

# MIX

**TAPE & DISC SPECIAL**  
· Mini Disc vs. DCC  
· The Remastering Boom  
· Directory of Mastering, Pressing, Tape Duplication and Compact Disc Facilities

PROFESSIONAL RECORDING · SOUND AND MUSIC PRODUCTION

**CD RECORDERS:  
Available and Affordable**

**Dreaming  
of a Byte Christmas**



**GARTH BROOKS:  
THE YEAR'S  
GREAT  
SUCCESS  
STORY**

5-DIGIT 91329  
869 DIR  
PROFESSIONAL  
BLVD  
NORTHridge  
CA 91329  
0 74

# LOGIC 2

## The first all-digital, large format console in North America.

A completely digital audio console integrated with a familiar analog-style control surface for music recording, TV and film post production. Logic 2 from AMS.

- *Total Dynamic Automation* of virtually all channel parameters, including Read, Write, Update and Isolate for Fader, Mute. Up to 48 fully automated aux sends. External machine control provided as standard.
- *Multilayer In-Line operation*. Each channel strip controls 4 completely independent mono or stereo signal paths. 27 faders can control up to 108 fully equipped stereo channels, 63 up to 252. Logic 2 is a very large desk with a very small footprint.
- *Input/output circuitry completely user-configurable*. An electronic matrix allows individual assignment of inputs and outputs to any channel strip, group or main output, replacing much of the patchbay of the conventional analog desk.

- *A totally reconfigurable desk*. From recording to mixing, from TV show to film, Logic 2 can be completely reconfigured from stored setups.
- *Comprehensive signal processing*. 4-band, full parametric EQ, 2 band filters and a powerful 4-function dynamics section. *Logicator* rotary controls show settings at a glance, while alphanumeric displays give exact values.



Logic 2 integrates fully into the studio environment. Working with digital/analog multitracks and other digital/analog devices, Logic 2 keeps the signal entirely in the digital domain.

It's here. The first all-digital, large format desk in North America. From AMS.

# LOGIC 2

## The first all-digital, large format console in North America.

A completely digital audio console integrated with a familiar analog-style control surface for music recording, TV and film post production. Logic 2 from AMS.

- *Total Dynamic Automation* of virtually all channel parameters, including Read, Write, Update and Isolate for Fader, Mute. Up to 48 fully automated aux sends. External machine control provided as standard.
- *Multilayer In-Line operation*. Each channel strip controls 4 completely independent mono or stereo signal paths. 27 faders can control up to 108 fully equipped stereo channels, 63 up to 252. Logic 2 is a very large desk with a very small footprint.
- *Input/output circuitry completely user-configurable*. An electronic matrix allows individual assignment of inputs and outputs to any channel strip, group or main output, replacing much of the patchbay of the conventional analog desk.

- *A totally reconfigurable desk*. From recording to mixing, from TV show to film, Logic 2 can be completely reconfigured from stored setups.
- *Comprehensive signal processing*. 4-band, full parametric EQ, 2 band filters and a powerful 4-function dynamics section. *Logicator* rotary controls show settings at a glance, while alphanumeric displays give exact values.



Logic 2 integrates fully into the studio environment. Working with digital/analog multitracks and other digital/analog devices, Logic 2 keeps the signal entirely in the digital domain.

It's here. The first all-digital, large format desk in North America. From AMS.





Siemens Audio Inc.

- Bethel, CT (203) 792-4997
- New York, NY (212) 956-2907
- Nashville, TN (615) 329-9584
- Toronto, Ontario (416) 251-3355
- Los Angeles, CA (213) 957-2265
- Chicago, IL (312) 645-9888
- Seattle, WA (206) 624-1317



# MIX

PROFESSIONAL RECORDING • SOUND AND MUSIC PRODUCTION

DECEMBER 1991, VOLUME 15, NUMBER 12

## AUDIO

- 15 The Fast Lane:** The Game of Life  
*by Stephen St. Croix*
- 20 Insider Audio:** Noise Shaping, Part 2  
*by Ken Pohlmann*
- 24 Juxtapositions:**  
Software Development—From Concept to Reality *by Mel Lambert*
- 68 1991 TEC Awards  
Winners  
& Highlights**
- 80 CD Recorders:**  
Available and  
Affordable  
*by George Petersen*
- 102 Studio View:**  
Dreaming of a Byte  
Christmas  
*by Dan Daley*
- 104 Post Script:**  
The Doors' "Soft  
Parade" Video  
*by Iain Blair*
- 108 Post Briefs/Post Notes** *by Iain Blair*

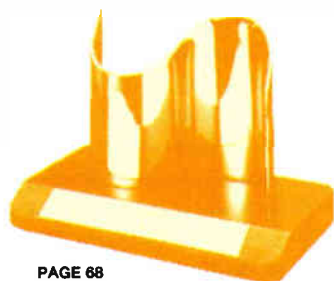


## SPECIAL TAPE & DISC SECTION

- 28 Living in the Past:**  
Remastering for CD  
Is Audio's Great  
New Art  
*by Blair Jackson*
- 29 Audio Restoration  
and Archiving:**  
On the Job with  
Alan Stoker  
*by Missy Baker*
- 36 Les Paul:**  
*The Legend  
& the Legacy on CD* *by Mark Smotroff*
- 42 Mini Disc and DCC:** A Comparative Forum  
*by Philip De Lancie*
- 44 Tape & Disc News/Splices** *by Philip De Lancie*
- 72 The Byte Beat:** Opcode Track Chart, JL Cooper  
CS-1 and Dr. T's X-oR *by Paul Potyén*
- 76 Chip Shots:** New Multimedia Products
- 114 Preview/Hot Off the Shelf**
- 116 Field Test:** Roland Space Sound System  
*by Gary Hall*
- 127 Auditions:** Microtech Gefell UM70 Microphone;  
E-mu ProCussion; Stax SR-Lambda Professional  
Earspeakers *by George Petersen*



PAGE 29



PAGE 68

## LIVE SOUND

- 92 **Garth Brooks:**  
Ropin' in the Audience  
*by David Schwartz*
- 132 **SoundCheck/News Flashes**  
*by David (Rudy) Trubitt*
- 133 **Live Sounds:** Van Halen Tour  
*by David (Rudy) Trubitt*
- 137 **New Sound Reinforcement Products**

## MUSIC

- 60 **Lunching with Bonzai:** Phil Woods—  
Hard Bopper in Full Swing *by Mr. Bonzai*
- 138 **Music & Recording Notes:**  
Bob Ezrin on Julian Lennon and A-DAM  
*by Iain Blair*; "Voices"—Joachim Berendt  
Records World Choirs *by Bruce Pilato*

PAGE 132



PAGE 80

## DEPARTMENTS

- 6 **From the Editor**
- 9 **Current**
- 10 **Industry Notes**
- 144 **Coast to Coast:**  
Including Sessions,  
Studio News,  
L.A. Grapevine,  
NY Metro Report,  
Nashville Skyline
- 168 **Ad Index/Reader  
Service Card**
- 171 **Classifieds**

## DIRECTORY

- 149 **Mastering, Pressing,  
Tape Duplication  
and Compact  
Disc Facilities**

**COVER:** Audio release formats have changed radically over the years. From the collections of *Mix* staffers, here are a few examples of that continual evolution: Edison cylinder, 78 rpm disc, 7-inch reel-to-reel tape, cassette tape, compact disc, Sony Mini Disc and Philips DCC. Photo: Tony Carlson.



# POWER. PERFOR

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

Yes, Studer Dyaxis exactly.

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

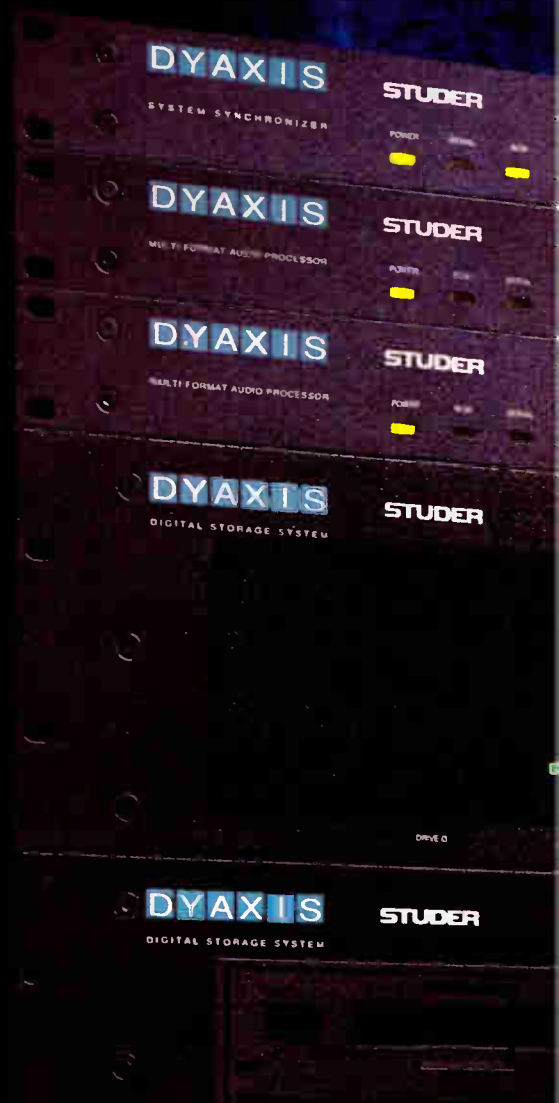
**Synchronization Is Easy.** With the System Synchronizer and Timecode option, Dyaxis (and Dyaxis 2+2) is a "master" of sample accurate timecode-based slave applications. By a simple click of the mouse, Dyaxis is ready to lock to SMPTE, EBU, VITC, video, and film tach. Never before has synchronization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

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



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

# STUDER

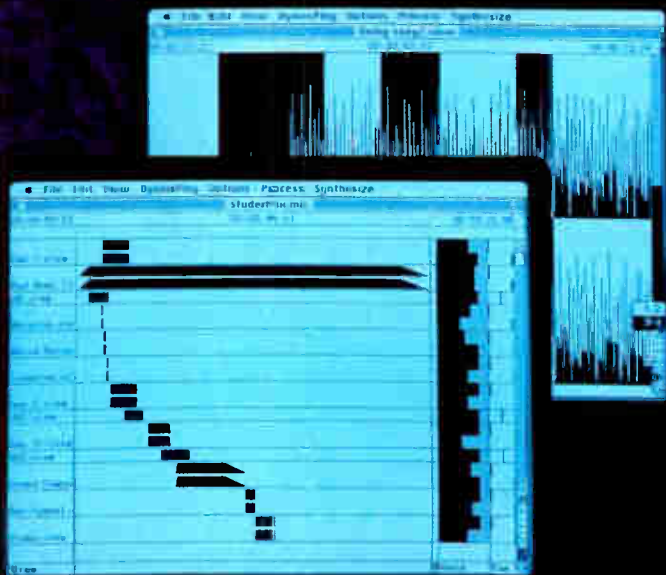




# PERFORMANCE. PROFIT.

**Digital Compatibility.** Dyaxis communicates with and transcodes between all major digital audio formats such as DASH, AES-EBU, PD, SDIF, 601 and more. Up to 100 different sampling rates including 44.056, 44.1 and 48 kHz are available on line. The friendliest of all digital audio systems, Dyaxis makes compatibility and studio interface a breeze.

# DYAXIS 2+2.



**Hard Disk At Its Best.** From instant random access to precise nondestructive electronic editing, from internal unlimited multitrack soundfile assembly and mixing to time-scaling without pitch change, Dyaxis is hard disk digital audio recording and editing at its best.

**Studer Dyaxis—Designed For You.** Discover digital technology that's flexible, powerful and easy to use—all the right stuff at a price that might pleasantly surprise you. With Studer's legendary technical support and financial capabilities, Dyaxis is a sound investment in your future. Call us for our free 12-page color brochure on Studer Dyaxis, or call any of our regional offices for an immediate demonstration.

**Picture your sound. On Dyaxis.**  
**From Studer, a name you can trust.**

## STUDER REVOX

Studer Revox America, Inc.  
1425 Elm Hill Pike • Nashville, TN 37210 • (615) 254-5651  
New York (212) 255-4462 • Los Angeles (818) 780-4234  
Studer Revox Canada Ltd., Toronto (416) 423-2831

# FROM THE EDITOR

As indicated by this month's cover art, changing formats are among the few constants in this business. The rationales for new formats come in four flavors: smaller size, lower cost to produce, higher fidelity and increased capabilities. And certainly any or all of these qualities are by no means a guarantee of the format's continued existence. The path to consumer audio heaven is riddled with format roadkill such as quad, 8-track cartridge, the elcassette and others that never saw the light of the showroom floor.

For many in the business, changing formats stimulate the sale of music. CD catalog sales have brought boom years to many who thought they had seen the end of their albums' revenue streams. Reissues are big business and are warmly welcomed.

Other than increased sales, changing formats have little effect on the front-end creative operations, save for some minor adjustments to allow for wider dynamic range or more time on the end product. Those who are most affected by such changes are at the end of the production process—mastering and manufacturing.

On the other hand, we are now witnessing another format roll-out whose front-end effect could be quite significant, though at the moment its impact is nearly impossible to measure or estimate. Longtime readers may remember a supplement we included back in 1986 exploring the Interactive Compact Disc, or CD-I, developed by Philips. Well, it's finally here and—surprise—it's come with an instant competitor: Commodore's CDTV. Not only will consumers have to understand what this new interactive format has to offer, but they will also have to navigate another VHS/Beta-type decision. A tough challenge, especially in recessionary times.

One way or another, the interactive CD concept should have a strong impact on consumers... eventually. It's important to realize, too, that the interactive CD is not just another release format for existing product; it is a whole new way to develop and present creativity. As we've said before, interactivity can open new horizons for media producers. The early experimenters will be the ones to reap the first benefits.

Keep Reading,



David Schwartz  
Editor-in-Chief

 **BPA** Circulation independently audited and verified by  
Business Publications Audit of Circulation since 1985.

Mix magazine is published at 6400 Hollis St. #12, Emeryville, CA 94608 and is ©1991 by Act III Publishing. Mix (ISSN 0164-9957) is published monthly. Subscriptions are available for \$46.00 per year. Subscriptions outside U.S.A. are \$61.00 per year. Single copy price is \$4.95, back issues \$6.00. Missed issues within the U.S. must be claimed within 45 days of publication date and abroad, within 90 days. Send subscription applications, subscription inquiries and changes of address to Mix magazine, PO Box 41094, Nashville, TN 37204 or call (800) 888-5139. Outside U.S., call (615) 377-3322. POSTMASTER: Send address changes to Mix magazine, PO Box 41094, Nashville, TN 37204. Address all other correspondence to Mix magazine, 6400 Hollis St. #12, Emeryville, CA 94608; (510) 653-3307, Fax: (510) 653-5142. Second class postage paid at Oakland, CA, and additional mailing offices. Mix magazine is distributed in pro audio stores, music stores and other related businesses. If you have a recording or music-related business and would like to distribute Mix, please give us a call at (510) 653-3307. Display advertising rates, specs and closing dates are available upon request. This publication may not be reproduced or quoted in whole or in part by printed or electronic means, without written permission of the publishers.

## S T A F F

EDITOR-IN-CHIEF David M. Schwartz

PUBLISHER Hillel Resner

MANAGING EDITOR Blair Jackson

PRODUCT EDITOR

George Petersen

ASSOCIATE EDITORS

Paul Polyen Tom Kenny

ASSISTANT EDITORS

Jeffrey Forlenza Terri Stone

SOUND REINFORCEMENT EDITOR

David (Rudy) Trubitt

TAPE & DISC EDITOR Philip De Lancia

POST-PRODUCTION EDITOR Iain Blair

TECHNICAL EDITOR Ken Pohlmann

CONSULTING EDITOR Stephen St Croix

EDITOR-AT-LARGE Mr Bonzai

TEC AWARDS EDITOR Karen Margroff Dunn

EAST COAST EDITOR Dan Daley

LOS ANGELES EDITOR Amy Ziffer

CONTRIBUTING EDITORS

Bob Hodas Linda Jacobson Mel Lambert

Larry Oppenheimer Bruce Pilato

ART DIRECTOR Tim Gleason

ASSISTANT ART DIRECTOR Patricia Law

GRAPHIC DESIGNER Linda Gough

ASSOCIATE PUBLISHER Jeffrey Turner

SOUTHERN CALIFORNIA/SOUTHWEST AD MGR

Sue Horwitz

EASTERN ADVERTISING MANAGER

Michele Kanatous

NORTHWEST/MIDWEST AD MGR. John Pledger

SALES ADMINISTRATOR Jean Mahon

SALES ASSISTANTS Laura Kujubu

Tina Spinelli Christine Cali

CLASSIFIEDS AD MANAGER Robin Boyce

CLASSIFIEDS ASSISTANTS

Elizabeth Hildreth Jill Stauffer

DIRECTORIES ADVERTISING MANAGER

Lauri Newman

DIRECTORIES ASSISTANTS

Cyndi Lukk Melissa McMillion

MARKET RESEARCH MANAGER Elise Malmberg

ART DIRECTOR, SPECIAL PROJECTS

Michael Zipkin

ASSISTANT TO THE PUBLISHER/

EVENT COORDINATOR Jane Byer

DIRECTOR OF

OPERATIONS AND PRODUCTION

Anne Letsch

PRODUCTION MANAGER Georgia George

PRODUCTION COORDINATOR Ellen Richman

ADVERTISING TRAFFIC MANAGER Donna Price

PRODUCTION ASSISTANT Chris Ferrell

CIRCULATION MANAGER Randy Robertson

CIRCULATION ASSISTANT Karen Stackpole

ASSISTANT CONTROLLER Ron LeRouzi

ACCOUNTS RECEIVABLE MANAGER Lea Lewis

ACCOUNTING

Therese Wellington Christina Purdy

Bettye Gardner

PERSONNEL/OFFICE MANAGER

Barbara Kochiovelos

WAREHOUSE MANAGER Charles Nielsen

RECEPTIONIST Larry Grindstaff

AN ACT III PUBLICATION

ALSO PUBLISHERS OF

ELECTRONIC MUSICIAN

MIX BOOKSHELF

GROUP PUBLISHER

Hillel Resner

DIRECTOR OF CORPORATE DEVELOPMENT

David Schwartz

**NATIONAL EDITORIAL, ADVERTISING and BUSINESS OFFICES.** 6400 Hollis St. #12, Emeryville, CA 94608. (510) 653-3307. IMC 736. FAX: (510) 653-5142 **SOUTHERN CALIFORNIA ADVERTISING OFFICES.** 19725 Sherman Way, Suite 380, Canoga Park, CA 91306. (818) 709-4662. FAX: (818) 709-6773. **EAST COAST ADVERTISING OFFICES.** 235 W. 48th St. #35B, New York, NY 10036. (212) 315-1800. FAX: (212) 315-1848. **DIRECTORIES ADVERTISING.** (800) 344-LIST. **CLASSIFIEDS ADVERTISING.** (800) 747-3703. **MIX BOOKSHELF.** (800) 233-9604. **CIRCULATION INQUIRIES.** PO Box 41094, Nashville, TN 37204. (615) 370-5643.

Founded in 1977 by  
David Schwartz and Penny Riker Jacob

THE DTR-900II, MEANS BUSINESS,  
INSIDE AND OUT.

When a digital machine has earned the reputation of being "the best sounding tape recorder in the world," and at the same time delivers Otari's legendary dependability, it can only mean more satisfied clients, and more business for you. However, DTR-900 users tell us there are other reasons to own one that are just as compelling.

First, you're not locked into a single 48-track machine. Otari's 64-track system can be split for use in two simultaneous 32-track digital sessions. (One practical studio owner says he "uses one and rents one" when he doesn't need all 64-tracks!)

Another owner appreciates what he calls, "the best autolocator—it makes production easy by doing most of the work for you." (He also likes the "900's" unique ability for simultaneous recording on digital and analog inputs.) Still another says, "The DTR-900II's adjustable time advance feature is a lifesaver when we're using an outboard digital console."

Obviously, the DTR-900 means business for these owners. Call Otari at 415/341-5900 for more information about what it can mean to you.

**OTARI**



# CURRENT

## Apple Lawsuit Agreement Reached

An agreement has been reached between Apple Computer and Apple Corps, the Beatles' management company, regarding Apple Corps' 1989 lawsuit against the computer maker. The suit charged Apple with violating a 1981 agreement not to use its logo on music-related products.

The London High Court ordered Apple Computer to pay the Beatles' management company an amount less than the \$30 million it set aside to cover the litigation. According to Apple Computer spokesperson Cindy Mc-

Gaffrey, "A settlement agreement has been reached, but the case still needs to be formally dismissed in the London High Court before we can discuss the specific terms of the settlement." Formal dismissal was expected by the end of the year.

## Concert Sound Workshop

Synergetic Audio Concepts and *Pro Sound News* will co-sponsor the third Syn-Aud-Con Concert Sound Reinforcement Workshop at Chapman College in Grange, Calif., January 14-16, 1992. Entitled "A Hands-On Look at Technology—Current & Developing,"

the workshop will involve the demonstration of current live sound technology—including computer-controlled amplifier systems and equalizer systems—as well as discussion of sound reinforcement issues such as noise control, hearing damage lawsuits and employment opportunities.

Will Parry of Maryland Sound will chair the event, while David Scheirman of Concert Sound Consultants will be facilities coordinator. Staff includes M.L. Prociase of Showco, Roy Clair of Clair Brothers, Mick Whelan of Electrotec and Al-

## Bill Graham, 1931-1991

When rock impresario Bill Graham was killed in a helicopter crash near his Northern California home on October 25, the music world lost one of its most important, influential and dynamic figures. The 60-year-old Graham, whose pioneering production company has been the most successful of its kind for the past quarter-century, was a giant in nearly every aspect of the music industry: concert production, artist management, tour coordination, special event production, philanthropic organization, even record production. His multimillion-dollar company, Bill Graham Presents, will carry on in his absence under the able guidance of a handful of people personally trained by Graham through the years, but there's no question that the business as a whole will miss his vision, leadership and *chutzpah*.

A German refugee whose parents perished in the Holocaust, Graham came to New York at age 11 and worked a number of odd jobs before eventually settling on the West Coast. He was a member of the famous San Francisco Mime Troupe in the mid-'60s, and it was during that time that he put on his first benefit concerts at the now-legendary Fillmore Auditorium in San Francisco. In contrast to the pot-smoking, acid-taking libertines who popu-

lated the burgeoning San Francisco scene, Graham was an extremely well-organized and demanding workaholic with great business instincts.

But above all, he loved music and did everything he could to make sure that it was presented thoughtfully. It was Graham who first put together the sort of eclectic concert bills that the '60s became noted for—pairing the likes of Miles Davis with the Grateful Dead, or Muddy Waters with the Jefferson Airplane.

The concerts that Graham's organization put on at the Fillmore East, Fillmore West, Winterland and other venues set standards, industry-wide, for quality and efficiency. As bands became more popular and started playing larger facilities, Graham and his staff did what they could to make that concert experience as pleasant as possible, too.

Though rock 'n' roll made Graham a very wealthy man, he was always ready to assist worthy causes, whether it was San Francisco's financially beleaguered public schools, Amnesty International, famine relief, earthquake victims or AIDS research. The number of benefits put on by Graham's troops easily reaches into the hundreds. In fact, on the day of his death, Graham had been busy trying to organize a benefit to raise money for victims of the big Oakland-Berkeley fire that had occurred earlier that week.

Passionate, irascible, funny, philosophical, hot-tempered, generous—pick your favorite adjective—most of them fit Bill Graham. To say that he was one-of-a-kind is a vast understatement. Consciously or not, we'll *all* miss his spirit and integrity. Yes, he was the "Godfather of Rock," as one magazine put it years ago, but he was also in many ways the music industry's conscience. And now that he's gone, we'll all have to think for ourselves just a little bit more.

—Blair Jackson

PHOTO: ED PERLSOHN



# INDUSTRY NOTES

The Audio Engineering Society announced several new officers appointed in the U.S. **Dr. Floyd Toole** will be president for the upcoming year (Dr. Toole was also recently named vice president of acoustical research for **Harman International**); **Leonard Feldman** will be the vice president for the Eastern region; **Bob Thurmond** will be vice president of the central region; and **Richard Burden** will be vice president of the Western region. Overseas appointments include **Neville Thiele** as international vice president and **Gerhard Steinke** as vice president for Europe...**Digidesign's** reported changes include the hiring of **David E. Olson** as vice president of manufacturing, **Joy D. Covey** as chief financial officer and **Paul Rice** as vice president of marketing. Digidesign also opened a regional office in Los Angeles, which will be run by regional sales manager **Mick Walker** and product specialist **Russ Beltary**...**Thomas M. Jenny** moved up to the newly created position of vice president and general manager of the Studer Division of **Studer Revox America**. The Nashville-based corporation also announced Jenny's successor as Western regional manager: **Vencil Wells** will continue to operate out of the Van Nuys, CA, office, but will assume responsibility for personnel, sales and service in the Western region...**Klark-Teknik Electronics** of Farmingdale, NY, promoted **Sam Spennacchio** (already a sales manager for K-T) to marketing manager for **Dynacord GmbH**. The promotion follows on the heels of Klark-Teknik's acquisition of U.S. distribution rights for the Dynacord professional audio and MI product lines...**Derek Davis** was promoted to vice president of operations at **Nakamichi America** (Torrance, CA). Nakamichi also welcomed **Fred Yando** to the position of vice president of sales and marketing...**AKG Acoustics** (San Leandro, CA) hired **Jawxillion Loeb** as product manager for the company's signal pro-

cessing lines...**Sonocraft Corp.** (distributor of multimedia products) relocated to 575 Eighth Ave., 2nd Floor, New York, NY 10018-3011. The new number is (800) 274-SONO...**TimeLine** (Vista, CA) chose **Tim Cuthbertson** to serve as the director of sales and marketing. For more information, call (619) 727-3300...**Matt Robertson** joined **Sennheiser Electronic** of North Hollywood, CA, as sales manager of the Western region. Robertson may be reached at (213) 469-9084, fax (213) 469-3740...**Atlas/Soundolier** chose **Western Audio Sales** (Burbank, CA) as its new representative for Southern California and Nevada. Call (314) 349-3110 for details...**Chyron** (Melville, NY) filed Chapter 11. The company plans to continue with a \$10 million investment from **Pesa Electronics** of Spain fueling the reorganization...**Ferdinand Boyce** is now vice president of marketing at Salt Lake City-based **DOD Electronics**...**Telex Communications** of Minneapolis reported several personnel changes: **Jeff Peters** was named as national sales manager, **Gary Bosjacki** was appointed Western regional sales manager, **Mike Rangitsch** was named Eastern regional sales manager...**Joiner & Company**, a new consulting and design firm, formed in Dallas. By the time of publication, the company may have relocated to Arlington, TX, but can be reached at (214) 392-7800...**Demeter Amplification/Innovative Audio Systems** named **Michael Meltzer** as marketing and sales director of the Los Angeles-based company...**Doug Swan Associates** (Melbourne, FL) is now the Florida rep for **Panasonic/Ramsa**...**Scharff Weisberg** (New York City), previously an equipment rental operation, has opened a sales department. For more information, call (212) 582-2345...**Bob Adams** was elected an AES Fellow by the AES Board of Governors. Adams is currently Analog Devices' senior design engineer of digital audio converter products. ■

—FROM PAGE 9, CURRENT

**bert Leccese** of **Audio Analysts**. Enrollment is limited, but space is still available as of press time. Contact Syn-Aud-Con at (812) 995-8212 for more information.

## Regional Audio News

Atlanta is fast becoming a regional music center. And with the '96 Olympics only a short time away, production houses and music companies will no doubt reap some benefits. Contacts should be easier to make for incoming clients with the release of the second edition of the Atlanta Regional Music Directory, which includes free listings of performers, businesses and support organizations directly involved with the Atlanta music scene. More than 2,000 copies will be printed and distributed to local music stores free of charge. Deadline for registration is December 20; the printing is scheduled for January 31, 1992. If you would like to be included, please contact Mark Hoover at (404) 875-9531.

Meanwhile, across the country, the Great Basin Audio Society has formed in Reno as "a nonprofit organization dedicated to improving audio reproduction technology." Professionals in the recording, sound reinforcement and music industries are encouraged to join and share their knowledge. Meetings are bi-monthly; the next one is January 26, 1992. Call Eric Barbour at (702) 358-2019 for more information.

## SPARS News

The Society of Professional Recording Services, in conjunction with UCLA Extension, will host a weekend business conference on January 25-26, 1992, entitled "The Business of Operating a Recording Studio: Realities and Opportunities in the '90s." The conference will be hosted by Guy Costa, CEO of Quadim Corp., and topics include: Controlling the Bottom Line, Pricing, Personnel, Legal Issues, Marketing and Personal Use Studios. Call Shirley Kaye at (800) 771-7727 for more information. ■



# Network



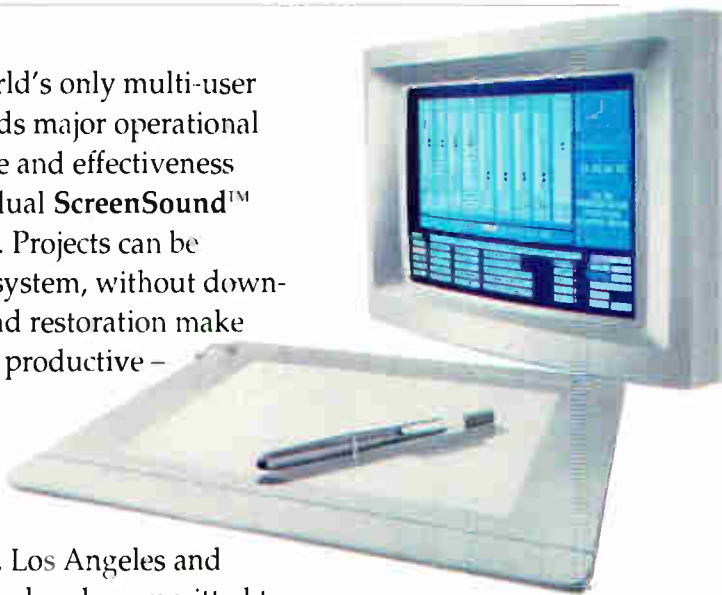
**ScreenSound**  
Digital Audio-for-Video Editor/Mixer

**SoundNet**  
Digital Audio Network

## The Future of Audio Post-Production

SSL's **SoundNet™** is the world's only multi-user digital audio network. It adds major operational efficiencies to the ease of use and effectiveness already provided by individual **ScreenSound™** editing and mixing systems. Projects can be transferred from system to system, without downloading. Off-line back-up and restoration make every hour of operator time productive – *working for clients.*

Find out why Fox TV,  
Los Angeles; GTN, Detroit;  
Soundcastle / Post Modern, Los Angeles and  
Musifex, Arlington, VA., are already committed to  
networked systems for their future post-production needs.



**Solid State Logic**

International Headquarters: Begbroke, Oxford, England OX5 1RU · Tel: (0865) 842300  
Paris (1) 34 60 46 66 · Milan (2) 612 17 20 · Tokyo (3) 54 74 11 44 · New York (212) 315 1111 · Los Angeles (213) 463 4444 · Toronto (416) 363 0101

**SSL DIGITAL**



# We built our woofer and tweeter a better home.

TEC  
TECHNOLOGY ELECTRONIC EQUIPMENT  
1991  
WINNER



## 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, unequalled 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.

by Stephen St. Croix

## THE GAME OF LIFE

**S**TOP! No, I don't mean that you should stop reading; I mean that I want you to take a few minutes out of your day and give them to me. I want you to stop thinking about that appointment that's coming up in a couple of hours, forget about that problem with your hard drive. Put away those images of stuff you want and the memories of stuff you've done. Forget about shipments that still haven't shown even though they were promised ten days or ten months ago. Let it go for a moment.

The question is, "What are we *doing* here?" Now, I'm not asking a deep philosophical or religious question, or posing a generalized academic prob-

lem. I'm asking *you* personally, as close to face-to-face as print allows, what you, the person holding this magazine in your hands right now, are doing here, in the recording industry. Why are you reading this industry publication, why are you in this business, and why are others like you in it?

Here's what I want: I want you to step away, step backward—far enough to get an overview of what it's all for.

Okay. The majority of us are here for two reasons. First, to make better-quality audio recordings of some type. For some, that might be cleaner, tighter, more realistic mixes; for some, better, more dynamic film tracks; and others

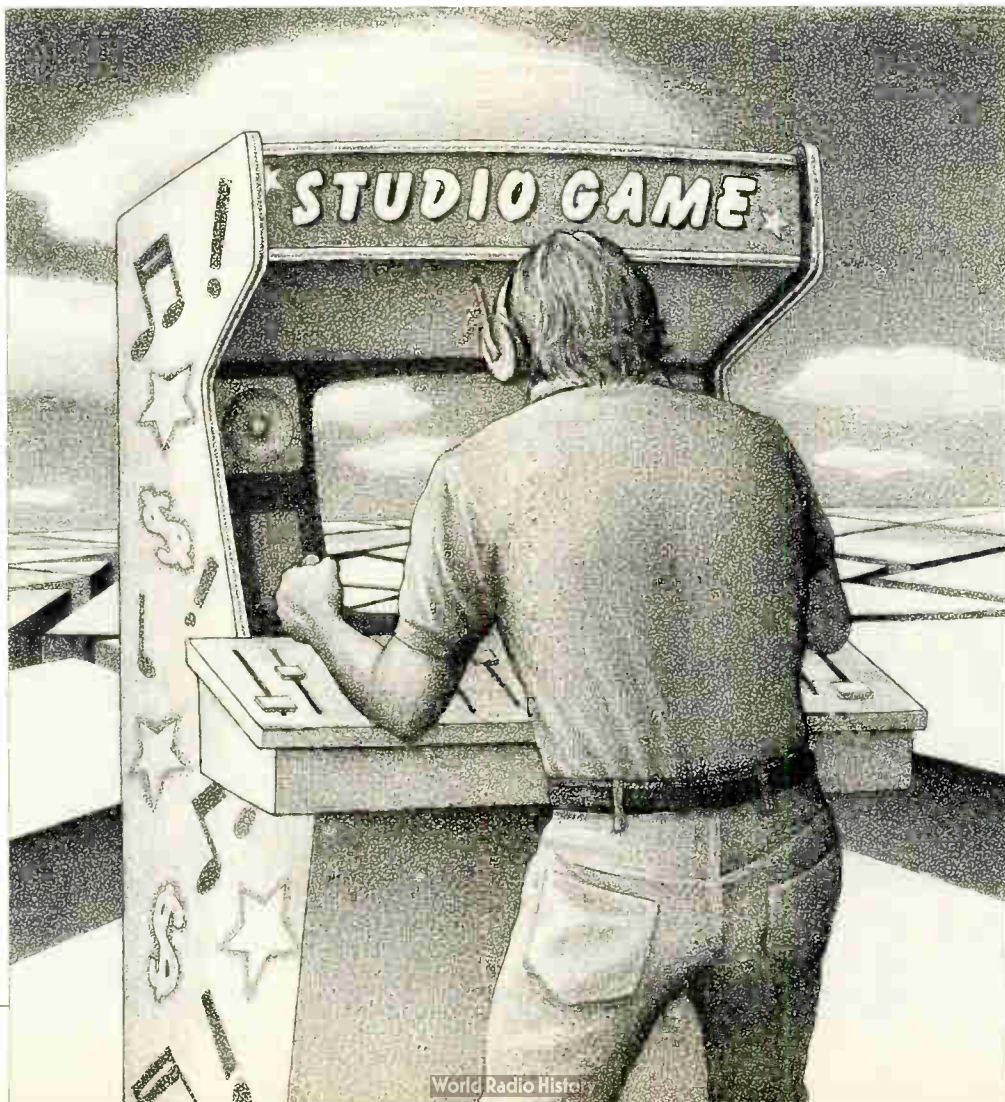


ILLUSTRATION: JEREMY THORNTION



might be here to compose, arrange or even perform better music. Still others are strictly into self-expression, but they also share the desire to do the best possible job.

The second reason is to make money. Money is real interesting stuff when it is part of an equation where science, technology, skill, judgment and pure creative artistic talent are variables.

Money takes on a special importance for us, as it is one of the two report cards for our professional lives (the other being, of course, direct personal satisfaction).

Financial success in the recording industry is a very solid indicator that we are probably doing things right. It is the first confirmation that our plans and abilities are basically correct, that we have indeed figured out what the world wants, and perhaps more importantly, that our personal skills and talents are worth something. Simply put, money in this case confirms that we have successfully contributed.

But that's just the beginning. If you are in fact good enough, and if you have figured out how to channel your skills properly, enough money comes to allow you to expand that power to contribute. More money buys more equipment. More equipment to be installed into three basic (and rarely discussed) categories:

1) Gear that allows us to produce the same end-product. With the same quality, in less time—which allows us to be both more productive (obviously) *and* more artistically creative, because the time between thinking of what to do and then hearing the result is shorter. So, the productive feedback loop is shorter. This means that you spend more time creating and less time waiting (for the machines to do what you asked them to do).

As you can see, a shorter creative loop tends to keep you moving, flowing, simply creating. You are more likely to try to improve problem areas, or even try some trick you have been thinking about for a week or so, when it takes three minutes instead of 25. Got it?

2) Gear that improves the quality of the end-product. This might be better guitars or synths for players, better reverbs or mixing desks for engineers, and so on. Better, cleaner, quieter gear means more transparency,

more "room" to create.

3) Gear that is, when all the smoke clears, fun. I believe the technical term is "toys." Good toys are totally valid, as they promote creative experimentation and expression. (Studio owners who have engineers pleading for the Toy-of-the-Month, take note.)

Side note: Of course, if you are terrible at your job, these toys will only give you more potential for becoming

You, as the hero, are searching through a complex maze in a 16-bit color castle, learning as you go along: picking up "power pills" (money), "weapons" (studio gear) and "allies" (employees and contacts) along the way.

even more terrible and tasteless.

So here we are with all this new hardware (and software) that the money bought, and now we can be even *more* powerful, creative and... successful.

### Tron

It looks to me like those of us who are doing this for a living are in a giant video game.

Look at yourself. You originally began to play for fun—to experiment, to express yourself—but as time went on and you got better at it, you began to play for the sake of the game itself, and then for points.

It's one *long* game. You, as the hero, are searching through a complex maze in a 16-bit color castle, learning as you go along: picking up "power pills" (money), "weapons" (studio gear) and "allies" (employees and contacts) along the way, while acquiring the experi-

ence and skills needed to make it to the next level.

As you play along, you discover pitfalls, traps and secret enemies, and you learn how to deal with them.

### Trash

When you started out, you found yourself competing with other players, as you expected. Then you discovered that there were two totally different creatures on the screen: your kind and the Assholes (these enemies have appeared on all our screens at some time, and have been there ever since).

The Assholes are actually kind of interesting in that they share several common traits, but appear as many different creatures. For example, they are always incompetent, and they will always deliver an inferior product. But each one looks different until discovered. Some simply lie with promises of delivering the same quality for less, in order to steal your business, while some actually charge *more* and still deliver trash. Some appear as sleazy bottom-dollar houses right up front, while others deal in expensive snake oil and "magic." Well, you get the picture.

The absolute common thread that binds them all together and separates them from you and I is that they are in it *only* for the money. Today their scam is audio, tomorrow drugs or used cars.

### Truth

Every now and then, the game itself offs one of the major villains, and we all rejoice. This happened only a few months ago on the West Coast, where it seems like a major pro gear dealer took the money and ran. This hurt many customers and several equipment manufacturers, but at least they're finally gone. One more point for the good guys.

Since this is actually the real life that each of us has chosen, the points have become money and the stakes have become reality. For me (and I suspect most of you), it just makes the game that much more interesting, that much more intense, that much more fun.

It's a great game, because the individual players eventually learn how to win for themselves—and how to team up to destroy the enemies. ■

*Mr. St. Croix feels that the time has come to open up and admit that he was once deeply disturbed by something in italics when he was an impressionable child.*



# The Top 500



Play the D4 with its onboard trigger inputs.

Alesis drum machines are famous for their sounds. The HR-16's natural acoustic drums are still the standard for transparent rhythm tracks. The punchy aggressive samples of

the HR16:B redefine how to make rhythm tracks burn. The SR-16 is an instant hit with its sampled reverb and ambience techniques.

Now you can have all this and more with the new **Alesis D4 Drum Sound Module**. There's an incredible 500 sounds in all. Right at your fingertips.

The D4's sounds are unparalleled for their realism. For example, when you hit a D4 sound harder, the tone *and* pitch change just like a real drum, thanks to the D4's Enhanced Dynamic Articulation.™ Plus, stereo reverb and ambience are built into many of

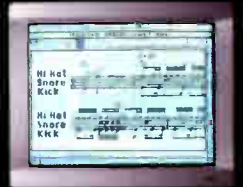
the samples so you can keep your mind on the beat.

Using the D4 is a breeze with its large data entry knob and dedicated buttons for all major functions. There's even a touch-sensitive preview button and headphone output for instant gratification... and latenight drumset programming.

The D4's 21 user definable drumsets are accessible via MIDI or through the 12 onboard audio trigger inputs.

You can even replace a wimpy drum sound on tape. Which you'll want to do if it didn't come from a D4. No rocket science here. Just pure honest incredible sound. The only reason to buy a drum sound module.

Everybody wants a hit. The D4 has 500 of them right now. At your Alesis dealer.



Play the D4 with MIDI software or hardware.

12 audio trigger-to-MIDI inputs are built in for drum triggers, pads, or tape.



## ALESIS THE TOP 500 DRUM SOUNDS

THIS WEEK	LAST WEEK	WKS ON CHART	TITLE ARTIST	DRUM PRODUCTION	THIS WEEK	LAST WEEK	WKS ON CHART	TITLE ARTIST
1	2	208	HONEST SNARE HR-16	ALL WOOD-BRASS RIM	302	NEW	▶	RAW HIDE BRAND NEW D4
2	NEW	▶	STUDIO TOM BRAND NEW D4	16" MAPLE TOM w/VERB	303	450	52	HI ROOM TOM HR-16
3	NEW	▶	BIG "O" BRAND NEW D4	DOUBLE HEAD KICK w/VERB	304	NEW	▶	WET HALF BRAND NEW D4
4	5	52	RIM SHOT ROOM SR-16	BRASS PICCOLO w/VERB	305	327	52	RIM 2 CENTER SR-16
5	10	156	BIG FOOT HR-16:B	SINGLE HEAD 26" MAPLE	306	123	208	DOUBLE HEAD
6	NEW	▶	SLAM BRAND NEW D4	POWER TOM w/VERB	307	223	151	ARTIC
7	23	156	COMBO SNARE HR-16:B	PICCOLO PLUS WOOD	308	401	5	DOUBLE HEAD KIO
8	NEW	▶	BIG BALLAD BRAND NEW D4	WOOD SNARE w/BIG VERB	309	NEW	▶	
9	NEW	▶	FAT CITY BRAND NEW D4	SUPER FAT SNARE	310	175	1	
			HALF OPEN HA	ARTICULATED HI HAT	311	NEW	▶	
					312	211		



**LOS ANGELES:**  
Alesis Corporation 3630 Holdrege Avenue  
Los Angeles, California 90016

**LONDON:**  
Alesis Corporation 17 Letchworth Point  
Letchworth, Hertfordshire SG6 1ND

by Ken C. Pohlmann

# NOISE SHAPING

## PART 2

Last month, we examined the theory of noise-shaping circuits, observing how re-quantization error can be shifted beyond the audio band with the appropriate DSP circuit. However, other factors need to be taken into consideration in the design of noise shapers, and a useful low-bit converter requires still other circuit elements.

As we observed, the frequency response of noise can be tailored by placing a digital filter in the feedback loop. There is great flexibility in

regular 1010 pattern. A very low-level input may result in a similar pattern, disturbed by double ones and zeros. If the period of the repetition of such patterns is long enough, they may be audible as a tone, rather than noise. Because they occur when the channel is idling, these non-linear patterns are called idling patterns and result in idle channel noise.

The double codes, will be generated or not, depending on the input signal; the phenomenon is especially characteristic of low-am-

the theoretical design of the filter; for example, its parameters could be dynamically adapted so that the error noise is always optimally masked by the audio signal. It is important to note that such a configuration alters the frequency response of the error signal, but not that of the audio signal; the configuration has the effect of passing the noise through the filter, not the signal.

The low-level linearity of low-order, noise-shaping circuits can be degraded by idle patterns. Given a zero input signal, a noise shaper may output a

plitude, high-frequency sine waves. Because the phenomenon has a frequency-dependent threshold level below which the signal is not coded, the effect is sometimes called thresholding.

First-order noise shapers exhibit these effects because of their stable 1010 patterns. Higher-order noise shapers are much less prone to the problem because their output patterns are less stable. However, in many multistage designs, the effect can occur in each of the cascaded low-order stages. Thus, it is important to add a

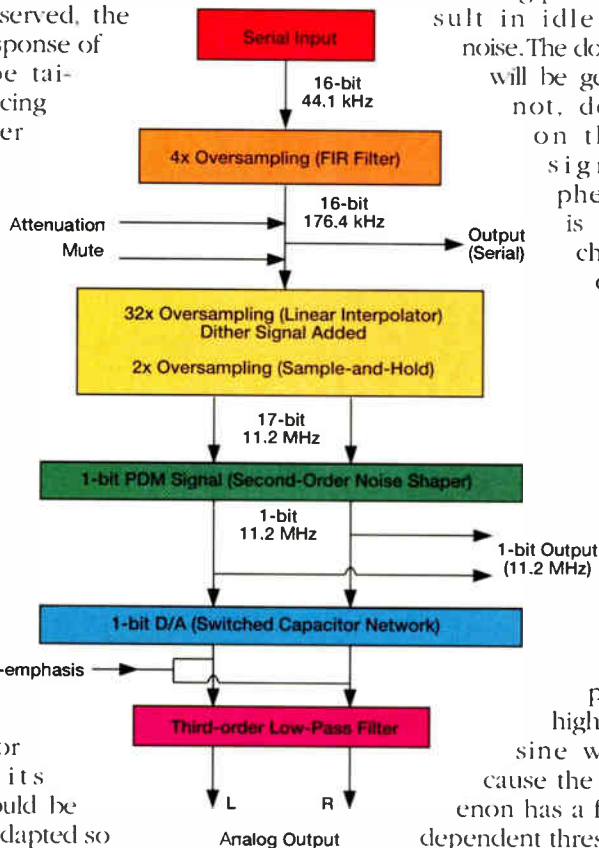
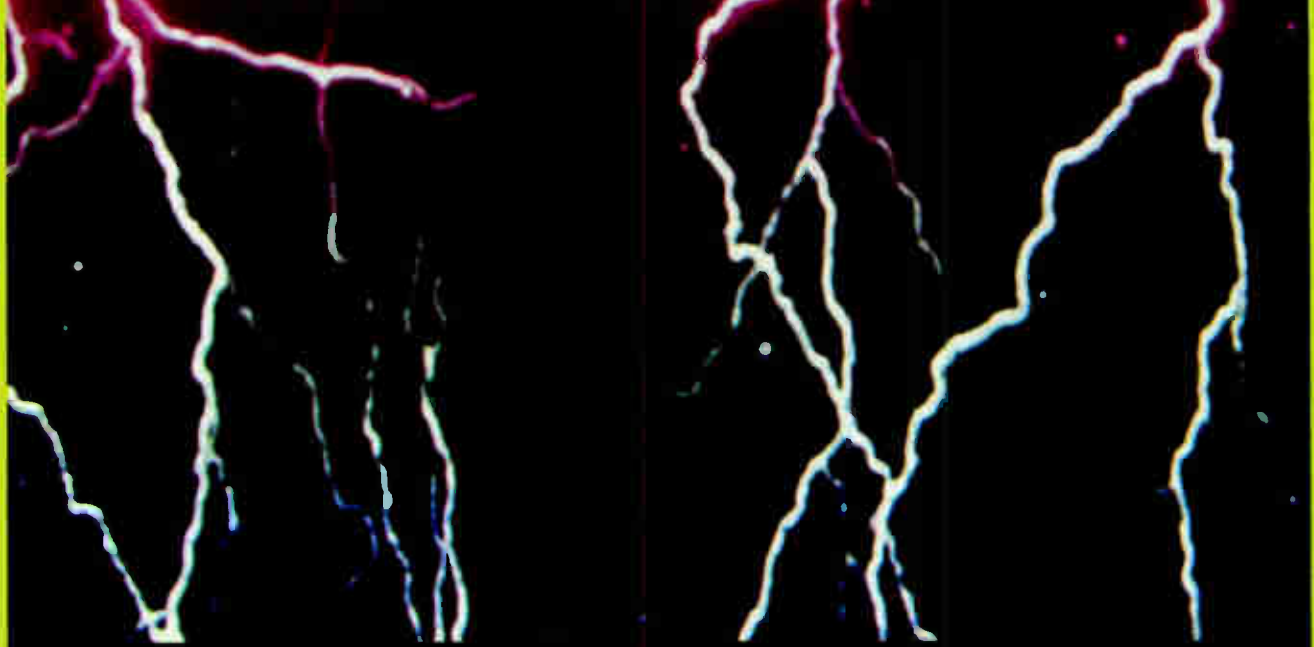


Figure 1: A complete bitstream converter.

# ELECTRIFY YOUR MUSIC



DIGITAL MULTI-EFFECTOR / PITCH TRANSPOSER - SAMPLER

033

EDIT MODE RECALL STORE BITILITY REC. PLAY DISPLAY

Based on A.R.T.'s revolutionary new VLSI, the Multiverb Alpha is a whole new beginning in digital effects processing.

- 6 simultaneous effects
- 20 kHz bandwidth
- New A.S.I.C. 24 bit integration
- Over 50 effects to choose from
- Better than 90dB S/N ratio
- 200 memory locations
- Multifunction rotary encoder
- Studio sampler - auto, manual and midi triggering
- Over 2 octaves of pitch transposing
- Fully programmable mix, level and parameters
- Stereo inputs and outputs

- DC 9V power output jack for powering foot pedals
- 24 types of reverb
- Over 20 types of delay
- Gated and reverse reverbs
- Programmable equalizer
- Leslies and multi-tap delays
- Stereo chorus and flanging

- Stereo panning and imaging and more!
- Exclusive Midi Data Monitor — see the Midi data stream

The Multiverb Alpha offers a level of sound quality that is stunning. The increased power of the new 24 bit A.S.I.C. system allows for incredible amounts of processing resolution. Reverbs sparkle, chorusing is lush, dense and full.

The X-15 Ultrafoot offers realtime control of all midi products but with the Alpha you may do incredible dive bomb pitch changes, sweep solos side to side in realtime and bend notes with your feet! Control up to eight effects at one time. The creative power is electric!



# ART

THE SOUND OF PERFECTION

APPLIED RESEARCH & TECHNOLOGY, INC., 215 Tremont Street, Rochester, NY 14608, (716) 436-2720, Telex: 4949793 ARTROC, FAX (716) 436-3942

World Radio History



# Studio 5

The Intelligent MIDI  
Interface/Processor/Synchronizer/Patchbay



- ▶ Intelligent Macintosh MIDI Interface/Processor/Synchronizer/Patchbay
- ▶ Supports 240 MIDI channels
- ▶ Built-in 16 MHz 68000 microprocessor and 64K RAM for speedy processing
- ▶ 128 Patches and unlimited virtual instruments and controllers
- ▶ 15 independent MIDI INs and OUTs
- ▶ Digital patch number display with program change buttons
- ▶ Audio input creates MIDI trigger
- ▶ Separate Audio IN, SMPTE IN, and SMPTE OUT
- ▶ Two footswitch inputs and one continuous controller input
- ▶ Reads all formats of SMPTE and converts to MIDI Time Code or "direct time lock"
- ▶ Writes all formats of SMPTE including 29.97 non-drop
- ▶ Two thru switches for using peripherals without changing cables
- ▶ Internal power supply and detachable power cord
- ▶ OMS Software included for studio integration with Opcode Software such as Vision and Galaxy



**O P C O D E**  
S Y S T E M S I N C

641 HAVEN DRIVE, SUITE A • MENLO PARK, CA 94025 USA • 415-369-8131 FAX 415-369-1747

dither signal in the first stage to disturb any fixed patterns.

In a traditional noise-shaper design, the poles of the loop filter are at 0 Hz, as in an ideal integrator; this design results in zeros in the audio band. In some noise-shaper designs, a technique called zero shifting is used to modify the rising noise spectrum by shifting one or more zeros to the edge of the audio band (e.g., 18 kHz). For example, when two zeros are shifted in a third-order noise filter, noise in the range from 13 to 20 kHz may be reduced, but increased below 13 kHz. Overall, the noise measurement is enhanced. But, suppression of idle patterns can be reduced, thus the zero-shifting technique must be used with care.

Noise shaping is advantageous because a simple shaper can remove quantization noise from the audio band. Higher-order, noise-shaping algorithms can remove even more noise overall, but relatively more noise is present near the Nyquist frequency. Hence, these algorithms are more effective at high oversampling rates because there is more spectral space between the highest audio frequency and the Nyquist frequency.

Another important objective of noise shaping is reduction in the number of bits required to represent the signal. Oversampling, noise-shaping converters use a low-bit quantizer to code the signal over a few quantization levels; this avoids the degradation of differential and absolute non-linearity that amplitude coding is susceptible to. Noise shaping is prerequisite in any low-bit system. To convert a maximum-amplitude, 16-bit word, a 1-bit system would have to perform 216 toggles per conversion period; with a sampling rate of 44.1 kHz, this would demand a toggle rate of approximately 2.9 GHz. This is too fast for current technology. As the rate is slowed to accommodate hardware limitations, 16-bit performance is lost and noise levels increase to an intolerable level. Hence, noise shaping is necessary in a low-bit coder. Looked at in another way, bit reduction is required to output a low-bit signal from a 16-bit source. However, this greatly degrades the signal's dynamic range. Noise shaping uses the error generated in the bit-reduction process, returning it back to the input through negative feedback to

reduce noise in the audible spectrum and improve dynamic range.

Bitstream D/A conversion, devised by Philips, is a true 1-bit technique. In its second-order implementation, the sampling rate is increased from 44.1 kHz to 11.2896 MHz—an increase of 256 times. At the same time, the 16-bit signal is converted to a 1-bit signal. It is this fast, 1-bit output that reproduces the audio waveform. The re-quantization error of the output signal is corrected by noise shaping. The output section requires only an on and off state. All ones would be a full positive signal, all zeros would be a full negative signal, evenly alternating ones and zeros would be a zero level signal, and other variations would create intermediate levels. Specifically, the method uses pulse density modulation.

Fig. 1 shows a complete bitstream D/A converter. The first of the three oversampling stages performs four-times oversampling to attenuate image spectra; in addition, first-order noise shaping is performed in the filter. The second stage performs 32-times oversampling. A dither signal (-20 dB at 352 kHz) is added to prevent idle patterns from causing non-linearity. Two-times oversampling is performed in the third stage. This 17-bit signal (dither adds one bit to the original 16-bit signal) undergoes second-order noise shaping as described above, and a single bit is output from the quantizer. Finally, D/A conversion is accomplished at a 1-bit D/A converter via pulse density modulation, outputting 1-bit data at 256-times oversampling. A third-order analog lowpass filter removes out-of-band, high-frequency components.

The first of the three oversampling stages uses a non-recursive FIR interpolation filter. First-order noise shaping is performed in the accumulator of the multiplier. The signal is down-scaled to prevent clipping during any signal overshooting. The gain of the filter is selected to compensate for the effects of other stages in the conversion path. In particular, a high-frequency rise is used to compensate for the aperture error (-3 dB at 60 kHz) present in the output analog filter. Thirty-two times oversampling is performed in the second-stage filter through linear interpolation. In the third stage, two-times oversampling is performed through a sample and hold operation.

Noise-shaping coding can be used

in conjunction with oversampling to reduce word length. In the case of the second-order implementation of bitstream, the quantization noise introduced by the word length reduction is spectrally shaped by a lowpass feedback loop around the quantizer. Signals are processed in two's complement format; the 1-bit code from the quantizer is the output sign bit. The remainder of each sample is fed back as a quantization error, after a limiting operation designed to prevent overflow. A 21-bit data bus is used within the loop. Second-order noise shaping is performed by adding double the error and the negative value of the error to the previous two samples.

Two values ( $\pm 1$ ) are output at 11.2896 MHz. This pulse density modulation signal is converted into an analog signal using a switched dual-capacitor network. Two control signals representing the datastream's logic 0 and logic 1 values control the switching of the capacitors, subject to a clock pulse. During the negative half of the clock, the first capacitor discharges while the second capacitor charges. During the positive half, if the data is a logic 1, the first capacitor is charged by taking a fixed amount of charge from the summing node of an op amp. If the data is logic 0, a fixed charge is transferred into the summing node from the second capacitor. In this way, there are only + and - full-scale reference points, and intermediate points are determined by time averaging. There is no MSB change around zero, because zero is represented by an equal number of positive and negative full-scale pulses. Zero-cross distortion is thus eliminated. A stereo bitstream converter can be contained on one chip.

Thanks to noise shaping, low-bit converters are making steady inroads against traditional multibit converters, particularly in the consumer market. In time, it is entirely possible that all digital audio devices will use low-bit architectures. In future "Insider" columns, we'll examine the workings of low-bit A/D converters.

*[This material is adapted from Advanced Digital Audio, a new book edited and co-authored by Ken Pohlmann.]* ■

*Ken Pohlmann is a professor of music and director of Music Engineering at the University of Miami.*

by Mel Lambert

# SOFTWARE DEVELOPMENT

## FROM CONCEPT TO REALITY

A

s routine tasks in recording and production facilities become the province of workstations and computer-controlled hardware, our industry finds itself increasingly involved in the development and evolution of functional software. Studios, in turn, are becoming highly dependent on the programming talents of a rare handful of people who can turn a concept into reality.

Drake Philbrook, president of Sprocket Development International, has been involved with the genesis of several software applications, including the new 360 Systems DigiCart disk recorder; Studer Editech's MacMix editor and EQ user interface for the Dyaxis workstation; Mac- and IBM-compatible Software Developer's Tool Kits for the Panasonic SV-3900 serial-capable DAT machine; and a Programmer's ToolKit for TimeLine's System Supervisor time code synchronizer and machine-control system. He also has extensive experience in recording and post-production mixing, having worked as director of operations at Music Animals, a leading Hollywood audio-for-video film post house.

"Each of these firms defined its software project in a different way," Philbrook recalls. "My work with Studer Editech involved a detailed specification stage, during which each screen display was designed, and the function of each button and user feature was closely defined, on paper. From that tight spec, I would develop the necessary control software to implement the various functions.

"For smaller companies, I might be more actively involved in defining the program's functionality," he adds. "During development of 360 Systems' DigiCart system, for example, I was able to draw on my years of studio ex-

perience to define a number of the necessary control and user-interface features. In cases like that, I would also need to work closely with the hardware designer, so that the functions I had been specifying in the controller software could be implemented by the microprocessor and support chips."

This initial Development Stage allows the target product to be closely defined and refined over a period of time, until it reaches Alpha Stage, or the first reliable software release. "At that point," Philbrook says, "I will have developed most of the primary functions and can produce a release that allows them to be evaluated by in-house staff. This Alpha Stage might last for up to eight weeks, depending on the project. During that time, we'd look for first-level bugs and anomalies, and make sure that all of the features are consistent and reliable. We may already have identified some obvious bugs in the software, but these might be left unfixed until we have more feedback from the alpha test sites."

Next comes the Beta Stage, during which the program is sent to outside test sites. "I normally look for a small number of beta sites," Philbrook says, "mainly because I need reasonably quick responses. Because of the logistics involved, it's much easier to work with no more than about six beta sites—a couple each from the recording, broadcast and post-production industries. During this Beta Stage, which could last up to six weeks, I might offer as many as three revised versions of the application: the Initial Release, followed by an Interim Release that fixes some of the bugs uncovered during the first test sequences, followed—if we have more updates—by a Third Release.



"I would expect each beta site to prepare a fully annotated report of what they encountered while using the Beta Release software, from that information I can continue to refine and extend the program. The Final Release incorporates fixes for the various bugs discovered by the beta sites, but continues to evolve as users work with the product. During its useful lifetime, we continue to gather feedback from the marketplace and offer fixes and updates when they become necessary."

Evan Brooks is a co-founder and current VP of engineering at Digidesign, where he is responsible for a team of seven software writers and 14 hardware engineers. During the past several months, Brooks and his team have been hard at work on a major upgrade to the firm's Sound Tools random-access editing and processing software, in addition to other projects currently under wraps.

"The development process is highly interactive," Brooks concedes, "as the hardware designs and software functions evolve mutually from one another. We use the Macintosh as the master platform, writing code in a mixture of MPW C, C++, Object Pascal

and 68000 Assembler; signal-processing functions will be written in [Motorola] 56000 code for the hardware DSP cards.

"Our alpha/beta sites will be both inside and outside the company—for Pro Tools we used up to two dozen people," he continues. "We make no real distinction between alpha and beta stages—which for Pro Tools lasted four months—it's just a measure of the project's completeness. Because we are continually refining the software, we prefer to work continuously toward the final release, while identifying and eliminating as many bugs as possible.

"There will *always* be a finite number of bugs in any complex program," Brooks adds. "All users need to accept the fact that software will have bugs in it; we are committed to fixing them on a continuing basis. Our policy is to first, ship product that will work reliably; and, second, fix any problems on a timely basis in response to user feedback."

Dane Butcher, president of Symetrix and project leader for the DPR44 Recording and Editing Station, says that the development of a sophisticated

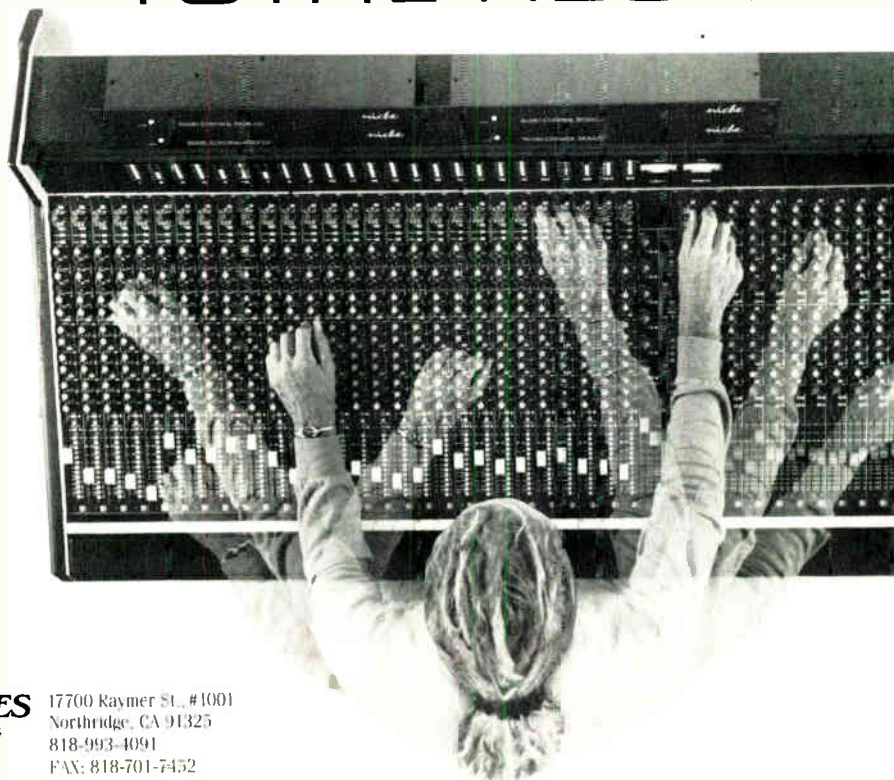
hardware/software system can require a great deal of patient planning. "The DPR44 hardware has been up and running for a while now, and is extremely stable. Meanwhile, our two main software designers, Edmund Pirali and [Mix columnist] Stephen St. Croix, have been finalizing the user interface and system functions. We're now ready for the first Alpha Stage, during which a pre-production system will be installed at three sites: a local studio here in Seattle, to allow us to sit in on the first practical sessions; a second facility on the West Coast; and a third, East Coast location.

"That will take us through the early part of 1992," Butcher adds, "at which stage the system will have matured and will include any additional functions that might be identified by the alpha sites. We consider Alpha to be a 'contingency' stage during which we need to fix any outstanding bugs. In this highly competitive industry, we cannot come to market too early with a revolutionary new product!

"Good beta sites are harder to come by," he continues, "mainly because nobody ever has the time to test new systems. We hope to identify as many

## TOTAL RECALL

Don't let the good looks fool you, the Niche Audio Control Module (ACM) is a versatile device designed to maintain the absolute clarity of your audio signal, using an innovative non-VCA technology to eliminate coloration. The ACM can be controlled by any sequencer giving you the power of Total Recall of all your dynamic and snapshot levels and mutes. Eight individual inputs/outputs and stereo mix out for **\$479** retail. Check it out at your local dealer and start mixing with eight arms.



*niche* / THE  
RUSS JONES  
MARKETING  
GROUP

17700 Raymer St., #1001  
Northridge, CA 91325  
818-993-4091  
FAX: 818-701-7452

as three beta locations, one of which will probably be one of our planned alpha users. Each beta site will have the system for two to three weeks, during which time we will continue to gather feedback for Edmund Pirali and [hardware architect] Bruce Hemingway. By spring 1992 we should be out of Beta, and we plan to begin initial shipments by the second quarter—in time for next year's NAB Convention."

Workstation manufacturers need to maintain close links with current and future users of their products, both to enhance current releases and provide

feedback for new versions. For example, Sonic Solutions recently issued beta versions of its new Sound-for-Picture system to a pair of post-production facilities. At New York's Videomix, which specializes in sound effects design, production engineer Philippe Guichard has been evaluating Sonic System's new time code synchronization and machine-control software since May.

"We now have full time code sync, A/B Editing and EDL support on our 8-track system," Guichard explains. "We handle a lot of audio editing for picture at Videomix, including sound effects design for shows such as the

PBS *Nature* series.

"Initially, we had several problems with reading and converting time code into the system—particularly at a 48kHz sampling frequency—but we soon got that fixed. We've received at least ten new versions of the software, from V1.1 Alpha to the current [late September] V1.2 EK Beta.

"We are in regular touch with the Sonic people," he continues. "In fact, I'm talking with them a couple of times a day with bug reports and ideas for product improvements. For example, I would like to be able to nudge an audio segment backward or forward a single video frame at a time, to resync sound to picture. At present, you have to enter a new 'In' time for each sound element, and then audition it at the new location. It would be very useful to simply slip the cue a couple of frames and audition the results quickly. Sonic says that it will implement that function, which will be great.

"In terms of hardware," he says, "we've received three upgrades for Sonic's new Universal Clock Interface, which allows us to read, write and lockup to any time code rate." In October, Videomix expected to receive a redesigned processing card for the Macintosh controller, which takes up less space in the host processor and reduces overheating problems.

"We will continue to put the Sound-for-Picture software through its paces for several more months," Guichard says. "A final version, which will include full compatibility with CMX-format EDLs, effects looping and other functions, isn't expected before the end of the year. It's been very useful for us to be closely involved with the development of such a complex product. I'm sure that Sonic Solutions has benefited from our hands-on experience with the new software in a day-to-day functional environment."

The number of potential problems increases geometrically with the complexity of a software application. But with sensibly planned Alpha and Beta evaluation processes, users can be reasonably assured that the final release will function as advertised. ■

*Drawing on over 16 years of active experience with all dimensions of professional audio on both sides of the Atlantic, Mel Lambert now heads up Media&Marketing, a high-tech consulting and marketing service for pro audio firms and facilities.*

**SMALL PRICE    BIG PERFORMANCE**

## The Affordable Digital Multi-Track

**High Powered**  
Big studios with big budgets have been recording and editing on completely digital systems for years. Their engineers have experienced the high quality of 16-Bit Digital Sampling, the high performance of Direct Hard Disk Multi-Track recording with its incredible convenience of random access to sounds, Graphical Sound Editing, Real-Time Digital Signal Processing and Digital Mixing.

**Low Priced**  
Now SPECTRAL lays out the red carpet to YOU. Not only do SPECTRAL's digital audio systems offer all the big system features, but they are expandable and configurable, so your SPECTRAL system can grow as your needs grow. If your budget is small, you can start small, with one of our 4 or 8 track Digital Studio systems for your AT compatible computer then add system components as your business grows. Or, you can get a completely pre-configured AudioEngine, like the 16 track system shown at the right, for a fraction of what you would expect to pay.

Until now you had to choose between digital audio systems that were underpowered... and those that were overpriced. With SPECTRAL, you get the performance you need, at a price you can afford.



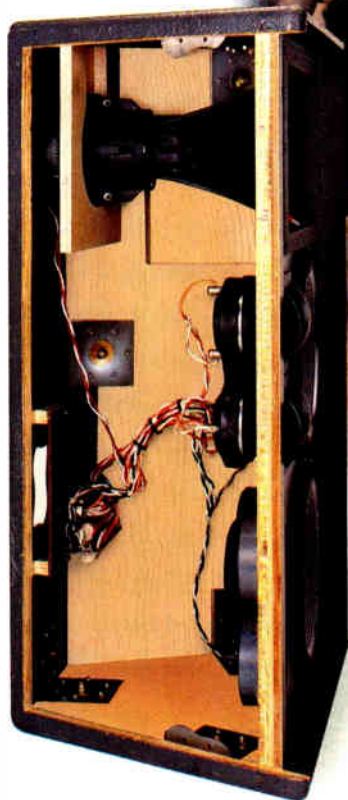
**SPECTRAL    MASTERING THE DIGITAL DOMAIN**

SYNTHESIS

18568 142nd Ave NE - Woodinville, WA 98072 (206)487-2931 FAX (206)487-3431



# It Takes Real Guts To Face A Crowd Like This.



## Concert Series

They want it all. They expect it. They deserve it. And, frankly, you wouldn't have made it this far if you had delivered anything but your absolute best. Night after night, show after show.

At JBL we share your dedication



and desire to take your music to the top. That's precisely why we invested the time and energy we did into the development of Concert Series loudspeaker systems. Just as every note and word must work together in perfect harmony, every

component in a professional sound system must integrate and function perfectly with each other.

Concert Series has the "guts" to face the most demanding audiences. This fact is underscored by the major tours and concert venues that have selected Concert

Series. From reggae and rock to solo and symphonic performances, Concert Series is helping artists the world over to give their fans the calibre of performance they demand and deserve, night after night, show after show.

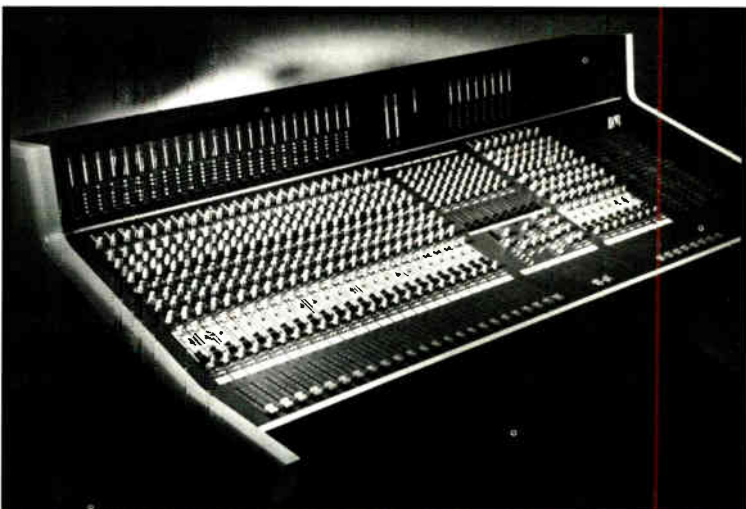
We encourage you to audition Concert Series. Do it for your fans. Do it for yourself. Visit your JBL Professional dealer and discover for yourself why Concert Series is hanging around with some of the biggest names in the music business.



JBL Professional  
8500 Balboa Boulevard, Northridge, CA 91329  
A Harman International Company



**Avalon** (starting in the \$60's)



**Marilon** (starting in the \$30's)



**Triton** (starting in the \$20's)

# D&R

## MIXING CONSOLES

D&R recording and mixing consoles offer features, functions, specs, and sound quality for less cost to you than any other console manufacturer in the world. Whether you've been looking at SSL, Tascam, or anything in-between, we guarantee more "bang for the buck" and still deliver quieter and better sounding consoles.

Call our customer support department at (409) 588-3411 for a free color brochure and "factory direct" quote today!

### D&R. Every sound under control!

D&R USA • Rt. 3 Box 184-A • Montgomery, TX 77356 • Phone: (409) 588-3411  
D&R Electronica b.v. • Rijnkade 15B • 1382GS Weesp • The Netherlands • Ph. (-) 31 2940 18014

World Radio History



a short period.

"Then I started learning about being an assistant engineer," he remembers, "but I found out fairly quickly I wasn't interested. I didn't enjoy being in a room with seven or ten musicians, all of them yelling to make their instrument louder. All their concentration was on individual items, and what interested me was the big picture. That's one reason mastering appealed to me—it deals with the big picture."

He stayed in shipping until a position opened up in the mastering department. By the middle of 1972 he was eagerly learning at the side of one of the best of that era, Domenic Romeo, who had mastered records by such giants as the Stones, the Moody Blues and George Harrison. In an effort to broaden his knowledge of the field, Gastwirt moved over to a then-fledgling operation called Masterdisk and worked under Bob Ludwig. Between Romeo and Ludwig, Gastwirt received quite an education.

"Romeo was a complete feel guy, and Ludwig was a complete technical guy," Gastwirt says. "I don't think Romeo would think about the signal chain. He would simply put on a

record, take his equalizer and add some bass to it if he thought it needed bass, and add some highs if it needed highs. Bob's the one who taught me that different EQs and different compressors will give you different sounds, so it's not just a matter of equalizing something—it's a matter of picking the right pieces of equipment for that type of music."

An avowed fan of the late '60s/early '70s California bands—especially the Grateful Dead—Gastwirt left Masterdisk and moved to San Francisco ("right down the street from Wally Heider's"), where he got a job as a carpenter at the Record Plant in Sausalito. "It was a step down from what I'd been doing in New York, but I did help build a live acoustic echo chamber, and I learned a lot of things that helped me later on. I've even referred back to my original notes on that project." The Bay Area proved to be too small a pond for the admittedly ambitious Gastwirt, so he next headed down to L.A.'s Kendun Recorders, where he was one of five mastering engineers on staff. From there he did a stint at Artisan Sound and then moved back to New York to work for CBS. "But I hated working for a big record com-

pany," he says.

Today, as one of the principals (Cal Roberts is the other) in the very successful OceanView Digital Mastering, Gastwirt is essentially his own boss, and he has the best equipment available at his disposal: a customized Neumann console, Ampex and Sony tape machines, a Sonic Solutions system (including NoNoise), and much more. In one of those rare twists of fate, he's managed to build his recent career on the strength of remastering projects for many of the California bands he's loved since his teens.

