \$300 a day
or \$1200 a week!
(That's \$171.43 a day!)

Call for advance bookings today

(818) 345-4404

Encino, CA

Circle (59) on Rapid Facts Card

SOUND REINFORCEMENT MIXING CONSOLE RENTALS

New! Midas XL-3
New! Soundcraft Europa
Yamaha PM3000
Ramsa WR-S852
Ramsa WR-S840
New! Soundtracs Sequel
New! Soundtracs Megas
Soundcraft 800B

ATI Paragon
Gamble EX56
Gamble HC40
Gamble SC32
TAC Scorpion
ATL 32x12
Yamaha 2408
TOA RX-7

PSU's • Reverbs • Delays • Multi-FX • Gates
RDAT • Comp/Limiters • EQ's • SDL-5 subs
Console Accessories: Covers-Lights-Cables

- FREE travel and shop setup time
- World's largest live console inventory
- 9 yrs of console rental specialization
- Worldwide service & backup
- Spare PSU and cables included
- Inventory in SF - NY - Orlando - LA
- Tours - Weekly - Daily - Long Term
- EXTREMELY COMPETITIVE PRICES!

Hi-Tech Audio

(415) 742-9166

**USE R-E-P
CLASSIFIEDS**

EQUIPMENT FINANCING "LOANS BY PHONE"

- NO FINANCIALS REQUIRED FOR TRANSACTIONS UNDER \$35,000
- NEW OR USED EQUIPMENT
- \$2,000 TO \$200,000
- NO DOWN PAYMENT
- SALE-LEASEBACK EQUIPMENT FOR WORKING CAPITAL

TO APPLY OR REQUEST
ADDITIONAL INFORMATION
CONTACT MARK WILSON



(800) 275-0185
FAX: (214) 235-5452

LANDMARK FINANCIAL GROUP

- Nationwide
- \$5k to \$1mm

• Equipment Leasing / Financing •

(214)644-3297 FAX (214)699-7893

HELP WANTED

BROADCAST ENGINEER

wanted for KUCR radio, college/non-commercial Class A at University of California, Riverside. Engineer will maintain, install, develop broadcast systems, assist in training, production, broadcasts, provide general administrative assistance, more. Requires: extensive experience in broadcast systems, FCC knowledge, more. \$2,473-2,837/mo. Closes July 31, 1991. Submit resume to Staff Personnel Office, 1160 University Avenue, Riverside, CA 92521. (Re: Job # 91-05-013) AA/EOE.

AUDIO ENGINEER

Christian Television Ministry has an opening for a 2nd shift **AUDIO SWEETENING ENGINEER**. Applicant must have automated mixing experience and a minimum of 2 years audio for video post-experience. S.S.L., MTR-90 II, Adams Smith.

For application call: (214) 620-1586, ext. 6267 or mail resume to: Robert Tilton Ministries, Attn: Personnel, P.O. Box 819099, Dallas, TX 75381-9099

Classified Advertisers Index

DUPLICATION SERVICES

The Professional Choice In Cassette Duplication

Each order
customized
to fit your budget
and your total needs
**High speed - Realtime
& DAT Replication**

LORAN

1-800-633-0455

Member of
NAIRID

Call For
Free Sample

DISC *MAKERS

- Cassette Duplication
 - Record Pressing
 - CD Replication
 - Video Duplication
- Complete Packages



CALL FOR OUR FREE FULL COLOR CATALOG
1-800-468-9353 (In PA: 215-232-4140)