He admits that meeting and working with the Dead's Jerry Garcia has been "the biggest thrill of my life." The two met at Bruce Botnick's Digital Magnetics studio when Garcia was working on a video several years ago. "We started talking, and it turned out a 14-hour conversation," Gastwirt says with a laugh. "Not long after that we mastered *In the Dark* [the Dead's '87 hit] together, and right after that he instructed Warner Bros. to send me the Dead's whole catalog and do the mastering on that. At that point, there were CDs of the Dead's Arista albums out, but they sounded God-awful. I found

## IF YOU'RE THINKING OF BUYING AN 8-TRACK, MAYBE YOU SHOULD THINK TWICE.

Think 16 tracks. Think MSR-16. Because for around \$7500\* you get a full 16 tracks for just a little more than your average 8-track. Which doubles your capabilities. All in a cost effective 1/2-inch format.

What's more, the MSR-16 is loaded with features usually found on units selling for twice the price.

Like a rehearse mode that allows

you to listen to an insert without committing it to tape.

When it's right, you record it.

Plus, our exclusive circuitry assures gapless, punch-in/out, and spot erase capabilities.

The MSR-16 is now playing at your local Tascam dealer. So grab your checkbook, and head on down. It's a deal you won't have to think twice about.



# TASCAM®

© 1989 TEAC America Inc., 7733 Telegraph Road, Montebello, CA 90640, 213/726-0303. \*Manufacturers suggested retail price.



out that they'd been made from second- and third-generation EQ copies. So then García got involved, and he asked me to master all of the Arista catalog as well." Gastwirt has been the Dead's semi-official mastering engineer ever since, working on both new projects and the band's new historic reissue line.

"Most of the Dead albums and Hendrix albums I've done [such as *Electric Ladyland*] were well-recorded, but there was a lot of really bad stuff going on in recording in the '60s. If you listen to some of those records that Rudy Van Gelder did in the '50s, and then you listen to a lot of things from the late '60s and early '70s, you say, 'What happened?' It's like everything went backward. Part of it was the accumulation of extra tracks and bad transistors and a multitude of things that affected the technology as it was expanding. Transistors in the '70s typically sounded hard, strident. And when you multiply that by 16 and 24 tracks, it just got worse and worse."

Gastwirt says that because he is so often a big fan of the music he works on, it helps him in his work. "When we get a job like the Yes box or the Crosby,

Stills & Nash box, there's more to it to me than just making it sound good. I have this thing where I want to make it sound better than anybody's ever heard it before, because I love this music, and it's important to me. I think we accomplished that on the CSN box, and part of it is that we wouldn't accept any EQ copies or safeties from Atlantic. We had a studio full of 900 tapes before we even started the project. In certain cases, we took the individual tracks, unmixed, loaded them onto the Sonic System, did a little de-noising, and then synched them back up and mixed them afterward. The results were unbelievable. I got to sit down with Stephen [Stills] and Graham [Nash] and listen to a lot of takes of songs and help them decide which takes sounded better and felt better musically. That's the best way for me to work, and I think the results are amazing. If you like CSN, you're going to love this box."

Gastwirt believes in using the Sonic System in moderation. It's been particularly helpful on the older recordings he's remastered for Smithsonian/Folkways, though he notes, "My greatest challenge in dealing with all the pops and clicks you find on '30s and '40s

recordings is not taking out so much, so that the music is no longer listenable. I think my job is restoring what the original intent of the music was to a great extent.

"I'm a purist in some ways, but at the same time everything has its place. NoNoise is a device that's like a hammer—if you use it too hard, you're going to hurt the music. If you can be gentle and use it as a tool only in proper situations, that's not really changing history, so to speak. It's just removing a little hiss."

At this point, about 70% of Gastwirt's time is spent working on remastering, and that suits him just fine. "If there was music coming out right now that was as exciting as the '60s and '70s, I'd be fighting to get every mastering job I could," he says. "But I think it's so important that somebody who really cares about and loves this music is restoring it for the world—and for history."

#### LARRY WALSH Capitol Recording Studios

The year is 1982. Larry Walsh hears through the grapevine that Record Plant studios in Sausalito needs a



maintenance engineer. "I thought, 'This is great. I can do this,'" he remembers. "After all, I'd been an apartment manager!" When he arrived at the studio, he was informed that this was a very different kind of "maintenance," but he hired on as a janitor anyway, and he was up and running in a recording business career. (Doesn't it make you want to toss that recording school degree in the dumpster? Don't. Times have changed.) It's not like he was ignorant of technical matters. He was a serious, lifelong tech-head who'd worked as a live sound engineer since he was 15, but he burned out on road

work.

Soon, producer Ron Nevison got him a job working for Chris Stone at the L.A. Record Plant, "as a slave for minimum wage," he says. "That was kind of rough. I ate spaghetti for about three months—God, it was horrible." Still, Walsh picked up knowledge in his capacity as "slave," and it wasn't too long before Stone put Walsh onto a new project: He sat in a warehouse in Compton for three months watching videotapes sent over by Sony Japan explaining their latest venture, the 3324 and 1610 digital multitracks. Then, when Stone started renting out ma-

chines, Walsh would install them and get the operators up and running—and do maintenance calls. Soon Capitol Records was knocking on his door asking him to supervise their leap into digital mastering.

"Capitol was one of the last labels to get into [remastering for CD]. They had no equipment, no procedures, no idea how to do it. Digital Magnetics was doing a lot of people's stuff back then. So I came in [to Capitol] and set up everything—how we master them and track them and set up standards." Today, Capitol's mastering operation is equipped with Sony digital, Neve and Studer consoles, Sonic Solutions and Sony editing systems, Sony, Studer and Mitsubishi tape machines, custom JBL monitors, and a wide assortment of top signal processing gear.

"The labels are funny," Walsh says. "They're like these big dinosaurs, always tripping over their tails. Capitol knew they had all this stuff [in the vaults], but they were only interested in front-line, current stuff at first. Then all the collectors started going crazy—'Why aren't you issuing all these great things on CD?' So, Capitol's chairman, in his wisdom, said, 'Okay, we need 50 titles by January 1.' And this was in October. So I did the 50, and they were shit, because I had no time to work on them. They were bogus, but they put them out anyway.

"I was new to remastering, so I didn't even know that you wanted to work from the masters," he explains. "So, for example, the first Band album [*Music from Big Pink*] was from something like a third-generation Dolby A tape copy. Capitol got slammed for it, of course, but luckily my name didn't go on anything back then. Capitol wasn't the only one who did that sort of thing in the beginning, either. Things have changed a lot since then."

In fact, Capitol rectified its early errors and has gone on to develop a serious reissue program. Walsh was at the helm for one of the label's most ambitious boxes: a 75-song Sinatra retrospective (*The Capitol Years*) that was released earlier this year to commemorate the singer's 75th birthday. He's also worked on a number of individual reissues of '50s and early '60s albums by Sinatra, Dean Martin, Judy Garland and other singers who dominated the Capitol roster in the pre-Beatles era.

As usual, tracking down the right

—CONTINUED ON PAGE 169

**...n dr...**  
NORTHEASTERN DIGITAL RECORDING, INC.

**Blending music and technology in a creative setting...**

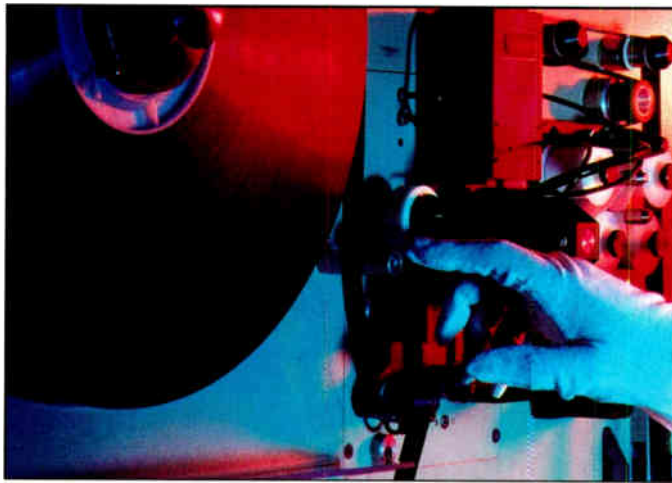
**508. 481. 9322**

- David Bowie
- Arlo Guthrie
- Frank Zappa
- Richie Havens
- Nils Lofgren
- Paul Winter
- The Residents
- Devo
- Paul Horn
- Kingston Trio
- Rykodisc
- Rounder
- Folkways
- Omega
- Biograph
- Vanguard Classics
- Musical Heritage Society
- Newport Classic
- New World
- New Albion
- CRI
- Centaur
- Northeastern Records
- Neuma
- Titanic
- NFL Films
- Polaroid
- Lotus

*Quality CD Premastering and Digital Sound Production*

2 Hidden Meadow Lane  
Southborough, MA 01772  
Fax 508. 624. 6437

*We work for you...*



*...with service*

**Service.** When you have a problem...when you have a question...  
when you have a need. BASF is there for you.

At BASF, our technical staff knows your needs. Our customer  
service team reacts with you in mind.

Our distribution network delivers the products you need...  
when you need them...

where you need them.

You contact the right people at BASF.

People who *work* for you.

Headquarters: 800-225-3326 • Customer Service: 800-225-4350

Customer Service Fax: 800-446-BASF

*We work for you*



**BASF**



# The Legend and The Legacy

The Making of the

# LES PAUL

CD Box Set



One of 1991's most "handle-with-care" projects has to

be Capitol Records' massive boxed set honoring the Grand Daddy of multi-track recording, the Godfather of the electric guitar and the Proud Papa of a stellar stream of hits that topped the pop charts between 1948 and 1958—Les Paul.

Capitol not only had the luxury of access to Les and his personal archives in creating the set—including his original master tapes—but also employed a top-notch production team (reissue specialist Ron Furmanek and Capitol recording engineer Bob Norberg) that was absolutely dedicated to making this a benchmark set. Both were avid Les Paul fans before the project, and the results testify to their care and dedication.

"Everyone owes something to Les in terms of influence," says Furmanek. "This set is a major event."

It certainly is. Entitled *Les Paul. The Legend and The Legacy*, the set spans four discs and more than five hours of music. It includes several complete shows from the long-unheard "Les Paul & Mary Ford At Home" radio series, originally broadcast in the late '40s and early '50s. Rare B-sides, all of the es-

by Mark Smotroff



sential singles, and one entire disc of unreleased material round out the collection, a hit-by-hit documentation of the roots of multitrack recording and pop electric guitar performance.

From day one, quality has been paramount to Les Paul and his music. Even back in the '40s and '50s, Les recalls that his attention to high-fidelity unsettled many accustomed to less than the best. "It's just one of my things," Les says. "Good quality is terribly important to a hit record. I don't know how many people have stopped me to ask if it is really that important, when it's what's in the grooves that sells."

Les was clearly on the right track. Not only did his recording techniques forever change the way music is made, but today—40 years after they were recorded—they still sound amazingly



**Les Paul and his Grammy Trustees award, presented at the 25th anniversary show in 1983.**

clean despite their age and the wide-ranging conditions under which they were made.

Fortunately, most of the masters still exist. "I like to go back to the original master tapes," says Furmanek. And according to Norberg, every effort was made to locate the best possible tape, as close to the master as possible.

"One of the main criteria with the Capitol Collectors Series is quality," says Norberg. "My goal is to try to get everything we do to sound like it was recorded yesterday. I spent about six weeks working on the set.

"Les sent us new tapes on several tunes," Norberg continues. "We went

back to the original, lacquer 78 rpm discs on three tunes—"Cryin'," "Dry My Tears" and "What Is This Thing Called Love" were mastered direct from the discs." Norberg adds that in several cases, the discs had deteriorated to the point where the 30-ips tape master dubs, originally made in the '50s, sounded better.

Fortunately, Les had the foresight to take every step he could to preserve his master recordings. "We saved our tapes at 30 ips," he says. "The others out there were at 15 ips, so we beat the rap by thinking ahead."

Norberg admits that the majority of Les' recordings were so clean that the Sonic Solutions Sonic System was only essential for those instances where there were ticks and pops, particularly on the disc transfers—and even then, the discs sounded good.

"I have more trouble with tapes from artists in the '70s, with bad Dolby and bad oxide," adds Furmanek.

Les explains how he took sound-quality factors into account even in the original mastering process: "When we mastered from disc, we played it backward. So instead of the attack followed by a clipped decay, it built up. This way it was ready for the shock that was about to happen. I recorded on 17-inch discs recording at 78 rpm, using a 33-1/3 curve, so I could afford to widen the grooves and get much more level on record. I was cutting 80 lines per inch while others cut 230: I was cuttin' cor-duroy pants and doing it backward!"

Tape hiss, however, was a problem, and Norberg has his own process to remove it. "Most of these tracks (on the CD) come from the era when Les was recording sound on sound," he explains. "The hiss goes up 3 dB with every generation. Les did a lot of high-speed stuff, and for that reason it tends to mask the noise. Now, I'm a big fan of Les Paul, and when I used to hear his recordings, I never noticed any hiss. However, when I got into this with a critical ear, trying to make it as good as I could, there was more than I thought.

"I have a dbx 929 single-ended noise reduction unit," he continues. "It is a dynamic filter, so the minute there is any transient or high frequency, the filter opens up. In the absence of high frequencies, it closes down. The side effect is that it tends to dull things. To solve this, I developed a process through my Studer 12x4 console where the signal comes from the tape machine through the single-ended noise reduction [dbx].

## SWEETWATER SOUND

**We specialize in MIDI systems and home recording!**

**Knowledgeable People**  
We take the time to help you!

**E-mu Systems**

Proteus /1XR, 2, & 2XR  
PROformance/I piano module  
Emax II & Ellix 16-Bit samplers  
PROcussion module  
PROteus/MPS keyboard

**KURZWEIL**

*Music Systems*

**K2000, K1200, Pro 76, Pro 1  
K250 & RMX**

Sweetwater's K250 Editing program for the Macintosh  
K250 Sample Network (over 300 QLS disks)  
Sweetwater's own resident sound blocks for the 250

**KORG**

M1 Workstation  
T1, T2, T3 Workstation  
S3 Rhythm Workstation  
WS Wavestation Synthesizer  
SGX1D Sampled Grand

**TASCAM**

Dat Machines  
Mixing Consoles  
Mastering Decks  
Multi-Track Tape Recorders

**FREE Sweetwater newsletters**

New Sales • Support • Modifications • Service • Upgrades

Mark of the Unicorn • Opcode • AKAI • Digidesign  
Ramsa • Passport • TOA • AKG • Panasonic • Digitech  
In Vision • Artist Systems, LTD • Nakamichi • JBL  
Studio Monitors • Fostex Recording • Lexicon • Coda  
Carver • JL Cooper • QSC • Mackie Designs • Tannoy  
Speakers • Soundcraft • TAC/Amek • BBE

Macintosh, Atari, and IBM music software!

**Other major brands, too!**

**Our exclusive guarantee is...  
if you don't like it ...  
we'll take it back with no hassles!**

**Confused?**

**Call us for friendly  
free advice!**



We ship UPS & Federal Express or ...  
You can receive it TODAY if  
we ship by major airline!

NO SALES TAX (except IN)

VISA • MasterCard • AMEX • COD • Trades

**SWEETWATER SOUND, INC.**

5335 Bass Road Fort Wayne, IN 46808

**(219) 432-8176**

FAX# (219) 432-1758



**"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

"Buses three and four from the Studer feed a sidechain that includes several components, the end result being a restoration of the high frequencies lost in the 929, without increasing the tape hiss.

"My process works dynamically," he adds. "I can take material that is quite hissy and actually make it brighter and more open, with more high air...and no hiss."

For the final analog-to-digital conversion, Norberg swears by his Pygmy. "It is a 64-times oversampler made by Pygmy Computer Systems in Miami. And it is made for people like me who don't like the harsh and unmusical quality of the analog filter on the Sony 1630. The Pygmy takes the console output and puts it on to the Sonic Solutions."

Compared to the massive reconstruction jobs necessary for the James Brown and Frank Zappa CD reissues, Les Paul's set sounds like a producer's dream: great quality music, excellent source material, legendary status. However, certain tracks needed some clean-up work, according to Norberg. "How High The Moon," for example, came off a tape recorded for Les' radio show," he says, "so it was very noisy. 'Jazz Me Blues,' and 'Josephine' were also ones that were very noisy, with no high end."

The best boxed sets on the market have given fans access to rare and unreleased material, and *Les Paul, The Legend and The Legacy* is no exception. Each disc contains a complete radio broadcast featuring wonderful and wacky skits created by Les and Mary as showcases for his new inventions and techniques.

Les Paul recalls: "We created the shows to be interspersed before, during and after the news. I'm not terribly proud of my scriptwriting, but we had to do something. For one, I got the idea to build a whole episode around my new invention, the 'Les Paulverizer,' back when it was just a myth, just schtick. In this episode, it seems Mary thought it'd be good to hook my Paulverizer to her Hoover vacuum cleaner to see if she couldn't vacuum six rooms at a time!"

"What Les did was amazing," Furmanek adds. "Some of the shows had funny themes, but they are clever. Nobody was doing those types of things back then. He went wild. Just listen to the 'chipmunk' things on those radio broadcasts. The Chipmunks didn't come out until about eight years

later."

"In one episode I became concerned about depending too much on electricity, so I tried to invent a gas-powered Les Paulverizer," Les adds. "By then, everybody accepted the electric guitar, but the idea of a gas guitar sounded ridiculous. Still does! So I tried different gases, and the best one was laughing gas, so, of course, we started giggling and getting really silly."

Radio was an important avenue for Les, and his shows offered many outlets for trying out new material, experimentation and a little bit of fun. "Nearly every week we'd dream up some reason to play something a little hokey," says Les. Indeed, silly hillbilly boogies and even a rollicking take of "Hawaiian War Chant" are included.

"I'll See You In My Dreams' presented more of a challenge," Les adds. "I wanted to see how many dubs down I could go on one tape machine and still be able to hear the first take. I forget the final number of parts, but it was somewhere around 37 or 38—just astonishing."

Also on the set are true stereo recordings of commercials Les and Mary made for Robert Hall Clothing and Rheingold Beer—among the first commercials ever made by major recording artists.

"We did about ten of these, each different," Les says. "They were so big that within a few months Capitol was pleading with us to stop doing them because they were hurting our record sales. In the industry, they were terribly controversial. It was unheard of, and we took some heavy criticism. Of course, after that, other celebrities were clamoring for commercials, and to this day, everybody just dies to get one. Back then, Mary and I were out there all alone."

The future looks bright for the Les Paul and Mary Ford recorded legacy. Les vows that his final Capitol LP, *Time To Dream*, will be reissued in its entirety, as it is his favorite album. Les still performs weekly at Fat Tuesdays jazz club in New York and is considering an album of new material. We'll be listening, Les. ■

*Mark Smotroff is a San Francisco Bay Area-based communications consultant who has served the professional and consumer audio/video industries for many years. He extends special thanks to roving editor Mr. Bonzai for involving him in Mix's February 1985 Les Paul feature.*



# Read our list!

Whether it's the list of our customers or the list of the Sonic System's capabilities, we think you'll be quite impressed. From **Abbey Road** to **Saul Zaentz**, you can find Sonic Systems at work in large and small studios around the world.

No other audio workstation matches the Sonic System in economy and performance. We've set a new standard in CD PreMastering and music editing, and we've added new functions which deliver the same power and productivity for multi-track editing and sound for picture work.

Whether you edit dialog or music, in 2 or 24 tracks, the Sonic System can speed up your work and enhance your creativity. The Sonic System is the first and only to support both background loading and unloading to the hard disk(s). We have super-fast control over the disks so that a 2 track system can play back 8 to 16 channels simultaneously in real time (dynamically allocated across unlimited "virtual channels"). And a Sonic System won't break your budget — a basic system costs around \$15,000, including a computer and hard disk.

## EDITING



We offer the most elegant waveform graphics, the smoothest crossfades, and instant playback of all edits and EDL changes. All editing is entirely non-destructive, so you can make changes quickly. You can edit and mix recordings from 16 up to 24 bits.

## MULTITRACK



No other system lets you expand as easily and affordably as the Sonic System. Start with 2 or 4 tracks and you can expand, 4 channels at a time, up to 24 tracks.

## MIXING

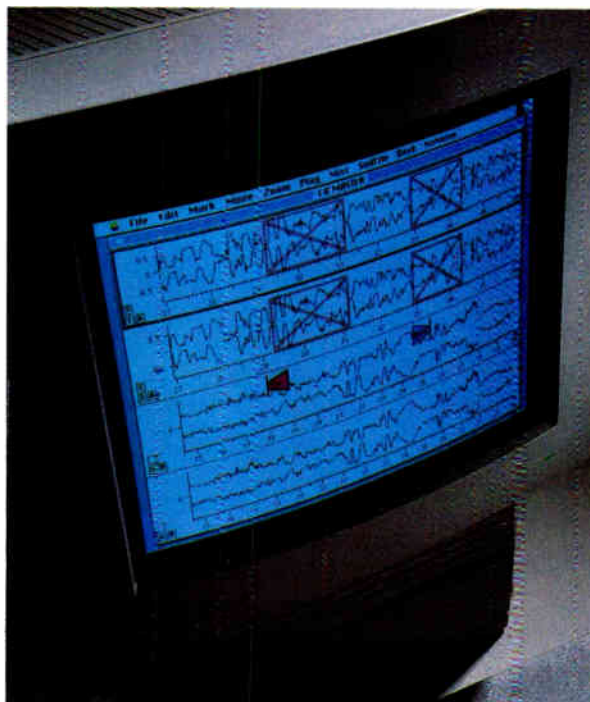


Our Mixing Desk includes the most advanced EQ, dynamics, and automation of any workstation. And of course, it's all in real time.

## WRITEABLE CD



With the Sony/START Lab CD Maker™, finished sessions can be recorded directly to compact disc. We're the first to offer the PreMaster CD™, a special CD which can be used at CD pressing plants for direct cutting of the glass master. This means truly tapeless mastering with higher reliability and lower cost.



## FX OPTIONS



Our real-time Time Squeezer/Stretcher, lets you change timing without affecting pitch. Our Digital Reverb option has 50 percent more processing power than competing units so you can simulate larger room sizes without creating artifacts.

## NoNOISE®



The world's leading real-time digital noise reduction system, **NoNOISE**® is used by major studios and record companies around the world to remove clicks and pops, broadband noise, distortion, hum, and record crackle from old analog recordings or new production sound.

With this list of possibilities, there's bound to be a Sonic System configuration that matches your needs and budget. Please call us for more information.

## SONIC SOLUTIONS

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



# Dreaming Digital?

Now you can have it.



This tapeless, multitrack, digital audio production center will pay for itself. Call KABA to find out how.



## 1-800-231-TAPE

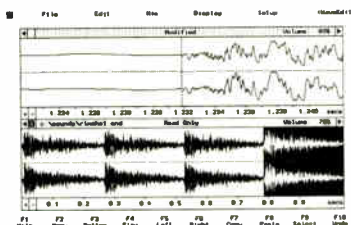
24 Commercial Blvd., Novato, CA 94949 (415) 883-5041  
1-800 231-TAPE FAX (415) 883-5222

Introducing

**The CardD System™**Hard Disk Recording  
and Editing on your  
AT-compatible!**The CardD \$795**

The CardD is an AT-compatible bus board that gives you:

- Real time direct to disk stereo recording and playback
- True professional-quality 16-bit audio
- Stereo analog inputs and outputs
- 32kHz, 44.1kHz, and 48kHz sampling rates

**EdDitor \$250**

The EdDitor is an interactive stereo waveform editing program that features:

- Non-destructive editing
- Cut, copy & paste
- Full zoom-in and zoom-out
- Mixing
- Catalog feature for fast access of sounds
- On-line help

**The CardD \$295**

Add The I/O CardD to give you the S/PDIF &amp; IEC digital interface, allowing direct digital transfer to and from your DAT machine.

**Digital Audio**6311 Wayzata Blvd., Suite 330  
Minneapolis, Minnesota 55416  
612/559-6104 Fax 612/544-5573

# Tape & Disc News

**Duplitronics Makes MCA Sale**

Duplitronics, one of two U.S. manufacturers of digital bins for cassette duplication, has placed several of its DM-400 bins at MCA's dupe plant in Gloversville, N.Y. The bins will be high-speed-loaded from masters prepared on Duplitronics MM-100 mastering systems, which were purchased for MCA's mastering facility in North Hollywood, Calif. Duplitronics has also announced sales (primarily of DM-400s with remote mastering capability) to a number of independent plants. The facilities include Evermark in Los Angeles, SAS Industries in Lynchburg, Va., and Tape Transcriptions in New Zealand.

Meanwhile, Duplitronics is keeping busy on the legal front. The company has been embroiled in a patent dispute with rival bin maker Concept Designs, which has led to the filing of a number of lawsuits, including one against giant WEA Manufacturing for using Concept's DAAD system. Now Duplitronics has filed a similar suit against Canadian music manufacturer Cinram, which operates the ARP Media Enterprises dupe plant in Richmond, Ind.

Duplitronics has also filed its response to a recent Patent Office action which upheld only six of its 34 patent claims (see "Tape & Disc News," November 1991). According to company president Jeffrey Binder, the response includes 54 claims—some original, some new and some amended to overcome the patent examiner's objections to claims that were previously disallowed. The claims are currently under Patent Office review.

**U.S. Copyright Office and ABA Call for Performance Right**

The U.S. Copyright office and the American Bar Association have both come out in favor of establishing a "performance right" for artists and owners of musical recordings. At present, U.S. copyright law provides for the payment of royalties only to songwriters and publishers. The actions lend weight to a campaign by the RIAA for the performance right, which already exists in

about 60 other nations.

According to the RIAA, current U.S. law will allow digital cable audio services to profit by electronically offering consumers recordings for which no royalties have been paid (bypassing prerecorded music manufacturers and retailers in the process). That claim is disputed by cable and broadcast groups, who argue that radio airplay provides free publicity for record company products. A contentious showdown in Congress is expected.

**ITA Blank Tape Figures**

The ITA reports that U.S. shipments of blank audio cassettes were up 5.3% in units in 1990 over 1989. The dollar value of the shipments, however, declined 2.5%. A similar trend was evident in videotape, with video pancake shipments up 1.6% in units and off 1.9% in value. VHS cassette shipments, meanwhile, rose 6.3%, while dollar volume fell 4.5%. Beta shipments were off 12%.

**El Mar Turns 25**

El Mar Plastics is celebrating its 25th anniversary as a supplier to the tape business. The company started out in 1966 making reels for 1/4-inch tape, and later expanded into 8-track cartridges and Norelco boxes for cassettes. El Mar now supplies C-0s, cassette and CD boxes, hubs, cores, reels and component parts for cassette shells.

**New TDT Facility**

Tape Duplication Technology opened a new manufacturing and technical support facility in Hong Kong. The company offers "remanufactured," high-speed audio duplication gear as an alternative to the purchase of stock new equipment. The idea seems to be catching on, with orders currently in progress for Coastal Productions (Tampa Bay, Fla.), Mastertape Audio (Wichita, Kan.) and Trackmaster Inc. (Pompano Beach, Fla.).

**3M and Burlington Earn Label Recognition**

3M Corporation and Burlington Audio Tapes have been recognized by the SJK Foundation for their help in keeping nursing home residents entertained. The foundation maintains Mobile Audio Library Carts in the homes, giving residents free access to cassette recordings of books, magazines and radio shows. The two companies sponsor the SJK program in Long Beach, N.Y. In thanks for their contribution, the





# 100 Reasons to Own a Quadraverb

1. It's the all-time classic reverb
2. It's fully programmable
3. Nobody tries to mix without it
4. I already own 3 and need 1 more
5. Everybody I know has one
6. Stereo in and Stereo out
7. Incredible MIDI implementation
8. Does up to 5 effects at the same time
9. Incredibly quiet
10. Great Dynamic range
11. Vocals sound incredible with Quadraverb
12. My guitar gently weeps
13. My girlfriend won't let me mix without it
14. My boyfriend won't let me mix without it
15. My producer won't let me mix without it
16. It works as well on stage as in the studio
17. 16 Bit Linear conversion
18. It's easy to program
19. It's easy to hook up
20. It works great in my MIDI system
21. It works great in my guitar rack
22. It works great with my bass rig
23. My flute sounds better through it
24. 20Hz to 20kHz Bandwidth
25. 127 MIDI sources can modulate any of 57 parameters
26. Works great in any country
27. You can take it on cruise ships
28. Everybody in Hollywood thinks it's cool
29. They use it back East
30. They use it out West
31. The North and South think it's great
32. Affordable enough for demos
33. Perfect for masters
34. It will be with you throughout your career
35. Those cute buttons with the little lights
36. Pressure sensitive programming buttons!!
37. The chorus is unreal
38. Reverb + chorus Programs are awesome
39. Pro engineers can't believe it's so inexpensive
40. They've got one in every room where I rehearse
41. I need one in my rack and one at home
42. The vocals stunk until I added the Quadraverb
43. Instant vocal doubling + chorus + reverb + eq
44. My guitar finally has a voice
45. 20 Bit processing
46. Incredible resolution for perfect reverb tails
47. It sings
48. Fills in the cracks of my keyboard
49. It's like a synthesizer for processing
50. There's no better reverb
51. The multitaps are unbelievable
52. You can delay up to 1.5 seconds
53. With everything on, there's still 800ms of delay
54. The price is unbelievable
55. All Alesis reverbs are great
56. It makes my drum machine sound real
57. It was the finishing touch on my demo
58. ...and my demo got me a deal
59. It's great to borrow, but better to own
60. Late at night under headphones I leave the planet
61. My mixes sound like movies
62. My speakers sound bigger
63. Close your eyes and you're there
64. For a successful music career
65. For birthdays
66. For Christmas
67. The auto-panner is great
68. Michelangelo would have used one
69. It gives me new keyboard sounds for free
70. It's so musical sounding
71. It's as wet as you can get
72. Use as much as you like
73. The resonators are great for guitar
74. The ring modulators are great for sci-fi
75. The sampling is a cool convenience
76. You can automate parts of your mix
77. It's a necessity
78. The specs are great
79. It makes my ears feel better
80. It makes A & R departments hear better
81. I'd be lost without it
82. I don't need it at the beach...but I might
83. It's the first thing ON in my studio
84. It's the last thing OFF
85. I love Alesis
86. Alesis loves me
87. It does 24 million instructions per second
88. It does -10
89. It does +4
90. It handles +20 peaks
91. The 32 character backlit LCD display
92. It only weighs 4.5 pounds
93. You can program advance with a footswitch
94. The graphic eq
95. The parametric eq
96. Programmable panning
97. The flanger
98. The phase shifter
99. It looks great in a rack
100. It's the all-time classic reverb

Call 1-800-5-ALESIS for more information and more reasons to own a Quadraverb

Alesis Corporation, 3630 Holdrege Avenue, Los Angeles, California 90016

World Radio History



# All you'll ever need in a tape.



FROM THE COMPANY that brings you Ampex Grand Master<sup>®</sup> 456—the tape more gold albums are recorded on than all other tapes combined—comes some gold of its own. Ampex 499 Grand Master<sup>®</sup> Gold, our newest high-performance analog mastering tape.

ENGINEERED TO EXCEED all expectations, Ampex 499 delivers low print through and the lowest noise, lowest distortion, and highest output of any analog mastering tape. Not to mention superior mechanical characteristics designed to ensure problem-free tape handling on today's high-performance transports.

# And then some.



WITH THE UNSURPASSED levels of consistency that you've come to expect from Ampex mastering tapes. And all backed by the most highly acclaimed customer service and technical support in the industry.

SO IF WHAT you need is performance, and then some, go with Ampex. Grand Master 456 and 499 Grand Master Gold.

## **AMPEX**

A MASTER OF ENGINEERING

Ampex Recording Media Corporation 401 Broadway M.S. 22-02 Redwood City CA 94063 © 1991 Ampex Corporation

World Radio History



foundation has begun using labels identifying the sponsors on all cassettes in the cart.

**SPLICES**

The Society of Vacuum Coaters will hold its 35th annual conference March 22-27 in Baltimore, MD. Sputtering, evaporation, optical coatings and thin film technology are among the scheduled topics. Call (505) 298-7624 for further information...Martin Audio (Seattle, WA) has tripled its real-time duplication capacity, bringing its KABA copy positions to 50 and adding a tapeless digital drive which allows duplication in both directions at once...American Helix reports that it was the "official CD manufacturer" of the 1991 New Music Seminar in NYC. The Lancaster, PA-based company introduced attendees to a number of new products, including its five-color PictureDisc, glow-in-the-dark labels, colored polycarbonate substrates and the C-Case, an "environmentally correct" package for CDs...Automatic Inspection Devices of Toledo, OH, has entered into a sales and service agreement with Robi-System for sales and service



*(Left to right): E.J. Foegle of 3M; Ruth Schwartz of Burlington; Stephanie Joyce Kahn, president of the SJK Foundation; Steve Sarmuksnis of 3M; and Rudy Schwartz of Burlington.*

of the company's optical disc inspection gear in Europe...Frankford/Wayne in New York City reports mastering projects by Carlton Batts for the East/West, EMI and Motown labels...Lyrec (Skovlunde, Denmark) has announced the sale of a Master P-4400 and four slaves to high-speed duplicator Galvomat of Belgium...Modern Videofilm has installed 501 VHS duplication positions in its Hollywood facility. The company chose 167 JVC BR-S777U three-in-one duplicating decks...Europadisk Ltd. of New York City completed mastering of two albums for

Wynton Marsalis and one for brother Branford Marsalis. Europadisk also did projects for the Warner Brothers, East/West and Luaca Bop labels...Audio Magnetic Professional Services of West Palm Beach, FL, introduced a non-wearing ceramic capstan sleeve designed for the ElectroSound 8000 system. For more info, contact AMP Services at (800) 826-0601, or in FL (407) 659-4805...Kewall Real Time Tape Duplicators (Bay Shore, NY) added its second DAT recorder and will be adding 25 real-time cassette decks to increase its total to 100...

**Write or Call  
for  
FREE  
CATALOG**

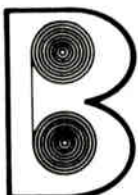
USA & Canada  
1-800-331-3191  
NYC Area: 516-678-4414  
FAX: 516-678-8959



Distributors of **3M** Professional Audio and Video Products including:

- Digital Mastering Tape
- Logging Tape
- Leader & Splicing Tape
- Reels, Boxes, Flanges
- All hard-to-get audio & video products
- Custom loaded cassettes
- R-DAT & other packaged cassettes
- Calibration Tape & Splicing Blocks

Shipped From Stock - Priced Right - Immediate Delivery



**Burlington** Audio / Video Tapes, Inc.

106 Mott Street • Oceanside, New York 11572

—FROM PAGE 42, MINI DISC AND DCC

*portability, convenience, extra features and consumer appeal?*

**Mike Piehl:** I haven't heard MD. But I assume the fidelity is similar to DCC, and if so, it's excellent. And I think they're roughly comparable as far as portability. But one important difference is that any DCC player will play back a consumer's existing analog cassette library. Another nice feature is the text display capability. You can put seven languages simultaneously on the tape. That's an advantage for the software industry, because the text infor-

mation cannot be copied in a digital copy to a blank DCC. So it adds additional value to the prerecorded tapes. **Ed Outwater:** I don't know about the fidelity. I think they are pretty similar as far as the data-compression schemes they use. But nobody in our industry, except perhaps some people at PolyGram, has had the chance to make an A/B comparison between a source tape and either a DCC or an MD. That's the acid test, and, ultimately, that's going to have to be done.

Regarding portability, DCC, being a tape format, is probably less prone to problems from dirt and being bounced around. But MD, if it does get bounced,

can play out of memory for quite a bit of time, so you wouldn't even notice it. Definitely some of the strong points of DCC are convenience and durability. We really don't know about MD yet.

As far as consumer appeal, I think that the general impression of the consumer over the past few years is that optical technology is better than tape technology. So the seed has been planted that the optical technology is the technology for the future. Whether that is true or not, I can't say. But that impression is out there.

**Leonard Feldman:** From what I've heard so far, I'd have to say the fidelity is about equal. For portability, I like MD better, because it will be impervious to vibration and shock due to the built-in memory buffer, which will prevent mistracking. Also, the prototypes of DCC portables that I've seen were quite large, somewhat larger than a good-sized Walkman, whereas the MD prototypes were quite small, especially for the player, which is what one would carry about. Of course, there are going to be a lot of DCC manufacturers, so I'm sure there will be those who will try to make something smaller than what Philips has shown us.

MD also has the instant access, which is a plus of any optical format. I think MD would be more convenient. As far as extra features, the DCC text display is a good feature. I like it. But I suspect that they could do the same thing with MD, though they haven't actually said so. So that may be a plus for DCC in the first generation of hardware.

In terms of consumer appeal, I wouldn't discount either one of them. There may be a place for both. In a car application, for example, I think DCC would win out, because people are accustomed to popping a tape into a slot, whereas my experience with CDs is that it's an awkward system for a car if you are talking about a single-play machine. But in terms of the Walkman-type of portable, I think MD has the edge. So they may coexist.

*What criteria do you think the major labels will use to decide which, if either, of the formats to support with software? How soon do you expect the decisions to be made? What outcome do you expect?*

**Piehl:** Software support is the big difference between DCC and MD. There is no such thing as succeeding in a mass consumer market without software

## How to increase your duplicating capacity by 2 to 4 times & save up to \$90,000 too!

**I**t's simple. Just trade your aging duplication technology for a high-speed enhanced Accurate™ Master/Slave Duplicating System.

Our Master/Slave units have been redesigned and then remanufactured from older brand name systems.

**Increase to 32:1 and 64:1.**

All the mechanical and electronic components are either rebuilt or replaced to give you reliable precision duplication at, 32:1 and 64:1. These systems are completely rebuilt piece by piece.

Here's a sample of what you get:

- 32:1 and 64:1 operation
- 1/2 inch loop bin
- Microprocessor system control
- Tentrols for constant tape tension
- Adj. az. using 'T-Bar' head mount

Or, for less than \$6,000 we will provide you with a 5MHz bias amplifier and four record reproduce amplifiers to upgrade your current system to 32:1 and 64:1.

### Remanufacturing! Big savings!

Discover how Accurate's high quality, rebuilt duplicators give you the same top-performance of a new system at a fraction of the cost. Save as much as \$90,000 over the cost of a new master and 5 slaves.

Call us today for more information:

**1 415 365 2843**

**ACCURATE™**

Precision Recording for Professionals.



©1991, Accurate Sound Corporation • 3475A Edison Way • Menlo Park, CA 94025  
Accurate and "Precision Recording for Professionals" are trademarks of Accurate Sound Corporation.

**NEW  
EXPANDED  
SERIAL CAPABILITY**

## Music To Your Eyes

JVC's DS-DT900N R-DAT recorder is designed to integrate perfectly into any video post production environment. All of the features needed by audio and video professionals are standard on the DS-DT900N, but optional on other machines. Features like video sync and SMPTE time code for pinpoint synchronization with video, parallel and serial remote control, and AES/EBU digital inputs and outputs.

With a manufacturer's suggested list price of less than \$4,500, no other professional R-DAT recorder gives you the features and performance of the DS-DT900N.

For more information about the DS-DT900N, call 1-800-JVC-5825 or write JVC PROFESSIONAL PRODUCTS COMPANY, 41 Slater Drive, Elmwood Park, New Jersey 07407.

# JVC<sup>®</sup>

## PROFESSIONAL





support. Virtually every major record company has already publicly announced their support for DCC. Even since MD was announced, more and more people have come onboard for DCC. But thus far, nobody has publicly supported MD software, including Sony/CBS Records. They are still thinking about it. So support for MD remains to be seen.

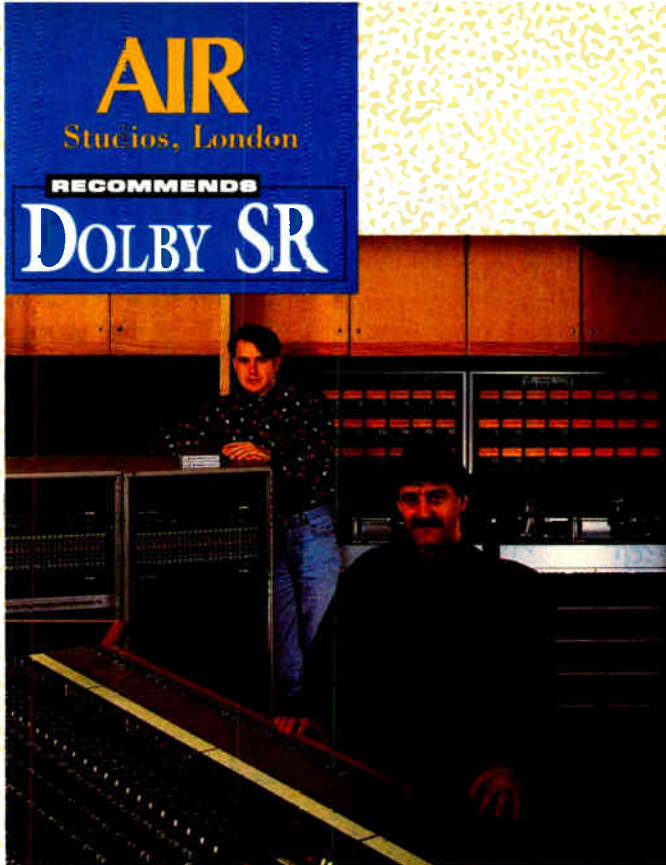
I think that one reason DCC already has the support is that it's not that dissimilar from the analog cassette. People are clearly comfortable with a tape format, because the compact cassette is far and away the largest music carrier in the world. The duplicating machines can be retrofitted for DCC relatively inexpensively. And the retail display systems now in place need no conversion to accommodate DCC.

**Outwater:** Warner Music Group has endorsed, in principle, both formats. In other words, we think that it's a good idea to give both of these formats a chance, assuming that the apparent resolution of copyright concerns becomes final. But we don't yet have all the information necessary to make a final judgment on the formats. The quality of the reproduction will certainly be a consideration, as will durability. And there is the cost of manufacturing. But the primary consideration will be consumer acceptance in the marketplace.

Because of previous negative experiences in trying to launch a format without prerecorded software available, there has been an effort by the hardware manufacturers to involve the music companies in the DCC launch. And I assume that will also be true with MD. So what will happen is that both formats will be out there, to some degree or another, for some period of time. And once the music companies are satisfied that prerecorded product can be produced successfully and economically, and that people seem to want it, then we as an industry will give it to them. And then we'll see what happens.

I've heard people say that the formats will be able to coexist, but my opinion is that they will be competing for the same market. So one format will succeed as a major format, and one won't—or it will end up as kind of a fringe format like DAT. In the final analysis, it will be the marketplace that will decide.

See Page 168 for Reader Service



## “Our clients insist on Dolby SR.”

“We provide our clients with the very best as a matter of course. That's why we offer Dolby SR on our analogue tracks.

“I was startled by the absence of tape modulation noise. From the looks on their faces, so were my engineers!”

“Dolby SR allows analogue recording to compete with digital without a cost penalty.”

*Malcolm Atkin, Studio Manager*

“With Dolby SR, you hear what you should hear: good warm low end, no muddiness in the top end, and no noises. Analogue with Dolby SR is definitely my preferred mastering format.”

*Lance Phillips, Chief Engineer*

*Built by the legendary George Martin,  
most of the famous names in music  
have worked at AIR Studios, London*



Contact Dolby or your Dolby professional audio dealer for more information

Dolby SR: over 50,000 channels worldwide

Dolby Laboratories, Inc.—100 Potrero Avenue San Francisco, CA 94103-4813 • Telephone: 415-558-0200 • Telex: 34409 • Facsimile: 415-363-1378  
346 Clegham Road London SW9 6AP • Telephone: 071-720-1111 • Telex: 919108 • Fax: 071-720-4118  
Dolby and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation. © 1991 Dolby Laboratories 001/1/130

World Radio History

**Dolby**

**Complete Cassettes in 7 Days!**

WITH BLACK & WHITE INSERTS

**Club Series:**

**300 C-12  
Cassettes  
\$479**

Complete with design, typesetting, film and printing, Dolby HXPro duplication, clear shell and box, and cellophane wrap

- Includes FREE Graphic Design
- Dolby HX PRO Duplication
- HI-TECH Clear Shell
- Major Label Quality

**Some happy clients who got their cassettes FAST:**



**Syrice D. Adams, Cleveland, OH**  
"Thanks for the great design!"



**Chuck Block, Washington, DC**  
"More affordable than I thought."



**Greg Disotell, New Orleans, LA**  
"Your excellent service is much appreciated."



Also Available: Complete CD and LP Manufacturing  
**Call Today For Our FREE Full Color Catalog and NEW Express brochure: 1-800-468-9353**

1328 N. 4th Street, Philadelphia, PA 19122, TEL: 215-232-4140, FAX: 215-236-7763

stock (chrome or cobalt-ferric), Dolby S-encoded, duplicated from a digital bin to HX-Pro-equipped slaves, and always containing all the material found on the corresponding CD release. What effect, if any, might that have on consumer interest in data-compressed digital formats like MD and DCC?

**Piehl:** Very little. I think that the public perception of the analog cassette, no matter how well-recorded, is that it is an older format, which is not on par with CD. But consumers will perceive DCC—because it is a digital medium—as being on the same performance level as CD. I don't think consumers will ever put an analog tape in that same class.

**Outwater:** The only downside of that idea is the nature of the analog cassette mechanism. It gets back to an old problem, and that is playback azimuth. You can do all the things you listed, but if you don't have the correct match between the way the cassette was recorded and the way it's played back (i.e., playback azimuth), you lose everything. Because of that catch, you can't guarantee optimum sound reproduction the way you can with a digital format. So the cassette becomes, by definition, a secondary format in terms of quality.

If you could somehow guarantee correct playback azimuth, the analog cassette would be a killer format. And if the hardware people got it in their minds to do it, they could. But in my experience, they aren't interested. They seem to be more interested in promoting new formats, and the hardware that goes with them, than in selling more analog cassette decks with this added azimuth feature.

**Feldman:** I think it would have a profound effect. I think in that case there would be a real resistance to either new format. I've heard Dolby S, and it's pretty remarkable. It's a marvelous improvement, and I highly respect it. But again, you'd have to develop a base of Dolby S-equipped recorder/players. If you have Dolby B, there is some measure of backward compatibility, and the casual listener would probably be content with that. But the person who really cares about perfect compatibility would go out and buy an S machine. ■

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



**Discover The Secret Of The Pyramids.**

We've discovered a new acoustical foam that outperforms any we've ever seen (or ever sold).

**ALPHA Acoustical Foam.**

The secret is in its unique pyramid design.

**Performance.** ALPHA Pyramids have a superior ability to absorb low-end ambient noise. No other product can compare.

**Pattern.** ALPHA Pyramids' uniform pattern means easy matching for an attractive installation. Other products require random matching.

**Packaging.** All ALPHA Pyramids are UPS shippable.

Alpha Acoustics has discovered the secret of the pyramids. And we're impressed. That's why we now offer ALPHA Acoustical Foams to our customers. Call us. We'll gladly send you a brochure and a free sample.

**Call 1-800-782-5742.**

**Acoustical Solutions, Inc.**

Richmond, Virginia

Licensese **Alpha Audio Acoustics**



# NEW MQ™ SERIES. MASTER QUALITY DIC//DAT™ FOR THE ULTIMATE QUALITY MASTER.



DIC//DAT introduces its new MQ Series DAT tape. Master Quality media crafted with second-generation technical improvements based on extensive R&D and feedback from audio pros in the field. The one DIC//DAT perfected for professional use.

- ▶ **NEW MQ "Formulation Finish"** reduces friction and provides more efficient tape-to-head contact for superb performance even in the face of high search and rewind speeds.
- ▶ **NEW MQ proprietary DIC MicroFinity metal particle technology** creates a consistently high quality magnetic medium for uncompromising professional DAT recording.
- ▶ **NEW MQ exclusive DIC//DAT tape lengths** include an extra two minutes for tone recording, test signals and pre-roll identification—as well as the industry's only 15–30 minute DAT cassettes for small programs, demos and test tapes.
- ▶ **NEW MQ dust-busting cassette design** virtually eliminates recording errors and tape jamming due to environmental contamination.
- ▶ **NEW MQ unique window calibrations** for easier reading and more accurate time judgment.
- ▶ **NEW MQ extra-strong DIC//DAT cassette shell** made in the U.S., with new window ribs for increased stability, 100% anti-static plastic, and the industry's only fiber-filled slider for structural integrity, stands up to the most rigorous studio use.

# DIC//DAT™

# MQ™ SERIES

TAKING MUSIC TO THE *N*th DEGREE.  
222 Bridge Plaza South, Fort Lee, NJ 07024 • 1/800-DAT-I-DIC (in NJ, 201/224-9344)



© DIC DIGITAL SUPPLY CORPORATION, 1991



# Studio

## Introducing Pro Tools™

Pro Tools is professional recording's first completely integrated Multitrack Audio Production System.

In the future, *everyone* will be recording this way. But *you* can do it right now, with Pro Tools.

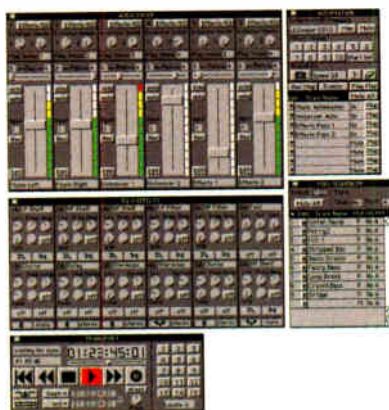
Pro Tools takes the three most important recording technologies of today—digital audio, MIDI, and mix automation—and combines them into a single revolutionary system. With even more of the advanced random access editing capabilities that made our Sound Tools™ the best selling direct to disk system in the world.

The time to reinvent *your* studio is now.

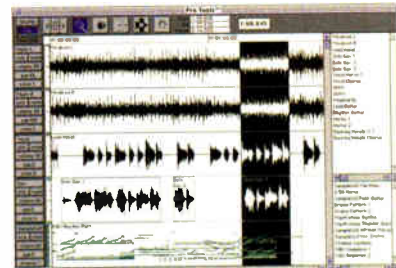
And with complete systems starting at less than \$6000,\* Pro Tools makes it easy.

We want you to be one of the first to experience Pro Tools. Call us at **(800) 333-2137** about an in-depth seminar happening now in your area. We'll also send you our full-color Pro Tools brochure.

### Pro Tools includes two powerful software applications for audio production:



*ProDECK™ for audio & MIDI recording, real-time effects and digital mixing with dynamic automation*



*ProEDIT™ for fast, flexible graphic editing of both digital audio and MIDI*

### Pro Tools features:

- Macintosh® II based system
- 4 to 16 independent channels of high fidelity recording/playback
- Balanced XLR analog I/O, AES/EBU & S/PDIF digital I/O
- Unlimited virtual tracks
- Real time parametric EQ & digital effects (completely automatable)
- Dynamic & state-based automation with instant update
- MIDI recording, playback & event editing
- Graphic non-destructive editing of multiple tracks of audio and MIDI with track slipping, region trimming, crossfades, etc.
- SMPTE synchronization
- Compatible with *SampleCell™*, *Pro Store™*, *Studio Vision™*, *Digital Performer™*, *CS-1* and *CS-10 Control Station™*

### Sound Tools Trade In Offer

We're offering all registered Sound Tools users an exceptional software *and* hardware trade in value, if you wish to upgrade. In fact, if you own *any* qualifying digital audio workstation, we're prepared to offer you the same generous upgrade! Call us for details.

### International Distributors

Austria/Tel. (+43 222) 216 07 90 • England/Tel. (+44 462) 480 000 • France/Tel. (+33 1) 48 63 2211 • Italy/Tel. (+39 587) 21 36 40 • Japan Tel. (+81 6) 764 1191 • Netherlands/Tel. (+31 20) 5105 883 • Sweden/Tel. (+46 8) 732 4190

\*Macintosh and hard disk drive not included.

All features and specifications subject to change without notice. All trademarks are the property of their respective holders. © 1991 Digidesign Inc.

World Radio History



**digidesign**

1360 Willow Rd # 101  
Menlo Park, CA 94025  
415.688.0600

by Mr. Bonzai

# PHIL WOODS

## HARD BOPPER IN FULL SWING

PHOTO: WALTER BREDEL



An evening with Phil Woods is proof that jazz is alive and well, still kickin' after all these years. His Quintet is sweet, hot poetry in motion, with Woods bopping around the band and then stepping back to let each player shine individually. Airtight rhythms keep the music rock solid, down-to-earth, a foundation for fiery flights of free-form improv.

Juilliard alumnus Woods cut his first records in the mid-'50s and nailed his reputation as one of the most inventive of the Hard Boppers. His command of the alto saxophone and clarinet, both as soloist and ensemble player, has powered him right into the '90s. He's performed and recorded with Billie Holiday, Benny Goodman, Bill Evans, Michel Legrand, Thelonius Monk, Dizzy Gillespie, Quincy Jones and Lena Horne. A four-time Grammy winner, Woods has been honored as an Officer

of the Order of Arts and Letters by the French government, and he's dominated both critics' and readers' polls in *downbeat* for the last two decades.

Let's meet Phil Woods, a pioneer and leader, a legend in full swing.

**Bonzai:** Caught your show last night at Catalina's—a great band. And I understand you have been recording.

**Woods:** Yeah, we recorded three nights. We're sort of a cottage industry, with my drummer Bill Goodwin producing our records. We just deliver finished product to various companies. Never had the luxury of a long-term contract, but we were with Concord for four years. This new one is for Milestone. We set up the gear in the dressing room, using a hard disk format, a couple of DATs and an analog for safety. I just heard the recording, and it's absolutely stupendous. The cats went over yesterday and checked everything out. We've always prided ourselves on the sound of our recordings. We ran an 8-track just in case it might need some touching up, but we won't have to use it. Everything is in perspective.

**Bonzai:** Nice to just go in and lay it down...

**Woods:** Well, we're a well-rehearsed band. We don't go into a studio or live recording situation until the material has been played live for at least six months. And we always use the same engineers: Jim Anderson on the East Coast and Chris Fischera out here. Chris really knows the group, and we've got a nice rapport. He's an extension of our family. And we are a family—you have to be at these prices. [Laughs]

**Bonzai:** And Bill Goodwin has been your drummer for 18 years?

**Woods:** Yes, and Steve Gilmore has been my bass player since then, too. The three of us have been together for a long time, and we picked musicians



# PERESTROIKA



## 50 Years Ago . . .

Allied war planes laid siege to Berlin forcing Georg Neumann and his company to flee for their lives. They set up shop in a small town far from the bombing and, once again, started production. But history would again overtake them. They were inside the Eastern Block and the Iron Curtain was soon to fall.

## Time Passed . . .

We knew little about their fate. But with the dawn of Perestroika, we decided to trace this branch of the NEUMANN family tree. To our surprise, the company had flourished, supplying high quality condenser microphones to Soviet Bloc broadcasters.



*But more to our surprise, they are still manufacturing the M 7 capsule, the capsule that made the original U 47 the glorious sounding instrument it was.*

*Now . . . Thanks to Perestroika, you can buy **MG** microphones from your favorite dealer. You'll be amazed by the sound — and by the affordable price.*

## GOTHAM

GOTHAM Technology Group, 1790 Broadway, New York, NY 10019 • 212/765-3410 • FAX 212/265-8459  
Los Angeles 818/785-2211 • GOTHAM Canada 416/665-2542



## LUNCHING WITH BONZAI

who are sensitive to what we're doing. You've got to have the right cats—Hal Crook on trombone and Jim McNeely on piano.

**Bonzai:** What does Bill contribute as the producer?

**Woods:** He just knows how it's supposed to go. I can concentrate on playing and formatting the set. This new record is essentially a set, just as we played the first set at Catalina's. If you want a live recording, that's what the Phil Woods Quintet does. It's not a phony sequence; it's just as we play it live. Bill takes care of the million details—comes out a few days early to get together with our engineer, check out the equipment and work with the club. Makes sure the engineer gets fed and picks up the tabs. I just sign the checks. He's my brother-in-law, so I trust him. [Laughs]

**Bonzai:** With jazz, the work is really on the line. You might have the ruthless critics, and you have the newcomers.

**Woods:** And we have a wide range of musician/friends coming in. I was in the office getting my horns together, warming up the clarinet, and who walks in but Artie Shaw. He says, "Are

you playing tonight?" And I laughed and said, "No, Artie, not tonight!" Bud Shank introduced us on the opening night of recording. Ross Tompkins, from *The Tonight Show* band, dropped in. About twelve trombone players came by to check out Hal Crook. We got a nice range of people I respect.

I miss playing to just the folks, though. Fridays and Saturdays, the more astute listeners usually don't come out, in general. Most of the cats come in early in the week. I expected the weekends to be really swinging, what with all the publicity. I was disappointed with the turnout. It looked like Tuesday night in Oklahoma City. But who can figure? And it's not a cheap joint. Jazz is no longer cheap, like it was when I came up. It's almost become a foo-foo kind of art, too expensive for the kids. It's the nature of the beast. I think there are enough festivals around, but that isn't the same as going to a club.

**Bonzai:** It's unfortunate that jazz is so much more appreciated in Europe and Japan, away from its homeland.

**Woods:** And the Japanese in New York City are often about 35% of the audience. Without European tours and Japan, I don't think I could keep the

Quintet going.

**Bonzai:** Benny Carter was one of your early heroes...

**Woods:** I think anybody who plays the alto would have to say ten Hail Marys to Benny Carter.

**Bonzai:** It's been said he literally defined the jazz alto sax.

**Woods:** He's been doing it since the beginning of jazz. He was playing with Charlie Parker in the heyday. Prior to that he was in the swing bands. He was one of the first expatriate musicians to go to Europe and turn on the audiences, for which we are all reaping the rewards.

**Bonzai:** And you just had a recording reunion with Carter—84 and still kickin'.

**Woods:** "My Man Benny, My Man Phil." It's actually Benny's recording, but we share the limelight.

**Bonzai:** A surprise to hear singing, too.

**Woods:** Yeah, that was a kick.

**Bonzai:** I'm told you inherited your first sax from an uncle.

**Woods:** My uncle died when I was 12. I had been spotted opening up the case, because I knew where he kept the alto. I liked the gold shininess, and the pearl and all that. In my larcenous mind, I was probably trying to figure

# apex

since 1903

- the inventor and manufacturer of the first production on-video cassette printer.
- the inventor and manufacturer of the first production on-audio cassette printer.
- the largest and finest manufacturer of on-audio and on-video cassette printers in the world.

## why settle for less ??

apex machine company  
3000 n.e. 12th terrace • ft. lauderdale, fl 33334 usa  
ph: 305-565-apex • fax: 305-563-2844 • telex: 271601 apex ur

international representative: audiomatic corporation  
400 madison avenue • new york, ny 10017 usa • ph: 212-308-6888 • fax: 212-308-5817 • telex: 12-6419

*"I did a great deal of shopping around while equipping my home studio. When I found the Peavey AMR 2400 console, I was thrilled: It had all the features I needed, was easily understood, looked great, and cost half the price of any other comparable board. Now I have so much production freedom — the 2400's logical layout makes using it so easy. My Peavey AMR 2400 console is the centerpiece of my home studio."*

*Jerry Goldsmith  
Movie Score Composer/Producer*



## **Peavey Audio Media Research Production Series™ 2400 Recording Console**

*For more information please contact your authorized Peavey AMR dealer  
or call/write us for a free brochure on our Production Series Recording Consoles.*

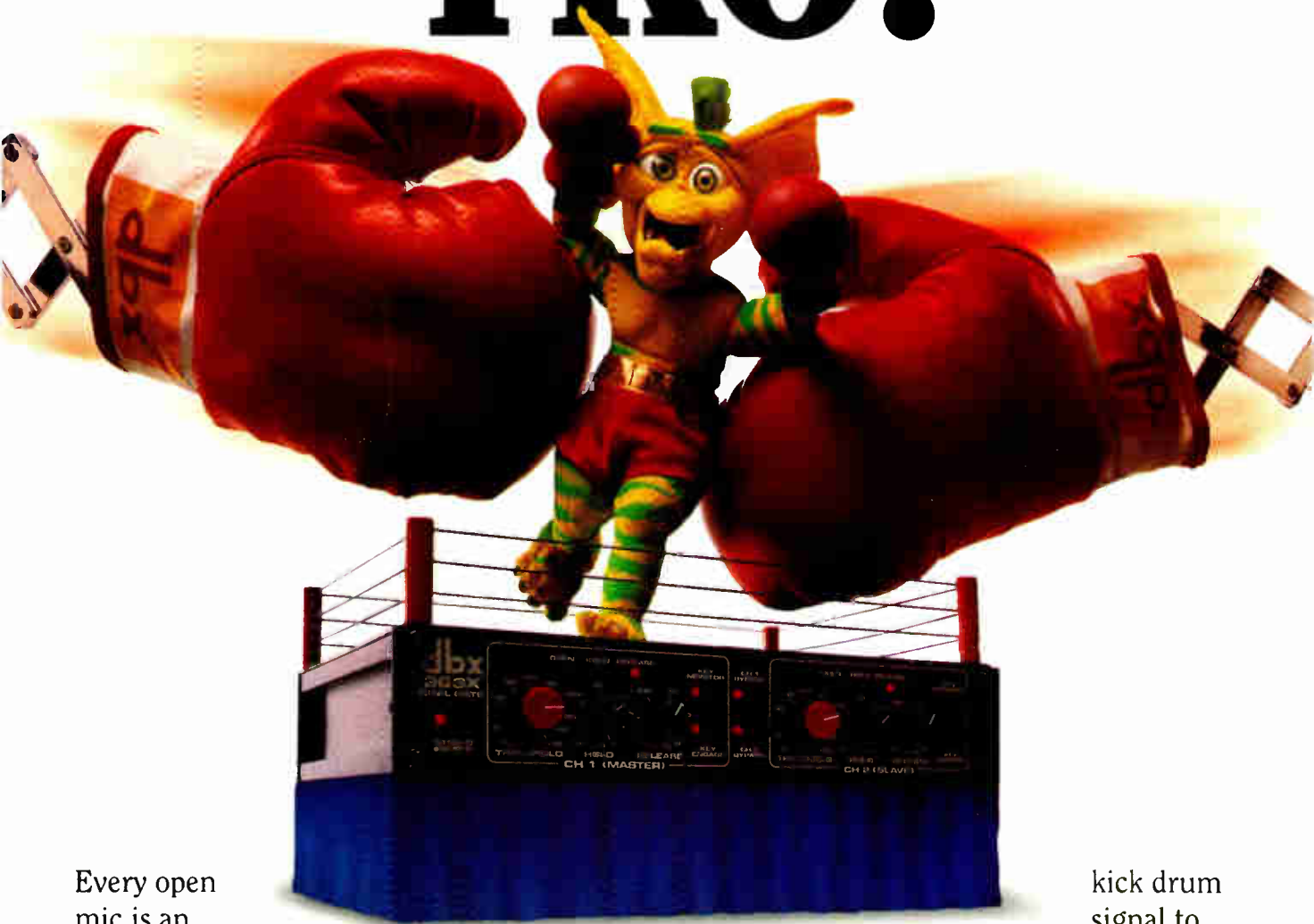
**PEAVEY®**  
AUDIO MEDIA RESEARCH™

*A Division Of Peavey Electronics Corporation*  
711 A Street • Meridian, MS 39302-2898 • Telephone: (601) 483-5365  
Telex: 504115 • Fax: (601) 484-4278 • © 1991

World Radio History



# TKO!



Every open mic is an invitation for unwanted noises to jump into the ring and trash your audio. Put dbx®—the World Heavyweight Champion of signal processing—in your corner with our new 363X. This dual noise gate will protect your audio with a staggering one-two punch!

"I give up!"



The pro-featured 363X will knock out those unwanted background sounds around your vocal and instrument mics. Send the

kick drum signal to the Key input, gate the bass, and put **EXPLOSIVE** punch in your beat. Press a button to switch it from dual gate mode to perfect stereo tracking. Use the Hold and Release to sculpt a winning sound.

The new dbx 363X. It'll put the sound gremlins down for the count!



A division of  
AKG Acoustics, Inc.  
1525 Alvarado Street  
San Leandro,  
California 94577, USA  
Tel: (1) 510/351-3500  
Fax: (1) 510/351-0500

**INDUSTRY STANDARD**

**COMPRESSOR/LIMITERS • NOISE REDUCTION SYSTEMS • EQUALIZERS • MODULAR PROCESSORS**



out what it would get me if I melted it down. When he passed on, I was given the saxophone.

**Bonzai:** When did the jazz passion grab you?

**Woods:** I was 14. I saw Johnny Hodges with Duke Ellington's band, heard my first Charlie Parker record. It came into focus for me. I grew up with a good peer group of musicians in Springfield. We had this band, and I was the youngest of the group. Joe Morello was our drummer, ended up with Brubeck for 17 years. Morello did the famous "Take Five" solo. Chuck Andrus played bass; he worked with Woody Herman for years. Hal Sara was the piano player, lived two doors up the street from me. Sal Salvador went on to play guitar with Stan Kenton.

**Bonzai:** Did you give up all your school studies to go for the music?

**Woods:** No, I was pretty good in school. All these guys I was playing with were going to New York, so I enrolled at Manhattan School of Music, studied Mozart in the daytime and Charlie Parker at night. Transferred to Juilliard and did four years as a clarinet major, composition minor. I was in New York from '47 to '51 at the Conservatory.

**Bonzai:** How did the academic studies help you?

**Woods:** I'm a much better musician from having studied the old-fashioned way, from Beethoven, Bach and Brahms. I have much better insight into Art Tatum, Charlie Parker and Dizzy Gillespie. I get a little scared when I think of people going to school just to study jazz, not doing species counterpoint, as boring as it might be, and the old-fashioned ear training. Being able to read a Bartok score. Just studying jazz is too limiting. You have to learn about music. The same rules apply, and just focusing in on the jazz...but a good student will listen to Stravinsky and Bartok, and flesh out an education. You see, there weren't any jazz schools in those days. I had no choice. If you wanted to be a musician, you went to a conservatory. In those days, you couldn't even major in the saxophone. I majored in clarinet. Sax was still a military band instrument.

**Bonzai:** You mentioned Charlie Parker. Did you know him?

**Woods:** I wouldn't say that anybody knew Charlie Parker, except maybe his wife, Chan. But he knew me—always

asked if I had enough to eat. Played a few sessions together. He played my horn one time when I was working in the Village at a place called The Nut Club, a stripper's joint. When you walked in the door they handed you a wooden hammer so you could beat the shit out of the table in favor of your favorite stripper. Gil Evans used to come in and sit in on piano.

Anyway, I was playing for strippers every night, rendering "Harlem Nocturne" on an hourly basis. I was going through this thing—I didn't know if my horn was okay, if the reed was happening. I didn't like the mouthpiece. I was having a crisis with the instrument.

I heard Bird was across the street. He was playing a saxophone that belonged to Larry Rivers, the painter. Larry used to carry it around in a gold lamé sack. It was a terrible horn. Bird was trying to play this baritone sax. I said, "Mr. Parker, perhaps you'd like to use my alto?" He said, "Yeah, that'd be nice, son."

You want to see me run across Seventh Avenue? I was stopping traffic. I got my alto and ran back to the club. I handed him my horn and he played "Long Ago and Far Away" by Jerome Kern. He played the shit out of it. I realized there was nothing wrong with my saxophone. [Laughs] And then he

CONSOLES • ANALOG/DIGITAL • INSTAL  
 RECORDERS • MAG FILM RECORDERS •  
 WORKSTATIONS • DAT • VIDEO MIXER  
 SYNCHRONIZERS • MICROPHONES • W  
 SPEAKERS • PROJECT  
 INSTALLATIONS • WIRING • MA  
 ENGINEERING • MOTION CONTROL  
 EDITORS • TURNKEY SYSTEMS • CONSO  
 ANALOG/DIGITAL RECORDERS • MAG I  
 RECORDERS • WORKSTATIONS • DAT • V  
 VIDEO MIXERS • SYNCHRONIZERS • MA  
 SPEAKERS • MICROPHONES • PROJECT  
 CONSULTATION • INSTALLATIONS • EDI  
 WIRING • ENGINEERING • TAPE • MOTIC  
 CONTROLLERS • EDITORS • TURNKEY • T  
 LES • ANALOG/DIGIT  
 FILM RECORDERS •  
 DAT • VIDEO • MIXER  
 MICROPHONES • M  
 CT CONSULTATION •  
 WIRING • TAPE • ENG  
 ENGINEERING • MOTION CONTROLLER  
 EDITORS • TURNKEY SYSTEMS • CONSO  
 ANALOG/DIGITAL RECORDERS • MAG  
 FILM RECORDERS •  
 DAT • VIDEO • MIXER  
 MICROPHONES • SPEAKERS • PROJECT

# NO TROUBLE AT ALL!

Featuring the Sonic System™ affordable Desktop Audio™ with endless possibilities.

## AUDIO INTERVISUAL DESIGN

1032 N. SYCAMORE AVE. • HOLLYWOOD, CALIFORNIA 90038 • (213) 469-4773

handed it back and told me to play. I did the best I could, and he said, "Sounds real nice, son." Man, I went back to work, and this time I didn't have to stop traffic—I was walking above the cars. And I played "Harlem Nocturne" like I'd never played it before.

**Bonzai:** In your mind, what was Charlie Parker's essential contribution?

**Woods:** I'd like to quote Dizzy: "He gave us the vocabulary." The vernacular, the language. Dizzy was already exploring the harmonic possibilities, but he was still coming out of Roy Eldridge phrasing. Bird gave us the whole way of how to phrase and change that 2/4 pulse to the 4/4 pulse. How to play over the bar line. He gave us all that, plus he was an improvisational genius. Raw, pure energy. It poured out. Between Dizzy's thing, the harmonic sophistication and the introduction of Latin rhythms, and Bird's language—the way that the music is spoken—it changed the whole god-damn planet. The planet may not be aware of it, but I know it changed.

I've taken part in several State Department tours. At the highest levels of

our government, when they wanted to put their best foot forward, they sent Dizzy Gillespie, Duke Ellington or Benny Goodman. Not so much now, since the Reagan legacy, but when there was money for this sort of thing... So you've got these tours, and a lot of jazz education, but there's really no jazz business. It's a scuffle, because we have more musicians than we'll ever have gigs. And the recording industry—it's all done by three guys with EWIs.

**Bonzai:** But you've taken charge of your recording career.

**Woods:** I came out of the New York recording scene. In New York, from the mid-'50s to the mid-'60s, the recording situation was swinging. Quincy Jones was there, along with a lot of the Hollywood composers. That's where the major work was done, and it was usually done with a big band. You'd see five saxes. Plenty of work. I did pretty well. And the music was of a very high caliber.

When things changed and a guy playing three chords wrong could play Yankee Stadium for megabucks and sell millions of records, the business changed. The industry moved to the West Coast, and the electronic thing

happened, and the bands were cut down.

**Bonzai:** So you're not too impressed with the way the industry has evolved.

**Woods:** It's not my job to be pleased. I prefer to be a thorn in the side of the whole music establishment. I think they're a bunch of assholes. I'm about to turn 60, and I have no points to prove anymore. I'm comfortable playing the music I believe in. You've only got one shot in life. If you don't have the passion of your convictions, then you have to live with it. If you want to be part of the music industry, that's fine. I get cats coming up to me and saying, "Oh, man, next year I'm getting out of this town, and I'm gonna join you and play some jazz." Well, do what you have to do. Enjoy life. You don't have to join me. I don't recommend it.

**Bonzai:** You played on Billy Joel's "Just The Way You Are." I'd like to hear about your experiences in the rock world.

**Woods:** I touched the rock world with Billy Joel, recorded "Dr. Wu" for Steely Dan. Worked with Phoebe Snow. Had a short burst on "Still Crazy After All These Years." "Just The Way You Are" would be my best-known. In fact,

—CONTINUED ON PAGE 167

# What can a noise gate do for you? It can...

## In the recording studio:

- Reduce guitar buzz
- Tighten up drum mics and give you a better stereo image
- Clean up leakage through vocal mics
- Reduce excessive reverb

## On stage:

- Let you leave unused mics open without worrying about feedback

## In a conference room:

- Eliminate coffee slurping and paper shuffling sounds

## In broadcasting:

- Control crowd noise and improve intelligibility

...and much more, limited only by your imagination.



Furman's QN-44 Quad Noise Gate.  
Four independent channels,  
flexible controls that assure  
seamless, unobtrusive  
results. Great price.

**FURMAN**

*Signal Processing*

Furman Sound, Inc.  
30 Rich Street  
Greenbrae, CA 94904 USA  
Phone: (415) 927-1225  
Fax: (415) 927-4548





## British studio performance at a revolutionary American price!

MEGAS Studio is the first 24 buss recording console to combine world-class *British sound* with a wealth of smart, practical features for today's recording situations—*priced from \$17,100\**

Featuring a highly flexible split console design, the Studio can be specified in 16 or 24 discrete buss formats and is available in 24 to

40 input configurations with or without patchbay.

An ideal choice for today's input-intensive recording, the Studio has an on board MIDI computer which can be interfaced with a sequencer to provide automated MIDI muting. It also comes with an exceptionally smooth, transparent 4-band EQ for optimized sonic performance

The MEGAS Studio can accommodate a combination of mono or stereo input modules and comes with full metering as a standard feature.

MEGAS Studio. Superior sound and performance at a price that'll revolutionize the way you think about British consoles.

**SOUNDTRACS** PLC

Soundtracs distributed exclusively in the United States by: Samson Technologies Corp., P.O. Box 9068, Hicksville, NY 11802-9068 TEL: (516) 932-3810 FAX: (516) 932-3815

\*Suggested retail price for the Model 24/24 Megas Studio console. Other prices will vary somewhat based on specific configuration and features.

© 1991 SAMSON

**MEGAS**  
**STUDIO**

World Radio History



It was a night of excitement and anticipation in the Big Apple as more than 700 audio industry professionals gathered to honor the nominees and winners of the seventh annual Technical Excellence & Creativity Awards.

Held October 5 at Manhattan's Grand Hyatt Hotel, the 1991 TEC Awards recognized 21 winning companies and individuals, voted the best of the year by *Mix* subscribers. Ably hosted by video and recording artist "Weird Al" Yankovic, the evening's festivities also included the induction of Ray Dolby, M.T. "Bill" Putnam and Bruce Swedien into the illustrious TEC Awards Hall of Fame.

For the first time, this year's voting saw three ties. Walters-Storyk Design Group and Russ Berger Design Group took top honors in the Acoustics/Studio Design Company category; the Alesis SR-16 and the Roland S-770 tied in the category of Musical Instrument Technology; and the Sabine FBX Feedback Exterminator and the TC Electronic 6032/1128 Remote Equalizer both took home TEC Awards in the category of Sound Reinforcement Product of the Year.

This year's ceremony also marked the introduction of the Les Paul Award, named for the pioneer of multitrack recording and the electric guitar, and presented to institutions and individuals who have set the highest standards of audio professionalism. The Les Paul Award was presented by Les Paul to Gene and Roy Clair of Clair Brothers Audio, world-renowned sound reinforcement company; Bob Ludwig, mastering engineer extraordinaire of New York's Masterdisk; and Tony Bongiovi and Bob Walters of Power Station, New York City's world-famous recording studio. All three recipients are multiple TEC Award winners.

Prior to the awards ceremony, presenter Art Garfunkel, emcee "Weird Al" Yankovic and a host of other celebrities attended a reception where Capitol Records recording star Les Paul autographed a classic Gibson guitar. It will be auctioned off at a later date by the nonprofit Mix Foundation for Excellence in Audio, sponsor of the TEC Awards, with the money going toward research into the treatment of deafness and hearing impairment and for audio education scholarships.

# THE 1991 TEC AWARDS



Emcee "Weird Al" Yankovic as he moaned, groaned and joked his way through the awards ceremony.



Presenters Will Lee and Suzanne Ciani before their appearances on stage.



Ray Dolby (l) accepts the TEC Awards Hall of Fame plaque from *Mix* magazine editor-in-chief David Schwartz.

Half of the proceeds of the TEC Awards go to the House Ear Institute's "Hearing Is Priceless" (HIP) campaign, co-sponsored by *Mix* magazine, to educate the public about the danger of listening to music at excessive volume. The balance goes to the Society of Professional Audio Recording Services; the Audio Engineering Society Educational Foundation; and Full Sail Center for the Recording Arts (winner of the Recording School/Program category), as well as the other recording school nominees, for audio scholarships.



Les Paul signs a classic Gibson guitar while House Ear Institute representative Michael Stanley, MFEA director of development Penny Jacob, and Gibson Guitars representative Jimmy Archey look on.

PHOTOS: GARY GERSHOFF





# 1991 TEC AWARDS WINNERS



▲ (L-R) *Mix* magazine editor-in-chief David Schwartz, TEC Awards executive director Karen Dunn, AES Educational Foundation representative Emil Torrick and TEC Awards executive producer Hillel Resner.

▼ (L-R) Hal Blaine presents Bob Clearmountain with his second TEC Award of the evening. Clearmountain garnered TEC Awards for Recording Engineer and Remote/Broadcast Engineer.



Recording artist Jon Lucien (l) congratulates Mike Pinczek on winning his TEC Award for Sound Reinforcement Engineer.



▲ George Mussenburg, a 1990 Hall of Fame inductee, congratulates 1991 Hall of Famer Bruce Swedien.



Es-SPARS president David Teig (l) congratulates Lexicon's Ron Nowlan for winning the TEC Award for Signal Processing Technology for the Lexicon 300 Digital Effects System.

▼ (L-R) David Schwartz with Roy and Gene Clair of Clair Brothers, Les Paul Award winner and TEC Awards Silver Sponsor.



## HALL OF FAME

Ray Dolby  
M.T. "Bill" Putnam  
Bruce Swedien

## LES PAUL AWARD

Bob Ludwig  
Clair Brothers Audio  
Power Station

## OUTSTANDING INSTITUTIONAL ACHIEVEMENT

### Acoustics/Studio Design Company

*Tie between:*

Russ Berger Design Group Inc., Dallas, TX  
Walters-Storyk Design Group, New Paltz, NY

### Recording Studio

Ocean Way Recording, Hollywood, CA

### Sound Reinforcement Company

Showco Inc., Dallas, TX

### Mastering Facility

Masterdisk Corp., New York, NY

### Audio Post-Production Facility

Post Logic Inc., Hollywood, CA

### Remote Recording Facility

Westwood One Companies, Culver City, CA

### Recording School/Program

Full Sail Center for the Recording Arts,  
Winter Park, FL

## OUTSTANDING CREATIVE ACHIEVEMENT

### Recording Engineer

Bob Clearmountain

### Remote/Broadcast Recording Engineer

Bob Clearmountain

### Mastering Engineer

Bernie Grundman

### Sound Reinforcement Engineer

Mike Pinczek

### Audio Post-Production Engineer

Ken Hahn

### Record Producer

Nile Rodgers

## OUTSTANDING TECHNICAL ACHIEVEMENT

### Signal Processing Technology

Lexicon 300 Digital Effects System

### Recording Devices/Storage Technology

Panasonic SV-3700 DAT Recorder

### Console Technology

Harrison SeriesTen B

### Musical Instrument Technology

*Tie between:*

Alesis SR-16

Roland S-770 Digital Sampler

### Transducer Technology/Microphones

Neumann TLM50

### Transducer Technology/Loudspeakers

Tannoy Monitor Series

### Computer Software/Peripherals

Digidesign Sound Tools 2.0

### Ancillary Equipment

Audio Precision Portable One

### Sound Reinforcement Product of the Year

*Tie between:*

Sabine FBX Feedback Exterminator

TC Electronic 6032/1128 Remote Equalizer

### Recording Product of the Year

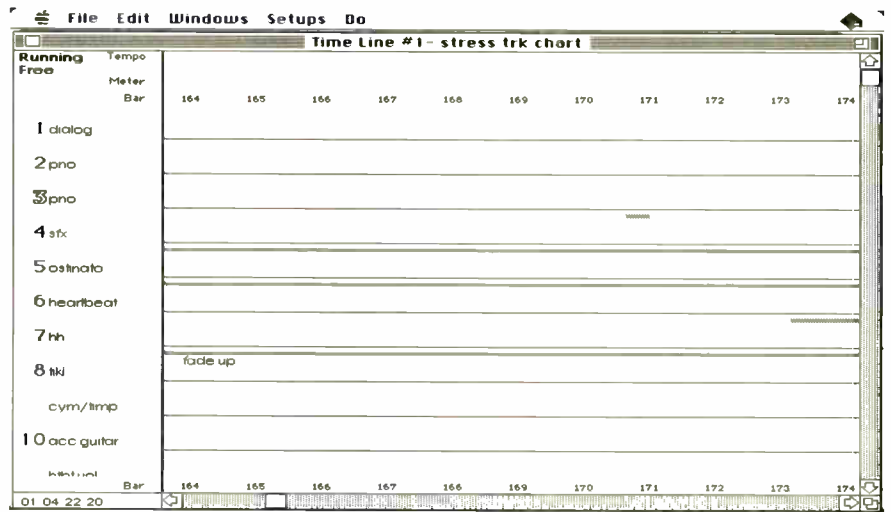
Digidesign Sound Tools 2.0

## THE BYTE BEAT

out to its corresponding instruments. However, the program allows the user to send MIDI messages (such as volume or program change) to a single MIDI channel. While this feature is useful for changing a reverb setting or making a last-minute level adjustment, I'd like to see it expanded in future versions of Track Chart to include full MIDI playback; Opcode has responded positively to this suggestion.

When used with MIDI Manager, this version can run concurrently with a sequencer, which allows simultaneous MIDI playback while viewing a Track Chart time line. And I know of at least one user who has decided that the additional investment of a Mac Classic running Track Chart in sync with his sequencer on his primary Mac was worthwhile in terms of achieving low-budget, full automation.

Track Chart has a number of other useful features, including design and printing of console fader labels, tape box labels and cassette labels. Add its value as an archiving, printing and time-line viewing tool, and Track Chart is a valuable asset to a busy Mac-based



**Information can be displayed as a function of time in Track Chart's time line window.**

studio at \$179.95.

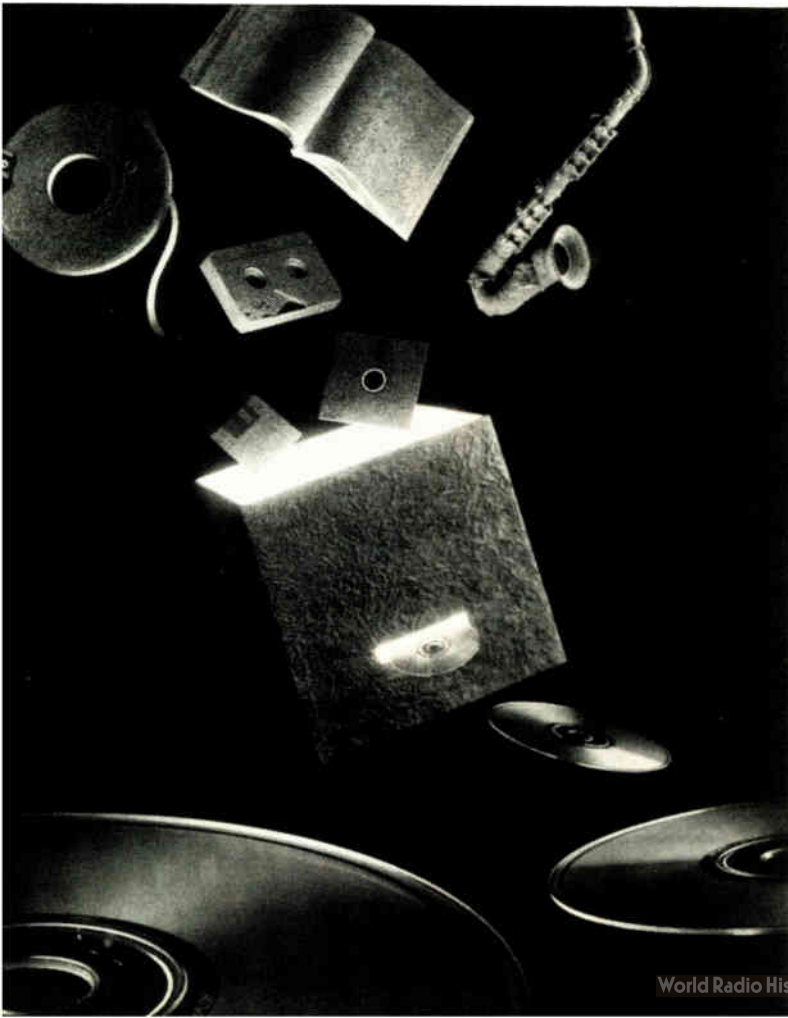
Opcode Systems, 3641 Haven Dr., Suite A, Menlo Park, CA 94025; (415) 369-8131.

### JL Cooper's Answer to the Mouse

In their never-ending quest for alternatives to the Macintosh mouse, developers have come up with some ingenious designs, among them the

trackball, pen and voice-command module. Now there's JL Cooper's CS-1, the interface designed with audio in mind. Developed for Digidesign's Sound Designer II, the CS-1 goes a couple of steps further by providing "transport" control for both Performer and Vision sequencers, and optional editing software allows presets for any Macintosh application to be created,

—CONTINUED ON PAGE 78



**DAT TO COMPACT disc**  
Digital Audio Tape

# TURN YOUR TUNES

Now it's easy to turn your tunes from tape into CD. Optical Media's CD Express service is now offering lower prices and faster turn-around times for getting 1 to 10,000 CDs. And by using our incredible new direct DAT to CD technology, you can get 1 to 10 reference discs in 48 hours.

Also, if you're using Sound Tools by Digidesign, you can save even more by using the special CD prep feature of the new Master List program. Call CD Express at Optical Media for more information.

COMPACT  
**disc**  
DIGITAL AUDIO



**OPTICAL MEDIA INTERNATIONAL**

485 ALBERTO WAY, SUITE 115, LOS GATOS, CALIFORNIA 95032 USA  
PH 408 395 4332 **800.DISC.OMI** FAX 408 395 6544



# 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

## Multimedia Chip Shots

### Passport Designs Audio Trax and Media Music

Audio Trax is a Macintosh program from Passport Designs (Half Moon

record and play back digital audio directly from the hard drive. Other Mac II and SE30 machines require only a Farallon MacRecorder with sound input driver. Audio files are AIFF standard, allowing for editing from Passport's Alchemy or Farallon's Sound Edit software. Audio Trax supports Apple's MIDI Manager, and files can be linked to MacroMind Director and other presentation programs using HyperCard. The program is available for a \$299 suggested retail price.

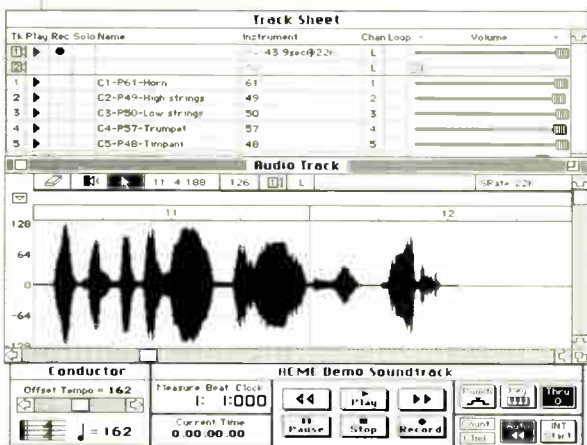
The Media Music Sampler, also from Passport, is the musical equivalent of "clip art" on CD-ROM. Designed for use with multimedia presentations, this CD-ROM of original production music is available in the following formats: 16-bit CD Redbook Audio (44.1 kHz), 16-bit stereo AIFF (44.1 kHz), 8-bit mono AIFF (22 kHz), 8-bit mono SND (22 kHz) and MIDI (Type 1, Type 0 and Master Tracks Pro). Also available is a

CD-ROM for the PC with equivalent formats. The Media Music Sampler includes more than 20 song clips of production music in various lengths and musical styles, at a list price of \$99. With the purchase of Media Music, you also get a royalty-free right to use the music in non-commercially distributed presentations. Commercially distributed usage requires additional licensing fees.

Circle #250 on Reader Service Card

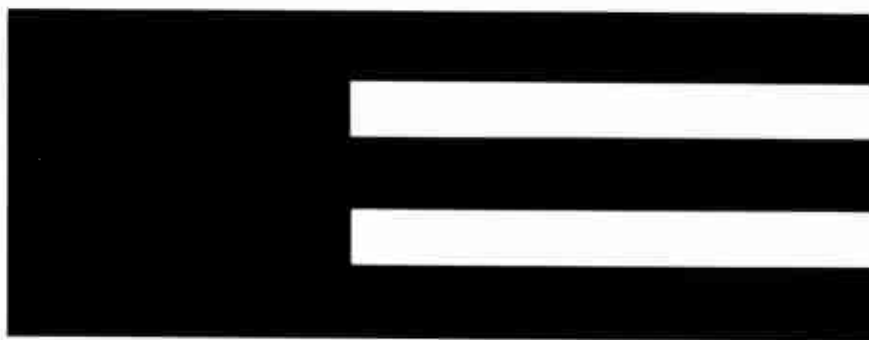
### Sundance Desktop Video Editing System

Sundance Technology Group (Irving, TX) has released Version 1.0 of its Sundance System: video post-production software and hardware for the Macintosh. The system includes Q-BASE Scene Logging Database; Q-CUT Editing Software; and MMI, a proprietary multimedia interface that connects to the modem port, enabling control of up to 15 source machines. Events from Footage Logs created in Q-BASE can be located by key word search and imported into Q-CUT for editing. The MMI also provides video

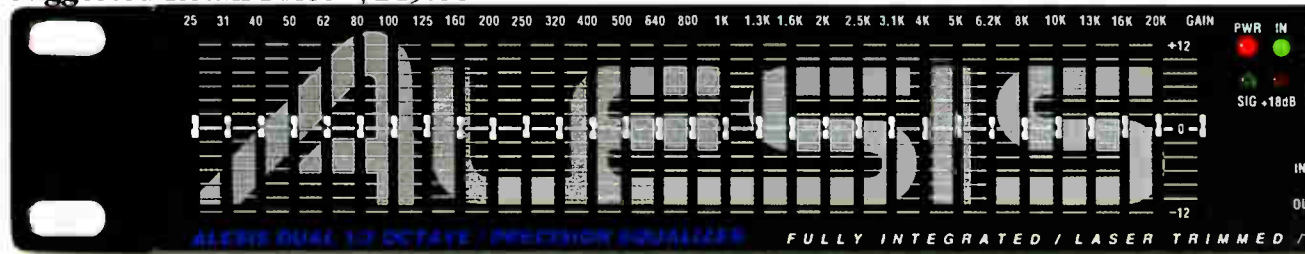


AudioTrax's Track Sheet window.

Bay, CA) that combines an 8-bit (11kHz or 22kHz sampling rate), 2-track digital audio recorder with a 64-track MIDI sequencer for multimedia audio production. When used with a Mac IIsi, the package requires no additional hardware to



Suggested Retail Price \$249.00\*



EQ. Clean and Precise. The right EQ to fix a track or shape a mix. Or to flatten the response of your studio monitors.

Introducing the Alesis M-EQ 230. The only EQ you should put between you and your music.

Featuring two 30 band channels for incredibly precise control. Each band is laser-trimmed to

1/3 octave ANSI/ISO centers, and features  $\pm 12$ dB of boost or cut so you can really dig in where you need to. Plus, to protect your speakers if power is interrupted, we've included Auto Power Muting.

And thanks to our exclusive Monolithic Surface Technology™ you get two channels instead of one in a one space 19" rack. For only \$249.



switcher control for dissolves, wipes, keys and other video effects. The price of the Q-BASE Scene Logging Database is \$875. Q-CUT includes Q-BASE, and is priced at \$3,950. The MMI is \$1,395.

Circle #251 on Reader Service Card

### Light Source Inc. Multimedia Toolkit

Now shipping is Version 1.1. of Multimedia Toolkit software for the Macintosh from Light Source Inc. (Greenbrae, CA). Multimedia Toolkit was developed to work with MacroMind's MediaMaker and NEC's PC-VCR to provide multimedia authors with an economical way to access video information directly. The package consists of two modules. The first is a DA that allows remote control of NEC's PC-VCR from any application. The second is a HyperCard Toolkit designed for users who want to control the PC-VCR directly within HyperCard 2.0. Also included is a driver for MacroMind's MediaMaker software. Accuracy is said to be  $\pm 2$  frames. Multimedia Toolkit is priced at \$149.

Circle #252 on Reader Service Card

### Covox Sound Master II

The Covox (Eugene, OR) Sound Master II is a PC card and associated software that provides an easy means of creating, editing and playing back original music through its graphics-based interface. It features 8-bit digital recording at 25 kHz (with optional playback at 44.1 kHz), as well as two-operator FM synthesis and 11-voice polyphony for \$229.95.

Circle #253 on Reader Service Card

### MIDIMAN SMPTE Player

SMPTE Player is a program for the IBM PC and compatibles that allows any standard MIDI sequence file to be played using MIDI Time Code (MTC). Previously, no major IBM sequencer has supported MTC, relying instead on special non-MTC-compatible, SMPTE-interface cards to sync to SMPTE. Besides allowing direct synching to SMPTE/MTC, SMPTE Player acts as a sort of mini post-production environment in which the start and end time of a piece can be set and edited. The program retails for \$74.95.

Circle #254 on Reader Service Card

### Abbate Video OnTrack/Mac

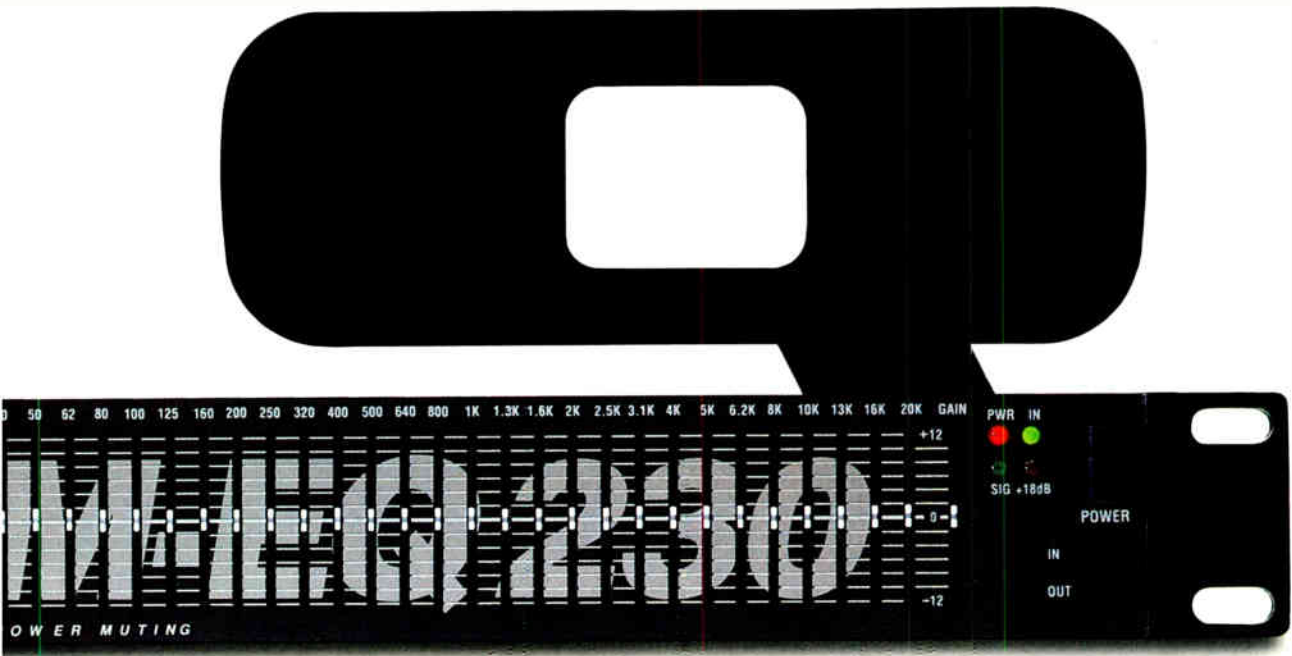
OnTrack/Mac, from Abbate Video Consultants (Norfolk, MA), is a software and serial cable package that turns the Mac into an automatic edit controller for selected consumer VCRs. The HyperCard 2.0 stack can control most Sony consumer video equipment, as well as many 8mm and Hi8 camcorders from other companies. The toolkit also includes CueTrack, a complete HyperCard application logging and editing videotape. The package is priced at \$199.

Circle #255 on Reader Service Card

### Steinberg Cubase Mac Audio

Up to 16 digital audio tracks can be recorded and edited along with MIDI tracks on the new Cubase Desktop MIDI Recording Program from Steinberg Digital Audio (Northridge, CA). The package is designed for use with Digidesign's Audiomedia Card, Sound Accelerator Card and Pro Tools, and is priced at \$950.

Circle #256 on Reader Service Card



With audio performance rivaling the very best, the M-EQ 230 is a great EQ that doesn't cost a lot of money. Now you can finally get excited about an equalizer.

When it's time for a little EQ, get a lot of EQ with the Alesis M-EQ 230 Precision Equalizer. For mixes, instruments and PA, there really isn't any other choice. Ask your Alesis dealer.



LOS ANGELES:  
Alesis Corporation 3630 Holdrege Avenue  
Los Angeles, California 90016  
LONDON:  
Alesis Corporation 17 Letchworth Point  
Letchworth, Hertfordshire SG6 1ND

*\*Slightly higher in Canada*

# THE DIGITAL COMPANY



- Widest Selection in the Industry of Digital Audio Products
- Apple Authorized Dealer
- Leasing, Buy/Sell/Trade

## • Multimedia Support

Why spend *your* time and money talking to dealers offering their limited selection of Digital Audio Equipment? One call to The Digital Company — EAR and...

The choice is *your's*.

**EAR**  
2641 E. McDOWELL

**602-267-0600**  
PROFESSIONAL AUDIO/VIDEO  
PHOENIX, AZ 85008

Apple

**OTARI**

digidesign

**AKAI**

**APOGEE**

Mark of  
the Unicorn

JL COOPER

**SONY.**

**STUDER**  
**EDITECH**

## THE BYTE BEAT

—CONTINUED FROM PAGE 74  
edited and stored.

The box connects to a computer via the ADB port (as does the mouse) and can be used along with, or in lieu of, the mouse. It is compact and well-made. The optically encoded jog/scrub wheel is easy to use and a good alternative to scrubbing digital audio (or MIDI tracks) with the mouse. By combining the jog wheel with 15 well-laid-out function keys and an optional footswitch, common operations of most sequencers and workstations can be controlled from the CS-1.

After becoming familiar with the controller, I used the mouse and Mac keyboard less and less—a phenomenon I remember experiencing with keyboard equivalents when first starting up on the Mac. Recording, rewinding, playing, capturing regions and switching between windows in Sound Designer was much more intuitive, and the ability to switch between jog mode and scrub mode was a useful feature.

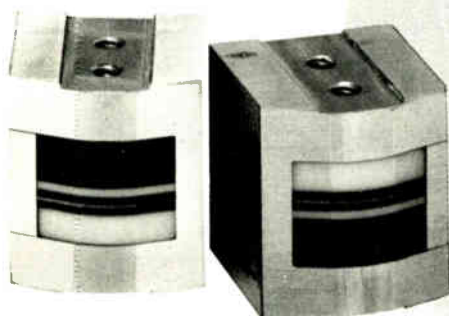
The CS-1 editor is available as both a DA and an application. Of the four presets available on the CS-1, only the third and the fourth are editable. (The first two are for Sound Designer and Macintosh extended-keyboard F-keys.) It would have been nice to be able to edit and save the Sound Designer keys in the original preset, but that's a small gripe. A second minor quibble is that the CS-1 assigns only keystrokes to its own keys—not mouse moves. However, this is overcome easily with the use of a macro program such as QuickKeys, which *can* assign mouse movements to keyboard equivalents, which in turn can be assigned to a CS-1 key.

Pressing the Shift key is like pressing the command or option key on the Mac—it changes the functions of the other keys. Its location is the only flaw in an otherwise ergonomically superb design. I'd like to suggest that since it is one of the most frequently used keys, it might be better positioned lower on the unit so that it can be pressed with the thumb or little finger.

I recorded a sound file and created a lengthy playlist in record time with the CS-1 after less than an hour of working with it. It's an excellent value at \$499.95 (the editor is an additional \$49.95).

# In The Tape Duplicating World... the Speed of Sound is not Constant!

*The higher the duplication ratio, the greater the demands put on all tape path components. Particularly, Magnetic Heads...*



## JRF MAGNETIC SCIENCES PROVIDES:

- REPLACEMENT HEADS: for high-speed and in cassette duplication, mastering and quality control.
- HEAD & ASSEMBLY RECONDITIONING: relapping—optical alignment.
- NEW PRODUCTS: T-Bar Azimuth mounts for slaves, custom assemblies SPI Products... Pinchrollers, Diamond Tuff loader splice blocks, Splice pads polymer bearings to name a few.

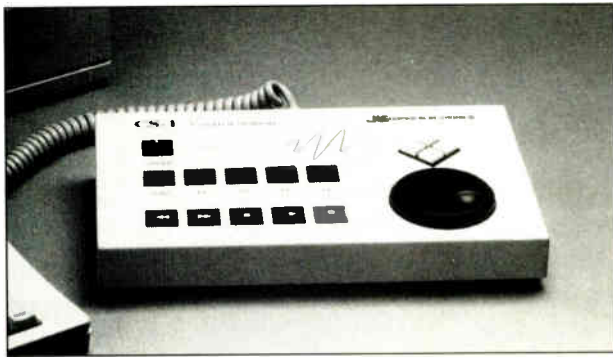
**JRF**  
MAGNETIC SCIENCES



## OUR SERVICES WILL MAKE A WORLD OF DIFFERENCE

249 Kennedy Road • P.O. Box 121 • Greendell, NJ 07839  
Tel.: (201) 579-5773 • Telex: 325-449 • Fax: (201) 579-6021





**JL Cooper's CS-1**

JL Cooper Electronics, 12500 Beatrice St., Los Angeles, CA 90066; (213) 306-4131.

### **X-oR Universal System Exclusive Orchestrator**

X-oR is Dr. T's solution to the management problems of labyrinthian MIDI systems. (Opcode's Galaxy Plus Editors is the other comprehensive offering in this category.) X-oR deals primarily with system exclusive MIDI data. Profiles of all but the most obscure MIDI instruments are included with X-oR to accomplish this task. A profile consists of a software driver, which communicates with the instrument, and an editing template, which

determines how the instrument's parameters are displayed and edited. X-oR is said to be capable of handling more than 100 instruments at a time.

Setting up X-oR is a nontrivial endeavor, particularly if you have a lot of instruments. Because MIDI system configurations

vary greatly—some use multiple programmable patchers; others don't use any patchers or mergers—it's difficult to provide step-by-step instructions in a manual. Assuming that your MIDI devices are set up and connected to the Mac, you copy the appropriate instrument profiles onto a folder on your hard drive, and proceed to the MIDI Setup dialog box, the Instrument List Editor and Instrument Setup Window to reflect your MIDI configuration. Both the manual and Profile Help do a good job of guiding you through the inevitable troubleshooting procedure in customizing your setup.

Once you are wired, you will probably need to take some time to famil-

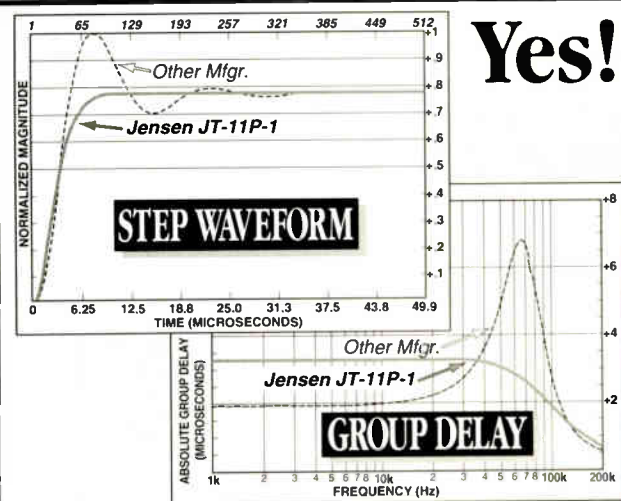
iarize yourself with the many windows and terms used to describe them. The more complex your instrument, the more windows. X-oR makes distinctions between banks, libraries, patches, performances and instruments, and it takes time to grasp what those distinctions are for each device in your system.

Having said all that, X-oR has many powerful features that make it easy to configure your system instantly, search for, audition and edit patches, banks and libraries, and import libraries to MS-DOS or Atari platforms. In combination with MIDI Manager, X-oR can be used to edit sounds while your sequencer is playing, and to record system exclusive data created using X-oR into your sequencer. (Dr. T's advises against using MIDI Manager in this context unless you are running a Mac with a 68020 processor or better, and I agree.) Priced at \$399, X-oR is a good value for the right user.

Dr. T's Music Software, 100 Crescent Road, Needham, MA 02194; (617) 455-1554. ■

*Paul Potyten is a Mix associate editor and a freelance composer/producer.*

# Do Jensen Transformers Have a Clearer Midrange and Top End?



## Yes! ...but Why?

The high frequency rolloff of a Jensen Transformer is computer-optimized to fit the Bessel Low Pass Filter response. This produces minimum overshoot and ringing, as well as flat group delay, for best time alignment of all spectral components of the musical waveform. In other words, the harmonics arrive at exactly the same time as the fundamental frequency.

The result is a clear midrange and top end without the harsh, edgy sound which has previously characterized many transformers.

Only Jensen uses sophisticated COMTRAN optimization technology, plus ultra-high precision Swiss winders, custom alloy cores, and exhaustive, computerized quality control procedures. That's why our transformers have no midrange smear. Just pure, clean, accurate sound plus superior isolation and noise rejection.

**jensen**  
TRANSFORMERS, INC.

Visitors by appointment only. Closed Fridays.

10735 Burbank Boulevard  
North Hollywood, California 91601  
FAX (818) 763-4574 • Phone (213) 876-0059

**The World's Leading  
Maker of High-Tech  
Audio Transformers**

# CD



## RECORDERS



**by George Petersen**

**Available**

**&**

**Affordable**

It's been over a decade since that fateful day in 1980 when Sony and Philips first proposed the compact disc standard, and the world is not the same. Consumers loved the new medium's convenience and sparkling audio quality, while record companies prospered with CD reissues of older material. Until recently, however, the compact disc mastering/manufacturing process offered no method of pro-

viding reference discs, and horror stories abound of major label CD releases cut from equalized, second- and third-generation tape duplication masters. Of course, it's always nice to know what your product sounds like on CD *before* committing to thousands—or even millions—of units.

Today, write-once (WO) CD recorder systems are available from nearly a dozen manufacturers. From a technology standpoint, creating a disc-based read/write system is not such a big deal. The real trick is producing a disc that is playable on any CD player, with full access to the table of contents (TOC) section, which contains the timing and indexing data.

By nature, the discs are non-erasable, operating in much the same manner as photographic film. With



TEC  
TECHNICAL ACHIEVEMENT & CREATIVITY  
1991  
WINNER

# FULL SAIL CENTER <sup>FOR</sup> THE RECORDING ARTS



*“Full Sail has all the most modern equipment...three Synclavier suites, the Neve, the SSL...it blew me away! The people who lecture are top quality people, some of the more credible people in the music industry. Everything was done first class. It was great!”*

## AL SCHMITT

WINNER OF FIVE GRAMMY AWARDS  
FOR ENGINEER OF THE YEAR

CAREER EDUCATION IN  
AUDIO, VIDEO AND FILM

# 800-221-2747

3300 UNIVERSITY BLVD. WINTER PARK  
(ORLANDO), FLORIDA, 32792  
IN FLORIDA: 407-679-6333

The DN-7700R includes AES/EBU and S/PDIF digital ports; for users requiring analog I/O, Denon's optional BU-0170A (\$4,000) provides the required ADCs and DACs, a large LED level display with selectable VU or peak characteristics, internal/external clock source switching and a headphone output. A multi-unit interface option permits the chaining of up to ten DN-7700R recorders, and eliminates the need for the BU-0170A interfaces on the slave machines, thus reducing the overall cost of a short-run CD duplication system.

Available as an option for Macintosh-based workstations from **Digidesign** (Menlo Park, Calif.) is the Yamaha PDS CD recorder. Controlled by Digidesign's Master List PDST<sup>SM</sup> software, users can route audio directly from the AES/EBU outputs of either Sound Tools or Pro Tools to the Yamaha YPE301 encoder and YPR201 recorder.

The Master List software creates a master playlist of digital audio files on one or more hard disks, and supports data such as catalog and ISRC codes, emphasis switching, song offsets, and track and index numbers. Up to 14 CD



recorders can be controlled by the Macintosh and one Yamaha encoding unit. The Yamaha encoder/recorder pair has a retail price of \$24,995; additional recording units are \$14,995.

Spot 90, from **Gotham Audio** of New York City, is a turnkey system that includes a 286-based CPU with VGA graphics, Audio + Design's Prodat 1B master recorder (with Apogee filters), and Yamaha's YPR201 recorder/YPE101 encoder combination. The

### **The Kenwood CD-WO system**

system is designed to make compact discs directly from a DAT master, and up to 14 recorders can be online simultaneously. The basic turnkey system is priced at \$35,000.

Gotham recently released Spot 90 Version 2.0 software, which adds features such as automated assembly editing for the DAT master, autoloading and TOC updating of material from

# Dreamhire

## PROFESSIONAL AUDIO AND MIDI EQUIPMENT RENTAL

### JUST ARRIVED !!!

- ROLAND JD800 programmable synthesizer
- NEUMANN TLM50 diffused field special pressure microphones
- MASSENBURG 8900 dynamic range controller
- TASCAM MSR16 1/2" 16 track recorder
- FOSTEX G16 1/2" 16 track recorder
- ENSONIQ EPS 16 PLUS TURBO sampling module

- TANNOY SYSTEM 12 DMT monitors
- EMU SYSTEMS PERFORMANCE/1+ piano module
- OTARI MTR90III latest revision 24 track analog recorder
- AMEK MEDICI "THE EQUALISER" by Rupert Neve
- DIGIDESIGN SOUNDTOOLS one hour stereo hard disc recording/editing system with MAC II FX

**And don't forget that we still carry the largest selection of digital multitrack recorders for rental in the USA!**

### NEED TO BUY EQUIPMENT?

Call or fax for our latest list of well-maintained ex-rental equipment.

### 3 LOCATIONS

Each with its own very extensive inventory  
friendly, knowledgeable and efficient staff • Broad technical experience  
24 hour 7 day service

### NEW YORK CITY, USA

Phone 212-691-5544 or 1-800-234-7536  
from outside N.Y. City • FAX 212-627-4783  
Chris Dunn, Donna Winfield, Brian Macaluso

### NASHVILLE, TENNESSEE, USA


Phone 615-321-5544 FAX 615-321-0579  
Patty Sprague, Paul Simmons

### LONDON, ENGLAND

Phone 081-451-5544 • FAX 081-451-6464  
Nick Davies, Colleen Garton, Pete Towner, Simon Saywood



# Introducing the Alesis RA-100 Reference Amplifier



Every link in your studio is critical to good mixes. Studio monitors, your board... even your amplifier.

Why not improve your mixes and step up to the **Alesis RA-100 Reference Amplifier**.. An amp designed for the critical demands of production audio. With the RA-100 and your monitor speakers, the mix you hear in your studio is the mix you'll hear everywhere else.

The RA-100 is accurate, dead quiet, and at 100 Watts a side\*, has the power to do the job. It's like a straight line between your mixer and your monitors.

On stage the RA-100's cool operation and unique protection circuitry make it ideal for PA and sound reinforcement, with the punch and clarity your performances deserve.

Plus, through ingenious circuit design the RA-100 handles peaks and overloads intelligently, so it plays louder without audible distortion.

At \$349\*\* the RA-100 is the unbeatable value in reference amplification. Kick your old hi-fi amp out of your studio and get an RA-100 at your Alesis dealer today. You'll hear exactly what you should be hearing.

*\*Into 4 Ohms. 75 Watts into 8 Ohms*

*\*\*Suggested Retail Price. Slightly higher in Canada*

**ALESIS**  
STUDIO ELECTRONICS

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

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



# Post Logically

**In this business,  
you meet a lot of characters.  
Some animated, others less so.**

Post Logic's Studio B has seen a lot of them in the past few months . . . Studio B and the Neve VRP60 are booked around the clock, posting for the 4 major networks (on-air promos, series), film and home video projects, and for music recording dates.

The Neve VRP60 is a true multiformat console, with complete recall, capable of switching from video post operation to music recording—literally at the push of a button—

coupled with Flying Faders, the friendliest and most efficient automation system in the business.

In today's economic environment, you have to be ready to deal with whatever walks in the door—tracking, mixing, posting. So, apply a little Post Logic to the problem and use the one true multiformat console, the Neve VRP. It's the Post Logical solution, and it could work for you.

 **Neve**  
A Siemens Company  
(203) 744-6230

**POST LOGIC**  
MUSIC TO PICTURE

Hollywood, CA 213 • 461 • 7887

**TEC**  
1991  
WINNER

Photo By Ed Freeman • Illustration by Jordan Bochanis



an edited source, automatic DAT preparation (transferring TNO markers from any DAT tape to CD indexing points), and an optional PC card that allows recording of all PQ data on track 1 of the DAT leader.

Also available from Gotham is CDR 90, which is similar to Spot 90 but is designed for writing CDs directly from your Sony PCM-1630/DMR-4000 combo. Since CDR 90 lacks the Prodat, digital interfaces and SMPTE reader/generator, it is priced at \$29,000.

**JVC** (U.S. offices in Elmwood Park, N.J.) has announced plans to unveil a hybrid (combination CD-ROM/CD-Audio) recording system in 1992, but pricing, shipping and other details were unavailable at press time.

The CD-WO system from **Kenwood USA** (Long Beach, Calif.) comprises the DA-7000 CD encoder (\$14,000), DD-7200 CD writer (\$10,000) and PC software (\$6,000) for generating the subcode data. Options include a CD-ROM writing formatter and a unit for encoding CD+G graphics with the digital audio. Recording can take place in either uninterrupted or incremental modes, and the unit accepts inputs from PCM-1630 or DAT sources. A U-Matic transport can be controlled directly by the DA-7000 encoder, which can also feed up to ten CD writers.

The CDR-600 from **Marantz Pro Products** (Aurora, Ill.) makes its U.S. debut at next month's NAMM show in Anaheim. This three-rackspace unit reportedly has the ability to write a temporary TOC on the disc, allowing users to interrupt the recording process and continue recording additional tracks at a later time. Other features include S/PDIF digital and +4 XLR analog I/O and 1-bit analog converters. Also provided is the ability to download PQ information from computer-based, hard-disk editing systems. Tentative pricing is under \$10,000.

**Optical Media International** (Los Gatos, Calif.) recently announced macTOPIX Pro CD™ and macTOPIX-CDR Pro™, two multimedia CD-ROM and CD-Audio mastering/CD recording systems for the Macintosh. Available as software-only or as an integrated hardware/software system, macTOPIX is compatible with all multimedia graphics, digital video and digital audio editing/authoring software tools, such as Director, Authorware, Media Tracks and Sound Designer; all industry-standard graphics, video compression and PCM audio file

# LISTEN UP.

## C-62 cassettes from 38¢.

Greencorp USA offers you the finest blank cassettes at the lowest prices. Australian made... Genuine chrome. Music PLUS. XDS.

Recording giants around the world know the difference between our quality-made audio cassettes and imitation rip-offs. That's why they buy from us. That's why we're the cassette of choice for audio pros.

*Isn't it about time you heard the difference?*

**Genuine Chrome** - Our cassettes are coated with DuPont chromium dioxide. Not to be confused with the other guys, who use "chrome-bias" ferric oxide tapes.

**Music PLUS** - The sound is smooth. Full. Why pay double the price for reproduction quality surpassed by none?

**XDS** - Best seller. The recording industry's favorite.

ALSO AVAILABLE: PREMIUM VHS VIDEO CASSETTE BLANKS.

Call the toll-free number below to receive your FREE detailed product information brochure and price list.

**1-800-972-0707**



**GREENCORP USA INC.**

1015 W. Newport Center Dr., Suite 105 • Deerfield Bch., FL 33442 • FAX (305) 429-9214

## OTHERS TRY TO COPY OUR CASSETTE SERVICE



## BUT IT CAN'T BE DUPLICATED.

**AND HERE'S WHY:**

Finest Audio Quality

Excellent Printing and Packaging

Fast Turnaround

Very Competitive Prices

Ears of Experience



# SRI

**SOUND RECORDERS, INC.**  
4031 Guadalupe  
Austin, Texas 78751

**1-800-880-0270**

Cassettes like ours can't be duplicated. Anywhere.



**SPRAGUE MAGNETICS, INC.**  
**ACQUIRES**  
**AMPEX AUDIO PARTS INVENTORY**  
**WITH MANUFACTURING RIGHTS**

Ampex Corporation and Sprague Magnetics of Van Nuys, CA have reached an agreement which allows Sprague to provide Ampex's customers ongoing service and support for Ampex audio recorders throughout the world.

The agreement allows Sprague to purchase all existing inventory of Ampex audio recorder parts and appoints Sprague as the sole authorized source for replacement parts for Ampex audio recorders. Ampex has the 3rd largest installed base of tape recorders in the world. Sprague has assured Ampex that parts and service will be available to its customers through at least 1995.



Sprague Magnetics, Inc. 15720 Stagg Street, Van Nuys, CA 91406  
 Phone: 818-994-6602; Fax: 818-994-2153; Telex: 754239;  
**1-800-553-8712**

formats are supported. OMI also offers complete CD premastering/development packages for IBM-PC/AT and PS-2 compatible computers.

Software packages begin at \$1,295, and supported formats include CD-Audio, CD-ROM, Mixed Mode (ROM + audio), CD-ROM XA, CD-I, DV-I and user-defined formats. Among the available hardware options are Sony's CDW-W1 CD recorder (\$16,995) and CDW-E1 encoder. The latter allows the use of up to 32 CD recorders simultaneously.

**Otari** of Foster City, Calif., is now offering an optional CD recording package for its DDR-10 digital recorder/editor workstation, utilizing Yamaha's YPE301 encoder and YPR-201 recorder. Signal is fed from the DDR-10 to the recording system via AES/EBU and an RS-422 cable, so the writing hardware can be located up to 100 feet away. Up to 14 recorders can be connected to a single encoder. The software is a dedicated version of Digidesign's Master List program, and a single-disc system is priced at \$24,995.

**Pioneer Electronics** (U.S. offices in Long Beach, Calif.) is slated to begin delivering its RPD-1000 stand-alone CD recorder in Japan this month. Designed for the institutional market and priced at 950,000 yen (about \$7,200 U.S.), the RPD-1000 includes an onboard sampling rate converter that changes digital sources recorded at 32 or 48 kHz to the CD-standard 44.1 kHz. The back panel has balanced and unbalanced analog I/O, AES/EBU and S/PDIF digital inputs, and S/PDIF digital outputs. [Note: At press time, there was no word concerning availability of this product in the U.S. Stay tuned for further developments.—ed.]

One of many options for the various configurations of the Sonic System workstations from **Sonic Solutions** (San Francisco, Calif.) is the CD Maker. Priced at \$25,000, the CD Maker option includes a Sony CDW-E1 encoder/CDW-W1 recorder combination; also available is a software package that can automatically generate PQ track and index points from an edit decision list. AES/EBU and SDIF digital inputs are standard; Apogee A/D and D/A converters are optional, as is Sonic Solutions' acclaimed NoNoise™ system for click removal, complex filtering and broadband noise reduction.

Housed in a three-rackspace box is the D740, a stand-alone CD recorder from **Studer** (Nashville, Tenn.). The



# UNREEL!



▲ **AKAI A•DAM** 36-Track Digital Multi-Track – #1 selling digital MTR in the World!

"Great! The only 12-track digital for under 25 Kilobucks." — Roger Nichols, producer/engineer

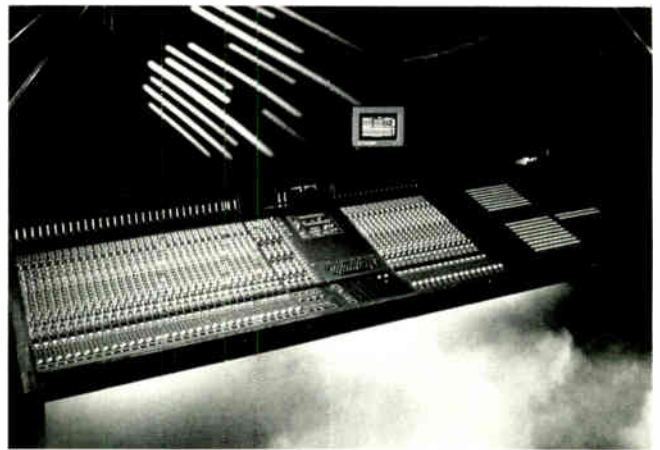
Single 12-track unit also available.

SOUTHERN CALIFORNIA'S EXCLUSIVE DEALER



▲ **SOUNDTRACS IL4832** 48x32 In-Line Console with 48-track monitoring. Just ask Walter Becker!

SOUNDTRACS IL3632 (pictured) also available.



▲ **AMEK MOZART RN80x32** In-Line Console with Supertrue Automation and real-time dynamics. Rupert Neves' newest creation featuring his improved EQ and mic preamps!



▲ **LEXICON 300** Digital Effects – best sounding 'verb we've heard under 10K!



▲ **AKAI DD1000** Digital Recorder/Editor Magneto-Optical Disk drive!

"An important part of my digital future." — Roger Nichols, producer/engineer



▲ **TC ELECTRONIC TC-2290** Digital Multi-Effects/100K Sampler – dynamic range 100dB.

**PROFESSIONAL AUDIO SERVICES AND SUPPLY CO.**

619 SO. GLENWOOD PLACE, BURBANK, CA 911506. ☎ 818/843-5320. FAX: 818/843-5754



**OTARI**

**Eventide**

**TANNOY**

**NOIŽ**  
MONITOR

**lexicon**  
The Art and Science of Sound

AS WELL AS ALL MAJOR LINES





CD'S AND TAPES  
COMPLETE  
PACKAGES

EASTERN  
STANDARD  
PRODUCTIONS, INC.

26 BAXTER STREET  
BUFFALO, NEW YORK 14207

TEL 716-876-1454  
FAX 716-877-6395  
1-800-527-9225

- CD REPLICATION
- HIGH SPEED CASSETTES
- AUDIOPHILE REAL TIME CASSETTES ON TDK-SA
- COMPLETE PRINTING AND PACKAGING

1000 CD'S  
\$2300.00

COMPLETE  
PACKAGE

1-800-527-9225  
FOR A FREE BROCHURE



## Study with Top Music Professionals This Winter

WINTER QUARTER BEGINS JANUARY 4.

- **Critical Listening, Ron Streicher**, Owner, Pacific Audio Visual Enterprises
- **Recording Engineering Practice I, Randy Farrar**, recording engineer, musician, composer
- **From Fixer to Mixer: Recording Studio Maintenance, Michael Mroz**, principal engineer, Consulting Studio Maintenance; has provided technical support to scores of gold and platinum projects
- **Audio Signal Processors: Effects Devices, Michael Braunstein**, recording engineer/producer
- **The Business of Operating a Recording Studio: Realities and Opportunities in the '90s, Guy Costa**, CEO, Quadim Corporation; past president, SPARS; former vice president of operations, Motown Records

HL A54

For your free copy of the Winter Quarter 1992 course catalog call (310) 825-9064, or outside Southern California call (800) 388-UCLA. Or fax us at (310) 206-7382.

IN AN  
INCREASINGLY  
COMPETITIVE  
MARKET, THE  
PRICING OF CD-R  
SYSTEMS HAS BEEN  
CHANGING ON NEARLY  
A DAILY BASIS.

unit allows start/stop recording, with a temporary TOC readable only by the D740; once a permanent TOC is written, the discs are playable on any CD player. The rear panel includes transformer-balanced XLR inputs and outputs, unbalanced RCA outputs, AES/EBU digital I/O, S/PDIF coaxial and optical inputs, and a 25-pin parallel remote jack with fader start. The D740 is priced at \$12,950.

The YPDR system from **Yamaha Pro Audio** (Buena Park, Calif.) consists of the YPDR601 recorder and the RC601 full-function remote controller. If desired, the unit can be operated on a "start-stop" basis, where one track could be recorded from an AES/EBU source, the next from an analog source, etc. Two TOC modes are offered: in the "pre" mode, 99 tracks of ten or 30 seconds are written before the audio is recorded. If the audio is shorter than a track, the unit inserts silence at the end of the cut; if the program material is longer than a track, the recording can cross the boundaries between tracks. Using the "pre" mode, a partially recorded disc can be played on any CD player. In the "after" mode, a permanent TOC is created after the audio is recorded.

The YPDR601 recorder is \$16,000; the RC601 remote is \$4,000. System features include large, lighted transport controls, XLR balanced analog inputs/outputs, AES/EBU and SDIF-2 digital ports, sync in/out and the ability to slave up to seven recorder units from a single remote for quantity duplication.

American Helix

*Compact Disc Replicators*

**BETTER THAN EVER**

*and still growing.*

Compact Disc Replication

Premastering

Mastering

Visual Design

5 Color Disc Printing

PictureDisc™ Printing

Custom Packaging

Fulfillment Services

Product Development

Music Licensing

Music Premiums

Professional AudioTape Products

Cassette Duplication

*The User-Friendly Compact Disc People*

**800 525 6575**



**AmericanHelix™**

World Radio History



# Garth Brooks

## *Ropin' the Audience*

by David Schwartz  
photos by Henry Diltz

**"I love to knock people off their seats,"** says the red-hot, crossover country singer Garth Brooks. "I like to see people come to the show, go nuts, and then talk about it until we come around again."

Brooks has been excelling at knocking people off their seats, as well as keeping other country artists off the top of the charts, for nearly a year now. His second album, *No Fences*, logged 42 weeks at Number One on the *Billboard* country charts, being knocked back to Number Two by the release of his latest CD, *Ropin' the Wind*. More impressively, his new record exploded onto the pop charts at Number One on the first week of release, certainly an unheard of achievement for a "country" artist. It is the first crossover country record to reach the top of the pops since *Kenny*

music with meaning. "Our concert is country music," says Brooks, "but with a late-'70s rock show mood, and it's the '90s as far as the mobility onstage—without any wires or mic stands.

"It's a melting pot, as my whole life has been," he adds. "George Strait was the guy who made me know country music was where I wanted to go. But seeing a Queen concert when I was in high school showed me how important the general power of the show was in connecting with the audience. Groups like Kansas and Styx showed us



*Roger's Greatest Hits* 11 years ago.

Representing a new generation of country artist, one raised on tradition but influenced and inspired by the power, excitement and technology of modern rock concerts, Brooks has

created a fusion between country and popular music that reaches out to a broad cross section of music fans in search of

how exciting and well-staged a show can be, and we're always drawing influences from all kinds of artists, where we see and hear things that turn us on—

Billy Joel, Cinderella, even Megadeth. We try to put together an all-star event, a whole concert of things, so that by the end of it, people are worn out."

Audiences are not the only worn-out people at a Garth Brooks concert. With a band using wireless instruments and wireless headset microphones, constantly and unpredictably running around onstage, the sound and light technicians haven't a moment to relax. Most unfortunate is monitor mixer



Brent Dannen, who has the insane task of trying to mix stage sound for a pack of musicians who are continually rearranging themselves onstage. "See this T-shirt?" says production manager John McBride, pointing proudly to his "Workin' for a Madman" shirt. "There's a reason for that!"

McBride, who started MD Systems in 1984 in Wichita, Kan., with a borrowed \$6,000 worth of amps, speakers and a 12-channel mixer, notes that despite the challenges of this kind of show, the effort is well worth it. "With Garth, we care more. Garth ruined us for working for anyone else because he treats us so well. But he expects his people to work hard. We're carrying fewer people on the road than other tours doing the

same kind of job. We work harder, but we get taken care of."

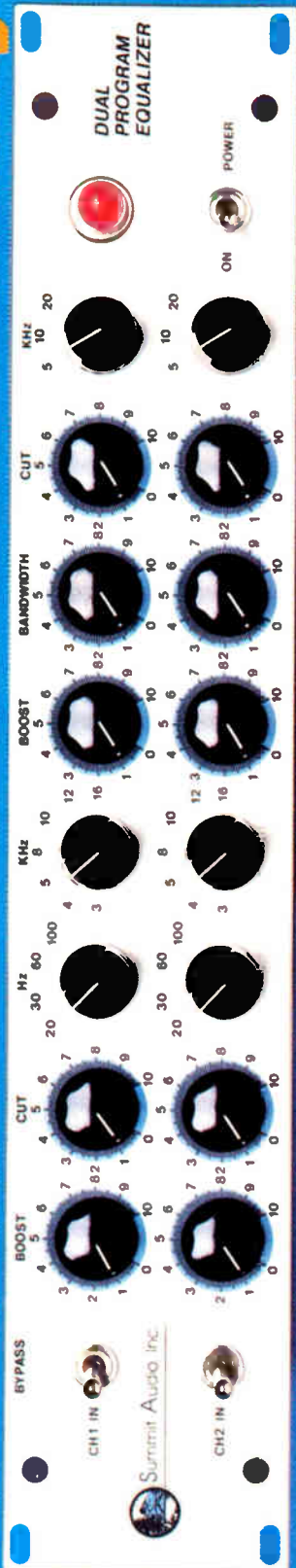
"Mixing Garth requires you to stay on your toes and be ready for anything to happen," says house mixer Dan Heins. "Like last night (the first of two sold-out shows at Dallas' Reunion Arena being taped for an NBC network special). I wasn't aware that Garth and Ty England, his other acoustic guitar player, were going to smash their guitars against each other at the end of 'Friends in Low Places' until five minutes before showtime. I'd heard something about it, but I thought I'd better ask, because if they were, I'd better mute them. Other shows seem to be more rehearsed and choreographed, but with Garth's show it's always a free-for-all. We don't have a set list that we

**Left: House mixer Dan Heins at work for the Dallas Reunion Arena concerts behind MD Systems' Yamaha PM3000. Right: Record producer Allen Reynolds (right) and engineer Mark Miller mix the Dallas concert for an NBC television special from the Omega Audio remote truck outside the arena.**





# Hear The Warmth . . . Summit Tube Processing



Summit Audio Inc.

P.O. Box 1678, Los Gatos  
California 95031 U.S.A.  
408-395-2448  
Fax: 408-395-1403

use for the whole tour—every night's different, and he could throw something in at any moment. You've got to stay on your toes."

After graduating from the University of Kansas in the mid-'80s, Heins joined MD Systems because "John (McBride) was the regional sound god around Kansas and had the best system." The two worked a variety of Midwestern shows for artists as diverse as Yngwie Malmsteen and Cameo, until in September 1989, while handling sound for a Ricky Van Shelton show, they encountered Brooks as an opening act. "Garth had just come out with his first album and didn't have a house mixer," says Heins. "It was just luck that I made an inquiry into who was going to mix him and got the job. Garth pretty much stole the show."

By January 1990, McBride, Heins and MD Systems had relocated to Nashville, betting on the continued growth of Brooks' career, though McBride admits that at first Brooks wasn't able to carry production. "But within about six months," McBride says, "I needed to expand to keep up with him. His career was skyrocketing."

Brooks' success has moved MD Systems into the big leagues of equipment operation in a relatively short time. This has brought a certain amount of freedom, along with a great challenge in matching technology with the intense demands of this unique artist. "When Garth has an idea," says Heins, "you never want to say to him, 'That's never been done before,' because that's just what he's trying to do out there. He's trying to expand every aspect of the show to the point where it's right on the edge. And he wants people behind him who'll say, 'I don't know, but we'll find out, and we'll try it.'" MD Systems recently added the technical expertise of Wally Bigbee (head tech on the "Monsters of Rock" tour) and has received considerable technical support from Crown International, Systems Wireless and Brock Jabara, P.E.

For the Dallas arena shows, as well as the balance of the "Ropin' the Wind" tour, MD upgraded to 48 full-range flown cabinets, each composed of two 18-inch speakers, two horn-loaded 10-

inch drivers, and one 2-inch tweeter. The cabinets were built by JTB Associates of Wichita, a group normally employed to remodel interiors of jet aircraft.

With flying safety in mind, MD asked for high-test precision work. "We took the cabinets to Pittsburgh Testing Labs," says McBride. "They weigh 250 pounds apiece, and we fly them four deep, maximum. With 150 pounds for the motor and 100 pounds for the bar, that's 1,250 pounds split between two support points, or 625 pounds per

point. We had them tested at 5,000 pounds per point for 12 hours. When it comes to flying systems, you can't be too careful—especially if you're over seating. If that stuff ever falls, I hope I'm the first one in line. I hope I get crushed, because I can't imagine causing harm to anyone over this business."

Driving the cabinets are Crown 2400 and 3600 Macrotech amplifiers, with



house sound mixed by two Yamaha PM3000s. Recently, the company began using a Crown IQ 2000 for control and monitoring of the amplifiers during the shows, to give total access from the house mix position and for a faster balance, especially when working in the round. Says McBride: "One of the advantages of the IQ is that in a hall like Reunion Arena, Dan can sit at the house console and I'll walk the room with a radio, and he can turn down certain amplifiers and speakers in areas that may be closer to the audience so we get a better overall coverage. Then we can save those settings on disk, and the next time we come to Reunion, as long as we're flying the same configuration, we'll know where we are."

Bringing the vocal above the adoring crowd noise at a Garth Brooks concert is one of the sound crew's more serious considerations. "Competing with the crowd for volume gets into a snowball effect," Heins says. "I try to keep it down to a non-fatiguing level. We run an average of about 100 dB at the house console. Last night the crowd was louder than the P.A. a lot of the time. The crowd on the floor was hurting my ears, but the P.A. wasn't."

Brooks' vocal mic—as well as that





# Multiple DAT automation isn't impossible.



## Take control. *It's free.*

It's not often we let our imagination take control. But with the Panasonic SH MK-390 Controller for our SV-3900 Pro DAT you can do just that. And for a limited time, we'll give you one *free* when you purchase an SV-3900.

The SV-3900 features all of the award winning features, sound quality, and performance of the SV-3700. But with much more. If you are ever going to need more than one DAT, there is only one choice for this much control and automation. Up to 32 SV-3900s can be controlled and monitored from one SH MK-390. Interfaced with your digital workstation and hard disc recorder for on-screen control. Or in a virtually limitless variety of studio, broadcast, or installed sound applications.

Those are only a few reasons why the SV-3900 is essential equipment. The best reason is that it frees your imagination to explore the almost limitless possibilities this technology represents. But there's only one way to find out for yourself— that's to *buy* an SV-3900 Pro DAT. Do it by December 31, 1991 and you'll be able to take complete control with a free SH MK-390 Controller.

For your nearest dealer, call 714-373-7278, or write: Panasonic DAT, 6550 Katella Avenue, Cypress, CA 90630.  
©1991 Panasonic. Offer void where prohibited. Offer available only in the U.S.A.

**Panasonic**  
Professional Audio Systems

of the rest of his mobile band—is the AKG 410, the best-sounding mic the crew found for this demanding application. To keep a reign on Brooks' dynamic voice, "We constantly use a good deal of compression, anywhere from 3 to 6 dB of gain reduction," says Heins, "because the proximity of his mic to his mouth never changes. And he can go from something that's really soft to Bam!—something that really pushes it into compression. We also use a Klark-Teknik DN405 parametric EQ to take out some mid-low, to control popping and to bring out intelligibility."

Garth Brooks certainly doesn't take the technical side of his show lightly. "The band has always said that the most important man at any concert is the man at the house mixing board," Brooks says, "because you can be playing your ass off, and if the engineer isn't picking it up, the audience will never hear it. The MVP of any concert is the engineer."

Brooks' show also caught lighting operators off-guard in the early days. "When we first started running around onstage," says Brooks, "it would take awhile for spotlight operators to catch up with us, because they were used to

just setting the spots on a certain point and going to get some popcorn or something. But now they watch every move we make. And if they're doing that, then they're focused in on us. So that's when the message of the song comes through, and it's a way to keep people's attention. When they're watching you, they're listening to you.

"I like to move around to keep people's attention, to keep them into what I'm saying and doing, so that there's no lull in the show," he continues. "The mobility brings attention, and attention allows you to deliver the messages you came to deliver."

So what are the messages? According to Brooks, "Rules and records are made to be broken, but at the same time there are morals and decency that should remain. Kids need to know that drugs and excess of alcohol is for losers. And people need to know that no matter how old you are or how far down in the dumps you think you are, dreams can be achieved no matter what your starting point is. That's some of what we are trying to convey onstage as well as offstage."

But Brooks' appeal, in the long run, comes largely from his songs. Allen Reynolds, who has produced Brooks' three albums to date, feels that in the space of those albums, "Garth has offered 30 incredible pieces of material. And in this business, that's always going to give you a competitive edge."

Reynolds, a 25-year-veteran of the Nashville recording scene and producer of albums for Don Williams, Crystal Gayle, Emmy Lou Harris and Kathy Mattea, was first introduced to Brooks by manager Bob Doyle. Says Reynolds: "I liked Garth's voice from the time I first heard his tapes, and when we met, he seemed to have his feet on the ground and had an idea of what he wanted to do and what he was about. So I offered to do a few sides together."

Reynolds took Brooks into Jack's Tracks, the Nashville studio that the producer purchased from Jack Clement about 15 years ago. "The first day, we cut the first four sides of *Garth Brooks*, including 'If Tomorrow Never Comes' and 'Much Too Young to Feel This Damn Old,' two hit singles from the album. So it was a really good day.

"I was telling people about Garth before the record debuted," Reynolds adds. "I felt certain it was going to make a dent and launch him. But I didn't know the record was going to do as well as it did. Ordinarily, in the coun-

# GAUSS

## SETTING THE STANDARDS

96:1 music duplicating ratio. Double master switching. Buffer amplifiers. All standard in the renowned Gauss Series 2400. Plus, proven reliability and dependability



All are why Gauss duplicating systems are the world's best.

Capable of optimizing most duplicating systems operating from 1:1 through 128:1 ... and providing in-process QC, the Gauss Series 1100 Tape Test System sets new standards of its own.



Whether you duplicate rock or Bach or spoken word Gauss is the proven leader.

**gauss**

a MARK IV company  
9130 Glenoaks Blvd.  
Sun Valley, CA 91352  
(213) 875-1900  
Fax: (818) 767-4479



**Everything  
About Our New  
Digital Audio  
Equipment Is  
Designed To  
Sound Better  
Than Ever.**

**SONY**

**TCD-D10 Pro II**  
**Portable DAT Recorder**

The TCD-D10 Pro II is the smallest professional DAT recorder from Sony. Yet, while it weighs only 4 lbs. 7 oz., the TCD-D10 Pro II is no lightweight when it comes to performance.

Built to withstand the rigorous demands of field work, the TCD-D10 Pro II allows you to stay in the digital domain from acquisition to studio. It also features absolute time (A-time) recording/playback which places a continuous time code on tape, allowing you to locate recorded segments faster and more easily.

Plus, A-time is compatible with SMPTE time code DAT recorders like our PCM-7000 Series. There's even an improved digital I/O and LCD

multi-display with a combination of safety/warning indicators to help insure fail-safe operation. And when combined with one of Sony's high quality microphones, you're fully equipped to meet the most demanding challenges in the field.

**KEY SPECIFICATIONS**

- DYNAMIC RANGE: MORE THAN 85 dB**
- FREQUENCY RESPONSE: 20 Hz-22 kHz**
- THD: 0.06%**
- I/O: ANALOG—MIC/LINE BAL, DIGITAL—AES/EBU**
- ACCESSORIES: BATTERY (X2), CHARGER, REMOTE, AC SUPPLY, CASE**
- ▼ SHOWN WITH OPTIONAL SONY ECM-M55 STEREO MICROPHONE.**



**PCM-2700**  
**Studio DAT Recorder**

Taking advantage of Sony's latest innovations in digital technology, the PCM-2700 is the first affordable professional 4-head DAT recorder.

Featuring Sony's advanced HDLC (High Density Linear Converter™) System, the PCM-2700 delivers superior sound quality. The PCM-2700 also employs a 4-

motor direct drive transport to insure tape stability, accuracy and reliability. Its 4-head design provides off-tape monitoring to verify your recordings.

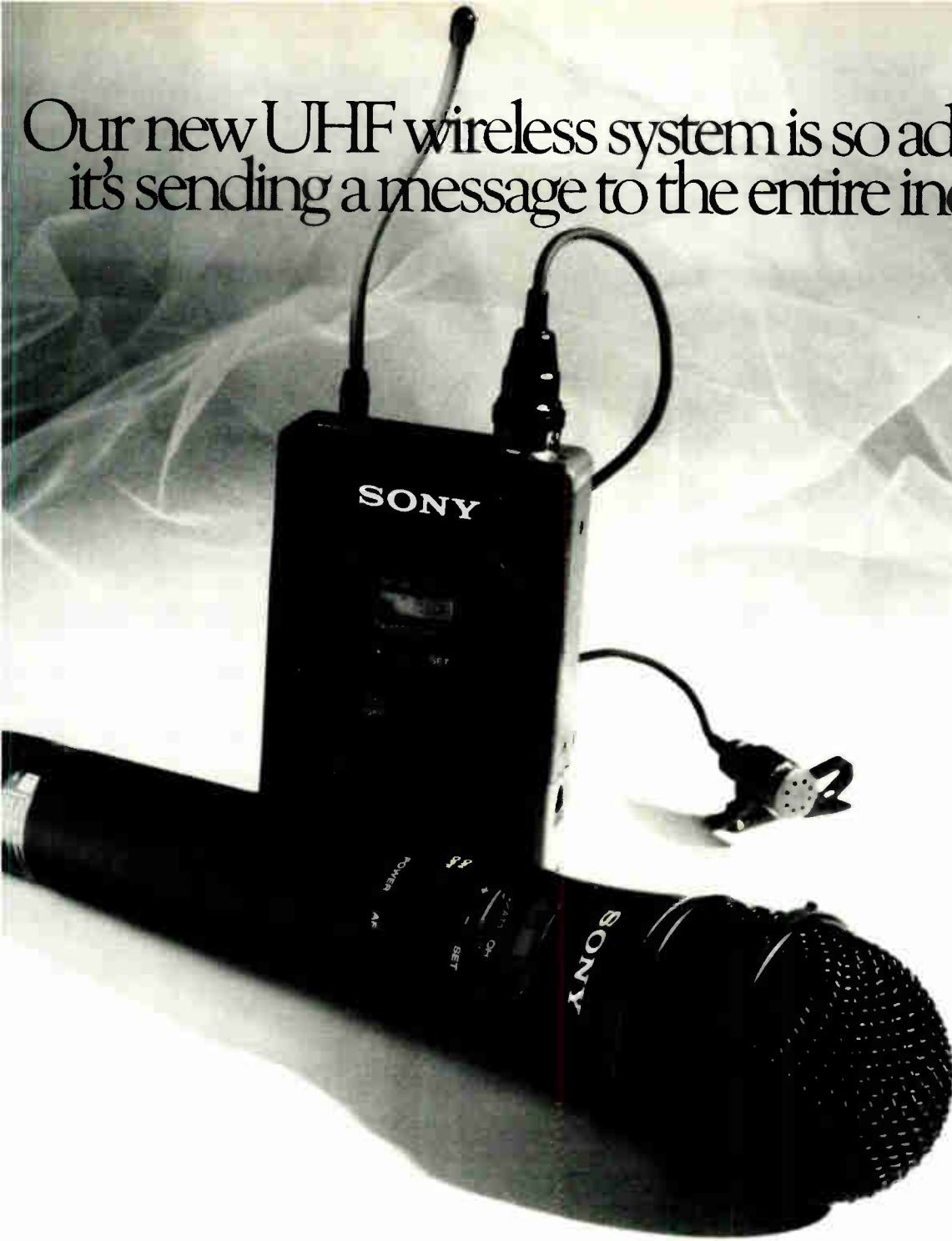
There's even a duration adjustable digital auto fader for fade-in and fade-out times as well as an A-time search function for rapid access to any recorded A-time location—all giving you the utmost in professional performance.

**KEY SPECIFICATIONS**

- SIGNAL TO NOISE RATIO: MORE THAN 90 dB**
- FREQUENCY RESPONSE: 20 Hz-22 kHz**
- THD: < 0.045%**
- ANALOG I/O: + 4 dBs (+ 24 dBs MAX.) ADJUSTABLE**
- PARALLEL REMOTE: TTL COMPATIBLE, D-SUB 37**



Our new UHF wireless system is so advanced,  
it's sending a message to the entire industry.



People aren't just talking into our new microphone system. They're talking about it. And they're saying it may forever change the way we think of wireless microphones.

That's because the 800 Series is the first to use a micro-processor to control virtually all of its functions. So it's more reliable and easier to use than other systems. It's also the first to give you 94 selectable channels in the UHF band. And it's the first microphone system to use an LCD display



*The 800 Series Wireless Microphone System*

on the transmitters as well as the receivers.

But that's not the end of our remarkable innovations. The 800 Series is also the first to store pre-programmed multi-channel selections. It's even the first to operate in the 794-806 MHz band for uncluttered transmission.

To learn more about our new wireless system, call 1-800-635-SONY, ext. 800. You'll discover that with all these firsts it's doing more than getting a lot of people talking. It's leaving the competition speechless.

**SONY**

BUSINESS AND PROFESSIONAL GROUP



where professionals have shopped  
since 1953

# Value Service Selection

Your source for all your Pro Audio needs  
Give us a call today.

SALES (607) 263-5695 FAX (607) 263-2373

Boynton Studio Morris, NY 13808

try music field, it takes a bit longer. He's been exceptional in that he's taken off like a rocket."

Reynolds considers Brooks' success to be partly due to the fact that the artist doesn't like to write all of his songs. "He's one of the best songwriters I've known, and he's friends with and a big fan of songwriters in Nashville. I think it underlines his professionalism that he doesn't write all of his songs. He didn't write 'Friends in Low Places' or 'The Dance'—two huge records in his career. I look at some of his competitors, and they've got their name on every song. Garth doesn't want the songwriting community to give up on him and say, 'He wouldn't be interested in my song.'

"Garth doesn't dominate the material on his album, but he does like to be in there with his name on a handful of competitive songs. I think if he didn't feel he was competitive, he wouldn't have any on there. But then I think he would be disappointed with himself."

"I'm influenced by both male and female artists," adds Brooks. "There are a lot of female artists out there who cut songs that men would never cut. Those are the ones I'm looking for, the ones that show that men have a very tender side, too.

"When I'm working with another writer, I usually bring in ideas," he explains. "I'll say, 'I've got this idea of a guy who goes home with his wife and meets his old flame in a grocery store. While they're talking, he keeps looking back and forth between his wife and his old flame and realizes, 'Oh God, thanks for not letting me make this mistake that I once asked for.' That was the basis, with a few changes, for 'Unanswered Prayers.'"

Brooks' most recent crossover hit, "Shameless," emerged from Billy Joel's *Storm Front* album. Reynolds says, "Garth heard the song on Billy's album and just loved it. He put it in his show on the road, and it was killing people. I told him it was not a song I would ever have thought to present to him. But Garth kept his eye on the song, and when it became pretty certain that Billy wasn't going to release it as a single, Garth wanted to cut it. As far as I was concerned, if something moves my singers deeply and doesn't get too far out on some extreme edge, I'm game. I think that's part of what supplies the surprise element. And the artists who have thrilled me have surprised me again and again. Garth is a very emo-



## LEARN THE ART OF RECORDING

THE RECORDING WORKSHOP IS THE WORLD'S LEADING SCHOOL FOR "HANDS-ON" TRAINING IN MUSIC RECORDING TECHNOLOGY. IN OUR INTENSIVE, 5-WEEK PROGRAM, YOU'LL LEARN THE CREATIVE OPERATION OF PROFESSIONAL RECORDING EQUIPMENT. WE'LL TEACH YOU THE JOB SKILLS NEEDED TO SUCCESSFULLY START YOUR CAREER AS A RECORDING ENGINEER, PRODUCER OR STUDIO MUSICIAN.

- ▶ 6 STUDIOS FILLED WITH THE LATEST EQUIPMENT: DIGITAL RECORDING TO HARD DISK, DAT MASTERING, AUTOMATED MIXING, MIDI AND MUCH MORE
- ▶ SMALL CLASSES, PERSONAL ATTENTION
- ▶ NO PREVIOUS EXPERIENCE REQUIRED
- ▶ INTENSIVE, 5-WEEK PROGRAM GIVES YOU MORE QUALITY, IN-STUDIO EXPERIENCE THAN MOST LONG-TERM SCHOOLS
- ▶ JOB/INTERNSHIP PLACEMENT ASSISTANCE
- ▶ FINANCIAL AID AVAILABLE
- ▶ LOW-COST, ON CAMPUS HOUSING

FOR FREE BROCHURE, PLEASE CALL OR WRITE TODAY

**THE RECORDING WORKSHOP**  
1-800-848-9900 1-614-663-2510  
455-X MASSIEVILLE ROAD, CHILLICOTHE, OHIO 45601

OHIO STATE BOARD OF SCHOOL AND COLLEGE REGISTRATION #80-07-0696T  
1989 THE RECORDING WORKSHOP





**WHERE  
ON EARTH  
IS  
THE RECORDING  
INDUSTRY  
GOING ?**



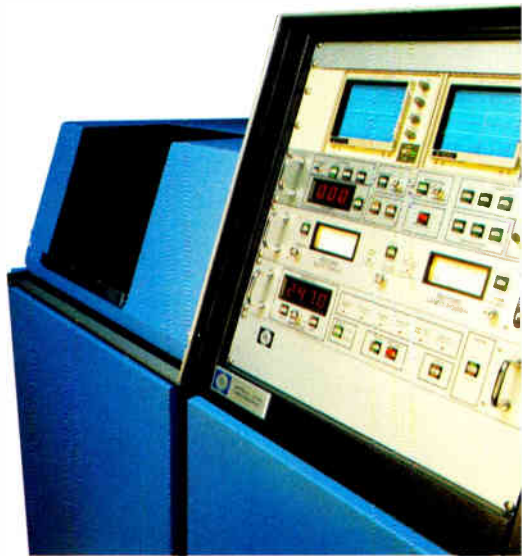
STUDIO THREE A2000036

**FAR SOUTH ON ANOTHER CONTINENT, AN UNPRECEDENTED DEVELOPMENT THAT COULD ALTER THE DESTINY OF RECORDED MUSIC, IS FINALLY TAKING SHAPE. WHO? WHERE? WHAT? AND WHY? ALL WILL BE REVEALED. NEXT MONTH.**

# Depend on the Masterminds.

Leading edge producers of LaserDiscs and Compact Discs consistently put their trust in ODC recording equipment for performance, ease of operation and reliability.