DISC *MAKERS

1328 North 4th Street
Philadelphia, PA 10019

ESP

CD'S AND TAPES
COMPLETE
PACKAGES

- CD REPLICATION
- HIGH SPEED CASSETTES
- AUDIOPHILE REAL TIME CASSETTES ON TDK-SA
- COMPLETE PRINTING AND PACKAGING

EASTERN
STANDARD
PRODUCTIONS, INC

26 BAXTER STREET
BUFFALO, N.Y. 14207

TEL 716-876-1454
FAX 716-877-6395
1-800-527-9225

1000 CD'S
\$2300.00

COMPLETE
PACKAGE

1-800-527-9225
FOR A FREE BROCHURE

	Page Number	Rapid Facts Number	Advertiser Hotline
Alesis	19	12	213/467-8000
Aligned Audio	70	58	718/788-6969
Ampex Recording Media	1	4	415/367-3809
Anything Audio	67	52	617/426-2875
Sam Ash Professional	51	35	212/719-2640
Audio Visual Assistance	66	51	612/481-9715
AZ-USA Inc.	50	25	800/842-9790
The Broadcast Store Inc.	66	54	818/845-7000
Bryco Products	52	37	818/783-9133
Countryman Associates, Inc.	55	30	415/364-9988
Crown International	IFC	1	219/294-8000
db Engineering	66	53	617/782-4838
Denecke	64	39	818/766-3525
Disc Makers	54	28	215/232-4141
Drawmer	39	21	508/650-9444
Fast Forward Video	51	34	800/755-TIME
Full Compass Systems	65	31	800/356-5844
Gefen Systems	24	14	800/545-6900
Hardy Co.	54	27	312/864-8060
Hill Audio Inc.	31	18	817/336-5114
Hollywood Edge	62	32	800/292-3755
Innovative Audio Systems	69	60	213/470-6426
JBL Professional	BAC	3	818/893-8411
KABA Research & Development	47	24	415/883-5041
Klark Teknik	43	23	
Lexicon Inc.	3	5	617/736-0300
Manhattan Production Music	55	29	800/227-1954
Markertek Video Supply	67	55	914/246-3036
Meyer Sound Labs	25	15	415/486-1166
3M/Magnetic Media Division	29	17	612/733-1110
M.T.U.	52	36	919/870-0344
National Foam Inc.	69	56	213/650-8906
Otari Corp.	17	11	415/341-5900
Peavey Electronics Corp.	IBC	2	601/483-5365
Pro Music Library	50	26	800/322-7879
Roland Corp. US	11	8	714/975-0560
Seam Tech	69	57	415/861-6011
Shure Brothers, Inc.	4	6	800/25-SHURE
Sonic Solutions	15	10	415/394-8100
Sony Professional Audio	9		800/635-SONY
Sony Professional Tape	23	16	201/930-7081
Soundcraft U.S.A.	61		818/893-8411
Soundtrax Recording	27,33	13,19	615/929-0402
Tannoy North America Inc.	13	9	519/745-1158
Tascam	36-37	20	213/726-0303
A Total Effect	71	59	818/345-4404
Turtle Beach Softworks	63	38	717/843-6916
World Class Tapes	68	50	313/662-0669

T.O.T.A.L. R.E.C.A.L.L.



The DPM SP SAMPLE PLAYER


Expand your horizons. Don't limit your creativity by limiting your memory capacity. With the new DPM[®] SP sample playback synthesizer from Peavey Electronics, the creative possibilities are endless. The Peavey DPM SP can be whatever you want it to be. A nine foot grand piano, an orchestral string section, background vocal harmonies, a brass section, sound effects, or a combination of multiple instruments. The SP has the memory capacity (up to 32 Megabytes) to be anything you need without compromise. 16-bit sample resolution and 44.1 kHz playback rate means the sonic quality of the SP is also uncompromised. Samples can be loaded from the on-board 3.5" high density disk drive, CD ROM, hard disk, or MIDI sample dump standard. With hundreds of Megabytes of professional samples available from Peavey, as well as many independent companies, the capabilities of the SP are limitless. If you want to record your own samples for the SP, just add the DPM[®] SX Sampling Expander module and you've got an incredibly affordable full blown 16-bit sampling system. Both the DPM SP and the DPM SX are expandable using standard SIMM memory upgrades. Peavey has brought 16-bit sampling to a new level of flexibility. And, at about HALF THE PRICE OF COMPARABLE UNITS by other manufacturers, the SP makes sampling an affordable reality for just about anybody. Check out the DPM SP and DPM SX at an authorized Peavey dealer near you.

LIMITLESS
PERFORMANCE


Circle (2) on Rapid Facts Card



Just The Ticket To A Great Performance.



You've paid your dues. You've invested your soul. Now you're flush with the thrill of making it, and ready for a larger stage. But you can't ignore reality just yet. Getting into a decent sound reinforcement system can be a costly endeavor.



For you, the emerging performer, we've developed the MR Series. Serious loudspeaker systems that deliver out-of-this-world performance at down to earth prices. From the single transducer guitar boxes and 2-way stage monitors to 3-way full range systems and 18" subwoofer, MR Series systems produce a big, clean, powerful JBL sound. The kind of sound you and your audience will truly appreciate.

Besides providing the launching point for new loudspeakers with powerful 3 inch voice coils, the MR

Series also relies on the proven technologies of our Bi-Radial® horns, titanium diaphragms and ultra-strong trapezoidal enclosures. From the crisp, clear tones of a guitar solo to the complex textures of a synth, even to the special performance needs of mobile DJs, MR Series delivers the efficiency, reliability, and power handling capability that has become synonymous with JBL.

MR Series. Check them out at your local JBL dealer. They may just be the ticket for your next great performance.

Circle (3) on Rapid Facts Card



JBL Professional
8500 Balboa Boulevard, Northridge, CA 91329

H A Harman International Company