Now you can get the ODC advantage in the industry's most advanced and dependable turnkey mastering systems, the new Series 500.



The masterminds at ODC have been building mastering systems longer than anyone. Over the past 20 years, our scientists and engineers invented, developed, and refined the Direct-Read-After-Write (DRAW) technology that has resulted in today's Series 500 Mastering Modules for LaserDisc, CD-Audio, or CD-ROM.

The new Series 500 is a fully integrated system that makes mastering a science rather than an art. You can depend on the Series 500 for:

- Straightforward installation and operation. All you supply is a room with water and power.
- Extremely high yields of top quality glass masters.
- Operational efficiency that delivers the lowest cost per master in the industry.
- A master recorder that is a true production machine, not a laboratory model.
- Proven reliability and production worthiness.

There is really no substitute for experience. Depend on the masterminds, today and tomorrow, for solid technical performance and leadership in optical disc technology. Call ODC and learn how a Series 500 Mastering Module fits into your future.



**OPTICAL DISC  
CORPORATION**

12150 Mora Drive  
Santa Fe Springs, Calif. USA 90670  
(213) 946-3050  
FAX (213) 946-6030

Koninginneweg 213  
1075 CS Amsterdam, The Netherlands  
31-20-671-8741  
FAX 31-20-671-3256

ODC systems are in use around the world. In addition to a complete line of products used to produce masters for mass replication, ODC manufactures and markets LaserVision-compatible (LaserDisc) recording systems and Recordable Laser Videodiscs.

DISCOVERY SYSTEMS,  
DUBLIN, OH •  
DISCTRONICS, INC.,  
ANAHEIM, CA •  
DINER+ALLIED, SAN  
FRANCISCO, CA • DADC,  
TERRE HAUTE, IN •  
HENNINGER VIDEO,  
ARLINGTON, VA •  
IBERMEMORY, MADRID,  
SPAIN • LOCKHEED,  
KENNEDY SPACE CENTER, FL  
• THE POST GROUP AT THE  
DISNEY/MGM STUDIOS,  
LAKE BUENA VISTA, FL •  
SOUNDTRADE,  
STOCKHOLM, SWEDEN •  
WEA MANUFACTURING,  
OLYPHANT, PA • FORD  
AEROSPACE CORP.,  
HANOVER, MD • U.S.  
ARMY, FT. EUSTIS, VA •  
GESCO, PARIS, FRANCE •  
GIESE ELECTRONIC KB,  
HAMBURG, GERMANY •  
DEPT. OF THE AIR FORCE,  
HILL A.F.B., UT • KIMBALL  
A/V, DALLAS, TX • PIONEER  
ELECTRONICS CORP.,  
TOKYO, JAPAN • LUCAS  
ARTS EDITING SYSTEMS,  
SANTA MONICA, CA •  
MAGNETIC NORTH,  
TORONTO, CANADA •  
MAGNO SOUND & VIDEO,  
NEW YORK, NY •  
MICROVITEC, BRADFORD,  
ENGLAND • MITSUBISHI  
PLASTICS, TOKYO, JAPAN •  
U.S. NAVY, CHINA LAKE, CA  
• NISSHO ELECTRONICS,  
TOKYO, JAPAN • OPTIMUS,  
CHICAGO, IL • DEPT. OF  
THE AIR FORCE, KEESLER  
A.F.B., MS • OSAKA STU-  
DIO, OSAKA, JAPAN •  
PACIFIC VIDEO, HOLLY-  
WOOD, CA • PIONEER  
VIDEO MFG., CARSON, CA  
• THE POST GROUP,  
HOLLYWOOD, CA •  
PRODUCERS COLOR  
SERVICES, SOUTHFIELD, MI  
• RITEK INC., TAIPEI,  
TAIWAN • SPECTRA IMAGE,  
INC., BURBANK, CA • LASER  
EDIT, EAST, NEW YORK, NY  
• TECHNIDISC INC., TROY,  
MI • TELSTAR EDITING,  
NEW YORK, NY • VIDEO  
TIME, LONDON, ENGLAND  
• THE POST GROUP,  
ORLANDO, FL • WEA  
MANUFACTURING,  
OLYPHANT, PA • 3M,  
MENOMONIE, WI • AP-  
PLIED LEARNING,  
NAPERVILLE, IL • BEIJING  
FILM & VIDEO LABS,  
BEIJING, CHINA • CINRAM  
LTD., SCARBOROUGH,  
CANADA • CMX CORPORA-  
TION, SANTA CLARA, CA •  
CRAWFORD POST PRO-  
DUCTION, ATLANTA, GA •  
DISCOVERY SYSTEMS,  
DUBLIN, OH •  
DISCTRONICS, INC.



tional guy, not just as a singer, but as a person. So when he finds a vehicle that connects with his emotions like 'Shameless' did, I'm going to do my best to accommodate him."

Brooks views his producer as a guiding force in the studio. "Allen is like a big pair of hands. While you're running as fast as you can and doing all the crazy things, if you get out of bounds, one of the hands will come and tap you back in—not slowing you down—just getting you back to reality so you can keep running. He also gives me peace of mind. I'll go to him and say, 'Allen, can we get away with this?' And when he looks at you and says, 'Yeah, pal, I love it,' that's when we go with all the confidence in the world and do that thing we've never done before."

Reynolds, by contrast, sees his role as getting the necessary preparation done beforehand, "so that you're not just in the studio groping around. I try to be the catalyst. I try to make sure the ingredients are good. I try to make everyone calm and not self-conscious. The hardest part of my work is done before we get into the studio. Once we're there, I like to keep the technology out of the way as much as possible and encourage the performance."

Dealing with the technology in the studio is left to Mark Miller, who has handled all of Brooks' recordings with Reynolds. Brooks maintains an almost reverential relationship with Miller and credits him with much of the success of his vocal sound on record. "I think if you look up engineer in a Greek dictionary," Brooks says, "it would say something like 'savior of career.' Mark can make my voice sound 20 times better than I think it does."

"Garth likes to sing live in the studio with the band," says Miller, "just the way he sings onstage, in order to sound more spontaneous and more like a performance. We almost never overdub him. He's an incredible singer, but fortunately he doesn't run around in the studio when he's singing, like he does onstage."

Miller builds a six-sided gobo around Brooks to isolate his vocal while keeping him in touch with the band. Miller has been using a Sanken CU-41 microphone on Brooks, which he sends through a Tube-Tech CL-1A compressor. Usually employing a little "generic" reverb from an EMT plate on the basic track, Miller counts on the studio's live chamber to add vocal depth during mixing.

"The Sanken is a great vocal mic that

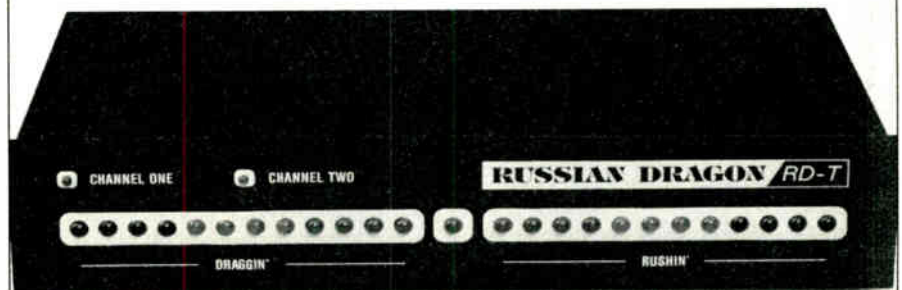
we've also started using with Don Williams," Miller says. "We've been using it for Kathy Mattea for three years now and have had great success with it. I'm always jockeying around its position to find the sweet spot. A quarter of an inch can make a big difference, you know."

Where does an artist like Brooks go from here? Bigger, more elaborate shows, wider-reaching tours, a new album? When you're Garth Brooks, other priorities enter in. "I'd love to do a duet with my mom, if I could ever find a song that was special enough for her. My mother was on Capitol in the mid-

'50s. It would be a once-in-a-lifetime shot. I've tried to write the song, but it might be too close to me. Kent Blaze, the guy who wrote 'If Tomorrow Never Comes,' and I are trying to write a song called 'Pickin' Up After You.' It talks about a mother who picks up after her child, and then the child grows up and comes to do the profession that his mother did, that she gave up for the child. So now he's picking up after her, to finish what she started in music." ■

*David Schwartz, editor-in-chief of Mix, was into country before it was cool... but didn't want anyone to know.*

## There's only one easy way to check your timing.



We invented it. We patented it.

The Russian Dragon—a *visual* indicator of the timing accuracy of musicians or machines.

**BOB CLEARMOUNTAIN** "I find the Russian Dragon of invaluable assistance when augmenting recorded drum sounds with samples. Its ability to help synchronize a triggered sample with the original off tape to an accuracy of a tenth of a millisecond has saved me hours of fiddling."

**TOM LORD-ALGE** "I saw the Russian Dragon in ads but never knew of its value until I used one. It's so useful, I'll never trigger, track, or mix without it."

**MICHAEL BODDICKER** (on locking up two tape machines) "Thank you Russian Dragon! You've taken the guesswork out of syncing."

**KEITH COHEN** "I bought a Russian Dragon for a Paula Abdul project. Now I never mix without it."

**DAVID GAMSON** "The Russian Dragon helps me make sure my sequencers and drum machines are lined up properly. I use it *every* time I record."

**JEFF LORBER** "I love the Russian Dragon. It's great to have audio *and* visual feedback. Lately, I've used it on MC Hammer, Ray Charles, and The Fixx."

**PHIL RAMONE** (on overdubbing to a click) "It's so much knowledge without the arguments."

Call us direct to try out a Russian Dragon risk-free for 2 weeks.

If you're not madly in love with it, return it for a full refund...then see a shrink!

Rack Mount RD-2 \$495.00

Table Top RD-T \$249.95

Credit card or COD orders  
**800-880-8776**

Technical info 512-525-0719

FAX orders 512-344-3299

2815 Swandale, San Antonio, Texas 78230





by Dan Daley

# DREAMING OF A BYTE CHRISTMAS

There is no Santa Claus. There is, however, a sanity clause. (Groucho Marx told us that a long time ago.) That is to say, there is a logic in project studio technology acquisition. I asked some of the people you've seen in this space to put together holiday lists for their own project studios. The answers show some definite patterns. For starters, digital is all over the place, from DAWs to DAT to consoles to outboard gear.

For an industry segment that got its start with analog, and considering the reinvigoration of analog in the wake of new tape releases by 3M and Ampex this year, the digital pattern is worth noting. It can likely be attributed to the

And, while everyone mentioned equipment, a few also mentioned changes to their physical environments. Not surprising, as this would be a logical step in project studio maturation. Direct signal injection was the primary m.o. with the MIDI-based systems that were the core of a significant number of project studios. As those systems reached their individual ceilings, the inclusion of live, acooustic recording capability became a goal for many, via the addition of iso booths. Also, the sheer amount of equipment acquired over the last couple of years forced many to consider more control room space.

At Max Highstein's Natural Sound in Sante Fe, Christmas came a bit early with a Tascam MSR-24 upgrade to Dolby S noise reduction. With analog still the dominant multitrack component of the project environment, Dolby S is likely to start cropping up in more studios as the need to compete with digital noise floors increases.

The rest of Highstein's list is digital, and it shows how rental companies have become the beta providers for the project studio. While Highstein used to rent Harmonizers and a second DAT deck, he expects to purchase both for the studio in the coming year—an Eventide Harmonizer and a Tascam DA30.

Due north, we hit Valentine Productions in Denver, where a digital multitrack system with long recording capacity heads the list. According to Laurie Gordon, the Alesis 8-track system is of particular interest because it uses VHS tape, which in turn will help control media costs. Another potential choice is the Roland hard disk-based 4-track system. She's looking to spend up to about \$6,000 in this category.

Part and parcel with that acquisition would be a computer-based 2-track



proliferation of lower-priced digital multitrack systems, particularly ones from Yamaha, Korg, Roland and Alesis, as well as software-based systems such as Sound Tools.

digital editing system. "This kind of system would sync to a less expensive, tape-based digital recording unit," she says. "Tracks can be bounced between them while editing, and there's no degradation and lower memory requirements. Overall, I think it's more cost-effective." Rounding out the list, she

running on their own interfaces."

The 16-track Tascam 60-16 is plenty for now, Gordon says, getting cramped only when he goes outside to track live drums. And he says he can bypass the need for buying a dedicated sequencer in the immediate future by using the SMPTE sync from his Sound Tools and Studio Vision packages. This kind of thorough use of presently owned technology is critical, because Gordon also needs video monitors for the increased work in industrials he's aiming for in 1992.

That likely means putting off the purchase of a new console to replace his A&H 32, which he says has performed well but has become more difficult to service as it gets older. One upgrade that might move from wish to reality is a new iso

booth. Gordon says recording acoustic instruments would be easier, and it would eliminate some of the less pleasant acoustic anomalies of his space. But, like dollars, space is an inherent project studio limitation, and Gordon says he'd have to relocate his tape storage area to accommodate a booth.

One final and ever-present wish: "More and better microphones."

That sentiment is echoed by Randy Bobo, engineer and sound designer at Independent Sound in Milwaukee. When he recently came out from San Francisco, he carried a Shure SM57, bringing the studio's microphone complement up to a full three (a U87 and 414 were already there). But the emphasis for '92 is on expanding the live capabilities of the studio. "We're moving toward more and more acoustic music," says Bobo, "and there is the room here to bring a better acoustic space online."

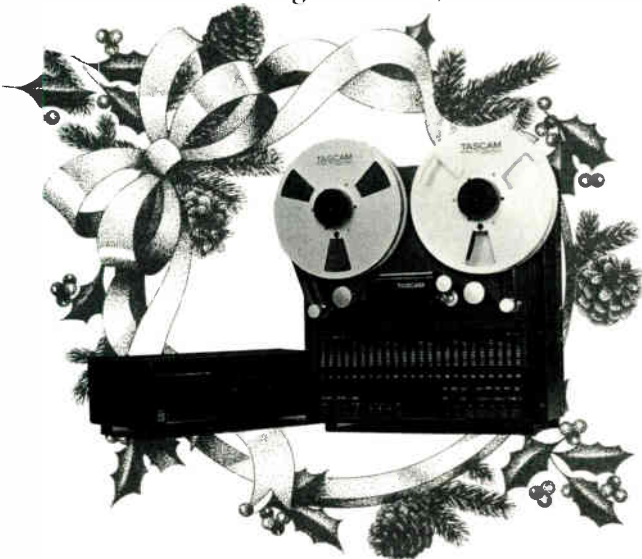
The wish list for Dennis Michaels' Manhattan-based High Tops Music House is elegantly simple and yet quite

far-reaching. "As far as technology goes, we are quite content," Michaels says. "We would like more alliances with larger studios."

Michaels refers to an overall economic picture rather than just a technological one; he feels that the consolidation throughout the larger corporate structure over the past decade will begin to show the same pattern in the recording industry in the '90s. "Just as banks merged with banks and corporations with other corporations, so too should larger studios consider restructuring by consolidation," he explains. "The benefits to the larger studios to merge or form alliances with smaller studios are numerous: reduced overhead, reduced debt, increased available cash and the ability to offer services more specialized for specific niche markets. In return, the smaller studios become part of a stronger organization with an increase in clientele."

As an example, Michaels suggests that a six-room, 24-track facility is not maximized when several of the rooms are doing simpler work, such as voice-

overs. If the larger studio reduces its size to two or three rooms and farms out the voice-over and related work to smaller studios with less track availability but a greater focus on that type of recording, both studios benefit. He further suggests that linkage between a commercial recording studio and a project studio could be done via ISDN



mentions one of Yamaha's digital mixing consoles and a time code-capable DAT deck, preferably in the \$4,000 range.

"We believe digital is the future and we want to get into it now," she emphasizes. "All of our clients respond well to the word 'digital,' and most have had experiences of some kind where something could have ended disastrously, but because it was done in a digital format, that disaster was averted. We want to be able to take an entire project, vocals included, from start to finish and never have to go to the analog domain."

Jon Gordon, of Jon Gordon Productions in Manhattan, is finding the channel limitations of fewer MIDI lines constraining and would like to expand his present MIDI port capability with a multiport system such as Mark of the Unicorn's MIDI Time Piece or the forthcoming Opcode Studio 5 unit. He currently has a two-port interface but has found that those 32 channels get eaten up quickly. "If I add one more big multitimbral module, I'm going to wind up with a channel crunch," he says. "And now, if I have sequences with a lot of MIDI data density, I run into time-resolution problems since all the data is going over only two interfaces. So I need more interfaces to keep more time-critical units like drum machines



—CONTINUED ON PAGE 167



# NO AUDIO TAPE HAS EVER RATED SUCH INCREDIBLE RESPONSE.

*"I love the extra headroom it gives you. Different types of music call for you to hit the tape differently. I've hit it light and I've hit it hard, and the 3M 996 will definitely take the level."* —Ed Cherney,  
independent producer

*"You can hit it 3 dB hotter without any distortion or bottom-end modulation. It's a mirror image of the source material."* —Tom Tucker, Paisley Park Studios

*"A lot of engineers and producers want to really be able to slam levels to achieve a certain sound. 3M 996 gives them more options and opens more doors, sonically speaking."* —Barry Bongiovi, Power Station

Clear. Dynamic. Musical. Exciting. That's the response recording engineers are giving 3M 996 Audio Mastering Tape. Because 3M 996 audio tape is giving them the performance they've always wanted: The ability to record as hot as you want (level +9) with virtually no distortion. A signal-to-noise ratio of 79.5 dB. Print-through level of -56.5 dB. And maximum output level of +14 dB (at 1 kHz.). So 3M 996 audio tape returns every note, every nuance, every thrill exactly as you put it down. Call 1-800-245-8332 for full information. **We won't be satisfied until you are.**



# SOME THOUGHTFUL NOTES FROM A FEW FRIENDLY USERS ON OUR DD1000.

**Gordon Klimuck & Bart Chiate**

*"We put the DD1000 to the test every day, under the toughest of conditions, live television. Material we use time after time is kept 'on line' for instant retrieval and playback. The DD1000 has never failed us."*

*Gordon Klimuck & Bart Chiate, Paramount TV*

**Ken Davis**

*"Finally, after looking at nearly all the disk recording and editing systems available...we found everything we needed and wanted in the Akai DD1000. Mass storage, removable media, rugged and very dependable."*

*Ken Davis, KFI/AM & KOST/FM*

**Steve Levine**

*"I use the DD1000 producing television scores because it works perfectly with every standard, from PAL to NTSC. One box does it all, it's a breeze to use and sounds splendid."*

*Steve Levine, Do Not Erase Productions*

**Alan Parsons**

*"The whole concept of the removable disk means hours saved... The DD1000 will find many a happy home among studios, musicians, post-production houses and in broadcasting."*

*Alan Parsons, MIX Magazine (February 1991)*

**Rick Schwartz**

*"Almost anything seems possible on the DD1000. The DD1000 is amazingly complete for a new product...all the bugs have been worked out. It's definitely worth checking out."*

*Rick Schwartz, Recording Engineer/Producer (October 1990)*

Imagine the non-destructive editing power of two instant random access time code based DATs that could be infinitely slipped against each other in time. Add MIDI in, out and thru. Well, you've just begun to scratch the surface of the DD1000.

Our new optical disk recorder, the DD1000, is fast playing an important role in virtually every area of audio production. From hit records to film scores, from radio production to television post-production, the DD1000 packs an impressive assortment of functions into one box.

Heading a lengthy list of very useful operating capabilities is the DD1000's major asset: it is a completely self-contained unit, easy to hook-up and simple to transport. It can record up to 30 stereo minutes at 44.1 kHz sampling rate per side of a removable magneto-optical disk. Double that for mono. The sonic quality of its A/D and D/A converters will satisfy the pickiest professional.

With the immediate availability of our *DD-MacRemote™* and *DD-QMAC™* editing software, plus the DL1000 remote controller and DL500 MIDI trigger box, the system is truly a powerful tool. *DD-MacRemote*, full front panel emulation for your Macintosh, and the comprehensive editing capability of *DD-QMAC* combine to give you more creative control than ever before.

But you would expect us to be excited about the DD1000, it's our baby. Take a moment to read the comments at the left and see what others have to say about it. Then visit your Akai Digital dealer and test drive a DD1000 for yourself.

The screenshot displays the software interface for the DD1000. At the top, there is a menu bar with options: File, Edit, Display, Options, Windows, MD Drive, SCSI. Below the menu bar is a control panel with buttons for DELETE, INSERT, A to B, SLIP, COPY, SCALE, and TIME-O. The main area shows a cue list for 'Unit 1' with columns for time, track, and other parameters. A waveform display is visible on the right side of the cue list. Below the cue list, there is a 'Cue Edit' window showing a 'Sound Cue' for 'CHICAGO' with various editing options like 'Add', 'Delete', 'Replace', and 'Audition'. The interface is designed for precise audio editing and cue management.



P.O. Box 2344  
Fort Worth, TX 76113 (817) 336-5114



cilities used. "If we wanted a K-Scope or D2 machines or any extra bells and whistles, or to get into the PaintBox in the afternoon, Editel was always there for us. In fact, one afternoon we had a slight emergency and we needed to get in to do a quick Da Vinci for a teaser to show MCA, and it turned out their regular operator was off sick. So they flew down a guy from San Francisco—at the same rate—to help us out."

*The Soft Parade* video was online at Editel on D2, "because of all the multilayered images we used," states Schmidlin. "We also went with D2 because there's such a huge Doors following in Europe, and the system gives you a cleaner European format copy."



**Jim Morrison, 1969**

While working, the team also transferred the entire Doors library—some 15 hours of footage—onto D2.

"Although we used quite a few effects generators—such as the Abekas and K-Scope, especially for layering images—we're pretty much purists," Schmidlin adds. "What we wanted was to let the original footage just speak for itself."

According to the producer, the biggest problem facing the team was "the fact that there really wasn't a show to begin with. PBS had destroyed the original master, and the only known master when we started was a 1/2-inch copy of the PBS program, which contained about 30 percent of the finished

product, and it was glitched to hell. That was the reason we went to the Da Vinci session: to improve the quality.

"The only other leads we had were, first, the producer of the show, who'd made a Nagra recording, so we got a hold of that," Schmidlin says. "Then we found out that the associate producer had also kept a brand new master of the show in her closet for the past 22 years, and we eventually tracked that down."

According to engineer Tony Friedman of Post Logic, the main challenge in terms of audio was the "sheer scope of sources involved, all of which had to be made uniform. Our main source was the PBS show, where the audio was recorded on one machine without any reference to the video, so there was no sync at all."

Friedman started by transferring the audio to a coded source. "I found a sync point and then had to find out the correct varispeed to see just how long it would stay in sync," he reports. "So I had to keep slowing down or speeding up the audio reel ever so slightly to match it with the video for as long as it could go." Every time it went out of sync for more than a few frames, Friedman would re-sync and do a crossfade. "This often ended up happening every ten seconds or so in a song," he says.

Because the original audio was recorded in mono, Friedman's job included giving the tracks more of a stereo image. "But I'm not fond of any of these stereo imaging devices on the market," he says, "so instead, I created stereo ambience in as subtle a way as I could," which often meant using slight EQ variances on either side and then using that in combination with "very small room reverbs on each side, using two different rooms. So I'd use the left side of one room with one side of the program, and the right side of another reverb with the other program, and then I kept those as an ambience so you don't really hear the results as a reverb, but you hear the variances on each side. That way, you help the stereo imaging without messing with the phase, as most imaging devices do."

Piecing together the interview sections was just as challenging, says Friedman. "Although they'd come

**CD-LIKE  
QUALITY  
ON CASSETTES!!**

**KLARITY<sup>™</sup>  
CASSETTE**

**REAL-TIME  
CASSETTE DUPLICATION**

**NEW FOR 1992!**  
High-Speed Duplication  
500 CASSETTES only **\$615.00**

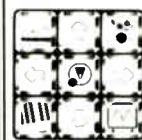
**"THE  
ULTIMATE  
RESPONSE"**

*... Find Out How ...*

**Post Office Square  
Waterville, ME 04901  
1-800-458-6405  
207-873-3911**

**It's not the  
technology,  
its the  
technique...**

**As the equipment grows  
more complex—service,  
support, and training  
become the factors  
separating the best  
dealers from the rest.  
Why settle for less than  
the best? Call Leo's.**



**Leo's**

PROFESSIONAL AUDIO SYSTEMS

*We listen so you'll be heard.*

**5447 Telegraph Ave. (510)  
Oakland, CA 94609 652.1553**

from the same source, we'd often have to piece them together ten frames at a time, one-third of a second at a time, which was very time-consuming."

The whole program was run through the Da Vinci video enhancer. "While that improves the picture quality, it also creates an inherent delay in the audio," Friedman points out. "So that again meant we had to continually re-sync footage.

"Obviously, the quality of the PBS show source, which was a mono 1/4-inch, was nowhere near the quality of the CD tracks that we edited into the

show," Friedman adds. "So we spent a lot of time balancing those sources.

"We also had to resort to some cheating at times," he continues. "For instance, the original sources were recorded on Nagras, but they weren't always running, and they were getting up to speed as we were trying to cut in an edit.

"Most of the source material I received was on D2, except obviously for the CD cuts," adds Friedman, who completed the entire project on 24-track with Dolby SR. "We made a conscious choice to go analog rather than digital, because it has the warmth, especially in a show like this where the

music is so dynamic."

According to Manzarek, the first track, "The Changeling," was a digital transfer direct from the CD. "And some of the talking at the top of the tape is taken from Jim and the 'Wild Child' sessions, and the other dialog featured in 'The Changeling' is Nagra material recorded by Babe Hill, who worked with Paul Ferraro, The Doors' camera-man who shot most of the original footage used in the video.

"As for 'Wishful Sinful,' that was a straight-ahead performance from the PBS show, and was basically a mono track that Tony fiddled around with using two separate delays to enhance the stereo," continues Manzarek. "In fact, that track has a surprisingly high standard of audio for a television show of that era, and the balance was really good."

Manzarek is less happy with some of the original visuals he had to deal with, especially the silhouette footage used in "The Soft Parade" track. "Don't ask me why, but right at the point where the song shifts gears and moves into the harder rock part—the funky section—the television crew decided to shoot everything in silhouette, and this goes on for over a minute-and-a-half. And that was way too long."

Eventually, in trying to come up with a variation for the video release, Manzarek and company decided to keep the original footage and then key in contemporary footage of the 1967 Renaissance Pleasure Faire. "So we matted in hippies posing as English villagers circa 1400—into the silhouettes and behind the band," he reports. "Otherwise, we used very few tricks throughout the piece.

"Fortunately, The Doors need very few tricks," he adds. "They exist and that's it. You want to see Morrison sing, Morrison talk, Morrison dance, and what's great about the video is that it's a historical record. It doesn't pretend to be anything other than what it is." ■

Mix post-production editor Iain Blair is a freelance writer based in Southern California.

**POST NOTES**

**Ron Rose Productions Adds F-15 Fighter Technology to Audio Post**

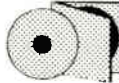
Ron Rose Productions, southeast Michigan's leading recording and audio post-production facility, recently installed the new AudioFile II Plus at its



— SINCE 1939 —  
**RAINBO**  
**RECORDS &**  
**CASSETTES**  
 1738 Berkeley St. • Santa Monica, CA 90404  
 (213) 829-3476 • (213) 829-0355  
 FAX: (213) 828-8765

**CD PACKAGE**      **1000 - \$2299**

**INCLUDES:**  
 • ORIGINATION  
 • 4-COLOR COVER WITH BLACK/WHITE BACK & INLAY CARO  
 • 2-COLOR LABEL IMPRINT  
 • JEWEL BOX & SHRINK WRAP  
 • 500 CD'S MINIMUM ORDER  
 Does not include Typesetting or Composite Film



**100 - 12" VINYL**  
**\$599<sup>00</sup>**  
 ADDITIONAL RECORDS  
**.99 EA.**  
 WITH INITIAL ORDER



**COMPLETE:**  
 METAL PARTS  
 LACQUER MASTER  
 WHITE JACKETS/WHOLE  
 WHITE INNER SLEEVE  
 TWO COLOR LABELS  
 TEST PRESSINGS  
 SHRINK WRAP

**500 Cassettes**  
**\$585**  
 Complete (Including)

- Composite Negatives from your Camera Ready Artwork
- Cassette Running Master
- Test Cassette in Five Days
- Apex Printing on Cassette
- 1000 One-Color Inserts (500 for re-order)
- Norelco Box - Cello Wrapped
- 10-12 Working Days

**REORDER ANYTIME**  
**\$385**  
 22 minutes per side maximum

**1000 12" FULL-COLOR PACKAGE† \$1,799**  
 MASTERING/PROCESSING/8 TESTS/2-COLOR LABELS/  
 4-COLOR JACKETS/SHRINK WRAP/COMPLETE IN 15 DAYS  
 REORDER - 12 WORKING DAYS - \$1329

**1000 12" ONE-COLOR PACKAGE† \$1,599**  
 (AS ABOVE WITH 1-COLOR JACKET)  
 REORDER - 10 WORKING DAYS - \$1119

**1000 7" 45's \$699**  
 MASTERING/PROCESSING/8 TESTS/2-COLOR LABELS  
 WHITE SLEEVE/COMPLETE: 10 DAYS REORDER - \$359

**500 7" 45's \$549**  
 (SAME AS ABOVE) REORDER - \$229

**1000 FULL-COLOR CASSETTES† \$899**  
 MASTERING/TEST/2,000 4-COLOR INSERTS\* (1000 EXTRA  
 FOR REORDER)/APEX PRINTING ON SHELL/NORELCO BOX/  
 SHRINK WRAP/COMPLETE: 15 DAYS/22 MIN  
 PER SIDE (MAX.) REORDER - \$750

†Does not include composite negatives  
 \*From your camera-ready artwork

**CASSETTE SINGLE**

**500 - \$499.95**      **1000 - \$799.95**  
 REORDER - \$349      REORDER - \$659



**INCLUDES:**  
 • TEST CASSETTE  
 • RUNNING MASTER  
 • APEX PRINTING ON CASSETTE SHELL  
 • 1-COLOR WRAP-AROUND CARD  
 • COMPOSITE NEGS • SHRINK WRAP

**ARTWORK SERVICES AVAILABLE**  
**COMPLETE IN-HOUSE:**  
 TYPESETTING • LAYOUT  
 PASTE-UP • STATS  
 REVERSALS • GRAPHIC DESIGN





# WE CAN'T HEAR YOU...

## ...UNLESS YOU SEND IN YOUR TAPE FOR OUR 4TH BEST UNSIGNED BAND CONTEST

Musician Magazine, in cooperation with JBL, Shure and Sony, is pleased once again to invite all unsigned artists to submit their original music to our 4th Best Unsigned Band Contest. All entries will be reviewed by the publishers and editors of Musician Magazine. Finalists will then be submitted to an all-star panel of music industry judges featuring the likes of John Hiatt, Bootsy Collins, Chrissie Hynde and Don Was. The celebrity judges will ultimately choose the artists to appear on Musician's "Best of the BUBS" CD, which will be delivered to music and program directors at hundreds of radio stations, record execs, A&R departments, publishing companies and music journalists throughout the country. The one band singled out as everyone's fave will also take home a grand prize equipment package valued at over \$15,000. If your music deserves to be heard, we're ready to listen. Just read the rules carefully, fill out the entry form and send us your best on cassette.

### Grand prize package

Includes: Soundcraft Spirit 1682 Console packed full of features for multi-track recording and mixdown, plus JBL 4412 three-way studio monitors and SR6615 150 watt power amp, Shure L Series Wireless Systems featuring outstanding design and reception, plus 6 Shure Beta 58 supercardioid dynamic microphones, a Sony PCM-2700 Pro 4-head DAT digital recorder and a Sony DPS-R7 digital reverb with 100-preset memory.



**Rules** No purchase necessary. One cassette per artist/band. Maximum two songs per cassette. Name, age and address of each band member, photo of band/artist and a \$15.00 processing fee must accompany each cassette and entry form (or facsimile). ALL ENTRIES MUST BE RECEIVED BY DEC. 31, 1991. All music must be original. If chosen, artists are responsible for final mix to appear on CD. Artists cannot be signed to a label. Tapes become property of MUSICIAN Magazine and will not be returned. Artists retain rights to their music. All decisions are final. Employees of Billboard Publications, Inc. and affiliated companies are not eligible. Void where prohibited.

**TDK**  
OFFICIAL  
TAPE OF  
BUB

BAND/ ARTIST NAME

CONTACT NAME

ADDRESS

CITY

STATE

ZIP

COUNTRY

DAY PHONE

EVE PHONE

SIGNATURE/DATE

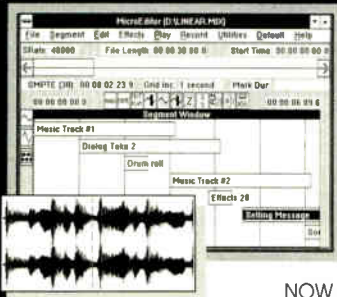
**MUSICIAN**

**JBL** Soundcraft  
**SHURE** **SONY**

Send cassette, entry form and check or money order (made out to Musician) to: B.U.B., 33 Commercial St., Gloucester, MA 01930



# MICRO SOUND™



**True Studio Quality  
Disk Record & Edit  
On Your PC/AT...  
Starting Under \$2,700!**

**CD MASTERING!  
MIDI RECORDING!  
BROADCAST PRODUCTION!  
AUDIO FOR VIDEO!**

NOW you can have Multi-track mixdowns, MIDI and SMPTE triggering, and chase-lock on your PC.

### MicroSound users receive these standard features:

- DAT/CD interface, and 16/18 bit A/D, D/A available
- -110db typical noise floor
- Windows 3.0 based
- Simultaneous Record & Play with 1 hard drive - 48KHz stereo
- Rearrange hundreds of segments from up to 20 recorded files using crossfade, splice, and overlap mix 2 to 38 internal tracks, each with unique fade and gain settings—all this power 7 times faster than others
- Extensive disk-based editing manual, tutorial & on-line help

Call, write or fax today for your free MicroSound brochure



**Micro Technology Unlimited**

156 Wind Chime Court P.O. Box 21061 • Raleigh, North Carolina, USA 27619-1061

Telephone: (919) 870-0344 • Fax: (919) 870-7163

"Miami Vice" studio in Southfield, Mich. The AudioFile II Plus system is the latest generation of the AMS hard disk-based digital audio recording and editing equipment. It utilizes some of the same technology as F-15 jets. Ron Rose Productions is the first company in the metro Detroit area to offer this new, updated version.

Owner Ron Rose reports, "We tested a variety of this type of equipment over the past year, and the AudioFile II Plus was by far the best choice." In fact, Rose is so pleased with the system that two more units will be installed at the Studio Center facility and their Southfield HQ by the end of the year.

### U.S. Air Force Takes Off with New England Digital's PostPro SD

If post-production facilities and equipment are borrowing ideas and technology from the military, the reverse is also increasingly true these days. After a three-year review of digital recording technologies, the Eastern Space and Missile Center, located at Patrick Air Force Base in Florida, has chosen New England Digital's PostPro SD as part of a complete renovation and update of its audio production facilities. The PostPro SD, which integrates 16 tracks of Direct-to-Disk digital recording with 16 voices and 16 MB of RAM for onboard sound design, as well as 2 gigabytes of optical disc sound storage, will be used along with a new 32-channel TAC Bullet console for in-house production of training, education and public affairs videos and films for the U.S. Air Force Eastern Space and Missile Center and NASA's Kennedy Space Center. In fact, the PostPro SD isn't the first system used by NASA. Two years ago, a 7-year old Synclavier computer was modified by NASA and used to control an onboard camera on the Galileo Space Probe.

### POST BRIEFS

Nashville's Scene Three audio department just completed audio post work on a Filmhouse pilot entitled *Long Shot Cafe*, as well as mixing multiple versions of the Marty Brown video "High and Dry" for MCA Records... Film Bank Think Tank, the research arm of Burbank's Film Bank stock footage library, recently completed an unusual search

**SEXY!  
SPEEDY!  
ARCHIE 3.5!**

"We were going to write our own studio management package — until we found Archie. It's easily the most comprehensive program on the market, and has been a real time and money saver."

Rick Schwartz, Director of Post-Production  
Music Animals, Los Angeles

# Archie™

Studio Management System for the Macintosh

- Automates studio operations
- Creates instant timesheets
- "Intelligent" tracksheets
- Tracks clients, inventory, payables and receivables, master tape library, equipment
- Automatically prepares invoices, statements
- Prints reports, forms, labels and more!

For more information: Words & Deeds, 4480 Sunnycrest Drive  
Los Angeles, CA 90065 Tel: 213-255-2887



# ZIP LOCK.

If you've ever dealt with a 2" 24-track whose synchronization was a design afterthought, you'll appreciate the speed and pinpoint accuracy of the TASCAM ATR-80. Its microprocessor-controlled transport is specifically designed for the repeatable locating you need for no-excuses, extra-fast lockup in synchronized operation. And the punch in/out precision you demand.

Built with legendary TASCAM reliability, the ATR-80 will continue to get the job done—session after session, project after project. It is also plug compatible with Dolby SR racks. Available in a higher capacity 32-track format. And, of course, accommodates 14" reels.

But, you be the judge.

To arrange for a personal demonstration of the rapid-response ATR-80, just call (213) 726-0303. Or write TASCAM, 7733 Telegraph Road, Montebello, CA 90640.

**TASCAM**



for Kresser/Craig, the Santa Monica agency, for its Daihatsu "Rare Sightings" campaign. Needed footage included sightings of such legendary creatures as the Loch Ness monster and Sasquatch, as well as UFOs...New York's Audio Post was recently chosen to master several prestigious projects for Invue Sound Inc. New digital masters and formatted works ranged from the classical—Andre Segovia's "The Art of the Guitar"—and a multivolume set of *The Ring*—to the classic rock of Eric Clapton, Bon Jovi, Billy Idol and others. Invue also provided digital mastering for the video promo clips "The Good Beat" by Deee-Lite and "The Very Thing" by Sarah Hicksman...Manhattan's Nutmeg Recording installed Solid State Logic's ScreenSound digital audio-for-video editing/mixing system for work on its post-production projects, which include a variety of station promos, radio spots and TV commercials...Still in the Big Apple, Howard Schwartz Recording was visited by veteran actor Tony Randall recently for the narration of a one-hour, read-along version of *Helena Grapevine*...The International Teleproduction Society (ITS) recently elected a new slate of officers, with Walter N. Hamilton (LRP Video) moving in as president. Hamilton succeeds Dan McGuire to become the third president of the worldwide association of production and post-production facilities, which was formed at NAB in 1986...Cheryl Pirello Neeson was recently promoted to president of Editel Boston Inc. Prior to her appointment, Neeson was VP and general manager of Digital Images, a division of Editel Boston specializing in graphic design and production services...Redman Productions of Orlando, FL, recorded and mixed the music to Universal's *An American Tale* and recently produced TV and radio spots for the Orlando Magic Organization...Chicago's Sparrow Sound has been busy with movie projects. First, Columbia's location shoot of *Mo' Money* called on Sparrow to work on the film's soundtrack; then Universal's Chicago shoot of *The Babe*, starring John Goodman, used Sparrow for location audio. Finally, film composer Bob McNaughton completed two projects: the transfer of his score to DAT for the release of *Henry, Portrait of a Serial Killer*, and the recording of an industrial. ■

**Frank Serafine, composer/sound designer of Serafine Incorporated, Venice, California, whose credits include this year's Oscar-winning Hunt for Red October, is currently doing the sound design for two feature films: Paramount's The Addams Family and Stephen King's The Lawn Mower Man.**

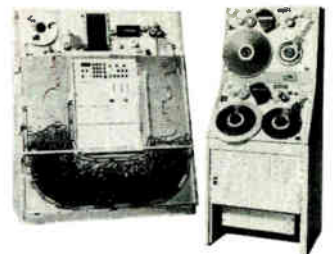


## A New Look at One of the Oldest Names in Tape Duplication



What's new at Electro Sound? Practically everything from our new logo to our new home.

One thing that's not new is our *commitment* to providing one of the most extensive lines of tape duplicating and test equipment in the industry. And a *commitment* to providing service to all existing Electro Sound systems ... and to introduce new systems for the future.



**electro sound inc.**  
a MARK IV company

Corporate and National Sales Office:  
9130 Glenoaks Blvd., Sun Valley, CA 91352  
TEL: (818) 504-3820 FAX: (818) 504-3828  
TLX: 194989

# NEW PRODUCTS



## BEHRINGER SIGNAL PROCESSORS ▲

The German-made line of Behringer signal processors is now available in the USA from Samson Technologies of Hicksville, NY. These single-rack-space units include the Multiband Exciter, a box providing exciter enhancement in both low- and high-frequency bands; the Studio Denoiser, a single-ended noise reduction device with intelligent, program-dependent processing; the Multiband Expander Gate, which offers wide-ranging (3  $\mu$ s to 100 ms) attack times, along with expander, gate and ducking functions; the Studio Compressor, with an "easy control" that optimizes attack and release times based on program content; and the Studio Parametric EQ, a 5-band true parametric EQ/notch filter. All except the EQ are stereo/dual mono units, and transformer outputs are optional.

Circle #275 on Reader Service Card

## TIMELINE MICRO LYNX

Offering an economical method for synchronizing MIDI, audio and video transports is the \$2,495 Micro Lynx from TimeLine of Vista, CA. Consisting of a compact rack unit and remote keyboard with LCD, Micro Lynx includes MIDI and SMPTE time code generator readers, and two transport synchronizer/resolvers. Options include VITC reader, a third transport sync, NTSC/PAL video sync generator and a workstation interface with digital audio sampling clocks.

Circle #276 on Reader Service Card

## DEMETER TUBE GEAR ▼

Demeter Amplification of Los Angeles has two new products based on vacuum tube technology. Priced at \$1,395, the VTMP-2 is a stereo preamp featuring XLR mic and 1/4-inch instrument inputs; XLR, 1/4-inch and TT outputs; pad and level controls; peak LED indicator; and 48-volt phantom power—all in a two-rack-space chassis. The STDB-2 (\$850) is a 2-channel, rack-mount version of Demeter's popular VTDB-2 tube direct box.

Circle #277 on Reader Service Card

## ASHLY LINE MIXER

The LM-308 from Ashly Audio (Rochester, NY) is a single-rackspace mixer with eight stereo line-level inputs. Features include two 1/4-inch TRS balanced unbalanced outputs, LED clip and level meters, stereo mute switch, headphone out and a five-year warranty.

Circle #278 on Reader Service Card

## MARSHALL MONITORS

Nashville's Marshall Acoustics' new line of home and studio speakers feature phase-coherent, point-source coaxial drivers. Of seven speakers available, the Corner model is most unusual, combining a coaxial 8-inch speaker with full-size compression driver and rear-facing, 10-inch passive radiator. The wedge-shaped unit can be flown or placed on optional stands, and specs claim a usable frequency response of 15 to 24k Hz.

Circle #279 on Reader Service Card

## DIGITAL INTEGRATION SAMPLE RATE CONVERTER

New from Digital Integration (Dallas, TX) is the SRC-1000, a \$5,995 box that converts between any two sample rates from 30-50 kHz. Inputs and outputs are XLR AES/EBU format, and output sampling frequency is selectable from internal sync (32/44.1/48 kHz) or external sync from 30-50 kHz.

Circle #280 on Reader Service Card

## SHEP EQUALIZERS

The classic 31105 equalizer/mic preamp modules made by Neve in the mid-1970s are now being manufactured by Shep Associates (Royston, Herts, UK) and distributed in the USA by Valley Sound of Burbank, CA. The 31105 is a discrete, 4-band EQ/mic preamp with  $\pm 18$ dB cut/boost, a choice of two Q settings on the mid bands, and HP/LP filters. Racks are available to hold nine vertical modules or two/four horizontal modules. Valley Sound also stocks other modules (such as the 1073, 3226-A and 31102), spare parts for older Neve consoles, and Shep's reissue of Neve's 225-A compressor/limiter, packaged with two units in a rack-mount case.

Circle #281 on Reader Service Card





**BAG END ELF SYSTEM**

Now in production is the ELF™ system from Bag End Loudspeaker Systems of Barrington, IL. ELF (extended low frequency) uses dual integrators, active equalization, frequency dividers and system protection to control bass speakers in compact enclosures (operating far below system resonance), providing improved fidelity at levels far greater than previously attainable from a small cabinet, without the drawbacks of vented and horn systems.

Circle #282 on Reader Service Card

**APOGEE A/D CONVERTER**

Apogee Electronics of Santa Monica, CA, is shipping its AD-500 analog-to-digital converter (\$1,695), a portable stereo unit providing a discrete front end for DAT recording, CD mastering, digital video and workstation applications. Sample rates of 32/44.056/44.1/48 kHz are selectable, and sync sources include internal crystal, word clock, NTSC or PAL video sync, S/PDIF, or optical. Both AES/EBU and S/PDIF digital outputs are provided.

Circle #283 on Reader Service Card

**HYBRID ARTS DIGITAL MASTER**

Hybrid Arts of Culver City, CA, offers the Digital Master, a complete hard disk-based recorder/editor priced at \$4,500, including CPU, monitor, mouse, 105MB hard disk, A/D and D/A converters, MIDI, SMPTE interface and software. Standard features include six selectable sampling frequencies, 64x oversampled ADCs, 18-bit DACs, SCSI port for additional hard drives and an S/PDIF digital interface that is said to be AES/EBU-compatible. Support is provided for 24, 25, 29.97 and 30 fps SMPTE time code, and options include time compression and digital filtering.

Circle #284 on Reader Service Card

**COOPER CS-10 A**

JL Cooper Electronics of Los Angeles offers the CS-10, an integrated control surface designed to work with Digidesign's Pro Tools workstation. The CS-10 features large tape recorder-style transport buttons, along with a jog wheel, eight 100mm faders, mute and solo buttons, and six rotary pots that can act as sends, EQ controls, pans, etc.

Circle #286 on Reader Service Card

**HOT OFF THE SHELF**

New for the Mackie CR-1604 mixer: "Mixer Mixer" combines up to three CR-1604s for 48 line inputs, 18 mic inputs, 24 direct outs and 12 stereo effects returns; "XLR-10" adds ten additional discrete mic preamps; "RotoPod" is a bracket set for mounting the mixer's jacks to face the operator. Call (206) 488-6843...New Auto-conforming software for the DAR SoundStation speeds up the drudgery of conforming audio to edited video. Call (213) 466-9151...The Antex Model SX-12 digital audio board, a PC-compatible, plug-in board for direct-to-hard disk recording, features sigma-delta ADCs with 64x oversampling and 18-bit DACs. Call (800) 266-3092 or (213) 532-3092...A three-year warranty on Drawmer products is now offered and is retroactive to customers who purchased Drawmer gear over the past year. Call QMI at (508) 650-9444

for details...Promusic now distributes the UBM/Largo production library with music in many styles on CD. Call (305) 776-2070 for info... A simple \$300 modification extends the record time of the Akai A-DAM digital multitrack system to 21.5 minutes. Call (817) 336-5114...Information Storage Devices' ISD 1016 stores up to 16 seconds of voice-quality analog audio on a single chip, requiring only a mic, speaker and +5 VDC source for a complete record/play system. Call (408) 428-1400...

◆◆◆  
Free Stuff! A TEF System 20 manual and demo disk for the PC is available. Call Techron at (800) 833-8575 or (219) 294-8300...Get the Simpson Analog & Digital Test Instrument Catalog by calling (708) 697-2260... Just out: Ariel's 52-page catalog of advanced signal processing and data acquisition systems for six computer platforms. Call (908) 249-2900.



**VALLEY DYNAMITE 2**

Dynamite<sup>2</sup> from Valley International (Franklin, TN) is a multifunction signal processor offering users the ability to simultaneously compress, gate or expand the signal while providing peak-limit protection. Additionally, each section can be used independently. Priced factory direct at \$435, this 2-channel, stereo-linkable unit features balanced inputs/outputs and dual gain-reduction displays, and an anticipatory release computer delivers short release times without audible pumping or breathing.

Circle #285 on Reader Service Card

**GENELEC 1031A MONITORS**

Distributed in the USA by QMI of Natick, MA, is the 1031A studio monitor from Genelec. Designed for near-field listening, the 1031A is a bi-amped, two-way design with onboard amplification (dual 120-watt amps) and active crossover controlling the 8-inch woofer and 1-inch, aluminum-dome tweeter. Specs include a maximum SPL of 121dB/1m (per pair) and a frequency response of 47-20k Hz (±2 dB). The compact cabinets weigh under 27 pounds each and occupy a mere 15.5x10x11.5-inches.

Circle #287 on Reader Service Card





"THE SAM ASH PROFESSIONALS"

Who are the Sam Ash Professionals?  
 Chances are you'll recognize a few of us.  
 The name Sam Ash has been trusted since  
 1924, and in two years we have  
 assembled the finest pro audio staff in  
 the business with over 100 years of col-  
 lective pro audio  
 experience.



What makes us tick? It's simple. We  
 derive great satisfaction from giving you  
 the professional service you expect.  
 As leaders in disk-based recording and  
 complete audio systems integration we  
 are determined to keep you tuned into top  
 quality technical  
 excellence.

723 SEVENTH AVENUE • THIRD FLOOR • NYC, 10019

2 1 2 • 7 1 9 • 2 6 4 0

AKAI • AMEK • APPLE • CROWN MACRO-REFERENCE • DAR • DIGIDESIGN PRO-TOOLS • GENELEC • LEXICON  
 MASELEC • OTARI • SANKEN • SUMMIT AUDIO • SOUNDTRACS • TASCAM • TIMELINE • & MUCH MORE...

# YOUR REFERENCE MASTER

You need contacts to make it in the audio and music production industry, and the **1991-92 Mix Master Directory** has the contacts you're looking for. Names, addresses, phone and fax numbers, services...thousands of facilities and individuals included absolutely free to bring you the most comprehensive directory of the professional audio industry. Whether you're looking for a 16-track studio to record your big-break demo or the names of companies that manufacture digital multitrack recorders,

the *Mix Master Directory* is the place to start. In fact, it's the only reference source you'll need. You'll find:



- **Recording & Video Production/Post-Production Facilities**
- **Remote Recording Facilities**
- **Sound Reinforcement Companies**
- **Independent Engineers & Producers**
- **Mastering & Tape Duplication Facilities**
- **CD Replication Plants**
- **Facility Designers & Suppliers**
- **Recording Schools, Seminars & Programs**

## Exclusive Master Directory Bonus!

**Directory of Manufacturers:** The *Mix Master Directory* includes 14 solid pages of equipment manufacturers—the audio production industry's most complete guide—with a handy product cross-reference for easier use.

**Directory of Professional Services:** You'll also find listings of essential, hard-to-find pro audio services, including advertising agencies, public relations firms, business consultants, photographic services, marketing agencies, technical writers and much more.

The *Mix Master Directory* is published by *Mix* magazine, for 14 years the professional audio industry's most authoritative directories publisher. If you need to make contact, you need the *Mix Master Directory*.

**Call toll-free and place your order today: (800) 233-9604.**



Please send me  copies of the 1991-92 *Mix Master Directory* at \$24.95 each. (Add \$3.50 shipping and handling. CA, NY & IL residents add appropriate state sales tax.)

Please send me information on being listed in the *Mix* monthly directories.

Name .....

Company Name .....

Address .....

City/State/ZIP .....

Daytime phone (     ) ..... ext. ....

Check or  Money order enclosed

Check # .....

Charge to  Visa  MasterCard  Discover Card

American Express    Expiration Date .....

Credit Card # .....

Cardholder Signature .....

Shipping times may vary; please allow two to three weeks for delivery. For immediate customer service and rush orders, call (800) 233-9604 or (415) 653-3307. 24-hour fax line (credit card orders only): (415) 653-5142.

**Mail completed order form and prepayment to Mix Bookshelf, 6400 Hollis St. #12, Emeryville, CA 94608**



## FIELD TEST

analog or digital audio inputs and produces eight outputs, a right and a left for each input. It is designed to be used as an in-line device, with the processed (stereo) output completely replacing the original mono signal.

The SSC-8004 remote controller includes two large 360-degree rotary controls for each processing channel: one for azimuth (horizontal position), and one for elevation (vertical position). A ring of LEDs encircle each control to indicate current position, and an input-level indicator is also provided for each channel. The remote carries MIDI-in and -out jacks, and includes switches to trigger sys ex dumps. The SSC-8004 can be used to control as many as 16 processing units.

**THE RSS SHOULD NOT BE VIEWED AS ANOTHER DIGITAL EFFECT BUT AS A NEW FORM OF CONSOLE PERIPHERAL (AND A NEW PART OF THE MIXING PROCESS).**

A two-digit LED display indicates the unit currently under control. This system is also used to access utility and global adjustment modes on the processing unit.

A 7-pin DIN cable connects the controller to the RSS-8048 main processing unit, which includes two AES/EBU input jacks (two input channels per jack) and four output jacks (one stereo output per). In a suitably equipped digital studio, the RSS-8048 could be used without any additional I/O. The front panel has four input-level indicators, and a rotary switch that selects a machine number for using multiple RSS-8048s with a single controller.

Analog I/O is provided by a pair of ADA-8024 rack-mount ADCs, with two inputs and four outputs apiece. In keeping with the RSS's role as an in-line processor, the analog converters are of premium quality, with 18-bit oversampled A/D converters and 20-bit DACs.

### Into the Studio

Because of the unusual nature of this product, I was interested in getting the RSS into as many environments as possible. I also wanted to see how the RSS processing held up in different listening situations.

My first stop was The Plant Studios in Sausalito. (Special thanks to co-owner/chief engineer Bob Skye for arranging access to this historic facility.) I was assisted in evaluation there by Skye, staff engineer Mike Elwood and freelance engineer (and *Mix* contributor) Larry Oppenheimer. The results at The Plant and the reactions of all present were similar to those I encountered in subsequent sessions at San Francisco's Sound & Vision, Tarp Studios (San Rafael) and Alameda Digital Recording.

From the start, all were impressed by the RSS's ability to place a sound source well outside the arc of the loudspeakers. Listening in the premium environment of The Plant's newest room, Boomtown, sound sources were clearly located along a horizontal arc out to points slightly behind the listener's head position on either side (approximately 4 o'clock and 8 o'clock, if 12 o'clock is straight ahead). All present agreed as to the apparent locations of individual sources. The effect was startling enough that a real telephone ringing off to the side was momentarily mistaken for part of the mix.

Actual mixing with the RSS is a real pleasure. Even when left in a frontal position, RSS-processed sound elements seem to "stand away" from the rest of the mix. When multiple elements are processed, they acquire a distinctness from one another, and from non-RSS elements, which allows listeners to direct their attention to a chosen part, much as we can pull out a conversation we want to hear from the din of a cocktail party.

The ability to locate sounds at arbitrary spatial points suggests powerful musical applications. I found that locating sounds in unexpected spots was most effective when not overdone. In

Our **NEW** place...

New "In & Out" Transfer Suite  
Digital — Digital  
Analog — Digital

...or yours.

24 Hour Worldwide Rentals

Complete packages

Full tech support

The latest in digital

The best of analog

Call 800-847-4123 toll free  
in USA (212-262-2626 in NY)  
for your free copy of our rate  
card or fax us at 212-262-2632.

**AUDIOFORCE**  
**SOUND RENTAL LOGIC**

**NEW ADDRESS!**

630 9th Ave., Rm. 1012, NY, NY 10036

COMPLETE  
CD SERVICES  
CASSETTE SERVICES  
COMPACT DISC  
MASTERING

BY

digital  
brothers™

(714) 645-9702  
FAX (714) 642-7249

1125 Victoria Street Unit C  
Costa Mesa, CA 92627



# SR-1

## THE ULTIMATE TIME CODE REFRESHER



Whether you need to dub time code from one tape machine to another, restore its readability (...at any speed) or just change its level, the SR-1 is for you. With today's studio equipment relying so much on time code, it is always vital to have it properly shaped. **The success of your next session could depend on it!**

The SR-1 features:

- Very high input sensitivity (threshold below -30db)
- Adjustable output level (from full off to +8db)
- Switchable output rise time (EBU/SMPTE/square wave)

Call us for more information:

(213) 475-7570  
1515 Manning Avenue, suite 4  
Los Angeles, CA 90024



**BRAINSTORM  
ELECTRONICS, INC.**  
*...Intelligent Solutions For The Recording Studio*

my view, spatial location "hits" should be set up as carefully as a musical hook, so as to delight and surprise the listener.

Musical styles oriented toward production effects, audio-for-picture and "sound drama" will be able to use the RSS's spatial locations more freely without seeming incongruous. Even here, though, the attention of the producer to tasteful creativity will make the difference between an exciting mix and a "mish-mash" of effects for their own sake.

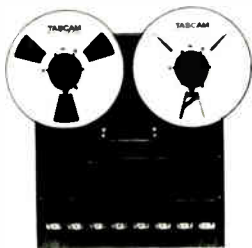
There are also limits on the conditions for producing the perception of specific sound localizations. To hear the illusion in full, it is necessary to listen from a center position, exactly equidistant from each loudspeaker. The specific quality of location is lost if the listener moves more than a foot or so from the center line between speakers, but RSS-processed sound preserves a pronounced sense of "spatial contrast" between individual elements, even when listening from positions that are well off-axis. Localization effects are most robust when reproduced over loudspeakers whose drivers are precisely aligned in the time domain, such as coaxial and other point-source designs.

The RSS's rotary controls cover a full 360-degree sweep for both horizontal and vertical dimensions. This would imply a great deal of freedom in placing sound sources behind, above or below the listener. In practice, however, the placement in those areas is much less convincing than on the lateral arc to either side of the loudspeakers. Illusions of far-rear placement were convincing only when "set up" as part of a trajectory of motion. Otherwise, they mostly sounded like sound coming from the front, with some lowpass filtering.

Convincing placement in the vertical dimension was not easy to obtain. The most successful example I heard came from a tape that Roland provided, a scene featuring the sound of a helicopter hovering above a couple enjoying a romantic outdoor rendezvous. The key seemed to lie in the combination of expectation (helicopter overhead) with some lateral motion (helicopter moving around). The latter cue seemed to hold in other situations as well. A bit of motion helped to convey a sense of elevation, though it was

## RECORDING EQUIPMENT

—All Major Brands—



### FOR STUDIOS/HOMES CHURCHES/CLUBS

- Reel to Reel Decks (2-4-8-16 Track)
- Cassette Decks • Mixing Boards
- Mikes • Studio Monitor Speakers
- Special Effects Units Accessories

**TASCAM**  
TEAC Production Products

- VOLUME DEALER
- NEW & USED
- E-Z TERMS
- ALL MAJOR CREDIT CARDS
- PROFESSIONAL ADVICE



Call for pricing information.

## RHYTHM CITY

287 East Paces Ferry Road N.E.  
Atlanta, Georgia 30305

1-404-237-9552 • 1-404-237-8526

Special Pricing for Package Systems.

generally less emphatic than in this example.

Mono-compatibility and sound coloration are concerns with any type of studio processing, and especially so with a device that manipulates phase as the RSS does. The system can certainly be used in ways that result in problems in mono, but the exact results depend on the source, the specific settings and the audio context. As Bob Skye put it, "An engineer who doesn't check a mix in mono isn't doing their job."

Even in stereo, the RSS imposes a slight, but audible, artifact on the original sound, since the RSS resolves sound locations in 3-degree increments and applies a short (3 milliseconds, according to Roland) crossfade when moving from one position to another. This imparts a mild sort of flanging when a sound is moved between adjacent positions. These factors are generally subtle (but they *are* there), and the producer and engineer should be aware of them.

Based on other experiences and what I'm hearing on recent album releases, the limits and side effects of RSS processing are similar to those of other systems in use. It would seem that designers still face challenges in locating sound convincingly in all three dimensions, and under varied conditions.

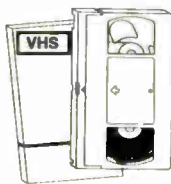
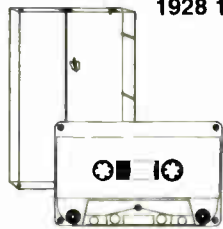
### Use With Effects

Some of the nicest ways to use the RSS come from applying the process to the outputs of reverb, chorusing and delay devices. However, in doing this, it's important to be aware that if you put a mix of direct and reverberated sound through an RSS channel, all elements will receive the same localization. A far more powerful application is to route the direct and processed sound into *separate* RSS channels, and place them in contrasting spatial locations. This approach works nicely for any effect that creates a correlated, but separate, sound image, such as echo or micropitch shift. The separation of direct from delayed sound is striking and pleasing, with many variations possible.

One of my favorite tricks is routing stereo reverb outputs into two channels on the RSS, and spreading these wide in the stereo field. The result is remarkably spacious, but in a way that is more subtle than simply placing a sound source in some unusual spot.

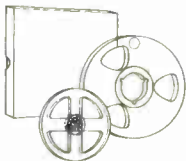
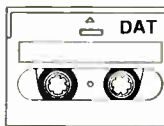
# IMPERIAL TAPE Company, Inc.

1928 14th St. Santa Monica, Ca. 90404-4605



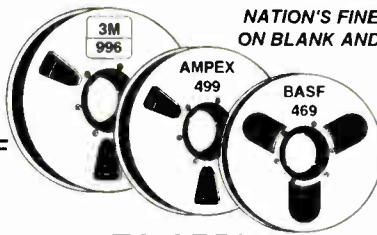
**CUSTOM LENGTH  
BLANK AUDIO  
VIDEO CASSETTES**

**AUDIO AND VIDEO  
DUPLICATION**



**NATION'S FINEST DIRECT PAD PRINTING  
ON BLANK AND DUPLICATED CASSETTES**

**AMPEX 3M BASF  
MAXELL TDK**



**SHIPMENTS  
WITHIN 24  
HOURS**

**RAZOR BLADES  
LEADER/SPlicing TAPE**

**TO ORDER  
310 • 396 • 2008 (LOCAL)  
800 • 736 • 8273 (NATION)  
FAX ORDER  
310 • 396 • 8894**

**AUDIO SWABS  
HEAD/RUBBER CLEANER**

**For those  
who take it  
seriously...**



Now  
providing advanced  
training in  
conjunction with  
**Solid State Logic**

It's not enough to study the "art" of recording. You simply must learn the *technology* of recording. That's the only way to insure your career for today *and* tomorrow!

"IAR grads are the most highly motivated and best trained of anyone entering the engineering field. I give IAR my highest endorsement."

Dan Healy, Chief Engineer  
The Grateful Dead

**800-544-2501**

NY, NJ, CT 212-777-8550

Lic. by NYS Ed Dept / HS Diploma or GED Required  
App for Veterans Training / Financial Aid if Eligible



**Institute of Audio Research**

64 University Place, Greenwich Village, New York, New York 10003



Memorize This Number!

**1-800-966-9686**

This free call is your musical connection!

- Knowledgeable Sales Staff
- Courteous Service
- Fast Delivery
- Major Brands
- Leasing and Financing available
- Specializing in Keyboards, Multitrack, Software, and Signal Processing
- Fax us your wish list

Get ready for the 21st Century!

Call Century Music Systems Now!



**FIELD TEST**

My feeling is that listeners might eventually tire of "novelty" mixing, but this sort of "image manipulation" can be used to build mixes that have a pleasing sense of dimension and spatial differentiation.

**3-D MIDI**

Almost any MIDI sequencer can be used to automate the action of the RSS, using polyphonic aftertouch messages on MIDI Channels 1 through 4 to denote elevation (note number) and lateral position (aftertouch value). The normal application is to connect both MIDI in and out, and turn on the sequencer's MIDI data thru. In this way, the MIDI output of the RSS remote will pass through the sequencer and return to the MIDI input, so that the RSS behaves normally for manual operation. Any motion of the control can be recorded in the sequencer. (Be sure to turn off filtering of poly aftertouch messages.) On playback, the RSS will exactly replicate the operator's motions.

MIDI can also be used to automate the RSS in other ways. Using Max (Opcode's visual programming language), I was able to create some useful control functions. This Max patcher maps note numbers to RSS locations. You just play a note on your MIDI controller and set the RSS controls to the position you want to assign to that pitch. The patcher builds tables of elevation and azimuth values. When you play, the sound jumps to the preset positions. On arpeggios of percussive-type sounds, the effect was intriguing.

I also found it useful to add a little bit of "position envelope" at the attack of a note when I wanted to draw the listener's attention to a particular part. The "twitch" of motion—not enough to make the part move appreciably—serves to grab the attention of listeners without their becoming fully aware of the reason. Throughout my experience with the RSS, I found that many of its best uses lay in this sort of subtle psychoacoustical manipulation.

**Conclusions**

The Roland RSS System is a powerful tool for mixing. With it, engineers, artists and producers can create striking aural illusions. These can be startlingly extreme (such as sounds coming from points far outside the arc of the loudspeaker) or they can be more subtle

**Kdisc mastering**  
6550 Sunset Blvd., Hollywood, California 90028 • (213) 466-1323 • FAX (213) 466-7237

**COMPLETE DIGITAL SERVICES  
FOR  
CD PREPARATION**

**COMPLETE MASTERING SERVICES**  
DMM and Laquer Cutting



"Look here, I know the PM3000.

"I know it's at the top of the list of the best live sound-reinforcement consoles.

I know it's written into all those big concert tour sound riders. I know it's in the major theaters on Broadway. I know it's in the 5,000-seat churches with the 400-seat choirs. And I also happen to know that it's in all those T.V. trucks producing this year's biggest sporting events. And I know why.

Ed  
Sound Engineer  
"Because the PM3000 is flexible. Because it's logically put together. Because it performs. Because it's a pleasure to use. Because everyone likes working with it.

"But, here's the news.

"There are two more PM series consoles. And they start at a mere \$5,500 MSRP. So obviously, they're for those situations where you want the best console available. But you don't have the space or the budget to get the 3000.

"The PM1800A was just updated. So it has an improved signal-to-noise ratio (6 dB better). And 0dB insert points for easy gain matching with external processors. It's got 8 groups, 6 aux sends and 4 mix matrices. It even has the same mute grouping feature you find on the 3000. But that's not the end of it.

"The PM1200 has the same roots. But in a more compact format. It's got 4 groups plus stereo, 4 aux buses, and 4 mute groups. You can get 16, 24, or 32 input channels and you still get two additional full-function stereo input channels.

"Obviously, they're both ripoffs of the Yamaha PM3000."

**YAMAHA®**



“Obviously,  
they’re both  
ripoffs of  
the Yamaha  
PM3000.”



# Send Us Your Disk Send Us Your DAT We'll Do The Rest Simple As That.



CASSETTE CD & RECORD MANUFACTURING & PACKAGING  
2832 SPRING GROVE AVENUE • CINCINNATI, OH 45225 (513) 681-8400

## 2 Ways To Duplicate Your Master Audio Tape For Demos Or Retail Sales

### AUDIO CASSETTES:

Eva-Tone is a full-service supplier, offering duplication, labeling, packaging, additional printing and complete mailing services. Write or call for your free copy of "Cassette Talk," our newsletter complete with information, specs, layout sheets and prices.

### SOUNDSHEETS:

Use these thin, flexible vinyl recorded discs as audio pages in magazines, as direct mail inserts, as handouts at concerts or trade shows, or even as retail products. Write or call for your free copy of our Soundsheet Idea Kit, complete with information, samples, specs, layout sheets and prices.

### PRINTING & MAILING:

Ask your Eva-Tone Representative about our commercial printing and mailing services, too. We just may be the full-service promotional supplier you've been looking for!

**EVA-TONE**  
INCORPORATED

P.O. Box 7020-MX, Clearwater, Florida 34618-7020  
Toll-Free 1-800-EVA-TONE



(such as a spatial separation that lets the listener "pull out" and listen to individual parts more readily than in a conventional mix).

Even the more flamboyant uses were most effective when carefully set up. When everything is everywhere, the impact is lost after a while. But when most of the mix is conventionally placed, the element from far left field comes as a great surprise. As in every part of the production process, using the RSS to good effect is a matter of attention and creative thinking.

The RSS is a landmark in the development of true 3-D sound, but it doesn't do everything. Besides the differences of vividness of illusions in various directions, the RSS makes no attempt (at least in the current software version) to provide cues for distance, room or other environment, or Doppler pitch shift resulting from source motion. Engineers can incorporate these factors by careful use of reverb and delay, but I look forward to future processors that handle these manipulations automatically.

The RSS should not be viewed as another digital effect but as a new form of console peripheral (and a new part of the mixing process). It is an in-line component, rather than a sidechain device, that extends a console's capabilities in entirely new directions.

A premium in-line device must have top-notch signal quality, and the RSS's state-of-the-art converters and high-resolution digital processing meet this requirement handily. Localization processing also requires extraordinary DSP power and imposes steep development costs. With this perspective, the system price of \$44,500 does not seem unreasonable. Roland offers leasing options, and the RSS is available from equipment rental companies nationwide. Ultimately, the producer must determine the cost/benefit of using this new form of sound localization technology.

The RSS's technology represents a real advance for the mixer's art—one that will be with us in one form or another from here on in. Producers and engineers would do well to become familiar with the capabilities and benefits that the RSS System offers. ■

*Gary Hall lives in Alameda, California, where Star Trek's Mister Chekhov went to find the "nuclear wessels."*

# If you want to know what an SV-3700 sounds like, listen to these people.

OUTSTANDING  
TECHNICAL  
ACHIEVEMENT  
TEC  
RECORDING  
STORAGE  
TECHNOLOGY  
1991  
WINNER



You're hearing them already, but now listen carefully. Each recording listed here was produced (and often mastered) using the SV-3700 Pro DAT.  **Aire LA Studios** *Chuckii* produced by Chuckii Booker; *Tuff* produced by Howard Benson; *Brian Wilson* produced by Brian Wilson & Eugene

Landy; *Timmy T.* produced by Jon Ryan.  **The Castle** *Lee Greenwood* produced by Jerry Crutchfield; *Ricky Skaggs* produced by Mac McAnally.  **Chung King Recording Studios** *Run DMC* produced by Jam Master Jay; *3rd Bass* produced by Sam Sever, SD-50, KMD, Prince Paul & Marley Marl; *L.L. Cool J* produced by Marley Marl; *Nikki D* produced by Sid Reynolds.  **D & D Recording** *Vanilla Ice* produced by Gail "Sky" King; *Big Audio Dynamite* produced by Jr. Vasquez; *Herb Alpert, Ziggy Marley* produced by Bobby Konders.  **Electric Lady Studios** *Queen, West World* produced by John Luongo & Gary Hellman.  **Emerald Sound Studios** *Hank Williams Jr.* produced by Barry Beckett, Jim Ed Norman & Hank Williams Jr.; *Alabama* produced by Josh Leo & Larry Lee.  **The Enterprise** *Winger, Warrant* produced by Beau Hill; *Nelson, Trixter* produced by Mark Tanner; *The Fixx, Rebel Pebbles* produced by Tony Peluso; *Gladys Knight* produced by Michael J. Powell; *Henry Lee Summers* produced by Ric Wake; *Nia Peeples* produced by Howard Hewitt.  **Mad Hatter Recording Studios** *Chick Corea Elektric Band* produced by Chick Corea and Co-Produced by Dave Weckl and John Patitucci; *Lee Ritenour, David Benoit* produced by Mike Abene for "Shannons' Deal."  **Magee Audio Engineering** *Los Angeles Philharmonic Orchestra, Pacific Symphony Orchestra, Terry Trotter & Friends* produced by Joseph Magee.  **Mobile Fidelity Sound Lab** *Igor Oistrakh Trio* produced by S. R. Britton & Edward Shakhnazarian; *Gennadi Rozhdestvensky & The USSR Symphony Orchestra* produced by Krieg Wunderlich & Tori Swenson.  **Music Mill** *Eddie Rabbitt, Earl Thomas Conley, Oak Ridge Boys* produced by Richard Landis; *Anne Murray, Tanya Tucker* produced by Jerry Crutchfield.  **One Up/TMF** *Mussingtons, Dumpa* produced by Dianne Norris; *Anita Baker* produced by Michael J. Powell; *Natalie Cole, Smokey Robinson* produced by Terry Marshall.  **The Plant Recording Studios** *M.C. Hammer* produced by Felton Pilate; *Mariah Carey, Michael Bolton, Peabo Bryson* produced by Walter Afanasieff; *Tony!Toni!Toné!* produced by Tony!Toni!Toné!; *De Anna Eve* produced by Shake City Productions.  **Royal Sound Studios** *L.A. Guns* produced by Michael James Jackson; *Art Laboe* produced by Art Laboe; *Festival Fountain at Caesar's Palace* produced by Champ Davenport.  **Sixteenth Avenue Sound** *Ziggy Marley* produced by Ziggy Marley & Glenn Rosenstein; *Michelle Shocked* produced by Michelle Shocked & Glenn Rosenstein.  **Studio 4 Recording** *Phil Collins* produced by Phil Collins; *D. J. Jazzy Jeff & The Fresh Prince, Schooly D.* produced by Joe "The Butcher" Nicolo.  **For information on the SV-3700, contact Panasonic, 6550 Katella Ave., Cypress, CA 90632 (714) 373-7278. For more great music, listen to:**  **Taj Mahal** produced by Skip Drinkwater.  **Studio PASS** *Defunkt* produced by Bob Appel; *Nic Collins* produced by Nic Collins; *Paul DeMarinis* produced by Paul DeMarinis; *Tom Cora* produced by Tom Cora.  **Keith Thomas** (producer) *Whitney Houston, Amy Grant, Carman, BeBe & CeCe Winans.*  **Triad Studios** *Queensryche* produced by Peter Collins; *Michael Tomlinson* produced by Dan Dean & Michael Tomlinson.  **Trevor Rabin** *Yes.*  **Unicorn Studio** *Roger Hodgson.*  **Unique Recording Studio** *Mariah Carey, Lisa Lisa & Cult Jam* produced by Robert Chivilles & David Cole; *Madonna* produced by Lenny Kravitz; *Lisette Melendez* produced by Carlos Berrios.  **Don Was** (producer) *Bonnie Raitt, Glenn Frey, Paula Abdul, Neil Diamond, Lyle Lovett.*  **And this is just the beginning.** Professional Audio Systems

## Panasonic

by George Petersen

# PRODUCT

## CRITIQUES AND COMMENTS

### Microtech Gefell UM70

Here's a little microphone with a lot of history behind it. Microtech Gefell is a small company located in the small village of Gefell, about three miles east of the border that once divided Germany into two portions. But the story of this microphone actually begins in 1943.

After an incendiary bomb destroys part of his factory, George Neumann moves his microphone-manufacturing facility from Berlin to Gefell. The first production unit is the famed CMV4 "bottle" mic, using the M7 capsule developed by Neumann and later employed in the U-47, U48, UM57 and today in the UM70.

In 1948, Mr. Neumann leaves Gefell to establish a nicad battery plant in another town, while the microphone employees remain and continue production in cooperation with Neumann. Eventually Neumann returns to build mics in his native Berlin. In 1956, the East German government nationalizes all manufacturing, taking 51% control of the Gefell operation, which continues to manufacture microphones.

In 1961 the Berlin Wall goes up, ending communications between the Neumann plants in Berlin and Gefell. In 1972, the company's name changes to VEB Microtechnic Gefell, which is more in keeping with the concept of a "people's" company. With the political collapse of the Eastern Bloc, Microtech is now under the trusteeship of the new German government, and the mics are

available to the outside world.

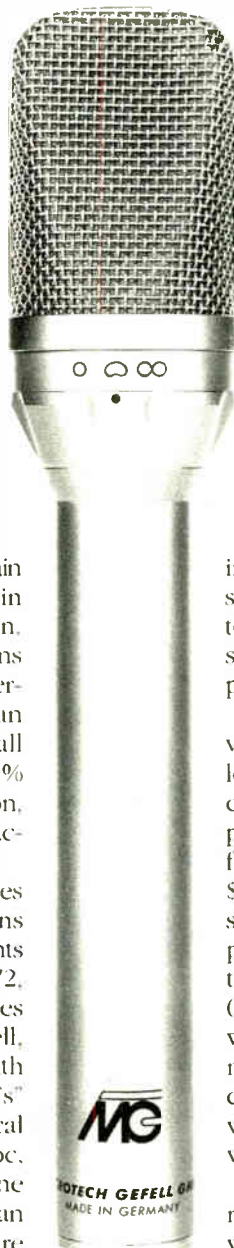
Today, Microtech Gefell manufactures a variety of models, including instrumentation-quality measurement microphones, as well as mics for sound reinforcement, broadcast and recording.

Most interesting to Westerners, perhaps, is the UM70, incorporating the legendary M7 large-diaphragm, dual-membrane capsule. In fact, Microtech still uses the same techniques to construct the M7 as in days past, with a hand-cast, 10-12mm PVC diaphragm and 153 hand-drilled holes in the backplate. One thing that did change, however, is the state-of-the-art machinery for gold-sputtering the diaphragm. The UM70's electronic design is anything but old-fashioned,

including a switching power supply (fed from external phantom power) and an FET-input stage coupled to a hybrid amplifier.

The UM70 is available in two versions, both having three selectable polar patterns (omni, cardioid and figure-8), -10dB pad and switchable highpass filter. The UM70 is priced at \$995. At \$1,150, the UM70S is a select version with 3dB improved noise performance over the standard UM70. The M71 (\$795) is a cardioid-only version with standard electronics. All mics include a 25-foot, high-quality XLR cable, mic clip, windscreen and foam-lined, wood storage case.

While the UM70S's rated noise figures (16dB IEC, A-weighted) are not exactly in the





# GOLD LINE LOFT

**NEW: SOUND LEVEL  
METER with  
DIGITAL NUMERIC  
DISPLAY**



**Standard: 45 to 120 dB  
RANGE OPTION  
Preamp: 25 to 120 dB**

## CONTRACTOR PRICES

Send for free catalog:

Box 500, West Redding, CT 06896  
PH (203) 938-2588 FAX (203) 938-8740

## HEAD RELAPPING

The contour and performance of your heads are restored to factory specifications before a precise optical/digital assembly alignment is performed. Original replacement heads also in stock.



## MOTOR REBUILDING

Your Capstan, Reel, and Tachometer motors are rebuilt to quiet, flutter free perfection.



— Become an AMP SERVICES customer and enjoy a level of quality workmanship and individual attention rare in today's business environment. Call:

Audio Magnetic Professionals

**AMP**  
SERVICES INC

224 Datura Street, Suite 614  
West Palm Beach, FL 33401

1 (800) 826-0601 In Florida (407) 659-4805

Authorized OTARI, SONY, TEAC Parts Dealers

## AUDITIONS

range of Neumann's TLM Series, they are certainly respectable, and they're approximately the same as the Neumann U89.

The UM70S capsule is extremely smooth on lead or background vocals, as well as spoken-word narration. I found the omni pattern to be better suited for female vocals, while the noticeable presence boost in the cardioid position really helped male vocals cut through the mix. The UM70S can handle SPLs of up to 135 dB, so recording horns was no problem; in fact, the mic really excels in this area, particularly for solo sax and trumpets.

Off-axis frequency response was uncolored, which is always an important consideration when working with vocalists who tend to move around a lot. I wasn't overly impressed by the onboard highpass (bass roll-off) filter, which seemed to have a steep slope and probably wouldn't be too useful in most studio applications. The very large foam windscreens included with the mic, however, is highly effective and does a good job in handling excessive breath noise.

Overall, the Microtech Gefell UM70S is a winner. It's versatile, sounds great and at \$1,150 would be a welcome addition to anyone's mic locker.

Distributed by Gotham Audio, 1790 Broadway, New York, NY 10019; (212) 765-3410.

## E-mu Proclusion

Some months ago, when I first saw this box, it seemed like a pretty cool idea: lots of great 16-bit drum sounds, six routeable audio outs, 32-voice polyphony and 16-channel, multitimbral operation. More recently, I needed

up buying the unit. Why? Because a MIDI percussion module makes a lot of sense. Why pay for buttons and features I don't use? I have numerous drum machines in my studio and haven't used the onboard pattern/song programming features on them in years, because my sequencing software does it better and faster.

And while we're on the subject of speed, any of Proclusion's 128 drum kits (64 factory, 64 user-definable) can be instantly accessed with a spin of the front panel data wheel. Likewise, any of Proclusion's 140 sampled sounds or 556 factory stacks (combinations of up to four percussion instrument sounds) can be auditioned with a couple of quick keystrokes. Proclusion also contains note-mapping schemes for ten popular drum machines and pad controllers, making the sometimes tedious process of drum-sound replacement a snap. All of this brings to mind the adage, "Time is money," which aptly applies to studio time.

Like its cousin, the E-mu Proteus, Proclusion's two pairs of "sub" outputs can be used either as additional outputs (with programmable pan and level control on any instruments assigned to each) or as effects sends and returns for processing selected instruments before routing them to the main stereo outputs.

Operation of the unit is intuitive. I used Proclusion for about two weeks before looking into the manual, which, incidentally, is thorough and well-written.

But Proclusion's real power comes from its extensive layering and editing capabilities, offering the user a dynamic palette from which to create new sounds. Among these are pitch shifting of any sound over a ten-octave



some additional drum sounds for a studio session, so I snuck out of the office one night with a Proclusion that was on loan to *Electronic Musician*, our sister magazine. It never went back.

After two sessions with Proclusion, I was completely addicted and ended

range, eight velocity curves, modulation control, envelope shaping, reverse sample play and one LFO per stack.

Offering flexibility and versatility (the unit also includes sound effects, tuned and ethnic percussion, and bass

sounds), Procussion is a powerful tool for either live performance or the studio. At \$995, it's quite a box and one heck of a studio time-saver.

E-mu Systems Inc., 1600 Green Hills Road, Scotts Valley, CA 95066; (408) 438-1921

### **Stax SR-Lambda Professional Earspeakers**

Recording engineers need to hear. The most difficult aspect of studio or remote recording is that the sounds we really need to hear are usually reproduced through a long chain of devices—microphones, preamps, mixing consoles, crossovers, amplifiers, speakers and then the dreaded control room acoustics. Occasionally, the audio chain works superbly, but more often what we hear is significantly colored by the time it reaches our ears.

A staff engineer at a studio can become accustomed to the quirks in any system and compensate accordingly. However, the independent engineer or producer in an unfamiliar listening environment is at a distinct disadvantage. Toting a pair of trusted close-field monitors may help, but in some instances, this may be difficult or even impossible, especially when working on location. One possible solution is Stax Earspeakers.

Yes, "earspeakers." You'd better not refer to these as mere headphones, especially considering the \$1,500 price. These are anything *but* ordinary.

The Stax SR-Lambda Earspeakers use an electrostatic drive system, whereby an extremely thin (one micron) transducing diaphragm, coated with conductive material, is suspended between two fixed electrodes. A polarizing current of 580 VDC charges the diaphragm, and when an audio signal is applied to the electrodes, the diaphragm is set into motion due to the repulsion and attraction of electrostatic charges.

Electrostatic headphones require a driver unit, an outboard electronics box that supplies the polarizing current and provides the audio-to-headphone interface. In the past, these driver units tended to be bulky, AC-powered devices about the size of a shoe box. However, the Stax company—which pioneered the application of electrostatic headphones more than 30 years ago—recently unveiled a compact driver unit, powerable via an AC adapter or an optional, rechargeable

## **New Solutions**



Advanced, modular hardware and software transform the Macintosh into a powerful, elegant audio workstation:

- **NoNOISE:** unsurpassed noise reduction tools
- **CD Pre-Mastering:** waveform editing, PQ codes
- **CD Maker:** recordable and pre-master CD's
- **Sound for Picture:** post with multiple machines
- **Multi-Track Recording/Editing:** 2 to 24 TK
- **Virtual Mixing Desk:** automated mixing and EQ

And The **Sonic System** alone offers real-time EQ and waveform display with background load, unload, archive, and de-noise. In New York, call SCI for a demonstration.

"Macintosh" is a registered trademark of Apple Computer, Inc.; "CD Maker" is a trademark of START Lab; "NoNOISE" is a registered trademark and "Sonic System" a trademark of Sonic Solutions.

**AKG, API, Apogee Electronics, Apogee Sound, Bryston, Canare, Drawmer, Eventide, Gefen Systems, SigTech, Sonic Solutions, SONY, Sound Ideas, Soundcraft, T.C. Electronic, Westlake, Whirlwind, White Instruments,** and other exceptional audio products.

## **studio consultants, inc.**

321 West 44th Street, New York, NY 10036 (212) 586-7376  
Equipment, support, and design services for professional audio facilities and broadcasters — since 1971.

## **WE'RE STILL HUNGRY**



Two years ago we ran an ad that challenged you to "show us a better cassette and we'll eat it". We offered you a better sounding tape, faster turnaround and a better price. Instead of eating any tapes, we've been amazed at the response.

What was proven to us was that people everywhere are really listening to the quality of their audio cassettes. And the best sounding audio cassettes available anywhere are mastered and duplicated at Music Annex Duplication.

The challenge still stands.

Call us and ask for our free demo tape. Find out how good a cassette can sound.

**Now offering CD's!**

### **Music Annex Duplication**

42650 Christy Street  
Fremont, CA 94538  
(415) 226-0800



# Put Yourself In The Mix!

...The Mix T-Shirt that is!

The high-tech, four-color artwork from our MIX MASTER DIRECTORY has been carefully silk-screened on light gray, 100% cotton heavyweight T-shirts.

Previously available only to industry insiders...stock is limited. Great gift idea!

Available in M, L and XL sizes. Only \$9.95 plus \$2.00 shipping. CA and NY residents please add sales tax.



## To Order

CALL TOLL-FREE (800) 233-9604 or (510) 653-3307, fax (510) 653-5142 (credit cards only) or write to Mix Bookshelf, 6400 Hollis St. #12, Emeryville, CA 94608. We gladly accept MasterCard, VISA, Discover Card, American Express, personal checks or money orders.

nicad battery pack. Designed for professional users and housed in a rugged, lightweight case, the new driver unit makes electrostatic monitoring a reality for location recording applications.

On the front panel, the pro driver has a power switch with LED indicator, 5- and 6-pin amphenol-type jacks for connecting either pro- or consumer-series headphones, and a stereo-mini-plug input jack. Equipped with a suitable adapter cord, the latter allows connecting various line-level inputs to the driver unit, useful when the optional nicad pack is attached to the rear panel, which blocks access to the two RCA-line inputs.

The Earspeakers are lightweight and comfortable, weighing in at 450 grams. Part of the reason for the lightweight design stems from the extensive use of plastic, which has a flimsy feel. With this and the steep system pricing in mind, it seems unlikely that Earspeakers will be used for musicians' monitoring on wild rock 'n' roll sessions. A more likely scenario is the use of the Earspeakers as a producer's or engineer's personal reference. The entire system fits nicely into an ATA-style briefcase, and perhaps Stax will offer such cases (with custom foam cutouts) as a future option.

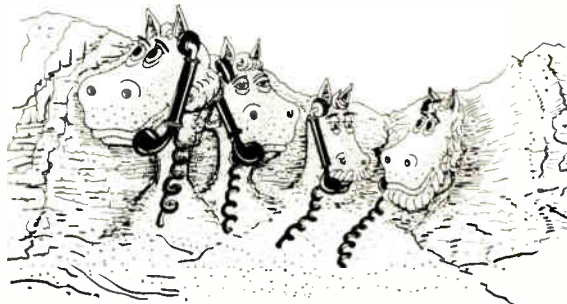
Listening on the SR-Lambda Pros is a real pleasure, without inherent ear fatigue that accompanies other headphones. The frequency response extends beyond 40 kHz, so I never felt that the system had to strain to adequately reproduce transients. The bass is full and solid. Whether running on battery or AC, the system packs plenty of volume, and I rarely needed to turn the level control beyond the noon or 1 o'clock mark. Maximum SPL at 400 Hz is rated at 118 dB.

At \$1,500, the Stax SR-Lambda Professional Earspeakers are obviously not for everyone. But if you're serious about listening and you've been disappointed with the usual approaches to headphones, perhaps you should give these a listen.

Stax Kogyo Inc., 20620 South Leapwood Ave., Suite F, Carson, CA 90746; (213) 538-5878. ■

*George Petersen lives with his wife and two musical dogs in a 105-year-old Victorian house on an island in San Francisco Bay.*

WHEN IT COMES TO RUSH ORDERS...  
THOROUGHbred ROCKS!



Whatever your viewpoint, we have what you're looking for.



- ★ SAME DAY SHIPPING ON ITEMS ORDERED BEFORE NOON
- ★ THE BEST VALUES
- ★ HUGE IN-STORE INVENTORY
- ★ OUR SALESPeOPLE ARE MUSICIANS
- ★ MAILORDER LAYAWAY
- ★ AWARD-WINNING SERVICE CENTER



**THOROUGHbred** (800) 800-4654  
**MUSIC**

Your Music Department Store.

FAX (813) 238-5443

Electronics, Pro Audio, Amps, Guitars, Drums, Accessories, Rentals.

2204 East Hillsborough Avenue, Tampa, Florida 33610



# mix·er

**(mik'sēr) noun.** An electronic device used to *mix* music. Must be clean, transparent and punchy. See **Alesis 1622 Mixer**. Better yet, listen to it.



**Better yet, own it.** That's what every major music magazine is saying about the Alesis 1622 Mixer, because its radical new design redefines the concept of a professional mixer. Reason enough to make it the center of your studio.

Need more reasons? How about 16 channels with 100mm faders for precise control over all inputs. And 6 independent auxiliary sends on every channel so you can drive all the stereo effects you'll ever need to create masterful mixes.

The 1622's ingenious design uses surface mount technology on a scale that nobody ever thought possible. It's the key to the 1622's incredible value.

We call it the Monolithic Integrated Surface.<sup>™</sup> Our competition calls it terrifying, because it shatters the price barrier for a pro mixer.

Your mixer is the single most important piece of gear in your studio. It defines the sound of your music. It must be flexible, reliable, and above all, it should have impeccable audio credentials\*. That's why the 1622 is your first choice for a mixer. It might be the only choice. Listening to it will convince you.

Visit your Alesis dealer today and hear the 1622. Better yet, buy it.

Call 1-800-5-ALESIS, 9 AM to 5PM Monday-Friday, and we'll send you a brochure on why Monolithic Surface Technology is important to your music.

\* Total Harmonic Distortion + Noise: too low to measure.\* Keyboard Magazine July 1990.



**Performer:** Van Halen  
**Venue:** Shoreline Amphitheater, Mountain View, CA, September 14, 1991  
**Rental Company:** Audio Analysts  
**FOH Mixer:** Jon Ostrin  
**Monitor Mixer:** Jim Yakabuski

Van Halen's two Shoreline dates were near the end of the first leg of the band's successful summer shed tour. Providing sound for the band was Audio Analysts, which coincidentally, was in the middle of a move from Plattsburgh, N.Y., to Colorado Springs, Colo. While previous outings with the band have been more extravagant, on this tour a "less is more" philosophy prevails. FOH mixer Jon Ostrin explains: "I had a conversation with Eddie [Van Halen] at the beginning where he said, 'It doesn't have to be a wall of thunder. Let's get this thing clean and distinct. Let's understand every word Sammy [Hagar] is saying and all the notes to all the riffs.' [On the last tour] I'm told they were running from 24 to 30 inputs on the drum kit. [This time] we're doing the whole band on 30 inputs. The simpler, the better."

It's always easier to please a client who knows what they want. "From day one in rehearsals, I got the idea they wanted it to sound like a band playing," says monitor engineer Jim Yakabuski. "Eddie's sound has changed a little over the

# VAN HALEN

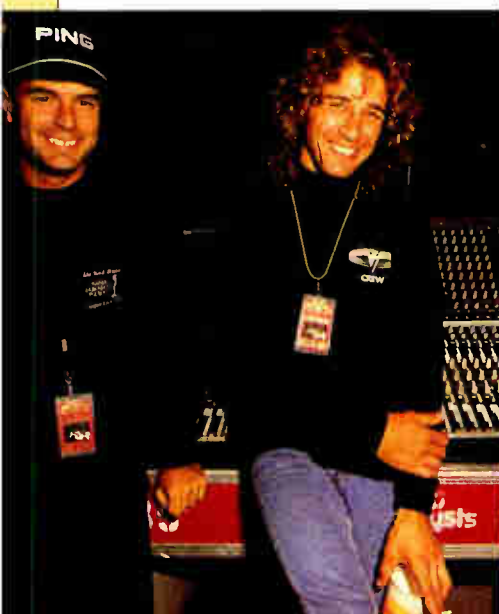
## On Tour: The Simpler, the Better



years, but it's pretty similar. I don't think Alex's drum sound has ever changed—he knows the frequency he likes, 500 Hz, and likes that boosted on the snare—a lot of 'wood' and that's all he wants to hear. There's no reverb on anything [in the monitors]. It's really just a balance. It's almost like a FOH system down low."

Ostrin agrees. "We get very similar sounds—the sound out front is very similar to the sound they're looking for onstage." Cooperation between house and monitor systems makes that goal easier to reach. "We work together," adds Yakabuski. "Just a couple of days ago we spent half an hour on the vocals. I wound up taking just about everything below 200 Hz off all the vocals to let Jon do the warming and filling up in the house. It keeps things really dry and tight onstage, and it really worked out well."

The FOH position centers around a CADD console. Ostrin notes, "It has features that can keep you busy for months, as far as routing and A/B switching for effects, but since we're doing the band with only 30 inputs, it's set up pretty straightforward. It's not a band where you can get away with big snare reverb shots, 'cause



**Center:** Alex Van Halen's brother. **Above right:** Alex Van Halen and his internally miked drum kit. **Below far left:** Van Halen's Jim Yakabuski (monitors) and Jon Ostrin (FOH).

PHOTOS: STEVE JENNINGS



# STUDIO FOR LEASE

Large studio in Sydney, Australia. Well-established (11 yrs), poss. available March 92. Whole building, city area, parking, completely equipped. Studer A800 24-trk plus nearly new Tascam ATR-80 24-trk, customized Harrison MR2, sync lock, video, automation. Virtually all mics and outboard equip. Studio has recorded many hits. Past sales up to approx. AUS \$15,000 per wk. Room for additional small studio. May suit two engineer partners, label, prod. company, or other. 5 yr lease, asking for offers around U.S. \$12,500 per mnth. Applicants must have substantial backing.

Phone or FAX in Connecticut, USA  
(203) 227-0565

## TDK's NEW SM CASSETTES: "IT'S ABOUT TIME"



- Now available in 10, 20, 30, and 60 minute lengths.
- Superior high bias cassette for studio and demo recordings.
- Uses top-quality SA tape pancake for low noise and wide dynamic range.
- Ask for our new A/V catalog.

# SONOCRAFT

575 Eighth Avenue  
New York, NY 10018  
TEL. 800-274-7666  
FAX 212-564-9488

## LIVE SOUND

there are no ballads. I keep all my reverb times below 2 seconds, around 14 or 17 seconds, and let the cymbal overheads keep everything grooving. It's not a real effects-heavy band. I've got a couple of slaps on Sammy's vocal, which vary from song to song, but I'm not doing much changing, especially for the first leg." (A Lexicon 224 and Eventide 3000 Harmonizer are the FOH effects highlights.) Instrument effects, when used, come directly off the stage, with L/R and dry feeds provided to FOH from both bass and guitar rigs.

"This album has probably the most effects they've had," says Yakabuski. "Andy Johns came in and beefed the drums up. But Alex came into rehearsals and said, 'It's a great sound for the album, but I still want my drums to sound the way they have for 15 years.'" Drum mics are mounted inside the drums themselves, including Sennheiser 509s in the toms and 421s in the kick. This makes getting a consistent drum sound easier for everyone, and, of course, helps reduce leakage.

"I started out with noise gates on everything," says Yakabuski, "but they're not on any more. I don't even use the mute groups on the board. Everything is open during the show—it's a low-enough level that you can pull it off."

A CADD console also is used for monitors. "I don't think I have anything on the board cut or boosted more than 3 dB. If you do need to boost or cut a frequency, it's right there. It's a nice EQ. I have a graphic and a five-way parametric on each mix, but the way it's turned out, everything's almost flat. Some of the mixes have a little cut at 2.5 or boost at 10 kHz. You could almost do it off the board and the outboard parametrics, but for me the graphs are like a security blanket! The board also has an aux matrix remix section, which lets you take any one of the four aux mixes and reroute it to any stage mix. I use this when Eddie and Mike [Anthony, the bassist] come to the center to sing with Sammy. I just set up a little mix

of Eddie's guitar and drums, and bring that in Sammy's mix. You don't have to turn on four or five channels, just one matrix. The only thing about it that isn't great is that it weighs a ton. Four stage hands can lift a Series 4, but this takes at least six or eight guys. It's probably twice as heavy."

With this band's style of music, one might expect stage level to be pretty high. Fortunately, this is not the case. Yakabuski explains: "Mike is probably the loudest thing up there. He goes for that bassy tone, without a lot of cut in it, so to hear himself he has to be quite loud. But Eddie's real reasonable—he just uses three bottom cabinets at the end of his stack. He doesn't like to hear those straight on. And I put a little of him in his sidefill." Sidefills are Audio Analyst's A-3s, with one hung for lead vocal and two on the floor carrying a full mix on each side of the stage.

Analyst's crew chief Mario Leccesse notes the absence of subwoofers in the the tour's 56-cabinet, Crown-powered rig. For the arena leg of the tour they will increase the box count to 72, eight of which will be subs. Leccesse felt subs weren't required by the band's sound in the sheds, taking into consideration the full-range response provided by the HDS-4's dual 18-inchers. To prevent build-up in the lower seating area of the venue, Leccesse tilted the bottom row of HDS-4 cabinets up toward the grass seats, rather than the typical downward orientation.

"At this point in the tour, we've done about 15 shows," says Ostrin. "We've done totally outdoor ones and a lot of difficult venues, but it's at a point now where we're pretty locked in. The first week was pressure, with the guys out front every day or doing an hour-and-a-half just on monitors. But we're relaxed now, we've gotten over the big hump and finished the first leg pretty successfully. Now they don't have to worry about what we're doing—they can just concentrate on playing their music, which is exactly how it should be." ■



—FROM PAGE 132, SOUNDCHECK

any festival's set change-over is a penchant to keep the sound crew guessing. "Who's on the rider and who shows up to the gig are two different things," Mathews says. "We had an act a couple of years ago that was going to be a 15-piece orchestra. The guy showed up ten minutes before he was on, and it was just a piano and him. Or someone will show up with an eight-piece band instead of two acoustic guitars."

No one is more affected by unanticipated performers than the monitor engineer. That task fell to Sound On Stage veteran Chris Becker, who handled the stage's ten monitor mixes. Becker's busy weekend was capped by a birthday tribute to B.B., which included surprise appearances by Robert Cray, Bobby McFerrin, Boz Skaggs and Narada Michael Walden. During the extended birthday fest, the stage was also occupied by several film crews, some hoping for a monitor audio feed. Fortunately, the logistical hurdles were overcome, and the show ended with a bang.

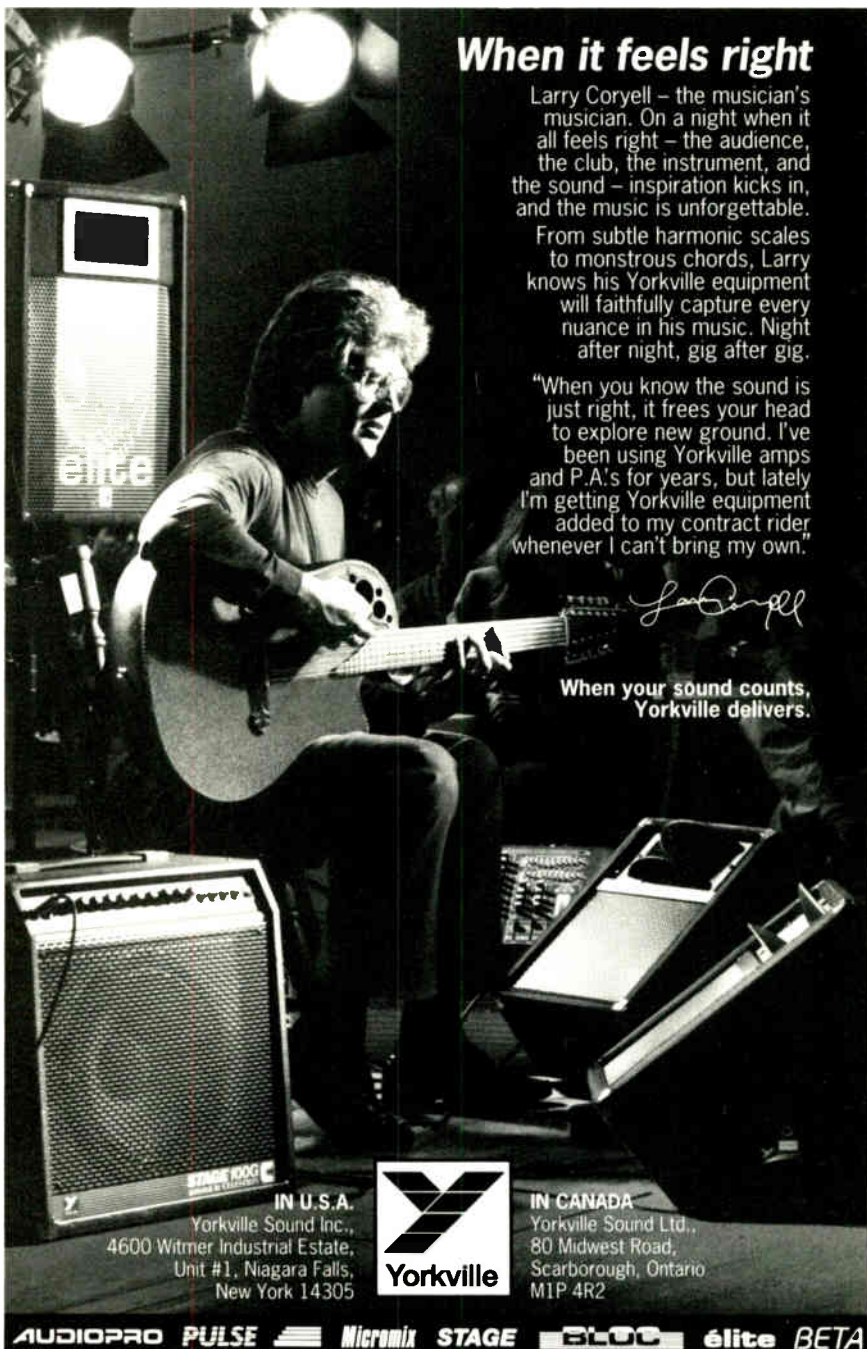
"We set up a generic mic chart and label every cable, mic stand and microphone onstage," Mathews says. "Then during set change, if there's three horns, you walk over and grab three horn channels and drag them out onstage. [This] gets us the least amount of gain and EQ changes." A common drum kit is used for all acts.

FOH equipment included a Gamble HC40 console (a pre-EX model Gamble was also used for monitors), Aphex gates and limiters on vocal and piano, and dbx limiters on horns and bass. Mathews particularly likes the Aphex's high-frequency expansion. "You know when someone like Etta James gets on the mic," he says, "you're going to have problems, because she's really loud and then really soft. [The Aphex] is great for anything that's got HF you can't afford to lose." Other outboard gear included Yamaha REV7s, SPX90s and a Lexicon PCM41. Getting it all on tape every year is JBL's Ken Lopez, who takes a house split and mixes an archival DAT off a Soundcraft 8000 console.

## Clair Brothers Update

Many of Clair Brothers' (Lititz, Pa.) successful summer tours are continuing into fall runs, including Sting, who is finishing in Europe this month and then moves on to Japan and Australia. Other long-running acts include Paul Simon's 14-month odyssey, which will make a Pacific Rim sweep before concluding next month. The Australian leg of the tour will exercise Clair's two-year-old cooperative relationship with that country's

Jands. Other Clair clients include Amy Grant, Roxette, .38 Special, Don Henley, Kenny Rogers, Kylie Minogue and Lynyrd Skynyrd. Also of note was the company's Steve Miller Band summer tour, which made even more use of the Future Sonics Ear Monitors than the Gloria Estefan/MSI tour profiled here last month. Finally, the first season of Clair's Mexico City office is complete. "Every domestic artist that's been down there has enjoyed the experience, and the Mexican artists who have



**When it feels right**

Larry Coryell – the musician's musician. On a night when it all feels right – the audience, the club, the instrument, and the sound – inspiration kicks in, and the music is unforgettable.


From subtle harmonic scales to monstrous chords, Larry knows his Yorkville equipment will faithfully capture every nuance in his music. Night after night, gig after gig.

"When you know the sound is just right, it frees your head to explore new ground. I've been using Yorkville amps and P.A.'s for years, but lately I'm getting Yorkville equipment added to my contract rider whenever I can't bring my own."

*Larry Coryell*

**When your sound counts, Yorkville delivers.**

**IN U.S.A.**  
Yorkville Sound Inc.,  
4600 Witmer Industrial Estate,  
Unit #1, Niagara Falls,  
New York 14305



**IN CANADA**  
Yorkville Sound Ltd.,  
80 Midwest Road,  
Scarborough, Ontario  
M1P 4R2

**AUDIOPRO PULSE Micromix STAGE GLOBE elite BETA**

used it have been pleased to have professional product available for the first time on a packaged basis," says Clair's Greg Hall.

### Golden Sounds

Golden State Sound has been operating in Northern California's wine country for nearly two decades. The company does mostly musical dates, but also covers a variety of corporate and other events. Golden State went shopping recently for a new loud-speaker rig to complement its Apogee A5/Intersonics Servo-Drive/Crest system. The company auditioned a number of systems with an ear toward musicality and intelligibility. In the end, an Adamson system was chosen. According to Golden State's Don Lind: "I could feel a relaxation in my brain every time I listened to the Adamson. It required less mental work to discern what was being said and what was happening." The configuration includes eight manifold bass enclo-

tures and eight mid/high units. "It's the meatiest thing I've ever heard for its size," says Lind.

The company took the new Adamson system out for the recent Russian River Jazz Festival, which included a set by bluesman Robert Cray. Golden State will also use the rig for several Mamas and Papas' dates. Despite the new addition to the family, the original Apogee/Intersonics system still garners praise from Lind. "I'd like to think we have the best of a couple of different approaches, and we try to use what's best for each particular event."

### January Sound Reinforcement Seminar

SYN-AUD-CON, in conjunction with PSN, will host a post-NAMM three-day live sound seminar, January 14-16, at Chapman College, Orange, Calif. "Concert Sound Reinforcement—Today and Tomorrow" will cover everything from grounding and rigging techniques to computer control and financial issues. For further information

contact Carolyn Davis at SYN-AUD-CON, (812) 995-8212 or (812) 995-2110 (fax).

## NEWS FLASHES

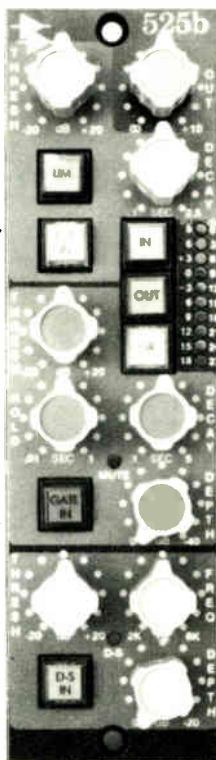
Tasco (Camarillo, CA) has been out with Cinderella, Warrant and Crowded House. I caught Crowded House with support act Richard Thompson at Berkeley's Greek Theatre in September. Tasco's PM3000/EAW-based system sounded good on Thompson's solo acoustic guitar, and FOH mixer Angus Davidson did a fine job of re-creating the depth and texture of Crowded House's detailed studio sound...Although "cautious optimism" seems to be the watchword in the industry these days, **Pro Media** of El Sobrante, CA, is expanding its sales force. Three new hires will help the company cover everywhere from Reno to San Jose. David Meyer (Sacramento) and Lawrence Lahl (San Francisco Peninsula) will cover outside sales, focusing on large and small system installs, while former Concord Pavilion engineer Jon Sager will cover inside sales, targeting live sound reinforcement clients...**Bernhard Brown** (Dallas, TX) was out with lights and sound for Ratt and L.A. Guns on a nationwide summer tour (L.A. Guns put on a good show in support of the AC/DC-dB Sound tour earlier this summer). Bernhard Brown is lining up industrial gigs for the fall, including a long-distance date with Beach Boy Mike Love at the Four Seasons in Nevis, West Indies...**RCI Sound Systems** (Rockville, MD) handled the National Symphony Orchestra's concerts on the Capitol Lawn for the fourth straight year. The show, which drew crowds of up to 20,000, included performances by Cab Calloway and Tony Bennett...

# api DYNAMICS

- ORIGINAL 525 CIRCUIT
- ALL DISCRETE 3 AMPLIFIER SIGNAL PATH
- +28 dBm OUTPUT LEVEL

### PLUS THESE NEW FEATURES:

- ULTRA-FAST NOISE GATE
- FREQUENCY SELECTIVE DE-ESSER
- STANDARD EQ PINOUT
- FITS IN THE LUNCH-BOX AND THE NEW "SIX-PACK" SIX POSITION RACK



## THE NEW 525b compressor/limiter gate/d-esser

Contact These Reps:  
or contact api for a dealer in your area.

Westlake Audio, CA

213-851-9800

Studio Consultants, NY

212-586-7376



api audio products, inc.

7951 Twist Lane,  
Springfield, VA 22153  
703-455-8188 fax : 455-4240

api international, ltd

Iain Roche, UK  
4471-247-6101 fax: 247-6104

*David (Rudy) Trubitt's new book, Managing MIDI Basics, will be available in January. He realizes that this may be of marginal interest to SR professionals, but he nevertheless succumbed to this shameless act of self-promotion.*



## SOUND REINFORCEMENT NEW PRODUCTS

**KLIPSCH KP-101** ▲

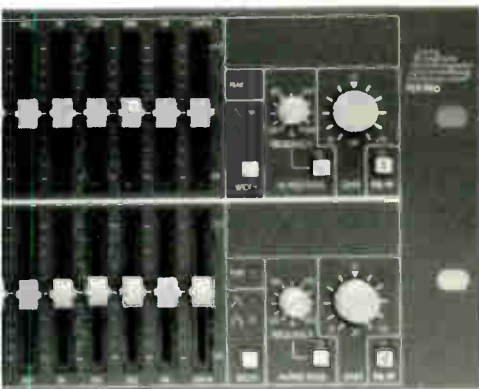
Designed for sidefill, foreground and near-field applications is the KP-101 from Klipsch, Hope, AR. The two-way system has an 8-inch woofer and horn-loaded, 1-inch compression driver providing a frequency response of 75-20k Hz,  $\pm 1$  dB (-10 dB at 51 Hz), a max continuous output of 113 dB (1m 80W) and 123dB peak handling. The 3/4-inch ply enclosure includes a drilling pattern for an Omnimount 50 Series bracket; an optional Klipsch bracket allows for wall or mic stand mounting.

Circle #290 on Reader Service Card

**BSS FCS-960 GRAPHIC EQ** ▼

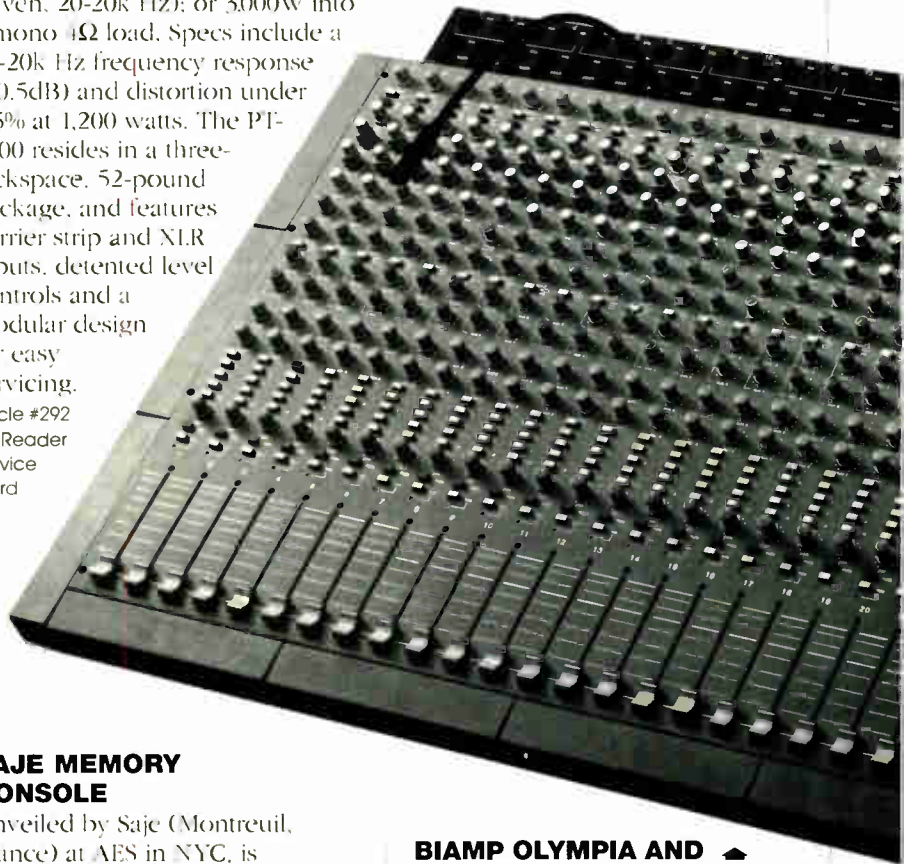
New from BSS Audio (a division of AKG, San Leandro, CA) is the FCS-960, a dual-channel, 1/3-octave graphic equalizer. The \$1,459 unit features selectable wide or narrow bandwidth characteristics, and each channel provides independent EQ bypass, overall gain and sweepable highpass filter controls. Electronically balanced XLR inputs/outputs are standard; transformer I/O and a security cover are optional.

Circle #291 on Reader Service Card

**CARVER PT-2400**

Designed for pro touring applications, the PT-2400 is a 2-channel magnetic field power amplifier from Carver Professional of Lynwood, WA. The PT-2400 is rated at 750W/8 $\Omega$ , 1,200W/4 $\Omega$  or 1,500W/2 $\Omega$  (both channels driven, 20-20k Hz); or 3,000W into a mono 4 $\Omega$  load. Specs include a 20-20k Hz frequency response ( $\pm 0.5$ dB) and distortion under 0.5% at 1,200 watts. The PT-2400 resides in a three-rackspace, 52-pound package, and features barrier strip and XLR inputs, detented level controls and a modular design for easy servicing.

Circle #292 on Reader Service Card

**SAJE MEMORY CONSOLE**

Unveiled by Saje (Montreuil, France) at AES in NYC, is Memory, a fully automated console using a digitally controlled analog design, where the console surface controls analog electronic racks located up to 100 meters away. Over 10,000 console configurations—levels, switching and EQ settings—can be stored to disk and recalled in under 30ms. Memory is available in 32- and 48-channel versions, with 16 stereo aux returns and 8 VCA-controlled groups. Additionally, each channel has three inputs, so the engineer can instantly select 48 out of 144 input sources. A 32-way I/O matrix permits the console to be configured for FOH, monitor or recording tasks.

Circle #293 on Reader Service Card

**EMILAR CATALOG**

E3MC Inc. of Anaheim, CA, offers a full technical catalog of its Emilar loudspeaker, horn and driver products, including the Series 2000 line. For a copy, call (800) 421-7071 or (714) 449-7779.

Circle #294 on Reader Service Card

**BIAMP OLYMPIA AND COLUMBIA CONSOLES** ▲

Now shipping are the Olympia and Columbia consoles from Biamp, Portland, OR. The 4-subgroup Olympia Series (offered in 16-, 20- and 24-channel versions) has 4-band EQ, six aux sends, a stereo input channel, and four mono and two stereo returns. The Columbia Series includes 8-subgroup boards with all the Olympia features, plus eight aux sends, direct outs and 24-, 32- or 40-channel frames. All offer discrete, transistorized preamps, an all-metal chassis and balanced subs, mains and aux sends. The Olympia 24 is \$6,599; the Columbia 40 is \$10,999.

Circle #295 on Reader Service Card

by Iain Blair

# BOB EZRIN

## ON LENNON AND A-DAM

**B**ob Ezrin is smiling, and no wonder. The veteran producer, whose credits include albums for the likes of Pink Floyd, Peter Gabriel, Rod Stewart, Kiss, Lou Reed and Kansas, is sitting in front of a console deep inside Burbank's aptly named Enterprise Studios. He's busy mixing Julian Lennon's new solo album, and what he hears back is pretty impressive—"even to my jaded ears," as he puts it.

The engineer syncs up three tracks, and the room resounds to the infectious, up-tempo "Get A Life," the atmospheric "Rebel King" and the plangent piano chords and stacked harmonies of "Would You." The three cuts off Lennon's new *Help Yourself* album possess all the trademarks of a vintage Ezrin production—a beautifully depicted aural landscape complete with both grand, sweeping vistas and highly detailed close-up work—which are even more impressive when you consider that the producer recorded much of the project using the relatively new Akai A-DAM portable digital multitrack system. The usually press-shy Ezrin talked to *Mix* about working with that system, his recording methods and his involvement with Julian Lennon.

**Mix:** Are you a tech head?

**Ezrin:** Not really. I come from a very musical background, and I'm only a tech head in the sense that I've always loved toys. When I was growing up in Toronto, my best friend was my transistor radio. I owned one of the first ones, and I used to listen to all these faraway stations. That's what really got me hooked on music and sounds. Over the years I've learned enough to be dangerous, but I couldn't build a circuit if my life depended on it! I just know how things work from having studied it, and if you showed me a schematic, I could only barely read it. But I have an instinctive feeling for technical things, and I have an

*Beautifully depicted aural landscapes complete with both grand, sweeping vistas and highly detailed close-up work—these are the trademarks of an Ezrin production. 🎧*



**Bob Ezrin and Julian Lennon during a break in sessions for Lennon's Help Yourself album.**



PHOTO: LESTER COHEN

innate understanding of how things work, if not why.

**Mix:** Do you usually work with the same engineers?

**Ezrin:** No, I rarely repeat myself, although I like to use the same family of people, who all come from either my Record Plant days in New York or my studio days in Toronto, the latter of whom probably wouldn't otherwise get much of a chance to work in the States on international projects. One of my Toronto connections, Lenny De Rose, is engineering this project, and although he's done a lot of mixing in New York, this is his first major project in L.A. Then James Guthrie is doing the mixing, and he and I worked on *The Wall* together.

**Mix:** How did you become involved in this project?

**Ezrin:** I've known Julian for many years, and we've run into each other in London over the years. At one point I was asked to produce his first album, but I was busy with Pink Floyd and he ended up going with Phil Ramone. Then I got a call about doing this fourth album after the less-than-successful third one, *Mr. Jordan*. So we met and discussed what kind of record he wanted to make, and I was immediately very interested and intrigued.

**Mix:** What intrigued you?

**Ezrin:** He seemed much more mature and focused about his songwriting, and he had a story to tell, and

that always intrigues me. I like working with personalities and helping define them through their music. I also saw this as a good opportunity to apply my craft and use a lot of the techniques I've acquired over the years working with personality-oriented artists. So I agreed to produce, with one proviso: that we wouldn't go into the studio until our material was absolutely brilliant.

**Mix:** I assume then that the pre-production period was very intensive.

**Ezrin:** In fact, it was the most intensive part of the whole project, and it was also the part when we made greatest use of the Akai A-DAM system. It was during pre-production that I realized we needed to store all of our ideas on some sort of medium that wasn't going to break down, that wasn't going to be too noisy, that was going to be relatively faithful, and that would also allow us, if necessary, to later use demo material in a master recording context. So we began with the Akai 12-track analog system, which is very popular among rock writers these days, and we hooked that up with various sequencers and drum machines and began to develop our musical ideas. We'd take a song, flesh it out on 12-track, do all the overdubs, add all the vocals and harmonies, and then step back and decide if the result was truly interesting. Meaning, are you going to carry

# DUPLICATION SPECIALISTS INC.

4584 AUSTIN BLVD., ISLAND PARK, NY 11558

**516-432-7107**

IN NYC, 212-754-2044 FAX 516-432-7091

**TOP QUALITY SHORT RUNS  
RELIABLE ON-TIME DELIVERY**

## 1/4" TAPE DUPLICATION

FOR SPOTS & SYNDICATIONS

## REALTIME & HIGHSPEED CASSETTES

PACKAGED TO YOUR SPECIFICATIONS

## VHS, 3/4", 1" VIDEO DUBS

FOR BROADCAST & INDUSTRIAL USE

## COMPACT DISCS

## MASTERING & REPLICATION

CD PRESSINGS MINIMUM 300 PIECES

PACKAGED TO YOUR SPECIFICATIONS

**CALL or WRITE FOR  
CUSTOM QUOTATION**

# Caruso Music

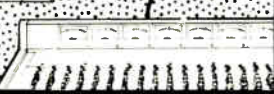
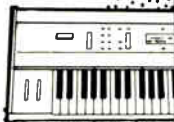
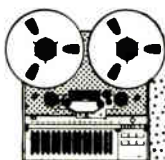
**Over 300 Brands. Trades Accepted.**

**Mail Orders Welcome.**



**MultiTrack, Keyboards,**

**& Outboard Gear.**



**203-442-9600**

FAX 203-442-0463



**20 Bank St., New London, CT. 06320**

on to the next refinement stage of recording, where you sequence out the song in terms of verse and chorus?

**Mix:** So when did you make the switch to the A-DAM system?

**Ezrin:** We recorded several songs on analog like I described, and then decided that many of the ideas we'd put on tape could be used if only they sounded better—less noisy and less distorted. So I started looking around for alternatives, and we played with hard disk, which was clean and easy to manipulate, but very inconvenient in terms of multitrack form. It gradually became obvious that we needed either a full-blown 24-track with Dolby SR or a system of equal quality—preferably less expensive. I happened to be in London, over at [film composer] Michael Kamen's house, and I noticed that he was using an A-DAM system hooked up with sequencers, and when he played me the results, I was amazed.

That's where I first saw the system in use, and it sounded just like master-quality recording. I'd read quite a bit about it, and obviously everyone's been talking about affordable digital for a long time now, and this totally convinced me. So we contacted Akai, and they very kindly provided us with two systems that we then synched together and used in place of a 24-track Studer with SR, or whatever.

**Mix:** So you went completely digital at this point?

**Ezrin:** Yes, and remember this was still in pre-production. Everything was laid down in a retrievable fashion, so if we recorded a killer guitar riff in a song that wasn't particularly successful, we could still salvage it because we also had SMPTE; often we were able to pull something out and drop it in to Sound Tools or some other medium where we could expand or contract it to suit. Since everything we did was in the digital domain, there was never any added noise or any appreciable amount of distortion.

**Mix:** How long did you spend on pre-production?

**Ezrin:** A long time. We started in July 1990 and didn't finish until the beginning of December. Then we started printing at the beginning of the year. During that time we grew 18 songs that we liked, 14 that we loved, 12 that we adored, and all of them were completely structured and fleshed out in a demo form. The great thing about working this way is that you can pick up a verse or chorus and move it around until you get the shape you

want. It's great, because it's virtually like having a completed album, and then you get an editing block out and sit there with an electronic razor blade and hack the album up into the absolutely perfect shape. Then you get to recut it. Now all this may sound too self-indulgent, but the fact is, this process eliminated a lot of the heartache of recording.

**Mix:** What was your next step once you'd completed pre-production?

**Ezrin:** We transferred all the digital 24-tracks across to a Sony 3348 machine and began the process of recording again.

**Mix:** What studios did you use?

**Ezrin:** All the pre-production was done at Amigo, as well as some of the initial tracking, and then we moved here to Enterprise, partly because the Sony system lives here—although we took it with us to Amigo—and the room has a Flying Faders system, which is a slightly later-generation Neve than the one at Amigo. Also, this room had QSound experience, and we'd decided to mix in QSound. So overall, I wanted to keep any possible problems to a minimum.

**Mix:** Why didn't you master the project on the A-DAM?

**Ezrin:** For several reasons. First, because of the transport, which has some slightly unwieldy characteristics. And second, because the sound, although excellent for the money, wasn't the very best we could do in the digital marketplace. We decided that the best was the Sony 3348. We compared them, and there was a noticeable difference. There was more air in the Sony, and it seems to have slightly less digital chatter. But we did find that a lot of the demo material we'd transferred, including stuff we'd recorded right at the beginning of pre-production, actually survived all the way to the end of the mix.

**Mix:** What are the A-DAM system's biggest drawbacks for you?

**Ezrin:** The fact that I can't see the tape. That worries me a lot. Also the fact that I can't hear it. In fact, one of its greatest strengths may be one of its greatest weaknesses, and that is that it's in the 8mm format. We don't know enough about the quality of 8mm cassettes yet to know whether or not they'll last, whether the transport is heavy-duty enough to withstand the wear and tear, and even more importantly, we don't know about the quality of the tape. Not enough people have been working in the medium on a professional level to



really nail it down, whereas conventional audio tape is under the microscope constantly.

**Mix:** Reservations aside, would you use it again?

**Ezrin:** Absolutely. It's very economical if you cost it out on a track-by-track basis. I'm still slightly hesitant about recording all my masters on 8mm, but then, in a sense I have committed to it, because some of this album comes direct from the A-DAM system, and I defy anyone to tell me which track was A-DAM and which was Sony. I even did some lead vocals using it. In fact, we should run a competition to see if anyone can spot the difference. ■

## VOICES:

### JOACHIM BERENDT RECORDS WORLD CHOIRS

by Bruce C. Pilato

German producer and jazz historian Joachim Berendt is in his Manhattan hotel room trying to explain what it was that convinced him to compile

*Voices*, a three-CD boxed anthology of some of the world's most memorable choir recordings.

"I was with a woman who sang in choirs," he says gazing out over the New York skyline, "and every time she came home from singing there was this beautiful glow on her face. I would see the same glow on the faces of these people in the choirs I was recording. Choir singing really cuts through the basic separation between us and nature. It's the same kind of feeling you get when you're in love."

Released early this year on Mesa/Blue Moon Records, *Voices* is one of the most comprehensive collections of human voices ever assembled for a recorded project. Included in the 33-song compilation are the Mystere des Voix Bulgares (Bulgarian Woman's Choir), the Tibetan Monks Choir, the Abyssinian Baptist Choir, the Israel Kibbutz Choir, Ladysmith Black Mambazo, and several other groups from areas as diverse as Bali, the Congo, Stockholm and Montreal.

Running over 160 minutes in length, the *Voices* set is a compelling body of work. Beautifully recorded and remarkably soothing to listen to, *Voices*

is perhaps the greatest triumph in Berendt's career, which spans more than 40 years and several hundred recordings.

"*Voices* grew out of my work in a natural way," says Berendt. "Sooner or later it had to be done. I collected all these recordings over the world all these years without intending to do a compilation. My work is never the obvious one; the spirituality of the ear is really what I'm working on for the last couple of years. So, it became necessary to do this compilation."

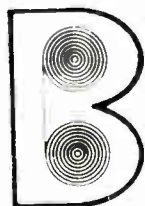
"I grew up in very Christian sur-

**Joachim Berendt**



# SONY®

## SONY RECORDING MEDIA™



### Burlington Audio / Video Tapes, Inc.

106 Mott Street • Oceanside, New York 11572  
N.Y.C. area: (516) 678-4414 • USA & Canada: (800) 331-3191 • FAX: (516) 678-8959

Shipped from Stock • Priced Right • Immediate Delivery

Call or write today  
for your  
**FREE CATALOG**

Distributors of Sony Professional  
Audio and Video Products including:  
Digital Mastering Tape / R-DAT / D-1 / D-2  
Betacam / 1" / U-Matic / Premier Grade VHS



roundings and was active in music, playing organ and singing in the choir in my father's church," says Berendt, now a youthful 69. "When I was 5 or 6, I pumped the air for the organ, and that was really the beginning of my involvement in music. I grew up with the music of Johann Sebastian Bach."

The son of a German Protestant reverend who publicly opposed Adolf Hitler, Berendt became absorbed in music after his father was killed in the concentration camp at Dachau.

In 1945, still a very young adult, he founded the Southwestern German Radio (and later TV) network, where he remained program director until 1987. While at the network, he cultivated his love for jazz and other world music.

In 1948 and 1950, respectively, Berendt wrote the earliest of his 21 books. Simply titled *Jazz* and *The Jazz Book*, they are still highly valued philosophical, psychological and historical studies of this American art form. *The Jazz Book*, which Berendt has updated nine times, remains one of largest selling music-related books in history.

Since the early 1950s, Berendt has produced over 300 jazz albums by an amazing variety of artists, as well as countless other recordings. He founded the Berlin Jazz Days Festival in 1964, and two years later organized the first World Music Festival, which remains the largest gathering of ethnic music in the world.

He first began recording choirs more than 30 years ago at the urging of his close friend, saxophonist John Coltrane. "Coltrane really gave me a push to become aware of all this," he notes. "He also gave me a push to travel all over the world and record music from many different cultures. He didn't know very much about it, but he had a feeling we had to open up Western music and Western jazz.

"My recordings [for *Voices*] went back as far as 1962," says Berendt, "though my own recordings are the smallest portion of the compilation. I took many of these recordings from many popular recordings that were already existing."

In nearly every case, Berendt was able to get a hold of DAT copies of the 2-track masters, and he claims most of the recordings were not altered from their original state.

"There was no need to," he says. "I listened to all these [recordings] already with my technical ear and got the very best versions. There was some

work we had to do on my own recordings. For instance, when I recorded in Bali in 1962, I just had the Nagra recording off a film soundtrack, so we used some boosting to bring it up to today's standards."

On all of his own choir recordings, Berendt simply positioned each choir around a single mic and let the tapes roll. The Neumann U47 was generally his microphone of choice, but he also used various Sennheiser models on some of the *Voices* tracks.

"I think it's best to record a choir simply using one microphone," he says. "I used to record using lots of microphones, back when I was doing jazz. I would have a different mic for each musician. But I think there has been development. With all the good microphones out there now, it is really good to put the microphone in the situation of the human ear, using a stereo mic, of course."

Although many of the tracks on *Voices* were recorded in traditional recording studio setups, most of Berendt's recordings were not. "No, no—that would have been a mistake," he says. "In Bali, I was in a little village. Or in Japan I was in the Zen monas-

tery; I was in their shrine where they do their ritual. It would have been all wrong to take them out of their environment and put them in a recording studio. All of these people really *live* their music, and it would have given them a wrong feeling to bring them in a studio."

Though it took nearly two years to obtain all the rights from the different groups involved in the project, Berendt's labor of love was clearly worth the effort. It has been hailed by many as one of the most important recordings of its kind ever released, and it's been a surprisingly good seller for Mesa/Blue Moon.

In addition to the *Voices* project (which he may continue as another boxed set), Berendt says his primary interest these days is the human ear. His most current books, *The World Is Sound* and *The Third Ear*, both deal with the imbalance that exists between the human ear and eye.

"Our perception of the world is unbalanced," he says. "It is too visual and not enough auditive. The newer books I'm writing and the *Voices* project grew out of all this. This whole big project is to get us back to *listening*." ■

## EIII OWNERS

**dBm Technical Services  
now offers a Field Tested upgrade  
& modification that eliminates  
99.99% of all SCSI problems**

**Improves performance &  
reliability**

**8mb memory upgrades  
New incredible price**

**For more information call  
Perry Lancaster  
(212) 645-2626**



# C O A S T

## L.A. GRAPEVINE

by Amy Ziffer

Best known for its stand against the unlawful commercial use of home studios, HARP (Hollywood Area Recording Professionals) has remained active and is developing into a true service organization for Los Angeles-area recording studios. A current project, according to Lion Share's Terry Williams, is worker's compensation. Williams and others believe audio recording studios are incorrectly classified with film studios and other facilities with much more dangerous working conditions. HARP's position is that audio recording studios pay more in worker's compensation insurance than is warranted by their history of claims. HARP has sent out nearly 200 petitions urging reclassification to L.A.-area studios, which will then be forwarded to the Worker's Compensation Insurance Rating Bureau.

Under the direction of Gary Denton of Stagg St. Studio, HARP

—CONTINUED ON PAGE 146

## SESSIONS & STUDIO NEWS

by Jeff Forlenza

### NORTHEAST

It was with shock and heavy heart that we realized another jazz legend left us. The recent deaths of Dexter Gordon, Art Blakey, Stan Getz and Sarah Vaughan decimated the jazz community. But the passing of Miles Davis is perhaps the hardest to accept. Having cut his musical teeth in the formative years of bebop with Charlie Parker, Miles kept evolving—*Kind of Blue*, *Bitches Brew* and *Tu Tu* all were initially criticized and yet soon accepted as new directions in jazz. It seems Miles was working on another project at the time of his death: Miles was working on five new songs for an upcoming Warner Bros. album at Unique Recording (NYC) with producer Easy Mo Bee, engineers D'Anthony Johnson, Eric "Corey" Lynch and assistant John McGloin. Our sympathies and condolences go out to friends and family. Miles Davis' effect on music and American culture will reverberate for decades to come...Over in Joizey, the Rollins Band began work on their album for Imago Records at Showplace

Studios in Dover, NJ. Producing and engineering was Andy Wallace... Spinderella, the DJ for Salt-n-Pepa, was at Bayside Sound (Bayside, NY) working on her solo project with Andre DeBourg engineering and Michael Tuosto assisting...Up in Warren, RI, Normandy Sound's Tom Soares engineered Marky Mark and the Funky Bunch's single "Good Vibrations," which went to number one on Billboard's Hot 100...New York City's Centerfield Studio had Mike Manieri (of Steps Ahead fame) producing Andy Summers' latest album, *World Gone Strange*. The album features—among others—Manieri on marimba, Tony Levin on bass, Chad Wackerman on drums, and Manolo Badrena on percussion. Garry Rindfuss engineered and Michael Manieri III assisted...Oops, we goofed! Richard Joseph recorded Atco artist Corina's "Temptation" and Lisette Melendez' debut album at Unique Recording (NYC) and not at Hip Pocket as reported in October's session news...

### SOUTHEAST

Fulfilling a lifelong dream, Steve Himelfarb purchased Southlake Recording Studios (Metairie, LA) from Paul DeCorte and renamed it The New Orleans Recording Company. DeCorte had plans to expand Southlake to include a downtown (the *Vieux Carre* to N'Awliners) club and recording complex, and he was working with noted acoustician Vincent Van Haaff on the specs of the complex, when DeCorte came to realize that his plan was not feasible and had to scrap his plans. Himelfarb was chief engineer at Southlake and had voiced his desire to take over the reins if DeCorte wanted out. And sure enough, Himelfarb got that chance when DeCorte decided to sell his interest in the studio once his expansion plans fizzled. Before landing in the bayou country, Himelfarb learned his craft in L.A. as assistant engineer at Capitol Studios and On



Seen here at Alpha Studios (Burbank, CA) are Russ Freeman (left) and GRP label-mate Carl Anderson (right). Freeman took time off his "Curves Ahead" tour to produce the project for Anderson with Bob Margouleff (not pictured) engineering.

# C O A S T

Cue Recording. As far as changes go, Himelfarb notes, "When you walk in the door, it's a more relaxed atmosphere." Some of the first clients into the studio included the Neville Brothers working with producer Hawk Walinski (Chaka Khan and others) and engineer Dave Leonard as they tracked their upcoming A&M release. Bands Himelfarb has been producing and working demos for include the Stone Poets (rumor has it that Epic is interested in this combo after college stations like Tulane's WTUL have given them plenty of air-time) and Evangeline, an all-female country band that has caused a stir in Nashville...At Recording Arts of Nashville, One Bad Pig mixed with producer Billy Smiley and engineer Lee Groitzsch; and Molly & The Haymakers recorded vocals and overdubs with producer Gregg Brown and engineer Rob Feaster...

## SOUTHERN CALIFORNIA

At Paramount Recording Studios (Hollywood) producer Sir Jinx worked on the new Ice Cube release, as well as 12" mixes for Tone Loc, Queen Latifah and Yo Yo...Zoo Entertainment artists Rhythm Tribe remixed the single "Family" from its *Sol Moderno* album at Encore Studios (Burbank) with producer Thomas Guzman-Sanchez, engineer Conley Abrams and assistant Tina Antoine...Marcel East was at Ocean Way Recorders (the TEC Award-winning facility in Hollywood) producing and mixing David Benoit's latest release for GRP Records...Gerald Albright was at Aire L.A. Studios, of Glendale, tracking and mixing his straight-ahead jazz album for Atlantic Records. Craig Burbridge engineered while Rusty Richards assisted...Don Henley was at Summa's Studio A (West Hollywood) with engineers Shelly Yakus and Bill Kennedy mixing tracks for the "In Concert" Series. Jim Champagne assisted...

## NORTHWEST

Jazz singer Madeline Eastman was working on her upcoming album at Bay Records in Berkeley, CA, with producer Paul Potyen and engineer Bob Shoemaker. The tracks feature veteran alto saxophonist Phil Woods and pianist Cedar Walton...Up in Vancouver, industrial dance band Skinny Puppy was back in Mushroom Studios for the eighth year in a row to record their latest album, *Last Rites*, for Nettwerk/Capitol Records. The album was produced by Dave Ogilvie and engineered by Ken "Hiwatt" Marshall...

## NORTH CENTRAL

ARS Recording (Alsip, IL) had Naked Raygun recording two songs that will be part of their latest release as well as part of a compilation album. The project was engineered by Martin Stebbing...

## N.Y. METRO REPORT

by Dan Daley

Continuing the upgrade trend that has engulfed Manhattan facilities (what recession?), East Side Film & Video purchased three custom SSL consoles for renovations now underway in three of its five rooms. Studio A is a theater-style projection room, while B and C are being utilized as more traditional audio-for-video, post-production suites. The new consoles, fitted with Total Recall and Ultimotion, are 48-input hybrids that fall between the 4000 and 5000 Series boards, according to studio chief engineer Jim Williamson.

—CONTINUED ON PAGE 146



PHOTO: DAVID A. TAFET

Over in the Second City, at Chicago Trax Recording, Ministry worked on their latest album for Sire Records with Jeff Newell engineering. Al Jourgenson of Ministry was at Chicago Trax remixing

—CONTINUED ON PAGE 148

**Behind the Neve 8078 at Manhattan's newly opened River Sound Studios (L to R), Roger Nichols is seen here with studio co-owners Gary Katz and Donald Fagen.**



**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, PO'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**

— FROM PAGE 144, L.A. GRAPEVINE

is also developing a database of everything from resumes and job openings to parts for old equipment. In addition, HARP held a seminar with Neve and Ampex several months ago, and intends to schedule more symposiums with other major manufacturers.

Speaking of servicing studios, Studio Referral Service recently celebrated its tenth anniversary. SRS helps L.A. studios keep their rooms booked by referring potential clients to appropriate facilities. Owner Ellis Sorkin was featured in issue No. 21 of the local magazine *Music Connection*. Congrats, Ellis, and best wishes for the second decade of SRS!

Over at Devonshire Audio/Video, traffic manager Kelle Creamer reports that a Neve VR72 just took the place of a V3 in Studio 3, while the V3 was moved to Studio 1, taking the place of a V2, and an 8232 was bought for Studio 6. Flying Faders were added to an 8128 in Studio 4, supplanting Necam 96. As you can see, Devonshire has a variety of Neves, ranging from vintage to modern.

Three of Devonshire's rooms—grouped separate from the rest—are booked primarily with animation sound effects work during the "high season," which ends for them in November. The remainder of the year, they are booked as demo rooms for lower-budget projects that are less appropriate for the three high-end rooms.

The studio also invested in three new Studer A827s and many pieces of outboard gear, so that each room now has a 480L, H3000SE, AMS reverb, and "tons of other stuff" as a minimum. The equipment purchases total more than a million dollars...but that's not all! Behind the blue curtain where Carol Merrill is standing...

Seriously, now, Devonshire also remodeled. "We got rid of the 1970s look in the front and lounge areas of the facility," says Creamer, "making it more modern, and the recreation room is next. We'll be building Studio 7 next year, and a new second floor will house production companies operating out of the facility."

All of this activity implies a need for some additional staff, and Devonshire picked up a new chief technician, 15-year industry vet Arthur "Midget" Sloatman. Sloatman's resume includes time spent at Adams-Smith and WaveFrame, in addition to a number of studios.

Finally, bid farewell to Topanga Skyline Recording, which closed its doors this month after 11 years of operation. Owners John Eden and Britt Bacon are going to pursue their respective careers of production and composition. The equipment and property are both being sold. The Topanga Skyline facility is located in one of the few remaining bohemian canyons for which L.A. was noted in years past. Inquiries are welcomed.

Send studio news to Amy Ziffer, c/o *Mix's* SoCal office, 19725 Sherman Way, Suite 380, Canoga Park, CA 91306; or call (818) 567-1429 or fax (818) 709-6773.

— FROM PAGE 145, N.Y. METRO

The facility will also be adding two Sony PCM-3324 digital multitrack decks and will locate all video machines in a central machine room for interchangeable access between the rooms. Another DAW will be added to the PostPro and two ScreenSound systems already in place. The \$2.5 million-plus upgrade was conceived and designed by Williamson and technical director Dan Zellman and should be complete by the first quarter of 1992.

New York State Of Mind: Former long-time Unique Recording engineer Michael Finlayson was involved in the design of Michael Ford's Red House Studio in Poughquag, in upstate New York. Finlayson was producer and engineer on recordings by Abduction, for whom Ford was the drummer. Red House has a Tascam 2500 Series 32-input console, Fostex 24-track deck with Dolby S-type N/R and MIDI implementation coupled with an Amiga-based editing and sequencing system with sync-to-SMPTE.

Bill Tesar at Toy Specialists reports high local interest in Roland's RSS spatial mixing system, including Steve Peck's remixing on Sting's upcoming release and Shep Pettibone's remixing of Lionel Richie's greatest hits package, being done at Right Track, and Martin Scorsese's next film project. "It's the only product that really addresses spatial enhancement," he says, "and it doesn't require a lot of manufacturer support. It works pretty much out of the box." Toy Specialists is the first New York-area rental company to offer the system.

Fax your New Yawk stuff to Daley at (212) 889-8874.

## Where's that Reader Service number?

**T**he Reader Service numbers have a new and improved address! To order more information on a product or service advertised in *Mix*, please refer to the Advertiser Index near the back of each issue. As usual, when you circle these numbers on the Reader Service card, you'll receive the details you're looking for on the ads that interest you. It's one more easy way to keep track of the latest in pro audio!

**MIX**

## NASHVILLE SKYLINE

by Dan Daley

Music Mill Recording expects to install Nashville's first Focusrite console sometime this month. The 64-input desk with GML automation is replacing a Trident TSM in one of the studio's two rooms, according to chief engineer Paul Goldberg. The studio, owned by PolyGram creative VP and producer Harold Shedd, will also get a new overdub room adjacent to the mix studio, a 16x20-foot chamber designed by Steven Durr, as well as a full rewiring of its mic lines in the main room.

Carl Tatz at Recording Arts reports the installation of a 56-input Soundcraft 3200 console and Optifile automation, expected to have been fully implemented by mid-October. In addition, a Mitsubishi X-880 digital multitrack now has been added to the studio's arsenal. "I saw a market for a serious, affordable digital and analog mix studio," Tatz says of the upgrades. "Nashville studios are increasingly specialized in terms of different recording stages. It's been that way for a while from my

vantage point."

**Excursions—Memphis...**The only town where you can hear as good a band in church on Sunday morning as you did in B.B. King's blues bar the night before. That was exactly the case as Ardent Studios manager Ken Whitehead brought me up to speed on the town 200 miles west down I-40 from Nashburg. After a night spent pub crawling on Beale St., we paid for any sins the next morning at the Rev. Al Green's church, where the Grammy-winning soul and gospel singer holds forth every Sunday with choir and celestial rhythm section. Bibles and Marshall amps.

We confined our lounge lizard act to Beale Street, but Ardent itself was the scene of severe partying a couple of days before as it celebrated its 25th anniversary. Founded in 1966 by John Fry, Ardent moved to its current Madison Avenue location in 1971. Two Neves and an SSL 6000E occupy its three control rooms; virtually all sessions are done digitally on Mitsubishi X-880s, with analog serving as a slave or backup format. The client list looks like a Rolling Stone *fin-de-siècle* issue index: ZZ Top, R.E.M., Steve Earle, the

Vaughan brothers, Lynyrd Skynyrd (whose latest was done virtually live there with 42 open mics), the Allman Brothers, the Fabulous T-Birds, George Thorogood and Johnny Winter, to name a few, and producers like Tom Dowd and Terry Manning have called the place home on and off for years. Ardent now reps producer/engineers who have come up through its ranks, also, including John Hampton (Robert Cray, the Vaughan brothers). Ken Whitehead says that an upcoming project will re-form the original M.G.'s around Booker T. Jones, including Donald "Duck" Dunn and Steve Cropper, to back up a Japanese recording artist. "We didn't build the place around bells and whistles," he explains. "Memphis is a big draw around the world, musically speaking, but we didn't want to become known for a certain type of sound. Our approach with clients is to give them great equipment, great talent and kill them with kindness."

Not far away is Kiva Recording, four-years-young but "striving and looking forward to 1992," according to studio manager Tim Ray. With two

— CONTINUED ON PAGE 148

## DEPENDABILITY • QUALITY

- C-O CASSETTES • NORELCO BOXES FOR CASSETTES
- JEWEL BOXES FOR CD'S • CD AND CASSETTE STORAGE SYSTEMS
- 1/4" TAPE REELS and BOXES

- Soft Poly Boxes
- Ampex Style Boxes
- C-O Cassettes (sonic and screw type)
- Cassette Hub Locks
- Hubs and Cores for Video and Cassette Tapes
- 1/2" Reels for Studio Masters
- Cassette Splicing Tape

### El Mar Plastics, Inc.

840 East Walnut Street. • Carson • CA 90746

(800) 255-5210 outside CA

(213) 327-3180

FAX: (213) 327-0491



SUPPLYING THE TAPE INDUSTRY SINCE 1966



# CONNECT THE DATS



...with Panasonic's new *Software Developer's Toolkit* and a couple of their SV-3900 Professional Digital Audio Tape Recorders. The possibilities are endless...

With this software, you can have simultaneous control of up to 32 machines in each computer port. A touch of the mouse and you can search to *Absolute Time* on one machine, two machines, or *all* of your machines and be *frame accurate*. A tap or two on the keyboard and you can have over 237,000 cue points on a two hour tape.

This software gives you the control you need to do Duplication, Radio Station Automation, Effects Library, and much, much more!

It all starts with the right connections... So call THE DAT STORE  
—they'll connect you with the right machines.



2624 WILSHIRE BLVD. SANTA MONICA, CALIFORNIA 90403  
213-828-6487 Weekdays: 9-6 / Weekends: 1-4 fax: 213-828-8757

## GET LISTED IN MIX DIRECTORIES!

**M**ix Directories are a valuable reference source for the pro audio industry! Don't miss the upcoming issues. Just fill out the coupon below to receive a listing application.

- Northwest Studios (March Issue)**  
DEADLINE: DECEMBER 16
- Video Post-Production (April Issue)**  
DEADLINE: JANUARY 16
- Northeast Studios (May Issue)**  
DEADLINE: FEBRUARY 17



Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City, State, ZIP \_\_\_\_\_  
Telephone \_\_\_\_\_

**MAIL TO:**  
Mix Directories, 6400 Hollis St. #12, Emeryville, CA 94608  
or call 800-344-LIST (5478)

—FROM PAGE 145, SESSIONS & STUDIO NEWS  
the Red Hot Chili Peppers for Warner Bros...

### SOUTHWEST

Jazz keyboardist Joey DeFrancesco brought his trio to Scottsdale, AR, after a European tour that included the North Sea Jazz Festival and recorded at Chaton Recordings' Studio B with staff engineer Steve Escallier (who also went to Europe with the trio to handle live sound)...

### STUDIO NEWS

Soundhouse Recording Studio received a permit to build from the city of Seattle and work has begun on the first studio in Seattle to be built from the ground up. Soundhouse will feature acoustics by Chips Davis of Frank Hubach Associates (Richmond, CA), with patch systems and Mogami wiring designed and installed by Mike Wolfe. Soundhouse's opening is slated for this month. Contact Scott Crane at (206) 784-4848 for more information... The Castle Recording Studio of Franklin, TN, purchased an Otari Series 54 console for their Studio B... Empty Street Productions has relocated to 1405 Greenbriar Drive, Champaign, IL 61820. For more info, contact Pat Ortman at (217) 398-1775... Jah Works Studio of O'Brien, OR, installed some new equipment: a Yamaha DMR-8 digital 8-track mixer/recorder, a Yamaha YPDR 601 CD recorder, a Mac II FX and Sony post-production services makes Jah Works the country's only solar-powered, fully automated, digital recording facility...

Send your nationwide sessions and studio news to sessions editor Jeff (Guido Coasto) Forlenza c/o *Mix* magazine, 6400 Hollis Street #12, Emeryville, CA 94608. ■

—FROM PAGE 147, NASHVILLE SKYLINE

studios and a MIDI pre-production suite, Kiva shares some of the local scene with Al Green and The Bar-Kays, as well as newer acts like Drivin' N' Cryin, and picks up overflow from Ardent. Consoles are a Solid State Logic 4000G and a Westar with Neve Flying Faders automation. "The thing about Memphis is that it gets right to the edge and then wavers," Ray says of the town's rep. "But I think it's still growing in a lot of ways. It's a very laid-back town musically, spiritually and economically. You can see why the blues has such a hold here." ■

**EASTERN**

**Mastering,  
Pressing,  
Tape  
Duplication  
and  
Compact  
Disc  
Facilities**

**Tape  
& Disc**

**LEGEND**

CDM: CD Mastering/  
Premastering  
CDR: CD Replication  
TM: Tape Mastering  
TD: Tape Duplication  
DM: Disc Mastering  
RM: Record Mastering

**AIRSHOW INC.;** CDM, 7021 Woodland Dr.; Springfield, VA 22151; (703) 642-9035. Contact: Ann Blonston or David Glasser. **MASTERING.** Mastering Console: AMS/Calrec M Series. Tape Machines: Sony PCM-1630 w/BVU-800 & DTA-2000, Sony APR-5003, Sony PCM-2500 DAT, Panasonic SV-3700 DAT, Sony PCM-601ESD processor w/Beta & VHS VCRs. **Noise Reduction:** Dolby SR & A, dbx. **Monitor Speakers:** Meyer Sound Labs HD-1. **Digital Editing Systems:** Digidesign Sound Tools w/Mac Iix, 2+ hours of stereo hard disk storage. **Signal Processing:** Lexicon 300, Sony DAL-1000, Sound Tools EQ, sample rate conversion & dynamics, APIEQ, API 525 compressors, various other analog & digital signal processing available. **Engineers:** David Glasser. **Rates:** Please call to discuss your project. Project pricing and block-booking discounts are available. **OTHER.** Airshow provides digital audio editing & CD premastering services. Our clients and projects in 1991 have included: Rounder, Sugar Hill, Smithsonian/Folkways, Positive Music, Rebel, Powerhouse Records, Peter Rowan, Beausoleil, Airmen of Note, Jerry Douglas, Basehead, John McCutcheon, Pete Seeger, Bob Margolin, Brian Bowers, Mike Aldridge, and the Smithsonian Chamber Players. SPARS member.

**AMERICAN HELIX TECHNOLOGY CORPORATION;** CDM, CDR, TM, TD; 1857 Colonial Village Ln.; Lancaster, PA 17601; (800) 525-6575; FAX: (717) 392-7897. Contact: Jim Boyer, VP; Marc Feingold, dir. of sales & marketing; Tracy Files, sales coordinator. **COMPACT DISC. Services, prices:** Full-service CD manufacturing facility located in Lancaster, PA, specializing in production runs of 500 to 50,000 units. Helix is a self-contained, fully automated CD-replication plant. Complete premastering, packaging and print services offered. Five-color, screen printing PicturaDiscs™ and gold-tone metallization available.

**AMI**

**American Multimedia, Inc.**

**QUALITY  
Audio, Video and Print**

**D A A D**  
Digital Analog Audio Duplication

Call or Write for a FREE D A A D Sample & Literature

**AMERICAN MULTIMEDIA INC.  
Burlington, NC**

**AMERICAN MULTIMEDIA INC.;** TD; 2609 Tucker Street Extension; Burlington, NC 27215; (919) 229-5554; FAX: (919) 228-1409. Contact: Tim Mallard. **MASTERING.** Mastering Console: Neve 8108. Tape Machines: Otari, Studer. **Noise Reduction:** Dolby A, B, C and SR, S Dolby. **Monitor Speakers:** UREI, JBL, Meyer. **Digital Editing Systems:** Sony 1610 & 1630, JVC BP-90, Nakamichi, DMP-100, Sony 1630. **Signal Processing:** dbx, Dolby A, B, C and SR capabilities, Aphex, Lexicon. **Engineers:** Richard Clark, Howard Hoyt. **TAPE**

**DUPLICATION.** Method of Duplication: Bin-loop, digital bin. **Duplicator:** Otari, Ami-modified Electro Sound slaves, Gauss. **Duplicating Speed:** 64:1, 80:1. **Capacity:** 50 million annually. **Tape Used:** By customer request. **Shell Used:** By customer request. **Loading Equipment:** 36 Concept Design modifications. **Packaging Equipment/Fulfillment Services:** Apex printing, Ilesman labelers, Scandia wrappers, Sentinel blistering, F-20, HS-3 and A-22 Shanklin, CST Pad printer, and Kbar thermo-forming blister packaging. **COMPACT DISC. Services, prices:** 4-color process, 5-color booklet and in-lay card printing. **OTHER.** Subsidiary: Amergraphics specializes in audio cassette J-card and label printing. Full-service 4- and 5-color services for audio, video and CD.

**ANALOGUE INDUSTRIES**  
Cassette Duplication Services

Large and small runs  
On-cassette printing  
Packaging design  
J-cards & O-cards

CALL 1-800-777-1927  
FOR FREE CATALOGUE

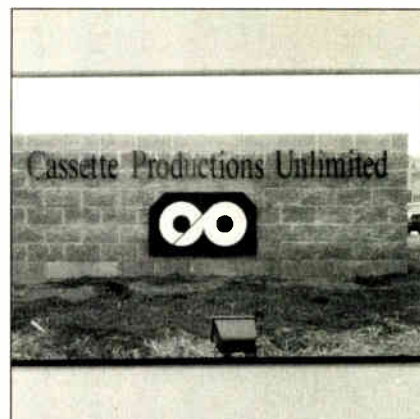
**KABA REALTIME** AUDIOPHILE QUALITY CASSETTES  
DUPLICATED ON THE KABA SYSTEM

**ANALOGUE INDUSTRIES**  
Burlington, VT

**ANALOGUE INDUSTRIES;** TD; 217 S. Union St.; Burlington, VT 05401; (800) 777-1927; FAX: (802) 863-1234. Contact: Rick Dexter. **TAPE DUPLICATION.** Method of Duplication: In-cassette. **Duplicator:** KABA 20 positions, Wollensak 16X. **Duplicating Speed:** Real time, 2 times and 16 times. **Capacity:** 12,500 per week. **Tape Used:** BASF. **Shell Used:** Shape. **Loading Equipment:** King. **Packaging Equipment/Fulfillment Services:** Shrinkwrap. **OTHER.** On-cassette printing, insert design and printing, custom-length blank cassettes. Personalized service and fast turnaround for short or long runs. Very competitive for larger orders.

**AUDIO ANTICS WEST/WINTHROP PRODUCTIONS;** TD; 156 W. 94th St.; New York, NY 10025; (212) 662-8685.

**AUDIO CRAFT COMPANY;** TM, TD, 2701 E. Sunrise Blvd., Ste. 404; Ft. Lauderdale, FL 33304; (305) 563-0553. Contact: Lonny Kelem. **MASTERING.** Tape Machines: Sony/MCI, Otari, Sony DAT 2500 & 50 ES. **Noise Reduction:** Dolby A, dbx. **Monitor Speakers:** Electro-Voice Sentry 100A. **Signal Processing:** Lexicon, UREI, dbx, Symetrix, EXR. **Engineers:** Bruce Marcho, Bob Kosiba, Paul Kurzweil, Lonny Kelem. **Rates:** Upon request. **TAPE DUPLICATION.** Method of Duplication: In-cassette. **Duplicator:** Studer Revox real time, Telex, Sony DAT. **Duplicating Speed:** Real time and 16:1. **Capacity:** 10,000 cassettes per week. **Tape Used:** BASF, Agfa. **Shell Used:** Magnetic Media, Shape. **Loading Equipment:** King/Concept Design. **Packaging Equipment/Fulfillment Services:** Fulfillment services and complete packaging. **Rates:** Upon request.



**CASSETTE PRODUCTIONS  
UNLIMITED  
Arden, NC**

**CASSETTE PRODUCTIONS UNLIMITED;** TD; 6 Commerce Way; Arden, NC 28704; (800) 545-3828. Contact: Jeff Baker, president. **MASTERING.** Tape Machines: Studer, Otari, Sony PCM-2500, Panasonic SV-3700. **Noise Reduction:** Dolby A, SR, B, dbx, Dynaflex single-ended. **Monitor Speakers:** JBL. **Digital Editing Systems:** Digidesign Sound Tools. **Signal Processing:** dbx compressors, de-essers, Klark-Teknik para EQ, Rane graphic EQ. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicator:** Electro-Sound 8000. **Duplicating Speed:** 64:1. **Capacity:** 100,000/day (C-40). **Tape Used:** By customer's request. **Shell Used:** 5-screw, sonic, all colors. **Loading Equipment:** King 790. **Packaging Equipment/Fulfillment Services:** Proprietary Audio Book packager, all standard packaging and shrinkwrapping configurations. **Rates:** Very competitive. **OTHER.** 24-track music/voice studio, audio producer(s), design, typesetting, printing, custom packaging, product assembly, video duplication, warehousing, fulfillment. A complete audio/video service. Established in 1978 with a reputation for on-time delivery of over 45 million cassettes.



**KABA REALTIME** AUDIOPHILE QUALITY CASSETTES  
DUPLICATED ON THE KABA SYSTEM

**CASSETTE EXPRESS  
(DIV. OF AL JOLSON  
ENTERPRISES INC.)  
Nashville, TN**

**CASSETTE EXPRESS (DIV. OF AL JOLSON ENTERPRISES INC.);** 114 & 116 17th Ave. S.; Nashville, TN 37203; (615) 244-5667, (615) 244-5656. **MASTERING.** **Noise Reduction:** Dolby A/SR, dbx type 1. **TAPE DUPLICATION.** Method of Duplication: In-cassette. **Duplicator:** (110) KABA slave deck, (55) dual unit. **Duplicating Speed:** 1 7/8+3 3/4 or 1:1, 2:1. **Capacity:** 1,100 C-45 per shift. **Tape Used:** Agfa 649, BASF chromell. **Shell Used:** Lenco, Michellex. **Loading Equipment:** AEF, Kronos 4. **Rates:** Competitive rates, please inquire. Other services, print labels and inserts.

**CROWN MAGNETICS INC.;** TM, TD; 1223 Bittner Blvd.; Lebanon, PA 17042; (717) 274-2812; (800) 736-9001. Contact: sales. **MASTERING.** **Rates:** Call. **TAPE DUPLICATION.** Method of Duplication: In-cassette and bin-loop. **Duplicator:** Ampex modified bin-loop, Magnafax bin-loop, Telex 6120 stereo. **Duplicating Speed:** 16, 120, 240 ips. **Capacity:** 5 million annually. **Tape Used:** Ampex, BASF. **Shell Used:** Swire. **Loading Equipment:** AVA, Otari. **Packaging Equipment/Fulfillment Services:** Shrinkwrap and Scandia overwrap. **Rates:** Upon request.

**THE CUTTING EDGE;** DM; PO Box 217; Ferndale, NJ 12734; (914) 292-5965. Contact: Paul Gerry.

**D&G MASTERING;** PO Box 175; Englishtown, NJ 07726; (908) 446-2411. Contact: Don Van Gorden.



**BARRY DIAMENT AUDIO;** CDM, TM; 2728 Henry Hudson Pkwy.; Riverdale, NY 10463; (212) 543-2079. Contact: Barry Diament, Mary Antonelli. **MASTERING.** Tape Machines: Sony 1630 w/Apogee Filters, DMR-4000, DTA-2000. **Monitor Speakers:** Dahlquist DQ-20 with M.I.T. cables. **Digital Editing Systems:** Sony 1100A. **Engineers:** Barry Diament, Campbell Bonaire. **Rates:** Call. **OTHER.** Credits: AC/DC, Anita Baker, Edie Brickell and the New Bohemians, Cars, Phil Collins, Jim Croce, Crosby, Stills and Nash, Cult, Divinyls, Eagles, Enya, Kevin Eubanks, Genesis, Guns N' Roses, Ahmad Jamal, Kitaro, Eartha Kitt, Led Zeppelin, Julian Lennon, Bob Marley, Modern English, Stevie Nicks, Nico, Robert Palmer, Robert Plant, Subdudes, Otis Redding, Rolling Stones, Linda Ronstadt, Simply Red, Steps Ahead, Tesla, Pete Townshend, U2, Joseph Villa, Yes, Warren Zevon.

**DIGITAL DOMAIN™;** CDM, CDR, TM; 309 E. 90 St.—B; New York, NY 10128; (212) 369-2932. Contact: Bob Katz. **MASTERING.** Mastering Console: Customized console. **Tape Machines:** Customized tube, Solid State 1/4" & 1/2" Studer. **Noise Reduction:** Dolby A & SR. **Monitor Speakers:** Symdex (customized). **Digital Editing Systems:** Sound Tools and 1630 transfer. **Signal Processing:** Bob Katz-built digital EQ and reverb. **Engineers:** Bob Katz. **Rates:** \$75 per hour except for 1630—\$140. **COMPACT DISC.** Services, prices: Digital Domain™ provides the right hand-holding first-time and experienced clients need, even inventing creative new hardware and software solutions to your problems. We can help you each step of the way, from mastering, graphic artwork, to CD Replication. Flexible, economical packages depend on the services you need. **OTHER.** Engineer Bob Katz, with his unique (20-bit, 128X oversampling) A-to-D, recorded Clark Terry, Phil Woods, McCoy Tyner, Kenny Rankin, Paquito D'Rivera, Arturo Delmonico, Antonio Carlos Jobim and countless others. Specializing in transparent analog transfers plus Digital Mastering. Ask Chesky Records, Laser's Edge, Omega/Vanguard, Mapleshade Prods, etc.

**COMPLETE CD AND CASSETTE  
PRODUCTION**

**DIGITAL HOUSE**

**212-333-5950**

**MASTERING REPLICATION  
PRINTING TOTAL PACKAGING  
POSTERS GRAPHIC DESIGN STUDIO  
PERSONALIZED EXPERT SERVICE**

**101 WEST 57TH ST. NEW YORK, N.Y. 10019**

**"FOR THOSE WHO HEAR THE  
DIFFERENCE"**

DIGITAL HOUSE LTD.  
New York, NY

**DIGITAL HOUSE LTD.;** 101 West 57th St.; New York, NY 10019; (212) 333-5950; FAX: (212) 262-5631. Contact: Jerome Bunke, Harry Hirsch. **OTHER.** Sonic enhancement, creative design studio, printing, posters, total packaging, complete project coordination.

**DISC MAKERS;** CDM, CDR, TM, TD, DM, RM; 1328 N. 4th St.; Philadelphia, PA 19122; (212) 265-7505 (NY); (800) 468-9353, (800) 740-0010 (Bayanun, PR); FAX: (215) 236-7763. Contact: Tony Van Veen. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicator:** Lyrec 16-slaves. **Duplicating Speed:** 40/80. **Capacity:** 150,000 a week. **Tape Used:** Sony, BASF. **Shell Used:** Shape. **Lenco.** **Loading Equipment:** Tapematic. **Packaging Equipment/Fulfillment Services:** Scandia. **Rates:** Call for price list/catalog. **COMPACT DISC.** Services, prices: All services—call for catalog. **RECORD MANUFACTURING.** Presses: Hamilton automatic 17 presses. **Capacity:** 150,000 week. **Rates:** Call for price list/catalog. **OTHER.** Complete design, typesetting, film and printing for all formats. Call for catalog for complete description of all services.

**DISC MASTERING INC.;** CDM, TM, TD, DM; 30 Music Square West; Nashville, TN 37203; (615) 254-8825. Contact: Karen Bush. **MASTERING.** Mastering Console: Neve DTC digital, Neumann SP 75. **Tape Machines:** Studer A820 1/4" and 1/2", A810, PCM-2500, PCM-1630, DMR 4000. **Noise Reduction:** Dolby A, SR, dbx. **Monitor Speakers:** Tannoy monitor series DMT. **Digital Editing Systems:** Sony DAC 3000. **Cutting Lathes:** YMS 70, SL 74B, SX 74. **Signal Processing:** Neve Custom 2087, Neumann 473 limiter/compressor. **Engineers:** Randy Kling, Chad Kling, Hoyt Dooley. **TAPE DUPLICATION.** Method of Duplication: In-cassette. **Duplicator:** (16) Studer A/10 cassette modified. **Duplicating Speed:** Real time. **Capacity:** 16x. **Tape Used:** Maxell, TDK. **Shell Used:** Maxell, TDK. **Rates:** Available upon request. **COMPACT DISC.** Services, prices: Upon request. **RECORD MANUFACTURING.** **OTHER.** Credits: Narada Productions, David Arkenstone, Paul Lanz, Blacktop Records, W.C. Handy, Blackfoot, Christy —LISTING AND PHOTO/LOGO CONTINUED TOP OF NEXT COLUMN

**discMastering**  
Nashville's Finest

30 MUSIC SQUARE WEST • NASHVILLE, TENN 37203 • (615) 254-8825 • FAX 254-

**DISC MASTERING INC.**  
Nashville, TN

Lane, Gary Stewart, Jim Brock, Alabama, Dolly Parton, The Judds, Hank Snow, Eddie Arnold, Anson Thunderbird, Normantown Flyers, Seals & Crofts.

**DUPLICATION SPECIALISTS INC.;** TD; 4584 Austin Blvd.; Island Park, NY 11558; (516) 432-7107.

**EASTCO PRO;** CDM, CDR, TD; 91 Haller Ave.; Buffalo, NY 14211; (800) 365-8273. Contact: Holt Vaughn.

**EASTERN STANDARD PRODUCTIONS INC.;** CDM, CDR, TM, TD, DM, RM; 26 Baxter St.; Buffalo, NY 14207; (716) 876-1454; (800) 527-9225; FAX: (714) 877-6395. Contact: Deborah L. Mekker, Teressa M. Fay.

**ELITE**

e l i t e  
d u p l i c a t i o n  
i n c

**ELITE DUPLICATION INC.**  
Charlotte, NC

**ELITE DUPLICATION INC.;** TD; 4475 Morris Park Dr., Ste. K; Charlotte, NC 28227; (704) 545-9973; FAX: (704) 545-6296. Contact: Greg Auch, Tim Dixon. **MASTERING.** Tape Machines: Otari MX-55N-HS, (2) Panasonic SV-3500 R-DAT, Sony F-1/Beta/VHS, Tascam DA-30, Sony PCM-2500. **Monitor Speakers:** JBL. **Signal Processing:** Neve V Series available on request. **TAPE DUPLICATION.** Method of Duplication: In-cassette. **Duplicator:** (60) Nakamichi MR-2. **Duplicating Speed:** Real time. **Tape Used:** BASF Super chrome, Pro chrome. **Shell Used:** Shape Mark 10. **Loading Equipment:** King, Concept Design. **OTHER.** Elite Duplication—where our main goal is customer satisfaction without compromise. We maintain a personal touch with our clients who appreciate and understand the need for premium materials to achieve a superior end-product. Rates and other services available upon request.

**EUROPADISK LTD.;** CDM, CDR, TM, TD, DM, RM; 75 Varick St.; New York, NY 10013; (212) 226-4401; FAX: (212) 966-0456. Contact: Jeremy Gittenberg, Jim Shelton. **MASTERING.** Mastering Console: Neve Digital Transfer Console, Neumann SP-79 analog. **Tape Machines:** (2) Sony DMR-4000/PCM-1630, Sony DMR-2000/PCM-1610, Sony PCM-2500 Pro-DAT Sony PCM-1200 DAT, Sony JH-110M, 1/4"-1/2" inch analog mastering machine, Mitsubishi X-80 digital, Sony PCM-501 with Beta & VHS transports, Studer A80-MR 1/2" for cassette bin-masters. **Noise Reduction:** Dolby A, Dolby SR, dbx I and II. **Monitor Speakers:** JBL 250ti, Yamaha NS-10. **Digital Editing Systems:** Sony DAE1100A Digital Audio Editor, DAQ1000 PQ Cue Code Editor. **Cutting Lathes:** Neumann VMS-82 DMM (Direct Metal Mastering). **Signal Processing:** Neve DTC Digital Transfer Console, Neumann SP-79 Transfer Console, Sony DFX-2400 Sampling Rate Converter, Studer DAD (Digital Audio Delay). **Engineers:** Jim Shelton, Thom Spallone. **Rates:** Complete brochure on request. **TAPE DUPLI-** —LISTING AND PHOTO/LOGO CONTINUED ON NEXT PAGE

## DISC MAKERS

### CD Replication

Complete Packages

Fast Delivery

Small Quantities

Full Color



**500 CDs &  
500 HX Pro  
Cassettes  
\$2990**

Complete Package Price!  
Includes design & typesetting.

Call Today For  
Complete Details  
and Our FREE Full  
Color Catalog:



**1-800-468-9353**

1650 Broadway, Suite 1010,  
New York, New York 10019  
In NYC call: 212-265-6662 • FAX: 212-2620798

**CD  
mastering  
& digital  
editing  
services**

Recent projects, and clients who've relied on AIRSHOW for digital editing and CD mastering services:

Rounder Records  
Sugar Hill Records  
Positive Music Records  
Rebel Records  
Smithsonian Folkways  
Beausoleil  
Peter Rowan  
Ranch Romance  
National Gallery of Art  
Flying Fish Records  
National Council for the  
Traditional Arts  
Sonoton Recorded Music  
Library  
Smithsonian Chamber  
Players  
Seldom Scene  
Jerry Douglas  
Airmen of Note, USAF  
Classic Jazz from Lincoln  
Center  
Smithsonian Jazz  
Masterworks Orchestra

AIRSHOW

**AIRSHOW INC.**  
7021 Woodland Drive  
Springfield, Virginia 22151  
703.642.9035

**EASTERN**

# Tape & Disc

Mastering, Pressing,  
Tape Duplication and  
Compact Disc Facilities

—LISTING CONTINUED FROM PREVIOUS PAGE

**AUDIOPHILE QUALITY**  
Mastering &  
Manufacturing

**EUROPADISK LTD.**

US' MOST  
COMPLETE FACILITY!

75 Varick Street  
New York, NY 10013  
☎ (212) 226-4401  
FAX (212) 966-0456

**EUROPADISK LTD.**  
New York, NY

**CATION.** Method of Duplication: Bin-loop. Duplicator: Lyrec (Danish). Duplicating Speed: 80:1. Capacity: 5,000,000 per year. Tape Used: BASF, Agfa, Sunkyoung. Shell Used: Michalex, Lenco, Shape, Beres. Loading Equipment: AEG Tachos-90. Packaging Equipment/Fulfillment Services: Roldex, Apex. Rates: Complete brochure on request. **COMPACT DISC.** Services, prices: CD premastering, replication, packaging, graphics printing, graphics design. Analog-to-digital transfers, digital conversions, sampling-rate conversions. Call for complete brochure. **RECORD MANUFACTURING.** Presses: Toolex-Alpha and Hamilton fully automatic. Capacity: 3,000,000 per year. Vinyl Used: Audiophile quality, dye-colored PVC compound. Rates: Call for complete brochure. **OTHER.** Complete audio software packages—CD, cassette, LP, including printed graphics (CD booklets, cassette J-cards, LP jackets).

# EVA-TONE

**EVA-TONE INC.**  
Clearwater, FL

**EVA-TONE INC.;** TM, TD, DM, RM; 4801 Ulmerton Rd.; Clearwater, FL 34622; (800) EVA-TONE; (813) 572-7000.

**Contact:** Norm Welch. **MASTERING.** Mastering Console: Sony and Eva-Tone customized. **Tape Machines:** Studer Revox, Otari, MCI, Nakamichi. **Noise Reduction:** Dolby A, B, SR, dbx type I. **Monitor Speakers:** Tannoy SGM-1000. **Cutting Lathes:** Scully automated and manual. **Signal Processing:** UREI, AMS, Sontec, Aphex, Orban. **Engineers:** Michael R. Newsome, Kristina Lucas, Michael Watkins, Peter Revron, Kim Garland. **Rates:** On request. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. Duplicator: 4 lines. Duplicating Speed: 64:1, 96:1 and 128:1. Capacity: 24 million C-40 per year. **Tape Used:** Various high-quality sources. **Shell Used:** Various high-quality sources. **Loading Equipment:** King 790. **Packaging Equipment/Fulfillment Services:** Apex, Stoddard, Ilseman, Scandia, Custom E-T. **Rates:** On request. **RECORD MANUFACTURING.** Presses: Eva-Tone custom (flexible Soundsheets). Capacity: 200 million annually. **Vinyl Used:** Special order. **Rates:** On request. **OTHER.** Commercial printing, typesetting, packaging, mailing services.

**FOOTHILL DIGITAL PRODUCTIONS INC.;** CDM, TM, TD; 215 W. 91st St.; New York, NY 10024; (212) 877-0973. Contact: Allan Tucker.

**FORGE RECORDING STUDIOS INC.;** CDM, CDR, TM, TD; PO Box 861; Valley Forge, PA 19481; (800) 331-0405; (215) 935-1422; FAX: (215) 935-1940. Contact: Warren Wilson. **MASTERING.** Mastering Console: Neotek. **Tape Machines:** Ampex 100s, Scully. **Noise Reduction:** dbx, Dolby A, B, SR, S. **Monitor Speakers:** JBL, UREI. **Digital Editing Systems:** Sony 300. **Signal Processing:** Many as needed. **Engineers:** Warren Wilson, Mark McNutt. **Rates:** \$50/hour and materials. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. Duplicator: MTL Versadyne. Duplicating Speed: 32:1, 64:1. Capacity: 10,000/shift. **Tape Used:** Cintas, Vac and Sunkyoung. **Shell Used:** Elmar, Lenco. **Loading Equipment:** King 790. **Packaging Equipment/Fulfillment Services:** Scandia. **Rates:** Call for brochure. **COMPACT DISC.** Services, prices: Mastering and premastering and proofs. \$50/hour. Replication, call for brochures.



**FRANKFORD/WAYNE**  
**MASTERING LABS**

Digital CD Preparation  
and Disc Mastering

**FRANKFORD/WAYNE MASTERING LABS INC.**  
New York, NY

**FRANKFORD/WAYNE MASTERING LABS INC.;** CDM, CDR, DM; 1697 Broadway; New York, NY 10019; (212) 582-5473; FAX: (212) 245-2309. Contact: Jimmy Lee (studio manager), Carol Steele (operations manager). **MASTERING.** Mastering Console: (5) Ranssteele Audio Custom. (2) Harmonia-Mundi digital. **Tape Machines:** Sony/MCI JH-110M custom, Sony digital U-matic & R-DAT, Panasonic, JVC, Technics. **Noise Reduction:** Dolby A, B, C, SR, dbx I and II. **Monitor Speakers:** (6) JBL 4350B, Quedest 410, JBL BiRadials, Yamaha NS-10, Auratone, Tannoy. **Digital Editing Systems:** (4) Sony DAE-3000/DMR-4000/DMR-200, DTA, Sony PQ code

## Get Listed in Mix Directories

Upcoming deadlines:

Northwest Studios:  
December 16, 1991

Video Production/  
Post-Production Facilities:  
January 16, 1992

Call (800) 344-LIST for a  
listing application.

editor. **Cutting Lathes:** (4) Neumann-Compudisk custom w/ SX-74/SAL-74B. **Signal Processing:** ITI, Sontec, GML, UREI analog, Valley Audio DCE, Harmonia Mundi, Sony digital. **Engineers:** Carlton Batts, Rick Essig, Michael Sarsfield, Tom Steele, Greg Vaughn. **Rates:** On request. **COMPACT DISC.** Services, prices: Yamaha PDS CD Recording system with Sony 1630/PQ encoding. CDs available in quantities from 1 up. Pricing: Call for rates. **OTHER.** Frankford/Wayne Mastering has been serving the recording industry for more than 25 years, always offering state-of-the-art technology with prompt and professional service. With credits too numerous to mention, hundreds of gold and platinum albums attest to Frankford/Wayne's commitment to the industry.

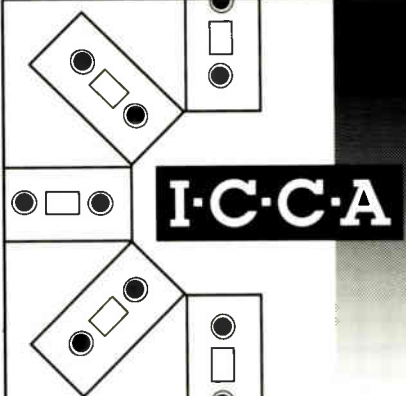


**FULLERSOUND, INC.**

**FULLERSOUND INC.**  
Miami, FL

**FULLERSOUND INC.;** CDM, TM, DM; 1755 NE 149th St.; Miami, FL 33181; (305) 945-6697. Contact: Michael Fuller/Margie Curry. **MASTERING.** Mastering Console: Neve DTC-1 Digital/Cybersonics custom automated MC2003E analog. **Tape Machines:** Sony 1630, 2500 DAT, PCM-601, 3402 DASH, Mitsubishi X-80. **Noise Reduction:** dbx, Dolby A, Dolby SR. **Monitor Speakers:** UREI 813A, Yamaha NS-100, Auratone Cubes. **Digital Editing Systems:** AMS AudioFile available on request. **Cutting Lathes:** Scully LS-76 with Ortofon DSS-821 cutter heads. **Signal Processing:** Neve DTC Digital, Sontec MES-430B EQ, Sontec DRC-400, Ortofon STL-852. **Engineers:** Michael Fuller and Rod Fuller. **Rates:** Available on request.

**GEORGETOWN MASTERS;** CDM, TM, DM; 33 Music Sq. W., Ste. 108; Nashville, TN 37203; (615) 254-3233; FAX: (615) 254-3237.



**ICCA INC.**  
Charlotte, NC

**ICCA INC.;** TD; 429 Briabend Dr.; Charlotte, NC 28209; (704) 523-7219; (800) 624-5940 (outside NC). Contact: John Firestone, Harrell Canning. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. Duplicator: Electro Sound ES 8000, (5) master, (45) slave, Lyrec, (2) master, (10) slave. **Duplicating Speed:** 32:1, 64:1, 80:1. **Capacity:** 1.5 million per month. **Tape Used:** By customer request. **Shell Used:** By customer request. **Loading Equipment:** King 790, Tapematic. **Packaging Equipment/Fulfillment Services:** Apex printing, Islemann boxer, Islemann wrapper, Islemann labeler, O-card inserter and wrapper. **Rates:** Call for prices. **OTHER.** Graphic arts design, typesetting, desktop publishing, label and insert layout, blister packaging, custom package design, O-card packaging.

**KEWALL REAL TIME TAPE DUPLICATORS;** TM, TD; 77 Bayshore Rd.; Bayshore, NY 11706; (516) 586-2486; (800) 67K-EWALL(675-3925); FAX: (516) 586-2543. Contact: Keith or Dorothy.



# MIX

# SUBSCRIBE NOW AND SAVE 50% OFF THE COVER PRICE!

# MIX

# SPECIAL OFFER

**YES!** Send me 12 issues of MIX for just \$29.95.\*

**MAXIMIZE MY SAVINGS!** Send me 24 issues (2 full years) of MIX for just \$52.95.\*

Payment enclosed  Bill me later (US only)

Charge my:  MasterCard  VISA

Card # \_\_\_\_\_ Exp. date \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

ZIP \_\_\_\_\_ Postal code \_\_\_\_\_

Country \_\_\_\_\_

Signature Required \_\_\_\_\_ Date \_\_\_\_\_

Phone \_\_\_\_\_

\*Add appropriate state sales tax where required. Offer good in the U.S. only. Foreign subscriptions must be prepaid with U.S. funds. Canada and Mexico add \$20/year. All other foreign countries add \$40/year. Basic annual subscription rate is \$46.

Please complete the information below to qualify for this special rate.

**1. Please check the business' activities** (all that apply)

**RECORDING STUDIO**

- A01  2-4 Tracks
- A02  8-16 Tracks
- A03  24 + Tracks
- A04  Digital Recording
- A05  Remote Truck
- A06  MIDI/Music Production

**SOUND REINFORCEMENT**

- B08  Sound Reinforcement

**VIDEO/FILM**

- C10  Production Company
- C11  Post-Production Company
- C12  Remote Truck
- C13  Multi-Image Production
- C14  Videotape Duplication

**EQUIPMENT MANUFACTURING**

- D17  Audio
- D18  Music
- D19  Video

**DUPLICATION/DISC MFG.**

- E20  CD Manufacturing
- E21  Tape Duplication
- E22  Mastering Only
- E23  Other (please specify)

**ACOUSTICS/DESIGN CONSULTANT**

- F26  Acoustics/Design Consultant

**SOUND/VIDEO CONTRACTOR**

- F27  Sound/Video Contractor

**BROADCAST PRODUCTION**

- G30  Radio Station
- G31  TV Station
- G32  Other (please specify)

**MEDIA**

- H35  Ad Agency/PR Firm
- H36  Magazines/Newspapers/Books

**RECORD COMPANY**

- J39  Record Company

**INDEPENDENTS**

- K42  Audio Producer
- K43  Audio Engineer/Technician
- K44  Video Producer/Director
- K45  Video Editor/Technician

**EDUCATIONAL/ INSTITUTIONAL**

- L47  Corporate Facility
- L48  Music/Recording/School/Program
- L49  Trade Association
- L50  Government

**RETAIL/RENTAL/MFRS.REP**

- M51  Audio/Music
- M52  Video/Film
- M53  Rep/Sales

**MUSICIAN/ARTIST/ COMPOSER**

- N55  Musician/Artist/Composer

**INDUSTRY-RELATED**

- N56  Artist Management/Booking
- N57  Music Publisher
- N58  Student
- N59  Other (please specify)

**3. Please check ONE category that best describes your JOB TITLE**

- A.  Corporate Manager/President, owner, other manager, etc.
- B.  Technical & Engineering/Engineer, editor, design engineer, etc.
- C.  Production & Direction/Producer, director, etc.
- D.  Sales & Administration/Sales representative, account executive, etc.
- E.  Other (please specify)

**2. Please enter ONE number code from above that best indicates your MAIN business activity:**

**SAVE \$29.45**  
Off the annual newsstand rate.

B201

# MIX

# SPECIAL OFFER

**YES!** Send me 12 issues of MIX for just \$29.95.\*

**MAXIMIZE MY SAVINGS!** Send me 24 issues (2 full years) of MIX for just \$52.95.\*

Payment enclosed  Bill me later (US only)

Charge my:  MasterCard  VISA

Card # \_\_\_\_\_ Exp. date \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

ZIP \_\_\_\_\_ Postal code \_\_\_\_\_

Country \_\_\_\_\_

Signature Required \_\_\_\_\_ Date \_\_\_\_\_

Phone \_\_\_\_\_

\*Add appropriate state sales tax where required. Offer good in the U.S. only. Foreign subscriptions must be prepaid with U.S. funds. Canada and Mexico add \$20/year. All other foreign countries add \$40/year. Basic annual subscription rate is \$46.

Please complete the information below to qualify for this special rate.

**1. Please check the business' activities** (all that apply)

**RECORDING STUDIO**

- A01  2-4 Tracks
- A02  8-16 Tracks
- A03  24 + Tracks
- A04  Digital Recording
- A05  Remote Truck
- A06  MIDI/Music Production

**SOUND REINFORCEMENT**

- B08  Sound Reinforcement

**VIDEO/FILM**

- C10  Production Company
- C11  Post-Production Company
- C12  Remote Truck
- C13  Multi-Image Production
- C14  Videotape Duplication

**EQUIPMENT MANUFACTURING**

- D17  Audio
- D18  Music
- D19  Video

**DUPLICATION/DISC MFG.**

- E20  CD Manufacturing
- E21  Tape Duplication
- E22  Mastering Only
- E23  Other (please specify)

**ACOUSTICS/DESIGN CONSULTANT**

- F26  Acoustics/Design Consultant

**SOUND/VIDEO CONTRACTOR**

- F27  Sound/Video Contractor

**BROADCAST PRODUCTION**

- G30  Radio Station
- G31  TV Station
- G32  Other (please specify)

**MEDIA**

- H35  Ad Agency/PR Firm
- H36  Magazines/Newspapers/Books

**RECORD COMPANY**

- J39  Record Company

**INDEPENDENTS**

- K42  Audio Producer
- K43  Audio Engineer/Technician
- K44  Video Producer/Director
- K45  Video Editor/Technician

**EDUCATIONAL/ INSTITUTIONAL**

- L47  Corporate Facility
- L48  Music/Recording/School/Program
- L49  Trade Association
- L50  Government

**RETAIL/RENTAL/MFRS.REP**

- M51  Audio/Music
- M52  Video/Film
- M53  Rep/Sales

**MUSICIAN/ARTIST/ COMPOSER**

- N55  Musician/Artist/Composer

**INDUSTRY-RELATED**

- N56  Artist Management/Booking
- N57  Music Publisher
- N58  Student
- N59  Other (please specify)

**3. Please check ONE category that best describes your JOB TITLE**

- A.  Corporate Manager/President, owner, other manager, etc.
- B.  Technical & Engineering/Engineer, editor, design engineer, etc.
- C.  Production & Direction/Producer, director, etc.
- D.  Sales & Administration/Sales representative, account executive, etc.
- E.  Other (please specify)

**2. Please enter ONE number code from above that best indicates your MAIN business activity:**

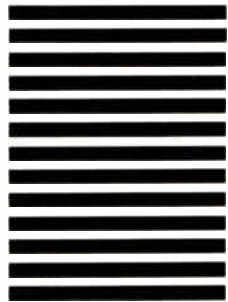
**SAVE \$29.45**  
Off the annual newsstand rate.

PRINTED ON RECYCLED PAPER

B201



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



**BUSINESS REPLY MAIL**

FIRST CLASS MAIL PERMIT NO 7231 NASHVILLE, TN

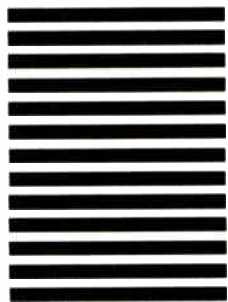
POSTAGE WILL BE PAID BY ADDRESSEE

**MIX**

**THE RECORDING INDUSTRY MAGAZINE  
P.O. BOX 41094  
NASHVILLE, TN 37204-9830**



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



**BUSINESS REPLY MAIL**

FIRST CLASS MAIL PERMIT NO 7231 NASHVILLE, TN

POSTAGE WILL BE PAID BY ADDRESSEE

**MIX**

**THE RECORDING INDUSTRY MAGAZINE  
P.O. BOX 41094  
NASHVILLE, TN 37204-9830**





**CD-LIKE  
QUALITY  
ON CASSETTES!!**

**KLARITY  
CASSETTE**

**KLARITY CASSETTE INC.**  
Waterville, ME

**KLARITY CASSETTE INC.;** *TD:* One Post Office Square Bldg.—Main St.; Waterville, ME 04901; (800) 458-6405; (207) 873-3911—Tech; *FAX:* (207) 873-3924. **Contact:** Michael Pepin, CEO. **MASTERING.** Mastering Console: Custom-designed, semi-automated with exclusive computer loopback. **Tape Machines:** Custom-modified, computer-assisted Studer Revox B-215, Panasonic DAT, Sony PCM F1. **Noise Reduction:** Dolby A, dbx Type I, Dolby B/HX-Pro. **Monitor Speakers:** Custom-designed digital loopback. **Signal Processing:** dbx computer/analyzer, various Tektronix, all necessary processing available, including: dbx compressor/limiters, dbx noise gates, dbx de-essers. **Engineers:** William Wheeler, Matthew York. **Rates:** Studio production/editing \$45 per hour, color brochure available for duplication rates. **TAPE DUPLICATION.** Method of Duplication: In-cassette. **Duplicator:** Custom-designed, Studer Revox B-215. (60) with computer circuitry—controlled bias, EQ, level and azimuth. **Duplicating Speed:** On: real time, direct form digital, no generation loss. **Capacity:** 40,000+ per month. **Tape Used:** Ampex, Agfa pure-chrome, BASF pure-chrome. **Shell Used:** Shape: IGM, MicheleX, Lenco and our own exclusive "Gold-Line" series shell. **Loading Equipment:** King. **Packaging Equipment/Fulfillment Services:** Autolabe, Simpulse, AAPEX. **Rates:** Ask for our detailed color-brochure. **Pricing guarantee** (please inquire). **OTHER.** Pope John Paul, Arlo Guthrie (exclusive), Yale Glee Club, Houston Symphony Orchestra and hundreds more. Full range of services including: typesetting, label printing, insert (J-card) printing, direct-stamp printing, custom packaging, custom-loaded blank cassettes and full 6-color printing. Quality control is Klarity Kasette's hallmark with continuous testing on a daily basis. New for 1992!! "Ult mate response" quality high-speed duplication. Ask for brochure!

**LAUGHING DOG CASSETTE DUPLICATION;** *CDM, CDR, TM, TD, DM, RM;* 21 Brewster St.; Staten Island, NY 10304; (800) 955-4DOG. **Contact:** Bill Donnelly.

**LION AND FOX RECORDING INC.;** *CDM, TM, TD;* 1905 Fairview Ave. NE; Washington, DC 20002; (202) 832-7883. **Contact:** Jim Fox, Rob Buhman.



**ALL DIGITAL RECORDING STUDIO  
& CASSETTE DUPLICATION**



**AUDIOPHILE QUALITY CASSETTES  
DUPLICATED ON THE KABA SYSTEM**

**LRP CASSETTE PRODUCTION**  
New York, NY

**LRP CASSETTE PRODUCTION;** 32 W. 22 St., 2nd floor; New York, NY 10010; (212) 477-3785; (212) 807-9363. **Contact:** Mikhail Liberman. **MASTERING.** Mastering Console: Allen and Heath. **Tape Machines:** Any digital formats, Sony R-DAT 2500, 2000, DASH-3402. **Noise Reduction:** Dolby A, Dolby B330 w/cat 66 card. **Monitor Speakers:** JBL. **Digital Editing Systems:** Sony 3402, 1630. **Engineers:** Mikhail Liberman, Tatyana Liberman. **Rates:** \$85/hour editing, \$250 mastering. **TAPE DUPLICATION.** Method of Duplication: in-

cassette and direct digital. **Duplicator:** KABA 25 slaves, Telex 6120 XLP. **Duplicating Speed:** 1:1, 8:1, 2:1. **Capacity:** 7000/day. **Tape Used:** BASF chrome. **Shell Used:** Shape. **Loading Equipment:** Tapematic 2002. **Packaging Equipment/Fulfillment Services:** Shrinkwrap, OTHER. In-house J-card printing, plating, packaging, print on-shell. Full service all digital recording studio, digital editing, live digital recording and CD pressing.

**MARK CUSTOM RECORDING SERVICE INC.;** *CDM, TM, TD, DM;* 10815 Bodine Rd.; Clarence, NY 14031-0406; (716) 759-2600. **Contact:** Mark J. Morette.



**MASTER CUTTING ROOM INC.**  
New York, NY

**MASTER CUTTING ROOM INC.;** *CDM, TM, DM;* 250 W. 49th St., 3rd fl.; New York, NY 10019; (212) 765-8496; *FAX:* (212) 765-8630. **Contact:** Joe Brescio.

**MASTER RECORDS INC.;** *TM, TD, DM;* 3000 Biscayne Blvd., Ste. 105; Miami, FL 33137; (305) 573-8587. **Contact:** Aldo Vazquez. **MASTERING.** Mastering Console: Made in-house. **Tape Machines:** MCI, Otari, Scully, Studer. **Noise Reduction:** dbx, Dolby A (B-C). **Monitor Speakers:** (8) UREI 609, (2) JBL 4411, (2) JBL 4312. **Cutting Lathes:** Scully, Westrex (auto). **Signal Processing:** Aphex dominator, Klark-Teknik delay, Pultec. **Engineers:** Aldo Vazquez Sr., Aldo Vazquez Jr., Dora Padilla. **Rates:** LP \$100 per sides, 12" \$90 per sides, 7" \$45 per sides. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicator:** Electro Sound 6000, 10 slaves; Electro Sound 4000, 10 slaves. **Duplicating Speed:** 64:1. **Capacity:** 18 units/8 hrs. **Tape Used:** Various. **Shell Used:** Various. **Loading Equipment:** King 6. **Rates:** \$0.80 per unit for long running.

**MASTERDISK CORP.;** *CDM, TM, DM;* 545 W. 45th St.; New York, NY 10036; (212) 541-5022. **Contact:** Linda Duffany. **MASTERING.** Mastering Console: Analog custom Neumann, digital Neve DTC, Sonic Solutions, Harmonia Mundi. **Tape Machines:** Ampex ATR, custom Studer with Cello class-A amps, Sony 7050 & various DAT. **Noise Reduction:** Dolby SR, A, dbx, Sonic System No-Noise™. **Monitor Speakers:** Duntec Sovereign 2001, Cello Performance amps, Altec, Hartley, NS-10M, KRK, AR-18. **Digital Editing Systems:** (2) Sonic System editor 8-track software +No-Noise, (3) DAE-3000, DAT editor. **Cutting Lathes:** Neumann Direct Metal Mastering (DMM), VMS 70. **Signal Processing:** Sonic System No-Noise™, all Harmonia Mundi modules, Wadia converter, Pygmy. **Engineers:** Bob Ludwig—chief engineer, Hcwie Weinberg, Tony Dawsey, Scott Hull, Andrew Van Dette. **Rates:** Rate card available.



**MASTERFONICS INC.**  
Nashville, TN

**MASTERFONICS INC.;** *CDM, CDR, TM, TD, DM, RM;* 28 Music Square E.; Nashville, TN 37203; (615) 327-4533; *FAX:* —LISTING CONTINUED ON NEXT PAGE

**"AUDIOPHILE  
QUALITY" ...**

**EUROPADISK, LTD.**

## • COMPACT DISCS

*Complete, Low-Cost Packages!*

## • CASSETTES

*Finest European HX-PRO Equipment Lyrec/Studer/Tachos-90  
THE BEST AT NO EXTRA COST!*

## • DMM VINYL MASTERING & PRESSING

*DMM Quality - THE FINEST!*

## • GRAPHIC DESIGN & PRINTING

*In-House Computer Design Dept.  
Original Art, Layout, Typesetting,  
Color Separations*

## • MASTERING STUDIO

*CD Premastering, P-Q Encoding  
Neve DTC Digital EQ & DRC,  
Sony Editing, Format & Sampling  
Rate Conversion*

Call or FAX for our Brochure



**EUROPADISK, LTD.**

75 Varick Street, New York, NY 10013  
☎ (212) 226-4401 FAX (212) 966-0456



## ACE MUSIC CENTER

THE PRO'S CHOICE FOR PROFESSIONAL EQUIPMENT FOR OVER 30 YEARS.

CALL ACE AND FIND OUT WHY

1-800 446-4ACE

13630 WEST DIXIE HWY.  
N. MIAMI, FLA. 33161

# AUDIO EDUCATION

IN THE

FEBRUARY 1992 MIX

Multitrack Recorders

Europe '92

DIRECTORY:

Audio and Recording Schools

In the February issue, *Mix* presents its annual directory of recording schools and programs, with additional articles on audio education and analog multitrack recorders. Also in February: a special feature on the European audio marketplace in 1992. Bonus distribution at AES Europe in Vienna, Austria!

Ad Close: December 6, 1991

Materials Due: December 16, 1991

## EASTERN

# Tape & Disc

### Mastering, Pressing, Tape Duplication and Compact Disc Facilities

—LISTING CONTINUED FROM PREVIOUS PAGE

(615) 242-0101. Contact: Jim Loyd. **MASTERING.** Mastering Console: Neumann SP75 Custom, JVC DS-DM900 automated digital. **Tape Machines:** JVC VP-900, Sony 3402, Mitsubishi X-86C, Sony 1630, Sony 2500 DAF, Panasonic SV-3500 DAT, Fostex D-20 with time code, Otari MX-55MN with center-track time code, Studer A80 & B67, Sony F1, JVC FC901, Sony PCM-601, Akai DD1000. **Monitor Speakers:** Kinoshita/Hidley, Yamaha NS-10M, Genelec Tri-amp S30, Fostex RM780, Auratone 5C, B&W, KEF C55. All power amps by FM Acoustics. **Digital Editing Systems:** JVC AE-90 and AE-900 digital editors, (3) Turtle Beach 56K. **Cutting Lathes:** Neumann VMS70, SAL 74B, Zumaudio, JVC CD-90, Ampex ADD-1. **Signal Processing:** JVC DS-DM900 digital mixing/EQ, JVC DS-LC900 automated parametric EQ and dynamics controller, Sony DFX-2400 sample frequency/format converter, Wadia Digital 2000 digital decoding computer, Sony DAL-1000 digital limiter, Sontec EQ and DRC, Wadia Digilink 20 Fiber Optic distribution system, Pygmy A-D converter, Apogee D-to-A and A-to-D converters (10 each, supports all 2-track digital formats), DAR-DASS100, Harmonia-Mundi signal processing rack, Barth Dynaset, Outer Ear image recovery Dolby A and SR, BASE and custom spatial enhancement, Yamaha reference CD system. **Engineers:** Glenn Meadows, Milan Bogdan, Benny Quinn, Jim Loyd, David Boyer. **Rates:** On request. **TAPE DUPLICATION. Method of Duplication:** In-cassette. **Duplicator:** Tascam 122 MkII cassette deck. **Duplicating Speed:** 1:1. **Capacity:** 15. **Tape Used:** Ampex 472. **Shell Used:** Ampex. **Rates:** On request, per size of run. **COMPACT DISC. Services, prices:** Preparation/Manufacturing: Complete CD master tape preparation from any 2-track source. Ten years' experience with product from all major labels. Fully digital processing including compression, EQ, sample frequency conversion, format conversion, pre-emphasis removal, crossfades. JVC AE-90 digital editor. Sample accurate in-song editing. Custom CD duplication available, small or large quantity, any or all duplication services from mastering and artwork to packaging. Reference CDs available with Yamaha optical CD recorder. **OTHER.** Tom Hidley-designed, 20Hz monitoring environment mix room. Includes SSL 4000E (G computer, TR) 56x32 console, Otari DTR-900 II digital 32-track, JVC VP-900 digital 2-track, and a generous complement of outboard equipment. Hidley-designed tracking and overdub studio with SSL 4000E (G computer, TR) 48x32 console, Otari DTR-900 II digital 32-track with 64-track remote and more.



MASTERMIX  
Nashville, TN

**MASTERMIX; CDM, TM, DM:** 1808 Division St.; Nashville, TN 37203; (615) 321-5970. Contact: Chris Sullivan. **MASTERING. Mastering Console:** Neumann SP77, Harmonia Mundi. **Tape Machines:** Digital machines are: 3402 or 3/4" based 1630 system/analog; Otari or Studer. **Noise Reduction:** Dolby A and SR, dbx. **Monitor Speakers:** Meyer 833, Meyer HD-1, Rogers 3/5A. **Digital Editing Systems:** The Sonic System, AMS AudioFile and Sony DEA-1100. **Cutting Lathes:** Neumann VMS70 w/Technics quartz direct-drive and Zuma Audio Preview computer, Neumann SAL-74B cutter rack, Neumann SX-74 cutter head. **Signal Processing:** Digital signal processing, including level adjustment, compression, limiting, equalization and de-essing, is done with Harmonia Mundi System. Analog processing is done using a Neumann SP77 with EQ by Sontec, API, Summit and Neumann. Analog compressors available are by Sontec and NTP. **Engineers:** Hank Williams, Ken Love, Ronnie Thomas. **Rates:** Available upon request.

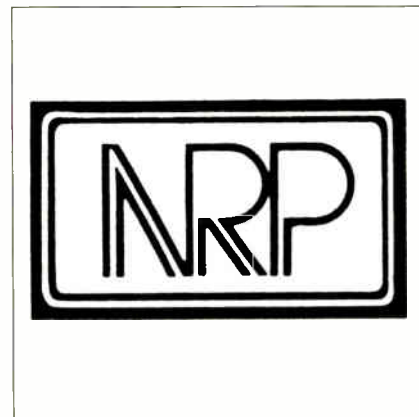


MASTERWORK RECORDING INC.  
Philadelphia, PA

**MASTERWORK RECORDING INC.; CDM, CDR, TM, TD, DM, RM:** 1020 N. Delaware Ave.; Philadelphia, PA 19125; (215) 423-1022; FAX: (215) 423-6020. Contact: Albert Oon, Peter Humphreys. **MASTERING. Mastering Console:** Custom/Proprietary by Masterwork. **Tape Machines:** MCI/Sony digital (PCM-1630 and PCM-2500 R-DAT). **Noise Reduction:** dbx, Dolby A, Dolby SR. **Monitor Speakers:** JBL, Tannoy, Yamaha, JVC, Sony. **Digital Editing Systems:** Digidesign SoundTools editing system. **Cutting Lathes:** Scully with Sontec "CompuDisk" system, Westrex-Ranstele Driver Systems. **Signal Processing:** Sontec, UREI, Soundcraft, Ampex digital delay, Orban, Sontec/Valley People limiters/compressors. **Engineers:** Nimitr 'Nim' Sankananda, Peter Humphreys, David Humphreys. **Rates:** Available upon request. **OTHER. Credits:** Grover Washington Jr., Chuck Mangione, Levert, The Cutaways, The O'Jays, E.U., Lou Rawls, Phyllis Hyman, Miles Jaye, Third World, Michael Faith, Robbie Mychals, Exotic Birds, Sunni, Ferenzik, Dexter Wansel, Two Kings in a Cipher, Michael Pidin Jr. and many others. **Other Services:** Compact disc pre-mastering and preparation, submastering for cassette duplication, custom CD and record pressing, real-time and high-speed cassette duplication.

**MIRROR IMAGE SOUND & RECORDING INC.; CDM, TM, TD:** 619 S. Main St.; Gainesville, FL 32601; (904) 376-8742. Contact: Ray Valla, production manager.

**MULTITAPE; TM, TD:** 1630 Euclid St. NW, Ste. 131; Washington, DC 20009; (202) 332-1522. Contact: Bruce F. Moyer.



NASHVILLE RECORD PRODUCTIONS INC.  
Nashville, TN

**NASHVILLE RECORD PRODUCTIONS INC.; CDM, TM, DM:** 469 Chestnut St.; Nashville, TN 37203; (615) 259-4200. Contact: George Ingram, president; John Eberle, studio man-



ager. **OTHER.** Three mastering suites, MCI and Studer 1/4" and 1/2" analog tape machines. Sony PCM-2500 and Panasonic SV-3500 Pro R-DAT machines; Sony 1610 and F1 systems. Compusonics digital editing system. Neve, Sphere and Sontec EQ, Valley People 610. Neve compressors, Aphex Aural Exciter. Neumann VMS 70 lathe with Zuma computer and SAL 74 system. Scully/Capps lathe with Westrex cutting systems. Yamaha NS-10 and EV monitors. Special services: CD prep, digital editing and premium real-time cassette duplication (cassette loading and on-shell printing done in house). Also custom production of CDs, cassettes, LPs and 45s in small or large quantities. Credits: Artists: Clinton Gregory, Jerry Jeff Walker, Clarence Carter, Tommy Cash, Head Candy, Love and Sass, Rev. Al Green, Curtis Mayfield and Labecis. Stephone, Rykodisc, SHR, Playback, Link, Hot Productions, Ichiban, RCA, Door Knob, Sound of Gospel, A&M, and Morningstar/Harvest.

**NATIONAL TAPE DUPLICATORS, DIV. OF KEN-DEL PRODUCTIONS INC.;** *TM, TD, DM;* First State Production Center; 1500 First State Blvd.; Wilmington, DE 19804-3596; (302) 999-1110; FAX: (302) 999-1656. Contact: Edwin Kennedy, pres./gen. mgr.

**NATIONAL TAPE CORPORATION;** *TM, TD;* 1110-48th Ave. N.; Nashville, TN 37221; (615) 383-7881. Contact: Tom Beld, VP sales. **MASTERING.** Mastering Console: Sony MXP-2000. **Tape Machines:** Studer, Sony DMX-2000/1630, Sony R-DAT 2500. **Noise Reduction:** dbx type I, Dolby A, SR, B. **Monitor Speakers:** Tannoy 10. **Signal Processing:** TC Electronic, UREI, Valley People, BBE. **Engineers:** David Wirth, Bobby Newton, Bill Anderson, Eric Lancaster, Orville Holcomb, David Howard (chief engineer). **TAPE DUPLICATION. Method of Duplication:** Bin-loop. **Duplicator:** Electro Sound 8000. **Duplicating Speed:** 64:1. **Capacity:** 100,000/dup. **Tape Used:** Sunkyong, BASF. **Loading Equipment:** King/Concept Design. **Packaging Equipment/Fulfillment Services:** Scandia.

**NEW YORK AUDIO PRODUCTIONS;** *TM, TD;* 140 W. 22nd St.; New York, NY 10011; (212) 243-6826. Contact: Paul Barboza.

**NIMBUS RECORDS INC.;** *CDM, CDR;* PO Box 7427; Charlottesville, VA 22906-7427; (804) 985-1100. Contact: Ric Sherman (East Coast), Sandy Richman (West Coast).

**L. NIX & CO. INC.;** *CDM, TM, TD, DM;* 2000 Madison Ave.; Memphis, TN 38104; (901) 725-0855; FAX: (901) 725-7011. Contact: Larry Nix.



**NORTHEASTERN DIGITAL RECORDING INC.**  
Southborough, MA

**NORTHEASTERN DIGITAL RECORDING INC.;** *CDM, CDR;* 2 Hidden Meadow Ln.; Southborough, MA 01772; (508) 481-9322; FAX: (508) 624-6437. Contact: Anne Shepard. **MASTERING.** Mastering Console: Troisi 20 Series (analog), Sonic System (digital). **Tape Machines:** Sony PCM-1630/DMR 4000, Sony APR-5003 (analog 1/2" or 1/4"), Sony and Panasonic DAT. **Noise Reduction:** Dolby SR, Dolby A, dbx I, dbx II. **Monitor Speakers:** Studio A: Snell type C. Studio B: Tannoy DMT 12. **Digital Editing Systems:** Sonic System, Mac IIx, 2.4 Gbyte. (2) Sony DAE-1100. **Signal Processing:** Lexicon 300, PCM-70, Troisi analog EQ. **Engineers:** Dr. Toby Mountian, Jonathan Wyner. **Rates:** Sonic System, \$110 per hour, Sony system, \$85 per hour. **COMPACT DISC. Services, prices:** Recordable CDs: Sonic Solutions start lab system, \$200 each. Compact disc replication, production assistance. **OTHER.** David Bowie, Frank Zappa, Arlo Guthrie, Ritchie Havens, Paul Winters, James Montgomery, NRBQ, Charles Musselwhite, Alligator, Rykodisc, Rounder, Northeastern, Titanic, Biograph, Omega, Bangard Classic, Newport Classic, SBK.

**PRODIGITAL;** *CDM, CDR, TM, TD;* 3400 Pendleton Dr.; Wheaton, MD 20902; (202) 319-5588; FAX: (202) 319-4490. Contact: Bill Burns, Alan Wonneberger.

**PROJECT 70 AUDIO SERVICES INC.;** *CDR, TM, TD;* 777 Lambert Dr. NE; Atlanta, GA 30324; (404) 875-7000. Contact: Jerry L. Connell, president.

**PROTOSOUND;** *CDM, CDR, TM, TD;* 1 Mill St.; Burlington, VT 05401; (802) 864-9020. Contact: Nick McDougal.

**RANDOM ACCESS;** *CDM, TM;* 169 Massachusetts Ave., Ste. 23; Boston, MA 02115; (617) 547-7973. Contact: Jonathan A. Wyner, Robin Coxe-Yeldham.

## Digital Bin Duplication



S.A.S. INDUSTRIES INC.  
Lynchburg, VA

**S.A.S. INDUSTRIES INC.;** *TD;* 147 Mill Ridge Rd.; Lynchburg, VA 24502; (804) 582-6139. Contact: Sales. **TAPE DUPLICATION. Method of Duplication:** Dupltronics digital bin. **Duplicator:** Lyrec. **Duplicating Speed:** 80:1. **Capacity:** 200,000/week. **Tape Used:** Ampex, Aurex (cobalt), Sony, Sunkyong. **Shell Used:** Shape. **Loading Equipment:** Tachos 90B. **Packaging Equipment/Fulfillment Services:** Rokdex, Scandia, Print-Rite foil stamper. **OTHER.** Panasonic SU-2900 DAT, Nakamichi MR-2s, Dolby B & S Type noise reduction, JBL 4425 studio monitor, Bryston power amp. Complete packaging—on-cassette printing, foil or ink; inserts, cellophane over-wrap. Video duplication also available.

**SONY MUSIC STUDIO OPERATIONS;** *CDM, TM, TD, DM;* 49 E. 52nd St.; New York, NY 10022; (212) 445-2958; FAX: (212) 755-8311. Contact: Rob Grabowski, Tim Geelan, Risa Kantor.

**SOUND-ARTS CO. INC.;** *TD;* 5 Cindy Lane; Ocean, NJ 07712; (908) 493-8666; FAX: (908) 493-0667. Contact: Frank Gspann, vice president. **TAPE DUPLICATION. Method of Duplication:** Bin-loop. **Duplicator:** Otan DP-7300, DP-80 w/ 26 slave units. **Duplicating Speed:** 64:1. **Capacity:** 1.5 million/year. **Tape Used:** Sunkyong. **Shell Used:** Multi-vendors. **Loading Equipment:** King 790s. **Packaging Equipment/Fulfillment Services:** Heino-Islemann KZM3, CM-1. **Rates:** Fax (908) 493-0667 or telephone (908) 493-8666 per your specifications. **OTHER.** SOUND-ARTS is an advanced, state-of-the-art audio duplication and packaging facility. Since 1969, we have offered low prices and top-quality craftsmanship. We also produce high-quality blank audio tapes, normal-bias and high-bias chrome tapes in custom lengths up to 90 min.

**SOUNDMIRROR INC.;** *CDM;* 76 Green St.; Boston, MA 02130; (617) 522-1412. Contact: Nancy Grossman.

**SOUNDS, REASONABLE!** *TD;* 10203 Bent Tree Ln.; Massasa, VA 22111; (703) 631-6376. Contact: Fred Wygal.

**STRAIGHT ARROW RECORDINGS;** *CDM, TM;* 3 Kent St.; Montpelier, VT 05602; (802) 223-2551. Contact: Mike Billingsley, Geoff Brumbaugh.

**STUDIO MAGNETICS CO. INC.;** *TD;* 12 Long Island Ave.; Holtville, NY 11742; (516) 289-3400; (800) 874-2202; FAX: (516) 289-1604. Contact: Craig M. Balaban.

Attention Concert Promoters

## Note by Note, A Guide to Concert Production

This book takes you through the entire process of producing concerts and other public events. Includes 135 pages of forms and contracts. Call Mix Bookshelf at (800) 233-9604 for details.

# Burlington

Audio/Video Tapes, Inc.

Now carries a full line of

## BASF

AUDIO/VIDEO TAPE

---

**BEST PRICES**

---

**MERCHANDISE IN STOCK**

---

**IMMEDIATE DELIVERY**

---

**CALL FOR FREE CATALOG**

# Burlington

Audio/Video Tapes, Inc.

106 MOTT STREET  
OCEANSIDE, NY 11572

**USA/CANADA 800-331-3191**  
**NYC AREA 516-678-4414**  
**FAX: 516-678-8959**

## AUDIO / MIDI SPECIALISTS

- ✓ KNOWLEDGABLE
- ✓ ALL MAJOR LINES
- ✓ DISCOUNT PRICING
- ✓ LARGE INVENTORY

- MIDI Hardware & software
- Digidesign • JL Cooper
- Performer • Cakewalk • Finale
- Passport • DR T • Opcode
- synths & samplers • EMU
- Korg • Roland • Yamaha

- 24/16/8 tk digital/analog
- DAT • consoles
- processors
- direct to disc recording
- automation retrofits
- synchronizers • monitors

**LENTINE MUSIC**

# PROFESSIONAL

**(216) 741-1400**  
**FAX (216) 741-5111**

10-8 Mon-Thu, 10 Fri & Sat

**Need Professional  
DAT Duplication?**

Call . . . . .

**LORAN Audio**

**Need Custom Length  
Studio DAT Blanks?**

Call . . . . .

**LORAN Audio**

For all you Duplication  
and  
Blank Tape Needs  
(DAT • Highspeed • Realtime)

The Professional  
Choice

**LORAN Audio**

1-800-633-0455

Member of  
**NAIRD**

Call For  
Free Sample

**EASTERN**  
**Tape & Disc**  
Mastering, Pressing,  
Tape Duplication and  
Compact Disc Facilities

**TAPE SOUTH INC.**  
KABA REALTIME  
AUDIOPHILE QUALITY CASSETTES  
DUPLICATED ON THE KABA SYSTEM

TAPESOUTH INC.  
Birmingham, AL

TAPESOUTH INC.; TD, 1801 1st Ave. S., Ste. 333; Birmingham, AL 35233; (800) 248-2730. Contact: Jenno or Kerri. **TAPE DUPLICATION.** Method of Duplication: In-cassette. Duplicator: KABA real time 16 slaves, Telco, stereo 7 slaves. **Duplicating Speed:** Real time and 16x. **Capacity:** As many as you need. **Tape Used:** Agfa, BASF and TDK. **Shell Used:** American-made Shape Mark 10 and Mark 1. **Loading Equipment:** King 790. **Packaging Equipment/Fulfillment Services:** Apex cassette imprinter, Ciampo shrinkwrapper, in-house type-setting for complete CD and/or cassette package design. **Rates:** Better than you'd think. Call us! **OTHER.** Direct-from-DAT and DAT-to-DAT duplication. Remote recording packages. System and acoustic design and consultation. Authorized dealers for BASF/Agfa and Akai. Recording studio supplies and accessories. Visa and MasterCard accepted.

**TRUTONE INC.**  
If you don't sound good,  
we don't look good.

TRUTONE RECORDS  
Hackensack, NJ

TRUTONE RECORDS; CDM, TM, TD, DM; 310 Hudson St.; Hackensack, NJ 07601; (201) 489-9180; FAX: (201) 489-1771. **MASTERING.** Mastering Console: Neumann, Studer,

custom. **Tape Machines:** Studer A80 MkIII, Studer A810, Studer B67, Ampex ATR-102, MCI JH-110B, Sony PCM-1630, PCM-2500, PCM-701. **Monitor Speakers:** UREI 813, B&W 801, B&W DM-220, JBL, Yamaha, Auratone. **Digital Editing Systems:** DAE 1100, DAE 3000, 1630 and 1610 PCM processors. **Cutting Lathes:** Neumann VMS70 with Zuma computer, Scully lathe with Capps Varipitch II computer. **Signal Processing:** Neumann, Pultec UREI, Sontec, Harmonia Mundi. **Engineers:** Carl Rowatti, Phil Austin, Ray Janos. **Rates:** Upon request. **TAPE DUPLICATION.** Method of Duplication: In-cassette and bin-loop. **Duplicator:** KABA real and double time Lyrec with HxPro high speed. **Duplicating Speed:** Real time, double time, high speed, 80:1 or 64:1. **Tape Used:** Agfa 649, 949, 647, 947. **Shell Used:** MicheleX, Swire, Lenco. **Loading Equipment:** Tapematic 2002. **Packaging Equipment/Fulfillment Services:** Scandia and Weldotron shrinkwrapping. **Rates:** Upon request. **COMPACT DISC.** Services: Preparation/assembly of Sony PCM-1630 masters for compact disc. Complete package from mastering to finished product available. Prices upon request. **RECORD MANUFACTURING.** Mastering and cutting of reference acetates and master lacquers. Complete package from mastering to finished product available (7" and 12"). **Rates:** Upon request. **OTHER.** Sony digital editing, digital EQ, R-DAT and F1 masters. High-quality, short-run cassette duplication. Cassette duplication available directly from analog source without running master (real and double time). Custom-loaded blank cassettes. Creative art and packaging services.

WAREHOUSE STUDIO INC.; 2071 Emerson St. #20; Jacksonville, FL 32207; (904) 399-0424; FAX: (904) 398-9683. Contact: Bart Stone.

**WEA MANUFACTURING INC.**  
EXPERIENCE & INNOVATION  
Compact Disc, Cassette, Record &  
Laser Disc Replication  
featuring  
**digalog**™  
the ultimate state-of-the-art cassette tape duplication process  
WEA Manufacturing Olyphant, PA (717) 383-2471

WEA MANUFACTURING  
Olyphant, PA

WEA MANUFACTURING; CDM, CDR, TM, TD, RM; 210 N. Valley Ave.; Olyphant, PA 18447; (717) 383-2471. Contact: David Grant, VP sales services.

**Available  
Now!**

The all new  
Mix Bookshelf  
1991 Catalog.  
Over 600 products.  
More than 175  
new items!

- Books
- Videos
- Tape courses
- Sounds on CD

Call (800) 233-9604

**Digital Bin Duplication**  
with the revolutionary DHS®  
technology by Duplitronics  
(Digital High-End System)

\*\*\* Sound Quality That  
Challenges Compact Disc! \*\*\*

- Dolby B&S-Type Noise Reduction
- Lyrec Duplication Slaves with Dolby HX-Pro
- Complete Packages
- No Orders Too Big or Small

Call or FAX today  
for an info pack.  
We Dare You To Compare!

**SAS INDUSTRIES INCORPORATED**  
804-582-6139  
FAX 582-6144  
147 Mill Ridge Rd.  
Lynchburg, VA 24502





**LEGEND**

CDM: CD Mastering/  
Premastering  
CDR: CD Replication  
TM: Tape Mastering  
TD: Tape Duplication  
DM: Disc Mastering  
RM: Record Mastering

**A & F MUSIC SERVICES;** 2834 Otsego; Waterford, MI 48328-3244; (313) 682-9025; (313) 669-3100. Contact: Frank Merwin.

**A & R RECORD & TAPE MFG. CO.;** CDR, TM, TD, DM, RM: 902 N. Industrial Blvd.; Dallas, TX 75207; (214) 741-2027. Contact: Richard Sobel, Stanley Getz II.

**A TO Z AUDIO SERVICES INC.;** TD; PO Box 26087; Fairview Park, OH 44126; (216) 333-0040; FAX: (216) 333-0104. Contact: Jean Rust.

**ACME RECORDING;** CDM, CDR, TM, TD: 1708 W. Belmont; Chicago, IL 60657; (312) 477-7333; (800) 826-2263. Contact: Jim Rasfeld, Sharon Quattrocchi.

**AMERICAN SOUND & VIDEO CORPORATION;** TE: 7290 Miller Dr.; Warren, MI 48092-4727; (313) 795-1900. Contact: Frank S. Day.

**AUDIO DUPLICATION & SERVICES;** CDM, CDR, TM, TD, DM, RM: PO Box 31546; St. Louis, MO 63131; (314) 965-8895. Contact: Rick Schaumberger.

**AUDIO IMAGES PLUS (DIV OF IAFS);** CDM, TM, TD: 6228 Oakton St.; Morton Grove, IL 60053; (708) 965-8401. Contact: Tom Banach, Ken Miller.

## Audiophile™

Realtime Cassette Duplication

**SYSTEMS WITH DOLBY B OR S OPTION**  
Dual Capstan HX-Pro, KABA For Double Speed, Medium Speed Bin-Loop, DAT System With Copy Code

**MASTER FORMATS**  
R-DAT, PCM, R-R Dolby SR-A, VHS Hi-Fi Stereo

**EDITING** DigiDesign-MacIntosh Pro-Tools  
**FUTURE** DCC, Mini Disc (MD)  
**OTHER** Inserts, On-Cassette Printing, Wrap

*Fast, Affordable, Dependable  
Service For 27 Years*

AUDIO-VIDEOGRAPHICS  
Independence, MO

**AUDIO-VIDEOGRAPHICS;** TM, TD: 13801 E. 35th St.; Independence, MO 64055; (800) 322-2832; (816) 254-0400. Contact: Jeff Propst, Rich Hathorne. **MASTERING.** Mastering Console: TAC Scorpion 16x8, DigiDesign/MacIntosh digital software deck. **Tape Machines:** (3) Sony APR-5000 Series, (2) Sony 2500A DAT, Tascam DA-30 DAT, Sony PCM-F1, PCM-501 with JVC 1/2" BR 7000U, JVC 3/4" CR 850U recorders, DigiDesign MacIntosh Multichannel ProTools. **Noise Reduction:** Dolby A, Dolby SR, Dolby B-C-S, dbx. **Monitor Speakers:** JBL studio, Acoustic 3A Andante master control, PFM 3CES Peavey, Auratone. **Signal Processing:** Dorrugh low noise monitors, UREI 546 parametric EQ, UREI 1176LN and UREI 1178 level controllers, Aphex Dominator II precision peak limiter, Dynamic Sibilance controller, Lexicon digital reverbator, Dolby 422 B-C-S reference encoder/decoder, Yamaha SPX5011 ef-

fects processor, Technic CD high-resolution system SL-P770. **Engineers:** Kevin Davis, Tom Stack, Jerry Riegle. **TAPE DUPLICATION.** Method of Duplication: In-cassette and bin-loop. **Duplicator:** Dolby HX-Pro, KA3A real-time, (3) bin-loop system, Magnefax 7802-4C professional duplication system, Sony CCP-200 cassette system, Texaco 20XLs, stem, Ampex 3200 R-R duplication system, Soni-DAT 2500A system, JVC BR 7000U VHS Hi-Fi stereo system. **Duplicating Speed:** Real-time, 2x, 16x, 24x and 32x. **Tape Used:** TOKI cobalt, BASF cobalt, BASF chrome, BASF/Agfa LHD ferric, Agfa 26, 3M-396, Ampex 456 mastering tape. **Shell Used:** Lenco clear/color sonic and 5 screw, Shape Mark 10, Microflex. **Loading Equipment:** Multiple King 790 loaders. **Packaging Equipment/Fulfillment Services:** in-house typesetting/layout IBM Windows 3.0, Aldus Pagemaker 4.0, laser jet printer with image scanner, in-house on-cassette printing, plate maker, custom computer label printer, shrinkwrapping, IBM-Mac shipping label and record keeping. **Rates:** Quote per job. **OTHER:** Video duplication and packaging, VHS Hi-Fi stereo, U-matic, Betacam 1", Capital Production music library, Quality control—Otari DP-1610 pan-cake checker, Janzen 831, Audico 200 Series Q.C.

**THE BROOKWOOD STUDIO INC.;** CDM, TM, TD: 1155 Rosewood, Ste. A; Ann Arbor, MI 48104; (313) 994-4992. Contact: David Lau, Matt Hanson.



CREATIVE SOUND PRODUCTIONS INC.  
Houston, TX

**CREATIVE SOUND PRODUCTIONS INC.;** CDR, TM, TD: 8383 Commerce Park Dr. #604; Houston, TX 77036; (713) 777-9975; (800) 451-7034; FAX: (713) 774-3419. Contact: Edward B. Smith, president, Michele Crosby, dir. of duplication. **MASTERING.** **Tape Machines:** Otari MTR-10-4 with HX Pro, Otari 5050 Mark III-4, MCI JH-110, Ampex ATR 790, Panasonic SV-3500 R-DAT, Sony DCM-501 Tascam M32, M34, M38. **Noise Reduction:** dbx, Dolby A. **Monitor Speakers:** JBL. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicator:** Otari DP-80 with HX Pro 64:1, bin-loop master, 5 slaves, Otari DP-1010 master/bin-loop, 5 slaves, Infonics open-reel master, 8 slaves. **Duplicating Speed:** 64:1 and 16:1. **Capacity:** 10,000 per hour shift. **Tape Used:** BASF chrome, BASF 649 and 619, Ampex 315. **Shell Used:** Swire Premium, Lenco, Olamom. **Loading Equipment:** Tapeomatic 2000, Tape-matic 900HS. **King automatics.** **Packaging Equipment/Fulfillment Services:** Label printing, Apex imprint, Macintosh II

CTP graphic design system, shrinkwrap, custom vinyl albums. **Rates:** Quotes and catalog upon request. **COMPACT DISC.** **Services, prices:** CD services include CD replication, graphic design and printing of tray cards/booklets, complete packaging shrink blister, longbox. **OTHER.** In-house graphic design, label printing via Sohn Flexo Press, 1-4 color colorliner printing, Apex direct imprint on shell, video duplication and packaging, custom-loaded blank cassettes.



CRYSTAL CLEAR SOUND  
Dallas, TX

**CRYSTAL CLEAR SOUND;** CDM, CDR, TM, TD: 4902 Don Dr.; Dallas, TX 75247; (214) 630-2957. **MASTERING.** Mastering Console: DDA 224V. **Tape Machines:** Sony 5000, (3) Panasonic SV-3700 R-DAT. **Noise Reduction:** Dolby SR, A, Jbx. **Monitor Speakers:** KRK, UREI, Yamaha, JBL. **Engineers:** Keith Rust, Sia Ahmadzadeh. **TAPE DUPLICATION.** Method of Duplication: In-cassette. **Duplicator:** KABA 50 position. **Duplicating Speed:** Real time, double speed. **Tape Used:** BASF Cr02. **Shell Used:** Shape Mark 10. **Rates:** Very competitive, please call. **COMPACT DISC.** **Services, prices:** High quality, low rates. Please call for rates, requirements and turnaround time. **OTHER.** We duplicate your cassettes using the KABA system on BASF chrome tape housed in a clear shell made by the Shape company. This combination of a superior tape and the best duplicators available insures you the highest quality cassette copy you can get. ANYWHERE!

**DESTINY MEDIA INC. DBA DMI RECORD MFG. & PRINTING;** CDM, TM, TD, RM: 1422 W. Poplar St.; San Antonio, TX 78207; (512) 732-6176. Contact: Jerry Johnson.



DIGITAL EDITING SERVICES  
Dallas, TX

**DIGITAL EDITING SERVICES;** CDM, TM: 10642 Cotillion; Dallas, TX 75228; (214) 686-5256. Contact: George Gourn. **MASTERING.** Mastering Console: Custom. **Tape Machines:** Tascam DA-30, Tascam 42B, Studer A-80 2-track, VHS/Beta PCM, VHS/Beta Hi-Fi. **Noise Reduction:** dbx type I and dbx source noise reduction. **Monitor Speakers:** Meyer Sound Labs HD-1, Tannoy NFM-8, Tannoy AVM. **Digital Editing Systems:** DigiDesign Sound Designer II. **Signal Processing:** Lexicon 300, Lexicon 224XL, PCM-41, PCM-70, LXP-1, Aphex compellor/dominator, UREI, Ashley parametric, dbx 900 rack, Teletronix LA-3A. **Engineers:** George Gourn. **Rates:** call. **OTHER.** Can arrange for small quantity CD production for local bands or large runs as needed. Can help in all phases of artwork, design and printing for CD inserts. Excellent processing for sweetening/cleaning up masters. Can accept any master format. Very experienced in restoring old 2-track masters. Dance remixes a specialty. D.E.S. specializes in editing and preparing master tapes for production. Original master format can be DAT, VHS/Beta PCM, 1/4" 2-track (7.5, 15 or 30 ips), 3/4" U-matic or VHS/Beta Hi-Fi.

**Statement of Ownership, Management and Circulation**  
(Required by 39 U.S.C. 3686)

1. Title of Publication: **MIA, The Recording Industry Magazine**

2. Issue Date: **0 0 1 2 3 8 7 0 9/30/91**

3. Issue Frequency: **Monthly**

4. Annual Subscription Price: **\$45.00**

5. Office of Publication: **6400 Hollis St., Suite 12, Emeryville, CA 94608**

6. Complete Mailing Address of Known Office of Publication (Street, City, County, State and ZIP+4):  
**6400 Hollis St., Suite 12, Emeryville, CA 94608**

7. Complete Mailing Address of Headquarters or General Business Office of Publisher (Not the Office of Publication):  
**6400 Hollis St., Suite 12, Emeryville, CA 94608**

8. Full Name and Complete Mailing Address of Publisher:  
**Hilli Weaver, 6400 Hollis St., Suite 12, Emeryville, CA 94608**

9. Full Name and Complete Mailing Address of Owner:  
**David M. Schwartz, 6400 Hollis St., Suite 12, Emeryville, CA 94608**

10. Full Name and Complete Mailing Address of Known Bondholder, Mortgagee, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities. If none own or hold:  
**None**

11. I certify that the statements made by me above are true and complete.  
*David M. Schwartz* (Signature) *David M. Schwartz* (Name)

# CENTRAL Tape & Disc

## Mastering, Pressing, Tape Duplication and Compact Disc Facilities

**EMC PRODUCTIONS; CDM, CDR, TM, TD; 300 York Ave.; Saint Paul, MN 55101; (612) 771-1555. Contact: Dick Stevens, Paula Jeske.**

**INTERNATIONAL AUDIO INC.; TD; 2934 Malmo Rd.; Arlington Heights, IL 60005; (708) 956-6030. Contact: Paul Mally.**

**JEWEL RECORDS; CDM, CDR, TM, TD, DM, RM; 1594 Kinney Ave.; Cincinnati, OH 45231; (513) 522-9336. Contact: Rick Hopkins**

**THE LITTLE WAREHOUSE INC.; TD; 5505 Valley Belt Rd., Ste. F; Independence, OH 44131; (216) 398-0022; (800) 445-8273. Contact: Joe Kauffman. TAPE DUPLICATION. Method of Duplication: In-cassette and bin-loop. Duplicator: Telex 6120XLP, Telex CD series, Magnafax LBC 82-QT, Magnafax LBC-8BT, Magnafax TM8-FT. Duplicating Speed: 8:1, 16:1, 24:1. Tape Used: Audio: Agta 619, 649, BASF chrome. Video: Ampez, BASF, Maxell. Shell Used: Magnetic Media 5-screw C-O, Shape HG-IV-O. Loading Equipment: King 790, King 2500. Packaging Equipment/Fulfillment Services: Conflex sealer and Weldotron shrink-tunnel. Rates: Quote on request. OTHER. In-house typesetting and printing of labels and inserts. Custom-loaded broadcast quality VHS and a full range of Audiotrack cassettes. Video duplication of 1", 3/4" and 1/2" masters to 3/4" and 1/2" VHS. Blank audio and videocassette labels are available in standard pressure-sensitive and laser formats.**

**MASTER TRACK PRODUCTIONS; CDM, CDR, TM, TD; 1045 W. Bond St.; Lincoln, NE 68521; (402) 474-4985; FAX: (402) 474-2535. Contact: Dan Norton. TAPE DUPLICATION. Method of Duplication: Bin-loop. Duplicator: Lyrec Dolby HxPro. Tape Used: Sunkyong, BASF. Shell Used: ICM, Michalex, Mag Media. Packaging Equipment/Fulfillment Services: On-shell printing, overwrap, full color insert. Rates: Call for price list. COMPACT DISC. Services, prices: Complete compact disc manufacturing including mastering, replication, insert printing and packaging. Call for price information.**

**NATIONAL SOUND CORP.; CDM, DM; 17610 W. Warren; Detroit, MI 48228; (313) 336-3800. Contact: Ron Murphy. OTHER. (2) Scully lathes with Haeco & Westrex cutter heads. Master lacquers and dub cutting of all sizes and speeds, specializing in clubrap. 12" singles including "reverse cut" Studer D740 compact disc recorder for CD reference cuts. Rate card sent on request.**

**QCA; CDM, TM, TD, DM, RM; 2832 Spring Grove Ave.; Cincinnati, OH 45225; (513) 681-8400. Contact: Amber Hines. MASTERING. Mastering Console: Neumann. Tape Machines: MCI, Otari, Sony 1610, Panasonic SV-3500. Noise Reduction: Dolby A, Dolby SR, dbx. Monitor Speakers: UREI 811, Eastern Acoustic Works. Yamaha NS-10M. Digital Editing Systems: Sony DAE 1100 A. Cutting Lathes: Neumann VMS66 with Zuma disc computer. Signal Processing: Sontec parametric EQ, Aphax Compeller, Aphex Dominator, Ortofon Limiter. Engineers: Donnie Kraft. Rates: Call sales department. TAPE DUPLICATION. Method of Duplication: Bin-loop. Duplicator: Ctec Gauss 2400 with Dolby HX Pro. Duplicating Speed: 32:1, 64:1, 128:1. Capacity: 9,000 per day. Tape Used: BASF chrome. Shell Used: ICM, Lenco. Shape Mark 10. Loading Equipment: King 790, 770. Packaging Equipment/Fulfillment Services: Apex printing, 4-color insert printing, packaging and wrap. Rates: Call sales department. COMPACT DISC. Services, prices: Q.C.A. handles complete manufacturing of CD from mastering to final packaging. RECORD MANUFACTURING. Presses: (5) S.M.T. automatic 12" presses, (2) S.M.T. automatic dual 7" presses. Ca-**



**QCA  
Cincinnati, OH**

capacity: 15,000 LPs per day, 15,000 7" per day. Vinyl Used: Keycor E 588. Rates: Call sales department. OTHER. Plating, typesetting, color separation, jacket and sleeve printing, packaging, shrinkwrap.

# RSRT REAL TIME CASSETTE DUPLICATION

by Royal Scanlon

## (800) 776-4096

**RSRT  
Kansas City, KS**

**RSRT; CDM, TM, TD; 4020 State Line; Kansas City, KS 66103; (800) 776-4096; (913) 262-5335; FAX: (913) 262-5364. Contact: Royal Scanlon, Dan Shanks. MASTERING. Mastering Console: Soundcraft. Tape Machines: (2) Otari MTR-12, (2) Tascam BR-20, Tascam DA-30, Panasonic SV-3700. Noise Reduction: Dolby SR, Dolby A, dbx type I. Monitor Speakers: Yamaha NS-10M, Fostex LS2B, EAW MS-50. Digital Editing Systems: (Spring 1992) Digidesign ProTools system. Signal Processing: All standard outboard gear. Engineers: Royal Scanlon, Larry (ElJay) Johnson. Rates: Editing, sweetening and remastering \$60 per hour + materials, straight transfer time \$45 per hour + materials. TAPE DUPLICATION. Method of Duplication: In-cassette and bin-loop. Duplicator: (104) modified KABA system, Nakamichi MR-1, Magnafax 1x7. Duplicating Speed: Real time, double time and high speed. Capacity: 7,200 (2x) C-45 per day, 3,600 real time C-45 per day. Tape Used: BASF chrome, BASF LHD normal (others run upon request). Shell Used: Clear (All types available). Loading Equipment: Concept Design CD-9000. Packaging Equipment/Fulfillment Services: Complete fulfillment services available. Rates: Supplied upon request. COMPACT DISC. Services, prices: Supplied upon request. OTHER. "ElJay" has been Johnny Cash's F.O.H. mix engineer for the past 11 years. Royal Scanlon has worked as a recording artist and engineer for the past 26 years. RSRT's stringent quality control and attention to detail is well-known throughout the U.S.A.**

**RICHARDSON TAPE; TD; HC71, Box 231; Mountain View, AR 72560; (501) 269-3908. Contact: Aubrey Richardson. MASTERING. Tape Machines: Otari. Crown, Technics Digital, Panasonic R-DAT, Sony R-DAT. Noise Reduction: dbx, Dolby. Monitor Speakers: EV. Signal Processing: Aphex Type C, BBE, DOD Electronics EQ, UREI LA-3A. TAPE DUPLICATION. Method of Duplication: In-cassette. Duplicator: Nakamichi MR-2 (102 decks). Duplicating Speed: Real-time 1 7/8. Capacity: 1,500 C-30s per shift. Tape Used: BASF, Magnetic Media. Shell Used: Magnetic Media, Lenco. Loading Equipment: King, Superscope. Packaging Equipment/Fulfillment Services: Ciamco, APS. Rates: On request we do small orders (under 500). OTHER. Services from blank audio cassettes to full color packages—with direct-to-cassette printing, we also do small quantity demos.**

**SONIC SCULPTURES; CDM, CDR, TM, TD, DM, RM; 636 Northland Blvd.; Cincinnati, OH 45240; (513) 851-0055. Contact: Lan A. Ackley.**

# MASTERWORK Recording Inc.

• ANALOG & DIGITAL MASTERING SERVICES  
• MAJOR LABEL CUSTOM MANUFACTURING  
• COMPACT DISC RECORDS CASSETTES  
• REAL TIME CASSETTE DUPLICATION

1020 N. Delaware Avenue.  
Philadelphia, Pa. 19125  
(215) 423-1022 / FAX (215) 423-6020



SUN SOUND AND VIDEO; *TM, TD*. Box 7500; Collegeville, MN 56321; (612) 363-3384; FAX: (612) 363-3299. Contact: Mary Groethe or David Markfort.

TERRA NOVA DIGITAL AUDIO; *CDM, TM*. 2111 Dickson #18; Austin, TX 78704; (512) 326-5553. Contact: Jerry or Diane Tubbs.

VAUGHN DUPLICATION SERVICES; *TD*. 7951 Computer Ave. S.; Minneapolis, MN 55435; (612) 832-3150; (800) 323-0281. Contact: Cindy Verant.

WORLD CLASS TAPES; *TM, TD*. 670 Airport Blvd.; PO Box 7611; Ann Arbor, MI 48107; (313) 662-0669. Contact: Rob Martens.

BASFTP-18, QP 12, Sunkyong UCR-60, 90, SKX60, 90. **Shell Used:** Mainly Lenco. **Loading Equipment:** (8) Concept Designs modified King 775, (2) Modified King 790. **Packaging Equipment/Fulfillment Services:** Apex inserting machine, O&M folder machine, Scandia 607 shrinkwrapper, Shanklin "L" sealer, Weldtron "L" sealer. **COMPACT DISC Services, prices:** Complete CD packages from mastering, pressing, graphic filmwork and printing, CD Reference Discs. **RECORD MANUFACTURING. Rates:** Available. **OTHER.** Graphic creation, filmwork, printing, warehouse order fulfillment, mail fulfillment, special assemblies, posters and mailers.

TM century  
Inc.

TM CENTURY  
Dallas, TX

WMG, Inc.

WORLD MEDIA GROUP INC.  
Indianapolis, IN

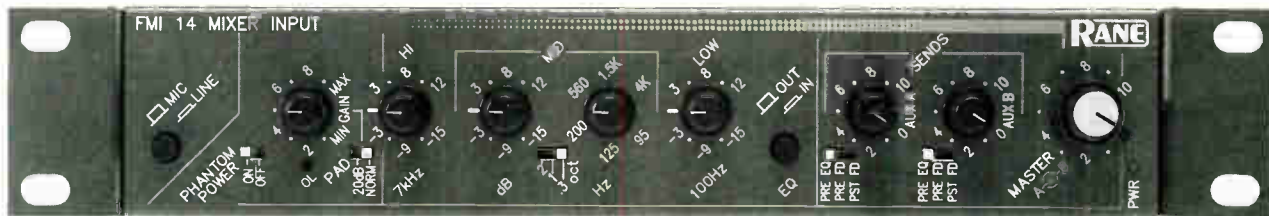
TM CENTURY; *CDM*. 14444 Beltwood Parkway; Dallas, TX 75244; (800) 937-2100; (214) 934-2121; FAX: (800) 749-2121. Contact: Gary Hollis, digital studios manager. **MASTERING. Mastering Console:** Sony MXP-2000, Yamaha DMP70. **Tape Machines:** Sony PCM-3202 DASH, (2) PCM-1630 DRM 4000, (3) Sony 2500 Pro DAT, Sony 501. **Noise Reduction:** Dolby A, Dolby SR, dbx. **Monitor Speakers:** JBL 4410, Yamaha NS-10M. **Digital Editing Systems:** (3) Sonic Solution with "No-Noise" Cutting Lathes: Sinc Solutions, Sony CD 1-OFF (WORM) system. **Signal Processing:** Yamaha DMP7D. **Engineers:** Gary Hollis, Ed Johnson, John Parthou, Del Anderson, Ryan Reid. **Rates:** Digital studio, \$150 per hour. No-Noise processing \$100 per finished minute. **OTHER.** Complete CD packages available, also custom CD 1-off service, digital sound effects library, in-house MIDI production studio, short-run and large-quantity CD projects accepted.

WORLD MEDIA GROUP INC.; *CDM, CDR, TM, TD, DM, RM*. 8472 Brookville Rd.; Indianapolis, IN 46239; (317) 353-1113. Contact: Andrew Symons, Jeff Mellentine. **MASTERING. Tape Machines:** Studer A-80 1/2 with HX Pro Otari MTR-12 1 4" half-track, Tascam 122 MkII, Nakamichi MR-1B, (2) Panasonic SVR-3500 DAT, SVR-3700 DAT, Sony 601 processor w/VHS & Beta machine. **Noise Reduction:** Dolby A, Dolby SR, Dolby B, dbx type 1. **Monitor Speakers:** UREI 809 with Carver PM-175. **Signal Processing:** Klark Teknik DN410 parametric EQ, Drawmer M500 dynamics processor, Barcus Berry BBE442, (2) dbx 263X de esser. **Engineers:** Andrew Symons, Steve Crearh, Nancy Matter. **TAPE DUPLICATION. Method of Duplication:** Bin-loop. **Duplicator:** Gauss 1200 1/2" master, (7) Gauss 1200 slaves, Gauss 1200B QC machine, Lyrec P-4400 bin w/(2) P-2600 twin slaves. **Duplicating Speed:** Gauss 64:1, Lyrec 33/4=80:1, 71.2=64:1. **Capacity:** 700,000 monthly. **Tape Used:**

## Want More Information?

The advertisers in *Mix* are happy to supply readers with additional information about the products and services advertised in this issue. To receive more information, just circle the appropriate numbers on the Reader Service Card on page 168.

# "SHORT CUT TO PURITY"

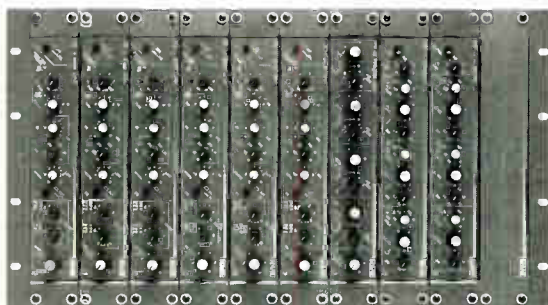


The Flex Series FMI 14 Microphone Preamplifier is simply the shortest path to the cleanest, purest recordings—digital or analog. This compact module offers the kind of serious features found on big consoles, but without the extra circuitry, switching and long routing lines.

Features like an ultra-low noise/low distortion mic preamp stage, 48V phantom, our patented Accelerated Slope™ EQ, fully assignable aux sends, external power supply and the new HR format.

More leading recording engineers are taking advantage of the minimum coloration and maximum performance flexibility found only with the FMI 14. From the Flex Series...pure and simple.

RANE CORPORATION 10802-47th Ave. W., Mukilteo, WA 98275. (206) 355-6000



**PREMIUM  
CASSETTE & CD  
MANUFACTURING**



A Division of SIA, Inc.

Nashville, Tennessee

**A Full Service Manufacturing Facility**

- Custom Packaging —
- Typesetting & Art Department —

Call for information:  
**1-800-458-7756**

IN TENNESSEE CALL: 615-244-3535  
FAX: 615-255-3882

Serving the Audio Industry for over 22 years.

*to care enough to  
Sound  
the very best*

- Cassettes of CD-Like Quality on Otari DP-80 w/HX Pro
- Chrome & Ferric Duplication
- Digital & Analog Mastering
- Graphic Design & Printing
- Apex Direct Imprinting
- Full Color Caseliners
- Compact Discs

**CREATIVE  
SOUND**  
HOUSTON

P.O. Box 720941, Houston, TX 77272

**1-800-451-7034**

**WESTERN**

**Mastering,  
Pressing,  
Tape  
Duplication  
and  
Compact  
Disc  
Facilities**

**Tape  
& Disc**

**LEGEND**

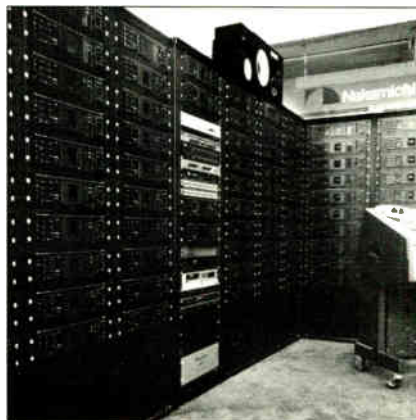
CDM: CD Mastering/  
Premastering  
CDR: CD Replication  
TM: Tape Mastering  
TD: Tape Duplication  
DM: Disc Mastering  
RM: Record Mastering

**A&M POST-PRODUCTION; TD:** 1416 N. La Brea Ave.; Hollywood, CA 90028; (213) 856-2797; FAX: (213) 856-2712. Contact: Bill Lazerus.



**A&M MASTERING STUDIOS**  
Hollywood, CA

**A&M MASTERING STUDIOS; CDM, TM, DM:** 1416 N. La Brea Ave.; Hollywood, CA 90028; (213) 856-2775; FAX: (213) 856-2600. Contact: Sandi Johnson. **MASTERING. Mastering Console:** A & M custom discrete transformerless. **Tape Machines:** Mastering deck, modified MCI deck, custom elec., ATR-102, Yamaha K2000. **Noise Reduction:** A&M custom transformerless discrete rack, Dolby A, SR, dbx. **Monitor Speakers:** Tannoy 15" drivers with A&M custom cabinets and crossovers. **Digital Editing Systems:** Sony digital editor, DMR 4000, 1630. **Cutting Lathes:** Modified Scully with custom discrete electronics, modified Westrex head. **Signal Processing:** Digital Harmonia Mundi Acustica, analog Sontec, API, UA, Aphex, dbx.



**AAPEX TAPE DUPLICATION**  
San Rafael, CA

—LISTING AND PHOTOLOGO CONTINUED TOP OF NEXT COLUMN

**AAPEX TAPE DUPLICATION; TD:** 28 Paul Dr., Ste. E; San Rafael, CA 94903; (415) 492-1300. Contact: Devon Hulatt. **MASTERING. Tape Machines:** Sony Beta VCR and Quazar VCR, Panasonic SV-3500 DAT, Otari MTR-12.2 track (7.5, 15 or 30 ips). **Noise Reduction:** Dolby A or SR or dbx I (master), Dolby B or C (cassette). **Monitor Speakers:** JBL. **Signal Processing:** Sony PCM-501ES digital processor, Aphex Compellor, Aphex Aural Exciter type B, Yamaha 3-d-octave equalizer. **Engineers:** Keith Bender, Denis Hulet. **TAPE DUPLICATION. Method of Duplication:** In-cassette. **Duplicating Speed:** 1:1 real time only. **Capacity:** 1,500/day. **Tape Used:** BASF CR02, Agfa 649 normal. **Shell Used:** Quality 5-screw clear, black or white shell. **Shape Mark 10** (upon request). **Packaging Equipment/Fulfillment Services:** X-Rite shrink-wrap machine, Auto-label automatic labeler. **Rates:** Upon request, please call. **OTHER.** Sonic enhancement, analog-to-digital mastering, full graphic design and printing services offered. Full mixing, mastering and recording at our 24-track recording studio, Banquet Sound Studio.

**AAZTEC RECORDING AND TAPE DUPLICATING INC.;** TD: 1110 E. Missouri, Ste. 400; Phoenix, AZ 85014; (602) 279-0808. Contact: Ron Briskman.



**AUDIOPHILE QUALITY CASSETTES  
DUPLICATED ON THE KABA SYSTEM**

**ABBEY TAPE  
DUPLICATORS, INC**  
Chatsworth, CA

**ABBEY TAPE DUPLICATORS, INC.;** TM, TD: 9525 Vassar Ave.; Chatsworth, CA 91311; (818) 882-5210. Contact: Bill Snow. Norman Cooke. **MASTERING. Mastering Console:** Tascam. **Tape Machines:** MCI, Ampex, Nakamichi F-1, Panasonic R-DAT, Technics, Sony. **Noise Reduction:** dbx, Dolby. **Monitor Speakers:** JBL. **Signal Processing:** UREI, Kepex, Aphex. **Engineers:** Rudy Menart (Chief), Boris Menart, Dave Steele. **Rates:** \$48/hour. **TAPE DUPLICATION. Method of Duplication:** In-cassette and bin-loop. **Duplicator:** Duplicators 24-slave (bin-loop), KABA 50 slave (real time). **Duplicating Speed:** 36 ips and real time. **Capacity:** 5,000/day. **Tape Used:** BASF-LHD, BASF-chrome. **Shell Used:** 5-screw white, black or clear. **Loading Equipment:** King 790s. **Packaging Equipment/Fulfillment Services:** ITI labeling, Rolif-Dex imprinting, shrinkwrapping, albums, individual mailing. **OTHER.** Complete narration studio and audio production facilities, editing, sequencing, equalizing, mixing. Video duplication. Reliable personal service for over 22 years.



**ALSHIRE INTERNATIONAL INC.;** CDM, CDR, TM, TD, DM, RM; 1015 Isabel St., PO Box 7107; Burbank, CA 91510; (213) 849-4671; (818) 843-6792; FAX: (818) 569-3718. Contact: Al Sherman, Richard Sherman

**ARTISAN SOUND RECORDERS;** CDM, TM, DM, 1500 N. Wilcox Ave.; Hollywood, CA 90028; (213) 461-2751. Contact: John Austin.



**AT&T RECORDING/DUPLICATING**  
Los Angeles, CA

**AT&T RECORDING/DUPLICATING;** TM, TD; 501 N. Larchmont Blvd.; Los Angeles, CA 90004-1305; (213) 464-9000; FAX: (213) 467-6615. Contact: Kathy Van Boover. **MASTERING.** Mastering Console: Ramsa. **Tape Machines:** Studer 1/4", Otari 1/2" 8-track, Scully 1/2" 4-track, Sony DAT 2500, Panasonic DAT 3500. **Noise Reduction:** dbx, Dolby. **Rates:** \$80/hour + materials. **TAPE DUPLICATION.** Method of Duplication: In-cassette and bin-loop. **Duplicator:** (94) KABA real-time decks, (10) Nakamichi real-time, high speed cut of-cassette duplication; 16x speed. **Duplicating Speed:** Real time, 2:1, 16:1. **Tape Used:** Agfa 649, 647, 9:9, 947 for cassette; Agfa 468 for masters. **Shell Used:** Shagex Mark 10 Magnetic Media. **Loading Equipment:** King. **Rates:** Competitive rates. Call for quotation. **OTHER:** Label printing, packaging, shrink-wrapping.

**AUDIO CASSETTE DUPLICATOR CO.;** TM, TD; 12426 1/2 Ventura Blvd.; Studio City, CA 91604; (818) 762-ACDC. Contact: Steve Mitchell or Steve Katz.



**AUDIOPHILE QUALITY CASSETTES  
DUPLICATED ON THE KABA SYSTEM**

**BAUER COMMUNICATIONS INC.**  
North Hollywood, CA

**BAUER COMMUNICATIONS INC.;** TM, TD; 6887 Farmdale Ave., Bldg. 12; North Hollywood, CA 91605; (800) 627-7277. Contact: Jim Baue. **MASTERING.** Mastering Console: Soundcraft. **Tape Machines:** Nagra T Audio, Ampex, Technics. **Noise Reduction:** Dolby, dbx, Burwen, SAC. **Monitor Speakers:** Yamaha, Nestorovic. **Signal Processing:** UREI, Dolby, dbx, Burwen, Aphex, Modulation Sciences, Lexicon, Sony, Boulder. **TAPE DUPLICATION.** Method of Duplication: In-cassette. **Duplicator:** Modified KABA w/8 positions. **Duplicating Speed:** Real time. **Tape Used:** BASF chrome. **Shell Used:** EMC/Group. **Loading Equipment:** TTL. **Packaging Equipment/Fulfillment Services:** WrapMaster. **Rates:** In quantities of 100 C-30=\$1.58, C-60=\$2.31, C-90=\$3.14 (other quantities and enclosures available). **OTHER:** S/Tor runs (\*2 to 5,000) requiring fast turnaround and audiophile quality are our specialty, utilizing state-of-the-art mastering equipment and real-time duplication. In-studio labels and shrinkwrap done in-house for immediate turnaround. We emphasize personalized service, 24-hour turnaround and available. Bauer Communications is now also selling the world's finest audio transformers formerly marketed through Jensen Transformers.

**BONNEVILLE COMMUNICATIONS;** CDM, TM, TD; 130 Social Hall Ave.; Salt Lake City, UT 84111; (801) 237-2619. Contact: Tim Dool, vice president, production.



**CAPITOL RECORDS STUDIOS**  
Hollywood, CA

**CAPITOL RECORDS STUDIOS;** CDM, CDR, TM, TD, DM, RM; 1750 N. Vine St.; Hollywood, CA 91355; (213) 871-5001. Contact: Docken Polk (production supervisor). **MASTERING.** Mastering Console: Neve, Sony, Studer. **Tape Machines:** Studer, Sony 1630, Mitsubishi X-86 IIS. **Noise Reduction:** Dolby A/SR. **Monitor Speakers:** JBL custom. **Digital Editing Systems:** Sonic Solutions. **Sony DAE 3000.** **Cutting Lathes:** Neumann SAL 74B with Zuma computer. **Signal Processing:** Harmonia Mundi, Sontec EQ, NTP EQ, Sonic Solutions. **Engineers:** Wally Traugott, Ron McMaster, Larry Walsh, Odean Murphy, Kevin Reeves, Bob Norberg. **Rates:** Call for pricing and information. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicator:** Capitol, Gauss. **Duplicating Speed:** 80:1, 40:1. **Capacity:** Millions per year. **Tape Used:** Various manufacturers. **Shell Used:** Capitol. **Loading Equipment:** Tapematic, Tacos. **Packaging Equipment/Fulfillment Services:** Apex. **Rates:** Custom, please call. **COMPACT DISC.** Services, prices: CD pressing, artwork, printing, packaging, graphics. Prices: custom—please call. **OTHER:** At the Capitol mastering facilities in Hollywood we will provide CD pre-mastering, EQ and PQ encoding, CD reference discs, cassette mastering for duplication, reference/master lacquers, cassette copies, DAT copies. Credits: Richard Marx, Julio Iglesias, Kenny Rogers, Lee Ritenour, Dwight Yoakam, Stryder, Shalamar, The Whispers, The Bangles, Crowded House, and many more.

**CASSETTE PRODUCTIONS;** TM, TD; 4910 W. Amelia Earhart Dr.; Salt Lake City, UT 84116; (800) 622-6036. Contact: Marvin Curtis.

**CMS DIGITAL INC.;** CDM, CDR, TM, DM; 182 S. Raymond Ave.; Pasadena, CA 91105; (818) 405-8002. Contact: Diana Mundy.

**COMMAND PRODUCTIONS;** CDM, TM, TD; 107 Industrial Center Bldg., Harbor Dr.; Sausalito, CA 94965; (415) 332-3161. Contact: Warren Weagant.

**CUSTOM DUPLICATION INC.;** CDR, TD; 3404 Century Blvd.; Inglewood, CA 90303; (213) 670-5575. Contact: Rick Hively. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicator:** Otari, Gauss. **Duplicating Speed:** 64:1. **Capacity:** 100,000 C-45 per day. **Tape Used:** Agfa, BASF. **Loading Equipment:** King. **COMPACT DISC.** Services, prices: Printing, duplication, packaging, fulfillment, inventory control. **OTHER:** Warehousing, fulfillment, packaging, printing, inventory control. A total turnkey service.

**DAVKORE CO.;** TM, TD; 1300-A Space Park Way; Mountain View, CA 94043; (415) 969-3030. Contact: Tom Sherry, Jeanne Horan.

**DIFFERENT FUR RECORDING;** CDM; 3470 19th St.; San Francisco, CA 94110; (415) 864-1967. Contact: Susan Skaggs.

**DIGIPREP;** CDM; 1425 N. Cole Pl.; Hollywood, CA 90028; (213) 461-1709; FAX: (213) 461-8890. Contact: Warren Salyer.

**DIGITAL BROTHERS;** CDM, CDR, TM, TD; 1125 Victoria St., Unit C; Costa Mesa, CA 92627; (714) 645-9702. Contact: Bryan Shaw, Ben Shaw.

**DISC MANUFACTURING INC.;** CDR; 3500 W. Olive Ave., Ste. 1020; Burbank, CA 91505; (818) 953-7790; FAX: (818) 953-7791. Contact: Sue Simone, VP sales.

**FANTASY STUDIOS MASTERING;** CDM, CDR, TM, TD, DM, RM; 10th & Parker Streets; Berkeley, CA 94710; (510) 549-2500. Contact: George Horn. **MASTERING.** Mastering Console: Sony SDP-1000 digital console. **Tape Machines:** Sony 1630, Mitsubishi X-86C, Studer A80. **Noise Reduction:** All  
—LISTING CONTINUED ON NEXT PAGE

ANSWERS TO  
YOUR SOUND  
RECORDING  
PROBLEMS!

# SHAPING YOUR SOUND

A Five Videotape Series Filled With Real Life Solutions to the Recording and Mixing Problems You Face Everyday.



- SHAPING YOUR SOUND WITH MIXERS AND MIXING
- SHAPING YOUR SOUND WITH MULTITRACK RECORDING
- SHAPING YOUR SOUND WITH EQUALIZERS, COMPRESSORS AND GATES
- SHAPING YOUR SOUND WITH REVERB AND DELAY
- SHAPING YOUR SOUND WITH MICROPHONES

Dozens of demonstrations, animated sequences and live music examples in hi-fi stereo make each tape a powerful learning and reference tool.

"SHAPING YOUR SOUND can do what no book on the subject has ever been able to accomplish." — MIX MAGAZINE

For information write or call toll free:

**First Light Video Publishing**  
8536 Venice  
Los Angeles, CA 90034  
(800) 777-1576

## Professional Audio for the Northwest United States

# AUDIO Images

- \*Audio for Film and Video
- \*Multi-Track Recording
- \*Digital Audio Workstations
- \*Sound Reinforcement
- \*Computer Music Systems
- \*Tape and Accessories

70 Oak Grove Street  
San Francisco, California 94107  
Tel: (415) 957-9131  
Fax: (415) 957-1531

550 Mercer Street, Suite 130  
Seattle, Washington 98109  
Tel: 285-9680  
Fax: 283-9744

Davis Business Center  
4370 N.E. Halsey Street  
Portland, Oregon 97213  
Tel: (503) 295-5948  
Fax: (503) 386-4062



# NEW CD RELEASE

## cafe noise

Cafe Noise's  
provocative sound  
captures the true  
essence of cafe  
ambience.

Available through:  
**Bonardi & Associates**  
20 Sunnyside Ave., Suite A108  
Mill Valley, CA 94941  
Tel 415-435-2759  
FAX 415-381-2084



### Orders... Large or Small, We Have It All!

All models of RECORDING PRODUCTS in  
stock. Wholesale distributors of:

**AMPEX • 3M • BASF • SONY • MAXELL**

- Broadcast video tape
- Assorted reels and boxes
- Splicing/leader tape
- Prepackaged cassettes
- We load bulk cassettes in custom lengths boxes
- We provide stock monitoring services at no charge

Call or write for FREE catalog

In California toll free **(800) 854-1061**  
(619) 277-2540 or Fax (619) 277-7610

**Advance Recording Products**  
7190 Clairemont Mesa Blvd  
San Diego, CA 92111

Visa and Mastercard accepted  
WHOLESALE DISTR

# WESTERN Tape & Disc

## Mastering, Pressing, Tape Duplication and Compact Disc Facilities

—LISTING CONTINUED FROM PREVIOUS PAGE  
types. **Monitor Speakers:** Hidley. **Digital Editing Systems:** Mitsubishi. **Cutting Lathes:** Neumann. **Signal Processing:** Sony digital. **Engineers:** George Horn, Phil De Lanue. **Rates:** Call for rates.

**FDSL LABORATORIES INC.;** CDM, TM, DM; 4007 W. 6th St.; Los Angeles, CA 90020; (213) 383-2155; FAX: (213) 383-2158. Contact: Harx Warring, Paul Delliquadri.

**FUTURE DISC SYSTEMS INC.;** CDM, TM, DM; 3475 Cahuenga Blvd. W.; Hollywood, CA 90068; (213) 876-8733; FAX: (213) 876-8143. Contact: Susan West.

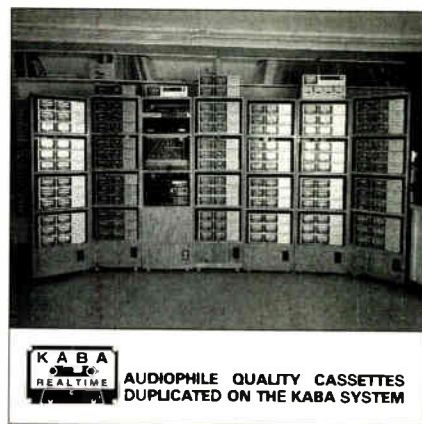
**GOOD VIBRATIONS RECORDING AND PRODUCTION CO.;** CDM, CDR, TM, TD, FM; PO Box 764; Bonita, CA 91908; (619) 267-0307; FAX: (619) 267-0307. Contact: Don Marshall, Karl Fitch. **MASTERING:** Tape Machines: Sony R-DATs. **Monitor Speakers:** Akai MS200. **Digital Editing Systems:** Digidesign Sound Tools/Macintosh Icx/600 MB hard drive. **Signal Processing:** B.A.S.E. (Bedini Aud o Spatial Environment), digital EQ, digital mixing. **Engineers:** Don Marshall, John Hendrickson. **Rates:** \$40/hr. (editing); \$350 (pre-mastering). **TAPE DUPLICATION.** Method of Duplication: In-cassette. **Duplicator:** KABA, Otari. **Duplicating Speed:** Real-time, double-time, high-speed (x1). **Capacity:** 34 :lates. **Tape Used:** BASF chrome, BASF LDH, Ampex. **Shell Used:** Mchilex, Magnetic Media, Lencro. **Rates:** Various rates based on quantity and mode of duplication. **COMPACT DISC Services,** prices: Analog-to-digital mastering; digital editing; typesetting and printing of CD brochures, tray card, CD labeling. Minimum 500, price for 1,000—\$2.80 each complete. **OTHER.** Cassette J-cards: 4 color (1,000); \$195 includes color separation.

**GRD/INVINCIBLE RECORDING;** TD; 2323 E. Magnolia, Ste. 119; Phoenix, AZ 85034; (602) 275-2101. Contact: Michael Good.

**BERNIE GRUNDMAN MASTERING;** CDM, TM, DM; 6054 Sunset Blvd.; Hollywood, CA 90028; (213) 465-6264; FAX: (213) 465-8367. Contact: Nickie Walters.

**JACKSON SOUND PRODUCTIONS;** TD; 3897 S. Jason St.; Englewood, CO 80110; (303) 761-7940; (800) 623-6773. Contact: Linda Camp-Rodriguez. **MASTERING.** Mastering Console: Custom Spectra-Sonic. **Tape Machines:** Studer A-80 1/2", 3M 1/2" & 1/4" (3M79), Sony PCM-2500 A. **Noise Reduction:** Dolby E, dbx. **Monitor Speakers:** JBL 4311. **Signal Processing:** Orban, RCA, UREI, Bercus-Bary, dbx, EBS, Furman. **Engineers:** Doug Brand. **Rates:** \$50 per hour. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicator:** Gauss 2400 Series duplication system with Dolby HXPro. **Duplicating Speed:** 96 to 1 music, chrome and normal; 128 to 1 voice. **Capacity:** 10,000 per shift. **Tape Used:** BASF, Mag Media. **Shell Used:** Mag Media. **Loading Equipment:** King 790s, Tapemate. **Packaging Equipment/Fulfillment Services:** Full service, imprinting, inserts, cackages, shrink-wrap. **Rates:** Competitive quotes upon request. **OTHER.** Jackson Sound Productions: Ltd., in business for 27 years, has just completed a major expansion, including a new Gauss 2400 Duplicator, widely considered the most advanced equipment in the industry. With the ability of complete packaging, we offer the most competitive prices and the best service in the Midwest. Call us for your next project at (800) 621-6773.

**KABA AUDIO PRODUCTIONS;** CDM, CDR, TM, TD; 24 Commercial Blvd.; Novato, CA 94949; (415) 883-5041; (800) 231-TAPE; FAX: (415) 883-KABA. Contact: Tom Lynn, sales manager; Nate Hazing, Ted Stratton. **MASTERING.** Mastering Console: Specially designed. **Tape Machines:** KABA. —LISTING AND PHOTO-LOGO CONTINUED TOP OF NEXT COLUMN



**KABA AUDIO PRODUCTIONS**  
Novato, CA

Nakamichi, Sony DAT. **Noise Reduction:** Dolby A, B, SR, Dynafex. **Monitor Speakers:** JBL, Tannoy, Yamaha NS-10. **Digital Editing Systems:** Studer Dyaxis 2+2, DigiDesign ProTools. **Signal Processing:** Aphex Dominator, Orban Copercator, Aphex Compellor, Klark-Teknik Graphic Equalizer. **Engineers:** Gordon Elliott, Margaret Olney, Ted Stratton, Tom Anderson. **Rates:** Call for estimate. **TAPE DUPLICATION.** Method of Duplication: In-cassette, bin-loop, direct from digital. **Duplicator:** KABA audiophile quality cassette duplication system—100 positions. **Duplicating Speed:** Real time 1:1 - Double time 2:1, 16:1 and 32:1. **Capacity:** 80,000 to 100,000 per month. **Tape Used:** BASF, Agfa, Sunkyong, TDK. **Shell Used:** Mchilex, EMC, Shape, Elmar, Lenco. **Loading Equipment:** AEG. **Packaging Equipment/Fulfillment Services:** Kent Padprinter, Roldex printer, ITT cassette labeler and Pack-All shrinkwrap. **Rates:** Call for estimate. **COMPACT DISC Services,** prices: Complete packages from 500 and up. Call for estimate. **OTHER.** Audiophile cassette copies using the KABA 4-track real-time system with the Studer and Digidesign digital workstations. Complete packaging and graphics capabilities with on-cassette printing, J-cards, O-cards and multi-cassette albums. Cassette/CD combo packages available. Very personalized service, estimates while you wait.

**KDISC MASTERING;** CDM, TM, DM; 6550 Sunset Blvd.; Hollywood, CA 90028; (213) 466-1323; FAX: (213) 466-7237. Contact: Julie Kruger, office manager.

**TERRY LESSIG SOUND;** TD; 1626 N. 7th St.; Phoenix, AZ 85006; (602) 255-0155. Contact: Terry W. Lessig. **MASTERING.** Tape Machines: Otari MTR-10. **Noise Reduction:** Dolby 330 B. **Monitor Speakers:** JBL 4311. **Signal Processing:** Aphex Dominator, Valley People Gain Brain II. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicator:** Magnetax LB-72, seven-slave mono duplicator. **Duplicating Speed:** 24:1 mono and stereo. **Capacity:** 50,000 units per month. **Tape Used:** BASF chrome, 649, 619. **Shell Used:** Lenco. **Loading Equipment:** (2) Concept Design 775. **Packaging Equipment/Fulfillment Services:** On-shell imprinting, cellophane overwrap. **Rates:** Prices quoted on length and quantity. **OTHER.** Open-reel 1/4-inch duplication for broadcast programming and spot syndication. Specialist in high-quality acoustic music duplication, books-on-tape duplication and quick-turnarounds for monthly subscription cassettes.

**LOCATION RECORDING SERVICE INC.;** CDM, DM; 2201 W. Burbank Blvd.; Burbank, CA 91506; (213) 849-1321. Contact: Shari Fraiberg, general manager. **MASTERING.** Mastering Console: (2) Neumann SP79, Neumann MT66. **Tape Machines:** (4) Studer A80 Mk II 1/4" and 1/2", (3) Studer B57, (4) Nakamichi MR-1, Sony PCM-1630, (2) DMR 4000. **Noise Reduction:** Dolby SR, A, dbx type I. **Monitor Speakers:** UREI B11-A, Studer A68 amps. **Cutting Lathes:** (3) VMS-70 with SAL-74 amps, SX74 heads. **Signal Processing:** Sontec Mes 430, EMT 240 plates, Yamaha REV5, UREI 1178 limiters. **Engineers:** Bruce Kennedy, David Ellsworth, Kevin Gray. **Rates:** \$95/hour analog, \$150/hour digital. 12-inch LP \$105/ side, 1630 CC submaster \$400, CD clones \$180. **OTHER.** Complete printing services: record labels, jackets, CD inserts and tray cards, cassette J-cards, commercial printing, complete record production.

## Frustrated with owners manuals?

Get a free copy of the Mix Bookshelf catalog, which features tips and techniques books for equipment by Roland, Alesis, Yamaha, Casio, Korg, Ensoniq, Kawai, Kurzweil, Oberheim and E-Mu. Call toll-free (800) 233-9604 and ask for your free copy.



*Martin  
AudioGroup*

FULL-SERVICE CASSETTE DUPLICATION &  
COMPACT DISC MANUFACTURING



AUDIOPHILE QUALITY CASSETTES  
DUPLICATED ON THE KABA SYSTEM

MARTIN AUDIO GROUP  
Seattle, WA

**MARTIN AUDIO GROUP;** CDM, CDR, TM, TD: 1200 Westlake Ave. N., Ste. 414; Seattle, WA 98109; (206) 784-0139. Contact: Scott Olsen. **MASTERING. Tape Machines:** Panasonic 3700, Otari 15 ips/30 ips. **Noise Reduction:** Dolby SR. **Digital Editing Systems:** Spectral multitrack hard drive system. **Signal Processing:** Parametric and graphic EQ. **Engineers:** Bob Boeck. **Rates:** \$50-\$65 per hour. **TAPE DUPLICATION. Method of Duplication:** In-cassette. **Duplicator:** KABA real time, digital hard drive master, 50 slaves. **Duplicating Speed:** 1:1 and 2:1. **Capacity:** 44,000/month. **Tape Used:** BASF chrome, BASF cobalt. **Shell Used:** Shape. **Packaging Equipment/Fulfillment Services:** Manual. **Rates:** 1,000 pieces C-45; real time—\$1.11; double time—\$0.94. **COMPACT DISC. Services, prices:** Exclusive dealer for American Helix. Full service, manufacturing of all parts. **OTHER.** Graphics dept., design and typesetting. Full color printing, J-card, O-card, CD book and tray. Project management.

**MASTER TRACK PRODUCTIONS;** CDM, CDR, TM, TD: 1524 W. Winton Ave.; Hayward, CA 94545; (510) 782-0877; FAX: (510) 782-6280. Contact: Sandi Larson. **TAPE DUPLICATION. Method of Duplication:** Bin-loop. **Tape Used:** Sunkyoung. **Shell Used:** ICM, Michelex, Magnetic Media. **Packaging Equipment/Fulfillment Services:** On-shell printing, overwrap, full-color inserts. **Rates:** Call for detailed price list. **COMPACT DISC. Services, prices:** Complete compact disc manufacturing including mastering, replication, insert printing and packaging. Call for price information. **OTHER.** Complete 24-track recording studio. Custom MIDI service.

**THE MASTERING LAB;** CDM, TM, DM: 6033 Hollywood Blvd.; Hollywood, CA 90028-5492; (213) 466-8589. Contact: Shannon Ahern, studio manager; Doug Sax, owner.

**MELODY PRODUCTIONS;** TM, TD: 7712 23rd Ave. NW; Seattle, WA 98117; (206) 783-8694; FAX: (206) 781-1765. Contact: James A. Bostad Sr., CEO. **TAPE DUPLICATION. Method of Duplication:** In-cassette and DAT. **Duplicator:** Nakamichi MR-2B, Otari 4050 Cassette to Cassette and 1/4" 7.5 on 15 ips to cassette. **Duplicating Speed:** 1:1 and 8:1. **Capacity:** 480/day real time and 1,750/day high speed. **Tape Used:** Full line BASF studio products (LNS, LHD, CRO, Super chrome and "New" COFFE tape). **Shell Used:** Shape Mark-10, Michelex, Lenco, Magnetic Media and MPC. **Loading Equipment:** Exclusively King 790s. **Packaging Equipment/Fulfillment Services:** Seal-A-Thon. **Rates:** Call for rates. **OTHER.** Full audio services, from mixing to mastering in our 8-track studio, to custom loading of cassettes, to duplication and pad printing, J-cards and shrinkwrapping. Included in our production studio is a video editing suite, with effects and duplication from 1/2" or 3/4". Credits: soundtracks and endless cassettes for international exhibits and museums. New for '92—full line of BASF studio products.

Mix Bookshelf Catalog

We pick the best  
and leave the rest.

Call for your free copy of the very  
best selection of instructional book,  
video and tape courses for the pro audio  
and music recording industry.  
(800) 233-9604



MUSIC ANNEX DUPLICATION  
Fremont, CA

**MUSIC ANNEX DUPLICATION;** CDM, CDR, TM, TD: 42650 Christy St.; Fremont, CA 94538; (510) 226-0800. **MASTERING. Mastering Console:** Custom (Neve components). **Tape Machines:** Otari, MCI, various DAT. **Noise Reduction:** Dolby B, C, S type, Dolby HxPro. **Monitor Speakers:** Westlake JBL. **Digital Editing Systems:** Studer/Dyaxis. **Signal Processing:** Focusrite, Drawmer, Apogee, Aphex Dominator, BBE. **Engineers:** Ramer Gembalczyk, Pall Grondal, Lambert Woo. **TAPE DUPLICATION. Method of Duplication:** Bin-loop. **Duplicator:** Otari DP-80 (6 slaves), Electro Sound 8,000 and (6) 4800 model slaves. **Duplicating Speed:** 40:1, 64:1, 80:1. **Capacity:** 300,000 units per month. **Tape Used:** Sunkyoung, BASF. **Loading Equipment:** Tapematic, King. **Packaging Equipment/Fulfillment Services:** Apex, Shape, Weldotron, Scandia, ITI. **COMPACT DISC. Services, prices:** Complete CD manufacturing and packaging available. Jewel, blister and longbox assembly done in-house. **OTHER.** Full service graphics design and printing department. Cassette and CD fulfillment/warehousing services.



MUSICON  
Wilsonville, OR

**MUSICON;** CDM, TM, TD: 27501 SW 95th Ave.; Wilsonville, OR 97070; (503) 682-8468. Contact: Steve Ziegler. **MASTERING. Mastering Console:** DDAAMR-36 automated Tape Machines: Studer 820 1/2", 827 1/4", Otari MTR12 1/2". **Panasonic DAT. Noise Reduction:** Dolby SR/A, Dolby B, C, S, dbx. **Monitor Speakers:** Meyer HD-1, Tannoy DMT15, Yamaha NS-10, Smithline. **Digital Editing Systems:** Studer Dyaxis 2+2. **Signal Processing:** Ever-thing from digital to tube. **Engineers:** Mike Newman, Jim Rogers. **TAPE DUPLICATION. Method of Duplication:** Bin-loop. **Duplicator:** Versadyne 1500 8-slave. **Duplicating Speed:** 64:1, 32:1. **Capacity:** 1,000,000 cassettes per month. **Tape Used:** Sunkyoung, BASF chrome. **Shell Used:** L.E.S., Cosmo. **Loading Equipment:** (6) King 790. **Packaging Equipment/Fulfillment Services:** Apex J card/Norelco inserter, Roldex on-cassette imprinter, ITI & Avery labeling machines, Pakte; boxing machine. **Rates:** Please call **OTHER.** From script to shrinkwrap, we can do it all. From our digital production suite and state-of-the-art studio to our automated duplicating plant, we focus on quality every step of the way. Please give us a call to discuss your project.

**NORTHWESTERN INC.;** TM, TD: 15938 SW 72nd Ave.; Portland, OR 97224; (800) 547-2252; (503) 624-7800. Contact: Jeanne Aldredge, Len Thompson. **MASTERING. Mastering Console:** TAC Bullet. **Tape Machines:** Ampeg ATR-800, Sony PCM-2500 DAT. **Noise Reduction:** Dolby SR, Dolby A, Dolby B, Dolby S, dbx. **Monitor Speakers:** Tannoy NFM-8. **Signal Processing:** Ampeg Compellor-Dominator, BBE 822, UREI 1/3-octave, etc. **Rates:** Please call with any questions.

—LISTING AND PHOTO/LOGO CONTINUED ON NEXT PAGE

**DAT**

**AUDIO GALLERY**

AMERICA'S BEST PLACE TO BUY  
DIGITAL AUDIO TAPE RECORDERS

- Best Prices, Service, Warranty
- Newest Models in Stock
- No Commission Sales Staff
- DAT Accessories, Mics, more

**NOW AVAILABLE:**

**SONY DAT WALKMAN  
TCD-3!**  
World-wide model available

**LOWEST DAT TAPE  
PRICES ANYWHERE!**

**Latest Sony DATs  
and Mics from Japan  
here now!**

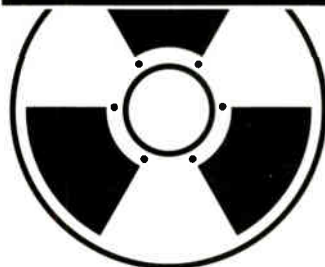
*Call us before you buy elsewhere*

**AUDIO GALLERY**  
**213 • 829 3429**

2716 Wilshire Blvd, Santa Monica,  
CA 90403. FAX: 213 • 829 0304

MC-VISA-AMEX-DINERS-DISCOVER HRS: MON-FRI 10AM-6PM SAT 12PM-5PM

**R&M PRO AUDIO**



**Mastering Tape  
from the Masters  
of Tape...**



**BASF**

Innovative professional products of  
unexcelled quality worldwide from  
the renowned **PEM 468/469 audio  
mastering tapes to High Bias  
Chrome Maxima II cassettes.** BASF  
has the industry's largest selection of  
professional products. Products that  
work for you.

Available from: **R&M PRO AUDIO**  
691 10th Avenue  
San Francisco, CA  
94118-3609  
**(415) 386-8400**

# CASSETTE INSERTS IN

# 7

# DAYS

## CS Printing

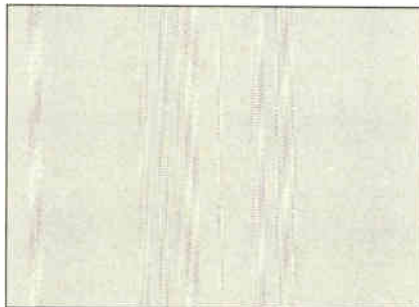
111 Oak Lawn Ave.  
Dallas, Texas 75207  
(214) 747-8705  
FAX: (214) 748-9922

## WESTERN

# Tape & Disc

### Mastering, Pressing, Tape Duplication and Compact Disc Facilities

—LISTING CONTINUED FROM PREVIOUS PAGE



# Northwestern

NORTHWESTERN INC.  
Portland, OR

**TAPE DUPLICATION.** Method of Duplication: In-cassette and bin-loop. **Duplicator:** KABA real time Otari in-cassette, Audio-Tek bin-loop. **Duplicating Speed:** Real time, 8:1, 32:1. **Capacity:** 1-100,000 piece orders our specialty. **Tape Used:** BASF, Agfa, Ampex, TDK, Shell Used; Shape Michelex. **Loading Equipment:** King loaders with Concept Design upgrade. **Rates:** Call us for competitive rates. **OTHER.** Cassette imprinting, complete packaging, labeling and fulfillment services. DAT duplication, custom-load blank cassettes, complete voice recording studio, replication and packaging, VHS duplication with Sony Sprinter. We specialize in custom services designed to meet your exact needs. Give us a call to discuss your next project.

2323 Corinth Ave. Los Angeles, CA 90064

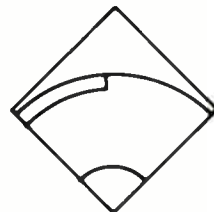


## OCEANVIEW DIGITAL MASTERING

OCEANVIEW DIGITAL MASTERING  
West Los Angeles, CA

OCEANVIEW DIGITAL MASTERING; *CDM, TM*; 2323 Corinth Ave.; West Los Angeles, CA 90064; (213) 444-9904. Contact: Lisa Dunne, Joe Gastwirt, Cal Roberts. **MASTERING.** Mastering Console: Neumann custom, Sonic Solutions digi-

tal. **Tape Machines:** Custom Ampex ATR-104, Sony 1630, various DAT machines. **Noise Reduction:** Dolby, dbx, No-Noise System. **Monitor Speakers:** Custom ATC, Tannoy SGM-10B with Mastering Lab crossover. **Digital Editing Systems:** Sonic Solutions hard disk editing system. **Cutting Lathes:** Sony/Start Labs CD writer. **Signal Processing:** Sontec, Neumann, NTP, etc. **Engineers:** Joe Gastwirt, John Modell. **Rates:** Rate card upon request.



## OPTICAL MEDIA INTERNATIONAL

OPTICAL MEDIA INTERNATIONAL  
Los Gatos, CA

OPTICAL MEDIA INTERNATIONAL; *CDM, CDR*, 180 Knowles Dr.; Los Gatos, CA 95030; (408) 376-3511. Contact: Sylvester Pesek. **MASTERING.** Mastering Console: Topix CD Audio, CD-ROM premastering workstation. **Tape Machines:** Sony DMR 4000, Fostex D-201 DAT. **Noise Reduction:** Sonic Solutions, Sound Tools. **Digital Editing Systems:** Topix workstation, Sonic Solutions, Sound Tools. **Signal Processing:** Sony DFX-2400. **Rates:** Call for Quote. **COMPACT DISC.** Services, prices: CD-Audio, CD-ROM, and mixed mode CD preparation, tape premaster and encoding, Yamaha, Sony reference disc systems. CD pressing in any quantity—24-karat gold compact discs. **OTHER.** Complete services for all CD formats: CD-Audio, CD-ROM, CD-ROM XA, CD-I, including program design, graphics, packaging and fulfillment. Call for price quote.

# phylco audio

(Established 1974)

PHYLCO AUDIO/VIDEO DUPLICATION SERVICE  
Gold Hill, OR

PHYLCO AUDIO/VIDEO DUPLICATION SERVICE; *CDR, TD*; 11693 Old Stage Rd.; Gold Hill, OR 97525; (800) 348-6194. Contact: Robert E. Deates, Gail Husa. **MASTERING.** Mastering Console: Custom. **Tape Machines:** Tascam, TEAC, Sony. **Noise Reduction:** Dolby B, dbx 1. **Monitor Speakers:** Technics. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicator:** Audio/Tek, GRT. **Duplicating Speed:** 32:1. **Capacity:** 200,000+ per month. **Tape Used:** BASF, Sunkong Shell Used; Michelex, Swire, Lenco, Shape. **Loading Equipment:** King 960s. **Packaging Equipment:** Full service, imprinting, J- and O-card printing, custom packages, plastic wrap. **Rates:** Call for quotes. **COMPACT DISC.** Services, prices: Complete package available. Call for quote. **OTHER.** We are a family-owned and operated company. We are practical, hard working and believe in "going that extra mile" for our clients by giving them personalized service, maintaining high-quality standards and delivering on time. Call us, we know you'll be glad you did.

QUAD TECK DIGITAL; *CDM, TM, DM*; 4007 W. 6th St.; Los Angeles, CA 90020; (213) 383-2155; FAX: (213) 383-2158. Contact: Joani Wang.

QUADIM CORPORATION; *CDM, TM, TD*; 31542 Rustic Oak Dr.; Westlake Village, CA 91361; (818) 706-8843; FAX: (818) 706-8426. Contact: Guy Costa.

## A Vision of CD Quality Control

A.I.D.'s Optical Disc Inspection Systems

An affordable high speed defect detection system that monitors the production process can prevent bad product from ever being shipped. Prevention and process information provide a more effective mode of operation, that can and will dramatically increase quality and productivity.

Optical Disc Inspection of:

• CD-Audio • CD-ROM • CD-V, LD 200 and 300 • CD-I • CD-WORM • CD-R (MO) • MD

Options available include:

• Bar Code Reader • High Speed Batch Inspection  
• Catalog ID Verification • CD Counter

## AID

Automatic Inspection Devices, Inc.

Division of THE BART, Inc.

P.O. Box 6295 • Toledo, Ohio 43614 USA • Phone +1 (419) 536-1983 • Fax +1 (419) 536-2793



**RAINBO RECORDS & CASSETTES**  
1738 Berkeley Street • Santa Monica, CA • 90404  
(310) 829-0355 • FAX: (310) 828-8765

**RAINBO RECORDS AND CASSETTES**  
Santa Monica, CA

**RAINBO RECORDS AND CASSETTES; CDR, TM, TD, DM, RM;** 1738 Berkeley St.; Santa Monica, CA 90404; (310) 829-3476; FAX: (310) 828-8765. Contact: Jack G. Brown, Steven E. Sheldon. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicating Speed:** 64:1. **Capacity:** 50,000 per 24-hour day. **Tape Used:** BASF chrome and normal, Sunkyoung chrome and normal. **Shell Used:** Michelex, Lenco. **Loading Equipment:** King 790. **Packaging Equipment/Fulfillment Services:** Scandia. **COMPACT DISC. Services, prices:** CD replication, packaging, blister-pak multiples. **RECORD MANUFACTURING.** Presses: 26 Lened Automatic, Labels, Jackets, Sleeves—Prg Drop Shipping. **Capacity:** 50,000-12", 18,000-7". **Vinyl Used:** Keysor KC 588. **Rates:** Send for brochure or phone. **OTHER.** Over 50 years of serving the music industry. Layout and design department and typesetting at \$50 per hour. Complete CD service, minimum 500 per order, quick turnaround. In-house services. Special prices on combined orders. Large package department specializing in multiple units.

**REALTIME CASSETTE DUPLICATION (DUB TRAIN); CDM, CDR, TM, TD, DM;** 334 NE 89th; Seattle, WA 98115; (206) 523-8050. Contact: Philip "Pip" McCaslin.

**REELTIME TAPE DUPLICATION; TD;** 125 Altana St.; San Rafael, CA 94901; (415) 459-7180. Contact: Tony Johnson. **MASTERING.** Tape Machines: Panasonic 3700 DAT, Nakamichi MR1, Sony DTC-1000 ES DAT, Scully 280 1/2-track, Tascam BR-20, Tascam 112. **Noise Reduction:** Dolby B, C. **Monitor Speakers:** JBL 4411. **Digital Editing Systems:** Sound Tools available. **Signal Processing:** Orban parametric. **Engineers:** Yep. **Rates:** \$40/hour. **TAPE DUPLICATION.** Method of Duplication: In-cassette, Duplicator; (34) Nakamichi MR-2. **Duplicating Speed:** Real time. **Tape Used:** BASF chrome. **Shell Used:** S-Screw—Precision molding. Shape available. **OTHER.** We also have packaging and printing options to fit your budget. After 10 years of service to some of the S. F. Bay Area's most famous (and not so famous) clients, we feel we can satisfy your most exacting standards.

**THE ROCKET LAB**  
San Francisco, CA

**THE ROCKET LAB;** 51 Federal #100; San Francisco, CA 94107; (415) 495-2297. Contact: Anne Maria Scott. **MASTERING.** **Mastering Console:** JVC, Sonic Solutions. **Tape Machines:** Ampex ATR-104, Studer 820, Sony PCM-2500, Panasonic SV-3500. **Noise Reduction:** Dolby SR, A, dbx. **Monitor Speakers:** Meyer Sound Labs HD-1, Velodyne ULD 181L. **Digital Editing Systems:** Studer Dyaxis, Sonic Solutions. **Cutting Lathes:** Scully/Westrex. **Signal Processing:** Masenburger, EAR, Sonic Solutions, Studer Dyaxis, Roland, NTP, Sontec, Dynacord DRP 20. **Engineers:** Paul Stubblebine, Ken  
—LISTING CONTINUED TOP OF NEXT COLUMN

Lee. **COMPACT DISC. Services, prices:** Call for quotes. **OTHER.** CD reference discs available. Complete digital editing including audio-for-video.

**RECORD TECHNOLOGY INCORPORATED**

**RTI-RECORD TECHNOLOGY INC.**  
Camarillo, CA

**RTI-RECORD TECHNOLOGY INC.;** CDM, CDR, TM, TD, DM, RM; 486 Dawson Dr.; Camarillo, CA 93012-8090; (805) 484-2747; FAX: (805) 987-0508. Contact: Linda Pierce Ferguson, Mamie Miller, Don MacInnis, Bill Bauer. **MASTERING.** **Mastering Console:** Amek. **Tape Machines:** Otari, Studer, Sony, Panasonic, Nakamichi. **Noise Reduction:** Dolby, dbx. **Monitor Speakers:** JBL. **Engineers:** Mark Hashimoto, Sean Waldron. **Rates:** Please call for brochure and information package. **TAPE DUPLICATION.** Method of Duplication: Bin-loop. **Duplicating Speed:** 64:1. **Tape Used:** BASF, Sunkyoung. **Shell Used:** Lenco. **Loading Equipment:** King. **Packaging Equipment/Fulfillment Services:** Shanklin. **Rates:** Please call or write for brochure and information package. **COMPACT DISC. Services, prices:** RTI offers complete CD production services. Minimum order quantity: 500. Please call or write for brochure and information. **RECORD MANUFACTURING.** **Presses:** SMT. **Vinyl Used:** Keysor. **OTHER.** Now in its 20th year of operation, RTI specializes in providing top-quality goods and complete, reliable services to independent labels of all sizes and genres. Please call or write for brochure and information package.

**SOUNDWORKS WEST LTD.;** CDM, TM, DM; 7317 Romaine St.; W. Hollywood, CA 90046; (213) 850-1510; FAX: (213) 874-1420. Contact: David Dubow.

**TAPE SPECIALTY INC.;** TD; 13411 Saticoy St.; N. Hollywood, CA 91605; (818) 786-6111; (213) 873-5400. Contact: Customer service.

**Available Now!**

The all new  
Mix Bookshelf  
1991 Catalog.  
Over 600 products.  
More than 175  
new items!

- > Books
- > Videos
- > Tape courses
- > Sounds on CD

Call (800) 233-9604

**AUDIO PRODUCTION & PACKAGING SUPPLIES**



**All items shipped from stock**  
Midwest and West Coast warehouses

ask for our free catalog  
Chicago area Los Angeles area  
(708) 390-7744 (818) 969-8555

**PolyQuick**  
1243 Rand Road, Des Plaines IL 60016

**DIGITAL**  
Hard Disk Recording,  
DAT's, Macintosh CPU's, MIDI  
Instruments, Software & Hardware  
from Coda, Mark of the  
Unicorn, Passport, Dr. T's,  
Opcode, Digidesign, Roland,  
J.L. Cooper & more...

**Mac BEAT**  
**CALL NOW!**  
Free Catalog

**800-MAC-BEAT**  
505-473-4929

# 996

Audio  
Mastering  
Tape

# 3M



available at the newest  
Recording Supply House  
on the West Coast

## 3M AMPEX

- AUDIO AND VIDEO PRODUCTS
- BULK CASSETTES, TDK, MAXELL
- R/R DUPLICATION
- CASSETTE DUPLICATION
- REELS, BOXES, LEADER, SPLICING...

Call for Price List  
Check our low prices  
**1-800-874-3277**  
(619) 670-9598/Fax (619) 660-9083

**SAN DIEGO AUDIO**  
Recording Supplies & Duplication  
OPEN MON THRU SATURDAY

# ROCKET



# L A B

**MASTERING  
DIGITAL EDITING  
COMPLETE CD  
SERVICES**

51 Federal St. #100  
San Francisco, CA 94107  
(415)495-2297  
Fax: (415)495-2684

## OUTSIDE U.S.

Mastering,  
Pressing,  
Tape  
Duplication  
and  
Compact  
Disc  
Facilities

# Tape & Disc

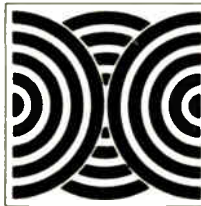
### LEGEND

*CDM*: CD Mastering/  
Premastering  
*CDR*: CD Replication  
*TM*: Tape Mastering  
*TD*: Tape Duplication  
*DM*: Disc Mastering  
*RM*: Record Mastering

**ANALOGUE INDUSTRIES**; 6902 Park Ave.; Montreal, Quebec, H3N 1W9 Canada; (514) 278-8273; FAX: (514) 273-8883. Contact: Rick Dexter.

**AUDIOBEC RECORDING CANADA INC.**; *CDM, TM, TD, DM*; 600 Quest Port Royal; Montreal, Quebec, H3L 2C5 Canada; (514) 384-6667. Contact: Mike Tubie, Jean Desrosiers.

**DEMRO ELECTRONIQUE INC.**; *TM*; 145, Rue Barr #6; Ville St-Laurent, Quebec, H4T 1W6 Canada; (514) 737-0818. Contact: M. Fernand Robillard.

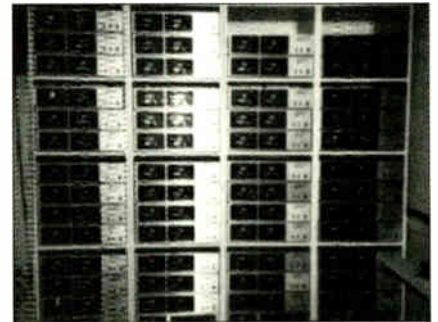


DISQUES  
RSB  
INC.

DISQUES RSB INC.  
St. Laurent, Quebec

**DISQUES RSB INC.**; *CDM, TD*; 8420 Cote De Liesse; St. Laurent, Quebec, H4T 1G7 Canada; (514) 342-8511; FAX: (514) 342-0401. Contact: Richard Belanger.

**THE LACQUER CHANNEL INC./MUSIC INDUSTRY SERVICE CORP.**; *CDM, CDR, TM, TD, DM, RM*; 297 Les Mill Rd.; Toronto, Ontario, M3B 2V1 Canada; (416) 444-6778; FAX: (416) 444-0251. Contact: Ted Carson, mgr.; George Graves, chief engineer; Bob Trowel, graphic manager. **MASTERING.** Mastering Console: Sony SDP-1000 digital transfer console, modified Neve analog console. **Tape Machines:** Studer A80 1/2" and 1/4", Otari 1/2", Studer Revox cassette deck. **Noise Reduction:** Dolby A, SR, B, dbx type I. **Monitor Speakers:** SOTA CF-750 in two acoustically matched sets. **Digital Editing Systems:** (2) Sony PCM-1630, (4) BVU-820, (2) PCM-2500, DAL-1000 limiter. **Cutting Lathes:** Neumann VMS 70 with Zuma audio. **Signal Processing:** Pultec EQ, UREI LA-4 limiter, BBE-202R. **Engineers:** George Graves, Chris Flint, Allan Moy, Ted Carson. **Rates:** \$135 (Canadian funds) per hour, base rate. Call for full quotation on requirements. **TAPE DUPLICATION.** **Method of Duplication:** SAM. **Packaging Equipment/Fulfillment Services:** Imprinted shell or labels. **Rates:** Quoted to client specs./quantity. **COMPACT DISC.** Services, prices: Standard and mini, quantities from 300 up, one to five color imprint. **OTHER.** Record Manufacturing: 7 1/2"-33.3/45 RPM. Quantities from 100 up. Plating services: masters, molds and stampers from lacquers. Full Service: from original location recording (pop to classical) through mixing, editing, mastering, art, type, color seps., printing, CD, cassette, record production & packaging. Tax-free exports arranged.



AUDIOPHILE QUALITY CASSETTES  
DUPLICATED ON THE KABA SYSTEM

LES INDUSTRIES MAGRA LTEE  
Montreal, Quebec

**LES INDUSTRIES MAGRA LTEE**; *TD*; 5722 St-Andre; Montreal, Quebec, H2S 2K1 Canada; (514) 272-8224; FAX: (514) 272-9785. Contact: Mario Paquet, president; Francois Godard, engineer. **MASTERING.** Mastering Console: Chilton DM15. **Tape Machines:** Studer A807-2/2, Studer A807 4/4, (2) Revox. **Noise Reduction:** Dolby B. **Monitor Speakers:** JBL 4112. **Signal Processing:** Klark-Teknik EQ, Symetrix noise reduction. **Engineers:** Francois Godard. **Rates:** On request. **TAPE DUPLICATION.** **Method of Duplication:** In cassette and bin-loop. **Duplicator:** (102) KABA slaves, bin-loop. **Duplicating Speed:** KABA 1-1 and 1-2, AEG Lyre T-40 and 1-80. **Capacity:** 1,200,000. **Tape Used:** Ampex, Sunkyong, Agfa, Shell Used Magnetic Media, Shape Mark IV, Michelex. **Loading Equipment:** (3) AEG Kenos 4, (2) Electro Sound. **Packaging Equipment/Fulfillment Services:** Shrink and print on cassette with Rollex. **Rates:** On request. **OTHER.** KABA, demo, new age on CD, cassette album kits, 48-hour service, Bin-loop copy minimum and choice of colors for printing, DAT-to-DAT copy, reel-to-reel copy. Free demo sample on cassette and studio accessories available. Distributor of Ampex and 3 products.

**MCCLEAR PLACE STUDIOS**; *CDM, DM*; 225 Mutual St.; Toronto, Ontario, M5B 2B4 Canada; (416) 977-9740; FAX: (416) 977-7147. Contact: Kathy Birkett.

**PRECISION SOUND CORP.**; *CDM, CDR, TM, TD*; 3117 Norland Ave.; Burnaby, B.C., V5B 3A9 Canada; (604) 299-4141; FAX: (604) 299-4146. Contact: Sonja Forsyth, Dan Fawcett.

**SONRISE AUDIO DUPLICATION LTD.**; #7 12840 Bathgate Wy.; Richmond, B.C., V6V 1Z4 Canada; (604) 278-1544; FAX: (604) 270-2745. Contact: Lorne Klassen.

You can FAX your listing  
application to: Mix Directories  
(510) 653-5142



## LUNCHING WITH BONZAI

—FROM PAGE 66, PHIL WOODS

when they did the Grammy Legends show last year. Billy asked me to play. Just piano, voice and sax. Eight bars with me. James Woods announced me as the guy who played on the record. We taped it, and I told all my friends. I'm home watching the show, the last segment, and they cut out my eight bars. And James Woods came on and said, "That was Phil Woods." You couldn't see me or hear me. Cutting-room floor. I understand; it's a cold business, but that's pretty cold. And it was one of the few live numbers on the show—most of it was canned. I got my exorbitant fee, and that was it.

**Bonzai:** What do you tell a young player who wants to be a jazz great?

**Woods:** I didn't have the nerve to go up to my heroes when I was a kid and ask them what I should do. The kids today have a lot more chutzpah, but I don't have the answer for their lives. If they have the burn, no matter what I say, they will do it. If I'm doing a lecture or a workshop, I talk to the *iffy* cases. They might think that once they've got their diploma, they are going to go out and play. There's no gigs, kids. If you're a young person and you're toying with the idea of being a brain surgeon or a tenor player, I always say go for the brain surgery. Play tenor for your joy, not for your income. If you are considering two things, then music can't be the prime one. It's only for guys like me who could never entertain any other notion. At 14, I knew it in my bones. Kids major in Coltrane, go on the road with Maynard Ferguson for six weeks, and they find out this is a ridiculous way to make a living. It's bad enough that we've got too many lawyers, but too many tenor players? It's not fair to the kids. It's great for the instrument manufacturers, and great for the schools, great for the teachers. Sure, it's a positive force, but it needs to be dealt with more truthfully. They would lead you to believe that there is such a thing as a jazz business. It's simply not true. The work is mostly in toilets. There are some nice clubs like Catalina's here in L.A., but in general...

**Bonzai:** Can you balance a jazz career with other forms of music that are more lucrative?

**Woods:** I don't think you can water down your lifestyle. I don't think the audience would believe you if you made your living someplace else. Like

the guy who won the lottery and said, "Now I'm gonna play jazz." Sure, until the money runs out. It's a big commitment. Economically, you have to be prepared to scuffle. I didn't make any real bread until I was in my 40s, but I've raised a family and always made a living. And it's still a scuffle to keep a band together. But we're off to do the Monterey Jazz Festival, then Europe for a project for alto sax and orchestra written by my pianist Jim McNeely for the Radio Cologne Big Band. In Europe they still have such things as big jazz bands.

**Bonzai:** Your gripes are valid, but in your own mind, are you a success?

**Woods:** I'm having a ball. I love life. But I must be as abrasive as possible. If people are going to read this, I gotta tell it like I feel it. The band and I are living to the fullest and giving some people some pleasure. I just wish we could reach more folks. I'd like to see 'em lined up at the clubs all over America. ■

*In deference to jazz greats everywhere, Mix roving editor Mr. Bonzai composed this interview on a manual typewriter, in the smoky basement of a long-forgotten club.*

—FROM PAGE 103, STUDIOVIEW

or even two-pair telephone lines, further reducing costs while projecting an enhanced technological image. "This umbrella studio design is not a dream, but a reality that can be attained today with existing technology," he says.

But how realistic is it? Very, he replies, and although he is not actively looking for such an alliance at this point, he says that's due mainly to the fact that the larger studios haven't come to the same realization yet. "It's going to happen," he states. "I think the bigger studios don't know how to do it yet, though. I would consider such a proposition in a test arrangement sometime next year if I can find the right facility to ally with. But the larger studios will have to feel more of an economic crunch to make them more receptive to the idea. And I think that's going to happen in the coming year." ■

*Dan Daley is Mix's East Coast editor. You better watch out, you better not cry, you better not pout, I'm telling you why—Claus Von Bulow's coming to town.*

# 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

## ADVERTISERS INDEX & READER SERVICE PAGE

PAGE	READER SERVICE NUMBER	ADVERTISER	ACTION FAX #	PAGE	READER SERVICE NUMBER	ADVERTISER	ACTION FAX #	PAGE	READER SERVICE NUMBER	ADVERTISER	ACTION FAX #
50	001	Accurate Sound									
154	002	Ace Music Center		IBC	048	DigiTech		109	092	Musician Magazine	
56	003	Acoustical Solutions		56	049	Disc Makers (Cassettes)		86	-	Neve	
162	004	Advance Recording Products		151	050	Disc Makers (CDs)		34	093	Northeastern Digital Recording (NDR)	
151	005	Airshow		53	-	Dolby		82	094	Oceanview Digital Mastering	
106	006	Akai		84	051	Dreamhire		22	095	Opcode	
142	007	AKG Acoustics	(510) 351-0500	140	052	Duplication Specialists		100	096	Optical Disc	
19	008	Alesis (D4)		78	053	EAR Professional Audio/Video		74	097	Optical Media International	
45	009	Alesis (Quadraverb)		90	054	Eastern Standard Productions (ESP)		7	098	Otari	(415) 341-720
76-77	010	Alesis (M-EQ 230)		113	055	Electro Sound		134	099	Paradise Recording	
85	011	Alesis (RA-100)		147	056	El Mar Plastics		63	100	Peavey Electronics	
131	012	Alesis (1622 Mixer)		83	057	Ensoniq		165	101	PolyQuick	
73	013	Allen & Heath	(801) 262-4966	12-13	058	Euphonix		89	102	Professional Audio Services & Supply	(818) 843-575
91	-	American Helix		153	059	Europadisk		124	103	OCA	(513) 681-377
46-47	014	Ampex		124	060	Eva-Tone		108	104	Rainbo Records	
128	015	AMP Services		161	061	First Light Video Publishing	(213) 461-1085	95, 126	-	Ramsa	
IFC-1	016	AMS		167	062	Full Compass		163	105	R & M Pro Audio	
62	017	Apex Machine Company	(305) 563-2844	81	063	Full Sail Center for the Recording Arts	(407) 671-1112	159	106	Rane	
136	018	API Audio Products		66	064	Furman Sound	(415) 927-4548	98	107	The Recording Workshop	
21	019	Applied Research & Technology (ART)	(716) 436-3942	48	065	Future Disc Systems		120	108	Rhythm City	(404) 233-158
117	020	Sam Ash Professional		96	066	Gauss		166	109	Rocket Lab	
119	021	AudioForce		128	067	Gold Line/Loft	(203) 938-8740	101	110	RUSSIAN DRAGON/Jeanius Electronics	(512) 344-329
161	022	Audio Images	(415) 957-1531	61	068	Gotham Technology Group		166	111	San Diego Audio	
65	023	Audio Intervisual Design		87	069	Greencorp		156	112	SAS Industries	
54	024	Audio-Technica		88	070	Grundman Mastering		11, 70	-	Solid State Logic (SSL)	
164	025	Automatic Inspection Devices		40	071	The Hollywood Edge		41	113	Sonic Solutions	
35	026	BASF (Service)		121	072	Imperial Tape Company		134	114	Sonocraft	
155	027	BASF (Burlington)		121	073	Institute of Audio Research	(212) 677-6549	75, 97	-	Sony	
162	028	Bonardi & Associates		27	-	JBL Professional		BC	-	Soundcraft	
99	029	Bop Recording Studios		79	074	Jensen Transformers		160	115	Sound Impressions	
98	030	Boynton Studio		25	075	The Russ Jones Marketing Group		87	116	Sound Recorders	
120	031	Brainstorm Electronics	(213) 475-7570	78	076	JRF Magnetic Sciences	(201) 579-6021	67	117	Soundtracs	
49	032	Burlington Audio/Video Tapes (3M)	(516) 678-8959	51	077	JVC Professional		26	118	Spectral Synthesis	
141	033	Burlington Audio/Video Tapes (Sony)	(516) 678-8959	43	078	KABA Research & Development		88	119	Sprague Magnetics	
140	034	Caruso Music		122	079	K-disc Mastering		4-5	120	Studer Revox	
164	035	CCS Printing		107	080	Klarity Kasette	(207) 873-3924	129	121	Studio Consultants	
122	036	Century Music Systems		155	081	Lentine Music		94	122	Summit Audio	
160	037	Creative Sound Houston		107	082	Leo's Professional Audio Systems	(510) 652-6575	52	123	Sunkyong	
31	038	D & R USA		156	083	Loran Audio		39	124	Sweetwater Sound	
163	039	D.A.T. - Audio Gallery	(213) 829-0304	165	084	MacBeat		38	-	TAC/Total Audio Concepts	(818) 508-978
148	040	The DAT Store	(213) 470-6176	125	085	Mackie Designs		14	125	Tannoy	(519) 745-236
143	041	dBm Technical Services		146	086	Markertek Video Supply	(914) 246-1757	32-33	126	Tascam (MSR-16)	
64	042	dbx Professional Products	(510) 351-0500	158	087	Masterwork Recording		111	127	Tascam (ATR-80)	
8	043	DDA	(516) 420-1863	16-17	088	Maxell		130	128	Thoroughbred Music	
57	044	DIC Digital Supply		110	089	Micro Technology Unlimited (MTU)		105	129	3M Corporation	
58-59	045	Digidesign		130	090	Mix Bookshelf	(510) 653-5142	90	130	UCLA Extension	
44	046	Digital Audio Labs		118	-	Mix Master Directory	(510) 653-5142	112	131	Valley International	(615) 370-590
119	047	Digital Brothers		129	091	Music Annex		55	132	Westlake Audio	
								110	133	Words & Deeds	
								123	134	Yamaha	
								135	135	Yorkville	

# MIX

## ACTION FAX

Use this form to contact advertisers in this issue immediately. All advertisers and some Fax numbers are listed in the Ad Index above. Photocopy this page if you need additional copies of this form.

Advertiser \_\_\_\_\_ Adv. Fax#( \_\_\_\_\_ )

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Tel# ( \_\_\_\_\_ ) Fax # ( \_\_\_\_\_ )

Please send additional information about \_\_\_\_\_ as seen in *Mix*. Please send this information by  Return Fax  Mail  Please have a salesperson contact me.



# FOR MORE INFORMATION

about products and services in this issue of MIX:



Circle the Reader Service numbers that correspond to each advertisement or editorial item in which you are interested. (Maximum 20 numbers.)



Complete *all* information on the card below.



Mail postage free.

# MIX

P.O. Box 5069  
Pittsfield, MA 01203-9900

ISSUE: DECEMBER 1991  
CARD EXPIRES: APRIL 1, 1992

Name \_\_\_\_\_ Phone (\_\_\_\_) \_\_\_\_\_

Company \_\_\_\_\_ Title \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

### 1 Please check the ONE category that best describes your company's primary business activity:

- 01.  Recording Studio (including Remote Trucks)
- 02.  Independent Audio Recording or Production
- 03.  Sound Reinforcement
- 04.  Video/Film Production
- 05.  Video/Film Post-Production
- 06.  Broadcast/Radio/Television
- 07.  Record Co.
- 08.  Record/Tape/CD Mastering and/or Mfg.
- 09.  Equipment Mfg. (including rep. firm)
- 10.  Equipment Retail/Rental
- 11.  Contractor/Installer
- 12.  Facility Design/Acoustics
- 13.  Educational
- 14.  Institutional/Other (please specify)

### 2 Please check the ONE category that best describes your job title or position:

- 15.  **Management**-President, owner, other manager, etc.
- 16.  **Technical & Engineering**-Engineer, editor, design engineer, etc.
- 17.  **Production & Direction**-Producer, director, etc.
- 18.  **Sales & Administration**-Sales representative, account executive, etc.
- 19.  **Artist/Performer**-Recording artist, musician, composer, and other creative functions
- 20.  Other (please specify)

### 3 Please check the statement below that best describes your role in the purchasing of audio, video and musical equipment, supplies and/or services:

- 21.  Recommend the purchasing of a product or service
- 22.  Specify makes, models or services to be purchased
- 23.  Make the final decision or give approval for purchase
- 24.  Have no involvement in purchasing decisions

### 4 What is your company's annual budget for equipment, supplies and services? (check one)

- 25.  Less than \$50,000
- 26.  \$50,000-\$149,999
- 27.  \$150,000-\$249,999
- 28.  \$250,000-\$499,999
- 29.  \$500,000 or more

### 5 This inquiry is for: (check one)

- 30.  Immediate purchase
- 31.  Files/future purchase

### 6 Where did you get this copy of MIX?

- 32.  Personal subscription
- 33.  Recording studio/Production facility
- 34.  Audio/Video retailer
- 35.  Newsstand
- 36.  From a friend or associate

### 7 In which of the following locations does your audio/video production take place? (check all that apply)

- 37.  Commercial (Public) Production Facility
- 38.  Private (Personal) Production Facility
- 39.  Corporate or Institutional Facility

001	031	061	091	121	151	181	211	241	271
002	032	062	092	122	152	182	212	242	272
003	033	063	093	123	153	183	213	243	273
004	034	064	094	124	154	184	214	244	274
005	035	065	095	125	155	185	215	245	275
006	036	066	096	126	156	186	216	246	276
007	037	067	097	127	157	187	217	247	277
008	038	068	098	128	158	188	218	248	278
009	039	069	099	129	159	189	219	249	279
010	040	070	100	130	160	190	220	250	280
011	041	071	101	131	161	191	221	251	281
012	042	072	102	132	162	192	222	252	282
013	043	073	103	133	163	193	223	253	283
014	044	074	104	134	164	194	224	254	284
015	045	075	105	135	165	195	225	255	285
016	046	076	106	136	166	196	226	256	286
017	047	077	107	137	167	197	227	257	287
018	048	078	108	138	168	198	228	258	288
019	049	079	109	139	169	199	229	259	289
020	050	080	110	140	170	200	230	260	290
021	051	081	111	141	171	201	231	261	291
022	052	082	112	142	172	202	232	262	292
023	053	083	113	143	173	203	233	263	293
024	054	084	114	144	174	204	234	264	294
025	055	085	115	145	175	205	235	265	295
026	056	086	116	146	176	206	236	266	296
027	057	087	117	147	177	207	237	267	297
028	058	088	118	148	178	208	238	268	298
029	059	089	119	149	179	209	239	269	299
030	060	090	120	150	180	210	240	270	300

Circle number 300 and we will send you a subscription application, or use subscription form in this issue of Mix.

**Important Notice To Readers:** Reader service inquiries are mailed directly to the advertiser, who is solely responsible for sending product information. *Mix* does not guarantee advertiser response.



Circle the Reader Service numbers that correspond to each advertisement or editorial item in which you are interested. (Maximum 20 numbers.)



Complete *all* information on the card below.



Mail postage free.

# MIX

P.O. Box 5069  
Pittsfield, MA 01203-9900

ISSUE: DECEMBER 1991  
CARD EXPIRES: APRIL 1, 1992

Name \_\_\_\_\_ Phone (\_\_\_\_) \_\_\_\_\_

Company \_\_\_\_\_ Title \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

### 1 Please check the ONE category that best describes your company's primary business activity:

- 01.  Recording Studio (including Remote Trucks)
- 02.  Independent Audio Recording or Production
- 03.  Sound Reinforcement
- 04.  Video/Film Production
- 05.  Video/Film Post-Production
- 06.  Broadcast/Radio/Television
- 07.  Record Co.
- 08.  Record/Tape/CD Mastering and/or Mfg.
- 09.  Equipment Mfg. (including rep. firm)
- 10.  Equipment Retail/Rental
- 11.  Contractor/Installer
- 12.  Facility Design/Acoustics
- 13.  Educational
- 14.  Institutional/Other (please specify)

### 2 Please check the ONE category that best describes your job title or position:

- 15.  **Management**-President, owner, other manager, etc.
- 16.  **Technical & Engineering**-Engineer, editor, design engineer, etc.
- 17.  **Production & Direction**-Producer, director, etc.
- 18.  **Sales & Administration**-Sales representative, account executive, etc.
- 19.  **Artist/Performer**-Recording artist, musician, composer, and other creative functions
- 20.  Other (please specify)

### 3 Please check the statement below that best describes your role in the purchasing of audio, video and musical equipment, supplies and/or services:

- 21.  Recommend the purchasing of a product or service
- 22.  Specify makes, models or services to be purchased
- 23.  Make the final decision or give approval for purchase
- 24.  Have no involvement in purchasing decisions

### 4 What is your company's annual budget for equipment, supplies and services? (check one)

- 25.  Less than \$50,000
- 26.  \$50,000-\$149,999
- 27.  \$150,000-\$249,999
- 28.  \$250,000-\$499,999
- 29.  \$500,000 or more

### 5 This inquiry is for: (check one)

- 30.  Immediate purchase
- 31.  Files/future purchase

### 6 Where did you get this copy of MIX?

- 32.  Personal subscription
- 33.  Recording studio/Production facility
- 34.  Audio/Video retailer
- 35.  Newsstand
- 36.  From a friend or associate

### 7 In which of the following locations does your audio/video production take place? (check all that apply)

- 37.  Commercial (Public) Production Facility
- 38.  Private (Personal) Production Facility
- 39.  Corporate or Institutional Facility

001	031	061	091	121	151	181	211	241	271
002	032	062	092	122	152	182	212	242	272
003	033	063	093	123	153	183	213	243	273
004	034	064	094	124	154	184	214	244	274
005	035	065	095	125	155	185	215	245	275
006	036	066	096	126	156	186	216	246	276
007	037	067	097	127	157	187	217	247	277
008	038	068	098	128	158	188	218	248	278
009	039	069	099	129	159	189	219	249	279
010	040	070	100	130	160	190	220	250	280
011	041	071	101	131	161	191	221	251	281
012	042	072	102	132	162	192	222	252	282
013	043	073	103	133	163	193	223	253	283
014	044	074	104	134	164	194	224	254	284
015	045	075	105	135	165	195	225	255	285
016	046	076	106	136	166	196	226	256	286
017	047	077	107	137	167	197	227	257	287
018	048	078	108	138	168	198	228	258	288
019	049	079	109	139	169	199	229	259	289
020	050	080	110	140	170	200	230	260	290
021	051	081	111	141	171	201	231	261	291
022	052	082	112	142	172	202	232	262	292
023	053	083	113	143	173	203	233	263	293
024	054	084	114	144	174	204	234	264	294
025	055	085	115	145	175	205	235	265	295
026	056	086	116	146	176	206	236	266	296
027	057	087	117	147	177	207	237	267	297
028	058	088	118	148	178	208	238	268	298
029	059	089	119	149	179	209	239	269	299
030	060	090	120	150	180	210	240	270	300

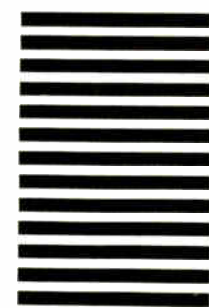
Circle number 300 and we will send you a subscription application, or use subscription form in this issue of Mix.

**Important Notice To Readers:** Reader service inquiries are mailed directly to the advertiser, who is solely responsible for sending product information. *Mix* does not guarantee advertiser response.

# FREE INFORMATION

Return your card today and receive FREE information on products and services in this issue of MIX.

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



**BUSINESS REPLY MAIL**  
FIRST CLASS MAIL PERMIT NO 705 PITTSFIELD MA

POSTAGE WILL BE PAID BY ADDRESSEE

# MIX

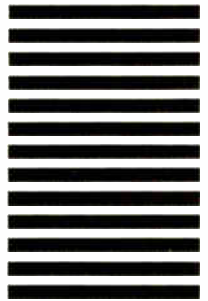
PO BOX 5069  
PITTSFIELD MA 01203-9900



FOLD CARD, SECURE & MAIL  
NO POSTAGE REQUIRED



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



**BUSINESS REPLY MAIL**  
FIRST CLASS MAIL PERMIT NO 705 PITTSFIELD MA

POSTAGE WILL BE PAID BY ADDRESSEE

# MIX

PO BOX 5069  
PITTSFIELD MA 01203-9900



FOLD CARD, SECURE & MAIL  
NO POSTAGE REQUIRED





—FROM PAGE 34, MASTERING ENGINEERS

masters was a big part of the battle on most of these projects. "A lot of the tapes were over at [Capitol's] Los Angeles Distribution Center, sitting in boxes in the corner of this giant room where they used to [manufacture] records, so they were covered with an 1/8-inch of black shit. There were all these priceless master reels there. Some Nat Cole tapes and Sinatra 3-track masters were downstairs here in the [Capitol] Tower library. In those days they did 'A' and 'B' reels, and they would cut up the 'A' reel and keep the 'B' reel intact. On the Sinatra box, in

really committed to making things sound as good as they could. Frank and Nat did most of their stuff in Studio A, and it had a particular sound back then. Now it's been redone to be a multitrack room, and it's a lot different. But that doesn't really matter, does it? With technology, you can make it sound any way you want to.

"My philosophy when I'm working on something like [the Sinatra box] is to stay true to the original performance as much as possible," he adds. "You don't hype something that isn't supposed to be hyped. With 3-tracks, if you try to affect one thing, you're actually going

to be affecting a lot of things, so you have to be very careful. You usually have a little more control on the voice, so that gives you some latitude."

Like Gastwirt, Walsh is high on the Sonic System, particularly the automatic de-click and de-crackle feature. "But as far as removing tape noise," he cautions, "you have to be careful not to go overboard. Use it too much, and it starts to sound real woolly, with no high end and all the air gone. It can get fuzzy around the vocals. My heart of hearts tells me not to use it because it's not the true performance, but it's certainly been useful in some situations." That said, it should be noted that Capitol doesn't own a NoNoise system; they farm that work out to places like OceanView Digital.

Though Walsh has done sterling work on reissue discs by everyone from Steve Miller to Ricky Nelson, he does more conven-

◀ **Larry Walsh**

tional mastering these days, and Kevin Reeves and Bob Norberg have become the label's remastering specialists (see Les Paul reissue story, page 36). "I've gotten more into music editing recently, and album projects where you have multiple producers. What happens on those is you end up with 50 tapes of half-inch, and they need to get it down to an album and make music edits—and, most of all, make it somewhat cohesive. That's a real challenge, and that's what I like the most right now." ■

*Mix* managing editor Blair Jackson recently purchased a NoNoise system to use on his year-old son.



PHOTO, COURTESY OF CAPITOL-EMI MUSIC

some cases I'd have both pulled to check them out. A lot of the 'B' reels had literally not been touched since they were made and were in excellent shape."

Walsh gives very high marks to the original engineers who worked on the classic Capitol Sinatra reels. "Some of those 3-tracks are really great recordings," he says. "In fact, I'd say about 80 percent are phenomenal, better than a lot of digital recordings I've heard. Some of it is the track width and the warmth of the tube electronics. Some of it is just great miking and attention to detail. Those guys at Capitol were

**ONE STEP AHEAD**

**Coming in Mix:  
January 1992**

# Live Sound

• **SOUND REINFORCEMENT**

Features on the Yuming Tour in Japan, Clapton at Albert Hall, Madison Square Garden's Paramount Theater, and How to Become a Tour Manager

Essential Remote Equipment for the Road

• **DIRECTORIES**

Sound Reinforcement Cos.  
Remote Recording Facilities

• **PRODUCER'S DESK**

A profile of Chili Peppers producer Rick Rubin

• **STUDIO VIEW**

An update on MIDI gear for the pro studio by Dan Daley

• **LUNCHING WITH BONZAI**

Master producer and TEC Hall-of-Famer Bruce Swedien

• **PLUS!**

George Petersen reports on the recent AES show in New York; Low-bit A/D Conversion, Part 1; Business Opportunities in Multimedia

**ATTENTION ADVERTISERS:**

Deadline for ad placement is the seventh of the month, two months prior to publication. Call (510) 653-3307 for a 1992 *Mix* Editorial Calendar space reservations and complete advertising information.

# MIX

—FROM PAGE 29, ALAN STOKER

transferring disc material to tape for the archive collection. For the past two years, though, he has been spending at least 50% of his time restoring material for re-releases. One of his most successful projects is the Country Music Hall of Fame Series for MCA Records.

The CMF lab is modest compared to most studios around Nashville. All of the gear is analog, with the exception of a Sony PCM-601, which records onto 1/2-inch videotape. For noise suppression, Stoker uses a Packburn 101. "It reacts to the clicks. Sometimes you have to adjust its rate of attack so that it doesn't take out any musical notes that it thinks are clicks," he says.

When archiving for the Foundation, he transfers the material to 1/4-inch, full-track at 15 ips. "I don't archive to digital," he notes. "I haven't read anything that says that a digital track has a longer shelf-life. I know that if analog is stored properly, it will last. We have paper-backed tape in our archives from the 1940s that still sounds good. Until it's proven to me that digital technology is going to last as long or longer, I'll keep using analog."

Stoker records the material flat, without any equalization. "I wear two hats, an archivist and a restoration engineer," he says. "I don't want to impose what I think is a good sound on an archived recording. Years down the road, there may be new technology that needs the unaltered sound. And if I've added some arbitrary EQ, it may mess it up."

Working with a variety of old discs, it is necessary for Stoker to have the right stylus. He uses seven different sizes of styli for disc playback, which are custom-made in England using a Shure Brothers body fit with custom diamond heads. "Different record labels from different time periods have different-sized grooves," he says. "After cleaning the disc, I pick a stylus and trade them off to see which one has the hotter sound."

Stoker begins his cleaning with a physical inspection where he looks for cracks or any other problems that might cause trouble in the transfer. He then cleans it with a manual parastat and places the disc on a rubber mat on the 16-inch transcription turntable. Stoker uses a paper towel and a cup of warm water to wet the disc. Then he uses a drop of Ivory dishwashing liquid and cleans the disc in a circular motion. He then uses another paper towel to get all the soap off. He keeps the record wet

## "FINDING SOMETHING YOU DIDN'T KNOW EXISTED—THAT'S WHAT'S EXCITING ABOUT BEING A RESTORATION ENGINEER."

during the transfer to prevent minerals from drying on the surface.

"The prep work usually takes ten to 20 minutes," says Stoker, adding that other times it may take as long as two hours, such as the time he restored glass-based discs for the acetate recordings of some early 1940s Grand Ole Opry shows. "There was an inevitable click," he notes, "but it was restored."

An Ampex 440 tape transport, which Stoker affectionately refers to as the "work horse," was converted by Shifrin with Inovonics Electronics. It has a set of three playback heads for 1/4-inch, 1/2-inch and 1/4-inch full-track recordings. "People send me a lot of tapes," Stoker says. "Most of the time I don't know what I'm getting. I can switch between the heads and see how it was recorded."

This "work horse" is also equipped with four speeds, 3-3/4 to 30 ips, with variable-speed operation. The VSO is convenient in transferring warped discs and field tapes. And Stoker notes that some old field tapes were recorded with a car battery during the recording. Using the VSO, he can restore the recording to one speed.

Stoker consistently receives source material in varied conditions. For the MCA Hall of Fame releases, he worked with 78 metal mothers. "They were a little bent, and it takes a long time to center them," he says. Often, he had to file the hole to make it larger or center the disc so that it would spin properly

on the turntable. "I had never worked with metal parts before. It was quite an experience," he adds.

One of his "professional audio restoration tools" that came in handy on the project was a rubber mallet, which he used to pound the bent metal mothers.

Stoker has also received material for this collection and other projects on tape. "I received tapes of metal parts, and they just didn't cut it," he says. "Sometimes, I would just pull the song from the CMF collection and transfer it off [vinyl] disc."

Included in the group of tapes were some tape masters. "The tapes were wound every way possible—heads out, tails out. You never knew what you were going to find," he says. "Sometimes there was no pad in the beginning or on the end," which often resulted in the loss of music on the tracks.

The Foundation begins each collection with a list of recordings that they consider to be most significant. Once the material is found, the burden is then on Stoker to restore the material as best he can and make it all sound uniform—like it is all from the same source.

That's not always easy. For the *Elvis Gospel* RCA release, produced by the CMF, he used a clip from *The Ed Sullivan Show*, which was the first time Elvis sang gospel music for a national audience. The recording came off a kinescope that had a small bandwidth.

One of the perks of restoring material for the Foundation is that new archive material comes in daily. Recently, someone living outside of Nashville found some transcription recordings under the floor of a smokehouse they were tearing down. They turned out to be transcriptions of Border Radio programs by the Pickard Family from 1929. According to Stoker, there are only two known commercial recordings by the Pickards. "That's what's exciting about this, finding something you didn't know existed," he says.

Another project Stoker was privileged to work on was a recording of "I'm Not Coming Home Anymore," cut in May 1942 in Montgomery, Ala., which could be the earliest known recording by Hank Williams Sr. According to Stoker, "The words of the song were published in a songbook, but no one knew how the melody went. Now we do." ■

*Missy Baker is a Nashville-based writer.*



# CLASSIFIEDS

## Acoustic Consulting

**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 & 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 & guarantees satisfaction! Call now for FREE Catalog, specs & Samples.

**NATIONAL FOAM, INC.**

1-800-247-4487  
IN CA (213) 650-8908

3311 De Soto Ave. Suite A  
Woodland Hills, CA 91367

Check C.O.D.

## Employment Offered

Digital Mastering Engineer. Conduct engineering and preparation of digital master tapes, including diagnostic decision making and transfer/conversion of analog and digital recordings. Min. 3 yrs. digital mastering experience. Demonstrated knowledge and abilities in CD remastering, source material EQ, dynamic processing/noise reduction, program compilation/sequencing, analog format copies, digital format interfacing, program structure editing, PQ sub-code engineering, crossfading and fade-chasing techniques, safety/protection format cloning, and verification/proving of digital technical data logs. Salary: \$800/wk. In Hollywood, CA location. Send resume to: Mastering Engineer, c/o 2401 Effie St., Apt. F, Los Angeles, CA 90026.

**NEW, USED, DEMO EQUIPMENT**

**Otari, Trident, Amek, Soundcraft, Tascam, Fostex, Apple, Digidesign**

Pro Tools, Sound Tools, Apple Macs, DAT recorders, tube gear, Neumann mics, Akai A-DAM/DD1000, Trident 24, 24-tk recorders, Eventide H3000, Lexicon 480L/300, Tannoy monitors, Roland R880.

CALL FOR EQUIPMENT FAX LISTING.

EQUIPMENT LEASING AND SYSTEMS SPECIALISTS—NEW AND USED COMPONENTS

EAR PROFESSIONAL AUDIO  
(602) 267-0600

**Soundcraft 6000 28x24** console, pristine cond.—54 inputs. New cost \$21k, sell \$15.5k. Soundtracs MRX 32x16, \$8k. Both consoles home use only. PPG 2.3 vintage synth w/case, perfect cond.—make offer. (212) 242-1039.

TASCAM Model 15, 24x16x8x2 console. Excnt condnt; very clean. Perf for 16-trk recd. Incls: grt desk w/built-in angle rack. Bargain @ \$3,600. TASCAM 388 8-trk mixer/crd, 1/4" reels, low hrs., perf. condnt, \$2k. Jim (602) 863-5827 (a.m.) or (602) 582-3431 (p.m.).

Akai S-1000PB, 32MB, SCSI Interface. Korg Wavestation. 2 Sample Cells w/8MB each. Mint condition (studio only), in original boxes with warranty cards, manuals, etc. (914) 623-7303. Fax: (914) 623-7304.

**SOUND REWARDS**

Buy Factory Direct  
Popular Patterns  
Best Sound Absorption  
Call 1-800-842-9790

**AZUSA**  
Ultimate Sound Absorption

Fax (612) 861-2103  
1401 W 76th St., Suite 250  
Minneapolis, MN 55423

**Equipment For Sale**

\* GOOD STUFF \*

UREI LA-4 pair, \$650  
TC-2290, new, in box, \$1,850  
TC-1140 Parametric EQ, \$350  
B&K 130V Phantom Supply + preamps (for 4003, 4012, etc.), \$700  
Chandler tube preamp, \$100  
John, (916) 363-1096

Video for Audio Lockup. Rebuilt 3/4" VTRs for sale w/warranty (some w/address track time code). JVC: CP-5500U, CP-5550U, CR-6650, CR-8200U, CR-8250U & CR-850U. Some remote control units avail. Sony: VT-5000, VO-5600, VO-5800, VO-5850, BVU-800. (212) 580-9551 / (212) 206-1475. Fax: (212) 929-9082. Michael Temmer.

great body gets new head!

**OPUS** under new ownership.

OUR NEW TECHNICAL & SUPPORT STAFF & SALES ENGINEERS REMAIN UNCHANGED. GIVE US A CALL AT (708) 336-OPUS FOR OUR NEW PROMOTIONAL PRICES OR WRITE US FOR A BROCHURE DETAILING OUR NEW PRODUCT & SERVICE LINES AT 4262 GRAND AVE., GURNEE, IL 60031.

YOUR PROFESSIONAL AUDIO VIDEO SOURCE. **OPUS**

RESULTS in the MGMT of SOUND Specializing in Modular Designs for Pro and Home Studios. Room EQ, tuning and analysis. TEF™, Pink and Swept Methods. Complete Designs, Contracting, Design help and recommendations. (818) 509-5733.

## Business Opportunities

**CASH FOR TRACKS**

We pay cash for your unsold/unclaimed music tracks. All styles; all lengths. No junk please! Send cassette to: PMW, Box 947, Bryn Mawr, PA 19010, or call Andy at (800) 368-0033.

LET THE GOVERNMENT FINANCE your new or existing small business. Grants/loans to \$500,000. Free recorded message: (707) 448-0270. (NL3).

Mix Classifieds (800) 747-3703

**WORLDWIDE DELIVERY!**  
KEYBOARDS & RECORDING EQUIPMENT.  
GREAT SELECTION — GREAT SERVICE.  
OVER 60 YEARS IN BUSINESS.  
**CARUSO MUSIC**  
20 BANK ST., NEW LONDON, CT 06320, U.S.A. (203) 442-9600  
Fax: (203) 442-0463

TAC Scorpion console 28/12/24/2 w/4 patch bays wired w/Mogami cable in custom desk w/12 single rackspaces equally spaced above meter bridge. Comes w/ten 30-ft. snakes, 24-trk & 2-trk harnesses, MIDI stn. & mic input panel. Call Bob, (805) 251-2599.

**PROBLEM SOLVER**



DIGITAL AUDIO FORMAT CONVERSION PLUS 4-OUTPUT DISTRIBUTION AMP  
Adjust all important Channel Status Bits  
Connect AES/EBU & S/POIF in any combination  
Easily interface Consumer/Professional Recorders  
Feed 4 devices (DAT, D/A, etc.) simultaneously  
For Studios, Remote, & Duplication Facilities  
All inputs/outputs transformer coupled  
Upgradeable to more ins/outs  
Reduces Digital Jitter  
MODEL FCN-1...PROFESSIONAL NET \$450  
Ask about our DAT modifications  
For your nearest dealer, contact:  
Digital Domain™ 309 E. 90 St. - B NY, NY 10128 (212)369-2932 FAX 427-6892

**db ENGINEERING**

**We Need Your Clean Used 24 Track !!!**

PHONE (617) 782-4838  
FAX (617) 782-4935

SSL 4040E, \$90K; 6048E/G, \$185K; Neve 8026, \$40K; 8068, \$65K; 8108, 28in, \$60K; DDA DMR12, 56 in, \$41K; Harrison 4032, \$25K. Amek, API, Trident, call. 24+ tracks; Studer A800, \$42K; MCI JH24, \$19K; Otari MTR-90, \$26K; MX80, \$21K. AMS 1580, \$2.8K; RMX16, \$4.5K; Neumann U47, \$3.5K; U67, \$2.5K; Eventide H3000S, \$1.7K.  
New Aphex, Eventide, Tannoy, Adams-Smith, dbx, call.  
List Your For-Sale Items With Us Free!!

# THE NEAT WRAPPER



**FAST • EASY • TIDY**  
Velcro Cable Wraps

**RIP-TIE**

800-348-7600

**Summit**

P.O. Box 7394 San Francisco, CA 94107

## FINE USED EQUIPMENT

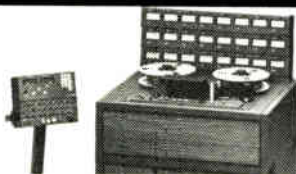
Bought & Sold



**Summit Audio Inc.**  
P.O. Box 1678  
Los Gatos  
CA 95031  
408-395-2448

FAX: (408) 395-1403

## 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**

### TELEFUNKEN

AC 701 tubes, tube condenser microphone: (805) 683-1296.

### TUBE MICS SERVICE

Bought and sold  
Power supplies for any  
Tube Microphone  
Bill Bradley  
(216) 723-6494 or  
Fax (216) 723-6595

Neumann KM140, \$562; EV RE16, \$258; Tannoy SGM-1000, \$2,000/pair; JBL 6290, \$1,128; Crown PS-400, \$596. GREAT PRICES ON AKG, A&H, A-T, CREST, CROWN, DDA, EV, JBL, K-T, SONY, SOUNDCRAFT AND MORE. (800) 222-6460. In WI: (414) 354-2440.

### AMERICAN AUDIO SYSTEMS

API 554 EQs  
(2) with custom rack-mount hardware, XLR and 1/4" connectors and power supply. Excellent condition. \$1,300/BO (415) 586-6221

### BOYNTON STUDIO INC. PROFESSIONAL AUDIO EQUIPMENT SALES SINCE 1953 DAT RECORDERS IN STOCK!

The NEW Aiwa HHB 1 pro portable DAT, Sony & Panasonic portable DATs, Panasonic SV-3700, SV-3900, Tascam DA-30, the NEW JVC DS-DT900n Time Code DAT.

#### ALL IN STOCK!!!

Take advantage of Boynton Studio's large inventory and tremendous buying power. We carry over 100 lines of new equipment.

We accept trade-ins and buy vintage pro audio equipment. Call us today and experience a different kind of Pro Audio dealer.

**BOYNTON STUDIO INC.**  
Morris, NY 13808  
SALES: (607) 263-5695  
FAX: (607) 263-2373

19"x1-3/4" ADC TT  
Patch bays

Balanced/normalised 144 points like new. Cost \$395—Sell \$114.95 each. 4 or more, \$104.95 each.

References available.  
Call J. Patrick Green.  
(916) 922-5060

Greensweep Productions

## Reliable Music

RCA BC-100 MIXER	USED	\$500.00
TASCAM DA 30 DAT	NEW	\$1150.00
TASCAM 688 MIDI STUDIO	NEW	\$2545.00
TASCAM BR-20 2 TRACK	NEW	\$1855.00
TASCAM ES-50/ES-51 SYNC	NEW	\$2518.00
TASCAM MX-80 LINE MIXER	DEMO	\$398.00
TURBO SOUND TDS250 PAIR	NEW	\$2995.00
DIGIDESIGN SOUNDTOOLS PKG.	NEW	\$2899.00
KURZWEIL 250 EXPANDER	DEMO	\$1500.00
AKAI ADAM 12 TRACK DIGITAL	NEW	\$18750.00
E MU E-III SAMPLER	NEW	\$9807.00
OTARI MK-70 16 TRACK	USED	\$11500.00
SOUNDCRAFT 600-24 CONSOLE	USED	\$7495.00
JBL SFG630 AMPLIFIER	NEW	\$549.00
JBL 4425 STUDIO MONITOR PR.	NEW	\$1445.00
JBL 4430 STUDIO MONITOR PR.	NEW	\$2230.00
LEXICON MRC REMOTE	NEW	\$269.00
APHEX STUDIO CLOCK	NEW	\$519.00
YAMAHA REVS PROCESSOR	DEMO	\$995.00
JENSEN SPLITTER 25 CHANNEL	NEW	\$1995.00
AUDIO CONTROL SA3050	NEW	\$829.00
MARSHALL 8004 PREAMP	NIW	\$169.00
STANTON 310B PHONO PREAMP	NEW	\$190.00
NEUMANN E 89	NIW	\$190.00
OTARI CB 41 REMOTE	NEW	\$349.00
FOSTEX 450 AUTOLOCATOR	NEW	\$595.00
LOTS MORE RECORDING, PRO SOUND, AND MUSICAL EQUIPMENT SOLD AT GREAT PRICES		
704/375-8662 EXT. 325		
ALL ITEMS SUBJECT TO PRIOR SALE		

Soundtracs MIDI PC 24 demo, \$6,100. Otari MTR-12c 2-track, \$6,200. Trident Series 65 16x8x16, \$4,995. (4) Tascam broadcast CD701 demo, \$995 new. Tascam 32 demos, \$915. Tascam ATR-60-2N 2-track demo, \$2,495. Adams-Smith Zeta-3, \$2,569. Adams-Smith Zeta-3B, \$2,295. Call (800) 800-4654 or (813) 238-6485, ext. 6.

Visa MC AmEx Welcome!

### THOROUGHbred MUSIC

DAWN: Digital Audio Workstation. 8-track Direct-to-Disk recording works with Mac SE or greater. 3 rackspace unit, ideal for studio or post-production. Like new. \$9,200 or Best Offer. (805) 257-2693.

SOUND WORKSHOP 34, 28 in, 32 frame, full patch bay, full Mogami harnesses. MCI JH-16 16-track, AL II. Both in good working condition. \$14k for the package; will consider separating.

(215) 426-3878.

FOR SALE • AudioFrame complete system, \$25k • Offers considered • Lengthy list of audio/video gear for sale • Call (410) 628-7260 or Fax (410) 628-1977.

Allen & Heath Sigma recording console, lg. frame, 44 channels, \$23k. Studer A80 Mk IV, 24-trk. mint, \$32k; Studer A80 Mk IV, 24-trk., \$28k; Tascam 1" MS 16-trk., 15 ips w/dbx autolocator & stand, \$7k. AHB C.M.C. 32-ch. console, \$5k; AHB 32-ch. Porta outdoor EQ, \$2k; pair of UREI 809 speakers, \$1k. (718) 657-8444.

### Trident Series 65 Consoles w/ Automation

- (1) 24x16x2, (1) 16x8x2 Excellent Condition
  - (1) Auditorics 501 Console
  - (1) EXR Exciter
  - (1) J.L. Cooper MIDI Switcher
  - (2) Jambbox
  - (1) Simmons MIDI Trigger
- Call For Prices  
(513) 241-7475

DDA AMR console, 36x24x24. 84 inputs for mixdown, 2 years old, immaculate condition, extremely low noise. Several major hit records including Michael Bolton, Tony! Toni! Tone! and The Starship. Call The Plant Recording Studios, (415) 332-6100.

Newest name in tube compressor/limiters is the ADL 1000. Hand-built from high-quality components; this LA-2A-type design is quieter, punchier & more transparent. More dynamic range.

Anthony DeMaria Labs  
(818) 340-0228

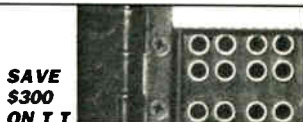
Studer A80 24-track Widebody, excellent condition. Recently reconditioned Mk 3 "tightpunch" headstack, custom remote with A80 Locator, VSO, Fostex 8771 synchronizer interface, \$17,500. Revox B-710 cassette machine, \$500. Call (602) 791-3884.

Soundcraft TS 24 in-line console, 40 frame fitted w/32 inputs, 24 bus, Mastermix Automation, P & G faders, 584 pt. patch bay, peak/vu bar graphs; \$33k.

Contact Steve Feindell  
(902) 423-0233.

## PAQUITO & SONS

Since 1962  
PROFESSIONAL AUDIO AND ELECTRONIC ACCESSORIES FOR THE DISCRIMINATING AUDIO PROFESSIONAL  
CALL OR WRITE FOR YOUR FREE CATALOG  
P.O. BOX 540596 DEPT. M  
MERRITT ISLAND, FL. 32954  
407-453-8120



SAVE \$300 ON T T

**144 POINT PATCH BAYS**  
brokers of fine and coarse used equipment  
audio village 619/320-0728

## Pyramid Audio Inc.

Has "The Cool Guy Stuff"

a full line dealer for:

OTARI • PRO DISK • AKAI • MEYER  
TANNOY • JBL • NEUMANN • AKG  
APHEX • API • SUMMIT • KLARK • DBX  
DRAWMER • LEXICON • EVENTIDE  
SOUNDCRAFT • EV • RAMSA • CREST

financing and much more!

A Full Service Pro Audio Dealer  
Serving Chicago & Midwest for 18 yrs.

**708-339-8014**

# SKB ATA Rack Mounts at an Affordable Price



Meets ATA class 300, Cat. 1 Spec. available in 2U - 12U sizes and is half the weight of conventional wooden racks. Call your local dealer for a demo or fax for the name of your nearest distributor.

434 West Levers Place, Orange, CA 92667 (817) 847-5400 FAX (817) 847-6319





Studio Liquidation! TAC, Neumann, Otari, UREI, AKG & many more. Very low hours, some new in box. Your chance to get well-cared-for equipment from my personal studio for a fraction of new. Package deals available. Dealers welcome. Call John for complete list. (913) 268-0781.

**SMPTE Time Window**  
Reads, writes, displays and regenerates SMPTE. Syncs SMPTE to pitotone or house sync. Much more! Video sync option available. Guaranteed for life! \$349.95  
(800) 969-6434  
MIDIMAN, 30 N. Raymond Ave., Ste. 505, Pasadena, CA 91103.

## EQUIPMENT FINANCING

- ◆ No Down Payment
- ◆ True Lease or \$1.00 Buyout
- ◆ Fixed Rates, Long Terms
- ◆ No Financial Statements Required
- ◆ New or Used Equipment
- ◆ for Transactions Under \$50,000

### CreditLease

Commercial Equipment Financing

To apply or request additional information contact  
Chris Simpson or John McMIndes

**(713) 686-4794**



AVR  
AUDIO VIDEO RESEARCH

#### THE ONLY CALL YOU HAVE TO MAKE FOR OVER 100 LINES, AMONG THEM:

AMS; Adams-Smith; Akai; AKG; Allen & Heath; Ampex; Aphex; API; ART; Ashly; BBE; Beyer; Biamp; Bose; Brainstrom; Bryston; BSS; CAD; Calrec; Calzone; Carver; Casio; Crown; dbx; Digidesign; Drawmer; EAW; Electro-Voice; Eventide; Focusrite; Fostex; Four Design; Furman; Gentner; GoldLine; Harrison (by GLW); HHB; JBL/UREI; J.L. Cooper; Josephson; Klark-Teknik; Klipsch; Lexicon; Nady; Nakamichi; Neve; Numark; Orban; Otari; Panasonic; Perreux; Proco; QSC; Ramsa; Samsen; Sennheiser; Shure; Sony; Soundcraft; Studiomaster; Summit; Symetrix; Tannoy; Tascam; TC Electronics; Telex; 360 Systems; 3M; Threshold; TimeLine; Trident; Twelve Tone; US Audio; Ultimate Support; and Whirlwind.

#### Otari's full-line Dealer for New England and Brazil.

Oferecendo assistencia tecnica e instalacao no Rio e em Sao Paulo.  
**Studio and control room design, technical and maintenance service, plus a large selection of warranted used equipment.**

#### THE WIDEST SELECTION OF USED GEAR

UREI 6250 170 w/CH at 8 ohms, \$350; Panasonic SV-255 portable DAT new in box, \$1,850; Sony PCM-2500, \$1,750 (mint); Fostex D-20 sync DAT new in box, \$5,500; (3) Neumann SM-69 stereo tube w/power supply, \$3,400 ea.; MCI 428 28x24 w/ PB, producer's desk, 16-trk harness, very good cond., \$4,700; Neotek Series IIIc 28x24 w/PB, \$17,500; Wheatstone 24x8x2, TTI patch bay, \$9,800; Soundcraft 600 16x8 no patch bay (mint), \$3,800; MCI 416 24x16x24 w/full PB, EQ modifications, \$6,500; Otari MX-70 w/2 Lynx time code mods., \$15,800; Roland S-550 w/monitor, \$1,450; Akai 1214 mixer/recorder, \$5,500; Otari MkII 2-tr., (mint), \$2,100; Otari (mint) MX-70 w/ auto. loc., \$12,500; Tascam 122, 3-head, \$350; Tascam 38 8-tr., (mint), \$1,800; Roland W-30, \$1,100; Otari MTR-901, \$21,000; Alesis Microverb, \$75; Alesis Midiverb II, \$100; ADA digitizer DOC, \$175.

#### ALL WARRANTIED AND CALIBRATED TO FACTORY SPECS OR YOUR \$ BACK.

WE BUY, TRADE AND LIST YOUR ITEMS FOR FREE.

MC

VISA

65 MAIN STREET WATERTOWN, MA 02172  
TEL (617) 924-0660/FAX (617) 924-0497

#### MERCENARY AUDIO

WE HAVE LISTINGS ON:  
SSLs, APIs, NEVEs, ETC.  
ALSO OTARIs, STUDERs  
AND MOST OTHER HIGH-  
QUALITY  
PIECES OF PROFESSIONAL  
USED EQUIPMENT  
**WE BUY, SELL AND TRADE  
VINTAGE EQUIPMENT**

#### in stock:

FAIRCHILD 670, 660, 666  
TELEFUNKEN ELAM 250, 251s  
NEUMANN U-47s, 86s, 54s, 56s  
STEPHEN PAUL MOD U-87s  
API EQs, COMP/LIMITERS  
UREI 1176LN (BLACKFACE)  
UREI LA-4s, LA-3As  
STUDEER A-80VU 2&4 TRKs  
AKG C-24, C-12s  
SUMMIT & SONTEC EQs,  
COMP/LIM  
SONY C-37a TUBE, C-500  
PULTEC EQP-1, 1A3, MEQ-5,  
EQ-H2  
TELETRONIX LA-2A (MANY)  
NEVE & HELIOS MODULES  
**"this is not a problem"**  
(617) 784-7610 TEL  
(617) 784-9244 FAX

#### MERCENARY AUDIO PERSONAL PROJECT DIVISION

SAME QUALITY-CONSCIOUS  
SERVICE, FOR THOSE WITH  
A SMALLER BUDGET...  
SPECIALIZING IN HOME  
STUDIO DESIGN, MIDI ROOMS  
AND SYSTEM CONFIGURATION

#### in stock:

OTARI MX-5050 Mk III-2  
BEYER MICs...MANY  
MCI JH-16, 16-TRACK  
API 16-INPUT CONSOLE  
ASHLY SG-33 GATES  
**"still not a problem"**  
(617) 784-7544 TEL  
MC/VISA ACCEPTED

Sound Studio/Voice-Over: (2)  
Tascam 42NB 2-trk reel-to-reel  
recdr. Tascam M-35 audio board  
mixer, 4-in/4-out, expandable. (2)  
Russo studio pro master turn-  
tbls-3 spd. (2) Stanton 310-B  
model phono preamps. (2) MI-  
CRO-TRAK 303 tonearms. Tas-  
cam 122-B balanced stereo csste  
recdr. (2) Stanton 680 AL phono  
cartridges. (2) Dahlquist DQM-5  
high-perf, 2-way spkr syst. On-  
kyo TX-25 quartz synthesized  
tuner amplifier. Sennheiser M  
441-U mic. Mic Arm Audiomet-  
rics. Rick (502) 585-1016.

Looking for used or new MIDI equip-  
ment? We've got tons of super clean  
Yamaha, Roland, Korg, Ensoniq,  
Kawai, Akai, Kurzweil and E-mu  
products in stock. Great prices!  
Come in or do it all through the mail.  
Call, write or fax for prices & details.  
Caruso Music, 20 Barst St., New  
London, CT 06320, USA; (203) 442-  
9600. FAX (203) 442-0463.

## MILAM AUDIO

### "THE SOURCE"

SINCE 1967

SPECIALIZING IN  
ALL TYPES OF RECORDING  
EQUIPMENT, SUPPLIES,  
DESIGN, INSTALLATION,  
AND CONSULTATION

CONSOLES ■ D.A.T. ■ MICS  
MULTI-TRACKS  
MONITORS ■ AMPS

CALL US TODAY

## MILAM AUDIO

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

## Omni TECHNOLOGY

HAS THE  
BEST EQUIPMENT  
BEST SERVICE  
BEST PRICES  
PICK ANY TWO & YOU HAVE  
THE BEST DEAL IN

### PRO AUDIO

WE FEATURE:  
Digital Editing ★ Consoles ★ Amps  
Multitracks ★ DAT ★ Monitors  
Effects ★ Studio Supplies  
AUDIO ★ VIDEO ★ DIGITAL  
TAPES & ACCESSORIES

CALL TODAY  
1-800-633-6807

## Omni TECHNOLOGY

FORT LAUDERDALE, FL  
PH.: (305) 583-0626  
FAX: (305) 791-8986

HABLAMOS ESPANOL

#### Klipsch KP 600 Speaker System

two subwoofers cabs, two high-  
midrange cabs, two high cabs:  
with processors and flybars.

Excellent condition. \$10k.  
(508) 429-7973.

(2) Neumann TLM-50 classic omni  
condenser mics, ser. no. 139 & 140,  
as new, \$6,300. (4) Neumann VR-  
76 tube mic preamps in rack-  
mount with power supply, \$5k.  
Steven Lewis (312) 348-1112.

## WHY GO ANYWHERE ELSE FOR ANYTHING AUDIO WHEN WE HAVE IT ALL ?

ADAMS-SMITH AKAI AKAI-DIGITAL AKG API ART ASHLY  
BBE BSS DBX DDA DRAWMER EVENTIDE FOSTEX  
HAFLER KLARK-TEKNIK LEXICON MACKIE DESIGNS  
MILAB RANE SAMSON WIRELESS SENNHEISER  
SOUNDTRACS SONY STUDIOMASTER SUMMIT AUDIO  
SYMETRIX TANNOY T.C. ELECTRONICS TUBE-TECH

# anything audio

## professional audio and video systems

**USED SPECIALS**-Many tube mics in stock now-Neumann U64, U67, U47, M49 and Telefunken 251, AKG C12 & C60. Call for details • Trident 808-Call • SSL 4048E/G 40 I/O e/g \$175K • Neve 8038 \$75K • MCI JH636 w/ Auto, \$25K • API 32x24 Call • (4) Neve 2254 Comp/ Lim \$1400 • (2) Soundcraft 600 32x8/24x8-Call.(3) Neumann U87's \$1.4K • ProDisk 464 12 chn/ 6 hr Call • (2) Studer A800 MK III \$40-44K • Mitsubishi X850 \$85K • Otari MTR90-II \$28K • MCI JH24 \$20K • Fostex G24S \$10K • Fostex E16 \$4K • Neotec Series II 36 I/O \$32K • (5) 8 tracks in stock now btw \$1-4K • (4) Ashly Quad Gates (new) \$479 • Hafler P505 \$500 • Sony 3324, \$49K  
**MANY MORE SPECIALS IN STOCK NOW • ASK ABOUT OUR FREE SHIPPING PLAN • CALL FOR LATEST NEW AND USED SPECIALS • AKG 414 OVERSTOCK SALE**

# 800-788-2875

FAX 617-426-2875

63 MELCHER STREET, BOSTON, MA 02210 617-426-2875

## QUALITY

New & Used  
Equipment

## INNOVATIVE

Studio Design  
& Installation

## RELIABLE

Service &  
Maintenance

## IN STOCK NOW

SOUNDTRACS  
MEGAS STUDIO  
32 X 24 X 24

Call For Pricing

## BUY, SELL & TRADE

Vintage & Used  
Equipment

## AUDIO/VIDEO RENTALS

GET ACQUAINTED!...SAVE!

FIRST TIME CALLERS

MENTION THIS AD FOR SPECIAL SAVINGS

Well-Maintained Equipment  
24-Hour Technical Support

FREE Local Delivery

## DIGITAL dispatch

Analog/Digital Recorders, VTR's,  
DAT's, Mics, Dolby, Outboard Gear

213-664-FAST 800-446-FAST  
OUTSIDE CALIF

A Production Rental Service

365 DAYS A YEAR - ANY TIME, ANYWHERE

## SOUND REINFORCEMENT

## MIXING CONSOLE RENTALS

New Mides XL-3 • ATI Paragon  
New! Soundcraft Europe • Gamble EX56  
Yamaha PM3000 • Gamble HC40  
Ramsa WR-S852 • Gamble SC32  
Ramsa WR-S840 • TAC Scorpion  
New! Soundtracs Sequel • ATL 32x12  
New! Soundtracs Megs • Yamaha 2408  
Soundcraft 800B • TOA RX-7

PSUs • Reverbs • Delays • Multi-FX • Gates  
RDAT • Comp/Limiters • EO'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

## Equipment Wanted

### EQUIPMENT WANTED

BUY OR TRADE  
YOUR USED MULTITRACK  
RECORDERS  
AND CONSOLES  
EAR PROFESSIONAL  
AUDIO/VIDEO  
(602) 267-0600

**Console wanted! Cash immediately \$\$\$\$** for your 32x24 mint console. Sony, Trident, Neve, API or ?? What have you? Part trade. (916) 272-5916.

For Sale: MCI JH-16 24-track 2-inch machine. Excellent shape. 90% head life. Completely reconditioned, \$12.5k. (3) Ashly FET 2000 power amps, \$550 each. Crest 8001 power amp, \$1.5k. Crest 6001, \$1.1k. Call Dan (215) 922-0292.

Fairlight Series III with MFX console. The machine is equipped with (2) 380-megabyte ESDI hard disks and 190 SCSI hard disks, 14 megabytes of waveform RAM, full complement of voices, and streaming tape back-up. Please call (213) 836-7688.

### MCI 428 mixing console

with producer's desk (fully updated). Mogami wiring, harness with speaker shelves. \$8,500. Large oak equipment rack, \$650. Ph. (606) 278-5852

### Equipment For Sale

Synclavier, 56 voice, 24 sampling, 32 FM, 9 Meg RAM, 260 Meg disk, Mac II, Release "O" software. Neve 8048, 32 inputs, 24 monitors, 1081 EQ/preamps, (3) 2254/e comp/limiters. Studer A80 VU Mk IV 1/2", 1202 hrs. Contact (201) 656-7023.

Ramsa WR-8428, 16x16x4x2. Adams-Smith 2600 Power Supply, LTC gen. & rack. Orban 536A De-esser. DX-7 original. All in like new condition. Best offer. No reasonable offer refused. Trade for anything of equal value. (616) 698-0866.

SYNCLAVIER 16 poly, 32 synth, vel keybd, SMPTE, MIDI, Sample to Disk, Kennedy, 4M RAM, 180M disk, cases. \$24,000 OBO. (615) 794-5953.

### OTARI MX-70 16-TR

Very clean, moderate hours, heads like new, best offer. Mark V. (412) 928-0448 9a.m.-5p.m. EST.

## Audio Systems

Pro Audio for  
the Pacific Northwest

## STUDIO-PA-MIDI

KRK-Sanken-Tascam  
Roland-Pro Tools  
AMEK-DDA-TAD  
Crest/Gamble-Sony  
Yamaha-Intersonics-EV  
Bond Electro-Acoustics  
and much more...

Seattle: (206) 632-7810

Portland: (503) 721-0824

YAMAHA PM-1000 MIXER FOR SALE. 32 CHANNELS W/ ROAD CASE. GOOD CONDITION. MAKE BEST OFFER. (914) 251-6805 DAYS, (914) 761-5575 EVES.

Trident Series 80, Studer A80, UREI 813s, Neumann U67, U87, KM54s & KM84s, AMS RM-16, AKG C-24 & C-33, UREI LA-2 & LA-4s, 421s, (2) H&H V800 Amps, Crown Micro-Tech 1200, 25 W Juice Goose, Fostex E-2 15/30 ips w/ ctr trk. Call Chuck @ (713) 686-3558.

## Equipment Rentals

### MICS FOR RENT

ELAM 251s, C12s,  
M50s, U-47s & more.  
\$250/week, 2-week min.  
for qualified renters.

Bill Bradley Microphones  
(216) 723-6494  
FAX: (216) 723-6595

**\$75** Per rental  
week

(914) 591-6667  
1 Ton CM Lodestar  
2 Ton Hoist Also Avail.  
\*Featuring Motion  
Laboratories  
Controllers.

**Greco Motors**  
CHAIN HOIST RENTALS

Mix Classifieds (800) 747-3703

## DESIGN FX AUDIO

DIGITAL AUDIO RENTALS  
Specializing in digital tape  
machines, reverbs and effects  
processors. Technical  
consultation included.

213/838-6555

800/441-4415  
P.O. Box 491087  
Los Angeles, CA 90049



## UNDERGROUND SOUND

## PRO AUDIO RENTALS

Drum Machines • Monitor Speakers • Amplifiers • Microphones  
Noise Reduction • Preamps • Samplers • Synchronizers • Sequencers  
Digital Reverbs • Digital Delays • Digital Tape Mach • Analog Tape Mach  
Compressors • Mixers • Noise Gates • De-Essers/Exciters  
Tube Mics • Equalizers • Custom Racks...We've Got Em

WE CAN BEAT OUR COMPETITOR'S PRICES!!!

Seven Days A Week • 24 Hours A Day  
(615) 321-4081 Pager (615) 664-RENT FAX (615) 327-9285  
-7368





**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

• CASSETTE DUPLICATION  
• VIDEO DUPLICATION  
• BLANK TAPE & SUPPLIES

write or call:  
**Bluegrass  
Duplicating Service**

3137 Pamela Way  
Louisville, Kentucky 40220  
**(802) 451-7248**

**RECORDING &  
DUPLICATING  
SUPPLIES**

**1-800-272-2591**

ARCAL® free catalog

2732 Bay Road  
Redwood City, CA 94063

## Recording Services

**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 Hi-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) 956-0456

Hollywood Studio!  
Trident TSM-40, automation-ready,  
Studer, Dolby, tons of outboard gear,  
mics, large clientele, income, lease  
improvements, low overhead, won't  
last long! \$135,000.  
(213) 288-1130.

HOUSTON STUDIO FACILITY FOR  
SALE. 3 studios—"A", "B" & MIDI  
room. 15 yrs. Great location—Steady  
Clients, Producers, Artists, Ad Agen-  
cies, Local Bands & Labels. Trident  
Ser. 80 w/ auto, Studer 24, Vintage  
Tube mics, Extensive Outboard  
Equip. Make Offer. Call Chuck @  
(713) 686-3558.

ORLANDO, FLORIDA  
Complete 16/35/70mm film and  
digital audio post-production facility  
including theater with interlock  
screening, ADR, re-recording featur-  
ing NED Synclavier 9600 TS 16-trk  
system specializing in mixing 6-track  
Surround Sound, stereo TV and  
Dolby Surround Sound. For details:  
FAX (407) 876-2144.

**STUDIO FOR SALE**  
WORLD FAMOUS  
CHESHIRE SOUND STUDIOS  
Atlanta, GA  
Two SSL Rooms 48-Track—32-  
Track Digital. Owner Retiring.  
Serious Inquiries Only  
(404) 321-3886

Maxi Cassette Prod., Inc.  
1442 E. Arrow Hwy., Unit F  
Irvine, California 92706

REAL TIME & HIGH SPEED DUPLICATION  
CALL TOLL FREE (800) 344-MAXI  
(818) 328-1644 • FAX: (818) 357-1666

AS LOW AS 54¢ PER COMPLETE AUDIO  
CASSETTE PRODUCTION.

AUDIO CASSETTE SPECIAL:  
1000 con. 799¢  
1000 blank 699¢  
500 con. 475¢  
500 blank 375¢  
(1-card not included)

CD SPECIAL  
Complete Production in Jewel Box.  
2195¢  
(Discs and blank CD-R and  
Compact Discs only)

WE BEAT OR MATCH ANY PRICE IN THE CONTINENTAL U.S.A.  
TRY US, WITH OUR HIGH TECH FACILITY & PROFESSIONAL STAFF

SPECIAL QUOTE FOR MAJOR LABEL CUSTOMERS

**If You Don't  
Sound Good,  
We Don't Look Good.**

State of the art mastering, replication,  
and duplication services for the  
discriminating producer.

**TRUTONE INC.**  
310 Hudson Street  
Hackensack, NJ 07601  
Phone: 201-489-9180 Fax: 201-489-1771

**CASSETTE ALBUMS FAST  
no minimum**

BASF Standard & Chrome Tape  
48 Hr. Color Inserts • Cassette Printing  
Blank Cassettes - C-10's - C-92's  
Ampex Reel-to-Reel Tape & Supplies  
Call 904-399-0424 • Fax 904-398-9683

**THE WAREHOUSE  
STUDIO SALES**  
2071-20th Emerson St. • Jacksonville, FL 32207

**DIGITAL TRANSFERS**

**CD MASTERING**

**DIGITAL EDITING**

**CD PRODUCTION**

**db PLUS**  
DIGITAL SERVICES INC.  
BOX 694 LYNBROOK, N.Y. 11563  
(516) 872-2325

WMG JSP  
**JUST LIKE THE MASTER**  
Personal Service  
CUSTOM  
CD/CASSETTE PACKAGES

For Complete Audio/Video  
Services, call Dale at  
**303-469-3509**

quality products competitive prices

For Excellence in Sound Make the **BEST** Choice

RECORD PRESSING  
CASSETTE DUPLICATION  
CHROME BLANKS  
COMPLETE ART DEPARTMENT  
FULL COLOR PRINTING  
COMPLETE PACKAGING

1,000 CASSETTE SINGLES  
300 12" SINGLES  
\$1699.00

1,000 CD'S  
1,000 AUDIO CASSETTES  
\$3199.00

\*Prices include pre-mastering, mastering, label printing, full color  
a card or four panel cd booklet printing, shrink wrap  
Price does not include casing, film or artwork.

145 S. 45th St. VISA  
Richmond, CA 94804 MASTERCARD **1(800)627-7365**

**TAPE DUPLICATION**  
**REAL TIME & HIGH SPEED**  
**DISTRIBUTION & RUSH SERVICE**

**1/4"**

**DUPLICATION SPECIALISTS**  
(N.Y.) 516-432-7107

The deadline to place your ad in **Mix Classifieds** is six weeks prior to the cover date. To place your ad in the next issue of **Mix**, call **(800) 747-3703**.

**AUDIO & VIDEO DUPLICATION**

- Real Time & High Speed Cassette Duplication
- Blank Tapes • Complete Packaging Services
- Every Tape Checked for Quality Control
- Video - 3/4", VHS, Hi-Fi, S-VHS

**1-800-365-TAPE**

Free Catalog **PRO** 91 Haller Ave  
Buffalo, NY 14211

**DISC MAKERS**

User Friendly  
CD, Cassette, &  
LP Manufacturing

FREE design and typesetting  
Call for our free, full color catalog.  
**1-800-468-9353**

1326 N. 4th Street, Philadelphia, PA 19122  
215-232-4140, FAX: 215-236-7763

**Studios  
For Sale**

FOR SALE  
48-trk. World-Class Studio. Beautiful, spacious recording & rehearsal. NEVE VR 60, Flying Faders & Otari. Fred Sands Realtors. Call Nick Doran or Ben Greenberg, (818) 349-1200 or (818) 363-4858.

Recording studio: MCI 636 32/24 auto console; Otari MTR-90II; Fos- tex G16; 2,200 sq. ft.—studio (22' x 34'), control room (17'x20'), reception area, office; established clientele. \$265k. Sacramento, California. Serious inquiries only; Attn: Mix Classifieds, PO Box 8845, Dept. 16, Emeryville, CA 94608.

**Miscellaneous**

**BOYNTON STUDIO INC.**  
In the business of supplying professional audio equipment to professionals since 1953 — Over 100 brands of new equipment. Clean used equipment.  
**GIVE US A CALL AT**  
(607) 263-5695  
FAX (607) 263-2373

**RACK ACCESSORIES**  
Full line of accessories. Spacer panel, shelves. Drawers. Vent & fan panels. Custom products. We offer many other lines of accessories. Write/fax/call—JCT Sheet Metal Inc., 5791 Plunkett St., Bay 9, Hollywood, FL 33023; (305) 989-7559.

Full Color  
Cassette Inserts  
Only \$109

**1-800-95J-KARD**  
Free Catalog Anderson Graphics

Disc Mastering and Record  
Production. CDs, LPs, 45s.  
**CASSETTE DUPLICATION  
THE CUTTING EDGE**  
Box 217M  
Ferndale, NY 12734  
(914) 292-5965

**3M AGFA AMPEX SONY**  
Audio, video & digital tapes  
DAT recorders  
Neumann, Sennheiser, B & K,  
Shure & Crown Products.  
**R & M PRO AUDIO**  
691 10th Ave., S.F., CA 94118  
(415) 386-8400

CD Replication & Cassette Duplication

RealTime & HighSpeed...  
Digital Editing  
Graphic Design  
Printing  
Full Packaging  
CD & Cass. Pkgs.  
**ProtoSound**  
One Mill St.  
Burlington, VT  
05401  
**802.864.9020**

**COMPLETE CD AND CASSETTE  
PRODUCTION**

**DIGITAL HOUSE**  
212-333-5950

MASTERING REPLICATION  
PRINTING TOTAL PACKAGING  
POSTERS GRAPHIC DESIGN STUDIO  
PERSONALIZED EXPERT SERVICE  
101 WEST 57TH ST. NEW YORK, N.Y. 10019  
"FOR THOSE WHO HEAR THE  
DIFFERENCE"



# A human voice harmony processor that actually sounds human.



The Vocalist from Digitech

Finally a voice processor that really sounds like human voices, not like chipmunks.

The Vocalist™ from Digitech® delivers *real* voice harmony and pitch correction. It even remembers every song and never gripes about rehearsal time.

The Vocalist is perfect when

you need one or two harmonies for back-up, or when you need up to five harmonies to save time in the studio.

No other harmony processor

from Digitech. It's about time.

Send \$10 for the Vocalist Video Demo.

**Digitech**®

The Sound of the '90s

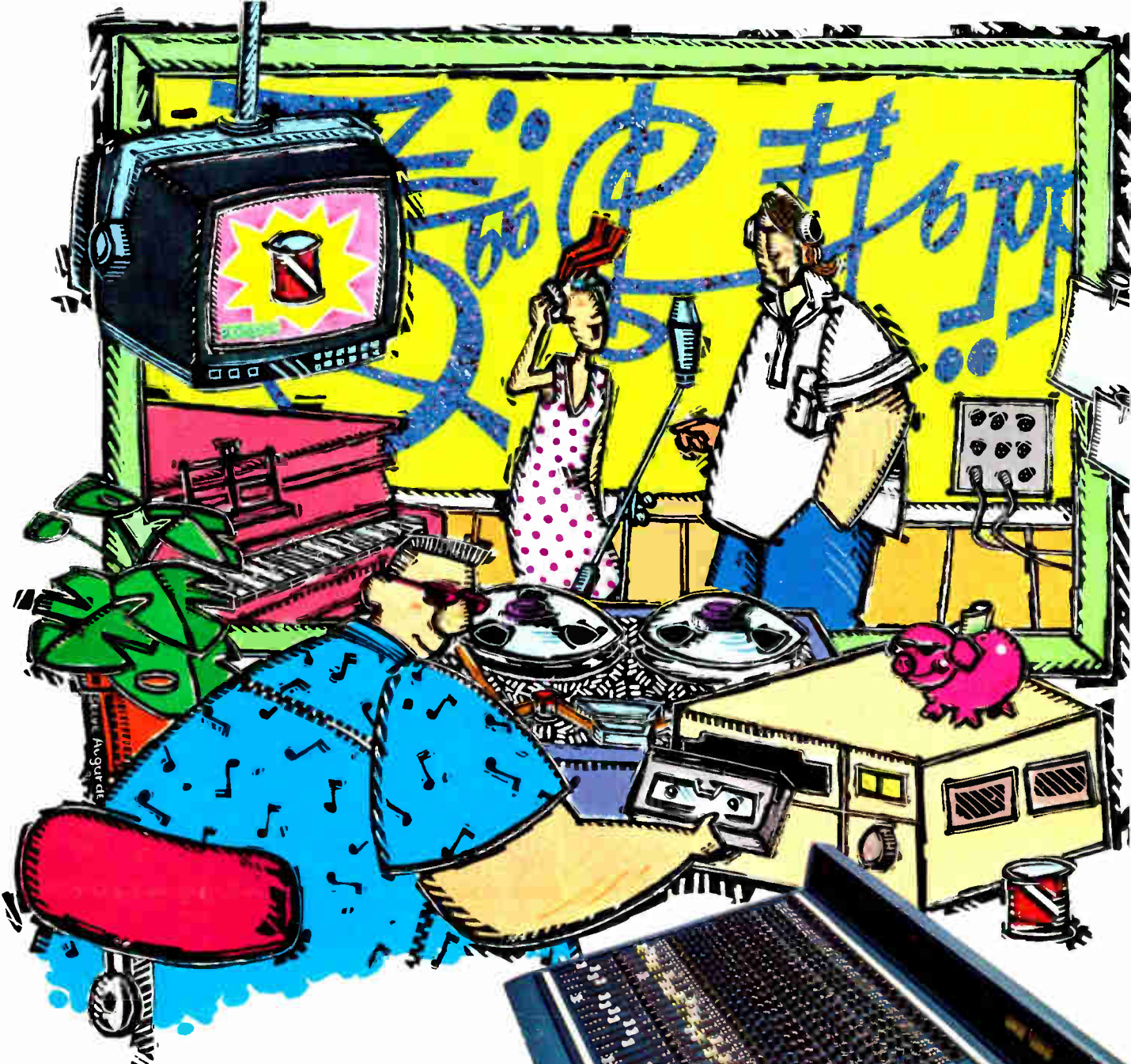
A Harman International Company

TECH STUFF:		
<ul style="list-style-type: none"> <li>• Up to 5-part harmonies.</li> <li>• Vocoder mode.</li> <li>• Pitch correction.</li> <li>• Pitch randomizing.</li> <li>• On-board synth and keyboard for cue-in tone, harmony editing and selection.</li> </ul>	<ul style="list-style-type: none"> <li>• Programmable vibrato-speed, depth, and attack.</li> <li>• No delay time between patch changes.</li> <li>• Built-in mic preamp and headphone jack.</li> <li>• Simplified harmony programming.</li> </ul>	<ul style="list-style-type: none"> <li>• Full MIDI implementation.</li> <li>• Real time key changes.</li> <li>• 128 user-definable programs and 128 factory presets - each with 4 variations.</li> <li>• And much more.</li> </ul>

can give you natural sounding, human voice harmony and can compensate for off-key voices.

The Vocalist





## For The Artist In Every Engineer.

In recent years, recording methods have changed drastically. In today's studio, you're the artist, the engineer and producer. Designing today's professional recording or production studio presents unique challenges, like finding a flexible full featured console that fits your space, budget and audio requirements.

Soundcraft's Sapphyre lets you create both music and a recording environment the way you want it. Sapphyre gives you 32 track performance normally found in consoles many times the price. A noise gate on every channel. Great sounding four band EQ. A variety of modules to suit the way you record. And five frame sizes.

Sapphyre. Its unique, flexible routing and design approach puts everything you need where you need it. Direct to tape routing with grouping to any channel provides total creative flexibility. The in-line design takes up less space than conventional consoles and is as intuitive to use as any split console. Whether you're building a home studio, adding a video post suite or designing Studio Two, Sapphyre will bring out the artist in you.

Now you can afford the best. Hear Sapphyre today at your authorized Soundcraft dealer.

# Soundcraft

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

H A Harman International Company

# Sapphyre